DNV·GL

Certificate No:
MRA000001V

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to

ADZ Nagano GmbH

Ottendorf-Okrilla, Sachsen, Germany

for
Pressure transmitter

with type designation(s)
ADZ-SML-xxx, ADZ-SMH-xxx, ADZ-PS1-xxx

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Sensors

Intended service
Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organizations.

Temperature [°C]:	**-25°C ~ +70°C**
Vibration:	**All Locations (incl. open deck and masts)**
EMC:	**All locations (incl. machinery, bridge and open deck)**
IP Code:	**See limitation and reports on page 3**

This Certificate is valid until **2023-08-20**.

Issued at **Hamburg** on **2018-08-21**

DNV GL local station: **Hamburg**

Approval Engineer: **Didier Girardin**

Digitally Signed By: Rinkel, Marco
for **DNV GL**
Location: Hamburg, on behalf of

Joannis Papanuskas
Head of Section

Product description

ADZ Electronic Pressure Transmitter

Type [1)]	Max. Pressure Span	Special Application
ADZ-SML-xx.x	1000 bar	
ADZ-SMH-xx.x	5000 bar	
ADZ-PS1-xx.x	25 bar	submersible

Component naming & nomenclature
[Name].[xx].[x][1)]
[SML], [SMH], [PS1] maximum pressure range
[xx] sensor elelectronic type
[x] variable output ranges

Electronic Types		Max. Output Signal Range
xxx-10.0	two wire current output	4 ... 20 mA
xxx-16.0	two wire current output with additional EMC protection	4 ... 20 mA
xxx-20.x	non ratiometric voltage output	0 ... 10 V
xxx-37.x	ratiometric voltage output	0,25 ... 4,75 V

Housing, pressure cells and electronics modular design combining:

Pressure sensor cells:
- Stainless steel membrane
- Silicon sensor with oil filled stainless steel membrane
- Titanium alloy membrane

Sensor housings with different typical electrical connectors and air venting solutions for different enclosure protection class options:
- Connector with water diving sealed air filter (comparable with GORE-TEX®) for IP66, IP67, IP6K9K and salt mist environments
- Sealed connector without air venting (sealed reference sensor) for IP66, IP67, IP6K9K and salt mist environments
- Connector or cable adapter with simple air filter only for IP65
- Connector according DIN EN 175 301-803 sealed by the cable connector with vented cable only for IP65
- Cable adapter for submerged application for IP68 up to 30,5 m

Sensor electronics for different output signals and different EMC protection:
- Two wire current output with additional EMC protection
- Simple two wire current output for minimal supply voltage 9 V
- Ratiometric voltage output (output proportional to supply) for regulated 5 V supply voltage
- Non ratiometric voltage output

Manufactured by

ADZ NAGANO GmbH, Gesellschaft für Sensortechnik,
Germany, Bergener Ring 43, 01458 Ottendorf-Okrilla

Application/Limitation

- The Type Approval covers hardware listed under type designation.
- Required ingress protection according IEC standard 60529 shall be provided upon installation on board

Type Approval documentation

Test Reports:

Doc ID.	Rev.	Issuing Date	Tested Samples	Article-Number	IP Code
1087-17-GG-18-PP001	-	05.06.2018	SML-10.0	811158	IP65
1087-17-GG-18-PP002	-	14.06.2018	SML-16.0	805161-H	IP66, IP67, IP6K9K
1087-17-GG-18-PP003	-	05.06.2018	SML-20.0	811159	IP65
1087-17-GG-18-PP004	-	11.06.2018	SMH-37.0	811160	IP66, IP67, IP6K9K
1087-17-EG-18-PP005	-	14.06.2018	PS1-16.0	811614	IP68 (30,5 m)
1087-17-EA-18-PP005	Second	11.01.2018	SML-10.0	811158	
1087-17-EA-18-PP006	Second	11.01.2018	SML-16.0	805161-H	
1087-17-EA-18-PP007	Second	11.01.2018	SML-20.0	811159	
1087-17-EA-18-PP008	Second	11.01.2018	SMH-37.0	811160	
1087-17-EE-17-PB002	First	20.11.2017	SML-10.0	811158	
1087-17-EE-17-PB001	First	15.12.2017	SML-16.0	805161-H	
1087-17-EE-17-PB004	First	15.12.2017	SML-20.0	811159	
1087-17-EE-17-PB003	First	15.12.2017	SMH-37.0	811160	
TZO-LUW_PA_132-18	-	23.05.2018	SML-16.0, SMH-37.0, PS1-16.0	805161-H, 811160, 811614	
IPB-000238-A	-	20.04.2018	SML-10.0, SML-16.0, SML-20.0, SMH-37.0	811158, 805161-H, 811159, 811160	

Technical Drawings:

IZ-800272-A	-	23.06.2017	SML-10.0	811158	
IZ-800274-A	-	23.06.2017	SML-16.0	805161-H	
IZ-800273-A	-	23.06.2017	SML-20.0	811159	
IZ-800271-A	-	23.06.2017	SMH-37.0	811160	
IZ-800301-A		14.06.2018	PS1-16.0	811614	
IZ-800310-A	-	06.07.2018	PS1-16.0, SML-16.0	805161-H, 811614	

Compliance Tabel to IEC60092.504

Compliance Tabel to IEC 60533

Marking of product

The products to be marked with:
- manufacturer name
- model name
- unique serial number
- certificate number

Other Conditions

ADZ Pressure transmitter have been verified for compliance with EU Mutual Recognition Technical Requirements for PRESSURE GAUGES – TRANSMITTERS version 0.0, dated 01-July-2016

Environmental test parameters:			DNV GL location classes
Temperature	IEC 60068-2-1/ -2-2	-25°C ~ +70°C	D
Vibration	IEC 60068-2-6 Test Fc	± 1,6mm/± 4,0g at 2-25Hz/25-100Hz	B
		± 2,5mm/± 2,3g at 2-15Hz/15-50Hz	C
Humidity	IEC 60068-2-30 test Db	93% to 98%RH, +55°C, 48 h	B
EMC	All Location including bridge and Deck		B

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 annually and at renewal of this certificate.

END OF CERTIFICATE