DNV·GL

Certificate No:
TAA00001V1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pressure Switch

with type designation(s)
PN2xxx, PE2xxx

Issued to
IFM Electronic GmbH
Essen, Germany

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Temperature	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**B**

Issued at **Hamburg** on **2018-05-29**
This Certificate is valid until **2023-05-28**.
DNV GL local station: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**

for **DNV GL**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

Electronic pressure sensor for hydraulic applications with two programmable outputs
Function OUT1: switch or IO-Link
Function OUT2: switch or analogue 4..20 mA / 0...10 V
4-digit alphanumeric display / alternating indication of red and green
LEDs (display / switching status)
Programming button
Operating voltage: 18…30 V DC

article numbers	process connection	measuring element	Seal (pressure cell)	Seal (process connector)	measuring range
Product family **PN2xxx**					
PN2070	G 1/4" I	metal thin film cell	-	-	0…400 bar
PN2071	G 1/4" I	metal thin film cell	-	-	0…250 bar
PN2092	G 1/4" I	ceramic-capacitive cell	FKM	-	0…100 bar
PN2093	G 1/4" I	ceramic-capacitive cell	FKM	-	-1…25 bar
PN2094	G 1/4" I	ceramic-capacitive cell	FKM	-	-1…10 bar
PN2096	G 1/4" I	ceramic-capacitive cell	FKM	-	-0,125…2,5 bar
PN2097	G 1/4" I	ceramic-capacitive cell	FKM	-	-50…1000 mbar
PN2098	G 1/4" I	ceramic-capacitive cell	FKM	-	-12,5…250 mbar
PN2099	G 1/4" I	ceramic-capacitive cell	FKM	-	-1000…1000 mbar
PN2160	G 1/4" I	metal thin film cell	-	-	0…600 bar
PN2169	G 1/4" I	ceramic-capacitive cell	FKM	-	-500…500 mbar
PN2560	G 1/4 A / M5 I	metal thin film cell	-	FKM	0…600 bar
PN2569	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-500…500 mbar
PN2570	G 1/4 A / M5 I	metal thin film cell	-	FKM	0…400 bar
PN2571	G 1/4 A / M5 I	metal thin film cell	-	FKM	0…250 bar
PN2592	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	0…100 bar
PN2593	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-1…25 bar
PN2594	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-1…10 bar
PN2596	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-0,125…2.5 bar
PN2597	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-50…1000 mbar
PN2598	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-12,5…250 mbar
PN2599	G 1/4 A / M5 I	ceramic-capacitive cell	FKM	FKM	-1000…1000 mbar
PN2270	1/4"-18 NPT I	metal thin film cell	-	-	0…5800 psi
PN2271	1/4"-18 NPT I	metal thin film cell	-	-	0…3625 psi
PN2292	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	0…1450 psi
PN2293	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-14,5…362,5 psi
PN2294	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-14,6…145 psi
PN2296	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-1,8…36,25
PN2297	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-0,72…14,50 psi
PN2298	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-5…100,4 inH2O
PN2299	1/4"-18 NPT I	ceramic-capacitive cell	FKM	-	-14,5…14,5 psi
PN2670	1/4" -18 NPT A	metal thin film cell	-	-	0…5800 psi

PN2671	1/4" -18 NPT A	metal thin film cell	-	-	0…3625 psi
PN2692	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	0…1450 psi
PN2693	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	14,5…362,5 psi
PN2694	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	-14,6…145 psi
PN2696	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	-1,8…36,25
PN2697	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	-0,72…14,50 psi
PN2698	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	-5…1000 inH2O
PN2699	1/4" -18 NPT A	ceramic-capacitive cell	FKM	-	-14,5…14,5 psi
Product family **PE2xxx**					
PE2091	G 1/4" I	ceramic-capacitive cell	EPDM	-	0…250 bar
PE2092	G 1/4" I	ceramic-capacitive cell	EPDM	-	0…100 bar
PE2093	G 1/4" I	ceramic-capacitive cell	EPDM	-	-1…25 bar
PE2094	G 1/4" I	ceramic-capacitive cell	EPDM	-	-1…10 bar
PE2096	G 1/4" I	ceramic-capacitive cell	EPDM	-	-0,125…2,5 bar
PE2099	G 1/4" I	ceramic-capacitive cell	EPDM	-	-1…1 bar
PE2591	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	0…250 bar
PE2592	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	0…100 bar
PE2593	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	-1…25 bar
PE2594	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	-1…10 bar
PE2596	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	-0,125…2,5 bar
PE2599	G 1/4 A / M5 I	ceramic-capacitive cell	EPDM	EPDM	-1…1 bar

Suitable connectors for operation are ifm-connectors of the EVM-Family designated as follows:

X	XX	X	X	XX	X	XX	X	XXXX	X	XX
[1]	[2;3]	[4]	[5]	[6;7]	[8]	[9;10]	[11]	[12;13;14;15]	[16]	[17;18]

[1]	A	= cable with connector
[2;3]	DO	= socket
[4]	A	= angled
	G	= straight
[5]	H	= M12 (A-coded)
[6;7]	04	= four contacts
	05	= five contacts
[8]	0	= no LEDs
[9;10]	VA	= stainless steel nut
[11]	S	= Standard
[12;13;14;15]		= length in m, 5m max. (filled with leading 0´s if required, e.g. “0002”; “02,5”; “0,25”)
[16]	H	= PUR, free from halogen
[17;18]	04	= four cores
	05	= five cores

Place of manufacture

ifm prover gmbh
Waldesch 9
88069 Tettnang, GERMANY

Approval conditions
The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation
The operating voltage of the sensor must be protected against surge.

Type Approval documentation

Tests carried out
Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product
The products to be marked with:
- manufacturer name
- model name
- product code
- power supply ratings

Periodical assessment
The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:
- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE