

**SIEMENS**



# RUGGEDCOM RX1400

Multiprotocol intelligent node

Brochure

Edition  
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[siemens.com/rx1400](http://siemens.com/rx1400)

# Overview

*Rugged small form factor Ethernet switch, serial server and TCP/IP router with LTE and fiber optic WAN options, that enables secure, cost effective, large scale deployment of communications and processing power for harsh environment applications.*

Siemens RUGGEDCOM RX1400 is a multiprotocol intelligent node which combines Ethernet switching, routing, and firewall functionality with various wide area connectivity options. The device has IP40 degree of protection, does not use internal fans for cooling and supports -40° C to +85° C extended temperature range.

The RUGGEDCOM RX1400 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 and gas and other harsh environments.

## Benefits

### **Cost effective solution for large scale deployments**

The RUGGEDCOM RX1400 is a compact Layer 3 integrated switch and router – ideal for large scale, hierarchical networks, capable of transporting data from both modern Ethernet-based IEDs and from legacy or low cost serial IEDs.

### **High availability**

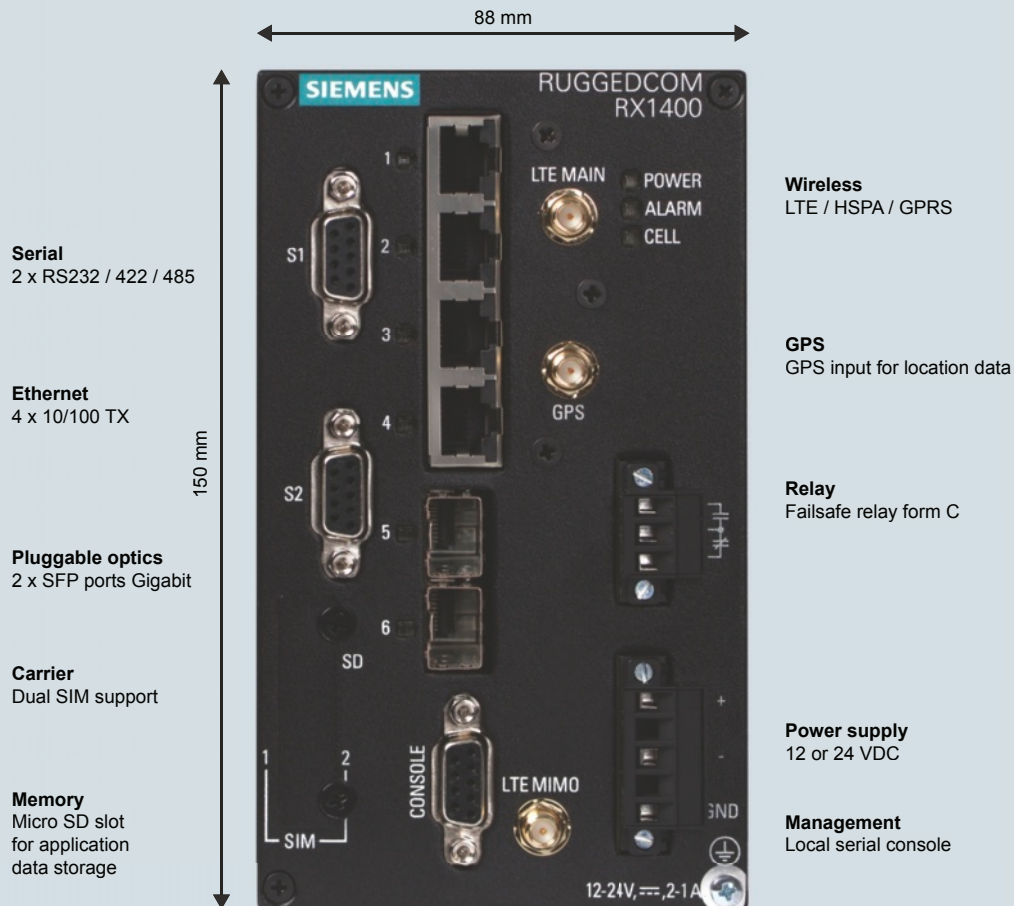
The RUGGEDCOM RX1400 uses fiber and cellular connections simultaneously. The dual SIM card slots enable cellular provider redundancy, allowing selection of the best performing network.

### **Space saving installation**

The RUGGEDCOM RX1400's small form factor allows it to fit into existing enclosures used in substation automation, distribution automation, roadside and oil & gas applications.

### **Reduced maintenance costs**

The RUGGEDCOM RX1400's rugged design will deliver the same high field demonstrated MTBFs as the rest of the RUGGEDCOM product portfolio, reducing truck rolls and maintenance costs.



Technical data	
Transfer rate	
For industrial Ethernet	10/100 Mbit/s autosensing
For WAN connection	Up to 100 Mbps
For fiber optic	1 Gbps
WAN connection	
EDGE/GPRS/GSM	850/900/1800/1900 MHz
UMTS/HSDPA+	850/900/1900/2100 MHz
LTE	700- B13, B17, 800-/900/1800/2100/2600 MHz
Number of SIM cards supported	2
Interfaces	
Communication interfaces	LAN: 4 x RJ45 10/100, 2 x SFP-Slot 1000LX SFP / serial: 2 x DB9 male connector / console: 1 x DB9 male connector
Wide Area Network (WAN) interfaces	2 x SMA-type
GPS interface	1 x SMA-type
Permitted ambient conditions	
Operating temperature	- 40° C to + 85° C
Degree of protection	IP40
Constructional design	
Dimensions (W x H x D) in mm	88 mm x 120 mm x 150 mm
Weight	2.5 kg
Mounting	DIN rail, panel mount, rack mount
Power consumption	< 15 W
Reliability	
MTBF (calculated according to MIL-HDBK-217)	52 years (at 55° C)

# Features



## Software

The RUGGEDCOM RX1400 runs the ROX II operating system and delivers carrier grade routing and switching performance to the network edge and beyond!

The ROX firmware supports the most used network technologies, such as different routing protocols, multiple network fault recovery solutions, including Siemens eRSTP (enhanced Rapid Spanning Tree Protocol), and others.

## Software features

- Enhanced security / reliability through data and control path separation
- Single file configuration automation ensures easy installation and configuration control
- Automatic rollback in the event of configuration errors
- NETCONF configuration interface supports powerful remote configuration and status features
- Port rate and Broadcast Storm Limiting
- Port configuration, status, statistics, mirroring
- Routing Protocols OSPF, BGP, RIPv1 and v2
- Virtual Router Redundancy Protocol (VRRP)
- NTP time synchronization (client and server)
- Redundancy protocols MSTP 802.1Q-2005, RSTP (802.1w) and Enhanced Rapid Spanning Tree (eRSTP) for network fault recovery
- Quality of service (802.1p) for real-time traffic

## 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 RX1400 features that address security issues at the local area network level include:

- IPSEC – The integrated hardware encryption engine delivers high performance IPSEC traffic without using the main processor
- Passwords – compliant with NERC guidelines including provision for RADIUS based authentication
- 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
- 802.1Q VLAN – provides the ability to logically segregate traffic between predefined ports on switches
- 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 access list – control access to devices that do not support RADIUS



### Rugged Rated

The RUGGEDCOM RX1400 is a Rugged Rated product, which means that it has been specifically designed and tested to withstand the demands of harsh environments. As with all Rugged Rated products, Highly Accelerated Life Testing (HALT) has been used in the early stages of product development – to detect any design and performance issues.

### Reliable operation in harsh electrical environments

- IEC 61850-3 and IEEE 1613 (electric power substations)
- IEC 61000-6-2 and IEC 61800-3 (industrial environments)
- NEMA TS-2 (traffic control equipment)
- EN 50121-4 (railway applications)

### Error-free operation in high EMI environments

- Zero-Packet-Loss technology for fiber-based networking devices
- IEEE 1613 class 2 error-free performance under EMI stress
- Fiber optic ports supporting both short and long haul fiber

### Operation over a wide temperature range

- -40° C to +85° C
- Passive cooling – no fans
- CSA/UL 60950 safety approved to +85° C

