



SIGNAL CONDITIONERS

Temperature Transmitters, Alarm Units, Indicators,
Signal Isolators, Configurations kits

- Complete range of Temperature Transmitters for in-head and DIN-rail mounting
- App for wireless configuration and monitoring via NFC and Bluetooth
- Complete range of Loop Powered Isolators and Isolation Transmitters
- Alarm Units for monitoring of temperature and process signals
- Selection of Loop Powered Indicators

INOR

Specialists in industrial temperature measurement

INOR is a world-leading manufacturer and supplier of signal conditioners for temperature measurement in the process industry. With 80 years of experience in developing and producing signal conditioners, INOR has gradually built up its reputation as an international leader. Along with our two subsidiaries in Germany, Finland and partners in more than 50 countries, we can provide products, solutions and services worldwide.

Optimal products and solutions for all industries

INOR is always a fair and reliable partner to its customers, business partners and employees. We provide our customers with optimal products and solutions which always meet or exceed their expectations in terms of quality, performance capability, service and design. Our customers are registered in diverse branches of industry such as chemicals, petrochemicals, water, wastewater, food & beverages, pharmaceuticals, oil and gas, power plants, steel, pulp and paper etc.

Acknowledged high quality

INOR is ISO 9001 certified and has a long history of quality assurance work. We actively put the customer first and make a dedicated effort to give the customer extra value when purchasing our products. 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.

Constant pursuit of environmentally efficient solutions

INOR environmental objectives are to prevent and reduce harmful effects on the environment, people and property caused by our processes, and to use natural resources in a sustainable manner. INOR continuously strive to improve it's environmental performance, for instance by reducing our waste discharges, using green electricity while at the same time reducing the total use of electricity, reduce the use of hazardous substances in our production and replace paper documents with electronic documents. INOR has a high environmental focus on both our and our customers processes and has been ISO 14001 certified since 2002.

Highlights

- Complete product portfolio in signal conditioning
- 80 years of experience
- Always the highest product quality
- Global network to provide products, solutions and services
- 5 year warranty

INOR Goes Wireless



ICON-BT & INOR Connect – Meet the future with INOR

INOR offers a new way of configuring and monitoring your transmitter. Connect your smartphone/ tablet to your transmitter via NFC® or Bluetooth® and configure it through the new app: INOR Connect. Thanks to the wireless communication, the transmitter can remain installed in the process.

With the intuitive and easy-to-use interface in the app, the work becomes a pleasure. INOR Connect offers the same great configuration capabilities as the ConSoft software but with an even more user-friendly interface.

Configuration of a transmitter has never been easier and more convenient!



ICON-BT, INOR Connect and IPAQ C/R530



Configure with the app: INOR Connect

In addition to the user-friendly interface, INOR Connect also offers automatic updates. That means you never have to worry about using the latest software.

We have also added quick links to each product page if you need extra information about the transmitter.

INOR Connect is available for both iOS and Android.



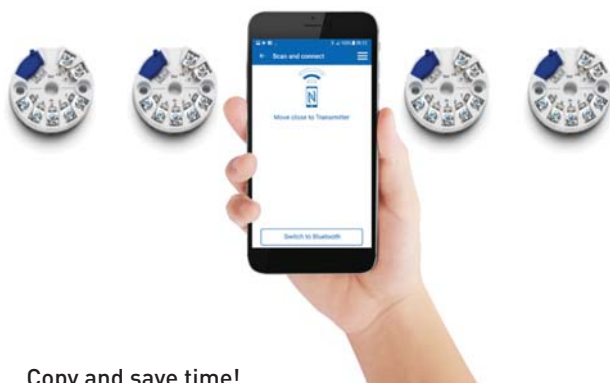
Accessible configuration tool that you always carry in your pocket.

Remote configuration and monitoring via Bluetooth®

With ICON-BT you can configure and monitor the transmitter while it is still mounted in the process. Simply plug in your ICON-BT to the USB connector on the transmitter and connect with your smartphone. Thanks to the extended range that Bluetooth offers you can communicate with the transmitter remotely.



INOR Connect offers two different views in monitoring mode



Copy and save time!

The great benefit of NFC® is the smooth and fast communication between the transmitter and the smartphone without any cables. INOR has taken advantage of that by creating a new function that makes it possible to copy and paste a configuration to as many transmitters as you like without making any changes and it only takes seconds.

Great tool for service and maintenance

The wireless concept is a great tool for people working with service and maintenance as it provides a quick health check of your process. The live monitoring and diagnostics in the INOR Connect app makes it possible to follow the process temperature in real time.

In the app you can also see the ambient temperature and supply voltage the transmitter has been exposed to. This allows you to detect peaks that could damage the process control.

Monitor and configure your transmitter even in the tightest mounting locations.



Transmitter selection list

These tables will help you select the right measuring solution for your application, a selection from our product portfolio.

	Conventional			Programmable		
	APAQ-H APAQ-LC	APAQ-3HPT APAQ-3LPT	IPAQ CT20	IPAQ C202 IPAQ R202	^{MINI} IPAQ-HLP ^{MINI} IPAQ-L	IPAQ C330 IPAQ R330
Page	24/31	40/41	44	25/32	26/33	27/34
Design	2-wire	3-wire	2-wire	2-wire	2-wire	2-wire
Head-mounted transmitter	x	x	x *	x	x	x
Intrinsically-safe head-mounted transmitter, Ex	x	–	–	x	–	x
Rail-mounted transmitter,	x	x	x	x	x	x
Intrinsically-safe rail-mounted transmitter, Ex	–	–	–	–	–	x
SIL2	–	–	–	–	–	–
Input						
Resistance thermometer	x	x	x	x	x	x
Thermocouples	x	–	–	–	x	x
Other	–	–	–	–	–	x
Channels/inputs						
1 Measuring channel	x	x	x	x	x	x
2 Measuring channels	–	–	–	–	–	–
2 Inputs	–	–	–	–	–	–
Output						
4–20 mA	x	–	x	x	x	x
0–10 V	–	x	–	–	–	–
Bluetooth®	–	–	–	–	–	x
HART®	–	–	–	–	–	–
Accuracy						
Accuracy classes	good	good	good	good	good	very good
Circuit design						
Galvanic isolation	–	–	–	–	–	x
Power supply						
24 VDC	x	x	x	x	x	x
230 VAC	–	–	–	–	–	–
Accessories						
Loop powered LED and LCD display, loop powered isolator and repeaters, transmitter configuration kit	x	x	x	x	x	x

