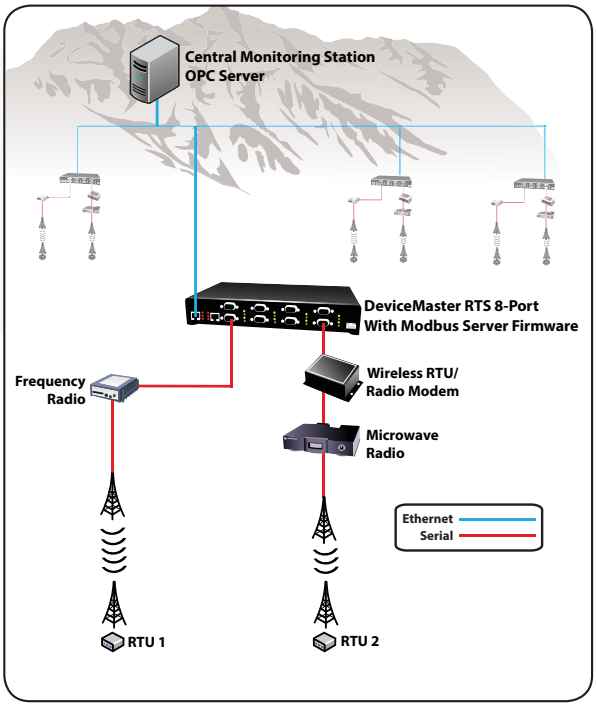
ENERGY APPLICATION

# WIDE-AREA NETWORK PERFORMANCE DIAGNOSTICS - DEVICEMASTER RTS AND MODBUS SERVER

A research and natural resource development company in remote northern Canada was experiencing some unexpected performance issues between devices in their wide-area wireless network.

The company has a sensor data monitoring system in place, stretched across several miles of wilderness. Remote terminal units (RTUs) are positioned to monitor natural gas wells and send sensor data back to a central monitoring station containing an OPC server. However, this data is routed through repeaters, which ideally maintain data movement through the system without loss from signal strength and cable distance restrictions.

After the data clears the repeaters, it is routed to Comtrol's DeviceMaster RTS device server, running Modbus Server firmware. This firmware contains an advanced diagnostics system, which detects device failures, timeouts, corrupt data, successful data, and many other things. This device feedback gives system operators increased insight to their industrial communications, leading to easier problem-solving and troubleshooting.




The diagnostics information provided by the Modbus firmware for this company's system indicated specific problems with some of the devices, specifically with devices that were further away from the central monitoring station. The troubled channels had more devices on each data loop, and were using more repeaters to send signals back to the monitoring station. Frequent timeouts concerning specific RTUs was becoming an issue, with diagnostics information showing numbers as high as 198 - while the total error counts were typically 0 or 1 on healthier loops.

The system was losing data due to timeouts - but in other cases, the wireless signal became so distorted that by the time data packets arrived at the destination, they no longer resembled a proper Modbus data packet. The DeviceMaster RTS is designed to discard invalid (junk) data rather than pass it on if its format is in violation of the protocol in use.

With help from the Modbus diagnostics system and Comtrol's technical team, the company was able to determine potential solutions to the system failures. The first solution was adjusting timeout allotments. More time would be allowed for specific devices to reply before reporting an error. This decreased failures some, but distorted signals throughout the system were still being detected. The company was then instructed to check the cabling lines, which proved to be the other evident failure source. The cabling was of incorrect type, with no shielding or other protection from outside noise. Upgrading the cables drastically enhanced system performance.

The energy company was recommended Comtrol's DeviceMaster RTS 8-Port by an area distributor to replace a previous serial device controller. System diagnostics capabilities also exist in Comtrol's other Modbus firmware applications. Whether your controller communicates through Modbus/TCP, Modbus serial, Ethernet TCP/IP, or COM ports; whether it is a master or slave; whether the Modbus slave device is Modbus/TCP, Modbus RTU, or Modbus/ASCII serial (local or remote); whether the Raw/ASCII device is connected via serial or Ethernet TCP/IP; or whether you require simple connectivity or large scale Modbus networks - we have it covered.

The Modbus Server application was designed to provide enhanced connectivity for OPC servers and applications that require Modbus/RTU communication. 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 was designed to greatly enhance system maintenance capabilities. Included are comprehensive device and port specific diagnostic web pages that display status, message response timing, timeout and other error counts, and overall message statistics. A serial log is also included to provide message level diagnosis.

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# DeviceMaster® RTS 8-Port DB9

Part Number: 99448-0


## KEY FEATURES AND BENEFITS

- No serial cable distance limitations enables communication between a host PC and serial devices located anywhere across an Ethernet network
- Software selectable RS-232/422/485 serial interfaces
- Supports native COM, TTY, or TCP/IP Socket communication modes
- Web-based configuration makes setup and management changes quick and easy
- Real-time e-mail event notification alerts administrator of potential connection and security issues
- Temperature rated for extreme conditions (-37° to 74°C)
- Rugged stainless steel housing enables DIN rail or panelmounting
- PortVision® DX monitoring and management software automatically monitors devices on the network and enables user to view status, update firmware and resolve issues remotely
- NEMA TS2 certified
- RoHS2 compliant under CE
- IPV6 support

## PRODUCT DESCRIPTION

The Comtrol DeviceMaster RTS 8-Port DB9 is an eight-port device server designed for network-enabling serial communications devices. When used with the included NS-Link™ driver software and a host PC, the DeviceMaster RTS enables placement of COM or TTY ports anywhere on an Ethernet network or across the Internet. In applications where connecting legacy serial devices to a PC without software changes is a requirement, a pair of DeviceMaster RTS units can be used to create a point-to-point serial tunnel across the network that seamlessly transfers serial data via TCP or UDP socket connections.

COMTROL®

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

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