NEW

CC-Link IE Field Basic

- Extends CC-Link IE compatibility to 100Mbit Ethernet devices
- Only requires software development
- TCP/IP & UDP/IP compatible

CC-Link CLPA PARTNER ASSOCIATION
OPEN AUTOMATION NETWORKS

15th ANNIVERSARY

CC-Link
CC-Link IE

Add CC-Link IE compatibility to 100Mbit devices

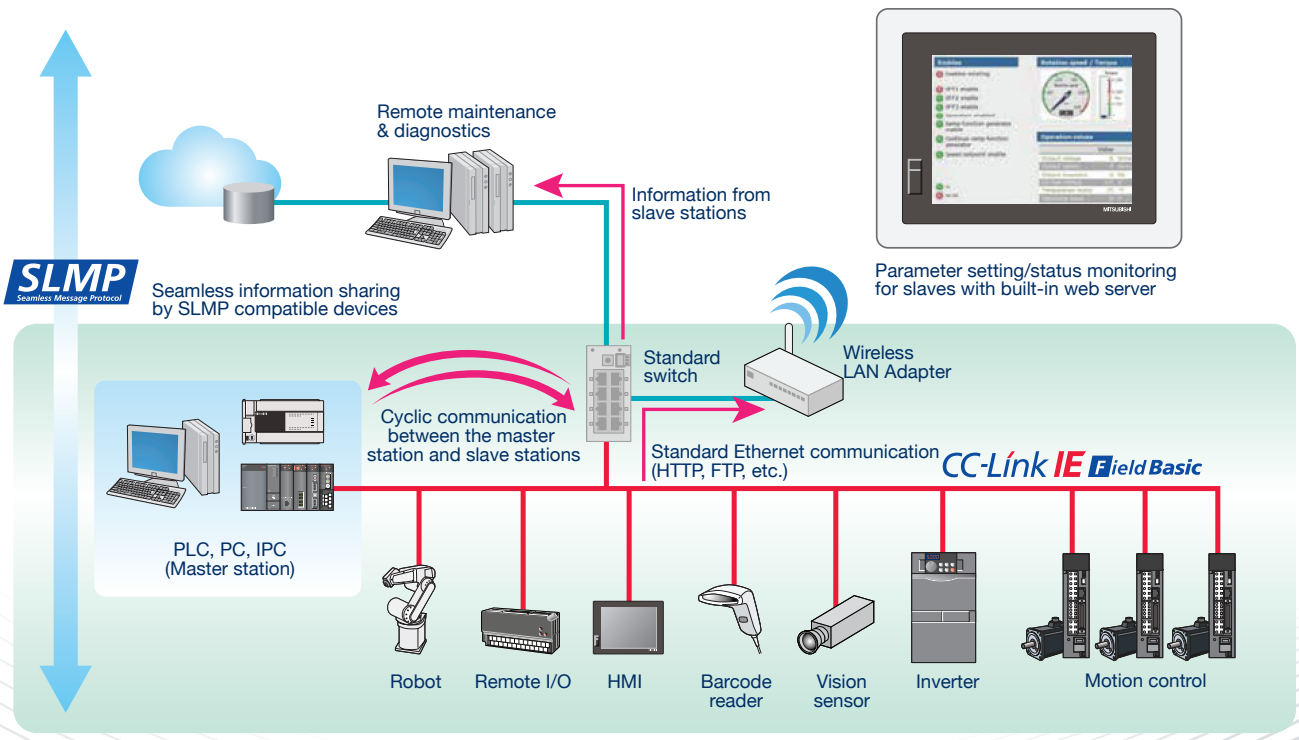
Overview

CC-Link IE Field Basic (or "Basic Mode") is a new addition to the family of CC-Link IE open network technologies that will enable device vendors to easily add CC-Link IE compatibility to any product with a 100Mbit Ethernet port. Basic Mode is easily implemented on devices or master controllers by software alone, enabling compatibility to be added to existing products without any hardware modification. This significantly reduces the cost of development and time to market. CC-Link IE was the first, and is still the only open industrial Ethernet protocol offering gigabit speeds and the high bandwidth required in modern data-critical, real-time applications.

As such it has become a de-facto protocol for businesses looking to optimise productivity and future-proof their operations in line with anticipated increases in data transmission required by an Industry 4.0 production environment. However, there are products and lower level applications where the benefits of gigabit performance are still being understood, so CLPA has responded with Basic Mode which can be implemented on any existing 100Mbit device. Moreover, because Basic Mode's stack is compatible with TCP/IP & UDP/IP, it blends seamlessly with other Ethernet-based technologies (including switches, cables, connectors and wireless systems). Finally, a master controller for the network is also purely software based, so any industrial PC or other Ethernet equipped controller can be rapidly deployed to run a Basic Mode network without the need for any special interface cards, driver development or other additional work.

Product development

Any existing product with a 100Mbit Ethernet port can have Basic Mode functionality added. The CLPA can provide C-Language based sample code along with development guidelines to show how implementation should be carried out. Since the code also uses Winsock (Windows API socket) then porting to other environments is made simple.



Stack Configuration

A CSP+ (device profile) creation tool is available to produce the necessary files for configuring a network. Finally, a semi-automated conformance test tool is also available to check the overall function of the device in order to assure correct operation.

How does it work?

To build a Basic Mode network, you need a master controller and a number of slave stations. For each device, the Basic Mode network operation is only implemented in software. This is true of the slave devices and also the master controller. So this allows a variety of different types of master to be developed – an industrial PC, a PLC, an embedded board or some other type of system. The devices all communicate using cyclic (synchronous) exchange of data meaning that network updates are performed on a regular schedule. A wide variety of different devices such as I/O, HMI, robots, vision systems, barcode scanners, inverters and servo drives can have Basic Mode support added to make a comprehensive automation solution that addresses I/O and motion control. Conventional Ethernet infrastructure is used to build the network, so existing switches, cable and wireless LAN adapters can all be used. Finally, a Basic Mode network can also be connected to a gigabit CC-Link IE Field network via a gateway adapter.

The benefits

Basic Mode now provides all device makers who were investigating CC-Link IE support the chance to develop products for the network on their existing 100Mbit devices with only software development. This means that now a potentially much larger catalogue of devices can be developed, providing ever increasing freedom of choice and application flexibility to machine builders and end users. It also allows a diverse portfolio of products to be developed – both gigabit for higher performance applications, and 100Mbit for less demanding applications.

Industry support

The CLPA has been working to recruit industry leading device vendors for support of Basic Mode. Currently Balluff, CKD, Hilscher, IDEC, Mitsubishi Electric, Molex, Phoenix Contact, Renesas Electronics, and others are all considering product development. More are expected to join the list in the near future.

Basic Mode vs. SLMP

CLPA offers a complementary technology to Basic Mode. SLMP (Seamless Message Protocol) also allows CC-Link IE network support to be added to a device by software development alone. The key difference is that SLMP is intended for transient (asynchronous) individual connections between a master controller and a device, whereas Basic Mode is intended for the creation of a network where the devices all communicate cyclically (synchronously).

Specifications

Communication speed		100Mbps
Implementation method		Software
Topology		Star
Cable		Category 5e or better
Maximum number of connected stations per network		64
Cyclic communication		Supported
Maximum number of link devices per network	RX,RY	8192 bits
	RWr,RWw	4096 words
Maximum number of link devices per station (Max 4 stations occupied)	RX,RY	512 bits
	RWr,RWw	256 words
TCP/IP & UDP/IP		Compatible

Get on board with Basic Mode!

CLPA makes it easy for you to begin your development for Basic Mode.

We can offer the following suite of resources to get on board with Basic Mode:

Technical specifications. Understand the key technologies of Basic Mode and how they fit with your design. Available *free of charge* to all Registered partners.

Sample code & development guidelines. To reduce your development effort, the CLPA provides documented sample code and development guidelines *free of charge* for faster time to market.

Conformance test specifications. Conformance testing maximizes customer confidence. Test specifications for both master and slave devices are available.

Self-certification tool. Software based, *free of charge* self-certification.

Official certification. Get official CLPA device compliance certification - available for €500.00

Benefits of official certification. Get worldwide product exposure via the official CLPA product catalogue (on-line and print). Access to CLPA's global promotional activities, including fairs, seminars, webinars, social media, press releases, joint promotion and other possibilities. Contact us at **partners@clpa-europe.com** to learn more.

Special offer!

To mark the launch of Basic Mode, CLPA is offering free official certification (a €500 value). Available until 31st October 2017.

Initial support for Basic Mode is under consideration by these leading CLPA partners:

IDEC

hilscher COMPETENCE IN COMMUNICATION

PHOENIX CONTACT

RENESAS

molex one company › a world of innovation

MITSUBISHI ELECTRIC Changes for the Better

BALLUFF sensors worldwide

Access to items outlined above requires Regular membership (EUR 1,000.00 per year). Access to the technical specifications requires Registered membership (free of charge). To qualify for free official certification, a Regular partner must complete their product development within six months of the end of the offer period. Terms and conditions subject to change without notice.

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