DNV·GL

Certificate No:
TAA00000MB

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Temperature Transmitter

with type designation(s)
ATT2100

Issued to
Duon System Co., Ltd.
Gunpo-si Gyeonggi-do, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships, offshore units, and 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	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**C**

This Certificate is valid until **2020-12-31**.
Issued at **Busan** on **2017-02-28**

DNV GL local station: **Seoul**

Approval Engineer: **Baeg Soon Choi**

for **DNV GL**

Digitally Signed By: Choi, Baeg Soon
Location: DNV GL Busan
Signing Date: 3/17/2017

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

The following smart temperature transmitters are included in the certificate:

Name	Sensor Type	Range
ATT2100	RTD TC	200 to 650 ºC - 200 to 1820 ºC

Application/Limitation

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

Ex installations 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 documentation

Wiring diagram ATT2100, drawing no. MC-COM-2100-IMW rev. 0
Assembly drawing no. 2100-ASS-100 rev.0
Environmental test report no. 10-S340-6 dated 2010-04-15
Vibration test report no. PIS11116 dated 2011-02-14
Salt mist test report no. 10-S340-3 dated 2010-05-25
ATT2100 EMC test report no. 11-S420-001-3 dated 2011-01-25
ATT2100 Smart Temperature Transmitter Operation Manual, document no. M2100-E01G rev.B
ATT2100 Brochure, document no. C2100-E02A
Approval test report APT3100 and APT3200 pressure transmitters and APT2100 temperature transmitter for use in Hazardous (Classified) Locations, project ID 3033985
Ktl test report no. G261-07-01 dated 2017-01-16
Ktl test report for Temperature transmitter no. 16-030232-01-3 dated 2017-02-26

Tests carried out

Applicable tests according to DNVGL Class Guideline DNVGL-CG-0339, Nov 2016.

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