

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Temperature Transmitter

with type designation(s)

System Rüster BR, System Rüster BI, System Rüster KF, System Rüster WI

Issued to

**Paul Rüster & Co. GmbH
Stahnsdorf, Brandenburg, Germany**

is found to comply with

DNV GL 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 GL.

Location classes:

Temperature	C
Humidity	B
Vibration	B
EMC	B
Enclosure	Required protection according to DNVGL Rules shall be provided upon installation on board

Issued at **Hamburg** on **2019-10-29**

This Certificate is valid until **2024-11-09**.

DNV GL local station: **Magdeburg**

Approval Engineer: **Holger Jansen**



Digitally Signed By: Rinkel, Marco
for **DNV GL**

Location: Hamburg, on behalf of

**Joannis Papanuskas
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.



Product description

Resistance thermometers (PT100, PT1000, Ni100, Ni1000, Ni1000-TK5000, PTC, NTC)
and thermocouples (type J, K, L, N, S, E, R, B, T)

System Rüster BR:

Bearing resistance thermometers and bearing thermocouples

Ex	1.	1a.	2x	3.	4.	5-	6.	7.	8.	9
	1)	Type:		Ex2... (RTD) Ex3... (TC)						
	1a)	Options:		F = protection tube isolated with FEP K = Kynar isolated U = cap nut						
	2)	Diameter:		6 up to 15 mm ; stainless steel						
	3)	Length:		up to 1000 mm (tested: 85 mm)						
	4)	Sensor quantity:		1 = 1x... 2 = 2x... thermocouple: 1 = 1x...						
	5)	Sensor type:		Pt = Pt100 PtM = Pt1000 Ni = Ni100 NiM = Ni1000 NiMTk = Ni1000 Tk5000 NTC = NTC PTC = PTC thermocouple type: J, K, L, N, S, E, R, B, T						
	6)	Wiring:		RTD 2 = 2-phase 3 = 3-phase 4 = 4-phase						
	7)	Accuracy:		RTD 0 = Standard 1 = 1/2 DIN IEC 60751 2 = 1/3 DIN IEC 60751 TC 2 = Standard 1 = 1/2 DIN IEC 584						
	8)	Process connection:		All kind of threats						
	9)	Connection cable:		Cable length is to be below 6 m and flame redardant						

System Rüster BI:

Screw in resistance thermometers and bearing thermocouples

Ex	1.	1a.	2x	3.	4.	5-	6.	7.	8
	1)	Type:		Ex2... (RTD) Ex3... (TC)					
	1a)	Options:		F = protection tube isolated with FEP K = Kynar isolated					
	2)	Diameter:		6 up to 10 mm ; stainless steel					
	3)	Length:		up to 1000 mm (tested: 100 mm)					
	4)	Sensor quantity:		1 = 1x... 2 = 2x... thermocouple: 1 = 1x...					
	5)	Sensor type:		Pt = Pt100 PtM = Pt1000 Ni = Ni100 NiM = Ni1000 NiMTk = Ni1000 Tk5000 NTC = NTC PTC = PTC thermocouple type: J, K, L, N, S, E, R, B, T					
	6)	Wiring:		RTD 2 = 2-phase 3 = 3-phase 4 = 4-phase					
	7)	Accuracy:		RTD 0 = Standard 1 = 1/2 DIN IEC 60751 2 = 1/3 DIN IEC 60751 TC 2 = Standard 1 = 1/2 DIN IEC 584					
	8)	Process connection:		All kind of threats					
	Accessory:			Connection cable with capnut M12x1 inclusive connected cable on request Cable length is to be below 6 m and flame redardant					

System Rüster KF:

Cable resistance thermometers and bearing thermocouples

Ex	1.	1a.	2x	3.	4.	5-	6.	7.	8
	1)	Type:		Ex2... (RTD) Ex3... (TC)					
	1a)	Options:		F = protection tube isolated with FEP K = Kynar isolated U = cap nut					
	2)	Diameter:		4 up to 15 mm ; VA + BN-ceramiv					
	3)	Length:		up to 1000 mm (tested: 80 mm)					
	4)	Sensor quantity:		1 = 1x... 2 = 2x... thermocouple: 1 = 1x...					
	5)	Sensor type:		Pt = Pt100 PtM = Pt1000 Ni = Ni100 NiM= Ni1000 NiMTk = Ni1000 Tk5000 NTC = NTC PTC = PTC thermocouple type: J, K, L, N, S, E, R, B, T					
	6)	Wiring:		RTD 2 = 2-phase 3 = 3-phase 4 = 4-phase					
	7)	Accuracy:		RTD 0 = Standard 1 = 1/2 DIN IEC 60751 2 = 1/3 DIN IEC 60751 TC 2 = Standard 1 = 1/2 DIN IEC 584					
	8)	Connection cable:		Cable length is to be below 6 m and flame redardant					

System Rüster WI:

Angle resistance thermometers and bearing thermocouples

Ex	1.	1a.	2x	3.	4.	5-	6.	7.	8
	1)	Type:		Ex2... (RTD) Ex3... (TC)					
	1a)	Options:		K = FEP isolated					
	2)	Diameter:		4 up to 12 mm ; stainless steel					
	3)	Length:		up to 800 mm (tested: 105 mm)					
	4)	Sensor quantity:		1 = 1x... 2 = 2x... thermocouple: 1 = 1x...					
	5)	Sensor type:		Pt = Pt100 PtM = Pt1000 Ni = Ni100 NiM = Ni1000 NiMTk = Ni1000 Tk5000 NTC = NTC PTC = PTC thermocouple type: J, K, L, N, S, E, R, B, T					
	6)	Wiring:		RTD 2 = 2-phase 3 = 3-phase 4 = 4-phase					
	7)	Accuracy:		RTD 0 = Standard 1 = 1/2 DIN IEC 60751 2 = 1/3 DIN IEC 60751 3 = GOST R 8.625-2006 TC 2 = Standard 1 = 1/2 DIN IEC 584					
	8)	Connection cable:		Cable length is to be below 6 m and flame redardant					

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Explosion protection: Ex II 2G Ex ia IIC T6 – T2 Gb or Ex II 2D Ex ia IIIC TX Db
according to IBEExU 09 ATEX 1090 X
Ex ia IIC T6 – T2 or Ex ib IIC T6 - T2
according to IECEX IBE 14.0010X

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

Job Id: **262.1-031048-1**
Certificate No: **TAA00002C2**

Type Approval documentation

Test reports: BAM-9.1/885; V.3/547-03-V2 (WI)
BAM V.3/715 (KF)
BAM 5.3/715/2 (BR, BI)
IBExU – IB-18-3-0094

Documentation: Operation instruction, Rev. 01
Type Approval Assessment Report 2019-05-16

Tests carried out

Applicable tests according to DNV GL Class Guideline CG0339, November 2016.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

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