

# Differential pressure Deltabar FMD77

## Differential pressure transmitter with one diaphragm seal for level measurement



F L E X

### Benefits:

- Large variety of different process connections and membrane materials
- Highest safety due to gas-tight feedthrough with capabilities up to SIL2/3, certified to IEC 61508
- New TempC Membrane minimizes influences of ambient and process temperature fluctuations
- 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.us.endress.com/FMD77](http://www.us.endress.com/FMD77)

### 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...16bar (1.5psi...230 psi)
- **Process pressure / max. overpressure limit** 160bar (2400 psi)
- **Main wetted parts** Alloy C276 316L Monel Tantalum

**Field of application:** The Deltabar FMD77 differential pressure transmitter with metal sensor uses a one-sided diaphragm seal or diaphragm seals on both sides with a capillary on the low pressure side. Typically used in the process industry for continuous level measurement in liquids. 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, one side with diaphragm seal

Modular transmitter

Long-term stability

Secondary process barrier

enhanced safety via self diagnostic functions

#### Supply voltage

4...20mA 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

-40°C...400°C

(-40°F...752°F)

---

**Pressure****Ambient temperature**

-50°C...85°C  
(-58°F...185°F)

---

**Measuring cell**

100 mbar...16 bar  
(40 inH2O...240 psi)

---

**Smallest calibratable span**

5 mbar (0.075 psi)

---

**Vacuum resistance**

50 mbar (0.73 psi)

---

**Max. Turn down**

100:1

---

**Max. overpressure limit**

160 bar  
(2400 psi)

---

**Process connection**

Low pressure side:

1/4-18NPT

RC1/4"

High pressure side:

Flanges (DIN, ASME, JIS)

---

**Material process membrane**

316L, AlloyC,

Tantal,

Gold-Rhodium,

PTFE

---

**Material gasket**

None, diaphragm seal welded

---

---

**Pressure****Fill fluid**

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

---

**Material housing**

316L, Die-cast aluminum

---

**Communication**

4...20 mA HART  
PROFIBUS PA  
FOUNDATION Fieldbus

---

**Certificates / Approvals**

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

---

**Safety approvals**

SIL

---

**Design approvals**

NACE MR0175  
EN10204-3.1

---

**Specialities**

Diagnostic functions

---

**Successor**

PMD78B

---

**Continuous / Liquids****Measuring principle**

Differential pressure

---

---

**Continuous / Liquids****Characteristic / Application**

Digital transmitter with metallic measuring diaphragms one side with diaphragm seal

Modular transmitter

Long term stability

Enhanced safety via self diagnostic functions

Secondary process barrier

---

**Supply / Communication**

4...20 mA HART:

10,5...45V DC

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

PROFIBUS PA /

FOUNDATION Fieldbus:

9...32V DC

---

**Accuracy**

0,075% + influence of diaphragm seal

---

**Long term stability**

0,05% of URL/year

---

**Ambient temperature**

-50°C...85°C

(-58°F...185°F)

---

**Process temperature**

-40°C...400°C

(-40°F...752°F)

---

**Process pressure / max. overpressure limit**

160bar (2400 psi)

---

**Pressure measuring range**

100mbar...16bar

(1.5psi...230 psi)

---

---

**Continuous / Liquids****Main wetted parts**

Alloy C276

316L

Monel

Tantalum

---

**Process connection**

Low pressure side:

1/4-18NPT

RC1/4"

High pressure side:

Flanges (DIN, ASME, JIS)

---

**Max. measurement distance**

160m (525ft) H2O

---

**Communication**

4...20 mA HART

PROFIBUS PA

FOUNDATION Fieldbus

---

**Certificates / Approvals**

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

---

**Safety approvals**

SIL

---

**Design approvals**

EN10204-3.1

NACE MR0175, MR0103

---

**Options**

HistoROM/M-Dat

4-line digital display

SS- or Aluminiumhousing

Separate housing

---

**Successor**

PMD78B

## Continuous / Liquids

---

### Application limits

Measuring cell:  
Metal welded

---

More information [www.us.endress.com/FMD77](http://www.us.endress.com/FMD77)