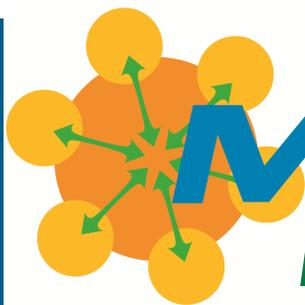


MODBUS  
ORGANIZATION, INC.



# Modbus Newsletter

VOLUME 2, ISSUE 4

DEC 2016

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## To All Our Friends around the World..

### Best wishes for peace and prosperity in 2017!



Photo credit: böhringer friedrich - own work, CC by-SA 2.5, <https://commons.wikimedia.org/w/index.php?curid=5642426>

# Meet Our Members...

Founded in 1984, [ACKSYS Communications & Systems](#)

started out by developing high-performance, CPU-powered, synchronous communication controller boards, dedicated to the management of specific links for military, aeronautical and telecom equipment connections.

The company soon expanded to work in railway signaling, cross-road light management, and other transportation applications.

ACKSYS then developed its expertise in wireless communications based on WiFi technology, launching one of the first WiFi access points and Ethernet bridges dedicated to industry. The company continues to serve multiple industries, including transportation, industrial processes, mining, oil and gas.

In October 2016, ACKSYS announced the release of

RailTrack, a robust wireless backbone AP, ideal for cost-effective and highly scalable deployments of trackside networks. RailTrack is certified for trackside and tunnel infrastructures. It can be connected to the ground network through either Gbps fiber optic or copper connections.



*Joining the Modbus Organization is easy and affordable. Download the [membership application](#) to learn more.*

Based in Germany, [Phoenix Contact](#) is a global industry leader, offering components, systems, and solutions in the fields of electrical engineering, electronics, and automation.

With a presence in over 100 countries, Phoenix has more than 14,500 employees to stay close to its large customer base.

Phoenix Contact's extensive product offering includes a broad array of protocol

converters, network gateways, communication modules, device connectors, and other devices that support Modbus, as well as many other major industrial communications protocols.



For more than 30 years, [Control Corporation](#) has manufactured and sold quality networking and industrial data communication products, specializing in industrial Ethernet and device connectivity.

Control provides solutions for a wide range of security, energy, industrial automation, and transportation applications.

Control's IO-Link Master provides a versatile industrial IO-Link Master gateway solution for the Modbus TCP protocol. The IO-Link Master Modbus TCP combines the benefits of the IO-Link standard with the Modbus TCP protocol to integrate the IO-Link Master into an industrial network with existing or new Modbus TCP installations.



Control's IO-Link Master 8-EIP



# Q&A from the Modbus Discussion Forum

## Modbus RTU Polling Delay...

### Graham Pyatt wrote:

I am trying to implement a Modbus RTU system (PLC to four (4) Servers) and have found it necessary to set the polling delay to 100 mS for reliable operation.

The problem appears to be with the Server response.

I understood that if a Server receives a normal (error-free) message, it will respond. There will be minimal time required following a response before a Server is ready to accept another message. There is no indication of a polling delay being required in the Modbus Protocol.

Why is a 100 mS delay required and is there anything that can be done to reduce the delay?

### Harvard suggested:

The required (turnaround) delay is most likely due to 1/2 duplex physical layer like 2-wire RS485. In 2-wire RS485 the Client must release the RS485 Transmitter before the Server tries to respond.

### Graham replied:

Thanks for the information. Quite useful. The system is 2-wire RS485. The servers can't operate 4-wire RS485.

I presume the turnaround delay as described would be attributable to the Client (3-4 mS). Each Server has a query/response overhead of around 38 mS (+ waiting time) at 9600 baud. This suggests the servers are largely behind the requirement for a 100 mS polling time.

We are currently operating the link at 9600 baud. I think the polling time can be reduced by a factor of 4 by increasing the baud rate to 38400 (maximum available).

I have suggested that.

### Harvard had this to say:

It is a common misconception that doubling (or 4-fold increase) will result in the same increase in throughput. There is too much overhead in 1/2 duplex required delays to allow this increase in speed to bear a significant amount of fruit.

### Graham answered:

Thanks for that. I have suggested some improvement may be possible. Since a polling time is required in any event, there is little advantage in changing from 100 mS. The signals are relatively slow changing (transformer temperatures) so I don't think it is particularly detrimental in staying where we are. The key thing is the reliability of the communications, and we have no communication failures with this polling time.

[Read more or add your comments](#) to this thread.

## Communications Test Rig for Common Protocols...

### Inchman posted this query:

I am looking to set up a demonstration/test rig where common protocols, e.g., Modbus, Profibus, Hart, could be set up to communicate with devices such as chart recorders. Is there anything on the market? What would be a good entry cost to build, apart from Wireshark? Any suggestions on suitable protocol tools?

### David\_2 wrote:

What tasks are you doing that you need a protocol analyzer for?

I've connected devices to Modbus-enabled recorders (both as Client and Server), but have never needed Wireshark to analyze the serial or TCP traffic to get them working, but I could have been lucky.

The recorders I've encountered have

not had HART-enabled inputs, so I've used a HART-to-Modbus converter.

HART point-to-point for configuration has always worked with enough resistance in the loop, except once when I found a power supply that would eat all the HART FSK data. Changing the power supply got HART running.

It is my impression that the commercial HART multiplexors use Modbus as the protocol to get data out of the gateway.

HART Multidrop needs a host program to poll the individually addressed devices on the network.

### Jonas Berge added:

Consider a DCS, with interface cards for the protocols you want to work with.

For example [www.deltav.com](http://www.deltav.com). You can start with interfaces for Fieldbus, 4-20 mA/HART input, and 4-20 mA/HART output. Then you can add cards for Modbus, Profibus, ASI, and DeviceNet etc., as needed.

A chart recorder will not allow you to fully explore the capabilities of these protocols.

[Read more or add your comments](#) to this thread.

## The Modbus Community

- Technical discussions
- Knowledge aggregation
- Contact with Modbus users

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### The Modbus Organization Mission

The Modbus Organization, Inc. is a group of independent users and suppliers of automation devices that seeks to drive the adoption of the Modbus communication protocol suite and the evolution to address architectures for distributed automation systems across multiple market segments. Modbus Organization also provides the infrastructure to obtain and share information about the protocols, their application, and certification to simplify implementation by users resulting in reduced costs.

# Modbus Resources

## Modbus Q&A...

The Modbus Community is the premier on-line engineering discussion forum. Sponsored by the Modbus Organization and supported by Control.com, check out Q&A from the [Modbus Community](#) website or log-in and have the threads you want emailed directly to you.

### The Modbus Community

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supported by...



## Modbus conformance certification...

The Modbus Conformance Testing Program provides independent verification that a broad array of qualifications has been met in compliance with Modbus specifications. It provides verification that a device's design and configuration process will proceed smoothly and that products were developed in accordance with key Modbus criteria. [Learn more...](#)

## Looking for the Modbus specifications and implementation guides?

The Modbus specifications and guides for implementing Modbus over serial line or Modbus TCP can be downloaded freely from the Modbus.org [Technical Resources page](#).

## Order the Modbus TCP Developer Toolkit

The Modbus TCP Toolkit provides all the necessary pieces to develop a Modbus TCP/IP-compliant device, including documentation, diagnostic tools, sample source code, and pre-test software to prepare for Modbus conformance certification.

[Learn more...](#)

