



## RocketLinx® ES8510

Part Number: 32060-9



### KEY FEATURES AND BENEFITS

- Multiple redundant ring (recovery time <5ms)
- Supports TACACS+
- Seven 10/100-TX ports and three Gigabit RJ-45/SFP combo ports (10/100/1000BASE-TX, 100BASE-FX, 1000BASE-X)
- 32Gbps non-blocking, 8K MAC address table
- VLAN, GVRP, QoS, IGMP snooping V1/V2/V3, rate control, port trunking, LACP, online multi-port mirroring
- Management via console CLI , Web, SNMP V1/V2c/V3, RMON, HTTPS, SSH and NetVision
- Advanced security feature supports IP security, port security, DHCP server, IP and MAC binding, 802.1x network access control
- Event notification by e-mail, SNMP trap, syslog, digital input and relay output
- -20° to +70°C operating temperature for harsh environments
- Rigid aluminum IP31 housing, excellent heat dispersion, redundant power, DIN rail/wall mount installation
- RoHS2 compliant under CE
- IPv6 support

### PRODUCT DESCRIPTION

The RocketLinx ES8510 is a managed Industrial Ethernet Switch, equipped with seven 10/100TX ports and three 10/100/1000 RJ-45/100-FX/Gigabit SX/LX combo ports. Two Gigabit ports may be used to form a non-stop Redundant Ring while the third Gigabit port enables connection to an upper switch, couple ring or public server. The Gigabit combo port design provides flexibility to choose copper or fiber media supporting 100BASE-FX or 1000BASE-X, Multi-Mode or Single-Mode for a wide variety of distance and installation requirements.

The RocketLinx ES8510 is housed in a rugged aluminum enclosure that features an excellent heat dispersing mechanical design and extended operating temperature support. The embedded software supports full Layer 2 management features, multi-form ring redundancy, network control, monitoring, security and notification. The RocketLinx ES8510 also provides a built-in watchdog timer and digital input and relay output to avoid undetected problems. This switch provides the perfect foundation for building your industrial Ethernet infrastructure.

#### Three Gigabit Ports for Flexible Network Planning

A unique feature to the RocketLinx ES8510 is the three Gigabit RJ45/SFP combo ports, which can improve performance dramatically compared to products with only two Gigabit RJ45/SFP combos. Each combo comes with a flexible connection -- 100Mbps or 1000Mbps, as well as fiber or copper connection options. All together, as many as 10 different combinations of port connections are possible. By selecting the appropriate fiber transceivers, the RocketLinxES8510 can meet your industrial application requirements with virtually any transmission distance.

#### 100/1000Mbps SFP

The RocketLinx ES8510 SFP socket supports 100BASE-FX Single/Multi-Mode and 1000BASE-SX/LX/LHX/XD Single/Multi-Mode transceivers. The available distance of the 100BASE-FX is up to 30KM. 1000BASE-SX Multi-Mode supports 550M, 1000BASE-LX Single-Mode supports 10KM, 1000BASE-LHX Single-Mode supports 30KM, 1000BASE-XD Single-Mode supports up to 50KM. 1000BASE-ZX Single-Mode supports up to 70KM.



## HARDWARE

### Network Interfaces

10/100BASE-TX; 10/100/1000BASE-TX or 100BASE-FX and 1000BASE-SX/LX/LHX/XD/ZX Gigabit Fiber

### Connector Types

RJ45, SFP

### Enclosure

IP31 grade aluminum metal case

### Installation Method

DIN rail, wall mount

### LED Indicators

Power 1, Power 2, Ring Master (R.M.); 10/100BASE-TX link/activity 10/100BASE-TX Full-Duplex/Collision; Gigabit Copper/SFP link/activity; Digital Input 1 & 2, Digital Output 1 & 2

### Digital Input (DI)

Two Digital Inputs, 4-Pin screw terminal block

### Digital Output

Two Digital Outputs (Dry Relay Output), 4-Pin screw terminal block

### Serial Console Port

One RJ45 RS-232 (TXD, RXD, Signal GND), Baud Rate:

