



INSTALLATION AND OPERATION MANUAL

RLGE2+1SMS Series

Electrical Substation-Rated

10/100/1000 Mbps 3-Port Self-managed Ethernet Switch

**This manual serves the following
ComNet Model Numbers:**

RLGE2+1SMS24DC

RLGE2+1SMS48DC

RLGE2+1SMSHV

The ComNet RLGE2+1SMS is designed for deployment in environments where high levels of electromagnetic noise and interference (EMI) and severe voltage transients and surges are routinely encountered.

The DIP-switch-selectable 100BASE-FX or 1000BASE-FX port supports conventional CAT-5e/CAT-6 copper or optical transmission media by selection of the appropriate ComNet SFP module.

User-selectable link fault pass-through provides remote indication of a network fault, and a summary fault alarm provides a local or remote indication via Form C dry contact closure in the event of loss of optical link or operating power.

The 10/100/1000BASE-TX ports support both auto-negotiation and automatic MDI/MDI-X crossover for full and half-duplex operation; manual MDI/MDI-X switching is not required.

The RLGE2+1SMS comes pre-programmed, preventing network video flooding with DIP-switch selection of the SFP port as uplink or as an unmanaged switch.

LED indicators confirm operational status.

See **Figures 1 – 8** for complete operation details.

The RLGE2+1SMS is DIN-rail or panel-mountable. See **Figure A** on the last page for mounting instructions.

Figure 1 - RLGE2+1SMS Series Front Panel

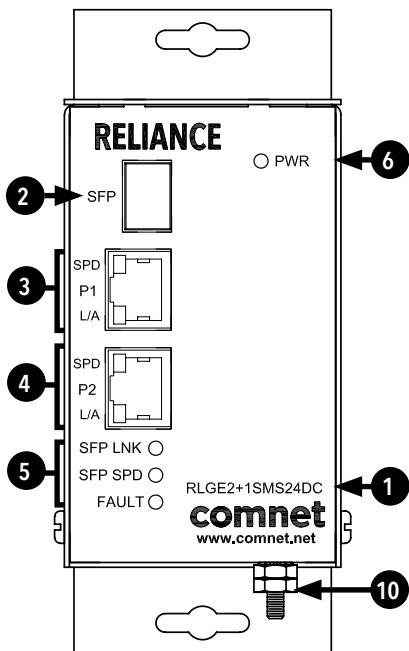


Figure 2 - RLGE2+1SMS24DC and RLGE2+1SMS48DC Bottom Panel

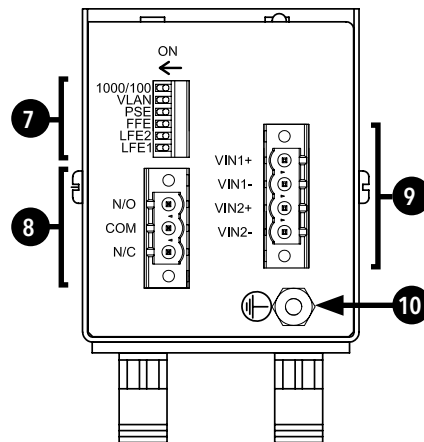


Figure 3 - RLGE2+1SMShV Bottom Panel

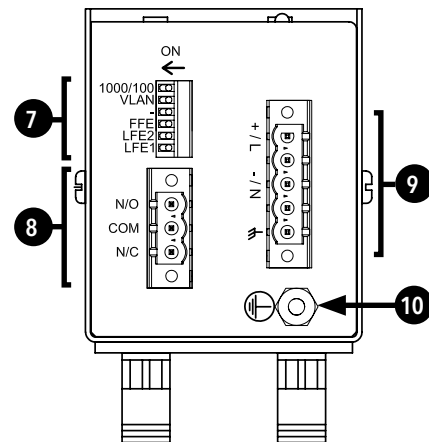


Table 1 – RLGE2+1SMS24DC Physical Feature Descriptions

Call-out	Description	Manual Reference
1	Unit Model Number (Be sure to refer to any specific instructions for your unit variation)	-
2	100/1000 Mbps SFP Fiber Optic Port (Fiber Type and Quantity are dependent on installed SFP)	-
3	10/100/1000 TX RJ-45 Port 1 and Port 1 Link/Activity (L/A) and Speed LED Indicators	See Installation Instructions, Step 6 See Table 5 - Indicating LEDs
4	10/100/1000 TX RJ-45 Port 2 and Port 2 Link/Activity (L/A) and Speed LED Indicators	See Installation Instructions, Step 6 See Table 5 - Indicating LEDs
5	SFP Port Link Status and SFP Port Link Speed LED Indicators	See Installation Instructions, Step 7 See Table 4 - Indicating LEDs
6	Power LED Indicator	See Installation Instructions, Step 8 See Table 4 - Indicating LEDs
7	User-selectable DIP Switches	See Installation Instructions, Steps 1 - 3 See Table 2 - DIP Switch Settings See Figure 4 - DIP Switches
8	Fault Relay Connections	See Installation Instructions, Step 5 See Figure 6 - Fault Relay Operation
9	Power Connections	See Installation Instructions, Step 8 See Table 3 - Power Connections per Use Case
10	Chassis GND Lug	See Installation Instructions, Step 4

Installation Instructions

Figure 4 - DIP Switches

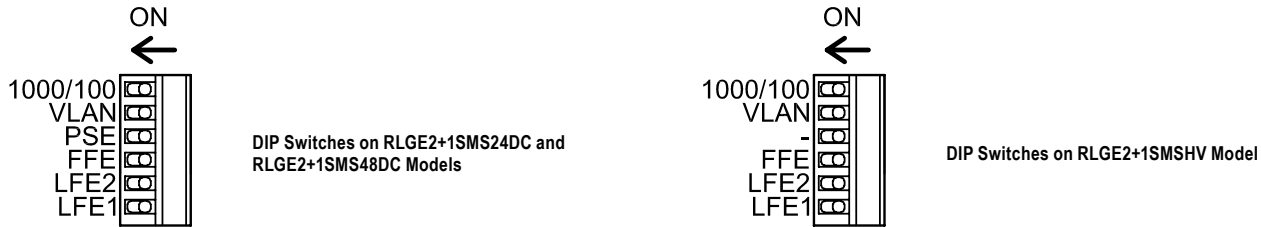


Table 2 – DIP Switch Settings

SW	NAME	OFF (DOWN)	ON (UP)
1	Link Fault Enable Port 1	Link Fault Pass-Through Disabled	Link Fault Pass-Through Enabled
2	Link Fault Enable Port 2	Link Fault Pass-Through Disabled	Link Fault Pass-Through Enabled
3	FFE	Fiber Fault Relay Disabled	Fiber Fault Relay Enabled
4	PS Fault Enable	Power Supply Fault Relay Disabled	Power Supply Fault Relay Enabled
5	VLAN	VLAN Disabled	VLAN Enabled
6	1000/100 (SFP Speed)	100 Mbps Speed Set Speed must match speed of installed SFP. Reset power if switch or SFP is changed.	1000 Mbps Speed Set. Speed must match speed of installed SFP. Reset power if switch or SFP is changed.

1 - SET DATA RATE DIP SWITCHES

Locate the 100/1000 data rate DIP switch on the bottom panel of the unit. Set the data rate according to bandwidth required.

NOTE: If two units are connected via the SFP Port, the data rate must be set the same on both units, and must match the data rate of the installed SFPs. Data rate settings are read on start-up, so restart the unit after making any changes.

2 - SET FAULT DIP SWITCHES

Locate the LFE1,LFE2, FFE, and PSE DIP switches on the bottom panel of the unit.

LFE1 or LFE 2: If the Copper Port is Down or Not Connected, the Optical Port will turn on and off at a ~1 sec rate to indicate copper port fault and the alarm relay will be triggered.

FFE: If the optical link is lost or there is a power failure then the alarm relay output will be triggered.

NOTE: You may select multiple fault event triggers.

NOTE: Power Supply Fault DIP Switch is only available on Redundant Power Models. When a redundant power supply is available, a failure of power on one power supply will trigger the alarm relay output.

NOTE: Restart not required when making changes to this DIP switch setting.

