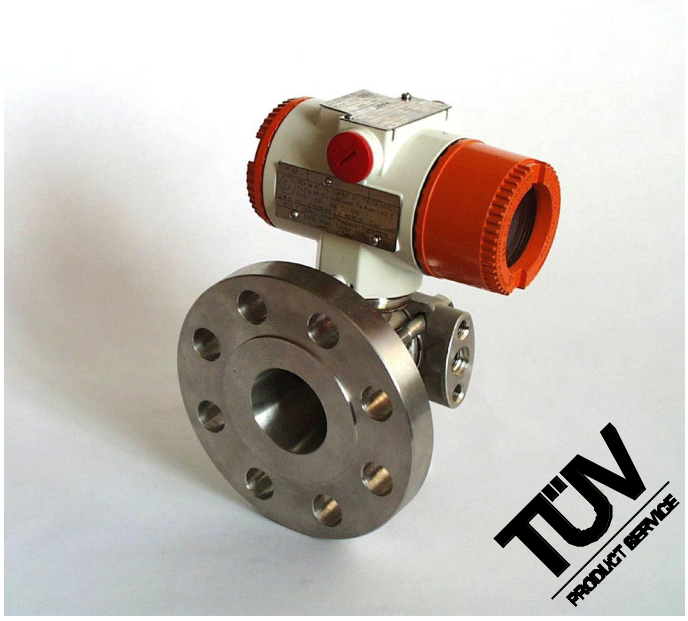
Specification sheet

# 600T EN Series Pressure Transmitters

## Model 611SS Flange mounted differential pressure transmitter

- **TÜV SIL 2 certified according to IEC 61508/ ISA S84.01**
- **Base accuracy : ± 0.15%**
- **Reliable inductive sensing system coupled with the very latest digital technologies**
  - ensures high performance at all process conditions
- **Hardware and software redundancy with MTBF of over 100 years**
- **Wide selection of materials and choice of fill fluids including "process-inert"**
  - meet virtually all process requirements also protecting application integrity
- **Local snap calibration and full management via hand terminal or PC-running software**
- **HART® communications**
  - allows integration with standard process bus
- **CoMeter display option**
  - offers HART Configuration capabilities combined with local indication
- **Ecoefficient life cycle**
  - ensures low environmental impact in compliance with LCA assessment to ISO 14040 standard




***The all new 600T Series transmitter***
***The first choice pressure transmitter is now an even bigger choice***

# FUNCTIONAL SPECIFICATIONS

**Range and span limits**

| Sensor code | Upper Range Limit (URL) | Lower Range Limit (LRL) | Turndown ratio (TD) | | |
|---|---|---|---|---|---|
| | | | Normal | Extended | Maximum |
| **B** | 10 kPa<br>100 mbar<br>40.1 in$H_2O$ | - 10 kPa<br>- 100 mbar<br>- 40.1 in$H_2O$ | 10 | 20 | 30 |
| **C** | 40 kPa<br>400 mbar<br>160 in$H_2O$ | - 40 kPa<br>- 400 mbar<br>- 160 in$H_2O$ | 15 | 60 | 100 |
| **N** | 65 kPa<br>650 mbar<br>260 in$H_2O$ | - 65 kPa<br>- 650 mbar<br>- 260 in$H_2O$ | 15 | 60 | 100 |
| **D** | 160 kPa<br>1600 mbar<br>642 in$H_2O$ | - 160 kPa<br>- 1600 mbar<br>- 642 in$H_2O$ | 15 | 60 | 100 |
| **E** | 600 kPa<br>6 bar<br>87 psi | - 600 kPa<br>- 6 bar<br>- 87 psi | 15 | 60 | 100 |
| **F** | 2400 kPa<br>24 bar<br>348 psi | - 2400 kPa<br>- 24 bar<br>- 348 psi | 15 | 60 | 100 |

**Span limits**

Maximum span = URL
(can be further adjusted up to ± URL (TD = 0.5) for differential models, within the range limits)
Minimum recommended span = URL/TD extended
(can be further turndown to URL/TD maximum at no stated performances)

**Zero suppression and elevation**

Zero and span can be adjusted to any value within the range limits detailed in the table as long as:
- calibrated span ≥ minimum span

**Damping**

Selectable time constant : 0, 0.25, 0.5, 1, 2, 4, 8 or 16 sec.

**Volume of process chamber (low pressure side)**

9 $cm^3$ approx (0.55 $in^3$)

**Volumetric displacement**

< 0.020 $cm^3$ (0.0015 $in^3$) for max span.

**Electromagnetic compatibility (EMC)**

Comply with EN 50081-2 for emission and EN 50082-2 for immunity requirements and test; CE marking.

**Turn on time**

Operation within specification in less than 2 sec. with minimum damping.

**Insulation resistance**

> 100 MΩ @ 1000 Vdc (terminals to earth)

**Temperature limits °C (°F) :**

**• Ambient (is the operating temperature)**

| Filling | Sensor C to F | Sensor B |
|---|---|---|
| Silicone oil | -40 and +85<br>(-40 and +185) | -25 and +85<br>(-13 and +185) |
| Inert | -20 and +85<br>(-4 and +185) | -10 and +85<br>(+14 and +185) |
| KTFILL-1 | -40 and +85<br>(-40 and +185) | -10 and +85<br>(+14 and +185) |

Lower ambient limit for LCD indicators: -20°C (-4°F)
Upper ambient limit for CoMeter : +70°C (+158°F)

**• Process (1)**

Lower limit
- refer to lower ambient limits
- -20°C (-4°F) for Viton gaskets

Upper limit
- Silicone oil and KTFILL-1 filling : 120°C (248°F) (2)
- Inert fluid filling : 100°C (212°F) (3)

(1) Process temperature above 85°C (185 °F) requires derating the ambient limits by 1.5 : 1 ratio.
(2) 100°C (212°F) for application below atmospheric pressure
(3) 65°C (150°F) for application below atmospheric pressure

**• Storage**

Lower limit : -50°C (-58°F); -40°C (-40°F) for LCD indicators
Upper limit : +120°C (+248°F); +85°C (+185°F) for LCD indicators

**Overpressure limits** (without damage to the transmitter)

• Lower : 0.067 kPa abs, 0,67 mbar abs, 0.01 psia
(0.13 kPa abs, 1.33 mbar abs, 0.02 with inert filling)
• Upper (is limited by the flange rating)
ANSI CL150 : 2 MPa, 20 bar, 290 psi
ANSI CL300 : 5 MPa, 50 bar, 725 psi
DIN ND16 : 1.6 MPa, 16 bar, 230 psi
DIN ND40 : 4 MPa, 40 bar, 580 psi

**Static pressure**

Transmitters for differential pressure operate within specifications between the following limits
• Lower
1.3 kPa abs,13 mbar abs, 0.2 psia
• Upper
same of overpressure limit (flange rating)
Double the lower limit with inert filling

**Proof pressure**

The transmitter meets SAMA PMC 27.1 requirements and can be exposed without leaking to line pressure of up two times the flange rating.

## *ELECTRICAL CHARACTERISTICS AND OPTIONS*

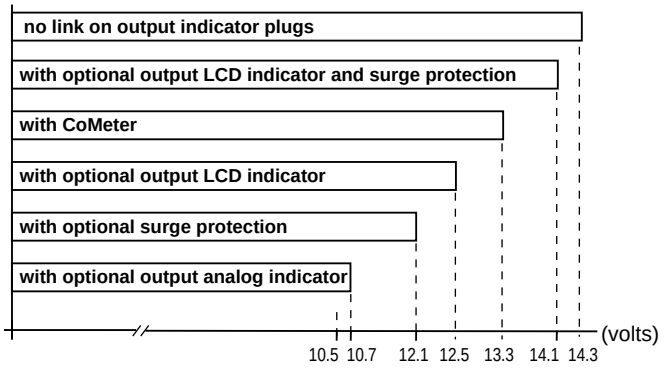
***• HART digital communication and 4 to 20 mA output***

**Power Supply**

The transmitter operates from 10.5 to 42 Vdc with no load and is protected against reverse polarity connection (additional load allows operations over 42 Vdc).

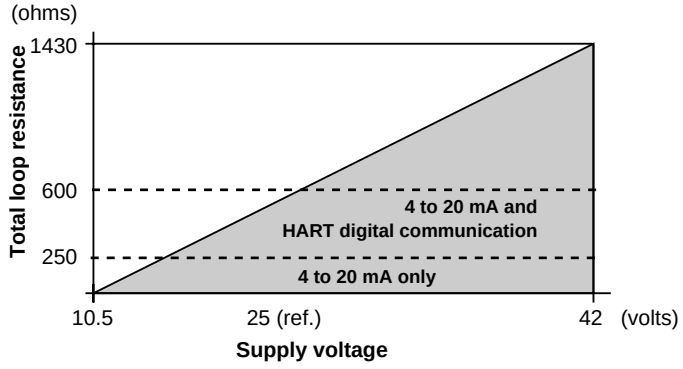
For EEx ia and intrinsically safe approval power supply must not exceed 30 Vdc.

**MINIMUM OPERATING VOLTAGES**




**Load limitations** - 4-20 mA and HART total loop resistance **:**

$$R(k\Omega) = \frac{\text{Supply voltage - min. operating voltage (Vdc)}}{22}$$




**Optional indicators**

- **Output meter (user adjustable)**
  - LCD : 3 1/2-digit with 10 mm (3/8 in) high, 7-segment characters. Engineering unit labels are provided. LCD output meter may be calibrated within the range -1999 to + 1999 with a span adjustable between 100 and 3998 units. (Display of decimal point, if required, is switch selectable)
  - analog : 36 mm (1.4 in) scale on 90°
- **CoMeter**
  - 5-digit LCD (± 99999 counts programmable) with 7.6 mm. high (3 in), 7-segment numeric characters plus sign and digital point
  - 10-segment LCD bargraph display (10% per segment)
  - 7-digit LCD with 6 mm. high (2.3 in), 14-segment alphanumeric characters.

**Optional surge protection**

Up to 2.5 kV (5 kA discharge current) of 8 μs rise time/20 μs decay.

**Output signal**

Two-wire 4 to 20 mA dc, user-selectable for linear or square root output, power of 3/2 or 5/2, 5th order or two 2nd order switching point selectable programmable polynomial output.

HART® communication provides digital process variable (%, mA or engineering units) superimposed on 4 to 20 mA signal, with protocol based on Bell 202 FSK standard.

**Output current limits (to NAMUR standard)**

Overload condition

- Lower limit : 3.8 mA dc
- Upper limit : 20.5 mA dc

**Transmitter failure mode (to NAMUR standard)**

The output signal can be user-selected to a value of 3.7 or 22 mA on gross transmitter failure condition, detected by self-diagnostics.

In case of CPU failure the output is driven <3.7 mA or >22 mA.

# PERFORMANCE SPECIFICATIONS

Stated at ambient temperature of 23°C ± 3K (75°F ± 5), relative humidity of 50% ±20%, atmospheric pressure, mounting position with vertical diaphragm and zero based range for transmitter with isolating diaphragms in AISI 316 L ss or Hastelloy and silicone oil fill or KTFILL-1 and HART digital trim values equal to 4-20 mA span end points, in linear mode.

Unless otherwise specified, errors are quoted as % of span.

Some performance data are affected by the actual turndown (TD) as ratio between Upper Range Limit (URL) and calibrated span.

IT IS RECOMMENDED TO SELECT THE TRANSMITTER SENSOR CODE PROVIDING THE TURNDOWN VALUE AS LOWEST AS POSSIBLE TO OPTIMIZE PERFORMANCE CHARACTERISTICS.

## Accuracy rating

% of calibrated span, including combined effects of terminal based linearity, hysteresis and repeatability.

- ± 0.15% for TD from 1:1 to 15:1
  (± 0.20% for sensor code B for TD from 1:1 to 10:1)
- ± 0.01% x $\frac{\text{URL}}{\text{Span}}$ for TD from 15:1 to 60:1
  (± 0.02% x $\frac{\text{URL}}{\text{Span}}$ for sensor code B for TD from 10:1 to 20:1)

**Optional indicators accuracy**

- analog output meter : ± 2% full scale deflection
- LCD output meter : ± 0.1% of calibrated span ± 1 unit
- CoMeter
  - digital : ± 0.10% of max span(16 mA) ± 1 digit
  - analog (bargraph) : 10%

## Operating influences

**Ambient temperature** per 20 K (36°F) change between the limits of - 20°C to + 65°C (-4 to +150°F) :

| Model | Sensor code | for TD up to | |
|---|---|---|---|
| 611SS Flange mounted differential | C to F | 15:1 | ± (0.10% URL + 0.16% span) |
| | B | 10:1 | ± (0.15% URL + 0.24% span) |

Multiply by 1.5 the above coefficients for 20 K (36°F) change between the limits of -40 to -20°C (-40 to -4°F) and of +65 to +85°C (+150 to 185°F)

**Optional LCD output meter ambient temperature**
per 1 K (1.8°F) change between the limits of -20 and +80°C (-4 and + 176°F)
Total effect : ± (0.0002 x span units + 0.1) of reading.

**Optional CoMeter ambient temperature**
Total reading error per 20K (36°F) change between the ambient limits of -20 and +70°C (-4 and +158°F) :
± 0.15% of max span (16 mA).

**Static pressure** (zero errors can be calibrated out at line pressure)
per 2 MPa, 20 bar or 290 psi
- **Model 611SS (differential flange mounted)**
  - zero error : ± 0.20% of URL
  - span error : ± 0.20% of reading

  Multiply by 1.5 the errors for sensor code B.

**Supply voltage**
Within voltage/load specified limits the total effect is less than 0.005% of URL per volt.

**Load**
Within load/voltage specified limits the total effect is negligible.

**Radio frequency interference**
Total effect : less than 0.10% of span from 20 to 1000 MHz and for field strengths up to 30 V/m when tested with shielded conduit and grounding, with or without meter. Meets IEC 801.

**Common mode interference**
No effect from 100 V rms @ 50 Hz, or 50 Vdc.

**Series mode interference**
No effect from 1 V rms @ 50 Hz.

**Mounting position**
Rotations in plane of diaphragm have no effect. A tilt to 90° from vertical causes a zero shifts up to 0.5 kPa, 5 mbar or 2 in$H_2O$, which can be corrected with the zero adjustment**.** No span effect.

**Stability**
± 0.30% of URL over a thirty-six-month period

## PHYSICAL SPECIFICATIONS

(Refer to ordering information sheets for variant availability related to specific model or versions code)

## Materials

**Process isolating diaphragms (*)**
AISI 316 L ss, Hastelloy C276 ◊;
Monel 400 ◊; Tantalum.

**High pressure side mounting flange**
AISI 316 L ss with flushing connection

**Low pressure side process flange, adapter, plug and drain/ vent valve (*)**
AISI 316 L ss; Hastelloy C ◊; Monel 400◊;
Plated carbon steel with AISI 316 L ss valves

**Sensor fill fluid**
Silicone oil (DC200) or inert fill (perfluorinated polyethers Galden ◊) or "process-inert" fill (KTFILL-1).

