

MELSEC iQ-R Series CIP Safety Module



- **Dual protocol compatibility**
- **Safety signal transmission**
- **Efficient safety management**

Mitsubishi Electric has developed the MELSEC iQ-R Series CIP Safety module, which has been designed to fulfill the requirements of customers who seek to implement safety communication over CIP Safety (Common Industrial Protocol).

CIP Safety defines a set of rules and mechanisms for exchanging safety-related information between devices in a network. The protocol has been developed by the Open DeviceNet Vendor Association (ODVA) and is widely used in industrial automaton systems.

The module offers a comprehensive solution for companies that work with a diverse range of devices and equipment, such as third party robots, Mitsubishi Electric and third-party VFD products, and safety I/O and safety interlocks.

We operate an iQ-R Safety PLC equipped with the iQ-R CIP Safety module, which occupies a dual slot. This module is compatible with both Ethernet/IP and CIP Safety protocols, allowing it to transmit both standard and safety signals to, for example, a Mitsubishi Electric FR-E800 micro drive.

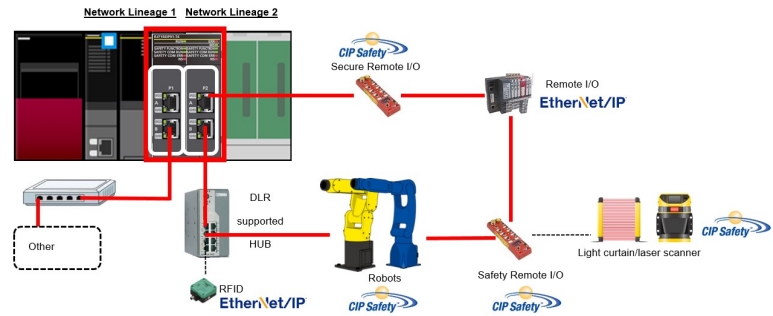
KEY BENEFITS:

- **Dual Protocol Compatibility:** The module supports dual protocols, specifically Ethernet/IP and CIP Safety, providing versatility and integration capabilities in different industrial settings.
- **Safety Signal Transmission:** It excels in the secure transmission of safety signals, ensuring the reliable communication of critical safety data within the industrial automation system.
- **Efficient Safety Management:** The module enhances safety management by facilitating the implementation of safety functions, contributing to a robust and reliable safety framework in the overall control system.

Additional Benefits

- Complies with international safety standards EN ISO 13849-1 Category 4 PL e and IEC 61508 SIL 3.
- Supports CIP Safety safe communications and EtherNet/IP general communications.
- Supports CC-Link IE TSN configuration on the same PLC rack.
- Up to 2 CIP Safety modules per rack
- Centralized management of general/safety control programs within PLC programming software GX Works3.
- TUV Rheinland certified function blocks are available within the GX Works3 programming environment.
- Tested with various third-party robots, PLC peer-to-peer communication, gate switches, area scanners, VFDs, and remote I/O.
- Tunneling CIP Safety traffic through iQ-R CC-Link IE TSN Master to the target device.

iQ-R Series CIP Safety Module Features



iQ-R CIP Safety RJ71SEIP91-T4	
General Specifications	
Supported networks	CIP Safety, EtherNet/IP
Communication speed	100Mbps
PPS (communication performance)	12,000
Transmission path format	Line, Star, Ring * 1
Number of network systems	Route 2 (P1, P2)
Number of Ethernet ports	4 (P1 x 2, P2 x 2)
Connecting cable	Ethernet cable
Maximum segment length (Switching hubs and length between nodes) [m]	100

Notes:

- Only if there is a device on the network that is a DLR Supervisor (the node that manages the ring configuration). (CIP Safety unit will be upgraded to DLR Supervisor functionality in the future)
- Up to 64 connections per 1 port.

iQ-R CIP Safety RJ71SEIP91-T4	
CIP Safety Communications	
Communication system	Class 0 Communication
Number of connections	Consumer: 60, Producer: 60
Per connection data size (Bytes)	Consumer: 1 ~ 14, Producer: 1 ~ 14 (in 1-byte units)
RPI (ms)	4 ~ 1000 (4 ms increments)
EtherNet/IP Communications	
Communication system	Class 1 communication (instance communication, tag communication) UCMM communication (message communication)
Number of connections	Class 1 communication (instance communication, tag communication): 128 (* 2) UCMM communication (message communication): 32
Per connection data size (Bytes)	Class 1 communication (instance communication, tag communication): 1444 UCMM communication (message communication): 504
Of all connections data size (Bytes)	16384
RPI (ms)	1 ~ 60000

Schedule your demonstration today!



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