



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
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
Galvanic isolation		1500 VAC, 1 min
Ex-classifications	R520X/R520XS	ATEX: II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ¹⁾ IECEx: Ex ia [ia Ga] IIC T6...T4 Gb ¹⁾
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

¹⁾ For Tambient, see the manual

Input connections

See data sheet for more alternatives

RTD 2-wire connection
Low isolation detection lead

RTD 3-wire connection
Low isolation detection lead

RTD 4-wire connection
Low isolation detection lead

Double RTD 3-wire connection
Low isolation detection lead

Double RTD 4-wire connection

Potentiometer 3-wire connection
Low isolation detection lead

Resistance 3-wire connection
Low isolation detection lead

Thermocouple
Low isolation detection lead

Double thermocouple
Low isolation detection lead

Combined RTD & Thermocouple
T/C with external CJC
Low isolation detection lead

Voltage mV
Low isolation detection lead

Output connections

A-B and B-C are possible connections for HART modem or Communicator

$R_i \leq 10 \Omega$

Output load diagram

$R_{LOAD} (\Omega) = (U-10)/0.022$

Supply voltage U (V DC)

Dimensions

mm/inches

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	70CAL0001