

YOKOGAWA ELECTRIC CORPORATION

Headquarters
9-32, Nakacho, 2-chome, Musashino-shi, Tokyo, 180-8750 JAPAN
Phone : 81-422-52-5555

Branch Sales Offices
Osaka, Nagoya, Kurashiki, Hiroshima, Fukuoka, Kitakyusyu

YOKOGAWA CORPORATION OF AMERICA

Head Office
12530 West Airport Blvd, Sugar Land, Texas 77478, USA
Phone : 1-281-340-3800 Fax : 1-281-340-3838

Georgia Office
2 Dart Road, Newnan, Georgia 30265, USA
Phone : 1-800-888-6400 Fax : 1-770-254-0928

YOKOGAWA AMERICA DO SUL LTDA.
Alameda Xingu 850 Barueri CEP 06455-030- Barueri – SP/Brasil
Phone : 55-11-3513-1300 (Sales, Engineering and Service)
55-11-5681-2400 (Manufacturing and Procurement)
Fax : 55-11-5681-4434

YOKOGAWA EUROPE B. V.
Euroweg 2, 3825 HD Amersfoort, THE NETHERLANDS
Phone : 31-88-4641000 Fax : 31-88-4641111

YOKOGAWA ELECTRIC CIS LTD.
Gorkholsky per 13 Building 2, 4th Floor 129090, Moscow, RUSSIA
Phone : 7-495-737-7868 Fax : 7-495-737-7869

YOKOGAWA CHINA CO., LTD.
3F Tower D Cartelo Crocodile Building, No.568 West Tianshan Road,
Shanghai 200335, CHINA
Phone : 86-21-62396262 Fax : 86-21-62387866

YOKOGAWA ELECTRIC KOREA CO., LTD.
(Yokogawa B/D, Yangpyeong-dong 4-Ga), 21, Seonyu-ro 45-gil, Yeongdeungpo-gu,
Seoul, 07209, KOREA
Phone : 82-2-2628-6000 Fax : 82-2-2628-6400

YOKOGAWA ENGINEERING ASIA PTE. LTD.
5 Bedok South Road, Singapore 469270, SINGAPORE
Phone : 65-6241-9933 Fax : 65-6241-9919

YOKOGAWA INDIA LTD.
Plot No.96, Electronic City Complex, Hosur Road, Bangalore - 560 100, INDIA
Phone : 91-80-4158-6000 Fax : 91-80-2852-0625

YOKOGAWA AUSTRALIA PTY. LTD.
Tower A, 112-118 Talavera Road, Macquarie Park NSW 2113, AUSTRALIA
Phone : 61-2-8870-1100 Fax : 61-2-8870-1111

YOKOGAWA MIDDLE EAST & AFRICA B.S.C.(C)
P.O. Box 10070, Manama, Building 577, Road 2516, Busaiteen 225, Muharraq,
BAHRAIN
Phone : 973-17-358100 Fax : 973-17-336100

SAFETY INSTRUCTIONS

Ex installation:

For a safe installation of YTA50 in hazardous area the following must be observed.
The module must only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.
The sensor circuit is not infallibly galvanically isolated from the input circuit.
However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500 Vac during 1 minute.

The transmitter must be mounted in an enclosure in order to provide a degree of ingress protection of at least IP20.

In explosive atmospheres caused by air/dust mixtures:

For Ex/I.S. data, see chapter 7. Approvals Options.

Special Conditions for Safe Use:

If the enclosure in which the transmitter is mounted is made of aluminium and installed in Zone 0, 1 or Zone 20, 21 or 22 it shall not contain by weight more than 6% in total of magnesium and titanium.

The additional enclosure of the apparatus shall be designed and/or installed in such a way that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

The YTA50 is a head mount type of temperature transmitter that accepts thermocouple or RTD input and converts it to a 4 to 20 mA DC signal for transmission. The YTA50 conforms to the standard DIN form B head mounting. It is imperative that users observe the instructions in this manual to ensure the protection and safety of operators.

Control of Pollution Caused by the Product

This is an explanation for the product based on "Control of Pollution caused by Electronic Information Products" in the People's Republic of China.

電子情報製品汚染制御管理弁法（中国版RoHS）

产品中有害物质或元素的名称及含量

型号	部件名称	有害物质					
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
YTA50 温度变送器	壳体	×	○	○	○	○	○
	基板组件	×	○	○	○	○	○
	电源连接线	×	○	○	○	○	○

○：表示该部件的所有均质材料中的有害物质的含量均在 GB/T26572 标准中所规定的限量以下。
×：表示至少该部件的某些均质材料中的有害物质的含量均在 GB/T26572 标准中所规定的限量以上。

环保使用期限：
该标识适用于 SJ /T11364 中所述，在中华人民共和国销售的电子电气产品的环保使用期限。
注：该年数为“环保使用期限”，并非产品的质量保质期。

1. Model and Suffix Codes

Model	Suffix code	Descriptions
YTA50	Temperature Transmitter (Head Mount Type)
Output Signal	-A.....	4 to 20 mA DC
Optional Specifications	/KS2	ATEX intrinsically safe approval
	/DS2	FM intrinsically safe/Nonincendive and ATEX intrinsically safe approval combination

2. Warranty

The warranty period of the instrument is as of condition shown when purchasing. Any trouble arising during the warranty period shall be replaced at free of charge. The following problems or troubles shall not be eligible of charge-exempt repair.

- Caused by improper usage or storage of the customer which exceeds the specification requirements.
- Caused by mishandling or modification.
- Caused by fire, earthquake or other acts of God that are not directly a result of problems of the instrument.

3. Handling Precautions

- This manual and the identification tag attached on packing box are essential parts of the product; keep them in a safe place for future reference.
- Read this manual thoroughly and carefully before handling the instruments. Observe the instructions.
- This product is designed to be used by a person with specialized knowledge.
- Store the product in location that meets the following requirements.
 - No exposure to rain or water
 - No major mechanical vibration or shock
 - Humidity and Temperature limitations
 - Ordinary conditions (25°C, 65%) is preferable. Otherwise, as of specified in "Standard Specifications."
- Avoid corrosive atmosphere for storage and installation.
- For safe installation of the transmitter in hazardous area, the following must be observed. The module must only be installed by qualified personnels who are familiar with the national and international laws, directives, and standards that apply to this area.
- Yokogawa will not be liable for malfunctions or damage resulting from any modification made to this instrument by the customer.
- Product Disposal
The instrument should be disposed of in accordance with local and national legislation/regulations.
- Authorized Representative in EEA
In relation to the CE Marking, The authorized representative for this product in the EEA (European Economic Area) is:
Yokogawa Europe B.V.
Euroweg 2, 3825 HD Amersfoort, The Netherlands

● **Printed Manual**

Document No.	Title
IM 01C50C01-01EN	YTA50 Temperature Transmitter

● **Electronic Manual**

Document No.	Title
IM 01C50C01-01EN	YTA50 Temperature Transmitter

You can download the latest manual from the following website:
Website address: <http://www.yokogawa.com/fld/>
Note: When products whose suffix code or optional codes contain code "Z" and an exclusive document is attached, please read it along with this manual.

● **General Specifications**

Document No.	Title
GS 01C50C01-00EN	YTA50 Temperature Transmitter

4. Standard Specifications

Accuracy

See table below

Cold Junction Compensation Accuracy (For T/C only)

±1°C (±1.8°F)

Ambient Temperature Effects

See table below

Type	Standard	Input ranges °C	Minimum span °C	Accuracy *1	Temp. effects /10°C Change *1		
T/C	IEC60584	B	400 to 1820	200	±0.1% or ±2.0°C	±0.1% or ±2.0°C	
		E	-100 to 1000	50	±0.1% or ±1.0°C	±0.1% or ±0.5°C	
		J	-100 to 1200	50			
		K	-180 to 1372	50			
		N	-180 to 1300	100	±0.1% or ±2.0°C	±0.1% or ±2.0°C	
		R	-50 to 1760	200			
		S	-50 to 1760	200	±0.1% or ±1.0°C	±0.1% or ±0.5°C	
		T	-200 to 400	50			
		L	DIN43710	-100 to 900	50	±0.1% or ±2.0°C	±0.1% or ±2.0°C
		U		-200 to 600	75		
W3	ASTM E988-90	0 to 2300	200	±0.1% or ±0.1Ω	±0.1% or ±0.1Ω		
		0 to 2300	200				
RTD	Pt100	IEC60751	-200 to 850	25	±0.1% or ±0.1mV	±0.1% or ±0.1°C	
	Ni100	DIN43760	-60 to 250	25			
DC Voltage [mV]		-10 to 800 mV	5mV	±0.1% or ±0.01mV	±0.1% or ±10µV		
Resistance [Ω]		0 to 5000Ω	30Ω	±0.1% or ±0.1Ω	±0.1% or ±0.1Ω		

*1: The value whichever is greater. value in % indicates the % of span.

Power Supply Effects

±0.005% of FS per Volt

EMC Conformity

EN 61326-1 Class A, Table2

EN 61326-2-3

Immunity influence during the test:

Output shift is specified within ±1% of full span.



This instrument is a Class A product, and it is designed for use in the industrial environment. Please use this instrument in the industrial environment only.

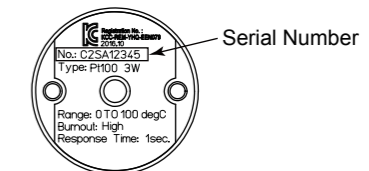
EU RoHS Directive

Applicable standard: EN IEC 63000

- Applicable production sites are shown below.
The condition of the RoHS compliant production sites are as follows:
Singapore, China

The production sites can be confirmed by the serial number shown in the frame of "NO." in the name plate of the product.

- Serial numbers (9 letters): AAAnnnnnn
AA: Identification code of production site
Singapore: Use "C2" or "C0" China: Use "S5"
- Serial Number Label (affixed on the bottom side)



F06E.ai

Maximum Zero Offset

±50% of the maximum temperature

Input Signal Source Resistance (for T/Cs input)

10 MΩ, or 3 kΩ at power-off

Input Lead Wire Resistance (for RTDs input)

5 Ω per wire or lower

Burnout

High (21.6 mA or more) or Low (3.6 mA or less)

Output

Two wire 4 to 20 mA DC

Response Time

1 to 60 sec (as specified upon shipment)

Ambient Temperature Limits (Option code may affect limit.)

-40 to 85°C (-40 to 185°F)

Ambient Humidity Limits

5 to 90% RH at 40°C (104°F)

Supply Voltage

7 to 35 V DC

7 to 30 V DC for Intrinsically safe type

Load Resistance (Limitation)

0 to $(E-7)/0.023$ [Ω], where E is power supply voltage.

Ex. 739 Ω max. @ 24 V DC

Isolation

Input/output isolated to 1500 V AC.

Mounting

DIN form B head mounting

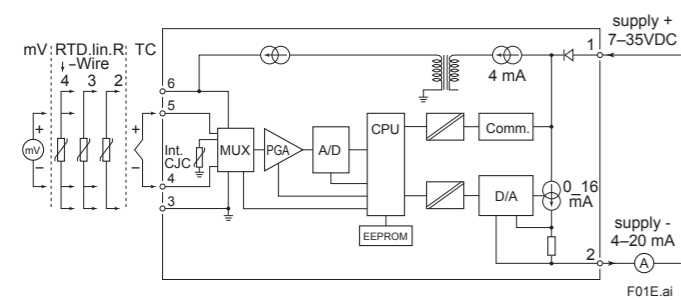
Terminals

M3 screws

Weight

50 g (0.11 lb)

5. Block Diagram



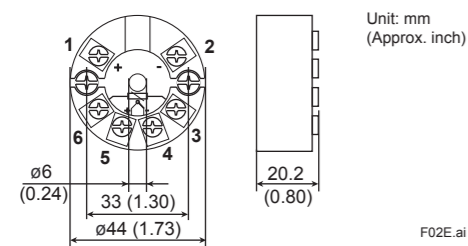
6. Wiring

See wiring diagram. For output signal, use twisted pair or cables with performance equivalent to 600V vinyl insulate cable. For wiring in high or low temperature, use a wire or cable suitable for such temperature. Use cables and wires which meet atmospheric conditions. Take necessary measure to avoid corrosion or damage of cables and wires.

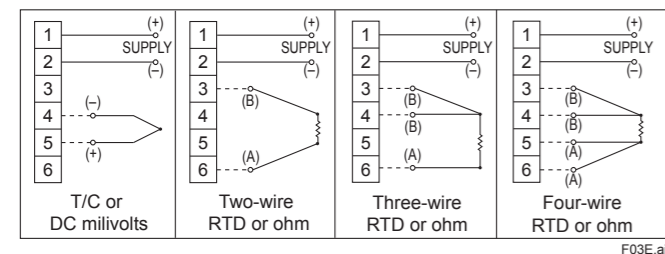
IMPORTANT

When mounting on a sensor head, do not overtighten the screws.

