PRESSURE TRANSMITTER

DATA SHEET **FKG···5/ FDG···5**

The FCX -AIII pressure 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 tech nology 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 funtion have obtained the certificate of SIL certification by TÜV.

Features

1. High accuracy
   Pressure transmitter can be carried out with high accuracy measurement in the range of 0.32 ~ 50000kPa.
   Standard accuracy: ± 0.065%, Accuracy(50MPa): ± 0.2%
   High accuracy(optional): ± 0.05%
   There's no need to linear calibration when carrying out zero elevation or suppression.
2. Excellent environmental adaptaboility
   The advanced floating cell protects sensor from temperature and overpressure effect, and controls the total measurement error of the filed to the minimun.
3. 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 indiactor
   - Stainless steel AMP case
   - Built-in RFI filter and lightning arrester
   - Various anti-corrosive materials
   - Built-in local configurator with 3 push buttons
4. The transmitter can communicate using FUJI, HART, communication protocol, and also can use FOUNDATION FIELDBUS or PROFIBUS protocol after changing the electronic circuit.

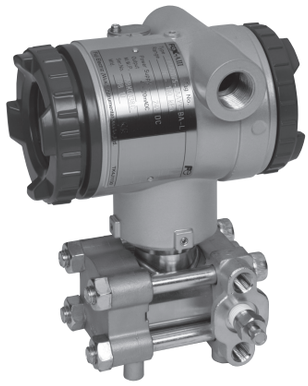
Specifications

Functional specifications

- Measured fluid: Liquid, gas, or bapor
- Range, operating pressure, and overrange limit:

Type	Operating pressure 〔MPa〕	Span limit 〔kPa〕		Range limit 〔kPa〕		Overrange limit 〔MPa〕
		Min.	Max.	Lower	Upper	
FKG□00 FDG□00	-0.1 ~ 0.032	0.32	32		32	0.5
FKG□01 FDG□01	-0.1 ~ 0.13	1.3	130		130	1
FKG□02 FDG□02	-0.1 ~ 0.5	5	500		500	1.5
FKG□03 FDG□03	-0.1 ~ 3	30	3000		3000	9
FKG□04 FDG□04	-0.1 ~ 10	100	10000		10000	15
FKG□05 FDG□05	-0.1 ~ 50	500	50000		50000	75

Note: Recommended span should be greater than 1/40 of max. span.



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

Fill fluid	13th digit Code	Process Temperature	Lower range limit
Silicone oil	Y, G, N	-40 ~ +120°C	2.7kPa abs
Fluorinated oil	W, A, D	-20 ~ +80°C	Atmospheric pressure
Silicone oil	R	-15 ~ +100°C	2.7kPa abs

- 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
  (0.75 ~ 1.25mm² 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.
- Zero elevation/suppression: Zero can be elevated or suppressed within the range of -0.1 MPa to upper range limit.
- 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.)
- Explosion proof: Refer to table 8
- 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

Reference conditions, silicone oil fill, SUS316L diaphragms, 4 to 20mA analog output in linear mode.

- Accuracy rating: (including linearity, hysteresis, repeatability)
  For spans greater than 1/10 of URL: :
  ± 0.065% or
  ± 0.04%(21th code：H)
  For spans below 1/10 of URL:

$$\pm\ (0.015+0.05\frac{0.1\times URL}{x})\%$$

- Stability: Zero shift ±0.1% of upper range limit (URL) for 10 years.
- Ambient temperature effect: Changed per 28°C in the range of -40°C ~ +85°C.

$$\text{Zero shift: } \pm\ (0.075+0.0125\ \frac{URL}{x})\%$$

$$\text{Total shift: } \pm\ (0.095+0.0125\ \frac{URL}{x})\%$$

In the formual : x : SPAN
URL：Upper range limit

- Overrange effect: Zero shift ±0.2% of URL for any overrange to maximum limit .
- Mounting position effect: 0.1kPa/10°
  In case of 13th digit code"W", "D", "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: Time constant: 0.08s (at 23°C)
  Dead time: approx. 0.12s

Structure and material

- Materials of detecting unit:

Material code	Process cover	Detecting unit body		
		Seal diaphragm	Other wetted parts	
V	SCS14A	SUS316L	SUS316	
W	SCS14A	Hastelloy-C	SUS316	
J	SCS14A	SUS316L Gold-plated	SUS316	
H	SCS14A	Hastelloy-C	Hastelloy-C	FKG□05 not available
M	SCS14A	Monel	Monel	
T	SCS14A	Tantalum	Tantalum	
L	Monel	Monel	Monel	

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. 2.9~3.4kg (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
- Preocess 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 amplifer unit
  Class 2.5, moving-coil, movement 90°,
  0 ~ 100% evenly divided scale or actual scale
- Digital indicator: Built in amplifer unit, 5 digit LCD and unit dispaly,0 ~ 100% scale display or actual scale 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 amplifer unit
  Lightning performance: 4kV(1.2× 50μs)
- Degreasing treatment for oxygen: Filling fluorinated oil , degreasing and cleaning for wetted parts, available only for 7th digit code(material)"V","W".
- Chlorine measurement: Filling fluorinated oil,available only for 7th digit code(material)"H","T".
- NACE specifications: H_2S 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 (lettters and numbers)

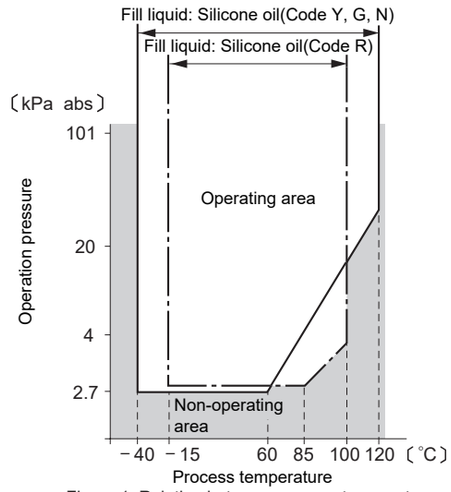
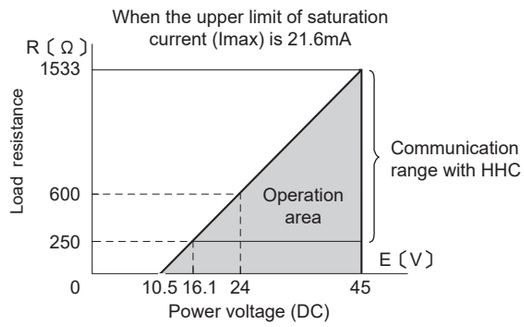


Figure 1 Relation between process temperature and operating pressure



〔Note〕The load resistance varies according to the upper limit of saturation current.

$$R〔\Omega〕 = \frac{E〔V〕 - 10.5}{(Imax〔mA〕 + 0.9) \times 10^{-3}}$$

Figure 2 Operation area of power voltage and load resistance

The product conforms to the requoirments of European EMC directive "Electromagnetic Compatibility Directive2004/108/EC". The detail content is recorded in the techiacal construction file nmber 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)Note1)		Local configurator (With 3 push buttons)	
		Display	Set	Dispaly	Set
1	Tag No.	○	○	○	○
2	Type	○	○	○	○
3	Serial No. & Software Version	○	—	○	—
4	Engineering unit	○	○	○	○
5	Range Limit	○	—	○	—
6	Measuring range	○	○	○	○
7	Damping	○	○	○	○
8	Output mode	○	—	○	—
9	Burnout direction	○	○	○	○
A	Zero/span calibration	○	○	○	○
B	Calibration of output circuit	—	○	—	○
C	Measured data	○	—	○	—
D	Self-diagnosis	○	—	○	—
E	Printer function	○	—	—	—
F	Lock of adj. function	○	○	○	○
G	Indication of digital indicator	○	○	○	○
H	Linzearize	○	○	—	—
I	Rerange	○	○	○	○
J	Saturation current Write	○	○	○	○
K	protect	○	○	○	○
L	History -Calibration history -Temperature history	○ ○	○ —	○ ○	○ —

Nore1) The version of HHC must be higher than 7.0 when it supports FCX-AIII 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 deatils.

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).

Ordering information

1. Model code
2. Span
3. Please select the direction of output (Notuse/OVER/UNDER) when the transmitter is fault (Burnout). If unspecified, it is Notuse.
4. 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).
5. Please select the tag plate according to need.(up to 14 digit, consist of lettters and numbers).

Mode code

Digit	Discription				Note
	Pressure transmiter DC4~20mA+HART FOUNDATION Fieldbus and PROFIBUS				
4	<Process cover> <Preocess conn.>	<Oval flange screw>	<AMP case> <Conduit conn.>	<Case type>	Note1
	Rc 1/4	7/16-20UNF	G 1/2	T type	
	1/4-18NPT	7/16-20UNF	1/2-14NPT	T type	
	1/4-18NPT	M10(or M12)	Pg 13.5	T type	Note16
	1/4-18NPT	M10(or M12)	M20 × 1.5	T type	Note16
	1/4-18NPT	7/16-20UNF	Pg 13.5	T type	
	Rc 1/4	7/16-20UNF	G 1/2	L type	
	1/4-18NPT	7/16-20UNF	1/2-14NPT	L type	
	1/4-18NPT	M10(or M12)	Pg 13.5	L type	Note16
	1/4-18NPT	M10(or M12)	M20 × 1.5	L type	Note16
	1/4-18NPT	7/16-20UNF	Pg 13.5	L type	
6	<Span limit [kPa] > 0.32···32 1.3 ···130 5 ···500 30 ···3000 100···10000 500···50000				
7	<Process cover material>	<Diaphragm material>	<Wetted cell body material>		
	SCS14A	SUS316L	SUS316		
	SCS14A	Hastelloy C	SUS316		
	SCS14A	SUS316L Gold-plated	SUS316		
	SCS14A	Hastelloy C	Hastelloy C		
	SCS14A	Monel	Monel		
	SCS14A	Tantalum	Tantalum		
	Monel	Monel	Monel		
8	<Version>				Note18
9	<Field indicator>	<Indicator scale>	<Arrester>		
	None		None		
	Analog	0 ~ 100% evenly divided scale	None		
	Analog	Actual scale	None		
	None		Yes		
	Analog	0 ~ 100% evenly divided scale	Yes		
	Analog	Actual scale	Yes		
	Digital	0 ~ 100% scale display	None		
	Digital	Actual scale display	None		
	Digital	0 ~ 100% scale display	Yes		
	Digital	Actual scale display	Yes		
	Digital(with local adj. function)	0 ~ 100% scale display	None		
	Digital(with local adj. function)	Actual scale display	None		
	Digital(with local adj. function)	0 ~ 100% scale display	Yes		
	Digital(with local adj. function)	Actual scale display	Yes		
	None	Foundation Fieldbus	None		Note11
	None	Foundation Fieldbus	Yes		Note11
	Digital	Foundation Fieldbus	None		Note11
	Digital	Foundation Fieldbus	Yes		Note11
	None	Profibus	None		Note11
	None	Profibus	Yes		Note11
	Digital	Profibus	None		Note11
	Digital	Profibus	Yes		Note11
10	<Explosion proof specifications>				
	General Non explosion proof				Note13
	TIIS (Cable gland seel) explosion proof				
	TIIS intrinsic safety				Note15
	FM Flameproof				
	FM Intrinsic safety				Note15
	FM Combined of flameproof and intrinsic safety				Note14
	ATEX Flameproof				
	ATEX Intrinsic safety				
	ATEX Type n				Note14
	ATEX Combined of flameproof and intrinsic safety				Note14
	IECEx Flameproof				
	IECEx Intrinsic safety				Note15
	CSA Flameproof				
	CSA Intrinsic safety				
	NEPSI Flameproof				
	NEPSI Intrinsic safety				
	NEPSI Combined of flameproof, intrinsic safety and dust ignition proof				
11	<Side Vent/Drain plug>	<Mounting bracket>			Note17
	None (Standard)	None			
	None (Standard)	Flat type (SUS304)			
	None (Standard)	Flat type (SUS316)			
	None (Standard)	L type (SUS304)			
	None (Standard)	L type (SUS316)			
	Yes	None			Note4
	Yes	Flat type (SUS304)			Note4
	Yes	Flat type (SUS316)			Note4
	Yes	L type (SUS304)			Note4
	Yes	L type (SUS316)			Note4

