

DIFFERENTIAL PRESSURE (FLOW) TRANSMITTER

DATA SHEET

FKC...5

The FKC model of the FCX-AII V5 series of pressure transmitters accurately measures differential pressure, liquid level or flow rate and transmits a proportional 4-20 mA output signal. The transmitter uses an unique micro-capacitive silicon sensor in combination with a state-of-the-art digital signal processing to provide exceptional performances in terms of accuracy and stability.

FEATURES

- High accuracy up to $\pm 0.04\%$**
Fuji Electric's micro-capacitive silicon sensor provides in standard $\pm 0.065\%$ accuracy for all elevated or suppressed calibration ranges without additional adjustments.
 $\pm 0.04\%$ accuracy is available in option.
- Minimum inventory and design**
Electronics unit, local indicators and electronics housing are interchangeable among all FCX-AII V5 transmitters.
- Minimum environmental influence**
The Advanced Floating Cell technology provides a high immunity against temperature variations, static pressure and overpressure commonly found in the process industry and substantially reduces the overall measurement error.
- HART/Fuji Electric communication protocols**
FCX-AII V5 series of pressure transmitters can communicate using either the universal HART or the proprietary and faster Fuji Electric communication protocol.
By the use of Device Description files, HART compatible devices can communicate with any FCX-AII V5 transmitter.
- Application flexibility**
Various options are available to address most of the process industry applications, including :
 - Full range of hazardous area approvals
 - Built-in RFI filter and lightning arrester
 - Analog or 5 digits local display with engineering units
 - Stainless steel electronics housing
 - Wide selection of wetted part materials
- Programmable output Linearization Function**
The output signal can be linearized using up to 14 pair-points.
- Burnout current flexibility**
The burnout current value can be adjusted in the ranges of [3.2 ; 4.0] and [20.0 ; 22.5] mA and can be compliant with NAMUR NE43 recommendations.



SPECIFICATIONS

Functional specifications

Type :

FKC : Smart, 4-20mA + HART/Fuji Electric communication protocols.

Service :

Liquid, gas, or vapour

Static pressure, span, and range limits :

Model	Static pressure MPa {bar}	Span limits kPa {m bar}		Range limits kPa {m bar}
		Min.	Max.	
FKC□11	-0.1 to +3.2 {-1 to +32}	0.1 {1}	1 {10}	± 1 $\{\pm 10\}$
FKC□22	-0.1 to +10 {-1 to +100}	0.1 {1}	6 {60}	± 6 $\{\pm 60\}$
FKC□33	-0.1 to +16 {-1 to +160}	0.32 {3.2}	32 {320}	± 32 $\{\pm 320\}$
FKC□35	-0.1 to +16 {-1 to +160}	1.3 {13}	130 {1300}	± 130 $\{\pm 1300\}$
FKC□36	-0.1 to +16 {-1 to +160}	5 {50}	500 {5000}	± 500 $\{\pm 5000\}$
FKC□38	-0.1 to +16 {-1 to +160}	30 {300}	3000 {30000}	± 3000 $\{\pm 30000\}$
FKC□43	-0.1 to +42 {-1 to +420}	0.32 {3.2}	32 {320}	± 32 $\{\pm 320\}$
FKC□45	-0.1 to +42 {-1 to +420}	1.3 {13}	130 {1300}	± 130 $\{\pm 1300\}$
FKC□46	-0.1 to +42 {-1 to +420}	5 {50}	500 {5000}	± 500 $\{\pm 5000\}$
FKC□48	-0.1 to +30 {-1 to +300}	30 {300}	3000 {30000}	± 3000 $\{\pm 30000\}$
FKC□49*	-0.1 to +30 {-1 to +300}	500 {5000}	20000 {200000}	+20000,-10000 $\{+200000,-100000\}$

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

Important : For FKC#49, max possible overload pressure on LP side must be ≤ 100 bar. The accuracy is not guaranteed when used at negative DP

Lower limit of static pressure (vacuum limit) :

Silicone filling oil : See Fig. 1

Fluorinated filling oil : 66 kPa abs (500 mmHg abs) at temperature below 60°C

Over range limit :

To maximum static pressure limit

Output signal :

4-20 mA (linear or square root) with digital signal super-imposed on the analog signal

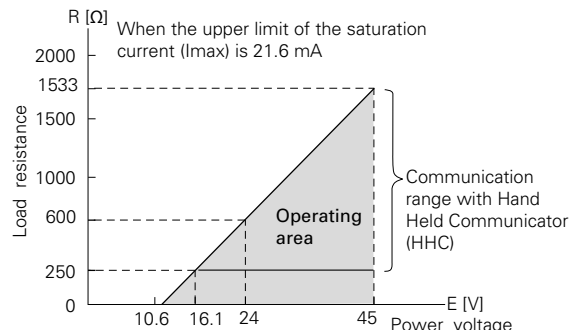
Power supply :

10.5 to 45 V DC at transmitter terminals.

10.5 to 32 V DC with the optional arrester.

Refer to hazardous location table for specific limitations.

Load limitations : see figure below



Note 1 : The load resistance varies with the upper limit of the saturation current [I max]

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

Note 2 : For communication with HHC (FXW model), a minimum load of 250 Ω is required.

Hazardous locations :

Marking (Digit 10 =)	Protection type
ATEX	Intrinsic Safety "i" :
	Ex II 1G/D
	Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C)
	Ex ia IIC T5 Ga (-40°C ≤ Ta ≤ +50°C)
	Ex ia IIIC T135°C Da (-40°C ≤ Ta ≤ +70°C)
	Ex ia IIIC T100°C Da (-40°C ≤ Ta ≤ +50°C)
	IP 66/67
	Electrical Parameters :
	Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
	Ci = 26 nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7mH(4)
	Flameproof Enclosure "d" :
	Ex II 2G/D
	Ex d IIC T5 Gb (-40°C ≤ Ta ≤ +85°C)
	Ex d IIC T6 Gb (-40°C ≤ Ta ≤ +65°C)
	Ex tb IIIC T100°C Db (-40°C ≤ Ta ≤ +85°C)
	Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +65°C)
	45 Vdc max
	Increased Safety "e" :
	Ex II 3G/D
	Ex ec IIC T5 Gc (-40°C ≤ Ta ≤ +70°C)
	Ex tc IIIC T100°C Dc (-40°C ≤ Ta ≤ +70°C)
	45 Vdc max
	Combination (K) + (X)
IECEX	Intrinsic Safety "i" :
	Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C)
	Ex ia IIC T5 Ga (-40°C ≤ Ta ≤ +50°C)
	Ex ia IIIC T135°C Da (-40°C ≤ Ta ≤ +70°C)
	Ex ia IIIC T100°C Da (-40°C ≤ Ta ≤ +50°C)
	IP 66/67
	Electrical Parameters :
	Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
	Ci = 26 nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7mH(4)
	Flameproof Enclosure "d" :
	Ex d IIC T5 Gb (-40°C ≤ Ta ≤ +85°C)
	Ex d IIC T6 Gb (-40°C ≤ Ta ≤ +65°C)
	Ex tb IIIC T100°C Db (-40°C ≤ Ta ≤ +85°C)
	Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +65°C)
	45 Vdc max
	Increased Safety "e" :
	Ex ec IIC T5 Gc (-40°C ≤ Ta ≤ +70°C)
	Ex tc IIIC T100°C Dc (-40°C ≤ Ta ≤ +70°C)
	45 Vdc max
	Combination (T) + (R)

cCSAus	(J)	Intrinsic safety / Non Incendive / Class 1 Division 2 :
		IS Class I Division 1, Groups ABCD Ex ia
		Class II Groups EFG; Class III
		NI Class I Division 2, Groups ABCD
		(Per control drawing TC522873)
		Class I Division 2, Groups ABCD
		T4 (-40°C ≤ Ta ≤ +70°C)
		T5 (-40°C ≤ Ta ≤ +50°C)
		Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
		Ci = 26 nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7mH(4)
(E)		Explosion proof
		XP Class I Division 1, Groups CD
		Class II Groups EFG; Class III
		T5 (-40°C ≤ Ta ≤ +85°C)
		T6 (-40°C ≤ Ta ≤ +65°C)
(L)		Vmax = 42.4 Vdc
		Combination (J) + (E)
ATEX	(W)	Combination (K) + (X) + (T) + (R) + (J) + (E)
IECEX		
cCSAus		

(1) Without optional arrester

(2) With optional arrester

(3) Without analog indicator

(4) With analog indicator

Configuration :

Configuration of the FCX-All V5 series of pressure transmitters can be carried out by either using a Hand Held Communicator (ie. Fuji Electric FXW or third party HART terminal) or the 3 push-buttons optional indicator.

A third party HART hand held communicator can be used in combination with Fuji Electric FCX-All V5 HART Device Description files (<https://fieldcommgroup.org>).

Functions	Fuji Electric FXW		Third party HART HHC		3 push buttons optional indicator	
	Display	Set	Display	Set	Display	Set
Tag Nb	✓	✓	✓	✓	✓	✓
Model Nb	✓	✓	✓	✓	✓	✓
Serial Nb & Software revision	✓	—	✓	—	✓	—
Engineering units	✓	✓	✓	✓	✓	✓
Upper Range Value	✓	—	✓	—	✓	—
Measuring Range	✓	✓	✓	✓	✓	✓
Damping	✓	✓	✓	✓	✓	✓
Output signal type	Linear	✓	✓	✓	✓	✓
	Square Root	✓	✓	✓	✓	✓
Burnout current	✓	✓	✓	✓	✓	✓
Calibration	✓	✓	✓	✓	✓	✓
Output Adjust	—	✓	—	✓	—	✓
Measuring Value	✓	—	✓	—	✓	—
Self Diagnosis	✓	—	✓	—	✓	—
Printer (option)	✓	—	—	—	—	—
External Adj Screw Lock	✓	✓	✓	✓	✓	✓
Transmitter Display	✓	✓	✓	✓	✓	✓
Linearization	—	—	✓	✓	✓	✓
Rerange	✓	✓	✓	✓	✓	✓
Saturation Current	✓	✓	✓	✓	✓	✓
Write Protect	✓	✓	✓	✓	✓	✓
History	—	—	—	—	—	—
	—	—	—	—	—	—

Note 1 : The FXW firmware revision must be higher than 7.0 in order to address FCX-All V5 "Saturation current", "Write protect" and "History" functions.

Note 2 : The "Linearization" function is not accessible through the 3 push-buttons optional indicator.

Zero and span adjustment :

Zero and span are adjustable with a Hand Held Communicator or locally with the external adjustment screw.

Damping :

The damping time constant can be adjusted within the range of [0.06 to 32] seconds.

Zero elevation / suppression :

Zero can be adjusted within the range of ±100% of the URL of the sensor.

Normal / reverse action :

Selectable from a Hand Held Communicator

Local indicator :

One optional analog or 5-digits digital indicator.

Burnout direction and saturation currents :

If the self-diagnostic functions detect a transmitter failure, the burnout function will drive the output signal to either "Output Hold", "Output Overscale" or "Output Underscale" modes.

When "Output Hold" :

The output signal is held as the last value just before the failure happens.

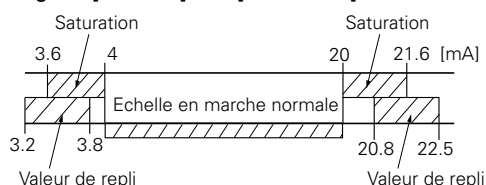
When "Output Overscale" :

The output signal is set within the range of [20.0 to 22.5] mA

When "Output Underscale" :

The output signal is set within the range of [3.2 to 4.0] mA

Both burnout and saturation current can be adjusted within the range of [3.2 ; 4.0] and [20.0 ; 22.5] mA

**Loop-check / fixed output current :**

The transmitter can be configured to provide a constant output signal from 3.2 up to 22.5 mA.

Low flow cut-off :

The output signal is proportional to $\sqrt{\text{differential pressure}}$ between low flow cut-off and the measuring range. Between zero and low flow cut-off, the output signal is programmable to zero or linear between 0 and 20% of the flow.

Temperature limit :

Ambient :

-40 to +85°C

-20 to +80°C (with optional LCD unit)

-40 to +60°C (with optional arrester)

Please refer to the hazardous locations table for ambient temperature limitations according to the standard and type of protection.

Process :

-40 to +120°C for silicone filling oil

-20 to +80°C for fluorinated oil filling oil

Storage :

-40 to +90°C

Humidity limit :

0 to 100% RH (Relative Humidity)

PERFORMANCE SPECIFICATIONS FOR LINEAR OUTPUT

Reference conditions, silicone filling oil, SS 316L isolating diaphragms, 4 to 20 mA analog output in linear mode.

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

Max span : 32 kPa to 3000 kPa models :

For spans > 1/10 of URL :

$\pm 0.065\%$ of span or $\pm 0.04\%$ of span (optional)

For spans < 1/10 of URL :

$\pm (0.015 + 0.005 \times \frac{\text{URL}}{\text{Span}}) \% \text{ of span}$

Max span 20 MPa models :

For spans ≥ 5 MPa :

$\pm 0.1\%$ of span

For spans < 5 MPa :

$\pm (0.05 + 0.05 \times \frac{5\text{MPa}}{\text{Span}}) \% \text{ of span}$

Max span 1 kPa and 6 kPa models :

For spans greater than 1/10 of URL :

$\pm 0.1\%$ of span

For spans below 1/10 of URL :

$\pm (0.05 + 0.005 \times \frac{\text{URL}}{\text{Span}}) \% \text{ of span}$

Stability :

$\pm 0.1\%$ of the URL for 10 years for 6th digit code 3, 5, 6, 8 and 9.

Temperature effect :

Effects per 28°C changewithin the range of -40°C and +85°C

Range code (6th digit in the model code)	Zero shift (% of span)	Total effect (% of span)
"1"/1 kPa {10 mbar} "2"/6 kPa {60 mbar}	$\pm (0.125 + 0.1 \frac{\text{URL}}{\text{Span}}) \%$	$\pm (0.15 + 0.1 \frac{\text{URL}}{\text{Span}}) \%$
"3"/32 kPa {320 mbar} "5"/130 kPa {1300 mbar} "6"/500 kPa {5000 mbar} "8"/3000 kPa {30000 mbar} "9"/20000 kPa {200000 mbar}	$\pm (0.075 + 0.0125 \frac{\text{URL}}{\text{Span}}) \%$	$\pm (0.095 + 0.0125 \frac{\text{URL}}{\text{Span}}) \%$

Double the effects for material code (7th digit in model code)

"H", "M", "T"

Static pressure effect :

Static pressure code (5th digit in the model code)	Zero shift (% of URL)
"1" / 1 kPa {10 mbar} sensor "2" / 6 kPa {60 mbar} sensor	$\pm 0.2\%$ / 3.2 MPa {32 bar} $\pm 0.2\%$ / 10 MPa {100 bar}
"3" "4"	$\pm 0.035\%$ / 6.9 MPa {69 bar} $\pm 0.2\%$ / 6.9 MPa {69 bar} FKCI49

Double the effects for material code (7th digit in model code)

"H", "M", "T"

Overrange effect :

