Modbus Newsletter

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Modbus Conformance Certified...

Member company AGILiCOM has just completed conformance testing for the AGILiGATE Modbus TCP-to-Modbus serial gateway, model AG-P014.

AGILiCOM, located southwest of Paris, helps companies optimize their industrial communication projects, including hardware and software development, training on industrial communication, and communication optimization. The company also provides tools, connectors, and equipment for communication projects.

The AGILiGATE Modbus TCP-to-Modbus serial gateway supports Function Codes 1, 2, 3, 4, 5, 6, 15, 16, and 23.

Other devices in the product family include gateways for serial Modbus to CANopen and PROFIBUS among others.

Read more on the Modbus Organization website to learn bout **Modbus Conformance Testing** for your company's Modbus devices.

AGILiGATE gateway, model AG-P014

Wishing you all a safe and rejuvenating summer...

Photo by Archbob (https://commons.wikimedia.org)

Meet Our Members...

MatrikonOPC is a vendor-neutral connectivity supplier. The company provides equipment data connectivity products based on the OPC standard. MatrikonOPC promises to empower customers with reliable data access for all major automation vendors' systems from native device connectivity to enterprise-wide visibility, provide practical OPC training, and deliver superior client care. With offices in North America, Europe, Asia-Pacific and the Middle East, MatrikonOPC has a local presence on a global scale.

The company offers the Matrikon Industrial UA Modbus Gateway, which provides a simple and secure method to gain access to data from RTUs, PLCs, or other devices that use the Modbus protocol.

Matrikon UA Modbus Gateway

Joining the Modbus Organization is easy and affordable. Download the membership application to learn more.

Control Solutions, Inc., a long-time member of the Modbus Organization, offers a line of control products tailored to facility management, building automation, telecommunications, and remote monitoring and control.

The company provides a line of off-the-shelf embedded control products with BACnet, LonWorks, Modbus, ZigBee, and SNMP connectivity, plus cellular and satellite connectivity.

Control Solutions also provides custom programming for standard hardware and customized hardware solutions.

Check out Control Solution's Modbus tutorial, *Modbus 101 - Introduction to Modbus* for a great overview or for a tune-up of your own Modbus expertise.

Moxa provides a full spectrum of quality products for industrial networking, computing, and automation, and maintains a distribution and service network that reaches customers in more than 70 countries around the world.

Moxa products are found in factory automation, smart rail and grid, transportation, oil & gas, marine, and mining.

Moxa's product offering includes the MGate family of gateway solutions, which address the need to communicate between Modbus TCP and Modbus serial, as well as Modbus and DNP3 or Ethernet/IP.

Moxa also offers a range of flexible data acquisition solutions for wired and wireless networks.

The company's ioLogik™ units feature automatic tag generation and reporting . In addition, the ioLogik™ 2542-WL1 and 2512-WL1 both feature a 4-port unmanaged Ethernet switch and two serial ports for connection to a variety of field devices. The serial ports support data polling from devices using the Modbus protocol. Data can be converted into Modbus TCP or AOPC tag format before sending it out over the Ethernet network.

iRidium Software Toolkit

iRidium's software toolkit is designed to help you create visualization — graphical user interfaces — that meet your customers' needs and preferences.

The product is designed to work with iOS, Android or Windows-based devices. With the addition of iRidium Server, you can add logic, scenes, schedules, and more to your projects.

You can use OnBox with preinstalled iRidium Server or install iRidium Server on any Windows/Linux device.

Test iRidium for free during a 20-minute trial session or press the button in My Account section to get a free 60-day trial period for each project. After you make sure that everything works, you can purchase a commercial license for your project.

Both iRidium Server and the i3 pro application support Modbus technology in multiple modes:

- Modbus TCP master (client mode)
- Modbus TCP Slave (server mode)
- Modbus ASCII Serial
- Modbus RTU Serial
- Modbus ASCII over TCP
- Modbus RTU over TCP

How do users make iRidium work for for their projects? Here's a brief outline:

1. Register on www.iridiummobile.net website and download the installation file.

2. Open iRidium Studio software and create a user interface, or select a preconfigured user interface.

3. Add any other drivers you may need in addition to Modbus (for example, Z-Wave).

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Modbus Modules for Rockwell Automation CompactLogix Controllers

Molex recently introduced two new seamlessly integrated Modbus modules for Rockwell Automation CompactLogix controllers.

The two Universal Modbus modules connect CompactLogix controllers to any Modbus TCP or Modbus serial networks from the same module, even at the same time.

The first module is a Standard version (SST-ERS2-CPX-S) and the second is a Plus version (SST-ESR2-CPX-P), which supports extended addressing to 30,000 I/O words and up to 256 Modbus commands per port.

The modules have two independent RS232/RS422/RS485 serial ports that support ASCII and RTU formats. The ports can be configured to operate as Modbus masters and/or Modbus slaves. The software automatically determines if the Modbus message is RS232/RS422/RS485, eliminating the problem of improperly setting dip-switches. Also, each module has one Ethernet port (independent of the CompactLogix Ethernet port) that executes Modbus TCP protocol.

Alternatively, with these modules the Ethernet port can be used as another means for configuration and troubleshooting. This provides additional

flexibility for configuration as well as troubleshooting, allowing options for using either a backplane connection or the front of the module.

Molex SST-ESR2-CPX x

With 2500V electrical isolation between all three Modbus ports, as well as between the ports and backplane, the new Universal Modbus modules provide superior network reliability and smart functionality.

See Molex for more information.

Q&A from the Modbus Discussion Forum

Java Modbus library...

Nicram submitted this question:

I'm looking for a free Modbus library for Java. I found Jamod library, but I'm not sure that this library is still developed and supported.

When I try to run examples supplied with Jamod, I receive an error that some javax.comm libraries (Java communications api) are missing. But when I try to download these libraries from Java site, there are no libraries for Windows platform, because Windows is no longer supported.

I need to write a simple Modbus application in Java under Windows, but don't know what to do.

pvbrowser offered:

You could take our C++ library and wrap it with http://swig.org for using it from Java.
http://pvbrowser.org/pvbrowser/sf/manual/rllib/html/classrlModbus.html

The library is part of http://pvbrowser.org.

You can download the library as a separate package from http://pvbrowser.de/pvbrowser/tar/rllib.tar.gz

Frank O'Gorman answered:

RXTX (http://rxtx.qbang.org/) provides a Java serial comms implementation that should work with Jamod, although you will probably have to build Jamod yourself in order to use itt. See http://jamod.sourceforge.net/development/serial_slave_howto.html.

I have never used Jamod, so if you need further help you should probably try the Jamod forum (http://sourceforge.net/projects/jamod/forums).

Julie Haugh replied:

jamod is mostly not being developed, and appears to have been out of active development for quite a while. The

project owner will insist otherwise, but too many people have reached the same conclusion.

My company makes hardware and software that relies on Modbus for communication, so I decided it was time to fork "jamod" and came out with "j2mod."

I'd been using a version of "jamod" for several years that I'd patched and updated quite a bit, so "j2mod" is mostly ready for production use. The only untested features are all of the messages "jamod" did not support. I believe it's the only open source product with support for READ FILE RECORD and WRITE FILE RECORD. The test functions for those two commands are some of the first I added.

You can download the source and Javadocs from SourceForge: https://sourceforge.net/projects/j2mod/files/

And, of course, it's free.

Read more or add your comments to this thread.

Modbus RTU Network and Slave Addresses ...

ffares posted this query:

I have to perform a communication between Modbus master device and slave device. The master device is a PLC, which can be programmed from a webpage and also can be configured from there. The Slave devices are normal actuator I/Os. The parity and the baud rate can be set manually on the device itself.

The question is: How can I get the address of a slave?

In the datasheet is written that the devices can be addressed from 1 to 100 but this [didn't make a lot of sense] to me.

Is there software available that can be used to scan my network to detect

slaves and by detecting a new device, can I give this device a unique address from the range 1 to 100?

I hope that someone can help me.

W.L. Mostia Jr., PE advised:

It is normally set on the slave and then inputted into the master's communication software configuration for the slave. This may be set with your programming software for the slave or may be set in hardware (typically dip switches), depending on design. Your slave device documentation should cover this or if not, call the manufacturer and discuss this with them. Normal Modbus slave address range is 1 to 247 but apparently the slave manufacturer or your master software has limited your addresses to 1-100.

David_2 wrote:

The data sheet probably does not have as much detail as a manual or users guide has. Look for a users guide or manual.

The main methods used to configure a Modbus slave ID on various devices are:

- DIP switches
- Rotary switches
- Jumpers
- Software access to the firmware
- Pushbutton menu access from local display and keyboard

There's some means to change the slave address; you need to find out what it is.

Read more or add your comments to this thread.

Modbus Organization, Inc.

5 Cedar St
PO Box 628
Hopkinton, MA 01748
USA

E-mail: info@modbus.org
Phone: +1 508-435-7170
Fax: +1 508-435-7172

www.modbus.org

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

- **Technical discussions**
- **Knowledge aggregation**
- **Contact with Modbus users**

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...