**Gaskets (*)**
Viton ◊, PTFE.

**Sensor housing :** AISI 316 L ss

**Bolts and nuts**
- Plated carbon steel bolts class 8.8 per UNI 5737 (ISO 4014) and nuts class 6.S per UNI 3740/4 (ISO 898/2).
- Plated alloy steel bolts per ASTM-A-193-77a grade B7M and nuts per ASTM A194/A 194 M-90 grade 2HM, in compliance with NACE MR0175 Class II.
- AISI 316 ss bolts Class A4-80 and nuts Class A4-70 per UNI 7323 (ISO 3506).
- AISI 316 ss bolts and nuts Class A4-50 per UNI 7323 (ISO 3506), in compliance with NACE MR0175 Class II.

**Electronic housing and covers**
Barrel version
- Low-copper content aluminium alloy with baked epoxy finish;
- AISI 316 L ss.

DIN version
- Low-copper content aluminium alloy with baked epoxy finish

**Covers O-ring:** Buna N.

**Local zero and span adjustments:**
Glass filled polycarbonate plastic (removable)

**Tagging**
AISI 316 ss data plate attached to the electronics housing.

## Calibration

- Standard: at maximum span, zero based range, ambient temperature and pressure
- Optional: at specified range and ambient conditions; or at operating temperature.

## Optional extras

**Output indicator:**

plug-in rotatable type, LCD or analog.
Standard LCD output meter scale is 0 to 100% linear; special linear scale to specified range and engineering unit is available.Standard analog output meter scale is 0 to 100% linear or 0 to 10 square-root; special graduation is available.

**Supplemental customer tag**

AISI 316 ss tag fastened to the transmitter with stainless steel wire for customer's tag data up to a maximum of 56 characters and spaces on two lines for tag number and tag name, and up to a maximum of 28 characters and spaces for calibration details.

**Surge protection**
**Material traceability**

## Environmental protection

**Wet and dust-laden atmospheres**

The transmitter is dust and sand tight and protected against immersion effects as defined by IEC 529 (1989) to IP 67 (IP 68 on request) or by NEMA to 4X or by JIS to C0920

**Hazardous atmospheres**

With or without output meter/integral display
INTRINSIC SAFETY/EUROPE:
ATEX/TÜV approval
EC-Type Examination Certificate no. EX5 00 12 42206 001
II 1 G T50°C, EEx ia IIC T5 (-40°C ≤ Ta ≤+40°C)
T95°C, EEx ia IIC T4 (-40°C ≤ Ta ≤+85°C)
FLAMEPROOF/EUROPE:
ATEX/CESI approval;
EC-Type Examination Certificate no. CESI 00 ATEX 035
II 1/2 GD T80°C, EEx d IIC T6 (-40°C ≤ Ta ≤ +70°C)
T95°C, EEx d IIC T5 (-40°C ≤ Ta ≤ +85°C)
FACTORY MUTUAL (pending) :
- Explosionproof: Class I, Div. 1, Groups A, B, C, D
- Dust ignitionproof : Class II, Div. 1, Groups E, F, G

## Process connections

Low pressure side (according to DIN 19213)
- on flange : 1/4 NPT on process axis
- on adapter : 1/2 NPT on process axis

High pressure side (**) :
2in or 3in ANSI 150 or 300 RF;
DN 50 or DN 80 DIN ND 16 or 40 Form C

## Electrical connections

Two 1/2 NPT or M20x1.5 or PG 13.5 or 1/2 GK threaded conduit entries, direct on housing; straight or angle Harting HAN connector and one plug, on request.

**Terminal block**

- HART version
  Three terminals for signal/external meter wiring up to 2.5 $mm^2$ (14 AWG) and three connection points for test and communication purposes.

**Grounding**

Internal and external 6 $mm^2$ (10 AWG) ground termination points are provided.

## Mounting position

Transmitter can be mounted in any position.
Electronics housing may be rotated to any position. A positive stop prevents over travel.

## Mass (without options)

7 to 11 kg approx (16 to 24 lb); add 1.5 kg (3.4 lb) for AISI housing. Add 1 kg (2.2 lb) for packing.

## Packing

Carton 35 x 33 x 35 cm approx (14 x 13 x 14 in).

◊ Hastelloy is a Cabot Corporation trademark
◊ Monel is an International Nickel Co. trademark
◊ Galden is a Montefluos trademark
◊ Viton is a Dupont de Nemour trademark

(*) Wetted parts of the transmitter.
(**) Bolts and nuts, gasket and mating flange supplied by customer

## CONFIGURATION

• ***Transmitter with HART communication and 4 to 20 mA***

**Standard configuration**

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

- Engineering Unit: Specify code option
- 4 mA: Zero
- 20 mA: Upper Range Limit (URL)
- Output : Linear
- Damping: 1 sec.
- Transmitter failure mode: Upscale
- Software tag characters: Blank
- Optional LCD output indicator : 0 to 100.0% linear

Any or all the above configurable parameters, including Lower range-value and Upper range-value which must be the same unit of measure, can be easily changed using the HART hand-held communicator. The transmitter database is customized with specified flange type and material, O-ring and drain/vent materials and meter code option.

