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Rugged Communication

RUGGEDCOM RSG907R & RSG909R

Compact multi-port IEEE 1588 switches
with HSR and PRP support

Brochure

Edition
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The RUGGEDCOM RSG907R and RSG909R are cost effective compact Ethernet multi-port HSR/PRP switches with IEEE 1588 support, offering a new level of redundancy for the digitalization era.

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Product overview and benefits

The RUGGEDCOM RSG907R and RSG909R, two full Gigabit switches in a compact design, offering both HSR and PRP functionality to mitigate the risk of communication disruptions and downtime. These rugged Gigabit switches are designed to operate in harsh environments with widely varying climatic and environmental conditions. Tested and certified to withstand extreme temperature, vibration and shock, the RUGGEDCOM RSG907R and RSG909R offer exceptional reliability for industrial applications such as electric utility substations, transportation systems and oil&gas.

The RUGGEDCOM RSG907R and RSG909R are ideal for applications that require high bandwidths and accommodate future network expansions. Three Redundant Network Access SFP ports providing ultimate flexibility in media and distance, with support for Gigabit bandwidth. The RSG907R connects up to 4 IEDs via 100BASE-FX fiber optics and RSG909R connects up to 6 IEDs via copper Ethernet on the Singly Attached Node ports.

Both products offer various network design options and cost savings through increased redundancy, reduced downtimes and high reliability.

HSR / PRP with Gigabit/s interfaces

Avoid revenue loss by mitigating the risk of communication disruptions and downtime with a redundant fault tolerant network supporting high bandwidth.

SFP RNA ports

SFP ports can be modified at any time allowing deployment flexibility for varying customer needs.

Power redundancy

Maintain continuous safe and reliable operations even during power failures, diminishing the risk of revenue and data loss.