Static pressure code (5th digit in the model code)	Zero shift (% of URL)
"1" / 1 kPa {10 mbar} sensor "2" / 6 kPa {60 mbar} sensor	$\pm 0.2\%$ / 3.2 MPa {32 bar} $\pm 0.2\%$ / 10 MPa {100 bar}
"3" "3" "4" "4"	$\pm 0.1\%$ / 16 MPa {160 bar} FKCI35,36,38 $\pm 0.15\%$ / 16 MPa {160 bar} FKCI33 $\pm 0.25\%$ / 42 MPa {420 bar} FKCI43,45,46,48 $\pm 0.2\%$ / 10 MPa {100 bar} FKCI49

Double the effects for material code (7th digit in model code)

"H", "M", "T"

PERFORMANCE SPECIFICATIONS FOR SQUARE ROOT OUTPUT

Accuracy rating :

Output	Span	
	over $0.1 \times \text{URL}$	below $0.1 \times \text{URL}$
50 to 100%	$\pm 0.065 \%$	$\pm (0.015 + 0.005 \times \text{URL}/\text{Span})\%$
20 to 50%	$\pm 0.163 \%$	$\pm 2.5 \times (0.015 + 0.005 \times \text{URL}/\text{Span})\%$
10 to 20%	$\pm 0.325 \%$	$\pm 5 \times (0.015 + 0.005 \times \text{URL}/\text{Span})\%$

Max span 1kPa and 6kPa models :

Output	Accuracy
50 to 100%	$\pm 0.1 \%$
20 to 50%	$\pm 0.25\%$
10 to 20%	$\pm 0.5 \%$

Temperature effect :

Effects per 28°C change within the range of -40°C and +85°C

Range code	Shift at 20% output point
"1" and "2"	$\pm (0.375 + 0.25 \times \frac{\text{URL}}{\text{Span}}) \% / 28^\circ\text{C}$
"3" through "9"	$\pm (0.24 + 0.03125 \times \frac{\text{URL}}{\text{Span}}) \% / 28^\circ\text{C}$

COMMON PERFORMANCE SPECIFICATIONS FOR BOTH OUTPUT MODES

Supply voltage effect :

Less than 0.005% of calibrated span per 1 V

Update rate :

60 msec

RFI effect :

< 0.2% of the URL for the frequencies from 20 up to 1000 MHz with an electrical field strength of 10 V/m and housing covers in place. (Classification : 2-abc : 0.2% of span according SAMA PMC 33.1).

Response time : (63.3% of output signal without damping)

Range code (6th digit in model codes)	Time constant (at 23°C)	Dead time
"1"	0.33 sec.	0.12 sec.
"2"	0.3 sec.	
"3"	0.12 sec.	
"5" through "8"	0.08 sec.	

Response time = time constant + dead time

Mounting position effect :

Zero shift, less than 0.12 kPa {1.2 m bar} for a 10° tilt in any position. This error can be corrected by adjusting Zero. (Double the effect for fluorinated filling fluid).
No effect on span.

Vibration effect :

< $\pm 0.25\%$ of span for spans greater than 1/10 of URL.
Frequency 10 to 150 Hz, acceleration 39.2 m/sec².

Material fatigue :

Please consult Fuji Electric.

Dielectric strength :

500 V AC, 50/60Hz 1 min., between circuit and earth (except with the optional arrester)

Insulation resistance :

More than 100 MΩ at 500 V DC.

Internal resistance for external field indicator :

12 Ω max. (connected to test terminal CK+ and CK-)

Pressure equipment directive (PED) 2014/68/EU

Digit 5 code 1, 2, 3, 8 and 9 according to Article 4.3
Digit 5 code 4 : Category III model H1

PHYSICAL SPECIFICATIONS

Conduit connections :

1/2"-14 NPT, Pg13.5 or M20×1.5

Process connections :

Standard :

1/4"-18 NPT meets DIN 19213.

Option :

1/2"-14 NPT with oval flanges

Process-wetted parts material :

	Material code (7th digit)	Process cover	Diaphragm	Wetted sensor body	Vent / drain
V	Ranges 1 & 2	SS 316L	SS 316L	SS 316LN	SS 316L
	Ranges 3 to 8	SS 316L	SS 316L	SS 316L	SS 316L
	W	SS 316L	Hastelloy-C	SS 316L	SS 316L
	H	SS 316L	Hastelloy-C	Hastelloy-C	SS 316L
	J	SS 316L	SS 316L + Gold coating	SS 316L	SS 316L
	M	SS 316L	Monel	Monel lining	SS 316L
	T	SS 316L	Tantalum	Tantalum lining	SS 316L

Remark :

Gasket : Viton o-ring or PTFE square section gasket.

Availability of above material design depends on ranges and static

pressure according material codes V, H, M and T.

Refer to the "Model code symbols".

Non-wetted parts material :

Electronics housing :

Low copper die-cast aluminum alloy finished with polyester coating (standard), or SS 316 (option).

Bolts and nuts :

Cr-Mo alloy (standard).

Options :

SS 316 (L) for static pressure if 160 bar max.

SS 660 (M10) for static pressure < 160 bar.

SS 660 (M12) for static pressure > 160 bar

Filling fluid :

Silicone oil (standard) or fluorinated oil (option)

Mounting bracket :

SS 304L or 316L (option)

Environmental protection :

IEC IP66/IP67 and Type 4X

Mounting :

Without mounting bracket :

Direct mounting on manifold (optional)

With optional mounting bracket :

For Ø50 mm (2") pipe or direct wall mounting.

Mass {weight} :

Transmitter approx. 3.5 kg without options.

Add :

0.3 kg for indicator

0.5 kg for mounting bracket

2.0 kg for stainless steel housing (option)

OPTIONAL FEATURES

Local indicator :

A plug-in analog indicator (2.5% accuracy) can be mounted into the electronics compartment or the terminal box of the housing.

An optional 5 digit indicator with engineering units is also available.

Local configuration with the 3 push-buttons indicator :

A local configuration can be carried out with the optional 3 push-buttons 5-digits indicator.

Arrester :

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

Lightning surge immunity :

$\pm 4 \text{ kV}$ ($1.2 \times 50 \mu\text{s}$)

Oxygen service :

Special cleaning procedures are applied during the manufacturing process to maintain oil free all process wetted part. The filling fluid is fluorinated oil.

Chlorine service :

Same procedures and filling fluid as for oxygen service.

Degreasing :

Process-wetted parts are cleaned and the filling fluid is standard silicone oil. Not for use with oxygen or chlorine presence.

NACE specification :

Metallic materials for all pressure boundary parts comply with NACE MR 0175/ISO 15156.

SS 660 or SS 660/660 bolts and nuts comply with NACE MR 0175/ISO 15156.

Optional tag plate :

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

ACCESSORIES

Oval flange :

Converts process connection to 1/2"-14 NPT

Manifolds :

Available in SS 316 and in pressure rating 16 MPa or 42 MPa.

Hand held communicator :

FXW model, refer to datasheet N° EDS8-47

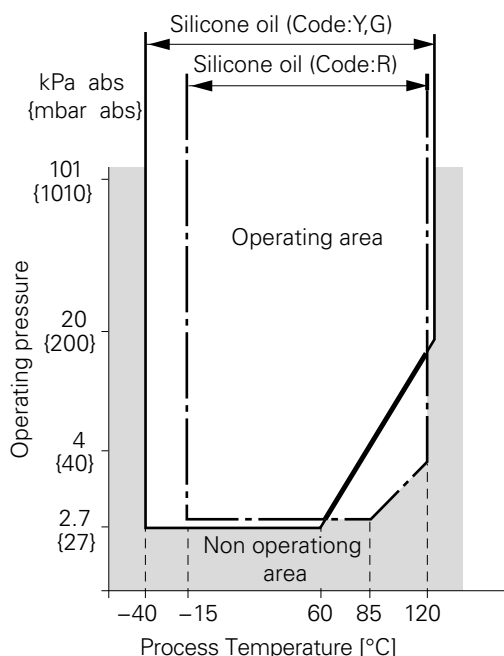


Fig. 1

Relation between process temperature and operating pressure

MODEL CODE SYMBOLS

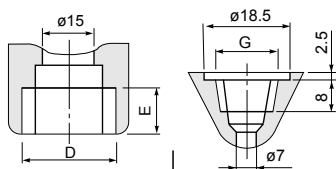
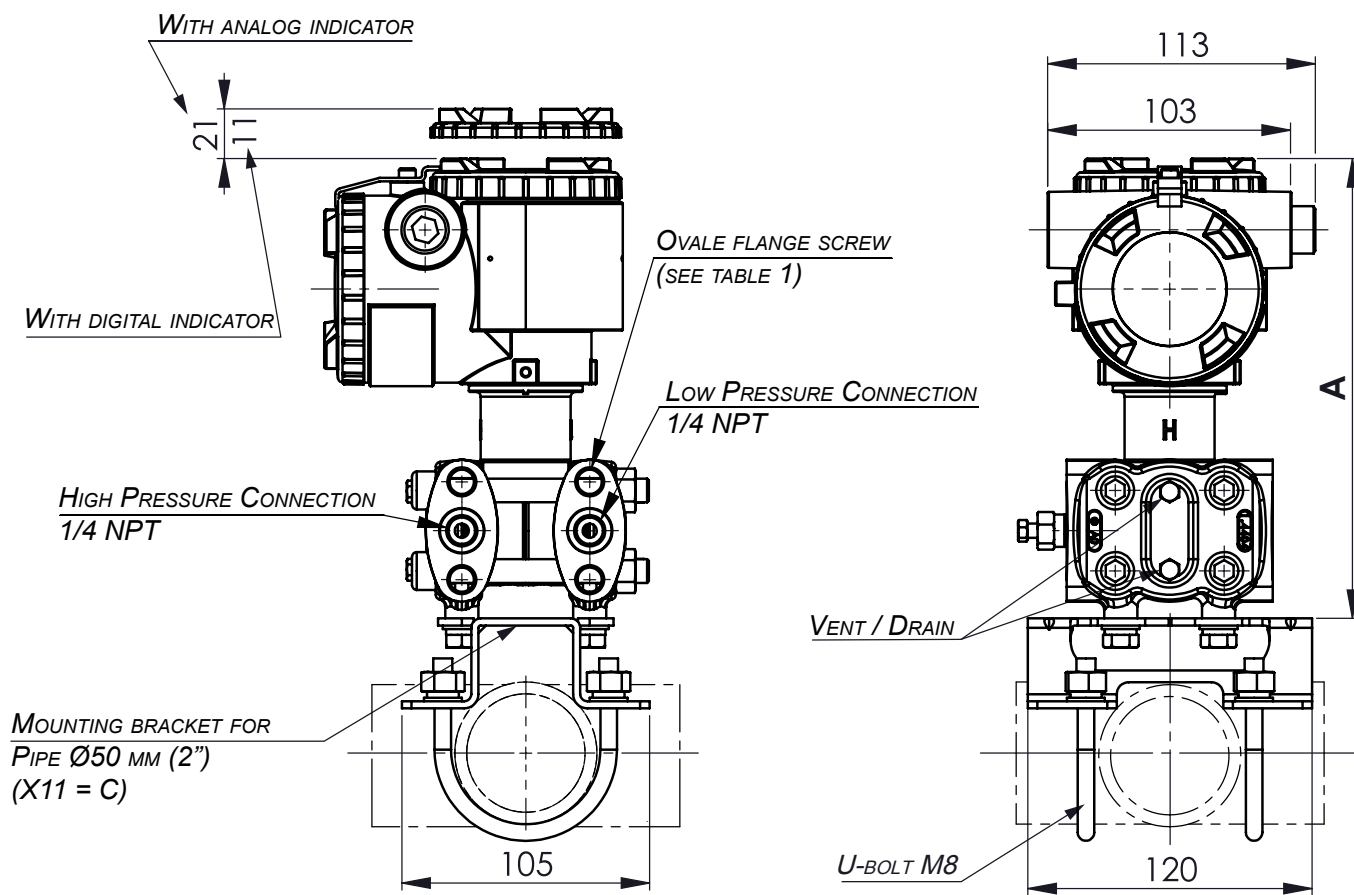
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTION												
F	K	C					5	-								Type												
																Differential pressure transmitter - Smart, 4-20 mA + HART/Fuji Electric communication protocols												
M N P R T V W X 5 6 7 8 9																Connections												
																Process connections	Oval flange threading	Electrical connection	Enclosure type									
																1/4 - 18 NPT	M10	M20 x 1,5	"L" shape									
															Pg13,5													
															1/2 - 14 NPT													
															M20 x 1,5													
															1/2 - 14 NPT													
																	M10 or M12 (*1)	Pg13,5	"T" shape									
																7/16 - 20 UNF	M20 x 1,5											
																	Pg13,5											
																G 1/2"												
																7/16 - 20 UNF	1/2 - 14 NPT											
																1/4"-18 NPT	M10 or M12 (*1)	Pg13,5										
																	7/16 - 20 UNF	M20 x 1,5										
																	Pg13,5											
																Ranges and materials												
																(*2) Static pressure limits (*3)	Measuring ranges (*2)	Process cover		Measuring diaphragm	Wetted cell body							
																		LP side	HP side									
1	1	V														-1 to 32 bar	10/100 mm WC	SS 316L	SS 316L	SS 318LN								
1	1	W																	Hastelloy C									
1	1	J																	Gold coat									
1	1	H																	Hastelloy C									
2	2	V														-1 to 100 bar	10/600 mm WC	SS 316L	SS 316L	SS 318LN								
2	2	W																	Hastelloy C									
2	2	J																	Gold coating									
2	2	H																	Hastelloy C									
3	3	V														-1 to 160 bar (*3)	32 /3200 mm WC	SS 316L	SS 316L	SS 316L								
3	3	W																	Hastelloy C									
3	3	H																	Monel									
3	3	M																	Gold coating									
3	3	J																	Gold/ceramic									
3	3	C																	Tantalum									
3	3	T																										
3	5	V														-1 to 160 bar (*3)	0,13 /13 m WC	SS 316L	SS 316L	SS 316L								
3	5	W																	Hastelloy C									
3	5	H																	Monel									
3	5	M																	Gold coating									
3	5	J																	Gold/ceramic									
3	5	C																	Tantalum									
3	5	T																										
3	6	V														-1 to 160 bar (*3)	0,5/50 m WC	SS 316L	SS 316L	SS 316L								
3	6	W																	Hastelloy C									
3	6	H																	Gold coating									
3	6	J																	Monel									
3	6	M																	Tantalum									
3	6	T																										
3	8	V																	-1 to 160 bar (*3)		3/300 m WC	SS 316L	SS 316L	SS 316L				
3	8	W														Hastelloy C												
3	8	H														Gold coating												
3	8	J																										
4	3	V														-1 to 420 bar	32/3200 mm WC	SS 316L		SS 316L			SS 316L					
4	3	W																		Hastelloy C								
4	3	H																		Gold coating								
4	3	M																										
4	3	J																	Gold coating									
4	5	V																	-1 to 420 bar	0,13/13 m WC	SS 316L	SS 316L		SS 316L				
4	5	W																				Hastelloy C						
4	5	H														Monel												
4	5	M														Gold coating												
4	5	J																										
4	6	V														-1 to 300 bar	0,5/50 m WC	SS 316L				SS 316L	SS 316L					
4	6	W																				Hastelloy C						
4	6	H																	Monel									
4	6	M																	Gold coating									
4	6	J																										
4	8	V																	-1 to 300 bar	3/300 m WC	SS 316L	SS 316L		SS 316L				
4	8	W																				Hastelloy C						
4	8	H														Gold coating												
4	8	J																										
4	9	V														-1 to 300 bar	50/2000 m WC	SS 316L				SS 316L	SS 316L					
4	9	W																				Gold coating						
4	9	J																										
8	1	H																	0 to 15 bar	10/100 mm WC	PVDF Insert	Hastelloy C		Hastelloy C				
8	2	H																							10/600 mm WC			
8	3	H																							32/3200 mm WC	PVDF Insert	Monel	Monel lining
8	3	M																										
8	3	T														Hastelloy C												
8	5	H														Monel												
8	5	M														Tantalum												
8	5	T															Hastelloy C lining	Hastelloy C										
8	6	H														Monel	Monel lining											
8	6	M														Hastelloy C	Hastelloy C											
8	6	T														Monel	Monel lining											
9	1	H															Tantalum		Tantalum lining									
9	2	H														0 to 15 bar	10/100 mm WC	PVDF Insert	SS 316L	Hastelloy C	Hastelloy C							
9	2	W																				10/600 mm WC						
9	3	H																				32/3200 mm WC	PVDF Insert	SS 316L	Monel	Monel lining		
9	3	M																									Hastelloy C	Hastelloy C
9	3	T																									Monel	Monel lining
9	5	H																									Tantalum	Tantalum lining
9	5	M																									Hastelloy C	Hastelloy C
9	5	T														Monel	Monel lining											
9	6	H														0,5 /50 m WC	PVDF Insert	SS 316L	Hastelloy C	Hastelloy C								
9	6	M																			Monel	Monel lining						
9	6	T																			Tantalum	Tantalum lining						

