# General Specifications

YTA70P
Temperature Transmitter

YTA Series

**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**
EN63126-1 ClassA, Table2 EN61326-2-3

**EU RoHS Directive**
Applicable standard: EN IEC 63000

**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

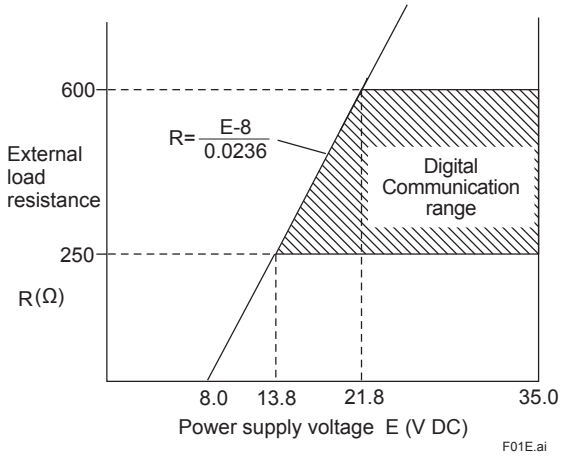



**Figure 1. Relationship Between Power Supply Voltage and External Load Resistance**

**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)

YOKOGAWA

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6th Edition May 2026

## ■ MODEL AND SUFFIX CODES

<table>
<tr><th>Model</th><th>Suffix Codes</th><th>Descriptions</th></tr>
<tr><td>YTA70P</td><td>. . . . . .</td><td>Temperature Transmitter (Panel Mount Type)</td></tr>
<tr><td>Output Signal</td><td>-J . . . . . .</td><td>4 to 20 mA DC with digital communication (HART 7 protocol)</td></tr>
<tr><td>–</td><td>A . . . . . .</td><td>Always A</td></tr>
<tr><td>Optional Specifications</td><td>/V2S*1</td><td>ATEX, FM, IECEx, and CSA Intrinsically safe Approval<br>ATEX Intrinsically safe Approval<br>Applicable Standards: EN IEC 60079-0, EN 60079-11<br>Certificate: DEKRA 14ATEX0106 X<br>II 1 G Ex ia IIC T6...T4 Ga<br>II 2 D Ex ia IIIC Db<br>Amb. temp.:<br>For EPL Ga:<br>The relation between ambient temperature range and temperature class:
<table>
<tr><th rowspan="2">Temperature Class</th><th>Pi= 0.84W</th><th>Pi= 0.75W</th></tr>
<tr><th>Ambient temperature range</th><th>Ambient temperature range</th></tr>
<tr><td>T6</td><td>-40°C to +40°C</td><td>-40°C to +45°C</td></tr>
<tr><td>T5</td><td>-40°C to +55°C</td><td>-40°C to +60°C</td></tr>
<tr><td>T4</td><td>-40°C to +85°C</td><td>-40°C to +85°C</td></tr>
</table>
For EPL Db:<br>The surface temperature of the outer enclosure is + 20 K above the ambient temperature, determined without a dust layer.<br>Ambient temperaure range: -40 to 85°C<br>Supply and output circuit:Ui=30V, Ii=120mA, Pi=0.84W or 0.75W, Ci=1nF, Li=0µH<br>Sensor circuit: Uo=9.6V, Io=28mA, Po=67.2mW, Co=3.5µF, Lo=35mH<br>FM Intrinsically safe Approval<br>Applicable Standards: Class 3600, Class 3610, Class 3611, Class 3810, ANSI/ISA-60079-0, ANSI/ISA-60079-11<br>Intrinsically Safe for Class I, Division 1, Groups A, B, C & D<br>Class I, Zone 0, AEx ia, Group IIC, T6<br>Amb. Temp.: -40 to 60°C<br>Entity Parameters: V Max=30V, I Max=120mA, Pi=0.84W, Ci=1nF, Li=10µH<br>Vt=9.6V, It=28mA, Po=67.2mW, Ca=3.5µF, La=35mH<br>IECEx Intrinsically safe Approval<br>Applicable Standards: IEC 60079-0, IEC 60079-11<br>Certificate: IECEx DEK 14.0058X<br>Ex ia IIC T6...T4 Ga<br>Ex ia IIIC Db<br>Amb. temp.:<br>For EPL Ga:<br>The relation between ambient temperature range and temperature class:
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</table>

*1: Even if the option code is the same, the explosion-proof specifications (Ex marking, Amb.temp., etc.) are different, so please check the specifications when ordering.

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**Table 1. Input type, range and accuracy**

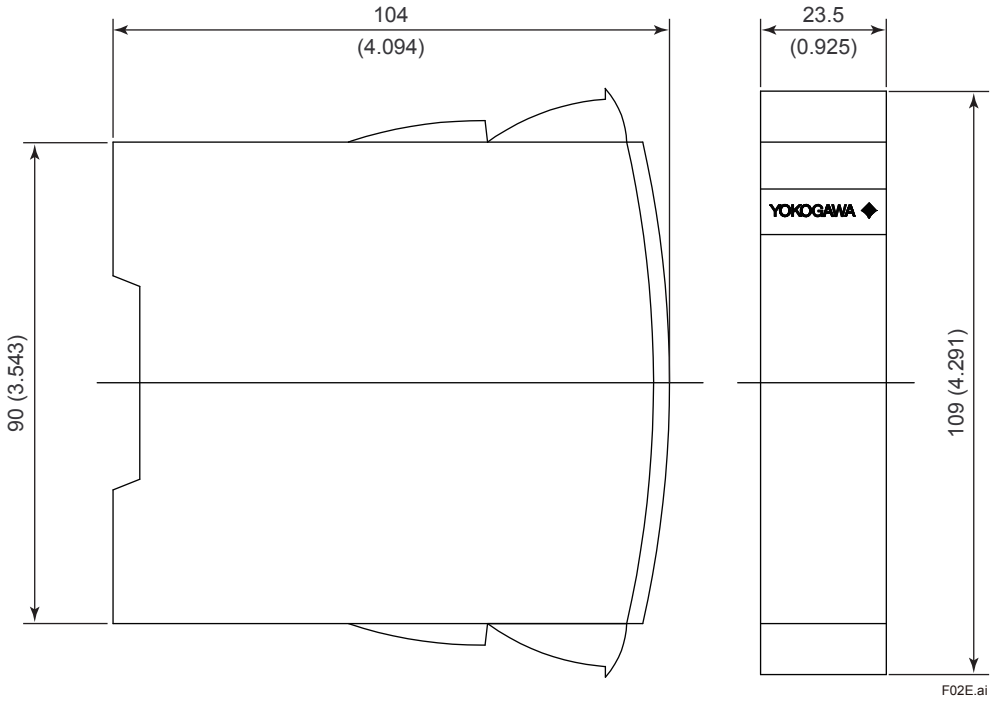
| Sensor Type | Standard | Input range °C | Input range °F | Minimum Span °C | Minimum Span °F | Accuracy (value whichever is greater) | Temp. effects/10°C (value whichever is greater) |
|---|---|---|---|---|---|---|---|
| <T/Cs> | | | | | | | |
| B | IEC584 | 400 to 1820 | 752 to 3308 | 200 | 360 | ±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 | ±0.1% of span or ±0.5°C | ±0.05% of span or ±0.25°C |
| J | | -100 to 1200 | -148 to 2192 | 50 | 90 | | |
| K | | -180 to 1372 | -292 to 2502 | 50 | 90 | | |
| N | | -180 to 1300 | -292 to 2372 | 100 | 180 | | |
| R | | -50 to 1760 | -58 to 3200 | 200 | 360 | ±0.1% of span or ±1.0°C | ±0.05% of span or ±1.0°C |
| S | | -50 to 1760 | -58 to 3200 | 200 | 360 | | |
| T | | -200 to 400 | -328 to 752 | 50 | 90 | ±0.1% of span or ±0.5°C | ±0.05% of span or ±0.25°C |
| L | DIN43710 | -100 to 900 | -148 to 1652 | 50 | 90 | | |
| 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 E988-90 | 0 to 2300 | 32 to 4172 | 200 | 360 | | |
| W5 | | 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 | ±0.1% of span or ±0.2°C | |
| 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.

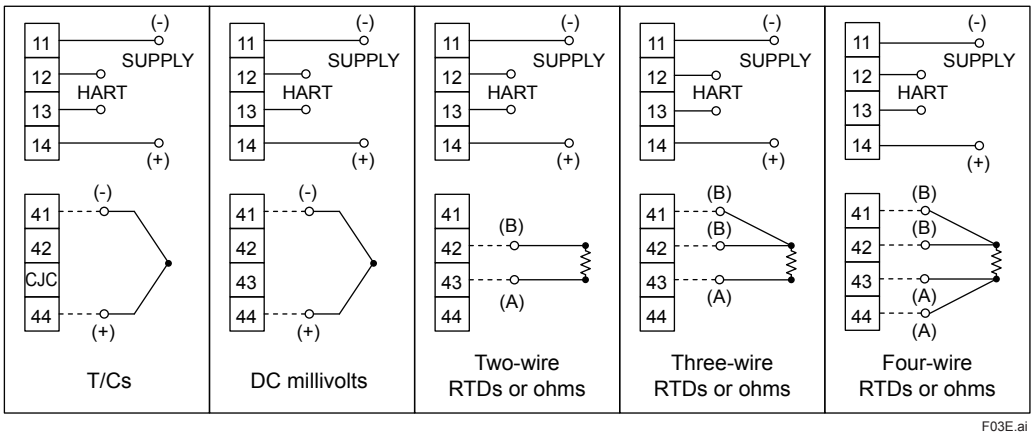
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## ■ DIMENSIONS

Unit : mm (approx. inch)




### ● Wiring Diagram




**< Ordering Information >**

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

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 >**

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