

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Pressure Transmitter**with type designation(s)  
**APT3100, APT3200**

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.**

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>B</b>
<b>EMC</b>	<b>B</b>
<b>Enclosure</b>	<b>C</b>

This Certificate is valid until **2020-12-31**.Issued at **Busan** on **2017-02-28**for **DNV GL**DNV GL local station: **Seoul**Approval Engineer: **Baeg Soon Choi**

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**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.

Job Id: **262.1-009072-2**  
Certificate No: **TAA00000MC**

## Product description

The following smart pressure transmitters are included in the certificate:

Name	Type	Model no.	Range (kPa)	
APT3100	Differential	D3	- 7.5 to 7.5	
		D4	- 37.3 to 37.3	
		D5	-186.5 to 196.5	
		D6	- 690 to 690	
		D7	- 2068 to 2068	
		D8	- 6895 to 6895	
		High Line Pressure	H4	- 37.3 to 37.3
			H5	-186.5 to 196.5
			H6	- 690 to 690
	Gauge	H7	- 2068 to 2068	
		G3	- 7.5 to 7.5	
		G4	- 37.3 to 37.3	
		G5	- 100 to 196.5	
		G6	- 100 to 690	
		G7	- 100 to 2068	
APT3200	Gauge	G8	- 100 to 6895	
		G9	- 100 to 20680	
		G4	- 100 to 1000	
		G5	0 to 5000	
		G6	0 to 20000	
		G7	0 to 60000	
	Absolute	A4	0 to 200	
		A5	0 to 1000	
		A6	0 to 2000	

## 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-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 documentation

Assembly drawing MD-ASS-3100-HM rev.0  
Assembly drawing MD-ASS-3100-SM rev.0  
Assembly drawing MD-ASS-3100-HPSM rev.0  
Assembly drawing 3200-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  
APT3100 EMC test report no. 11-S420-001-2 dated 2011-01-25

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APT3200 EMC test report no. 11-S420-001-1 dated 2011-01-25  
APT3100 Pressure test report no. 10-1571-262-1 dated 2010-12-30  
APT3200 Pressure test report no. 10-1571-244-2 dated 2010-11-30  
APT3200 Smart Pressure Transmitter Operation Manual, document no. M3100-E01G  
APT3200 Smart Pressure Transmitter Operation Manual, document no. M3200-E01G  
APT3100 Brochure, document no. C3100-E04D  
APT3200 Brochure, document no. C3200-E04A  
Approval report APT3100 and APT3200 pressure transmitters and ATT2100 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 no. 16-030232-01-1 dated 2017-03-02  
Ktl test report no. 16-030232-01-2 dated 2017-02-26

## Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, November 2016.  
Pressure test at 200 % of nominal pressure for 10 minutes.

## 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