

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Measurement Converter

with type designation(s)
Trip Amplifiers 2231, 4131;
Programmable Electronic Transmitters
5114, 5115, 5116, 5104, 5105, 5331, 5333, 5334, 5335, 5337, 5343, 4104, 4114, 4116

Issued to
PR electronics A/S
Rønne, 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	A, B*
EMC	B
Enclosure	Required Protection according to DNV Rules shall be provided upon installation on board

*** B for 5331, 5333, 5334, 5335, 5337 and 5343**

This Certificate is valid until **2016-12-31**.

Issued at **Høvik** on **2014-12-16**

DNV GL local station: **Aalborg**

for **DNV GL**

Approval Engineer: **Ståle Sneen**

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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.

Certificate No: **A-14057**
File No: **890.70**
Job Id: **262.1-000946-6**

Product description

Trip Amplifiers: 2231, 4131
Programmable Electronic Transmitters: 5104, 5105, 5114, 5115, 5116, 5331, 5333,
5334, 5335, 5337, 5343, 4104, 4114, 4116

Place of manufacture

PR electronics A/S
Rønne, Denmark

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, by inclusion in an instrument list. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

- Ring binder containing:

1. Data sheet
 2. Forwarding letter
 3. Drawing 2231-1004
 4. List of components
 5. Card layout, component arr.
 6. Datasheet components
 7. Test specification
 8. Labels
- Test records 2231/5114 dated 2003-02-14
 - Vibration test report: Delta E 500 224 dated 2002-04-02

Extension 2004:

- Ring binder containing:

1. Data sheet
2. Manual
3. Drawings/ schematic diagrams
4. Part list
5. PCB layout, Component Location, PCB specification
6. Test setup
7. Test Test report
8. Labels
9. Application for Type Approval
- 10 Certificates
- 11 Revision Reports
- 12 Correspondence

- Test record of 53xx dated 2004-07-09
- Vibration test report: Delta E 502021 dated 2002-04-02

Extension 2006:

- Instruction pamphlets
- Test Record of 4116 dated 2006-02-02
- Test Record of 5116 dated 2006-02-02
- Vibration Test Report: Danak-198220 dated 2006-01-11

Renewal 2010:

- Design drawing set 5335-1-12 dated 2009-07-10

Renewal 2012:

- Instruction pamphlets 5331V112-UK, 5333V110-UK, 5334V107-UK, 5335V114-UK, 5337V100-IN, 4104V100-UK
- Product data sheet 4104Y100-UK (1223)

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- Design drawing set 5335-1-23A dated 2012-02-08
- Design drawing set 4104-1-03 dated 2012-08-29
- 4104 Acceptance Test Report V2R0 dated 2012-09-06
- Vibration Test Report DANAK-19/12312 dated 2012-08-09
- Type approval periodical assessment report for A-12939, DNV GL Aalborg dated 2014-11-04

Tests carried out

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

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
- 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