

# ROCKET *LINX* ES8105

*Industrial Ethernet Switch*



## Quick Installation Guide *ES8105 and ES8105F*



## Introduction

The RocketLinX ES8105/ES8105F series of industrial Ethernet switches provide three models:

- ▶ **ES8105** supports five 10/100BASE-TX ports
- ▶ **ES8105F-Multi-Mode:** supports four 10/100BASE-TX ports and one 100BASE-FX Ethernet port
- ▶ **ES8105F-Single-Mode:** supports four 10/100BASE-TX ports and one 100BASE-FX Ethernet port

The RocketLinX ES8105 series provides a slim industrial design to save rail space for compact system requirements. The ES8105 series is enclosed in an industrial-grade aluminum case with IP30 standard protection. It provides one relay output to alarm port link failure events, which is enabled and disabled by a DIP switch.

Refer to the Control web site for specification information. For more detailed installation information, see the *RocketLinX ES8105/ES8105F User Guide*, which is available at: [ftp://ftp.control.com/html/ES8108\\_docs.htm](ftp://ftp.control.com/html/ES8108_docs.htm).

## Wiring the Power Inputs

1. Insert the positive and negative wires into the power V+ and V- contacts on the terminal block connector.
2. Tighten the wire-clamp screws to prevent the wires from being loosened.

**Note:** *The recommended working voltage is 24VDC (18- 32VDC) or 18VAC (18-27VAC).*

## Wiring the Relay Output

The relay output alarm contacts are on the terminal block connector as shown in the figure.

If you insert the wires and enable the DIP switch for the port, the relay output alarm will detect any port failures, and form a short circuit. The alarm relay output is Normal Open.

## Enabling the Event Alarm

Use this table to set the DIP switch for the relay output alarm.

Pin	Status	Description
1-5	On	Enables the port link failure alarm on this port.
	Off	Disables the port link failure alarm on this port.



## Grounding the ES8105/ES8105F

There is one grounding screw on the bottom side of the ES8105/ES8105F. Loosen the screw and connect a ground wire from the ES8105/ES8105F to a grounded surface to ensure safety and prevent noise.

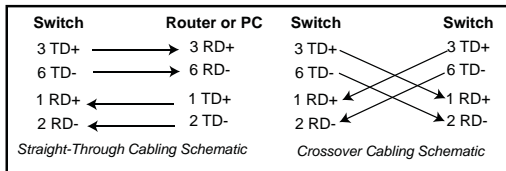
## Mounting the Unit

You can mount the ES8105 series on a DIN rail.

## Connecting the Ethernet Port

Connect one end of an Ethernet cable into the Ethernet port of the ES8105/ES8105F and the other end to the attached networking device. The Fast Ethernet ports support 10BASE-T and 100BASE-TX, full- or half-duplex modes.

The Fast Ethernet ports automatically detect the signal from the connected devices to negotiate the link speed and duplex mode. Auto MDI/MDIX allows you to connect another switch, hub, or workstation without changing straight-through or crossover cables. Crossover cables cross-connect the transmit lines at each end to the received lines at the opposite end.



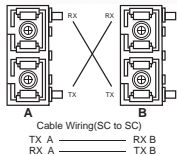
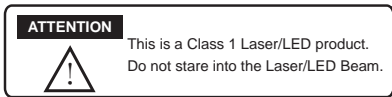
The Ethernet cables use Pins 1, 2, 3, and 6 of an 8-pin RJ45 connector. The signals of these pins are converted by the automatic MDIX function, as shown in the following table:

Pin	MDIX Signals	MDI Signals
1	RD+	TD+
2	RD-	TD-
3	TD+	RD+
6	TD-	RD-

The LINK/ACT LED is lit when the cable is correctly connected. The LINK/ACT LED is lit yellow for a 10BASE-TX Ethernet connection or green for a 100BASE-TX Ethernet connection. Always make sure that the cables between the switches and attached devices (for example, switch, hub, or workstation) are less than 100 meters (328 feet).

## Connecting the Fiber Port (ES8105F)

Connect the fiber port on the ES8105F to another fiber Ethernet device using the following information.



A wrong connection will cause the fiber port not to work properly.

The fiber connector is a standard connector or square connector (SC).

Mode	Cable Type	Wavelength	Transmit Power (min.)	Transmit Power (max.)	Receive Sensitivity (max.)	Receive Sensitivity (min.)	Min. Launch Power –Max. Receive Sensitivity	Distance(km)
Multi	50/125um 62.5/125um	1310nm	-20dBm	-14dBm	-31dBm	0dBm	11dBm	2km Note (below)
Single	8-10/125um	1310nm	-15dBm	-8dBm	-34dBm	-8dBm	19dBm	30km

**Note:** In the IEEE standard, it suggests the available transmission distance is 2KM for 62.5/125um fiber optical cable in 1310nm wave length. Actually, the attenuation of Multi-Mode 62.5/125um optical fiber cable is 1.5dBm/km and the maximum link distance can be up to 4 to 5km.

IEEE organization recommends maximum optical fiber cable distances as defined in the following table:

<b>Standard</b>	<b>Data Rate (Mbps)</b>	<b>Cable Type</b>	<b>IEEE Standard Distance</b>
10Base-FL	10	850nm, 50/125um or 62.5/125um Multi-mode optical fiber cable	2km
100Base-FX	100	1310nm, 50/125um or 62.5/125um Multi-mode optical fiber cable	2km
100Base-SX	100	850nm, 50/125um or 62.5/125um Multi-mode optical fiber cable	300m
1000Base-SX	1000	850nm, 50/125um Multi-mode optical fiber cable	550m
		850nm, 62.5/125um Multi-mode optical fiber cable	220m
1000Base-LX	1000	1310nm, 50/125um or 62.5/125um Multi-mode optical fiber cable	550m
		1310nm, 9/125um Single-mode optical fiber cable	5km
1000Base-LH	1000	1550nm,9/125um Single-mode optical fiber cable	70km

The following table provides information about optical fiber cable attenuation:

Fiber Type	Wavelength	Attenuation /km *1	Attenuation /km *2	Connector Loss	Splice Loss
Multi-Mode 50/125um	850nm 1310nm	3.5dBm 1.5dBm	2.5dBm 0.8dBm	0.75dBm	0.1dBm
Multi-Mode 62.5/125um	850nm 1310nm	3.5dBm 1.5dBm	3.0dBm 0.7dBm	0.75dBm	0.1dBm
Single-Mode 9/125um	1310nm	0.4dBm	0.35dBm	0.75dBm	0.1dBm
Single-Mode 9/125um	1550nm	0.3dBm	0.22dBm	0.75dBm	0.1dBm

\*1. These values are per TIA/EIA and other industrial specifications.

\*2. These values are an example of the performance that can be obtained with a new fiber installation.

## Control Customer Service

You can use one of the following methods to contact Control Corporation.

Contact Method	Web Address or Phone Number
Support	<a href="http://www.control.com/pub/en/support">http://www.control.com/pub/en/support</a>
Downloads	<a href="ftp://ftp.control.com/html/ES8105.htm">ftp://ftp.control.com/html/ES8105.htm</a>
Web Site	<a href="http://www.control.com">http://www.control.com</a>
Phone	763.957.6000

