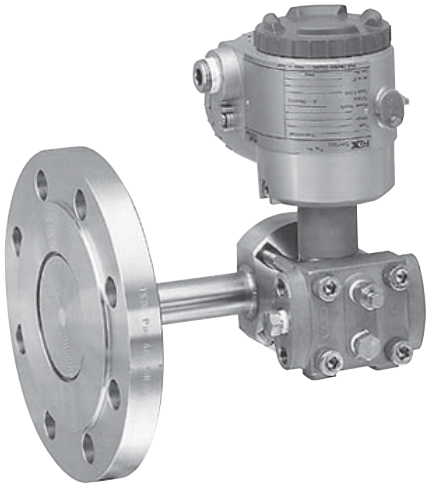
LEVEL TRANSMITTER

DATA SHEET **FKE···5**

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



FEATURES

1. **High accuracy**
   0.165% accuracy for all calibrated spans is a standard feature. The micro-capacitance silicon sensor assures this accuracy for all elevated or suppressed calibration ranges without additional adjustment.
   0.1% accuracy is available as option
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**
   FCX-AII series transmitter offers bilingual communications to speak both Fuji proprietary protocol and HART®. Any HART® compatible devices can communicate with FCX-AII.
4. **Application flexibility**
   Various options that render the FCX-AII suitable for almost any process applications include:
   – Full range of hazardous area approvals
   – Built-in RFI filter and lightning arrester
   – 5-digit LCD meter with engineering unit
   – Stainless steel electronics housing
   – Wide selection of materials
   – High temperature, high vacuum service.
5. **Programmable output Linearization Function**
   Output signal can be freely programmable.
   (Up to 14 compensated points at approximation.)
6. **Burnout current flexibility (Under Scale: 3.2 to 4.0mA, Over Scale: 20.0 to 22.5mA)**
   Burnout signal level is adjustable using Model FXW Hand Held Communicator (HHC) to comply with NAMUR NE43.
7. **Dry calibration without reference pressure**
   Thanks to the best combination of unique construction of mechanical parts (Sensor unit) and high performance electronics circuit (Electronics unit), reliability of dry calibration without reference pressure is at equal level as wet calibration.

SPECIFICATIONS

Functional specifications

Type:
FKE : Level transmitter

Service :
Liquid, gas or vapour.

Static pressure, span, and range limit:

Type	Static pressure	Span limit (mmH_2O)		Range limit (mmH_2O)
		Min.	Max.	
FKE□□2	Up to flange rating	10	600	± 600
FKE□□3		32	3200	± 3200
FKE□□5		130	13000	± 13000
FKE□□6		500	50000	± 50000
FKE□□8		3000	300000	±300000

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.

Overrange limit:
To maximum static pressure limit

Output signal:

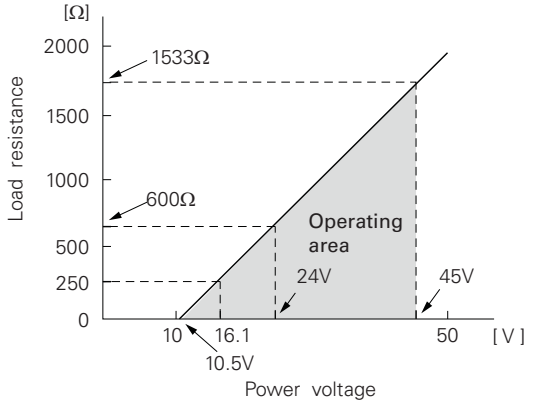
4 to 20mA DC with digital signal superimposed on the 4 to 20mA signal

Power supply:

Transmitter operates on 10.5V to 45V DC at transmitter terminals.

10.5V to 32V DC for the units with optional arrester.

Load limitations: see figure below



Note: For communication with HHC(1), min. of 250Ω required.

Hazardous locations: See below

Authority (Digit 10=)	Intrinsic safety
ATEX (K)	Ex II 1 G Ex ia IIC T5 (-40°C ≤ Ta ≤ +50 °C) Ex ia IIC T4 (-40°C ≤ Ta ≤ +70 °C) IP66/67 Entity Parameters: Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W Ci = 36 nF/26 nF for models with/without Arrester Li = 0.7 mH/0.6 mH for models with/without Analog Indicator
Factory Mutual (pending) (H)	Class I II III Div.1 Groups A, B, C, D, E, F, G T4 Entity Type 4X Model code / Tamb 9th digit / 13th digit / Tamb A,B,C,D,J / Y,G,N / -40°C to +85°C L,P,M,1,2,3 / Y,G,N / -20°C to +80°C Q,S,N,4,5,6 / Y,G,N / -20°C to +60°C E,F,G,H,K / Y,G,N / -40°C to +60°C - / W,A,D / -10°C to +60°C Entity Parameters: Vmax=42.4V, Imax=113mA, Pi=1W, Ci=35.98nF, Li=0.694mH
CSA (J)	Ex ia Class I, Groups A, B, C and D; Class II, Groups E,F and G; Class III Per drawing TC 522873 Temp. code T5 for Tamb max = +50°C Temp. code T4 for Tamb max = +70°C Entity Parameters: Vmax = 28 Vdc, Imax = 94.3 mA, Pmax = 0.66 W Ci = 36 nF/25 nF for models with/without Arrester Li = 0.7 mH/0.6 mH for models with/without Analog Indicator
IECEx (T)	Ex ia IIC T5 (-40°C ≤ Ta ≤+50 °C) Ex ia IIC T4 (-40°C ≤ Ta ≤+70 °C) IP66/67 Entity Parameters: Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W Ci = 36 nF/26 nF for models with/without Arrester Li = 0.7 mH/0.6 mH for models with/without Analog Indicator

Authority (Digit 10=)	Type n Nonincendive
ATEX (P)	Ex II 3 G Ex nA II T5 (-40°C ≤ Ta ≤+70 °C) IP66/67 Electrical ratings Model Without arrester: Ui ≤ 45 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Model With arrester: Ui ≤ 32 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Optional Analog indicator is not available for type "n"
Factory Mutual (pending) (H)	Class I II III Div.2 Groups A, B, C, D, F, G T4 Entity Type 4X Model code / Tamb 9th digit / 13th digit / Tamb A,B,C,D,J / Y,G,N / -40°C to +85°C L,P,M,1,2,3 / Y,G,N / -20°C to +80°C Q,S,N,4,5,6 / Y,G,N / -20°C to +60°C E,F,G,H,K / Y,G,N / -40°C to +60°C - / W,A,D / -10°C to +60°C
CSA (pending) (J)	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 = 28 Vdc, Imax = 94.3 mA, Pmax = 0.66 W Ci = 36 nF/25 nF for models with/without Arrester Li = 0.7 mH/0.6 mH for models with/without Analog Indicator
IECEx (Q)	Ex nA II T5 (-40°C ≤ Ta ≤+70 °C) IP66/67 Electrical ratings Model Without arrester: Ui ≤ 45 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Model With arrester: Ui ≤ 32 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Optional Analog indicator is not available for type "n"

Authority	Flameproof
ATEX (X)	Ex II 2 GD Ex d IIC T6 (-40°C ≤ Ta ≤ +65 °C) Ex d IIC T5 (-40°C ≤ Ta ≤ +85 °C) Ex tD A21 IP66/67 T 85°C Ex tD A21 IP66/67 T 100°C Electrical ratings Model Without arrester: Ui ≤ 45 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Model With arrester: Ui ≤ 32 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W
Factory Mutual (pending) (D)	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 (E)	Class I, Groups C and D; Class II, Groups E,F and G ; Class III Maximum ambient temperature 85°C Maximum working pressure 50 Mpa Electrical ratings Model Without arrester: Ui ≤ 45 Vdc, 4-20 mA Model With arrester: Ui ≤ 32 Vdc, 4-20 mA Note: "Seal not required"
IECEx (R)	Ex d IIC T6 (-40°C ≤ Ta ≤ +65 °C) Ex d IIC T5 (-40°C ≤ Ta ≤ +85 °C) DIP A21 IP66/67 T 85°C DIP A21 IP66/67 T 100°C Electrical ratings Model Without arrester: Ui ≤ 45 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W Model With arrester: Ui ≤ 32 Vdc, 4-20 mA loop powered, Pi ≤ 1.0125 W

Zero/span adjustment:

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

Damping:

Adjustable from HHC(1) or local adjustment unit with LCD display.

The time constant is adjustable between 0.12 to 32 sec.

Zero elevation/suppression:

-100% to + 100% of URL

Normal/reverse action:

Selectable from HHC(1)

Indication:

Analog indicator or 5-digit LCD meter

Burnout direction: Selectable from HHC(1)

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

“Output Hold”:

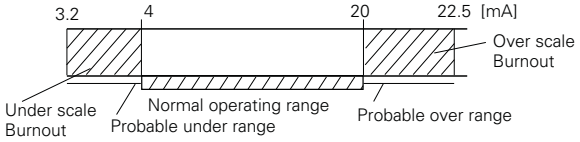
Output signal is hold as the value just before failure happens.

“Output Overscale”:

Adjustable within the range 20.0mA to 22.5mA from HHC(1)

“Output Underscale”:

Adjustable within the range 3.2mA to 4.0mA from HHC(1)



Loop-check output:

Transmitter can be configured to provide constant signal 3.2mA through 21.6mA by HHC(1).

Temperature limit:

Ambient: -40 to + 85°C
-20 to + 80°C (for LCD indicator)
-40 to + 60°C (for arrester option)
-10 to + 60°C (for fluorinated oil fill transmitter)

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

Process:

	Code in the 13th digit of “Code symbols”	Process temperature	Lower limit of static pressure
Fluorinated oil	W, A	-20 to 120°C	Atmospheric 20 torr
Silicone oil	Y and G	-40 to 150°C	

Note: For higher process temperature, please consult FUJI

Storage:

-40 to + 90°C

Humidity limit:

0 to 100% RH

Communication:

With HHC(1) (Model FXW, consult DS EDS8-47), following items can be remotely displayed or configured.

Note: HHC’s version must be higher than 6.0 or (FXW □□□□1–□3), for FCX-AⅡ.

For supporting “Saturate current”, “Write protect”, and “History”, HHC’s version 6.3 or higher is necessary.

Items	Fuji Protocol with FXW		Hart Protocol	
	Display	Set	Display	Set
Tag No.	*v*	*v*	*v*	*v*
Model No.	*v*	*v*	—	—
Serial No. & Software Version	*v*	—	*v*	—
Engineering unit	*v*	*v*	*v*	*v*
Range limit	*v*	—	*v*	—
Measuring range	*v*	*v*	*v*	*v*
Damping	*v*	*v*	*v*	*v*
Output mode	*v*	—	*v*	—
Burnout direction	*v*	*v*	*v*	*v*
Calibration	*v*	*v*	*v*	*v*
Output adjust	—	*v*	—	*v*
Data	*v*	—	*v*	—
Self diagnoses	*v*	—	*v*	—
Printer (In case of FXW with printer option)	*v*	—	—	—
External switch lock	*v*	*v*	*v*	*v*
Transmitter display	*v*	*v*	*v*	*v*
Linearize*	*v*	*v*	—	—
Rerange	*v*	*v*	*v*	*v*
Saturate current	*v*	*v*	*v*	*v*
Write protect	*v*	*v*	*v*	*v*
History – Calibration history – Ambient temperature history	 *v* *v*	 *v* —	 *v* *v*	 *v* —

(Note) (1) HHC: Hand Held Communicator

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

Local configurator with 3 push button and LCD display can support all items (Fuji Protocol list) except “Linearize” function.

Programmable output linearization function:

Output signal can be characterized with “14 points linear approximation function” from HHC(1).

Performance specifications

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

Accuracy rating:

(including linearity, hysteresis, and repeatability)

(Standard)

For spans greater than 1/10 of URL:

±0.165% of span

For spans below 1/10 of URL:

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

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

For span greater than 1/10 of URL:

0.1% of span

For span below 1/10 of URL:

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

Stability:

±0.2% of upper range limit (URL) for 10 years.

Temperature effect:

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

Zero shift (transmitter only): ±0,30 Of URL

Zero shift (level kit only): ±0,30 Of URL

Total effect (level kit and transmitter): ±0,30% Of URL

Note : The indicated values are for temperature compensation made on transmitter only, without level kit. Zero shift is improved (2 to 3 times) by an additional temperature compensation of the complete level transmitter (level kit and transmitter)

Static pressure effect:
Zero shift: ±0.2% of URL / 1MPa
Span shift: -0.2% of calibrated span/1MPa
Double the effects for material code (7th digit in codes symbols) “H”, “M”, “T”, “B”, “P” and “R”

Overrange effect:
Zero shift; ±0.1% of URL for flange rating pressure
Double the effects for material code (7th digit in codes symbols) “H”, “M”, “T”, “B”, “P” and “R”

Supply voltage effect:
Less than 0.005% of calibrated span per 1V

Update rate:
60 msec

Response time: (at 63,2% of output signal)

Range code	Time constant (at 23°C)	Dead time
“3”	550 msec	120 msec approx.
“5” to “8”	300 msec	

Response time = time constant + dead time

Mounting position effect:
Zero shift, less than 30 mmH_2O for a 10° tilt in any plane (no extension). No effect on span.
This error can be corrected by adjusting zero.

