

# LEVEL TRANSMITTER

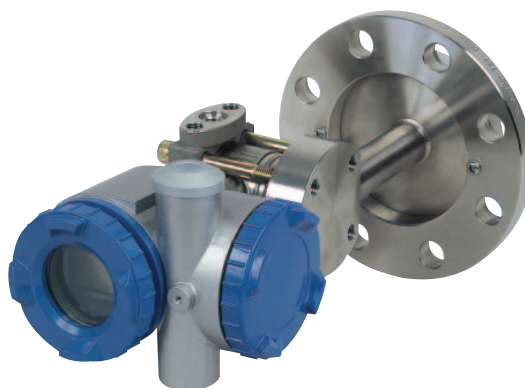
DATA SHEET

FKE...5

The FCX -AIII level transmitter accurately measures liquid level and transmits a proportional 4 to 20mA signal. The transmitter utilizes a unique micromachined capacitance silicon sensor with state-of-the-art microprocessor technology to provide exceptional performance and functionality.

## FEATURES

- High accuracy**  
0.2% accuracy for all calibrated spans is a standard feature for all models covering 0.32kPa {3.2mbar} range to 500kPa {5bar} high differential pressure range. 0.1% accuracy is available as option. Fuji's micro-capacitance silicon sensor assures this accuracy for all elevated or suppressed calibration ranges without additional adjustment.
- Minimum environmental influence**  
The "Advanced Floating Cell" design which protects the pressure sensor against changes in temperature, static pressure, and overpressure substantially reduces total measurement error in actual field applications.
- Fuji/HART® bilingual communications protocol**  
FCX -AIII series transmitter offers bilingual communications to speak both Fuji proprietary protocol and HART®. Any HART® compatible devices can communicate with FCX -AIII.
- Application flexibility**  
Various options that render the FCX -AIII suitable for almost any process applications include:
  - Full range of hazardous area approvals
  - Built-in RFI filter and lightning arrester
  - 5-digit LCD meter with engineering unit
  - Stainless steel electronics housing
  - Wide selection of materials
  - High temperature, high vacuum service.
- Programmable output Linearization Function**  
Output signal can be freely programmable. (Up to 14 compensated points at approximation.)
- Burnout current flexibility (Under Scale: 3.2 to 4.0mA, Over Scale: 20.0 to 22.5mA)**  
Burnout signal level is adjustable using Model FXW Hand Held Communicator (HHC) to comply with NAMUR NE43.
- Dry calibration without reference pressure**  
Thanks to the best combination of unique construction of mechanical parts (Sensor unit) and high performance electronics circuit (Electronics unit), reliability of dry calibration without reference pressure is at equal level as wet calibration.



## SPECIFICATIONS

### Functional specifications

**Service:** Liquid, gas, or vapour  
**Static pressure, span, and range limit:**

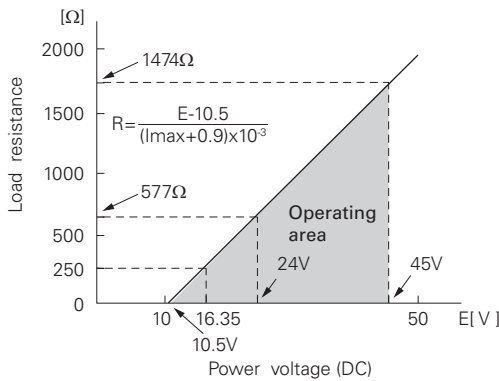
| Type   | Static pressure     | Span limit [kPa] {m bar} |        | Range limit [kPa] {m bar} |
|--------|---------------------|--------------------------|--------|---------------------------|
|        |                     | Min.                     | Max.   |                           |
| FKE□□3 | Up to flange rating | 0.32                     | 32     | +/- 32                    |
| FKE□□5 |                     | {3.2}                    | {320}  | { +/- 320}                |
| FKE□□6 |                     | {13}                     | {1300} | { +/- 1300}               |
|        |                     | 5                        | 500    | +/- 500                   |
|        |                     | {50}                     | {5000} | { +/- 5000}               |

Remark: To minimize environmental influence, span should be greater than 1/40 of the max. span in most applications.

- Lower limit of static pressure (vacuum limit) ;  
Silicone fill sensor: See Fig.1  
Fluorinated fill sensor: 66kPa abs (500mmHg abs) at temperature below 60 °C.
- The maximum span of each sensor can be converted to different units using factors as below.  
1 MPa=10<sup>3</sup>kPa=10bar=10.19716kgf/cm<sup>2</sup>=145.0377psi  
1 kPa=10mbar=101.9716mmH<sub>2</sub>O=4.01463inH<sub>2</sub>O

**Overrange limit:** To maximum static pressure limit  
**Output signal:** 4 to 20mA DC with digital signal superimposed on the 4 to 20mA signal  
**Power supply:** Transmitter operates on 10.5V to 45V DC at transmitter terminals.  
10.5V to 32V DC for the units with optional arrester.

Load limitations: see figure below



Note: For communication with HHC<sup>(1)</sup> (Model: FXW), min. of 250Ω required.

**Hazardous locations:** See TABLE 2

**Zero/span adjustment:**

Zero and span are adjustable from the HHC<sup>(1)</sup>. Zero and span are also adjustable externally from the adjustment screw.

**Damping:** Adjustable from HHC or local configurator unit with LCD display. The time constant is adjustable between 0.06 to 32 seconds.

**Zero elevation/suppression:**  
-100% to + 100% of URL

**Normal/reverse action:**  
Selectable from HHC<sup>(1)</sup>

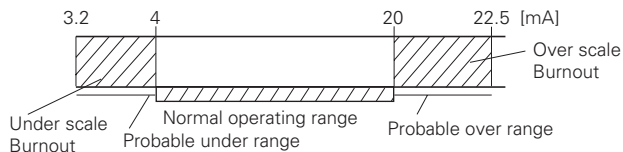
**Indication:** Analog indicator or 5-digit LCD meter, as specified.

**Burnout direction:** Selectable from HHC<sup>(1)</sup>  
If self-diagnostic detect transmitter failure, the analog signal will be driven to either "Output Hold", "Output Overscale" or "Output Underscale" modes.

"Output Hold": Output signal is hold as the value just before failure happens.

"Output Overscale": Adjustable within the range 20.0mA to 22.5mA from HHC<sup>(1)</sup>

"Output Underscale": Adjustable within the range 3.2mA to 4.0mA from HHC<sup>(1)</sup>



Output Limits conforming the NAMUR NE43 by order.

**Loop-check output:**

Transmitter can be configured to provide constant signal 3.2mA through 22.5mA by HHC<sup>(1)</sup>.

**Temperature limit:**

- Ambient: -40 to + 85°C
- (-20 to + 80°C for LCD indicator)
- (-40 to + 60°C for arrester option)
- (-10 to + 60°C for fluorinated oil fill transmitter)
- For explosionproof units (flameproof or intrinsic safety), ambient temperature must be within the limits specified in each standard.

Process:

|                 | Code in the 13th digit of "Code symbols" | Process temperature | Lower limit of static press |
|-----------------|--|---------------------|-----------------------------|
| Fluorinated oil | W, A and D                               | -20 to 120°C        | Atmospheric pressure        |
| Silicone oil    | H  | -15 to 250°C        |                             |
|                 | J  | 20 to 300°C         |                             |
|                 | Y and G                                  | -40 to 120°C        | 2.7kPa abs (20.3mmHg abs)   |
|                 | S  | -15 to 250°C        |                             |
|                 | T  | 20 to 300°C         |                             |
|                 | K  | -15 to 150°C        | 0.13kPa abs (0.98mmHg abs)  |

Low pressure side contact liquid temperature on transmitter of Code H, J, S, T is 120°C or lower. Low pressure side contact liquid temperature of Code K is 85°C or lower

Storage: -40 to + 90°C

**Humidity limit:** 0 to 100% RH

**Communication:** With HHC<sup>(1)</sup> (Model FXW, consult Data Sheet No. EDS8-47), following items can be remotely displayed or configured.

Note: HHC's version must be higher than 7.0 (or FXW □□□□1-□4), for FCX-AIII.

**Local configurator with LCD display (option):**

Local configurator with 3 push button and LCD display can support following items.

| Items  | By communication with FXW |     | By local configurator (with 3 push button) |     |
|--|---------------------------|-----|--|-----|
|  | Display                   | Set | Display                                    | Set |
| Tag No.                                      | ✓                         | ✓   | ✓  | ✓   |
| Model No.                                    | ✓                         | ✓   | ✓  | ✓   |
| Serial No. & Software Version                | ✓                         | —   | ✓  | —   |
| Engineering unit                             | ✓                         | ✓   | ✓  | ✓   |
| Range limit                                  | ✓                         | —   | ✓  | —   |
| Measuring range                              | ✓                         | ✓   | ✓  | ✓   |
| Damping                                      | ✓                         | ✓   | ✓  | ✓   |
| Output mode                                  | ✓                         | —   | ✓  | —   |
| Burnout direction                            | ✓                         | ✓   | ✓  | ✓   |
| Calibration                                  | ✓                         | ✓   | ✓  | ✓   |
| Output adjust                                | —                         | ✓   | —  | ✓   |
| Data   | ✓                         | —   | ✓  | —   |
| Self diagnoses                               | ✓                         | —   | ✓  | —   |
| Printer (In case of FXW with printer option) | ✓                         | —   | —  | —   |
| External switch lock                         | ✓                         | ✓   | ✓  | ✓   |
| Transmitter display                          | ✓                         | ✓   | ✓  | ✓   |
| Linearize                                    | ✓                         | ✓   | —  | —   |
| Rerange                                      | ✓                         | ✓   | ✓  | ✓   |
| Saturate current                             | ✓                         | ✓   | ✓  | ✓   |
| Write protect                                | ✓                         | ✓   | ✓  | ✓   |
| History                                      |                           |     |  |     |
| - Calibration history                        | ✓                         | ✓   | ✓  | ✓   |
| - Ambient temperature history                | ✓                         | —   | ✓  | —   |

**Programmable output linearization function:**

Output signal can be characterized with "14 points linear approximation function" from HHC<sup>(1)</sup>.

**EMC Conformity:** EN61326-1: 2006  $\text{CE}$

(Note) (1) HHC: Hand Held Communicator

## Performance specifications

Reference conditions, silicone oil fill, 316SS isolating diaphragms, 4-20 mA analog output in linear mode.

**Accuracy rating:** (including linearity, hysteresis, and repeatability)

(Standard)

For spans greater than 1/10 of URL:  $\pm 0.2\%$  of span

For spans below 1/10 of URL:

$$\pm \left( 0.1 + 0.1 \frac{0.1 \times \text{URL}}{\text{Span}} \right) \% \text{ of span}$$

(Option) (Code: 21th digit H, K)

For span greater than 1/10 of URL: 0.1% of span

For span below 1/10 of URL:

$$\pm \left( 0.05 + 0.05 \frac{0.1 \times \text{URL}}{\text{Span}} \right) \% \text{ of span}$$

**Stability:**  $\pm 0.2\%$  of upper range limit (URL) for 10 years.

**Temperature effect:**

Effects per 28°C change between the limits of -40°C and +85°C

$$\text{(Standard) Zero shift: } \pm \left( 0.35 \frac{\text{URL}}{X} \right) \%$$

$$\text{Total effect: } \pm \left( 0.5 \frac{\text{URL}}{X} \right) \%$$

(Option) (Code: 21th digit J, K)

Zero shift:  $\pm 0.3\%$  ( $X > 1/4 \text{URL}$ )

$$\pm \left( 0.1 + 0.2 \frac{0.25 \times \text{URL}}{X} \right) \% (X < 1/4 \text{URL})$$

Total effect:  $\pm 0.4\%$  ( $X > 1/4 \text{URL}$ )

$$\pm \left( 0.2 + 0.2 \frac{0.25 \times \text{URL}}{X} \right) \% (X < 1/4 \text{URL})$$

**Static pressure effect:**

Zero shift:  $\pm 0.2\%$  of URL / 1MPa

Span shift: -0.2% of calibrated span / 1MPa

**Overrange effect:** Zero shift;  $\pm 0.1\%$  of URL for flange rating pressure

**Supply voltage effect:**

Less than 0.005% of calibrated span per 1V

**Update rate:** 60 msec

**Step response:** (without electrical damping)

| Range code  | Time constant (at 23°C) | Dead time |
|-------------|-------------------------|-----------|
| "3"         | 0.55 s                  | 0.12 s    |
| "5" and "6" | 0.3 s                   |           |

**Mounting position effect:**

Zero shift, less than 0.3kPa {3m bar} for a 10° tilt in any plane. (No extension)  
No effect on span.

This error can be corrected by adjusting zero.

**Dielectric strength:**

500V AC, 50/60Hz 1 min., between circuit and earth.

**Insulation resistance:**

More than 100MΩ at 500V DC.

**Internal resistance for external field indicator:**

12Ω or less

## Physical specifications

**Electrical connections:**

G1/2, 1/2-14 NPT, Pg13.5, or M20 x 1.5 conduit, as specified.

**Process connections:**

LP side: 1/4-18 NPT or Rc1/4.

HP side: ANSI, DIN, or JIS raised face flange. See OUTLINE DIAGRAM for detailed dimensions.

Refer to "Code symbols"

**Process-wetted parts material:**

| Material code (7th digit in Code symbols") | LP side            |                |                    | HP side                          |
|--|--------------------|----------------|--------------------|----------------------------------|
|  | Process cover      | Diaphragm      | Wetted sensor body | Diaphragm & flange face          |
| V  | 316 stainless (*1) | 316L stainless | 316 stainless      | 316L stainless                   |
| J  | 316 stainless (*1) | 316L stainless | 316 stainless      | 316L stainless steel +Au coating |
| C  | 316 stainless (*1) | 316L stainless | 316 stainless      | Hastelloy-C                      |
| D  | 316 stainless (*1) | 316L stainless | 316 stainless      | Monel                            |
| E  | 316 stainless (*1) | 316L stainless | 316 stainless      | Tantalum                         |
| H  | 316 stainless (*1) | Hastelloy-C    | Hastelloy-C lining | Hastelloy-C                      |
| M  | 316 stainless (*1) | Monel          | Monel lining       | Monel                            |
| T  | 316 stainless (*1) | Tantalum       | Tantalum lining    | Tantalum                         |
| B  | Hastelloy-C        | Hastelloy-C    | Hastelloy-C lining | Hastelloy-C                      |
| L  | Monel lining       | Monel          | Monel lining       | Monel                            |
| U  | Tantalum           | Tantalum       | Tantalum lining    | Hastelloy-C                      |
| P  | 316 stainless (*1) | 316L stainless | 316 stainless      | Tantalum                         |
| R  | 316 stainless (*1) | 316L stainless | 316 stainless      | Zirconium                        |

Note: (\*1) SCS14A per JIS G 5121 (equivalent CF8M per ASTM A351/A351M)

Remark: Sensor O-rings: Viton O-ring and teflon gasket selectable.

**Non-wetted parts material:**

Electronics housing: Low copper die-cast aluminum alloy finished with polyester coating (standard), or 316 stainless steel (ASTM CF8M), as specified.

Bolts and nuts: Cr-Mo alloy (standard) or 304 stainless steel

Fill fluid: Silicone oil (standard) or fluorinated oil

Mounting flange: 304 stainless steel or Carbon steel, as specified

**Environmental protection:**

IEC IP67 and NEMA 6 / 6P

**Flange mounting:** See drawings

**Mass {weight}:** Transmitter approximately 10.2 to 19.2kg without options.

Add; 0.5kg for mounting bracket

4.5kg for stainless steel housing option

1.0kg per 50mm extension of diaphragm

**Optional features**

- Indicator:** A plug-in analog indicator (2.5% accuracy).  
An optional 5-digit LCD meter with engineering unit is also available.
- Local configurator with LCD display:** An optional 5 digits LCD meter with 3 push buttons can support items as using communication with FXW.
- Arrester:** A built-in arrester protects the electronics from lightning surges.  
Lightning surge immunity:  
4kV (1.2 × 50µs)
- Oxygen service:** Special cleaning procedures are followed throughout the process to maintain all process wetted parts oil-free.  
The fill fluid is fluorinated oil.
- Chlorine service:** Oil-free procedures as above. Includes fluorinated oil for fill.
- Degreasing:** Process-wetted parts are cleaned, but the fill fluid is standard silicone oil. Not for use on oxygen or chlorine measurement.
- Vacuum service:** Special silicone oil and filling procedure are applied. See Fig.1 and Fig.2
- Optional tag plate:** An extra stainless steel tag with customer tag data is wired to the transmitter.
- Coating of cell:** Cell's surface is finished with epoxy/polyurethane double coating.  
Specify if environment is extremely corrosive.

**ACCESSORIES**

- Oval flanges:** (Model FFP, refer to Data Sheet No. EDS6-128)  
Converts process connection to 1/2-14 NPT or to Rc1/2; in carbon steel or in 316 stainless steel.
- Hand held communicator:** (Model FXW, refer to Data Sheet No. EDS 8-47)

**ORDERING INFORMATION**

When ordering this instrument, specify:

1. CODE SYMBOLS
2. Measuring range
3. Output orientation (burnout direction) when abnormality is occurred in the transmitter.  
Hold / Overscale / Underscale.  
Unless otherwise specified, output hold function is supplied.
4. Indication method (indicated value and unit) in case of the actual scale (code D, H, P, S on 9th digit).
5. TAG No. (up to 14 alphanumeric characters), if required.

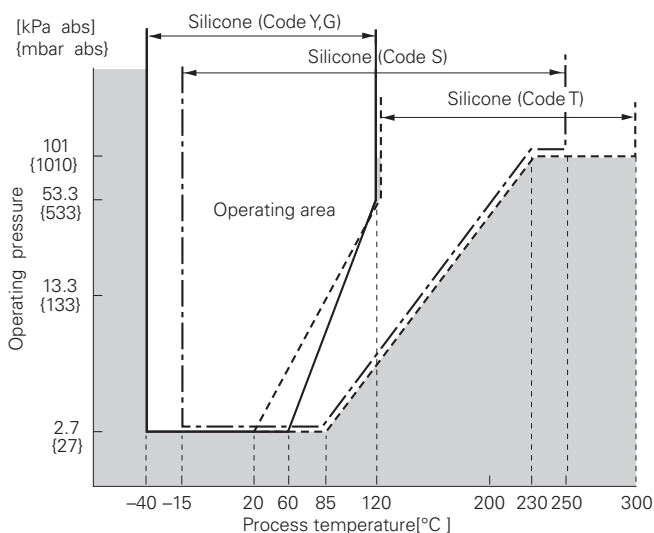


Fig. 1 Relation between process temperature and operating pressure

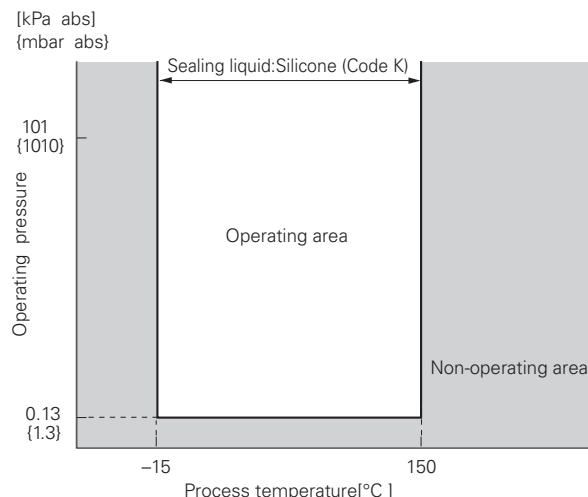


Fig. 2 Relation between process temperature and operating pressure

# CODE SYMBOLS

| Digit               | Description   | Note                            | Digit No. of code   |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|---------------------|---|---------------------------------|---------------------|--|--------|---|---|---|---|---|---|----|----|----|----|----|----|----|--|--|--|--|
|                     |   |                                 | 1                   | 2  | 3      | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 21 |  |  |  |  |
| 4                   | <Low pressure Connections>  |                                 |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | <Process connection> <Oval flange screw> <Conduit connection> <Case type> |                                 |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Rc1/4 7/16-20UNF G1/2 T type  |                                 |                     |  |        |   |   |   |   | 5 |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT 7/16-20UNF 1/2-14NPT T type                                     |                                 |                     |  |        |   |   |   |   | 6 |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT M10 Pg 13.5 T type  |                                 |                     |  |        |   |   |   |   | 7 |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT M10 M20×1.5 T type  |                                 |                     |  |        |   |   |   |   | 8 |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT 7/16-20UNF Pg 13.5 T type                                       |                                 |                     |  |        |   |   |   |   | 9 |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Rc1/4 7/16-20UNF G1/2 L type  |                                 |                     |  |        |   |   |   |   | S |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT 7/16-20UNF 1/2-14NPT L type                                     |                                 |                     |  |        |   |   |   |   | T |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT M10 Pg 13.5 L type  |                                 |                     |  |        |   |   |   |   | V |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT M10 M20×1.5 L type  |                                 |                     |  |        |   |   |   |   | W |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 1/4-18NPT 7/16-20UNF Pg 13.5 L type                                       |                                 |                     |  |        |   |   |   |   | X |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 5   | <Mounting flange>               |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | Material Size and rating        |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| 304 stainless steel |   | JIS 10K 80A                     |                     |  |        |   |   |   |   |   | 0 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 10K 100A                    |                     |  |        |   |   |   |   |   | 1 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 30K 80A                     |                     |  |        |   |   |   |   |   | 2 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 30K 100A                    |                     |  |        |   |   |   |   |   | 3 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 3"               |                     |  |        |   |   |   |   |   | 4 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 4"               |                     |  |        |   |   |   |   |   | 5 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 300LB 3"               |                     |  |        |   |   |   |   |   | 6 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 300LB 4"               |                     |  |        |   |   |   |   |   | 7 |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | DIN PN40 DN80                   |                     |  |        |   |   |   |   |   | 8 |    |    |    |    |    |    |    |  |  |  |  |
| DIN PN16 DN100      |   |                                 |                     |  |        |   |   |   |   | 9 |   |    |    |    |    |    |    |    |  |  |  |  |
| JIS 20K 80A         |   |                                 |                     |  |        |   |   |   |   | M |   |    |    |    |    |    |    |    |  |  |  |  |
| ANSI/JPI 600LB 3B   |   |                                 |                     |  |        |   |   |   |   | R |   |    |    |    |    |    |    |    |  |  |  |  |
| Carbon steel        |   | JIS 10K 80A                     |                     |  |        |   |   |   |   |   | A |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 10K 100A                    |                     |  |        |   |   |   |   |   | B |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 30K 80A                     |                     |  |        |   |   |   |   |   | C |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | JIS 30K 100A                    |                     |  |        |   |   |   |   |   | D |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 3"               |                     |  |        |   |   |   |   |   | E |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 4"               |                     |  |        |   |   |   |   |   | F |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 300LB 3"               |                     |  |        |   |   |   |   |   | G |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 300LB 4"               |                     |  |        |   |   |   |   |   | H |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | DIN PN40 DN80                   |                     |  |        |   |   |   |   |   | J |    |    |    |    |    |    |    |  |  |  |  |
| DIN PN16 DN100      |   |                                 |                     |  |        |   |   |   |   | K |   |    |    |    |    |    |    |    |  |  |  |  |
| 316 stainless steel |   | JIS 10K 80A                     |                     |  |        |   |   |   |   |   | S |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 3B               |                     |  |        |   |   |   |   |   | T |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | ANSI/JPI 150LB 4B               |                     |  |        |   |   |   |   |   | U |    |    |    |    |    |    |    |  |  |  |  |
|                     | ANSI/JPI 300LB 3B   |                                 |                     |  |        |   |   |   |   | V |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | ANSI/JPI 300LB 4B   |                                 |                     |  |        |   |   |   |   | W |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | ANSI/JPI 600LB 3B   |                                 |                     |  |        |   |   |   |   | X |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 6   | <Span limit (*1) [kPa] {m bar}> | Note 1              |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | 0.32 ---- 32                    |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | {3.2 ---- 320}                  |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| 1.3 ---- 130        |   |                                 |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| {13 ---- 1300}      |   | Note 2                          |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| 5 ---- 500          |   |                                 |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| 7                   | <Material>  |                                 |                     |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     |   | LP side                         | HP side             |  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Process cover   | Diaphragm                       | Wetted sensor body  | Diaphragm and flange face  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | 316L stainless steel   |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | Hastelloy-C  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | Monel  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | Tantalum   |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | Diaphragm: 316L stainless steel +Au coating Flange face: 316 stainless steel |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | Hastelloy-C                     | Hastelloy-C lining  | Hastelloy-C  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | Monel                           | Monel lining        | Monel  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | Tantalum                        | Tantalum lining     | Tantalum   |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Hastelloy-C lining  | Hastelloy-C                     | Hastelloy-C lining  | Hastelloy-C  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Monel lining  | Monel                           | Monel lining        | Monel  |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | Tantalum lining   | Tantalum                        | Tantalum lining     | Tantalum   |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
|                     | 316 stainless steel   | 316L stainless steel            | 316 stainless steel | Titanium   | Note 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |
| 316 stainless steel | 316L stainless steel  | 316 stainless steel             | Zirconium           | Note 3   |        |   |   |   |   |   |   |    |    |    |    |    |    |    |  |  |  |  |

Note 1: (\*1) 100: 1 turn down is possible, but should be used at a span greater than  $1/40$  of the maximum span for better performance.

Note 2: (\*2) Not available for 7th digit code "R".

Note 3: (\*3) 5th digit code "0, 2, 4, 6, 8, A, C, E, G, J" are available.

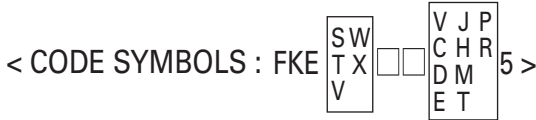


| Digit | Description   | Note    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 21 | ← Digit No. of code |   |
|-------|---|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|---------------------|---|
| 15    | <Bolt/nut> (* 12)<br>Cr-Mo alloy hexagon socket head cap screw/carbon steel nut<br>Cr-Mo alloy hexagon bolt/carbon steel nut<br>304 stainless steel bolt /304 stainless steel nut<br>316 stainless steel bolt /316 stainless steel nut  | Note 12 | F | K | E |   |   |   |   | 5 |   |    |    |    |    |    |    |    |                     |   |
| 21    | <Other options> (* 6)<br>High accuracy type                      Instruction manual attached<br>Low temperature effect type            Instruction manual attached<br>H+J    Instruction manual attached<br>Opposite Vent/Drain Plug Position    Instruction manual attached<br>-----<br>Instruction manual unattached<br>High accuracy type                      Instruction manual unattached<br>Low temperature effect type            Instruction manual unattached<br>T+U    Instruction manual unattached<br>Opposite Vent/Drain Plug Position    Instruction manual unattached | Note 6  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |                     | H<br>J<br>K<br>C<br>L<br>T<br>U<br>V<br>P |

Note 6: (\*6) If other option is not necessary, 21st digit code is blank.  
In case of 21st digit code is blank, instruction manual attached.

Note 12: (\*12) If case of tropical use, select stainless bolts and nuts.

# OUTLINE DIAGRAM (Unit:mm)



NOTE) The measurements "t" will be added 2mm to each measurements in case of 11th digit of E,F,G,H.

| 5th digit of the code symbols | φD  | φE    | φF  | φG  | φH±1 | NOTE1<br>t | P   | N-φh | FLANGE         |
|-------------------------------|-----|-------|-----|-----|------|------------|-----|------|----------------|
| O, A, S                       | 185 | 150   | 126 | 100 | 73   | 38         | 116 | 8-19 | JIS-10K-80A    |
| M                             | 200 | 160   | 126 | 100 | 73   | 42         | 116 | 8-23 | JIS-20K-80A    |
| 2, C                          | 210 | 170   | 126 | 100 | 73   | 48         | 116 | 8-23 | JIS-30K-80A    |
| 1, B                          | 210 | 175   | 151 | 103 | 96   | 38         | 141 | 8-19 | JIS-10K-100A   |
| 3, D                          | 240 | 195   | 151 | 103 | 96   | 52         | 141 | 8-25 | JIS-30K-100A   |
| 4, E, T                       | 191 | 152.5 | 126 | 100 | 73   | 44         | 116 | 4-20 | ANSI 150LB 3B  |
| 6, G, V                       | 210 | 168   | 126 | 100 | 73   | 49         | 116 | 8-23 | ANSI 300LB 3B  |
| R, X                          | 210 | 168   | 126 | 100 | 73   | 52         | 116 | 8-23 | ANSI 600LB 3B  |
| 5, F, U                       | 229 | 190.5 | 151 | 103 | 96   | 44         | 141 | 8-20 | ANSI 150LB 4B  |
| 7, H, W                       | 254 | 200   | 151 | 103 | 96   | 52         | 141 | 8-23 | ANSI 300LB 4B  |
| 8, J                          | 200 | 160   | 126 | 100 | 73   | 44         | 116 | 8-18 | DIN PN40 DN80  |
| 9, K                          | 220 | 180   | 151 | 103 | 96   | 40         | 141 | 8-18 | DIN PN16 DN100 |

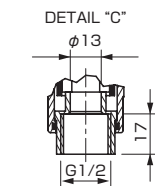
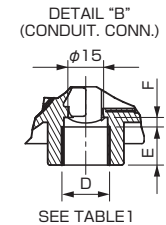
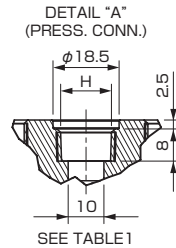
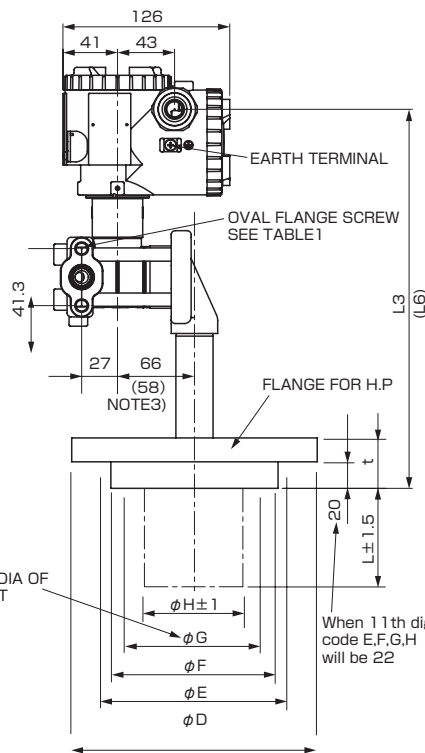
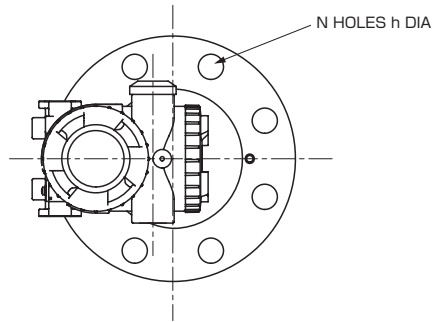
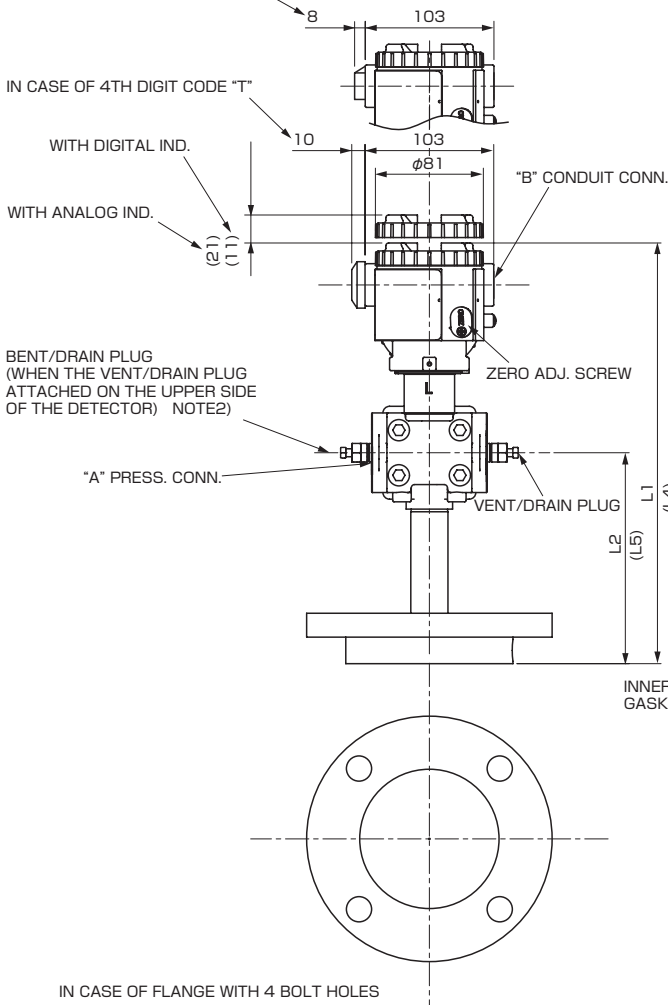
| 4th digit of the code symbols | conduit conn. |      |     | Press. Conn. |  | Oval flange screw           |
|-------------------------------|---------------|------|-----|--------------|--|-----------------------------|
|                               | D             | E    | F   | H            |  |                             |
| S                             | G1/2          | 18   | 2   | Rc 1/4       |  | 7/16-20UNF<br>SCREW DEPTH15 |
| T                             | 1/2-14NPT     | 16   | 4   | 1/4-18NPT    |  | 7/16-20UNF<br>SCREW DEPTH15 |
| V                             | Pg13.5        | 10.5 | 4.5 | 1/4-18NPT    |  | M10<br>SCREW DEPTH15        |
| W                             | M20x1.5       | 16   | 4   | 1/4-18NPT    |  | M10<br>SCREW DEPTH15        |
| X                             | Pg13.5        | 10.5 | 4.5 | 1/4-18NPT    |  | 7/16-20UNF<br>SCREW DEPTH15 |

TABLE 1

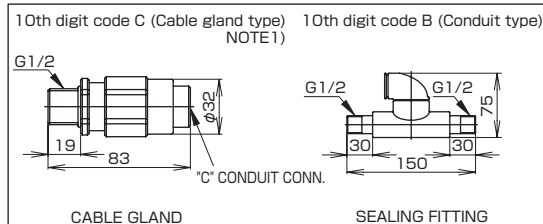
| 11th digit of the code symbols | L±1.5 | MASS APPROX. (kg) | L1  | L2  | L3  | NOTE3 |     |     |
|--------------------------------|-------|-------------------|-----|-----|-----|-------|-----|-----|
|                                |       |                   |     |     |     | L4    | L5  | L6  |
| Y                              | 0     | 10.2 ~ 13.7       | 309 | 151 | 278 | 320   | 159 | 289 |
| A, E                           | 50    | 10.7 ~ 17.7       | 304 | 146 | 273 | 315   | 154 | 284 |
| B, F                           | 100   | 11.2 ~ 18.2       |     |     |     |       |     |     |
| C, G                           | 150   | 11.7 ~ 18.7       |     |     |     |       |     |     |
| D, H                           | 200   | 12.2 ~ 19.2       |     |     |     |       |     |     |

L1 to L6 will be added 2mm to each measurement in case of 11th digit E,F,G,H.

IN CASE OF 4TH DIGIT CODE "S, V, W, X"

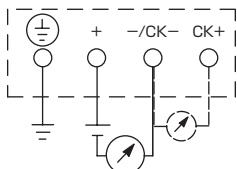


OPTION PARTS FOR FLAMEPROOF OF TIIS (JAPAN)



NOTE1) IN CASE OF 10TH CODE "C", φ11 CABLE IS SUITABLE.  
 NOTE2) THE PRESSURE CONNECTOR IS LOCATED ON THE DOWN SIDE SURFACE OF THE DETECTOR, WHEN THE VENT/DRAIN PLUG IS ATTACHED ON THE UPPER SIDE OF THE DETECTOR (WHEN THE 21ST DIGIT OF THE CODE SYMBOLS : C,P).  
 NOTE3) WHEN THE 7TH DIGIT OF THE CODE SYMBOLS "H,M,T"

CONNECTION DIAGRAM





< CODE SYMBOLS : FKE 

|   |   |
|---|---|
| 5 | 8 |
| 6 | 9 |
| 7 |   |

|   |   |   |
|---|---|---|
| V | J | P |
| C | H | R |
| D | M | T |
| E | T |   |

 5 >

NOTE) The measurements "t" will be added 2mm to each measurements in case of 11th digit of E,F,G,H.

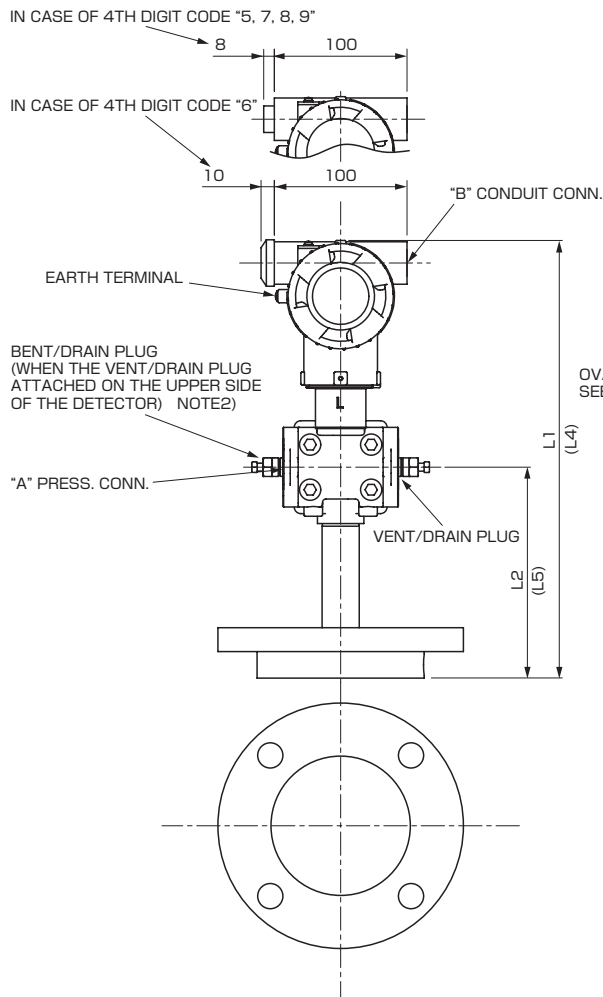
| 5th digit of the code symbols | φD  | φE    | φF  | φG  | φH±1 | NOTE1<br>t | P   | N-φh | FLANGE         |
|-------------------------------|-----|-------|-----|-----|------|------------|-----|------|----------------|
| 0, A, S                       | 185 | 150   | 126 | 100 | 73   | 38         | 116 | 8-19 | JIS-10K-80A    |
| M                             | 200 | 160   | 126 | 100 | 73   | 42         | 116 | 8-23 | JIS-20K-80A    |
| 2, C                          | 210 | 170   | 126 | 100 | 73   | 48         | 116 | 8-23 | JIS-30K-80A    |
| 1, B                          | 210 | 175   | 151 | 103 | 96   | 38         | 141 | 8-19 | JIS-10K-100A   |
| 3, D                          | 240 | 195   | 151 | 103 | 96   | 52         | 141 | 8-25 | JIS-30K-100A   |
| 4, E, T                       | 191 | 152.5 | 126 | 100 | 73   | 44         | 116 | 4-20 | ANSI 150LB 3B  |
| 6, G, V                       | 210 | 168   | 126 | 100 | 73   | 49         | 116 | 8-23 | ANSI 300LB 3B  |
| R, X                          | 210 | 168   | 126 | 100 | 73   | 52         | 116 | 8-23 | ANSI 600LB 3B  |
| 5, F, U                       | 229 | 190.5 | 151 | 103 | 96   | 44         | 141 | 8-20 | ANSI 150LB 4B  |
| 7, H, W                       | 254 | 200   | 151 | 103 | 96   | 52         | 141 | 8-23 | ANSI 300LB 4B  |
| 8, J                          | 200 | 160   | 126 | 100 | 73   | 44         | 116 | 8-18 | DIN PN40 DN80  |
| 9, K                          | 220 | 180   | 151 | 103 | 96   | 40         | 141 | 8-18 | DIN PN16 DN100 |

| 4th digit of the code symbols | conduit conn. |      |     | Press. Conn. | Oval flange screw        |
|-------------------------------|---------------|------|-----|--------------|--------------------------|
|                               | D             | E    | F   | H            |                          |
| 5                             | G1/2          | 18   | 2   | Rc 1/4       | 7/16-20UNF SCREW DEPTH15 |
| 6                             | 1/2-14NPT     | 16   | 4   | 1/4-18NPT    | 7/16-20UNF SCREW DEPTH15 |
| 7                             | Pg13.5        | 10.5 | 4.5 | 1/4-18NPT    | M10 SCREW DEPTH15        |
| 8                             | M20×1.5       | 16   | 4   | 1/4-18NPT    | M10 SCREW DEPTH15        |
| 9                             | Pg13.5        | 10.5 | 4.5 | 1/4-18NPT    | 7/16-20UNF SCREW DEPTH15 |

TABLE 1

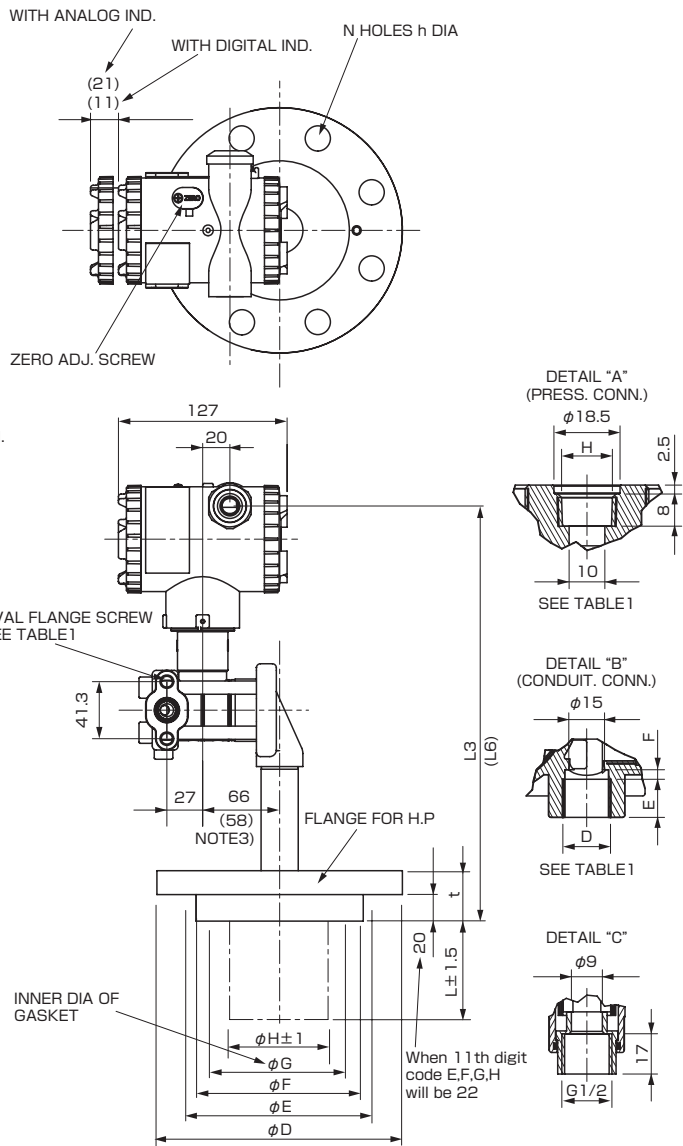
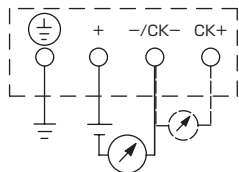
| 11th digit of the code symbols | L±1.5 | MASS APPROX. (kg) | L1  | L2  | L3  | NOTE3 |     |     |
|--------------------------------|-------|-------------------|-----|-----|-----|-------|-----|-----|
|                                |       |                   |     |     |     | L4    | L5  | L6  |
| Y                              | 0     | 10.2 ~ 13.7       | 322 | 151 | 305 | 333   | 159 | 316 |
| A, E                           | 50    | 10.7 ~ 17.7       | 317 | 146 | 300 | 328   | 154 | 311 |
| B, F                           | 100   | 11.2 ~ 18.2       |     |     |     |       |     |     |
| C, G                           | 150   | 11.7 ~ 18.7       |     |     |     |       |     |     |
| D, H                           | 200   | 12.2 ~ 19.2       |     |     |     |       |     |     |

L1 to L6 will be added 2mm to each measurement in case of 11th digit E,F,G,H.

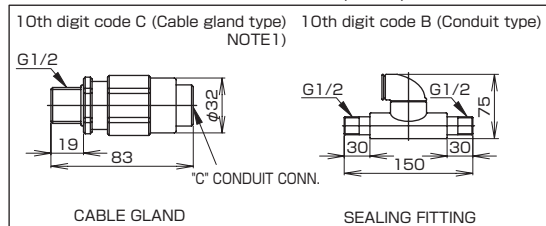


IN CASE OF FLANGE WITH 4 BOLT HOLES

CONNECTION DIAGRAM



OPTION PARTS FOR FLAMEPROOF OF THIS (JAPAN)



NOTE1) IN CASE OF 10TH CODE "C", φ11 CABLE IS SUITBLE.  
 NOTE2) THE PRESSURE CONNECTOR IS LOCATED ON THE DOWN SIDE SURFACE OF THE DETECTOR, WHEN THE VENT/RAIN PLUG IS ATTACHED ON THE UPPER SIDE OF THE DETECTOR  
 (WHEN THE 21ST DIGIT OF THE CODE SYMBOLS : C,P).  
 NOTE3) WHEN THE 7TH DIGIT OF THE CODE SYMBOLS : "H,M,T"

< CODE SYMBOLS : FKE 

|   |   |
|---|---|
| S | W |
| T | X |
| V |   |

|   |   |
|---|---|
|   |   |
| B | U |
| L | 5 |

 >

NOTE) The measurements "t" will be added 2mm to each measurements in case of 11th digit of E,F,G,H.

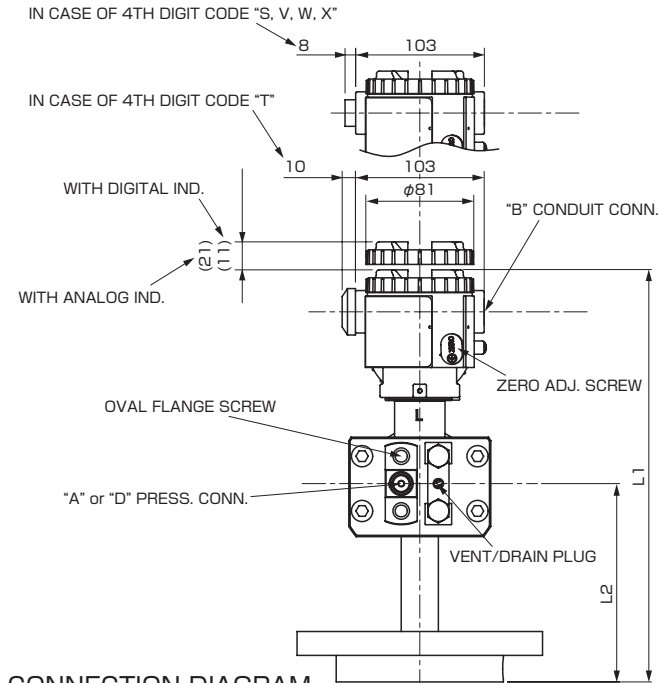
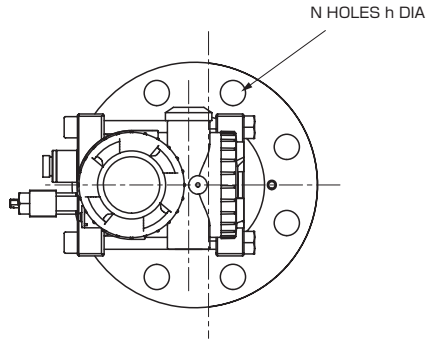
| 5th digit of the code symbols | φD  | φE    | φF  | φG  | φH±1 | NOTE) t | P   | N-φh | FLANGE         |
|-------------------------------|-----|-------|-----|-----|------|---------|-----|------|----------------|
| 0, A, S                       | 185 | 150   | 126 | 100 | 73   | 38      | 116 | 8-19 | JIS-10K-80A    |
| M                             | 200 | 160   | 126 | 100 | 73   | 42      | 116 | 8-23 | JIS-20K-80A    |
| 2, C                          | 210 | 170   | 126 | 100 | 73   | 48      | 116 | 8-23 | JIS-30K-80A    |
| 1, B                          | 210 | 175   | 151 | 103 | 96   | 38      | 141 | 8-19 | JIS-10K-100A   |
| 3, D                          | 240 | 195   | 151 | 103 | 96   | 52      | 141 | 8-25 | JIS-30K-100A   |
| 4, E, T                       | 191 | 152.5 | 126 | 100 | 73   | 44      | 116 | 4-20 | ANSI 150LB 3B  |
| 6, G, V                       | 210 | 168   | 126 | 100 | 73   | 49      | 116 | 8-23 | ANSI 300LB 3B  |
| R, X                          | 210 | 168   | 126 | 100 | 73   | 52      | 116 | 8-23 | ANSI 600LB 3B  |
| 5, F, U                       | 229 | 190.5 | 151 | 103 | 96   | 44      | 141 | 8-20 | ANSI 150LB 4B  |
| 7, H, W                       | 254 | 200   | 151 | 103 | 96   | 52      | 141 | 8-23 | ANSI 300LB 4B  |
| 8, J                          | 200 | 160   | 126 | 100 | 73   | 44      | 116 | 8-18 | DIN PN40 DN80  |
| 9, K                          | 220 | 180   | 151 | 103 | 96   | 40      | 141 | 8-18 | DIN PN16 DN100 |

| 4th digit of the code symbols | conduit conn. |      |     | Oval flange screw        |
|-------------------------------|---------------|------|-----|--------------------------|
|                               | D             | E    | F   |                          |
| S                             | G1/2          | 18   | 2   | 7/16-20UNF SCREW DEPTH15 |
| T                             | 1/2-14NPT     | 16   | 4   | 7/16-20UNF SCREW DEPTH15 |
| V                             | Pg13.5        | 10.5 | 4.5 | M10 SCREW DEPTH15        |
| W                             | M20x1.5       | 16   | 4   | M10 SCREW DEPTH15        |
| X                             | Pg13.5        | 10.5 | 4.5 | 7/16-20UNF SCREW DEPTH15 |

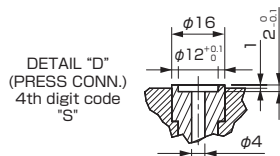
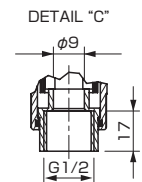
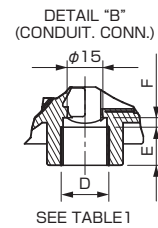
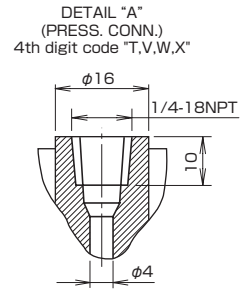
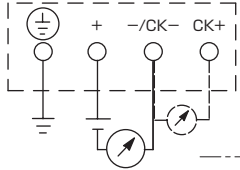
TABLE 1

| 11th digit of the code symbols | L±1.5 | MASS APPROX. (kg) | L1  | L2  | L3  |
|--------------------------------|-------|-------------------|-----|-----|-----|
| Y                              | 0     | 11.3 ~ 14.8       | 311 | 150 | 280 |
| A, E                           | 50    | 11.8 ~ 18.8       | 305 | 144 | 274 |
| B, F                           | 100   | 12.3 ~ 19.3       |     |     |     |
| C, G                           | 150   | 12.8 ~ 19.8       |     |     |     |
| D, H                           | 200   | 13.3 ~ 20.3       |     |     |     |

L1 to L3 will be added 2mm to each measurement in case of 11th digit E,F,G,H.



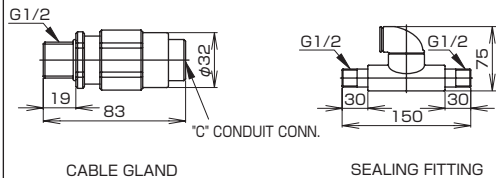
CONNECTION DIAGRAM



IN CASE OF FLANGE WITH 4 BOLT HOLES

OPTION PARTS FOR FLAMEPROOF OF TIIS (JAPAN)

10th digit code C (Cable gland type) 10th digit code B (Conduit type) NOTE1)



NOTE1) IN CASE OF 10TH CODE 'C', φ11 CABLE IS SUITBLE.

< CODE SYMBOLS : FKE 

|   |   |
|---|---|
| 5 | 8 |
| 6 | 9 |
| 7 |   |

|   |
|---|
| B |
| U |
| L |

 5 >

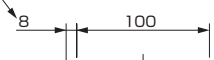
NOTE) The measurements "t" will be added 2mm to each measurements in case of 11th digit of E,F,G,H.

| 5th digit of the code symbols | φD  | φE    | φF  | φG  | φH±1 | NOTE t | P   | N-φh | FLANGE         |
|-------------------------------|-----|-------|-----|-----|------|--------|-----|------|----------------|
| 0, A, S                       | 185 | 150   | 126 | 100 | 73   | 38     | 116 | 8-19 | JIS-10K-80A    |
| M                             | 200 | 160   | 126 | 100 | 73   | 42     | 116 | 8-23 | JIS-20K-80A    |
| 2, C                          | 210 | 170   | 126 | 100 | 73   | 48     | 116 | 8-23 | JIS-30K-80A    |
| 1, B                          | 210 | 175   | 151 | 103 | 96   | 38     | 141 | 8-19 | JIS-10K-100A   |
| 3, D                          | 240 | 195   | 151 | 103 | 96   | 52     | 141 | 8-25 | JIS-30K-100A   |
| 4, E, T                       | 191 | 152.5 | 126 | 100 | 73   | 44     | 116 | 4-20 | ANSI 150LB 3B  |
| 6, G, V                       | 210 | 169   | 126 | 100 | 73   | 49     | 116 | 8-23 | ANSI 300LB 3B  |
| R, X                          | 210 | 168   | 126 | 100 | 73   | 52     | 116 | 8-23 | ANSI 600LB 3B  |
| 5, F, U                       | 229 | 190.5 | 151 | 103 | 96   | 44     | 141 | 8-20 | ANSI 150LB 4B  |
| 7, H, W                       | 254 | 200   | 151 | 103 | 96   | 52     | 141 | 8-23 | ANSI 300LB 4B  |
| 8, J                          | 200 | 160   | 126 | 100 | 73   | 44     | 116 | 8-18 | DIN PN40 DN80  |
| 9, K                          | 220 | 180   | 151 | 103 | 96   | 40     | 141 | 8-18 | DIN PN16 DN100 |

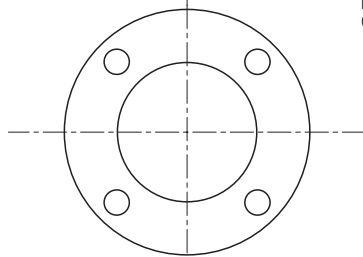
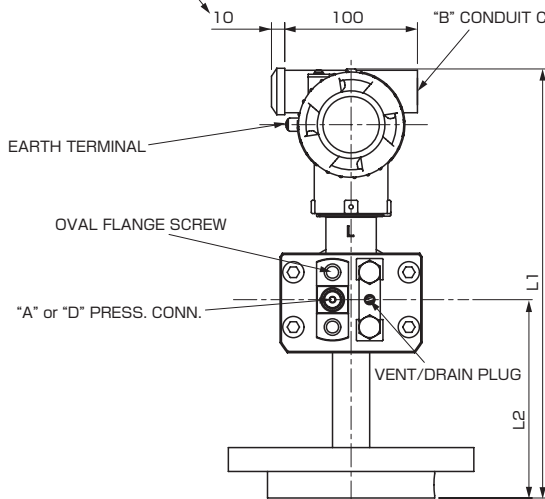
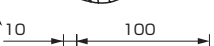
| 11th digit of the code symbols | L±1.5 | MASS APPROX. (kg) | L1  | L2  | L3  |
|--------------------------------|-------|-------------------|-----|-----|-----|
| Y                              | 0     | 11.3 ~ 14.8       | 324 | 150 | 307 |
| A, E                           | 50    | 11.8 ~ 18.8       |     |     |     |
| B, F                           | 100   | 12.3 ~ 19.3       | 318 | 144 | 301 |
| C, G                           | 150   | 12.8 ~ 19.8       |     |     |     |
| D, H                           | 200   | 13.3 ~ 20.3       |     |     |     |

L1 to L3 will be added 2mm to each measurement in case of 11th digit E,F,G,H.

IN CASE OF 4TH DIGIT CODE "5, 7, 8, 9"

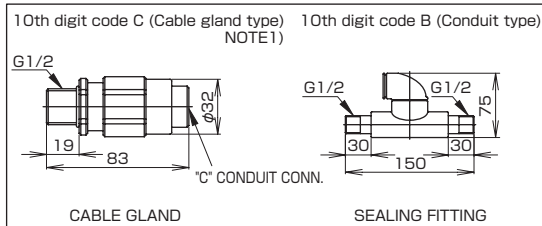


IN CASE OF 4TH DIGIT CODE "6"



IN CASE OF FLANGE WITH 4 BOLT HOLES

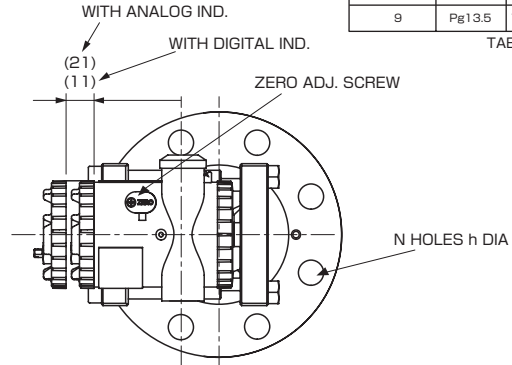
OPTION PARTS FOR FLAMEPROOF OF TIIS (JAPAN)



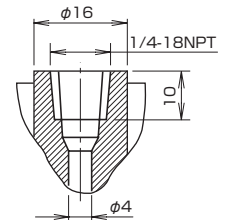
NOTE1) IN CASE OF 10TH CODE "C", φ11 CABLE IS SUITBLE.

| 4th digit of the code symbols | conduit conn. |      |     | Oval flange screw        |
|-------------------------------|---------------|------|-----|--------------------------|
|                               | D             | E    | F   |                          |
| 5                             | G1/2          | 18   | 2   | 7/16-20UNF SCREW DEPTH15 |
| 6                             | 1/2-14NPT     | 16   | 4   | 7/16-20UNF SCREW DEPTH15 |
| 7                             | Pg13.5        | 10.5 | 4.5 | M10 SCREW DEPTH15        |
| 8                             | M20×1.5       | 16   | 4   | M10 SCREW DEPTH15        |
| 9                             | Pg13.5        | 10.5 | 4.5 | 7/16-20UNF SCREW DEPTH15 |

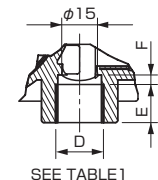
TABLE 1



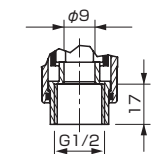
DETAIL "A" (PRESS. CONN.) 4th digit code "6,7,8,9"



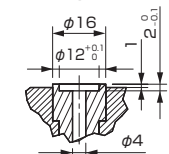
DETAIL "B" (CONDUIT. CONN.)



DETAIL "C"



DETAIL "D" (PRESS. CONN.) 4th digit code "5"



