

## DIFFERENTIAL PRESSURE (FLOW) TRANSMITTER (HYDROGEN PERMEATION RESISTANT TYPE)

### DATA SHEET

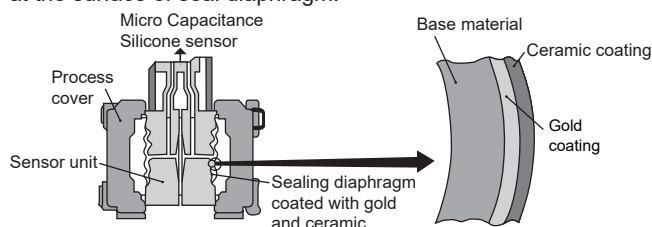
FKC...5/FDC...5

The FCX -AIII differential pressure (flow) transmitter accurately measures pressure and converts it into an output signal of 4~20mA DC.

The transmitter utilizes a unique micromachined capacitance silicon sensor with state-of-the-art microprocessor technology to provide exceptional performance and functionality. It's small volume, light weight, good environment adaptability, and applicable to all fields. If using the hand held communicator (sold separately), it can be set and display via remote operation, without affecting the DC 4~20mA output signal of transmitter. FCX-AIII series transmitters with safety function have obtained the certificate of SIL certification by TÜV.

### Features

1. The world's first double coating structure (patent).  
Permeation of hydrogen into the fill fluid can be suppressed by the world's first gold and ceramic coating (double coating) at the surface of seal diaphragm.



2. High accuracy  
Differential pressure (flow) transmitter can be carried out with high accuracy measurement in the range of 3.2 ~ 130kPa. There's no need to linear calibration when carrying out zero elevation or suppression.

3. Excellent environmental adaptability  
The advanced floating cell protects sensor from temperature and overpressure effect, and controls the total measurement error of the filled to the minimum.

4. Excellent operability and easy to use  
It has an excellent operability and easy to use in any application.
  - All range meet the requirements of explosion-proof.
  - 5-digit digital indicator
  - Stainless steel AMP case
  - Built-in RFI filter and lightning arrester
  - Built-in local configurator with 3 push buttons

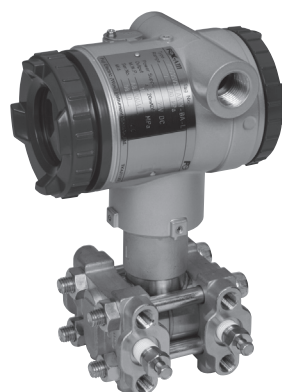
5. The transmitter can communicate using FUJI, HART, communication protocol, and also can use FOUNDATION FIELDBUS or PROFIBUS protocol after changing the electronic circuit.

### Specifications

#### Functional specifications

- Measured fluid: Liquid, gas, or vapor
- Range, operating pressure:

Model	Operating pressure [MPa]	Span limit [kPa]		Range limit [kPa]	
		Min.	Max.	Lower	Upper
FKC □ 33 FDC □ 33	-0.1 ~ +16	3.2	32	-32	32
FKC □ 35 FDC □ 35	-0.1 ~ +16	13	130	-130	130



- Process temperature, Lower range limit: Refer to Figure 1

Fill fluid	13th digit code	Process Temperature	Lower range limit
Silicone oil	Y, G, N	-20 ~ +120°C	2.7kPa abs
Fluorinated oil	W, A	-10 ~ +80°C	Atmospheric pressure

- Remote function: Refer to table 1

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

- Output signal: (1)FKG: DC4~20mA+HART protocol  
(2)FDG: FOUNDATION Fieldbus protocol or PROFIBUS-PA

- Allowable load resistance: 0 ~ 600Ω (at DC 24V)  
(Refer to figure 2) For communication with HHC, min. of 250Ω resistor is required.

- Power supply:
 

General	DC10.5 ~ 45V
Intrinsic safety	DC10.5 ~ 26V
With arrestor	DC10.5 ~ 32V

- Condition of communication line: Length: up to 2km  
(Refer to figure 2) (0.75 ~ 1.25mm<sup>2</sup> Using twisted pair cable when instrument control cable is more than 1km.)

Load resistance: 250 ~ 600Ω  
(DC24V, including resistance of cable)

Load capacitance: 0.22μF or less

Load inductance: 3.3mH or less

sapcing with power line: 15cm or more

(Please avoid parallel wiring.)

Note: Line condition of intrinsic safety and explosion-proof is different, please refer to the instruction manual.

- Saturation current: Upper limit 20.0 ~ 22.5mA(variable)  
Lower limit 3.2 ~ 4.0mA(variable)  
(Settable in increments of 0.1mA with HHC or local configurator unit with LCD display.)

- Damping: The time constant is adjustable from 0.06 to 32 seconds.

- Adjustment function: Zero and span are adjustable by the external adjustment screw, or by local configurator with 3 push buttons, or by HHC.

- Explosion proof: Refer to table 6
- Zero elevation/suppression: Zero can be elevated or suppressed within the range of -100% to 100% URL.
- Normal/reverse action: Selectable from HHC or LCD unit with local adjustment function.
- Burnout direction: Output hold  
Output 20.0 ~ 22.5mA (variable)  
Output 3.2 ~ 4.0mA (variable)  
(Settable in increments of 0.1mA with HHC or local configurator unit with LCD display.)
- Ambient temperature: -40 ~ +85°C  
(With arrester: -40 ~ +60°C  
Fluorinated oil fill: -10 ~ +60°C  
Note: The optimum operating temperature of digital indicator is -30 ~ +80°C, response is slow below -30°C.)
- Storage temperature: -40 ~ +90°C
- Weather resistance: DIN 40040 GPC
- EMC applicable standard: EN61326-1: 2006 (CE)

Performance specifications

• Differential pressure linear output	
• Accuracy <sup>Note)</sup>	± 0.15 %
• Ambient temperature effect	Zero shift: $\pm \left( 0.1 + 0.075 \frac{URL}{X} \right) \% / 28^\circ C$ Total shift: $\pm \left( 0.125 + 0.075 \frac{URL}{X} \right) \% / 28^\circ C$ In the formula: URL: Upper range limit X: SPAN
• Unidirectional overrange effect	Zero shift/URL FKC□33: ± 1.0% /16MPa FKC□35: ± 0.6% /16MPa
• Static pressure effect	Zero shift: ± 0.15% /10MPa (URL) Span shift: $-0.2 \pm_{-0.4}^{+0.2} \% / 10MPa$ (relative to percentage of SPAN)

Note: relative to percentage of SPAN (under 23°C standard state, including linearity, hysteresis, repeatability)

Square root output

• Accuracy	Output 50 ~ 100% 0.15% Output 20 ~ 50% 0.375% Output 10 ~ 20% 0.75%
• Low flow cut point	Output 0 ~ 20% Adjustable (Initial value setting: 7%)
• Ambient temperature effect	$\pm 2.5 \times \left( 0.125 + 0.075 \frac{URL}{X} \right) \% / 28^\circ C$ In the formula: X: SPAN URL: Upper range limit (Output point shift 20% of URL) (Range: -20 ~ +85°C)

Note: relative to percentage of SPAN (under 23°C standard state, including linearity, hysteresis, repeatability)

- Mounting position effect: 0.1kPa/10°  
In case of 13th digit code "W", "A" (Treatment, Fill fluid), the influence value is 2 times of above.
- Supply voltage effect: ± 0.005% /1V(DC 16.1 ~ 45V)
- Insulation strength: 500VAC, 50/60Hz, 1 min, between circuit and earth.
- Insulation resistance: More than 100MΩ at 500V DC, between circuit and earth.
- Update rate: 60ms

Response time:

Model	Time constant [s]	Dead time [s]
FKC□33 FDC□33	0.12	约0.12
FKC□35 FDC□35	0.08	

- Stability: Zero shift ±0.15% of upper range limit (URL) for 10 years.

Structure and material

Materials of detecting unit:

Material code	Process cover	Detecting unit body	
		diaphragm	Other wetted parts
C	SCS14A	SUS316L(*1)	SUS316

(\*1) The wetted surface of diaphragm is coated with gold and ceramic.  
SCS14A(JIS G 5121) ...CF8M(ASTM A351/A351M) Equivalent

- Amp case materials: Aluminium die casting + Polyester coating (color: silvery) or Stainless steel(SCS14A)
- Amp case cover materials: Aluminium die casting + Polyester coating (color: blue) or Stainless steel(SCS14A)
- Structure of case: Immersion protected type JIS C 0920 (Equivalent to IEC IP67, NEMA 6/6P)
- Outline dimension: According to the outline drawing.
- Weight: approx. 3.6kg (body)
- Conduit connection: G1/2, 1/2-14NPT, M20× 1.5, Pg13.5 (Refer to the model code table for details.)
- External terminal: M3.5 Screw
- Preprocess connection: Rc1/4 or 1/4-18NPT (Refer to the model code table for details.)
- Mounting method: Mounting on 50A(2B) pipe with U-bolt, or mounting on the wall (according to model and specification)
- Direction of AMP unit: Amp unit can be turned clockwise or counterclockwise by 90° or 180°, relative to the direction of detecting unit.

Optional specifications

- Analog indicator: Built in amplifier unit  
Class 2.5, moving-coil, movement 90°, 0 ~ 100% evenly divided scale, square scale or actual scale.  
(The actual scale can be selected in the four evenly divided scales (range: 30, 35, 40, 50) or 0~100% evenly divided scale with reading coefficient.)
- Digital indicator: Built in amplifier unit, 5 digit LCD and unit display, 0 ~ 100% scale display or actual scale display, 0 ~ 100% square root display. Optimum operating temperature range: -30 ~ +80°C.
- Digital indicator: Displaying or setting the items of table 1 (with 3 push buttons) via 3 push buttons of digital indicator.
- Arrester: Built in amplifier unit  
Lightning performance: 4kV(1.2× 50μs)
- Degreasing treatment for oxygen: Filling fluorinated oil, degreasing and cleaning for wetted parts
- NACE specifications: H<sub>2</sub>S treatment countermeasure based on NACE specification.
- Anti-corrosive coating of detecting unit: Epoxy and polyurethane double coating
- Stainless steel tag plate: The plate can be engraved up to 14 characters (letters and numbers)

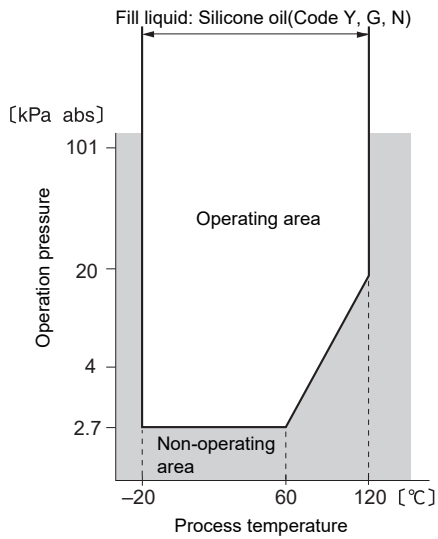
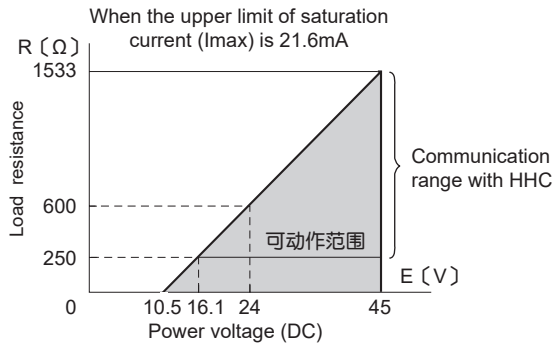


Figure 1 Relation between process temperature and operating pressure



(Note) The load resistance varies according to the upper limit of saturation current.

$$R [\Omega] = \frac{E [V] - 10.5}{(I_{max} [mA] + 0.9) \times 10^{-3}}$$

Figure 2 Operation area of power voltage and load resistance

The product conforms to the requirements of European EMC directive "Electromagnetic Compatibility Directive 2004/108/EC". The detail content is recorded in the technical construction file number TN5A0704. The applicable standards are as follows:

Emission list:  
EN 61326-1 : 2006 Class A (Industrial location)



Frequency range	Limits	Reference standard
30 ~ 230MHz	40dB(μV/m) quasi peak, measured at 10m distance	EN55011:1998 +A1:1999 +A2:2002 (Group1 Class A)
230 ~ 1000MHz	47dB(μV/m) quasi peak, measured at 10m distance	

Immunity requirements:  
EN 61326-1 : 2006 Table2 (Industrial location)

Phenomenon	Test value	Basic standard	P.C.
Electrostatic discharge	2/4kV (Contact) 2/4/8kV (Air)	IEC 61000-4-2:1995 +A1:1998+A2:2001	B
Electromagnetic field	10V/m(80 ~ 1000MHz) 3V/m(1.4 ~ 2.0GHz) 1V/m(2.0 ~ 2.7GHz) 80%AM(1kHz)	IEC 61000-4-3:2002 +A1:2002	A
Rated power frequency magnetic field	30 A/m 50/60 Hz	IEC 61000-4-8:1993 +A1:2001	A
Burst	2kV	IEC 61000-4-4:2004	B
Surge	1.2/50μs(Voltage) 8.0/20μs(Current) 0.5/1kV line to line 0.5/1/2kV line to ground	IEC 61000-4-5:1995 +A1:2001	B
Conducted RF	0.15 ~ 80MHz 3V 80%AM(1kHz)	IEC 61000-4-6:1996 +A1:2001	A

Definition of performance criteria:  
A: During testing, normal performance within the specification limits.  
B: During testing, temporary degradation, or less of function or performance which is self-recovering.

Table1 Adjustment function

No.	Items	HHC (Model:FXW) <sup>Note1)</sup>		Local configurator (With 3 push buttons)	
		Display	Set	Display	Set
1	Tag No.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Serial No. & Software Version	<input type="radio"/>	—	<input type="radio"/>	—
4	Engineering unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Range Limit	<input type="radio"/>	—	<input type="radio"/>	—
6	Measuring range	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Damping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Output mode	Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Square root	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Burnout direction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A	Zero/span calibration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B	Calibration of output circuit	—	<input type="radio"/>	—	<input type="radio"/>
C	Measured data	<input type="radio"/>	—	<input type="radio"/>	—
D	Self-diagnosis	<input type="radio"/>	—	<input type="radio"/>	—
E	Printer function	<input type="radio"/>	—	—	—
F	Lock of adj. function	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G	Indication of digital indicator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
H	Linzealize	<input type="radio"/>	<input type="radio"/>	—	—
I	Rerange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J	Saturation current	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
K	Write protect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
L	History				
	-Calibration history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	-Temperature history	<input type="radio"/>	—	<input type="radio"/>	—

Note1) The version of HHC must be higher than 7.0 when it supports FCX-All series transmitter(or FXW□□□□1-□4).

It can upgrade the version by changing ROM, please consult our company's windows or agency shop nearby for details.

## Scope of delivery

Instrument body, pipe mounting bracket (according to type selection)

## Related products

- Hand held communicator (Model: FXW):  
Hand held, built-in battery, setting, display  
For the details, please refer to data sheet (CSDS8-47).
- Three valves manifold, oval flange(Model: LFN, LFP):  
For the details, please refer to data sheet.

## Ordering information

- Model code
- Span
- Please select the direction of output (Notuse/OVER/UNDER) when the transmitter is fault (Burnout). If unspecified, it is Notuse.
- Please select the output mode (linear or square root). If unspecified, it is linear mode.
- If the scale of indicator is selected to actual scale (9th code: D、H、P、S), please select the items of display (digit, scale, unit, etc).
- Please select the tag plate according to need.(up to 14 digit, consist of letters and numbers).

FKC

Model code

Digit	Discription		Note	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	21	← Digit No.
	Differential pressure (flow) transmitter (hydrogen permeation resistant type) DC4-20mA+HART FOUNDATION Fieldbus and PROFIBUS			F	C															
				F	K	C					5									
				F	D	C					5									
4	<Process cover> <Preocess conn.> <Oval flange screw> Rc 1/4 7/16-20UNF 1/4-18NPT 7/16-20UNF 1/4-18NPT M10 1/4-18NPT M10 1/4-18NPT 7/16-20UNF Rc 1/4 7/16-20UNF 1/4-18NPT 7/16-20UNF 1/4-18NPT M10 1/4-18NPT M10 1/4-18NPT 7/16-20UNF	<AMP case> <Conduit conn.> <Case type> G 1/2 L type 1/2-14NPT L type Pg 13.5 L type M20× 1.5 L type Pg 13.5 L type G 1/2 L type 1/2-14NPT L type Pg 13.5 L type M20× 1.5 L type Pg 13.5 L type						5 6 7 8 9 S T V W X												
5	<Range>	<Span>	<Materials>																	
6	(MPa)	(kPa)	(Process cover) (Diaphragm) (Other)																	
7	-0.1~16	3.2~32	SCS14A SUS316L gold and ceramic plated SUS316	Note1							3 3 C									
	-0.1~16	13~130	SCS14A SUS316L gold and ceramic plated SUS316	Note1							3 5 C									
8	<Version>			Note13							5									
9	<Field indicator> None Analog Analog Analog	<Indicator scale> 0 ~ 100% evenly Adivided scale 0 ~ 100% square scale Actual scale	<Arrester> None None None None	Note2																
	None Analog Analog Analog	0 ~ 100% evenly Adivided scale 0 ~ 100% square scale Actual scale	Yes Yes Yes Yes	Note2																
	Digital Digital Digital Digital Digital	0 ~ 100% scale display Actual scale display 0 ~ 100% square root display 0 ~ 100% scale display Actual scale display 0 ~ 100% square root display	None None None Yes Yes																	
	Digital(with local adj. function) Digital(with local adj. function) Digital(with local adj. function) Digital(with local adj. function) Digital(with local adj. function) Digital(with local adj. function)	0 ~ 100% scale display Actual scale display 0 ~ 100% square root display 0 ~ 100% scale display Actual scale display 0 ~ 100% square root display	None None None Yes Yes Yes																	
	None None Digital Digital	Foundation Fieldbus Foundation Fieldbus Foundation Fieldbus Foundation Fieldbus	None Yes None Yes	Note9 Note9 Note9 Note9																
	None None Digital Digital	Profibus Profibus Profibus Profibus	None Yes None Yes	Note9 Note9 Note9 Note9																
10	<Explosion proof specifications> General Non explosion proof TIIS (Cable gland seal) explosion proof TIIS intrinsic safety			Note10																
	FM Flameproof FM Intrinsic safety FM Combined of flameproof and intrinsic safety			Note12 Note12																
	ATEX Flameproof ATEX Intrinsic safety ATEX Type n ATEX Combined of flameproof and intrinsic safety			Note11 Note11																
	IECEX Flameproof IECEX Intrinsic safety CSA Flameproof CSA Intrinsic safety NEPSI Flameproof NEPSI Intrinsic safety NEPSI Combined of flameproof, intrinsic safety and dust ignition proof			Note11 Note12																
11	<Side Vent/Drain plug> None (Standard) None (Standard) None (Standard) None (Standard) None (Standard)	<Mounting bracket> None Yes(SUS304) Yes(SUS316) L type (SUS304) L type (SUS316)																		
	Yes Yes Yes Yes Yes	None Yes(SUS304) Yes(SUS316) L type (SUS304) L type (SUS316)																		

Digit	Description	Note	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	21
	Differential pressure (flow) transmitter (hydrogen permeation resistant type) DC4~20mA+HART FOUNDATION Fieldbus and PROFIBUS		F	C														
12	<Special specification> Standard specification Stainless steel tag plate		F	K	C					5								
	Anti-corrosive coating of detecting unit		F	D	C					5								
	Anti-corrosive coating of detecting unit, SS tag plate													Y				
	Anti-corrosive coating of detecting unit, SS AMP case	Note8												B				
	Anti-corrosive coating of detecting unit, SS AMP case, SS tag plate	Note8												M				
														N				
														P				
														Q				
13	<Treatment of wetted parts > Standard Standard Degreasing	<Fill fluid> Silicone oil (General) Fluorinated oil Silicone oil													Y			
	Oxygen service	Fluorinated oil													W			
	NACE Specification	Silicone oil												G				
														A				
														N				
14	<O ring/Gasket material> Teflon(Gasket)																B	
15	<Vent/Drain plug type> Standard Standard Standard	<Bolt/Nut material> Standard(Cr-Mo hexagon socket bolt/carbon steel nut) Cr-Mo hexagon head bolt/carbon steel nut NACE Bolt/Nut (*A)																A
	Standard	NACE Bolt/Nut (*B)																B
	Standard	SUS304 Bolt/Nut																C
	Standard	SUS316 Bolt/Nut																D
																		E
																		U
16	<Options> None Three valves manifold Three valves manifold Five valves manifold Five valves manifold Oval flange Oval flange Adapter Adapter Oval flange + Adapter Oval flange + Adapter	<Material> None SUS304 SUS316 SUS304 SUS316 SUS304 SUS316 SUS304 SUS316 SUS304 SUS316																Y
																		G
																		H
																		L
																		M
																		C
																		D
																		J
																		K
																		E
																		F
21	<Other> Vent/drain plug mounted on the upper side Inspection report	Note6																C
																		F

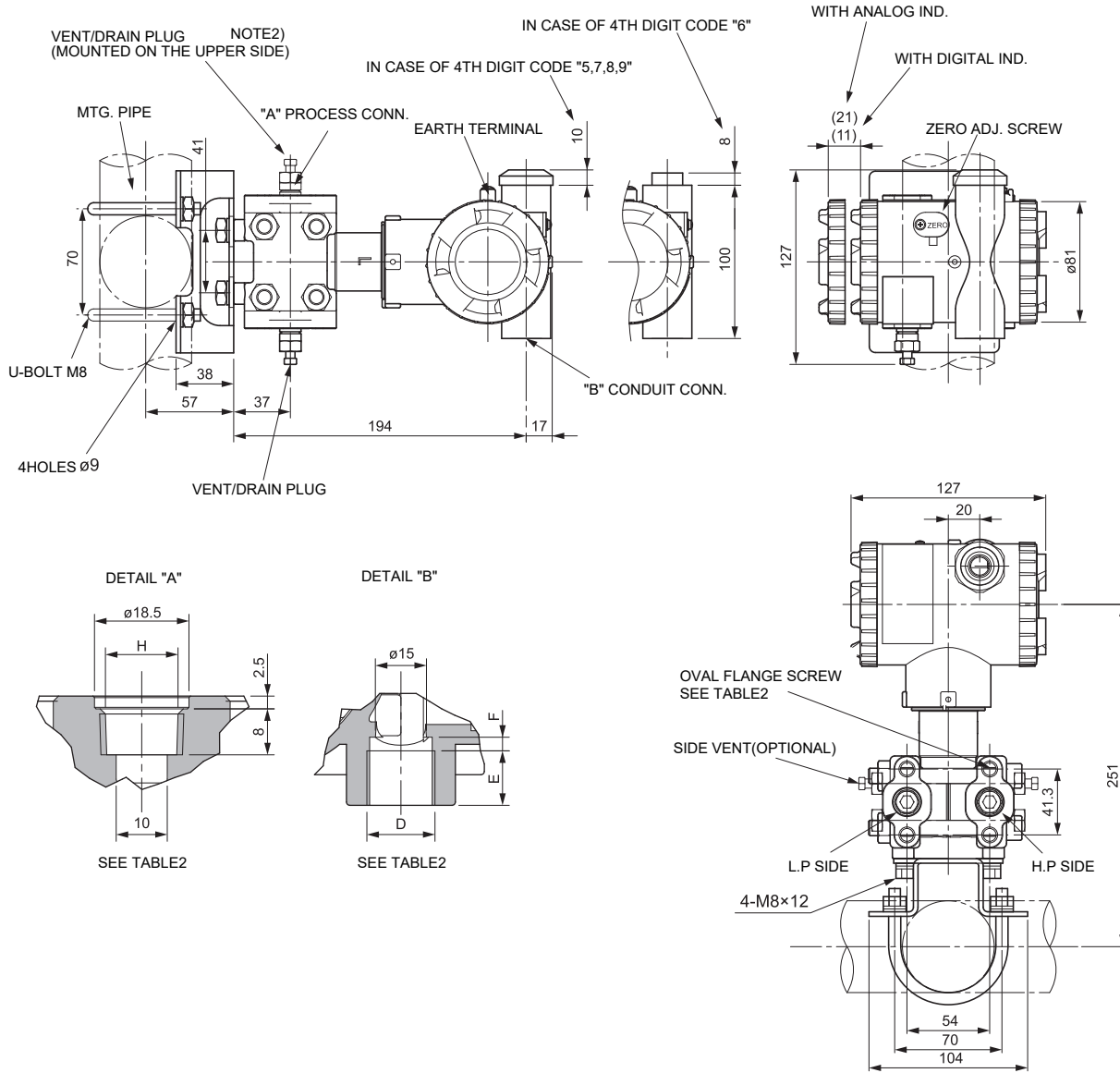
(\*A) NACE Bolt/Nut material: ASTM A193 B7M/A194 2HM  
(\*B) NACE Bolt/Nut material: ASTM A320 L7M/A194 2HM

- Note1) The wetted surface of seal diaphragm is coated with gold and ceramic.
- Note2) Not available for square root output mode.
- Note3) Not available for 15th digit code "A, B".
- Note4) Please select SUS bolts and nuts for tropical area.
- Note5) The range of operating pressure is - 0.1 ~ 10MP.
- Note6) The digit is blank when not needed.
- Note8) Not available for 10th digit code "C".
- Note9) Please note when select Fieldbus or Profibus transmitter.
- Note10) Available only for 4th digit code "5, S".
- Note11) Available only for 4th digit code "6, 8, T, W".
- Note12) Available only for 4th digit code "6, T".
- Note11) The 8th digit code can be selected as "S", this means that it's the transmitter with safety function. SIL2 capability for single transmitter use, SIL3 capability for dual transmitter use.



OUTLINE DIAGRAM (Unit: mm)

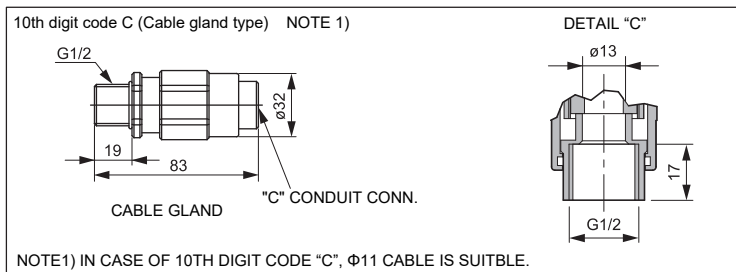
<AMP. CASE: T TYPE > IN CASE OF 11TH DIGIT CODE "C,K,F,L"



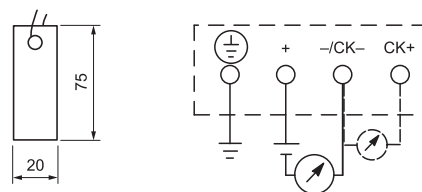
4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
5	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
6	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
7	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
8	M20x1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
9	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

TABLE 2

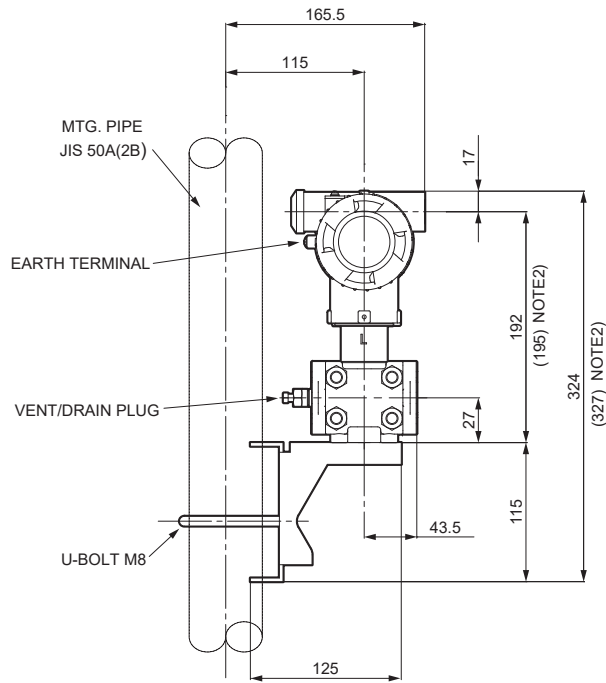
<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>



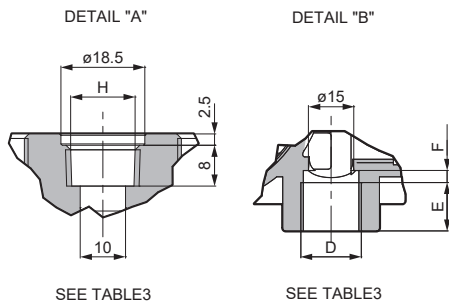
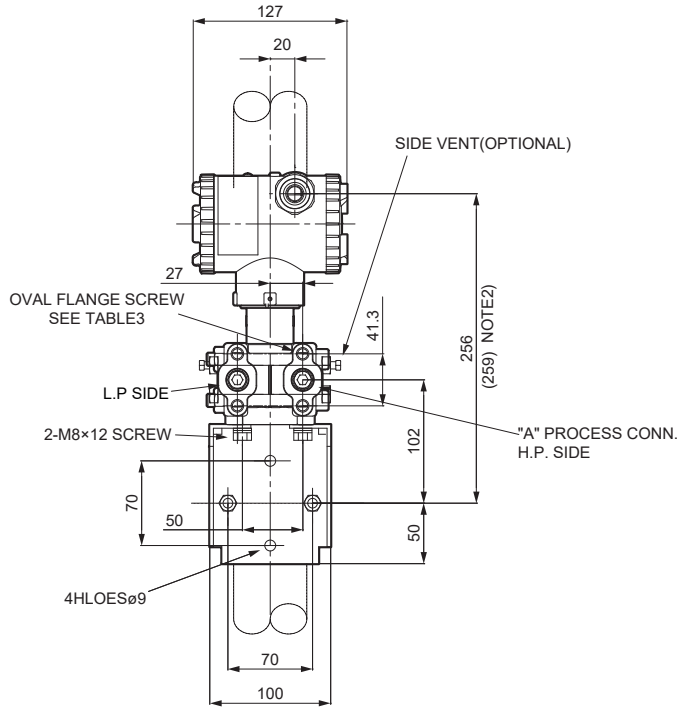
<SS TAG PLATE(OPTIONAL)> <CONNECTION DIAGRAM>



<AMP. CASE: T TYPE > IN CASE OF 11TH DIGIT CODE "M,N,P,Q"



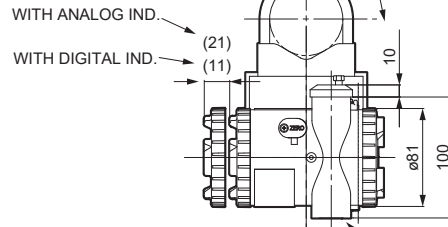
NOTE2) IN CASE OF 7TH DIGIT CODE "W,J,H,M,T"



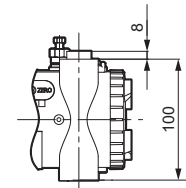
SEE TABLE3

SEE TABLE3

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



IN CASE OF 4TH DIGIT CODE "6"

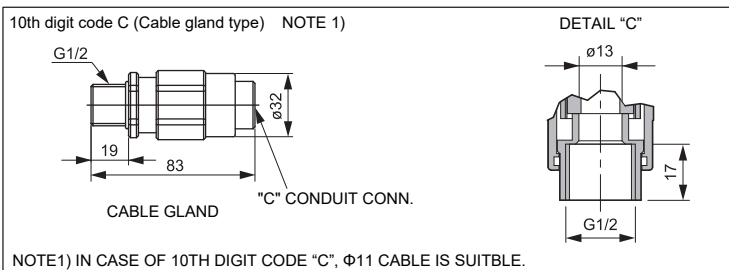


"B" CONDUIT CONN.

