SIEMENS

Edition 11/2022

Installation Manual

SIMATIC NET

Rugged Ethernet Switches

RUGGEDCOM RMC30

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Rugged Ethernet Switches RUGGEDCOM RMC30

Installation Manual

11/2022
C79000-G8976-1008-11

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⚠ WARNING
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⚠ CAUTION
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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Digital Industries
Process Automation
300 Applewood Crescent
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Canada

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Table of Contents

Preface

This guide describes the RUGGEDCOM RMC30. It describes the major features of the device, installation, commissioning and important technical specifications.

It is intended for use by network technical support personnel who are responsible for the installation, commissioning and maintenance of the device. It is also recommended for use by network and system planners, system programmers, and line technicians.

Related Documents

Other documents that may be of interest include:

Document Title	Link
RUGGEDCOM ROS Configuration Manual	https://support.industry.siemens.com/cs/ww/en/view/109737240

SIMATIC NET Glossary

The SIMATIC NET Glossary describes special terms that may be used in this document.

The glossary is available online via Siemens Industry Online Support (SIOS) at:

https://support.industry.siemens.com/cs/ww/en/view/50305045

Accessing Documentation

The latest user documentation for RUGGEDCOM RMC30 is available online at https://support.industry.siemens.com. To request or inquire about a user document, contact Siemens Customer Support.

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Siemens warrants this product for a period of five (5) years from the date of purchase, conditional upon the return to factory for maintenance during the warranty term. This product contains no user-serviceable parts. Attempted service by unauthorized personnel shall render all warranties null and void. The warranties set forth in this article are exclusive and are in lieu of all other warranties, performance guarantees and conditions whether written or oral, statutory, express or implied (including all warranties and conditions of merchantability and fitness for a particular purpose, and all warranties and conditions arising from course of dealing or usage or trade). Correction of nonconformities in the manner and for the period of time provided above shall constitute the Seller's sole liability and the Customer's exclusive remedy for defective or nonconforming goods or services whether claims of the Customer are based in contract (including fundamental breach), in tort (including negligence and strict liability) or otherwise.

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Siemens' Educational Services team thrives on providing our customers with the essential practical skills to make sure users have the right knowledge and expertise to understand the various technologies associated with critical communications network infrastructure technologies.

Siemens' unique mix of IT/Telecommunications expertise combined with domain knowledge in the utility, transportation and industrial markets, allows Siemens to provide training specific to the customer's application.

For more information about training services and course availability, visit https://www.siemens.com or contact a Siemens Sales representative.

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Customer support is available 24 hours, 7 days a week for all Siemens customers. For technical support or general information, contact Siemens Customer Support through any of the following methods:

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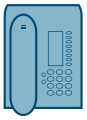
Visit http://www.siemens.com/automation/support-request to submit a Support Request (SR) or check on the status of an existing SR.



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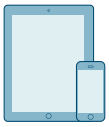
Call a local hotline center to submit a Support Request (SR). To locate a local hotline center, visit https://w3.siemens.com/aspa_app/?lang=en.



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- Submit SRs or check on the status of an existing SR
- Contact a local Siemens representative from Sales, Technical Support, Training, etc.
- Ask questions or share knowledge with fellow Siemens customers and the support community

Contacting Siemens

Address	Siemens Canada Ltd. Digital Industries Process Automation 300 Applewood Crescent Concord, Ontario Canada, L4K 5C7
Telephone	Toll-free: 1 888 264 0006 Tel: +1 905 856 5288 Fax: +1 905 856 1995
E-Mail	info.ruggedcom@siemens.com
Web	https://www.siemens.com

1 Introduction

The RUGGEDCOM RMC30 is an industrially hardened, 2-port Serial-to-Ethernet server that has been specifically designed to operate in electrically harsh and climatically demanding environments. The RUGGEDCOM RMC30 allows communication with virtually any serial device via Ethernet, providing simple and reliable network connectivity.

The RUGGEDCOM RMC30 is packaged in a compact, galvanized steel enclosure that allows either DIN or panel mounting for efficient use of cabinet space. It has an integrated power supply with a wide range of voltages for worldwide operability. An operating temperature range of -40 to 85 °C (-40 to 185 °F) without the use of internal cooling fans allows it to be placed in almost any location. The RUGGEDCOM RMC30 is compliant with EMI and environmental standards for utility substations, industrial manufacturing, process and control and intelligent transportation systems applications.

The RUGGEDCOM RMC30 offers both an RS232 port and a RS485/422 port simultaneously via a solid screw down terminal block. The 10Base-T Ethernet port supports both auto-negotiation and auto-crossover detection and simplifies cabling. Simple and intuitive network based configuration using either the built in Web or Telnet server makes setup a breeze. The RUGGEDCOM RMC30's superior ruggedized design coupled with the Rugged Operating System™ (ROS®) provides improved system reliability making it ideally suited for creating Ethernet networks for mission critical, real-time, control applications.

1.1 Feature Highlights

Connectivity

- 1 x RS232 and 1 x RS422/485 port
- 1 x 10Base-TX port
- Fully compliant EIA/TIA RS485 and RS232 ports
- Built-In optional RS485 Termination

Serial Encapsulation

- Transmit serial data over an IP network
- Support for Modbus TCP, DNP 3, TIN serial protocols
- Baud rates up to 230 kbps

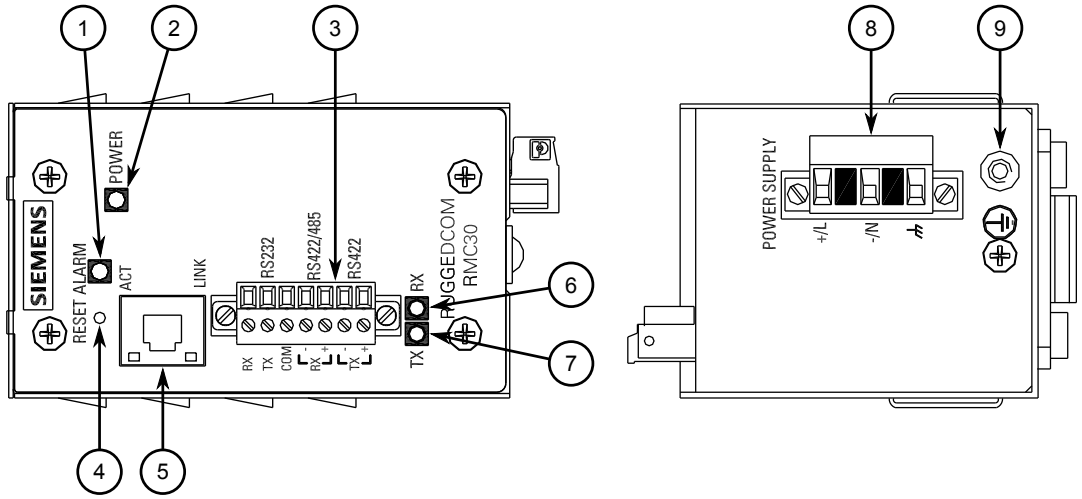
- Point to point and multi-point modes
- Convert Modbus RTU to Modbus TCP
- Support multiple Modbus masters
- Use *Serial IP* port redirection software to support PC applications statistics and built-in *sniffer* for troubleshooting

Designed for Harsh Environments

- Operates over a temperature range of -40 to 85 °C (-40 to 185 °F) without the use of fans for improved reliability
- 21 AWG galvanized steel enclosure suitable for DIN or panel mounting provide secure mechanical reliability

1.2 Description

The RUGGEDCOM RMC30 features various ports, controls and indicator LEDs on the display panel for connecting, configuring and troubleshooting the device. The display panel can be located on the rear, front or top of the device, depending on the mounting configuration.