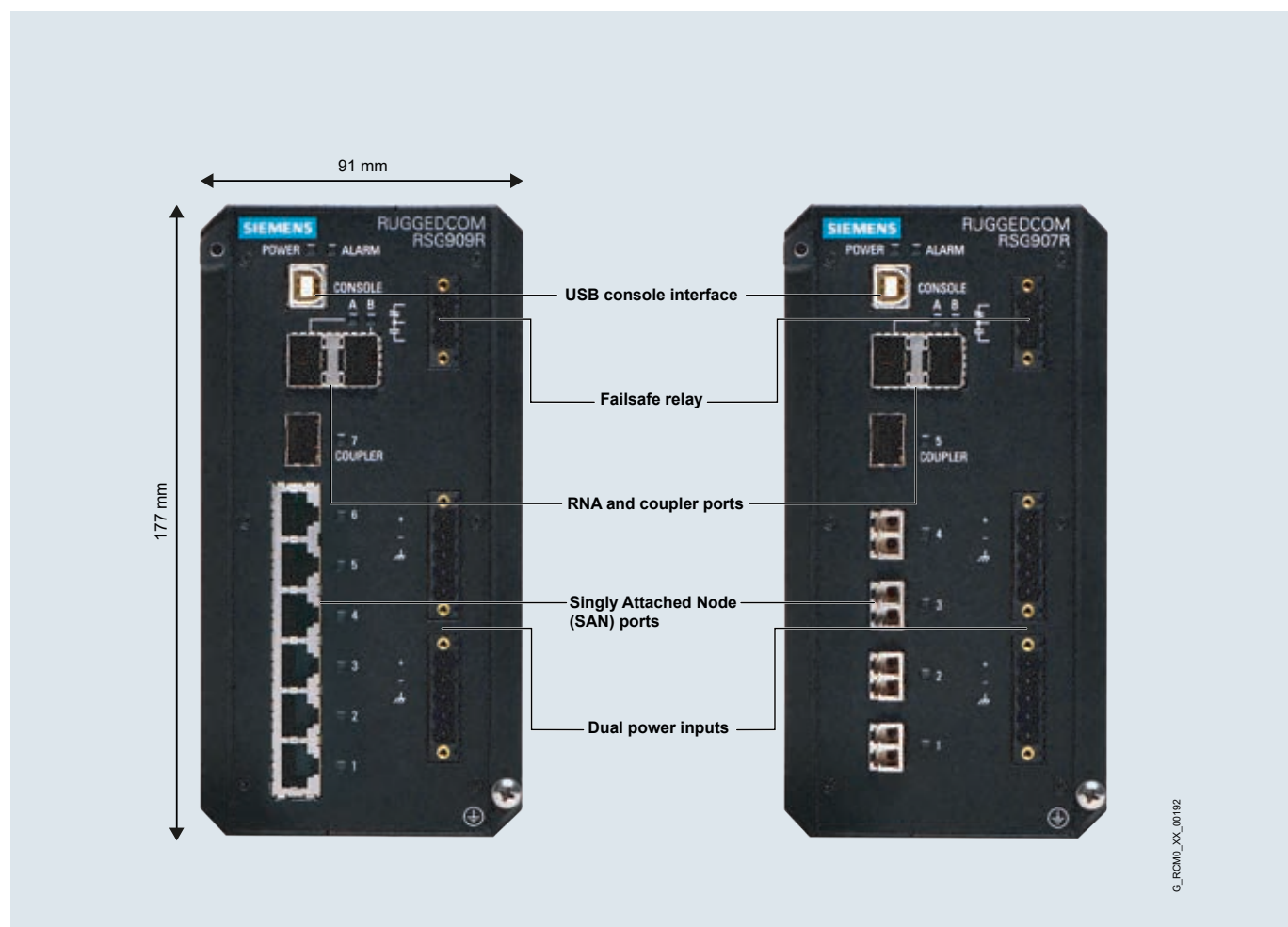
Full fiber solution

Reduce failure rates due to increased immunity from electromagnetic phenomena.

IEEE 1588

The RSG907R and RSG909R enable the creation of a future proof network with support for IEEE 1588 time synchronisation.

Technical data



Technical data	RUGGEDCOM RSG907R	RUGGEDCOM RSG909R
Ethernet interfaces		
Ports	4 x 100BASE-FX + 3 x 1000 BASE-X (SFP)	6 x 10/100/1000BASE-T + 3 x 1000 BASE-X (SFP)
RNA uplinks (A / B) & coupler port	3 x 1 Gbit/s SFP ports	
Supported specifications	IEEE 1588	
Power supply characteristics		
Supported input voltage ranges	24/48 VDC (12 – 60 VDC) HI (85 – 264 VAC / 88 – 300 VDC)	
Mechanical specifications		
Dimensions (w x h x d) in mm	91 mm x 177 mm x 173 mm	
Weight	2.9 kg	
Mounting	DIN rail and panel mount	
Ambient conditions		
Operating temperature	-40° C to +85° C	
IP rating	IP40	
Other features		
IEEE 1588	Transparent Clock	

Features

Software

The RUGGEDCOM RSG907R and RSG909R both run on Rugged Operating System (ROS®) and deliver high performance switching.

ROS® supports the standard network technologies, such as Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), Remote Monitoring (RMON), Simple Network Management Protocol (SNMP) and others, including proprietary protocol enhancements such as Siemens eRSTP (enhanced Rapid Spanning Tree Protocol) and Fast Root Failover (FRF).

Software features

- Quality of service (802.1p) for traffic prioritization
- NTP time synchronization (client and server)
- Smart power management for PoE interfaces
- Port rate and Broadcast Storm Limiting
- Port configuration, status, statistics, mirroring
- Simple Management interface through WebUI and console interface
- Single file configuration ensures easy installation and configuration control

HSR/PRP redundancy

The RUGGEDCOM RSG907R and RSG909R are multi-port Ethernet switches combined with an HSR/PRP redundancy box (RedBox) in a convenient compact design. IEEE 1588 function support enables the RUGGEDCOM RSG909R and the RSG907R to combine precision timing and network communication data on one network, reducing maintenance costs:

- Multi-port redundancy box allows for interconnection of up to 6 non-PRP or non-HSR end devices
- PRP/HSR coupling functionality to cover all types of redundant network topologies

Cyber security

Cyber security is an important issue in many industries where advanced automation and communications networks play a crucial role in mission critical applications and where high reliability is of paramount importance. Key RUGGEDCOM RSG907R and RSG909R features that address security issues at the local area network level include:

- Passwords – support for multiple access levels with separate credentials for each level

- SSH / SSL – extends capability of password protection to add encryption of passwords and data as they cross the network
- Enable / disable ports – capability to disable ports so unauthorized devices can't connect to unused ports
- SNMPv3 – encrypted authentication and access security
- HTTPS – for secure access to the web interface
- 802.1x – to ensure only permitted devices can connect to the device
- MAC address authentication – control access to devices that do not support RADIUS

Hardware

The RUGGEDCOM RSG907R and RSG909R have been specifically designed and certified for substation and distribution automation applications within electric power industry.

Power Supply

- Integrated power supply with redundant inputs
- Universal high voltage range: 88 – 300 VDC or 85 – 264 VAC
- Universal low voltage power supply range: 12 – 60 VDC

Configuration interface

The RUGGEDCOM RSG907R and RSG909R are equipped with a USB interface which enables easy in-field configuration and upgrading.

Harsh environments

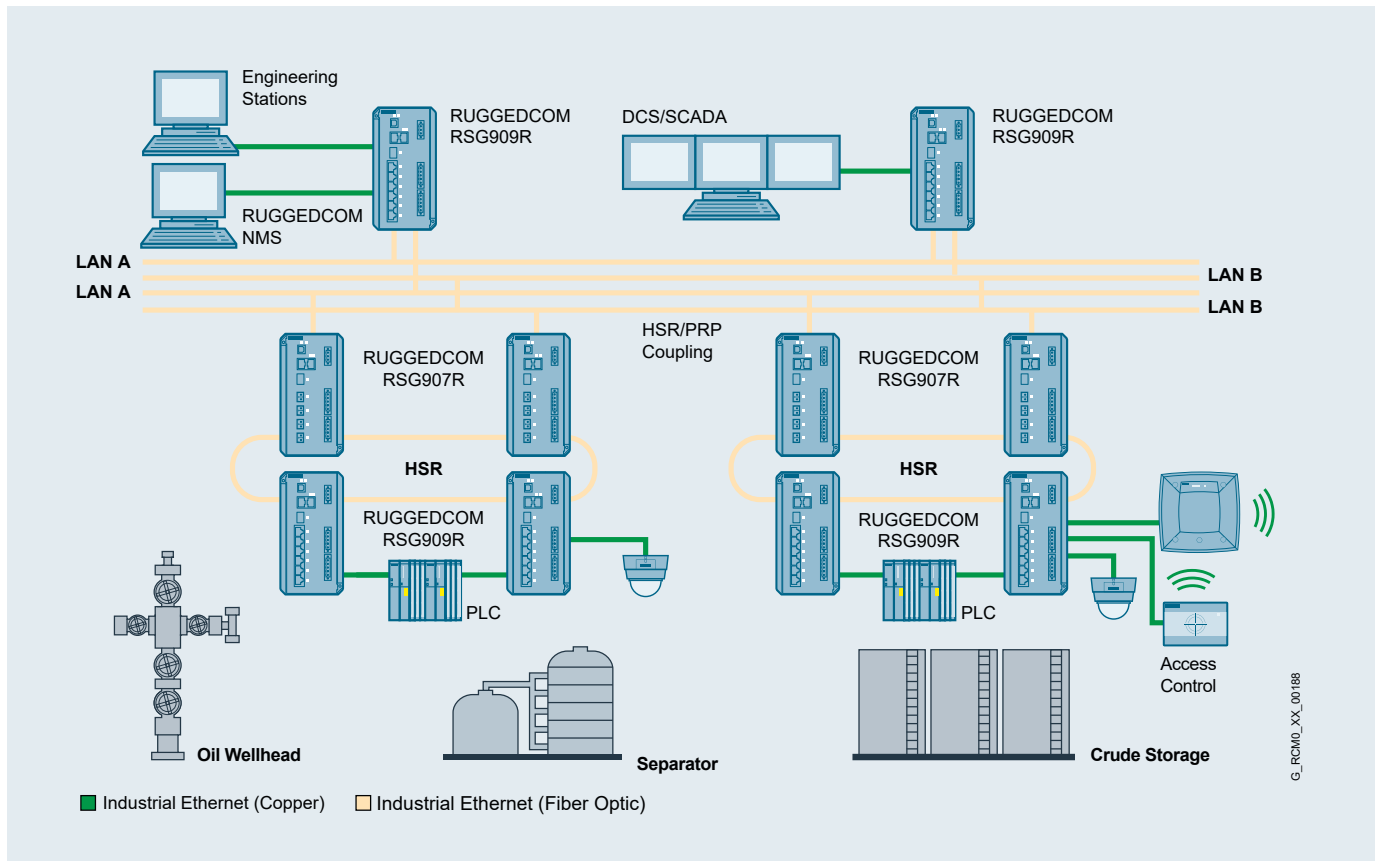
As with all RUGGEDCOM products, Highly Accelerated Life Testing (HALT) has been used in the early stages of product development to detect any design or performance issues.