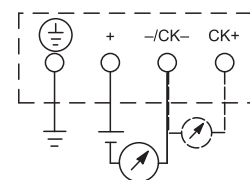
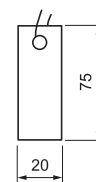
4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
5	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
6	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
7	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
8	M20x1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
9	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

TABLE 3

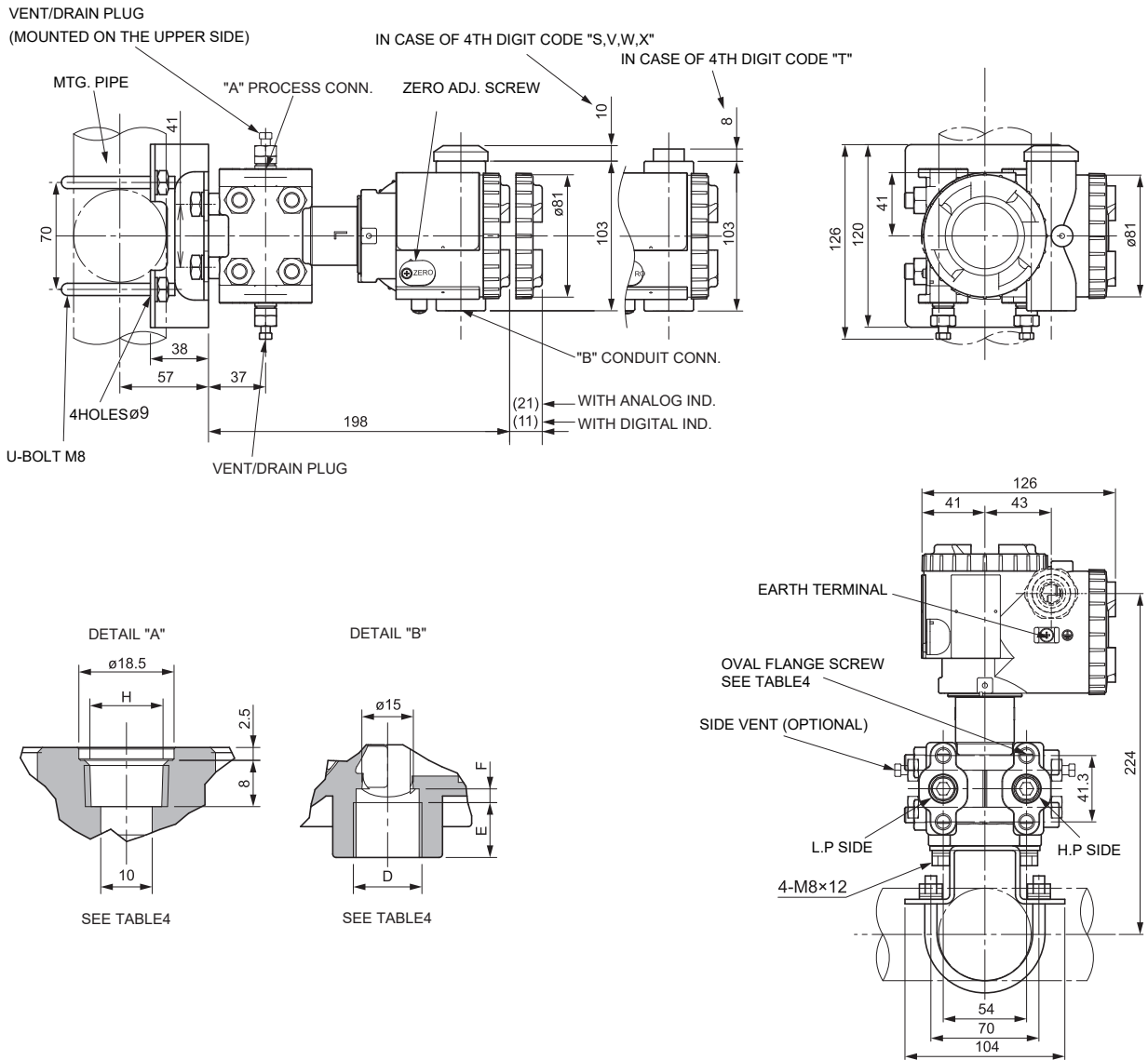
<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>



<SS TAG PLATE(OPTIONAL)> <CONNECTION DIAGRAM>



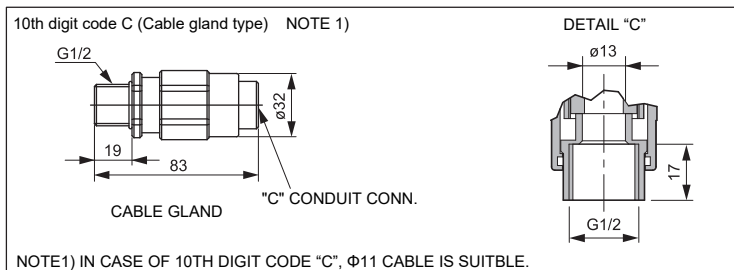
<AMP. CASE: L TYPE > IN CASE OF 11TH DIGIT CODE "C,K,F,L"



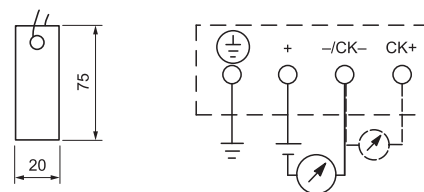
4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
S	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
T	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
V	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
W	M20x1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
X	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