① ALARM LED
② POWER LED
③ Serial Terminal
④ Reset Button
⑤ Copper Ethernet Port with LEDs
⑥ RX LED
⑦ TX LED
⑧ Power Terminal Block
⑨ Chassis Ground Terminal

Figure 1.1 RUGGEDCOM RMC30

<table>
<tr><td>ALARM LED</td><td>Illuminates when an alarm condition exists.</td></tr>
<tr><td>POWER LED</td><td>Illuminates when power is being supplied to the device.
<table>
<tr><th>State</th><th>Description</th></tr>
<tr><td>Green</td><td>Power is on</td></tr>
<tr><td>Off</td><td>Power is off</td></tr>
</table></td></tr>
<tr><td>RESET Button</td><td>Shuts down and restarts the device. For more information, refer to "Resetting the Device" (Page 14).</td></tr>
<tr><td>TX/RX LEDs</td><td>Indicate the connection status of the serial terminal.
<table>
<tr><th>LED</th><th>State</th><th>Description</th></tr>
<tr><td>TX</td><td>Green (Blinking)</td><td>Transmitting serial data</td></tr>
<tr><td>RX</td><td>Green (Blinking)</td><td>Receiving serial data</td></tr>
</table></td></tr>
<tr><td>Serial Terminal</td><td>The RS232/RS422/RS485 serial terminal serves a dual purpose:
The RS232 terminals allow for a direct interface with the device and access to initial management functions. For information about connecting to the device via the serial terminal, refer to "Connecting to the Device" (Page 13).
The RS422/RS485 terminals allow for half or full duplex serial connections respectively. For more information, refer to "Communication Ports" (Page 15).</td></tr>
<tr><td>Power Supply Terminal</td><td>A pluggable terminal. For more information, refer to:
"Connecting Power" (Page 9)
"Power Supply Specifications" (Page 21)</td></tr>
<tr><td>Communication Ports</td><td>Receive and transmit data. For more information about the various ports available for the RUGGEDCOM RMC30, refer to "Communication Ports" (Page 15).</td></tr>
</table>

1.3 Required Tools and Materials

The following tools and materials are required to install the RUGGEDCOM RMC30:

Tools/Materials	Purpose
AC or DC power cord (16 AWG)	For connecting power to the device.
CAT-5 Ethernet cables	For connecting the device to the network.
Flathead screwdriver	For mounting the device to a DIN rail.
Phillips screwdriver	For mounting the device to a panel.
4 x #8-32 screws	For mounting the device to a panel.

1.4 Decommissioning and Disposal

Proper decommissioning and disposal of this device is important to prevent malicious users from obtaining proprietary information and to protect the environment.

Decommissioning

This device may include sensitive, proprietary data. Before taking the device out of service, either permanently or for maintenance by a third-party, make sure it has been fully decommissioned.

For more information, refer to the associated "Configuration Manual".

Recycling and Disposal

For environmentally friendly recycling and disposal of this device and related accessories, contact a facility certified to dispose of waste electrical and electronic equipment. Recycling and disposal must be done in accordance with local regulations.

2 Installing the Device

This chapter describes how to install the device, including mounting the device, connecting power, and connecting the device to the network.

⚠ DANGER

Electrocution hazard – risk of serious personal injury and/or damage to equipment

Before performing any maintenance tasks, make sure all power to the device has been disconnected and wait approximately two minutes for any remaining energy to dissipate.

⚠ WARNING

Radiation hazard – risk of serious personal injury

This product contains a laser system and is classified as a *CLASS 1 LASER PRODUCT*. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

⚠ CAUTION

Burn hazard – risk of serious personal injury

The surface of the device may be hot during operation, or as a result of the ambient air temperature.

Wear appropriate personal protective equipment and use caution when working with or around the device.

⚠ NOTICE

This product contains no user-serviceable parts. Attempted service by unauthorized personnel shall render all warranties null and void.

Changes or modifications not expressly approved by Siemens Canada Ltd. could invalidate specifications, test results, and agency approvals, and void the user's authority to operate the equipment.

⚠ NOTICE

This product should be installed in a *restricted access location* where access can only be gained by authorized personnel who have been informed of the restrictions and any precautions that must be taken. Access must only be possible through the use of a tool, lock and key, or other means of security, and controlled by the authority responsible for the location.

2.1 General Procedure

The general procedure for installing the device is as follows:

Note

The user is responsible for the operating environment of the device, including maintaining the integrity of all protective conductor connections and checking equipment ratings. Make sure to review all operating and installation instructions before commissioning or performing maintenance on the device.

1. Review the relevant certification information for any regulatory requirements. For more information, refer to "Approvals" (Page 25).
2. Mount the device.
3. Set the operating mode.
4. Connect power to the device and ground the device to safety Earth.
5. Connect the device to the network.
6. Configure the device.

2.2 Unpacking the Device

When unpacking the device, do the following:

1. Inspect the package for damage before opening it.
2. Visually inspect each item in the package for any physical damage.
3. Verify all items are included.

Note

If any item is missing or damaged, contact Siemens for assistance.

2.3 Mounting the Device

The RUGGEDCOM RMC30 is designed for maximum mounting and display flexibility. It can be equipped with adapters that allow it to be attached to a DIN rail or panel.

⚠ NOTICE

Heat generated by the device is channeled outwards from the enclosure. As such, it is recommended that 2.5 cm (1 in) of space be maintained on all open sides of the device to allow for some convectional airflow.

Forced airflow is not required. However, any increase in airflow will result in a reduction of ambient temperature and improve the long-term reliability of all equipment mounted in the rack space.

Note

For detailed dimensions of the device with either DIN rail or panel hardware installed, refer to "Dimension Drawings" (Page 22).

2.3.1 Mounting the Device on a DIN Rail

For DIN rail installations, the RUGGEDCOM RMC30 can be ordered with a DIN rail adapter preinstalled on the back of the chassis. Use the adapter to mount the device to a standard 35 mm (1.4 in) IEC/EN 60715 or TS35 DIN rail.

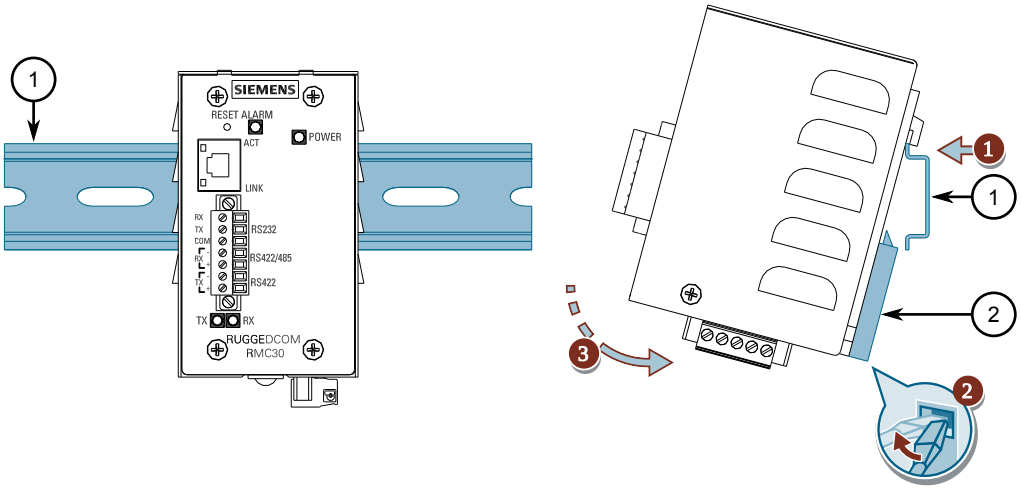
Mounting the Device

To mount the device to a DIN rail, do the following:

1. Hook the top teeth of the adapter onto the DIN rail.

Note

The adapter features a sliding release with a slot at the bottom for a flathead screwdriver.



① DIN Rail
② DIN Rail Adapter

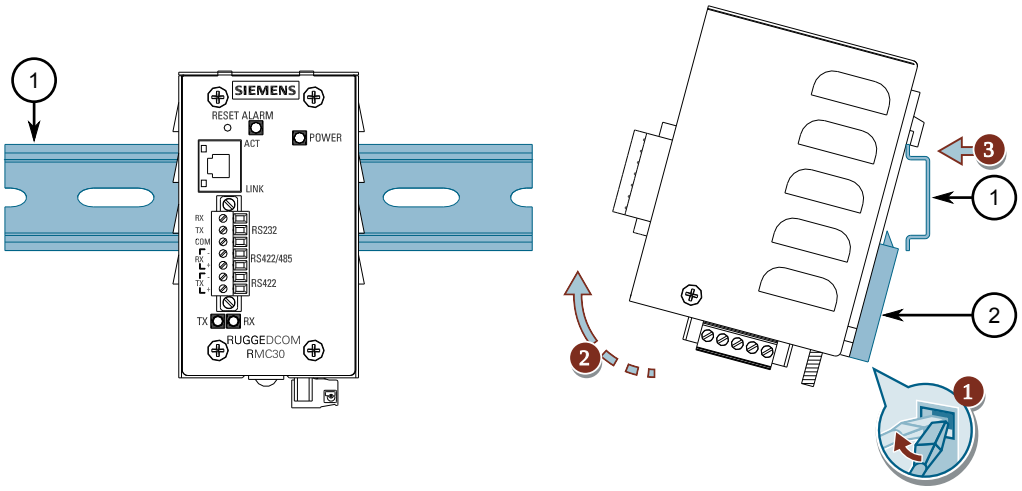
Figure 2.1 Mounting the Device to a DIN Rail

2. Insert a flathead screwdriver into the slot of the sliding release and move it down.
3. Push the device against the bottom of the DIN rail, then let go of the sliding release to latch the device.

Removing the Device

To remove the device from a DIN rail, do the following:

1. Insert a flathead screwdriver into the slot of the sliding release and move it down.



① DIN Rail
② DIN Rail Adapter

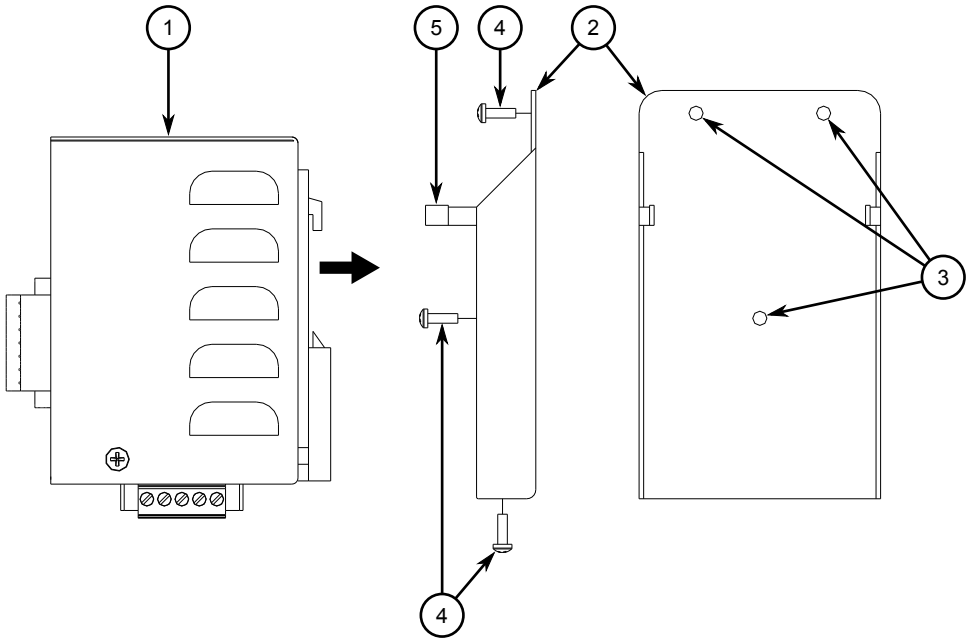
Figure 2.2 Removing the Device from a DIN Rail

2. Swing the bottom of the device away from the DIN rail.
3. Lift the device off the DIN rail.

2.3.2 Mounting the Device to a Panel

To mount the device to a panel, do the following:

1. Disassemble the device and panel adapter.
   a. Remove the screw at the bottom of the adapter.
   b. Pull the device out of the adapter.



① RUGGEDCOM RMC30
② Panel Adapter
③ Mounting Holes
④ Screw
⑤ Metal Clips

Figure 2.3 Panel Mounting

2. Place the panel adapter against the panel and align the adapater with the mounting holes.
3. Secure the panel adapter using three #6-32 screws.
4. Insert the device into the adapter. Make sure the device is secured between the two metal clips.
5. Install the screw previously removed from the bottom of the panel adapter.

2.4 Connecting Power

The RUGGEDCOM RMC30 supports a single integrated high AC/DC or low DC power supply

Note

- For 110/230 VAC rated equipment, an appropriately rated AC circuit breaker must be installed.
- For 125/250 VDC rated equipment, an appropriately rated DC circuit breaker must be installed.
- Use minimum #16 gage copper wiring when connecting terminal blocks.

- Equipment must be installed according to applicable local wiring codes and standards.
- All line-to-ground transient energy is shunted to the Surge Ground terminal. In cases where users require the inputs to be isolated from ground, remove the ground braid between Surge and Chassis Ground. Note that all line-to-ground transient protection circuitry will be disabled.

Note

Siemens requires the use of external surge protection in VDSL applications where the line may be subject to surges greater than that for which the device is rated. Use the following specifications as a guide for VDSL external surge protection:

- Clamping Voltage: 50 V to 200 V
- Insertion Loss: < 0.1 dB at 10 MHz
- Peak Surge Current: 10 kA, 8x20µs waveform

2.4.1 Connecting AC Power

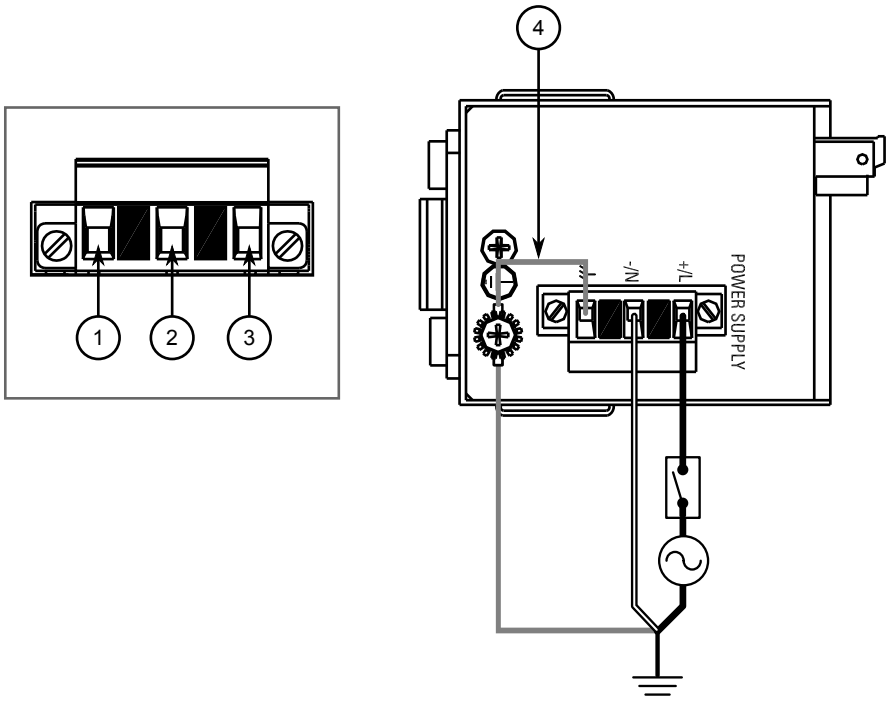
To connect a high AC power supply to the device, do the following:

⚠ NOTICE

Electrical hazard – risk of damage to equipment

Before testing the dielectric strength (HIPOT) in the field, remove the braided ground cable connected to the surge ground terminal and chassis ground. This cable connects transient suppression circuitry to chassis ground and must be removed to avoid damage to transient suppression circuitry during testing.

1. Connect the positive wire from the power source to the positive/live (+/L) terminal on the terminal block.



① Positive/Live (+/L) Terminal
② Negative/Neutral (-/N) Terminal
③ Surge Ground Terminal
④ Braided Ground Cable

Figure 2.4 Terminal Block Wiring

2. Connect the negative wire from the power source to the negative/neutral (-/N) terminal on the terminal block.
3. Using a braided wire or other appropriate grounding wire, connect the surge ground terminal to the chassis ground connection. The surge ground terminal is used as the ground conductor for all surge and transient suppression circuitry internal to the unit.
4. Connect the ground terminal on the power source to the chassis ground terminal on the device.

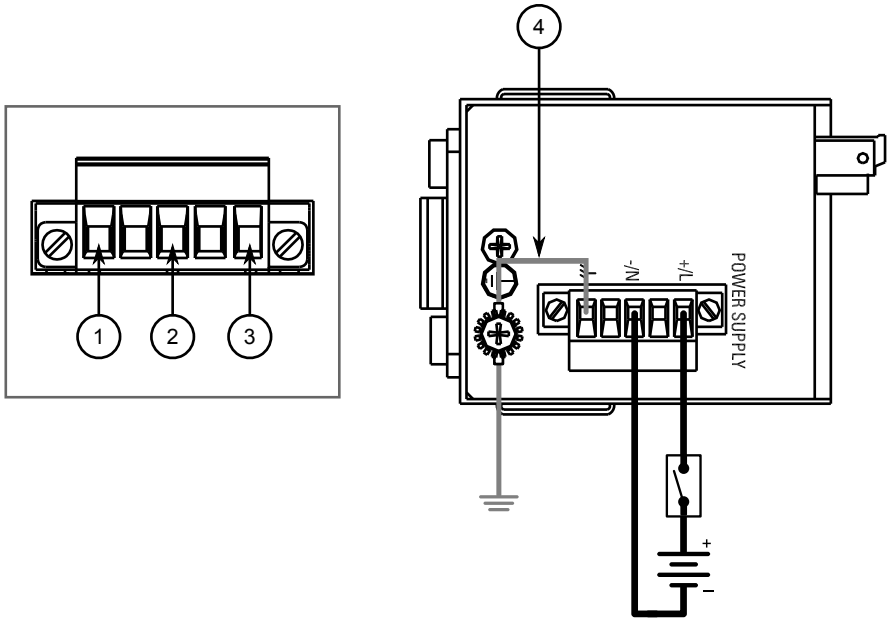
2.4.2 Connecting DC Power

To connect a high or low DC power supply to the device, do the following:

⚠ NOTICE
Electrical hazard – risk of damage to equipment
Before testing the dielectric strength (HIPOT) in the field, remove the braided ground cable connected to the surge ground terminal and chassis ground. This cable

connects transient suppression circuitry to chassis ground and must be removed to avoid damage to transient suppression circuitry during testing.

1. Connect the positive wire from the power source to the positive/live (+/L) terminal on the terminal block.



① Positive/Live (+/L) Terminal
② Negative/Neutral (-/N) Terminal
③ Surge Ground Terminal
④ Braided Ground Cable

Figure 2.5 Terminal Block Wiring

2. Connect the negative wire from the power source to the negative/neutral (-/N) terminal on the terminal block.
3. Using a braided wire or other appropriate grounding wire, connect the surge ground terminal to the chassis ground connection. The surge ground terminal is used as the ground conductor for all surge and transient suppression circuitry internal to the unit.
4. Connect the ground terminal on the power source to the chassis ground terminal on the device.

3 Device Management

This section describes how to connect to and manage the device.

3.1 Connecting to the Device

The following describes the various methods for accessing the RUGGEDCOM RMC30 console and Web interfaces on the device. For more detailed instructions, refer to the "RUGGEDCOM ROS Configuration Manual" for the RUGGEDCOM RMC30.

RS232/RS422/RS485 Serial Console Terminal

Connect a PC or terminal directly to the RS232 serial terminals to access the boot-time control and RUGGEDCOM ROS console interface.

Note

The console interface is intended to be used only as a temporary connection during initial configuration or troubleshooting.

The serial terminal implements RS232 DCE (Data Communication Equipment) on a Phoenix-style compression connector. For more information, refer to "Serial Terminal" (Page 17).

Communication Ports

Connect the copper Ethernet port to a management switch and access the RUGGEDCOM RMC30 console and Web interfaces via the device's IP address. The factory default IP address for the RUGGEDCOM RMC30 is https://192.168.0.1.

For more information about available ports, refer to "Communication Ports" (Page 15).

3.2 Configuring the Device

Once the device is installed and connected to the network, it must be configured. All configuration management is done via the RUGGEDCOM RMC30 interface. For more information about configuring the device, refer to the "RUGGEDCOM ROS Configuration Manual" associated with the installed software release.

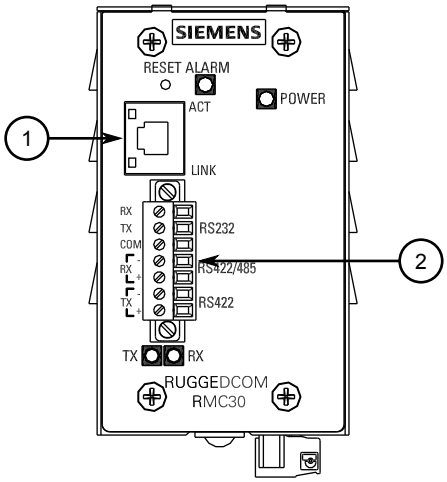
3.3 Resetting the Device

The RUGGEDCOM RMC30 can be reset (rebooted) using the **RESET** button. The **RESET** button is recessed and can only be reached using a pin or small screwdriver.

To reset the device, quickly press and release the *RESET* button with a pin.

4 Communication Ports

The RUGGEDCOM RMC30 can be equipped with various types of communication ports to enhance its abilities and performance.



① Port 1
② Port 2

Figure 4.1 Port Assignment

Port	Type
1	Copper Ethernet Port
2	RS232/RS485/RS422 Serial Terminal

4.1 Copper Ethernet Port

The RUGGEDCOM RMC30 supports a single 10Base-TX Ethernet port that allows connection to a standard Category 5 (CAT-5) unshielded twisted-pair (UTP) cable with an RJ45 male connector. The RJ45 receptacle is directly connected to the chassis ground on the device and can accept a CAT-5 shielded twisted-pair (STP) cable.

⚠ WARNING

Electric shock hazard – risk of serious personal injury and/or equipment interference

If shielded cables are used, make sure the shielded cables do not form a ground loop via the shield wire and the RJ45 receptacles at either end. Ground loops can cause

excessive noise and interference, but more importantly, create a potential shock hazard that can result in serious injury.

⚠ NOTICE

For substation applications, do not use the copper Ethernet port to interface with field devices across distances that could produce high levels of ground potential rise (i.e. greater than 2500 V) during line-to-ground fault conditions.

LEDs

The port features an **Lk** and **Act** LED that indicates the state of the port.

LED	State	Description
Lk	Yellow (Solid)	Link established
	Off	No link
Act	Yellow (Blinking)	Link activity
	Off	No activity

Pin-Out

The following is the pin-out for the RJ45 male connector:

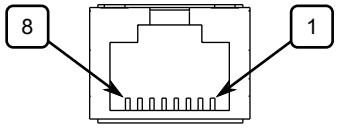


Figure 4.2 RJ45 Ethernet Port Pin Configuration

Pin	Name	Description
1	RX+	Receive Data+
2	RX-	Receive Data-
3	TX+	Transmit Data+
4	Reserved (Do Not Connect)	
5	Reserved (Do Not Connect)	
6	TX-	Transmit Data-
7	Reserved (Do Not Connect)	
8	Reserved (Do Not Connect)	

Specifications

For specifications, refer to "Copper Ethernet Port Specifications" (Page 21).

4.2 Serial Terminal

The RUGGEDCOM RMC30 is equipped with a seven-terminal Phoenix-style connector. This connector can accommodate one RS232 connection, and one RS485/422 connection. The following is the pin-out for the serial terminal:

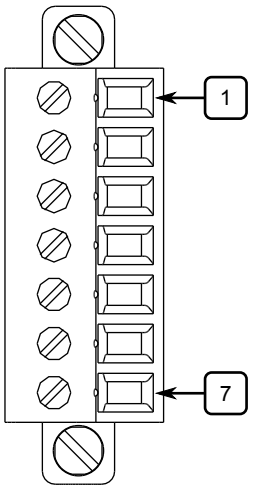


Figure 4.3 Serial Terminal Pin Configuration

Pin	Name	Mode	Description
1	Rx	RS232	Receive data
2	Tx	RS232	Transmit data
3	COM	Shared common	
4	-Rx	RS422	Receive data-
		RS485	Transmit/Receive data-
5	+Rx	RS422	Receive data+
		RS485	Transmit/Receive data+
6	-Tx	RS422	Transmit data-
7	+Tx	RS422	Transmit data+

4.2.1 RS232 Data Ports

The serial terminal includes a single EIA/TIA RS232 compliant port, consisting of three terminals: Transmit (Tx), Receive (Rx) and Common (COM).

Note

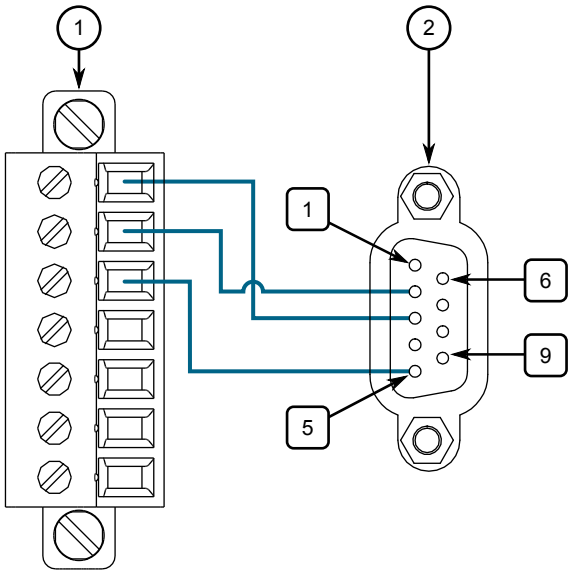
The RS232 port is intended for point-to-point applications only.

In adherence to the EIA/TIA guidelines for RS232 communications, the following is recommended by Siemens:

- Always use shielded cabling to minimize the effects of ambient electrical noise

- Although greater distances are possible, limit the cable length to 15 m (49 ft) or less for more reliable communications
- Use a baud rate of 120 kbps

The RS232 port can be wired to standard DB9 console port.



① Serial Terminal
② DB9 Console Port

Figure 4.4 RS232 Port to Console Port Pin Configuration

DB9 Pin	Name	Description
1	Reserved (Do Not Connect)	
2	RD	Receive Data
3	TD	Transmit Data
4	Reserved (Do Not Connect)	
5	SGND	Signal Ground
6	Reserved (Do Not Connect)	
7	Reserved (Do Not Connect)	
8	Reserved (Do Not Connect)	
9	Reserved (Do Not Connect)	

The RS232 data port has two modes of operations, but only one mode is active at any given time:

- Communications with IEDs (intelligent electronic devices such as PLC, RTU, etc.)
- Console configuration of the device.

To activate console configuration mode, press and hold **Ctrl+Z** for approximately 10 seconds during power up. To deactivate console mode, reset the device.

4.2.2 RS485/422 Data Ports

The serial terminal includes a single RS485/RS422 data port. In half duplex mode, the RS485 connections (Rx+, Rx-, COM) should be connected. In full-duplex mode, the RS422 connections (Rx+, Rx-, Tx+, Tx-, COM) should be connected. Both RS485 and RS422 can accommodate multi-drop networks, for master-slave serial network communications. For both RS485/RS422 connections, the following general guidelines should be followed:

- To minimize the effects of ambient electrical noise, use shielded cabling.
- The correct polarity must be observed throughout a single sequence or ring.
- The number of devices wired should not exceed 32, and total distance should be less than 1219 m (4000 ft) at 100 kbps.
- The Common terminals should be connected to the common wire inside the shield.
- The shield should be connected to earth ground at a single point to avoid loop currents.
- The twisted pair should be terminated at each end of the chain (typically with a 120 Ohm resistor and a 10nF capacitor in series across the twisted pair).

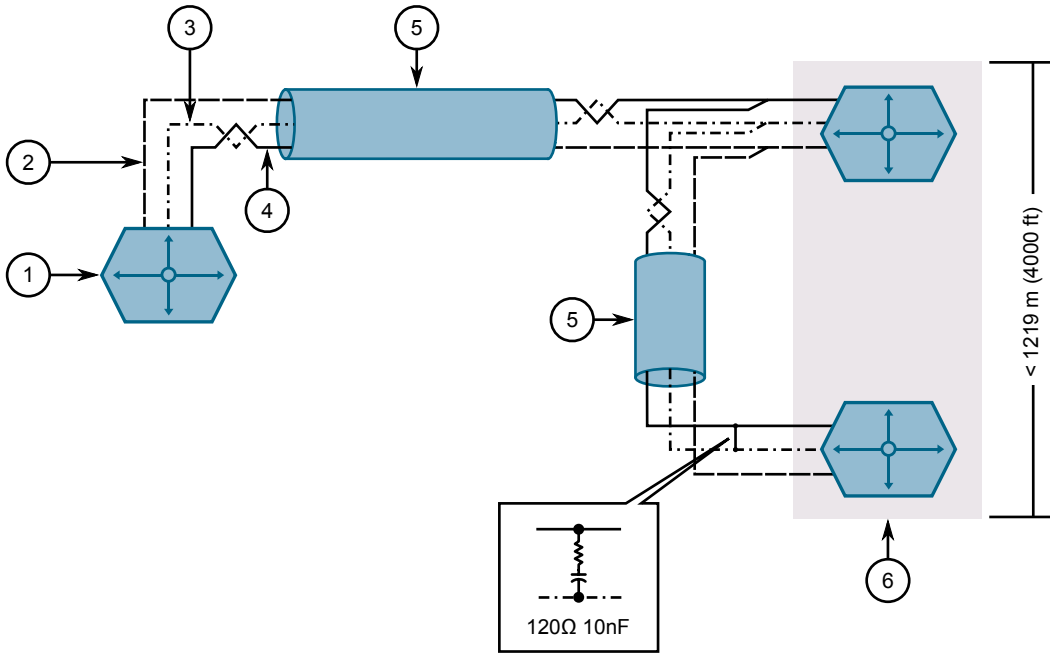
Note

The RUGGEDCOM RMC30 features built-in pull-up and pull-down resistors. As such, external bias resistors are only recommended when connecting the RUGGEDCOM RMC30 to third-party serial devices that do not have built-in pull-up and pull-down resistors.

Note

Transient protection is provided on all terminals. Lightning strikes and ground surge currents can cause large momentary voltage differences between ends of communication links. For maximum reliability of the entire link, all equipment should have similar transient protection installed.

The following shows the recommended RS485 wiring.



① RUGGEDCOM RMC30 Device With Built-In Termination
② Common (Isolated Ground)
③ Negative
④ Positive
⑤ Shield to Earth (Connected At a Single Point)
⑥ RS485 Devices (32 Total)

Figure 4.5 Recommended RS485 Wiring

5 Technical Specifications

This section provides important technical specifications related to the device and available modules.

5.1 Power Supply Specifications

Power Supply Type	Minimum Input	Maximum Input	Internal Fuse Rating[a]	Max. Power Consumption
24 VDC	18 VDC	36 VDC	3.15A (T)	3 W
48 VDC	36 VDC	59 VDC		
HI[b]	88 VDC	300 VDC		
	85 VAC	264 VAC		

[a] *(T) denotes time-delay fuse.*

[b] *This is the same power supply for both AC and DC.*

5.2 Copper Ethernet Port Specifications

The following details the specifications for copper Ethernet ports that can be ordered with the RUGGEDCOM RMC30.

Speed[a]	10Base-TX
Connector	RJ45
Duplex[a]	FDX/HDX
Cable Type[b]	> CAT-5
Wiring Standard[c]	TIA/EIA T568A/B
Maximum Distance[d]	100 m (328 ft)
Isolation[e]	1.5 kV

[a] *Auto-negotiating.*

[b] *Shielded or unshielded.*

[c] *Auto-crossover and auto-polarity.*

[d] *Typical distance. Dependent on the number of connectors and splices.*

[e] *RMS 1 minute.*

5.3 Supported Networking Standards

Parameter	10Base-FL	100Base-FX	Notes
IEEE 802.3	YesNo		10Base-T
IEEE 802.3x	YesNo	YesNo	Full Duplex, Flow Control

5.4 Operating Environment

The RUGGEDCOM RMC30 is rated to operate under the following environmental conditions.

