

Industrial Identification

RFID systems for manufacturing and logistics



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Industrial RFID Systems BIS

Passive Radio Frequency Identification Systems

i

New in this Catalog:

Easier Usability

- **Application Reference Charts**
 - At the beginning of each product family section
- **Data Carrier Range Guides**
 - Determine the correct ID tag and head quickly
- **RFID Functionality Indicators**
 - Machine Tool, Read Only or Read and Write Indicators
- **Graphic Wiring Guides**
 - Easily determine correct wiring need for accessories

Expanded Product Offerings

- **Metal Mount ISO 15693 M Series Data Carriers**
Page 141
- **200 °C High Temperature M Series Data Carrier**
Page 138
- **Longer Range Machine Tool Data Carriers in M Series**
Page 136
- **Long Range ISO 15693 Databolts™**
Page 140
- **IO-Link Read Only and Read/Write Self-Contained Heads and Processors**
Page 122 and 158
- **PROFINET Processors for the C and M Series**
Page 68 and 174
- **Hand Held PC Programmers for the C, L, and M Series**
Page 72, 124, and 176



BIS C 19

BIS C

BIS L 83

BIS L

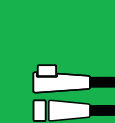
BIS M 131

BIS M

BIS S 183

BIS S

Accessories 197



Index and Short Order Codes 221



For measurements without tolerance specifications, the general tolerances in accordance with DIN ISO 2768-1 tolerance class M and DIN ISO 2768-2 tolerance class H apply.

Industrial RFID Systems BIS

More Reliable and Higher-performance Tracking and Traceability

Why RFID?

Modern production technologies with greater batch sizes and ever shorter production cycle times require unambiguous recognition and matching of the produced parts. In response, various systems for industrial identification such as bar codes have been developed. These are cost-effective, but wear quickly. In addition, they are inherently read-only and hold a limited amount of data.

Far greater flexibility and visibility are provided by industrial RFID systems with read and write capability for ensuring the current data in every process segment. Balluff Industrial RFID reliably processes large quantities of data without making physical contact or visual interference.

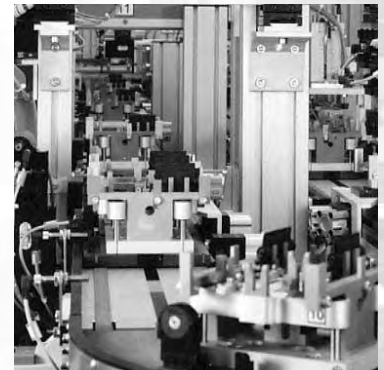
Unlimited read/write cycles ensure flexible, rapid, contact-free communication even for the transfer of large data quantities in highly dynamic applications. Our wear-free systems are easy to integrate to all types of controllers.

Economical Balluff identification systems are able to manage the large volumes of information required in modern-day production plants and make sure your data is transferred to the right place at the right time. All relevant production and quality data is stored and made available for retrieval at any time: for optimized production processes and maximum production visibility.

Profit from the advantages of Balluff Industrial RFID and benefit from more than 20 years of Balluff RFID expertise. Simply select from the product range according to your application requirements.

Advantages

- **quick, flexible non-contact data communication without visual contact**
- **suitable for any industrial environment**
- **powerful and economical**



Industrial RFID Systems BIS

Principle of Operation

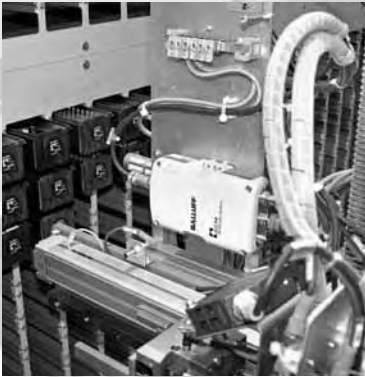
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BIS C

BIS L

BIS M

BIS S



What is RFID?

RFID stands for Radio Frequency Identification and allows for automatic identification of any kind of object. A data carrier is affixed to the object and acts as a portable, moving memory. The data is sent back and forth between the data carrier and read or read/write head using inductive coupling and radio transmission. The read head then sends the data to the host controller. Industrial RFID is fast and reliable, even with changing objects and large amounts of data. This means that objects can be simply identified, tracked, and traceable.

Inductive coupling means the data carrier or tag is passive, with no power source on board. The inductive principle guarantees ruggedness and insensitivity to the surroundings, making these systems highly reliable. Balluff's Industrial RFID is therefore suitable for use in harsh environments.

Industrial RFID Systems BIS

Balluff Identification Systems Mean the Highest Data Reliability

Maximum reliability and visibility

Balluff Industrial RFID leads the way in applications that require high quality, a high degree of data reliability, and optimized processes. Our Industrial RFID systems achieve an extremely high degree of data reliability for handling and assembly, commodity production and storage, internal company logistics and access control. Even tool management and driverless transport systems maintain data flawlessly with Balluff Industrial RFID.

Balluff Industrial RFID systems record the complete production process of all batches and store all data for possible retracing at a later stage. Quality and production data is stored directly on the product to avoid confusion. Work pieces do not need to be aligned with the read/write head because the head can scan without requiring visual contact. Errors are consistently prevented as a result. Defects are detected immediately and the offending part can be returned and corrected or rejected autonomously. The identification process is fully automatic, reliable and fast. Balluff Industrial RFID can manage a large number of variants and control process data easily.

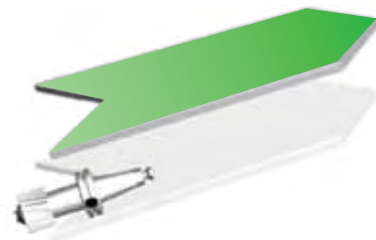
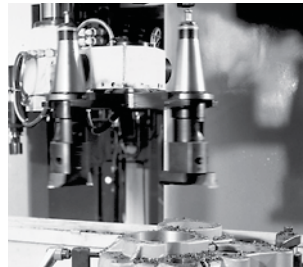
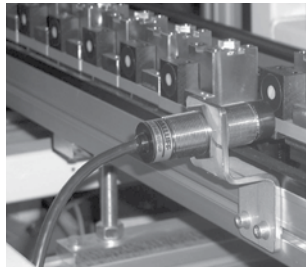
Balluff Industrial RFID guarantees a high degree of data reliability and quality, even in harsh environments. Balluff data carriers are resistant to shocks, vibrations, high electrical, inductive and electromagnetic interference and insensitive to aggressive materials. Goods manufactured using Balluff Industrial RFID are renowned for their high quality.

Use Balluff Industrial RFID for

- 100% data reliability
- consistent error prevention
- secure process control
- reliable traceability
- optimized production and visibility

Increased productivity visibility

Reliable traceability of the production and quality data brings maximum visibility to your supply and production chain. You will know exactly which materials are being used when and where, which serial numbers are being used, and which machines were employed in the process. Data and goods flow can be linked with each other, so that delivery chains and inner-facility material flow are both optimized. Balluff Industrial RFID thereby prevents quality fluctuations. Rework and replacements can be reduced to a minimum. Take full advantage of the absolute reliability of Balluff Industrial RFID for your supply chain management.



Industrial RFID Systems BIS

Cost Savings

Greater flexibility

Data is transferred reliably when the data carrier passes by, even in high-speed applications with greater flexibility because Balluff Industrial RFID is available with unlimited read/write cycles and different memory sizes.

Expertise in designing solutions and secure integration – even when space is limited – results in a wide variety of components cast in different shapes such as disc, cylinder, cube or handy credit card format. International approvals allow global distribution. Simply choose from a comprehensive selection of system products according to your application requirements.

Balluff Industrial RFID is

- available in various form factors, in plastic or metal
- compatible with any controller type
- usable on any common bus system
- compatible anywhere in the world

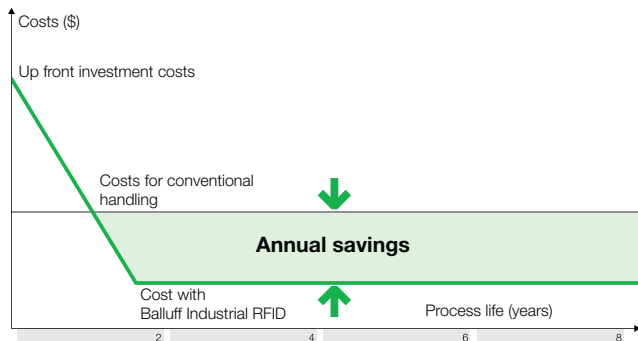
Quicker return on investment

The return on investment (ROI) can be so quick that the purchase of the Balluff Industrial RFID alone contributes to the success of your company. Data carriers are also reusable. New product lines that incorporate Industrial RFID systems have extremely short lead times, irrespective of whether alternating variants, minimum batch sizes or series products are manufactured. Use Balluff Industrial RFID to stay one step ahead of the competition.

Whenever you require a system for reliable production, our skilled consultants are ready to provide you with appropriate advice – all over the world and according to your specific requirements. We will be glad to answer any questions you may have.

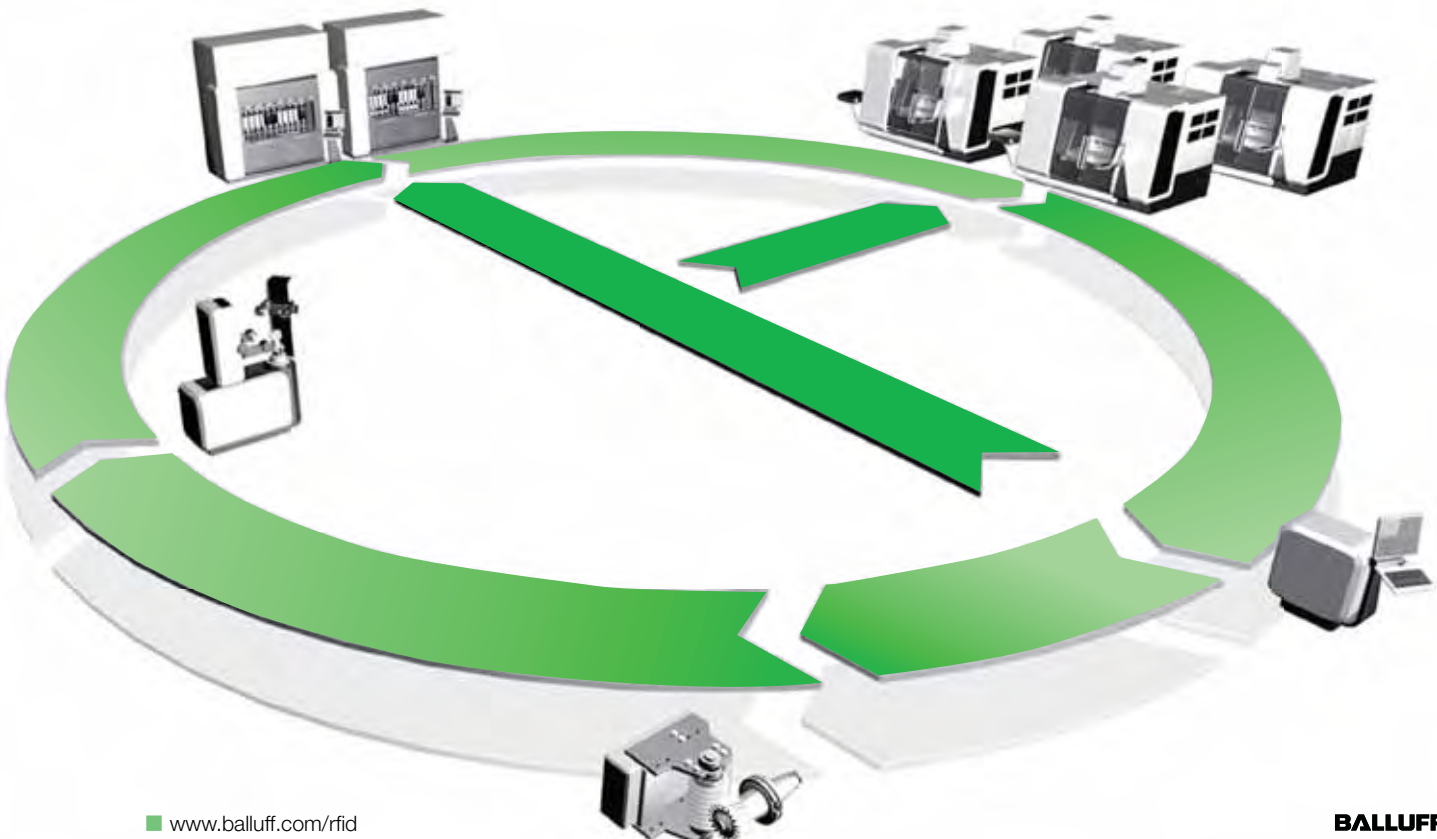
Balluff Industrial RFID

- is inexpensive
- can be reused
- amortizes quickly



Industrial RFID for tool ID

Balluff is the most used and commonly available RFID system worldwide. Contact us today to see why.



Industrial RFID Systems BIS

Four BIS Systems – Maximum Versatility

Balluff systems advantage

Balluff Industrial RFID offers four different systems with varied components for a wide range of applications. One system is simply not sufficient for different applications such as

- Tool management
- Production control
- Stock management
- Tracking of goods
- Access control
- Maintenance/Servicing
- Incoming/Outgoing goods
- Forgery/Copy protection
- Container management
- Consignment

In addition, requirements for Industrial RFID have increased drastically over the last few years. Production control has benefited from data carriers with a large memory capacity, for example, while greater data security is available for copy protection. The read/write distance for tracking goods is usually large, but for access control is relatively small. Tool management usually requires small, extremely robust data carriers which would be too large for consignment. So select the best solution for you from four different systems with various transfer frequencies – optimized specifically for your application.

Balluff Industrial RFID systems overview

- Versatile BIS C ideal for a wide range of applications: extremely powerful and versatile for reliable tool identification in machining centers that process coolants and lubricants or sterilization under high temperatures in a vacuum of an autoclave
- Economical BIS L for logistics and assembly lines
- BIS M with fast data transfer and large read/write distance for flexible production lines, internal company logistics, access control, or copy protection
- BIS S for transferring large quantities of data to control assembly and production facilities

Balluff Industrial RFID system components

Balluff Industrial RFID systems consist of a data carrier, the so-called tag, a read or read/write head, and the processor.

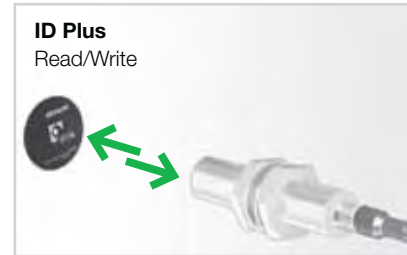
The tag is used to read and store data. Data quantities and read/write cycles depend on the memory device. Balluff data carriers draw their power from the read/write unit. **No batteries are required.**

The electronics and antenna are integrated into the tag. The range is defined by the antenna and frequency of the tag.



Memory device	
Data carrier/Memory size	
Read/Write cycle	
Max. read/write distance	
Read time (64 bytes)	
Write time (64 bytes)	
Operating frequency	
Dynamic reading	
Dynamic writing	
Operating temperature (data carrier)	
Storage temperature (data carrier)	
Data storage time	
Degree of protection	
Norms/Standards	

RFID selection by function or application



Sometimes choosing the correct RFID product to use can seem like a daunting task. To make selecting the right BIS system easier, Balluff provides several ways of choosing the correct BIS system. You can choose based on read or read/write ranges between the tags and the head, application type (for example: assembly conveyor or storage and retrieval), and RFID functionality, like machine tool ID, read-only or read/write type. Within each BIS system section in this catalog, you will find icon designations like those above indicating what functions

are possible within the system type as well as the other selection criteria mentioned to make selecting the correct system type as simple as possible.

Balluff also provides the same easy selection guidance online at www.balluff.com/rfid. Look to Balluff to ensure your success with your next RFID based data tracking and traceability needs.



BIS C		BIS L	BIS M		BIS S
EEPROM	FRAM	EEPROM	EEPROM	FRAM	FRAM
511–1023 bytes	8 kbytes	192 bytes	752 bytes	2000 bytes	32 kbytes
1.000.000	unlimited	100.000	100.000	unlimited	unlimited
90 mm	100 mm	100 mm	150 mm	150 mm	50 mm
220 ms	220 ms	1530 ms	60 ms	60 ms	29 ms
860 ms	860 ms	3530 ms	130 ms	130 ms	120 ms
70 kHz	455 kHz	125 kHz	13,56 MHz	13,56 MHz	560 kHz/3,65 MHz
yes	yes	yes	yes	yes	no
yes	yes	no	yes	yes	no
–30 °C...+70 °C*	–30 °C...+70 °C*	–25 °C...+85 °C	–25 °C...+70 °C	–25 °C...+70 °C*	0 °C...+70 °C
–30 °C...+120 °C*	–30 °C...+85 °C*	–40 °C...+130 °C*	–25 °C...+130 °C	–25 °C...+160 °C*	–20 °C...+70 °C
10 years	10 years	10 years	10 years	10 years	10 years
IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
DIN 69873	DIN 69873		ISO 14443	ISO 15693	

*extended temperature ranges on request. All time specifications include data checks

The specifications in the table are system-specific and not valid for each individual product. Refer to the relevant catalog for more detailed specifications.



Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances

0-12 mm



Read/write heads

			BIS C-300- BIS C-306- Page 30	BIS C-302- Page 31	BIS C-305- Page 32	BIS C-310- Page 35	BIS C-318- Page 41	BIS C-325- Page 36	BIS C-327- Page 40	
Data carrier		Memory capacity in bytes	Read/write distance							
BIS C-100-05/A Page 25		1023	0...4 mm	0...4 mm	0...4 mm			0...4 mm		
BIS C-103-05/A Page 24		1023	0...3,5 mm	0...3 mm	0...5 mm					
BIS C-104-11/A BIS C-104-32/A Page 26		2047 8192				0...11 mm 0...12 mm				
BIS C-105-05/A Page 24		1023	0...3,5 mm	0...3 mm	0...5 mm			0...5 mm		
BIS M-105-01/A BIS M-105-02/A Page 136		752 2000								
BIS C-108-05/L BIS C-108-11/L BIS C-108-32/L Page 26		1023 2047 8192			0...6 mm 0...6 mm 0...6 mm	0...12 mm 0...12 mm 0...12 mm	0...6 mm 0...6 mm 0...6 mm		0...8 mm	
BIS C-108-05/L-SA2 BIS C-108-11/L-SA2 Page 28		1023 2047				0...11 mm 0...4 mm	0...6 mm			
BIS C-117-05/A BIS C-117-05/L Page 25		1023 1023			0...8 mm 0...7 mm	0...12 mm 0...13 mm	0...7 mm			
BIS C-121-04/L Page 24		511	0...2 mm	0...1,5 mm	0...2 mm			0...1,7 mm		
BIS C-121-04/L-SA1 Page 28		511	0...1,2 mm	0...0,7 mm	0...1,2 mm					
BIS C-122-04/L BIS C-122-11/L Page 24		511 2047	0...2,5 mm 0...2,5 mm	0...2 mm 0...2 mm	0...2,5 mm 0...2,5 mm			0...2,5 mm 0...2,5 mm		
BIS M-122-01/A BIS M-122-02/A Page 136		752 2000								
BIS C-128-05/L BIS C-128-11/L Page 25		1023 2047			0...6 mm 0...6 mm	0...8 mm 0...13 mm	0...7,5 mm 0...7,5 mm		0...8 mm 0...8 mm	
BIS C-130-05/L Page 25		1023	0...4 mm	0...3,5 mm	0...7 mm			0...4 mm		
BIS C-130-05/L-SA1 Page 28		1023	0...4 mm	0...4 mm	0...7 mm	0...8 mm		0...4 mm		
BIS C-133-05/L Page 29		1023				0...10 mm				
BIS C-134-11/L Page 28		2047	0...3 mm		0...6 mm	0...10 mm		0...4 mm		
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27		1023 2047 8192				0...11 mm 0...11 mm 0...11 mm	0...8 mm 0...8 mm 0...8 mm		0...8 mm 0...8 mm 0...8 mm	
BIS C-191-05/L BIS C-191-11/L Page 27		1023 2047	0...3,5 mm 0...3,5 mm	0...3 mm 0...3 mm		0...10 mm 0...10 mm		0...3 mm 0...3 mm		
BIS L-103-05/L-RO Page 91		3 + CRC (read only)								
BIS L-203-03/L Page 91		5 (read only)								
BIS L-150-05/A Page 89		192								
BIS M-110-02/L Page 137		2000								

0...2 mm = Data carrier flush mounted in steel

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances



	BIS C-328-...-S49 Page 40	BIS C-60R-... BIS C-61R-... Page 50/51	BIS L-302-S115 Page 97	BIS L-400-035-003-05-S115 Page 107 BIS L-400-043-003-02-S115 Page 121 BIS L-405-033-003-05-MU BIS L-405-037-003-05-MU Page 104/105	BIS L-409-045-003-07-S4 Page 123	BIS M-302-001-S115 BIS M-302-003-S115 Page 143	BIS M-304-001-S115 BIS M-304-003-S115 Page 145	BIS M-400-007-001-00-S115 Page 153	BIS M-400-007-002-00-S115 Page 151	BIS M-402-007-002-00-S115 Page 155
		0...6 mm 0...5 mm 0...4 mm								
		1...8 mm 1...8 mm 0...4 mm								
						0...7 mm 0...9 mm	0...5 mm 0...7 mm	0...7 mm 0...11 mm	0...5 mm 0...9 mm	0...3 mm 0...5 mm
		1...8 mm 0...6 mm 1...8 mm 1...8 mm								
		1...5 mm 0...4 mm								
	0...3 mm 0...3 mm	1...5 mm 1...5 mm				0...5 mm 0...6 mm	0...4 mm 0...5 mm		0...4 mm 0...6 mm	0...2 mm 0...5 mm
		3...12 mm 3...12 mm 1...8 mm								
		1...8 mm								
			0...8 mm 0...8 mm	0...11 mm 0...11 mm	0...7 mm 0...7 mm					
		0...12 mm								
						0...16 mm	0...14 mm	0...20 mm	0...15 mm	0...8 mm

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BIS C

BIS L

BIS M

BIS S



Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances

8-20 mm



Read/write heads

Data carrier	Memory capacity in bytes	Read/write distance							
		BIS C-315- Page 34	BIS C-319- Page 36	BIS C-323- Page 37	BIS C-324- Page 39	BIS C-326- Page 33	BIS L-302-S115 Page 96/97	BIS L-304-S115 Page 98/99	BIS L-400-035-001-00-S115 Page 106 BIS L-400-035-001-02-S115 Page 106 BIS L-400-043-001-02-S115 Page 120
BIS C-104-11/A BIS C-104-32/A Page 26	2047 8192	1...13 mm 1...13 mm		1...11 mm 0...12 mm	1...11 mm 0...12 mm				
BIS C-108-05/L BIS C-108-11/L BIS C-108-32/L Page 26	1023 2047 8192	0...16 mm 0...16 mm 0...16 mm	0...14 mm 0...14 mm 0...14 mm	0...12 mm 0...12 mm 0...12 mm	0...12 mm 0...12 mm 0...12 mm				
BIS C-108-05/L-SA2 BIS C-108-11/L-SA2 Page 28	1023 2047	0...16 mm 0...16 mm		0...11 mm 0...11 mm	0...11 mm 0...11 mm	0...12 mm 0...12 mm			
BIS C-117-05/A BIS C-117-05/L Page 25	1023 1023	0...15 mm 0...20 mm	0...13 mm 0...15 mm	1...12 mm 0...13 mm	1...12 mm 0...13 mm	0...18 mm			
BIS C-128-05/L BIS C-128-11/L Page 25	1023 2047	0...18 mm 0...18 mm		0...8 mm 0...13 mm	0...8 mm 0...13 mm	0...15 mm 0...15 mm			
BIS C-130-05/L Page 25	1023	0...18 mm	0...13 mm	0...11 mm		0...13 mm			
BIS C-130-05/L-SA1 Page 28	1023	0...18 mm	0...13 mm	0...8 mm	0...8 mm	0...13 mm			
BIS C-133-05/L BIS C-133-11/L Page 29	1023 2047	0...15 mm 0...15 mm		0...10 mm 0...10 mm	0...10 mm 0...10 mm	0...12 mm 0...12 mm			
BIS C-134-11/L Page 28	2047	0...16 mm	0...12 mm	0...10 mm	0...10 mm	0...10 mm			
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27	1023 2047 8192	0...20 mm 0...20 mm 0...20 mm		0...11 mm 0...11 mm 0...11 mm	0...11 mm 0...11 mm 0...11 mm	0...18 mm 0...18 mm 0...18 mm			
BIS C-191-05/L BIS C-191-11/L Page 27	1023 2047		0...11 mm 0...11 mm	0...10 mm 0...10 mm	0...10 mm 0...10 mm				
BIS L-100-01/L Page 88	192						0...20 mm	0...20 mm	
BIS L-103-05/L-RO Page 91	3 + CRC (read only)						0...15 mm	0...15 mm	0...20 mm
BIS L-203-03/L Page 91	5 (read only)						0...15 mm	0...15 mm	0...20 mm
BIS L-100-05/L-RO Page 91	3 + CRC (read only)						0...23 mm	0...25 mm	0...30 mm
BIS L-200-03/L Page 91	5 (read only)						0...23 mm	0...25 mm	0...30 mm
BIS L-201-03/L Page 91	5 (read only)						0...20 mm	0...20 mm	0...40 mm
BIS M-101-01/L Page 136	752								
BIS M-102-01/L Page 137	752								
BIS M-105-01/A BIS M-105-02/A Page 136	752 2000								
BIS M-108-02/L Page 139	2000								
BIS M-110-02/L Page 137	2000								
BIS M-111-02/L Page 137	2000								

0...2 mm = Data carrier flush mounted in steel

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances



BIS L-400-035-002-00-S115 BIS L-400-035-002-02-S115 Page 106 BIS L-400-043-002-02-S115 Page 120	BIS L-400-035-004-00-S115 Page 107 BIS L-400-043-004-02-S115 Page 121	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS L-405-033-002-05-MU BIS L-405-037-002-05-MU Page 104	BIS L-405-033-004-05-MU BIS L-405-037-004-05-MU Page 105	BIS L-409-045-001-07-S4 Page 122	BIS L-409-045-002-07-S4 Page 122	BIS L-409-045-004-07-S4 Page 123	BIS M-300-001-S115 BIS M-300-003-S115 Page 147	BIS M-302-001-S115 BIS M-302-003-S115 Page 143	BIS M-304-001-S115 BIS M-304-003-S115 Page 145	BIS M-400-007-001-00-S115 Page 153	BIS M-400-007-002-00-S115 Page 151
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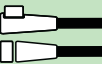
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BIS C

BIS L

BIS M

BIS S



0...16 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm	0...10 mm	0...10 mm					
0...16 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm	0...10 mm	0...10 mm					
0...23 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm	0...15 mm	0...15 mm					
0...23 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm	0...15 mm	0...15 mm					
0...27 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...35 mm	0...18 mm	0...18 mm					
								0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
								0...32 mm	0...20 mm	0...18 mm	0...28 mm	0...18 mm
								0...11 mm	0...7 mm	0...5 mm	0...7 mm	0...6 mm
								0...11 mm	0...9 mm	0...7 mm	0...11 mm	0...9 mm
								0...30 mm	0...20 mm	0...18 mm	0...16 mm	0...20 mm
								0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
								0...28 mm	0...20 mm		0...28 mm	0...20 mm

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances

15-30 mm



Read/write heads

Data carrier	Memory capacity in bytes	Read/write heads							
		BIS C-315- Page 34	BIS L-300-S115 Page 93	BIS L-301-S115 Page 94	BIS L-302-S115 Page 96/97	BIS L-303-S115 Page 95	BIS L-304-S115 Page 89/99	BIS L-350-S115 Page 100/101	
BIS C-117-05/A BIS C-117-11/L Page 25	1023 2047	0...20 mm 0...20 mm							
BIS C-127-05/L Page 26	1023	0...30 mm							
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27	1023 2047 8192	0...20 mm 0...20 mm 0...20 mm							
BIS L-100-01/L Page 88	192		0...30 mm	0...40 mm	0...20 mm	0...40 mm	0...20 mm		
BIS L-100-05/L-RO Page 91	3+CRC (read only)		0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...25 mm		
BIS L-200-03/L Page 91	5 (read only)		0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...25 mm		
BIS M-110-02/L Page 137	2000								
BIS L-101-01/L Page 88	192		0...40 mm	0...55 mm	0...25 mm	0...55 mm	0...25 mm		
BIS L-101-05/L-RO Page 91	3 + CRC (read only)		0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm		
BIS L-201-03/L Page 91	5 (read only)		0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm		
BIS M-101-01/L BIS M-111-02/L Page 136/137	752 2000								
BIS L-102-01/L Page 88	192		0...55 mm	0...70 mm	0...30 mm	0...70 mm			
BIS M-102-01/L Page 137	752								
BIS M-112-02/L Page 138	2000								
BIS L-103-05/L Page 89	192		0...25 mm		0...15 mm		0...15 mm		
BIS L-103-05/L-RO Page 91	3 + CRC (read only)		0...25 mm		0...15 mm		0...15 mm		
BIS L-203-03/L Page 91	5 (read only)		0...25 mm		0...15 mm		0...15 mm		
BIS L-150-05/A BIS L-151-05/A Page 89	192 192		0...25 mm 0...12 mm	0...32 mm 0...12 mm	0...12 mm 0...7 mm		0...12 mm 0...7 mm	0...25 mm 0...15 mm	
BIS M-108-02/L Page 139	2000								
BIS S-108-42/L BIS S-108-52/L Page 184	16 k 32 k								

0...2 mm = Data carrier flush mounted in steel

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances



	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS L-405-033-002-05-MU BIS L-405-037-002-05-MU Page 104	BIS L-405-033-004-05-MU BIS L-405-037-004-05-MU Page 105	BIS L-409-045-001-07-S4 Page 122	BIS M-300-001-S115 BIS M-300-003-S115 Page 147	BIS M-302-001-S115 BIS M-302-003-S115 Page 143	BIS M-400-007-001-00-S115 Page 153	BIS M-400-007-002-00-S115 Page 151	BIS M-401-007-001-00-S115 Page 157	BIS S-302-S115 BIS S-303-S115 Page 186
	0...30 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm						
	0...30 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm						
							0...22 mm	0...16 mm	0...20 mm	0...15 mm	0...30 mm	
	0...40 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...35 mm						
	0...40 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...35 mm						
							0...22 mm 0...28 mm	0...16 mm 0...20 mm	0...20 mm 0...28 mm	0...15 mm 0...20 mm	0...28 mm 0...40 mm	
							0...32 mm	0...20 mm	0...28 mm	0...18 mm	0...45 mm	
							0...44 mm	0...30 mm	0...38 mm	0...28 mm	0...60 mm	
	0...20 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm						
	0...20 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm						
							0...30 mm	0...20 mm	0...28 mm	0...20 mm	0...40 mm	
												5...20 mm 5...20 mm

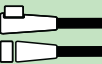
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BIS C

BIS L

BIS M

BIS S



Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances

25-50 mm



Read/write heads

		Read/write heads					
		BIS C-351- Page 41	BIS C-355/05-S92 Page 43	BIS L-300-S115 Page 93	BIS L-301-S115 Page 94	BIS L-302-S115 Page 96/97	
Data carrier	Memory capacity in bytes	Read/write distance					
BIS C-150-05/A BIS C-150-11/A BIS C-150-32/L Page 27	1023 2047 8192	0...45 mm 0...45 mm 0...45 mm	0...35 mm 0...35 mm 0...35 mm				
BIS L-100-01/L Page 88	192			0...30 mm	0...40 mm	0...20 mm	
BIS L-100-05/L-RO Page 91	3+CRC (read only)			0...40 mm	0...70 mm	0...25 mm	
BIS L-200-03/L Page 91	5 (read only)			0...40 mm	0...70 mm	0...25 mm	
BIS M-110-02/L Page 137	2000						
BIS L-101-01/L Page 88	192			0...40 mm	0...55 mm	0...25 mm	
BIS L-101-05/L-RO Page 91	3 + CRC (read only)			0...50 mm	0...70 mm	0...30 mm	
BIS L-201-03/L Page 91	5 (read only)			0...50 mm	0...70 mm	0...30 mm	
BIS M-101-01/L BIS M-111-02/L Page 136/137	752 2000						
BIS L-102-01/L Page 88	192			0...55 mm	0...70 mm	0...30 mm	
BIS L-102-05/L-RO Page 91	3 + CRC (read only)			0...70 mm	0...100 mm	0...40 mm	
BIS L-202-03/L Page 91	5 (read only)			0...70 mm	0...100 mm	0...40 mm	
BIS M-102-01/L Page 137	752						
BIS M-112-02/L Page 138	2000						
BIS L-103-05/L Page 89	192			0...25 mm			
BIS M-108-02/L Page 139	2000						
BIS M-120-01/L Page 139	752						

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances



	BIS L-303-S115 Page 96	BIS L-304-S115 Page 98/99	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-409-045-001-07-S4 Page 122	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS M-300-001-S115 BIS M-300-003-S115 Page 147	BIS M-301-001-S115 BIS M-301-003-S115 Page 149	BIS M-302-001-S115 BIS M-302-003-S115 Page 143	BIS M-400-007-001-00-S115 Page 153	BIS M-401-007-001-00-S115 Page 157
	0...40 mm	0...20 mm									
	0...50 mm	0...25 mm	0...30 mm	0...30 mm	0...25 mm	0...30 mm					
	0...50 mm	0...25 mm	0...30 mm	0...30 mm	0...25 mm	0...30 mm					
							0...22 mm	0...32 mm	0...16 mm	0...20 mm	0...30 mm
	0...55 mm	0...25 mm									
	0...70 mm	0...30 mm	0...40 mm	0...40 mm	0...35 mm	0...40 mm					
	0...70 mm	0...30 mm	0...40 mm	0...40 mm	0...35 mm	0...40 mm					
							0...22 mm 0...28 mm	0...34 mm 0...45 mm	0...16 mm 0...20 mm	0...20 mm 0...28 mm	0...28 mm 0...40 mm
	0...70 mm	0...30 mm									
	0...100 mm	0...40 mm	0...55 mm	0...55 mm	0...48 mm	0...55 mm					
	0...100 mm	0...40 mm	0...55 mm	0...55 mm	0...48 mm	0...55 mm					
							0...32 mm 0...44 mm	0...45 mm 0...70 mm	0...20 mm 0...30 mm	0...28 mm 0...38 mm	0...45 mm 0...60 mm
	0...30 mm										
							0...30 mm	0...45 mm	0...20 mm	0...28 mm	0...40 mm
								0...50 mm			0...50 mm

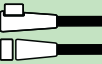
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BIS C

BIS L

BIS M

BIS S



Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances

> 40 mm



Read/write heads

		BIS C-350-00.3 Page 43		BIS C-351- Page 41		BIS L-300-S115 Page 93		BIS L-301-S115 Page 94		BIS L-302-S115 Page 96/97		BIS L-303-S115 Page 95	
Data carrier		Memory capacity in bytes		Read/write distance									
BIS C-150-05/A BIS C-150-11/A BIS C-150-32/A Page 27		1023	0...100 mm	0...45 mm									
		2047	0...100 mm	0...45 mm									
		8192	0...100 mm	0...45 mm									
BIS S-150-42/A BIS S-150-52/A Page 185		16k 32k											
BIS L-100-01/L Page 88		192			0...30 mm	0...40 mm	0...20 mm	0...40 mm					
BIS L-100-05/L-RO Page 91		3 + CRC (read only)			0...40 mm	0...50 mm	0...25 mm	0...50 mm					
BIS L-200-03/L Page 91		5 (read only)			0...40 mm	0...50 mm	0...25 mm	0...50 mm					
BIS L-101-01/L Page 88		192			0...40 mm	0...55 mm	0...25 mm	0...55 mm					
BIS L-101-05/L-RO Page 91		3 + CRC (read only)			0...50 mm	0...70 mm	0...30 mm	0...70 mm					
BIS L-201-03/L Page 91		5 (read only)			0...50 mm	0...70 mm	0...30 mm	0...70 mm					
BIS L-102-01/L Page 88		192			0...55 mm	0...70 mm	0...30 mm	0...70 mm					
BIS L-102-05/L-RO Page 91		3 + CRC (read only)			0...70 mm	0...100 mm	0...40 mm	0...100 mm					
BIS L-202-03/L Page 91		5 (read only)			0...70 mm	0...100 mm	0...40 mm	0...100 mm					
BIS M-102-01/L Page 137		752											
BIS M-112-02/L Page 138		2000											
BIS M-108-02/L Page 139		2000											
BIS M-120-01/L Page 139		752											
BIS M-150-02/A BIS M-151-02/A Page 141		2000 2000											

Industrial RFID Systems BIS

Selection Criteria for Read/Write Distances



	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS M-300-001-S115 BIS M-300-003-S115 Page 147	BIS M-301-001-S115 BIS M-301-003-S115 Page 149	BIS M-351-001-S115 Page 148	BIS M-401-007-001-00-S115 Page 157	BIS M-451-007-001-00-S115 Page 156	BIS S-301-S115 Page 187
									10...50 mm 10...50 mm
	0...30 mm	0...30 mm	0...30 mm						
	0...30 mm	0...30 mm	0...30 mm						
	0...40 mm 0...40 mm	0...40 mm 0...40 mm	0...40 mm 0...40 mm						
	0...55 mm 0...55 mm	0...55 mm 0...55 mm	0...55 mm 0...55 mm						
				0...32 mm 0...44 mm	0...45 mm 0...70 mm		0...45 mm 0...60 mm		
				0...30 mm	0...45 mm		0...40 mm		
					0...50 mm		0...50 mm		
						0...60 mm 0...60 mm On metal		0...60 mm 0...60 mm On metal	

i

BIS C

BIS L

BIS M

BIS S



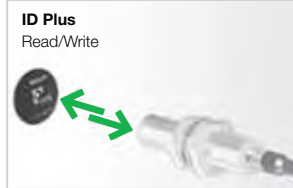




This section includes durable machine tool RFID solutions.



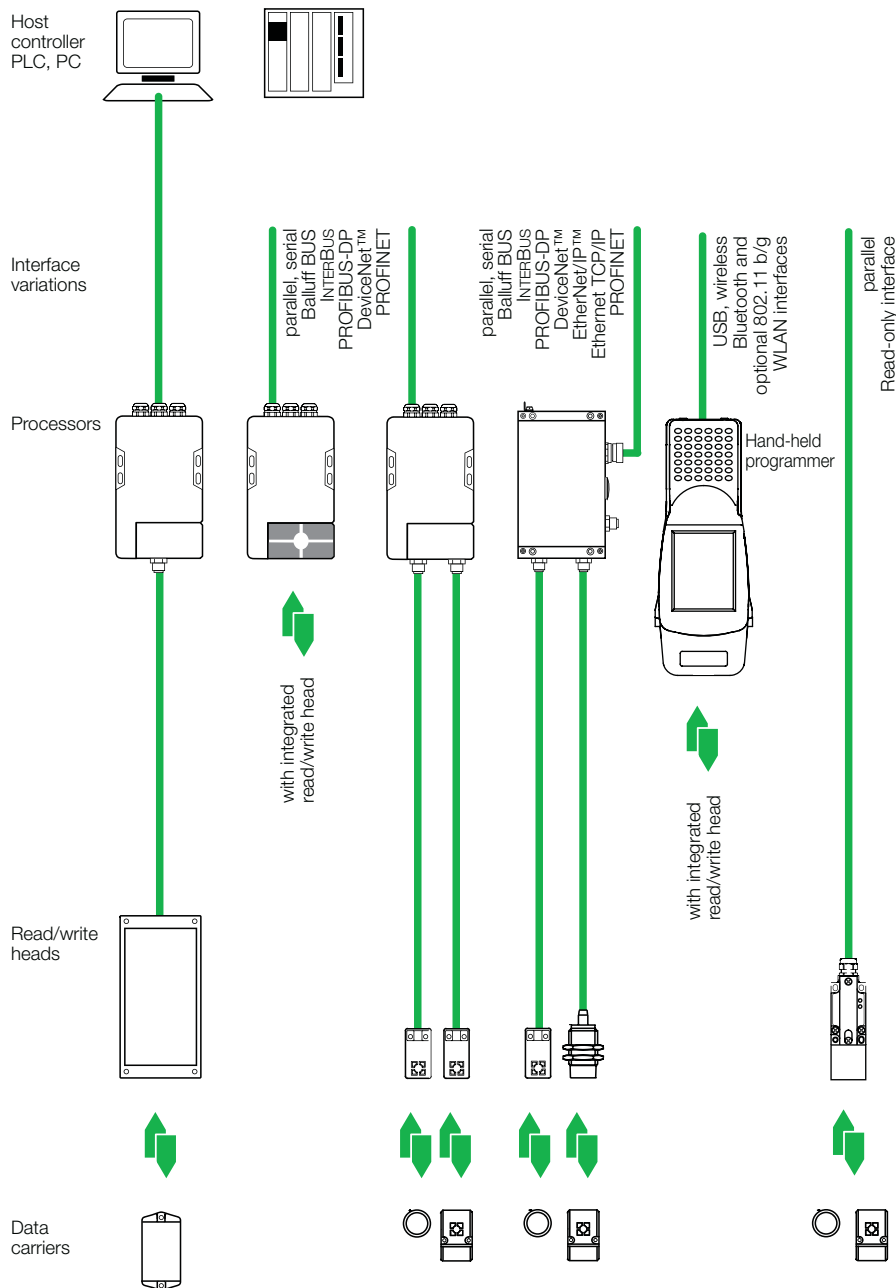
This section includes simple read-only RFID solutions.



This section provides specifications on the rugged and durable BIS C series read/write RFID solutions.

Many variants, wide spectrum – BIS C

Combine BIS C components according to your needs



20	Range of Applications
22	Selection Criteria for Read/Write Distances
24	Data Carriers Read/Write
30	Read/Write Heads
38	Read/Write Heads with Connector
42	Read/Write Heads – Long Distances
44	Data Couplers
46	Modular Read/Write Heads
48	Modular Head Adapters
50	8-bit Read-Only Processor
52	Read-Only Parallel Processors
54	Processors
54	Serial
56	INTERBUS
58	PROFIBUS-DP
60	DeviceNet™
62	Metal Housing Processors
62	PROFIBUS-DP
64	INTERBUS
65	DeviceNet™
66	EtherNet/IP™
67	Ethernet TCP/IP
68	PROFINET
70	Handy Programmer
71	Read/Write Heads
71	Handy Programmer
72	Handheld Programmer
73	Handheld Accessories
74	Machine Tool ID Interface
75	Read/Write Handle Accessory
76	Access Security System
77	Read/Write Gun Accessory
78	Installation Notes
82	Read/Write Times

Industrial RFID Systems BIS C

Wide Range of Applications Supported

The versatile BIS C is ideal for a wide range of applications. Select the most suitable BIS C tags based on your application from the table.



Data carrier	Tools		Production				
	Data storage on machine tools		Tool and die management		Assembly conveying systems		
	Tool holder collar	Retention knob	On tool	Dies	Pallets	On part	
BIS C-100-05/A	■		■			■	
BIS C-103-05/A	■	■		■	■	■	
BIS C-104-11/A					■		
BIS C-104-32/A					■		
BIS C-105-05/A	■	■	■	■		■	
BIS C-108-05/L				■	■		
BIS C-108-11/L				■	■		
BIS C-108-32/L				■	■		
BIS C-108-05/L-SA2					■		
BIS C-108-11/L-SA2					■		
BIS C-117-05/A				■	■		
BIS C-117-05/L				■	■		
BIS C-117-11/L				■	■		
BIS C-121-04/L	■		■			■	
BIS C-121-04/L-SA1					■		
BIS C-122-04/L	■	■	■			■	
BIS C-122-11/L	■	■	■			■	
BIS C-127-05/L							
BIS C-128-05/L				■	■	■	
BIS C-128-11/L				■	■	■	
BIS C-130-05/L			■		■		
BIS C-130-05/L-SA1			■		■		
BIS C-133-05/L					■		
BIS C-134-05/L				■	■		
BIS C-150-05/A					■		
BIS C-150-11/A					■		
BIS C-150-32/A					■		
BIS C-190-05/L					■		
BIS C-190-11/L					■		
BIS C-190-32/L					■		
BIS C-191-05/L					■		
BIS C-191-11/L					■		



Selection Criteria

Data Carriers
Read/Write
Heads
Read/Write
Heads with
Connector
Read/Write
Heads – Long
Distances
Data Couplers
Modular
Read/Write
Heads
Modular Head
Adapters
8-bit
Read-Only
Processor
Read-Only
Parallel
Processors
Processors
Metal Housing
Processors
Handy
Programmer
Handheld
Programmer
Machine Tool
ID Interface
Read/Write
Handle
Accessory
Access
Security
System
Read/Write
Gun
Accessory
Installation
Notes
Read/Write
Times

Industrial RFID Systems BIS C

Selection Criteria for Read/Write Distances

Use the tables and combine BIS C read/write head with tag based on range.

In three steps you will have selected your BIS C system:

1. First choose the appropriate form factor for your data carrier.
2. Then determine your read/write head based on range.
3. Finally, determine the desired memory capacity. Many tags provide several sizes.

Questions?

Whatever you need, whether analysis, selection and return on investment, formats, interfaces and software, installation, disassembly and retrofitting – in short: we are here to help you in every way.

Take advantage of our personal consultation, individual support and worldwide service.

0-12 mm



Read/write heads

		Read/write heads									
		BIS C-300- BIS C-306- Page 30	BIS C-302- Page 31	BIS C-305- Page 32	BIS C-310- Page 35	BIS C-318- Page 41	BIS C-325- Page 36	BIS C-327- Page 40	BIS C-328- -S49 Page 40	BIS C-60R- BIS C-61R- Page 50/51	
Data carrier		Memory capacity in bytes	Read/write distance								
BIS C-100-05/A Page 25		1023	0...4 mm	0...4 mm	0...4 mm			0...4 mm		0...6 mm 0...5 mm	
BIS C-103-05/A Page 24		1023	0...3,5 mm	0...3 mm	0...5 mm					0...4 mm	
BIS C-104-11/A BIS C-104-32/A Page 26		2047 8192				0...11 mm 0...12 mm				1...8 mm 1...8 mm	
BIS C-105-05/A Page 24		1023	0...3,5 mm	0...3 mm	0...5 mm			0...5 mm		0...4 mm	
BIS C-108-05/L BIS C-108-11/L BIS C-108-32/L Page 26		1023 2047 8192			0...6 mm 0...6 mm 0...6 mm	0...12 mm 0...12 mm 0...12 mm	0...6 mm 0...6 mm 0...6 mm		0...8 mm	1...8 mm 0...6 mm	
BIS C-108-05/L-SA2 BIS C-108-11/L-SA2 Page 28		1023 2047				0...11 mm 0...4 mm	0...6 mm				
BIS C-117-05/A BIS C-117-05/L Page 25		1023 1023			0...8 mm 0...7 mm	0...12 mm 0...13 mm	0...7 mm			1...8 mm 1...8 mm	
BIS C-121-04/L Page 24		511	0...2 mm	0...1,5 mm	0...2 mm			0...1,7 mm		1...5 mm	
BIS C-121-04/L-SA1 Page 28		511	0...1,2 mm	0...0,7 mm	0...1,2 mm					0...4 mm	
BIS C-122-04/L BIS C-122-11/L Page 24		511 2047	0...2,5 mm 0...2,5 mm	0...2 mm 0...2 mm	0...2,5 mm 0...2,5 mm			0...2,5 mm 0...2,5 mm	0...3 mm 0...3 mm	1...5 mm 1...5 mm	
BIS C-128-05/L BIS C-128-11/L Page 25		1023 2047			0...6 mm 0...6 mm	0...8 mm 0...13 mm	0...7,5 mm 0...7,5 mm		0...8 mm 0...8 mm	3...12 mm 3...12 mm	
BIS C-130-05/L Page 25		1023	0...4 mm	0...3,5 mm	0...7 mm			0...4 mm		1...8 mm	
BIS C-130-05/L-SA1 Page 28		1023	0...4 mm	0...4 mm	0...7 mm	0...8 mm		0...4 mm		1...8 mm	
BIS C-133-05/L Page 29		1023				0...10 mm					
BIS C-134-11/L Page 28		2047	0...3 mm		0...6 mm	0...10 mm		0...4 mm			
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27		1023 2047 8192				0...11 mm 0...11 mm 0...11 mm	0...8 mm 0...8 mm 0...8 mm		0...8 mm 0...8 mm 0...8 mm		
BIS C-191-05/L BIS C-191-11/L Page 27		1023 2047	0...3,5 mm 0...3,5 mm	0...3 mm 0...3 mm		0...10 mm 0...10 mm		0...3 mm 0...3 mm			

0...2 mm = Data carrier flush mounted in steel

Industrial RFID Systems BIS C

Selection Criteria for Read/Write Distances

8-20 mm



		Read/write heads				
		BIS C-315-__ Page 34	BIS C-319-__ Page 33	BIS C-323-__ Page 37	BIS C-324-__ Page 39	BIS C-326-__ Page 33
Data carrier	Memory capacity in bytes	Read/write distance				
BIS C-104-11/A BIS C-104-32/A Page 26	2047 8192	1...13 mm 1...13 mm		1...11 mm 0...12 mm	1...11 mm 0...12 mm	
BIS C-108-05/L BIS C-108-11/L BIS C-108-32/L Page 26	1023 2047 8192	0...16 mm 0...16 mm 0...16 mm	0...14 mm 0...14 mm 0...14 mm	0...12 mm 0...12 mm 0...12 mm	0...12 mm 0...12 mm 0...12 mm	
BIS C-108-05/L-SA2 BIS C-108-11/L-SA2 Page 28	1023 2047	0...16 mm 0...16 mm		0...11 mm 0...11 mm	0...11 mm 0...11 mm	0...12 mm 0...12 mm
BIS C-117-05/A BIS C-117-05/L Page 25	1023 1023	0...15 mm 0...20 mm	0...13 mm 0...15 mm	1...12 mm 0...13 mm	1...12 mm 0...13 mm	0...18 mm
BIS C-128-05/L BIS C-128-11/L Page 25	1023 2047	0...18 mm 0...18 mm		0...8 mm 0...13 mm	0...8 mm 0...13 mm	0...15 mm 0...15 mm
BIS C-130-05/L Page 25	1023	0...18 mm	0...13 mm	0...11 mm		0...13 mm
BIS C-130-05/L-SA1 Page 28	1023	0...18 mm	0...13 mm	0...8 mm	0...8 mm	0...13 mm
BIS C-133-05/L Page 29	1023	0...15 mm		0...10 mm	0...10 mm	0...12 mm
BIS C-134-11/L Page 28	2047	0...16 mm	0...12 mm	0...10 mm	0...10 mm	0...10 mm
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27	1023 2047 8192	0...20 mm 0...20 mm 0...20 mm		0...11 mm 0...11 mm 0...11 mm	0...11 mm 0...11 mm 0...11 mm	0...18 mm 0...18 mm 0...18 mm
BIS C-191-05/L BIS C-191-11/L Page 27	1023 2047		0...11 mm 0...11 mm	0...10 mm 0...10 mm	0...10 mm 0...10 mm	

BIS C

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Read/Write

Heads

Read/Write

Heads with

Connector

Read/Write

Heads – Long

Distances

Data Couplers

Modular

Read/Write

Heads

Modular Head

Adapters

8-bit

Read-Only

Processor

Read-Only

Parallel

Processors

Processors

Metal Housing

Processors

Handy

Programmer

Handheld

Programmer

Machine Tool

ID Interface

Read/Write

Handle

Accessory

Access

Security

System

Read/Write

Gun

Accessory

Installation

Notes

Read/Write

Times

15-30 mm



25-50 mm



		Read/write heads	
		BIS C-315-__ Page 34	
Data carrier	Memory capacity in bytes	Read/write distance	
BIS C-117-05/L BIS C-117-11/L Page 25	1023 2047	0...20 mm 0...20 mm	
BIS C-127-05/L Page 26	1023	0...30 mm	
BIS C-190-05/L BIS C-190-11/L BIS C-190-32/L Page 27	1023 2047 8192	0...20 mm 0...20 mm 0...20 mm	

		Read/write heads	
		BIS C-351-__ Page 41	BIS C-355/05-S92 Page 43
Data carrier	Memory capacity in bytes	Read/write distance	
BIS C-150-05/A BIS C-150-11/A BIS C-150-32/L Page 27	1023 2047 8192	0...45 mm 0...45 mm 0...45 mm	0...35 mm 0...35 mm 0...35 mm

> 40 mm



		Read/write heads	
		BIS C-350-00.3 Page 43	BIS C-351-__ Page 41
Data carrier	Memory capacity in bytes	Read/write distance	
BIS C-150-05/A BIS C-150-11/A BIS C-150-32/A Page 27	1023 2047 8192	0...100 mm 0...100 mm 0...100 mm	0...45 mm 0...45 mm 0...45 mm

Dimensions	Ø 9x4.5	Ø 10x4.5	Ø 12x8	Ø 12x6
Housing material	EP	EP	EP	EP
Antenna type	round	round	round	round
Weight	0.5 g	0.7 g	1.8 g	1.2 g



glue into hole Ø 9 H11 PI0120 Note installation instructions on page 78-81.	glue into hole Ø 10 H11 PI0119 Note installation instructions on page 78-81.	glue into hole Ø 12 H11 PI0008 Note installation instructions on page 78-81.	glue into hole Ø 12 H11 PI0009 Note installation instructions on page 78-81.
--	---	---	---

BIS C Programmable

511 bytes	Part number	BIS C-121-04/L	BIS C-122-04/L		
1023 bytes	Part number			BIS C-103-05/A	BIS C-105-05/A
2047 bytes	Part number		BIS C-122-11/L		
8 Kbytes	Part number				
Operating temperature		0...+70 °C	0...+70 °C	-30...+70 °C	-30...+70 °C
Storage temperature		-30...+85 °C*	-30...+85 °C*	-30...+85 °C*	-30...+85 °C*
Protection per IEC 60529		IP 68	IP 68	IP 68	IP 68

		flush in steel	mount on steel		flush in steel	mount on steel		flush in steel	mount on steel		flush in steel	mount on steel
Mounting in steel												
Appropriate read/write head	BIS C-300	2 mm	3 mm	BIS C-300	2,5 mm	3 mm	BIS C-300	3,5 mm	4 mm	BIS C-300	3,5 mm	4 mm
with max. read/write distance	BIS C-302	1,5 mm	2,5 mm	BIS C-302	2,0 mm	2,5 mm	BIS C-302	3 mm	3,5 mm	BIS C-302	3 mm	3,5 mm
	BIS C-305	2 mm	3 mm	BIS C-305	2,5 mm	3 mm	BIS C-305	5 mm	6 mm	BIS C-305	5 mm	6 mm
	BIS C-306	2 mm	3 mm	BIS C-306	2,5 mm	3 mm	BIS C-306	3,5 mm	4 mm	BIS C-306	3,5 mm	4 mm
	BIS C-325	1,7 mm	3 mm	BIS C-325	2,5 mm	3 mm	BIS C-325	4,5 mm	5 mm	BIS C-325	4,5 mm	5 mm
				BIS C-328		3 mm						

*also available for up to +120 °C on request

Machine tool identification

Ideal for imbedding in metal tool holders.



Read/Write Cycles

Data carriers	Memory type	Write cycles up to 30 °C	Write cycles up to 70 °C	Read cycles	Memory organization
511 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
1023 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
2047 bytes	EEPROM	1 000 000	500 000	unlimited	64 bytes per block
8 Kbytes	FRAM	unlimited	unlimited	unlimited	64 bytes per block

BIS C

Data Carriers Read/Write

Read/Write
Heads with
Connector

Data Couplers

Modular Head Adapters

Read-Only Parallel Processors

Handy Programmer

Handheld
ProgrammerMachine Tool
ID Interface

Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun
Accessory

Installation Notes

Read/Write
Times

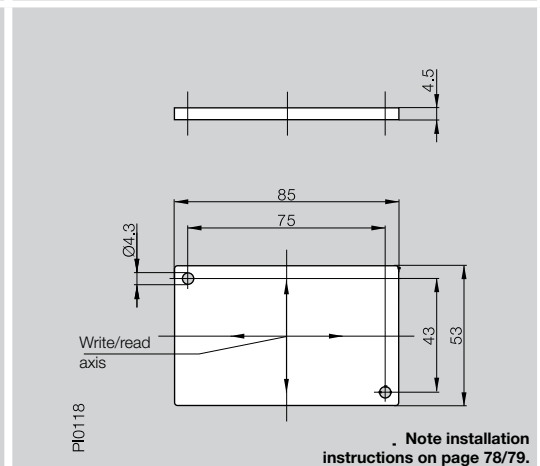
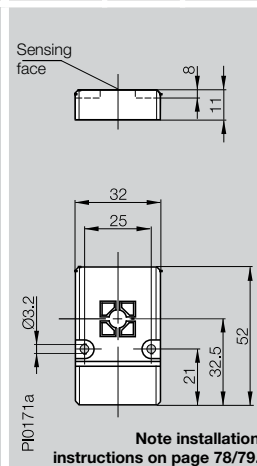
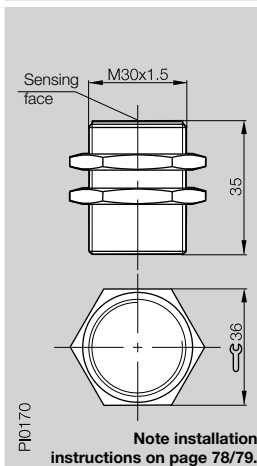
**BIS C-305, only if
BIS C-128__ is attached using
plastic screw.

for BIS C-100-05/A data carrier
please order separately!

Industrial RFID Systems BIS C

Data Carriers Read/Write

Dimensions	Ø 30x35	52x32x11	85x53x4.5
Housing material	Nickel plated brass	PBT	ABS
Antenna type	round	round	round
Weight	54 g	28 g	30 g



BIS C Programmable

511 bytes	Part number		
1023 bytes	Part number		
2047 bytes	Part number	BIS C-104-11/A	BIS C-108-11/L
8 Kbytes	Part number	BIS C-104-32/A	BIS C-108-32/L
Operating temperature		-30...+70 °C	-30...+70 °C
Storage temperature		-30...+85 °C	-30...+85 °C
Protection per IEC 60529		IP 67	IP 68

		flush in steel	mount on steel			flush in steel	mount on steel			flush in steel	mount on steel
Mounting in steel											
Appropriate read/write head with max. read/write distance	BIS C-310	11 mm	12 mm	BIS C-305		6 mm		BIS C-315			30 mm
	BIS C-315	13 mm	14 mm	BIS C-310	5 mm	12 mm		BIS C-318			25 mm
	BIS C-323	11 mm	12 mm	BIS C-315	10 mm	16 mm					
	BIS C-324	11 mm	12 mm	BIS C-318		7 mm					
				BIS C-319	11 mm	14 mm					
				BIS C-323		12 mm					
				BIS C-324		12 mm					
				BIS C-327		8 mm					

Screw tightening torque
40 Nm

Specially designed for
palletizing/logistics



Pallet Tags



Read/Write Cycles

Data carriers	Memory type	Write cycles up to 30 °C	Write cycles up to 70 °C	Read cycles	Memory organization
511 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
1023 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
2047 bytes	EEPROM	1 000 000	500 000	unlimited	64 bytes per block
8 Kbytes	FRAM	unlimited	unlimited	unlimited	64 bytes per block

Industrial RFID Systems BIS C

Data Carriers Read/Write

BIS C

Range of Applications
Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

Access Security System

Read/Write Gun Accessory

Installation Notes

Read/Write Times

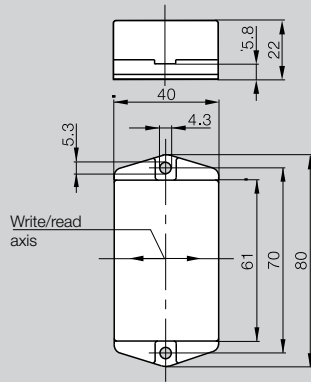
80x40x22

POM

rod

75 g

PI0121



Note installation instructions on page 78/79.

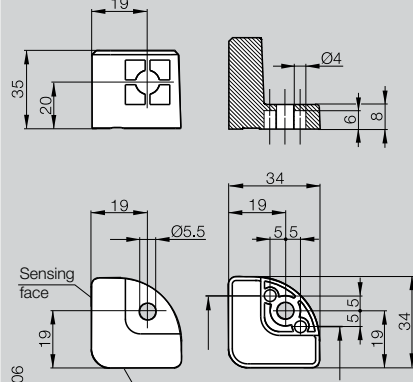
34x34

PBT

round/double

29 g

PI0106



Note installation instructions on page 78/79.

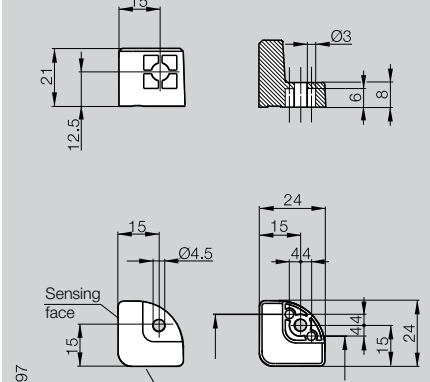
12.5x12.5

PBT

round/double

10 g

PI0197



Note installation instructions on page 78/79.

BIS C-150-05/A

BIS C-150-11/A

BIS C-150-32/A

-30...+70 °C

-30...+85 °C

IP 68

BIS C-190-05/L

BIS C-190-11/L

BIS C-190-32/L

-30...+70 °C

-30...+85 °C

IP 68

BIS C-191-05/L

BIS C-191-11/L

-30...+70 °C

-30...+85 °C

IP 68

flush in steel

mount on steel

BIS C-350

BIS C-351

100 mm

50 mm

BIS C-310

BIS C-315

BIS C-318

BIS C-323

BIS C-324

BIS C-326

BIS C-327

flush in steel

mount on steel

11 mm

20 mm

8 mm

11 mm

11 mm

18 mm

8 mm

flush in steel

mount on steel

BIS C-300

BIS C-306

BIS C-310

BIS C-319

BIS C-323

BIS C-324

BIS C-325

3,5 mm

3,5 mm

10 mm

11 mm

10 mm

10 mm

3,5 mm

Screw tightening torque 1.5 Nm,
anti-torquing installation provided by straight
pin Ø 4 mm according to
DIN EN 22338; DIN EN 28734

Screw tightening torque 1.5 Nm,
anti-torquing installation provided by straight
pin Ø 3 mm according to
DIN EN 22338; DIN EN 28734



Dual Coil Data Carrier

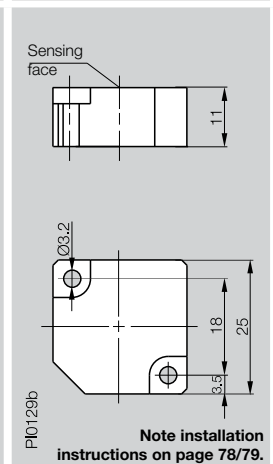
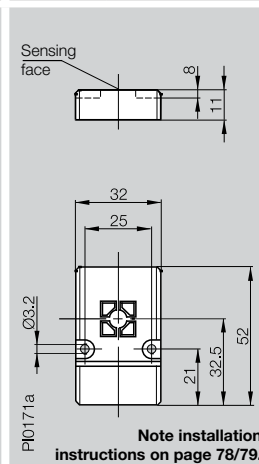
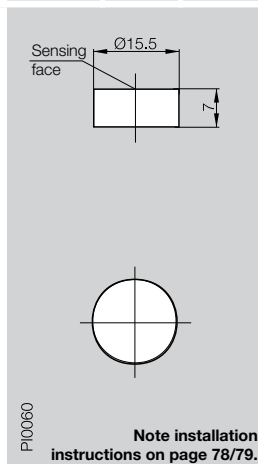
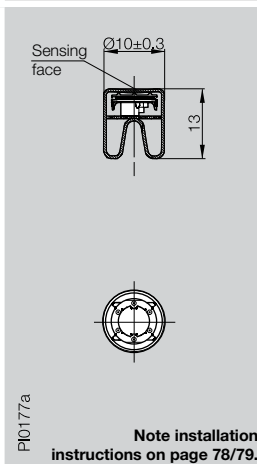
Advantages:

Reading or writing can
be performed on either
active surface.

Industrial RFID Systems BIS C

Data Carriers Read/Write

Dimensions	Ø 11×13	Ø 15.5×7	52×32×11	25×25
Housing material	Glass	PBT	PBT	PA 66-GF30
Antenna type	round	round	round	round
Weight	0.9 g	2 g	28 g	9 g



BIS C Programmable

511 bytes	Part number	BIS C-121-04/L-SA1			
1023 bytes	Part number		BIS C-130-05/L-SA1	BIS C-108-05/L-SA2	BIS C-134-05/L-H120
2047 bytes	Part number			BIS C-108-11/L-SA2	BIS C-134-11/L
8 Kbytes	Part number				
Operating temperature		+10...+70 °C	-30...+70 °C	-30...+70 °C	-30...+70 °C
Storage temperature		+10...+126 °C	-30...+85 °C	-30...+85 °C*	-30...+85 °C*
Protection per IEC 60529		IP 68	IP 68	IP 68	IP 68

Mounting in steel

		flush in steel	mount on steel		flush in steel	mount on steel		flush in steel	mount on steel		flush in steel	mount on steel
Appropriate read/write head	BIS C-300	1,2 mm		BIS C-300	4 mm	6 mm	BIS C-305		6 mm	BIS C-300	3 mm	
with max. read/write distance	BIS C-302	0,7 mm		BIS C-305	6 mm	11 mm	BIS C-310	4 mm	11 mm	BIS C-305		6 mm
	BIS C-305	1,2 mm		BIS C-306	4 mm	16 mm	BIS C-315	10 mm	16 mm	BIS C-306	3 mm	
	BIS C-306	1,2 mm		BIS C-310	8 mm	6 mm	BIS C-318		6 mm	BIS C-310		10 mm
	BIS C-325	1,7 mm		BIS C-319	7 mm	11 mm	BIS C-323	4 mm	11 mm	BIS C-315		16 mm
				BIS C-323	8 mm	11 mm	BIS C-324	4 mm	11 mm	BIS C-319		12 mm
				BIS C-324	8 mm	12 mm	BIS C-326		12 mm	BIS C-323		10 mm
				BIS C-325	4 mm					BIS C-324		10 mm
				BIS C-326						BIS C-325		4 mm
										BIS C-326		12 mm

Suitable for	use in autoclaves	use in vacuum	use in vacuum	use in vacuum
--------------	-------------------	---------------	---------------	---------------

*also available for up to
+120 °C on request

Reliable identification,
even in a vacuum



Read/Write Cycles

Data carriers	Memory type	Write cycles up to 30 °C	Write cycles up to 70 °C	Read cycles	Memory organization
511 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
1023 bytes	EEPROM	1 000 000	500 000	unlimited	32 bytes per block
2047 bytes	EEPROM	1 000 000	500 000	unlimited	64 bytes per block
8 Kbytes	FRAM	unlimited	unlimited	unlimited	64 bytes per block

[illegible]

Databolt™

Ideal for automatic insertion
and removal from parts like
engine blocks and heads.



BIS C-131-05/L for radial data retrieval from rotating parts, positioning not required. Contact us.

BIS C

Range of Applications
Selection Criteria

Data Carriers
Read/Write

Read/W
HeadsRead/Write
Heads with
Connector

Read/Write
Heads – Long
Distances

Data Couplers

Modular
Read/Write
Heads

Modular Head Adapters

8-bit
Read-Only
ProcessorRead-Only
Parallel
Processors

Processors

Metal Housing Processors

Handy
ProgrammerHandheld
ProgrammerMachine Tool
ID Interface

Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun
Accessory

Installation Notes

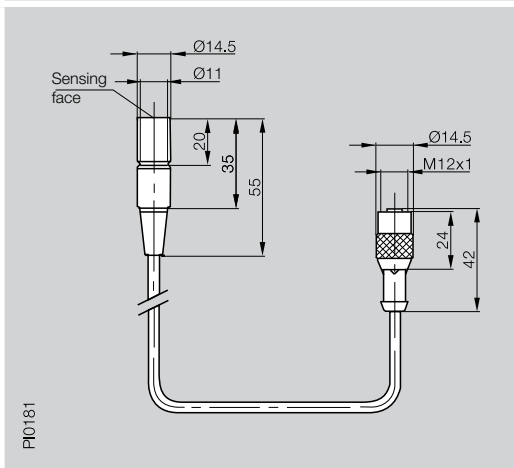
Read/Write
Times

Industrial RFID Systems BIS C

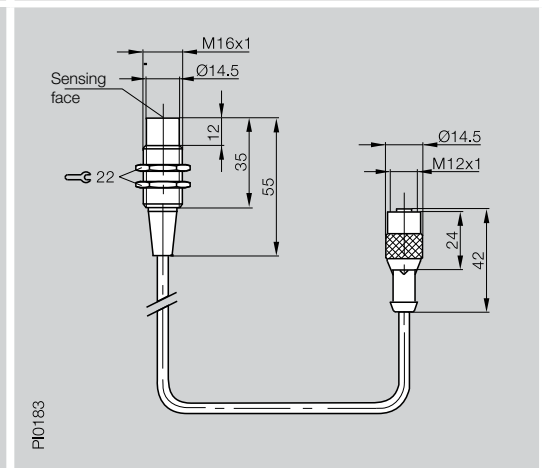
Read/Write Heads

Machine Tool RFID

Dimensions	Ø 14.5
Housing material	CuZn
Antenna type	round
Weight	210 g



M16
CuZn
round
200 g



Part number	BIS C-300-__
Mounting in steel	flush
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Cable	1 m, 5 m or 10 m/PUR
Connection to	Processor

BIS C-306-__

Appropriate data carriers

Static mode

	BIS C-100-05/A flush in steel	BIS C-103-05/A flush in steel	BIS C-105-05/A flush in steel	BIS C-121-04/L flush in steel	BIS C-121-04/L-SA1 flush in steel	BIS C-122-04/L flush in steel	BIS C-130-05/L flush in steel	BIS C-134-_-_-L flush in steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 mount on steel	BIS C-130-05/L-SA6 mount on steel	BIS C-191-_-_-/_L mount on steel
Write distance in mm	0-4	0-3,5	0-3,5	0-2	0-1,2	0-2,5	0-4	0-3	0-4	0-4	0-3	0-3,5
Read distance in mm	0-4	0-3,5	0-3,5	0-2	0-1,2	0-2,5	0-4	0-3	0-4	0-4	0-3	0-3,5
Offset in mm	0.7 mm				±2							
at distance	1 mm	±3	±3	±3	±2	±2,5	±3,5	±4	±5	±5	±3,5	±4
	3 mm	±2	±2	±2			±3		±4	±4	±2	±3

Dynamic mode

Read/write distance in mm	1	1	1	1		1	1-3	1-2	1-3	1-3	1-3	1-3
V _{max} to write bytes 0...3 in m/min								5-4	7-5	7-5	5-2,5	6-4
V _{max} to read bytes 0...3 in m/min	8	6	6	6		6	7	8-7	10-8	10-8	9-4	10-7

For read/write heads with connector, please append cable length to part number!

01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

Caution!

At 10 m cable length, read/write distance is reduced by 10%

Handle BIS C-300-HG1

for read/write head BIS C-300-__

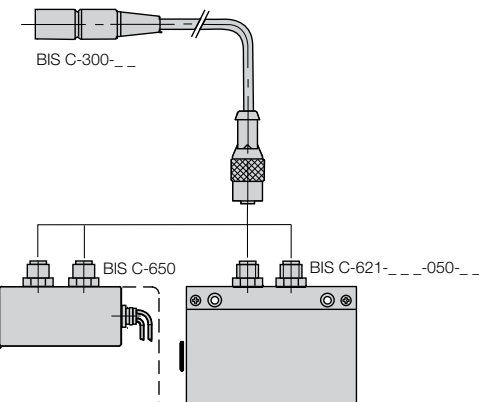
Material: POM
see page 210



Recommended for machine tool identification.



Example:



Industrial RFID Systems BIS C

Read/Write Heads

Angle

AIMg3/PA 66

round

270 g

BIS C

Range of Applications

Selection Criteria

Data Carriers
Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular
Read/Write Heads

Modular Head Adapters

8-bit
Read-Only Processor

Read-Only Parallel Processors

Processors
Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

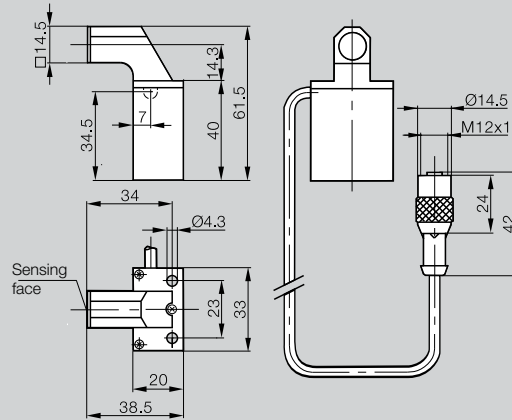
Read/Write Handle Accessory

Access Security System

Read/Write Gun Accessory

Installation Notes

Read/Write Times



PI0445

BIS C-302-__

flush

0...+70 °C

-20...+85 °C

IP 67

5 m or 10 m PUR

Processor

BIS C-100-05/A flush in steel	BIS C-103-05/A flush in steel	BIS C-105-05/A flush in steel	BIS C-121-04/L flush in steel	BIS C-121-04/L-SA1 flush in steel	BIS C-122-04/L flush in steel	BIS C-130-05/L flush in steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 mount on steel	BIS C-191-__/_/L mount on steel
0-4	0-3	0-3	0-1,5	0-0,7	0-2	0-3,5	0-4	0-4	0-3
0-4	0-3	0-3	0-1,5	0-0,7	0-2	0-3,5	0-4	0-4	0-3
				±1					
±3	±3	±3	±1,5		±2	±3	±5	±5	±4
±2	±1,5	±1,5				±2	±3	±3	±2
1	1	1	1		1	1-3	1-3	1-3	1-3
							6-3	6-3	4-3
8	6	6	4		5	5	8-5	8-5	6-5



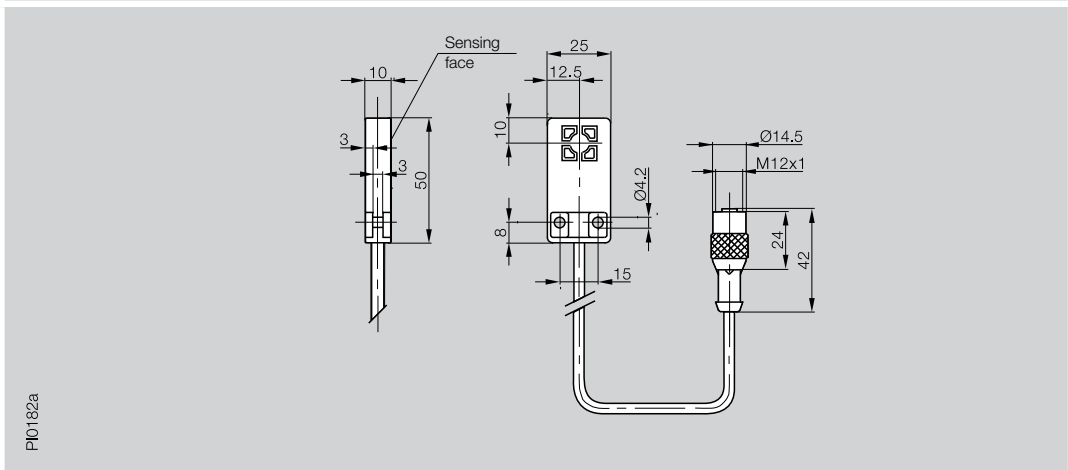
Recommended for
roller conveyor use.

Cables on read/write heads must not be shortened, since functionality can then no longer be ensured.

Industrial RFID Systems BIS C

Read/Write Heads

Dimensions	50x25x10
Housing material	ABS-GF16
Antenna type	round
Weight	230 g



Part number	BIS C-305-__
Mounting in steel	flush
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Cable	1 m, 5 m or 10 m/PVC
Connection to	Processor

Appropriate data carriers	BIS C-100-05/A flush in steel	BIS C-103-05/A flush in steel	BIS C-105-05/A flush in steel	BIS C-108-__/L BIS C-108-__/L-SA2 mount on steel	BIS C-117-05/A flush in steel	BIS C-117-05/L mount on steel	BIS C-121-04/L flush in steel	BIS C-121-04/L-SA1 flush in steel	BIS C-122-04/L flush in steel	BIS C-117-051A mount on steel	BIS C-128-05/L mount on steel	BIS C-130-05/L BIS C-130-05/L-SA1 mount on steel	BIS C-130-05/L-SA6 mount on steel	BIS C-134-11/L mount on steel
---------------------------	----------------------------------	----------------------------------	----------------------------------	--	----------------------------------	----------------------------------	----------------------------------	--------------------------------------	----------------------------------	----------------------------------	----------------------------------	--	--------------------------------------	----------------------------------

Static mode

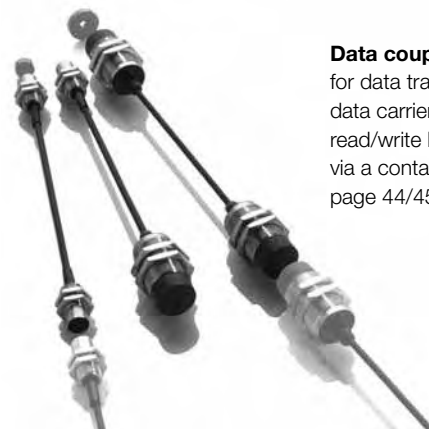
Write distance in mm	0-4	0-5	0-6	1-8	0-7	0-2	0-1,2	0-2,5	0-10	0-6	0-7	0-4,5	0-6	
Read distance in mm	0-4	0-5	0-6	1-8	0-7	0-2	0-1,2	0-2,5	0-10	0-6	0-7	0-4,5	0-6	
Offset in mm	0.7 mm						±2							
at distance	1 mm	±3	±4	±8	±5	±8,5	±2		±3	±6	±8	±5	±4,5	±5
	3 mm	±2	±3	±7	±4	±7,5			±2	±6	±7	±5	±3,5	±5
	5 mm			±5	±3	±6				±6	±5	±4		±4
	7 mm					±4				±5	±2			
	10 mm								±3					

Dynamic mode

Read/write distance in mm	1	1	1-5	1-5	1-5	1		1	2-8	1-5	1-6	1-4	1-5
V _{max} to write bytes 0...3 in m/min			12-7	7-4	12-9				9-7	12-7	11-6	6-4,5	11-6
V _{max} to read bytes 0...3 in m/min	8	10	20-12	12-7	21-16	6		8	16-13	20-12	14-11	11-8	14-11

For read/write heads with connector, please append cable length to part number!
 01 = Length 1 m,
 05 = Length 5 m,
 10 = Length 10 m.

Caution!
 At 10 m cable length,
 read/write distance is
 reduced by 10%.



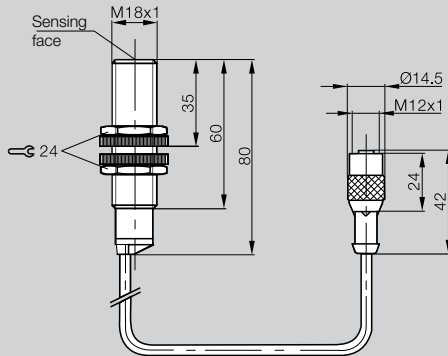
Data coupler BIS C-380-...
 for data transmission between
 data carriers BIS C-1__ and
 read/write head BIS C-3__
 via a contactless extension
 page 44/45

Industrial RFID Systems BIS C

Read/Write Heads

M18

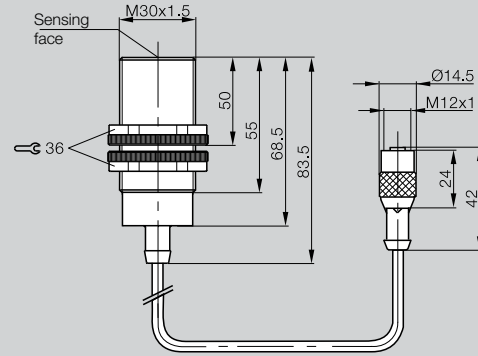
PBT
round
197 g



PI0063a

M30

PVDF
round
270 g



PI0125a

BIS C

Range of Applications
Selection Criteria

Data Carriers
Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors
Metal Housing Processors

Handy Programmer
Handheld Programmer

Machine Tool ID Interface

Read/Write Handle
Accessory

Access Security System

Read/Write Gun
Accessory

Installation Notes
Read/Write Times

BIS C-319-__

non-flush
0...+70 °C
-20...+85 °C
IP 67
1 m, 5 m or 10 m/PUR
Processor

BIS C-326-__

non-flush
0...+70 °C
-20...+85 °C
IP 67
5 m or 10 m/PUR
Processor

BIS C-108-__/_L
mount on steel

BIS C-117-05/L
mount on steel

BIS C-130-05/L
mount on steel

BIS C-130-05/L-SA1
mount on steel

BIS C-134-11/L
mount on steel

BIS C-191-__/_L
mount on steel

BIS C-117-05/L
mount on steel

BIS C-128-__/_L
mount on steel

BIS C-130-__/_L
mount on steel

BIS C-130-05/L-SA1
mount on steel

BIS C-133-__/_L
mount on steel

BIS C-134-11/L
mount on steel

BIS C-190-__/_L
mount on steel

0-14
0-14

0-15
0-15

0-13
0-13

0-13
0-13

0-12
0-12

0-11
0-11

0-18
0-18

0-12,5
0-12,5

0-13
0-13

0-13
0-13

0-12
0-12

0-12
0-12

0-18
0-18

±12
±12

±13
±12

±9
±9

±9
±9

±9
±9

±9
±9

±15
±15

±13
±12

±12
±10

±12
±10

±14
±14

±12
±10

±17
±17

±11
±11

±12
±11

±9
±8,5

±9
±8,5

±9
±8,5

±9
±8

±15
±14

±12
±11

±10
±10

±10
±8,5

±14
±10

±17
±16

±17
±16

±9
±9

±10
±10

±7,5
±7,5

±7,5
±7,5

±7
±7

±8
±8

±11
±11

±8
±8

±10
±10

±10
±8,5

±14
±10

±17
±16

±17
±16

0-10
17-13
26-20

0-10
18-15
31-22

0-10
13-11
23-19

0-10
13-11
23-19

0-9
13-11
23-19

0-8
13-11
22-20

0-15
22-16
38-28

0-10
18-11
32-19

0-10
17-11
30-19

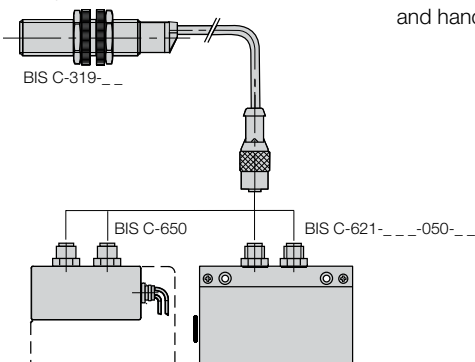
0-10
17-11
30-19

0-10
19-12
34-21

0-10
17-11
30-19

0-15
25-17
43-29

Example:



Ideal for palletizing, logistics and handling applications

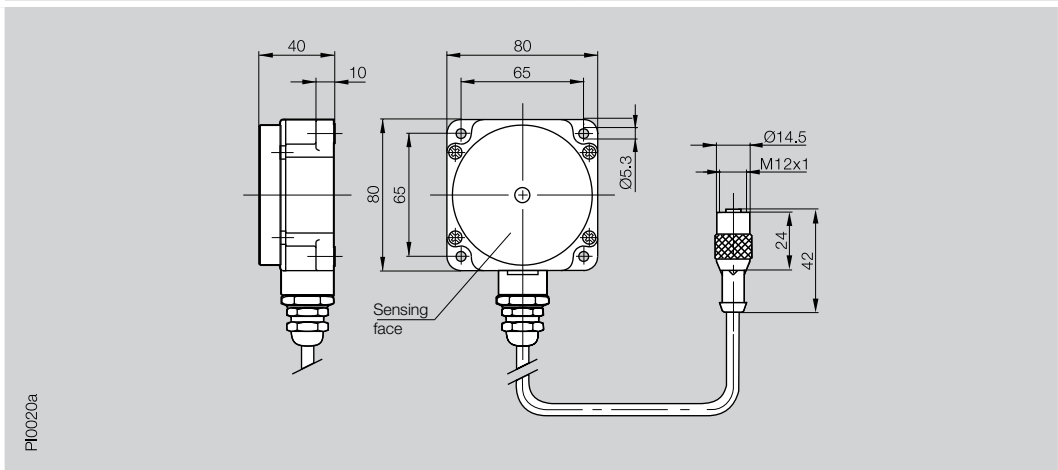


Cables on read/write heads must not be shortened, since functionality can then no longer be ensured.

Industrial RFID Systems BIS C

Read/Write Heads

Dimensions	80×80×40
Housing material	PBT
Antenna type	round
Weight	510 g



Part number	BIS C-315-__
Mounting in steel	flush
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Cable	1 m, 5 m or 10 m/PUR
Connection to	Processor

Appropriate data carriers

Static mode

	BIS C-104-__/_A flush in steel	BIS C-108-__/_L mount on steel	BIS C-108-__/_L-SA2 mount on steel	BIS C-117-05/A flush in steel	IS C-117-05/L mount on steel	BIS C-127-05/L mount on steel	BIS C-128-__/_L mount on steel	BIS C-130-05/L mount on steel	BIS C-133-__/_L mount on steel	BIS C-134-11/L mount on steel	BIS C-190-__/_L mount on steel
Write distance in mm	1-13	2-16	2-16	0-15	0-20	10-30	0-18	0-18	0-15	0-16	0-20
Read distance in mm	1-13	2-16	2-16	0-15	0-20	10-30	0-18	0-18	0-15	0-16	0-20
Offset in mm	1 mm	±15	±15	±15	±17	±30	±17	±16	±17	±16	±18
at distance	3 mm	±14	±14	±15	±17	±30	±17	±16	±15	±16	±18
	5 mm	±11	±12	±12	±17	±30	±17	±16	±15	±16	±18
	7 mm	±10	±11	±10	±12	±15	±30	±15	±14	±14	±18
	10 mm	±8	±8	±8	±12	±15	±30	±15	±14	±14	±18
	15 mm				±14	±27	±14	±11			±16
	20 mm					±20					

Dynamic mode

Read/write distance in mm	1-7	2-10	2-10	3-10	1-15	10-20	1-15	1-15	1-10	1-15	1-15
V _{max} to write bytes 0...3 in m/min	18-9	18-9	18-9	20-14	24-19	39	24-19	22-15	24-19	22-15	25-23
V _{max} to read bytes 0...3 in m/min	25-13	25-13	25-13	34-25	42-33	68	42-33	39-27	42-33	39-27	44-39

For read/write heads with connector, please append cable length part number!

01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

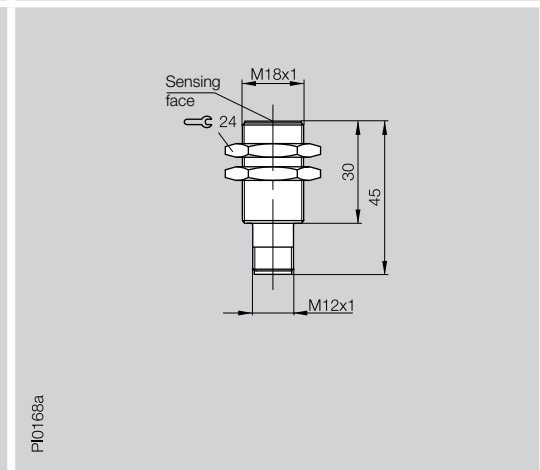
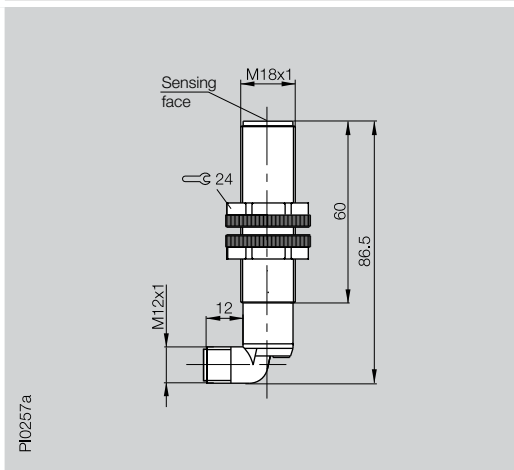
Caution!

At 10 m cable length, read/write distance is reduced by 10%.

Industrial RFID Systems BIS C

Read/Write Heads

Dimensions	M18	M18
Housing material	PBT	X6CrNiMoTi 17-12-2
Antenna type	round	round
Weight	40 g	26 g



Part number	BIS C-319/_ _-S4	BIS C-325/_ _-S4
Mounting in steel	non-flush	flush
Operating temperature	0...+70 °C	0...+70 °C
Storage temperature	-20...+85 °C	-20...+85 °C
Protection per IEC 60529	IP 67	IP 67
Connection to	Processor	Processor
with connection cable*	BIS C-505-PU-_/BIS C-506-PU-_ BIS C-517-PVC-_/BIS C-518-PVC-_-	BIS C-505-PU-_/BIS C-506-PU-_ BIS C-517-PVC-_/BIS C-518-PVC-_-
Possible cable lengths	1 m, 5 m or 10 m	1 m, 5 m or 10 m

Appropriate data carriers

Static mode

	BIS C-108-_/L mount on steel	BIS C-117-05/L mount on steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 mount on steel	BIS C-134-_/L mount on steel	BIS C-191-_/L mount on steel	BIS C-100-05/A flush in steel	BIS C-121-04/L-SA1 flush in steel	BIS C-122-_/L flush in steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 mount on steel	BIS C-134-_/L mount on steel	BIS C-191-_/L mount on steel
Write distance in mm	0-14	0-15	0-13	0-13	0-12	0-11	0-4	0-1,7	0-2,5	0-4	0-3	0-4	0-3
Read distance in mm	0-14	0-15	0-13	0-13	0-12	0-11	0-4	0-1,7	0-2,5	0-4	0-3	0-4	0-3,5
Offset in mm	0.7 mm							±2					
at distance	1 mm	±12	±13	±9	±9	±9	±3,5	±2	±2,5	±4	±4	±4	±4
	3 mm	±12	±12	±9	±9	±9	±3			±2	±2	±2	±3
	5 mm	±11	±12	±9	±9	±9							
	7 mm	±11	±11	±8,5	±8,5	±8							
	10 mm	±9	±10	±7,5	±7,5	±6							

Dynamic mode

Read/write distance in mm	0-10	0-10	0-10	0-10	0-9	0-8	1		1	0-5	0-5	1	1
V _{max} to write bytes 0...3 in m/min	17-13	18-15	13-11	13-11	13-11	13-11	5		4	4-2	4-2	4	4
V _{max} to read bytes 0...3 in m/min	26-20	31-22	25-19	23-19	23-19	22-20	9		6	6-3	6-3	6	6

*please order connection cable separately, see page 194

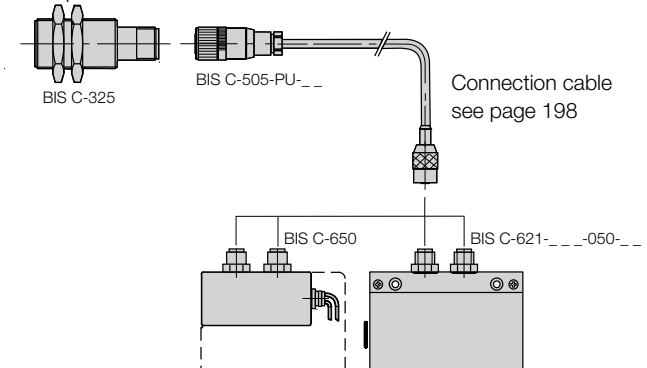
For read/write heads with connector, please append cable length to part number!

01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

Caution!

At 10 m cable length, read/write distance is reduced by 10%

Example:



Industrial RFID Systems BIS C

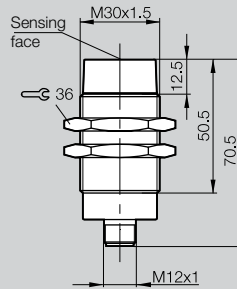
Read/Write Heads

M30

X8CrNiS 18-9

round

90 g



PI0166b

BIS C-323-/_/_S4

non-flush

-20...+70 °C

-20...+85 °C

IP 67

Processor

BIS C-505-PU-/_/_/BIS C-506-PU-/_/_

BIS C-517-PVC-/_/_/BIS C-518-PVC-/_/_

5 m, 10 m

BIS C-104-/_/_/A flush in steel	BIS C-104-/_/_/A mount on steel	BIS C-108-/_/_/L mount on steel	BIS C-108-/_/_/L-SA2 mount on steel	BIS C-117-05/A flush in steel	BIS C-117-05/L mount on steel	BIS C-128-/_/_/L flush in steel	BIS C-128-/_/_/L mount on steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 flush in steel	BIS C-130-05/L-SA6 mount on steel	BIS C-133-/_/_/L mount on steel	BIS C-134-/_/_/L mount on steel	BIS C-190-/_/_/L mount on steel	BIS C-191-/_/_/L mount on steel
1-11	0-12	0-12	0-11	1-12	0-13	0-8	0-13	0-11	0-8	0-7	0-10	0-10	0-11	0-10
1-11	0-12	0-12	0-11	1-12	0-13	0-8	0-13	0-11	0-8	0-7	0-10	0-10	0-11	0-10
±7,5	±7,5	±10	±10	±7,5	±11	±8	±10	±9	±6,5	±5,5	±10	±9	±10	±8
±7	±7	±9	±9	±7,5	±10	±7	±10	±8	±6	±5	±9	±8	±9	±7,5
±7	±7	±9	±8,5	±7	±10	±6,5	±9	±7	±5,5	±4	±9	±7	±9	±7
±7	±7	±8,5	±7,5	±6,5	±9,5	±5,5	±9	±5			±7	±4	±8	±6,5
													±6,5	
3-7	3-7	1-7	1-7	3-7	1-7	1-5	1-7	1-7	1-5	1-6	1-7	1-7	1-10	1-7
10	10	14-12	14-10	13	15-14	11-9	14-12	13-7	9-8	8,5-6	14-10	13-5	14-9	11-9
17	17	24-22	24-17	17-16	27-24	19-16	24-22	23-12	16-14	14,5-10	24-17	23-10	25-16	20-16

Pluggable read/write heads
for easier replacement in
any application.



**Cables on read/write heads must not be shortened,
since functionality can then no longer be ensured.**

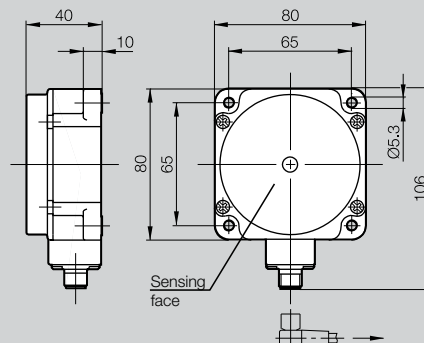
Industrial RFID Systems BIS C

Read/Write Heads with Connector

Dimensions	80×80×40
Housing material	PBT
Antenna type	round
Weight	410 g



PI0162a



Part number	BIS C-315/_ _-S4
Mounting in steel	flush
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Connection to	Processor
with connection cable*	BIS C-505-PU-_ _/BIS C-506-PU-_ _ BIS C-517-PVC-_ _/BIS C-518-PVC-_ _
Possible cable lengths	5 m or 10 m

Appropriate data carriers

Static mode

	BIS C-104-_ _/A flush in steel	BIS C-108-_ _/L mount on steel	BIS C-108-_ _/L-SA2 mount on steel	BIS C-117-05/A flush in steel	BIS C-117-05/L mount on steel	BIS C-127-05/L mount on steel	BIS C-128-_ _/L mount on steel	BIS C-130-05/L mount on steel	BIS C-133-_ _/L mount on steel	BIS C-134-11/L mount on steel	BIS C-190-_ _/L mount on steel
Write distance in mm	1-13	2-16	2-16	0-15	0-20	10-30	0-18	0-18	0-15	0-16	0-20
Read distance in mm	1-13	2-16	2-16	0-15	0-20	10-30	0-18	0-18	0-15	0-16	0-20
Offset in mm											
at distance	1 mm	±15	±15	±15	±17	±30	±17	±16	±17	±16	±18
	3 mm	±14	±14	±15	±17	±30	±17	±16	±15	±16	±18
	5 mm	±11	±12	±12	±17	±30	±17	±16	±15	±16	±18
	7 mm	±10	±11	±10	±12	±15	±15	±14	±14	±14	±18
	10 mm	±8	±8	±8	±12	±15	±15	±14	±14	±12	±18
	15 mm				±14	±27	±14	±11			±16
	20 mm					±20					

Dynamic mode

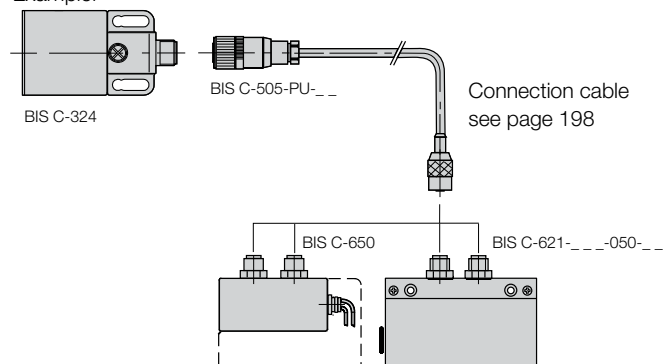
Read/write distance in mm	1-7	2-10	2-10	3-10	1-15	10-20	1-15	1-15	1-10	1-15	1-15
V _{max} to write bytes 0...3 in m/min	18-9	18-9	18-9	20-14	24-19	39	24-19	22-15	24-19	22-15	25-23
V _{max} to read bytes 0...3 in m/min	25-13	25-13	25-13	34-25	42-33	68	42-33	39-27	42-33	39-27	44-39

*please order connection cable separately, see page 194



Connector orientation

Example:



For read/write heads with connector, please append cable length to part number!

01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

Caution!

At 10 m cable length, read/write distance is reduced by 10%

Industrial RFID Systems BIS C

Read/Write Heads with Connector

40x40x73

PBT/Mounting G-2nA14Cu1

round

180 g

BIS C

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

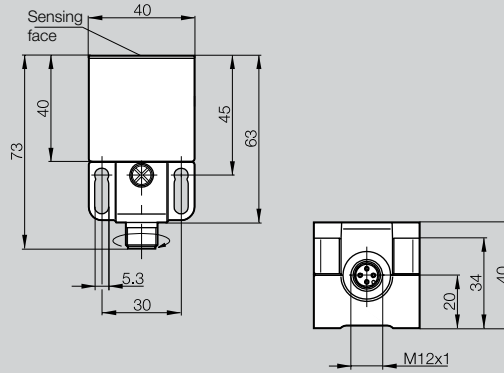
Read/Write Handle Accessory

Access Security System

Read/Write Gun Accessory

Installation Notes

Read/Write Times



BIS C-324/_/_S4

flush

0...+70 °C

-20...+85 °C

IP 67

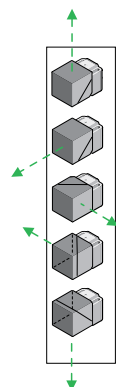
Processor

BIS C-505-PU-/_/_/BIS C-506-PU-/_/_

BIS C-517-PVC-/_/_/BIS C-518-PVC-/_/_

5 m or 10 m

BIS C-104-/_/_/A flush in steel	BIS C-104-/_/_/A mount on steel	BIS C-108-/_/_/L mount on steel	BIS C-108-/_/_/L-SA2 mount on steel	BIS C-117-05/A flush in steel	BIS C-117-05/L mount on steel	BIS C-128-/_/_/L flush in steel	BIS C-128-/_/_/L mount on steel	BIS C-130-05/L mount on steel	BIS C-130-05/L-SA1 flush in steel	BIS C-130-05/L-SA6 mount on steel	BIS C-133-/_/_/L mount on steel	BIS C-134-11/L mount on steel	BIS C-190-/_/_/L mount on steel	BIS C-191-/_/_/L mount on steel
1-11	0-12	0-12	0-11	1-12	0-13	0-8	0-13	0-11	0-8	0-7	0-10	0-10	0-11	0-10
1-11	0-12	0-12	0-11	1-12	0-13	0-8	0-13	0-11	0-8	0-7	0-10	0-10	0-11	0-10
±7,5	±7,5	±10	±10	±7,5	±11	±8	±10	±9	±6,5	±5,5	±10	±9	±10	±8
±7	±7	±9	±9	±7,5	±10	±7	±10	±8	±6	±5	±9	±8	±9	±7,5
±7	±7	±9	±8,5	±7	±10	±6,5	±9	±7	±5,5	±4	±9	±7	±9	±7
±7	±7	±8,5	±7,5	±6,5	±9,5	±5,5	±9	±5			±7	±4	±8	±6,5
													±6,5	
3-7	3-7	1-7	1-7	3-7	1-7	1-5	1-7	1-7	1-5	1-6	1-7	1-7	1-10	1-7
10	10	14-12	14-10	13	15-14	11-9	14-12	13-7	9-8	8,5-6	14-10	13-5	14-9	11-9
17	17	24-22	24-17	17-16	27-24	19-16	24-22	23-12	16-14	14,5-10	24-17	23-10	25-16	20-16



Multidirectional head for greater flexibility

Simply align read/write head according to requirements

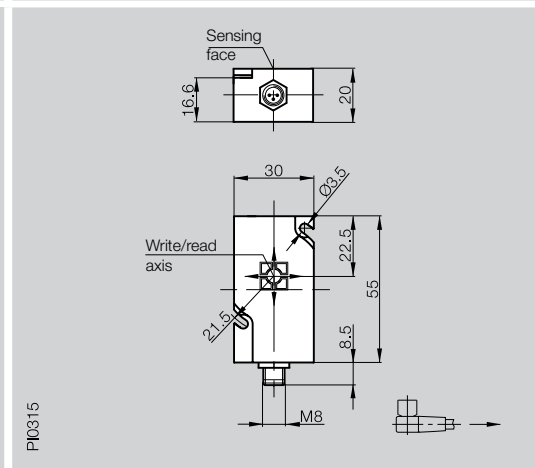
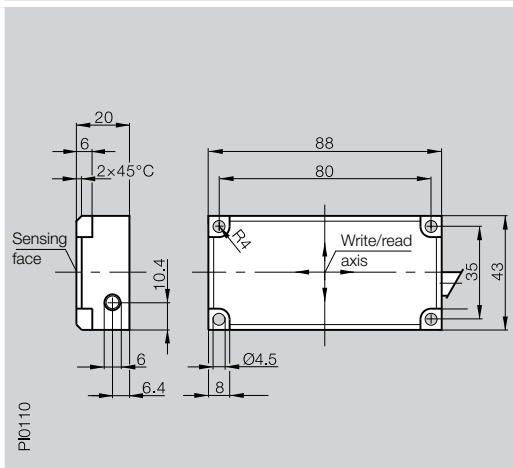


Cables on read/write heads must not be shortened, since functionality can then no longer be ensured.

Industrial RFID Systems BIS C

Read/Write Heads with Connector

Dimensions	88×43×20	55×30×20
Housing material	POM	POM
Antenna type		
Weight	280	52 g



Part number	BIS C-327-__	BIS C-328-__-S49
Mounting in steel	non-flush	non-flush
Operating temperature	0...+70 °C	0...+70 °C
Storage temperature	-20...+85 °C	-20...+85 °C
Protection per IEC 60529	IP 67	IP 67
Cable	1m, 5 m or 10 m/PUR	1 m, 5 m or 10 m/PUR
Connection to with connection cable	Processor	Processor BIS C-523-PU-__/_/BIS C-523-PU1-__

Appropriate data carriers

Static mode

	BIS C-108-05/L	BIS C-128-11/L	BIS C-190-32/L	BIS C-122-04/L	BIS C-122-11/L
Write distance in mm	0-8	0-8	0-8	0-3	0-3
Read distance in mm	0-8	0-8	0-8	0-3	0-3
Offset in mm					
at distance					
1 mm	±6	±6	±6	±2,5	±2,5
2 mm	±6	±6	±6	±2,5	±2,5
3 mm	±6	±6	±6	±2,5	±2,5
4 mm	±5	±5	±5		
5 mm	±5	±5	±5		
6 mm	±4	±4	±4		
10 mm					
20 mm					

Dynamic mode

Read/write path in mm	54	54	54		
Read/write distance in mm	4	4	4	3	3
V _{max} to write bytes 0...3 in m/min	36	36	36	16	16
V _{max} to read bytes 0...3 in m/min	65	65	65	30	30

For read/write heads with connector, please append cable length to part number!

01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

Recommended for handling and assembly in dynamic applications



Long Distances

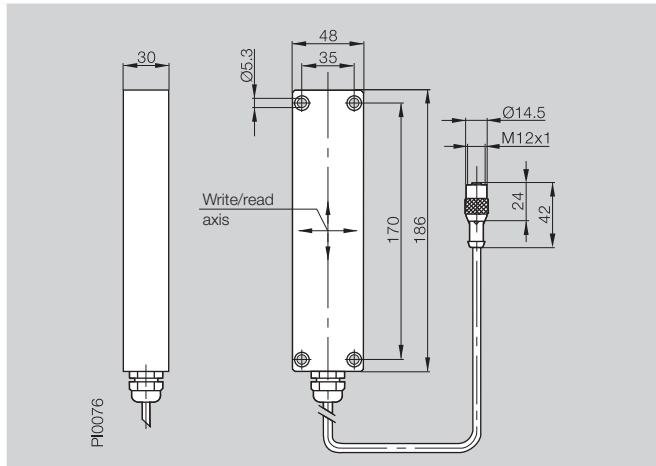
Industrial RFID Systems BIS C Read/Write Heads with Connector

186x48x30

PA 66

round

550 g

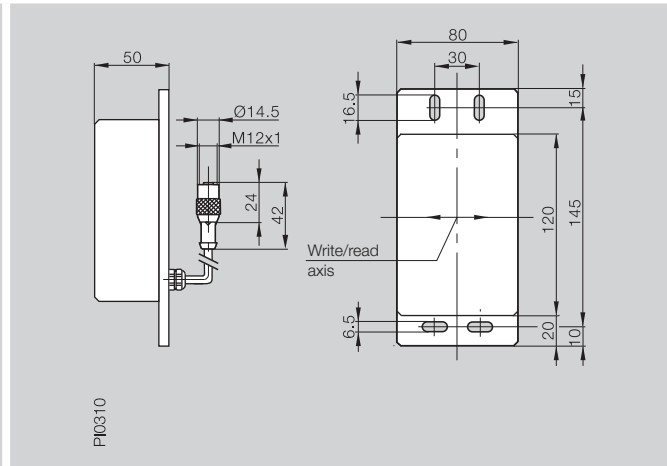


170x80x50

POM/Platte A/Mg3

Stab

595 g



BIS C-318-__

non-flush

0...+70 °C

-20...+85 °C

IP 65

5 m or 10 m/PUR

Processor

BIS C-351-__

non-flush

-20...+80 °C

-20...+85 °C

IP 67

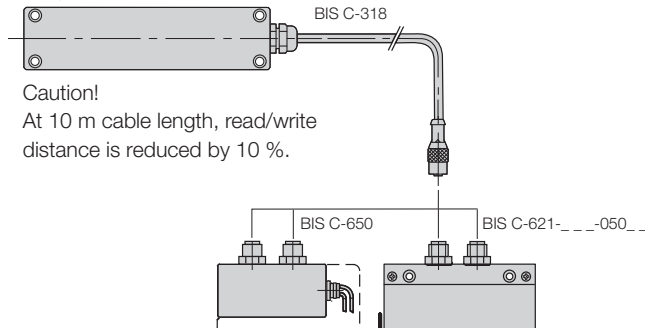
5 m or 10 m/PUR

Processor

BIS C-108-__/_L- SA2 mount on steel	BIS C-108-__/_L mount on steel	BIS C-117-05/L mount on steel	BIS C-127-05/L mount on steel	BIS C-128-__/_L mount on steel	BIS C-190-__/_L mount on steel
0-6	0-7	0-7	10-35	0-7,5	8
0-6	0-7	0-7	10-35	0-7,5	8
±8,5	±9,5	±9,5		±11	±11
±8,5	±9,5	±9,5		±11	±11
±8,5	±9,5	±9,5		±11	±11
±8,5	±9,5	±9,5		±8	±10
±5,5	±8,5	±8,5		±8	±10
	±8,5	±8,5			
			±25		
			±20		
100	100	100	100	100	100
5	6	6	20	6	5
70	70	70	70	70	70
120	120	120	100	120	120

BIS C-150-05/A mount on steel	BIS C-150-11/A mount on steel	BIS C-150-32/A mount on steel
0-45	0-45	0-45
0-45	0-45	0-45
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
±15	±15	±15
135-140	135-140	135-140
10-30	10-30	10-30
75-60	75-60	75-60
135-110	135-110	135-110

Example:



Cables on read/write heads must not be shortened, since functionality can then no longer be ensured.

BIS C

Range of Applications
Selection Criteria

Data Carriers
Read/Write

Read/Write
Heads

**Read/Write
Heads with
Connector**

Read/Write
Heads – Long
Distances

Data Couplers

Modular
Read/Write
Heads

Modular Head
Adapters

8-bit
Read-Only
Processor

Read-Only
Parallel
Processors

Processors

Metal Housing
Processors

Handy
Programmer

Handheld
Programmer

Machine Tool
ID Interface

Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun
Accessory

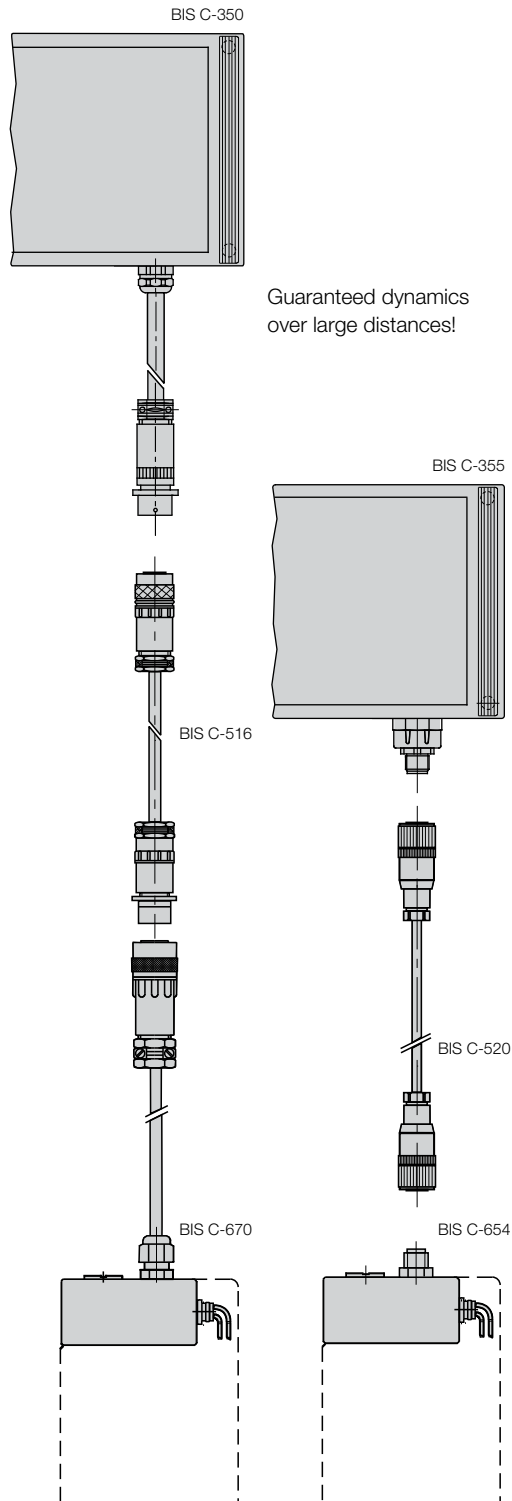
Installation
Notes

Read/Write
Times

Industrial RFID Systems BIS C

Read/Write Heads

Example:



Dimensions

Housing material

Antenna type

Weight



Part number

Mounting in steel

Operating temperature

Storage temperature

Protection per IEC 60529

Cable

Connection to

Appropriate data carriers

Static mode

Write distance in mm

Read distance in mm

Offset in mm

at distance

10 mm

20 mm

35 mm

42 mm

60 mm

Dynamic mode

Read/write path in mm

Read/write distance in mm

V_{max} to write bytes 0...3 in m/min

V_{max} to read bytes 0...3 in m/min

For read/write heads with integral cable, please indicate cable length in part number!

01 = Length 1 m,

05 = Length 5 m,

10 = Length 10 m.

Long Distances

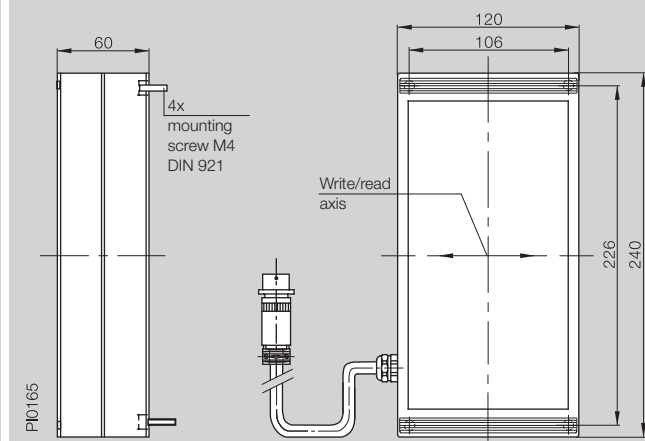
Industrial RFID Systems BIS C Read/Write Heads

240x120x60

PC

Rod

976 g



BIS C-350-00,3

non-flush

0...+40 °C

-20...+85 °C

IP 67

0,3 m/PUR

Processor only with connection cable

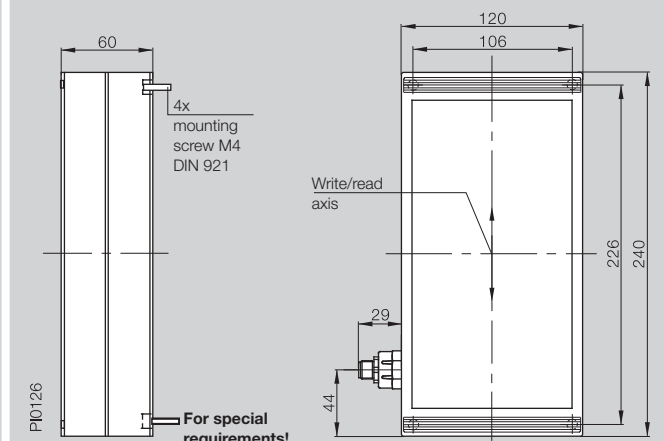
BIS C-516-PU-__ (page 201) please order separately

240x120x60

PC

Rod/dual antenna for increased traverse speed

710 g



BIS C-355/05-S92

non-flush

0...+70 °C

-20...+85 °C

IP 65

5 m

Processor only with connection cable

BIS C-520-PVC-05 (page 199) please order separately

BIS C-150-05/A

BIS C-150-11/A

BIS C-150-32/A

90

90

90

100

100

100

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

±30

126/140

126/140

126/140

63/70

63/70

63/70

75

75

75

120

120

120

0-35

0-35

0-35

0-40

0-40

0-40

±15

±15

±15

±15

±15

±15

±15

±15

±15

±5

±5

±5

260

260

260

1-35

1-35

1-35

150

150

150

220

220

220

BIS C

Range of Applications
Selection Criteria

Data Carriers
Read/Write

Read/Write
Heads

Read/Write
Heads with
Connector

**Read/Write
Heads - Long
Distances**

Data Couplers

Modular
Read/Write
Heads

Modular Head
Adapters

8-bit
Read-Only
Processor

Read-Only
Parallel
Processors

Processors
Metal Housing
Processors

Handy
Programmer

Handheld
Programmer

Machine Tool
ID Interface

Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun

Accessory
Installation
Notes

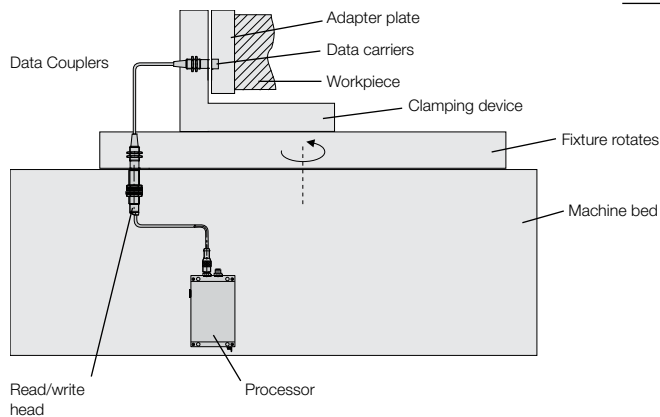
Read/Write
Times

Recommended for higher speed
pallet and logistics applications.



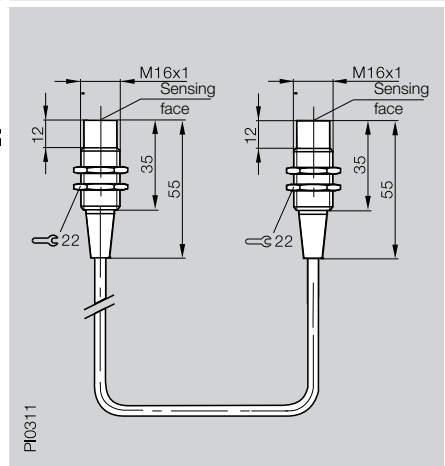
Industrial RFID Systems BIS C

Data Couplers



Data couplers are used in applications where a dual mechanical interface is needed.

Dimensions	M16/M16
Housing material	Nickel plated brass
Antenna type	round/round



Part number	BIS C-380-06/06-__
Read head connection	contactless connection
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67

Appropriate data carriers

Appropriate read/write head

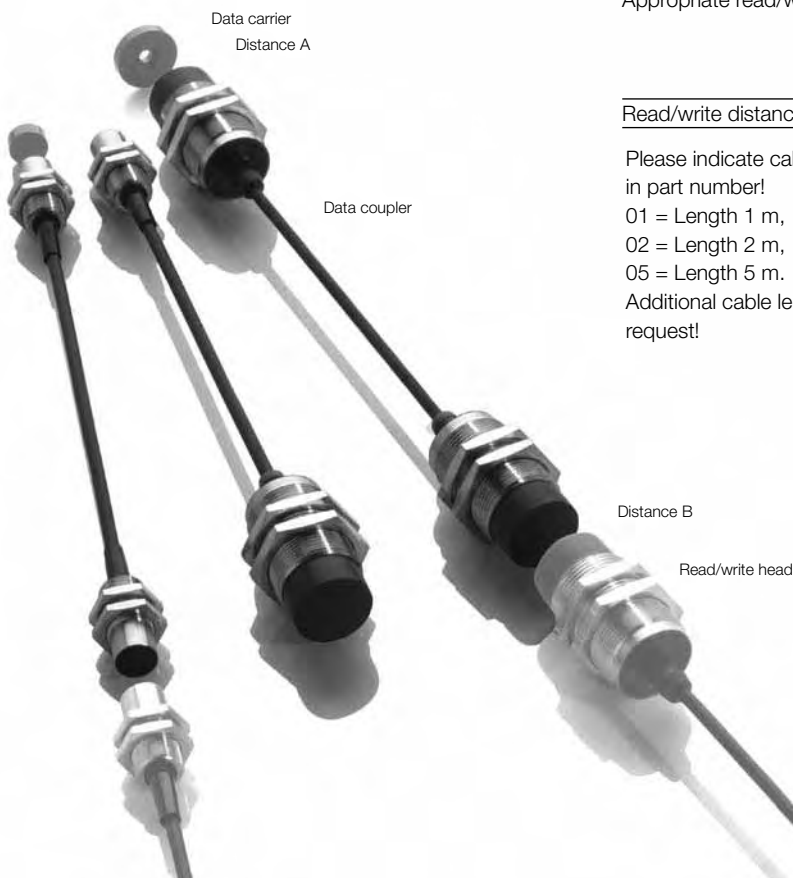
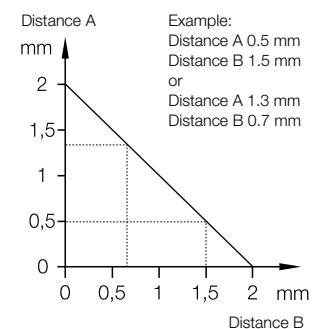
Read/write distance

BIS C-100-05/A flush in steel	BIS C-103-05/A flush in steel	BIS C-105-05/A flush in steel	BIS C-121-04/L flush in steel	BIS C-122-04/L flush in steel
----------------------------------	----------------------------------	----------------------------------	----------------------------------	----------------------------------

BIS C-300
BIS C-302
BIS C-305
BIS C-306

see diagram

Please indicate cable length in part number!
01 = Length 1 m,
02 = Length 2 m,
05 = Length 5 m.
Additional cable lengths on request!



Allows tag access through multiple air gaps.



Industrial RFID Systems BIS C

Data Couplers

BIS C

Range of Applications

Selection Criteria

Data Carriers

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

Access Security System

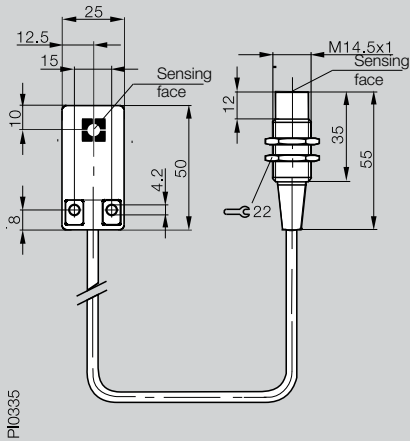
Read/Write Gun Accessory

Installation Notes

Read/Write Times

50x25x10/M16

Nickel plated brass
round/round

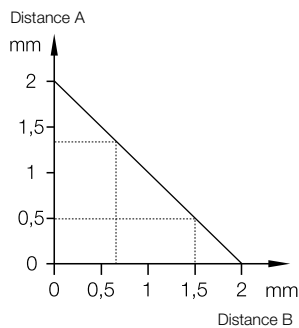


BIS C-380-05/06-__

contactless connection
0...+70 °C
-20...+85 °C
IP 67

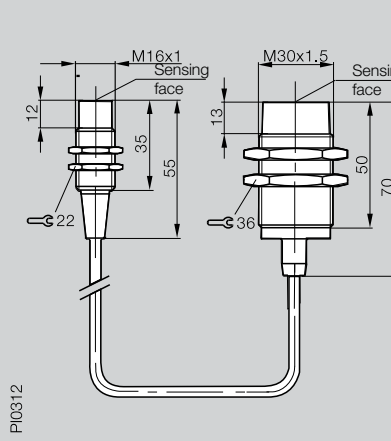
BIS C-100-05/A
flush in steel
BIS C-103-05/A
flush in steel
BIS C-105-05/A
flush in steel
BIS C-121-04/L
flush in steel
BIS C-122-04/L
flush in steel

BIS C-300
BIS C-302
BIS C-305
BIS C-306
see diagram



M16/M30

Nickel plated brass
round/round



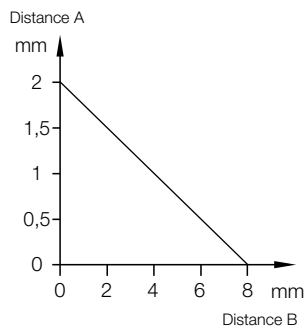
BIS C-380-06/10-__

contactless connection
0...+70 °C
-20...+85 °C
IP 67

BIS C-100-05/A
flush in steel
BIS C-103-05/A
flush in steel
BIS C-105-05/A
flush in steel
BIS C-121-04/L
flush in steel
BIS C-122-04/L
flush in steel

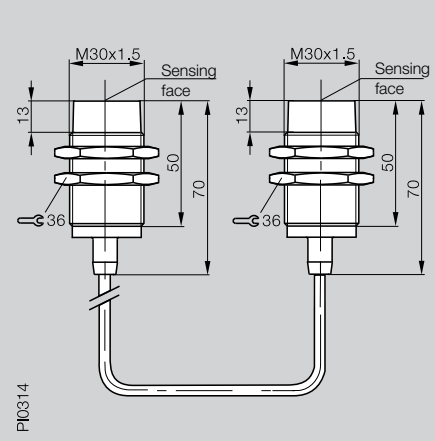
BIS C-310

see diagram



M30/M30

Nickel plated brass
round/round



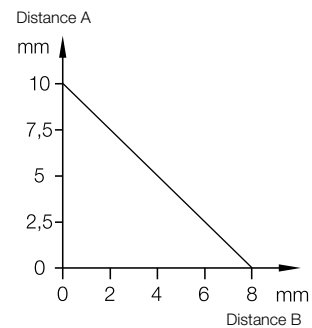
BIS C-380-10/10-__

contactless connection
0...+70 °C
-20...+85 °C
IP 67

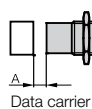
BIS C-104-__/A
mount on steel
BIS C-108-__/L
mount on steel
BIS C-117-05/L
mount on steel
BIS C-128-__/L
mount on steel
BIS C-130-05/L
mount on steel

BIS C-310

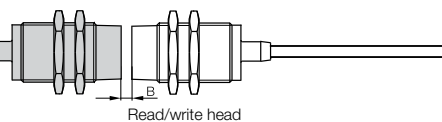
see diagram



Type C-306



Type C-310



Data coupler
BIS C-380-06/10-__

Read/write head

Industrial RFID Systems BIS C

Modular Read/Write Heads

For processor mounted solutions

Read/write heads for modular in processor units

Read/write head can be rotated in 3 directions



Dimensions

Housing material

Antenna type

Function



Part number

Mounting in steel

Operating temperature

Storage temperature

Protection per IEC 60529

Read head connection

Connection to

Appropriate data carriers

Static mode

Write distance in mm

Read distance in mm

Offset in mm

at distance

1 mm

3 mm

5 mm

7 mm

Dynamic mode

Read/write distance in mm

V_{max} to write bytes 0...3 in m/min

V_{max} to read bytes 0...3 in m/min

Industrial RFID Systems BIS C

Modular Read/Write Heads

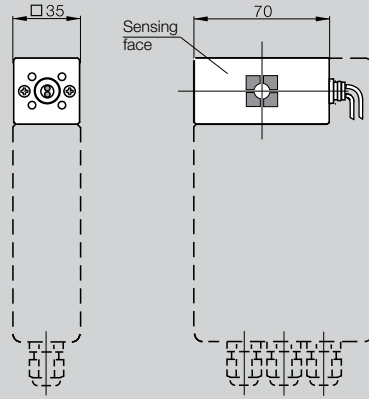
BIS C

Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

70x35x35

ABS
round
Read/write head

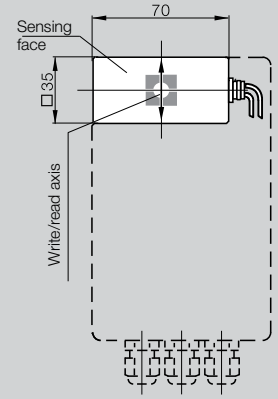
PI0102a



70x35x35

ABS
Rod
Read/write head

PI0103



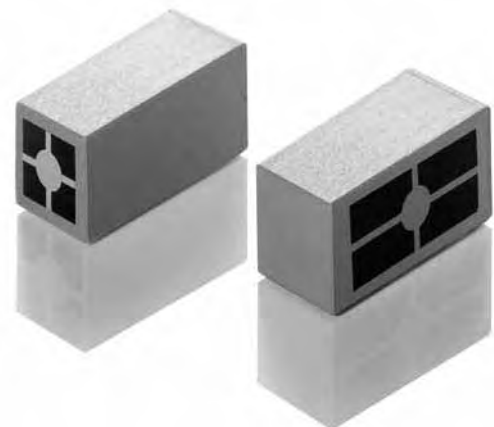
BIS C-652

non-flush
0...+60 °C
0...+60 °C
IP 65 (when installed)
3-pin female
Processors BIS C-600_
(page 52-61/68)

BIS C-653

non-flush
0...+60 °C
0...+60 °C
IP 65 (when installed)
3-pin female
Processors BIS C-600_
(page 52-61/68)

BIS C-104-_/A mount on steel	BIS C-108-_/L mount on steel	BIS C-108-_/L-SA2 mount on steel	BIS C-117-05/L mount on steel	BIS C-128-_/L mount on steel	BIS C-130-05/L mount on steel	BIS C-130-04/L-SA2 mount on steel	BIS C-133-_/L mount on steel	BIS C-190-_/L mount on steel	BIS C-191-_/L mount on steel	BIS C-150-05/A mount on steel	BIS C-150-11/A mount on steel	BIS C-150-32/A mount on steel
0-12	0-12	0-11	0-13	0-3	0-11	0-10	0-10	0-11	0-10	35	35	35
0-12	0-12	0-11	0-13	0-13	0-11	0-10	0-10	0-11	0-10	40	40	40
±7,5	±10	±10	±11	±10	±9	±9	±10	±10	±8	±15	±15	±15
±7	±9	±9	±10	±10	±8	±8	±9	±9	±7,5	±15	±15	±15
±7	±9	±8,5	±10	±9	±7	±7	±9	±9	±7	±15	±15	±15
±7	±8,5	±7,5	±9,5	±9	±5	±4	±7	±8	±6,5	±15	±15	±15
3-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-10	1-7	25/28	25/28	25/28
10	14-12	14-10	15-14	14-12	13-7	13-5	14-10	14-9	11-9	20	20	20
17	24-22	24-17	27-24	24-22	23-12	23-10	24-17	25-16	20-16	40	40	40



Industrial RFID Systems BIS C

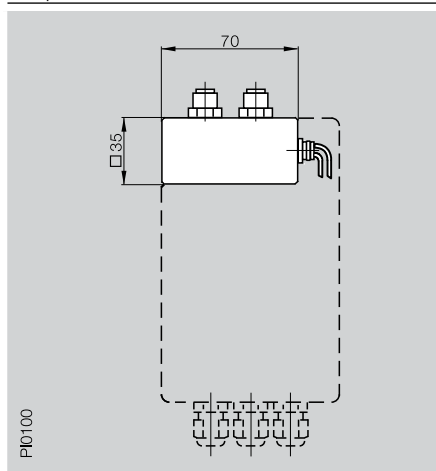
Modular Head Adapters

For remote mounted solutions

For the variable connection of
read/write heads



Dimensions	70×35×35
Housing material	ABS
Antenna type	
Function	Adapter



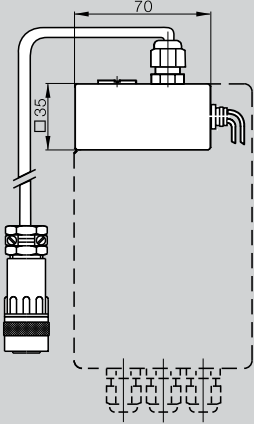
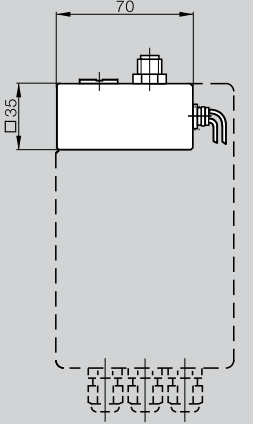
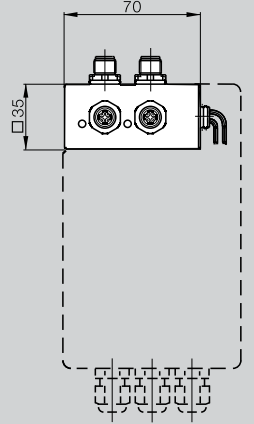
Part number	BIS C-650
Mounting in steel	
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65 (when installed)
Read head connection	2 built-in connectors 4-pin
Connection to	Processors BIS C-600_ (page 52-61/68)
Connection for	Read/write heads BIS C-3__ Exception: BIS C-350 and BIS C-355

Industrial RFID Systems BIS C

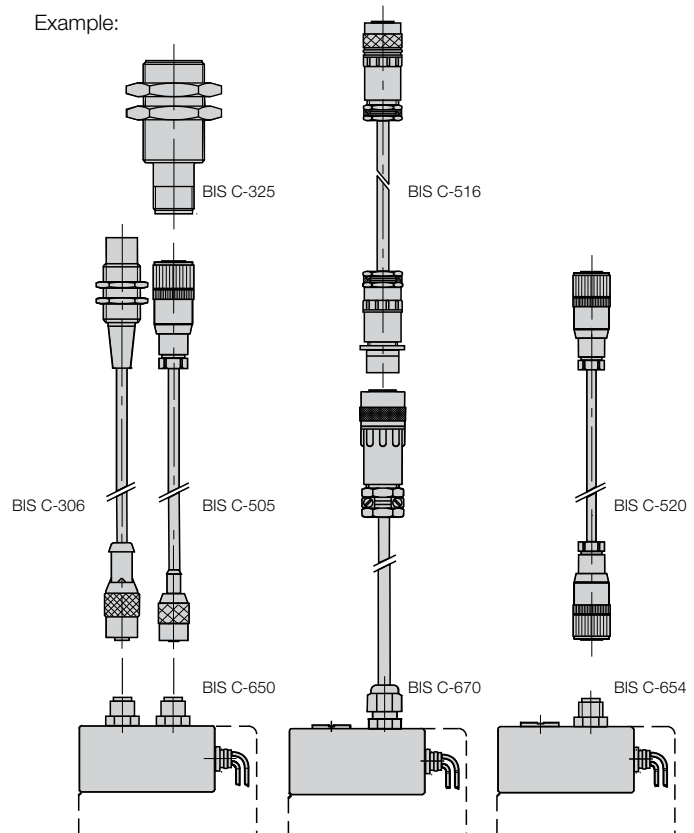
Modular Head Adapters

BIS C

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit
Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

70×35×35	70×35×35	70×35×35
ABS	ABS	ABS
Adapter	Adapter	Adapter
		
BIS C-670	BIS C-654	BIS C-655
non-flush	non-flush	non-flush
0...+60 °C	0...+60 °C	0...+60 °C
0...+60 °C	0...+60 °C	0...+60 °C
IP 65 (when installed)	IP 65 (when installed)	IP 65 (when installed)
1 coupling 8-pin	1 built-in connectors 5-pin	4-pin inline female connector, 4x panel-mount male connectors
Processors BIS C-600_ (page 52-61/68)	Processors BIS C-600_ (page 52-61/68)	Adapter for BIS C-6002, BIS C-6003 for connecting all read/write heads, 4-pin (page 52-61/68)
Read/write head BIS C-350 and cable BIS C-516-__	Read/write head BIS C-355/05-S92 and cable BIS C-520-PVC-05	Read/write heads BIS C-3_ _ Exception: BIS C-350 and BIS C-355

Example:

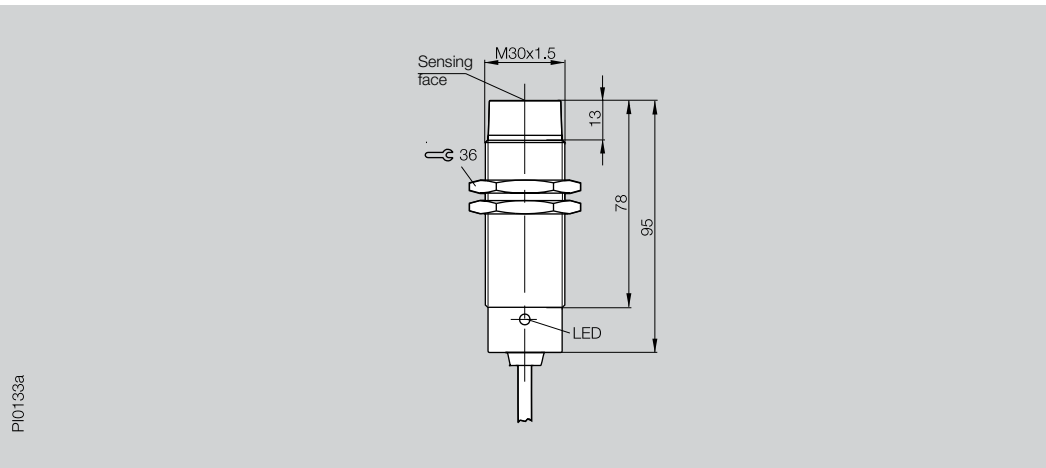


Industrial RFID Systems BIS C

8-bit Read-Only Processor

Easy ID

Dimensions	M30
Function	read
Antenna type	round
Weight	330 g



Description/interface

8-bit parallel	BIS C-60R-001-08P-PU-__
8x 8-bit parallel	BIS C-60R-002-08P-PU-__
2x 8-bit parallel dynamic*	BIS C-60R-003-08P-PU-__
Supply voltage	24 V DC +10/-20 % (incl. ripple)
Current	max. 300 mA without load
Output current per output	max. 50 mA
Voltage drop	≤ 1.5 V
Leakage current	≤ 0.08 mA
Operating temperature	0...+50 °C
Enclosure rating	IP 67
Tightening torque	20 Nm
Mounting in steel	non-flush
Housing material	CuZn nickel plated/PA
Conductor cross-sections	2 × 0.5 mm ² and 9 × 0.18 mm ²
LED function indicator	yes

Appropriate data carriers

		BIS C-121-04 flush in steel	BIS C-121-04 BIS C-122-04 mount on steel	BIS C-103-05 flush in steel	BIS C-103-05 mount on steel	BIS C-130-05 flush in steel	BIS C-130-05 mount on steel	BIS C-100-05 flush in steel	BIS C-100-05 mount on steel	BIS C-128-05 mount on steel	BIS C-117/A flush in steel	BIS C-117/L BIS C-108-05 mount on steel	BIS C-104-11 flush in steel mount on steel	BIS C-108-05 flush in steel
Static mode														
Read distance in mm		0-3	1-5	0-4	1-5	0-5	1-8	0-5	1-6	3-12	1-8	1-8	1-8	0-6
Offset in mm	1 mm	±2	±3	±4	±2,5	±3	±4	±2,5	±3		±5	±7	±4	±7
at distance	3 mm	±2	±3	±2,5	±2,5	±3	±5	±3	±3	±7	±5	±7	±4	±7
	5 mm		±3		±2,5	±3	±5	±3	±3	±6	±5	±7	±4	±6
	7 mm						±5			±5	±5	±6	±4	
Dynamic mode														
Read/write distance in mm							4-8		4-6	4-8	6-8	3-8		
V _{max} to read 1 byte in m/min							15		9	20	12	20		

Please indicate cable length in part number!

Standard length
05 = Length 5 m,
10 = Length 10 m,
20 = Length 20 m

* Dynamic mode only possible with BIS C-60R-003

The BIS C-60R-001-08P-__ system is designed for simple read only applications. Read only applications are applications where only part tracking is needed. The traceability is provided by a central database system instead of the ID system.

Easily program the data carrier with any Balluff serial 007 protocol based processor. Programming is easy and fast using the free BISCOMRW software downloadable from the Balluff Web site at www.balluff.com.

40x40x149

read

round

330 g

BIS C

Range of
Applications
Selection
Criteria

Data Carriers
Read/Write

Read/Write
Heads

Read/Write
Heads with
Connector

Read/Write
Heads – Long
Distances

Data Couplers

Modular
Read/Write
Heads

Modular Head
Adapters

**8-bit
Read-Only
Processor**

Read-Only
Parallel
Processors

Processors
Metal Housing
Processors

Handy
Programmer

Handheld
Programmer

Machine Tool
ID Interface

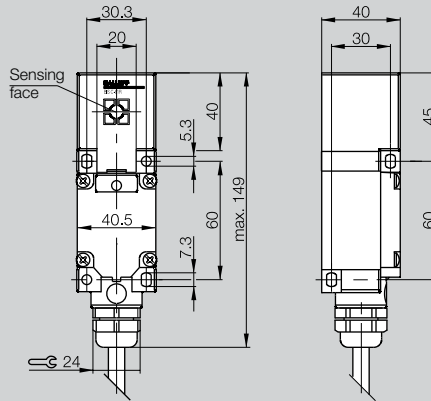
Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun
Accessory

Installation
Notes

Read/Write
Times



BIS C-61R-001-08P-PU-05

24 V DC +10/-20 %

(incl. ripple)

max. 300 mA without load

max. 50 mA

≤ 1.5 V

≤ 0.08 mA

0...+50 °C

IP 67

20 Nm

non-flush

CuZn nickel plated/PA ABS

2 × 0.5 mm² and 9 × 0.18 mm²

yes

BIS C-121-04 BIS C-122-04 flush in steel	BIS C-121-04 BIS C-122-04 mount on steel	BIS C-103-05 flush in steel	BIS C-103-05 mount on steel	BIS C-130-05 flush in steel	BIS C-130-05 mount on steel	BIS C-100-05 flush in steel	BIS C-100-05 mount on steel	BIS C-128-05 flush in steel	BIS C-128-05 mount on steel	BIS C-117/A flush in steel	BIS C-117/L mount on steel	BIS C-104-11 flush in steel	BIS C-108-11 flush in steel	BIS C-108-11 mount on steel
0-2	1-4	0-3	1-4	0-4	1-7	0-4	1-5	0-3	3-7	1-7	1-7	1-4	0-5	1-7
±2	±3	±3	±2,5	±3	±4	±2,5	±3	±5		±5	±7	±4	±7	±7
	±3		±2,5	±3	±5	±3	±3		±7	±5	±7	±4	±6	±7
					±5				±6	±5	±6	±4		±6

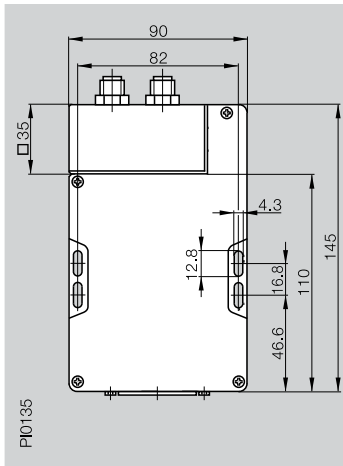
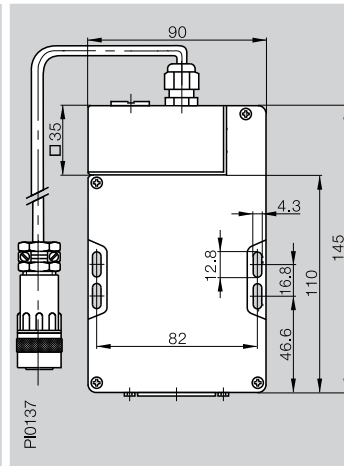
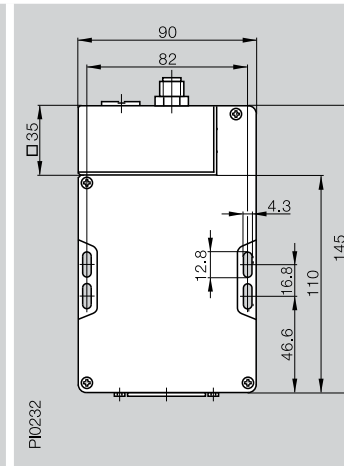
For simple applications
where only part tracking is required.



Industrial RFID Systems BIS C

Read Only Parallel Processors

Easy ID

Description	BIS C-605-_-650-05-ST4	BIS C-605-_-670-05-ST4	BIS C-605-_-654-05-ST4	
Function	read/write	read/write	read/write	
Antenna type				
				
				
Supply voltage	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	
Ripple	$\leq 10\%$	$\leq 10\%$	$\leq 10\%$	
Current	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	
Operating temperature	0...+60 °C	0...+60 °C	0...+60 °C	
Storage temperature	0...+60 °C	0...+60 °C	0...+60 °C	
Protection per IEC 60529	IP 54	IP 54	IP 54	
Read/write head ports	2 external	1 external	1 external	
Control inputs	4 (via opto-coupler), 24 V DC	4 (via opto-coupler), 24 V DC	4 (via opto-coupler), 24 V DC	
Control outputs	13 (via opto-coupler), 24 V DC	13 (via opto-coupler), 24 V DC	13 (via opto-coupler), 24 V DC	
Connection type	MIN Sub D 25-pin	MIN Sub D 25-pin	MIN Sub D 25-pin	
Description interface/software:				
Parallel	BIS C-605-027-650-05-ST4	BIS C-605-027-670-05-ST4	BIS C-605-027-654-05-ST4	
Accessories included	Configuration software	Configuration software	Configuration software	
Accessories (please order separately)	Connector page 201	Connector page 201	Connector page 201	

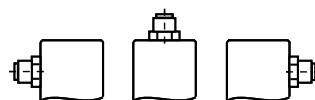
**for read/write head
BIS C-355/05-S92**

The **compact class BIS C-6_** with its reduced dimensions and various interface options can be used wherever ambient conditions do not require higher protection.

Small, compact, flexible and economical

Advantages of the BIS C-605 parallel version

The parallel interface is a "read only" interface. Writing is not possible with parallel processors. The processor unit can read a single piece of bit information (OK/NOK, large/small, version 1/version 2) from the data carrier, then transmit it in the form of a separate output signal to discrete devices.



Adapter or antenna can be rotated in 3 directions



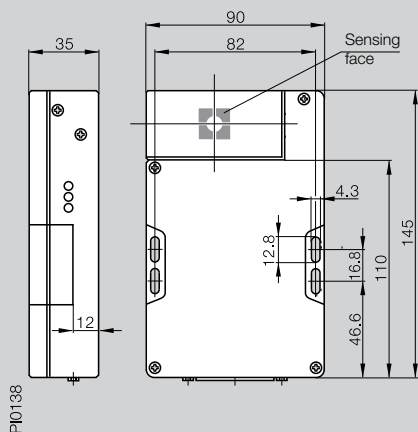
Easy ID

Industrial RFID Systems BIS C Read Only Parallel Processors

BIS C-605-__-652-05-ST4

read/write

round



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 54

1 internal

4 (via opto-coupler), 24 V DC

13 (via opto-coupler), 24 V DC

MIN Sub D 25-pin

BIS C-605-027-652-05-ST4

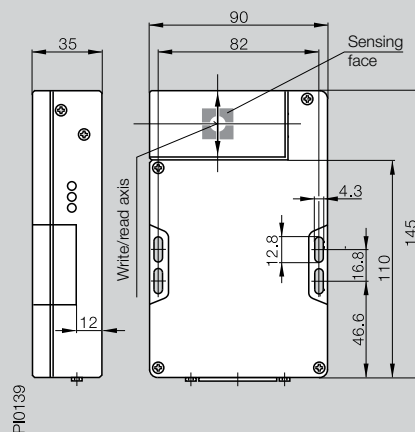
Configuration software

Connector page 201

BIS C-605-__-653-05-ST4

read/write

Rod



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 54

1 internal

4 (via opto-coupler), 24 V DC

13 (via opto-coupler), 24 V DC

MIN Sub D 25-pin

BIS C-605-027-653-05-ST4

Configuration software

Connector page 201

For applications with no controller:

for direct activation of actuators,
switches, etc.



BIS C

Range of
Applications

Selection
Criteria

Data Carriers
Read/Write

Read/Write
Heads

Read/Write
Heads with
Connector

Read/Write
Heads – Long
Distances

Data Couplers

Modular
Read/Write
Heads

Modular Head
Adapters

8-bit
Read-Only
Processor

**Read-Only
Parallel
Processors**

Processors

Metal Housing
Processors

Handy
Programmer

Handheld
Programmer

Machine Tool
ID Interface

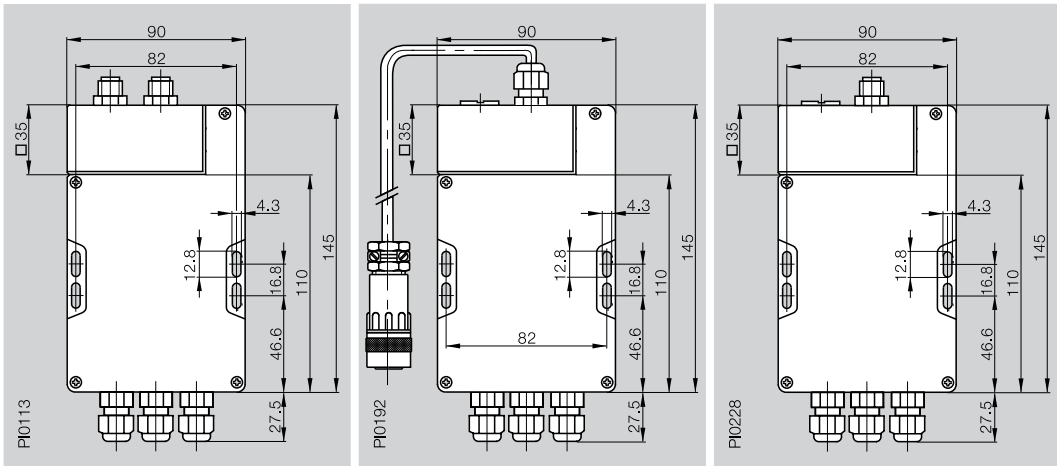
Read/Write
Handle
Accessory

Access
Security
System

Read/Write
Gun
Accessory

Installation
Notes

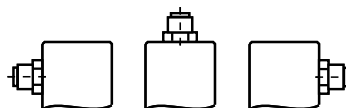
Read/Write
Times

Description	BIS C-600-_-650-_-KL1	BIS C-600-_-670-_-KL1	BIS C-600-_-654-_-KL1	
Function	read/write	read/write	read/write	
Antenna type				
				
Supply voltage	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	
Ripple	$\leq 10\%$	$\leq 10\%$	$\leq 10\%$	
Current	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	
Operating temperature	0...+60 °C	0...+60 °C	0...+60 °C	
Storage temperature	0...+60 °C	0...+60 °C	0...+60 °C	
Protection per IEC 60529	IP 65	IP 65	IP 65	
Read/write head ports	2 external	1 external	1 external/special	
Control inputs	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC	
Control outputs	4 (via opto-coupler), 24 V DC	4 (via opto-coupler), 24 V DC	4 (via opto-coupler), 24 V DC	
Connection type	Terminals 3 $\times$ Pg 9	Terminals 3 $\times$ Pg 9	Terminals 3 $\times$ Pg 9	
Description interface/software:				
RS232/Balluff dialog	BIS C-600-007-650-00-KL1	BIS C-600-007-670-00-KL1	BIS C-600-007-654-00-KL1	
RS422/RS485, 4-wire, Point-to-Point/Balluff dialog	BIS C-600-007-650-02-KL1	BIS C-600-007-670-02-KL1	BIS C-600-007-654-02-KL1	
Accessories included	Configuration software	Configuration software	Configuration software	
Accessories (please order separately)	Connector page 201	Connector page 201	Connector page 201	

The **compact class** **BIS C-6_** with its reduced dimensions and various interface options can be used wherever ambient conditions do not require higher protection.

The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical



Adapter or antenna can be rotated in 3 directions

for read/write head
BIS C-355/05-S92

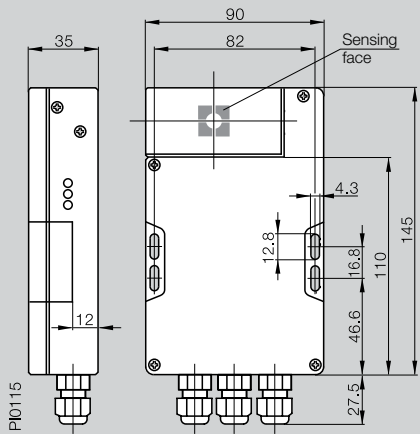
Read/write head can be rotated in 3 directions



BIS C-600-_-652-_-KL1

read/write

round



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

1 internal, 1 external

1 (via opto-coupler), 24 V DC

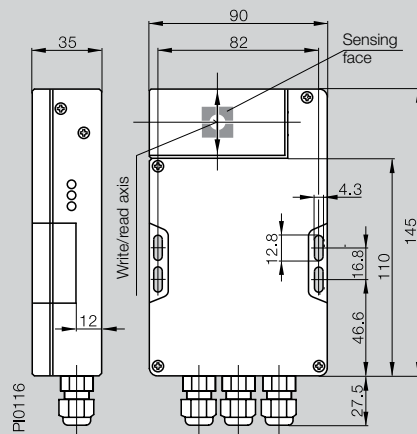
4 (via opto-coupler), 24 V DC

Terminals 3 x Pg 9

BIS C-600-_-653-_-KL1

read/write

Rod



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

1 internal, 1 external

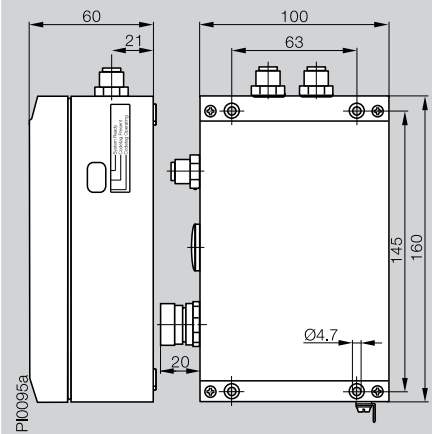
1 (via opto-coupler), 24 V DC

4 (via opto-coupler), 24 V DC

Terminals 3 x Pg 9

BIS C-620-_-050-_-ST2

read/write



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

2 external

1 connector round 9-pin

1 connector round 5-pin

Read/write heads BIS C-3_ _

Exception: BIS C-350

BIS C-600-007-652-00-KL1

BIS C-600-007-652-02-KL1

Configuration software

Connector page 201

BIS C-600-007-653-00-KL1

BIS C-600-007-653-02-KL1

Configuration software

Connector page 201

BIS C-620-007-050-00-ST2

BIS C-620-007-050-02-ST2

Configuration software

Connector page 201

BIS C

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

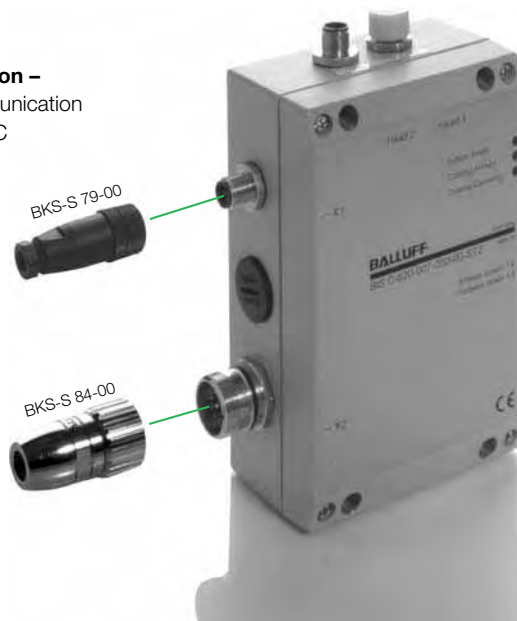
Access Security System

Read/Write Gun Accessory

Installation Notes

Read/Write Times

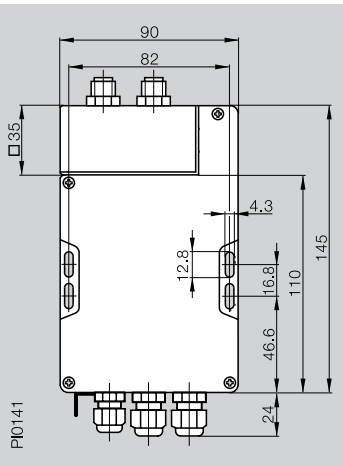
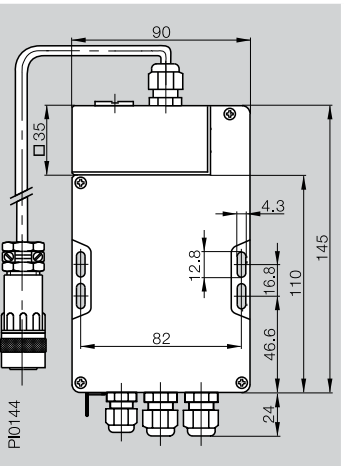
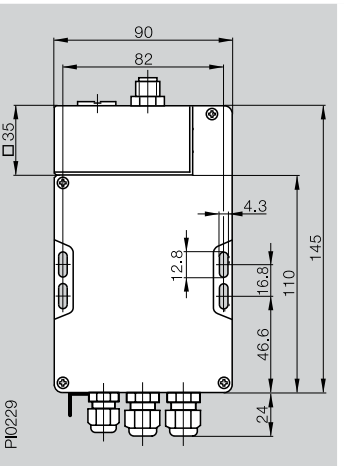
Serial connection –
for simple communication
to any PC or PLC



Processor unit

BIS C-62_ is enclosed in a robust metal housing.

This special housing provides effective protection against environmental influences and aggressive media. Impacts also do not affect the degree of protection.

Description	BIS C-6001-_-650-03-KL2	BIS C-6001-_-670-03-KL2	BIS C-6001-_-654-03-KL2	
Function	read/write	read/write	read/write	
Antenna type				
  Control No 3TLJ File No E227256  Certified! No. 376				
				
Supply voltage	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	
Ripple	$\leq 10\%$	$\leq 10\%$	$\leq 10\%$	
Current	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	
Operating temperature	0...+50 °C	0...+50 °C	0...+50 °C	
Storage temperature	0...+50 °C	0...+50 °C	0...+50 °C	
Protection per IEC 60529	IP 65	IP 65	IP 65	
Read/write head ports	2 external	1 external	1 external	
Control inputs	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC	
Connection type	Terminals 1 $\times$ Pg 9 Terminals 2 $\times$ Pg 11	Terminals 1 $\times$ Pg 9 Terminals 2 $\times$ Pg 11	Terminals 1 $\times$ Pg 9 Terminals 2 $\times$ Pg 11	
Description interface/software:				
Service interface RS232	yes	yes	yes	
INTERBUS	BIS C-6001-023-650-03-KL2	BIS C-6001-023-670-03-KL2	BIS C-6001-023-654-03-KL2	
INTERBUS (with memory-optimized data carrier processing)	BIS C-6001-029-650-03-KL2	BIS C-6001-029-670-03-KL2	BIS C-6001-029-654-03-KL2	

The **compact class BIS C-600** _ with its reduced dimensions and various interface options can be used wherever ambient conditions do not require higher protection.

The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical

Cost-effective identification – operate 2 read/write heads simultaneously

- Data width on the bus, 16 bytes
- Service friendly, all parameter data are stored in an exchangeable memory
- Compatible with BIS C-601 device family
- Accepts all read/write heads
- Compatible with entire BIS C system



Adapter or antenna can be rotated in 3 directions

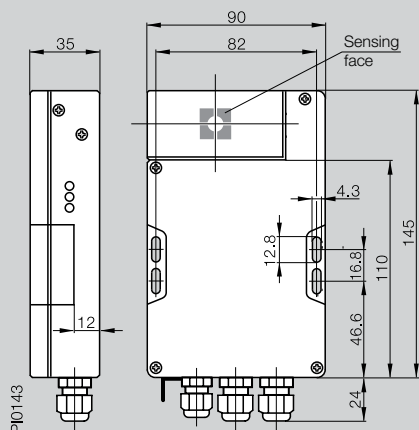
for read/write head
BIS C-355/_-S92



BIS C-6001-_-_-652-03-KL2

read/write

round



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+50 °C

0...+50 °C

IP 65

1 internal

1 (via opto-coupler), 24 V DC

Terminals 1 $\times$ Pg 9

Terminals 2 $\times$ Pg 11

yes

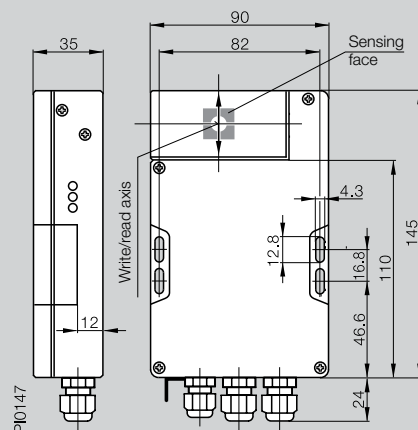
BIS C-6001-023-652-03-KL2

BIS C-6001-029-652-03-KL2

BIS C-6001-_-_-653-03-KL2

read/write

Rod



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+50 °C

0...+50 °C

IP 65

1 internal

1 (via opto-coupler), 24 V DC

Terminals 1 $\times$ Pg 9

Terminals 2 $\times$ Pg 11

yes

BIS C-6001-023-653-03-KL2

BIS C-6001-029-653-03-KL2

BIS C

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

Access Security System

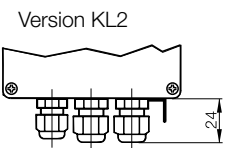
Read/Write Gun Accessory

Installation Notes

Read/Write Times

Read/write head can be rotated in 3 directions



Description	BIS C-6002- -650-03-	BIS C-6002- -670-03-	BIS C-6002- -654-03-
Function	read/write	read/write	read/write
Antenna type			
 			
Supply voltage	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$	$\leq 10\%$	$\leq 10\%$
Current	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$	$\leq 400\text{ mA}$
Operating temperature	0...+50 °C	0...+50 °C	0...+50 °C
Storage temperature	0...+50 °C	0...+50 °C	0...+50 °C
Protection per IEC 60529	IP 65	IP 65	IP 65
Read/write head ports	2 external	1 external	1 external
Control inputs	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC	1 (via opto-coupler), 24 V DC
Control outputs	2 (via opto-coupler), 24 V DC	2 (via opto-coupler), 24 V DC	2 (via opto-coupler), 24 V DC
Connection type	Terminals 1 $\times$ Pg 9	Terminals 1 $\times$ Pg 9	Terminals 1 $\times$ Pg 9
clamp terminals KL2	Terminals 2 $\times$ Pg 11	Terminals 2 $\times$ Pg 11	Terminals 2 $\times$ Pg 11
Connection version ST11	2 connector round 5-pin, B-coded 1 connector round 5-pin	2 connector round 5-pin, B-coded 1 connector round 5-pin	2 connector round 5-pin, B-coded 1 connector round 5-pin
Description interface/software:			
Service interface RS232	yes	yes	yes
PROFIBUS-DP	BIS C-6002-019-650-03-ST11	BIS C-6002-019-670-03-ST11	BIS C-6002-019-654-03-ST11
PROFIBUS-DP/memory optimization with connector	BIS C-6002-028-650-03-ST11	BIS C-6002-028-670-03-ST11	BIS C-6002-028-654-03-ST11
PROFIBUS-DP	BIS C-6002-019-650-03-KL2	BIS C-6002-019-670-03-KL2	BIS C-6002-019-654-03-KL2
PROFIBUS-DP/memory optimization with PG fitting	BIS C-6002-028-650-03-KL2	BIS C-6002-028-670-03-KL2	BIS C-6002-028-654-03-KL2
Accessories included	Software GSD file	Software GSD file	Software GSD file
Accessories (please order separately)	Connector page 205	Connector page 205	Connector page 205

The **compact class BIS C-600** _ with its reduced dimensions and various interface options can be used wherever ambient conditions do not require higher protection.

Small, compact, flexible and economical

Cost-effective identification – operate 2 read/write heads simultaneously

- Selectable division of the data width on the PROFIBUS-DP, from 4 to 128 bytes
- Free assigning of the data width for each read/write head
- Optimum data speed, internal cycle time is shorter than the BUS activation time
- Service friendly, all parameter data are stored in an exchangeable memory
- BUS address selectable with switches
- Compatible with BIS C-602 device family
- Accepts all read/write heads
- Compatible with entire BIS C system



Adapter or antenna can be rotated in 3 directions

for read/write head BIS C-355/_-S92



Recommended type ST11

BIS C-6002- read/write	-655-03-		BIS C-6002- round	-652-03-		BIS C-6002- Rod	-653-03-	
24 V DC ±20 %			24 V DC ±20 %			24 V DC ±20 %		
≤ 10 %			≤ 10 %			≤ 10 %		
≤ 400 mA			≤ 400 mA			≤ 400 mA		
0...+50 °C			0...+50 °C			0...+50 °C		
0...+50 °C			0...+50 °C			0...+50 °C		
IP 65			IP 65			IP 65		
4 external			1 internal			1 internal		
1 (via opto-coupler), 24 V DC			1 (via opto-coupler), 24 V DC			1 (via opto-coupler), 24 V DC		
2 (via opto-coupler), 24 V DC			2 (via opto-coupler), 24 V DC			2 (via opto-coupler), 24 V DC		
Terminals 1 × Pg 9			Terminals 1 × Pg 9			Terminals 1 × Pg 9		
Terminals 2 × Pg 11			Terminals 2 × Pg 11			Terminals 2 × Pg 11		
2 connector round 5-pin, B-coded			2 connector round 5-pin, B-coded			2 connector round 5-pin, B-coded		
1 connector round 5-pin			1 connector round 5-pin			1 connector round 5-pin		
yes			yes			yes		
BIS C-6002-019-655-03-ST11			BIS C-6002-019-652-03-ST11 BIS C-6002-028-652-03-ST11			BIS C-6002-019-653-03-ST11 BIS C-6002-028-653-03-ST11		
BIS C-6002-019-655-03-KL2			BIS C-6002-019-652-03-KL2 BIS C-6002-028-652-03-KL2			BIS C-6002-019-653-03-KL2 BIS C-6002-028-653-03-KL2		
Software GSD file			Software GSD file			Software GSD file		
Connector page 205			Connector page 205			Connector page 205		



Range of Applications

Selection Criteria

Data Carriers
Read/WriteRead/Write
HeadsRead/Write
Heads with
Connector

Read/Write
Heads – Long
Distances

Data Couplers

Modular
Read/Write
Heads

Modular Head Adapters

8-bit
Read-Only
ProcessorRead-Only
Parallel
Processors

Processors

Metal Housing Processors

Handy
ProgrammerHandheld
ProgrammerMachine Tool
ID InterfaceRead/Write
Handle
AccessoryAccess
Security
System

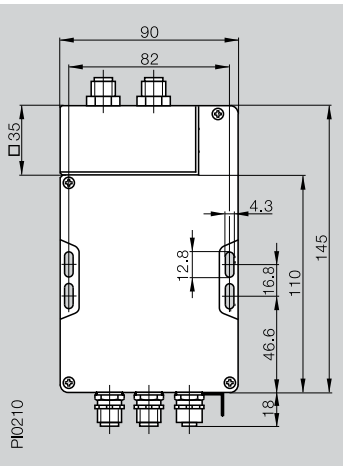
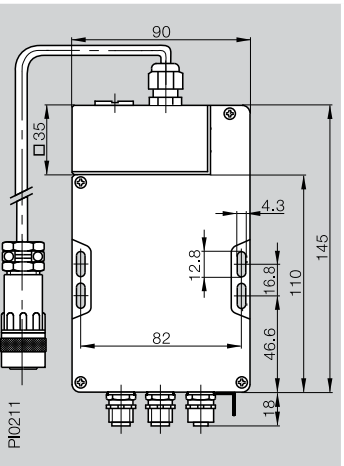
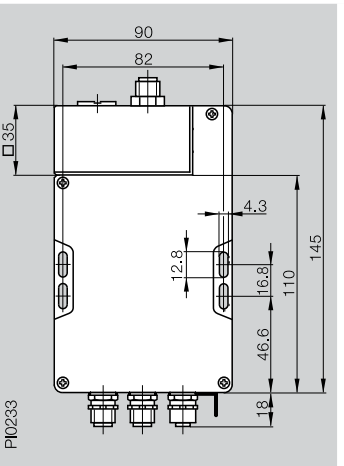
Read/Write
Gun
Accessory

Installation Notes

Read/Write
Times

Threaded cover
BKS 12-CS-01
coded for M12 B
connector type



Description	BIS C-6003-_-650-03-ST12	BIS C-6003-_-670-03-ST12	BIS C-6003-_-654-03-ST12
Function	read/write	read/write	read/write
Antenna type			
  			
			
Supply voltage	24 V DC ±20 %	24 V DC ±20 %	24 V DC ±20 %
Ripple	≤ 10 %	≤ 10 %	≤ 10 %
Current	≤ 400 mA	≤ 400 mA	≤ 400 mA
Operating temperature	0...+60 °C	0...+60 °C	0...+60 °C
Storage temperature	0...+60 °C	0...+60 °C	0...+60 °C
Protection per IEC 60529	IP 65	IP 65	IP 65
Read/write head ports	2 external	1 external	1 external
Connection type	3 connector round 5-pin	3 connector round 5-pin	3 connector round 5-pin
Description interface/software:			
Service interface RS232	yes	yes	yes
DeviceNet™	BIS C-6003-025-650-03-ST12	BIS C-6003-025-670-03-ST12	BIS C-6003-025-654-03-ST12
Accessories included	Software EDS file	Software EDS file	Software EDS file
Accessories (please order separately)	Connector page 207/208/209	Connector page 207/208/209	Connector page 207/208/209

The **compact class BIS C-600** _ with its reduced dimensions and various interface options can be used wherever ambient conditions do not require higher protection.

The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical

Cost-effective identification – operate 2 read/write heads simultaneously

- Freely selectable buffer size between 0 and 256 bytes
- Service friendly, all parameter data are stored in an exchangeable memory
- Accepts all read/write heads
- Compatible with entire BIS C system



Adapter or antenna can be rotated in 3 directions

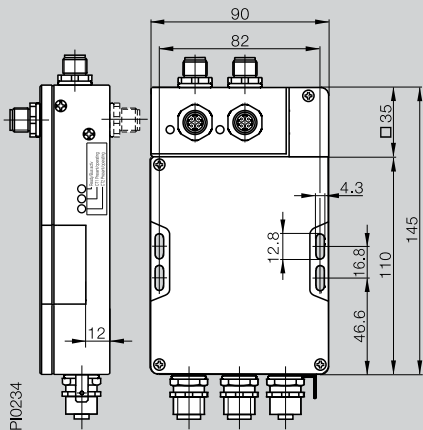
for read/write head
BIS C-355/_-S92



BIS C-6003-_-655-03-ST12

read/write

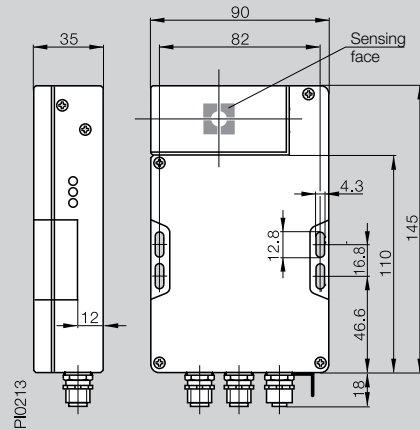
round



BIS C-6003-_-652-03-ST12

read/write

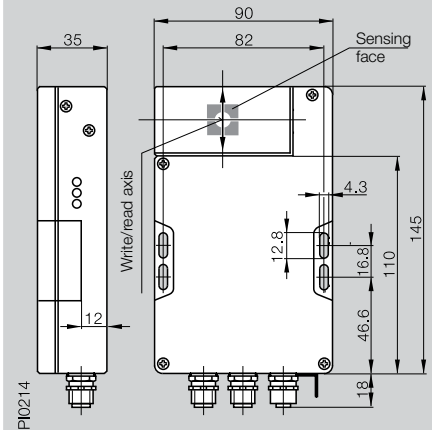
round



BIS C-6003-_-653-03-ST12

read/write

Rod



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

4 external

3 connector round 5-pin

24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

1 internal

3 connector round 5-pin

24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

1 internal

3 connector round 5-pin

yes

BIS C-6003-025-655-03-ST12

Software EDS file

Connector page 207/208/2095

yes

BIS C-6003-025-652-03-ST12

Software EDS file

Connector page 207/208/209

yes

BIS C-6003-025-653-03-ST12

Software EDS file

Connector page 207/208/209

BIS C

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

Access Security System

Read/Write Gun Accessory

Installation Notes

Read/Write Times

Read/write head can be rotated in 3 directions



Industrial RFID Systems BIS C

PROFIBUS - DP Metal Housing Processors

ID Plus

These robust metal housings provide effective protection against environmental influences and aggressive media. Impact also does not affect the degree of protection.



Description	
Function	

Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection type	

Connection for	
Description interface/software:	
PROFIBUS-DP	
PROFIBUS-DP (with memory optimized data carrier processing)	
Accessories included	
Accessories (please order separately)	

**Cost-effective identification –
operate 2 read/write heads simultaneously!**

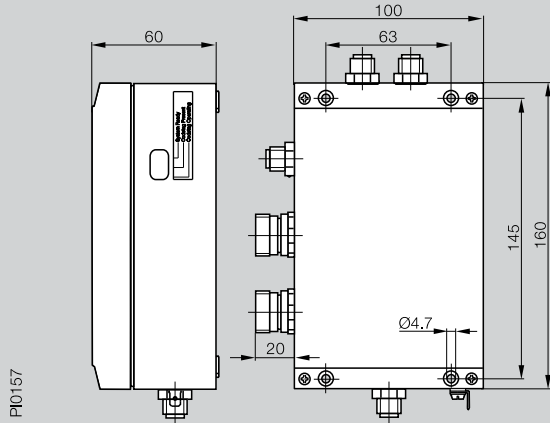


**Threaded cover
BKS 23-CS-00**
for M23 connector
IP 65 protective
cover for unused
connectors!



BIS C-6022-_-_-050-03-ST10

read/write



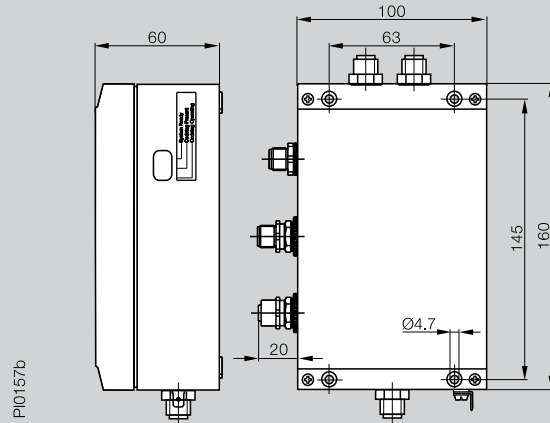
24 V DC $\pm 20\%$
 $\leq 10\%$
 $\leq 400\text{ mA}$
 $0\ldots+50\text{ }^{\circ}\text{C}$
 $0\ldots+50\text{ }^{\circ}\text{C}$
 IP 65
 2 extern
 yes
 2 connectors round 12-pin,
 1 connector round 5-pin
 1 connector round 4-pin
 Read/write heads BIS C-3_ _
 Exception: BIS C-350/BIS C-355

BIS C-6022-019-050-03-ST10
 BIS C-6022-028-050-03-ST10

Software GSD file
 BKS 23-CS-00
 Connector page 204/205

BIS C-6022-_-_-050-03-ST14

read/write



24 V DC $\pm 20\%$
 $\leq 10\%$
 $\leq 400\text{ mA}$
 $0\ldots+50\text{ }^{\circ}\text{C}$
 $0\ldots+50\text{ }^{\circ}\text{C}$
 IP 65
 2 extern
 yes
 Connector round 5-pin, B-coded,
 1 connector round 5-pin
 1 connector round 4-pin
 Read/write heads BIS C-3_ _
 Exception: BIS C-350/BIS C-355

BIS C-6022-019-050-03-ST14
 BIS C-6022-028-050-03-ST14

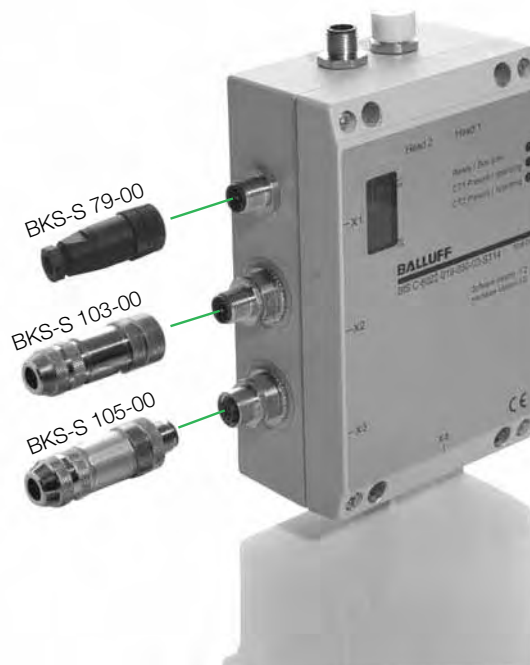
Software GSD file
 BKS 12-CS-01
 Connector page 204/205

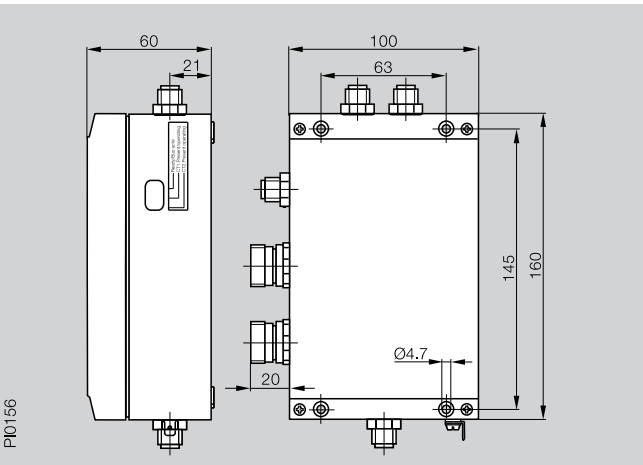
BIS C

Range of Applications
 Selection Criteria
 Data Carriers Read/Write
 Read/Write Heads
 Read/Write Heads with Connector
 Read/Write Heads – Long Distances
 Data Couplers
 Modular Read/Write Heads
 Modular Head Adapters
 8-bit Read-Only Processor
 Read-Only Parallel Processors
 Processors
Metal Housing Processors
 Handy Programmer
 Handheld Programmer
 Machine Tool ID Interface
 Read/Write Handle Accessory
 Access Security System
 Read/Write Gun Accessory
 Installation Notes
 Read/Write Times



Threaded cover
BKS 12-CS-01
 coded for M12 B
 connector type

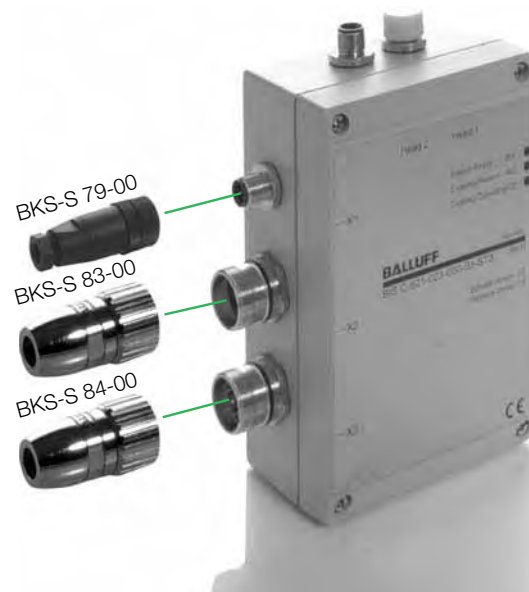


Description	BIS C-6021-_-_-050-03-ST8
Function	read/write
	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	2 connector round 9-pin 1 connector round 5-pin 1 connector round 4-pin
Connection for	Read/write heads BIS C-3_ _ Exception: BIS C-350/BIS C-355
Description interface/software:	
INTERBUS, remote bus subscriber	BIS C-6021-023-050-03-ST9
INTERBUS, remote bus subscriber with 2M Baud	BIS C-6021-023-050-03-ST9M
INTERBUS, remote bus subscriber (with memory optimized data carrier processing)	BIS C-6021-029-050-03-ST9
INTERBUS, installation bus	BIS C-6021-023-050-03-ST8
INTERBUS, installation bus with 2M baud	BIS C-6021-023-050-03-ST8M
INTERBUS, installation bus (with memory optimized data carrier processing)	BIS C-6021-029-050-03-ST8
Accessories (please order separately)	BKS 23-CS-00 Connector page 204

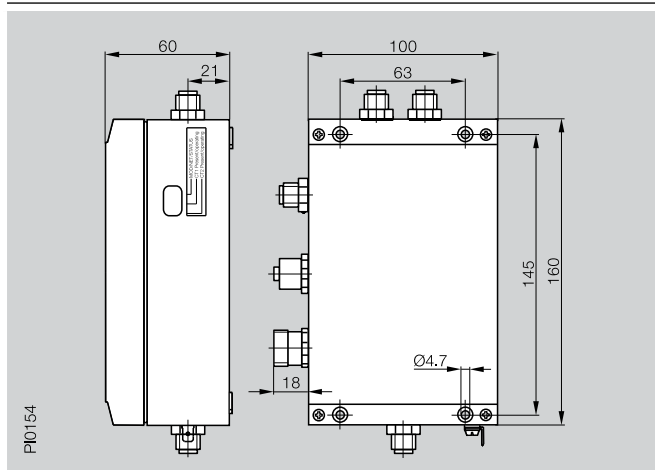
**Cost-effective identification –
operate 2 read/write heads simultaneously!**



**Threaded cover
BKS 23-CS-00**
for M23 connector
IP 65 protective cover
for unused connectors!



Description	BIS C-6023-_-050-03-ST13
Function	read/write
  	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+50 °C
Storage temperature	0...+50 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	3 connector round 5-pin 1 connector round 4-pin
Connection for	Read/write heads BIS C-3_ _ Exception: BIS C-350/BIS C-355
Description interface/software:	
DeviceNet	BIS C-6023-025-050-03-ST13
Accessories included	Software ESD-file
Accessories (please order separately)	BIS-C -623 threaded cover 7/8" Connector page 200 Termination resistor page 207/208/209



**Cost-effective identification –
operate 2 read/write heads simultaneously!**



**Threaded cover
BIS C-623**
for 7/8" connection
IP 65 protective threaded
cover for unused connectors!



BIS C

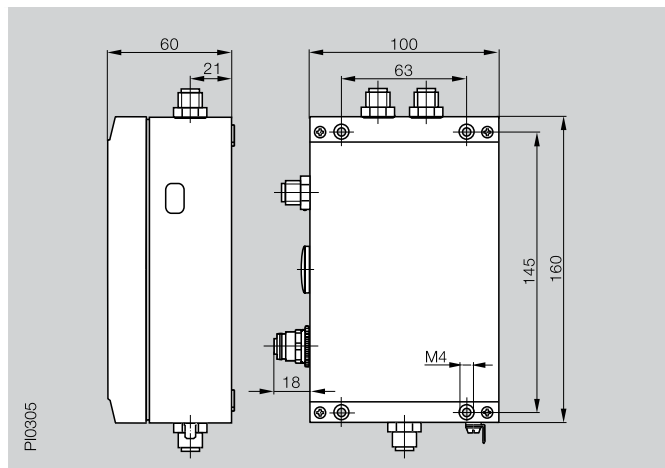
Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

Industrial RFID Systems BIS C

EtherNet/IP™ Metal Housing Processors

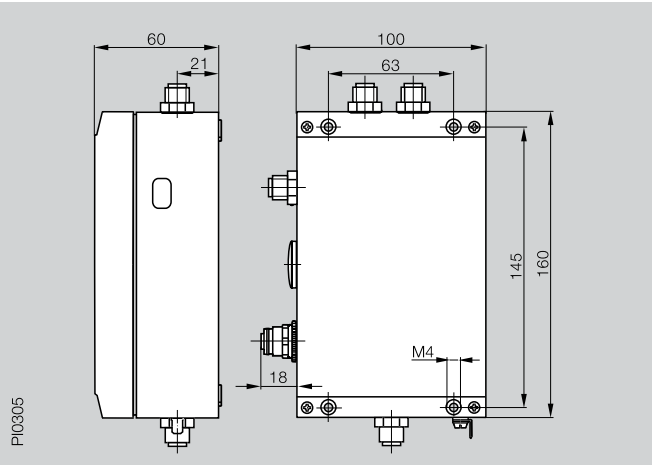
ID Plus

Description	BIS C-6026-_-_-050-06-ST19
Function	read/write
  LISTED Control No 3TLJ File No E227256 	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	Connector round 5-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	Read/write heads BIS C-3_ _ Exception BIS C-350 and BIS C-355
Description interface/software:	
EtherNet/IP™	BIS C-6026-034-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	Connectors page 206



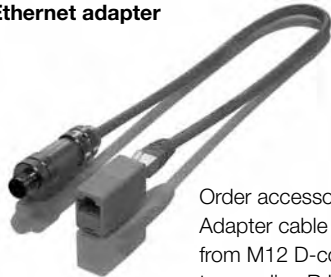
**Cost-effective identification –
operate 2 read/write heads simultaneously!**



Description	BIS C-6027-__-050-06-ST19	
Function	read/write	
  Control No 3TLJ File No E227256 		
Supply voltage	24 V DC $\pm 20\%$	
Ripple	$\leq 10\%$	
Current	$\leq 400\text{ mA}$	
Operating temperature	0...+50 °C	
Storage temperature	0...+50 °C	
Protection per IEC 60529	IP 65	
Read/write head ports	2 external	
Service interface RS232	yes	
Connection type	Connector round 5-pin, D-coded 1 connector 5-pin 1 connector 4-pin	
Connection for	Read/write heads BIS C-3_ _ Exception BIS C-350 and BIS C-355	
Description interface/software:		
Ethernet with standard TCP/IP protocol	BIS C-6027-039-050-06-ST19	
Accessories included	Configuration software	
Accessories (please order separately)	Connectors page 206	

Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

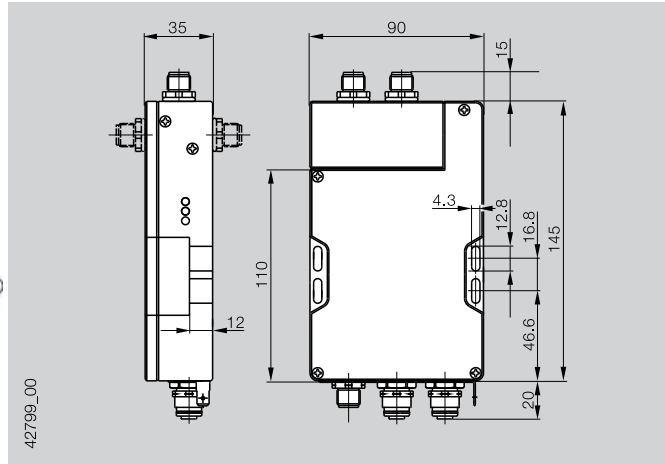
Ethernet adapter



Order accessories separately!
Adapter cable for Ethernet
from M12 D-coded
to coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206



Description	BIS C-6008- _ _ -650-06-ST23
Function	read/write
Housing material	ABS



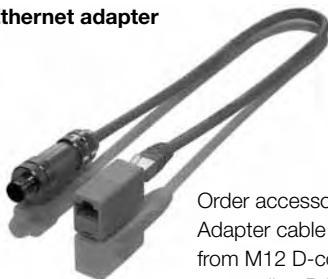
Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes internal
Connection type	Connector round 5-pin, A-coded 2 connector 4-pin, D-coded
Connection for	Read/write heads BIS C-3_ _ Exception BIS C-350 and BIS C-355
Description interface/software:	
PROFINET RT with IRT-capable 2-PORT switch	BIS C-6008-048-650-06-ST23
Accessories included	Configuration software
Accessories (please order separately)	Connectors page 206

**Cost-effective identification –
operate 2 read/write heads simultaneously!**



Adapter or antenna can be
rotated in 3 directions

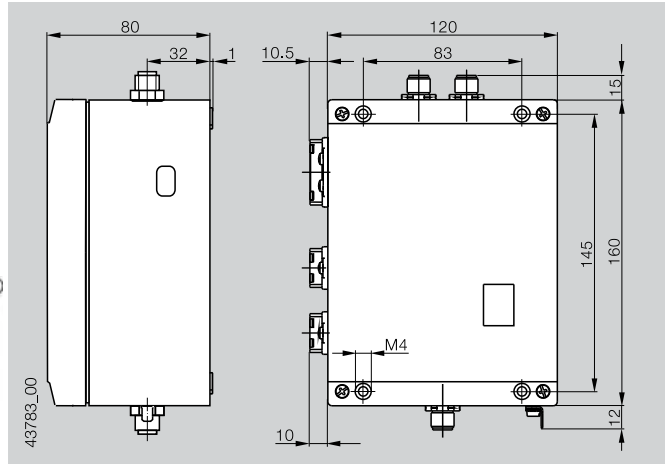
Ethernet adapter



Order accessories separately!
Adapter cable for PROFINET
from M12 D-coded
to coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206



Description	BIS C-6028-048-050-06-ST22
Function	read/write
Housing material	Al
  Control No 3TLJ File No E227256 	
Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	1 connector 5-pin, Push-pull AIDA 2 connector 8-pin, Push-pull RJ45 AIDA Connector round 4-pin
Connection for	Read/write heads BIS C-3_ _ Exception BIS C-350 and BIS C-355
Description interface/software:	
PROFINET RT with IRT-capable 2-PORT switch	BIS C-6028-048-050-06-ST22
Accessories included	Configuration software



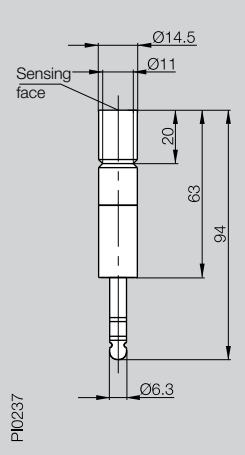
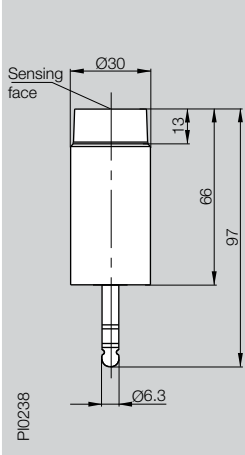
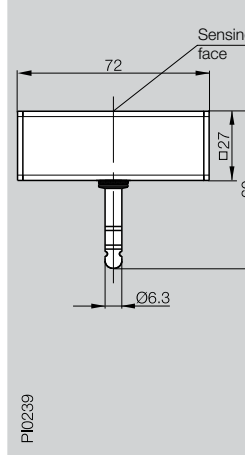
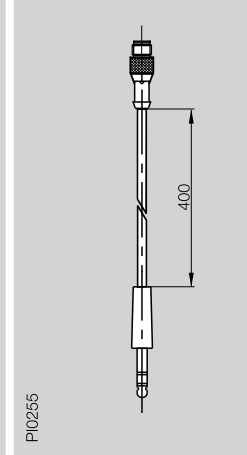
The robust version for connection to PROFINET with AIDA standard (Automation Initiative of German Domestic Automobile Manufacturers)



- Range of Applications
- Selection Criteria
- Data Carriers Read/Write
- Read/Write Heads
- Read/Write Heads with Connector
- Read/Write Heads – Long Distances
- Data Couplers
- Modular Read/Write Heads
- Modular Head Adapters
- 8-bit Read-Only Processor
- Read-Only Parallel Processors
- Processors
- Metal Housing Processors**
- Handy Programmer
- Handheld Programmer
- Machine Tool ID Interface
- Read/Write Handle Accessory
- Access Security System
- Read/Write Gun Accessory
- Installation Notes
- Read/Write Times

Industrial RFID Systems BIS C

Handy Programmer Read/Write Heads

Dimensions	Ø 14.5x63	Ø 30x66	72x27x27	
Housing material	CuZn	POM	PVC	
Antenna type	round	round	Rod	
Function	Read/write head	Read/write head	Read/write head	Adapter cable
				
	Part number	BIS C-851	BIS C-852	BIS C-853
	Operating temperature	0...+70 °C	0...+70 °C	0...+60 °C
	Storage temperature	-20...+85 °C	-20...+85 °C	-20...+60 °C
	Protection per IEC 60529	IP 67	IP 67	IP 67
	Read head connection	6.3 mm jack socket	6.3 mm jack socket	6.3 mm jack socket
Connect to		BIS C-810	BIS C-810	BIS C-810
		BIS C-820	BIS C-820	BIS C-820
		BIS C-720	BIS C-720	BIS C-720
	Appropriate data carriers	BIS C-100_ _	BIS C-100_ _	BIS C-150_ _/A
		BIS C-103_ _	BIS C-104_ _	
		BIS C-105_ _	BIS C-108_ _	
		BIS C-121_ _	BIS C-117_ _	
		BIS C-122_ _	BIS C-128_ _	
			BIS C-130_ _	
			BIS C-190_ _	
			BIS C-191_ _	

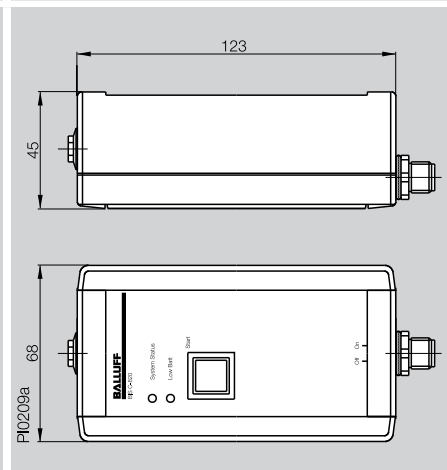
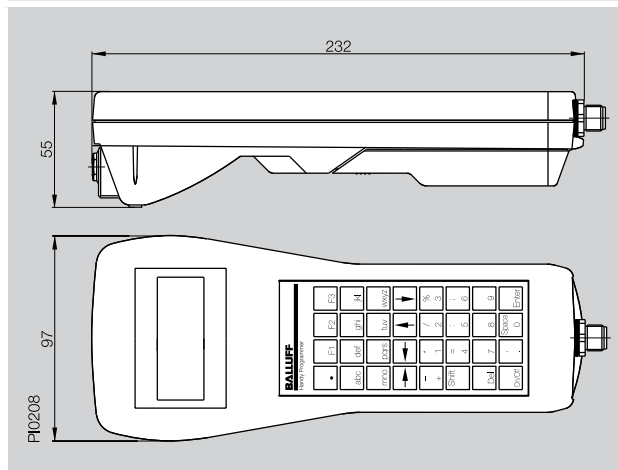
Adapter cable for handy programmer or portable device and all read/write heads with M12 connector.



Industrial RFID Systems BIS C

Handy Programmer

Function	read/write	read/write
Housing material	ABS	ABS



Part number	BIS C-810-0-003	BIS C-820-0-004-D
Keyboard	32 buttons, alphanumeric	1 key
Display	LCD-display, 20 characters/4 line	2 LED status/battery
Current	2.4 V rechargeable battery pack NiMH	2x R6 AA rechargeable NiMH
Capacity	1500 mA/h	800 mA/h
Interface	RS232/Balluff Dialog	RS232/Balluff Dialog
Operating temperature	0...+50 °C	0...+50 °C
Protection per IEC 60529	IP 40	IP 40
Read head connection	1x 6.3 mm jack socket	1x 6.3 mm jack socket
Accessories	Carrying case included	

For maximum flexibility

The handy programmer with read/write function helps you stay mobile and independent. Benefits increased mobility during repair work.



BIS C-522-PVC-02
Please order accessories separately!
RS232 adapter cable
BIS C-522-PVC-02
BIS C-524-PVC-01,5
page 199

Rechargeable battery
1500 MAH
125997

Charger
BIS C-701-A

Charging cradle with
charging power supply
BIS C-702-A

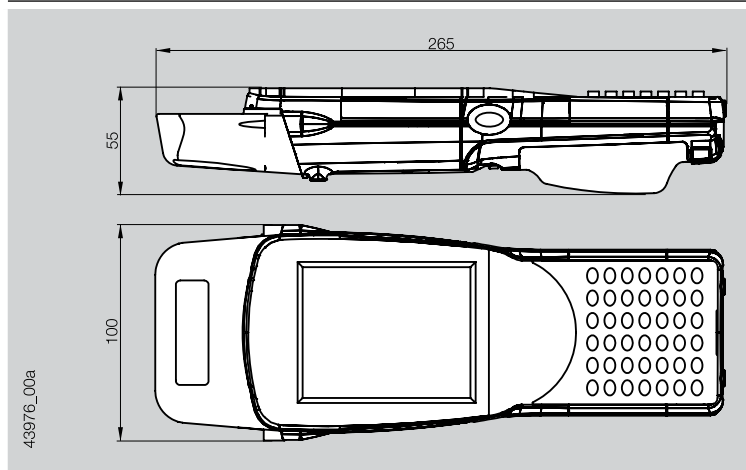
BIS C

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit
Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

Industrial RFID Systems BIS C

Handheld Programmer

Function	read/write
Housing material	ABS



Standard Hand Held unit part number	BIS C-870-1-008-x-000
Keyboard	52 buttons, alphanumeric
Display	TFT Touchscreen display
Supply voltage	3.7 V rechargeable battery pack
Capacity	4000 mA/h
Interface	RS232/Balluff Dialog
Working temperature	-10...+50 °C
Degree of protection in accordance with IEC 60529	IP 65
Read/write head option	Integrated
Accessories included	Charging power supply and stylus
Appropriate data carrier	BIS C-1 ...
Please order additional accessories separately	Docking Station and Pistol Grip

For enhanced operating convenience

Allows easy manual writing and reading of BIS C data carriers.

Easy operation thanks to

- Touchscreen with large Windows CE® color display
- Pre-installed Balluff software and full keyboard or stylus

Ideal for manual rework stations or remote data access away from the line. Data transfer via optional WLAN, Bluetooth or wired USB. The handheld is also modular for expandability.

Additional options are available for greater functionality.

Basic Handheld
BIS C-870-1-008-x-000
Includes charger and stylus



Hand Held Accessories



Part Number	WA4003-G2	WA3010	RA2041*
Description	Desktop Docking Station w/PS and USB Cable	4000mAh Replacement Battery	802.11b/g WLAN Card



Part Number	WA6100-G1	WA9212-G1*	WA6102-G1
Description	Stylus – pack of 5	Imager, 2D Slim Pod HHP 5180 (compatible with pistol grip WA6102-G1)	Pistol Grip for WA9212-G1 2D Slim Pod HHP 5180



Part Number	WA9000-G1*	WA6101-G1	WA6097-G2
Description	Scanner 1D Laser High Performance (can work with Pistol Grip WA6001-G1)	Pistol Grip for WA9000-G1, 1D Scanner	Protective Carrying Case – 7527C-G2 universal end cap (open ended)

*Specifications available upon request.

BIS C

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times



Fanuc miLink CNC interface

The revolutionary Fanuc miLink Tool ID interface offers easy integration of Balluff BIS Tool ID RFID systems to machine tools using Fanuc CNC controllers with minimal or no engineering required. It's flexible, easy to install, and easy to configure. The engineering has been put in the box instead. The miLink is also industrially hardened for worry-free operation.

The miLink Tool ID interface requires:

- No Ladder Programming
- No Macro Executer
- No C-Executer

The miLink Tool ID interface is a bolt-on solution and requires no modifications to the Fanuc CNC control, cutting your implementation costs drastically. It is configured using a Windows® based GUI interface requiring a keyboard, mouse and monitor. The interface is simple to use, allowing the user to define where the data in the Tool ID tags memory gets transferred to in the Fanuc machine tool controller using a template driven format, storing memory map and setup information in a template file. Once configured, the monitor, keyboard and mouse are meant to be removed from the miLink allowing it to operate as a black box solution automatically transferring data between the Balluff BIS system and the Fanuc CNC controller autonomously.



Easy Setup

Physical installation consists of:

- Din Rail mounting miLink processor
- Mount Balluff read/write head
- Connect 24 V DC power
- Connect RS-232 cable to Balluff processor
- Connect Ethernet cable to CNC

Application configuration consists of:

- License Activation
- Set IP address* of GE Fanuc CNC
- Set RS-232 parameters for Balluff BIS processor
- Configure memory map for ID tag data

*Consult Fanuc or Balluff to confirm CNC controller Ethernet conformance.

Balluff BIS Tool ID system kits

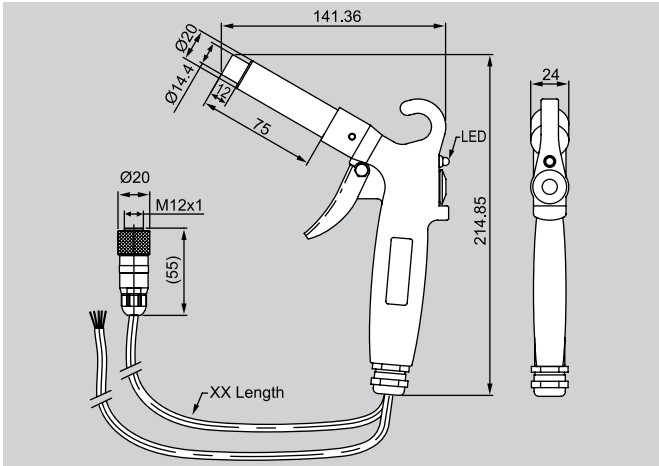
Balluff has two kits available with the BIS C series RFID system parts needed to complete the RFID part of a Tool ID system, designed specifically to work with the Fanuc miLink interface. Each kit provides a BIS C based read/write head, RFID processor and RS232 communication cable designed to connect directly to the miLink serial communication port.

Part Number	BIS C-600-007-650-00-KL1/PK1
Kit contents**	BIS C-300-PU1-05 BIS C-300 Machine Tool Head BIS C-600-007-650-00-KL1 BIS RS232 serial processor BIS C-521-SA1-PVC-02 RS232 serial cable

Part Number	BIS C-600-007-650-00-KL1/PK2
Kit contents**	BIS C-721-00-PU1-05 BIS C-300 Machine Tool Head/Pistol Grip BIS C-600-007-650-00-KL1 BIS RS232 serial processor BIS C-521-SA1-PVC-02 Serial cable with wire labels

** See individual kit parts for specific part specifications.

www.balluff.com/miLink

Version	Pistol grip handle and read/write head
Function	Read/write head
Housing material	Al
	
Part Number	BIS C-721-00-PU1-05
Trigger	1 manual switch
Display*	1 LED
Operating temperature	0...+70°C
Storage temperature	-20...+85°C
Protection	IP 65**
Cable	5 m
Connection to	Processor

Range of Applications
Selection Criteria

Data Carriers
Read/Write

Read/Write Heads

Read/Write Heads with Connector

Read/Write Heads – Long Distances

Data Couplers

Modular Read/Write Heads

Modular Head Adapters

8-bit Read-Only Processor

Read-Only Parallel Processors

Processors

Metal Housing Processors

Handy Programmer

Handheld Programmer

Machine Tool ID Interface

Read/Write Handle Accessory

Access Security System

Read/Write Gun Accessory

Installation Notes

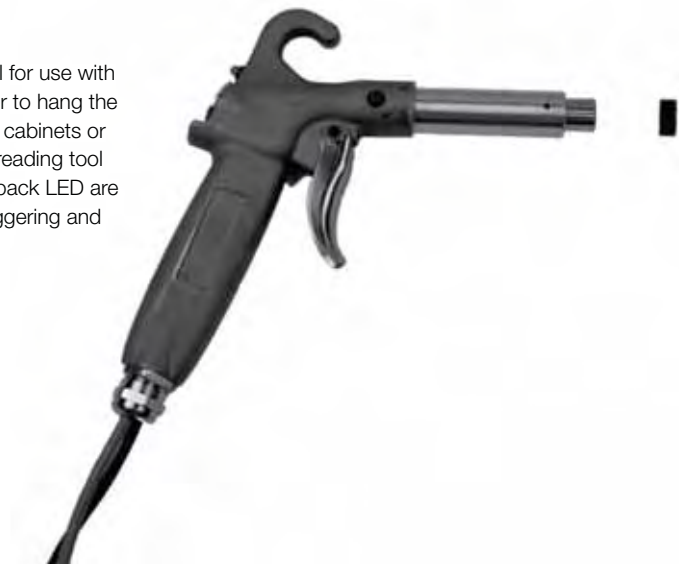
Read/Write Times

*Trigger switch and indicator LED must be wired and configured by user to miLink interface.

**Protection rating is provided as stated if user provides properly sealed I/O cable pass through to miLink terminations and mounted in a IP rated cabinet.

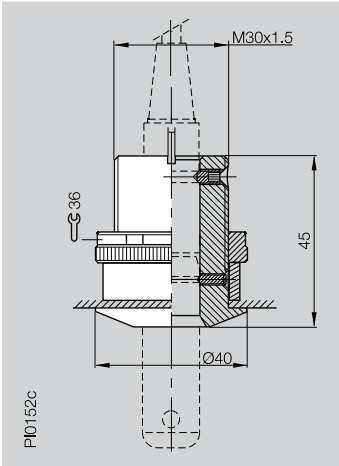
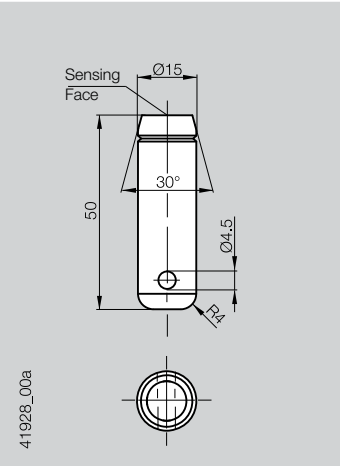
Provides ergonomic comfort

Pistol grip handle provides a comfortable “air gun” like feel for use with the BIS C-300 mounted read/write head. It allows the user to hang the read/write head by convenient built-in hook on handles of cabinets or machining center doors for quick and easy access when reading tool tags is required. A convenient trigger switch and red feedback LED are provided to allow connection to external controllers for triggering and feedback for the tool tag process.



Industrial RFID Systems BIS C

Access Security System

Version	Access protection	Data carrier
Use	Attachment for read/write head BIS C-300	
		
Part number	BIS C-300-ZA1	BIS C-122-04/L-ZC1
Degree of protection		IP 67
Ambient operating temperature	0...+70 °C	-25...+70 °C
Storage temperature	-20...+85 °C	-25...+85 °C



Access protection

Individual access codes are allocated via programmable data keys, which can then be disabled to prevent further programming.

Unauthorized personnel cannot manipulate the data key as a result. The data key is read via an antenna fitted to a special bracket. The processor unit then reads the data.

Different interfaces such as serial, PROFIBUS, INTERBUS, DeviceNet™, EtherNet/IP™ or parallel interfaces enable simple connection to the monitored system. Available for systems BIS C, BIS L, and BIS M.

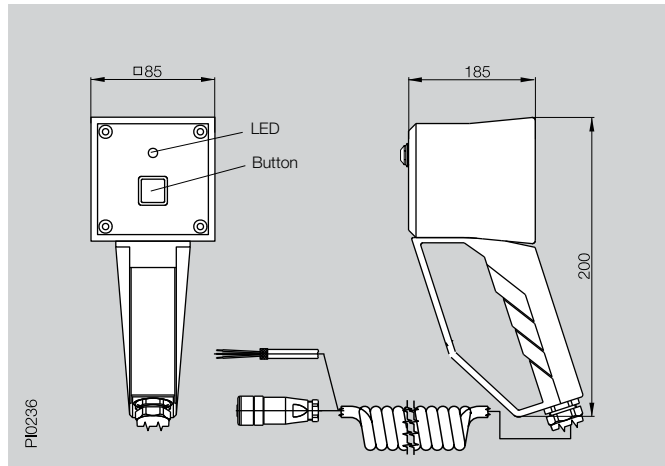


Electronic key for access control. Easy to implement using the "RFID key"

Industrial RFID Systems BIS C

Read/Write Gun Accessory

Housing material	PA 66



Part number	BIS C-720-01-03
Keyboard	1 key
Display	1 LED
Ambient operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per DIN 40 050	IP 40
Read head connection	6.3 mm jack socket
Coiled cable extended	3 m
Connection to	Processor and PLC

Provides ergonomic comfort

Benefit from the advantages of the ergonomic pistol grip with the option of attaching three different read/write heads. The pistol grip rests snugly in your hand while you activate a read/write function at the press of a button. LEDs and an integral buzzer signal the end of the read/write process.

