RocketLinx® ES8520-XT

Part Number: 32142-2

KEY FEATURES AND BENEFITS

- 16 10/100Base-TX Ethernet ports
- 4 Gigabit RJ45/SFP combo ports
- 1000Mbps Optical Fiber Connection
- 11.2Gbps Non-Blocking, High Speed Network Switching Fabric
- 1.5Mbytes shared memory for packet buffering
- 9Kbytes Jumbo Frame for large data transmission
- Network Redundancy - Redundant Ring, ITU-T G.8032 ERPS, RSTP, MSTP Super Chain
- Full Device Management - SNMP v1/v2c/v3, RMON, Web UI, Telnet and Local Console, PortVision DX
- Advanced Network Security - MAC security, IEEE 802.1x Port Based access control, IEEE 802.1x Radius Server authentication
- Layer 2 Network Performance - IEEE802.1Q VLAN, Private VLAN, Trunk, Traffic Filtering, DHCP Server/Client, Traffic Prioritize, Forwarding Rate Control
- Layer 2 plus Packet Filtering - MAC based, of TCP/UDP, ICMP
- Real Hardware Watchdog compliant
- Multiple Event Dry Relay Output alarm, Digital Input
- High Level Electromagnetic interference immunity
- Compliance with Heavy Industrial EMC, Track Side EMC
- NEMA TS2 compliant
- Wide Operating Temperature -40 to 75 C

ROCKETLINX SPECIFICATIONS

HARDWARE

Network Interfaces
Gigabit fiber (SX/LX/LHX/XD/ZX)

Connector Type
16 - RJ45
4 - RJ45/SFP Combo

Ingress Protection
IP30

Enclosure
Sheet Metal Aluminum Case

Installation Method
EN50022 DIN Rail

LED Indicators
Power (PWR1 and PWR2) System Status (SYS)
Ring Signal (RS), Digital Input (DI), Digital Output (DO)
RJ45 Link/Activity and Link Speed
SFP Port Link/Activity and Link Speed

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: 115200 bps
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

Dimensions
Without DIN Rail Clip
6.3" (H) x 4.25" (W) x 5.0" (D)
160 (H) x 108 (W) x 127 (D) mm
With DIN Rail Clip
6.3" (H) x 4.25" (W) x 5.35" (D)
160 (H) x 108 (W) x 136 (D) mm

Packet Buffer Memory
1.5Mbytes Shared Memory

Switch Technology
11.2Gbps Non-Blocking Switch Fabric
Store/Forward Switch Technology
16K MAC Address

System Throughput•
26 Mega Packets/Second
64 byte Packet Size, 14,880pps
10Mbps; 148,800pps
100Mbps; 1,488,100pps
1000Mbps, Max Packet Size 1632

Product Weight
4.2 lbs
1.871 kg

ETHERNET SPECIFICATIONS

Number of Ports
16 - RJ45 and 4 - Combo (RJ45/SFP)

RJ45
10/100BASE-TX (Ports 1-16)
10/100/1000-BASE-TX (Ports 17-20)
Auto MDI/MDIX
Auto-Negotiation (Speed/Duplex Mode)

SFP (Optional)
1000BASE Single-Mode, Multi-Mode, and BIDI/WDM Single-Mode
Auto MDI/MDIX
Auto-Negotiation (Speed/Duplex Mode)
Hot-swappable
Digital Diagnostic Monitoring (DDM)
Auto-recognition functionality

Cable Types
Cat 5, Cat 5e, Cat6 (UTP or STP)

Link Distances
RJ45: 100 Meters
SFP: Single-Mode: 30KM, Multi-Mode: 2KM

Port Alarm Relay
Yes

Transfer Packet Size
64 bytes to 9712 bytes (excludes Tag)

Standards
IEEE 802.3u: 10BASE-T Ethernet
IEEE 802.3u: 100BASE-TX Fast Ethernet
IEEE 802.3z: Gigabit Ethernet Fiber
IEEE 802.3ab: 1000BASE-T Gigabit Ethernet Copper
IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
IEEE 802.1D-2004: Rapid Spanning Tree Protocol (RSTP)
IEEE 802.1p: Class of Service
IEEE 802.1Q: VLAN Tagging, GVRP, and Double Tag VLAN
IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1X: Port Based Network Access Control
IEEE 802.3ad: Port Trunking with Link Aggregation Control Protocol (LACP)
IEEE 802.3x: Flow Control and Back-Pressure
ITU-T G.8032 ERPS v1/v2: Ethernet Ring Protection Switching

Internet Protocol
IPv4, IPv6 ready

MANAGEMENT FEATURES

Configuration and Monitoring
In-Band Management: Web Interface with SSL (HTTP/HTTPS) or a Telnet with SSH, IPV4/IPV6 SNMP V1/V2cV3 with SNMP Trap (4 Trap Stations), RMON Groups 1,2,3, and 9
Out-Band Management: Local RS-232/RJ45 Console Port with Command Line Interface (CLI) - Similar to Cisco CLI

Embedded Watchdog
Embedded Hardware Watchdog Timer (10 sec) 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, 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

Management Utility
PortVision DX: configure network settings, upload firmware, manage, and monitor Comtrol Ethernet-attached devices

NETWORK REDUNDANCY

Loop Protection
Layer 2 loop prevention through the STP, RSTP, and MSTP
Increases the efficiency of STP, RSTP, and MSTP by preventing ports from moving into a forwarding state that would result in a loop in the network

Rapid Spanning Tree Protocol (RSTP)
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
Supports Multiple RSTP Deployed in a VLAN or Multiple VLANs

Redundant Ring Technology
Failure Recovery within 20ms
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 10 Rapid Super Rings in One Device, Supports Up to Eight 100M and Two Gigabit Rings in One Switch
Super-Chain: Flexible and scalable, compatible, and easy to configure. The Ring Includes Two Types of Node Switches: Border Switch and Member Switch.