CONNECTION DIAGRAM

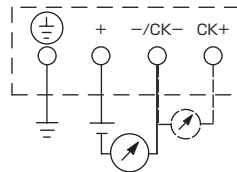


TABLE 2

| Authorities    | Intrinsic safety   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
|----------------|--|----------------|--|------|-----------|------------|--|-------|---------------|----------------|---------|---------------|----------------|---------|---------------|----------------|-------|---------------|----------------|---|-------|----------------|
| ATEX           | Ex II 1 G<br>Ex ia IIC T5 Tamb = -40°C to +50°C<br>Ex ia IIC T4 Tamb = -40°C to +70°C<br><br>Entity Parameters:<br>Ui=28V, Ii=94.3mA, Pi=0.66W,<br>Ci=26nF (Without Arrester), Li=0.6mH (Without analog indicator),<br>Ci=36nF (With Arrester), Li=0.7mH (With analog indicator)   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Factory Mutual | Class I II III<br>Div.1 Groups A, B, C, D, E, F, G<br>T4 Entity Type 4X<br><table border="1"> <thead> <tr> <th colspan="2">Model code</th> <th>Tamb</th> </tr> <tr> <th>9th digit</th> <th>13th digit</th> <th></th> </tr> </thead> <tbody> <tr> <td>A,B,D</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +85°C</td> </tr> <tr> <td>L,P,1,2</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +80°C</td> </tr> <tr> <td>Q,S,4,5</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +60°C</td> </tr> <tr> <td>E,F,H</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +60°C</td> </tr> <tr> <td>-</td> <td>W,A,D</td> <td>-10°C to +60°C</td> </tr> </tbody> </table><br>Entity Parameters:<br>Vmax=28V, Imax=94.3mA, Pi=0.66W,<br>Ci=35.98nF, Li=0.694mH | Model code     |  | Tamb | 9th digit | 13th digit |  | A,B,D | Y,G,H,J,S,T,K | -40°C to +85°C | L,P,1,2 | Y,G,H,J,S,T,K | -20°C to +80°C | Q,S,4,5 | Y,G,H,J,S,T,K | -20°C to +60°C | E,F,H | Y,G,H,J,S,T,K | -40°C to +60°C | - | W,A,D | -10°C to +60°C |
| Model code     |  | Tamb           |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| 9th digit      | 13th digit   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| A,B,D          | Y,G,H,J,S,T,K  | -40°C to +85°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| L,P,1,2        | Y,G,H,J,S,T,K  | -20°C to +80°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Q,S,4,5        | Y,G,H,J,S,T,K  | -20°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| E,F,H          | Y,G,H,J,S,T,K  | -40°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| -              | W,A,D  | -10°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| CSA            | Class I<br>Div.1 Groups A, B, C, D<br>Class II<br>Div.1 Groups E, F, G<br>Class III<br>Div.1<br>Temp Code T5 Tamb max = +50°C<br>Temp Code T4 Tamb max = +70°C<br>Entity Parameters:<br>Vmax=28V, Imax=94.3mA, Ci=25nF (Without Arrester),<br>Ci=36nF (With Arrester), Li=0.6mH (Without analog meter),<br>Li=0.7mH (With analog meter)  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| TIIS           | Ex ia IIC T4<br>Tamb max = +60°C<br>Entity Parameters:<br>Ui=28V, Ii=94.3mA, Pi=0.66W,<br>Ci=38.4nF, Li=0.694mH  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| IECEx Scheme   | Ex ia IIC T4<br>Tamb = -40°C to +70°C<br>Ex ia IIC T5<br>Tamb = -40°C to +50°C<br>Entity Parameters:<br>Ui=28V, Ii=94.3mA, Pi=0.66W,<br>Ci=26nF (Without Arrester), Li=0.6mH (Without analog indicator),<br>Ci=36nF (With Arrester), Li=0.7mH (With analog indicator)  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| NEPSI          | Ex ia IIC T4<br>Ex d IIB+H <sub>2</sub> T6 / Ex ia IIC T4<br><table border="1"> <thead> <tr> <th colspan="2">Model code</th> <th>Tamb</th> </tr> <tr> <th>9th digit</th> <th>13th digit</th> <th></th> </tr> </thead> <tbody> <tr> <td>A,B,D</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +85°C</td> </tr> <tr> <td>L,P,1,2</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +80°C</td> </tr> <tr> <td>Q,S,4,5</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +60°C</td> </tr> <tr> <td>E,F,H</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +60°C</td> </tr> <tr> <td>-</td> <td>W,A,D</td> <td>-10°C to +60°C</td> </tr> </tbody> </table><br>Entity Parameters:<br>Ui=42.4V, Ii=113mA, Pi=1W,<br>Ci=35.98nF, Li=0.694mH                     | Model code     |  | Tamb | 9th digit | 13th digit |  | A,B,D | Y,G,H,J,S,T,K | -40°C to +85°C | L,P,1,2 | Y,G,H,J,S,T,K | -20°C to +80°C | Q,S,4,5 | Y,G,H,J,S,T,K | -20°C to +60°C | E,F,H | Y,G,H,J,S,T,K | -40°C to +60°C | - | W,A,D | -10°C to +60°C |
| Model code     |  | Tamb           |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| 9th digit      | 13th digit   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| A,B,D          | Y,G,H,J,S,T,K  | -40°C to +85°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| L,P,1,2        | Y,G,H,J,S,T,K  | -20°C to +80°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Q,S,4,5        | Y,G,H,J,S,T,K  | -20°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| E,F,H          | Y,G,H,J,S,T,K  | -40°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| -              | W,A,D  | -10°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |

| Authorities              | Flameproof  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
|--------------------------|---|----------------|--|------|-----------|------------|--|-------|---------------|----------------|---------|---------------|----------------|---------|---------------|----------------|-------|---------------|----------------|---|-------|----------------|
| ATEX                     | Ex II 2 GD<br>Ex d IIC T6 IP66/67 T85°C<br>Tamb = -40°C to +65°C<br>Ex d IIC T5 IP66/67 T100°C<br>Tamb = -40°C to +85°C   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Factory Mutual           | Class I<br>Div.1 Groups B, C, D<br>T6 Type 4X<br>Class II III<br>Div.1 Groups E, F, G<br>T6 Type 4X<br>Tamb max = +60°C   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| CSA                      | Class I<br>Div.1 Groups C, D<br>Class II<br>Div.1 Groups E, F, G<br>Class III<br>Div.1<br><br>(Note) "Seal Not Required" enclosure is allowed.  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| TIIS                     | Ex do IIB+H <sub>2</sub> T4<br>Tamb max = +60°C<br>Maximum process temp. = +120°C   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| IECEx Scheme             | Ex d IIC T5 IP66/67<br>Tamb = -40°C to +85°C<br>Ex d IIC T6 IP66/67<br>Tamb = -40°C to +65°C  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| NEPSI                    | Ex d IIB+H <sub>2</sub> T6<br>Tamb = -40°C to +60°C   |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Authorities              | Type n<br>Nonincendive  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| ATEX                     | Ex II 3 GD<br>EEx nL IIC T5 Tamb = -40°C to +50°C<br>EEx nL IIC T4 Tamb = -40°C to +70°C<br>Specific Parameters:<br>Model without arrester:<br>Ui=42.4V, Ii=113mA, Pi=1W,<br>Ci=25.18nF, Li=0.694mH<br>Model with arrester:<br>Ui=32V, Ii=113mA, Pi=1W,<br>Ci=35.98nF, Li=0.694mH<br><br>EEx nAL IIC T5 Tamb = -40°C to +50°C<br>EEx nAL IIC T4 Tamb = -40°C to +70°C<br>Specific Parameters:<br>Model without arrester:<br>Umax=42.4V, Imax=113mA, Pmax=1W<br>Model with arrester:<br>Umax=32V, Imax=113mA, Pmax=1W  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Factory Mutual (pending) | Class I II III<br>Div.2 Groups A, B, C, D, F, G<br>T4 Entity Type 4X<br><table border="1"> <thead> <tr> <th colspan="2">Model code</th> <th>Tamb</th> </tr> <tr> <th>9th digit</th> <th>13th digit</th> <th></th> </tr> </thead> <tbody> <tr> <td>A,B,D</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +85°C</td> </tr> <tr> <td>L,P,1,2</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +80°C</td> </tr> <tr> <td>Q,S,4,5</td> <td>Y,G,H,J,S,T,K</td> <td>-20°C to +60°C</td> </tr> <tr> <td>E,F,H</td> <td>Y,G,H,J,S,T,K</td> <td>-40°C to +60°C</td> </tr> <tr> <td>-</td> <td>W,A,D</td> <td>-10°C to +60°C</td> </tr> </tbody> </table> | Model code     |  | Tamb | 9th digit | 13th digit |  | A,B,D | Y,G,H,J,S,T,K | -40°C to +85°C | L,P,1,2 | Y,G,H,J,S,T,K | -20°C to +80°C | Q,S,4,5 | Y,G,H,J,S,T,K | -20°C to +60°C | E,F,H | Y,G,H,J,S,T,K | -40°C to +60°C | - | W,A,D | -10°C to +60°C |
| Model code               |   | Tamb           |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| 9th digit                | 13th digit  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| A,B,D                    | Y,G,H,J,S,T,K   | -40°C to +85°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| L,P,1,2                  | Y,G,H,J,S,T,K   | -20°C to +80°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| Q,S,4,5                  | Y,G,H,J,S,T,K   | -20°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| E,F,H                    | Y,G,H,J,S,T,K   | -40°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| -                        | W,A,D   | -10°C to +60°C |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |
| CSA                      | Class I<br>Div.2 Groups A, B, C, D<br>Class II<br>Div.2 Groups E, F, G<br>Class III<br>Div.2<br>Temp Code T5 Tamb max = +50°C<br>Temp Code T4 Tamb max = +70°C<br>Entity Parameters:<br>Vmax=28V, Ci=25.18nF (Without Arrester),<br>Ci=35.98nF (With Arrester), Li=0.694mH  |                |  |      |           |            |  |       |               |                |         |               |                |         |               |                |       |               |                |   |       |                |

⚠ Caution on Safety

\*Before using this product, be sure to read its instruction manual in advance.

**Fuji Electric Systems Co., Ltd.**

**International Sales Div.1**

**Sales Group**

Gate City Ohsaki, East Tower, 11-2, Osaki 1-chome,  
Shinagawa-ku, Tokyo 141-0032, Japan

<http://www.fesys.co.jp/eng>

Phone: 81-3-5435-7280, 7281 Fax: 81-3-5435-7425

<http://www.fic-net.jp/eng>