Note:

This device's LEDs and buzzer operate with functionality provided by a PLC or external controller.



BIS C

Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit
Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

Installation in Steel

Clear zone dimensions

Data carriers	Fig.	Dimensions (in mm)			
		A	B	C	D
BIS C-100-05/A	–	0	0	0	0
BIS C-103-_/A	–	0	0	0	0
BIS C-104-_/A	–	0	0	0	0
BIS C-105-_/A	–	0	0	0	0
BIS C-108-_/L	–	0	0	0	0
BIS C-117-05/A	–	0	0	0	0
BIS C-117-05/L	5	60	–	–	20
BIS C-121-04/L	–	0	0	0	0
BIS C-122-_/L	–	0	0	0	0
BIS C-127-05/L	4	30	30	–	30
BIS C-128-_/L	5	60	–	–	20
BIS C-130-05/L	5	70	–	–	2
BIS C-133-_/L	–	0	0	0	0
BIS C-134-_/L	2	70	–	11	–
BIS C-150-_/A	1	20	20	22	–
BIS C-190-_/L	3	20	17	20	–
BIS C-191-_/L	3	9	27	9	–

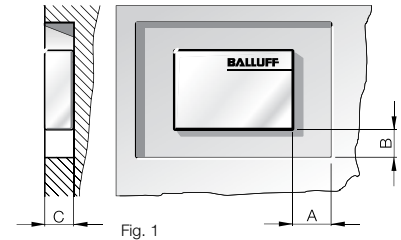


Fig. 1

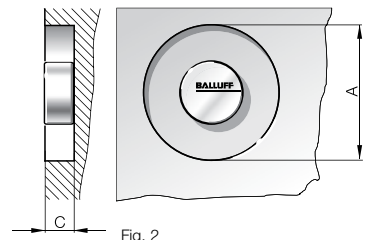


Fig. 2

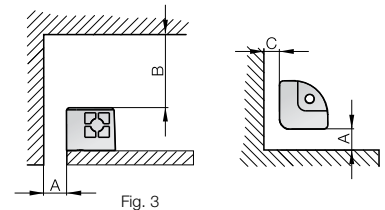


Fig. 3

Read/write head	Fig.	Dimensions (in mm)		
		A	B	C
BIS C-300	–	0	0	0
BIS C-302	–	0	0	0
BIS C-305	–	0	0	0
BIS C-306	–	0	0	0
BIS C-310	2	60	–	13
BIS C-315	–	0	0	0
BIS C-318	1	50	50	30
BIS C-319	2	50	–	35
BIS C-323	2	60	–	13
BIS C-324	1	0	0	0
BIS C-325	2	0	0	0
BIS C-326	2	80	–	35
BIS C-327	1	50	50	20
BIS C-328	1	50	50	20
BIS C-350	1	60	50	60
BIS C-351	1	100	60	50

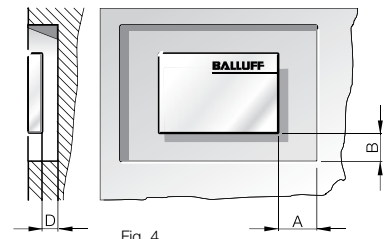


Fig. 4

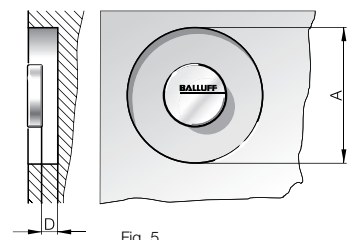


Fig. 5

Note

Depending on the combination of read/write head and data carrier, clear zone dimension A, C, and D should always be selected for the larger of the components.

Installation in Aluminum

With Clear Zone, Static Operation

When installing components in aluminum, provide clear zones for trouble-free operation.

In static mode a clear zone depth in aluminum of at least 10 mm must be maintained. Fig. 1

Clear zone dimension **A** corresponds to the diameter of the larger communication partner (data carrier or read/write head) plus the maximum possible offset (see specification for read/write head). Fig. 2

When combined with read/write heads BIS C-318, 327, 328, 350, 351 and 355 dimension **B** and **C** are calculated from the length and width of the larger communication partner (data carrier or read/write head) plus the maximum permissible offset (see specification for read/write head). Fig. 3

With Clear Zone, Dynamic Operation

In dynamic mode a clear zone depth in aluminum of at least 10 mm must be maintained. Fig. 1

Clear zone dimension **A** corresponds to 2× the diameter of the larger communication partner + 1× the diameter of the smaller communication partner. Clear zone dimension **C** corresponds to the diameter of the larger communication partner plus the corresponding maximum offset (see specification for read/write head). Fig. 4

When combined with read/write heads BIS C-318, 327, 328, 350, 351 and 355 dimension **B** is calculated from 2× the read/write path (see specification for read/write heads) + the width of the data carrier.

Clear zone dimension **C** corresponds to the read/write head length plus the corresponding maximum offset (see specification for read/write head). Fig. 5

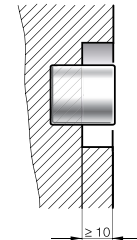


Fig. 1

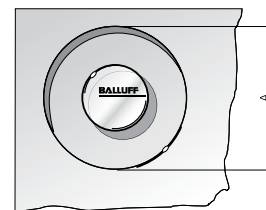


Fig. 2

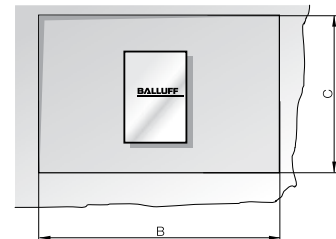


Fig. 3

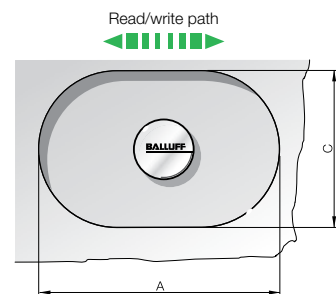


Fig. 4

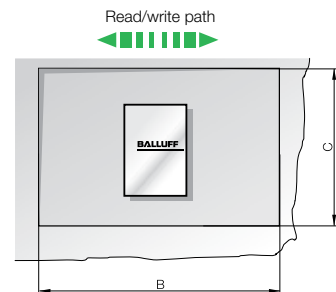
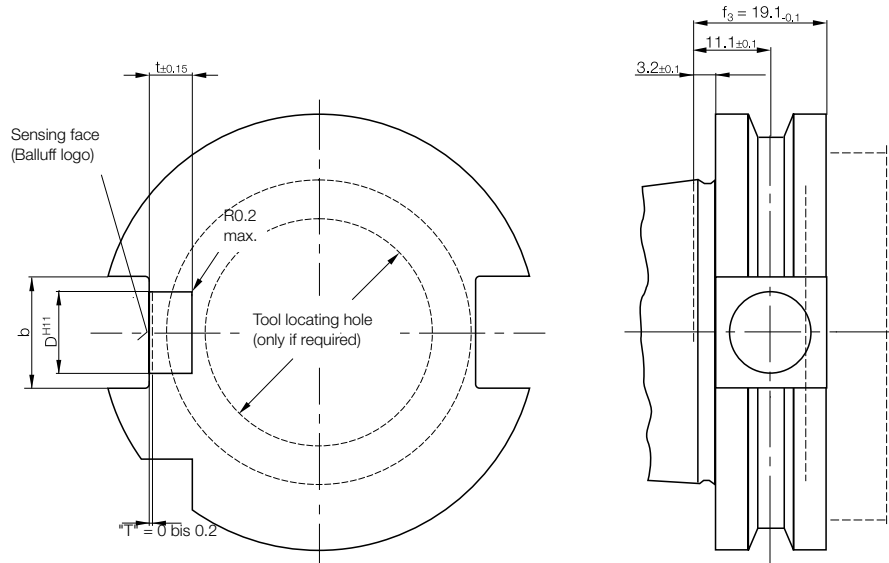


Fig. 5

Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

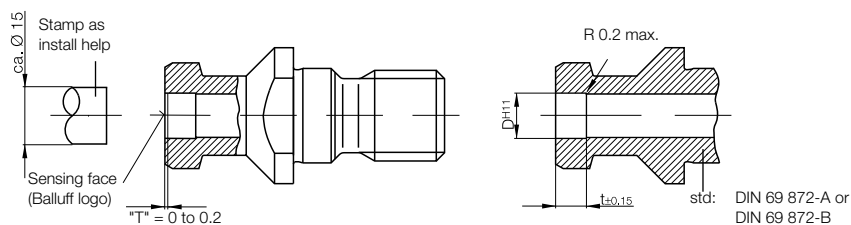
Installation in Taper

Taper DIN 69 871-A	Data carrier BIS C-122			Data carrier BIS C-103			Data carrier BIS C-105		
	D ^{H11}	t±0,15	U/min. max.	D ^{H11}	t±0,15	U/min. max.	D ^{H11}	t±0,15	U/min. max.
Nr. 30	10	4,65	90000	12	8,15	68000	12	6,15	68000
Nr. 40	10	4,65	75000	12	8,15	54000	12	6,15	54000
Nr. 45	10	4,65	66000	12	8,15	43000	12	6,15	43000
Nr. 50	10	4,65	59000	12	8,15	33000	12	6,15	33000



Installation in Retention Knob

Taper DIN 69 871-A	Data carrier BIS C-122		Data carrier BIS C-103		Data carrier BIS C-105	
	D ^{H11}	t±0,15	D ^{H11}	t±0,15	D ^{H11}	t±0,15
Nr. 30	—	—	—	—	—	—
Nr. 40	10	4,65	—	—	—	—
Nr. 45	10	4,65	12	8,15	12	6,15
Nr. 50	10	4,65	12	8,15	12	6,15

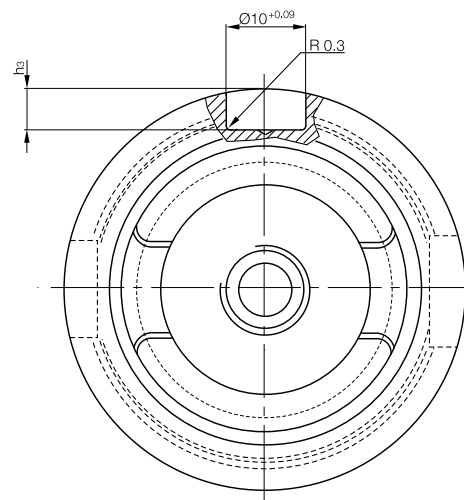
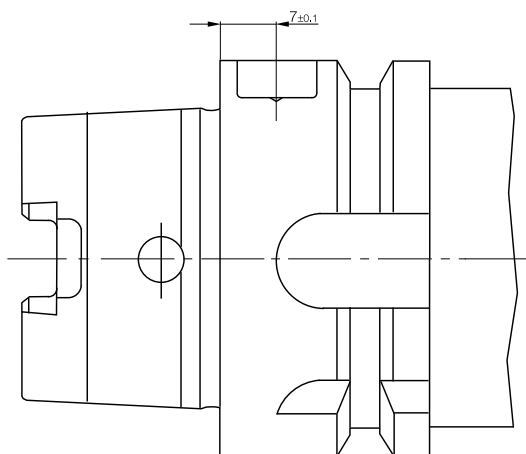


Installation

1. Degrease gluing surfaces.
2. Apply a bead of glue (e.g. Lictite Hysol IC) approximately 3 mm wide around the perimeter of the data carrier housing. Note manufacturer's instructions! Lictite can be provided by Balluff.
3. Press in data carrier housing by hand. Note dimension "T"!
4. Remove excess glue.
5. Allow to harden.

Installation in HSK Taper

	Data carrier BIS C-122	
HSK Form A ISO/DIS 12164-1	h3 + 0,20	U/min. max.
32	5,4	96000
40	5,2	80000
50	5,1	75000
63	5	65000
80	4,9	57000
100	4,9	48000



Mechanical Strength

Data carriers and read/write heads

Part number	BIS C-1_ _ , BIS C-3_ _
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Values apply to data carriers BIS C-1_ _ and read/write heads BIS C-3_ _ except for the non-potted read/write heads BIS C-350, BIS C-351, BIS C-352 and BIS C-355.

Processors and non-potted read/write heads

Part number	BIS C-6_ _ , BIS C-350, BIS C-351, BIS C-352, BIS C-355
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

BIS C

Range of Applications
Selection Criteria
Data Carriers Read/Write
Read/Write Heads
Read/Write Heads with Connector
Read/Write Heads – Long Distances
Data Couplers
Modular Read/Write Heads
Modular Head Adapters
8-bit Read-Only Processor
Read-Only Parallel Processors
Processors
Metal Housing Processors
Handy Programmer
Handheld Programmer
Machine Tool ID Interface
Read/Write Handle Accessory
Access Security System
Read/Write Gun Accessory
Installation Notes
Read/Write Times

Read Times in Static Mode

For double read and compare

Data carrier with 32-bytes blocks	
Bytes	Read time [ms]
from 0 up to 31	110
for each additional 32 bytes started	
add an additional	120
from 0 up to 255	= 950

Data carrier with 64-bytes blocks	
Bytes	Read time [ms]
from 0 up to 63	220
for each additional 64 bytes started	
add an additional	230
from 0 up to 2047	= 7350

Write Times in Static Mode

Includes checking and comparing:

Data carrier with 32-bytes blocks	
Bytes	Write time [ms]
from 0 up to 31	$110 + n \times 10$
≥ 32	$y \times 120 + n \times 10$
from 0 up to 255	= max. 3510

Data carrier with 64-bytes blocks	
Bytes	Write time [ms]
from 0 up to 63	$220 + n \times 10$
≥ 64	$y \times 230 + n \times 10$
from 0 up to 2047	= max. 27830

n = number of contiguous bytes to be programmed

y = number of blocks to be processed

Example:

Write 17 bytes starting at address 187. Data carrier block size = 32 bytes.

Blocks 5 and 6 are processed, since the start address 187 is in block 5 and end address 204 is in block 6.

$$t = 2 \times 120 + 17 \times 10 = \mathbf{410 \text{ ms}}$$

Read Times in Dynamic Mode

Read times within the 1st block for double read and compare:

The time indicated apply after the data carrier has been recognized. If the tag has not been recognized, an additional 30 ms must be added to allow for creating the energy field necessary to recognize the Data carrier.

Data carrier with 32-bytes blocks	
Bytes	Read time [ms]
from 0 up to 3	14
for each additional bytes	3.5
from 0 up to 31	112

Data carrier with 64-bytes blocks	
Bytes	Read time [ms]
from 0 up to 3	14
for each additional bytes	3.5
from 0 up to 64	224

Example:

Read 11 bytes starting at address 9, i. e. the highest address to be read is 20 (use for "m" in the formula).

$$t = 14 \text{ ms} + (m - 3) \times 3.5 \text{ ms} = \mathbf{73.5 \text{ ms}}$$

In the internal memory organization of the data carrier, a distinction is made between the two block sizes 32 and 64 bytes (also referred to as 'page size').

Memory Organization

Memory size up to 1023 bytes = 32 bytes per block

Memory size 2047 bytes and larger = 64 bytes per block

Industrial RFID Systems BIS L

Contents

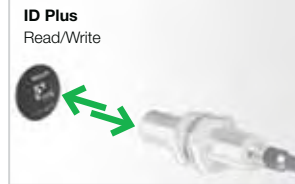
BIS L



This section includes durable Mazak™ machine tool RFID solution.



This section includes simple read-only RFID solutions.



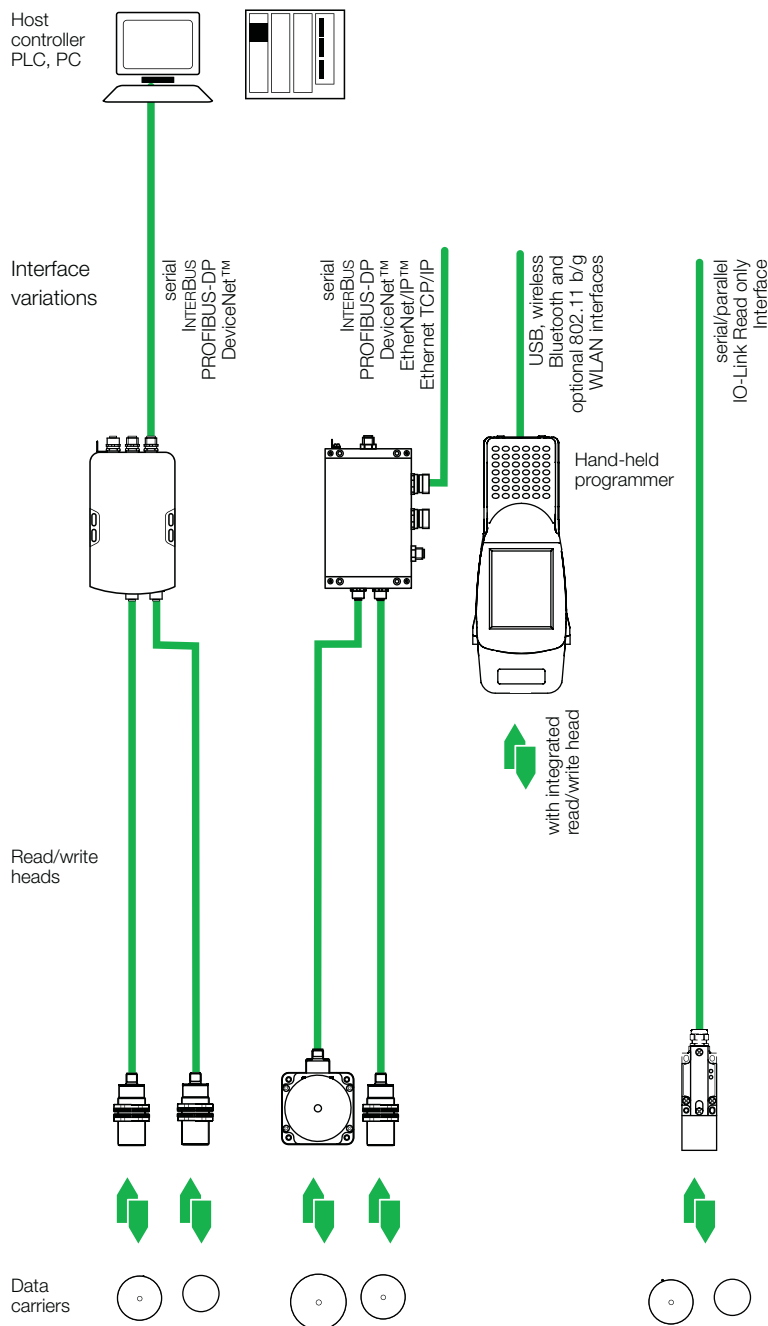
This section provides specifications on the low cost and flexible BIS L series read/write RFID solutions.



BIS L

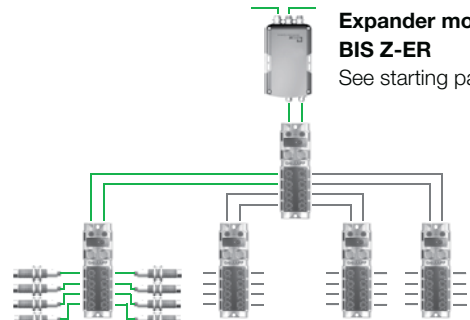
Exceptionally economical, outstanding in logistics and assembly applications

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90	Data Carriers Read-only
92	Read/Write Heads
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Expander module BIS Z-ER

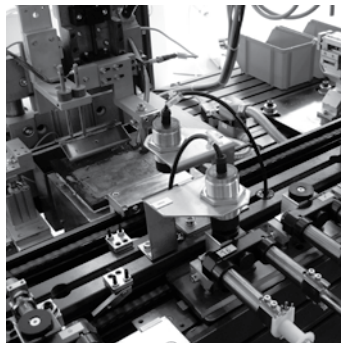
See starting page 214



Industrial RFID Systems BIS L

Wide Range of Applications Supported

Data carrier	Production				Intralogistics						Access and object control					
	Tool and die management		Assembly conveying systems		Closed logistics circuits		Storage and retrieval equipment Storage and tracking		Intelligent vehicles (driverless transport vehicles)		Object detection		Access control Entry control			
	On tool	Dies	Pallets	On part	Retainer/workpiece carrier	Pallets	Retainer/workpiece carrier	Workpiece carrier Skid	Guiding, steering	Identification	In component	On component	Reliable access control	Process access	PartID	
BIS L-100-01/L			■		■	■										
BIS L-100-05/L-RO			■		■	■				■						
BIS L-101-01/L			■			■	■		■							
BIS L-101-05/L-RO			■			■	■			■						
BIS L-102-01/L			■		■		■	■								
BIS L-102-05/-RO			■		■		■	■		■						
BIS L-103-05/L	■	■										■	■	■		
BIS L-103-05/L-RO	■	■								■				■		
BIS L-103-05/L-ZC1													■	■		
BIS L-150-05/A	■	■									■				■	
BIS L-151-05/A	■	■		■							■				■	
BIS L-200-03/L																
BIS L-201-03/L			■			■	■			■						
BIS L-202-03/L			■		■		■	■								
BIS L-203-03/L		■			■					■					■	
BIS L-244-03/L	■															
BIS L-245-03/L	■															



Industrial RFID Systems BIS L

Suggested Application

Select the most suitable BIS L system for your application from the table and benefit from the outstanding performance and quality of economical industrial RFID systems. The L series is best suited for palletized production, internal logistics, storage and retrieval, access control and tool tracking and features low cost read-only solutions.

BIS L

Range of Applications

Selection Criteria
Data Carriers
Read/Write
Data Carriers
Read-only
Read/Write
Heads
Data Coupler
Read Only
Processors
Processors
easy loop®
IO-Link
Handheld
Programmer
Access
Security
System
Installation
Notes
Read/Write
Times

Use the tables and combine BIS L read/write head with tag based on range.

In three steps you will have selected your BIS L system:

1. First choose the appropriate form factor for your data carrier.
2. Then determine your read/write head based on range.
3. Finally, determine the desired memory capacity. Many tags provide several sizes.

Questions?

Whatever you need, whether analysis, selection and return on investment, formats, interfaces and software, installation, disassembly and retrofitting – in short: we are here to help you in every way.

Take advantage of our personal consultation, individual support and worldwide service.

0-12 mm

Read/write heads

Data carrier	Memory capacity in bytes	Read/write distance	BIS L-302-S115 Page 96/97	BIS L-400-035-003-05-S115 Page 107 BIS L-400-043-003-02-S115 Page 121 BIS L-405-033-003-05-MU BIS L-405-037-003-05-MU Page 104/105	BIS L-409-045-003-07-S4 Page 123	BIS L-400-047-010-00-S115 Page 90
BIS L-103-05/L-RO Page 91	3 + CRC (read only)	0...8 mm		0...11 mm	0...7 mm	
BIS L-203-03/L Page 91	5 (read only)	0...8 mm		0...11 mm	0...7 mm	
BIS L-150-05/A Page 89	192	0...12 mm				
BIS L-244-03/L Page 90	5 (read only)					0...8 mm
BIS L-245-03/L Page 90	5 (read only)					0...10 mm

0...2 mm = Data carrier flush mounted in steel

Industrial RFID Systems BIS L

Selection Criteria for Read/Write Distances

8-20 mm



Read/write heads

			BIS L-302-S115 Page 96/97	BIS L-304-S115 Page 98/99	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-400-035-002-00-S115 BIS L-400-035-002-02-S115 Page 106	BIS L-400-043-002-02-S115 Page 120	BIS L-400-035-004-00-S115 Page 107	BIS L-400-043-004-02-S115 Page 121	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS L-405-033-002-05-MU BIS L-405-037-002-05-MU Page 105	BIS L-405-033-004-05-MU BIS L-405-037-004-05-MU Page 105	BIS L-409-045-001-07-S4 Page 122	BIS L-409-045-002-07-S4 Page 122	BIS L-409-045-004-07-S4 Page 123
Data carrier	Memory capacity in bytes	Read/write distance														
BIS L-100-01/L Page 88	192	0...20 mm	0...20 mm													
BIS L-103-05/L-RO Page 91	3 + CRC (read only)	0...15 mm	0...15 mm	0...20 mm	0...16 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...10 mm	0...10 mm	
BIS L-203-03/L Page 91	5 (read only)	0...15 mm	0...15 mm	0...20 mm	0...16 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...16 mm	0...10 mm	0...10 mm	
BIS L-100-05/L-RO Page 91	3 + CRC (read only)	0...23 mm	0...25 mm	0...30 mm	0...23 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...25 mm	0...15 mm	0...15 mm
BIS L-200-03/L Page 91	5 (read only)	0...23 mm	0...25 mm	0...30 mm	0...23 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...23 mm	0...25 mm	0...15 mm	0...15 mm
BIS L-201-03/L Page 91	5 (read only)	0...20 mm	0...20 mm	0...40 mm	0...27 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...27 mm	0...27 mm	0...27 mm	0...27 mm	0...35 mm	0...18 mm	0...18 mm

15-30 mm



Read/write heads

			BIS L-300-S115 Page 93	BIS L-301-S115 Page 94	BIS L-302-S115 Page 96/97	BIS L-303-S115 Page 95	BIS L-304-S115 Page 89/99	BIS L-350-S115 Page 100/101	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104	BIS L-405-033-002-05-MU BIS L-405-037-002-05-MU Page 104	BIS L-405-033-004-05-MU BIS L-405-037-004-05-MU Page 105	BIS L-409-045-001-07-S4 Page 122
Data carrier	Memory capacity in bytes	Read/write distance												
BIS L-100-01/L Page 88	192	0...30 mm	0...40 mm	0...20 mm	0...40 mm	0...20 mm								
BIS L-100-05/L-RO Page 91	3+CRC	0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...25 mm			0...30 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm
BIS L-201-01/L Page 88	5 (read only)	0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...25 mm			0...30 mm	0...23 mm	0...30 mm	0...23 mm	0...23 mm	0...25 mm
BIS L-101-01/L Page 88	192													
BIS L-101-05/L-RO Page 91	3 + CRC (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm			0...40 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...35 mm
BIS L-201-03/L Page 91	5 (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm			0...40 mm	0...27 mm	0...40 mm	0...27 mm	0...27 mm	0...35 mm
BIS L-102-01/L Page 88	192	0...55 mm	0...70 mm	0...30 mm	0...70 mm									
BIS L-103-05/L Page 89	192	0...25 mm		0...15 mm		0...15 mm								
BIS L-103-05/L-RO Page 91	3 + CRC (read only)	0...25 mm		0...15 mm		0...15 mm			0...20 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm
BIS L-203-03/L Page 91	5 (read only)	0...25 mm		0...15 mm		0...15 mm			0...20 mm	0...16 mm	0...20 mm	0...16 mm	0...16 mm	0...16 mm
BIS L-150-05/A Page 89	192	0...25 mm	0...32 mm	0...12 mm		0...12 mm	0...25 mm							
BIS L-151-05/A	192	0...12 mm	0...12 mm	0...7 mm		0...7 mm	0...15 mm							

0...2 mm = Data carrier flush mounted in steel

Memory sizes 752 bytes used EEPROM technology. 100,000 write cycles and unlimited read cycles
Memory size 2000 uses FRAM technology with unlimited number of read/write cycles

Industrial RFID Systems BIS L

Selection Criteria for Read/Write Distances

25-50 mm



Read/write heads

			BIS L-300-S115 Page 93	BIS L-301-S115 Page 94	BIS L-302-S115 Page 96/97	BIS L-303-S115 Page 95	BIS L-304-S115 Page 98/99	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-409-045-001-07-S4 Page 122	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104
Data carrier	Memory capacity in bytes	Read/write distance									
BIS L-100-01/L Page 88	192	0...30 mm	0...40 mm	0...20 mm	0...40 mm	0...20 mm					
BIS L-100-05/L-RO Page 91	3+CRC (read only)	0...40 mm	0...70 mm	0...25 mm	0...50 mm	0...25 mm	0...30 mm	0...30 mm	0...25 mm	0...30 mm	
BIS L-200-03/L Page 91	5 (read only)	0...40 mm	0...70 mm	0...25 mm	0...50 mm	0...25 mm	0...30 mm	0...30 mm	0...25 mm	0...30 mm	
BIS L-101-01/L Page 88	192	0...40 mm	0...55 mm	0...25 mm	0...55 mm	0...25 mm					
BIS L-101-05/L-RO Page 91	3 + CRC (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm	0...40 mm	0...40 mm	0...35 mm	0...40 mm	
BIS L-201-03/L Page 91	5 (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm	0...40 mm	0...40 mm	0...35 mm	0...40 mm	
BIS L-102-01/L Page 88	192	0...55 mm	0...70 mm	0...30 mm	0...70 mm	0...30 mm					
BIS L-102-05/L-RO Page 91	3 + CRC (read only)	0...70 mm	0...100 mm	0...40 mm	0...100 mm	0...40 mm	0...55 mm	0...55 mm	0...48 mm	0...55 mm	
BIS L-202-03/L Page 91	5 (read only)	0...70 mm	0...100 mm	0...40 mm	0...100 mm	0...40 mm	0...55 mm	0...55 mm	0...48 mm	0...55 mm	
BIS L-103-05/L Page 89	192	0...25 mm			0...30 mm						

BIS L

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Data Carriers
Read-only

Read/Write
Heads

Data Coupler

Read Only
Processors

Processors

easy loop®

IO-Link

Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

> 40 mm



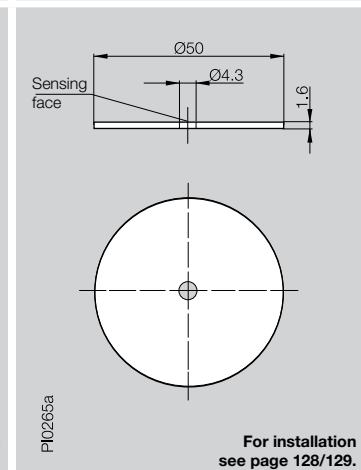
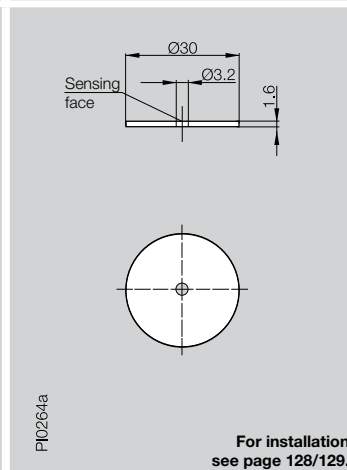
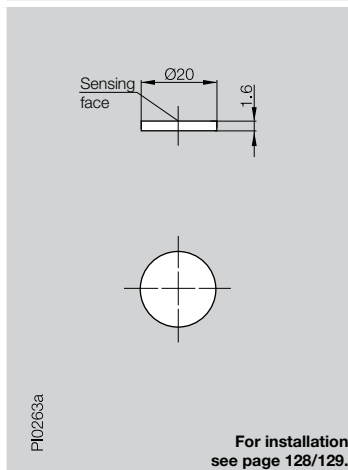
Read/write heads

			BIS L-300-S115 Page 93	BIS L-301-S115 Page 94	BIS L-302-S115 Page 96/97	BIS L-303-S115 Page 95	BIS L-400-035-001-00-S115 BIS L-400-035-001-02-S115 Page 106	BIS L-400-043-001-02-S115 Page 120	BIS L-405-033-001-05-MU BIS L-405-037-001-05-MU Page 104
Data carrier	Memory capacity in bytes	Read/write distance							
BIS L-100-01/L Page 88	192	0...30 mm	0...40 mm	0...20 mm	0...40 mm				
BIS L-100-05/L-RO Page 91	3 + CRC (read only)	0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...30 mm	0...30 mm	0...30 mm	
BIS L-200-03/L Page 91	5 (read only)	0...40 mm	0...50 mm	0...25 mm	0...50 mm	0...30 mm	0...30 mm	0...30 mm	
BIS L-101-01/L Page 88	192	0...40 mm	0...55 mm	0...25 mm	0...55 mm				
BIS L-101-05/L-RO Page 91	3 + CRC (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...40 mm	0...40 mm	0...40 mm	
BIS L-201-03/L Page 91	5 (read only)	0...50 mm	0...70 mm	0...30 mm	0...70 mm	0...40 mm	0...40 mm	0...40 mm	
BIS L-102-01/L Page 88	192	0...55 mm	0...70 mm	0...30 mm	0...70 mm				
BIS L-102-05/L-RO Page 91	3 + CRC (read only)	0...70 mm	0...100 mm	0...40 mm	0...100 mm	0...55 mm	0...55 mm	0...55 mm	
BIS L-202-03/L Page 91	5 (read only)	0...70 mm	0...100 mm	0...40 mm	0...100 mm	0...55 mm	0...55 mm	0...55 mm	

Industrial RFID Systems BIS L

Data Carriers Read/Write

Dimensions	Ø 20×1.6	Ø 30×1.6	Ø 50×1.6
Housing material	EP	EP	EP
Antenna type	round	round	round



BIS L Programmable

192 bytes	Part number	BIS L-100-01/L	BIS L-101-01/L	BIS L-102-01/L
Operating temperature		-25...+85 °C	-25...+85 °C	-25...+85 °C
Storage temperature		-40...+95 °C	-40...+95 °C	-40...+95 °C
Protection per IEC 60529		IP 67	IP 67	IP 67

		non-metal				non-metal				non-metal		
		mount on steel	flush in steel			mount on steel	flush in steel			mount on steel	flush in steel	
Installation in steel Appropriate read/write head with max. read/write distance	BIS L-300	30 mm	20 mm	20 mm	BIS L-300	40 mm	30 mm	30 mm	BIS L-300	55 mm	40 mm	35 mm
	BIS L-301	40 mm	30 mm	25 mm	BIS L-301	55 mm	40 mm	35 mm	BIS L-301	70 mm	50 mm	50 mm
	BIS L-302	20 mm	15 mm	15 mm	BIS L-302	25 mm	20 mm	20 mm	BIS L-302	30 mm	25 mm	20 mm
	BIS L-303	50 mm	14 mm		BIS L-303	65 mm	25 mm	15 mm	BIS L-303	85 mm	30 mm	25 mm
	BIS L-304	20 mm	15 mm	15 mm	BIS L-304	25 mm	20 mm	20 mm	BIS L-304	30 mm	25 mm	20 mm

Tightening
torque max. 1 Nm

Tightening
torque max. 1 Nm

For metal or non-metal mounting

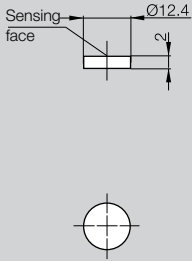
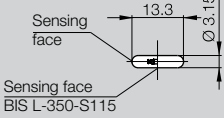
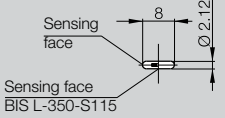


Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
192 Byte	EEPROM	100 000	unlimited	10 years

Industrial RFID Systems BIS L

Data Carriers Read/Write

Ø 12.4×2				Ø 3.15×13.3				Ø 2.12×8			
EP				Glass				Glass			
round				Rod				Rod			
 For installation see page 128/129.				 For installation see page 128/129.				 For installation see page 128/129.			
BIS L-103-05/L				BIS L-150-05/A				BIS L-151-05/A			
-25...+85 °C				-40...+85 °C				-40...+85 °C			
-40...+130 °C				-40...+90 °C				-40...+90 °C			
IP 68				IP 68				IP 68			
	non-metal	mount on steel	flush in steel		non-metal	mount on steel	flush in steel		non-metal	mount on steel	flush in steel
BIS L-300	10 mm	18 mm	12 mm	BIS L-300	25 mm			BIS L-300	2 mm		
BIS L-301				BIS L-301	32 mm			BIS L-301	12 mm		
BIS L-302	22 mm	15 mm	8 mm	BIS L-302	12 mm			BIS L-302	7 mm		
BIS L-304	22 mm	15 mm	8 mm	BIS L-304	12 mm			BIS L-304	7 mm		
				BIS L-350	25 mm	25 mm	25 mm	BIS L-350	15 mm	20 mm	15 mm

BIS L

Range of Applications
Selection Criteria

Data Carriers Read/Write

Data Carriers
Read-only

Read/Write
Heads

Data Coupler

Read Only
Processors

Processors
easy loop®

IO-Link

Handheld
Programmer

Access

Security

System

Installation

Notes

Read/Write
Times



For tight location mounting



Glass data carrier – chemically resistant!



BIS L-130-05/L-SA1 for radial data retrieval from rotating parts, for shaft mounting. Contact us.

For maximum data security

The CRC_16 procedure involves writing a test code to the data carrier as confirmation of the tag's data. The benefit to you: high level of data security even in non-active phase (data carrier outside of R/W head)

The procedure is only possible with data carriers of type BIS L-1__-05/L converted into read-only format.

BIS L-1__-05/L-RO are read-only data carriers that can be programmed according to your requirements. Please ask for the order form or download it from our web site. Three bytes of user data as well as two bytes for the CRC are stored. Data consistency is queried by the processor.

The BIS L-2__-03/L uses read-only data carriers with a fixed "unique number" of five bytes (40 bits). No repetition of the unique number or delivery of sequential numbers is possible.

Dimensions

Housing material

Antenna type



BIS L read-only

24 bits + CRC Part number

40 bits Part number

Operating temperature

Storage temperature

Protection per IEC 60529

Installation in steel

Appropriate read/write head

with max. read/write distance

Mazak™ Machine Tool ID

These read-only machine tool tags are specifically designed to work for Mazak tool ID systems. They come premounted in the retention knobs and are available in either Cat 40 or Cat 50 sizes. These tool tags are 100% compatible to existing Mazak systems.

Cat 50



BIS L-245-03/L

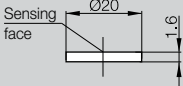
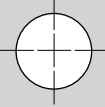
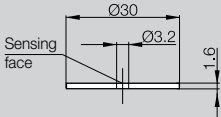
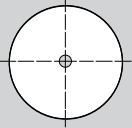
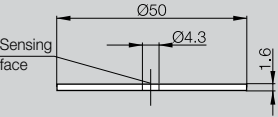
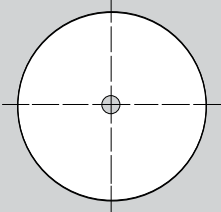
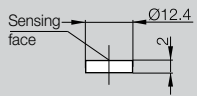
Cat 40



BIS L-244-03/L

Use a **BIS-L-400-047-010-20-S115** processor and **BIS L-306-PU1-05-S49/A** head preprogrammed with the Mazak communication protocol for 100% compatibility to existing Mazak tool ID systems. **BKS-S115-SA4-PU-01** power/communication cable is also available for easy connectivity.



Ø 20×1.6	Ø 30×1.6	Ø 50×1.6	Ø 12.4×2
EP	EP	EP	EP
round	round	round	round
  PI0263a For installation see page 128-129.	  PI0264a For installation see page 128-129.	  PI0265a For installation see page 128-129.	  PI0262a For installation see page 128-129.
BIS L-100-05/L-RO	BIS L-101-05/L-RO	BIS L-102-05/L-RO	BIS L-103-05/L-RO
BIS L-200-03/L	BIS L-201-03/L	BIS L-202-03/L	BIS L-203-03/L
-40...+85 °C	-40...+85 °C	-40...+85 °C	-25...+85 °C
-40...+95 °C	-40...+95 °C	-40...+95 °C	-40...+130 °C
IP 67	IP 67	IP 67	IP 68
non-metal mount on steel flush in steel	non-metal mount on steel flush in steel	non-metal mount on steel flush in steel	non-metal mount on steel flush in steel
BIS L-300 40 mm 25 mm 20 mm	BIS L-300 50 mm 35 mm 30 mm	BIS L-300 70 mm 45 mm 40 mm	BIS L-300 25 mm 12 mm 10 mm
BIS L-301 50 mm 35 mm 30 mm	BIS L-301 70 mm 45 mm 40 mm	BIS L-301 100 mm 60 mm 55 mm	
BIS L-302 25 mm 15 mm 15 mm	BIS L-302 30 mm 20 mm 20 mm	BIS L-302 40 mm 25 mm 20 mm	BIS L-302 15 mm 10 mm 8 mm
BIS L-303 55 mm 15 mm 15 mm	BIS L-303 70 mm 30 mm 15 mm	BIS L-303 100 mm 45 mm 40 mm	
BIS L-304 25 mm 15 mm 15 mm	BIS L-304 30 mm 20 mm 20 mm	BIS L-304 40 mm 25 mm 20 mm	BIS L-304 15 mm 10 mm 8 mm
	Tightening torque max. 1 Nm	Tightening torque max. 1 Nm	

Read-only data carriers:

preprogram your individual data and benefit from maximum data security



Read/Write Cycles

Data carriers	Read cycles	Data retention time
24 bits + CRC	unlimited	10 years
40 bits	unlimited	unlimited

Industrial RFID Systems BIS L
Read/Write Heads

For a greater sensing distance to
the object, enclosed
in a resistant plastic housing



Dimensions	
Housing material	
Antenna type	
Weight	

Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection	to
	with connection cable

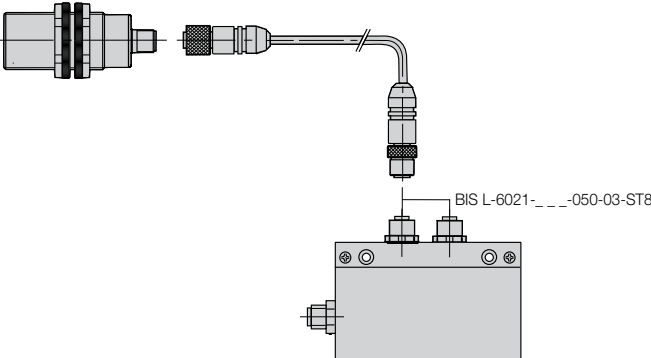
Appropriate data carrier	
Installation types	

Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	3 mm
	8 mm
	10 mm
	12 mm
	15 mm
	20 mm
	25 mm
	30 mm
	35 mm
	40 mm
	45 mm
	50 mm
	55 mm
	60 mm
	70 mm

Example:

BIS L-300-S115

BIS Z-501-PU-__



*Please indicate cable length in part number. See page 202.

Industrial RFID Systems BIS L

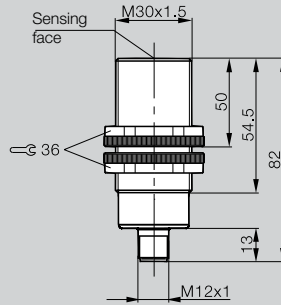
Read/Write Heads

BIS L

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Data Carriers
Read-only
Read/Write Heads
Data Coupler
Read Only Processors
Processors
easy loop®
IO-Link
Handheld Programmer

Access Security System
Installation Notes
Read/Write Times

M30
PVDF
round
130 g



P10266a

For installation
see page 128.

BIS L-300-S115

non-flush
0...+70 °C (minus temperatures on request)
-20...+85 °C
IP 67
Processor
BIS Z-501-PU1-__ / E*, BIS Z-502-PU1-__ / E*
BIS Z-501-PU1-__ / M*, BIS Z-502-PU1-__ / M*
Please order cable separately, see page 202

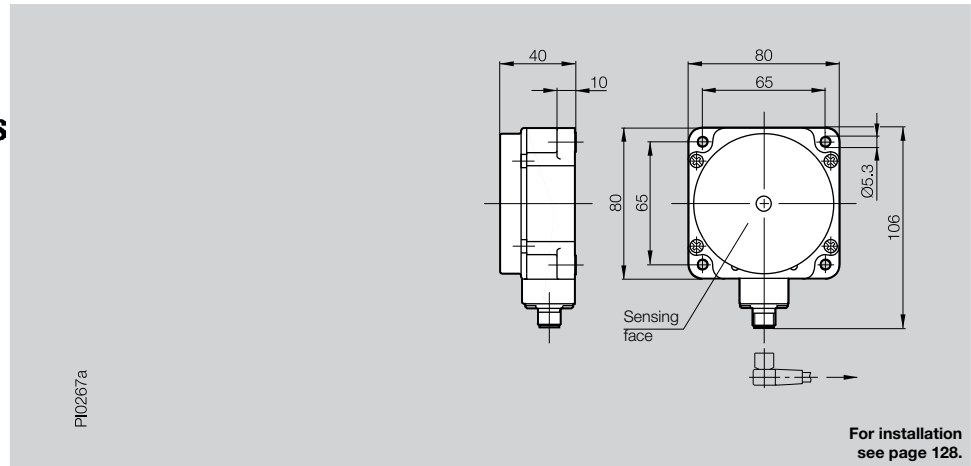
BIS L-100-01			BIS L-101-01			BIS L-102-01			BIS L-103-05/L			BIS L-150-05			BIS L-151-05			BIS L-200-03/L BIS L-100-05/L-RO			BIS L-201-03/L BIS L-101-05/L-RO			BIS L-202-03/L BIS L-102-05/L-RO			BIS L-203-03/L BIS L-103-05/L-RO		
non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel
0-30	10-20	10-20	0-40	10-30	10-30	0-55	15-40	15-35	7-40	7-18	8-15	0-25			0-12			0-40	0-25	10-20	0-50	10-35	10-30	0-70	15-45	15-40	0-25	3-12	3-10
±18			±28			±30						±18			±10			±20			±28			±35			±15		
±18			±28			±30						±18			±10			±20			±28			±35			±15	±12	±9
±18			±28			±30			±15	±10	±5	±18			±10			±20			±28			±35			±15	±12	±8
±18	±8	±8	±28	±15	±13	±30			±15	±10	±5	±18			±10			±20	±15	±10	±28	±20	±17	±35			±15	±9	±7
±18	±8	±8	±28	±15	±13	±30			±15	±10	±5	±17			±6			±20	±15	±10	±28	±20	±17	±35			±15		
±18	±5	±5	±28	±15	±10	±30	±20	±20	±15	±10	±3	±17						±20	±10	±10	±28	±20	±17	±35	±25	±20	±15		
±18	±0	±0	±28	±15	±10	±30	±20	±15	±15			±17						±20	±10	±0	±28	±20	±17	±35	±25	±20	±15		
±18			±28	±10	±5	±30	±15	±15	±15			±14						±20	±0		±28	±20	±15	±35	±20	±20	±13		
±18			±28	±0	±0	±30	±15	±10	±15									±20			±28	±15	±0	±35	±20	±20			
			±28			±30	±15	±0	±5									±20			±28	±0		±35	±15	±15			
			±28			±30	±0											±20			±28			±35	±12	±0			
						±30															±28			±35	±0				
						±30															±28			±35					
																								±35					
																								±35					
																								±35					
																								±35					

Industrial RFID Systems BIS L

Read/Write Heads

Long Distances

Dimensions	80×80×40
Housing material	PBT
Antenna type	round
Weight	410 g



Part number	BIS L-301-S115
Mounting in steel	non-flush
Operating temperature	0...+70 °C (minus temperatures on request)
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Connection to	Processor
with connection cable	BIS Z-501-PU1-__ / E*, BIS Z-502-PU1-__ / E* BIS Z-501-PU1-__ / M*, BIS Z-502-PU1-__ / M* Please order cable separately, see page 202

Appropriate data carrier Installation types	BIS L-100-01/L			BIS L-101-01/L			BIS L-102-01/L			BIS L-150-05/A			BIS L-200-03/L BIS L-100-05/L-RO			BIS L-201-03/L BIS L-101-05/L-RO			BIS L-202-03/L BIS L-102-05/L-RO		
	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel
Write distance in mm	0-40	15-30	15-25	0-55	15-40	15-35	0-70	20-50	20-50	0-32											
Read distance in mm	0-40	15-30	15-25	0-55	15-40	15-35	0-70	20-50	20-50	0-32			0-70	20-50	20-50	0-70	20-45	20-40	0-100	25-60	25-55
Offset in mm																					
at distance	0 mm	±30		±35			±40			±24			±40			±40			±45		
	3 mm	±30		±35			±40			±24			±40			±40			±45		
	8 mm	±30		±35			±40			±24			±40			±40			±45		
	10 mm	±30		±35			±40			±24			±40			±40			±45		
	15 mm	±30	±20	±15	±35	±20	±20	±40		±24			±40			±40			±45		
	20 mm	±30	±15	±10	±35	±20	±20	±40	±25	±22	±24		±40	±25	±22	±40	±24	±20	±45		
	25 mm	±30	±10	±0	±35	±20	±15	±40	±25	±22	±24		±40	±25	±22	±40	±24	±20	±45	±30	±30
	30 mm	±30	±0		±35	±20	±15	±40	±25	±22	±24		±40	±25	±22	±40	±20	±20	±45	±30	±30
	35 mm	±30	±0		±35	±15	±0	±40	±20	±15			±40	±20	±15	±40	±20	±15	±45	±30	±25
	40 mm	±30			±35	±0		±40	±15	±15			±40	±15	±15	±40	±18	±0	±45	±30	±25
	45 mm				±35			±40	±15	±10			±40	±15	±10	±40	±0		±45	±25	±20
	50 mm				±35			±40	±0	±0			±40	±0	±0	±40			±45	±20	±20
	55 mm				±35			±40					±40			±40			±45	±10	±0
	60 mm							±40					±40			±40			±45	±0	
	70 mm							±40					±40			±40			±45		
	100 mm																		±45		

*Please indicate cable length in part number. See page 202.



Connector orientation

The right choice if you require a flat design and large read/write distances.

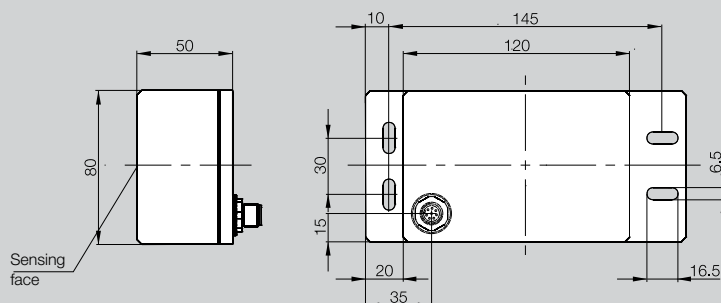


170x80x50

PBT

round

405 g



210317

For installation
see page 128.

BIS L-303-S115

non-flush

0...+70 °C (minus temperatures on request)

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E*

BIS Z-501-PU1- / M*

Please order cable separately, see page 202

[illegible]

Suitable for roller
conveyors/internal
company logistics



Industrial RFID Systems BIS L

Read/Write Heads

Dimensions	
Housing material	
Antenna type	
Weight	



Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to	
with connection cable	

Appropriate data carrier	
Installation types	

Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	3 mm
	4 mm
	7 mm
	8 mm
	10 mm
	12 mm
	15 mm
	20 mm
	25 mm
	30 mm
	35 mm
	40 mm

*Please indicate cable length in part number. See page 202.

Use small read heads with processor electronics if the available width is limited



Industrial RFID Systems BIS L

Read/Write Heads

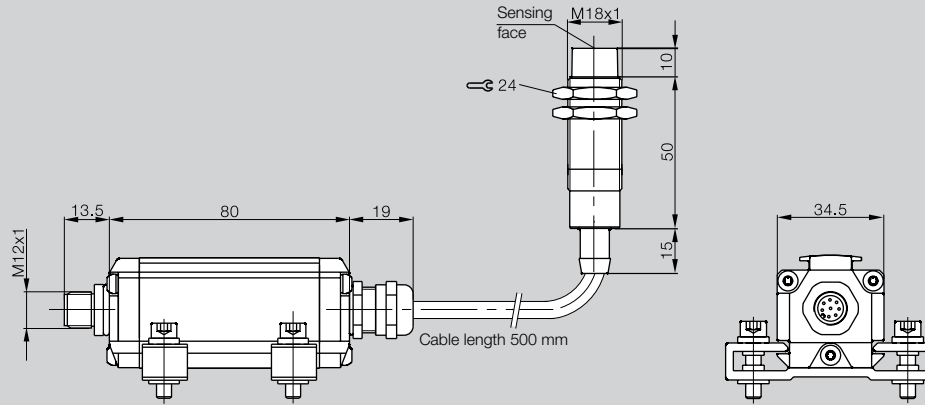
M18

PVDF

round

130 g

PI0268a



For installation
see page 128.

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

**Read/Write
Heads**

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

BIS L-302-S115

non-flush

0...+70 °C (minus temperatures on request)

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E*

BIS Z-501-PU1-__ / M*

Please order cable separately, see page 202

BIS L-100-01/L			BIS L-101-01/L			BIS L-102-01/L			BIS L-103-05/L			BIS L-150-05/A			BIS L-151-05/A			BIS L-200-03/L BIS L-100-05/L-RO			BIS L-201-03/L BIS L-101-05/L-RO			BIS L-202-03/L BIS L-102-05/L-RO			BIS L-203-03/L BIS L-103-05/L-RO		
non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel
0-20	8-15	8-15	0-25	10-20	10-20	0-30	10-25	10-20	0-22	10-15	7-8	0-12			0-7			0-25	8-15	8-15	0-30	10-20	10-20	0-40	10-25	10-20	0-15	4-10	3-8
±10			±12			±15						±8			±6			±13			±15			±20			±6		
±10			±12			±15						±8			±6			±13			±15			±20			±6	±7	±5
±10			±12			±15						±8			±6			±13			±15			±20			±6	±7	±5
±10			±12			±15					±3	±8			±3			±13			±15			±20			±6	±7	±4
±10	±6	±6	±12			±15					±2	±8						±13	±8	±6	±15			±20			±6	±6	±3
±10	±5	±5	±12	±10	±8	±15	±15	±10	±10	±6		±8						±13	±8	±6	±15	±10	±10	±20	±15	±8	±6	±5	
±10	±4	±4	±12	±10	±8	±15	±15	±10	±10	±6		±8						±13	±8	±6	±15	±10	±10	±20	±15	±8	±6		
±10	±0	±0	±12	±5	±5	±15	±15	±5	±10	±2								±13	±0	±0	±15	±10	±8	±20	±15	±6	±6		
±10			±12	±0	±0	±15	±10	±0	±5									±13			±15	±0	±0	±20	±10	±0			
			±12			±15	±0											±13			±15			±20	±0				
						±15															±15			±20					
																							±20						
																							±20						
																							±20						

Dimensions	
Housing material	
Antenna type	
Weight	



Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection	to
	with connection cable

Appropriate data carrier	
Installation types	

Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	3 mm
	4 mm
	7 mm
	8 mm
	10 mm
	12 mm
	15 mm
	20 mm
	25 mm
	30 mm
	35 mm
	40 mm

*Please indicate cable length in part number. See page 202.

Select a flat design if the available height is limited



Industrial RFID Systems BIS L

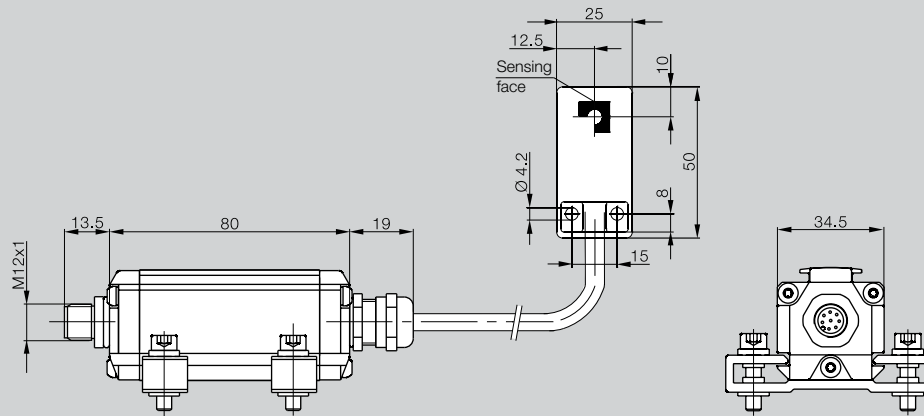
Read/Write Heads

25x50x10

PBT

round

210 g



For installation
see page 128.

BIS L-304-S115

non-flush

0...+70 °C (minus temperatures on request)

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E*

BIS Z-501-PU1-__ / M*

Please order cable separately, see page 202

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

**Read/Write
Heads**

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

BIS L-100-01/L			BIS L-101-01/L			BIS L-102-01/L			BIS L-103-05/L			BIS L-150-05/A			BIS L-151-05/A			BIS L-200-03/L			BIS L-201-03/L			BIS L-202-03/L			BIS L-203-03/L		
non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel	non-metal	mount on steel	flush in steel
0-20	8-15	8-15	0-25	10-20	10-20	0-30	10-25	10-20	7-22	7-15	7-8	0-12			0-7			0-25	8-15	8-15	0-30	10-20	10-20	0-40	10-25	10-20	0-15	4-10	3-8
±10			±12			±15						±8			±6			±13			±15			±20			±6		
±10			±12			±15						±8			±6			±13			±15			±20			±6	±7	±5
±10			±12			±15						±8			±6			±13			±15			±20			±6	±7	±5
±10			±12			±15					±3	±8			±3			±13			±15			±20			±6	±6	±3
±10	±6	±6	±12			±15					±2	±8						±13	±8	±6	±15			±20			±6	±6	±3
±10	±5	±5	±12	±10	±8	±15	±15	±10	±10	±6		±8						±13	±8	±6	±15	±10	±10	±20	±15	±8	±6	±5	
±10	±3	±3	±12	±10	±8	±15	±15	±10	±10	±6		±8						±13	±8	±6	±15	±10	±10	±20	±15	±8	±6		
±10	±0	±0	±12	±5	±5	±15	±15	±5	±10	±2								±13	±0	±0	±15	±10	±8	±20	±15	±6	±6		
±10			±12	±0	±0	±15	±10	±0	±5									±13			±15	±0	±0	±20	±10	±0			
			±12			±15	±0											±13			±15			±20	±0				
						±15															±15			±20					
																							±20						
																							±20						
																							±20						

Industrial RFID Systems BIS L

Read/Write Heads

Dimensions	
Housing material	
Antenna type	
Weight	



Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per DIN 40050	
Connection to	
with connection cable	

Possible cable lengths	
------------------------	--

Appropriate data carrier	
Installation types	

Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance of and	10 mm
max. offset ± 5	15 mm
	20 mm
	25 mm

*Please indicate cable length in part number. See page 202.

For limited space, even on metal

Small read heads with processor electronics for glass data carriers



Industrial RFID Systems BIS L

Read/Write Heads

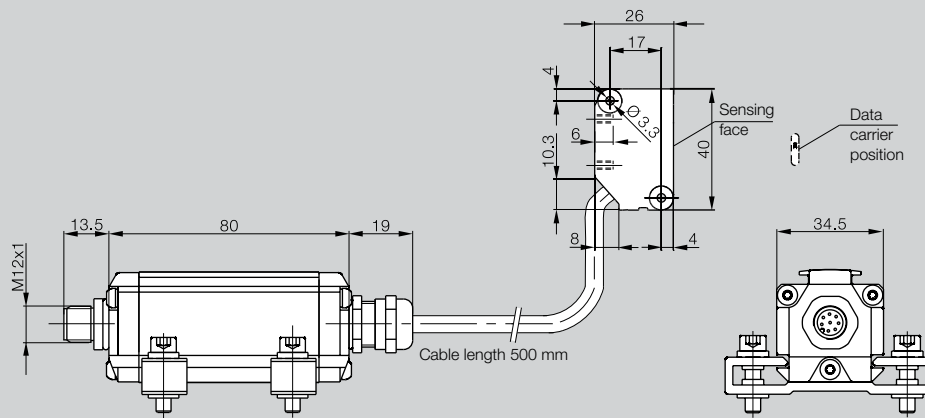
26x40x12

ABS

Rod

220 g

44106_00a



For installation
see page 128.

BIS L-350-S115

non-flush

0...+70 °C (minus temperatures on request)

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E*

BIS Z-501-PU1-__ / M*

Please order cable separately, see page 202

BIS L-150-05/A

non-metal	mount on steel	flush in steel
0-17	0-24	0-24
0-17	0-24	0-24
±18	±20	±20
±18	±20	±20
±10	±20	±20
	±14	±14
	±14	±14

BIS L-151-05/A

non-metal	mount on steel	flush in steel
0-15	0-15	0-15
0-15	0-15	0-15
±15	±15	±15
±15	±15	±15
±8	±8	±8

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

**Read/Write
Heads**

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

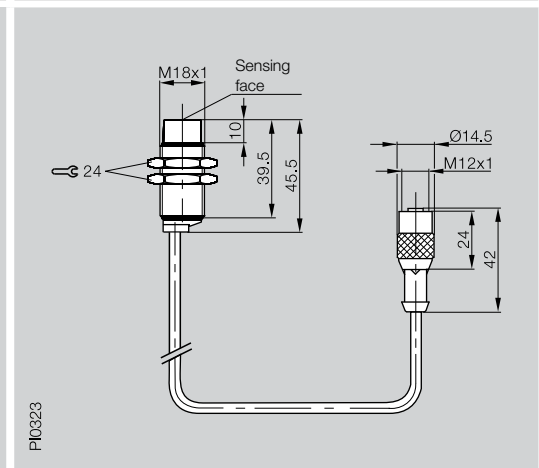
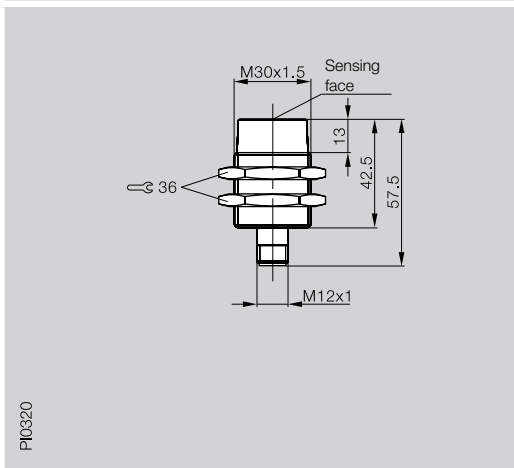
Times



Industrial RFID Systems BIS L

Data Coupler

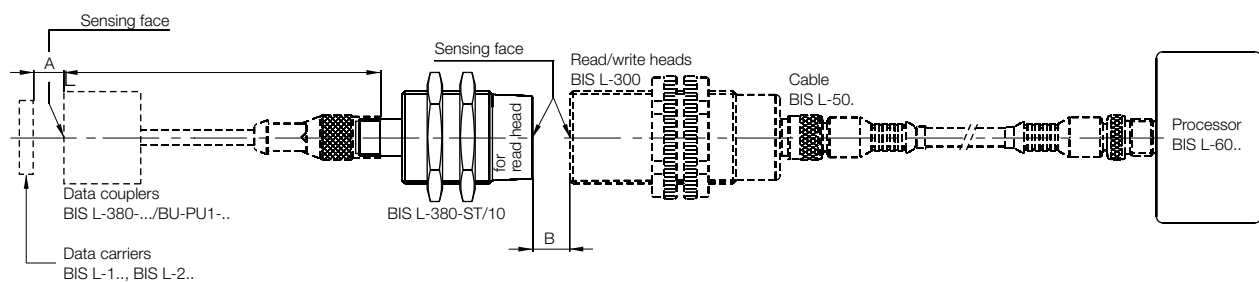
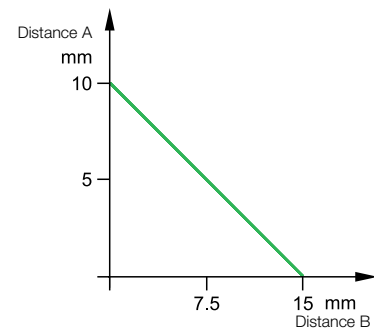
Description/dimensions	M30x1.5x57.5	M18x1x45.5
Function	non-flush	non-flush
Housing material	CuZn	CuZn
Weight	60 g	57 g



Base coupler for r/w head	BIS L-380-ST/10*	
Data coupler for data carrier		BIS L-380-02/BU-PU1-00,15
Data coupler for data carrier		BIS L-380-02/BU-PU1-00,5
Ambient operating temperature	0...+70 °C	0...+70 °C
Storage temperature	-20...+85 °C	-20...+85 °C
Protection per IEC 60529	IP 67	IP 67
Connection type	4-pin round connector	4-pin, female
For use with	BIS L-300-S115	BIS L-380-ST/10
together with data carrier		BIS L-103-05/L

*connect any of the other 3 head options to this base to create a complete coupler

For maximum flexibility from pallet to pallet – with 2-way air interface



Industrial RFID Systems BIS L

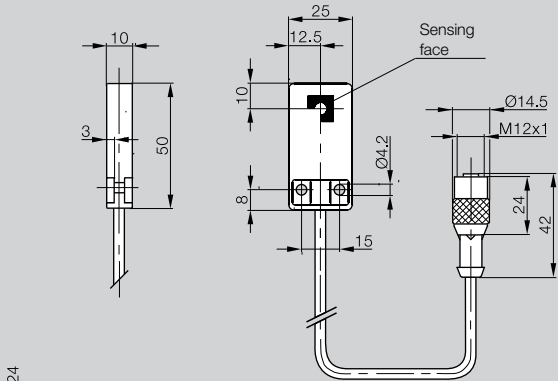
Read/Data Coupler

25x50x10

non-flush

ABS

57 g



PI0324

BIS L-380-05/BU-PU1-00,15

0...+70 °C

-20...+85 °C

IP 67

4-pin, female

BIS L-380-ST/10

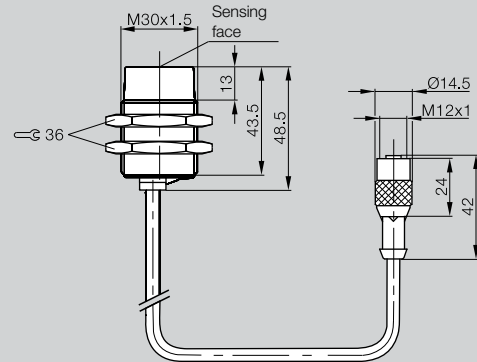
BIS L-103-05/L

M30x1,5x48,5

non-flush

CuZn

57 g



PI0327

BIS L-380-10/BU-PU1-00,5

0...+70 °C

-20...+85 °C

IP 67

4-pin, female

BIS L-380-ST/10

BIS L-101-01/L

BIS L

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

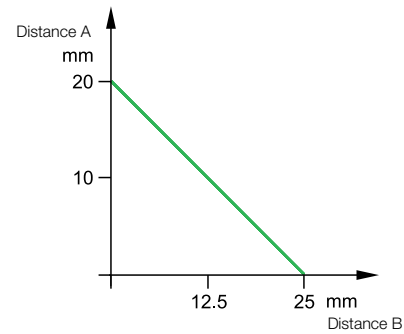
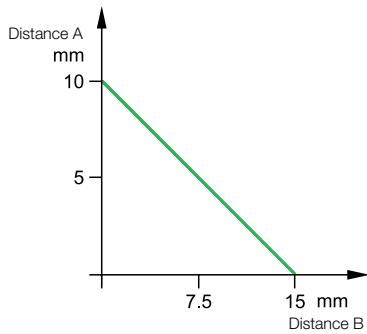
System

Installation

Notes

Read/Write

Times

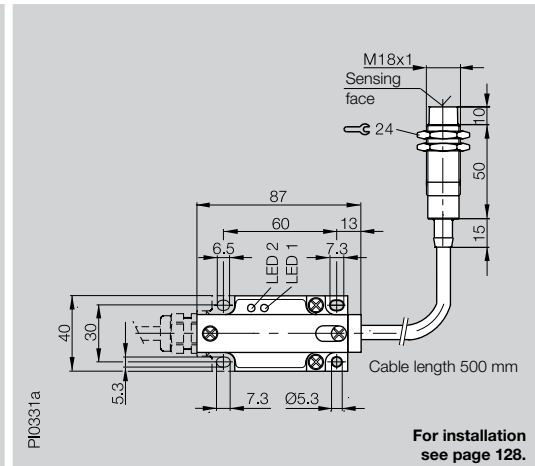
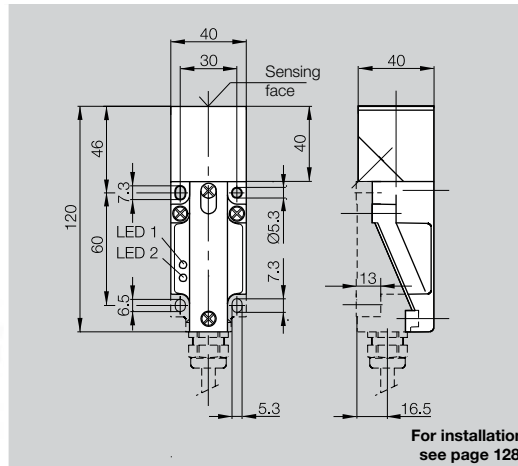


Industrial RFID Systems BIS L

Read Only Processors with Parallel Interface

Easy ID

Description/dimensions	Module 40x41x120	Module M18
Housing material	PBT	PBT
Antenna type	round	round
Weight	170 g	



Supply voltage	24 V DC $\pm 10\%$ / -20%	24 V DC $\pm 10\%$ / -20%
Ripple	$\leq 10\%$	$\leq 10\%$
Current	≤ 50 mA no load	≤ 50 mA no load
Output current per output	max. 50 mA	max. 50 mA
Ambient operating temperature	0...+60 °C	0...+70 °C
Protection per IEC 60529	IP 67 when assembled	IP 67 when assembled
Mounting in steel	non-flush	non-flush
LED function indicator	yes	yes
Control outputs		
Connection type	requires mounting base	requires mounting base
Part number	BIS L-405-033-001-05-MU	BIS L-405-033-002-05-MU
Part number with CRC test	BIS L-405-037-001-05-MU	BIS L-405-037-002-05-MU
No. of wires x conductor cross section		
Version		

Appropriate data carrier installation types		BIS L-200-03/L BIS L-100-05/L-RO	BIS L-201-03/L BIS L-101-05/L-RO	BIS L-202-03/L BIS L-102-05/L-RO	BIS L-203-03/L BIS L-103-05/L-RO	BIS L-200-03/L BIS L-100-05/L-RO	BIS L-201-03/L BIS L-101-05/L-RO	BIS L-203-03/L BIS L-103-05/L-RO
		non-metal	non-metal	non-metal	non-metal	non-metal	non-metal	non-metal
Read distance in mm		0-30	0-40	0-55	0-20	0-23	0-27	0-16
Offset in mm at distance	0 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	5 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	8 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	10 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	15 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 4
	20 mm	± 15	± 20	± 30			± 15	
	25 mm	± 15	± 20	± 30			± 6	
	30 mm		± 20	± 30				
	35 mm		± 20	± 30				
	40 mm			± 30				
	45 mm			± 30				
Max speed	m/s	0,85	0,9	1,2	0,55	0,29	0,37	0,22
	m/min	51	54	72	33	17,4	22,2	13,2

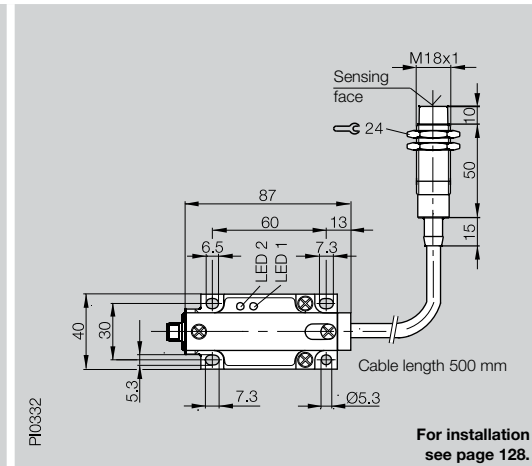
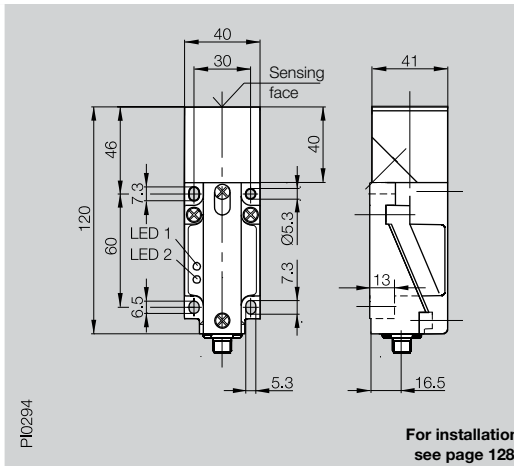
*Please indicate cable length in ordering code!
 05 = Length 5 m
 10 = Length 10 m
 15 = Length 15 m
 20 = Length 20 m

For applications with no controller:
 for direct activation of actuators, switches, etc.



[illegible]

Description/dimensions	40×41×120	40×41×87
Housing material	PBT	PBT
Antenna type	round	round
Weight	170 g	



Supply voltage	24 V DC $\pm 10\%$ / -20 %	24 V DC $\pm 10\%$ / -20 %
Ripple	$\leq 10\%$	$\leq 10\%$
Current	≤ 50 mA	≤ 50 mA no load
Ambient operating temperature	0...+60 °C	0...+60 °C
Protection per IEC 60529	IP 67	IP 67
Mounting in steel	non-flush	non-flush
LED function indicator	yes	yes
Connection type	8-pin M12 male	8-pin M12 male
Interface description:		
RS232	BIS L-400-035-001-00-S115	BIS L-400-035-002-00-S115
RS422	BIS L-400-035-001-02-S115	BIS L-400-035-002-02-S115
Accessories	BKS-S115-00*	BKS-S115-00*
(please order separately)	BKS-S115-PU-__**, BKS-S116-PU-__**	BKS-S115-PU-__**, BKS-S116-PU-__**

Appropriate data carrier installation types		BIS L-200-03/L BIS L-100-05/L-RO	BIS L-201-03/L BIS L-101-05/L-RO	BIS L-202-03/L BIS L-102-05/L-RO	BIS L-203-03/L BIS L-103-05/L-RO	BIS L-200-03/L BIS L-100-05/L-RO	BIS L-201-03/L BIS L-101-05/L-RO	BIS L-203-03/L BIS L-103-05/L-RO
		non-metal	non-metal	non-metal	non-metal	non-metal	non-metal	non-metal
Read distance in mm		0-30	0-40	0-55	0-20	0-23	0-27	0-16
Offset in mm	0 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
at distance	5 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	8 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	10 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 8
	15 mm	± 15	± 20	± 30	± 10	± 12	± 15	± 4
	20 mm	± 15	± 20	± 30			± 15	
	25 mm	± 15	± 20	± 30			± 6	
	30 mm		± 20	± 30				
	35 mm		± 20	± 30				
	40 mm			± 30				
	45 mm			± 30				
Max speed	m/s	0,85	0,9	1,2	0,55	0,29	0,37	0,22
	m/min	51	54	72	33	17,4	22,2	13,2

*Connectors see page 202

**Please indicate cable length in ordering code! See page 202.



Easy ID

Industrial RFID Systems BIS L

Read Only Processors with Serial Interface

40x41x87			40x41x87		
PBT			PBT		
round			round		
24 V DC ±10 %/-20 %			24 V DC ±10 %/-20 %		
≤ 10 %			≤ 10 %		
≤ 50 mA no load			≤ 50 mA no load		
0...+60 °C			0...+60 °C		
IP 67			IP 67		
non-flush			non-flush		
yes			yes		
8-pin M12 male			8-pin M12 male		
BIS L-400-035-003-00-S115			BIS L-400-035-004-00-S115		
BIS L-400-035-003-02-S115					
BKS-S115-00*			BKS-S115-00*		
BKS-S115-PU-__**, BKS-S116-PU-__**			BKS-S115-PU-__**, BKS-S116-PU-__**		
	BIS L-203-03/L BIS L-103-05/L-RO non-metal		BIS L-200-03/L BIS L-100-05/L-RO non-metal	BIS L-201-03/L BIS L-101-05/L-RO non-metal	BIS L-203-03/L BIS L-103-05/L-RO non-metal
	0-11		0-23	0-27	0-16
	±6		±12	±15	±8
	±6		±12	±15	±8
	±8		±12	±15	±8
	±2		±12	±15	±8
			±12	±15	±4
			±8	±15	
				±6	
	0,18		0,29	0,37	0,22
	10,8		17,4	22,2	13,2



For simple connection
to the controller: read
only data carriers

Industrial RFID Systems BIS L

Processors with Serial Interface

Cost-effective identification – operate 2 read/write heads simultaneously

- Sequential reading of the data carrier ID number on both read/write heads
- Service-friendly, all parameter data are stored in an interchangeable memory
- Accepts all read/write heads
- Protocol-compatible with BIS C, BIS S and BIS M identification systems

Description
Function
Antenna type

For easy integration
with all controllers



Supply voltage
Ripple
Current
Operating temperature
Storage temperature
Protection per IEC 60529
Read/write head ports
Connection type
Connection for
Interface description/Software:
RS232/Balluff Dialog
Accessories (please order separately)

The **compact class BIS L-600_** with its reduced dimensions and various interface options can be used wherever ambient conditions require good protection.

The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical



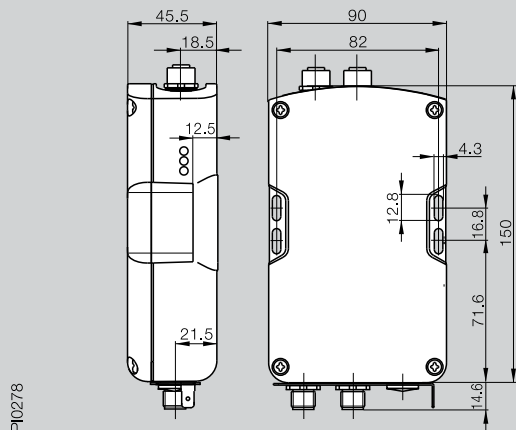
ID Plus

Industrial RFID Systems BIS L Processors with Serial Interface

BIS L-6000-007-050-00-ST15

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

2 connector round 5-pin

2 read/write heads BIS L-3_ _

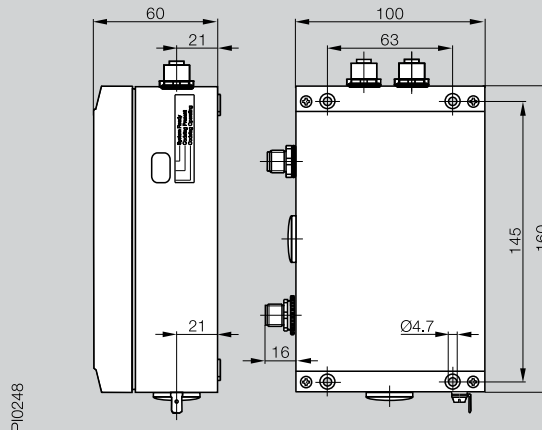
BIS L-6000-007-050-00-ST15

Connectors page 199

BIS L-6020-007-050-00-ST15

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

2 connector round 5-pin

2 read/write heads BIS L-3_ _

BIS L-6020-007-050-00-ST15

Connectors page 199

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

For rugged applications

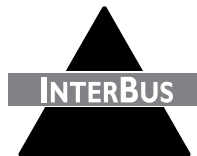
BIS L-602_ is, in spite of the mechanically rugged die-cast aluminum housing, a small, flexible processor which is available with various interface options.

Suitable for all applications with demanding requirements for mechanical rigidity and chemical resistance.



**Cost-effective
identification – operate
2 read/write heads
simultaneously**

- Data width on the bus,
16 bytes
- Service-friendly,
all parameter data
are stored in an
interchangeable memory
- Accepts all read/write
heads
- Protocol-compatible
with BIS C and BIS S
identification systems



Description
Function
Antenna type



Supply voltage
Ripple
Current
Operating temperature
Storage temperature
Protection per IEC 60529
Read/write head ports
Service interface RS232
Connection type

Connection for
Interface description/Software:
INTERBUS Remote bus station
INTERBUS Remote bus station with 2 Mbaud
INTERBUS Installation bus
INTERBUS Installation bus with 2 Mbaud
Accessories (please order separately)

The **compact class
BIS L-600_** with its
reduced dimensions and
various interface options
can be used wherever
ambient conditions require
good protection.

The devices are ideal for
IP 65 and applications
involving media that is not
aggressive to PS plastic.

Small, compact, flexible
and economical



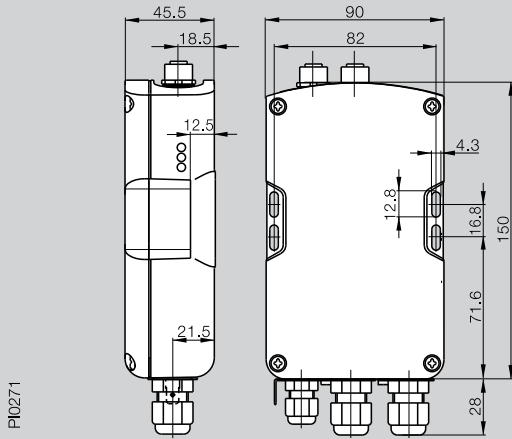
ID Plus

Industrial RFID Systems BIS L INTERBUS Processors

BIS L-6001-_-_-050-03-KL2

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

Terminals 1 $\times$ Pg 9

Terminals 2 $\times$ Pg 11

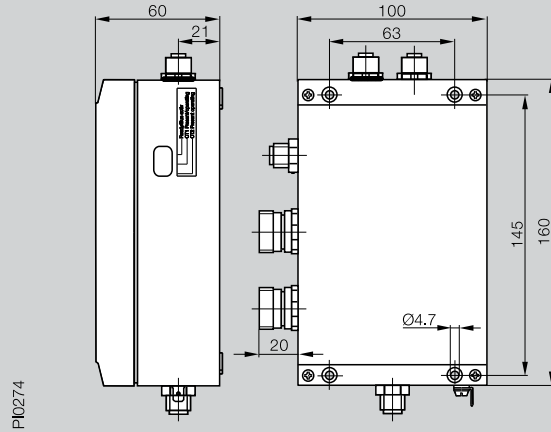
2 read/write heads BIS L-3_-_-

BIS L-6001-023-050-03-KL2

BIS L-6021-_-_-050-03-ST8

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connector round 9-pin

2 connector round 5-pin

2 read/write heads BIS L-3_-_-

BIS L-6021-023-050-03-ST9

BIS L-6021-023-050-03-ST9M

BIS L-6021-023-050-03-ST8

BIS L-6021-023-050-03-ST8M

BKS 23-CS-00

Connectors page 204

BIS L

Range of
Applications
Selection
Criteria

Data Carriers
Read/Write
Data Carriers
Read-only
Read/Write
Heads
Data Coupler
Read Only
Processors

Processors

easy loop®
IO-Link
Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

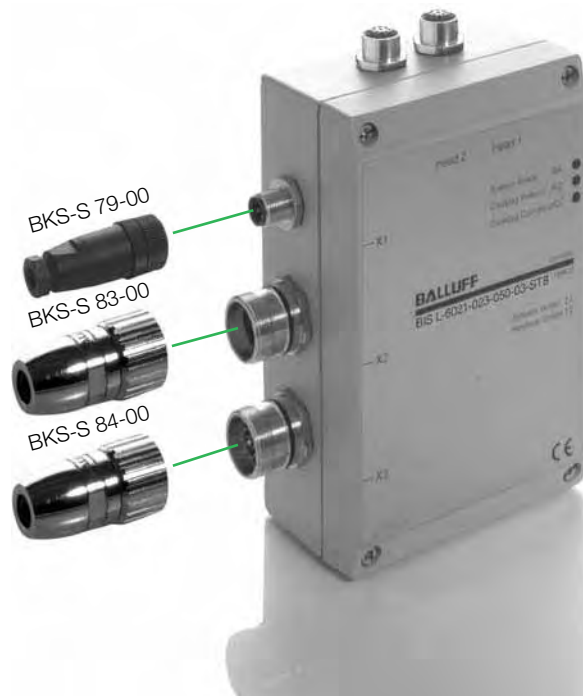
For **rugged applications**
BIS L-602_ is, in spite of the
mechanically rugged die-cast
aluminum housing, a small,
flexible processor which
is available with various
interface options.

Suitable for all applications
with demanding
requirements for mechanical
rigidity and chemical
resistance.



Threaded cover BKS 23-CS-00

for M23 connector
IP 65 protective cover for
unused connectors!



Industrial RFID Systems BIS L

PROFIBUS-DP Processors

Cost-effective identification – operate 2 read/write heads simultaneously

- Selectable division of the data width on the PROFIBUS-DP, 4 to 128 bytes
- Free assigning of the data width for each read/write head
- Optimum data speed, internal cycle time is shorter than the BUS activation time
- Service-friendly, all parameter data are stored in an interchangeable memory
- BUS address selectable with switches
- Accepts all read/write heads
- Protocol-compatible with BIS C and BIS S identification systems



Description	
Function	
Antenna type	
Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection type	
Connection for	
Interface description/Software:	
PROFIBUS-DP	
Accessories included	
Accessories (please order separately)	

The **compact class BIS L-600_** with its reduced dimensions and various interface options can be used wherever ambient conditions require good protection.

The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical

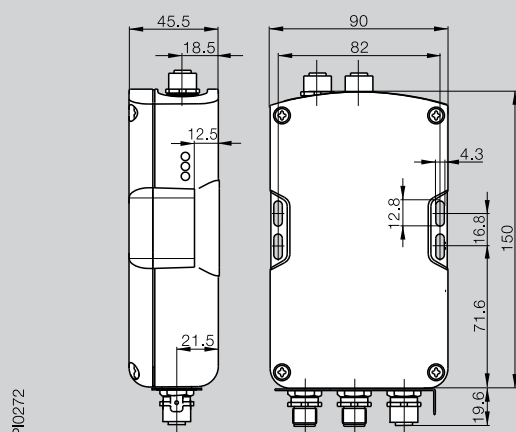


ID Plus

BIS L-6002-019-050-03-ST11

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connector round 5-pin, B-coded

1 connector round 5-pin

2 read/write heads BIS L-3_ _

BIS L-6002-019-050-03-ST11

Software GSD-file

BKS 12-CS-01

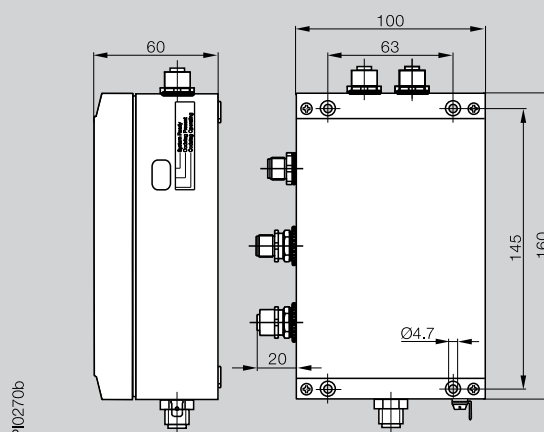
Connectors page 204/205

Industrial RFID Systems BIS L PROFIBUS-DP Processors

BIS L-6022-019-050-03-ST14

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connector round 5-pin, B-coded

2 connector round 5-pin

2 read/write heads BIS L-3_ _

BIS L-6022-019-050-03-ST14

Software GSD-file

BKS 12-CS-01

Connectors page 204/205

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

For rugged applications

BIS L-602_ is, in spite of the mechanically rugged die-cast aluminum housing, a small, flexible processor which is available with various interface options.

Suitable for all applications with demanding requirements for mechanical rigidity and chemical resistance.



Threaded cover

BKS 12-CS-01

coded for M12 B

Connector type



Industrial RFID Systems BIS L

DeviceNet™ Processors

Cost-effective identification – operate 2 read/write heads simultaneously

- Freely selectable
buffer size between 0 and
256 bytes
- Service-friendly,
all parameter data
are stored in an
interchangeable memory
- Accepts all read/write
heads
- Protocol-compatible
with BIS C and BIS S
identification systems



Description
Function
Antenna type

Supply voltage
Ripple
Current
Operating temperature
Storage temperature
Protection per IEC 60529
Read/write head ports
Service interface RS232
Connection type
Connection for
Interface description/Software:
DeviceNet™
Accessories included
Accessories (please order separately)

The **compact class**
BIS L-600 with its
reduced dimensions and
various interface options
can be used wherever
ambient conditions require
good protection.

The devices are ideal for
IP 65 and applications
involving media that is not
aggressive to PS plastic.

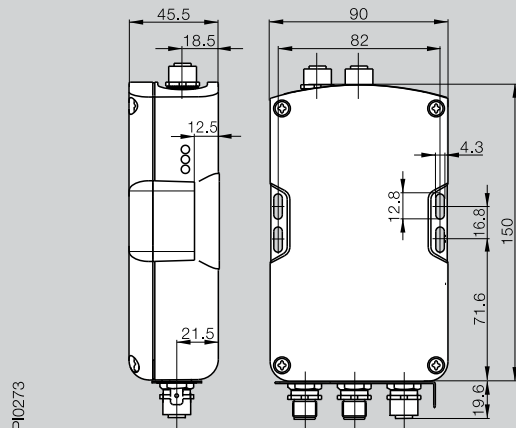
Small, compact, flexible
and economical



BIS L-6003-_-_-650-03-ST12

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+50 °C

0...+50 °C

IP 65

2 external

yes

3 round, 5-pin connectors,

2 read/write heads BIS L-3_ _

BIS L-6003-025-050-03-ST12

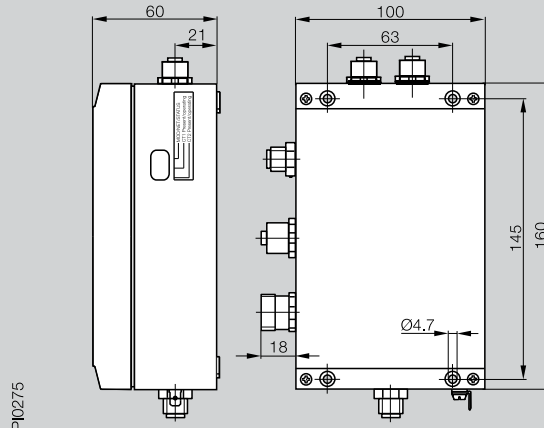
Software EDS-file

Connectors page 207/208/209

BIS L-6023-_-_-050-03-ST13

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+50 °C

0...+50 °C

IP 65

2 external

yes

4 round, 5-pin connectors,

2 read/write heads BIS L-3_ _

BIS L-6023-025-050-03-ST13

Software EDS-file

BKS 12-CS-01

Connectors page 207/208/209

BIS L

Range of

Applications

Selection

Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

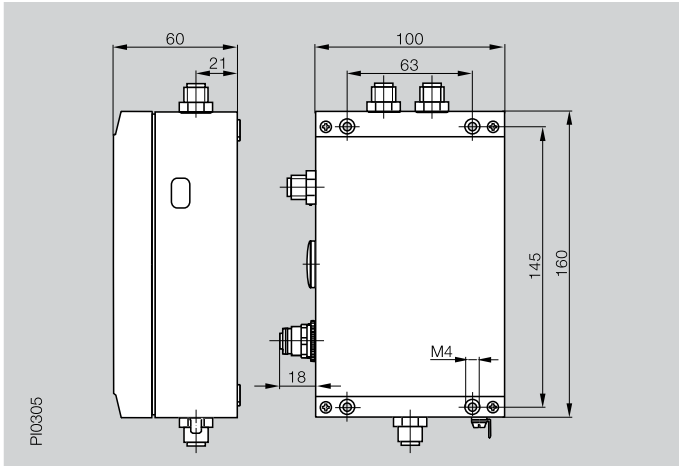
Times

For **rugged applications**

BIS L-60_ _ is, in spite of the mechanically rugged die-cast aluminum housing, a small, flexible processor which is available with various interface options.

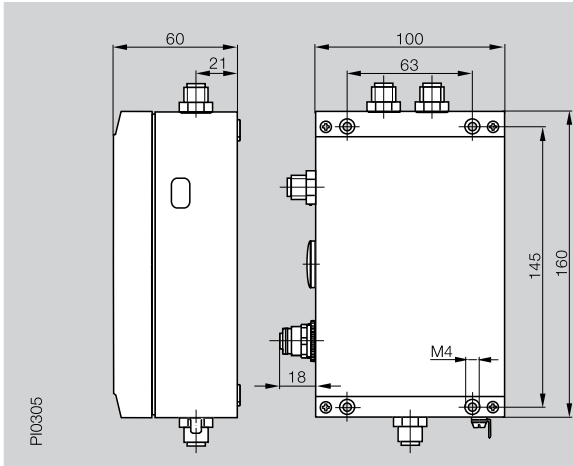
Suitable for all applications with demanding requirements for mechanical rigidity and chemical resistance.



Description	BIS L-6026-_-_-050-06-ST19
Function	read/write
Antenna type	AISI 12
   Control No. 3TLJ File No. E227256	
	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	Connector round 5-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	Read/write heads BIS L-3_ _ Exception: BIS L-350/BIS L-355
Interface description/Software:	
EtherNet/IP™	BIS L-6026-034-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	Connectors page 206

**Cost-effective identification –
operate 2 read/write heads simultaneously!**



Description	BIS L-6027-_-_-050-06-ST19
Function	read/write
Antenna type	AISI 12
 	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+50 °C
Storage temperature	0...+50 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	Connector round 5-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	Read/write heads BIS L-3_ _ Exception: BIS L-350/BIS L-355
Interface description/Software:	
Ethernet with standard TCP/IP protocol	BIS L-6027-039-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	Connectors page 206

BIS L

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

Operate 2 read/write heads sequentially



Order accessories separately!
Adapter cable for Ethernet
from M12 D-coded to
coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206

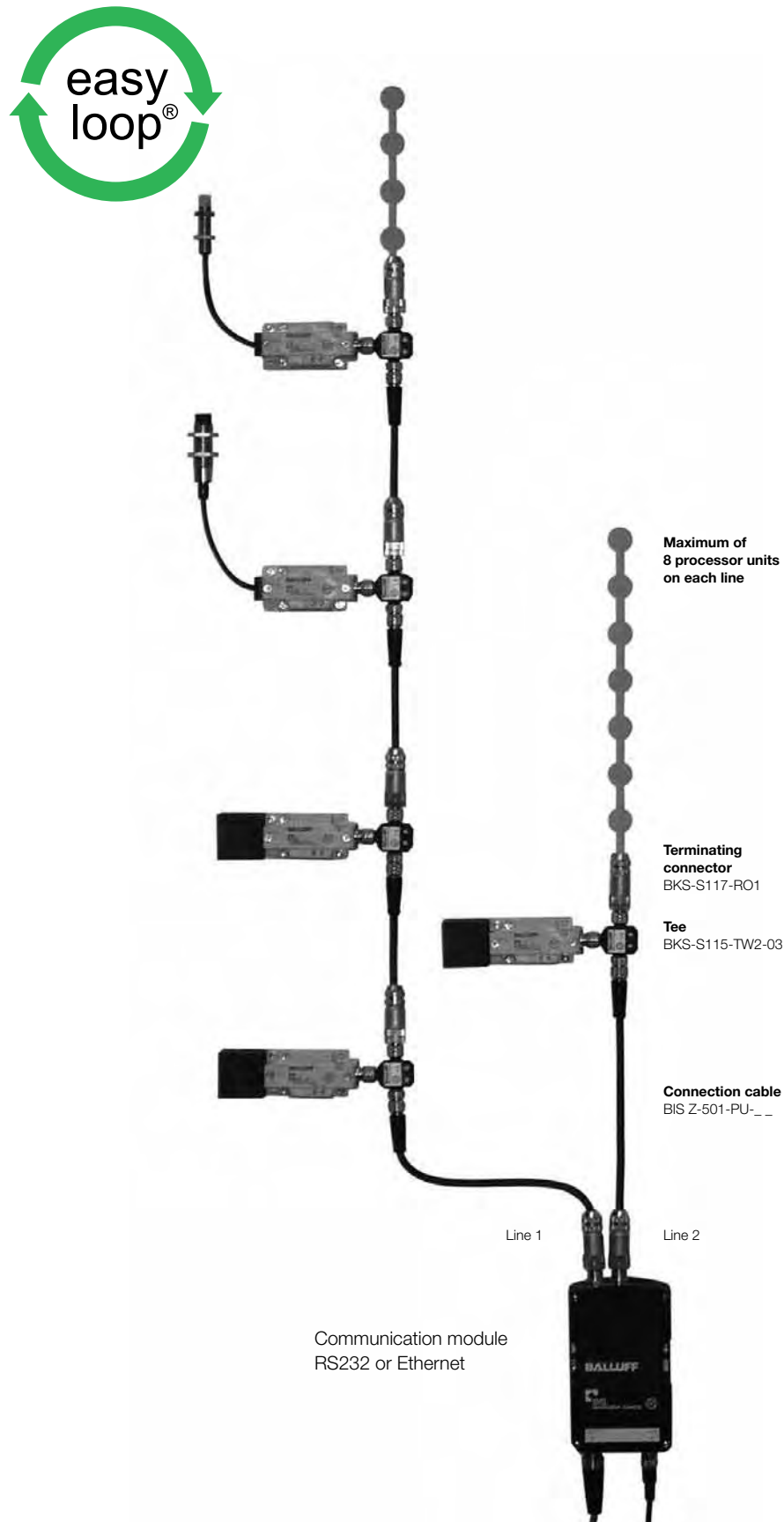


For simple installation

Use easy loop® to extend the BIS L system at minimal cost: compact read heads and the communication module for simple connection to the controller. Prefabricated cable and connectors for rapid, simple wiring. No address settings.

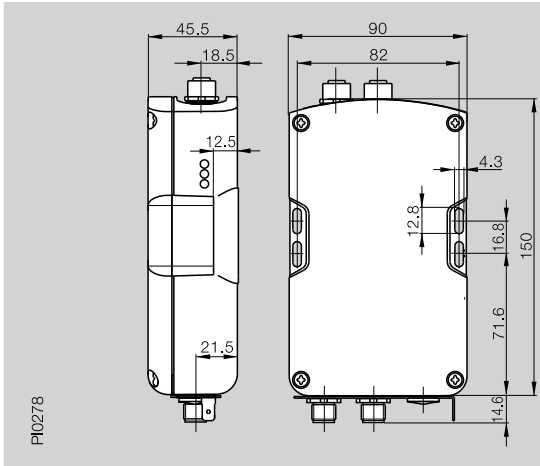
Install easy loop® by connecting up to a maximum of eight read heads with the easy loop® interface to two channels for up to a 16 head self-contained system. A single cable per channel will suffice and a separate power supply is no longer necessary for each head.

Each head is constantly scanned at set intervals and data transferred automatically to controller. Data is automatically read whenever a data carrier passes the head.



Easy ID

Industrial RFID Systems BIS L easy loop® Communications Module

Description	BIS Z-EL-002-RS232, BIS Z-EL-001-Ethernet
Function	read
Antenna type	ABS
BUS type wiring ensures simple installation and error-free power connection  	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 500\text{ mA} + 50\text{ mA}$ for each connected read head
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Connection type	1 connector round 4-pin, 1 connector round 5-pin
Connection for read/write heads/Line 1 and 2	2 connectors round 8-pin
Interface description/Software:	
RS232	BIS Z-EL-002-RS232
Ethernet TCP/IP	BIS Z-EL-001-Ethernet
Accessories (please order separately)	Connectors page 203

BIS L

Range of Applications
Selection Criteria
Data Carriers Read/Write
Data Carriers Read-only
Read/Write Heads
Data Coupler
Read Only Processors
Processors
easy loop®
IO-Link
Handheld Programmer
Access Security System
Installation Notes
Read/Write Times



Please order accessories separately!

Tee
BKS-S115-TW2-03



Terminating connector
BKS-S117-RO1



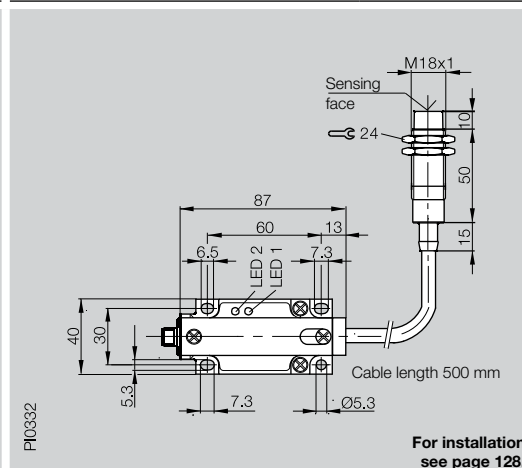
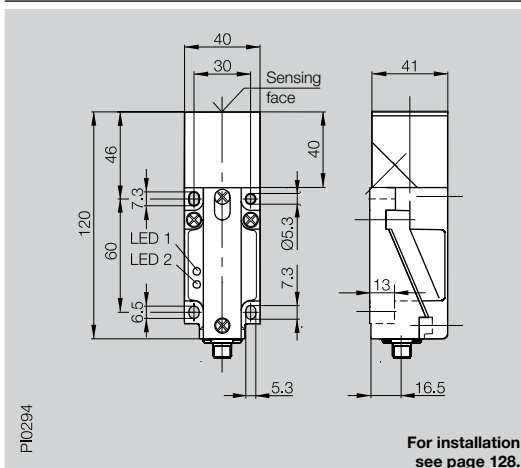
Order accessories separately!
Adapter cable for Ethernet from M12 D-coded to coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206

Industrial RFID Systems BIS L

Read Head with **easy loop®** Interface (integral processor unit)

Easy ID

Description/dimensions	40x41x120	M18
Housing material	PBT	PBT
Antenna type	round	round
Weight	170 g	170 g



Supply voltage	24 V DC $\pm 10\%$ / -20 %	24 V DC $\pm 10\%$ / -20 %
Ripple	$\leq 10\%$	$\leq 10\%$
Current	≤ 50 mA	≤ 50 mA no load
Ambient operating temperature	0...+60 °C	0...+60 °C
Protection per IEC 60529	IP 67	IP 67
Mounting in steel	non-flush	non-flush
LED function indicator	yes	yes
Connection type	8-pin M12 male	8-pin M12 male
Interface description:		
RS422/easy loop®	BIS L-400-043-001-02-S115	BIS L-400-043-002-02-S115
Accessories	Connection cable BIS Z-501-PU-__*	Connection cable BIS Z-501-PU-__*
(please order separately)	Tee BKS-S115-TW2-03	Tee BKS-S115-TW2-03

Appropriate data carrier installation types		BIS L-200-03/L BIS L-100-05/L-RO non-metal	BIS L-201-03/L BIS L-101-05/L-RO non-metal	BIS L-202-03/L BIS L-102-05/L-RO non-metal	BIS L-203-03/L BIS L-103-05/L-RO non-metal	BIS L-200-03/L BIS L-100-05/L-RO non-metal	BIS L-201-03/L BIS L-101-05/L-RO non-metal	BIS L-203-03/L BIS L-103-05/L-RO non-metal
Read distance in mm		0-30	0-40	0-55	0-20	0-30	0-40	0-20
Offset in mm at distance	0 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	3 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	4 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	5 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	7 mm	± 15	± 20	± 20	± 10	± 15	± 20	± 10
	8 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	10 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	12 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	15 mm	± 15	± 20	± 30	± 10	± 15	± 20	± 10
	20 mm	± 15	± 20	± 30		± 15	± 20	
	25 mm	± 15	± 20	± 30		± 15	± 20	
	30 mm		± 20	± 30			± 20	
	35 mm		± 20	± 30			± 20	
	40 mm			± 30				
	45 mm			± 30				
Max speed	m/s	0,85	0,9	1,2	0,55	0,29	0,37	0,22
	m/min	51	54	72	33	17,4	22,2	13,2

*Please indicate cable length in part number! see page 202



Easy ID

Industrial RFID Systems BIS L

Read Head with **easy loop®** Interface (integral processor unit)

M12

PBT

round

170 g

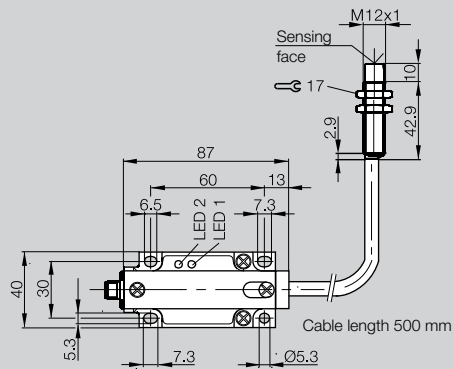
25x50x10

PBT

round

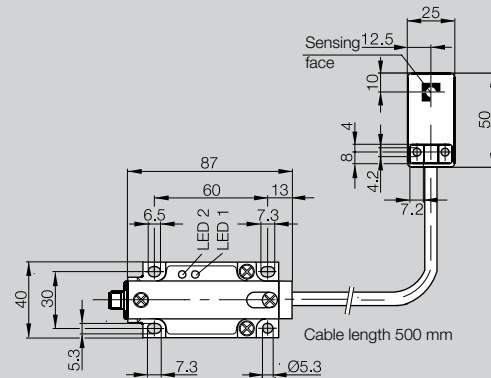
170 g

P10333



For installation
see page 128.

43250_00



For installation
see page 128.

24 V DC $\pm 10\%$ / -20%

$\leq 10\%$

≤ 50 mA no load

0...+60 °C

IP 67

non-flush

yes

8-pin M12 male

24 V DC $\pm 10\%$ / -20%

$\leq 10\%$

≤ 50 mA no load

0...+60 °C

IP 67

non-flush

yes

8-pin M12 male

BIS L-400-043-003-02-S115

Connection cable BIS Z-501-PU-__*

Tee BKS-S115-TW2-03

BIS L-400-043-004-02-S115

Connection cable BIS Z-501-PU-__*

Tee BKS-S115-TW2-03

BIS L-203-03/L
BIS L-103-05/L-RO

non-metal

BIS L-200-03/L
BIS L-100-05/L-RO

non-metal

BIS L-201-03/L
BIS L-101-05/L-RO

non-metal

BIS L-203-03/L
BIS L-103-05/L-RO

non-metal

0-11

± 6

± 6

± 6

± 6

± 6

± 6

± 2

0-23

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 8

0-27

± 15

± 15

± 15

± 15

± 15

± 15

± 15

± 15

± 6

0-16

± 8

± 8

± 8

± 8

± 8

± 4

0,18

10,8

0,29

17,4

0,37

22,2

0,22

13,2



BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

Easy ID

Technical drawing of the M18x1 cable gland assembly. The drawing shows a side view of the assembly with dimensions in mm. Key dimensions include: total length 87, mounting hole spacing 60, mounting hole diameter 6.5, cable hole diameter 7.3, and cable length 500 mm. The assembly includes a sensing face, a 24-pin connector, and a cable gland. The drawing is labeled "Cable length 500 mm".

Appropriate data carrier installation types		BIS L-200-03/L	BIS L-201-03/L	BIS L-202-03/L	BIS L-203-03/L	BIS L-200-03/L	BIS L-201-03/L	BIS L-203-03/L	
		BIS L-100-05/L-RO	BIS L-101-05/L-RO	BIS L-102-05/L-RO	BIS L-103-05/L-RO	BIS L-100-05/L-RO	BIS L-101-05/L-RO	BIS L-103-05/L-RO	
		non-metal	non-metal	non-metal	non-metal	non-metal	non-metal	non-metal	
Read distance in mm		0-25	0-35	0-48	0-16	0-15	0-18	0-10	
Offset in mm at distance	0 mm	±15	±20	±25	±10	±10	±12	±4	
	3 mm	±15	±20	±25	±10	±10	±12	±4	
	4 mm	±15	±20	±25	±10	±10	±12	±4	
	5 mm	±15	±20	±25	±10	±10	±12	±4	
	7 mm	±15	±20	±25	±10	±10	±12	±4	
	8 mm	±15	±20	±25	±10	±10	±12	±4	
	10 mm	±15	±20	±25	±10	±10	±12	±4	
	12 mm	±15	±20	±25	±10		±12		
	15 mm	±15	±20	±25	±10		±12		
	20 mm	±15	±20	±25					
	25 mm		±20	±25					
	30 mm		±20	±25					
	35 mm		±20	±25					
	40 mm			±25					
45 mm			±25						
Max speed	m/s	0,85	0,9	1,2	0,55	0,29	0,37	0,22	
	m/min	51	54	72	33	17.4	22.2	13.2	

Easy ID

Industrial RFID Systems BIS L

Read Head with **IO-Link** Interface (integral processor unit)

M12

PBT

round

170 g

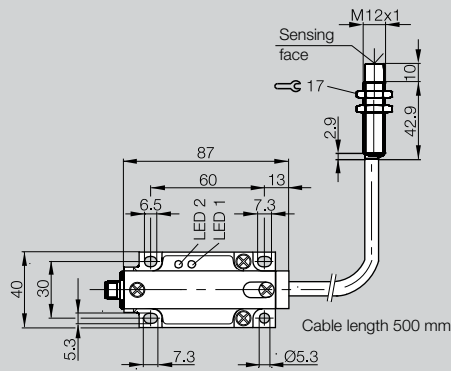
25x50x10

PBT

round

200 g

43752_00



For installation
see page 128.

24 V DC $\pm 10\%$ / -20%

$\leq 10\%$

≤ 50 mA no load

0...+60 °C

IP 67

non-flush

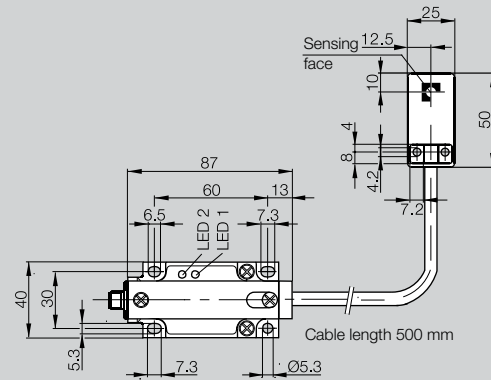
yes

8-pin M12 male

BIS L-409-045-003-07-S4

BCC M4/5-M4/3-3A-300-PX0334*

43753_00



For installation
see page 128.

24 V DC $\pm 10\%$ / -20%

$\leq 10\%$

≤ 50 mA no load

0...+70 °C

IP 67

non-flush

yes

4-pin M12 male

BIS L-409-045-004-07-S4

BCC M4/5-M4/3-3A-300-PX0334*

BIS L

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Data Carriers

Read-only

Read/Write

Heads

Data Coupler

Read Only

Processors

Processors

easy loop®

IO-Link

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

BIS L-203-03/L

BIS L-103-05/L-RO

non-metal

0-7

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

0,18

10,8

BIS L-200-03/L

BIS L-100-05/L-RO

non-metal

0-15

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

± 10

0,29

17,4

BIS L-201-03/L

BIS L-101-05/L-RO

non-metal

0-18

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

± 12

0,37

22,2

BIS L-203-03/L

BIS L-103-05/L-RO

non-metal

0-10

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

± 4

0,22

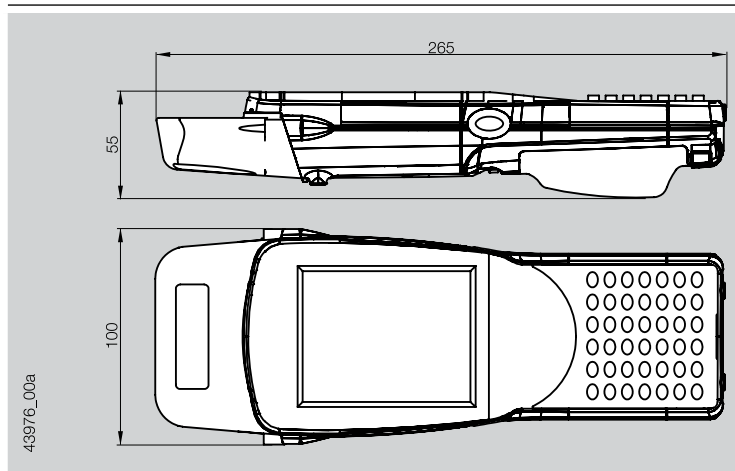
13,2



Industrial RFID Systems BIS L

Handheld Programmer

Function	read/write
Housing material	ABS



Basic Hand Held unit part number	BIS L-870-1-008-x-000
Keyboard	52 buttons, alphanumeric
Display	TFT Touchscreen display
Supply voltage	3.7 V rechargeable battery pack
Capacity	4000 mA/h
Interface	RS232/Balluff Dialog
Working temperature	-10...+50 °C
Degree of protection in accordance with IEC 60529	IP 65
Read/write head option	Integrated
Accessories included	Charging power supply and stylus
Appropriate data carrier	BIS L-1 ... BIS L-2 ...
Please order additional accessories separately	Docking Station and Pistol Grip

For enhanced operating convenience

Allows easy manual writing and reading of BIS L data carriers.

Easy operation thanks to

- Touchscreen with large Windows CE® color display and
- Pre-installed Balluff software and full keyboard or stylus.

Ideal for manual rework stations or remote data access away from the line. Data transfer via optional WLAN, Bluetooth, or wired USB. The handheld is also modular for expandability.

Additional options are available for greater functionality.

Standard Handheld
BIS L-870-1-008-x-000
Includes charger and stylus



Hand Held Accessories



Part Number	WA4003-G2	WA3010	RA2041*
Description	Desktop Docking Station w/PS and USB Cable	4000mAh Replacement Battery	802.11b/g WLAN Card



Part Number	WA6100-G1	WA9212-G1*	WA6102-G1
Description	Stylus – pack of 5	Imager, 2D Slim Pod HHP 5180 (compatible with pistol grip WA6102-G1)	Pistol Grip for WA9212-G1 2D Slim Pod HHP 5180



Part Number	WA9000-G1*	WA6101-G1	WA6097-G2
Description	Scanner 1D Laser High Performance (can work with Pistol Grip WA6001-G1)	Pistol Grip for WA9000-G1, 1D Scanner	Protective Carrying Case – 7527C-G2 universal end cap (open ended)

*Specification available upon request.

BIS L

Range of Applications
Selection Criteria
Data Carriers Read/Write
Data Carriers Read-only
Read/Write Heads
Data Coupler
Read Only Processors
Processors
easy loop®
IO-Link
Handheld Programmer
Access Security System
Installation Notes
Read/Write Times

Industrial RFID Systems BIS L

Access Security System

Access protection

Individual access codes are allocated via programmable data keys, which can then be disabled to prevent further programming.

Unauthorized personnel cannot manipulate the data key as a result. The data key is read via an antenna fitted to a special bracket. The processor unit then reads the data.

Different interfaces such as serial, PROFIBUS, INTERBUS, DeviceNet™, EtherNet/IP™ or parallel interfaces enable simple connection to the monitored system. Available for systems BIS C, BIS L, and BIS M.

Description	
Version	
Housing material	
Weight	

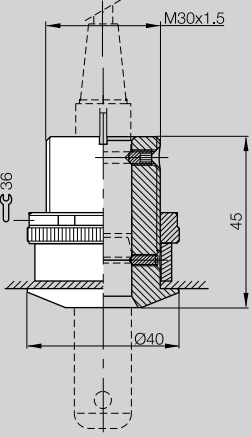
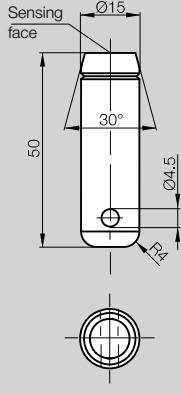
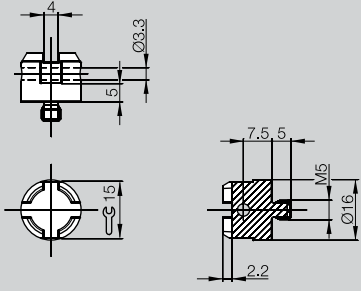


Part number	
Protection per IEC 60529	
Ambient operating temperature	
Storage temperature	



Industrial RFID Systems BIS L

Access Security System

Head interface socket	RFID key	BIS L-203-ZH1
Access protection	Data carrier + bracket	POM
		3 g
		
PI0152c	41928_00a	PI0259
BIS Z-ZA-001	BIS L-103-05/L-ZC1	BIS L-203-ZH1
0...+70 °C	IP 67	IP 67
-20...+85 °C	-25...+70 °C	-25...+85 °C
	-25...+85 °C	

read/write distance see
BIS L-103-05/L, reduced by 6 mm.



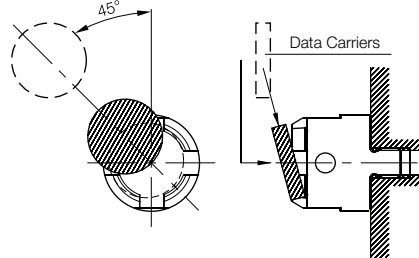
Electronic key for access control. Easy to implement using the "RFID key".



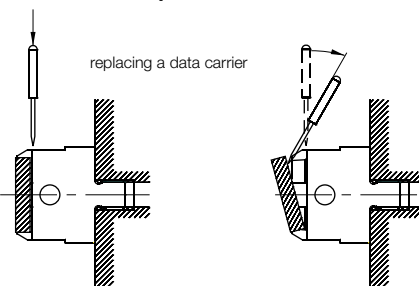
Interchangeable with data carriers BIS L-103 and BIS L-203, easy to mount – even on metal

The mount and prism clamp secure the data carrier and prevent it from falling out.

Mounting a data carrier



Data carrier replacement



BIS L

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Data Carriers
Read-only
Read/Write
Heads
Data Coupler
Read Only
Processors
Processors
easy loop®
IO-Link
Handheld
Programmer
Access Security System
Installation Notes
Read/Write Times

Industrial RFID Systems BIS L

Installation Notes

Minimum Distance between two Data Carriers

	BIS L-100-01/L	BIS L-101-01/L	BIS L-102-01/L	BIS L-103-05/L	BIS L-200-03/L	BIS L-201-03/L	BIS L-202-03/L	BIS L-203-03/L
BIS L-300	250 mm	300 mm	400 mm	250 mm	250 mm	300 mm	400 mm	250 mm
BIS L-301	300 mm	400 mm	500 mm	350 mm	350 mm	400 mm	500 mm	350 mm
BIS L-302	150 mm	200 mm	200 mm	180 mm	180 mm	200 mm	250 mm	180 mm
BIS L-303	300 mm	400 mm	500 mm	350 mm	350 mm	400 mm	500 mm	350 mm
BIS L-304	150 mm	200 mm	200 mm	180 mm	180 mm	200 mm	250 mm	180 mm
BIS L-40_					≥ 250 mm	≥ 300 mm	≥ 400 mm	

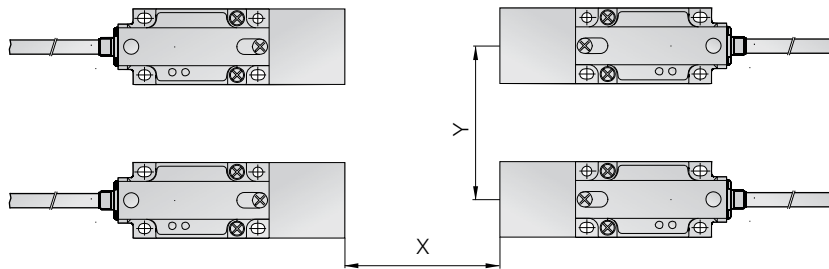
Minimum Distance between two Read/Write Heads

BIS L-300	800 mm
BIS L-301	800 mm
BIS L-302	200 mm
BIS L-303	800 mm
BIS L-304	200 mm

Distance from Read Head to Read Head

The following distances between individual BIS L-40_ systems must be maintained:

Read head	Distance X	Distance Y
BIS L-40 _-...-001-...	1000 mm	1000 mm
BIS L-40 _-...-002-...	500 mm	300 mm
BIS L-40 _-...-003-...	500 mm	300 mm
BIS L-40 _-...-004-...	500 mm	300 mm

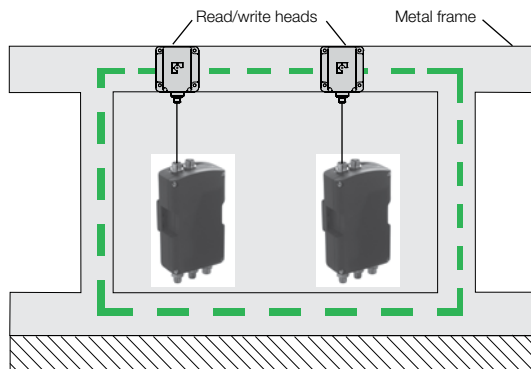


Mounting the Read/Write Heads on Metal Frames

If the read/write heads are mounted so that they are joined through an enclosed metal frame, mutual interference may result (conductor loop).

This may reduce the read/write distances. The smaller the read/write head, the less the interference.

With the BIS L-301, the maximum distance can be reduced by up to 20 %. The distance should therefore be tested.

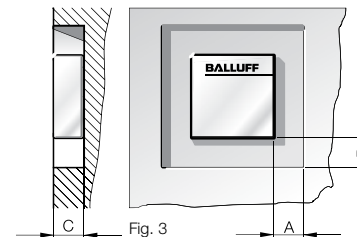
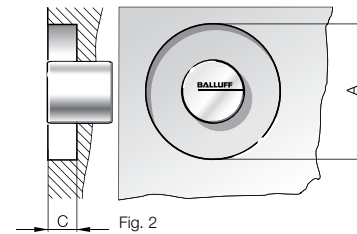
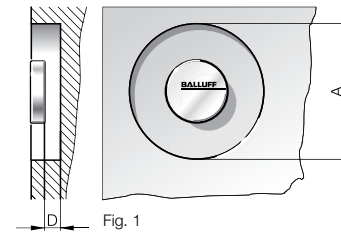


Installation in Metal

Clear zone dimensions

Data carriers	Fig.	Dimensions (in mm)	
		A	D
BIS L-100-01/L	1	100	50
BIS L-101-01/L	1	100	50
BIS L-102-01/L	1	100	50
BIS L-103-05/L	1	100	50
BIS L-200-03/L	1	100	50
BIS L-201-03/L	1	100	50
BIS L-202-03/L	1	100	50
BIS L-203-03/L	1	100	50

Read/write heads	Fig.	Dimensions (in mm)			
		A	B	C	D
BIS L-300-__	2	100		50	
BIS L-301-__	1	240			0
BIS L-302-__	2	100		10	
BIS L-303-__	3	80	60	50	
BIS L-304-__	3	50	50	10	
BIS L-400-__-001	2	100		40	
BIS L-400-__-002	2	100		10	
BIS L-400-__-003	2	100		10	
BIS L-400-__-004	3	50	50	10	
BIS L-405-__-001	2	100		40	
BIS L-405-__-002	2	100		10	
BIS L-405-__-003	2	100		10	
BIS L-405-__-004	3	50	50	10	



Note

Depending on the combination of read/write head and data carrier, clear zone dimension A should always be selected for the larger of the components.

If the clear zones cannot be maintained, the read/write distance will be reduced.

Mechanical Strength

Data carriers and read/write heads

Part number	BIS L-1 __, BIS L-2 __, BIS L-3 __, BIS L-4 __
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors

Part number	BIS L-6 __
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

BIS L

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Data Carriers
Read-only
Read/Write
Heads
Data Coupler
Read Only
Processors
Processors
easy loop®
IO-Link
Handheld
Programmer
Access
Security
System
Installation Notes
Read/Write
Times



Industrial RFID Systems BIS L

Read/Write Times

Read Times BIS L-1_ _

Typically 110 ms for recognizing the serial number*:

Data carrier with 4 byte blocks	
Byte	Read time [ms]
from 0 to 3	180
for each additional 4 bytes started	
add an additional	90

Read Times BIS L-2_ _

Serial number recognition = read data carrier = 100 ms*

Write Times BIS L-1_ _

Data carrier with 4 byte blocks	
Byte	Write time [ms]
from 0 to 3	305
for each additional 4 bytes started	
add an additional	215

*Applies only to parameter type and serial number output.

All specifications are typical values. Deviations are possible depending on the application and combination of read/write head and data carrier.

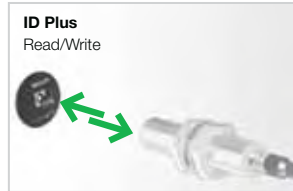
Industrial RFID Systems BIS M

Contents



Tool ID
For data storage

This section includes durable machine tool RFID solutions.



ID Plus
Read/Write

This section provides specifications on the low cost and flexible BIS M series read/write RFID solutions

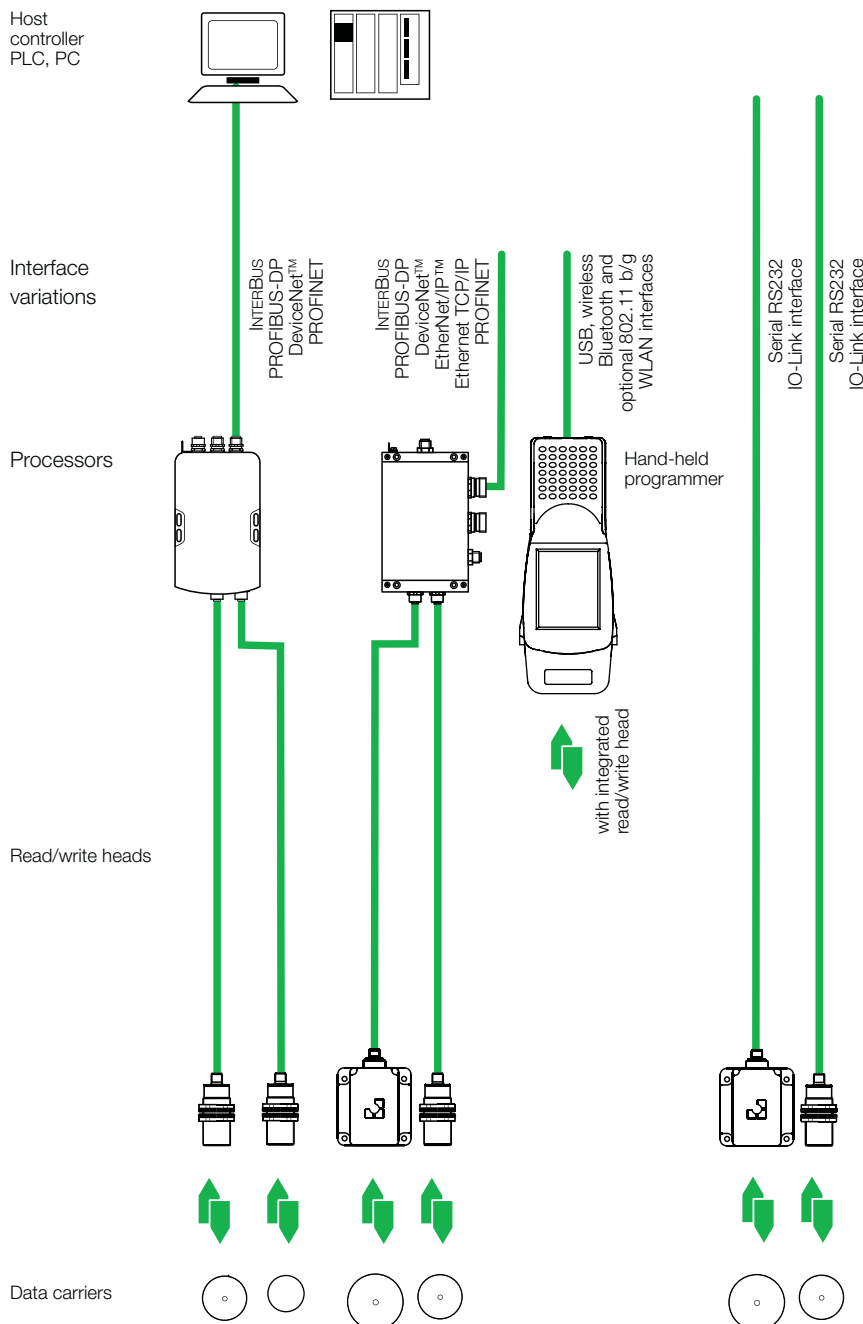


BIS M

For lightning-quick data transfer and large read/write distances

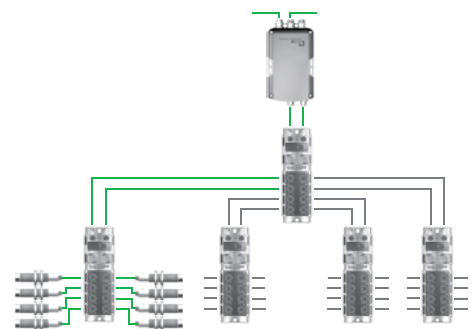
132	Range of Applications
134	Selection Criteria for Read/Write Distances
136	Data Carriers Read/Write
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150	Read/Write Heads with Integrated Processor
158	Read/Write Head with IO-Link
166	Processors
166	INTERBUS
168	PROFIBUS-DP
170	DeviceNet™
172	EtherNet/IP™
173	Ethernet TCP/IP
174	PROFINET
176	Handheld Programmer
177	Handheld Accessories
178	Access Security System
179	Installation Notes
182	Read/Write Times

BIS M



Expander module BIS Z-ER

See starting page 214



Industrial RFID Systems BIS M

Wide Range of Applications Supported

The main areas of application for the BIS M include palletized production, machine tool identification, and nonpalletized internal company logistics, access control and copy protection. This powerful identification system is proven in all applications where fast data transfer and large read/write distances are required. Select the most suitable BIS M system for your application from the table.

Data carrier	Tools		Production				
	Data storage on machine tools		Tool and die management		Assembly conveying systems		
	Tool holder collar	Retention knob	On tool	Dies	Pallets	On part	
BIS M-101-01/L					■		
BIS M-102-01/L					■		
BIS M-105-01/A	■	■	■	■		■	
BIS M-105-02/A	■	■	■	■		■	
BIS M-108-02/L			■	■	■		
BIS M-110-02/L					■		
BIS M-111-02/L					■		
BIS M-112-02/L					■		
BIS M-120-01/L							
BIS M-122-02/A	■	■	■			■	
BIS M-150-02/A			■	■			
BIS M-151-02/A			■	■			



Industrial RFID Systems BIS M

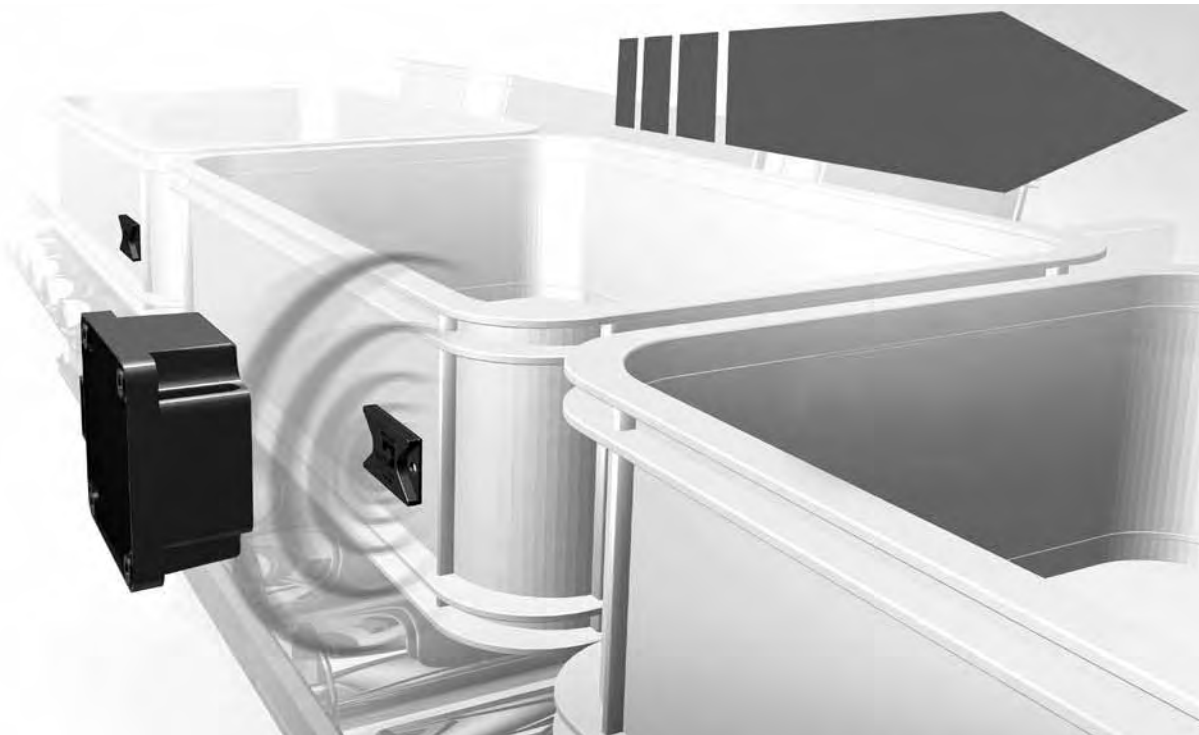
Suggested Application

	Intralogistics						Access and object control											
	Closed logistics circuits		Storage and retrieval equipment Storage and tracking		Intelligent vehicles (driverless transport vehicles)		Object detection		Access control Entry control			Read/write	Dynamic or static	Installation in metal	For harsh environments	Long distances (> 16 mm)	752-byte memory	2000-byte memory
	Retainer/workpiece carrier	Pallets	Retainer/workpiece carrier	Workpiece carrier Skid	Guiding, steering	Identification	In component	On component	Reliable access control	Process access	PartID							
	■					■				■		■	■			■	■	
	■	■				■				■		■	■			■	■	
			■		■		■				■	■		■	■		■	
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		■	■	■		■		■				■	■	■	■	■		■

BIS M

Range of Applications

Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads – Integrated Processor
IO-Link
Processors
Handheld Programmer
Access Security System
Installation Notes
Read/Write Times



Industrial RFID Systems BIS M

Selection Criteria for Read/Write Distances

0-12 mm



		Read/write heads				
		BIS M-302-001-__ M-302-003-__ Page 143	BIS M-304-001-__ M-304-003-__ Page 145	BIS M-400-007-001-__ Page 153	BIS M-400-007-002-__ Page 151	BIS M-402-007-__ Page 155
Data carrier	Memory capacity in bytes	Read/write distance				
BIS M-105-01/A BIS M-105-02/A Page 136	752 2000	0...7 mm 0...9 mm	0...5 mm 0...5 mm	0...7 mm 0...11 mm	0...5 mm 0...5 mm	
BIS M-122-01/A BIS M-122-02/A Page 136	752 2000	0...7 mm 0...9 mm	0...4 mm 0...5 mm		0...4 mm 0...5 mm	0...5 mm 0...5 mm
BIS M-110-02/L Page 137	2000	0...16 mm	0...14 mm	0...20 mm	0...15 mm	0...8 mm

8-20 mm



		Read/write heads				
		BIS M-300-001-__ M-300-003-__ Page 147	BIS M-302-001-__ M-302-003-__ Page 143	BIS M-304-001-__ M-304-003-__ Page 145	BIS M-400-007-001-__ Page 153	BIS M-400-007-002-__ Page 151
Data carrier	Memory capacity in bytes	Read/write distance				
BIS M-101-01/L Page 136	752	0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
BIS M-102-01/L Page 137	752	0...32 mm	0...20 mm	0...18 mm	0...28 mm	0...18 mm
BIS M-105-01/A BIS M-105-02/A Page 136	752 2000	0...11 mm 0...11 mm	0...7 mm 0...9 mm	0...5 mm 0...7 mm	0...7 mm 0...11 mm	0...6 mm 0...9 mm
BIS M-108-02/L Page 139	2000	0...30 mm	0...20 mm	0...18 mm	0...16 mm	0...20 mm
BIS M-110-02/L Page 137	2000	0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
BIS M-111-02/L Page 137	2000	0...28 mm	0...20 mm		0...28 mm	0...20 mm

15-30 mm



		Read/write heads				
		BIS M-300-001-__ M-300-003-__ Page 147	BIS M-302-001-__ M-302-003-__ Page 143	BIS M-400-007-001-__ Page 153	BIS M-400-007-002-__ Page 151	BIS M-401-007-001-__ Page 157
Data carrier	Memory capacity in bytes	Read/write distance				
BIS M-110-02/L Page 137	2000	0...22 mm	0...16 mm	0...20 mm	0...15 mm	0...30 mm
BIS M-101-01/L Page 136	752	0...22 mm	0...16 mm	0...20 mm	0...15 mm	0...28 mm
BIS M-111-02/L Page 137	2000	0...28 mm	0...20 mm	0...28 mm	0...20 mm	0...40 mm
BIS M-102-01/L Page 137	752	0...32 mm	0...20 mm	0...28 mm	0...18 mm	0...45 mm
BIS M-112-02/L Page 138	2000	0...44 mm	0...30 mm	0...38 mm	0...28 mm	0...60 mm
BIS M-108-02/L Page 139	2000	0...30 mm	0...20 mm	0...28 mm	0...20 mm	0...40 mm

0...2 mm = Data carrier flush mounted in steel

Use the tables and combine BIS M read/write head with tag based on range.

In three steps you will have selected your BIS M system:

1. First choose the appropriate form factor for your data carrier.
2. Then determine your read/write head based on range.
3. Finally, determine the desired memory capacity. Many tags provide several sizes.

Questions?

Whatever your need, whether analysis, selection and return on investment, formats, interfaces and software, installation, disassembly and retrofitting – in short: we are here to help you in every way.

Take advantage of our personal consultation, individual support and worldwide service.

25-50 mm



		Read/write heads				
		BIS M-300-001-__ M-300-003-__ Page 147	BIS M-301-001-__ M-301-003-__ Page 149	BIS M-302-001-__ M-302-003-__ Page 143	BIS M-400-007-001-__ Page 153	BIS M-401-007-001-__ Page 157
Data carrier	Memory capacity in bytes	Read/write distance				
BIS M-110-02/L Page 137	2000	0...22 mm	0...32 mm	0...16 mm	0...20 mm	0...30 mm
BIS M-101-01/L Page 136	752	0...22 mm	0...34 mm	0...16 mm	0...20 mm	0...28 mm
BIS M-111-02/L Page 137	2000	0...28 mm	0...45 mm	0...20 mm	0...28 mm	0...40 mm
BIS M-102-01/L Page 137	752	0...32 mm	0...45 mm	0...20 mm	0...28 mm	0...45 mm
BIS M-112-02/L Page 138	2000	0...44 mm	0...70 mm	0...30 mm	0...38 mm	0...60 mm
BIS M-108-02/L Page 139	2000	0...30 mm	0...45 mm	0...20 mm	0...28 mm	0...40 mm
BIS M-120-01/L Page 139	752		0...50 mm			0...50 mm

> 40 mm



		Read/write heads				
		BIS M-300-001-__ M-300-003-__ Page 147	BIS M-301-001-__ M-301-003-__ Page 149	BIS M-351-001-__ Page 148	BIS M-401-007-001-__ Page 157	BIS M-451-007-001-__ Page 156
Data carrier	Memory capacity in bytes	Read/write distance				
BIS M-102-01/L Page 137	752	0...32 mm	0...45 mm		0...45 mm on metal	
BIS M-112-02/L Page 138	2000	0...44 mm	0...70 mm		0...60 mm on metal	
BIS M-108-02/L Page 139	2000	0...30 mm	0...45 mm		0...40 mm on metal	
BIS M-120-01/L Page 139	752		0...50 mm		0...50 mm	
BIS M-150-02/A Page 141	2000			0...60 mm on metal		0...60 mm on metal
BIS M-151-02/A Page 141	2000			0...60 mm on metal		0...60 mm on metal

BIS M

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors

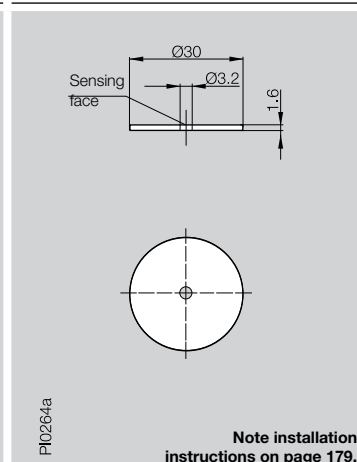
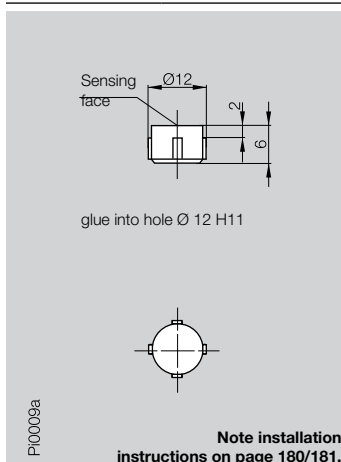
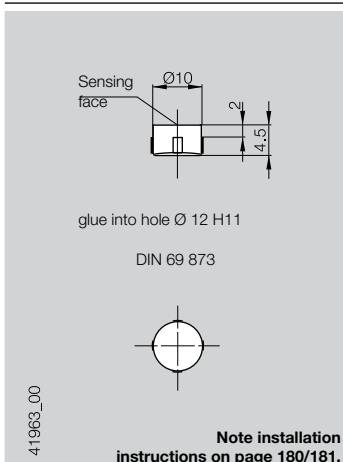
Handheld Programmer

Access Security System

Installation Notes

Read/Write Times

Dimensions	Ø 10x4.5	Ø 12x6	Ø 30x1.6
Housing material	PA12	EP	EP
Antenna type	round	round	round
Weight	< 1.5 g	< 1.5 g	< 1.6 g



BIS M Programmable

752 bytes	Part number	BIS M-122-01/A**	BIS M-105-01/A**	BIS M-101-01/L**
2000 bytes	Part number	BIS M-122-02/A*	BIS M-105-02/A*	
Operating temperature		0...+70 °C	-25...+70 °C	-25...+70 °C
Storage temperature		-25...+85 °C	-25...+85 °C	-40...+85 °C
Protection per IEC 60529		IP 67	IP 67	IP 67

Mounting

Appropriate read/write head with max. read/write distance		flush in steel	non-metal		flush in steel	non-metal		non-metal
	BIS M-302	0-6 mm	0-9 mm	BIS M-302	0-6 mm	0-9 mm	BIS M-302	0-16 mm
	BIS M-304	0-5 mm	0-7 mm	BIS M-304	0-5 mm	0-7 mm	BIS M-304	0-14 mm

Supported standard

* ISO 15693

** ISO 14443

Simply attach data carrier

A single screw is enough – and the data carrier is firmly attached, or simply glue in place.

For reliable traceability

All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

Machine Tool ID

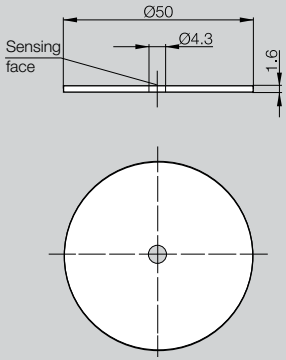
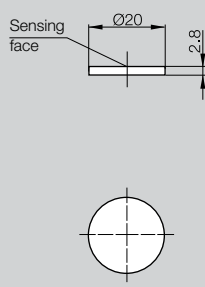
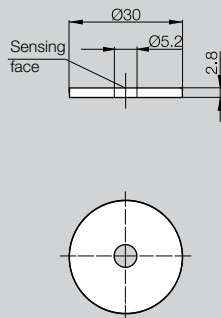


Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
752 bytes	EEPROM	100 000	unlimited	10 years
2000 bytes	FRAM	unlimited	unlimited	10 years

Industrial RFID Systems BIS M

Data Carriers Read/Write

Ø 50×1.6		Ø 20×2.5		Ø 30×2.5	
EP		PA6		PA6	
round		round		round	
< 2.5 g		< 1.3 g		< 3.0 g	
 Note installation instructions on page 179.		 Note installation instructions on page 179.		 Note installation instructions on page 179.	
BIS M-102-01/L**		BIS M-110-02/L*		BIS M-111-02/L*	
-25...+70 °C		-25...+85 °C		-25...+85 °C	
-40...+85 °C		-40...+90 °C (100 h at 140 °C)		-40...+90 °C (100 h at 140 °C)	
IP 67		IP 67		IP 67	
	non-metal		non-metal		non-metal
BIS M-300	0-32 mm	BIS M-300	0-22 mm	BIS M-300	0-28 mm
BIS M-301	0-45 mm	BIS M-301	0-32 mm	BIS M-301	0-45 mm
BIS M-302	0-20 mm	BIS M-302	0-16 mm	BIS M-302	0-20 mm
BIS M-304	0-18 mm	BIS M-304	0-14 mm		
Tightening torque max. 1 Nm				Tightening torque max. 1 Nm	

BIS M

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors

Handheld Programmer

Access Security System

Installation Notes

Read/Write Times

Closed Loop Logistic Tags

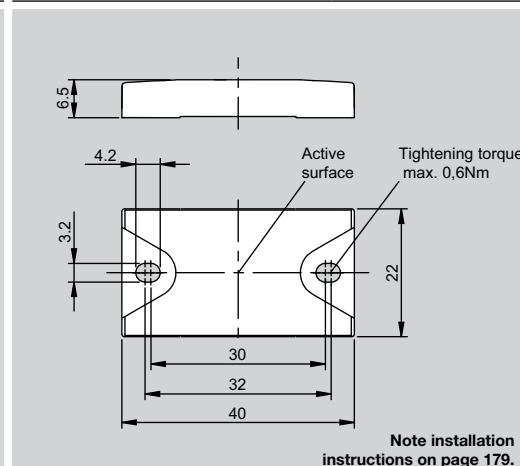
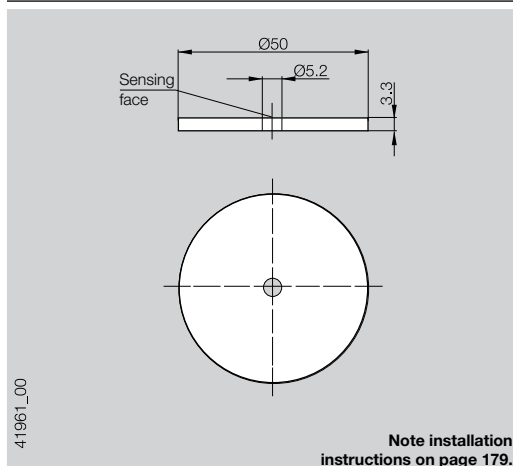


Industrial RFID Systems BIS M

Data Carriers Read/Write

High Temperature

Dimensions	50x3	40x22x6.5
Housing material	PA6	PPS-GF40
Antenna type	round	round
Weight	< 9.5 g	< 7.0 g



BIS M Programmable

112 bytes	Part number		BIS M-107-03/L-H200*
752 bytes	Part number		
2000 bytes	Part number	BIS M-112-02/L*	
Operating temperature		-25...+85 °C	-25...+70 °C
Storage temperature		-40...+90 °C (100 h at 140 °C)	-25...+85 °C (1000 h at +200 °C)
Protection per IEC 60529		IP 67	IP 67

Mounting

Appropriate read/write head with max. read/write distance	BIS M-300	0-44 mm		
	BIS M-301	0-70 mm	BIS M-301	0-30 mm
	BIS M-302	0-30 mm		

Supported standard

* ISO 15693

** ISO 14443

Tightening

torque max. 1 Nm

For greatest flexibility

Data carriers in various formats including wafer, cylinder, block or handy credit card format allow for a wide range of applications

Closed Loop Logistics Tags



For High Temperature Applications



For reliable traceability

All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
112 bytes	FRAM	unlimited	unlimited	10 years
752 bytes	EEPROM	100 000	unlimited	10 years
2000 bytes	FRAM	unlimited	unlimited	10 years

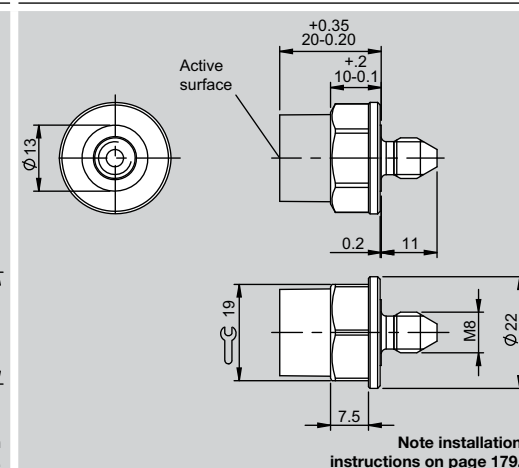
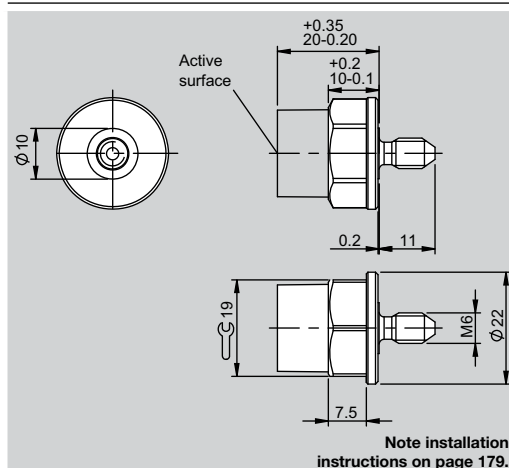
BIS M

Read/Write Times

A black and white photograph of a Balluff BISM 105-02/L sensor module. The module is a rectangular, dark-colored device with a lighter-colored label on top. The label features the Balluff logo (a stylized 'B' in a square), the text 'BISM', the CE mark, and the model number '105-02/L'. The device has two circular mounting holes on the top edge.

BALLUFF | 139

Description/dimensions	19mm flat/M6	19mm flat/M8	
Housing material	42CrMo4 / PA12-GF30	42CrMo4 / PA12-GF30	
Antenna type	Round	Round	
Weight	17 g	18 g	



BIS M Programmable

2000 bytes	Part number	BIS M-140-02/A-M6*	BIS M-140-02/A-M8*
Operating temperature		-20...+70 °C	-20...+70 °C
Storage temperature		-20...+85 °C	-20...+85 °C
Protection per IEC 60529		IP 68	IP 68

Mounting

Appropriate read/write head with max. read/write distance	BIS M-301	0-40mm	BIS M-301	0-40mm
---	-----------	--------	-----------	--------

Supported standard

* ISO 15693

Databolt™

Ideal for automatic insertion and removal from parts like engine blocks and heads.



For reliable traceability

All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
2000 bytes	FRAM	unlimited	unlimited	10 years

Metal Mount

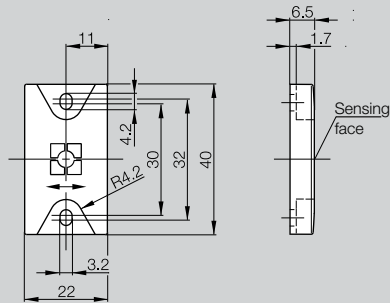
Industrial RFID Systems BIS M Data Carriers Read/Write

40×22×6.5

PPS-GF40

Rod

< 8.0 g



Note installation
instructions on page 179.

BIS M-150-02/A*

-25...+70 °C

-25...+130 °C

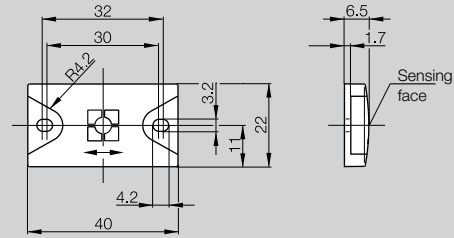
IP 67

40×22×6.5

PPS-GF40

Rod

< 8.0 g



Note installation
instructions on page 179.

BIS M-151-02/A*

-25...+70 °C

-25...+130 °C

IP 67

mount on steel

BIS M-351

0-50 mm

mount on steel

BIS M-351

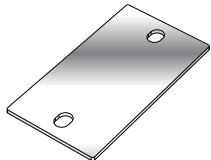
0-50 mm

Metal Mount Series

These tags provide highly reliable RFID performance mounted on any metal surface.

Features

- no reduction in range, regardless of metal alloy
- large read/write range
- compatible with all M processors



Metal mounting plate 40×22 mm
BIS Z-MP-001 **please order separately!**
(10 to a package) Required
if no metal substrate is used!

Use with **BIS M-351-001-S115** or
BIS M-451-007-001-00-S115 Read/Write Head



BIS M

Range of
Applications

Selection
Criteria

**Data Carriers
Read/Write**

Read/Write
Heads

Read/Write
Heads –
Integrated
Processor

IO-Link

Processors
Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

Industrial RFID Systems BIS M

Read/Write Heads

**Small size –
big performance**

Broad selection range

Read/write heads in various form factors offer wide application possibilities. Use with BIS M-105 and M-122 machine tool tags for Tool ID applications. Simply choose according to your application.

Dimensions

Housing material

Antenna type

Weight



Part number

Part number

Mounting in steel

Operating temperature

Storage temperature

Protection per IEC 60529

Connection to
with connection cable

Appropriate data carrier

Data carrier distance to metal in mm

Data carrier clear zone in mm

Write distance in mm

Read distance in mm

Offset in mm 0 mm

at distance 5 mm

9 mm

12 mm

15 mm

16 mm

18 mm

20 mm

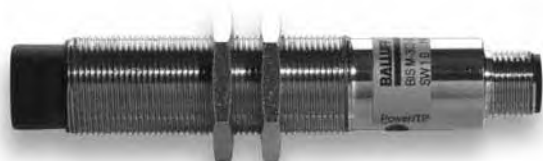
22 mm

25 mm

30 mm

* For use only with processor
BIS M-407-039-06-S115! see page 173

**Please indicate cable length in part number!
see page 202

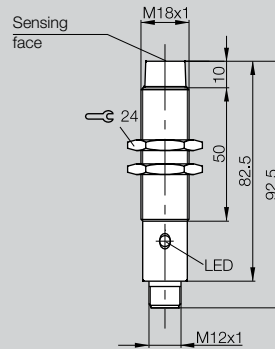


M18

Nickel plated brass

round

52 g

Note installation
instructions on page 179.

BIS M-302-001-S115

BIS M-302-003-S115*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E**

BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M**

Please order cable separately, see page 202

BIS M-101-01/L	BIS M-102-01/L	BIS M-105-01/L	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/A
> 25 > 10 > 5	> 50 > 25 > 10	> 10 > 0	> 10 > 0	> 10 > 0	> 10 > 0	> 25 > 0	> 25 > 10 > 5	> 25 > 10 > 5	> 50 > 25 > 20
> 60 > 50 > 50	> 60 > 50 > 50	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 80 > 50 > 50	> 80 > 50 > 50	> 150 > 90 > 70
0-16 0-15 0-10	0-20 0-18 0-10	0-7 0-5	0-9 0-6	0-7 0-5	0-9 0-6	0-20 0-12	0-16 0-12 0-8	0-20 0-12 0-5	0-30 0-22 0-12
0-16 0-15 0-10	0-20 0-18 0-10	0-7 0-5	0-9 0-6	0-7 0-5	0-9 0-6	0-20 0-12	0-16 0-12 0-8	0-20 0-12 0-5	0-30 0-22 0-12
±10 ±8 ±4	±18 ±14 ±8	±5 ±4	±5 ±5	±4 ±3	±4 ±3	±14 ±10	±8 ±6 ±4	±12 ±8 ±7	±20 ±16 ±14
±10 ±8 ±4	±18 ±14 ±6	±4 ±3	±5 ±3.5	±3 ±2	±3 ±2	±12 ±8	±8 ±6 ±4	±12 ±8 ±4	±20 ±16 ±14
±10 ±7 ±2	±16 ±12 ±4		±3.5			±12 ±6	±6 ±5	±10 ±6	±18 ±16 ±10
±8 ±6	±14 ±8					±10 ±4	±4 ±3	±10 ±4	±18 ±14 ±6
±7 ±4	±12 ±6					±10	±4	±10	±18 ±14
±4	±10 ±4					±7	±3	±5	±16 ±12
	±8 ±4					±7		±5	±16 ±12
	±4					±5		±5	±16 ±12
									±12 ±8
									±12
									±8

BIS MRange of
ApplicationsSelection
CriteriaData Carriers
Read/Write**Read/Write
Heads**Read/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
ProgrammerAccess
Security
SystemInstallation
NotesRead/Write
Times

Industrial RFID Systems BIS M

Read/Write Heads

Greater flexibility

M18 housing with extra small read/write head: just 14mm provides more flexibility for Tool ID applications.



Dimensions	
Housing material	
Antenna type	
Weight	



Part number	
Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to with connection cable	

Appropriate data carrier	
Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm

* For use only with processor
BIS M-407-039-06-S115! see page 173

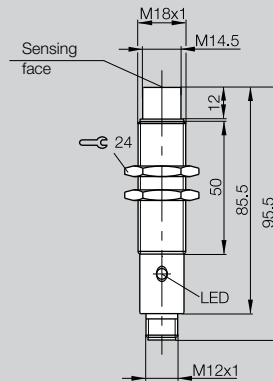
**Please indicate cable length in part number!
see page 202

M18

Nickel plated brass

round

52 g



Note installation instructions on page 179.

BIS M

Range of Applications

Selection Criteria

Data Carriers
Read/Write

Read/Write Heads

Read/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
ProgrammerAccess
Security
System

Installation Notes

Read/Write
Times

BIS M-304-001-S115

BIS M-304-003-S115*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E**

BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M**

Please order cable separately, see page 202

BIS M-101-01/L			BIS M-102-01/L			BIS M-105-01/A		BIS M-105-02/A		BIS M-122-01/A		BIS M-122-02/A		BIS M-108-02/A		BIS M-110-02/A		
> 25	> 10	> 5	> 50	> 25	> 10	> 10	> 0	> 10	> 0	> 10	> 0	> 10	> 0	> 25	> 0	> 25	> 10	> 5
> 60	> 50	> 50	> 60	> 50	> 50	> 60	> 0	> 60	> 0	> 60	> 0	> 60	> 0	> 60	> 0	> 80	> 50	> 50
0-14	0-10	0-8	0-18	0-15	0-10	0-5	0-5	0-7	0-6	0-5	0-4	0-7	0-5	0-18	0-10	0-14	0-10	0-8
0-14	0-10	0-8	0-18	0-15	0-10	0-5	0-5	0-7	0-6	0-5	0-4	0-7	0-5	0-18	0-10	0-14	0-10	0-8
±10	±8	±4	±18	±14	±8	±5	±4	±5	±5	±4	±2	±4	±3	±14	±10	±8	±6	±4
±10	±8	±4	±18	±14	±6	±4	±3	±5	±3.5	±3		±3	±2	±12	±8	±8	±6	±4
±10	±7		±16	±12	±4			±3						±12	±6	±6	±5	
±8			±14	±8										±10		±4		
			±12	±6										±10				
			±10											±7				
			±8											±5				

Industrial RFID Systems BIS M

Read/Write Heads

Larger size for greater range

The large diameter of these tubular read/write heads enables greater distances to the object.



Dimensions	
Housing material	
Antenna type	
Weight	



Part number	
Part number	
Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to with connection cable	

Appropriate data carrier	
Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm
	20 mm
	22 mm
	25 mm
	30 mm
	32 mm
	35 mm
	40 mm
	43 mm

* For use only with processor
BIS M-407-039-06-S115! see page 173

**Please indicate cable length in part number!
see page 202

Industrial RFID Systems BIS M

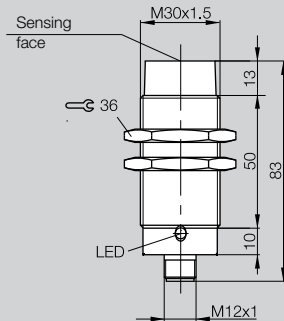
Read/Write Heads

M30

Nickel plated brass

round

100 g



P10293b

Note installation instructions on page 179.

BIS M-300-001-S115

BIS M-300-003-S115*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E**

BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M**

Please order cable separately, see page 202

BIS M-101-01/L			BIS M-102-01/L			BIS M-105-01/A			BIS M-105-02/A			BIS M-108-02/L			BIS M-110-02/L			BIS M-111-02/L			BIS M-112-02/L		
> 25	> 10	> 5	> 50	> 15	> 10	> 20	> 5		> 20	> 5		> 25	> 0		> 25	> 10	> 5	> 25	> 10	> 5	> 50	> 15	> 10
>100	> 60	> 50	> 150	> 90	> 70	> 100	> 100		> 100	> 100		> 100	> 0		>100	> 60	> 50	> 100	> 60	> 50	> 150	> 90	> 70
0-22	0-20	0-15	0-32	0-22	0-12	0-9	0-9		0-11	0-11		0-30	0-16		0-22	0-16	0-10	0-28	0-18	0-10	0-44	0-25	0-15
0-22	0-20	0-15	0-32	0-22	0-12	0-9	0-9		0-11	0-11		0-30	0-16		0-22	0-16	0-10	0-28	0-18	0-10	0-44	0-25	0-15
±15	±12	±8	±20	±15	±6	±7	±6		±10	±7		±18	±10		±14	±8	±7	±16	±10	±7	±25	±18	±15
±15	±12	±8	±20	±15	±6	±7	±6		±8	±7		±18	±10		±14	±8	±7	±16	±10	±7	±25	±18	±15
±15	±10	±6	±20	±15	±5	±2	±1		±5	±3		±18	±8		±12	±6	±2	±14	±8	±2	±25	±16	±12
±15	±8	±4	±20	±15	±4							±16	±6		±12	±5		±14	±7		±24	±15	±10
±15	±8	±4	±20	±12								±16	±6		±12	±4		±14	±6		±24	±14	±8
±12	±6		±20	±10								±16	±4		±10	±2		±14	±3		±24	±12	
±12	±6		±20	±8								±16			±10			±14	±2		±24	±12	
±12	±4		±20	±6								±16			±10			±14			±24	±10	
±4			±18	±4								±14			±6			±12			±22	±8	
			±14									±14						±12			±22	±6	
			±10									±10									±22		
			±4																		±16		
																					±16		
																					±16		
																					±10		

BIS M

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors

Handheld Programmer

Access Security System

Installation Notes

Read/Write Times

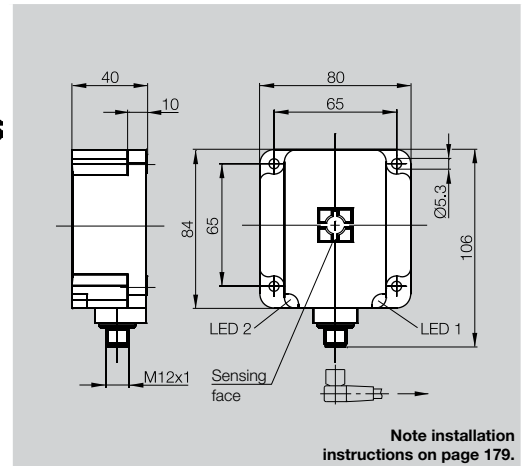
Longer range

The right choice when you need a flat design with long read/write distance.

Metal Mount version

Read/write head with rod type antenna.
Simply use the arrows for alignment and for fast positioning.

Dimensions	80x84.5x40
Housing material	PBT and ASA
Antenna type	Rod
Weight	250 g



Part number	BIS M-351-001-S115
Part number	BIS M-351-003-S115
Mounting in steel	non-flush
Operating temperature	0...+60 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Connection to with connection cable	Processor BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E** BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M** Please order cable separately, see page 202

Appropriate data carrier	BIS M-150-02/A	BIS M-151-02/A
Data carrier distance to metal in mm	> 200	> 200
Data carrier clear zone in mm		

Metallic mounting surface 40x22		0-52		0-52	
Metallic mounting surface ≥ 200x200		0-65		0-65	
Write distance in mm					
Read distance in mm					
Offset in mm	0 mm	±25	±26	±25	±26
at distance	5 mm	±25	±26	±25	±26
	9 mm	±25	±25	±25	±25
	12 mm	±25	±25	±25	±25
	15 mm	±25	±25	±25	±25
	16 mm	±25	±25	±25	±25
	18 mm	±25	±25	±25	±25
	20 mm	±25	±25	±25	±25
	22 mm	±25	±25	±25	±25
	25 mm	±25	±25	±25	±25
	30 mm	±25	±25	±25	±25
	32 mm	±25	±25	±25	±25
	35 mm	±25	±25	±25	±25
	40 mm	±20	±25	±20	±25
	43 mm	±20	±25	±20	±25
	45 mm	±20	±25	±20	±25
	50 mm	±20	±25	±20	±25
	52 mm	±8	±25	±8	±25
60 mm		±10		±10	
65 mm		±10		±10	
70 mm					



* For use only with processor
BIS M-407-039-06-S115! see page 173

**Please indicate cable length in part
number! see page 202

Long Distances

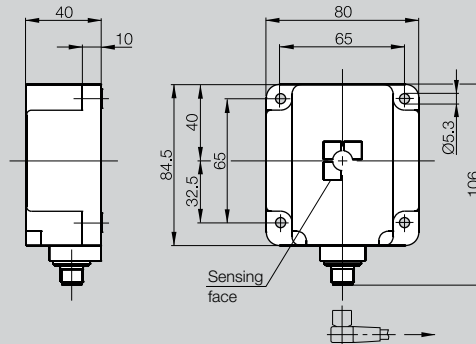
Industrial RFID Systems BIS M Read/Write Heads

80x80x40

PBT

round

410 g



P10356

Note installation
instructions on page 179.

BIS M-301-001-S115

BIS M-301-003-S115*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E**

BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M**

Please order cable separately, see page 202

BIS M-101-01/L			BIS M-102-01/L			BIS M-108-02/L		BIS M-110-02/L		BIS M-111-02/L		BIS M-112-02/L		BIS M-120-01/L	
> 50	> 10	> 5	> 50	> 25	> 10	> 50	> 20	> 50	> 30	> 50	> 30	> 50	> 30	> 80	
> 200	> 60	> 50	> 200	> 150	> 150	> 200	> 60	> 200	> 100	> 200	> 100	> 200	> 100	> 250	
0-34	0-20	0-15	0-45	0-43	0-35	0-45	8-22	0-32	0-20	0-45	0-30	0-70	0-45	0-50	
0-34	0-20	0-15	0-45	0-43	0-35	0-45	8-22	0-32	0-20	0-45	0-30	0-70	0-45	0-50	
±22	±18	±14	±30	±24	±18	±32	±20	±28	±20	±32	±22	±40	±25	±30	
±22	±18	±14	±30	±24	±18	±32	±20	±28	±20	±32	±22	±40	±25	±30	
±22	±18	±14	±30	±24	±18	±32	±20	±28	±18	±32	±22	±40	±25	±30	
±22	±18	±10	±30	±24	±18	±32	±18	±24	±18	±32	±22	±40	±25	±30	
±22	±18	±10	±30	±24	±18	±32	±18	±24	±15	±32	±20	±40	±25	±30	
±22	±16	±8	±30	±24	±18	±32	±18	±24	±15	±32	±20	±40	±25	±30	
±22	±16	±6	±30	±24	±18	±32	±16	±24	±12	±32	±18	±40	±25	±30	
±22	±16	±4	±30	±24	±18	±32	±16	±24	±8	±32	±16	±40	±25	±30	
±20	±10		±30	±24	±15	±25	±14	±20		±25	±14	±40	±22	±30	
±15	±10		±30	±24	±15	±25		±20		±25	±12	±40	±22	±30	
±15	±4		±30	±20	±12	±25		±12		±25	±10	±40	±22	±28	
±8			±30	±18	±8	±20		±12		±20		±40	±22	±24	
±4			±30	±16	±4	±20				±20		±40	±20	±22	
			±24	±10		±20				±20		±40	±20	±18	
			±20	±4		±12				±12		±35	±15	±14	
			±16			±12				±12		±35	±12	±12	
			±4									±35		±4	
												±35			
												±30			
												±30			
												±20			



Industrial RFID Systems BIS M

Read/Write Head with Integrated Processor

ID Plus

Simple applications

For direct connection to the controller and for tight space conditions

Dimensions

Housing material

Antenna type

Weight



Supply voltage

Current

Operating temperature

Storage temperature

Protection per IEC 60529

Connection

Interface type:

RS232 Balluff Dialog

Accessories included

Please order separately

Appropriate data carrier

Data carrier distance to metal in mm

Data carrier clear zone in mm

Write distance in mm

Read distance in mm

Offset in mm

at distance

0 mm

5 mm

9 mm

12 mm

15 mm

16 mm

18 mm

20 mm

22 mm

25 mm

* Please indicate cable length in part number! see page 198

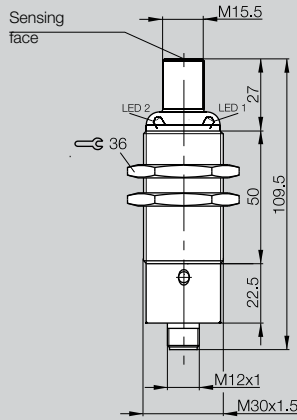


M30x1,5

Nickel plated brass

round

100 g



Note installation instructions on page 179.

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-400-007-002-00-S115

Configuration software

BKS S115-PU-_* or BKS S116-PU-_*

BIS M-101-01/L	BIS M-102-01/L	BIS M-105-01/A	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L
> 25 > 10 > 5	> 50 > 25 > 10	> 10 > 0	> 10 > 0	> 10 > 0	> 10 > 0	> 25 > 0	> 25 > 15 > 5	> 25 > 10 > 5	> 50 > 25 > 20
> 60 > 50 > 50	> 60 > 50 > 50	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 80 > 50 > 50	> 80 > 50 > 50	> 150 > 90 > 70
0-15 0-12 0-9	0-18 0-18 0-10	0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
0-15 0-12 0-9	0-18 0-18 0-10	0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
±9 ±6 ±4	±16 ±12 ±4	±5 ±4	±6 ±4	±4 ±3	±4 ±3	±14 ±10	±8 ±6 ±4	±12 ±8 ±7	±20 ±14 ±14
±9 ±6 ±4	±16 ±12 ±4	±4 ±2	±6 ±2	±3	±3 ±2	±14 ±8	±8 ±6 ±4	±12 ±8 ±4	±20 ±14 ±14
±8 ±4 ±2	±12 ±10 ±2		±2			±12 ±6	±6 ±5	±10 ±6	±18 ±14 ±10
±6 ±2	±8 ±5					±10 ±4	±4	±10 ±4	±18 ±12 ±6
±4	±8 ±5					±10	±4	±10	±18 ±12
	±7 ±3					±7		±7	±16 ±10
	±6 ±2					±7		±7	±16 ±8
						±7		±7	±16
									±12
									±12

BIS M

Range of Applications

Selection Criteria

Data Carriers

Read/Write

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors

Handheld Programmer

Access Security System

Installation Notes

Read/Write Times

Industrial RFID Systems BIS M

Read/Write Head with Integrated Processor

ID Plus

For longer ranges

Integrated version of read/write head with processor in a larger form factor for direct connection to the controller and longer ranges.

Dimensions

Housing material

Antenna type

Weight



Supply voltage

Current

Operating temperature

Storage temperature

Protection per IEC 60529

Connection

Interface type:

RS232 Balluff Dialog

Accessories included

Please order separately

Appropriate data carrier

Data carrier distance to metal in mm

Data carrier clear zone in mm

Write distance in mm

Read distance in mm

Offset in mm

at distance

0 mm

5 mm

9 mm

12 mm

15 mm

16 mm

18 mm

20 mm

22 mm

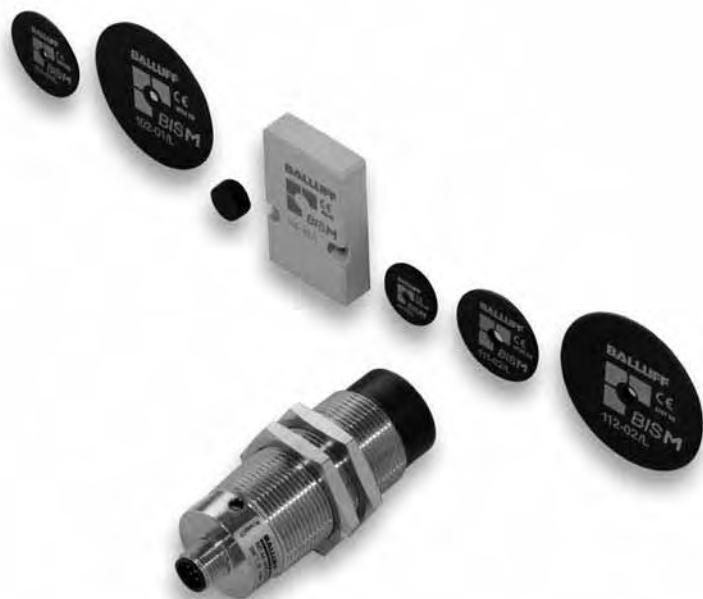
25 mm

30 mm

32 mm

35 mm

* Please indicate cable length in part number! see page 198



Serial RS232

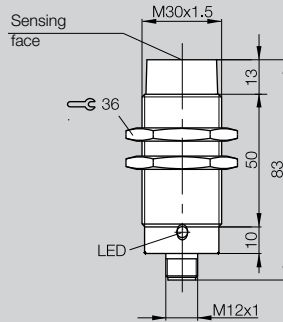
Industrial RFID Systems BIS M Read/Write Head with Integrated Processor

M30x1,5

Nickel plated brass

round

100 g



Note installation
instructions on page 179.

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-400-007-001-00-S115

Configuration software

BKS S115-PU-_* or BKS S116-PU-_*

BIS M-101-01/L			BIS M-102-01/L			BIS M-105-01/A			BIS M-105-02/A			BIS M-108-02/L			BIS M-110-02/L			BIS M-111-02/L			BIS M-112-02/L		
> 25	> 10	> 5	> 50	> 15	> 10	> 20	> 5		> 20	> 5		> 25	> 0		> 25	> 10	> 5	> 25	> 10	> 5	> 50	> 15	> 10
> 100	> 60	> 50	> 150	> 90	> 70	> 100	> 100		> 100	> 100		> 100	> 0		> 100	> 60	> 50	> 100	> 60	> 50	> 150	> 90	> 70
0-20	0-15	0-12	0-28	0-20	0-12	0-7	0-6		0-11	0-7		0-28	0-16		0-20	0-15	0-8	0-28	0-18	0-10	0-38	0-25	0-15
0-20	0-15	0-12	0-28	0-20	0-12	0-7	0-6		0-11	0-7		0-28	0-16		0-20	0-15	0-8	0-28	0-18	0-10	0-38	0-25	0-15
±14	±10	±6	±20	±15	±6	±7	±6		±9	±6		±16	±10		±12	±8	±6	±16	±10	±7	±22	±16	±13
±14	±10	±6	±20	±15	±6	±7	±6		±8	±6		±16	±10		±12	±8	±5	±16	±10	±7	±22	±16	±13
±14	±8	±4	±20	±15	±3				±5			±14	±8		±10	±6		±14	±8	±2	±22	±14	±10
±10	±4	±2	±20	±13	±2							±14	±6		±8	±4		±14	±7		±20	±13	±8
±10	±2		±20	±10								±14	±6		±8	±2		±14	±6		±20	±12	±6
±8			±18	±3								±14	±4		±5			±14	±3		±20	±10	
±6			±16									±14			±5			±14	±2		±20	±10	
±5			±15									±14			±5			±14			±20	±8	
			±15									±12						±12			±20	±6	
			±10									±12						±12			±20	±4	
																					±16		
																					±10		
																					±10		

BIS M

Range of
Applications

Selection
Criteria

Data Carriers
Read/Write

Read/Write
Heads

**Read/Write
Heads –
Integrated
Processor**

IO-Link

Processors

Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

Industrial RFID Systems BIS M

Read/Write Head with Integrated Processor

ID Plus

For tight mounting spaces

The remote antenna of the integrated version creates extra installation space and provides for direct connection to the controller.

Dimensions

Housing material

Antenna type

Weight



Supply voltage

Current

Operating temperature

Storage temperature

Protection per IEC 60529

Connection

Interface type:

RS232 Balluff Dialog

Accessories included

Please order separately

Appropriate data carrier

Data carrier distance to metal in mm

Data carrier clear zone in mm

Write distance in mm

Read distance in mm

Offset in mm

0 mm

at distance

5 mm

* Please indicate cable length in part number! see page 198



Serial RS232

Industrial RFID Systems BIS M Read/Write Head with Integrated Processor

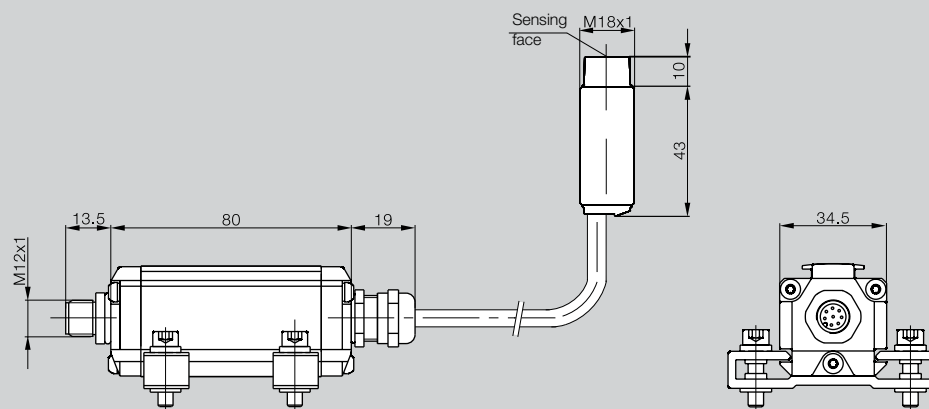
M18x1,5

Nickel plated brass

round

220 g

P10393a



Note installation instructions on page 179.

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-402-007-002-00-S115

Configuration software

BKS S115-PU-_*

BIS M-105-01/L			BIS M-105-02/A			BIS M-122-01/A			BIS M-122-02/A			BIS M-110-02/A		
> 10	> 0		> 10	> 0		> 10	> 0		> 10	> 0		> 25	> 0	
> 60	> 0		> 60	> 0		> 60	> 0		> 60	> 0		> 80	> 0	
0-5	0-3		0-5	0-3		0-5	0-2		0-5	0-2		0-8	0-2	
0-5	0-3		0-5	0-3		0-5	0-2		0-5	0-2		0-8	0-2	
±3	±2		±3	±2		±3	±2		±3	±2		±5	±2	
±2			±2			±2			±2			±5		

BIS M

Range of Applications

Selection Criteria

Data Carriers

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors

Handheld Programmer

Access Security System

Installation Notes

Read/Write Times



Industrial RFID Systems BIS M

Read/Write Head with Integrated Processor

Metal Mount

Longer range

When the available space requires a flat housing, this version is the ideal choice.

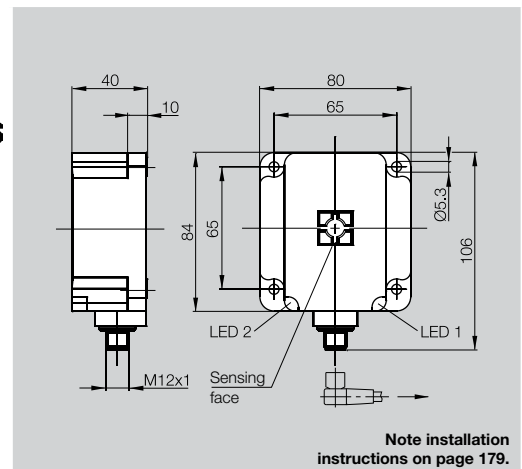
For direct connection to the controller

Metal Mount version

Read/write head with rod type antenna

Simply use the arrows for alignment and for fast positioning

Dimensions	80x84,5x40
Housing material	PBT and ASA
Antenna type	Rod
Weight	250 g



Supply voltage	24 V DC +10 %/-20 % including ripple					
Current	≤ 50 mA no-load					
Operating temperature	0...+70 °C					
Storage temperature	-20...+85 °C					
Protection per IEC 60529	IP 67					
Connection	1 connector, round 8-pin					
Interface type:						
RS232 Balluff Dialog	BIS M-451-007-001-00-S115					
Accessories included	Configuration software					
Please order separately	BKS S115-PU-__*_ or BKS S116-PU-__*_					
Appropriate data carrier	BIS M-150-02/A			BIS M-151-02/A		
Data carrier distance to metal in mm						
Data carrier clear zone in mm	> 200	> 200		> 200	> 200	
Metallic mounting surface 40x22	0-52			0-52		
Metallic mounting surface ≥ 200x200	0-65			0-65		
Write distance in mm						
Read distance in mm						
Offset in mm	0 mm	±25	±26	±25	±26	
at distance	5 mm	±25	±26	±25	±26	
	9 mm	±25	±25	±25	±25	
	12 mm	±25	±25	±25	±25	
	15 mm	±25	±25	±25	±25	
	16 mm	±25	±25	±25	±25	
	18 mm	±25	±25	±25	±25	
	20 mm	±25	±25	±25	±25	
	22 mm	±25	±25	±25	±25	
	25 mm	±25	±25	±25	±25	
	30 mm	±25	±25	±25	±25	
	32 mm	±25	±25	±25	±25	
	35 mm	±25	±25	±25	±25	
	40 mm	±20	±25	±20	±25	
	43 mm					
	45 mm					
	50 mm					
	52 mm	±8	±25	±8	±25	
	60 mm		±10		±10	

* Please indicate cable length in ordering code! see page 198



Serial RS232

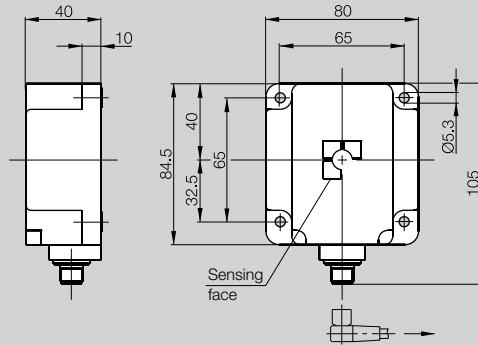
Industrial RFID Systems BIS M Read/Write Head with Integrated Processor

80x80x40

PBT

round

410 g



Note installation
instructions on page 179.

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-401-007-001-00-S115

Configuration software

BKS S115-PU-_* or BKS S116-PU-_*

BIS M-101-01/L	BIS M-102-01/L	BIS M-120-01/L	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L
> 50 > 25 > 10	> 50 > 25 > 10	> 80	> 50 > 20	> 50 > 30	> 50 > 30	> 50 > 30
> 200 > 150 > 150	> 200 > 150 > 150	> 250	> 200 > 60	> 200 > 100	> 200 > 100	> 200 > 100
0-28 0-25 0-20	0-45 0-40 0-34	0-50	0-40 0-18	0-30 0-18	0-40 0-25	0-60 0-25
0-28 0-25 0-20	0-45 0-40 0-34	0-50	0-40 0-18	0-30 0-18	0-40 0-25	0-60 0-25
±22 ±18 ±12	±30 ±24 ±16	±30	±30 ±16	±25 ±18	±30 ±20	±35 ±25
±22 ±18 ±12	±30 ±24 ±16	±30	±30 ±16	±25 ±18	±30 ±20	±35 ±25
±22 ±18 ±10	±30 ±24 ±16	±30	±30 ±16	±25 ±15	±30 ±20	±35 ±25
±22 ±16 ±8	±30 ±24 ±14	±30	±25 ±16	±20 ±15	±25 ±20	±35 ±25
±22 ±16 ±8	±30 ±24 ±14	±30	±25 ±16	±20 ±12	±25 ±18	±35 ±25
±20 ±15 ±6	±30 ±20 ±12	±30	±25 ±16	±20 ±12	±25 ±18	±35 ±25
±20 ±13 ±4	±30 ±20 ±10	±30	±25 ±14	±20 ±8	±25 ±16	±35 ±25
±20 ±12 ±2	±30 ±20 ±10	±30	±25	±20	±25 ±14	±35 ±25
±16 ±8	±24 ±18 ±8	±30	±20	±15	±20 ±12	±35 ±22
±12 ±4	±24 ±18 ±8	±30	±20	±15	±20 ±10	±35 ±22
	±24 ±15 ±6	±28	±20	±10	±20	±35 ±22
	±20 ±12 ±4	±24	±15	±10	±15	±35 ±22
	±20 ±10	±22	±15		±15	±35 ±20
	±15 ±5	±18	±15		±15	±35
	±8	±14				±25
	±5	±12				±25
		±4				±25
						±25
						±25

BIS M

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Read/Write
Heads

Read/Write
Heads

Read/Write
Heads -
Integrated
Processor

IO-Link

Processors

Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

Industrial RFID Systems BIS M

Read/Write Head with IO-Link



Dimensions	
Housing material	
Antenna type	
Weight	

Supply voltage	
Ripple	
Current	
Ambient operating temperature	
Protection per IEC 60529	
Mounting in steel	
LED function indicator	
Connection type	
Interface description:	
IO-Link	
Please order accessories separately	
Appropriate data carrier	
Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm
	20 mm
	22 mm
	25 mm
	30 mm
	32 mm
	35 mm

*For pre-finished cables, please
append cable length to part number!
01 = Length 1 m
02 = Length 2 m
05 = Length 5 m
10 = Length 10 m

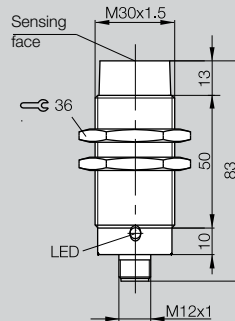


M30x1.5

CuZn nickel plated

round

100 g



**Note installation
instructions on page 179.**

24 V DC $\pm 10\%$ / -20% $\leq 10\%$ $\leq 150\text{ mA}$

0...+70 °C

IP 67

non-flush

yes

4-pin M12 male

BIS M-400-045-001-07-S4

BCC M4/5-M4/3-3A-300-PX0334

BIS M-101-01/L			BIS M-102-01/L			BIS M-105-01/A		BIS M-105-02/A		BIS M-108-02/L		BIS M-110-02/L			BIS M-111-02/L			BIS M-112-02/L		
> 25	> 10	> 5	> 50	> 15	> 10	> 20	> 5	> 20	> 5	> 25	> 0	> 25	> 10	> 5	> 25	> 10	> 5	> 50	> 15	> 10
> 100	> 60	> 50	> 150	> 90	> 70	> 100	> 100	> 100	> 100	> 100	> 0	> 100	> 60	> 50	> 100	> 60	> 50	> 150	> 90	> 70
0-20	0-15	0-12	0-28	0-20	0-12	0-7	0-6	0-11	0-7	0-28	0-16	0-20	0-15	0-8	0-28	0-18	0-10	0-38	0-25	0-15
0-20	0-15	0-12	0-28	0-20	0-12	0-7	0-6	0-11	0-7	0-28	0-16	0-20	0-15	0-8	0-28	0-18	0-10	0-38	0-25	0-15
± 14	± 10	± 6	± 20	± 15	± 6	± 7	± 6	± 9	± 6	± 16	± 10	± 12	± 8	± 6	± 16	± 10	± 7	± 22	± 16	± 13
± 14	± 10	± 6	± 20	± 15	± 6	± 7	± 6	± 8	± 6	± 16	± 10	± 12	± 8	± 5	± 16	± 10	± 7	± 22	± 16	± 13
± 14	± 8	± 4	± 20	± 15	± 3			± 5		± 14	± 8	± 10	± 6		± 14	± 8	± 2	± 22	± 14	± 10
± 10	± 4	± 2	± 20	± 13	± 2					± 14	± 6	± 8	± 4		± 14	± 7		± 20	± 13	± 8
± 10	± 2		± 20	± 10						± 14	± 6	± 8	± 2		± 14	± 6		± 20	± 12	± 6
± 8			± 18	± 3						± 14	± 4	± 5			± 14	± 3		± 20	± 10	
± 6			± 16							± 14		± 5			± 14	± 2		± 20	± 10	
± 5			± 15							± 14		± 5			± 14			± 20	± 8	
			± 15							± 12					± 12			± 20	± 6	
			± 10							± 12					± 12			± 20	± 4	
																		± 16		
																		± 10		
																		± 10		

BIS MRange of
ApplicationsSelection
Criteria

Data Carriers

Read/Write

Read/Write

Heads

Read/Write

Heads –

Integrated

Processor

IO-Link

Processors

Handheld

Programmer

Access

Security

System

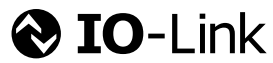
Installation

Notes

Read/Write

Times

Industrial RFID Systems BIS M
Read/Write Head with IO-Link



Dimensions	
Housing material	
Antenna type	
Weight	

Supply voltage	
Ripple	
Current	
Ambient operating temperature	
Protection per IEC 60529	
Mounting in steel	
LED function indicator	
Connection type	
Interface description:	
IO-Link	
Please order accessories separately	
Appropriate data carrier	

Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm
	20 mm
	22 mm
	25 mm

*For pre-finished cables, please
append cable length to part number!
01 = Length 1 m
02 = Length 2 m
05 = Length 5 m
10 = Length 10 m

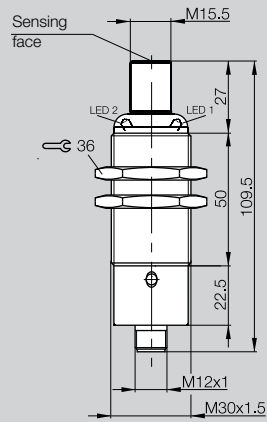


M30x1.5

CuZn nickel plated

round

100 g



Note installation
instructions on page 179.

24 V DC $\pm 10\%$ / -20 % $\leq 10\%$ $\leq 150\text{ mA}$

0...+70 °C

IP 67

non-flush

yes

4-pin M12 male

BIS M-400-045-002-07-S4

BCC M4/5-M4/3-3A-300-PX0334

BIS M-101-01/L	BIS M-102-01/L	BIS M-105-01/A	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L
> 25 > 10 > 5	> 50 > 25 > 10	> 10 > 0	> 10 > 0	> 10 > 0	> 10 > 0	> 25 > 0	> 25 > 15 > 5	> 25 > 10 > 5	> 50 > 25 > 20
> 60 > 50 > 50	> 60 > 50 > 50	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 80 > 50 > 50	> 80 > 50 > 50	> 150 > 90 > 70
0-15 0-12 0-9	0-18 0-18 0-10	0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
0-15 0-12 0-9	0-18 0-18 0-10	0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
± 9 ± 6 ± 4	± 16 ± 12 ± 4	± 5 ± 4	± 6 ± 4	± 4 ± 3	± 4 ± 3	± 14 ± 10	± 8 ± 6 ± 4	± 12 ± 8 ± 7	± 20 ± 14 ± 14
± 9 ± 6 ± 4	± 16 ± 12 ± 4	± 4 ± 2	± 6 ± 2	± 3	± 3 ± 2	± 14 ± 8	± 8 ± 6 ± 4	± 12 ± 8 ± 4	± 20 ± 14 ± 14
± 8 ± 4 ± 2	± 12 ± 10 ± 2		± 2			± 12 ± 6	± 6 ± 5	± 10 ± 6	± 18 ± 14 ± 10
± 6 ± 2	± 8 ± 5					± 10 ± 4	± 4	± 10 ± 4	± 18 ± 12 ± 6
± 4	± 8 ± 5					± 10	± 4	± 10	± 18 ± 12
	± 7 ± 3					± 7		± 7	± 16 ± 10
	± 6 ± 2					± 7		± 7	± 16 ± 8
						± 7		± 7	± 16
									± 12
									± 12

BIS M

Range of
ApplicationsSelection
CriteriaData Carriers
Read/WriteRead/Write
HeadsRead/Write
Heads –
Integrated
Processor**IO-Link**

Processors

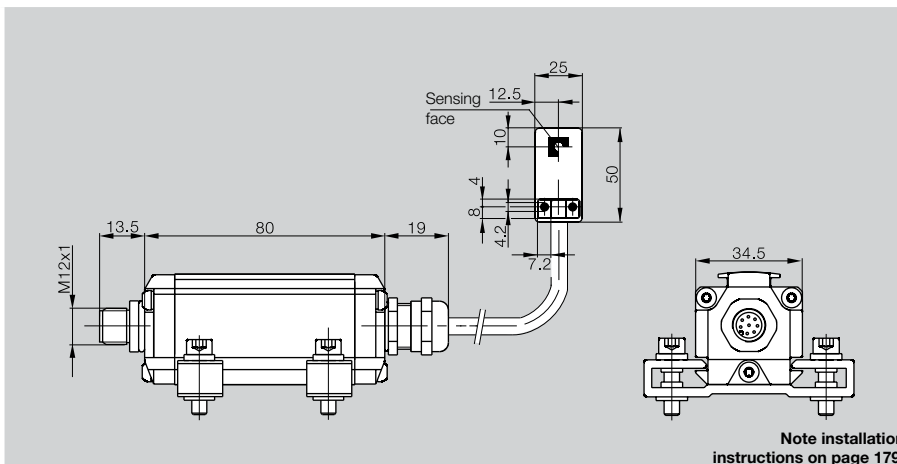
Handheld
ProgrammerAccess
Security
SystemInstallation
NotesRead/Write
Times

Industrial RFID Systems BIS M

Read/Write Head with IO-Link

ID Plus

Description/dimensions	25x50x10
Housing material	AlMgSi 0.5/ABS-GF16
Antenna type	round
Weight	220 g



Supply voltage	24 V DC $\pm 10\%$ / -20 %
Ripple	$\leq 10\%$
Current	≤ 150 mA
Ambient operating temperature	0...+70 °C
Protection per IEC 60529	IP 67
Mounting in steel	non-flush
LED function indicator	yes
Connection type	4-pin M12 male
Interface description:	
IO-Link	BIS M-402-045-004-07-S4
Please order accessories separately	BCC M4/5-M4/3-3A-300-PX0334
Appropriate data carrier	Contact Balluff for tag information

Data carrier distance to metal in mm	
Data carrier clear zone in mm	

Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm

*For pre-finished cables, please
append cable length to part number!

- 01 = Length 1 m
- 02 = Length 2 m
- 05 = Length 5 m
- 10 = Length 10 m

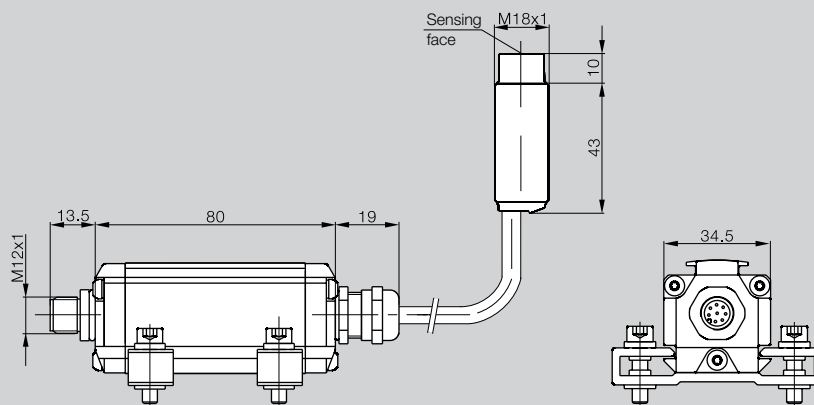


M18x1

AlMgSi0.5/CuZn nickel plated

round

220 g

Note installation
instructions on page 179.24 V DC $\pm 10\%$ / -20% $\leq 10\%$ $\leq 150\text{ mA}$

0...+70 °C

IP 67

non-flush

yes

4-pin M12 male

BIS M-402-045-001-07-S4

BCC M4/5-M4/3-3A-300-PX0334

BIS M-105-01/L			BIS M-105-02/A			BIS M-122-01/A			BIS M-122-02/A			BIS M-110-02/A		
> 10	> 0		> 10	> 0		> 10	> 0		> 10	> 0		> 25	> 0	
> 60	> 0		> 60	> 0		> 60	> 0		> 60	> 0		> 80	> 0	
0-5	0-3		0-5	0-3		0-5	0-2		0-5	0-2		0-8	0-2	
0-5	0-3		0-5	0-3		0-5	0-2		0-5	0-2		0-8	0-2	
± 3	± 2		± 3	± 2		± 3	± 2		± 3	± 2		± 5	± 2	
± 2			± 2			± 2			± 2			± 5		

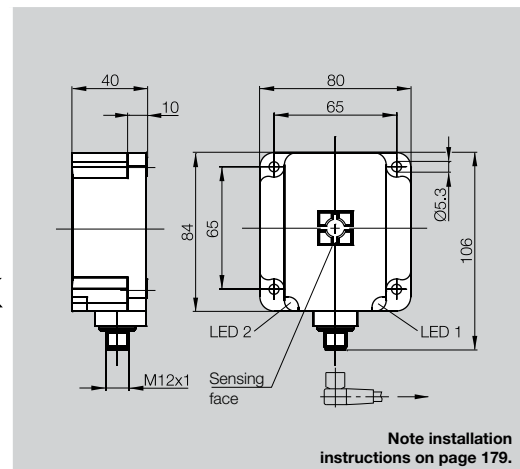
BIS M

Range of
ApplicationsSelection
CriteriaData Carriers
Read/WriteRead/Write
HeadsRead/Write
Heads –
Integrated
Processor**IO-Link**

Processors

Handheld
ProgrammerAccess
Security
SystemInstallation
NotesRead/Write
Times

Description/dimensions	80x80x40
Housing material	PBT
Antenna type	rod
Weight	360 g



Supply voltage	24 V DC $\pm 10\%$ / -20%
Ripple	$\leq 10\%$
Current	$\leq 150\text{ mA}$
Ambient operating temperature	0...+70 °C
Protection per IEC 60529	IP 67
Mounting in steel	non-flush
LED function indicator	yes
Connection type	4-pin M12 male
Interface description:	
IO-Link	BIS M-451-045-001-07-S4
Please order accessories separately	BCC M4/5-M4/3-3A-300-PX0334

Appropriate data carrier	BIS M-150-02/A	BIS M-151-02/A
Data carrier distance to metal in mm		
Data carrier clear zone in mm	> 200	> 200

Metallic mounting surface 40x22	0-52	0-52
Metallic mounting surface $\geq 200 \times 200$	0-65	0-65

Write distance in mm		
Read distance in mm		

Offset in mm	0 mm	± 25	± 26	± 25	± 26
at distance	5 mm	± 25	± 26	± 25	± 26
	9 mm	± 25	± 25	± 25	± 25
	12 mm	± 25	± 25	± 25	± 25
	15 mm	± 25	± 25	± 25	± 25
	16 mm	± 25	± 25	± 25	± 25
	18 mm	± 25	± 25	± 25	± 25
	20 mm	± 25	± 25	± 25	± 25
	22 mm	± 25	± 25	± 25	± 25
	25 mm	± 25	± 25	± 25	± 25
	30 mm	± 25	± 25	± 25	± 25
	32 mm	± 25	± 25	± 25	± 25
	35 mm	± 25	± 25	± 25	± 25
	40 mm	± 20	± 25	± 20	± 25
	43 mm				
	45 mm				
	50 mm				
	52 mm	± 8	± 25	± 8	± 25
	60 mm		± 10		± 10

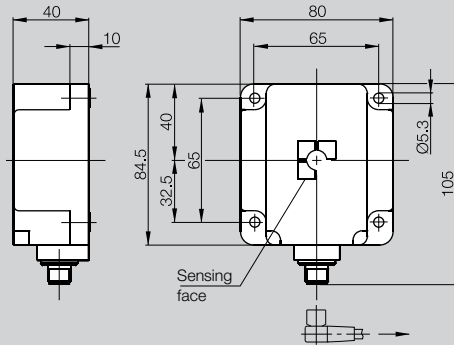


80x80x40

PBT

round

190 g

Note installation
instructions on page 179.24 V DC $\pm 10\%$ / -20% $\leq 10\%$ $\leq 150\text{ mA}$

0...+70 °C

IP 67

non-flush

yes

4-pin M12 male

BIS M-401-045-001-07-S4

BCC M4/5-M4/3-3A-300-PX0334

BIS M-101-01/L			BIS M-102-01/L			BIS M-120-01/L			BIS M-108-02/L			BIS M-110-02/L			BIS M-111-02/L			BIS M-112-02/L		
> 50	> 25	> 10	> 50	> 25	> 10	> 80			> 50	> 20		> 50	> 30		> 50	> 30		> 50	> 30	
> 200	> 150	> 150	> 200	> 150	> 150	> 250			> 200	> 60		> 200	> 100		> 200	> 100		> 200	> 100	
0-28	0-25	0-20	0-45	0-40	0-34	0-50			0-40	0-18		0-30	0-18		0-40	0-25		0-60	0-25	
0-28	0-25	0-20	0-45	0-40	0-34	0-50			0-40	0-18		0-30	0-18		0-40	0-25		0-60	0-25	
± 22	± 18	± 12	± 30	± 24	± 16	± 30			± 30	± 16		± 25	± 18		± 30	± 20		± 35	± 25	
± 22	± 18	± 12	± 30	± 24	± 16	± 30			± 30	± 16		± 25	± 18		± 30	± 20		± 35	± 25	
± 22	± 18	± 10	± 30	± 24	± 16	± 30			± 30	± 16		± 25	± 15		± 30	± 20		± 35	± 25	
± 22	± 16	± 8	± 30	± 24	± 14	± 30			± 25	± 16		± 20	± 15		± 25	± 20		± 35	± 25	
± 22	± 16	± 8	± 30	± 24	± 14	± 30			± 25	± 16		± 20	± 12		± 25	± 18		± 35	± 25	
± 20	± 15	± 6	± 30	± 20	± 12	± 30			± 25	± 16		± 20	± 12		± 25	± 18		± 35	± 25	
± 20	± 13	± 4	± 30	± 20	± 10	± 30			± 25	± 14		± 20	± 8		± 25	± 16		± 35	± 25	
± 20	± 12	± 2	± 30	± 20	± 10	± 30			± 25			± 20			± 25	± 14		± 35	± 25	
± 16	± 8		± 24	± 18	± 8	± 30			± 20			± 15			± 20	± 12		± 35	± 22	
± 12	± 4		± 24	± 18	± 8	± 30			± 20			± 15			± 20	± 10		± 35	± 22	
			± 24	± 15	± 6	± 28			± 20			± 10			± 20			± 35	± 22	
			± 20	± 12	± 4	± 24			± 15			± 10			± 15			± 35	± 22	
			± 20	± 10		± 22			± 15						± 15			± 35	± 20	
			± 15	± 5		± 18			± 15						± 15			± 35		
			± 8			± 14												± 25		
			± 5			± 12												± 25		
						± 4												± 25		
																		± 25		
																		± 25		

BIS M

Range of
ApplicationsSelection
CriteriaData Carriers
Read/WriteRead/Write
HeadsRead/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
ProgrammerAccess
Security
SystemInstallation
NotesRead/Write
Times

Cost-effective identification –
operate 2 Read/Write Heads
simultaneously

- Data width on the bus,
16 bytes
 - Service friendly, all
parameter data is stored in
an exchangeable memory
 - Accepts all read/write heads



Description	
Function	
Housing material	

Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection type	

Connection for	
Interface description/Software:	
INTERBUS Remote node	
INTERBUS Remote node with 2 Mbaud	
INTERBUS Installation bus	
INTERBUS Installation bus with 2 Mbaud	
Accessories (please order separately)	

The **BIS M-6001 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



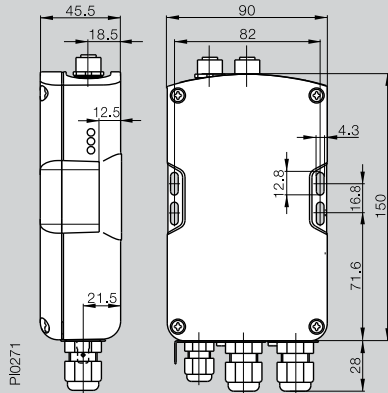
ID Plus

Industrial RFID Systems BIS M INTERBUS Processors

BIS M-6001-_-_-050-03-KL2

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

Terminals 1 $\times$ Pg 9

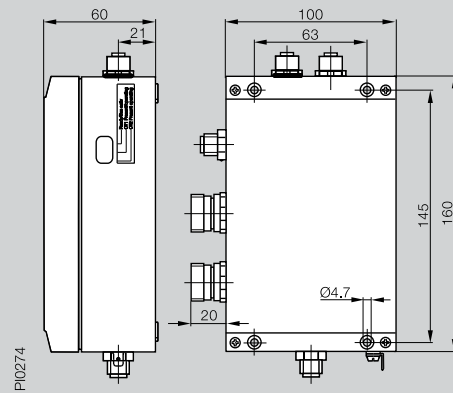
Terminals 2 $\times$ Pg 11

2 read/write heads BIS M-3_-_-

BIS M-6021-_-_-050-03-ST8

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connectors round 9-pin

2 connectors round 5-pin

2 read/write heads BIS M-3_-_-

BIS M-6001-023-050-03-KL2

BIS M-6021-023-050-03-ST9

BIS M-6021-023-050-03-ST9M

BIS M-6021-023-050-03-ST8

BIS M-6021-023-050-03-ST8M

BKS 23-CS-00

For connectors see page 204

BIS M

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Read/Write

Heads

Read/Write

Heads –

Integrated

Processor

IO-Link

Processors

Handheld

Programmer

Access

Security

System

Installation

Notes

Read/Write

Times

The **rugged BIS M-6021** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

Rugged, small and flexible



Threaded cover

BKS 23-CS-00

for M23 connector

IP-65 protective cover for unused connectors!



Cost-effective identification – operate 2 read/write heads simultaneously

- Selectable division of the data width on the PROFIBUS-DP, 4 to 128 bytes
- Free assigning of the data width for each read/write head
- Optimum data speed, internal cycle time is shorter than the BUS activation time
- Service friendly, all parameter data are stored in an exchangeable memory
- BUS address selectable with switches
- Accepts all read/write heads



Description	
Function	
Housing material	



Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection	
Connection for	
Interface type/Software:	
PROFIBUS-DP	
Accessories included	
Accessories (please order separately)	

The **BIS M-6002 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



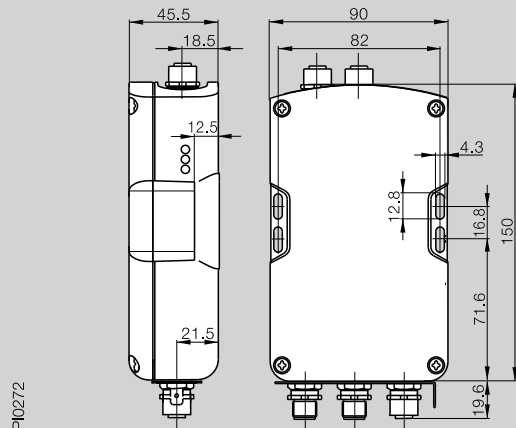
ID Plus

Industrial RFID Systems BIS M PROFIBUS-DP Processors

BIS M-6002-019-050-03-ST11

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connectors round 5-pin, B-coded

1 connector round 5-pin

2 read/write heads BIS M-3_ _

BIS M-6002-019-050-03-ST11

Software GSD file

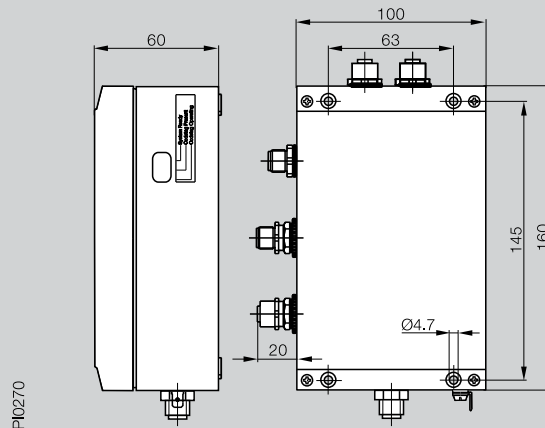
BKS 12-CS-01

For connectors see page 204/205

BIS M-6022-019-050-03-ST14

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 400 mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

2 connectors round 5-pin, B-coded,

2 connectors round 5-pin

2 read/write heads BIS M-3_ _

BIS M-6022-019-050-03-ST14

Software GSD file

BKS 12-CS-01

For connectors see page 204/205

BIS M

Range of
Applications

Selection
Criteria

Data Carriers
Read/Write

Read/Write
Heads

Read/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

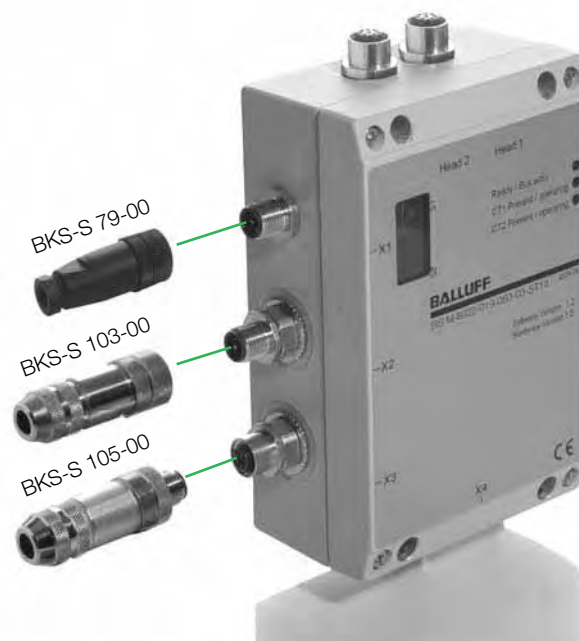
The **rugged BIS M-6022** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

Rugged, small and flexible



**Threaded cover
BKS 12-CS-01**
coded for M12 B
Connector type



**Cost-effective
identification – operate
2 read/write heads
simultaneously**

- Freely selectable buffer size between 0 and 256 bytes
- Service friendly, all parameter data are stored in an exchangeable memory
- Accepts all read/write heads



Description	
Function	
Housing material	
Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection	
Connection for	
Interface type/Software:	
DeviceNet™	
Accessories included	
Accessories (please order separately)	

The **BIS M-6003 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



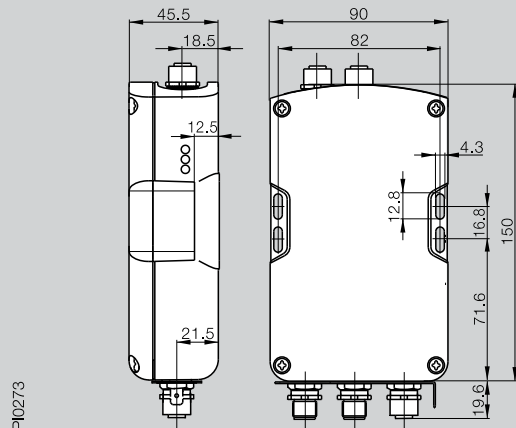
ID Plus

Industrial RFID Systems BIS M DeviceNet™ Processors

BIS M-6003-_-_-650-03-ST12

read/write

ABS



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+50 °C

0...+50 °C

IP 65

2 external

yes

3 connectors round 5-pin,

2 read/write heads BIS M-3_ _

BIS M-6003-025-050-03-ST12

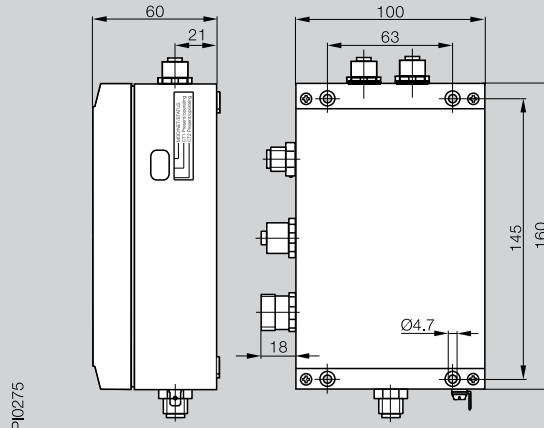
Software EDS file

For connectors see page 207/208/209

BIS M-6023-_-_-050-03-ST13

read/write

AlSi 12



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

0...+50 °C

0...+50 °C

IP 65

2 external

yes

4 connectors round 5-pin

2 read/write heads BIS M-3_ _

BIS M-6023-025-050-03-ST13

Software EDS file

For connectors see page 207/208/209

BIS M

Range of Applications

Selection Criteria

Data Carriers Read/Write

Read/Write Heads

Read/Write Heads – Integrated Processor

IO-Link

Processors
Handheld Programmer

Access Security System

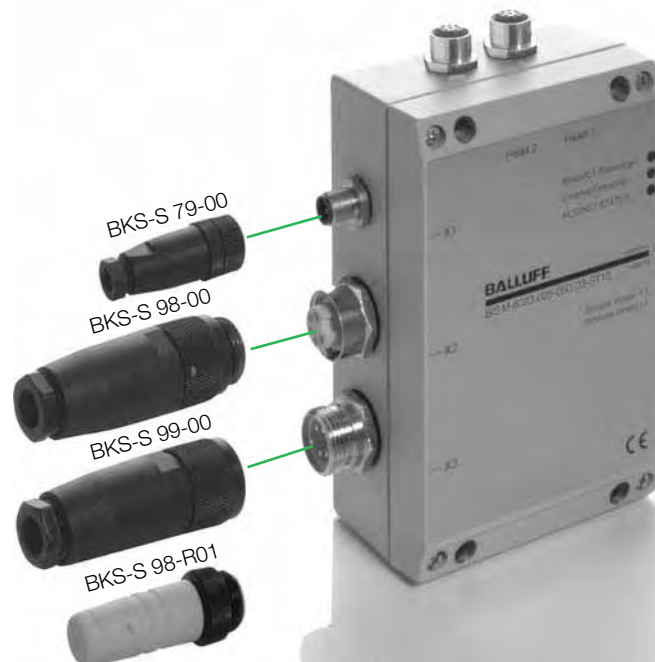
Installation Notes

Read/Write Times

The **rugged BIS M-6023** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

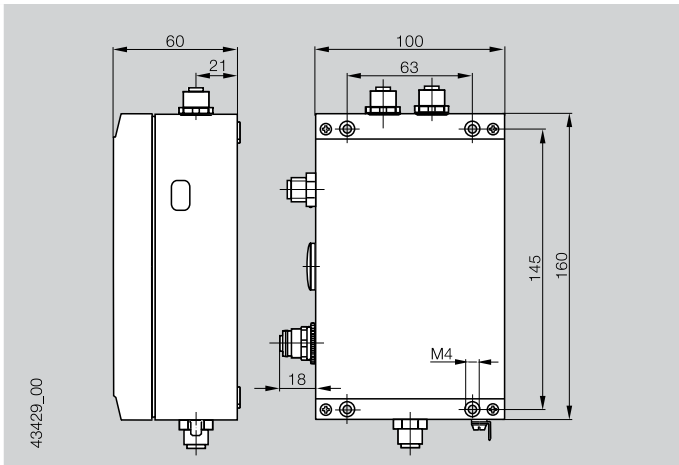
Rugged, small and flexible



Industrial RFID Systems BIS M

EtherNet/IP™ Processors

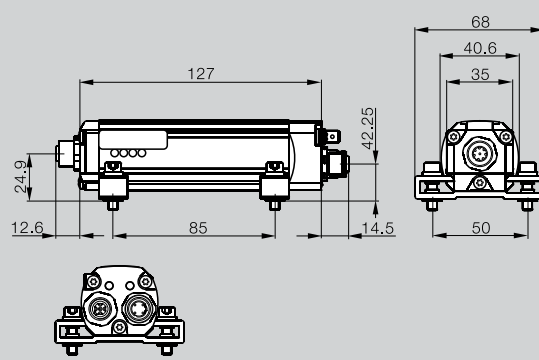
ID Plus

Description	BIS M-6026-034-050-06-ST19
Function	read/write
   Control No 3TLJ File No E227256	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection	Connector round 4-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	2 read/write heads BIS M-3_ _
Interface type/Software:	
EtherNet/IP™	BIS M-6026-034-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	For connectors see page 206

**Cost-effective identification –
operate 2 read/write heads
simultaneously!**

Rugged processor for
EtherNet/IP™ networks



Description	BIS M-407-039-003-06-S115		
Function	read/write		
  Control No 3TLJ File No E227256  43967_00			
Supply voltage	24 V DC $\pm 20\%$		
Ripple	$\leq 10\%$		
Current	$\leq 150\text{ mA}$		
Operating temperature	0...+60 °C		
Storage temperature	0...+60 °C		
Protection per IEC 60529	IP 67		
Read/write head ports	1 external		
Service interface RS232	no		
Connection	1 connector round 4-pin, D-coded 1 connector round 5-pin		
Connection for	1 read/write head BIS M-3_ _-003- _ _ _		
Interface type/Software:			
Ethernet TCP/IP	BIS M-407-039-003-06-S115*		
Accessories included	Configuration software		
Accessories (please order separately)	For connectors see page 206		

*Mounting brackets included

BIS M
Range of Applications
Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads – Integrated Processor
IO-Link
Processors
Handheld Programmer
Access Security System
Installation Notes
Read/Write Times

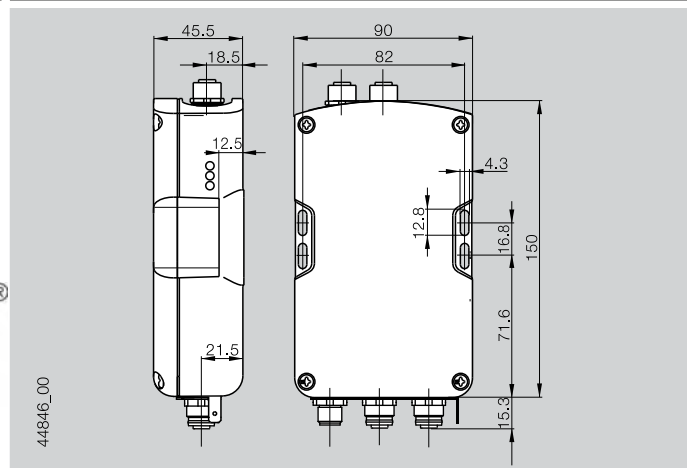
Small and compact –
for cost effective single
read head
Easy to connect to any
PC-based controller!



For use only with these read heads

BIS M-300-003-S115
BIS M-301-003-S115
BIS M-302-003-S115
BIS M-304-003-S115
see page 145/147/148/149/151

Description	BIS M-6008- _ _ -650-06-ST23
Function	read/write
Housing material	ABS
  Control No 3TLJ File No E227256 	
Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes internal
Connection	Connector round 5-pin, A-coded 2 connectors 4-pin, D-coded
Connection for	Read/write heads BIS M-3_ _ Exception BIS C-350 and BIS C-355
Interface type/Software:	
PROFINET RT with IRT-capable 2-PORT switch	BIS M-6008-048-650-06-ST23
Accessories included	Configuration software
Accessories (please order separately)	For connectors see page 206



Cost-effective identification – operate 2 read/write heads simultaneously!

The **BIS M-6008 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

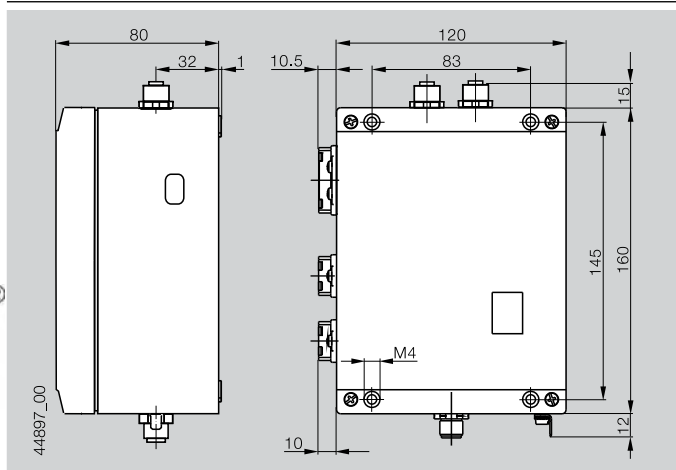
Small, compact, flexible and cost-effective



Please order accessories separately!
Adapter cable for PROFINET from
M12 D-coded to coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206



Description	BIS M-6028-048-050-06-ST22
Function	read/write
Housing material	Al
  	
Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection	1 connector 5-pin, Push-pull RJ45 AIDA 2 connectors 8-pin, Push-pull RJ45 AIDA Connector round 4-pin
Connection for	Read/write heads BIS M-3_ _ Exception BIS C-350 and BIS C-355
Interface type/Software:	
PROFINET RT with IRT-capable 2-PORT switch	BIS M-6028-048-050-06-ST22
Accessories included	Configuration software



BIS M

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Read/Write
Heads

Read/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
Programmer

Access
Security
System

Installation
Notes

Read/Write
Times

The **rugged BIS M-6028** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

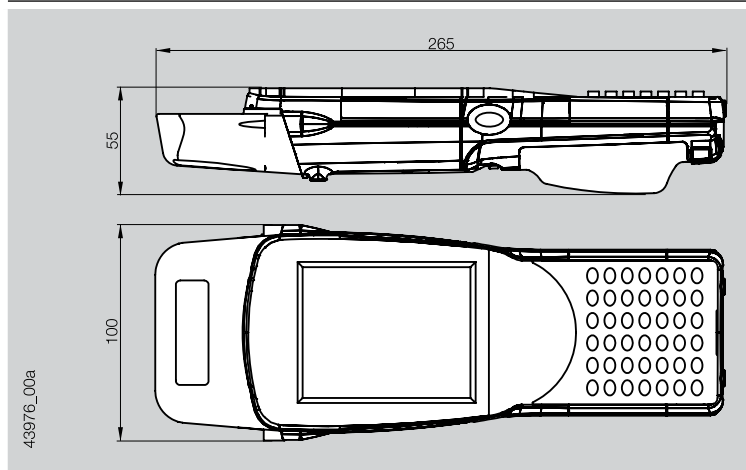
Rugged, small and flexible



Industrial RFID Systems BIS M

Handheld Programmer

Function	read/write
Housing material	ABS



Basic Hand Held unit part number	BIS M-870-1-008-x-000
Keyboard	52 buttons, alphanumeric
Display	TFT Touchscreen display
Supply voltage	3.7 V rechargeable battery pack
Capacity	4000 mA/h
Interface	RS232/Balluff Dialog
Working temperature	-10...+50 °C
Degree of protection in accordance with IEC 60529	IP 65
Read/write head option	Integrated
Accessories included	Charging power supply and stylus
Appropriate data carrier	BIS M-1 ... BIS M-2 ...
Please order additional accessories separately	Docking Station and Pistol Grip

For enhanced operating convenience

Allows easy manual writing and reading of BIS M data carriers.
Easy operation thanks to

- Touchscreen with large Windows CE® color display
- Pre-installed Balluff software and full keyboard or stylus

Ideal for manual rework stations or remote data access away from the line. Data transfer via optional WLAN, Bluetooth, or wired USB. The handheld is also modular for expandability.

Additional options are available for greater functionality.

Basic Handheld
BIS M-870-1-008-x-000
Includes charger and stylus



Hand Held Accessories



Part Number	WA4003-G2	WA3010	RA2041*
Description	Desktop Docking Station w/PS and USB Cable	4000mAh Replacement Battery	802.11b/g WLAN Card



Part Number	WA6100-G1	WA9212-G1*	WA6102-G1
Description	Stylus – pack of 5	Imager, 2D Slim Pod HHP 5180 (compatible with pistol grip WA6102-G1)	Pistol Grip for WA9212-G1 2D Slim Pod HHP 5180



Part Number	WA9000-G1*	WA6101-G1	WA6097-G2
Description	Scanner 1D Laser High Performance (can work with Pistol Grip WA6001-G1)	Pistol Grip for WA9000-G1, 1D Scanner	Protective Carrying Case – 7527C-G2 universal end cap (open ended)

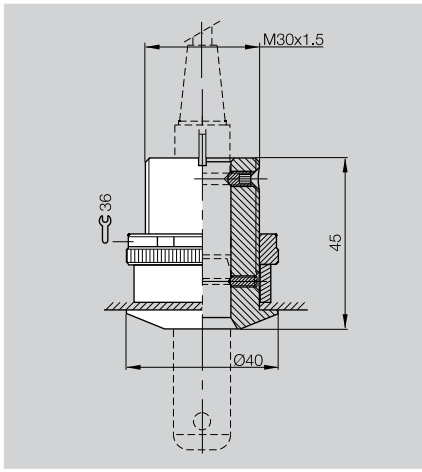
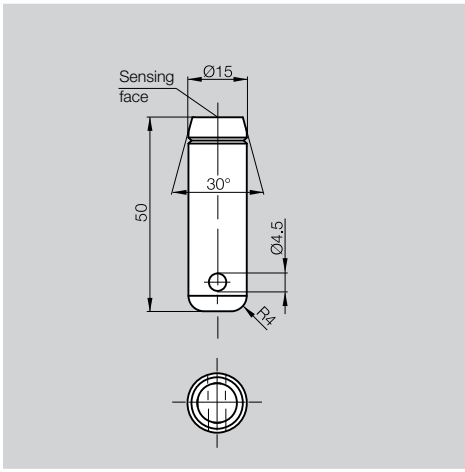
*Specification available upon request.

BIS M

Range of Applications
Selection Criteria
Data Carriers
Read/Write
Read/Write Heads
Read/Write Heads – Integrated Processor
IO-Link
Processors
Handheld Programmer
Access Security System
Installation Notes
Read/Write Times

Industrial RFID Systems BIS M

Access Security System

Version	Access protection	Data carrier + Bracket
Use	Attachment for read/write head BIS M-304	
		
Part number	BIS Z-ZA-001	BIS M-122-01/A-ZC1
Protection per IEC 60529		IP 67
Ambient temperature range	0...+70 °C	-25...+70 °C
Storage temperature	-20...+85 °C	-25...+85 °C



Access protection

Individual access codes are allocated via programmable data keys, which can then be disabled to prevent further programming.

Unauthorized personnel cannot manipulate the data key as a result. The data key is read via an antenna fitted to a special bracket and the processor unit then reads the data. Different interfaces such as serial, PROFIBUS, INTERBUS, DeviceNet™, EtherNet/IP™ or parallel interfaces enable simple connection to the monitored system. Available for systems BIS C, BIS L, and BIS M.

The benefits

The programmable data key allows upgrades or replacements without requiring modifications to the system software.

End users are independent of system providers. The access system is easy to integrate in read/write stations that already use an identification system. Simply connect the access monitoring antenna to the second channel on the existing processor unit. Hardware expenses are reduced to a minimum and software only requires slight modification in order to process both channels.



Electronic key for access control.
Easy to implement using the
"RFID key"

Industrial RFID Systems BIS M

Installation Notes

Minimum Distance between two Data Carriers

	BIS M-122-02/L	BIS M-110-02/L	BIS M-111-02/A	BIS M-112-02/L	BIS M-105-02/A	BIS M-108-02/A	BIS M-120-01/L	BIS M-150-02/A
	BIS M-122-02/L		BIS M-101-01/A	BIS M-102-01/L	BIS M-105-01/A			BIS M-151-02/A
BIS M-300		> 100 mm	> 100 mm	> 150 mm	> 100 mm	> 100 mm		
BIS M-301		> 200 mm	> 200 mm	> 200 mm	> 100 mm	> 200 mm	> 250 mm	
BIS M-302	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm		
BIS M-304	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm		
BIS M-400-007-001-00-S115		> 100 mm	> 100 mm	> 150 mm	> 100 mm	> 100 mm		
BIS M-401-007-001-00-S115		> 200 mm	> 200 mm	> 200 mm	> 100 mm	> 200 mm	> 250 mm	
BIS M-400-007-002-00-S115	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm	> 100 mm		
BIS M-351								> 250 mm
BIS M-451-007-001-00-S115								> 250 mm

Minimum Distance between two Read/Write Heads

BIS M-300	200 mm
BIS M-301	600 mm
BIS M-351	600 mm
BIS M-302	100 mm
BIS M-304	100 mm

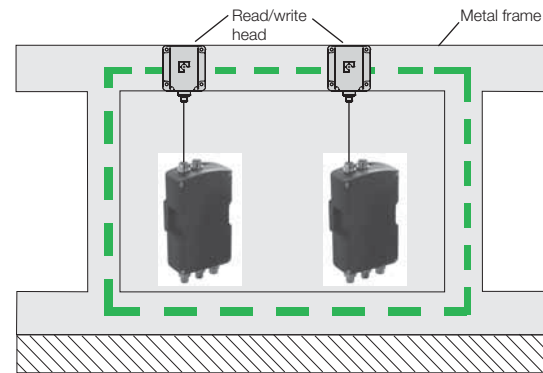
BIS M-400-007-001-00-S115	200 mm
BIS M-401-007-001-00-S115	600 mm
BIS M-451-007-001-00-S115	600 mm
BIS M-400-007-002-00-S115	100 mm

Mounting the Read/Write Heads on Metal Frames

If the read/write heads are mounted so that they are joined through an enclosed metal frame, mutual interference may result (conductor loop).

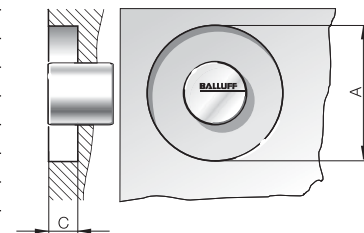
This may reduce the read/write distances. The smaller the read/write head, the less the interference.

This may result in a reduction of the maximum distance by 80 %. In such a case you should test the actual effective read distance.



Clear Zone Dimensions for Read/Write Heads

Read/write head	Data carriers with clear zone dimensions (in mm).									
	BIS M-111-02/L		BIS M-112-02/L		BIS M-105-02/A		BIS M-150-02/A			
	BIS M-101-01/L		BIS M-102-01/L		BIS M-105-01/A		BIS M-120-01/L		BIS M-151-02/A	
	A	C	A	C	A	C	A	C	A	C
BIS M-300-001	100	30	150	30	100	20				
BIS M-301-001	200	70	200	70			250	70		
BIS M-302-001	60	30	60	30	60	30				
BIS M-351-001									250	70
BIS M-304-001	60	30	60	30	60	30				
BIS M-400-007-001	100	30	150	30	100	20				
BIS M-400-007-002	60	30	60	30	60	30				
BIS M-401-007-001	200	70	200	70			250	70		
BIS M-451-007-001									250	70



Mechanical Strength

Data carriers and read/write heads

Part number	BIS M-1_ _ , BIS M-3_ _
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors

Part number	BIS M-6_ _ _
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

BIS M

Range of
Applications

Selection
Criteria

Data Carriers

Read/Write

Read/Write
Heads

Read/Write
Heads –
Integrated
Processor

IO-Link

Processors

Handheld
Programmer

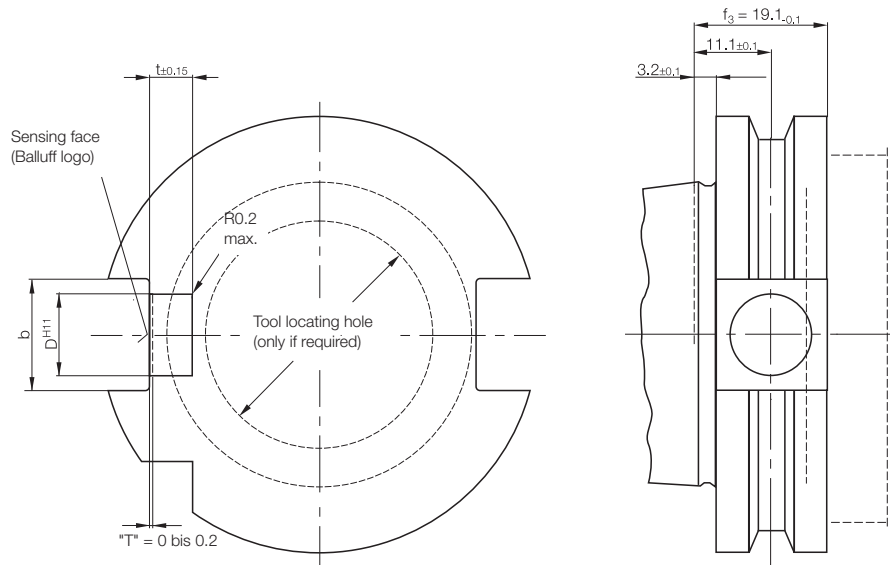
Access
Security
System

Installation
Notes

Read/Write
Times

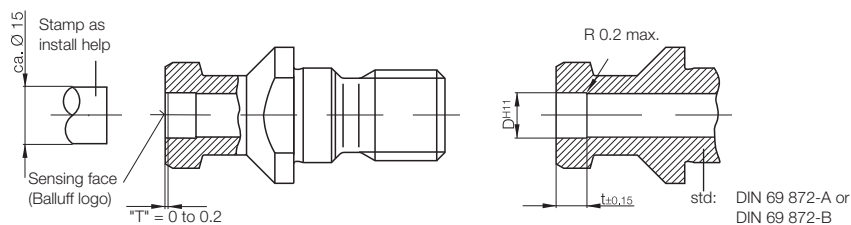
Installation in Taper

Taper DIN 69 871-A	Data carrier BIS M-122			Data carrier BIS M-105		
	D ^{H11}	t±0,15	U/min. max.	D ^{H11}	t±0,15	U/min. max.
Nr. 30	10	4,65	90000	12	6,15	68000
Nr. 40	10	4,65	75000	12	6,15	54000
Nr. 45	10	4,65	66000	12	6,15	43000
Nr. 50	10	4,65	59000	12	6,15	33000



Installation in Retention Knob

Taper DIN 69 871-A	Data carrier BIS M-122		Data carrier BIS M-105	
	D ^{H11}	t±0,15	D ^{H11}	t±0,15
Nr. 30	—	—	—	—
Nr. 40	10	4,65	—	—
Nr. 45	10	4,65	12	6,15
Nr. 50	10	4,65	12	6,15

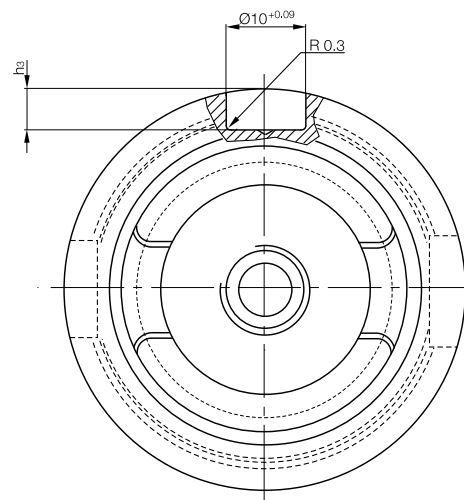
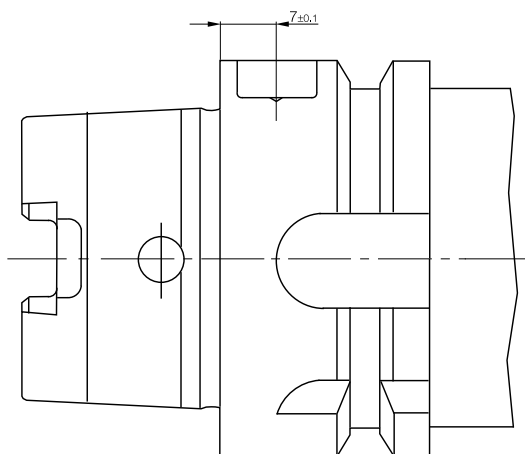


Installation

1. Degrease gluing surfaces.
2. Apply a bead of glue (e. g. Lictite Hysol 1c) approximately 3 mm wide around the perimeter of the data carrier housing. Note manufacturer's instructions! Lictite glue can be provided by Balluff.
3. Press in data carrier housing by hand. Note dimension "T"!
4. Remove excess glue.
5. Allow to harden.

Installation in HSK Taper

Data carrier BIS M-122		
HSK Form A ISO/DIS 12164-1	$h_3 + 0,20$	U/min. max.
32	5,4	96000
40	5,2	80000
50	5,1	75000
63	5	65000
80	4,9	57000
100	4,9	48000



Mechanical Strength

Data carriers and read/write heads

Part number	BIS M-122/105, BIS M-302/304
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Values apply to data carriers BIS M-1_ _ and read/write heads BIS M-3_ _ except for the non-potted read/write heads.

Processors and non-potted read/write heads

Part number	BIS M-6_ _ _ , BIS M-3_ _ /4_ _
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

BIS M

Range of
Applications
Selection
Criteria
Data Carriers
Read/Write
Read/Write
Heads
Read/Write
Heads –
Integrated
Processor
IO-Link
Processors
Handheld
Programmer
Access
Security
System
**Installation
Notes**
Read/Write
Times

Memory access

Our processors can read or write each individual byte in the data carrier. But since the data carrier is divided into 16-byte blocks, the actual reading and writing is done by blocks. Our processor electronics converts this time accordingly. To calculate the Read/write times the block read or write time must however be used.

Data carrier recognition

20 ms are required to recognize a data carrier.

Read Times BIS M-1_ _

EEPROM		FRAM	
Data carrier with 16 byte blocks		Data carrier with 16 byte blocks	
Byte	read time [ms]	Byte	read time [ms]
from 0 to 15	20	from 0 to 15	30
for each additional 16 bytes started add		for each additional 16 bytes started add	
an additional	10	add an additional	15

Write Times BIS M-1_ _

Data carrier with 16 byte blocks		Data carrier with 16 byte blocks	
Byte	write time [ms]	Byte	writetime [ms]
from 0 to 15	40	from 0 to 15	60
for each additional 16 bytes started add		for each additional 16 bytes started add	
an additional	30	add an additional	40

Example

Read and write 183 bytes starting at address 42

Address 42 is in Block 3 (42/16)
Address 224 is in Block 14 (224/16)

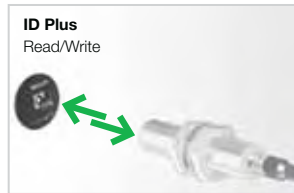
Therefore a total of 12 blocks will be processed, where the first block always has a slightly longer read or write time.

Read time = 20 ms + 11 * 10 ms = 130 ms
Write time = 40 ms + 11 * 30 ms = 370 ms

Attention! Fluctuations in the ms range are possible.
Electrical noise effects may increase the read/write time.

Industrial RFID Systems BIS S

Contents

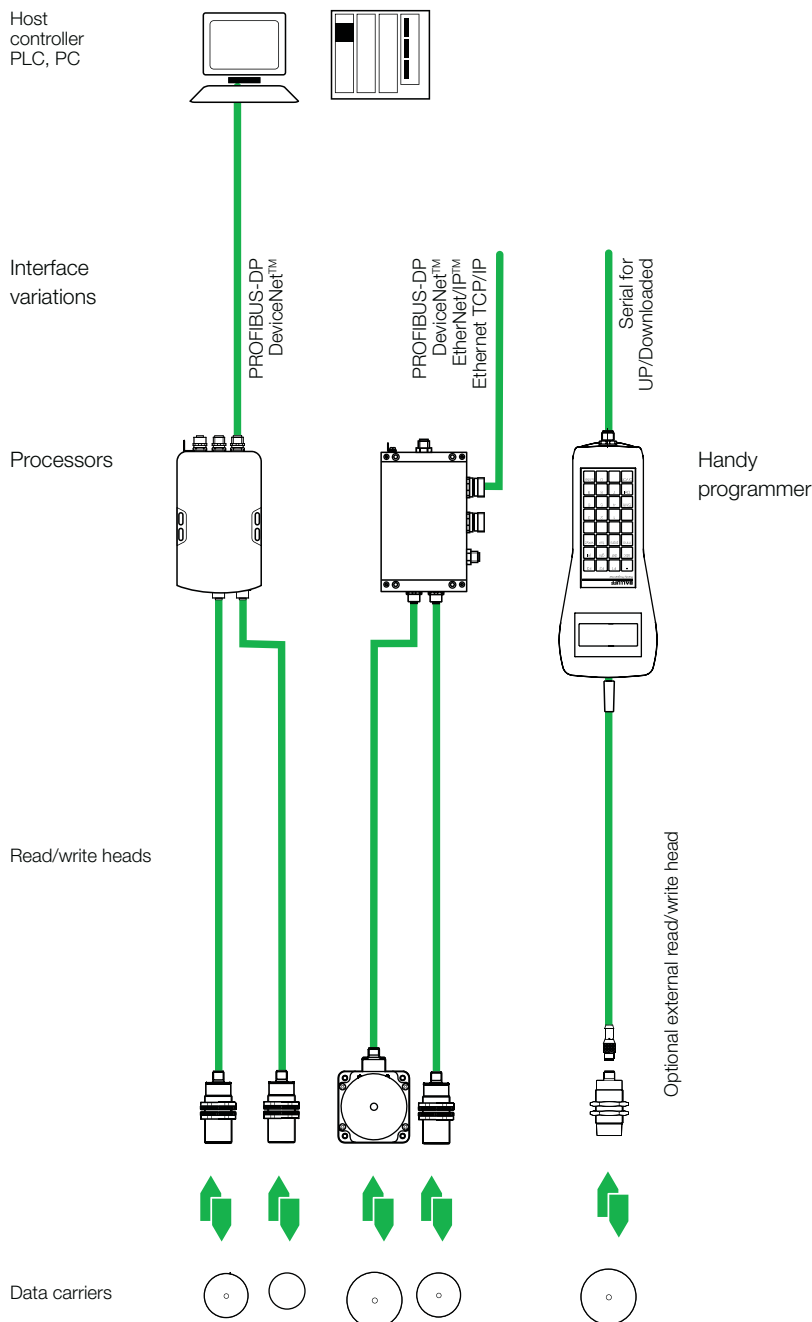


This section provides specifications on the high data memory capacity BIS S series read/write RFID solutions

BIS S

For large quantities of data in assembly and production. Flexible and robust, even in high-speed applications

184	Data Carriers Read/Write
186	Read/Write Heads
188	Processors
188	PROFIBUS-DP
190	DeviceNet™
192	EtherNet/IP™
193	Ethernet TCP/IP
194	Handy Programmer
195	Installation Notes, Read/Write Times



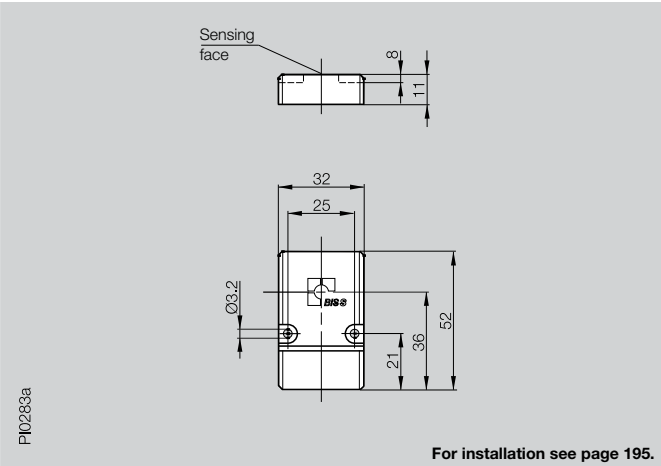
BIS S

Industrial RFID Systems BIS S

Data Carriers Read/Write

Dimensions	52x32x11
Housing material	PBTP
Antenna type	round
Weight	27 g

Complex product assembly
can benefit from a large
storage capacity

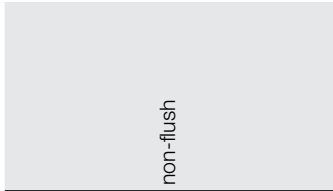


BIS S Programmable

16 kBytes	Part number	BIS S-108-42/L
32 kBytes	Part number	BIS S-108-52/L
Operating temperature		-20...+70 °C
Storage temperature		-20...+70 °C
Protection per IEC 60529		IP 67

Mounting in steel

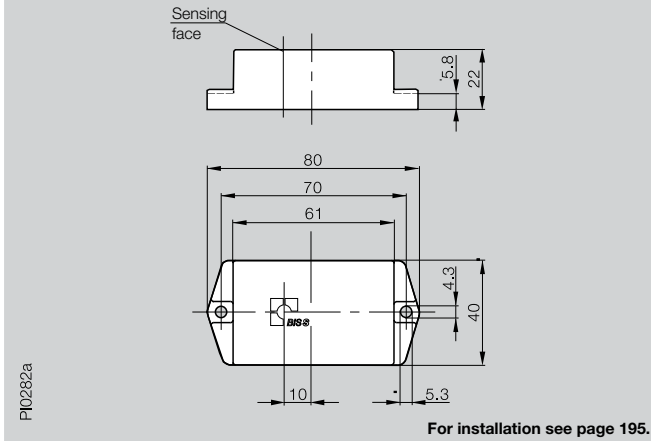
Appropriate read/write head	BIS S-302	20 mm
with max. read/write distance	BIS S-303	20 mm



Industrial RFID Systems BIS S

Data Carriers Read/Write

Dimensions	80×40×22
Housing material	POM
Antenna type	round
Weight	93 g



BIS S Programmable

16 kBytes	Part number	BIS S-150-42/A
32 kBytes	Part number	BIS S-150-52/A
Operating temperature		-20...+70 °C
Storage temperature		-20...+70 °C
Protection per IEC 60529		IP 67

BIS S

Mounting in steel

Appropriate read/write head with max. read/write distance	BIS S-301	50 mm
---	-----------	-------

non-flush

Data Carriers Read/Write

Read/Write Heads
Processors
Handy Programmer
Installation Notes, Read/Write Times



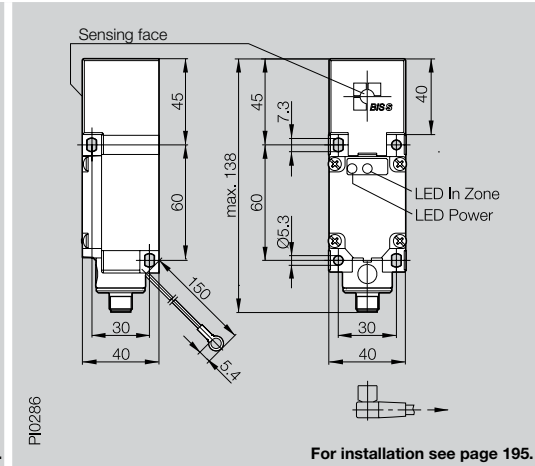
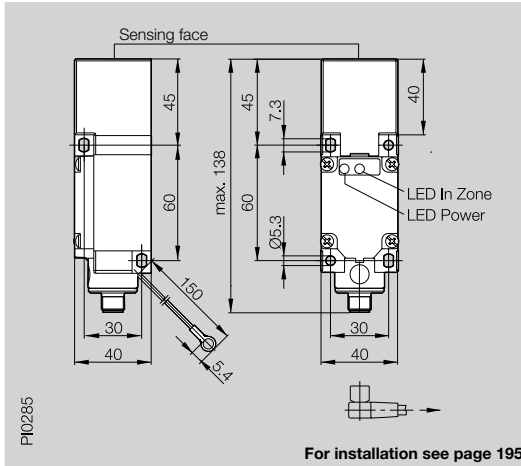
Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Memory organization
16 kBytes	FRAM	unlimited	unlimited	64 bytes per block
32 kBytes	FRAM	unlimited	unlimited	128 bytes per block

Industrial RFID Systems BIS S

Read/Write Heads

Dimensions	40×40×138	40×40×138
Housing material	ABS	ABS
Antenna type	round	round
Weight	220 g	220 g



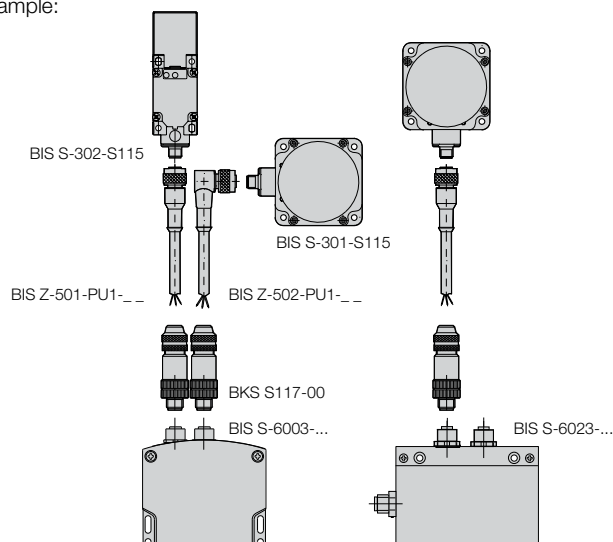
Part number	BIS S-302-S115	BIS S-303-S115
Mounting in steel	non-flush	non-flush
Operating temperature	0...+70 °C	0...+70 °C
Storage temperature	-20...+85 °C	-20...+85 °C
Protection per IEC 60529	IP 67	IP 67
Connection to	Processor	Processor
With connection cable	BIS Z-501-PU1-__*, BIS Z-502-PU1-__*	BIS Z-501-PU1-__*, BIS Z-502-PU1-__*

Appropriate data carrier

Static mode

Write distance in mm	5-20	5-20
Read distance in mm	5-20	5-20
Offset in mm	5 mm ±5	±5
at distance	7 mm ±5	±5
	10 mm ±5	±5
	15 mm ±5	±5
	20 mm ±5	±5
	30 mm	
	50 mm	

Example:



* please order connection cable separately, see page 202
Please append cable length to ordering code!
See page 202



Long Distances

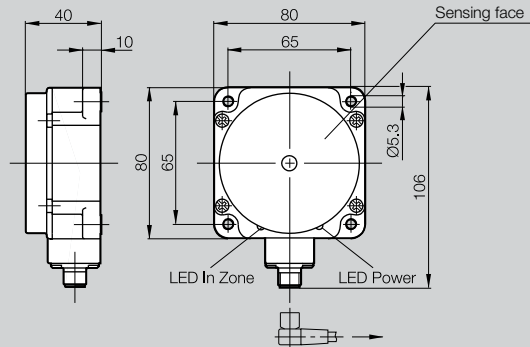
Industrial RFID Systems BIS S Read/Write Heads

80x80x40

PBT

round

410 g



P10281

For installation see page 195.

BIS S-301-S115

non-flush

0...+50 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-__*, BIS Z-502-PU1-__*

BIS S-150-__/_A
non-flush

BIS

Data Carriers
Read/Write

**Read/Write
Heads**

Processors

Handy
Programmer

Installation
Notes,
Read/Write
Times

10-50

10-50

±5

±5

±5

±5

±5

±5

±5

±5

 → Connector orientation

First choice in static applications
involving large quantities of data



**Cost-effective
identification – operate
2 read/write heads
simultaneously**



- Selectable division of the data width on the PROFIBUS-DP, 4 to 128 bytes
- Free assigning of the data width for each read/write head
- Optimum data speed, internal cycle time is shorter than the BUS activation time
- Service-friendly, all parameter data are stored in an interchangeable memory
- BUS address selectable with switches
- Accepts all read/write heads
- Interface-compatible with BIS C and BIS L identification systems

Description
Function



Supply voltage
Ripple
Current
Operating temperature
Storage temperature
Protection per IEC 60529
Read/write head ports
Service interface RS232
Connection type

Connection for
Description interface/software:
PROFIBUS-DP
Accessories included
Accessories (please order separately)

The **compact class BIS -600_** with its reduced dimensions and various interface options can be used wherever ambient conditions require higher protection.

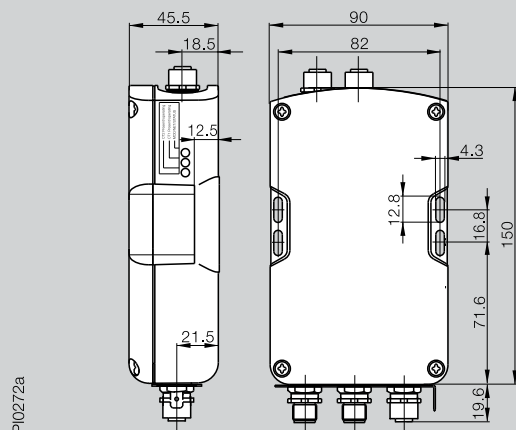
The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic.

Small, compact, flexible and economical



BIS S-6002-019-050-03-ST11

read/write



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 600\text{ mA}$

0...+60 °C

0...+60 °C

IP 65/NEMA 12

2 external

yes

2 connectors round 5-pin, B-coded,

1 connector round 5-pin

2 read/write heads BIS S-3_ _

BIS S-6002-019-050-03-ST11

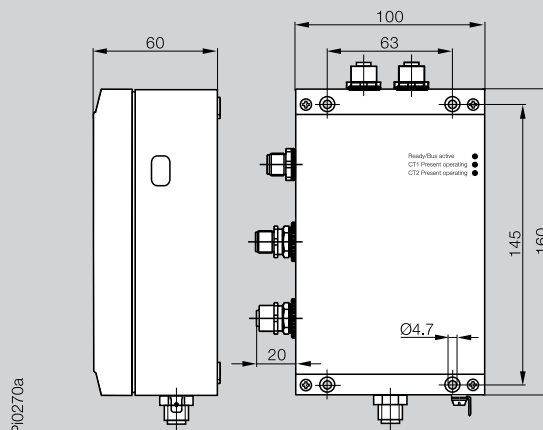
Software GSD file

BKS 12-CS-01

Connector page 204/205

BIS S-6022-019-050-03-ST14

read/write



24 V DC $\pm 20\%$

$\leq 10\%$

$\leq 600\text{ mA}$

0...+60 °C

0...+60 °C

IP 65/NEMA 12

2 external

yes

2 connectors round 5-pin, B-coded,

2 connector round 5-pin

2 read/write heads BIS S-3_ _

BIS S-6022-019-050-03-ST14

Software GSD file

BKS 12-CS-01

Connector page 204/205

BIS S

Data Carriers
Read/Write

Read/Write
Heads

Processors

Handy
Programmer

Installation
Notes,
Read/Write
Times

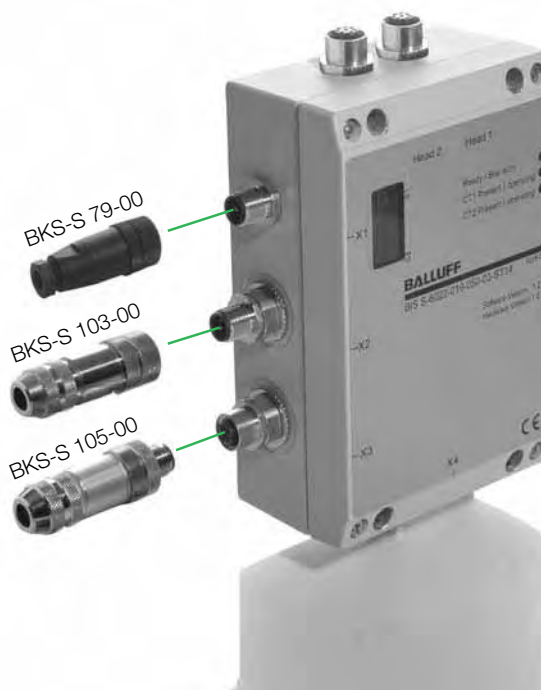
For rugged applications

BIS S-602_ is in spite of the mechanically rugged die-cast aluminum housing a small, flexible processor which is available with various interface options.

Suitable for all applications with demanding requirements for mechanical stability and chemical resistance.



Threaded cover
BKS 12-CS-01
coded for M12 B
connector type



**Cost-effective
identification – operate
2 read/write heads
simultaneously**

- Freely selectable
buffer size between
0 and 256 bytes
- Service-friendly,
all parameter data
are stored in an
interchangeable memory
- Accepts all read/write
heads
- Interface-compatible
with BIS C and BIS L
identification systems



Description

Function

Supply voltage

Ripple

Current

Operating temperature

Storage temperature

Protection per IEC 60529

Read/write head ports

Service interface RS232

Connection type

Connection for

Description interface/software:

DeviceNet™

Accessories included

Accessories (please order separately)

The **compact class**
BIS -600_ with its
reduced dimensions and
various interface options
can be used wherever
ambient conditions require
higher protection.

The devices are ideal for
IP 65 and applications
involving media that is not
aggressive to PS plastic.

Small, compact, flexible
and economical

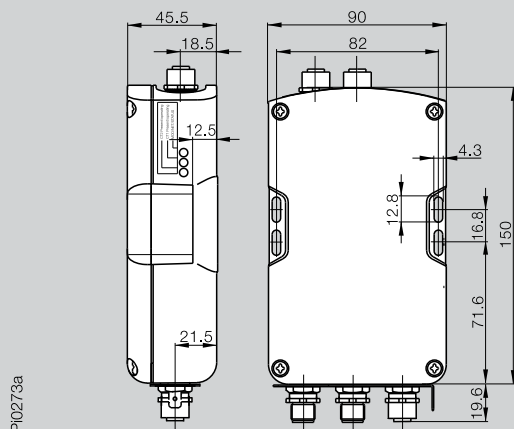


ID Plus

Industrial RFID Systems BIS S DeviceNet™ Processors

BIS S-6003-025-050-03-ST12

read/write



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 600 mA

0...+60 °C

0...+60 °C

IP 65/NEMA 12

2 external

yes

3 connectors round 5-pin

2 read/write heads BIS S-3_ _

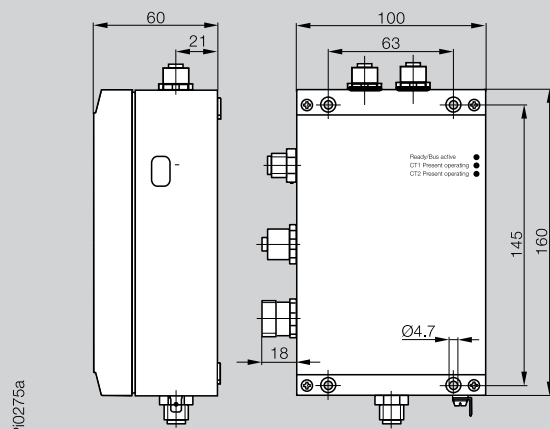
BIS S-6003-025-050-03-ST12

Software EDS file

Connector page 207/208/209

BIS S-6023-025-050-03-ST13

read/write



24 V DC $\pm 20\%$

$\leq 10\%$

≤ 600 mA

0...+60 °C

0...+60 °C

IP 65/NEMA 12

2 external

yes

4 connectors round 5-pin

2 read/write heads BIS S-3_ _

BIS S-6023-025-050-03-ST13

Software EDS file

BKS 12-CS-01

Connector page 207/208/209

BIS

Data Carriers
Read/Write

Read/Write
Heads

Processors

Handy
Programmer

Installation
Notes,
Read/Write
Times

For rugged applications

BIS S-602_ is in spite of the mechanically rugged die-cast aluminum housing a small, flexible processor which is available with various interface options.

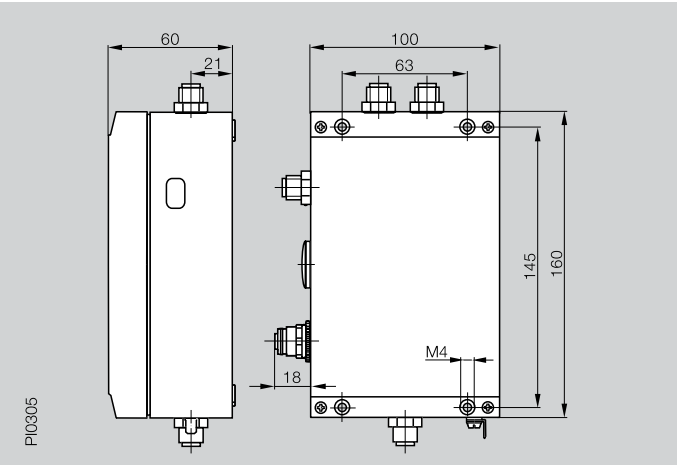
Suitable for all applications with demanding requirements for mechanical stability and chemical resistance.



Industrial RFID Systems BIS S

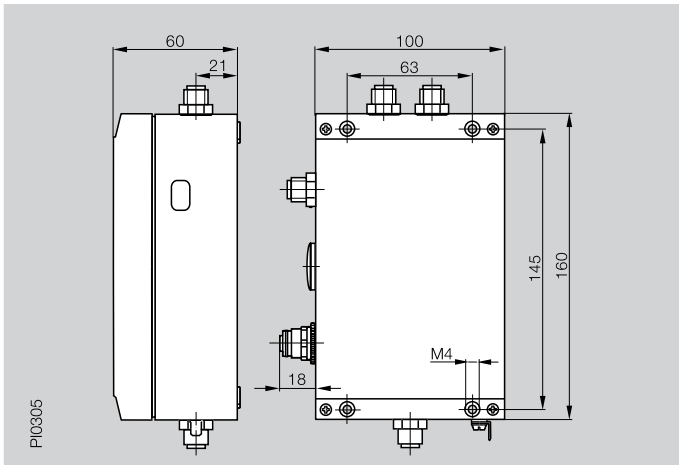
EtherNet/IP™ Processors

ID Plus

Description	BIS S-6026-034-050-06-ST19
Function	read/write
   Control No 3TLJ File No E227256	
	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection type	Connector round 4-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	Read/write heads BIS S-3_ _
Description interface/software:	
EtherNet/IP™	BIS S-6026-034-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	Connector page 206

**Cost-effective identification –
operate 2 read/write heads simultaneously!**



Description	BIS S-6027-039-050-06-ST19
Function	read/write
	
	
Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+50 °C
Storage temperature	0...+50 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection	Connector round 4-pin, D-coded 1 connector 5-pin 1 connector 4-pin
Connection for	Read/write heads BIS S-3_ _
Description Interface/software:	
Ethernet TCP/IP	BIS S-6027-039-050-06-ST19
Accessories included	Configuration software
Accessories (please order separately)	Connector page 206

BIS S

Data Carriers
Read/Write

Read/Write
Heads

Processors

Handy
Programmer

Installation
Notes,
Read/Write
Times



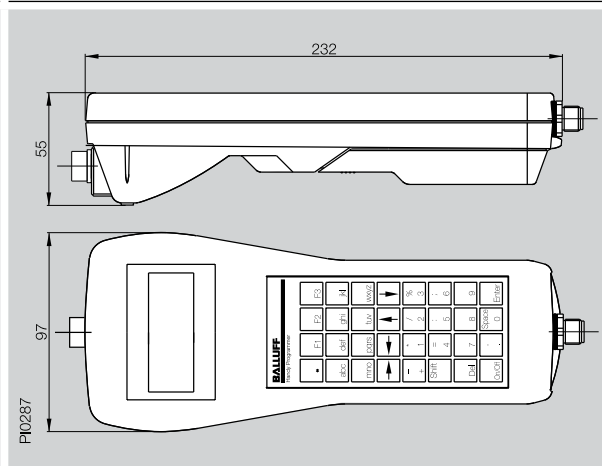
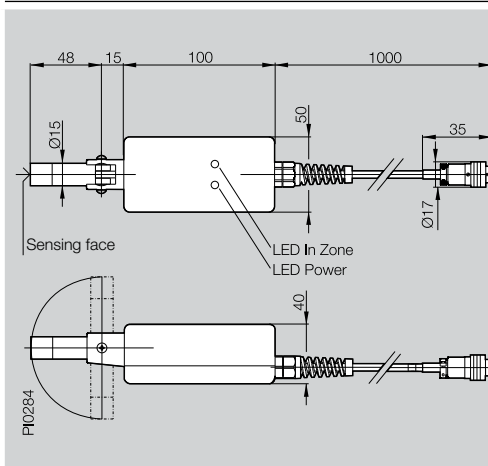
Order accessories separately!
Adapter cable for Ethernet
from M12 D-coded to
coupling RJ45/RJ45
BIS C-526-PVC-00.5
page 206



Industrial RFID Systems BIS S

Handy Programmer

Function	Read/write heads	read/write
Dimensions	Ø 15×63	
Housing material	Plastic	ABS
Antenna type	round	



Part number	BIS S-850	BIS S-810-0-003
Keyboard		32 buttons, alphanumeric
Display		LCD-display, 20 characters/4 lines
Current draw		2.4 V rechargeable battery pack NiMH
Capacity		1500 mA/h
Interface		RS232/Balluff Dialog
Operating temperature	0...+40 °C	0...+50 °C
Storage temperature	-10...+50 °C	
Protection per IEC 60529	IP 54	IP 40
Read head connection	Fixed plug 6-pin	Fixed socket 6-pin
Connection to	BIS S-810	
Appropriate data carrier	BIS S-108_ _ BIS S-150_ _	
Accessories included		Carrying case

For manual or offline flexibility

The handy programmer with read/write function helps you stay mobile and independent. Benefit from increased mobility during repair work, for example. Needless to say, the handy programmer is fitted with an interface to a PC.



Industrial RFID Systems BIS S

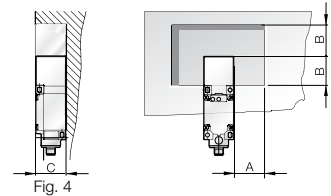
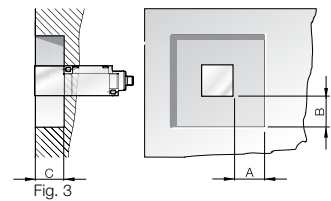
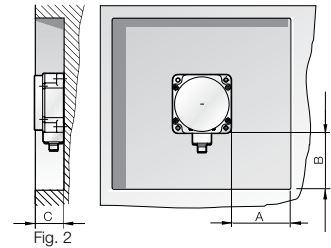
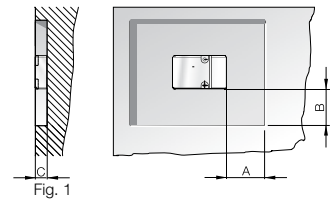
Installation Notes, Read/Write Times

Installation in Steel

Clear zone dimensions

Data carriers	Fig.	Dimensions (in mm)		
		A	B	C
BIS S-108-_/L	1	10	10	11
BIS S-150-_/A	1	80	80	22

Read/write head	Fig.	Dimensions (in mm)		
		A	B	C
BIS S-301	2	80	80	40
BIS S-302	3	40	40	40
BIS S-303	4	40	40	40



Installation in Aluminum

Clear zone dimensions

Data carriers	Fig.	Dimensions (in mm)		
		A	B	C
BIS S-108-_/L	1	10	10	11
BIS S-150-_/A	1	80	80	22

Read/write head	Fig.	Dimensions (in mm)		
		A	B	C
BIS S-301	2	80	80	40
BIS S-302	3	40	40	40
BIS S-303	4	40	40	40

Note

Depending on the combination of read/write head and data carrier, clear zone dimension A and B should always be selected for the larger of the components.

Read Times

Bytes	Read time [ms]
from 0 to 63	29
for each additional 64 bytes started add an additional	31
from 0 to 2047	990

Write Times

Byte	Write time [ms]
from 0 to 63	$31 + n \times 1.5$
≥ 64	$y \times 31 + n \times 1.5$
from 0 to 2047	= max. 4064

n = Number of contiguous bytes to write

y = Number of blocks to process

Example:

Write 87 bytes starting with Address 187. Data carrier = 64-byte blocks.

Blocks 2 to 5 are processed, since start address 187 is in Block 2 and end address 274 is in Block 5.

$$t = 4 \times 31 + 87 \times 1.5 = 255 \text{ ms}$$

Mechanical Strength

Data carriers and read/write heads

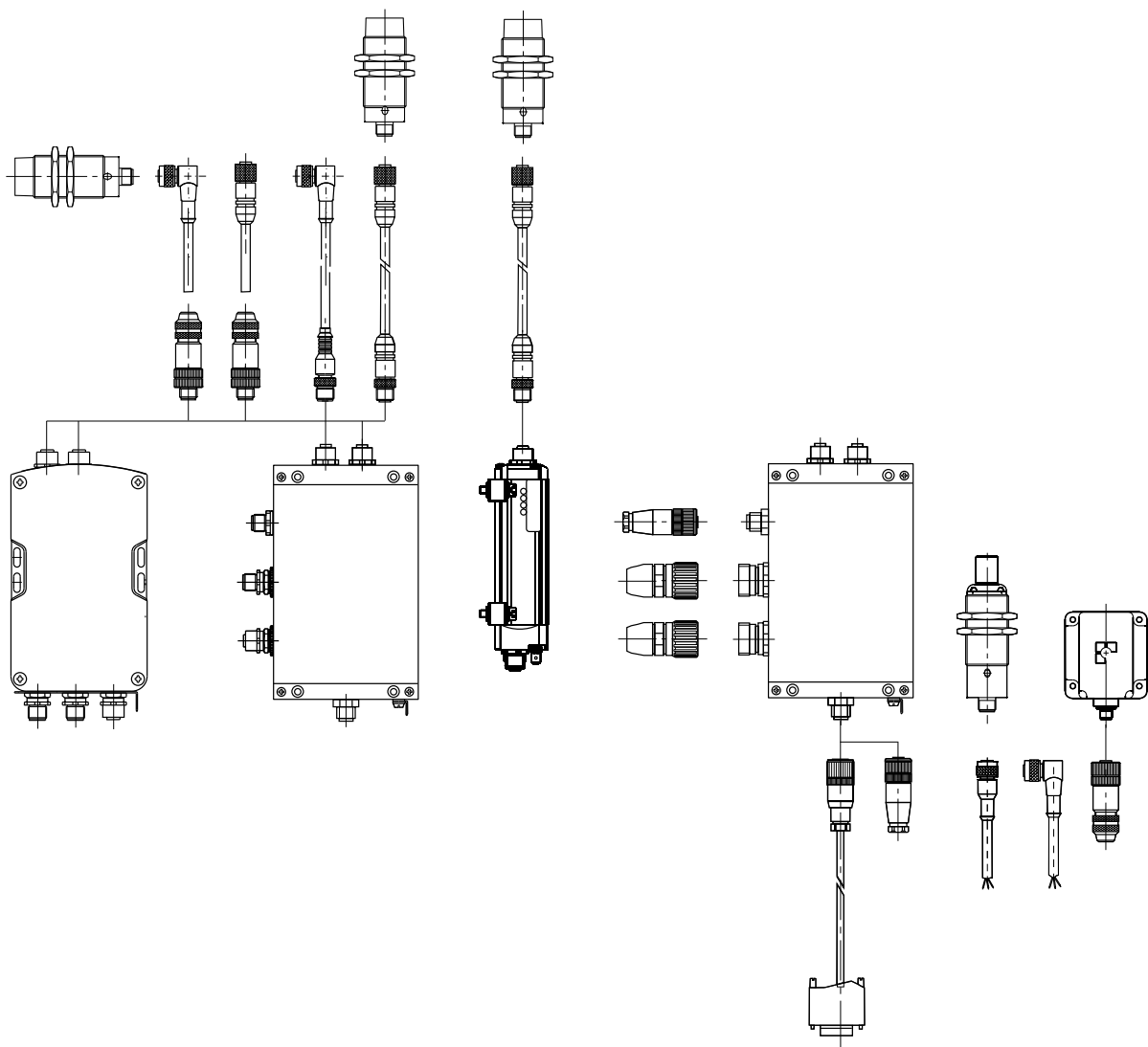
Part number	BIS S-1-_, BIS S-3-_,
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors

Part number	BIS S-6-_-_-
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

BIS S

Data Carriers
Read/Write
Read/Write
Heads
Processors
**Handy
Programmer
Installation
Notes,
Read/Write
Times**



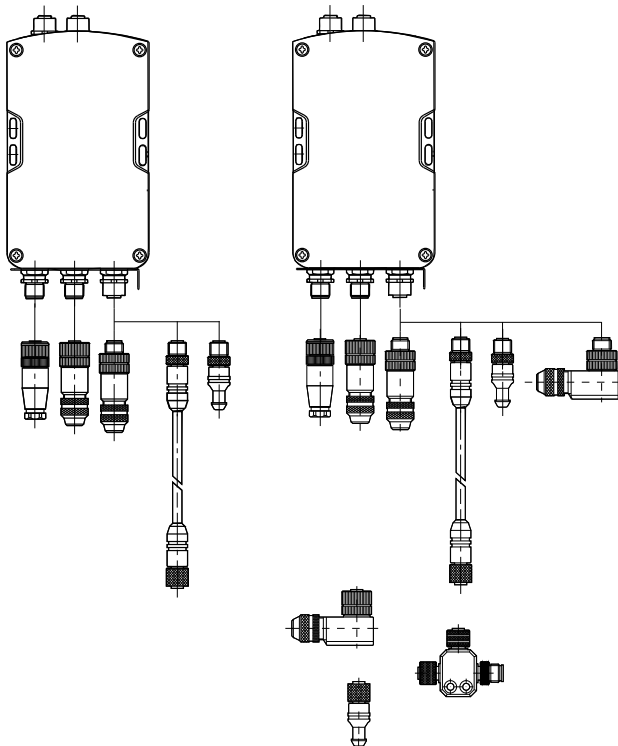
Accessories



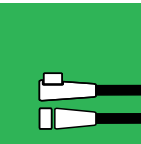
Customized connection technology for optimal Industrial RFID use.

Main benefits:

- high-quality with regional standards
- adapted perfectly to sensors and systems
- quick and easy connection
- intensive testing in the accredited Balluff test laboratory, designed for the toughest demands



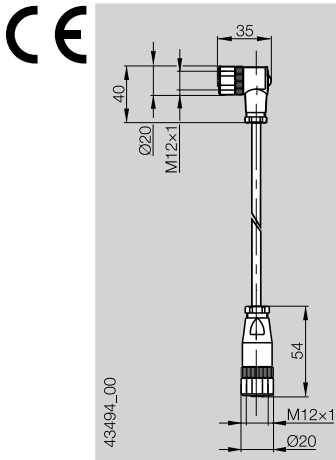
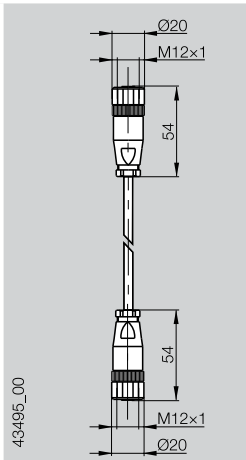
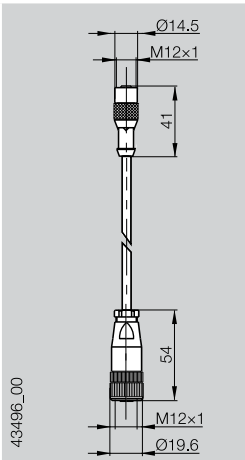
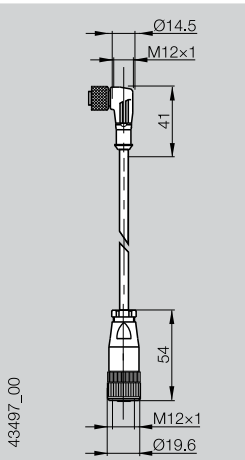
198	Cables with Connectors
200	Connectors and Termination Resistor
202	Connection Cables
203	Connectors
204	PROFIBUS-DP Connectors
205	PROFIBUS-DP Connectors, Termination Resistor
206	Ethernet Connectors
207	DeviceNet™ Connectors, Termination Resistor
210	Accessories – Connection Cable, Handle
211	Retaining Bracket, Retainer System and Mounting Plate
212	Processor Mounting Bracket
213	Mounting Cuffs
214	Expander Module BIS Z-ER



216	Interaction Between Read/Write Heads and Data Carriers
218	Software and Service Tools
219	Special Tag Designs
220	Online Resources
221	Index and Short Order Codes

Accessories

Cables with Connectors

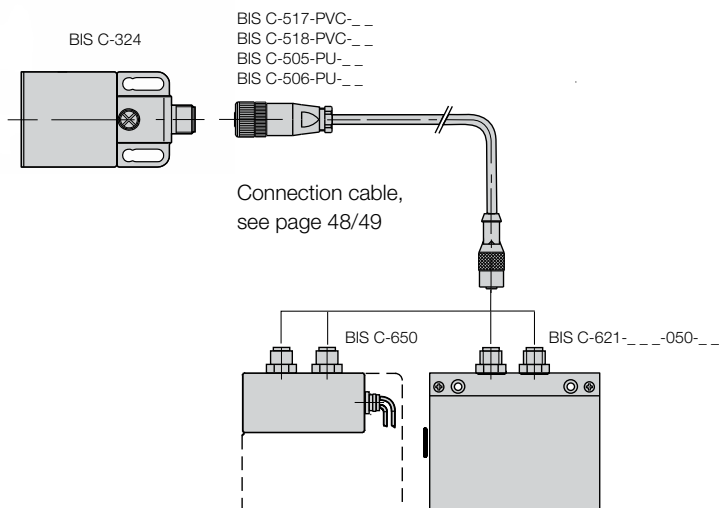
Version	2 connectors M12	2 connectors M12	2 connectors M12	2 connectors M12	
Use	for read/write head with M12 connector	for read/write head with M12 connector	for read/write head with M12 connector also drag chain compatible	for read/write head with M12 connector also drag chain compatible	
					
Part number	BIS C-517-PVC-__**	BIS C-518-PVC-__**	BIS C-505-PU-__** BIS C-505-PU1-__**	BIS C-506-PU-__** BIS C-506-PU1-__**	
Connector					
Cable diameter	5.4 mm	5.4 mm	5.4 mm	5.4 mm	
Protection* per IEC 60529	IP 67 when attached	IP 67 when attached	IP 67 when attached	IP 67 when attached	
Ambient temperature range	-25...+105 °C	-25...+105 °C	-40...+70 °C	-40...+70 °C	
Cable	PVC	PVC	PU	PU	
			BIS C-505-PU1-__ is Drag chain compatible	BIS C-506-PU1-__ is Drag chain compatible	

*only when connected

**Please append cable length
to part number!
The length varies with the
read/write head used
(with S4 connector):
01 = Length 1 m,
05 = Length 5 m,
10 = Length 10 m.

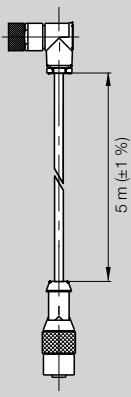
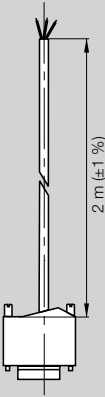
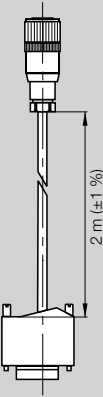
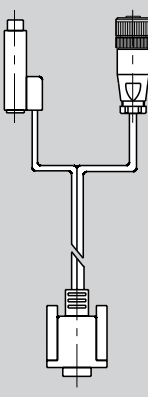


Example:

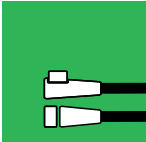


Accessories

Cables with Connectors

	2 connectors M12 for read/write head BIS C-355 and adapter BIS C-654	Connectors M8 and M12 for read/write head BIS C-328-__-S49	MIN D with fixed cable length 2 m for RS232 connection to PC	Adapter cable Connector M12 and MIN D, 9-pin Service interface	Adapter cable for RS 232, PS 2 connection to PC and BIS C-820
					
	PI0250	PI0523	PI0251	PI0252	PI0524
	BIS C-520-PVC-05	BIS C-523-PU-05 BIS C-523-PU1-05	BIS C-521-PVC-02	BIS C-522-PVC-02	BIS C-524-PVC-01,5
	5.8 mm		Serial interface RS232 to PC 5.8 mm	Serial interface RS232 to PC 5.8 mm	
	IP 65 when attached	IP 67 when attached			
	-30...+80 °C	-40...+70 °C	-5...+80 °C	-5...+80 °C	-5...+80 °C
	PVC	PU	PVC	PVC	PVC

Please append cable
length to part number!
02 = Length 2 m
03 = Length 3 m



Cables with Connectors

Connectors and Termination Resistor
Connection Cables
Connectors
PROFIBUS-DP Connectors, Termination Resistor
Ethernet Connectors
DeviceNet™ Connectors, Termination Resistor
Accessories
Retaining Bracket, Retainer System, Mounting Plate
Processor Mounting Bracket
Mounting Cuffs
Expander Module
BIS Z-ER

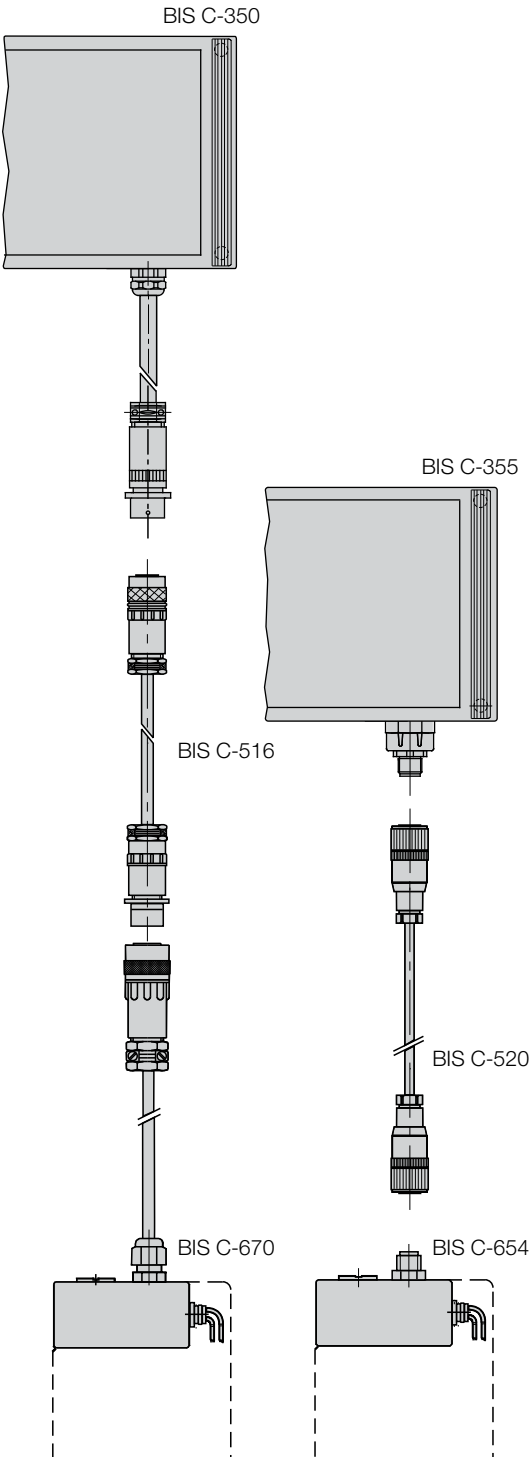


Accessories

Connectors and Termination Resistor

Version	
Use	

Example:

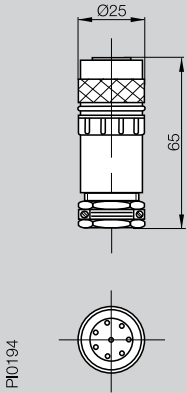
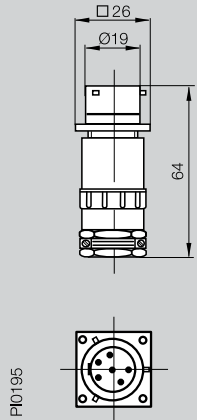
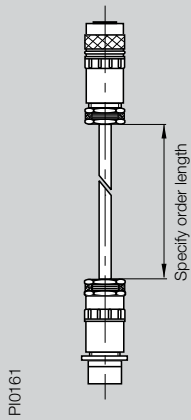
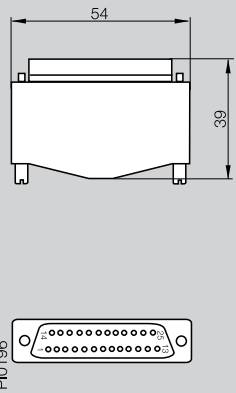


Part number	
Connector type	
Recommended cable	
Conductor cross section	
Protection* per IEC 60529	
Ambient temperature range	

*only when connected

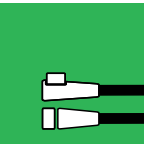
Accessories

Connectors and Termination Resistor

8-pin, female for connecting to read/write head BIS C-35_	6-pin, male for extension with BKS-S 45-00	BKS S 45-00, BKS S 46-00 for read/write head BIS C-350 to adapter BIS C-670	25-pin, female for processors BIS C-605-...
			
BKS-S 45-00	BKS-S 46-00	BIS C-516-PU-_-_-	BKS-S 52-00
Round-connector	Round-connector		MIN D-plug
LiYCY-0	LiYCY-0		LiYCY-0
0.52 mm ²	0.52 mm ²		0.5 mm ²
IP 65	IP 65	IP 65 when attached	IP 40
-55...+125 °C	-55...+125 °C	-30...+80 °C	-40...+85 °C

Please append cable
length to part number!

05 = Length 5 m,
10 = Length 10 m,
15 = Length 15 m,
20 = Length 20 m,
30 = Length 30 m,
40 = Length 40 m,
50 = Length 50 m,
75 = Length 75 m,
100 = Length 100 m.



Cables with
Connectors

Connectors and Termination Resistor

Connection
Cables

Connectors

PROFIBUS-DP
Connectors,
Termination
Resistor

Ethernet
Connectors

DeviceNet™
Connectors,
Termination
Resistor

Accessories

Retaining
Bracket,
Retainer
System,
Mounting
Plate

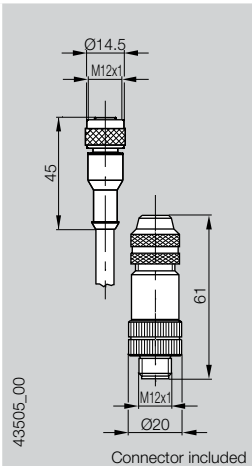
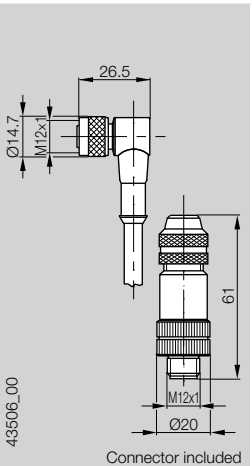
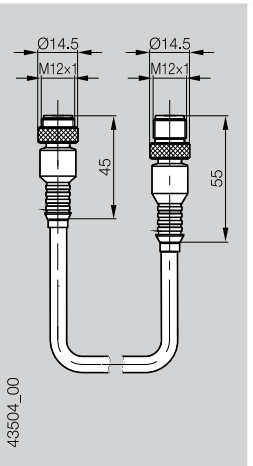
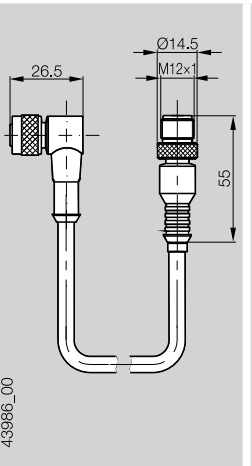
Processor
Mounting
Bracket

Mounting
Cuffs

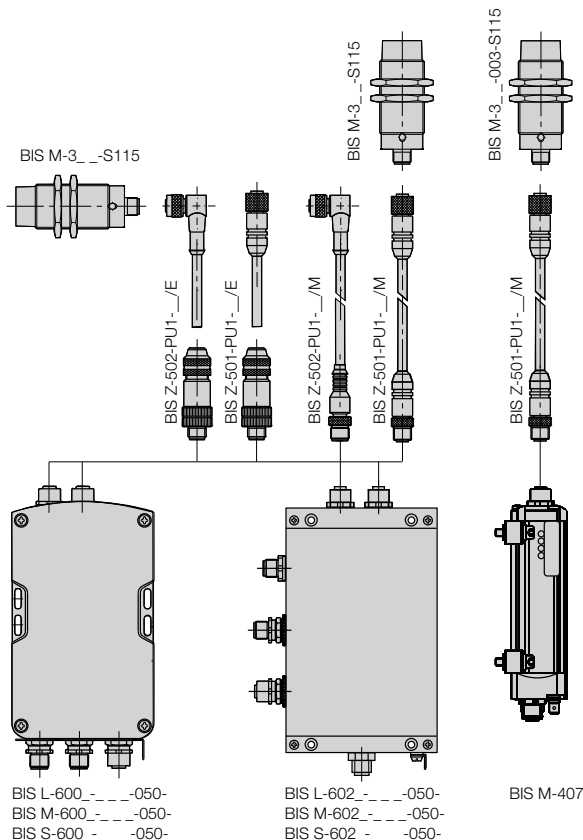
Expander
Module
BIS Z-ER

Accessories

Connection Cables

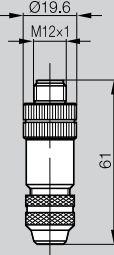
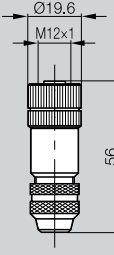
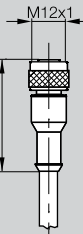
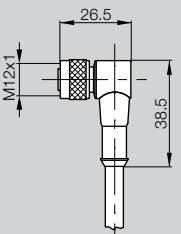
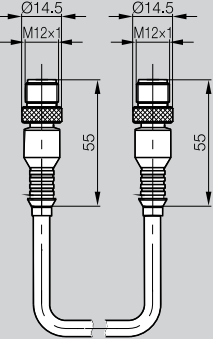
Version	8-pin, female	8-pin, female	8-pin, male, female	8-pin, male, female	
Use	for read/write head 8-pin, male for processor	for read/write head 8-pin, male for processor	for read/write head and processor	for read/write head and processor	
					
Part number	BIS Z-501-PU1-_/E	BIS Z-502-PU1-_/E	BIS Z-501-PU1-_/M	BIS Z-502-PU1-_/M	
Connector	M12	M12	M12	M12	
Cable diameter	6.9 mm	6.9 mm	6.9 mm	6.9 mm	
Protection* per IEC 60529	IP 67 when attached	IP 67 when attached	IP 67	IP 67	
No. of wires x cross-section	8x0.25 mm ²	8x0.25 mm ²	8x0.25 mm ²	8x0.25 mm ²	
Ambient temperature range	-40...+85 °C	-40...+85 °C	-40...+85 °C	-40...+85 °C	
Accessories included	BKS-S117-00	BKS-S117-00			
Cable	one end molded-in, other end pigtailed	one end molded-in, other end pigtailed	Both ends molded-on	Both ends molded-on	
*only when connected	Please append cable length to part number!				
**at temperatures below freezing	05 = Length 5 m 10 = Length 10 m 20 = Length 20 m 25 = Length 25 m 50 = Length 50 m				
	00.5 = Length 0.5 m 01 = Length 1 m 02 = Length 2 m 05 = Length 5 m				

Cable can be trailed and may also be shortened to the required length. For fixed routing the minimum bending radius is 16 mm at an ambient temperature of -40...+85 °C. Least bending radius for flexed routing 80 mm at ambient temperature -25...+85 °C.



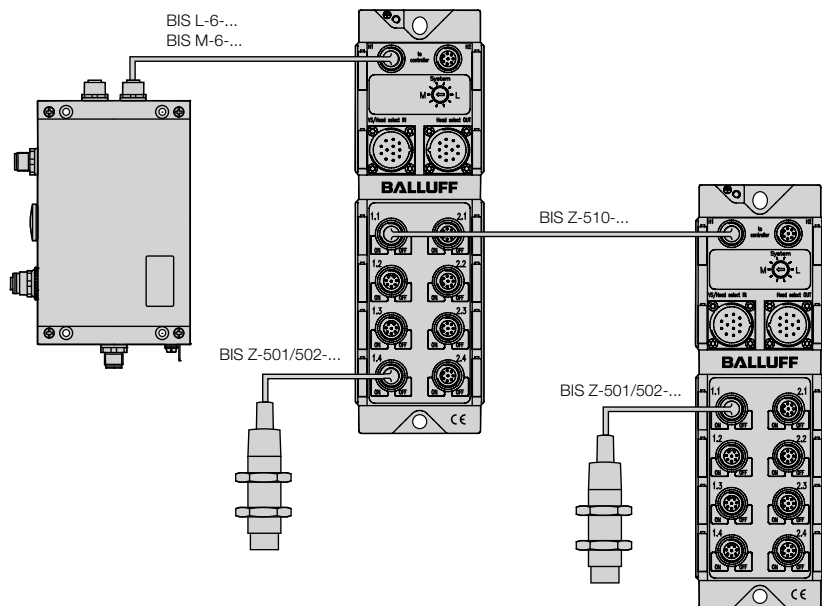
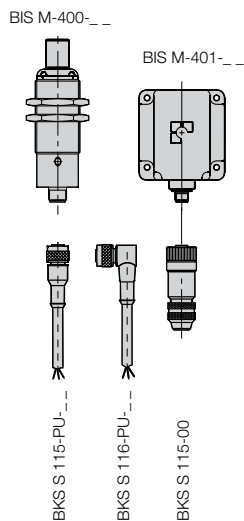
Accessories

Connectors

8-pin, male for connecting read/write head to processor	8-pin, female BIS M-4_ _ RS232 port	8-pin, straight female BIS M-4_ _ with RS232 port	8-pin, right-angle, female BIS M-4_ _ with RS232 port	8-pin, male, male BIS L/M-6_ _ _ to Expander Module BIS Z-ER
				
PL0029a	PL0056	42781_00	42780_00	43984_00
BKS-S117-00	BKS-S115-00	BKS-S115-PU- _ _	BKS-S116-PU- _ _	BIS Z-510-PU1-01
M12	M12	M12	M12	M12
6...8 mm	6...8 mm			
IP 67	IP 67	IP 67	IP 67	IP 67
-40...+85 °C	-40...+85 °C	8x0.25 mm ² -25...+90 °C**	8x0.25 mm ² -25...+90 °C**	8x0.25 mm ² -25...+90 °C**
		molded PUR	molded PUR	

Please append cable length
to part number!
02 = Length 2 m
05 = Length 5 m
10 = Length 10 m
15 = Length 15 m

Use matched accessories on your
BIS for optimum integration!
Drag chain compatible cable for
heightened requirements



Cables with
Connectors
Connectors
and
Termination
Resistor

Connection Cables

Connectors

PROFIBUS-DP
Connectors,
Termination
Resistor

Ethernet
Connectors

DeviceNet™
Connectors,
Termination
Resistor

Accessories

Retaining
Bracket,
Retainer
System,
Mounting
Plate

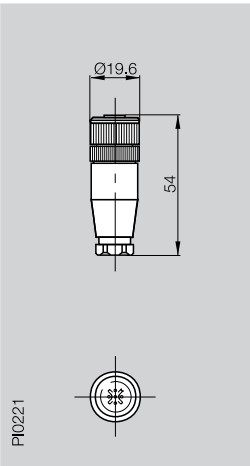
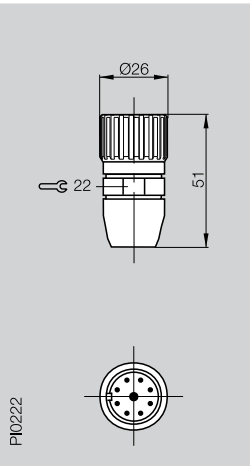
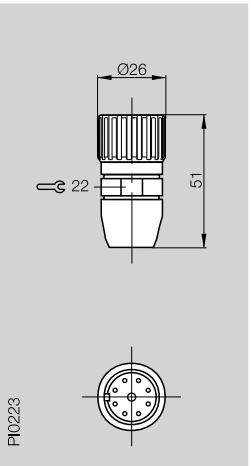
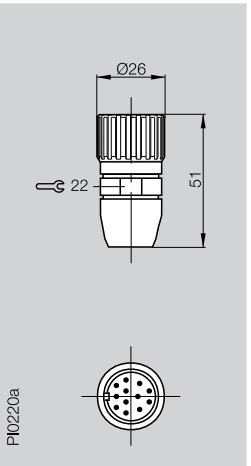
Processor
Mounting
Bracket

Mounting
Cuffs

Expander
Module
BIS Z-ER

Accessories

PROFIBUS-DP Connectors

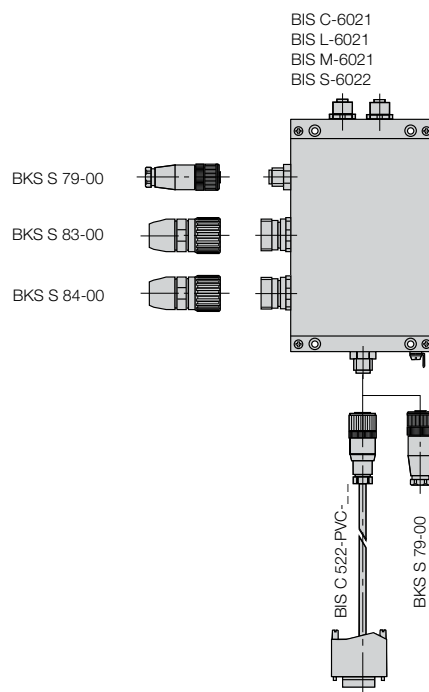
Version	5-pin, female	9-pin, male	9-pin, female	12-pin, male	
Use	for connection to processors BIS C/L/M/S-6_ _ (power)	for connection to processors BIS C/L/M/S-6021 output	for connection to processors BIS C/L/M/S-6021 input	for connection to processors BIS C-6022 ... ST10 input and/or output, PROFIBUS	
					
Part number	BKS-S 79-00	BKS-S 83-00	BKS-S 84-00	BKS-S 86-00	
Connector	M12	Round-connector	Round-connector	Round-connector	
Recommended cable	LiYCY-0	LiYCY-0	LiYCY-0	LiYCY-0	
Cable diameter		0.5 mm ²	0.5 mm ²		
Conductor cross section	0.34 mm ²			0.5 mm ²	
Protection* per IEC 60529	IP 67	IP 67	IP 67	IP 67	
Ambient temperature range	-40...+85 °C	-40...+85 °C	-40...+85 °C	-40...+125 °C	
Cable					

*only when connected

**at temperatures below freezing

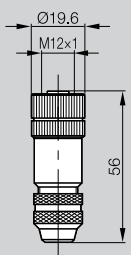
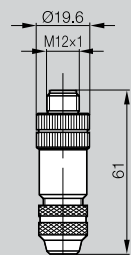
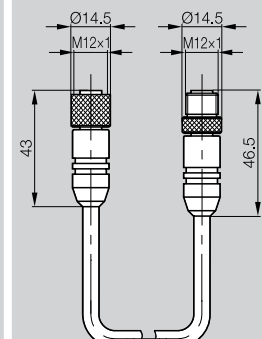
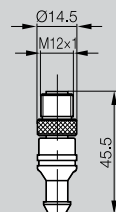
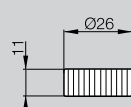


Supply voltage
for all BIS M-6_ _



Accessories

PROFIBUS-DP Connectors, Termination Resistor

5-pin, female for connecting PROFIBUS-DP	5-pin, female for connecting PROFIBUS-DP	5-pin, male, female PROFIBUS-DP extension cable	5-pin, male PROFIBUS-DP termination resistor	IP 65 protective cover for unused connectors!
				
PI0368	PI0369	PL0028	PI0366	PI0215
BKS-S103-00	BKS-S105-00	BKS-S103/GS103-CP-__	BKS-S105-R01	BKS 23-CS-00
M12 B-coded	M12 B-coded	M12 B-coded	M12 B-coded	
		2x0.64 mm ²		
IP 67	IP 67	IP 67	IP 67	
-40...+85 °C	-40...+85 °C	-40...+85 °C	-40...+85 °C	
		PU		

Please append cable
length to part number!
00.3 = Length 0.3 m
02 = Length 2 m
05 = Length 5 m
10 = Length 10 m

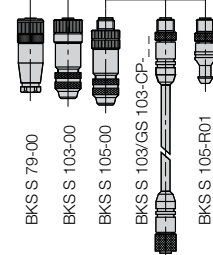
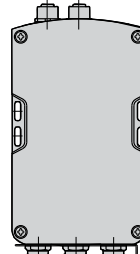


**Threaded cover
BKS 23-CS-00**
for M23 plug
connection IP65
cover fitting for
unused connectors!



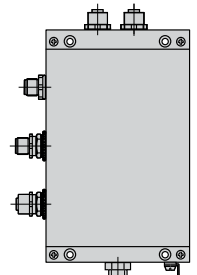
**Threaded cover
BKS 12-CS-01**
for M12 B-coded
plug connection

BIS L-6002
BIS M-6002
BIS S-6002



BKS S 79-00
BKS S 103-00
BKS S 105-00

BIS C-6022
BIS L-6022
BIS M-6022
BIS S-6022



Cables with
Connectors
Connectors and
Termination
Resistor

Connection
Cables
Connectors

**PROFIBUS-DP
Connectors,
Termination
Resistor**

Ethernet
Connectors

DeviceNet™
Connectors,
Termination
Resistor

Accessories
Retaining
Bracket,
Retainer
System,
Mounting
Plate

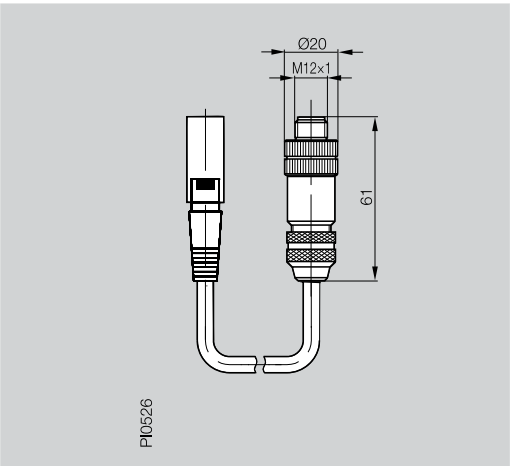
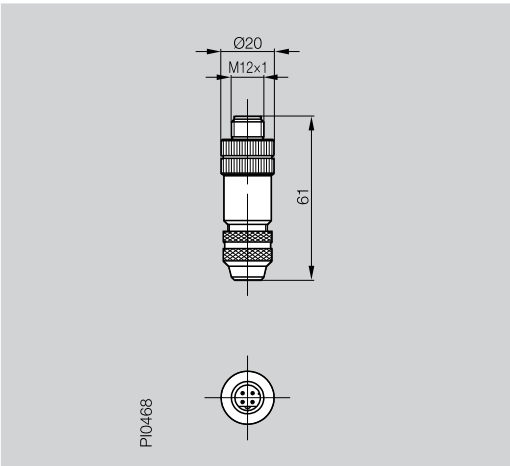
Processor
Mounting
Bracket

Mounting
Cuffs

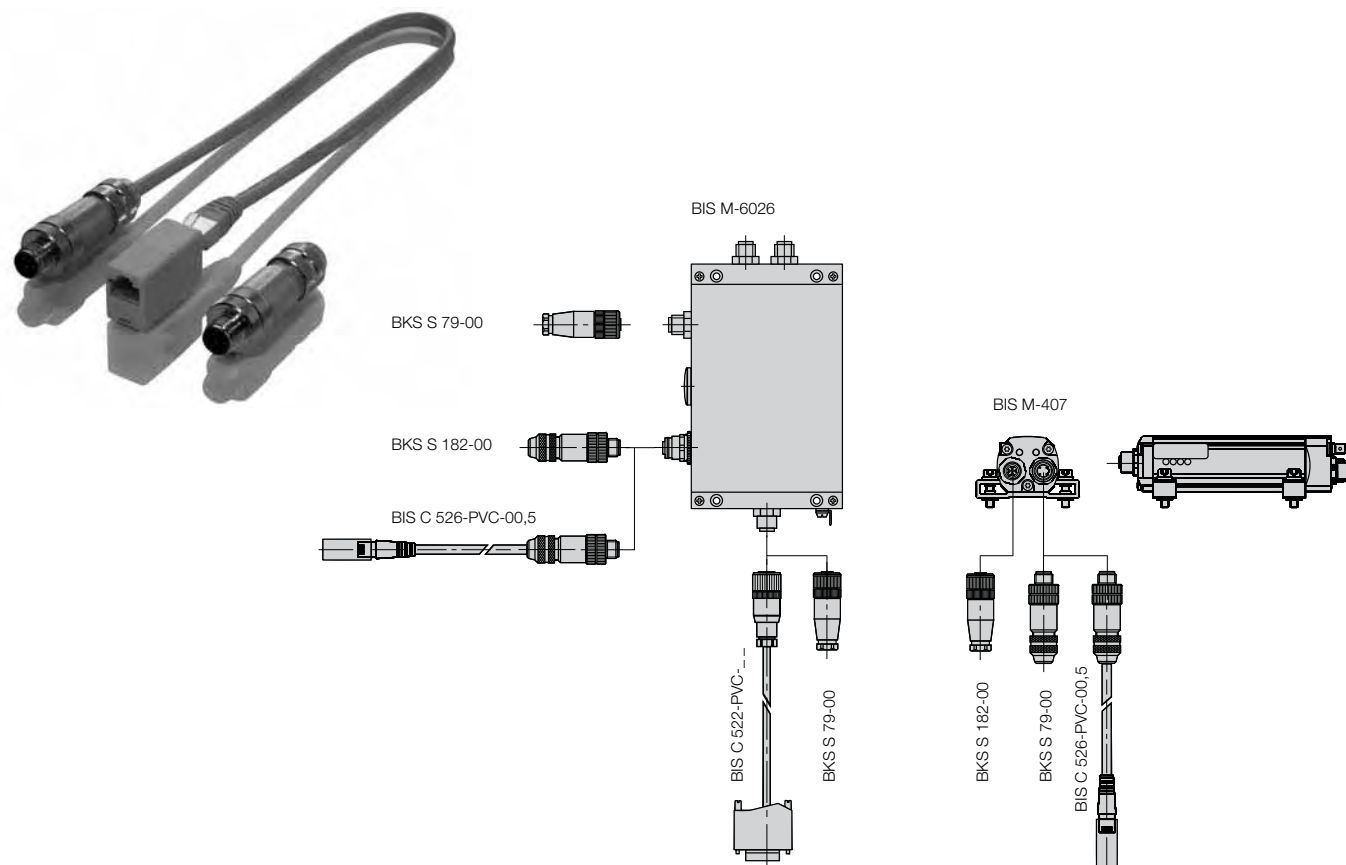
Expander
Module
BIS Z-ER

Accessories

Ethernet Connectors

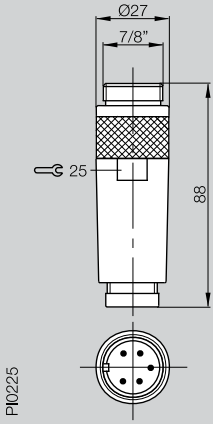
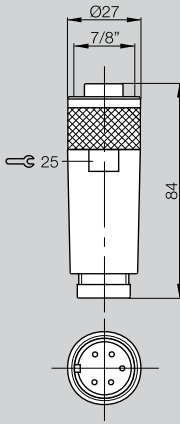
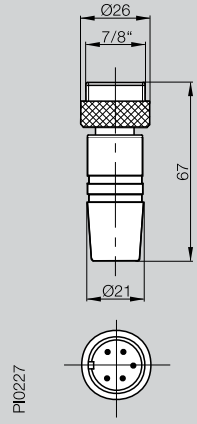
Version	Adapter cable	4-pin, male
Use	for EtherNet from M12 D-coded to coupling RJ45/RJ45	for connection to processors BIS C-6026 and BIS C-6027, EtherNet
		
Part number	BIS-C 526-PVC-00,5	BKS-S 182-00
Connector		M12 D-coded
Recommended cable		
Conductor cross section		
Protection* per IEC 60529	IP 40	IP 67
Ambient temperature range	-20...+80 °C	-40...+85 °C

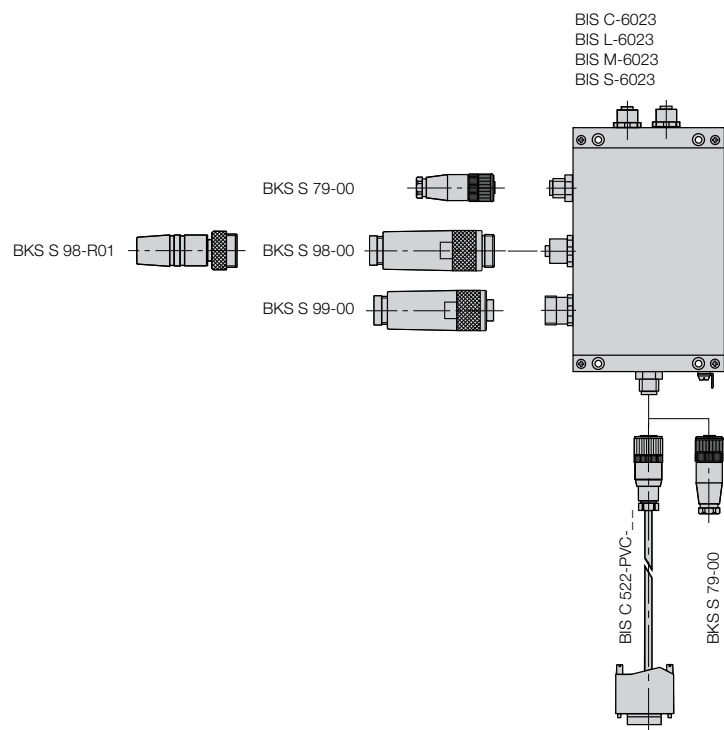
*only when connected



Accessories

DeviceNet™ Connectors, Termination Resistor

5-pin, male for connection to processors BIS L-6023 DeviceNet	5-pin, female for connection to processors BIS L-6023 DeviceNet	5-pin, male termination resistor for processors BIS L-6023 DeviceNet
		
BKS-S 98-00	BKS-S 99-00	BKS-S 98-R01
Round-connector	Round-connector	Round-connector
LiYCY-0	LiYCY-0	
0.5 mm²	0.5 mm²	
IP 67	IP 67	IP 67
-40...+90 °C	-40...+90 °C	-40...+85 °C



Cables with
Connectors
Connectors and
Termination Resistor

Connection
Cables

Connectors

PROFIBUS-DP
Connectors,
Termination
Resistor

**Ethernet
Connectors**
**DeviceNet™
Connectors,
Termination
Resistor**

Accessories

Retaining
Bracket,
Retainer
System,
Mounting
Plate

Processor
Mounting
Bracket

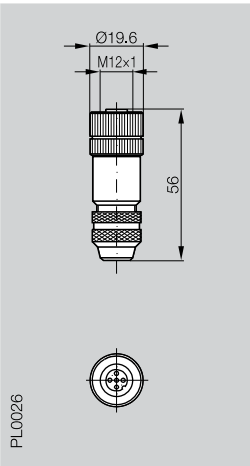
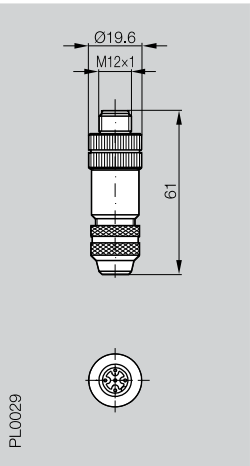
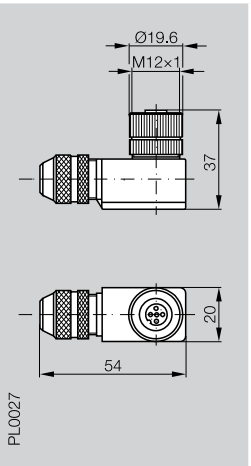
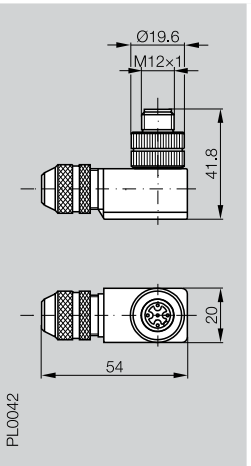
Mounting
Cuffs

Expander
Module
BIS Z-ER

Accessories

DeviceNet™ Connectors

Version	5-pin, female	5-pin, male	5-pin, right-angle, female	5-pin, right-angle, male
Use	BIS M-6003-...	BIS M-6003-...	BIS M-6003-...	BIS M-6003-...

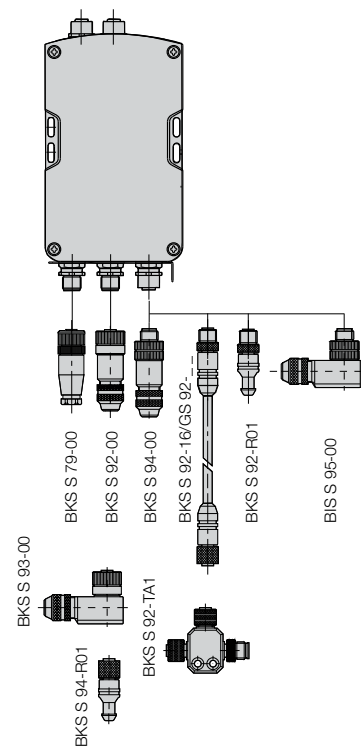
					
Part number	BKS-S 92-00	BKS-S 94-00	BKS-S 93-00	BKS-S 95-00	
Connector	Round-connector	Round-connector	Round-connector	Round-connector	
Cable diameter	6...8 mm	6...8 mm	6...8 mm	6...8 mm	
Protection per IEC 60529*	IP 67 (when connected)	IP 67 (when connected)	IP 67 (when connected)	IP 67 (when connected)	
Ambient temperature range	-40...+85 °C	-40...+85 °C	-40...+85 °C	-40...+85 °C	
Resistor					

*only when connected

BKS-S 92-00/-S 93-00/ -S 94-00/-S 95-00			BKS-S 92-R01/ -S 94-R01	
Pin assignments	Pin	Signal	Pin	Signal
	1	Drain	1	-
	2	V+	2	-
	3	V-	3	-
	4	CAN_H	4	121 Ohm
	5	CAN_L	5	

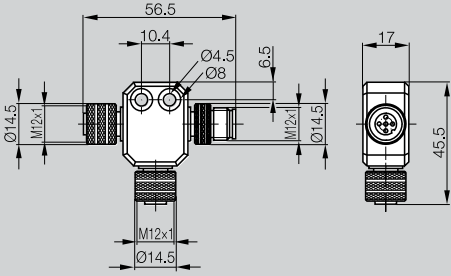
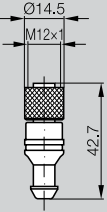
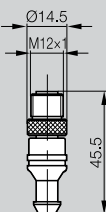
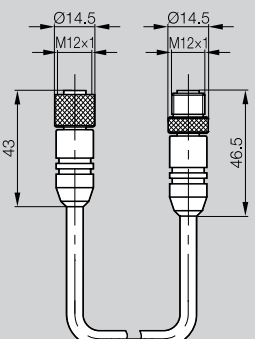
View of female coupling side

BIS C-6003
BIS L-6003
BIS M-6003
BIS S-6003

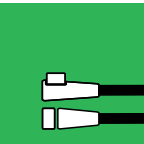


Accessories

DeviceNet™ Connectors, Termination Resistor

T-splitter, 2 × female, 1 × male BIS M-6003-...	5-pin, female BIS M-6003-... termination resistor	5-pin, male BIS M-6003-... termination resistor	5-pin, male, female BIS M-6003-... extension
 PL0025	 PL0031	 PL0030	 PL0028
BKS-S 92-TA1 Round-connector	BKS-S 92-R01 Round-connector	BKS-S 94-R01 Round-connector	BKS-S 137-19/GS92-PC-_-_- Round-connector
IP 65	IP 68	IP 68	IP 67
-25...+85 °C	-25...+90 °C	-25...+90 °C	-25...+90 °C
	121 Ohm	121 Ohm	

Please append cable length to part number!
02 = Length 2 m
05 = Length 5 m
10 = Length 10 m



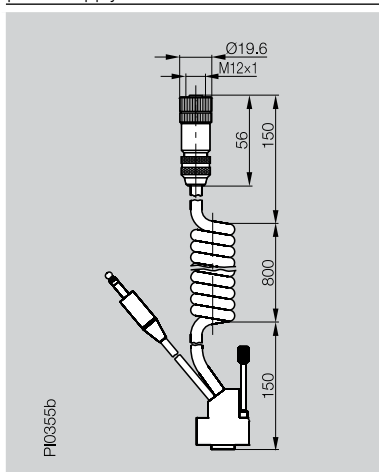
Cables with Connectors
Connectors and Termination Resistor
Connection Cables
Connectors
PROFIBUS-DP Connectors, Termination Resistor
Ethernet Connectors
DeviceNet™ Connectors, Termination Resistor
Accessories
Retaining Bracket, Retainer System, Mounting Plate
Processor Mounting Bracket
Mounting Cuffs
Expander Module
BIS Z-ER



Accessories

Accessories

Version	Connection cable
Use	Connecting cable for BIS M-4_ _ systems with coupling for BIS C-703-A power supply and RS232 interface



Part number	BIS Z-AK-001-PU1-03
Protection per IEC 60529*	IP 40
Ambient temperature range	0...+70 °C

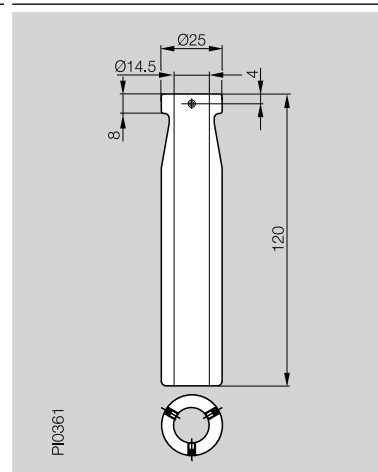
*Only when connected



BIS C-703-A

BIS Z-AK-001-PU1-03

Version	Handle
Use	For read/write head BIS C-300_ _



Part number	BIS C-300-HG1
Ambient temperature range	-20...+85 °C
Storage temperature	0...+70 °C

Handle BIS C-300-HG1

Material: POM



BIS Z-HG-002

for M18 housing

**Hand grip –
for ergonomic use**
for read/write heads or
read/write heads with
integrated processors in
M18 or M30 housing

BIS Z-HG-003

for M30 housing



Accessories

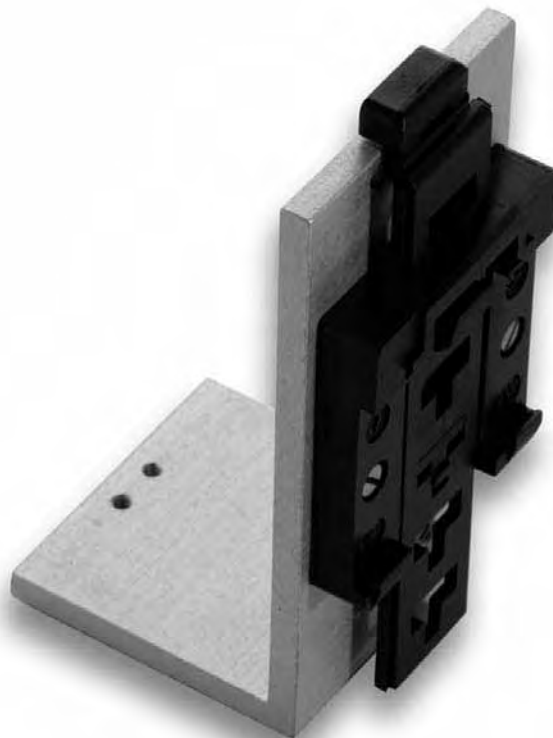
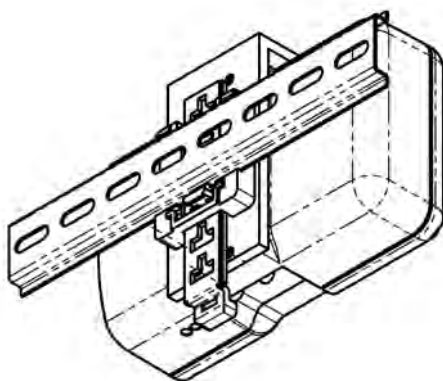
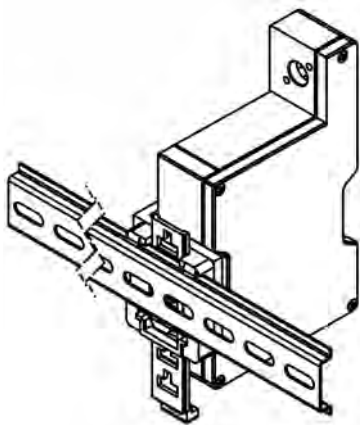
Processor Mounting Bracket

Mounting rail holder set for processor units BIS C/L/M/S-600X

Mounting set BIS Z-HW-001 includes

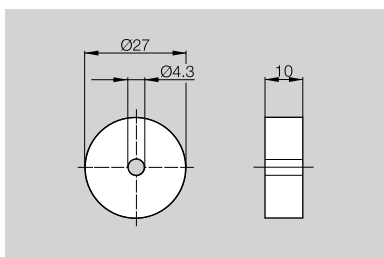
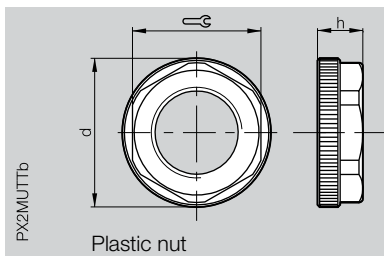
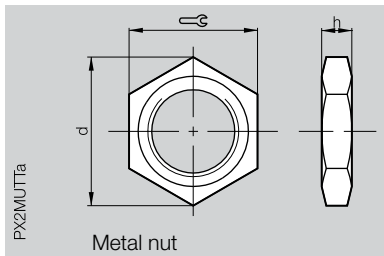
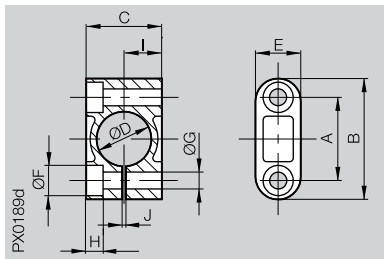
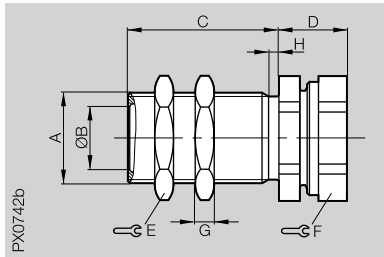
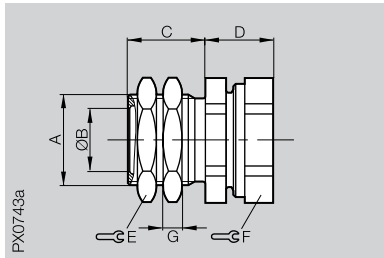
- 1 retaining bracket
- 1 mounting rail holder
- 4 socket cap screws with hexagon socket, according to DIN 912-M4×16
- 2 socket cap screws with slot, according to DIN 84-M3×8

Mounting rails are not included.



Accessories

Mounting Cuffs



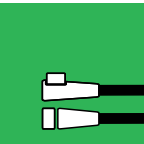
Clamps with positive stop for read/write heads having ≥ 30 mm thread length (material: nickel plated brass)

	A	Ø B	C	D max.	E	F	G
BES 18,0-KH-2S	M24×1.5	18	20.5	15.5	SW30	SW30	5
BES 30,0-KH-2S	M36×1.5	30	20.5	15.5	SW41	SW41	6
BES 30,0-KH-2L	M36×1.5	30	40	18	SW41	SW41	6



Mounting Cuffs

	A	B	C	D	E	F	G	H	I	J
BES 14,5-BS-1	22	32	20	14,5	12	8	4,5	4,5	10	1
BES 16,0-BS-1	26	36	26	16	12	8	4,5	4,5	13	1
BES 18,0-BS-1	26	36	26	17,9	12	8	4,5	4,5	13	1
BES 30,0-BS-1	42	55	38	30	18	10	5,5	5,5	18	1,5



	Part no. = Ordering code	Material	d	SW	h
Metal nuts					
M30×1.5	500252	Ms nickel plated	42	36	5
Stainless steel nuts					
M18×1	636982	1.4301	28	24	4
M30×1.5	636983	1.4401	42	36	5

	Part no. = Ordering code	Material	d	SW	h
Plastic nuts					
M18×1	606841	PA 6.6	28	24	8

BIS Z-SP-001

Spacer for data carriers when mounting on metal

Cables with
Connectors
Connectors
and
Termination
Resistor
Connection
Cables
Connectors
PROFIBUS-DP
Connectors,
Termination
Resistor
Ethernet
Connectors
DeviceNet™
Connectors,
Termination
Resistor
Accessories
Retaining
Bracket,
Retainer
System,
Mounting
Plate
Processor
Mounting
Bracket
Mounting
Cuffs
Expander
Module
BIS Z-ER

Expander Module BIS Z-ER

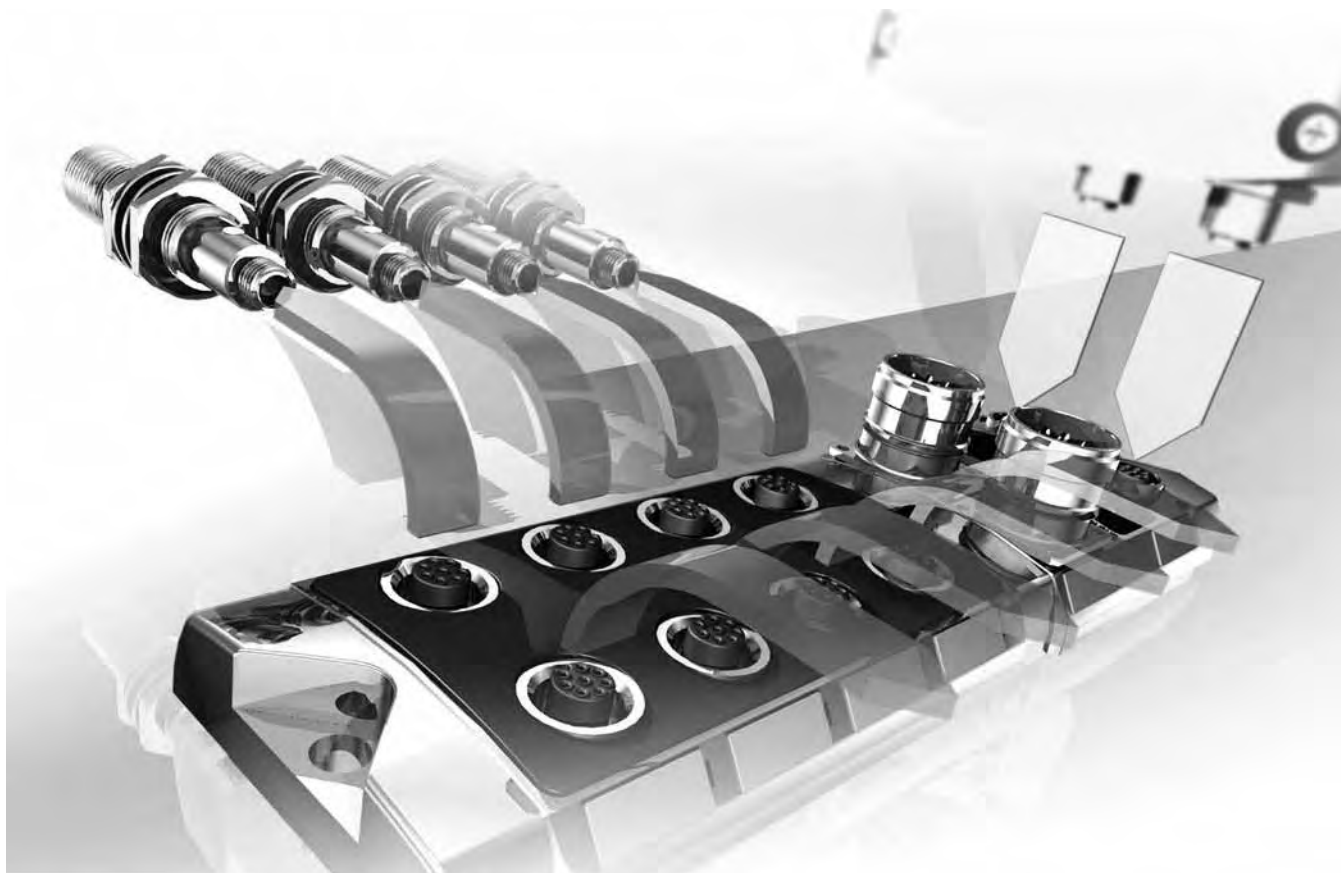
For Multiplexing Up To 32 Read/Write Heads

The new expander module is a low-cost, economically scalable solution for extending your current L or M system by up to 32 read/write heads using only one processor.

The expander module is designed for connecting up to 8 read/write heads: BIS L-3__ or BIS M-3__ can be selected using digital inputs from a rotary switch or PLC.

The read/write heads are selected electronically from an external discrete source and are therefore not subject to switch wear. The process for selecting the read head can be monitored via feedback signals. 2×4 control signals help to select the desired read/write head.

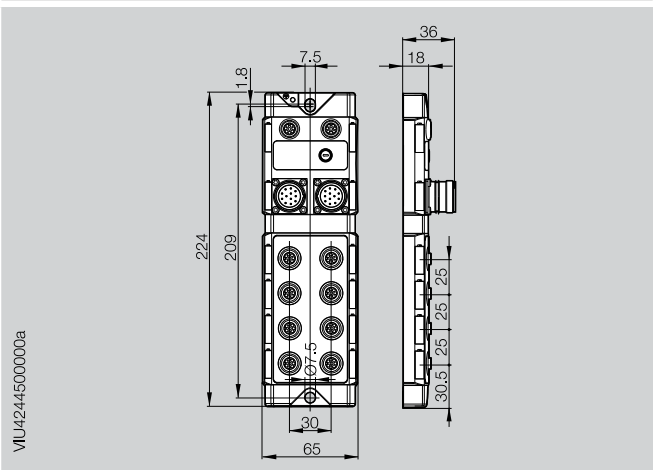
A maximum of 2 expanders can be connected in series per head input on BIS processor.



Expander Module BIS Z-ER

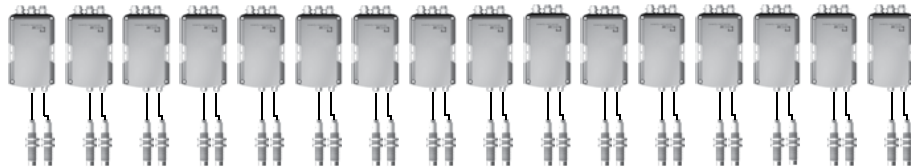
For Multiplexing Up To 32 Read/Write Heads

Dimensions	225×68×37
Function	Expander module in combination with BIS L-60XX, BIS M-60XX or BIS M-407
Housing material	GD-Zn, nickel-plated
Weight	approx. 580 g

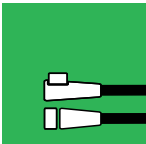
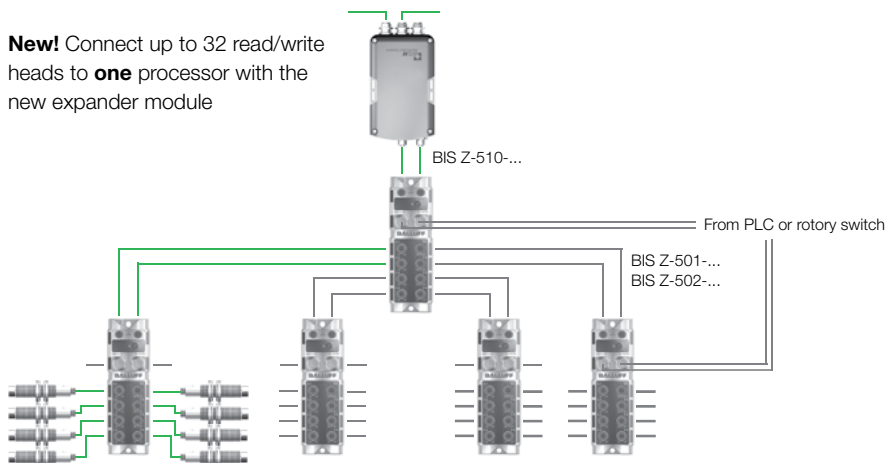


Part number	BIS Z-ER-001
Supply voltage	24 V DC ±20 %
Ripple	≤ 10 %
Current draw	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection as per IEC 60529	IP 65
Connection type	
Processor connection	2 × 8-pin connectors, M12
Read/Write head connections	2 × 4 8-pin connectors, M12
Control signal connection	2 × 12-pin connectors, M23
Read/Write head ports	2 × 4 external BIS L-3__ or BIS M-3__ specified by the processor used
Control displays	16 green LEDs and 16 yellow LEDs for indicating the selected read/write head
Mounting	2-hole mounting
Accessories please order separately	Connectors see page 198

Current standard configuration:



New! Connect up to 32 read/write heads to **one** processor with the new expander module



Cables with Connectors
Connectors and Termination Resistor
Connection Cables
Connectors
PROFIBUS-DP Connectors, Termination Resistor
Ethernet Connectors
DeviceNet™ Connectors, Termination Resistor
Accessories
Retaining Bracket, Retainer System, Mounting Plate
Processor Mounting Bracket
Mounting Cuffs
Expander Module BIS Z-ER

Industrial RFID Systems BIS

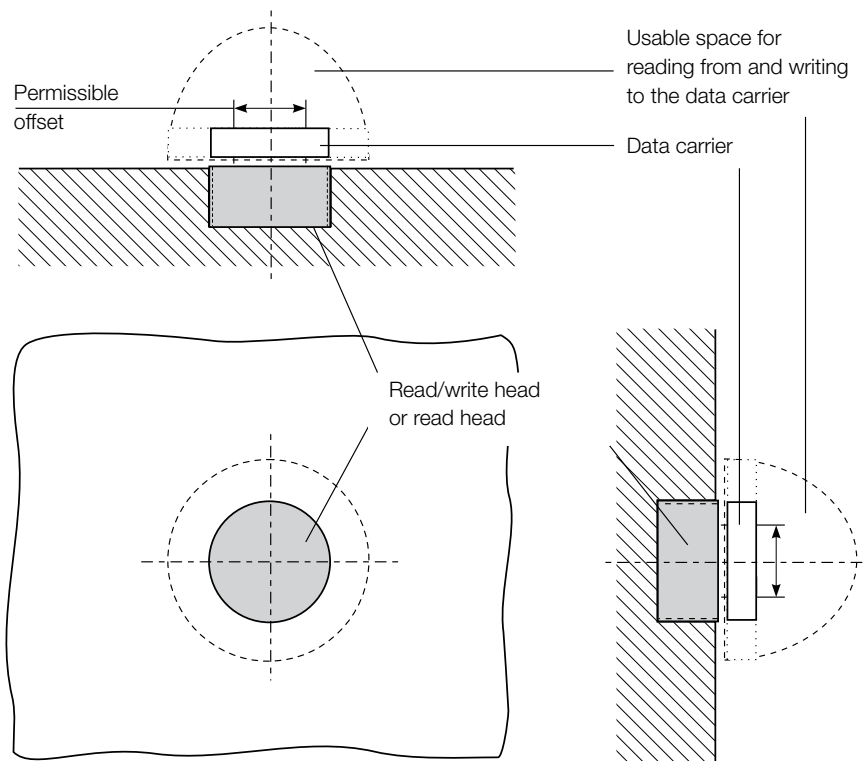
Interaction Between Read/Write Heads and Data Carriers

Spatial Arrangement of Read/Write Head or Read Head and Data Carrier

The key to reliable data exchange between the read/write head or read head and the data carrier is maintaining sufficient dwell time of the data carrier within a specified spatial distance from the head.

The sketches on the two following pages are intended to clarify this requirement, in the first sketch for read/write heads or read heads with non-directional operation, in the second for heads in cases where the data carrier has to pass by from a certain direction or at a certain orientation.

For a **static read/write or read operation** the data carrier stops completely in front of the head; this permits a greater distance between the two.



Spatial arrangement of read/write head or read head and data carrier for non-directional

heads and **flush mounting** (circular antenna).

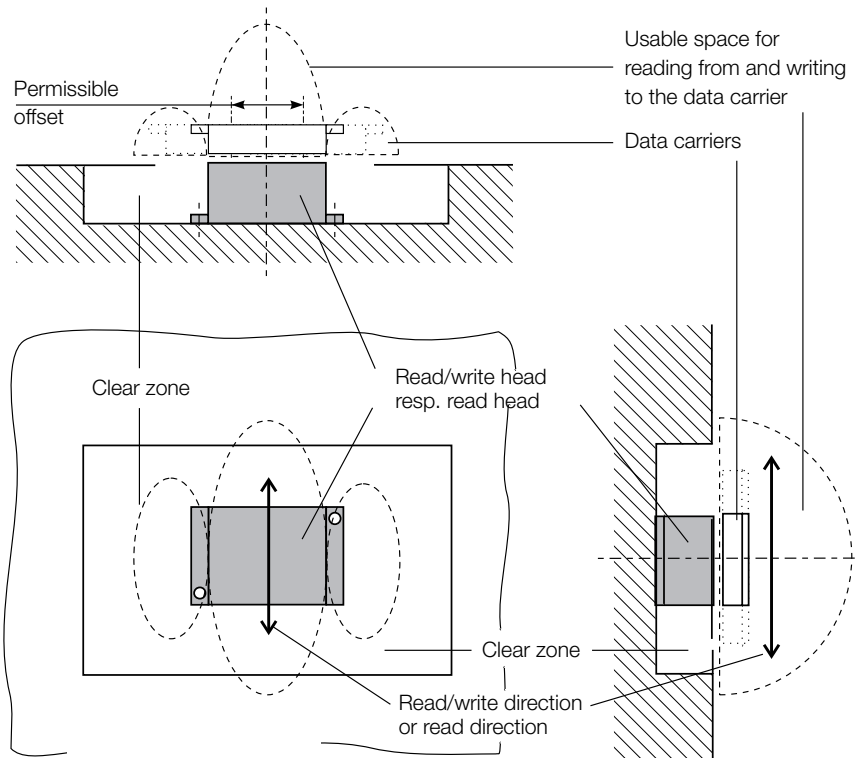
Industrial RFID Systems BIS

Interaction Between Read/Write Heads and Data Carriers

For **dynamic operation** the data carrier is read or programmed on the fly. The shorter distance is necessary in order to achieve as large a read/write or read path as possible.

Each read/write head or read head has a certain data carrier which can be used with it (the pairing is based on physical size and antenna field configuration).

The associated specifications for distance and permissible offset are indicated as well as the distance and relative speed between the read/write head or read head and the data carrier.



Spatial arrangement of read/write head or read head and data carrier for directional

heads and **non-flush mount** (bar-shaped antenna).

Industrial RFID Systems BIS

Software and Service Tools

Service tools – for easy startup

Save time and money and use the CD-ROM for simple startup of your BIS system. Every processor comes with this CD-ROM including service tools to assist you.

BISCOMRW

As an aid in startup, for test configuration!

This free software allows you to read or program a data carrier using any common PC.

Requirements:

PC:
Serial port or USB port using a USB to RS232 converter.
Windows XP
or Windows 2000.
CD-ROM drive.

Processor:
Any processor using Balluff Protocol (-007) and built-in serial port.

Functions:

- Read data carrier and display the data in ASCII and hex format.
- Edit data and write data to the data carrier.
- Initialize data carrier for the CRC function.



Software code examples BIS C-60_2 for Siemens Simatic S7, Allen Bradley ControlLogix, and Mitsubishi Melsec

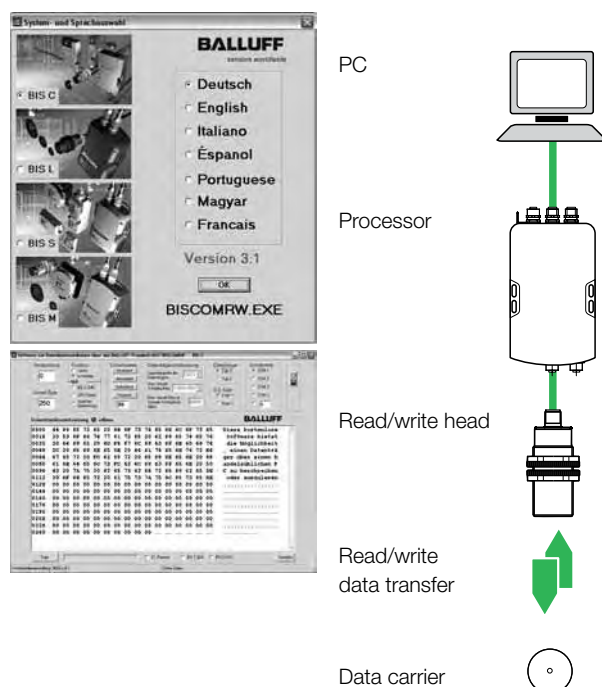
For fast integration into the PLC controller. Save time and money with preconfigured functions!

Function modules and ladder code examples for easier integration of INTERBUS, PROFIBUS-DP, PROFINET, DeviceNet, and Ethernet/IP processors to Simatic S7, ControlLogix, or Mitsubishi Melsec based PLC controllers.

The function modules and ladder code offer the full functionality of the Balluff Processors. Data is exchanged through the I/O section of the controller.

Advantages:

- Faster startup
- Easy to use
- Full command set





BIS M-107-03/L-H200

Data carrier for high temperatures



BIS M-140-02/A-M6

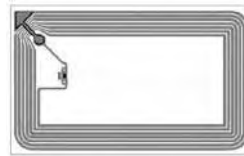
BIS M-140-02/A-M8

Databolt™ – Ideal for automatic insertion and removal from parts like engine blocks and heads.



BIS M-115-03/A

Other solutions for your application. Contact us.



Paper tags – Ideal for disposable applications in logistics. Contact us.



BIS C-131-05/L

For radial data retrieval from rotating parts, positioning not required. Contact us.



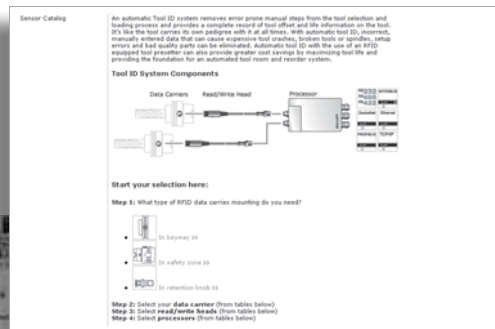
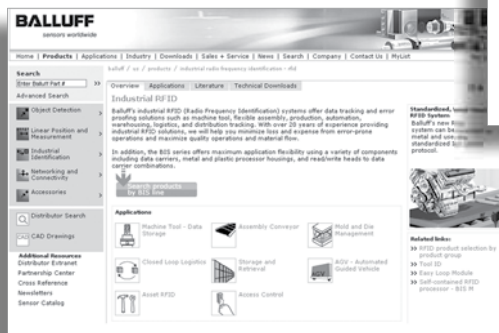
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For radial data retrieval from rotating parts, positioning not required. Contact us.

For more information on Industrial RFID products and systems visit
www.balluff.com/rfid

Resources available:

- Applications
- Usage information
- Datasheets
- Literature
- Drawings
- Videos



Individual application web pages will help guide you through the process of how Balluff's Industrial RFID can be applied. They include diagrams and specific information on how RFID can be used to solve your application.

Visit the Industrial RFID overview page to learn more about Balluff's RFID products and systems. This page can help guide you by application type or by product functionality to help provide quick and easy methods to find the solution you're looking for.



Visit the Industrial RFID applications web page to find out various ways Balluff's RFID has been applied to provide visibility into processes and solve manufacturing data handling requirements.

Camera	RFID	Read/Write Head	Processor	Mounting	Notes
BIS M (Barcode)	None	None	None	None	For operating temperatures between -20°C and +70°C. LPT and HPT, 100,000 or 1,000,000 write cycles guaranteed, dynamic.
BIS M 100-0100	RFID	70 mm	2000 Byte	Not in metal	
BIS M 100-0100	RFID	45 mm	2000 Byte	In metal	
BIS M 100-0100	RFID	45 mm	2000 Byte	In metal	
BIS M 100-0100	RFID	50 mm	752 Byte	Not in metal	
BIS M 100-0100	RFID	50 mm	752 Byte	Not in metal	
BIS M 100-0100	RFID	45 mm	2000 Byte	Not in metal	
BIS M 100-0100	RFID	45 mm	2000 Byte	Not in metal	
BIS M 100-0100	RFID	32 mm	2000 Byte	In metal	
BIS M 100-0100	RFID	9 mm	752 Byte	In metal	
BIS M 100-0100	RFID	9 mm	752 Byte	In metal	
BIS M 100-0100	RFID	7 mm	2000 Byte	In metal	

The Industrial RFID product selection pages help guide you through the process of selecting an RFID system by providing step-by-step charts based on tag data. This method provides easy access to selection criteria such as tag read/write capability and memory size, tag range and mounting capability, and read/write head vs. tag cross reference data all right at your finger tips.

Balluff North America



Florence, Kentucky USA

Enjoying one of the highest growth rates in the automation industry, Balluff's Florence, Kentucky United States headquarters is located just south of Cincinnati, Ohio. Our customers are in industries such as automotive, machine tool, robotics, injection molding, packaging, material handling, and more.

In addition to sales, marketing, and logistic functions, this facility manufactures regionally focused inductive proximity sensors and Micropulse® magnetostrictive linear position sensors.

Balluff spans the globe with representation in 49 countries.

For a complete global listing visit www.balluff.com/global



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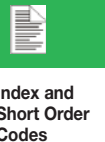
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*consult factory for available order codes

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Object Detection



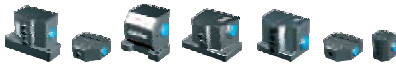
Sensor Product Line

Inductive sensors BES DC 3-/4-wire
Inductive sensors BES DC 2-wire
Inductive sensors BES AC/DC
Inductive sensors BES with special properties
Sensors for pneumatic cylinders BMF
Magnetic field sensors BMF
Capacitive sensors BCS
Pressure sensors BSP



Photoelectric Product Line

Diffuse energetic BOS with fore- and background suppression
Retro-reflective sensors BOS
Through-beam sensors BOS (emitter/receiver)
Fiber optic systems BFB
Through-beam fork sensors BGL
Dynamic optical windows BOWA
Light grids BLG
Contrast sensors BKT
Luminescence sensors BLT
Color sensors BFS
Photoelectric distance sensors BOD



Mechanical Product Line

Mechanical Single and Multiple Position Switches
Mechanical single and multiple position switches to DIN EN 60204-1/VDE 0113
Mechanical single and multiple position switches with positive opening
Mechanical multiple position switches with quick plunger change-out
Inductive single and multiple position switches
Inductive single and multiple position switches with extended switching distance
Mechanical wireless position switches
Mixed assembly multiple position switches

Linear Position and Sensing



Linear Displacement Product Line

Micropulse® transducer BTL Profile Series
Micropulse® transducer BTL AT Series
Micropulse® transducer BTL Rod-Style Series
Micropulse® transducer BTL Compact Rod Series
Micropulse® processors, BUS interfaces
BML magnetic linear encoder system
BDG/BRG incremental and absolute encoders
BIW pulse-Inductive linear displacement sensor
BAW inductive distance sensors
BIL magnetoinductive position sensors
BOD photoelectric distance sensors

Industrial Identification



Industrial Identification

BIS C Industrial RFID systems
BIS L Industrial RFID systems
BIS M Industrial RFID systems
BIS S Industrial RFID systems
BVS Vision Sensor

Industrial Networking and Connectivity



Industrial Networking and Connectivity

BCC connectors and cables
BPI passive splitter boxes
BNI active splitter boxes
IO-Link
Inductive transmission systems - Remote
BIC inductive couplers
BUS systems
Wireless
Electrical Devices

Mechanical Accessories

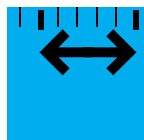


Mechanical Accessories

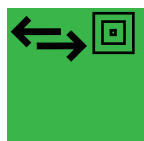
Holders and Fastening Systems
BMS mounting system



Object Detection



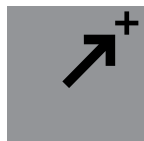
Linear Position and Measurement



Industrial Identification



Networking and Connectivity



Accessories



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