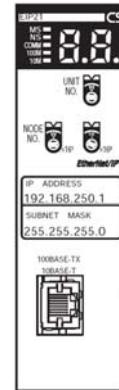# OMRON

EtherNet/IP: High-speed Data Exchange using Data Links

The EtherNet/IP protocol supports cyclic communications with EtherNet/IP I/O devices. Data can be exchanged at high speeds between controllers and devices. Tag data links operate at the cyclic period specified for each application, regardless of the number of nodes.

Key Features and Benefits

- **Easy set-up** – Network software allows for easy set-up of tag sets, status area.
- **Simple messaging –** Send and receive explicit messages with powerful built- in instructions.
- **Easy backup** – All parameters are saved using the simple backup function.
- **High-speed, high-capacity data exchange –** Quickly exchange data between controllers and devices, up to 722 words x 256 units (184,832 words).
- **Easy data exchange –** Multi-vendor communications with CIP messages make it easy to exchange data between Omron PLCs and other vendors' EtherNet/IP PLCs.
- **Communicating with FINS Messages** – Data can be exchanged with other OMRON devices using FINS Messaging. Devices up to 7 different networks deep can be programmed, monitored.
- **Network Connections with CIP Devices** – When an Omron PLC has an EtherNet/IP Unit it can exchange data through CIP messages with other vendors' EtherNet/IP PLCs or, with DeviceNet or CompoNet Unit mounted, the PLC can be used as a gateway to exchange data with other DeviceNet or CompoNet devices.
- **Network Connections with Controller Link Devices –** Mutual connections of Controller Link and EtherNet/IP are also supported. The Controller Link connection allows a PLC on the Controller Link network to be monitored from a PLC on the EtherNet/IP network.
- **Rapid Troubleshooting** – A variety of built-in functions enable you to quickly identify and handle errors, including connection check with other nodes, unit self-diagnosis and error logging.

High-speed Data Exchange using Data Links for connectivity to EtherNet/IP I/O:
The EtherNet/IP protocol supports implicit communications, which allows cyclic communications with EtherNet/IP such as EtherNet/IP I/O devices. Data can be exchanged at high speed between Controllers and devices using high-volume tag sets up to 722 words x 256 units (184,832 words).

Tag Data Link (Cyclic Communications) Cycle Time:
Tag data links (cyclic communications) can operate at the cyclic period specified for each application, regardless of the number of nodes. Data is exchanged over the network at the refresh cycle set for each connection, so the communications refresh cycle will not increase even if the number of nodes is increased, i.e., the synchronicity of the connection's data is preserved. Since the refresh cycle can be set for each connection, each application can communicate at its ideal refresh cycle.

Multi-vendor Communications with CIP Messages:
Data can be exchanged with a variety of devices connected by EtherNet/IP because it supports the standard CIP (Common Industrial Protocol) message communications. This allows easy communication from an Omron PLC to other vendors EtherNet/IP PLCs.

Automation…simple…powerful.

Communicating with FINS Messages (FINS/TCP and FINS/UDP): Data can be exchanged with other OMRON FA devices using SEND, RECV, and CMND instructions from the ladder program, because EtherNet/IP supports OMRON's standard FINS message communications services. There are two kinds of message services, using UDP/IP and TCP/IP (called FINS/UDP and FINS/TCP), allowing flexible data exchange for different applications.

Network Connections with DeviceNet or CompoNet Devices: When a PLC has an EtherNet/IP Unit and DeviceNet Unit or CompoNet Unit mounted, the PLC can be used as a gateway to exchange data with DeviceNet Devices through CIP messages.

Network Connections with Controller Link: Mutual connections of Controller Link and EtherNet/IP are also supported (using the FINS communications service). The Controller Link connection allows a PLC on the Controller Link network to be monitored from a PLC on the EtherNet/IP network. Conversely, data can be exchanged with a PLC on the EtherNet/IP network from a PLC on the Controller Link network.

Troubleshooting Functions: A variety of functions are provided to quickly identify and handle errors.
• Self-diagnosis at power ON.
• PING command to check the connection with another node.
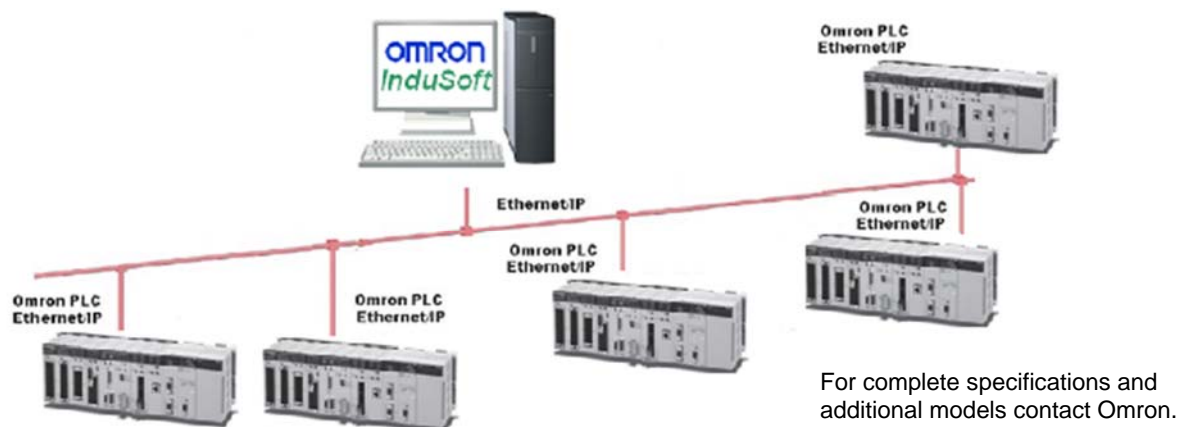• Error Log functions record the time of occurrence and other error details.

Ordering Information

Description	Part Number
CS EtherNet/IP Card	**CS1W-EIP21**

Literature

Product	Description	Catalog Number
Operation manual (PDF)	EtherNet/IP Unit Operation Manual	**W465**

System Configuration

For complete specifications and additional models contact Omron.

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