DNV·GL

Certificate No:
TAA000010X

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Switches

with type designation(s)
Model PM-90 Series

Issued to
Panasia Co., Ltd.
Busan, Republic of Korea

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Location classes:

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

Temperature	**D**
Humidity	**B**
Vibration	**A**
EMC	**N/A**
Enclosure	**C**

This Certificate is valid until **2021-12-31**.

Issued at **Busan** on **2017-02-10**
DNV GL local station: **DNV Pusan Station** for **DNV GL**

Approval Engineer: **Eun Sook Kim**

Baeg Soon Choi
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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Job Id: **262.1-006930-10**
Certificate No: **TAA000010X**

Product description

Level switches PM-90 Series, consisting of the following units:

PM-90A-1, -90A-2, -90A-3, -90AC-1C, -90AC-2C, -90AC-3C, -90AT-1C, -90AT-2C, -90AT-3C.

No.	Type	Specification
1	PM-90A	Tank side mounting
2	PM-90AC	Double switch
3	PM-90AT	Test lever type

Mechanical specification	
1. Max working pressure:	30 kg/cm^2
2. Max working temperature:	120 ^{o}C
Electrical specification:	
1. Voltage rating:	250 V a.c.
2. Contact rating:	250 V a.c. 5A

Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area is to be approved in each case according to the Rules and Ex-Certification**/** Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

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.

Type Approval documentation

Tests carried out

Power supply, Dry heat, Low temperature, Humidity, Vibration, Enclosure tests.

Periodical assessment

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE