Safety for Industrial Process

FKG...5 Pressure transmitter

DATA SHEET

The ProcessX pressure transmitter accurately measures gauge pressure 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**
   0.065% accuracy as standard, 0.04% accuracy as option. Georgin's micro-capacitance silicon sensor assures this accuracy for all elevated or suppressed calibration ranges without additional adjustment.
2. **Minimum environmental influence**
   The "Advance Floating Cell" design which protects the pressure sensor against changes in temperature, and overpressure substantially reduces total measurement error in actual field applications.
3. **Georgin/HART® bilingual communications protocol**
   ProcessX series transmitter offers bilingual communications to speak both Georgin proprietary protocol and HART®. Any HART® compatible devices can communicate with ProcessX.
4. **Application flexibility**
   Various options that render the ProcessX 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
5. **Burnout current flexibility (< 4 mA: 3,2 to 4,0 mA / > 20 mA: 20,0 to 22,5 mA)**
   Burnout signal level is adjustable using Model FXW Hand Held Communicator (HHC) to comply with NAMUR NE43.
6. **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:
FKG : Smart, 4-20mA cc + Georgin/Hart® digital signal

Service:
Liquid, gas, or vapour

Span, range and overrange limit:

Type	Span limit [kPa] {bar}		Range limit [kPa] {bar}		Overrange limit [MPa] {bar}
	Min.	Max.	Lower limit	Upper limit	
FKG 01	1.3 {0.013}	130 {1.3}	-100 {-1}	130 {1.3}	1 {10}
FKG 02	5 {0.05}	500 {5}	-100 {-1}	500 {5}	1.5 {15}
FKG 03	30 {0.3}	3000 {30}	-100 {-1}	3000 {30}	9 {90}
FKG 04	100 {1}	10000 {100}	-100 {-1}	10000 {100}	15 {150}
FKG 05	500 {5}	50000 {500}	-100 {-1}	50000 {500}	75 {750}

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

Lower range limit (vacuum limit)
Silicone fill sensor: See Fig. 1
Fluorinated fill sensor: 66kPa abs (500mmHg abs) at below 60°C.

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.

FC-FKG-5-EN-09-09-2015
Subject to modifications due to technical advances

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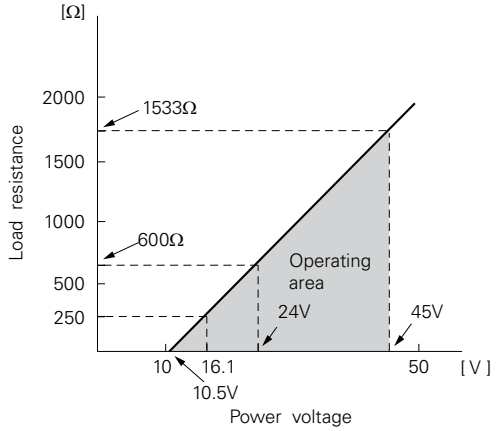
- **LOAD LIMITATIONS:** see figure below



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

- **HAZARDOUS LOCATIONS:**

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 (H)	Class I II III Div.1 Groups A, B, C, D, E, F, G T4 Entity Type 4X Model code: 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	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 (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

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 (H)	Class I II III Div.2 Groups A, B, C, D, F, G T4 Entity Type 4X Model code: 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 (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"

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- **Zero/span adjustment:**
  Zero and span are adjustable from the HHC(1). Zero and span are also adjustable externally from the adjustment screw (span adjustment is not available with 9th digit code "L, P, Q, S").

- **Damping:**
  Adjustable from HHC or local adjustment unit with LCD display.
  The time constant is adjustable between 0 to 32 seconds.

- **Zero elevation/suppression:**
  Zero can be elevated or suppressed within the specified range limit of each sensor model.

- **Normal/reverse action:**
  Selectable from HHC(1).

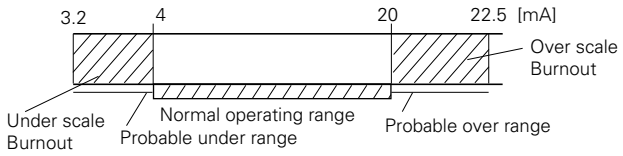
- **Indication:**
  Analog indicator or 5-digit LCD meter, as specified.

