

## RocketLinx® ES9528

Part Number: 32070-8



### KEY FEATURES AND BENEFITS

- 28-port managed switch featuring 10/100-TX and 4-port Gigabit RJ45/SFP combo (10/100/1000BASE-TX, 1000BASE-X)
- 12.8Gbps switch fabric
- 8K MAC address table
- Supports jumbo frame up to 9,216 bytes
- Max 12 x 100M rings and 2 gigabit rings aggregation capabilities
- VLAN, Private VLAN, QinQ, 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 features support IP security, port security, DHCP server, IP and MAC binding, 802.1x network access control
- 802.1s MSTP, RSTP and ring and multiple ring for redundant network topologies
- Event notification by e-mail, SNMP trap, syslog
- -25° to +70°C operating temperature for extreme environments

### PRODUCT DESCRIPTION

The RocketLinx ES9528 is a Layer 2 managed Industrial Ethernet switch, equipped with 24 10/100BASE-TX ports and four gigabit RJ45/GBIC combo ports. The four gigabit combo port design allows 10/100/1000 triple speed, and the SFP ports accept all types of Gigabit SFP transceivers, including SX, LX, LHX, ZX and XD for a variety of connections and distances. It is specially designed for control rooms and applications where high-port density and performance are required.

The ES9528 is typically mounted within a 19-inch rack, along with other 19-inch public servers or other network devices. When lower industrial switches are aggregated to the ES9528, the 24 port plus 4G design allows the connection of up to 12 100M rings plus two Gigabit rings - each having its own ring redundancy protection.

The RocketLinx ES9528 is a fan-less rackmount switch with low-power consumption and supports a wide operating temperature. It supports Jumbo Frame featuring up to 9,216 bytes packet size for large file transmissions.

The embedded software supports full Layer 2 management features, multi-form ring redundancy, network control, monitoring, security and notification. The RocketLinx ES9528 provides the perfect foundation for building your industrial Ethernet infrastructure.

# ROCKETLINX SPECIFICATIONS

## HARDWARE

### Interface Specification

10/100/1000BASE-TX  
1000BASE-SX/LX/LHX/XD/ZX Gigabit Fiber

### Connector Type

24 - RJ45  
4 - RJ45/SFP Combo

### Enclosure

Black Finished Steel

### Installation Method

19-inch, 1U Rack Mount

### LED Indicators

Power, Ring Master(R,M)  
10/100BASE-TX Link/Activity  
10/100BASE-TX Full/Half Duplex  
Gigabit Copper Link/Activity, Duplex  
Gigabit SFP Link/Activity

### Serial Console Port

One DB9 RS-232 (TXD, RXD, Signal GND), Baud Rate:  
9600bps, Data Bits: 8, Parity: None, Stop Bits: 1, Flow  
Control: None

### Dimensions

17.2" x 6.7" x 1.7"  
440 x 170 x 44 mm

### Product Weight

3.7 lbs  
1.68 kg

## ETHERNET SPECIFICATIONS

### Number of Ports

28 Total: 24 - RJ45 and 4 - Combo (RJ45/SFP)

### RJ45

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

### SFP (Optional)

1000BASE-SX/LX/LHX/XD/ZX, Auto MDI/MDIX, auto-  
negotiation (Speed/Duplex Mode)

### Cable Types

Cat 3, Cat 4, Cat 5, Cat 5e, Cat 6 (UTP or STP)

### Link Distances

RJ45: 100 Meters  
SFP: (Depends on model: Single-Mode: 30KM, Multi-Mode:  
2KM)

### Transfer Packet Size

64 bytes to 1536 bytes

### Jumbo Frame Enabled

Up to 9216 bytes

### Standards

IEEE 802.1: AB Link Layer Discovery Protocol  
IEEE 802.1D: Rapid Spanning Tree Protocol (RSTP)  
IEEE 802.1p: Class of Service  
IEEE 802.1Q: VLAN Tagging and GVRP  
IEEE 802.1QinQ  
IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)  
IEEE 802.1X: Port Based Network Access Control  
IEEE 802.3: 10BASE-T  
IEEE 802.3ab: 1000BASE-TX  
IEEE 802.3ad: Port Trunk with Link Aggregation Control  
Protocol (LACP)  
IEEE 802.3u: 100BASE-TX  
IEEE 802.3x: Flow Control and Back-Pressure  
IEEE 802.3z: Gigabit Ethernet Fiber  
IEEE 1588: Precision Time Protocol (PTP)

