



Marine & Offshore

Certificate number: 43113/B0 BV

File number: AP4683

Product code: 4440I

*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*

**VAF INSTRUMENTS B.V.**  
DORDRECHT - NETHERLANDS

*for the type of product*

**ALARM, MONITORING AND CONTROL SYSTEMS**  
T-Sense Torque Measuring System.

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships and Naval Ships.

EC Code: 41.

*This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 09 Nov 2026**

**For Bureau Veritas Marine & Offshore,**

At BV GRONINGEN, on 09 Nov 2021,

John Mondt



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 Marine & Offshore. 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 available on the internet site [www.veristar.com](http://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 Marine & Offshore 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.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

The T-Sense Torque Measuring System provides informations on engine performance related to its energy consumption.

#### 1.1 - T-Sense specifications:

##### 1.1.1 - Control box:

Part number:	Control box 0399-0403
Power supply:	115 or 230VAC, 50/60Hz $\pm$ 20%
Input:	Encrypted 2.4 GHz signal
Outputs:	Ethernet, RS485 or 4-20mA isolated current output (optional)
Dimensions:	408 x 360x 111mm
Measuring principle:	Optical sensor

##### 1.1.2 - Rotor equipment:

Material of mounting rings	Carbon steel
Material outside cover	Polyurea coated high density foam
Material compensator arms	Carbon steel
Shaft speed detection	Accelerometer signal
Output	Encrypted 2.4 GHz signal
Dimensions	100 to 1000mm, depending on shaft diameter
Operating temperature	-10°C to +60°C

### 2. DOCUMENTS AND DRAWINGS :

T-Sense, optical torque measuring system document ref. PB-660-GB-0119.

### 3. TEST REPORTS :

#### **DEKRA:**

- Environmental tests report No. 2156301.0502-EMC, dated 28.Feb.2013.
- EMC tests report No. 2156301.0501-EMC, dated 06.May.2015.
- Curves of EMC tests ref. 215630100, dated 05.Nov.2012.

#### **DARE!**

- EMC Test Report No. 18C00990RPT02, dated 08 Apr.2019.



### 4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships and Naval 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 - BUREAU VERITAS Environmental Category, **EC Code: 41.**
- 4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.
- 4.5 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7

### 5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - The T-Sense Torque Measuring System is to be supplied by **VAF INSTRUMENTS B.V.** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - BV product certificate is required.

### 6. MARKING OF PRODUCT :

- 6.1 - Trade name.
- 6.2 - Date of manufacture and serial number.
- 6.3 - Equipment type or model identification under which it was type-tested.
- 6.5 -  or  conformity marking, as relevant

### 7. OTHERS :

- 7.1 - It is **VAF INSTRUMENTS B.V.**'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. 43113/A0 BV BV issued on 25 Apr 2016 by the Society.

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