Vibration effect:
> ±0,25% of span for spans greater than 1/10 of URL.
Frequency 10 to 150Hz, acceleration 39,2m/sec^2 .

Material fatigue:
Please consult Fuji Electric.

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

Insulation resistance:
More than 100MΩ at 500V DC.

Turn-on time:
4 seconds

Internal resistance for external field indicator:
12Ω Max (connected to test terminal CK+ and CK-

Physical specifications

Electrical connections:
1/2-14 NPT, Pg13.5 or M20 x 1.5

Process connections:
LP side: 1/4-18 NPT
HP side: ANSI or DIN raised face flange.
Refer to “Code symbols”
Raised face flange machining:
Stockfinish - 316L SS diaphragm
Smooth finish - other diaghragm materials

Process-wetted parts material:

Material code (7th digit in “Code symbols”)	LP side			HP side
	Process cover	Diaphragm 316L SS	Wetted sensor body	Diaphragm & flange face
V	316 SS (*1)	316L SS	316 SS	316L SS
H	316 SS (*1)	316L SS	316 SS	Hastelloy-C
M	316 SS (*1)	316L SS	316 SS	Monel
T	316 SS (*1)	316L SS	316 SS	Tantalum
A	316 SS (*1)		316 SS	316L SS + FEP lining
B	316 SS (*1)	316L SS	316 SS	316L SS + Gold coating
P	316 SS (*1)	316L SS	316 SS	Tantalum
R	316 SS (*1)	316L SS	316 SS	Zirconium

Note: Process cover gasket: Viton O-ring or PTFE/15% graphite square section gasket.

Non-wetted parts material:
Electronics housing:
Low copper die-cast aluminum (std), finished with epoxy/polyurethane double coating or 316 SS as specified.
Bolts and nuts:
Cr-Mo alloy (standard) or 316 SS
Fill fluid:
Silicone oil (standard) for the measuring cell and level kit
Silicone oil (standard) for the measuring cell and fluorinated oil (or specific oils upon request) for the level kit.
Mounting flange: 316L SS

Environmental protection:
IEC IP67 and NEMA 6/6P

Flange mounting:
See drawings

Mass {weight}:
Transmitter:approx. 10.2 to 19.2kg without options.
Add; 0.5kg for mounting bracket
4.5kg for stainless steel housing (option)
1.0kg per 50mm extension of diaphragm

Optional features

Indicator: A plug-in analog indicator (2.5% accuracy).
An optional 5-digit LCD meter with engineering unit is also available.

Local configurator with LCD display:
An optional 5 digits LCD meter with 3 push buttons can support items as using communication with HHC.

Arrester:
A built-in arrester protects the electronics from lightning surges.
Lightning surge immunity: 4kV (1.2 × 50μs)

Oxygen service:
Special cleaning procedures are followed throughout the process to maintain all process wetted parts oil-free.
The fill fluid is fluorinated oil.

Chlorine service:
Oil-free procedures as above. Includes fluorinated oil for fill.

Degreasing:
Process-wetted parts are cleaned, but the fill fluid is standard silicone oil. Not for use on oxygen or chlorine measurement.

Optional tag plate:
An extra stainless steel tag with customer tag data is wired to the transmitter.

NACE specification:
Metallic materials for all pressure bound ary parts comply with NACE MR-01-75. 630/304 stainless steel bolts and nuts comply with NACE.

Vacuum service:

Special silicone oil and filling procedure are applied.
See Fig.1 and Fig.2 below

