



SIGNAL CONDITIONERS & INDICATORS 2008/2009

Temperature Transmitters, Alarm Units, Indicators, Signal Isolators

- Complete line of Temperature Transmitters for in-head and DIN-rail mounting
- Alarm Units for monitoring of temperature and process signals
- Big selection of Loop Powered Indicators
- Complete line of Loop Powered Isolators and Isolation Transmitters

INOR's Signal Conditioners Highest Reliability – Selectable Performance

A world leader in the manufacture of signal transmitters

INOR is able to shoulder this great responsibility thanks to our long experience of the process industry's need for reliable measurement and application specific performance. This experience has made us experts in temperature measurement and signal conditioning, which enables us to manufacture products that are precisely engineered to meet the high standards set by the industry.

Acknowledged high quality

INOR is ISO 9001 certified since 1995. Inor's products are acknowledged to be of the highest quality, which is why we offer a 5-year warranty.

Our standards and optimal manufacturing process help to create products with excellent stability, accuracy and EMC properties.

More than 65 years' experience

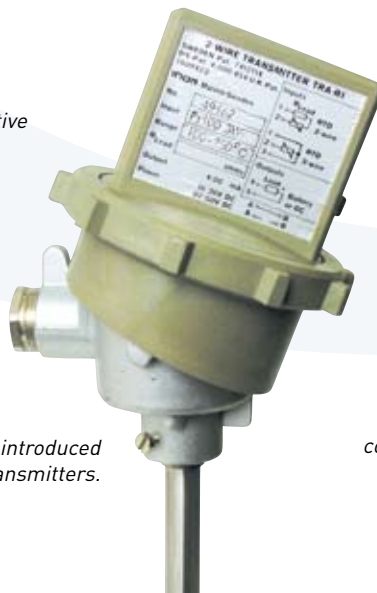
INOR was founded in 1940, and with over 65 years' experience of industrial measurement technique, our company possesses an incomparable level of expertise. From the beginning being one step ahead has always been our goal. This means continual development of both our company and products.

In 1974, INOR introduced the world's first headmounted transmitters, ushering in a new era in industrial temperature measurement. Today, Inor's concept is not merely accepted, it is welcomed throughout our global market.

Today, INOR is one of the world's leading manufacturers of signal conditioners with focus on temperature transmitters.



"INOR Intelligence", the symbol of innovative development, know-how and quality



In 1974 Inor introduced the world's first headmounted transmitters.



With over 30 years' experience, today's compact in-head transmitters are built for demanding industrial environments.

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Analog Adjustable 3-wire Transmitters

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Analog Adjustable 3-wire Transmitters

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DA576

Precision Transmitter for
Absolute and Differential Temperature Measurement

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SR360

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IsoPAQ-11L

1-channel Loop Powered Isolator
for Separation of 0(4)-20 mA Signals

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IsoPAQ-12L

2-channel Loop Powered Isolator
for Separation of 0(4)-20 mA Signals

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IsoPAQ-110L

1- & 2-channel Loop Powered Isolators
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IsoPAQ-21L

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Signals with High Isolation and Protective Separation

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IsoPAQ-22L

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Signals with High Isolation and Protective Separation

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IsoPAQ-110R

Transmitter Repeater for Powering and Isolation
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Isolation Transmitters for Unipolar Process Signals



IsoPAQ-30P

Basic Isolation Transmitter for Unipolar mA/V Signals
with Calibrated Range Selection

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Basic Isolation Transmitter for Unipolar mA/V Signals
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High-performance Isolation Transmitter for Bipolar and
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Isolation Transmitters with Special Features**DA561**

Isolation Transmitter for mA/V Signals
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**DA562**

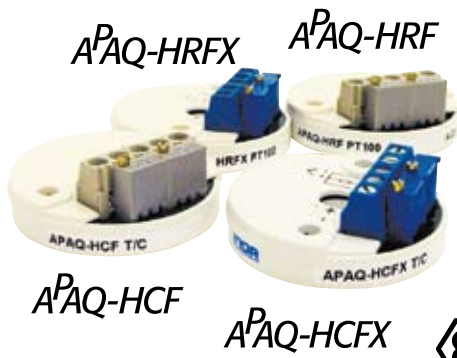
Dual Channel Isolation Transmitter for mA/V Signals 73

**IPAQ-L(mA)**

Programmable 2-wire Isolation Transmitter for mA Signals 74

APAQ-H

Analog Adjustable 2-wire Transmitters



APAQ-H is a family of multirange 2-wire temperature transmitters for Pt100 or Thermocouple input. Designed for highest reliability and excellent industrial performance. The "low profile" housing is extremely durable and facilitates easy connections and adjustments.

- Rangeable with solderpads and potentiometers
- Temperature linear output for Pt100 (APAQ-HRF/-HRFX)
- mV linear output for T/C (APAQ-HCF/-HCFX)
- Consistent sensor break function
- Easy wiring, large center hole
- Moulded electronics for high protection

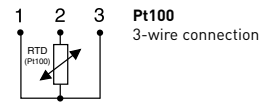
Specifications:

	APAQ-HRF/-HRFX	APAQ-HCF/-HCFX
Input	Pt100 ¹⁾ , 3-wire connection	T/C J, L, T, K, N
Adjustments		
Span	50/100/150/200/300/400/500 °C 100/200/300/400/600/800/1000 °F	10 to 50 mV continuously Temperature ranges acc to datasheet
Fine adjustment	±10 %	±10 %
Zero	-50 to + 50 °C -60 to + 120 °F	±10 % of span
Output	4-20 mA	4-20 mA
Linearization	Temperature linear output	mV linear output
Galvanic isolation	No	No
Power supply		
APAQ-HRF/-HCF	6.5 to 32 VDC	6.5 to 32 VDC
APAQ-HRFX/-HCFX	8.5 to 30 VDC	8.5 to 30 VDC
Sensor break	Upscale, Downscale	Upscale, Downscale
Intrinsic safety		
APAQ-HRFX/-HCFX ATEX:	II 1 G EEx ia IIB T4-T6	II 1 G EEx ia IIB T4-T6
APAQ-HRFX/-HCFX FM:	IS Class 1, DIV 1, GP A-D	IS Class I, Div. 1, GP A-D
APAQ-HRFX/-HCFX CSA:	Class 1, Groups A-D	Class I, Groups A-D
Operating Temperature	-40 to +85 °C / -40 to +185 °F	-40 to +85 °C / -40 to +185 °F
Typical accuracy	±0.15 % of temperature span	±0.5 % to ±1.0 % of temperature span
Connection head	DIN B or larger	DIN B or larger

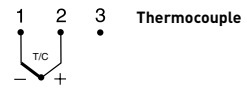
¹⁾ IEC 60751, $\alpha=0.00385$

Input connections

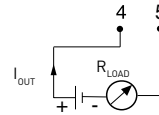
APAQ-HRF/-HRFX



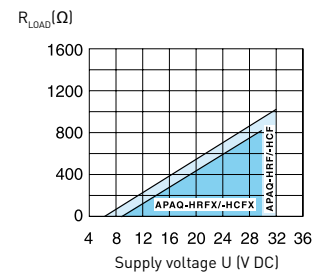
APAQ-HCF/-HCFX



Output connections



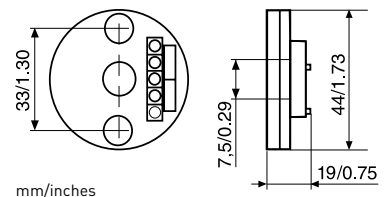
Output load diagram



$$R_{LOAD} = (U - 6.5) / 0.025 \text{ [APAQ-HRF/-HCF]}$$

$$R_{LOAD} = (U - 8.5) / 0.025 \text{ [APAQ-HRFX/-HCFX]}$$

Dimensions



Ordering information

APAQ-HRF	70APHRF001
APAQ-HRFX (ATEX)	70APHRFX01
APAQ-HRFX (FM, CSA)	70APHRFX11
APAQ-HCF	70APHCF001
APAQ-HCFX (ATEX)	70APHCFX01
APAQ-HCFX (FM, CSA)	70APHCFX11
Configuration	70CAL00001

C201

IPAQ®

C201



Analog PC-Programmable 2-wire Transmitter for Pt100 Input



C201 is an analog, non-isolated, easy-to-use 2-wire transmitter for Pt100 input.
Configuration is made in seconds with the user friendly software, ConSoft.
No external power supply required for configuration.
C201 is designed for Pt100 in 3-wire connection according to different standards.

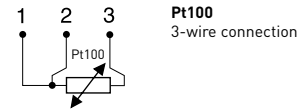
- Robust terminals with test connections
- Only 18.5 mm / 0.72 inch high
- Input: Pt100 in 3-wire connection
- PC configurable measuring ranges without need for calibration
- Temperature linear output
- Very short response time
- Excellent EMC immunity
- Configuration without external power
- Easy-to-use Windows configuration software
- USB communication
- Withstands vibrations up to 10 g

Specifications:

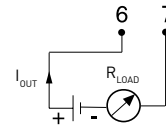
Input Pt100	3-wire connection
Pt100 ($\alpha=0.00385$)	-50 to +850 °C / -58 to +1562 °F
Pt100 ($\alpha=0.003902$)	-50 to +850 °C / -58 to +1562 °F
Pt100 ($\alpha=0.003916$)	-50 to +850 °C / -58 to +1562 °F
Sensor break	Upscale or downscale
Adjustments	
Zero	-50, -25, 0, +25, +50 °C / -58, -13, +32, +77, +122 °F
Minimum span	20 °C / 36 °F
Sensor error compensation	±1 % of span
Output	4-20 mA, temperature linear
Response time	< 50 ms
Ambient temperature	
Operation and storage	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	No
Power supply	8.5 to 32 VDC
Accuracy ¹⁾	Max. of ±0.1 °C / ±0.2 °F or ±0.1 % of span
Connection head	DIN B or larger

¹⁾Includes calibration and linearity errors

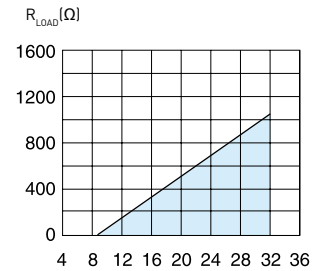
Input connections



Output connections



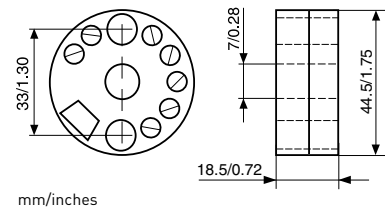
Output load diagram



Supply voltage U [V DC]

$$R_{LOAD} = (U - 8.5) / 0.022$$

Dimensions



Ordering information

C201	70C2010010
PC configuration kit (USB-conn.)	70CFGUS001
Configuration	70CAL00001

MINIPAQ®-HLP

Basic Programmable 2-wire Transmitter



MINIPAQ-HLP is a basic, programmable non-isolated, easy-to-use 2-wire transmitter. The Low Profile housing has a height of only 18.5 mm / 0.72 inch. Configuration is made in seconds with the user friendly Windows software, MINIPAQ Soft. No external power supply required for configuration. The transmitter is programmable for RTD's in 3- and 4-wire connection according to different standards as well as for 11 T/C types. Useful error correction functions improve the accuracy.

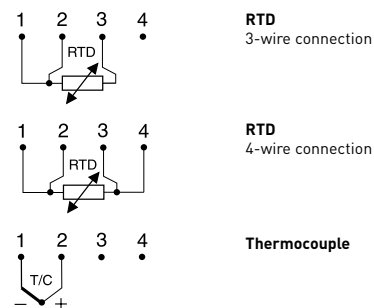
- Robust terminals with test connections
- Only 18.5 mm / 0.72 inch high
- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Rugged design tested for 10 g vibrations
- USB communication

Specifications:

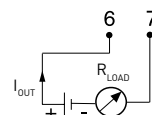
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$) ¹⁾	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$) ¹⁾	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$) ¹⁾	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ²⁾	-10 to +150 °C / +14 to +302 °F
Ni120 ³⁾	-70 to +300 °C / -94 to +572 °F
Cu10 ⁴⁾	-200 to +260 °C / -328 to +500 °F
Input Thermocouples	
Types	B, C, E, J, K, L, N, R, S, T, U
Sensor failure	Upscale, downscale or off
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
T/C	2 mV
Output	4-20 mA, temperature linear
Operating temperature	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	No
Power supply	8 to 32 VDC
Typical accuracy	±0.15 % of temperature span
Connection head	DIN B or larger

¹⁾ IEC 60751, ²⁾ DIN 43760, ³⁾ Edison No.7, ⁴⁾ Edison No.15

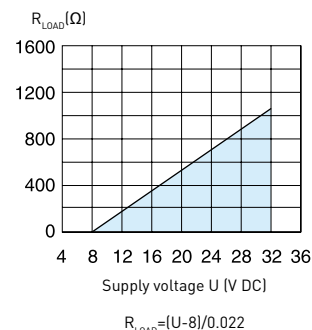
Input connections



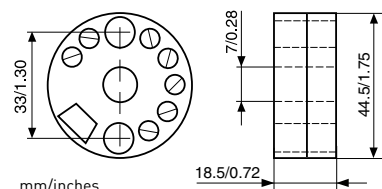
Output connections



Output load diagram



Dimensions

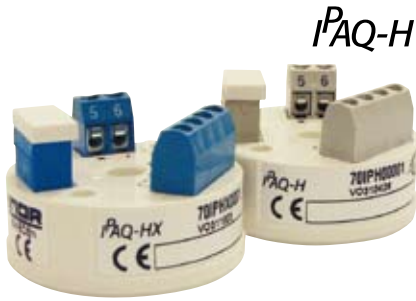


Ordering information

MINIPAQ-HLP	70MQHLP002
PC Configuration Kit (USB conn.)	70CFGUS001
Configuration	70CAL00001

IPAQ-H

Universal Programmable 2-wire Transmitters



IPAQ-HX



IPAQ-H/-HX are universal, isolated 2-wire transmitters for temperature and other measurement applications. They combine competitive pricing, functionality and simple configuration. Useful error correction functions improve the accuracy.

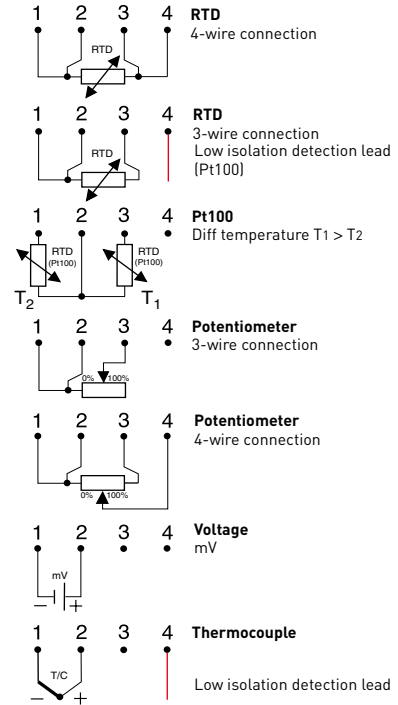
- Fully universal, linearized and high-isolation
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Low sensor isolation detection
- IPRO, easy-to-use Windows configuration software

Specifications:

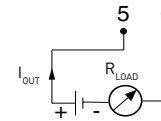
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ³⁾	-200 to +260 °C / -328 to +500 °F
Input Potentiometer / resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types B, C, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Operating temperature	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	IPAQ-H: 6.5 to 36 VDC IPAQ-HX: 8 to 30 VDC
Intrinsic safety	
IPAQ-HX ATEX:	II 1 G EEx ia IIC T4-T6
IPAQ-HX FM:	IS Class I, DIV 1, GP A-D
IPAQ-HX CSA:	Class I, Groups A-D
Typical accuracy	± 0.1 % of span
Connection head	DIN B or larger

¹⁾ DIN 43760 ²⁾ Edison No. 7 ³⁾ Edison No. 15

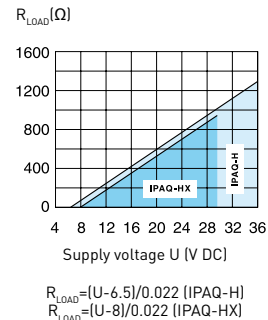
Input connections



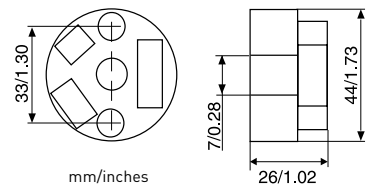
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ-H	70IPH00001
IPAQ-HX (ATEX)	70IPHX0001
IPAQ-HX (FM, CSA)	70IPHX1001
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

IPAQ-HX/D

Universal 2-wire Transmitters in Connection Head with Ex-approval for Dust



IPAQ-HX/D is a standard IPAQ-HX transmitter with connection head certified for mounting in hazardous areas containing explosive dust. IPAQ-HX/D can be placed in Dust Zones 21 and 22.

For information about transmitter data and features, we refer to technical documentation of the IPAQ-H/-HX transmitters.

To fulfill requirements for safe operation the transmitter must be mounted in a connection head of a safe type. At the moment there are three ATEX certified heads; BI, BS and DANX, each with a choice of three different threads for mounting on a protection tube (see information to the right). The connection heads are all made of die cast aluminum and are furnished with an Ex-classified cable gland.

The sensing element, which should be a passive element, e.g. Pt100 or thermocouple, must be placed in a one end closed protective tube. The other end of the tube connects to the connection head with an ingress protection of IP54 or better. We recommend the use of steel for the protection tube.

Further guidelines for temperature sensor design can be found in the user instructions for IPAQ-HX/D and for electrical connections in certificate DEMKO 03 ATEX 132033 is for the transmitter IPAQ-HX and DEMKO 03 ATEX 133946X for IPAQ-HX/D.

Ex safety specifications

Classification II 2 GD EEx ia IIC T4-T6

Certificate No. DEMKO 03 ATEX 133946X

Output/Supply

Max voltage to transmitter $U_i = 30 \text{ V}$

Max current to transmitter $I_i = 100 \text{ mA}$

Max power to transmitter $P_i = 0.9 \text{ W}$

Internal inductance $L_i = 0 \text{ mH}$

Internal capacitance $C_i = 0 \text{ }\mu\text{F}$

Input (Sensor)

Max inductance (input loop) $L_o = 50 \text{ mH}$

Max capacitance (input loop) $C_o = 66 \text{ nF}$

Temperature limits

-30 °C to +80 °C

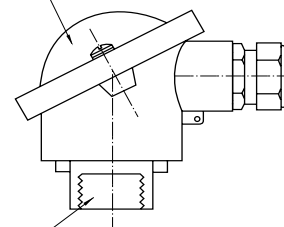
Ordering information

IPAQ-HX/D11	IPAQ-HX,	BI-head, M24x1,5	70IPHxD111
IPAQ-HX/D12	IPAQ-HX,	BI-head, ISO G1/2"	70IPHxD121
IPAQ-HX/D13	IPAQ-HX,	BI-head, NPT 1/2"	70IPHxD131
IPAQ-HX/D21	IPAQ-HX,	BS-head, M24x1,5	70IPHxD211
IPAQ-HX/D22	IPAQ-HX,	BS-head, ISO G1/2"	70IPHxD221
IPAQ-HX/D23	IPAQ-HX,	BS-head, NPT 1/2"	70IPHxD231
IPAQ-HX/D31	IPAQ-HX,	DANX-head, M24x1,5	70IPHxD311
IPAQ-HX/D32	IPAQ-HX,	DANX-head, ISO G 1/2"	70IPHxD321
IPAQ-HX/D33	IPAQ-HX,	DANX-head, NPT 1/2"	70IPHxD331

IPAQ-HX/Dxy identification

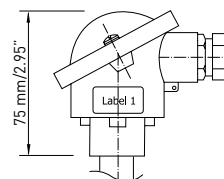
D=Dust, x=Connection head, y=Process entry

x = Connection head
x=1: BI
x=2: BS
x=3: DANX



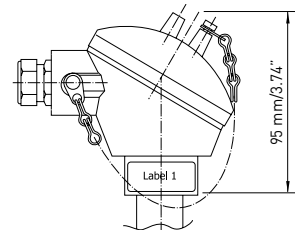
y = Process entry (thread)
y=1: M24x1,5
y=2: G 1/2"
y=3: NPT 1/2"

Certified connection heads



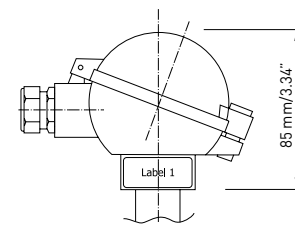
BI

Standard B-head



BS

With screw-on lid



DANX

With hinged lid

IPAQ-H^{PLUS}


High-precision Universal Programmable 2-wire Transmitter



IPAQ-HPLUS offers outstanding accuracy, stability and high isolation combined with short response time and extended functionality. It is a universal 2-wire transmitter for high-demand temperature and process measurement applications. Error corrections and sensor diagnostics improve the measurement accuracy and safety.

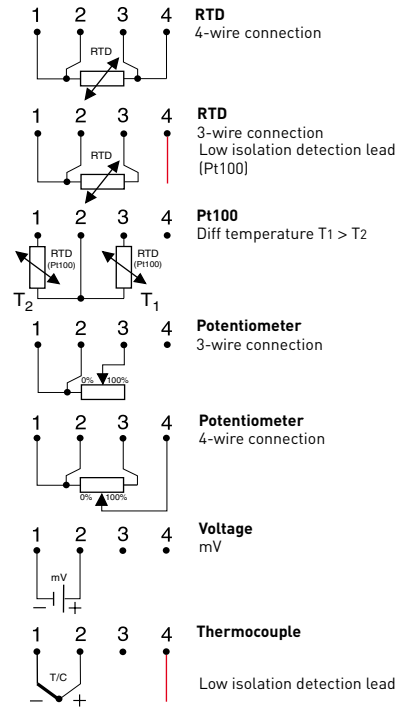
- Fully universal, linearized and highly isolated
- Accepts RTD, T/C, mV and Ω
- Extra high accuracy and stability
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- 40 point linearization - any sensor can be matched
- Configuration without external power
- High speed update (300 ms)
- Selectable output limits
- Low sensor isolation detection
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- IPRO, easy-to-use Windows configuration software

Specifications:

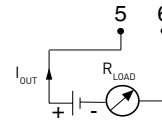
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ³⁾	-200 to +260 °C / -328 to +500 °F
Input Potentiometer/resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types B, C, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure/Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	5 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Operating temperature	-40 to +85 °C / -40 to +185 °F
Galvanic isolation	3750 VAC, 1 min
Power supply	6.5 to 36 VDC
Typical accuracy	± 0.05 % of span
Connection head	DIN B or larger

¹⁾ DIN 43760 ²⁾ Edison No. 7 ³⁾ Edison No. 15

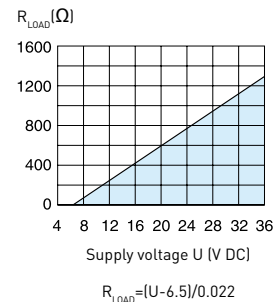
Input connections



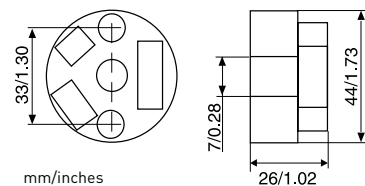
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ-H ^{PLUS}	70IPHP0001
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

C220

High-performance Universal Dual-input 2-wire Transmitters



C220 is a universal, isolated, dual-input temperature transmitter with additional voltage and resistance input.
C220X is the Intrinsically Safe version for use in hazardous areas.
Typical characteristics are the high accuracy, stability and reliability combined with a robust housing.
The double inputs enable new safety features such as *Sensor Backup* and *Sensor Drift Monitoring*.

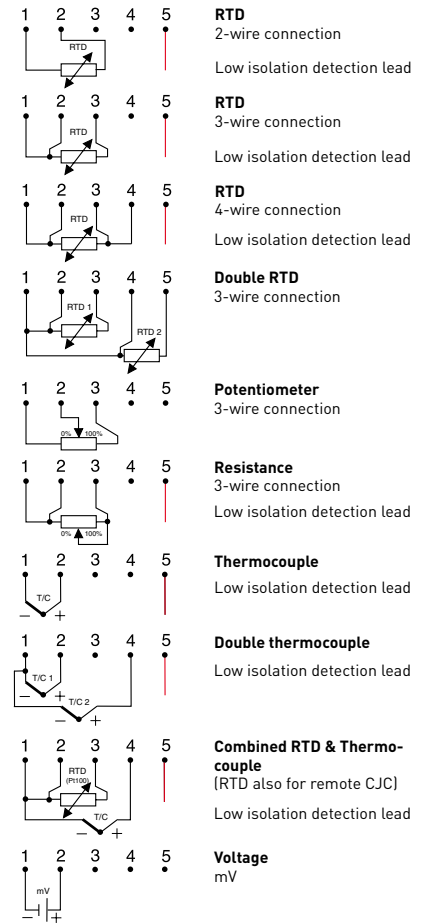
- Universal, dual-input for RTD and T/C
- SIL 2 compatible
- Best in Class accuracy
- 5 year guaranteed stability
- Withstands 10 g vibrations
- Continuous self-monitoring by separate microprocessor
- EMC immunity according to Criteria A
- Sensor backup
- Sensor drift monitoring
- Sensor isolation monitoring
- Complies with NAMUR NE 43 and NE 89
- Sensor matching
- 50 point customized linearization

Specifications:

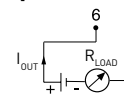
Input RTD		
Pt100	(IEC 60751, JIS C 1604:1981)	-200 to +1 000 °C
Pt1000, PtX (10 ≤ X ≤ 1000)	(IEC 60751)	-200 to +850 °C (Pt1000: -200 to +200 °C)
Ni100, Ni1000	(DIN 43760)	-60 to +250 °C
Ni120	(Edison Curve No. 7)	-60 to +250 °C
Cu10	(Edison Cu Windings No. 15)	-200 to +260 °C
Input connections	One sensor	2-, 3- and 4-wire connection
	Two sensors	2- and 3-wire connection
Input Thermocouple	T/C types	B, C, D, E, J, K, L, N, R, S, T, U
Input Resistance	Potentiometer	0 to 4000 Ω, 2-, 3- and 4-wire connection
Input Voltage		-10 to +1000 mV
Double inputs for RTD and Thermocouple		
Measure mode		T1 or T2 or difference, average, min, max of T1 and T2
Sensor Backup		Automatic switchover to undamaged sensor
Sensor Drift Monitoring		Adjustable maximum temp. difference T1-T2
Output		
Output signal	Temperature linear	4-20 mA, 20-4 mA or customized
NAMUR compliance	Measure and fail currents	NAMUR, NE 43 and NE 89
Galvanic isolation		1500 VAC, 1 min
Ex-classifications	C220	ATEX: II 3 G Ex nL IIC T4-T6
	C220X	ATEX: II 1 G Ex ia IIC T4-T6
Power supply	C220	9.5 to 36 VDC, Standard power supply
	C220X	9.5 to 30 VDC, I.S. power supply
Ambient temperature	Storage/operation	-40 to +85 °C
Connection head		DIN B-head or larger
5 year guaranteed accuracy	RTD (Pt and Ni sensors)	Max. of ±0.1 °C or ±0.05 % of span
	Thermocouple	See data sheet
	Resistance/voltage	±0.05 % of span

Input connections

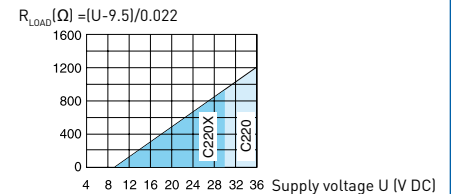
See data sheet for more alternatives



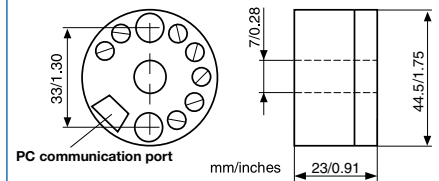
Output connections



Output load diagram



Dimensions



Ordering information

C220	70C2200S10
C220X	70C220XS10
PC configuration kit (USB-conn.)	70CFGUS001
Configuration	70CAL00001

Universal HART-compatible 2-wire Transmitters



Meso-H



MESO-H/-HX are smart and universal 2-wire in-head transmitters for temperature and other measurement applications. MESO-H/-HX are fully HART-compatible, with communication through the HART protocol.

