DIFFERENTIAL PRESSURE (FLOW) TRANSMITTER

DATA SHEET

FKC, FDC···4

The FCX –AII differential pressure (flow) transmitter accurately measures differential pressure, liquid level, gauge pressure or flow rate and transmits a proportional 4 to 20mA signal. The transmitter utilizes a unique micromachined capacitive silicon sensor with state-of-the-art microprocessor technology to provide exceptional performance and functionality.

FEATURES

1. **High accuracy**
   0.07% accuracy for all calibrated spans is a standard feature for all DP models covering 0.1kPa {1mbar} draft range to 3000kPa {30bar} high differential. Fuji's micro-capacitance silicon sensor assures this accuracy for all elevated or suppressed calibration ranges without additional adjustment.
2. **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.
3. **Fuji/HART® bilingual communications protocol and FOUNDATION™ Fieldbus and Profibus™ compatibility**
   FCX-AII series transmitter offers bilingual communication to speak both Fuji proprietary protocol and HART®. Any HART® compatible devices can communicate with FCX-AII. Further, by upgrading electronics FOUNDATION™ Fieldbus and Profibus™ is also available.
4. **Application flexibility**
   Various options that render the FCX–AII suitable for almost any process applications include.
   - Analog indicator at either the electronics side or terminal side
   - Full range of hazardous area approvals
   - Built-in RFI filter and lightning arrester
   - 5 digits LCD meter with engineering unit
   - Stainless steel electronics housing
   - Wide selection of materials
5. **Programmable output Linearisation Function**
   In addition to linear and square root, output signal can be freely programmable.
6. **Burnout current flexibility (Under Scale : 3,2 to 3,8mA, Over scale : 20,8 to 21,6mA)**
   Burnout signal level is adjustable using Model FXW Hand Held Communicator (HHC) to comply with NAMUR NE43.
7. **Dry calibration without reference pressure**
   Thanks to the best combination of unique construction of mechanical parts (Sensor unit), reliability of dry calibration without reference pressure is at equal level as wet calibration.

SPECIFICATIONS

Functional specifications

Type : FKC : Differential pressure (Flow) transmitter
FDC : FOUNDATION™ Fieldbus & Profibus™

Service : Liquid, gas or vapour

Static pressure, span and range limit :

Type	Static pressure [MPa] {bar}	Span limit [kPa] {mbar} Min.	Span limit [kPa] {mbar} Max.	Range limit [kPa] {mbar}
F□C□11	-0.1 to +3.2	0.1	1	±1
	{-1 to +32}	{1}	{10}	{±10}
F□C□22	-0.1 to +10	0.1	6	±6
	{-1 to +100}	{1}	{60}	{±60}
F□C□23	-0.1 to +10	0.32	32	±32
	{-1 to +100}	{3.2}	{320}	{±320}
F□C□25	-0.1 to +10	1.3	130	±130
	{-1 to +100}	{13}	{1300}	{±1300}
F□C□26	-0.1 to +10	5	500	±500
	{-1 to +100}	{50}	{5000}	{±5000}
F□C□33	-0.1 to +16	0.32	32	±32
	{-1 to +160}	{3.2}	{320}	{±320}
F□C□35	-0.1 to +16	1.3	130	±130
	{-1 to +160}	{13}	{1300}	{±1300}
F□C□36	-0.1 to +16	5	500	±500
	{-1 to +160}	{50}	{5000}	{±5000}
F□C□38	-0.1 to +16	30	3000	±3000
	{-1 to +160}	{300}	{30000}	{±30000}
F□C□43	-0.1 to +42	0.32	32	±32
	{-1 to +420}	{3.2}	{320}	{±320}
F□C□45	-0.1 to +42	1.3	130	±130
	{-1 to +420}	{13}	{1300}	{±1300}
F□C□46	-0.1 to +42	5	500	±500
	{-1 to +420}	{50}	{5000}	{±5000}
F□C□48	-0.1 to +30	30	3000	±3000
	{-1 to +300}	{300}	{30000}	{±30000}

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 below factors as below.
$1MPa=10^3KPa=10bar=10.19716kgf/cm^2$
=145.0377psi
$1kpa=10mbar=101.9716mmH_2O=4.01463inH_2O$

Over range limit : To maximum static pressure limit

Output signal :

4 to 20mA DC (linear or square root) with digital signal superimposed on the 4 to 20mA signal

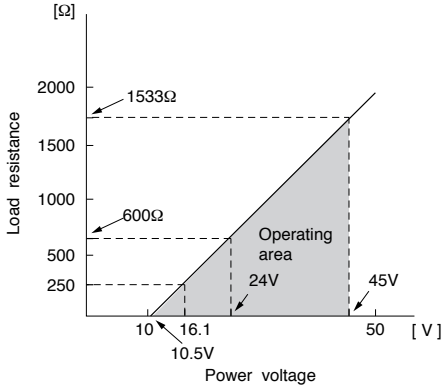
Digital signal based on Foundation Fieldbus or Profibus.

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 FXW, min. of 250Ω required.

Hazardous locations :

Designed to meet international intrinsic safety and flameproof (explosionproof) standards.

Please consult the code symbols some pages further on, to know the different types of approvals (digit 10).

Consult FUJI for status.

Zero/span adjustment :

Zero and span are adjustable by hand held communicator in Hart® or Fuji protocol.Local adjustment of zero are possible from outside screw on the electronic housing.

Damping : (adjustable from HHC)

A damping of the output signal is possible between 0 and 32 sec with the hand held communicator HHC.

Local adjustment possibilities with LCD indicator (refer to optional indicator).

Zero elevation/suppression : –100% to +100% of URL

Normal/reverse action : selectable from HHC.

Indication :

A plug-in analog indicator can be mounted on the electronics unit or the terminal block. The local LCD indicator (5 digits) is assembled on the electronics unit.

Additional local adjustment facilities are possible by the integrated switches in the LCD indicator :

- "Local/comm" switch gives the possibilities to make local adjustments of zero/span, damping or to configure the transmitter with a hand held communicator.
- The "mode" switch with 7 positions gives local adjustment possibilities for zero/span, 4/20mA, enable or inhibit the local adjustments.
- Local damping adjustment is possible via the "damp" switch.

Burnout direction : selected from HHC

If self-diagnostic detect transmitter failure, the analog signal will be driven to eighter "Output Hold", "Output Overscale" or "Output Underscale" modes.

"Output Hold" :

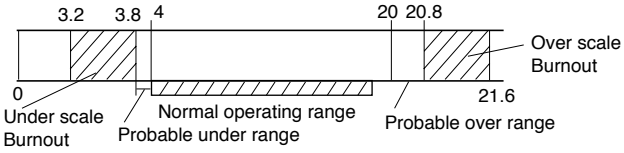
Output signal is hold as the value just before failure happens.

"Output Overscale" :

Adjustable within the range 20,8 mA to 21,6 mA from the Hand Held Communicator.

"Output Underscale" :

Adjustable within the range 3,2 mA to 3,8 mA from the Hand Held Communicator.



Loop-check output :

Transmitter can be configured to provide constant signal 3.8mA through 21.6mA by HHC.

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 filled transmitters)

For explosionproof units (flameproof or intrinsic safety), ambient temperature must be within the limits specified in each standard.

Process : -40 to +120°C for silicone fill sensor

-20 to +80°C for fluorinated oil fill sensor

Storage : -40 to +90°C

Humidity limit : 0 to 100% RH

Communication :

With HHC (Model FXW, consult Data Sheet No. EDS8-47), following information can be remotely displayed or reconfigured.

Note : HHC's version must be more than 6.0 (or FXW □□□□1-A3), for FCX-AII.

		HART® PROTOCOL		FUJI PROTOCOL	
Items		Display	Set	Display	Set
Tag n°		Yes	Yes	Yes	Yes
Model n°		–	–	Yes	Yes
Serial n°		Yes	–	Yes	–
Engeineering unit		Yes	Yes	Yes	Yes
Range limit		Yes	–	Yes	–
Measuring range		Yes	Yes	Yes	Yes
Damping		Yes	Yes	Yes	Yes
Output mode	Linear	Yes	Yes	Yes	Yes
	Square root	Yes	Yes	Yes	Yes
Burnout direction		Yes		Yes	Yes
Adjustment		Yes	Yes	Yes	Yes
Output adjust		–	Yes	–	Yes
Data		Yes	–	Yes	–
Self diagnoses		Yes	–	Yes	–
Printer		–	–	–	–
External switch lock		Yes	Yes	Yes	Yes
Transmitter display		Yes	Yes	Yes	Yes
Linearise		–	–	Yes	Yes
Rerange		Yes	Yes	Yes	Yes

Programmable output linearization function :

Output signal can be characterized with "14 points linear approximation function" from HHC.

Field Bus units :

Digital signal

Transmission technique : according to IEC61158-2

Power supply : 9VDC...32VDC

Base current : 15 ±2mA

Transmission rate : 31,25kbits/s

Profibus-PA : version 3.0, DPVI version 2.0

Foundation Fielbus : FF-890/891

Performance specifications for linear output

Accuracy rating :

(including linearity, hysteresis, and repeatability)

Max span above 32kPa model :

For spans greater than 1/10 of URL :

±0.07% of span

For spans below 1/10 of URL :

$$\pm(0.02+0.05\ \frac{0.1 \times URL}{Span})\%\ \text{of span}$$

Max span 1kPa, 6kPa model :

For spans greater than 1/10 of URL :

±0.1% of span

For spans below 1/10 of URL (Model FKC only) :

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

Stability :

±0.1% of upper range limit (URL) for 3 years

Temperature effect:

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

Range code (6th digit in Code symbols)	Zero shift	Total effect
"1"/1kPa {10mbar} max. span "2"/6kPa {60mbar} max. span	$\pm\left(0.125+0.1\ \frac{URL}{Span}\right)\%$	$\pm\left(0.15+0.1\ \frac{URL}{Span}\right)\%$
"3"/32kPa {320mbar} max. span "5"/130kPa {1300mbar} max. span "6"/500kPa {5000mbar} max. span "8"/3000 kPa {30000mbar} max. span	$\pm\left(0.075+0.0125\ \frac{URL}{Span}\right)\%$	$\pm\left(0.095+0.0125\ \frac{URL}{Span}\right)\%$

Double the effects for material code (7 th digit in codes symbols) "H", "M", "T", "B", "L" and "U"

Static pressure effect :

Static pressure code (5th digit in Code symbols)	Zero shift (% of URL)	Span shift (% of calibrated span)
"1" / 1kPa {10m bar} sensor "2" / 6kPa {60 m bar} sensor	±0.2% / 1MPa{10bar} ±0.1% / 3.2MPa{32bar}	–0.2% /3.2MPa{32bar} –0.2% /3.2MPa{32bar}
"2" "3" "4"	±0.05%/10MPa{100bar}	–0.2%/10MPa{100bar}

Double the Zero shift for material code (7 th digit in codes symbols) "H", "M", "T", "B", "L" and "U"

Overrange effect :

Static pressure code (5th digit in Code symbols)	Zero shift (% of URL)
"1" / 1kPa {10mbar} sensor "2" / 6kPa {60mbar} sensor "2" "3" "4"	±0.3% / 1MPa {10bar } ±0.1% /3.2MPa {32bar } ±0.1% /10MPa {100bar } ±0.1% /16MPa {160bar } ±0.25% /42MPa {420bar}

Double the effects for material code (7 th digit in codes symbols) "H", "M", "T", "B", "L" and "U"

Performance specifications for square root output

Accuracy rating :

	Span	
Output	over 0,1URL	below 0,1URL
50 to 100%	±0,07%	$\pm(0,02+0,05x\ 0,1\ \frac{0,1 \times URL}{Span})\%$
20 to 50%	±0,175%	$\pm2,5(0,02+0,05\ \frac{0,1 \times URL}{Span})\%$
10 to 20%	±0,35%	$\pm5(0,02+0,05\ \frac{0,1 \times URL}{Span})\%$

Max. span 1kPa, 6kPa model :

Output	Accuracy
50 to 100%	±0,1%
20 to 50%	±0,25%
10 to 20%	±0,5%

Temperature effect :

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

Range code	Shift at 20% output point
"1" and "2"	$\pm(0,3+0,25\ \frac{URL}{Span})\%/28°C$
"3" to "8"	$\pm(0,24+0,03125\ \frac{URL}{Span})\%/28°C$

Low flow cut-off :

In the case of square root output mode, customer configurable for any point between 0 to 20% of output.

Supply voltage effect :

Less than 0.05% of calibrated span per 10V

RFI effect :

Less than 0.2% of URL for the frequencies of 20 to 1000MHz and field strength 30 V/m when electronics covers on.

(Classification:2-abc :0.2% span per SAMA PMC 33.1)

Step response : (without electrical damping)

Range code (6th digit in code symbols)	Time constant *	Dead time*
"1"	0.8 s	approx. 0.2 s
"2"	0.5 s	
"3"	0.3 s	
"5" through "8"	0.2 s	

Response time = 5 x time constant + dead time

Time constant (τ) = 63 % output signal

Note : faster response time is available as option (maximum update rate : 25 times per second).

Mounting position effect :

Zero shift : Less than 0.12kPa {1.2m bar} for a 10° tilt in any plane.

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.

Turn-on time : 4 sec.

Internal resistance for external field indicator :

12Ω or less.

Physical specifications

Electrical connections :

1/2"-14 NPT, Pg13.5 or M20x1.5

Process connections :

Standard : 1/4"-18 NPT meets DIN 19213.

Option : 1/2" NPT for oval flanges

Process-wetted parts material :

Material code (7th digit in Code symbols)	Process cover	Diaphragm	Wetted sensor body	Vent/drain
V	316 SS	316L SS	316 SS	316 SS
H	316 SS or PVDF	Hastelloy-C	Hastelloy-C lining	316 SS
M	316 SS or PVDF	Monel	Monel lining	316 SS
T	316 SS or PVDF	Tantalum	Tantalum lining	316 SS
B	Hastelloy-C lining	Hastelloy-C	Hastelloy-C lining	Hastelloy-C
L	Monel lining	Monel	Monel lining	Monel
U	Tantalum lining	Tantalum	Tantalum lining	Tantalum

Remark : Sensor gasket :
viton o-ring or PTFE square section gasket
Availability of above material design depends on ranges and static pressure.Refer to “Code symbols”.

