

# Temperature Transmitters

## ZTT series

The ZTT Series transmitters accept the most commonly used temperature sensors (TC and RTD), as well as mV and slidewire feedback signals. All ZTT transmitters provide an adjustable 2 wire current output signal. Available models can be supplied for head mountable or DIN rail mounted. The SMART range (ZTT-33) provides for quick configuration via DIP switches or through simple PC configuration. For use in hazardous locations, several ZTT models can be equipped with galvanic isolation and ATEX safety compliant. The compact size of the ZTT transmitters makes them ideal for tight spaces and small cabinets where space limitations and accuracy are the main goals.

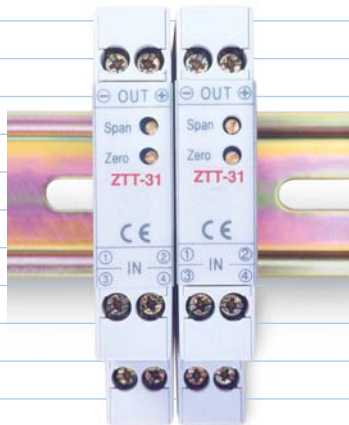


## Temperature Transmitters ZTT series



### ZTT-11

- 2 or 3 wire PT100 input
- Input type: TC
- Scalable current output included
- Compact size and cost effective
- Head mountable
- Programmable with push-button
- LED indicator



### ZTT-31

- 2 or 3 wire PT100 input
- Type J/K/T TC input
- User configurable
- Scalable current output included
- Compact size and cost effective
- DIN rail mountable



### ZTT-12

- SMART Transmitter Family
- 2 or 3 wire PT100 input
- High accuracy and Thermal Stability
- Scalable Current output included
- Compact size and cost effective
- Head mountable



### ZTT-32

- Type TC (J/K/N/R/S/T) selectable input
- Scalable current output
- Compact size and cost effective
- DIN rail mountable

### ZTT-14 e ZTT-15

- SMART Transmitter Family
- Galvanic Isolation
- Universal input (PT100, TC, mV)
- High Accuracy and Thermal Stability
- Scalable current output
- PC configurable
- Custom input linearizations
- ATEX safety compliant (ZTT-15)
- Head mountable



### ZTT-33

- SMART Transmitter Family
- Galvanic Isolation
- Universal input (PT100, TC, mV)
- Scalable current output
- DIP switch or PC configurable
- Custom input linearizations
- Compact size
- DIN rail mountable



# Characteristics

		ZTT-11 Series	ZTT-31 Series	ZTT-32 Series	
		Temperature Transmitter	Temperature Transmitter	Temperature Transmitter	
Characteristics	Description	Spec.s @ 20°C	Spec.s @ 20°C	Spec.s @ 20°C	
<b>Standard ranges</b>		SeeTable1	SeeTable1	SeeTable1	
	RTD	Linearisation	BT EN 60751, BS 1904, JISC1604	EN60751, DIN43760 Custom [X]	—
		Accuracy	±0.1°C ±0.1% of reading value range -100...100	±0.15°C ±% of reading value see table 2	—
		Burn-out	—	Standard high range	—
		Excitation current	—	2 mA max.	—
		Offset adjustment	Set-up through a push button	—	—
		Gain adjustment	Set-up through a push button	—	—
	Input		ZTT 11 K, T, J	—	ZTT 32 J, K, N, R, S, T
		MilliVolt	—	—	-50...50 mV
Isolation		Up to 50mVdc for TC models	—	Input/Output	
Linearisation		Yes	—	Linear with signal (mV)	
Accuracy		±0.1% FS plus cold junction error non-linearised	—	—	
Offset adjustment		Set-up through push button	—	—	
Span adjustment		Set-up through push button	—	—	
Impedance		> 1 MΩ	—	> 1 MΩ	
Burn-out		High range standard (Low range on request)	High range standard (Low range on request)	—	
Cold junction		Automatic -20...70°C	—	Automatic for T/C and fixed zero compensation for mV or differential T/C measurement	
Accuracy		0.2°C @20°C	—	±0.2°C@ 20°C ±0.05°C/°C typical	
Total Accuracy		—	—	0.1% of output span	
Output		4...20mA passive 2 wire	max. 30 mA	max. 30 mA	max. 30 mA
	Reverse polarity protection	Yes	Yes	Yes	
Approvals	EMC	EN61326 Emissions and Immunity	BS EN 50081 Emissions BS EN 50082 Immunity	BS EN 50081 Emissions BS EN 50082 Immunity	
General Characteristics	Power Supply	8...30Vdc	10...30Vdc	10...30Vdc	
	Loop resistance	800Ω @ 24Vdc	700Ω @ 24Vdc	700Ω @ 24Vdc	
	Stability	—	100 ppm/°C	2μVcc/°C	
	Loop volts sensivity	0.4 μA/V	(ripple) <40μA/V (1V ripple 50 Hz)	(ripple) <40μA/V (1V ripple 50 Hz)	
	Temperature stability	ZERO drift typ. 0.01°C/°C SPAN drift typ. 50PP max.	—	—	
	Response time	500 ms at 70% of final value	100 ms at 70% of final value	200 ms at 70% of final value	
	Env. temperature	20...70 °C	0...50 °C	0...50 °C range	
	Env. humidity	0...95% UR non condensing	10...95% UR non condensing	10...95% UR non condensing	
	Mounting	Head connection	Rail DIN EN 50022-35	Rail DIN EN 50022-35	
	Protection	—	IP20	IP20	
	Dimensions	ø 43 mm x 21 mm	12.5 x 75 x 67.5 mm	12.5 x 60 x 67.5 mm	

