

DMK 458

Pressure Transmitter for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.25 % FSO
option: 0.1 % FSO



Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signals

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

Characteristics

- ▶ LR-certificate (Lloyd's Register)
- ▶ DNV•GL Approval (Det Norske Veritas•Germanischer Lloyd)
- ▶ ABS-certificate (American Bureau of Shipping)
- ▶ CCS-certificate (China Classification Society)
- ▶ high overpressure resistance
- ▶ excellent long term stability




Optional versions

- ▶ IS-version
Ex ia= intrinsically safe for gases
- ▶ diaphragm Al₂O₃ 99,9 %
- ▶ pressure port in CuNiFe

The pressure transmitter DMK 458 has been developed for marine and offshore applications. In addition to thread connections, different flush versions are available, which are especially suitable for pasty, viscous, and polluted media.

Due to the capacitive ceramic sensor developed by BD SENSORS, which is optionally available in Al₂O₃ 99.9 %, the DMK 458 shows an outstanding accuracy as well as a high overload and temperature resistance.

Preferred areas of use

-  Monitoring of pressure during loading and unloading processes
-  Monitoring of a ship's position and draught
- Use in anti-heeling systems
-  Level measurement in ballast and storage tanks



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Technical Data

Pressure ranges																
Nominal pressure ¹	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.2		-0.3		-0.5				-1						

¹ available in gauge and absolute; nominal pressure ranges absolute from 1 bar

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC} V _{S rated} = 24 V _{DC}
Option IS-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC} V _{S rated} = 24 V _{DC}
Performance	
Accuracy ²	standard: ≤ ± 0.25 % FSO option for P _N ≥ 0.6 bar ³ : ≤ ± 0.1 % FSO
Permissible load	R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Turn-on time	700 msec
Mean response time	< 200 msec mean measuring rate 5/sec
Max. response time	380 msec
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
³ Under the influence of disturbance burst according to EN 61000-4-4 (2004) +2 kV accuracy decreases on ≤ ± 0.25 % FSO.	
Thermal effects	
Thermal error	≤ ± 0.1 % FSO / 10 K in compensated range -20 ... 80 °C
Permissible temperatures	
Permissible temperatures	medium: -40 ... 125°C electronics / environment: -25 ... 85°C storage: -40 ... 100°C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to - EN 61326 - DNV•GL (Det Norske Veritas • Germanischer Lloyd)
Mechanical stability	
Vibration	4 g (according to DNV•GL: Class B, curve 2 / basis: IEC 60068-2-6)
Materials	
Pressure port	standard: stainless steel 1.4404 (316 L) option for inch thread G1/2" open pressure port (not possible with field housing): CuNi10Fe1Mn
Housing	stainless steel 1.4404 (316 L)
Option field housing	stainless steel 1.4404 (316 L) cable gland: absolute, sealed gauge: brass, nickel plated gauge: polyamide (with integrated pressure reference); others on request
Cable sheath for option cable outlet	TPE -U (flame-resistant, halogen free, increased resistance against oil and gasoline, resistant against salt, sea water, heavy oil)
Seals (media wetted)	FKM others on request
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %
Media wetted parts	pressure port, seals, diaphragm
Category of the environment	
Lloyd's Register (LR)	EMV1, EMV2, EMV3 ⁴ , EMV4 number of certificate: 13/20055
Det Norske Veritas • Germanischer Lloyd (DNV•GL)	temperature: D vibration: B number of certificate: TAA00001GR humidity: B enclosure: D electromagnetic compatibility: B
⁴ not valid for IS-version (DX14A-DMK 458)	
Explosion protection	
Approval DX14A-DMK 458	IBExU 07 ATEX 1180 X field housing zone 0: II 1G Ex ia IIC T4 Ga ISO 4400, M12x1, cable outlet: zone 0: II 1G Ex ia IIB T4 Ga
Safety technical maximum values	U _i = 28 V; I _i = 93 mA; P _i = 660 mW; L _i = 0 μH field housing: C _i = 52.3 nF; 90.2 nF opposite GND ISO 4400, M12x1, cable outlet: C _i = 105 nF; 140 nF opposite GND
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 70 °C
Permissible temperatures for medium	-40 ... 85 °C
Miscellaneous	
Ingress protection	IP 65, IP 67, IP 68
Installation position	any
Current consumption	max. 21 mA
Weight	min. 400 g (depending on housing and mechanical connection)
Operational life	100 million load cycles
CE conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

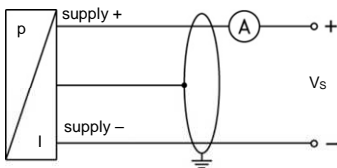
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Technical Data

Wiring diagram

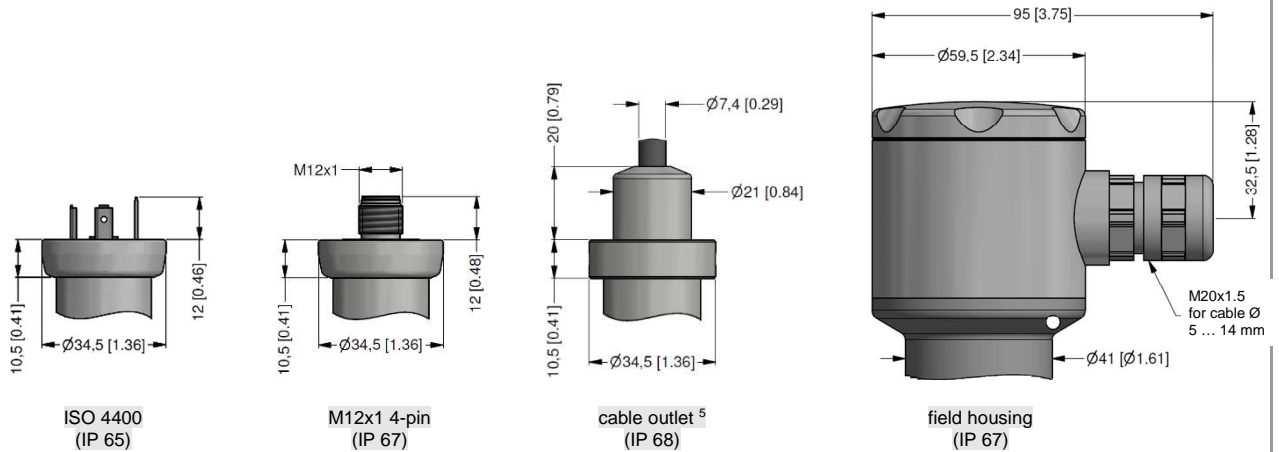
2-wire-system (current)



Pin configuration

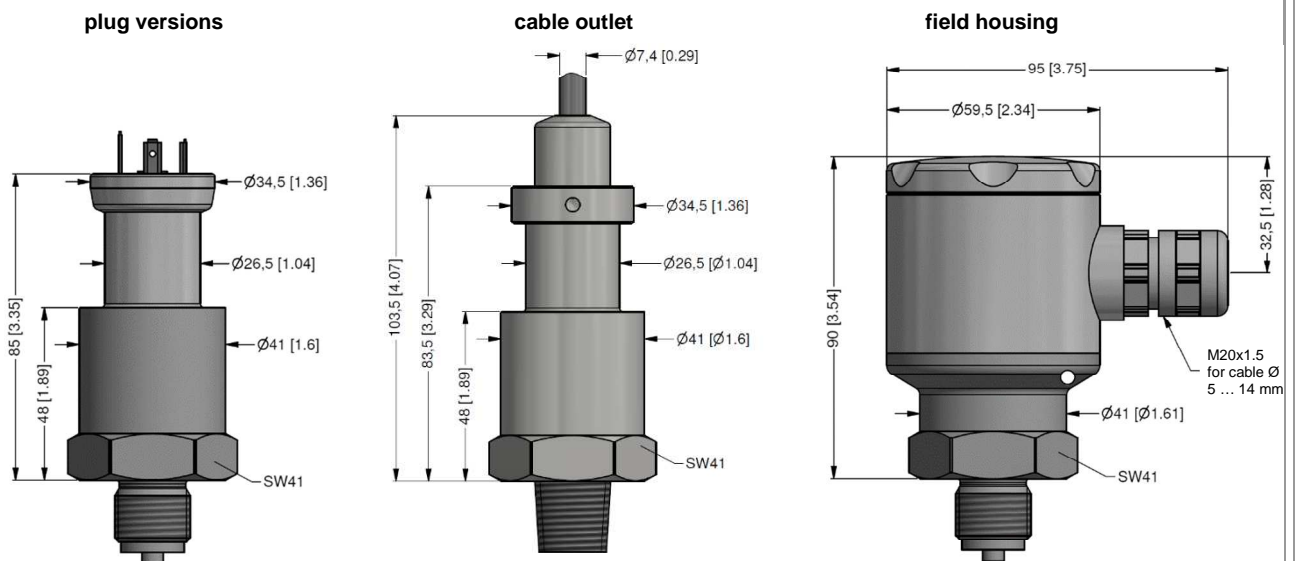
Electrical connections	ISO 4400	field housing (clamp section: 2.5 mm ²)	M12x1 (4-pin), metal	cable colours (IEC 60757)
Supply +	1	VS+	1	WH (white)
Supply -	2	VS-	2	BN (brown)
Shield	ground pin		4	GNYE (green-yellow)

Electrical connections (dimensions mm / in)