Non-wetted parts material :

Electronics housing :

Low copper die cast aluminum alloy (std), finished with polyester coating, or 316 stainless steel, as specified.

Bolts and nuts:

Cr-Mo alloy (standard), 316 stainless steel (for static pressure code “1”, “2”, and “3” only), or 630 stainless steel (for static pressure code “3” and “4” only). Static pressure rating for code “3” with 316 stainless steel bolts is degraded to 10MPa.

Fill fluid:

Silicone oil (standard) or fluorinated oil (Daifloil)

Mounting bracket:

304 stainless steel, as specified

Environmental protection :

IEC IP67 and NEMA 6/6P

Mounting :

On 50mm (2") pipe using mounting bracket, direct wall mounting, or direct process mounting.

Mass{weight} :

Transmitter approximately 4.4kg without options.

Add : 0.5kg for mounting bracket
0.8kg for indicator option
4.5kg for stainless steel housing (option)

Optional features

Indicator :

A plug-in analog indicator (1.5% accuracy) can be located in the electronics compartment or in the terminal box of the housing. An optional 5 digits LCD meter is also available.

Arrester :

A built-in arrester protects the electronics from lightning surges.

Lightning surge immunity : 4kV (1.2x50μs)

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 : The fill fluid is fluorinated oil.

Degreasing :

Process-wetted parts are cleaned, but the fill fluid is standard silicone oil except oxygen or chlorine application.

NACE specification :

Metallic materials for all pressure boundary parts including 316SS bolts and nuts comply with NACE MR-01-75.

Vacuum service :

Special silicone oil and filling procedure are applied.

See below figure 1.

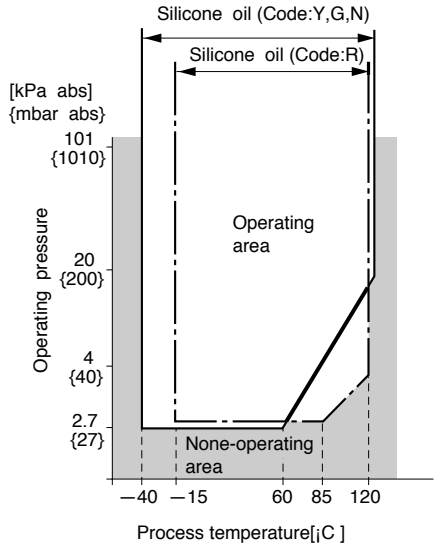


Fig.1
Relation between process temperature and operating pressure

Customer tag :

A extra stainless steel tag with customer tag data is wired to the transmitter.

ACCESSORIES

Oval flanges :

Converts process connection to 1/2"-14 NPT
material : 316 SS

Manifolds :

Available in 316 stainless steel and in pressure rating 16MPa or 42MPa.

Hand-held communicator :

(Model FXW, refer to Data Sheet No. EDS 8-47)

CODE SYMBOLS

1	2	3	4	5	6	7	8		9	10	11	12	13		14	15	Description
							4	-						-			
F	K	C															**Type**
F	D	C															Smart, 4-20 mAdc + Fuji/Hart® digital signal
																	FOUNDATION™ Fieldbus & Profibus™
																	Connections

	Process connections	Oval flange screw	Electrical connection	
M	1/4"-18 NPT	M10	M 20 x 1,5	(*8)
N	1/4"-18 NPT	M10	Pg 13,5	(*8)
P	1/4"-18 NPT	M10	1/2"-14 NPT	(*8)
R	1/4"-18 NPT	7/16-20 UNF	M 20 x 1,5	
T	1/4"-18 NPT	7/16-20 UNF	1/2"-14 NPT	
V	1/4"-18 NPT	M10 or M12 (*1)	Pg 13,5	(*1)
W	1/4"-18 NPT	M10 or M12 (*1)	M 20 x 1,5	(*1)
X	1/4"-18 NPT	7/16-20 UNF	Pg 13,5	

