#### **Pressure instrumentation**

Selection guide for pressure, differential pressure, level and flow measurement







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	Ceraphant 3x	
	PTP31B	PTC31B
Areas of application	Standard measurement Process pressure Pressure switch	Standard measurement Process pressure Pressure switch
Measuring principle		
Gauge pressure	V	<i>V</i>
<ul> <li>Absolute pressure</li> </ul>	<b>V</b>	<b>V</b>
Measuring range	400 mbar to 400 bar (6 to 6,000 psi)	100 mbar to 40 bar (1.5 to 600 psi)
Turn down	Up to 5:1	Up to 5:1
Measuring cell	Metallic measuring cell	Ceramic measuring cell
Output	<ul> <li>1 x switch output (PNP)</li> <li>2 x switch outputs (PNP)</li> <li>1 x switch output (PNP) +</li> <li>4 to 20mA analog</li> </ul>	<ul> <li>1 x switch output (PNP)</li> <li>2 x switch outputs (PNP)</li> <li>1 x switch output (PNP) +</li> <li>4 to 20mA analog</li> </ul>
Process temperature	-40 to +100 °C (-40 to +212 °F)	-25 to +100 °C (-13 to +212 °F)
Accuracy	Up to ±0.3 %	Up to ±0.3 %
Long-term stability	1 year: ±0.2 %	1 year: ±0.2 %
Process connections	Threads:  ISO228: G1/4, G1/2  ASME: MNPT1/4, MNPT1/2  DIN13: Metric M20x1.5  JIS R1/2	Threads:  ISO228: G1/4, G1/2  ASME: MNPT1/4, MNPT1/2  DIN13: Metric M20x1.5  JIS R1/2
Features	Very compact, fully welded, display	Very compact, fully welded, display



	Cerabar 11		Cerabar 21
	PMP11	PMC11	PMP21
Areas of application	Standard measurement  Process pressure	Standard measurement  Process pressure	Standard measurement Process pressure
Measuring principle			
■ Gauge pressure	<b>V</b>	<b>V</b>	<b>V</b>
■ Absolute pressure			<b>V</b>
Measuring range	400 mbar to 40 bar (6 to 600 psi)	400 mbar to 40 bar (6 to 600 psi)	400 mbar to 400 bar (6 to 6,000 psi)
Turn down	Up to 5:1	Up to 5:1	Up to 5:1
Measuring cell	Metallic measuring cell	Ceramic measuring cell	Metallic measuring cell
Output	<ul><li>4 to 20 mA</li><li>0 to 10 V</li></ul>	<ul><li>4 to 20 mA</li><li>0 to 10 V</li></ul>	■ 4 to 20 mA
Process temperature	−25 to +85 °C (−13 to +185 °F)	-25 to +85 °C (-13 to +185 °F)	-40 to +100 °C (-40 to +212 °F)
Accuracy	Up to ±0.5 %	Up to ±0.5 %	Up to ±0.3 %
Long-term stability	1 year: ±0.2 % 5 years: ±0.4 % 8 years: ±0.45 %	1 year: ±0.2 % 5 years: ±0.4 % 8 years: ±0.45 %	1 year: ±0.2 % 5 years: ±0.4 % 8 years: ±0.45 %
Process connections	Threads:  ISO228: G1/4, G1/2  ASME: MNPT1/4, MNPT1/2  DIN13: Metric M20x1.5	Threads:  ISO228: G1/4, G1/2  ASME: MNPT1/4, MNPT1/2  DIN13: Metric M20x1.5	Threads:  ISO228: G1/4, G1/2  ASME: MNPT1/4, MNPT1/2  DIN13: Metric M20x1.5  JIS R1/2
Features	Very compact, fully welded	Very compact, fully welded	Very compact, fully welded





#### Standard measurement

Process pressure

V

V

100 mbar to 40 bar (1.5 to 600 psi)

Up to 5:1

Ceramic measuring cell

4 to 20 mA

-25 to +100 °C (−13 to +212 °F)

Up to  $\pm 0.3~\%$ 

1 year: ±0.2 % 5 years: ±0.4 % 8 years: ±0.45 %

#### Threads:

- ISO228: G1/4, G1/2
- ASME: MNPT1/4, MNPT1/2
- DIN13: Metric M20x1.5
- JIS R1/2

Very compact, fully welded



	Cerabar 50	
	PMP50	PMP50
		33 33 34 34 34 34 34 34 34 34 34 34 34 3
Areas of application	Digital pressure transmitter  Process pressure  Level	Digital pressure transmitter Process pressure Level
Measuring principle		
■ Gauge pressure	V	V
■ Absolute pressure	V	V
Measuring range	1 bar to 400 bar (14.5 to 6,000 psi)	1 bar to 400 bar (14.5 to 6,000 psi)
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Metallic measuring cell	Metallic measuring cell, diaphragm seal
Output	■ 4 to 20 mA HART®	■ 4 to 20 mA HART®
Process temperature	Standard: -40 to +125 °C (-40 to +257 °F)	Diaphragm seal: −40 to +400 °C (−40 to +752 °F)
Accuracy	Up to ±0.055 %	Up to ±0.15 %
Long-term stability	1 year: ± 0.1 % 5 years: ± 0.2 % 10 years: ± 0.25 %	1 year: ± 0.1 % 5 years: ± 0.2 % 10 years: ± 0.25 %
Process connections	■ Thread: FNPT, MNPT, G1/2, M20x1.5, Oval flange NPT1/4-18	<ul> <li>Thread:         MNPT, G1/2, M20×1.5</li> <li>Flange:         ASME, RF; EN1092-1; RF</li> </ul>
Features	Modular, 2 chamber housing with integrated display and external zero/ span buttons	Modular, 2 chamber housing with integrated display and external zero/ span buttons



	Cerabar 51B	
	PMP51B	PMC51B
Areas of application	Compact robust pressure transmitter Process pressure Level	Compact robust pressure transmitter  Process pressure  Level
Measuring principle		
■ Gauge pressure	V	<b>v</b>
■ Absolute pressure	V	<b>✓</b>
Measuring range	400 mbar to 400 bar (6 to 6,000 psi)	100 mbar to 40 bar (1.5 to 600 psi)
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Metallic measuring cell, diaphragm seal	Ceramic measuring cell
Output	<ul> <li>4 to 20 mA analog</li> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> </ul>	<ul> <li>4 to 20 mA analog</li> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> </ul>
Process temperature	-70 to +400 °C (-94 to +752 °F)	-40 to +100 °C (-40 to +212 °F)
Accuracy	Up to ±0.055 %	Up to ±0.055 %
Long-term stability	1 year: ±0.1 % 5 years: ±0.2 % 10 years: ±0.25 %	1 year: ±0.1 % 5 years: ±0.25 % 10 years: ±0.4 %
Process connections	<ul> <li>Thread:         ASME, M/NPT; ISO228, G; DIN13,         metric</li> <li>Flange:         ASME, RF; EN1092-1</li> </ul>	<ul> <li>Thread: ASME, M/NPT; ISO228, G; JIS; DIN13, metric</li> <li>Flange: ASME, RF; EN1092-1; JIS, RF</li> </ul>
Features	Modular, 1 or 2 chamber housing, segment display, Bluetooth	Modular, 1 or 2 chamber housing, segment display, Bluetooth



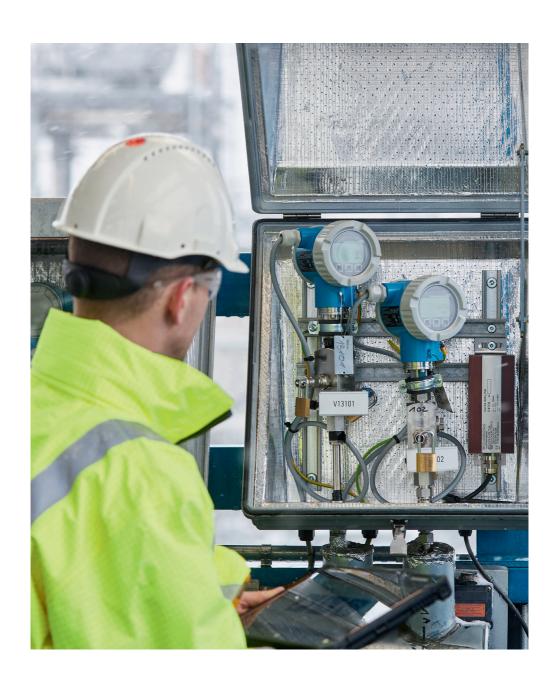
	Cerabar 71B	
	PMP71B	PMC71B
	27050	
Areas of application	High performance process pressure measurement  Process pressure  Level	High performance process pressure measurement  Process pressure  Level
Measuring principle		
■ Gauge pressure	V	<b>V</b>
<ul> <li>Absolute pressure</li> </ul>	V	<b>V</b>
Measuring range	400 mbar to 700 bar (6 to 10,150 psi)	100 mbar to 40 bar (1.5 to 600 psi)
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Metallic measuring cell, diaphragm seal	Ceramic measuring cell
Output	<ul> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> <li>PROFIBUS PA</li> </ul>	<ul> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> <li>PROFIBUS PA</li> </ul>
Process temperature	-70 to +400 °C (-94 to +752 °F)	−25 to +150 °C (−13 to +302 °F)
Accuracy	Up to ±0.025 %	Up to ±0.025 %
Long-term stability	1 year: ±0.05 % 5 years: ±0.07 % 10 years: ±0.1 %	1 year: ±0.05 % 5 years: ±0.08 % 10 years: ±0.1 %
Process connections	<ul> <li>Thread:         ASME, M/NPT; ISO228, G; JIS;         DIN13, metric</li> <li>Flange:         ASME, RF; EN1092-1; JIS, RF</li> <li>Separator (thread), barrel         (flange), pancake</li> </ul>	■ Thread: ASME, M/NPT; ISO228, G; JIS; DIN13, metric ■ Flange: ASME, RF; EN1092-1; JIS, RF
Features	Bluetooth, 1 or 2 chamber housing, graphic or segment display, Heartbeat Technology, HistoROM	Bluetooth, 1 or 2 chamber housing, graphic or segment display, Heartbeat Technology, HistoROM



	Deltabar	
	PMD50	PMD55B
	831	9 1050
Areas of application	Compact differential pressure transmitter  Differential pressure Level Flow	Compact robust differential pressure transmitter  Differential pressure Level Flow
Measuring orinciple	Differential pressure	Differential pressure
Measuring range	100 mbar to 40 bar (1.45 to 600 psi)	10 mbar to 40 bar (0.15 to 600 psi)
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Metallic measuring cell	Metallic measuring cell
Output	■ 4 to 20 mA HART®	<ul> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> </ul>
Process temperature	-40 to +110 °C (-40 to +230 °F)	-40 to +110 °C (-40 to +230 °F)
Accuracy	Up to ±0.055 %	Up to ±0.055 %
ong-term stability	1 year: ±0.05 % 5 years: ±0.15 % 10 years: ±0.25 %	1 year: ±0.05 % 5 years: ±0.13 % 10 years: ±0.23 %
Process connections	NPT1/4-18 IEC61518	<ul> <li>NPT1/4-18 IEC61518, DIN19213, coplanar compatible, NPT1/4-18</li> <li>RC1/4"</li> </ul>
Features	Modular, 2 chamber housing with integrated display and external zero/ span buttons	Modular, 1 or 2 chamber housing, segment display, Bluetooth



	Deltabar 7xB	
	PMD75B	PMD78B
Areas of application	High performance differential pressure measurement  Differential pressure  Level Flow	High performance differential pressure measurement Differential pressure Level
Measuring principle	<ul><li>Differential pressure</li><li>Gauge and absolute pressure</li></ul>	<ul> <li>Differential pressure</li> </ul>
Measuring range	10 mbar to 40 bar (0.15 to 600 psi) 160/240 bar gauge/absolute	100 mbar to 40 bar (1.5 to 600 psi) on both sides
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Metallic measuring cell	Metallic measuring cell, diaphragm seal
Output	<ul> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> <li>PROFIBUS PA</li> </ul>	<ul> <li>4 to 20 mA HART®</li> <li>PROFINET over Ethernet-APL</li> <li>PROFIBUS PA</li> </ul>
Process temperature	-40 to +110 °C (-40 to +230 °F)	-70 to +400 °C (-94 to +752 °F)
Accuracy	Up to ±0.035 %	Up to ±0.075 %
Long-term stability	1 year: ±0.025 % 5 years: ±0.05 % 10 years: ±0.1 %	1 year: ±0.025 % 5 years: ±0.05 % 10 years: ±0.1 %
Process connections	<ul><li>IEC61518, DIN19213, coplanar compatible, NPT1/4-18</li><li>RC1/4"</li></ul>	<ul> <li>Flange:         ASME, RF; EN1092-1; JIS, RF</li> <li>Separator (thread), barrel         (flange), pancake</li> </ul>
Features	Bluetooth, 1 or 2 chamber housing, graphic or segment display, Heartbeat Technology, HistoROM	Bluetooth, 1 or 2 chamber housing, graphic or segment display, Heartbeat Technology, HistoROM



	Deltabar 7x	
	FMD71	FMD72
Areas of application	High-performance electronic dp level measurement  Electronic differential pressure  Level	High-performance electronic dp level measurement  Electronic differential pressure  Level
Measuring principle	Electronic differential pressure	Electronic differential pressure
Measuring range	100 mbar to 40 bar (1.5 to 600 psi)	400 mbar to 10 bar (6 to 150 psi)
Turn down	Up to 100:1	Up to 100:1
Measuring cell	Ceramic measuring cell	Metallic measuring cell
Output	■ 4 to 20 mA HART®	■ 4 to 20 mA HART®
Process temperature	-25 to +125 °C/150 °C (-13 to +257 °F/302 °F) higher temperatures on request	-40 to +125 °C/150 °C (-40 to +257 °F/302 °F) higher temperatures on request
Accuracy	single sensor up to $\pm 0.05$ %, system up to $\pm 0.075$ %	single sensor up to $\pm 0.05$ %, system up to $\pm 0.075$ %
Long-term stability	1 year: ±0.05 % 10 years: ±0.2 %	1 year: ±0.05 % 10 years: ±0.1 %
Process connections	Thread, flange, flush-mounted connections	Thread, flange, flush-mounted connections
Features	Modular, 2 chamber housing, dot-matrix display	Modular, 2 chamber housing, dot-matrix display



#### Process applications – Waterpilot

	Waterpilot	
	FMX11	FMX21
Areas of application	Level probe for level measurement in fresh water	Level probe for level measurement in fresh water, waste water and salt water
Measuring principle	Hydrostatic pressure, gauge pressure	Hydrostatic pressure, gauge and absolute pressure
Measuring range	200 mbar to 2 bar (3 to 30 psi)	100 mbar to 20 bar (1.5 to 300 psi)
Turn down	Up to 10:1	Up to 10:1
Measuring cell	Metallic measuring cell	Ceramic measuring cell
Output	4 to 20 mA analog	<ul> <li>4 to 20 mA analog</li> <li>4 to 20 mA HART®</li> <li>optional Pt100</li> </ul>
Process temperature	-10 to +70 °C (+14 to +158 °F)	−10 to +70 °C (+14 to +158 °F)
Accuracy	Up to ±0.35 %	Up to ±0.1 %
Long-term stability	1 year: ±0.1 % 5 years: ±0.25 %	1 year: ±0.1 % 5 years: ±0.25 %
Process connections	Suspension clamp, cable gland G 1½" A or NPT 1½"	Suspension clamp, cable gland G 1½" A or NPT 1½"
Features	Very compact level probe	Level probe



# **Process applications – Deltapilot**

	Deltapilot		
	FMB51	FMB52	FMB53
Areas of application	Compact level measurement	Compact level measurement	Compact level measurement
Measuring principle	Hydrostatic pressure, gauge pressure	Hydrostatic pressure, gauge pressure	Hydrostatic pressure, gauge pressure
Measuring range	100 mbar to 10 bar (1.5 to 150 psi)	100 mbar to 10 bar (1.5 to 150 psi)	100 mbar to 10 bar (1.5 to 150 psi)
Turn down	Up to 20:1	Up to 20:1	Up to 20:1
Measuring cell	Contite metallic measuring cell	Contite metallic measuring cell	Contite metallic measuring cell
Output	■ 4 to 20 mA HART® ■ PROFIBUS® PA ■ FOUNDATION™ fieldbus	<ul> <li>4 to 20 mA HART®</li> <li>PROFIBUS® PA</li> <li>FOUNDATION™ fieldbus</li> </ul>	<ul> <li>4 to 20 mA HART®</li> <li>PROFIBUS® PA</li> <li>FOUNDATION™ fieldbus</li> </ul>
Process temperature	-10 to +85 °C (+14 to +185 °F)	With PE cable: -10 to +70 °C (+14 to +158 °F) With FEP cable: -10 to +80 °C (+14 to +176 °F)	With PE cable: -10 to +70 °C (+14 to +158 °F) With FEP cable: -10 to +80 °C (+14 to +176 °F)
Accuracy	Up to ±0.1 %	Up to ±0.1 %	Up to ±0.1 %
Long-term stability	1 year: ±0.1 % 5 years: ±0.25 %	1 year: ±0.05 % 5 years: ±0.125 %	1 year: ±0.05 % 5 years: ±0.125 %
Process connections	■ Thread: ASME, M/NPT; ISO228, G; ■ Flange: ASME, RF; EN1092-1; JIS, RF	■ Thread: ASME, M/NPT; ISO228, G; ■ Flange: ASME, RF; EN1092-1; JIS, RF	Suspension clamp
Features	Modular, 1 chamber housing, dot-matrix display	Modular, 1 chamber housing, dot-matrix display	Modular, 1 chamber housing, dot-matrix display



#### **Hygienic applications – Ceraphant/Cerabar**

	Cerabar	Ceraphant	Cerabar
	PMP23	РТР33В	PMP43
	M. III		
Areas of application	Standard measurement Process pressure	Standard measurement Process pressure Pressure switch	Standard measurement  Process pressure
Measuring principle			
<ul><li>Gauge pressure</li></ul>	V	V	V
<ul><li>Absolute pressure</li></ul>	V	V	V
Measuring range	400 mbar to 40 bar (6 to 600 psi)	400 mbar to 40 bar (6 to 600 psi)	400 mbar to 40 bar (6 to 600 psi)
Turn down	Up to 5:1	Up to 5:1	Up to 5:1
Measuring cell	Metallic measuring cell	Metallic measuring cell	Metallic measuring cell
Output	<ul><li>4 to 20 mA analog</li><li>IO- Link</li></ul>	<ul> <li>1 x switch output (PNP)</li> <li>2 x switch outputs (PNP)</li> <li>1 x switch output (PNP)</li> <li>4 to 20 mA analog</li> </ul>	<ul><li>4 bis 20 mA analog</li><li>4 to 20 mA HART®</li><li>10- Link</li></ul>
Process temperature	-10 to +100 °C (-40 to +212 °F) +135 °C (+275 °F) for max. 1 hour	-10 to +100 °C (14 to +212 °F) +135 °C (+275 °F) for max. 1 hour	-40 to +200 °C (-40 to +392 °F) +135 °C (+275 °F) for max. 1 hour
Accuracy	Up to ±0.3 %	Up to ±0.3 %	Up to ±0.075 %
Long-term stability	1 year: ±0.2 %	1 year: ±0.2 %	1 year: ±0.2 % 5 years: ±0.4 % 10 years: ±0.5 %
Process connections	Thread, flush-mounted hygiene connections, EHEDG,3A	Thread, flush-mounted hygiene connections, EHEDG,3A	Thread, flush-mounted hygiene connections, EHEDG,3A
Features	Very compact, fully welded, display	Very compact, fully welded, display	Compact; optional with color display and/or Bluetooth

PMC51	PMC71	PMP75
Compact pressure transmitter  Process pressure Level	High-performance pressure measurement Process pressure Level	High-performance pressure measurement Process pressure Level
<i>v</i>	<i>v</i>	<i>v</i>
<i>V</i>	V	V
100 mbar to 40 bar (1.5 to 600 psi)	100 mbar to 40 bar (1.5 to 600 psi)	400 mbar to 400 bar (6 to 6,000 psi)
Up to 20:1	Up to 100:1	Up to 100:1
Ceramic measuring cell	Ceramic measuring cell	Metallic measuring cell, diaphragm seal
■ 4 to 20 mA analog ■ HART® ■ PROFIBUS® PA ■ FOUNDATION™ fieldbus	■ 4 to 20 mA HART® ■ PROFIBUS® PA ■ FOUNDATION™ fieldbus	■ 4 to 20 mA HART® ■ PROFIBUS® PA ■ FOUNDATION™ fieldbus
-40 to +130 °C (-40 to +266 °F) +150 °C (+302 °F) for 1 h	−20 to +150 °C (−4 to +257 °F)	-70 to +400 °C (-94 to +752 °F)
Up to ±0.075 %	Up to ±0.025 %	Up to ±0.075 %
1 year: ±0.2 % 5 years: ±0.4 % 10 years: ±0.5 %	1 year: 0.05 % 5 years: 0.08 % 10 years: 0.1 %	1 year: 0.05 % 5 years: 0.07 % 10 years: 0.1 %
Wide range of flush-mounted hygiene connections EHEDG, 3A, NSF, CoC-ASME BPE	Wide range of flush-mounted hygiene connections EHEDG, 3A	Wide range of flush-mounter hygiene connections EHEDG, 3A
Modular, 1 chamber housing, dot-matrix display	Modular, 2 chamber housing, dot-matrix display	Modular, 2 chamber housing dot-matrix display

#### Hygienic applications – Deltapilot/Deltabar

Deltapilot		Deltapilot	
	FMB50	FMB70	
Areas of application	Compact level measurement Process pressure Level	High-performance level measurement  Process pressure Level	
Measuring principle	Hydrostatic level Gauge pressure	Hydrostatic level Gauge pressure	
Measuring range	100 mbar to 10 bar (1.5 to 150 psi)	100 mbar to 10 bar (1.5 to 150 psi)	
Turn down	Up to 20:1	Up to 100:1	
Measuring cell	Contite metallic measuring cell	Contite metallic measuring cell	
Output	■ 4 to 20 mA HART® ■ PROFIBUS® PA ■ FOUNDATION™ fieldbus	<ul> <li>4 to 20 mA HART®</li> <li>PROFIBUS® PA</li> <li>FOUNDATION™ fieldbus</li> </ul>	
Process temperature	-10 to +100 °C (+14 to +212 °F) +135 °C (+275 °F) for 30 min.	-10 to +100 °C (+14 to +212 °F) +135 °C (+275 °F) for 30 min.	
Accuracy	Up to ±0.1 %	Up to ±0.075 %	
Long-term stability	1 year: ±0.05 % 5 years: ±0.25 %	1 year: ±0.05 % 5 years: ±0.125 %	
Process connections	Wide range of flush-mounted hygiene connections EHEDG, 3A, NSF, KTW, WHG, CoC-ASME BPE	Wide range of flush-mounted hygiene connections EHEDG, 3A, CoC-ASME BPE	
Design	Modular, 1 chamber housing, dot-matrix display	Fully modular, 2 chamber housing, dot-matrix display	

#### Deltabar

#### FMD78



#### High-performance pressure measurement

- Differential pressure
- Level

Differential pressure

100 mbar to 40 bar (1.5 to 600 psi)

Up to 100:1

Metallic measuring cell, diaphragm seal

- 4 to 20 mA HART®
- PROFIBUS® PA
- FOUNDATION™ fieldbus

−70 to +400 °C (−94 to +752 °F)

Up to  $\pm 0.075$  %

1 year: ±0.08 % 10 years: ±0.2 %

Wide range of flush-mounted hygiene connections EHEDG, 3A

Fully modular, 2 chamber housing, dot-matrix display

