DATASHEET

Modbus TCP/IP to CC-Link Local & Intelligent Station Gateway

5209-MNET-CCLINK

ProSoft Technology's Modbus TCP/IP to CC-Link communication gateway allows Schneider Electric control platform users to integrate CC-Link Master compatible products with existing Modbus TCP/IP control networks.

The Modbus TCP/IP driver supports Schneider Electric processors as well most other devices that use Modbus TCP/IP. The driver allows Client (Master) and Server (Slave) configurations that use standard Ethernet TCP/IP connections and recognize both Modbus TCP/IP MBAP and Encapsulated Modbus message formats. An optional web interface can be ordered separately to add FTP (ftp://) support.

The CC-Link protocol driver acts as a Local or Intelligent Station, which enables easy connection to the CC-Link Master-controlled network for data transfer. Configuration options allow the gateway to occupy up to four (4) stations on the CC-Link network. Transient Messaging capability increases overall I/O data transfer capacity by more than 8,000 words. When configured as a Local Station, the gateway allows read-only viewing of the entire CC-Link Master cyclic database from all configured slave on the CC-Link network.

Features	Benefits
Powerful network integration	♦ Communicate between dissimilar networks ♦ A shared 10.000-word database exchanges information from devices on both networks ♦ Allows integration of Modbus TCP/IP-based systems into a CC-Link Master-controlled network
Modbus TCP/IP	♦ Client and/or Server communication configurations supported ♦ Five simultaneous Server connections on TCP/IP Service Port 502 and five additional Server connections on any unreserved service port (typically TCP/IP Service Port 2000) ♦ One Client connection supports up to 100 commands to interface with processors or other Server-based devices
CC-Link Intelligent or Local Station	♦ Compatible with CC-Link Version 1.10 ♦ Transient Message support for peer station communication adds more than 8,000 words of additional I/O data transfer capacity ♦ Supports up to 4 occupied slave stations with 4 data words and 32 data bits per station ♦ As a Local Station, provides a read-only list of all network slaves' cyclic and status data ♦ CC-Link Partner Association (CLPA) Certification
Backed by ProSoft Technology®	♦ 20-year history of delivering high-quality, reliable solutions designed with you in mind ♦ Free, unlimited, worldwide Technical Support by phone anytime for pre-sale, set-up, or troubleshooting support help you get going sooner and stay running longer ♦ Three-Year Warranty ensures reliability and protects against equipment failures ♦ Free ProSoft Software tools tightly integrated with our gateway hardware...a simple and quick, total solution to help you make our gateways fit your applications

Configuration

ProSoft Configuration Builder (PCB) provides a PC-based software configuration solution for quick and easy management of gateway configuration files, as well as viewing gateway and network diagnostics. The CC-Link Setup Guide and sample configuration provide a quick and easy example with step by step instructions on how to move data from one network to the other.

General Specifications

ProLinx® Communication Gateways provide connectivity for two or more dissimilar network types. The gateways, encased in sturdy extruded aluminum, are stand-alone DIN-rail-mounted solutions that provide data transfer between many of today's most widely used industrial automation.

Modbus TCP/IP

ProSoft's Modbus TCP/IP implementation uses the gateway's shared internal memory database for data transfer. Sharing the memory database with another protocol driver allows the gateway to transfer data between Modbus TCP/IP devices and other devices on other networks.

Floating point data movement is supported, including configurable support for Enron or Daniel® floating point implementations.

Modbus Server (Slave)

The server driver accepts incoming connections on Service Port 502 for clients using the Modbus TCP/IP MBAP message format and from clients on Service Port 2000 (or other Service Ports) for clients using the Encapsulated Modbus message format.

- Supports five independent server connections for Service Port 502
- Supports five independent server connections for Service Port 2000
- Supports a total Modbus TCP/IP data transfer capacity of up to 4000 registers or up to 64,000 bits in any combination
- Modbus data types overlap in the gateway's memory database, so the same data can be read or written as bit-level or register-level data, whichever is most convenient.

Modbus Client (Master)

- Actively reads data from and writes data to Modbus TCP/IP devices, using MBAP or Encapsulated Modbus message formats
- Offers one client connection with up to 100 commands to talk to multiple severs

Status Data

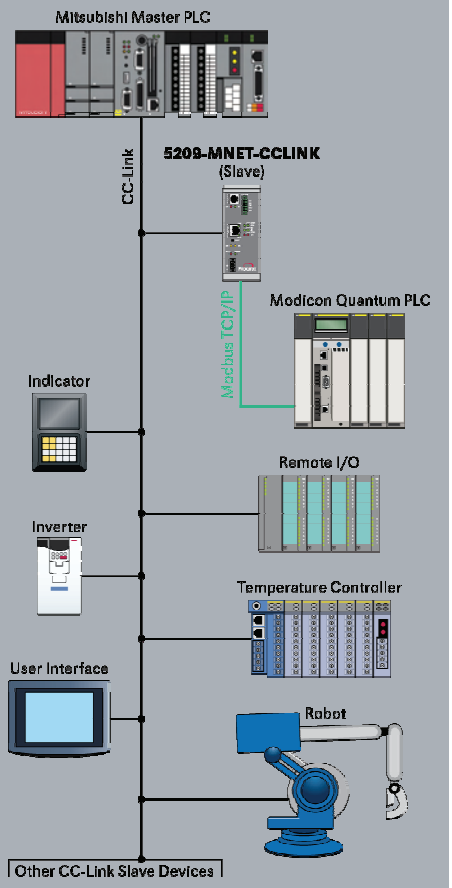
Error codes, counters, and port status available

CC-Link

CC-Link (Control & Communication Link) is an open-standard communication protocol that enables easy connection to Mitsubishi and other Master controllers.

- CC-Link is one of the dominant protocols used in Asia and is rapidly gaining acceptance worldwide.
- The ProLinx CCLINK interface is a slave (Local Station or Intelligent Device), which can be connected to a CC-Link Master that controls data transfer.
- The gateway is a stand-alone, DIN-rail-mounted solution that provides one CC-Link network port with TE-CON7 4P connector and an Ethernet port with RJ45 connector.

Schematic



Functional Specifications

Modbus TCP/IP

Modbus Commands Supported (Server and Client)	1 : Read Coils 2 : Read Input Status 3 : Read Holding Registers 4 : Read Input Registers 5 : Force (Write) Single Coil 6 : Preset (Write) Single Holding Register 15 : Force (Write) Multiple Coils 16 : Preset (Write) Multiple Holding Registers
Configurable Parameters: Server	ProLinx IP Address Modbus data type starting address offsets
Configurable parameters: Client	Min Command Delay Response Timeout Retry Count Command Error Pointer
Command List	Up to 100 fully-configurable Client commands
Status Data	Error codes reported individually for each command
Polling of command list	Each command can be individually enabled or disabled; write-only-on-data-change is available

CC-Link

CC-Link technology is based on an Application Specific Integrated Circuit (ASIC) designed and provided by Mitsubishi Electric Automation. Each CC-Link station transfers 4 words and 32 bits of I/O data to and from the Master station. The CCLINK gateway can occupy up to 4 consecutive stations on the CC-Link network increasing its I/O data transfer capacity.

Maximum Number of Occupied Stations	4 stations, consecutive addresses
Maximum Number of Devices per network	26-64 Devices depending on Local and Slave Stations configured
Device Types Supported	Intelligent Device and Local Station
CC-Link Version supported	CC-Link Version 1.10 cyclic data transmission
Message handling	Cyclic Messages and Transient Messages
Cyclic Data Capacity	24 input data words and 24 output data words. Up to 4 slave stations supporting 4 words/32 bits per slave
Additional I/O Data Transfer Capacity	Transient Messaging extends the data transfer capacity to more than 8,000 additional words
Transient Message Commands	System Information, Memory Access Information, RUN, STOP, Line Test. Memory Read and Memory Write commands
Communication speed	10 Mbps, 5 Mbps, 2.5 Mbps, 625 kbps, 156 kbps
Transmission path format	Bus format (EIA RS485 conformance)
Transmission format	HDLC conformance
Error control system	CRC (X16+X12+X5+1)

Conformance Testing

Conformance testing through the CC-Link partner Association (CLPA) ensures that the gateway meets the performance specifications required to become CC-Link certified.

Hardware Specifications

Specification	Description
Power Supply	24 VDC nominal 18 to 32 VDC allowed Positive, Negative, and Ground terminals 2.5 mm screwdriver blade-sized terminals
Current Load	500 mA max@ 32 VDC max
Operating Temperature	-20 to 50°C (-4 to 122°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5% to 95% (non-condensing)
Dimensions	Standard: 5.20H x 2.07W x 4.52D in. (13.2cmH x 5.25cmW x 11.48cmD) Extended: 5.20H x 2.73W x 4.52D in. (13.2cmH x 6.934cmW x 11.48cmD)
General LED Indicators	Power and General Status Application Status Serial Port Activity LED Serial Activity and Error LED Status
CC-Link LED Indicators	Run (Network Status) L Run (Data Link Execution) L Err (Data Link Comm Error) SD (Sending Data LED) RD (Receiving Data LED) ERR (Switch Setting Error)
Configuration Serial Port	DB-9M RS-232 only No hardware handshaking
Ethernet Port	RJ45 Connector, 10Mbit, half-duplex only Link and Activity LED indicators Electrical Isolation 1500 V rms at 50 Hz to 60 Hz for 60 s, applied as specified in section 5.3.2 of IEC 60950: 1991 Ethernet Broadcast Storm Resiliency = less than or equal to 5000 [ARP] frames-per-second and less than or equal to 5 minutes duration
CC-Link Interface	 Pin — Description DA — Data Communication line A DB — Data Communication line B DG — Digital Ground SLD — Shield FG — Frame Ground
Shipped with Each Unit	Mini-DIN to DB-9M serial cable 4 ft RS-232 configuration cable 2.5mm screwdriver CD (docs and Configuration utility) CC-Link to Terminal Block connector

Agency Approval & Certification

ISA
CC-Link Partner Association

Additional Products

ProSoft Technology® offers a full complement of hardware and software solutions for a wide variety of industrial communication platforms.

Visit our web site at http://www.prosoft-technology.com for a complete list of products.

Ordering Information

To order this product, please use the following. If you are unsure which product to select, please contact your local distributor.

Modbus TCP/IP to CC-Link Local Station & Intelligent Device Gateway

5209-MNET-CCLINK

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to http://www.prosoft-technology.com

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