



MULTIPOINT AVERAGING PITOT TUBES

FLOW MEASUREMENT DEVICE



DESCRIPTION

The Mapflow series Multipoint Averaging Pitot Tubes are differential pressure devices suitable to measure the flow rate.

The measurement is obtained by a probe which can be fix or removable and passes through the pipe diameter, the external part of the probe is equipped with pressure taps that detect the difference between the impact pressure of the flow and the static pressure of the line.

The Pitot Tubes produce a differential pressure proportional to the square of the fluid velocity and with negligible permanent pressure loss.

The differential pressure produced may be connected to a differential pressure device for: transmitting, indicating, recording, integrating or any combination of these functions.

Mapflow devices are applicable for measurement of clean fluids, steam and gases.

Pitot tubes are suitable in: pipes of large dimensions, when a great accuracy is not required and even in case of very low static pressure.

Some of the main benefits of this product:

- Simple construction;
- Low assembly costs;
- Easily assembled on field;
- Lower pressure loss in line.

APPLICATION

- Oil & Gas.
- Petrochemical Industries.
- Power Station.



TYPE AND CONSTRUCTION

Standard Model ED-20/21: Diamond Shape-
Manufactured by Square Bar 20×20 mm.
Standard Model ED-45/46: Diamond Shape-
Manufactured by Square Bar 45×45 mm.
Special Device: Diamond Shape-Manufactured by
Square Bar sized with Stress and Vibrations Analysis
Results.

PHYSICAL CHARACTERISTICS

Dimension: Up to 100" and over.
Reynolds Number Range: Over 200000.

OPERATIVE CONDITIONS

MAX Line Temperature: 400 °C
MAX Line Pressure: 750 psi g

PERFORMANCES

Total accuracy: (referred to flow coefficient): 2÷2.5%
for Standard Device (to be evaluated case by case for
Special Devices)
Repeatability: ±0.15%
Max Pressure Loss: 10÷15% of full-scale differential
pressure

MATERIAL

Main material reference:
- ASME
- ASTM
(Other material available on request)

OPTIONS

**Flow Meter can be supplied complete with all
relevant accessories:**
- Valves;
- Manifold;
- Condensing Pot;
- Transmitter;
- Fitting;
- Tubing.
All Type of Sensors can be supplied with End Support
and Retractable System.

UNRECOVERED PRESSURE LOSS IN % of
DP

| Pipe size ID | Sensor type 20,21 | Sensor type 45,46 |
|--------------|----------------------|----------------------|
| >72 | <2 | <4 |
| 72 | 2 | 4 |
| 60 | 2 | 5 |
| 48 | 3 | 6 |
| 42 | 3 | 7 |
| 36 | 4 | 9 |
| 30 | 5 | 10 |
| 24 | 6 | 13 |
| 20 | 7 | 16 |
| 18 | 8 | 18 |
| 16 | 9 | 20 |
| 14 | 10 | 23 |
| 12 | 11 | - |
| 10 | 13 | - |
| 8 | 16 | - |
| 6 | 21 | - |





ORDERING INFORMATION

| CONFIGURATION | RE | R20 |
|--|--|---|
| DESCRIPTION | EXTRACTED TAPS | FROM PIPE Ø25,4mm AND INTERNAL TAPS |
| PROCESS CONNECTION | COMPRESSION FITTING 1" | COMPRESSION FITTING 1" |
| END SUPPORT | N/A | N/A |
| RETRACTABILITY SYSTEM | N/A | N/A |
| SST57B DIFFERENTIAL PRESSURE TRANSMITTER CONNECTION | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). |
| MATERIALS | AS REQUIRED BY CUSTOMER | AS REQUIRED BY CUSTOMER |

| CONFIGURATION | ED-20 | ED-21 |
|--|--|---|
| DESCRIPTION | DIAMOND SHAPE FROM SQUARE BAR 20X20 mm /AND INTERNAL TAPS | DIAMOND SHAPE FROM SQUARE BAR 20X20 mm/AND INTERNAL TAPS |
| PROCESS CONNECTION | THREADED CONNECTION 1 1/2" | THREADED CONNECTION 1 1/2" |
| | FLANGED 1 1/2" | FLANGED 1 1/2" |
| END SUPPORT | N/A | THREADED 1 1/2" |
| | | FLANGED 1 1/2" |
| RETRACTABILITY SYSTEM | WITH 1 1/2" FULL BORE BALL VALVE THREADED TYPE | WITH 1 1/2" FULL BORE BALL VALVE THREADED TYPE |
| | WITH 1 1/2" FULL BORE BALL VALVE FLANGED TYPE | WITH 1 1/2" FULL BORE BALL VALVE FLANGED TYPE |
| SST57B DIFFERENTIAL PRESSURE TRANSMITTER CONNECTION | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). |
| MATERIALS | AS REQUIRED BY CUSTOMER | AS REQUIRED BY CUSTOMER |



| CONFIGURATION | ED-45 | ED-46 |
|--|---|---|
| DESCRIPTION | DIAMOND SHAPE FROM SQUARE BAR 45 X45 mm/AND INTERNAL TAPS | DIAMOND SHAPE FROM SQUARE BAR 45 X45 mm/AND INTERNAL TAPS |
| PROCESS CONNECTION | FLANGED CONNECTION 3" | FLANGED CONNECTION 3" |
| END SUPPORT | N/A | WELDED |
| | | FLANGED 3" |
| RETRACTABILITY SYSTEM | WITH 3" FULL BORE BALL VALVE THREADED TYPE | WITH 3" FULL BORE BALL VALVE THREADED TYPE |
| | WITH 3" FULL BORE BALL VALVE FLANGED TYPE | WITH 3" FULL BORE BALL VALVE FLANGED TYPE |
| SST57B DIFFERENTIAL PRESSURE TRANSMITTER CONNECTION | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). |
| MATERIALS | AS REQUIRED BY CUSTOMER | AS REQUIRED BY CUSTOMER |

| CONFIGURATION | SPECIALE ED- XX | SPECIALE ED- XX+1 |
|--|---|---|
| DESCRIPTION | DIAMOND SHAPE (FROM BAR OR WELDED SHEET). DIMENSIONS TO BE CALCULATED ACC TO STRESS ANALISYS | DIAMOND SHAPE (FROM BAR OR WELDED SHEET). DIMENSIONS TO BE CALCULATED ACC TO STRESS ANALISYS |
| PROCESS CONNECTION | FLANGED CONNECTION SIZE TBD | FLANGED CONNECTION SIZE TBD |
| END SUPPORT | N/A | WELDED |
| | | FLANGE SIZE TBD |
| RETRACTABILITY SYSTEM | N/A | N/A |
| SST57B DIFFERENTIAL PRESSURE TRANSMITTER CONNECTION | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). | THREADED; SOCKET WELD; FLANGED WITH 1/2" or 3/4" INSTRUMENT VALVE (NEEDLE TYPE). |
| MATERIALS | AS REQUIRED BY CUSTOMER | AS REQUIRED BY CUSTOMER |



SST57B

DIFFERENTIAL PRESSURE TRANSMITTER



DESCRIPTION

The SST57B series SMART differential pressure transmitters are microprocessor-based instruments that combine the analog signal advantages ($4 \div 20$ mA) together with the flexibility of digital communication using HART® protocol. They can be remotely configured by a universal hand-held terminal (HHT) or by a PC with a dedicated interface. Moreover, it is possible to locally configure the instruments (zero and span) by means of 4 push buttons and to display the data on the wide LCD display.

The transmitter series SST57B, measure differential pressure with spans from 1.2 to 20000 mbar with a static pressure up to 200 bar. The pressure measuring element is a piezoresistive sensor. It is possible to choose a variety of sensors to satisfy all process conditions. The SPRIANO® measuring cell contains the sensor and transmits the pressure to the electronics. Thermal drift is compensated using the temperature signal generated by a PTC thermistor integrated in the sensor itself.

Based on these readings the microprocessor generates the $4\div 20$ mA analogue output two wires system and displays the pressure measurement on the LCD.

Some of the main characteristics of this microprocessor-based transmitter, are:

- Wide Rangeability;
- Automatic temperature compensation;
- Digital communication using HART® protocol.

The electronic transmitters series SST57B are fully comply with the HART® protocol specification Revision 6.0, so they include remote process variable interrogation, parameter setting and diagnostics. The device is a $4 \div 20$ mA 2-wire transmitter, with FSK communication. It is possible to read via HART® the following variables:

- **PV:** transmitter main measure;
- **SV:** % of the span;
- **TV:** analog output;
- **FV:** sensor temperature.

APPROVALS





PHYSICAL CHARACTERISTICS

Power supply: 12.5 - 30 Vdc.

Output signal: Analog 4 - 20 mA, 2 wires.
Digital using HART® protocol.

Response time: < 256 ms (Std Hart®)

Measured value update frequency:

4 - 20 mA + Hart® output: ~1s

Hart® output only: ~ 500 ms (on request)

Polling time: 4 - 20 mA + Hart® output: ~ 800 ms

Hart® output only: ~ 500 ms (on request)

Nominal range 18 - 50 mbar:

Max static pressure: 50 bar.

Overpressure limits: 50 bar on either side.

Nominal range 350 - 10000 mbar:

Max static pressure: 100 bar.

Overpressure limits: 100 bar on either side.

AMBIENT CONDITIONS

Temperature

Process fluid: -40 ÷ +80 °C (with capillary: up to 283 °C)

Housing: -40 ÷ +80 °C

Handling and storage: -40 ÷ +90 °C

Relative Humidity: 0 a 100% R.H.

LCD display reading: -10 ÷ +65 °C

Power supply parameters:

If Ta < 60 °C

Ui = 30 V, Ii = 100 mA; Pi = 0.75 W; Ci = 10 nF; Li ≈ 0 mH

If 60 < Ta < 80 °C

Ui = 25.2 V, Ii = 100 mA; Pi = 0.62 W; Ci = 10 nF; Li ≈ 0 mH

INFLUENCE OF OPERATING CONDITIONS

Thermal drift: It is referred to -10 ÷ +80 °C range.

Zero: ± 0.1% / 10 °C.

Span: ± 0.1% / 10 °C at nominal range.

Static pressure effect

Nominal range 18 - 50 mbar:

Zero: ± 0.4% / 10 bar **Span:** 0.4% / 10 bar

Nominal range 350 - 2500 mbar:

Zero: ± 0.1% / 10 bar **Span:** 0.1% / 10 bar

Nominal range 5000 - 10000 mbar:

Zero: ± 0.2% / 10 bar **Span:** 0.2% / 10 bar

PHYSICAL SPECIFICATIONS

Housing: die cast aluminum alloy EN AB-44100 finished with epoxy resin (RAL 5014). It is dust and sand tight and protected against sea wave effects as defined by IEC IP66. Suitable for tropical climate operation as defined by DIN 50015.

Covers O-ring: EPDM.

Nameplate: stainless steel, fixed on housing.

Calibration

Standard: at nominal range, direct action, linear.

Optional: at the conditions specified with the order.

Electrical connections: two cable entries on electronic housing, M20 x 1.5 and cable gland PG 13.5 for 7 to 12 mm diameter cable.

Terminal board: 2 terminals for signal wiring up to 1.5 mm² (14 AWG). Connection for ground and cable shield.

Mounting position: any position.

Net weight: 1.4 kg approx.

PROCESS WETTED PARTS

Process connections: see ordering information table.

Diaphragm: see ordering information table.

OPTIONS

Remote mounting with capillary: for working temperature higher than 80 °C up to 283 °C.

Static pressure: 200 bar.

Degreasing for oxygen service.

Housing with radial or back mounting: AISI 316 (IP67).

PERFORMANCES

Total accuracy: < 0.1% FS

Dead band: negligible.

Display resolution: 0.1

FUNCTIONAL SAFETY ACCORDING TO IEC 61508 / IEC 61511

The assessment of the safety critical and dangerous random errors results, provided that the attached safety instructions are observed and an annual function test is performed, in the following parameters:

| Transmitter Type | λ_{DD} | λ_{DU} | λ_S | λ_{TOT} | SFF | SIL |
|------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------|-----|
| SST57B | 9.4819×10^{-8} | 1.3546×10^{-8} | 1.0159×10^{-7} | 2.0996×10^{-7} | 93.55% | 2 |

Please refer to **Figure 1** for the 4 ÷ 20 mA + Hart® modem connection.
In **Figure 2** the multidrop Hart® connection type is shown.
It is possible to purchase the Hart® Server as an additional product; this is a software including all the interrogation, configuration and diagnostics functions required by the Hart® 6.0 specifications.

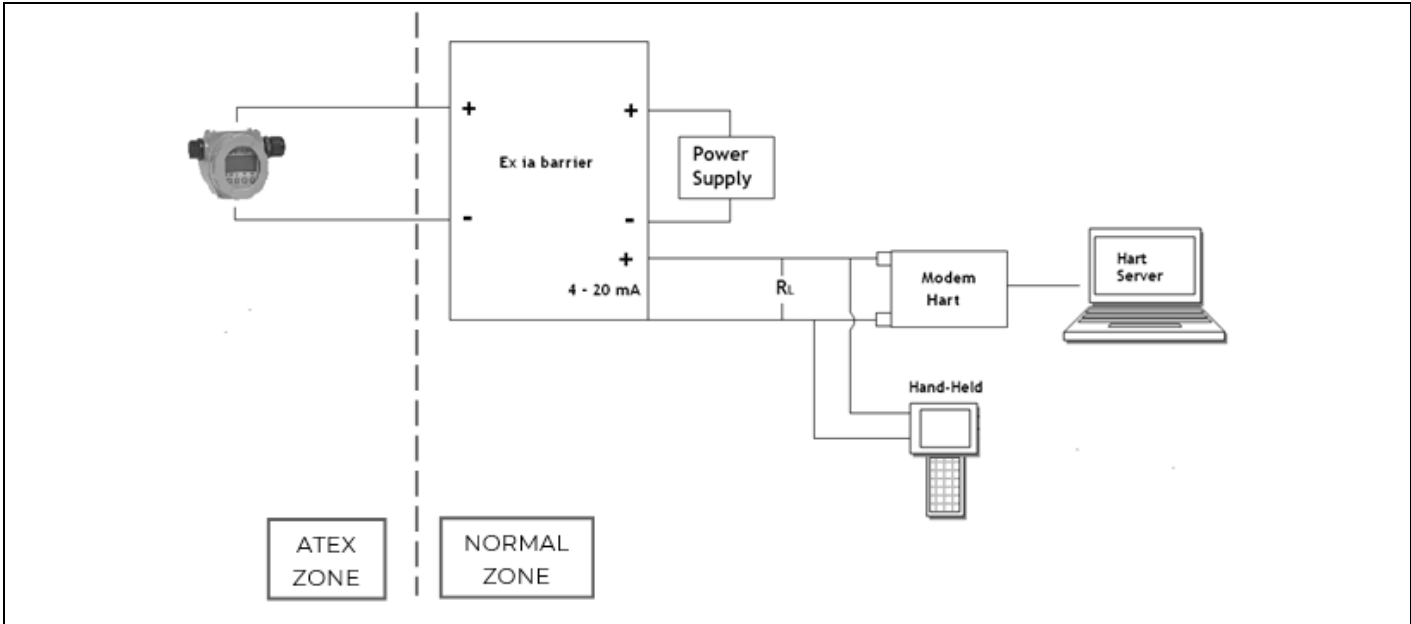


Figure 1: 4 ÷ 20 mA + Hart® modem connection with Ex ia barrier.

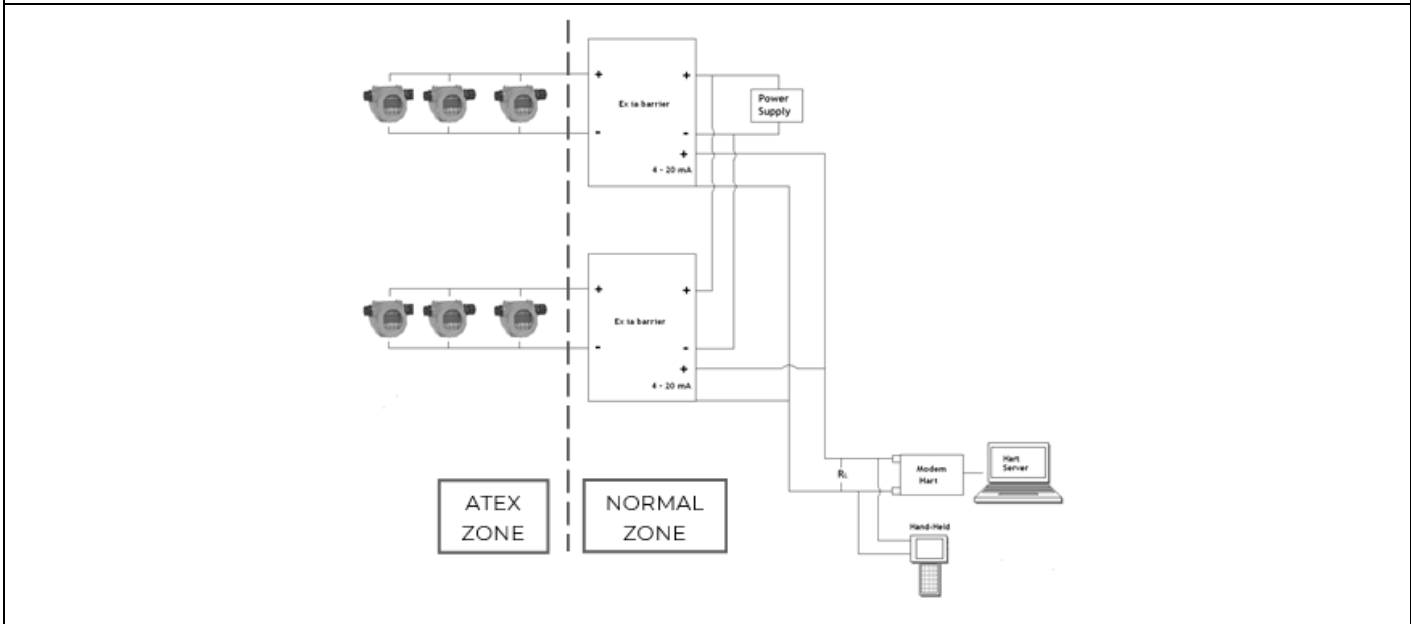


Figure 2: only Hart® multidrop connection.



