CONFIDENTIAL

# RTD/TC – USB Smart Sensor Connectivity Kit



SENSING INCREDIBLE THINGS

### **RTD/TC Sensors**



#### What is a Thermocouple

- Two different metals, connected together, generate an electromagnetic force (voltage) that varies with temperature
- Requires multi-term polynomial linearization and 'cold junction compensation' where 'thermocouple' wires are connected to measuring device
- Probes available with integrated M12 connector or flying leads (will require M12 S-M-FM connector)

### What is an RTD

- Resistance of metal varies depending on temperature
- Requires multi-term polynomial linearization
- Platinum widely used due to consistency
- Typically provided as probe
- Probes available with integrated M12 connector or flying leads (will require M12 S-M-FM connector)



SENSING INCREDIBLE THINGS

#### RTD/TC– Wireless Smart Sensor Connectivity Kit Thermocouple or RTD leads SP-005-1 **IF-001** M12-S-M-FM SmartEdge Gateway (Not required for M12 based probes) External TC or RTD Sensor/Probe RTD/TC - Modbus Smart Sensor Connectivity Kit M12-S-M-FM provides 4 pin Screw Terminal connector (Not required for M12 based probes) > **SP-005-1** converts TC or RTD signals to Smart TC RTD Pin Sensor digital interface 4 wire 3 wire 2 wire IF-001 provides Smart Sensor to USB conversion TC1 -ve Source -1 Src/Sns + 2 TC2 +ve Sense+ Src/Sns + TC2 -ve Sense -3 Sense -

SP-005 supports up to <u>2 Thermocouple</u> Sensors or <u>1 RTD</u> Sensor

Source -

Source -

Src/Sns -

TC1 +ve

4

## RTD/TC–Configuration



Type RTD 🔹	Туре с	of Sensor	→ Туре	SINGLE TC	•		
RTD Input0	Sensor Input0  Sensor		тс	Inpu	t0 🔺	Sensor Input0 Sensor	
	Name	Input0				Name	Input0
	Measurement Type	RTD				Measurement Type	TC
	Advanced Scaling					Advanced Scaling	
	▲ Device Range/Type				Device Range/Type		
Measurement Range	Range	100 / 385		asurement Range	$\longrightarrow$	Range	K ×
(RTD type and resistance)	Sensor Settings		(T	C type)		Sensor Settings	
Hardware configuration	WIRE	4 WIRE	<ul><li>✓ Ha</li></ul>	rdware configurati	on ——	Open Detect	ENABLE ~
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Туре	Range	Accuracy
385, 4 Wire	-200°C to 850°C	0.3⁰C
385, 3 Wire	-200°C to 850°C	0.3⁰C
385, 2 Wire	-200°C to 850°C	0.6ºC
392, 4 Wire	-200°C to 660°C	0.3ºC
392, 3 Wire	-200°C to 660°C	0.3⁰C
392, 2 Wire	-200°C to 660°C	0.6ºC
3916, 4 Wire	-200ºC to 660ºC	0.3⁰C
3916, 3 Wire	-200°C to 660°C	0.3⁰C
3916, 2 Wire	-200°C to 660°C	0.6⁰C

Туре	Range	Accuracy
J	-210°C to 1200°C	0.4ºC
К	160°C to 1372°C	0.4°C
Т	190°C to 400°C	0.4°C
E	-220°C to 1000°C	0.4ºC
Ν	-100°C to 1300°C	0.4°C
R	40°C to 1768°C	0.5℃
S	100ºC to 1768ºC	0.5℃
В	640ºC to 1820ºC	0.5℃
С	0°C to 2320°C	0.4ºC

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