### Internet Protocol

IPv4 and IPv6

## MANAGEMENT FEATURES

### Configuration and Monitoring

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

### Alarm

Email warning by pre-defined events

### System Log

Supports both local mode and server mode

### DHCP

DHCP client, DHCP server with IP and MAC address  
binding, port-based DHCP server configuration and DHCP  
relay agent (Option 82)

## 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: 4 priority queues/port

### Flow Control Pause Frame

IEEE 802.3x: 10/100/1000Mbps Full-Duplex

### GMRP

GARP multicast registration protocol

### 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

### IP Security

ACL support for IP addresses to specific port, filter rule  
(ACL) supports up to 200 rules

### LLDP

Provides 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).

### Packet Buffer Memory

2Mbits

### Port-Based Network Access Control

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, filter  
rule (ACL) supports up to 200 rules

### Port Trunk

IEEE 802.3ad LACP with timer and static port trunk; Trunk  
member up to 8 ports and maximum 8 trunk groups  
including gigabit Ethernet ports

### Private VLAN

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

### RADIUS

Login with RADIUS account/password, key for RADIUS  
server authentication

### Rate Control

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

### Switch Technology

12.8Gbps switch fabric, Store/Forward switch technology,  
8K MAC address

### System Throughput

14,880pps - 10Mbps; 148,800pps - 100Mbps;  
1,488,100pps - 1000Mbps

### Time Synchronization

Supports IEEE 1588  
NTP protocol with Daylight Saving function and Localize  
Time Sync function

### Traffic Prioritization (QoS)

Supports 4 physical queues, weighted Round Robin  
Queueing (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. IEEE 802.1QinQ supports Double VLAN Tag  
function for implementing metro network topologies

## NETWORK REDUNDANCY

### 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

### Redundant Ring Technology

Failure Recovery within 0-100ms  
Rapid Dual Homing: Multiple uplink paths to upper  
switches

Ring Trunking: Integrates Port Aggregate Function in ring  
path to get higher Throughput Ring  
Multiple Ring: Couple or Multiples of up to 14 Rapid Super  
Rings, Supports up to 12 x 100M rings plus 2 Gigabit  
Rings

## ELECTRICAL SPECIFICATIONS

### Device

AC Input Voltage 90-264VAC  
Power Consumption (maximum) 20W

### Power Connector

Power Connector Type  
IEC320-C14 connector

## ENVIRONMENTAL SPECIFICATIONS

### Air Temperature

System On -25° to 70°C  
System Off -40° to 85°C

### Operating Humidity

Non-condensing 5% to 95%

### MTBF (Mean Time Between Failures)

24.98 Years

## EXPORT INFORMATION

### Package Shipping Weight

5.9 lbs  
2.7 kg

### Package Dimensions

19.8" x 3.5" x 1.7"  
50.29 x 8.89 x 30.48 cm

### UPC Code

7-56727-32070-8

### ECCN

5A992

### Schedule B Number

8517.62.0050

## REGULATORY APPROVALS

### Emissions

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

### Immunity

European Standard EN55024  
IEC 1000-4-2/EN61000-4-2: Electrostatic Discharge (ESD)  
IEC 1000-4-3/EN61000-4-3: Radiated, Radio-Frequency  
(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 1000-4-11/EN61000-4-11: Dips and Voltage Variations

### Safety

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

### Vibration

IEC60068-2-6

### Shock

IEC60068-2-27

### Free Fall

IEC60068-2-32

### Other

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



### Warranty Information

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

### Sales Support

+1.763.957.6000  
sales@comtrol.com

### Technical Support

+1.763.957.6000  
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### Email, FTP, and Web Support

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