broadcast

energy

government

hospitality

industrial

medical

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transportation

find your industrial device communication solution

product catalog

COMTROL®

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COMTROL®

> “As an expert device connectivity manufacturer and provider of networking products, we provide more than just product capabilities – we are committed to our customers’ objectives”

Who We Are

Comtrol Corporation is an expert device connectivity manufacturer and provider of networking products, specializing in industrial Ethernet gateways and intelligent embedded device connectivity products. These products support a wide range of enterprise, industrial, security, power utility, and traffic automation applications. The company’s RocketPort ® multiport serial cards, DeviceMaster ® Ethernet device servers, and RocketLinx™ industrial Ethernet and Power over Ethernet switch product lines are sold through regional, national, and international distributors and by thousands of resellers and integrators worldwide.

Our Vision

Comtrol believes that each device connectivity product is the result of exceptional engineering, close collaboration with customers, outstanding vertical market sales and powerful domestic and international distribution channels.

Comtrol is committed to building relationships with worldwide technical and strategic partners. Our products are designed to work with the widest range of hardware and software environments to provide seamless enterprise integration.

When you need network connected devices and systems – connect with Comtrol.

Green Products

Comtrol is committed to producing environmentally sound products. Not only does this commitment include making choices like selecting recycled material packing boxes, but Comtrol has undertaken an aggressive program to provide RoHS compliant standards for the majority of the products we offer. We appreciate your business and are dedicated to working with you to provide future-conscious products.

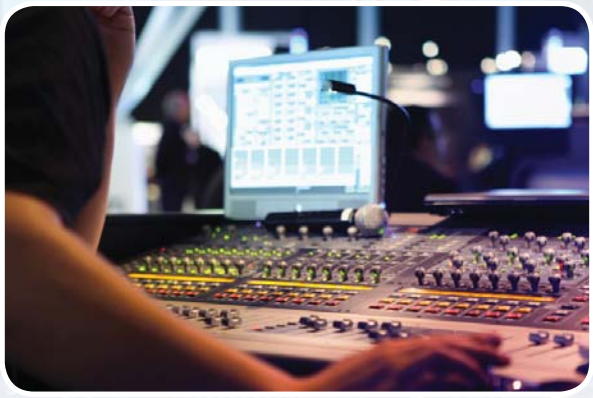
RoHS Compliant 2002/95/EC

REACH Statement

Comtrol Corporation is aware of the requirements of REACH Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006. It is our intention to comply with the requirements of this regulation as it applies to producers of Articles. We will continue to work with our suppliers to identify any SVHC components contained in the materials procured for use in manufacturing Comtrol products.

FOLLOW US ON

BROADCAST



Whether a television network displays remote live camera feeds during a newscast or a radio station needs to incorporate satellite signal communication into their broadcast, reliable connectivity is essential for the creation, control and distribution of content. The entire broadcast creation process from data-capture and compilation to editing and circulation requires reliable connectivity devices during multiple stages of production. With 30 years of experience supporting broadcast connectivity, we stand behind our products and commitment to the industry.

Comtrol's **RocketPort SMPTE** (Society of Motion Picture and Television Engineers) multiport serial card line is the most comprehensive line available for the broadcast market, providing numerous solutions to serial device connectivity challenges.

Our **DeviceMaster** serial device servers are actively involved in facilitating communication between television station locations, as well as between multiple peripheral devices within televition stations.

Satellite Control

- Collection unit maneuvering
- Satellite signal collection
- Transfer from traveling unit to control room
- Live feed and taped video collection from mobile units

Broadcast Creation

- Collect feeds from The Associated Press (news, video, audio, photo, text)
- Data-capture, share, storage, recover
- Full scale production — input, edit, timeline, broadcast
- VTR (video tape recorder) control
- Remote camera control
- Multi-studio control from master control station

Broadcast Solutions

- Media asset management
- Automation
- Creation
- Content manipulation
- Digital signage
- Hardware control and monitoring

ENERGY

Wind Farm SCADA

- Controller serial to IP network
- Redundant fiber ring
- Meter communication with Modbus

Transmission and Distribution / Substation SCADA

- Modbus RTU and IED serial connectivity
- Central station modem connectivity including DeviceMaster RTS Toggle

Oil and Gas Pipeline Monitoring and Process Control

- Flow, pressure and temperature measurement
- Valve control
- Security sensors

Oil and Gas Well Monitoring and Process Control

- Drilling fluid management
- Drill motion control

Wireless Modem Control including DeviceMaster RTS Toggle

- Communication systems and pagers
- SCADA systems

Enhanced Modbus Solutions

See DeviceMaster UP pages 25-30

Discovering innovative ways to fuel the critical processes of our businesses, infrastructures, and our lives is essential because there is a finite amount of natural resources. Harvesting energy more efficiently helps preserve natural resources while providing reliable energy. Comtrol is committed to providing high-performance and quality communication, data transmission and connectivity devices for these processes.

Our **RocketPort** multiport serial cards provide data collection and control capabilities within systems such as electricity generation, transmission and distribution.

Our **DeviceMaster** device servers are currently controlling processes in renewable energy systems, including wind power and underwater hydropower. Comtrol's DeviceMaster Modbus solutions can also provide enhanced communication and control.

Our **RocketLinx** managed and unmanaged network switches have endless capabilities to streamline data into central networks for simplified management and control in large or complex energy systems.

GOVERNMENT

Military-based operations and government-mandated projects have become increasingly complex in design and technology, requiring comprehensive solutions for system integration and management. Comtrol has provided data acquisition and communication technology solutions for thousands of successful projects in over 100 government agencies. Our products offer high performance, cost effective solutions for a variety of applications ranging from building security to airplane data capture to electronic encryption/decoding.

Comtrol's **RocketPort** serial cards provide system expansion and connectivity in applications including military biological detection systems and peripheral device connectivity onboard unmanned aerial vehicles (UAVs) and Air Force One.

Our **DeviceMaster** device servers have facilitated multiple-location data transmission, complex sensor system coordination for military simulator training systems and designed controls of unmanned vehicles (UMV) for autonomous military operations.

Our **RocketLinx** industrial managed and Power over Ethernet switches have capabilities to provide power and essential networking connectivity to vital components of complex security networks.

GSA Schedule
Contract GS-35F-0401V

Military and Government Applications

- Simulator training
- Satellite communication
- Unmanned vehicle
- Joint biological point detection system
- IP camera monitoring

GSA Schedule Information

Contract Number –GS-35F-0401V
TIN Number – 41-1598480
DUNS – 18-549-3327
CAGE Code – OU834
NAICS Code –
SIN 132-8 – 334119
SIN 132-12 – 811212
Period of Coverage – 05/01/2009 – 04/30/2014

Disadvantaged Business Enterprise

Comtrol Corporation is registered as a Disadvantaged Business Enterprise (DBE) under 49 Code of Federal Regulations Part 26 to provide the following services:

NAICS Codes:

#541512 Computer Systems Design Services
#541513 Computer Facilities Management Services
#423690 Other Electronic Parts & Equipment Merchant Wholesalers
#423430 Computer & Computer Peripheral Equipment And Software Merchant Wholesalers

HOSPITALITY

PMS Connectivity to Guest Service Devices

- Serial port expansion
- Network switches
- Serial to IP

PMS Protocol Interfacing

- PBX
- Call accounting
- Voice mail
- Room energy management
- In room entertainment
- In room internet
- Minibars
- Key cards
- POS systems

Building Security

- Access Control
- IP Surveillance Cameras
- Perimeter sensors

Guest Service Networks, Including Power Over Ethernet

- Backbone to guest WiFi
- Backbone to ZigBee

Point of Sale Systems, Serial or IP Connectivity

- Remote kitchen printers
- Cash drawer
- Modems
- Bar code readers

Comtrol's **DeviceMaster, RocketPort, RocketLinx,** and **Lodging Link®** products provide enterprise integration systems to the hospitality industry, creating integrated connectivity for multiple communication and control applications. For example, a hotel's Property Management System (PMS) and its peripheral service systems must maintain consistent contact and data transmission to accurately manage customer accounts. In addition, applications such as door access control, IP surveillance cameras, IP-based phone systems, and Wi-Fi and ZigBee access points must have reliable connectivity to the network.

Point-of-Sale (POS) systems also require reliable device connectivity to multiple peripheral systems. Peripherals may include printers, keyboards, mice, scanners and credit card readers.

Whether device connections are serial, USB, wireless, Ethernet, or a combination of those, Comtrol's products provide excellent connectivity solutions. From the DeviceMaster serial servers to the RocketPort cards and hubs, and from the RocketLinx Ethernet and Power over Ethernet switches to the Lodging Link device interfaces, the comprehensive product lines that Comtrol offers can overcome even the most complex connectivity challenges.

Comtrol's hospitality products division supplies products and technology solutions to PMS vendors, hotel management, and restaurant management for device connectivity and the integration of disparate systems. By applying Comtrol's technology toward communication challenges, leading PMS suppliers, hotels, and restaurants achieve complete integration with the most dependable device connectivity equipment on the market today.

INDUSTRIAL

Comtrol provides a wide range of industrial products. From advanced industrial protocol gateways to ruggedized power supplies, media convertors, and Ethernet switches, Comtrol can provide a solution for you.

DEVICEMASTER UP

The DeviceMaster UP provides advanced PLC to device connectivity. With its feature-rich options, the DeviceMaster UP provides EtherNet/IP, Modbus/TCP, Modbus RTU/ASCII, and PROFINET connectivity to a wide variety of devices. Easily connect your PLCs to serial and Ethernet TCP/IP devices such as barcode scanners, RFID readers, weigh scales, vision systems, printers, encoders, and sensors.

IO-LINK MASTER

IO-Link is the new standard serial digital communications protocol used for sensors and actuators in industrial automation systems. Major manufacturers of sensor technologies are joining the IO-Link consortium to promote this standard due to its many advantages over discrete IO.

Industrial Applications

- Fastening systems
- Barcode/RFID
- Robotics
- Logistics
- Oil/Gas pipelines
- Machine builders
- SCADA (System Control and Data Acquisition)
- Power generation/distribution
- Building automation
- Sensor networks
- HMI (Human-Machine Interface)
- Discrete control
- Process control
- OPC

ROCKETLINX INDUSTRIAL ETHERNET SWITCHES

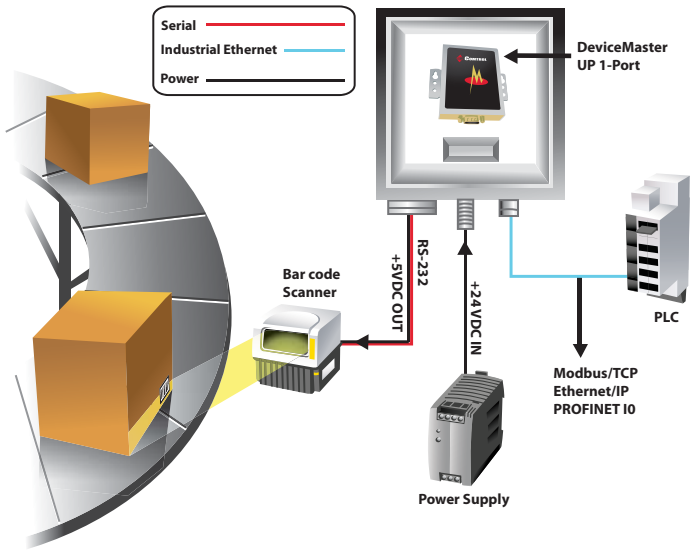
The RocketLinx family of industrial Ethernet switches are designed to meet the performance and environmental demands for applications requiring extended operating temperatures, rugged housings and high performance and reliability. With both managed and unmanaged models available, the RocketLinx ES series of switches provide cost-effective networking solutions delivering the industry's best Ethernet switch technologies.

ROCKETLINX MEDIA CONVERTERS

RocketLinx MC5001 and MC7001 are full-featured industrial grade serial and Ethernet fiber media converters. They are designed to meet the needs for EMI immunity and extended fiber transmission within the harsh environments typical of traffic, power, rail, and other industrial applications.

POWER SUPPLIES

Industrial 24V DIN-rail mounted switching power supplies supporting wide operating temperatures. These power supplies are ideal for powering a wide variety of 24V equipment.



Comtrol's DeviceMaster UP provides support for an efficient, compact solution to industrial automation – specifically bar code scanning. The integrator-developed enclosure (pictured) provides reduced cabling, Ethernet connectivity and power support for the bar code scanner. Data collected with the bar code scanner is then routed through the enclosure and DeviceMaster to the end PLC.

SECURITY AND SURVEILLANCE

As nations around the globe battle increasing violence and escalating threats, development of security systems and components to protect data communication, infrastructure, transportation hubs and vulnerable borders is a priority for both governments and private enterprises. In the face of these threats, new technologies are emerging to provide improved performance and advancements in flexibility and deployment over previous standards. Comtrol's connectivity solutions including Ethernet communications and IP surveillance-enabling devices are improving the reliability of critical networks.

Comtrol's **DeviceMaster** device servers are currently involved in enabling critical access control applications to ensure asset and personnel safety and security.

Our line of **RocketLinx** industrial managed and Power over Ethernet switches provide power to vital components of security networks such as IP surveillance cameras.

Our **RocketPort** serial cards and hubs expand the capability of complex networks by supplying the correct connections needed for multiple security devices and systems.

Security and Surveillance Applications

- Access control
- Perimeter/façade security
- Camera PTZ control
- IP cameras
- Mobile
- Radio
- Intrusion detection
- Chemical detection
- Prison PLC systems
- Theft deterrence/retail

Voltage Boost Capabilities

Comtrol's Voltage Boost (VB) technology provides the unique capability to power connected devices that require 48V through a switch that accepts 12-24V of power.

With the RocketLinx VB switch products, devices such as IP surveillance cameras, scanners, wireless access points and point-of-sale systems can easily be integrated within industrial settings without the use of separate 48V power supplies that are typically needed to power PoE devices.

LASER SCANNERS

Comtrol's line of laser scanners are very well suited for providing additional levels of security in areas that are deemed critical such as:

- Chemical facilities
- Food processing facilities
- Water treatment facilities
- Nuclear power plants
- Power substations

The scanners can be employed wherever large areas require complete protection against unauthorized access or entry. The system, when used in conjunction with PTZ cameras, does not just report infringements of monitored fields, but provides exact position of the intrusion into the field.

For more information visit www.comtrol.com/laserscanners

ROCKETLINX INDUSTRIAL SWITCH SECURITY FEATURES

The unique features integrated into our PoE industrial switches provide you with the capabilities and options that you need for successful integration of your PoE solution:

12/24VDC voltage boost

Comtrol's voltage boost switch technology enables these switch models to be powered from 12/24 VDC sources, internally boosting the output voltage to 48 VDC to power PoE devices. This eliminates the need and expense of a separate power supply and allows direct integration with remote and vehicle power systems.

Forced power mode

RocketLinx PoE switches provide advanced forced powering control, bringing power to non-standard and older PoE devices that cannot be detected as valid PDs.

PoE port scheduling

Comtrol's PoE port scheduling feature provides an hourly/weekly scheduling mechanism for advanced power control. Each PoE port can be configured to be ON or OFF on an hourly basis to conserve energy and guarantee power only when needed.

Smart power device link connect

Monitor the status of PDs connected to RocketLinx PoE switches through RocketLinx PD management technology. When a PD fails to respond, the PoE port can cycle power, thereby resetting the PD and restoring functionality.

Power budged limitation with priority control

When conditions demand power exceeding the power budget threshold, the RocketLinx PoE switches provide budget and priority control ensuring that the total power consumption will not exceed the power limit defined by the user. It also allows the user to protect the high-priority PDs by limiting the output power, prioritizing port shut down, and maintaining power to the highest priority devices.

TRANSPORTATION

Traffic management techniques and technology are becoming more sophisticated as our transportation systems become more complex. In order to keep traffic flow and transportation grids operating efficiently, applications such as arterial intersection monitoring and control, open road tolling, electronic toll collection, and parking automation must have exceptional communication with management stations and presiding networks. Comtrol is committed to providing high-performance and quality data transmission, communication and connectivity devices for transportation and traffic system structures.

Our RocketLinx industrial network switches are actively involved in managing traffic intersections from remote traffic management centers. RocketPort serial cards provide the capability to expand serial ports, enabling and connecting access control peripheral devices.

Our DeviceMaster serial device servers facilitate communication and data collection for transportation tolling systems, emergency traffic signal override systems and even air traffic control centers.

NEMA TS2

Tolling

- Open road tolling (ORT)
- Electronic toll collection (ETC)
- Toll plazas and manual lanes
- Intelligent transportation systems (ITS)

Traffic Management Systems

- Arterial and freeway management
- Roadside cabinet networking and connectivity
- Intersection management and control
- Emergency response infrastructures
- Parking automation

Gate Access and Control

- Parking revenue equipment
- Lane entry and exit equipment

Comtrol's NEMA TS2 Compliant Products

RocketLinx ES8509-XT	32065-4
RocketLinx ES8510-XT	32061-6
RocketLinx ES8510-XTE	32062-3
RocketLinx ES9528-XT	32071-5
RocketLinx ES7510-XT	32046-3
DeviceMaster RTS 1-Port DB9	99435-0
DeviceMaster RTS 2-Port 1E	99480-0
DeviceMaster RTS 2-Port 2E	99481-7
DeviceMaster RTS 2-Port DB9 1E	99550-0
DeviceMaster RTS 2-Port DB9 2E	99560-9
DeviceMaster RTS 4-Port DB9	99445-9
DeviceMaster RTS 4-Port RJ45	99446-6
DeviceMaster RTS 8-Port DB9	99448-0
DeviceMaster RTS 8-Port RJ45	99449-7

TOLLING CONNECTIVITY

Comtrol's managed and unmanaged RocketLinx switches provide Gigabit and fast Ethernet connections for the tolling sensors. These sensors are used to detect, charge and classify vehicles while the switch reports back to the main traffic controller. The RocketLinx product line provides many different port configurations and mounting options which gives the toll authority a wide variety of products to choose from for their many different applications.

Comtrol's DeviceMaster RTS family of hardened device servers connects legacy RS-232, RS-422 or RS-485 serial tolling devices to high-speed Ethernet. For additional connectivity, select one of the RocketPort multiport serial expansion products. RocketPort serial cards can connect up to 32 additional serial devices using one PC BUS slot and offer a variety of common connection types like DB9, DB25, and RJ45.

Tolling devices Comtrol provides connectivity for: license plate cameras, profiling sensors, radars, traffic cameras, message signs, and vehicle classification.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Transportation Device Connectivity to Traffic Management Systems

Comtrol currently works with a number of device manufacturers and agencies to aid in the networking and communications of Ethernet devices and legacy serial devices in the field. The range of applications that we have installed connectivity for are traffic management systems, arterial and freeway managements, roadside cabinet networking, and intersection management and control.

Comtrol's line of hardened NEMA TS2 certified RocketLinx switches are all that is required to transmit data from roadside devices and traffic cabinets to the Traffic Management Centers. Comtrol's use of fiber SFP/ RJ45 Ethernet combo port technology enables the traffic engineer to future proof their network against infrastructure changes. Comtrol's hardened RocketLinx PoE switches, managed switches, unmanaged switches, and media converters, are all utilized in outdoor environments for connection of traffic sensors in Intelligent Transportation Systems.

Comtrol's traffic technology solutions connect via Ethernet to allow real-time control to traffic management centers to these devices:

- PTZs (Pan Tilt Zoom) cameras
- MMUs
- Variable/Dynamic message signs
- Traffic lights
- Vehicle detection
- Preemption units
- Radars and sensors

PARKING AUTOMATION - ACCESS CONTROL AND DEVICE CONNECTIVITY

Quickly add economical and reliable serial ports to parking automation systems like gate and access control. Connect to equipment like parking revenue meters, and lane entry and exit monitoring devices.

- Credit card readers
- Vehicle detectors
- Light curtains
- Entry and exit sensors
- Variable message signs
- Cameras
- Patron feedback display
- Automatic change collectors
- Receipt printers
- Ticket reader
- Ticket machine

MEDICAL

As knowledge and processes within the medical community expand exponentially, the need for new equipment and applications increases also. The strict quality and technical demands required by the medical industry—as well as the cost and complexity of medical and FDA certifications—can pose challenges when trying to maintain equipment and devices manufactured for years of use. In addition to developing and supporting connectivity products that meet these standards, Comtrol recognizes the importance of lasting product stability for medical equipment manufacturers.

Comtrol's **DeviceMaster** device servers are used in a wide variety of communication and data collection applications, such as establishing the software bridge between medical facilities' patient rooms and Electronic Medical Records (EMR) system server locations.

Our **RocketPort** serial cards and hubs provide essential connectivity between peripheral devices and equipment to ensure precision and reliability for medical processes—anywhere from eyewear lens fitting to vital sign monitoring.

Medical Applications

- Patient monitors
- EKGs
- Blood analyzers
- Lens manufacturing
- Handheld computers
- Prosthetic manufacturing
- Medication delivery systems
- Emergency call systems (911 system)
- Refurbished medical equipment
- Automated biological testing systems
- Patient RTLS
- Medical printing stations
- Automated pharmaceutical systems

To learn more about our customer applications, visit *www.comtrol.com\applications*

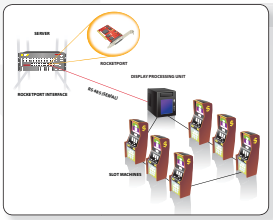
COMTROL®

CUSTOMER SUCCESS STORY

Comtrol's RocketLinx, DeviceMaster and RocketPort products enable network communication in the gaming industry

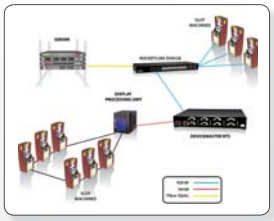
Entertainment facilities with electronic gaming such as casinos and racetracks find connectivity solutions with Comtrol's RocketLinx switches, DeviceMaster device servers and RocketPort serial cards.

As the gaming and casino industries continue to evolve, creating advanced games and capabilities, the technology needed to support new networks evolves simultaneously.



Whether a facility hosts a single or multi-server, serial or Ethernet-supported network, Comtrol's RocketLinx, RocketPort and DeviceMaster products provide a variety of connectivity solutions for casino networking communications.

In the case of an Ethernet-supported network, a casino or gaming facility may choose to incorporate one of Comtrol's RocketLinx industrial Ethernet switches into their connectivity solution. Whether managed or unmanaged, with wire or fiber infrastructures, RocketLinx switches provide the reliable expanded communication between the facility's server and each of the games, such as slot machines. Using a switch provides Ethernet communications to the casino's network, though newer and more advanced games may contain Ethernet connection ports for direct communication with the RocketLinx switch or facility network. Comtrol's DeviceMaster serial hubs may also be used in this layout, to bring legacy, serial-supported games into the primarily Ethernet-supported network. Whether a gaming facility updates a whole network simultaneously or implements gradual changes from serial to Ethernet communication, Comtrol's products support many different configurations for facility-specific solutions.



In the case of a serial-based gaming network, Comtrol's RocketPort serial cards provide the needed expansion of serial ports in a casino or gaming facility's network, compatible with RS-232, RS-422 or RS-485. RocketLinx, RocketPort and DeviceMaster products provide low-latency and efficient connectivity solutions for gaming networks of all types.

Continued on back

ROCKETLINX

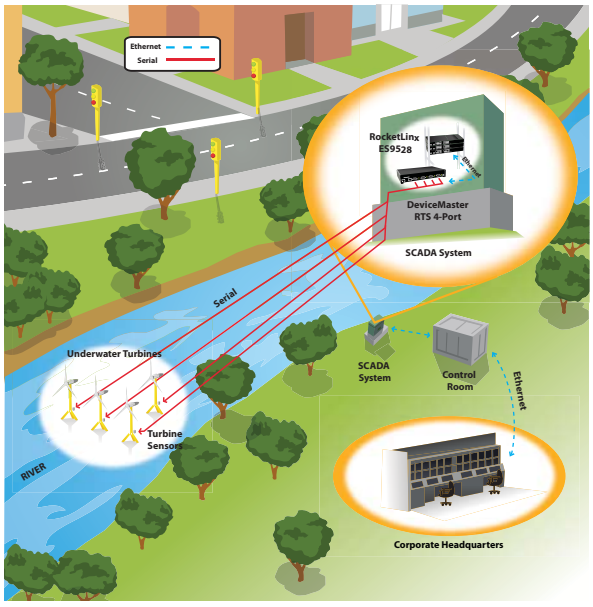
INDUSTRIAL ETHERNET SWITCHES

The Comtrol RocketLinx series of industrial Ethernet switches are designed to meet the performance and environmental demands for applications requiring extended operating temperatures, rugged housings, high performance and reliability.

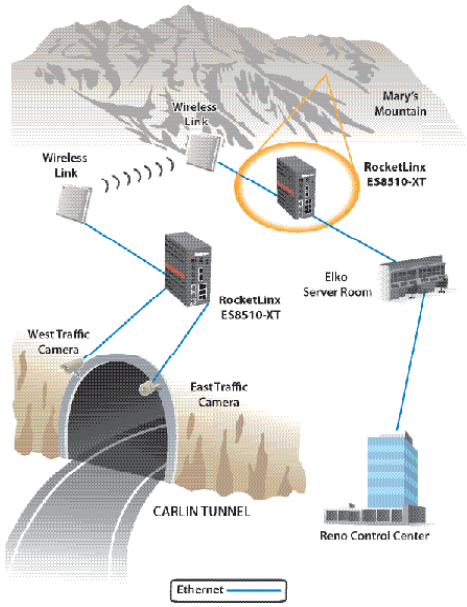
With both managed and unmanaged models available, the RocketLinx industrial Ethernet switch series provides cost-effective networking solutions delivering the industry's best Ethernet switch technologies.

For more information visit **www.comtrol.com/rocketlinx**

COMTROL PRODUCTS IN ACTION >>



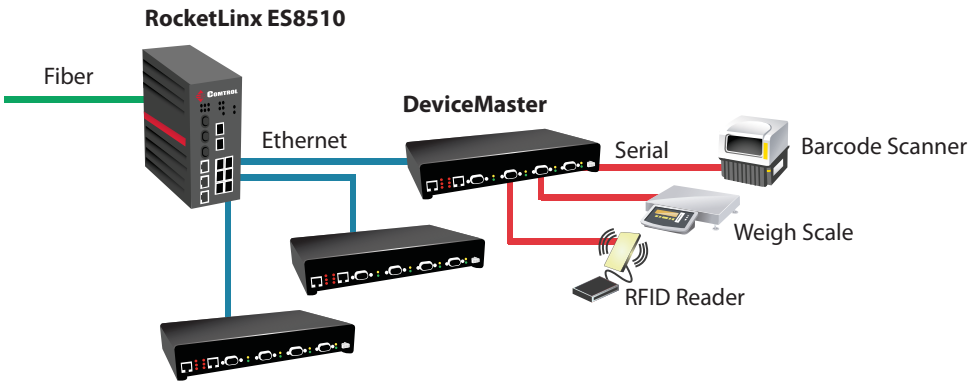
The RocketLinx ES9528 switch and DeviceMaster RTS facilitate kinetic underwater hydropower SCADA system communication. Sensor data is relayed from underwater turbines through an Ethernet connection to the control center for remote system monitoring.



The RocketLinx ES8510-XT switches enable live-feed data transmission from traffic cameras to server room monitoring stations for the Nevada Department of Transportation's Interstate 80 traffic monitoring system expansion.

RocketLinx Industrial Ethernet Switch Models	Part Number
RocketLinx ES8105 *Unmanaged 5-Port industrial Ethernet switch*	32025-8
RocketLinx ES8105F Single-Mode *Unmanaged 5-Port industrial Ethernet switch with Single-Mode fiber*	32026-5
RocketLinx ES8105F Multi-Mode *Unmanaged 5-Port industrial Ethernet switch with Multi-Mode fiber*	32027-2
RocketLinx ES8105-GigE *Unmanaged 5-Port industrial Ethernet switch with full Gigabit Ethernet*	32075-3
RocketLinx ES8108 *Unmanaged 8-Port industrial Ethernet switch*	32055-5
RocketLinx ES8108F Single-Mode *Unmanaged 8-Port industrial Ethernet switch with Single-Mode fiber*	32056-2
RocketLinx ES8108F Multi-Mode *Unmanaged 8-Port industrial Ethernet switch with Multi-Mode fiber*	32057-9
RocketLinx ES8108-GigE *Unmanaged 8-Port industrial Ethernet switch with full Gigabit Ethernet*	32085-2
RocketLinx ES8509-XT *Managed 9-Port industrial Ethernet switch with Gigabit and extended temperature*	32065-4
RocketLinx ES8510 *Managed 10-Port industrial Ethernet switch with Gigabit*	32060-9
RocketLinx ES8510-XT *Managed 10-Port industrial Ethernet switch with Gigabit and extended temperature*	32061-6
RocketLinx ES8510-XTE *Managed 10-Port industrial Ethernet switch with extended temperature*	32062-3
RocketLinx ES9528 *Managed 24-Port industrial Ethernet switch with four Gigabit ports*	32070-8
RocketLinx ES9528-XT *Managed 24-Port industrial Ethernet switch with four Gigabit ports and extended temperature*	32071-5

View pages 49-50 for the RocketLinx Industrial Ethernet switch product comparison chart.



Example of basic connectivity options

ROCKETLINX

INDUSTRIAL POWER OVER ETHERNET SWITCHES

The Comtrol RocketLinx series of industrial PoE Ethernet switches are designed to meet the performance and environmental demands for applications requiring extended operating temperatures, rugged design, and reliable power delivery to standard and high power devices.

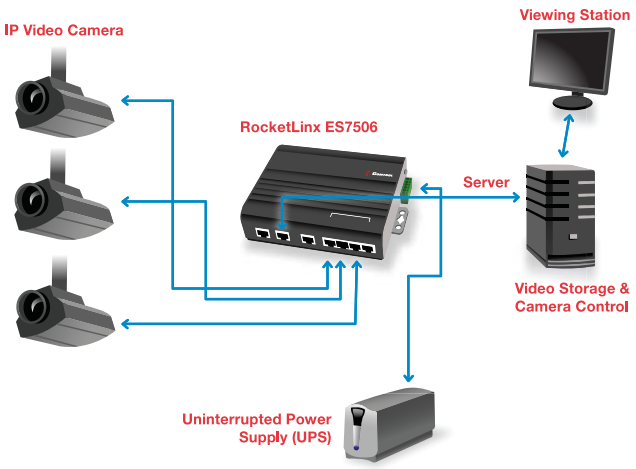
Comtrol's PoE family of switch products offer unique features such as:

- Forced power mode
- PoE port scheduling
- Remote reboot of powered devices
- Power budget limitation with priority control

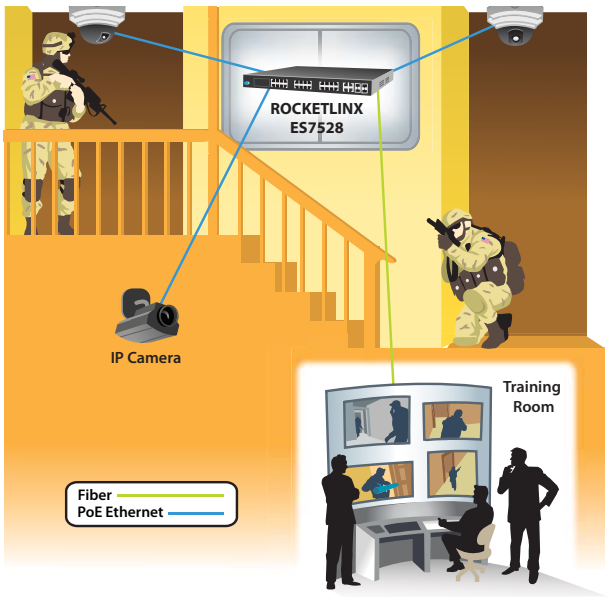
Featuring both managed and unmanaged models, the RocketLinx PoE industrial Ethernet switches provide cost-effective networking solutions delivering the industry's best Ethernet switch technologies.

For more information visit **www.comtrol.com/poe**

COMTROL PRODUCTS IN ACTION >>



The managed RocketLinx ES7506 switch delivers both reliable power and communication to this security system, which provides real-time monitoring, NVR storage and processing of surveillance data and footage.



The RocketLinx ES7528 PoE (Power over Ethernet) switches facilitate IP camera monitoring for this military training system. Rugged housings and the wide operating temperature range for the switches were important requirements for the system.

RocketLinx PoE Switch Models	Part Number
RocketLinx ES7105 *Unmanaged 5-Port PoE 802.3af industrial Ethernet switch*	32045-6
RocketLinx ES7106-VB *Unmanaged 6-Port PoE 802.3af industrial Ethernet switch with 12/24VDC voltage boost*	32047-0
RocketLinx ES7110 *Unmanaged 10-Port PoE 802.3af industrial Ethernet switch*	32048-7
RocketLinx ES7110-VB *Unmanaged 10-Port PoE 802.3af industrial Ethernet switch with 12/24VDC voltage boost*	32049-4
RocketLinx ES7506 *Managed 6-Port PoE 802.3af/at industrial Ethernet switch*	32050-0
RocketLinx ES7510 *Managed 10-Port PoE 802.3af/at industrial Ethernet switch with Gigabit*	32035-7
RocketLinx ES7510-XT *Managed 10-Port PoE 802.3af/at industrial Ethernet switch with Gigabit and extended temperature*	32046-3
RocketLinx ES7528 *Managed 28-Port PoE 802.3af/at industrial Ethernet switch*	32040-1

View pages 51-52 for the RocketLinx Industrial PoE switch product comparison chart.

WHAT IS POWER OVER ETHERNET TECHNOLOGY?

Power over Ethernet or PoE technology describes a system to pass electrical power safely, along with data, on Ethernet cabling. The IEEE standard for PoE requires Category 5 cable or higher for high power levels, but can operate with category 3 cable for low power levels.

Power is supplied in common mode over two or more of the differential pairs of wires found in the Ethernet cables and comes from a power supply within a PoE-enabled networking device such as an Ethernet switch.

The original IEEE 802.3af-2003 PoE standard provides up to 15.4 W of DC power (minimum 44 VDC and 350 mA to each device. Only 12.95 W is assured to be available at the powered device as some power is dissipated in the cable. The updated IEEE 802.3at-2009 PoE standard also known as PoE+ or PoE plus, provides up to 25.5 W of power.

CALCULATING POE POWER LOSS DUE TO CABLE RESISTANCE

In PoE applications, there are power losses due to cable resistance. For that reason, the PoE standard defines a higher PoE output voltage for PSE (Power Sourcing Equipment) than the PoE output voltage at the destination, which is a PoE Powered Device (PD). The voltage dictates how much power is available at a PoE powered device. *Learn more on page 63.*

DEVICEMASTER UP

INDUSTRIAL ETHERNET GATEWAYS

At Comtrol, we believe gateways should be intelligent, robust, and easy to use. And we enjoy explaining that *"Yes, it really is that easy."*

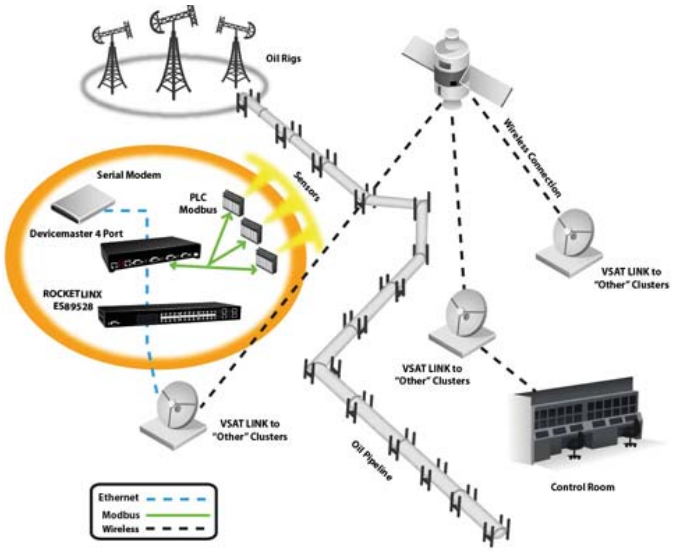
With its web-based configuration, example programs, and simplified interfaces, the DeviceMaster UP delivers near plug-and-play Industrial connectivity.

The DeviceMaster UP provides innovative EtherNet/IP, Modbus, and PROFINET IO connectivity to a wide variety of devices. It enables quick PLC and application connection to devices such as barcode scanners, RFID readers, weigh scales, vision systems, printers, encoders, and sensors.

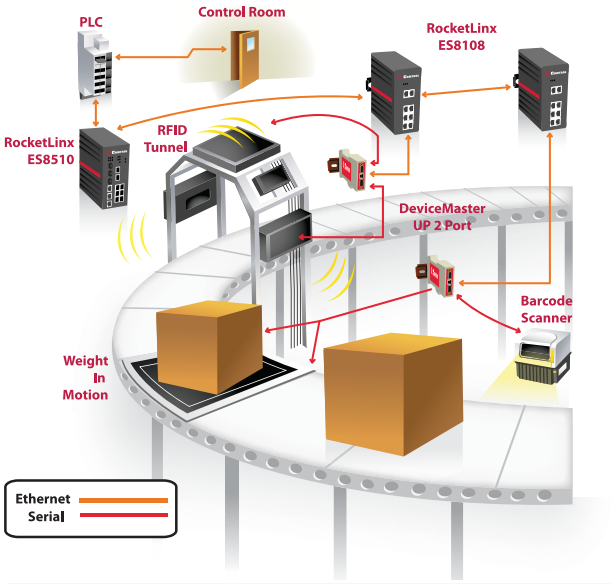
If you need PLC connectivity and want it done quickly and easily, the DeviceMaster UP is the solution for you.

For more information visit **www.comtrol.com/devicemaster-up**

COMTROL PRODUCTS IN ACTION >>



The DeviceMaster UP running Modbus firmware provides required communication links for monitoring oil pipeline infrastructure, enabling real-time communication over long distances from multiple Modbus masters to large numbers of remote devices.

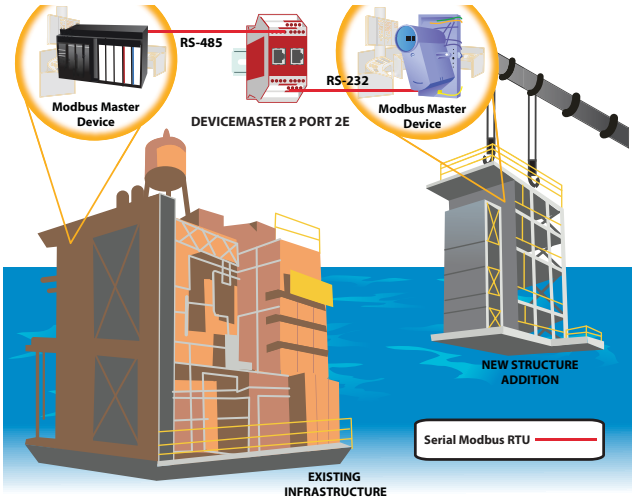


In conjunction with RocketLinx switches, the DeviceMaster UP is involved in processes such as coding, sizing, weighing, labeling and counting for warehouse network communications. This comprehensive system effectively automates the shipping process.

DeviceMaster UP Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E *2-Port industrial Ethernet serial device server with terminal strip connections*	99531-9
DeviceMaster UP DB9 2-Port 1E *2-Port industrial Ethernet serial device server with DB9 connections*	99551-7
DeviceMaster UP 2-Port 2E *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99541-8
DeviceMaster UP DB9 2-Port 2E *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99561-6
DeviceMaster UP 4-Port *4-Port industrial Ethernet serial device server with DB9 connections*	99447-3

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported Ethernet Protocols:
EtherNet/IP | PROFINET IO | Modbus Solutions: Modbus/TCP, Modbus Router, Modbus Server



A large oil and natural gas platform in the North Sea was expanding their facility capabilities by adding a massive system module to the existing platform infrastructure. In order for the two systems to communicate seamlessly with one another, the proper communication channels needed to be established. Previously thought impossible, Comtrol developed an innovative solution for connecting one Modbus master to another Modbus master using software programming supported by the DeviceMaster UP to enable this configuration.

DEVICEMASTER UP ETHERNET/IP

INDUSTRIAL ETHERNET GATEWAYS

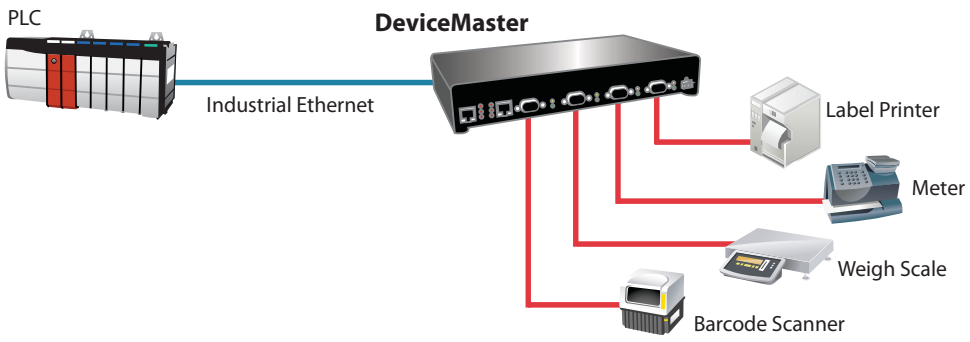
The DeviceMaster UP provides highly flexible EtherNet/IP connectivity to serial and Ethernet TCP/IP devices

While simultaneously supporting up to 128 EtherNet/IP connections, the DeviceMaster UP provides connectivity to both serial and Ethernet TCP/IP raw/ASCII devices and provides detailed diagnostic capabilities not found in other gateways. Whether you need to connect your Allen Bradley PLC to a barcode scanner, weigh scale, vision system, or RFID reader, the DeviceMaster UP will provide the solution.

The DeviceMaster UP configures in just minutes, either directly from the PLC or remotely via embedded web pages. The included PortVision Plus remote management and configuration software makes it a simple task to detect and manage every DeviceMaster UP on the network, facilitating firmware updates, troubleshooting, and remote administration.

HIGHLIGHTS

- **Connectivity** – Ethernet/IP to serial and Ethernet TCP/IP raw/ASCII devices
- **Low-latency updates** of received packets to PLC memory. Typically less than 10 ms
- **Connectivity to high-speed devices** – Supports message rates as high as 50 updates per second when receive mode is configured to Write-to-Tag/File.
- **Large received packet support** – up to 1518 bytes serial and 2048 bytes Ethernet TCP/IP
- **Received packet size control** – truncate or drop oversized packets
- **Message throttling** – ensures PLC can process each received data packet
- **Intelligent packet identification** – start and end of transmission character detection/appending
- **Three methods of receive communication to the PLC** – Write-to-Tag/File, Write-to-Tag/File-Synced, and Polling
- **Vendor Specific CIP objects** – configuration, data transfer, and statistics

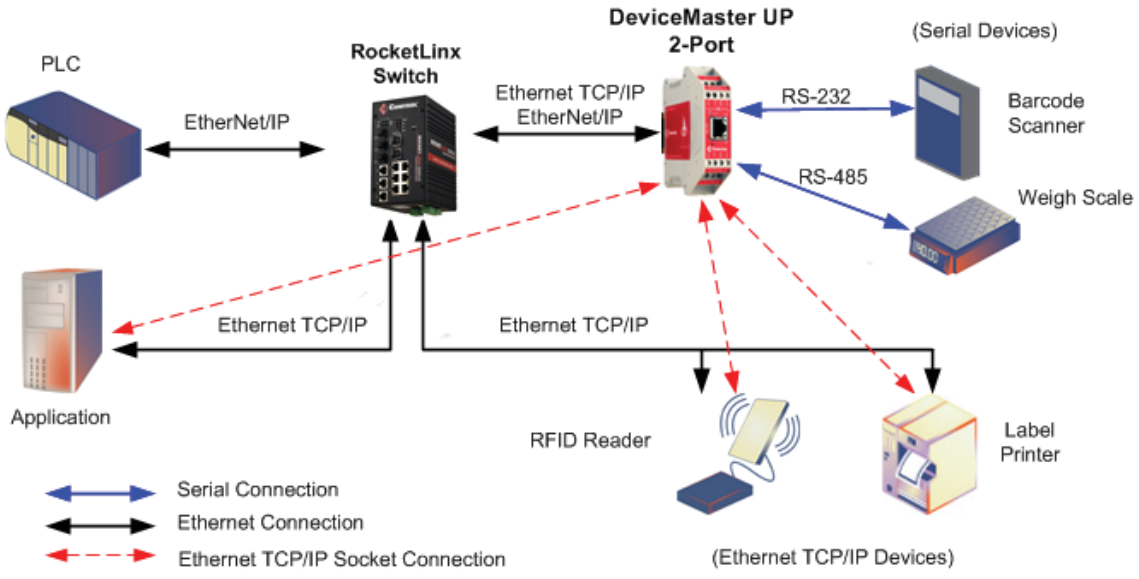


Example of basic connectivity options

DeviceMaster UP EtherNet/IP Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E *2-Port industrial Ethernet serial device server with terminal strip connections*	99531-9
DeviceMaster UP DB9 2-Port 1E *2-Port industrial Ethernet serial device server with DB9 connections*	99551-7
DeviceMaster UP 2-Port 2E *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99541-8
DeviceMaster UP DB9 2-Port 2E *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99561-6
DeviceMaster UP 4-Port *4-Port industrial Ethernet serial device server with DB9 connections*	99447-3

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported PLC Models:
Allen Bradley ControlLogix, CompactLogix, FlexLogix, SoftLogix, SLC 5/05, PLC-5, and MicroLogix Models



Ethernet/IP connectivity usage diagram

DEVICEMASTER UP PROFINET

INDUSTRIAL ETHERNET GATEWAYS

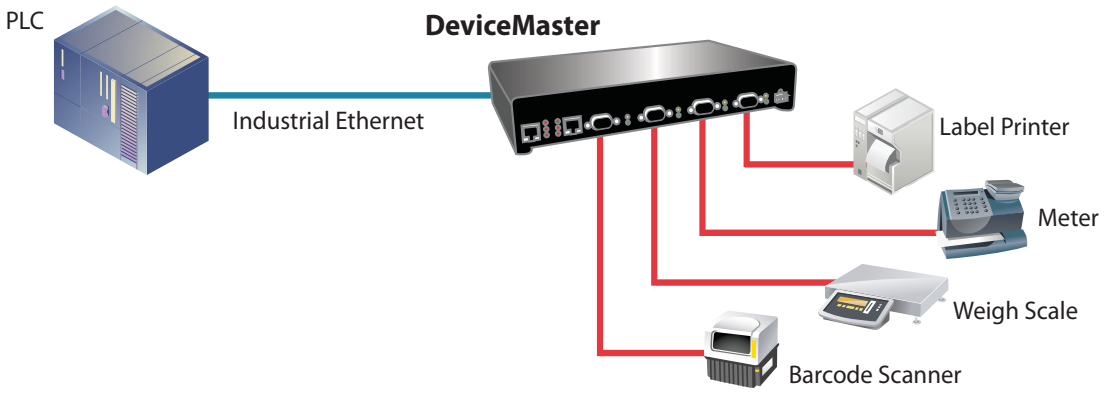
The DeviceMaster UP provides flexible PROFINET IO connectivity to serial and Ethernet TCP/IP devices

The DeviceMaster UP provides connectivity to both serial and Ethernet TCP/IP raw/ASCII devices and provides detailed diagnostic capabilities not found in other gateways. Whether you need to connect your PROFINET IO PLC to a barcode scanner, weigh scale, vision system, or RFID reader, the DeviceMaster UP will provide the solution.

The DeviceMaster UP configures in just minutes, either directly from the PROFINET Controller or remotely via embedded web pages. The included PortVision Plus remote management and configuration software makes it a simple task to detect and manage every DeviceMaster UP on the network, facilitating firmware updates, troubleshooting, and remote administration.

HIGHLIGHTS

- **Connectivity** – PROFINET IO to serial and Ethernet TCP/IP raw/ASCII devices
- **Low-latency updates** – cycle times of 8ms IO with packets less than 220 bytes
- **Large received packet support** – up to 1518 bytes serial and 1518 bytes Ethernet TCP/IP
- **Intelligent packet identification** – start and end of transmission character detection/appending
- **Received packet size control** – truncate or drop oversized packets
- Support for all PROFINET IO enabled PLCs
- **Lab certified** to PROFINET standards



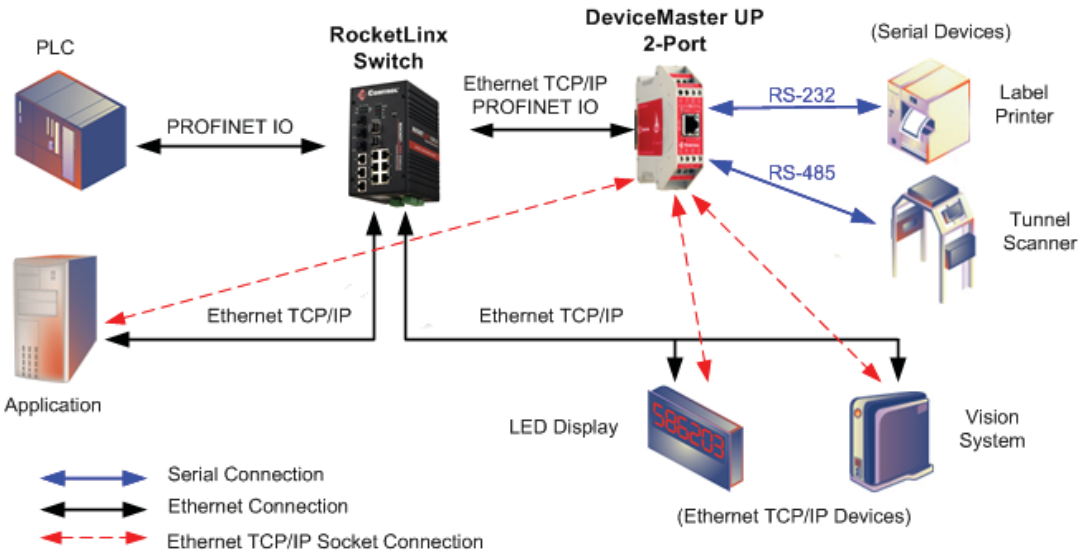
Example of basic connectivity options

DeviceMaster UP PROFINET Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E *2-Port industrial Ethernet serial device server with terminal strip connections*	99531-9
DeviceMaster UP DB9 2-Port 1E *2-Port industrial Ethernet serial device server with DB9 connections*	99551-7
DeviceMaster UP 2-Port 2E *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99541-8
DeviceMaster UP DB9 2-Port 2E *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99561-6
DeviceMaster UP 4-Port *4-Port industrial Ethernet serial device server with DB9 connections*	99447-3

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported PLC Models:

Siemens S7-400, S7-300
Omron CJ Series
Bosch Rexroth IndraControl L10, L15, L45, L65



PROFINET connectivity usage diagram

DEVICEMASTER UP MODBUS/TCP

INDUSTRIAL ETHERNET GATEWAYS

Loaded with Modbus/TCP firmware, the DeviceMaster UP is the most innovative Modbus gateway available today

Multiple Modbus master and slave types, serial and Ethernet raw/ASCII devices

The Modbus/TCP firmware is the original DeviceMaster UP Modbus application. It has been designed to provide great flexibility for connecting both Modbus serial slaves and raw/ASCII devices to a variety of Modbus controllers and applications. Such advanced raw/ASCII options as filtering, command/response mode, peer-to-peer Modbus communications, and simultaneous connections to multiple Modbus controllers and/or Ethernet TCP/IP applications make the Modbus/TCP firmware the flagship of all Modbus gateways.

ETHERNET HIGHLIGHTS

- Up to 64 Modbus/TCP connections
- Supports up to six Ethernet TCP/IP Application connections per raw/ASCII serial port and Ethernet TCP/IP device interface
  - One TCP/IP connection can be created with the “Connect To” connection method
  - The “Listen” connection method accepts up to five or six connections, depending if the “Connect To” connection is active

RAW/ASCII DEVICE HIGHLIGHTS

- **True Peer-to-Peer Modbus/TCP messaging** - Both receive and transmit channels on each serial port and Ethernet TCP/IP interface can be independently configured to master (client) or slave (server)
- Industry first **Command/Response** mode that allows multiple Modbus and Ethernet TCP/IP controllers to independently communicate to a raw/ASCII device
- **Alias Device ID** conversions provide communication to raw/ASCII devices via alternate device IDs in place of the defined 255 (serial) and 254 (Ethernet) device IDs
- **PLC programming flexibility** – Unmatched by any other gateway
- **Low-latency updates** of received packets to PLC memory (even with large packets exceeding 1K bytes). Typically less than 10 ms
- **Connectivity to high-speed devices** – Provides connectivity to devices not normally associated with Modbus/TCP. Supports message rates as high as 50 updates per second when receive channel is configured to Master mode.
- **Large received packet support** – up to 1518 bytes serial and 2048 bytes Ethernet TCP/IP
- **Received packet size control** – truncate or drop oversized packets
- **Intelligent packet identification** – start and end of transmission character detection/appending
- **Message Throttling** – ensures PLC can process each received data packet

MODBUS MASTER TO MODBUS SLAVE HIGHLIGHTS

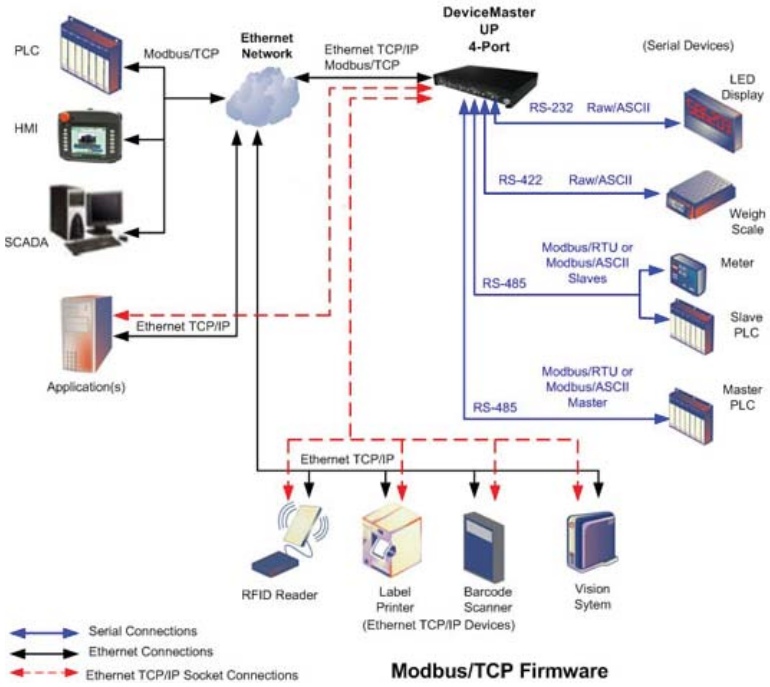
- Up to **247 Modbus/RTU slave devices per gateway**
- **No limit** on number of slave devices per serial port
- **Automatically locates slave devices and routes messages**
- **Alias Device ID** conversions provide communication to Modbus slave devices via alternate device IDs in place of configured slave device IDs
- Advanced slave device specific **diagnostic capabilities** via embedded web pages

DeviceMaster UP Modbus/TCP Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections*	99532-6
DeviceMaster UP DB9 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with DB9 connections*	99552-4
DeviceMaster UP 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99542-5
DeviceMaster UP DB9 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99562-3
DeviceMaster UP 4-Port Modbus *4-Port industrial Ethernet serial device server with DB9 connections*	99521-0

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported Interfaces:

Modicon Quantum, Premium, Momentum, Compact, and Micro PLCs
GE Fanuc Rx3i, Rx7i, 90-30, 90-70 and Versamax PLCs
Numerous other PLCs, HMIs, OPC Servers, and SCADA Systems



Modbus/TCP connectivity usage diagram

DEVICEMASTER UP MODBUS ROUTER

INDUSTRIAL ETHERNET GATEWAYS

Modbus Router is an innovative application providing highly versatile Modbus master to Modbus slave connectivity

Pure Modbus, more Modbus master and slave types, remote and local devices

The Modbus Router firmware was developed to provide network-wide Modbus connectivity from a wide variety of Modbus masters to a wide variety of local and remote Modbus slaves. With simplified configuration pages and advanced routing, Modbus Router provides unmatched Modbus connectivity.

MODBUS ROUTER HIGHLIGHTS

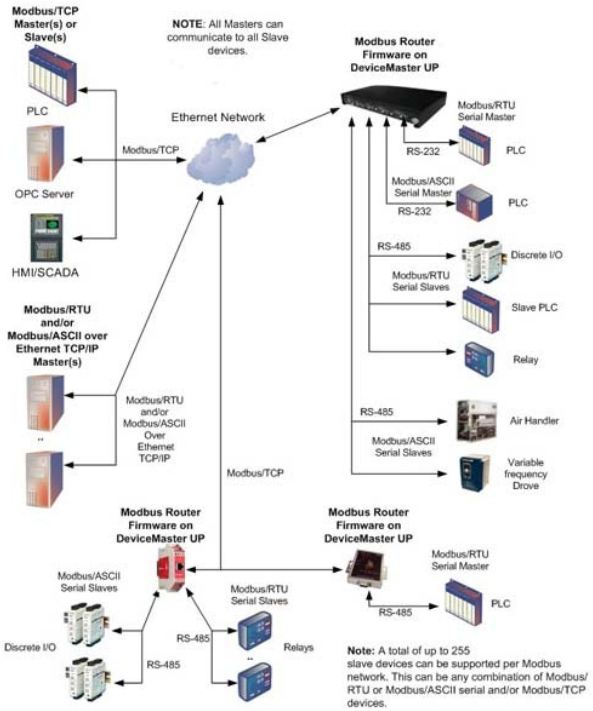
- All masters can communicate to all slave devices
- Supports up to **96 Modbus/TCP connections** (any combination of master and slave connections)
- Supports up to six Ethernet TCP/IP connections per Ethernet TCP/IP configuration
  - The number of Ethernet TCP/IP configurations equals number of serial ports
- Supports up to **255 Modbus slave devices** per Modbus network. Both valid, (1-247), and reserved, (248-255), device IDs are supported
- **No limit** on number of devices per serial port
- **Automatically locates local devices and routes messages**
- **Alias Device ID** conversions provide communication to Modbus slave devices via alternate device IDs in place of the configured slave device IDs
- **Device ID Offset** conversions allow multiple slave devices with the same configured device ID to be connected to the same gateway. Device IDs can be redefined by either subtracting or adding a device ID offset
- **Read-Only Mode** provides Modbus security by blocking all standard Modbus write messages
- Advanced device specific **diagnostic capabilities** via embedded web pages
- Modbus/RTU and Modbus/ASCII specific message handling:
  - CRC/LRC verification of all messages received on the TCP/IP and serial interfaces
  - Timing out of responses from slave Modbus devices
  - Broadcast message handling
- System monitoring to ensure gateway operation:
  - Gateway busy
  - Application message timeouts
- Advanced diagnostics web pages:
  - Modbus device specific statistics, response timing, and status. Up to 255 devices per network, as known by a gateway, can be monitored simultaneously
  - Serial port specific statistics and status
  - Serial port message logging
- Combined with a serial port redirector, such as the Comtrol Secure Port Redirector, can support up to six COM port connections to each Ethernet TCP/IP configuration

DeviceMaster UP Modbus Router Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections*	99532-6
DeviceMaster UP DB9 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with DB9 connections*	99552-4
DeviceMaster UP 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99542-5
DeviceMaster UP DB9 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99562-3
DeviceMaster UP 4-Port Modbus *4-Port industrial Ethernet serial device server with DB9 connections*	99521-0

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported Interfaces:

Any PLC, SCADA System, HMI, OPC Server or Application that requires Modbus communications over Modbus/TCP, Com ports or Ethernet TCP/IP connections



Modbus Router connectivity usage diagram

DEVICEMASTER UP MODBUS SERVER

INDUSTRIAL ETHERNET GATEWAYS

Modbus Server is an innovative application providing advanced Modbus/RTU over Ethernet TCP/IP to serial device connectivity

Modbus/RTU over Ethernet master(s) to serial slave(s)

The Modbus Server application was designed to provide enhanced connectivity for OPC servers and applications that require Modbus/RTU communication from Ethernet TCP/IP or COM ports directly to serial ports. While standard gateways provide connectivity for only one application per serial port, Modbus Server provides connectivity for up to six applications per serial port. Modbus Server can be loaded onto any DeviceMaster UP, RTS, or PRO model.

MODBUS SERVER HIGHLIGHTS

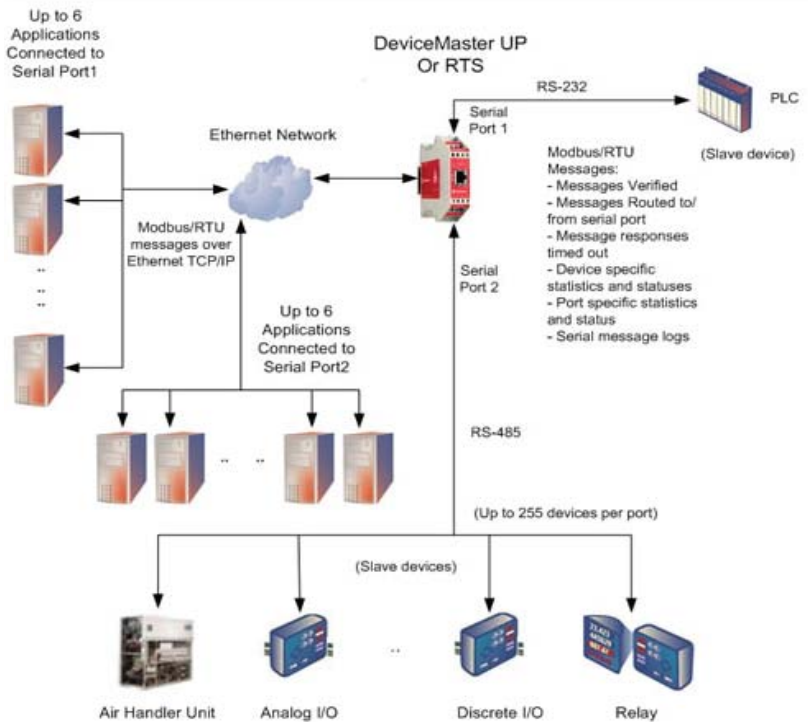
- Supports Modbus/RTU over Ethernet TCP/IP connections to the corresponding serial port via intelligent Modbus message handling and routing.
- Supports **only Modbus/RTU over Ethernet TCP/IP connections to a serial port.** For Modbus/TCP functionality, please see the DeviceMaster UP.
- Supports **up to six Ethernet TCP/IP connections to each serial port**.
- Supports up to **255 Modbus devices per port.** Both valid, (1-247), and reserved, (248-255), device IDs are supported
- Modbus/RTU specific message handling:
  - CRC verification of all messages received on the TCP/IP and serial interfaces
  - Timing out of responses from slave Modbus/RTU devices
- Broadcast message handling on connected port only
- System monitoring to ensure gateway operation:
- Gateway busy
- Application message timeouts
- **Advanced diagnostics web pages:**
- Modbus device specific statistics, response timing, and status. Up to 255 devices per serial port can be monitored simultaneously.
- Serial port specific statistics and status
- Serial port message logging
- Combined with a serial port redirector, such as the Comtrol Secure Port Redirector, it can support **up to six COM port connections to each serial port**

DeviceMaster UP Modbus Server Models	Part Number
DeviceMaster UP 1-Port VDC *1-Port industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99441-1
DeviceMaster UP 1-Port Embedded VDC *1-Port embedded module - industrial Ethernet serial device server with DB9 connections, 5-30VDC*	99471-8
DeviceMaster UP 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections*	99532-6
DeviceMaster UP DB9 2-Port 1E Modbus *2-Port industrial Ethernet serial device server with DB9 connections*	99552-4
DeviceMaster UP 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with terminal strip connections with Ehternet switch*	99542-5
DeviceMaster UP DB9 2-Port 2E Modbus *2-Port industrial Ethernet serial device server with DB9 connections with Ethernet switch*	99562-3
DeviceMaster UP 4-Port Modbus *4-Port industrial Ethernet serial device server with DB9 connections*	99521-0

View pages 53-54 for the DeviceMaster UP product comparison chart.

Supported Interfaces:

OPC Servers and Applications that require Modbus/RTU communication over Com ports or Ethernet TCP/IP connections



Modbus Server connectivity usage diagram

DEVICEMASTER RTS

ETHERNET DEVICE SERVERS

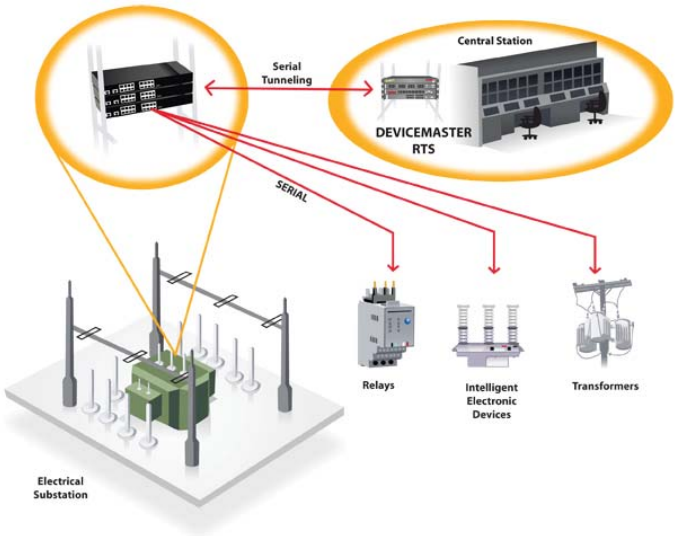
The DeviceMaster family of serial to Ethernet device servers enable superior device networking capabilities. Connect RS-232/422/485 serial devices to the network with DeviceMaster using your existing software applications. Supports native COM, TTY, or TCP/IP socket communications. Comtrol's DeviceMaster products feature enhanced security offering SSL & SSH management and SSL serial data stream encryption.

DeviceMaster offers the industry's most extensive selection of products for network-enabling serial devices. Ranging from 1-port models that provide single-device networking to 32-port models that offer high-density connections for specialized applications. The standard 1, 2, 4, and 8 port DeviceMaster RTS products are also NEMA TS2 compliant, withstanding temperatures ranging from -34° to 74° degrees Celsius.

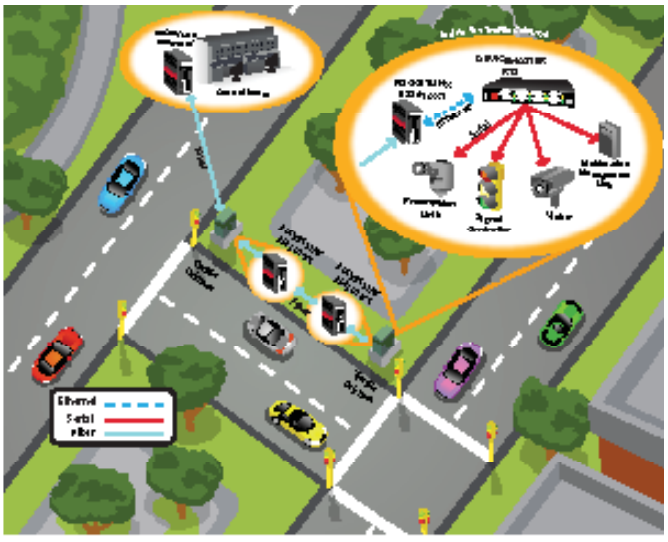
The DeviceMaster has been ruggedized to handle extreme temperatures, operating voltage and humidity fluctuation, vibration and shock commonly experienced in severe outdoor environments.

For more information visit **www.comtrol.com/devicemaster**

COMTROL PRODUCTS IN ACTION >>



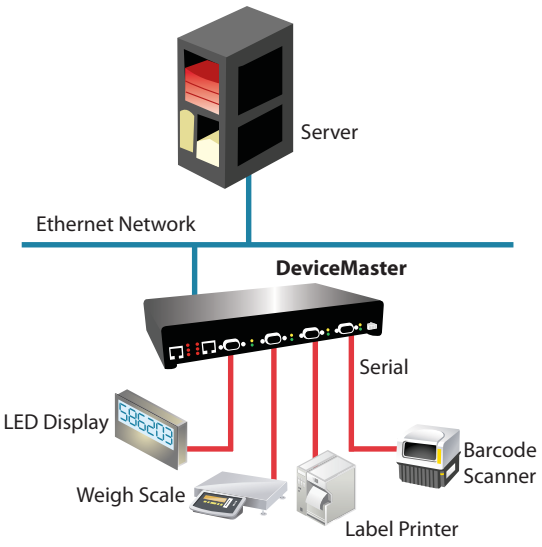
The DeviceMaster RTS 32-Port device server connects multiple substations' data communications to and from control relays, RTUs and other IEDs to one central control station for a utility automation software developer and systems integrator.



In conjunction with RocketLinx switches, the DeviceMaster RTS provides a reliable networking solution for a southwestern U.S. city with a fiber network, needing to remotely manage 120 traffic intersections from the city's traffic management center.

DeviceMaster RTS Models	Part Number
DeviceMaster RTS 1-Port DB9 *1-Port serial device server with DB9 connections – RS/232/422/485*	99435-0
DeviceMaster RTS VDC 1-Port DB9 *1-Port serial device server with DB9 connections 5-30VDC – RS-232/422/485*	99440-4
DeviceMaster RTS VDC 1-Port Embedded DB9 *1-Port serial device server with DB9 connections 5-30VDC embedded – RS-232/422/485*	99470-1
DeviceMaster RTS 2-Port 1E *2-Port serial device server with terminal strip connections – RS-232/422/485*	99480-0
DeviceMaster RTS 2-Port DB9 1E *2-Port serial device server with DB9 connections – RS-232/422/485*	99550-0
DeviceMaster RTS 2-Port 2E *2-Port serial device server with terminal strip connections and Ethernet switch – RS-232/422/485*	99481-7
DeviceMaster RTS 2-Port DB9 2E *2-Port serial device server with DB9 connections and Ethernet switch – RS-232/422/485*	99560-9
DeviceMaster RTS 4-Port DB9 *4-Port serial device server with DB9 connections – RS-232/422/485*	99445-9
DeviceMaster RTS 4-Port RJ45 *4-Port serial device server with RJ45 connections – RS-232/422/485*	99446-6
DeviceMaster RTS 8-Port DB9 *8-Port serial device server with DB9 connections – RS-232/422/485*	99448-0
DeviceMaster RTS 8-Port RJ45 *8-Port serial device server with RJ45 connections – RS-232/422/485*	99449-7
DeviceMaster RTS 16-Port RJ45 *16-Port serial device server with RJ45 connetions – RS-232/422/485*	99450-3
DeviceMaster RTS 16-Port RJ45 (Rackmount) *16-Port rackmount serial device server with RJ45 connections – RS-232/422/485*	99455-8
DeviceMaster RTS 32-Port RJ45 (Rackmount) *32-Port rackmount serial device server with RJ45 connections – RS-232/422/485*	99456-5

View pages 55-56 for the DeviceMaster RTS product comparison chart.



Example of basic connectivity options

NEMA TS2

EXTENDED TEMPERATURE RATINGS

Conformal coating options available
See page 62 for details

DEVICEMASTER

PRO, SERIAL HUB AND FREEWIRE

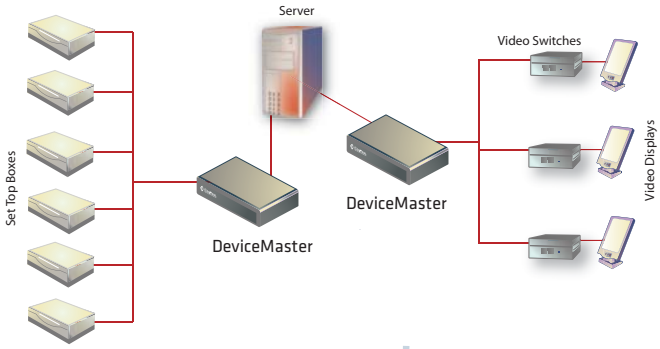
DeviceMaster PRO | DeviceMaster PRO is our top-of-the-line device server. The DeviceMaster PRO can also be deployed in harsh or electrically noisy environmental conditions because it delivers an unequalled 25KV surge protection on each serial port. The PRO also has software-selectable ports (RS-232/422/485), and the standard 1, 2, 4, and 8 port products are also NEMA TS2 compliant, withstanding temperatures ranging from -34° to 74° degrees Celsius.

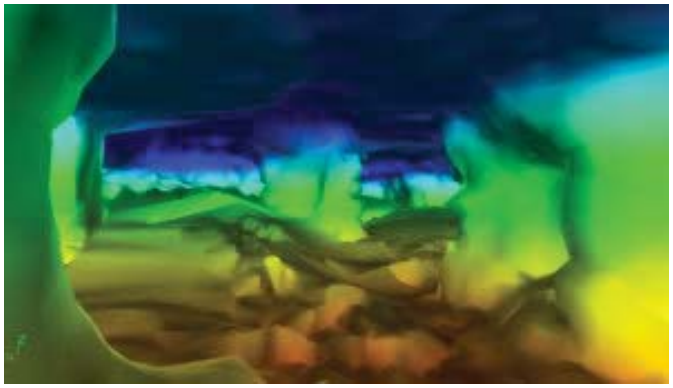
DeviceMaster Serial Hub | DeviceMaster Serial Hubs are ideally suited for in-server multi-port card replacement when RS-232 serial devices are located remotely from the PC hosting your application. Serial Hubs are available in 8- and 16-port models, which are the most popular port-density configurations for in server multiport cards.

DeviceMaster FreeWire | DeviceMaster FreeWire is ideal for situations where LANs are not feasible, where running network cable is not practical or where devices are physically moved or rearranged periodically. It offers 802.11b/g wireless communications with an option of direct 10/100 Ethernet connection, and industry leading wireless security.

For more information visit **www.comtrol.com/devicemaster**

COMTROL PRODUCTS IN ACTION >>





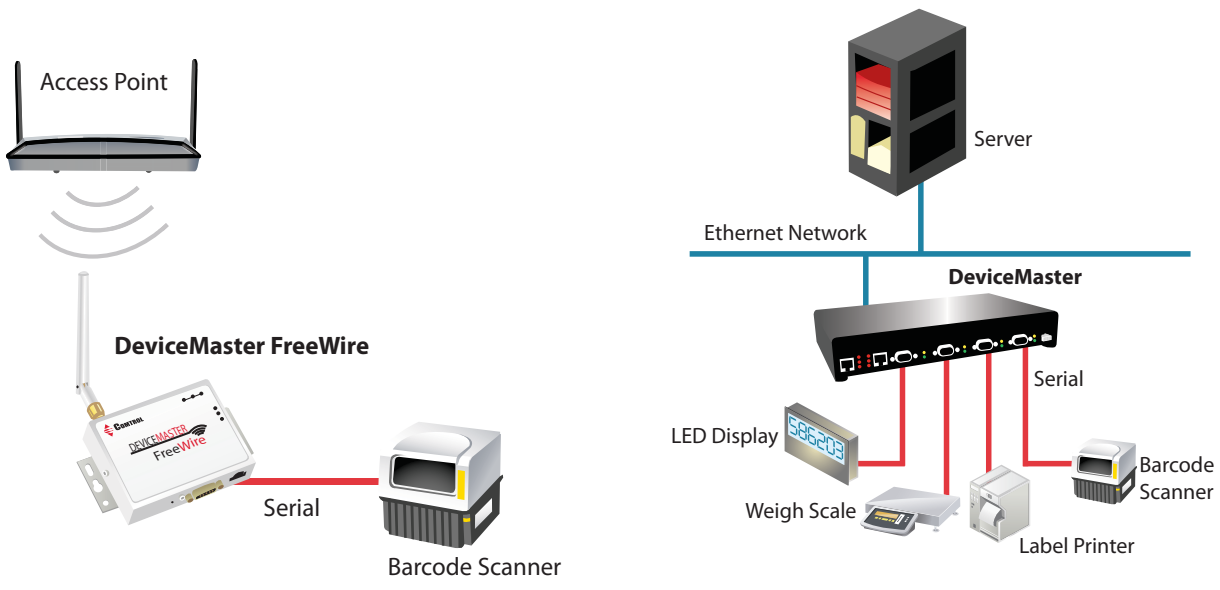
Comtrol's DeviceMaster serial hubs provide scalability, flexibility and streamlined communication channels for an electronic testing company in order to perform accurate tests on set top boxes for a large cable corporation.

The DeviceMaster FreeWire enables wireless RS-232 communication between a laser measurement scanner system and a remote management location to safely monitor and read data from potentially hazardous mining cavities.

DeviceMaster PRO, Serial Hub and FreeWire Models	Part Number
DEVICEMASTER PRO	
DeviceMaster PRO 8-Port *8-Port serial device server with DB9 connections – RS-232/422/485 – surge protection*	99443-5
DeviceMaster PRO 16-Port *16-Port serial device server with DB9 connections – RS-232/422/485 – surge protection*	99451-0
DEVICEMASTER SERIAL HUB	
DeviceMaster Serial Hub 8-Port *8-Port serial device server with DB9 connections – RS-232 only*	99465-7
DeviceMaster Serial Hub 16-Port *16-Port serial device server with DB9 connections – RS-232 only*	99460-2
DEVICEMASTER FREEWIRE	
DeviceMaster FreeWire 1-Port *1-Port wireless serial device server*	31300-7

NEMA TS2

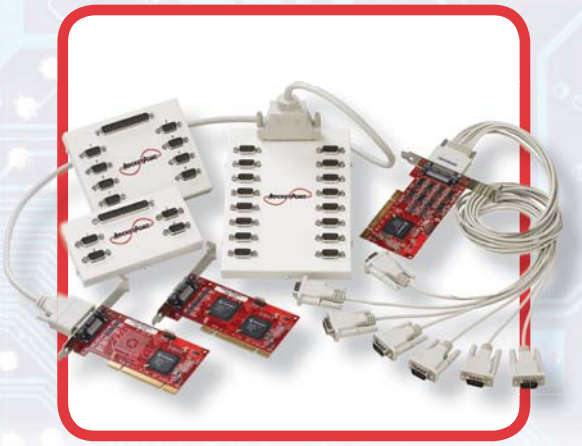
EXTENDED TEMPERATURE RATINGS



Example of basic connectivity options

ROCKETPORT INFINITY

MULTIPORT SERIAL CARDS



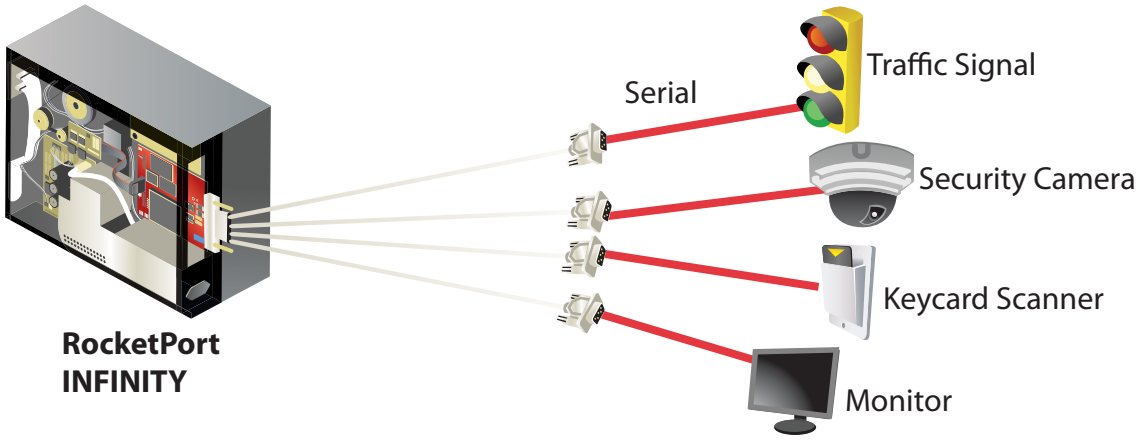
PCI-X serial device connectivity

The INFINITY design maximizes serial performance via Comtrol's exclusive high-performance Unity ASIC chip. These cards provide a variety of options for connecting and communicating with your devices.

HIGHLIGHTS

- 32 or 64 Bit
- 3.3 or 5 Volt
- uPCI or PCI-X connectivity
- 4- to 32-port interfaces
- RoHS compliant
- Low-profile or standard height compatible
- RS-232/422/485 software-selectable
- High-performance cards with speeds up to 921 kbps
- Microsoft Signed Drivers (WHQL) for Windows 7, Windows Server 2008, Windows Vista, Windows Server 2003, and Windows XP

For more information visit **www.comtrol.com/rocketport**



Example of basic connectivity options

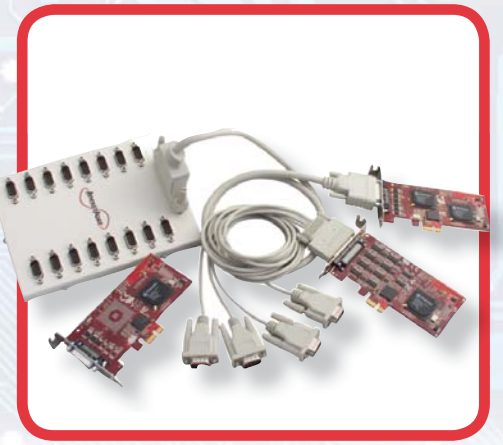
RocketPort INFINITY Models	Part Number
RocketPort INFINITY Quad/DB9 *4-Port PCI-X serial card with DB9 fanout cable*	30005-2
RocketPort INFINITY Quad/DB25 *4-Port PCI-X serial card with DB25 fanout cable*	30006-9
RocketPort INFINITY Octa/DB9 *8-Port PCI-X serial card with DB9 fanout cable*	30000-7
RocketPort INFINITY Octa/DB25 *8-Port PCI-X serial card with DB25 fanout cable*	30001-4
RocketPort INFINITY Octa/RJ45 *8-Port PCI-X serial card with RJ45 fanout cable*	30002-1
RocketPort INFINITY Quad/Octa Bulk *8-Port PCI-X serial card – No cable included – 50 pack*	30003-8
RocketPort INFINITY 4-Port or 8-Port Card *8-Port PCI-X serial card – No cable included*	30020-5
RocketPort INFINITY 16-Port Card *16-Port PCI-X serial card*	30015-1
RocketPort INFINITY 32-Port Card *32-Port PCI-X serial card*	30010-6

These interfaces work exclusively with RocketPort INFINITY serial cards	
RocketPort 4-Port DB9M Interface *4-Port interface with DB9 male connections*	30050-2
RocketPort 8-Port DB9M Interface *8-Port interface with DB9 male connections*	30040-3
RocketPort 8-Port DB9M Surge Interface *8-Port interface with DB9 male connections – added surge protection*	30045-8
RocketPort 8-Port DB25F Interface *8-Port interface with DB25 female connections*	30080-9
RocketPort 8-Port DB25M Surge Interface *8-Port interface with DB25 female connections – added surge protection*	30085-4
RocketPort 16-Port DB9M Interface *16-Port interface with DB9 male connections*	30030-4
RocketPort 16-Port DB9M Surge Interface *16-Port interface with DB9 male connections – added surge protection*	30035-9
RocketPort 16-Port DB25F Interface *16-Port interface with DB25 male connections*	30070-0
RocketPort 16-Port Rackmount Interface *16-Port interface with RJ45 connections*	30055-7
RocketPort 16-Port DB25M Surge Interface *16-Port interface with DB25 male connections – added surge protection*	30075-5
RocketPort 32-Port Rackmount Interface *32-Port interface with RJ45 connections*	30060-1

View pages 57-58 for the RocketPort INFINITY product comparison chart.

ROCKETPORT EXPRESS

MULTIPORT SERIAL CARDS



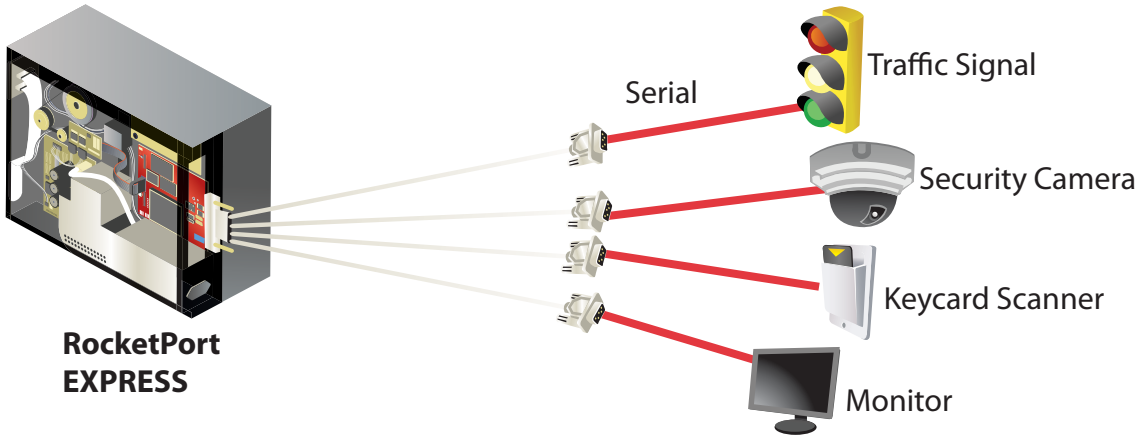
PCI Express serial device connectivity

The RocketPort EXPRESS PCIe product family is upgraded from previous PCI BUS technology. These advanced PCIe cards can now be connected via PCIe BUS with increased speed. The EXPRESS design takes advantage of the increased performance of Comtrol's exclusive Unity ASIC chip.

HIGHLIGHTS

- PCI Express serial x1, x2, x4, x8, x12 and x16 lane connectivity
- Low-profile or standard height compatible
- RS-232, RS-422, RS-485 software-selectable
- 4- to 32-port interfaces
- RoHS compliant
- High-performance serial port expansion cards with speeds up to 921 kbps
- Microsoft Signed Drivers (WHQL) for Windows 7, Windows Server 2008, Windows Vista, Windows Server 2003 and Windows XP

For more information visit **www.comtrol.com/rocketport**



Example of basic connectivity options

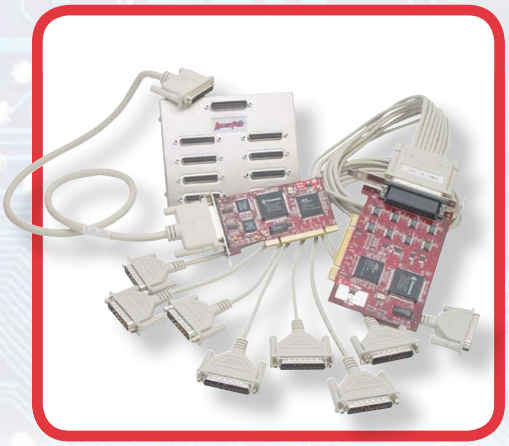
RocketPort EXPRESS Models	Part Number
RocketPort EXPRESS Quad/DB9 *4-Port PCI EXPRESS serial card with DB9 fanout cable*	30126-4
RocketPort EXPRESS Quad/DB25 *4-Port PCI EXPRESS serial card with DB25 fanout cable*	30127-1
RocketPort EXPRESS Octa/DB9 *8-Port PCI EXPRESS serial card with DB9 fanout cable*	30128-8
RocketPort EXPRESS Octa/DB25 *8-Port PCI EXPRESS serial card with DB25 fanout cable*	30129-5
RocketPort EXPRESS Octa/RJ45 *8-Port PCI EXPRESS serial card with RJ45 fanout cable*	30130-1
RocketPort EXPRESS Quad/Octa Bulk *8-Port PCI EXPRESS serial card – No cable included – 50 pack*	30131-8
RocketPort EXPRESS 4-Port or 8-Port Card *8-Port PCI EXPRESS serial card - No cable included*	30136-3
RocketPort EXPRESS 4J RJ45 Card *4-Port PCI EXPRESS serial card with RJ45 connections*	31305-2
RocketPort EXPRESS 8J RJ11 Card *8-Port PCI EXPRESS serial card with RJ11 connections*	31310-6
RocketPort EXPRESS 16-Port Card *16-Port PCI EXPRESS serial card*	30137-0
RocketPort EXPRESS 32-Port Card *32-Port PCI EXPRESS serial card*	30138-7

These interfaces work exclusively with RocketPort EXPRESS serial cards	
RocketPort 4-Port DB9M Interface *4-Port interface with DB9 male connections*	30050-2
RocketPort 8-Port DB9M Interface *8-Port interface with DB9 male connections*	30040-3
RocketPort 8-Port DB9M Surge Interface *8-Port interface with DB9 male connections – added surge protection*	30045-8
RocketPort 8-Port DB25F Interface *8-Port interface with DB25 female connections*	30080-9
RocketPort 8-Port DB25M Surge Interface *8-Port interface with DB25 female connections – added surge protection*	30085-4
RocketPort 16-Port DB9M Interface *16-Port interface with DB9 male connections*	30030-4
RocketPort 16-Port DB9M Surge Interface *16-Port interface with DB9 male connections – added surge protection*	30035-9
RocketPort 16-Port DB25F Interface *16-Port interface with DB25 male connections*	30070-0
RocketPort 16-Port Rackmount Interface *16-Port interface with RJ45 connections*	30055-7
RocketPort 16-Port DB25M Surge Interface *16-Port interface with DB25 male connections – added surge protection*	30075-5
RocketPort 32-Port Rackmount Interface *32-Port interface with RJ45 connections*	30060-1

View pages 59-60 for the RocketPort EXPRESS product comparison chart.

ROCKETPORT UPCI

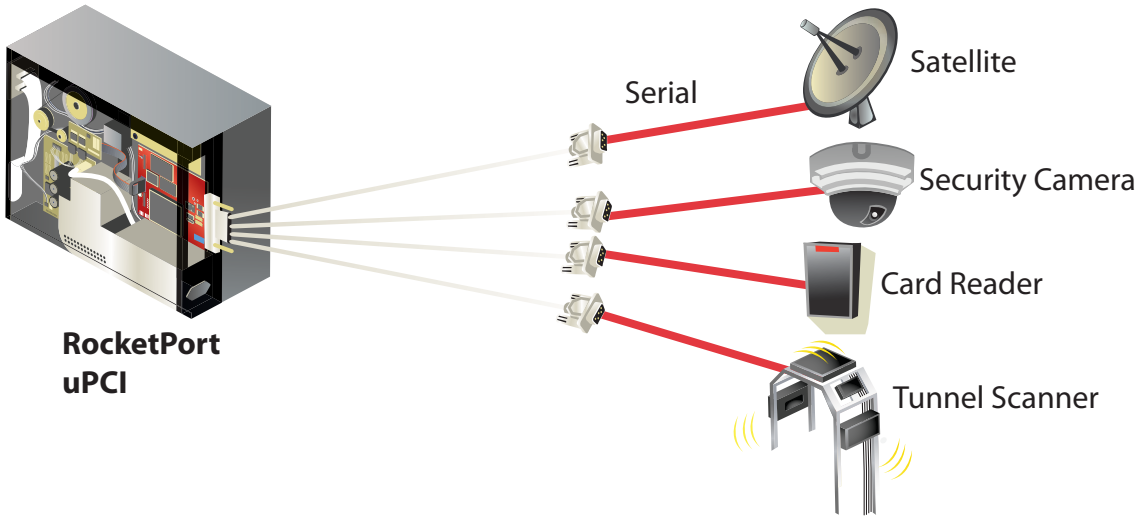
MULTIPORT SERIAL CARDS



RocketPort Universal PCI (uPCI) multiport cards make serial device connectivity reliable, cost effective and easy

- 3.3 and 5.0 Volt PCI bus architectures
- RS-232 and RS-422 serial interfaces (depending on model)
- Both fan-out cables and serial interface boxes available, supporting DB9, DB25, and RJ45
- Up to 32 COM ports can be added using a single slot
- Highly optimized on-board processor delivers sustained throughput across all ports
- Large FIFOs, 64 times larger than a 16550 UART, maximize speed and minimize data loss while optimizing host efficiency and data integrity
- Exceptional reliability and one of the industry's longest Mean Time Between Failure (MTBF)
- Leading price/performance for any multiport card

For more information visit **www.comtrol.com/rocketport**



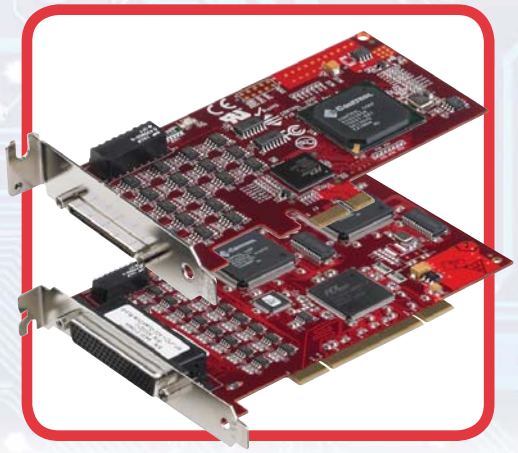
Example of basic connectivity options

RocketPort uPCI Models	Part Number
RocketPort uPCI Quad/DB9 *4-Port PCI serial card with DB9 fanout cable*	99341-4
RocketPort uPCI Quad/DB25 *4-Port PCI serial card with DB25 fanout cable*	99343-8
RocketPort uPCI Octa/DB9 *8-Port PCI serial card with DB9 fanout cable*	99342-1
RocketPort uPCI Octa/DB25 *8-Port PCI serial card with DB25 fanout cable*	99344-5
RocketPort uPCI Octa/RJ45 *8-Port PCI serial card with RJ45 fanout cable*	99345-2
RocketPort uPCI 4J *4-Port PCI serial card with four RJ45 connections*	99350-6
RocketPort uPCI 8J *8-Port PCI serial card with eight RJ11 connections*	99415-2
RocketPort uPCI 8-Port Low Profile *8-Port PCI serial card – low profile*	99365-0
RocketPort uPCI 16-Port *16-Port PCI serial card*	99355-1
RocketPort uPCI 32-Port *32-Port PCI serial card*	99356-8

These interfaces work exclusively with the RocketPort uPCI serial cards.	
RocketPort uPCI 4-Port RS-232/422 Interface *4-Port interface with DB25 connections – RS-232/422*	99405-3
RocketPort uPCI 8-Port RS-232 Interface *8-Port interface with DB25 connections – RS-232*	99375-9
RocketPort uPCI 8-Port RS-232/422 Interface *8-Port interface with DB25 connections – RS-232/422*	99370-4
RocketPort uPCI 8-Port RS-232/422 Surge Interface *8-Port interface with DB25 connections – RS-232/422 – Surge protection*	99385-8
RocketPort uPCI 16-Port RS-232 Interface *16-Port interface with DB25 connections – RS-232*	99395-7
RocketPort uPCI 16-Port RS-232/422 Interface *16-Port interface with DB25 connections – RS-232/422*	99360-5
RocketPort uPCI 16-Port RS-232/422 Surge Interface *16-Port interface with DB25 connections – RS-232/422 – Surge protection*	99390-2
RocketPort uPCI 16-Port RJ45/RS-232 Rackmount *16-port rackmount interface with RJ45 connections – RS-232*	99410-7
RocketPort uPCI 16-Port RJ45/RS-422 Rackmount *16-port rackmount interface with RJ45 connections – RS-422*	99420-6
RocketPort uPCI 32-Port RJ45/RS-232 Rackmount *32-port rackmount interface with RJ45 connections – RS-232*	99380-3

ROCKETPORT SMPTE

SMPTE MULTIPORT SERIAL CARDS



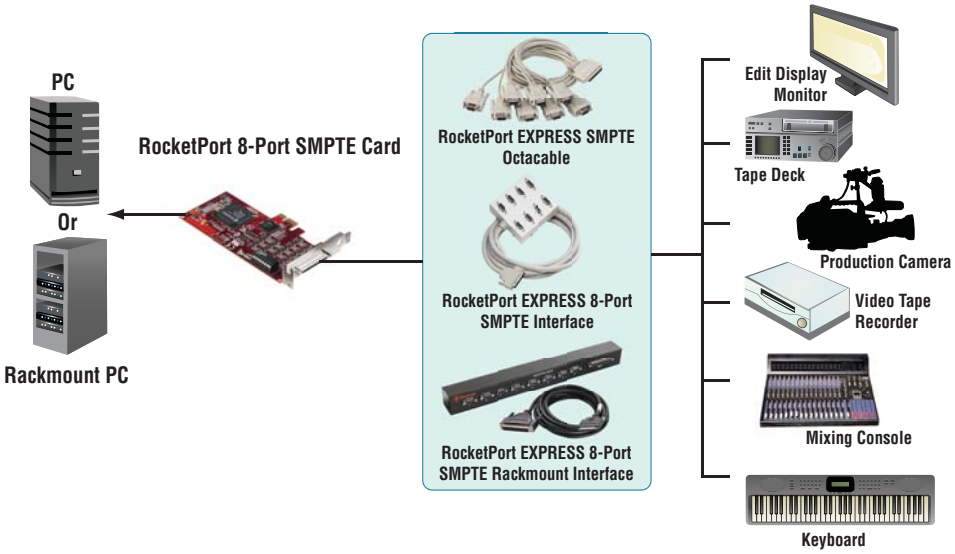
Designed specifically for the broadcast industry

The RocketPort SMPTE (Society of Motion Picture and Television Engineers) products are in compliance with the SMPTE 207M standard, meeting broadcast-specific needs. Comtrol offers multiple SMPTE cards, cables and interfaces to maximize compatibility and efficiency throughout a system.

HIGHLIGHTS

- **uPCI:** 2 or 8 Port expansion utilizing a 32- or 64- bit PCI card slot
- **EXPRESS:** PCI Express x1, x2, x4, x8, x12 and x16 lane connectivity
- DB9 connectors
- Complies with SMPTE 207M standards
- RS-422 software support
- Various cards, interfaces and cabling options available
- 3.3 and 5.0 Volt PCI bus structures
- RoHS compliant

For more information visit **www.comtrol.com/smpte**



Example of basic connectivity options

RocketPort SMPTE Models	Part Number
uPCI and EXPRESS Card Options	
RocketPort uPCI 2-Port SMPTE Card *2-Port PCI SMPTE serial card*	99330-8
RocketPort uPCI 2-Port SMPTE Card (Bulk) *2-Port PCI SMPTE serial card – 50 pack*	99404-6
RocketPort uPCI 8-Port SMPTE Card (requires interface) *8-Port PCI SMPTE serial card*	99515-9
RocketPort EXPRESS 8-Port SMPTE Card (requires interface) *8-Port PCI EXPRESS serial SMPTE serial card*	31320-5
uPCI Interface and Cable Options	
RocketPort uPCI SMPTE Octacable *8-Port PCI SMPTE serial card with DB9 fanout cable*	99490-9
RocketPort uPCI 8-Port SMPTE Interface *8-Port interface with DB9 connections*	99505-0
RocketPort uPCI 8-Port SMPTE Rackmount Interface *8-Port rackmount interface with SMPTE DB9 connections*	99495-4
EXPRESS Interface and Cable Options	
RocketPort EXPRESS SMPTE Octacable *8-Port PCI Express serial card with SMPTE DB9 fanout cable*	31330-4
RocketPort EXPRESS 8-Port SMPTE Interface *8-Port interface with SMPTE DB9 connections*	31325-0
RocketPort EXPRESS 8-Port SMPTE Rackmount Interface *8-Port rackmount interface with SMPTE DB9 connections*	31315-1

ROCKETPORT AND ROCKETMODEM

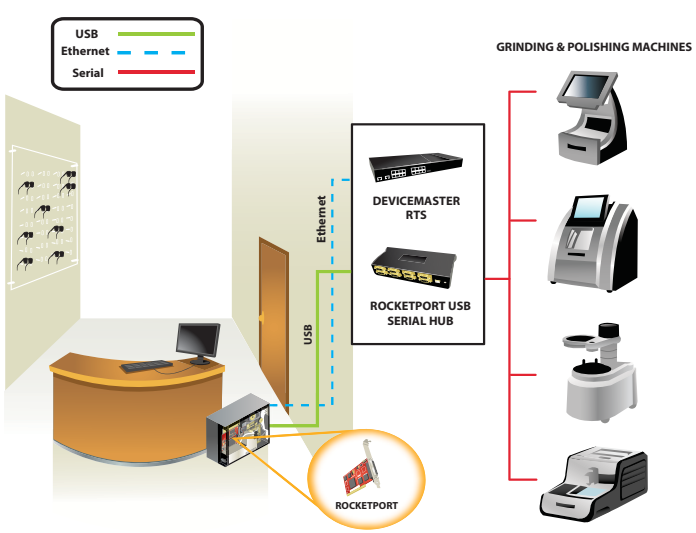
USB SERIAL HUB AND MULTIMODEM CARDS

RocketPort USB Serial Hub | USB-attached serial expansion device for PC-based servers and client computers. Delivering four or eight RS-232 ports, the RocketPort USB Serial Hub provides the ideal solution to easily add multiple serial ports for virtually any system application, including retail, industrial applications, POS, remote access, and data collection.

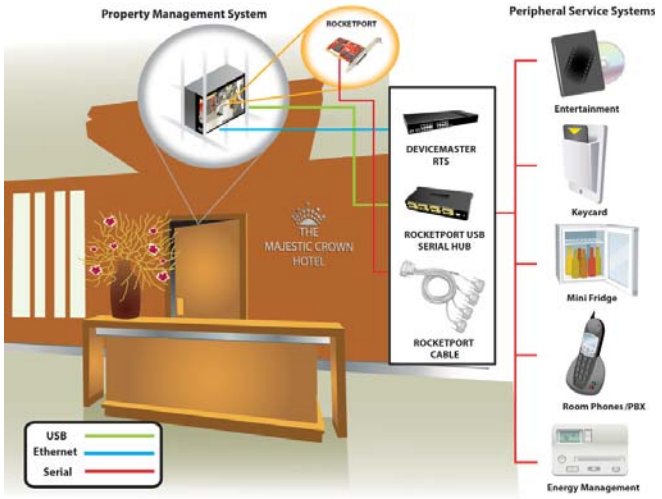
RocketModem | Convert modem to serial port with RocketPort 4 and 8-Port PCI-X serial bus expansion cards

For more information visit **www.comtrol.com/rocketportsh** or **www.comtrol.com/rocketmodem**

COMTROL PRODUCTS IN ACTION >>

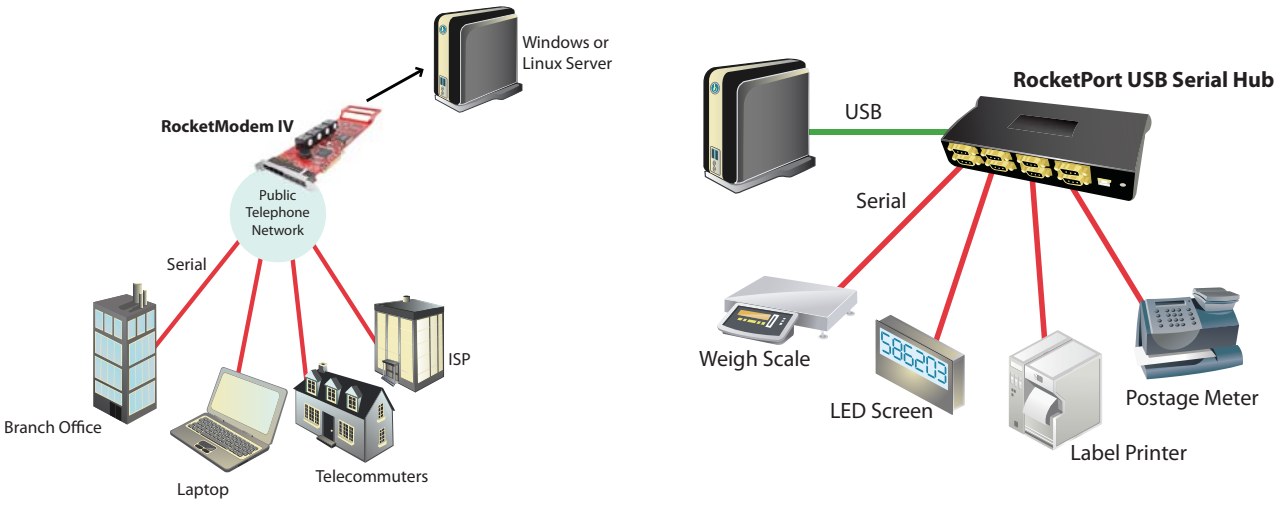


The RocketPort serial card, along with the DeviceMaster RTS or RocketPort Serial Hub, provides serial communication between computers and eyewear equipment, allowing optometrists to perfectly fit prescription lenses into frames.



Comtrol's RocketPort and DeviceMaster products assist in communication between PMS (Property Management Systems) and multiple peripheral service systems such as phones/PBX, keycard readers, and energy management systems.

RocketPort USB Serial Hub and RocketModem Models	Part Number
ROCKETPORT USB SERIAL HUBS	
RocketPort USB Serial Hub II 4-Port *4-Port USB serial hub*	98295-1
RocketPort USB Serial Hub III 8-Port *8-Port USB serial hub*	98296-8
ROCKETMODEM IV	
RocketModem uPCI IV 4-Port *4-Port PCI multimodem card*	99430-5
RocketModem uPCI IV 8-Port *8-Port PCI multimodem card*	99431-2



Example of basic connectivity options

ROCKETLINX ACS7106

PoE PLUS ETHERNET SWITCH

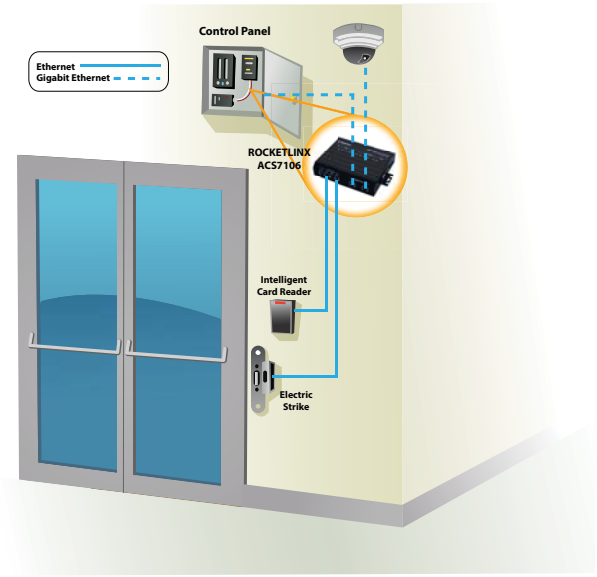
The Comtrol RocketLinx ACS7106 is a 6-port PoE Plus Ethernet switch purpose-built for delivering reliable power and data connections to access control and mobile surveillance applications.

The ACS7106 switch features four 10/100BASE-TX PoE Plus ports for providing power and data to remote PDs (Powered Devices) such as access card readers and IP surveillance cameras and two 10/100/1000BASE-TX uplink ports that assure maximum throughput for high bandwidth applications.

Housed in a durable aluminum enclosure and capable of operating in a wide environmental temperature range, the ACS7106 offers features not found in typical IT-grade switches, including enhanced reliability and ruggedness, voltage boost circuitry for 12/24VDC power connections, an alarm notification relay, and compliance with the stringent UL294B safety certification required by many cities for access control equipment.

Together, these enhanced capabilities and design details deliver the reliability and configuration options that make the Comtrol RocketLinx ACS7106 switch an ideal solution for integrating edge of network cameras and card readers into larger access control systems.

For more information visit **www.comtrol.com/rocketlinx-acs**



- UL294B approved PoE Plus switch for Access Control applications
- Voltage boost technology: 12/24VDC input power and output up to 55VDC for PoE devices
- Four PoE Plus 802.3af/802.3at compliant ports for powering Access Control card readers and cameras
- 120W PoE power budget guarantees full 30W PoE Plus power to each port
- Four Fast Ethernet ports and two Gigabit uplink ports for high bandwidth throughput
- Relay alarm supporting 24VDC at 1A for notification of port and power events
- Rugged aluminum housing features panel or DIN rail mounting options
- Easy plug-and-play installation

IO-LINK MASTER EIP-4

Comtrol's IO-Link Master EIP-4 combines the benefits of the IO-Link standard with the EtherNet/IP and Modbus TCP protocols. The IO-Link Master effectively shields the PLC programmers from the IO-Link complexities by handling those complexities itself. The result is simplified EtherNet/IP and Modbus TCP interfaces, which decreases system development time and installation efforts.

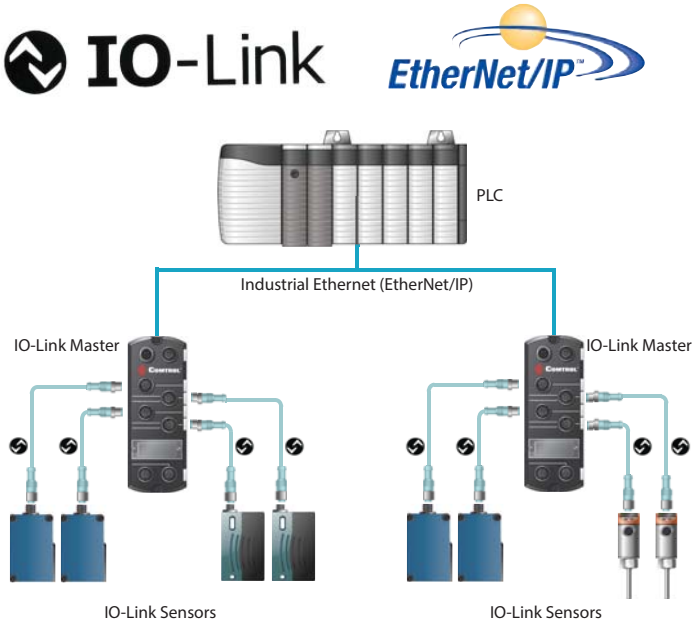
The IO-Link Master features a rugged IP67 slim-line design incorporating two Fast Ethernet ports and four IO-Link ports with M12 connectors. Designed for harsh environments, its machine-mount design uses industrial grade components. The IO-Link Master is easily integrated into a system network, and is compatible with existing and new industrial Ethernet installations.

What is IO-Link?

IO-Link is a powerful, standard an increasingly deployed point-to-point serial communication protocol used to communicate with sensors and/or actuators. Extending the globally recognized PLC standard IEC 61131, it allows three types of data to be exchanged: process data, service data and events.

For more information visit **www.comtrol.com/io-linkmaster**

- Four channel IO-Link Master to EtherNet/IP
- EtherNet/IP access to IO-Link sensor process, event and service data
  - Class 1 (Implicit) and Class 3 (Explicit) interfaces
  - Write-to-Tag/File, Read-from-Tag/File
- Modbus TCP access to IO-Link sensor process, event and service data
- Rugged IP67 housing with M12 connectors for harsh environments
- DLR for fast network recovery
- Windows app and web GUI for configuration and diagnostics
- Wide operating temperature (0° to +70°C)
- LEDs for device, network and port status
- Additional digital input on every port
- Powerful web configuration
- IO-Link V1.1 compatibility
- IO-Link COM1, COM2 and COM3 support (230K baud rate)
- Slim-line machine-mount installation



PRODUCT ACCESSORIES

MEDIA CONVERTERS AND POWER SUPPLIES

Product Accessories Models	Part Number
ROCKETLINX MC5001 SERIAL TO ETHERNET	
RocketLinx MC5001 Single-Mode	32000-5
RocketLinx MC5001 Multi-Mode	32001-2
ROCKETLINX MC7001 ETHERNET TO FIBER	
RocketLinx MC7001 Single-Mode	32020-3
RocketLinx MC7001 Multi-Mode	32021-0
DIN RAIL POWER SUPPLIES	
Power Supply PS1020 (24V, 24W)	32100-2
Power Supply PS1040 (24V, 40W)	32103-3
Power Supply PS1060 (24V, 60W)	32101-9
Power Supply PS1100 (24V, 100W)	32102-6
Power Supply PS1100A (48V, 100W)	32122-4
PULS ML60.242	32112-5
POWER CORDS	
Australia Power Cord Kit	1200052
China Power Cord Kit	1200049
India Power Cord Kit	1200051
Japan Power Cord Kit	1200050
UK Power Cord Kit	1200053
UNIVERSAL POWER SUPPLIES	
Universal Power Supply Kit (24V, 24W, 3-Pin Terminal Block)	1200036
Universal Power Supply (5VDC, 15W, 2.1MM Barrel Connector)	1200037
Universal Power Supply (24VDC, 24W, 3-Wire)	1200038
Universal Power Supply (48V, 120W, Bare Wire)	1200048

Product Accessories Models	Part Number
SFP TRANSCEIVERS	
SFP, Multi-Mode, 100Base-FX Fast Ethernet	1200042
SFP, Multi-Mode, 100Base-FX (Extended Temperature)	1200057
SFP, Single-Mode, 100Base-FX Fast Ethernet	1200043
SFP, Single-Mode, 100Base-FX (Extended Temperature)	1200058
SFP, Multi-Mode, 1000Base-SX Gigabit Ethernet	1200044
SFP, Multi-Mode, 1000Base-GSX (Extended Temperature)	1200059
SFP, Single-Mode, 1000Base-LX Gigabit Ethernet	1200045
SFP, Single-Mode, 1000Base-GLX (Extended Temperature)	1200060
SFP, Single-Mode, 1000BASE-GLHX (Extended Temperature)	1200061
SFP, BIDI, 10KM, 1310 TX/1550 RX, Gigabit	1200080
SFP, BIDI, 10KM, 1550 TX/1310 RX, Gigabit	1200081
SFP, BIDI, 20KM, 1310 TX/1550 RX, Gigabit	1200082
SFP, BIDI, 20KM, 1550 TX/1310 RX, Gigabit	1200083
FIBER ADAPTER CABLE	
LC-ST Fiber Adapter Cable Multi-Mode	1200055
LC-ST Fiber Adapter Cable Single-Mode	1200056
POWER OVER ETHERNET SPLITTER	
Power over Ethernet Splitter (24VDC, 24 Watts)	1200054
ADAPTER KITS	
DB9F to RJ45F Adapter Kit, 4 Piece	1200047
DB9 Female to DB25 Female Adapter Kit	30300-8
DEVICEMASTER RACKMOUNT SHELF	
DeviceMaster Rackmount Shelf	99160-1

ROCKETLINX

INDUSTRIAL ETHERNET SWITCH PRODUCT COMPARISON CHART







Industrial Ethernet Switch	RocketLinx ES8105 (32025-8)	RocketLinx ES8105F-S (32026-5)	RocketLinx ES8105F-M (32027-2)	RocketLinx ES8105-GigE (32075-3)	RocketLinx ES8108 (32055-5)	RocketLinx ES8108F-M (32057-9)	RocketLinx ES8108F-S (32056-2)
HARDWARE							
Managed/Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged
Total Ports	5	5	5	N/A	8	8	8
10/100BASE-TX Ports	5	4	4	5	8	6	6
10/100/1000BASE-TX Ports	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Combo Ports	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiber Ports	N/A	1 (100BASE-FX)	1 (100BASE-FX)	N/A	N/A	2 (100BASE-FX)	2 (100BASE-FX)
Fiber Support (Multi-Mode)	N/A	N/A	2KM	N/A	N/A	2KM	N/A
Fiber Support (Single-Mode)	N/A	30KM	N/A	N/A	N/A	N/A	30KM
Fiber Connector	N/A	Duplex SC	Duplex SC	N/A	N/A	Duplex SC	Duplex SC
AC Power Input	18-27V	18-27V	18-27V	N/A	N/A	N/A	N/A
DC Power Input	18/32V	18-32V	18-32V	12-48V	12-48V	12-48V	12-48V
Power Consumption	Max. 3 Watts	Max. 4 Watts	Max. 4 Watts	Max. 8 Watts	Max. 8 Watts	Max. 12 Watts	Max. 12 Watts
Alarm Relay Output	1A, 24VDC	1A, 24VDC	1A, 24VDC	1A, 24VDC	1A, 24VDC	1A, 24VDC	1A, 24VDC
Digital Input/Output	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ENVIRONMENTAL							
Operating Temperature	-25° to 70°C	-10° to 60°C	-10° to 60°C	-10° to 70°C	-25° to 70°C	-25° to 70°C	-25° to 70°C
MTBF	93.45 Years	81.45 Years	81.45 Years	29 Years	45.7 Years	45.7 Years	45.7 Years
MECHANICAL							
Mounting Method	DIN Rail	DIN rail	DIN rail	DIN rail or wall mount	DIN rail	DIN rail	DIN rail
Case Protection	IP31	IP31	IP31	IP31	IP31	IP31	IP31
CERTIFICATIONS							
NEMA TS2	No	No	No	No	No	No	No
CE/FCC/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years





Industrial Ethernet Switch	RocketLinx ES8108-GigE (32085-2)	RocketLinx ES8509-XT (32065-4)	RocketLinx ES8510 (32060-9) & ES8510-XT (32061-6)	RocketLinx ES8510-XTE (32062-3)	RocketLinx ES9528 (32070-8) & ES9528-XT (32071-5)
HARDWARE					
Managed/Unmanaged	Unmanaged	Managed	Managed	Managed	Managed
Total Ports	8	9	10	10	28
10/100BASE-TX Ports	0	0	7	7	24
10/100/1000BASE-TX Ports	8	9	3	3	4
Combo Ports	N/A	5 (RJ45/SFP)	3 (RJ45/SFP)	3 (RJ45/SFP)	4 (RJ45/SFP)
Fiber Ports	N/A	5 (Gigabit & 100FX SFP)	3 (Gigabit & 100FX SFP)	3 (100FX SFP)	4 (Gigabit)
Fiber Support (Multi-Mode)	N/A	Yes	Yes	Yes	Gigabit SFP
Fiber Support (Single-Mode)	N/A	Yes	Yes	Yes	Gigabit SFP
Fiber Connector	N/A	Duplex LC	Duplex LC	Duplex LC	Duplex LC
AC Power Input	N/A	N/A	N/A	N/A	90-264VAC
DC Power Input	12-48V	10.5-60VDC	12-48V	12-48V	N/A
Power Consumption	Max. 8 Watts	Max. 24W	Max. 20 Watts	Max. 24 Watts	Max. 20 Watts
Alarm Relay Output	1A, 24VDC	1A, 30VDC	N/A	N/A	N/A
Digital Input/Output	N/A	N/A	Yes	Yes	N/A
ENVIRONMENTAL					
Operating Temperature	-10° to 70°C	-40° to 75°C	-20° to 70°C -40° to 74°C (XT)	-40° to 74°C	-25° to 70°C -40° to 74°C (XT)
MTBF	29 Years	48.62 Years	28.53 Years	34.6 Years	25.11 Years
MECHANICAL					
Mounting Method	DIN rail or panel mount	DIN rail	DIN rail	DIN rail	Rackmount
Case Protection	IP31	IP31	IP31	IP31	IP31
CERTIFICATIONS					
NEMA TS2	No	Yes	No	Yes	No
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years

ROCKETLINX

POWER OVER ETHERNET INDUSTRIAL SWITCH PRODUCT COMPARISON CHART




PoE Industrial Switch	RocketLinx ES7105 (32045-6)	RocketLinx ES7106-VB (32047-0)	RocketLinx ES7110 (32048-7)	RocketLinx ES7110-VB (32049-4)
HARDWARE				
Managed/Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged
Total Ports	5	6	10	10
10/100BASE-TX Ports	5	4	8	8
10/100/1000BASE-TX Ports	N/A	2	2	2
Fiber Ports	N/A	N/A	N/A	N/A
PoE Injector Ports	Ports 1-4	Ports 1-4	Ports 1-8	Ports 1-8
PoE Mode	Alternate B	Alternate B	Alternate B	Alternate B
PoE Standard	IEEE802.3 af	IEEE802.3 af	IEEE802.3 af	IEEE802.3 af
PoE Power per Port	15.4 Watts	15.4 Watts	15.4 Watts	15.4 Watts
Power Connector	Screw Terminal	Screw Terminal	Screw Terminal	Screw Terminal
DC Power Input Voltage	48VDC	12-24VDC	48VDC	12-24VDC
Power Jack Input Voltage	48VDC	N/A	N/A	N/A
Total Power Budget	60 Watts	60 Watts	60 Watts	65 Watts
Power Input Redundancy	Yes	No	No	No
MECHANICAL				
Operating Temperature	-20° to 70° C	-25° to 60° C	-25° to 70° C	-25° to 70° C
Mounting Method	Panel mount	DIN rail	DIN rail	DIN rail
Case Protection	IP31	IP30	IP31	IP30
NETWORKING				
Jumbo Frame	No	No	No	No
IGMP/Snooping	No	No	No	No
IEEE 802.1AB LLDP	No	No	No	No
IEEE 1588 PTP	No	No	No	No
SNMP	No	No	No	No
VLAN/QoS/LACP	No	QoS	QoS	QoS
DHCP	No	No	No	No
CERTIFICATIONS				
CE/FCC/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS	CE/UL/RoHS
EN 50121-3-2 Railway EMC	N/A	N/A	N/A	N/A
Warranty	5 Years	5 Years	5 Years	5 Years




PoE Industrial Switch	RocketLinx ES7506 (32050-0)	RocketLinx ES7510 (32035-7)	RocketLinx ES7510-XT (32046-3)	RocketLinx ES7528 (32040-1)
HARDWARE				
Managed/Unmanaged	Managed	Managed	Managed	Managed
Total Ports	6	10	10	28
10/100BASE-TX Ports	6	8	8	24
10/100/1000BASE-TX Ports	N/A	2	2 (RJ45/SFP)	4 (RJ45/SFP)
Fiber Ports	N/A	N/A	2 (Giga SFP)	4 (Giga SFP)
PoE Injector Ports	Ports 1-4	Ports 1-8	Ports 1-8	Ports 1-24
PoE Mode	Alternate B	Alternate A	Alternate A	Alternate A
PoE Standard	IEEE802.3 af	IEEE802.3 af IEEE 802.3at	IEEE802.3 af IEEE 802.3at	IEEE802.3 af IEEE 802.3at
PoE Power per Port	30 Watts	30 Watts	30 Watts	32 Watts
Power Connector	Screw Terminal	Screw Terminal	Screw Terminal	IEC320-C14/Screw Terminal
DC Power Input Voltage	24-55VDC	802.3af: 46-57VDC 802.3at: 50-57VDC	802.3af: 46-57VDC 802.3at: 50-57VDC	802.3af: 46-57VDC 802.3at: 52-57VDC
Power Jack Input Voltage	N/A	N/A	N/A	N/A
Total Power Budget	80 Watts	220 Watts	80 Watts	720 Watts
Power Input Redundancy	Yes	Yes	Yes	Yes
MECHANICAL				
Operating Temperature	-20 to 60°C	-40 to 70° C	-40 to 74° C	-25° to 65° C
Mounting Method	Panel mount	Panel mount	DIN rail	Rackmount
Case Protection	IP31	IP30	IP31	IP31
NETWORKING				
Jumbo Frame	No	Yes	No	Yes
IGMP/Snooping	Yes	Yes	Yes	Yes
IEEE 802.1AB LLDP	No	Yes	Yes	Yes
IEEE 1588 PTP	No	No	Yes	Yes
SNMP	Yes	Yes	Yes	Yes
VLAN/QoS/LACP	Port-based VLAN	VLAN/QoS/LACP	VLAN/LACP	VLAN/QoS/LACP
DHCP	Yes	Yes	Yes	Yes
CERTIFICATIONS				
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/UL/RoHS
EN 50121-3-2 Railway EMC	N/A	Yes	N/A	N/A
Warranty	5 Years	5 Years	5 Years	5 Years

DEVICEMASTER UP

INDUSTRIAL ETHERNET GATEWAYS PRODUCT COMPARISON CHART

Industrial Ethernet Gateways	UP 1-Port5- 30VDC (99441-1)	UP 1-Port VDC Modbus (99501-2)	UP 1-Port Embedded 5-30VDC (99471-8)	UP 2-Port 1E (99531-9)	UP 2-Port 1E Modbus (99532-6)	UP 2-Port 2E (99541-8)	UP 2-Port 2E Modbus (99542-5)
HARDWARE & ELECTRIAL							
Number of ports: 10/100Base-TX	1	1	1	1	1	2	2
Number of Serial Ports	1 x RS232/422/485	1 x RS-232/422/485	1 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
Serial Baud Rate	300bps to 230.4Kbps	50bps to 230Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps
Serial Interface	DB9M	DB9M	DB9M	Screw Terminal	Screw Terminal	Screw Terminal	Screw Terminal
Power Input	5-30VDC Terminal (2.5W)	90 - 260VAC Terminal (2.5W)	5-30VDC Terminal (2.5W)	5-30VDC Terminal (1.5W)	5-30VDC Terminal (1.5W)	5-30VDC Terminal (2W)	5-30VDC Terminal (2W)
Serial Surge Protect	15KV	15KV	15KV	25KV	25KV	25KV	25KV
ENVIRONMENTAL							
MTBF	46.2 Years	46.2 Years	46.2 Years	58.57 Years	58.57 Years	45.66 Years	45.66 Years
Enclosure	Stainless Steel	Stainless Steel	N/A	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic
Dimension	3.6" x 0.8" x 2.8"	3.6" x 0.8" x 2.8"	3.5" x 0.6" x 2.6"	4.37" x 3.9" x 0.89"	4.37" x 3.9" x 0.89"	4.37" x 3.9" x 1.78"	4.37" x 3.9" x 1.78"
Operating Temperature	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C
Installation Method	DIN rail/panel mount	DIN rail/panel mount	Embedded	DIN rail	DIN rail	DIN rail	DIN rail
SUPPORTED PLC PROTOCOLS							
EtherNet/IP	Yes	No	Yes	Yes	No	Yes	No
PROFINET	Yes	No	Yes	Yes	No	Yes	No
Modbus	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SOFTWARE							
DualConnectPlus	Yes	No	Yes	Yes	No	Yes	No
PortVision® Plus Remote Monitoring & Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SSL & SSH Encryption	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Web-based Configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CERTIFICATIONS							
CE/FCC/UL/RoHS	CE/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
NEMA TS2	Yes	No	No	Yes	Yes	Yes	Yes
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years

Industrial Ethernet Gateways	UP DB9M 2-Port 1E (99551-7)	UP DB9M 2-Port 1E Modbus (99552-4)	UP DB9M 2-Port 2E (99561-6)	UP DB9M 2-Port 2E Modbus (99562-3)	UP 4-Port (99447-3)	UP 4-Port VDC Modbus (99521-0)
HARDWARE & ELECTRIAL						
Number of ports: 10/100Base-TX	1	1	2	2	2	2
Number of Serial Ports	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	4 x RS-232/422/485	4 x RS-232/422/485
Serial Baud Rate	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	50bps to 230Kbps
Serial Interface	DB9M	DB9M	DB9M	DB9M	DB9M	DB9M
Power Input	2 x 6-30VDC Terminal (1.56W)	2 x 6-30VDC Terminal (1.56W)	2 x 6-30VDC Terminal (2W)	2 x 6-30VDC Terminal (2W)	9-30VDC Terminal (4.8W)	5-30VDC Terminal (2.5W)
Serial Surge Protect	25KV	25KV	25KV	25KV	15KV	15KV
ENVIRONMENTAL						
MTBF	58.8 Years	58.8 Years	49.5 Years	49.5 Years	25 Years	25 Years
Enclosure	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic	Black Finished Steel	Black Finished Steel
Dimension	4.6" x 3.9" x 0.9"	4.6" x 3.9" x 0.9"	4.6" x 3.9" x 1.8"	4.6" x 3.9" x 1.8"	10.8"x1.5"x6.3"	10.8"x1.5"x6.3"
Operating Temperature	37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C
Installation Method	DIN rail	DIN rail	DIN rail	DIN rail	Panel mount	Panel mount
SUPPORTED PLC PROTOCOLS						
EtherNet/IP	Yes	No	Yes	No	Yes	Yes
PROFINET	Yes	No	Yes	No	Yes	Yes
Modbus	Yes	Yes	Yes	Yes	Yes	Yes
SOFTWARE						
DualConnectPlus	Yes	No	Yes	No	Yes	No
PortVision® Plus Remote Monitoring & Management	Yes	Yes	Yes	Yes	Yes	Yes
SSL & SSH encryption	Yes	Yes	Yes	Yes	Yes	Yes
Web-based configuration	Yes	Yes	Yes	Yes	Yes	Yes
CERTIFICATIONS						
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
NEMA TS2	Yes	Yes	Yes	Yes	No	No
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years

DEVICEMASTER RTS

ETHERNET DEVICE SERVERS
PRODUCT COMPARISON CHART







Ethernet Device Servers	RTS VDC 1-Port DB9 (99440-4)	RTS 1-Port DB9 (99435-0)	RTS VDC 1-Port Embedded DB9 (99470-1)	RTS 2-Port 1E (99480-0)	RTS 2-Port 2E (99481-7)	RTS DB9 2-Port 1E (99550-0)	RTS DB9 2-Port 2E (99560-9)
HARDWARE & ELECTRICAL							
Number of Ports: 10/100Base-TX	1	1	1	1	2	1	2
Number of Serial Ports	1 x RS-232/422/485	1 x RS-232/422/485	1 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
Serial Baud Rate	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps
Serial Interface	DB9M	DB9M	DB9M	Screw Terminal	Screw Terminal	DB9M	DB9M
Power Input	5-30VDC Terminal (2.5W)	5VDC Terminal (2.1W)	5-30VDC Terminal (2.5W)	5-30VDC Terminal (1.5W)	5-30VDC Terminal (2W)	2 x 6-30VDC Terminal (1.6W)	2 x 6-30VDC Terminal (2W)
Included Power Supply	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Serial Surge Protect	15KV	15KV	15KV	25KV	25KV	25KV	25KV
ENVIRONMENTAL							
MTBF	46.2 Years	48.4 Years	46.2 Years	58.57 Years	45.66 Years	58.57 Years	49.5 Years
Enclosure	Stainless Steel	Stainless Steel	N/A	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic	UL94-V0 Plastic
Dimension	3.6" x 0.8" x 2.8"	3.6" x 0.8" x 2.8"	3.5" x 0.6" x 2.6"	4.37" x 3.9" x 0.89"	4.37" x 3.9" x 1.78"	4.6" x 3.9" x 0.9"	4.6" x 3.9" x 1.8"
Operating Temperature	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C
Installation Method	DIN rail/panel mount	DIN rail/panel mount	Embedded	DIN rail	DIN rail	DIN rail	DIN rail
SUPPORTED DEVICE DRIVERS							
Windows 2000/Server 2003/XP Windows Server 2008 Windows Vista Windows 7 Linux	Yes >>						
SOFTWARE							
TCP, UDP Socket	Yes >>						
PortVision® Plus Remote Monitoring & Management							
Web-based Configuration							
SSL & SSH Encryption							
E-mail Event Notification							
CERTIFICATIONS							
CE/FCC/UL/RoHS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NEMA TS2	No	Yes	No	Yes	Yes	Yes	Yes
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years

Ethernet Device Servers	RTS 4-Port DB9 (99445-9)	RTS 4-Port RJ45 (99446-6)	RTS 8-Port DB9 (99448-0)	RTS 8-Port RJ45 (99449-7)	RTS 16-Port RJ45 (99455-8)	RTS 16-Port RJ45 (99450-3)	RTS 32-Port RJ45 (99456-5)
HARDWARE & ELECTRICAL							
Number of Ports: 10/100Base-TX	2	2	2	2	1	2	1
Number of Serial Ports	4 x RS-232/422/485	4 x RS-232/422/485	8 x RS-232/422/485	8 x RS-232/422/485	16 x RS-232/422/485	16 x RS-232/422/485	32 x RS-232/422/485
Serial Baud Rate	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps	300bps to 230.4Kbps
Serial Interface	DB9M	RJ45	DB9M	RJ45	RJ45	RJ45	RJ45
Power Input	9-30VDC Terminal	9-30VDC Terminal	9-30VDC Terminal	9-30VDC Terminal	100-240VAC (US/EU Cord)	9-30VDC Terminal	100-240VAC (US/EU Cord)
Included Power Supply	External 90-240VAC (US/EU)	External 90-240VAC (US/EU) input	External 90-240VAC (US/EU) input	External 90-240VAC (US/EU) input	N/A	External 90-240VAC (US/EU) input	N/A
Serial Surge Protect	15KV	15KV	15KV	15KV	15KV	15KV	15KV
ENVIRONMENTAL							
MTBF	25.0 Years	25.0 Years	21.5 Years	21.5 Years	8.1 Years	13.2 Years	6.0 Years
Enclosure	Black Finished Steel	Black Finished Steel	Black Finished Steel	Black Finished Steel	Black Finished Steel	UL94HB Black Plastic	Black Finished Steel
Dimension	10.8" x 1.5" x 6.3"	10.8" x 1.5" x 6.3"	10.8" x 1.8" x 6.3"	10.8" x 1.8" x 6.3"	17.25" x 1.74" x 10.8"	17.25" x 1.74" x 10.8"	17.25" x 1.74" x 10.8"
Operating Temperature	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-37° to 74°C	-20° to 60°C	-37° to 74°C
Installation Method	Panel mount	Panel mount	Panel mount	Panel mount	Rack mount	Rack mount	Rack mount
SUPPORTED DEVICE DRIVERS							
Windows 2000/Server 2003/XP Windows Server 2008 Windows Vista Windows 7 Linux	Yes >>						
SOFTWARE							
TCP, UDP Socket	Yes >>						
PortVision® Plus Remote Monitoring & Management							
Web-based Configuration							
SSL & SSH Encryption							
E-mail Event Notification							
CERTIFICATIONS							
CE/FCC/UL/RoHS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NEMA TS2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years

ROCKETPORT INFINITY

MULTIPORT SERIAL CARDS
PRODUCT COMPARISON CHART

Multiport Serial Cards	INFINITY Quad DB9M (30005-2)	INFINITY Quad DB25M (30006-9)	INFINITY Octa DB9M (30000-7)	INFINITY Octa DB25M (30001-4)	INFINITY Octa RJ45 (30002-1)
HARDWARE					
Max Cards/System	4	4	4	4	4
Bus Interface	uPCI/PCI-X	uPCI/PCI-X	uPCI/PCI-X	uPCI/PCI-X	uPCI/PCI-X
Board Dimensions	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"
Serial Ports	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
ELECTRICAL					
Power Consumption	1.8W	1.8W	1.8W	1.8W	1.8W
Surge Protection	15KV	15KV	15KV	15KV	15KV
Baud Rate	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps
ENVIRONMENTAL					
Operating Temperature	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C
MTBF	57.1 Years	57.1 Years	57.1 Years	57.1 Years	57.1 Years
DEVICE DRIVERS					
Windows Vista/XP/7/2000 Windows Server 2003/2008 FreeBSD 5/6 Linux QNX 6.X SCO OpenSever 5/6	Yes >>				
DATA CONTROL					
Data Bits	5, 6, 7, or 8 >>				
Parity	odd, even, or none, Mark & space >>				
Stop Bits	1, 1.5, 2 >>				
Flow Control	Hardware or Software >>				
Ring Indicator	Yes >>				
CERTIFICATIONS					
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years

Multiport Serial Cards	INFINITY Quad/Octa Cable 50-pack (30003-8)	INFINITY 8-Port (30020-5)	INFINITY 16-Port (30015-1)	INFINITY 32-Port (30010-6)
HARDWARE				
Max Cards/System	4	4	4	4
Bus Interface	uPCI/PCI-X	uPCI/PCI-X	uPCI/PCI-X	uPCI/PCI-X
Board Dimensions	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"
Serial Ports	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
ELECTRICAL				
Power Consumption	1.8W	2.5W	3.6W	6.7W
Surge Protection	15KV	15KV	15KV	15KV
Baud Rate	300bps - 921.6Kbps	300bps - 460.8Kbps	300bps - 460.8Kbps	300bps - 460.8Kbps
ENVIRONMENTAL				
Operating Temperature	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C
MTBF	57.1 Years	187.2 Years	187.2 Years	152.6 Years
DEVICE DRIVERS				
Windows Vista/XP/7/2000 Windows Server 2003/2008 FreeBSD 5/6 Linux QNX 6.X SCO OpenSever 5/6	Yes >>			
DATA CONTROL				
Data Bits	5, 6, 7, or 8 >>			
Parity	odd, even, or none, mark & space >>			
Stop Bits	1, 1.5, 2 >>			
Flow Control	Hardware or Software >>			
Ring Indicator	N/A >>			
CERTIFICATIONS				
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years

ROCKETPORT EXPRESS

PCIe MULTIPORT SERIAL CARDS PRODUCT COMPARISON CHART






PCIe Multiport Serial Cards	EXPRESS Quadcable DB9M (30126-4)	EXPRESS Quadcable DB25M (30127-1)	EXPRESS Octacable DB9M (30128-8)	EXPRESS Octacable DB25M (30129-5)	EXPRESS Octacable RJ45 (30130-1)	EXPRESS Quad/Octa Cable Bulk 50-Pack (30131-8)
HARDWARE						
Max Cards/sSystem	4	4	4	4	4	4
Bus Interface	PCIe	PCIe	PCIe	PCIe	PCIe	PCIe
Board Dimensions	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"
Serial Ports	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
ELECTRICAL						
Power Consumption	3.1W	3.1W	3.1W	3.1W	3.1W	3.1W
Surge Protection	15KV	15KV	15KV	15KV	15KV	15KV
Baud Rate	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 921.6Kbps
ENVIRONMENTAL						
Operating Temperature	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C
MTBF	48.7 Years	48.7 Years	48.7 Years	48.7 Years	48.7 Years	48.7 Years
DEVICE DRIVERS						
Windows Vista/XP/7/2000 Windows Server 2003/2008 FreeBSD 5/6 Linux QNX 6.X SCO OpenSever 5/6	Yes >>					
DATA CONTROL						
Data Bits	5, 6, 7, or 8 >>					
Parity	odd, even, or none, Mark & space >>					
Stop Bits	1, 1.5, 2 >>					
Flow Control	Hardware or Software >>					
Ring Indicator	Yes >>					
CERTIFICATIONS						
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years





PCIe Multiport Serial Cards	EXPRESS 4J (31305-2)	EXPRESS 8J (31310-6)	EXPRESS 8-Port (30136-3)	EXPRESS 16-Port (30137-0)	EXPRESS 32-Port (30138-7)
HARDWARE					
Max Cards/System	4	4	4	4	4
Bus Interface	PCIe	PCIe	PCIe	PCIe	PCIe
Board Dimensions	4.7"x4.0"	4.7"x4.0"	4.7"x2.6"	4.7"x2.6"	4.7"x2.6"
Serial Ports	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
ELECTRICAL					
Power Consumption	3.1W	3.1W	3.6W	4.7W	7.8W
Surge Protection	15KV	15KV	15KV	15KV	15KV
Baud Rate	300bps - 921.6Kbps	300bps - 921.6Kbps	300bps - 460.8Kbps	300bps - 460.8Kbps	300bps - 460.8Kbps
ENVIRONMENTAL					
Operating Temperature	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C	0° to 60° C
MTBF	99.2 Years	65.6 Years	118.7 Years	118.7 Years	99.6 Years
DEVICE DRIVERS					
Windows Vista/XP/7/2000 Windows Server 2003/2008 FreeBSD 5/6 Linux QNX 6.X SCO OpenSever 5/6	Yes >>				
DATA CONTROL					
Data Bits	5, 6, 7, or 8 >>				
Parity	odd, even, or none, Mark & space >>				
Stop Bits	1, 1.5, 2 >>				
Flow Control	Hardware or Software >>				
Ring Indicator	N/A >>				
CERTIFICATIONS					
CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS	CE/FCC/UL/RoHS
Warranty	5 Years	5 Years	5 Years	5 Years	5 Years

NEMA TS2 Compliance

The NEMA TS2 standard was established by the National Electrical Manufacturers Association (NEMA) to define safe traffic control equipment. Section 2 contains the environmental and testing requirements, including guidelines for temperature (-34° to 74°C), humidity, vibration and shock.

Independent lab testing verified the performance of Comtrol's DeviceMaster serial device servers' and RocketLinx industrial Ethernet switches' when subjected to the extreme temperatures, operating voltage and humidity fluctuation, vibration and shock commonly experienced in severe outdoor environments.

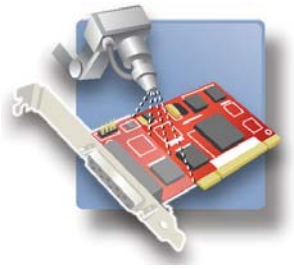
DeviceMaster Product Family

RocketLinx Product Family

Comtrol's NEMA TS2 Compliant Products

RocketLinx ES8509-XT	32065-4
RocketLinx ES8510-XT	32061-6
RocketLinx ES8510-XTE	32062-3
RocketLinx ES9528-XT	32071-5
RocketLinx ES7510-XT	32046-3
DeviceMaster RTS 1-Port DB9	99435-0
DeviceMaster RTS 2-Port 1E	99480-0
DeviceMaster RTS 2-Port 2E	99481-7
DeviceMaster RTS 2-Port DB9 1E	99550-0
DeviceMaster RTS 2-Port DB9 2E	99560-9
DeviceMaster RTS 4-Port DB9	99445-9
DeviceMaster RTS 4-Port RJ45	99446-6
DeviceMaster RTS 8-Port DB9	99448-0
DeviceMaster RTS 8-Port RJ45	99449-7

Conformal Coating



Conformal coating is a protective non-conductive dielectric layer that is applied onto the printed circuit board assembly to protect the electronic assembly from damage due to contamination, salt spray, moisture, fungus, dust, and corrosion caused by harsh or extreme environments.

It is most commonly applied to products that are used in outdoor environments where heat and moisture are prevalent. Coating may also prevent damage from rough handling, installation, reduction of mechanical and thermal stress. It also acts to protect circuitry and components from abrasion and solvents.

Comtrol offers three different types of conformal coatings:

Silicone (Dow 1-2577)

Silicone is typically used in high-temperature environments. It has good moisture and humidity resistance. It has good thermal shock resistance due to its flexibility. Its moisture resistance is similar to urethane and acrylic. Its dielectric withstand is lower than for the other coatings (1100 volts/mil). Its typical temperature range is -65°C to 200°C.

Urethane (Conap CE1155)

A urethane coating is hard and durable, making it have excellent resistance to solvents. It has similar moisture resistance to acrylic and silicone. Shrinkages during curing and hard film may stress the electronic components. The urethane temperature range is quite similar to acrylic.

Acrylic (Humiseal 1B73)

An acrylic coating is typically solvent-based and is usually tough, hard and transparent. It exhibits low moisture absorption and has short drying times. However, this type of coating does not demonstrate resistance to either abrasion or chemicals, especially petroleum solvents and alcohol.
The acrylic coating's typical dielectric withstand is greater than 1500 volts and has a temperature range of -59°C to 132°C.

Calculating PoE Power Loss

Power losses occur in PoE applications due to cable resistance, prompting the PoE standard to define a higher PoE output voltage for PSE (Power Sourcing Equipment) than the PoE output voltage at the destination, which is a PoE Powered Device (PD). The voltage dictates how much power is available at a PoE PD. To meet PoE standard, PoE injector ports and PoE PDs have to meet the following voltage, wattage, and current requirements:

Standard PoE parameters and comparison

Property	802.3af (802.3at Type 1)	802.3a Type 2 (PoE+)
Power available at PD	12.95 W	25.50 W
Maximum power delivered by PSE	15.40 W	34.20 W
Voltage range (at PSE)	44.0–57.0 V	50.0–57.0 V
Voltage range (at PD)	37.0–57.0 V	42.5–57.0 V
Maximum current	350 mA	600 mA
Maximum cable resistance (100M cable)	20 Ω (Category 3) or lower	12.5 Ω (Category 5) or lower
Supported cabling	Category 3 and Category 5 or higher	Category 5 or higher
Supported modes	Mode A (endspan) Mode B (midspan)	Mode A, Mode B

In any PoE application, it is critical to perform a cable power loss calculation to ensure the PoE PDs have the required power available to them. The following method can be used to calculate the power loss due to cable resistance and the available power at the PoE PD:

- Step 1 – Calculate Output Current
  - o $I_{current} = P_{out}/V_{out}$
    Where:
    $I_{current}$ = Output current from PoE switch
    P_{out} = Output power from PoE switch
    V_{out} = Output voltage from PoE switch

- Step 2 – Calculate voltage drop across the cable due to cable resistance
  - o $V_{drop} = I_{current} * R_{cable}$
    Where:
  - o V_{drop} = Voltage drop over the cable length due to cable resistance
  - o R_{cable} = Cable resistance

- Step 3 – Calculate the actual voltage (V_{pd}) at the destination (PoE PD)
  - o $V_{pd} = V_{out} - V_{drop}$

- Step 4 – Calculate the actual wattage (P_{final}) available for the PoE PD
  - o $P_{final} = V_{pd} * I_{current}$

Two examples on how to calculate power loss are provided below, one for PoE applications and one for PoE Plus applications:

- **Example 1** – PoE Application (15.4-watts) using RocketLinx ES7510 PoE

Cable Type	CAT5 or higher (12.5Ω cable resistance)
Cable Length	100 Meters (328-feet)
Power Input Voltage	48VDC
PoE Output Power	15.4-Watts
PoE Output Voltage	46.5VDC (Typical PoE output voltage from ES7510 at 15.4-watts)

Given the above information, the power loss and the actual wattage at the PoE PD (P_{final}) can be calculated as follows:

- Step 1 – $I_{current} = P_{out} / V_{out} = 15.4 / 46.5 = 0.33A = 330mA$
- Step 2 – $V_{drop} = I_{current} * R_{cable} = 0.33 * 12.5 = 4.12VDC$
- Step 3 – $V_{pd} = V_{out} – V_{drop} = 46.5 – 4.12 = 42.38VDC$
- Step 4 – $P_{final} = V_{pd} * I_{current} = 42.38 * 0.33 = 13.98$-watts

As illustrated above, the available power at the destination (PoE PD) will be 13.98-watts.

- **Example 2** – PoE Plus Application (30-watts) using RocketLinx ES7510 PoE

Cable Type	CAT5 or higher (12.5Ω cable resistance)
Cable Length	100 Meters (328-feet)
Power Input Voltage	55VDC
PoE Output Power	30-Watts
PoE Output Voltage	53VDC (Typical PoE output voltage from ES7510 at 30-watts)

Given the above information, the power loss and the actual wattage at the PoE PD (P_{final}) can be calculated as follows:

- Step 1 – $I_{current} = P_{out} / V_{out} = 30 / 53 = 0.56A = 560mA$
- Step 2 – $V_{drop} = I_{current} * R_{cable} = 0.56 * 12.5 = 7VDC$
- Step 3 – $V_{pd} = V_{out} – V_{drop} = 53 – 7 = 46VDC$
- Step 4 – $P_{final} = V_{pd} * I_{current} = 46 * 0.56 = 25.7$-watts

As illustrated above, the available power at the destination (PoE PD) will be 25.7-watts.

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