	Programmable				Smart	
	IPAQ-21/-22	IPAQ-4L	DA576	IPAQ-H ^{PLUS} IPAQ-L ^{PLUS}	IPAQ C530 IPAQ R530	IPAQ C520 IPAQ R520
Page	35	42	43	28/36	29/37	30/38
Design	2-wire	4 -wire	4-wire	2-wire	2-wire	2-wire
Head-mounted transmitter	–	–	–	x	x	x
Intrinsically-safe head-mounted transmitter, Ex	–	–	–	–	x	x
Rail-mounted transmitter	x	x	x	x	x	x
Intrinsically-safe rail-mounted transmitter, Ex	x	–	–	–	x	x
SIL2	–	–	–	–	–	x
Input						
Resistance thermometer	x	x	x	x	x	x
Thermocouples	x	x	–	x	x	x
Other	x	x	–	x	x	x
Channels/inputs						
1 Measuring channel	x	x	x	x	x	x
2 Measuring channels	x	–	x	–	–	x **
2 Inputs	–	–	x	–	–	x
Output						
4–20 mA	x	x	x	x	x	x
0–10 V	–	x	x	–	–	–
Bluetooth®	–	–	–	–	x	–
HART®	–	–	–	–	x	x
Accuracy						
Accuracy classes	very good	very good	excellent	excellent	very good	excellent**
Circuit design						
Galvanic isolation	x	x	–	x	x	x
Power supply						
24 VDC	x	x	x	x	x	x
230 VAC	–	x	x	–	–	–
Accessoires						
Loop powered LED and LCD display, loop powered isolator and repeaters, transmitter configuration kit	x	x	x	x	x	x

x = available, – = not available, * compact transmitter with M12-connection, ** able to read 2 channels via HART®

IPAQ C202

PC-Programmable 2-wire Transmitter for Pt100 Input



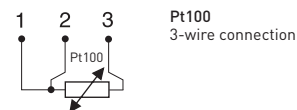
The IPAQ C202 is a digital, easy-to-use 2-wire temperature transmitter for measurement with a Pt100 resistance sensor. Its robust design and high quality gives excellent performance and accuracy also under harsh conditions. IPAQ C202 combines competitive cost with easy and user friendly functionality and reliable accuracy during the lifetime.

- Robust terminals with test connections
- 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
- Runtime counter
- Only 19.5 mm / 0.72 inch high

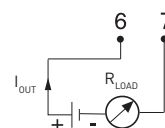
Specifications:

Input Pt100		3-wire connection
Pt100 ($\alpha=0.00385$)		-50 to +850 °C / -58 to +1562 °F
Sensor failure		Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
Adjustments		
Zero adjustment		Any value within range limits
Minimum span		20 °C / 36 °F
Sensor error compensation		$\pm 10\%$ of span for span <100°C/180°F otherwise $\pm 10^\circ\text{C}/\pm 18^\circ\text{F}$
Output		4...20 mA, temperature linear
Adjustable filtering level		0.13 to 54 s, (default 0.9 s)
Response time		< 50 ms
Environment conditions		
Ambient temperature		-40 to +85 °C / -40 to +185 °F
Humidity		0...98% RH (non-condensing)
Vibrations		Acc. to IEC 60068-2-6, test Fc, 10...2000 Hz, 10 g
EMC		Directive: 2014/30/EU Harmonized standards: EN 61326-1, EN 61326-2-3
Galvanic isolation		No
Power supply	Standard version	6.0...32.0 VDC
	Ex version	8.0...30.0 VDC
Intrinsic safety		
IPAQ C202X	ATEX:	II 1G Ex ia IIC T6...T4 Ga
	IECEx:	Ex ia IIC T6...T4 Ga
Accuracy		Max of $\pm 0.1\text{K}$ or $\pm 0.1\%$ of span
Long-term stability		$\pm 0.1\%$ of span per year
Connection head		DIN B or larger
Weight		32 g / 0.07 lb
Protection, housing / terminals		IP 65 / IP 00

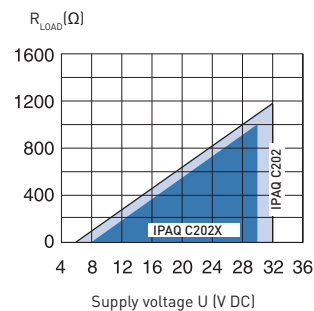
Input connections



Output connections



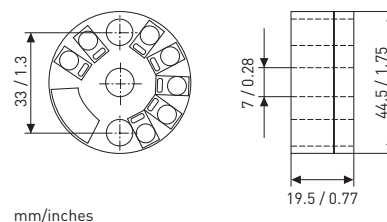
Output load diagram



$$R_{LOAD} = (U - 6) / 0.022$$

$$R_{LOAD} = (U - 8) / 0.022$$

Dimensions



Ordering information

IPAQ C202	70C2020010
IPAQ C202 Ex	70C202X010
PC configuration kit (USB-conn.)	70CFGUSX01
Head mounting kit	70ADA00017
Rail mounting kit	70ADA00015

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 19.5 mm / 0.77 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.

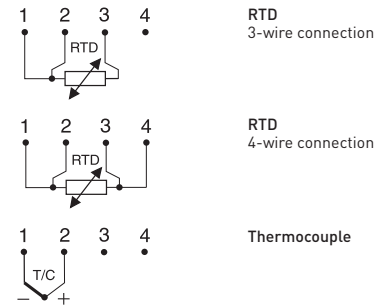
- Robust terminals with test connections
- Only 19.5 mm / 0.77 inch high
- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Rugged design tested for 10 g vibrations
- USB communication

Specifications:

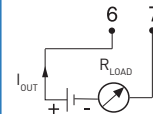
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$) ¹⁾	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$) ¹⁾	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$) ¹⁾	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
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	8.0...32.0 VDC
Typical accuracy	±0.15 % of temperature span
Connection head	DIN B or larger

¹⁾ IEC 60751, ²⁾ DIN43760, ³⁾ Edison No.7, ⁴⁾ Edison No.15

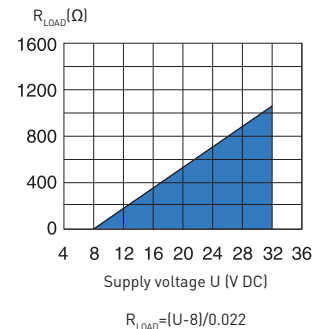
Input connections



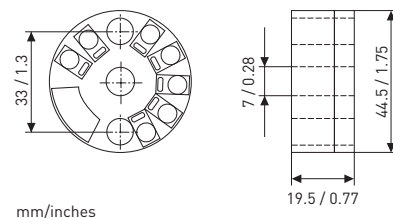
Output connections



Output load diagram



Dimensions



Ordering information

MINIPAQ-HLP	70MQHLP002
PC Configuration Kit (USB conn.)	70CFGUSX01
Configuration	70CAL00001



IPAQ C330

Universal PC-Programmable 2-wire transmitter



IPAQ C330 is a universal, isolated, temperature transmitter with additional voltage and resistance input. Its robust design and high quality gives excellent performance and accuracy also under harsh conditions.

IPAQ C330 supports communication via NFC® (Near-field communication) and Bluetooth® which makes it possible to configure and monitor the transmitter remotely.