### High availability

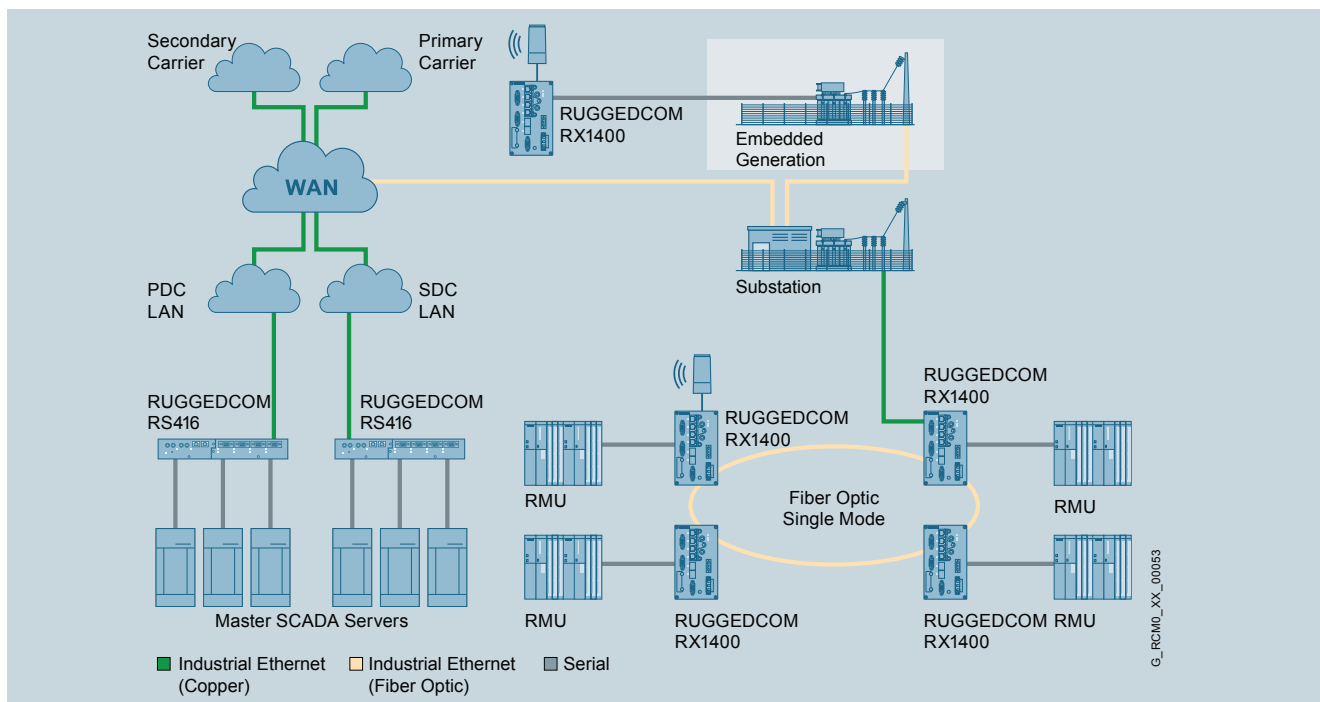
- Integrated power supply
- Low voltage DC: 24 VDC (10-36 VDC)

### Industrial installations

- Full metal enclosure
- Heavy duty mounting
- Industrial terminal blocks for power and I/O connections