Ambient Operating Temperature[a]	-40 to 85 °C (-40 to 185 °F)
Ambient Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity[b]	5% to 95%
Maximum Altitude	2000 m (6562 ft)

[a] *Measured from a 30 cm (12 in) radius surrounding the center of the enclosure.*

[b] *Non-condensing.*

5.5 Mechanical Specifications

Weight	0.68 kg (1.5 lbs)
Ingress Protection	IP30
Enclosure	21 AWG Galvanized Steel

5.6 Dimension Drawings

Note

All dimensions are in millimeters, unless otherwise stated.

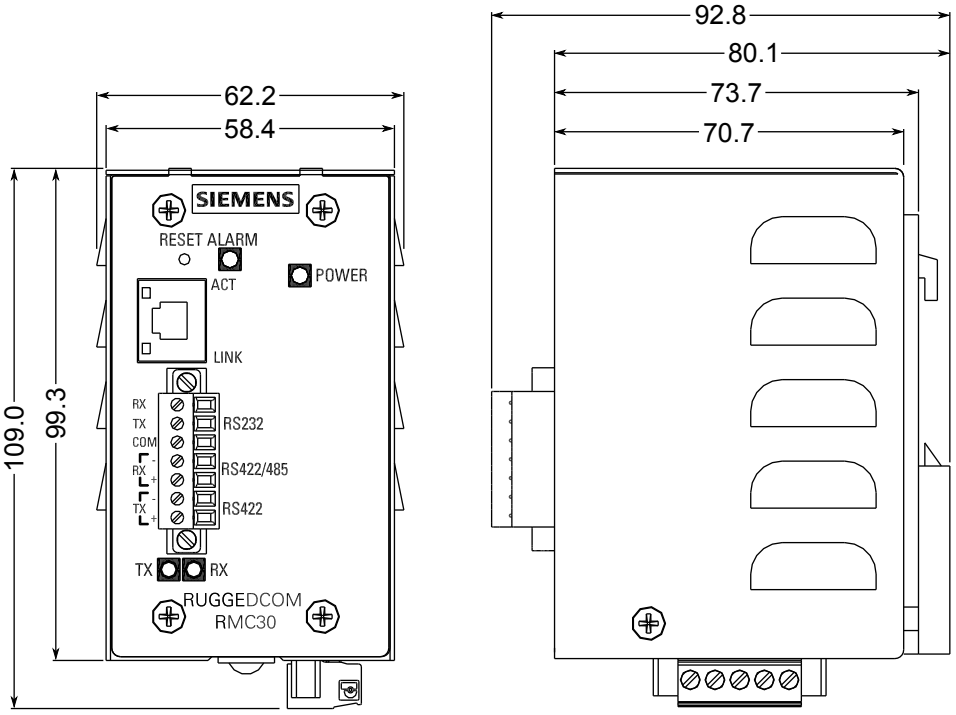


Figure 5.1 Overall Dimensions

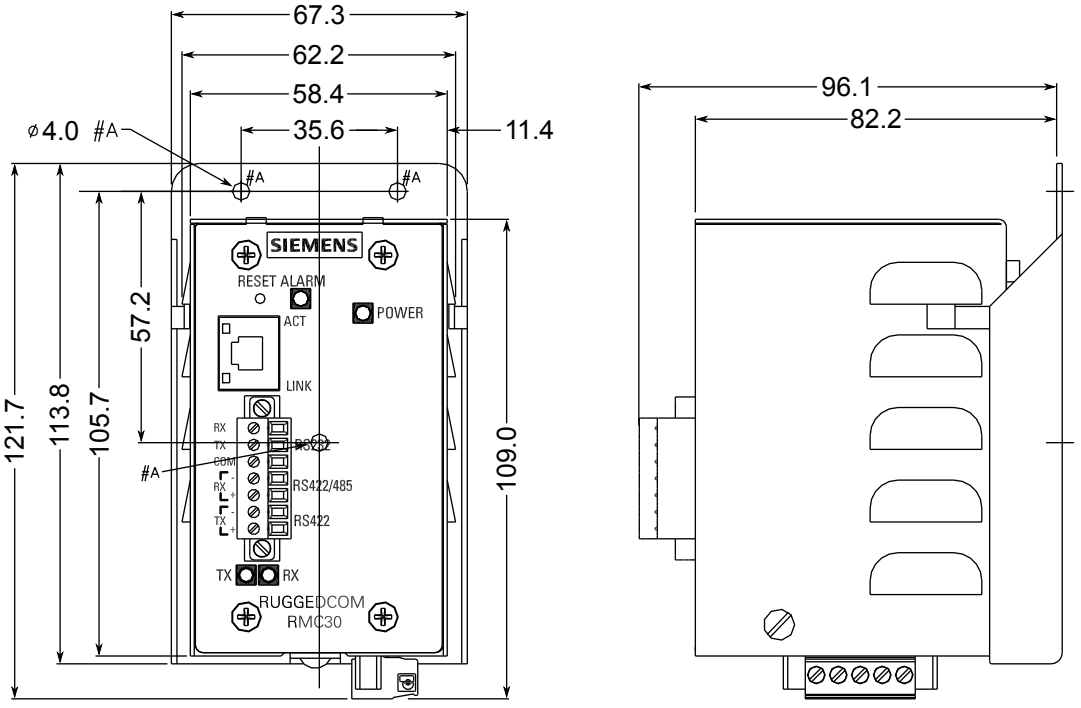


Figure 5.2 Panel Mount Dimensions

6 Certification

The RUGGEDCOM RMC30 device has been thoroughly tested to guarantee its conformance with recognized standards and has received approval from recognized regulatory agencies.

6.1 Approvals

This section details the standards to which the RUGGEDCOM RMC30 complies.

Note

All relevant certificates and test reports are available on Siemens Industry Online Support [https://support.industry.siemens.com].

6.1.1 UKCA

This device is certified for use in Great Britain and bears the United Kingdom Certified Assessed (UKCA) marking. The marking is printed on the body of the device, along with the identification number of the notified body.

6.1.2 CSA

This device meets the requirements of the following Canadian Standards Association (CSA) standards:

- **CAN/CSA-C22.2 No. 62368-1**
  Information Technology Equipment – Safety – Part 1: General Requirements (Bi-National Standard, with UL 62368-1)
- **UL 62368-1**
  Information Technology Equipment – Safety – Part 1: General Requirements

The device is marked with a CSA symbol that indicates compliance with both Canadian and U.S. requirements.

6.1.3 European Union (EU)

This device is declared by Siemens Canada Ltd. to comply with essential requirements and other relevant provisions of the following EU directives:

- **EN 62368-1**
  Information Technology Equipment – Safety – Part 1: General Requirements
- **EN 61000-6-2**
  Electromagnetic Compatibility (EMC) – Part 6-2: Generic Standards – Immunity for Industrial Environments
- **EN 60825-1**
  Safety of Laser Products – Equipment Classification and Requirements
- **EN 55022**
  Information Technology Equipment – Radio disturbance characteristics – Limits and methods of measurement

The device is marked with a CE symbol and can be used throughout the European community.

CE

6.1.4 FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference on his own expense.

6.1.5 FDA/CDRH

This device meets the requirements of the following U.S. Food and Drug Administration (FDA) standard:

- Title 21 Code of Federal Regulations (CFR) – Chapter I – Sub-chapter J – Radiological Health

6.1.6 ISED

This device is declared by Siemens Canada Ltd. to meet the requirements of the following ISED (Innovation Science and Economic Development Canada) standard:

- CAN ICES-3 (A)/NMB-3 (A)

6.1.7 ISO

This device was designed and manufactured using a certified ISO (International Organization for Standardization) quality program that adheres to the following standard:

- **ISO 9001:2015**
  Quality management systems – Requirements

6.1.8 ACMA

This device meets the requirements of the following Australian Communications and Media Authority (ACMA) standards under certificate ABN 98 004 347 880:

- Radiocommunications (Compliance Labelling – Devices) Notice 2014 made under Section 182 of the Radiocommunications Act 1992
- Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008 made under Section 182 of the Radiocommunications Act 1992
- Radiocommunications (Compliance Labelling – Electromagnetic Radiation) Notice 2003 made under Section 182 of the Radiocommunications Act 1992
- Telecommunications Labelling (Customer Equipment and Customer Cabling) Notice 2001 made under Section 407 of the Telecommunication Act 1997

The device is marked with an RCM symbol to indicate compliance when sold in the Australian region.

A copy of the Declaration of Conformity is available via Siemens Industry Online Support at https://support.industry.siemens.com/cs/ww/en/view/89855782.

6.1.9 RoHS

This device is declared by Siemens Canada Ltd. to meet the requirements of the following RoHS (Restriction of Hazardous Substances) directives for the restricted use of certain hazardous substances in electrical and electronic equipment:

- **China RoHS 2**

  Administrative Measure on the Control of Pollution Caused by Electronic Information Products

A copy of the Material Declaration is available online at https://support.industry.siemens.com/cs/ww/en/view/109738831.

6.1.10 Other Approvals

This device meets the requirements of the following additional standards:

- **IEEE 1613**
  IEEE Standard Environmental and Testing Requirements for Communications Networking Devices in Electric Power Substations
- **IEC 61850-3**
  Communications Networks and Systems for Power Utility Automation – Part 3: General Requirements

6.2 EMC and Environmental Type Tests

The RUGGEDCOM RMC30 has passed the following EMC and environmental tests.

IEC 61850-3 Type Tests

Test	Description		Test Levels	Severity Levels
IEC 61000-4-2	ESD	Enclosure Contact	± 8 kV	4
		Enclosure Air	± 15 kV	4
IEC 61000-4-3	Radiated RFI	Enclosure Ports	20 V/m	Note[a]
IEC 61000-4-4	Burst (Fast Transient)	Signal Ports	± 4 kV @ 2.5 kHz	Note[a]
		DC Power Ports	± 4 kV	4
		AC Power Ports	± 4 kV	4
		Earth Ground Ports	± 4 kV	4
IEC 61000-4-5	Surge	Signal Ports	± 4 kV Line-to-Earth, ± 2 kV Line-to-Line	4

Test	Description		Test Levels	Severity Levels
		DC Power Ports	± 2 kV Line-to-Earth, ± 1 kV Line-to-Line	3
		AC Power Ports	± 4 kV Line-to-Earth, ± 2 kV Line-to-Line	4
IEC 61000-4-6	Induced (Conducted) RFI	Signal Ports	10 V	3
		DC Power Ports	10 V	3
		AC Power Ports	10 V	3
		Earth Ground Ports	10 V	3
IEC 61000-4-8	Magnetic Field	Enclosure Ports	40 A/m continuous, 1000 A/m for 1 s	Note[a]
			1000 A/m for 1 s	5
IEC 61000-4-29	Voltage Dips and Interrupts	DC Power Ports	30% for 0.1 s, 60% for 0.1 s, 100% for 0.05 s	
		AC Power Ports	30% for 1 period, 60% for 50 periods	
IEC 61000-4-11			100% for 5 periods, 100% for 50 periods	
IEC 60225-27	Dielectric Strength	Signal Ports	2 kV	
		DC Power Ports	1.5 kV	
		AC Power Ports	2 kV	
	HV Impulse	Signal Ports	5 kV	
		DC Power Ports	5 kV	
		AC Power Ports	5 kV	

[a] *Siemens specified severity level.*

IEEE 1613 EMC Immunity Type Tests

Note

RUGGEDCOM products meet Class 1 requirements for copper Ethernet configurations and Class 2 for fiber Ethernet configurations. Class 1 allows for temporary communication loss, while Class 2 requires error-free and interrupted communications.

Description		Test Levels
ESD	Enclosure Contact	± 8 kV
	Enclosure Air	± 15 kV
Radiated RFI	Enclosure Ports	35 V/m
Fast Transient	Signal Ports	± 4 kV @ 2.5 kHz

Description		Test Levels
	DC Power Ports	± 4 kV
	AC Power Ports	± 4 kV
	Earth Ground Ports	± 4 kV
Oscillatory	Signal Ports	2.5 kV common mode @ 1MHz
	DC Power Ports	2.5 kV common, 1 kV differential mode @ 1MHz
	AC Power Ports	2.5 kV common, 1 kV differential mode @ 1MHz
HV Impulse	Signal Ports	5 kV
	DC Power Ports	5 kV
	AC Power Ports	5 kV
Dielectric Strength	Signal Ports	2 kV
	DC Power Ports	1.5 kV
	AC Power Ports	2 kV

Environmental Type Tests

Test	Description		Test Levels	Severity Levels
IEC 60068-2-1	Cold Temperature	Test Ad	-40 °C (-40 °F), 16 Hours	
IEC 60068-2-2	Dry Heat	Test Bd	85 °C (185 °F), 16 Hours	
IEC 60068-2-30	Humidity (Damp Heat, Cyclic)	Test Db	95% (non-condensing), 55 °C (131 °F), 6 cycles	
IEC 60255-21-1	Vibration		2 g @ 10-150 Hz	Class 2
IEC 60255-21-2	Shock		30 g @ 11 ms	Class 2

For more information

Siemens RUGGEDCOM
https://www.siemens.com/ruggedcom

Industry Online Support (service and support)
https://support.industry.siemens.com

Industry Mall
https://mall.industry.siemens.com

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