General Specifications

Model YTA80
Temperature Transmitter

YTA SERIES

The YTA80 is a head mount type of temperature transmitter that accepts thermocouple, RTD, ohms or DC milivolts input and converts it to digital communication signal based on FOUNDATION™ Fieldbus protocol. The YTA80 conforms to the standard DIN formB head mounting.

Common specifications:

Supply voltage, DC: Standard, YTA80/KN2 .....9 – 32V
ATEX, YTA80/KS2 .....9 – 30V
In FISCO installations .....9 – 17.5V
Consumption .....< 11mA
Max.current increase in the event of an error .....< 7mA
Isolation voltage, test .....1.5kVAC for 60sec
Isolation voltage, operation 50VRMS/75VDC
Warm-up time 30sec
Signal/noise ratio min.60dB
Response time (programable) .....1 – 60 sec
Updating time .....< 400ms
Execution time, PID controller .....< 200msec
Execution time, analogue input .....< 50msec
Signal dynamics, input .....24 bit
Calibration temperature .....20 – 28ºC
Ambient temperature limits
(Option code may affects limit) .....-40ºC to +85ºC
Vibration .....IEC 60068-2-6 and IEC60068-2-64
Lloyd's specification no.1 .....4g/2 – 100Hz
Humidity .....< 95%RH (non-cond.)
Dimensions .....ø44 x 20.2mm
Tightness (enclosure / terminal) IP68/IP00
Weight 55g

Electrical specs, RTD and linear resistance input:

RTD type	Min. Value	Max. Value	Norm
Pt25 - Pt1000	-200ºC	+850ºC	IEC60751/JIS C1604
Ni25 - Ni1000	-60ºC	+250ºC	DIN43760
Cu10 - Cu1000	-50ºC	+200ºC	α = 0.00427
Lin.resistance	0 Ω	10kΩ	-
Potentiometer	0 Ω	100kΩ	-

Cable resistance per wire 50Ω
Sensor current .....Nom. 0.2mA
Effect of sensor cable resistance
(3-/4-wire) .....< 0.002Ω/Ω
Sensor error detection .....Yes
Short circuit detection .....< 15Ω

TC input:

Type	Min. value	Max. value	Norm
B	+400ºC	+1820ºC	IEC60584-1
E	-100ºC	+1000ºC	IEC60584-1
J	-100ºC	+1200ºC	IEC60584-1
K	-180ºC	+1372ºC	IEC60584-1
L	-200ºC	+900ºC	DIN 43710
N	-180ºC	+1300ºC	IEC60584-1
R	-50ºC	+1760ºC	IEC60584-1
S	-50ºC	+1760ºC	IEC60584-1
T	-200ºC	+400ºC	IEC60584-1
U	-200ºC	+600ºC	DIN 43710
W3	0ºC	+2300ºC	ASTM E988-90
W5	0ºC	+2300ºC	ASTM E988-90
Ext. CJC	-40ºC	+135ºC	IEC60751

Cold junction compensation (CJC) .....< ±0.5ºC
Sensor error detection .....Yes
Sensor error current
When detecting .....Nom. 4µA
Else 0µA
Short circuit detection .....< 3mV

Voltage input:

Measurement range .....-800 - +800mV
Min. measurement range (span) 2.5mV
Input resistance 10MΩ

Output:

FOUNDATION™ Fieldbus protocol .....FF protocol
Protocol standard .....FF design specifications
Version .....ITK 4.6
Function blocks .....2 analogue and 1 PID
Capability .....Basic or Master

Observed authority requirements:

EMC 2004/108/EC, Emission and Immunity .....EN 61326
ATEX 94/9/EC EN50014, EN50020, EN50021
.....EN50281-1-1, EN50284, IEC60079-27 (FISCO)

CE

Accuracy: (The greater of general and basic values)

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤±0.05% of reading	≤±0.002% of reading / ºC

Basic values		
Input type	Basic accuracy	Temperature coefficient
Pt100 and Pt1000	≤ ±0.1ºC	≤ ±0.002ºC/ºC
Ni100	≤ ±0.15ºC	≤ ±0.002ºC/ºC
Cu10	≤ ±1.3ºC	≤ ±0.02ºC/ºC
Lin. R	≤ ±0.05Ω	≤ ±0.002Ω/ºC
Volt	≤ ±10µV	≤ ±0.2µV/ºC
TC type: E, J, K, L, N, T, U	≤ ±0.5ºC	≤ ±0.01ºC/ºC
TC type: B, R, S, W3, W5	≤ ±1ºC	≤ ±0.025ºC/ºC

EMC immunity influence .....<±0.1% of reading
Extended EMC immunity:
NAMUR NE21, A criterion, burst .....<±1% of reading

MODEL AND SUFFIX CODES

Model	Suffix code	Descriptions
YTA80		Temperature Transmitter (Head Mount Type) FOUNDATION™ Fieldbus protocol
	/KN2	KEMA 05 ATEX 1026X Type n approval ⟨Ex⟩ II 3 G EEx nA[L] IIC T4…T6
	/KS2	KEMA 05 ATEX 1025 intrinsically safe approval ⟨Ex⟩ II 1GD EEx ia IIC T4…T6 T65ºC…T105ºC or ⟨Ex⟩ II 2(1) GD EEx ib[ia]IIC T4…T6 T65egC…T105ºC

Ex data:
Signal output/supply, terminal 1 to 2: Max. ambient temperature depends on the Po of the connected barrier.

	YTA80/KS2			
	Class I, Zone 0, EEx ia IIC, Entity/FISCO			
Unit	Barrier where Po < 0.84W	Barrier where Po < 1.3W	Suitable for FISCO systems	Suitable for FISCO systems
Ui	30VDC	30VDC	17.5VDC	15VDC
Ii	120mADC	300mADC	250mADC	900mADC
Pi	0.84W	1.3W	2.0W	5.32W
Li	1µH	1µH	1µH	1µH
Ci	2.0nF	2.0nF	2.0nF	2.0nF
T1…T4	Tamb.< 85ºC	Tamb.< 75ºC	Tamb.< 85ºC	Tamb.< 85ºC
T5	Tamb.< 70ºC	Tamb.< 65ºC	Tamb.< 60ºC	Tamb.< 60ºC
T6	Tamb.< 60ºC	Tamb.< 45ºC	Tamb.< 45ºC	Tamb.< 45ºC

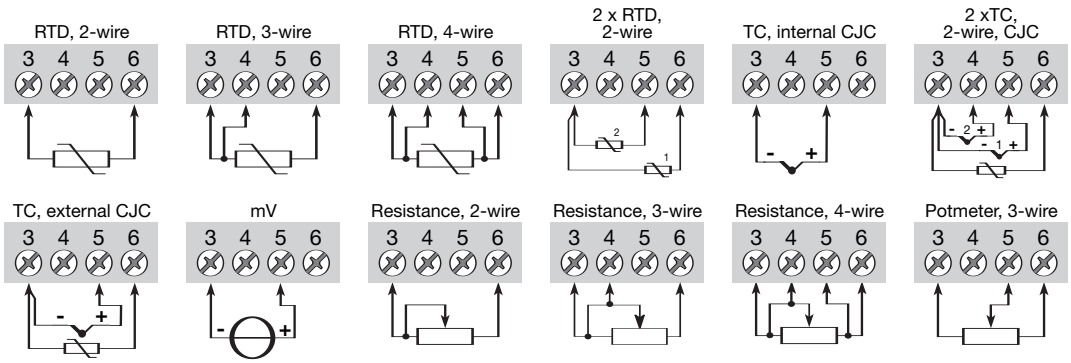
	YTA80/KS2		**YTA80/KN2**
	Class I, Zone 1, EEx ib IIC, Entity/FISCO		**Zone 2, EEx nA[L] IIC**
Unit	Barrier where Po < 5.32W	FISCO segment coupler	No barrier
Ui	30VDC	17.5VDC	32VDC
Ii	250mADC	All	
Pi	5.32W	All	
Li	1µH	1µH	
Ci	2.0nF	2.0nF	
T1…T4	Tamb.< 85ºC	Tamb.< 85ºC	Tamb.< 85ºC
T5	Tamb.< 75ºC	Tamb.< 75ºC	Tamb.< 75ºC
T6	Tamb.< 60ºC	Tamb.< 60ºC	Tamb.< 60ºC

Connections:

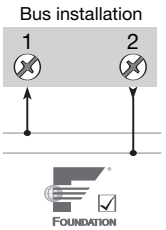
All connection options are shown in the user manual.

Connections with two sensors can be configured for 2 measurements, difference, average or redundancy.

Input:



Output:



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