Range & wetted parts material

				Static pressure limits (*2) (*3)	Spans (*2)	Process - cover LP & HP - side	Measuring diaphragm	Wetted cell body
	1	1	V	-1 to 32 bar	10/100 mm WC	316 SS	316L SS	316 SS
	1	1	H			316 SS	Hast. C	Hast. C lining
	2	2	V	-1 to 100 bar	10/600 mm WC	316 SS	316L SS	316 SS
	2	2	H			316 SS	Hast. C	Hast. C lining
	3	3	V	-1 to 160 (*3) bar	32 /3200 mm WC 0,13 /13 m WC 0,5/50 m WC	316 SS	316L SS	316 SS
	3	3	H			316 SS	Hast. C	Hast. C lining
	3	3	M			316 SS	Monel	Monel lining
	3	3	C	(*4)		316 SS	Hydroseal	316 SS
	3	3	T			316 SS	Tantalum	Tantalum lining
	3	5	V			316 SS	316L SS	316 SS
	3	5	H			316 SS	Hast. C	Hast. C lining
	3	5	M			316 SS	Monel	Monel lining
	3	5	C	(*4)		316 SS	Hydroseal	316 SS
	3	5	T			316 SS	Tantalum	Tantalum lining
	3	6	V			316 SS	316L SS	316 SS
	3	6	H			316 SS	Hast. C	Hast. C lining
	3	6	M			316 SS	Monel	Monel lining
	3	6	T			316 SS	Tantalum	Tantalum lining
	3	8	V		3/300 m WC	316 SS	316L SS	316 SS
	4	3	V	-1 to 420 bar	32/3200 mm WC 0,13/13 m WC 0,5/50 m WC	316 SS	316L SS	316 SS
	4	3	H			316 SS	Hast. C	Hast. C lining
	4	3	M			316 SS	Monel	Monel lining
	4	3	C	(*4)		316 SS	Hydroseal	316 SS
	4	5	V			316 SS	316L SS	316 SS
	4	5	H			316 SS	Hast. C	Hast. C lining
	4	5	M			316 SS	Monel	Monel lining
	4	5	C	(*4)		316 SS	Hydroseal	316 SS
	4	6	V			316 SS	316L SS	316 SS
	4	6	H			316 SS	Hast. C	Hast. C lining
	4	6	M			316 SS	Monel	Monel lining
	4	8	V	-1 to 300 bar	3/300 m WC	316 SS	316L SS	316 SS
(*5)	2	3	B	-1 to 100 bar	32 /3200 mm WC 0,13 /13 m WC 0,5 /50 m WC	Hast. C lining	Hast. C	Hast. C lining
(*5)	2	3	L			Monel lining	Monel	Monel lining
(*5)	2	3	U			Tantalum lining	Tantalum	Tantalum lining
(*5)	2	5	B			Hast. C lining	Hast. C	Hast. C lining
(*5)	2	5	L			Monel lining	Monel	Monel lining
(*5)	2	5	U			Tantalum lining	Tantalum	Tantalum lining
(*5)	2	6	B			Hast. C lining	Hast. C	Hast. C lining
(*5)	2	6	L			Monel lining	Monel	Monel lining
(*5)	2	6	U			Tantalum lining	Tantalum	Tantalum lining
(*6)	8	1	H	-1 to 15 bar	10/100 mmWC	PVDF Insert	Hast. C	Hast. C lining
(*6)	8	2	H		10/600 mmWC	PVDF Insert	Hast. C	Hast. C lining
(*6)	8	3	H		32 /3200 mm WC 0,13 /13 m WC 0,5 /50 m WC	PVDF Insert	Hast. C	Hast. C lining
(*6)	8	3	M			PVDF Insert	Monel	Monel lining
(*6)	8	3	T			PVDF Insert	Tantalum	Tantalum lining
(*6)	8	5	H			PVDF Insert	Hast. C	Hast. C lining
(*6)	8	5	M			PVDF Insert	Monel	Monel lining
(*6)	8	5	T			PVDF Insert	Tantalum	Tantalum lining
(*6)	8	6	H			PVDF Insert	Hast. C	Hast. C lining
(*6)	8	6	M			PVDF Insert	Monel	Monel lining
(*6)	8	6	T			PVDF Insert	Tantalum	Tantalum lining
(*6)	9	1	H		10/100 mmWC	PVDF Insert	Hast. C	Hast. C lining
(*6)	9	2	H		10/600 mmWC	PVDF Insert	Hast. C	Hast. C lining
(*6)	9	3	H		32 /3200 mm WC 0,13 /13 m WC 0,5 /50 m WC	PVDF Insert	Hast. C	Hast. C lining
(*6)	9	3	M			PVDF Insert	Monel	Monel lining
(*6)	9	3	T			PVDF Insert	Tantalum	Tantalum lining
(*6)	9	5	H			PVDF Insert	Hast. C	Hast. C lining
(*6)	9	5	M			PVDF Insert	Monel	Monel lining
(*6)	9	5	T			PVDF Insert	Tantalum	Tantalum lining
(*6)	9	6	H			PVDF Insert	Hast. C	Hast. C lining
(*6)	9	6	M			PVDF Insert	Monel	Monel lining
(*6)	9	6	T			PVDF Insert	Tantalum	Tantalum lining

CODE SYMBOLS

1	2	3	4	5	6	7	8		9	10	11	12	13		14	15
F	K	C					4	-						-		
F	D	C					4	-						-		

Indicator & Arrester

	Initial setting	Indicator	Arrester
4 - A	4-20mA DC + HART®/FUJI digital signal "SMART"	None	none
4 - B		Analog, 0-100% linear scale	none
4 - C		Analog, 0-100% √ scale	none
4 - D		Analog, Custom scale	none
4 - J		Analog, double scale	none
4 - E		none	yes
4 - F		Analog, 0-100% linear scale	yes
4 - G		Analog, 0-100% √ scale	yes
4 - H		Analog, Custom scale	yes
4 - K		Analog, double scale	yes
4 - L		Digital, 0-100%	none
4 - P		Digital, Custom scale	none
4 - M		Digital, 0-100% √ scale	none
4 - Q		Digital, 0-100%	yes
4 - S		Digital, Custom scale	yes
4 - N		Digital, 0-100% √ scale	yes
4 - R	FF	None	yes
4 - T	FF	Digital, Custom scale	yes
4 - V	Profibus	None	yes
4 - W	Profibus	Digital, Custom scale	yes

Approvals for hazardous locations (consult FUJI for availability)

A	None (standard)
X	Flameproof housing ATEX Ⓔx II 2 GD - EEx d IIC T5/T6
K	Intrinsic safety ATEX Ⓔx II 1 GD - EEx ia IIC T4/T5
D	FM - Flameproof housing Class I, Division 1, Groupe B, C, D
	Dust ingnitionproof Class II/II, Division 1, Group E, F, G - (elec. conn. code "T" only)
E	CSA - Flameproof housing Class I, II, II, Division 1, Group C, D -
	Class II, Group E, F, G - Class III - (elec. conn. code "T" only)
H	FM - Intrinsic safety Class I, II, III, Division 1, Group A, B, C, D, E, F, G
	Nonincentive Class I,II,III, Division 2, Group A,B,C,D,F,G
J	CSA - Intrinsic safety & Nonincentive Class I, Group A,B,C,D - Class II, Group E,F,G
	Class III - Temp code T4 for all classes (electrical connection code "T" only)
P	ATEX type "n" Ⓔx II 3 GD - EEx nL/nAL IIC T4/T5

Side vent/drain & mounting bracket

	Side vent/drain	mounting bracket
A	none	none
C	none	yes, SS
D	yes	none
F	yes	yes, SS

SS parts

	SS tag plate	SS housing
Y	none	none
B	yes	none
C	none	yes
E	yes	yes

Special applications & fill fluid

	Treatment	Fill fluid
Y	none (std)	silicone oil
W	none (std)	fluorinated oil
G	degreasing	silicone oil
A	oxygen serv.	fluorinated oil (only w/digit7=V)
D	chlorine serv.	fluorinated oil (only w/digit 7=H,T,B,U)
(*7) N	NACE	silicone oil
R	vacuum serv.	silicone oil

Process cover gasket

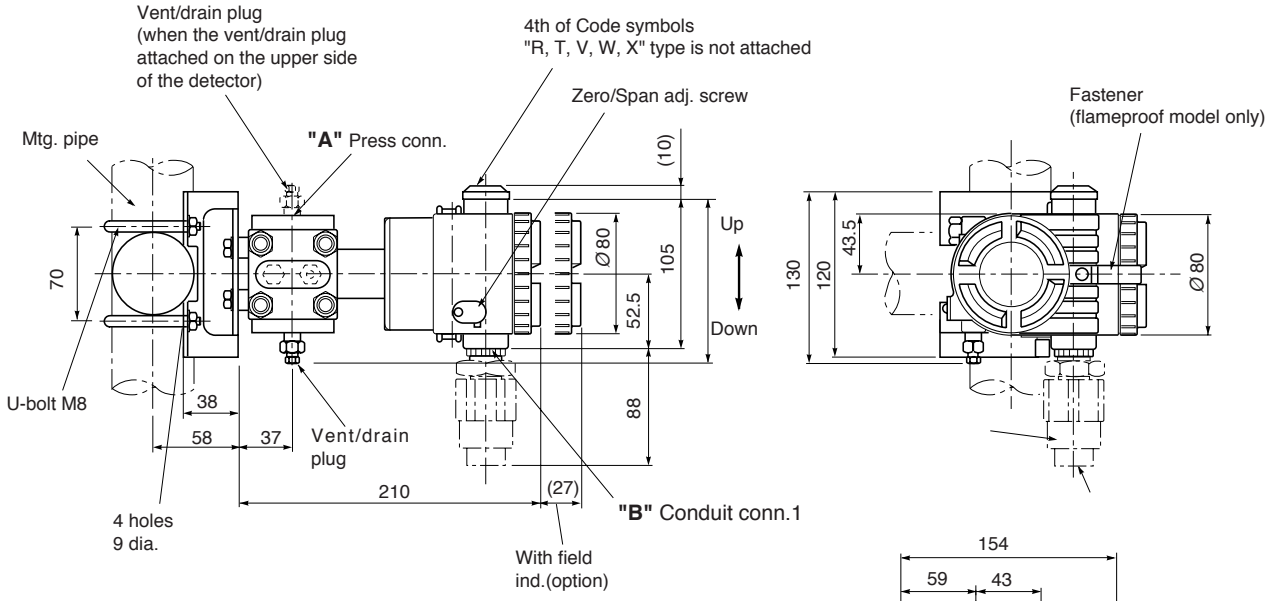
- A	Viton
- C	PTFE square section gasket in SS flange (FEF design)
(*6) - D	PTFE square section gasket in PVDF insert

