

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Level Switches**

with type designation(s)

**Model PM-12 Series ALBC 3 and SUS 304, ALDC 8**

Issued to

**Panasia Co., Ltd.****Busan Busan, Republic of Korea**

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.**

| Type                                         | Temperature | Humidity | Vibration | EMC        | Enclosure                     |
|----------------------------------------------|-------------|----------|-----------|------------|-------------------------------|
| <b>Model PM-12 Series ALBC 3 and SUS 304</b> | <b>D</b>    | <b>B</b> | <b>A</b>  | <b>N/A</b> | <b>Generally:C, PM-12S: D</b> |
| <b>ALDC 8</b>                                | <b>D</b>    | <b>B</b> | <b>A</b>  | <b>N/A</b> | <b>B</b>                      |

Issued at **Busan** on **2017-10-26**This Certificate is valid until **2022-06-30**.for **DNV GL**DNV GL local station: **Gimhae Station**Approval Engineer: **Baeg Soon Choi**

.....

**Michael Jost Auf der Stroth**  
**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.



## Product description

Level switches PM-12 Series, consisting of the following units:

PM-12H, -12V, -12S, -12SV, -12H-T, -12V-T, -12H-CS, -12H-E, -12V-E, -12S-E & -12SV-E.

| No. | Type      | Specification                        |
|-----|-----------|--------------------------------------|
| 1   | PM-12H    | Tank side mounting                   |
| 2   | PM-12V    | Tank top mounting                    |
| 3   | PM-12S    | Tank inside mounting                 |
| 4   | PM-12H-T  | Tank side mounting, test lever type  |
| 5   | PM-12H-CS | Tank side mounting, cranked rod type |

|                                  |             |                         |
|----------------------------------|-------------|-------------------------|
| <i>Mechanical specification</i>  |             |                         |
| 1. Max working pressure:         |             | 10 kg/cm <sup>2</sup>   |
| 2. Max working temperature:      |             | 120 °C                  |
| 3. Material                      | Housing     | ALBC 3, SUS 304, ALDC 8 |
|                                  | Float & Rod | SUS 304 or SUS 316      |
| <i>Electrical specification:</i> |             |                         |
| 1. Voltage rating:               |             | 250 V a.c.              |
| 2. Contact rating:               |             | 120 V a.c.              |

## Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area 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

## Type Approval Conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNVGL, 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 DNVGL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

## Type Approval documentation

### Tests carried out

According to DNVGL Guidance DNVGL-CG-0339 Nov .2016 (Power supply, Dry heat, Low temperature, Humidity, Vibration, Electromagnetic Compatibility and 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



Job Id: **262.1-006930-12**  
Certificate No: **TAA00001DU**

- 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