Notes*:

- 1- M12 thread if static pressure > 160 bar.
- 2- Turn down ratio of 100 is possible but span greater than 1/40 of the the URL is recommended for better performances.
- 3- For M10 bolts/nuts : maximum static pressure = 160 bar. For static pressure > 160 bar : M12 is required.
- 4- Gold coating on wetted parts of the measuring cell for hydrogen service. Gold/ceramic coating available upon request.
- 5- Process cover with PVDF insert: 1/2"-14 NPT side process connection, no vent/drain, square section PTFE gasket. Other upon request.
- 6- When no code can be found in the current model code, place "***" in the corresponding digit code as well as in the 16th digit.
- 7- SS 660 bolts/nuts are in conformity with NACE MR0175/ISO 15156
- 8- For static pressure = 420 bar and PTFE process cover gasket, use only code "R", "T" or "X".
- 9- Process connection on the bottom side with side vent/drain.
- 10- Only with digit 4 = "M", "P", "R", "T", "W", "6", "8"
- 11- Except digit 10 = "P", "Q"
- 12- For static pressure = 420 bar and PTFE process cover gasket, use only code "5", "6" or "9"
- 13- SS 316L enclosure not available for "T" shape version

OUTLINE DIAGRAM (unit : mm)

<7th digit code : V, H, M, T>



Code X=4	CONDUIT CONNECTION		OVAL FLANGE SCREW
	D	E	G
R	M20x1.5	16	7/16-20 UNF
T	1/2-14NPT	16	7/16-20 UNF
V	Pg13.5	10,5	M10 or M12
W	M20x1.5	16	M10 or M12
X	Pg13.5	10,5	7/16-20 UNF

Table 1

MODEL	DIMENSIONS		
	A	B	C
FKC□11 FKC□22	198,5	225,5	38,5
FKC□33 FKC□35 FKC□36	194	221	37
FKC□38 FKC□43 FKC□45 FKC□46 FKC□48	198,5	225,5	38,5

WEIGHT :

- 3,5 KG (WITHOUT OPTION)