ORDERING INFORMATION

| CONFIGURATION | | Example: SST57B-H-2-B-2-3-0-2-1 | | | | | | | | | |
|---|--------|--|---|---|---|---|---|---|---|---|--|
| Code number | SST57B | H | 2 | B | 2 | 3 | 0 | 2 | 1 | | |
| HART Differential Pressure transmitter | | H | | | | | | | | | |
| External parts: | | | | | | | | | | | |
| Stainless steel + diaph. in AISI 316 | | | 1 | | | | | | | | |
| Stainless steel suitable for oxygen service | | | 2 | | | | | | | | |
| Stainless steel + diaph. in Hastelloy C | | | 3 | | | | | | | | |
| Nominal range | | | | | | | | | | | |
| 0/18 mbar | | | | B | | | | | | | |
| 0/50 mbar | | | | C | | | | | | | |
| 0/350 mbar | | | | D | | | | | | | |
| 0/1000 mbar | | | | E | | | | | | | |
| 0/2500 mbar | | | | F | | | | | | | |
| 0/5000 mbar | | | | G | | | | | | | |
| 0/10000 mbar | | | | H | | | | | | | |
| 0/30 bar | | | | K | | | | | | | |
| 0/100 bar | | | | L | | | | | | | |
| 0/400 bar | | | | M | | | | | | | |
| Speciale / Special | | | | 9 | | | | | | | |
| Calibration | | | | | | | | | | | |
| Optional | | | 2 | | | | | | | | |
| Options | | | | | | | | | | | |
| Without | | | | | | 0 | | | | | |
| Static pressure 200 bar (*) | | | | | | 1 | | | | | |
| Housing: AISI 316 SS | | | | | | 2 | | | | | |
| Application of diaphragm seals (**) | | | | | | 3 | | | | | |
| Static pressure 400 bar | | | | | | 5 | | | | | |
| Speciale / Special | | | | | | 9 | | | | | |
| Options | | | | | | | | | | | |
| Without | | | | | | | 0 | | | | |
| Static pressure 200 bar (*) | | | | | | | 1 | | | | |
| Housing: AISI 316 SS | | | | | | | 2 | | | | |
| Application of diaphragm seals (**) | | | | | | | 3 | | | | |
| Static pressure 400 bar | | | | | | | 5 | | | | |
| Special | | | | | | | 9 | | | | |
| Process connections | | | | | | | | | | | |
| Standard ¼ NPT F | | | | | | | | 0 | | | |
| Stainless steel adapters ½ NPT F | | | | | | | | 2 | | | |
| Protezione alle esplosioni / Explosion protection | | | | | | | | | | | |
| ATEX Exia intrinsic safety | | | | | | | | | | 1 | |
| IECEx Exia intrinsic safety | | | | | | | | | | 3 | |
| (*) Only for ranges D-E-F-G-H | | | | | | | | | | | |
| (**) External diaphragm seal required | | | | | | | | | | | |
| In Purchase order, please indicate: density, pressure and temperature of the process fluid. | | | | | | | | | | | |



SST77B

SMART DIFFERENTIAL PRESSURE TRANSMITTER



DESCRIPTION

SST77B series SMART differential pressure transmitters are microprocessor-based instruments that combine the analog signal advantages ($4 \div 20$ mA) together with the flexibility of digital communication using HART® protocol. They can be remotely configured by a universal hand-held terminal (HHT) or by a PC with a dedicated interface.

Moreover, it is possible to locally configure the instruments (zero and span) by means of 4 pushbuttons and to display the data on the wide LCD display.

The SST77B transmitters measure differential pressure with spans from 1.2 to 20000 mbar with a static pressure up to 200 bar. The pressure measuring element is a piezoresistive sensor. It is possible to choose a variety of sensors to satisfy all process conditions.

The SPRIANO® measuring cell contains the sensor and transmits pressure to the electronics. Thermal drift is compensated using the temperature signal generated by a PTC thermistor integrated in the sensor itself. Based on these readings the microprocessor generates the $4 \div 20$ mA analog output two wires system and displays the pressure measurement on the LCD.

Some of the main characteristics of this microprocessor-based transmitter, are:

- Wide rangeability.
- Automatic temperature compensation.
- Digital communication using HART® protocol.

The electronic transmitters series SST77B are fully comply with the HART® protocol specification Revision 6.0, so they include remote process variable interrogation, parameter setting and diagnostics. The device is a $4 \div 20$ mA 2-wire transmitter, with FSK communication.

It is possible to read via HART® the following variables:

- **PV:** transmitter primary measure;
- **SV:** % of the span;
- **TV:** analog output;
- **FV:** sensor temperature

APPROVALS





PHYSICAL CHARACTERISTICS

Power supply: 12.5 – 30 Vdc

Output signal:

Analog 4 ÷ 20 mA, 2 wires.

Digital using HART® protocol

Response time: < 256 ms (Std Hart®)

Measured value update frequency:

4 ÷ 20 mA + Hart® output: ~ 1s

Hart® output only: ~ 500 ms (on request)

Polling time:

4 ÷ 20 mA + Hart® output: ~ 800 ms

Hart® output only: ~ 500 ms (on request)

Nominal range 18 ÷ 50 mbar:

Max static pressure: 50 bar.

Overpressure limits: 50 bar on either side.

Nominal range 350 ÷ 10000 mbar:

Max static pressure: 100 bar.

Overpressure limits: 100 bar on either side.

OPERATIVE CONDITIONS

Temperature:

Process fluid: -40 ÷ +85 °C (with manifold: -50 ÷ +140 °C; with capillary: up to 283 °C)

Housing: -40 ÷ +85 °C

Handling and storage: -40 ÷ +90 °C

Relative Humidity: 0 a 100% R.H.

LCD display reading: -10 ÷ +65 °C

PERFORMANCES

Total accuracy: < 0.1% FS

Dead band: negligible.

Display resolution: 0.1

PROCESS WETTED PARTS

Process connections: see ordering information table.

Diaphragm: see ordering information table.

OPTIONS

Remote mounting with capillary: for working temperature higher than 80 °C up to 283 °C.

Static pressure: 200 bar

Degreasing for oxygen service.

Stainless Steel Housing: AISI 316 (IP66)

INFLUENCE OF OPERATING CONDITIONS

Thermal drift: It is referred to -10 ÷ +80 °C range.

Zero: ± 0,1% / 10 °C

Span: ± 0,1% / 10 °C at nominal range

Static pressure effect

Nominal range 18 ÷ 50 mbar:

Zero: ± 0.4% / 10 bar

Span: 0.4% / 10 bar

Nominal range 350 ÷ 2500 mbar:

Zero: ± 0.1% / 10 bar

Span: 0.1% / 10 bar

Nominal range 5000 ÷ 1 0000 mbar:

Zero: ± 0.2% / 10 bar

Span: 0.2% / 10 bar

Over range effect

Nominal range 18 ÷ 50 mbar:

Zero: on either side ± 1% at 50 bar

Nominal range 350 ÷ 2500 mbar:

Zero: on either side ± 0,1% at 100 bar

Nominal range 5000 ÷ 1 0000 mbar:

Zero: on either side ± 1% at 100 bar

Power supply effect:

Negligible between 12.5 and 30 Vdc.

PHYSICAL SPECIFICATIONS

Housing: die cast aluminum alloy EN AW-6082 finished with epoxy resin (RAL 5014). It is dust and sand tight and protected against sea wave effects as defined by IEC IP66. Suitable for tropical climate operation as defined by DIN 50015.

Covers O-ring: EPDM.

Filling fluid: silicone oil.

Nameplate: stainless steel, fixed on housing.

Bracket: for 2" pipe mounting.

Calibration

Standard: at nominal range, direct action, linear.

Optional: at the conditions specified with the order.

Electrical connections: two entries on electronic housing, 1/2" NPT or M20x1.5 and cable gland PG 13,5 for 7 to 12 mm diameter cable.

Terminal board: 2 terminals for signal wiring up to 1.5 mm² (14 AWG). Connection for ground and cable shield.

Mounting position: any position.

Net weight: 6 kg approx.



EUROPEAN LEGISLATION



Directive 2014 / 68 / EU (PED)



Pressure equipment until Category IV, for fluids (gases, liquids and vapours) in Group 1.

Directive 2014 / 34 / EU (ATEX)

Equipment for explosive atmospheres Group II Category 1/2 G or 1 G.

Double certification Ex db and Ex ia

| Aluminium housing | | |
|--|-------------------------|--|
| Without safety barrier | | |
|  II 1/2 G | Ex db IIC T6 Ga / Gb | -40 °C < Tamb < +60 °C |
| | Ex db IIB T5 Ga / Gb | -40 °C < Tamb < +80 °C |
| With safety barrier | | |
|  II 1/2 G | Ex ia IIC T6, T5, T4 Ga | -40 °C < Tamb < +40 °C / +55 °C / +80 °C |

| SS AISI 316 housing | | |
|---|-------------------------|--|
| Without safety barrier | | |
|  II 1/2 G | Ex db IIC T6 Ga / Gb | -40 °C < Tamb < +60 °C |
| | Ex db IIB T5 Ga / Gb | -40 °C < Tamb < +80 °C |
| With safety barrier | | |
|  II 1/2 G | Ex ia IIC T6, T5, T4 Ga | -40 °C < Tamb < +40 °C / +55 °C / +80 °C |

Directive 2014/30/EU (EMC)

Equipment with an adequate level of electromagnetic compatibility.

IECEx Scheme

Equipment for explosive atmospheres with EPL grades Ga/Gb or Ga.

Double certification Ex db and Ex ia.

| Aluminum enclosure | | |
|------------------------|--|------------------------|
| Without safety barrier | | |
| Ex db IIC T6 Ga / Gb | | -40 °C < Tamb < +60 °C |
| Ex db IIB T5 Ga / Gb | | -40 °C < Tamb < +80 °C |
| With safety barrier | | |
| Ex ia IIC T6 Ga / Gb | | -40 °C < Tamb < +40 °C |
| Ex ia IIC T5 Ga / Gb | | -40 °C < Tamb < +55 °C |
| Ex ia IIC T4 Ga / Gb | | -40 °C < Tamb < +80 °C |

| SS AISI 316 enclosure | | |
|------------------------|--|------------------------|
| Without safety barrier | | |
| Ex db IIC T6 Ga / Gb | | -40 °C < Tamb < +60 °C |
| Ex db IIB T5 Ga / Gb | | -40 °C < Tamb < +80 °C |
| With safety barrier | | |
| Ex ia IIC T6 Ga | | -40 °C < Tamb < +40 °C |
| Ex ia IIC T5 Ga | | -40 °C < Tamb < +55 °C |
| Ex ia IIC T4 Ga | | -40 °C < Tamb < +80 °C |



FUNCTIONAL SAFETY ACCORDING TO IEC 61508 / IEC 61511

The assessment of the safety critical and dangerous random errors results, in case of an annual function test and the present safety instructions are observed, in the following parameters:

| Transmitter Type | λ_{DD} | λ_{DU} | λ_S | λ_{TOT} | SFF | SIL |
|------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------|-----|
| SST77B | 7.5072×10^{-8} | 1.0725×10^{-8} | 8.0434×10^{-8} | 1.6623×10^{-7} | 91.67% | 2 |

Please refer to **Figure 1** for the 4 ÷ 20 mA + Hart® modem connection.
In **Figure 1** the multidrop Hart® connection type is shown.
It is possible to purchase the Hart® Server as an additional product; this is a software including all the interrogation, configuration and diagnostics functions required by the Hart® 6.0 specifications.

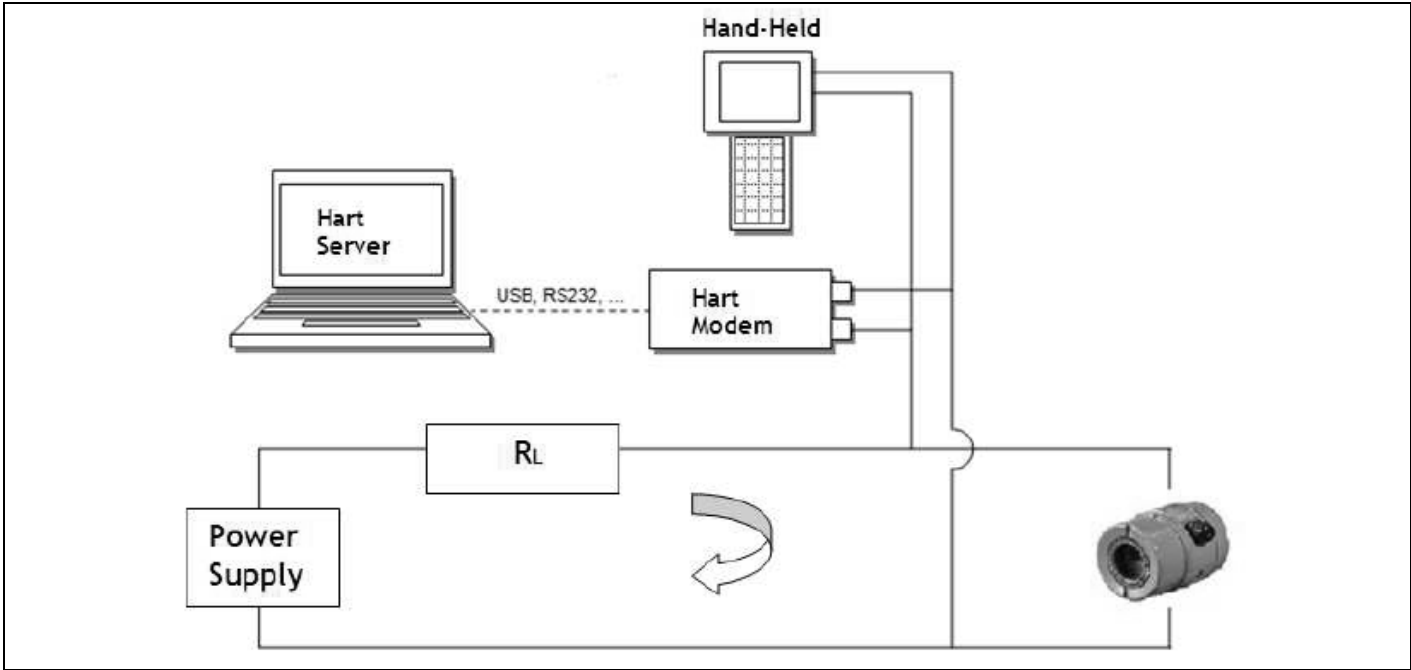


Figure 3: 4 ÷ 20 mA + Hart® modem connection with Ex ia barrier

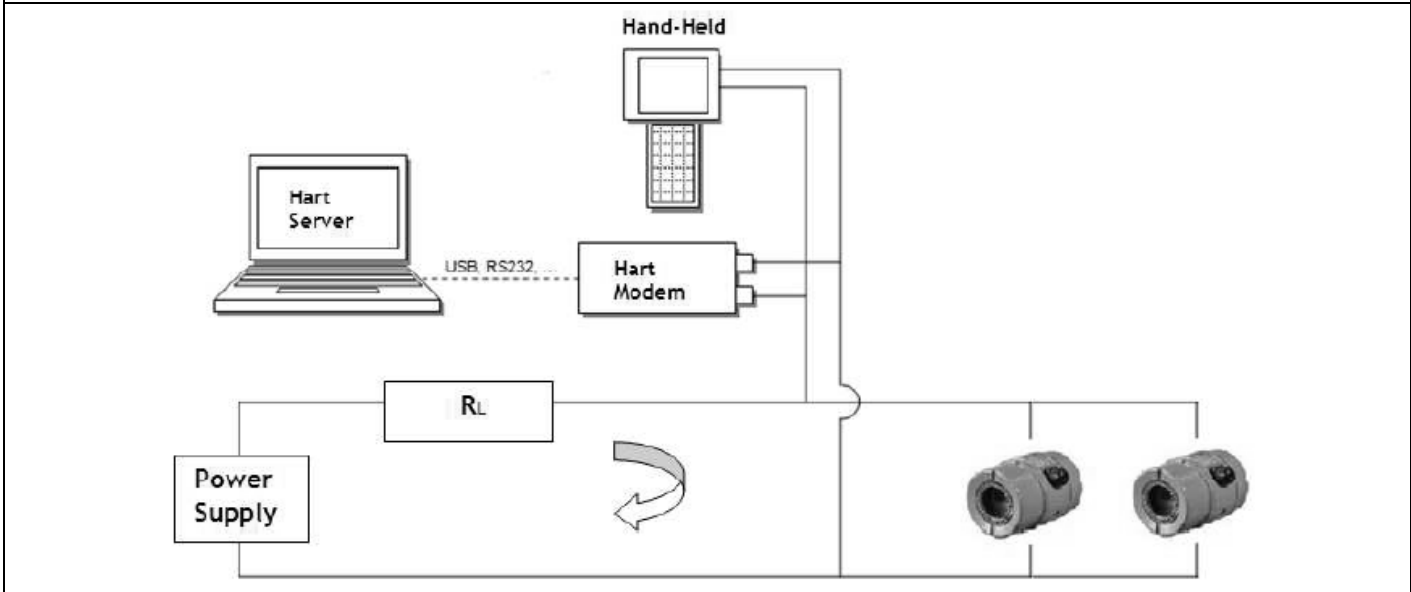


Figure 4: only Hart® multidrop connection



ORDERING INFORMATION

| CONFIGURATION | | | | | | | | | | | |
|---|--------|---|---|---|---|---|---|---|---|--|--|
| Code number | SST77B | H | 4 | H | 2 | 1 | 0 | 0 | 4 | | |
| HART Differential Pressure transmitter | | H | | | | | | | | | |
| External parts: | | | | | | | | | | | |
| Stainless steel + diaph. in AISI 316 | | | 1 | | | | | | | | |
| Stainless steel suitable for oxygen service | | | 3 | | | | | | | | |
| Stainless steel + diaph. in Hastelloy C | | | 4 | | | | | | | | |
| Nominal range | | | | | | | | | | | |
| 0/18 mbar | | | | B | | | | | | | |
| 0/50 mbar | | | | C | | | | | | | |
| 0/350 mbar | | | | D | | | | | | | |
| 0/1000 mbar | | | | E | | | | | | | |
| 0/2500 mbar | | | | F | | | | | | | |
| 0/5000 mbar | | | | G | | | | | | | |
| 0/10000 mbar | | | | H | | | | | | | |
| 0/30 bar | | | | K | | | | | | | |
| 0/100 bar | | | | L | | | | | | | |
| 0/400 bar | | | | M | | | | | | | |
| Speciale / Special | | | | 9 | | | | | | | |
| Calibration | | | | | | | | | | | |
| Optional | | | | | 2 | | | | | | |
| Options (1) | | | | | | | | | | | |
| Enclosure: Aluminium ½" NPT electrical connections | | | | | | 0 | | | | | |
| Enclosure: Aluminium M20x1.5 electrical connections | | | | | | 1 | | | | | |
| Enclosure: SS AISI 316 ½" NPT electrical connections | | | | | | 2 | | | | | |
| Enclosure: SS AISI 316 M20x1.5 electrical connections | | | | | | 3 | | | | | |
| Special | | | | | | 9 | | | | | |
| Options (2) | | | | | | | | | | | |
| Without | | | | | | | 0 | | | | |
| Static pressure 200 bar (*) | | | | | | | 1 | | | | |
| Application of diaphragm seals (**) | | | | | | | 3 | | | | |
| Static pressure 400 bar | | | | | | | 5 | | | | |
| Special | | | | | | | 9 | | | | |
| Process connections | | | | | | | | | | | |
| Standard ¼ NPT F | | | | | | | | 0 | | | |
| Stainless steel adapters 1/2" NPT F | | | | | | | | 2 | | | |
| Explosion protection | | | | | | | | | | | |
| Safe area | | | | | | | | | 0 | | |
| Double certification Ex db or Ex ia (ATEX) | | | | | | | | | 4 | | |
| Double certification Ex db or Ex ia (IECEx) | | | | | | | | | 5 | | |
| (*) Only for ranges D-E-F-G-H | | | | | | | | | | | |
| (**) External diaphragm seal required | | | | | | | | | | | |
| In Purchase order, please indicate: density, pressure and temperature of the process fluid. | | | | | | | | | | | |

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