

# Differential pressure Deltabar FMD78

## Differential pressure transmitter with two diaphragm seals for differential pressure and level



F L E X

### Benefits:

- Large variety of different process connections and membrane materials
- New TempC Membrane for diaphragm seals: Minimum temperature effects and short recovery times
- Highest safety due to gas tight feedthrough with capabilities up to SIL2/3, certified to IEC 61508
- Easy menu-guided commissioning via local display, 4 to 20 mA with HART, PROFIBUS PA, FOUNDATION Fieldbus
- HistoROM data management concept for fast and easy commissioning, maintenance and diagnostics
- Cost savings with modular concept for easy replacement of sensor, display or electronics
- Seamless and independent system integration (HART/PA/FF)

More information and current pricing:

[www.si.endress.com/FMD78](http://www.si.endress.com/FMD78)

### Specs at a glance

- **Accuracy** 0,075% + influence of diaphragm seal
- **Process temperature** -40°C...400°C (-40°F...752°F)
- **Pressure measuring range** 100mbar...40bar (1.5psi ... 600 psi)
- **Process pressure / max. overpressure limit** 160bar (2400 psi)
- **Main wetted parts** Alloy C276 316L Monel Tantalum

**Field of application:** The Deltabar FMD78 differential pressure transmitter with metal sensor uses two capillary diaphragm seals. Typically used in process and hygiene applications for continuous measurement of pressure differences in liquids, vapors, gases and dusts. The integrated HistoROM data module makes the management of

process and device parameters easy. Designed according to IEC 61508 for use in SIL3 safety applications.

## Features and specifications

### Pressure

#### Measuring principle

Differential pressure

#### Characteristic

Digital transmitter with metallic measuring diaphragms diaphragm seals and capillaries

Modular transmitter

Long-term stability

Secondary process barrier

enhanced safety via self diagnostic functions.

#### Supply voltage

4...20 mA HART

10,5...45V DC (Non Ex):

Ex ia: 10,5...30V DC

PROFIBUS PA:

9...32 V DC (Non Ex)

FOUNDATION Fieldbus:

9...32 V DC (Non Ex)

#### Reference Accuracy

0,075% + influence of diaphragm seal

#### Long term stability

0.08 % of URL/ year

0.14 % of URL/ 5 years

0.27 % of URL/ 10 years

#### Process temperature

-70°C...400°C

(-94°F...752°F)

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**Pressure****Ambient temperature**

-50°C...85°C  
(-58°F...185°F)

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**Measuring cell**

100 mbar...40 bar  
(40 inH2O...600 psi)

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**Smallest calibratable span**

5 mbar (0.075 psi)

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**Vacuum resistance**

50 mbar (0.73 psi)

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**Max. Turn down**

100:1

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**Max. overpressure limit**

160 bar  
(2400 psi)

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**Process connection**

Diaphragm seal (Pancake, threads)  
Flanges (DIN, ASME)  
Hygienic connections  
Tri-Clamp ISO2852

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**Process connection hygienic**

Tri-Clamp  
DIN11851  
NEUMO  
Varivent  
SMS  
DRD  
Universal adapter

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**Pressure****Material process membrane**

316L, AlloyC,  
Tantal,  
Gold-Rhodium  
PTFE

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**Material gasket**

None, diaphragm seal welded

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**Fill fluid**

Silicone oil,  
Inert oil,  
Vegetable oil  
Low- temperature oil  
High- temperature oil

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**Material housing**

316L, Die-cast aluminum

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**Communication**

4...20 mA HART  
PROFIBUS PA  
FOUNDATION Fieldbus

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**Certificates / Approvals**

ATEX, FM, CSA, CSA C/US, IEC Ex, INMETRO, NEPSI, EAC, UK Ex

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**Safety approvals**

SIL

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**Design approvals**

NACE MR0175  
EN10204-3.1

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**Hygienic approvals**

3A, FDA

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**Marine approvals**

GL/ ABS

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## Pressure

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### Specialities

Diagnostic functions  
TempC Membrane

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### Successor

PMD78B

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## Continuous / Liquids

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### Measuring principle

Differential pressure

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### Characteristic / Application

Digital transmitter with metallic measuring diaphragms diaphragm seals and capillaries  
Modular transmitter  
Long term stability  
Enhanced safety via self diagnostic functions  
Secondary process barrier

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### Specialities

TempC membrane

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### Supply / Communication

4...20 mA HART:  
10,5...45V DC  
Ex ia: 10,5...30V DC  
PROFIBUS PA /  
FOUNDATION Fieldbus:  
9...32V DC

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### Accuracy

0,075% + influence of diaphragm seal

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### Long term stability

0,05% of URL/year

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## Continuous / Liquids

**Ambient temperature**

-50°C...85°C  
(-58°F...185°F)

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**Process temperature**

-40°C...400°C  
(-40°F...752°F)

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**Process pressure / max. overpressure limit**

160bar (2400 psi)

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**Pressure measuring range**

100mbar...40bar  
(1.5psi ... 600 psi)

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**Main wetted parts**

Alloy C276  
316L  
Monel  
Tantalum

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**Process connection**

Diaphragm seal (Pancakes, threads)  
Flanges (DIN, ASME)  
Tri-Clamp ISO2852  
Hygienic connections

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**Process connection hygienic**

Tri-Clamp  
DIN11851  
NEUMO  
Varivent  
SMS  
DRD  
Universal adapter

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**Max. measurement distance**

400m (1312ft) H2O

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**Continuous / Liquids****Communication**

4...20 mA HART  
PROFIBUS PA  
FOUNDATION Fieldbus

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**Certificates / Approvals**

ATEX, FM, CSA, CSA C/US, IEC Ex, INMETRO, NEPSI, EAC

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**Safety approvals**

SIL

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**Design approvals**

EN10204-3.1  
NACE MR0175, MR0103

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**Hygienic approvals**

3A, EHEDG

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**Marine approval**

GL/ ABS

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**Options**

HistoROM/M-Dat  
4-line digital display  
SS- or Aluminiumhousing  
Separate housing

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**Successor**

PMD78B

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**Application limits**

Measuring cell:  
Metal welded

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More information [www.si.endress.com/FMD78](http://www.si.endress.com/FMD78)