

TYPE EXAMINATION CERTIFICATE

This is to certify:**That the Indicator**

with type designation(s)
LBM-1, LBM-4, LBM-5

Issued to

Kwant Controls B.V.
Sneek, Netherlands

is found to comply with

IEC 60945 Ed. 4 (2002-08) Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results

Application :

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Issued at **Høvik** on **2017-10-12**

This Certificate is valid until **2022-10-11**.

DNV GL local station: **Rotterdam, Product
Certification /Verification**

for **DNV GL**

Approval Engineer: **Steinar Kristensen**

Jan Tore Grimsrud
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 Examination Certificate and not to the approval of equipment/systems installed.



Product description

Kwant Controls LBM-series LED Bargraph indicators with the below specifications:

Type:	Input:	Colors:	Orientation:	Part no:
LBM-1	4-20mA	Red	Fwd, Aft	15017000
LBM-4HF	-10/+10V	Red-Yellow -Green	Fwd	15017001
LBM-4HA	-10/+10V	Green-Yellow -Red	Aft	15017002
LBM-4VF	-10/+10V	Red-Yellow	Fwd	15017003
LBM-4VA	-10/+10V	Yellow-Red	Aft	15017004
LBM-5HF	4-20mA	Red-Yellow-Green	Fwd	15017043
LBM-5HA	4-20mA	Green-Yellow-Red	Aft	15017013
LBM-5VF	4-20mA	Red-Yellow	Fwd	15017021
LBM-5VA	4-20mA	Yellow-Red	Aft	15017039

Products listed above may be installed in an exposed environment, i.e. outdoor.

Application/Limitation

- Indicators are to be installed according to manufacturers documentation.
- Indicators may not be installed on the ships bridge.
- Indicators are to be installed with external control for dimming of illumination.

Type Examination documentation

DNV GL No	Document Id.	Rev.	Description
1	9505 331 450XX 001	00.011	Report: Thales, Environmental test report for LBM-X-series indicators
2	044-2013-01	E	Manual: Kwant Controls, Installation and user manual for LBM-series of indicators

Tests carried out

- Environmental testing: IEC 60945 (2002)

Marking of product

Product marking shall include identification of the manufacturer, model identification number, serial number and the minimum safe distance from a magnetic compass. Marking shall also include maximum revolution speed, voltage and current.

Certificate Retention Survey

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The scope of the periodical/renewal assessment is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.