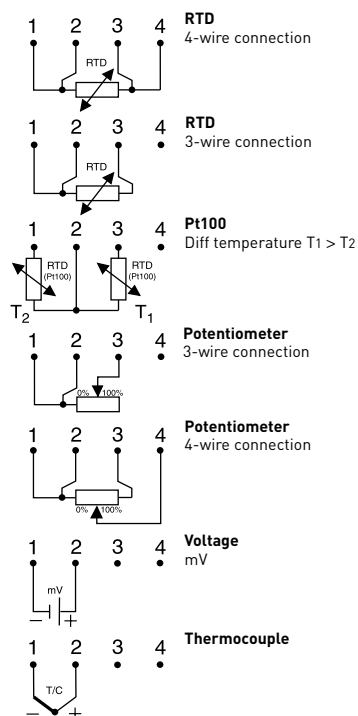
- Utilizes HART Protocol for remote configuration and monitoring
- Communicates with HART Communicator or PC via modem
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error correction
- Easy wiring, large center hole
- 50 point linearization – any sensor can be matched
- Consistent sensor break function
- Full access to all features while in operation
- Low sensor isolation detection
- MEPRO, easy-to-use Windows configuration software
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

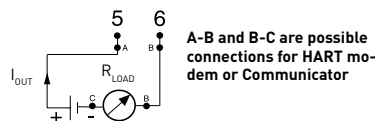
Input RTD and Resistance		3-,4-wire connection
Pt100 ¹⁾ and D100 ²⁾		-200 to +1000 °C / -328 to +1832 °F
Pt1000 ¹⁾		-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ¹⁾		Upper range depending on X value
Ni100 ³⁾		-60 to +250 °C / -76 to +482 °F
Ni1000 ³⁾		-60 to +150 °C / -76 to +302 °F
Potentiometer / resistance		0 to 2000 Ω
Input Thermocouples		B, C, E, J, K, L, N, R, S, T, U
Input Voltage		-10 to +500 mV
Sensor failure / Low isolation		User definable output
Adjustments - Zero		Any value within range limits
Adjustments - Minimum spans		
Pt100, Pt1000, Ni100, Ni1000		10 °C / 18 °F
Potentiometer		10 Ω
T/C, mV		2 mV
Output		4-20 / 20-4 mA
Operating temperature		-40 to +85 °C / -40 to +185 °F
Galvanic isolation		1500 VAC, 1 min
Power supply	MESO-H	10 to 42 VDC
	MESO-HX	12 to 30 VDC
Intrinsic safety		
MESO-HX ATEX:		II 1 G EEx ia IIC T4-T6
MESO-HX FM:		IS Class I-III, DIV 1, GP A-D, G
MESO-HX CSA:		Class I, Groups A-D; Class II, Group G; Class III
Typical accuracy		$\pm 0.1\%$ of temperature span
Connection head		DIN B or larger

¹⁾IEC 60751, $\alpha=0.00385$ ²⁾Pt100 acc. to JIS 1604, $\alpha=0.003916$ ³⁾DIN 43760

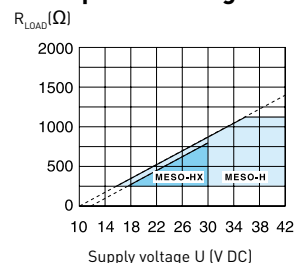
Input connections



Output connections



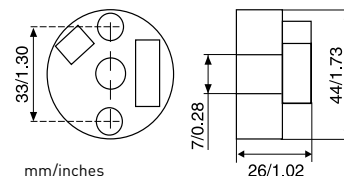
Output load diagram



$$R_{LOAD} = (U-10)/0.023 \text{ (MESO-H)}$$

$$R_{LOAD} = (U-12)/0.023 \text{ (MESO-HX)}$$

Dimensions



Ordering information

MESO-H	70MEH00001
MESO-HX (ATEX)	70MEHX0001
MESO-HX (FM, CSA)	70MEHX1001
HART PC modem RS232	70MEM00001
HART PC modem USB	70MEM00003
Software CD	70CDSOFT01
Configuration	70CAL00001



PROFI PAQ-H



PROFI PAQ-H

Universal High-performance Profibus-PA Transmitters



Thanks to the digital output PROFIPAQ-H offers very accurate measurements as well as sensor and process information. With five input terminals new features such as two redundant Pt100 in 3-wire connection, are included. Configuration from a PC with Inor software, ProfiSoft, or over the Profibus network.

- Up to 125 transmitters in one Profibus network
- Profile version 3.0, Class A & B
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Double Pt100, 3-wire, and T/C input
- Multiple outputs: Input value of Ch1 and Ch2, a scaled process value, redundancy with double sensor elements, arithmetic functions (difference, average, minimum and maximum)
- Easy wiring, large center hole
- Sensor matching corrects for sensor errors
- 50 point linearization – any sensor can be matched
- Excellent sensor monitoring functions such as: sensor break, sensor short circuit, low sensor isolation and sensor aging
- Rugged design tested for 5 g vibrations
- Integrated in Siemens PDM system

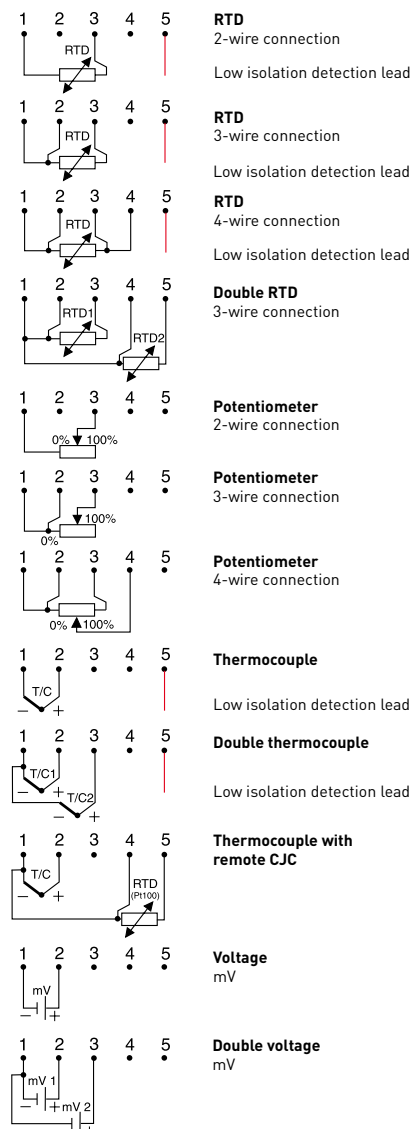
Specifications:

Input RTD and Resistance		2-, 3- and 4-wire connection
Pt10 ¹⁾ , Pt50 ¹⁾ , Pt100 ¹⁾ , Pt200 ¹⁾ , Pt500 ¹⁾ , Pt1000 ¹⁾		-200 to +850 °C / -328 to +1562 °F
PtX 10 ≤ X ≤ 1000 ^{1), 4)}		-200 to +850 °C / -328 to +1562 °F
Pt10 ²⁾ , Pt50 ²⁾ , Pt100 ²⁾		-200 to +850 °C / -328 to +1562 °F
Ni50 ³⁾ , Ni100 ³⁾ , Ni120 ³⁾ , Ni1000 ³⁾		-200 to +850 °C / -328 to +1562 °F
Input Potentiometer / Resistance		0 to 4000 Ω
Input Thermocouples		B, C, D, E, J, K, L, N, R, S, T, U
Input Voltage		-10 to +1000 mV
Double channels for redundancy and arithmetic functions		
Differential	Ch1 - Ch2 or Ch2 - Ch1	
Average value	0.5 x [Ch1 + Ch2]	
Average value with redundancy	0.5 x [Ch1 + Ch2], Ch1 or Ch2 if the other one is broken	
Minimum value	Min [Ch1, Ch2]	
Maximum value	Max [Ch1, Ch2]	
Operating temperature		-40 to +85 °C / -40 to +185 °F
Galvanic isolation		1500 VAC, 1 min
Power supply	PROFI PAQ-H	9 to 32 VDC
	PROFI PAQ-HX	9 to 17.5 VDC
Ex-approval		
	PROFI PAQ-H	ATEX: II 3 G EEx nL IIC T4-T6 (FNICO)
	PROFI PAQ-HX	ATEX: II 1 G Ex ia IIC T4-T6 (FISCO)
Typical accuracy		Pt100: 0.10 °C / 0.18 °F ⁵⁾
Connection head		DIN B or larger

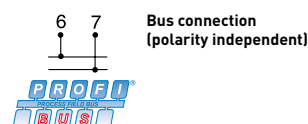
¹⁾IEC 60751, $\alpha=0.00385$ ²⁾JIS 1604, $\alpha=0.003916$ ³⁾DIN 43760, $\alpha=0.006180$ ⁴⁾With Inor PC software ProfiSoft

⁵⁾For other inputs, see datasheet

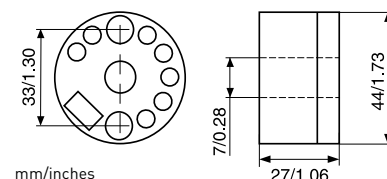
Input connections



Output connections



Dimensions



Ordering information

PROFI PAQ-H	70PPH00001
PROFI PAQ-HX	70PPHX00001
PC Configuration kit	70CFG00092
Configuration	70CAL00001



Universal Profibus-PA Transmitters in Connection Head with Ex-approval for Dust



ProfIPAQ-H/D and ProfIPAQ-HX/D are standard ProfIPAQ-H and ProfIPAQ-HX transmitters with connection head certified for mounting in hazardous areas containing explosive dust.

ProfIPAQ-H/D can be placed in Dust Zone 22 and must be connected to a non-incendive or FNICO certified fieldbus system.

ProfIPAQ-HX/D can be placed in Dust Zones 21 and 22 and must be connected to an intrinsic safe or FISCO certified fieldbus system.

For information about transmitter data and features, we refer to technical documentation of the ProfIPAQ-H/-HX transmitters.

To fulfill requirements for safe operation the transmitter must be mounted in a connection head of a safe type. At the moment there are three ATEX certified heads; BI, BS and DANX, each with a choice of three different threads for mounting on a protection tube (see information to the right).

The connection heads are all made of die cast aluminum and are furnished with an Ex-classified cable gland.

The sensing element, which should be a passive element, e.g. Pt100 or thermocouple, must be placed in a one end closed protective tube. The other end of the tube connects to the connection head with a minimum ingress protection of IP54 for ProfIPAQ-H/D and IP65 for ProfIPAQ-HX/D.

We recommend the use of steel for the protection tube.

Further guidelines for temperature sensor design can be found in the user instructions for ProfIPAQ-H/-HX and for electrical connections in certificate DEMKO 05 ATEX 136988X for the transmitters ProfIPAQ-H/D and ProfIPAQ-HX/D.

Ex safety specifications

	ProfIPAQ-H/D	ProfIPAQ-HX/D
Classification	II 3GD T100°C EEx nL IIC T4-T6	II 1G/2D T100°C Ex ia IIC T4-T6
Certificate No	DEMKO 05 ATEX 136988X	DEMKO 05 ATEX 136988X
Bus connection	Non-incendive / FNICO certified	Intrinsic safe / FISCO certified
Input (Sensor)	Lo = 750 mH Co = 1000 µF	Lo = 6 mH Co = 166 nF
Temperature limits	-30 °C to +80 °C	-30 °C to +80 °C

Ordering information

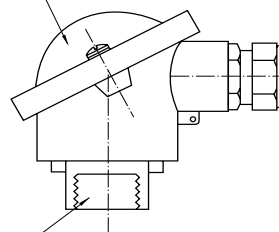
ProfIPAQ-H/D11	ProfIPAQ-H, BI-head, M24x1.5	70PPHD0111
ProfIPAQ-H/D12	ProfIPAQ-H, BI-head, ISO G1/2"	70PPHD0121
ProfIPAQ-H/D13	ProfIPAQ-H, BI-head, NPT 1/2"	70PPHD0131
ProfIPAQ-H/D21	ProfIPAQ-H, BS-head, M24x1.5	70PPHD0211
ProfIPAQ-H/D22	ProfIPAQ-H, BS-head, ISO G1/2"	70PPHD0221
ProfIPAQ-H/D23	ProfIPAQ-H, BS-head, NPT 1/2"	70PPHD0231
ProfIPAQ-H/D31	ProfIPAQ-H, DANX-head, M24x1.5	70PPHD0311
ProfIPAQ-H/D32	ProfIPAQ-H, DANX-head, ISO G 1/2"	70PPHD0321
ProfIPAQ-H/D33	ProfIPAQ-H, DANX-head, NPT 1/2"	70PPHD0331

ProfIPAQ-HX/D11	ProfIPAQ-HX, BI-head, M24x1.5	70PPHXD111
ProfIPAQ-HX/D12	ProfIPAQ-HX, BI-head, ISO G1/2"	70PPHXD121

ProfIPAQ-H/Dxy & ProfIPAQ-HX/Dxy identification

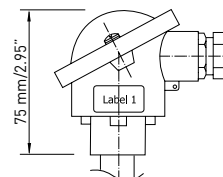
D-Dust, x-Connection head, y-Process entry

x = Connection head
x=1: BI
x=2: BS
x=3: DANX



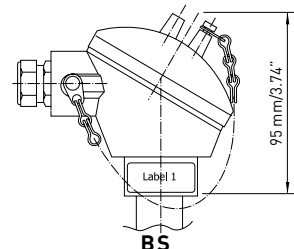
y = Process entry (thread)
y=1: M24x1,5
y=2: G 1/2"
y=3: NPT 1/2"

Certified connection heads



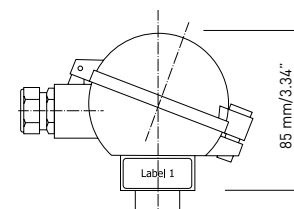
BI

Standard B-head



BS

With screw-on lid



DANX

With hinged lid

ProfIPAQ-HX/D13	ProfIPAQ-HX, BI-head, NPT 1/2"	70PPHXD131
ProfIPAQ-HX/D21	ProfIPAQ-HX, BS-head, M24x1.5	70PPHXD211
ProfIPAQ-HX/D22	ProfIPAQ-HX, BS-head, ISO G1/2"	70PPHXD221
ProfIPAQ-HX/D23	ProfIPAQ-HX, BS-head, NPT 1/2"	70PPHXD231
ProfIPAQ-HX/D31	ProfIPAQ-HX, DANX-head, M24x1.5	70PPHXD311
ProfIPAQ-HX/D32	ProfIPAQ-HX, DANX-head, ISO G 1/2"	70PPHXD321
ProfIPAQ-HX/D33	ProfIPAQ-HX, DANX-head, NPT 1/2"	70PPHXD331

APAQ-L

Analog Adjustable 2-wire Transmitters



APAQ-LR is a multirange 2-wire temperature transmitter for Pt100 input. APAQ-LC is adjustable for 5 different thermocouple types. APAQ-LR/-LC are designed for highest reliability and excellent industrial performance.

- Rangeable with solderpads and potentiometers
- Temperature linear output for Pt100 (APAQ-LR)
- mV linear output for thermocouples (APAQ-LC)
- Consistent sensor break function

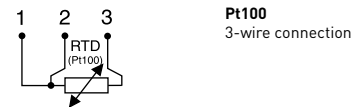
Specifications:

	APAQ-LR	APAQ-LC
Input	Pt100 ¹⁾ , 3-wire connection	T/C J, L, T, K, N
Sensor break	Upscale, Downscale	Upscale, Downscale
Adjustments		
Span	50/100/150/200/300/400/500 °C 100/200/300/400/600/800/1000 °F	10 to 50 mV continuously Temperature ranges acc. to datasheet
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C -60 to +120 °F	±10 % of span
Output	4-20 mA	4-20 mA
Operating Temperature	-20 to +70 °C / -4 to +158 °F	-20 to +70 °C / -4 to +158 °F
Linearization	Temperature linear output	mV linear output
Galvanic isolation	No	No
Power Supply	6.5 to 32 VDC	6.5 to 32 VDC
Typical accuracy	±0.15 % of temperature span	±0.5 % to ±1.0 % of temperature span
Mounting	Rail acc. to DIN EN50022, 35 mm	Rail acc. to DIN EN50022, 35 mm

¹⁾IEC 60751, $\alpha=0.00385$

Input connections

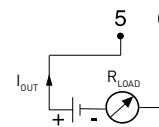
APAQ-LR



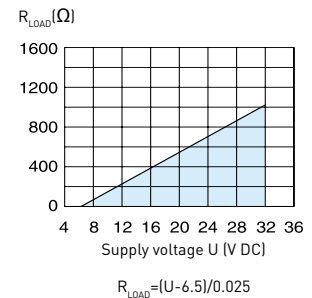
APAQ-LC



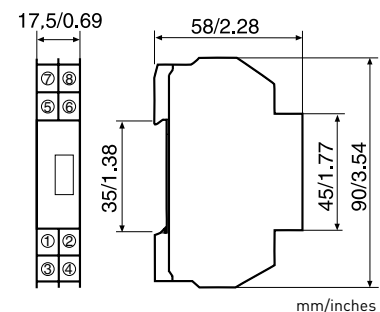
Output connections



Output load diagram



Dimensions



Ordering information

APAQ-LR	70APLR0001
APAQ-LC	70APLC0001
Configuration	70CAL00001

IPAQ®



R201

R201

Analog PC-Programmable 2-wire Transmitter for Pt100 Input



R201 is an analog, non-isolated, easy-to-use 2-wire transmitter for Pt100 input.
Configuration is made in seconds with the user friendly software, ConSoft.
No external power supply required for configuration.
R201 is designed for Pt100 in 3-wire connection according to different standards.

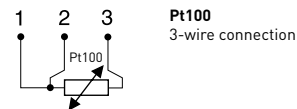
- Input: Pt100 in 3-wire connection
- PC configurable measuring ranges without need for calibration
- Temperature linear output
- Very short response time
- Excellent EMC immunity
- Configuration without external power
- Easy-to-use Windows configuration software
- USB communication
- Withstands vibrations up to 10 g

Specifications:

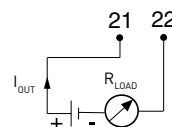
Input Pt100	3-wire connection
Pt100 ($\alpha=0.00385$)	-50 to +850 °C / -58 to +1562 °F
Pt100 ($\alpha=0.003902$)	-50 to +850 °C / -58 to +1562 °F
Pt100 ($\alpha=0.003916$)	-50 to +850 °C / -58 to +1562 °F
Sensor break	Upscale or downscale
Adjustments	
Zero	-50, -25, 0, +25, +50 °C / -58, -13, +32, +77, +122 °F
Minimum span	20 °C / 36 °F
Sensor error compensation	±1 % of span
Output	4-20 mA, temperature linear
Response time	< 50 ms
Ambient temperature	
Operation and storage	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	No
Power supply	8.5 to 32 VDC
Accuracy ¹⁾	Max. of ±0.1 °C / ±0.2 °F or ±0.1 % of span
Mounting	Rail acc. to DIN EN 50022, 35 mm

¹⁾Includes calibration and linearity errors

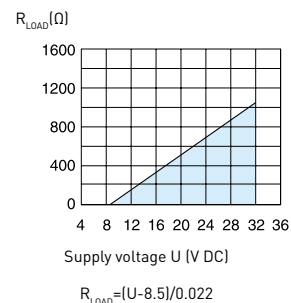
Input connections



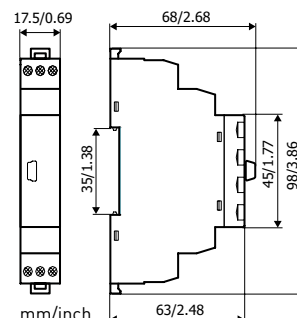
Output connections



Output load diagram



Dimensions



Ordering information

R201	70R2010010
PC configuration kit (USB-conn.)	70CFGUS001
Configuration	70CAL00001


MINIPAQ-L

Basic Programmable 2-wire Transmitter



MINIPAQ-L is a basic, programmable non-isolated, easy-to-use 2-wire transmitter. Configuration is made in seconds with the user friendly Windows software. No external power supply required for configuration.

MINIPAQ-L is programmable for RTD's in 3- and 4-wire connection according to different standards as well as for 11 T/C types. Useful error correction functions improve the accuracy.

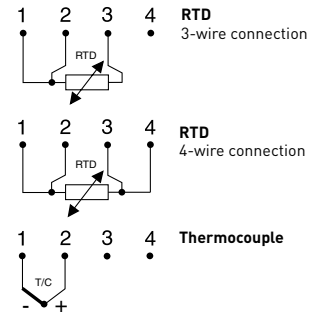
- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Test output without breaking the loop
- USB communication
- Withstands vibrations up to 10 g

Specifications:

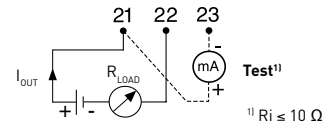
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ²⁾	-10 to +150 °C / +14 to +302 °F
Ni120 ³⁾	-70 to +300 °C / -94 to +572 °F
Cu10 ⁴⁾	-200 to +260 °C / -328 to +500 °F
Input Thermocouples	
Types	B, C, E, J, K, L, N, R, S, T, U
Sensor failure	Upscale, downscale or off
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
T/C	2 mV
Output	4-20 mA, temperature linear
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	No
Power supply	8 to 32 VDC
Typical accuracy	±0.15 % of temperature span
Mounting	Rail acc. to DIN EN 50022, 35 mm

¹⁾ IEC 60751, ²⁾ DIN 43760, ³⁾ Edison No.7, ⁴⁾ Edison No.15

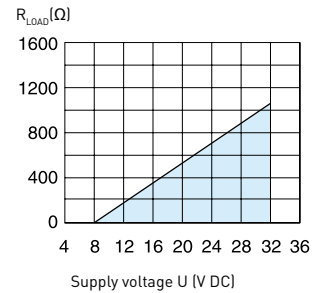
Input connections



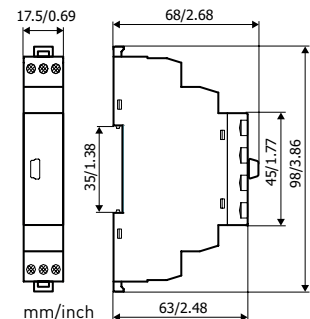
Output connections



Output load diagram



Dimensions



Ordering information

MINIPAQ-L	70MQL00003
PC Configuration Kit (USB conn.)	70CFGUS001
Configuration	70CAL00001

IPAQ-L

IPAQ-LX

Universal Programmable 2-wire Transmitters

IPAQ-L



IPAQ-L/-LX are universal, isolated 2-wire transmitters for temperature and other measurement applications. They combine competitive pricing, functionality and simple configuration. Useful error correction functions improve the accuracy.

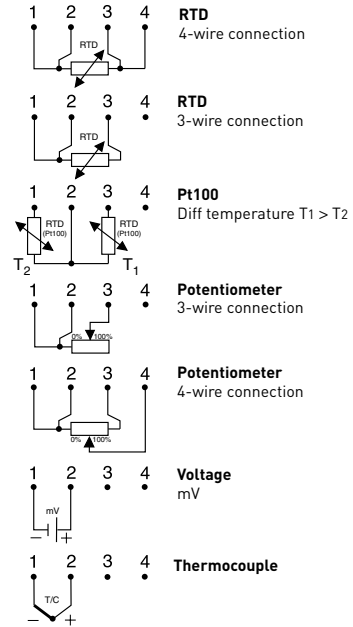
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Test output without breaking the loop (IPAQ-L)
- IPRO, easy-to-use Windows configuration software

Specifications:

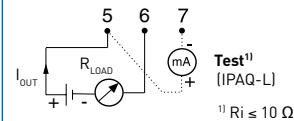
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ³⁾	-200 to +260 °C / -328 to +500 °F
Input Potentiometer/resistance	3-, 4-wire connection. 0 to 2000 Ω
Input Thermocouples	Types B, C, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure	User definable output
Adjustments-Zero	Any value within range limits
Adjustments-Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	IPAQ-L 7.5 to 36 VDC
	IPAQ-LX 8 to 30 VDC
Intrinsic safety (Mounting in safe area)	
IPAQ-LX ATEX:	II (1) G [Ex ia] IIC
IPAQ-LX FM:	IS Class I-III, DIV 1, GP A-G
IPAQ-LX CSA:	Class I, Groups A-D; Class II, Groups E-G; Class III
Typical accuracy	± 0.1 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ DIN 43760 ²⁾ Edison No. 7 ³⁾ Edison No. 15

Input connections

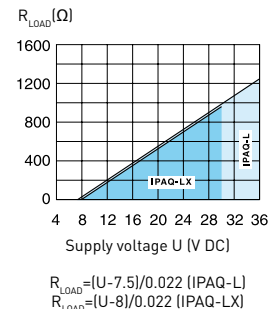


Output connections

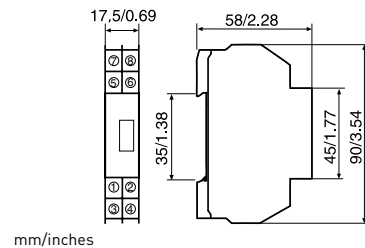


¹⁾ Ri $\leq 10 \Omega$

Output load diagram



Dimensions

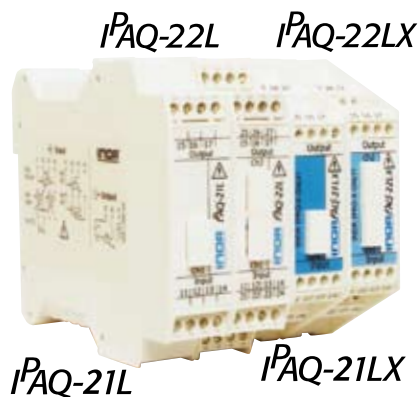


Ordering information

IPAQ-L	70IPL00001
IPAQ-LX (ATEX)	70IPLX0001
IPAQ-LX (FM, CSA)	70IPLX1001
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

IPAQ-21/-22

Universal 1- & 2-channel Programmable 2-wire Transmitters



IPAQ-21LX/-22LX are 1- and 2-channel, universal, isolated 2-wire transmitters for Ex-applications.
No zener barriers or Ex power supplies are needed, which reduces costs for purchase, design and maintenance.
IPAQ-21L/-22L are 1- and 2-channel versions for non-Ex-applications.

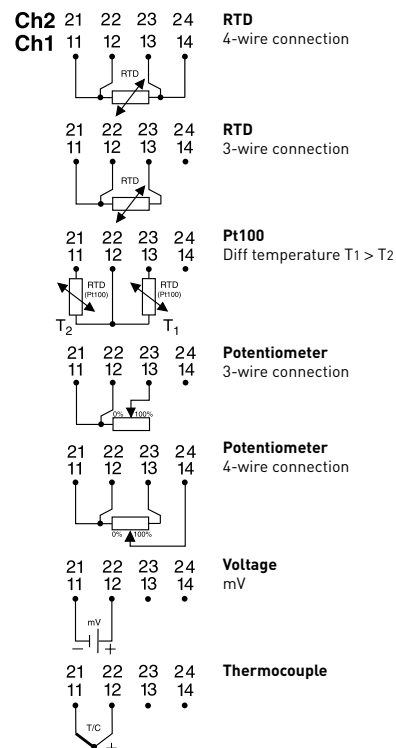
- 1- and 2-channel intrinsic safe IPAQ-21LX/-22LX
- 1- and 2-channel non intrinsic safe IPAQ-21L/-22L
- Very cost effective Ex-solution
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- IPRO, easy-to-use Windows configuration software
- Only 11 mm/channel (2-channel versions)
- Fixed terminals or plug-in terminals with coding (see Ordering information)

Specifications:

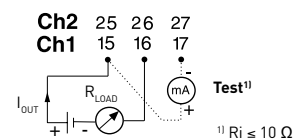
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ³⁾	-200 to +260 °C / -328 to +500 °F
Input Potentiometer/resistance	3-, 4-wire connection, 0 to 2000 Ω
Input Thermocouples	Types B, C, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA, temperature linear
Operating temperature	IPAQ-21L/-22L -20 to +70 °C / -4 to +158 °F
	IPAQ-21LX/-22LX -20 to +60 °C / -4 to +140 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	8 to 36 VDC
Intrinsic safety	IPAQ-21LX/-22LX ATEX: II (1) GD [EEx ia] IIC Mounting in safe area, Umax=250 VAC
Typical accuracy	± 0.1 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ DIN 43760 ²⁾ Edison No. 7 ³⁾ Edison No. 15

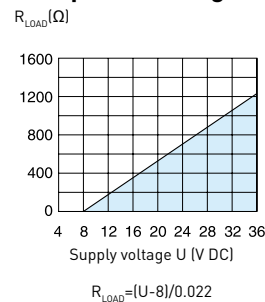
Input connections



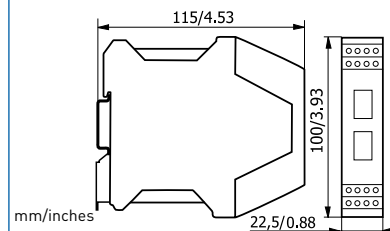
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ-21L 1-Channel, Plug-in terminals	70IP21L001
IPAQ-22L 2-Channel, Plug-in terminals	70IP22L001
IPAQ-21LX, Ex, 1-Ch., Fixed terminals	70IP21LX01
IPAQ-22LX, Ex, 2-Ch., Fixed terminals	70IP22LX01
IPAQ-21LX, Ex, 1-Ch., Plug-in terminals	70IP21LX02
IPAQ-22LX, Ex, 2-Ch., Plug-in terminals	70IP22LX02
PC Configuration Kit	70CFG00092
Configuration	70CAL00001


IPAQ-L^{PLUS}

High-precision Universal Programmable 2-wire Transmitter



IPAQ-LPLUS offers outstanding accuracy, stability and high isolation combined with short response time and extended functionality. It is a universal 2-wire transmitter for high-demand temperature and process measurement applications. Error corrections and sensor diagnostics improve the measurement accuracy and safety.

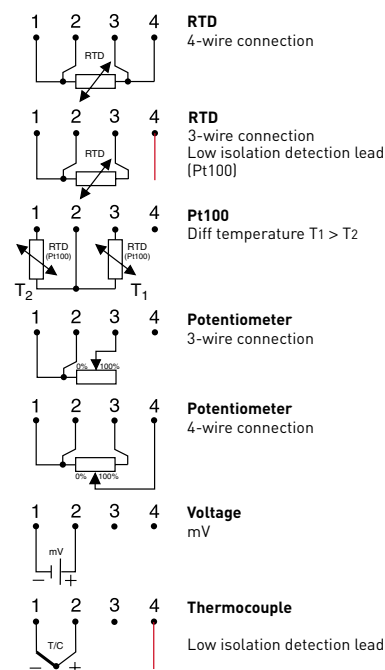
- Fully universal, linearized and highly isolated
- Accepts RTD, T/C, mV and Ω
- Extra high accuracy and stability
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- 40 point linearization - any sensor can be matched
- Configuration without external power
- High speed update (300 ms)
- Selectable output limits
- Low sensor isolation detection
- Full access to all features while in operation
- NAMUR compliant
- Simplified loop check-up with calibration output
- Test output without breaking the loop
- IPRO, easy-to-use Windows configuration software

Specifications:

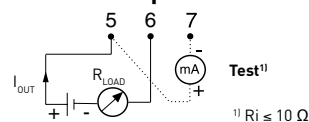
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$)	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
Pt100 ($\alpha=0.003916$)	-200 to +1000 °C / -328 to +1832 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ³⁾	-200 to +260 °C / -328 to +500 °F
Input Potentiometer / resistance	3-, 4-wire connection 0 to 2000 Ω
Input Thermocouples	Types B, C, E, J, K, L, N, R, S, T, U
Input mV	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	5 Ω
T/C, mV	2 mV
Output	4-20/20-4 mA, temperature linear
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	3750 VAC, 1 min
Power supply	7.5 to 36 VDC
Typical accuracy	± 0.05 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ DIN 43760 ²⁾ Edison No. 7 ³⁾ Edison No. 15

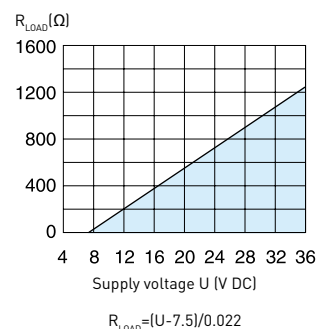
Input connections



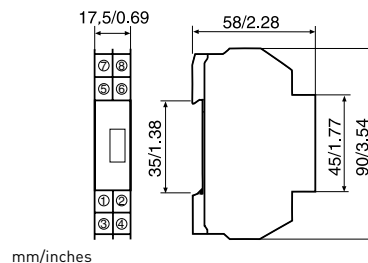
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ-L ^{PLUS}	70IPLP0001
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

R220



High-performance Universal Dual-input 2-wire Transmitters



R220 is a universal, isolated, dual-input temperature transmitter with additional voltage and resistance input. R220X is the Intrinsically Safe version for use in hazardous applications. Typical characteristics are the high accuracy, stability and reliability. The double inputs enable new safety features such as *Sensor Backup* and *Sensor Drift Monitoring*.

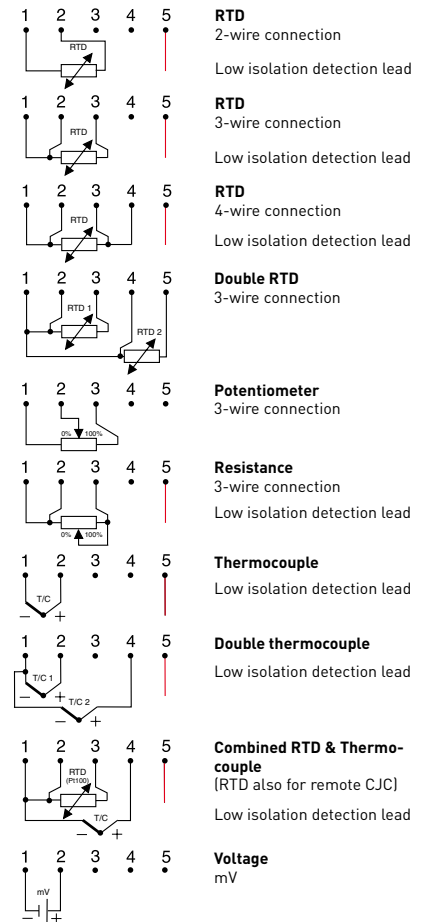
- Universal, dual-input for RTD and T/C
- SIL 2 compatible
- Best in Class accuracy
- 5 year guaranteed stability
- Withstands 10 g vibrations
- Continuous self-monitoring by separate microprocessor
- EMC immunity according to Criteria A
- Sensor backup
- Sensor drift monitoring
- Sensor isolation monitoring
- Complies with NAMUR NE 43 and NE 89
- Sensor matching
- 50 point customized linearization

Specifications:

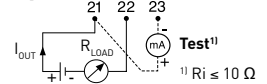
Input RTD		
Pt100	(IEC 60751, JIS C 1604:1981)	-200 to +1 000 °C
Pt1000, PtX (10 ≤ X ≤ 1000)	(IEC 60751)	-200 to +850 °C (Pt1000: -200 to +200 °C)
Ni100, Ni1000	(DIN 43760)	-60 to +250 °C
Ni120	(Edison Curve No. 7)	-60 to +250 °C
Cu10	(Edison Cu Windings No. 15)	-200 to +260 °C
Input connections	One sensor	2-, 3- and 4-wire connection
	Two sensors	2- and 3-wire connection
Input Thermocouple	T/C types	B, C, D, E, J, K, L, N, R, S, T, U
Input Resistance	Potentiometer	0 to 4000 Ω, 2-, 3- and 4-wire connection
Input Voltage		-10 to +1000 mV
Double inputs for RTD and Thermocouple		
Measure mode		T1 or T2 or difference, average, min, max of T1 and T2
Sensor Backup		Automatic switchover to undamaged sensor
Sensor Drift Monitoring		Adjustable maximum temp. difference T1-T2
Output		
Output signal	Temperature linear	4-20 mA, 20-4 mA or customized
NAMUR compliance	Measure and fail currents	NAMUR, NE 43 and NE 89
Galvanic isolation		1500 VAC, 1 min
Ex-classifications	R220	ATEX: II 3 G Ex nL IIC T4-T6
	R220X	ATEX: II 2/1 G Ex ia IIC T4-T6
Power supply	R220	9.5 to 36 VDC, Standard power supply
	R220X	9.5 to 30 VDC, I.S. power supply
Ambient temperature	Storage/operation	-20 to +70 °C
Mounting		Rail acc. to DIN EN 50022, 35 mm
5 year guaranteed accuracy	RTD (Pt and Ni sensors)	Max. of ±0.1 °C or ±0.05 % of span
	Thermocouple	See data sheet
	Resistance/voltage	±0.05 % of span

Input connections

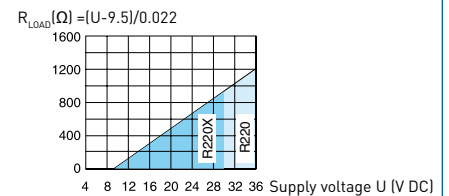
See data sheet for more alternatives



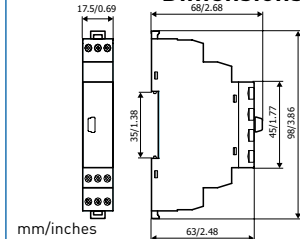
Output connections



Output load diagram



Dimensions



Ordering information

R220	70R2200S10
R220X	70R220XS10
PC configuration kit (USB-conn.)	70CFGUS001
Configuration	70CAL00001

Universal HART-compatible 2-wire Transmitter



Meso-L



MESO-L is a smart and universal 2-wire transmitter for temperature and other measurement applications. MESO-L is fully HART-compatible, with communication through the HART protocol.

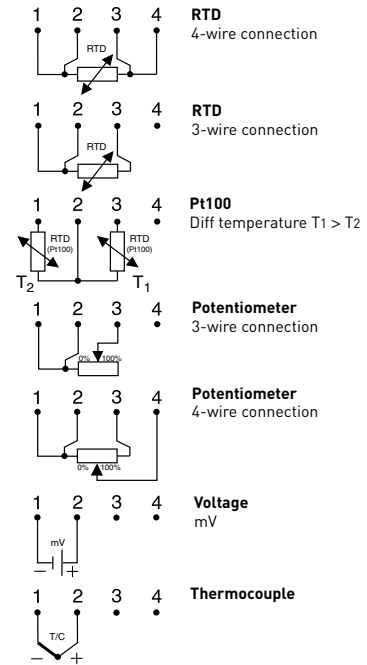
- Utilizes HART protocol for remote configuration and monitoring
- Communicates with HART Communicator or PC via modem
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and ohm
- Sensor error correction
- 50 point linearization – any sensor can be matched
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Full access to all features while in operation
- Low sensor isolation detection
- MEPRO, easy-to-use Windows configuration software
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

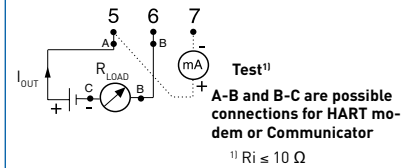
Input RTD and Resistance	3-,4-wire connection
Pt100 ¹⁾ and D100 ²⁾	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ¹⁾	-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 ¹⁾	Upper range depending on X value
Ni100 ³⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ³⁾	-60 to +150 °C / -76 to +302 °F
Potentiometer / resistance	0 to 2000 Ω
Input Thermocouples	B, C, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +500 mV
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	10 Ω
T/C, mV	2 mV
Output	4-20 / 20-4 mA
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	11 to 42 VDC
Typical accuracy	±0.1% of temperature span
Mounting	Rail acc. to DIN EN50022, 35 mm

¹⁾ IEC 60751, α=0,00385 ²⁾ Pt100 acc. JIS 1604, α=0,003916 ³⁾ DIN 43760

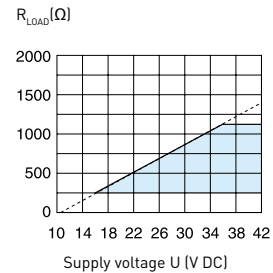
Input connections



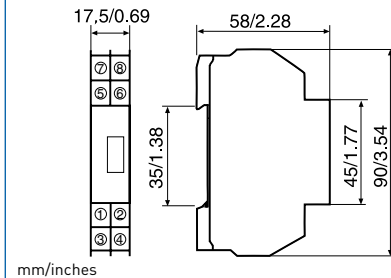
Output connections



Output load diagram



Dimensions



Ordering information

MESO-L	70MEL00001
HART PC modem RS232	70MEM00001
HART PC-modem USB	70MEM00003
Software CD	70CDSOFT01
Configuration	70CAL00001

DB537

Analog 2-wire Transmitter for Potentiometer Input

DB537



DB537 is designed for input signal from potentiometers and has an adjustable measuring range from 100 Ω up to 100 k Ω .

The unit has a very short response time, which makes it ideal for valve and actuator feed-back.

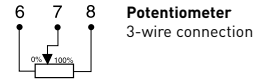
DB537 provides an output signal, 4-20 mA, that is easily matched to the end positions of a valve or an actuator.

- Potentiometer input in 3-wire connection
- Adjustable for measuring ranges from 100 Ω to 100 k Ω
- 4-20 mA output
- Ideal for valve and actuator feed-back due to short response time (~100 ms)
- Front potentiometers for matching the output signal to the working range of the valve or actuator
- Test output connection without breaking the loop
- Plug-in terminals simplifies connection and disconnection
- DIN-rail mounting

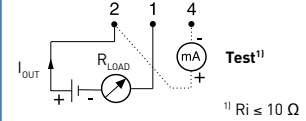
Specifications:

Input Potentiometer	3-wire connection	Ranges: 0-100, 0-200, 0-500 to 0-100 000 Ω
Factory set range		0-1000 Ω
Range adjustment		Soldering pads, switches and front potentiometers
Sensor current		3 mA
Output Current		4-20 mA
Operation temperature		-20 to +60 $^{\circ}\text{C}$ / -4 to +140 $^{\circ}\text{F}$
Galvanic isolation		No
Power supply		12 to 35 VDC
Typical accuracy		$\pm 0.2\%$ of span
Mounting		Rail acc. to DIN EN 50022, 35 mm

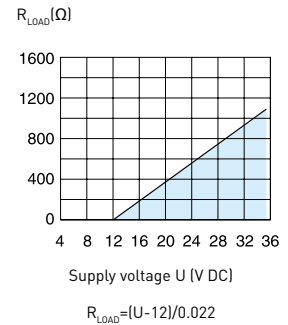
Input connections



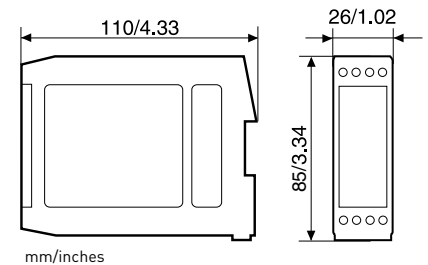
Output connections



Output load diagram



Dimensions



Ordering information

DB537, 0-1000 Ω	51M0E00005
Configuration for other range	70CAL00001



Universal High-performance Profibus-PA Transmitter



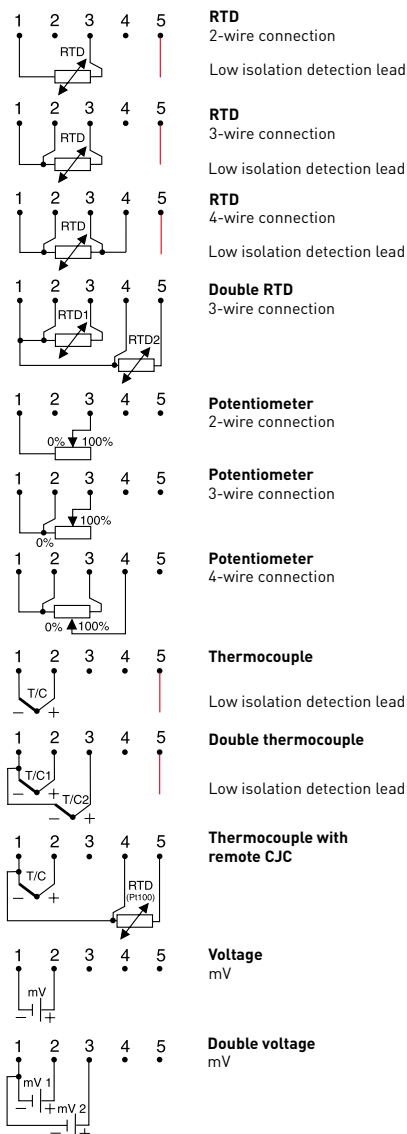
Thanks to the digital output PROFIPAQ-L offers very accurate measurements as well as sensor and process information. With five input terminals new features such as two redundant Pt100 in 3-wire connection, are included. Configuration from a PC with Inor software, ProfiSoft, or over the Profibus network.

- Up to 125 transmitters in one Profibus network
- Profile version 3.0, Class A & B
- Fully universal, linearized and isolated
- Accepts RTD, T/C, mV and Ω
- Double Pt100, 3-wire, and T/C input
- Multiple outputs: Input value of Ch1 and Ch2, a scaled process value, redundancy with double sensor elements, arithmetic functions (difference, average, minimum and maximum)
- Easy wiring, plug-in screw terminals
- Sensor matching corrects for sensor errors
- 50 point linearization – any sensor can be matched
- Excellent sensor monitoring functions such as: sensor break, sensor short circuit, low sensor isolation and sensor aging
- Up to 8 Masters Class 2
- Integrated in Siemens PDM system

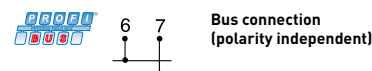
Specifications:

Input RTD and Resistance	2-, 3- and 4-wire connection
Pt10 ¹⁾ , Pt50 ¹⁾ , Pt100 ¹⁾ , Pt200 ¹⁾ , Pt500 ¹⁾ , Pt1000 ¹⁾	-200 to +850 °C / -328 to +1562 °F
PtX 10 ≤ X ≤ 1000 ^{1), 4)}	-200 to +850 °C / -328 to +1562 °F
Pt10 ²⁾ , Pt50 ²⁾ , Pt100 ²⁾	-200 to +850 °C / -328 to +1562 °F
Ni50 ³⁾ , Ni100 ³⁾ , Ni120 ³⁾ , Ni1000 ³⁾	-200 to +850 °C / -328 to +1562 °F
Input Potentiometer / Resistance	0 to 4000 Ω
Input Thermocouples	B, C, D, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +1000 mV
Double channels for redundancy and arithmetic functions	
Differential	Ch1 - Ch2 or Ch2 - Ch1
Average value	0.5 x (Ch1 + Ch2)
Average value with redundancy	0.5 x (Ch1 + Ch2), Ch1 or Ch2 if the other one is broken
Minimum value	Min (Ch1, Ch2)
Maximum value	Max (Ch1, Ch2)
Operating temperature	-20 to +70 °C / -4 to +158 °F
Galvanic isolation	1500 VAC, 1 min
Power supply	9 to 32 VDC
Typical accuracy	Pt100: 0.10 °C / 0.18 °F ⁵⁾
Mounting	Rail acc. to DIN EN50022, 35 mm

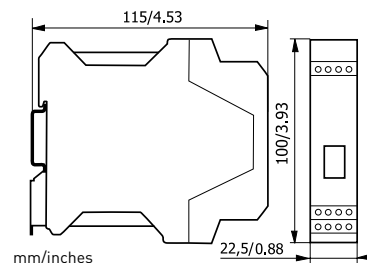
Input connections



Output connections



Dimensions



Ordering information

PROFI [®] PAQ-L	70PPL00001
PC Configuration kit	70CFG00092
Configuration	70CAL00001

¹⁾IEC 60751, $\alpha=0.00385$ ²⁾JIS 1604, $\alpha=0.003916$ ³⁾DIN 43760, $\alpha=0.006180$ ⁴⁾With Inor PC software ProfiSoft

⁵⁾For other inputs, see datasheet

APAQ-3HPT

Analog Adjustable 3-wire Transmitters



APAQ-3HPT



APAQ-3HPT is a multirange 3-wire temperature transmitter with Pt100 or Pt1000 input and 0-10 V output.

Main applications are in the HVAC sector, where the control systems often require 0-10 V input signals.

APAQ-3HPT is designed for high reliability and good industrial performance. The "low profile" housing is extremely durable and facilitates easy connections and adjustments.

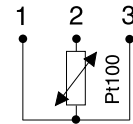
- 0-10 V output
- Rangeable with solder pads and potentiometers
- Temperature linear output
- Selectable sensor break function
- Short-circuit protected output
- Polarity protected power supply
- Easy wiring, large center hole
- Moulded electronics for high protection

Specifications:

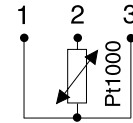
	APAQ-3HPT (Pt100)	APAQ-3HPT (Pt1000)
Input	Pt100 ¹⁾ , 3-wire connection	Pt1000 ¹⁾ , 3-wire connection
Maximum lead resistance	11 Ω / wire	11 Ω / wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C 100/200/300/400 °F	50/100/150/200 °C 100/200/300/400 °F
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C -60 to +120 °F	-50 to +50 °C -60 to +120 °F
Output	0-10 V, 3-wire connection	0-10 V, 3-wire connection
Minimum load	10 kΩ	10 kΩ
Short-circuit protection	Yes	Yes
Operating Temperature	-40 to +85 °C / -40 to +185 °F	-40 to +85 °C / -40 to +185 °F
Linearization	Temperature linear output	Temperature linear output
Galvanic isolation	No	No
Power Supply	15 to 30 VDC (polarity protected)	15 to 30 VDC (polarity protected)
Current consumption	12 mA	12 mA
Typical accuracy	±0.15 % of temperature span	±0.15 % of temperature span
Connection head	DIN B or larger	DIN B or larger

¹⁾ IEC 60751, α=0.00385

Input connections

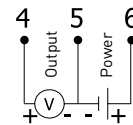


APAQ-3HPT (Pt100)
Pt100
3-wire connection

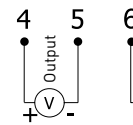


APAQ-3HPT (Pt1000)
Pt1000
3-wire connection

Output & power supply connections

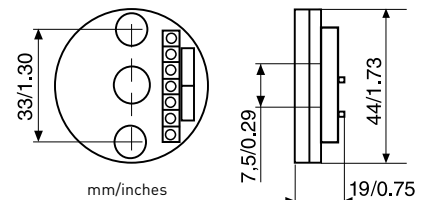


Alternative 1



Alternative 2

Dimensions



Ordering information

APAQ-3HPT (Pt100)	70AP3H0001
APAQ-3HPT (Pt1000)	70AP3H0002
Configuration	70CAL00001

APAQ-3LPT

Analog Adjustable 3-wire Transmitters

APAQ-3LPT



APAQ-3LPT is a multirange 3-wire temperature transmitter with Pt100 or Pt1000 input and 0-10 V output.
Main applications are in the HVAC sector, where the control systems often require 0-10 V input signals.
APAQ-3LPT is designed for high reliability and good industrial performance.

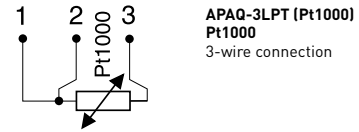
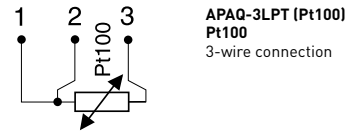
- 0-10 V output
- Rangeable with solder pads and potentiometers
- Temperature linear output
- Selectable sensor break function
- Short-circuit protected output
- Polarity protected power supply

Specifications:

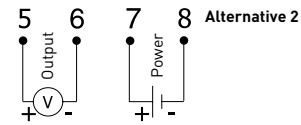
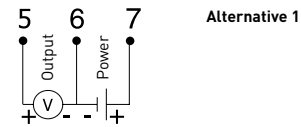
	APAQ-3LPT (Pt100)	APAQ-3LPT (Pt1000)
Input	Pt100 ¹⁾ , 3-wire connection	Pt1000 ¹⁾ , 3-wire connection
Maximum lead resistance	11 Ω / wire	11 Ω / wire
Sensor break	Upscale (>11 V), Downscale (0 V)	Upscale (>11 V), Downscale (0 V)
Adjustments		
Span	50/100/150/200 °C 100/200/300/400 °F	50/100/150/200 °C 100/200/300/400 °F
Fine adjustment	±10 %	±10 %
Zero	-50 to +50 °C -60 to +120 °F	-50 to +50 °C -60 to +120 °F
Output	0-10 V, 3-wire connection	0-10 V, 3-wire connection
Minimum load	10 k Ω	10 k Ω
Short-circuit protection	Yes	Yes
Operating Temperature	-20 to +70 °C / -4 to +158 °F	-20 to +70 °C / -4 to +158 °F
Linearization	Temperature linear output	Temperature linear output
Galvanic isolation	No	No
Power Supply	15 to 30 VDC (polarity protected)	15 to 30 VDC (polarity protected)
Current consumption	12 mA	12 mA
Typical accuracy	±0.15 % of temperature span	±0.15 % of temperature span
Mounting	Rail acc. to DIN EN50022, 35 mm	Rail acc. to DIN EN50022, 35 mm

¹⁾IEC 60751, $\alpha=0.00385$

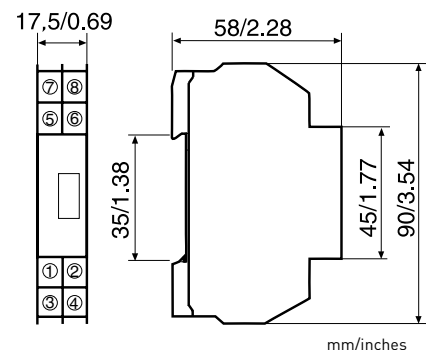
Input connections



Output & power supply connections



Dimensions



Ordering information

APAQ-3LPT (Pt100)	70AP3L0001
APAQ-3LPT (Pt1000)	70AP3L0002
Configuration	70CAL00001

IPAQ-4L

Universal High-Isolation 4-wire Transmitter



IPAQ-4L



IPAQ-4L is a fully universal and programmable 4-wire (separately powered) transmitter. The high isolation provides safe and problem free measurements. Offering both current and voltage output, IPAQ-4L meets any process requirements. Designed for wall and DIN-rail mounting.

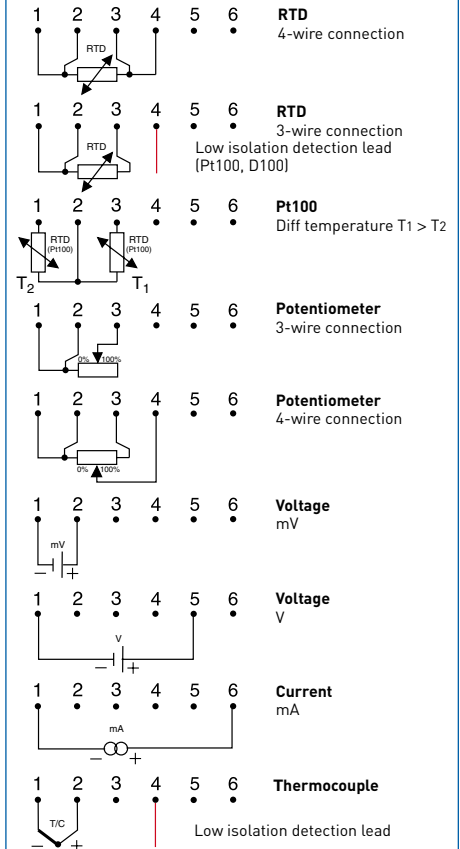
- High level isolation - 4000 VAC
- Fully universal and linearized
- Accepts RTD, T/C, mV, V, mA and Ω
- Current and voltage output
- Sensor and system error correction
- Full access to all features while in operation
- NAMUR compliant
- Consistent sensor break function
- Simplified loop check-up with calibration output
- Low sensor isolation detection
- IPRO, easy-to-use Windows configuration software

Specifications:

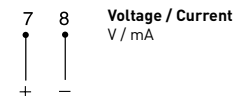
Input RTD and Resistance	3-, 4-wire connection
Pt100 ¹⁾	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$)	-200 to +200 °C / -328 to +392 °F
PtX 10 ≤ X ≤ 1000 ($\alpha=0.00385$)	Upper range depending on X value
Ni100 ²⁾ , Ni120 ³⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ²⁾	-100 to +150 °C / -148 to +302 °F
Cu10 ⁴⁾	-200 to +260 °C / -328 to +500 °F
Potentiometer / resistance	0 to 8000 Ω
Input Thermocouple	B, C, E, J, K, L, N, R, S, T, U
Input Voltage	-10 to +500 mV / -10 to +50 V
Input Current	-1 to +50 mA
Sensor failure / Low isolation	User definable output
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C/18 °F
Potentiometer	10 Ω for R ≤ 2000 Ω , 100 Ω for R > 2000 Ω
T/C, mV	2 mV
Volt	0,25 V
Current	0.4 mA
Output	0/4-20 or 20-4/0 mA, 0/2-10 or 10-2/0 V
Operating temperature	-20 to +70 °C/-4 to +158 °F
Galvanic isolation	4000 VAC, 1 min
Power supply	Part No. 70IP4L0001 90 to 250 VAC / 110 to 220 VDC
	Part No. 70IP4L0002 20-30 VDC
Typical accuracy	±0.1% of span
Mounting	Rail acc. to DIN EN50022, 35 mm and wall (brackets)

¹⁾ $\alpha=0.00385$, $\alpha=0.003916$ or $\alpha=0.003902$ ²⁾DIN 43760 ³⁾Edison No. 7 ⁴⁾Edison No. 15

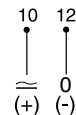
Input connections



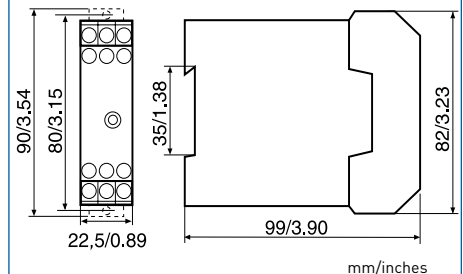
Output connections



Power supply



Dimensions



Ordering information

IPAQ-4L	70IP4L0001
[Power supply 90-250 VAC/110-220 VDC]	
IPAQ-4L	70IP4L0002
[Power supply 20-30 VDC]	
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

DA576

Precision Transmitter for Absolute and Differential Temperature Measurement



DA576



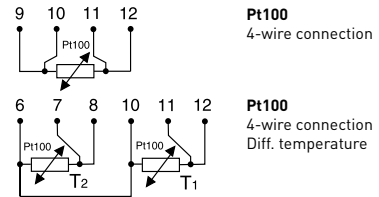
DA576 is designed for input signal from one or two Pt100 sensors in 4-wire connection and output in mA or V.
Thanks to a unique design DA576 provides an outstanding accuracy of $\pm 0.03\text{ }^{\circ}\text{C}$ ($\pm 0.05\text{ }^{\circ}\text{F}$) in both absolute and differential temperature measurement.
DA576 can be calibrated for measurement spans down to $5\text{ }^{\circ}\text{C}$ ($9\text{ }^{\circ}\text{F}$), e.g. -2.5 to $+2.5\text{ }^{\circ}\text{C}$. Each unit is delivered with a calibration certificate.
The ideal transmitter for measurement of power/energy in hot water systems and efficiency in cooling systems.

- 1xPt100 ($\alpha=0.00385$) input in 4-wire connection for absolute temperature
- 2xPt100 ($\alpha=0.00385$) input in 4-wire connection for temperature difference
- Very small measuring spans for increased resolution
- Different output alternatives: 0-20 mA, 4-20 mA, 0-10 V
- True 4-wire sensor connection eliminates any influence of lead resistances and imbalance
- Plug-in terminals simplifies connection and disconnection
- DIN-rail mounting
- Each unit is delivered with a 4-point calibration protocol

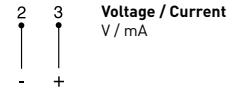
Specifications:

Input	Absolute temperature, 1 x Pt100	Differential temperature, 2 x Pt100
Standard	IEC 60751 ($\alpha=0.00385$)	IEC 60751 ($\alpha=0.00385$)
Sensor connection	4-wire	4-wire
Range	-10 to $+200\text{ }^{\circ}\text{C}$ / $+14$ to $+392\text{ }^{\circ}\text{F}$	-50 to $+50\text{ }^{\circ}\text{C}$ / -58 to $+122\text{ }^{\circ}\text{F}$
Smallest span	$5\text{ }^{\circ}\text{C}$ / $9\text{ }^{\circ}\text{F}$	$5\text{ }^{\circ}\text{C}$ / $9\text{ }^{\circ}\text{F}$
Max wire resistance	$10\text{ }\Omega$ / lead	$10\text{ }\Omega$ / lead
Output		
Current versions	0-20mA, 4-20 mA	
Voltage version	0-10 V	
Operation temperature	0 to $+60\text{ }^{\circ}\text{C}$ / $+32$ to $+140\text{ }^{\circ}\text{F}$	
Galvanic isolation	Input to output	No
	AC power supply to input/output	2500 VAC, 1 min
	DC power supply to input/output	1500 VAC, 1 min
Power supply	AC versions	230 VAC, -15 to $+10\%$, 45 to 75 Hz
		115 VAC, -15 to $+10\%$, 45 to 75 Hz
	DC version	19 to 60 VDC
Typical accuracy	$\pm 0.03\text{ }^{\circ}\text{C}$ / $\pm 0.05\text{ }^{\circ}\text{F}$	
Connections	Plug-in terminals	Stranded $\leq 2,5\text{ mm}^2$, AWG 14
Mounting	Rail acc. to DIN EN 50022, 35 mm	

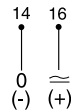
Input connections



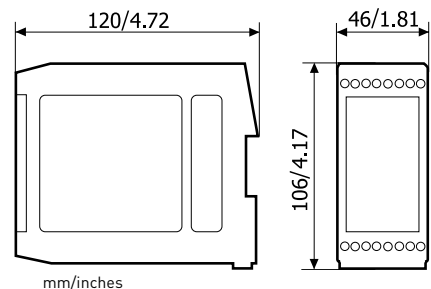
Output connections



Power supply



Dimensions



Ordering information

DA576, AC supply	Specify input type, range, output and supply voltage
DA576, 19-60 VDC supply	Specify input type, range and output

SR335



Alarm Unit with Pt100 Input and Double Relay Outputs



SR335

SR335 is designed for industrial temperature monitoring with Pt100 sensors in 2- or 3-wire connection.

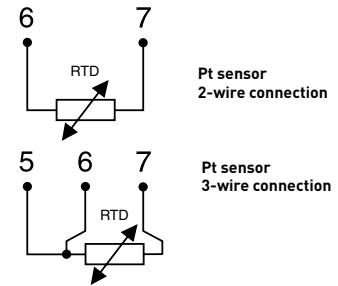
Two output relays with individually adjustable trip functions are available. LED's in the front indicate alarm state and correct power supply.

- Input from Pt100 sensors in 2- or 3-wire connection
- Selectable, pre-calibrated temperature ranges
- Two relay outputs with independent switch functions
- Monostable relays for safe tripping at power failure
- SPDT relays with 6 A switch capacity
- High configuration flexibility with DIP switches
- Trip levels and hysteresis adjustable from the front
- Three front LED's for trip indication and power supply monitoring
- 4 kV isolation between input, output and power supply
- Protective Separation acc. to EN 50178
- Universal 24 V AC and DC power supply
- DIN-rail mounting

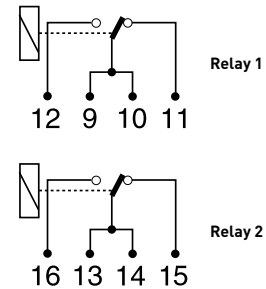
Specifications:

Input	
Sensor	Pt100, Pt200, Pt500 and Pt1000 (switch selectable)
Standard	IEC 60751, $\alpha=0.00385$
Measuring range	Zero: -100 / -50 / 0 / +50 °C (switch selectable) Span: 100 / 200 / 300 / 400 °C (switch selectable)
Sensor connection	2-wire and 3-wire (switch selectable)
Sensor wire resistance	$\leq 10 \Omega$ per wire
Output, Relay 1 & 2	
Relay contacts	1-pole switch over contact (SPDT)
Contact rating	250 VAC/DC, 6 A, 1 500 VA
Relay function	Monostable, Normally active or passive (switch selectable)
Alarm functions, relay 1	High/Low alarm (switch selectable)
Alarm functions, relay 2	High/Low alarm or Power failure alarm (switch selectable)
Alarm indication	Alarm state indicated by yellow LED
Adjustable alarm set-point	0 to 100 % of input range (12-turn potentiometers in front)
Adjustable hysteresis	0 to 60 % of span (12-turn potentiometers in front)
Response time	Ca. 20 ms (fixed)
Operation temperature	-20 to +60 °C / -4 to +140 °F
Galvanic isolation	
Input / power supply / relay outputs	4 kVAC, 1 min
Relay 1 / Relay 2	2.5 kVAC, 1 min
Power supply	
Voltage	24 VAC/DC $\pm 15\%$, 48 to 62 Hz [AC supply]
Power consumption	AC: ca. 2 VA, DC: ca. 1 W
Typical accuracy	
	Trip point: $\pm 0.2\%$ of span
Mounting	
	Rail acc. to DIN EN 50022, 35 mm

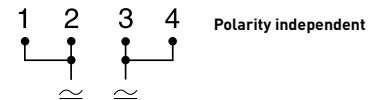
Input connections



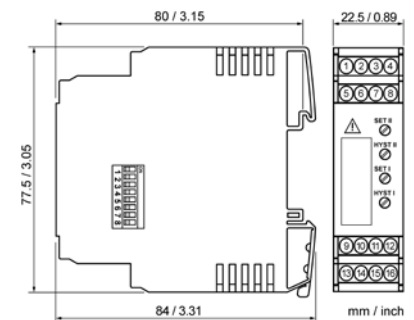
Output connections



Power supply



Dimensions



Ordering information

SR335, 24 VAC/DC	70SR335001
Configuration	70CAL00001

SR360

Alarm Unit with Current and Voltage Input and Double Relay Outputs



SR360



SR360 is designed for monitoring current and voltage signals in the process industry.

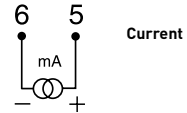
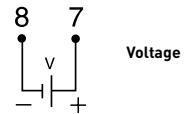
Two output relays with individually adjustable trip functions are available. LED's in the front indicate alarm state and correct power supply.

- Current and voltage input
- Two relay outputs with independent switch functions
- Monostable relays for safe tripping at power failure
- SPDT relays with 6 A switch capacity
- High configuration flexibility with DIP switches
- Trip levels and hysteresis adjustable from the front
- Three front LED's for trip indication and power supply monitoring
- 4 kV isolation between input, output and power supply
- Protective Separation acc. to EN 50178
- Universal 24 V AC and DC power supply
- DIN-rail mounting

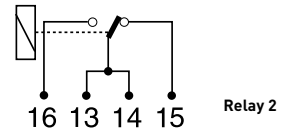
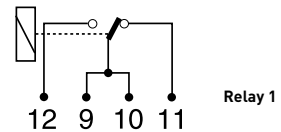
Specifications:

Input Current	0(4) to 20 mA or ± 20 mA (switch selectable)
Input impedance	5 Ω
Maximum overload	200 mA
Input Voltage	0 to 10 V or ± 10 V (switch selectable)
Input impedance	1 M Ω
Maximum overload	250 V
Output, Relay 1 & 2	
Relay contacts	1-pole switch over contact (SPDT)
Contact rating	250 VAC/DC, 6 A, 1 500 VA
Relay function	Monostable, Normally active or passive (switch selectable)
Alarm functions, relay 1	High/Low alarm (switch selectable)
Alarm functions, relay 2	High/Low alarm or Power failure alarm (switch selectable)
Alarm indication	Alarm state indicated by yellow LED
Adjustable alarm set-point	0 to 100 % of input range (12-turn potentiometers in front)
Adjustable hysteresis	0 to 60 % of span (12-turn potentiometers in front)
Response time	Ca. 20 ms (fixed)
Operation temperature	-20 to +60 °C / -4 to +140 °F
Galvanic isolation	
Input / power supply / relay outputs	4 kVAC, 1 min
Relay 1 / Relay 2	2.5 kVAC, 1 min
Power supply	
Voltage	24 VAC/DC ± 15 %, 48 to 62 Hz (AC supply)
Power consumption	AC: ca. 2 VA, DC: ca. 1 W
Typical accuracy	Trip point: ± 0.2 % of span
Mounting	Rail acc. to DIN EN 50022, 35 mm

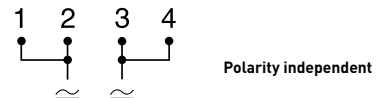
Input connections



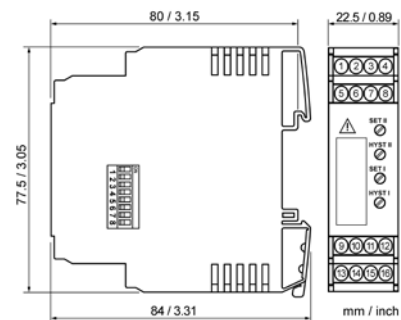
Output connections



Power supply



Dimensions



Ordering information

SR360, 24 VAC/DC	70SR360001
Configuration	70CAL00001

SR535

Alarm Unit with Pt100 Input and 4-20 mA Output

SR535



SR535 is designed for monitoring Pt100 signals in the process industry. The unit gives alarm functions for either increasing or decreasing temperatures and for certain error states. SR535 provides a temperature linear output signal, 4-20 mA, corresponding to the measurement range.

- Direct Pt100 input
- 4-20 mA output
- One temperature monitoring relay
- One error monitoring relay
- Reliable and interference free safety alarm without false alarms
- High configuration flexibility with solder jumpers
- Adjustable time delay, hysteresis and relay functions
- Available for AC or DC power supply
- DIN-rail mounting
- Plug-in screw terminals

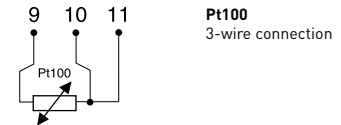
Specifications:

Input Pt100 [acc. to IEC 60751],3-wire connection		Range: 0-100, 0-150¹⁾ , 0-200, 0-300, 0-500 °C
Sensor current		3 mA
Output Relay 1	Temperature monitoring	1-pole switch over contact
Selectable High or Low alarm		Jumpers on PCB (standard: High)
Adjustable alarm set-point		Front 15-turn potentiometer / test connector
Selectable alarm delay		0.4 s (standard) or 2 s, changeable on PCB
Selectable hysteresis		0.5 % (standard) or 5 %, changeable on PCB
Selectable normally active or passive function		Jumpers on PCB (standard: normally active)
Output Relay 2	Error monitoring	1-pole opening contact
Fixed, normally active and opening contact		Alarm at power failure, sensor break or high input (125 %)
Output Current		4-20 mA linear to selected temperature range
Operation temperature		-20 to +60 °C / -4 to +140 °F
Galvanic isolation	Input to relay outputs	3 700 VAC, 1 min
	Input to AC power supply	3 700 VAC, 1 min
	Input to DC power supply	1 500 VAC, 1 min
	Relay outputs to power supply	3 700 VAC, 1 min
Power supply	Input to mA output	Not isolated
	AC versions	230 VAC, -15..+10 %, 45..75 Hz
		115 VAC, -15..+10 %, 45..75 Hz
	DC version	19 to 60 VDC
Typical accuracy	Trip point, mA output	± 0.1 % of span
Connections	Plug-in terminals	Stranded, ≤ 2.5 mm², AWG 14
Mounting		Rail acc. to DIN EN 50022, 35 mm

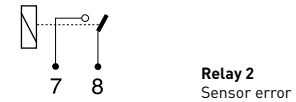
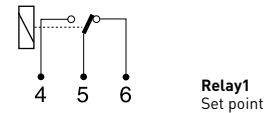
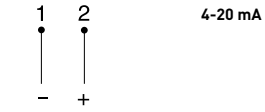
1)factory set

¹⁾factory set

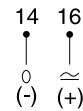
Input connections



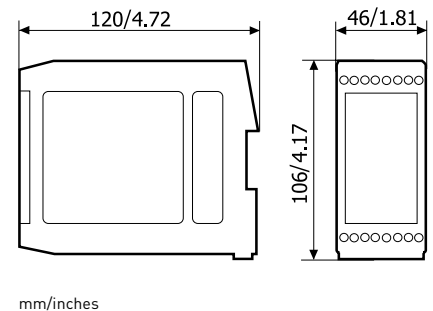
Output connections



Power supply



Dimensions



Ordering information

SR535, 0-150 °C, 230 VAC	51MOE00012
SR535, 0-150 °C, 115 VAC	51MOE00085
SR535, 0-150 °C, 19-60 VDC	51MOE00013
Configuration for other range	70CAL00003

SR560

Dual Channel Alarm Unit for mA/V Signals

SR560



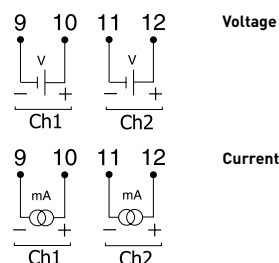
SR560 is designed for monitoring mA or V signals in the process industry. The two channels are fully independent. The SR560 is specially designed for reliable safety triggering without false alarms. High configuration flexibility allows for adaptation to required alarm functions.

- Two fully independent isolated channels
- Current and voltage input
- Reliable and interference free safety alarm without false alarms
- High configuration flexibility with solder jumpers
- Adjustable time delay, hysteresis and relay functions
- Available for AC or DC power supply
- DIN-rail mounting
- Plug-in screw terminals

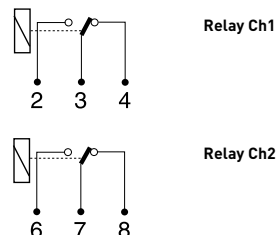
Specifications:

No. of channels	Two, independent selection of input signal
Input Voltage	0(0.2)-1 V, 0(1)-5 V, 0(2)-10 V
Input impedance	10 M Ω
Input Current	0(4)-20 mA (standard setting)
Input impedance	51 Ω
Maximum input level	200 % of input span
Output Relay 1 & 2	One per channel
Selectable High or Low alarm	1-pole switch over contact
Adjustable alarm set-point	Jumpers on PCB (standard: High)
Selectable alarm delay	Front 15-turn potentiometers / test connectors
Adjustable hysteresis	0.4 s (standard) or 2 s, changeable on PCB
Selectable normally active or passive function	0.35 % (standard) to 80 % with front 15-turn potentiometer
Operation temperature	Jumpers on PCB (standard: normally active)
Galvanic isolation	-20 to +60 °C / -4 to +140 °F
Galvanic isolation	AC versions
	Input to relay outputs
	3 700 VAC, 1 min
	Input to power supply
	3 700 VAC, 1 min
	Relay outputs to power supply
Galvanic isolation	3 700 VAC, 1 min
	Between channels
	1 500 VAC, 1 min
	DC version
	Input to relay outputs
	1 500 VAC, 1 min
Galvanic isolation	Input to power supply
	1 500 VAC, 1 min
	Relay outputs to power supply
	1 500 VAC, 1 min
	Between channels
	1 500 VAC, 1 min
Power supply	AC versions
	230 VAC, -15..+10 %, 45..75 Hz
	115 VAC, -15..+10 %, 45..75 Hz
Power supply	DC version
	19 to 60 VDC
	19 to 60 VDC
Typical accuracy	Trip point
Connections	$\pm$ 0.1 % of span
Mounting	Plug-in terminals
	Stranded, $\leq$ 2.5 mm ² , AWG 14
	Rail acc. to DIN EN 50022, 35 mm

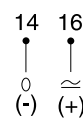
Input connections



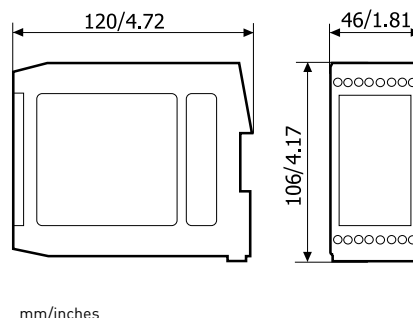
Output connections



Power supply



Dimensions



Ordering information

SR560, 0(4)-20 mA, 230 VAC	51MOE00014
SR560, 0(4)-20 mA, 115 VAC	51MOE00017
SR560, 0(4)-20 mA, 19-60 VDC	51MOE00015
Configuration for other range	70CAL00003

ME544

4-channel Power Supply for 2-wire Transmitters

ME544



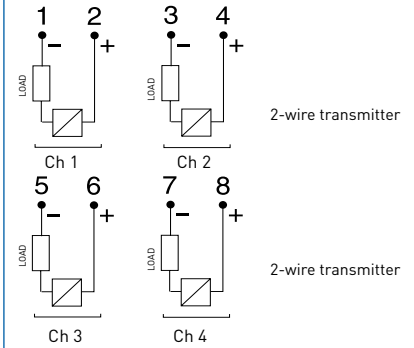
ME544 has four galvanically isolated supply channels for 2-wire transmitters. The output voltage for each channel is 25 VDC. Each channel is short-circuit protected and has a current limitation to protect measurement circuits from damage caused by short circuits or other faults. ME544 cuts the risk for measurement errors caused by earth potential differences with a number of 2-wire transmitters in the same measurement system.