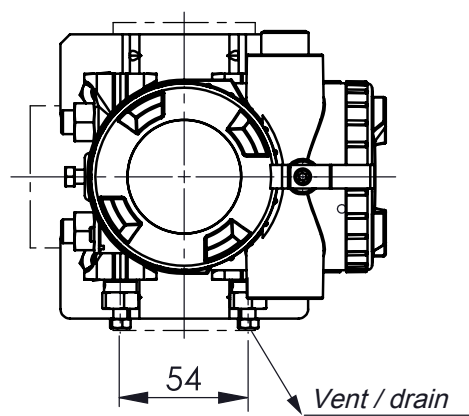
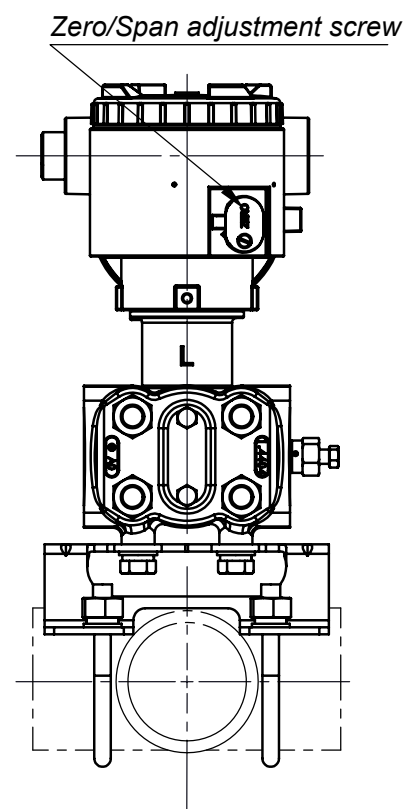
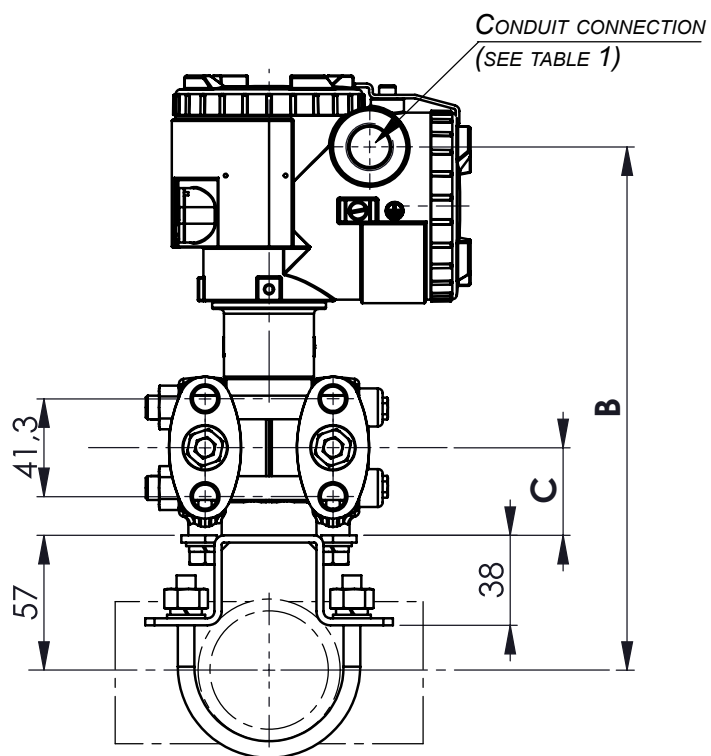
ADD :

- 0,3 KG FOR INDICATOR OPTION

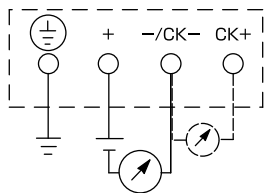
- 2 KG FOR STAINLESS STEEL HOUSING OPTION

- 0,5 KG FOR MOUNTING BRACKET

X ₁ X ₂ X ₃ X ₄ X ₅ X ₆ X ₇ X ₈ - X ₉ X ₁₀ X ₁₁ X ₁₂ X ₁₃ - X ₁₄ X ₁₅ - X ₁₆ F K C □ □ □ □ 5 - □ □ □ □ □ - □ □ - □																	SPAN LIMIT	
																	Min.	Max.
FKC □□1 FKC □□2 FKC □□3 FKC □□5 FKC □□6 FKC □□8																	0,1 kPa (1 mbar)	1kPa (10 mbar)
																	0,1 kPa (1 mbar)	6kPa (60 mbar)
																	0,32 kPa (3,2 mbar)	32 kPa (320 mbar)
																	1,3 kPa (13 mbar)	130 KPa (1,3 bar)
																	5 kPa (50 mbar)	500 kPa (5 bar)
																	30 kPa (300 mbar)	3 MPa (30 bar)



CONNECTION DIAGRAM



ELECTROMAGNETIC COMPATIBILITY

All FCX-All series of pressure transmitters are in conformity with the provision of the EMC Directive 2014/30/EU on the harmonization of the laws of the Members States relating to electromagnetic compatibility.

All these models of pressure transmitters are in accordance with the following harmonized standards :

- **EN 61326-1** (*Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements*).
- **EN 61326-2-3** (*Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning*).

Emission limits (according to EN 55011 / CISPR 11, Group 1 Class A)

Frequency range (MHz)	Limits	Basic standard
30 to 230	40 dB (μV/m) quasi peak, measured at 10 m distance	Passed
230 to 1000	47 dB (μV/m) quasi peak, measured at 10 m distance	

Immunity

Phenomenon	Test value	Standard	Required Performance criteria	Result of criteria
Electrostatic Discharge	±4 kV (Contact) ±8 kV (Air)	EN/IEC 61000-4-2	B	A
Radiated, Electromagnetic Field	10 V/m (0.08 to 1.0 GHz) 3 V/m (1.4 to 2.0 GHz) 1 V/m (2.0 to 2.7 GHz)	EN/IEC 61000-4-3	A	A
Fast transients (burst)	2 kV (5/50 ns, 5 kHz)	EN/IEC 61000-4-4	B	A
Surge Transients	1 kV Line to line 2 kV Line to ground	EN/IEC 61000-4-5	B	A
Conducted RF Disturbances	3 Vrms (150 kHz to 80 MHz) 80% AM @ 1 kHz	EN/IEC 61000-4-6	A	A
Power Frequency Magnetic Field	30 A/m (50 Hz, 60 Hz)	EN/IEC 61000-4-8	A	A

Performance criteria (A & B): according to IEC 61326



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