3 - SET VLAN DIP SWITCH

If required, set the unit to provide port isolation. With VLAN enabled (ON), in the case of TX port isolation, the SFP port will act as the uplink port. When two units are connected via fiber and both have VLAN enabled, traffic from Port 1 will go to Port 1 and traffic from Port 2 will go to Port 2 only, functioning like two separate media converters over one fiber.

4 - CONNECT GROUND WIRING

Connect Ground Wiring to ground screw and tighten nut to secure.

5 - CONNECT FAULT RELAY WIRING

Connect Faulty Relay device to 3-pin terminal block. The COM to N/O will be shorted in the fault condition.

6 - CONNECT DATA WIRING

Connect RJ-45 Ports to field wiring using Cat5/5e/6 cable.

7 - CONNECT NETWORK WIRING

Using fiber optic cabling appropriate to the installed SFP, connect the unit to a network device.

Installation Instructions (Continued)

8 - CONNECT POWER

Connect power to unit per the following table.

Table 3 – Power Connections per Use Case

	RLGE2+1SMS24DC	RLGE2+1SMS48DC	RLGE2+1SMSHV
Operating Voltage	Redundant Inputs 9 to 36 VDC (max)	Redundant Inputs 36 to 59 VDC (max)	88 to 300 VDC (max) OR 85 to 264 VAC (max)
Use Power Connectors	Vin1+ and Vin1- for PS 1 Vin2+ and VIN2- for PS 2	Vin1+ and Vin1- for PS 1 Vin2+ and VIN2- for PS 2	+/L, -/N, and Earth GND

Contact the ComNet Design Center, or refer to the appropriate installation and operation manual when configuring and specifying power for a deployment.

9 - VERIFY FUNCTIONALITY

See LED Indicator table below and Troubleshooting Guide if corrective action is needed.

Table 4 – Front Panel LED Indicators

		SFP Link	SFP Speed	Fault	Power
GREEN	Solid	Communication link has been established over optical fiber. Flashes when data is being transmitted.	1000 Mbps	No Fault (NC-COM)	Power Applied
	Flashing	Fiber failure or copper failure (Link Fault Enable must be switched set to ON)	-	-	-
RED	Solid	-	100 Mbps	Fault (NO-COM)	-
OFF		Communication link has not been established.	Unit is not correctly powered up or DIP Switch incorrectly set. (Reset power after switch change.)	Unit is not correctly powered up	Unit is not correctly powered up

Figure 5 – Electrical Port

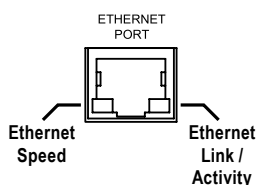
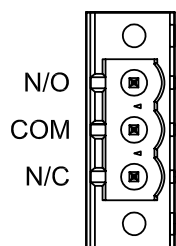


Table 5 – Electrical Port LED Indicators

		Link / Activity	Speed
GREEN	Solid	Communication link has been established over the electrical cable	-
	Flashing	Data is being transmitted over the electrical cable	-
YELLOW	-		1000 Mbps Speed
OFF		Communication link has not been established.	10/100 Mbps Speed

Figure 6 - Fault Relay Operation



The fault relay is normally closed and will open on any of the following alarm conditions:

- Link Fault is enabled on the **remote** RLGE2+1SMS unit and the corresponding copper port has been disconnected.
- Link Fault is enabled on the **local** RLGE2+1SMS unit and the corresponding copper port has been disconnected.
- Fiber Fault is enabled on the **local** RLGE2+1SMS unit and the fiber link is down or the power has been lost to either the local or remote RLGE2+1SMS unit.

Table 6 – Troubleshooting Guide

Problem	Steps to Take
Power LED not lighting	Check that power is properly applied to the unit using the correct connector pair.
No Communication	Check Ethernet Link LEDs, Fiber Optic Link LEDs. Confirm Connections, DIP switches are set properly. Verify that the Data Rate switches are set to the same data rate on back-to-back units and match the installed SFP. Restart the unit if the Data Rate Switch or installed SFP has changed.