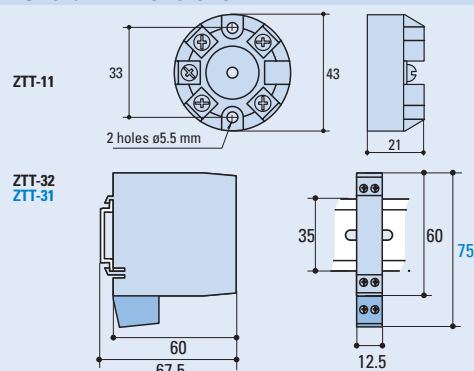
**Table 1 Standard ranges**

Range °C	Used sensor		
	ZTT 11	ZTT 31	ZTT 32
-30... +35	RTD	RTD	
-25... +75	RTD	RTD	
0... +50	RTD	RTD	
0... +100	RTD - TC K, T, J	RTD	TC N, K, T, J
0... +200	RTD - TC K, T, J	RTD	TC N, K, T, J
0... +400	RTD-TC K, T, J	RTD	TC N, K, T, J
0... +600	TC K		TC N, K, J
0... +800	TC K		TC N, K, J
0... +1000	TC K		TC N, K, R, S
0... +1200			TC N, K, R, S
0... +1600			TC R, S
0... 50mV			•

**Table 2 ZTT-31**

% Reading	0.4	0.2	0.1	0.2	0.4	
Temp. °C	-180	-100	0	200	500	600

## Overall Dimensions



## Order Code

ZTT-11	/	RD	/	Sensor	/	Lo Range	-	Hi Range
						@ 4mA		@ 20mA
<b>RD</b>		<b>P</b>		<b>RTD (Pt100)</b>				
<b>CD</b>		<b>K</b>		<b>Cromel/Alumel T/C</b>				
<b>CD</b>		<b>T</b>		<b>Copper/Constantan T/C</b>				
<b>CD</b>		<b>J</b>		<b>Iron/Constantan T/C IEC</b>				
<b>CD</b>		<b>L</b>		<b>Iron/Constantan T/C DIN</b>				

Example:  
ZTT-11 / RD / P / 0...100

ZTT-31	/	GD	/	P	/	Lo Range	-	Hi Range
						@ 4mA		@ 20mA

Example:  
ZTT-31 / GD / P / 0...200

ZTT-32	/	GD	/	Sensor	/	Lo Range	-	Hi Range
						@ 4mA		@ 20mA
				<b>K</b>				<b>Cromel/Alumel T/C</b>
				<b>T</b>				<b>Copper/Constantan T/C</b>
				<b>J</b>				<b>Iron/Constantan T/C IEC</b>
				<b>L</b>				<b>Iron/Constantan T/C DIN</b>
				<b>N</b>				<b>Nichrosil/Nisil T/C</b>
				<b>R</b>				<b>Pt 13% Rh-Pt</b>
				<b>S</b>				<b>Pt 10% Rh-Pt</b>

