RSi

R120s Rail Fire Safety MASTER - smart

Key Features

- Modular system
- Certified controller for aerosol and water mist firefighting systems
- Communication via Ethernet acc. To 61375-2-5/-3-4 with TRDP/TTDP/SNMP
- SIL2 compliant unit (CENELEC EN50126/128/129)
- Extended temperature range -40°C and +70°C
- EN 50155 certified
- EN 45545 HL3
- High availability

System Configuration and Monitoring

- Fuma® web edition, HTTPS web interface
- Integrated Eventlog
- Diagnosis and Monitoring via SNMP v2c und v3 (read) operations (MIB II, private enterprise MIB), RS 232 / RS 485 (half duplex)
- Event notification via SNMP traps, and / or external SYSLOG server

The R120s Rail Fire Safety MASTER and its extension cards define the central unit for the evaluation of fire alarms and control of firefighting equipment, as well as for communication with the vehicle control system (TCMS) in accordance with the latest standards (IEC 61375-2-5/-3-4 TRDP/TTDP/SNMP).

The R120 series has been developed and certified for use in railway applications (SIL2 according to CENELEC). The R120s has a modular system design that supports expandability as well as short repair times (MTTR) due to the field-replaceable capability of the system and its extension cards.

The power supply supports input voltages between 24-110VDC – wide range DC input.

The R120s Rail Fire Safety MASTER - smart allows easy configuration as well as flexible monitoring via Fuma® - Web Edition (Fire safety unified management application) including secure access (HTTPS) through an operator terminal. The interface is intuitively designed and offers a state-of-the-art web browser application. The system can be configured and monitored via this single central interface.

The R120s-Rail Fire Safety Controller has an integrated Event Logger to store critical events and messages.
Notifications are sent via SNMP traps.
When the controller is integrated into the vehicle via TRDP, it is possible to forward messages and process data as well.

Basic system components

Housing

R120s	R120s Base system
	◾ 19 inch 1 HU Housing (302,5x210x42,5mm), mounting in rack or via mounting plate, IP44

Power supply

0190P01	Power supply for R120s product series,
	◾ P1: Supply Voltage 24 – 110 VDC wide range power supply acc. EN 50155:2017
	◾ P2: Output Voltage 20 – 30 VDC
	◾ 8x I/Os

Plugs:

P1	Supply Voltage	M12 S-coded	M	3 pole
P2	Output Voltage	M12 S-coded	M	3 pole
X1	I/O 1 / I/O 2	M8 A-coded	F	4 pole
X2	I/O 3 / I/O 4	M8 A-coded	F	4 pole
X3	I/O 5 / I/O 6	M8 A-coded	F	4 pole
X4	I/O 7 / I/O 8	M8 A-coded	F	4 pole

CPU module

0190C01	CPU module for the R120 product series
	◾ 3x dry (floating) contacts
	◾ RS232/RS485 Interface
	◾ 4x Ethernet interfaces 10/100/1000Base-T

Plugs:

0	Ethernet 0	M12 X-coded	F	8 pole
1	Ethernet 1	M12 X-coded	F	8 pole
2	Ethernet 2	M12 X-coded	F	8 pole
3	Ethernet 3	M12 X-coded	F	8 pole
X1	3x dry (floating) contacts RS232/RS485 Interface	M12 A-coded	F	12 pole
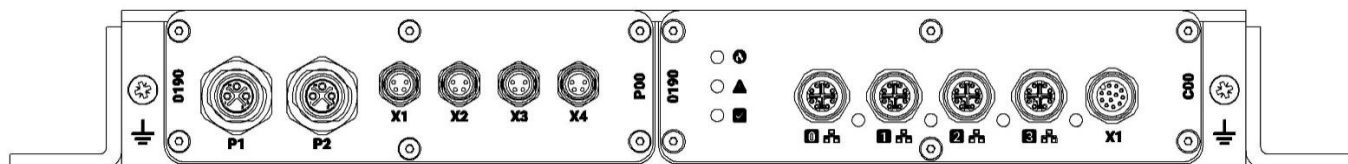
Applicable standards

Electromagnetic compatibility

EN 50121-3-2:2016	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock
IEC 61000-4-2:2008	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test
IEC 61000-4-3:2006/A1:2007/A2:2010	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4:2012	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test
IEC 61000-4-5:2014/A1:2017	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test
IEC 61000-4-6:2013	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields
IEC 61000-4-11:2004/A1:2017	Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests
IEC 61000-4-12:2017	Electromagnetic compatibility (EMC) – Part 4-12: Testing and measurement techniques – Ring wave immunity test
IEC 61000-6-2:2016	Electromagnetic compatibility (EMC). Part 6-2: Generic standards – Immunity for industrial environments
IEC 61000-6-4:2018	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards - Emission standard for industrial environments

Safety standards

EN 50126:2017	Railway applications – The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS) Part 1: Basic requirements and generic process - as far as applicable
EN 50128:2011	Railway applications – Communication, signaling and processing systems - Software for railway control and protection systems – as far as applicable
EN 50129:2018/AC:2019	Railway applications – Communications, signaling and processing systems - Safety related electronic systems for signaling

EN 50657:2017	Railways Applications. Rolling stock applications. Software on Board Rolling Stock
EN 50159:2010	Railway application - Safety-related communication in transmission systems
IEC 61375-2-3:2015/ COR1:2015/ COR2:2016	Electronic railway equipment - Train communication network (TCN) - Part 2-3: TCN communication profile
IEC 60529:1989/A1:1999 /A2:2013	Degrees of protection provided by enclosures (IP Code)

Environmental conditions standards

EN 50155:2022	Railway applications - Rolling stock - Electronic equipment
EN 50124-1:2017	Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment
EN 45545-2:2020	Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behavior of materials and components
EN 61373:2011	Railway applications - Rolling stock equipment - Shock and vibration tests

Mechanical standards

IEC 60297-3-100:2008	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-100: Basic dimensions of front panels, subracks, chassis, racks and cabinets

Technical specification

Mechanical data

Housing	19-inch 1HU housing mounted in a rack acc. IEC 60297-3-100 or mounting via mounting plate
Dimensions	Housing without mounting brackets: Width: 302.5 mm Height: 42.50 mm Depth: 210.0 mm Housing incl. mounting brackets: Width: 362.5 mm Height: 42.50 mm Depth: 210.0 mm Housing incl. 19-inch rack mounting brackets: Width: 482.6 mm Height: 42.50 mm Depth: 210.0 mm
Material	Anodized aluminum
IP protection class	IP44 acc. EN 60529
Weight	3,07 kg – wall mounted 3,22 kg – rack mounted

Environmental conditions

Operating temperature	-40 °C to +70 °C class OT4 acc. to EN 50155 and IEEE 1613
Storage temperature	-40 °C to +85 °C
Operating altitude	max 5,000 m class AX acc. to EN 50125-1
Relative humidity	5% to 95% (non-condensing) at 40 °C

System requirements

Web browser	Google Chrome (Version > 89), Microsoft Edge (Version > 89), Mozilla Firefox (Version > 87), Opera (Version > 75), Brave (Version > 1.23)
Browser technology support	HTML5, CSS3, JavaScript enabled, ECMAScript 2016, Local Storage (min. 1MB)

Network standards and protocols

General standards and protocols

- IEEE 802.1Q VLANs
- IEEE 802.3 Type 10/100BASE-T
- IEEE 802.3ab 1000BASE-T
- RFC 768 User Datagram Protocol (UDP)
- RFC 791 Internet Protocol, Version 4 (IPv4)
- RFC 792 Internet Control Message Protocol (ICMPv4)
- RFC 793 Transmission Control Protocol (TCP)
- RFC 826 Address Resolution Protocol (ARP)
- RFC 1035 Domain Names (client)
- RFC 1918 Address Allocation for Private Internet
- RFC 4443 Internet Control Message Protocol (ICMPv6)
- RFC 2131 Dynamic Host Configuration Protocol (DHCPv4)
- RFC 3484 Default Address Selection for Internet Protocol version 6 (IPv6)
- RFC 3596 DNS Extensions to Support IPv6
- RFC 8200 Internet Protocol, Version 6 (IPv6)
- RFC 8415 Dynamic Host Configuration Protocol for IPv6 (DHCPv6)

Device and Network Management

- RFC 1098 A Simple Network Management Protocol (SNMP)
- RFC 1155 Structure and Identification of Management Information for TCP/IP-based Internets
- RFC 1213 Management Information Base for Network Management of TCP/IP-based internets: MIB-II
- RFC 2578 Structure of Management Information Version 2 (SMIv2)
- RFC 2579 Textual Conventions for SMIv2
- RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks
- RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- RFC 3413 Simple Network Management Protocol (SNMP) Applications
- RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
- RFC 3584 Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework
- RFC 5424 The Syslog Protocol
- RFC 7540 Hypertext Transfer Protocol Version 2 (HTTP/2)
- Private Enterprise MIB