- **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).



Output limits conforming to NAMUR NE43 by order.

- **Loop-check output:**
  Transmitter can be configured to provide constant signal 3.2mA through 22.5mA 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 by each standard.

Process: - 40 à +100°C (for silicone fill sensor)
- 20 à +80°C (for fluorinated oil fill sensor)

Storage: -40 à +90°C

- **Humidity limit:**
  0 à 100% HR (relative humidity)

- **Communication:**
  With HHC(1) (model FXW, consult DS N°EDS8-47), following items can be remotely displayed or configured.

Note:
With HHC(1) (model FXW, consult DS N°EDS8-47), following items can be remotely displayed or configured.

Items	Georgin Protocol with FXW(1)		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	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 (communicateur portable)

- ***Local configurator with LCD display (option):**
  Local configurator with 3 push button and LCD display can support all items (Georgin Protocol list) except "Linearize" function.

- **Programmable output linearization function:**
  Output signal can be characterized with "14 points linear approximation function" from HHC(1).

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Performance specifications

(Reference conditions, silicone oil fill, 316SS isolating diaphragms, 4 to 20mA analog output)

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

Max span below 10000 kPa model

For spans > 1/10 of URL:

±0.065% of span or ±0.04% of span (21th digit: H)

For spans < 1/10 of URL:

$$\pm (0.015+0.05 \frac{0.1 \times URL}{Span}) \% \text{ of span}$$

For model with max. span 50000 kPa

For spans > 1/10 of URL:

±0.1% of span

For spans < 1/10 of URL:

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

- **Stability:**

±0.1% of upper range limit (URL) for 10 years.

- **Temperature effect:**

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

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

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

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

- **Overrange effect:**

Zero shift:

±0.2% of URL for any overrange to maximum limit

- **Supply voltage effect:**

< 0.005% of calibrated span per 1V

- **Update rate:**

60 msec

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

Time constant: 0.08s (at 23°C)

Dead time: approximately 0.12s

Response time = time constant + dead time

- **Mounting position effect:**

Zero shift: < 0.1kPa {1m bar} for a 10° tilt in any plane.

No effect on span. This error can be corrected by adjusting Zero.

- **Vibration effect:**

< ±0,25% of spans for spans > 1/10 of URL.

Frequency 10 to 150Hz, acceleration 39,2m/sec^2

- **Material fatigue:** Please consult Georgin.

- **Dielectric strength:**

5500V AC, 50/60Hz 1 min., between circuit and earth.

- **Insulation resistance:**

> 100 MΩ at 500 VDC.

- **Internal resistance for external field indicator:**

12 Ω 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:**

1/4»-18 NPT, en standard suivant DIN 19213.
Option : 1/2"NPT avec brides ovales
Attention : la codification n'inclut pas la fourniture de la bride ovale (voir spécification).

1/4-18 NPT or Rc1/4 on 54mm centers, as specified.
Meet DIN 19213

- **Process-wetted parts material:**

Material code (7th digit in code symbols)	Process cover	Diaphragm	Wetted sensor body	Vent/drain
V	316 SS (*1)	316L SS	316L SS	316L SS
W	316 SS (*1)	Hastelloy-C	316L SS	316L SS
J	316 SS (*1)	Inox 316L + Dorure	316L SS	316L SS
H	316 SS (*1)	Hastelloy-C	Hastelloy-C lining	316L SS
M	316 SS (*1)	Monel	Monel lining	316L SS
T	316 SS (*1)	Tantale	Tantalum lining	316L SS
B	Hastelloy-C lining	Hastelloy-C	Hastelloy-C lining	Hastelloy-C
L	Monel lining	Monel	Monel lining	Monel
U	Tantalum lining	Tantale	Tantalum lining	Hastelloy-C

Note: *(1) ASTM CF8M

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".

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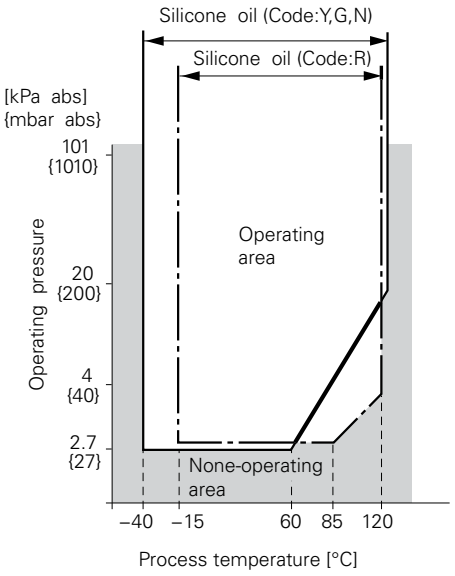
- **Non-wetted parts material:**
  Electronics housing:
  Low copper die-cast aluminum alloy finished with polyester coating (standard), or 316 SS, as specified.
  Bolts and nuts:
  Cr-Mo alloy (standard), or 316 SS (630 or 660 SS for 50MPa unit)
  Fill fluid:
  Silicone oil (standard) or fluorinated oil
  Mounting bracket:
  304 SS
- **Environmental protection:**
  IEC IP67 and NEMA 6/6P
- **Mounting:**
  Without mounting bracket:
  direct mounting on manifold (optional)
  With optional mounting bracket:
  for 50mm (2") pipe or direct wall mounting
- **Mass {weight}:**
  Transmitter:
  approximately 2.9 to 3.4kg without options
  Add:
  0.5kg for mounting bracket
  4.5kg for stainless steel housing (option)

Optional features

- **Indicator:**
  A plug-in analog indicator
  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(1).
- **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:**
  The fill fluid is fluorinated oil.
- **Degreasing:**
  Process-wetted parts are cleaned, but the fill fluid is standard silicone oil. Not for use on oxygen or chlorine measurement.
- **NACE specification:**
  Metallic materials for all pressure bound ary parts comply with NACE MR-01-75. 630/304 or 660/660 stain-less steel bolts and nuts comply with NACE.
- **Optional tag plate:**
  An extra stainless steel tag with customer tag data is wired to the transmitter.
- **Vacuum service:**
  Special silicone oil and filling procedure are applied (see Fig. below).



Relation between process temperature and operating pressure

ACCESSOIRIES

- **Oval flanges:**
  Converts process connection to 1/2-14 NPT in 316 stainless steel.
- **Hand-held communicator:**
  (FXW Model, refer to Data Sheet N° EDS8-47))

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CODE SYMBOLS

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

Connections

	Process connection	Oval flange connect.	Electrical 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 or M12 (*1)	Pg 13,5
W	1/4-18 NPT	M10 or M12 (*1)	M 20 x 1,5
X	1/4-18 NPT	7/16-20 UNF	Pg 13,5

