COMTROL®

ETHERNET SWITCH

# 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
- Rack mount installation, low-power
- RoHS2 compliant under CE
- IPv6 support

## 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 typcially 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**
10/100/100BASE-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 Procol (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 telent/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, Comtrol 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**
Assign authorized 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 802.1 QinQ supports Double VLAN Tag funtion 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** 1
**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

**Packaged Shipping Weight** 5.9 lbs
2.7 kg
**Package Dimensions** 19.8" x 3.5" x 12"
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**

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## RECOMMENDED PRODUCTS::

**1200059** SFP, Multi-Mode, 550M 1000BASE-GSX (Extended Temperature)

**1200060** SFP, Single-Mode, 10KM 1000BASE-GLX (Extended Temperature)

COMTROL®

**Warranty Information**
Comtrol offers a 30-day satisfaction guarantee and 5-year limited warranty.

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