TABLE 4

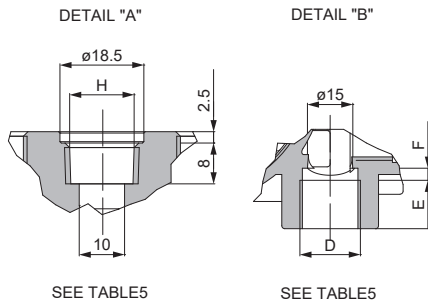
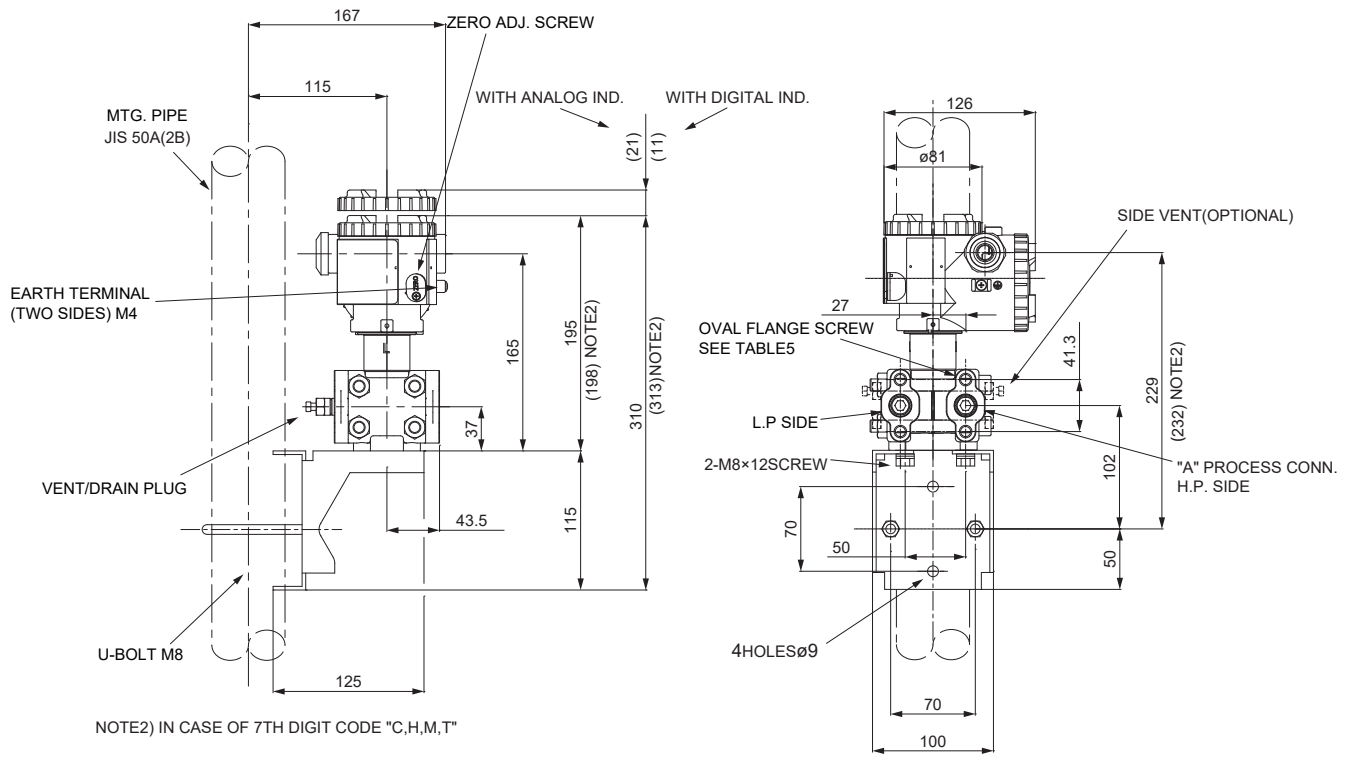
<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>



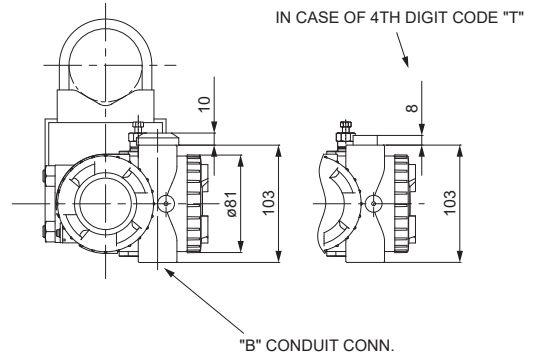
<SS TAG PLATE(OPTIONAL)> <CONNECTION DIAGRAM>



<AMP. CASE: L TYPE > IN CASE OF 11TH DIGIT CODE "M,N,P,Q"



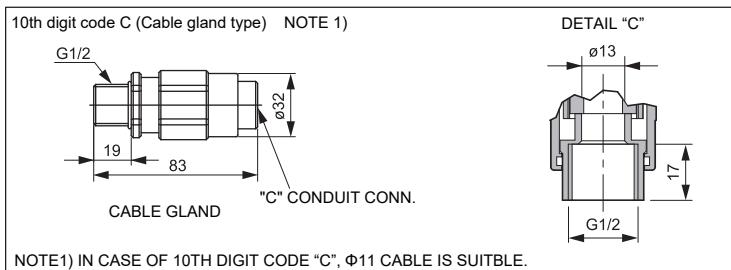
IN CASE OF 4TH DIGIT CODE "S,V,W,X"



4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
S	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
T	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
V	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
W	M20x1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
X	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

