

Data Sheet

Pressure transmitter

Type **MBS 3300** and **MBS 3350**

For high temperature marine applications



The compact high temperature pressure transmitter is designed for use in almost all marine applications, and offers a reliable pressure measurement, even under harsh environmental conditions.

The flexible pressure transmitter programme covers different output signals, absolute or gauge (relative) versions, measuring ranges from 0 – 1 to 0 – 600 bar and a wide range of pressure and electrical connections.

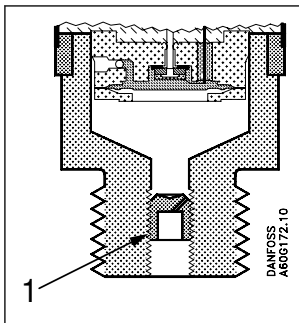
A robust design, an excellent vibration stability, and a high degree of EMC / EMI protection equip the pressure transmitter to meet the most stringent marine requirements.

Features

- Designed for use in severe maritime environments
- For medium and ambient temperatures up to 125 °C
- All standard output signals:
 - Ratiometric 10 - 90% of supply
 - 4 – 20 mA
 - 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V
- Enclosure and wetted parts of AISI 316L
- A wide range of pressure and electrical connections
- Fully digitally compensated
- For use in ATEX Zone 2 explosive atmospheres
- UL approved

Applications

Application and media conditions (MBS 3350)



1 Pulse-snubber

Application

Cavitation, liquid hammer and pressure peaks may occur in liquid filled hydraulic systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops.

Liquid backlash can create huge pressure peaks of a non uniform nature and damage the diaphragm. The problem may occur on the inlet and outlet side, even at rather low operating pressures.

Media condition

Clogging of the nozzle may occur in liquids containing particles. Mounting the transmitter in an upright position minimizes the risk of clogging, because the flow in the nozzle is limited to the startup period until the dead volume behind the nozzle orifice is filled.

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

Product specification

Technical data

Table 1: Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)		≤ ± 0.5% FS (typ.)
		≤ ± 1.0% FS (max.)
Non-linearity BFSL (conformity)		≤ ± 0.2% FS
Hysteresis and repeatability		≤ ± 0.1% FS
Thermal error band (compensated temperature range)		≤ ± 1.0% FS
Response time	Liquids with viscosity < 100 cSt	< 4 ms
	Air and gases (MBS 3350)	< 35 ms
Overload pressure (static)		6 × FS (max. 1500 bar)
Burst pressure		6 × FS (max. 2000 bar)
Power-up time		< 50 ms
Durability, P: 10 – 90% FS		> 10 × 10 ⁶ cycles
MTTFd - Calculation based on the SN 29500		> 100 years

Table 2: Electrical specifications

Nom. output signal (short-circuit protected)	4 – 20 mA	0 – 5 V, 1 – 5 V, 1 – 6 V	0 – 10 V	10 – 90% of supply voltage
Supply voltage [U _B], polarity protected	9 – 32 V DC (12 / 24 V DC nom.)	9 – 32 V DC (12 / 24 V DC nom.)	15 – 32 V DC (12 / 24 V DC nom.)	4.5 – 5.5 V DC (5 V DC nom.)
Supply – current consumption	–	≤ 5 mA	≤ 8 mA	≤ 5 mA - 5 V
Supply voltage dependency	< 0.1% FS / 10 V	< 0.05% FS / 10 V		–
Ratiometricity	–	–		< 0.05% FS / 4.5 - 5.5 V
Output limitation	22.4 mA	0-5 V: 5.75 V 1-5 V: 5.6 V 1-6 V: 6.75 V	0-10 V: 11.5 V	≈ supply voltage
Sink / Source	–	< 1 mA		
Load [R _L]	R _L ≤ (U _B - 9 V) / 0.02 A	R _L ≥ 10 kΩ	R _L ≥ 15 kΩ	R _L ≥ 10 kΩ at 5 V DC

Table 3: Environmental conditions

Sensor operating temperature (depending on gasket material)	4 – 20 mA	-40 – 100 °C	
	10 – 90% of supply voltage 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V	-40 – 125 °C	
Media temperature range		-40 – 125 °C	
Ambient temperature range (depending on electrical connection)		See Electrical connections	
Compensated temperature range		0 – 100 °C	
Transport/storage temperature range		-50 – 125 °C	
EMC – Emission		EN 61000-6-3	
EMC – Immunity		EN 61000-6-2	
Insulation resistance		> 100 MΩ at 500 V DC	
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz – 25 Hz 20 g, 25 Hz – 2 kHz	IEC 60068-2-6
	Random	7.5 g _{rms} , 5 Hz – 1 kHz	IEC 60068-2-64
Shock resistance	Shock	500 g / 1 ms	IEC 60068-2-27
	Free fall	1 m	IEC 60068-2-32
Enclosure (depending on electrical connection)		See Electrical connections	

Table 4: Explosive atmospheres

Zone 2 applications ⁽¹⁾	II 3G Ex ec IIA T3 Gc -20°C < Ta < +85°C	EN60079-0; EN60079-7
------------------------------------	--	----------------------

⁽¹⁾ The Pressure transmitter must be installed where it cannot be exposed to impact in normal use.

- Only versions with EN 175301-803-A, Screened cable, Flying leads, ISO 15170 Bayonet or Deutsch DT04-4p
- Deutsch DT04-4P: Must be installed in an enclosure that complies with the impact requirements in accordance to EN 60079-0

Pressure transmitter, type MBS 3300 and MBS 3350

Table 5: Mechanical characteristics

Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
	Electrical connections	See Electrical connections
	Pressure connections	See Electrical connections
Net weight (depending on pressure connection and electrical connection)		0.2 – 0.3 kg

Dimensions/Combinations

Type code	A1	A6	H3	F4 / DG	E3	C8
	EN 175301-803-A Pg 9	EN 175301-803-A Pg 11	EN 175301-803-A M20	Cable screened ship 2 m / 3 m	IEC 61076-2-101; M12 x1 male excl. female plug	ISO 15170-A1-3-2-Sn Bayonet
	G¼ A (EN 837)	G¼ (DIN 3852-E)	G½ A (EN 837)	¼ - 18 NPT	G¼ A female with flange	
Type code	AB04	GB04	AB08	AC04	CD28	
Recommended torque ⁽¹⁾	30 - 35 Nm	30 - 35 Nm	30 - 35 Nm	2 - 3 turns after finger tightened		

⁽¹⁾Depends on various parameters such as seal material, coupling material, thread lubrication and pressure level

Electrical connections

Table 6: Standard Electrical connections

Type code See Dimensions/Combinations	A0 / A1 / A6 / H3	DG	F4	E3	C8
Ambient temperature 4 - 20 mA output	-40 – 100 °C	-30 – 100 °C	-30 – 100 °C	-25 – 90 °C	-40 – 100 °C
Ambient temperature 0 - 5 V, 1 - 5 V, 1 - 6 V, 0 - 10 V and ratiometric output	-40 – 125 °C	-30 – 125 °C	-30 – 125 °C	-25 – 90 °C	-40 – 125 °C
Enclosure (IP protection fulfilled together with mating connector)	IP65	IP67	IP67	IP67	IP67
Atex Zone 2 enclosure	IP54				
Material	Glass filled polyamid, PA 6.6	RTFRO with PE shrinkage tubing	RTFRO with PE shrinkage tubing	Nickel plated brass, CuZn/Ni	Glass filled polyester PBT
Electrical connection, 4 – 20 mA output (2 wire)	Pin1: + supply Pin 2: ÷ supply Pin 3: not used Earth: Connected to MBS enclosure	Black wire: + supply Blue wire: ÷ supply Brown wire: not used Screen: Connected to MBS enclosure	Black wire: + supply Blue wire: ÷ supply Brown wire: not used Screen: Connected to MBS enclosure	Pin 1: + supply Pin 2: not used Pin 3: not used Pin 4: - supply	Pin 1: + supply Pin 2: ÷ supply Pin 3: not used Pin 4: not used
Electrical connection, 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V and ratiometric output	Pin1: + supply Pin 2: ÷ supply ⁽¹⁾ Pin 3: + output Earth: Connected to MBS enclosure	Black wire: + supply Blue wire: ÷ supply ⁽¹⁾ Brown wire: + output Screen: Connected to MBS enclosure	Red wire: + Supply Black wire: - supply ⁽¹⁾ Brown wire: Output Orange: not used Screen: not connected to MBS enclosure	Pin 1: + supply Pin 2: not used Pin 3: + output Pin 4: - supply ⁽¹⁾	Pin 1: + supply Pin 2: output Pin 3: Ventilation Pin 4: ÷supply ⁽¹⁾

⁽¹⁾ Common

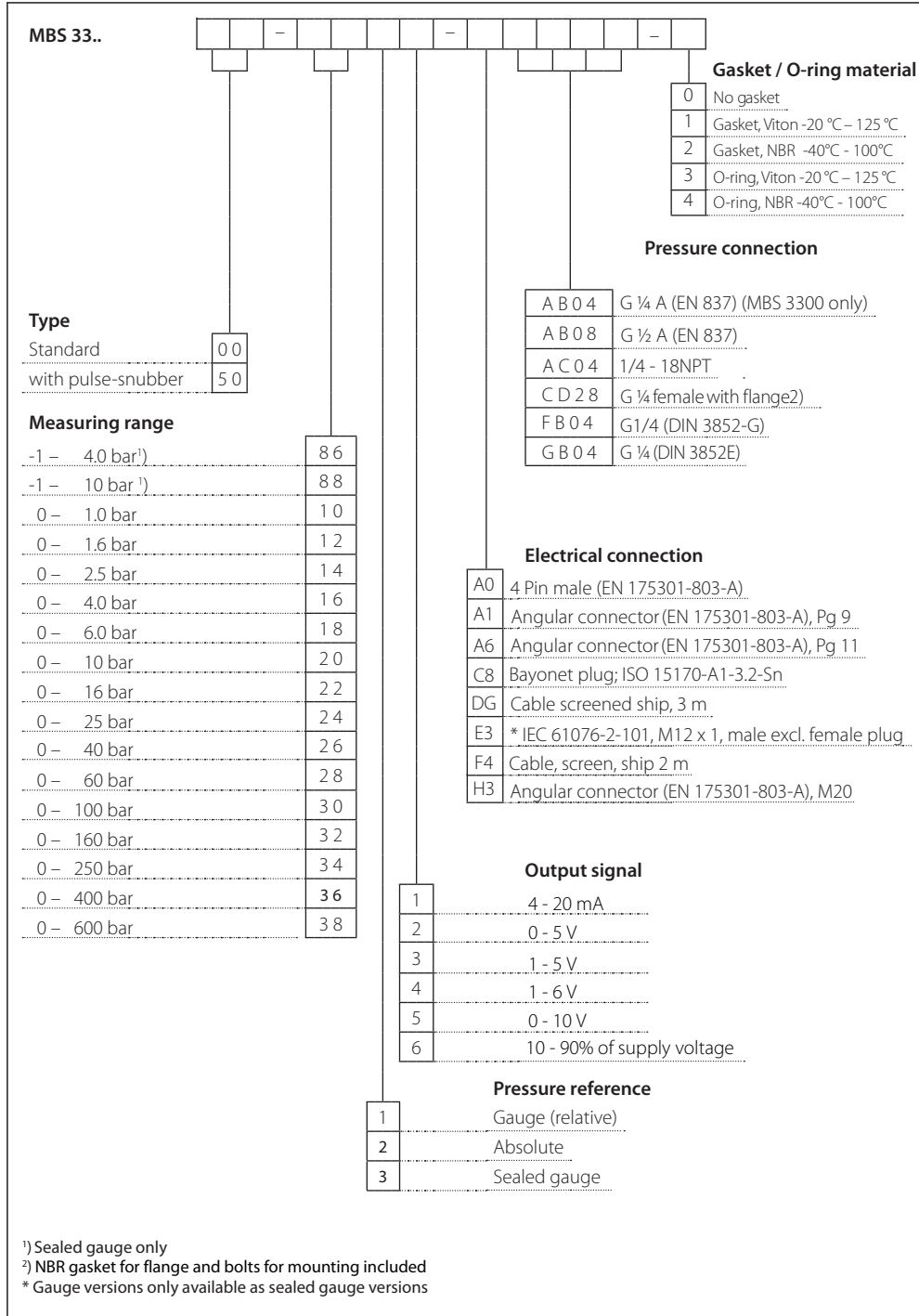
NOTE:

Please check [Store.danfoss.com](https://store.danfoss.com) to find the correct variant for your requirements

Ordering

Ordering standard

Figure 1: MBS ordering standard



NOTE:

Non-standard build-up combinations may be selected. However, minimum order quantities may apply. Please contact your local Danfoss office for further information or request on other versions.

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Valid certificates and declarations

Table 7: Certificates and declarations

File name	Document type	Document topic	Approval authority
08472-E0 BV	Safety certificate	Marine approval	BV
064G9615.11	EU_UK Declaration	ATEX/EMC/RoHS	Danfoss
TAA000025S rev. 1	Safety certificate	Marine approval	DNV GL
CPH 04967-AE006	Safety certificate	Marine approval	KR
2008558TA	Safety certificate	Marine approval	LR
TA20389M	Safety certificate	Marine approval	NKK
ELE098420XG	Safety certificate	Marine approval	RINA
CRN.OF18477.5123467890YTN	Pressure - Safety certificate	CRN	TSSA
E311982	Electrical - Safety Certificate	-	UL
E494625	Electrical - Safety Certificate	-	UL
E227388	Electrical - Safety Certificate	Hazardous Locations	UL
E31024	Electrical Safety Certificate	-	UL
SMS.W.II-2179-C.0	Marine	Manufacturing Permission	BV
E510763	Electrical - safety certificate	Hazardous Locations	UL
CCS TJ22PTB00047	Safety Certificate	Marine approval	CCS
ABS 23-2425974-PDA	Safety Certificate	Marine approval	ABS
UA.TR.089.1015.05-22	Safety Certificate	Pressure	LLC CDC EURO TYSK
Danfoss UA 2023-01-10	UA Declaration	EMC/LVD	Danfoss
Danfoss UA 2023-01-10	UA Declaration	PED	DANFOSS
EAC KZ 7500533.13.12.00845	EAC Declaration	EMC	EAC

Online support

Danfoss offers a wide range of support along with our products, including digital product information, software, mobile apps, and expert guidance. See the possibilities below.

The Danfoss Product Store



The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.

Start browsing at store.danfoss.com.

Find technical documentation



Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at www.danfoss.com/en/service-and-support/documentation.

Danfoss Learning



Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at www.danfoss.com/en/service-and-support/learning.

Get local information and support



Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: www.danfoss.com/en/choose-region.

Spare Parts



Get access to the Danfoss spare parts and service kit catalog right from your smartphone. The app contains a wide range of components for air conditioning and refrigeration applications, such as valves, strainers, pressure switches, and sensors.

Download the Spare Parts app for free at www.danfoss.com/en/service-and-support/downloads.

Danfoss A/S

Climate Solutions • danfoss.com • +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.



KOMPONENTY AUTOMATYKI PRZEMYSŁOWEJ

- Przetworniki ciśnienia
- Czujniki temperatury
- Czujniki położenia
- Presostaty, termostaty, wyłączniki
- Zawory elektromagnetyczne
- Zawory termostatyczne
- Zawory sterowane pneumatycznie

Danfoss



ANALIZA FIZYKO-CHEMICZNA

- Czujniki analityczne i systemy pomiarowe m.in. do: pH, redoks, przewodność, mętność, tlen, osad, środki dezynfekujące
- Moduły sterujące i wykonawcze
- Zespoły analityczne
- Przetworniki analityczne
- Akcesoria analityczne

ABB

Endress+Hauser **E+H**

KROHNE

WTW
a xylem brand



TECHNIKA NAPĘDOWA

- Przetwornice częstotliwości niskiego napięcia
- Przetwornice częstotliwości średniego napięcia
- Przetwornice zdecentralizowane
- Systemy modułowe
- Aktywne i pasywne filtry ograniczające THDi
- Sterowniki ruchu, serwonapędy i motoreduktory, softstartery

Danfoss

VAGON®



VEGA

POMIAR POZIOMU

- Sygnalizatory wibracyjne, pojemnościowe, mikrofalowe oraz przewodnościowe
- Sondy radarowe
- Sondy ultradźwiękowe
- Sondy hydrostatyczne
- Pomiar radiometryczny

Endress+Hauser **E+H**

SIEMENS



CHŁODNICTWO PRZEMYSŁOWE

- Zawory: rozprężne, zwrotne, odcinające, bezpieczeństwa, blokowe, regulacyjne oraz elektromagnetyczne
- Filtry
- Wzierniki
- Presostaty oraz termostaty
- Sprężarki oraz agregaty skraplające
- Sterowniki programowalne
- Części oraz zestawy naprawcze

Danfoss



POMIAR PRZEPIYWU

- Przepływomierze elektromagnetyczne
- Przepływomierze masowe Coriolisa
- Przepływomierze ultradźwiękowe
- Przepływomierze rotametryczne
- Przepływomierze różnicy ciśnień
- Przepływomierze Vortex

ABB

Endress+Hauser **E+H**

KROHNE

SIEMENS



POMPY I AGREGATY PRZEMYSŁOWE

- Pompy przemysłowe, dozujące i specjalne
- Zawory regulacyjne i przelewowe
- Filtry
- Dysze palnikowe, wodne, przemysłowe
- Agregaty i akumulatory ciśnienia
- Pompy wysokociśnieniowe

Danfoss

hp
TECHNIK

KSB

TRADMATIK
CENTRUM DYSTRYBUCJI

TRADMATIK Sp. z o.o.

ul. Oliwska 66
80-209 Chwaszczyno
Tel.: +48 786 924 024
Tel.: +48 58 511 06 70
biuro@tradmatik.pl
www.tradmatik.pl

Danfoss

ABB

hp
TECHNIK

Endress+Hauser **E+H**

KSB

KROHNE

SIEMENS

VEGA

WTW
a xylem brand