Certificate No:
TAA000036G

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Indicating System

with type designation(s)
Level Alpha Cargo Monitoring System

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

is found to comply with
DNV 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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Control Panel (PA-CMSP-M1)	**A**	**B**	**A**	**A**	**B**
Protection Box (PB-HTJD)	**D**	**B**	**A**	**B**	**C**
Temperature Box (CPR-100-FPT)	**D**	**B**	**A**	**B**	**C**

Issued at **Busan** on **2025-12-01**
This Certificate is valid until **2027-11-30**.
DNV local station: **Busan, CMC Korea**

for **DNV**

Approval Engineer: **Dong Ho Park**

Hanwee Low
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Level Alpha Cargo Monitoring System, consisting of:

Control Panel: PA-CMSP-M1
- Main Processing Unit [PA-3210]
- Analog Input Module(4-20mA) [ADIM-301(4~20mA)]
- HART Module [ADIM-301(HART)]
- Digital Input Module (DC24V) [DIM-102(DC24V)]
- Digital Input Module (RS485 Communication) [DIM-102(RS485)]
- Digital Output Module (Dry Contact) [DIM-102(D/O)]
- Analog Output Module(4-20mA) [ADIM-301(A/O)]
- WTI Transfer Module (RS485 Communication) [DIM-102(OLTP)]
- OTC Transfer Module (RS485 Communication) [DIM-102(MODBUS)]
- Display Unit [ARA-15i5S-MPPC] (DNV Cert no. TAA0000328)
- IS Barrier [D5014D]
- Zener Barrier [Z961], [Z779]
- Signal Converter [PACON]

SW version: PATROL3™ Ver 3.0.xx

Protection Box: PB-HTJD, included:
- LTP Transmitter [PA-3012/13]
- Pressure Sensor [TM]

Temperature Box: CPR-100-FPT

Radar Type Level Transmitter: OPTIWAVE 7400C/7500C (Mfg.: Krohne, EURO MR TA: MRA0000040, Ex-cert. no.: IECEx KIWA 17.0012X)
Radar Type Level Transmitter: FMR62B (Mfg.: Endress+Hauser, DNV TA: TAA00003A4, Ex-cert. no.: IECEx SEV 22.0028X)

Application/Limitation

The following documentation of the actual application is to be submitted for approval in each case:
- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- Test program for certification

The Type Approval covers hardware and software listed under Product description.

The current software version and its revisions are listed in the document, PA-QSP-PTR3-V3-SDD-C dated 2021-12-17, titled “Software Design Description.”

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

A noise filter (model: ES1-F05 or equivalent) shall be connected to the power supply.

Product certificate
Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Application software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
Performance test according to manufacturer’s procedure, CMS_PTP003 dated 2024-11-26

Marking of product

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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE