

ZTT-16(SEM210) ZTT-17(SEM210X) TEMPERATURE TRANSMITTERS

- **UNIVERSAL INPUT, DUAL CHANNEL**
- **ATEX & IEC Ex Version**
- **MATHS FUNCTIONS**
- **SENSOR CHARACTERISTICS DOWNLOAD VIA USB PORT ALLOWS FOR CUSTOM TYPES**
- **FLASH TESTED TO 4 KV DC**

➤ **INTRODUCTION**

The ZTT-16-17 is a universal transmitter that accepts RTD, Thermocouple, Potentiometer or millivolt input signals and converts them to the industry standard (4 to 20) mA transmission signal.

The ZTT-16-17 is programmed using a standard USB lead. The ATEX / IECEx version (ZTT-17) is programmed with a ATEX / IECEx approved communication lead (USBX Config).

Both versions use our free configuration software USBSpeedlink

➤ **FEATURE HIGHLIGHTS**

SENSOR REFERENCING

The ZTT-16-17 sensor referencing via the Windows based USBSpeedlink software allows for close matching to a known reference sensor eliminating possible sensor errors.

CUSTOM LINEARISATION

As standard the ZTT-16-17 has all common RTD and thermocouple sensors available from its software library. Additionally, the ZTT-16-17 can be programmed with up to 22-point custom linearization/ correction where required.

For nonstandard sensors or sensors with unusual or unique characteristics, consult the sales office for details.

SENSOR BURN OUT DETECTION

If a sensor wire is broken or becomes disconnected the ZTT-16-17 output will automatically go to its user defined level (upscale or downscale) or a pre-set value.

OUTPUT CURRENT PRESET

For ease of system calibration and commissioning the output can be set to a pre-defined level anywhere within the (4 to 20) mA range.

DIAGNOSTICS

Diagnostic features such as maximum and minimum values stored on the ZTT-16-17 are available to view when using the USB configuration software.

A 150-point rate adjustable log is stored on the ZTT-16-17 for reviewing of process data.



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ELECTRICAL INPUT		SPECIFICATIONS @20 °C
Range + Options	Accuracy	Stability
Resistance		
(10 to 10000) Ω Excitation 200 μ A Lead resistance (0 to 20) Ω (2,3 or 4 Wire connection)	(10 to 500) $\Omega \pm 0.055 \Omega$, (500 to 2500) $\Omega \pm 0.5 \Omega$, (2500 to 10500) $\Omega \pm 0.2 \%$ of reading (+ Lead error on 2 wire)	(0 to 500) Ω 0.013 $\Omega/^{\circ}\text{C}$, (500 to 2500) Ω 0.063 $\Omega/^{\circ}\text{C}$, (2500 to 10500) Ω 0.27 $\Omega/^{\circ}\text{C}$
Slide wire		
(0 to 100) % Travel Wire resistance (1 to 100) K Ω	$\pm 0.1 \%$	$\pm 0.001\%/^{\circ}\text{C}$
mV		
(-205 to 205) mV DC (-1000 to 1000) mV DC	± 0.02 mV ± 10.0 mV	± 0.005 mV/ $^{\circ}\text{C}$ ± 0.02 mV/ $^{\circ}\text{C}$

SENSOR INPUT		SPECIFICATIONS @20 °C
RTD (Single/ 2 wire Dual Channel; isolated tip only for Dual operation)		
Type	Range	Accuracy/ Stability
Pt100 (IEC)	(-200 to 850) °C	0.2 °C ± (°0.05% of reading) (Plus sensor error)
Pt500 (IEC)	(-200 to 850) °C	
Pt1000 (IEC)	(-200 to 600) °C	
Ni100	(-60 to 180) °C	
Ni120	(-70 to 180) °C	
Ni1000	(-40 to 150) °C	
Cu53	(-40 to 180) °C	
Cu100	(-80 to 260) °C	
Cu1000	(-80 to 260) °C	
Library contains more (standards/types) Including silicon sensors		
Temperature stability: - Refer to resistance stability values for thermal effect		

SENSOR INPUT		SPECIFICATIONS @20 °C
Thermocouple (Single/Dual Channel; isolated tip only for Dual operation)		
Type	Range	Accuracy/ Stability
K	(-150 to 1370) °C	±0.1 % of full scale ± 0.5 °C (Plus sensor error)
J	(-200 to 1200) °C	
N	(-270 to 1300) °C	
E	(-260 to 1000) °C	
T	(-270 to 400) °C	±0.2 % of full scale ± 0.5 °C (Plus sensor error)
R	(0 to 1760) °C	±0.1 % of full scale ± 0.5 °C over range (800 to 1760) °C (Plus sensor error)
S	(0 to 1760) °C	
L	(-200 to 900) °C	±0.1 % of full scale ± 0.5 °C (Plus sensor error)
U	(-200 to 600) °C	
B	(0 to 1820) °C	
C	(0 to 2300) °C	
D	(0 to 2300) °C	
G	0 to 2300) °C	
Library contains more (standards/types)		
Temperature stability: - Refer to mV stability values for thermal effect		

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COLD JUNCTION (Ambient sensor)		SPECIFICATIONS @20 °C
Type	Range	Accuracy/ Stability
Thermistor 10K Beta 3380	(-40 to 85) °C	±0.2 °C
Thermal drift	Zero at 20 °C	±0.05 °C/°C

DUAL CHANNEL OPERATION	
Thermocouples A & B	Functions; Average, Redundancy, A + B, A - B, Highest, Lowest
mV A & B	Functions; Average, A + B, A - B, Highest, Lowest
RTD A & B	Two wire connection. Functions; Average, A + B, A - B, Highest, Lowest

OUTPUT		SPECIFICATIONS @20 °C
Type/ Options	Range	Accuracy/ Stability/ Notes
Two wire current	(4 to 20) mA	(mA Out/ 2000) or 5 uA whichever is the greater
Thermal drift	Zero at 20 °C	1 uA/°C
User set minimum current	(3.5 to 4.0) mA 3.8 mA default	
User set maximum current	(20 to 23.0) mA 20.5 mA default	
User set error current	(3.5 to 23.0) mA	
User pre-set current	(20 to 23.0) mA	For diagnostics
Current loop off	3.5 mA	
Loop effect	± 0.2 uA/V	
Loop supply	(10 to 30) V DC, > 35 mA	SELV
Max load	[(V supply - 10)/20] KΩ	700 Ω @ 24 V DC
Protection	Reverse and over voltage	

USER INTERFACE		
Approved USB configuration lead required for ZTT-17		
Type/ Options/ Function	Description	Notes
USB 2.0	Mini B USB Approved configuration lead ZTT-17	USB powers device for config Only. Power loop for live data.
Baud Rate	38,400	
Sensor Configuration	Sensor type Sensor offset Sensor fail high or low Pre-set sensor value Set damping Set No. wires, resistance Input Set fixed or auto cold junction	TC/mV/RTD/Ohms/Slide wire Dual TC/mV/RTD Dual sensors use separate offsets Dual sensors share sensor fail For diagnostics 2, 3 or 4 wire
Profiler configuration	Set profiler input range Set profiler segments Enter profile X-Y values Set profiler output units Set the output process range TC & RTD input only set units	In sensor units (4 to 22) segments Profiler set up

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Output signal	Select the process range for re-transmission Set minimum current Set maximum current Set the error current Pre-set Loop current	Set in profiler out units (3.5 to 4.0) mA (20 to 23.0) mA (3.5 to 23.0) mA (3.5 to 23.0) mA
Damping	User set process variable (PV) damping	(1 to 32) seconds to reach 70% final value
Diagnostics	Read (PV, mA, Ambient °C, Error & Power off) logs points back from device Set the log period Clear log and start new log Export log data Detect open circuit sensor wire Calibration date, certificate number, calibrated by	Up to 150 points Log Rate (1 to 60) readings per hour
Live Data	Read process variable (PV) Read profiler input signal Read profiler output signal Read Ambient temperature Read % output Read mA output	

GENERAL	
Function	Description
Isolation	Flash tested 5 Seconds 4 KV DC, working voltage 50 V AC
Reading update	200 ms
Response time	500 ms to reach 70% final value
Warm up	2 minutes
Start-up time	5 seconds

AMBIENT	
Function	Description
Temperature	Operating/Storage (-40 to 85) °C
Humidity	Operating/Storage (10 to 90) %RH non-condensing
Protection	>= IP65
USB configuration ambient	(10 to 30) °C

MECHANICAL	
Enclosure	DIN standard size terminal block
Material	ABS flammability UL94-VO
Dimensions	44 mm diameter 24 mm height
Weight	Approximately 43 g
Fixing centres	33 mm
Centre hole	6.35 mm
Colour	Black ZTT-16, Blue ZTT-17

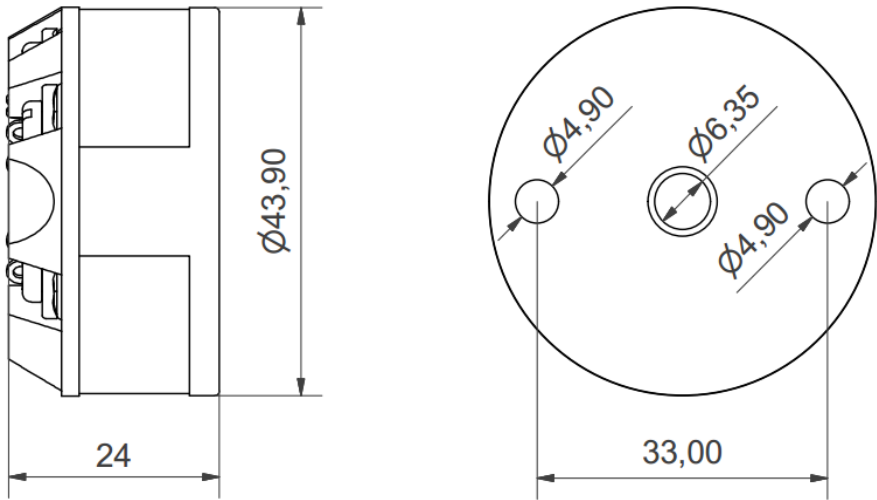
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CONNECTIONS	
Function	Description
Output	Screw terminals (1 to 2)
Input	Screw terminals (3 to 6)
USB	Mini USB for ZTT-16, approved configuration lead for ZTT-17

APPROVALS	
EMC	BS EN 61326 Industrial
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU
ATEX ZTT-17	Ex ia IIC T4 Ga
	Ex ia IIIC T135 Da
IECEX ZTT-17	Ex ia T4 Ga
	Ex ia IIIC T135 Da

ORDER CODE	
STANDARD	ZTT-16
ATEX	ZTT-17

MECHANICAL: dimensions in mm



The data in this document is subject to change. No responsibility for errors is assumed