

SIEMENS



Rugged Communication

RUGGEDCOM RST2228

19" Layer 2 rack switch
with 10 Gbit/s uplinks

Brochure

Edition
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[siemens.com/rst2228](https://www.siemens.com/rst2228)

Field-modular high port density rack switch with IEEE 1588 support suitable for high bandwidth multi-service Layer 2 networks in the digital substation.

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Product overview and benefits

The RUGGEDCOM RST2228 is a field modular 19" Layer 2 rack switch with 10 Gbit/s uplinks, support for IEEE 1588 and optional Power-over-Ethernet - an ideal solution for multiple applications and verticals.

The RUGGEDCOM RST2228 provides a high level of immunity to electromagnetic interference, heavy electrical surges, extreme temperature and humidity for reliable operation in mission critical applications. It can be found in electric utility substations, traffic control cabinets, railways, oil&gas and other harsh environments.

High bandwidth uplinks

The 10 Gbit/s uplinks enable throughput for large networks with large amounts of bandwidth consuming applications.

Field-replaceable modular design

The field modular design allows for on-site modifications which reduce costs and network downtime in case of necessary replacements.

IEEE 1588 support

The RUGGEDCOM RST2228 is future proof device with support for modern IEEE 1588 based networking.

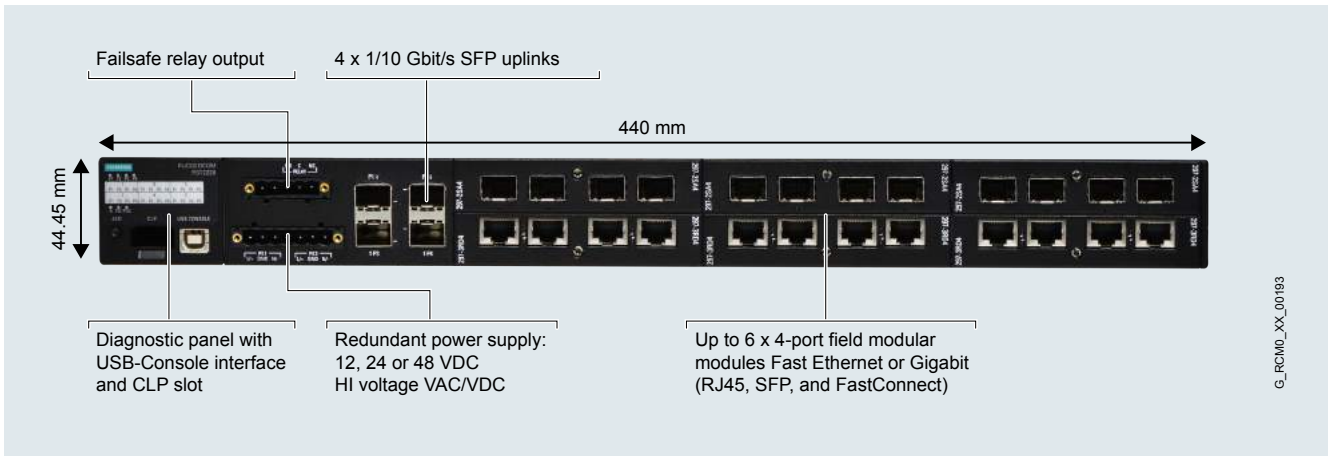
Removable storage media

The RUGGEDCOM CLP reduces the setup time in the field and allows for easier and faster component exchange in case of product failure.

Certifications and approvals

Most complete offering of certifications and approvals for electric power, transportation and oil&gas verticals.

Technical data



Specifications	
Network interfaces	
Total number of ports	28
Number of ports 10/100/1000	24
Number of ports 1/10 Gbit/s	4
Port types	RJ45, SFP and FastConnect
Power supply	
Range	88 – 300 VDC / 85 – 264 VAC
Design	Fixed
Mechanical design	
Design	Field modular media modules
Dimensions (w x h x d)	440 x 44.45 x 345 mm
Operating temperature	-40° C to + 85° C
Degree of protection	IP30
Other features	
IEEE 1588	Transparent clock

Media modules



The RUGGEDCOM RST2228 is a field modular Ethernet switch equipped with 6 slots for various media modules. Media modules are available with different interface options.

Features

Software

The RUGGEDCOM RST2228 runs Rugged Operating System (ROS®) and delivers 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

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 RST2228 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 RST2228 has been specifically designed and certified for industrial applications such as electric power, transportation systems and oil&gas applications.

Power supply

- Integrated power supply
- Universal high-voltage range: 88-300 VDC / 85-264 VAC

Configuration interfaces

The RUGGEDCOM RST2228 is equipped with a USB interface which enables easy in field configuration and upgrading. Storing application data, firmware and device configuration for commissioning and field maintenance is simple with the CLP slot.

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

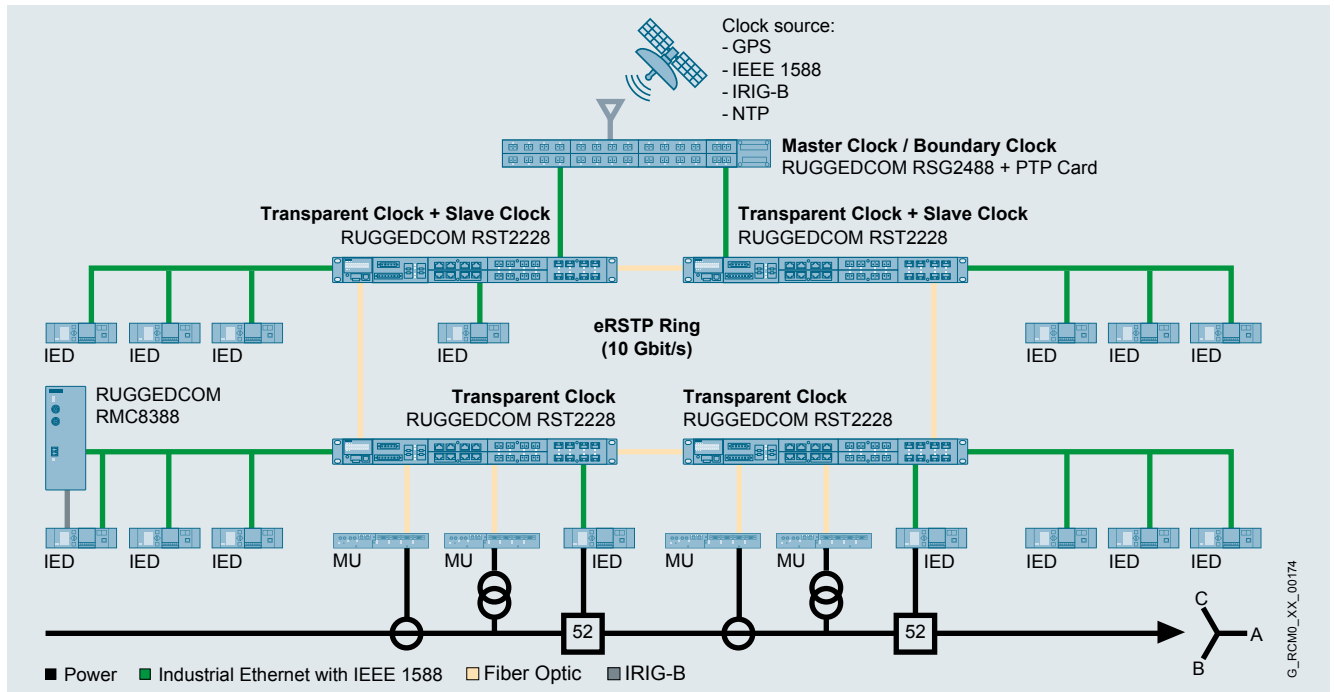
Certifications

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

Certifications in progress

- NEMA TS-2 (traffic control equipment)
- EN 50121-4 (railway applications)

Use case



Up to 24 modern IEDs or other IEEE 1588 slaves can be connected directly to the RUGGEDCOM RST2228 via Fast Ethernet or via Gigabit/s ports.

Order options

Product	Article number
RUGGEDCOM RST2228	6GK6222-6AB00-
Mounting options	
No mounting options	0
19" rack mount kit, panel mount kit	5
Power supply 1 and terminal block type	
HI VDC / VAC, screw terminal	C
HI VDC / VAC, plug terminal	F
Power supply 2 (terminal block depends on PS1 selection)	
No power supply option	N
HI VDC / VAC	C
Manufacturing modification	
Standard	0
Conformal coating	1

Z-options	
LED Panel	
Front (interface side)	A00
Rear	A01
Media modules	Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6
RUGGEDCOM RMM2931-4	B00 C00 D00 E00 F00 G00
RUGGEDCOM RMM2973-4RJ45	B01 C01 D01 E01 F01 G01
RUGGEDCOM RMM2973-4FC	B02 C02 D02 E02 F02 G02
RUGGEDCOM RMM2972-4SFP	B06 C06 D06 E06 F06 G06