Example:  
ZTT-32 / GD / K / 0...1200

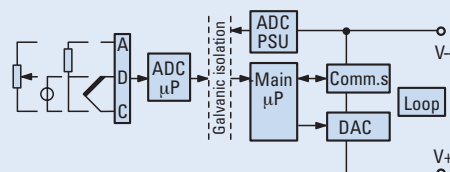
# Characteristics

			Serie ZTT-12 SMART Transmitter for RTD	Serie ZTT-14 & ZTT-15 SMART Transmitter with galvanic isolation
Characteristics	Description		Spec.s @ 20°C @ 24Vdc	Spec.s @ 20°C
Input and ranges	RTD (Pt-100)	Pt100 Ω at 0 °C	EN60751 2 or 3 wire	EN60751 2 or wire
		Range	-200...850°C (18...390Ω), minimum span 25°C	-200...850°C (18...390Ω), minimum span 25°C
		Linearisation	EN60751, DIN43760 Custom [X]	EN60751, DIN43760 Custom [X]
		Accuracy	±0.01% span ±0.05% of reading value	±0.01% span ±0.05% of reading value
		Thermal Drift	zero 0.08°C/10°C, span 100 ppm/°C	zero 0.08°C/10°C, span 100 ppm/°C
		Excitation current	1 mA max.	300µA...550µA
		Max lead resistance	50 Ω per leg drift 0.02°C/10ΩR	50 Ω per leg drift 0.02°C/10ΩR
	TC	type K, J, T, R, S, E, F, N, [X]	—	IEC 584-3
		Range	—	see table
		Linearisation	—	IEC 584-3
Accuracy		—	±0.04% full range input ±0.05% of reading value or 0.5°C (max.) (including effects of calibration, linearisation and repeatability)	
mV	Cold junction compensation	—	internal, error ±0.5°C, drift 0.5°C/10°C -40...+85°C	
	Thermal Drift	—	zero 0.1µV/°C span 100ppm/°C	
	Range	—	-10...75 mV, min. 5 mV	
	Characterisation	—	Linear or custom	
	Accuracy	—	±10µV±0.07% of reading value	
	Input Impedance	—	10 MΩ	
Potentiometer	Thermal Drift	—	zero 1µV/10°C span 100ppm/°C	
	Range	—	10...390Ω, minimum span 5%	
	Characterisation	—	Linear or custom	
	Accuracy	—	0.1% of full range input	
Output	Thermal Drift	—	100ppm/°C	
	Accuracy	±5µA	±5µA	
	Power supply influence	2 µA/10V	2 µA/10V	
	Thermal Drift	10µA/10°C	10µA/10°C	
	Power supply	10...35 Vdc	10...35 Vdc	
Approvals	Maximum load	700Ω at 24Vdc	700Ω at 24Vdc	
	Intrinsic safety Non Incendiary	ZTT-15	— —	EEx ia IIC T5 ExNII
General characteristics	Input/Output isolation	—	—	500 Vac 1 min
	Update time	1 s at final value	—	250ms max.
	Sampling time	—	—	<1s
	Warm-up time	—	—	2 min at the spec.s values
	Stability	—	—	0.1% full range input or 0.1°C/year
	Filter factor	—	—	Off, 2s, 10s, Adaptive
	Operating range	-40...85°C	—	-40...85°C
	Storage temperature	-50...100°C	—	-50...100°C
	EMC	EN 50081 Emissions	EN 50081 Emissions	EN 50081 Emissions
		EN 50082 Immunity	EN 50082 Immunity	EN 50082 Immunity
Humidity range	10...90% UR non condensing	—	10...90% UR non condensing	
Dimensions	ø43 mm x 21 mm	—	ø43 mm x 21 mm	
Comm.s	PC interface	—	—	RS 232 by means adaptor
	Serial comm.s protocol	—	—	ANSI X3.28 1976
	Baud rate	—	—	1200 baud
	Max. cable length	—	—	1000 m
	Minimum line load	—	—	100 Ω

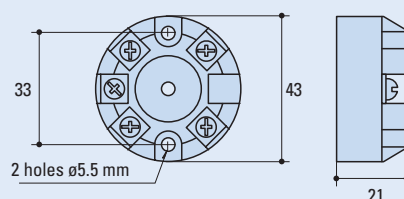
## ZTT-14 & ZTT-15 - Standard ranges

Sensor	Range °C	Minimum span °C
RTD (Pt100)	-200...850	25
K	-200...1370	50
J	-200...1200	50
T	-210...400	25
R	-10...1760	100
S	-10...1760	100
E	-200...1000	50
L	-100...600	25
N	-180...1300	50
[X]	±9999	Custom

## ZTT-14 & ZTT-15 - Block diagram



## Dimensions



## Order code

ZTT-12 / RD / P / Lo Range - Hi Range

standard model @ 4mA @ 20mA

ZTT-14 - RD / P / Lo Range - Hi Range

Programming Kit for ZTT12  
including software interface,  
power supply unit and case @ 4mA @ 20mA

ZTT-14 - CD / K / Lo Range - Hi Range

RTD standard model @ 4mA @ 20mA

## ZTT-15

EEx ia IIC T5 version

## AZTT-RCPW -KIT-EUR

Programming Kit for ZTT14 and ZTT15 including  
software interface, power supply unit and case

