

Train Ethernet Repeater



VDS Rail
The onboard networking
company

KONUENDO NETWORKING



Physical Train Backbones often reach the length of several hundred meters; accordingly with EN-61375 Ethernet Train Backbone Nodes are installed into consist in order to guarantee the proper communication train wise. Typically, physical distance between such devices is similar to the consists length, and, considering that everything has to work even if one of them is off-line, the distance between working ETBNs can double or more. The Train Ethernet Repeater is a device able to regenerate the Ethernet frame data and the electrical parameters to overcome the 100 m standard imposed maximum Ethernet segment limit and can be installed between two ETBN when installation parameters require it. Such Ethernet repeater provide double Ethernet line and hardware bypass to guarantee connections in case of fault. The device is available as FE (100 Mbps) or as GbE (1 Gbps). The Ethernet Repeater can be powered by 2 separate power lines for added reliability.

Designed to operate in harsh environmental conditions typical of rolling-stock applications, the Train Ethernet Repeater is fully EN 50155 compliant and provides the highest level of reliability and robustness required by the railway industry.

Technical Specifications

- 4 Fast Ethernet ports or 4 Gigabit Ethernet ports
- M12 circular connectors (4-ways for Fast Ethernet / 8-ways for Gigabit Ethernet)
- 2 hardware bypasses for maximum reliability
- Insulated wide range power supply

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Technical Specifications

PHYSICAL DATA

System status indicators:	1 LED						
Fast Ethernet connectors:	M12, female, 4-ways, D-coding						
Gigabit Ethernet connectors:	M12, female, 8-ways, X-coding						
Power supply connector:	M12, male, 4-ways, A-coding						
Power supply voltage range (insulated):	24 to 110 Vdc nominal 14,4 Vdc ÷ 165 Vdc, according to EN 50155						
Power supply class:	S2, according to EN 50155						
Power consumption:	7 W max						
Overall dimensions:	132 x 165 x 47 mm						
Weight:	1,1 Kg						
Operating temperature:	<table border="0"> <tr> <td>Standard</td> <td>-25 ÷ +55 °C (+70 °C for 10 min.) according to EN 50155 class OT1+ST1</td> </tr> <tr> <td>Optional</td> <td>-25 ÷ +70 °C (+85 °C for 10 min.) according to EN-50155 class OT3+ST1</td> </tr> <tr> <td>Optional</td> <td>-40 ÷ +70 °C (+85 °C for 10 min.) according to EN 50155 class OT4+ST1</td> </tr> </table>	Standard	-25 ÷ +55 °C (+70 °C for 10 min.) according to EN 50155 class OT1+ST1	Optional	-25 ÷ +70 °C (+85 °C for 10 min.) according to EN-50155 class OT3+ST1	Optional	-40 ÷ +70 °C (+85 °C for 10 min.) according to EN 50155 class OT4+ST1
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Relative humidity (non condensing):	0 ÷ 95 %						
Storage temperature:	-40 ÷ +85 °C						
Color codes:	Pantone 430 / RAL 7045 (frame) Pantone 431 / RAL 7046 (front panel)						
Degree of protection:	<table border="0"> <tr> <td>Standard</td> <td>IP40</td> </tr> <tr> <td>Optional</td> <td>IP54, IP65</td> </tr> </table>	Standard	IP40	Optional	IP54, IP65		
Standard	IP40						
Optional	IP54, IP65						

APPROVALS / COMPLIANCE

EN 50155	Railway Applications (Electronic equipment used on rolling stock)
EN 50121-3-2	Electromagnetic compatibility rolling stock apparatus
EN 55016-2-1	Railway applications: conducted emission / radiated emission
IEC 61000-4-2	Electrostatic discharge immunity test
IEC 61000-4-3	Radiated, radiofrequency, electromagnetic field immunity test 3
IEC 61000-4-4	Electrical fast transient/burst immunity test
IEC 61000-4-5	Surge immunity test
IEC 61000-4-6	Immunity to conducted disturbances, induced by radiofrequency fields
IEC 60068-2-1	Environmental testing - Part 21: Tests - Test A: Cold
IEC 60068-2-2	Environmental testing - Part 22: Tests - Test B: Dry heat

APPROVALS / COMPLIANCE

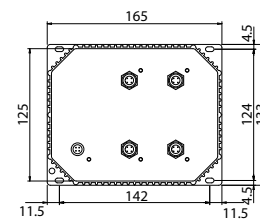
EN 61373	Shock & Vibration - Category 1 class B
EN 60950	Information technology equipment - Safety

INTERNETWORKING STANDARDS

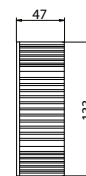
IEEE 802.3u	Fast Ethernet
IEEE 802.3ab	Gigabit Ethernet

Wall Mounting

Dimensions only for reference



FRONT VIEW



SIDE VIEW



TOP VIEW

H*: see overall dimensions specification