- 4 galvanically isolated supply channels for 2-wire transmitters
- 25 V stabilized supply voltage
- Short-circuit safe
- Current limited to ~35 mA
- Available for AC or DC power supply
- Compact mounting on DIN rail
- Plug-in screw terminals

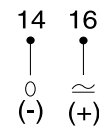
Specifications:

Supply channel 1 to 4		
Voltage		~25 VDC stabilized, short circuit protected
Current limitation		~35 mA
Maximum ripple		5 mV eff.
Operation temperature		-20 to +60 °C/-4 to +140 °F
Galvanic isolation	Between channel 1-4	1500 VAC, 1 min
	AC power supply to channel 1-4	2500 VAC, 1 min
	DC power supply to channel 1-4	1500 VAC, 1 min
Power supply	AC versions	230 VAC, -15..+10 %, 45..75 Hz
		115 VAC, -15..+10 %, 45..75 Hz
	DC version	19 to 60 VDC
Connections	Plug-in terminals	Stranded, ≤ 2.5 mm², AWG 14
Mounting		Rail acc. to DIN EN 50022, 35 mm

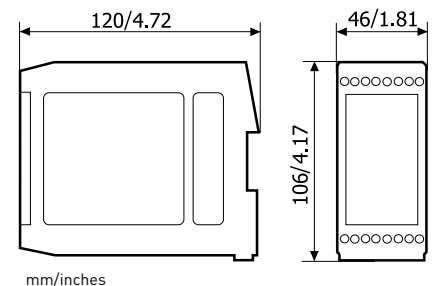
Transmitter supply



Power supply



Dimensions



Ordering information

ME544, 230 VAC	51MOE00010
ME544, 115 VAC	51MOE00112
ME544, 19-60 VDC	51MOE00011

LED-P11, LCD-P11

LED-P11



LCD-P11

Loop Powered LED & LCD Indicators for Panel Mounting



LED-P11 & LCD-P11 are digital indicators for installation directly in a 4-20 mA loop without need for external power. LED-P11 is equipped with bright, easy-to-read LED digits, and LCD-P11 comes with a high-contrast LCD display. Both indicators are designed for panel mounting and have a splash proof front. The scale is easily programmable, without reference signal, by two front pushbuttons.

LED-P11

- Bright, 4-digit LED display with red 14.2 mm / 0.56 " digits

LCD-P11

- High-contrast, 4-digit LCD display with 12.7 mm / 0.5 " digits
- Only 1.5 V voltage drop

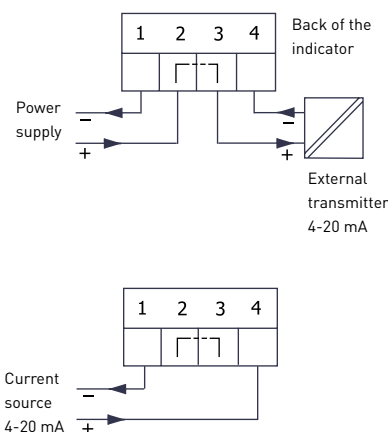
Common features

- Installation directly in a 4-20 mA loop without need for separate power supply
- Simple pushbutton scaling without reference signal
- Front pushbuttons that can be disabled
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.05 % allows for high precision read-outs
- HART transparent
- 48x96 mm DIN size for panel mounting with IP65 / NEMA 4X front protection

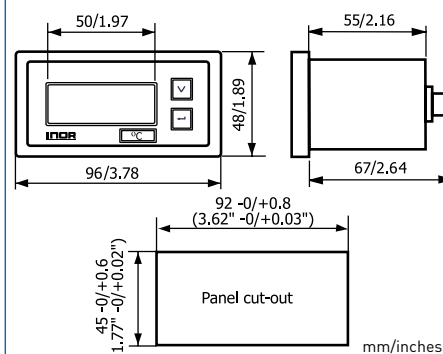
Specifications:

Input Current	4-20 mA	
Maximum current	30 mA	
Minimum current for operation	~3.5 mA	
Voltage drop	LED-P11	< 5 V
	LCD-P11	~1.5 V
Indication		
Display	LED-P11	Red LED with 4 digits including minus sign
	LCD-P11	Black LCD with 4 digits including minus sign
Digit height	LED-P11	14.2 mm / 0.56 "
	LCD-P11	12.7 mm / 0.5 "
Indication range	Any range between -1999 to 9999	
Decimals	Selectable, 0 to 3	
Under range / Over range	Flashing symbols LO/HI	
Engineering units	Set of labels included (including blanks)	
Response time	Appr. 0.5 s	
Scale setting	Two front pushbuttons (disable switch in the back)	
Operation temperature	LED-P11	-25 to +80 °C / -13 to +176 °F
	LCD-P11	-20 to +80 °C / -4 to +176 °F
Typical accuracy	±0.05 % FS ±1 digit	
Dimensions	48 x 96 x 67 mm / 1.89 x 3.78 x 2.64 "	
Protection	IP65 / NEMA 4X (front)	
Mounting	Panel mounting, cut-out see drawing	

Connections



Dimensions



Ordering information

LED-P11	70LEDP1101
LCD-P11	70LCDP1102
Configuration	70CAL00001

LCD-W11



LED-W11

LED-W11, LCD-W11

Loop Powered LED & LCD Indicators for Field Mounting



LED-W11 & LCD-W11 are digital indicators for installation directly in a 4-20 mA loop without need for external power.

LED-W11 is equipped with bright, easy-to-read LED digits, and LCD-W11 comes with a high-contrast LCD display.

Both indicators are designed for field mounting on wall, pipe or DIN rail and have a rugged and splash proof housing.

The scale is easily programmable without reference signal.

A temperature transmitter can be integrated for direct sensor input.

LED-W11

- Bright, 4-digit LED display with red 14.2 mm / 0.56 " digits

LCD-W11

- High-contrast, 4-digit LCD display with 17.8 mm / 0.7 " digits

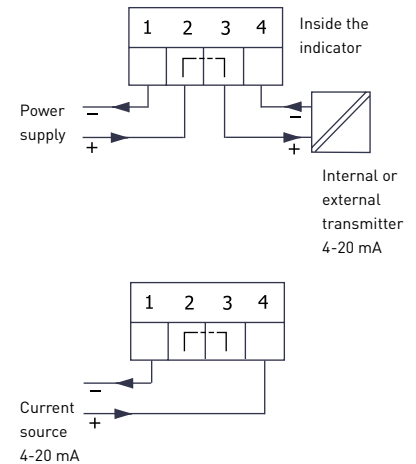
Common features

- Installation directly in a 4-20 mA loop without need for separate power supply
- Simple pushbutton scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.05 % allows for high precision read-outs
- HART transparent
- Integrated transmitter as added option
- Field mounting in rugged IP65 / NEMA 4X housing with double cable conduits

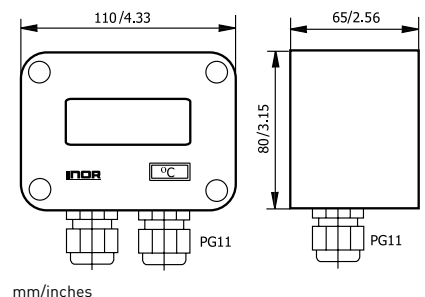
Specifications:

Input Current		4-20 mA
Maximum current		30 mA
Minimum current for operation		-3.5 mA
Voltage drop	LED-W11	< 5 V
	LCD-W11	-3 V
Indication		
Display	LED-W11	Red LED with 4 digits including minus sign
	LCD-W11	Black LCD with 4 digits including minus sign
Digit height	LED-W11	14.2 mm / 0.56 "
	LCD-W11	17.8 mm / 0.7 "
Indication range		Any range between -1999 to 9999
Decimals		Selectable, 0 to 3
Under range / Over range		Flashing symbols LO/HI
Engineering units		Set of labels included (including blanks)
Response time		Appr. 0.5 s
Scale setting		Two pushbuttons inside the housing
Operation temperature	LED-W11	-25 to +80 °C / -13 to +176 °F
	LCD-W11	-30 to +80 °C / -22 to +176 °F
Typical accuracy		±0.05 % FS ±1 digit
Dimensions		80 x 110 x 65 mm / 3.15 x 4.33 x 2.56 "
Protection		IP65 / NEMA 4X
Connections		Stranded, ≤ 1.5 mm ² , AWG 16, 2 PG11-conduits
Mounting		Rail acc. to DIN EN 50022, 35 mm, wall or 2 " pipe

Indicator LED/LCD-W11



Dimensions



Ordering information

LED-W11	70LEDW1101
LCD-W11	70LCDW1101
Pipe mounting kit	70ADA00021
DIN-Rail mounting kit	70ADA00022
Configuration	70CAL00001
Mounting of transmitter	60VERMONT1



LED-W11X

LED-W11X

Loop Powered, Ex-approved LED Indicator for Gas Zone 1 & 2



LED-W11X is a digital indicator for installation directly in a 4-20 mA loop without need for external power.

The indicator is equipped with bright, easy-to-read LED digits.

LED-W11X is designed for field mounting on a wall or, by means of mounting kit, on a pipe or a DIN-rail. It has a rugged and splash proof housing with protection IP65/NEMA 4X.

The scale is easily programmable, without reference signal, by two internal pushbuttons for any values between -1999 and 9999.

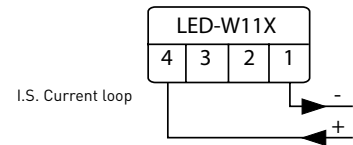
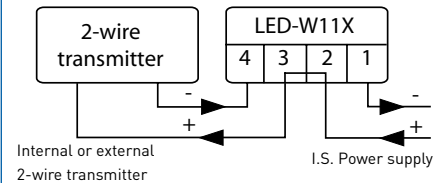
A temperature transmitter can be integrated for direct sensor input.

- Intrinsically Safe for gas Zone 1 & 2
- Bright, 4-digit LED display with red 14.2 mm (0.56 ") digits
- Installation directly in a 4-20 mA loop without need for power supply
- Simple pushbutton scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.05 % allows for high precision read-outs
- HART transparent
- Built-in temperature transmitter as an option
- Field mounting in rugged IP65 / NEMA 4X housing with double cable conduits

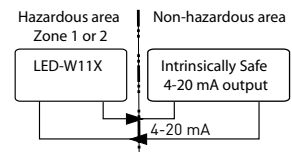
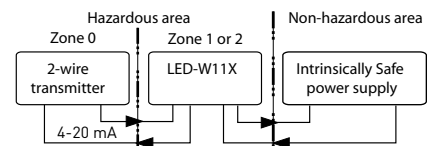
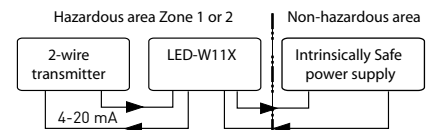
Specifications:

Input Current	4-20 mA
Maximum current	30 mA
Minimum current for operation	~3.5 mA
Voltage drop	<6 V
Indication	
Display	Red LED with 4 digits including minus sign
Digit height	14.2 mm (0.56 ")
Indication range	Any range between -1999 to 9999
Decimals	Selectable, 0 to 3
Under range / Over range	Flashing symbols LO/HI
Engineering units	Set of labels included (including blanks)
Response time	~ 0.5 s
Scale setting	Two pushbuttons inside the housing
Operation temperature	-25 to +60 °C [-13 to +140 °F]
Typical accuracy	±0.05 % FS ±1 digit
Dimensions	80 x 125 x 63 mm (3.15 x 4.92 x 2.48 ")
Protection	IP65 / NEMA 4X
Connection	Stranded, ≤ 1.5 mm ² , AWG 16, 2 conduits M16x1.5
Mounting	Wall, pipe or DIN-rail with mounting kit
Ex-classification	ATEX II 2/1 G Ex ia IIC T4-T6
Ex-data	Acc. to certificate DEMKO 07 ATEX 142834X

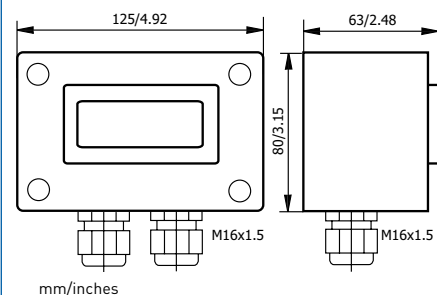
Connections



Installation alternatives



Dimensions



Ordering information

LED-W11X	70LEDW11X1
Pipe mounting kit	70ADA00021
DIN-Rail mounting kit	70ADA00022
Transmitter mounting kit	70ADA00032
Configuration	70CAL00001
Mounting of transmitter	60VERMONT1

LCD-W12

LCD Indicator for Direct Connection to the ProfIPAQ-H/-L Transmitters

LCD-W12



LCD-W12 is a digital, high-precision LCD indicator for local measurement of process values and sensor failure monitoring. It connects directly to the communication port of our PROFIBUS transmitters, ProfIPAQ-H and ProfIPAQ-L. It can be connected and disconnected at any time. LCD-W12 communicates digitally with the transmitters and offers unlimited accuracy as well as temperature and long-term stability. There is no need for scale adjustments or calibration of the indicator. LCD-W12 is designed for field mounting on wall, pipe or DIN rail and has a rugged and splash proof housing.

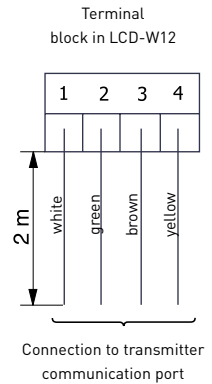
- High-contrast, 4-digit LCD display with 17.8 mm/0.7 " digits
- No power supply needed, supplied by the transmitter
- Also suitable for temporary measurements
- Unlimited accuracy and stability - Values supplied by transmitter digitally
- Display range stored in the transmitter, no calibration needed
- Display values between -1999 and 9999
- Indicates sensor failures (break, short-circuit and low isolation)
- Labels for different engineering units are included
- Designed for ambient temperatures between -20 to +80 °C / -4 to +176 °F
- Field mounting on wall, 2 " pipe or DIN-rail
- Rugged IP65 / NEMA 4X housing

Specifications:

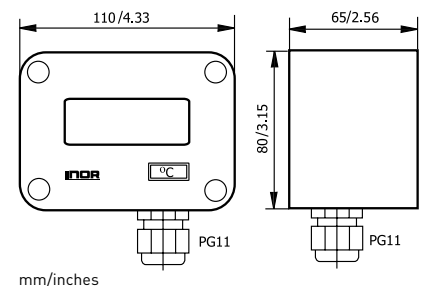
Supply Voltage	Supplied by connected transmitter
Indication	
Display	Black LCD, 4 digits including minus sign
Digit height	17.8 mm / 0.7 "
Indication range ¹⁾	-1999 to 9999
Decimals ¹⁾	3 positions or blank
Update rate	Appr. 1 Hz
Monitoring	
Sensor failure detection	Flashing SEn and brE
Low isolation detection	Flashing Lo and Iso
Operation temperature	-20 to +80 °C / -4 to +176 °F
Accuracy	Unlimited (Digital data transfer)
Dimensions	80 x 110 x 65 mm / 3.15 x 4.33 x 2.56 "
Protection	IP65 / NEMA 4X
Connection	Cable included, length 2m / 78 "
Mounting	Rail acc. to DIN EN 50022, 35 mm, wall or 2 " pipe

¹⁾ Set by the transmitter configuration

Connections



Dimensions



Ordering information

LCD-W12	70LCDW1201
Pipe mounting kit	70ADA00021
DIN-Rail mounting kit	70ADA00022

LCD-H20

Loop Powered LCD Indicator for In-head Mounting



LCD-H20



LCD-H20 is a digital indicator for installation directly in a 4-20 mA loop without need for external power.
LCD-H20 is designed for in-head mounting in a sensor connection head with glass window.

The indicator is equipped with high-contrast, easy-to-read LCD digits.

The scale is easily programmable, without reference signal, by three pushbuttons for any values between -1999 and 9999.

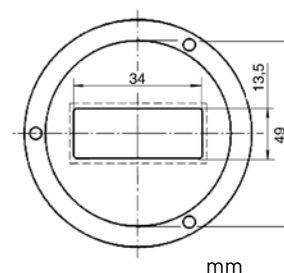
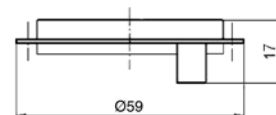
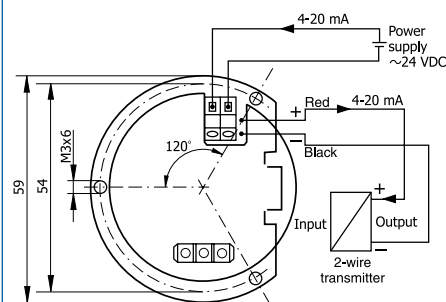
As an option, LCD-H20 can be delivered mounted in a connection head.

- Installation directly in a 4-20 mA loop without need for power supply
- 2.5 V voltage drop
- High-contrast, 4-digit LCD display with 12 mm digits
- Simple pushbutton scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.1 % allows for high precision read-outs
- HART transparent
- Designed for ambient temperatures between -20 to +70 °C / -4 to +158 °F
- Protection IP65 when mounted in connection head Type 1 or Type 2

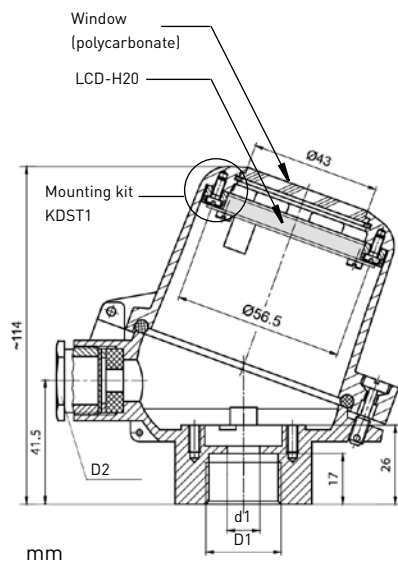
Specifications:

Input Current	4 - 20 mA
Operating range	3.8 - 22 mA
Voltage drop	2.5 V
Indication	
Display	Black LCD with 4 digits incl. minus sign
Digit Height	12 mm
Indication range	Any range between -1999 to 9999
Decimals	Selectable, 0 to 3
Engineering units	Set of labels included (including blanks)
Response time	Adjustable 0.25 s to 2 s
Scale setting	3 pushbuttons
Operating temperature	-20 to +70 °C / -4 to +158 °F
Typical accuracy	±0.1 % of programmed span ±1 digit
Dimensions	Diameter 59 mm, thickness 20 mm
Protection	IP20 (IP65 in connection head)
Connection	Stranded, ≤ 1 mm², AWG 16
Mounting	Connection head Type 1 or Type 2 with mounting kit KDST1

Connections/Dimensions Indicator



Dimensions connection head



	D1	d1	D2
Head Type 1	M24x1.5	14	M20x1.5
Head Type 2	½"NPT	17	¾"NPT

Ordering information

LCD-H20 indicator only	70LCDH2001
LCD-H20	
in connection head Type 1	70LCDH2011
in connection head Type 2	70LCDH2011US
Configuration	70CAL00001

LCD-H11

Loop Powered Heavy-duty LCD Field Indicator



LCD-H11



LCD-H11 is a digital, heavy-duty LCD indicator for installation directly in a 4-20 mA loop without need for external power.

LCD-H11 is designed for field mounting and has a rugged, splash proof housing. The scale is easily programmable, without reference signal, by two internal pushbuttons for any values between -1999 and 9999.

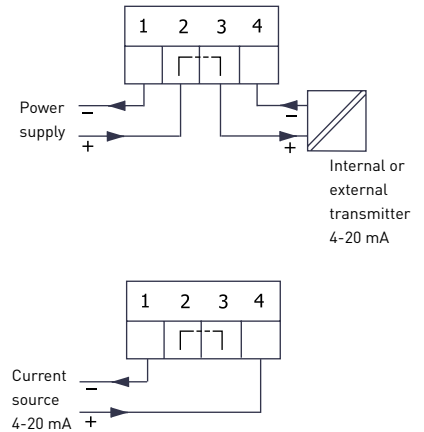
A temperature transmitter can be integrated for direct sensor input.

- Installation directly in a 4-20 mA loop without need for power supply
- Only 1.5 V voltage drop
- High-contrast, 4-digit LCD display
- Simple pushbutton scaling without reference signal
- Any range between -1999 to 9999 for 4 to 20 mA input
- Labels for different engineering units are included
- Typical accuracy of 0.05 % allows for high precision read-outs
- HART transparent
- Choice of transmitter can be integrated as added option
- Designed for ambient temperatures between -25 to +70 °C / -13 to +158 °F
- Field mounting in rugged IP66 / NEMA 4 housing

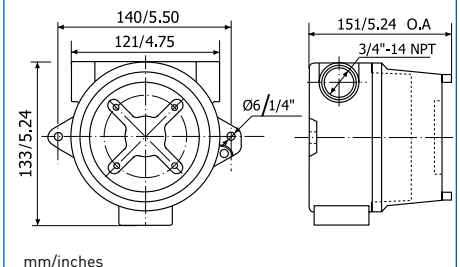
Specifications:

Input Current	4-20 mA
Maximum current	30 mA
Minimum current for operation	~3.5 mA
Voltage drop	~1.5 V
Indication	
Display	Black LCD with 4 digits including minus sign
Digit height	12.7 mm / 0.5"
Indication range	Any range between -1999 to 9999
Decimals	Selectable, 0 to 3
Under range / Over range	Flashing symbols LO/HI
Engineering units	Set of labels included (including blanks)
Response time	Appr. 0.5 s
Scale setting	Two pushbuttons inside the housing
Operation temperature	-25 to +70 °C / -13 to +158 °F
Typical accuracy	±0.05 % FS ±1 digit
Protection	IP66 / NEMA 4
Connections	Stranded, ≤ 1.5 mm ² AWG 16
Conduit threads	2 x 3/4" NPT
Mounting	Wall mounting

Connections



Dimensions



Ordering information

LCD-H11	70LCDH1111
Configuration	70CAL00001
Mounting of transmitter	60VERMONT1

For indicator only (without housing), contact Inor

Inor Interface Technique for Safe Potential Separation and System Integration

Based on know-how combined with an innovative approach, the IsoPAQ family of Isolators and Isolation Transmitters offers high-quality products for signal isolation in the process and automation industry.

The versatility and performance of the products, such as accuracy, response time and isolation level, can be chosen to meet requirements of very cost-effective basic installations as well as applications with the highest demands on performance and safety for service personnel and connected equipment.

Extensive Range Selection

The input and output signals can easily be selected by the integrated DIP switches. For some units recalibration is not even necessary. This feature provides excellent flexibility and low storage and installation costs.

Universal Power Supply for 20 to 253 VAC/DC

The universal power supply for 20 to 253 VAC/DC (24 VAC/DC for *COMPACT LINE*) allows for a world-wide use of the IsoPAQ products. With only one version needed, storage and maintenance are simplified. The universal power supply provides immunity to voltage variations as well as mistakes in the power supply connection.

Compact Line

COMPACT LINE is a line of very compact and cost-optimized Isolators, Transmitter Repeaters and Isolating Transmitters within the IsoPAQ family.

The small dimensions - only 60 mm deep and 11.2 mm wide - and the favorable pricing allow for space saving and economic installations.

Easy configuration on the DIN-rail

Thanks to the easy housing unblocking, the front part of the IsoPAQ can be extracted with the units mounted on the DIN-rail. The DIP switch configuration can therefore be made systematically after installation.

Plug-in screw terminals

Plug-in screw terminals (not for *COMPACT LINE*) facilitate start up testing and make a product exchange possible in seconds. The keying system makes a wrong reconnection of the terminals impossible.

Protective Separation

IsoPAQ products with the feature "Protective Separation" have a 3-port isolation with high test voltage (4 kV) and are designed according to EN 61010. They provide a safe protection for service personnel and downstream devices against impermissibly high voltages.

Innovative design

Thanks to an efficient and patented signal conditioning and high cut-off frequency, the IsoPAQ products have negligible distortion of the measurement signals. The input circuits are designed to minimize the load of the primary signals.

All Isolation Transmitters have linear zero crossing, which makes zero and span adjustments very easy (on transmitters with this feature) and provides accurate measurement values also close to zero.

The EMC design includes no Y-capacitors, which gives an excellent decoupling of the sensor circuit even for fast input signal changes and an efficient rejection of transient interferences.

Excellent Reliability and Long Term Stability

Based on a special circuitry for the universal power supply with a special switching technique, the IsoPAQ transmitters have extremely low energy losses. Self heating is therefore strongly minimized, which also reduces the component aging efficiently. Integrated protection components and big load margins are further important features for a stable and safe operation over many years.

5 Year Warranty

As all other Inor products for signal conditioning the IsoPAQ products are supplied with a 5 year limited warranty.



IsoPAQ Selection Tables

Isolators & Transmitter Repeaters	IsoPAQ-11L Loop Powered Isolator € Page 44	IsoPAQ-12L Loop Powered Isolator € Page 44	IsoPAQ-110L Loop Powered Isolator <i>COMPACTLINE</i> € Page 46	IsoPAQ-21L Loop Powered Isolator ★★★★★ Page 48	IsoPAQ-22L Loop Powered Isolator ★★★★★ Page 48	IsoPAQ-110R Transmitter Repeater <i>COMPACTLINE</i> € Page 50
One channel	●		●	●		●
Two channels		●	●		●	
Passive input	●	●	●	●	●	
Active input / Transmitter supply						●
Power supply	No	No	No	No	No	15...30 VDC
Input signal	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	4...20 mA
Output signal	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	0(4)...20 mA	4...20 mA
Typical accuracy	±0.1 % FS	±0.1 % FS	±0.15 % FS	±0.1 % FS	±0.1 % FS	±0.1 % FS
Isolation level	1.5 kV, 50 Hz	1.5 kV, 50 Hz	2.5 kV, 50 Hz	4 kV, 50 Hz	4 kV, 50 Hz	2.5 kV, 50 Hz
Working voltage			600 VAC/DC	600 VAC/DC	600 VAC/DC	600 VAC/DC
Protective separation			●	●	●	●
Response time	< 5 ms	< 5 ms	< 5 ms	< 5 ms	< 5 ms	< 10 ms
Voltage drop	< 2.0 V	< 2.0 V	< 3.0 V	< 2.0 V	< 2.0 V	< 5.0 V
Operation temperature	-20...+70 °C	-20...+70 °C	0...+55 °C	-20...+70 °C	-20...+70 °C	0...+55 °C
Plug-in screw terminals	●	●		●	●	
Housing width	12.5 mm	12.5 mm	11.2 mm	12.5 mm	12.5 mm	11.2 mm
Installation depth	104 mm	104 mm	60 mm	104 mm	104 mm	60 mm

Isolation Transmitters	IsoPAQ-30P Universal € Page 52	IsoPAQ-131P <i>COMPACTLINE</i> € Page 54	IsoPAQ-32P Isolation Signal Splitter ★★★★★ Page 56	IsoPAQ-40P Universal ★★★★★ Page 58	IsoPAQ-41P ★★★★★ Page 60	IsoPAQ-51P ★★★★★ Page 62	IsoPAQ-161P <i>COMPACTLINE</i> € Page 64	IsoPAQ-60P Universal ★★★★★ Page 66	IsoPAQ-70S Universal € Page 68	IsoPAQ-80S Universal ★★★★★ Page 70
Input signal	0...20 mA 4...20 mA 0...10 V	0...20 mA 4...20 mA 0...10 V	I: 0...20 mA 4...20 mA 0...5 V 0...10 V II: 0...20 mA 4...20 mA 0...5 V 0...10 V	0...20 mA 4...20 mA 0...10 V	0...20 mA 4...20 mA 0...10 V	0(4)...20 mA	±10 mA ±20 mA ±5 V ±10 V 0...5 V	±10 mA ±20 mA 0(2)...10 mA 0(4)...20 mA ±5 V ±10 V 0(1)...5 V 0(2)...10 V	0...60 mV 0...150 mV	±60 mV to ±500 mV 0...60 mV to 0...500 mV
Outputs signal	0...20 mA 4...20 mA 0...10 V	0...20 mA 4...20 mA 0...10 V	I: 0...20 mA 4...20 mA 0...5 V 0...10 V II: 0...20 mA 4...20 mA 0...5 V 0...10 V	0...20 mA 4...20 mA 0...10 V	0...20 mA 4...20 mA 0...10 V	0(4)...20 mA	0...20 mA 4...20 mA 0...5 V 0...10 V	±10 mA ±20 mA 0(2)...10 mA 0(4)...20 mA ±5 V ±10 V 0(1)...5 V 0(2)...10 V	0...20 mA 4...20 mA 0...10 V	±10 mA ±20 mA 0(2)...10 mA 0(4)...20 mA ±5 V ±10 V 0(1)...5 V 0(2)...10 V
Bipolar input							●	●		●
Bipolar output								●		●
Calibrated range selection	●			●					●	
Range selection								●		●
Fixed ranges		●	●		●	●	●			
Zero / Span adjustment						●		●		●
Typical accuracy	±0.3 % FS	±0.2 % FS	±0.1 % FS	±0.1 % FS	±0.1 % FS	±0.1 % FS	±0.2 % FS	±0.1 % FS	±0.3 % FS	±0.1 % FS
Isolation level	2.5 kV, 50 Hz	2.5 kV, 50 Hz	2.5 kV, 50 Hz	4 kV, 50 Hz	4 kV, 50 Hz	4 kV, 50 Hz	2.5 kV, 50 Hz	4 kV, 50 Hz	2.5 kV, 50 Hz	4 kV, 50 Hz
Working voltage	600 VAC/DC	600 VAC/DC	600 VAC/DC	600 VAC/DC	600 VAC/DC	600 VAC/DC	600 VAC/DC	1000 VAC/DC	600 VAC/DC	1000 VAC/DC
Protective separation		●	●	●	●	●	●	●		●
Response time, Cut-off frequency	1 kHz	< 5 ms	< 5 ms	30 Hz/1 kHz switch select.	1 kHz	1 kHz	< 5 ms	30 Hz/10 kHz switch select.	1 kHz	30 Hz/10 kHz switch select.
Power supply	20-253 VAC/DC	24 VAC/DC	24 VDC	20-253 VAC/DC	20-253 VAC/DC	20-253 VAC/DC	24 VAC/DC	20-253 VAC/DC	20-253 VAC/DC	20-253 VAC/DC
Operation temperature	-10...+60 °C	0...+55 °C	-10...+60 °C	-20...+70 °C	-20...+70 °C	-20...+70 °C	0...+55 °C	-20...+70 °C	-10...+60 °C	-20...+70 °C
Plug-in screw terminals	●		●	●	●	●		●	●	●
Housing width	12.5 mm	11.2 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm	11.2 mm	12.5 mm	12.5 mm	12.5 mm
Installation depth	104 mm	60 mm	104 mm	104 mm	104 mm	104 mm	60 mm	104 mm	104 mm	104 mm

€ Cost-optimized

★★★★★ High Performance

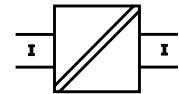
1- & 2-channel Loop Powered Isolators for Separation of 0(4)-20 mA Signals

IsoPAQ-11L and IsoPAQ-12L are 1- and 2-channel loop powered isolators used for electrical isolation of 0(4)-20 mA signals to avoid measurement errors due to different voltage potentials or ground loops in an instrument installation.

The 2-channel version, IsoPAQ-12L offers a very cost effective alternative combined with a high-density mounting.

The isolators need no power supply, which contributes to reduced installation costs compared to isolation transmitters.

The high reliability ensures a safe system operation and low maintenance costs.



- **Input to output galvanic isolation**
Protection against erroneous measurements due to parasitic voltages or ground loops
- **1- and 2-channel versions**
Allows for optimal cost efficiency
- **No power supply required**
Reduced wiring saves installation costs
- **Low voltage drop**
Input voltage drop of less than 2 V reduces impact on the primary current loop
- **High accuracy**
Negligible additional measurement errors in the loop
- **High-density DIN-rail mounting**
12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- **Plug-in screw terminals**
Simplifies installation and maintenance

Specifications: IsoPAQ-11L/-12L

Input

Input signal	0(4)-20 mA/max. 30 V
Operating current	< 20 μ A
Voltage drop	< 2 V
Overload	$\leq$ 100 mA, $\leq$ 30 V

Output

Output signal	0(4)-20 mA/max. 28 V
Response time (10 to 90 % of end value)	2 ms @ 250 Ω load/6 ms @ 750 Ω load
Ripple	< 0.07 % of measured value, ~100 kHz

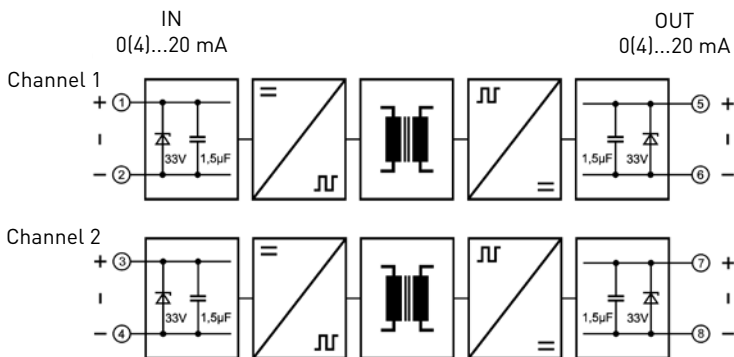
General data

Transmission error	$\pm$ 0.1 % of end value	
Load error	$\pm$ 0.03 % of measured value/100 Ω load	
Temperature coefficient ¹⁾	$\pm$ 0.0015 %/K of measured value/100 Ω load	
Test voltage	1.5 kV, 50 Hz	Between all circuits
Ambient temperature	Operation	-20 to +70 °C (-4 to +158 °F)
	Transport and storage	-35 to +85 °C (-31 to +185 °F)
EMC ²⁾	EN 61326-1	
Construction	12.5 mm (0.5") housing, protection class: IP20	
Connection	$\leq$ 2.5 mm ² , AWG 14	
Weight	Approx. 100 g	

1) Average TC in specified operating temperature range

2) Minor deviations possible during interference

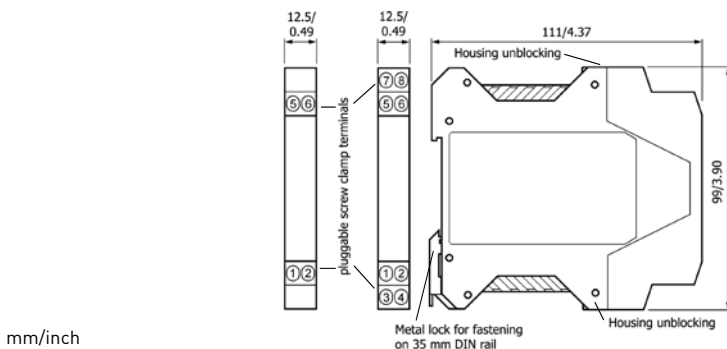
Block diagram/Connections



Ordering information

Product	Input / Output	Part No.
IsoPAQ-11L	1-channel, 0(4)-20 mA	70ISL11001
IsoPAQ-12L	2-channel, 0(4)-20 mA	70ISL12001

Dimensions



mm/inch

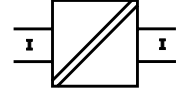
1- & 2-channel Loop Powered Isolators for 0(4)-20 mA Signals

IsoPAQ-110L is a loop powered isolator, available in 1- and 2-channel versions. It is used for electrical isolation of 0(4)-20 mA signals to avoid measurement errors due to different voltage potentials or ground loops in an instrument installation.

The 2-channel version, IsoPAQ-110L offers a very cost effective alternative combined with a high-density mounting.

The isolator need no power supply, which contributes to reduced installation costs compared to Isolation Transmitters.

The high reliability ensures a safe system operation and low maintenance costs.



COMPACT LINE

COMPACT LINE is a line of very compact and cost-optimized Isolators, Transmitter Repeaters and Isolating Transmitters within the IsoPAQ family.

The small dimensions - only 60 mm deep and 11.2 mm wide - and the favorable pricing allow for space saving and economic installations.

- **Input to output galvanic isolation**
Protection against erroneous measurements due to parasitic voltages or ground loops
- **1- and 2-channel versions**
Allows for optimal cost efficiency
- **No power supply required**
Reduced wiring saves installation costs
- **Fixed ranges**
Ready to use without any settings
- **Protective Separation acc. to EN 61140**
The design and high isolation level (2.5 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- **Compact DIN-rail mounting**
11.2 mm (0.44") housing combined with very low self heating allows for high density mounting. With a depth of only 60 mm, compact standard boxes can be used



Specifications: IsoPAQ-110L

Input

Input signal	0(4)-20 mA
Operating current	< 100 μ A
Voltage drop	< 3 V
Overload	$\leq$ 50 mA, $\leq$ 15 V

Output

Output signal	0(4)-20 mA
Load	< 600 Ω
Response time (10 to 90 % of end value)	5 ms @ 500 Ω load
Ripple	< 0.1 % of end value, $\sim$ 100 kHz

General data

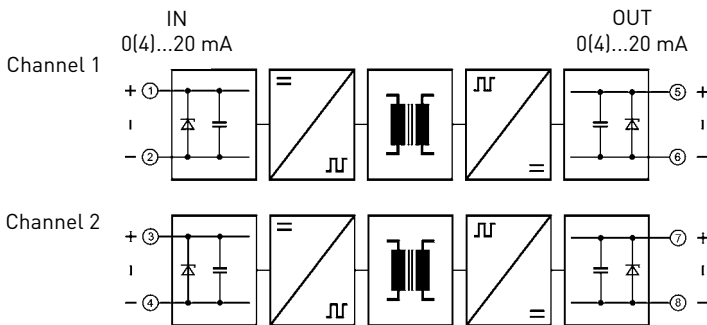
Transmission error	$\pm$ 0.1 % of end value
Load error	$\pm$ 0.05 % of measured value/100 Ω load
Temperature coefficient ¹⁾	$\pm$ 0.004 %/K of measured value/100 Ω load
Test voltage	2.5 kV, 50 Hz Between all circuits
Working voltage ²⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.
Ambient temperature	Operation 0 to +55 °C (32 to +131 °F) Transport and storage -25 to +80 °C (-13 to +176 °F)
EMC ³⁾	EN 61326-1
Construction	11.2 mm (0.44") housing, protection class: IP20
Connection	$\leq$ 2.5 mm ² , AWG 14
Weight	Approx. 50 g

1) Average TC in specified operating temperature range

2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

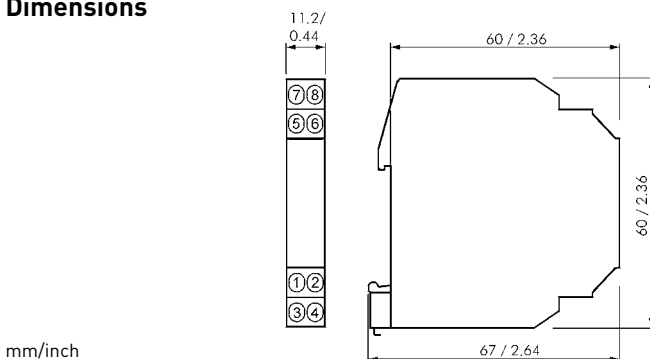
Block diagram/Connections



Ordering information

Product	Input / Output	Part No.
IsoPAQ-110L	1-channel, 0(4)-20 mA	70ISC11001
IsoPAQ-110L	2-channel, 0(4)-20 mA	70ISC11002

Dimensions



mm/inch

1- & 2-channel Loop Powered Isolators for 0(4)-20 mA Signals with High Isolation and Protective Separation

IsoPAQ-21L and IsoPAQ-22L are 1- and 2-channel loop powered isolators used for electrical isolation of 0(4)-20 mA signals to avoid measurement errors due to different voltage potentials or ground loops in an instrument installation.

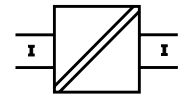
The isolators need no power supply, which contributes to reduced installation costs compared to isolation transmitters.

The high isolation level of 4 kV provides an effective protection for downstream devices.

The 2-channel version, IsoPAQ-22L offers a very cost effective alternative combined with a high-density mounting.

The high reliability and the Protective Separation are additional features that ensure a safe system operation.

- **Input to output galvanic isolation**
Protection against erroneous measurements due to parasitic voltages or ground loops
- **1- and 2-channel versions**
Allows for optimal cost efficiency
- **No power supply required**
Reduced wiring saves installation costs
- **Low voltage drop**
Input voltage drop of less than 2 V reduces impact on the primary current loop
- **Protective Separation acc. to EN 61140**
The design and high isolation level (4 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- **High accuracy**
Negligible additional measurement errors in the loop
- **High-density DIN-rail mounting**
12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- **Plug-in screw terminals**
Simplifies installation and maintenance



Specifications: IsoPAQ-21L/-22L

Input

Input signal	0(4)-20 mA / max. 30 V
Operating current	< 20 μ A
Voltage drop	< 2 V
Overload	≤ 100 mA, ≤ 30 V

Output

Output signal	0(4)-20 mA / max. 28 V
Response time (10 to 90 % of end value)	2 ms @ 250 Ω load / 6 ms @ 750 Ω load
Ripple	< 0.07 % of measured value, ~100 kHz

General data

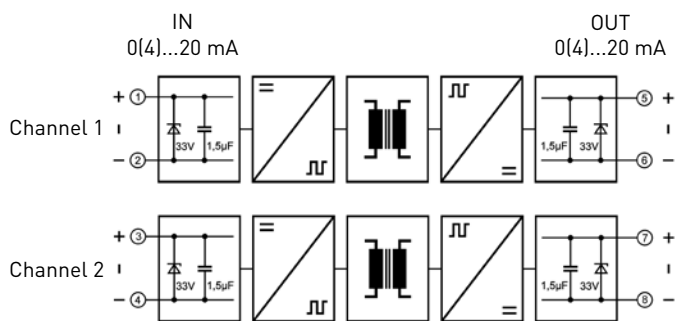
Transmission error	± 0.1 % of end value
Load error	± 0.03 % of measured value / 100 Ω load
Temperature coefficient ¹⁾	± 0.0015 %/K of measured value / 100 Ω load
Test voltage	4 kV, 50 Hz Between all circuits
Working voltage ²⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.
Ambient temperature	Operation -20 to +70 °C (-4 to +158 °F) Transport and storage -35 to +85 °C (-31 to +185 °F)
EMC ³⁾	EN 61326-1
Construction	12.5 mm (0.5") housing, protection class: IP20
Connection	≤ 2.5 mm ² , AWG 14
Weight	Approx. 100 g

1) Average TC in specified operating temperature range

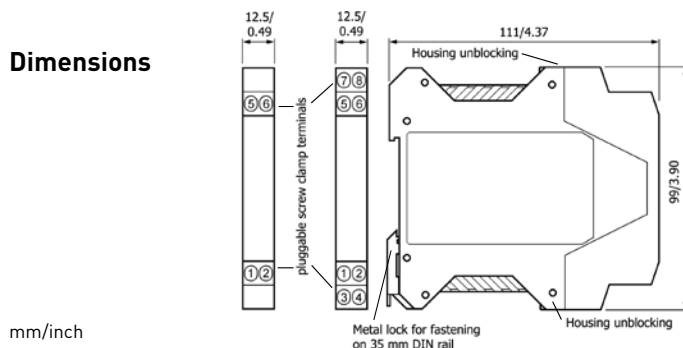
2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

Block diagram/Connections



Dimensions



Ordering information

Product	Input / Output	Part No.
IsoPAQ-21L	1-channel, 0(4)-20 mA	70ISL21001
IsoPAQ-22L	2-channel, 0(4)-20 mA	70ISL22001

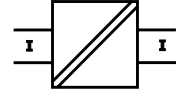
Transmitter Repeater for Powering and Isolation of 2-wire Transmitters

IsoPAQ-110R is a Transmitter Repeater for powering and isolation of a non-isolated 2-wire transmitter.

Thanks to the isolation, the 4-20 mA transmitter signal can be connected to a grounded input circuit of a control system without risk for measurement errors due to ground loops.

The Transmitter Repeater needs no power supply, which contributes to reduced installation costs.

The high reliability ensures a safe system operation and low maintenance costs.



COMPACT LINE

COMPACT LINE is a line of very compact and cost-optimized Isolators, Transmitter Repeaters and Isolating Transmitters within the IsoPAQ family.

The small dimensions - only 60 mm deep and 11.2 mm wide - and the favorable pricing allow for space saving and economic installations.

- **Transmitter isolation**
Problem-free connection of non-isolated 2-wire transmitters to grounded control system inputs
- **Transmitter powering**
The 24 VDC power from the control system is transferred to the 2-wire transmitter
- **High accuracy**
Negligible additional measurement errors in the loop
- **HART communication**
Separate input terminals with built-in 250 Ω load resistor
- **Fixed ranges**
Ready to use without any settings
- **Protective Separation acc. to EN 61140**
The design and high isolation level (2.5 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- **Compact DIN-rail mounting**
11.2 mm (0.44") housing combined with very low self heating allows for high density mounting. With a depth of only 60 mm, compact standard boxes can be used



Specifications: IsoPAQ-110R

Input

Input signal	4-20 mA
Operating current range	2-23 mA
Voltage drop	~ 4.7 V
HART communication	Separate terminals with 250 Ω input resistance. Additional voltage drop 5V @ 20 mA
Short circuit input current	≤ 50 mA

Output

Output signal	4-20 mA
Supply voltage	15-30 VDC
Response time (10 to 90 % of end value)	< 10 ms
Ripple	< 0.2 % of end value, ~ 100 kHz

General data

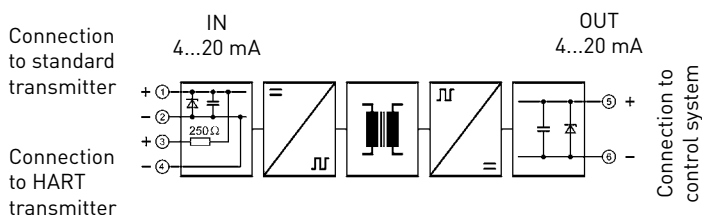
General data		
Transmission error	± 0.1 % of end value	
Supply voltage influence	± 0.01 % of end value/V (deviation from 24 VDC)	
Temperature coefficient ¹⁾	± 0.01 %/K of end value	
Test voltage	2.5 kV, 50 Hz	Between all circuits
Working voltage ²⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.	
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.	
Ambient temperature	Operation	0 to +55 °C (32 to +131 °F)
	Transport and storage	-25 to +80 °C (-13 to +176 °F)
EMC ³⁾	EN 61326-1	
Construction	11.2 mm (0.44") housing, protection class: IP20	
Connection	≤ 2.5 mm ² , AWG 14	
Weight	Approx. 50 g	

1) Average TC in specified operating temperature range

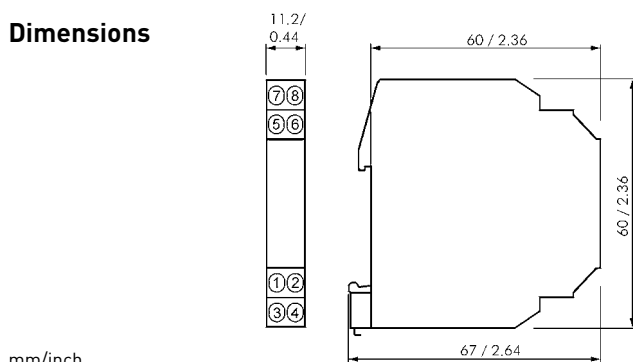
2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

Block diagram/Connections



Dimensions



Ordering information

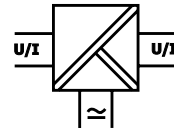
Product	Input / Output	Part No.
IsoPAQ-110R	4-20 / 4-20 mA	70ISC11011

Basic Isolation Transmitter for Unipolar mA/V Signals with Calibrated Range Selection

The Isolation Transmitter IsoPAQ-30P is a low-cost transmitter used for basic isolation and conversion of 0-20 mA, 4-20 mA and 0-10 V unipolar signals.

Due to the calibrated range selection of the input/output signals and the universal power supply, IsoPAQ-30P provides excellent flexibility and low storage and installation costs.

The high reliability ensures a safe system operation and low maintenance costs.



- Calibrated range selection**
 Input and output range in mA or V can be set by using DIP switches without any further adjustments
- Universal power supply for 20 to 253 VAC/DC**
 Applicable world-wide for all common supply voltages
- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- High-density DIN-rail mounting**
 12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability



Specifications: IsoPAQ-30P

Input

Input signal	0-20 mA¹⁾ 4-20 mA	0-10 V	Terminal/switch selectable
Input resistance	Current input	22 Ω	
	Voltage input	1 M Ω	
Overload	Current input	≤ 200 mA	
	Voltage input	Voltage limitation via 30 V Z-Diode, max.continuous current 30 mA	

Output

Output signal	0-20 mA¹⁾ 4-20 mA	0-10 V	Switch selectable
Load	Current output	≤ 500 Ω	
	Voltage output	≥ 1 k Ω	
Offset	20 μ A / 10 mV		
Ripple	< 0.2 % of end value, ~150 kHz		

General data

Transmission error	± 0.3 % of measured value		
Temperature coefficient ²⁾	± 0.015 %/K of end value		
Cut-off frequency (-3 dB)	Approx. 1 kHz		
Test voltage	2.5 kV, 50 Hz	Input against output against power supply	
Working voltage ³⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.		
Ambient temperature	Operation	-10 to +60 °C (+14 to +140 °F)	
	Transport and storage	-20 to +80 °C (-4 to +176 °F)	
Power supply	20 to 253 VAC/DC	AC 48 to 62 Hz, approx. 3 VA	DC approx. 1.5 W
EMC ⁴⁾	EN 61326-1		
Construction	12.5 mm (0.5") housing, protection class: IP20		
Connection	≤ 2.5 mm², AWG 14		
Weight	Approx. 100 g		

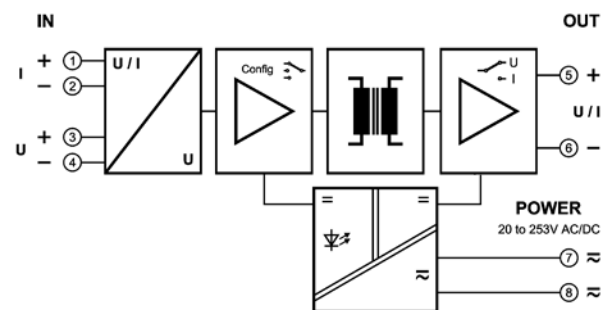
1) Factory setting

2) Average TC in specified operating temperature range

3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

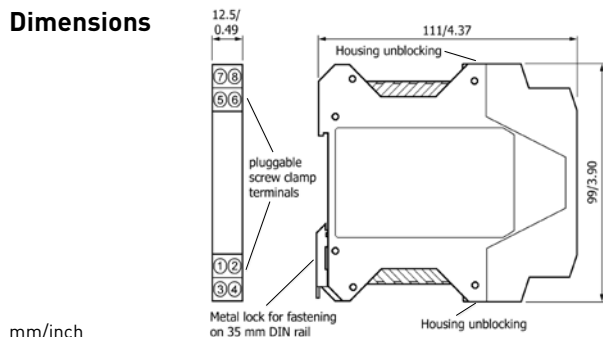
Block diagram/Connections



Ordering information

Product	Input / Output	Part No.
IsoPAQ-30P	Calibrated range selection	70ISP30001

Dimensions



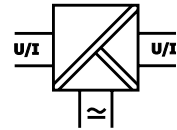
mm/inch

Isolation Transmitter for Unipolar mA/V Signals with Fixed Ranges

The Isolation Transmitter IsoPAQ-131P is used for isolation and conversion of 0-20 mA, 4-20 mA and 0-10 V unipolar signals.

For applications where normally one signal combination only is used, IsoPAQ-131P offers a cost-effective alternative.

The high reliability and the Protective Separation are further features, which ensure a safe system operation.



COMPACT LINE

COMPACT LINE is a line of very compact and cost-optimized Isolators, Transmitter Repeaters and Isolating Transmitters within the IsoPAQ family.

The small dimensions - only 60 mm deep and 11.2 mm wide - and the favorable pricing allow for space saving and economic installations.

- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- Fixed ranges**
 Ready to use without any settings
- Universal power supply for 24 VAC/DC**
 Increased flexibility in industrial applications
- Protective Separation acc. to EN 61140**
 The design and high isolation level (2.5 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- Compact DIN-rail mounting**
 11.2 mm [0.44"] housing combined with very low self heating allows for high density mounting. With a depth of only 60 mm, compact standard boxes can be used.
- Excellent reliability**
 Low self heating thanks to high-efficiency power supply provides long-term reliability and stability



Specifications: IsoPAQ-131P

Input

Input signal	0-20 mA	4-20 mA	0-10 V	Factory set as ordered
Input resistance	Current input	5 Ω		
	Voltage input	1 M Ω		
Overload	Current input	≤ 200 mA		
	Voltage input	≤ 250 V		

Output

Output signal	0-20 mA	4-20 mA	0-10 V	Factory set as ordered
Load	Current output	≤ 500 Ω		
	Voltage output	≥ 2 k Ω		
Ripple	< 0.2 % of end value, ~ 100 kHz			

General data

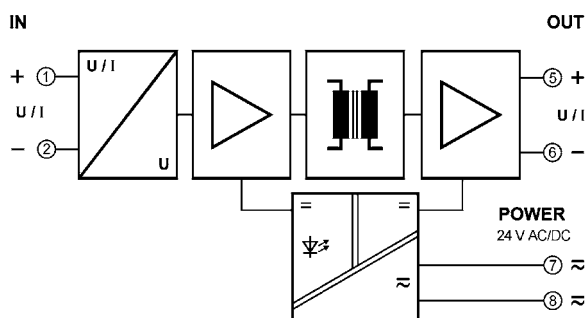
Transmission error	± 0.2 % of end value		
Temperature coefficient ¹⁾	± 0.02 %/K of end value		
Response time	< 5 ms		
Test voltage	2.5 kV, 50 Hz	Between all circuits	
Working voltage ²⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.		
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.		
Ambient temperature	Operation	0 to +55 °C (32 to +131 °F)	
	Transport and storage	-25 to +80 °C (-13 to +176 °F)	
Power supply	24 VAC/DC, ± 15 %	AC 48 to 62 Hz, approx. 2 VA DC approx. 0.7 W	
EMC ³⁾	EN 61326-1		
Construction	11.2 mm (0.44 ") housing, protection class: IP20		
Connection	≤ 2.5 mm², AWG 14		
Weight	Approx. 50 g		

1) Average TC in specified operating temperature range

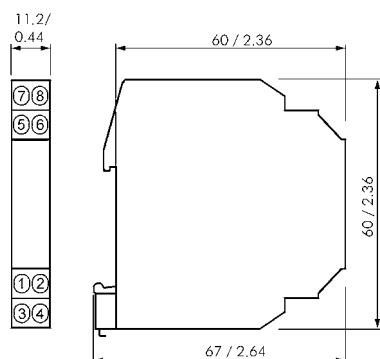
2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

Block diagram/Connections



Dimensions



mm/inch

Ordering information

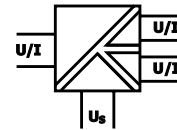
Product	Input / Output	Part No.
IsoPAQ131P	0-20 mA / 0-20 mA	70ISC13112
	4-20 mA / 0-20 mA	70ISC13132
	0-10 V / 0-20 mA	70ISC13152
	0-20 mA / 4-20 mA	70ISC13114
	4-20 mA / 4-20 mA	70ISC13112
	0-10 V / 4-20 mA	70ISC13154
	0-20 mA / 0-10 V	70ISC13116
	4-20 mA / 0-10 V	70ISC13136
	0-10 V / 0-10 V	70ISC13156
Power connector set for up to 10 units		70ADA00030

Isolation Signal Splitter with Double Outputs for mA and V Signals

The Isolation Signal Splitter IsoPAQ-32P is used for isolation and conversion of 0-20 mA, 4-20 mA, 0-5 V and 0-10 V standard signals.

The input signal and the two output signals can be selected in any combination. The signal combination is decided by the Part No.

The high accuracy and reliability and the Protective Separation are further features, which ensure a safe system operation.



- Fixed ranges**
 Ready to use without any settings or calibrations
- Protective Separation acc. to EN 61140**
 The design and high isolation level (2.5 kV) provide protection for service personnel and downstream devices against impermissibly high voltage
- High accuracy**
 Negligible additional measurement errors in the loop
- 4-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- High-density DIN-rail mounting**
 12.5 mm (0.5") housing combined with low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating provides long-term reliability and stability



Specifications: IsoPAQ-32P

Input

Input signal	0-20 mA	4-20 mA	0-5 V	0-10 V	Factory set as ordered
Input resistance	Current input	30 Ω			
	Voltage input	500 k Ω			
Overload	Current input	≤ 200 mA			
	Voltage input	≤ 30 V			

Output I & Output II

Output signal	0-20 mA	4-20 mA	0-5 V	0-10 V	Factory set as ordered
Load	Current output	≤ 500 Ω			
	Voltage output	≥ 2 k Ω			
Offset	< 20 μ A, 10 mV				
Ripple	< 0.1 % of end value, ~ 150 kHz				

General Data

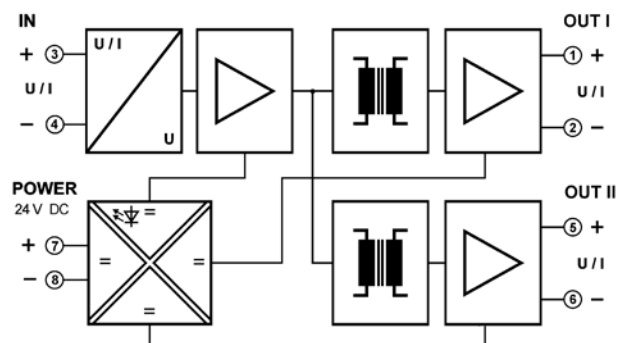
Transmission error	< 0.1 % of end value		
Temperature coefficient ¹⁾	< 0.015 %/K of end value		
Response time	< 5 ms		
Test voltage	2.5 kV, 50 Hz	Input / Output I / Output II / Power supply	
Working voltage ²⁾ (Basic insulation)	Up to 600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.		
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.		
Ambient temperature	Operation	-10 to +60 °C (+14 to +140 °F)	
	Transport and storage	-20 to +80 °C (-4 to +176 °F)	
Power supply	24 V DC (working range 20 to 30 VDC), approx. 1.5 W		
EMC ³⁾	EN 61326-1		
Construction	12.5 mm (0.5") housing, protection class: IP20		
Connection	≤ 2.5 mm², AWG 14		
Weight	Approx. 100 g		

1) Average TC in specified operating temperature range

2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

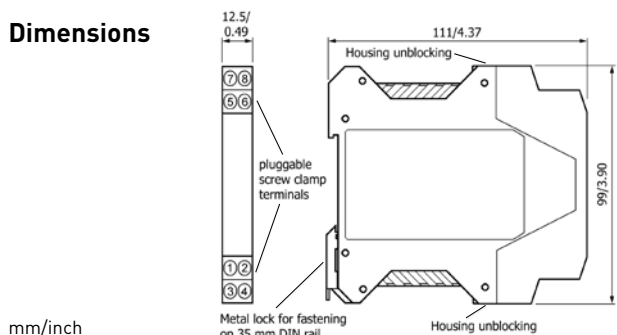
Block diagram/Connections



Ordering information

Product	Part No.
IsoPAQ-32P	70ISP32XXX
Input	0-20 mA 0
	4-20 mA 1
	0-5 V 2
	0-10 V 3
Output I	0-20 mA 0
	4-20 mA 1
	0-5 V 2
	0-10 V 3
Output II	0-20 mA 0
	4-20 mA 1
	0-5 V 2
	0-10 V 3

Dimensions



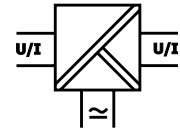
mm/inch

High-performance Isolation Transmitter for Unipolar mA/V Signals with Calibrated Range Selection

The Isolation Transmitter IsoPAQ-40P is used for high-precision isolation and conversion of 0-20 mA, 4-20 mA and 0-10 V unipolar signals.

Due to the calibrated range selection of the input/output signals, the selectable bandwidth and the universal power supply, IsoPAQ-40P provides excellent flexibility and low storage and installation costs.

The high reliability and the Protective Separation are additional features that ensure a safe system operation.



- Calibrated range selection**
 Input and output range in mA or V can be set by using DIP switches without any further adjustments
- Protective Separation acc. to EN 61140**
 The design and high isolation level (4 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- High accuracy**
 Negligible additional measurement errors in the loop
- Universal power supply for 20 to 253 VAC/DC**
 Applicable world-wide for all common supply voltages
- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- High-density DIN-rail mounting**
 12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability

Specifications: IsoPAQ-40P

Input

Input signal	0-20 mA¹⁾ 4-20 mA	0-10 V	Terminal/switch selectable
Input resistance	Current input	22 Ω	
	Voltage input	1 M Ω	
Input capacitance	Approx. 1 nF		
Overload	Current input	≤ 200 mA	
	Voltage input	Voltage limitation via 30 V Z-Diode, max.continuous current 30 mA	

Output

Output signal	0-20 mA¹⁾ 4-20 mA	0-10 V	Switch selectable
Load	Current output	≤ 600 Ω	
	Voltage output	≥ 1 k Ω	
Linear transmission range	-2 to +110 %		
Ripple	< 0.1 % of end value, ~150 kHz		

General data

Transmission error	± 0.1 % of end value		
Temperature coefficient ²⁾	± 0.005 %/K of end value		
Cut-off frequency (-3 dB)	> 1 kHz¹⁾ Switchable to < 30 Hz		
Test voltage	4 kV, 50 Hz Input against output against power supply		
Working voltage ³⁾ (Basic insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.		
Protection against electrical shock ³⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.		
Ambient temperature	Operation	-20 to +70 °C [-4 to +158 °F]	
	Transport and storage	-35 to +85 °C [-31 to +185 °F]	
Power supply	20 to 253 VAC/DC	AC 48 to 62 Hz, approx. 2 VA	DC approx. 1 W
EMC ⁴⁾	EN 61326-1		
Construction	12.5 mm [0.5"] housing, protection class: IP20		
Connection	≤ 2.5 mm ² , AWG 14		
Weight	Approx. 100 g		

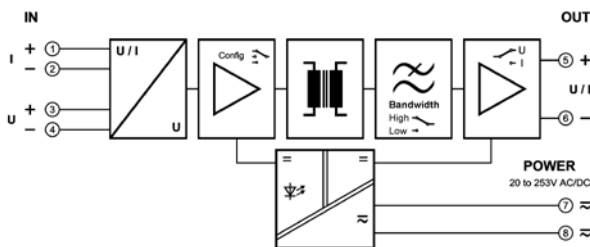
1) Factory setting

2) Average TC in specified operating temperature range

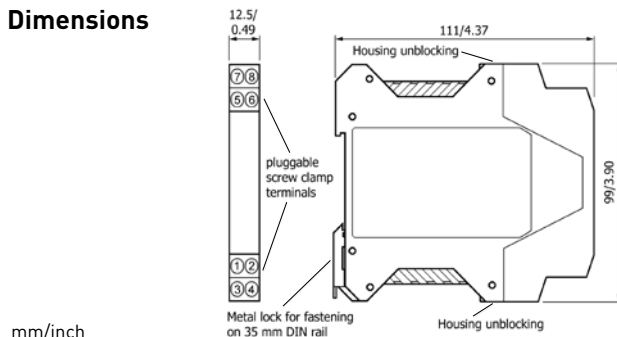
3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

Block diagram/Connections



Dimensions



Ordering information

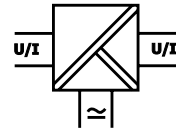
Product	Input / Output	Part No.
IsoPAQ-40P	Calibrated range selection	70ISP40001

High-performance Isolation Transmitter for Unipolar mA/V Signals with Fixed Ranges

The Isolation Transmitter IsoPAQ-41P is used for high-precision isolation and conversion of 0-20 mA, 4-20 mA and 0-10 V unipolar signals.

For applications where normally only one signal combination is used, IsoPAQ-41P offers a cost-effective alternative.

The high reliability and the Protective Separation are additional features that ensure a safe system operation.



- Fixed ranges**
 Ready to use without any settings
- Protective Separation acc. to EN 61140**
 The design and high isolation level (4 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- High accuracy**
 Negligible additional measurement errors in the loop
- Universal power supply for 20 to 253 VAC/DC**
 Applicable world-wide for all common supply voltages
- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- High-density DIN-rail mounting**
 12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability



Specifications: IsoPAQ-41P

Input

Input signal	0-20 mA 4-20 mA	0-10 V	Factory set as ordered
Input resistance	Current input	22 Ω	
	Voltage input	1 M Ω	
Input capacitance	Approx. 1 nF		
Overload	Current input	≤ 200 mA	
	Voltage input	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA	

Output

Output signal	0-20 mA 4-20 mA	0-10 V	Factory set as ordered
Load	Current output	≤ 600 Ω	
	Voltage output	≥ 1 k Ω	
Linear transmission range	-2 to +110 %		
Ripple	< 0.1 % of end value, ~150 kHz		

General data

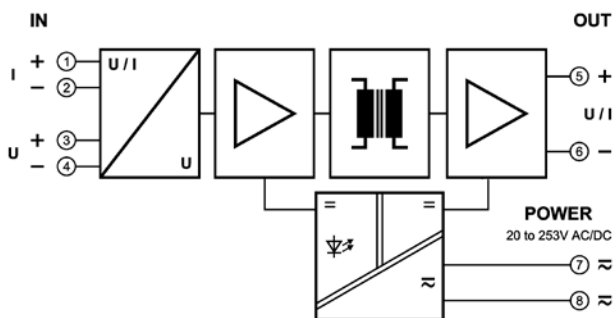
Transmission error	± 0.1 % of end value		
Temperature coefficient ¹⁾	± 0.005 %/K of end value		
Cut-off frequency (-3 dB)	> 1 kHz		
Test voltage	4 kV, 50 Hz	Input against output against power supply	
Working voltage ²⁾ (Basic insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.		
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.		
Ambient temperature	Operation	-20 to +70 °C (-4 to +158 °F)	
	Transport and storage	-35 to +85 °C (-31 to +185 °F)	
Power supply	20 to 253 VAC/DC	AC 48 to 62 Hz, approx. 2 VA	
		DC approx. 1 W	
EMC ³⁾	EN 61326-1		
Construction	12.5 mm (0.5") housing, protection class: IP20		
Connection	≤ 2.5 mm ² , AWG 14		
Weight	Approx. 100 g		

1) Average TC in specified operating temperature range

2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

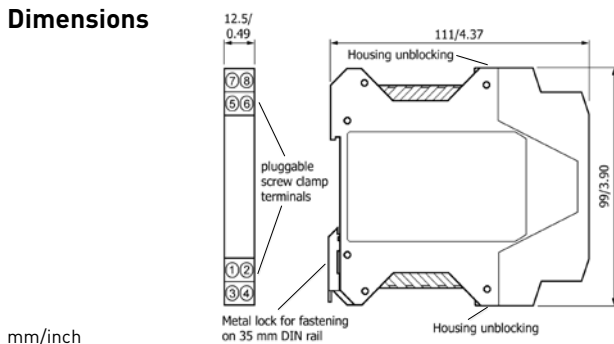
Block diagram/Connections



Ordering information:

Product	Input / Output	Part No.
IsoPAQ-41P	0-20 mA / 0-20 mA	70ISP41012
	4-20 mA / 0-20 mA	70ISP41032
	0-10 V / 0-20 mA	70ISP41052
	0-20 mA / 4-20 mA	70ISP41014
	4-20 mA / 4-20 mA	70ISP41012
	0-10 V / 4-20 mA	70ISP41054
	0-20 mA / 0-10 V	70ISP41016
	4-20 mA / 0-10 V	70ISP41036
	0-10 V / 0-10 V	70ISP41056

Dimensions



mm/inch

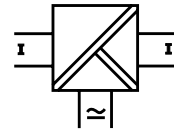
High-performance Isolation Transmitter for Unipolar mA Signals with Fixed Range and Zero/Span Adjustment

The Isolation Transmitter IsoPAQ-51P is used for high-precision isolation of 0(4)-20 mA unipolar signals.

For applications where normally only one signal combination is used, IsoPAQ-51P offers a cost-effective alternative.

The zero and span adjustments allow for a fine-tuning of the measurement loop.

The high reliability and the Protective Separation are additional features that ensure a safe system operation.



- Fixed ranges**
 Ready to use without any settings
- Zero/Span Adjustment**
 Allow for additional fine-tuning of the measurement loop
- Protective Separation acc. to EN 61140**
 The design and high isolation level (4 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- High accuracy**
 Negligible additional measurement errors in the loop
- Universal power supply for 20 to 253 VAC/DC**
 Applicable world-wide for all common supply voltages
- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- High-density DIN-rail mounting**
 12.5 mm (0.5") housing combined with very low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability

Specifications: IsoPAQ-51P

Input

Input signal	0(4)-20 mA
Input resistance	Approx. 25 Ω
Overload	≤ 200 mA

Output

Output signal	0(4)-20 mA
Load	≤ 600 Ω
Linear transmission range	-2 to +110 %
Ripple	< 0.1 % of end value, ~150 kHz

General data

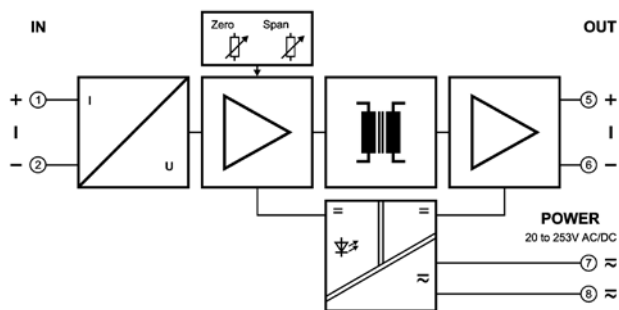
Transmission error	± 0.1 % of end value	
Temperature coefficient ¹⁾	± 0.01 %/K of end value	
Zero/Span Adjustment	± 5 % of end value	
Cut-off frequency [-3 dB]	> 1 kHz	
Test voltage	4 kV, 50 Hz	Input against output against power supply
Working voltage ²⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.	
Protection against electrical shock ²⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.	
Ambient temperature	Operation	-20 to +70 °C (-4 to +158 °F)
	Transport and storage	-35 to +85 °C (-31 to +185 °F)
Power supply	20 to 253 VAC/DC	AC 48 to 62 Hz, approx. 2 VA DC approx. 1 W
EMC ³⁾	EN 61326-1	
Construction	12.5 mm (0.5") housing, protection class: IP20	
Connection	≤ 2.5 mm ² , AWG 14	
Weight	Approx. 100 g	

1) Average TC in specified operating temperature range

2) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

3) Minor deviations possible during interference

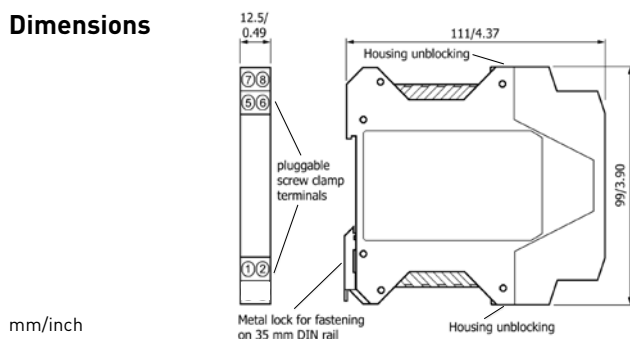
Block diagram/Connections



Ordering information:

Product	Input / Output	Part No.
IsoPAQ-51P	0(4)-20 mA / 0(4)-20 mA	70ISP51012

Dimensions



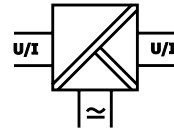
mm/inch

Isolation Transmitter for Bipolar and Unipolar mA/V Signals with Fixed Ranges

The Isolation Transmitter IsoPAQ-161P is mainly used for isolation of bipolar signals, such as ± 20 mA, ± 10 mA, ± 10 V, ± 5 V, and conversion into unipolar output signals.

For applications where normally one signal combination only is used, IsoPAQ-161P offers a cost-effective alternative.

The high reliability and the Protective Separation are further features, which ensure a safe system operation.



COMPACT LINE

COMPACT LINE is a line of very compact and cost-optimized Isolators, Transmitter Repeaters and Isolating Transmitters within the IsoPAQ family.

The small dimensions - only 60 mm deep and 11.2 mm wide - and the favorable pricing allow for space saving and economic installations.

- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltages or ground loops
- Bipolar input signals**
 Bipolar input signals, e.g. $-10..0..+10$ V, as well as special ranges available
- Fixed ranges**
 Ready to use without any settings
- Universal power supply for 24 VAC/DC**
 Increased flexibility in industrial applications
- Protective Separation acc. to EN 61140**
 The design and high isolation level (2.5 kV) provides protection for service personnel and downstream devices against impermissibly high voltage
- Compact DIN-rail mounting**
 11.2 mm (0.44") housing combined with very low self heating allows for high density mounting. With a depth of only 60 mm, compact standard boxes can be used.
- Excellent reliability**
 Low self heating thanks to high-efficiency power supply provides long-term reliability and stability



Specifications: IsoPAQ-161P

Input

Input signal ¹⁾	$\pm 20 \text{ mA}$ $\pm 10 \text{ V}$	$\pm 10 \text{ mA}$ $\pm 5 \text{ V}$	0-5 V	Factory set as ordered
Input resistance	Current input Voltage input	5 Ω 1 M Ω		
Overload	Current input Voltage input	$\leq 200 \text{ mA}$ $\leq 250 \text{ V}$		

Output

Output signal ¹⁾	0-20 mA 0-10 V	4-20 mA 0-5 V	Factory set as ordered
Load	Current output Voltage output	$\leq 500 \Omega$ $\geq 2 \text{ k}\Omega$	
Ripple	< 0.1 % of end value, ~ 100 kHz		

General data

Transmission error	± 0.2 % of measuring span	
Temperature coefficient ²⁾	± 0.02 %/K of measuring span	
Response time	< 5 ms	
Test voltage	2.5 kV, 50 Hz	Between all circuits
Working voltage ³⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.	
Protection against electrical shock ³⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 300 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.	
Ambient temperature	Operation	0 to +55 °C (32 to +131 °F)
	Transport and storage	-25 to +80 °C (-13 to +176 °F)
Power supply	24 VAC/DC, ± 15 %	AC 48 to 62 Hz, approx. 2 VA DC approx. 0.7 W
EMC ⁴⁾	EN 61326-1	
Construction	11.2 mm (0.44") housing, protection class: IP20	
Connection	≤ 2.5 mm ² , AWG 14	
Weight	Approx. 50 g	

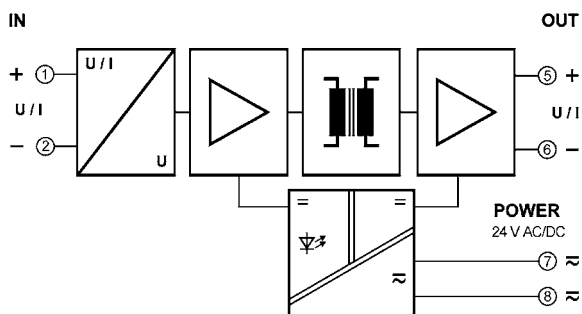
1) Other signals on request

2) Average TC in specified operating temperature range

3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

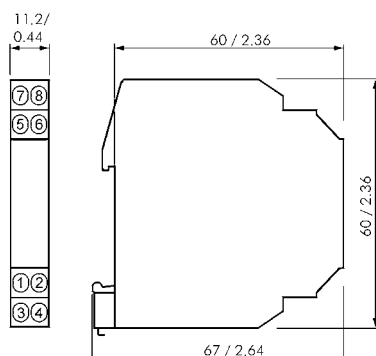
Block diagram/Connections



Ordering information

Product	Part No.	
IsoPAQ161P	70ISC161XX	
Input	$\pm 10 \text{ V}$	1
	$\pm 5 \text{ V}$	2
	0-5 V	3
	$\pm 20 \text{ mA}$	4
	$\pm 10 \text{ mA}$	5
Output	0-20 mA	2
	4-20 mA	4
	0-5 V	5
	0-10 V	6
Power connector set for up to 10 units		70ADA00030

Dimensions



mm/inch

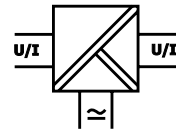
High-performance Isolation Transmitter for Bipolar and Unipolar mA/V Signals with Extensive Range Selection and Zero/Span Adjustment

The Isolation Transmitter IsoPAQ-60P is used for highprecision isolation and conversion of 0-20 mA, 4-20 mA and 0-10 V bipolar and unipolar signals.

Due to the extensive range selection with a choice of 144 input/output signal combinations, the selectable bandwidth and the universal power supply, IsoPAQ-60P is a true universal transmitter for any demanding isolation application.

The zero and span adjustments allow for a fine-tuning of the measurement loop.

The high reliability and the Protective Separation are additional features that ensure a safe system operation.



- **Extensive range selection**

Input and output range in mA or V can be set in 144 combinations by using DIP switches

- **Zero/Span Adjustment**

Allow for additional fine-tuning of the measurement loop and recalibration after a range selection

- **Extremely fast response**

Cut-off frequency higher than 10 kHz, switchable to 30 Hz

- **Protective Separation acc. to EN 61140**

The design and high isolation level (4 kV) provides protection for service personnel and downstream devices against impermissibly high voltage

- **High accuracy**

Negligible additional measurement errors in the loop

- **Universal power supply for 20 to 253 VAC/DC**

Applicable world-wide for all common supply voltages

- **3-port isolation**

Protection against erroneous measurements due to parasitic voltages or ground loops

- **High-density DIN-rail mounting**

12.5 mm (0.5") housing combined with very low self heating allows for high density mounting

- **Plug-in screw terminals**

Simplifies installation and maintenance

- **Excellent reliability**

Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability



Specifications: IsoPAQ-60P

Input	Voltage			Current		
Input signal	± 10 V ¹⁾	0-10 V	2-10 V	± 20 mA	0-20 mA	4-20 mA
(terminal/switch selectable)	± 5 V	0-5 V	1-5 V	± 10 mA	0-10 mA	2-10 mA
Input resistance	Approx. 1 MΩ			Approx. 25 Ω		
Input capacitance	Approx. 1 nF			Approx. 1 nF		
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA			≤ 200 mA		
Output	Voltage			Current		
Output signal	± 10 V ¹⁾	0-10 V	2-10 V	± 20 mA	0-20 mA	4-20 mA
(switch selectable)	± 5 V	0-5 V	1-5 V	± 10 mA	0-10 mA	2-10 mA
Load	≤ 10 mA (1 kΩ @ 10 V)			≤ 12 V (600 Ω @ 20 mA)		
Linear transmission range	Unipolar: -2 to +110 %, Bipolar: -110 to +110 %					
Ripple	< 0.1 % of end value, ~150 kHz					
General data						
Transmission error	± 0.1 % of end value					
Temperature coefficient ²⁾	± 0.01 % /K of end value					
Zero/Span adjustment	± 10 % of end value					
Cut-off frequency (-3 dB)	> 10 kHz ¹⁾			Switchable to approx. 30 Hz		
Test voltage	4 kV, 50 Hz			Input against output against power supply		
Working voltage ³⁾ (Basic Insulation)	1000 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.					
Protection against electrical shock ³⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 600 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.					
Ambient temperature	Operation			-20 to +70 °C (+14 to +158 °F)		
	Transport and storage			-35 to +85 °C (-31 to +185 °F)		
Power supply	20 to 253 VAC/DC			AC 48 to 62 Hz, approx. 2 VA DC approx. 1 W		
EMC ⁴⁾	EN 61326-1					
Construction	12.5 mm (0.5") housing, protection class: IP20					
Connection	≤ 2.5 mm², AWG14					
Weight	Approx. 100 g					

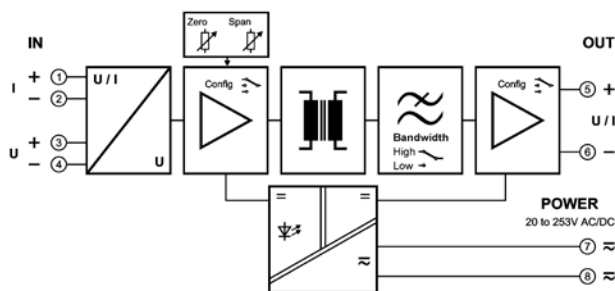
1) Factory settings

2) Average TC in specified operating temperature range

3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

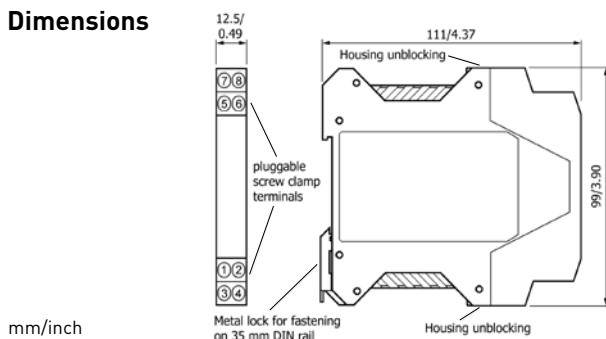
Block diagram/Connections



Ordering information:

Product	Input / Output	Part No.
IsoPAQ-60P	$\pm 10\text{V}/\pm 10\text{V}$	70ISP60001
Calibration for other range		70CAL00001

Dimensions



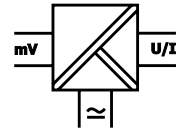
mm/inch

Basic Isolation Transmitter for Unipolar Shunt Voltages with Calibrated Range Selection

The Isolation Transmitter IsoPAQ-70S is used for isolation and conversion of unipolar shunt voltages into standard mA/V signal.

Due to the calibrated range selection and the universal power supply, IsoPAQ-70S provides excellent flexibility and low storage and installation costs.

The high reliability ensures a safe system operation and low maintenance costs.



- Calibrated range selection**
 Input ranges in mV and output ranges in mA or V can be set by using DIP switches without any further adjustments
- Universal power supply for 20 to 253 VAC/DC**
 Applicable world-wide for all common supply voltages
- 3-port isolation**
 Protection against erroneous measurements due to parasitic voltage or ground loops
- High-density DIN-rail mounting**
 12.5 (0.5") housing combined with very low self heating allows for high density mounting
- Plug-in screw terminals**
 Simplifies installation and maintenance
- Excellent reliability**
 Low self heating thanks to patented high-efficiency power supply provides long-term reliability and stability

Specifications: IsoPAQ-70S

Input

Input signal	0-60 mV 0-150 mV	Terminal selectable
Input resistance	> 25 k Ω	
Input capacitance	Approx. 1 nF	
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA	

Output

Output signal	0-10 V ¹⁾ 0-20 mA 4-20 mA	Switch selectable
Load	Current output $\leq 500 \Omega$ Voltage output $\geq 1 k\Omega$	
Offset	20 μ A / 10 mV	
Ripple	< 0.2 % of end value, ~150 kHz	

General data

Transmission error	± 0.3 % of measured value	
Temperature coefficient ²⁾	± 0.015 %/K of end value	
Cut-off frequency (-3 dB)	Approx. 1 kHz	
Test voltage	2.5 kV, 50 Hz	Input against output against power supply
Working voltage ³⁾ (Basic Insulation)	600 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.	
Ambient temperature	Operation Transport and storage	-10 to +60 °C (+14 to +140 °F) -20 to +80 °C (-4 to +176 °F)
Power supply	20 to 253 VAC/DC	AC 48 to 62 Hz, approx. 3 VA DC approx. 1.5 W
EMC ⁴⁾	EN 61326-1	
Construction	12.5 mm (0.5") housing, protection class: IP20	
Connection	≤ 2.5 mm ² , AWG 14	
Weight	Approx. 100 g	

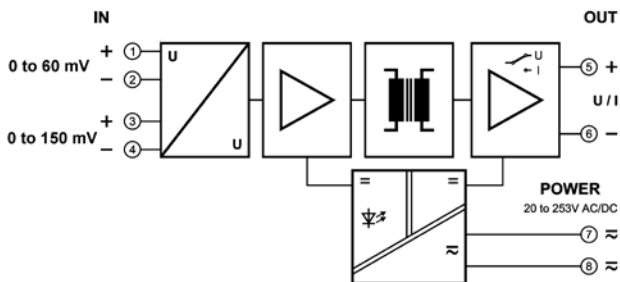
1) Factory setting

2) Average TC in specified operating temperature range

3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

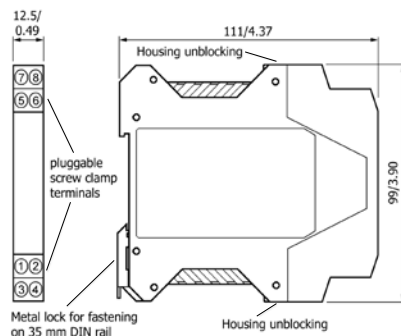
Block diagram/Connections



Ordering information:

Product	Input / Output	Part No.
IsoPAQ-70S	Calibrated range selection	70ISS70001

Dimensions



mm/inch

Specifications: IsoPAQ-80S

Input	Voltage					
Input signal	± 60 mV ¹⁾	± 100 mV	± 150 mV	± 250 mV	± 300 mV	± 500 mV
(terminal/switch selectable)	0-60 mV	0-100 mV	0-150 mV	0-250 mV	0-300 mV	0-500 mV
Input resistance	> 100 kΩ					
Input capacitance	Approx. 1 nF					
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA					
Output	Voltage			Current		
Output signal	± 10 V ¹⁾	0-10 V	2-10 V	± 20 mA	0-20 mA	4-20 mA
(switch selectable)	± 5 V	0-5 V	1-5 V	± 10 mA	0-10 mA	2-10 mA
Load	≤ 10 mA (1 kΩ @ 10 V)			≤ 12 V (600 Ω @ 20 mA)		
Linear transmission range	Unipolar: -2 to +110 %, Bipolar: -110 to +110 %					
Ripple	< 0.2 % of end value, ~150 kHz					
General data						
Transmission error	± 0.1 % of end value					
Temperature coefficient ²⁾	± 0.01 %/K of end value					
Zero/Span adjustment	± 10 % of end value					
Cut-off frequency (-3 dB)	> 10 kHz ¹⁾ Switchable to approx. 30 Hz					
Test voltage	4 kV, 50 Hz Input against output against power supply					
Working voltage ³⁾ (Basic Insulation)	1000 VAC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010 part 1 between all circuits.					
Protection against electrical shock ³⁾	Protective separation acc. to EN 61140 by reinforced insulation acc. to EN 61010 part 1 up to 600 VAC/DC for overvoltage category II and pollution degree 2 between all circuits.					
Ambient temperature	Operation					

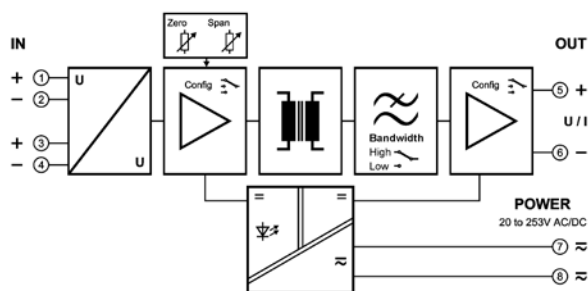
1) Factory setting

2) Average TC in specified operating temperature range

3) As far as relevant the standards and rules mentioned above are considered by development and production of our devices. In addition relevant assembly rules are to be considered by installation of our devices in other equipments. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent situated devices.

4) Minor deviations possible during interference

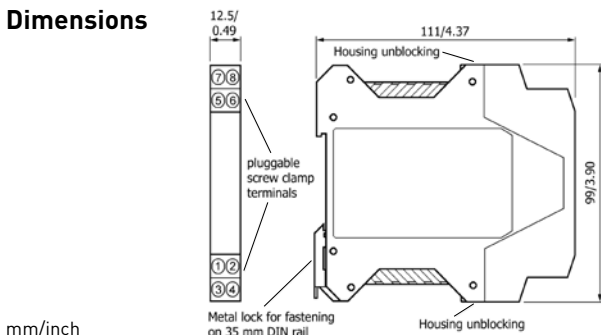
Block diagram/Connections



Ordering information:

Product	Input / Output	Part No.
IsoPAQ-80S	$\pm 60 \text{ mV} / \pm 10 \text{ V}$	70ISS80001
Calibration for other range		70CAL00001

Dimensions



mm/inch

DA561



DA561M

Isolation Transmitter for mA/V Signals with 2-wire Transmitter Supply



DA561 is specially designed for signal isolation and load amplification in the process industry.

A 2-wire transmitter can be connected to and supplied from the isolation amplifier.

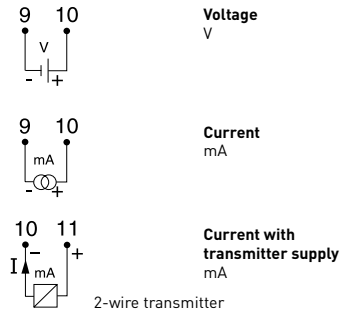
DA561 maintains a high isolation level (1,5 kV) between input and output. Current and voltage can be chosen independently as input and output signals.

- Current and voltage input
- Current and voltage output
- Direct connection of 2-wire transmitter
- Output test terminals
- 1 500 V isolation level
- Short response time
- High noise immunity
- Available for AC or DC power supply
- DIN-rail mounting
- Plug-in screw terminals

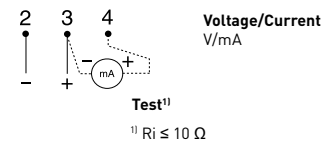
Specifications:

Input Voltage	0(0.2)-1 V, 0(1)-5 V, 0(2)-10 V
Input impedance	1 M Ω
Input Current	0(4)-20 mA (standard setting)
Input impedance	11.9 Ω
Maximum input level	200 % of measurement span
Output Voltage	0(0.2)-1 V, 0(1)-5 V, 0(2)-10 V, short circuit protected
Minimum load	500 k Ω (error effect <0.1 %)
Voltage limitation	Appr. 56 V
Output Current	0(4)-20 mA, open or short circuit protected (standard setting)
Maximum load	600 Ω
Current limitation	Appr. 23 mA
Test output	mA instrument, $R_i \leq 10 \Omega$
Transmitter supply voltage	19 VDC, max. ripple 100 mV p-p
Operation temperature	-20 to +60 °C / -4 to +140 °F
Galvanic isolation	AC & DC version
	Input to output
	Input/output to power supply
	2 200 VAC, 1 min
Power supply	AC versions
	230 VAC, -15..+10 %, 45..75 Hz
	115 VAC, -15..+10 %, 45..75 Hz
	DC version
	19 to 60 VDC
Typical accuracy	± 0.15 % of span
Connections	Plug-in terminals
	Stranded, ≤ 2.5 mm ² , AWG 14
Mounting	Rail acc. to DIN EN 50022, 35 mm

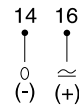
Input connections



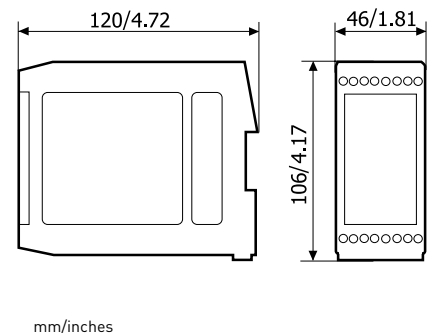
Output connections



Power supply



Dimensions



Ordering information

DA561, In/Out 0(4)-20 mA, 230 VAC	51MOE00006
DA561, In/Out 0(4)-20 mA, 115 VAC	51MOE00084
DA561, In/Out 0(4)-20 mA, 19-60 VDC	51MOE00007
Configuration for other range	70CAL00003

DA562

Dual Channel Isolation Transmitter for mA/V Signals

DA562



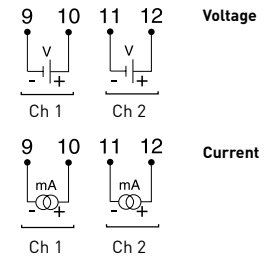
DA562 is specially designed for signal isolation and load amplification in the process industry. Two independent and galvanically isolated channels allow for high-density mounting. DA562 maintains a high isolation level (1,5 kV) between input, output and the two channels. Current and voltage can be chosen independently as input and output signals.

- Two fully independent isolated channels
- Current and voltage input
- Current and voltage output
- Output test terminals
- 1 500 V isolation level
- Short response time
- High noise immunity
- Available for AC or DC power supply
- DIN-rail mounting
- Plug-in screw terminals

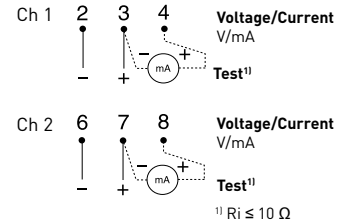
Specifications:

No. of channels	Two, independent selection of input/output signal	
Input Voltage	0[0.2]-1 V, 0[1]-5 V, 0[2]-10 V	
Input impedance	1 MΩ	
Input Current	0[4]-20 mA (standard setting)	
Input impedance	11.9 Ω	
Maximum input level	200 % of measurement span	
Output Voltage	0[0.2]-1 V, 0[1]-5 V, 0[2]-10 V, short circuit protected	
Minimum load	500 kΩ (error effect <0.1 %)	
Voltage limitation	Appr. 56 V	
Output Current	0[4]-20 mA, open or short circuit protected (standard setting)	
Maximum load	600 Ω	
Current limitation	Appr. 23 mA	
Test output	mA instrument, $R_i \leq 10 \Omega$	
Operation temperature	-20 to +60 °C / -4 to +140 °F	
Galvanic isolation	AC & DC version	
	Input to output	1 500 VAC, 1 min
	Input/output to power supply	2 200 VAC, 1 min
	Between channels	1 500 VAC, 1 min
Power supply	AC versions	230 VAC, -15..+10 %, 45..75 Hz, 115 VAC, -15..+10 %, 45..75 Hz
	DC version	19 to 60 VDC
Typical accuracy	±0.15 % of span	
Connections	Plug-in terminals	Stranded, ≤ 2.5 mm ² , AWG 14
Mounting	Rail acc. to DIN EN 50022, 35 mm	

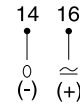
Input connections



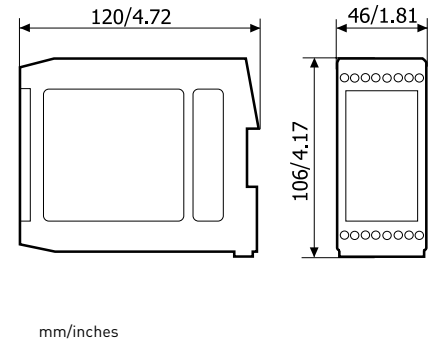
Output connections



Power supply



Dimensions



Ordering information

DA562, In/Out 0[4]-20 mA, 230 VAC	51MOE00008
DA562, In/Out 0[4]-20 mA, 115 VAC	51MOE00059
DA562, In/Out 0[4]-20 mA, 19-60 VDC	51MOE00009
Configuration for other range	70CAL00003

Programmable 2-wire Isolation Transmitter for mA Signals



I^PAQ[®]-L(mA)



IPAQ-L(mA) is an active isolation transmitter for mA input signals with a 4-20 mA output in a 2-wire connection. It is suitable for direct connection to the input modules of a control system.

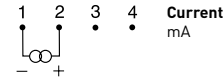
Thanks to the programmable input range and the low input impedance, IPAQ-L(mA) meets almost any need for current signal isolation and load amplification.

- Input: mA signal
- Programmable measuring range within -1 to +50 mA
- Output: 4-20 mA in 2-wire connection
- 1500 VAC isolation input/output
- Low input impedance
- Full access to all features while in operation
- Simplified loop check-up with calibration output
- Test output without breaking the loop
- IPRO, easy-to-use Windows configuration software

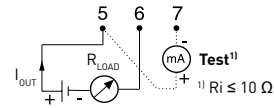
Specifications:

Input Current	-1 to +50 mA
Input impedance	10 Ω
Adjustments-Zero	Any value within range limits
Adjustments-Minimum spans	0.4 mA
Output	4-20 / 20-4 mA
Operating temperature	-20 to +70°C / -4 to +158°F
Galvanic isolation	1500 VAC, 1 min
Power supply	7.5 to 36 VDC
Typical accuracy	± 0.1 % of span
Mounting	Rail acc. to DIN EN50022, 35 mm

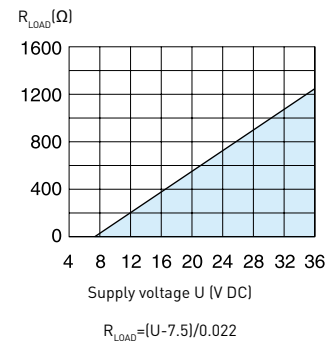
Input connections



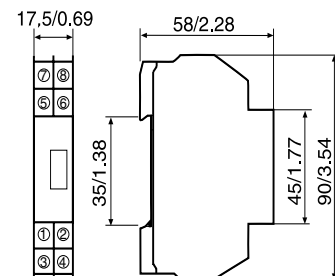
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ-L(mA), Current input only	70IPL00003
PC Configuration Kit	70CFG00092
Configuration	70CAL00001

Inor Programmable Transmitters

All the programmable transmitters from Inor offer a wide selection of features, which are available by using the configuration softwares.

All softwares can be downloaded from our website www.inor.com



MePRO

IPRO



MINIPAQ Soft

ProfiSoft

MePRO

Windows software for the MESO family of HART transmitters.

By using MEPRO instead of a HART Communicator, you choose the most convenient and the safest way to configure the MESO transmitters. There is no risk getting lost in a complicated menu tree.

IPRO

Windows software for the complete line of IPAQ programmable transmitters.

Even the most versatile transmitters within the IPAQ family, IPAQ^{PLUS}, can easily be programmed with IPRO, which leads you through the configuration step by step.

MINIPAQ Soft

Extremely simple Windows software for MINIPAQ low cost transmitters.

It can't be easier. Transmitter configuration in seconds. All in one menu.

ProfiSoft

Windows software for PROFIPAQ Profibus transmitters.

A very interesting and cost saving alternative to configuration over the Profibus network. The configuration is made without Profibus tools.

Features of the IPAQ and MESO transmitters

Following is a description of the most interesting features:

Temperature measurements with RTDs and other resistances

The transmitters can be configured for inputs from standardized Platinum and Nickel RTDs like Pt10 to Pt1000 acc. to IEC 60751 ($\alpha=0.00385$), Pt100 ($\alpha=0.003916$ or 0.003902) and Ni100/Ni1000 acc. to IEC 60751, as well as inputs from plain resistance sensors such as potentiometers. 3- or 4-wire connection can be chosen. The measuring ranges are freely selectable.

Measurements with thermocouples and voltage

The configuration possibilities also covers inputs from 11 types of standardized thermocouples as well as plain mV input. The measuring ranges are freely selectable.

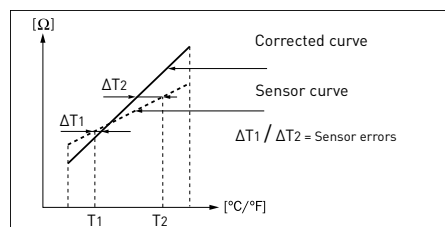
For T/C input, the CJC (cold junction compensation) is fully automatic, by means of an accurate measurement of the terminal temperature.

Dampening function

The dampening function can be used to effectively dampen undesired instabilities on the input signal.

Sensor error correction

Known sensor errors compared to the standard curve, e.g. for a calibrated sensor, are entered, and the transmitter automatically corrects for the sensor errors.



System error correction (Only IPAQ)

This method is used to correct the system errors (sensor and/or transmitter error) by exposing the sensor to one or two accurately measured temperatures (true temperatures). The true temperature(s) and the corresponding transmitter reading(s) are entered, and the transmitter automatically corrects for the system errors.

Sensor failure detection

The Sensor failure detection checks the sensor leads and forces the output signal to a user defined level, if any of the sensor leads are broken or short circuited.

Low isolation detection (LID)

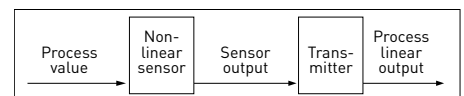
The LID continuously monitors the internal isolation resistance of thermocouples and RTDs as well as the cabling between sensor and transmitter. The transmitter will react by forcing the output to a user defined level if the isolation is below a preset level.

Customized linearization

A very accurate and versatile multi-point customized linearization is available for the IPAQ^{PLUS} and MESO transmitters.

A simplified version (with 9 linearization points) is available for the other IPAQ transmitters. The multi-point linearization can be used to create almost any type of linearization curve for RTD, T/C, resistance and mV inputs.

By combining Customized linearization with the use of Engineering units, the transmitters can be programmed to give a linear output corresponding to a specific measuring range of the primary process value.



Example of a system (sensor + transmitter) with an output linear to the process value, in spite of a non-linear sensor.

Controlled output for instrument calibration

For control and calibration of instruments in the output loop, the IPAQ transmitters can be set to generate very accurate output signals regardless of the input signal.

Features of the PROFIPAQ Profibus transmitters.

PROFIPAQ is a Profibus transmitter, which offers most of the features mentioned above (IPAQ and MESO).

Some interesting **additional** features:

Configuration

The configuration can easily be made from a PC with the Inor software ProfiSoft or over the Profibus from the Master Control System.

Text messages

PROFIPAQ will send text messages over the Profibus for different sensor errors and process alarm conditions.

Double inputs

PROFIPAQ has double inputs, including RTD (e.g. Pt100) in 3-wire connection, which can be used for average and difference measurements or automatic redundancy.

Subsidiaries in USA, Germany and Finland

Local representatives in 40 countries

INOR GLOBAL PRESENCE



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