- High accuracy and long term stability
- 50-point Customized Linearization and Callendar-Van Dusen
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Low temperature drift
- Configuration via USB or NFC without external power
- Runtime counter - hour counter for elapsed operational time
- Rugged design tested for 10 g vibrations
- High security - Password protection and date of changes logged

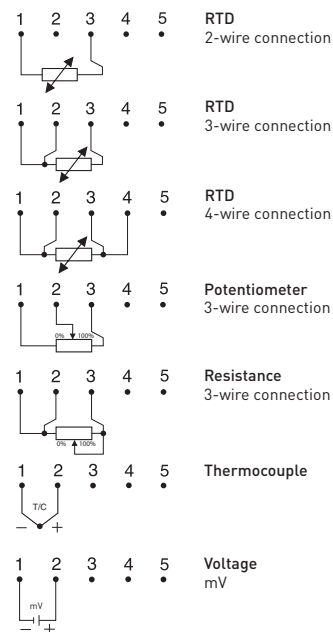
Specifications:

Input RTD	2-, 3-, 4-wire connection
Pt100 ($\alpha = 0.00385$)	-200 to +850 °C / -328 to +1562 °F
PtX $10 \leq X \leq 1000$ ($\alpha = 0.00385$)	Upper range depending on X-value
Pt100 ($\alpha = 0.003916$)	-200 to +850 °C / -328 to +1562 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-50 to +180 °C / -58 to +356 °F
Cu10 ³⁾	-50 to +200 °C / -58 to +392 °F
Input Resistance / potentiometer	0 to 10000 Ω / 100 to 10000 Ω
Input Thermocouples	Types B, C, D, E, J, K, N, R, S, T
Input mV	-10 to +1000 mV
Sensor failure	Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
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 C330: 8.0...36.0 VDC
	IPAQ C330X: 8.0...30.0 VDC
Intrinsic safety	
IPAQ C330X ATEX:	II 1 G Ex ia IIC T6...T4 Ga
IPAQ C330X IECEx:	Ex ia IIC T6...T4 Ga
IPAQ C330X FM US:	CL I, Div 1, GP A, B, C and D / CL I, Zn 0, Ex ia IIC Ga
IPAQ C330X FM CA:	CL I, Div 1, GP A, B, C and D / CL I, Zn 0, Ex ia IIC Ga
Typical accuracy	$\pm 0.08^\circ\text{C}$ or $\pm 0.08\%$ of span
Connection head	DIN B or larger

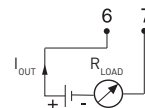
¹⁾ DIN 43760, ²⁾ Edison No.7, ³⁾ Edison No.15

Input connections

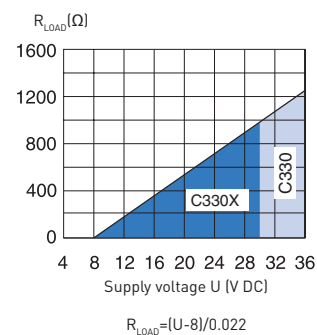
See data sheet for more alternatives



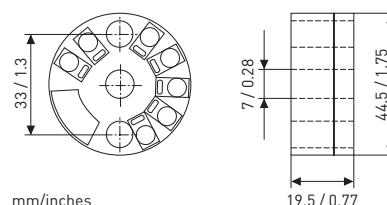
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ C330	70C3300012
IPAQ C330X (ATEX / IECEx / FM)	70C330X012
PC configuration kit (USB-conn.)	70CFGUSX01
ICON-BT Bluetooth kit	70CFGBT001
Head mounting kit	70ADA00017
Rail mounting kit	70ADA00015

IPAQ C530

Universal HART-compatible 2-wire Transmitter



IPAQ C530 is a modern, HART® temperature transmitter developed to meet the highest standards of accuracy and reliability. A universal transmitter compatible with RTD, thermocouples, voltage and potentiometer sensors. It is fully compatible with HART® 7 and offers extended diagnostic information, for example device error, sensor and wiring conditions. IPAQ C530 supports communication via NFC® (Near-field communication) and Bluetooth® which makes it possible to configure and monitor the transmitter remotely.

- High accuracy and long term stability
- Accepts RTD, T/C, mV and ohm
- Sensor error and system (sensor/transmitter) error correction
- 50-point Customized Linearization and Callendar-Van Dusen
- Rugged design tested for 10 g vibrations
- Configuration via USB, without external power
- Runtime counter - hour counter for elapsed operational time
- Communicates with HART Communicator or PC via modem
- Integrated in Emerson AMS and Siemens PDM systems

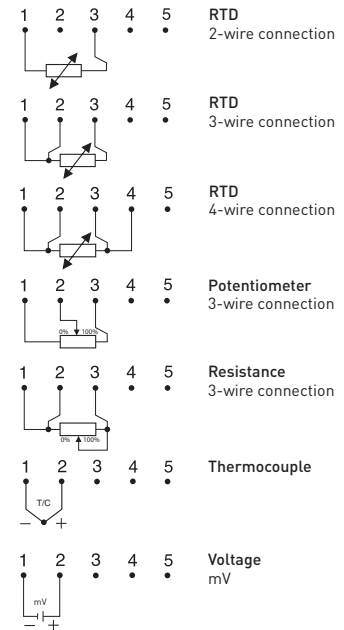
Specifications:

Input RTD	2-, 3-, 4-wire connection
Pt100 ($\alpha = 0.00385$)	-200 to +850 °C / -328 to +1562 °F
PtX $10 \leq X \leq 1000$ ($\alpha = 0.00385$)	Upper range depending on X-value
Pt100 ($\alpha = 0.003916$)	-200 to +850 °C / -328 to +1562 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-50 to +180 °C / -58 to +356 °F
Cu10 ³⁾	-50 to +200 °C / -58 to +392 °F
Input Resistance / potentiometer	0 to 10000 Ω / 100 to 10000 Ω
Input Thermocouples	Types B, C, D, E, J, K, N, R, S, T
Input mV	-10 to +1000 mV
Sensor failure	Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	100 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 C530 8.5...36.0 VDC
	IPAQ C530X 8.5...30.0 VDC
Intrinsic safety	
IPAQ C530X ATEX:	II 1G Ex ia IIC T6...T4 Ga
IPAQ C530X IECEx:	Ex ia IIC T6...T4 Ga
IPAQ C530X FM US/CA:	Pending
Typical accuracy	$\pm 0.08^\circ\text{C}$ or $\pm 0.08\%$ of span
Connection head	DIN B or larger

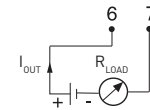
¹⁾IEC 60751, $\alpha = 0.00385$ and Pt100 acc. to JIS 1604, $\alpha = 0.003916$ ²⁾DIN 43760

³⁾Temperature, resistance or voltage linear, customized linearization possible

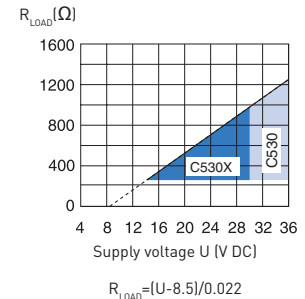
Input connections



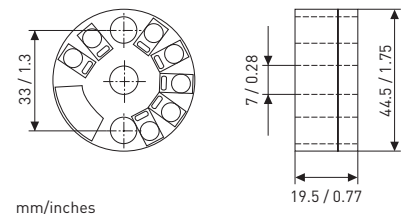
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ C530	70C5300010
IPAQ C530X (ATEX / IECEx)	70C530X010
HART PC modem USB	70MEM00003
PC configuration kit (USB-conn.)	70CFGUSX01
ICON-BT Bluetooth kit	70CFGBT001
Configuration	70CAL00001

IPAQ C520

HART Compatible Universal Dual-input 2-wire Transmitter



The IPAQ C520 transmitters are universal, isolated, dual-input temperature transmitters with additional voltage and resistance input. C520X/C520XS are Intrinsically Safe versions for use in Ex-Zone 0, 1 and 2. The transmitters are compatible with the HART 6 protocol. Typical characteristics are the high accuracy, stability and reliability combined with a robust housing.

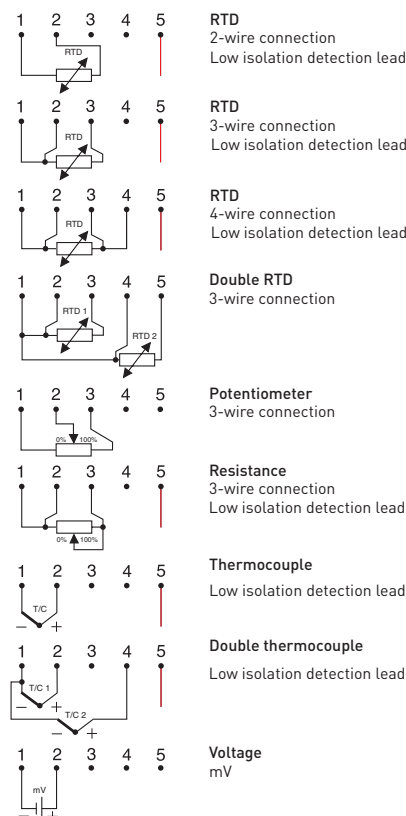
- Universal, dual-input for RTD and T/C
- SIL 2 compatible according to IEC 61508-2
- 5 year guaranteed stability
- Withstands 10 g vibrations
- Complies with NAMUR NE 21, NE 43, NE 53, NE 89 and NE 107
- EMC immunity according to Criteria A
- Sensor Backup
- Sensor Drift Monitoring
- Sensor Isolation Monitoring
- Sensor matching
- 50 point customized linearization
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

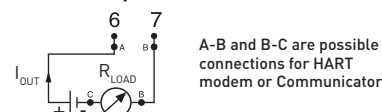
Input RTD		
Pt100	(IEC 60751, $\alpha=0.00385$)	-200 to +850 °C
PtX [10 ≤ X ≤ 1000]	(IEC 60751, $\alpha=0.00385$)	Corresp. to max. 4 000 Ω
Pt100	(JIS C 1604, $\alpha=0.003916$)	-200 to +850 °C
Ni100	(DIN 43760)	-60 to +250 °C
Ni120	(Edison Curve No. 7)	-60 to +250 °C
Ni1000	(DIN 43760)	-50 to +180 °C
Cu10	(Edison Cu Windings No. 15)	-50 to +200 °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, N, R, S, T
Input Resistance		
	Potentiometer	100 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 Redundancy		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
Galvanic isolation		1500 VAC, 1 min
Ex-classifications	C520X/C520XS	ATEX: II 1G Ex ia IIC T6...T4 Ga IECEx: Ex ia IIC T6...T4 Ga
Power supply		
	C520/C520S	10...36.0 VDC, Standard power supply
	C520X/C520XS	10...30.0 VDC, I.S. power supply
Ambient temperature		
	Storage/operation	-40 to +85 °C
Accuracy		
	RTD (Pt and Ni sensors)	Max. of ±0.1 °C or ±0.05 % of span
	Thermocouple	Typical ±0.05 % of span
	Resistance/voltage	See data sheet
Long-term stability		
		Max. drift: ±0.05 % of span / 5 years
Connection head		
		DIN B or larger

Input connections

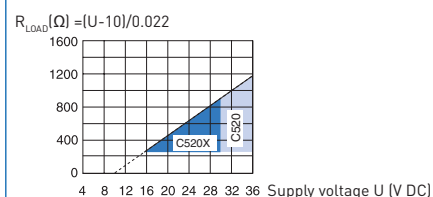
See data sheet for more alternatives



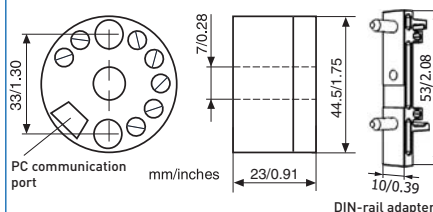
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ C520	70C5200010
IPAQ C520S, SIL 2 compatible	70C5200S10
IPAQ C520X	70C520X010
IPAQ C520XS, SIL 2 compatible	70C520XS10
ICON PC configuration kit (USB-conn.)	70CFGUSX01
Configuration	70CAL00001
Head mounting kit - 10 pcs	70ADA00027



PC-Programmable 2-wire Transmitter for Pt100 Input



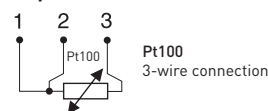
IPAQ R202 is a digital, easy-to-use temperature transmitter developed for measurements with Pt100 sensors. Its robust design and high quality gives excellent performance and accuracy also under harsh conditions. With the new runtime counter function you can easily supervise the elapsed operational time between calibrations.

- Input: Pt100 in 3-wire connection
- PC configurable measuring ranges without need for calibration
- Freely adjustment of zero point and input range
- Temperature linear output
- Runtime counter
- Excellent EMC immunity
- Configuration without external power
- Easy-to-use Windows configuration software
- USB communication
- Withstands vibrations up to 5 g

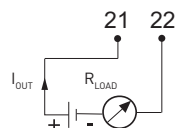
Specifications:

Input Pt100	3-wire connection
Pt100 ($\alpha=0.00385$)	-200 to +850 °C / -328 to +1562 °F
Sensor failure	Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
Adjustments	
Zero adjustment	Any value within range limits
Minimum span	20 °C / 36 °F
Sensor error compensation	$\pm 10\%$ of span for span <100°C/180°F otherwise $\pm 10^\circ\text{C}/\pm 18^\circ\text{F}$
Output	4...20 mA, temperature linear
Adjustable filtering level	0.13 to 54 s, (default 0.9 s)
Permissible load	818 Ω @ 24 VDC
Response time	< 50 ms
Environment conditions	
Ambient temperature	-40 to +85 °C / -40 to +185 °F
Humidity	0...98% RH (non-condensing)
Vibrations	Acc. to IEC 60068-2-6, test Fc, 10...2000 Hz, 5 g
EMC	Directive: 2014/30/EU Harmonized standards: EN 61326-1, EN 61326-2-3
Galvanic isolation	No
Power supply	6.0...32.0 VDC
Accuracy ¹⁾	Max of $\pm 0,1\text{K}$ or $\pm 0,1\%$ of span
Long-term stability	± 0.1 % of span per year
Mounting	Rail acc. to DIN EN 50022, 35 mm
Weight	50 g / 0.11 lb
Protection, housing / terminals	IP 20 / IP 00

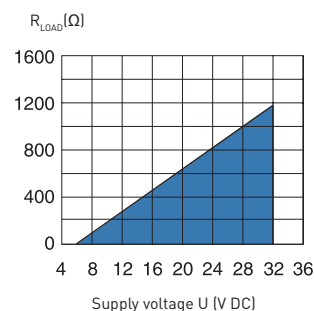
Input connections



Output connections

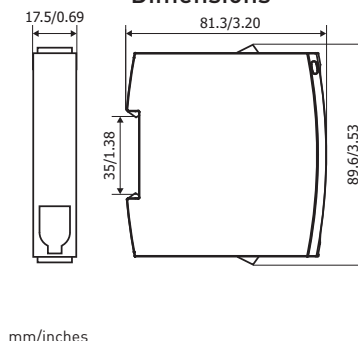


Output load diagram



$$R_{LOAD} = (U - 6) / 0.022$$

Dimensions



Ordering information

IPAQ R202	70R2020010
PC configuration kit (USB-conn.)	70CFGUSX01

Basic Programmable 2-wire Transmitter



MINI PAQ-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. MINI PAQ-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.

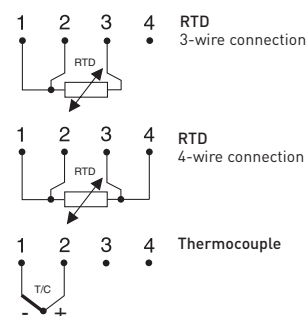
- Accepts RTD in 3- and 4-wire connection and 11 T/C types
- Temperature linear output
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Configuration without external power
- Easy-to-use Windows configuration software
- NAMUR compliant
- Test output without breaking the loop
- USB communication
- Withstands vibrations up to 5 g

Specifications:

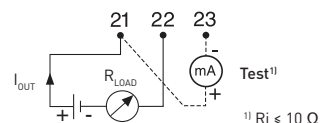
Input RTD	3-, 4-wire connection
Pt100 ($\alpha=0.00385$) ¹⁾	-200 to +1000 °C / -328 to +1832 °F
Pt1000 ($\alpha=0.00385$) ¹⁾	-200 to +200 °C / -328 to +392 °F
PtX $10 \leq X \leq 1000$ ($\alpha=0.00385$) ¹⁾	Upper range depending on X-value
Pt100 ($\alpha=0.003902$)	-200 to +1000 °C / -328 to +1832 °F
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, Ni120, 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	8.0...32.0 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

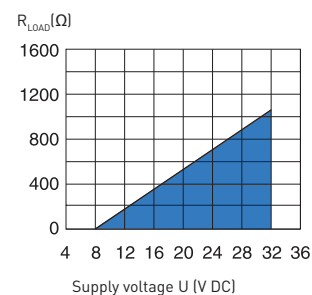
Input connections



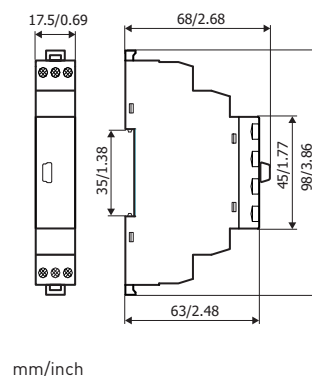
Output connections



Output load diagram



Dimensions



Ordering information

MINI PAQ-L	70MQL00003
PC Configuration Kit (USB conn.)	70CFGUSX01
Configuration	70CAL00001

IPAQ R330



Universal PC-Programmable 2-wire transmitter



IPAQ R330 is a universal, isolated, temperature transmitter with additional voltage and resistance input. Its robust design and high quality gives excellent performance and accuracy also under harsh conditions.

IPAQ R330 supports communication via NFC® (Near-field communication) and Bluetooth® which makes it possible to configure and monitor the transmitter remotely.

- High accuracy and long term stability
- 50-point Customized Linearization and Callendar-Van Dusen
- Accepts RTD, T/C, mV and Ω
- Sensor error and system (sensor/transmitter) error correction for highest total accuracy
- Low temperature drift
- Configuration via USB, without external power
- Runtime counter - hour counter for elapsed operational time
- Rugged design tested for 5 g vibrations
- High security - Password protection and date of changes logged

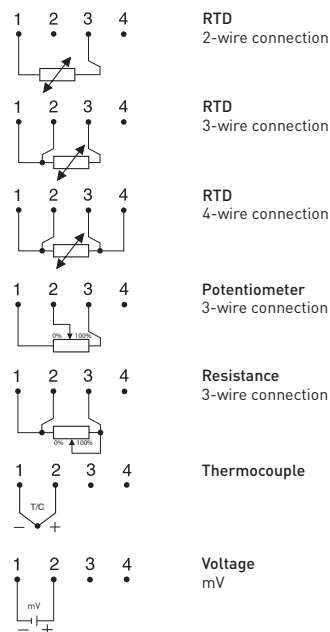
Specifications:

Input RTD	2-, 3-, 4-wire connection
Pt100 ($\alpha = 0.00385$)	-200 to +850 °C / -328 to +1562 °F
PtX 10 ≤ X ≤ 1000 ($\alpha = 0.00385$)	Upper range depending on X-value
Pt100 ($\alpha = 0.003916$)	-200 to +850 °C / -328 to +1562 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-50 to +180 °C / -58 to +356 °F
Cu10 ³⁾	-50 to +200 °C / -58 to +392 °F
Input Resistance / potentiometer	0 to 10000 Ω / 100 to 10000 Ω
Input Thermocouples	Types B, C, D, E, J, K, N, R, S, T
Input mV	-10 to +1000 mV
Sensor failure	Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
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 R330: 8.0...36.0 VDC
	IPAQ R330X: 8.0...30.0 VDC
Intrinsic safety	
IPAQ R330X ATEX:	II 1 G Ex ia IIC T6...T4 Ga
IPAQ R330X IECEx:	Ex ia IIC T6...T4 Ga
IPAQ R330X FM US:	CL I, Div 1, GP A, B, C and D / CL I, Zn 0, Ex ia IIC Ga
IPAQ R330X FM CA:	CL I, Div 1, GP A, B, C and D / CL I, Zn 0, Ex ia IIC Ga
Typical accuracy	$\pm 0.08^\circ\text{C}$ or $\pm 0.08\%$ of span
Mounting	Rail acc. to DIN EN 50022, 35 mm

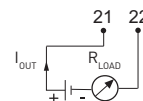
¹⁾ DIN 43760, ²⁾ Edison No.7, ³⁾ Edison No.15

Input connections

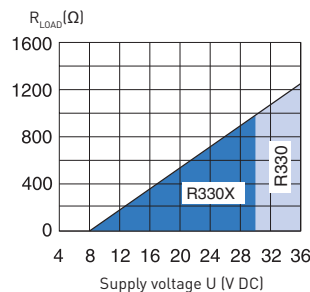
See data sheet for more alternatives



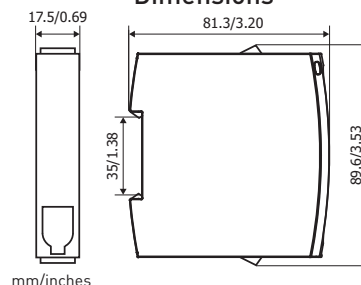
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ R330	70R3300012
IPAQ R330X (ATEX / IECEx / FM)	70R330X012
PC configuration kit (USB-conn.)	70CFGUSX01
ICON-BT Bluetooth kit	70CFGBT001
Configuration	70CAL00001

IPAQ R530

Universal HART-compatible 2-wire Transmitter



IPAQ R530 is a modern, HART® temperature transmitter developed to meet the highest standards of accuracy and reliability. A universal transmitter compatible with RTD, thermocouples, voltage and potentiometer sensors. It is fully compatible with HART® 7 and offers extended diagnostic information, for example device error, sensor and wiring conditions. IPAQ R530 supports communication via NFC® (Near-field communication) and Bluetooth® which makes it possible to configure and monitor the transmitter remotely.

- High accuracy and long term stability
- Accepts RTD, T/C, mV and ohm
- Sensor error correction
- 50-point Customized Linearization and Callendar-Van Dusen
- Low temperature drift
- High security - Password protection and date of changes logged
- Configuration via USB, without external power
- Runtime counter - hour counter for elapsed operational time
- Communicates with HART Communicator or PC via modem
- Integrated in Emerson AMS and Siemens PDM systems

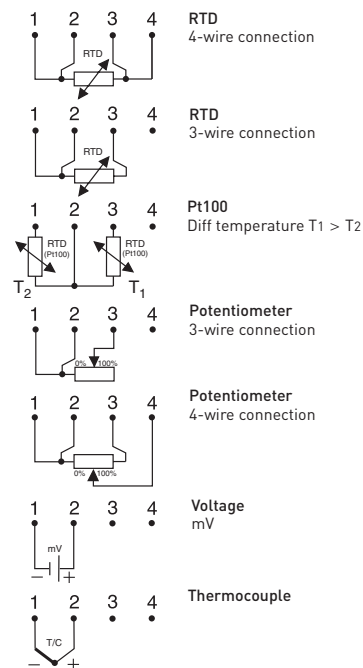
Specifications:

Input RTD	2-, 3-, 4-wire connection
Pt100 ($\alpha = 0.00385$)	-200 to +850 °C / -328 to +1562 °F
PtX $10 \leq X \leq 1000$ ($\alpha = 0.00385$)	Upper range depending on X-value
Pt100 ($\alpha = 0.003916$)	-200 to +850 °C / -328 to +1562 °F
Ni100 ¹⁾ , Ni120 ²⁾	-60 to +250 °C / -76 to +482 °F
Ni1000 ¹⁾	-50 to +180 °C / -58 to +356 °F
Cu10 ³⁾	-50 to +200 °C / -58 to +392 °F
Input Resistance / potentiometer	0 to 10000 Ω / 100 to 10000 Ω
Input Thermocouples	Types B, C, D, E, J, K, N, R, S, T
Input mV	-10 to +1000 mV
Sensor failure	Upscale (≥ 21.0 mA) or downscale (≤ 3.6 mA) action
Adjustments - Zero	Any value within range limits
Adjustments - Minimum spans	
Pt100, Pt1000, Ni100, Ni1000	10 °C / 18 °F
Potentiometer	100 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 R530 8.5...36.0 VDC
	IPAQ R530X 8.5...30.0 VDC
Intrinsic safety	
IPAQ R530X ATEX:	II 1G Ex ia IIC T6...T4 Ga
IPAQ R530X IECEx:	Ex ia IIC T6...T4 Ga
IPAQ R530X FM US/CA:	Pending
Typical accuracy	$\pm 0.08^\circ\text{C}$ or $\pm 0.08\%$ of span
Connection head	DIN B or larger

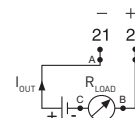
¹⁾ IEC 60751, $\alpha = 0.00385$ and Pt100 acc. to JIS 1604, $\alpha = 0.003916$ ²⁾ DIN 43760

³⁾ Temperature, resistance or voltage linear, customized linearization possible

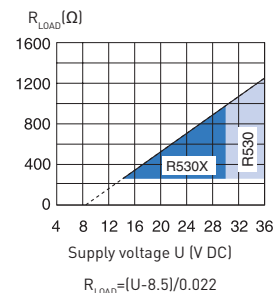
Input connections



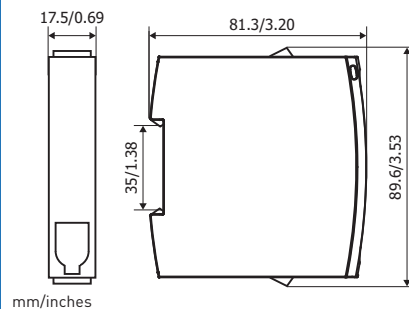
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ R530	70R5300010
IPAQ R530X (ATEX / IECEx)	70R530X010
HART PC modem USB	70MEM00003
PC configuration kit (USB-conn.)	70CFGUSX01
ICON-BT Bluetooth kit	70CFGBT001
Configuration	70CAL00001

IPAQ R520

HART Compatible Universal Dual-input 2-wire Transmitter



The IPAQ R520 transmitters are universal, isolated, dual-input temperature transmitters with additional voltage and resistance input. R520X/R520XS are Intrinsically Safe versions for use in Ex-Zone 1 and 2. The transmitters are compatible with the HART 6 protocol. Typical characteristics are the high accuracy, stability and reliability combined with a robust housing.

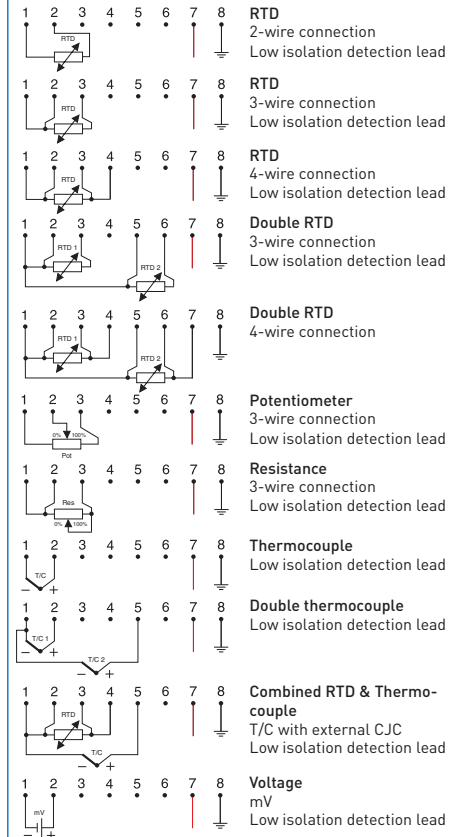
- Universal, dual-input for RTD and T/C
- SIL 2 compatible according to IEC 61508-2
- 5 year guaranteed stability
- Withstands vibrations up to 5 g
- Complies with NAMUR NE 21, NE 43, NE 53, NE 89 and NE 107
- EMC immunity according to Criteria A
- Sensor Backup
- Sensor Drift Monitoring
- Sensor Isolation Monitoring
- Sensor Matching
- 50 point customized linearization
- Integrated in Emerson AMS and Siemens PDM systems

Specifications:

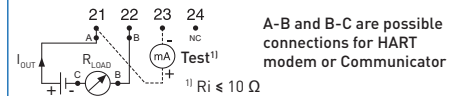
Input RTD		
Pt100	(IEC 60751, $\alpha=0.00385$)	-200 to +850 °C
PtX (10 ≤ X ≤ 1000)	(IEC 60751, $\alpha=0.00385$)	Corresp. to max. 4000 Ω
Pt100	(JIS C 1604, $\alpha=0.003916$)	-200 to +850 °C
Ni100	(DIN 43760)	-60 to +250 °C
Ni120	(Edison Curve No. 7)	-60 to +250 °C
Ni1000	(DIN 43760)	-50 to +180 °C
Cu10	(Edison Cu Windings No. 15)	-50 to +200 °C
Input connections	One sensor	2-, 3- and 4-wire connection
	Two sensors	2-, 3- and 4-wire connection
Input Thermocouple	T/C types	B, C, D, E, J, K, N, R, S, T
Input Resistance	Potentiometer	100 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 Redundancy		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
Test output		mA meter with impedance ≤10 Ω
Galvanic isolation		1500 VAC, 1 min
Ex-classifications	R520X/R520XS	ATEX: II 1G Ex ia IIC T6...T4 Ga
		IECEx: Ex ia IIC T6...T4 Ga
Power supply	R520/R520S	10.0...36.0 VDC, Standard power supply
	R520X/R520XS	10.0...30.0 VDC, I.S. power supply
Ambient temperature	Storage/operation	-20 to +70 °C
Accuracy	RTD (Pt and Ni sensors)	Max. of ±0.1 °C or ±0.05 % of span
	Thermocouple	Typical ±0.05 % of span
	Resistance/voltage	See data sheet
Long-term stability		Max. drift: ±0.05 % of span / 5 years
Mounting		Rail acc. to DIN EN 50022, 35 mm

Input connections

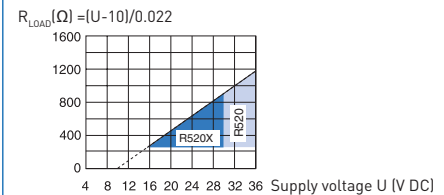
See data sheet for more alternatives



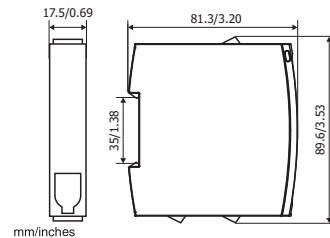
Output connections



Output load diagram



Dimensions



Ordering information

IPAQ R520	70R5200010
IPAQ R520S, SIL 2 compatible	70R5200S10
IPAQ R520X	70R520X010
IPAQ R520XS, SIL 2 compatible	70R520XS10
ICON PC configuration kit (USB-conn.)	70CFGUSX01
Configuration	70CAL00001



Ex-certified Transmitter Configuration Kit



ICON-X is a complete kit for PC configuration of all* PC programmable transmitters in the INOR product line. The kit contains the INOR USB Interface, transmitter cables and the software, Consoft. Communication with the connected transmitter is established automatically, without any problems to match the PC communication port to the software. ICON-X is Ex-certified, which allows the transmitter to be configured in a safe area with the temperature sensor still connected in an explosive atmosphere.

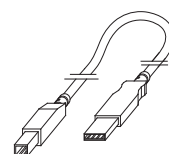
- USB communication
- Automatic matching of communication ports
- Automatic transmitter identification for quick start up
- Diagnostic LED's on the USB Interface show the communication status
- Simple installation of configuration software and drivers for the USB Interface
- Free download of configuration software, Consoft, and USB Interface software from our website
- Protection against supply of energy in an explosive atmosphere

Specifications:

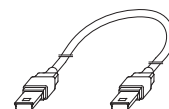
Input (PC to USB Interface)	USB cable type A to type B
Output (USB Interface to transmitter)	Changeable transmitter cables
Power Supply	PC's USB port, 5 VDC, 74 mA max
Ambient temperature	
Operation	0 to 50 °C / 32 to 122 °F
Storage	-20 to 70 °C / -4 to 140 °F
Humidity	0 to 90 % RH
Galvanic isolation	1500 VAC
USB compliance	1x USB 1.1 or higher port type A
System requirements	
Windows	32- or 64-bit edition of Windows XP (SP2+) / Vista / 7 / 8 / 8.1 / 10
Free hard drive space	185 MB
PC Port	1x USB 1.1 or higher port type A
EX data	
0539 II (1)G [Ex ia Ga] IIC	Uo : 9.4 V
KIWA 16ATEX0011X	Io : 96 mA
IECEx KIWA 16.0005X	Po : 0.68 W
FM18US0117X	Associated Intrinsically Safe Apparatus
FM18CA0056X	Associated Intrinsically Safe Apparatus
Um : 250 V AC/DC	

* Cables for IPAQ CT20 and OEM 201/202 are not included in the kit

Connection cables

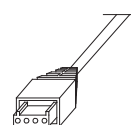


PC to USB Interface
Part No:
70KAB49817



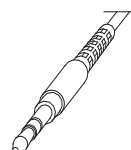
USB Interface to
IPAQ C201
MiniIPAQ-HLP/-L
IPAQ C202/C202X
IPAQ R202
IPAQ C330/C330X
IPAQ R330/R330X
IPAQ C530/C530X
IPAQ R530/R530X
IPAQ C520/C520X
IPAQ R520/R520X

Part No:
70KAB49717



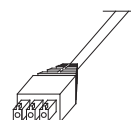
USB Interface to
IPAQ-Hplus/-Lplus
IPAQ-21L/-22LX
ProfIPAQ-H/-HX/-L

Part No:
70KAB49717



USB Interface to
IPAQ-L/LX
IPAQ-4L

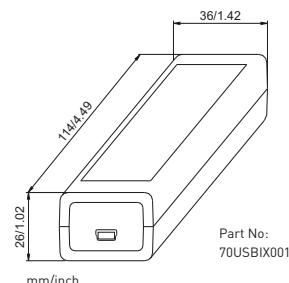
Part No:
70KAB49719



USB Interface to
IPAQ-H/-HX

Part No:
70KAB49726

USB Interface



Part No:
70USBIX001

Ordering information

ICON-X Configuration Kit (Ex)

70CFGUSX01



ICON-BT

Configuration kit for remote configuration and monitoring



ICON-BT is a Bluetooth® modem for wireless communication between smartphones/tablets and INOR temperature transmitters. Together with the app INOR Connect, you can configure and monitor the transmitter while it is still mounted in the process. Simply plug in your ICON-BT to the USB connector on the transmitter and connect with your portable device. Thanks to the extended range that Bluetooth offers you can communicate with the transmitter remotely.