NETWORK PERFORMANCE

Access Control List
Permit/Deny access control lists

Back-Pressure
IEEE 802.3x: 1000Mbps Half-Duplex Only

Class of Service (CoS)
IEEE 802.1p: 8 priority queues/port

DHCP
DHCP Client/Server with IP and MAC Address Binding
Port-Based DHCP Server Configuration
DHCP Relay Agent (Option 82)
DHCP Server with Static Port-Based IP Assigned Function

Flow Control Pause Frame
IEEE 802.3x: 10/100/1000Mbps Full-Duplex

GMRP
GARP multicast registration protocol

IEEE
802.1adDouble-Tag for Private VLAN Access

IGMP Snooping
V1/V2c/V3 for multicast filtering and IGMP query V1/V2;
Supports unknown multicasting, Processes Forwarding Policies: Drop, Flooding and Forward to Router Port

IP Security
Assign Authorized IP Addresses to Specific Port, 10 Max/Port

LLDP
Link Layer Discovery Protocol - Advertizes System and Port Identity Capability on the Local Network

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).

Port Based Network Access Control/EAP IEEE
802.1X: Port-Based network Access Control with EPoL (Extensible Authentication Protocol over LAN) to Permit or Deny Interface Access with Remote 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/Link Aggregation
IEEE 802.3ad LACP – Port Aggregation and Static Port Trunk
Trunk Member Up to 8 Ports
Maximum of 10 Trunk Groups Including Gigabit Ethernet Ports

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

Time Synchronization
NTP protocol with Daylight Saving Function and Localize Time Sync Function.

Traffic Prioritization (QoS)
8 Physical Queues
Weighted Fair Queuing (WRR) or Strict Priority Scheme, which Follows 802.1p COS tag ID and IPv4 ToS/ Diffserv Information to Prioritize Industrial Network Traffic

Transfer Performance (Max)
14,880pps - 10Mbps; 148,800pps - 100Mbps; 1,488,100pps – 1000Mbps

VLAN (Max)
IEEE 802.1Q Tag VLAN with 4K (Max) VLAN Entries and 2K GVRP Entries; 3 VLAN Link Modes: Trunk, Hybrid, and Link Access
IEEE802.1 QinQ Supports Double VLAN Tag Function for Implementing Metro Network Topologies

ELECTRICAL SPECIFICATIONS

Device
DC Input Voltage Power Consumption
9.6 to 60VDC (Positive or Negative As Long As Both Power Supplies Are In the Same Mode)
10W @ 12VDC
11W @ 24VDC
14W @ 48VDC
16W @ 60VDC

Power Connector
1

Power Connector Type
4-Pin Screw Terminal Block

Power Input Redundancy
Dual redundant inputs

Reverse Polarity Protection
Yes

Digital Input
1 with photo optical isolation
Logic Low (0) 0 to 10VDC
Logic High (1) 11 to 30VDC

Digital Output (Relay Output)
1
DC Input Voltage
30VDC
Current Consumption
(24VDC) 1A maximum

Multi-Event Relay Feature
Power
Port Link
DI/Ring Status Change
Ping Reset
Perform Routing Relay On/Off Function

ENVIRONMENTAL SPECIFICATIONS

Air Temperature
System On — -40° to 75°C
System Off — -40° to 80°C

Operating Humidity
Non-condensing — 0% to 90%

MTBF (Mean Time Between Failures)
28.53 Years

EXPORT INFORMATION

Packaged Shipping Weight
5.2 lb
236g

Package Dimensions
11.2" x 5.6" x 8.98"
285 mm x 143 mm x 228 mm

UPC Code
7-56727-32142-2

ECCN
5A991

Schedule B Number
8517.62.0050

REGULATORY APPROVALS

Emissions
European Standard EN55022
Canadian EMC Requirements - ICES-003
CISPR 22
FCC Part 15 Subpart B
Class A limit

Immunity
European Standard EN55024
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
IEC 1000-4-9/EN61000-4-9: Pulse Magnetic Field

Safety
IEC 60950/EN60950 (LISTED)
CSA C22.2 No. 60950/UL60950 Third Edition

Vibration
IEC60068-2-6: 10-150Hz, 20m/S2, 20 Sweeps/Axis

Shock
IEC 60068-2-27: 50gn,18ms,Half-Sine wave

Free Fall
IEC 60068-2-32: 1 corner, 3 lines, 6 faces

Other
European Standard: 2002/95/EC Directive (RoHS)
NEMA TS2 Compliant
EN50121-4 Railway Track Side

Regulatory Approvals

CE · UL us LISTED · RoHS · FC