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Communication Networks

INSTALLATION AND OPERATION MANUAL

RLMC1005 Series

Electrical Substation-Rated 10/100 Mbps Ethernet
Electrical To ST Optical Media Converter

This manual serves the following ComNet Model Numbers:

RLMC1005M2/24DC
RLMC1005S2/24DC
RLMC1005M2/48DC
RLMC1005S2/48DC
RLMC1005M2/HV
RLMC1005S2/HV

The ComNet RLMC1005 is designed for deployment in environments where high levels of electromagnetic noise and interference (EMI) and severe voltage transients and surges are routinely encountered.

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

LED indicators confirm operational status.

See **Figures 1 – 6** for complete operation details.

The RLMC1005 is DIN-rail or panel-mountable. See **Figure A** on the last page for mounting instructions.

Figure 1 – RLMC1005(M,S)2 Series Front Panel

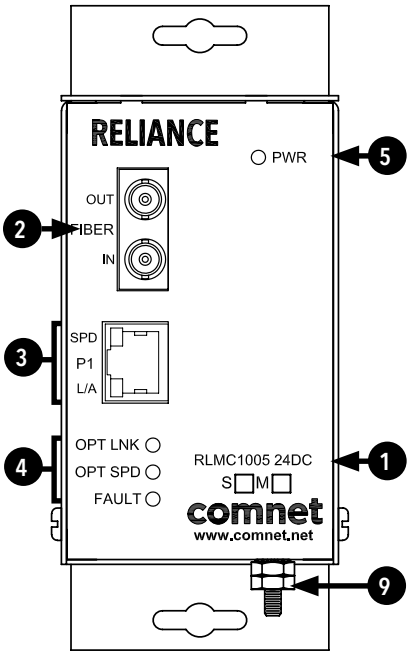


Figure 2 – RLMC1005(M,S)2/24DC and RLMC1005(M,S)2/48DC Bottom Panel

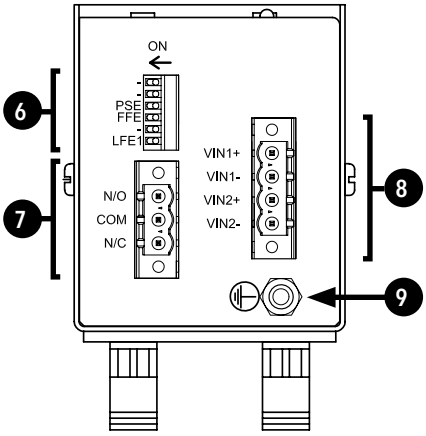


Figure 3 – RLMC1005(M,S)2/HV Bottom Panel

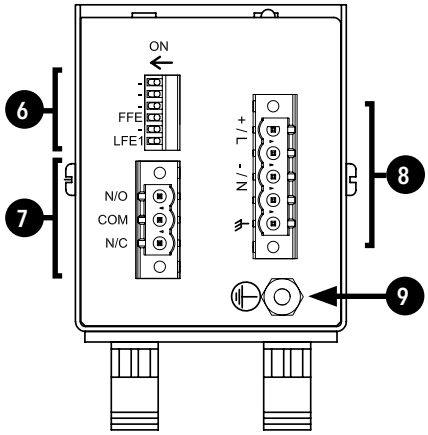
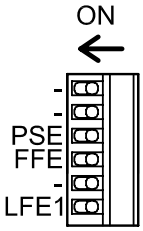


Table 1 – RLMC100524DC Physical Feature Descriptions

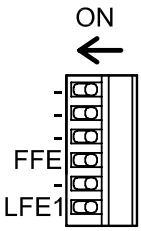
Call-out	Description	Manual Reference
1	Unit Model Number (Be sure to refer to any specific instructions for your unit variation)	–
2	10/100 Mbps Fiber Optic Port	See Installation Instructions, Step 5
3	10/100 TX RJ-45 Port 1 and Port 1 Link/Activity (L/A) and Speed LED Indicators	See Installation Instructions,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

Installation Instructions

Figure 4 – DIP Switches



DIP Switches on RLMC1005(M,S)2/24DC and RLMC1005(M,S)2/48DC Models



DIP Switches on RLMC1005(M,S)2/HV Model

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	N/A	N/A	N/A
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	N/A	N/A	N/A
6	N/A	N/A	N/A

1 - SET FAULT DIP SWITCHES

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

LFE1: 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.

2 - CONNECT GROUND WIRING

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

3 - CONNECT FAULT RELAY WIRING

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

4 - CONNECT DATA WIRING

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

5 - CONNECT NETWORK WIRING

Using fiber optic cabling appropriate to the selected model, connect the unit to a network device.

6 - CONNECT POWER

Connect power to unit per the following table.

Table 3 – Power Connections per Use Case

	RLMC100524DC	RLMC100548DC	RLMC1005HV
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.

