

**Measuring range and span limits**

REF.	NOM. RANGE mmH2O	min./max. kg /cm <sup>2</sup>	RANGE LIMITS min. (kg /cm <sup>2</sup> ) max.
D	0 / 2500	175 / 3000	-2500 / +2500
E	0 / 6000	420 / 7200	-6000 / +6000
F	0 / 16000	1120 / 19200	-16000 / +16000
G	0 / 40000	2800 / 48000	-40000 / +40000



**GENERAL**

The transmitter SMART-250 measures a differential pressure in spans between 175 and 48000 mmH2O with a static pressure up to 100 bar. The pressure measuring element is a piezoresistive sensor. It is possible to choose between sensors to satisfy the process conditions.

The sensor generates a signal corresponding to the actual pressure and it is complete with a PTC thermistor which also transmits the temperature of the measuring cell to the electronic system. On the basis of these two values and of the configured parameters the electronic system generates a standard output signal (4 to 20mA, two wires system) and displays all the necessary data on the LCD display. The operating parameters can be changed by means of the four pushbuttons that are below the LCD display.

Among the relevant characteristics of this microprocessor based transmitter, are the following:

- wide rangeability for the measuring span (abt. 1 to 17)
- square root extraction selectable
- automatic temperature compensation in the measuring cell

**FUNCTIONAL DATA**

With reference to the following, please note these definitions:

**Nominal range:** (referred to the sensor mounted on the instrument) the pressure range (included between a minimum and a maximum values) to measure which the sensor has been designed.

**Nominal span:** the pressure interval between the minimum and maximum values of the sensor nominal range. The span is a number.

**Measuring range:** the pressure range between minimum and maximum for which the transmitter has been calibrated.

**Measuring span:** the pressure interval between minimum and maximum values of the measuring range.

**Input scale initial value or zero input:** minimum pressure value included in the measuring range.

**Input full scale value:** maximum pressure value included in the measuring range.

**1) Transmitter Parameters.**

The parameters that are available for display and setting are:

**Measuring Span:** possibility to change by 0.05% steps from 120% to 7% of the nominal span. (see table).

**Zero Adjustment:** by 0.1% steps from -9.9% to +9.9% of measuring span

**Span Adjustment:** by 0.1% steps from -9.9% to +9.9% of measuring span

**Suppression/Elevation:** by 0.05% steps of nominal span from 0 to 100% for elevation and from 0 to 93% for suppression

**Damping :** adjustable by 1 sec steps from 0 to 15 sec.

**Reverse Output :** obtained via software

**Measuring Units :** for the measuring span display, one of the following units may be selected:

mbar, bar, kPa, mmH2O, mH2O, kg /cm<sup>2</sup> . mmHg.



**2) Physical Characteristics.****Power supply :** 12.35 - 30 Vdc with no load**Supply voltage to permissible load relation:**

0/250 Ohm for 17.35 Vdc (HART DIGITAL 21.5V)

0/582.5 Ohm for 24 Vdc

0/882.5 Ohm for 30 Vdc

**Output signal :** 4 -20mA, 2 wires, with superimposed digital communication (Vell 202-HART protocol)**Settling time :** 150ms (at 27 °C)**Static pressure and overpressure measuring element nominal limits :** 100bar**Applicable pressure limit :** see flange rating**Displacement :** 0.2cm<sup>3</sup> at span max.**ENVIRONMENT AND CONDITIONS****Temperature**

Process fluid : -20 ~ + 120

Housing : -20 ~ + 80

Handling and storage : -20 ~ + 90

**Relative Humidity :** 0 ~ 100% R.H.**LCD display reading :** -10 ~ + 65**Performance**

Unless otherwise stated performance specifications are referred at atmospheric pressure, nominal span, silicone oil filling and are given as a percent of span.

**Accuracy rating:** it is assured within the following limits**Non linearity :** resettable with 0.1% accuracy**Repeatability :** = 0.10%**Hysteresis :** = 0.10%**Dead band :** negligible**OPERATING INFLUENCES****Thermal drift :** It is referred to -10 ~ + 65 °C range.

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

**Static pressure effect :**

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

**Over range effect :**

Zero: on either side ± 1% at 100 bar

**Power supply effect :**

Negligible between 12.35 and 30 V d.c.

**PHYSICAL SPECIFICATIONS****Process wetted parts :**

Diaphragm SUS316 L / Hastelloy C - drain and vent plugs SUS 316 - extension SUS 316 - gaskets PTFE + Viton.

**Mounting flange :** process wetted locking ring SUS 316 rotatable**Mounting collar :** carbon steel / SUS 316.**Housing :** Die cast aluminium alloy AL UNI 4514 finished with epoxy resin (RAL 5014). Buna N gaskets.**Filling fluid :** Silicon oil.**Nameplate :** Stainless steel, fixed on housing.**Calibration****Standard:** at nominal range, direct action, transmitter mode.**Optional:** at the conditions specified with the order.**Environmental protection:** The transmitter is dust and sand tight and protected against sea waves effects as defined by IEC IP 66. Complies with electromagnetic compatibility requirements (RFI, EMI, Voltage Surges). Suitable for tropical climate operation as defined in DIN 50.015.**Process connections:** See table 1.**Bolts :** SUS 304**Electrical connections :** Two cable entries on electronic housing, 1/2" NPT and cable gland PG 13.5 for 7 to 12mm diameter cable.**Terminal board :** 2 terminals for signal wiring up to 1.5 mm<sup>2</sup> (14 AWG). Connection for ground and cable shield.**Mounting position :** any position.**Net weight :** 10 Kg approx.**EXPLOSION PROTECTION****Classification.****Type:** intrinsic safety Ex ia IIC T6, T5, T4 .

Explosion proof feature Exd IIc T6, T5, T4.

**Max Amb. temp.:** 40 °C for T6, 55 °C for T5, 80 °C for T4.**Condition A**

No-load voltage: = 30 V d.c.

Short circuit current: = 120 mA.

Max transferred power: 0.75 W.

**Condition B**

No-load voltage: = 25.2 V d.c.

Short circuit current: = 152 mA.

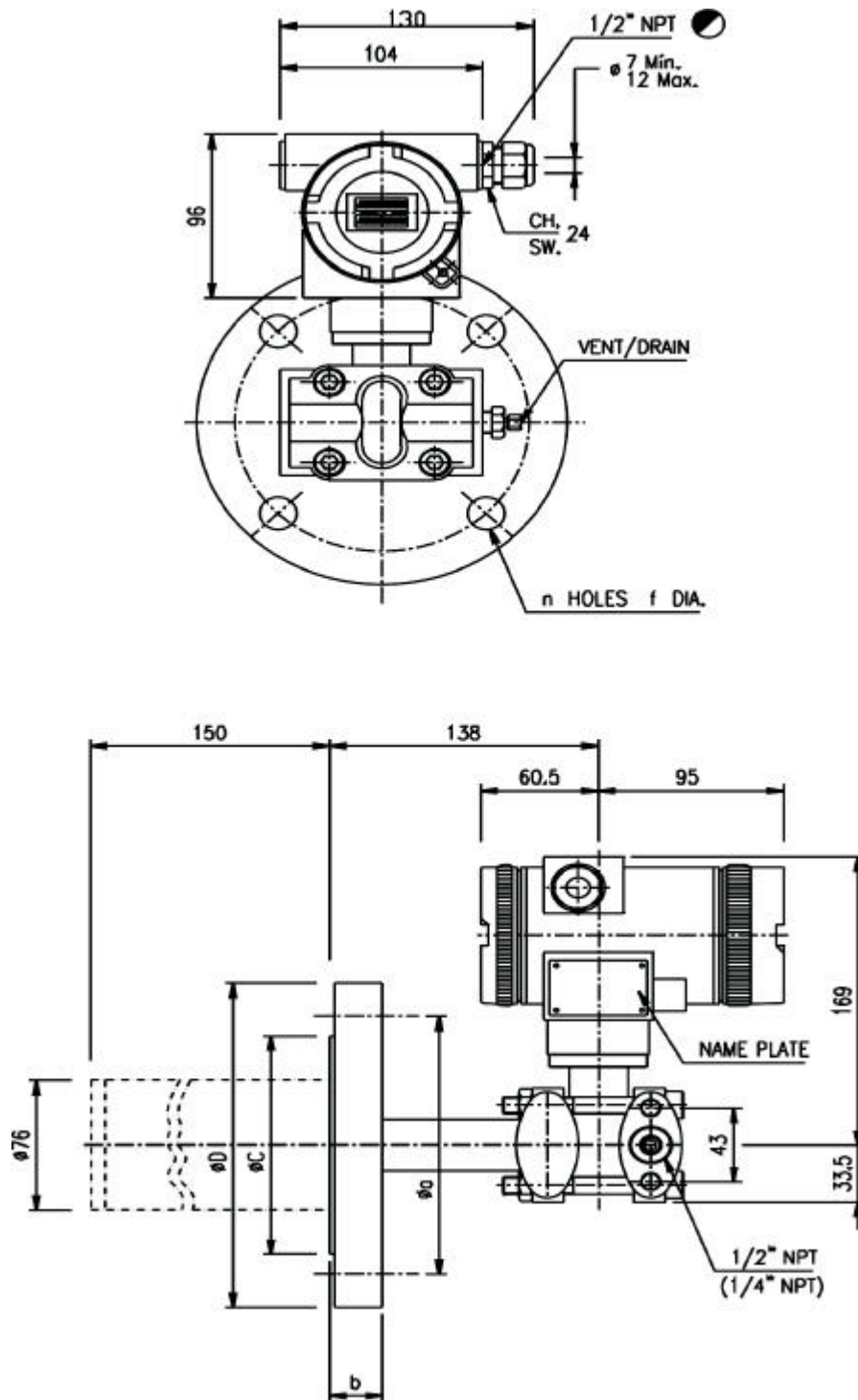
Max transferred power: 0.95 W.





DIAPHRAGM-SEAL TYPE LEVEL TRANSMITTER SERIES SMART- 250

DIMENSIONS (mm)



All specifications subject to change without prior notice.

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