



# Type Approval Certificate

[ Pressure & Level Transmitter ]

**Initial Approval** 17 December 2018  
**Manufacturer** Klay Instruments B.V.  
 Nijverheidsweg 5, 7991 CZ, Dwingeloo, The Netherlands

**Product Description** Type  
 – Series 8000 (8000, 8000-SAN)  
 – Series 2000 (2000, 2000-SAN)  
 – Series Hydrobar (Hydrobar-cable, Hydrobar-FR, Hydrobar-I)

“ See Appendix 1 ”

**Approval Condition** “ See Appendix 1 ”

**THIS IS TO CERTIFY** that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 16 December 2028

Issued at Busan, Korea on 23 January 2024



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24004115212) and certificate No.(RTD14802-AE002).



**KOREAN REGISTER**

*General Manager of  
Marine & Ocean Equipment Team*

**Note :** 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.  
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.  
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.  
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

## Product Description and/or Approval Condition

Date of Issue : 23 January 2024

### A. Product Description

#### 1. Product Specification

- 1) Product Description  
The series 8000, 8000-SAN are conventional pressure and level transmitters with internally adjustable for zero and span by 2 potential meters. The series 2000, 2000-SAN and are intelligent transmitters with display unit, which can be calibrated without test pressure by 3 push buttons. The series HYDROBAR are submersible pressure and level transmitters consisting of HYDROBAR-FR cable, HYDROBAR-Cable range, HYDROBAR-EXTD, HYDROBAR-I cable and 2000-Hydrobar-cable.
- 2) Specification
  - Power Supply : 13 to 36V DC, 24V DC
  - Output Signal : 4~20 mA, 2 wires / HART-protocol(option)
  - Protection Grade : IP66/68
  - Ex-proof Grade : Ex-ia IIC T4 Ga for 8000, 8000-SAN, 8000-Cable, 8000-SAN-Cable, Hydrobar-EXTD, Hydrobar-Cable, Hydrobar-Cable-FR  
Ex-ia IIC T4 Ga and/or Ex-ib IIIC T100°C Db for 2000, 2000-SAN, 2000 Hydrobar Cable, Hydrobar-I

#### 2. Approved Drawings and Documents

- 1) Brochure No. D/E/8000-overview/01-17/01, D/Hydrobar-Marine/E/11-17/00  
Brochure No. D/E/2000/01-20/07, D/E/Hydrobar-I/11-13/02
- 2) Drawing No. 8000-202, 8000-01, 8000-126, 8000-83-G54-G16, 8000-71-G7-G21, 8000-35, 8000-25, 8000-15, 8000-13, 8000-12, 8000-11-G31, 8000-11, 8000-10, 8000-225, 8000-215, 8000-211, 21003, 21002, 21001

#### 3. Test Reports, etc.

- 1) Test Reports
  - Bolborn EMC Solutions, Series 8000-SAN
  - Bolborn EMC Solutions, Series CER-8000-D-N
  - Bolborn EMC Solutions, Series Hydrobar-cable-VM
  - Bolborn EMC Solutions, Series 2000-SAN
  - KEMA Test Report No. 211828100
  - Klay Dry Heat Test dated 1999-07-29
  - Klay Humidity Test dated 1999-08-05
  - Klay Low Temp. Test dated 1999-07-30
  - Klay Performance Test dated 1999-08-05
  - Klay Power Supply Failure Test dated 1999-07-28
  - Klay Power Variation Test dated 1999-07-28
  - TNO Test Report No. 1999-CMC-R030 dated 1999-06-22
  - TNO Salt Mist Test Report No. BU4.00/036506-1/AA dated 2000-04-25
  - TNO Salt Mist Test Report No. TQS-RAP-08-4722/gge dated 2008-07-18
  - TUV 19103101.e01 dated 2020-01-14
- 2) Ex-proof Certificate No.
  - KEMA 03ATEX1219 X Issue No. 5
  - DEKRA 20ATEX0025 X Issue No. 0
  - IECEx DEK 14.0079X Issue No. 1
  - IECEx DEK 13.0060X Issue No. 0

### B. Approval Condition

#### 1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) Degree of protection is to be complied with Rule Pt 6. Ch.1 Sec.2 201.2. (5).
- 3) The manufacturer is to inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 4) Explosion-proof certification by a notified/recognized Certification Body is not covered by this certificate. Ratings and Special Condition for Safe Use in hazardous areas are to be obtained from the relevant valid Ex-Certificate.
- 5) When this system is installed in the vicinity of a standard or a steering magnetic compass, it is to have the minimum safe distance stated in Product Description or more at which it may be mounted from such compasses.

## Product Description and/or Approval Condition

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### 2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

### 3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

### 4. Others

- 1) Test Condition (IACS UR E10 Rev.7 basis)

Test	Condition	Remark
EMC	All locations including the bridge and deck zone	-
Temperature	-25 ~ +70°C	-
Vibration	Acceleration $\pm 0.7g$	-
Degree of protection	IP66/68	-
Salt mist	Applied	-

&lt; End of Certificate &gt;

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