



Marine & Offshore
Division

Certificate number: 23977/B0 BV

File number: AP 4207

Product code: 3891H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

DUON SYSTEM CO., LTD.
GYEONGGI-DO - KOREA (REPUBLIC OF)

for the type of product

PRESSURE TRANSMITTERS / TRANSDUCERS

Types: APT3100 and APT3200.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 30 Aug 2021

For BUREAU VERITAS,

At BV PUSAN, on 30 Aug 2016,

Chang-uk HONG



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

- Product model or type designation :
Model APT3100 and APT3200

- Product description:
Pressure Transmitters

1.1 - Technical Specification:

1.1.1 - Model APT3100 - Pressure Range

Model	Differential Pressure Measurement
APT3100 - D3	-7.5 to 7.5kPa
APT3100 - D4	-37.3 to 37.3kPa
APT3100 - D5	-186.5 to 196.5kPa
APT3100 - D6	-690 to 690kPa
APT3100 - D7	-2.068 to 2.068kPa
APT3100 - D8	-6.895 to 6.895kPa
Model	Absolute Pressure Measurement
APT3100 - H4	-37.3 to 37.3kPa
APT3100 - H5	-186.5 to 196.5kPa
APT3100 - H6	-690 to 690kPa
APT3100 - H7	-2.068 to 2.068kPa
Model	Gauge Pressure Measurement
APT3100 - G3	-7.5 to 7.5kPa
APT3100 - G4	-37.3 to 37.3kPa
APT3100 - G5	-100 to 186.5kPa
APT3100 - G6	-100 to 690kPa
APT3100 - G7	-100 to 2.068kPa
APT3100 - G8	-100 to 6.895kPa
APT3100 - G9	-100 to 20.680kPa

1.1.2 - Model APT3200 - Pressure Range

Model	Absolute Pressure Measurement
APT3200 - A4	0 to 200 kPa
APT3200 - A5	0 to 1000 kPa
APT3200 - A6	0 to 2000 kPa
Model	Gauge Pressure Measurement
APT3200 - G4	-100 to 1000kPa
APT3200 - G5	0 to 5000kPa
APT3200 - G6	0 to 20000kPa
APT3200 - G7	0 to 60000kPa

1.2 - Common Specification:

Power Supply Input:	DC 12 to 45V
Output:	DC 4-20mA Digital Communication of based on HART Protocol
Operating Temperature:	-40°C to 80°C
Process Temperature:	-40°C to 120°C

1.3 - Firmware implemented inside Transmitters:

Model	APT3100	APT3200
Firmware revision	6.x	6.x

2. DOCUMENTS AND DRAWINGS:Documents:**AUTROL DUON SYSTEM CO., LTD**

- Operation Manual M3100-E01G Rev. B APT3100 Smart Pressure Transmitter.
- Operation Manual M3200-E01G Rev. B APT3200 Smart Pressure Transmitter.

Drawings:

Drawing's Number	Title	Revision
MD-ASS-3100-HM	Smart Pressure Transmitter New APT3100 - Exploded View	0
MD-ASS-3100-SM	Smart Pressure Transmitter New APT3100 - Exploded View	0
MD-ASS-3100-HPSM	Smart Pressure Transmitter New APT3100 - Exploded View (High Pressure)	0
3200-ASS-100	Smart Pressure Transmitter New APT3200 - Exploded View	0
MD-COM-3X00-IMW	APT3100, 3200 INSTRUMENT WIRING	0

3. TEST REPORTS:

- KTL Test Report N°10-S430-6 dated 15 April 2010 Environment Test Report.
- KTL Test Report N° PIS11116 dated 14 February 2011 Environment Test Report - Vibration.
- KTL Test Report N°10-S430-3 dated 25 May 2010 Salt-Mist Test Report.
- KTL Test Report N°11-S420-001-1 dated 25 January 2011 APT3200 EMC Test Report.
- KTL Test Report N°11-S420-001-2 dated 25 January 2011 APT3100 EMC Test Report.
- KTL Test Report N°10-1571-262-1 dated 20 December 2010 APT3100 Pressure Test Report.
- KTL Test Report N°10-1571-244-2 dated 20 November 2010 APT3200 Pressure Test Report.
- KEMA Quality EC-TYPE EXAMINATION CERTIFICATE N°KEMA 07ATEX0103 X APT3100 and APT3200.

4. APPLICATION / LIMITATION:

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - The electrical safety type equipment may be used in areas considered as dangerous due to presence of flammable or explosive gases or vapours corresponding to:

Type	Classification
APT3100	Ex d IIC T6 or T5
APT3200	Ex d IIC T6 ... T4

- 4.4 - The Smart Pressure / Temperature Transmitters cannot be installed on exhaust manifolds of diesel engines.
- 4.5 - Ex-certification is not covered by this certificate, Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised Certification Body.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above products are to be supplied by **DUON SYSTEM CO., LTD** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **DUON SYSTEM CO., LTD** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - **DUON SYSTEM CO., LTD** has declared to Bureau Veritas the following production site(s):

DUON SYSTEM CO., LTD
298-29, Gongdan-ro, Gunpo-si, Gyeonggi-do,
KOREA (REPUBLIC OF)

6. MARKING OF PRODUCT:

- Maker's name or trademark,
- Serial number of the units,
- Equipment type number or model identification under which it was type-tested.
- Ex marking as relevant

7. OTHERS:

7.1 - It is **DUON SYSTEM CO., LTD - KOREA (REPUBLIC OF)**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate No. 23977/A0 BV issued on 10 Aug 2011 by the Society.

***** END OF CERTIFICATE *****