

General Specifications

YTA70P Temperature Transmitter



GS 01C50C05-01EN

The YTA70P is a Panel mount type of temperature transmitter that accepts thermocouples, RTDs, ohms or DC millivolts input and converts it to a 4 to 20 mA DC signal for transmission. The YTA70P conforms to the standard DIN rail mounting. The YTA70P supports HART® communication protocol.

HART protocol revision is HART 7, and it features long tag number up to 32 characters, enhanced burst mode and event notification, and command aggregation function.



■ STANDARD SPECIFICATIONS

Accuracy

See Table 1.

Cold Junction Compensation Accuracy (For T/Cs only)

±1°C (±1.8°F)

Ambient Temperature Effects

See Table 1.

Power Supply Effects

±0.005% of FS per Volt

EMC Conformity

CE: EN61326-1, EN61326-2-3, EN 55011

KC: Korea Electromagnetic Conformity standard. Class A

RCM: EN61326-1, EN 55011

EU RoHS Directive

Applicable standard: EN 50581

Input Type, Span and Range

Selection from thermocouples (T/Cs), 2-, 3-, and 4-wire RTDs, ohms and DC millivolts. See Table 1.

Maximum Zero offset

±50% of selected maximum value

Input Resistance (for thermocouples, mV)

10 MΩ, or 3 kΩ at power-off

Input Lead Wire Resistance (for RTDs, ohms)

5 Ω per wire or lower (up to 50 Ω per wire is configurable with reduced measurement accuracy)

Sensor Burnout

High (NAMUR NE43 upscale), Low (NAMUR NE43 downscale) or value within 3.5 to 23 mA

Output

Two wire 4 to 20 mA DC

Response Time

1 to 60 seconds programmable

Ambient Temperature Limits

(Option code may affects limit)

-40 to 60°C (-40 to 140°F)

Ambient humidity limits

0% to 95% RH (non-condensation)

Isolation

Input/output isolated to 1500 V AC.

Supply & Load Requirements:

Voltage

8 to 35 V DC for operation
(8 to 30 V DC for Intrinsically safe type)
13.8 to 35 V DC for digital communication

Load Resistance

0 to (E-8)/0.0236 [Ω]
where E is power supply voltage.
250 to 600 Ω for digital communication

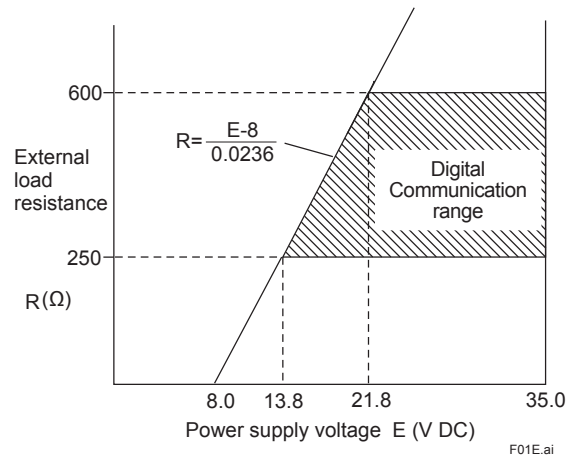


Figure 1. Relationship Between Power Supply Voltage and External Load Resistance

Enclosure Material

Polycarbonate

Mounting

DIN rail: DIN EN 60715 - 35 mm

Wire size

0.13...2.08 mm² / AWG26...14 stranded wire

Weight

150 g (0.33 lb)

MODEL AND SUFFIX CODES

Model	Suffix Codes	Descriptions
YTA70P	Temperature Transmitter (Panel Mount Type)
Output Signal	-J	4 to 20 mA DC with digital communication (HART 7 protocol)
-	A	Always A
Optional Specifications	/V2S	<p>ATEX, FM, IECEx, and CSA Intrinsically safe Approval</p> <p>ATEX Intrinsically safe Approval Applicable Standards: EN 60079-0:2012+A11:2013, EN 60079-11:2012 Certificate: DEKRA 14ATEX0106 X II 1 G Ex ia IIC T5 Ga Degree of protection: IP20 Amb. Temp.: -40 to 60°C II 1 D Ex ia IIIC Da Degree of protection: IP6X Amb. Temp.: -40 to 85°C Supply and output circuit: Ui=30V, Ii=120mA, Pi=0.84W, Ci=1nF, Li=10µH Sensor circuit: Uo=9.6V, Io=28mA, Po=67.2mW, Co=3.5µF, Lo=35mH</p> <p>FM Intrinsically safe Approval Applicable Standards: Class 3600, Class 3610, Class 3611, Class 3810, ANSI/ISA-60079-0, ANSI/ISA-60079-11 Intrinsically Safe for Class I, Division 1, Groups A, B, C & D Class I, Zone 0, AEx ia, Group IIC, T6 Amb. Temp.: -40 to 60°C Entity Parameters: V Max=30V, I Max=120mA, Pi=0.84W, Ci=1nF, Li=10µH Vt=9.6V, It=28mA, Po=67.2mW, Ca=3.5µF, La=35mH</p> <p>IECEx Intrinsically safe Approval Applicable Standards: IEC 60079-0: 2011, IEC 60079-11:2011, IEC 60079-26:2006 Certificate: IECEx DEK 14.0058X Ex ia IIC T5 Ga Enclosure: IP20 Amb. Temp.: -40 to 60°C Ex ia IIIC Da Enclosure: IP6X Amb. Temp.: -40 to 85°C Supply and output circuit: Ui=30V, Ii=120mA, Pi=0.84W, Ci=1nF, Li=10µH Sensor circuit: Uo=9.6V, Io=28mA, Po=67.2mW, Co=3.5µF, Lo=35mH</p> <p>CSA Intrinsically safe Approval Certificate: 70009864</p> <p>Applicable Standards: CAN/CSA-C22.2 No.0-10, CSA Std C22.2 No.142-M1987 (R2009), CSA Std C22.2 No.157-92 (R2012) CAN/CSA-C22.2 No.60079-0:11, CAN/CSA- C22.2 E60079-11:11, Class I, Division 1, Groups A, B, C & D, Ex ia IIC, Ga</p> <p>UL Std No. 913 Ed. 8 , UL Std No. 916 Ed. 4, UL 60079-0 Ed 5, UL Std No. 60079-11 Ed. 6 Class I, Division 1, Groups A, B, C & D Class I, Zone 0, AEx ia IIC, Ga</p> <p>Temperature Class: T6 Amb. Temp.: -40 to 60°C</p> <p>Input entity parameters: Ui (Vmax)=30V, Ii (I max)=120mA, Pi=0.84W, Ci=1nF, Li=10µH Output entity parameters: Uo (Uoc)=9.6V, Io (Isc)=28mA, Po (Pmax)=67.2mW, Co (Ca)=3.5µF, Lo (La)=35mH</p>

