

Model 226T

Wireless Heavy-Duty Pressure Transmitters

Description

Model 226T Wireless Pressure Transmitters are developed from 225T Heavy-duty Pressure Transmitter for remote wireless applications. In hazardous conditions or places where there is no power supply available, this 226T is useful and finds many applications, e.g., in oil wells of explosive gas or at places which are either dangerous to people or no power supply available to access. To fit to such the application, the housing of 226T is sealed tightly to meet the requirements for explosion proof of Exd IIC T5 Gb, Exia IIB T4 Ga and for environment protection of IP66.

In order for different remote distances and data transmission rates, model 226T is manufactured to have different communication protocol, like LoRa (Long Range) or Zigbee, for wireless communication. LoRa is one of LPWAN (low-power wide-area-network) protocols, and is suitable for communication of a longer distance (up to kilometers). Zigbee on the other hand is suitable for communication of a shorter distance (a few hundred meters).

To fit various pressure media, three types of pressure port (type-A, -B and -C) are available. Type-A (so-called inner cavity) has its pressure diaphragm located inside the port. This type of pressure port is designed to measure gases or dilute liquids. Type-B (so-called flush diaphragm) has its pressure diaphragm in front of the pressure port and is suitable for measuring viscous fluids, fluids with particles or paste, so that the pressure medium can be flush-washed away from the surface of the diaphragm. Type-C (so-called tri-clamp) has no thread and can be connected via a clamp. This type of pressure port is designed for application in either pharmaceutical or food industries.



Type-A: inner cavity



Type-B: flush diaphragm



Type-C: tri-clamp

Features

- wireless communication protocol: LoRa, Zigbee
- communication distance: up to 2km
- pressure ranges: -1~0barG, ..., ~1000barS
- accuracy: 0.5%fs
- material of pressure diaphragm: 316L SS
option: Hastelloy-C
- explosion proof: Exd IIC T5 Gb, Exia IIB T4 Ga
- environment protection: IP66

Applications

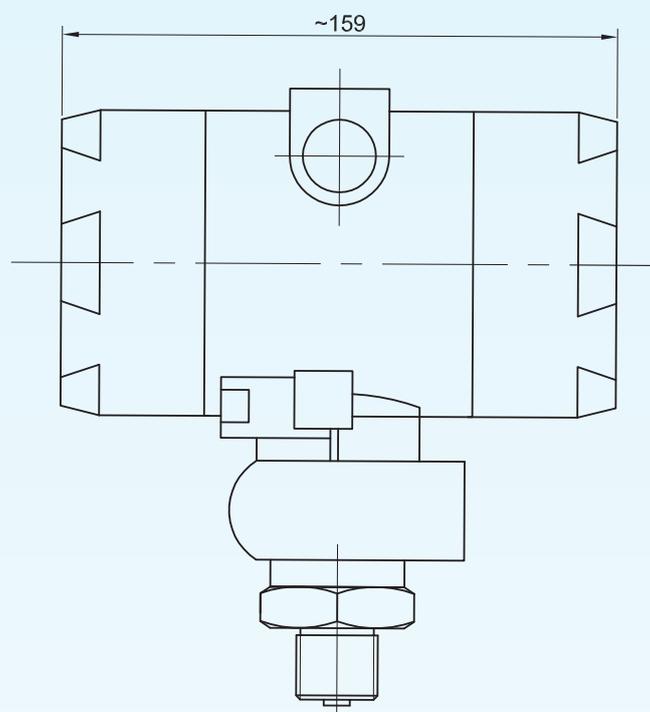
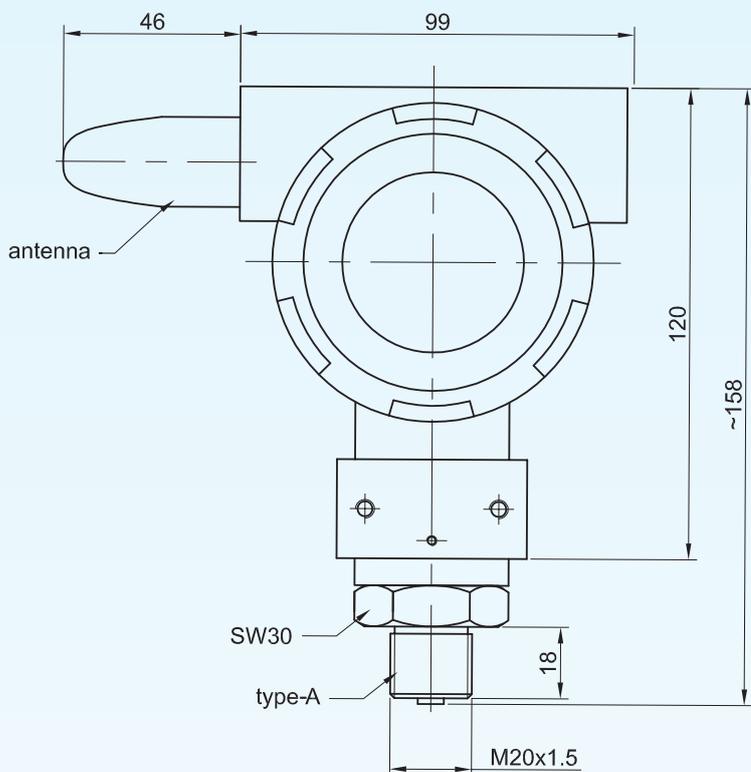
- pressure measurement at locations with hazardous conditions
- pressure monitoring in oil wells, oil transportation or oil processes
- pressure measurement at location without power supply

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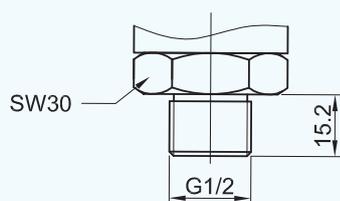


Dimensions

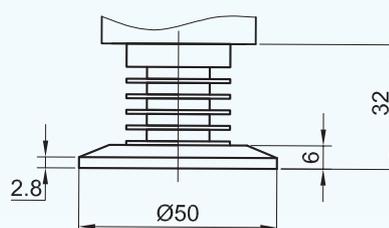
Overall dimensions with type-A pressure port as an example:



Type-B pressure port:



Type-C pressure port (DN50):



Note: All dimensions are in mm.

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Technical Data

| Parameters | | Units | Specifications | Notes |
|---------------------------------|--------------|----------|---|-------|
| pressure medium | type-A | | gases or dilute liquids | 1 |
| | type-B | | viscous fluids or fluids with particles | |
| | type-C | | hygienic applications, e.g., food industry or pharmaceutical industry | |
| pressure references & ranges | gauge | bar | -1~0, 0~0.1, ~0.2, ~0.35, ~0.7, ~1, ~2, ~4, ~6, ~10, ~16, ~20, ~35 | 2 |
| | absolute | bar | 0~0.35, ~0.7, ~1, ~2, ~4, ~6, ~10, ~16, ~20, ~35, ~70, ~100, ~250, ~400 | |
| | sealed gauge | bar | 0~600, ~1000 | |
| proof pressure | | %fs | 200 in case of range < 100bar, 150 in case of range ≥ 100bar | 3 |
| burst pressure | | %fs | 300 in case of range < 100bar, 200 in case of range ≥ 100bar | |
| wireless communication protocol | | | LoRa (standard), Zigbee | 4 |
| communication distance | | m | LoRa: ≥ 2000, Zigbee: ≥ 200 | |
| sending data rate | | | 1 time per 1 min, ..., 1 time per 12 hours (adjustable on site) | |
| accuracy | | %fs | better than ±0.5 | 5 |
| long-term stability | | %fs/year | better than ±0.2 | |
| supply voltage | | Vdc | 3.6 | 6 |
| battery life | | year | ≥ 2 in case of data sending rate slower than 1 time per 2 hours | 6 |
| medium temperature range | | °C | -40 ~ +125 | |
| ambient temperature range | | °C | -40 ~ +85 | |
| storage temperature range | | °C | -40 ~ +85 | |
| compensated temperature range | | °C | -10 ~ +70 (0~50°C in case of ranges ≤ 2bar) | |
| temperature coefficient of zero | | %fso/°C | ≤ ±0.03 | 7 |
| temperature coefficient of span | | %fso/°C | ≤ ±0.03 | 7 |
| process connection | type-A | | M20x1.5 male thread, other threads are available on request | |
| | type-B | | G1/2 male thread, other threads are available on request | |
| | type-C | | DN50, other dimensions are available on request | |
| pressure diaphragm | | | 316L SS (standard), Hastelloy-C | |
| wetted parts material | | | 316 SS | |
| electronics housing material | | | aluminum alloy | |
| environment protection | | | IP66 | |
| explosion proof | | | Exd IIC T5 Gb, Exia IIB T4 Ga | |
| display | | | 4 ½ digits LCD display | |
| net weight | | kg | ~2 | |

- Notes:
- The pressure medium should be compatible with wetted parts material and pressure diaphragm.
 - For customized pressure ranges, consult BCM.
 - "fs" refers to full scale pressure or rated pressure.
 - Communication frequency of LoRa is 433kHz while that of Zigbee is 2.4GHz.
 - Accuracy = $\sqrt{\text{non-linearity}^2 + \text{hysteresis}^2 + \text{repeatability}^2}$.
 - AA batteries of 19Ah total capacity are employed.
 - Calculated as a rate of output change between -10°C and +70°C or between 0°C and 50°C, and normalized by the output at 25°C.

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Ordering Information

| | | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------|
| position (pos.) 1: model | | | | | | | | |
| 226T(a): with type-A pressure port, i.e, inner cavity (standard) | | | | | | | | |
| 226T(b): with type-B pressure port, i.e, flush diaphragm | | | | | | | | |
| 226T(c): with type-C pressure port, i.e, tri-clamp | | | | | | | | |
| pos. 2: pressure ranges and references | | | | | | | | |
| (-1/0)bar | G | 0/1bar | G, A | 0/16bar | G, A | 0/250bar | A | G: gauge pressure |
| 0/0.1bar | G | 0/2bar | G, A | 0/20bar | G, A | 0/400bar | A | A: absolute pressure |
| 0/0.2bar | G | 0/4bar | G, A | 0/35bar | G, A | 0/600bar | S | S: sealed gauge |
| 0/0.35bar | G | 0/6bar | G, A | 0/70bar | A | 0/1000bar | S | |
| 0/0.7bar | G, A | 0/10bar | G, A | 0/100bar | A | | | |
| pos. 3: wireless communication protocol | | | | | | | | |
| LoRa (standard) | | | Zigbee | | | | | |
| pos. 4: accuracy | | | | | | | | |
| 0.5%fs | | | | | | | | |
| pos. 5: pressure diaphragm | | | | | | | | |
| 316LSS (standard) | | | Hastelloy-C | | | | | |
| pos. 6: mechanical interface | | | | | | | | |
| M20x1.5 in case of type-A | | | | | | | | |
| G1/2 in case of type-B | | | | | | | | |
| DN50 in case of type-C | | | | | | | | |
| Notes: 1) Other threads or DN sizes are available on request. | | | | | | | | |
| 2) Type-B cannot have the thread smaller than G1/2. | | | | | | | | |
| pos. 7: environment protection | | | | | | | | |
| IP66 | | | | | | | | |
| pos. 8: explosion proof | | | | | | | | |
| Exd: Exd IIC T5 Gb | | | | | | | | |
| Exi: Exia IIB T4 Ga | | | | | | | | |
| pos. 9: customized specifications | | | | | | | | |
| “(*)” is necessary only if any customized parameter is required, otherwise it is neglectable. | | | | | | | | |
| pos.1 | pos. 2 | pos. 3 | pos. 4 | pos. 5 | pos. 6 | pos. 7 | pos. 8 | pos. 9 |

Examples of Ordering Code

- standard transmitter:

226T(a)-0/100barA-LoRa-0.5%fs-316LSS-M20x1.5-IP66-Exd

- customized transmitter:

226T(c)-(-1/+6)barG-Zigbee-0.5%fs-316LSS-DN40-IP66-Exi-(*)

(*): Customized pressure range = -1~+6 barG;
Customized DN size = DN40.

The listed dimensions, specifications and ordering information are subject to change without prior notice.

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