**Custom configuration (option)**

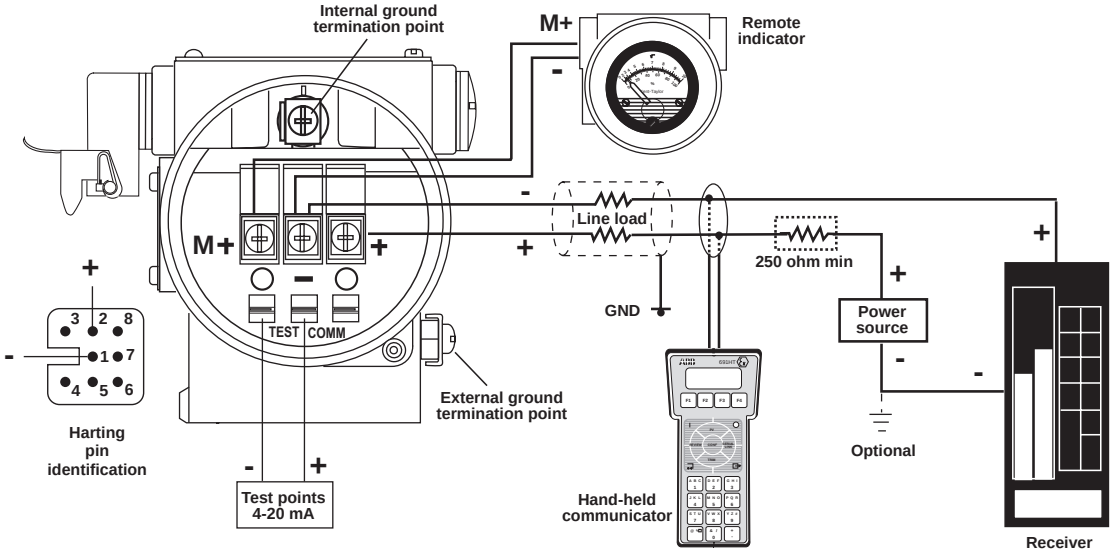
The following data may be specified in addition to the standard configuration parameters:

- Descriptor : 16 alphanumeric characters
- Message: 32 alphanumeric characters
- Date: Day, month, year
- Damping: Seconds

Available engineering units of pressure measure are :
Pa, kPa, MPa
inH2O@4°C, mmH2O@4°C, psi
inH2O@20°C, ftH2O@20°C, mmH2O@20°C
inHg, mmHg, Torr
$g/cm^2$, $kg/cm^2$, atm
mbar, bar

