

Article Overview

CC-Link IE Control uses high-speed dual-loop fiber optic communication to provide reliable, large-scale industrial network connectivity.

Overview of CC-Link IE Fiber Optic Communication

CC-Link IE (Industrial Ethernet) is an open, high-speed network designed for industrial automation, with two main variations: CC-Link IE Control and CC-Link IE Field . CC-Link IE Control specifically uses fiber optic cables in a dual-loop topology, enabling 1 Gbps communication between PLCs, HMIs, and PCs . This setup allows for large cyclical data sharing and ensures high reliability even in complex industrial environments .

Dual-Loop Fiber Topology and Redundancy

The dual-loop fiber optic topology provides inherent redundancy. If a cable or station fails, the network automatically loops back, maintaining communication without additional equipment or increased cost . This redundancy ensures continuous operation and minimizes downtime, which is critical for industrial control systems.

Token Passing Protocol

CC-Link IE uses a token passing protocol for data transmission. Each controller can access the network shared memory only when it holds the token, preventing data collisions and ensuring stable communication independent of transmission delays . This method allows precise control over data flow and synchronization across multiple devices.

Network Integration and Compatibility

While CC-Link IE Control relies on fiber optics for high-speed backbone communication, CC-Link IE Field typically uses shielded Cat5e cables with RJ45 connectors for smaller-scale systems . Both networks operate at Gigabit Ethernet speeds and use the Seamless Message Protocol (SLMP), allowing integration from control-level devices to field equipment . However, CC-Link IE Control and Field networks cannot be directly combined.

Applications

CC-Link IE fiber optic communication is ideal for large-scale industrial automation, including manufacturing plants, process control, and systems requiring high-speed, reliable data exchange. Its features, such as redundant loops, token passing, and high-capacity data sharing, make it suitable for environments where

CcLink-ie fiber optic communication

network reliability and minimal latency are essential . In summary, CC-Link IE Control leverages fiber optic dual-loop topology and token passing to deliver robust, high-speed industrial communication, while CC-Link IE Field provides flexible, smaller-scale connectivity using standard Ethernet cabling. This combination ensures scalable, reliable, and efficient network performance for modern industrial automation systems .

CC-Link IE controller network communication configuration example When the station to station distance is 550 m or more (between

The key differences from the original fieldbus protocol are that CC-Link IE Control exchanges data over optical fiber

%PDF-1.6 %âãÏÓ 17309 0 obj > endobj 17336 0 obj >/Encrypt 17310 0

CC-Link IE Control communicates over dual-loop fiber between PLCs, HMIs, and PCs with an extremely large cyclical data-sharing

The CC-Link Open Automation Networks Family are a group of open industrial networks that enable devices from numerous

Designed to ensure a highly reliable network through the use of full duplex fiber optic transmission

Continuous communications even when cable or stations are faulty Optical fiber cable Highly reliable Utilizing a high-speed, noise

Review Mitsubishi Electric CC-Link IE Field Network specifications, such as support for up to 121 stations

CC-Link IE variants follow standard Ethernet distance limits of 100 meters per cable segment, extendable using

CC Link IE Field Basic realizes easier network integration, as its cyclic communications stack is software-based, without requiring a

One-to-one communication is possible between the master and device stations. The status of link devices (RY, RWw) within the

MITSUBISHI ELECTRIC FA site introduces information on Programmable Controllers MELSEC network-related products(CC-Link IE

This section introduces the wiring method, communication protocol, and characteristics of CC-Link IE. This is

a token passing

Introduction of CC-Link IE TSN CC-Link CC-Link is is an an acronym acronym for for Control Control & & Communication

We offer a comprehensive line of factory automation solutions. Solutions include robots, automation platforms, sequence controllers,

Designed for high reliability, CC-Link IE Controller Network is a controller-to-controller network using a 1Gbps dual loop fiber optic

Web: <https://www.supremeacademicresearch.co.za>