Figure 7 - VLAN Disabled

Traffic can be sent/received on all electrical and fiber ports. VLAN is disabled on both units in back-to-back operation.

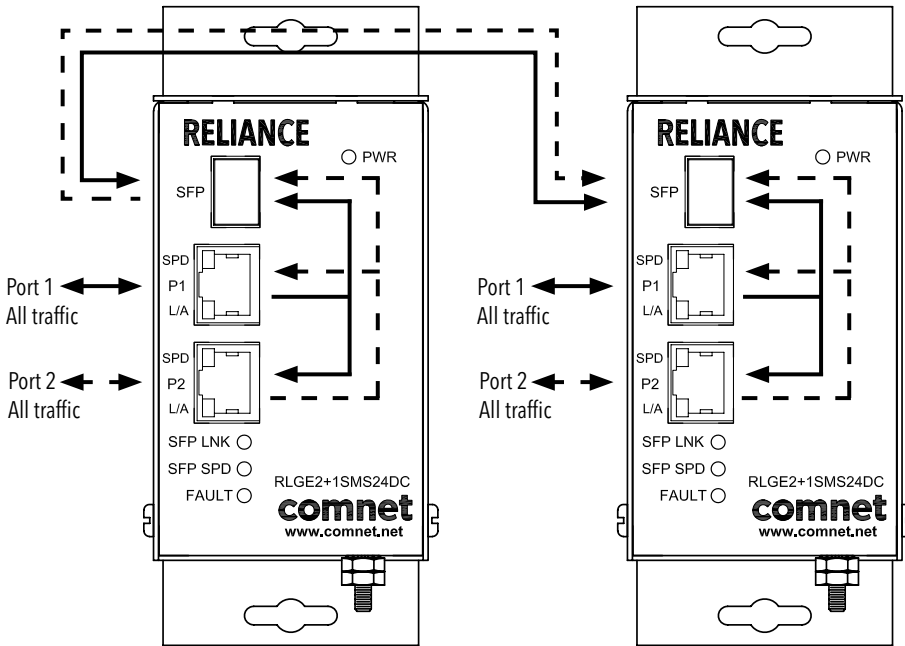
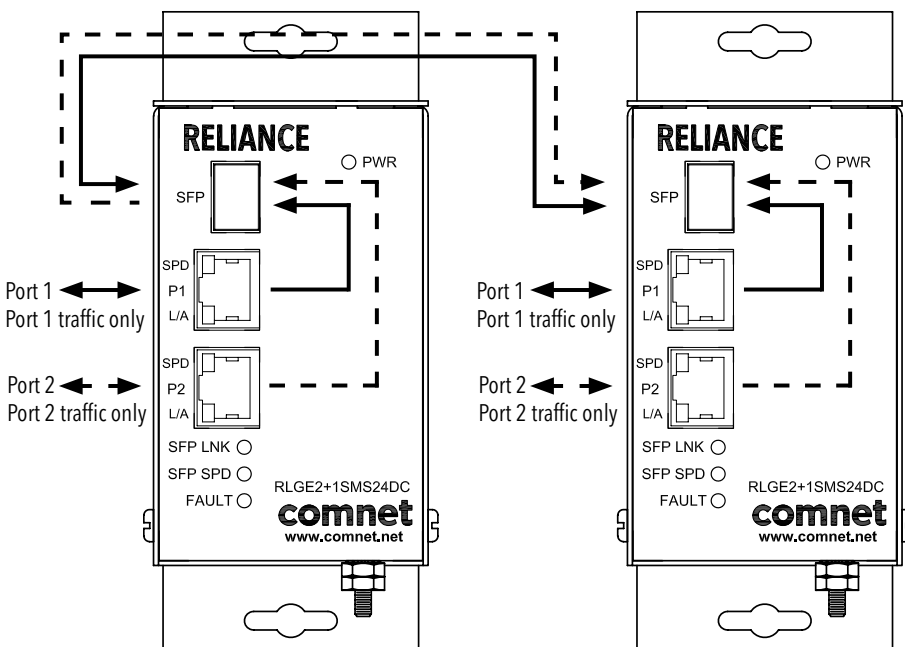


Figure 8 - VLAN Enabled

Traffic from Port 1 will go only to Port 1 and traffic from Port 2 will go only to Port 2 only, functioning like two separate media converters over one fiber. VLAN is enabled on both units in back-to-back operation.



MECHANICAL INSTALLATION INSTRUCTIONS

Installation Considerations

This product is supplied as Standalone/Surface Mount module. Units should be installed in dry locations protected from extremes of temperature and humidity.

WARNING: Unit is to be used with a Listed Class 2 power supply.

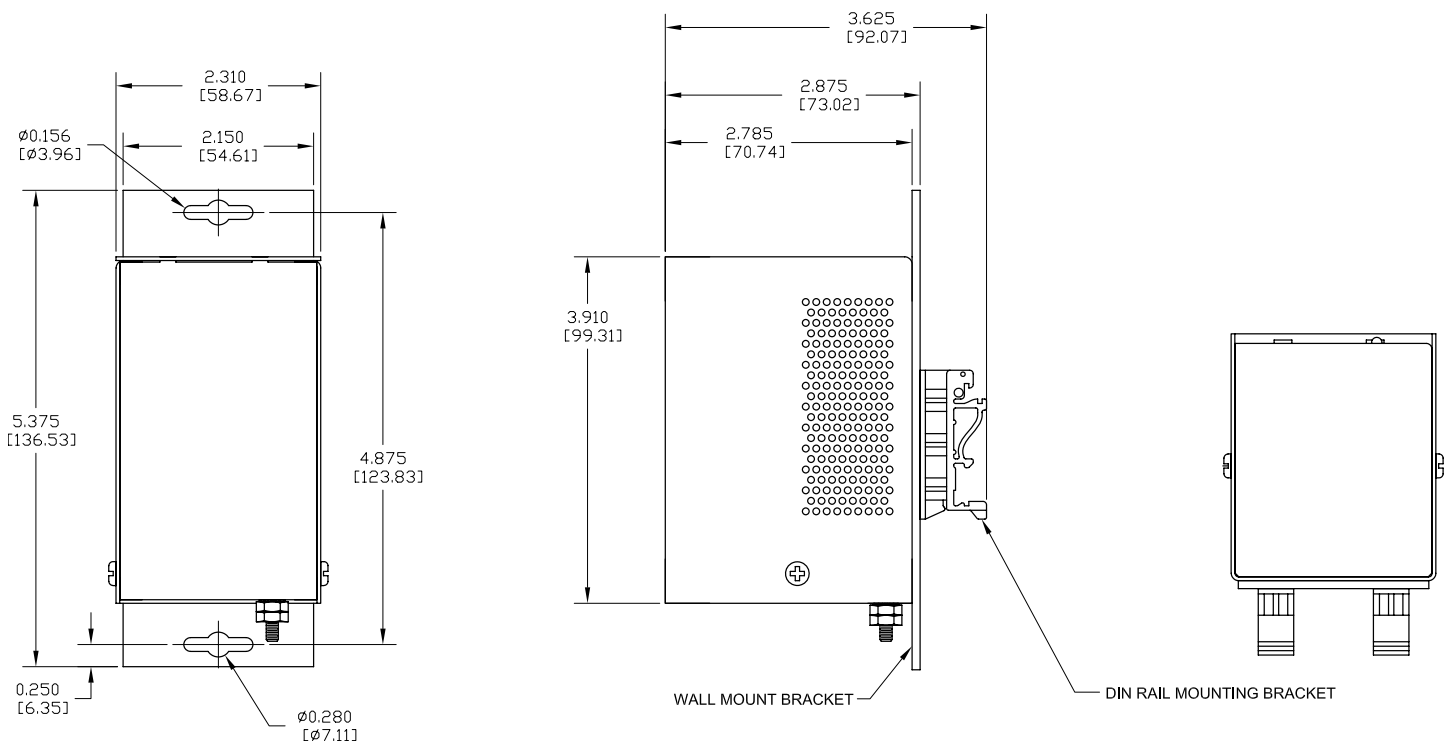
IMPORTANT SAFEGUARDS:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Figure A

Dimensions and mounting methods for a ComNet Reliance mini DIN Rail module



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