Installation Instructions (Continued)

7 - VERIFY FUNCTIONALITY

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

Table 4 – Front Panel LED Indicators

		Fiber Optic Link	Fiber Optic 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	Unit is not correctly powered up	Unit is not correctly powered up

Figure 5 – Electrical Port

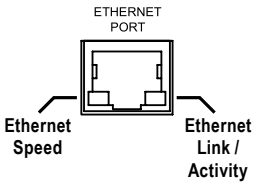
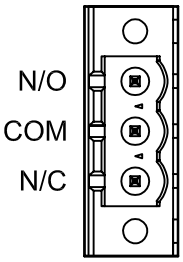


Table 5 – Electrical Port LED Indicators

	Link / Activity		Speed
GREEN	**Solid**	Communication link has been established over the electrical cable	–
	Flashing	Data is being transmitted over the electrical cable	–
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** RLMC1005 unit and the corresponding copper port has been disconnected.
- Link Fault is enabled on the **local** RLMC1005 unit and the corresponding copper port has been disconnected.
- Fiber Fault is enabled on the **local** RLMC1005 unit and the fiber link is down or the power has been lost to either the local or remote RLMC1005 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, and DIP switches are set properly.

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.

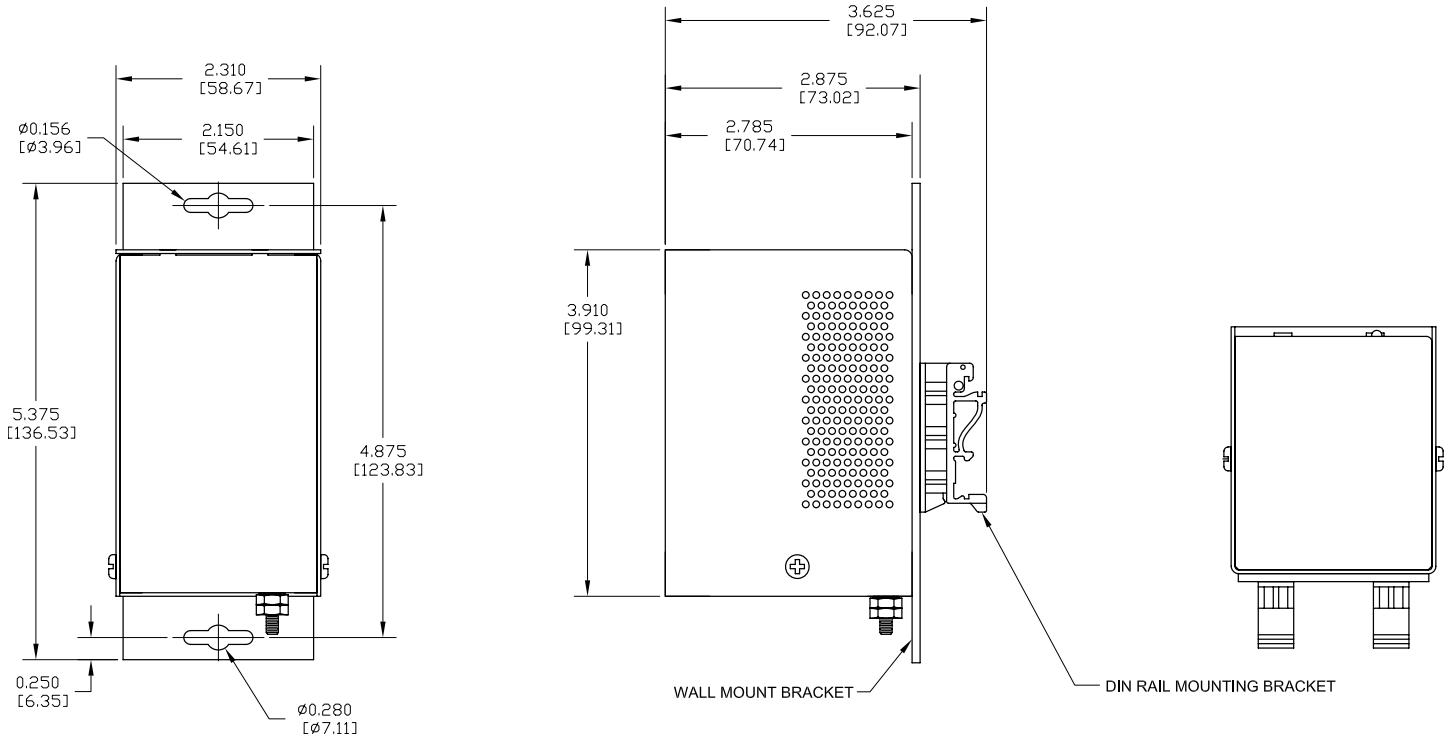
IMPORTANT SAFEGUARDS:

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 (Tma) 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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