



# DMP 457

## Pressure Transmitter For Shipbuilding And Offshore

### Stainless Steel Sensor

accuracy according to IEC 60770:  
standard: 0.35 % FSO  
option: 0.25 % FSO

Shipbuilding and Offshore

DMP 457

#### **Nominal pressure**

from 0 ... 100 mbar  
up to 0 ... 600 bar

#### **Output signals**

2-wire: 4 ... 20 mA  
others on request

#### **Special characteristics**

- ▶ shipping approvals  
GL (Germanischer Lloyd) and  
DNV (Det Norske Veritas)
- ▶ **flush pressure port  
G 1/2" from 100 mbar**
- ▶ excellent  
thermal characteristic

#### **Optional versions**

- ▶ IS-version  
Ex ia = intrinsically safe for  
gases and dusts
- ▶ **welded pressure port**



The pressure transmitter DMP 457 has been especially designed for rough conditions occurring especially in shipbuilding and offshore applications. All gaseous and liquid media, which are compatible with stainless steel 1.4404 (316L) respectively can be used.

Sensor element is a piezoresistive stainless steel sensor with high accuracy and excellent long-term stability. In order to meet the special requirements for shipbuilding and offshore applications extensive tests had to be passed to get the Germanischer Lloyd (GL) and Det Norske Veritas (DNV) approvals.

A variety of standard output signals as well as mechanical and electrical connections make the DMP 457 covering a wide field of applications.

#### **Preferred areas of use are**

##### Shipbuilding and Offshore



Diesel Engines  
Drives  
Compressors  
Pumps  
Boiler  
Hydraulic and Pneumatic  
Control Systems



Fuel and Oil

<b>Input pressure range</b>												
Nominal pressure gauge [bar]	-1 ... 0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	
Nominal pressure abs. [bar]	-	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	
Level gauge / abs. [mH <sub>2</sub> O]	-	1	1.6	2.5	4	6	10	16	25	40	60	
Overpressure [bar]	5	0.5	1	1	2	5	5	10	10	20	40	
Burst pressure ≥ [bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	
Nominal pressure gauge <sup>1</sup> [bar]	10	16	25	40	60	100	160	250	400	600		
Nominal pressure abs. [bar]	10	16	25	40	60	100	160	250	400	600		
Level gauge / abs. [mH <sub>2</sub> O]	100	160	250	400	-	-	-	-	-	-	-	
Overpressure [bar]	40	80	80	105	210	600	600	1050	1250	1250		
Burst pressure ≥ [bar]	50	120	120	210	420	1000	1000	1250	-	-		
Vacuum resistance	P <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance P <sub>N</sub> < 1 bar: on request											
<sup>1</sup> from 60 bar: measurement starts with ambient pressure												
<b>Output signal / Supply</b>												
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 8 ... 32 V <sub>DC</sub>											
Option IS-protection	2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 28 V <sub>DC</sub>											
<b>Performance</b>												
Accuracy <sup>2</sup>	Standard: Nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO Nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO Option: Nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO											
Permissible load	R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02] Ω											
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ											
Long term stability	≤ ± 0.1 % FSO / year by reference conditions											
Response time	< 10 msec											
<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)												
<b>Thermal effects (Offset and Span) / Permissible temperatures</b>												
Nominal pressure P <sub>N</sub> [bar]	-1 ... 0			< 0.4				≥ 0.40				
Tolerance band [% FSO]	≤ ± 0.75			≤ ± 1				≤ ± 0.75				
in compensated range [°C]	-20 ... 85			0 ... 70				-20 ... 85				
Permissible temperatures	medium: -40 ... 125°C			electronics / environment: -40 ... 85°C				storage: -40 ... 100°C				
<b>Electrical protection</b>												
Short-circuit protection	permanent											
Reverse polarity protection	no damage, but also no function											
Electromagnetic compatibility	emission and immunity according to - EN 61326 - Germanischer Lloyd (GL) - Det Norske Veritas (DNV)											
<b>Mechanical stability</b>												
Vibration	4 g (according to GL: curve 2 / according to DNV: Class B / basis: IEC 60068-2-6)											
<b>Materials</b>												
Pressure port	stainless steel 1.4404 (316L)											
Housing	standard: stainless steel 1.4404 (316L) option field housing: stainless steel 1.4404 (316L), with cable gland											
Cable sheath	for cable outlet			for submersible version				permissible temperatures				
	PVC - cable PUR - cable			PVC - probe cable PUR - probe cable FEP - probe cable TPE - probe cable				-5 ... 70 °C -25 ... 70 °C -25 ... 70 °C -25 ... 125 °C				
Seals (media wetted)	standard: FKM option: NBR welded version <sup>3</sup> others on request											
Diaphragm	stainless steel 1.4435 (316L)											
Media wetted parts	pressure port, seals, diaphragm											
<sup>3</sup> welded version only with pressure ports according to EN 837; possible for nominal pressure ranges P <sub>N</sub> ≤ 40 bar												
<b>IS-protection</b>												
Approval DX 19-DMP 457	IBExU10ATEX1068X			zone 0: II 1G Ex ia IIB T4 Ga				zone 20: II 1D Ex ia D 20 T85 °C				
Safety technical maximum values	U <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> = 105 nF, L <sub>i</sub> = 5 μH											
Permissible temperatures for environment	in zone 0: -20 ... 60 °C bei p <sub>atm</sub> 0.8 bar bis 1.1 bar in zone 1 or higher: -25 ... 70 °C											
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μH/m											

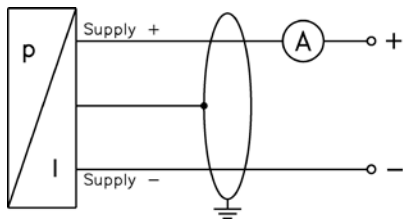
Miscellaneous	
Current consumption	max. 25 mA
Weight	approx. 140 g (with ISO 4400)
Installation position	any <sup>4</sup>
Operational life	> 100 x 10 <sup>6</sup> pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) <sup>5</sup>
ATEX-directive	94/9/EC

<sup>4</sup> Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges  $P_N \leq 1$  bar.

<sup>5</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar

### Wiring diagram

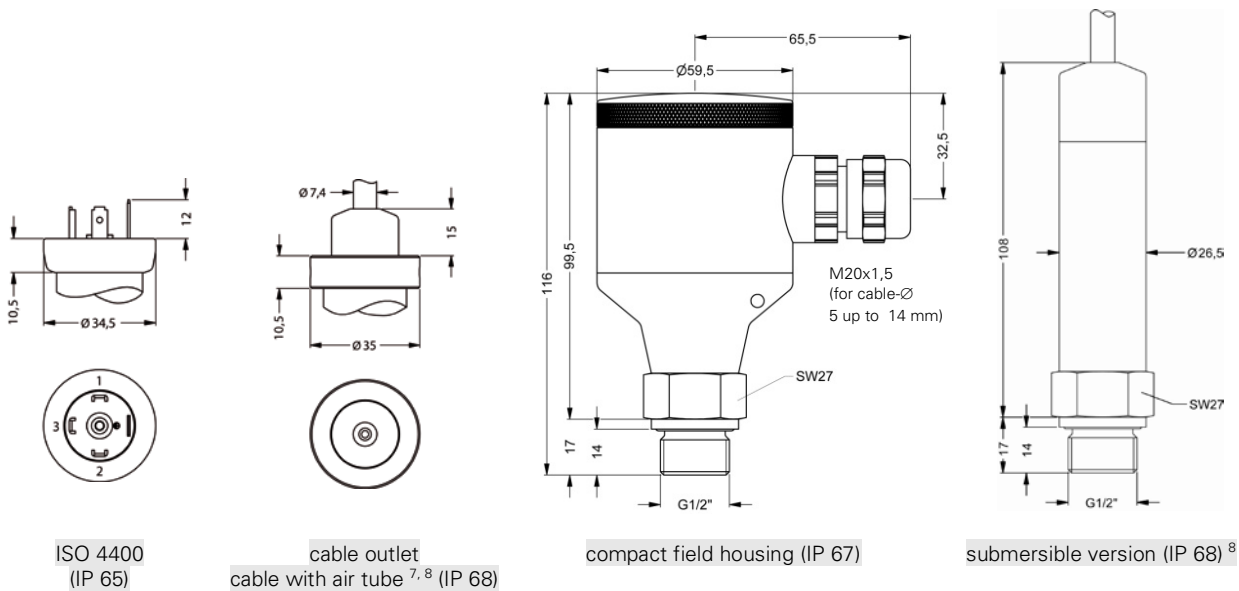
2-wire-system (current)



### Pin configuration

Electrical connection	ISO 4400	field housing	cable colours (DIN 47100)
Supply +	1	IN +	WH (white)
Supply -	2	IN -	BN (brown)
Shield	ground pin	⏏	GNYE (green / yellow)

### Electrical connections<sup>6</sup> (dimensions in mm)



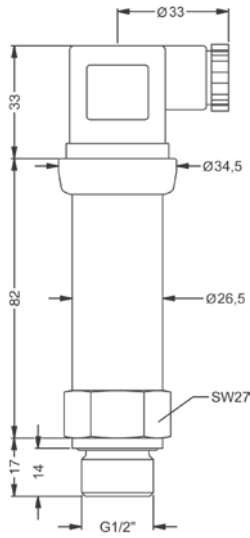
<sup>6</sup> Generally shielded cable has to be used! Cable versions are delivered with shielded cable. For ISO 4400 the use of shielded cable is compulsory.

<sup>7</sup> tested at 4 bar or 40 mH<sub>2</sub>O for 24 hours

<sup>8</sup> different cable types and lengths available, permissible temperature depends on kind of cable, see cable connection

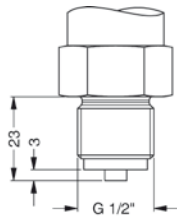
**Mechanical connection (dimensions in mm)**

**Standard**

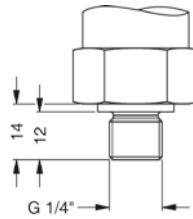


G1/2" DIN 3852

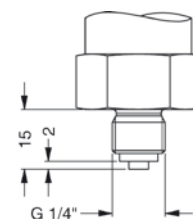
**Option**



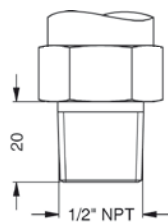
G1/2" EN 837



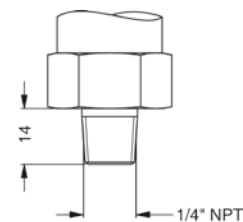
G1/4" DIN 3852



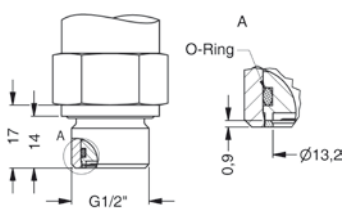
G1/4" EN 837



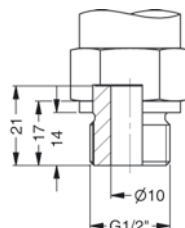
1/2" NPT



1/4" NPT



G1/2" flush DIN 3852  
(up to 40 bar)



G1/2" open port DIN 3852  
(up to 40 bar)

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