Digit No.	1	2	3	4	5	6	7	8		9	10	11	12	13		14	15	16		21
	F		G						-						-				-	
	F	K	G		0			5	-						-				-	
	F	D	G		0			5	-						-				-	

	4	5	6	7	8	9	10	11	12	13	14	15	16	21
	5													
	6													
	7													
	8													
	9													
	S													
	T													
	V													
	W													
	X													

	6	7	8	9	10	11	12	13	14	15	16	21
	0											
	1											
	2											
	3											
	4											
	5											

	7	8	9	10	11	12	13	14	15	16	21
	V										
	W										
	J										
	H										
	M										
	T										
	L										

	8	9	10	11	12	13	14	15	16	21
	5									

	9	10	11	12	13	14	15	16	21
	A								
	B								
	D								
	E								
	F								
	H								
	L								
	P								
	Q								
	S								
	1								
	2								
	4								
	5								
	A								
	E								
	P								
	S								
	R								
	V								
	T								
	W								

	10	11	12	13	14	15	16	21
	A							
	C							
	G							
	D							
	H							
	V							
	X							
	K							
	P							
	M							
	R							
	T							
	E							
	J							
	F							
	S							
	U							

	11	12	13	14	15	16	21
	A						
	C						
	K						
	M						
	N						
	D						
	F						
	L						
	P						
	Q						

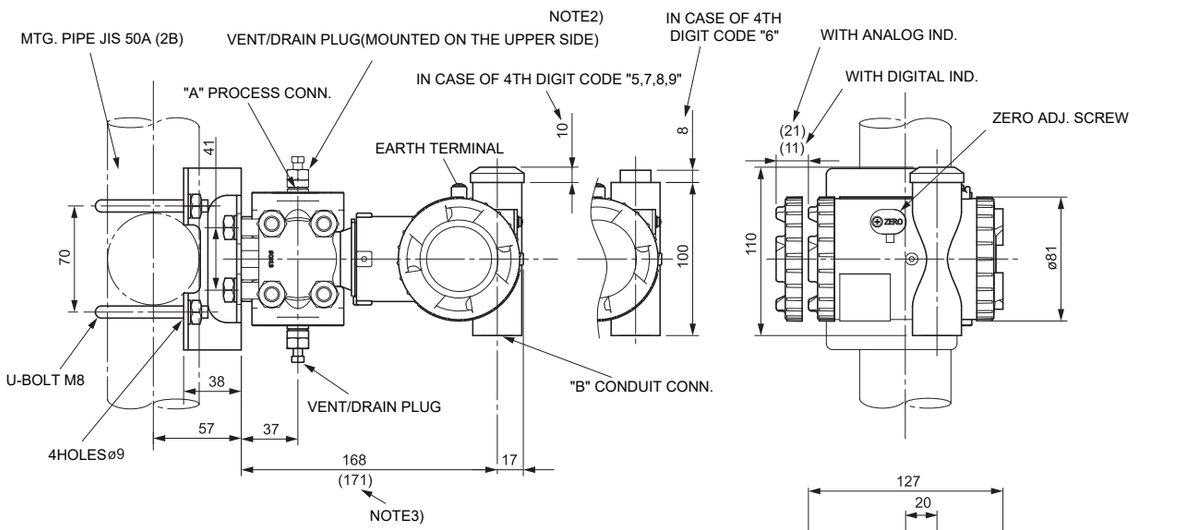
Digit	Discription	Note	1 2 3 4 5 6 7 8	9 10 11 12 13	14 15 16	21 ← Digit No.
	Pressure transmiter DC4~20mA+HART FOUNDATION Fieldbus and PROFIBUS		F G			
			F K G 0 5			
			F D G 0 5			
12	<Special specification> Standard specification Stainless steel tag plate			Y B		
	Anti-corrosive coating of detecting unit Anti-corrosive coating of detecting unit, SS tag plate Anti-corrosive coating of detecting unit, SS AMP case Anti-corrosive coating of detecting unit,SS AMP case,SS tag plate	 Note3 Note3		M N P Q		
13	<Treatment of wetted parts > <Fill fluid> Standard Silicone oil (General) Standard Fluorinated oil Degreasing Silicone oil			Y W G		
	Oxygen service Fluorinated oil Chlorine service Fluorinated oil NACE Specification Silicone oil Standard Silicone oil for vacuum use	Note5 Note6 Note7		A D N R		
14	<O ring material/Gasket material> Teflon(Gasket)				B	
15	<Vent/Drain plug type> <Bolt/Nut marerial> Standard Standard(Cr-Mo hexagon socket bolt/carbon steel nut) Standard Cr-Mo hexagon head bolt/carbon steel nut Standard NACE Bolt/Nut (*A) Standard NACE Bolt/Nut (*B)	Note8 Note2 Note2			A B C D	
	Standard SUS304 Bolt/Nut Standard SUS630 Bolt/SUS304 Nut Standard SUS316 Bolt/Nut	Note2 Note9 Note2			E F U	
16	<Options> <Material> None None Two valves manifold SUS304 Two valves manifold SUS316 Oval flange SUS304 Oval flange SUS316 Adapter SUS304 Adapter SUS316 Oval flange + Adapter SUS304 Oval flange + Adapter SUS316				Y A B C D J K E F	
21	<Other> Vent/drain plug mounted on the upper side High accuracy type Inspection report	Note10				C H F

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

Note1) In case of 7th digit code "L", the process connection can see the datail "A" at page 13.
Note2) Not available for 6th digit code "5".
Note3) Not available for 10th digit code "C".
Note4) Not available for 7th digit code "L".
Note5) Available only for 7th digit code "V", "W","J".
Note6) Available only for 7th digit code "H", "T".
Note7) Not available for 6th digit code "5", 7th digit code "T" and 15th digit code "A","B".
Note8) Please select SUS bolts and nuts for tropical area.
Note9) Available for 6th digit code "5".
Note10) The digit is blank when not needed.
Note11) Please note when select Fieldbus or Profibus transmitter.(Under development)
Note13) Available only for 4th digit code "5", "S".
Note14) Available only for 4th digit code "6", "8","T", "W".
Note15) Available only for 4th digit code "6", "T".
Note16) In case of 6th digit code "5", the screw size is M12.
Note17) When selecting L type AMP case, recommending Flat type bracket.
When selecting T type AMP case, recommending L type bracket.
Note18) The 8th digit code can be seleced as "S", this means that it's the transmitter with safety function. SIL2 capability for single transmitter use, SIL3 capability for dual transmitter use.

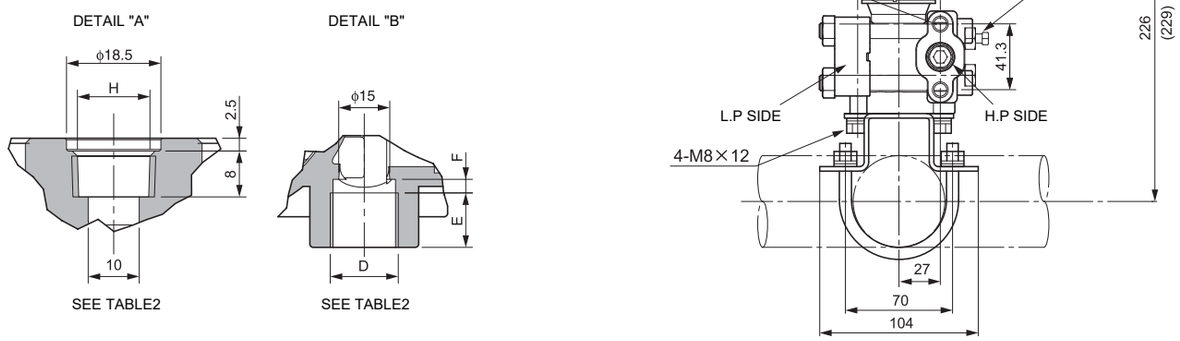
OUTLINE DIAGRAM (Unit: mm)

<AMP. CASE: T TYPE > IN CASE OF 7TH DIGIT CODE "V,J,H,M,T,W" AND 11TH DIGIT CODE "C,K,F,L"



NOTE2) IN CASE OF 21TH DIGIT CODE "C" AND VENT/DRAIN PLUG MOUNTED ON THE UPPER SIDE, PREOCESS CONN. IS ON THE LOWER SIDE.

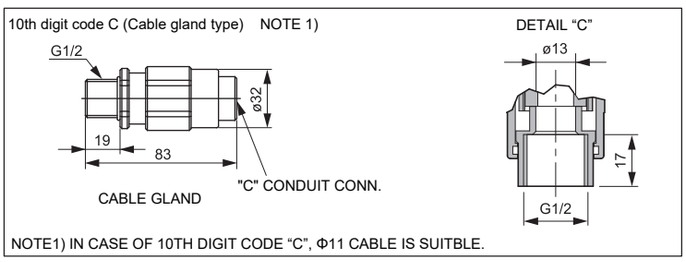
NOTE3) IN CASE OF 7TH DIGIT CODE "H,M,T"



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	M20×1.5	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

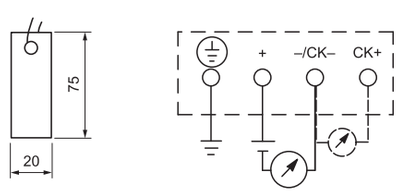
TABLE 2

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

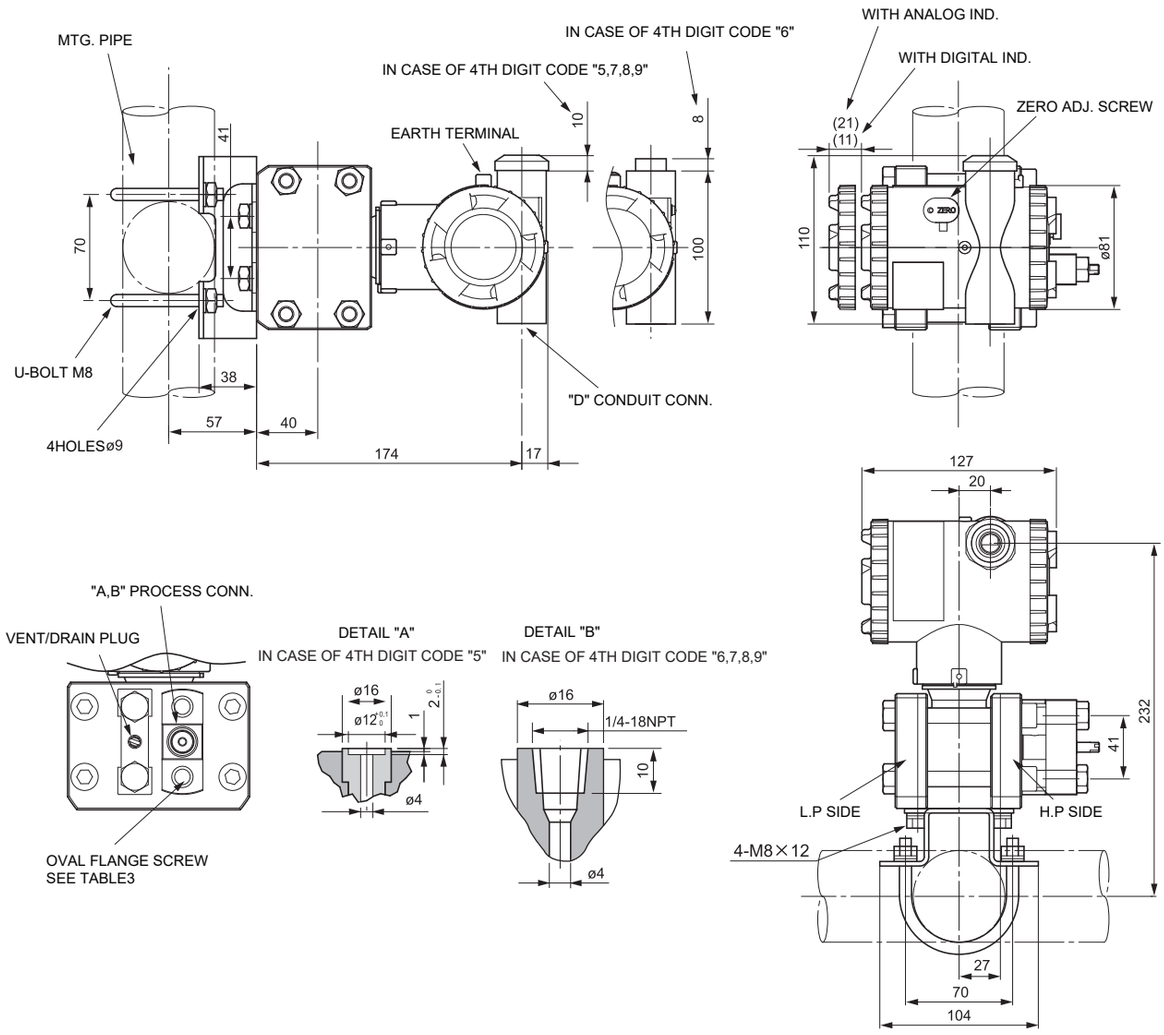


NOTE1) IN CASE OF 10TH DIGIT CODE "C", Φ11 CABLE IS SUITBLE.

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



<AMP. CASE: T TYPE > IN CASE OF 7TH DIGIT CODE "L" AND 11TH DIGIT CODE"C,K,F,L"

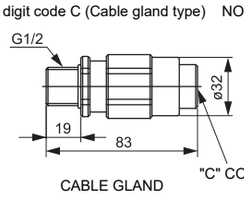


4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
5	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
6	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
7	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
8	M20×1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
9	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

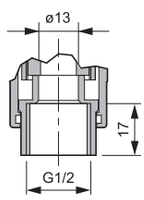
TABLE 3

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

10th digit code C (Cable gland type) NOTE 1)

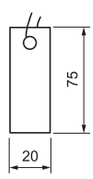


DETAIL "C"

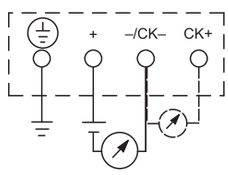


NOTE1) IN CASE OF 10TH DIGIT CODE "C", Φ11 CABLE IS SUITBLE.

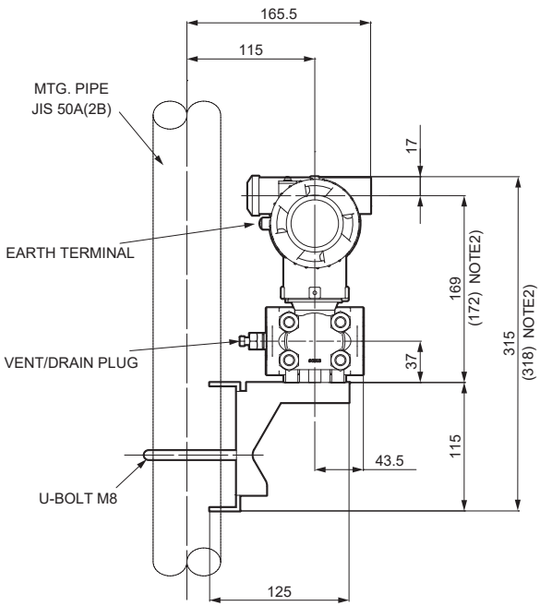
<SS TAG PLATE(OPTIONAL)>



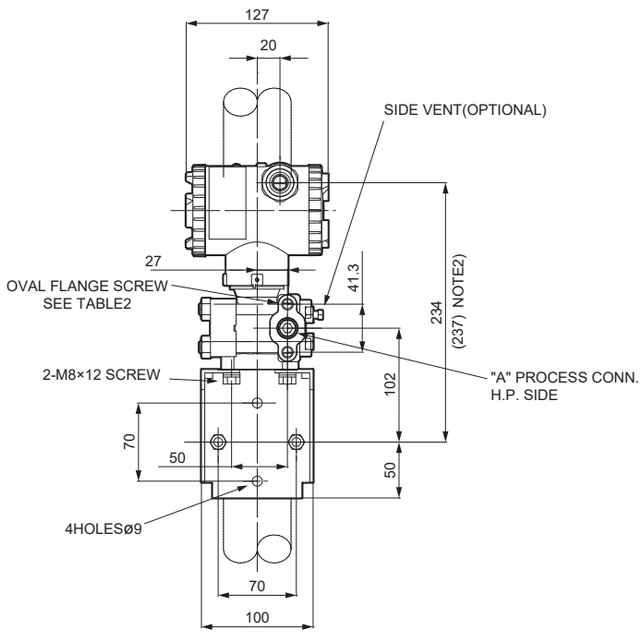
<CONNECTION DIAGRAM>

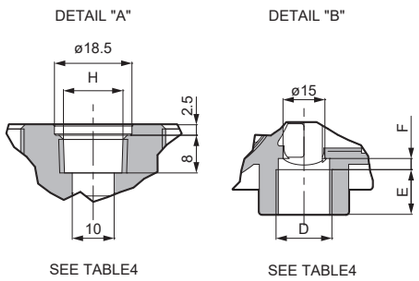


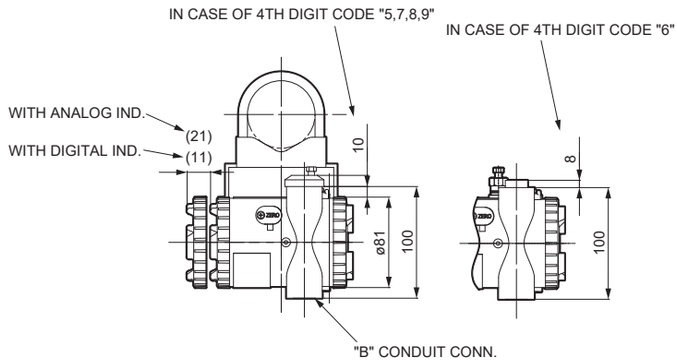
<AMP. CASE: T TYPE > IN CASE OF 7TH DIGIT CODE "V,J,H,M,T,W" AND 11TH DIGIT CODE"M,N,P,Q"



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





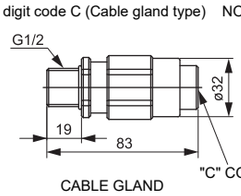


4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
5	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
6	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
7	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
8	M20×1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
9	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

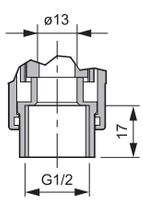
TABLE 4

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

10th digit code C (Cable gland type) NOTE 1)

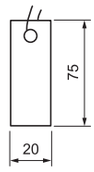


DETAIL “C”

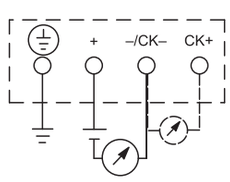


NOTE1) IN CASE OF 10TH DIGIT CODE “C”, Φ11 CABLE IS SUITBLE.

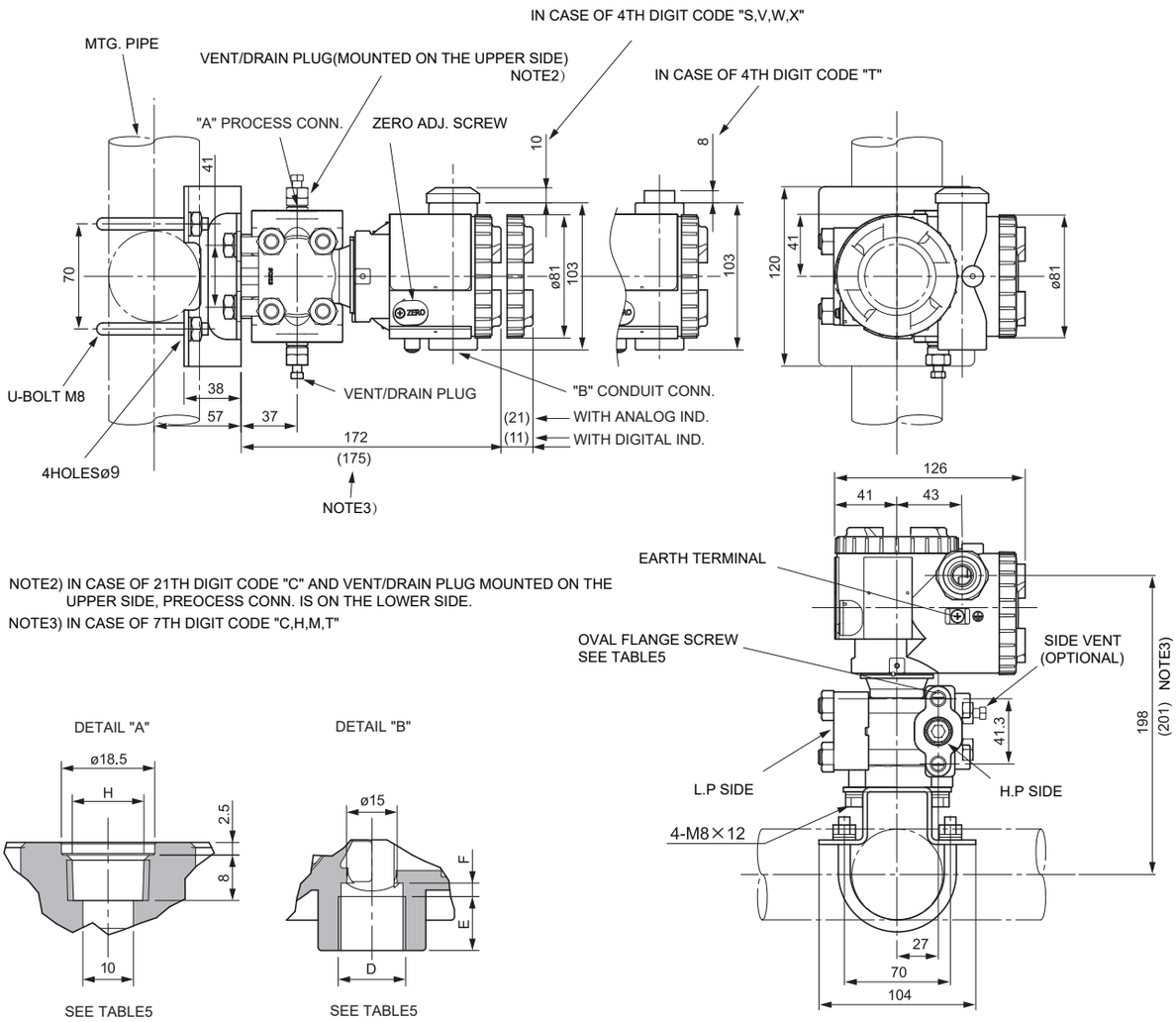
<SS TAG PLATE(OPTIONAL)>



<CONNECTION DIAGRAM>



<AMP. CASE: L TYPE > IN CASE OF 7TH DIGIT CODE "V,J,H,M,T" AND 11TH DIGIT CODE"C,K,F,L"



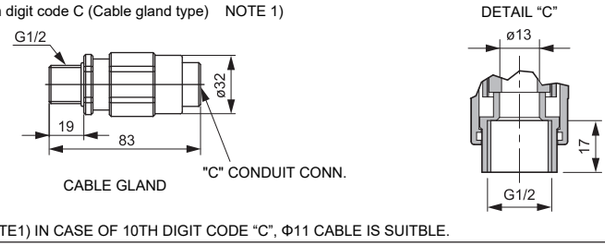
NOTE2) IN CASE OF 21TH DIGIT CODE "C" AND VENT/DRAIN PLUG MOUNTED ON THE UPPER SIDE, PREOCESS CONN. IS ON THE LOWER SIDE.

NOTE3) IN CASE OF 7TH DIGIT CODE "C,H,M,T"

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	M20×1.5	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

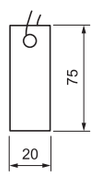
TABLE 5

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

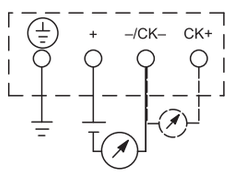


NOTE1) IN CASE OF 10TH DIGIT CODE "C", Φ11 CABLE IS SUITBLE.

