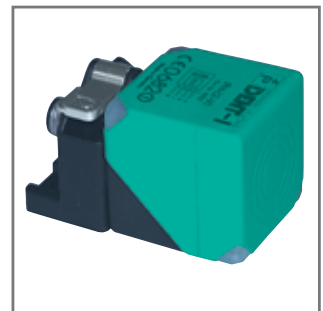




CATALOGUE

IDENTIFICATION SYSTEMS



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1 Introduction

1.1 What is an identification system?

Automatic object identification has found its way into many areas of industrial production. It provides information about goods, commodities and people, and therefore enables a correlation between data and material flow. For example, identifications systems are used for the following tasks:

- Automation of production processes
- Simple inventory control and material posting
- Protection against theft and product counterfeiting
- Networking of supply chains

We offer a comprehensive product range with various technologies.

RFID systems (RFID = radio frequency identification) are predominantly applied in harsh industrial environments, as robust and chemically resistant transponders are available for this. Various frequency ranges are applied in these systems. Pepperl+Fuchs offers inductive systems (125 and 250 kHz and 13.56 MHz), UHF systems of 868 MHz, and microwave systems of 2.45 GHz. Each frequency range has special features, which is why the relevant application determines the optimum identification system.

Optical identification systems such as barcode and Data Matrix systems work with laser light or digital photo technology. Pepperl+Fuchs has a wide product range of readers for one dimensional (barcode) and two dimensional (Data Matrix) codes for a variety of applications.

With the **OIT identification system for high temperatures**, Pepperl+Fuchs offers an optical identification system working with methods of industrial image processing, which is applied within automated manufacturing processes.

For the identification system for high temperatures, read only tags of solid metal plates with a perforated matrix are applied, which are designed for use in temperatures up to 500°C and suitable for high mechanical stress.



1.2 Why an identification system is worthwhile



Identification systems save time and money in automated production and provide smooth processes thanks to their integration into the logistics concept. Product tracking and identification is possible during the entire production process. Sometimes the transponder even remains on the final product like a barcode and shows the entire chain right up to the end customers. New cost-effective designs of transponders and entire logistics concepts open up new uses here.

1.3 Data security



Data security can be endangered by external influence on the transponder as well as by faulty data transfer.

Barcode and Matrix Code systems have very high data security. This can be increased significantly by multiple readings.

Electromagnetic identification systems with encapsulated EEPROM or FRAM memories in the transponders are electrically and mechanically robust and offer almost 100% read out security with a data hold time of over 10 years.

1.4 Network connection

All common fieldbus interfaces where command control takes place are available for the identification systems. A defined restart after a system crash with data loss is possible with redundant data storage in the transponders on site.

1.5 Specifications, standards and directives



The AIM (Association for Automatic Identification and Mobility), of which Pepperl+Fuchs is a member, promotes the application and standardization of identification technology. More information is available at www.aim-d.de.

The R&TTE (1999/5/EC) Directive on radio equipment also covers RFID identification systems. This prescribes requirements that are in compliance with the following standards. The relevant standards cover the topics of health (e.g. EN 50371), EMC (e.g. EN 301489), use of the radio frequencies spectrum (e.g. EN 300330/EN 300440) and electric safety of plants (e.g. EN 60950).

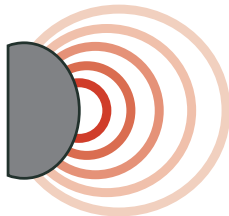
2 Selecting suitable technology

Whether you decide to go for an RFID system or an optical system, essentially depends on the requirements of your application and costs. Both systems have advantages depending on the place and conditions of use.



RFID systems

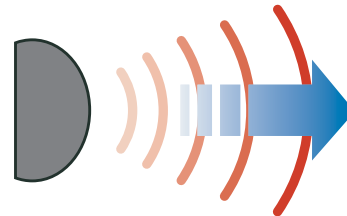
Inductive



... operate in accordance with the transformer near field principle. The frequencies used are between 125 kHz and 13.56 MHz. Higher frequencies enable faster communication. The 125 kHz systems offer the advantage that many robust read/write tag designs are available on the market which are ideal for automation in industrial applications: even installation in metal is possible by means of a read/write tag with an integrated ferrite core, and as a rule are chosen if a robust read/write tag with a higher degree of protection is required, if the read-in and read-out of data takes place in the process and if many read/write tags are needed at a low price.

These systems are particularly suitable for applications in the automation sphere, material flow control in production technology, and in the acquisition of operating data or the identification of objects such as storage vessels, pallets or workpiece carriers.

Microwave



... operate in accordance with the Hertzian dipole principle with detached waves. The transmission frequency is 2.45 GHz. The read/write tags contain a battery that supplies the internal electronic system. Therefore no energy needs to be transferred via the transmission signal in the read/write tag. In this respect, long sensing ranges of several meters can be achieved with this technology. The communication is passive, in which the waves from the read/write tag are reflected or absorbed (backscattering). For the detection of larger objects or with an object position not precisely defined, microwave systems are offered and as a rule are chosen if larger distances need to be bridged and if data is exchanged and again stored in the read/write tag.

Typical applications include the identification of larger objects such as, for example, in automotive manufacture, in logistics, in barrier control for vehicles and for focused identification of several goods on one conveying unit.



Optical systems

Barcode



... scan barcode and relay the information contained in it. The scan takes place according to the reflection principle with red light. Compatible gateways are available to relay the information to the higher level fieldbus. These compact readers can be used both for close range as well as up to a distance of approx. 250 cm at 100 to 1200 scans per second and as a rule are selected for a purely read only system if the costs of the read only tags must be minimal and if no soiling, moisture or mechanical stress is to be expected.

The systems are used in storage technology, open cycles and supply chains.

Data Matrix



... also read two-dimensional codes. Compared to barcodes, these can contain very large amounts of data in a very small space. Up to 1.5 kByte can be encoded in a Data Matrix code with in-built error correction. The bit code set in a chess board style fashion is quickly recorded in an image, internally evaluated and relayed as encoded information. The Pepperl+Fuchs control interface units can read the Data Matrix code with very high detection reliability on various surfaces and at high speeds up to 20 m/s.

Typical areas of application are identification of individual parts in production, documentation handling, traceability and pharmaceuticals.

Code sheet



... evaluate the hole pattern in solid metal plates, which are designed for use in temperatures up to 500°C and suitable for high mechanical stress. The code can be similar to Data Matrix code or be individually defined. The data can be redundant and thus fault tolerant. Dirt and overpainting do not interfere with the code since contrast on a defined background is always optimal with the integrated infrared LED illumination.

The systems are used in drying plants that harden adhesive bonds and painting lines that make tough demands on the attached read only tags.

2.1 Identification systems overview

IDENTControl control interface and IDENTControl Compact

					
Interface	Ethernet	PROFIBUS	Serial RS 232/485	DeviceNet	INTERBUS
Protocol	Ethernet/IP MODBUS/TCP PROFINET IO TCP/IP (Port 10000) SMTP, HTTP	PROFIBUS DP	ASCII	DeviceNet CIP	INTERBUS remote bus
Order code	IC-KP-B12-V45	IC-KP-B6-V15B IC-KP-B6-2V15B IC-KP-B6-SUBD	IC-KP-R2-V1	IC-KP-B7-V95	IC-KP-B5-V23
Page	44-45	48-53	56-57	54-55	46-47

			
Interface	Ethernet	PROFIBUS	Serial RS 232/485
Protocol	Ethernet/IP MODBUS/TCP PROFINET IO TCP/IP (Port 10000) SMTP, HTTP	PROFIBUS DP	ASCII
Order code	IC-KP2-2HB17-2V1D IC-KP2-1HB17-2V1D	IC-KP2-2HB6-V15B IC-KP2-1HB6-V15B	IC-KP2-2HRX-2V1 IC-KP2-1HRX-2V1
Page	36-39	32-35	40-43

125 kHz R/W heads

							
Sensing range							
Read distance	1 ... 50 mm	1 ... 65 mm	2 ... 45 mm	1 ... 75 mm	0 ... 100 mm	0 ... 100 mm	2 ... 155 mm
Write range	0 ... 40 mm	1 ... 55 mm	2 ... 35 mm	2 ... 65 mm	0 ... 80 mm	0 ... 80 mm	2 ... 140 mm
Width max.	40 mm	55 mm	65 mm	60 mm	80 mm	80 mm	145 mm
Housing size	Ø 18 x 66 mm	Ø 30 x 66 mm	80 x 28 x 12 mm	67 x 40 x 40 mm	113 x 80 x 40 mm	103 x 80 x 40 mm	190 x 140 x 40 mm
Order code	IPH-18GM-V1	IPH-30GM-V1	IPH-F61-V1	IPH-L2-V1	IPH-FP-V1	IPH-FP7V4A	IPH-F15-V1
Page	62	63	64	65	66	67	68

125 kHz - RFID Transponder

						
Special features	• Glass tube	• Higher temperature range by the use of epoxy housing	• Higher temperature range by the use of epoxy housing	• Flat wheel shape	• Very thin • transparent	• Key fob • various colors
Housing size	Ø 3.15 x 13 mm	Ø 12.4 x 2.2 mm	Ø 16 x 3 mm	Ø 20 x 3 mm	Ø 20 x 0.6 mm	46.5 x 35 x 5 mm
Order code						
Read only tag	IPC02-3GL	IPC02-12	IPC02-16	IPC02-20P	IPC02-20CD	
programmable*		IPC11-12				
Tag				IPC03-20P		IPC03-20K*
Page	69	70+79	71	72+89	73	86+87

						
Special features	• ISO credit card format	• Mounting hole • High temperature range	• Mounting hole • Flat wheel shape	• Mounting hole • Flat wheel shape	• Mounting hole • High temperature range	• Mounting hole • Flat wheel shape
Housing size	85.6 x 54 x 0.8 mm	Ø 26 x 4 mm	Ø 30 x 3 mm	Ø 50 x 5 mm	Ø 68 x 11.5 mm	Ø 100 x 1.6 mm
Order code						
Read only tag	IPC02-C1	IPC02-26-T6	IPC02-30P	IPC02-50P	IPC02-68-T7	
programmable*			IPC11-30	IPC11-50		
Tag	IPC03-C1		IPC03-30P	IPC03-50P		IPC03-100
Page	78+94	74	75+80+90	76+81+92	77	93

125 kHz - RFID Transponder for mounting in or on metal

						
Special features	• installable in metal • For press-fitting	• installable in metal • For press-fitting	• installable in metal • External thread for screw-in	• installable in metal • External thread for screw-in	• installable on metal • Mounting hole	• Mounting hole • Large memory capacity
Housing size	Ø 12.2 x 6 mm	Ø 24 x 11 mm	Ø 16 x 6 mm	Ø 30 x 21 mm	Ø 58 x 20.1 mm	Ø 58 x 20.1 mm
Order code						
Read only tag						
programmable*						
Tag	IPC03-12.4	IPC03-24	IPC03-16GK	IPC03-30GK	IPC03-58	IPC12-58-64k
Page	82	83	84	85	92	88

* enables defining read only code that will be stored once or alternatively can be modified.

250 kHz R/W heads

			
Operating distance max.	42 mm	66 mm	100 mm
Housing size	Ø 18 x 66 mm	80 x 28 x 12 mm	103 x 80 x 40 mm
Order code	ISH-18GM-V1	ISH-F61-V1	ISH-FP-V1
Page	98	99	100

250 kHz RFID transponder

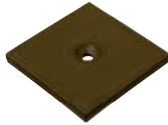
							
Special features	• Smallest models flush mountable	• Standard for machine tools	• Epoxy housing	• Shell forms for moisture protection	• Shell forms for moisture protection	• External thread for screw-in	• For press-fitting
Housing size	Ø 8 x 5 mm	Ø 10 x 4.5 mm	Ø 12 x 6 mm	Ø 12.4 x 6 mm	Ø 15 x 9 mm	Ø 16 x 6 mm	Ø 24 x 11 mm
Order code							
Read only tag	ICC-8A		ICC-12A	ICC-12A-T1*		ICC-16GKA	
Tag	IDC-8-1K	IDC-10-1K	IDC-12-1K		IDC-15-1K	IDC-16GK-1K	IDC-24-1K
Page	101+105	105	101+106	102	106	102+103	107

						
Special features	• External thread for screw-in • Protective caps available	• External thread for screw-in • Protective caps available	• Mounting flange	• Mounting hole	• 5 Mounting holes • Flat structure	• Mounting hole • Integrated spacer
Housing size	Ø 30 x 21 mm	Ø 30 x 21 mm	Ø 31 x 17 mm	Ø 50 x 7 mm	50 x 50 x 8 mm	Ø 58 x 20.1 mm
Order code						
Read only tag	ICC-30GKA-T1*	ICC-30GKA-T3*		ICC-50A		
Tag		IDC-30GK-1K	IDC-30F-1K	IDC-50-1K	IDC-50F-1K	IDC-58-1K
Ex-read only tag	ICC-30GK-EXIA					
Ex-read/write tag	IDC-30GK-EXIA-1K		IDC-30F-EXIA-1K			
Page	103+111+112	103+109	107+113	104+108	108	110

13.56 MHz R/W heads

				
Sensing range				
Read/write range	0 ... 55 mm	0 ... 50 mm	0 ... 130 mm	0 ... 300 mm
Width max.	45 mm	45 mm	100 mm	320 mm
Housing size	Ø 18 x 66 mm	80 x 28 x 12 mm	103 x 80 x 40 mm	298 x 298 x 33.5 mm
Order code	IQH1-18GM-V1	IQH1-F61-V1	IQH1-FP-V1	IQH-F100-V1
Page	118	119	120	121

13.56 MHz RFID transponder

						
Special features	• Mounting hole	• Mounting hole	• Mounting hole • High temperature range	• Installable on metal • Good resistance against environmental influences • Mounting hole	• ISO credit card format	• Small credit card format
Housing size	Ø 30 x 3 mm	Ø 50 x 5 mm	50.8 x 50.8 x 7.3 mm	Ø 58 x 20.1 mm	85.6 x 54 x 0.8 mm	42.3 x 30 x 0.6 mm
Order code	IQC21-30P	IQC21-50P	IQC21-50F-T10*	IQC21-58	IQC22-C1	IQC22-C5
Page	122	123	124	125	126	128

						
Special features	• Mounting flange	• High temperature range			• Mounting hole	• Mounting hole
Housing size	96 (116) x 64.5 x 5 mm	Ø 22 x 3 mm	38 (Ø 39) x 21.5	Ø 20 x 2.8 mm	Ø 30 x 2.8 mm	Ø 50 x 3.3 mm
Order code	IQC22-C4	IQC22-22-T9*	IQC22-39	IQC33-20	IQC33-30	IQC33-50
Page	127	129	130	131	132	133

* transponders with T1, T3, T9 or T10 in the order code have an increased temperature range.

868 MHz R/W heads + RFID transponder

868 MHz R/W heads

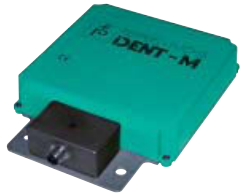
	
Sensing range	
Read/write range	0 ... 5 m
Housing size	180 x 320 x 110 mm
Order code	IUH-F117-V1
Page	136

868 MHz read/write tag

	
Housing size	100 x 72 x 20 mm
Order code	IUC71-F150-T11
Page	137

2.45 GHz R/W heads + RFID transponder

2.45 GHz R/W heads

		
Sensing range		
Read/write range	0 ... 0.5 m	0.2 ... 2 m
Housing size	190 x 140 x 40 mm	190 x 140 x 40 mm
Order code	MVH500-F15-V1	MVH2000-F15-V1
Page	140	141

2.45 GHz read/write tag

	
Housing size	90 x 60 x 19 mm
Order code	MVC-60B-64K
Page	142

Handhelds

			
Operating frequency	125 kHz	250 kHz	13.56 MHz
Suitable for transponder types	IPC02-... IPC03-... IPC11-... IPC12-...	ICC-... IDC-...	IQC21-... IQC22-... IQC33-...
Housing size	111 x 46 x 42 mm	111 x 46 x 42 mm	111 x 46 x 42 mm
Order code	IPT-HH20	IST-HH20	IQT1-HH20
Page	170	171	172

Accessories can be found on page 143.

125 kHz R/W system (System IP)

R/W head:

			
Operating distance	Max. 100 mm	Max. 100 mm	Max. 100 mm
Housing size	80 x 80 x 49 mm	80 x 80 x 49 mm	80 x 80 x 49 mm
Order code	IPT1-FP	IPT-FP	IPT-FP3A6-R2
Page	176	177	189

Lower section with interface:

				
Interface				
Physical	RS 232/ RS 485	RS 232/ RS 485	RS 485, addressable, up to 30 lower sections, address 1-30	RS 485, addressable, up to 30 lower sections, address 1-30
Protocol	ASCII	ASCII	ASCII	ASCII
Order code	U-P3-RX	U-P3V4A-RX	U-P3-R4	U-P3-R4-V15
Page	178	179	180	181

						
Interface						
Physical	RS 485	RS 485	RS 485	RS 485	RS 485	RS 485, addressable, up to 30 lower sections, address 1-30
Protocol	PROFIBUS DP	PROFIBUS DP	PROFIBUS DP	INTERBUS remote bus	INTERBUS remote bus	ASCII
Order code	U-P6-B6	U-P6V4A-B6	U-P6-B6-V15B	U-P6-B5	U-P6-B5-V	U-P7V4A-R4
Page	182	183	184	185	186	187

RFID transponders can be found on page 188 or from page 69.

Accessories for all lower sections and interfaces can be found on page 143

2.45 GHz R/W system (MT system)

R/W system:

	
Operating distance	Max. 6 m
Interface	
Physical	Ethernet
Protocol	TCP/IP
Order code	MTT6000-F120-B12-V45
Page	192

RFID transponders:

				
Read speed	dependent on the operating mode and number of read/write tags in the read zone between 80 ms and 2700 ms	dependent on the operating mode and number of read/write tags in the read zone between 80 ms and 2700 ms	dependent on the operating mode and number of read/write tags in the read zone between 50 ms and 2000 ms	dependent on the operating mode and number of read/write tags in the read zone between 50 ms and 2000 ms
Write speed times	-	-	dependent on the operating mode between 200 ms and 6000 ms	dependent on the operating mode between 200 ms and 6000 ms
Order code	MTO-C1	MTO-C2	MTM-C1	MTM-C2
Page	194	195	196	197

Accessories can be found on page 198.

Barcodes

					
Read distance	up to 240 mm	35 ... 305 mm	10 ... 220 mm	40 ... 600 mm	500 ... 2500 mm
Scan rate	800/sec or 1200/sec	270/sec	350/sec or 500/sec	500 ... 1000/sec	600 ... 1200/sec
Order code	VB6-240	VB8-305	VB12-***	VB14N-***	VB34-2500
Page	202	204	206+208	210+212	214

Data Matrix: Static devices

			
Read distance	50 ... 500 mm dependent on code symbology	32 mm	60 mm
Read field	max. 125 mm x 200 mm	29 mm x 24 mm	30 mm x 20 mm ... 50 mm x 40 mm
Interface:			
Physical	RS 232	RS 232	RS 232, Ethernet
Protocol	ASCII	ASCII	ASCII, TCP/IP
Order code	ODT-MAC333	ODT-MAC344-*	ODT-MAC4*
Page	230	232	234-239

Data Matrix: Handheld Devices

			
Module size	min. 0.15 mm	min. 0.15 mm	min. 0.15 mm
Operating mode	wired	wired/wireless	wired/wireless
Order code	ODT-HH-MAH120-*	ODT-HH-MAH200-*	ODT-HH-MAH300-*
Page	244	240	242

Accessories can be found on page 227.

Identification systems for high temperatures

Read device

	
Read distance	adjustable, 200 mm - 450 mm
Interface	
Physical	Ethernet
Protocol	TCP/IP
Order code	OIT300-F113-B12-CB OIT500-F113-B12-CB
Page	258+260

Read only tag

			
Read distance	250 ... 450 mm	250 ... 450 mm	150 ... 250 mm
Material			
Housing	Stainless steel V2A	Steel Fe360	Stainless steel V4A
Housing size	130 x 80 x 20 mm	130 x 80 x 20 mm	80 x 38 x 13 mm
Order code	OIC-C10V2A-CB1	OIC-C10ST-CB1	OIC-C10V4A-CB1
Page	262	262	262

Accessories can be found on page 263.

3 Planning an RFID system

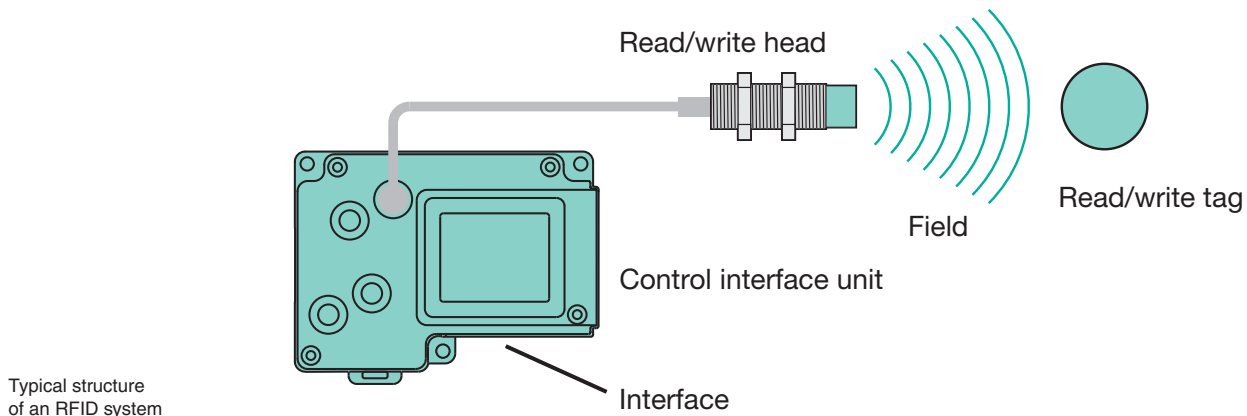
3.1 Components of an identification system

Identification systems are as a rule composed of a control interface, R/W heads and transponders.

Read only tags contain a worldwide unique code of typically 40 Bit ($2^{40} = 1,099,511,627,776$ possibilities). **Read/write tags** have a freely usable memory area, which can be repeatedly overwritten. Additionally, read/write tags often have another read only memory in order that in addition to the storage of application specific information (data range), another unique identifier (read only code) can be implemented. The memories are typically 1 kBit to a maximum 64 kBit in size. The read only codes can be read from the **R/W heads** and the data range from read/write tags can be read and written. This happens based on commands that are sent from the **control interface** to the R/W heads. Several R/W heads can be connected to a control interface where this simultaneously serves as the interface for higher level control. Communication is carried out via common fieldbuses, such as Ethernet, PROFIBUS, DeviceNet, Interbus or via a serial interface.

The **Wiring** between the control interface and R/W head is via screened signal lines, to reduce the influence of possible interference sources.

Several hundred reading/writing points (ID points) in a system can be realized via fieldbus and the corresponding number of control interfaces and a control interface unit can be connected.



3.2 Transfer frequencies

In the sphere of RFID systems, various frequency ranges are available. Each frequency band has specific advantages and special application areas. It is therefore crucial to choose the right frequency for your application.

Inductive identification systems (125 kHz – 13.56 MHz) operate according to the transformer principle in the near field, i.e. the read/write lobe is limited to the range from a few centimeters to approximately half a meter. The energy for the transponder is transferred inductively from the R/W head.

These systems are particularly suitable for applications in the sphere of automation, material flow control in production technology, and the acquisition of operating data or the identification of objects such as storage vessels, pallets, workpiece carriers etc.

Microwave identification systems (approx. 2.45 GHz) operate according to the backscatter principle in the far-field, and thus offer the possibility to achieve larger read/write ranges. Typical ranges are several meters here. The transponders have their own power source to supply the internal electric components.

Typical applications include the identification of larger objects such as, for example, in automotive manufacture, in logistics, for barrier control, for vehicles and for focused identification of several goods on one conveying unit.

125 kHz and 250 kHz systems

The low frequency systems typically have a very small read range, are almost immune to metal in the environment, and penetrate water, grease and other non-metallic materials. The wound coils for the transponder have multiple uses and therefore make the transponder cost-effective. This frequency range is ideal for factory automation, tool identification, tool management in closed circuits, animal identification and inventory control.

13.56 MHz system

In this frequency range, stamped or pressed coils can be used, which make the tags more cost-effective. It is frequently used in logistics applications, asset logging and certain factory applications. Due to the low costs, this frequency is ideal for applications where many read/write tags are used. The read/write tags cannot be embedded in metal and are not suitable for tool identification. They are not only cost-effective, but due to the high frequency are 3 to 4 times faster than the low frequency versions.

868 MHz system

Systems with an 865 to 868 MHz operating frequency work with detached electromagnetic waves. The transponders can be passive as well as active (with battery) and use a specially-shaped rod antenna as the resonance element. The passive transponders can be produced very cheaply and have a range of several meters. However, UHF systems are very susceptible to moisture. Conductive items in the immediate vicinity can reflect waves and cause read gaps as a result of interference. It therefore makes sense to read UHF transponders while they are moving or when they are located at a previously tested position. As material handling and the automotive sector require ranges of 1 to 5 meters, this system represents a low-cost alternative to microwave systems, particularly because of its low transponder costs. The high carrier frequency facilitates large data volumes and extremely short read times.

2.45 GHz systems

This system from Pepperl+Fuchs operates with 2.45 GHz in the same range as Bluetooth, microwave ovens, some cordless telephones and WiFi 802.11 b/g (WLAN) access points. Active transponders achieve high sensing ranges. The installed batteries have a service life of 5-7 years and can be changed. The perfect scope of application is in automotive assembly, machine control, large container management and mobile equipment.

	125 kHz	250 kHz	13.56 MHz	868 MHz	2.45 GHz
Wavelength	2400 m	1200 m	22 m	0.34 m	0.12 m
Transponders mountable in metal	Yes	Yes	No	No	No
Metallic environment possible	Yes	Yes	Partially	Partially	Partially
Interference from moisture	None	None	Medium	Strong	Strong
Reflections	None	None	Weak	High	High
Resistance to EMC interference	Very high	Very high	High	Medium	Low
Transfer rate	2 kBit/s	7.8/20 kBit/s	26 kBit/s	80 kBit/s	76 kBit/s
Sensing range					
Reading	150 mm	100 mm	300 mm	6000 mm	4000 mm
Writing	140 mm	75 mm	250 mm	2000 mm	4000 mm

3.3 Criteria for system selection

Amongst other things, the following should be considered when planning an identification system:

Number of read/write cycles

Inductive passive read only tags can often be read in any order and have a virtually unlimited service life. However, read/write tags based on EEPROM can only be written to a limited number of times (typically 100,000 times). If the read/write tag operates at approximately 25°C and a data hold time of only a month is required, then typically considerably more than 1 million write cycles can be achieved. On the other hand, FRAM tags can be read and written to as often as required.

Microwave read/write tags are active components that contain a battery. These are also limited by battery life. However, the batteries can be exchanged and the read/write tags used further.

Data processing

It needs to calculate,

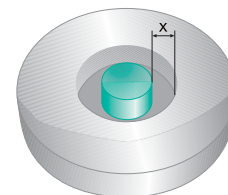
- which quantities of data can be generated by the system
(number of reading points $\times$ data quantity read $\times$ repeat rate),
- which quantities of data are retrieved via the fieldbus system (data quantity per cycle/cycle time) and
- can be processed in the programmable logic controller (PLC) (secured data processing time $<$ cycle time?).

If there is a capacity bottleneck to above, this can lead to data loss and therefore to process problems.

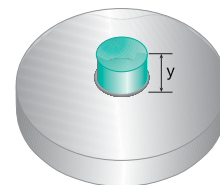
Read/write range and tolerances

The read and write ranges indicated in the range table must be observed in the application. Mechanical tolerances must also be observed to avoid read gaps and double reads. The R/W head and transponder should be of as similar size as possible (e.g. FP head with a coil size greater than approximately 70 mm diameter and transponder with 50 mm diameter), so that the inductive coupling in the near field is at its optimum.

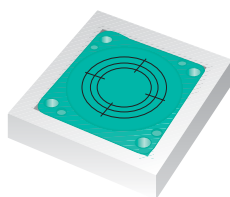
Metals in the vicinity of the reading head and transponder reduce the possible read/write ranges. Therefore, other minimum ranges must be observed as “in air” or special transponders installed which are constructed for the purpose. The following range table indicates in which installation arrangement at least 75% of the maximum read range is attained.



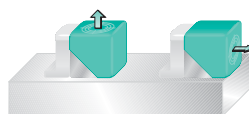
Setting in metal



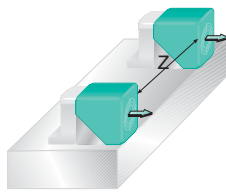
Projection over metal



FP flush mountable



Mounting options design L2



Range between 2 heads

Installation/mounting conditions on metal for greater than 75% read range:
(valid for IDENTControl)

Housing diameter	x	y	z ¹⁾
M18	> 14 mm	Height of plastic cap	> 180 mm
M30	> 15 mm	Height of plastic cap	> 270 mm
F61	> 30 mm	Structure only	> 290 mm
L2	> 50 mm	Structure only	> 450 mm
FP	0 mm	Flush	> 550 mm
F15	> 100 mm	Structure only	> 1100 mm

¹⁾ The range is observed during parallel (simultaneously active) operation of the R/W heads. In selecting "multiplexed mode" the R/W heads can be mounted a few centimeters away.

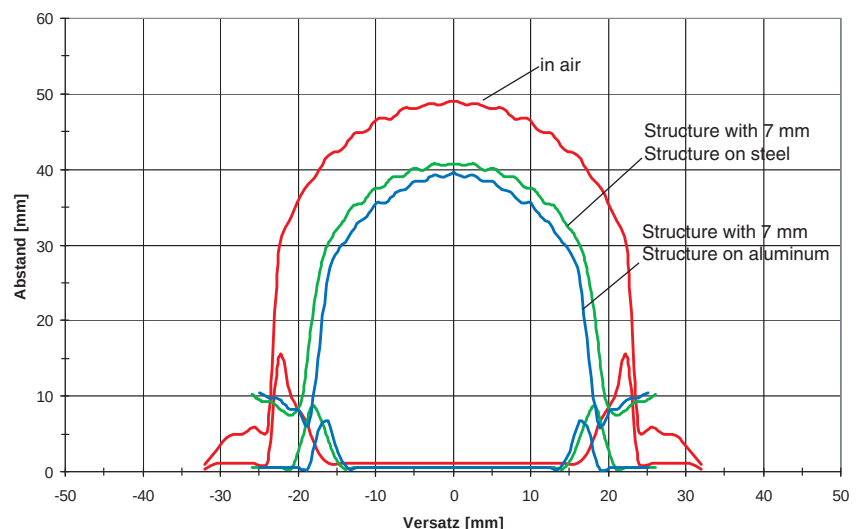
Inductive sensors can interfere with communication between the RFID transponder and the R/W head as similar operating frequencies are often used. To reduce the influence, distances between the R/W head and sensor should be observed at typically 10x the maximum sensing range of the R/W head.

The read/write ranges in the relevant R/W head data sheet are maximum limits.

Example of a read curve

If transponders are mounted on or near metal, the maximum attainable ranges decrease, depending on the metal:

Example: Read curve IPH-L2-V1 with IPC03-20P



Example: Read curve IPH-L2-V1 with IPC03-20P

R/W head designs

There may be many requirements regarding the design of the heads and transponders. On the one hand, these devices should be installed in or mounted on existing parts and there may be limits to mechanical dimensions. On the other hand, one frequently wants to achieve the greatest sensing ranges possible. As the size of the heads also leads to increased sensing ranges, a suitable compromise needs to be found. Cylindrical housings are available, which are easily installed into sheet metal with holes, as well as block shaped housings, which are easily screwed to surfaces.

Maximum travel speed

Certain minimum times are required for the transponder detection and data reading. The retention time of the transponder in the read range is greater for large R/W heads, so higher travel speeds are achieved. The recommended area (30 to 80% of the max. read range) indicates a reliably useable read range.

Cable routing and electromagnetic compatibility guidelines

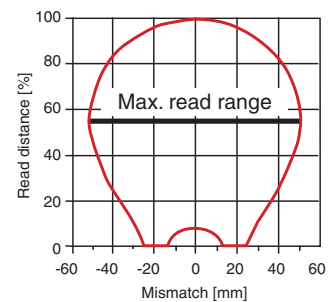
Signal cables are as a rule screened, but nevertheless particularly sensitive to external electromagnetic fields. In this respect, no power transmission cables should be laid in parallel, e.g. 230 V AC power supply, 3-phase or heavy consumers, such as motors.

Moreover, it should be observed that the positioning of the power supply, including distribution in the control cabinet, is separate from the signal and bus lines.

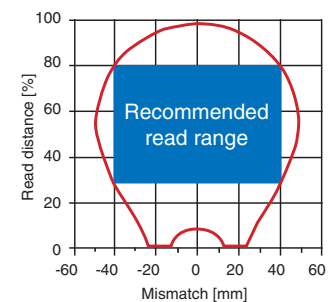
The grounding instructions on the devices and in the manuals must be carefully observed. Both the reading head and control interface units must be connected to ground potential on both sides.

For more detailed information, we have prepared a manual for you on all current electromagnetic capability topics, available under order number #104880 or on our website.

IPT-FP with IPC02-50W in air



IPT-FP with IPC02-50W in air



System features

In the following table, the systems with your features are listed. The application related information below provides further decision guidance.

Frequency	125 kHz	250 kHz	13.56 MHz	868 MHz	2.45 GHz (MV)	2.45 GHz (MT)
Max. travel speed						
- Read read-only code	2.5 m/s	10 m/s	5 m/s	> 10 m/s	> 30 m/s	25 m/s
- Read (4 byte) data	0.5 m/s	2 m/s	6.7 m/s	> 10 m/s	> 30 m/s	25 m/s
- Write (4 byte) data*	0.4 m/s	0.2 m/s	3.3 m/s	> 10 m/s	> 30 m/s	1 m/s
Max. memory volumes	64 kBit	1 kBit	16 kBit	2 kBit	64 kBit	574 bit
Possible read ranges	≤ 140 mm	≤ 100 mm	≤ 300 mm	< 6 m	≤ 2000 mm	≤ 4000 mm
Possible write ranges	≤ 80 mm	≤ 68 mm	≤ 300 mm	< 6 m	≤ 2000 mm	≤ 500 mm
Mounting the transponder						
- in metal	Yes	Yes	No	No	No	No
- on metal	Yes	Yes	Yes	Yes	Yes	Yes
Transponder degree of protection	IP68/IP69k	IP68/IP69k	IP68	IP67	IP67	IP67
Bus interfaces	Serial PROFIBUS INTERBUS DeviceNet Ethernet	Serial PROFIBUS INTERBUS DeviceNet Ethernet	Serial PROFIBUS INTERBUS DeviceNet Ethernet	Serial PROFIBUS Ethernet	Serial PROFIBUS INTERBUS DeviceNet Ethernet	Ethernet
Special features	Low cost read/write tags	Particularly EMC stable	Read only tags in label form	Read only tags in label form	High data transfer rate	Multi-tag capable, relay output

* We recommend only writing data during standstill.



4 System IDENTControl

4.1 System description

The brand name **IDENTControl** represents an innovative identification system. **IDENTControl** facilitates the connection of RFID R/W heads working at different operating frequencies.

The fact that the instruction set for all the systems connected to the control unit is more or less identical makes implementation in the PLC program remarkably easy.

The "RFIDControl" PC demo/configuring software for devices with serial or Ethernet interfaces supplements the system **IDENTControl** and makes life much easier for the user. This software is provided free of charge on every documentation CD.

Various versions are available to meet the requirements for varying degrees of distributed control:

- **IDENTControl** for up to 4 R/W heads
- **IDENTControl Compact** for 1 or 2 R/W heads

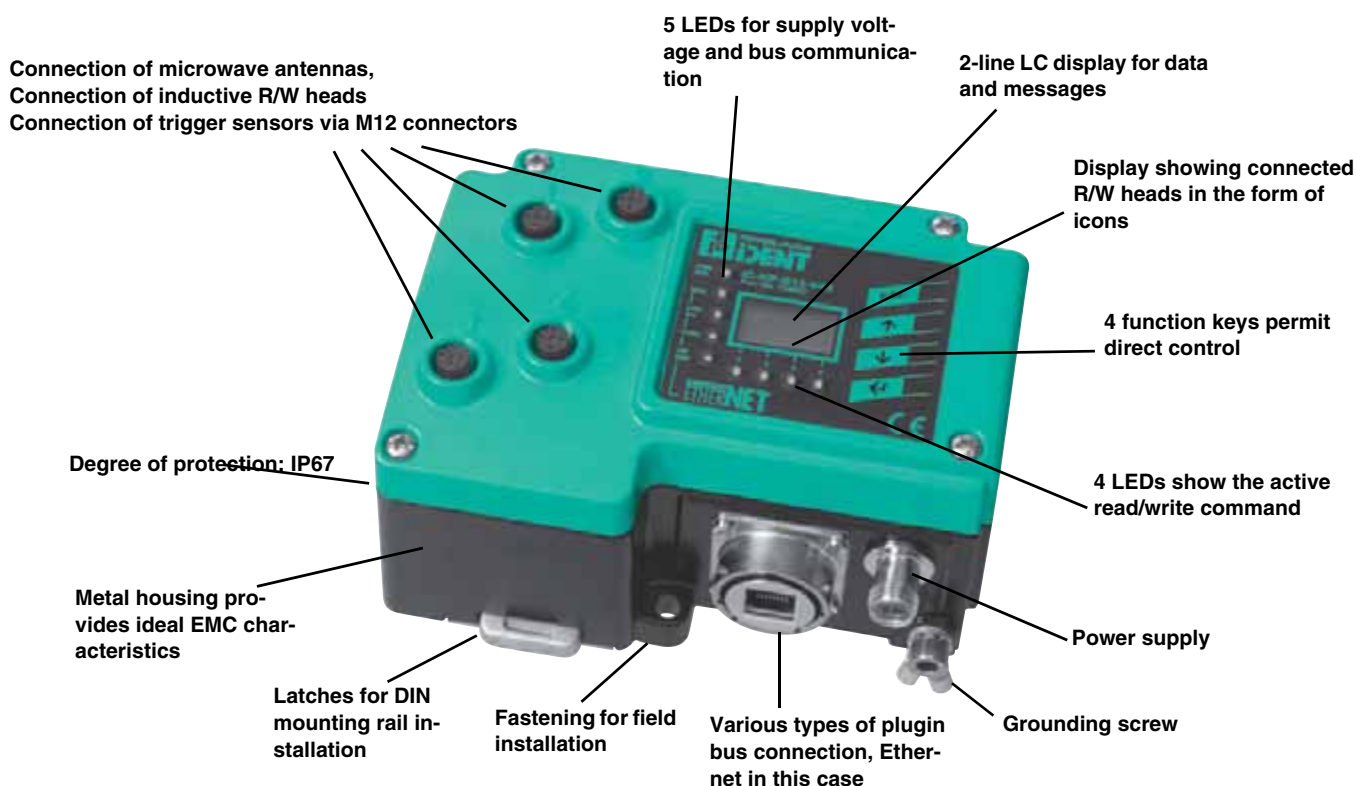
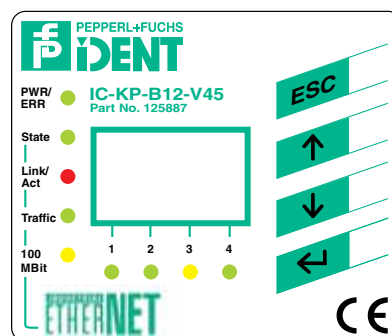


4.2 Advantages of the system IDENTControl

- The system is completely shielded and can simply be connected to the earth potential. The read head cables are also shielded to provide the highest degree of EMC safety.
- Up to 4 R/W heads can be connected and both inductive heads and microwave antennas can be used at the same time.
- Trigger sensors to start read/write commands can be connected.
- Where an Ethernet connection is present, web server functionality, e.g. configuring, command inputs or the notification of process malfunctions by cell phone, can be provided.
- All components are of plugin design to enable easy connection and quick replacement.
- The 24 V DC energy supply is implemented via a separate M12 connector; reversed polarity is indicated by a red LED.
- The rugged aluminum housing can be fitted to the DIN rail in the control cabinet using the integral snap-fits (**IDENTControl**) or a suitable mounting aid (**IDENTControl Compact**). A simple 3-point screw mounting provides IP67 protection for field applications.

IDENTControl

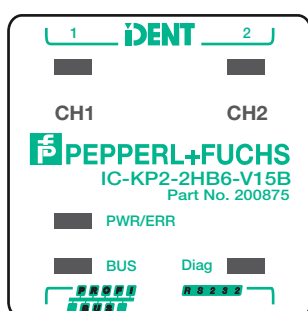
- The **IDENTControl** has a graphical LC display with 2 lines of 12 characters each. Data can be displayed and other information, e.g. the status of the device, shown in the form of icons. A plain text display and function keys on the **IDENTControl** mean that function tests can be performed as soon as the device is installed, even if no PLC programs are loaded.
- Operation and configuring on the **IDENTControl** using function keys (e.g. to send read commands, set bus address, IP address, type of read/write tag, etc.).



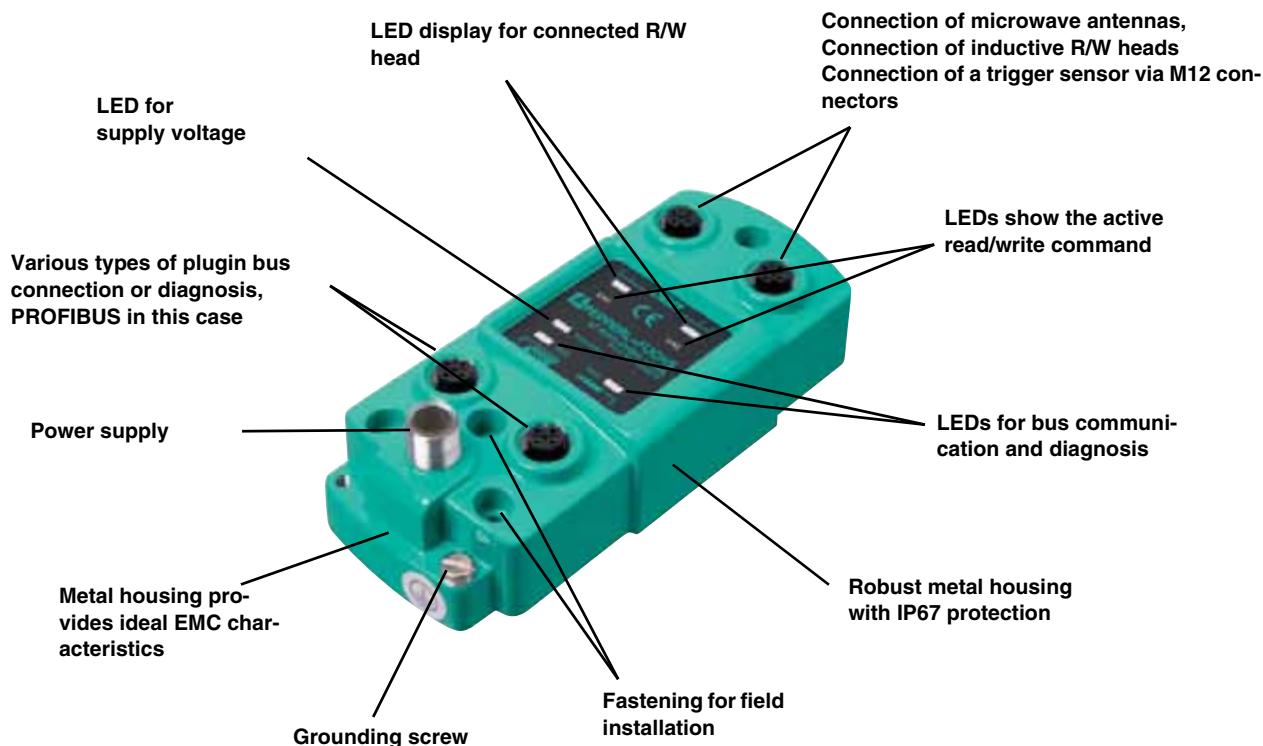
IDENTControl Compact

The new smaller version of the **IDENTControl**, the **IDENTControl Compact**, offers a high level of distributed control and is ideally suited for economic installation in the field. The robust metal housing ensures a long service life under harsh ambient conditions, with plugin connections.

Many applications require 2 R/W heads at one location. In such cases the 2-channel **IDENTControl Compact** is the right choice. The distribution of IDENT points, e.g. for switch control and on machine tools, demands an even higher degree of distributed control in transport technology, which we provide with the single-channel **IDENTControl Compact**. Since various R/W head types and different frequency systems can be connected, the flexibility provided by the modular structure is perfect for customer-specific system solutions.



- The **IDENTControl Compact** has separate LEDs for displaying connected R/W heads, the status of the R/W heads and for bus communication and diagnosis.
- The **IDENTControl Compact** is addressed using mechanical rotary switches.
- The **IDENTControl Compact** with Ethernet interface contains a real time switch. This enables these devices to be flexibly integrated into an existing Ethernet network with line or ring topology. A connected PC can communicate with the integrated web server in the device via any browser, in order to set parameters, for example, or to activate commands. No software needs to be installed for this purpose.



4.3 Features and Operating Options

Control Cabinet and Field Solution

Two fastening options enable the device to be installed in a control cabinet or in the field. The **IDENTControl** has snap-fits on the rear for fitting on a DIN mounting rail. Its L-shaped housing means the device and its bus connector can fit into a 120 mm grid in the control cabinet. With an installation depth of just 70 mm, it can also be installed in shallow junction boxes that are only 100 mm deep. Three mounting holes enable it to be installed in the field with M6 screw connections.

The **IDENTControl Compact** also has three mounting holes to enable it to be installed in the field with M6 screw connections. A mounting aid enables the device to be fitted to the DIN mounting rail as well.

Multiplex Mode

Interference may occur if a number of R/W heads are operating at the same frequency in close proximity to one another and read/write commands are issued at the same time. To prevent this happening, multiplex mode can be activated from the function keys or from the control interface. Multiplex mode synchronizes the execution of commands to completely eliminate interference.

Note: Using inductive sensors, for example, in close proximity (~10 x read range) can also result in interference, as these devices also often share the same frequency range.

Command Input and Commissioning

A crucial advantage of the **IDENTControl** system is the ability to configure and operate it easily directly from the device. Information is output visually via LEDs or on the display. Errors can therefore be located straight away and communication optimized without the need for a higher-level fieldbus and having some software running in the control interface. This allows the functional verification of individual sections of the plant to be documented.

Suitable R/W Heads

The **IDENTControl** system can drive up to four R/W heads regardless of the transmission principle being used. Heads operating at frequencies of 125 kHz, 250 kHz, 13.56 MHz, 868 MHz and 2.45 GHz can be connected and operated simultaneously, although the transponder must have a frequency matching the R/W head. With inductive systems, the R/W head should ideally be the same size as the transponder. This will give you the best link and consequently a large read/write range.

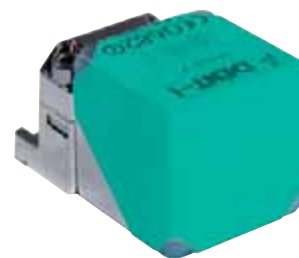
Various types of R/W heads are available for the **IDENTControl** system:

- M18 (dia. 18 mm) and M30 series (dia. 30 mm)
- F61 low-profile housing (76 mm x 28 mm x 12 mm)
- VariKont L model (40 mm x 40 mm x 55 mm)
- FP compact housing (80 mm x 80 mm x 60 mm)
- F15 low-profile housing (140 mm x 140 mm)
- F100 low-profile housing (300 mm x 300 mm)
- F117 low-profile housing (300 mm x 180 mm)

With its 4 LEDs, the VariKont L model provides an excellent view of the operating voltage indicator and the display for "Read head active"/"Data read/written successfully".



Mounting aid for
DIN rails



VariKont L R/W head



Transponder

Transponders are available in a wide variety of construction types. The application and how the transponders are installed or attached often dictate which type to use. Special solutions are available for high temperatures, chemically aggressive environments, high degree of protection requirements, price-critical applications and for installation on or in metal.

For installations in metallic objects (e.g. workpiece carriers) Pepperl+Fuchs offers models for the 125 kHz and 250 kHz families in which the coil is embedded in a ferrite core that screens the coil and allows the focused inductive field to enter from the front.



Fieldbus Connection

Die **IDENTControl** provides integrated interfaces for standard fieldbus systems such as PROFIBUS, Ethernet (supported protocols: TCP/IP, Ethernet/IP, PROFINET, MODBUS/TCP), DeviceNet, INTERBUS and serial connections (RS 232 and RS 485). The common control unit means the command structure and the operating philosophy are very similar.

- Ethernet IP "maps" the data in much the same way as a standard I/O card, so that no special configuration software is required.
- When using the TCP/IP protocol, port 10000 is used as the standard socket for the exchange of data. The integrated web server function makes configuring and testing easy. The integrated SMTP server even enables alarms to be sent by e-mail in the event of an error.
- The MODBUS/TCP protocol is simple to use and has a number of powerful features. Several control interfaces can therefore communicate with the **IDENTControl** at the same time.
- PROFINET and PROFIBUS are very similar in the way they are used, but have different hardware. GSD files (General Station Description) or GSDML files in XML format are used for the device data.
- PROFINET and PROFIBUS support automatic configuring via the host and diagnostic messages can be sent easily to the host.
- Owing to their low current consumption levels, DeviceNet connections can support cable lengths greater than 100 m with more than 50 read/write stations. DeviceNet offers automatic configuring when a device is being replaced.
- The serial interface is used to facilitate distributed PC solutions and to allow the software to be adapted very easily to take account of changing circumstances. This allows large amounts of data to be exported in one go and written to the transponders.

IDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

IDENT-O
Barcode

IDENT-O
Data Matrix

High Temperature
IDENT System

Selecting the Right IDENTControl for your Control Interface

Normally, the PC or the control interface detects which **IDENTControl** you have connected. This works better with some PLCs and certain bus interfaces than with others. Generally, you can choose whichever bus system you want, although more programming may be required and you may need a network adapter.

We therefore recommend some bus protocols for the various control interfaces:

Control Interface manufacturer	PLC model	Recommendation
Siemens	S7-200/300/400	PROFIBUS: IC-KP...B6-...
	ET-200	Ethernet: IC-KP-B12-V45 Ethernet: IC-KP2-...HB17-2V1D
Schneider Electric	Momentum	Ethernet: IC-KP-B12-V45
	Premium	Ethernet: IC-KP2-...HB17-2V1D
Allen-Bradley	Quantum	PROFIBUS: IC-KP...B6-...
	SLC 5/03, SLC 5/04	Devicenet: IC-KP-B7-V95
	SLC 5/05	Ethernet: IC-KP-B12-V45
	ControlLogix	Ethernet: IC-KP2-...HB17-2V1D
	CompactLogix	PROFIBUS: IC-KP...B6-...
	MicroLogix	
Omron	PLC5/80E	
	CS1	Devicenet: IC-KP-B7-V95
GE	CJ1	PROFIBUS: IC-KP...B6-...
	90-30	Ethernet: IC-KP-B12-V45
	90-70	Ethernet: IC-KP2-...HB17-2V1D
	VersaMax	PROFIBUS: IC-KP...B6-...
Mitsubishi		Devicenet: IC-KP-B7-V95
	A/QnA	Devicenet: IC-KP-B7-V95
	AnSH	PROFIBUS: IC-KP...B6-...

Web Server Functionality

With an Ethernet connection an existing network can often be used. High transmission rates and new functions are then possible. This renders intermediate bus systems superfluous. If required, web server functionality can even send an SMS directly to a cell phone stating whether the system is currently in a fault condition, what spare parts are required, what type of response is needed. This shortens downtimes and also permits remote configuring, protected by an access code or on-site enabling.



4.4 Overview of IDENTControl Control Units

4.4.1 IDENTControl Compact for 1 or 2 R/W heads

						
Order code	IC-KP2-1HB6-V15B	IC-KP2-2HB6-V15B	IC-KP2-1HB17-2V1D	IC-KP2-2HB17-2V1D	IC-KP2-1HRX-2V1	IC-KP2-2HRX-2V1
Page	32	34	36	38	40	42
Number of R/W heads	1	max. 2	1	max. 2	1	max. 2
Interface 1						
Protocol	PROFIBUS DP	PROFIBUS:	SMTP, HTTP, TCP/IP (Port 10000), MODBUS/TCP, Ethernet/IP, PROFINET IO	SMTP, HTTP, TCP/IP (Port 10000), MODBUS/TCP, Ethernet/IP, PROFINET IO	ASCII	ASCII
Physical	RS 485	RS 485	Ethernet	Ethernet	RS 485	RS 485
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kbit/s 3; 6; 12 MBit/s self-synchronizing		10 MBit/s or 100 MBit/s		1200; 2400; 4800; 9600; 19200; 38400 bits/s	
Interface 2	RS 232 Diagnostic Interface			RS 232 interface		
Electrical data						
Power consumption P ₀	2 W without R/W heads		3.5 W without R/W heads		2 W without R/W heads	
Mechanical data						
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection	PROFIBUS: M12 connector, B-coded		Ethernet: M12 connector, D-coded		RS 232/RS 485: M12 connector, A-coded	
R/W heads:	shielded, 4-pin, M12 connector					
Power supply	M12 connector					
Ground	M4 grounding screw					

4.4.2 IDENTControl for up to 4 R/W heads

							
Order code	IC-KP-B12-V45	IC-KP-B5-V23	IC-KP-B6-SUBD	IC-KP-B6-V15B	IC-KP-B6-2V15B	IC-KP-B7-V95	IC-KP-R2-V1
Page	44	46	48	50	52	54	56
Interface							
Protocol	SMTP, HTTP TCP/IP, CIP MODBUS/TCP Ethernet/IP PROFINET IO	INTERBUS remote bus	PROFIBUS DP	PROFIBUS DP	PROFIBUS DP	CIP	ASCII
Physical	Ethernet	RS 485	RS 485	RS 485	RS 485	DeviceNet	RS 232
Transfer rate	10 MBit/s or 100 MBit/s	500 kBit/s or 2 MBit/s adjustable	9.6; 19.2; 93.75; 187.5; 500; 1500 kbit/s 3; 6; 12 MBit/s self-synchronizing			125, 250, 500 kBit/s	1200; 2400; 4800; 9600; 19200; 38400 bits/s
Electrical data							
Power consumption P ₀	3.5 W without R/W heads	3.5 W without R/W heads	3.5 W without R/W heads	3.5 W without R/W heads	3.5 W without R/W heads	2.5 W without R/W heads	2.5 W without R/W heads
Network voltage	-	-	-	-	-	11 ... 25 V DC, PELV	-
Network current consumption	-	-	-	-	-	≤ 40 mA	-
Mechanical data							
Degree of protection	IP67	IP65	IP40	IP67	IP67	IP67	IP67
Connection	Ethernet: RJ-45	INTERBUS: M23 cylindrical connector	PROFIBUS: Sub-D connector, 9-pin	PROFIBUS: M12 connector, B- coded	PROFIBUS: 2x M12 connector, B-coded	Devicenet: Mini-Style 7/8"	RS 232 M12 connector
R/W heads:	shielded, 4-pin, M12 connector						
Power supply	M12 connector						
Ground	M6 grounding screw						



Model Number

IC-KP2-1HB6-V15B

Control interface unit
IDENTControl Compact
with interface for PROFIBUS DP

Features

- LED status indicator of bus communication and read/write head

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

ICZ-3T-0,2M-PUR ABG-V15B-G

Y- Connection cable for PROFIBUS

ICZ-2T/TR-0,2M-PUR ABG-V15B-G

Terminal cable for PROFIBUS with terminal resistor

V15B-G-5M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

V15B-G-10M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

V15B-G

Cable socket, M12, for PROFIBUS, adjustable

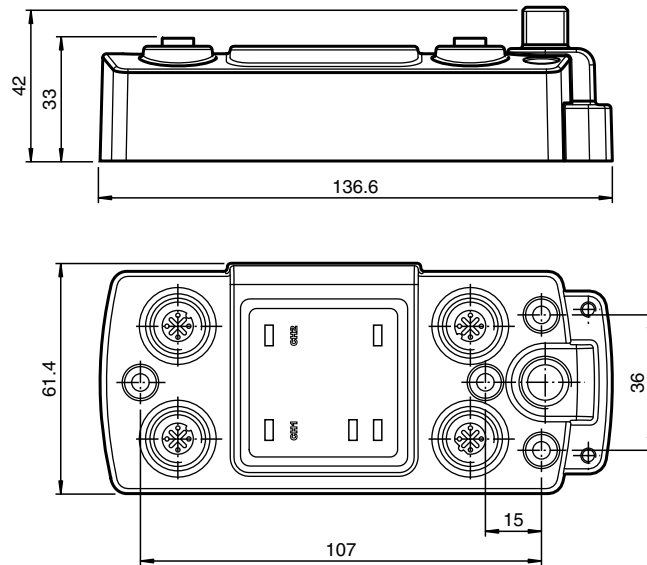
V15SB-G

Cable connector, M12, for PROFIBUS, adjustable

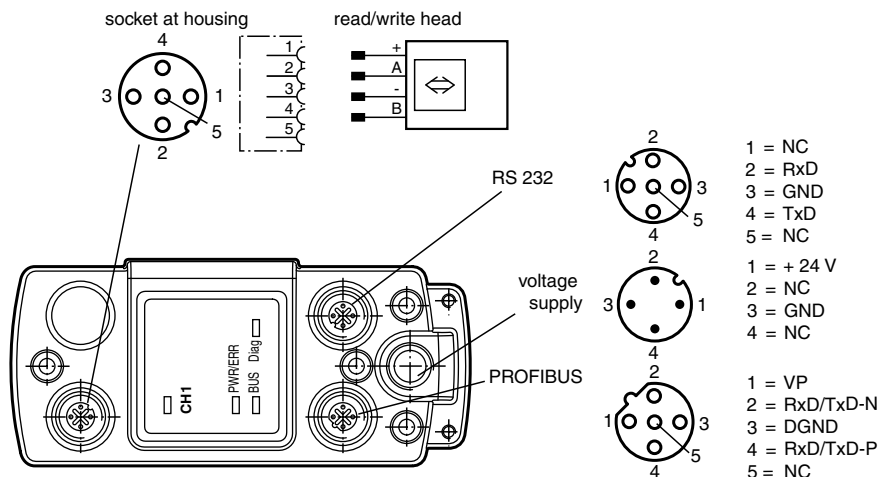
ICZ-MH05-SACB-8

Mounting aid for DIN rail

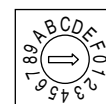
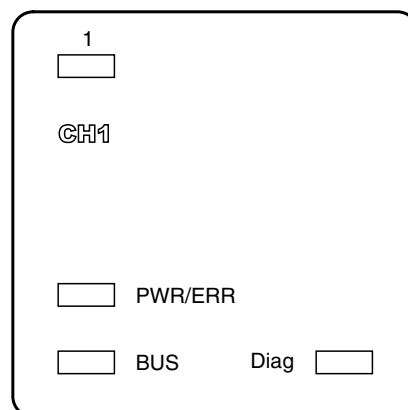
Dimensions



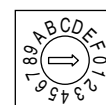
Electrical connection



Indicating / Operating means



BUS Address
(High Nibble)



BUS Address
(Low Nibble)

Technical data**General specifications**

Number of read/write heads	max. 1
----------------------------	--------

Indicators/operating means

LED BUS	green: Slave is at state "Data Exchange" red: Bus error
LED Diag	green: flashes in rhythm of receiving data yellow: flashes in rhythm with the transmitted data
LED 1	Status indicator for read/write head green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED CH1	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
Rotary switch	Address setting 00 ... 7E, FF (hexadecimal) BUS Address (high nibble): 0 ... 7, F BUS Address (low nibble): 0 ... F

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write head
Power consumption P_0	2 W Without read/write head
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface 1

Interface type	PROFIBUS
Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Interface 2

Interface type	Diagnostic Interface
Physical	RS 232
Protocol	ASCII
Transfer rate	38.4 kBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	Read/write head: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw Diagnostic RS 232: M12 plugin connection PROFIBUS: M12 plug connection, B-coded
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

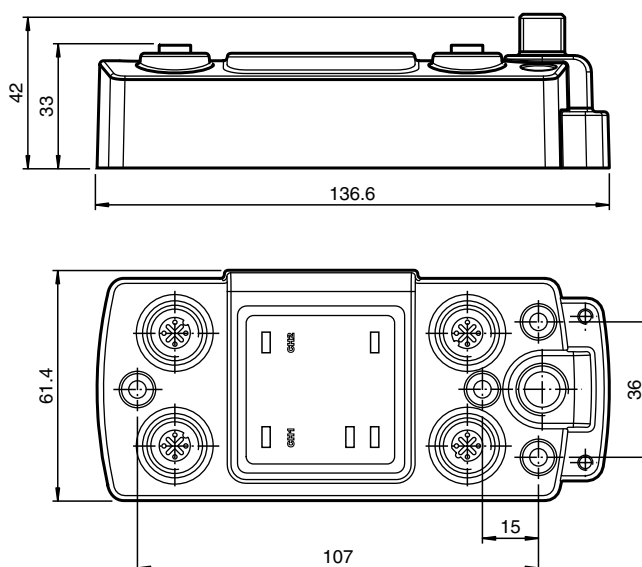
IC-KP2-2HB6-V15B

Control interface unit
IDENTControl Compact
with interface for PROFIBUS DP

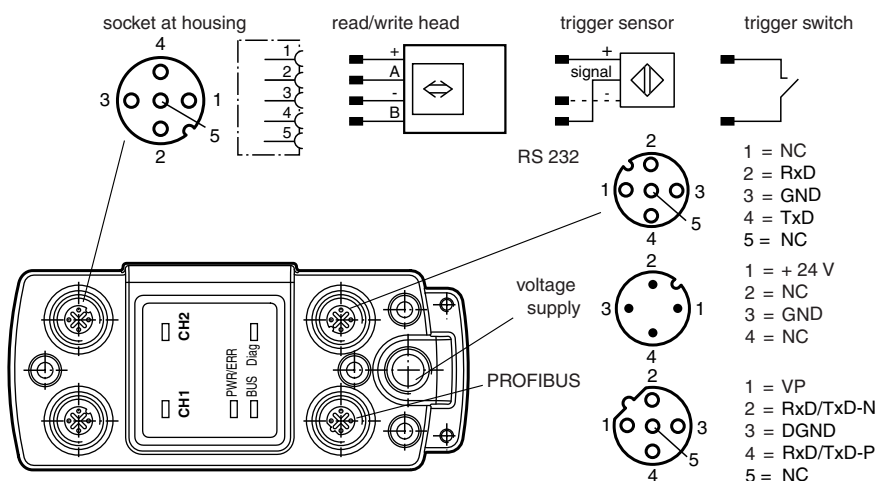
Features

- LED status indicator of bus communication and read/write heads
- Max. 2 read/write heads can be connected
- Alternatively 1 read/write head and 1 trigger sensor can be connected

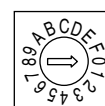
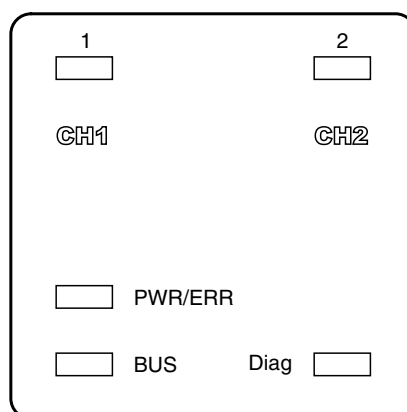
Dimensions



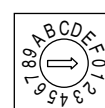
Electrical connection



Indicating / Operating means



BUS Address
(High Nibble)



BUS Address
(Low Nibble)

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

ICZ-3T-0,2M-PUR ABG-V15B-G

Y- Connection cable for PROFIBUS

ICZ-2T/TR-0,2M-PUR ABG-V15B-G

Terminal cable for PROFIBUS with terminal resistor

V15B-G-5M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

V15B-G-10M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

V15B-G

Cable socket, M12, for PROFIBUS, adjustable

V15SB-G

Cable connector, M12, for PROFIBUS, adjustable

ICZ-MH05-SACB-8

Mounting aid for DIN rail

Technical data

General specifications

Number of read/write heads	max. 2 alternatively 1 read/write head and 1 trigger sensor
----------------------------	--

Indicators/operating means

LED BUS	green: Slave is at state "Data Exchange" red: Bus error
LED Diag	green: flashes in rhythm of receiving data yellow: flashes in rhythm with the transmitted data
LEDs 1, 2	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LEDs CH1, CH2	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
Rotary switch	Address setting 00 ... 7E, FF (hexadecimal) BUS Address (high nibble): 0 ... 7, F BUS Address (low nibble): 0 ... F

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	2 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface 1

Interface type	PROFIBUS
Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Interface 2

Interface type	Diagnostic Interface
Physical	RS 232
Protocol	ASCII
Transfer rate	38.4 kBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	Read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw Diagnostic RS 232: M12 plugin connection PROFIBUS: M12 plug connection, B-coded
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IC-KP2-1HB17-2V1D

Control interface unit
IDENTControl Compact
with Ethernet interface

Features

- LED status indicator of bus communication and read/write head
- Network loop through by means of integrated 2 port switch

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

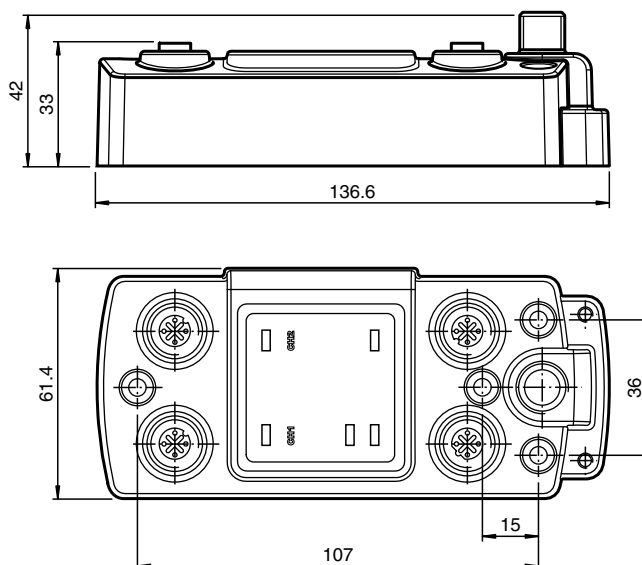
ICZ-MH05-SACB-8

Mounting aid for DIN rail

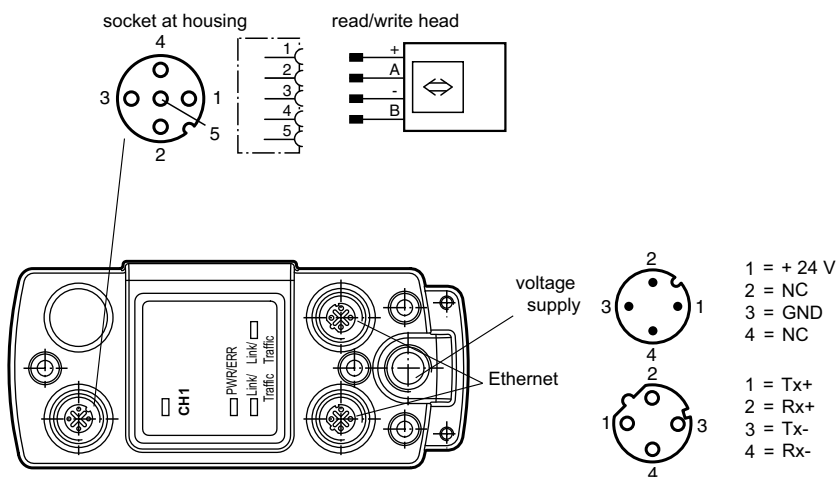
V1SD-G-5M-PUR-ABG-V45-G

Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

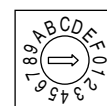
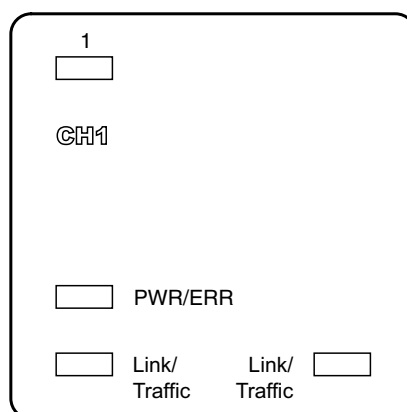
Dimensions



Electrical connection



Indicating / Operating means



Address configuration



Address state

Technical data	
General specifications	
Number of read/write heads	max. 1
Indicators/operating means	
LED Link/Traffic	green: network connection yellow: flashes in rhythm with the transmitted data
LED 1	Status indicator for read/write head green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED CH1	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
Rotary switch	Address setting
Electrical specifications	
Rated operational voltage U_e	20 ... 30 V DC , PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write head
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}
Interface 1	
Physical	Ethernet
Protocol	SMTP HTTP TCP/IP (Port 10000) MODBUS/TCP EtherNet/IP PROFINET IO
Transfer rate	10 MBit/s or 100 MBit/s
Interface 2	
Physical	Ethernet
Protocol	SMTP HTTP TCP/IP (Port 10000) MODBUS/TCP EtherNet/IP PROFINET IO
Transfer rate	10 MBit/s or 100 MBit/s
Compliance with standards and directives	
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529
Ambient conditions	
Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27
Mechanical specifications	
Protection degree	IP67
Connection	Read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw Ethernet: M12 plug connection
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

IC-KP2-2HB17-2V1D

Control interface unit
IDENTControl Compact
with Ethernet interface

Features

- LED status indicator of bus communication and read/write heads
- Network loop through by means of integrated 2 port switch
- Max. 2 read/write heads can be connected
- Alternatively 1 read/write head and 1 trigger sensor can be connected

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

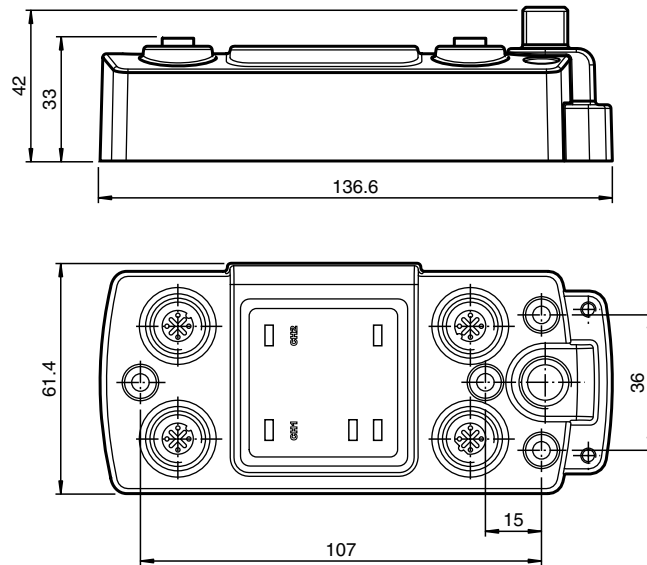
ICZ-MH05-SACB-8

Mounting aid for DIN rail

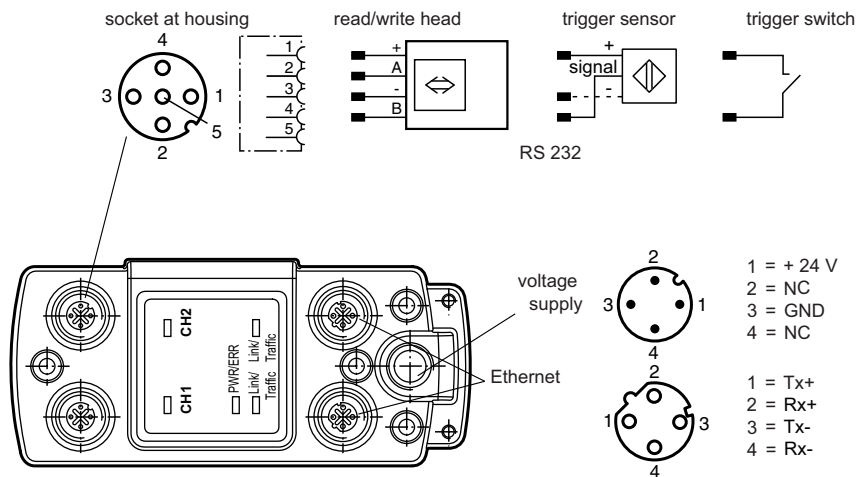
V1SD-G-5M-PUR-ABG-V45-G

Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

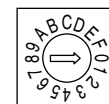
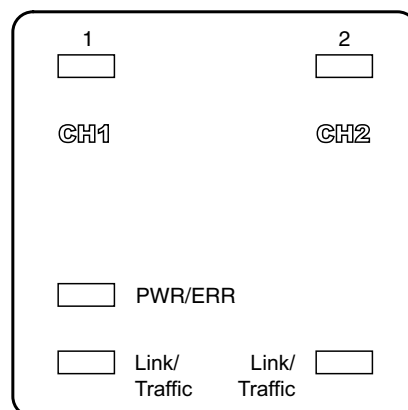
Dimensions