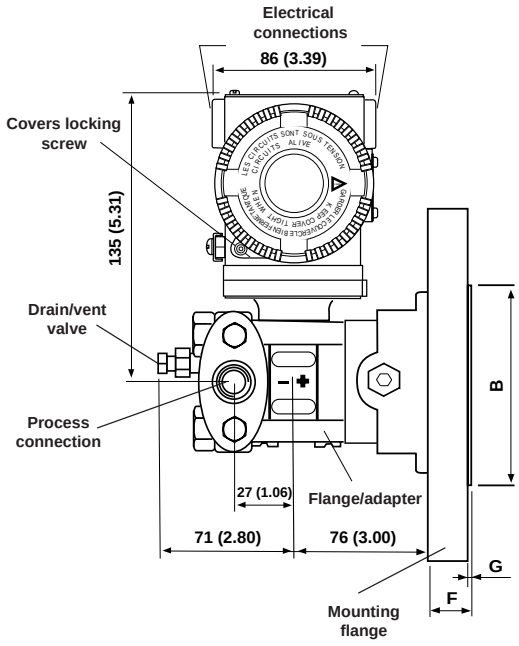
## ELECTRICAL CONNECTIONS

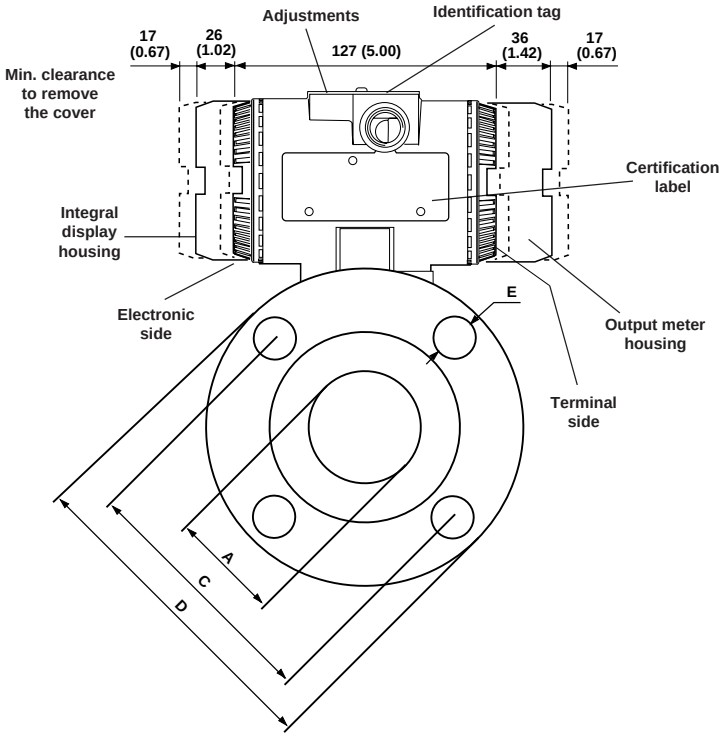
• **HART Version**



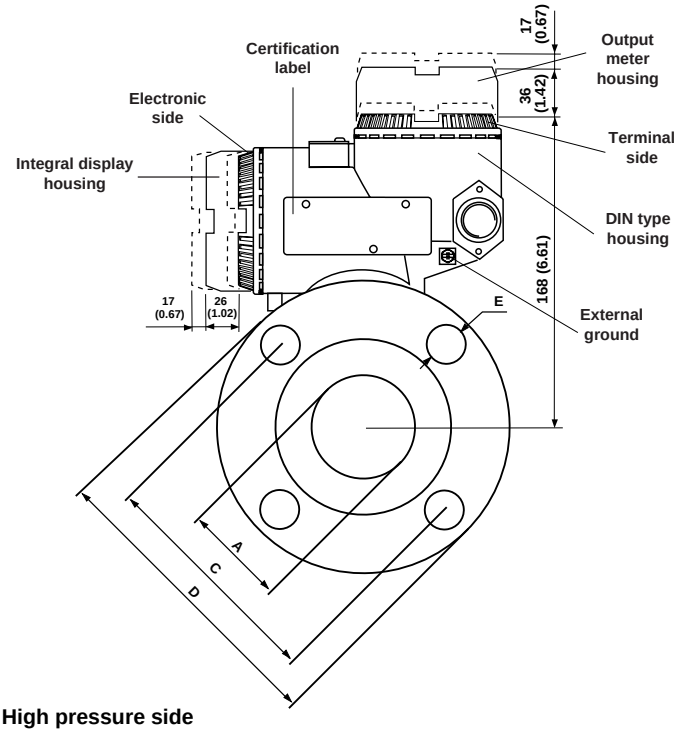

**HART hand-held communicator may be connected at any wiring termination point in the loop, providing the minimum resistance is 250 ohm. If this is less than 250 ohm, additional resistance should be added to allow communications.**

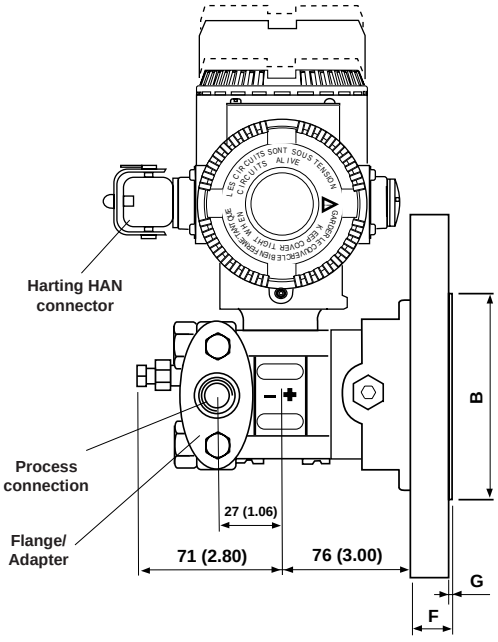
# MOUNTING DIMENSIONS
## (not for construction unless certified)




**NOTE :** On low pressure side, process connection, gasket groove and gaskets are in accordance with DIN 19213. Bolting threads for fixing adapter or other devices (i.e. manifold etc.) on process flange is 7/16"-20 UNF.




**High pressure side**

| RATING | SIZE | A | B | C | D | E | No.of holes | F | G |
|---|---|---|---|---|---|---|---|---|---|
| ANSI 150 R.F. | 2" | 53 (2.09) | 92 (3.62) | 120.5 (4.74) | 152.5 (6.0) | 20 (0.79) | 4 | 19.5 (0.77) | 1.6 (0.07) |
| ANSI 150 R.F. | 3" | 77 (3.04) | 127 (5.0) | 152.5 (6.0) | 190.5 (7.5) | 20 (0.79) | 4 | 24 (0.94) | 1.6 (0.07) |
| ANSI 300 R.F. | 2" | 53 (2.09) | 92 (3.62) | 127 (5.0) | 165 (6.50) | 20 (0.79) | 8 | 22.5 (0.89) | 1.6 (0.07) |
| ANSI 300 R.F. | 3" | 77 (3.04) | 127 (5.0) | 168.5 (6.63) | 210 (8.26) | 22 (0.86) | 8 | 28.5 (1.12) | 1.6 (0.07) |
| DIN ND 16 FORM C | DN 50 | 53 (2.09) | 102 (4.02) | 125 (4.92) | 165 (6.50) | 18 (0.71) | 4 | 20 (0.79) | 3 (0.12) |
| DIN ND 16 FORM C | DN 80 | 77 (3.04) | 138 (5.43) | 160 (6.30) | 200 (7.87) | 18 (0.71) | 8 | 20 (0.79) | 2 (0.08) |
| DIN ND 40 FORM C | DN 50 | 53 (2.09) | 102 (4.02) | 125 (4.92) | 165 (6.50) | 18 (0.71) | 4 | 20 (0.79) | 3 (0.12) |
| DIN ND 40 FORM C | DN 80 | 77 (3.04) | 138 (5.43) | 160 (6.30) | 200 (7.87) | 18 (0.71) | 8 | 24 (0.94) | 2 (0.08) |

# ORDERING INFORMATION model 611SS Flange Mounted Differential Pressure Transmitter

Select one character or set of characters from each category and specify complete catalog number.
Refer to supplementary code and specify another number for each transmitter if additional options are required.

## PRODUCT CODE

**abcde fg hij k l m n op**

**1**

- **BASE MODEL**
- **SENSOR**
- **BOTTOM WORKS**
- **OUTPUT**
- **ELECTRICAL CERTIFICATION**
- **TOP WORKS**
- **ELECTRICAL OPTIONS**

**abcde** **BASE MODEL** - 1st to 5th characters

| | Code |
|---|---|
| Differential pressure transmitter | **611SS** |

**SENSOR**

**f** **Span limits** - 6th character

| | | | |
|---|---|---|---|
| 0.5 and 10 kPa | 5 and 100 mbar | 2 and 40.1 inH2O | **B** |
| 0.67 and 40 kPa | 6.7 and 400 mbar | 2.67 and 160 inH2O | **C** |
| 1.1 and 65 kPa | 11 and 650 mbar | 4.35 and 260 inH2O | **N** |
| 2.67 and 160 kPa | 26.7 and 1600 mbar | 10.7 and 642 inH2O | **D** |
| 10 and 600 kPa | 0.1 and 6 bar | 1.45 and 87 psi | **E** |
| 40 and 2400 kPa | 0.4 and 24 bar | 5.8 and 348 psi | **F** |

7th character

**g**

| **Diaphragm material (*)** | **Fill fluid** | |
|---|---|---|
| AISI 316 L ss | Silicone oil | **2** |
| Hastelloy C276 ◊ | Silicone oil | **3** |
| Monel 400 ◊ | Silicone oil | **4** |
| Tantalum | Silicone oil | **5** |
| AISI 316 L ss | Inert fluid | **A** |
| Hastelloy C276 ◊ | Inert fluid | **B** |
| Monel 400 ◊ | Inert fluid | **C** |
| Tantalum | Inert fluid | **D** |
| AISI 316 L ss | KTFILL-1 | **L** |
| Hastelloy C276 ◊ | KTFILL-1 | **N** |

**HIGH PRESSURE SIDE - Process flanges and connections (*) -** 8th character

**h**

| **Material** | **Rating/size** | **Valves fitting** | |
|---|---|---|---|
| AISI 316 L ss | ANSI 150 RF - 2" | Axial on Flange | **2** |
| | ANSI 150 RF - 3' | | **3** |
| | ANSI 300 RF - 2" | | **6** |
| | ANSI 300 RF - 3" | | **7** |
| | DIN ND 16 Form C-DN 50 | | **A** |
| | DIN ND 16 Form C-DN 80 | | **C** |
| | DIN ND 40 Form C-DN 50 | | **D** |
| | DIN ND 40 Form C-DN 80 | | **E** |

**LOW PRESSURE SIDE -** 9th character
**Process flanges / adapters / drain/vent vlaves (*)**

**i**

| **Material** | **Connection** | **Valves fitting** | |
|---|---|---|---|
| Plated Carbon Steel with AISI 316L ss valves | 1/2" NPT-f through adapter | Valves fitted on flange side and plug fitted on process axis | **Z** |
| AISI 316 L ss | 1/2" NPT-f through adapter | | **5** |
| Hastelloy C ◊ | 1/2" NPT-f through adapter | | **H** |
| Monel 400 ◊ | 1/2" NPT-f through adapter | | **P** |
| Plated Carbon Steel with AISI 316 L ss valves | 1/2" NPT-f through adapter | Valves fitted on process axis | **L** |
| AISI 316 L ss | 1/2" NPT-f through adapter | | **J** |
| Hastelloy C ◊ | 1/2" NPT-f through adapter | | **Q** |
| Monel 400 ◊ | 1/2" NPT-f through adapter | | **T** |

10th character

**j**

| **Bolts** | **Gaskets (*)** | |
|---|---|---|
| Carbon Steel | Viton ◊ | **1** |
| | PTFE | **3** |
| AISI 316 ss | Viton ◊ | **4** |
| | PTFE | **6** |
| AISI 316 ss (NACE) (MWP = 14 MPa) | Viton ◊ | **S** |
| | PTFE | **T** |
| Plated alloy steel | Viton ◊ | **7** |
| | PTFE | **A** |

■ Compliance to NACE class II bolting, according to specification MR0175, latest revision

(*) Process wetted-parts

◊ Hastelloy is a Cabot Corporation trademark
◊ Monel is an International Nickel Co. trademark
◊ Viton is a Dupont de Nemour trademark