- Temperature: -40° C to +85° C (fanless)
- Safety: CSA/UL 60950
- Vibration: IEC 60255-21-1, Class 2
- Shock: IEC 60255-21-2, Class 2
- Humidity: IEC 60068-2-30, up to 95% relative humidity

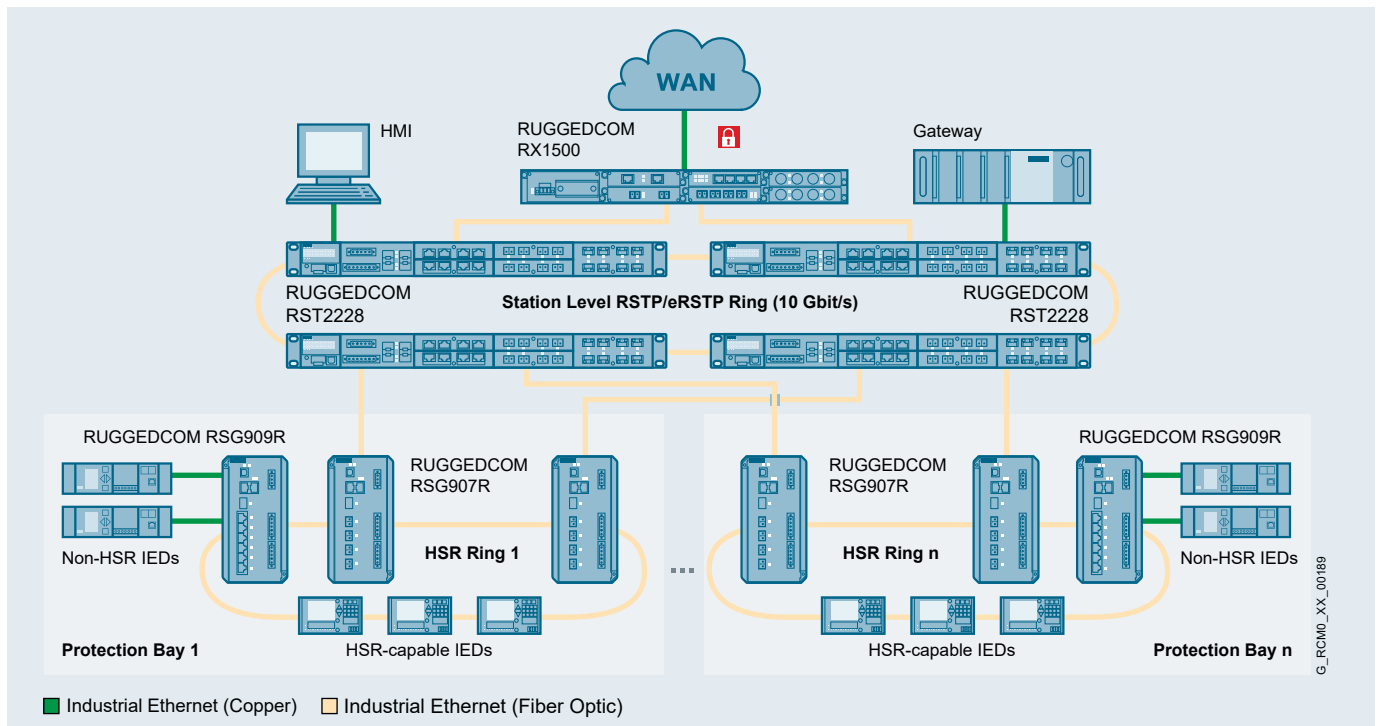
Certifications

- IEC 61000-6-2 (industrial environments)
- IEC 61850-3 (electric substations)
- IEEE 1613 (electric substations)

Use cases



Multi-port Redundancy Box (Redbox) allowing for interconnection of up to 6 non-PRP or non-HSR end devices.



RSG907R/RSG909R switches terminating each HSR ring can be directly connected to RSTP network via their coupling ports.

Ordering options

Product	Article number					
RUGGEDCOM RSG909R	6GK6498-ORB00	.	.	N	.	- Z
RUGGEDCOM RSG907R	6GK6490-7RB00	.	.	N	.	- Z
Mounting kit						
DIN rail mounting kit		1				
DIN rail and panel mounting kit		3				
Power supply 1 + terminal block type						
24/48 VDC (12 – 60 VDC)			A			
HI (85 – 264 VAC / 88 – 300 VDC)			C			
Manufacturing modification						
Standard					0	
Conformal coating					1	

Examples	Order code
RUGGEDCOM RSG909R with high voltage power supply + DIN rail mounting kit + standard coating	6GK6498-ORB00-1AN0-Z
RUGGEDCOM RSG907R + DIN rail and panel mounting kit + conformal coating	6GK6490-7RB00-3AN1-Z

Accessories

Accessories	Description	Article number
USB Console cable	USB 2.0 A type to B type Cable Assembly 10 feet / 3 meters	6GK6000-8DT01-0AA0
Panel mounting kit	Allows wall and other lateral mounting possible, requires assembly and even mounting plane	6GK6000-8MR00-0AA1
Power cable without lugs	Power Cable with NA Plug for pluggable terminal blocks (6 ft.) for RUGGEDCOM products	6GK6000-8BB00-0AA0

Supported SFPs

Product name	Cable	Max. range	Temperature	Article number
SFP1132-1BX10R	SM, LC, Bi-Di	10 km	-40 - 85 °C	6GK6000-8FB51-0AA0
SFP1132-1BX10R	SM, LC, Bi-Di	10 km	-40 - 85 °C	6GK6000-8FB52-0AA0
SFP1132-1BX40R	SM, LC, Bi-Di	40 km	-40 - 85 °C	6GK6000-8FB53-0AA0
SFP132-1BX40T	SM, LC, Bi-Di	40 km	-40 - 85 °C	6GK6000-8FB54-0AA0
SFP1122-1SX	MM, LC	0.5 km	-40 - 85 °C	6GK6000-8FG51-0AA0
SFP1122-1SX2	MM, LC	2 km	-40 - 85 °C	6GK6000-8FE58-0AA0
SFP1132-1LX10	SM, LC	10 km	-40 - 85 °C	6GK6000-8FG52-0AA0
SFP1132-1LX25	SM, LC	25 km	-40 - 85 °C	6GK6000-8FG53-0AA0
SFP1132-1LX40	SM, LC	40 km	-40 - 85 °C	6GK6000-8FG57-0AA0
SFP1132-1LX70	SM, LC	70 m	-40 - 85 °C	6GK6000-8FG54-0AA0
SFP1132-1LX100	SM, LC	100 m	-40 - 85 °C	6GK6000-8FG55-0AA0
SFP1132-1LX115	SM, LC	115 km	-40 - 85 °C	6GK6000-8FE56-0AA0

* SM = Single-mode, MM = Multi-mode, Bi-Di = Bi Directional

With the RUGGEDCOM Selector you can transfer the order number to the Siemens Industry Mall and order your products.

To use the RUGGEDCOM Selector for the selection and configuration of RUGGEDCOM products, visit: siemens.com/ruggedcom-selector



FastConnect™ Cabling System

Stringent demands are placed on the installation of cables in an industrial environment. Siemens offers FastConnect™, a system that fulfills all these requirements: on-site assembly – quick, easy and error-free. For more information, visit: siemens.com/fastconnect

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In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept.

Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit:
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