Electrical connection



Indicating / Operating means



Address
configuration



Address
state

Technical data

General specifications

Number of read/write heads	max. 2 alternatively 1 read/write head and 1 trigger sensor
----------------------------	--

Indicators/operating means

LED Link/Traffic	green: network connection yellow: flashes in rhythm with the transmitted data
LEDs 1, 2	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LEDs CH1, CH2	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
Rotary switch	Address setting

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 4 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface 1

Physical	Ethernet
Protocol	SMTP HTTP TCP/IP (Port 10000) MODBUS/TCP EtherNet/IP PROFINET IO
Transfer rate	10 MBit/s or 100 MBit/s

Interface 2

Physical	Ethernet
Protocol	SMTP HTTP TCP/IP (Port 10000) MODBUS/TCP EtherNet/IP PROFINET IO
Transfer rate	10 MBit/s or 100 MBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw Ethernet: M12 plug connection
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IC-KP2-1HRX-2V1

Control interface unit
IDENTControl Compact
with serial interface

Features

- LED status indicator of bus communication and read/write head

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1S-G-0,15M-PUR-SUBD

Adapter M12 on Sub-D for PC connection with null modem cable

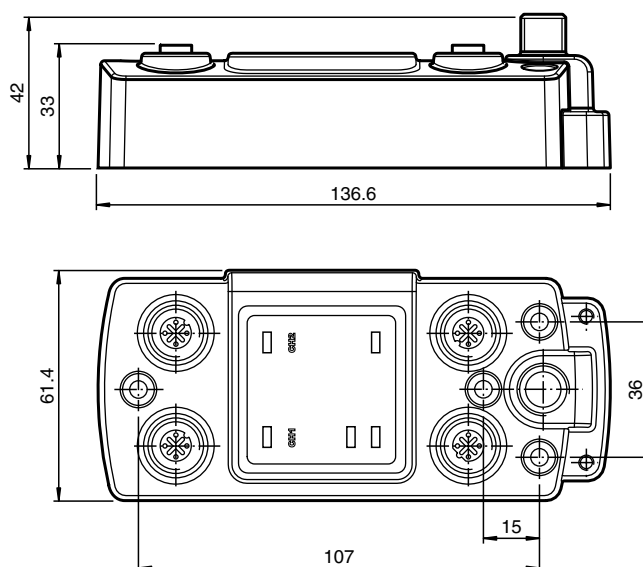
ICZ-MH05-SACB-8

Mounting aid for DIN rail

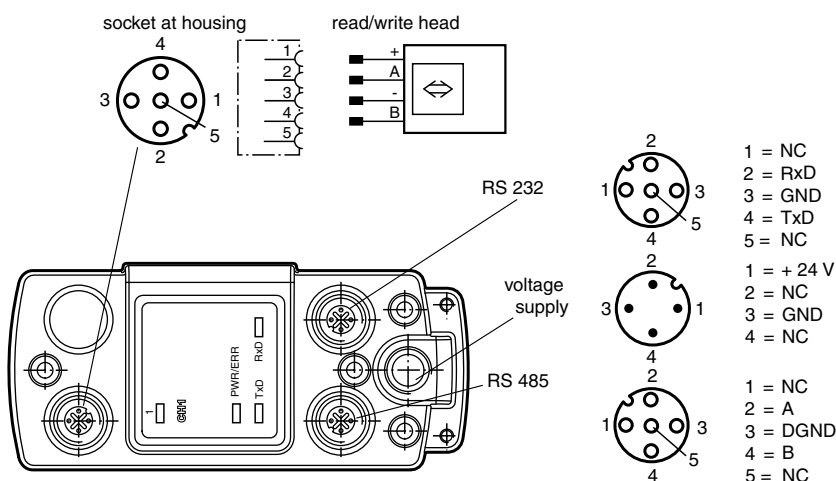
RFIDControl

Software for RFID identification systems

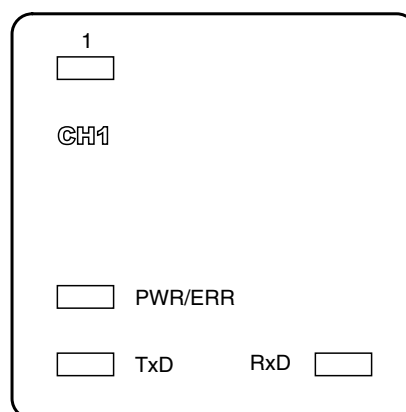
Dimensions



Electrical connection



Indicating / Operating means



Technical data**General specifications**

Number of read/write heads	max. 1
----------------------------	--------

Indicators/operating means

LED 1	Status indicator for read/write head green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED CH1	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
LED TxD	green: flashes in rhythm with the transmitted data
LED RxD	green: flashes in rhythm of receiving data

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write head
Power consumption P_0	2 W Without read/write head
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface 1

Interface type	serial
Physical	RS 485
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s

Interface 2

Interface type	serial
Physical	RS 232
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write head: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw RS 232: M12 plug connection RS 485: M12 plugin connection
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IC-KP2-2HRX-2V1

Control interface unit
IDENTControl Compact
with serial interface

Features

- LED status indicator of bus communication and read/write heads
- Max. 2 read/write heads can be connected
- Alternatively 1 read/write head and 1 trigger sensor can be connected

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1S-G-0,15M-PUR-SUBD

Adapter M12 on Sub-D for PC connection with null modem cable

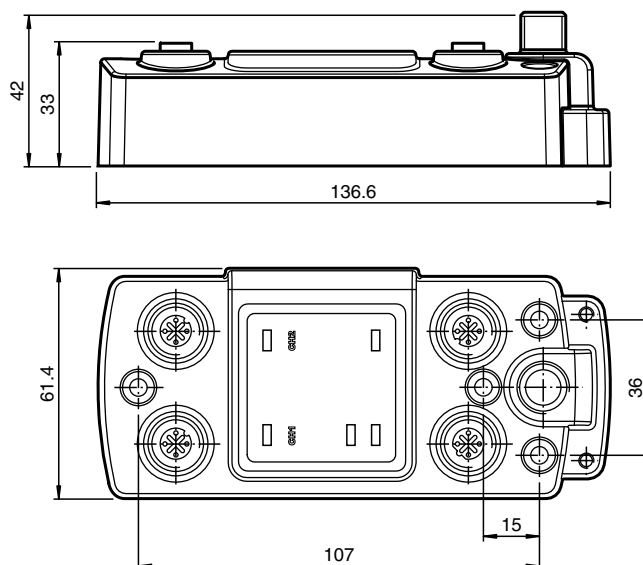
ICZ-MH05-SACB-8

Mounting aid for DIN rail

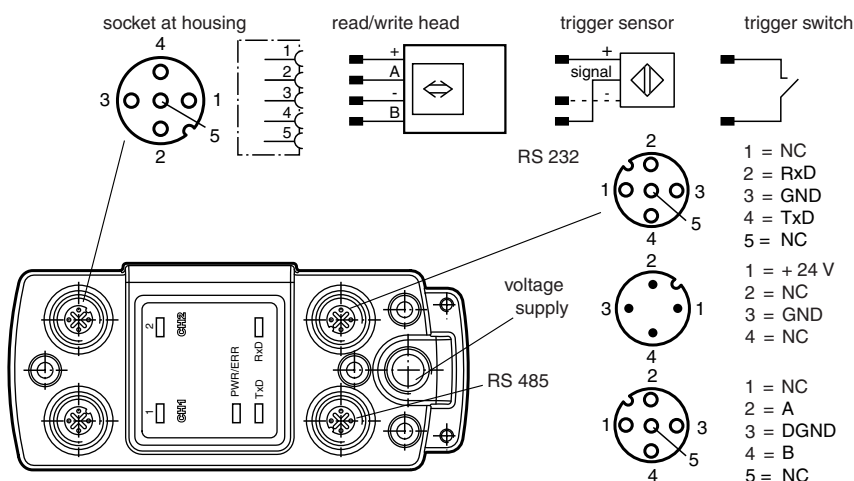
RFIDControl

Software for RFID identification systems

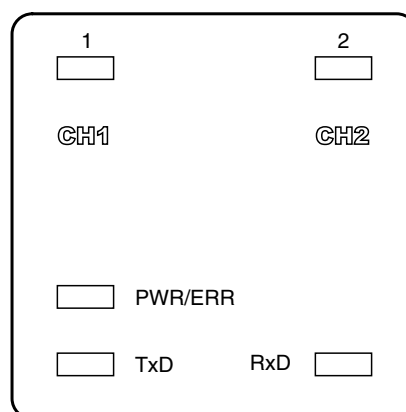
Dimensions



Electrical connection



Indicating / Operating means



Technical data**General specifications**

Number of read/write heads	max. 2 alternatively 1 read/write head and 1 trigger sensor
----------------------------	--

Indicators/operating means

LEDs 1, 2	Status indicator for read/write heads
LEDs CH1, CH2	green: read head detected red: Configuration error
LED PWR/ERR	green: power on red: Hardware fault
LED TxD	green: flashes in rhythm with the transmitted data
LED RxD	green: flashes in rhythm of receiving data

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	2 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface 1

Interface type	serial
Physical	RS 485
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s

Interface 2

Interface type	serial
Physical	RS 232
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection Protective earth: M4 earthing screw RS 232: M12 plug connection RS 485: M12 plugin connection
Material	
Housing	Zinc, powder-coated
Installation	screw fixing
Mass	approx. 500 g

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

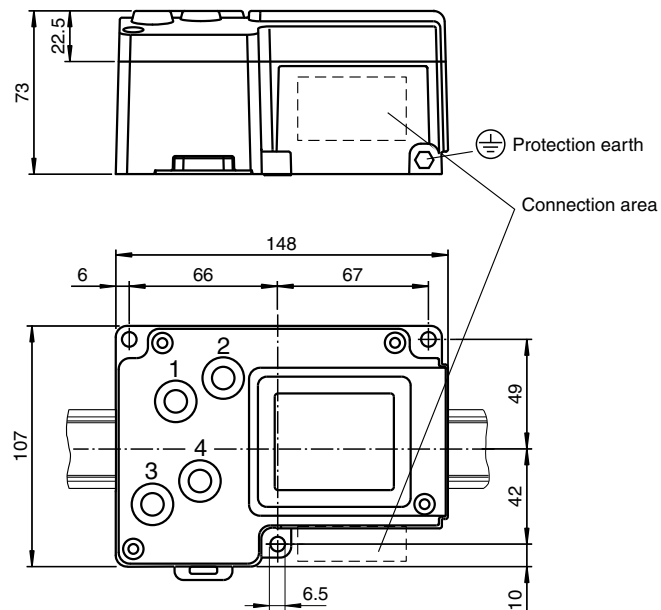
IC-KP-B12-V45

Control interface unit IDENTControl
with Ethernet interface

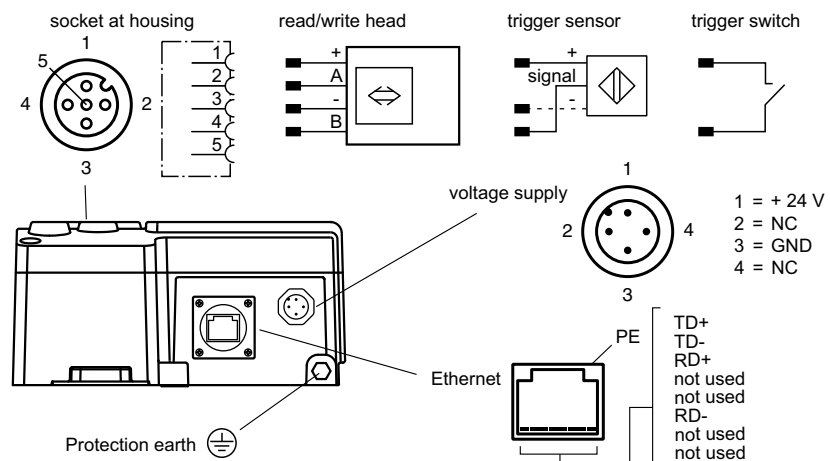
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads
- TCP/IP, MODBUS/TCP, EtherNet/IP and PROFINET IO protocol

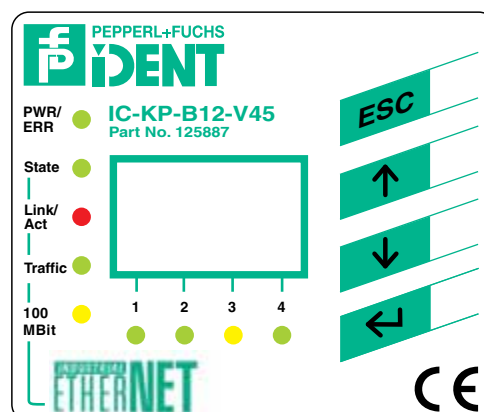
Dimensions



Electrical connection



Indicating / Operating means



Function

The innovative concept of the RFID identification system **IDENTControl** from Pepperl+Fuchs has many advantages in comparison to other systems. The core piece of the system is the evaluation unit **IDENTControl**.

Thanks to the integrated interfaces for all standard field bus systems such as PROFIBUS, EtherNet, PROFINET IO, DeviceNet, serial connections (RS 232/RS 485/RS 422) and numerous connection options for inductive write/read heads as well as microwave antennas, the evaluation unit **IDENTControl** can be adjusted to your needs in a flexible and easy manner.

4 function keys and a double-spaced illuminated LC display facilitate easy system configuration, parameter assignment and entering commands. Further LEDs indicate operating power and bus communication, connected write/read heads and active write/read commands.

Mounting the unit onto DIN mounting rails is easy thanks to the snap-fits on the back of the housing of the evaluation unit **IDENTControl**.

With its L-shaped housing, the evaluation unit including bus connector fits into a 120 mm grid in the switch cabinet. The mounting depth of 70 mm furthermore enables installation in flat switch boxes with a depth of only 100 mm.

There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V45-G-10M-V45-G

Network cable RJ-45, Category 5

V45-G

Non pre-wired cable connector

ICZ-V45

Ethernet connections accessories for increasing of protection degree of the RJ-45 connector

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

Technical data

General specifications

Number of read/write heads	max. 4
	alternative 2 read/write heads and 2 trigger sensors

Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED State	green: interface OK Off: Not ready for operation
LED Link/Act	green: network connection green flashing: bus active
LED Traffic	green: flashes in rhythm of sending/receiving data
LED 100 MBit	yellow: transfer rate 100 MBit/s Off: transfer rate 10 MBit/s
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	Ethernet
Protocol	SMTP HTTP TCP/IP (Port 10000) MODBUS/TCP EtherNet/IP PROFINET IO
Transfer rate	10 MBit/s or 100 MBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw Ethernet: RJ-45
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

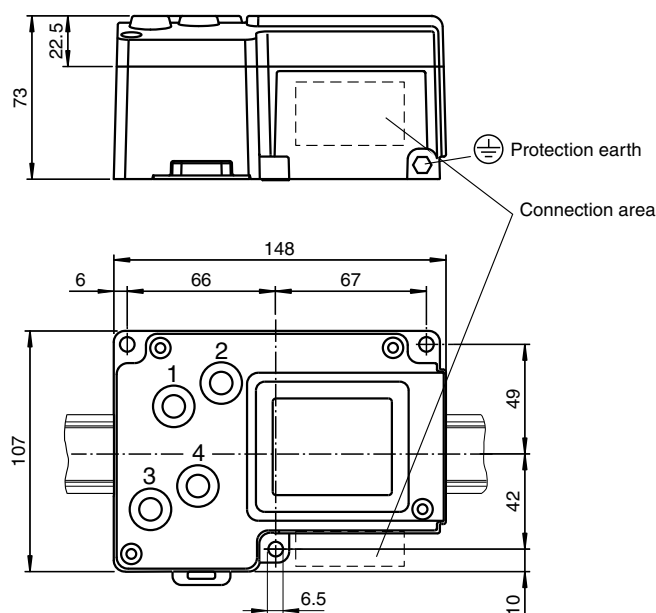
IC-KP-B5-V23

Control interface unit IDENTControl
with interface for INTERBUS

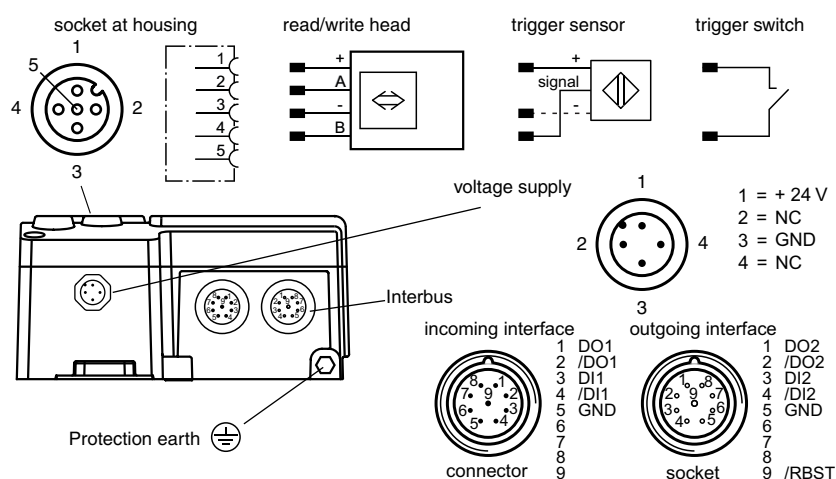
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

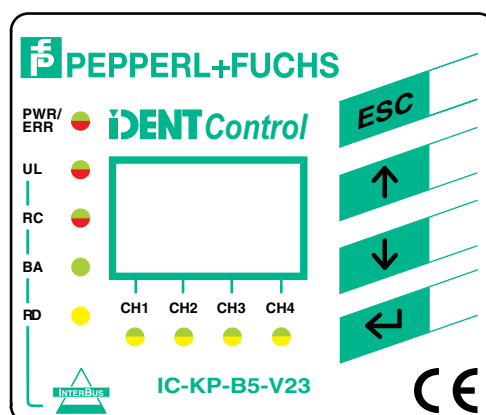
Dimensions



Electrical connection



Indicating / Operating means



Function

The innovative concept of the RFID identification system **IDENTControl** from Pepperl+Fuchs has many advantages in comparison to other systems. The core piece of the system is the evaluation unit **IDENTControl**.

Thanks to the integrated interfaces for all standard field bus systems such as PROFIBUS, EtherNet, PROFINET IO, DeviceNet, serial connections (RS 232/RS 485/RS 422) and numerous connection options for inductive write/read heads as well as microwave antennas, the evaluation unit **IDENTControl** can be adjusted to your needs in a flexible and easy manner.

4 function keys and a double-spaced illuminated LC display facilitate easy system configuration, parameter assignment and entering commands. Further LEDs indicate operating power and bus communication, connected write/read heads and active write/read commands.

Mounting the unit onto DIN mounting rails is easy thanks to the snap-fits on the back of the housing of the evaluation unit **IDENTControl**.

With its L-shaped housing, the evaluation unit including bus connector fits into a 120 mm grid in the switch cabinet. The mounting depth of 70 mm furthermore enables installation in flat switch boxes with a depth of only 100 mm.

There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

Technical data

General specifications

Number of read/write heads	max. 4 alternative 2 read/write heads and 2 trigger sensors
----------------------------	--

Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED UL	green: Voltage Logic; Interface Power ON/OK
LED RC	green: Remotebus Check Arriving long-distance bus correctly connected; interface module not in reset.
LED BA	green: Bus Active Telegrams are being transmitted.
LED RD	yellow: Remotebus Disable Continuing long-distance bus is deactivated.
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	RS 485
Protocol	INTERBUS remote bus
ID code	03
Transfer rate	500 kBit/s or adjustable at 2 MBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 %
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw INTERBUS: M23 round connector ; Connector: incoming interface socket: outgoing Interface
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

IDENT-O Barcode

IDENT-O Data Matrix

High Temperature IDENT System



Model Number

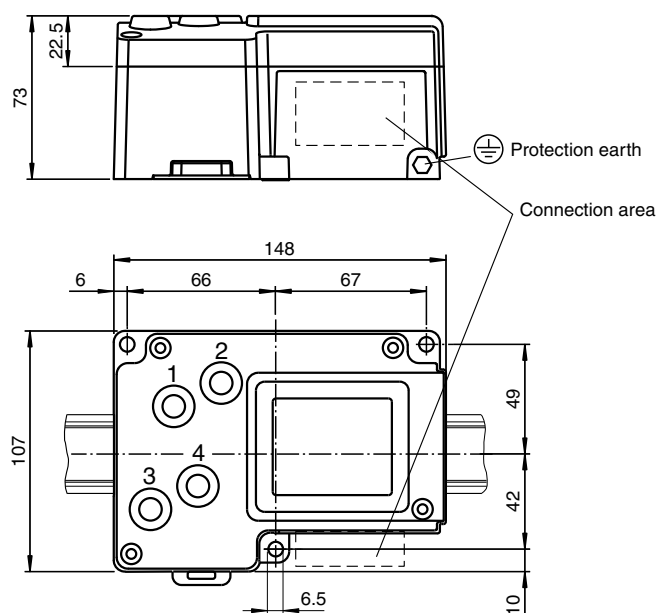
IC-KP-B6-SUBD

Control interface unit IDENTControl
with interface for PROFIBUS DP

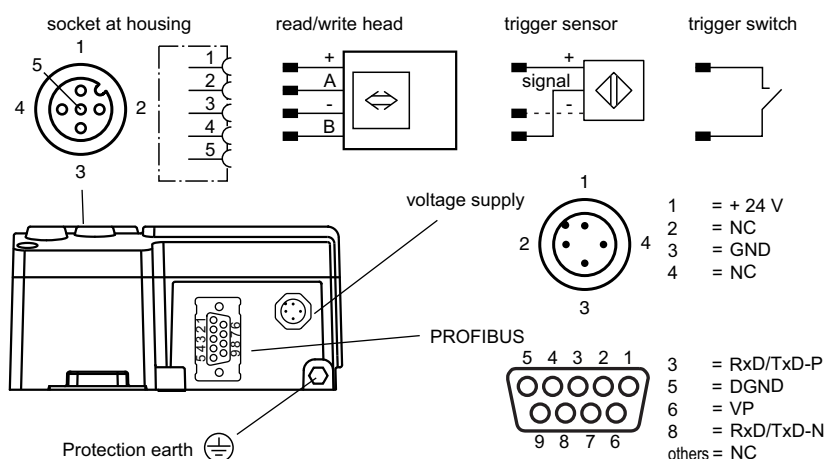
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

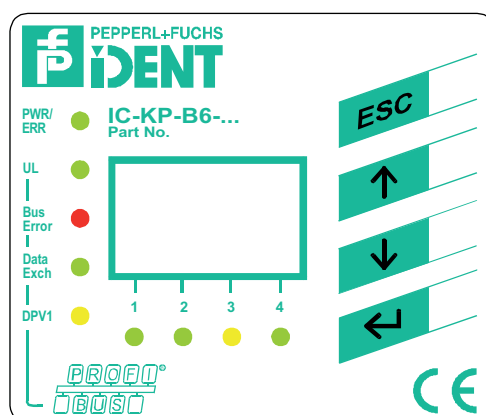
Dimensions



Electrical connection



Indicating / Operating means



Function

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There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

VAZ-PB-DB9-W

PROFIBUS Sub-D Connector with switchable terminal resistance

Technical data

General specifications

Number of read/write heads	max. 4
alternative 2 read/write heads and 2 trigger sensors	

Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED UL	green: Interface Power ON/OK
LED Bus Error	red: Bus error
LED Data Exch	green: Slave is at state "Data Exchange"
LED DPV1	Yellow: not used
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 %
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP40
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw PROFIBUS: Sub-D connector, 9-pin
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

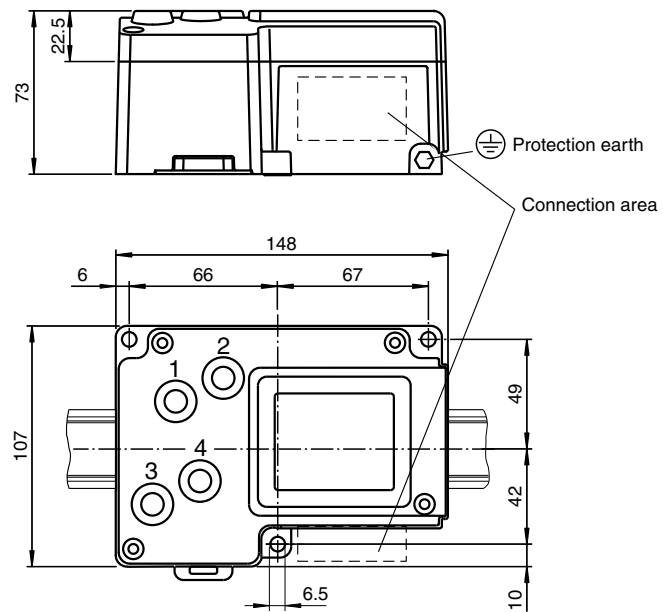
IC-KP-B6-V15B

Control interface unit IDENTControl
with interface for PROFIBUS DP

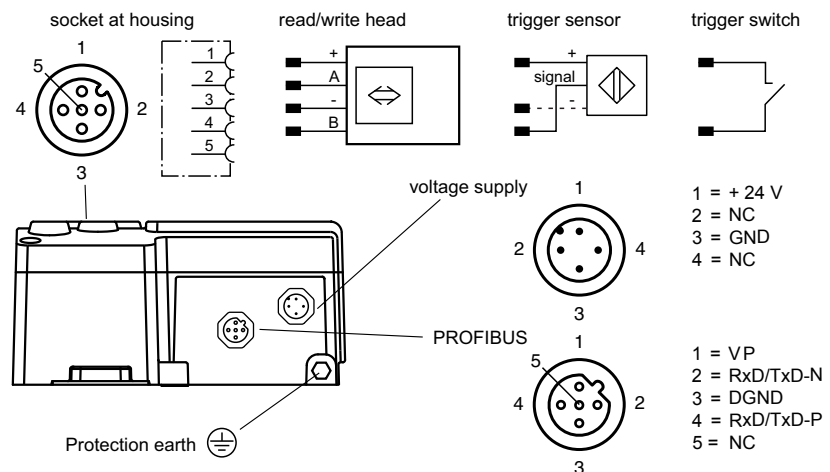
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

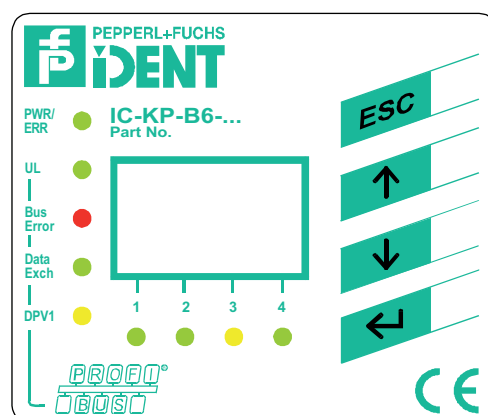
Dimensions



Electrical connection



Indicating / Operating means



Function

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There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

ICZ-3T-0,2M-PUR ABG-V15B-G

Y- Connection cable for PROFIBUS

ICZ-2T/TR-0,2M-PUR ABG-V15B-G

Terminal cable for PROFIBUS with terminal resistor

V15B-G-5M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

V15B-G

Cable socket, M12, for PROFIBUS, adjustable

V15SB-G

Cable connector, M12, for PROFIBUS, adjustable

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

Technical data

General specifications

Number of read/write heads	max. 4
	alternative 2 read/write heads and 2 trigger sensors

Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED UL	green: Interface Power ON/OK
LED Bus Error	red: Bus error
LED Data Exch	green: Slave is at state "Data Exchange"
LED DPV1	Yellow: not used
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw PROFIBUS: M12 plug connection, B-coded
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

IDENT-O Barcode

IDENT-O Data Matrix

High Temperature IDENT System



Model Number

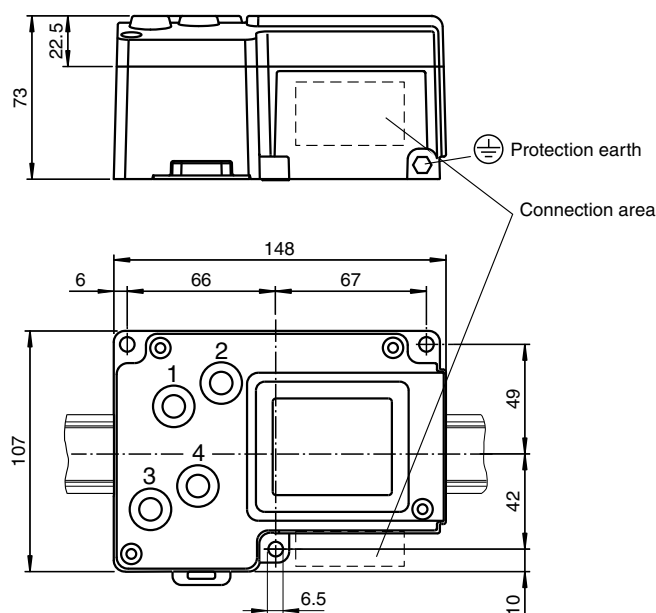
IC-KP-B6-2V15B

Control interface unit IDENTControl
with interface for PROFIBUS DP

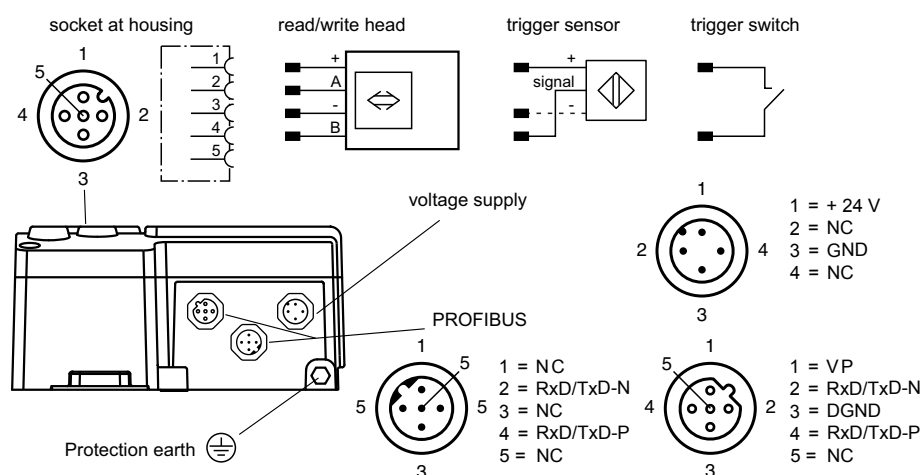
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

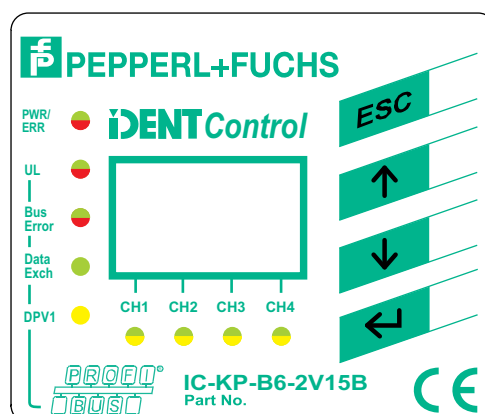
Dimensions



Electrical connection



Indicating / Operating means



Function

The innovative concept of the RFID identification system **IDENTControl** from Pepperl+Fuchs has many advantages in comparison to other systems. The core piece of the system is the evaluation unit **IDENTControl**.

Thanks to the integrated interfaces for all standard field bus systems such as PROFIBUS, EtherNet, PROFINET IO, DeviceNet, serial connections (RS 232/RS 485/RS 422) and numerous connection options for inductive write/read heads as well as microwave antennas, the evaluation unit **IDENTControl** can be adjusted to your needs in a flexible and easy manner.

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Mounting the unit onto DIN mounting rails is easy thanks to the snap-fits on the back of the housing of the evaluation unit **IDENTControl**.

With its L-shaped housing, the evaluation unit including bus connector fits into a 120 mm grid in the switch cabinet. The mounting depth of 70 mm furthermore enables installation in flat switch boxes with a depth of only 100 mm.

There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V15B-G-5M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12, PUR cable

ICZ-TR-V15B

Terminating resistor for PROFIBUS

V15B-G

Cable socket, M12, for PROFIBUS, adjustable

V15SB-G

Cable connector, M12, for PROFIBUS, adjustable

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

Technical data

General specifications

Number of read/write heads	max. 4
	alternative 2 read/write heads and 2 trigger sensors

Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED UL	green: Interface Power ON/OK
LED Bus Error	red: Bus error
LED Data Exch	green: Slave is at state "Data Exchange"
LED DPV1	Yellow: not used
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	3.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw PROFIBUS: 2x M12 plug connection, B-coded
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

IDENT-O Barcode

IDENT-O Data Matrix

High Temperature IDENT System



Model Number

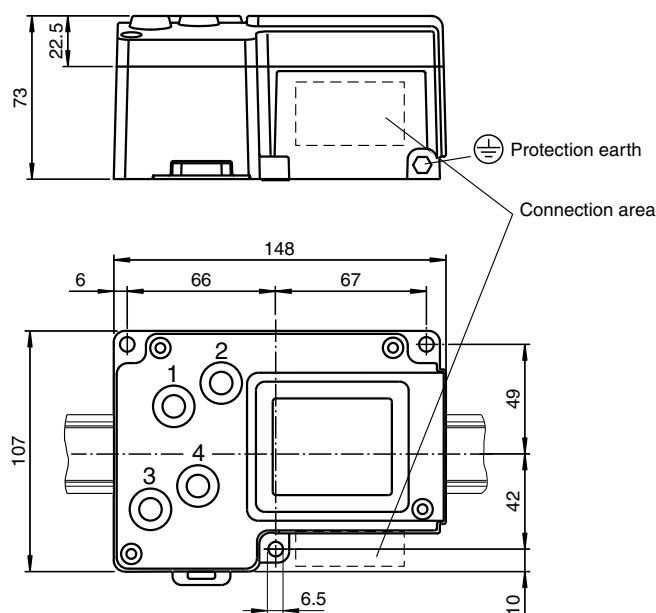
IC-KP-B7-V95

Control interface unit IDENTControl
with interface for DeviceNet

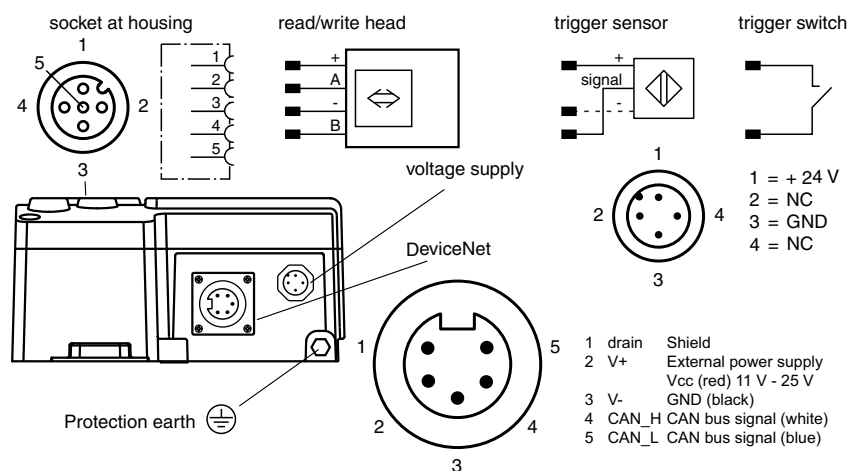
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

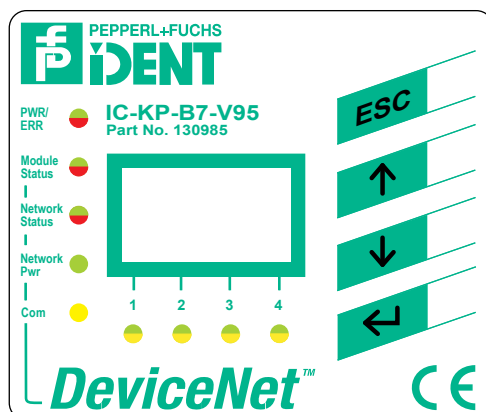
Dimensions



Electrical connection



Indicating / Operating means



Function

The innovative concept of the RFID identification system **IDENTControl** from Pepperl+Fuchs has many advantages in comparison to other systems. The core piece of the system is the evaluation unit **IDENTControl**.

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With its L-shaped housing, the evaluation unit including bus connector fits into a 120 mm grid in the switch cabinet. The mounting depth of 70 mm furthermore enables installation in flat switch boxes with a depth of only 100 mm.

There are 3 further mounting holes for field mounting.

Accessories

DNV95-G-0M-T-0M-V95-G-L
T-Distributor for DeviceNet

DNV95-G-TERM
Bus termination for DeviceNet

V1-G-5M-PUR
Cable socket, M12, 4-pin, PUR cable

V1-G-5M-PUR-ABG-V1-W
Connecting cable, M12 to M12, PUR cable 4-pin, shielded

DNV95-G-5M-PVC-V95-G
Connection cable, DeviceNet, 7/8" on 7/8", PVC cable

Technical data

General specifications

Number of read/write heads	max. 4 alternative 2 read/write heads and 2 trigger sensors
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Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED Module Status	green: normal operation red flashing: recoverable fault red: unrecoverable fault red/green flashing: LED test
LED Network Status	green: on-line, connected green flashing: on-line, not connected red: critical link failure red flashing: connection timeout red/green flashing: LED test
LED Network Pwr	green flashing at startup: LED test green: network power available
LED COM	yellow flashing at startup: LED test yellow: data exchange
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands and addressing
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_o	20 ... 30 V DC, PELV
Ripple	≤ 10 % at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_o	2.5 W Without read/write heads
Network voltage	11 ... 25 V DC, PELV
Network current consumption	≤ 40 mA
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	DeviceNet
Protocol	CIP
Transfer rate	125, 250, 500 kBit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 %
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw DeviceNet: Mini-Style
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

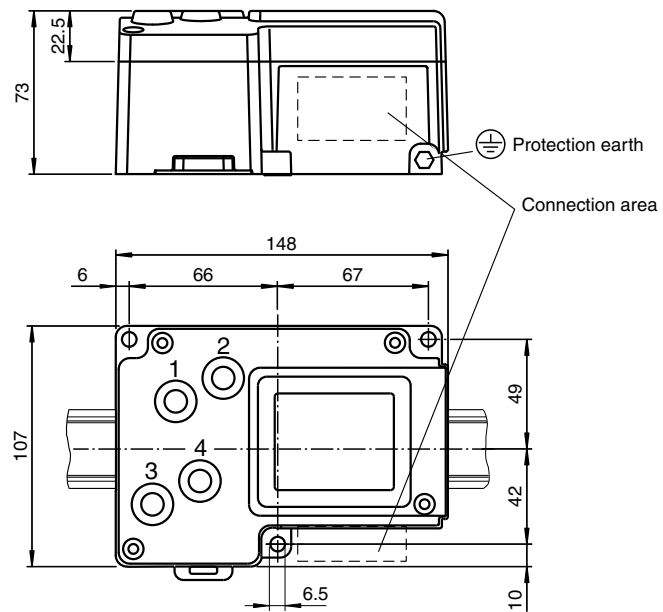
IC-KP-R2-V1

Control interface unit IDENTControl with serial interface

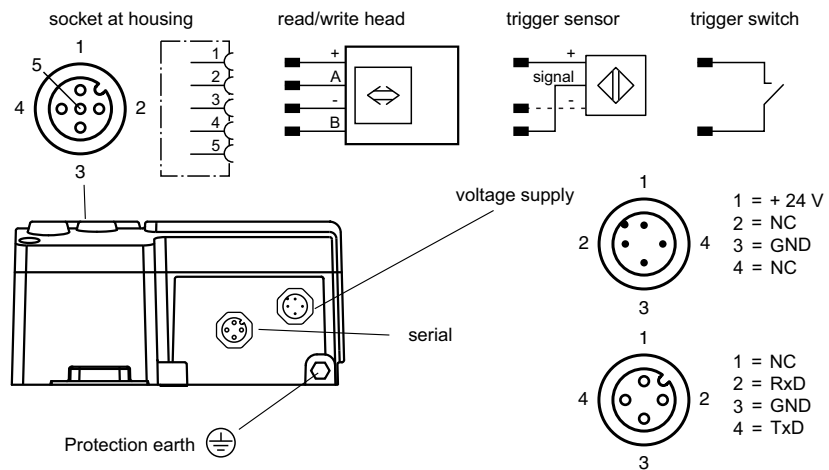
Features

- Max. 4 read/write heads connectable
- Alternative 2 read/write heads and 2 trigger sensors can be connected
- LC display with background lightning
- Direct operation via 4 keys
- LED status indicator of bus communication and read/write heads

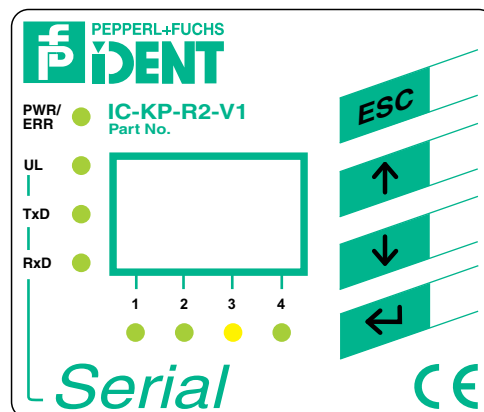
Dimensions



Electrical connection



Indicating / Operating means



Function

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There are 3 further mounting holes for field mounting.

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1S-G-0,15M-PUR-SUBD

Adapter M12 on Sub-D for PC connection with null modem cable

IVZ-K-R2

Null modem cable

V1-G-5M-PUR

Cable socket, M12, 4-pin, PUR cable

RFIDControl

Software for RFID identification systems

Technical data

General specifications

Number of read/write heads	max. 4 alternative 2 read/write heads and 2 trigger sensors
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Indicators/operating means

LEDs 1, 2, 3, 4	Status indicator for read/write heads green: command at read/write head active yellow: approx. 1 second long, if command was successfully executed
LED PWR/ERR	green: power on red: Hardware fault
LED UL	green: Interface Power ON/OK
LED TxD	green: flashes in rhythm with the transmitted data
LED RxD	green: flashes in rhythm of receiving data
LC display	two-line multi-function display with 12 characters per line configuration of the control interface and display of connected read/write heads as additional pictograms; easy and direct selection of operating commands
Button	4 keys: ESC, up, down and return

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, PELV
Ripple	$\leq 10\%$ at 30 V DC
Current consumption	≤ 2 A incl. read/write heads
Power consumption P_0	2.5 W Without read/write heads
Electrical isolation	basic insulation acc. to DIN EN 50178, rated insulation voltage of 50 V _{eff}

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s

Compliance with standards and directives

Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-30 ... 80 °C (243 ... 353 K)
Climatic conditions	air humidity max. 96 % Salt spray resistant to EN 60068-2-52
Shock and impact resistance	Oscillation (Sine): 5 g, 10 - 1000 Hz to EN 60068-2-6 Shock (Half-sine): 30 g, 11 ms in accordance with EN 60068-2-27

Mechanical specifications

Protection degree	IP67
Connection	read/write heads: M12 plug connection, 4-pin, screened, Power supply: M12 plug connection protection earth: M6 earthing screw RS 232: M12 plug connection
Material	
Housing	aluminium, powder coated
Installation	snap-on to 35 mm standard rail or screw fixing
Mass	approx. 1000 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System

4.5 125 MHz R/W heads and transponders for IDENTControl

Identification systems with an operating frequency of 125 kHz are the most versatile and are most frequently used in automation technology.

This is due to the large choice of available transponders in the most varied designs and sizes, for high temperatures, in chemical-resistant housings, for installation in and on metal and to degree of protection IP69k.

High temperature

In many industrial applications, transponders are subjected to high temperatures. Transponder IPC02-68-T7 can withstand up to 300°C for a short time.

Transponders with an increased temperature class are marked with -T* in the order code.

High sensing range at low frequency

You attain maximum sensing ranges in the 125 kHz frequency through combinations of a large transponder (IPC03-100 with Ø100 mm) and large R/W head (IPH-F15-V1 with Ø140 mm). Sensing ranges of greater than 10 cm are not possible in a metal environment or with spacers.

Memory segmentation

All read/write tags (re-writable transponders) have 32 bit memory blocks. Most of these read/write tags are based on EEPROM technology and allow at least 100000 write cycles. The memory segmentation in 32 bit memory blocks allows you to simply move to the next memory block of the same read/write tag after 100,000 write cycles. 100,000 write cycles are at your disposal again in each memory block.

With this procedure, IPC03 type read/write tags can be written to at least 2,900,000 times if all memory blocks are used consecutively.

Ferromagnetic FRAM transponder IPC12-58-64K provides an almost unlimited number of write cycles (10^{12}).

IPC02 Read only tag

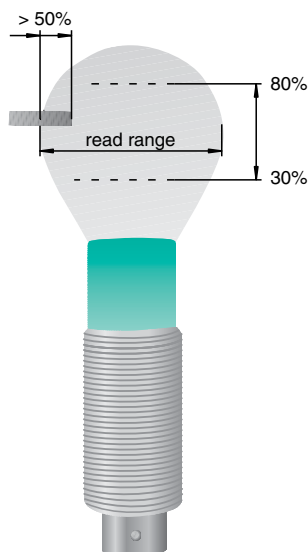
IPC02 type read only tags (read only transponders) have a worldwide unique code of 40 bit length. They are part of the cost-effective RFID solution in the market and are pre-programmed by the manufacturer with a fixed read only code.

Read/write tag with make read only code function

IPC11 special tag types (write once transponders) can emulate a read only tag with its own read only code. The freely programmable read only code can be protected against further change and as a result, the tag achieves reading speeds similar to those of a real read only tag.

The evaluation or assignment of read only code can be simplified considerably in the PLC program.

Calculation example of travel speeds



The following formula is valid for the calculation of the maximum possible travel speed:

$$\text{speed} = \frac{\text{read range (in m)}}{\text{read time (in s)}} \Rightarrow v_{\max}$$

In practice, a correct reading should also result if a read attempt is unsuccessful due to EMC influence, for example. For practical application therefore, only a half of the speed is recommended so a repeat reading is taken into consideration:

$$v_{\text{praxis}} = v_{\max} / 2$$

The following examples show how you can calculate the travel speed of your application. For the example calculation, the following assumptions are made:

- R/W head in F15 construction type (140 mm edge length)
- Read/write tag with 100 mm diameter
- Reading/writing times (in ms):

	IPC02	IPC03
Read read only code	40	130
N ξ Read 4 byte data	-	(N ξ 30) + 100
N ξ Write 4 byte data	-	(N ξ 100) + 100

Read read only code

(IPC02/IPC11)

Read time $t = 40 \text{ ms} = 0.04 \text{ s}$

$s = 140 \text{ mm} = 0.14 \text{ m}$

$$v_{\text{praxis}} = \frac{0,14 \text{ m}}{(2 \times 0,04 \text{ s})} = 1,75 \text{ m/s}$$

Read 4 bytes (IPC03)

Read time $t = (1 \xi 30 \text{ ms}) + 100 \text{ ms}$

$= 130 \text{ ms} = 0.13 \text{ s}$

$s = 140 \text{ mm} = 0.14 \text{ m}$

$$v_{\text{praxis}} = \frac{0,14 \text{ m}}{(2 \times 0,13 \text{ s})} = 0,538 \text{ m/s}$$

Read 8 bytes (IPC03)

As the reading can only be executed in 4 byte blocks, 2 ξ 4 byte blocks must be read.

Read time $t = (2 \xi 30 \text{ ms}) + 100 \text{ ms}$

$= 160 \text{ ms} = 0.16 \text{ s}$

$s = 140 \text{ mm} = 0.14 \text{ m}$

$$v_{\text{praxis}} = \frac{0,14 \text{ m}}{(2 \times 0,16 \text{ s})} = 0,438 \text{ m/s}$$

In the following tables, the travel speeds attainable in practice are shown for various R/W heads. In the process, a repeat reading is taken into consideration. (All data in m/s)

v_{actual} [in m/s]	IPH-18GM-V1	IPH-30GM-V1	IPH-F61-V1	IPH-L2-V1	IPH-FP*-V1	IPH-F15-V1
Read read only code ¹⁾	0.	0.37	0.37	0.5	1	1.7
Read 4 byte data ¹⁾	0.07	0.1	0.1	0.15	0.3	0.5
Read 8 byte data ¹⁾	0.06	0.09	0.09	0.125	0.25	0.4
Write 4 byte data ¹⁾	0.03	0.05	0.05	0.07	0.13	0.2

¹⁾ at 30-80% of max. sensing range

R/W heads



Order code	IPH-18GM-V1	IPH-30GM-V1	IPH-F61-V1	IPH-L2-V1	IPH-FP-V1	IPH-FP7V4A	IPH-F15-V1
Page	62	63	64	65	66	67	68
General data							
Operating frequency	125 kHz						
Transfer rate	2 kBit/s						
Sensing range							
Read distance	1–50 mm	1–65 mm	2–45 mm	1–75 mm	0–100 mm	0–100 mm	2–155 mm
Write distance	0–40 mm	1–55 mm	2–35 mm	2–65 mm	0–80 mm	0–80 mm	2–140 mm
Width	Max. 40 mm	Max. 55 mm	Max. 65 mm	Max. 60 mm	Max. 80 mm	Max. 80 mm	Max. 145 mm
Operating distance	Max. 50 mm	Max. 70 mm	Max. 70 mm	Max. 80 mm	Max. 100 mm	Max. 100 mm	Max. 140 mm
Electrical data							
Power consumption P ₀	≤ 1.2 W						
Mechanical data							
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP68/IP69K	IP67
Connection	M12x1 connector	M12x1 connector	M12x1 connector	M12x1 connector	M12x1 connector	Terminal compart- ment, Core cross-section ≤ 2.5 mm ²	M12x1 connector
Material							
Housing	PBT/Stainless steel	PBT/Stainless steel	ABS	PA-GF35/Stain- less steel	PBT	PBT	PBT/Stainless steel/Aluminum
Lower section	-	-	-	-	Aluminum, die cast	Stainless steel V4A	-
Weight	Approx. 40 g	Approx. 75 g	Approx. 50 g	Approx. 210 g	Approx. 380 g	Approx. 700 g	Approx. 1200 g

Read only tag



Order code	IPC02-12	IPC02-16	IPC02-20P	IPC02-20CD	IPC02-26-T6	IPC02-30P	IPC02-50P	IPC02-68-T7
Page	70	71	72	73	74	75	76	77
General data								
Operating frequency	125 kHz							
Transfer rate	2 kBit/s							
Memory								
Type/size	ROM 64 bit (40 bit code, 24 bit data protection)							
Read cycles	unlimited							
Data hold time	Min. 10 years							
Ambient conditions								
Ambient temperature	-25–85°C	-25–85°C	-20–85°C	-20–60°C	-25–85°C 20–160°C for 100 x 5 min with trans- position every 30 s	-20–100°C	-20–85°C	-140°C 200°C for 60 m 250°C for 10 m 300°C for 5 m
Storage temperature	-40–130°C (233–403 K)	-25–100°C (248–373 K)	-20–85°C (253– 358 K)	-	-25–140°C for 1000 h 200°C for 5 x 35 min	-20–100°C	-20–85°C	-40–85°C -40–160°C for 1000 h
Mechanical data								
Degree of protection	IP68	IP68	IP68/IP69K	IP67	IP68 (24 h in water 1 m deep)	IP68	IP68	IP67
Material								
Housing	Epoxy (black)	Epoxy (black)	PC (polycarbonate)	PE/PES, transparent	PA	PC (polycarbonate)	PC (polycarbonate)	LCP
Casting compound/hard- ener	-	-	Epoxy	-	-	-	Epoxy	-

Read/write tags

								
Order code	IPC03-20P	IPC03-30P	IPC03-50P	IPC03-58	IPC03-100	IPC11-12	IPC11-30	IPC11-50
Page	88	89	90	91	92	79	80	81
General data								
Operating frequency					125 kHz			
Transfer rate					2 kBit/s			
Memory								
Type/size	EEPROM 928 Bit ROM 32 bit				EEPROM 264 Bit (of which 40 bits are usable as special fixed code)			
Read cycles					unlimited			
Write cycles					> 100000			
Data hold time					10 years at 55°C			
Ambient conditions								
Ambient temperature	-20–85°C	-20–100°C	-25–70°C	-25–85°C	-40–85°C	-25–85°C	-25–70°C	-25–70°C
Storage temperature	-20–85°C	-20–100°C	-40–90°C	-25–120°C	-55–95°C	-40–130°C	-40–85°C	-40–85°C
Mechanical data								
Degree of protection	IP68/IP69K	IP68/IP69K	IP68	IP67	IP66	IP68	IP67	IP67
Material								
Housing	PC (polycarbonate)	PC (polycarbonate)	PC (polycarbonate)	Polyamide (PA)	Epoxy (black)	PPS and epoxy (black)	PC (polycarbonate)	PC (polycarbonate)
Casting compound	Epoxy	-	Epoxy	Polyurethane (PUR)	-	-	-	-

Special form transponders

								
Order code	IPC03-12.4	IPC03-24	IPC03-16GK	IPC03-30GK	IPC03-20K*	IPC*-C1	IPC12-58-64k	IPC02-3GL
Page	82	83	85	84	86+87	78+93	94	69
General data	Flush in metal				Keyfob	ISO credit card	FRAM	Glass tube
Operating frequency					125 kHz			
Transfer rate					2 kBit/s			
Memory								
Type/size	EEPROM 928 Bit ROM 32 bit				EEPROM 928 Bit ROM 32/40 bit		FRAM 64 kBit, read only code 32 bit	ROM 64 bit (40 bit code, 24 bit data protection)
Read cycles					unlimited			
Write cycles					> 100000		-	
Data hold time					10 years at 55°C		-	
Ambient conditions								
Ambient temperature	-25–70°C	-25–70°C	-25–70°C	-25–70°C	-25–80°C	0–50°C	-25–85°C	-25–70°C
Storage temperature	-40–85°C	-40–85°C	-40–85°C	-40–85°C	-40–90°C	-40–70°C	-25–85°C	-40–90°C
Mechanical data								
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP68
Material								
Housing	PBT	PBT	PBT	PP	PC (polycarbonate)	PVC	Polyurethane (PUR)	Glass
Casting compound/hardener	CY 221/HY 2966	CY 221/HY 2966	CY 221/HY 2966	CY 221/HY 2966	-	-	WEVO 403FL/300	-



Model Number

IPH-18GM-V1

Read/write head
for iDENTControl

Features

- Read/write head with thread M18 x 1
- Connection via plug connection V1 (M12 x 1)
- Multihole-LED for function display
- Protection degree IP67

Accessories

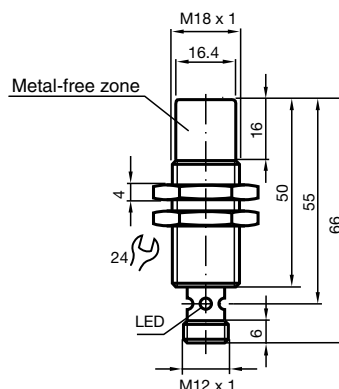
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

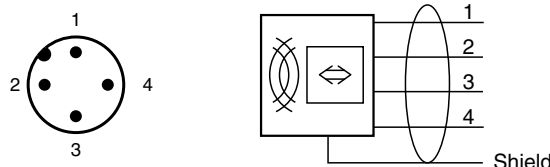
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	1 ... 50 mm
Writing distance	0 ... 40 mm
Width	max. 40 mm
Operating distance	maximum: 50 mm

Indicators/operating means

LED green/yellow	Multihole-LED: green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the iDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel
Encapsulation compound	Fermadur
Installation	not embeddable
Distance between two heads	Multiplex on: ≥ 30 mm Multiplex off: ≥ 180 mm
Mass	approx. 40 g



Model Number

IPH-30GM-V1

Read/write head
for IDENTControl

Features

- Read/write head with thread M30 x 1.5
- Connection via plug connection V1 (M12 x 1)
- Multihole-LED for function display
- Protection degree IP67

Accessories

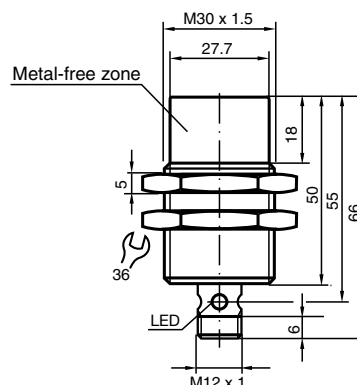
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

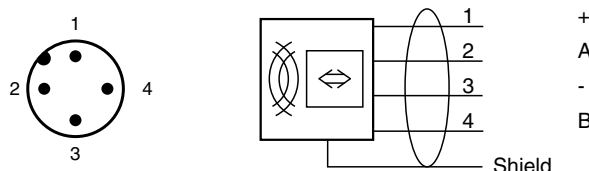
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	1 ... 65 mm
Writing distance	1 ... 55 mm
Width	max. 55 mm
Operating distance	maximum: 70 mm

Indicators/operating means

LED green/yellow	Multihole-LED: green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel
Encapsulation compound	Fermadur
Installation	not embeddable
Distance between two heads	Multiplex on: ≥ 50 mm Multiplex off: ≥ 270 mm
Mass	approx. 75 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System**Model Number****IPH-F61-V1**

Read/write head
for iDENTControl

Features

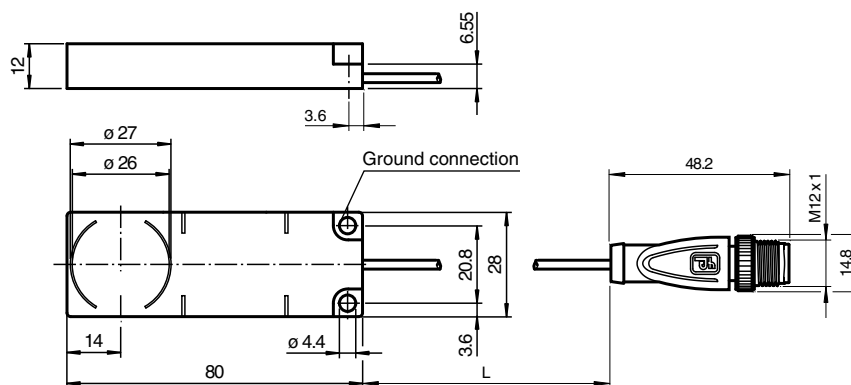
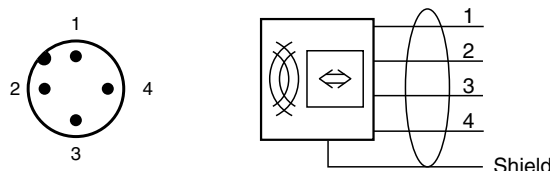
- Particularly flat construction
- Connection cable with V1 plug (M12 x 1)
- Protection degree IP67
- Can be mounted on metal

Accessories**V1-G-5M-PUR-ABG-V1-W**

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions**Electrical connection****Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	2 ... 45 mm
Writing distance	2 ... 35 mm
Width	max. 65 mm
Operating distance	maximum: 70 mm

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the iDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	ABS
Encapsulation compound	CY 221/HY 2966
Installation	
Distance between two heads	Multiplex on: ≥ 50 mm Multiplex off: ≥ 290 mm
Mass	approx. 50 g
Cable length	20 cm



Model Number

IPH-L2-V1

Read/write head
for IDENTControl

Features

- VariKont L^(r) Type with variable alignment capability in 15° steps and front face in 90° steps
- 4 x dual LEDs on the corners for visibility on all sides
- Protection degree IP67
- Connection via plug connection V1 (M12 x 1)

Accessories

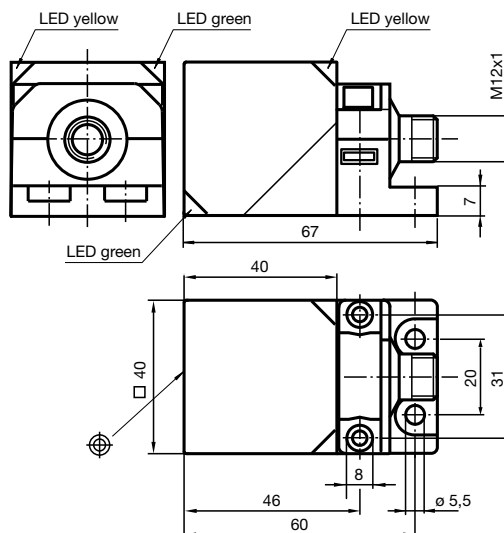
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

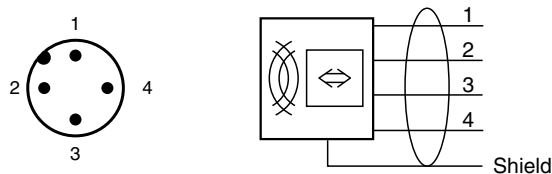
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	1 ... 75 mm
Writing distance	2 ... 65 mm
Width	max. 60 mm
Operating distance	maximum: 80 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P ₀	≤ 1.2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PA-GF35
Encapsulation compound	Fermadur
Installation	not embeddable in metal
Distance between two heads	Multiplex on: ≥ 60 mm Multiplex off: ≥ 450 mm
Mass	approx. 210 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

IPH-FP-V1

Read/write head
for IDENTControl

Features

- Connection via plug connection V1 (M12 x 1)
- Dual-LED for function display
- Protection degree IP67

Accessories

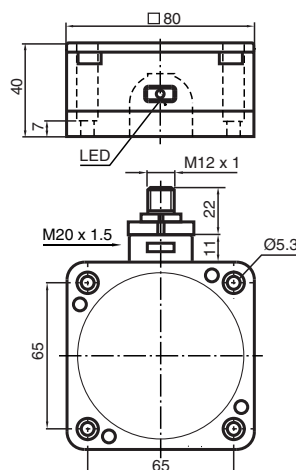
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

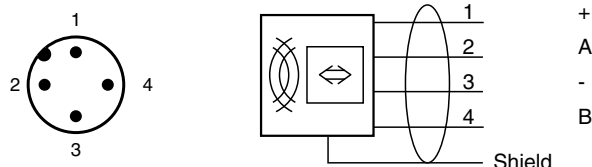
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	0 ... 100 mm
Writing distance	0 ... 80 mm
Width	max. 80 mm
Operating distance	maximum: 100 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT
Lower section	aluminium diecasting
Encapsulation compound	Fermadur
Installation	
Distance between two heads	Multiplex on: ≥ 100 mm Multiplex off: ≥ 550 mm
Mass	approx. 380 g



Model Number

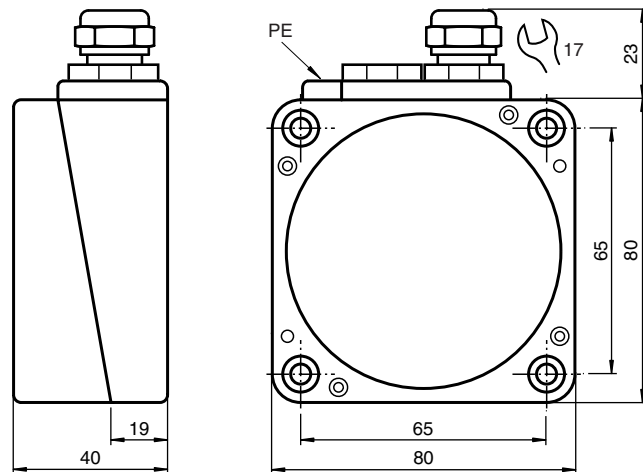
IPH-FP7V4A

Write/read head
Lower section stainless-steel version
for IDENTControl

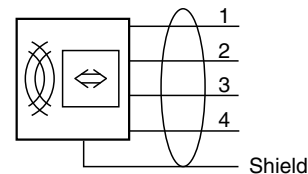
Features

- Dual-LED for function display
- Stainless steel housing
- Resistant against cleaning material
- Connection via terminal compartment
- Protection degree IP67 / IP68 / IP69K

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	0 ... 100 mm
Writing distance	0 ... 80 mm
Width	max. 80 mm
Operating distance	maximum: 100 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP69K
Connection	terminal compartment, ≤ 2.5 mm ² conductor csa
Material	
Housing	PBT
Lower section	stainless steel V4A
Encapsulation compound	Fermadur
Installation	
Distance between two heads	Multiplex on: ≥ 100 mm Multiplex off: ≥ 550 mm
Mass	approx. 700 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IPH-F15-V1

Read/write head
for iDENTControl

Features

- Dual-LED for function display
- Connection via plug connection V1 (M12 x 1)
- Protection degree IP67
- Including robust stainless steel mounting plate with only 2 mounting points

Accessories

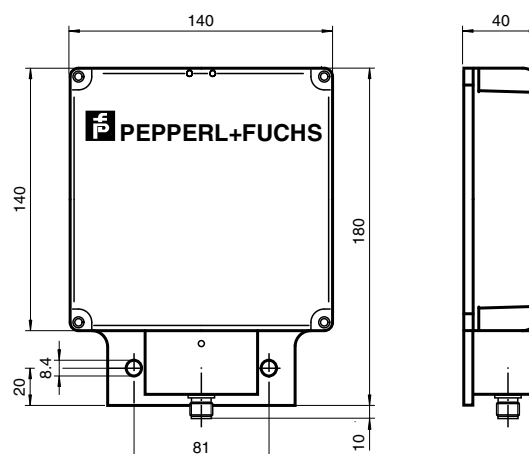
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

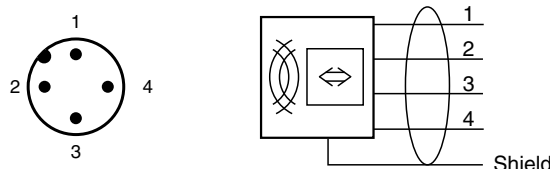
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Sensing range	
Reading distance	2 ... 155 mm
Writing distance	2 ... 140 mm
Width	145 mm
Operating distance	maximum: 140 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the iDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

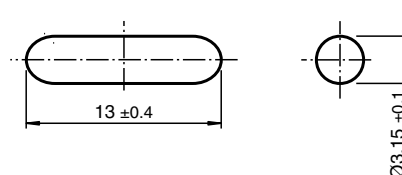
Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel/aluminium
Encapsulation compound	Fermadur
Installation	
Distance between two heads	Multiplex on: ≥ 180 mm Multiplex off: ≥ 1100 mm
Mass	approx. 1200 g

**Model Number****IPC02-3GL**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Mounting in metal due to ferrite core
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K)

Mechanical specifications

Diameter of the housing	3.15 mm
Protection degree	IP68
Material	
Housing	glass

Notes

The transponder can be read from both sides

iDENT Control

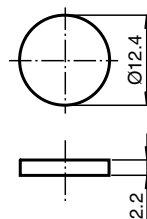
RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

**Model Number****IPC02-12**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-40 ... 130 °C (233 ... 403 K)

Mechanical specifications

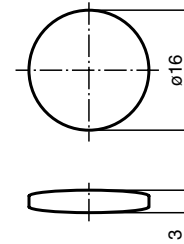
Diameter of the housing	12.4 mm
Protection degree	IP68
Material	
Housing	Epoxy (black)

**Model Number****IPC02-16**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-25 ... 100 °C (248 ... 373 K)

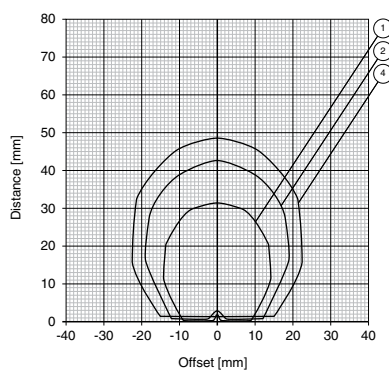
Mechanical specifications

Diameter of the housing	16 mm
Protection degree	IP68
Material	
Housing	Epoxy (black)

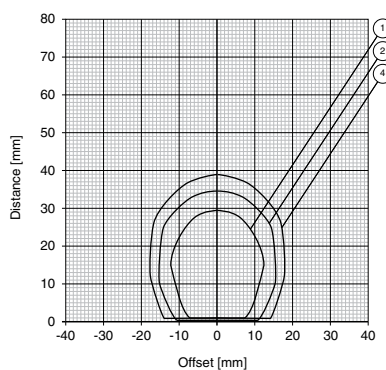
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
 ② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

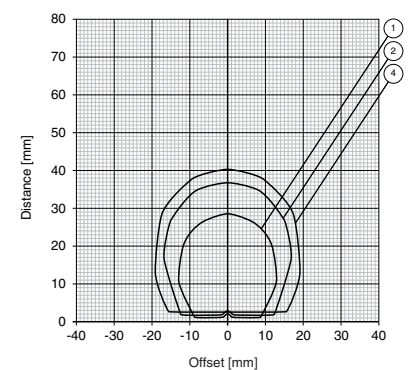
Read distance in air IPC02-16



Reading range on steel IPC02-16



Reading range on aluminium IPC02-16

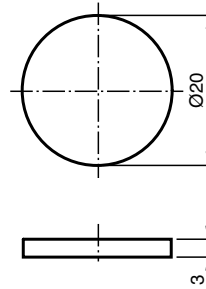


**Model Number****IPC02-20P**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Potted housing
- Protection degree IP67 / IP68 / IP69K

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited
Data retention period	> 10 years

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)

Mechanical specifications

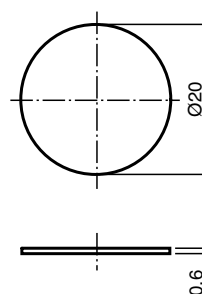
Diameter of the housing	20 mm
Protection degree	IP68 / IP69K
Material	
Housing	PC (Polycarbonate)
Encapsulation compound	Epoxy

**Model Number****IPC02-20CD**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-20 ... 60 °C (253 ... 333 K)
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Mechanical specifications

Diameter of the housing	20 mm
Protection degree	IP67
Material	
Housing	PE/PES, transparent

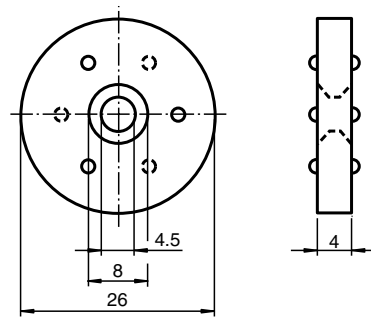
iDENTControlRFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHz**iDENT-O**
Barcode**iDENT-O**
Data MatrixHigh Temperature
iDENT System

**Model Number****IPC02-26-T6**

Read only tag

Features

- Protection degree IP68
- Battery-free high temperature read only tag
- 40 bit fixcode
- Readable from both sides
- Mounting holes for simple installation

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K) 20 ... 160 °C (293 ... 433 K) for 100 x 5 minuten with transposition every 30 Sekunden
Storage temperature	-25 ... 140 °C (248 ... 413 K) for 1000 hours 200 °C (473 K) for 5 x 35 minutes

Mechanical specifications

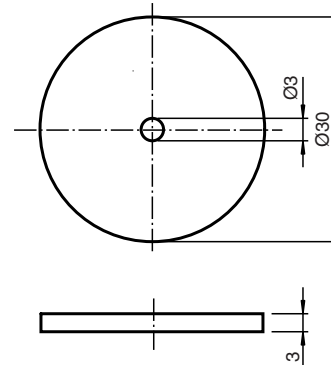
Diameter of the housing	26 mm
Protection degree	IP68 (24 hours in 1 m of water)
Material	
Housing	PA

**Model Number****IPC02-30P**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Mounting holes for simple installation
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited
Data retention period	> 10 years

Ambient conditions

Ambient temperature	-20 ... 100 °C (253 ... 373 K)
Storage temperature	-20 ... 100 °C (253 ... 373 K)

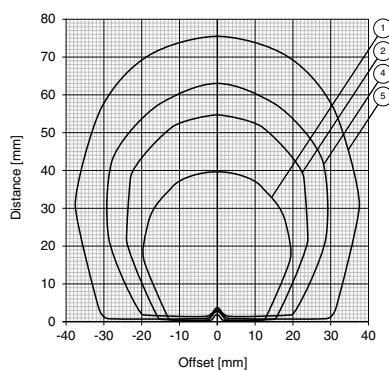
Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP68
Material	
Housing	PC (Polycarbonate)

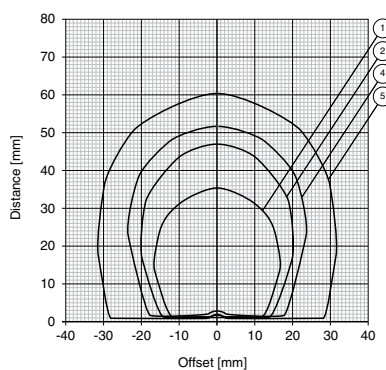
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
 ② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

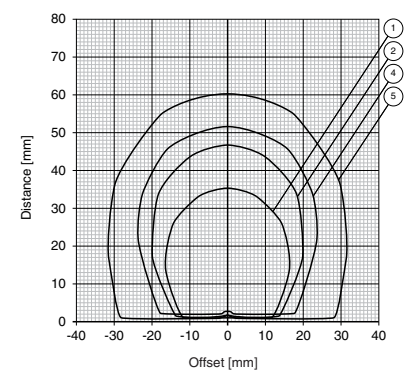
Reading range in air IPC02-30..