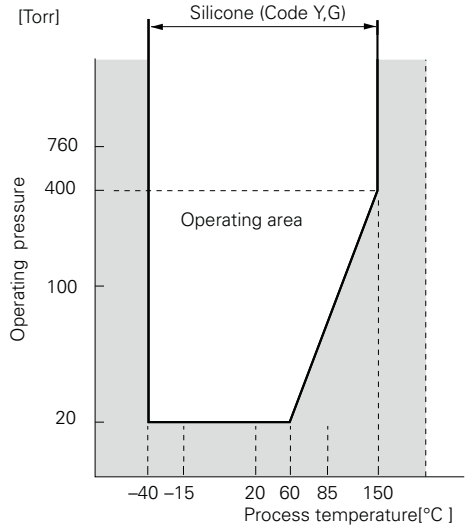


Fig. 1 Relation between process temperature and operating pressure

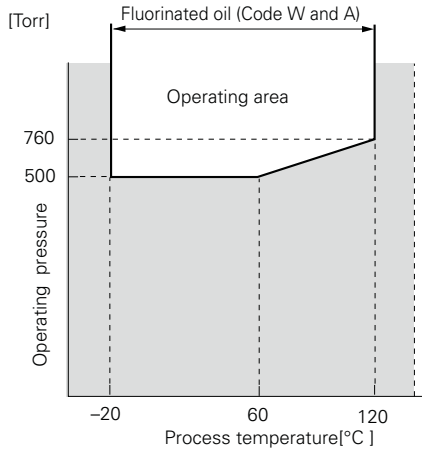


Fig. 2 Relation between process temperature and operating pressure

ACCESSORIES

Oval flanges:

Converts process connection to 1/2-14 NPT in 316 SS

Hand held communicator:

(Model FXW, refer to Data Sheet EDS8-47)

ORDERING INFORMATION

When ordering this instrument, specify:

1. CODE SYMBOLS
2. Measuring range
3. Output orientation (burnout direction) when abnormality is occurred in the transmitter.
   Hold / Overscale / Underscale.
   Unless otherwise specified, output hold function is supplied.
4. Indication method (indicated value and unit) in case of the actual scale (code D, H, P, S on 9th digit).
5. TAG No. (up to 20 alphanumerical characters), if required.

The product conforms to the requirements 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	A

CODE SYMBOLS

1	2	3	4	5	6	7	8		9	10	11	12	13		14	15		16	DESCRIPTION
F	K	E					F	-						-			-		**Type** Smart, 4-20 mAdc + Fuji/Hart® digital signal

Connections

	LP side connections		Electric. housing
	Process	Oval flange screw	Conduit connection
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	Pg 13,5
W	1/4-18 NPT	M10	M 20 x 1,5
X	1/4-18 NPT	7/16-20 UNF	Pg 13,5

Mounting flange

	Material	Size and rating	Flange mount. position
4	SS 316 L	ANSI-150LB3"-ISO PN 20 DN 80	Long design
5		ANSI-150LB4"-ISO PN 20 DN 100	
8		DIN PN40 DN80	
9		DIN PN16 DN100	
L		ANSI-150LB3"-ISO PN 20 DN 80	Short design
M		ANSI-150LB4"-ISO PN 20 DN 100	
P		DIN PN40 DN80	
Q		DIN PN16 DN100	

Measuring range (mmAq)

2	(*7)	10	600
3	(*1)	32	3200
5		130	13000
6		500	50000
8		3000	300000

Material

		LP side			HP side
		Process cover	Diaphragm	Wetted sensor body	Diaphragm and flange face
V		SS 316	SS 316L	SS 316	SS 316 L
W	(*2)	SS 316	Hastelloy-C	SS 316	Hastelloy-C
H	(*2)	SS 316	SS 316L	SS 316	Hastelloy-C
M	(*2)	SS 316	SS 316L	SS 316	Monel
T	(*2)	SS 316	SS 316L	SS 316	Tantalum
A	(*2)	SS 316	SS 316L	SS 316	SS 316L + FEP lining
B	(*2)	SS 316	SS 316L	SS 316	SS 316L + gold coat
P	(*2)	SS 316	SS 316L	SS 316	Titanium
R	(*2)	SS 316	SS 316L	SS 316	Zirconium

Indicator and arrester

	Indicator	Arrester	Initial setting
F - A	None	None	
F - B	Analog, 0 to 100% linear scale	None	
F - D	Analog, custom scale	None	
F - J	Analog, double scale	None	4-20mA DC
F - E	None	Yes	+
F - F	Analog, 0 to 100% linear scale	Yes	Hart™/Fuji
F - H	Analog, custom scale	Yes	digital signal
F - K	Analog, double scale	Yes	'SMART"
F - 1	Digital, 0 to 100%	None	
F - 2	Digital, custom scale	None	
F - 4	Digita, 0 to 100%	Yes	
F - 5	Digital, custom scale	Yes	

Approvals for hazardous locations (consult FUJI for availability)

A		None (Standard)
X		ATEX - Flameproof enclosures (Digit 4 = "M, P, R, T" & "W" only)
K		ATEX - Intrinsic Safety
D	(*6)	FM - Explosion-Proof (Digit 4 = "P" & "T" only)
E		CSA - Explosion-Proof (Digit 4 = "P" & "T" only)
H		FM - Intrinsic Safety and Non Incendive
J		CSA - Intrinsic Safety
P		ATEX - Type "n" (Digit 9 = A, E, 1, 2, 3, 4, 5 & 6 only)
Q		IECEx - Type "n" (Digit 9 = A, E, 1, 2, 3, 4, 5 & 6 only)
R		IECEx - Flameproof enclosures (Digit 4 = "M, P, R, T" & "W" only)
T		IECEx - Intrinsic Safety
L		CSA - Explosion-Proof & Intrinsic Safety combined approval (Digit 4 = "P" & "T" only)
M		ATEX - Flameproof enclosures & Intrinsic Safety combined approval (Digit 4 = "M, P, R, T" & "W" only)
N		IECEx - Flameproof enclosures & Intrinsic Safety combined approval (Digit 4 = "M, P, R, T" & "W" only)
V		FM - Explosion-Proof & Intrinsic Safety combined approval (Digit 4 = "P" & "T" only)

Diaphragm extension (mm)

		Extension (mm)	Applicable material code
Y		0	Any
A	(*3)	50	Material code "V"
B	(*3)	100	
C	(*3)	150	
D	(*3)	200	
E	(*3)	50	Material code "H"
F	(*3)	100	
G	(*3)	150	
H	(*3)	200	
J	(*3)	50	Material code "M"
K	(*3)	100	
L	(*3)	150	
M	(*3)	200	
P	(*3)	50	Material code "T"
R	(*3)	100	
S	(*3)	150	
T	(*3)	200	

Notes* :

1- 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.
2- Add values for material options are for = DN80 PN40 or ANSI-150 LB3" flange rate, DN100 or 4" add values are available upon request, LP side writed cell body diaphragm in exotic materials are available upon request.
3- All wetted parts in the same material (diaphragm, extension, flange gasket area)
4- When no code can be found in the current code symbols, place* in concerned code digit(s) & add* in 16 th digit
5- Our stainless steel bolts/nuts in SS630 are in conformity with the NACE requirements and must be used for NACE service
6- Code "D & V" FM approval only possible with electrical connection 1/2" NPT.
7- Please consult Fuji with you application conditions

1	2	3	4	5	6	7	8		9	10	11	12	13		14	15		16	DESCRIPTION
F	K	E					F	-						-			-		**SS parts**

	SS tag plate	SS housing
Y	None	None
B	Yes	None
C	None	Yes
E	Yes	Yes

Special applications and fill fluid (fill fluid of cell = Silicone oil)

	Treatment	Fill fluid of diaphragm seal
Y	None (stand)	Silicone oil
W	None (stand)	Fluorinated oil
F	None (stand)	Sanitary fill fluid
G	Degreasing	Silicone oil
A	Oxygen service	Fluorinated oil **cell & seal** (Material code "V" only)
D	Chlorine service	Fluorinated oil (Material code "H"&"T" only)
N	(*5) NACE	Silicone oil
V	Vacuum (max 27 mbar abs)	

Process cover gasket

- A	Viton
- C	PTFE square section gasket in SS flange (FEF design)

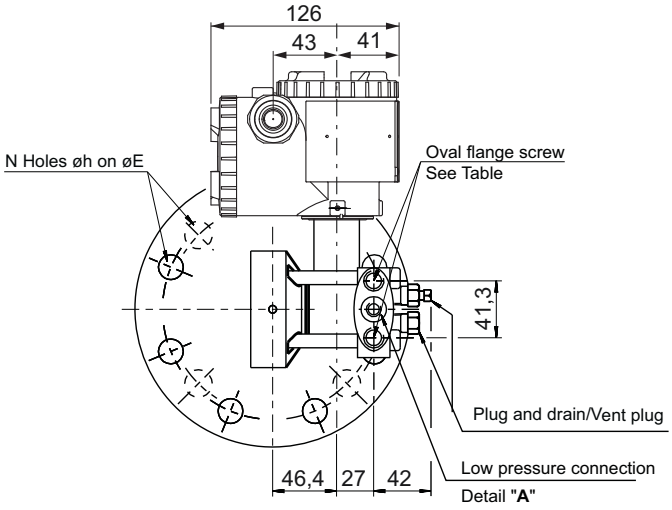
Bolts/screws material

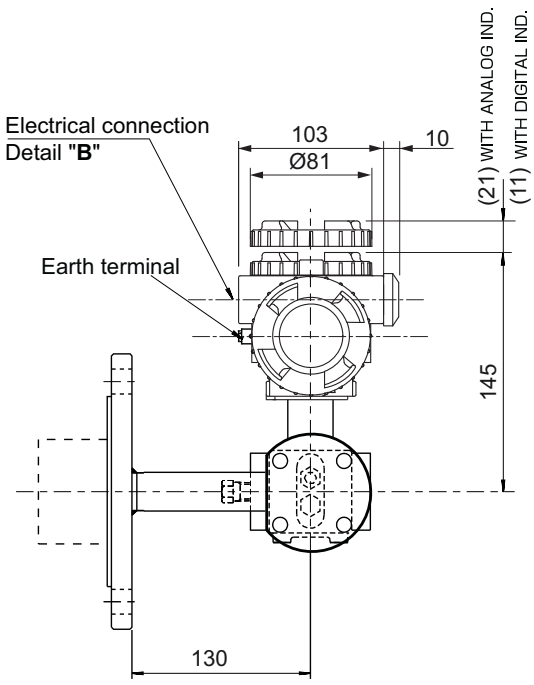
A	Cr-Mo (standard)
U	SS 316/316 (bolt/nuts)
F	SS 630/304 (bolt/nuts)

Special options or design

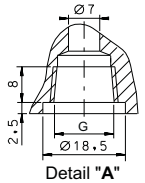
(*4)	-	*	special, no code available

OUTLINE DIAGRAM for short design (Unit:mm)

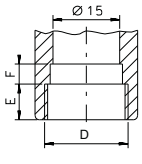




	FLANGES DIMENSIONS								
	DIN / ISO								
Digit 5	PN	DN	øD	øE	øF	G	øH	T	N - øh
L	20	80	190	152,4	127	1,6	89	24	4-19
M	20	100	229	190,5	157,2	1,6	89	24	8-19
P	40	80	200	160	138	3	89	24	8-18
Q	16	100	220	180	158	3	89	22	8-18

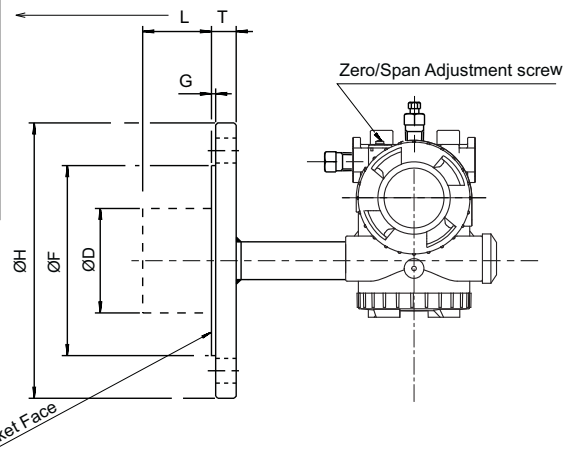


Detail "A"



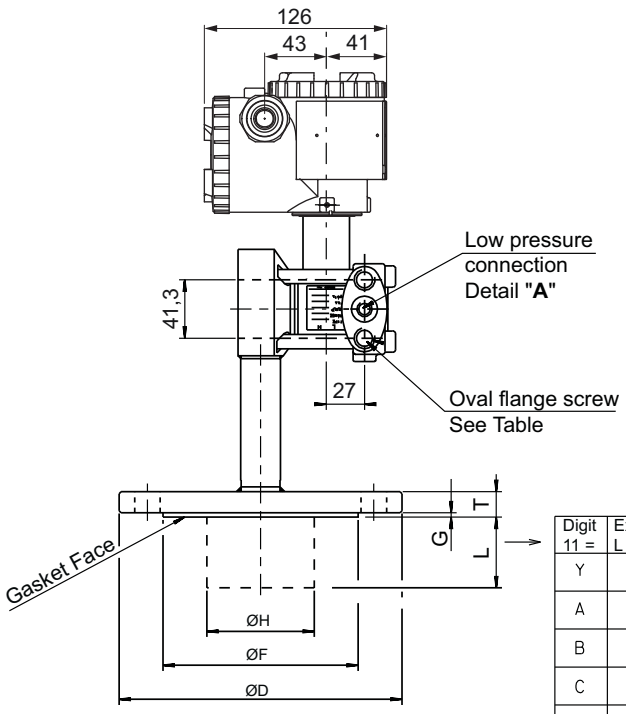
Detail "B"