Media modules	Article number	
Product	Standard	Conformal coating
RUGGEDCOM RMM2931-4	6GK6293-1BA00-4AA0	
RUGGEDCOM RMM2973-4RJ45	6GK6297-3RD00-4AB0	6GK6297-3RD00-4AB1
RUGGEDCOM RMM2973-4FC	6GK6297-3FD00-4AB0	6GK6297-3FD00-4AB1
RUGGEDCOM RMM2972-4SFP	6GK6297-2SA00-4AA0	6GK6297-2SA00-4AA1

Storage media	Article number
RUGGEDCOM CLP 2GB	6GK6000-8RA00-1HA0
RUGGEDCOM CLP 2GB CC	6GK6000-8RA00-1HA1

Miscellaneous	Article number
USB Console cable, 10 ft.	6GK6000-8DT01-0AA0
19" Rack & panel mounting kit	6GK6000-8MA01-0AA0
Connector Kit RST2228 Pluggable terminal blocks (5 sets)	6GK6000-8HC05-0AA0
Connector Kit RST2228 Screw terminal blocks (5 sets)	6GK6000-8HC06-0AA0
Power cable with NEMA 5-15P plug with lugs for screw terminal blocks, 6 ft.	6GK6000-8BA00-0AA0
Power cable with NEMA 5-15P plug without lugs for pluggable terminal blocks, 6 ft.	6GK6000-8BB00-0AA0
RJ45 dust covers for RUGGEDCOM products, 8 pieces	6GK6000-8HT01-0CA0
SFP Slot dust covers for RUGGEDCOM products, 8 pieces	6GK6000-8HT02-0CA0

Available pluggable transceivers	Medium, interface	Range	Operating temperature	Article number
Fast Ethernet SFPs				
SFP1112-1	Copper, RJ45	0 - 100 m	-40 - 85 °C	6GK6000-8CG01-0AA0
SFP1121-1FX2	Multi-mode, LC	2 km	-40 - 85 °C	6GK6000-8FE51-0AA0
SFP1121-1FX2A	Multi-mode, LC, active	2 km	-40 - 85 °C	6GK6000-8FE50-0AA0
SFP1131-1FX20	Single-mode, LC	20 km	-40 - 85 °C	6GK6000-8FE52-0AA0
SFP1131-1FX50	Single-mode, LC	50 km	-40 - 85 °C	6GK6000-8FE53-0AA0
SFP1131-1FX90	Single-mode, LC	90 km	-40 - 85 °C	6GK6000-8FE54-0AA0
Gigabit SFPs				
SFP1132-1BX10R	Single-mode, LC, bi-directional	10 km	-40 - 85 °C	6GK6000-8FB51-0AA0
SFP1132-1BX10T	Single-mode, LC, bi-directional	10 km	-40 - 85 °C	6GK6000-8FB52-0AA0
SFP1132-1BX40R	Single-mode, LC, bi-directional	40 km	-40 - 85 °C	6GK6000-8FB53-0AA0
SFP1132-1BX40T	Single-mode, LC, bi-directional	40 km	-40 - 85 °C	6GK6000-8FB54-0AA0
SFP1122-1SX	Multi-mode, LC	0.5 km	-40 - 85 °C	6GK6000-8FG51-0AA0
SFP1122-1SX2	Multi-mode, LC	2 km	-40 - 85 °C	6GK6000-8FE58-0AA0
SFP1132-1LX10	Single-mode, LC	10 km	-40 - 85 °C	6GK6000-8FG52-0AA0
SFP1132-1LX25	Single-mode, LC	25 km	-40 - 85 °C	6GK6000-8FG53-0AA0
SFP1132-1LX40	Single-mode, LC	40 km	-40 - 85 °C	6GK6000-8FG57-0AA0
SFP1132-1LX70	Single-mode, LC	70 km	-40 - 85 °C	6GK6000-8FG54-0AA0
SFP1132-1LX100	Single-mode, LC	100 km	0 - 70 °C	6GK6000-8FG55-0AA0
SFP1132-1LX150	Single-mode, LC	115 km	-40 - 85 °C	6GK6000-8FE56-0AA0
10 Gigabit SFPs				
SFP2133-1LR10	Single-mode, LC	10 km	-40 - 85 °C	6GK6000-8FT51-0AA0
SFP2133-1ER40	Single-mode, LC	40 km	-40 - 85 °C	6GK6000-8FT53-0AA0
SFP2133-1ZR80	Multi-mode, LC	80 km	-40 - 85 °C	6GK6000-8FT52-0AA0

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](https://www.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](https://www.siemens.com/fastconnect)

For more information, please visit:
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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

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:
[siemens.com/industrialsecurity](https://www.siemens.com/industrialsecurity)

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under:
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