

## RocketLinx® ES8508F-S-XT

Part Number: 32011-1 (Single-Mode)

## RocketLinx® ES8508F-M-XT

Part Number: 32012-8 (Multi-Mode)



### KEY FEATURES AND BENEFITS

- Six 10/100BASE-TX and two SC fiber ports (2KM or 30KM)
- TACACS+ Support
- Advanced Layer 2 features including: VLAN, Private VLAN, QinQ, GVRP, QoS, IGMP Snooping V1/V2/V3, rate control, port trunking, LACP, and online multiport mirroring
- 32Gbps non-blocking, 8K MAC address table
- RSTP, MSTP and redundant ring support with sub 5ms ring recovery
- Management via Web, PortVision® DX, SNMP, Telnet, and Serial Console
- Hardware watchdog timer for system reset and recovery
- Configurable multi-event alarm output
- IP31 rated rugged aluminum housing with DIN rail mounting
- Dual 10-60VDC redundant power inputs
- Wide operating temperature (-40° to 75°C)
- IPv6 support
- NEMA TS2 certified
- EN50121-4 EMC and IEC 61373 vibration standards for railway applications



### PRODUCT DESCRIPTION

The RocketLinx ES8508F-XT is an industrial-grade managed 8-port switch with built-in fiber ports that features advanced Layer 2 management, security, and system reliability for deployment in extreme and mission critical networking applications.

The ES8508F-XT design incorporates the latest managed switch technologies to ensure reliable, high-bandwidth data

communications including a 32Gbps switch fabric for real-time non-blocking data transmission, redundant network topology supporting ring, RSTP and MSTP, and a high performance ARM9 processor with an embedded hardware watchdog timer. These features combined with a rugged IP-31 grade housing and extended operating temperature guarantee performance and stability for traffic, rail, and other demanding applications.

# ROCKETLINX SPECIFICATIONS

## HARDWARE

### Network Interface

10/100BASE-TX, 100BASE-FX Single and Multi-Mode

**Connector Type** RJ45  
Duplex SC

### Enclosure

IP31 grade aluminum metal case  
Drop-waterproof and dustproof

**Installation Method** DIN rail

### LED Indicators

Power 1, power 2, system status ring, digital input,  
digital output RJ45 link/activity

### Digital Input (DI)

One DI, 4-pin screw terminal block

### Digital Output (DO)

One DO (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** 5.2" x 5.9" x 2.15"  
132 x 150 x 55 mm

**Product Weight** 2 lbs  
.91 kg

## ETHERNET SPECIFICATIONS

### Number of Ports

6 – 10/100BASE-TX  
2 – 100BASE-FX (Single and Multi-Mode)

### RJ45 (Standard)

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

### Cable Types

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

### Optical Fiber

Fiber Cable Type (Single-Mode)	8-10/125um
Fiber Cable Type (Multi-Mode)	50-62.5/125um
<b>Wavelength</b>	1310nm
<b>Transmit Power (Min)</b>	-15dBm (Single-Mode) -20dBm (Multi-Mode)
<b>Transmit Power (Max)</b>	-8dBm (Single-Mode) -14dBm (Multi-Mode)
<b>Receive Sensitivity (Min)</b>	-34dBm (Single-Mode) -31dBm (Multi-Mode)
<b>Receive Sensitivity (Max)</b>	0dBm
<b>Link Budget</b>	19dB (Single-Mode) 11dB (Multi-Mode)

### Link Distance

RJ45	100 meters
Fiber	30KM (Single-Mode) 2KM (Multi-Mode)

**Port Alarm Relay** Yes

### Standards

IEEE802.1AB: Link Layer Discovery Protocol (LLDP)  
IEEE802.1D-2004: Rapid Spanning Tree Protocol (RSTP)  
IEEE802.1p: Class of Service  
IEEE802.1Q VLAN Tagging and GVRP  
IEEE802.1s: Multiple Spanning Tree Protocol (MSTP)  
IEEE802.1x: Port Based Network Access Control  
IEEE802.3: 10BASE-T  
IEEE802.3ad: Link Aggregation Control Protocol (LACP)  
IEEE802.3u: 100BASE-TX  
IEEE802.3x: Flow Control and Back-Pressure  
IEEE1588: Precision Time Protocol (PTP)

### Internet Protocol

IPv4 and IPv6

## MANAGEMENT FEATURES

### Configuration Management

NetVision  
Out-band management: console port with command line  
interface (CLI) - similar to Cisco CLI, in-band management:  
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

Provides 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 agent (option 82)

## NETWORK PERFORMANCE

### Back-Pressure

IEEE 802.3x 10/100Mbps half-duplex only

### Class of Service (CoS)

IEEE 802.1p 4 priority queues/port

### 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 IEEE 1588 (precision time protocol), NTP  
protocol with daylight saving function, and localized  
time sync function

### 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 4 ports and maximum 4 trunk groups

### Port-Based Network Access Control

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

### 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/forward switch technology, 8K  
MAC address

### System Throughput

26 mega packets/second, 64 byte packet size,  
14,880pps (10Mbps); 148,800pps (100Mbps)

### Transfer Packet Size

64 bytes to 1522 bytes (includes 1522 bytes 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,  
which follows 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  
and 2K GVRP entries; 3 VLAN link modes: trunk, hybrid,  
and link access

### Modbus TCP/IP

Supports Modbus TCP/IP communications with function  
code 4 for factory automation through the CLI, operates  
as slave/server device, while a typical master/client  
device is a host computer running appropriate through  
Ethernet, thus 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 802.1

### Multiple Spanning Tree Protocol

IEEE 802.1s MSTP, each MSTP instance can include one  
or more VLANs and supports multiple RSTP 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 Rapid Super  
Rings, Supports Up to 4 Fast Ethernet Rings/Switch

## ELECTRICAL SPECIFICATIONS

### Device

DC Input Voltage (Positive or Negative)	10 – 60VDC
Current Consumption (24VDC)	625mA
Power Consumption (Max)	15W
<b>Number of Power Connectors</b>	2
<b>Power Connector Type</b>	4-Pin Screw Terminal Block
<b>Power Input Redundancy</b>	Dual Redundant Inputs
<b>Reverse Polarity Protection</b>	Yes
<b>Digital Input</b>	1 with Photo Optical Isolation
Logic Low (0)	0 to 10VDC
Logic High (1)	11 to 30VDC
<b>Digital Output (Relay Output)</b>	1
DC Input Voltage	24VDC
Current Consumption (24VDC)	1A Maximum
<b>Multi-Event Relay Feature</b>	Power, Port Link, DI/Ring Status Change, Ping Reset, or Perform Routing Relay On/Off Function

## ENVIRONMENTAL SPECIFICATIONS

### Air Temperature

System On	-40° to 75°C
System Off	-40° to 75°C

### Operating Humidity

(Non-condensing) 5% to 95%

### MTBF

(Mean Time Between Failures) 75.4 years

## EXPORT INFORMATION

### Package Shipping Weight

2.77lbs
1.26kg
9 13/16" x 8 5/16" x 4 1/8"
24.9cm x 21.1cm x 10.5cm

### Package Dimensions

### UPC Code

Single-Mode	7-56727-32011-1
Multi-Mode	7-56727-32012-8
ECCN	5A991
<b>Schedule B Number</b>	8517.62.0050

## REGULATORY STANDARDS

### Emission

Canadian EMC Requirements  
ICES-003  
European Standard EN55022  
CISPR 22  
FCC Part 15 Subpart B  
Class A Limit  
Heavy Industrial  
IEC 1000-6-4/EN61000-4-9: Pulse Magnetic Field

### Immunity

Heavy Industrial IEC/EN 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/ Burst  
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

### Railway EMC

EN 50121-4: Signaling and Telecommunications Apparatus  
EN 50121-1: Rolling Stock. Train and Complete Vehicle

### Hi-Pot

AC 1.5KV for all ports and power

### Other Regulatory Approvals

Traffic NEMA TS2 Certified  
Railway Vibration/Shock:  
IEC 61373  
Free Fall with Package:  
IEC 60068-2-32  
RoHS2 compliant



## Warranty Information

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

## Sales Support

+1.763.957.6000  
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## Technical Support

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