Digit 11 =	Extension L
Y	0
A	50
B	100
C	150
D	200

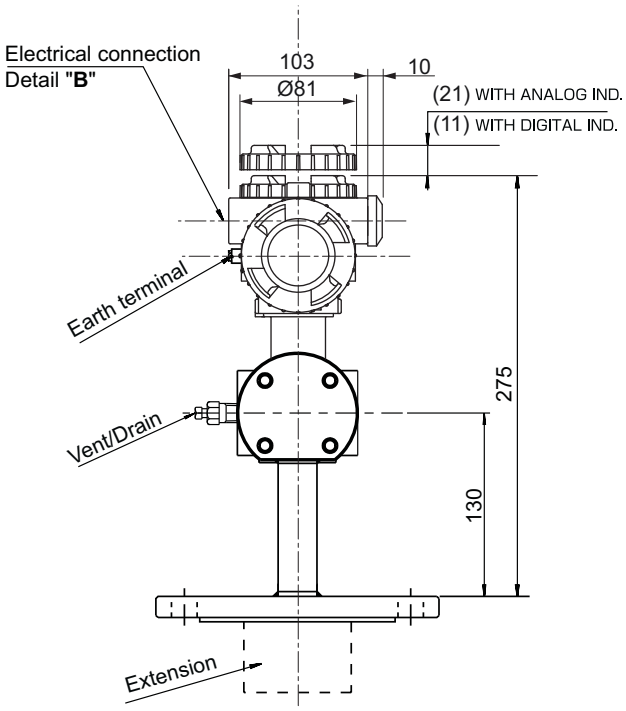


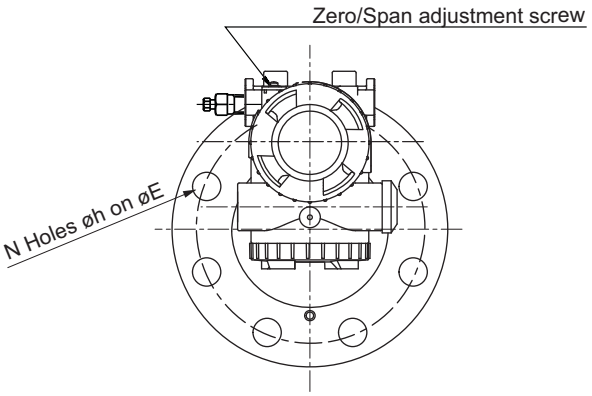
Digit	Conduit conn.			Press. con	Oval Flange Screw
= 4	D	E	F	G	
R	M20x1,5	16	5	1/4-18NPT	7/16-20 UNF
T	1/2-14NPT	16	5	1/4-18NPT	7/16-20 UNF
V	Pg13,5	8	4,5	1/4-18NPT	M10 or M12
W	M20x1,5	16	5	1/4-18NPT	M10 or M12
X	Pg13,5	8	4,5	1/4-18NPT	7/16-20 UNF

OUTLINE DIAGRAM for long design (Unit:mm)

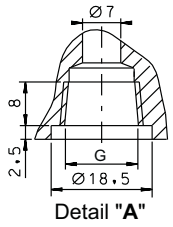


Digit 11 =	Extension L
Y	0
A	50
B	100
C	150
D	200

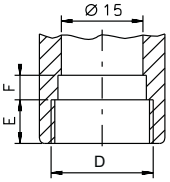




	FLANGES DIMENSIONS								
	DIN / ISO								
Digit 5	PN	DN	øD	øE	øF	G	øH	T	N - øh
8	40	80	200	160	138	3	73	24	8-18
9	16	100	220	180	158	3	96	20	8-18
4	20	80	190	152,5	127	1,6	73	24	4-20
5	20	100	230	190,5	158	1,6	96	24	8-20



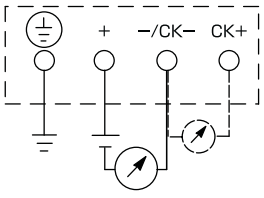
Detail "**A**"



Detail "**B**"

Digit = 4	Conduit conn. D	E	F	Press. con G	Oval Flange Screw
R	M20x1,5	16	5	1/4-18NPT	7/16-20 UNF
T	1/2-14NPT	16	5	1/4-18NPT	7/16-20 UNF
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	7/16-20 UNF

CONNECTION DIAGRAM



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