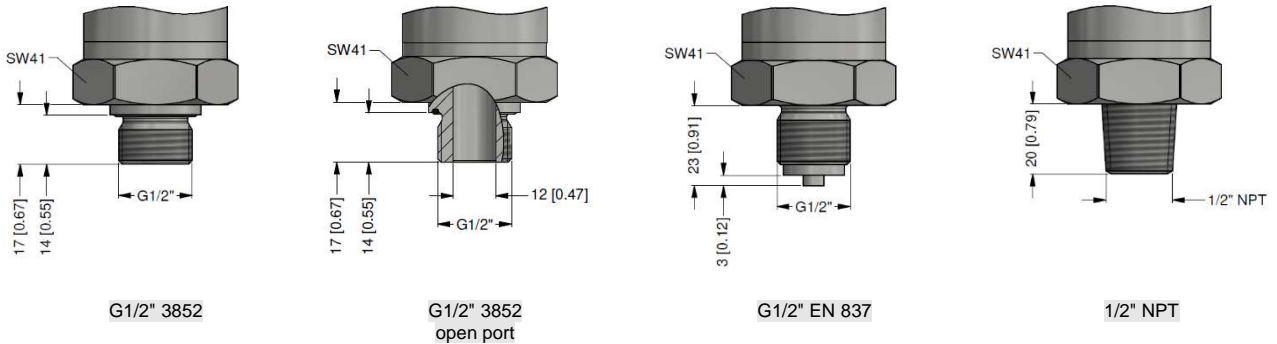
⁵ cable versions are delivered with shielded cable (different lengths available);
for gauge pressure cable with ventilation tube required; tested at 4 bar or 40 mH₂O for 24 hours

Dimensions (mm / in)

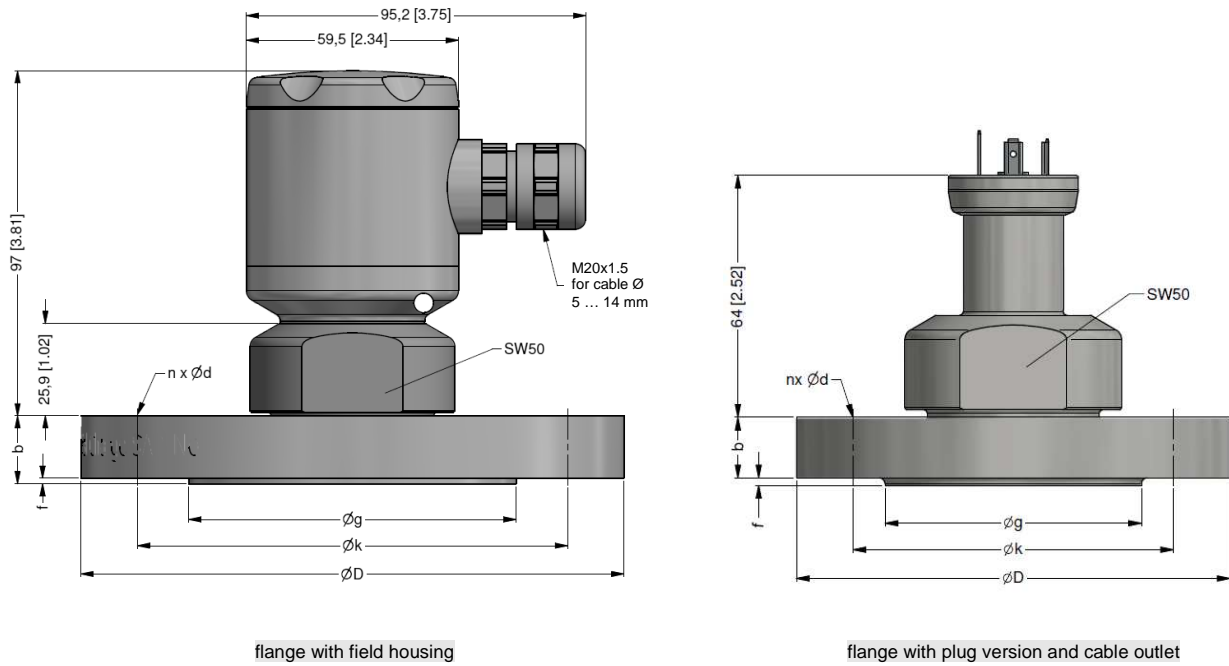


Mechanical connections (dimensions mm / in)

inch thread



flange



size	dimensions in mm					
	DIN 2501				ANSI	
	DN25/PN40	DN40/PN40	DN50/PN40	DN80/PN16	2"/150 lbs	3"/150 lbs
b	18	18	20	20	19.1	23.9
d	14	18	18	18	19.1	19.1
D	115	150	165	200	152.4	190.5
f	2	3	3	3	2	2
g	68	88	102	138	91.9	127
k	85	110	125	160	120.7	152.4
n	4	4	4	8	4	4
p _N [bar]	≤ 40	≤ 40	≤ 40	≤ 16	≤ 10	≤ 10

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

Customer	9			
Special version				
Standard	0	0	0	
Customer	9	9	9	

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.



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