



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA0000101**  
Revision No:  
**1**

## 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**

**Rønede, Midtjylland, Denmark**

is found to comply with

**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

### Location classes:

**Temperature D**

**Humidity B**

**Vibration A, B\***

**EMC B**

**Enclosure Required protection according to relevant rules shall be provided upon installation on board**

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

Issued at **Høvik** on **2022-01-14**

for **DNV**

This Certificate is valid until **2026-12-31**.

DNV local station: **Denmark CMC**

Approval Engineer: **Martin Skårerverket**

.....  
**Trond Sjøvåg**  
**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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## 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  
Rønde, 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. Reference is made to DNV rules for classification of 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
- Vibration test report: Delta E 500 224

dated 2003-02-14  
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
- Vibration test report: Delta E 502021

dated 2004-07-09  
dated 2002-04-02

### Extension 2006:

- Instruction pamphlets
- Test Record of 4116
- Test Record of 5116
- Vibration Test Report: Danak-198220

dated 2006-02-02  
dated 2006-02-02  
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)
- Design drawing set 5335-1-23A
- Design drawing set 4104-1-03
- 4104 Acceptance Test Report V2R0
- Vibration Test Report DANAK-19/12312

dated 2012-02-08  
dated 2012-08-29  
dated 2012-09-06  
dated 2012-08-09

**Renewal 2021:**

- |                                      |                  |
|--------------------------------------|------------------|
| - EMC test report: 121-27927-1 Rev.A | dated 2021-07-07 |
| - EMC test report: 121-23384-1       | dated 2021-06-01 |
| - Dry heat test Report: 121-28169-1  | dated 2021-06-23 |
| - Test report: DANAK-19/17343        | dated 2017-01-20 |

Type approval assessment report for TAA0000101, DNV Denmark dated 2021-10-25

**Tests carried out**

Applicable tests according to class guideline DNV-CG-0339, August 2021.

**Marking of product**

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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

END OF CERTIFICATE