Omron Master using FINS Commands- UDP and RS232

Summary Information

Communication Driver Name: OmronCIP

Implementation DLL: T.ProtocolDriver. OmronCIP.dll

Protocol: OmronCIP (CIP over TCP/IP)

Interface: TCPIP

PLC types supported: NX-Series (tested with NX102-9020)

Manufacturer: OMRON

PC Hardware requirements: Ethernet board

Channels Configuration

Protocol Options

Model: Set the PLC model. It can be:

- NX-Series: For all models NX-Series and compatible.

Nodes Configuration

Station Configuration

Stations syntax: <IP>;<Port>;<Slot>

Where:

- **<IP>** = The IP address of the slave device in the network
- **<Port>** = The TCP port where the slave device is listening (default is 44818)
- **<Slot>** = The Slot number where the CPU is connected

Example Nodes Configuration

Name	Node	PrimaryStation	SecondaryStation	Description
Node1	OmronCIP	192.168.1.101;44818;0		

Points Configuration

Address Column Configuration

The syntax for the ControlLogix communication points is: <Type>:<DeviceTagName>

- **Type:** The data type of the Tag in the PLC. The valid type values are:

Type	Read	Write	Size
BOOL	Yes	Yes	1 bit
SINT	Yes	Yes	1 byte or 8 bits

INT	Yes	Yes	2 bytes or 16 bits
DINT	Yes	Yes	4 bytes or 32 bits
REAL	Yes	Yes	4 bytes or 32 bits IEEE Floating point
REAL	Yes	Yes	8 bytes or 64 bits IEEE Floating point
STRING	Yes	Yes	n bytes

- **DeviceTagName:** The Tag Name in PLC

Troubleshoot

The status of the driver's execution can be observed through the diagnostic tools, which are:

• Trace window
• Property Watch
• Module Information

The above tools indicate if the operations have succeeded or have failed. A status of 0 (zero) means communication is successful. Negative values indicate internal driver errors, and positive values indicate protocol errors

Error Codes

Error Code	Description	Possible Solution
0	Success	None
-100	Error Sending Message	• Turn the PLC on • Plug in the PLC Ethernet cable • Check the configured IP Address field in Device > Node • Ping the PLC using the prompt command
-101	Error Sending and Waiting Message	
-102 ... -105	Error creating TCP/IP connection	
-106	Error Receiving Message	
-112	Timeout Start Message	• Turn the PLC on • Plug in the PLC Ethernet cable • Ping the PLC using the prompt command • Check the configured IP Address field in Device > Node • Increase the driver timeout field in Device > Channel
-113	Timeout between Treated Chars	
-114	Timeout End Message	
-115	Timeout Connect	
-200	Protocol Error	• Check if the PLC model is compatible with driver documentation • Check the configured Address field in Device > Points
-201	Invalid Protocol	• Check if the PLC model is compatible with driver documentation • Contact technical support
-202	Invalid Station	• Check the configured IP Address field in Device > Node • Restart the driver
-204	Invalid Message Sequence	• Check if the PLC model is compatible with driver documentation • Check the configured Address field in Device > Points
> 0	CIP Error	• See the CIP Error Codes

CIP Error Codes

The following error codes are in decimal.

Error Code	Description
1	Connection Failure
2	Insufficient resources
3	Value invalid
4	IOI could not be deciphered or tag does not exist
5	Unknown destination
6	Requested Data would not fit in the response packet
7	Loss of connection
8	Unsupported service
9	Error in data segment or invalid attribute value
10	Attribute list error
11	State already exists
12	Object model conflict
13	Object already exists
14	Attribute not settable
15	Permission denied
16	Device state conflict
17	Reply will not fit
18	Fragment primitive
19	Insufficient command data / parameters specified to execute service
20	Attribute not supported
21	Too much data specified
26	Bridge request too large
27	Bridge response too large
28	Attribute list shortage
29	Invalid attribute list
30	Embedded service error
31	Failure during connection
34	Invalid reply received
37	Key segment error
38	Number of IOI words specified does not match IOI word count
39	Unexpected attribute in list

It is very important to enable the TraceWindow messages. Invalid addresses can cause all the communication blocks with the PLC to fail. When the Device is enabled in the settings, the TraceWindow tool will display the first invalid address found on the block.

In order to have a quick view of the many communication blocks, open the ModuleInformation, navigate on the tree to find OmronCIP and them select the Read Groups. Looking at the number and success and fail communication counters, you can easily identify if there is a block with error and then use the TraceWindow to locate the wrong address.