



DNV

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-12851**

This is to certify that the
Temperature Transmitter

with type designation(s)
MBT 9110, MBT 5560


Manufactured by
Danfoss A/S
NORDBORG, Denmark

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:

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	Required protection according to DNV Rules shall be provided upon installation onboard.


Høvik, 2012-11-22
for Det Norske Veritas AS


Odd Magne Nesvåg
Head of Section



DNV local office:
Fredericia

This Certificate is valid until
2016-06-30


Nils Jarem
Surveyor

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 proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: A-12851
File No.: 892.20
Job Id.: 262.1-006092-2

Product description

MBT 9110: Temperature transmitter 4-20 mA.
MBT 5560: Temperature sensor with integrated transmitter 4-20 mA.

Application/Limitation

MBT 9110 for use in Danfoss sensor types:
MBT 5410, MBT 5252, MBT 5116, MBT 5113.

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

Data sheet IC.PD.P40.O1.02
Data sheet IC.PD.P30.F3.02
Test report: DANAK-192765 dated 1996-07-22
Test report: Danfoss 084Z9626PR dated 1998-03-20
Test reports: Test of MBT5560 for ship classification dated 2004-03-18 and 23
Test reports: TR 084Z029, TR 084Z030, TR 084Z031, TR DIV 084Z-032
Test reports: 4-969482/Kto2004-04-23
Drawing MBT 9110 084M1015 v. 00
Drawing MBT 5560 084R6015 v. 01
Certificate retention survey report for A-10986, DNV Fredericia 2012-06-07

Tests carried out

Applicable tests according to Standard for Certification No. 2.4.

Place of manufacture

Transmitter: PR electronics A/S, Rønne, Denmark
Build-in in enclosure: Danfoss A/S, Nordborg, Denmark
Danfoss A/S, Wuqing, China

Certificate Retention Survey

The scope of the retention/renewal survey 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 survey 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
- 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE