

Data sheet

# Electronic Pressure Switch Type MEP



**MEP 2200 and MEP 2250 versions:**

- Dual output
- Output 1: Switch output
  - Hysteresis 1% FS
  - Time constant 1 mS
- Output 2: Analogue output
  - Ratiometric or absolute voltage output

**MEP 2600 and MEP 2650 versions:**

- Single output
- Output 1: Switch output
  - Hysteresis 1 – 8% FS
  - Time constant 8 – 512 mS

**The series is available in 2 versions:**

- MEP 2200 and MEP 2600 – without integrated pulse-snubber
- MEP 2250 and MEP 2650 – with integrated pulse-snubber

The integrated pulse-snubber offers a high degree of protection against cavitations and liquid hammer, and the well thought out design results in excellent vibration stability and an exceptional robustness.

The high degree of EMI protection equips the electronic pressure switch to meet most requirements.

**Features**

- Designed for use in severe OEM applications
- Excellent long term stability with zero drift
- No leakages due to fully welded design
- Wetted parts made of stainless steel
- For medium and ambient temperatures up to 125 °C
- Dual output versions with switch function and an analogue output signal: 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V, 10 – 90% ratiometric voltage as additional output
- Switch versions with customized hysteresis and time constant
- A wide range of pressure and electrical connections
- EMC protection up to 100 V/m

**Approvals**

UL 508 recognized  
ISO 7637 pulse 1–24V

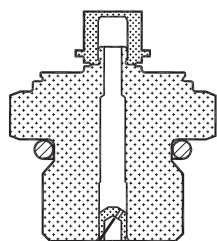
**Pulse-snubber in MEP 2250 and MEP 2650**

*Application*

The pulse-snubber protects the sensor element in the event of cavitation, liquid hammer and pressure peaks, which may occur in liquid filled systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops.

The problem may occur on the inlet and outlet side, even at rather low operating pressures.

The media viscosity has only little effect on the response time. Even at viscosities up to 100 cSt, the response time will not exceed 4 ms.



Pulse-snubber

**Technical data**

*Performance (EN 60770)*

	MEP 2200 and MEP 2250	MEP 2600 and MEP 2650
	Dual output (Switch and Analogue - output)	Switch output (Switch - output)
Switch Hysteresis	1% FS	1 – 8% FS
Switch Time delay	1 mS	8 – 512 mS
Accuracy (incl. non-linearity, hysteresis and repeatability)	2% FS	2% FS
Thermal accuracy	< ±0.15% FS / 10K	< ±0.15% FS / 10K

*Overload and burst pressure – without pulse-snubber*

Nominal pressure [bar]	10	16	25	40	60	100	160	250	400	500	600	1000*	1600*	2200*
Overload pressure	30	48	80	80	140	200	320	500	800	1400	1400	2000	2500	3000
Burst pressure	400	640	800	800	1400	2000	1600	2500	4000	>4000	>4000	>4000	>4000	>4000

\* Only available with M12 x 11.5 P high pressure port, type FC06. Please contact Danfoss.

*Overload and burst pressure – with integrated pulse-snubber*

Nominal pressure [bar]	10	16	25	40	60	100	160	250	400	500	600
Overload pressure	30	48	120	120	210	300	480	750	1200	2100	2100
Burst pressure	400	640	800	800	1400	2000	1600	2500	4000	>4000	>4000

*Electrical Specifications*

Type	MEP 2200 and MEP 2250	MEP 2600 and MEP 2650
	Dual output (Switch and Analogue - output)	Switch output (Switch - output)
Max. load @ 125 °C	125 mA	500 mA
Max. load @ 85 °C	400 / 500 mA	500 mA
Electrical connector types (see also page 6)	Deutsch DT04-4P, M12 x 1-4P	Deutsch DT04-3P

**Technical data**  
*(continued)*
*Secondary output reference for MEP 2200 and 2250*

Nom. output signal (Short-circuit protected)	NPN and PNP		NPN
	0 – 5, 1 – 5, 1 – 6 V	0 – 10 V	10 – 90% ratiometric
Supply voltage [U <sub>s</sub> ], polarity protected	8 – 30 V	12 – 30 V	—
Supply – current consumption	4.5 mA	4.5 mA	4.5 mA
Output impedance	≤ 90Ω	≤ 90Ω	≤ 90Ω
Load [R <sub>L</sub> ] (connected to 0 V)	R <sub>L</sub> ≥ 10kΩ	R <sub>L</sub> ≥ 10kΩ	R <sub>L</sub> ≥ 5kΩ
Load [R <sub>L</sub> ] (connected to + V)	Not possible	Not possible	R <sub>L</sub> ≥ 5kΩ

*Environmental conditions*

Media temperature range	-40 – 125 °C	
Ambient temperature range	-40 – 125 °C	
Compensated temperature range	-40 – 125 °C	
Transport temperature range	-55 – 150 °C	
EMC – Emission	EN 61326-2-3	
EMC Directive	2004/108/EC	
EMC – Immunity RF field	100 V/m, 26 Mhz – 1 Ghz	EN 61326-2-3 Cable < 30 m
	3 V/m, 1.4 GHz – 2.7 GHz	
Electrical performance comply with	ISO 7637 pulse 1 – 4, 24 V	
Vibration stability	20 g, 10 – 2000 Hz, sinus	EN 60068-2-6
Shock resistance	100 g	EN 60068-2-27
Durability, P:	10 – 90% FS	> 10 × 10 <sup>6</sup> cycles
Enclosure (depending on electrical connection)	see page 7	

*Mechanical conditions*

Materials	Wetted parts	17 – 4 PH
	Enclosure	AISI 304 or plastic
	Pressure connection	17 – 4 PH
	Electrical connection	see page 7

Configuration codes for MEP 2200 and MEP 2250

<p>Code 1</p>		<p><b>NPN – dual output</b> NPN / Switch to ground</p>
<p>Code 2</p>		<p><b>NPN – dual output</b> NPN / Switch to ground</p>
<p>Code 3</p>		<p><b>PNP – dual output</b> PNP / Switch to supply</p>
<p>Code 4</p>		<p><b>PNP – dual output</b> PNP / Switch to supply</p>

<sup>1)</sup> NO: At rising pressure ( $P^0 - P^{Max}$ ) when reaching the set point the switch will connect the applied load (Switch state change from low to high).  
At falling pressure ( $P^{Max} - P^0$ ) when reaching the set point + hysteresis the switch will disconnect the applied load (Switch state change from high to low).

<sup>2)</sup> NC: At rising pressure ( $P^0 - P^{Max}$ ) when reaching the set point the switch will disconnect the applied load (Switch state change from high to low).  
At falling pressure ( $P^{Max} - P^0$ ) when reaching the set point + hysteresis the switch will connect the applied load (Switch state change from low to high).

Configuration codes for MEP 2600 and MEP 2650

<p>Code 5</p>		<p><b>NPN – switch output</b> NPN / Switch to ground</p>
<p>Code 6</p>		<p><b>NPN – switch output</b> NPN / Switch to ground</p>
<p>Code 7</p>		<p><b>PNP – switch output</b> PNP / Switch to supply</p>
<p>Code 8</p>		<p><b>PNP – switch output</b> PNP / Switch to supply</p>

- 1) NO: At rising pressure ( $P^0 - P^{Max}$ ) when reaching the set point the switch will connect the applied load (Switch state change from low to high).  
At falling pressure ( $P^{Max} - P^0$ ) when reaching the set point + hysteresis the switch will disconnect the applied load (Switch state change from high to low).
- 2) NC: At rising pressure ( $P^0 - P^{Max}$ ) when reaching the set point the switch will disconnect the applied load (Switch state change from high to low).  
At falling pressure ( $P^{Max} - P^0$ ) when reaching the set point + hysteresis the switch will connect the applied load (Switch state change from low to high).

Ordering standard for dual output version type MEP 2200 and MEP 2250

<b>MEP 22..</b>																									
Standard	0 0																								
With pulse-snubber	5 0																								
<b>Measuring range</b>																									
0 – 10 bar		2 0																							
0 – 16 bar		2 2																							
0 – 25 bar		2 4																							
0 – 40 bar		2 6																							
0 – 60 bar		2 8																							
0 – 100 bar		3 0																							
0 – 160 bar		3 2																							
0 – 250 bar		3 4																							
0 – 400 bar		3 6																							
0 – 600 bar		3 8																							
<b>Configuration code</b>																									
See page 4		1																							
See page 4		2		2																					
See page 4		3		3																					
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To be entered in [bar]		x x x																							
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1	1% FS																								
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<sup>1)</sup> Incl. Viton gasket. Min. medium temperature is -25 °C

Ordering standard for switch version type MEP 2600 and MEP 2650

<b>MEP 26..</b>																															
Standard	0 0																														
With pulse-snubber	5 0																														
<b>Measuring range</b>																															
0 – 10 bar		2 0																													
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<sup>1)</sup> Incl. Viton gasket. Min. medium temperature is -25 °C

Dimensions / Combinations

Type code	C1	C3	C7
	M12 x 1 EN60947-5-2	Deutsch DT04-4P	Deutsch DT04-3P
<p><b>Note:</b> The diameter of all housings is 19 mm.</p>			

<p><b>Note:</b> HEX is 22 mm across flats.</p>					
	7/16 – 20 UNF-2A	1/4 – 19 Pt	1/4 – 18 NPT / NPTF	1/8 – 27 NPT / NPTF	G 1/4 A DIN 3852-E
Type code	<b>BD08</b>	<b>PT04</b>	<b>AC04/AF04</b>	<b>AC02/AF02</b>	<b>GB04</b>
Recommended torque	18 – 20 Nm	2 – 3 turns after finger tightend	2 – 3 turns after finger tightend	2 – 3 turns after finger tightend	30 – 35 Nm

Electrical connections

Type code	C1	C3	C7
	M12x1 EN60947-5-2	Deutsch DT04-4P	Deutsch DT04-3P
Enclosure	IP67	IP67	IP67
Material	SS, PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Tin (Sn) plated
Electrical connections, 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V, ratiometric 10 – 90%	Pin 1: + supply Pin 2: pressure output Pin 3: ÷ supply Pin 4: switch output	Pin 1: ÷ supply Pin 2: + supply Pin 3: switch output Pin 4: pressure output	Pin A: + supply Pin B: ÷ supply Pin C: Switch output

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