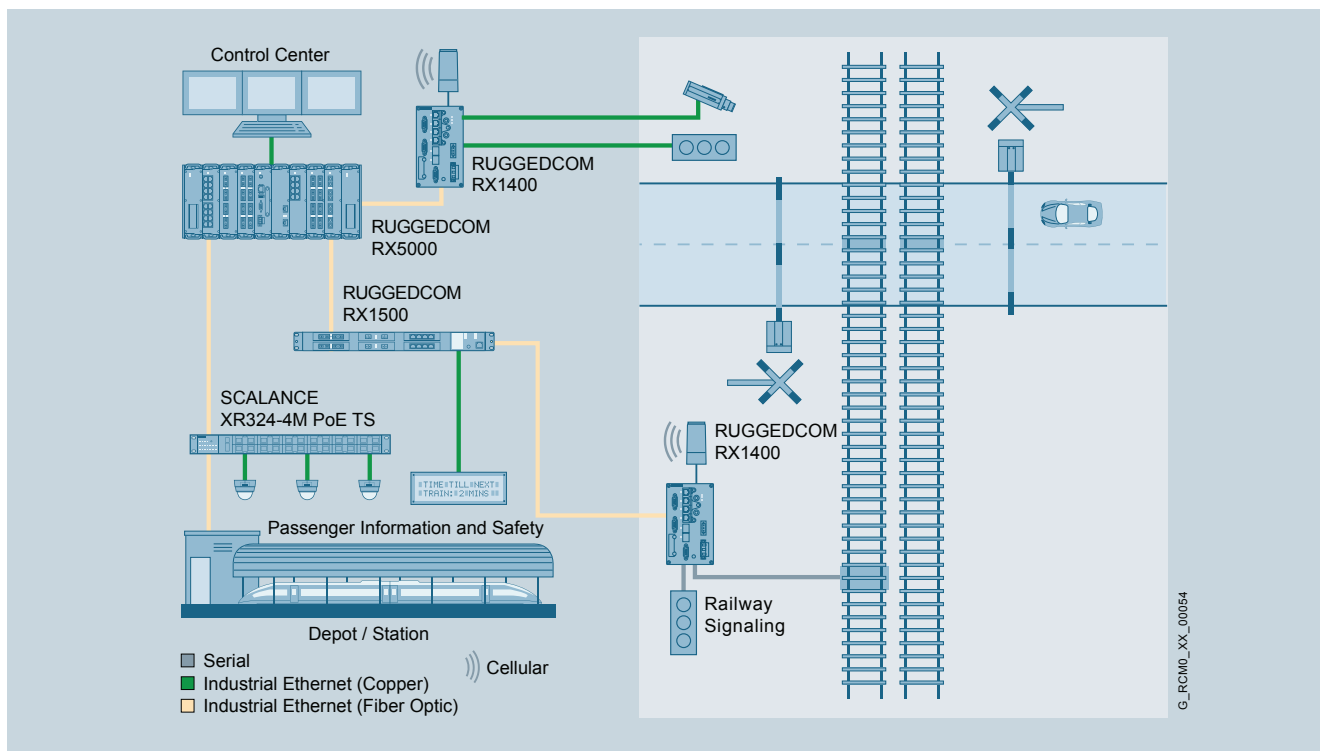
# Use cases

## Distribution generation



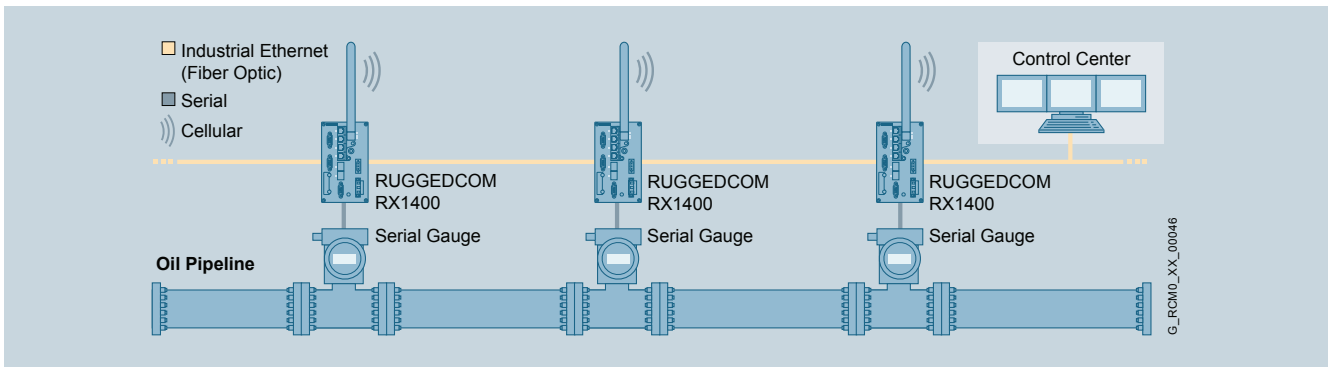
The RUGGEDCOM RX1400 can be used to connect low voltage substations and distributed generation plants reliably via public cellular networks.

## Wayside infrastructure



The RUGGEDCOM RX1400 provides redundant connection of end devices by fiber optic and / or cellular networks for more reliability in case of network failure.

## Oil and gas



The RUGGEDCOM RX1400 makes it possible to remotely monitor field data using multiple kinds of communications through cellular networks, or fiber optics, or both in a redundant way.

## Order options

Product	MLFB
RUGGEDCOM RX1400	6GK6014-0AM2 . - 0 . A . - Z
Power supply 1	
12V-24V	1
Mounting kit	
No mounting option	A
DIN rail mounting kit	B
Panel mounting kit	C
19" rack mounting kit	D
Manufacturing modification	
Standard	0
Conformal coating	1

Z-options for modem	Modem
No modem	A00
Modem for Europe	A01
Modem for North America (AT&T, Rogers, Bell, Telus)	A02
Modem for North America (Verizon)	A03

Z-options for port 5 & 6	Port 5	Port 6
No SFP	C00	D00
SFP,MM,500m,850nm,1000SX (-20° C to +85° C)	C01	D01
SFP,SM,10Km,1310nm,1000LX (-40° C to +85° C)	C02	D02
SFP,SM,25Km,1310nm,1000LX (-40° C to +85° C)	C03	D03
SFP,SM,40Km,1550nm,1000ZX (-20° C to +85° C)	C04	D04
SFP,SM,70Km,1550nm,1000ZX (-20° C to +85° C)	C05	D05
SFP,SM,100Km,1550nm,1000ZX (0° C to +70° C)	C06	D06
SFP,SM,10Km,1310 nm TX / 1490 nm RX,1000BX (-40° C to +85° C)	C07	D07
SFP,SM,40Km,1310 nm TX / 1490 nm RX,1000BX (-40° C to +85° C)	C08	D08
SFP,SM,10Km,1490 nm TX / 1310 nm RX,1000BX (-40° C to +85° C)	C09	D09
SFP,SM,40Km,1490 nm TX / 1310 nm RX,1000BX (-40° C to +85° C)	C10	D10

Z-options for RJ45-ports	RJ45-Ports
Standard RJ45 ports	E00
Secure collar for FastConnect cables	E01

## Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens' products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit <http://www.siemens.com/industrialsecurity>.

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit <http://support.automation.siemens.com>.

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