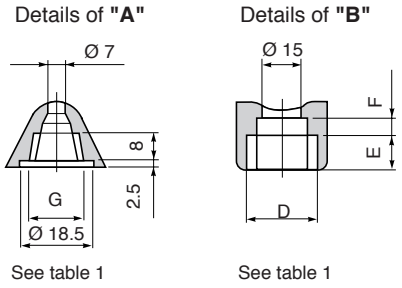
Bolts/screws material

A	Cr-Mo (standard)
(*3) E	SS 316/316 ((bolt/nuts)
F	SS 630/304 (bolt/nuts)

* Notes :
1- The thread is M12, if static pressure 420 bar
2- Turn down of 100:1 is possible, but it should be used at a span greater than 1/40 of the maximum span for better performance.
3- Max. static pressure 100 bar for SS 316 bolts/nuts; for static pressure > 100 bar, please specify : SS 630 bolts
4- Gold/ceramics coating for Hydrogen service (Hydroseal)
5- Process cover with lining has only side vent-drain facility
6- Process cover with PVDF insert with 1/2-18 NPT side process connection/no vent drain, other upon request - Square section PTFE gasket
7- Our stainless steel bolts/nuts are in conformity with the NACE requirements and can be used for NACE service -
8- Design for direct mounting on pitot tube.

OUTLINE DIAGRAM (unit : mm) < 7th digit code : V, H, M, T >





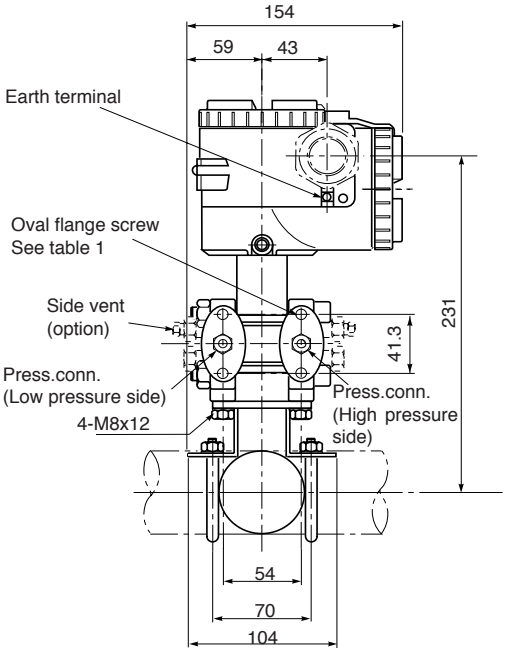
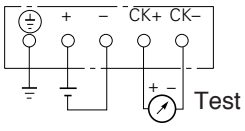


Table 1

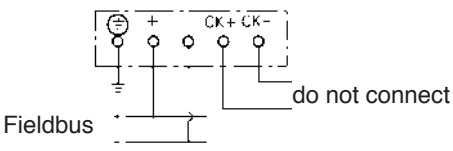
4th of Code symbols	Conduit conn.			Press. conn.	Oval flange screw
	D	E	F	G	
R	M20x1.5	16	5	1/4-18NPT	7/16-20UNF
T	1/2-14NPT	16	5	1/4-18NPT	7/16-20UNF
V	Pg13.5	8	4.5	1/4-18NPT	M10 or M12
W	M20x1.5	16	5	1/4-18NPT	M10 or M12
X	Pg13.5	8	4.5	1/4-18NPT	7/16-20UNF

CONNECTION DIAGRAM

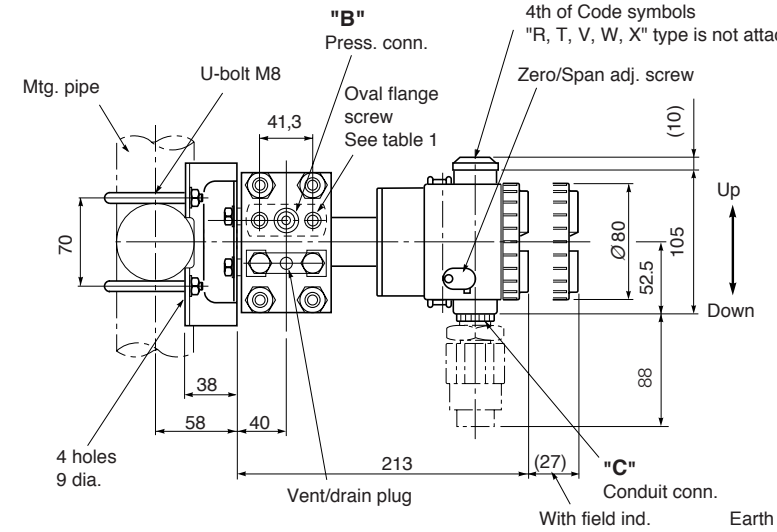
FKC unit

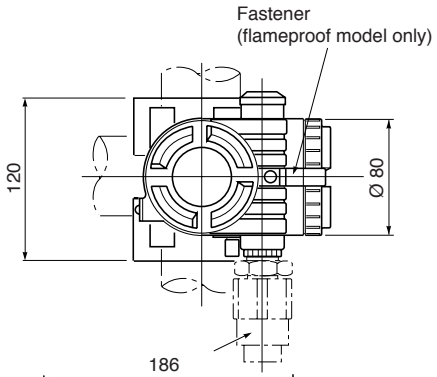


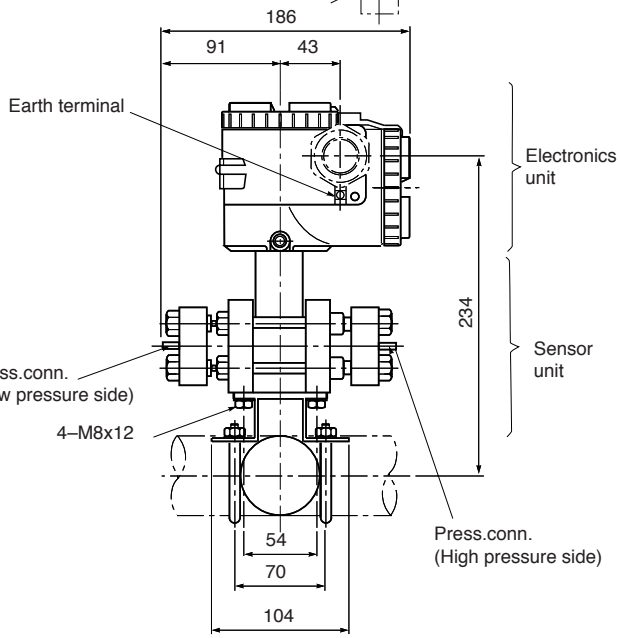
FDC unit



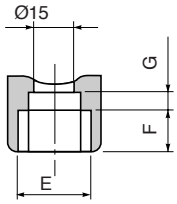
OUTLINE DIAGRAM (unit : mm) < 7th digit code : B, L, U >







Details of **"C"** See table 1



Details of **"B"** See table 1

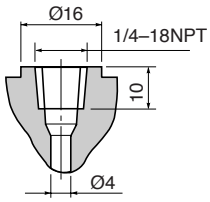


Table 1

4th of Code symbols	Conduit conn.			Oval flange screw
	E	F	G	
R	M20 x 1,5	16	5	7/16-20UNF
T	1/2-14NPT	16	5	7/16-20UNF
V	Pg13.5	8	4.5	M10 or M12
W	M20x1.5	16	5	M10 or M12
X	Pg13.5	8	4.5	7/16-20UNF

The product conforms to the requirments of the Electromagnetic compatibility Directive 89/336/EEC as detailed within the technical construction file number TN513035. The applicable standards used to demonstrate compliance are :

EMI (Emission) **EN61326 : 1997**

Class A (std for Industrial Location)

Frequency range MHz	Limits	Reference Standard
3 to 230	40dB (μV/m) quasi peak measured at 10m distance	CISPR16-1 and CISPR16-2
230 to 1000	47dB (μV/m) quasi peak, measured at 10m distance	

Note) Definition of performance criteria

A : During testing, normal performance within the specification limits

B : During testing, temporary degradation, or loss of function or performance which is self-recovering.

EMS (Immunity) **EN61326 : 1997**

Annex A (standard for Industrial Location)

Phenomenon	Test value	Basic Standard	Performance criteria
Electrostatic discharge	4kV (Contact) 8kV (Air)	IEC61000-4-2	B
Electromagnetic field	80 to 1000MHz 10V/m 80%AM (1kHz)	IEC61000-4-3	A
Rated power frequency magnetic field	30A/m 50Hz	IEC61000-4-8	A
Burst	2kV 5kHz	IEC61000-4-4	B
Surge	1.2μs/50μs 1kV (Line to line) 2kV (line to ground)	IEC61000-4-5	B
Conducted RF	0.15 to 80MHz 3V , 80%AM (1kHz)	IEC61000-4-6	Aa

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