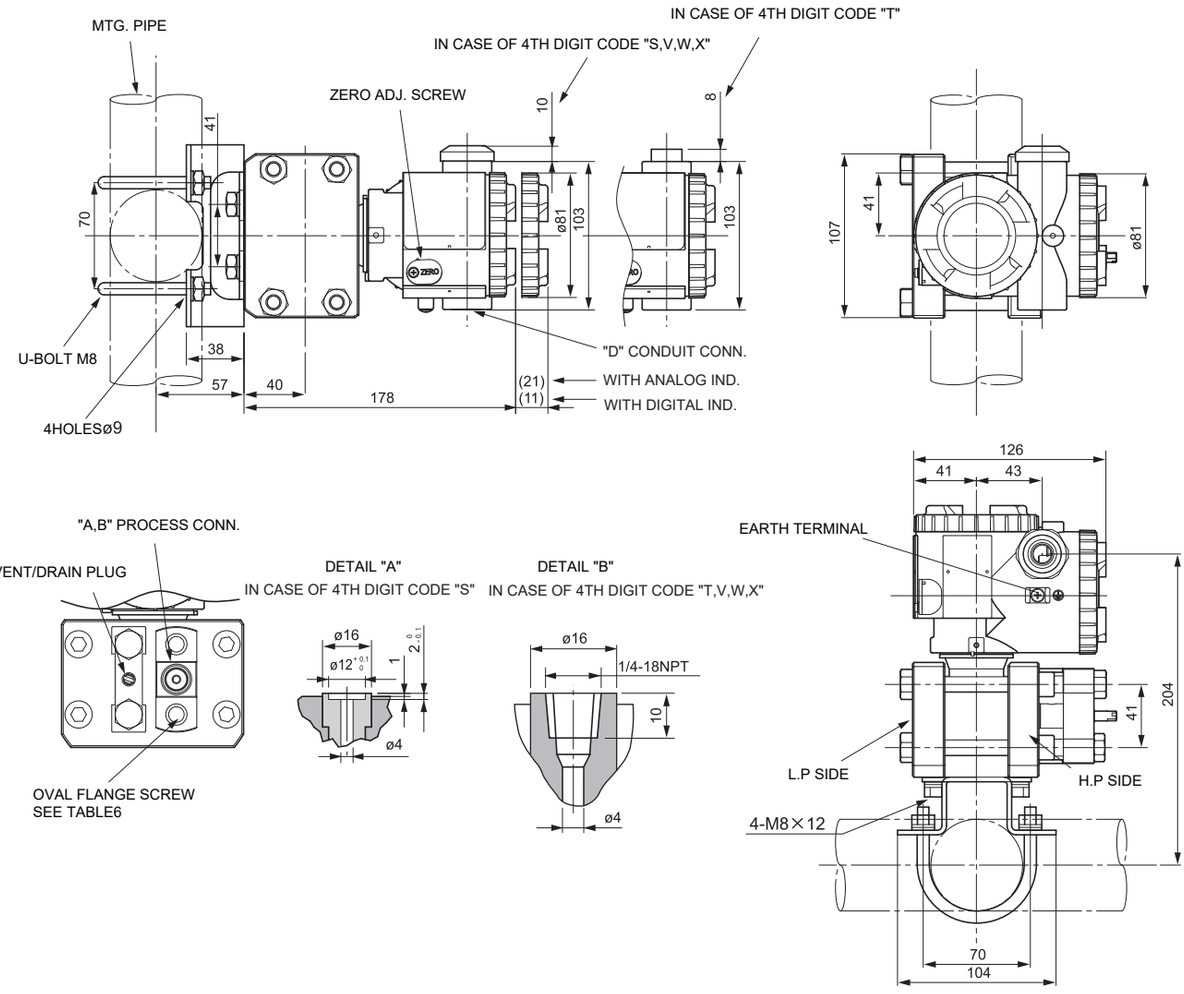
<SS TAG PLATE(OPTIONAL)>



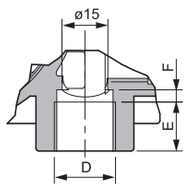
<CONNECTION DIAGRAM>



<AMP. CASE: L TYPE > IN CASE OF 7TH DIGIT CODE "L" AND 11TH DIGIT CODE"C,K,F,L"



DETAIL "D"



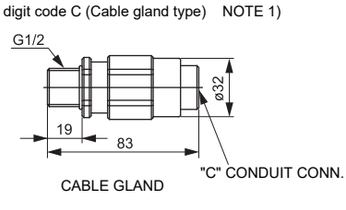
SEE TABLE6

4th digit code	Conduit conn.			Oval flange screw
	D	E	F	
S	G 1/2	18	2	7/16-20UNF SCREW DEPTH 15
T	1/2-14NPT	16	4	7/16-20UNF SCREW DEPTH 15
V	Pg13.5	10.5	4.5	M10 SCREW DEPTH 15
W	M20×1.5	16	4	M10 SCREW DEPTH 15
X	Pg13.5	10.5	4.5	7/16-20UNF SCREW DEPTH 15

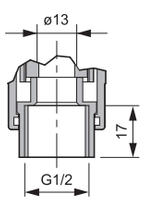
TABLE 6

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

10th digit code C (Cable gland type) NOTE 1)

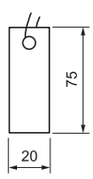


DETAIL "C"

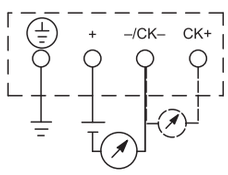


NOTE1) IN CASE OF 10TH DIGIT CODE "C", Φ11 CABLE IS SUITBLE.

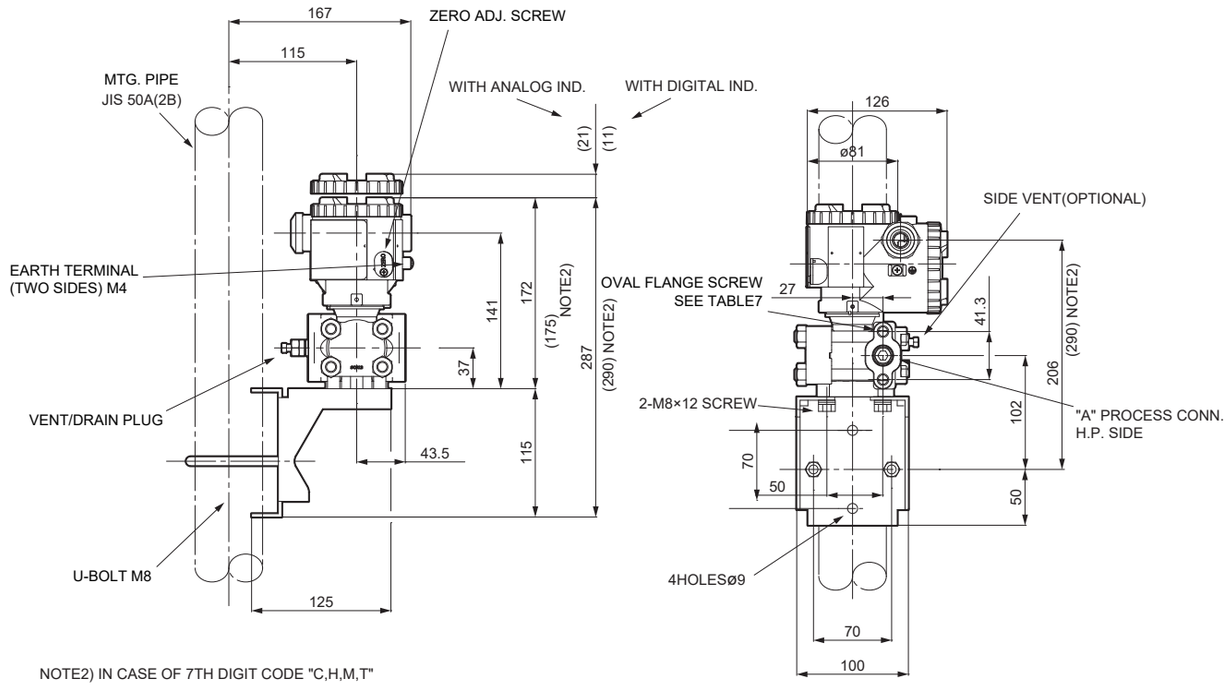
<SS TAG PLATE(OPTIONAL)>



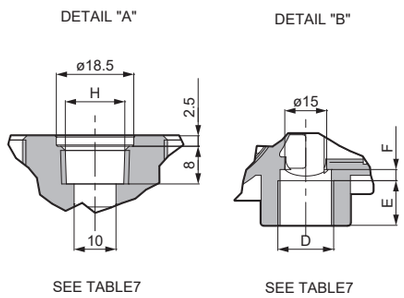
<CONNECTION DIAGRAM>

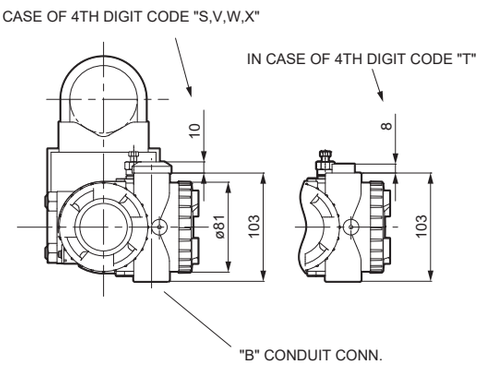


<AMP. CASE: L TYPE > IN CASE OF 11TH DIGIT CODE "M,N,P,Q"



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



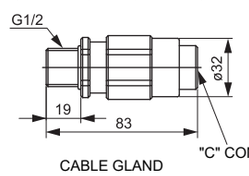


4th digit code	Conduit conn.			Process conn.	Oval flange screw
	D	E	F	H	
S	G 1/2	18	2	Rc1/4	7/16-20UNF SCREW DEPTH 15
T	1/2-14NPT	16	4	1/4-18NPT	7/16-20UNF SCREW DEPTH 15
V	Pg13.5	10.5	4.5	1/4-18NPT	M10 SCREW DEPTH 15
W	M20×1.5	16	4	1/4-18NPT	M10 SCREW DEPTH 15
X	Pg13.5	10.5	4.5	1/4-18NPT	7/16-20UNF SCREW DEPTH 15

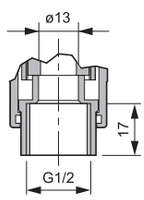
TABLE 7

<OPTIONAL PARTS FOR FLAMEPROOF OF TIIS>

10th digit code C (Cable gland type) NOTE 1)

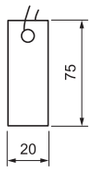


DETAIL "C"



NOTE1) IN CASE OF 10TH DIGIT CODE "C", Φ11 CABLE IS SUITBLE.

<SS TAG PLATE(OPTIONAL)>



<CONNECTION DIAGRAM>

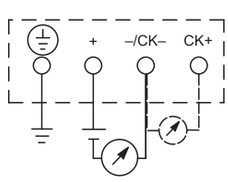


Table 8 Explosion proof

Authorities	Intrinsic safety
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 Entity Parameters: Ui = 28V, Ii = 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 II III DIV.1 Groups A, B, C, D, E, F, G T4 Entity Type 4X Model / 9th digit / 13th digit / Tamb 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 Entity Parameters: Vmax = 28V, Imax = 94.3mA, Pi = 0.66W, Ci = 35.98nF, Li = 0.694mH
CSA	Class I Div.1 Groups A, B, C, D Class II Div.1 Groups E, F, G Class III Div.1 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)
TIIS	Ex ia IIC T4 Tamb max = +60°C Entity Parameters: Ui = 28V, Ⅰi = 94.3mA, Pi = 0.66W, Ci = 38.4nF, Li = 0.694mH
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 Ii = 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)
NEPSI	Ex ia IIC T4 Ex d IIB+H_2T6/Ex ia IIC T4 Model / 9th digit / 13th digit / Tamb 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 Entity Parameters: Ui = 42.4V, Ii = 113mA, Pi = 1W, Ci = 35.98nF, Li = 0.694mH

Authorities	Flameproof
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
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
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.
TIIS	Ex do IIB+H_2 T4 Tamb max = +60°C Maximum process temp. = +120°C
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
NEPSI	Ex d II B+H_2 T6 Tamb = -40°C ~ +60°C

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, Ii=113mA, Pi=1W, Ci=25.18nF, Li=0.694mH Model with arrester: Ui=32V, Ii=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
FM	Class I II III Div.2 Groups A、B、C、D、F、G T4 Entity Type 4X Model / 9th digit / 13th digit / Tamb 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.2 Groups A, B, C, D Class II Div.2 Groups E, F, G Class III Div.2 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

⚠ Caution on Safety

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