ABB MEASUREMENT & ANALYTICS | DATA SHEET

PDS300, PDD300

Differential pressure transmitters

ENGINEERED
TO OUTRUN



Measurement made easy

Engineered solutions for all applications

Base accuracy
- 0.055% of calibrated span

Proven sensor technology together with state-of-the-art digital technology
- Large turn down ratio of up to 100:1
- Digital Advanced Diagnostics feature

Comprehensive selection of sensors
- Optimized performance and stability

10–year stability
- 0.1 % of URL

New touch keypad technology
- Easy local configuration via keys on LCD indicator
- Backlit display

Bluetooth® technology
- Enables quick and easy remote operation

IEC 61508 certification (PENDING)
- For SIL2 (1oo1) and SIL3 (1oo2) applications

All Welded Diaphragm Seal Construction
- grant economically feasible and technically sound solutions
- ensuring total reliability at line pressure down to full vacuum
- wide range of diaphragm seal types, fill fluids, materials and options

Support Special Design to meet customer demand with ABB Tailored Solution

Product in compliance with Directive 2015/863/UE (RoHS III)

Unique technologies to resist hydrogen permeation and highly abrasive process fluids (H-Shield and Diaflex)

General description

PDS300



Figure 1: PDS300 differential pressure transmitter

Model PDS300 is the all-rounder differential pressure transmitter suitable for measuring liquid, gas or steam pressure as well as liquid level in an open tank.

Thanks to its stability and reliability it works within stated performance even in extreme ambient and process conditions.

PDD300



Figure 2: PDD300 differential pressure transmitter with S26 diaphragm seal

Model PDD300 is the all-rounder differential pressure transmitter with S26 diaphragm seals suitable for measuring liquid, gas or steam pressure as well as liquid level in open tanks.

The combination of S26 diaphragm seals design according to ASME/EN standards with the unique ABB All-Welded technology eliminates leakage risks during operation while ensuring perfect fit to any process.

Diaphragm seals overview

The S26 diaphragm seals are used in combination with PDD300 transmitters, allowing differential pressure measurements.
The connection of the diaphragm seal to the relevant transmitter can be achieved as follows:

- Directly mounted with a short capillary connecting the ‘integral’ diaphragm seal to the transmitter sensor.
- Remotely mounted through a capillary system which links the transmitter sensor to a ‘remote’ diaphragm seal of any version.

Using diaphragm seals the transmitter can be selected with:

- Two remote diaphragm seals or one direct diaphragm seals plus one remote, using same fill fluid and diaphragm size.
- One diaphragm seal having the other side configured with a process flange for wet/dry leg connection or a blind flange providing atmospheric reference.

The S26 Series Seal System is a protective device used to isolate series transmitters from the measuring medium. The S26 seal system provides a flexible diaphragm seal between the measuring medium and a liquid filled capillary tube connected to the body of the transmitter. The diaphragm isolates the measuring medium while the filled capillary tube hydraulically transmits the process pressure to the transmitter sensor.

The capillary of remote diaphragm seal is corrosion-resistant with robust construction in stainless steel with spiral armour protection, also PVC jacket; PVC protection is always recommended except for high temperature application, where stainless steel armour is suggested. The all welded construction assures reliable operation over the widest range of operating temperature and under vacuum conditions.

For certain applications, use of diaphragm seal is necessary to prevent the measuring medium from leaving its enclosure, due to reasons such as:

- the measuring medium has solids in suspension or is highly viscous and can foul impulse lines.
- the measuring medium can solidify in impulse lines or in the process connections of the transmitter.
- the measuring medium is too hazardous to enter the control area where the transmitter is located.
- the process temperature exceeds the recommended limits for the transmitter.
- the application is interface level or density measurement.
- the transmitter must be located away from the process for easier maintenance.

Remote diaphragm seals offer the required constant and equal specific gravity of the pressure transfer fluid on the high and low sides of the transmitter.

The S26 series is available with process connections for ASME, EN or JIS pipe flanges, wedge flow elements, chemical tees, and threaded pipe fittings. Extended remote diaphragm seals, suitable for connection to 2 in, 3 in or 4 in flanged tank nozzles or flanged tees, permit the diaphragm seal to be located flush with the inside of a tank or pipe. hygienic type seals meet the stringent requirements of hygienic food, dairy, pharmaceutical and BioTech applications, offering FDA approved fillings and compliance with 3-A hygienic Standards. Fill fluids with FDA are defined as food fills and are Generally Recognized As Safe (GRAS) by the US Food and Drug Administration (FDA).

Specification – physical

Please refer to chapter **Ordering Information** to check the availability of different versions of the relevant model.

Materials

Process isolating diaphragms*

AISI 316L (1.4435), Hastelloy® C276, AISI 316L (1.4435) gold-plated H-Shield (Pending)

Sensor filling fluid***

Silicone oil, Inert fluid

Pressure sensor housing

Stainless steel AISI 316L (1.4404)

Process flanges, adapters, screw plugs, and vent / drain valves*

Stainless steel 316 (1.4408) and 316L (CF3M; 1.4404), Hastelloy® C276

Gaskets*

Viton®, PTFE

Electronics housing and cover

Aluminum alloy (copper content ≤ 0.3 %) with baked epoxy finish (color RAL9002); stainless steel AISI 316L (1.4404).

O-ring cover

Buna N® (Perbunan)

Bolts and nuts

Stainless steel AISI 316, class A4–70 or class A2–70 as per UNI 7323 (ISO 3506) in compliance with NACE MR0103 Class II (Not Exposed)

Mounting bracket**

Galvanized C steel with chromium passivation
Stainless steel AISI 316L (1.4404)

* Transmitter parts that come into contact with fluid

** U-bolt material: stainless steel AISI 400; screw material: high-strength alloy steel or stainless steel AISI 316

*** For PXD300 refer to OI/DS/S26 datasheet for additional information on available filling fluids

External non-intrusive push buttons for local zero & span configuration and write protection.

Made of fiberglass reinforced polypropylene oxide with removable design.

Plates

Transmitter nameplate

Stainless steel AISI 316 screwed to the electronics housing.

For stainless steel AISI 316 L housing it is mandatory to select option LES or LEW for plates in stainless steel AISI 316.

Certification plate and optional tag/calibration plate

Self-Adhesive Label attached to the electronics housing or stainless steel AISI 316 fastened to the electronics housing with rivets or screws.

Optional wired-on customer data plate

Stainless steel AISI 316. Laser printing on metal or thermal printing on Self-Adhesive Label.

The optional wired-on plate can be populated with customized data (4 lines of 32 characters 4 mm [0.16 in] high).
Customized data have to be provided separately: in case of no data, the wired-on plate will be delivered blank.

Calibration

- Standard: 0 to Upper Range Limit (URL) at reference condition
- Optional: to specified measuring span

Optional extras

For detailed information see chapter **Ordering Information**.

Mounting bracket (order code Bx)

For 60 mm (2 in) pipe or wall mounting

Display (order code Dx)

- Communication board (No LCD) with 2-button keypad for zero and span. (default)
- Integrated digital LCD display with 2-button keypad for customized visualization and configuration. (order code D1)
- Integral backlit LCD display with 2-button keypad for customized visualization and configuration with enabled external (non-intrusive) pushbuttons. (order code D2)
- Smart backlit LCD display (4x90° rotable) with 4-buttons through the glass (TTG) and Bluetooth® for customized visualization and full configuration (order code D5)

Additional tag plates

- Order code LES: for tag and/or calibration details (up to 20 characters), in stainless steel, fastened to the transmitter housing.
- Order code LEW: for customer data (4 lines of 32 characters each), in stainless steel, wired to the transmitter housing

Internal surge protection (order code AS)

Order code AS: Up to 4 kV

- Voltage: 1.2 µs rise time / 50 µs delay time at half value
- Current: 8 µs rise time / 20 µs delay time at half value

Oxygen service cleaning (order code P1)

Oxygen service cleaning, (only available with inert fluid fill) P_{max} = 10 MPa; T_{max} = 60 °C (140 °F) or maximum working pressure.

Certificates (order code Cx)

(test, design, characteristics, material traceability)

- A 4-points calibration report (0%, 50%, 100% and 50%) from 0 to URL is included by default within the instrument packing box.
- Optional order codes CF, CN provide inspection certificates of calibration EN 10204, respectively above 5 and 9 points from 0 to URL.
- The order code "SU" should be always selected for specific calibration range (different from 0 to URL).

Label, Display and operating instruction manual language

Option code LTx for label and display language.
Option code Mx for operating instruction manual language.
Default language English.

Plugs and Connectors for electrical connection (order code Ux)

Conduit plug, cable glands and connectors.

Valve manifold installation (oder code A1)

Factory installation and pressure test of the ABB M26 valve manifold.

Process connections

- On flanges: ¼ in – 18 NPT on process axis;
  Via adapter: ½ in – 14 NPT on process axis;
  center distance (PDS300): 54 mm (2.13 in) on flange; 51, 54 or 57 mm (2.01, 2.13 or 2.24 in) as per adapter fittings
- Fixing threads: $^{7}/_{16}$ in – 20 UNF at 41.3 mm center distance.
- High pressure side of flange mounted version*:
  2 or 3 in, ASME Class 150 or Class 300 RF;
  DN 50 or 80, PN 16 or 40 to EN 1092-1 Type B1
- PDD300 diaphragm seals:
  Refer to data sheet OI/DS/S26.

* Bolts and nuts, gasket and mating flange supplied by customer

… Specification – physical

Electrical connections

Cable entries

Two 1/2 in – 14 NPT or M20 × 1.5 threaded conduit entries, directly on housing.
One M20 × 1.5 for WirelessHART® devices with one conduit used for antenna.
Optional: conduit plugs, cable glands and connectors supplied loose.

Terminals block

HART® version: Three connections for signal / remote display, for wire cross-section of up to 2.5 mm^2 (14 AWG), and connection points for testing and communication purposes.

Grounding

Internal and external ground terminals are provided for 6 mm^2 (10 AWG) wire cross-section.

Mounting position

The transmitters can be installed in any position.
The electronic housing can be rotated into any position. A stop is provided to prevent overturning.

Weight

(without options)

- For standard static and gauge pressure version: Approx. 4 kg (8.8 lb); add 1.5 kg (3.3 lb) for AISI housing.
- For flange mounted version (order code AA): Approx. 7 to 11 kg (16 to 24 lb
- For packaging add 650 g (1.5 lb).

Take into account additional weight of up to 50 kg (110 lb) for diaphragm seals.

Packaging

- Carton with dimensions of approx. 27 × 24 × 20 cm (11 × 10 × 8 in);
- Carton with dimensions of approx. 35 × 33 × 35 cm (14 × 13 × 14 in) for flange mounted version

The PDD300 diaphragm seal dimensions might vary depending on the selected S26 model.

Specification – functional

Measuring range limits and span limits

Sensor Code	Measuring range upper limit (URL)	Measuring range lower limit (LRL)	Minimum measuring span	
	PDS300/PDD300	PDS300/PDD300	PDS300	PDD300
	1 kPa	−1 kPa	0.05 kPa	—
A**	10 mbar	−10 mbar	0.5 mbar	—
	4 inH2O	−4 inH2O	0.2 inH2O	—
	6 kPa	−6 kPa	0.3 kPa	0.3 kPa
C***	60 mbar	−60 mbar	3 mbar	3 mbar
	24 inH2O	−24 inH2O	1.2 inH2O	1.2 inH2O
	40 kPa	−40 kPa	0.4 kPa	0.67 kPa
F	400 mbar	−400 mbar	4 mbar	6.7 mbar
	160 inH2O	−160 inH2O	1.6 inH2O	2.67 inH2O
	160 kPa	−160 kPa	1.6 kPa	2.67 kPa
H*	1600 mbar	−1600 mbar	16 mbar	26.7 mbar
	642 inH2O	−642 inH2O	6.4 inH2O	10.7 inH2O
	600 kPa	−600 kPa	6 kPa	10 kPa
M*	6 bar	−6 bar	0.06 bar	0.1 bar
	87 psi	−87 psi	0.87 psi	1.45 psi
	2000 kPa	−2000 kPa	20 kPa	33.3 kPa
N*	20 bar	−20 bar	0.20 bar	0.33 bar
	290 psi	−290 psi	2.9 psi	4.83 psi
	16000 kPa	−16000 kPa	160 kPa	267 kPa
S*	160 bar	−160 bar	1.6 bar	2.67 bar
	2320 psi	−2320 psi	23.2 psi	38.7 psi

* For PDS300 gauge pressure version the LRL for sensors H, M, N, S is 1.3 kPa abs / 13 mbar abs / 0.19 psia

** Sensor code A not applicable for PDD300 differential pressure with diaphragm seals

*** Sensor code C not applicable for PDD300 differential pressure gauge version with diaphragm seal

Span limits

Maximum span = URL

For optimum measuring accuracy, it is recommended that you select the sensor code which will provide the lowest turn down ratio (TD).

Recommendation for square root function

At least 10 % of upper measuring range limit (URL).

Zero position suppression and elevation

The zero position and span can be set to any value within the measuring range limits listed in the table if:

- adjusted span ≥ smallest span

Damping

Configurable time constant between 0 to 60 s.
This is in addition to the sensor response time.

Warm-up time

Ready for operation as per specifications in less than 10 s with minimum damping.

Insulation resistance

> 100 MΩ at 500 V DC (between terminals and ground).

Specification – Operating limits

Pressure limits

Overpressure limits

Without damage to the transmitter:

Sensors	Fill fluid	Overpressure limits
Sensor A	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 2 MPa, 20 bar, 290 psi
Sensor C	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 7 MPa, 70 bar, 1015 psi
Sensor F to S	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 21 MPa, 210 bar, 3045 psi or 32 MPa, 320 bar, 4641 psi (high static option)
Sensor F to S	Inert fluid	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 21 MPa, 210 bar, 3045 psi or 32 MPa, 320 bar, 4641 psi (high static option)

Note

The overpressure limits pressure limits can be lowered by means of the nominal pressure rating of the diaphragm seal flange.

For flange mounted version (order code AA):

Flange	Fill fluid	Overpressure limits
ASME B16.5 Class 150	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 230 psi
ASME B16.5 Class 300	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 600 psi
EN 1092-1 PN 16	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 13.5 bar
EN 1092-1 PN 40	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 33.8 bar
ASME B16.5 Class 150	Inert fluid	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 230 psi
ASME B16.5 Class 300	Inert fluid	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 600 psi
EN 1092-1 PN 16	Inert fluid	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 13.5 bar
EN 1092-1 PN 40	Inert fluid	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 33.8 bar

Static pressure limits

The differential pressure transmitters, models PDx300, work within specifications between the following limits:

Sensors	Fill fluid	Static pressure limits
Sensor A	Silicone oil	1.3 kPa abs, 13 mbar abs, 0.2 psia and 2 MPa, 20 bar, 290 psi
Sensor C	Silicone oil	1.3 kPa abs, 13 mbar abs, 0.2 psia and 7 MPa, 70 bar, 1015 psi
Sensor F to S	Silicone oil	1.3 kPa abs, 13 mbar abs, 0.2 psia and 21 MPa, 210 bar, 3045 psi or 32 MPa, 320 bar, 4641 psi (high static option)
Sensor C with 2 seals	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 7 MPa, 70 bar, 1015 psi
Sensor F to S with 2 seals	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 21 MPa, 210 bar

Note

The upper static pressure limits can be lowered by means of the nominal pressure rating of the diaphragm seal flange.

For flange mounted version (order code AA):

Flange	Static pressure limits
ASME B16.5 Class 150	1.3 kPa abs, 13 mbar abs, 0.2 psia and 230 psi
ASME B16.5 Class 300	1.3 kPa abs, 13 mbar abs, 0.2 psia and 600 psi
EN 1092-1 PN 16	1.3 kPa abs, 13 mbar abs, 0.2 psia and 13.5 bar
EN 1092-1 PN 40	1.3 kPa abs, 13 mbar abs, 0.2 psia and 33.8 bar

Proof pressure

The transmitter with threaded process connection can be exposed without leaking to line pressure of up to:

- 60 MPa, 600 bar, 8700 psi simultaneously on both sides;
- **or** twice the value the flange rating of diaphragm seal(s) S26, whichever is less.

Up to two times the flange rating for the flange mounted version (accessory order code AA).

Meets hydrostatic test requirements of ANSI/ISA–S 82.03.

Vacuum service for S26 diaphragm seals

Full vacuum subject to fill fluid limits.
Refer to table **Fill fluid characteristics** in data sheet OI/DS-S26.
The minimum pressure with tantalum diaphragm seal is 1 kPa abs, 10 mbar abs, 0.15 psia.

Temperature limits °C (°F)

Note

For hazardous atmosphere and ordinary location applications see the temperature range specified on the certificate/approval relevant to the aimed type of protection.

Ambient temperature

This is the operating temperature

Models PDS300, PDD300	Ambient temperature limits
Silicone oil for sensor A to S	−40 to 85 °C (−40 to 185 °F)
Inert fluid for sensor F to S	−20 to 85 °C (−4 to 185 °F)
LCD display readability	−20 to 70 °C (−4 to 158 °F)

Transmitters with ambient temperature limit of -50°C (-58° F) are available through special option

Process temperature

Models PDS300, PDD300[3)]	Process temperature limits
Silicone oil for sensor F to S	−40 to 121 °C (−40 to 250 °F)[1)]
Silicone oil for sensor A to C	−25 to 121 °C (−13 to 250 °F)[1)]
Inert fluid for sensor F to S	−20 to 100 °C (−4 to 212 °F)[2)]
Viton gasket	−20 to 121 °C (−4 to 250 °F)
PTFE gasket	−40 to 121 °C (−40 to 250°F)
PDD300	Please refer to data sheet S26 for remote diaphragm seals[4)]

1) 100 °C (212 °F) for application below atmospheric pressure
2) 65 °C (150 °F) for application below atmospheric pressure
3) Side without diaphragm seal
4) Refer to data sheet OI/DS/S26

Transport and storage

Models PDS300, PDD300	Storage temperature limits
Storage limits	−50 to 85 °C (−58 to 185 °F)
LCD integral display	−40 to 85 °C (−40 to 185 °F)

Limits for environmental effects

Electromagnetic compatibility (EMC)

The devices comply with the requirements and tests for EMC Directive 2014/30/EU to standards EN 61326-1 Table2 (industrial electromagnetic environment) concerning both emitted interference (CISPR11) and interference immunity.

Overvoltage strength

- Burst test: up to 2 kV at 5 kHz and 100 kHz
- Surge test: up to 1 kV line-line and 2 kV line-ground
- With optional (AS) surge protection: ±4 kV line-to-ground or line-to-line according to IEC 61000-4-5

Radiated emission: Group 1 - class B according to CISPR11

- FCC 47 CFR part 18.305
- ICES 005 - Issue 4

Conducted emission: group 1 - class A according to

- CISPR11 and to CISPR32
- ICES 005 -Issue 4

Pressure Equipment Directive (PED)

PDS300 comply with 2014/68/EU to ANSI/ISA S82.03

- Category III Module H for PS > than 20 MPa, 200 bar
- Sound Engineering Practice (SEP) for PS ≤ 20 MPa, 200 bar.

PDD300 comply with 2014/68/EU to ANSI/ISA S82.03

- Sound Engineering Practice (SEP)

Humidity

- Relative humidity: Up to 100 %
- Condensation, icing: Permissible

Vibration resistance

Acceleration up to 2g (displacement 0.15 mm) according to IEC62828-1 from 10 to 1000 Hz for typical application, i.e " Field with general application or pipeline with low vibration" (test according to IEC60068-2-6 : Fc). Acceleration limited to 1g for stainless steel housing.

Shock resistance

According to IEC 60068–2–27: Ea

- Acceleration: 50 g
- Duration: 11 ms

IP rating

The transmitter is dust and sand tight, and protected against immersion effects as defined by IEC 60529.

- IP 66, IP 67 and NEMA type 4x (IP 68 on request)
- IP 65 (devices with Harting Han plug connector)
- IP 66W, IP 67W, IP 68W as standard for Inmetro certification (PENDING)

Diaphragm seal system selection criteria

The application of an S26 system in direct mount or remote diaphragm seal configuration to PDD300 transmitters affects performances of original devices.
Effects are evident in:

- Accuracy
- Temperature effects
- Dynamic response

Accuracy is only marginally affected when diaphragm seal stiffness is relevant compared with sensor stiffness.
This is the only characteristic of the S26 system which has role on accuracy performance. High stiffness of diaphragm associated with low URL might produce increased errors of linearity, hysteresis, and long-term stability; when diaphragm stiffness is accuracy related also temperature effects are significantly affected.

Some basic considerations on diaphragm stiffness help understanding effects introduced by S26 system associated with transmitters. This is physically defined by the ratio between the pressure variation applied to the diaphragm and the corresponding volume variation. The stiffness is not linear along the whole diaphragm volumetric displacement, but the S26 design is such to maintain the system linear within the service conditions of the transmitter such as:

- Operating pressure range
- Ambient and process temperature limits

Diaphragm stiffness is a function of material and thickness (elastic coefficient), diameter (type), convolution shape and geometry (design defined).

The S26 system has effect on temperature performance of the complete transmitter. This effect is mostly on zero of the instruments and is produced by the expansion of the fill fluid into the closed volume formed by the transmitter flange cavity the capillary volume and the remote diaphragm seal volume. This volume filled with a fluid with specific expansion coefficient; change in temperature of the measuring device produce a volume variation which is absorbed by the remote diaphragm, whose stiffness produces a change in the fluid pressure: this is the zero error. In real application the transmitter/ diaphragm seal system is not the same and stable temperature. Therefore, the errors referred in this document for each type of diaphragm and different fluids should be taken as a reference for qualitatively evaluation and not a true behavior in normal application conditions. Should again be recognized that the stiffness of diaphragm and in this case, the thermal coefficient of fluid are the parameter to take into account.

The application of S26 diaphragm seal to transmitters increases the original time response. The amount of the increase depends on the number of elements and condition of the instrument as follow:

- transmitter sensor range
- physical configuration (i.e. direct or remote)
- fill fluid viscosity of the S26 system applied
- ambient temperature (affects the transmitter and the capillary) and process temperature on the diaphragm seal
- capillary length

The delay introduced by the diaphragm seal may be considered as an added constant time to the one of the associated transmitter.

For obtaining the best application solution:

- choose sensor code with URL closest to application SPAN
- select largest diameter diaphragm seal related to URL.
- keep the capillary length as short as possible
- select the fill fluid that suits the most extreme process conditions expected (highest temperature and lowest pressure) and it is compatible with the measuring medium.
- In vacuum application, choose always the all welded construction and mount the transmitter primary 30 cm (12 in) or more below the bottom diaphragm seal connection.

Ordering information

The transmitter and each diaphragm seal system are each identified by a product code number. These code numbers are stamped on the transmitter nameplate and each character identifies specific product features. Refer to ordering information for a detailed explanation of the product code numbers.

Industrial application in chemical, sanitary, food and any other process industries may require diaphragm seal configurations and/or process connection different from those reported in this document. Each ‘special’ should be evaluated by ABB to check the correctness and its level of functionality. Ask for the ‘S26 series seal form’ to precisely define the challenging measurement application requirements.

ABB can also cooperate with you by developing a special remote diaphragm seal for problems requiring individual solutions.

PLEASE CONTACT YOUR LOCAL ABB OFFICE OR REPRESENTATIVE FOR ADDITIONAL INFORMATION, SPECIFIC DIAPHRAGM SEAL DATA AND APPLICABILITY.

Available remote diaphragm seals

The following table shows the available types of remote diaphragm seals. According to the combination DIAPHRAGM SEAL/ TRANSMITTER SENSOR the table details the MAXIMUM CAPILLARY LENGTH. The mnemonic is a short reference for the diaphragm seal type. For further details please refer to operating instruction and data sheet OI/DS/S26.

Seal model	Seal type	Seal diaphragm size (thickness) [flange type]	Two seals construction						One seal construction					Mnemonic
			SENSOR						SENSOR					
			C	F	H	M	N	S	F	H	M	N	S	
S26WA S26WE	Wafer (ASME and EN standards)	1.5 in /DN 40	—	1	4	5	5	5	—	3	5	5	5	P1.5
		2 in / DN 50	—	3	8	8	10	10	2	6	8	8	8	P2
		3 in / DN 80	1.5	6	10	16	16	16	4	10	10	10	12	P3
		1.5 in /DN 40 (low)	—	3	6	6	8	8	—	4	6	6	6	F1.5
		2 in / DN 50 (low)	1	4	10	12	12	16	3	8	12	16	16	F2
		3 in / DN 80 (low)	2	8	12	16	16	16	6	10	16	16	16	F3
S26FA S26FE S26RA S26RE	Flanged flush diaphragm (ASME and EN standards)	2 in / DN 50	—	3	8	8	10	10	2	6	8	8	8	P2
		3 in / DN 80	1.5	6	10	16	16	16	4	10	10	10	12	P3
		4 in / DN 100	1.5	6	10	16	16	16	4	10	10	10	12	P3
		1 in /DN 25 (low)	—	—	3	3	3	3	—	3	3	3	3	F1
		1.5 in / DN 40 (low)	—	3	6	6	8	8	—	4	6	6	6	F1.5
		2 in / DN 50 (low)	1	4	10	12	12	16	3	8	12	16	16	F2
		3 in / DN 80 (low)	2	8	12	16	16	16	6	10	16	16	16	F3
		4 in / DN 100 (low)	2	8	12	16	16	16	6	10	16	16	16	F3
	Flanged extended diaphragm (ASME and EN standards)	2 in / DN 50	—	3	6	6	8	—	1	4	6	6	—	E2
		3 in / DN 80	1	4	8	12	12	—	3	8	10	10	—	E3
		4 in / DN 100	1.5	6	10	16	16	16	4	10	10	10	12	P3
		2 in / DN 50 [fixed]	—	3	6	6	8	8	—	4	6	6	6	F1.5
		3 in / DN 80 [fixed]	2	8	10	12	12	12	6	10	12	12	12	F2.5
		4 in / DN 100 [fixed]	2	8	10	12	12	12	6	10	12	12	12	F2.5
S26RJ	Flanged flush diaphragm (JIS standards)	A 50	—-	3	8	8	10	10	2	6	8	8	8	P2
		A 80	1.5	6	10	16	16	16	4	10	10	10	12	P3
		A 100	1.5	6	10	16	16	16	4	10	10	10	12	P3
S26RR	Flanged flush diaphragm (Ring Joint ASME standard)	1.5 in	—	1	4	5	5	5	—	3	5	5	5	P1.5
		2 in	—	3	8	8	10	10	2	6	8	8	8	P2
		3 in	1.5	6	10	16	16	16	4	10	10	10	12	P3
S26TT	Threaded off-line flanged	2½ in	1	4	8	12	12	12	3	8	8	8	8	T2.5
S26MA S26ME	Off-line flanged (ASME and EN standards)	2½ in	1	4	8	12	12	12	3	8	8	8	8	T2.5
S26SS	Union nut, Triclamp, Sanitary, Aseptic	2 in / F 50	—	1	3	6	6	—	1	3	6	6	—	S2
		3 in / 4 in / F 80	1.5	6	10	10	10	—	6	10	10	10	—	S3
	Cherry Burrell, Cherry Burrell Aseptic	2 in	—	1	3	6	6	—	1	3	6	6	—	S2.5
		3 in / 4 in	1.5	6	10	10	10	—	6	10	10	10	—	S3.5
S26PN	Urea service flanged	1½ in	—	—	—	—	—	—	—	5	5	5	5	U1.5
		2½ in	—	3	6	6	6	6	3	6	6	6	6	U2.5

… Diaphragm seal system selection criteria

Available direct mount diaphragm seals

The following table shows the available types of direct mount diaphragm seals.
According to the combination DIAPHRAGM SEAL/TRANSMITTER SENSOR the table details the compatibility for one direct mount diaphragm seal construction and the MAXIMUM CAPILLARY LENGTH when a second diaphragm seal is selected as remote. The mnemonic is a short reference for the diaphragm seal type. For further details please refer to operating instruction and data sheet OI/DS/S26.

Seal model	Seal type	Seal diaphragm size (thickness) [flange type]	One direct mount seal						One direct mount seal and one remote seal						Mnemonic
			SENSOR						SENSOR						
			C	F	H	M	N	S	C	F	H	M	N	S	
S26FA S26FE S26RA S26RE	Flanged flush diaphragm (ASME and EN standards)	2 in / DN 50	Y	Y	Y	Y	Y	Y	—	3	5	8	8	8	P2
		3 in / DN 80	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
		4 in / DN 100	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
		1 in /DN 25 (low)	—	—	Y	Y	Y	Y	—	—	3	3	3	3	F1
		1.5 in / DN 25 (low)	—	—	Y	Y	Y	Y	—	—	3	6	6	6	F1.5
		2 in / DN 50 (low)	Y	Y	Y	Y	Y	Y	2	4	8	12	12	16	F2
		3 in / DN 80 (low)	Y	Y	Y	Y	Y	Y	2	6	12	16	16	16	F3
		4 in / DN 100 (low)	Y	Y	Y	Y	Y	Y	2	6	12	16	16	16	F3
	Flanged extended diaphragm (ASME and EN standards)	2 in / DN 50	—	—	Y	Y	Y	—	—	—	4	6	6	—	E2
		3 in / DN 80	Y	Y	Y	Y	Y	—	2	3	8	10	10	—	E3
		4 in / DN 100	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
		2 in / DN 50 [fixed]	—	—	Y	Y	Y	Y	—	—	3	6	6	6	F1.5
		3 in / DN 80 [fixed]	Y	Y	Y	Y	Y	Y	2	6	10	12	12	12	F2.5
		4 in / DN100 [fixed]	Y	Y	Y	Y	Y	Y	2	6	10	12	12	12	F2.5
S26RJ	Flanged flush diaphragm (JIS standards)	A 50	Y	Y	Y	Y	Y	Y	—	3	5	8	8	8	P2
		A 80	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
		A 100	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
S26RR	Flanged flush diaphragm (Ring Joint ASME standard)	1.5 in	—	—	Y	Y	Y	Y	—	—	3	5	5	5	P1.5
		2 in	Y	Y	Y	Y	Y	Y	—	3	5	8	8	8	P2
		3 in	Y	Y	Y	Y	Y	Y	3	5	10	10	10	10	P3
S26TT	Threaded off-line flanged	2½ in	Y	Y	Y	Y	Y	Y	2	4	8	8	8	10	T2.5
S26MA S26ME	Off-line flanged (ASME and EN standards)	2½ in	Y	Y	Y	Y	Y	Y	2	4	8	8	8	10	T2.5
S26SS	Union nut, Triclamp, Sanitary, Aseptic	2 in / F50	—	Y	Y	Y	Y	—	—	—	3	6	6	—	S2
		3 in / 4 in / F80	Y	Y	Y	Y	Y	—	3	4	8	8	8	—	S3
	Cherry Burrell, Cherry Burrell Aseptic	2 in	—	Y	Y	Y	Y	—	—	—	3	6	6	—	S2.5
		3 in / 4 in	Y	Y	Y	Y	Y	—	3	4	8	8	8	—	S3.5

Specification – measuring accuracy

Reference conditions

According to IEC 62828-1

- Ambient temperature constant in the range 15 to 25 °C (59 to 77 °F)
- Relative humidity constant in the range 50 to 70 %
- Ambient pressure constant in the range 860 to 1060 mbar
- Measuring span based on zero position
- Transmitter with AISI 316 L or Hastelloy C276 process isolating diaphragm
- Filling fluid: Silicone oil
- Supply voltage: 24 V DC ±1 %
- Load with HART: 250 Ω
- Transmitter not grounded
- Characteristic setting: linear, 4 to 20 mA.

Dynamic response time

According to IEC 61298-2 / IEC 62828-1

Sensors	Total Response Time
Sensor F to S	≤ 100 ms
Sensor C*	≤ 130 ms
Sensor A*	≤ 310 ms

* Availability subject to special request and not applicable for explosionproof and flameproof

Total Response Time = reaction time + time constant
Reaction time for all sensors ≤ 30 ms (PDS300 only).
Time constant = 63.2 % of total step response.

Between −40 °C (−40 °F) and −25 °C (−13 °F) the device response time might be influenced.

For PDD300 the Total Response Time depends by S26 diaphragm seal system selection and application condition.

Accuracy rating (Elin)

% of calibrated span, consisting of terminal-based non-linearity, hysteresis, and non repeatability.
In the case of fieldbus devices, SPAN refers to the analog input function block output scaling.

Model	Sensors	for TD range	Accuracy rating
PDS300	A	from 4:1	+-0,01%
	A	from 4:1 to 20:1	±(0.025 × TD) %
	C	from 1:1 to 10:1	+-0,01%
	C	from 1:10 to 20:1	±(0.01 × TD) %
	F,M	from 1:1 to 10:1	+-0,05%
	F,M	from 10:1 to 100:1	±(0.005 × TD) %
	H,N,S	from 1:1 to 10:1	+-0,055%
	H,N,S	from 10:1 to 100:1	±(0.0055 × TD) %
	S	from 1:1 to 10:1	±0.075 %
	S	from 10:1 to 100:1	±(0.0075 × TD) %
PDD300 with seal(s) Mnemonic P3, F3, E3, S3, F2	C	From 1:1 to 5:1	±0.10 %
	C	From 5:1 to 20:1	±(0.02 × TD) %
	F	From 1:1 to 10:1	±0.055 %
	F	From 10:1 to 60:1	±(0.0055 × TD) %
	H to S	From 1:1 to 10:1	±0.075 %
	H to S	From 10:1 to 60:1	±(0.0075 × TD) %
PDD300 with seal(s) Mnemonic different from above	C	from 1:1 to 5:1	± 0.15 %
	C	from 5:1 to 20:1	± (0.03 × TD) %
	F to S	from 1:1 to 10:1	± 0.10 %
	F to S	from 10:1 to 60:1	± (0.01 × TD) %

Note
FOR OPTIMUM MEASURING ACCURACY, IT IS RECOMMENDED THAT YOU SELECT THE SENSOR CODE WHICH WILL PROVIDE THE LOWEST TD VALUE.

… Specification – measuring accuracy

Ambient Temperature Effect

Temperature effect according to IEC 62828/1.

EΔTZ = Effect of the ambient temperature on zero
EΔTS = Effect of the ambient temperature on span

Error in temperature for ±35 °C (±63 °F) changes within the limits of −10 to 60 °C (−14 to 140 °F), reference temperature 25 °C (77 °F)

Model	Sensors	for TD up to	
PDS300	A	4:1	±(0.10 % URL + 0.100 % span)
	C	10:1	±(0.06 % URL + 0.100 % span)
	F to N	10:1	±(0.03 % URL + 0.045 % span)
	S	10:1	±(0.04 % URL + 0.065 % span)
PDD300	C	10:1	±(0.06 % URL + 0.100 % span)
	F to S	10:1	±(0.04 % URL + 0.065 % span)

For temperature changes higher than 35 °C, additional error should be considered.
Please contact your ABB representative for additional information on performance.

For PDD300, please refer to S26 diaphragm seal(s) errors in the S26 datasheet OI/DS/S26 for temperature additional effects of remote / direct mount seal(s).

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

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

Static pressure (EΔPs)

Zero errors can be calibrated out at line pressure.

- per 0.5 MPa, 5 bar or 72.5 psi (sensor A)
- per 2 MPa, 20 bar or 290 psi (sensor C)
- per 7 MPa, 70 bar or 1015 psi (sensor F to S)

Model	Zero error	Span error
PDS300 standard static	±0.05 % of URL for sensor F to S ±0.08 % of URL for sensor A, C	±0.08% of reading
PDS300 high static	±0.08 % of URL for sensor F to S	0.20 % of reading
PDS300 flange mounted per 2 MPa, 20 bar or 290 psi	±0.05 % of URL for sensor F to N	±0.08% of reading

Model	Zero error	Span error
PDD300 per 2 MPa, 20 bar or 290 psi with remote seal(s)	±0.25 % of URL for all sensors except C	±0.25% of reading
PDD300 with direct mount seal only	±0.25 % of URL for sensor F to S	±0.25 % of reading
PDD300 with direct mount plus remote seal	±0.20 % of URL for sensor F to S	±0.20 % of reading
PDD300 per 2 MPa, 20 bar or 290 psi with remote seal(s) or with direct mount plus remote seal	±0.30 % of URL for sensor C only	±0.30% of reading

Unless otherwise specified, errors are quoted as % of calibrated span. Some performance referring to the Upper Range Limit are affected by the actual turndown (TD) as ratio between Upper Range Limit (URL) and calibrated span.

Note
FOR OPTIMUM MEASURING ACCURACY, IT IS RECOMMENDED THAT YOU SELECT THE SENSOR CODE WHICH WILL PROVIDE THE LOWEST TD VALUE.

Power supply

Within the limit values for the voltage / load, the total influence is less than 0.005 % of the upper measuring range limit per volt.

Load

Within the load / voltage limits, the total influence is negligible.

Electromagnetic field

Meets all requirements of EN 61326-1.

Common-mode interference

No influence from 100 V rms @ 50 Hz, or 50 V DC

Mounting position

Rotations in the plane of the diaphragm have a negligible effect. A tilt from the vertical of up to 90° causes a zero point shift of up to 0.35 kPa (3.5 mbar, 1.4 inH2O), which can be corrected by making an appropriate zero position adjustment. There is no effect on the measuring span.

In applications where a dynamic inclined installation is required (e.g. naval applications with maximum vessel inclination of ±22.5°), the maximum error can be up to 0.5 mbar.

Such error might be resulting in a deviation from the standard accuracy with percentual magnitude depending on the range of the selected device.
In case of non-dynamic inclined installations, this effect can be eliminated by performing a zero calibration in the field.

Please contact ABB to assess more in details on the installation effects.

Stability (all standard operating conditions)

±0.1 % of URL over a 10 years period
(± 0.05 % URL over a 1 year period)

Use in potentially explosive atmospheres

Ex marking

With or without integral display.

Intrinsic Safety Ex ia

ATEX Europe (code HAA) approval	
Type Examination Test Certificate	**FM24ATEX0035X**
II 1 G Ex ia IIC T6...T4 Ga	
II 1/2 G Ex ia IIC T6...T4 Ga/Gb	
II 1 D Ex ia IIIC T85 °C..135°C Da	
II 1/2 D Ex ia IIIC T85 °C… 135°C Da/Db; IP66, IP67	

IECEx (code HJA) approval	
IECEx certificate of conformity	**IECEx FMG 24.0039X**
Ex ia IIC T6…T4 Ga	
Ex ia IIC T6…T4 Ga/Gb	
Ex ia IIIC T85°C...T135°C Da	
Ex ia IIIC T85°C...T135°C Da/Db	

NEPSI China (code HNA) approval	
Certificate	(PENDING)
Ex ia IIC T4/T5/T6 Ga	
Ex ia IIC T4/T5/T6 Ga/Gb	
Ex iaD 20 T85/T100/T135	
Ex iaD 20/21 T85/T100/T135	

Explosion proof

ATEX Europe (code HAD) approval	
Type Examination Test Certificate	**FM24ATEX0034X**
II 1/2 G Ex db IIC T6 Ga/Gb Ta=–50 °C to +75 °C	
II 1/2 D Ex tb IIIC T85 °C Da/Db Ta = –50 °C to +75 °C; IP66, IP67	

IECEx (code HJD) approval	
IECEx certificate of conformity	**IECEx FMG 24.0038X**
Ex db IIC T6 Ga/Gb Ta=–50 °C to +75 °C	
Ex tb IIIC T85 °C Da/Db Ta = –50 °C to +75 °C; IP66, IP67	

NEPSI China (code HND) approval	
Certificate	(PENDING)
Ex db IIC T6 Gb	
Ex tD A21 IP67 T85 °C	

Intrinsic Safety Ex ic, Ex ec, Ex tc

ATEX Europe (code HAC) approval	
Type Examination Test Certificate	**FM24ATEX0036X**
II 3 G Ex ic IIC T6...T4 Gc	
II 3 G Ex ec IIC T6...T4 Gc	
II 3 D Ex tc IIIC T85 °C…T135°C Dc; IP66, IP67	

IECEx (code HJC) approval	
IECEx certificate of conformity	**IECEx FMG 24.0040X**
Ex ic IIC T6...T4 Gc	
Ex ec IIC T6…T4 Gc	
Ex tc IIIC T85...T135°C Dc; IP66, IP67	

NEPSI China (code HNC) approval	
Certificate	(PENDING)
Ex ic IIC T4...T6 Gc	
Ex nA IIC T4...T6 Gc	
Ex tD A22 IP67 T85 °C	

Note

- COMBINED IECEx for all HJx available methods (code HJM)
- COMBINED ATEX, FM and IECEx Approvals for all available methods (code HMM)
- NEPSI (China), Inmetro (Brazil), UKCA (United Kingdom), PESO (India), EAC (Kazakhstan), KOSHA (South Korea).

FMus and caFM approvals

FMus approvals	
caFM approvals	
FMus certificate (USA)	**FM24US0265X**
caFM certificate (Canada)	**FM24CA0068X**
Explosionproof (US):	
Class I, Division 1, Groups A, B, C, D; T5	
Explosionproof (Canada):	
Class I, Division 1, Groups B, C, D; T5	
Dust Ignition Proof :	
Class II, Division 1, Groups E, F, G, Class III, Division 1; Groups E, F, G; T5	
Flameproof (US):	
Class I, Zone 1 AEx db IIC T4 Gb	
Flameproof (Canada):	
Class I, Zone 1 Ex db IIC T4 Gb	
Non-Incendive :	
Class I, Division 2, Groups A, B, C, D T6...T4	
Energy limited (US):	
Class I, Zone 2 AEx nC IIC T6...T4	
Energy limited (Canada):	
Class I, Zone 2 Ex nC IIC T6...T4	
Intrinsically safe:	
Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6...T4	
Class I, Zone 0 AEx ia IIC T6...T4 (US)	
Class I, Zone 0 Ex ia IIC T6...T4 (Canada)	
Increased safety:	
Class I, Zone 2, AEx ec IIC T6…T4 (US)	
Class I, Zone 2, Ex ec IIC T6…T4 (Canada)	
Type 4X, IP66, IP67 for all above markings	

Note

- COMBINED FMus Approvals for all HUx available methods (code HUD)
- COMBINED caFM Approvals for all HCx available methods (code HCD)
- COMBINED ATEX, FM and IECEx Approvals for all available methods (code HMM)
- NEPSI (China), Inmetro (Brazil), UKCA (United Kingdom), PESO (India), EAC (Kazakhstan), KOSHA (South Korea).

Temperature data

The permissible ambient temperature ranges (within the limits of −50 to 85 °C) are specified in the type examination certificates dependent upon the temperature class.

Refer to certificates documents for ambient temperature ranges related to the different temperature classes.

Specification – Electrical data and options

HART® communication and 4 to 20 mA output

Power supply

The transmitter operates from 10.5 to 42 V DC with no load and is protected against reversed polarity.

Additional loads enable operation above 42 V DC (with bridge connection between terminals).

For sustainable operation and use, a power supply of max 24 V DC is recommended at transmitter's terminals.

Deviations on operating voltage	
12.3 V DC	Minimum voltage for device with the option AS – overvoltage protection
30 V DC	Maximum voltage for use in Ex ia zones and other intrinsically safe applications

Disconnecting or removing the connection link from the terminals of the connection board requires an increase of the minimum supply voltage by 5 V DC and, in case of option AS, the minimum voltage increases from 12.3 V DC to 17 V DC.

Minimum operating voltage increases to 14 V DC with optional backlit LCD display.

Minimum operating voltage increases to 15.8 V DC with optional backlit LCD display and overvoltage protection option AS.

Ripple

The DC power supply ripple must be lower than 0.5 V.

The transmitter output noise is in compliance with HART specifications.

Load limitations

Total loop resistance at 4 to 20 mA and HART communication:

$$R\ (k\Omega) = \frac{\text{Supply voltage} - \text{Minimum operating voltage (V DC)}}{22\ \text{mA}}$$

A minimum resistance of 250 Ω is required for HART communication.

Overvoltage protection (optional, code AS)

Up to 4 kV

- Voltage: 1.2 µs rise time / 50 µs delay time at half value
- Current: 8 µs rise time / 20 µs delay time at half value

Output signal

Two–wire output 4 to 20 mA, selectable by the operator:

- linear or square root output signal,
- characteristic curve with the exponents 3/2 or 5/2,
- square root for bidirectional flow,
- linearization table with 22 points (i.e. for level measurements in lateral, cylindric containers and spherical containers).

HART® communication

The HART communication provides the digital process variables which are superimposed on the 4 to 20 mA signal (protocol in accordance with Bell 202 FSK standard).

HART protocol	
Profile	HART revision 7 (standard, as default)
Device-ID	0x1A84 (listed with HCF)

Alarm current

Adjustment range	
Minimum alarm current (low alarm current)	3.6 mA (according to NAMUR NE 43 standard) (configurable from 3.6 to 4 mA)
Maximum alarm current (high alarm current)	21 mA (according to NAMUR NE 43 standard) (configurable from 20 to 23 mA)
Standard setting	High alarm current

NAMUR NE 43 defines as alarm limits the lower ≤ 3.6 mA and the upper ≥ 21 mA.

Risk connected to any deviation from NAMUR NE43 thresholds of the alarm current limits falls under Customers' responsibility.

LCD display

Three LCD display options are available. The transmitter is supplied without any integral display as standard.

