RocketLinx™ ES8510

Part Number: 32060-9

KEY FEATURES AND BENEFITS ::

- Multiple redundant ring (recovery time <5ms)
- 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
- 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.

ROCKETLINX SPECIFICATIONS ::

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, Comtrol 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 authenticate by the RADIUS account, password and key for RADIUS server authentication

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)	0 to 10VDC
Logic High (1)	11 to 30VDC
Digital Output (Relay Output)	2
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 1.77 kg
Package Dimensions	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

CE c UL us LISTED

RECOMMENDED PRODUCTS ::

32101-9 PS1060, 60 Watts Industrial DIN rail power supply (24V, 60W, DIN rail)
32102-6 PS1100, 100 Watts Industrial DIN rail power supply (24V, 100W, DIN rail)
1200048 48VDC external power adapter, bare wires (48VDC, 120W, 2-wire)