# Characteristics

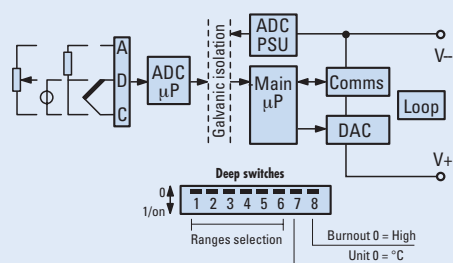
## ZTT-33 Series SMART Transmitter with galvanic isolation

Characteristics	Description	Spec.s @ 20°C @ 24Vdc	
Input & ranges	RTD (Pt-100)	Pt100 Ω at 0°C EN60751 2 or 3 wire	
		Range	-200...850°C (18...390Ω), minimum span 25°C
		Linearisation	EN60751, DIN43760, CUSTOM [X]
		Accuracy	±0.01% span ±0.05% of reading value
		Thermal drift	zero 0.08°C/10°C, span 100 ppm/°C
		Excitation current	300µA...550µA
		Maximum lead resistance	50Ω per leg, draft 0.02°C/10Ω R line
	TC	K,J,T,R,S,E,F,N,[X] types	IEC 584-3
		Range	see table
		Linearisation	IEC 584-3
		Accuracy	±0.04% full range input, ±0.05% of reading value or 0.5°C (max.) (including the effects of calibration, linearisation and repeatability)
		Cold junction compensation	internal, error±0.5°C, drift 0.5°C/10°C -40...+70°C
		Thermal drift	zero 1µV/10°C span 100ppm/°C
	mV	Range	-10...75 mV, min. 5 mV
		Characterisation	Linear or custom (5th order polynomial)
		Accuracy	±10µV±0.07% of reading value
		Input impedance	10 MΩ
		Thermal drift	zero 1µV/10°C span 100ppm/°C
Potentiometer	Range	10...390Ω, min. span 5%	
	Characterisation	Linear or custom (5th order polynomial)	
	Accuracy	0.1% of span	
Output	4...20 mA (>3.8...<20.2mA) 23 mA max.	Protection	Reverse connection and over voltage protected
		Accuracy	±5µA
		Power supply effect	2 µA/10V
		Thermal drift	10µA/10°C
		Power supply	10...35 Vdc
		Maximum load	700Ω at 24Vdc
General characteristics	Input/Output isolation	500 Vac 1 min	
	Update time	250ms max.	
	Sampling time	<1s (63% of final value)	
	Warm-up time	2 min at the spec.s values	
	Stability	0.1% input range or 0.1°C/year	
	Filter time	Off, 2s, 10s, Adaptive	
	Operating range	-10...70°C	
	Storage temperature	-40...70°C	
	EMC	EN 50081-1 Emissions EN 50082-2 Immunity	
Comm.s	Humidity range	10...90% UR non condensing	
	PC interface	RS 232 via interface adapter	
	Serial comm.s protocol	ANSI X3.28 1976	
	Baud rate	1200 baud	
	Max. cable length	1000 m	
	Minimum cable load	100...300Ω	
Configuration parameters	Sensor, Burn-out, °C/°F, Output, Filter, Tag, Offset		

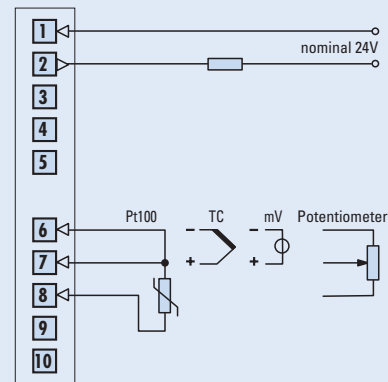
Sensor	Range °C	Minimum span °C
RTD (Pt100)	-200...850	25
K	-200...1370	50
J	-200...1200	50
T	-210...400	25
R	-10...1760	100
S	-10...1760	100
E	-200...1000	50
L	-100...600	25
N	-180...1300	50
[X]	±9999	Custom

Note: Quick standard ranges (57) selection by means of 6 deep switches

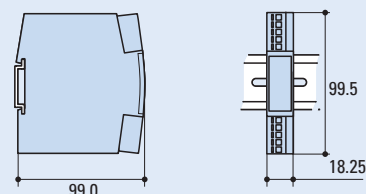
### ZTT-33 - Block diagram



### ZTT-33 - Wiring



### ZTT-33 - Dimensions



### Order Code

#### ZTT-33 /GD

standard model

#### AZTT-RCPW -KIT-EUR

Programming Kit for ZTT33 including software interface, power supply unit and case



S E R I E S

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