Dimensions



Wiring Diagram



7. Approval Options

ATEX Intrinsically safe model (/KS2, /DS2)

ATEX

Installation drawing YTA50QA01

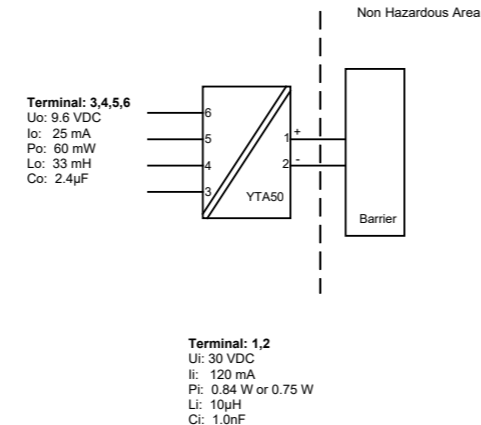
For safe installation, the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

ATEX Certificate KEMA 06ATEX 0191X

Marking II 1 G Ex ia IIC T6...T4 Ga
II 2 D Ex ia IIIC Db

Standards EN IEC 60079-0: 2018, EN 60079-11: 2012

Hazardous area Zone 0, 1, 2, 21, 22



YTA50QA01 2021-04-21

1 of 2

ATEX

Installation drawing YTA50QA01

Temperature Class	Ambient temperature range	
	Pi: 0.84W	Pi: 0.75W
T6	-40 °C to +47 °C	-40 °C to +50 °C
T5	-40 °C to +62 °C	-40 °C to +65 °C
T4	-40 °C to +85 °C	-40 °C to +85 °C

Installation notes.

If the enclosure is made of non-metallic plastic materials, electrostatic charges on the transmitter enclosure shall be avoided.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Ga, the transmitter shall be mounted in a separately certified enclosure that provides a degree of protection of at least IP20 according to EN 60529, and that is suitable for the application and correctly installed.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Ga, and if the enclosure is made of aluminum, it must be installed such, that ignition sources due to impact and friction sparks are excluded.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Db, the transmitter shall be mounted in a separately certified enclosure that provides a degree of protection of at least IP5X according to EN IEC 60079-0, and that is suitable for the application and correctly installed. The surface temperature of the outer enclosure is +20 K above the ambient temperature, determined without a dust layer.

Ambient temperature range: -40 °C to +85 °C

Cable entries and blanking elements shall be used that are suitable for the application and correctly installed.

For an ambient temperature $\geq 60^\circ\text{C}$, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

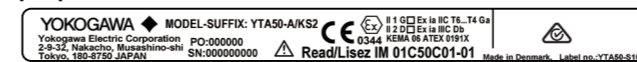
The sensor circuit is not infallibly galvanic isolated from the input circuit. However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500Vac for 1 minute.

YTA50QA01 2021-04-21

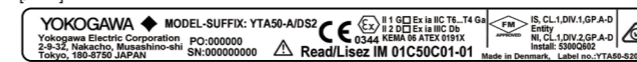
2 of 2

Name Plate

[/KS2]



[/DS2]



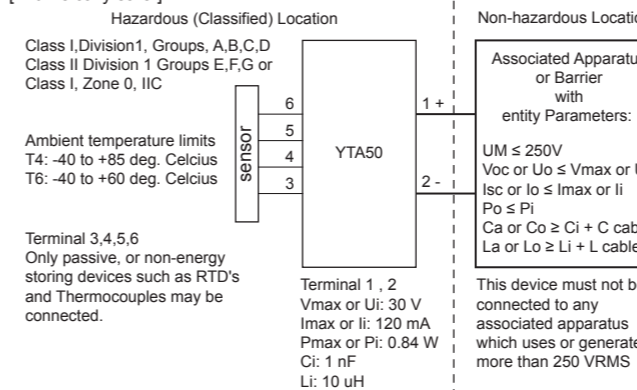
F04E.ai

FM Intrinsically safe/Nonincendive model (/DS2)

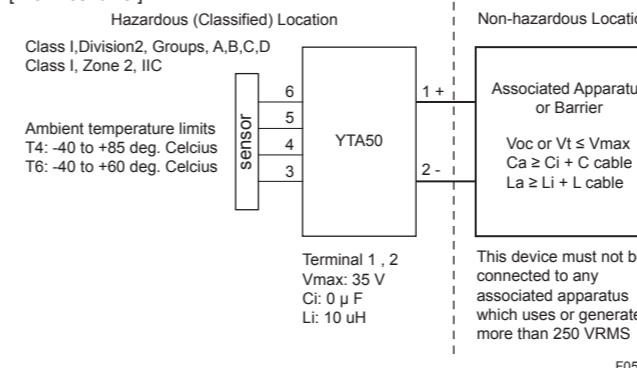
Applicable Standard: FM 3600, FM 3610, FM 3611, FM 3810

Installation diagram

[Intrinsically safe]



[Nonincendive]



F05E.ai

Revision Record

- Manual No. : IM 01C50C01-01EN
- Title : YTA50 Temperature Transmitter

Edition	Date	Page	Revised item
1st	1998	—	New Publication.
10th	July 2021	P.1 P.2	Changed EU RoHS Directive. Deleted ATEX Documentation. Revised ATEX Scheme. Revised Name Plate.