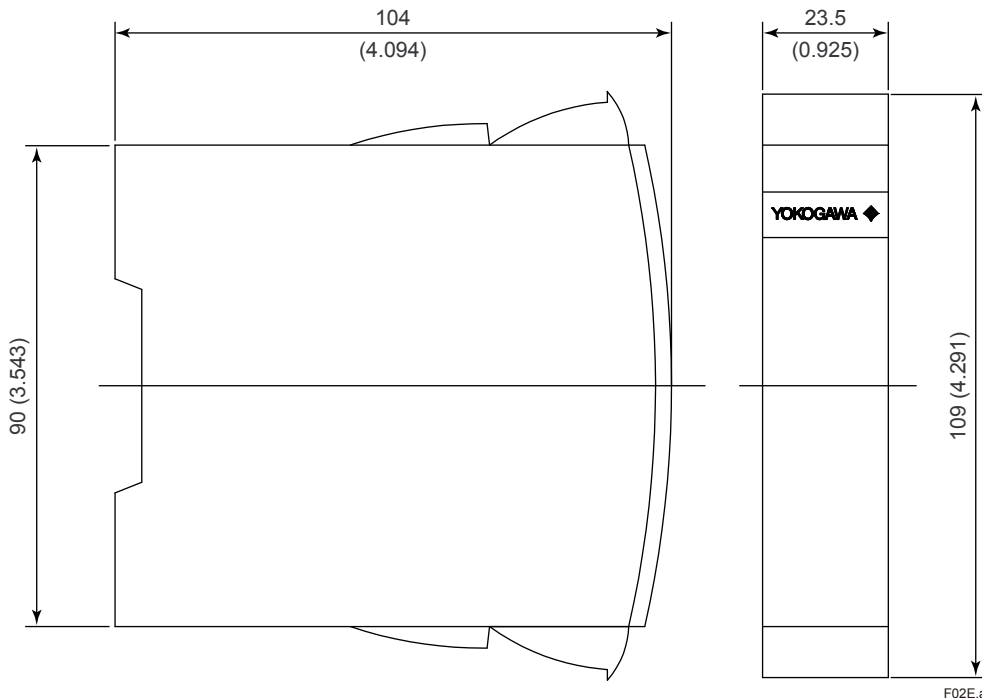
Table 1. Input type, range and accuracy

Sensor Type	Standard	Input range		Minimum Span		Accuracy (value whichever is greater)	Temp. effects/10°C (value whichever is greater)
		°C	°F	°C	°F		
<T/Cs>							
B	IEC584	400 to 1820	752 to 3308	200	360	±0.1% of span or ±1.0°C	±0.05% of span or ±1.0°C
E		-100 to 1000	-148 to 1832	50	90		
J		-100 to 1200	-148 to 2192	50	90	±0.1% of span or ±0.5°C	±0.05% of span or ±0.25°C
K		-180 to 1372	-292 to 2502	50	90		
N		-180 to 1300	-292 to 2372	100	180	±0.1% of span or ±1.0°C	±0.05% of span or ±1.0°C
R		-50 to 1760	-58 to 3200	200	360		
S		-50 to 1760	-58 to 3200	200	360	±0.1% of span or ±0.5°C	±0.05% of span or ±0.25°C
T		-200 to 400	-328 to 752	50	90		
L	DIN43710	-100 to 900	-148 to 1652	50	90	±0.1% of span or ±1.0°C	±0.05% of span or ±1.0°C
U		-200 to 600	-328 to 1112	75	135		
Lr	GOST 3044-84	-200 to 800	-328 to 1472	50	90	±0.1% of span or ±1.0°C	±0.05% of span or ±1.0°C
W3	ASTM	0 to 2300	32 to 4172	200	360		
W5	E988-90	0 to 2300	32 to 4172	200	360		
<RTDs>							
Pt100	IEC751	-200 to 850	-328 to 1562	10	18	±0.1% of span or ±0.1°C	±0.05% of span or ±0.05°C
Ni100	DIN43760	-60 to 250	-76 to 482	10	18		
DC millivolts [mV]		-800 to 800 [mV]		2.5 [mV]		±0.1% of span or ±0.01mV	±0.05% of span or ±5µV
Resistance [Ω]		0 to 7000 [Ω]		25 [Ω]		±0.1% of span or ±0.1Ω	±0.05% of span or ±0.05Ω

Note: In T/Cs type B , the minimum range value can be set from 0°C. However, the accuracy between 0 to 400°C is not specified.

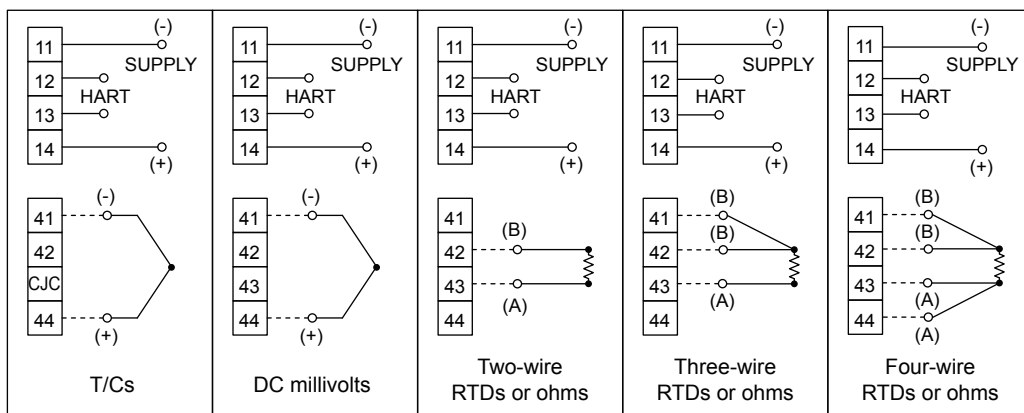
■ DIMENSIONS

Unit : mm (approx. inch)



F02E.ai

● Wiring Diagram



F03E.ai

< Ordering Information >

Specify Model, suffix, and optional specification codes when ordering. If necessary, also specify the followings;

1. Sensor type. For RTDs and ohms input, specify the number of wire together.
2. Calibration range and unit.
3. Sensor Burnout: High or Low
4. Response time: An integral number from 1 to 60.

Model YTA70P will be shipped with the following settings from the factory if not specified upon ordering;

- Sensor type: Pt100, 3-wire
- Range: 0 to 100 °C
- Sensor Burnout: High
- Response time: 1 s

These setting contents are listed in a main body label.

< Reference >

HART; Trademark of the HART Communication Foundation.