TABLE 5

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>



<SS TAG PLATE(OPTIONAL)> <CONNECTION DIAGRAM>

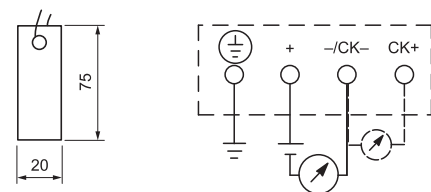


Table 6 Explosion proof

Authorities	Intrinsic safety	Authorities	Flameproof																				
ATEX	Ex II 1 G Ex ia II C T5 Tamb = -40°C ~ +50°C Ex ia II C T4 Tamb = -40°C ~ +70°C	ATEX	Ex II 2 GD EEx d II C T6 IP66/67 T85°C Tamb = -40°C ~ +65°C EEx d II C T5 IP66/67 T100°C Tamb = -40°C ~ +85°C																				
	Entity Parameters: Ui = 28V, li = 94.3mA, Pi = 0.66W Ci = 26nF(without arrester), Li = 0.6mH(without analog indicator) Ci = 36nF(with arrester), Li = 0.7mH(with analog indicator)		FM	Class I Div.1 Groups B, C, D T6 Type 4X Class II III Div.1 Groups E, F, G T6 Type 4X Tamb max = +60°C																			
FM	Class I II III DIV.1 Groups A, B, C, D, E, F, G T4 Entity Type 4X	CSA	Class I Div.1 Groups C, D Class II Div.1 Groups E, F, G Class III Div.1 Note) "Seal Not Required" enclosure is allowed.																				
	<table border="1"> <thead> <tr> <th colspan="2">Model</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, N</td> <td>-40°C ~ +85°C</td> </tr> <tr> <td>L, P, 1, 2</td> <td>Y, G, N</td> <td>-20°C ~ +80°C</td> </tr> <tr> <td>Q, S, 4, 5</td> <td>Y, G, N</td> <td>-20°C ~ +60°C</td> </tr> <tr> <td>E, F, H</td> <td>Y, G, N</td> <td>-40°C ~ +60°C</td> </tr> <tr> <td>-</td> <td>W, A, D</td> <td>-10°C ~ +60°C</td> </tr> </tbody> </table>		Model		Tamb	9th digit	13th digit		A, B, D	Y, G, N	-40°C ~ +85°C	L, P, 1, 2	Y, G, N	-20°C ~ +80°C	Q, S, 4, 5	Y, G, N	-20°C ~ +60°C	E, F, H	Y, G, N	-40°C ~ +60°C	-	W, A, D	-10°C ~ +60°C
Model		Tamb																					
9th digit	13th digit																						
A, B, D	Y, G, N	-40°C ~ +85°C																					
L, P, 1, 2	Y, G, N	-20°C ~ +80°C																					
Q, S, 4, 5	Y, G, N	-20°C ~ +60°C																					
E, F, H	Y, G, N	-40°C ~ +60°C																					
-	W, A, D	-10°C ~ +60°C																					
CSA	Class I Div.1 Groups A, B, C, D Class II Div.1 Groups E, F, G Class III Div.1	IECEX Scheme	Ex d II C T5 IP66/67 Tamb = -40°C ~ +85°C Ex d II C T6 IP66/67 Tamb = -40°C ~ +65°C																				
	Temp code T5 Tamb max = +50°C Temp code T4 Tamb max = +70°C Entity Parameters: Vmax = 28V Imax = 94.3mA Ci = 25nF(without arrester), Li = 0.6mH(without analog indicator) Ci = 36nF(with arrester), Li = 0.7mH(with abalig indicator)		NEPSI	Ex d II B+H2 T6 Tamb = -40°C ~ +60°C																			
TIIS	Ex ia IIC T4 Tamb max = +60°C Entity Parameters: Ui = 28V, li = 94.3mA, Pi = 0.66W, Ci = 38.4nF, Li = 0.694mH	<table border="1"> <thead> <tr> <th>Authorities</th> <th>Type n Nonincendive</th> </tr> </thead> <tbody> <tr> <td rowspan="2">ATEX</td> <td>Ex II3 GD EEx nL IIC T5 Tamb = -40°C ~ +50°C EEx nL IIC T4 Tamb = -40°C ~ +70°C Specific Parameters: Model without arrester: Ui=42.4V, li=113mA, Pi=1W, Ci=25.18nF, Li=0.694mH Model with arrester: Ui=32V, li=113mA, Pi=1W, Ci=35.98nF, Li=0.694mH</td> </tr> <tr> <td>EEx nAL IIC T5 Tamb = -40°C ~ +50°C EEx nAL IIC T4 Tamb = -40°C ~ +70°C Specific Parameters: Model without arrester: Umax=42.4V, Imax=113mA, Pmax=1W Model with arrester: Umax=32V, Imax=113mA, Pmax=1W</td> </tr> </tbody> </table>		Authorities	Type n Nonincendive	ATEX	Ex II3 GD EEx nL IIC T5 Tamb = -40°C ~ +50°C EEx nL IIC T4 Tamb = -40°C ~ +70°C Specific Parameters: Model without arrester: Ui=42.4V, li=113mA, Pi=1W, Ci=25.18nF, Li=0.694mH Model with arrester: Ui=32V, li=113mA, Pi=1W, Ci=35.98nF, Li=0.694mH	EEx nAL IIC T5 Tamb = -40°C ~ +50°C EEx nAL IIC T4 Tamb = -40°C ~ +70°C Specific Parameters: Model without arrester: Umax=42.4V, Imax=113mA, Pmax=1W Model with arrester: Umax=32V, Imax=113mA, Pmax=1W															
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IECEX Scheme	Ex ia II C T4 Tamb = -40°C ~ +70°C Ex ia II C T5 Tamb = -40°C ~ +50°C Entity Parameters: Ui = 28V li = 94.3mA Pi = 0.66W Ci = 26nF(without arrester), Li = 0.6mH(without analog indicator) Ci = 36nF(with arrester), Li = 0.7mH(with abalig indicator)	FM	Class I II III Div.2 Groups A, B, C, D, F, G T4 Entity Type 4X																				
NEPSI	Ex ia IIC T4 Ex d IIB+H2T6/Ex ia IIC T4		<table border="1"> <thead> <tr> <th colspan="2">Model</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, N</td> <td>-40°C ~ +85°C</td> </tr> <tr> <td>L, P, 1, 2</td> <td>Y, G, N</td> <td>-20°C ~ +80°C</td> </tr> <tr> <td>Q, S, 4, 5</td> <td>Y, G, N</td> <td>-20°C ~ +60°C</td> </tr> <tr> <td>E F H</td> <td>Y, G, N</td> <td>-40°C ~ +60°C</td> </tr> <tr> <td>-</td> <td>W, A, D</td> <td>-10°C ~ +60°C</td> </tr> </tbody> </table>	Model		Tamb	9th digit	13th digit		A, B, D	Y, G, N	-40°C ~ +85°C	L, P, 1, 2	Y, G, N	-20°C ~ +80°C	Q, S, 4, 5	Y, G, N	-20°C ~ +60°C	E F H	Y, G, N	-40°C ~ +60°C	-	W, A, D
Model		Tamb																					
9th digit	13th digit																						
A, B, D	Y, G, N	-40°C ~ +85°C																					
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E F H	Y, G, N	-40°C ~ +60°C																					
-	W, A, D	-10°C ~ +60°C																					
NEPSI	Ex ia IIC T4 Ex d IIB+H2T6/Ex ia IIC T4	CSA	Class I Div.2 Groups A, B, C, D Class II Div.2 Groups E, F, G Class III Div.2																				
	Entity Parameters: Ui = 42.4V, li = 113mA, Pi = 1W, Ci = 35.98nF, Li = 0.694mH		Temp code T5 Tamb max = +50°C Temp code T4 Tamb max = +70°C Entity Parameters: Vmax=28V,Ci=25.18nF (without arrester), Ci=35.98nF (with arrester), Li=0.694mH																				

FKC

**Caution on Safety**

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