- Communication via Bluetooth®
- Great tool for service and maintenance
- Optimised for work on the field
- Small form factor of ICON-BT modem
- Live monitoring and diagnostics

Specifications:

Ambient temperature operating	-20... +50 °C / - 4...+122 °F.
Bluetooth	BLE 4.2
Size	71 x 28 x 24 mm
Weight	50 gram including batteries
DID	D038134
Included in the kit	ICON-BT USB-Cable Batteries Quick guide

Download Inor Connect

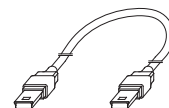
App Store



Google Play Store

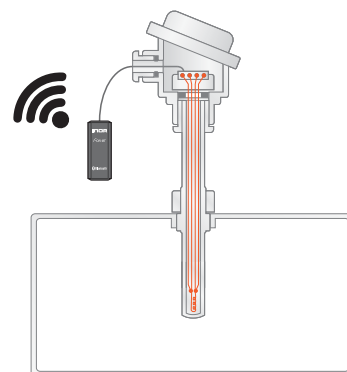


Connection cable

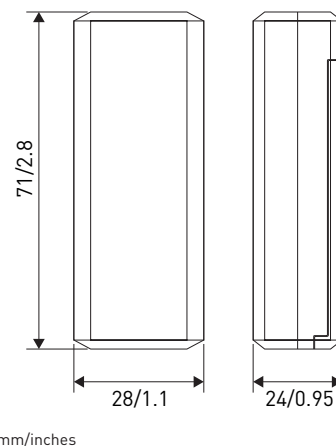


USB Mini-B
From Bluetooth modem
to transmitter

Installation



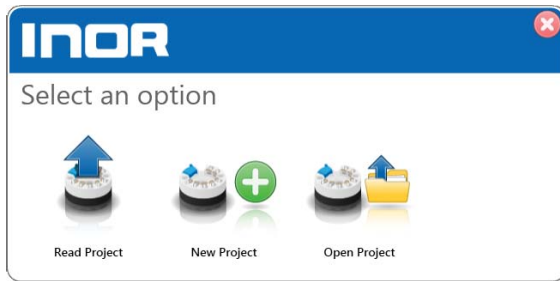
Dimensions



Ordering information

ICON-BT Kit

70CFGBT001



Consoft is an intuitive tool for safe and simple configuration of all PC programmable INOR transmitters. The configuration software offers a wide range of functions such as real-time monitoring with logging. ConSoft is available in 5 languages making it an easy-to-use tool for many markets.

Measurements with RTDs and other resistances

The transmitters can be configured for inputs from standardized Platinum and Nickel RTDs like the ones mentioned in the list below, as well as inputs from plain resistance sensors such as potentiometers.

- Pt10 to Pt1000 acc. to IEC 60751 ($\alpha = 0.00385$)
- Pt100 ($\alpha = 0.003916$ or 0.003902)
- Ni100/Ni1000 acc. to IEC 60751

2-, 3- or 4-wire connection can be chosen and the measuring ranges are freely selectable.

Measurements with thermocouples and voltage

The configuration possibilities also cover 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.

Descriptions of the most common features

Filter function

The filter function provides a stable signal even in noisy environments or when the measurement varies rapidly. By measuring the average value within the set filter time, the fluctuations of the signal are reduced.

Password protection

In ConSoft you have the possibility to set password in the transmitter. The password can be 8 letters or numbers long and prevents non authorized people to do changes in the configuration of the transmitter.

Runtime counter

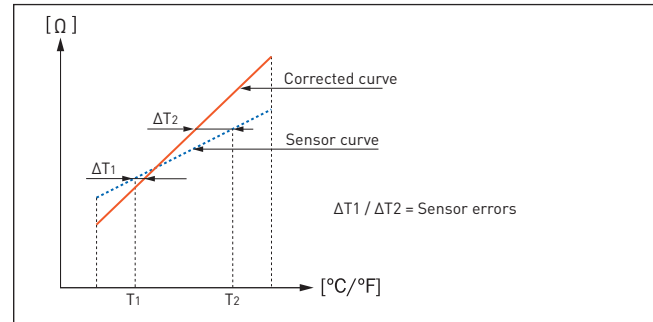
The runtime function counts the number of hours the transmitter has been in operation. This makes it easy to check how long it was since the last calibration.

Simulated output

The simulated output function makes it possible to set fixed current output during maximum time of 15 min regardless of the input signal. In that way you can ensure the function of the output. This is feature facilitates easier commissioning and troubleshooting.

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

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

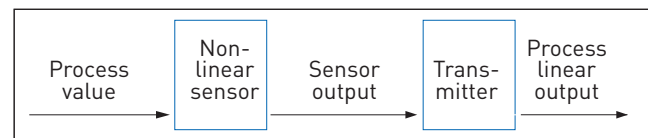
The Sensor failure detection checks the sensor leads and forces the output signal to a user defined level, if any of the sensor leads are broken or short circuited.

Customized linearization

A very accurate and versatile multi-point customized linearization is available for IPAQ-HPLUS/-LPLUS and transmitters within the new IPAQ platform (IPAQ 330, IPAQ 530 and IPAQ 520). It offers up to 50 linearization points. In Consoft it is also possible to use the Callendar-Van Dusen equation that describes the relationship between resistance (R) and temperature (t) of platinum resistance thermometers (RTD).

The multi-point linearization can be used to create almost any type of linearization curve for RTD, T/C, resistance and mV inputs.

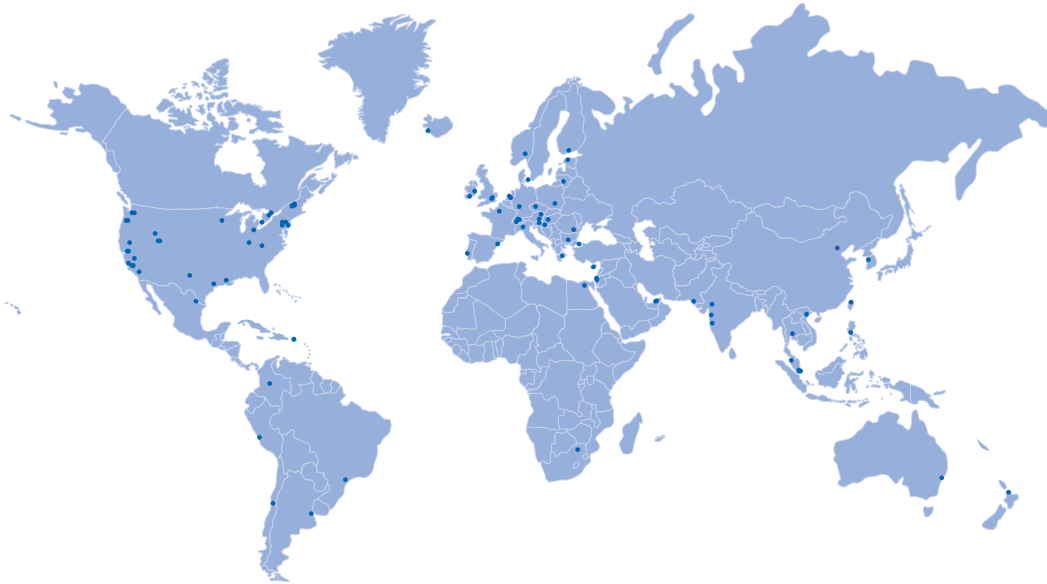
By combining Customized linearization with the use of engineering units, the transmitters can be programmed to give a linear output corresponding to a specific measuring range of the primary process value.



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

Operating system requirements

ConSoft is compatible with Windows XP (SP3), Windows Vista, Windows 7, Windows 8 and Windows 10.



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