# ORDERING INFORMATION model 611SS Flange Mounted Differential Pressure Transmitter

**k** 11th character

| | |
|---|---|
| Use code | **1** |

12th character

**l** **OUTPUT**

| | |
|---|---|
| HART digital communication and 4 to 20 mA - SIL 2 according to IEC 61508/ISA S84.01 | **S** |

**m** **ELECTRICAL CERTIFICATION -** 13th character

| | |
|---|---|
| General Purpose | **1** |
| ATEX Group II Category 1/2 GD - Flameproof EEx d CESI approval | **F** |
| ATEX Group II Category 1 G - Intrinsic Safety EEx ia TÜV approval | **L** |
| Factory Mutual (FM - Explosion proof only) approval (only with 1/2" NPT and M20 electrical connection) | **9** |

**TOP WORKS -** 14th character

| **n** **Housing material** | **Electrical connection** | | |
|---|---|---|---|
| Aluminium alloy (Barrel version) | 1/2" NPT | | **1** |
| | M20 x 1.5 (CM 20) | | **2** |
| | Pg 13.5 | | **3** |
| | 1/2" GK | | **4** |
| | Harting HAN connector - straight entry | (Note) | **5** |
| | Harting HAN connector - angle entry | (Note) | **6** |
| AISI 316 L ss (Barrel version) | 1/2" NPT | | **A** |
| | M20 x 1.5 (CM 20) | | **C** |
| | Pg 13.5 | | **D** |
| | 1/2" GK | | **F** |
| Aluminium alloy (DIN version) | Pg 13.5 | (Note) | **7** |
| | M20 x 1.5 (CM 20) | (Note) | **8** |
| | Harting HAN connector - straight entry | (Note) | **K** |

Note : requires certification code 1 at position "m"

**ELECTRICAL OPTIONS -** 15th character

**o** **Internal meter type**

| | |
|---|---|
| None | **1** |
| Digital LCD output indicator linear 0-100%, user scalable | **3** |
| Digital LCD output indicator linear scale (specify range and engineering units) | **5** |
| Analog output indicator linear 0-100% scale | **7** |
| Analog output indicator square root 0-10 scale | **8** |
| Analog output indicator, special graduation (to be specified for linear or square root scale) | **9** |

16th character

| **p** **Electrical options** | **Labels language** | |
|---|---|---|
| Standard terminal block | English | **1** |
| | German | **2** |
| | Italian | **7** |
| Surge protector (Requires certification code, 1, F, 9, at position "m") | English | **3** |
| | German | **4** |
| | Italian | **8** |
| Terminal block for external meter | English | **5** |
| | German | **6** |
| | Italian | **9** |

## ORDERING INFORMATION

Select one character or set of characters from each category and specify complete catalog number in addition to each transmitter code, if required.

### PRODUCT CODE

**ab c d e f**

**BASE MODEL**
**CONFIGURATION**
**CALIBRATION**
**PROCEDURE**
**INTEGRAL MOUNTING OF ASSOCIATED INSTRUMENTATION**

**ab** **BASE MODEL** - 1st to 2nd characters

| | Code |
|---|---|
| Supplementary code | SC |

**c** **CONFIGURATION** - 3rd character

| | |
|---|---|
| Standard - Pressure = kPa; Temperature = deg. C | 1 |
| Standard - Pressure = inH2O/psi (@ 20°C); Temperature = deg. F | 2 |
| Standard - Pressure = inH2O/psi (@ 4°C); Temperature = deg. F | 3 |
| Standard - Pressure = inH2O/psi (@ 20°C); Temperature = deg. C | 4 |
| Standard - Pressure = inH2O/psi (@ 4°C); Temperature =- deg. C | 5 |
| Custom | C |

**d** **CALIBRATION** - 4th character

| Calibration range | Calibration | Certificate | |
|---|---|---|---|
| Standard (max span = 0 to URL) | Reference temperature | None | 1 |
| | | Yes (3 copies) | 2 |
| | Operating temperature | None | 3 |
| | | Yes (3 copies) | 4 |
| At specified range | Reference temperature | None | 5 |
| | | Yes (3 copies) | 6 |
| | Operating temperature | None | 7 |
| | | Yes (3 copies) | 8 |

5th character

**e**

| PROCEDURE | Material traceability | |
|---|---|---|
| None | None | 0 |
| | To EN10204 - 3.1.B (certificates for flanges, adapters, diaphragms) | A |
| | To EN10204 - 2.1 (declaration for instrument) | B |

**f** **INTEGRAL MOUNTING OF ASSOCIATED INSTRUMENTATION** - 6th character

| | |
|---|---|
| None | 0 |



SS/611SS-DIF Rev. A

**ABB Instrumentation spa**
Via Statale 113
22016 Lenno (Como)
Italia
Tel. 0344 58111
Facsimile 0344 56278

**ABB Automation Ltd.**
Howard Road
St. Neots, Cambs.
England PE19 3EU
Tel. (01480) 475321,
Facsimile (01480) 217948

**ABB Automation Inc.**
125 East County Line Road
Warminster, Pa.
18974-4995 USA
Tel. (215) 674-6693/6320/6777
Facsimile (215) 674-7184