

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Level Indicating System**

with type designation(s)
Level Indicator CT-180 Series

Issued to

Hanla IMS Co., Ltd.
Busan, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships and offshore units
DNV GL rules for classification – High speed and light craft

Application :**Location classes:**

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

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	A

This Certificate is valid until **2021-06-30**.

Issued at **Busan** on **2016-07-01**

DNV GL local station: **Pusan**

for **DNV GL**

Approval Engineer: **Hee Jin Song**

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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.

Job Id:
Certificate No: **TAA00000MJ**

Product description

Level indication system CT 180 OPN, open tank pneumatic
Consisting of:

Level indicator:	CT-180
Air purge head:	SC-100F
Air supply unit:	AP-ASB2000
Indicator panel:	AP-PAN40

Level indication system CT 180 CPN, Closed tank pneumatic
Consisting of:

Differential type	
level indicator :	CT-180D
Pneumatic modulator:	CT-100M
Air supply unit:	AP-ASB2000
Purge mouth:	AP-PUM25
Air purge head :	SC-100F
Indicator panel:	AP-PAN40

Level indication system CT 180 EPN, closed tank electrical/pneumatic
Consisting of:

Pneumatic modulator:	CT-100M
Air purge head:	SC-100F
Draft box:	AP-PBOX10
Transmitter box:	AP-PAN40E
P/I converter:	CT-800
Air supply unit:	AP-ASB2000
Purge mouth:	AP-PUM25
Electrical indicator:	HLI-110A/HD-1100

Approval Conditions

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)

The Type Approval covers hardware listed under Product description.

As long as the units are covered by the Type Approval, no Product certificate will be required according to Pt.4 Ch.9 Sec.1 A 202

Application/Limitation

System specification:

Air supply pressure:	4-10 kg/cm ²
Measuring range:	0-35 meter
Accuracy:	1 % of full range

For EPN

Power source:	18 - 36 V dc
Output:	4 - 20 mA dc

Certificate for intrinsic safety: LCIE No. 90.C6118 Xx code (EEx ia)IIC T6.

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

Job Id:
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Type Approval documentation

Tests carried out

Applicable tests according to DNV Standard for Certificateion No.2.4.

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