Integral LCD display, order code D1



Figure 3: LCD indicator

Properties

Transmitter-controlled graphic (alphanumeric) LCD display

- Wide screen display, 128 × 64 pixel, 52.5 × 27.2 mm (2.06 × 1.07 in) dot matrix.
- Two operating buttons for zero/span and 'Easy Set-up' menu access for quick commissioning.

Integral backlit LCD display, order code D2

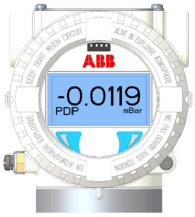


Figure 4: LCD indicator

Properties

Transmitter-controlled graphic (alphanumeric) LCD display

- Wide screen display, 128 × 64 pixel, 52.5 × 27.2 mm (2.06 × 1.07 in) dot matrix.
- Backlit display
- Multi-language support
- Two internal and external (non-intrusive) operating buttons for zero/span and 'Easy Set-up' menu access for quick commissioning.
- Bluetooth® configuration capability selectable with order code NE.
  - Configuration with the ABB My Device Manager mobile app on smart phone via Bluetooth.
  - Configuration with ABB Ability™ Field Information Manager on PC/laptop via Bluetooth.

Smart backlit LCD display, order code D5 - Modbus, WirelessHart protocols

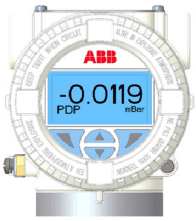


Figure 5: LCD indicator

Properties

Transmitter-controlled graphic (alphanumeric) LCD indicator

- Wide screen display, 128 × 64 pixel, 52.5 × 27.2 mm (2.06 × 1.07 in) dot matrix.
- Backlit display
- Multi-language support
- TTG (Through-The-Glass) keypad technology. Four operating buttons allowing the activation of the configuration and device's management menus without the need of removing the transmitter housing cover. The TTG keypad is protected against accidental activations.
- 90° rotation available

...Specification – Electrical data and options

Configuration menus on "Easy set-up" menu

Menu Item	Command / Operation	Description
1		Select Language
2		Enter Tag
3		Select Engineering Units
4		Set LRV
5		Set URV
6		Linear
7		Select Seconds
8		Set Primary Variable to Zero
9		Reset Primary Variable
10		Set 4 mA to Current Output
11		Set 20 mA to Current Output
14		- Pressure - Scaled output - Current Output - Output Percent - Totalizer 1 - Totalizer 2 - Batch number - Sensor temperature - Static Pressure - HMI Scaled Output

Specification – Configuration

HART® communication and 4 to 20 mA output

Standard configuration

Transmitters are calibrated at factory from 0 to URL. Optional calibration setting to customers specific range is available selecting the digit code "SU". The required calibrated range will be printed on Tag Plate.

If a calibration range and tag is not required, the transmitter will be supplied as follows:

Parameter	Factory setting
Physical unit	kPa
4 mA	Zero
20 mA	Measuring range upper limit (URL)
Output	Linear
Damping	1 s
Transmitter interference mode	High alarm - Default 21 mA
Software tag (max. 8 characters)	Blank
LCD display	- 1 line - PV (PDP*) in kPA - Output in percent as bargraph

* PDP is the Pressure value before transfer function/linearization

Any or all of the configurable parameters listed above - including the lower and upper range values (with the same unit of measurement) - can easily be changed using a portable HART handheld communicator or a PC running the configuration software with the FDI for Pxx300 models.

For the HART protocol, the following physical units are available for pressure measurements:

Unit	Description
Pa, kPa, MPa	Pascal, Kilopascal, Megapascal
inH2O @ 4 °C	Inches of water (4 °C)
inH2O @ 20 °C	Inches of water (20 °C)
ftH2O @ 20 °C	Foot of water (20 °C)
psi	Pound-force per square inch
Bar, mbar	Bar, Millibar
Atm	Standard atmosphere
mmHg, Torr	mm of mercury
inHg	Inch of mercury
g/cm^2, kg/cm^2	Grams, kilograms per square centimetre

Specifications concerning flange type and materials, O-ring and vent / drain valve materials, and additional device options are stored in the transmitter database.

Tag and Calibration

Tag and/or specific calibrated span can be requested when configuring the device. Two tag types are available: Short Tag and Long Tag.

See below table for details about tag type applicability / presence:

Type	Max Length	On Display	On Certification	On Device Label
Short Tag	8 digits	YES	YES	NO
Long Tag	32 digits	NO	YES	YES

In case no specific indication will be given about the tag type, data will be considered as Long Tag by default.

In case tag is required on the optional wired-on customer data plate (order code LES, LEW) specific indication needs to be given.

Other configurations (option Nx)

The reference engineering units of LRL and URL can be changed on product nameplate and calibration range (if not defined) as follows:

- Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F (option N2)
- Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C (option N5)

The following information can be specified in addition to the standard configuration parameters (option N6):

Parameter	
Description	16 alphanumeric characters
Supplementary information	32 alphanumeric characters
Date	Day, month, year

When special design out of standard feature is needed (requiring special code number SRxxx), NK digit option has to be selected for traceability purpose.

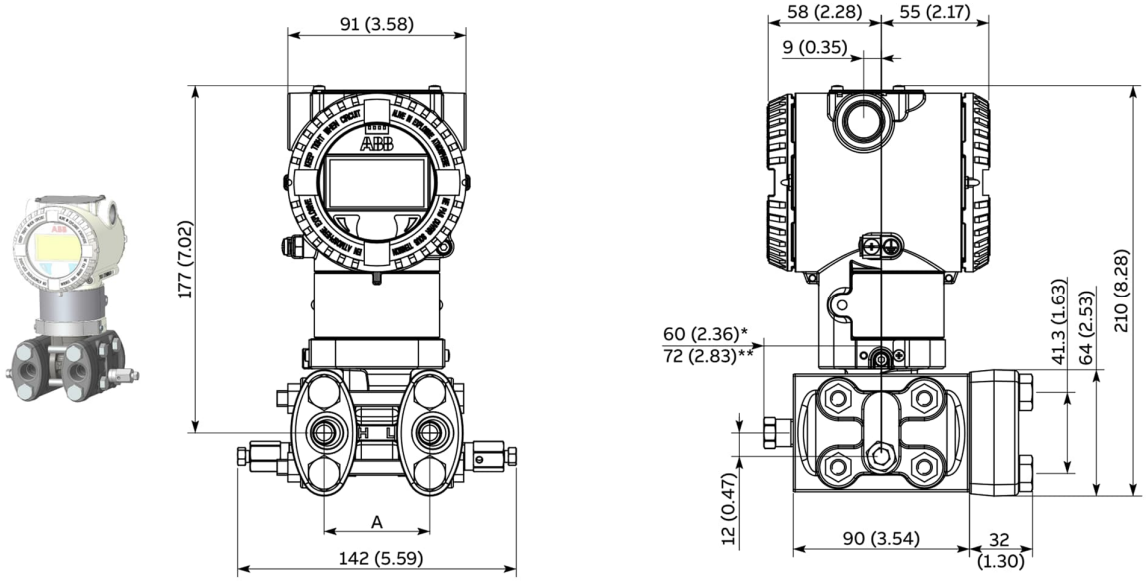
Dimensions

PDS300

Not design data – dimensions in mm (in)

Note

Process connection and gasket groove comply with IEC 61518. Thread for attaching adapter flanges or other components (e.g., manifold) to process flange: $^{7}/_{16}$ – 20 UNF.

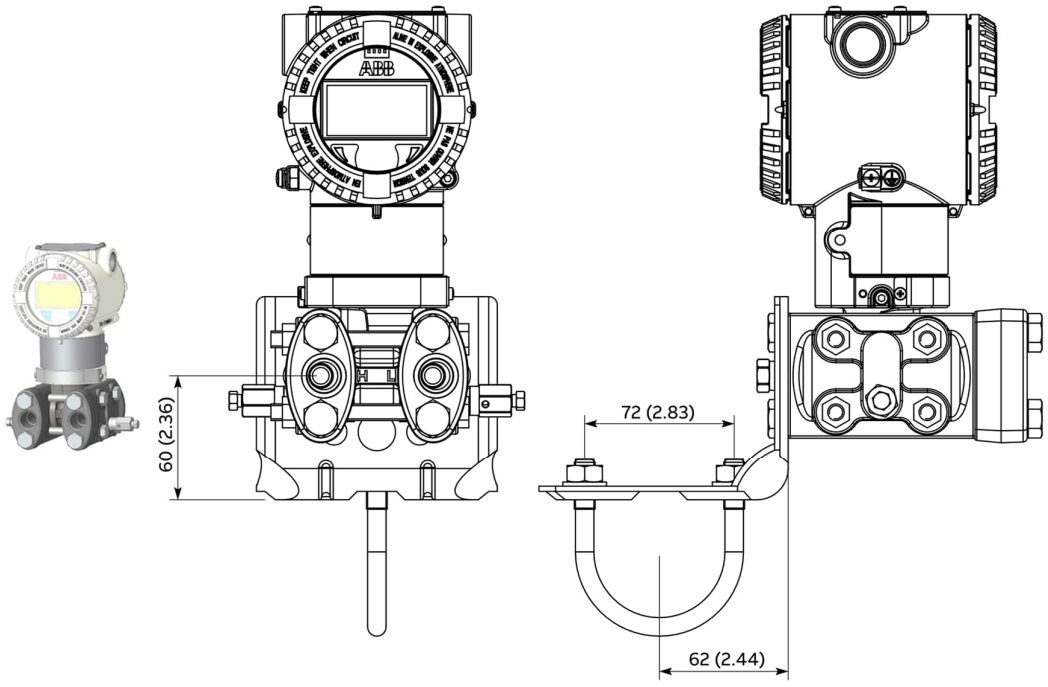


A 54 mm (2.13 in) via 1/4 – 18 NPT process flanges
51 mm (2.01 in), 54 mm (2.13 in), or 57 mm (2.24 in) via ½ – 14 NPT adapter flanges.

* with screw plug

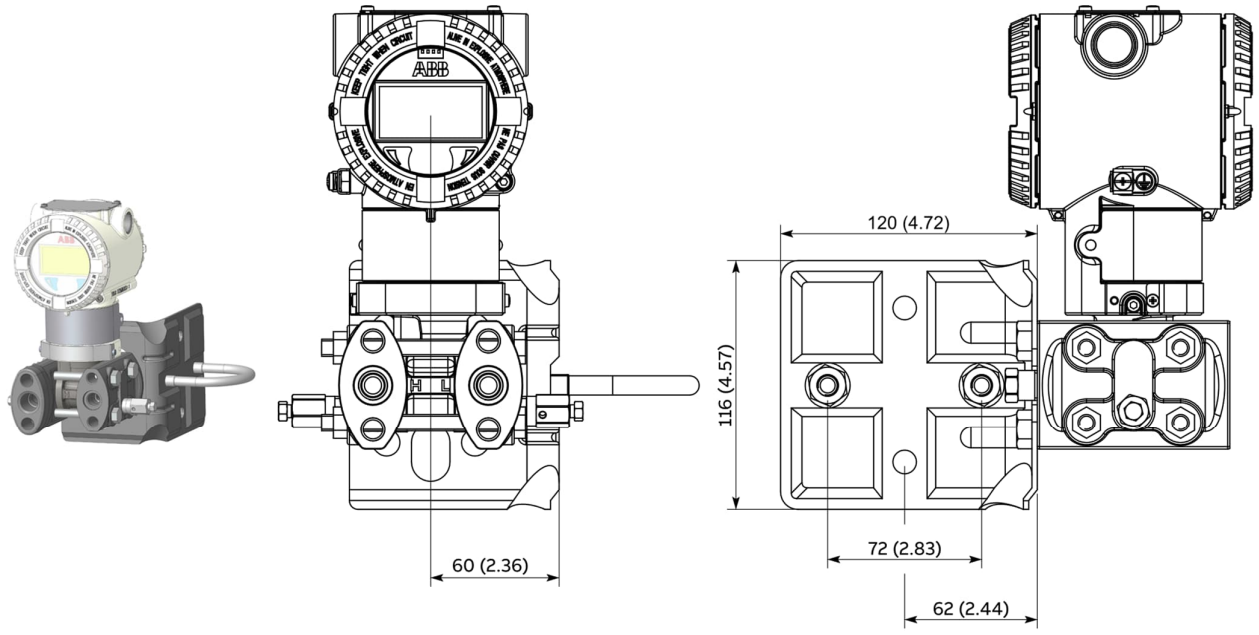
** with vent/drain valve

Figure 6: Barrel housing with horizontal process flange, ½ in NPT female connection and vent/drain valve



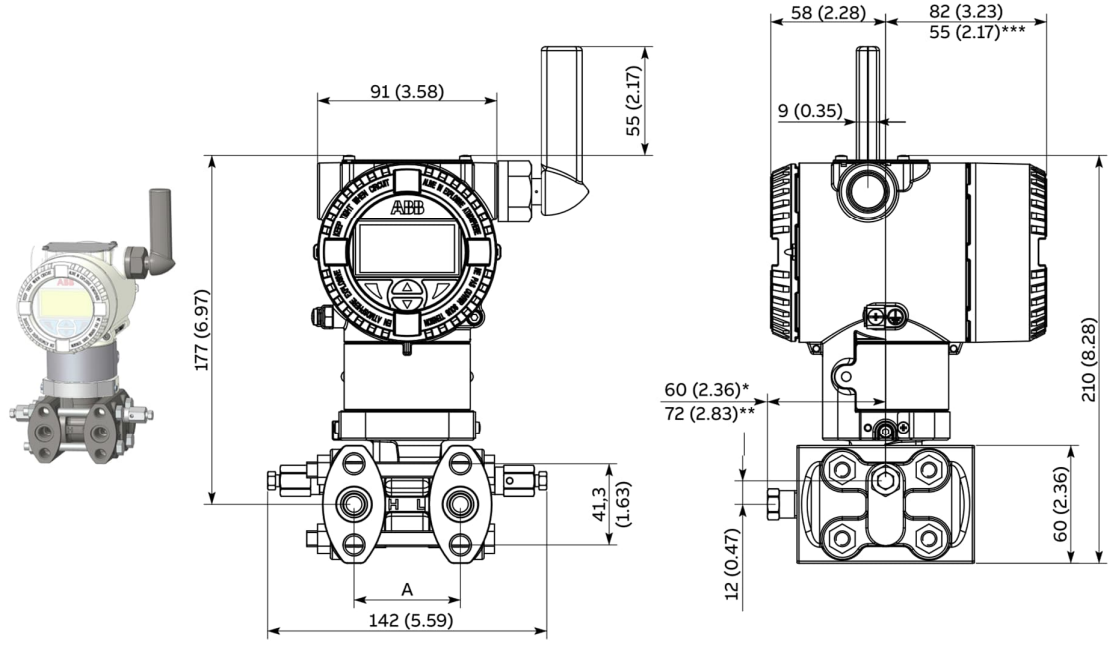
(For device dimensions see **Figure 6**)

Figure 7: Barrel housing with horizontal process flange, ½ in NPT female connection, vent/drain valve and universal mounting bracket for horizontal pipe



(For device dimensions see **Figure 6** on page 22)

Figure 8: Barrel housing with horizontal process flange, 1/4 in NPT female connection, vent/drain valve and universal mounting bracket for vertical pipe



A 54 mm (2.13 in) via 1/4 – 18 NPT process flanges
51 mm (2.01 in), 54 mm (2.13 in), or 57 mm (2.24 in) via ½ – 14 NPT adapter flanges.

* with screw plug

** with vent/drain valve

*** with blind cover

Figure 9: WirelessHART®, Barrel housing with horizontal process flange, 1/4 in NPT female connection and vent/drain valve

...Dimensions

Plugs and connectors

Harting Han plug connector

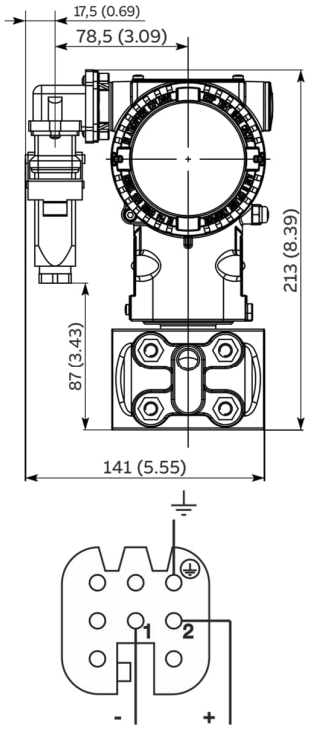
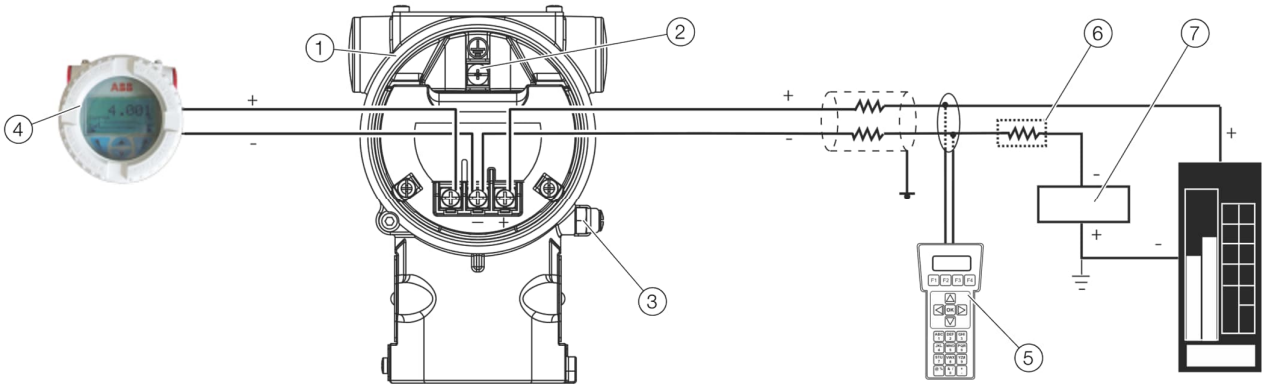


Figure 10: Harting Han 8D angle connector (supplied loose)

Electrical connections

HART® communication and 4 to 20 mA output



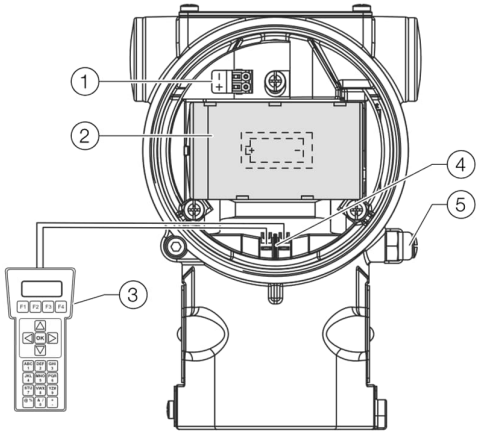
1 Digital output
2 Internal ground connection
3 External ground connection
4 Remote display
5 HART® Handheld terminal
6 Additional load resistance
7 Power supply

Figure 11: Electrical connections - HART® communication, 4 to 20 mA current output

Note
The screw terminals are suitable for wire cross sections of up to 2.5 mm^2 (AWG 14).

The HART® Handheld terminal may be connected at any wiring termination point in the loop, providing the minimum resistance is 250 Ω. If this is less than 250 Ω, an additional load resistance should be added to allow HART communication.
The HART Handheld terminal is connected between the resistor and transmitter, not between the resistor and power source.

WirelessHART® version



1 Fast connection for harvesting unit
2 Battery
3 HART® Handheld terminal
4 Internal HART connection for handheld terminal
4 External ground termination point

Figure 12: Wireless HART Version - Pending

Ordering Information

Main ordering information for model PDS300 differential pressure transmitter

Select one or more characters from each category and enter the complete catalog number.
Enter one or more codes for additional order information if you are purchasing optional extras for each transmitter.

Base model			**PDS300**	**X**	**XX**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
All-Rounder differential pressure transmitter – Base accuracy 0.055 %												
Sensor Span Limits / Overpressure												
0.05 and 1 kPa	(0.5 and 10 mbar, 0.2 and 4 inH2O)	2 Mpa (2000 kPa, 290 psi) - “Vx” option is required		A								
0.3 and 6 kPa	(3 and 60 mbar, 1.2 and 24 inH2O)	7 Mpa (7000 kPa, 1015 psi)		C								
0.4 and 40 kPa	(4 and 400 mbar, 1.6 and 160 inH2O)	21 Mpa (21000 kPa, 3045 psi)		F								
1.6 and 160 kPa	(16 and 1600 mbar, 6.4 and 642 inH2O)	21 Mpa (21000 kPa, 3045 psi)		H								
6 and 600 kPa	(0.06 and 6 bar, 0.87 and 87 psi)	21 Mpa (21000 kPa, 3045 psi)		M								
20 and 2000 kPa	(0.20 and 20 bar, 3.5 and 348 psi)	21 Mpa (21000 kPa, 3045 psi)		N								
160 and 16000 kPa	(1.6 and 160 bar, 23.2 and 2320 psi)	21 Mpa (21000 kPa, 3045 psi)		S								
Maximum Working Pressure												
Standard Static					S9							
High static (32MPa, 320 bar, 4640 psi)			1)		WR							
Gauge Pressure Measurement					W9							
Diaphragm Material												
AISI 316L SST (1.4435) / NACE						A						
Hastelloy C-276 / NACE						H						
AISI 316L SST gold-plated / NACE			1)			G						
H-Shield (AISI 316L SST) (PENDING)			1)			S						
Filling fluid												
Silicon oil							1					
Inert fluid			1), 4), 6)				2					
Process Connection material												
AISI 316L SST (1.4404) / NACE								A				
Hastelloy C-276 / NACE			1), 5)					H				
Process Connection Size												
1/4 in - 18 NPT female direct (horizontal connection)									H			
1/2 in -14 NPT female through adapter (horizontal connection)									A			
1/4 in -18 NPT female direct (vertical connection)			3)						V			
1/2 in -14 NPT female through adapter (vertical connection)			3)						I			
Bolts Material / Gasket Material												
AISI 316 ss (Nace non exposed) / Viton										1		
AISI 316 ss (Nace non exposed) / PTFE			6)							2		
AISI 316 ss / Viton (MWP = 16 MPa / 160 bar / 2320 psi) (NACE) (Pending)										3		
AISI 316 ss / PTFE (MWP = 16 MPa / 160 bar / 2320 psi) (NACE) (Pending)			6)							4		
Alloy steel / Viton (NACE) (PENDING)										8		
Alloy steel / PTFE (NACE) (PENDING)			6)							9		
Housing Material / Electrical Connection												
Aluminium alloy (Barrel type) / 1/2-14 NPT											A	
Aluminium alloy (Barrel type) / M20 x 1.5											B	
AISI 316L SST (Barrel type) / 1/2-14 NPT (LES digit mandatory)											S	
AISI 316L SST (Barrel type) / M20 x 1.5 (LES digit mandatory)											T	
Output												
HART digital communication and 4 to 20 mA - Including Easy Set up (Options requested by "Additional ordering code")												H
WirelessHART- Includes External push buttons (Options requested by “Additional ordering code”) (PENDING)									28)			W

... Ordering Information

Additional ordering information for model PDS300 differential pressure transmitter

Add one or more 2-digit code(s) after the basic ordering information to select all required options.

Additional ordering information						
PDS300 differential pressure transmitter		**XX**	**XX**	**XXX**	**XX**	
Vent and Drain Valve Material and Position						
On process axis - material according to process process flanges selection	29)	VA				
On flanges top - material according to process process flanges selection		VT				
On flanges bottom - material according to process process flanges selection	29)	VB				
Display						
Integrated digital LCD display / 2-button keypad	18)		D1			
Integrated digital LCD display with backlight / 2-button keypad (external pushbuttons enabled)	18)		D2			
Integrated digital LCD display with backlight / 4-button keypad (PENDING)	25)		D5			
Explosion Protection Certification (PENDING)						
ATEX Intrinsic Safety Ex ia				HAA		
ATEX Explosion Proof Ex db_tb	18)			HAD		
ATEX Intrinsic Safety Ex ic_ec_tc				HAC		
Combined ATEX for all HAx available methods				HAM		
Combined FMus Approvals (XP, DIP, IS, NI, Ex ec) for all HUx available methods				HUD		
Combined caFM Approvals (XP, DIP, IS, NI, Ex ec) for all HCx available methods				HCD		
Combined usFMca for all HCx and HUx available methods				HCM		
IECEx Intrinsic Safety Ex ia				HJA		
IECEx Explosion Proof Ex db_tb	18)			HJD		
IECEx Intrinsic Safety Ex ic_ec_tc				HJC		
Combined IECEX for all HJx available methods				HJM		
Combined ATEX FM IECEX for all available methods				HMM		
NEPSI IIC Ex ia				HNA		
NEPSI IIC Ex d	18)			HND		
NEPSI IIC Ex ic				HNC		
Combined NEPSI for all HNx available methods				HMN		
KOSHA Ex ia (PENDING)				HSA		
KOSHA Ex d (PENDING)	18)			HSD		
Combined KOSHA for all HSx available methods (PENDING)				HSM		
INMETRO Ex ia (PENDING)				HBA		
INMETRO Ex d (PENDING)	18)			HBD		
INMETRO Ex ic (PENDING)				HBC		
Combined INMETRO for all HBx available methods (PENDING)				HMB		
UKCA Ex ia (PENDING)				HKA		
UKCA Ex c (PENDING)				HKC		
UKCA Ex d (PENDING)	18)			HKD		
Combined UKCA for all HKx available methods (PENDING)				HKM		
EAC Ex ia (PENDING)				HEA		
EAC Ex d (PENDING)	18)			HED		
Combined EAC or all Hex available methods (PENDING)				HME		
Approvals (PENDING)						
Metrologic certificate for Kazakhstan	7)					G2
CRN - Canadian Registration Number						GC
EU-RO 10 Mutual Recognition (Naval)						GE
CSA ordinary location						GO
DNV Naval approval						GV
American Bureau of Shipping Naval approval						GR
Lloyd's Register Naval approval						GL
Combined Naval approval (DNV+ABS+LR)						GN
Korean Register Naval approval						GK
SIL2	18)					GS

… Ordering Information

Additional ordering information for model PDS300 differential pressure transmitter

Additional ordering information									
PDS300 differential pressure transmitter		**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XXX**	**XXX**
National radio frequency licence (PENDING)									
Basic countries (Europe, USA, Canada)	25)	FB							
Argentina	25)	FA							
United Arab Emirates	25)	FG							
India	25)	FI							
Mexico	25)	FM							
Physical Application									
Oxygen service cleaning - Pmax = 10 MPa (100 bar, 1450 psi) or sensor overpressure (lower value) Tmax = 60 °C / 140 °F	11)		P1						
Installation for ambient temperature from -40°C to -50°C (PENDING)			P7						
Accessories									
Battery included (supplied loose) (PENDING)	25)			AB					
Direct Flange F26 Assembly (Positive Side)	1), 30)			AA					
Manifold assembly	12), 23), 24)			A1					
Internal surge protection	18)			AS					
Mounting Bracket									
For horizontal or vertical mounting on pipe and wall / AISI 316L (1.4401)					BA				
For horizontal or vertical mounting on pipe and wall / carbon steel (Not suitable for AISI housing)					BC				
Software Application									
Calibration parameter characteristic (PENDING)						SP			
Calibration Range and/or Tag adjusted to customer specification						SU			
Low Alarm setting to 3.6 mA	18)					SA			
Easy Set Up Enabled on External Push-Buttons (PENDING)	26)					SE			
CRC (Configuration signature) (PENDING)	18)					SS			
Safety Loop Test (PENDING)	18), 27)					ST			
Inversion Polarity (PENDING)						SV			
Plugged Impulse Line Diagnostic (PILD) (PENDING)						SH			
Digital Access Diagnostics - Dynamic QR Code	13)					SD			
Inspection Certificates									
Inspection certificate EN 10204–3.1 of calibration (5-point)	14), 15)						CF		
Inspection certificate UNI EN 10204 3.1 (9 points calibration)	14), 15)						CN		
Inspection certificate EN 10204–3.1 of cleanliness stage	23)						CC		
Inspection certificate EN 10204–3.1 of helium leakage test of the sensor module							CL		
Inspection certificate EN 10204–3.1 of the pressure test							CH		
PMI test on wetted parts	17)						CP		
Certificate of compliance with the order EN 10204–2.1 of instrument design							CD		
Inspection certificate EN 10204–3.1 of process wetted parts (not for gaskets)							CM		
Test report EN 10204-2.2 of the pressure bearing and process wetted parts							CW		
Nameplate and Display language									
Nameplate and HMI visualization in Italian								LTI	
Nameplate and HMI visualization in German								LTG	
Nameplate and HMI visualization in French								LTF	
Nameplate and HMI visualization in Spanish								LTE	
Nameplate and HMI visualization in Chinese								LTS	
Label Material									
Label for TAG and certification in SST with laser printing									LES
Supplemental wired–on stainless SST (4 lines, 32 characters each)									LEW

Additional ordering information				
PDS300 differential pressure transmitter		**XX**	**XX**	**XX**
Manuals				
German (PENDING)	16)	M1		
Italian (PENDING)	16)	M2		
Spanish (PENDING)	16)	M3		
French (PENDING)	16)	M4		
English	16)	M5		
Chinese	16)	M6		
Portuguese (PENDING)	16)	MA		
Configuration				
Standard Pressure = in H2O / psi at 68 °F			N2	
Standard Pressure = in H2O / psi at 4 °C			N5	
Custom			N6	
Special Design Configuration			NK	
Bluetooth (PENDING)	18)		NE	
Plugs and Connectors				
One plastic plug Ex e (supplied loose) (PENDING)	22)			UA
One stainless steel plug dual grade 316/316L (supplied loose) (PENDING)	8)			UN
One stainless steel plug dual grade 316/316L Ex d (supplied loose)	19)			UP
One plastic cable gland plus plug Ex e (supplied loose) (PENDING)	22)			UE
One stainless steel cable gland Ex d (supplied loose) (PENDING)				UW
One Harting HAN 8D angled connector (supplied loose) (PENDING)	18), 20), 22)			UD
One Harting HAN 8D straight connector (supplied loose) (PENDING)	18), 20), 22)			UF

Notes for PDS300 differential pressure transmitter

1) Not available with Sensor Span Limits / Overpressure code digits A, C
2) Not applicable
3) Not available with Process Connection Material code H
4) Not available with Diaphragm Material code G
5) Not available with Diaphragm Material code A, G
6) Suitable for oxygen service code P1
7) The ambient temperature lower limit is −55 °C
8) Not available with Hazardous Area Approval code HUA, HUD, HUC, HCA, HCD, HCC, HMM, HNA, HND, HNC, HMN, HSA, HSD, HSM, HBA, HBD, HBC, HMB
9) Not applicable
10) Not applicable
11) Not available with Fill Fluid code 1
12) Not available with Physical Application code P1
13) Only available with Display code D2, D5
14) Option code CF, CN provides an inspection certificates of calibration 0 to URL - Option code SU should be also selected if the inspection certificate is required for calibration different from 0 to URL
15) Mutually exclusive with Inspection certificate code CF or CN
16) Shipped in the box
17) Not available with assembled manifold
18) Not available with Outputs code W
19) Supplied loose with thread according to housing entries - M20 Hex type plug, ½ NPT Allen key type plug
20) Not available with Housing Material / Electrical Connection code S, T
21) Not applicable
22) Not available with any Hazardous area certification codes HxD or HxM
23) Not available with Accessories code AA
24) Not available with Process Flanges Connection code V, I when seleceted with barcket code Bx
25) Not available with Outputs code H
26) Only available with Display code D1
27) Only available with Approval code GS
28) Not available with Housing Material / Electrical Connection code A, S
29) Not available with Process Flange code V, I
30) Only available with Gasket Material code 3, 4

Standard delivery scope

(changes possible with additional ordering code)

- For standard applications (without explosion protection)
- Display is always supplied
- No mounting bracket
- No surge protection
- Multilanguage short-form operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates
- Calibration report from 0 to URL

Unless otherwise specified prior to manufacture, the customer shall be responsible for selecting suitable wetted parts and an appropriate filling fluid in order to ensure compatibility with the measuring fluid.
Compliance with the NACE regulation is based on recommendations MR0175 / ISO 15156. Additionally, stainless steel AISI 316, AISI 316L and Hastelloy C-276 automatically meet the criteria of MR0103, provided that they also meet the criteria of MR0175.

Ordering Information

Main ordering information for model PDD300 differential pressure transmitter with diaphragm seal(s)

Overpressure limit dependent upon diaphragm seal / pressure sensor limits.
Select one or more characters from each category and enter the complete catalog number.
Enter one or more codes for additional order information if you are purchasing optional extras for each transmitter.

Base model			**PDD300**	**X**	**XX**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
All-Rounder differential pressure transmitter with remote diaphragm seal (s) – Base accuracy 0.055 %												
Sensor Span Limits / Overpressure												
0.3 and 6 kPa	(3 and 60 mbar, 1.2 and 24 inH2O)	7 MPa (70 bar, 1015 psi)		C								
0.67 and 40 kPa	(6.7 and 400 mbar, 2.67 and 160 inH2O)	21 Mpa (210 bar, 3045 psi)		F								
2.67 and 160 kPa	(26.7 and 1600 mbar, 10.7 and 642 inH2O)	21 Mpa (210 bar, 3045 psi)		H								
10 and 600 kPa	(0.1 and 6 bar, 1.45 and 87 psi)	21 Mpa (210 bar, 3045 psi)		M								
33.3 and 2000 kPa	(0.33 and 20 bar, 4.83 and 290 psi)	21 Mpa (210 bar, 3045 psi)		N								
267 and 16000 kPa	(2.67 and 160 bar, 38.7 and 2320 psi)	21 Mpa (210 bar, 3045 psi)		S								
Maximum Working Pressure												
Standard Static					S9							
Gauge Pressure Measurement			1)		W9							
Diaphragm Material*												
AISI 316L SST (1.4435) / NACE						A						
Hastelloy C-276 / NACE			2)			H						
AISI 316L SST gold-plated / NACE			1), 2)			G						
H-Shield (AISI 316L SST) (PENDING)			1)			S						
Diaphragm for two diaphragm seals construction: direct+remote or remote+remote (Two remote diaphragm seals to be quoted)			2)			R						
Filling fluid												
Silicon oil							1					
Inert fluid			3), 4), 6)				2					
Process Connection material*												
AISI 316L SST (1.4404) / NACE								A				
Hastelloy C-276 / NACE			1), 5)					H				
Diaphragm for two diaphragm seals construction: direct+remote or remote+remote (Two remote diaphragm seals to be quoted)			2), 27)					R				
Process Connection Size*												
1/2 in -14 NPT female through adapter (horizontal connection)									A			
1/4 in - 18 NPT female direct (horizontal connection)									H			
Diaphragm for two diaphragm seals construction: direct+remote or remote+remote (Two remote diaphragm seals to be quoted)			2), 27)						R			
Bolts Material / Gasket Material												
AISI 316 ss (Nace non exposed) / Viton			6)							1		
AISI 316 ss (Nace non exposed) / PTFE			6)							2		
Without gaskets, for two diaphragm seals construction (direct+remote or remote+remote)			2), 27)							R		
Housing Material / Electrical Connection												
Aluminium alloy (Barrel type) / 1/2-14 NPT											A	
Aluminium alloy (Barrel type) / M20 x 1.5											B	
AISI 316L SST (Barrel type) / 1/2-14 NPT (LES digit mandatory)											S	
AISI 316L SST (Barrel type) / M20 x 1.5 (LES digit mandatory)											T	
Output												
HART digital communication and 4 to 20 mA - Including Easy Set up (Options requested by "Additional ordering code")												H
WirelessHART- Includes External push buttons (Options requested by “Additional ordering code”) (PENDING)										23)		W

* Refer to data sheet OI/DS/S26 for diaphragm seal options

... Ordering Information

...Additional ordering information for model PDD300 differential pressure transmitter with diaphragm seal(s)

Add one or more 2-digit code(s) after the basic ordering information to select all required options.

Additional ordering information					
PDD300 differential pressure transmitter with remote diaphragm seal		**XX**	**XX**	**XXX**	**XX**
Vent and Drain Valve Material and Position					
On process axis - material according to process process flanges selection		VA			
On flanges top - material according to process process flanges selection		VT			
On flanges bottom - material according to process process flanges selection		VB			
Display					
Integrated digital LCD display / 2-button keypad	18)		D1		
Integrated digital LCD display with backlight / 2-button keypad (external pushbuttons enabled)	18)		D2		
Integrated digital LCD display with backlight / 4-button keypad (PENDING)	25)		D5		
Explosion Protection Certification					
ATEX Intrinsic Safety Ex ia				HAA	
ATEX Explosion Proof Ex db_tb	18)			HAD	
ATEX Intrinsic Safety Ex ic_ec_tc				HAC	
Combined ATEX for all HAx available methods				HAM	
Combined FMus Approvals (XP, DIP, IS, NI, Ex ec) for all HUx available methods				HUD	
Combined caFM Approvals (XP, DIP, IS, NI, Ex ec) for all HCx available methods				HCD	
Combined usFMca for all HCx and HUx available methods				HCM	
IECEx Intrinsic Safety Ex ia				HJA	
IECEx Explosion Proof Ex db_tb	18)			HJD	
IECEx Intrinsic Safety Ex ic_ec_tc				HJC	
Combined IECEX for all HJx available methods				HJM	
Combined ATEX FM IECEX for all available methods				HMM	
NEPSI IIC Ex ia				HNA	
NEPSI IIC Ex d	18)			HND	
NEPSI IIC Ex ic				HNC	
Combined NEPSI for all H Nx available methods				HMN	
KOSHA Ex ia (PENDING)				HSA	
KOSHA Ex d (PENDING)	18)			HSD	
Combined KOSHA for all HSx available methods (PENDING)				HSM	
INMETRO Ex ia (PENDING)				HBA	
INMETRO Ex d (PENDING)	18)			HBD	
INMETRO Ex ic (PENDING)				HBC	
Combined INMETRO for all HBx available methods (PENDING)				HMB	
UKCA Ex ia (PENDING)				HKA	
UKCA Ex c (PENDING)				HKC	
UKCA Ex d (PENDING)	18)			HKD	
Combined UKCA for all HKx available methods (PENDING)				HKM	
EAC Ex ia (PENDING)				HEA	
EAC Ex d (PENDING)	18)			HED	
Combined EAC or all Hex available methods (PENDING)				HME	
Approvals (PENDING)					
Metrologic certificate for Kazakhstan	7)				G2
CRN - Canadian Registration Number					GC
EU-RO 10 Mutual Recognition (Naval)					GE
CSA ordinary location					GO
DNV Naval approval	1)				GV
American Bureau of Shipping Naval approval	1)				GR
Lloyd's Register Naval approval	1)				GL
Combined Naval approval (DNV+ABS+LR)	1)				GN
Korean Register Naval approval	1)				GK
SIL2	18)				GS

Additional ordering information									
PDD300 differential pressure transmitter with remote diaphragm seal		**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XXX**	**XXX**
National radio frequency licence (PENDING)									
Basic countries (Europe, USA, Canada)	25)	FB							
Argentina	25)	FA							
United Arab Emirates	25)	FG							
India	25)	FI							
Mexico	25)	FM							
Physical Application									
Oxygen service cleaning - Pmax = 10 MPa (100 bar, 1450 psi) or sensor overpressure (lower value) Tmax = 60 °C / 140 °F	11)		P1						
Installation for ambient temperature from -40°C to -50°C (PENDING)			P7						
Accessories									
Battery included (supplied loose) (PENDING)				AB					
Internal surge protection	18)			AS					
Mounting Bracket									
For horizontal or vertical mounting on pipe and wall / AISI 316L (1.4401)					BA				
For horizontal or vertical mounting on pipe and wall / carbon steel (Not suitable for AISI housing)					BC				
Software Application									
Calibration parameter characteristic (PENDING)						SP			
Calibration Range and/or Tag adjusted to customer specification						SU			
Low Alarm setting to 3.6 mA	18)					SA			
Easy Set Up Enabled on External Push-Buttons (PENDING)	26)					SE			
CRC (Configuration signature) (PENDING)	18)					SS			
Safety Loop Test (PENDING)	18), 28)					ST			
Inversion Polarity (PENDING)						SV			
Piugged Impulse Line Diagnostic (PILD) (PENDING)						SH			
Digital Access Diagnostics - Dynamic QR Code	13)					SD			
Inspection Certificates									
Inspection certificate EN 10204–3.1 of calibration (5-point)	14), 15)						CF		
Inspection certificate UNI EN 10204 3.1 (9 points calibration)	14), 15)						CN		
Inspection certificate EN 10204–3.1 of cleanliness stage							CC		
Inspection certificate EN 10204–3.1 of helium leakage test of the sensor module							CL		
Inspection certificate EN 10204–3.1 of the pressure test							CH		
PMI test on wetted parts	17)						CP		
Certificate of compliance with the order EN 10204–2.1 of instrument design							CD		
Inspection certificate EN 10204–3.1 of process wetted parts (not for gaskets)							CM		
Test report EN 10204-2.2 of the pressure bearing and process wetted parts							CW		
Nameplate and Display language									
Nameplate and HMI visualization in Italian								LTI	
Nameplate and HMI visualization in German								LTG	
Nameplate and HMI visualization in French								LTF	
Nameplate and HMI visualization in Spanish								LTE	
Nameplate and HMI visualization in Chinese								LTS	
Label Material									
Label for TAG and certification in SST with laser printing									LES
Supplemental wired–on stainless SST (4 lines, 32 characters each)									LEW

… Ordering Information

…Additional ordering information for model PDD300 differential pressure transmitter with diaphragm seal(s)

Additional ordering information				
PDD300 differential pressure transmitter with remote diaphragm seal		**XX**	**XX**	**XX**
Manuals				
German (PENDING)	16)	M1		
Italian (PENDING)	16)	M2		
Spanish (PENDING)	16)	M3		
French (PENDING)	16)	M4		
English	16)	M5		
Chinese	16)	M6		
Portuguese (PENDING)	16)	MA		
Configuration				
Standard Pressure = in H2O / psi at 68 °F			N2	
Standard Pressure = in H2O / psi at 4 °C			N5	
Custom			N6	
Special Design Configuration			NK	
Bluetooth (PENDING)	18)		NE	
Plugs and Connectors				
One plastic plug Ex e (supplied loose) (PENDING)	22)			UA
One stainless steel plug dual grade 316/316L (supplied loose) (PENDING)	8)			UN
One stainless steel plug dual grade 316/316L Ex d (supplied loose)	19)			UP
One plastic cable gland plus plug Ex e (supplied loose) (PENDING)	22)			UE
One stainless steel cable gland Ex d (supplied loose) (PENDING)				UW
One Harting HAN 8D angled connector (supplied loose) (PENDING)	18), 20), 22)			UD
One Harting HAN 8D straight connector (supplied loose) (PENDING)	18), 20), 22)			UF

… Ordering Information

Notes for PDD300 differential pressure transmitter

1) Not available with Sensor Span Limits / Overpressure code digits 'A','C'
2) Not available with Maximum Working Pressure (Static Pressure code 'W9')
3) Not available with Diaphragm Material 'H'
4) Not available with Diaphragm Material code 'G'
5) Not available with Diaphragm Material code 'A', 'G'
6) Not available with Diaphragm Material code 'R'
7) The ambient temperature lower limit is −55 °C
8) Not available with Hazardous Area Approval code HUA, HUD, HUC, HCA, HCD, HCC, HMM, HNA, HND, HNC, HMN, HSA, HSD, HSM, HBA, HBD, HBC, HMB
9) Not applicable
10) Not applicable
11) Not available with Fill Fluid code '1'
12) Not available with Physical Application code 'P1'
13) Only available with Display code D2, D5
14) Option code 'CF', 'CN' provides an inspection certificates of calibration 0 to URL - Option code SU should be also selected if the inspection certificate is required for calibration different from 0 to URL
15) Mutually exclusive with Inspection certificate code 'CF' or 'CN'
16) Shipped in the box
17) Not available with assembled manifold
18) Not available with Outputs code "W'
19) Supplied loose with thread according to housing entries - M20 Hex type plug, ½ NPT Allen key type plug
20) Not available with Housing Material / Electrical Connection code S, T
21) Not applicable
22) Not available with any Hazardous area certification codes 'HxD' or 'HxM'
23) Not available with Housing Material / Electrical Connection code 'A', 'S'
24) Not available with Process Flanges Connection code 'A'
25) Not available with Outputs code H
26) Only available with Display code D1
27) Only available with Diaphragm Material code 'R'
28) Only available with Approval code 'GS'

Standard delivery scope

(changes possible with additional ordering code)

- For standard applications (without explosion protection)
- No LCD Display
- No mounting bracket
- No surge protection
- Multilanguage short-form operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates
- Calibration report from 0 to URL

Unless otherwise specified prior to manufacture, the customer shall be responsible for selecting suitable wetted parts and an appropriate filling fluid in order to ensure compatibility with the measuring fluid.
Compliance with the NACE regulation is based on recommendations MR0175 / ISO 15156. Additionally, stainless steel AISI 316, AISI 316L and Hastelloy C-276 automatically meet the criteria of MR0103, provided that they also meet the criteria of MR0175.

Trademarks

Buna-N is a registered trademark of DuPont Dow Elastomers.

Bluetooth is a registered trademarks of Bluetooth Special Interest Group (SIG)

HART is a registered trademark of FieldComm Group, Austin, Texas, USA

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Inconel is a registered trademark of Special Metals Corporation

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ABB Measure ment & Analytics

For your local ABB contact, visit:
www.abb.com/contacts

For more product information, visit:
www.abb.com/pressure

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