Range & wetted parts material

	Spans (*2)	Process cover	Measuring diaphragm	Wetted cell body
0 1 V		316L SS	316L SS	316 SS
0 1 W		316L SS	Hast. C	316 SS
0 1 H	13	316L SS	Hast. C	Hast. C lining
0 1 M		316L SS	Monel	Monel lining
0 1 J (*3)		316L SS	Gold coat	316 SS
0 1 T	to	316L SS	Tantalum	Tantalum lining
9 1 H (*5)		PVDF insert	Hast. C	Hast. C lining
9 1 M (*5)		PVDF insert	Monel	Monel lining
9 1 T (*5)	1300 mbar	PVDF insert	Tantalum	Tantalum lining
0 1 B (*4)		Hast. C lining	Hast. C	Hast. C lining
0 1 L (*4)		Monel lining	Monel	Monel lining
0 1 U (*4)		Tantalum lining	Tantalum	Tantalum lining
0 2 V		316L SS	316L SS	316 SS
0 2 W		316L SS	Hast. C	316 SS
0 2 H	0,05	316L SS	Hast. C	Hast. C lining
0 2 M		316L SS	Monel	Monel lining
0 2 J (*3)		316L SS	Gold coat	316 SS
0 2 T	to	316L SS	Tantalum	Tantalum lining
9 2 H (*5)		PVDF insert	Hast. C	Hast. C lining
9 2 M (*5)		PVDF insert	Monel	Monel lining
9 2 T (*5)	5 bar	PVDF insert	Tantalum	Tantalum lining
0 2 B (*4)		Hast. C lining	Hast. C	Hast. C lining
0 2 L (*4)		Monel lining	Monel	Monel lining
0 2 U (*4)		Tantalum lining	Tantalum	Tantalum lining
0 3 V		316L SS	316L SS	316 SS
0 3 W		316L SS	Hast. C	316 SS
0 3 H	0,3	316L SS	Hast. C	Hast. C lining
0 3 M		316L SS	Monel	Monel lining
0 3 J (*3)		316L SS	Gold coat	316 SS
0 3 T	to	316L SS	Tantalum	Tantalum lining
9 3 H (*5)		PVDF insert	Hast. C	Hast. C lining
9 3 M (*5)		PVDF insert	Monel	Monel lining
9 3 T (*5)		PVDF insert	Tantalum	Tantalum lining
0 3 B (*4)	30 bar	Hast. C lining	Hast. C	Hast. C lining
0 3 L (*4)		Monel lining	Monel	Monel lining
0 3 U (*4)		Tantalum lining	Tantalum	Tantalum lining
0 4 V		316L SS	316L SS	316 SS
0 4 W		316L SS	Hast. C	316 SS
0 4 H	1	316L SS	Hast. C	Hast. C lining
0 4 M		316L SS	Monel	Monel lining
0 4 J (*3)	to	316L SS	Gold coat	316 SS
0 4 T		316L SS	Tantalum	Tantalum lining
0 4 B (*4)		Hast. C lining	Hast. C	Hast. C lining
0 4 L (*4)	100 bar	Monel lining	Monel	Monel lining
0 4 U (*4)		Tantalum lining	Tantalum	Tantalum lining
0 5 V (*9)		316L SS	316L SS	316 SS
0 5 W	5 to 500 bar	316L SS	Hast. C	316 SS
0 5 H (*9)		316L SS	Hast. C	Hast. C lining
0 5 J (*3 *9)		316L SS	Gold coat	316 SS

Indicator & Arrester (next)

	Indicator	Arrester	Initial setting
5 - A	None	None	
5 - B	Analog, 0-100% linear scale	None	
5 - D	Analog, Custom scale	None	
5 - J	Analog, double scale	None	4-20mA DC
5 - E	None	Yes	+
5 - F	Analog, 0-100% linear scale	Yes	Hart® /Georgin
5 - H	Analog, Custom scale	Yes	digital signal
5 - K	Analog, double scale	Yes	"SMART"
5 - 1	digital, 0-100%	None	
5 - 2	digital, Custom scale	None	
5 - 4	digital, 0-100%	Yes	
5 - 5	digital, Custom scale	Yes	

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CODE SYMBOLS

1	2	3	4	5	6	7	8		9	10	11	12	13		14	15		16	DESCRIPTION
F	K	G					5	-						-			-		
																			Approvals for hazardous locations (consult Georgin for availability)
										A									None (Standard)
										X									ATEX - Flameproof enclosures (digit 4 = "M, P, R, T" & "W" only)
										K									ATEX - Intrinsic Safety
										D								(*8)	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)
																			Side vent/drain & mounting bracket
											A								None / None
											C								None / Yes, SS
											D							(*5)	Yes (*6) / None
											F							(*5)	Yes (*6) / Yes, SS
																			SS parts
												Y							None / None
												B							Yes / None
												C							None / Yes
												E							Yes / Yes
																			Special applications & fill fluid
													Y						None (std) / Silicone oil
													W						None (std) / Fluorinated oil
													G						Degreasing / Silicone oil
													A						Oxygen service / Fluorinated oil (only w/digit7=V)
													D						Chlorine service / Fluorinated oil (only w/digit 7=H,T,B,U)
													N					(*7)	NACE / Silicone oil
													R						Vacuum service / Silicone oil
																			Process cover gasket
														-	A				Viton
														-	C				PTFE square section gasket in SS flange
														-	D			(*5)	PTFE square section gasket in PVDF insert
																			Bolts/screws material
																A			Carbon steel Cr-Mo (standard) M10
																U			SS 316/316 (bolt/nuts) M10
																F			SS 630/304 (bolt/nuts) M10
																V		(*9)	Carbon steel Cr-Mo (standard) M12 for static pressure > 160 bar
																X		(*9)	SS 630/304 (bolt/nuts) M12 for static pressure > 160 bar
																W		(*9, 10)	SS 660/660 (bolt/nuts) M12 for static pressure > 160 bar
																			Special options or design
																(*6)	-	*	Special, no code available

Notes*:

1- M12 oval flange screw required for 500 bar units
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- Gold coating on wetted measuring cell parts for Hydrogen service - Hydroseal version - gold/ceramic coating is available upon request.
4- Process cover with linings has no vent-drain
5- Process cover with PVDF insert with 1/2-18 NPT side process connection/no vent drain, other upon request - square section PTFE gasket
6- When no code can be found in the current code symbols, place * in concerned code digit(s) & add * in 16 th digit
7- Our stainless steel bolts/nuts in SS630 and SS660 are in conformity with the NACE requirements and must be used for NACE service
8- Code "D & V" FM approval only possible with electrical connection 1/2" NPT.
9- M12 bolting must be used for 500 bar transmitter
10- SS660 bolts/nuts have to be used for oil & gas applications.

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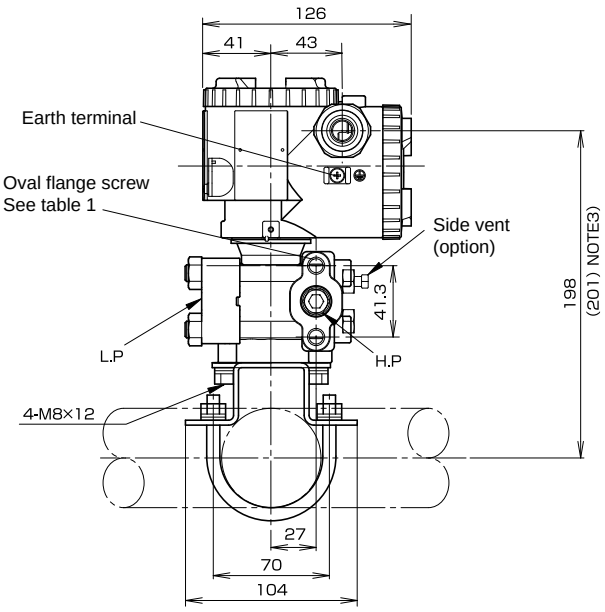
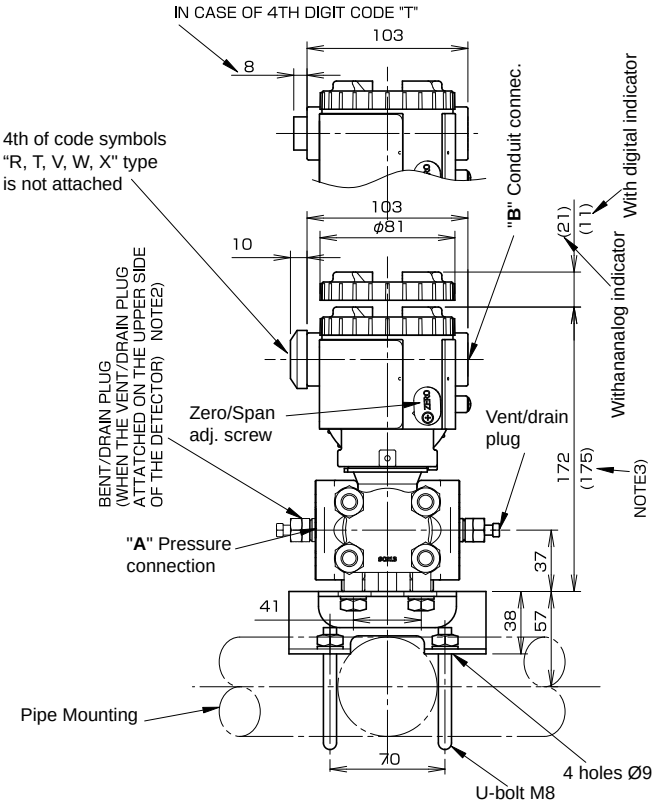
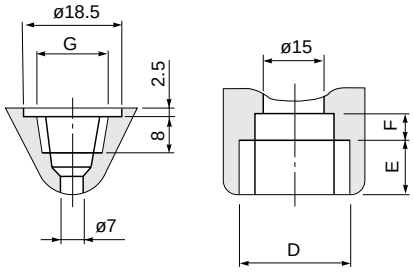
Safety for Industrial Process

OUTLINE DIAGRAM (UNIT: MM)

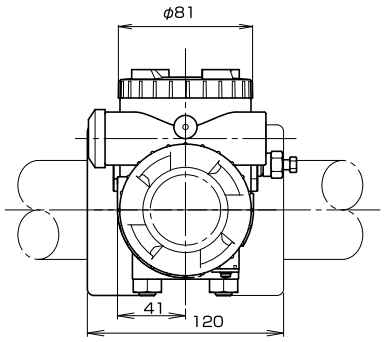
- BRIDES PROCÉDÉ EN ACIER INOX (DIGIT 7: CODES V, H, M, T)







Details of "**A**" Details of "**B**"



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

TABLE 1

NOTE1) IN CASE OF 10TH CODE "C", ϕ11 CABLE IS SUITBLE.
NOTE2) THE PRESSURE CONNECTOR IS LOCATED ON THE DOWN SIDE SURFACE OF THE DETECTOR, WHEN THE VENT/DRAINPLUG IS ATTATCHED ON THE UPPER SIDE OF THE DETECTOR (WHEN THE 21TH DIGIT OF THE CODE SYMBOLS : C).
NOTE3) WHEN THE 7TH DIGIT OF THE CODE SYMBOLS "C,H,M,T"

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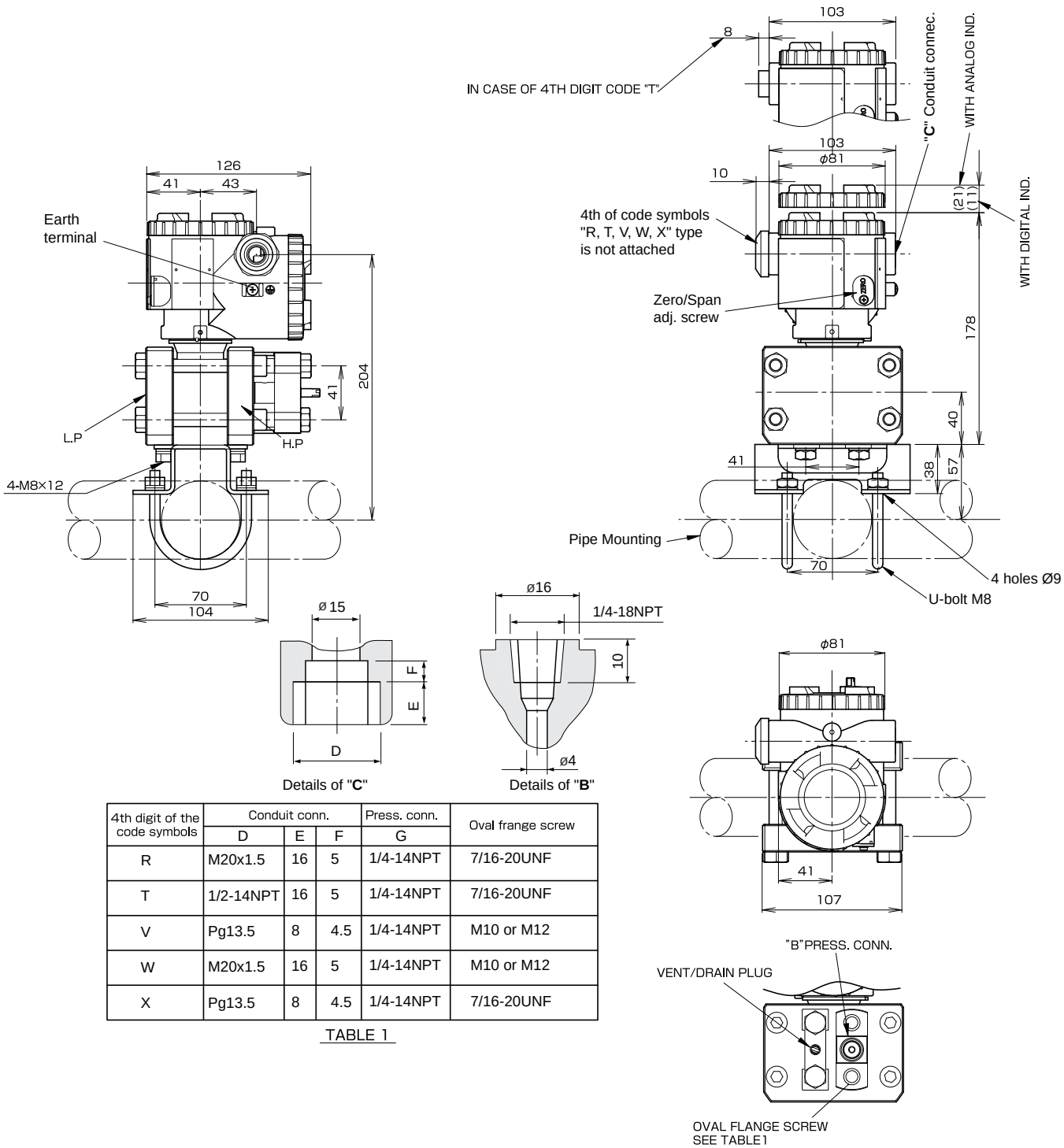
OUTLINE DIAGRAM (UNIT: MM)