Reading range on steel IPC02-30..



Reading range on aluminium IPC02-30..

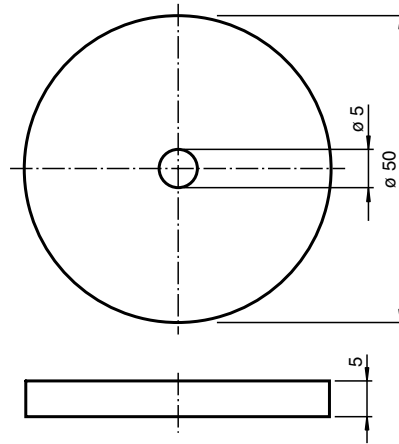


**Model Number****IPC02-50P**

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Mounting holes for simple installation
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	> 100000
Data retention period	> 10 years

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)

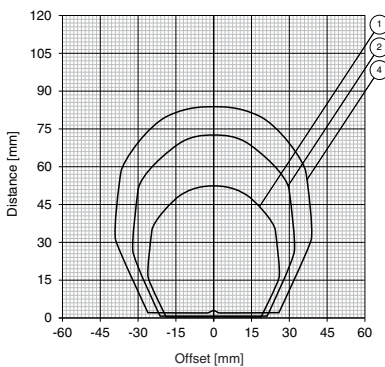
Mechanical specifications

Diameter of the housing	50 mm
Protection degree	IP68
Material	
Housing	PC (Polycarbonate)
Encapsulation compound	Epoxy

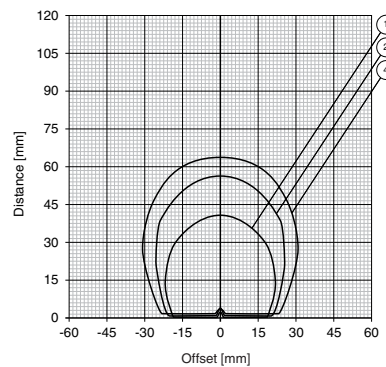
Read-/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
 ② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

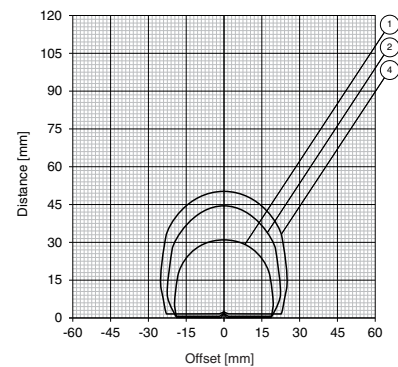
Reading range in air IPC02-50..



Reading range on steel IPC02-50..



Reading range on aluminium IPC02-50..

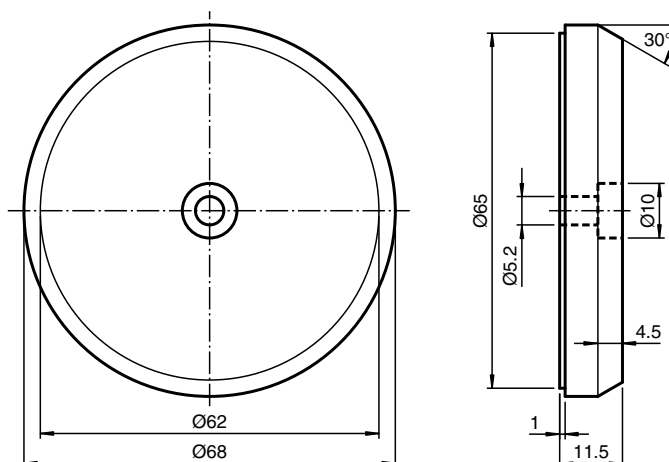


**Model Number****IPC02-68-T7**

Read only tag

Features

- Battery-free high temperature read only tag
- Temperature cycles up to 200 °C
- 40 bit fixcode
- Readable from both sides
- Mounting holes for simple installation
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-40 ... 140 °C (233 ... 413 K) 200 °C (473 K) for 60 min 250 °C (523 K) for 10 min 300 °C (573 K) for 5 min -40 ... 200 °C (233 ... 473 K) for 100 cycles x 10 min (1000 °C/min) 20 ... 200 °C (293 ... 473 K) for 500 cycles x 35 min
Storage temperature	-40 ... 85 °C (233 ... 358 K) -40 ... 160 °C (233 ... 433 K) for 1000 h

Mechanical specifications

Diameter of the housing	68 mm
Protection degree	IP67
Material	
Housing	LCP

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



CE

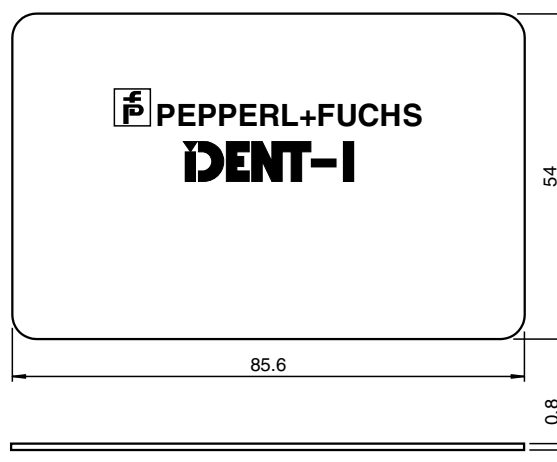
Model Number

IPC02-C1

Read only tag

Features

- Battery-free read only tag
- 40 bit fixcode
- Readable from both sides
- Protection degree IP67
- ISO credit card format

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4102 Unique (EM Microelectronic)
Type/Size	ROM 64 Bit (40 Bit code, 24 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	0 ... 50 °C (273 ... 323 K)
Storage temperature	-40 ... 70 °C (233 ... 343 K)

Mechanical specifications

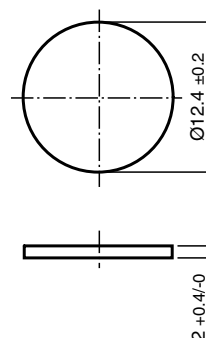
Protection degree	IP67
Material	
Housing	PVC, white

**Model Number****IPC11-12**

read/write tag

Features

- Battery-free read/write tag
- 40 bit fixcode free programmable
- Readable and writable from both sides
- Protection degree IP68

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	Q5 (Sokymat)
Type/Size	EEPROM 264 Bit (40 Bit can be used as special fix code)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-40 ... 130 °C (233 ... 403 K) for 1000 hours ≤ 150 °C (423 K) for 24 hours -20 ... 160 °C (253 ... 433 K) for 100 x 10 minutes with transposition in 30 seconds

Mechanical specifications

Diameter of the housing	12.4 mm
Protection degree	IP68
Material	
Housing	PPS and Epoxy (black)

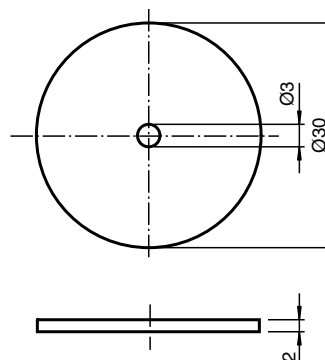
iDENTControlRFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHz**iDENT-O**
Barcode**iDENT-O**
Data MatrixHigh Temperature
iDENT System

**Model Number****IPC11-30**

read/write tag

Features

- Battery-free read/write tag
- 40 bit fixcode free programmable
- Readable from both sides
- Mounting holes for simple installation
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	Q5 (Sokymat)
Type/Size	EEPROM 264 Bit (40 Bit can be used as special fix code)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

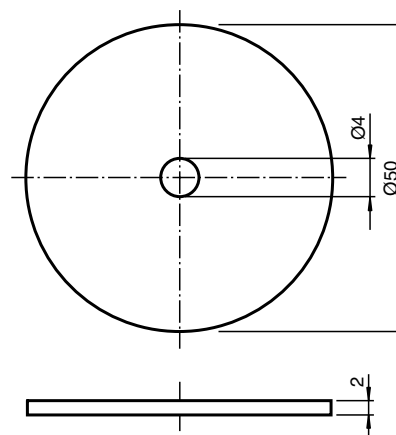
Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PC (Polycarbonate)

**Model Number****IPC11-50**

read/write tag

Features

- Battery-free read/write tag
- 40 bit fixcode free programmable
- Readable from both sides
- Mounting holes for simple installation
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	Q5 (Sokymat)
Type/Size	EEPROM 264 Bit (40 Bit can be used as special fix code)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	50 mm
Protection degree	IP67
Material	
Housing	PC (Polycarbonate)

iDENTControl

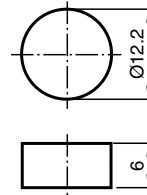
RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

**Model Number****IPC03-12.4**

read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit ROM 32 Bit

Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	12.1 mm + 0.2 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966



Model Number

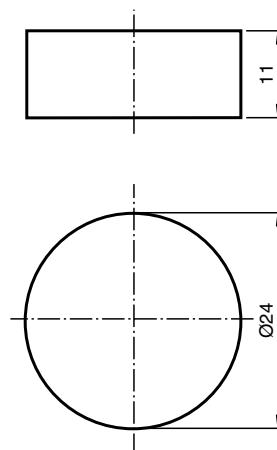
IPC03-24

read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Embeddable mountable in metal
- Protection degree IP67

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

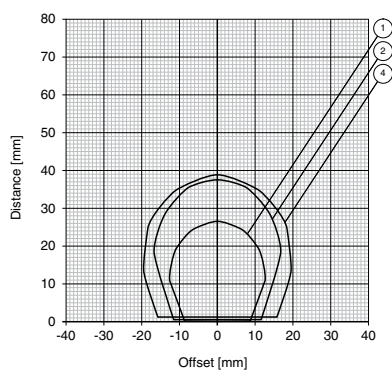
Mechanical specifications

Diameter of the housing	24 mm - 0.15 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

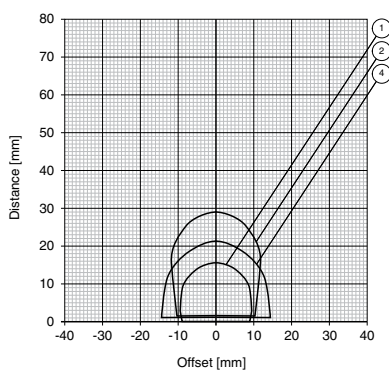
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

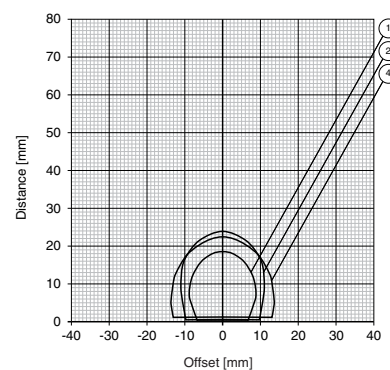
Reading range in air IPC03-24



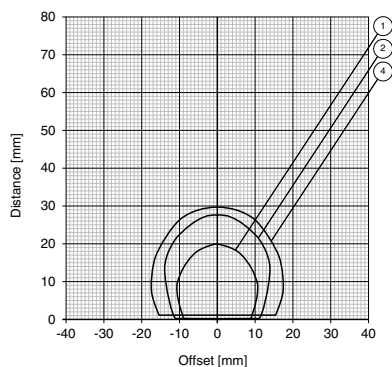
Reading range mounted flush in steel IPC03-24



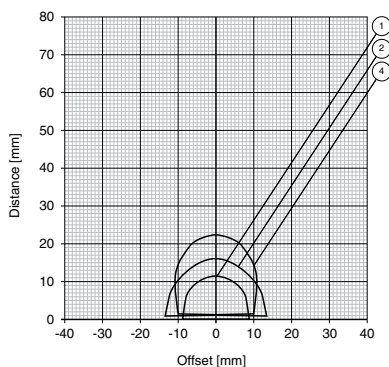
Reading range mounted flush in aluminium IPC03-24



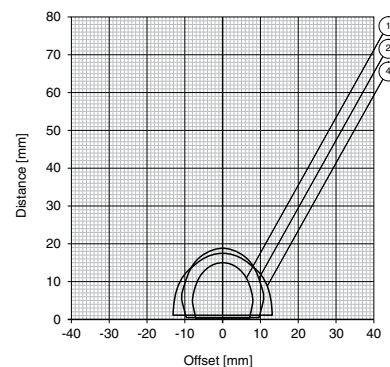
Writing range in air IPC03-24



Writing range mounted flush in steel IPC03-24



Writing range mounted flush in aluminium IPC03-24





Model Number

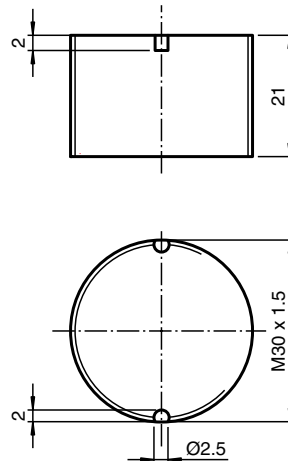
IPC03-30GK

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Embeddable mountable in metal
- Protection degree IP67
- Protective cap ICS-30GK available

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

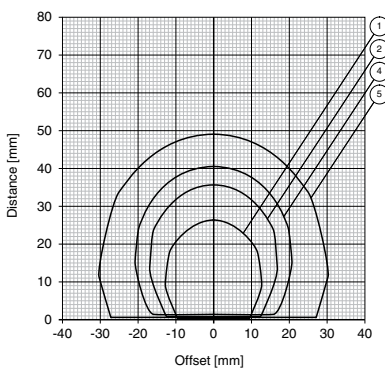
Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PP
Encapsulation compound	CY 221/HY 2966

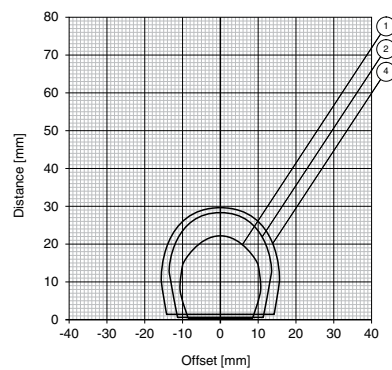
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

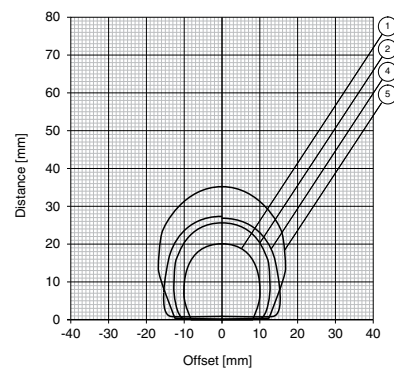
Reading range in air IPC03-30GK



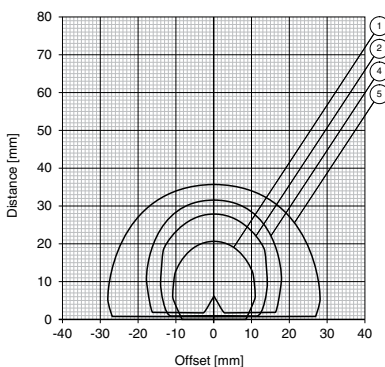
Reading range mounted flush in steel IPC03-30GK



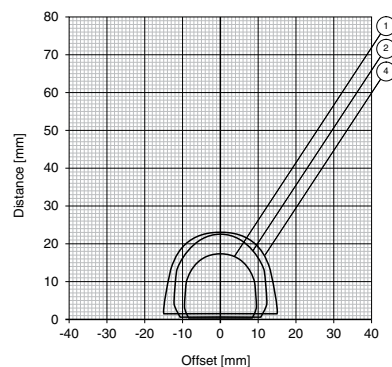
Reading range mounted flush in aluminium IPC03-30GK



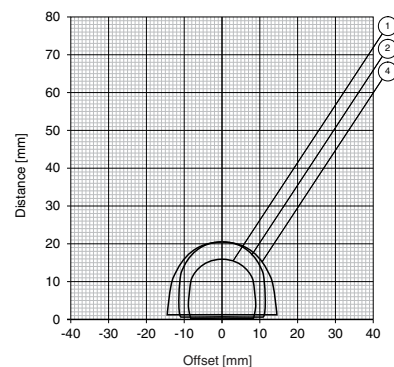
Writing range in air IPC03-30GK



Writing range mounted flush in steel IPC03-30GK



Writing range mounted flush in aluminium IPC03-30GK

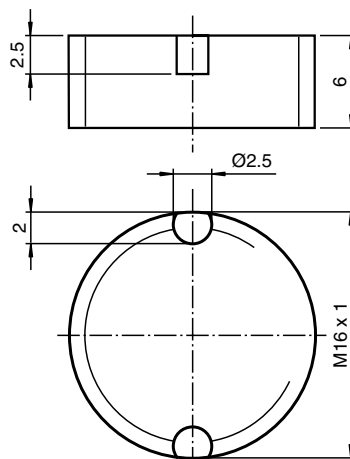


**Model Number****IPC03-16GK**

read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

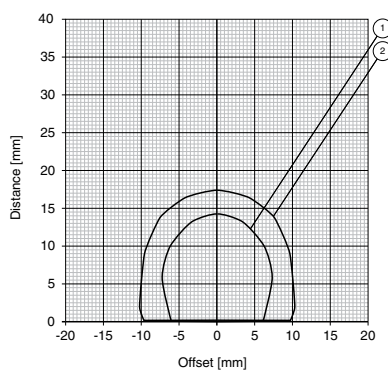
Mechanical specifications

Diameter of the housing	16 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

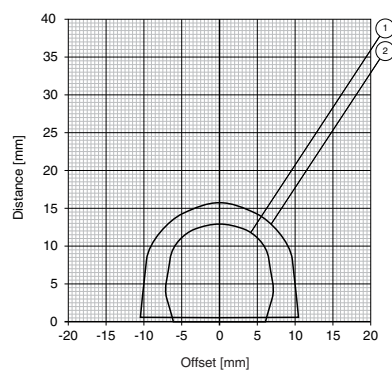
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

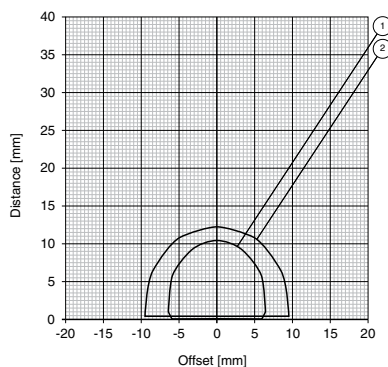
Reading range mounted flush in steel IPC03-16GK



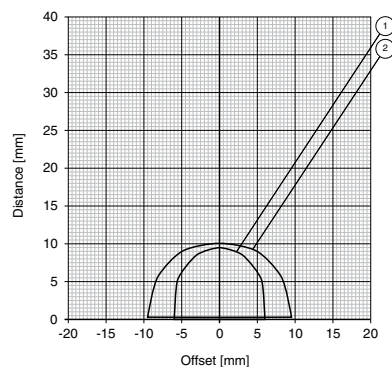
Reading range mounted flush in aluminium IPC03-16GK



Writing range mounted flush in steel IPC03-16GK



Writing range mounted flush in aluminium IPC03-16GK



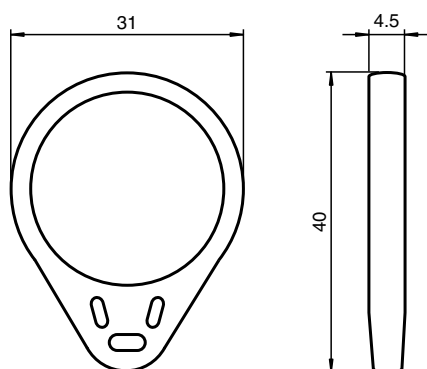
**Model Number**

IPC03-20K1

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Protection degree IP67
- Key fob

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

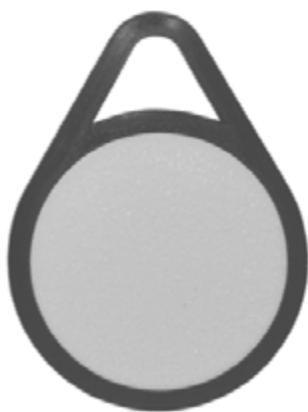
Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K)

Mechanical specifications

Protection degree	IP67
Material	
Housing	PC (Polycarbonate)



Model Number

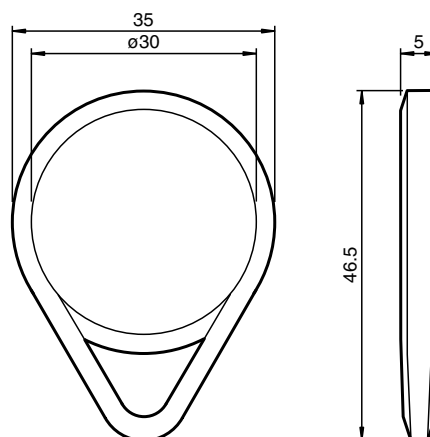
IPC03-20K2
IPC03-20K3
IPC03-20K4
IPC03-20K5
IPC03-20K6

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Protection degree IP67
- Key fob

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Colour	red

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit ROM 32 Bit

Read cycles	unlimited
Write cycles	> 100000
Data retention period	> 10 years

Ambient conditions

Ambient temperature	-20 ... 80 °C (253 ... 353 K)
Storage temperature	-20 ... 80 °C (253 ... 353 K)

Mechanical specifications

Protection degree	IP67
Material	
Housing	PC (Polycarbonate)

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

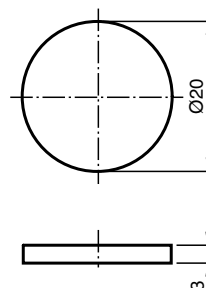
IPC03-20P

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Potted housing
- Protection degree IP67 / IP68 / IP69K

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)

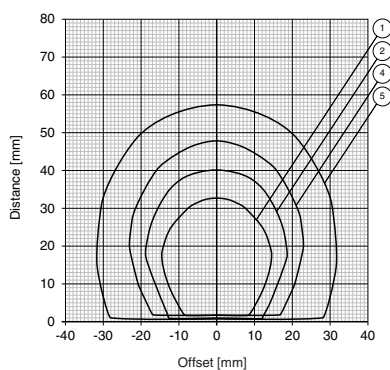
Mechanical specifications

Diameter of the housing	20 mm
Protection degree	IP68 / IP69K
Material	
Housing	PC (Polycarbonate)
Encapsulation compound	Epoxy

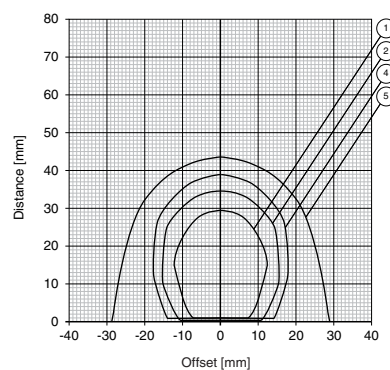
Read-/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

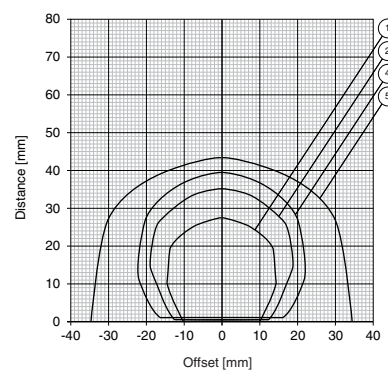
Reading range in air IPC03-20..



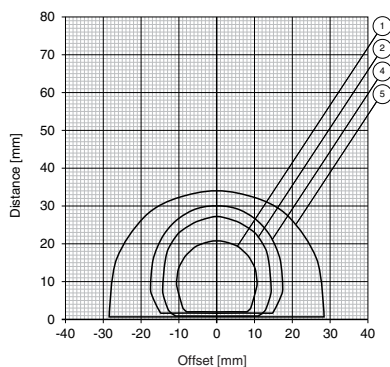
Reading range on steel IPC03-20..



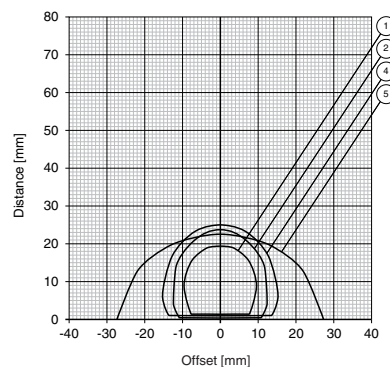
Reading range on aluminium IPC03-20..



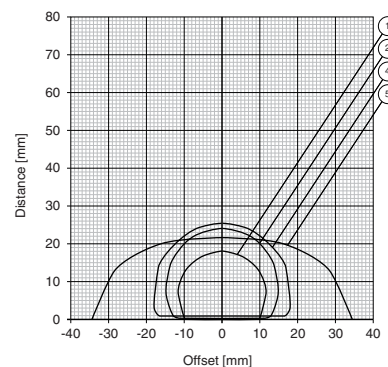
Writing range in air IPC03-20..



Writing range on steel IPC03-20..



Write distance on aluminium IPC03-20..





Model Number

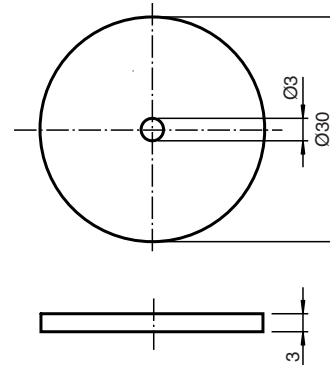
IPC03-30P

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Mounting holes for simple installation
- Protection degree IP67 / IP68 / IP69K

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-20 ... 100 °C (253 ... 373 K)
Storage temperature	-20 ... 100 °C (253 ... 373 K)

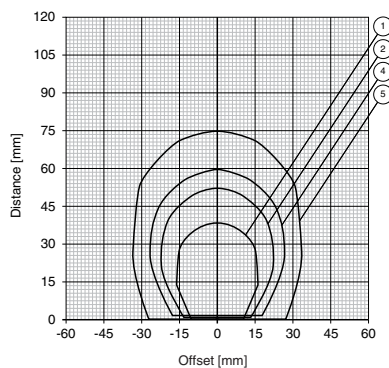
Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP67 / IP68 / IP69K
Material	
Housing	PC (Polycarbonate)

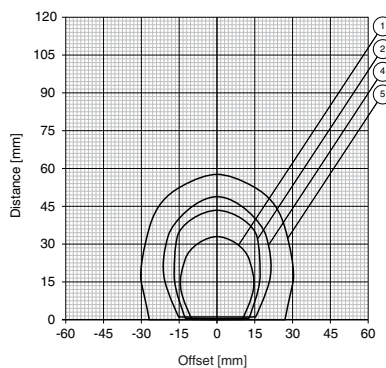
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

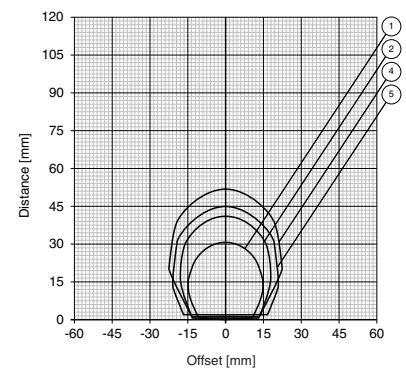
Reading range in air IPC03-30..



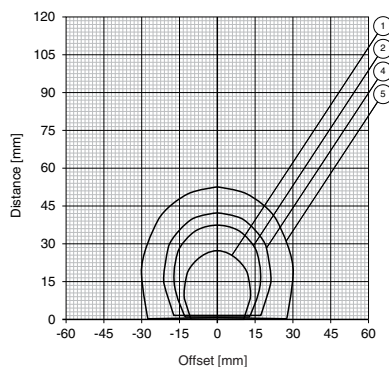
Reading range on steel IPC03-30..



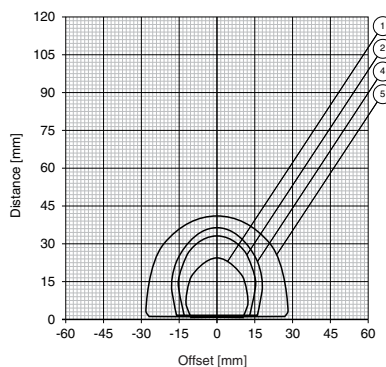
Reading range on aluminium IPC03-30..



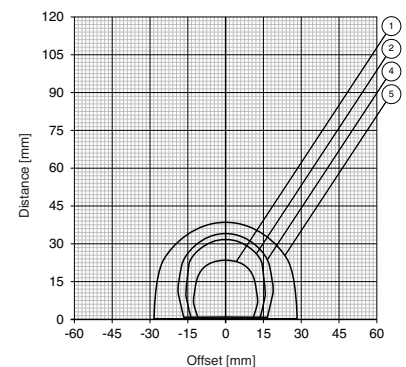
Writing range in air IPC03-30..



Writing range on steel IPC03-30..



Writing range on aluminium IPC03-30..





Model Number

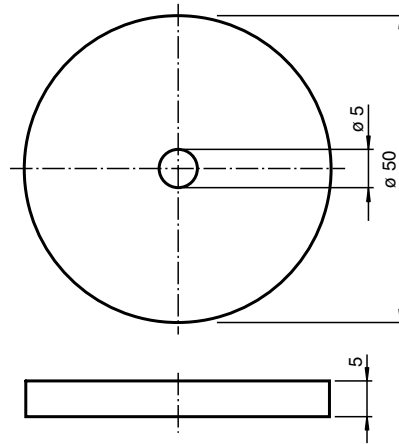
IPC03-50P

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Mounting holes for simple installation
- Protection degree IP68

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K)

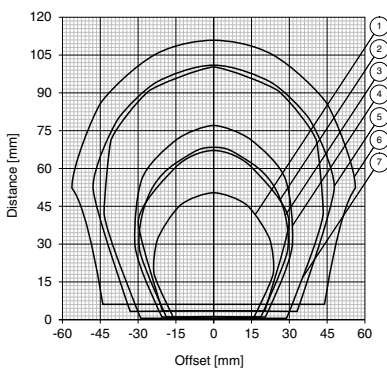
Mechanical specifications

Diameter of the housing	50 mm
Protection degree	IP68
Material	
Housing	PC (Polycarbonate)
Encapsulation compound	Epoxy

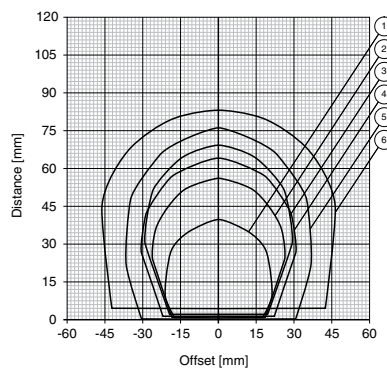
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

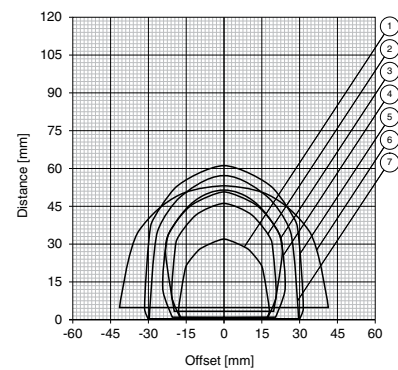
Reading range in air IPC03-50P



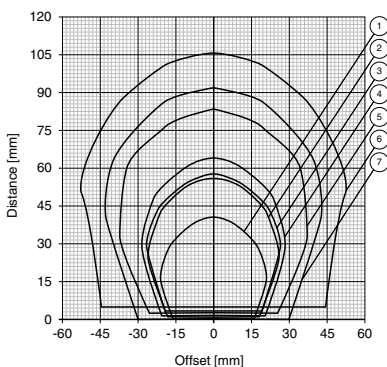
Reading range on steel IPC03-50P



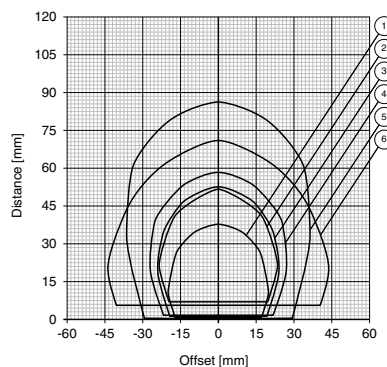
Reading range on aluminium IPC03-50P



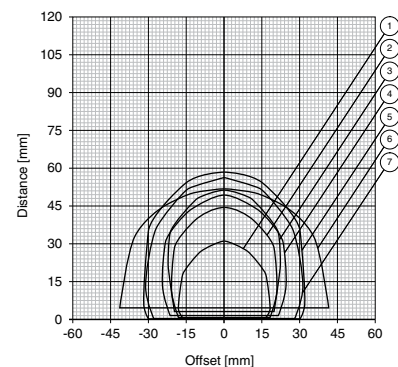
Writing range in air IPC03-50P



Writing range on steel IPC03-50P



Writing range on aluminium IPC03-50P





Model Number

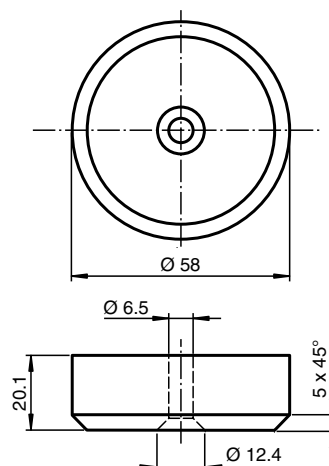
IPC03-58

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Protection degree IP67
- Mounting holes for simple installation
- High resistance against water, chemicals, transformer oil, petrol and heating oil

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-25 ... 120 °C (248 ... 393 K)

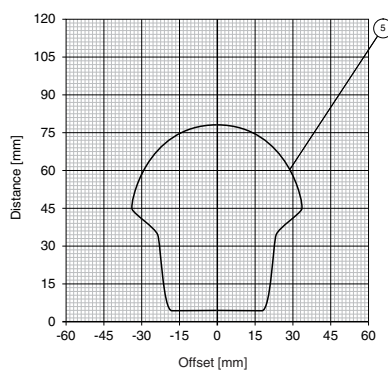
Mechanical specifications

Diameter of the housing	58 mm
Protection degree	IP67
Material	
Housing	PA 6 (Polyamid)
Encapsulation compound	Polyurethane (PUR)

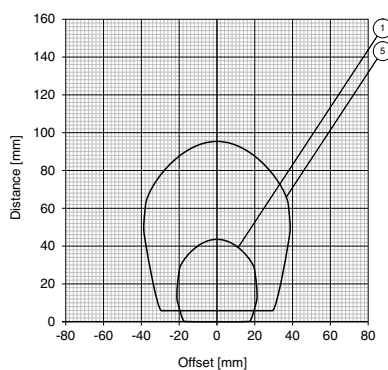
Read/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

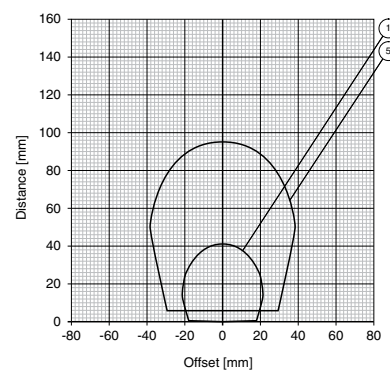
Reading range in air IPC03-58



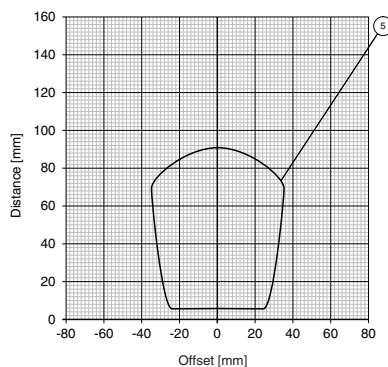
Reading range on steel IPC03-58



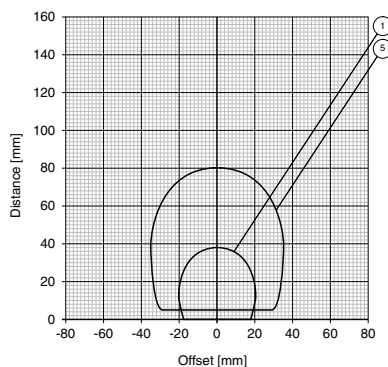
Reading range on aluminium IPC03-58



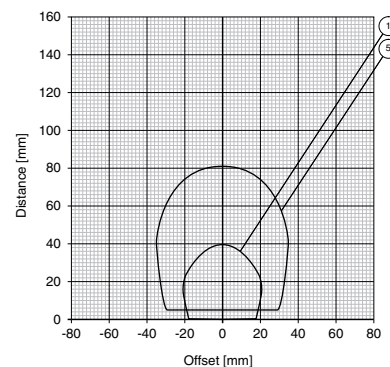
Writing range in air IPC03-58



Writing range on steel IPC03-58



Writing range on aluminium IPC03-58





Model Number

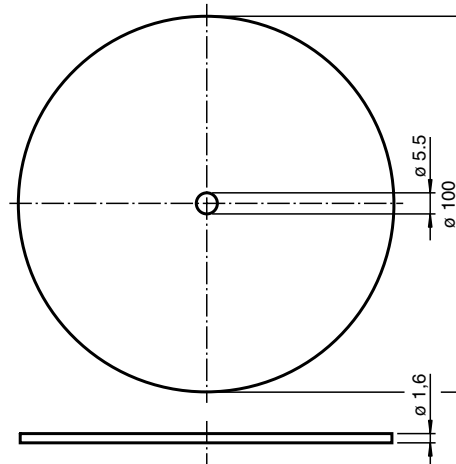
IPC03-100

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Mounting holes for simple installation
- Protection degree IP66

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
Storage temperature	-55 ... 95 °C (218 ... 368 K)

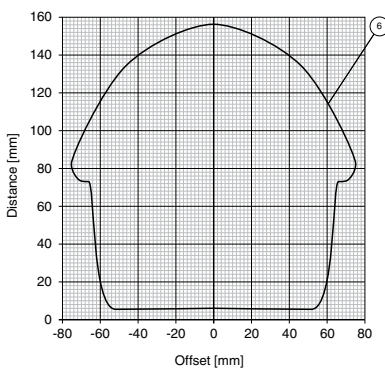
Mechanical specifications

Diameter of the housing	100 mm
Protection degree	IP66
Material	
Housing	Epoxy (black)

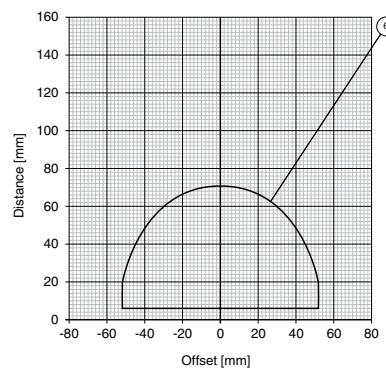
Read-/write range

- ① IPH-18GM-V1 ③ IPH-F61 ⑤ IPH-FP-V1 ⑦ IPT1-FP-V1
 ② IPH-30GM-V1 ④ IPH-L2-V1 ⑥ IPH-F15-V1

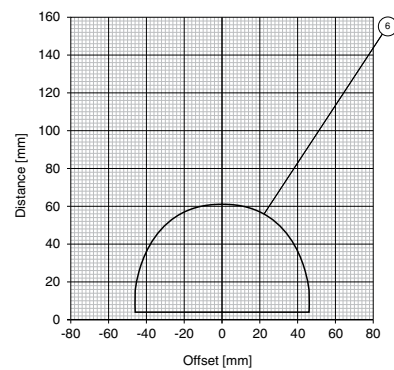
Reading range in air IPC03-100



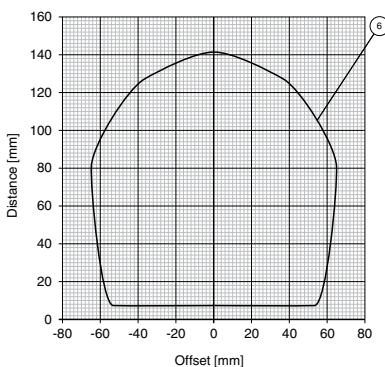
Reading range on steel IPC03-100



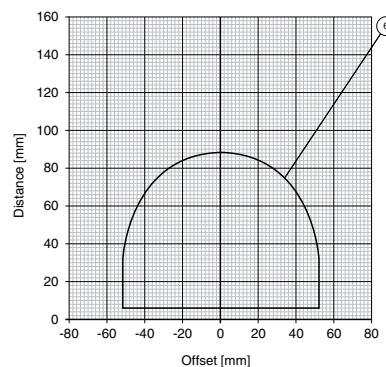
Reading range on aluminium IPC03-100



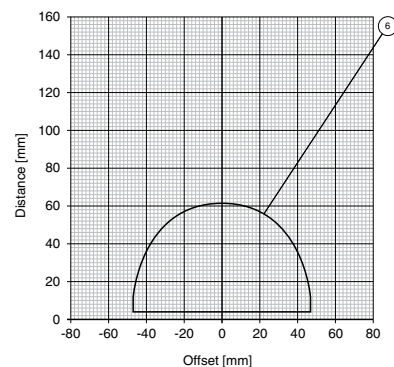
Writing range in air IPC03-100



Writing range on steel IPC03-100



Writing range on aluminium IPC03-100





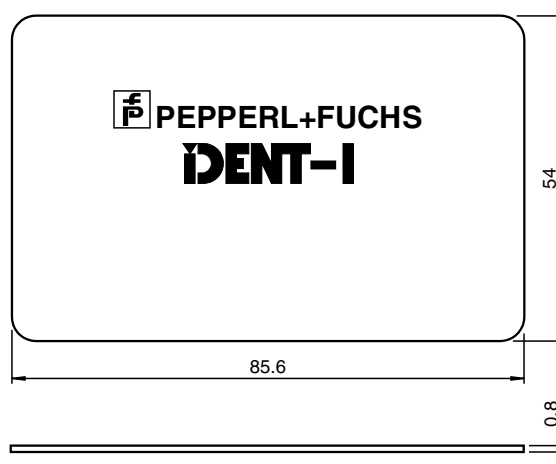
CE

Model Number**IPC03-C1**

Read/write tag

Features

- Battery-free read/write tag
- 32 bit fixcode
- 928 bits computer memory available
- Readable and writable from both sides
- Protection degree IP67
- ISO credit card format

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	EM4450 Titan (EM Microelectronic)
Type/Size	EEPROM 928 Bit, ROM 32 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Ambient conditions

Ambient temperature	0 ... 50 °C (273 ... 323 K)
Storage temperature	-40 ... 70 °C (233 ... 343 K)

Mechanical specifications

Protection degree	IP67
Material	
Housing	PVC, white

iDENT Control

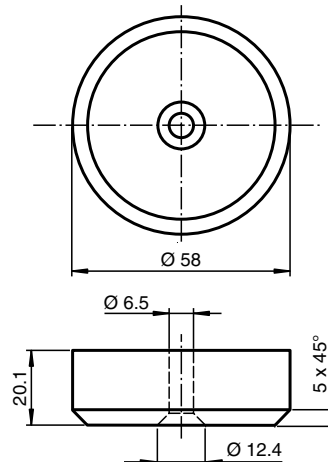
RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

**Model Number****IPC12-58-64K**

Read/write tag

Features

- Battery-free read/write tag
- 64 kbit FRAM, 32 Bit fixcode
- Protection degree IP67
- Sturdy housing with integrated distance retainer
- Mounting holes for simple installation
- Compatible with IPC03
- Unlimited writability

Dimensions**Technical data****General specifications**

Operating frequency	125 kHz
Transfer rate	2 kBit/s

Memory

Chip Type	P+F FRAM
Type/Size	FRAM 64 kBit , fixcode 32 Bit
Read cycles	unlimited
Write cycles	unlimited
Data retention period	10 years

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Diameter of the housing	58 mm
Protection degree	IP67
Material	
Housing	PA 6 (Polyamid)
Encapsulation compound	WEVO 403FL/300

4.6 250 kHz R/W heads and transponders for IDENTControl

The R/W heads in the frequency range above 250 kHz use frequency modulation. They are particularly resilient to external electromagnetic interference, as powerful motors or frequency converters normally cause voltage peaks over several discrete frequencies. Modulation across a bandwidth of approximately 200 to 300 kHz enables these influences to be filtered out very effectively.

Depending on the model, the range of the R/W heads can extend up to 100 mm. Read only tags with 28 bits and tags up to 1 kBit are available. The data transmission rate is 20 kBit/s. Special transponders with ferrite cores for installing in metal and tags capable of operating at temperatures of up to 130 °C are available.

Calculation example of travel speeds

The following examples show you how you can calculate the travel speed of your application. For the example calculation, the following assumptions are made:

- FP R/W head (80 mm edge length)
- Read/write times (in ms):

Read only code	7
N ξ Read 4 byte data	N × 13
N ξ Write 4 byte data	(N+1) × 50
Read 3 bytes with "special read"	5

Read read only code

Read time $t = 7 \text{ ms} = 0.007 \text{ s}$
 $s = 80 \text{ mm} = 0.08 \text{ m}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(2 \times 0,007 \text{ s})} = 5,7 \text{ m/s}$$

Read 8 bytes

Read time $t = 2 \times 13 \text{ ms} = 26 \text{ ms} = 0.026 \text{ s}$
 $s = 80 \text{ mm} = 0.08 \text{ m}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(2 \times 0,026 \text{ s})} = 1,5 \text{ m/s}$$

Write 4 bytes

Write time $t = 2 \times 50 \text{ ms} = 100 \text{ ms} = 0.1 \text{ s}$
 $s = 80 \text{ mm} = 0.08 \text{ m}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(2 \times 0,1 \text{ s})} = 0,4 \text{ m/s}$$

In the following tables, the travel speed attainable in practice is shown for various R/W heads. In the process, a repeat reading is taken into consideration. (All data in m/s)

[m/s]	ISH-18GM-V1	ISH-F61-V1	ISH-FP-V1
Read read only code ¹⁾	1.2	2.1	5.7
Read 4 byte data ¹⁾	0.69	1.1	3.0
3 byte special read ¹⁾²⁾	1.7	2.9	8
Read 8 byte data ¹⁾	0.34	0.57	1.5
Write 4 byte data ¹⁾	0.09	0.15	0.4

1) at 30-80% of max. sensing range

2) "Special read" mode enables a predefined 3-byte block to be transferred even faster.

R/W heads

			
Order code	ISH-18GM-V1	ISH-F61-V1	ISH-FP-V1
Page	98	99	100
General data			
Operating frequency	250 kHz		
Transfer rate	20 kBit/s		
Operating distance	Maximum: 42 mm	Maximum: 66 mm	Maximum: 100 mm
Electrical data			
Power consumption P ₀	≤ 1.8 W		
Mechanical data			
Degree of protection	IP67	IP67	IP67
Connection	M12x1 connector	M12x1 connector	M12x1 connector
Material			
Enclosure	PBT/Stainless steel	ABS	PBT
Lower section	-	-	Aluminum, die-cast
Weight	Approx. 40 g	Approx. 50 g	Approx. 380 g

Read only tag for flush installation

						
Order code	ICC-8A	ICC-12A	ICC-12A-T1	ICC-16GKA	ICC-30GKA-T1	ICC-30GKA-T3
Page	101	101	102	102	103	103
General data						
Operating frequency	250 kHz					
Transfer rate	7.8 kBit/s					
Memory						
Type/size	ROM 64 bit (28 bit code, 36 bit data protection)					
Read cycles	unlimited					
Ambient conditions						
Ambient temperature	-25 ... 70°C	-25 ... 70°C	-25 ... 130 °C	-25 ... 70°C	-25 ... 130 °C	-25 ... 110 °C
Storage temperature	-40 ... 85°C	-40 ... 85°C	-40 ... 150 °C	-40 ... 85°C	-40 ... 150 °C	-40 ... 110 °C
Mechanical data						
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP68
Material						
Enclosure	PBT	Epoxy molding compound	Ryton R4	PBT	PA	PP

Tag for the hazardous area II 2G EEx ia IIC T4

			
Order code	ICC-30GK-EXIA	IDC-30GK-EXIA-1K	IDC-30F-EXIA-1K
Page	111	112	113
General data			
Operating frequency	250 kHz		
Transfer rate	7.8 kBit/s		
Memory			
Type/size	ROM 64 bit (28 bit code, 36 bit data protection)	EEPROM 1 kBit	
Read cycles	unlimited	unlimited	unlimited
Ambient conditions			
Ambient temperature	-25 ... 70°C	-25 ... 70°C	-25 ... 70°C
Storage temperature	-25 ... 100 °C	-25 ... 85°C	-25 ... 85°C
Mechanical data			
Degree of protection	IP67	IP67	IP67
Material			
Enclosure	PP	PP	PBT
Casting compound	CY 221/HY 2966	CY 221/HY 2966	CY 221/HY 2966

Tag for flush installation

								
Order code	IDC-8-1K	IDC-10-1K	IDC-12-1K	IDC-15-1K	IDC-24-1K	IDC-16GK-1K	IDC-30GK-1K	IDC-30GK-1K-T1
Page	105	105	106	106	107	109	109	105
General data								
Operating frequency	250 kHz							
Transfer rate	7.8 kBit/s							
Memory								
Type/size	EEPROM 1 kBit							
Read cycles	unlimited							
Write cycles	> 500000 at 25 °C							
Data hold time	110 years at 25 °C, 18 years at 50 °C							
Ambient conditions								
Ambient temperature	-25 ... 70°C							
Storage temperature	-40 ... 85°C							
Mechanical data								
Degree of protection	IP67							
Material								
Enclosure	PBT	PBT	Epoxy molding PBT compound	PP	PBT	PBT	PBT	PA

IDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

iDENT-O
Barcode

iDENT-O
Data Matrix

High Temperature
iDENT System

Tag with mounting holes

					
Order code	ICC-50A	IDC-30F-1K	IDC-50-1K	IDC-50F-1K	IDC-58-1K
Page	105	107	108	108	110
General data					
Operating frequency	250 kHz				
Transfer rate	7.8 kBit/s				
Memory					
Type/size	ROM 64 bit (28 bit code, 36 bit data protection)		EEPROM 1 kBit		
Read cycles	unlimited				
Write cycles	-	> 500000			
Data hold time	-	110 years at 25 °C , 10 years at 50 °C			
Ambient conditions					
Ambient temperature	-25 ... 70°C				
Storage temperature	-40 ... 85°C				
Mechanical data					
Degree of protection	IP67				
Material					
Enclosure	PBT	PBT	PBT	PBT	ABS



Model Number

ISH-18GM-V1

Read/write head
for iDENTControl

Features

- Read/write head with thread M18 x 1
- Connection via plug connection V1 (M12 x 1)
- Multihole-LED for function display
- Protection degree IP67

Accessories

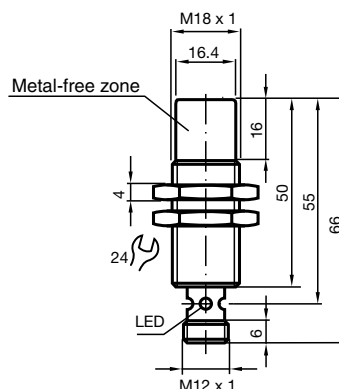
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

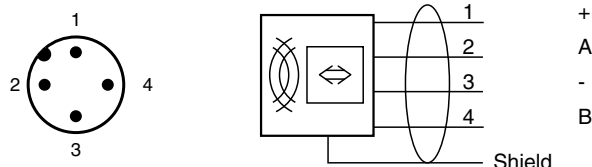
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	20 kBit/s
Operating distance	maximum: 42 mm

Indicators/operating means

LED green/yellow	Multihole-LED: green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.8 W
Supply	from the iDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel
Encapsulation compound	Fermadur
Installation	not embeddable
Distance between two heads	Multiplex on: ≥ 155 mm Multiplex off: ≥ 350 mm
Mass	approx. 40 g



Model Number

ISH-F61-V1

Read/write head
for IDENTControl

Features

- Particularly flat construction
- Connection cable with V1 plug (M12 x 1)
- Protection degree IP67
- Can be mounted on metal

Accessories

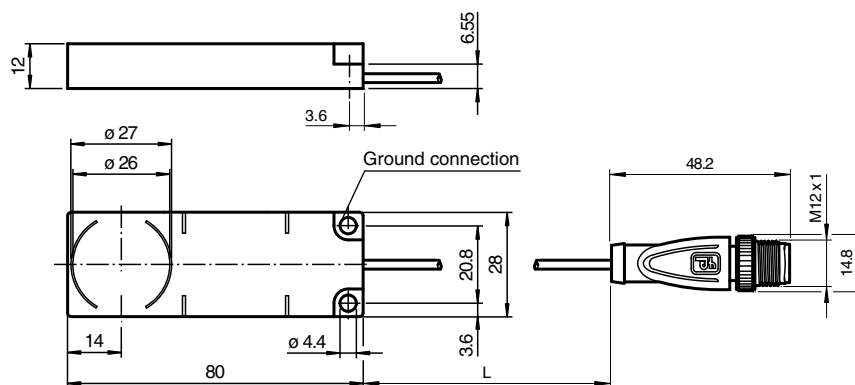
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

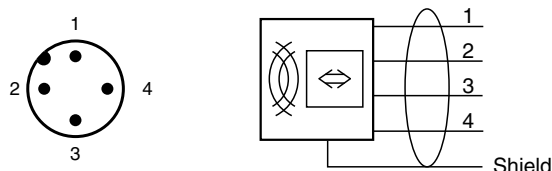
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	20 kBit/s
Operating distance	maximum: 66 mm

Electrical specifications

Power consumption P_0	≤ 1.8 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	ABS
Encapsulation compound	CY 221/HY 2966
Installation	
Distance between two heads	Multiplex on: ≥ 225 mm Multiplex off: ≥ 810 mm
Cable length	20 cm
Mass	approx. 50 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

ISH-FP-V1

Read/write head
for IDENTControl

Features

- Connection via plug connection V1 (M12 x 1)
- Dual-LED for function display
- Protection degree IP67

Accessories

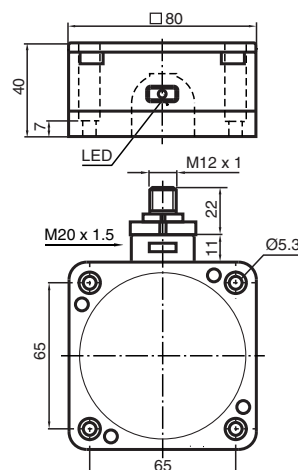
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

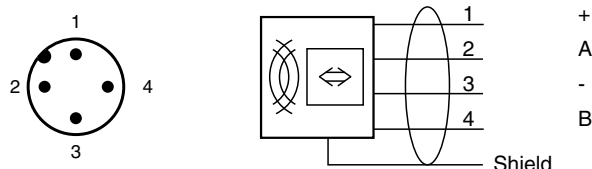
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	20 kBit/s
Operating distance	maximum: 100 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.8 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

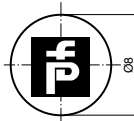
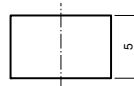
Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT
Lower section	aluminium diecasting
Encapsulation compound	Fermadur
Installation	
Distance between two heads	Multiplex on: ≥ 225 mm Multiplex off: ≥ 940 mm
Mass	approx. 380 g

**Model Number****ICC-8A**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

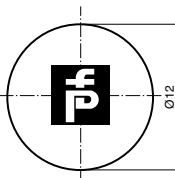
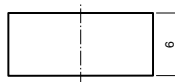
Diameter of the housing	8 mm - 0.103 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model number****ICC-12A**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

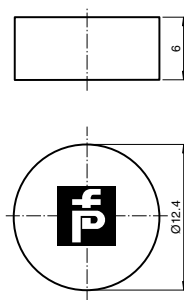
Diameter of the housing	12 mm ± 0.1 mm
Protection degree	IP67
Material	
Housing	Epoxy moulding compound

**Model Number****ICC-12A-T1**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- With extended temperature range up to 130 °C

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 130 °C (248 ... 403 K)
Storage temperature	-40 ... 150 °C (233 ... 423 K)

Mechanical specifications

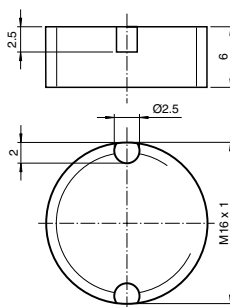
Diameter of the housing	12.1 mm + 0.2 mm
Protection degree	IP67
Material	
Housing	Ryton R4
Encapsulation compound	CY 221/HY 2966

**Model number****ICC-16GKA**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- With thread M16 x 1

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	16 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966



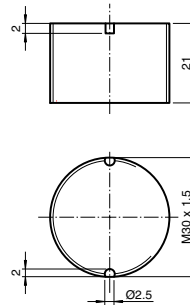
CE

Model Number**ICC-30GKA-T1**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Mounting with thread M30 x 1.5
- Protection degree IP67
- With extended temperature range up to 130 °C
- Protective cap ICS-30GK available

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

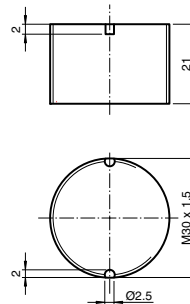
Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 130 °C (248 ... 403 K)
Storage temperature	-40 ... 150 °C (233 ... 423 K)

Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PA
Encapsulation compound	CY 221/HY 2966

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 110 °C (248 ... 383 K)
Storage temperature	-40 ... 110 °C (233 ... 383 K)

Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP68 (1 week in a water depth of 1 m)
Material	
Housing	PP
Encapsulation compound	CY 221/HY 2966



CE

Model number**ICC-30GKA-T3**

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Readable from the printed side
- Embeddable mountable in metal
- Mounting with thread M30 x 1.5
- Protection degree IP68
- With extended temperature range up to 110 °C
- High chemical resistance
- Protective cap ICS-30GK available

DENTControl
 RFID 125 KHz
 RFID 250 KHz
 RFID 13,56 MHz
 RFID 868 MHz
 RFID 2,45 GHz
 RFID Accessories
 RFID Handhelds
 RFID Stand-alone 125 KHz
 RFID Stand-alone 2,45 GHz
 iDENT-O Barcode
 iDENT-O Data Matrix
 High Temperature iDENT System



Model Number

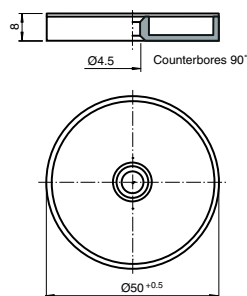
ICC-50A

Read only tag

Features

- Battery-free read only tag
- 28 bit fixcode
- Reading is possible from both sides
- Protection degree IP67

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

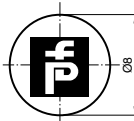
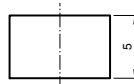
Diameter of the housing	50 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model Number****IDC-8-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

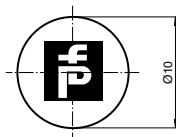
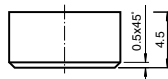
Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	8 mm - 0.103 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	10 mm - 0.13 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model number****IDC-10-1K**

Read/write tag

Features

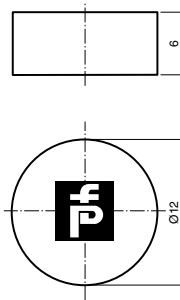
- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- Dimensions correspond to DIN 69873 for tool identification

**Model Number****IDC-12-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

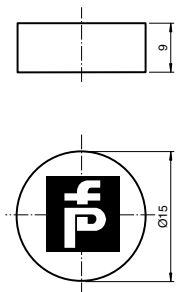
Diameter of the housing	12 mm ± 0.1 mm
Protection degree	IP67
Material	
Housing	Epoxy moulding compound

**Model number****IDC-15-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

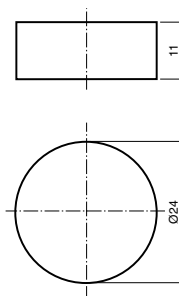
Diameter of the housing	15 mm ± 0.15 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model Number****IDC-24-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	24 mm - 0.15 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

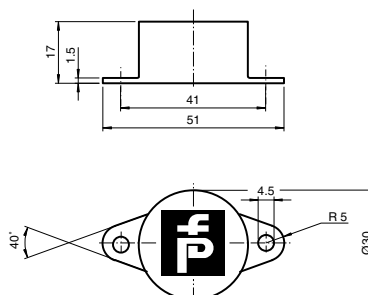
iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System**Model number****IDC-30F-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- With mounting flange

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 10 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

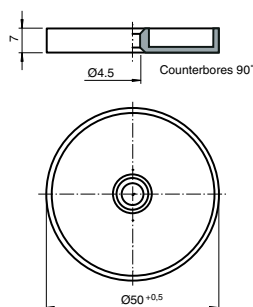
Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model Number****IDC-50-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Reading and writing is possible from both sides
- Protection degree IP67

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

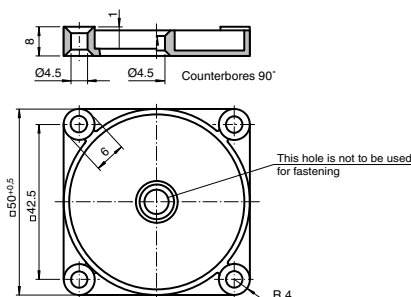
Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	50 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model number****IDC-50F-1K**

Read/write tag

Features

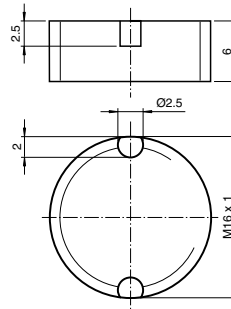
- Battery-free read/write tag
- 1 kBit memory
- Reading and writing is possible from both sides
- Protection degree IP67
- With mounting flange

**Model Number****IDC-16GK-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- Mounting with thread M16 x 1

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

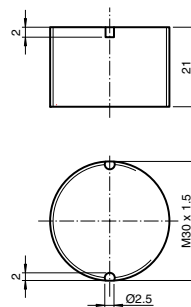
Diameter of the housing	16 mm
Protection degree	IP67
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

**Model number****IDC-30GK-1K**

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Protection degree IP67
- Mounting with thread M30 x 1.5
- Protective cap ICS-30GK available

Dimensions**Technical data****General specifications**

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C, 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PP
Encapsulation compound	CY 221/HY 2966



Model Number

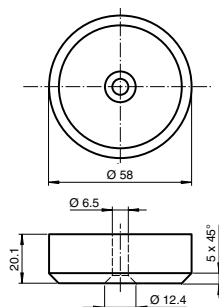
IDC-58-1K

Read/write tag

Features

- Battery-free read/write tag
- 1 kBit memory
- Reading and writing is possible from both sides
- Protection degree IP67

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Chip Type	P+F
Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 18 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Diameter of the housing	58 mm
Protection degree	IP67
Material	
Housing	ABS
Encapsulation compound	CY 221/HY 2966



Model Number

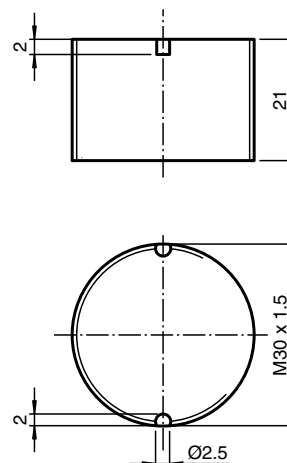
ICC-30GK-EXIA

Read only tag for Ex-area

Features

- Battery-free read only tag for use in hazardous areas
- 28 bit fixcode
- Readable from the printed side
- Protection degree IP67
- Intrinsically safe
- Certificate of conformity
- Mounting with thread M30 x 1.5
- Protective cap ICS-30GK available

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Type/Size	ROM 64 bit (28 bit code, 36 bit data security)
Read cycles	unlimited

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 100 °C (248 ... 373 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	PP
Encapsulation compound	CY 221/HY 2966

ATEX

Data for Ex areas	
Marking	⊕ II 2G EEx ia IIC T4
EC-Type Examination Certificate	DMT 00 ATEX E 007

Operating instructions for use in hazardous areas

Installation, commissioning

This product, which is categorised as intrinsically-safe, has been developed and approved for use in hazardous areas in accordance with EN 50014 and EN 50020.

The prototype test certificate and the national regulations relating to the installation of such equipment must be complied with.

Appropriate associated apparatus can be found in the Sensor Systems 1/Identification Systems catalogue from Pepperl+Fuchs GmbH.

The device must be protected from strong electromagnetic fields and mechanical damage.

Maintenance and repairs

Devices, which are operated in hazardous areas, must not be modified in any way. It is not possible to carry out repairs on these devices.



Model Number

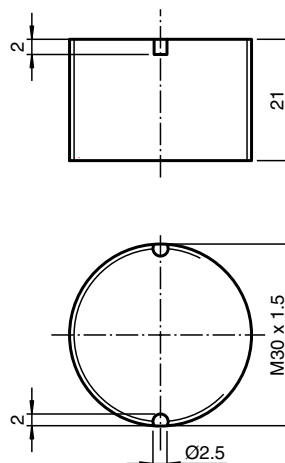
IDC-30GK-EXIA-1K

Read/write tag for hazardous area

Features

- Battery-free read/write tag for use in hazardous areas
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Intrinsically safe
- Certificate of conformity
- Protection degree IP67
- Mounting with thread M30 x 1.5
- Protective cap ICS-30GK available

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 10 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	PP
Encapsulation compound	CY 221/HY 2966

ATEX

Data for Ex areas	
Marking	⊕ II 2G EEx ia IIC T4
EC-Type Examination Certificate	DMT 00 ATEX E 007

Notes

The surface containing the text must face the read/write head.

Operating instructions for use in hazardous areas

Installation, commissioning

This product, which is categorised as intrinsically-safe, has been developed and approved for use in hazardous areas in accordance with EN 50014 and EN 50020.

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Model Number

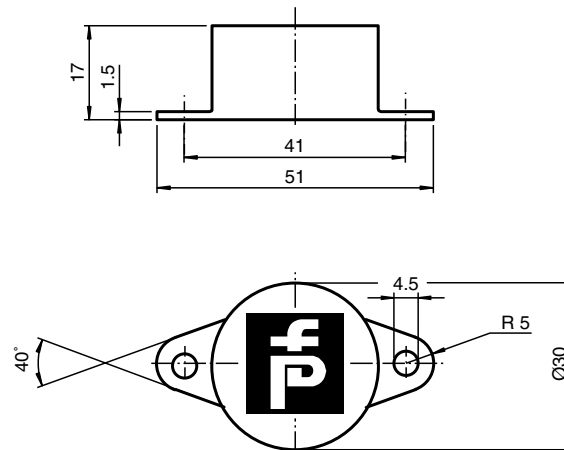
IDC-30F-EXIA-1K

Read/write tag for hazardous area

Features

- Battery-free read/write tag for use in hazardous areas
- 1 kBit memory
- Readable and writable from the printed side
- Embeddable mountable in metal
- Intrinsically safe
- Certificate of conformity
- Protection degree IP67
- With mounting flange

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Transfer rate	7.8 kBit/s

Memory

Type/Size	EEPROM 1 kBit
Read cycles	unlimited
Write cycles	> 500000
Data retention period	110 years at 25 °C , 10 years at 50 °C

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	PBT
Encapsulation compound	CY 221/HY 2966

ATEX

Data for Ex areas	
Marking	⊕ II 2G EEx ia IIC T4
EC-Type Examination Certificate	DMT 00 ATEX E 007

Notes

The surface containing the text must face the read/write head.

Operating instructions for use in hazardous areas

Installation, commissioning

This product, which is categorised as intrinsically-safe, has been developed and approved for use in hazardous areas in accordance with EN 50014 and EN 50020.

The prototype test certificate and the national regulations relating to the installation of such equipment must be complied with.

Appropriate associated apparatus can be found in the Sensor Systems 1/Identification Systems catalogue from Pepperl+Fuchs GmbH.

The device must be protected from strong electromagnetic fields and mechanical damage.

Maintenance and repairs

Devices, which are operated in hazardous areas, must not be modified in any way. It is not possible to carry out repairs on these devices.



High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
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4.7 13.56 MHz R/W heads and transponders for IDENTControl

13.56 MHz R/W heads are well-defined according to ISO and IEC Standards worldwide. Due to manufacturer specific deviations in chips and certain freedoms in the standards, only the UID code is reliably read by all standard systems.

The higher carrier frequency means a lower number of turns of the receiver/transmitter coil are required for tuning. Thus, the coil geometry can be punched as a meander and simply and cost-effectively connected with the silicon chip in a smart label transponder and then, for example, be laminated in credit card format.

If however, there are different requirements, such as a high degree of protection, a mechanically robust industrial model or high temperature application, the price does not significantly differ from that of other systems.

The installation or mounting on metal is complicated by the fact that corresponding spacers are introduced. The alignment of the field with ferrite core is not possible due to the low number of turns. A minimum of 15 mm should be used as a benchmark for the distance from metal. For some types, this spacer is already integrated into the housing. This must be taken into consideration during project planning of 13.56 MHz systems. With the large antenna, a read range up to 300 mm can be achieved.

13.56 MHz transponders typically have 64 bit UID code and also a different size data range.

Calculation example of travel speeds

The following formula is valid for the calculation of the maximum possible travel speed:

$$\text{speed} = \frac{\text{read range (in m)}}{\text{execution time (in s)}} \Rightarrow v_{\text{max}}$$

In practice, a correct reading should also result if a read attempt is unsuccessful due to EMC influence, for example. For practical application therefore, only a third of the speed is recommended:

$$v_{\text{praxis}} = v_{\text{max}} / 3$$

The following examples show you how you can calculate the travel speed of your application.