9600bps	
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

### Dimensions

5.0" x 6.3" x 3.7"  
12.7 x 16 x 9.4 cm

### Product Weight

2.63 lb  
1.19 kg

## ETHERNET SPECIFICATIONS

### Number of Ports

10

7 Standard fast Ethernet and 3 combo RJ45/SFP Gigabit Ethernet

### RJ45

10/100/BASE-TX, auto MDI/MDIX, auto-negotiation (Speed/Duplex Mode) 10/100/1000BASE-TX, auto MDI/MDIX, auto negotiation (speed/duplex mode)

### SFP (Optional)

100BASE-FX Fiber, 1000BASE-SX/LX, auto MDI/MDIX, auto negotiation (speed/duplex mode)

### Cable Types

Cat 3, Cat 4, Cat 5, Cat 5e (UTP or STP)

### Link Distances

RJ45: 100 Meters  
SFP: depends on model: Single-Mode: 30KM, Multi-Mode: 2KM

### Port Alarm Relay

Yes

### Standards

IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)  
IEEE 802.1D-2004: Rapid Spanning Tree Protocol (RSTP)  
IEEE802.1p: Class of Service  
IEEE 802.1Q: VLAN Tagging and GVRP  
IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)  
IEEE 802.1X: Port Based Network Access Control  
IEEE 802.3: 10BASE-T  
IEEE 802.3ad: Link Aggregation Control Protocol (LACP)  
IEEE 802.3u: 100BASE-TX, 100BASE-FX  
IEEE 802.3x: Flow Control and Back-Pressure

### Internet Protocol

IPv4 and IPv6

## MANAGEMENT FEATURES

### Configuration Management

Out-band management: console port with Command Line Interface (CLI) - similar to Cisco CLI, in-band management: NetVision (Windows application), web interface (HTTP/HTTPS) or a Telnet/SSH console with CLI

### Embedded Watchdog

Embedded hardware watchdog timer automatically resets system if switch system failure occurs

### System Upgrade/Backup

TFTP/Web interface for firmware upgrade and configuration backup/restore

### SNMP

V1, V2c, V3 with SNMP trap function, up to four trap stations

### SNMP MIB

MIB-II, Bridge MIB, VLAN MIB, IGMP MIB, Ethernet-like MIB, Control private MIB, and RMON

### Email Warning

Automatic warning, up to four accounts by pre-defined events

### System Log

Supports both local mode and server mode

### DHCP

DHCP client, DHCP server with IP and MAC address binding and DHCP

## NETWORK PERFORMANCE

### Back Pressure

IEEE 802.3x: 10/100Mbps Half-Duplex Only

### Class of Service (CoS)

IEEE 802.1p: 4 priority level (0-7), queue ID (0-3)

### Flow Control Pause Frame

IEEE 802.3x: 10/100Mbps Full-Duplex

### IGMP Snooping

V1/V2/V3 for multicast filtering and IGMP Query V1/V2; supports unknown multicasting, processes forwarding policies: drop, flooding and forward to router port, 256 IGMP multicast groups

### IP Security

Assign authorized IP addresses to specific port, 10 max/port

### Time Synchronization

Supports NTP protocol with daylight saving function, and localized time sync function

### Port-Based Network Access Control

IEEE 802.1X with RADIUS control, supports user authentication by the RADIUS account, password and key for RADIUS server authentication, Supports TACACS+

### Port Configuration

Port link speed, link mode, port status, enable/disable

### Port Mirroring

Online traffic monitoring on multiple selected ports

### Port Security

Assign authorized MAC addresses to specific port, 10 max/port

### Port Trunk

IEEE 802.3ad LACP with timer and static port trunk; trunk member up to 8 ports and maximum 5 trunk groups

### Private VLAN

Direct client ports in isolated/community VLAN to promiscuous port in primary VLAN

### Rate Control

Ingress filtering for broadcast, multicast, unknown DA or all packets. Egress filtering for all packet types

### Switch Technology

32Gbps switch fabric store and forward switch technology, 8K MAC address

### System Throughput

10Mbps	14,880pps
100Mbps	148,880pps
Gigabit Ethernet	1,488,100pps
	64 byte packet size

### Transfer Packet Size

64 bytes to 1522 bytes (includes VLAN tag)

### Packet Buffer

1Mbits shared memory

### Traffic Prioritization (QoS)

Supports 4 physical queues, weighted Round Robin queuing (WRR 8:4:2:1) and strict priority scheme (IEEE 802.1p CoS tag and IPv4 ToS/diffserv information) to prioritize industrial network traffic

### VLAN

IEEE 802.1Q: tag VLAN with 256 (Max) VLAN entries, 2K GVRP entries; 3 VLAN link modes (trunk, hybrid, and link access)

### Modbus TCP/IP

CLI support for Modbus TCP/IP communications with Function Code 4 (factory automation). Operates as slave/server device, while a typical master/client device is a host computer running appropriate through Ethernet. The Modbus TCP/IP master can read or write to the Modbus registers provided by the Modbus TCP/IP application software (SCADA / HMI System)

## NETWORK REDUNDANCY

### Rapid Spanning Tree Protocol

IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP): Compatible with legacy STP and IEEE 802.1w

### Multiple Spanning Tree Protocol

IEEE 802.1s MSTP: each MSTP instance can include one or more VLANs and supports multiple RSTPs deployed in a VLAN or multiple VLANs

### Redundant Ring Technology

Failure Recovery within 5ms

### Rapid Dual Homing

Multiple uplink paths to upper switches

### Ring Trunking

Integrates port aggregate function in ring path to get higher throughput ring architecture

### Multiple Ring

Couple or multiples of up to 16 rings, supports up to 5 fast Ethernet rings/switch

## ELECTRICAL SPECIFICATIONS

### Device

DC Input Voltage (positive or negative)  
12-48 VDC  
Current Consumption (24VDC)  
0.8A  
Power Consumption (Max)  
20W

### Number of Power Connectors

1

### Power Connector Type

4-Pin screw terminal block

### Power Input Redundancy

Dual redundant inputs

### Reverse Polarity Protection

Yes

### Digital Input

2 with photo optical isolation

Logic Low (0)

Logic High (1)

0 to 10VDC

11 to 30VDC

### Digital Output (Relay Output)

DC Input Voltage

24VDC

Current Consumption (24VDC)

1A Maximum

## ENVIRONMENTAL SPECIFICATIONS

### Air Temperature

System On -20° to 70° C

System Off -40° to 85° C

### Operating Humidity

Non-condensing 5% to 95%

### MTBF (Mean Time Between Failures)

28.53 years

## EXPORT INFORMATION

### Packaged Shipping Weight

3.9 lbs

### Package Dimensions

1.77 kg

11.3" x 5.5" x 9.1"

28.7 x 13.97 x 23.11 cm

### UPC Code

7-56727-32060-9

### ECCN

5A992

### Schedule B Number

8517.62.0050

## REGULATORY APPROVALS

### Emissions

Canadian EMC Requirements

ICES-003

European Standard EN55022

EN61000-6-4

CISPR 22

FCC Part 15 Subpart B

Class A limit

### Immunity

European Standard EN55024

IEC 61000-6-2:

IEC 1000-4-2/EN61000-4-2: ESD

IEC 1000-4-3/EN61000-4-3: RF

IEC 1000-4-4/EN61000-4-4: Fast Transient

IEC 1000-4-5/EN61000-4-5: Surge

IEC 1000-4-6/EN61000-4-6: Conducted Disturbance

IEC 1000-4-8/EN61000-4-8: Magnetic Field

IEC 1000-4-11/EN61000-4-11: Dips and Voltage Variations

### Safety

IEC 60950/EN60950 (LISTED)

CSA C22.2 No. 60950/UL60950 Third Edition

### Shock

IEC 60068-2-27

### Vibration

IEC 60068-2-6

### Free Fall

IEC 60068-2-32

### Hi-Pot

AC 1.2kV for All Ports and Power

### Regulatory Approvals

European Standard: 2002/95/EC Directive (RoHS2)

### Other Regulatory Approvals



## Warranty Information

Control offers a 30-day satisfaction guarantee and 5-year limited warranty.

## Sales Support

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