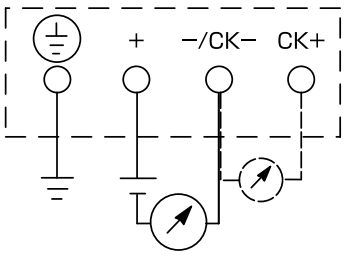
- BRIDES PROCÉDÉ EN MATÉRIAUX NOBLES : HASTELLOY-C, MONEL ET TANTALE (DIGIT 7: CODES V, H, M, T)



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

TABLE 1

CONNEXION DIAGRAM



EMC Directive (2004/108/EC)

All models of ProcessX series transmitters are in accordance with the harmonized standards :

- EN 61326-1 : 2006 (Electrical equipment for measurement, control and laboratory use - EMC requirements).
- EN 61326-2-3 : 2006 (Part 2-3 : Particular requirements - Test configuration, operational conditions and performance criteria for tranducers with integrated or remote signal conditioning).

Emission limits: EN 61326-1 : 2006

Frequency range (MHz)	Limits	Basic standard
30 to 230	40dB (µV/m) quasi peack, measured at 10m distance	EN 55011 / CISPR 11 Group 1 Classe A
230 to 1000	47dB (µV/m) quasi peack, measured at 10m distance	

Immunity requirements: EN 61326-1 : 2006 (Table 2)

Phenomenon	Test value	Basic standard	Performance criteria
Electrostatic discharge (EDS)	4 kV (Contact) 8 kV (Air)	EN 61000-4-2 IEC 61000-4-2	**B**
Electromagnetic field	10V/m (80-1000MHz) 3 V/m (1.4-2.0 GHz) 1V/m (2.0-2.7 GHz)	EN 61000-4-3 IEC 61000-4-3	**A**
Rated power frequency Magnetic field	30 A/m	EN 61000-4-8 IEC 61000-4-8	**A**
Burst	2kV (5/50 NS, 5 kHz)	EN 61000-4-4 IEC 61000-4-4	**B**
Surge	1 kV Line to line 2 kV Line to line	EN 61000-4-5 IEC 61000-4-5	**B**
Conducted RF	3 V (150 kHz to 80 MHz)	EN 61000-4-6 IEC 61000-4-6	**A**

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.

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