

Certificate No:  
**A-13807**  
 File No:  
**891.90**  
 Job Id:  
**262.1-016307-1**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Misc. detector**

with type designation(s)  
**T40MAR, MP60**

Issued to  
**Hottinger Baldwin Messtechnik GmbH**  
**Darmstadt, Hessen, Germany**

is found to comply with  
**Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards**

## Application :

**Location classes:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
T40MAR	B	B	B	A*	Required protection according to DNV Rules shall be provided upon installation on board
MP60	B	B	A	A	

**\*See Application/Limitation**

This Certificate is valid until **2018-12-31**.

Issued at **Høvik** on **2014-07-17**

for **DNV GL**

DNV GL local station: **Essen CMC Western Germany**

Approval Engineer: **Nils Jarem**

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**Odd Magne Nesvåg**  
**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. If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

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## Product description

Device	Description
MP60	The MP60 module, from the PME product line, is a frequency measurement module intended for connecting incremental transducers, frequency generators and HBM T10F-SF1 and T10F-SU2 torque flanges. The MP60 module is set up and parameters assigned via the keyboard and display or with the aid of the PME Assistant.  Input Voltage: 24VDC.
T40MAR-BG0 T40MAR-BG1	The T40MAR is a torque transducer. By the use of strain gages in a Wheatstone bridge the torque will be measured. The T40MAR consists of a rotating part(rotor) and a static part(stator). The stator supplies contactless energy to the rotor. The rotor sends torque measuring signals also contactless to the stator. The stator transforms the received digital signals to a voltage( $\pm 10V$ ) and a frequency( $10kHz \pm 5kHz$ ) signal.
T40MAR-W-BG0-10kNm T40MAR-W-BG0-25kNm T40MAR-W-BG1-70kNm T40MAR-W-BG1-125kNm T40MAR-W-BG2-215kNm	Measuring bodies.

## Application/Limitation

NOTE: Radiated emission exceeds limit with 4.6 dB at 523kHz for T40MAR

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.

The measuring bodies listed under product description have been evaluated for shaft fatigue and bolted connection. They comply with DNV Rules Pt.4 Ch.4 Sec.1 B.

## Approval conditions

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.

## Type Approval documentation

### Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

### Marking of product


The products to be marked with model name, manufacturer name and serial number.

### Periodical assessment

The scope of the periodical assessment 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 assessment 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



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- 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

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE