EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRA000000Z
Revision No:
2

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

PR electronics A/S

Rønde, Midtjylland, **Denmark**

for
Sensors

with type designation(s)
Universal transmitter 4114, Universal transmitter 4116, Universal trip amplifier 4131, Programmable LED indicator 5714, Programmable LED indicator 5715, Programmable frequency indicator 5725

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Sensors

Intended service
Transmitters/indicators intended for a wide range of process and electrical connections; See product description on page 2.

Temperature [°C]:	**-25°C ~ +70°C**
Vibration:	**±1.0 mm / 0.7 g**
EMC:	**All locations including bridge and open deck**
IP Code:	**IP20 (according to IEC 60529)**

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2027-01-31**.

Issued at **Høvik** on **2022-02-08**

DNV local station: **Denmark CMC**

Approval Engineer: **Martin Skårerverket**

for **DNV**
Digitally Signed By: Sjåvåg, Trond
Location: DNV Høvik, Norway

Trond Sjåvåg
Head of Section

Product description

Universal transmitter 4114

- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2-wire supply > 16 V
- Output for current and voltage
- Universal AC or DC supply
- Marine tested for 24 VDC and 230 VAC supply voltage

Universal transmitter 4116

- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2-wire supply > 16 V
- Output for current, voltage and 2 relays
- Universal AC or DC supply
- Marine tested for 24 VDC and 230 VAC supply voltage

Universal trip amplifier 4131

- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2 adjustable alarm limits
- 2 relay outputs
- Universal AC or DC supply
- Marine tested for 24 VDC and 230 VAC supply voltage

Programmable LED indicator 5714

- 4-digit 14-segment LED indicator
- Input for mA, V, potentiometer, Ohm, RTD and TC
- 2 relays and analogue output
- Universal voltage supply; 21.5…253 VAC or 19.2…300 VDC
- Front key programmable
- Marine tested for 230 VAC supply voltage

Programmable LED indicator 5715

- 4-digit 14-segment LED indicator
- Input for mA, V, potentiometer, Ohm, RTD and TC
- 4 relays and analogue output
- Universal voltage supply; 21.5…253 VAC or 19.2…300 VDC
- Front key programmable
- Marine tested for 230 VAC supply voltage

Programmable frequency indicator 5725

- Measures NPN, PNP, Contact, NAMUR, SO, Tacho and TTL sensors
- Programmable frequency input span of 0.001 Hz to 50 kHz
- The 5725D has two SPDT relays and one analogue output
- Easy to read 4 digit, 14 segment LED display with scrolling help text
- Universal voltage supply; 21.5…253 VAC or 19.2…300 VDC
- Marine tested for 24 VDC and 230 VAC supply voltage

Firmware revision numbers are listed in document named EU-RO FIRMWARE VERSIONS version V2R0 dated 2016-11-17.

Manufactured by

PR electronics A/S
Rønde, Denmark

Application/Limitation

The Type Approval covers hardware listed under type designation.

Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organizations.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to class requirements and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Name	Number	Date
Manual for 4114	4114V104-UK	-
Manual for 4116	4116V104-UK	-
Manual for 4131	4131V104-UK	-
Manual for 5714	5714V103-UK	-
Manual for 5715	5715V102-UK	-
Manual for 5725	5725V102-UK	-
EU-RO Firmware Revisions	-	V2R0 / 2016-11-17
5725 Acceptance Test Report	-	V3R0 / 2012-12-19 (internal)
DNV Test Record of 4116	-	2006-01-27 (witnessed testing)
DNV Test Record of 5714	-	2004-07-09 (witnessed testing)
DELTA Test Report (7 modules)	DANAK-19/16687	2016-07-15
DELTA Test Report (5725)	DANAK-19/17341	2017-01-20
DELTA Test Report (5714)	DANAK-19/17342	2017-01-20
DELTA Test Report (4116)	DANAK-19/17343	2017-01-20
FORCE Dry Heat Test Report	121-28169-1	2021-06-23
FORCE EMC 1-6 GHz Test Report	121-23384-1	2021-06-01
Software development	PR-IMS-I11.2	2016-07-01
EU RO MR Type Approval PQA scheme periodical assessment checklist	2021-10-26	

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

Other Conditions

The sensors have been verified for compliance with EU Mutual Recognition Technical Requirements for Sensors version 0.4, dated 2018-07-01.

Environmental test parameters		DNV location classes
Temperature:	-25°C ~ +70°C	D
Vibration:	±1.0 mm / 0.7 g	A
Humidity:	95%RH @ 55°C	B
EMC:	All locations including bridge and open deck	B
Enclosure:	IP20 (according to IEC 60529)	A

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 annually and at renewal of this certificate.

END OF CERTIFICATE

Generic Statement for EU RO MR Type Approval Certificate

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- American Bureau of Shipping (ABS);
- Bureau Veritas (BV);
- China Classification Society (CCS);
- Croatian Register of Shipping (CRS);
- DNV;
- Indian Register of Shipping (IRS);
- Korean Register (KR);
- Lloyd's Register Group Ltd. (LR);
- Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);
- Polish Register of Shipping (PRS);
- RINA Services S.p.A. (RINA);
- Russian Maritime Register of Shipping (RS).

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).