

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Peripheral Equipment**

with type designation(s)  
**RSR20, RSR30 (Industrial Ethernet Rail Switch)**

Issued to

**Hirschmann Automation and Control GmbH**  
**Neckartenzlingen, Baden-Württemberg, 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.**

<b>Temperature</b>	<b>B/D (see product description)</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>A</b>
<b>EMC</b>	<b>A/B (see product description)</b>
<b>Enclosure</b>	<b>Required protection according to DNV GL Rules shall be provided upon installation on board</b>

Issued at **Hamburg** on **2019-03-18**

for **DNV GL**

This Certificate is valid until **2024-03-17**.

DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

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**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

The Rail Switch Rugged modules support switched ETHERNET networks in accordance with IEEE standard 802.3 and 802.3u using copper wire or optical fibers.

The RSR20 device variants are Rail Switches Rugged without gigabit Ethernet ports and eight to nine 10/100Mbit/s Ethernet ports.

The RSR30 device variants are Rail Switches Rugged with 2 to 3 gigabit Ethernet ports (1000Mbit/s) and six to eight 10/100Mbit/s Ethernet ports.

Environmental Category: B - when DC powered,  
 Environmental Category: A - when AC powered,

Temperature Class: B - when nomenclature value (g) is S or C,  
 Temperature Class: D - when nomenclature value (g) is U or F.

The product designation of the device is made from combining the desired product characteristics in accordance with the following structure / nomenclature

Nomenclature RSRaa-bbccddeeffghijk

Position	Characteristic	Value	Description
4 and 5 (aa)	Product	20	Rail Switch Rugged without gabit ports
		30	Rail Switch Rugged with gigabit ports
6	-	-	(hyphen)
7 and 8 (bb)	Number of 100 Mbit/s ports	06	6 × 100 Mbit/s Ethernet
		07	7 × 100 Mbit/s Ethernet
		08	8 × 100 Mbit/s Ethernet
		09	9 × 100 Mbit/s Ethernet
9 and 10 (cc)	Number of 1000 Mbit/s ports	00	0 × 1000 Mbit/s Ethernet
		02	2 × 1000 Mbit/s Ethernet
		03	3 × 1000 Mbit/s Ethernet
11 and 12 (dd)	Port 1 and 2 or Port 1	CC	2 × Combo-Port 100/1000 Mbit/s Ethernet
		OO	2 × SFP slot 1000 Mbit/s Ethernet
		MM	2 × Multimode FX (DSC)
		JJ	2 × Multimode FX (MTRJ)
		NN	2 × Multimode FX (ST)
		VV	2 × Singlemode FX (DSC)
		UU	2 × Singlemode FX (ST)
		LL	2 × Singlemode Long Haul FX (DSC)
		GG	2 × Singlemode Long Haul FX (DSC) 200 km
		O7	1 × Combo-Port 100/1000 Mbit/s Ethernet
		O6	1 × SFP slot 1000 Mbit/s Ethernet
		T1	1 × Twisted Pair TX (RJ45 socket)
		M2	1 × Multimode FX (DSC)
		M3	1 × Multimode FX (MTRJ)
		M4	1 × Multimode FX (ST)
		S2	1 × Singlemode FX (DSC)
S4	1 × Singlemode FX (ST)		
L2	1 × Singlemode Long Haul FX (DSC)		
G2	1 × Singlemode Long Haul FX (DSC) 200 km		

13 and 14 (ee)	Port 2 or Port 3 or Port 3 and 4	ZZ	2 × SFP slot (100 Mbit/s)
		O7	1 × Combo-Port 100/1000 Mbit/s Ethernet
		O6	1 × SFP slot 1000 Mbit/s Ethernet
		T1	1 × Twisted Pair TX (RJ45 socket)
		M2	1 × Multimode FX (DSC)
		M3	1 × Multimode FX (MTRJ)
		M4	1 × Multimode FX (ST)
		S2	1 × Singlemode FX (DSC)
		S4	1 × Singlemode FX (ST)
		L2	1 × Singlemode Long Haul FX (DSC)
G2	1 × Singlemode Long Haul FX (DSC) 200 km		
15 and 16 (ff)	Remaining ports	T1	1 × Twisted Pair TX (RJ45 socket)
		Z6	1 × SFP slot (100 Mbit/s)
17 (g)	Temperature range	S	Standard 0 °C ... +60 °C
		C	Standard 0 °C ... +60 °C and conformal coating
		U	Extended -40 °C ... +85 °C
		F	Extended -40 °C ... +85 °C and conformal coating
18 (h)	Voltage range 1	C	Rated voltage 24 V ... 48 V DC Voltage range incl. maximum tolerances: 18 V ... 60 V DC
		K	Rated voltage 60 V ... 250 V DC, respectively 110 V ... 230 V AC, 50-60 Hz Voltage range incl. maximum tolerances: 48 V ... 320V DC, 90 V ... 265 V AC, 47-63 Hz
		9	Not present
		C	Rated voltage 24 V ... 48 V DC Voltage range incl. maximum tolerances: 18 V ... 60 V DC
19 (i)	Voltage range 2	K	Rated voltage 60 V ... 250 V DC, respectively 110 V ... 230 V AC, 50-60 Hz Voltage range incl. maximum tolerances: 48 V ... 320V DC, 90 V ... 265 V AC, 47-63 Hz
		9	Not present
		C	Rated voltage 24 V ... 48 V DC Voltage range incl. maximum tolerances: 18 V ... 60 V DC
		K	Rated voltage 60 V ... 250 V DC, respectively 110 V ... 230 V AC, 50-60 Hz Voltage range incl. maximum tolerances: 48 V ... 320V DC, 90 V ... 265 V AC, 47-63 Hz
20 (j)	Approvals	x	any letter – not relevant for this certificate
21 (k)	Software variant	P	Professional
		E	Enhanced (derivate from Professional software)
		B	Basic (derivate from Professional software)

Software release: 08.x  
 Software release: 09.x

### 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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Instruction for Installation, maintenance and operation manual to be provided for each delivery by considering appropriate installation, shielding and use of filters.

Job Id: **262.1-030424-1**  
Certificate No: **TAA000026K**

### **Product certificate**

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

### **Clause for application software control**

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNVGL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

### **Manufacturing Places**

Hirschmann Automation and Control GmbH  
Stuttgarter Straße 45-51  
72654 Neckartenzlingen, Germany

Belden Hirschmann Industries (Suzhou) Limited  
333 Yanhu Road, Huaqiao Town,  
Kunshan City, Jiangsu Province  
P. R. China, 215332

Belden India Private Ltd  
Plot No. D-228, Chakan MIDC Phase II  
Bhamboli, Chakan - 410507  
Maharashtra, India

### **Type Approval documentation**

Test reports:

2007-1895-3009-REN		dated 21.01.2008
952028.042.00x V. 1.0 Hochspannungs- und Isolations-Tests		dated 14.01.2008
952028.042.00x V. 1.0 Funct. Tests Chapter 4.1.1 Climatic Conditions		dated 14.01.2008
952028.042.00x V. 1.0 Funct. Tests Chapter 5.1 /5.2 AC/DC Power supply		dated 14.01.2008
B_010807e	dated 02.12.2008	
PB-466e/08	dated 25.11.2008	
User Manual RSR20/RSR30 Family (release 01/2019);		

### **Tests carried out**

Applicable tests according to class guideline DNVGL-CG-0339, November 2016

### **Marking of product**

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

Job Id: **262.1-030424-1**  
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### **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