Read read only code

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC21/22/33: Execution time $t = 9.5 \text{ ms} \approx 0.01 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,01 \text{ s})} = 2,7 \text{ m/s}$$

Read 1 block with 4 bytes

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC21/22: Execution time $t = (1 \xi 1.3 \text{ ms}) + 6.7 \text{ ms} = 8 \text{ ms} = 0.008 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,008 \text{ s})} = 3,3 \text{ m/s}$$

Write 1 block with 4 bytes

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC21: Execution time $t = (1 \xi 20.3 \text{ ms}) + 1.1 \text{ ms} = 21.4 \text{ ms} \approx 0.022 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,021 \text{ s})} = 1,2 \text{ m/s}$$

Write 1 block with 4 bytes

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC22: Execution time $t = (1 \xi 17.2 \text{ ms}) + 1.7 \text{ ms} = 18.9 \text{ ms} \approx 0.019 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,019 \text{ s})} = 1,4 \text{ m/s}$$

Read 1 block with 8 bytes

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC33: Execution time $t = (1 \xi 14 \text{ ms}) + 16 \text{ ms} = 30 \text{ ms} = 0.03 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,03 \text{ s})} = 0,89 \text{ m/s}$$

Write 1 block with 8 bytes

R/W head IQH1-FP-V1: Read range $s = 80 \text{ mm} = 0.08 \text{ m}$
Transponder IQC33: Execution time $t = (1 \xi 28 \text{ ms}) + 16 \text{ ms} = 44 \text{ ms} = 0.044 \text{ s}$

$$v_{\text{praxis}} = \frac{0,08 \text{ m}}{(3 \times 0,044 \text{ s})} = 0,6 \text{ m/s}$$

In the following tables, the travel speed attainable in practice is shown for various R/W heads. (All data in m/s for IQC21/IQC22)

[m/s]	IQH1-18GM-V1	IQH1-F61-V1	IQH1-FP-V1	IQH-F100-V1
Read read only code ¹⁾	0.7	1.0	2.7	5.0
Read 4 byte data ¹⁾	0.8	1.2	3.3	6.6
Read 8 byte data ¹⁾	0.6	0.9	2.4	5.0
Write 4 byte data ¹⁾	0.4	0.6	1.5	4.3

1) at 30-80% of max. sensing range

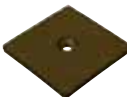
R/W heads

				
Order code	IQH1-18GM-V1	IQH1-F61-V1	IQH1-FP-V1	IQH-F100-V1
Page	118	119	120	121
General data				
Operating frequency	13.56 MHz			
Transfer rate	26 kBit/s			
Sensing range				
Read distance	0–55 mm	0–50 mm	0–130 mm	0–300 mm
Write range	0–55 mm	0–50 mm	0–130 mm	0–300 mm
Width	Max. 45 mm	Max. 45 mm	Max. 100 mm	Max. 320 mm
Electric data				
Power consumption P ₀	≤ 1,2 W	≤ 1,3 W	≤ 1,3 W	≤ 2 W
Mechanical data				
Degree of protection	IP67	IP67	IP67	IP54
Connection	M12x1 connector			
Material				
Housing	PBT/Stainless steel	ABS	PBT	ABS, black
Lower section	-	-	Aluminum, die-cast	-
Weight	Approx. 40 g	Approx. 50 g	Approx. 380 g	Approx. 1000 g

Transponders

The following transponders are supported by Pepperl+Fuchs read and write heads:

Order code	Chip type	Note
IQC20	All ISO 15693 compliant tags	IQC-20 is not an actual tag type, but is used to read the UID (read only code) of all ISO 15693 compliant read/write tags.
IQC21	I-CODE SLI (NXP)	
IQC22	Tag-it HF-I Plus (Texas Instruments)	
IQC23	my-d SRF 55V02P (Infineon)	Not in catalog
IQC24	my-d SRF 55V10P (Infineon)	Not in catalog
IQC33	FRAM MB89R118 (Fujitsu)	You can only use the tag IQC33 in combination with R/W head IQH1-...
IQC35	I-CODE SLI-S (NXP)	Not in catalog

							
Order code	IQC21-30P	IQC21-50P	IQC21-50F-T10	IQC21-58	IQC22-C1	IQC22-C4	IQC22-C5
Page	122	123	124	125	126	127	128
General data							
Operating frequency	13.56 MHz						
Transfer rate	26 kBit/s						
Memory							
Type/size	EEPROM 1024 Bit ROM 64 bit	EEPROM 896 Bit ROM 64 bit	112 bytes	EEPROM 896 Bit ROM 64 bit	EEPROM 2 kBit ROM 64 bit	EEPROM 2 kBit ROM 64 bit	EEPROM 2 kBit ROM 64 bit
Read cycles	unlimited						
Write cycles	> 100000						
Data hold time	10 years at 55°C	10 years at 55°C	10 years at 55°C	10 years at 55°C	10 years	10 years at 55°C	10 years at 55°C
Ambient conditions							
Ambient temperature	-20–100°C	-25–70°C	-40–93°C	-25–85°C	-20–50°C	-25–70°C	-25–70°C
Storage temperature	-30–100°C	-25–85°C	-40–200°C	-25–85°C	-20–50°C	-25–85°C	-25–85°C
Mechanical data							
Degree of protection	IP67	IP67	IP68	IP67	IP67	IP20	IP67
Material							
Housing	PC (polycarbonate)	PC (polycarbonate)	PPS	ABS	PVC	ABS	PET

					
Order code	IQC22-22-T9	IQC22-39	IQC33-20	IQC33-30	IQC33-50
Page	129	130	131	132	133
General data					
Operating frequency	13.56 MHz				
Transfer rate	26 kBit/s				
Memory					
Type/size	EEPROM 2 kBit ROM 64 bit	EEPROM 2 kBit ROM 64 bit	FRAM 16 kBit, read only code 64 bit	FRAM 16 kBit, read only code 64 bit	FRAM 16 kBit, read only code 64 bit
Read cycles	unlimited				
Write cycles	> 100000				
Data hold time	10 years				
Ambient conditions					
Ambient temperature	-25–90°C	-25–70°C	-20–85°C	-20–85°C	-20–85°C
Storage temperature	-25–120°C 160°C for 50 h 220°C for 30 s	-40–85°C	-40–90°C for 1000 h -40–140°C for 100 h		-40–90°C for 1000 h
Mechanical data					
Degree of protection	IP68	IP67	IP68	IP68	IP68
Material					
Housing	PPS	ABS	PA 6 modified	PA 6 modified	PA 6 modified



Model Number

IQH1-18GM-V1

Read/write head
for IDENTControl

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- Suitable for FRAM transponder
- Read/write head with thread M18 x 1
- Connection via plug connection V1 (M12 x 1)
- Multihole-LED for function display
- Protection degree IP67

Accessories

IQC21-50P

Read/write tag

IQC21-58

Read/write tag

IQC22-C5

Read/write tag

IQC33-20

Read/write tag

IQC33-30

Read/write tag

IQC33-50

Read/write tag

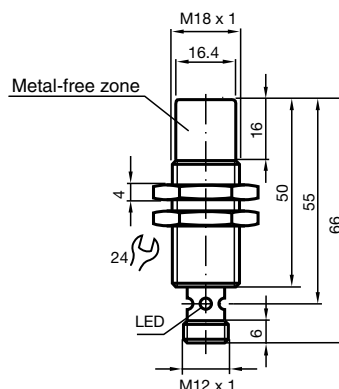
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

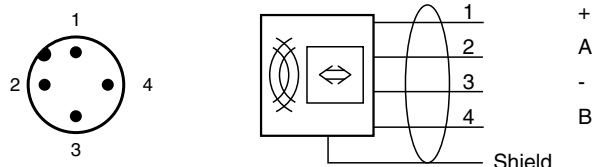
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s
Sensing range	
Reading distance	0 ... 55 mm
Writing distance	0 ... 55 mm
Width	max. 45 mm

Indicators/operating means

LED green/yellow	Multihole-LED: green: power on green flashing: read/write attempt performed yellow: read/write tag detected
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Electrical specifications

Power consumption P_0	≤ 1.2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529
RFID	ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel
Encapsulation compound	CY 221/HY 2966
Installation	not embeddable
Distance between two heads	Multiplex on: ≥ 30 mm Multiplex off: ≥ 80 mm
Mass	approx. 40 g

**Model Number****IQH1-F61-V1**Read/write head
for IDENTControl**Features**

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- Suitable for FRAM transponder
- Particularly flat construction
- Connection cable with V1 plug (M12 x 1)
- Protection degree IP67
- Can be mounted on metal

Accessories**IQC21-50P**

Read/write tag

IQC21-58

Read/write tag

IQC22-C5

Read/write tag

IQC33-20

Read/write tag

IQC33-30

Read/write tag

IQC33-50

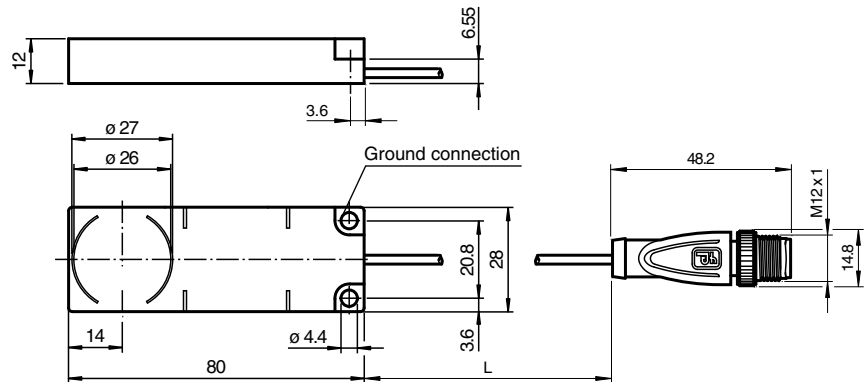
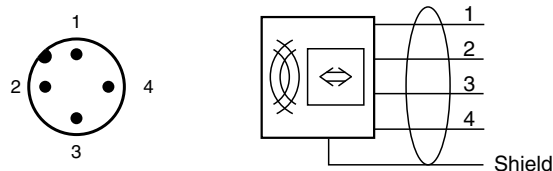
Read/write tag

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions**Electrical connection****Technical data****General specifications**

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s
Sensing range	
Reading distance	0 ... 50 mm
Writing distance	0 ... 50 mm
Width	max. 45 mm

Electrical specifications

Power consumption P_0	≤ 1.3 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529
RFID	ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	ABS
Encapsulation compound	WEVO 403FL/300
Installation	
Distance between two heads	Multiplex on: ≥ 100 mm Multiplex off: ≥ 150 mm
Cable length	20 cm
Mass	approx. 50 g



Model Number

IQH1-FP-V1

Read/write head
for IDENTControl

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- Suitable for FRAM transponder
- Dual-LED for function display
- Connection via plug connection V1 (M12 x 1)
- Protection degree IP67

Accessories

IQC21-50P

Read/write tag

IQC21-58

Read/write tag

IQC22-C5

Read/write tag

IQC33-20

Read/write tag

IQC33-30

Read/write tag

IQC33-50

Read/write tag

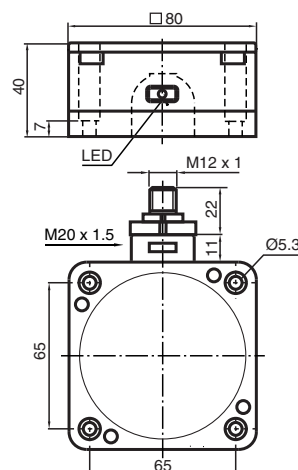
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

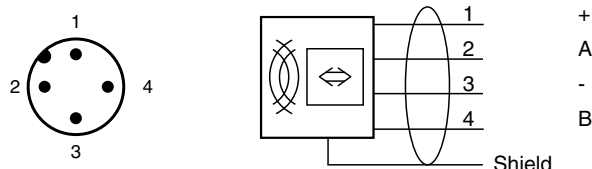
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s
Sensing range	
Reading distance	0 ... 130 mm
Writing distance	0 ... 130 mm
Width	max. 100 mm

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 1.3 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
Protection degree	EN 60529
RFID	ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67
Connection	Connector M12 x 1
Material	
Housing	PBT
Lower section	aluminium diecasting
Encapsulation compound	CY 221/HY 2966
Installation	
Distance between two heads	Multiplex on: ≥ 100 mm Multiplex off: ≥ 150 mm
Mass	approx. 380 g



Model Number

IQH-F100-V1

Read/write head
for IDENTControl

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- Suitable for the connection to all IDENT Control interface units
- Connection via plug connection V1 (M12 x 1)
- Protection degree IP54

Accessories

IQC21-50P

Read/write tag

IQC21-58

Read/write tag

IQC22-C1

Read/write tag

IQC22-C4

Read/write tag

IQC22-C5

Read/write tag

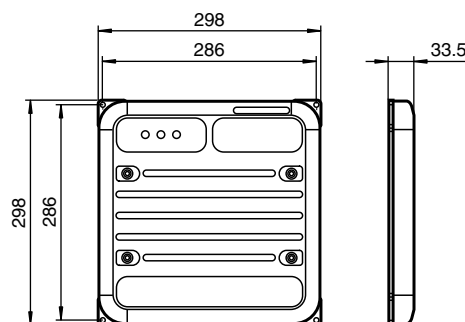
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

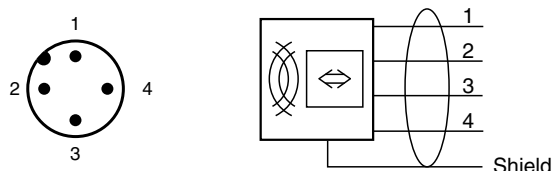
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s
Sensing range	
Reading distance	0 ... 300 mm
Writing distance	0 ... 300 mm
Width	max. 320 mm

Indicators/operating means

LED green	Operating display
LED yellow	Read/write tag read
Button	Start of adjustment
Rotary switch	Adjustment to the surroundings

Electrical specifications

Power consumption P_0	≤ 2 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529
RFID	ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-20 ... 70 °C (253 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP54
Connection	Connector M12 x 1
Material	
Housing	ABS, black
Installation	
Distance between two heads	Multiplex on: ≥ 180 mm Multiplex off: ≥ 500 mm
Cable length	20 cm
Mass	approx. 1000 g

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

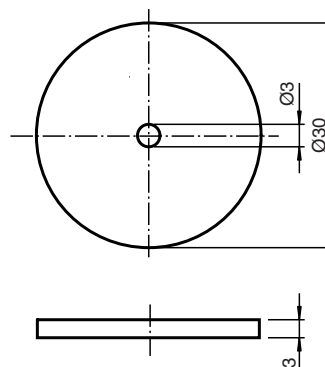
IQC21-30P

Read/write tag

Features

- Operating frequency 13.56 MHz
- 64 bit Fixcode
- 896 bits memory available
- Readable and writable from both sides
- Protection degree IP67
- Mounting holes for simple installation

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	I-CODE SLI (NXP)
Type/Size	EEPROM 896 Bit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-20 ... 100 °C (253 ... 373 K)
Storage temperature	-30 ... 100 °C (243 ... 373 K)

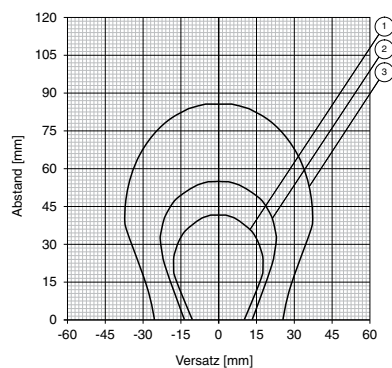
Mechanical specifications

Diameter of the housing	30 mm
Protection degree	IP67
Material	
Housing	PC (Polycarbonate)

Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

Lesebereich in Luft IQC21-30P

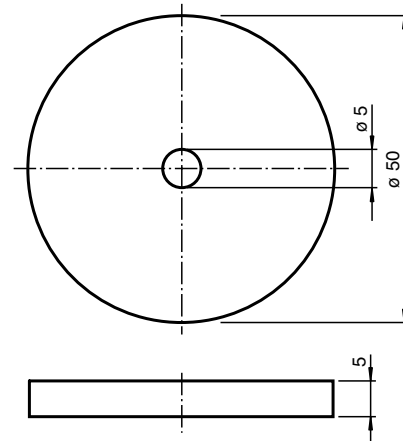


**Model Number****IQC21-50P**

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 896 bits memory available
- Readable and writable from both sides
- Protection degree IP67
- Mounting holes for simple installation

Dimensions**Technical data****General specifications**

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	I-CODE SLI (NXP)
Type/Size	EEPROM 896 Bit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

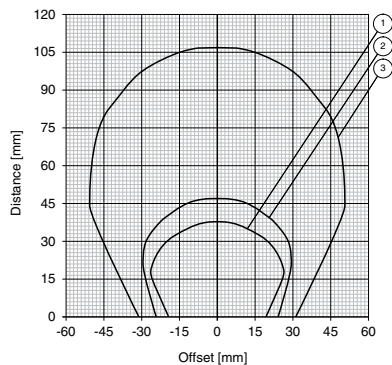
Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Diameter of the housing	50 mm
Protection degree	IP67
Material	
Housing	PC (Polycarbonate)
Encapsulation compound	Epoxy

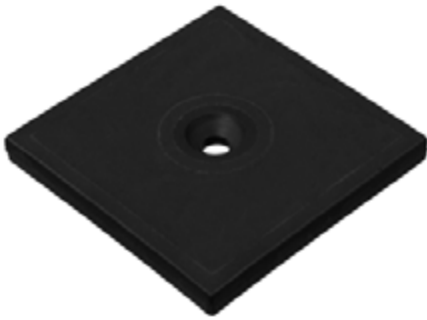
Read-/write range

Reading range in air IQC21-50P



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

iDENTControl
RFID 125 KHz
RFID 250 KHz
RFID 13,56 MHz
RFID 868 MHz
RFID 2,45 GHz
RFID Accessories
RFID Handhelds
RFID Stand-alone 125 KHz
RFID Stand-alone 2,45 GHz
iDENT-O Barcode
iDENT-O Data Matrix
High Temperature iDENT System



Model Number

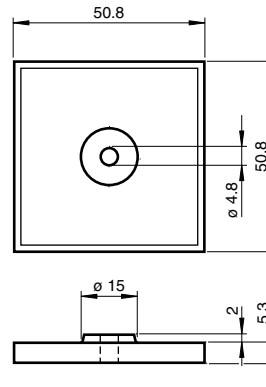
IQC21-50F-T10

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 896 bits memory available
- Readable and writable from both sides
- Protection degree IP68
- With extended temperature range up to 200 °C
- Mounting holes for simple installation

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	I-CODE SLI (NXP)
Type/Size	EEPROM 896 Bit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-40 ... 93 °C (233 ... 366 K)
Storage temperature	-40 ... 200 °C (233 ... 473 K)
Climatic conditions	100 % non-condensing

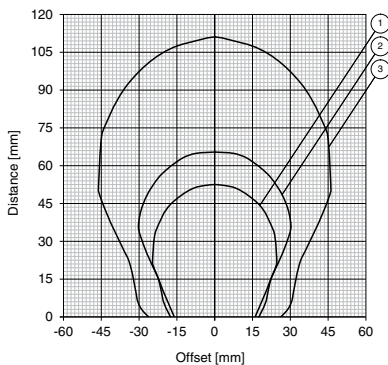
Mechanical specifications

Diameter of the housing	
Protection degree	IP68/NEMA 6P/12
Material	
Housing	PPS

Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH1-F100-V1

Reading range in air IQC21-50F-T10





Model Number

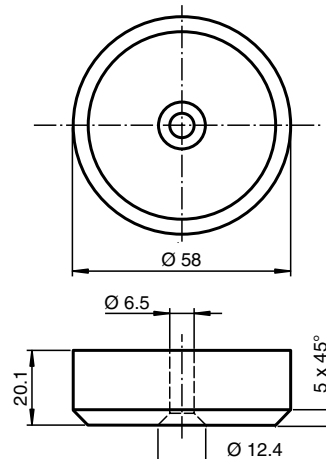
IQC21-58

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 896 bits memory available
- Protection degree IP67
- Mounting holes for simple installation
- High resistance against water, chemicals, transformer oil, petrol and heating oil

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	I-CODE SLI (NXP)
Type/Size	EEPROM 896 Bit ROM 64 Bit

Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

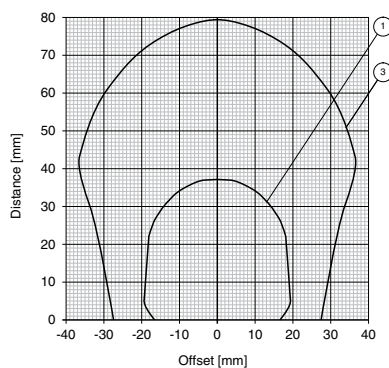
Mechanical specifications

Diameter of the housing	58 mm
Protection degree	IP67
Material	
Housing	ABS

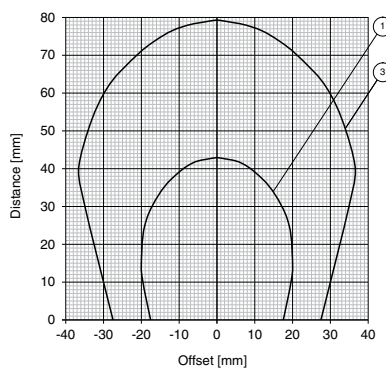
Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

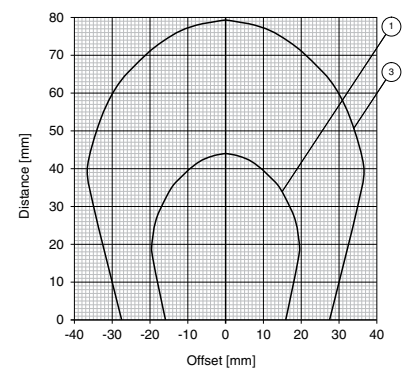
Reading range in air IQC21-58



Reading range on steel IQC21-58



Reading range on aluminium IQC21-58





Model Number

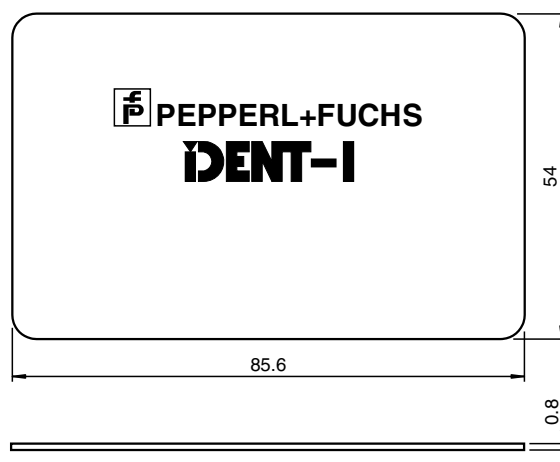
IQC22-C1

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 2 kBit memory available
- Readable and writable from both sides
- Protection degree IP67
- ISO credit card format

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	Tag-it HF-I Plus (Texas Instruments)
Type/Size	EEPROM 2 kBit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-20 ... 50 °C (253 ... 323 K)
Storage temperature	-20 ... 50 °C (253 ... 323 K)

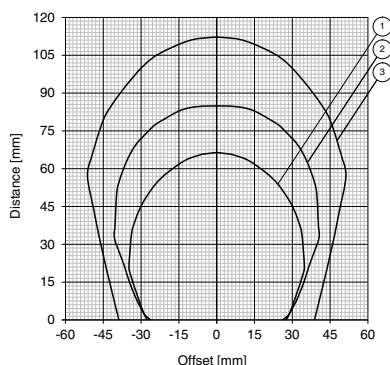
Mechanical specifications

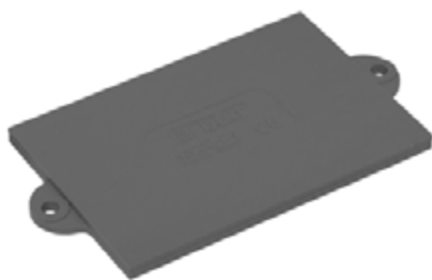
Diameter of the housing	
Protection degree	IP67
Material	
Housing	PVC

Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

Reading range in air IQC22-C1





Model Number

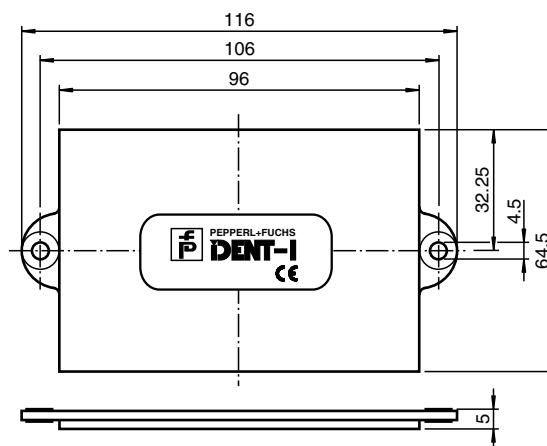
IQC22-C4

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 2 kBit memory available
- Readable and writable from both sides
- Mounting holes for simple installation

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	Tag-it HF-I Plus (Texas Instruments)
Type/Size	EEPROM 2 kBit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

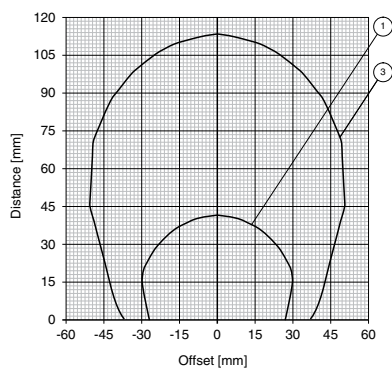
Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Diameter of the housing	
Protection degree	IP20
Material	
Housing	ABS

Read-/write range

Reading range in air IQC22-C4



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1



Model Number

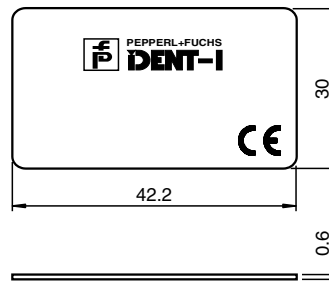
IQC22-C5

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 2 kBit memory available
- Readable and writable from both sides
- Protection degree IP67

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	Tag-it HF-I Plus (Texas Instruments)
Type/Size	EEPROM 2 kBit ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 55 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

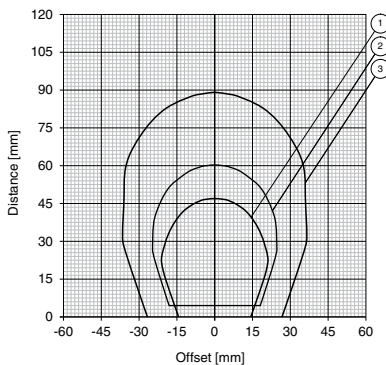
Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Diameter of the housing	
Protection degree	IP67
Material	
Housing	PET

Read-/write range

Reading range in air IQC22-C5



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1



Model Number

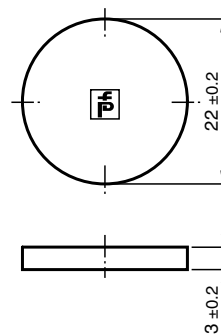
IQC22-22-T9

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 2 kBit memory available
- Readable and writable from both sides
- Protection degree IP68
- With extended temperature range up to 220 °C
- Fix code lasered onto housing

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	Tag-it HF-I Plus (Texas Instruments)
Type/Size	EEPROM 2 kBit, ROM 64 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years at 25 °C

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1, ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

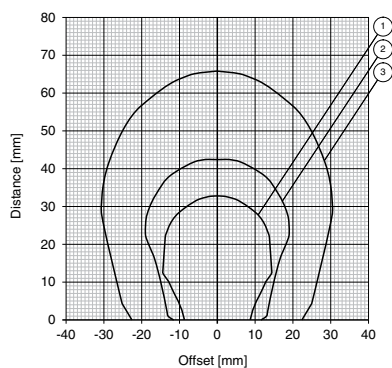
Ambient temperature	-25 ... 90 °C (248 ... 363 K)
Storage temperature	-25 ... 120 °C (248 ... 393 K) 160 °C (433 K) for 50 hours 220 °C (493 K) for 30 seconds
Climatic conditions	Isostatic water pressure: 45 bar for 10 hours
Shock and impact resistance	Oscillation (sinus): 10 g, 10 - 2000 Hz in accordance with EN 60068-2-6 Shock (semi-sinus): 100 g, 6 ms in accordance with EN 60068-2-27

Mechanical specifications

Diameter of the housing	22 mm
Protection degree	IP68
Material	
Housing	PPS
Mass	1.6 g ± 0.3 g

Read-/write range

Reading range in air IQC22-22-T9



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1



Model Number

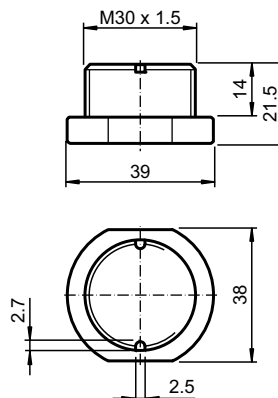
IQC22-39

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 64 bit Fixcode
- 2 kBit memory available
- Protection degree IP67

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	Tag-it HF-I Plus (Texas Instruments)
Type/Size	EEPROM 2 kBit ROM 64 Bit

Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-1, ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

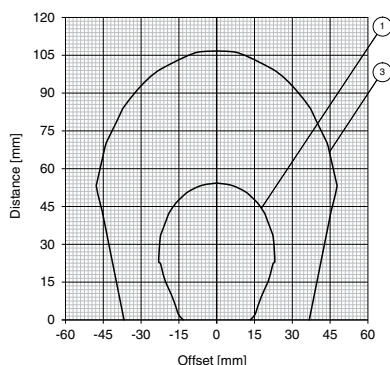
Mechanical specifications

Diameter of the housing	39 mm
Protection degree	IP67
Material	
Housing	ABS
Encapsulation compound	WEVO 403FL/300

Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

Reading range in air IQC22-39





Model Number

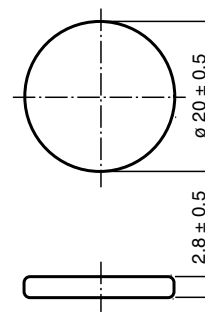
IQC33-20

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 16 kbit memory available
- 64 bit Fixcode
- Protection degree IP68
- Readable and writable from both sides

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	FRAM MB89R118 (Fujitsu)
Type/Size	FRAM 16 kBit, fixcode 64 Bit
Read cycles	unlimited
Write cycles	unlimited
Data retention period	10 years

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
Shock and impact resistance	IEC 68-2-6, IEC 68-2-29
RFID	ISO/IEC 15693-1, ISO/IEC 15693-2, ISO/IEC 15693-3, ISO/IEC 18000-3

Ambient conditions

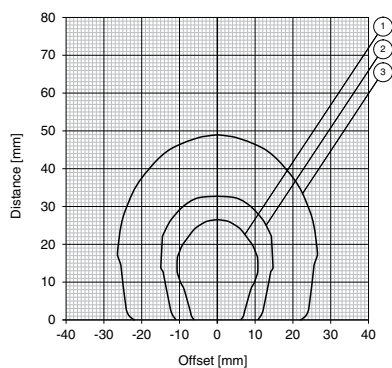
Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K) for 1000 h -40 ... 140 °C (233 ... 413 K) for 100 h
Shock and impact resistance	Oscillation (sinus): 10 g, 10 - 2000 Hz, in all 3 spatial axes, 2.5 hours shock (continuous shocks): 40 g, 18 ms, in all 6 spatial directions, 2000 shocks

Mechanical specifications

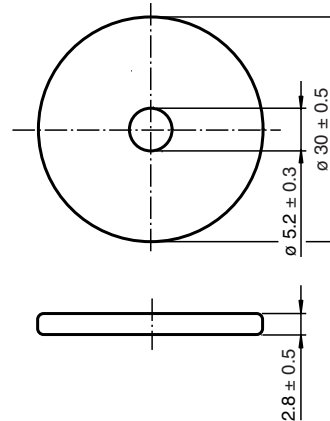
Diameter of the housing	20 mm ± 0.5 mm
Protection degree	IP68
Material	
Housing	PA 6 modified
Mass	1.3 g

Read-/write range

Reading range in air IQC33-20



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1



Model Number

IQC33-30

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 16 kbit memory available
- 64 bit Fixcode
- Protection degree IP68
- Readable and writable from both sides
- Mounting holes for simple installation

Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	FRAM MB89R118 (Fujitsu)
Type/Size	FRAM 16 kBit , fixcode 64 Bit
Read cycles	unlimited
Write cycles	unlimited
Data retention period	10 years

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
Shock and impact resistance	IEC 68-2-6 , IEC 68-2-29
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K) for 1000 h -40 ... 140 °C (233 ... 413 K) for 100 h
Shock and impact resistance	Oscillation (sinus): 10 g, 10 - 2000 Hz, in all 3 spatial axes, 2.5 hours shock (continuous shocks): 40 g, 18 ms, in all 6 spatial directions, 2000 shocks

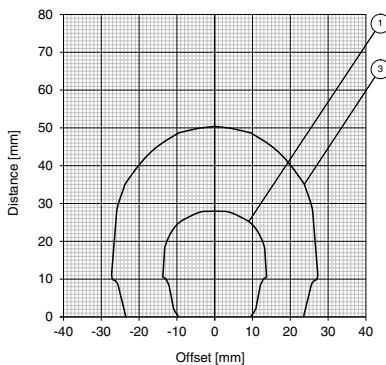
Mechanical specifications

Diameter of the housing	30 mm $\pm$ 0.5 mm
Protection degree	IP68
Material	
Housing	PA 6 modified
Mass	3 g

Read-/write range

- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

Reading range in air IQC33-30





Model Number

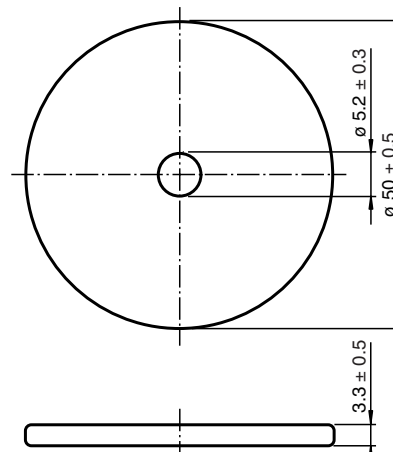
IQC33-50

Read/write tag

Features

- Operating frequency 13.56 MHz
- conformal coated with ISO 15693
- 16 kbit memory available
- 64 bit Fixcode
- Protection degree IP68
- Readable and writable from both sides
- Mounting holes for simple installation

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Transfer rate	26 kBit/s

Memory

Chip Type	FRAM MB89R118 (Fujitsu)
Type/Size	FRAM 16 kBit , fixcode 64 Bit
Read cycles	unlimited
Write cycles	unlimited
Data retention period	10 years

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529
Shock and impact resistance	IEC 68-2-6 , IEC 68-2-29
RFID	ISO/IEC 15693-1 , ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

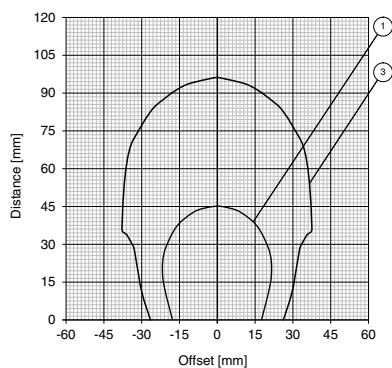
Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-40 ... 90 °C (233 ... 363 K) for 1000 hours
Shock and impact resistance	Oscillation (sinus): 10 g, 10 - 2000 Hz, in all 3 spatial axes, 2.5 hours shock (continuous shocks): 40 g, 18 ms, in all 6 spatial directions, 2000 shocks

Mechanical specifications

Diameter of the housing	50 mm ± 0.5 mm
Protection degree	IP68
Material	
Housing	PA 6 modified
Mass	9.5 g

Read-/write range

Reading range in air IQC33-50



- ① IQH1-18GM-V1 ② IQH1-F61-V1 ③ IQH1-FP-V1
④ IQH-F100-V1

High Temperature iDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
----------------------------------	------------------------	--------------------	------------------------------	-----------------------------	-------------------	---------------------	------------------	-----------------	-------------------	-----------------	-----------------	--------------

4.8 868 MHz R/W heads and transponders for IDENTControl

R/W heads operating in the frequency range 865 to 868 MHz work with electromagnetic waves in the far field. The transponders can be passive as well as active (= with battery) and use a specially-shaped rod antenna as the resonance element. The passive transponders can be produced very cheaply and have a range of several meters.

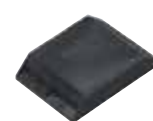
However, UHF systems are very susceptible to moisture and metal items within the read range. Conductive items in the immediate vicinity can reflect waves and cause read gaps as a result of interference. It therefore makes sense to read UHF transponders while they are moving or when they are located at a previously tested position.

As conveyor technology and the automotive sector requires ranges of 1 to 5 meters, this system represents a low-cost alternative to microwave systems, particularly because of its low transponder costs. The high carrier frequency supports large data volumes and extremely short read times.

Read/Write Heads and Transponders



Order code	IUH-F117-V1
Page	136
General data	
Operating frequency	865,6 ... 867,6 MHz
Emitted power	2 W ERP
Operating distance	Maximum 6 m
Electrical data	
Power consumption P ₀	≤ 30 W
Mechanical data	
Degree of protection	IP54
Connection	M12x1 connector
Material	
Enclosure	Aluminum / ABS
Weight	Approx. 2 kg



Order code	IUC71-F150-T11
Page	137
General data	
Operating frequency	865 ... 868 MHz
Memory	
Type/size	2048 bit
Read cycles	unlimited
Write cycles	> 100000
Data hold time	10 years
Ambient conditions	
Ambient temperature	-20 ... 85°C
Storage temperature	-20 ... 85°C 190°C for 25 mins. 220 °C short-term
Mechanical data	
Degree of protection	IP67
Material	
Enclosure	PPS (polyphenylene sulfide)



Model Number

IUH-F117-V1

Read/write head
for IDENTControl Compact

Features

- 3 LEDs for function indication
- Connection via plug connection V1 (M12 x 1)

Function

The IUH-F117-V1 read/write head was developed to read passive data carriers referred to as "Smart Labels" at an operating frequency in the UHF range (865 - 928 MHz). A highly sensitive built-in transmitter and receiver unit permits a recording range of up to 6 meters for data carriers and allows for transponder protocols as specified by EPC Gen2 as well as optional ISO 18000-6-B and ISO 18000-6-C. Special blocking options support operation with read/write heads in close proximity to each other. The powerful integrated decoding module decodes FM0-coded transponder signals between 40 ... 320 kbps and side-band-coded transponder signals (dense reader mode) with 64 kbps (EU). Buffered read mode and notification function also facilitate advanced data filtering and storage. The write/read head is connected via an M12 connector to the IDENTControl control interface and is protected against faults including antenna short circuit and electrostatic discharge.

Accessories

IUC71-F150-T11

Read/write tag

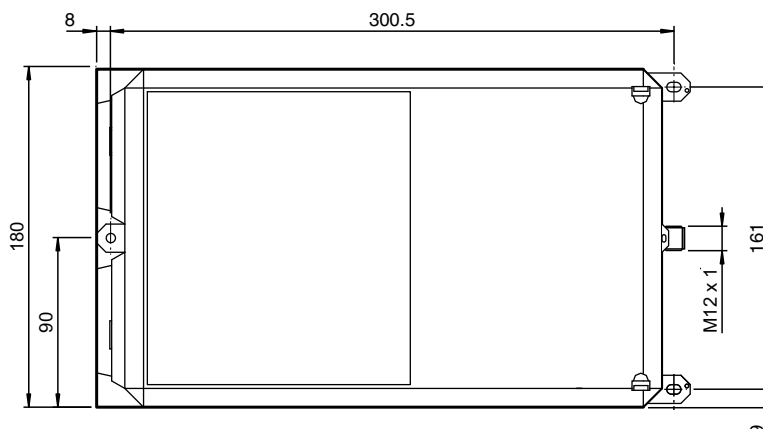
V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

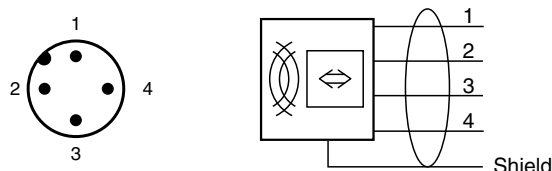
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	865.6 ... 867.6 MHz
Emitted power	2 W ERP
Operating distance	maximum: 6 m

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
------------------	--

Electrical specifications

Power consumption P_0	≤ 30 W
Supply	from the IDENTControl

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 302208, EN 60950-1
Standard conformity	
Electromagnetic compatibility	EN 61326
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-25 ... 55 °C (248 ... 328 K)
Storage temperature	-25 ... 85 °C (248 ... 358 K)

Mechanical specifications

Protection degree	IP54
Connection	Connector M12 x 1
Material	
Housing	aluminium / ABS
Mass	approx. 2.7 kg



Model Number

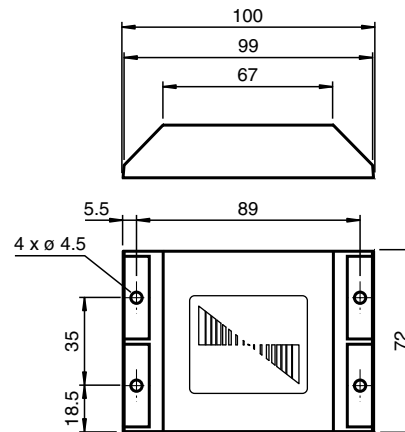
IUC71-F150-T11

Read/write tag

Features

- Operating frequency 868 MHz
- conformal coated with ISO 18000-6 B
- 2 kBit memory available
- Sturdy housing, suitable for rough industrial use
- With an increased temperature range of up to 220 °C

Dimensions



Technical data

General specifications

Operating frequency	865 ... 868 MHz
---------------------	-----------------

Memory

Type/Size	2048 Bit
Read cycles	unlimited
Write cycles	> 100000
Data retention period	10 years

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 302208, EN 60950-1
Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 18000-6B

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K) 190 °C (463 K) for 25 min 220 °C (493 K) briefly
Temperature cycles	1000 x (25 min. at 190 °C)

Mechanical specifications

Protection degree	IP67
Material	
Housing	PPS (Polyphenylenesulfide)
Mass	150 g

Function

The IUC71-F150-T11 data carrier is a passive high temperature UHF transponder (868 MHz) for mounting on electrically-conductive surfaces and was designed especially for applications in the automobile industry. In this way, it can be used for the identification of skids and other transport fixtures in high temperature processes, such as e. g. in painting lines or galvanic coating systems.

For the area of application, the housing materials and housing structure (hps technology) were aligned to each other so that in spite of a low structural volume, the effects of high temperature of 190 °C for approx. 25 minutes and even 220 °C for a short time do not leave any damage on the transponder inlay or even a loss of data. Furthermore, the housing design is characterised by a high level of mechanical stability, high housing protection class and through the variety of possibilities for attachment. In addition, the data carrier is resistant against diluted mineral acids, lyes, aliphatic/aromatic hydrocarbons, fat, oil and is hydrolysis-resistant.

The design of the transponder antenna enables direct attachment to electrically-conductive surfaces without incurring a reduction in reading range. The data carrier can read from a distance of more than 4 m and, depending on settings, it can be written from a distance of more than 3 m. Up to 2048 Bits can be stored in the data carrier, depending on the application. Furthermore, the working frequency in the UHF range enables a fast group recording of data carriers, which can all be found in the read field of the antenna at the same time.

iDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

iDENT-O
Barcode

iDENT-O
Data Matrix

High Temperature
iDENT System

4.9 2.45 GHz R/W heads and tags for IDENTControl

In contrast to inductive R/W heads, microwave antennas work with detached waves whose signals are reflected back and modulated by an active tag. The high carrier frequency provides the system with a data transmission rate of 76.8 kBaud. As the read range of several meters is also very large, this system is equally suitable for very high-speed applications (30 m/s).

Although the frequency of 2.45 GHz has been standardized across the globe, there are nevertheless differences with respect to permitted emitted power. The simultaneous use of this frequency band by Bluetooth, microwave ovens or WiFi 802.11b/g can lead to interference during signal transmission. Metal surfaces within the read range also cause reflections and interference that can have detrimental effects in the shape of zero settings or over-ranging.

Because of the short wave lengths, the energy cannot be induced in the tag using the transformer principle. For its power supply the tag therefore has a replaceable battery with a typical service life of 5 years. The battery charge status can be transmitted as a type of diagnostic function from the tag to the control unit.

The tag has about 8 kB of memory (7552 bytes available for user data), communication electronics and uses an LED to indicate the read status directly on the tag.

Calculation example of travel speeds

The formula on page 59 is valid for the calculation of the maximum possible travel speed.

The following examples show you how you can calculate the travel speed of your application. For the example calculation, the following assumptions are made:

- MVH2000 R/W head (1.5 m range/detection range)
- Read/write times (in ms):

Read read only code	8
N ξ Read 4 byte data	N x 17
N ξ Write 4 byte data	N x 30

Read read only code

Read time $t = 8 \text{ ms} = 0.008 \text{ s}$
 $s = 1.5 \text{ m}$

$$v_{\text{praxis}} = \frac{1,5 \text{ m}}{(2 \times 0,008 \text{ s})} = 94 \text{ m/s}$$

Read 8 bytes

Read time $t = 2 \times 17 \text{ ms} = 0.034 \text{ s}$
 $s = 1.5 \text{ m}$

$$v_{\text{praxis}} = \frac{1,5 \text{ m}}{(2 \times 0,034 \text{ s})} = 22 \text{ m/s}$$

Write 8 bytes

Write time $t = 2 \times 30 \text{ ms} = 0.06 \text{ s}$
 $s = 1.5 \text{ m}$

$$v_{\text{praxis}} = \frac{1,5 \text{ m}}{(2 \times 0,06 \text{ s})} = 12,5 \text{ m/s}$$

In the following tables, the travel speed attainable in practice is shown for various R/W heads. In the process, a repeat reading is taken into consideration. (All data in m/s)

	MVH500	MVH2000
Read read only code ¹⁾	31	94
Read 4 byte data ¹⁾	15	44
Read 5 byte data ¹⁾	7.35	22
Write 4 byte data ¹⁾	8.3	25

1) at 30-80% of max. sensing range

R/W heads

		
Order code	MVH500-F15-V1	MVH2000-F15-V1
Page	140	141
General data		
Operating frequency	2.45 GHz ± 200 kHz	
Transfer rate	76.8 kBit/s	
Operating distance	0 ... 0.5 m , maximum 1.5 m	0.2 ... 2 m , maximum 4 m
Electrical data		
Power consumption P ₀	≤ 7 W	
Mechanical data		
Degree of protection	IP65	
Connection	M12x1 connector	
Material		
Enclosure	PBT/Stainless steel/Aluminum	

Tag

	
Order code	MVC-60B-64K
Page	142
General data	
Operating frequency	2.45 GHz ± 200 kHz
Transfer rate	76.8 kBit/s
Memory	
capacity	8 kByte (7552 bytes available for user data)
Battery life	Approx. 5 years without any read or write operations or approx. 15 million read operations of 64 bytes each time, battery can be changed
Ambient conditions	
Ambient temperature	-20 ... 70°C
Storage temperature	-20 ... 70°C
Mechanical data	
Degree of protection	IP65
Material	Enclosure: PLC Battery compartment cover: PBT
Weight	Approx. 100 g

Accessories

	
Order code	MVC-SH1
Page	162
General data	Cap for tag
Mechanical data	
Material	POM

Handheld

	
Order code	MVT-HH12
General data	
Operating frequency	2.45 GHz ± 200 kHz
Emitted power	1.54 mW (1.9 dBm)
Read distance	0 ... 100 mm
Write range	0 ... 100 mm
Ambient conditions	
Ambient temperature	5 ... 40 °C
Storage temperature	20 ... 40 °C
Electrical data	
Power supply	NiMH battery
Mechanical data	
Dimensions	100 mm x 272 mm x 38 mm (H x W x D) (without antenna cable)
Weight	Approx. 1370 g



Model Number

MVH500-F15-V1

Read/write head
for iDENTControl

Features

- 3 LEDs for function indication
- Connection via plug connection V1 (M12 x 1)
- Protection degree IP65

Accessories

V1-G-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

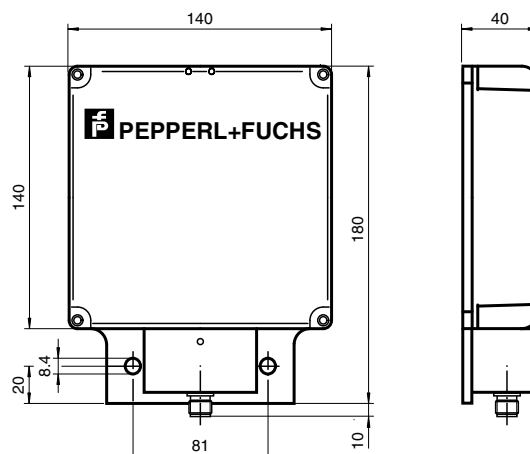
V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

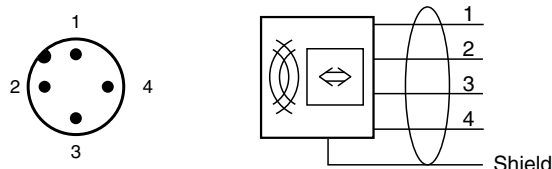
V1-G-20M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions



Electrical connection



Technical data

General specifications

Operating frequency	2.45 GHz $\pm$ 200 kHz
Transfer rate	76.8 kBit/s
Emitted power	2.7 mW (4.3 dBm)
Operating distance	0 ... 0.5 m, maximum 1.5 m

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
LED Tx	communication
LED OK	Power on

Electrical specifications

Power consumption P_0	≤ 7 W
Supply	from the iDENTControl

Standard conformity

Electromagnetic compatibility	EN 61326, EN 301489-1, EN 301489-3, EN 300440-1
Standards	EN 60950-1

Ambient conditions

Ambient temperature	-20 ... 70 °C (253 ... 343 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Shock and impact resistance	50 g, 11 ms, in all 3 spatial axes, with 3 positive and negative accelerations on each, according to IEC 68-2-27 and IEC 68-2-47

Mechanical specifications

Protection degree	IP65 according to EN 60529
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel/aluminium
Installation	
Distance between two heads	2 m at operating distance 0.5 m
Mass	approx. 1200 g

Notes

Max. cable length:

- 100 m for wire cross section 4 x 0,34 mm²
- 150 m for wire cross section 4 x 0,50 mm²
- 200 m for wire cross section 4 x 0,75 mm²

**Model Number****MVH2000-F15-V1**Read/write head
for IDENTControl**Features**

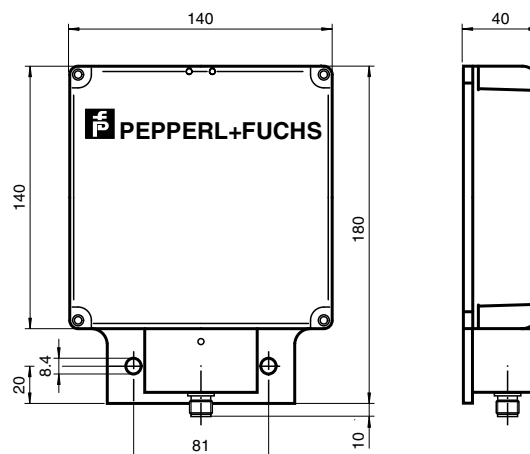
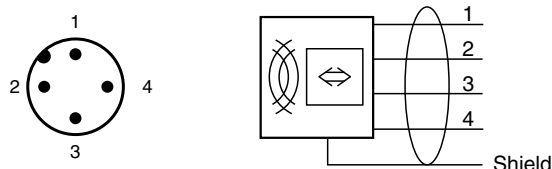
- 3 LEDs for function indication
- Connection via plug connection V1 (M12 x 1)
- Protection degree IP65

Accessories**V1-G-5M-PUR-ABG-V1-W**

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

V1-G-10M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Dimensions**Electrical connection****Technical data****General specifications**

Operating frequency	2.45 GHz $\pm$ 200 kHz
Transfer rate	76.8 kBit/s
Emitted power	10 mW (10 dBm)
Operating distance	0.2 ... 2 m, maximum 4 m

Indicators/operating means

LED green/yellow	green: power on green flashing: read/write attempt performed yellow: read/write tag detected
LED Tx	communication
LED OK	Power on

Electrical specifications

Power consumption P_0	≤ 7 W
Supply	from the IDENTControl

Standard conformity

Electromagnetic compatibility	EN 61326, EN 301489-1, EN 301489-3, EN 300440-1
Standards	EN 60950-1

Ambient conditions

Ambient temperature	-20 ... 70 °C (253 ... 343 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Shock and impact resistance	50 g, 11 ms, in all 3 spatial axes, with 3 positive and negative accelerations on each, according to IEC 68-2-27 and IEC 68-2-47

Mechanical specifications

Protection degree	IP65 according to EN 60529
Connection	Connector M12 x 1
Material	
Housing	PBT/stainless steel/aluminium
Installation	
Distance between two heads	8 m at operating distance 2 m
Mass	approx. 1200 g

Notes**Max. cable length:**

100 m for wire cross section 4 x 0,34 mm ²
150 m for wire cross section 4 x 0,50 mm ²
200 m for wire cross section 4 x 0,75 mm ²



Model Number

MVC-60B-64K

Read/write tag

Features

- Replaceable battery
- 7552 bytes memory available
- Disconnectable LED

Accessories

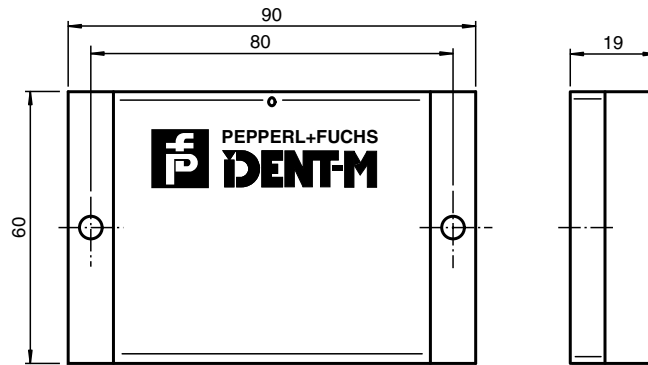
MVC-60B-64K-BC

Read/write tag battery change

MVC-SH

Protective cover for read/write tag MVC-60B-64K

Dimensions



Technical data

General specifications

Operating frequency	2.45 GHz $\pm$ 200 kHz
Transfer rate	76.8 kBit/s

Memory

Capacitance	8 kByte (7552 Bytes available for user data)
Battery life	approx. 5 years without read or write operations or approx. 15 mill. read operations on 64 bytes per access, battery is replaceable

Indicators/operating means

LED yellow	lights during the data transfer (can be switched off)
------------	---

Ambient conditions

Ambient temperature	-20 ... 70 °C (253 ... 343 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Shock and impact resistance	100 G, 13 ms on all 3 spatial axes, with 3 positive and negative accelerations on each, according to IEC 68-2-27

Mechanical specifications

Protection degree	IP65 according to EN 60529
Material	Housing: sPS Cover of battery box: PBT
Installation	horizontal and vertical $\pm 45^\circ$ arbitrary rotation
Mass	approx. 100 g

4.10 IDENTControl System Accessories

Power Supply Accessories

The cable connectors for the power supply are available in various lengths and are made from PUR and PVC.

						
General data						
Number of pins	4			4		
Connector 1	Socket			Socket		
Structure 1	straight			straight		
Thread 1	M12			M12		
Connector 2	cable end			cable end		
Mechanical data						
Material						
Cables	PVC			PUR		
Cables	fine wire, flexible					
Length	2 m	5 m	10 m	2 m	5 m	10 m
Order code	V1-G-2M-PVC	V1-G-5M-PVC	V1-G-10M-PVC	V1-G-2M-PUR	V1-G-5M-PUR	V1-G-10M-PUR
Page	146			147		

R/W Head Accessories

The cables for connecting the R/W heads are shielded PUR lines. The shield connected to the union nut is part of the EMC concept for the entire **IDENTControl** system.

The use of customizable cable connectors and plugs allows you to assemble application-specific lengths of cable for the R/W heads. The cable connectors and plugs have a metallic housing to guarantee continuous shielding in angled and straight configurations. Note the cable requirements specified on the data sheets.

							
General data							
Number of pins	4 + shield			4 + shield			
Connector 1	Socket			Socket	Plug	Socket	Plug
Structure 1	straight	angled		angled		straight	
Thread 1	M12			M12			
Connector 2	Plug			-			
Structure 2	angled			-			
Thread 2	M12			-			
Mechanical data							
Material							
Cables	PUR			-			
Grip	TPU			Metal			
Cables	fine wire, flexible			-			
Length	0,6 m ... 80 m	0,6 m ... 80 m	5 m		-		
Order code	V1-G-*M-PUR-ABG-V1-W	V1-W-5M-PUR-ABG-V1-W		V1-W-ABG-PG9	V1S-W-ABG-PG9	V1-G-ABG-PG9	V1S-G-ABG-PG9
Page	148	149		150		151	

Please contact Pepperl+Fuchs for other cable lengths.

Ethernet Accessories

The shielded CAT5 cable and the shielding of the RJ-45 plug permit the use of the **IDENTControl** in an industrial environment.

					
	Network cable	Connector cover	Plug		
Order code	V45-G-10M-V45-G	ICZ-V45	V45-G		
Page	152	154	154		
					
For IDENTControl Compact	Connection cable, on RJ45	Connection cable	Connection cable, crossover	Plug	Plug
Cable length	2 m, 5 m	2 m, 5 m	2 m	-	-
Order code	V1SD-G-*M-PUR-ABG-V45-G	V1SD-G-*M-PUR-ABG-V1SD-G	V1SD-G-2M-PUR-ABG-V45X-G	V1SD-G-ABG-PG9	V1SD-W-ABG-PG9
Page	153	152	153	155	

PROFIBUS Accessories

You can choose between various M12 plugin connections to connect the **IDENTControl** to PROFIBUS.

							
	Connection cable	Socket	Plug	T distributor	Terminator	Y-connection cable	Termination cable with terminator
Cable length	0.6 m to 15 m	-	-	-	-	0.2 m	0.2 m
Order code	V15B-G-*M-PUR-ABG-V15B-G	V15B-G-ABG-PG9	V15SB-G-ABG-PG9	ICZ-3T-V15B	ICZ-TR-V15B	ICZ-3T-0.2M-PUR-ABG-V15B-G	ICZ-2T/TR-0.2M-PUR-ABG-V15B-G
Page	156	157		159		158	158

Serial Interface Accessories

These accessories enable you to connect the **IDENTControl** to a serial interface, e.g. a PC, using a Sub-D.

			
	Null modem cable	Adapter M12 x 1 on Sub-D	Plug
Order code	IVZ-K-R2	V1S-G-0.15M-PUR-SUBD	V1S-G-ABG-PG9
Page	160		151

IDENTControl Compact Installation Accessories

Special transponder accessories help you during installation and protect the products from damage and external influences.



Mounting aid for DIN rails

Order code	ICZ-MH05-SACB-8
Page	163

Transponder Installation Accessories

Special transponder accessories help you during installation and protect the products from damage and external influences.



Screw-in tool



Protective cap



Dust cover



Spacer



Low-profile housing

Order code	IVZ-16G-EW	IVZ-30G-EW	ICS-30GK	MVC-SH1	IVZ-MH15	ICZ-MH30-25-T10	IPZ-MH50
Page	161		162		163		164

Software RFIDControl



The RFIDControl demo program enables you to enter and execute all the most important commands via the command window of a PC.

See page 165 for details.

IDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

IDENT-O
Barcode

IDENT-O
Data Matrix

High Temperature
IDENT System

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

Model Number

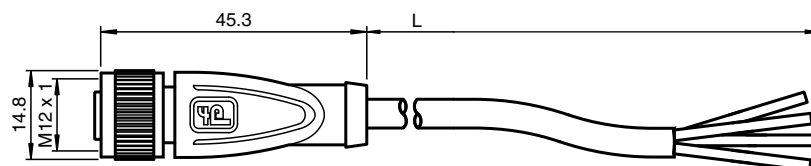
V1-G-*M-PVC

Cable socket, M12, 4-pin, PVC cable

Features

- Knurled nut suitable for tool assembly
- Immunity to vibration, with mechanical latching
- Gold plated contacts
- Protection degree IP67 / IP68 / IP69K
- Suitable for 2-, 3- and 4-wire technology

Dimensions



Technical data

General specifications

Number of poles	4
-----------------	---

Electrical specifications

Operating voltage U_B	max. 300 V DC
Operating current	max. 4 A
Volume resistance	< 5 mΩ

Ambient conditions

Ambient temperature	-25 ... 100 °C (248 ... 373 K) for temperatures over 80 °C (353 K) reduced elongation at tear
Degree of soiling	3

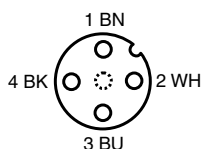
Mechanical specifications

Contact elements	spring-loaded contact socket
Pin diameter	1 mm
Protection degree	IP67 / IP68 / IP69K
Material	
Contacts	CuSn / Au
Contact surface	Au
Handle	TPU, green
Cable	PVC
Slotted nut	Diecast zinc
Core isolation	PVC
Cable	fine-strand, flexible
Sheath diameter	Ø4.8 mm
Bend radius	> 10 x cable diameter, appropriate for conveyor chains
Colour	grey
Cores	4 x 0.34 mm ²
Length L	V1-G-2M-PVC 2 m V1-G-5M-PVC 5 m V1-G-10M-PVC 10 m

Flammability

Contact material	94 V-2
Housing	94 V-2
Wire	flame-resistant

Electrical connection 1





Model Number

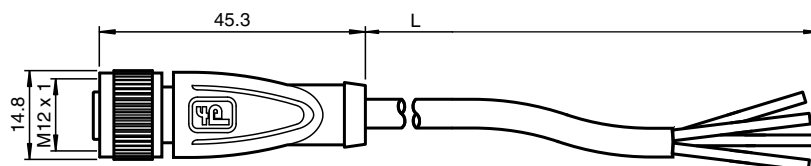
V1-G-*M-PUR

Cable socket, M12, 4-pin, PUR cable

Features

- Knurled nut suitable for tool assembly
- Immunity to vibration, with mechanical latching
- Gold plated contacts
- Protection degree IP67 / IP68 / IP69K
- Halogen-free
- Suitable for 2-, 3- and 4-wire technology

Dimensions



Technical data

General specifications

Number of poles	4
-----------------	---

Electrical specifications

Operating voltage U_B	max. 300 V DC
Operating current	max. 4 A
Volume resistance	< 5 mΩ

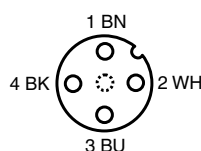
Ambient conditions

Ambient temperature	-25 ... 100 °C (248 ... 373 K) for temperatures over 80 °C (353 K) reduced elongation at tear
Degree of soiling	3

Mechanical specifications

Contact elements	spring-loaded contact socket
Pin diameter	1 mm
Protection degree	IP67 / IP68 / IP69K
Material	
Contacts	CuSn / Au
Contact surface	Au
Handle	TPU, green
Cable	PUR
Slotted nut	Diecast zinc
Core isolation	PP
Cable	fine-strand, flexible
Sheath diameter	Ø4.8 mm
Bend radius	> 10 x cable diameter, appropriate for conveyor chains
Colour	grey
Cores	4 x 0.34 mm ²
Length L	V1-G-2M-PUR 2 m V1-G-5M-PUR 5 m V1-G-10M-PUR 10 m
Flammability	
Contact material	94 V-2
Housing	94 V-2

Electrical connection 1



iDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

iDENT-O
Barcode

iDENT-O
Data Matrix

High Temperature
iDENT System



Model Number

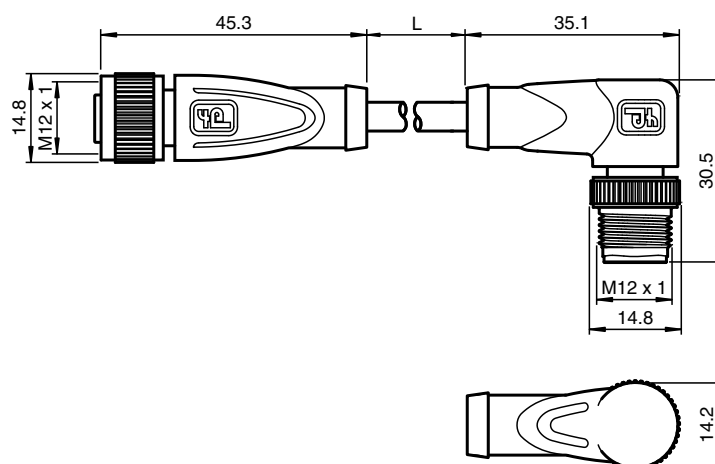
V1-G-*M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Features

- Knurled nut suitable for tool assembly
- Immunity to vibration, with mechanical latching
- Shield attached to coupling nut
- Gold plated contacts
- Protection degree IP67 / IP68 / IP69K
- Halogen-free
- Suitable for 2-, 3- and 4-wire technology

Dimensions



Technical data

General specifications

Number of poles	4 + shield
-----------------	------------

Electrical specifications

Operating voltage U_B	max. 300 V DC
Operating current	max. 4 A
Volume resistance	< 5 mΩ

Ambient conditions

Ambient temperature	-25 ... 100 °C (248 ... 373 K) for temperatures over 80 °C (353 K) reduced elongation at tear
Degree of soiling	3

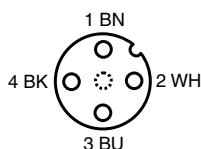
Mechanical specifications

Contact elements	spring-loaded contact socket
pin diameter	1 mm
Protection degree	IP67 / IP68 / IP69K
Material	
Contacts	CuSn / Au
Contact surface	Au
Handle	TPU, green
Cable	PUR
Slotted nut	diecast zinc
Core isolation	PP
Cable	fine-strand, flexible
Sheath diameter	Ø4.8 mm
Bend radius	> 10 x cable diameter, appropriate for conveyor chains
Colour	grey
Cores	4 x 0.34 mm ²
Length L	V1-G-2M-PUR-ABG-V1-W 2 m V1-G-5M-PUR-ABG-V1-W 5 m V1-G-10M-PUR-ABG-V1-W 10 m

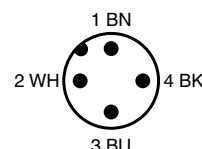
Flammability

Contact material	94 V-2
Housing	94 V-2

Electrical connection 1



Electrical connection 2





Model Number

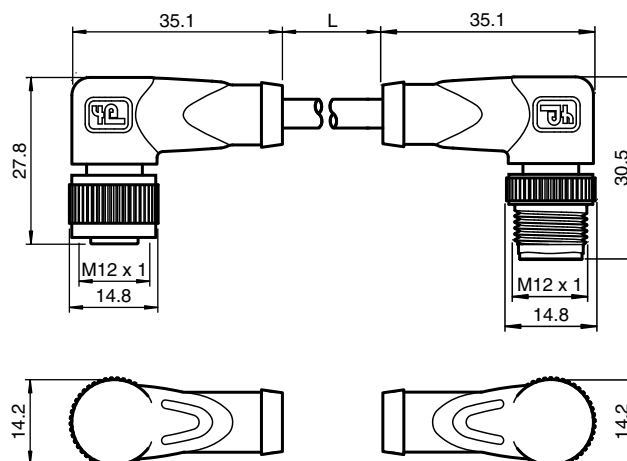
V1-W-5M-PUR-ABG-V1-W

Connecting cable, M12 to M12, PUR cable 4-pin, shielded

Features

- Knurled nut suitable for tool assembly
- Immunity to vibration, with mechanical latching
- Shield attached to coupling nut
- Gold plated contacts
- Protection degree IP67 / IP68 / IP69K
- Halogen-free
- Suitable for 2-, 3- and 4-wire technology

Dimensions



Technical data

General specifications

Number of poles	4 + shield
-----------------	------------

Electrical specifications

Operating voltage U_B	max. 300 V DC
Operating current	max. 4 A
Volume resistance	< 5 mΩ

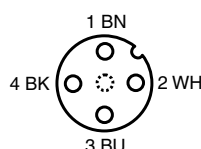
Ambient conditions

Ambient temperature	-25 ... 100 °C (248 ... 373 K) for temperatures over 80 °C (353 K) reduced elongation at tear
Degree of soiling	3

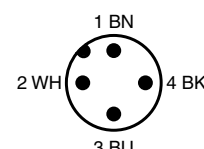
Mechanical specifications

Contact elements	spring-loaded contact socket
pin diameter	1 mm
Protection degree	IP67 / IP68 / IP69K
Material	
Contacts	CuSn / Au
Contact surface	Au
Handle	TPU, green
Cable	PUR
Slotted nut	diecast zinc
Core isolation	PP
Cable	fine-strand, flexible
Sheath diameter	Ø4.8 mm
Bend radius	> 10 x cable diameter, appropriate for conveyor chains
Colour	grey
Cores	4 x 0.34 mm ²
Length L	5 m
Flammability	
Contact material	94 V-2
Housing	94 V-2

Electrical connection 1



Electrical connection 2





Model Number

V1-W-ABG-PG9

Cable socket, M12, 4-pin, screened, ready to make up

Features

- Manufacturable, screenable
- Metal housing
- Iris spring screening
- Cable socket for read/write heads with V1 plug connection



Model Number

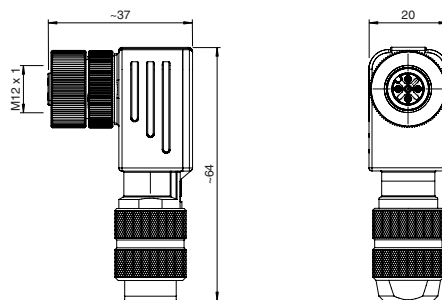
V1S-W-ABG-PG9

Cable connector, M12, 4-pin, screened, ready to make up

Features

- Manufacturable, screenable
- Metal housing
- Iris spring screening

Dimensions



Technical data

General specifications

Number of poles	4
Connection 1	Connector, female
Construction type 1	angled
Threading 1	M12

Electrical specifications

Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U_e	250 V

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

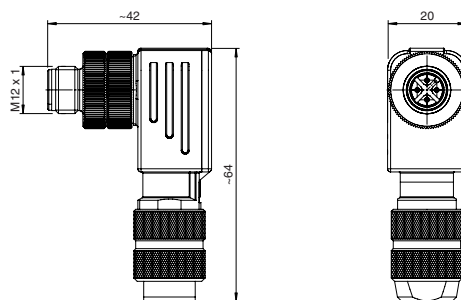
Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection

Material

Contacts	CuZn
Contact surface	Au
Handle	Zinc die-casting, nickel-plated
Slotted nut	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm

Dimensions



Technical data

General specifications

Number of poles	4
Connection 1	Connector, male
Construction type 1	angled
Threading 1	M12

Electrical specifications

Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U_e	250 V

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection

Material

Contacts	CuZn
Contact surface	Au
Connector	Zinc die-casting, nickel-plated
Handle	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm



Model Number

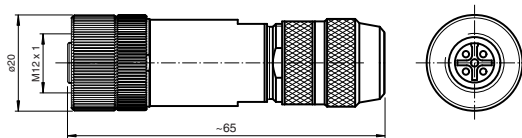
V1-G-ABG-PG9

Cable socket, M12, 4-pin, screened, ready to make up

Features

- Manufacturable, screenable
- Metal housing
- Iris spring screening
- Cable socket for read/write heads with V1 plug connection

Dimensions



Technical data

General specifications

Number of poles	4
Connection 1	Connector, female
Construction type 1	straight
Threading 1	M12

Electrical specifications

Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U _e	250 V

Ambient conditions

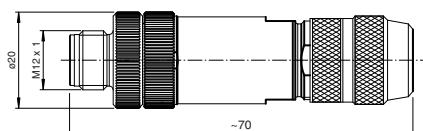
Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection
Material	
Contacts	CuZn
Contact surface	Au
Handle	Zinc die-casting, nickel-plated
Slotted nut	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm



Dimensions



Technical data

General specifications

Number of poles	4
Connection 1	Connector, male
Construction type 1	straight
Threading 1	M12

Electrical specifications

Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U _e	250 V

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection
Material	
Contacts	CuZn
Contact surface	Au
Connector	Zinc die-casting, nickel-plated
Handle	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm

Model Number

V1S-G-ABG-PG9

Cable connector, M12, 4-pin, screened, ready to make up

Features

- Manufacturable, screenable
- Metal housing
- Iris spring screening

**Model Number****V45-G-10M-V45-G**

Network cable RJ-45, Category 5

Features

- Patch cable
- up to 100 MHz

Technical data**Mechanical specifications**

Connection	Ethernet: RJ-45 , Category 5 , up to 100 MHz
Cable	
Length L	10 m

**Technical data****General specifications**

Number of poles	4
Connection 1	Connector, male
Construction type 1	straight
Threading 1	M12
Connection 2	Connector, male
Construction type 2	straight
Threading 2	RJ-45

Electrical specifications

Operating voltage U_B	max. 125 V
Test voltage	1000 V
Volume resistance	150 mΩ/m

Ambient conditions

Ambient temperature	-20 ... 60 °C (253 ... 333 K) , stationary 0 ... 50 °C (273 ... 323 K) , moving
---------------------	--

Mechanical specifications

Protection degree	IP67 / IP20
Connection	M12 x 1 connector, 4-pin, D-coded RJ-45 Category 5 , up to 100 MHz

Material	
Handle	TPU, black / PA
Cable	PUR
Core isolation	PE
Cable	2 pairs with 2 wires each with 2 fillers for the core
Sheath diameter	6.7 mm
Bend radius	> 35 mm
Colour	water blue (RAL 5021)
Cores	4 x 0.14 mm ²
Conductor construction	7 x 0.15 mm Ø
Shield	Tinned copper braiding, 65 % coverage
Length L	2 m

Model Number**V1SD-G-2M-PUR-ABG-V1SD-G**

Ethernet bus cable, M12 to M12, PUR cable 4-pin, CAT5e

Features

- D coding for Ethernet
- Hard-wearing PUR cable
- Cat 5/Cat 5e cable

**Model Number****V1SD-G-2M-PUR-ABG-V45-G**

Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

Features

- D coding for Ethernet
- Hard-wearing PUR cable
- Cat 5/Cat 5e cable

Technical data**General specifications**

Number of poles	4
Connection 1	Connector, male
Construction type 1	straight
Threading 1	M12
Connection 2	Connector, male
Construction type 2	straight
Threading 2	RJ-45

Electrical specifications

Operating voltage U_B	max. 125 V
Test voltage	1000 V
Volume resistance	150 m Ω /m

Ambient conditions

Ambient temperature	-20 ... 60 °C (253 ... 333 K) , stationary 0 ... 50 °C (273 ... 323 K) , moving
---------------------	--

Mechanical specifications

Protection degree	IP67 / IP20
Connection	M12 x 1 connector, 4-pin, D-coded RJ-45 Category 5 , up to 100 MHz
Material	
Handle	TPU, black / PA
Cable	PUR
Core isolation	PE
Cable	2 pairs with 2 wires each with 2 fillers for the core
Sheath diameter	6.7 mm
Bend radius	> 35 mm
Colour	water blue (RAL 5021)
Cores	4 x 0.14 mm ²
Conductor construction	7 x 0.15 mm $\varnothing$
Shield	Tinned copper braiding, 65 % coverage
Length L	2 m

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System**Model Number****V1SD-G-2M-PUR-ABG-V45X-G**

Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e

Features

- Ethernet Crossover cable
- Hard-wearing PUR cable
- Cat 5/Cat 5e cable

Technical data**General specifications**

Number of poles	4
Connection 1	Connector, male
Construction type 1	straight
Threading 1	M12
Connection 2	Connector, male
Construction type 2	straight
Threading 2	RJ-45

Electrical specifications

Operating voltage U_B	max. 125 V
Test voltage	1000 V
Volume resistance	150 m Ω /m

Ambient conditions

Ambient temperature	-20 ... 60 °C (253 ... 333 K) , stationary 0 ... 50 °C (273 ... 323 K) , moving
---------------------	--

Mechanical specifications

Protection degree	IP67 / IP20
Connection	M12 x 1 connector, 4-pin, D-coded RJ-45 Category 5 , up to 100 MHz
Material	
Handle	TPU, black / PA
Cable	PUR
Core isolation	PE
Cable	2 pairs with 2 wires each with 2 fillers for the core
Sheath diameter	6.7 mm
Bend radius	> 35 mm
Colour	water blue (RAL 5021)
Cores	4 x 0.14 mm ²
Conductor construction	7 x 0.15 mm $\varnothing$
Shield	Tinned copper braiding, 65 % coverage
Length L	2 m



Model Number

ICZ-V45

Ethernet connections accessories for increasing of protection degree of the RJ-45 connector

Features

- Increasing of protection degree to IP67

Technical data

Mechanical specifications

Protection degree	IP67 (completely fitted) according to EN 60529
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Model Number

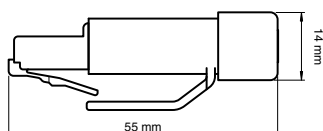
V45-G

Non pre-wired cable connector

Features

-

Dimensions



Technical data

General specifications

Connection 1	Connector, male
Construction type 1	straight

Ambient conditions

Ambient temperature	-40 ... 70 °C (233 ... 343 K)
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Mechanical specifications

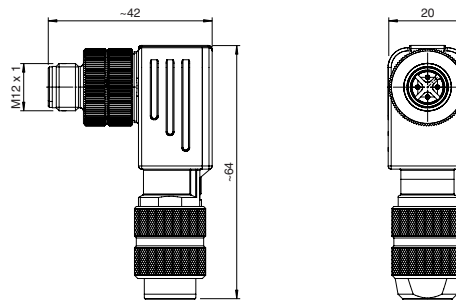
Cable diameter	6.5 ... 8.6 mm
Protection degree	IP20
Connection	RJ-45

**Model Number****V1SD-W-ABG-PG9**

nicht uebersetzt!

Features

- D coding for Ethernet
- Manufacturable, screenable
- Metal housing
- Iris spring screening

Dimensions**Technical data****General specifications**

Number of poles	4
Connection 1	Connector, male
Construction type 1	angled
Threading 1	M12

Electrical specifications

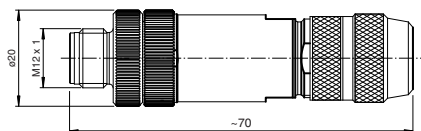
Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U _e	250 V

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection
Material	
Contacts	CuZn
Contact surface	Au
Connector	Zinc die-casting, nickel-plated
Handle	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm

**Dimensions****Technical data****General specifications**

Number of poles	4
Connection 1	Connector, male
Construction type 1	straight
Threading 1	M12

Electrical specifications

Operating current	4 A
Volume resistance	< 3 mΩ
Rated operational voltage U _e	250 V

Ambient conditions

Ambient temperature	-25 ... 85 °C (248 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	Screw terminals for max. 0.75 mm ² PG9 screwed connection
Material	
Contacts	CuZn
Contact surface	Au
Connector	Zinc die-casting, nickel-plated
Handle	Zinc die-casting, nickel-plated
Cable	
Sheath diameter	5 ... 8 mm

Model Number**V1SD-G-ABG-PG9**

nicht uebersetzt!

Features

- D coding for Ethernet
- Manufacturable, screenable
- Metal housing
- Iris spring screening



Model Number

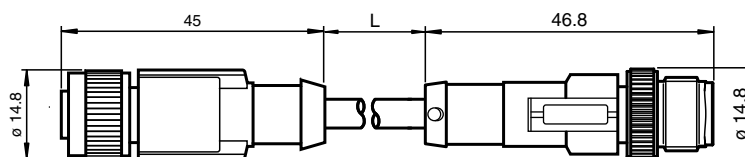
V15B-G-*M-PUR ABG-V15B-G

Bus cable PROFIBUS, M12 to M12,
PUR cable

Features

- Shield attached to coupling nut
- Data transmission up to 12 Mbaud
- Identification sleeves
- Halogen-free

Dimensions



Technical data

General specifications

Number of poles	2 + shield
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Electrical specifications

Operating voltage U_B	max. 250 V
Operating current	max. 4 A
Volume resistance	$\leq 5 \text{ m}\Omega$

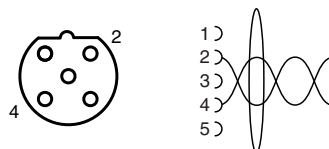
Ambient conditions

Ambient temperature	Cable, moving: -20 ... 80 °C (253 ... 353 K), Cable, fixed: -40 ... 80 °C (233 ... 353 K)
Degree of soiling	3

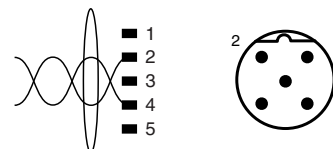
Mechanical specifications

Protection degree	IP65 / IP67/ IP69K
Material	
Contacts	CuSn
Contact surface	Ni/Au
Handle	TPU, black
Cable	PUR
Slotted nut	Zinc die-casting, nickel-plated
Seal	NBR
Core isolation	PE
Cable	2 cores with 2 fillers to the core
Sheath diameter	$\varnothing 7.8 \text{ mm}$
Bend radius	$> 10 \times$ cable diameter, appropriate for conveyor chains
Colour	violet
Cores	$2 \times 0.25 \text{ mm}^2$
Length L	V15B-G-2M-PUR ABG-V15B-G 2 m V15B-G-5M-PUR ABG-V15B-G 5 m V15B-G-10M-PUR ABG-V15B-G 10 m

Electrical connection 1



Electrical connection 2





Model Number

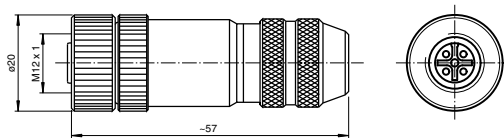
V15B-G-ABG-PG9

Cable socket, M12, for PROFIBUS, adjustable

Features

- M12 round connection for BUS (B-coded)
- Manufacturable, screenable
- Metal housing

Dimensions



Technical data

General specifications

Number of poles	5
Construction type	Socket, straight

Electrical specifications

Operating voltage U_B	max. 125 V DC
Operating current	max. 4 A

Ambient conditions

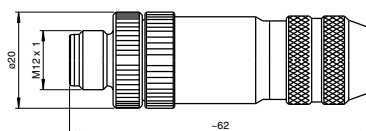
Ambient temperature	-40 ... 85 °C (233 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	M12 x 1 socket, 5-pin, B-coded
Material	
Contacts	CuSn
Handle	metal
Cable	
Sheath diameter	5 ... 8 mm
Cores	Max. cross-section 0.75 mm ²



Dimensions



Technical data

General specifications

Number of poles	5
Construction type	Connector, straight

Electrical specifications

Operating voltage U_B	max. 125 V DC
Operating current	max. 4 A

Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
Degree of soiling	3

Mechanical specifications

Protection degree	IP67
Connection	M12 x 1 connector, 5-pin, B-coded
Material	
Contacts	CuZn
Handle	metal
Cable	
Sheath diameter	5 ... 8 mm
Cores	Max. cross-section 0.75 mm ²

Model Number

V15SB-G-ABG-PG9

Cable connector, M12, for PROFIBUS, adjustable

Features

- M12 round connection for BUS (B-coded)
- Manufacturable, screenable
- Metal housing
- Thread-locking ring made of metal



Model Number

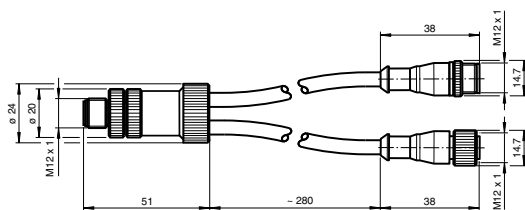
ICZ-3T-0,2M-PUR ABG-V15B-G

Y- Connection cable for PROFIBUS

Features

- Replacement of devices without bus interruption possible
- Identification sleeves
- Screen put on the slotted nut and Pin 5
- Data transmission up to 12 Mbaud

Dimensions



Technical data

General specifications

Number of poles	2 + 1 x screen
Transfer rate	max. 12 MBit/s

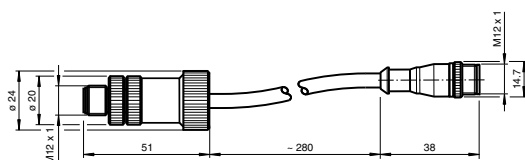
Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
---------------------	-------------------------------

Mechanical specifications

Protection degree	IP65
Connection	M12 connector/socket, 4-pin, B-coded for PROFIBUS
Material	
Contacts	CuZn, gold-plated
Handle	PUR / PA 66
Cable	PUR
Slotted nut	CuZn, nickel-plated
Cable	
Sheath diameter	Ø 8 mm
Colour	violet
Cores	2 x 0.64 mm ²
Length L	approx. 28 cm
Mass	approx. 90 g

Dimensions



Technical data

General specifications

Number of poles	2 + 1 x screen
Transfer rate	max. 12 MBit/s

Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
---------------------	-------------------------------

Mechanical specifications

Protection degree	IP65
Connection	M12 connector/socket, 4-pin, B-coded for PROFIBUS
Material	
Contacts	CuZn, gold-plated
Handle	PUR / PA 66
Cable	PUR
Slotted nut	CuZn, nickel-plated
Cable	
Sheath diameter	Ø 8 mm
Colour	violet
Cores	2 x 0.64 mm ²
Length L	approx. 28 cm
Mass	approx. 90 g

Model Number

ICZ-2T/TR-0,2M-PUR ABG-V15B-G

Terminal cable for PROFIBUS with terminal resistor

Features

- Labelling cover
- Screen put on the slotted nut and Pin 5
- Data transmission up to 12 Mbaud



Model Number

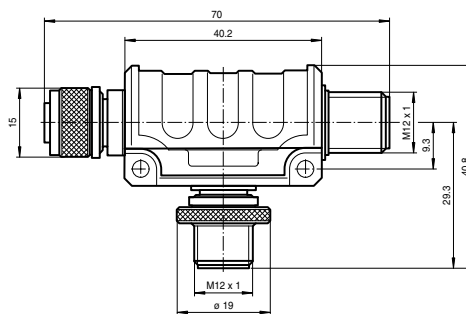
ICZ-3T-V15B

T-Distributor for PROFIBUS

Features

- Direct coupling of t-pieces
- Completely screened
- M12 round connection for BUS (B-coded)
- Immunity to vibration
- Data transmission up to 12 MBaud

Dimensions



Technical data

General specifications

Number of poles	5
Transfer rate	up to 12 MBit/s

Ambient conditions

Ambient temperature	-40 ... 80 °C (233 ... 353 K) short-time up to 250 °C
---------------------	--

Mechanical specifications

Protection degree	IP67
Connection	M12 connector/socket, 5-pin, B-coded for PROFIBUS
Material	
Contacts	CuZn, gold-plated
Housing	PUR, oil resistant
Slotted nut	CuZn, nickel-plated



Model Number

ICZ-TR-V15B

Terminating resistor for PROFIBUS

Features

- Immunity to vibration
- M12 round connection for BUS (B-coded)

Technical data

Mechanical specifications

Connection	M12 connector, 4-pin, B-coded for PROFIBUS
------------	--



Model Number

IVZ-K-R2

Null modem cable

Features

- Null modem cable for connection to RS 232

Technical data

General specifications

Construction type	9-pin Sub-D installation plug connector (female)
	9-pin Sub-D installation plug connector (female)

Mechanical specifications

Cable	
Colour	grey
Length L	2 m



Model Number

V1S-G-0,15M-PUR-SUBD

Adapter M12 on Sub-D for PC connection with null modem cable

Features

- Adapter M12 on Sub-D (for connection of a null modem cable)

Technical data

General specifications

Number of poles	3
Construction type	M12 connector, straight
	9-pin Sub-D connector (male)

Mechanical specifications

Material	
Cable	PUR
Cable	
Colour	black
Cores	3 x 0.34 mm ²
	1 x screen put on M12 connector and Sub-D housing
Length L	0.15 m



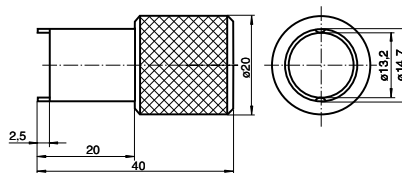
Model Number

IVZ-16G-EW

Features

- Threading tool for code and read/write tags with threadings M16 x 1

Dimensions

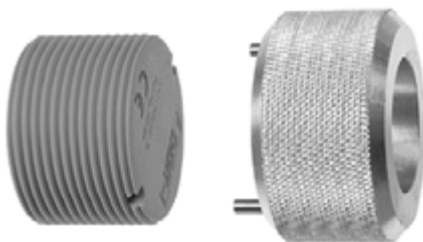


Technical data

Mechanical specifications

Material metal

Dimensions

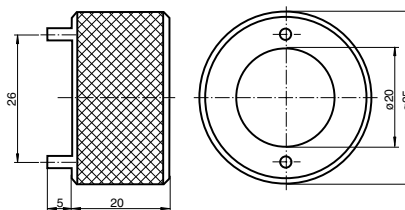


Model Number

IVZ-30G-EW

Features

- Threading tool for code and read/write tags with threadings M30 x 1,5



Technical data

Mechanical specifications

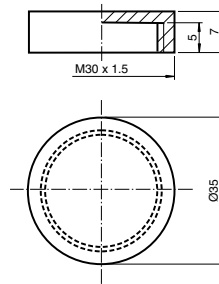
Material metal

**Model Number****ICS-30GK**

Protective cover

Features

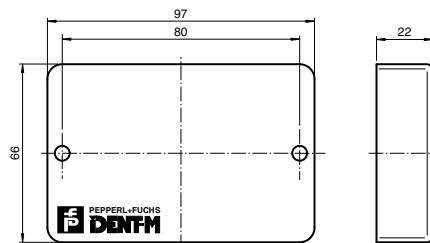
- Protective cover with thread M30 x 1.5
- For temperatures up to 150 °C

Dimensions**Technical data****Ambient conditions**

Storage temperature -40 ... 150 °C (233 ... 423 K)

Mechanical specifications

Material Delrin

Dimensions**Technical data****Mechanical specifications**

Material	POM
Mass	approx. 40 g

Model Number**MVC-SH1**Protective cover for read/write tag
MVC-60B-64K**Features**

- Protection against mechanical damage and welding splash





Model Number

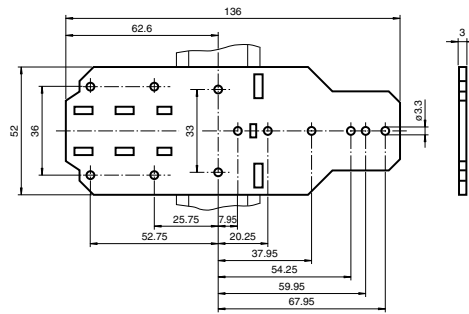
ICZ-MH05-SACB-8

Mounting aid for DIN rail

Features

-

Dimensions

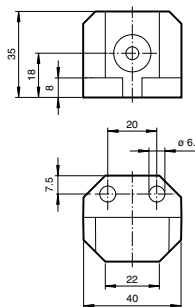


Technical data

Mechanical specifications

Material	diecast zinc
Mass	approx. 150 g
Dimensions	136 mm x 52 mm x 3 mm

Dimensions



Technical data

Mechanical specifications

Material	POM
----------	-----

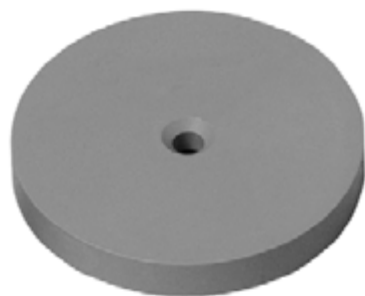
Model Number

IVZ-MH15

Mounting aid for code/read/write tags

Features

- Simple and fast mounting
- Suited for all read/write tags with a diameter of 15 mm, e.g. IDC-15-1K



Model Number

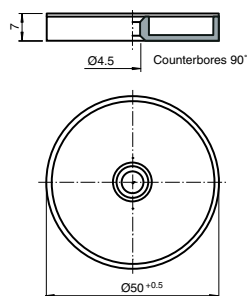
IPZ-MH50

Flat housing

Features

- Suitable as distance retainer for code or read/write tag iDENT-I System P und System V for mounting on metal

Dimensions



Technical data

Ambient conditions

Storage temperature -40 ... 85 °C (233 ... 358 K)

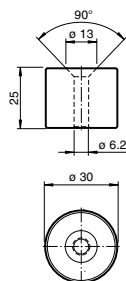
Mechanical specifications

Material

Housing

PBT

Dimensions



Technical data

Ambient conditions

Storage temperature -40 ... 250 °C (233 ... 523 K)

Mechanical specifications

Material

PTFE (Teflon)

Model Number

ICZ-MH30-25-T10

Spacers for code/read/write tag

Features

- For temperatures up to 250 °C
- Free of paint coating substances
- All edges deburred/chamfered



Model Number

RFIDControl

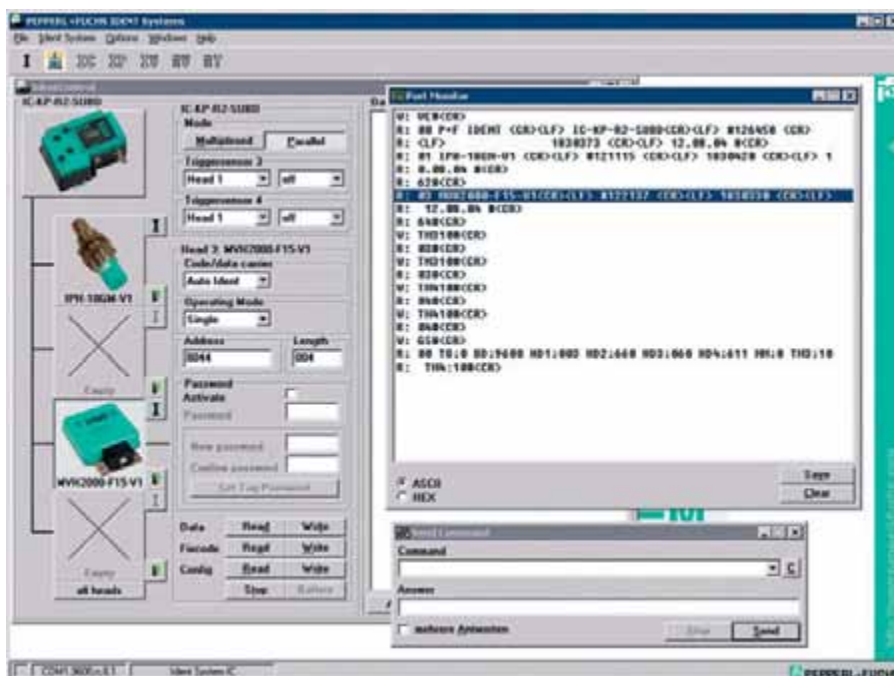
Software for RFID identification systems

Features

- Demo-Software

Description

The Demo Program RFIDControl enables you to input and execute all essential commands via a command window. The interface monitor logs the entire communication. This program runs in Windows 95/98/NT/2000/XP and has extensive online help. Installation is straightforward and the connected identification system is automatically detected. All essential commands can be entered via the command window and processed by means of this program.



iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

5 RFID Handhelds

5.1 Product description

Our handheld devices represent an extension of **IDENTControl**. They are used for identification of RFID transponders in various frequency ranges. They can be both operated wirelessly via Bluetooth as well as connected to a computer, and thus write data directly to a database. This flexible use as well as many other features, e.g. adding a time stamp or checksum, enable optimum application in production and logistics. Moreover, a switchable menu language allows use in a multi-language workplace.

Wireless communication

The handheld device can ideally communicate with a PC wirelessly via Bluetooth. The handheld additionally has a batch mode, where read data can be written to the internal memory of the device.

LCD and keyboard

The design like a cell phone enables intuitive operation. The handheld device has a keyboard and is equipped with a multiline display.

Operating frequencies

There are three versions of the handheld devices for 125 kHz, 250 KHz und 13.56 MHz.

Customized functions

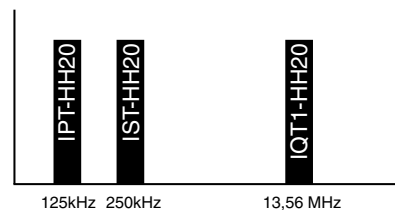
With the help of JavaScript, all commands can be executed in a routine, the soft keys allocated and display controlled. If you wish to create your own user interface, please contact Pepperl+Fuchs.

Interfaces

The handheld device has a number of different interfaces via which it can communicate with a PC. As well as the wireless Bluetooth interface, the handheld device has wired RS 232, PS/2 and USB interfaces. You set the parameters of the individual interfaces directly via the user interface of the handheld device. Compatible interface accessories can be obtained from Pepperl+Fuchs.

Power supply

A lithium ion battery provides the power supply for the handheld device. The battery is automatically charged once the handheld device is linked via an interface cable to a computer connected to a mains supply. A battery is not normally required for cable operation via USB. However, this depends on the current strength that the computer supplies via the USB connection. Batteries and chargers are optionally available from Pepperl+Fuchs.



5.2 Accessories' overview

There are accessories optionally available for the handheld devices in the I*T-HH20 product family:

	Handles	Description	Page
	ODZ-MAH-GRIP1	Handle without battery	248
	ODZ-MAH-GRIP2	Handle with integrated lithium ion battery (capacitance: 1950 mAh)	248
	ODZ-MAH-GRIP3	Handle with integrated lithium ion battery (capacitance: 3900 mAh)	249
Accumulators and batteries			
	ODZ-MAH-BAT	Lithium ion battery (capacitance: 1950 mAh)	252
	ODZ-MAH-BLANK	Battery compartment cover (during cable operation)	252
Chargers			
	ODZ-MAH200-CHARGER	Battery charger for 2 lithium ion batteries	253
	ODZ-MAH-CHARGER	Battery charger for handle with integrated lithium ion battery	253
	ODZ-MAH200-SUPPLY + ODZ-MAH-CAB-CHARGE	plugin power supply with cable for direct handheld device connection	252+255
	ODZ-MAH-CHARGER-SINGLE	Charger for connection with built-in battery	253
	Connecting cable		
	ODZ-MAH-CAB-B14	USB interface connecting cable, length approx. 180 cm	254
	ODZ-MAH-CAB-R2	RS 232 interface connecting cable, length approx. 120 cm	254
	ODZ-MAH-CAB-R6	PS/2 interface connecting cable, length approx. 120 cm	254
	Interface accessories		
	ODZ-MAH-B15-M3	Bluetooth modem (without cable), USB configurable	257

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IPT-HH20

Handheld (125 kHz)
for System IDENTControl

Features

- Suitable for IPC read/write tag
- Keypad for entry of alphanumeric characters
- LCD display
- Free programming with JavaScript
- Communication via Bluetooth, USB, RS 232, or PS/2 interfaces

Function

The handheld is used to identify RFID code and data carriers in the specified frequency range. The handheld is the ideal addition to the IDENT Control system of Pepperl+Fuchs: You can use it for manual quality control, for example, or to record maintenance work.

The design is similar to the keypad on a mobile phone, which makes control intuitive. You can also assign frequently used actions to two function keys or adjust the range of functionality to your needs with custom JavaScript applications.

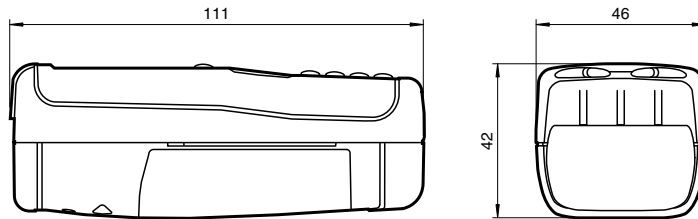
A rechargeable lithium battery, 4 MB of user-programmable memory, and optionally available wireless communication with bluetooth ensure full mobility. Data stored in the handheld can also be easily transferred to a PC via USB, RS 232, or PS/2 interface. A large selection of other accessories is also available.

Matching system components

ODZ-MAH-BAT

Lithium ion battery 1950 mAh

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Reading distance	0 ... 40 mm
Writing distance	0 ... 30 mm

Nominal ratings

Processor	RMI Alchemy Au1100
Clock pulse frequency	400 MHz
Memory	
Non-volatile memory	4 MByte

Indicators/operating means

Display	LC-Display 128 x 128 Pixel, monochrom
Keyboard	Keypad for entering alphanumeric characters
Key	Programmable function keys

Electrical specifications

Supply	From interface or deployed Li-Ion rechargeable battery
--------	--

Interface

Physical	Bluetooth , USB 2.0 , RS 232 or PS/2
Protocol	ASCII

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	0 ... 40 °C (273 ... 313 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	System connector for connecting cable or handle
Material	
Housing	plastic
Mass	approx. 180 g
Dimensions	112 mm x 46 mm x 41 mm



Model Number

IST-HH20

Handheld (250 kHz)
for System IDENTControl

Features

- Suitable for IDC/ICC read/write tag
- Keypad for entry of alphanumeric characters
- LCD display
- Free programming with JavaScript
- Communication via Bluetooth, USB, RS 232, or PS/2 interfaces

Function

The handheld is used to identify RFID code and data carriers in the specified frequency range. The handheld is the ideal addition to the IDENTControl system of Pepperl+Fuchs: You can use it for manual quality control, for example, or to record maintenance work.

The design is similar to the keypad on a mobile phone, which makes control intuitive. You can also assign frequently used actions to two function keys or adjust the range of functionality to your needs with custom JavaScript applications.

A rechargeable lithium battery, 4 MB of user-programmable memory, and optionally available wireless communication with bluetooth ensure full mobility. Data stored in the handheld can also be easily transferred to a PC via USB, RS 232, or PS/2 interface.

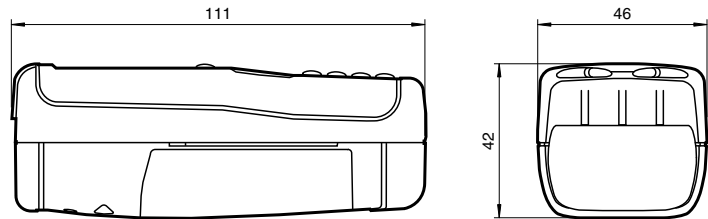
A large selection of other accessories is also available.

Matching system components

ODZ-MAH-BAT

Lithium ion battery 1950 mAh

Dimensions



Technical data

General specifications

Operating frequency	250 kHz
Reading distance	0 ... 40 mm
Writing distance	0 ... 35 mm

Nominal ratings

Processor	RMI Alchemy Au1100
Clock pulse frequency	400 MHz
Memory	
Non-volatile memory	4 MByte

Indicators/operating means

Display	LC-Display 128 x 128 Pixel, monochrom
Keyboard	Keypad for entering alphanumeric characters
Key	Programmable function keys

Electrical specifications

Supply	From interface or deployed Li-Ion rechargeable battery
--------	--

Interface

Physical	Bluetooth, USB 2.0, RS 232 or PS/2
Protocol	ASCII

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	0 ... 40 °C (273 ... 313 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	System connector for connecting cable or handle
Material	
Housing	plastic
Mass	approx. 180 g
Dimensions	112 mm x 46 mm x 41 mm

IDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHzIDENT-O
BarcodeIDENT-O
Data MatrixHigh Temperature
IDENT System



Model Number

IQT1-HH20

Handheld (13.56 MHz)
for System IDENTControl

Features

- Suitable for IQC read/write tag
- Keypad for entry of alphanumeric characters
- LCD display
- Free programming with JavaScript
- Communication via Bluetooth, USB, RS 232, or PS/2 interfaces

Function

The handheld is used to identify RFID code and data carriers in the specified frequency range. The handheld is the ideal addition to the IDENT Control system of Pepperl+Fuchs: You can use it for manual quality control, for example, or to record maintenance work.

The design is similar to the keypad on a mobile phone, which makes control intuitive. You can also assign frequently used actions to two function keys or adjust the range of functionality to your needs with custom JavaScript applications.

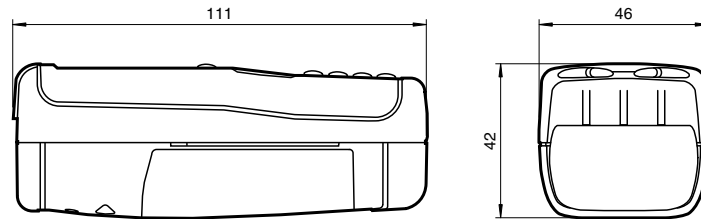
A rechargeable lithium battery, 4 MB of user-programmable memory, and optionally available wireless communication with bluetooth ensure full mobility. Data stored in the handheld can also be easily transferred to a PC via USB, RS 232, or PS/2 interface. A large selection of other accessories is also available.

Matching system components

ODZ-MAH-BAT

Lithium ion battery 1950 mAh

Dimensions



Technical data

General specifications

Operating frequency	13.56 MHz
Reading distance	0 ... 45 mm
Writing distance	0 ... 45 mm

Nominal ratings

Processor	RMI Alchemy Au1100
Clock pulse frequency	400 MHz
Memory	
Non-volatile memory	4 MByte

Indicators/operating means

Display	LC-Display 128 x 128 Pixel, monochrom
Keyboard	Keypad for entering alphanumeric characters
Key	Programmable function keys

Electrical specifications

Supply	From interface or deployed Li-Ion rechargeable battery
--------	--

Interface

Physical	Bluetooth , USB 2.0 , RS 232 or PS/2
Protocol	ASCII

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 301489-1, EN 301489-3, EN 300330-2, EN 60950-1
Standard conformity	
Protection degree	EN 60529
RFID	ISO/IEC 15693-2 , ISO/IEC 15693-3 , ISO/IEC 18000-3

Ambient conditions

Ambient temperature	0 ... 40 °C (273 ... 313 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	System connector for connecting cable or handle
Material	
Housing	plastic
Mass	approx. 180 g
Dimensions	112 mm x 46 mm x 41 mm

6 125 kHz R/W system (System IP)

6.1 System description

If the IDENT read points are spaced over long distances in the plant, then the IPT1-FP system is offered. This R/W system combines the evaluation and fieldbus interface as well as the actual R/W head in one device. These devices are designed for demanding industrial conditions, fulfill degree of protection IP67 and can be connected directly to higher level control. Serial interfaces are available for a simple point-to-point connection, addressable RS 485 interfaces to build a simple bus system and fieldbus interfaces for the PROFIBUS and INTERBUS.

Special stainless steel versions are also available for use in the food industry.

Because the installation and wiring is particularly simple, this R/W system is frequently used especially in material handling. The mounting can take place with 2 or 4 mounting screws and the address setting via DIP switches that are accessible through a covering plate. For electrical connection, versions with a plugin connection or with terminal compartment connection via cable glands are available.

Depending on requirements, the INTERBUS version can be set at a baud rate of 500 kHz or 2 MHz.

The PROFIBUS version supports auto-synchronizing the data communication up to 12 MBaud. 7 x 32 bit can be transferred in one PROFIBUS cycle. The terminator can be connected to the device. The connection takes place via an M12 plug for PROFIBUS and the power supply or via EMC cable glands.

6.2 Features and advantages of the IP system

- R/W system with integrated evaluation
- Simple and cost-effective system solution
- Operating frequency 125 kHz, amplitude modulated
- Cost-effective, battery-free read only and read/write tags, ideal for applications with a large number of tags
- A huge range of designs of read only and read only and read/write tags
- Read only code with 40 bits (64 bit total)
- Memory capacity up to 116 bytes
- Read range up to 80 mm
- Write range up to 45 mm
- Transfer rate up to 3.9 kbaud
- Degree of protection: IP67

6.3 Product overview

					
Order code	IPT1-FP / IPT-FP	U-P3-RX	U-P3V4A-RX	U-P3-R4	U-P3-R4-V15
Page	176+177	178	179	180	181
Interface	-	RS 232/RS 485	RS 232/RS 485	RS 485	RS 485
Bus connection	-	Screw terminals	Screw terminals	Screw terminals	Plug connector M12 x 1, 5-pin
Features	R/W head for lower sections P3/P6/P7	Point-to-point coupling	Multidrop, stainless steel housing, terminator switchable	Multidrop, terminator switchable	Multidrop, terminator switchable

						
Order code	U-P6-B6	U-P6V4A-B6	U-P6-B6-V15B	U-P6-B5	U-P6-B5-V	U-P7V4A-R4
Page	182	183	184	185	186	187
Interface	PROFIBUS DP	PROFIBUS DP	PROFIBUS DP	INTERBUS	INTERBUS	RS 485
Bus connection	Screw terminals	Screw terminals	Device plug M12x1, 4-pin (power supply) M12 x 1 connector, 5-pin, B-coded (BUS)	Screw terminals	M23 cylindrical connector 8+1 pin	Screw terminals
Features	Terminator switchable	Stainless steel housing, terminator switchable	Terminator switchable	Switchable baud rate 500 kBd/2 MBd, sliding switch for last node	Switchable baud rate 500 kBd/2 MBd,	Stainless steel housing

Accessories for IP system

			
Order code	IPT-HH20	IPT-FP3A6-R2	IPG-G4-B7-V15
Page	170-172	189	190
Features	Handheld	Stand-alone R/W system	DeviceNet bus coupler

The technical data for the transponder can be found on page 69.

6.4 Read/write ranges

Read/write range in air (at 25°C)

R/W head	IPT*-FP	
Read only tag	Reading	Writing
IPC02-12	0–22	-
IPC02-16	0–15	-
IPC02-20W	0–40	-
IPC02-20CD	0–40	-
IPC02-30W	0–50	-
IPC02-50W	0–80	-
IPC02-68-T7	0–50	-
IPC02-3GL	-	-
IPC02-C1	0–80	-

R/W head	IPT*-FP	
Read only tag	Reading	Writing
IPC03-12.4	-	-
IPC03-20W	0–30	0–25
IPC03-24	0–30	0–20
IPC03-30W	0–35	0–30
IPC03-30GK	0–35	0–30
IPC03-50P	0–60	0–45
IPC03-54-T8	0–60	0–45
IPC03-58	0–60	0–45
IPC03-100	0–100	0–80
IPC03-7H3	0–20	0–12
IPC03-C1	0–60	0–45
IPC03-20-K1	0–30	0–25
IPC11-12	0–22	0–18
IPC-30	0–50	0–35
IPC-50	0–60	0–45

Legend: - Combination not recommended

Read/write speed times

The times theoretically attainable between the transponder and R/W head at the transfer rate of 3.9 kBit/s can in practice be exceeded due to various influences such as interference. On this, see calculation examples on page 59.



Model Number

IPT1-FP

Read/write station

Features

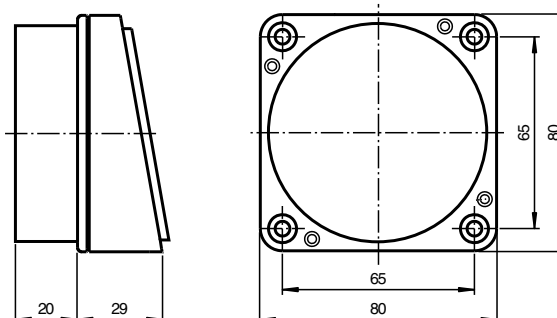
- With integrated control interface unit
- Serial interfaces and field-bus interfaces selectable through lower part
- Read distance of up to 100 mm
- Write distance of up to 50 mm
- 3 LEDs for function indication
- Protection degree IP67
- Optimised reading speed for fixed codes
- Suited for writing of IPC11

Function

The IPT1-FP read/write station is used in combination with a base which contains the interface for connecting to a computer. Through the choice of base, either serial interfaces or field-bus interfaces may be selected.

The analysis system is integrated in the device and simplifies the system construction. Protection class IP67 allows the device to be installed directly in the field.

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Operating distance	maximum: 100 mm

Indicators/operating means

LED green	Power on
LED yellow	IPC detected
LED red	bus fault (when using fieldbus interfaces)

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W , in connection with the base
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	Interface type depends on used base
----------	-------------------------------------

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529, with base
Material	
Housing	PBT



Model Number

IPT-FP

Read/write station

Features

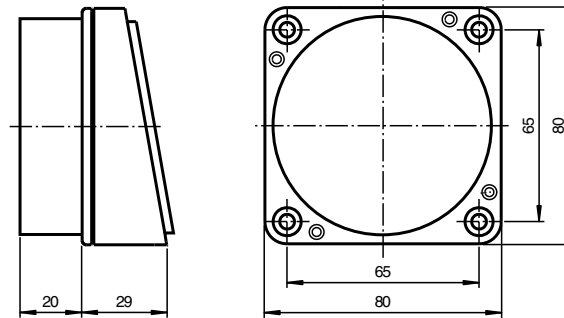
- With integrated control interface unit
- Serial interfaces and field-bus interfaces selectable through lower part
- Read distance of up to 100 mm
- Write distance of up to 50 mm
- 3 LEDs for function indication
- Protection degree IP67
- Suitable for applications together with inductive energy transfer

Function

The IPT-FP read/write station is used in combination with a base which contains the interface for connecting to a computer. Through the choice of base, either serial interfaces or field-bus interfaces may be selected.

The analysis system is integrated in the device and simplifies the system construction. Protection class IP67 allows the device to be installed directly in the field.

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Operating distance	maximum: 100 mm

Indicators/operating means

LED green	Power on
LED yellow	IPC detected
LED red	bus fault (when using fieldbus interfaces)

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W, in connection with the base
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	Interface type depends on used base
----------	-------------------------------------

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529, with base
Material	
Housing	PBT



Model Number

U-P3-RX

Base with serial interfaces RS 232 and RS 485

Features

- Protection degree IP67
- With serial interfaces RS 232 and RS 485

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. Either an RS 232- or an RS 485-interface is available.

The read/write station is connected to a higher-order control system via the serial interface and receives the commands for writing and/or reading code or data carriers via this interface.

Software

Communication with the identification system is very easy with the demo program IDENT 2005. It shows the system options and simplifies commissioning. The demo program is included in the scope of delivery.

Matching system components

IPT-FP

Read/write station

IPT1-FP

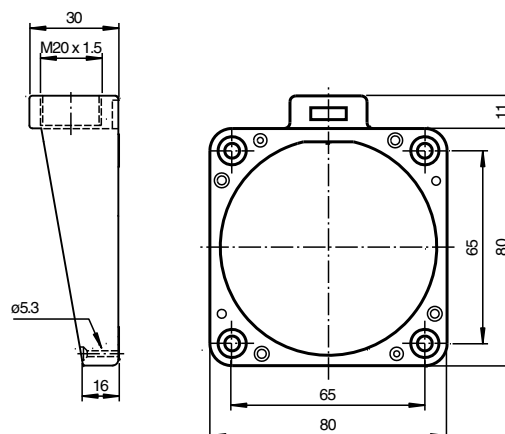
Read/write station

Accessories

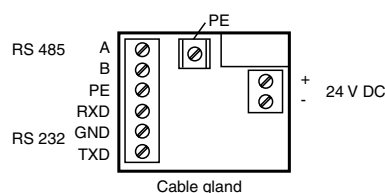
RFIDControl

Software for RFID identification systems

Dimensions



Electrical connection



Technical data

Electrical specifications

Rated operational voltage U_e 20 ... 30 V DC, ripple 10 %_{SS}, PELV

Power consumption P_0 max. 4 W with read/write head IPT*-FP

Electrical isolation

Operating voltage/interface functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V_{eff}

Interface

Physical RS 232/RS 485

Protocol ASCII

Transfer rate 1200; 2400; 4800; 9600; 19200; 38400

Cable length ≤ 15 m at RS 232
≤ 1200 m at RS 485

Ambient conditions

Ambient temperature -25 ... 70 °C (248 ... 343 K)

Storage temperature -40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree IP67 according to EN 60529 with IPT*-FP

Connection screw terminals

Interface cable 3 conductor, acc. to RS 232 or 2 acc. to RS 485

Supply up to 3 x 1.5 mm²

Material

Housing aluminium diecasting



Model Number

U-P3V4A-RX

Base with serial interfaces RS 232 and RS 485, stainless steel version V4A

Features

- high-grade steel housing V4A
- With serial interfaces RS 232 and RS 485
- Protection degree IP67
- Resistant against cleaning material

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. Either a RS 232 or RS 485 interface is available.

The read/write station is connected to a higher-order control system via the serial interface and receives the commands for writing and/or reading code or data carriers via this interface.

Software

Communication with the identification system is very easy with the demo program IDENT 2005. It shows the system options and simplifies commissioning.

The demo program is included in the scope of delivery.

Matching system components

IPT-FP

Read/write station

IPT1-FP

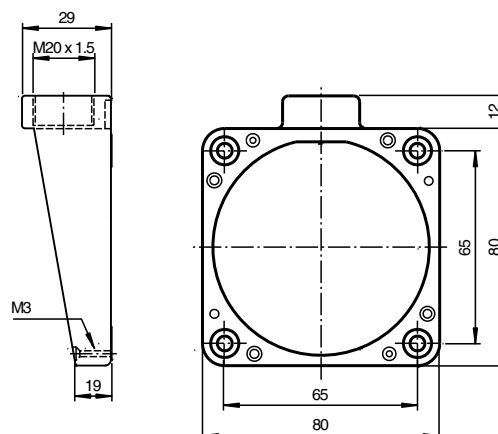
Read/write station

Accessories

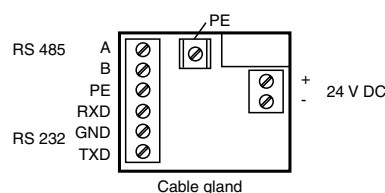
RFIDControl

Software for RFID identification systems

Dimensions



Electrical connection



Technical data

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 4 W with read/write head IPT*-FP
Electrical isolation	

Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}
-----------------------------	--

Interface

Physical	RS 232/RS 485
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s
Cable length	≤ 15 m at RS 232 ≤ 1200 m at RS 485

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 (only in connection with write/read head or cover)
Connection	screw terminals
Interface cable	3 conductor, acc. to RS 232 or 2 acc. to RS 485
Supply	up to 3 x 1.5 mm ²
Material	
Housing	stainless steel V4A

iDENTControl

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

iDENT-O
Barcode

iDENT-O
Data Matrix

High Temperature
iDENT System



Model Number

U-P3-R4

Base with addressable serial Interface
RS 485

Features

- Protection degree IP67
- Simple bus system with up to 30 units
- Serial interface RS 485, addressable

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. An addressable RS 485 interface is available. It is thus possible to create a simple bus connection with up to 30 subscribers. The address is set and the terminating resistor for the bus is connected via DIP switches. The read/write station is connected to a higher-order control system via the serial interface and receives the commands for writing and/or reading code or data carriers via this interface.

Matching system components

IPT-FP

Read/write station

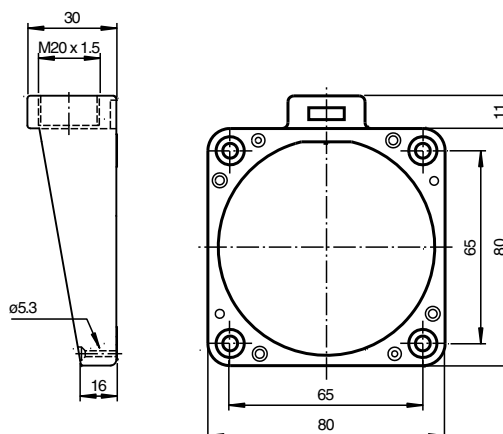
IPT1-FP

Read/write station

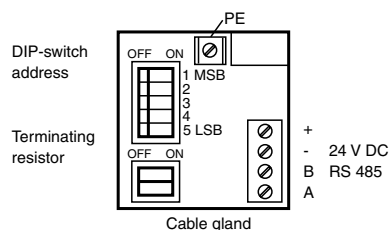
IPG-G4-B7-V15

DeviceNet Bus coupler for IDENT-I
System P

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 4 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485, addressable, up to 30 bases, address 1 ... 30
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s
Cable length	≤ 1200 m

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	screw terminals
Interface cable	2 conductor, acc. to RS 485
Supply	up to 3 x 1.5 mm ²
Material	
Housing	aluminium diecasting



Model Number

U-P3-R4-V15

Base with addressable serial Interface RS 485

Features

- Protection degree IP67
- Simple bus system with up to 30 units
- Serial interface RS 485, addressable

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. An addressable RS 485 interface is available. It is thus possible to create a simple bus connection with up to 30 subscribers. The address is set and the terminating resistor for the bus is connected via DIP switches. The read/write station is connected to a higher-order control system via the serial interface and receives the commands for writing and/or reading code or data carriers via this interface.

Matching system components

IPG-G4-B7-V15

DeviceNet Bus coupler for IDENT-I System P

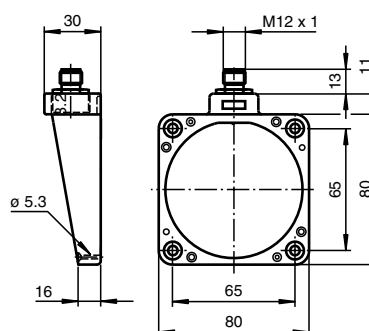
IPT1-FP

Read/write station

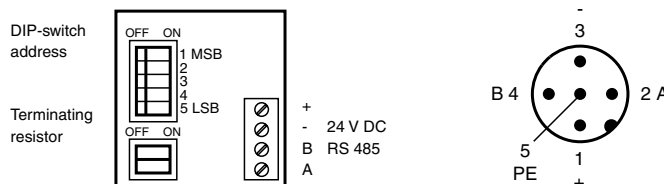
IPT-FP

Read/write station

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 4 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485, addressable, up to 30 bases, address 1 ... 30
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s
Cable length	≤ 1200 m

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	connector M12 x 1, 5-pin
Material	
Housing	aluminium diecasting



Model Number

U-P6-B6

Base for PROFIBUS DP

Features

- PROFIBUS DP acc. to EN 50170
- 2 PG screw fittings for IN and OUT supply
- 2 EMV PG screw fittings for BUS IN and OUT
- Complete read/write functionality via the PROFIBUS DP
- Transmission of up to 7 double words, 32 bit each, in one cycle
- Connectable bus termination
- Field device with protection class IP67

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. The device is operated as a slave on the PROFIBUS DP. The device makes available the complete read/write functionality. Up to 32 bytes are transmitted per cycle. Of these, up to 7 double words, each with 32 bits, are available to the user.

The address is set and the terminating resistor for the bus is connected via DIP switches. While the bus termination is switched on, the subsequent subscribers which are connected to the terminals (P, N out) are disconnected from the bus.

Matching system components

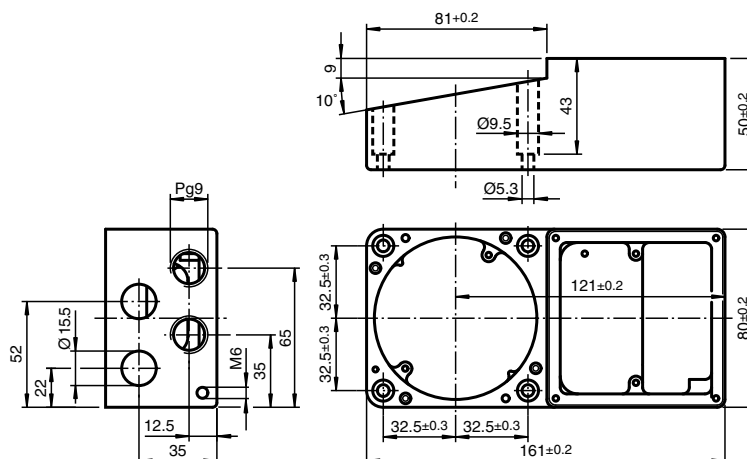
IPT-FP

Read/write station

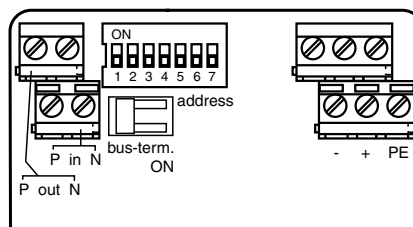
IPT1-FP

Read/write station

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	screw terminals
Interface cable	2 x 0.64 mm ² , double screened, acc. to PROFIBUS standard EN 50170
Supply	up to 3 x 1.5 mm ²
Material	
Housing	aluminium, black anodised



Model Number

U-P6V4A-B6

Base for PROFIBUS DP, stainless steel version

Features

- PROFIBUS DP acc. to EN 50170
- 2 PG screw fittings for IN and OUT supply, 2 EMV PG screw fittings for BUS IN and OUT
- Complete read/write functionality via the PROFIBUS DP
- Transmission of up to 7 double words, 32 bit each, in one cycle
- Connectable bus termination
- Field device with protection class IP67
- high-grade steel housing V4A
- Resistant against cleaning material

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. The device is operated as a slave on the PROFIBUS DP. The device makes available the complete read/write functionality. Up to 32 bytes are transmitted per cycle. Of these, up to 7 double words, each with 32 bits, are available to the user.

The address is set and the terminating resistor for the bus is connected via DIP switches. While the bus termination is switched on, the subsequent subscribers which are connected to the terminals (P, N out) are disconnected from the bus.

Matching system components

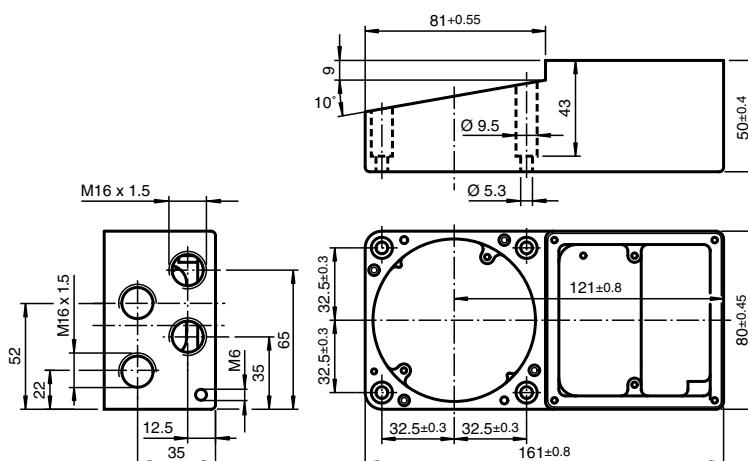
IPT1-FP

Read/write station

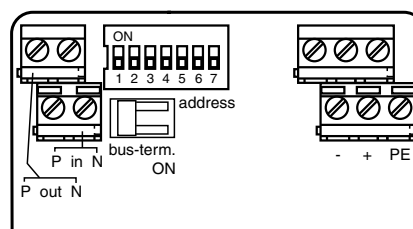
IPT-FP

Read/write station

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 (only in connection with write/read head or cover)
Connection	screw terminals
Interface cable	2 x 0.64 mm ² , double screened, acc. to PROFIBUS standard EN 50170
Supply	up to 3 x 1.5 mm ²
Material	
Housing	stainless steel V4A



Model Number

U-P6-B6-V15B

Base for PROFIBUS DP, plugin connection

Features

- PROFIBUS DP acc. to EN 50170
- M12 round connection for supply
- M12 round connection for BUS (B-coded)
- Complete read/write functionality via the PROFIBUS DP
- Transmission of up to 7 double words, 32 bit each, in one cycle
- Connectable bus termination
- Field device with protection class IP67

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. The device is operated as a slave on the PROFIBUS DP. The device makes available the complete read/write functionality. Up to 32 bytes are transmitted per cycle. Of these, up to 7 double words, each with 32 bits, are available to the user.

The rounded connector M12 for BUS and supply allows a rapid assembly.

Matching system components

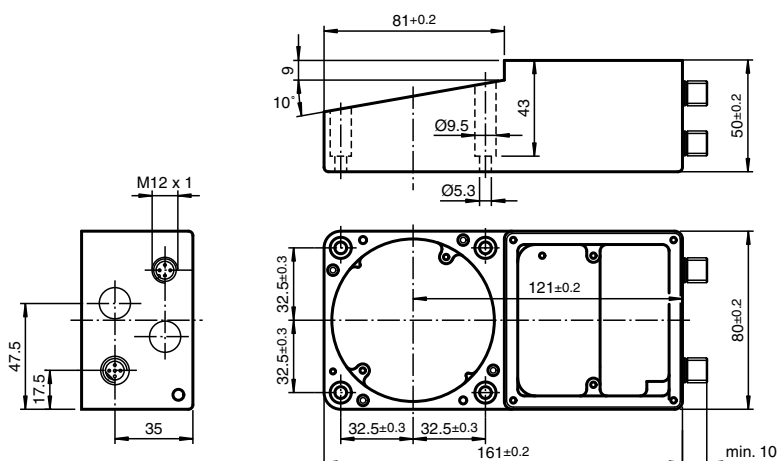
IPT-FP

Read/write station

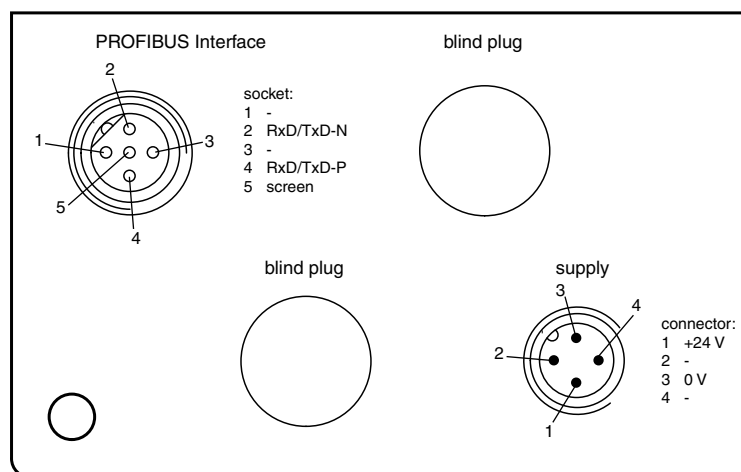
IPT1-FP

Read/write station

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485
Protocol	PROFIBUS DP acc. to EN 50170
Transfer rate	9.6; 19.2; 93.75; 187.5; 500; 1500 kBit/s 3; 6; 12 MBit/s self-synchronizing

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 95 %

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	connector M12 x 1, 4-pin for supply; M12 x 1 device socket, 5-pin, B-coded for PROFIBUS
Material	
Housing	aluminium, black anodised



Model Number

U-P6-B5

Base for INTERBUS

Features

- INTERBUS-remote bus subscriber
- 2 PG screw fittings for IN and OUT supply
- 2 EMV PG screw fittings for BUS IN and OUT
- Complete read/write functionality via the INTERBUS
- Transfer of 10 bytes of data in one cycle
- DIP switch for ring termination
- Field device with protection class IP67

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. The device is operated as a slave on the INTERBUS remote bus. The device makes available the complete read/write functionality. Up to 10 bytes are transmitted per cycle. The continuing bus is activated via DIP switch.

Matching system components

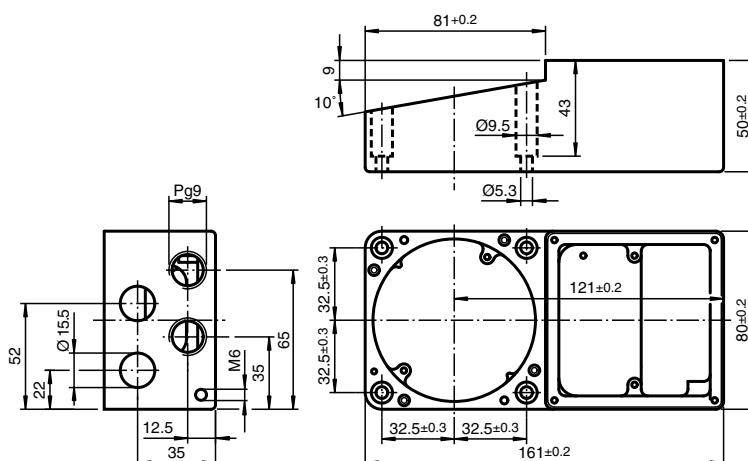
IPT-FP

Read/write station

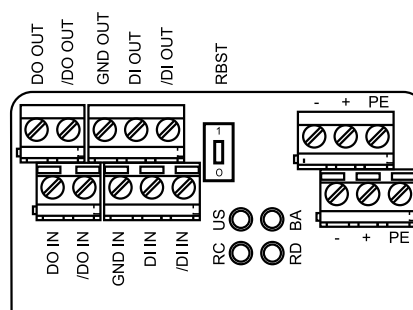
IPT1-FP

Read/write station

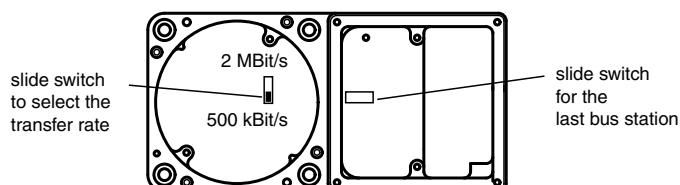
Dimensions



Electrical connection



Indicating / Operating means



Technical data

Indicators/operating means

DIP-switch	ring termination 0 = closed 1 = bus continued
------------	---

Electrical specifications

Rated operational voltage U_o	20 ... 30 V DC, ripple 10 % _{SS} , PELV
Power consumption P_o	max. 5 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485
Protocol	INTERBUS remote bus
ID code	03
Transfer rate	500 kBit/s or 2 MBit/s internally switchable

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	screw terminals
Interface cable	up to 1.5 mm ²
Supply	up to 3 x 1.5 mm ²
Material	
Housing	aluminium, black anodised



Model Number

U-P6-B5-V

Base for INTERBUS, plugin connection

Features

- Bus subscriber for INTERBUS installation
- 500 kBit/s or 2 MBit/s transfer rate (switchable)
- M23 round connection for BUS and supply
- Complete read/write functionality via the INTERBUS
- Transfer of 10 bytes of data in one cycle
- Field device with protection class IP67

Function

The base is used in combination with an upper part, the IPT*-FP read/write station. The device is operated as a slave at the INTERBUS installation remote bus. The device offers the full read/write functionality. Up to 10 byte per cycle can be transferred. By means of an internal slide switch the transfer rate can be switched over between 500 kbit/s and 2 Mbit/s.

The rounded connector M23 for BUS and supply allows a rapid assembly.

Matching system components

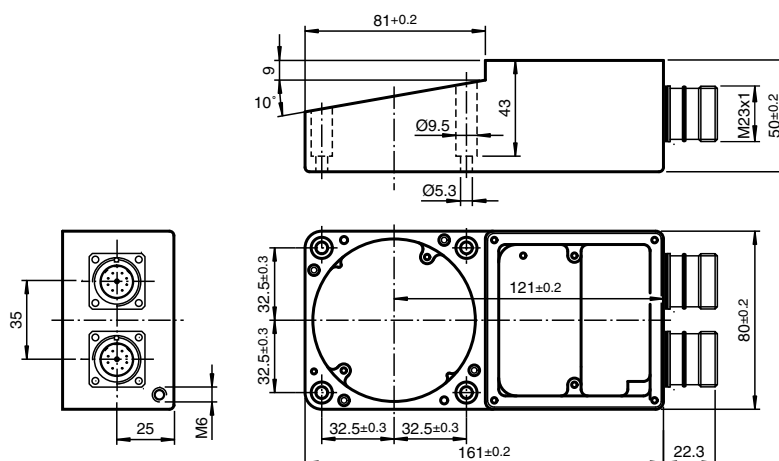
IPT-FP

Read/write station

IPT1-FP

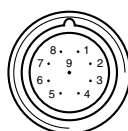
Read/write station

Dimensions



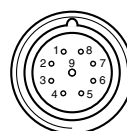
Electrical connection

incoming interface



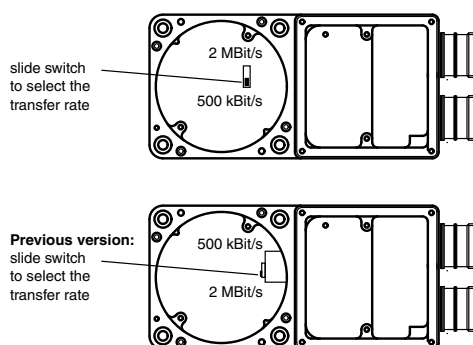
connector

outgoing interface



socket

Indicating / Operating means



Technical data

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , ripple 10 % _{SS} , PELV
Power consumption P_0	max. 5 W with read/write head IPT*-FP

Electrical isolation

Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}
-----------------------------	--

Interface

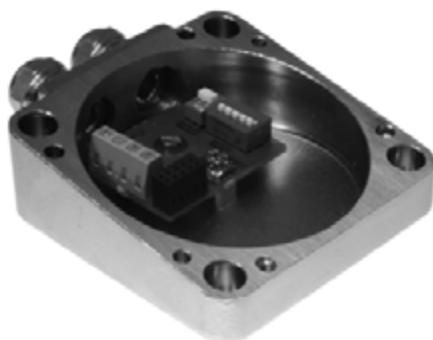
Physical	RS 485
Protocol	INTERBUS remote bus
ID code	03
Transfer rate	500 kBit/s or 2 MBit/s internally switchable

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 according to EN 60529 with IPT*-FP
Connection	Round connector M23, 8+1 Pin Connector: incoming interface socket: outgoing Interface
Interface cable	up to 1.5 mm ²
Supply	up to 3 x 1.5 mm ²
Material	
Housing	aluminium, black anodised



Model Number

U-P7V4A-R4

Base with addressable serial Interface RS 485, stainless steel version

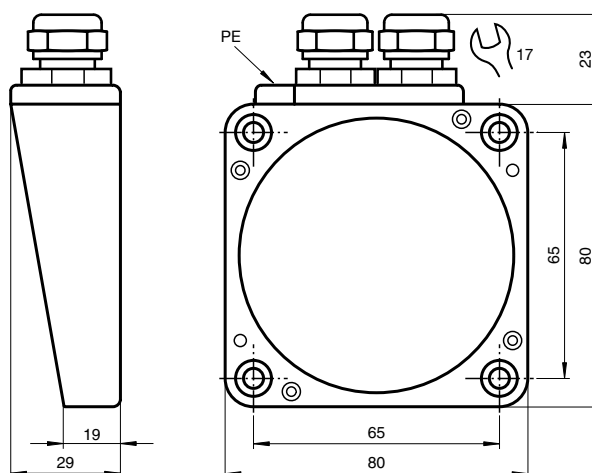
Features

- Simple bus system with up to 30 units
- high-grade steel housing V4A
- Serial interface RS 485, addressable
- Protection degree IP67
- Resistant against cleaning material

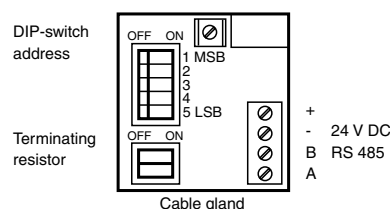
Function

The base is used in combination with an upper part, the IPT*-FP read/write station. An addressable RS 485 interface is available. It is thus possible to create a simple bus connection with up to 30 subscribers. The address is set and the terminating resistor for the bus is connected via DIP switches. The read/write station is connected to a higher-order control system via the serial interface and receives the commands for writing and/or reading code or data carriers via this interface.

Dimensions



Electrical connection



Technical data

Indicators/operating means

DIP-switch	Setting the station address bus connection ON = active OFF = non-active
------------	---

Electrical specifications

Rated operational voltage U_e	20 ... 30 V DC , ripple 10 % _{SS} , PELV
Power consumption P_0	max. 4 W with read/write head IPT*-FP
Electrical isolation	
Operating voltage/interface	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}

Interface

Physical	RS 485, addressable , up to 30 bases , address 1 ... 30
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400 Bit/s
Cable length	≤ 1200 m

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)

Mechanical specifications

Protection degree	IP67 (only in connection with write/read head or cover)
Connection	screw terminals
Interface cable	2 conductor, acc. to RS 485
Supply	up to 3 x 1.5 mm ²
Material	
Housing	stainless steel V4A

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

IPT-FP3A6-R2

read/write station, completely ready-manufactured as configuration- and test station

Features

- All necessary components are included in delivery
- With integrated control interface unit
- Separate plug mains unit
- Serial interface RS 232
- 2 LEDs as function indicators
- Read distance of up to 100 mm
- Write distance of up to 50 mm

Function

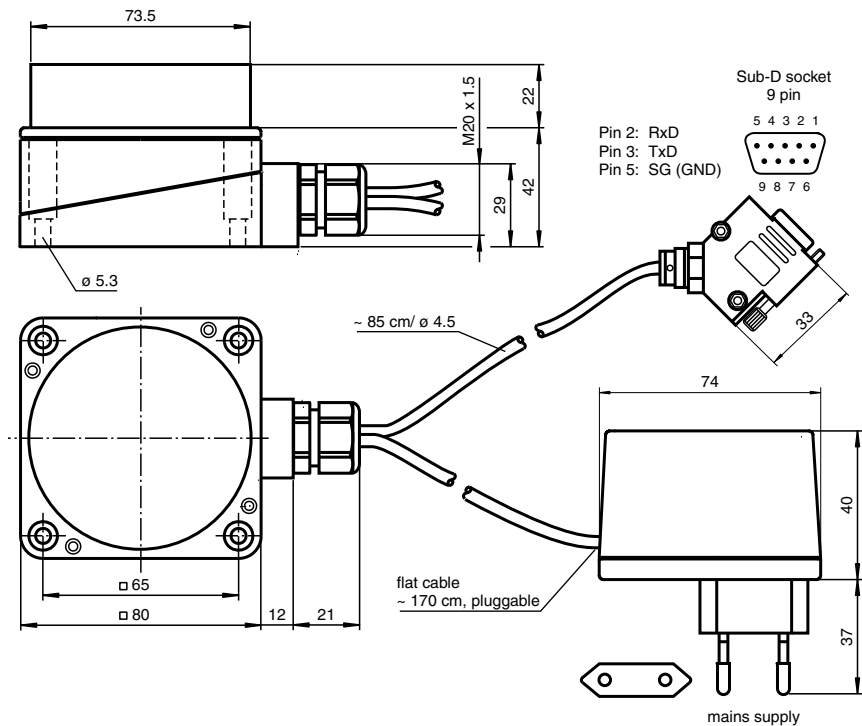
The read/write station IPT-FP3A6-R2 is the connection between the inductive read/write head and the base, which contains a serial interface for connection to a computer. The complete device contains the evaluation and receives commands for reading or writing code carriers or data carriers via the interface.

Due to the integration of the voltage supply and the pluggable connection of the interface, as simple system configuration is possible.

Software

Communication with the identification system is very easy with the demo program IDENT 2005. It shows the system options and simplifies commissioning. The demo program is included in the scope of delivery.

Dimensions



Technical data

General specifications

Operating frequency	125 kHz
Transfer rate	2 kBit/s
Operating distance	maximum: 100 mm

Indicators/operating means

LED green	Power on
LED yellow	IPC detected

Electrical specifications

Operating voltage U_B	90 ... 264 V AC, 50/60 Hz
Operating current	250 mA
Power consumption P_0	≤ 0.4 W

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	1200; 2400; 4800; 9600; 19200; 38400

Standard conformity

Electromagnetic compatibility	EN 61326, EN 301489-1, EN 301489-3, EN 300330-2
Standards	EN 60950-1

Ambient conditions

Ambient temperature	-10 ... 40 °C (263 ... 313 K)
Storage temperature	-25 ... 70 °C (248 ... 343 K)

Mechanical specifications

Protection degree	IP20
Connection	Interface : Sub-D socket, 9-pin supply : power plug
Interface cable	3 conductor acc. to RS 232
Supply	2 x 2 x 0.14 mm ²
Material	
Housing	Upper section: PBT Lower section: aluminium diecasting power supply: plastic



Model Number

IPG-G4-B7-V15

DeviceNet Bus coupler for IDENT-I System P

Features

- 2 read/write stations can be connected
- Connection to bus and of read/write stations via EMC proven plug connection
- LED status indicator of bus communication and read/write stations

Matching system components

IPT-FP

Read/write station

IPT1-FP

Read/write station

U-P3-R4

Base with addressable serial Interface RS 485

U-P3-R4-V15

Base with addressable serial Interface RS 485

U-P3V4A-R4

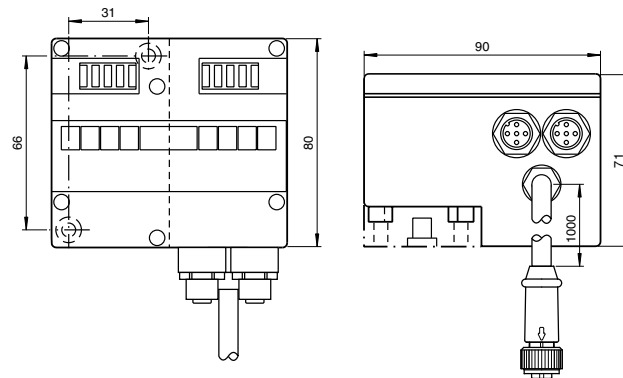
Base with addressable serial Interface RS 485, stainless steel version

Accessories

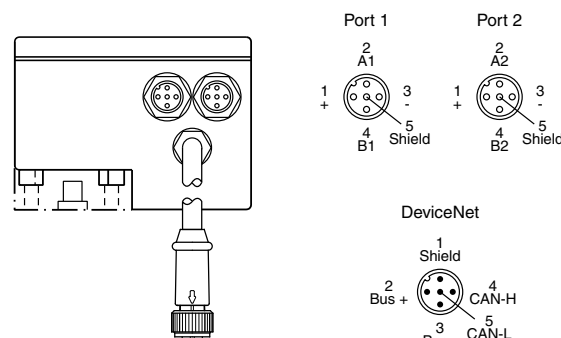
V15-G-YE*M-PVC-V15-G-ABG

Connection cable

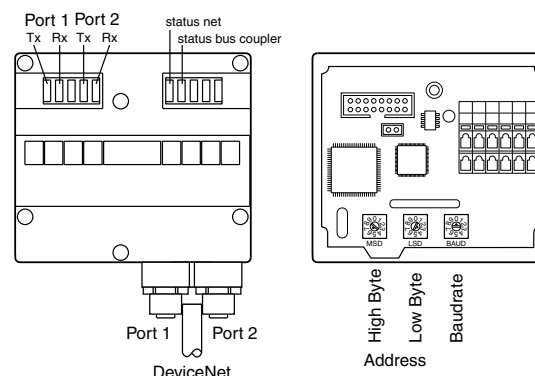
Dimensions



Electrical connection



Indicating / Operating means



Technical data

Electrical specifications

Rated operational voltage U_e	11 ... 26 V DC
Current consumption	≤ 160 mA at $U_e = 11$ V DC ≤ 100 mA at $U_e = 24$ V DC

Interface

Connection of	DeviceNet
Transfer rate	125, 250, 500 kBit/s selectable via BCD switch
Address setting	selectable via BCD switch
Cable length	1 m

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Climatic conditions	air humidity max. 90 %

Mechanical specifications

Protection degree	IP67
Connection	Read/write stations: M12 plug connection, 5-pin, screened DeviceNet : 5-pin CombiCon connector according to DeviceNet specification
Material	
Housing	PBT
Installation	snap-on to 35 mm standard rail or screw fixing

7 2.45 GHz read/write station (MT system)

7.1 System description

The MT system consists of a handheld read/write device and the read only tag or read/write tag. The read only tags and read/write tags contain a non-variable code that acts as a memory bank for variable data. The read/write device takes on the data transfer to the read only tags and read/write tags and can be connected directly to a higher-level computer, such as a PC or PLC, via Ethernet, USB or a serial interface. The read/write device can also be operated in stand-alone mode.

The MT system's microprocessor-run read/write device operates at 2.45 GHz with adjustable channels, so several stations that are right next to each other can provide for the trouble-free transfer of encrypted data.

The read/write device is addressed via Ethernet, USB or a serial RS 232/485 interface, but can also operate independent of the control interface through application software. Three semiconductor inputs, two semiconductor outputs and a relay output are also provided. The system can communicate with several read/write tags in the read range (multitag capable) and analyze movement direction as well as speed. Read distances of up to 6 m and write distances of 0.3 m are achieved. The connection is made via cord grips.

A typical application area for this system is identification for access control or of very fast moving objects.

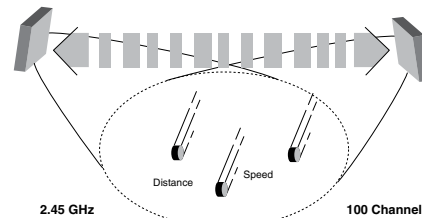
Read/write device

The read/write device MTT6000-F120-B12-V45 is a communications arrangement between the read/write tags themselves and the computer. It receives its orders from a computer or an Ethernet interface. As computers, a PC and PLC will usually do.

The data exchange between the MTM C1/C2 read/write tags, the MTO C1/C2 read only tags and the read/write device takes place with the help of microwaves in the range of 2.435 ... 2.465 GHz. The transmitted microwaves are polarized circularly and are vertically emitted through the front cover in the form of a club.

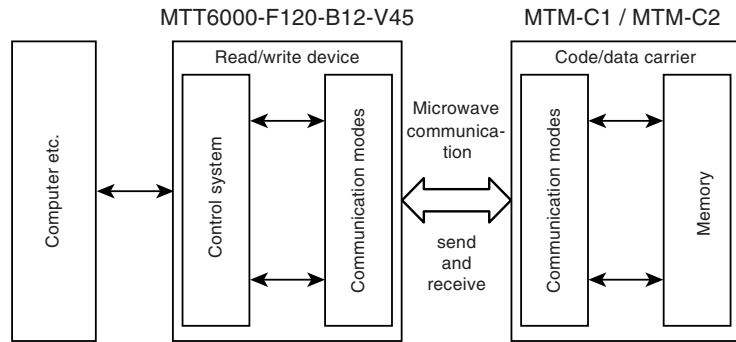
The read/write device detects moving objects such as persons or vehicles. It can register approaches as well as departures.

All cable connections are easily accessible after opening the housing. There is furthermore a service panel with three LEDs, two push buttons for various settings, and a buzzer.



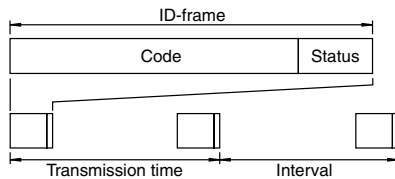
Code/Tag

Communication



The code/tags repeatedly reflect information on any transmitting read/write device, independent of which frequency between 2.435 and 2.465 GHz is being used. If different write-/read devices simultaneously scan the tag, they will all yield trouble-free and reliable reads.

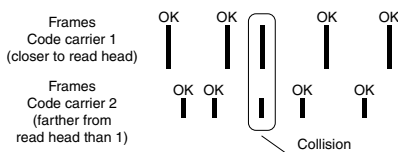
The data provided consists of a mark that is encoded at the plant, an 8-digit decimal number from the code memory including a 32-bit checksum, data from the read/write memory and a status field. A sequence, consisting of mark/checksum, data and status, is called an ID frame. This ID frame is transmitted with a constant or a random interval, in accordance with the formatting of the read/write tag. The notion of information time has been selected for two consecutive ID frames with an embedded interval. Several read/write tags can be evaluated within the read range, provided that the read/write tags are set to random mode.



The maximum information time (T_{max}) is always less than 150 ms, at an average of 80 ms. This means that the read only tag can reflect the ID frame 12 times per second. (see image left)

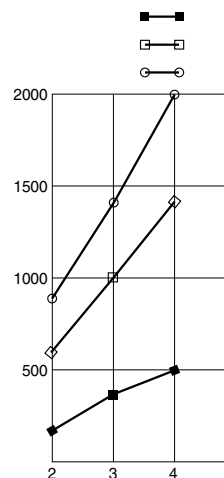
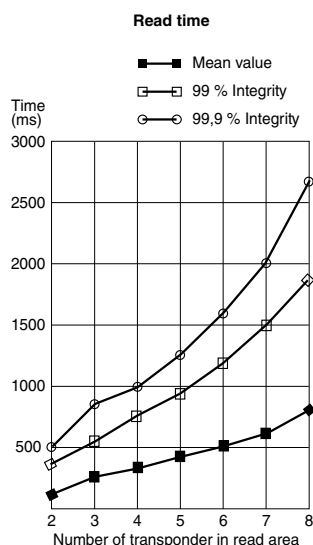
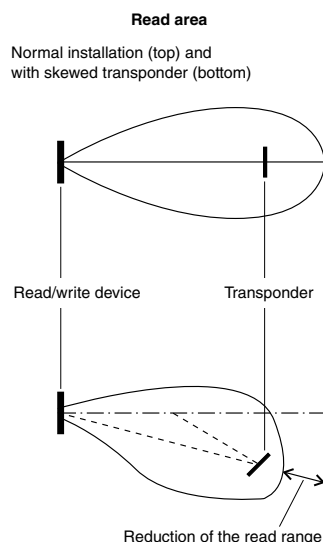
Multiple detections

Several read only tags and read/write tags can be evaluated within the read range, provided that the read only tags and read/write tags are set to random mode, as can be gathered from the image on the left. When collisions take place, a check-sum algorithm in the read/write device deletes this ID frame. In the least suitable situation, for example, if all read/write tags were at a long distance or under strong interference, the probability of an error from an incorrect interpretation would be less than 1 to 5, thanks to the 32-bit checksum $\times 10^9$.



Read time

The chart shows the time needed to read all read only tags and read/write tags in read range.



Note:
Shown for MR4H-formatted read/write tags, i. e. minimum memory, interval 4 and top speed (see section "Operating Modes").
When more than 4 read/write tags are expected in the read area, it may become necessary to set a longer interval time for the read/write tags.

Operating modes

The formatting commands for the different modes are transmitted by micro-waves, and indeed to the same distance at which the read/write tags can still be described. The memory size, interval type, interval length and data transfer speed to be applied are the parameters.

Formatting can achieve an optimization of various application features. The different memory modes optimize memory allocation with regard to speed. The two interval types can establish whether multiple detections, i.e. the evaluation of several read/write tags in the read range, should take place. Multiple detections are only possible in random mode. Interval length and the selected data-transfer speed influence transfer time. The read range is linked to the transfer speed.

The letters M, Q, F etc. are abbreviations that are further explained in the text and that must be provided for programming.

Memory modes

M - mini	(low capacity), 46 bit, 14 data bit plus checksum
Q - quarter	(one fourth capacity), 186 bit, 154 data bit plus checksum
F - full	(full capacity), 606 bit, 574 data bit plus checksum

Interval length

0 - zero	i.e. uninterrupted
4 - small	i.e. 4 times in the ID frame time
8 - mid	i.e. 8 times in the ID frame time

Transfer speed

L - low	read and write with 4 Kbyte/s
H - high	read with 16 Kbyte/s. write with 4 Kbyte/s

Interval type

C - constant	the interval together with the ID frame is always constant
R - random	the interval changes randomly (random mode)

The modes are designated with **MC0L**, **MR4H**, **FC0H** and so forth. Interval 16 modes are also available, but the modes described above are sufficient for most applications.

The read times depend on the selected operating mode. The table lists the maximum read times for the different operating modes, shown for high and low data-transfer speeds. The battery life for the selected operating mode is also given.

	Read time in [ms] at transfer speed		Battery life [years]
Memory Mini	High:	Low:	
MC0-H/L	50	130	6
MC4-H/L	100	360	6
MC8-H/L	170	660	10
MR4-H/L	170	660	9
Memory Quarter			
QC0-H/L	70	240	6
QC4-H/L	180	700	9
QC8-H/L	350	-	10
QR4-H/L	350	1300	9
Memory Full			
FC0-H/L	140	520	6
FC4-H/L	370	1400	6
FC8-H/L	750	-	10
FR4-H/L	750	-	10

Write range

The write area has a club-shaped design. It depends on the microwave field and the sensitivity of the read/write tag. For the MTM-C1 read/write tag there is a secure write area within a club of 0 to 0.3 m.

Write time

Write time depends on the formatting of the read/write tag and has a statistically-assured size. It stands at, for instance, 200 for MC0H formatting, 300 for QC0H and 400 for FC0H ms in standard cases. At a desired write security of 99.999, these times increase %, i. e. 1 error in 100,000 write operations to 600, 800 and 3000 ms.

Write security

The read/write tag has been provided with a backup memory in the event that it were accidentally removed from the write area as it received the data to be written from the microwaves. It automatically stores the old data. The "write-error bit" is placed into the status register of the read/write tag. This bit provides the system with an automatic warning.

Status register

- The status register contains 7 bits.
- Bit 7 = 1, battery life expired
- Bit 7 = 0, battery OK
- Bit 6 = 1, unsuccessful write attempt
- Bit 6 = 0, successful write attempt
- Bit 5 and 4 = 1, Monitor input 1 open
- Bit 5 and 4 = 0, Monitor input 1 in mass
- Bit 3, 2 and 1 = 1, Monitor input 2 open
- Bit 3, 2 and 1 = 0, Monitor input 2 in mass

Read/write ranges

Read/write range in air (at 25°C, in m)

Read/write device	MTT6000-F120-B12-V45	
Code / Tag	Reading	Writing
MTO-C1	...6,0	-
MTO-C2	...6,0	-
MTM-C1	...6,0	...0,3
MTM-C2	...6,0	...0,3



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Subject to modifications without notice

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776-4411
fa-info@pepperl-fuchs.com

Copyright Pepperl+Fuchs
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com



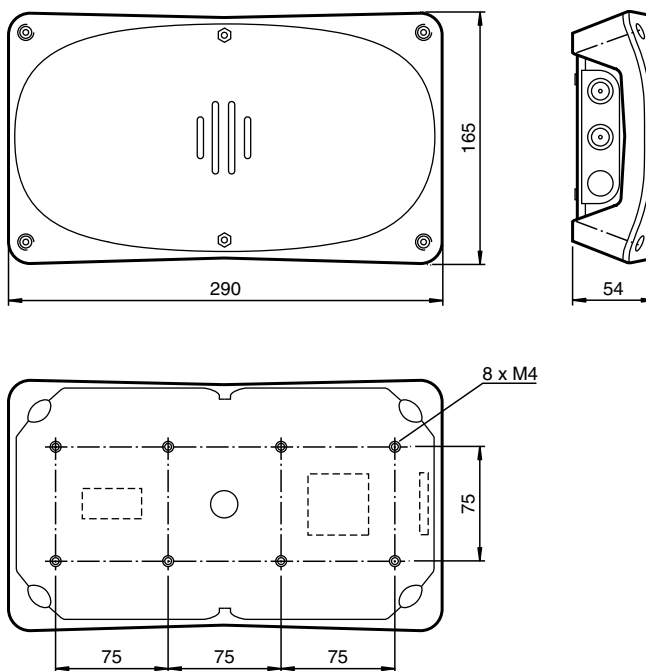
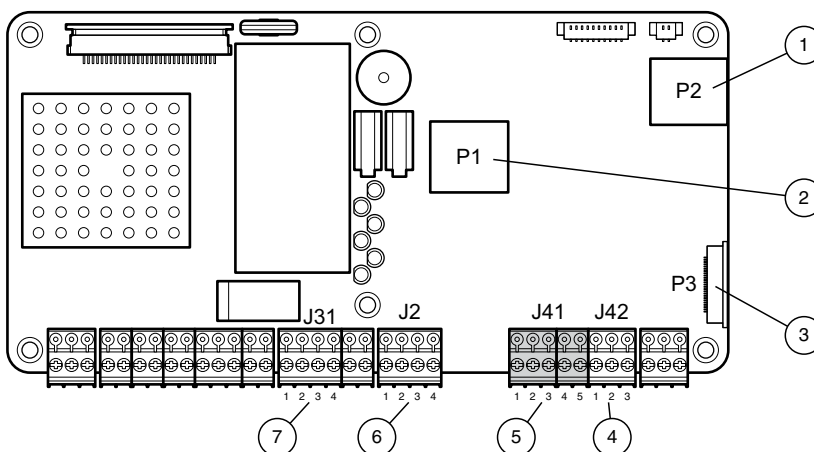
High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
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**Model Number****MTT6000-F120-B12-V45**

Read/write device

Features

- High reading distance 6 m
- Serial interfaces RS 232 and RS 485
- Ethernet interface with TCP/IP
- USB interface for PC connection
- Stand-alone functionality
- Frequency hopping (FHSS)
- Multi-tag capability (93 frequency channels)
- Integrated buzzer
- Protection degree IP65

Dimensions**Electrical connection**

- 1 USB 2.0 Standard Type A
- 2 Ethernet TCP/IP RJ45 Standard T586A
- 3 Micro SD Card

4 RS 232 Serial Communication Interface

Pin	Signal	Description
1	TX	Transmitted data (from Device to Host)
2	RX	Received data (from Host to Device)
3	GND	Ground

5 RS 485 Serial Communication Interface

Pin	Signal (4-wire)	Description	Signal (2-wire)	Description
1	TX+	Transmitted data (from Device to Host)	TX/RX+	Transmitted/Received data
2	TX-		TX/RX-	
3	GND	Ground	GND	Ground
4	RX+	Received data (from Host to Device)	n.c.	Not used
5	RX-		n.c.	

6 Wiegand / Magnetic stripe**7 Power Supply**

Pin	Signal	Description
1,3	SPL	Positive DC supply input
2,4	RTN SPL	Negative DC supply input

Function

The read/write device MTT6000-F120-B12-V45 establishes a link between the code/data carriers of the RFID system MT and a higher-level computer (such as an industrial PC or PLC). The read/write device communicates with the computer via the interfaces Ethernet (TCP/IP), USB 2.0, RS 232 or RS 485 (2 or 4 wire). The maximum range for reading read/write devices in the frequency range 2.45 GHz is 6 m.

In addition to offering many innovative functions, the read/write device also features frequency hopping (FHSS). This function enables the read/write device to "jump" between frequencies within the specified frequency band. This significantly reduces communication interference, especially when several read/write devices are used in close proximity to one another.

The system is also multi-tag capable, i.e. several code or data carriers are identified within the sensing range. The read/write device can partition the specified frequency band into 93 different channels, thus making it compatible with older systems.

The read/write device works with the operating system Linux and features an open development platform for the development of own applications.

For direct connections, the read/write device has been provided with a relay output, 3 optocoupler inputs, 2 open collector outputs as well as interface for Wiegand/magnet strip protocols.

The status of the read/write device is indicated by several integrated LEDs and a buzzer. For further information, please refer to the system and device manuals.

Accessories

RFIDControl

Software for RFID identification systems

Technical data

General specifications

Operating frequency	2.402 ... 2.482 GHz
Polarization	circular
Transfer rate	read: 4 kBit/s , 16 kBit/s write: 4 kBit/s
Operating distance	maximum: 6 m

Memory

Type/Size	Flash 16 MByte RAM 32 MByte
-----------	--------------------------------

Indicators/operating means

LED green/yellow/red	controllable per software
----------------------	---------------------------

Electrical specifications

Rated operational voltage U_o	10 ... 30 V DC
Current consumption	at 24 V: 150 mA at 12 V: 500 mA

Interface

Physical	Ethernet
Protocol	TCP/IP
Transfer rate	10/100 MBit/s

Interface 1

Physical	USB
Protocol	ASCII
Transfer rate	max. 12 MBit/s

Interface 2

Physical	RS 232 or RS 485; for RS 485: full- (4-wire) or half-duplex (2-wire)
Protocol	ASCII
Transfer rate	1.2 ... 115.2 kBit/s

Input

Optocoupler	3 inputs
Input level	ON: ≥ 2.4 V , max. 30 V OFF: ≥ 0 V , max. 0.2 V

Output

Electronic	output 1: open-collector; 1 ... 30 V DC, max. 500 mA output 2: open-collector; 1 ... 30 V DC, max. 100 mA
Relay	switching current ≤ 2 A; $P_{max} = 50$ W switching voltage ≤ 220 V DC; 48 V AC

Compliance with standards and directives

Directive conformity	
R&TTE Directive 1995/5/EC	EN 60950, IEC 60215, ETS 300683, ETS 300440
Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP65
Material	Plastic
Mass	3 kg
Dimensions	290 mm x 165 mm x 56 mm (W x H x D)

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

MTO-C1

Read only tag

Features

- 8-digit decimal number as fixcode
- Battery life expectancy 6 years
- Battery life independent of the read/write operations
- Credit card size
- Protection degree IP67

Function

The code carrier can still be safely read from a distance of more than 3 m, even when several code carriers are located in the read zone.

Each code carrier is delivered ex works with an invariable and unique 8-digit decimal number and a 32-bit test check sum which detects the data carrier unambiguously and thus unmistakably. An ecologically friendly lithium cell assures a long action time regardless of the number of read processes. Towards the end of the capacity, one bit which can be evaluated by means of the read/write device during the next data transfer, is set in the status register of the code carrier.

The MTO-C1 code carrier can either be fixed with a clip, a card retainer, magnetically or with adhesive tape. In addition, it is provided with holes for M3 screws.

The code carrier is vibration resistant, corrosion resistant, UV-stable, waterproof and resistant to chemicals.

Accessories

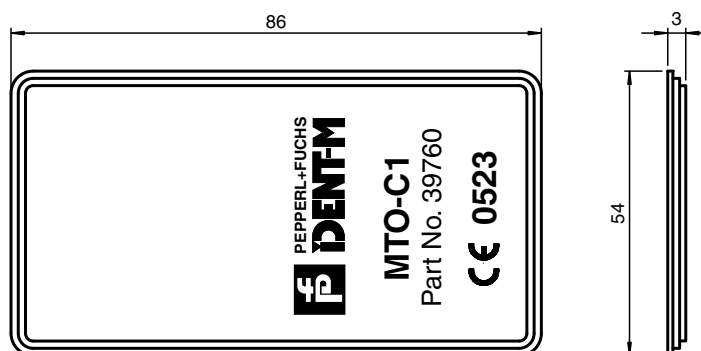
MTA-C1V1

Card holder with fixing clip

MTA-C1V2

Card holder for window mounting in vehicles

Dimensions



Technical data

General specifications

Operating frequency	2.435 ... 2.465 GHz , channel separation 300 kHz
Reading speed	depending on the operating mode and the number of read/write tags in the read zone between 80 ms and 2700 ms

Memory

Capacitance	an 8-digit decimal number as fix code and 32-bit checksum
Battery life	typically 6 years, independent of the number of read operations

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)
Shock and impact resistance	shock: 500 G, 1 ms on all 3 spatial axes 100x according to IEC 68-2-27 impact: 40 G, 6 ms on all 3 spatial axes 1000x according to IEC 68-2-29 Eb

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	Polymer
Mass	15 g



Model Number

MTO-C2

Read only tag

Features

- 8-digit decimal number as fixcode
- Battery life 10 years
- Battery life independent of the read/write operations
- sturdy housing
- Protection degree IP67

Function

The code carrier can still be safely read from a distance of more than 3 m, even when several code carriers are located in the read zone

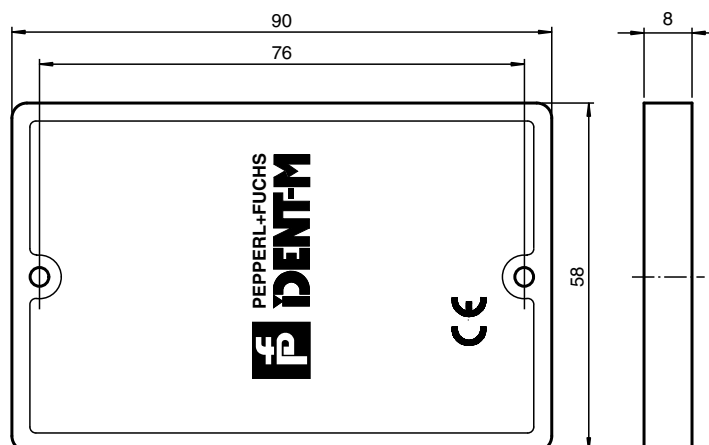
Each code carrier is delivered ex works with an invariable and unique 8-digit decimal number and a 32-bit test check sum, which detects the data carrier unambiguously and thus unmistakably. An ecologically friendly lithium cell assures a long action time regardless of the number of read processes. Towards the end of the capacity, one bit which can be evaluated by means of the read/write device during the next data transfer, is set in the status register of the code carrier.

The MTO-C2 code carrier is fixed with 2 M4 screws.

The C2 housing type is especially robust allowing for application in rough operating conditions.

The code carrier is vibration resistant, corrosion resistant, UV-stable, waterproof and resistant to chemicals.

Dimensions



Technical data

General specifications

Operating frequency	2.435 ... 2.465 GHz , channel separation 300 kHz
Reading speed	depending on the operating mode and the number of read/write tags in the read zone between 80 ms and 2700 ms

Memory

Capacitance	an 8-digit decimal number as fix code and 32-bit checksum
Battery life	typically 10 years, independent of the number of read operations

Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)
Shock and impact resistance	40 G, 6 ms, in all 3 spatial axes 1000x according to IEC 68-2-29 Eb 500 G, on all 3 spatial axes, 100x according to IEC 68-2-27

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	Polymer
Mass	60 g

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

MTM-C1

read/write tag

Features

- Memory 574 bits plus 8-digit decimal number as fix code
- Battery life expectancy 6-10 years
- Battery life independent of the read/write operations
- Protection degree IP67

Function

The data carrier can be read from a distance of 4 m and safely inscribed from a distance of 0.5 m dependent on different settings.

A max. of 606 bits (82 7-bit-ASCII characters and a 32-bit test check sum) can be stored in the data carrier. Thus 574 bit are available for application specific data. In addition, each data carrier is delivered ex works with an invariable and unique 8-digit decimal number, which detects the data carrier unambiguously.

By means of microwaves, formatting and the setting of various possible operating modes takes place. The same conditions are applicable as for the writing of data. The distance to the read/write device can be up to 0.5 m.

The life of the internal lithium cells depends on the operating mode of the data carrier. When the voltage drops towards the end of the capacity, one bit is set in the status register, and transmitted to the read/write device during each read procedure.

The data carrier is vibration resistant, corrosion resistant, UV-stable, waterproof and resistant to chemicals.

Accessories

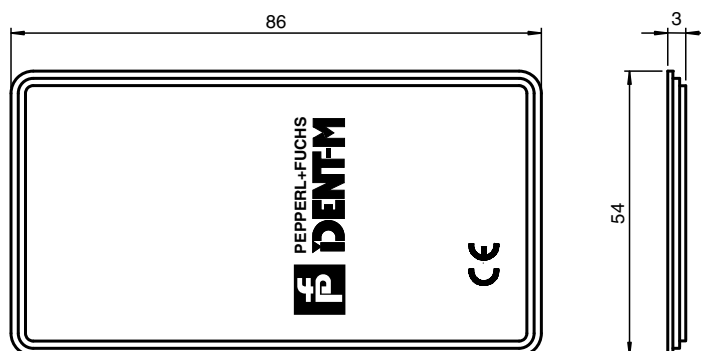
MTA-C1V1

Card holder with fixing clip

MTA-C1V2

Card holder for window mounting in vehicles

Dimensions



Technical data

General specifications

Operating frequency	2.435 ... 2.465 GHz , channel separation 300 kHz
Reading speed	depending on operating mode and number of read/write tags in the read zone, between 50 ms and 2000 ms
Writing speed	depending on the operating mode, between 200 ms and 6000 ms

Memory

Capacitance	606 Bit R/W (584 bits available for user data) 8-digit decimal number as fix code
Battery life	typical: 6 ... 10 years, independent of the number of read and write processes, but dependent on the selected modes

Ambient conditions

Ambient temperature	-20 ... 85 °C (253 ... 358 K)
Storage temperature	-20 ... 85 °C (253 ... 358 K)
Shock and impact resistance	shock: 500 G, 1 ms on all 3 spatial axes 100x according to IEC 68-2-27 impact: 40 G, 6 ms on all 3 spatial axes 1000x according to IEC 68-2-29 Eb

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	Polymer
Mass	15 g



Model Number

MTM-C2

read/write tag

Features

- Memory 574 bits plus 8-digit decimal number as fix code
- Battery life expectancy 6-10 years
- Battery life independent of the read/write operations
- sturdy housing
- Protection degree IP67

Function

The data carrier can be read from a distance of 4 m and safely inscribed from a distance of 0.5 m dependent on different settings.

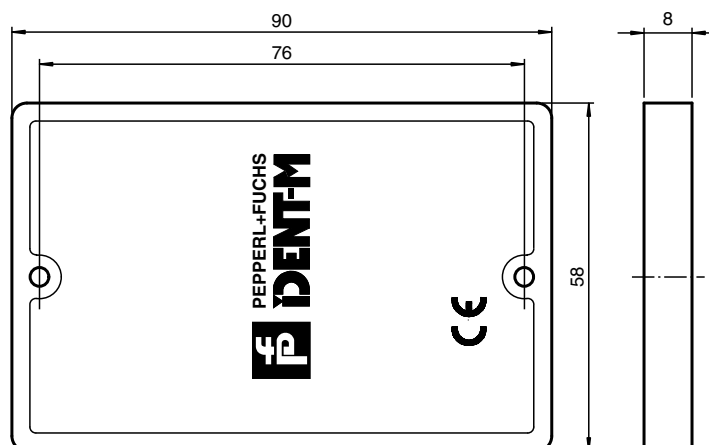
A max. of 606 bits (82 7-bit-ASCII characters and a 32-bit test check sum) can be stored in the data carrier. Thus 574 bit are available for application specific data. In addition, each data carrier is delivered ex works with an invariable and unique 8-digit decimal number, which detects the data carrier unambiguously.

By means of microwaves, formatting and the setting of various possible operating modes takes place. The same conditions are applicable as for the writing of data. The distance to the read/write device can be up to 0.5 m. The life of the internal lithium cells depends on the operating mode of the data carrier. When the voltage drops towards the end of the capacity, one bit is set in the status register, and transmitted to the read/write device during each read procedure.

The C2 housing type is especially robust allowing for application in rough operating conditions.

The data carrier is vibration resistant, corrosion resistant, UV-stable, waterproof and resistant to chemicals.

Dimensions



Technical data

General specifications

Operating frequency	2.435 ... 2.465 GHz , channel separation 300 kHz
Reading speed	depending on operating mode and number of read/write tags in the read zone, between 50 ms and 2000 ms
Writing speed	depending on the operating mode, between 200 ms and 6000 ms

Memory

Capacitance	606 Bit R/W (584 bits available for user data) 8-digit decimal number as fix code
Battery life	typical: 6 ... 10 years, independent of the number of read and write processes, but dependent on the selected modes

Ambient conditions

Ambient temperature	-40 ... 85 °C (233 ... 358 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Shock and impact resistance	shock: 500 G, 1 ms on all 3 spatial axes 100x according to IEC 68-2-27 impact: 40 G, 6 ms on all 3 spatial axes 1000x according to IEC 68-2-29 Eb

Mechanical specifications

Protection degree	IP67 according to EN 60529
Material	
Housing	Polymer
Mass	60 g

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

iDENTControl
 RFID 125 KHz
 RFID 250 KHz
 RFID 13,56 MHz
 RFID 868 MHz
 RFID 2,45 GHz
 RFID Accessories
 RFID Handhelds
 RFID Stand-alone 125 KHz
 RFID Stand-alone 2,45 GHz
 iDENT-O Barcode
 iDENT-O Data Matrix
 High Temperature iDENT System



Model Number

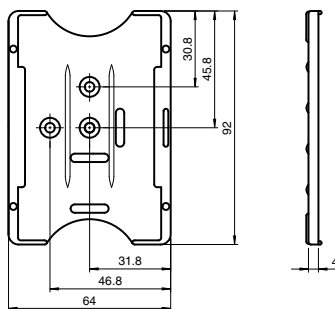
MTA-C1V1

Card holder with fixing clip

Features

- Card holder for read only tag and read/write tag MTO-C1 and MTM-C1
- With mounting flange

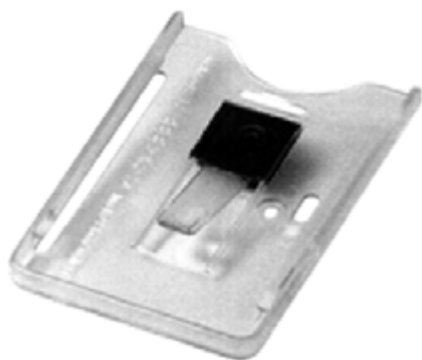
Dimensions



Technical data

Mechanical specifications

Material	support: polycarbonate clip: polycarbonate
Mass	without clip: 7 g with clip: 10 g
Dimensions	92 mm x 64 mm x 9 mm (W x H x D) including Clip



Model Number

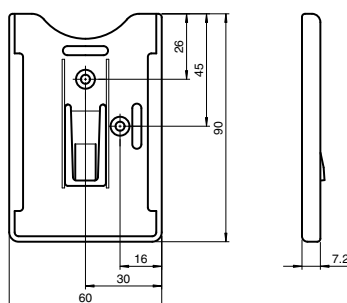
MTA-C1V2

Card holder for window mounting in vehicles

Features

- Card holder for read only tag and read/write tag MTO-C1 and MTM-C1
- Window installation in vehicles by means of adhesive strips

Dimensions



Technical data

Mechanical specifications

Material	support: polycarbonate clip: metal
Mass	(window version): 7 g with clip: 11 g



Edition: 2009-07-02 Catalogue Identification Systems 2009

High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
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8 Barcodes

Barcodes enable printed data to be read by machine. The barcode is used in almost every area of industry, trade, public authorities and everyday life. The information encrypted in a barcode is scanned optically with the help of a special reader and made available to a computer via a standardized interface. With a barcode imager, you can detect the code from a certain distance in a still position or while moving. Due to automatic barcode reading and the capability of modern computers, industry has better possibilities for acquisition of operating data and control of conveying, production and storage systems.



8.1 Overview of the 1D barcode scanner

					
Order code	VB6-240	VB8-305	VB12-***	VB14N-***	VB34-2500**
Page	204	206	208+210	212+214	216+218
General data					
Read distance	up to 240 mm	35–305 mm	10–220 mm	40–600 mm	500–2500 mm
Scan rate	800/sec or 1200/sec	270/sec	350/sec or 500/sec	500–1000/sec	600–1200/sec,
Resolution	0.15 mm (6 mils)	0.076 mm (3 mils)	0.12 mm (5 mils)–0.2 mm (8 mils)	0.2 mm (8 mils)–0.35 mm (14 mils)	Max: 0.2 mm (8 mils)
Type of light	Laser diode 658 nm	4 red LEDs, 630 nm	Semiconductor laser, 655 nm	Semiconductor laser 630–680 nm	Semiconductor laser, 655 nm
Laser class	Class 2 - EN 60825-1, Class II - CDRH	-	2 -IEC825-1; Class II - CDRH	2 -IEC825-1; Class II - CDRH	2 -IEC825-1; Class II - CDRH
Interface					
Connection interface	2 x RS 232 or 1 x RS 485 (full or half duplex) selectable through software	serial, RS 232	serial RS 232 and RS 485 up to 115.2 kbit/s	serial RS 232 and RS 485 up to 115.2 kbit/s ID-NET™ up to 1 Mbit/s	serial RS 232 and RS 485 up to 115.2 kbit/s Lonworks, Profibus, Ethernet, DeviceNet
Programmable interface	Programmable via serial interface	Programmable via serial interface	Programmable via serial interface	Programmable via serial interface	Programmable via serial interface
Mechanical data					
Connection	1 m connecting cable with 15-pin Sub-D plug	1 m connecting cable with 25-pin Sub-D socket	1 m connecting cable with 25-pin Sub-D plug	1 m connecting cable with 25-pin Sub-D connector	Bus connection, Lonworks, serial interface (primary, secondary): 25 or 26-pin Sub-D plug
Material					
Housing	ZAMA (zinc, aluminum, magnesium alloy)	Plastic ABS	Magnesium, polycarbonate	Aluminum	Aluminum

Connection modules for barcode scanners

		
Order code	CBX100	CBX500
Page	220	222
Interface		
Connection interface	RS 232/RS 485	modular expandable (e.g. PROFIBUS, Ethernet, DeviceNet)
Mechanical data		
Connection	25-pin Sub-D socket for barcode scanner, M16 cord grip for system connection (4x)	25-pin Sub-D socket for barcode scanner, M16 cord grip for system connection (5x)
Weight	380 g	780 g

Issue date: 01.03.2009 Identification systems catalog 2009



Model Number

VB6-240

Barcode scanner

Features

- Extremely compact dimensions
- Up to 1200 scans/s
- ACB™ (Advanced Code Builder) re-constructor
- IP65 rugged industrial housing
- Test function with display of reader
- Engine control (On/Off) possible

Technical data

General specifications

Laser class	Class 2 - EN 60825-1, Class II - CDRH
Scan rate	800 s ⁻¹ or 1200 s ⁻¹
Reading distance	up to 240 mm
Light type	Visible laser diode 658 nm
Optical face	frontal
Resolution	0.15 mm (6 mils)
Symbologies	EAN/UPC (including Add-on 5), 2/5 Interleaved, Code 39 (Standard and Full ASCII), Code 93, Code 128, EAN 128, ISBM 128, Pharmacode

Indicators/operating means

Operating display	"Power on /100 %", "Good Read /80%", "Ext. Trig /60 %", "TX Data /40 %", "Laser on /20 %"
-------------------	---

Electrical specifications

Operating voltage U _B	5 V DC ± 5 %
Power consumption P ₀	2 W max.

Interface

Interface type	2 x RS 232 or 1 x RS 485 (full or half duplex) selectable via software
Programming interface	via serial port programmable (VisoSetup)

Input

Input signal	1 digital input
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Output

Signal output	2 digital outputs programmable
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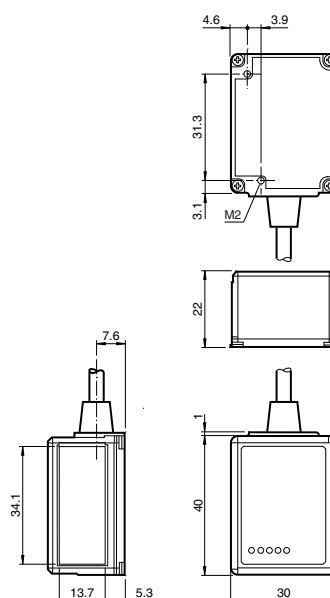
Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Relative humidity	90 % , non-condensing
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis

Mechanical specifications

Protection degree	IP65
Connection	15-pin Sub-D plug
Material	
Housing	ZAMA (zinc, aluminium, magnesium alloy)
Cable	
Length L	100 cm
Dimensions	40 mm x 30 mm x 22 mm

Dimensions



Function

The combination of extremely compact dimensions and powerful high speed reading capabilities makes the VB6 scanner ideal for demanding OEM applications. In fact, VB6 miniaturization allows easy integration into OEM equipment and automatic machinery. The high scan rate and sophisticated electronic design effectively addresses difficult reading conditions.

Availability of embedded ACB™ (Advanced Code Builder) reconstruction SW algorithm allows consistent decoding of damaged or mis-applied labels (resulting in high tilt angles).

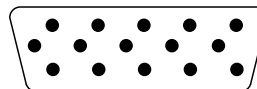
VB6 installation and configuration is easy and simple thanks to compact size and to the new test operating mode with bar-graph. Test mode is activated by means of a pushbutton on the scanner (external PC not required) and the LED bargraph shows the readability. This feature increases the scanner ease of installation and re-positioning during product changeovers in automated machinery.

VB6 operates at a speed up to 1200 scan/s, extending the application range also to high speed document handling, paper inserting, label rewinding and packaging machines.

Additionally, the scanner motor can be switched ON and OFF via SW command. This feature is useful in very low throughput application or when the machine sits idle for long periods. A simple software command allows a prompt restoration of full operation when needed.

VB6, the best answer for reduced space and high performance integration barcode reading needs.

Electrical connection



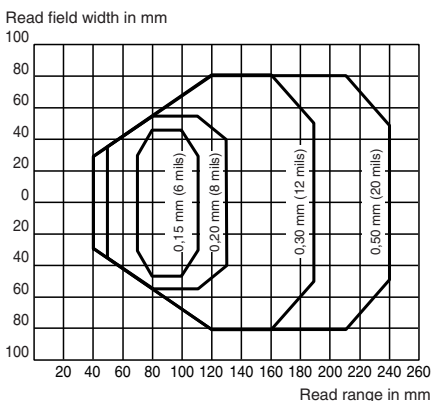
15-pin Sub-D connector pinout

Pin	Name	Function		
1	VS	Power Supply Input Voltage +		
5	GND	Power Supply Input Voltage -		
8	PE	Protective Earth Ground		
13	SHIELD	Cable Shield		
9	EXT	External Trigger -		
7	OUT1 +	Output 1 +		
14	OUT2 +	Output 2 +		
11, 12, 15	NC	Not connected		
Pin	Name	RS 232	RS 485 full duplex	RS 485 half duplex
2	Serial interface signals	Tx Main	Tx-	Tx/Rx-
3		Rx Main	Rx+	
6		Tx AUX	Tx+	Tx/Rx+
10		Rx AUX	Rx-	
4		SGND	SGND	SGND

Curves / Diagrams

Reading characteristics

VB6-240





Model Number

VB8-305

CCD barcode scanner

Features

- CCD line scanner
- Small, compact design
- Programmable via Windows software

Technical data

General specifications

Scan rate	270 s ⁻¹
Reading distance	35 ... 305 mm
Light type	4 Red LED, 630 nm
Optical face	frontal
Resolution	0.076 mm (3 mils)
Symbologies	Code 2/5 range, Code 39, EAN/UPC, EAN128, Code 128, Code 93, Codabar, Telepen, Plessey, MSI, Delta IBM, Code 11, Codablock, Code 16K, Code 49

Nominal ratings

Camera	
Type	CCD
Number of pixels	3648 pixels

Indicators/operating means

Operating display	LED 2: Power on (POWER ON)
Function display	LED 1: signals the successful read-in of a barcode (GOOD READ)

Electrical specifications

Operating voltage U _B	10 ... 30 V DC
Power consumption P ₀	1.5 W

Interface

Interface type	Serial RS 232
----------------	---------------

Input

Input voltage	max. 30 V DC
Number/Type	1 Trigger input (Internal or external power supply)
Input type	Optocoupler

Output

Number/Type	1 electronic output , switches when a barcode is scanned successfully (GOOD READ)
Switching voltage	max. 40 V DC

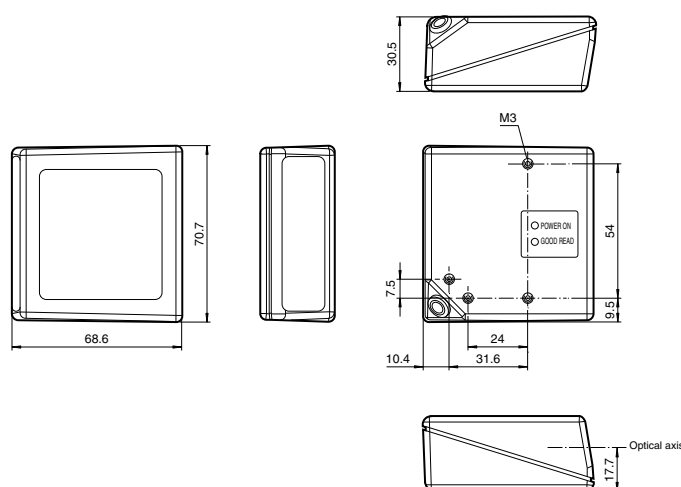
Ambient conditions

Ambient temperature	0 ... 50 °C (273 ... 323 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Relative humidity	90 % , non-condensing
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis

Mechanical specifications

Protection degree	IP40
Connection	25-pin Sub-D socket
Material	
Housing	Plastic ABS
Cable	
Length L	100 cm

Dimensions



Function

The VB8-305 compact CCD scanner is the entry level solution for many OEM applications. Thanks to its unique combination of technical characteristics it is ideally suited for installation in machinery and sets new standards for the OEM sector.

The VB8-305 excels through optimal reading characteristics. It can scan codes directly at the read window due to its wide reading field and improved depth focus.

Lightweight and compact the scanner also reduces the overall dimensions and weight of a complete system.

For cost-saving measures the immunity against external light (100000 Lux) and the excellent reading characteristics are useful. In addition the VB8-305 minimizes the maintenance costs, dependent on down-time, with a warranted 240,000 hours MTBF.

The VB8-305 can be programmed through software commands via RS 232 or using the configuration software.

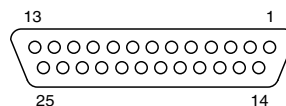
Optionally available is the 80° passive reflector with lateral readings. It reduces the overall space requirement and makes even contact readings possible.

Accessories

DM-VB8

Deviation mirror for barcode scanner series VB8

Electrical connection



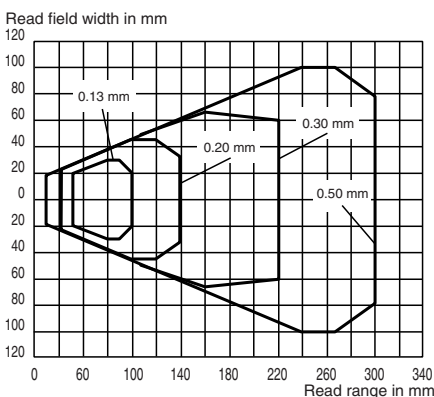
25-pin Sub-D connector pinout

Pin	Name	Function
9, 13	VCC+	Power supply input voltage +
25	GND	Power supply input voltage -
1	Shield	Earth Ground
2, 21	TX	RS 232 Transmit Data
3, 20	RX	RS 232 Receive Data
4	RTS	RS 232 Request to Send
5	CTS	RS 232 Clear to Send
7	SGND	Signal Ground
11	OUT+	Output +
10, 12, 22	OUT-	Output -
18	Ext. TRIG. +	External Trigger +
19	Ext. TRIG. -	External Trigger -
6, 8, 14, 15	NC	Not connected
16, 17, 23	NC	Not connected
24	NC	Not connected

Curves / Diagrams

Reading characteristics

VB8-305





Laser Class II

Model Number

VB12-110
VB12-110-S
VB12-220
VB12-220-S

Barcode scanner

Features

- Line scanner
- Optimal price/power ratio
- Large reading angle
- Flat housing
- Engine control (On/Off) possible
- Side light outlet enables installation when space is at a premium

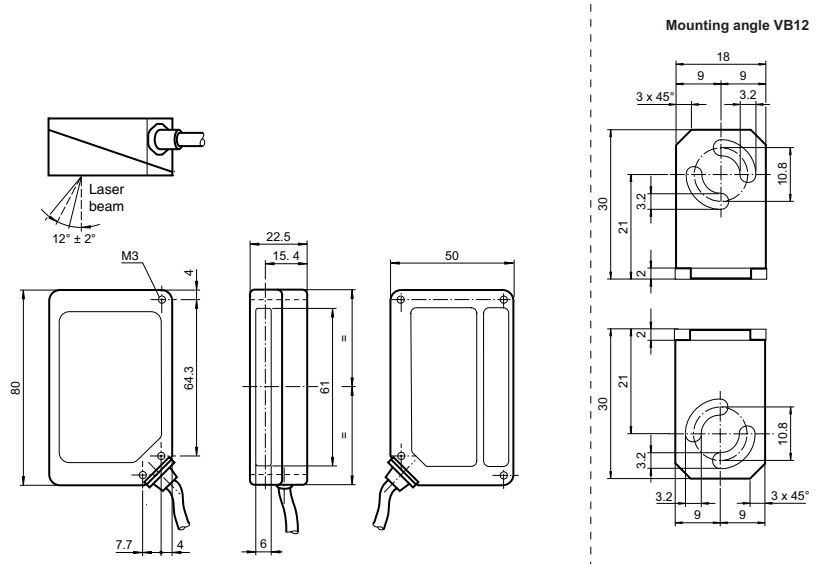
Accessories

CBX100
Connector box for barcode scanner

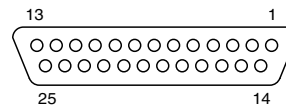
Technical data

	VB12-110	VB12-110-S	VB12-220	VB12-220-S
General specifications				
Laser class	2 -IEC825-1; class II - CDRH			
Scan rate	350 s ⁻¹ or 500 s ⁻¹			
Reading angle	70 °			
Reading distance	10 ... 110 mm		30 ... 220 mm	
Light type	semi-conductor laser 655 nm			
Optical face	frontal (Narrow side)	Lateral (broad side at angle of 78°)	frontal (Narrow side)	Lateral (broad side at angle of 78°)
Resolution	0.12 mm (5 mils)		0.2 mm (8 mils)	
Indicators/operating means				
Operating display	LED red: Power on (POWER ON) , LED green: Laser on (LASER ON), LED yellow: external trigger signal applied (EXT. TRIG.)			
Data flow display	LED green flashing: Data transfer carried out (TX-DATA)			
Function display	LED red: signals the successful read-in of a barcode (GOOD READ)			
Electrical specifications				
Operating voltage U _B	10 ... 30 V DC			
Power consumption P ₀	1.5 W			
Interface				
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s			
Input 1				
Input type	External triggering			
Input 2				
Input type	Digital input programmable			
Output				
Signal output	2 outputs programmable			
Switching voltage	max. 50 V DC			
Switching current	max. 50 mA			
Voltage drop U _d	0.3 V at load current ≤ 10 mA			
Standard conformity				
Standards	EN 60947-5-2			
Ambient conditions				
Ambient temperature	0 ... 45 °C (273 ... 318 K)			
Storage temperature	-20 ... 70 °C (253 ... 343 K)			
Relative humidity	90 % , non-condensing			
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis			
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis			
Mechanical specifications				
Protection degree	IP65 according to DIN 40050			
Connection	25-pin Sub-D connector			
Material				
Housing	Magnesium, Polycarbonate			
Cable				
Length L	100 cm			
Mass	100 g			

Dimensions



Electrical connection



25-pin D-sub connector pinout

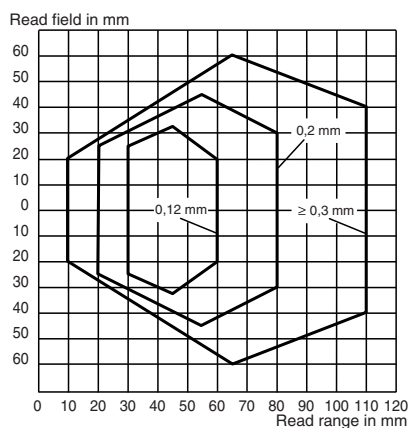
Pin	Name	Function
9, 13	10 V ... 30 V DC	Power supply input voltage +
25	GND	Power supply input voltage -
1*	CHASSIS	Chassis ground
2, 21	TX232	TX RS232 aux. Interface
3, 20	RX232	RX RS232 aux. Interface
4	RTX485-	RTX- RS485 main Interface
5	RTX485+	RTX+RS485 main Interface
7	SGND	Signal ground
8	OUT1+	Output 1 +
11	OUT2+	Output 2 +
19	Ext. TRIG. -	External trigger -
12, 22	GND	Input/Output reference (Mass)
18	IN1-	Input 1 -
6, 10, 14, 15, 16, 17, 23, 24	NC	Not connected

* Pin 1 and pin 25 are internally interconnected.

Curves / Diagrams

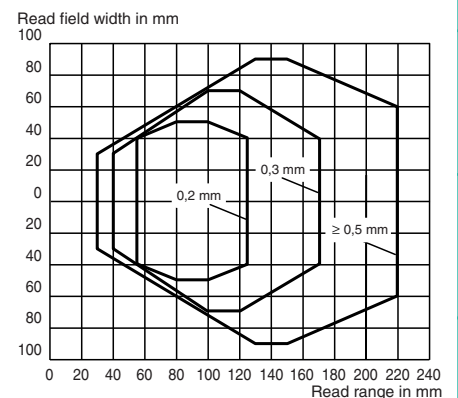
Reading characteristics

VB12-110



Reading characteristics

VB12-220





Laser Class II

Model Number

VB12-110-R
VB12-110-S-R
VB12-220-R
VB12-220-S-R

Barcode scanner

Features

- Grid scanner
- Optimal price/power ratio
- Large reading angle
- Flat housing
- Engine control (On/Off) possible
- Side light outlet enables installation when space is at a premium

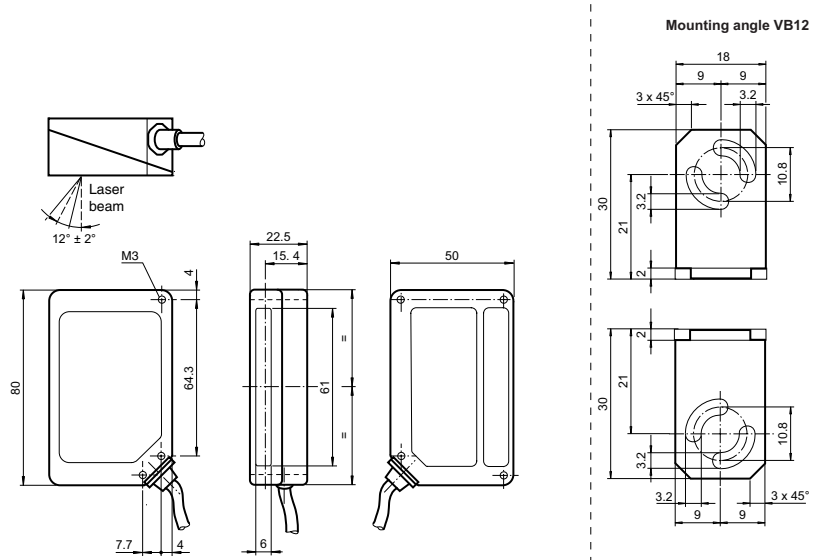
Accessories

CBX100
Connector box for barcode scanner

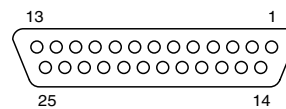
Technical data

	VB12-110-R	VB12-110-S-R	VB12-220-R	VB12-220-S-R
General specifications				
Laser class	2 -IEC825-1; class II - CDRH			
Scan rate	350 s ⁻¹ or 500 s ⁻¹			
Reading angle	70 °			
Reading distance	10 ... 110 mm		30 ... 220 mm	
Light type	semi-conductor laser 655 nm			
Optical face	frontal (Narrow side)	Lateral (broad side at angle of 78°)	frontal (Narrow side)	Lateral (broad side at angle of 78°)
Resolution	0.12 mm (5 mils)		0.2 mm (8 mils)	
Indicators/operating means				
Operating display	LED red: Power on (POWER ON) , LED green: Laser on (LASER ON), LED yellow: external trigger signal applied (EXT. TRIG.)			
Data flow display	LED green flashing: Data transfer carried out (TX-DATA)			
Function display	LED red: signals the successful read-in of a barcode (GOOD READ)			
Electrical specifications				
Operating voltage U _B	10 ... 30 V DC			
Power consumption P ₀	1.5 W			
Interface				
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s			
Input 1				
Input type	External triggering			
Input 2				
Input type	Digital input programmable			
Output				
Signal output	2 outputs programmable			
Switching voltage	max. 50 V DC			
Switching current	max. 50 mA			
Voltage drop U _d	0.3 V at load current ≤ 10 mA			
Standard conformity				
Standards	EN 60947-5-2			
Ambient conditions				
Ambient temperature	0 ... 45 °C (273 ... 318 K)			
Storage temperature	-20 ... 70 °C (253 ... 343 K)			
Relative humidity	90 % , non-condensing			
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis			
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis			
Mechanical specifications				
Protection degree	IP65 according to DIN 40050			
Connection	25-pin Sub-D connector			
Material				
Housing	Magnesium, Polycarbonate			
Cable				
Length L	100 cm			
Mass	100 g			

Dimensions



Electrical connection



25-pin D-sub connector pinout

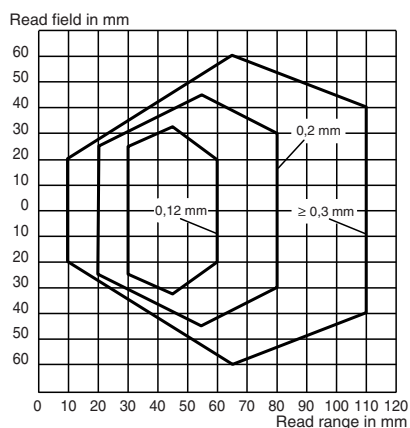
Pin	Name	Function
9, 13	10 V ... 30 V DC	Power supply input voltage +
25	GND	Power supply input voltage -
1*	CHASSIS	Chassis ground
2, 21	TX232	TX RS232 aux. Interface
3, 20	RX232	RX RS232 aux. Interface
4	RTX485-	RTX- RS485 main Interface
5	RTX485+	RTX+RS485 main Interface
7	SGND	Signal ground
8	OUT1+	Output 1 +
11	OUT2+	Output 2 +
19	Ext. TRIG. -	External trigger -
12, 22	GND	Input/Output reference (Mass)
18	IN1-	Input 1 -
6, 10, 14, 15, 16, 17, 23, 24	NC	Not connected

* Pin 1 and pin 25 are internally interconnected.

Curves / Diagrams

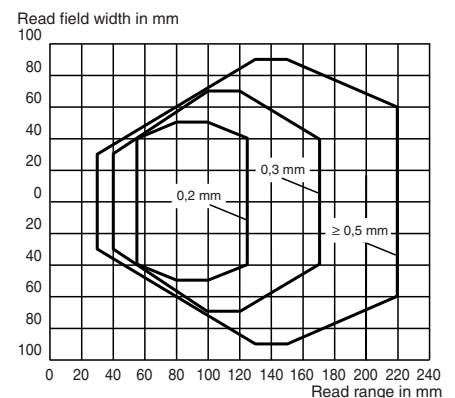
Reading characteristics

VB12-110



Reading characteristics

VB12-220





Laser Class II

Model Number

VB14N-300

VB14N-600

Barcode scanner

Features

- Line scanner
- Simple operation via function keys: test mode, code teaching and code optimization
- ACB™ (Advanced Code Builder) re-structor
- Connect up to 32 scanners
- Sturdy aluminium housing
- Two serial interfaces RS 232 / RS 485
- Engine control (On/Off) possible
- Protection degree IP65

Function

The VB14N-600 is a line scanner for 1D barcodes and offers a high reliability when reading hard to detect 1D barcodes due to its high performance optics and the ACB™ reconstruction technology implemented.

A function key and several LEDs on the barcode scanner give support with parameterization, teaching barcodes and testing. In Live-mode the LEDs give information on the respective read status.

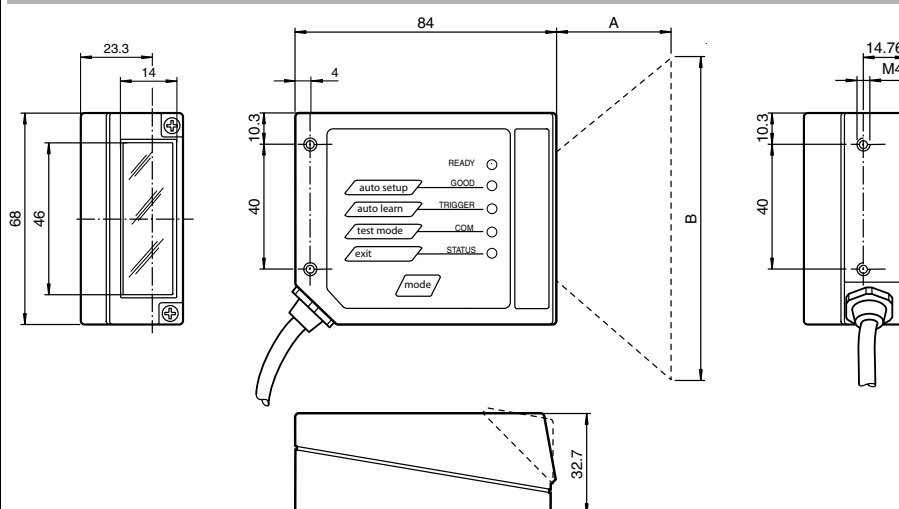
You have the option to network the VB14N-600 with up to 32 barcode scanners with each other via a high speed connection. This enables a faster and more efficient data collection, without the necessity of an external multiplexer.

Simple parameterization using PC software is possible.

Technical data

	VB14N-300	VB14N-600
General specifications		
Approvals	CE, cULus	
Laser class	2 -IEC825-1; class II - CDRH	
Scan rate	500 ... 800 s ⁻¹	600 ... 1000 s ⁻¹
Reading distance	40 ... 300 mm	190 ... 600 mm
Light type	semiconductor laser 630 ... 680 nm	
Angle of divergence	60 °	50 °
Optical face	Front or side (with deviation mirror)	
Resolution	0.2 mm (8 mils)	0.35 mm (14 mils)
Indicators/operating means		
Operating display	LED blue: Power on, LED green: Ready to read (READY), LED green: Read successfully (GOOD), LED yellow: External trigger signal pending (TRIGGER), LED yellow: Communication active (COM), LED red: "no read" (STATUS)	
Electrical specifications		
Operating voltage U _B	10 ... 30 V DC	10 ... 30 V DC
Power consumption P ₀	max. 3 W	max. 5 W
Interface		
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s ID-NET™ up to 1Mbit/s	
Input 1		
Input type	External triggering	
Output		
Signal output	2, programmable, optocoupled	
Switching voltage	max. 40 V DC	
Switching current	max. 40 mA	
Voltage drop U _d	1 V at load current ≤ 10 mA	
Standard conformity		
Standards	EN 60947-5-2	
Ambient conditions		
Ambient temperature	0 ... 45 °C (273 ... 318 K)	
Storage temperature	-20 ... 70 °C (253 ... 343 K)	
Relative humidity	-	90 % , non-condensing
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis	
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis	
Mechanical specifications		
Protection degree	IP65 according to DIN 40050	
Connection	1 m connecting cable with 25-pin Sub-D connector	
Material		
Housing	aluminium	
Mass	330 g	

Dimensions



Accessories

CBX500-KIT-B19-IP65

Connector box for barcode scanner

CBX500-KIT-B6

Connector box for barcode scanner

OM-VB14A

oscillating mirror for the VB14A barcode scanner series

CBX100

Connector box for barcode scanner

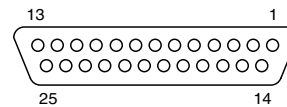
CBX500

Connector box for barcode scanner

DM-VB14A

Deviation mirror for barcode scanner series VB14 sensors

Electrical connection



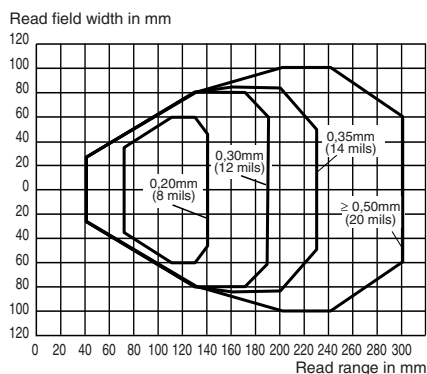
25-pin D-sub connector pinout

Pin	Name	Function		
9, 13	VS	Power supply input voltage +		
25	GND	Power supply input voltage -		
1	CHASSIS	Cable shield connected to chassis		
18	EXT TRG A	External Trigger A		
19	EXT TRG B	External Trigger B		
10	IN2 -	Input2 -		
8	OUT1 +	Output1 +		
22	OUT1 -	Output1 -		
11	OUT2 +	Output2 +		
12	OUT2 -	Output2 -		
20	RXAUX	Auxiliary RS232		
21	TXAUX	Auxiliary RS232		
23	ID-NET +	High speed internal network +		
24	ID-NET -	High speed internal network -		
6, 14, 15, 16, 17	NC	Not connected		
Pin		RS232	RS485 full-duplex	RS485 half-duplex
2	Main interface signals	TX232	TX485+	RTX485+
3		RX232	RX485+	-
4		RTS232	TX485-	RTX485-
5		CTS232	RX485-	
7		SGND	SGND	SGND

Curves / Diagrams

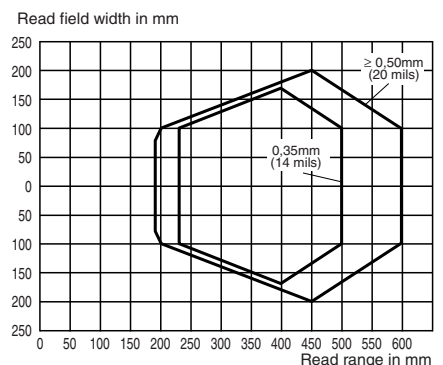
Reading characteristics

VB14N-300



Reading characteristics

VB14N-600





Laser Class II

Model Number

VB14N-300-R

VB14N-600-R

Barcode scanner

Features

- Grid scanner
- Simple operation via function keys: test mode, code teaching and code optimization
- ACB™ (Advanced Code Builder) re-structor
- Connect up to 32 scanners
- Sturdy aluminium housing
- Two serial interfaces RS 232 / RS 485
- Engine control (On/Off) possible
- Protection degree IP65

Function

The VB14N-*R is a raster scanner for 1D barcodes. It grants high reliability when reading difficult to detect 1D barcodes thanks to its high performance optics and the use of ACB™ reconstruction technology.

A function key and multiple LEDs on the reader assist you in setting parameters, teaching in barcodes and performing tests. In live mode, the LEDs provide information on the respective reading status.

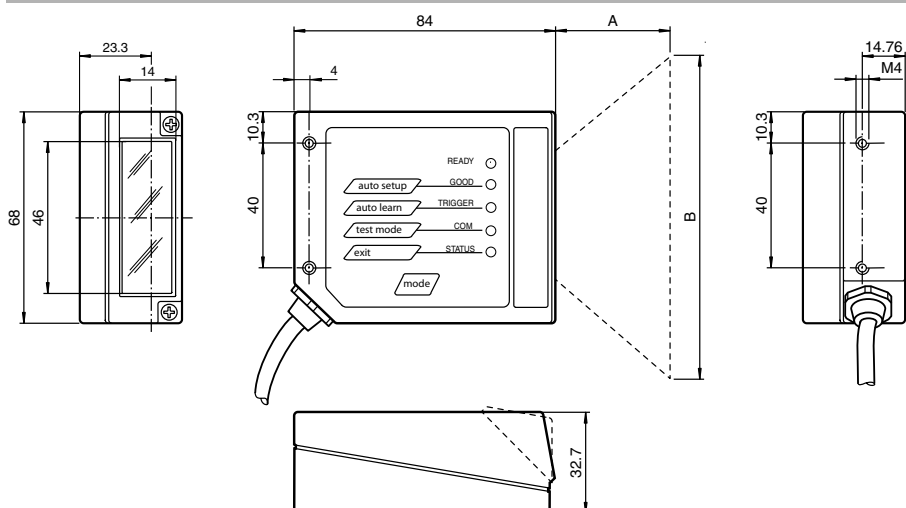
The VB14N-300-R can be networked with up to 32 readers among each other via a high speed connection. This enables faster and more efficient data acquisition without the need for an external Multiplexer.

Setting parameters is easy by means of PC software.

Technical data

	VB14N-300-R	VB14N-600-R
General specifications		
Approvals	CE, cULus	
Laser class	2 -IEC825-1; class II - CDRH	
Scan rate	500 ... 800 s ⁻¹	600 ... 1000 s ⁻¹
Reading distance	40 ... 300 mm	190 ... 600 mm
Light type	semiconductor laser 630 ... 680 nm	
Angle of divergence	60 °	50 °
Optical face	Front or side (with deviation mirror)	
Resolution	0.2 mm (8 mils)	0.35 mm (14 mils)
Indicators/operating means		
Operating display	LED blue: Power on, LED green: Ready to read (READY), LED green: Read successfully (GOOD), LED yellow: External trigger signal pending (TRIGGER), LED yellow: Communication active (COM), LED red: "no read" (STATUS)	
Electrical specifications		
Operating voltage U _B	10 ... 30 V DC	10 ... 30 V DC
Power consumption P ₀	max. 3 W	max. 5 W
Interface		
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s ID-NET™ up to 1Mbit/s	
Input 1		
Input type	External triggering	
Output		
Signal output	2, programmable, optocoupled	
Switching voltage	max. 40 V DC	
Switching current	max. 40 mA	
Voltage drop U _d	1 V at load current ≤ 10 mA	
Standard conformity		
Standards	EN 60947-5-2	
Ambient conditions		
Ambient temperature	0 ... 45 °C (273 ... 318 K)	
Storage temperature	-20 ... 70 °C (253 ... 343 K)	
Relative humidity	90 % , non-condensing	
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis	
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis	
Mechanical specifications		
Protection degree	IP65 according to DIN 40050	
Connection	1 m connecting cable with 25-pin Sub-D connector	
Material		
Housing	aluminium	
Mass	330 g	

Dimensions



Accessories

CBX500-KIT-B19-IP65

Connector box for barcode scanner

CBX500-KIT-B6

Connector box for barcode scanner

OM-VB14A

oscillating mirror for the VB14A barcode scanner series

CBX100

Connector box for barcode scanner

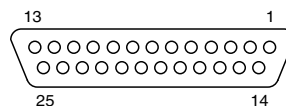
CBX500

Connector box for barcode scanner

DM-VB14A

Deviation mirror for barcode scanner series VB14 sensors

Electrical connection



25-pin D-sub connector pinout

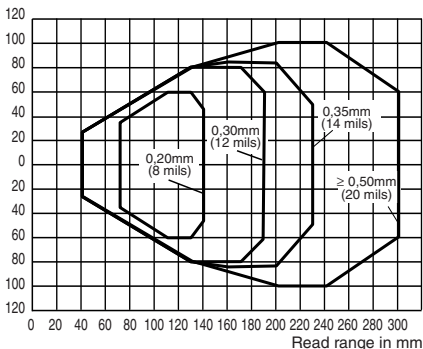
Pin	Name	Function		
9, 13	VS	Power supply input voltage +		
25	GND	Power supply input voltage -		
1	CHASSIS	Cable shield connected to chassis		
18	EXT TRG A	External Trigger A		
19	EXT TRG B	External Trigger B		
10	IN2 -	Input2 -		
8	OUT1 +	Output1 +		
22	OUT1 -	Output1 -		
11	OUT2 +	Output2 +		
12	OUT2 -	Output2 -		
20	RXAUX	Auxiliary RS232		
21	TXAUX	Auxiliary RS232		
23	ID-NET +	High speed internal network +		
24	ID-NET -	High speed internal network -		
6, 14, 15, 16, 17	NC	Not connected		
Pin		RS232	RS485 full-duplex	RS485 half-duplex
2	Main interface signals	TX232	TX485+	RTX485+
3		RX232	RX485+	-
4		RTS232	TX485-	RTX485-
5		CTS232	RX485-	
7		SGND	SGND	SGND

Curves / Diagrams

Reading characteristics

VB14N-300

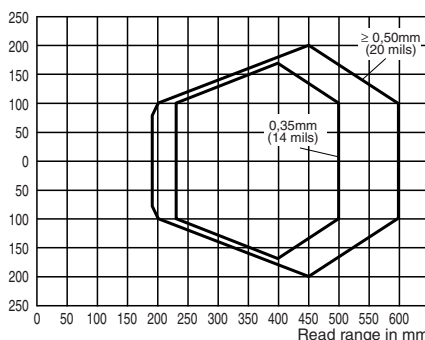
Read field width in mm



Reading characteristics

VB14N-600

Read field width in mm





Model Number

VB34-2500
VB34-2500-P

Barcode scanner

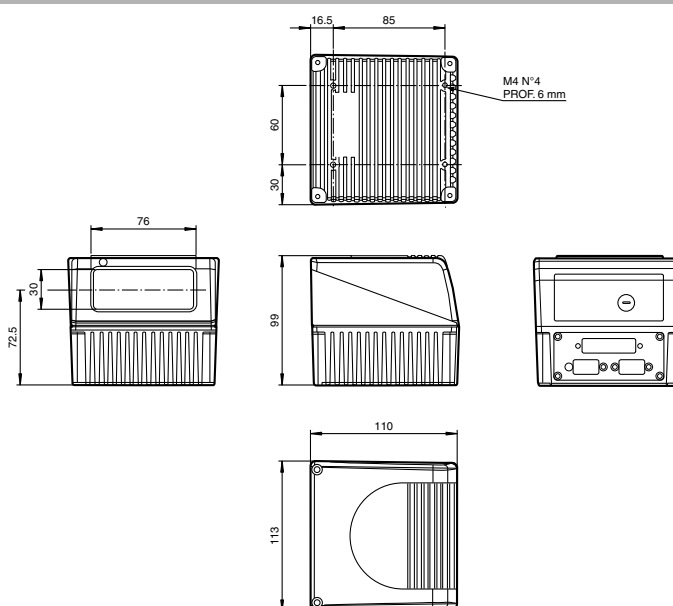
Features

- Optimised for the requirements of the automobile industry
- Dynamic focusing system
- Fast Lonworks interface for master/slave configurations
- Display and keypad for parameter settings

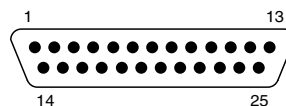
Technical data

VB34-2500		VB34-2500-P
General specifications		
Laser class	2 -IEC825-1; class II - CDRH	
Scan rate	600 ... 1200 s ⁻¹ , programmable	
Reading distance	500 ... 2500 mm	
Light type	semi-conductor laser 655 nm	
Resolution	max: 0.2 mm (8 mils)	
Indicators/operating means		
Operating display	LED green: Power on , LED yellow: Trigger phase active (PHASE ON)	
Data flow display	LED green flashing: Data transfer carried out (TX-DATA)	
Operating elements	Keypad (3 membrane keys) for parameter settings on the LCD display	
Parameterization display	LC display	
Electrical specifications		
Operating voltage U _B	15 ... 30 V DC	
Power consumption P ₀	max. 20 W	
Interface		
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s	serial RS 232 and RS 485 up to 115.2 kBit/s , PROFIBUS
Input 1		
Input type	3 digital inputs and external trigger	
Output		
Switching voltage	max. 30 V DC	
Switching current	max. 50 mA	
Voltage drop U _d	0.3 V at load current ≤ 10 mA	
Standard conformity		
Standards	EN 60947-5-2	
Ambient conditions		
Ambient temperature	0 ... 40 °C (273 ... 313 K)	
Storage temperature	-20 ... 70 °C (253 ... 343 K)	
Relative humidity	90 % , non-condensing	
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis	
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis	
Mechanical specifications		
Protection degree	IP64	
Connection	Interface (primary, secondary) : 25-pin Sub-D connector , Lonworks: : Sub-D socket, 9-pin , 9-pin Sub-D connector	Interface (primary, secondary) : 26-pin Sub-D plug , Lonworks: Sub-D socket, 9-pin , PROFIBUS: Sub-D socket, 9-pin
Material		
Housing	aluminium	
Mass	1500 g	

Dimensions



Electrical connection



Pin	Name	Function
1	Schirm	The shield is interfaced with chassis ground via a capacitor internally.
20	RXAUX	Receive data of RS232 interface (earth-related)
21	TXAUX	Transmission data of RS232 interface (earth-related)
8	Out1+	Plus lead of digital output 1
22	Out1-	Minus lead of digital output 1
11	Out2+	Plus lead of digital output 2
12	Out2-	Minus lead of digital output 2
16	Out3A	Digital output 3 - polarity commutable
17	Out3B	Digital output 3 - polarity commutable
18	Ext_TRIG. A	External trigger (polarity commutable)
19	Ext_TRIG. B	External trigger (polarity commutable)
6	IN 2A	Input signal 2 (polarity commutable)
10	IN 2B	Input signal 2 (polarity commutable)
14	IN 3A	Input signal 3 (polarity commutable)
15	IN 4A	Input signal 4 (polarity commutable)
24	IN_REF	Common earth reference for IN3 and IN4 (polarity commutable)
9, 13	VS	Supply voltage - plus
23, 25	GND	Supply voltage - minus (earth)

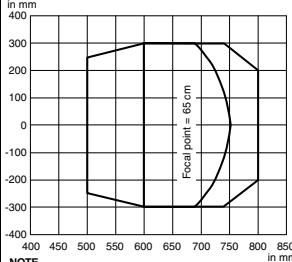
Electrical connections of the connector for primary interface

Pin	RS232	RS485 full-duplex	RS485 half-duplex
2	TX	TX485 +	RTX485 +
3	RX	RX485 +	
4	RTS	TX485 -	RTX485 -
5	CTS	RX485 -	
7	GND_ISO	GND_ISO	GND_ISO

Curves / Diagrams

Reading characteristics

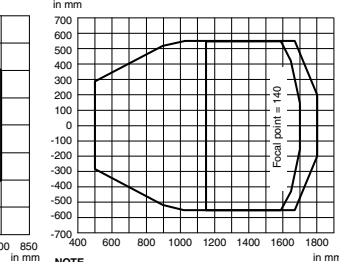
read characteristics at resolution: 0.20 mm (8 mils)



NOTE
(0.0) is the center of the laser beam output window.

Reading characteristics

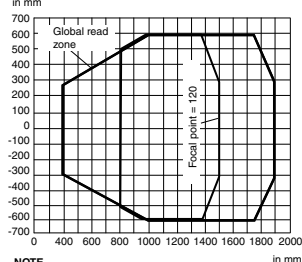
read characteristics at resolution: 0.375 mm (15 mils)



NOTE
(0.0) is the center of the laser beam output window.

Reading characteristics

read characteristics at resolution: 0.50 mm (20 mils)



NOTE
(0.0) is the center of the laser beam output window.



Model Number

VB34-2500-OM
VB34-2500-OM-P
Barcode scanner

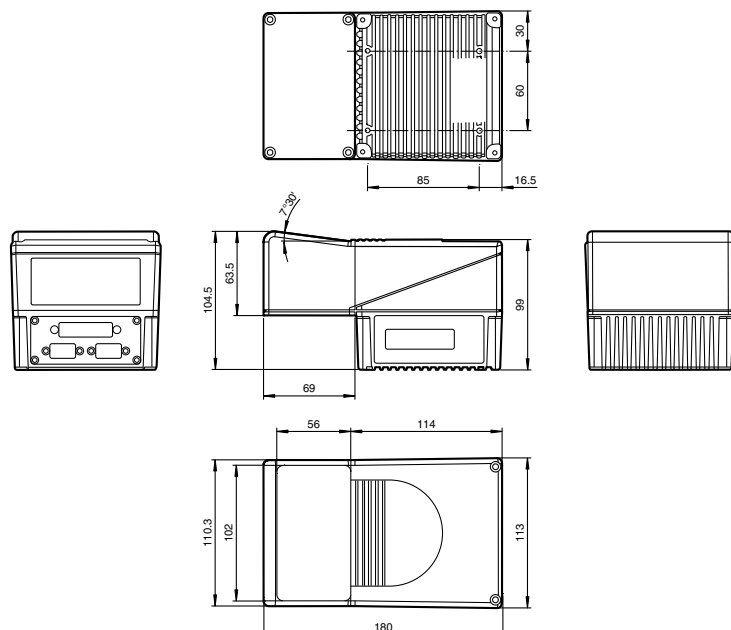
Features

- Version with integrated oscillating mirror
- Optimised for the requirements of the automobile industry
- Dynamic focusing system
- Fast Lonworks interface for master/slave configurations
- Display and keypad for parameter settings

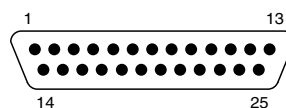
Technical data

	VB34-2500-OM	VB34-2500-OM-P
General specifications		
Laser class	2 -IEC825-1; class II - CDRH	
Scan rate	600 ... 1200 s ⁻¹ , programmable	
Reading distance	450 ... 2500 mm	
Oscillating mirror	Deflection: -2.5° ... 37.5°, programmable Oscillation frequency: 0 ... 19 Hz, programmable	
Light type	semi-conductor laser 655 nm	
Resolution	max: 0.2 mm (8 mils)	
Indicators/operating means		
Operating display	LED green: Power on , LED yellow: Trigger phase active (PHASE ON)	
Data flow display	LED green flashing: Data transfer carried out (TX-DATA)	
Operating elements	Keypad (3 membrane keys) for parameter settings on the LCD display	
Parameterization display	LC display	
Electrical specifications		
Operating voltage U _B	15 ... 30 V DC	
Power consumption P ₀	max. 20 W	
Interface		
Interface type	serial , RS 232 and RS 485 up to 115.2 kBit/s	serial RS 232 and RS 485 up to 115.2 kBit/s , PROFIBUS
Input 1		
Input type	3 digital inputs and external trigger	
Output		
Switching voltage	max. 30 V DC	
Switching current	max. 50 mA	
Voltage drop U _d	0.3 V at load current ≤ 10 mA	
Standard conformity		
Standards	EN 60947-5-2	
Ambient conditions		
Ambient temperature	0 ... 40 °C (273 ... 313 K)	
Storage temperature	-20 ... 70 °C (253 ... 343 K)	
Relative humidity	90 % , non-condensing	
Shock resistance	IEC 68-2-27 Test EA 30G; 11 ms; 3 impacts on each axis	
Vibration resistance	IEC 68-2-6 Test FC 1.5 mm ; 10 ... 55 Hz ; 2 hours on each axis	
Mechanical specifications		
Protection degree	IP64	
Connection	Interface (primary, secondary) : 25-pin Sub-D connector , Lonworks: : Sub-D socket, 9-pin , 9-pin Sub-D connector	Interface (primary, secondary) : 26-pin Sub-D plug , Lonworks: Sub-D socket, 9-pin , PROFIBUS: Sub-D socket, 9-pin
Material		
Housing	aluminium	
Mass	2000 g	

Dimensions



Electrical connection



Pin	Name	Function
1	Schirm	The shield is interfaced with chassis ground via a capacitor internally.
20	RXAUX	Receive data of RS232 interface (earth-related)
21	TXAUX	Transmission data of RS232 interface (earth-related)
8	Out1+	Plus lead of digital output 1
22	Out1-	Minus lead of digital output 1
11	Out2+	Plus lead of digital output 2
12	Out2-	Minus lead of digital output 2
16	Out3A	Digital output 3 - polarity commutable
17	Out3B	Digital output 3 - polarity commutable
18	Ext_TRIG. A	External trigger (polarity commutable)
19	Ext_TRIG. B	External trigger (polarity commutable)
6	IN 2A	Input signal 2 (polarity commutable)
10	IN 2B	Input signal 2 (polarity commutable)
14	IN 3A	Input signal 3 (polarity commutable)
15	IN 4A	Input signal 4 (polarity commutable)
24	IN_REF	Common earth reference for IN3 and IN4 (polarity commutable)
9, 13	VS	Supply voltage - plus
23, 25	GND	Supply voltage - minus (earth)

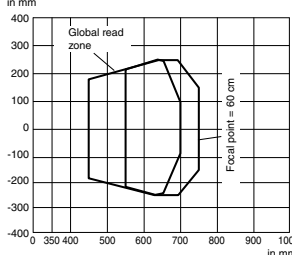
Electrical connections of the connector for primary interface

Pin	RS232	RS485 full-duplex	RS485 half-duplex
2	TX	TX485 +	RTX485 +
3	RX	RX485 +	
4	RTS	TX485 -	RTX485 -
5	CTS	RX485 -	
7	GND_ISO	GND_ISO	GND_ISO

Curves / Diagrams

Reading characteristics VB34*OM*

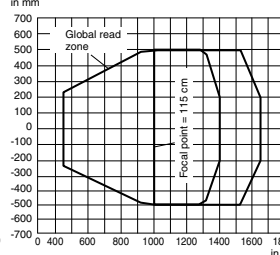
read characteristics at resolution: 0.20 mm (8 mils) in mm



NOTE (0.0) is the center of the laser beam output window.

Reading characteristics VB34*OM*

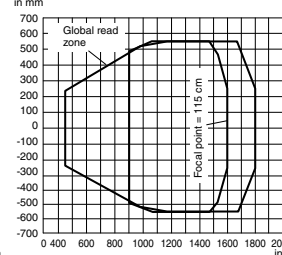
read characteristics at resolution: 0.375 mm (15 mils) in mm



NOTE (0.0) is the center of the laser beam output window.

Reading characteristics VB34*OM*

read characteristics at resolution: 0.5 mm (20 mils) in mm



NOTE (0.0) is the center of the laser beam output window.



Model Number

CBX100

Connector box for barcode scanner

Features

- Connect up to 32 scanners to a network with ID-Net™
- Option of upgrading with memory module
- Easy scanner connection by means of clamp terminals
- Protection degree IP65

Function

The devices of the CBX* series are connection boxes for industrial use which enable quick connection of barcode readers as well as their configuration and maintenance.

Thanks to a reduction of the installation time and equipment downtime (when a device is replaced) your operating expenses will be considerably lower.

Installation is simple thanks to easily reachable through mounting holes and the removable housing lid.

The standardized pin configuration of the terminal block and all other connections as well as the simple fastening of the cable ends using spring-type terminals ensure an easy installation of the cables.

You can save the configuration of the connected scanner using backup modules and can be used again.

Technical data

Indicators/operating means

Display elements	optional: LC display (20 characters/4 lines) 5 LEDs (POWER, TRIGGER, IN 2, OUT 1, OUT 2)
Operating elements	3 Operating buttons

Electrical specifications

Operating voltage U_B	10 ... 30 V DC
Current consumption	max. 2.5 A
Power consumption P_0	max. 0.5 W

Interface

Interface type	RS 232/RS 485
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Standard conformity

Standards	EN 60947-5-2
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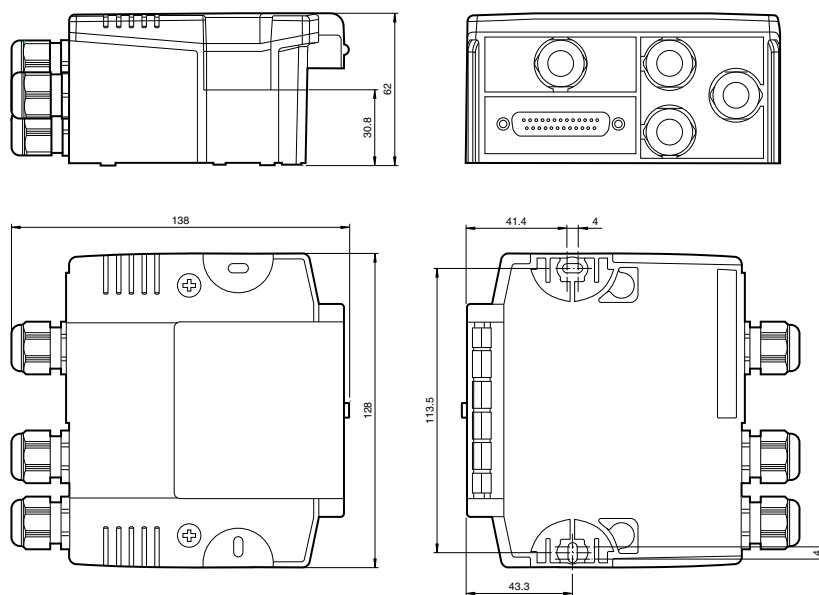
Ambient conditions

Ambient temperature	-10 ... 50 °C (263 ... 323 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Relative humidity	90 % , non-condensing
Shock resistance	EN 60068-2-27 30G 11 ms ; 3 impacts on each axis
Vibration resistance	EN 60068-2-6 1.5 mm 10 ... 55 Hz ; 2 hours on each axis

Mechanical specifications

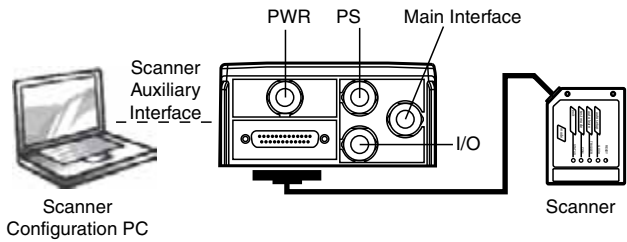
Protection degree	IP65
Connection	25-pin Sub-D socket for Barcode scanner , Cable screwed connection M16 for system connection (4x)
Material	
Housing	PC (Polycarbonate)
Mass	380 g

Dimensions



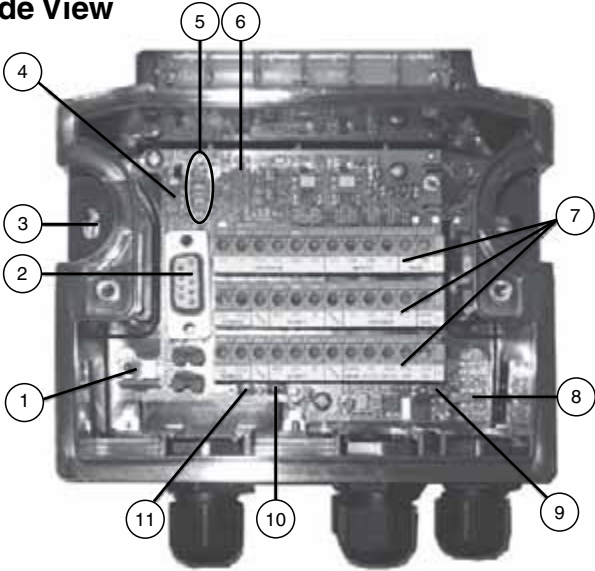


Electrical connection



Electrical connection

Inside View



- | | |
|-----------------------------------|---|
| ① Power Switch (on/off) | ⑧ RS485 Terminator Switch |
| ② Serial Interface (SUB-D, 9-pin) | ⑨ External Power Source (on/off) |
| ③ Mounting Holes (2x) | ⑩ Adjustment of Shield to Protection Earth via Jumper |
| ④ ID-NET Terminator Switch | ⑪ Adjustment of Chassis Grounding via Jumper |
| ⑤ LEDs | |
| ⑥ Backup Module connector | |
| ⑦ Terminal Block | |



Model Number

CBX500

Connector box for barcode scanner

Features

- Connect up to 32 scanners to a network with ID-Net™
- Option of upgrading with Profibus, Ethernet and DeviceNet module as well as memory module
- Easy scanner connection by means of clamp terminals
- Protection degree IP65

Function

The devices of the CBX* series are connection boxes for industrial use which enable quick connection of barcode readers as well as their configuration and maintenance.

Thanks to a large number of connection options, you can - depending on the purpose - connect modules for all commonly available field bus systems without problems.

Thanks to a reduction of the installation time and equipment downtime (when a device is replaced) your operating expenses will be considerably lower.

Installation is simple thanks to easily reachable through mounting holes and the removable housing lid.

The standardized pin configuration of the terminal block and all other connections as well as the simple fastening of the cable ends using spring-type terminals ensure an easy installation of the cables.

You can save the configuration of the connected scanner using backup modules and can be used again.

Technical data

Indicators/operating means

Display elements	optional: LC display (20 characters/4 lines) 5 LEDs (POWER, TRIGGER, IN 2, OUT 1, OUT 2)
Operating elements	3 Operating buttons

Electrical specifications

Operating voltage U_B	10 ... 30 V DC
Current consumption	max. 2.5 A
Power consumption P_0	max. 0.5 W

Interface

Interface type	Modular upgrade option (e.g. PROFIBUS, Ethernet, DeviceNet)
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Standard conformity

Standards	EN 60947-5-2
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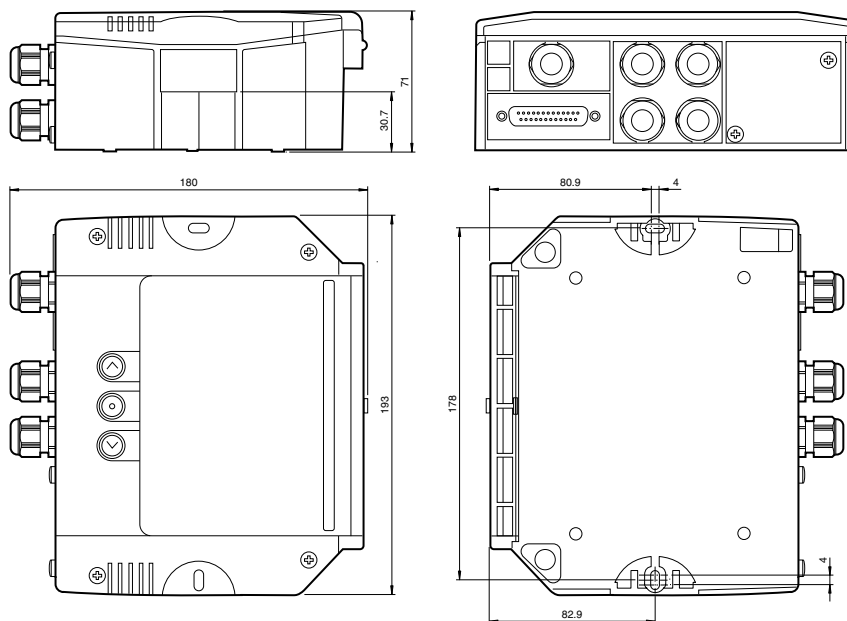
Ambient conditions

Ambient temperature	-10 ... 50 °C (263 ... 323 K)
Storage temperature	-20 ... 70 °C (253 ... 343 K)
Relative humidity	90 % , non-condensing
Shock resistance	EN 60068-2-27 30G 11 ms ; 3 impacts on each axis
Vibration resistance	EN 60068-2-6 1.5 mm 10 ... 55 Hz ; 2 hours on each axis

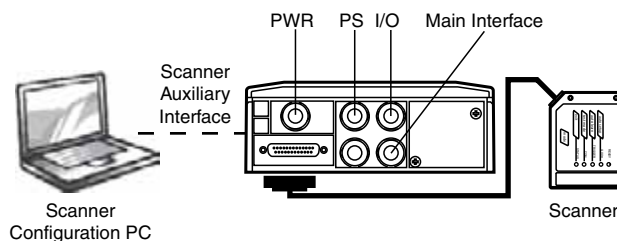
Mechanical specifications

Protection degree	IP65
Connection	25-pin Sub-D socket for Barcode scanner , Cable screwed connection M16 for system connection (5x)
Material	
Housing	PC (Polycarbonate)
Mass	780 g

Dimensions

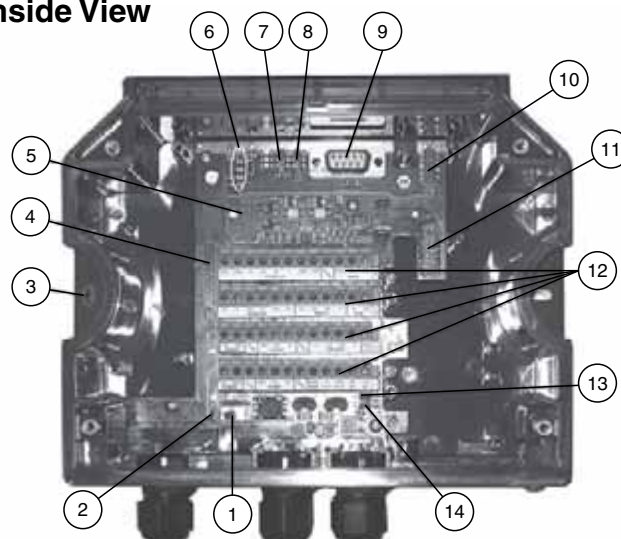


Electrical connection



Electrical connection

Inside View



- | | |
|--|--|
| 1 Power switch (on/off) | 8 ID-NET Terminator Switch |
| 2 Adjustment of Chassis grounding via Jumper | 9 Serial Interface (SUB-D, 9-pin) |
| 3 Mounting Holes (2x) | 10 IP65 Fieldbus Module Connector |
| 4 Remote I/O Extension Module Connector | 11 Standard Fieldbus Module Connector |
| 5 Backup Module Connector | 12 Terminal Block |
| 6 LEDs | 13 Adjustment of Shield to Protection Earth via Jumper |
| 7 RS485 Terminator Switch | 14 External Power Source (on/off) |

9 Data Matrix code

The Data Matrix code intelligently advances the barcode. Along with the advantages of the barcode, it also provides the following improved features:

- higher volumes of data at low memory requirements

- Standardized Data Matrix codes
- Omni-directional reading
- Reading on uneven surfaces
- Automatic error correction without data loss
- Possible to laser inscribe material

Data Matrix Fundamentals

Data Matrix codes are “two-dimensional barcodes” in which data is not encoded by variably thick, parallel-arranged black and white lines, as in barcodes, but rather by the arrangement of modules in a square or rectangular base area within a border.

Data Matrix codes always consist of three main components:

- **Finder Pattern:** Defines the overall height of the Data Matrix code, provides orientation while reading, and enables recognition of any distortions.
- **Alternating Pattern:** Determines the number of modules within the code matrix.
- **Data Region:** Contains the data, furnished with an error correction process, which detects errors and corrects them within certain constraints.

The symbol size of a Data Matrix code is defined by the number of its modules and represents the data content of the Data Matrix codes. In the example to the left, the symbol size of the Data Matrix code is 10 x 10 modules, but the Data Region only 8 x 8 modules (depending on Finder Pattern and Alternating Pattern).

In theory, Data Matrix codes are fully scalable. Yet in practice, the actual size is dependent on the read device used, the resolution of the Data Matrix code and the print quality.

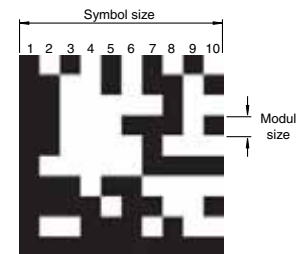
The smallest Data Matrix codes are achieved with laser inscription.



ODT-MAC400 (straight design)



ODT-MAC401 (angled design)



Finder Pattern



Alternating Pattern



Data Region



9.1 Functional principle of Data Matrix readers

With the help of a camera, Data Matrix readers take a snapshot of the code, which is then evaluated by an integrated signal processor.

Illumination

Integrated LED flashes as well as external illumination units precisely correlate image-capture time and trigger signal. This is how images are ideally illuminated. Disruptions to operating personnel are avoided, heat generation is reduced, and high travel speeds are enabled.

Reflecting surfaces

An optical anti-reflection system means it is usually unnecessary to tilt the reader and thus prevents distortions and problems of depth of focus.

Speed

A digital signal processor enables up to 1.2 billion instructions per second and assesses the images taken in real time. A Data Matrix ECC 200 code achieves a travel speed of 10 m/s and 60 reads per second at a symbol size of 16 x 16 modules and a module size of 0.35 .

Position-independent reading

It is not absolutely necessary to align the codes. Distortions that are brought on, for example, by applying codes to round surfaces, are automatically corrected by the reader. The trigger signal can even be completely dispensed with a low travel speed through the "Finder Pattern" in the code.

Software tools

Every reader includes a CD that contains Windows-based parameterization and diagnosis software for configuring and diagnosing, as well as software that simply converts ASCII characters into printable Data Matrix codes. These software tools can be found at www.pepperl-fuchs.com.

9.2 Data Matrix code ECC 200 symbol sizes and data contents

Example:

In order to encode 40 numerical characters, a matrix size of 18 x 18 is needed and, due to the additional pattern, a symbol size of 30x20, according to the 6th line in the table.

For a module size of, for instance, 0.3 mm
(0.3 x 20) mm x (0.3 x 20) mm = 6 mm x 6 mm plus
a quiet zone of at least 2 module widths around the code
is the required space.
A module should consist of at least 5 pixels.

An example for calculating printer resolution:
1 dot/inch = 1 dot/25.4 mm = 0.039 dot/mm
5 dot/0.3 mm = 5 dot/0.3 x 0.039 inch = 423 dpi

The example illustrates that a print resolution of 423 dpi is needed for printing the smallest-possible codes of 0.3 mm.

Symbol Size ¹		Data Region		Mapping	Total		Reed-Solomon		Inter-	DataCapacity			Error	Max. Correctable
Row	Col	Size	Number	Matrix Size	Data	Error	Data	Error	leaved Blocks	Num. Cap.	Alphanum. Cap.	Byte Cap.	Correction Overhead	Codeword % Error/Erasure
10	10	8x8	1	8x8	3	5	3	5	1	6	3	1	62.5	2/+
12	12	10x10	1	10x10	5	7	5	7	1	10	6	3	58.3	3/+
14	14	12x12	1	12x12	8	10	8	10	1	16	10	6	55.6	5/7
16	16	14x14	1	14x14	12	12	12	12	1	24	16	10	50	6/9
18	18	16x16	1	16x16	18	14	18	14	1	36	25	16	43.8	7/11
20	20	18x18	1	18x18	22	18	22	18	1	44	31	20	45	9/15
22	22	20x20	1	20x20	30	20	30	20	1	60	43	28	40	10/17
24	24	22x22	1	22x22	36	24	36	24	1	72	52	34	40	12/21
26	26	24x24	1	24x24	44	28	44	28	1	88	64	42	38.9	14/25
32	32	14x14	4	28x28	62	36	62	36	1	124	91	60	36.7	18/33
36	36	16x16	4	32x32	86	42	86	42	1	172	127	84	32.8	21/39
40	40	18x18	4	36x36	114	48	114	48	1	228	169	112	29.6	24/45
44	44	20x20	4	40x40	144	56	144	56	1	288	214	142	28	28/53
48	48	22x22	4	44x44	174	68	174	68	1	348	259	172	28.1	34/65
52	52	24x24	4	48x48	204	84	102	42	2	408	304	202	29.2	42/78
64	64	14x14	16	56x56	280	112	140	56	2	560	418	278	28.6	56/106
72	72	16x16	16	64x64	368	144	92	36	4	736	550	366	28.1	72/132
80	80	18x18	16	72x72	456	192	114	48	4	912	682	454	29.6	96/180
88	88	20x20	16	80x80	576	224	144	56	4	1152	862	574	28	112/212
96	96	22x22	16	88x88	696	272	174	68	4	1392	1042	694	28.1	136/260
104	104	24x24	16	96x96	816	336	136	56	6	1632	1222	814	29.2	168/318
120	120	18x18	36	108x108	1050	408	175	68	6	2100	1573	1048	28	204/390
132	132	20x20	36	120x120	1304	496	163	62	8	2608	1954	1302	27.6	248/472
144	144	22x22	36	132x132	1558	620	156	62	8*	3116	2335	1556	28.5	310/590
							155	62	2*					

¹ Note: Symbol size does not include quiet zone.

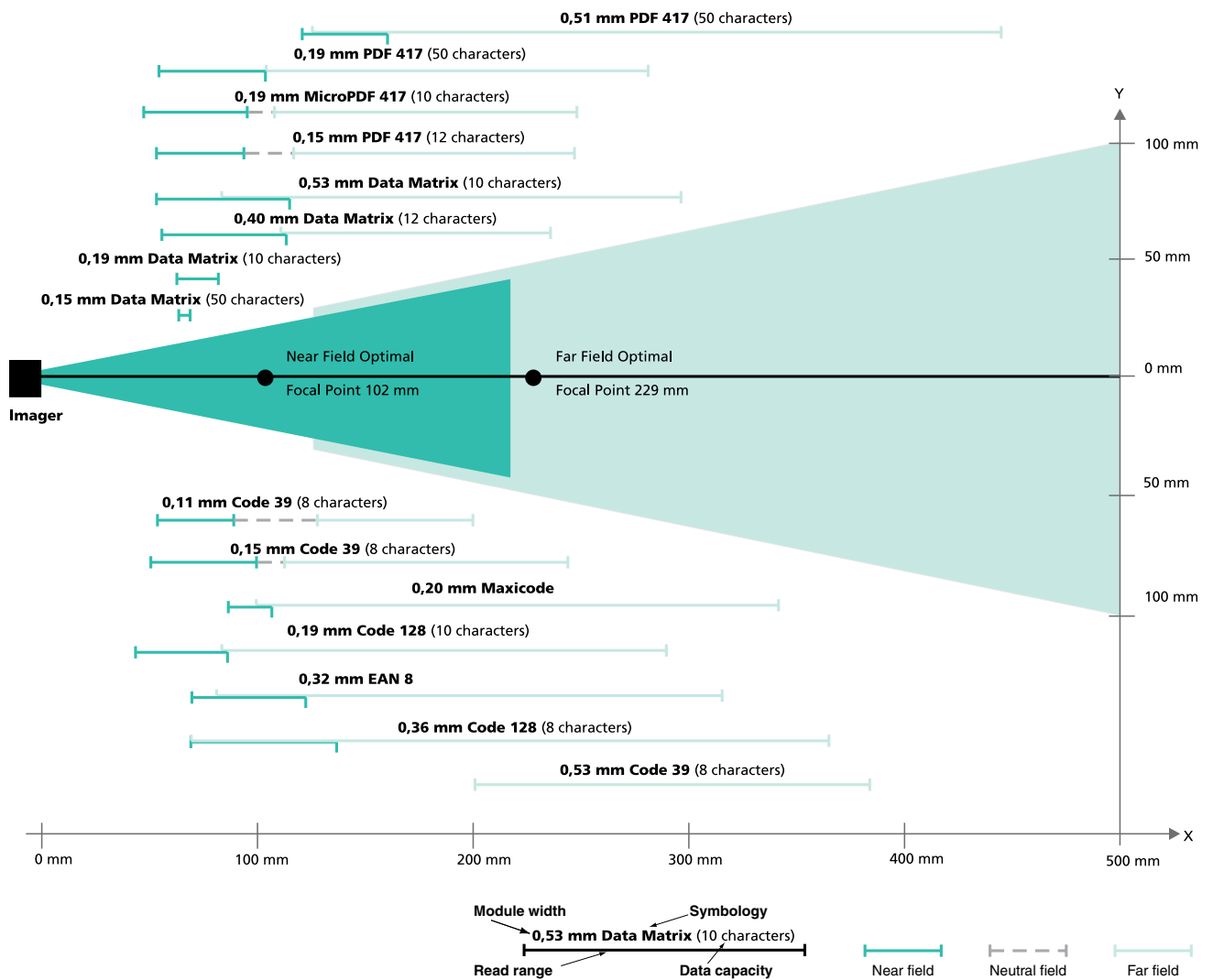
* Note: In the largest symbol (144x144), the first eight Reed-Solomon blocks shall be 218 codewords long encoding 156 data codewords. The last two blocks shall encode 217 codewords (155 data codewords). All the blocks have 62 error correction codewords.

+ Note: Does not apply

Source: ISO/IEC 16022:2000

9.3 Read range of the ODT-HH-MAH200-* and ODT-MAC333

Depending on the reader's focal point and symbology, the following read ranges result



iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

9.4 Overview of stationary readers

			
Order code	ODT-MAC333	ODT-MAC344-*	ODT-MAC4*
Page	232	234	236-240
General data			
Read distance	50 ... 500 mm dependence on code symbology	32 mm	60 mm
Depth of focus	-50 mm/240 mm	± 3 mm	± 5 mm
Read field	max. 125 mm x 200 mm	29 mm x 24 mm	30 mm x 20 mm ... 50 mm x 30 mm
Symbolologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock	Pharmacode , Data Matrix ECC 200	Data Matrix ECC 200
Object speed	Standstill	triggered ≤6 m/s	triggered ≤6 m/s
Interfaces	RS 232	RS 232	RS 232, Ethernet
Display/controls			
LEDs	-	Trigger, Good/Bad reading	Good/Bad reading
Nominal ratings			
Processor			
Pulse frequency	400 MHz	150 MHz	600 MHz
Models	-	ODT-MAC344-RED ODT-MAC344-WHITE	ODT-MAC400-ND-RD ODT-MAC401-ND-RD ODT-MAC401-LD-RD-MC

9.5 Overview of handheld Data Matrix readers

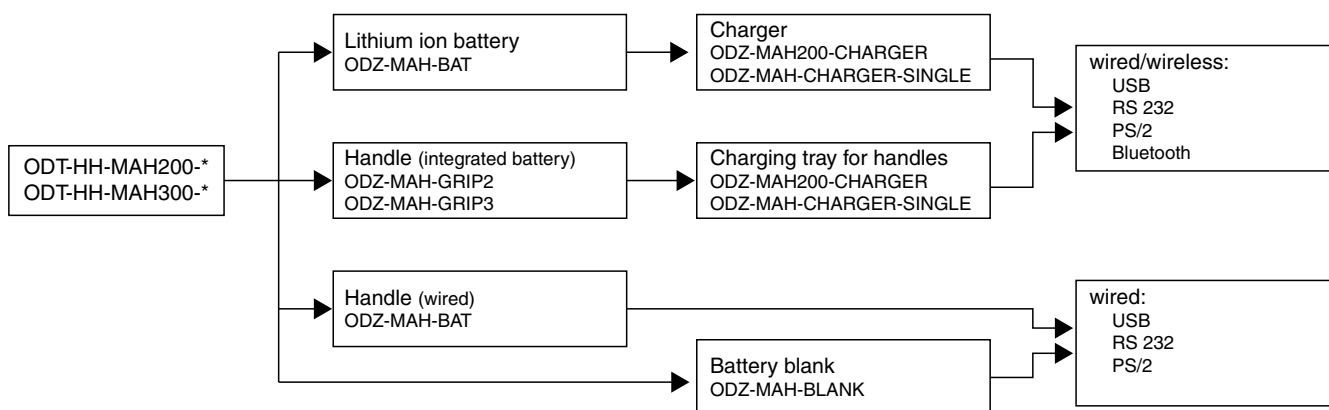
			
Order code	ODT-HH-MAH120-*	ODT-HH-MAH200-*	ODT-HH-MAH300-*
Page	246	242	244
General data			
Symbolologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock		
Read distance	20 ... 150 mm dependence on code symbology		50 ... 500 mm dependence on code symbology and size
Read field	max. 80 mm x 100 mm		max. 125 mm x 200 mm
Sensor system	Camera system		
Interface			
Physical	USB 2.0, RS 232 or PS/2		USB 1.1, PS/2, RS 232
Protocol	ASCII		ASCII
Displays and controls			
Pushbuttons	-	2 freely programmable trigger buttons (3 freely programmable trigger buttons with mounted handle)	
Keyboard	-	-	Keypad for entering alphanumeric characters
Display	-	-	LC display 128 x 128 pixels, monochrome
Models	ODT-HH-MAH120-HD ODT-HH-MAH120-WD-HD	ODT-HH-MAH200 ODT-HH-MAH200-B15	ODT-HH-MAH300 ODT-HH-MAH300-B15

9.6 Overview of accessories for handheld devices

Pepperl+Fuchs provides various accessories for readers from the ODT-HH-MAH* product line. The following table shows the accessories that go with each reader.

	Designation	ODT-HH-MAH120-*	ODT-HH-MAH200	ODT-HH-MAH200-B15	ODT-HH-MAH300	ODT-HH-MAH300-B15	Page
Handles							
ODZ-MAH-GRIP1	Handle with trigger button and battery compartment cover		◆	◆	◆	◆	248
ODZ-MAH-GRIP2	Handle with trigger button and integrated battery (1950 mAh)		◆	◆	◆	◆	248
ODZ-MAH-GRIP3	Handle with trigger button and integrated battery (3900 mAh)		◆	◆	◆	◆	249
Lithium ion battery							
ODZ-MAH-BAT	Lithium ion battery (1950 mAh)		◆	◆	◆	◆	252
ODZ-MAH-BLANK	Battery compartment cover		◆	◆	◆	◆	252
Chargers							
ODZ-MAH200-CHARGER	Charger for ODT-HH-MAH200		◆	◆			253
ODZ-MAH-CHARGER-SINGLE	Charger for ODT-HH-MAH200/300		◆	◆	◆	◆	253
ODZ-MAH-CHARGER	Charger for ODT-HH-MAH* with mounted handle		◆	◆	◆	◆	253
Power supplies							
ODZ-MAH200-SUPPLY	Power supply	◆	◆	◆	◆	◆	252
ODZ-MAC-PWR-24V	Power supply 24 V DC						256
ODZ-MAC-CAB-24V-R2-2M	Connection cable for power supply/RS 232						255
Cables							
ODZ-MAH-CAB-CHARGE	Cable for power supply		◆	◆	◆	◆	255
ODZ-MAC-CAB-15POL-2.5M	Connecting cable, sub-D connector, 15-pin						255
ODZ-MAH-CAB-B14	USB interface connecting cable	◆	◆	◆	◆	◆	254
ODZ-MAH-CAB-R6	PS/2 interface connecting cable	◆	◆	◆	◆	◆	254
ODZ-MAH-CAB-R2	RS connecting cable 232 interface	◆	◆	◆	◆	◆	254
ODZ-MAC-CAB-VIDEO	VGA video cable						256
Brackets							
ODZ-MAH300-BRACKET	Brackets for readers with displays				◆	◆	250
ODZ-MAH200-BRACKET	Bracket for ODT-HH-MAH200-*		◆	◆			250
ODZ-MAH120-BRACKET-W	Wall-mounting bracket for ODT-HH-MAH120-*	◆					251
Interface accessories							
ODZ-MAH-B15-M3	Bluetooth modem, configured to USB			◆		◆	257
ODZ-MAH200-B15-B14	Bluetooth-USB dongle			◆		◆	257
ODZ-TRIGGERBOX	Triggerbox for stationary readers						247
Software							
ODZ-MAH200-CODEROUTER	Code-router software		◆	◆	◆	◆	258
ODS-MAH-B15-ENCRYPT	Software for encrypted Bluetooth monitoring			◆		◆	258
ODS-MAH-RULERUNNER	Rule Runner Java Script license	◆	◆	◆	◆	◆	258

Graphic assistance with selection



9.7 Data Matrix in different applications

Depending on your application needs, Pepperl+Fuchs supplies device versions that are optimized

- for high movement speeds and low cycle times
- for required read distance and positioning accuracy (depth of focus)
- for the applied symbology, module and code size
- for different read only tag contrasts and materials

Pharmaceutical industry

Data Matrix ensures the safe allocation of box, patient information leaflets and the drug in the blister pack.



Lettershop

Document tracking at shipment immediately confirms whether a letter has been sent yet or not. Even postage can already be paid per Data Matrix code, which is often used.



Factory automation

Data Matrix codes can even be affixed to circuit boards with little space. This means that the production as well as the fitting of components can be controlled and ensures traceability for the customer.



Medical technology

Even a Data Matrix code that has been directly inscribed by laser can be reliably read and thus provides for reliable hygiene and instrument changes in hospitals.





Edition: 2009-03-01 Catalogue Identification Systems 2009

High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
----------------------------------	------------------------	--------------------	------------------------------	-----------------------------	-------------------	---------------------	------------------	-----------------	-------------------	-----------------	-----------------	--------------

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

Laser Class 2M

Model Number

ODT-MAC333

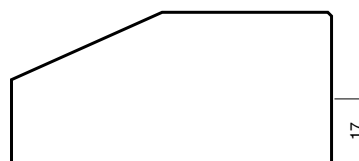
Stationary read device for standstill reads of all common 1D, 2D and Pharmacodes with variable read distance up to 500 mm

Features

- All common 1D or 2D codes can be read
- 3 readings per seconds
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold

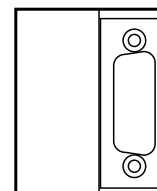
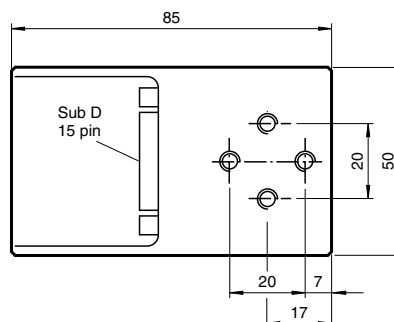
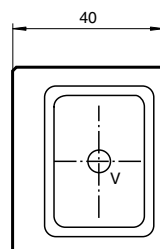
Dimensions

Mounting:
4x thread M5,
depth max. 8 mm
conductive connection
with machine



read field at 100 mm
approx. 35 mm (h)
and 44 mm (v)

read field at 200 mm
approx. 70 mm (h)
and 44 mm (v)



Function

The ODT-MAC333 is a stationary scanner for identification or online data acquisition of products with all commonly used 1D and 2D barcodes.

The ODT-MAC333 has a 1.3-million-pixel CMOS sensor and a 400-MHz processor. This combination has served as the basis for a scanning system with performance features that include the following:

- Decoding of all commonly used 1D codes (barcodes) and 2D codes (stacked codes and matrix codes)
- Omnidirectional reading of all codes with high evaluation speed
- Reads high-density as well as medium and low-density codes
- Large scanning range for both surface and distance

The device optical system is divided into two parts. This results in a field of vision that is subdivided into a close range for smaller 2D codes and a remote range for larger 1D codes. The two field of vision ranges are evaluated simultaneously with the aid of the processors integrated into the scanner. The optimum scanning distance for close range (2D codes) is 10 cm, for remote range (1D codes) 23 cm. To scan larger symbols, you can mount the ODT-MAC333 at a greater distance from the code.

Accessories

ODZ-MAC-CAB-24V-R2-2M

Connecting cable for power supply/RS 232

ODZ-TRIGGERBOX-SK

Trigger box for fixed mounted readers

ODS-MAH-RULERUNNER

Rule Runner Java Script license.

Technical data

General specifications

Laser class	2M
Reading distance	50 ... 500 mm Depending on code symbology
Reading field	max. 125 mm x 200 mm
Modul size	≥ 0.15 mm
Sensor principle	Camera system
Light type	Integrated LED lightning (red)
Target velocity	Standstill
Symbologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock , Pharma code

Data Matrix	
Symbol size	rectangular up to 144 x 144 modules rectangular up to 16 x 48 modules
Orientation	omnidirectional

Nominal ratings

Camera	
Type	CMOS
Number of pixels	1024 x 640 pixels per focus point
Grey scale	256
Image recording	real-time , program controlled or external triggered
Processor	
Clock pulse frequency	400 MHz
Digital resolution	8 Bit

Electrical specifications

Operating voltage U_B	24 V DC ± 15% , PELV
Operating current	max. 100 mA

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	9600 ... 115200 Bit/s

Input

Input voltage	24 V DC ± 15 % PELV
Number/Type	1 Trigger input
Input current	approx. 1 mA at 24 V DC

Output

Number/Type	1 electronic output, PNP, optically decoupled
Switching voltage	to be applied externally 24 V +/- 15 % PELV
Switching current	100 mA

Compliance with standards and directives

Directive conformity	
EMC Directive 89/336/EEC	EN 61326, EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326:2002-03
Emitted interference	EN 61000-6-4:2001
Protection degree	EN 60529
Laser class	IEC 60825-1

Ambient conditions

Ambient temperature	0 ... 40 °C (273 ... 313 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	Supply/interfaces/in- and outputs: 15-pin Sub-D connector
Material	
Housing	anodised aluminium
Mass	approx. 175 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Model Number

ODT-MAC344-RED
ODT-MAC344-WHITE

Stationary read device with offset control unit for Data Matrix ECC 200 and Pharmacode

Features

- 25 readings per seconds
- 6 m/s motion speed
- Omni-directional reading
- Progressive scan
- evaluation of up to 256 grey values with adaptive grey value threshold
- VGA output
- Compact design and remote evaluation unit for easy mounting in confined spaces

Accessories

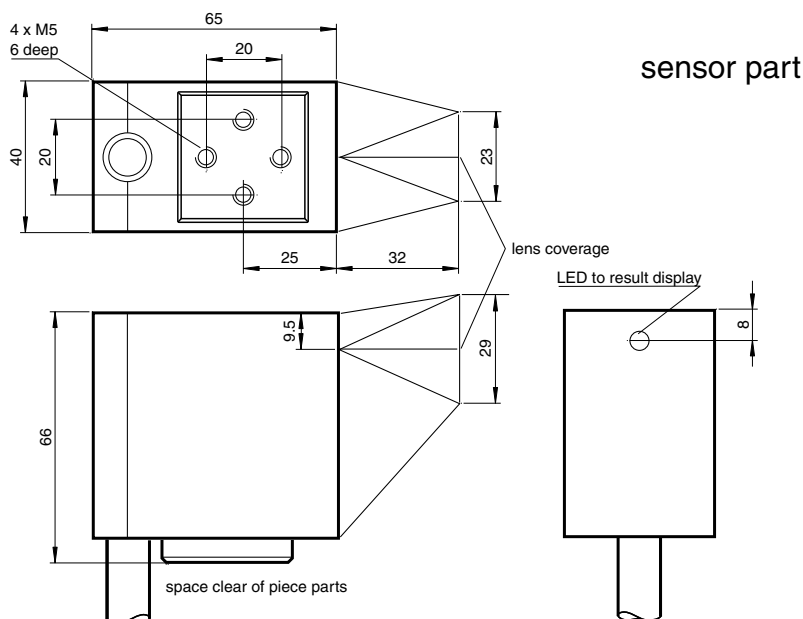
ODZ-MAC-CAB-VIDEO

Video cable VGA

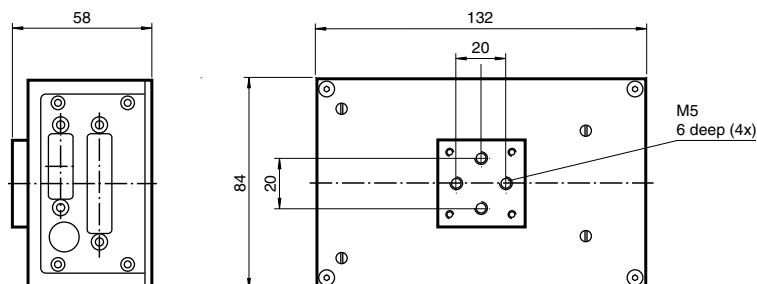
ODZ-MAC-CAB-24V-R2-2M

Connecting cable for power supply/RS 232

Dimensions



evaluating processor unit



Technical data

ODT-MAC344-RED		ODT-MAC344-WHITE
General specifications		
Reading distance	32 mm	
Depth of focus	± 3 mm	
Reading field	29 mm x 24 mm	
Modul size	≥ 0.25 mm	
Sensor principle	Camera system	
Light type	Integrated LED lightning (red)	Integrated LED lightning (white)
Evaluation frequency	25 Hz	
Target velocity	triggered ≤ 6 m/s	
Symbologies	Pharma code , Data Matrix ECC 200	
Data Matrix		
Symbol size	rectangular up to 48 x 48 modules rectangular up to 16 x 48 modules	
Data format	ASCII, C40, Text, X12, Edifact, Base 256 , all according to ISO 646	ASCII, C40, Text, X12, Edifact, Base 256 , all according to ISO 646
Data capacity	348 numerical, 259 ASCII, 172 Byte	
Orientation	omnidirectional	
Nominal ratings		
Camera		
Type	progressive scan CCD	
Chip size	1/3 " (5.84 mm x 4.94 mm)	
Number of pixels	640 x 480 pixels	
Grey scale	256	
Image recording	real-time , Program-controlled or triggered externally	
Processor		
Clock pulse frequency	150 MHz	
Speed of computation	1200 MIPS	
Digital resolution	8 Bit	
Indicators/operating means		
LED indicator	Trigger, good/poor reading	
Electrical specifications		
Operating voltage U _B	24 V DC ± 15% , PELV	
Operating current	max. 250 mA	
Interface		
Physical	RS 232	
Protocol	ASCII	
Transfer rate	9600 ... 115200 Bit/s	
Input		
Input voltage	24 V DC ± 15 % PELV	
Number/Type	1 Trigger input optional up to 4 inputs	
Input current	approx. 1 mA at 24 V DC	
Output		
Number/Type	2 electronic outputs, PNP , optically decoupled optional up to 4 outputs	
Switching voltage	to be applied externally 24 V +/- 15 % PELV	
Switching current	100 mA each output	
Compliance with standards and directives		
Directive conformity		
EMC Directive 89/336/EEC	EN 61326, EN 61000-6-4	
Standard conformity		
Interference rejection	EN 61326:2002-03	
Emitted interference	EN 61000-6-4:2001	
Protection degree	EN 60529	
Ambient conditions		
Ambient temperature	0 ... 45 °C (273 ... 318 K)	
Mechanical specifications		
Protection degree	IP20	
Connection	Video: socket, 15-pin Supply/interfaces/in- and outputs: 15-pin Sub-D connector	
Material		
Housing	anodised aluminium	
Mass	approx. 750 g	

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System



Model Number

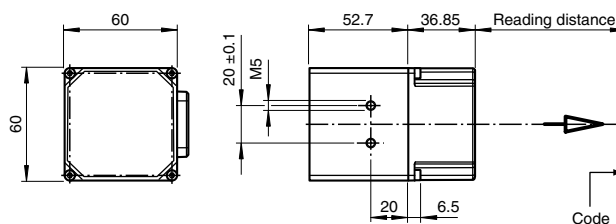
ODT-MAC400-ND-RD

Stationary high-speed read device for code speeds up to 20 m/s and 60 fps, Data Matrix ECC 200 Code, straight line of sight, VGA resolution, Ethernet, RS 232

Features

- Up to 60 readings per second
- Movement speeds of up to 20 m/s
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold
- VGA output
- Simple focussing via laser pointers
- Integrated error image memory

Dimensions



Function

The stationary reader ODT-MAC400-ND-RD is a reading system for the recognition of data matrix codes. With a powerful signal processor and optimized decoding algorithms, the device delivers extremely high reading speeds.

Within the system family, several models are available to select from for optimum process integration:

1. with normal or high resolution imagesensor
2. in straight or angled viewing orientation

The configuration is easy and comfortable via the standard Ethernet interface using a standard web browser or via serial port.

The device is supported by an integrated laser pointer and the VGA video output. In addition, the device has an integrated error image memory and can be expanded with standard MMC memory cards.

Typical operative range of stationary readers are:

- Document handling
- Printing machines
- Identification in packaging and warehousing technology
- Detection of PCBs

Accessories

ODZ-MAC-CAB-VIDEO

Video cable VGA

ODZ-MAC-CAB-24V-R2-2M

Connecting cable for power supply/RS 232

ODZ-MAC-CAB-15POL-2,5M-FEMALE

Connecting cable Sub-D jack, 15-pin

ODZ-MAC-CAB-15POL-5M-FEMALE

Connecting cable Sub-D jack, 15-pin

ODZ-TRIGGERBOX-SK

Trigger box for fixed mounted readers

V45-G-10M-V45-G

Network cable RJ-45, Category 5

ODZ-MAC-PWR-24V

Netzteil 24 V DC

Technical data

General specifications

Reading distance	60 mm
Depth of focus	± 5 mm
Reading field	30 mm x 20 mm
Modul size	≥ 0.2 mm
Sensor principle	Camera system
Light type	Integrated LED lightning (red)
Evaluation frequency	60 Hz
Target velocity	triggered ≤ 20 m/s
Symbologies	Data Matrix ECC 200
Data Matrix	

Symbol size	rectangular up to 48 x 48 modules rectangular up to 16 x 48 modules
Data format	ASCII, C40, Text, X12, Edifact, Base 256, all according to ISO 646
Data capacity	348 numerical, 259 ASCII, 172 Byte
Orientation	omnidirectional

Nominal ratings

Camera	
Type	CMOS, Global shutter
Number of pixels	752 x 480 pixels
Grey scale	256
Image recording	real-time, Program-controlled or triggered externally
Processor	
Clock pulse frequency	600 MHz
Speed of computation	4800 MIPS
Digital resolution	32 Bit

Indicators/operating means

LED indicator	for good/poor reading
---------------	-----------------------

Electrical specifications

Operating voltage U_B	24 V DC ± 15%, PELV
No-load supply current I_0	max. 250 mA
Power consumption P_0	6 W

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	9600 ... 115200 Bit/s
Cable length	max. 30 m

Interface 1

Interface type	Ethernet
Protocol	TCP/IP
Transfer rate	100 MBit/s
Cable length	max. 30 m

Input

Input voltage	to be applied externally 24 V ± 15% PELV
Number/Type	1 Trigger input optional up to 4 inputs
Input current	approx. 1 mA at 24 V DC
Cable length	max. 30 m

Output

Number/Type	2 electronic outputs, PNP, optically decoupled optional up to 4 outputs
Switching voltage	to be applied externally 24 V ± 15% PELV
Switching current	100 mA each output
Cable length	max. 30 m

Output 1

Output type	Video output, RGB (75 Ohm), 1 Vpp
Resolution	VGA, 640 x 480 pixels

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-1, EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326-1
Emitted interference	EN 61000-6-4
Protection degree	EN 60529
Laser class	IEC 60825-1

Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	Video: socket, 7-pin Supply/interfaces/in- and outputs: 15-pin Sub-D connector or M12
Material	
Housing	diecast zinc, powder coated
Mass	approx. 730 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Model Number

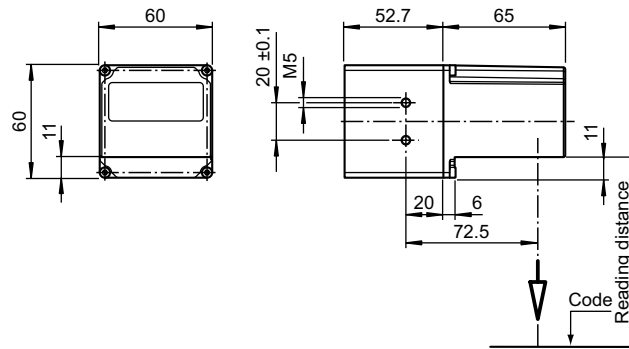
ODT-MAC401-ND-RD

Stationary high-speed read device for code speeds up to 20 m/s and 60 fps, Data Matrix ECC 200 Code, angled line of sight, VGA resolution, Ethernet, RS 232

Features

- Up to 60 readings per second
- Movement speeds of up to 20 m/s
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold
- VGA output
- Simple focussing via laser pointers
- Integrated error image memory

Dimensions



Function

The stationary reader ODT-MAC401-ND-RD is a reading system for the recognition of data matrix codes. With a powerful signal processor and optimized decoding algorithms, the device delivers extremely high reading speeds.

Several models within the system family are available to select from for the optimum process integration:

1. with normal or high resolution image sensor
2. in straight or angled viewing orientation

The configuration is easy and comfortable via the standard Ethernet interface using a standard web browser or via serial port.

The device is supported by an integrated laser pointer and the VGA video output. In addition, the device has an integrated error image memory and can be expanded with standard MMC memory cards.

Typical operative range of stationary readers are:

- Document handling
- Printing machines
- Identification in packaging and warehousing technology
- Detection of PCBs

Accessories

ODZ-MAC-CAB-VIDEO

Video cable VGA

ODZ-MAC-CAB-15POL-2,5M-FEMALE

Connecting cable Sub-D jack, 15-pin

V45-G-10M-V45-G

Network cable RJ-45, Category 5

ODZ-MAC-CAB-15POL-5M-FEMALE

Connecting cable Sub-D jack, 15-pin

ODZ-TRIGGERBOX-SK

Trigger box for fixed mounted readers

ODZ-MAC-PWR-24V

Netzteil 24 V DC

ODZ-MAC-CAB-24V-R2-2M

Connecting cable for power supply/RS 232

Technical data

General specifications

Reading distance	60 mm
Depth of focus	± 5 mm
Reading field	30 mm x 20 mm
Modul size	≥ 0.2 mm
Sensor principle	Camera system
Light type	Integrated LED lightning (red)
Evaluation frequency	60 Hz
Target velocity	triggered ≤ 20 m/s
Symbologies	Data Matrix ECC 200
Data Matrix	

Symbol size	rectangular up to 48 x 48 modules rectangular up to 16 x 48 modules
Data format	ASCII, C40, Text, X12, Edifact, Base 256, all according to ISO 646
Data capacity	348 numerical, 259 ASCII, 172 Byte
Orientation	omnidirectional

Nominal ratings

Camera	
Type	CMOS, Global shutter
Number of pixels	752 x 480 pixels
Grey scale	256
Image recording	real-time, Program-controlled or triggered externally
Processor	
Clock pulse frequency	600 MHz
Speed of computation	4800 MIPS
Digital resolution	32 Bit

Indicators/operating means

LED indicator	for good/poor reading
---------------	-----------------------

Electrical specifications

Operating voltage U_B	24 V DC ± 15%, PELV
No-load supply current I_0	max. 250 mA
Power consumption P_0	6 W

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	9600 ... 115200 Bit/s
Cable length	max. 30 m

Interface 1

Interface type	Ethernet
Protocol	TCP/IP
Transfer rate	100 MBit/s
Cable length	max. 30 m

Input

Input voltage	to be applied externally 24 V ± 15% PELV
Number/Type	1 Trigger input optional up to 4 inputs
Input current	approx. 1 mA at 24 V DC
Cable length	max. 30 m

Output

Number/Type	2 electronic outputs, PNP, optically decoupled optional up to 4 outputs
Switching voltage	to be applied externally 24 V ± 15% PELV
Switching current	100 mA each output
Cable length	max. 30 m

Output 1

Output type	Video output, RGB (75 Ohm), 1 Vpp
Resolution	VGA, 640 x 480 pixels

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-1, EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326-1
Emitted interference	EN 61000-6-4
Protection degree	EN 60529
Laser class	IEC 60825-1

Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	Video: socket, 7-pin Supply/interfaces/in- and outputs: 15-pin Sub-D connector or M12
Material	
Housing	diecast zinc, powder coated
Mass	approx. 760 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Model Number

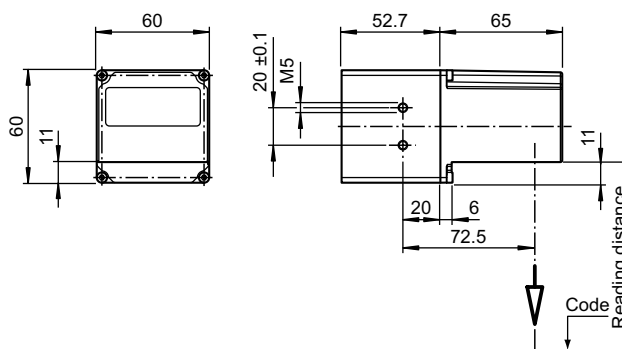
ODT-MAC401-LD-RD-MC

Stationary multicode read device for all common 1D, 2D and Pharmacodes at speeds of 10 m/s, angled line-of-sight, VGA resolution, Ethernet, RS 232

Features

- 30 scans per second
- 10 m/s motion speed
- All common 1D or 2D codes can be read
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold
- VGA output
- Simple focussing via laser pointers
- Integrated error image memory

Dimensions



Function

The stationary reader ODT-MAC401-LD-RD-MC is a reading system for the recognition of data matrix codes. With a powerful signal processor and optimized decoding algorithms, the device delivers extremely high reading speeds.

Several models within the system family are available to select from for the optimum process integration:

1. with normal or high resolution image sensor
2. in straight or angled viewing orientation

The configuration is easy and comfortable via the standard Ethernet interface using a standard web browser or via serial port.

The device is supported by an integrated laser pointer and the VGA video output. In addition, the device has an integrated error image memory and can be expanded with standard MMC memory cards.

Typical operative range of stationary readers are:

- Document handling
- Printing machines
- Identification in packaging and warehousing technology
- Detection of PCBs

Accessories

ODZ-MAC-CAB-15POL-2,5M-FEMALE
Connecting cable Sub-D jack, 15-pin

ODZ-MAC-CAB-15POL-5M-FEMALE
Connecting cable Sub-D jack, 15-pin

ODZ-MAC-CAB-24V-R2-2M
Connecting cable for power supply/RS 232

ODZ-MAC-CAB-VIDEO
Video cable VGA

V45-G-10M-V45-G
Network cable RJ-45, Category 5

ODZ-TRIGGERBOX-SK
Trigger box for fixed mounted readers

ODZ-MAC-PWR-24V
Netzteil 24 V DC

Technical data

General specifications

Reading distance	100 mm
Depth of focus	± 5 mm
Reading field	50 mm x 30 mm
Modul size	≥ 0.33 mm
Sensor principle	Camera system
Light type	Integrated LED lightning (red)
Evaluation frequency	30 Hz
Target velocity	triggered ≤ 10 m/s
Symbologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock, Pharmacode, OCR (A & B)

Data Matrix	
Symbol size	rectangular up to 48 x 48 modules rectangular up to 16 x 48 modules
Data format	ASCII, C40, Text, X12, Edifact, Base 256, all according to ISO 646
Data capacity	348 numerical, 259 ASCII, 172 Byte
Orientation	omnidirectional

Nominal ratings

Camera	
Type	CMOS, Global shutter
Number of pixels	752 x 480 pixels
Grey scale	256
Image recording	real-time, Program-controlled or triggered externally
Processor	
Clock pulse frequency	600 MHz
Speed of computation	4800 MIPS
Digital resolution	32 Bit

Indicators/operating means

LED indicator	for good/poor reading
---------------	-----------------------

Electrical specifications

Operating voltage U_B	24 V DC ± 15%, PELV
No-load supply current I_0	max. 250 mA
Power consumption P_0	6 W

Interface

Physical	RS 232
Protocol	ASCII
Transfer rate	9600 ... 115200 Bit/s
Cable length	max. 30 m

Interface 1

Interface type	Ethernet
Protocol	TCP/IP
Transfer rate	100 MBit/s
Cable length	max. 30 m

Input

Input voltage	to be applied externally 24 V ± 15% PELV
Number/Type	1 Trigger input optional up to 4 inputs
Input current	approx. 1 mA at 24 V DC
Cable length	max. 30 m

Output

Number/Type	2 electronic outputs, PNP, optically decoupled optional up to 4 outputs
Switching voltage	to be applied externally 24 V ± 15% PELV
Switching current	100 mA each output
Cable length	max. 30 m

Output 1

Output type	Video output, RGB (75 Ohm), 1 Vpp
Resolution	VGA, 640 x 480 pixels

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-1, EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326-1
Emitted interference	EN 61000-6-4
Protection degree	EN 60529
Laser class	IEC 60825-1

Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP20
Connection	Video: socket, 7-pin Supply/interfaces/in- and outputs: 15-pin Sub-D connector or M12
Material	
Housing	diecast zinc, powder coated
Mass	approx. 760 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Laser Class 2M

Model Number

ODT-HH-MAH200**ODT-HH-MAH200-B15**

Handheld Data Matrix reader for all current 1D and 2D barcodes, for wired and wireless operation

Features

- All common 1D or 2D codes can be read
- 3 readings per seconds
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold
- Wireless Bluetooth connection

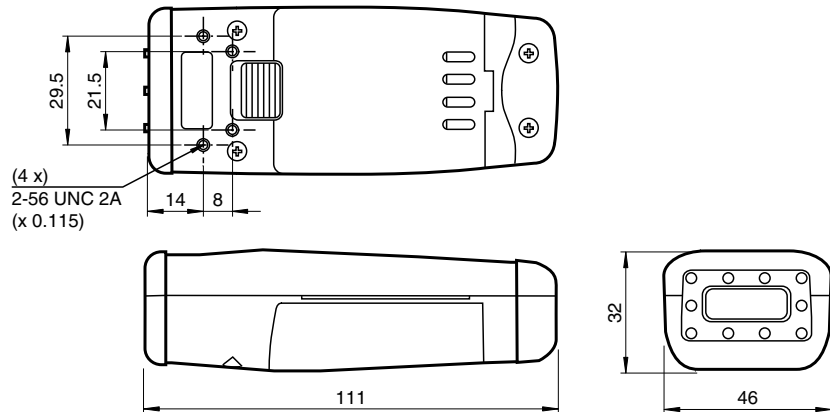
Function

The ODT-HH-MAH200 is a handheld, which is used to identify objects with 1D and 2D barcodes. With this, the handheld sets a new benchmark: Thanks to the CMOS-Sensor, with a resolution of 1.3 million pixels, an innovative lens coverage with 2 reading ranges and a 400 MHz processor, the light and quick handheld device is presented with the ODT-HH-MAH200, fulfilling all the requirements of an object identifier, comparable to that of a stationary reading device.

The unique Dynamic Optimization Technology (DOT) continuously adapts the resolution, illumination and reading range to enable fast identification and decoding of a wide range of symbology types, sizes, recording surfaces and ambient lighting. With DOT, the ODT-HH-MAH200 can decode 2D barcodes at speeds similar to those achieved when decoding 1D barcodes.

Data stored on the handheld can be smoothly transferred to a PC with a USB, RS 232 or PS/2 interface. For this purpose, an optimal accessory has been made available.

Dimensions



Accessories**ODZ-MAH-B15-M3**

Bluetooth modem, configured for USB

ODZ-MAH200-BRACKET

Bracket for ODT-HH-MAH200

ODZ-MAH-GRIP1

Handle with trigger button

ODZ-MAH-GRIP2

Handle with trigger switch and 1950 mAh battery

ODZ-MAH-GRIP3

Handle with trigger switch and 3900 mAh battery

ODZ-MAH-SUPPLY

Power supply

ODZ-MAH-CHARGER

Charging tray for ODZ-MAH-GRIP2/GRIP3

ODZ-MAH-CHARGER-SINGLE

Charger for ODT-HH-MAH200/300/I*T-HH20

ODZ-MAH200-CHARGER

Charger for ODT-HH-MAH200/ODZ-MAH-BAT

ODZ-MAH-CAB-CHARGE

Cable for power supply unit

ODZ-MAH-BAT

Lithium ion battery 1950 mAh

ODZ-MAH-BLANK

Battery blank

ODZ-MAH-CAB-R2

Connection cable RS 232 interface

ODZ-MAH-CAB-R6

Connecting cable PS/2 interface

ODZ-MAH-CAB-B14

Connecting cable, USB interface

ODS-MAH-RULERUNNER

Rule Runner Java Script license.

ODZ-MAH200-CODEROUTER

Code Router Software

ODS-MAH-B15-ENCRYPT

Software for encrypted Bluetooth transfer

Technical data

ODT-HH-MAH200		ODT-HH-MAH200-B15
General specifications		
Laser class	2M	
Reading distance	50 ... 500 mm Depending on code symbology	
Reading field	max. 125 mm x 200 mm	
Modul size	≥ 0.15 mm	
Sensor principle	Camera system	
Light type	Integrated LED lightning (red)	
Target velocity	Standstill	
Symbologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock	
Data Matrix		
Symbol size	rectangular up to 144 x 144 modules rectangular up to 16 x 48 modules	
Orientation	omnidirectional	
Nominal ratings		
Camera		
Type	CMOS	
Number of pixels	1024 x 640 pixels per focus point	
Grey scale	256	
Image recording	real-time , manually triggered	
Processor		
Clock pulse frequency	400 MHz	
Digital resolution	8 Bit	
Indicators/operating means		
Key	2 programmable function keys	
Electrical specifications		
Supply	from USB or integrated accumulator	
Interface		
Physical	USB 1.1 , RS 232 or PS/2	Bluetooth , USB 1.1 , RS 232 or PS/2
Protocol	ASCII	ASCII
Compliance with standards and directives		
Directive conformity		
EMC Directive 89/336/EEC	EN 55024	
Standard conformity		
Interference rejection	EN 61000-4-2/3/4/6, EN 55022	
Emitted interference	EN 55022	
Protection degree	EN 60529	
Laser class	IEC 60825-1	
Ambient conditions		
Ambient temperature	0 ... 40 °C (273 ... 313 K)	
Storage temperature	-20 ... 60 °C (253 ... 333 K)	
Mechanical specifications		
Protection degree	IP20	
Connection	System connector for connecting cable or handle	
Material		
Housing	plastic	
Mass	approx. 50 g	
Dimensions	109 mm x 46 mm x 33 mm	

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Laser Class 2M

Model Number

ODT-HH-MAH300

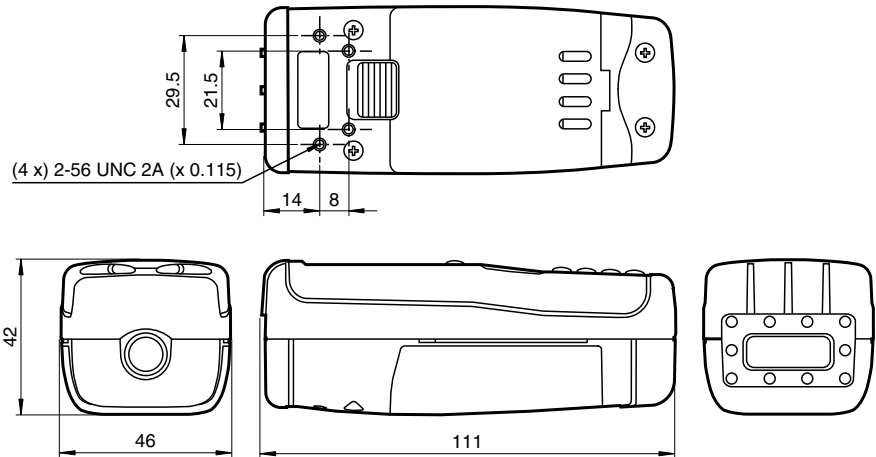
ODT-HH-MAH300-B15

Handheld Data Matrix reader for all current 1D and 2D barcodes, for wired and wireless operation, with keypad and LCD

Features

- All common 1D or 2D codes can be read
- 3 readings per seconds
- Omni-directional reading
- evaluation of up to 256 grey values with adaptive grey value threshold
- Keypad for entry of alphanumeric characters
- LCD display
- Free programming with JavaScript
- Wireless Bluetooth connection

Dimensions



Function

The ODT-HH-MAH200 is a handheld, which is used to identify objects with 1D and 2D barcodes. The ODT-HH-MAH300 uses the same ergonomic platform as the very successful ODT-HH-MAH200 and increases mobile reading of 1D and 2D barcodes to a graphic display and enables data entry or changes - via the keyboard.

The unique Dynamic Optimization Technology (DOT) continuously adapts the resolution, illumination and reading range to enable fast identification and decoding of a wide range of symbology types, sizes, recording surfaces and ambient lighting. With DOT, the ODT-HH-MAH300 can decode 2D barcodes at speeds similar to those achieved when decoding 1D barcodes.

Data stored on the handheld can be smoothly transferred to a PC with a USB, RS 232 or PS/2 interface. For this purpose, an optimal accessory has been made available.

Accessories

ODZ-MAH300-BRACKET

Bracket for hand-held units with displays

ODZ-MAH-B15-M3

Bluetooth modem, configured for USB

ODZ-MAH-GRIP1

Handle with trigger button

ODZ-MAH-GRIP2

Handle with trigger switch and 1950 mAh battery

ODZ-MAH-GRIP3

Handle with trigger switch and 3900 mAh battery

ODZ-MAH-SUPPLY

Power supply

ODZ-MAH-CHARGER

Charging tray for ODZ-MAH-GRIP2/GRIP3

ODZ-MAH-CHARGER-SINGLE

Charger for ODT-HH-MAH200/300/I*T-HH20

ODZ-MAH-CAB-CHARGE

Cable for power supply unit

ODZ-MAH-BAT

Lithium ion battery 1950 mAh

ODZ-MAH-BLANK

Battery blank

ODZ-MAH-CAB-R2

Connection cable RS 232 interface

ODZ-MAH-CAB-R6

Connecting cable PS/2 interface

ODZ-MAH-CAB-B14

Connecting cable, USB interface

ODZ-MAH200-CODEROUTER

Code Router Software

ODS-MAH-B15-ENCRYPT

Software for encrypted Bluetooth transfer

Technical data

	ODT-HH-MAH300	ODT-HH-MAH300-B15
General specifications		
Laser class	2M	
Reading distance	50 ... 500 mm Depending on code symbology	
Reading field	max. 125 mm x 200 mm	
Modul size	≥ 0.15 mm	
Sensor principle	Camera system	
Light type	Integrated LED lightning (red)	
Target velocity	Standstill	
Symbologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock	
Data Matrix		
Symbol size	rectangular up to 144 x 144 modules rectangular up to 16 x 48 modules	
Orientation	omnidirectional	
Nominal ratings		
Camera		
Type	CMOS	
Number of pixels	1024 x 640 pixels per focus point	
Grey scale	256	
Image recording	real-time , manually triggered	
Processor		
Clock pulse frequency	400 MHz	
Digital resolution	8 Bit	
Memory		
Non-volatile memory	4 MByte	
Indicators/operating means		
Display	LC-Display 128 x 128 Pixel, monochrom	
Keyboard	Keypad for entering alphanumerical characters	
Key	2 programmable function keys	
Electrical specifications		
Supply	from interface or deployed rechargeable battery	
Interface		
Physical	USB 1.1 , RS 232 or PS/2	Bluetooth , USB 1.1 , RS 232 or PS/2
Protocol	ASCII	ASCII
Compliance with standards and directives		
Directive conformity		
EMC Directive 89/336/EEC	EN 55024	
Standard conformity		
Interference rejection	EN 61000-4-2/3/4/6, EN 55022	
Emitted interference	EN 55022	
Protection degree	EN 60529	
Laser class	IEC 60825-1	
Ambient conditions		
Ambient temperature	0 ... 40 °C (273 ... 313 K)	
Storage temperature	-20 ... 60 °C (253 ... 333 K)	
Mechanical specifications		
Protection degree	IP20	
Connection	System connector for connecting cable or handle	
Material		
Housing	plastic	
Mass	approx. 180 g	
Dimensions	112 mm x 46 mm x 41 mm	

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System



Model Number

ODT-HH-MAH120-HD
ODT-HH-MAH120-WH-HD

Handheld for all standard 1D and 2D codes, high-density version

Features

- All common 1D or 2D codes can be read
- Omni-directional reading
- Optimal price/power ratio
- sturdy housing

Accessories

ODZ-MAH-SUPPLY

Power supply

ODZ-MAH120-BRACKET-W

Bracket for ODT-HH-MAH120

ODZ-MAH-CAB-R2

Connection cable RS 232 interface

ODZ-MAH-CAB-R6

Connecting cable PS/2 interface

ODZ-MAH-CAB-B14

Connecting cable, USB interface

ODZ-MAH120-BRACKET

Bracket for ODT-HH-MAH120

ODS-MAH-RULERUNNER

Rule Runner Java Script license.

ODZ-MAH200-CODEROUTER

Code Router Software

Technical data

	ODT-HH-MAH120-HD	ODT-HH-MAH120-WH-HD
General specifications		
Reading distance	20 ... 150 mm Depending on code symbology	
Reading field	max. 80 mm x 100 mm	
Modul size	≥ 0.15 mm	
Sensor principle	Camera system	
Light type	Integrated LED lightning (red)	Integrated LED lightning (white)
Target velocity	Standstill	
Symbologies	MaxiCode, PDF417, Data Matrix, QR Code, MicroPDF 417, GoCode, UCC Composite, Aztec Code, Code 39, Code 128, UPC, EAN, JAN, Int 2 of 5, Codabar, Code 93, UCC RSS, POSTNET, PLANET, Japanese Post, Australia Post, Royal Mail, RM4SCC, KIX Code, Codablock	
	Pharmacode	
Data Matrix		
Symbol size	rectangular up to 144 x 144 modules rectangular up to 16 x 48 modules	
Orientation	omnidirectional	
Nominal ratings		
Camera		
Type	CMOS	
Number of pixels	1024 x 1280 pixels	
Grey scale	256	
Image recording	real-time , manually triggered	
Processor		
Clock pulse frequency	400 MHz	
Digital resolution	8 Bit	
Electrical specifications		
Supply	via cable	
Interface		
Physical	USB 2.0 , RS 232 or PS/2	
Protocol	ASCII	
Compliance with standards and directives		
Directive conformity		
EMC Directive 89/336/EEC	EN 55024	
Standard conformity		
Interference rejection	EN 61000-4-2/3/4/6, EN 55022	
Emitted interference	EN 55022	
Protection degree	EN 60529	
Laser class	IEC 60825-1	
Ambient conditions		
Ambient temperature	0 ... 50 °C (273 ... 323 K)	
Storage temperature	-20 ... 60 °C (253 ... 333 K)	
Mechanical specifications		
Protection degree	IP20	
Material		
Housing	plastic	
Mass	approx. 185 g	

Function

The ODT-HH-MAH120-HD is a robust and inexpensive handheld for all current 1D and 2D barcodes. What is more, it is suitable for capturing high resolution data matrix codes. The megapixel CMOS image converter together with a specially developed optics permits an extremely large reading area both with regard to the reading distance and the image window. The reading area starts as low as 2 cm and ranges up to approx. 25 cm depending on the size of the code or the modules.

Thanks to its automated dynamic optimization, the handheld recognizes a wide variety of different codes and enables you to work efficiently.

As a guide to orientation there is a color-differentiated target projection in the form of a sectional drawing to support the optimal guidance visually during positioning.

The use of the reader under difficult ambient conditions is simplified by the stable design of the ODT-HH-MAH120, which can survive a fall from a height of 2m to a solid floor without affecting its functionality. Successful reading feedback is optical, acoustic or tactile (vibration motor).

Standard USB interfaces, such as the RS232 or PS/2, can be used - depending on which connection cable you choose. With the help of a simple program or configuration code, the handheld can be programmed. Optionally, a client-specific solution can be created using a JavaScript editor. The Linux core of the operation system makes additional options available to you.



Model Number

ODZ-TRIGGERBOX

Trigger box for fixed mounted readers

Accessories

ODZ-MAC-CAB-15POL-2,5M

Connecting cable Sub-D jack, 15-pin

ODZ-MAC-CAB-15POL-2,5M-FEMALE

Connecting cable Sub-D jack, 15-pin

ODZ-MAC-CAB-9POL-1,8M

Connecting cable Sub-D jack, 9-pin

ODZ-MAC-PWR-24V

Netzteil 24 V DC

Technical data

Indicators/operating means

Operating display	LED green
LED indicator	Trigger, good/poor reading
Key	3 inputs
Toggle switch	RS 232 interface

Electrical specifications

Operating voltage U_B	24 V DC $\pm$ 15 % PELV
Operating current	max. 50 mA

Interface

Physical	2 x RS 232
Protocol	ASCII
Transfer rate	9600 Bit/s ... 115200 Bit/s

Input

Input voltage	24 V DC $\pm$ 15 % PELV
Number/Type	3 inputs for 2- or 3-wire sensors (PNP), DC
Input current	approx. 10 mA at 24 V DC

Output

Number/Type	2 electronic outputs, PNP, overload and short-circuit proof optically decoupled
Switching voltage	to be applied externally 24 V $\pm$ 15 % PELV
Switching current	100 mA

Compliance with standards and directives

Directive conformity	
EMC Directive 89/336/EEC	EN 61326, EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326:2002-03
Emitted interference	
EN 61000-6-4:2001	
Protection degree	
EN 60529	

Ambient conditions

Ambient temperature	0 ... 40 °C (273 ... 313 K)
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Mechanical specifications

Protection degree	IP20
Connection	Supply/interfaces/in- and outputs: 15-pin Sub-D connector or terminals Interface 1: Sub-D socket, 9-pin Interface 2: Sub-D socket, 9-pin Trigger: M12 socket 5-pin
Material	
Housing	anodised aluminium
Installation	DIN rail mounting
Mass	approx. 320 g

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

Model Number**ODZ-MAH-GRIP1**

Handle with trigger button

Accessories**ODZ-MAH-CHARGER**

Charging tray for ODZ-MAH-GRIP2/GRIP3



CE

Technical data**Mechanical specifications**

Connection	System connector for connecting cable USB 1.1 RS 232 PS/2
Installation	Push into position and clip on, additional 4 fixing holes for Handheld 2 mounting holes for Connecting cable
Mass	approx. 113 g
Dimensions	127 mm x 51 mm x 140 mm

Function

The ODZ-MAH-GRIP1 is an extremely robust handle for applications with cable connections. 4 attachment holes facilitate the safe attachment of the handheld device and the used connection cable to the handle. The hard wearing material and ergonomic design of the ODZ-MAH-GRIP1 handle guarantee stability and comfort in daily use.

In addition, the overhanging rubber border ensures that the handheld is protected should it be dropped

Model Number**ODZ-MAH-GRIP2**

Handle with trigger switch and 1950 mAh battery

Accessories**ODZ-MAH-CHARGER**

Charging tray for ODZ-MAH-GRIP2/GRIP3



CE

Technical data**Electrical specifications**

Capacitance	1950 mAh
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Mechanical specifications

Installation	Push into position and clip on, additional 2 fixing holes for Handheld
Mass	approx. 136 g
Dimensions	102 mm x 51 mm x 140 mm

Function

The ODZ-MAH-GRIP2 is an extremely robust handle for handhelds of the product families ODT-HH-MAH* and I*T-HH20. The integrated Lithium-Ion batteries with a capacity of 1950 mAh enable you to work mobile and without annoying cables.

Thanks to the exterior contact, the handle with the mounted handheld can be charged in the charger tray ODZ-MAH-CHARGER in a simple and uncomplicated manner.

2 attachment holes facilitate the safe attachment of the handheld to the handle. The hard wearing material and ergonomic design of the ODZ-MAH-GRIP2 handle guarantee stability and comfort in daily use.

In addition, the overhanging rubber border ensures that the handheld is protected should it be dropped

Model Number**ODZ-MAH-GRIP3**

Handle with trigger switch and 3900 mAh battery

Accessories**ODZ-MAH-CHARGER**

Charging tray for ODZ-MAH-GRIP2/GRIP3

**Technical data****Electrical specifications**

Capacitance	3900 mAh
-------------	----------

Mechanical specifications

Installation	Push into position and clip on, additional 2 fixing holes for Handheld
Mass	approx. 181 g
Dimensions	102 mm x 51 mm x 140 mm

Function

The ODZ-MAH-GRIP3 is an extremely robust handle for handhelds of the product families ODT-HH-MAH* and I*T-HH20. The integrated Lithium-Ion batteries with a capacity of 3900 mAh enable you to work mobile and without annoying cables.

Thanks to the exterior contact, the handle with the mounted handheld can be charged in the charger tray ODZ-MAH-CHARGER in a simple and uncomplicated manner.

2 attachment holes facilitate the safe attachment of the handheld to the handle. The hard wearing material and ergonomic design of the ODZ-MAH-GRIP3 handle guarantee stability and comfort in daily use.

In addition, the overhanging rubber border ensures that the handheld is protected should it be dropped

iDENTControl

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

Model Number

ODZ-MAH200-BRACKET

Bracket for ODT-HH-MAH200



Technical data

General specifications

Reading angle	approx. 10 °
Operating distance	65 ... 190 mm

Mechanical specifications

Dimensions	approx. (152 x 152 x 334) mm
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Model Number

ODZ-MAH300-BRACKET

Bracket for hand-held units with displays



Technical data

General specifications

Reading angle	approx. 10 °
Operating distance	65 ... 190 mm

Mechanical specifications

Dimensions	approx. (152 x 152 x 334) mm
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Model Number

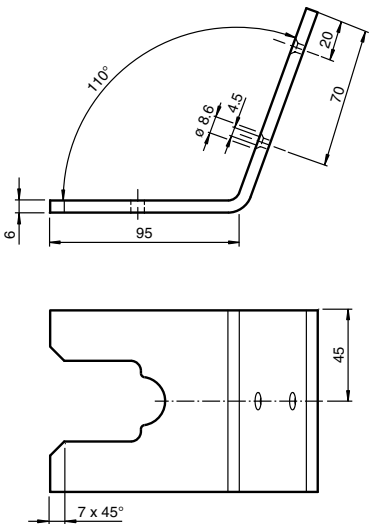
ODZ-MAH120-BRACKET-W
Bracket for ODT-HH-MAH120

Features

- Mounting bracket
- Simple and fast mounting



Dimensions



Technical data

Mechanical specifications

Material	Clear Plexiglas
Mass	approx. 110 g

High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENT Control
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Model Number**ODZ-MAH-CHARGER**

Charging tray for ODZ-MAH-GRIP2/GRIP3



CE

Technical data**Indicators/operating means**

LED red/green	Off: battery not detected / battery defective Red: battery is charging Green: battery is fully charged
---------------	--

Input

Input voltage	100 V AC ... 240 V AC 50 ... 60 Hz
Input current	approx. 0.2 mA

Output

Output rated operating current	400 ... 1200 mA
Output voltage	5 V DC pulsing

Mechanical specifications

Connection	power plug
Mass	136 g
Dimensions	230 mm x 86 mm x 51 mm

Function

With the charger tray ODZ-MAH-CHARGER, you can charge the batteries of the handles, ODZ-MAH-GRIP2 and ODZ-MAH-GRIP3. The battery charger tray also features space for the bluetooth modem ODZ-MAH-B15 and can be attached to the wall.

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System**Model Number****ODZ-MAH-CHARGER-SINGLE**

Charger for ODT-HH-MAH200/300/I*T-HH20



CE

Technical data**Indicators/operating means**

LED red/green	Off: battery not detected / battery defective Red: battery is charging Green: battery is fully charged
---------------	--

Input

Input voltage	100 V AC ... 240 V AC 50 ... 60 Hz
Input current	approx. 0.2 mA

Output

Output rated operating current	400 ... 1200 mA
Output voltage	5 V DC pulsing

Mechanical specifications

Connection	power plug
------------	------------

Function

The battery charger ODZ-MAH-CHARGER-SINGLE can charge handhelds from the product families ODT-HH-MAH* and I*T-HH20. Beyond this, the battery charger can be attached to the wall.

Model Number**ODZ-MAH200-CHARGER**

Charger for ODT-HH-MAH200/ODZ-MAH-BAT



CE

Technical data**Indicators/operating means**

LED red/green	Off: battery not detected / battery defective Red: battery is charging Green: battery is fully charged
---------------	--

Input

Input voltage	100 V AC ... 240 V AC 50 ... 60 Hz
Input current	approx. 0.2 mA

Output

Output rated operating current	400 ... 1200 mA
Output voltage	5 V DC pulsing

Mechanical specifications

Connection	power plug
------------	------------

Function

The battery charger ODZ-MAH200-CHARGER offers you the possibility of charging ODT-HH-MAH200 handhelds. An adapter included with the charger also makes it possible to recharge ODZ-MAH-BAT rechargeable batteries for handhelds of product families ODT-HH-MAH* and I*T-HH20.

Model Number**ODZ-MAH-CAB-R6**

Connecting cable PS/2 interface

**Technical data****Mechanical specifications**

Connection	PS/2
Cable length	ca. 2.4 m Spiral Cable

Function

ODZ-MAH-CAB-R6 is a cable for connecting handhelds belonging to the product families ODT-HH-MAH* and I*T-HH20 to the PS/2 interface of a computer. You can also connect a PS/2 keyboard directly with the connection cable.

Model Number**ODZ-MAH-CAB-R2**

Connection cable RS 232 interface

**Technical data****Mechanical specifications**

Connection	RS 232: 9-pin Sub-D socket
Cable length	ca. 2.4 m Spiral Cable

Function

ODZ-MAH-CAB-R2 is a cable for connecting handhelds belonging to the product families ODT-HH-MAH* and I*T-HH20 to the RS 232 interface of a computer. You also need the power supply unit ODZ-MAH200-SUPPLY for external power supply.

Model Number**ODZ-MAH-CAB-B14**

Connecting cable, USB interface

**Technical data****Mechanical specifications**

Connection	USB-Male Connector Typ A (Standard)
Cable length	1.85 m

Function

ODZ-MAH-CAB-B14 is a cable for connecting handhelds belonging to the product families ODT-HH-MAH* and I*T-HH20 to the USB interface of a computer.

Model Number**ODZ-MAC-CAB-24V-R2-2M**

Connecting cable for power supply/RS 232

**Model Number****ODZ-MAC-CAB-15POL-2,5M**

Connecting cable Sub-D jack, 15-pin

**Model Number****ODZ-MAH-CAB-CHARGE**

Cable for power supply unit



CE

Technical data**Mechanical specifications**

Connection	Sub-D-Buchse, 15-pin RS 232: Sub-D connector, 9-pin Supply voltage: 5.5 mm hollow socket
Cable length	1.85 m

Technical data**Mechanical specifications**

Core cross-section	0.14 mm ²
Connection	2x Sub-D-Buchse, 15-pin
Cable length	2.5 m

Technical data**Mechanical specifications**

Connection	DIN connector, 8-pin Supply voltage: 5.5 mm hollow socket
Cable length	1.85 m

iDENT
Control

RFID
125 KHz

RFID
250 KHz

RFID
13,56 MHz

RFID
868 MHz

RFID
2,45 GHz

RFID
Accessories

RFID
Handhelds

RFID Stand-alone
125 KHz

RFID Stand-alone
2,45 GHz

iDENT-O
Barcode

iDENT-O
Data Matrix

High Temperature
iDENT System

Model Number

ODZ-MAC-CAB-VIDEO

Video cable VGA



Technical data

Mechanical specifications

Cable length 2 m

Model Number

ODZ-MAC-PWR-24V

Netzteil 24 V DC



Technical data

Input

Input voltage 100 V AC ... 240 V AC
50 ... 60 Hz
Input current approx. 1.5 mA

Output

Output rated operating current 1.88 A
Output voltage 24 V DC pulsing

Mechanical specifications

Connection power plug
Supply voltage: 5.5 mm hollow connector

CE

Model Number**ODZ-MAH-B15-M3**

Bluetooth modem, configured for USB



CE

Technical data**General specifications**

Operating frequency 2.4 GHz (ISM band)

Indicators/operating meansFunction display Bluetooth (LED blue)
flashing: no connection
permanent ON: active connection**Interface**Physical Bluetooth v1.2
Profil SSP (Serial Port Profile)
Detection range up to 100 m
Transfer rate max. 115 kBit/s**System requirements**Hardware requirements 1 free USB slot, RS 232
Operating system Microsoft Windows 2000, NT, or XP
MAC OS, Linux, UNIX, or other**Ambient conditions**Ambient temperature 0 ... 70 °C (273 ... 343 K)
Storage temperature -15 ... 80 °C (258 ... 353 K)**Mechanical specifications**Connection System connector for connecting cable
USB 1.1
RS 232
configured for USB
Dimensions 81 mm x 70 mm x 25 mm**Function**

The Bluetooth Modem ODZ-MAH-B15-M3 offers you the possibility of the wireless connection of Bluetooth-compatible devices from the ODT-HH-MAH* and I*T-HH20 product families with your computer and the transfer of the read data by radiotelegraphy.

Due to the simple installation and a range of up to 100 m the Bluetooth Modem ODZ-MAH-B15-M3 is ideal for this purpose, provided your Bluetooth-compatible device is mobile and its cables are not prone to interference.

The modem is already pre-configured ex-works for the cabling of the USB interface of the computer.

Note: The USB connection cable is not included in the delivery package.

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System

Model Number**ODZ-MAH200-B15-B14**

Bluetooth Dongle USB for PC

**Technical data****General specifications**

Operating frequency 2.4 GHz (ISM band)

InterfacePhysical Bluetooth v1.1
Profil SSP (Serial Port Profile)
Detection range up to 100 m
Transfer rate max. 115 kBit/s**System requirements**Hardware requirements 1 free USB slot
Operating system Microsoft Windows 98 SE, Me, 2000, or XP
MAC OS X v10.2 or higher**Ambient conditions**Ambient temperature 0 ... 50 °C (273 ... 323 K)
Storage temperature -15 ... 55 °C (258 ... 328 K)**Mechanical specifications**Connection USB-Male Connector Typ A (Standard) USB 1.1
Mass 8.5 g
Dimensions (64 x 22 x 8) mm

Model Number**ODZ-MAH200-CODEROUTER**

Code Router Software

**Technical data****General specifications**

Description	Software for establishing a reliable connection and serial/key-board input converter
-------------	--

System requirements

Operating system	Microsoft Windows 3.1, 98, Me, NT, 2000, or XP
------------------	--

Model Number**ODS-MAH-B15-ENCRYPT**

Software for encrypted Bluetooth transfer

**Technical data****General specifications**

Description	Software for encrypted Bluetooth transfer
-------------	---

Model Number**ODS-MAH-RULERUNNER**

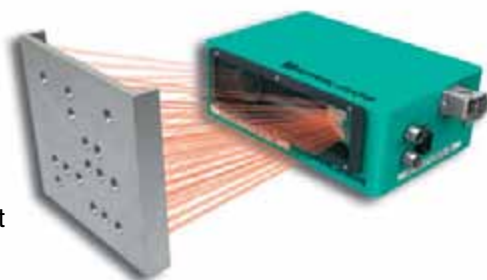
Rule Runner Java Script license.

**Technical data****General specifications**

Description	Rule Runner Java Script license. This software allows the use of Java Script.
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10 Identification System for High Temperatures

The kind of ambient conditions that prevail in drying plants and painting lines hamper and make the use of identification systems such as RFID or electric read/write tags more costly. The high temperatures in drying plants that harden adhesive bonds after exiting the painting line make tough demands on the read only tags. They must be able to withstand temperatures of up to 250 °C for years in cyclic alternation. In the long run, electronic components or batteries in the read/write tag are not up to this task.

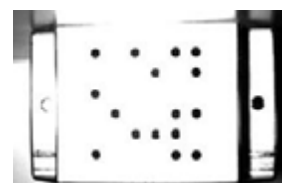


Hence Pepperl+Fuchs has developed a new identification system that not only stands up to temperatures of up to 500 °C, but is also easy to operate, maintenance-free and durable.

10.1 Functional principle identification system for high temperatures

A unique code is stamped into a special, heat-resistant metal read only tag for the identification of individual objects. These codes can be made similar to Data Matrix codes or individually defined codes. The data content in the code can be redundant and thus error tolerant.

The identification system for high temperatures uses digital camera technology to take a shot of the read only tag, while an integrated infrared illumination provides for the correct lighting of the read only tag. Even dirty or overpainted read only tags can thus still be read very well, since contrast on a defined background is always optimal.



The perforated matrix in the image taken is evaluated and the extracted data transferred to system control via an Ethernet interface.

10.2 Software OITControl

OITControl provides you with an user-friendly interface for convenient and easy identification system for high temperatures operation. With the use of an XML configuration file, OITControl can be adapted to the particular requirements of your plant.

Tasks of OITControl include establishing connections to identification systems for high temperatures, the programming of operating parameters and identification system maintenance, as well as the transfer and display of data and error diagnostics.

The software includes the following functions:

- Display of transmitted data and control bits
- Operator terminal for trouble-shooting incorrect reads
- Parameterization and maintenance of the identification system for high temperatures
- Diagnosis of the identification system for high temperatures



iDENTControl

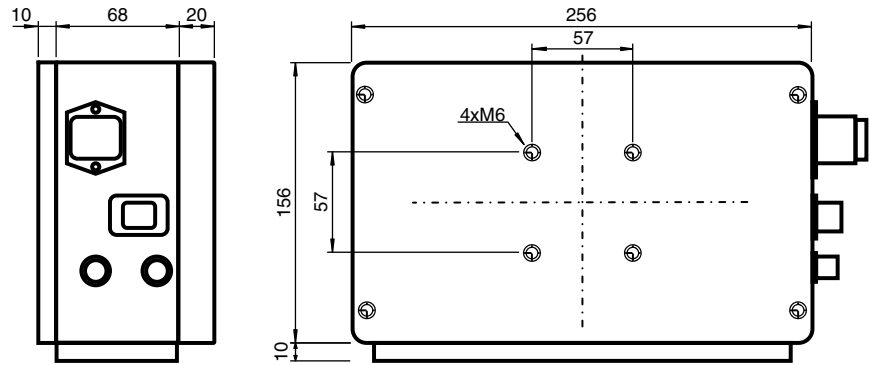
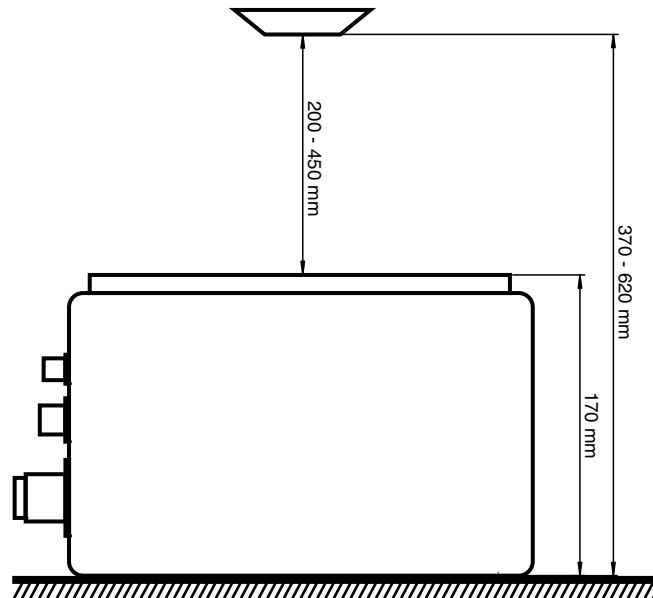
RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
IDENT System

**Model Number****OIT500-F113-B12-CB**

Optical high temperature identification system, 200 to 450 mm

Features

- High-temperature read only tag up to 500 °C
- Sturdy and compact design
- Integrated illumination
- Large detection range
- Large sensing range
- High depth of focus

Dimensions**Notes**

Function

The stationary scanner OIT500-F113-B12-CB is an optical identification system using the methods of industrial image processing, which finds application in automated manufacturing processes. In particular with body-shell work, there are harsh ambient conditions, which complicate or render impossible the application of code carriers with electronic components due to cyclical changes in temperature, for example.

For this reason, the high-temperature identification system OIT is fitted with code carriers with massive metal plates provided with a perforated matrix, which can withstand temperatures up to 500 °C and high mechanical loads.

Simple installation as well as commissioning without complicated and long-winded TEACH-IN enable fast application. Plug-in connections for fast exchange of devices and the control with simple command sets through an Ethernet interface ensure very easy operation. A scratch resistant quartz glass pane, which can be replaced, if and when required, as well as the stable metal housing turn the OIT500-F113-B12-CB into a robust and powerful identification system.

Accessories**OIC-C10V2A-CB1**

Read only tag for optical high-temperature identification system, stainless steel

V45-G

Non pre-wired cable connector

V8HAN-G-10M-PVC-ABG

Cable box, Harting, 8-pin, shielded, PUR cable

V45-GP

Non pre-wired "Push-Pull" cable connector

V45-GP-10M-PUR-ABG-V45-G

Connecting cable, RJ-45 to RJ-45, PUR cable

Technical data**General specifications**

Light source	Integrated LED lightning
Reading distance	adjustable 200 ... 450 mm
Depth of focus	± 50 mm
Reading field	330 mm x 250 mm at max. reading distance
Sensor principle	Camera system
Light type	Infrared
Evaluation frequency	5 Hz
Target velocity	triggered ≤ 0.5 m/s
Symbologies	Hole matrix Data format: decimal Data capacity: 6 (numerical) Orientation: omnidirectional

Indicators/operating means

Operating display	Green LED: supply Green LED: ready
Function display	Yellow LED: trigger Yellow LED: code read Red LED: pre-fault Red LED: group error

Electrical specifications

Operating voltage U_B	24 V DC ± 15% , PELV
Operating current	250 mA without output drivers

Interface

Physical	Ethernet
Protocol	TCP/IP
Transfer rate	100 MBit/s

Input

Input voltage	to be applied externally 24 V ± 15% PELV
Number/Type	1 Trigger input 2 control unit inputs , optically decoupled
Input current	approx. 1 mA at 24 V DC

Output

Number/Type	1 electronic output, PNP, optically decoupled
Switching voltage	to be applied externally 24 V ± 15 % PELV
Switching current	100 mA each output

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-1 , EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326-1
Emitted interference	EN 61000-6-4:2001
Protection degree	EN 60529

Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP64
Connection	Harting HAN, 8-pin RJ-45 2 x M12 socket 5-pin
Material	
Housing	aluminium diecasting powder coated
Mass	approx. 4000 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

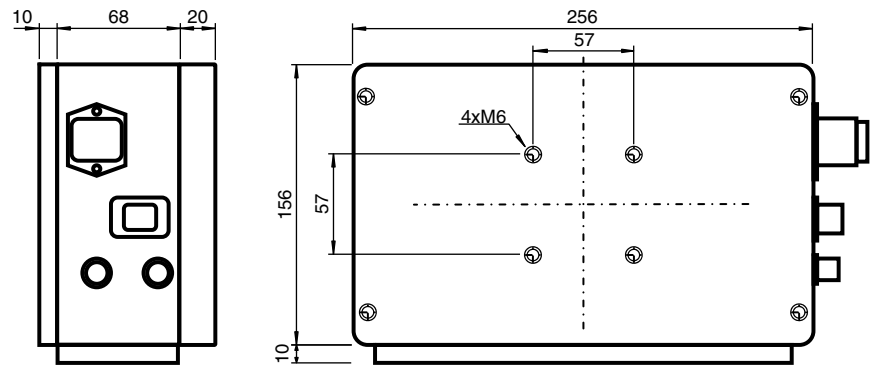
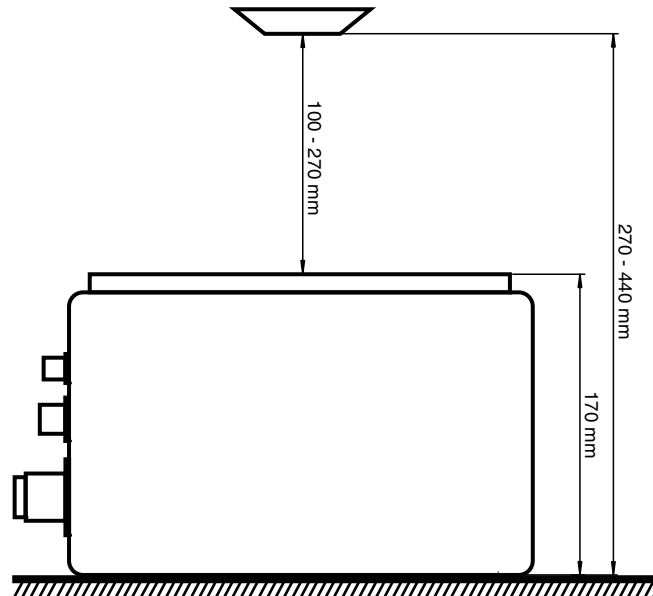
High Temperature iDENT System

**Model Number****OIT300-F113-B12-CB2**

Optical high temperature identification system, 100 to 270 mm

Features

- High-temperature read only tag up to 500 °C
- Sturdy and compact design
- Integrated illumination
- Large sensing range
- High depth of focus

Dimensions**Notes**

Function

The stationary scanner OIT300-F113-B12-CB2 is an optical identification system using the methods of industrial image processing, which finds application in automated manufacturing processes.

For this reason, the high-temperature identification system OIT is fitted with code carriers with massive metal plates provided with a perforated matrix, which can withstand temperatures up to 500 °C and high mechanical loads.

Simple installation as well as commissioning without complicated and long-winded TEACH-IN enable fast application. Plug-in connections for fast exchange of devices and the control with simple command sets through an Ethernet interface ensure very easy operation. A scratch resistant quartz glass pane, which can be replaced, if and when required, as well as the stable metal housing turn the OIT300-F113-B12-CB2 into a robust and powerful identification system.

Accessories**OIC-C11V4A-CB2**

Read only tag for optical high-temperature identification system, stainless steel

V45-GP-10M-PUR-ABG-V45-G

Connecting cable, RJ-45 to RJ-45, PUR cable

V45-G

Non pre-wired cable connector

V45-GP

Non pre-wired "Push-Pull" cable connector

V8HAN-G-10M-PVC-ABG

Cable box, Harting, 8-pin, shielded, PUR cable

V8HAN-G

Cable box, Harting, 8-pin, easy to assemble

Technical data**General specifications**

Light source	Integrated LED lightning
Reading distance	adjustable 100 ... 270 mm
Depth of focus	± 50 mm
Reading field	210 mm x 160 mm at max. reading distance
Sensor principle	Camera system
Light type	Infrared
Evaluation frequency	5 Hz
Target velocity	triggered ≤ 0.5 m/s
Symbologies	Hole matrix Value range: 4-digit numerical, between 1 and 4095 Read only tag size: 80 mm x 36 mm

Indicators/operating means

Operating display	Green LED: supply Green LED: ready
Function display	Yellow LED: trigger Yellow LED: code read Red LED: pre-fault Red LED: group error

Electrical specifications

Operating voltage U_B	24 V DC ± 15% , PELV
Operating current	250 mA without output drivers

Interface

Physical	Ethernet
Protocol	TCP/IP
Transfer rate	100 MBit/s

Input

Input voltage	to be applied externally 24 V ± 15% PELV
Number/Type	1 Trigger input 2 control unit inputs , optically decoupled
Input current	approx. 1 mA at 24 V DC

Output

Number/Type	1 electronic output, PNP, optically decoupled
Switching voltage	to be applied externally 24 V ± 15 % PELV
Switching current	100 mA each output

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-1 , EN 61000-6-4
Standard conformity	
Interference rejection	EN 61326-1
Emitted interference	EN 61000-6-4:2001
Protection degree	EN 60529

Ambient conditions

Ambient temperature	0 ... 45 °C (273 ... 318 K)
Storage temperature	-20 ... 60 °C (253 ... 333 K)

Mechanical specifications

Protection degree	IP64
Connection	Harting HAN, 8-pin RJ-45 2 x M12 socket 5-pin
Material	
Housing	aluminium diecasting powder coated
Mass	approx. 4000 g

iDENT Control

RFID 125 KHz

RFID 250 KHz

RFID 13,56 MHz

RFID 868 MHz

RFID 2,45 GHz

RFID Accessories

RFID Handhelds

RFID Stand-alone 125 KHz

RFID Stand-alone 2,45 GHz

iDENT-O Barcode

iDENT-O Data Matrix

High Temperature iDENT System

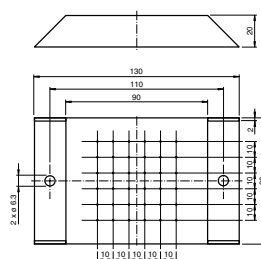


Model Number

OIC-C10V2A-CB1

Read only tag for optical high-temperature identification system, stainless steel

Dimensions



Technical data

General specifications

Reading distance	250 ... 450 mm dependent on the respective reader
Data storage	Range of values: 6-character numerical, between 000.000 and 999.999 plus 1 check digit

Ambient conditions

Ambient temperature	-25 ... 500 °C (248 ... 773 K)
---------------------	--------------------------------

Mechanical specifications

Material thickness	2 mm
Material	
Housing	Stainless steel V2A
Installation	Parallel to the reader at the respective reading distance Tilt angle max. 10°
Mass	approx. 320 g
Hole diameter	5 mm

Function

Code carrier OIC-C10V2A-CB1 is used together with high temperature identification systems of the OIT product family for identification purposes in especially harsh industrial environments.

The code carrier is extremely sturdy, suitable for use in environments up to 500 °C, and is not sensitive to paint or lacquer. It can also be cleaned with aggressive and abrasive agents.

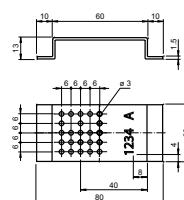


Model Number

OIC-C11V4A-CB2

Read only tag for optical high-temperature identification system, stainless steel

Dimensions



Technical data

General specifications

Reading distance	150 ... 250 mm at OIT300
Data storage	Value range: 4-digit numerical, between 1 and 4095

Ambient conditions

Ambient temperature	-25 ... 500 °C (248 ... 773 K)
---------------------	--------------------------------

Mechanical specifications

Material thickness	1.5 mm
Material	
Housing	stainless steel V4A
Installation	Parallel to reading device at appropriate reading distance to avoid reflected light Tilt angle max. 10°
Mass	approx. 41 g
Hole diameter	3 mm

Function

Code carrier OIC-C11V4A-CB2 is used together with high temperature identification systems of the OIT product family for identification purposes in especially harsh industrial environments.

The code carrier is extremely sturdy, suitable for use in environments up to 500 °C, and is not sensitive to paint or lacquer. It can also be cleaned with aggressive and abrasive agents.

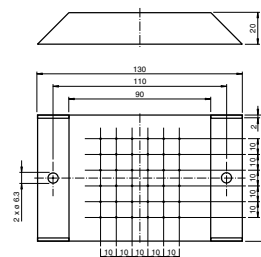


Model Number

OIC-C10ST-CB1

Code support for visual high-temperature identification system

Dimensions



Technical data

General specifications

Reading distance	250 ... 450 mm dependent on the respective reader
Data storage	Range of values: 6-character numerical, between 000.000 and 999.999 plus 1 check digit

Ambient conditions

Ambient temperature	-25 ... 500 °C (248 ... 773 K)
---------------------	--------------------------------

Mechanical specifications

Material thickness	2 mm
Material	
Housing	Steel Fe360
Installation	Parallel to the reader at the respective reading distance Tilt angle max. 10°
Mass	approx. 320 g
Hole diameter	5 mm

Function

Code carrier OIC-C10ST-CB1 is used together with high temperature identification systems of the OIT product family for identification purposes in especially harsh industrial environments. The code carrier is extremely sturdy, suitable for use in environments up to 500 °C, and is not sensitive to paint or lacquer. It can also be cleaned with aggressive and abrasive agents.

iDENTControl

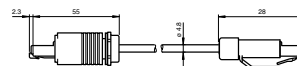
RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

Model Number

V45-GP-10M-PUR-ABG-V45-G

Connecting cable, RJ-45 to RJ-45, PUR cable

Dimensions



Technical data

General specifications

Connection 1	Connector, male
Construction type 1	straight
Connection 2	Connector, male
Construction type 2	straight

Ambient conditions

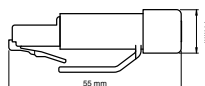
Ambient temperature	-40 ... 70 °C (233 ... 343 K) , stationary -5 ... 50 °C (268 ... 323 K) , moving
---------------------	---

Mechanical specifications

Protection degree	Device end: IP67 Switch cabinet end: IP20
Connection	Ethernet: RJ-45 , Category 5 , up to 100 MHz
Material	
Cable	PUR
Core isolation	PE
Cable	fine-strand, flexible
Sheath diameter	6.5 mm
Bend radius	7.5 x cable diameter, constant bend 5 x cable diameter, single bend
Colour	green
Shield	Tinned copper braiding
Length L	10 m
Flammability	
Wire	Flame-retardant as per IEC 60332-1

**Model Number****V45-G**

Non pre-wired cable connector

Dimensions**Technical data****General specifications**

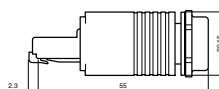
Connection 1	Connector, male
Construction type 1	straight

Ambient conditions

Ambient temperature	-40 ... 70 °C (233 ... 343 K)
---------------------	-------------------------------

Mechanical specifications

Cable diameter	6.5 ... 8.6 mm
Protection degree	IP20
Connection	RJ-45

Dimensions**Technical data****General specifications**

Connection 1	Connector, male
Construction type 1	straight

Ambient conditions

Ambient temperature	-40 ... 70 °C (233 ... 343 K)
---------------------	-------------------------------

Mechanical specifications

Cable diameter	6.5 ... 7.2 mm
Protection degree	IP67
Connection	RJ-45

Model Number**V45-GP**

Non pre-wired "Push-Pull" cable connector

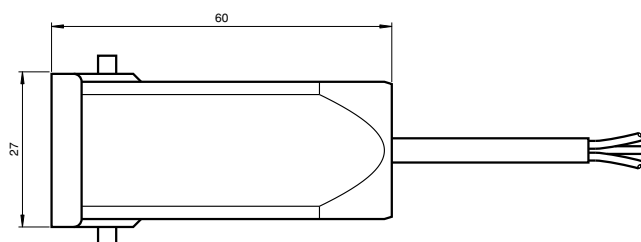


Model Number

V8HAN-G-10M-PVC-ABG

Cable box, Harting, 8-pin, shielded,
PUR cable

Dimensions



Technical data

General specifications

Number of poles	8
Connection 1	Connector, female
Construction type 1	straight
Connection 2	free cable end

Electrical specifications

Operating voltage U_B	50 V
Operating current	10 A
Volume resistance	< 3 m Ω
Rated operational voltage U_o	230/400 V

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-40 ... 80 °C (233 ... 353 K) (fixed cable)
Pollution Degree	3

Mechanical specifications

pin diameter	1 mm
Protection degree	IP65/IP67
Connection	8 jacks, Harting 8 D , size 3A

Material

Contacts	Cu alloy
Contact surface	Au
Handle	aluminium and polycarbonate
Cable	PVC

Cable

Sheath diameter	Ø8.7 mm
Bend radius	> 10 x cable diameter, moving
Colour	grey
Cores	8 x 0.5 mm ²
Shield	Braid
Length L	10 m
Flammability	
Housing	94 V-0

iDENT Control

RFID
125 KHzRFID
250 KHzRFID
13,56 MHzRFID
868 MHzRFID
2,45 GHzRFID
AccessoriesRFID
HandheldsRFID Stand-alone
125 KHzRFID Stand-alone
2,45 GHziDENT-O
BarcodeiDENT-O
Data MatrixHigh Temperature
iDENT System

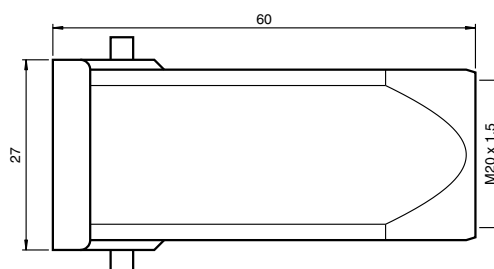


Model Number

V8HAN-G

Cable box, Harting, 8-pin, easy to assemble

Dimensions



Technical data

General specifications

Number of poles	8
Construction type	Jack, straight Harting Han 8D, size 3 A

Electrical specifications

Operating voltage U_B	50 V
Operating current	10 A
Volume resistance	< 3 mΩ
Rated operational voltage U_e	230/400 V

Compliance with standards and directives

Standard conformity	
Protection degree	EN 60529

Ambient conditions

Ambient temperature	-40 ... 125 °C (233 ... 398 K)
Pollution Degree	3

Mechanical specifications

pin diameter	1 mm
Protection degree	IP65/IP67
Connection	8 jacks, Harting 8 D Crimp connection for max. Ø1.1 mm, 8 mm insulation stripping PG11 screwed gland

Material

Contacts	Cu alloy
Contact surface	Au
Handle	aluminium and polycarbonate
Flammability	
Housing	94 V-0



Edition: 2009-07-08 Catalogue Identification Systems 2009

Subject to modifications without notice

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776-4411
fa-info@pepperl-fuchs.com

Copyright Pepperl+Fuchs
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

High Temperature IDENT System	iDENT-O Data Matrix	iDENT-O Barcode	RFID Stand-alone 2,45 GHz	RFID Stand-alone 125 KHz	RFID Handhelds	RFID Accessories	RFID 2,45 GHz	RFID 868 MHz	RFID 13,56 MHz	RFID 250 KHz	RFID 125 KHz	iDENTControl
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11 Appendix

11.1 IP Ratings

(DIN EN 60529)

IP 6 7

Degree of protection against contact and entrance of solid foreign bodies	Degree of protection against ingress of liquid
0 - No protection	0 - No protection
1 - Protected against solid objects over 50mm (e.g. accidental touch by hands).	1 - Protected against vertically falling drops of water.
2 - Protected against solid objects over 12mm (e.g. fingers).	2 - Protected against direct sprays up to 15° from the vertical
3 - Protected against solids objects over 2.5 mm (e.g. tools and wires).	3 - Protected against direct sprays up to 60° from the vertical.
4 - Protected against solids objects over 1mm (e.g. tools, wires and small wires)	4 - Protected against sprays from all directions - limited ingress permitted.
5(K) - Protected against dust - limited ingress (no harmful deposit).	4k - Protected against sprays from all directions.
6(K) - Totally protected against dust.	5 - Protected against water projected from a nozzle from all directions.
	6 - Protected against heavy seas, or powerful jets of water.
	6k - Protected against high pressure water jets from any direction .
	7 - Protected against the effects of temporary immersion between 15 cm and 1 m. Duration of test 30 minutes
	8 - Protected against complete, continuous submersion in water.
	9k - Protected against steam jet cleaning.

Explanatory notes:

An "x" is used for one of the digits if there is only one class of protection

Devices marked with the second digit 7 or 8 don't need to fulfil the requirements for the second digit 5 or 6, unless the device is marked with a double rating (e. g. IPX6/IPX7).

The letter K is used for road vehicles, especially those that need regular intensive cleaning

11.2 Chemical resistivity charts

The chemical resistance chart rates the effect of chemicals on materials used in the construction of Pepperl+Fuchs identification systems. The standard materials are::

- V2A stainless steel
- ABS (Acrylbutadienstyrol)
- Epoxy-casting compound
- PBT (Polybutylene terephthalate, Crastin)
- PC (Polycarbonate, Makrolon)
- POM (Polyoxymethylen, Polyacetal, Delrin)
- PP (Polypropylene, Hostalen)
- PPS (Polyphenylene sulphide^{BE}, Ryton)
- PS (Polystere)

	V2A	ABS	Epoxy	PBT	PC	POM	PP	PPS	PS	PVC
Acetic acid	20 °C	25 %	0	+	10 %	10 %	70 %	+	50 %	40 °C
Acetone	+	-	-	+	-	+	+	+	-	-
Ammonia	+	25 %	0	10 %	-	+	+	+	+	0
Benzine	+	25 %	+	+	0	+	-	+	-	+
Benzol	+	-	+	+	-	+	-	+	-	-
Botanol			-			+	+			40 °C
Brake fluid		0			-	+	+			
Butane		+	+		+	+	+	+	-	+
Calcium chloride		+		10 °C	+	+	+	+	+	60 °C
Carbon disulphide ^{BE}	+	-	-		-	+	+		-	0
Caustic potash		50 %	0	3 %	-	+	50 %		50 %	60 °C
Caustic soda	20 °C	50 %		3 %	-	+	+		50 %	+
Chlorobenzene	20 °C	-	+		-	+	-		-	-
Citric acid	20 °C	+	+		10 %	+	+		+	
Diesel oil		+	+	+	0	+	60 °C	+	-	
Formaldehyde	+	30 %	50 %	30 %		+	40 %	37 %	40 %	+
Formic acid	20 °C	40 %	+	10 %	-	-	85 %	0	40 %	50 %
Freon® 113		-			+		-	+		+
Fruit juice			+		+	+	+		-	+
Fuel oil		0	+	+	0	+	60 °C	+	-	
Glycerin	+	+	+	+	0	+	+	+	+	60 °C
Hydraulic oil					+	+	60 °C			+
Hydrochloric acid	-	0	-	10 %	20 %	-	+	-	10 %	0
Lactic acid	20 °C	80 %	+		+	+	+		80 %	0
Linseed oi	+	+			+	+	+		+	+
Lubricating oil	+		+		+	0/+	+			
Methanol	+		+	+	-	+	+	+		+
Methylbenzene	+	-	+	+	-	+	-	+	-	-
Methylene chloride	+	-	-		-	0	0	+	-	-
Mineral oil	+		+	+		+	+	+		+
Motor oil	+	+		+		+	+	+	0	
Nitric acid	66 %	-	-		10 %	-	25 %		10 %	+
Potassium chloride	+				+	+	+		+	60 °C
Potassium hydrate	+						+			
Scavenger	+						+			
Seawater (cold)	+		+	+		+	+	+		+
Soap sud	+		+		0	+	+			+
Sodium carbonate	+	+			+	+	+		+	
Sodium chloride	+	+			+	+	+		+	+
Sodium hydroxide	20 °C	+					+			
Sulphuric ^{BE} acid	-	50 %	-	28 %	50 %	-	80 %	50 %	50 %	70 %
Tartaric acid	20 °C	+	+		+	10 %	+		+	60 °C
Tetrachlorinated hydro-carbon	+	-			0		-		-	0
Trichloroethylene	+	-	-	+	-	-	-	0	-	-
Turpentine oil	+		+		0		+		-	+
Water	+	+	68 °C	68 °C	+	+	+	+	+	60 °C
Xylol	+	-		+	-	+	-	+	-	-
Zinc sulphate ^{BE}		+			+		+		-	

+ : resistive
 0 : moderate
 - : nonresistive
 : not rated

These charts are a general guide and do not guarantee chemical compability. The compability was tested at room temperature unless otherwise specified. Pepperl+Fuchs assumes no responsibility for the use of this information.

11.3 Read/write ranges

Read/write ranges in air (125 kHz read/write tag at 25 °C, in mm)

R/W head	IPH-18GM-V1		IPH-30GM-V1		IPH-F61-V1		IPH-L2-V1		IPH-FP-V1		IPH-F15-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing
IPC02-3GL	0–10	-	0–15	-	0–15	-	-	-	-	-	-	-
IPC02-12	0–14	-	0–18	-	0–18	-	0–18	-	0–22	-	-	-
IPC02-16	0–30	-	0–40	-	0–40	-	0–45	-	0–30	-	-	-
IPC02-20P	0–20	-	0–30	-	0–30	-	0–30	-	0–35	-	-	-
IPC02-20CD	0–20	-	0–30	-	0–30	-	0–30	-	0–35	-	-	-
IPC02-26-T6	0–20	-	0–30	-	0–30	-	0–30	-	0–35	-	-	-
IPC02-30P	0–35	-	0–40	-	0–40	-	0–45	-	0–50	-	-	-
IPC02-50P	0–50	-	0–65	-	0–65	-	0–70	-	0–80	-	0–100	-
IPC02-68-T7	0–50	-	0–65	-	0–65	-	0–70	-	0–80	-	0–100	-
IPC02-C1	0–40	-	0–55	-	0–55	-	0–60	-	0–80	-	0–100	-
IPC11-12	0–14	0–12	0–18	0–15	0–18	0–15	0–20	0–15	0–22	0–18	-	-
IPC11-30	0–28	0–20	0–40	0–25	0–40	0–25	0–45	0–30	0–50	0–35	-	-
IPC11-50	0–40	0–30	0–55	0–40	0–55	0–40	0–60	0–45	0–80	0–60	0–100	0–80
IPC03-12.4	0–16	0–12	0–22	0–16	0–22	0–16	0–24	0–17	0–20	0–11	-	-
IPC03-24	0–25	0–20	1–35	0–25	0–35	0–25	0–35	0–30	0–45	0–30	-	-
IPC03-16GK	0–16	0–12	0–22	0–16	0–22	0–16	0–24	0–17	0–20	0–11		
IPC03-30GK	0–25	1–20	1–35	1–25	0–35	0–25	0–40	0–30	0–45	0–35	-	-
IPC03-20-K1	0–20	0–15	0–30	0–25	0–30	0–20	0–30	0–25	0–35	0–30	-	-
IPC03-20K2	0–20	0–18	-	-	0–30	0–25	-	-	-	-	-	-
IPC03-20P	0–20	0–18	0–30	0–25	0–30	0–25	0–30	0–25	0–35	0–30	-	-
IPC03-30P	0–35	0–30	0–40	0–35	0–40	0–35	0–45	0–40	0–50	0–45	-	-
IPC03-50P	0–50	0–40	1–60	1–55	2–78	2–64	0–75	0–65	0–100	0–80	0–110	0–100
IPC03-58	0–50	0–40	0–65	0–55	0–65	0–55	0–75	0–65	0–100	0–90	0–110	0–100
IPC03-C1	0–40	0–35	0–50	0–45	0–50	0–45	0–60	0–55	0–80	0–70	0–90	0–80
IPC12-58-64k	0–16	0–16	0–24	0–24	0–24	0–24	0–30	0–30	0–40	0–40	0–45	0–45

Legend - Combination not recommended

Read/write ranges in air (250 kHz read/write tag at 25 °C, in mm)

R/W head	ISH-18GM-V1		ISH-F61-V1		ISH-FP-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing
ICC-8A	1–12	-	1–15	-	-	-
ICC-12A	1–21	-	1–19	-	-	-
ICC-12A-T1	1–19	-	1–18	-	-	-
ICC-16GKA	1–14	-	1–19	-	-	-
ICC-30GKA-T1	2–32	-	2–41	-	1–58	-
ICC-30GKA-T3	2–32	-	2–41	-	1–58	-
ICC-50A	1–42	-	2–66	-	10–100	-
IDC-8-1K	2–12	2–8	3–9	3–9	-	-
IDC-10-1K	2–12	2–8	3–9	3–9	-	-
IDC-12-1K	2–16	2–12	3–15	3–15	-	-
IDC-15-1K	3–19	3–17	5–18	5–18	5–30	5–20
IDC-24-1K	5–24	5–23	4–28	4–28	0–58	0–36
IDC-30F-1K	5–27	5–25	5–30	5–30	5–50	5–43
IDC-50-1K	8–40	8–34	10–42	10–42	12–95	15–80
IDC-50F-1K	8–40	8–34	10–42	10–42	12–95	15–80
IDC-16GK-1K	2–16	2–12	3–15	3–15	-	-
IDC-30GK-1K	5–27	5–25	5–30	5–30	5–50	5–43
IDC-58-1K	5–37	5–31	7–39	7–39	9–92	12–77
ICC-30GK-EXIA						
IDC-30GK-EXIA-1K	5–27	5–25	5–34	5–30	5–50	5–43
IDC-30F-EXIA-1K	5–27	5–25	5–34	5–30	5–50	5–43

Legend - Combination not recommended

Read/write ranges in air (13.56 kHz read/write tag at 25 °C, in mm)

R/W head	IQH1-18GM-V1		IQH1-F61-V1		IQH1-FP-V1		IQH-F100-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing	reading	writing
IQC21-30P	0–40	0–40	0–55	0–55	0–85	0–85	0–150	0–150
IQC21-50P	0–50	0–50	0–55	0–55	0–100	0–100	0–250	0–250
IQC21-50P-T10	0–50	0–50	0–65	0–65	0–110	0–110	0–250	0–250
IQC21-58	0–35	0–35	0–50	0–50	0–80	0–80	0–160	0–160
IQC22-C1	0–65	0–65	0–85	0–85	0–110	0–110	0–300	0–300
IQC22-C4	0–45	0–45	0–70	0–70	0–110	0–110	0–300	0–300
IQC22-C5	0–45	0–45	0–60	0–60	0–90	0–90	0–160	0–160
IQC22-22-T9	0–30	0–30	0–40	0–40	0–65	0–65	0–140	0–140
IQC22-39	0–35	0–35	0–40	0–40	0–70	0–70	0–140	0–140
IQC33-20	0–25	0–25	0–30	0–30	0–45	0–45	0–100	0–100
IQC33-30	0–25	0–25	0–35	0–35	0–60	0–60	0–110	0–110
IQC33-50	0–45	0–45	0–60	0–60	0–95	0–95	0–200	0–200

Legend - Combination not recommended

Read/write range, flush installation in steel (125 kHz read/write tag at 25 °C, in mm)

R/W head	IPH-18GM-V1		IPH-30GM-V1		IPH-F61-V1		IPH-L2-V1		IPH-FP-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing
IPC02-3GL	0–7	-	0–10	-	0–10	-	-	-	-	-
IPC03-12.4	0–14	0–10	1–17	1–12	1–15	1–10	1–12	1–6	-	-
IPC03-24	0–15	0–11	0–22	0–20	1–20	1–20	1–21	0–15	-	-
IPC03-16K	0–14	0–10	0–17	0–12	0–15	0–10	1–12	1–6	-	-
IPC03-30GK	0–22	0–17	0–27	0–22	2–27	0–22	1–30	1–23	12–26	-
IPC03-7H3	0–7	0–5	0–10	0–7	0–10	0–7	0–10	0–7	0–12	0–8

Read/write range, flush installation in steel (250 kHz read/write tag at 25 °C, in mm)

R/W head	ISH-18GM-V1		ISH-F61-V1	
Read only / Read/write tag	reading	writing	reading	writing
ICC-8A	1–10	-	2–6	-
ICC-12A	1–15	-	1–12	-
ICC-12A-T1	1–17	-	1–11	-
ICC-16GKA	1–12	-	1–12	-
ICC-30GKA-T1	4–24	-	2–26	-
ICC-30GKA-T3	4–24	-	2–26	-
IDC-8-1K	2–9	2–6	-	-
IDC-10-1K	2–9	2–6	-	-
IDC-12-1K	2–11	2–9	3–12	3–6
IDC-15-1K	3–14	3–13	5–18	4–12
IDC-24-1K	5–19	5–18	4–22	4–19
IDC-30F-1K	5–21	5–19	5–25	5–20
IDC-16GK-1K	0–15	0–12	0–16	0–12
IDC-30GK-1K	5–21	5–19	5–25	5–20
IDC-30GK-EXIA-1K	5–21	5–19	5–25	5–20
IDC-30F-EXIA-1K	5–21	5–19	5–25	5–20

Legend - Combination not recommended

Read/write range, directly on steel (125 kHz read/write tag at 25 °C, in mm)

R/W head	IPH-18GM-V1		IPH-30GM-V1		IPH-F61-V1		IPH-L2-V1		IPH-FP-V1		IPH-F15-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing
IPC03-58	0–40	0–35	0–60	0–50	0–55	0–45	0–65	0–60	0–85	0–75	0–90	0–80
IPC12-58-64k	0–4	0–4	0–13	0–13	0–13	0–13	0–16	0–16	0–20	0–20	0–25	0–25

Read/write range, directly on steel (250 kHz read/write tag at 25 °C, in mm)

R/W head	ISH-18GM-V1		ISH-F61-V1		ISH-FP-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing
IDC-58-1K	5–34	5–24	7–42	7–31	7–72	0–55

Legend - Combination not recommended



Note

Installing the transponder in aluminum reduces the read and write range by a further 30 % compared to steel mounting.

Read/write range, directly on steel with 10 mm range (125 kHz read/write tag at 25 °C, in mm)

R/W head	IPH-18GM-V1		IPH-30GM-V1		IPH-F61-V1		IPH-L2-V1		IPH-FP-V1		IPH-F15-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing	reading	writing
IPC02-12	0-9	-	0-12	-	0-12	-	0-12	-	-	-	-	-
IPC02-16	0-25	-	1-35	-	2-35	-	0-35	-	2-20	-	-	-
IPC02-20P	0-15	-	1-20		2-20	-	2-20		2-20	-		
IPC02-26-T6	0-15	-	1-20		2-20	-	2-20		2-20			
IPC02-30P	0-25	-	0-30	-	0-30	-	0-30	-	0-35	-	-	-
IPC02-50P	0-30	-	0-50	-	0-40	-	0-45	-	0-55	-	0-65	-
IPC02-68-T7	0-30	-	0-40	-	0-40	-	0-40	-	0-55	-	0-65	-
IPC02-C1	0-30	-	0-40	-	0-40	-	0-40	-	0-55	-	0-65	-
IPC11-12	0-9	0-8	0-12	0-10	0-12	0-10	0-12	0-10	0-15	0-13	-	-
IPC11-30	0-25	0-18	0-30	0-20	0-30	0-20	0-30	0-20	0-35	0-25	-	-
IPC11-50	0-35	0-35	0-50	0-50	0-50	0-50	0-55	0-55	0-70	0-70	0-80	0-80
IPC03-20P	0-15	0-10	0-20	0-15	0-20	0-15	0-20	0-15	0-20	0-15		
IPC03-30P	0-25	0-20	0-30	0-25	0-30	0-25	0-30	0-25	0-35	0-30		
IPC03-50P	0-35	0-35	1-55	2-50	2-65	2-50	1-60	1-55	0-75	0-70	1-80	2-65
IPC03-C1	0-30	0-30	0-45	0-40	0-45	0-40	0-45	0-40	0-60	0-50	0-65	0-55

Read/write range, directly on steel with 10 mm range (250 kHz read/write tag at 25 °C, in mm)

R/W head	ISH-18GM-V1		ISH-F61-V1		ISH-FP-V1	
Read only / Read/write tag	reading	writing	reading	writing	reading	writing
ICC-50A	2-25	-	5-43	-	15-70	-
IDC-50-1K	8-37	0-19	10-45	10-34	10-75	7-58
IDC-50F-1K	8-37	0-19	10-45	10-34	10-75	7-58

Legend - Combination not recommended

INTERNATIONAL HEADQUARTER

Pepperl+Fuchs GmbH
Phone: +49-621-776-0
Email: fa-info@pepperl-fuchs.com

USA HEADQUARTERS

Pepperl+Fuchs Inc.
Phone: +1-330-4253555
Email: fa-info@us.pepperl-fuchs.com

ASIA PACIFIC HEADQUARTERS

Pepperl+Fuchs PTE LTD
Phone: +65-67799091
Email: sales@sg.pepperl-fuchs.com

EGYPT

Pepperl+Fuchs Egypt (LLC)
Phone: +20-2-2721097
Email: mesmat@eg-pepperl-fuchs.com

ALGERIA

STC Co 9
Phone: +213-21-564209
Email: stcco@wissal.dz

ARGENTINA

Pepperl+Fuchs Argentina S.R.L.
Phone: +54-11-48364066
Email: rriedl.pepperl.fuchs@gmail.com

AUSTRALIA

Pepperl+Fuchs Australia Pty Ltd
Phone: +61-3-94958600
Email: sales@au.pepperl-fuchs.com

BALTIC STATES

ELEKOMS Ltd
Phone: +37-1-7336444
Email: elekoms@apollo.lv

BANGLADESH

Pepperl + Fuchs (M.E.) FZE
Phone: +971-4-8838378
Email: info@ae.pepperl-fuchs.com

BELGIUM

Pepperl+Fuchs N.V.
Phone: +32-3-6442500
Email: info@be.pepperl-fuchs.com

BOLIVIA

Hiller Electric S.A.
Phone: +591-3-3524484
Email: mail@hillerelectric.com.bo

BRAZIL

Pepperl+Fuchs Ltda.
Phone: +55-11-43418448
Email: vendas@br.pepperl-fuchs.com

CHILE

Desimat Ingeniería Ltda.
Phone: +56-2-7470152
Email: importaciones@desimat.cl

CHINA

Pepperl+Fuchs Automation Co. Ltd.
Phone: +86-20-85276957
Email: info@cn.pepperl-fuchs.com

COSTA RICA

Ditesa
FA Distributor
Phone: +506-25735757
Email: info@ditesacr.com

DENMARK

Pepperl+Fuchs A/S
Phone: +45-7010 4210
Email: info@dk.pepperl-fuchs.com

GERMANY

Pepperl+Fuchs GmbH
P: +49-621-776-1111
Email: fa-info@pepperl-fuchs.com

FINLAND

SensoNor Oy
Phone: +358-9-4777200
Email: joel.patriikka@sonsonor.fi

FRANCE

Pepperl+Fuchs EURL
Phone: +33-1-60921313
Email: commercial@fr.pepperl-fuchs.com

UNITED KINGDOM

Pepperl+Fuchs GB Ltd.
Phone: +44-161-6336431
Email: sales@gb.pepperl-fuchs.com

GUATEMALA

ENERSYS Co.
Phone: +502-2-4394622
Email: enersys@guate.net.gt

HONDURAS

Cilasa
Phone: +504-5571146
Email: remorale@mayanet.hn

INDIA

Pepperl+Fuchs (India) Pvt. Ltd.
Phone: +91-80-28371225
Email: fa-info@in.pepperl-fuchs.com

INDONESIA

PT Himalaya Everest Jaya
Phone: +62-21-5448956
Email: hejimp3@hej.co.id

KOREA

Pepperl+Fuchs Korea Ltd
Phone: +82-2-34819494
Email: info@kr.pepperl-fuchs.com

CROATIA

El-Pro d.o.o.
Phone: +385-1-3680047
Email: el-pro@zg.t-com.hr

KUWAIT

M/S Almeer Technical Services Co. W.L.L.
Phone: +965-320-2254
Email: senthilm@almeer.com

LEBANON

Pepperl + Fuchs (M.E.) FZE
Phone: +971-4-8838378
Email: info@ae.pepperl-fuchs.com

MALAYSIA

Industrial Automation (M) Sdn Bhd
Phone: +60-03-92210511
Email: iaki@tm.net.my

MEXICO

Pepperl+Fuchs México, S.A. de C.V.
Phone: +52-55-56360970
Email: pfmexico@mx.pepperl-fuchs.com

NEW ZEALAND

Unilink Automation Ltd.
Phone: +64-9-4760286
Email: sales@unilink.co.nz

THE NETHERLANDS

Pepperl+Fuchs B.V.
Phone: +31-73-7507107
Email: sales@nl.pepperl-fuchs.com

NORWAY

Pepperl+Fuchs AS
Phone: +47-35573800
Email: info@no.pepperl-fuchs.com

OMAN

Riyam Engineering & Services L.L.C.
Phone: +968-24-594960
Email: riyam@omantel.net.om

AUSTRIA

Pepperl+Fuchs GmbH
Phone: +43-2236-33441
Email: info@at.pepperl-fuchs.com

PAKISTAN

Tariq Electric House
Phone: +92-21-2628409
Email: teh@super.net.pk

PANAMA

Doger Technology Development, S.A.
Phone: +507-317-1989
Email: ronaldhernandez@doger.com

IRAQ

Farayand Pas
Phone: +982-1-88067866
Email: info@ae.pepperl-fuchs.com

IRAN

Omid Electric Co.
Phone: +98-21-33911022
Email: info@omidelectric.com

IRELAND

Insteco Ltd.
Phone: +353-214-883798
Email: info@insteco.iol.ie

ICELAND

Ískraft
Phone: +354-5351210
Email: iskraft@iskraft.is

ISRAEL

Kama Ltd.
Phone: +972-3-5567747
Email: Kama@netvision.net.il

ITALY

Pepperl+Fuchs Elcon srl
Phone: +39-039-62921
Email: support@it.pepperl-fuchs.com

JAPAN

Pepperl+Fuchs K.K.
Phone: +81-45-9397802
Email: sales@jp.pepperl-fuchs.com

JORDAN

Pepperl + Fuchs (M.E.) FZE
Phone: +971-4-8838378
Email: info@ae.pepperl-fuchs.com

CANADA

Pepperl+Fuchs Inc.
Phone: +1-330-4253555
Email: sales@us.pepperl-fuchs.com

QATAR

Middle East Business Development
Co.L.L.C. (MEBD)
Phone: +974-435-8989
Email: pa-info@ae.pepperl-fuchs.com

KENYA

Shankan Enterprises Ltd.
Phone: +254-2-440093
Email: dk@kenyaonline.com

COLUMBIA

Colombiana de Controles Coldecon Ltda.
Phone: +574-361-5577
Email: isnardo@coldecon.com.co

PERU

Desimat Peru S.A.
Phone: +51-1-2752765
Email: ventas@desimat.com.pe

PHILIPPINES

Process Innovations, Inc.
Phone: +63-2-6356590
Email: pi-sensors@pltdsl.net

POLAND

Pepperl+Fuchs Sp. z o.o.
Phone: +48-22-3988125
Email: info@pl.pepperl-fuchs.com

PORTUGAL

Pepperl+Fuchs, S.A.
Phone: +349-4-4535020
Email: sov@es.pepperl-fuchs.com

PUERTO RICO

Lighting & Controls Automation
Phone: +1-787-7464810
Email: customerservice@lcapr.com

ROMANIA

Syscom 18 Srl.
Phone: +40-21-3102678
Email: syscom@syscom18.com

RUSSIA

Pepperl+Fuchs LLC
Phone: +7-495-9958842
Email: info@pepperl-fuchs.ru

SAUDI ARABIA

M/S GAS Arabian Services
Phone: +966-3-3472696
Email: rathan@gasrabian.com

SWEDEN

Pepperl+Fuchs AB
Phone: +46-303-246070
Email: info@se.pepperl-fuchs.com

SWITZERLAND

Pepperl+Fuchs AG
Phone: +41-32-3747676
Email: info@ch.pepperl-fuchs.com

SLOVAKIA

Pepperl+Fuchs s.r.o.
Phone: +420-221115-540
Email: info@cz.pepperl-fuchs.com

SLOVENIA

Pepperl+Fuchs GmbH
Phone: +43-2236-33441
Email: info@at.pepperl-fuchs.com

SPAIN

Pepperl+Fuchs, S.A.
Phone: +349-4-4535020
Email: sov@es.pepperl-fuchs.com

SRI LANKA

Nikini Automation Systems (Pvt) Ltd
Phone: +94-1-826894
Email: sales@nikiniautomation.com

SOUTH AFRICA

P & F Products cc
Phone: +27-11-6098188
Email: sales@pandf.co.za

TAIWAN

Kawa Kami Enterprise Corp.
Phone: +886-2-27920078
Email: info@kawa-kami.com.tw

THAILAND

Industrial Electrical Co., Ltd.
Phone: +66-2-6427887
Email: iecl@ie.co.th

TRINIDAD & TOBAGO

Industrial System & Control Limited
Phone: +1-868-6368704
Email: fidel.ramquar@iscl.co.tt

CZECH REPUBLIC

Pepperl+Fuchs s.r.o.
Phone: +420-221115-540
Email: info@cz.pepperl-fuchs.com

TURKEY

Pepperl+Fuchs Elektronik
Phone: +90-216-5772250
Email: info@tr.pepperl-fuchs.com

HUNGARY

Pepperl+Fuchs Kft.
Phone: +36-88-590100
Email: info@hu.pepperl-fuchs.com

URUGUAY

Gliston S.A.
Phone: +598-2-2000791
Email: ventas@gliston.com.uy

VENEZUELA

EMI Equipos y Sistemas C. A.
+58-212-2435072
Email: ventas@emi-ve.com

UAE

Pepperl + Fuchs (M.E.) FZE
Phone: +971-4-8838378
Email: info@ae.pepperl-fuchs.com

VIETNAM

Provina Technology Co. Ltd.
Phone: +84-8-8298901
Email: provina@hcm.vnn.vn

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Contact

Pepperl+Fuchs GmbH
Lilienthalstraße 200
68307 Mannheim · Germany
Tel. +49 621 776-4411 · Fax +49 621 776-27-4411
E-mail: fa-info@pepperl-fuchs.com

Worldwide Headquarters

Pepperl+Fuchs GmbH · Mannheim · Germany
E-mail: fa-info@pepperl-fuchs.com

USA Headquarters

Pepperl+Fuchs Inc. · Twinsburg · USA
E-mail: fa-info@us.pepperl-fuchs.com

Asia Pacific Headquarters

Pepperl+Fuchs Pte Ltd · Singapore
Company Registration No. 199003130E
E-mail: fa-info@sg.pepperl-fuchs.com

www.pepperl-fuchs.com

 **PEPPERL+FUCHS**
SENSING YOUR NEEDS