



Solution Guide

for all your **IIoT Automation** Network Problems

The essential guide for collecting and sharing production information!

Having trouble collecting traceability data?

Need preventative maintenance data?

Need different engineering tools for each connected device?

Can't see the energy consumption rate?

Trying to grasp information on the entire production site?

Are mixed networks making data collection difficult?

Are you not able to use production information in the factory?

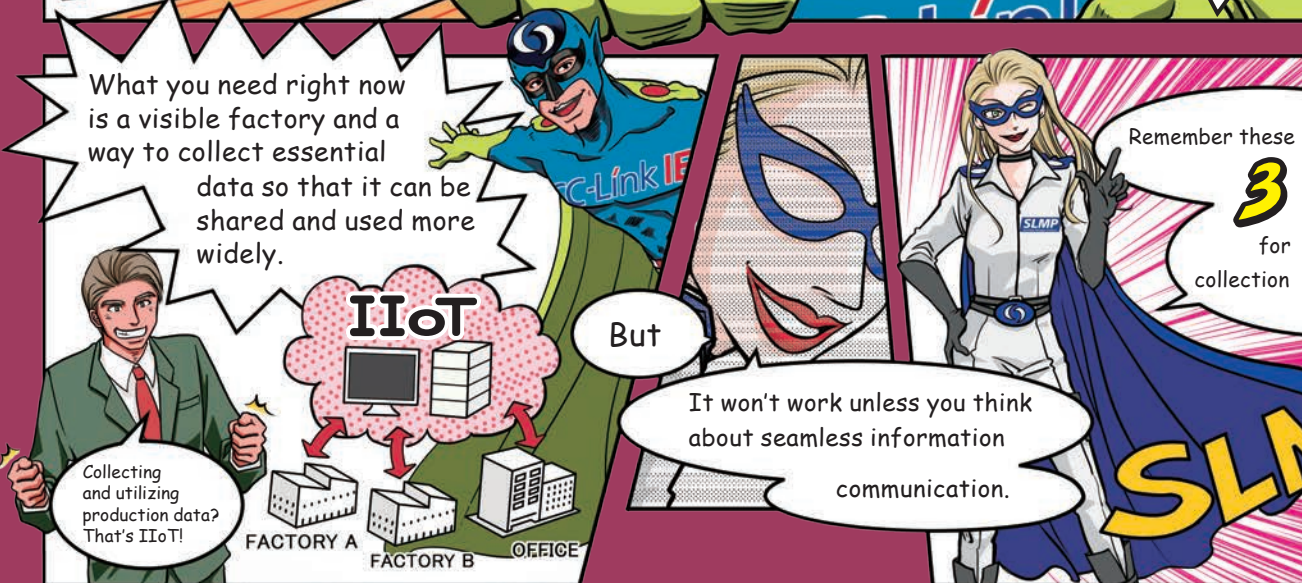
Leave it to
CC-Link IE & **SLMP**
Seamless Message Protocol



Leave it to CC-Link IE & SLMP

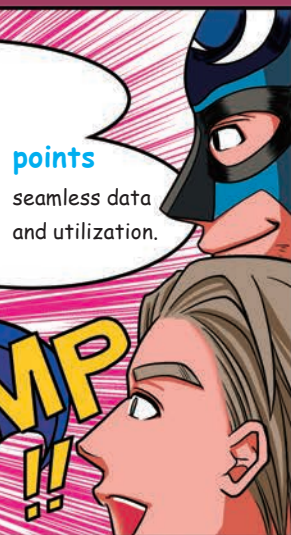
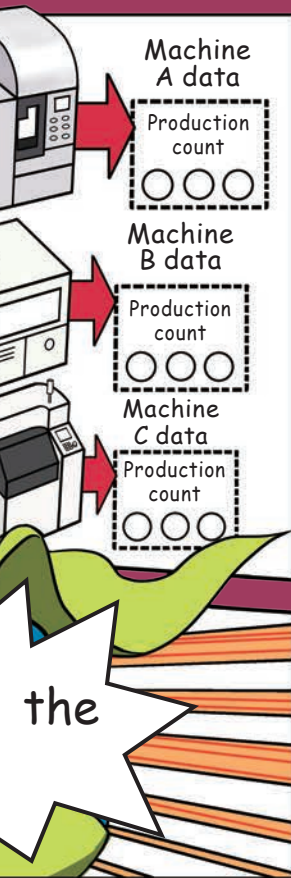
Seamless Message Protocol

Factories need to collect and
Seamless infor
Ethernet based



utilize data using the IIoT.

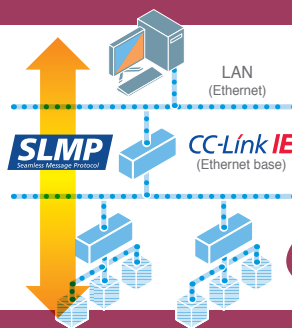
Information gathering using gigabit networks is the key to your success!!



POINT 1

Seamlessly transfer information from IT systems to production equipment!

- Use a seamless protocol (like SLMP*1) to directly transfer data between networks

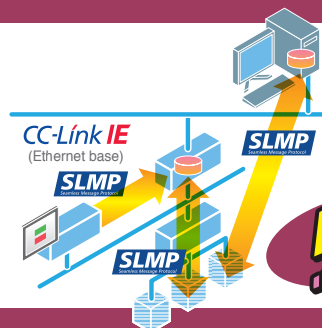


P4

POINT 2

Easily collect, change and monitor with SLMP*1!

- Efficiently manage your system by changing configurations, monitoring system status, and troubleshooting connected devices
- Avoid problems and increase productivity by collecting information from devices and by issuing commands from the server

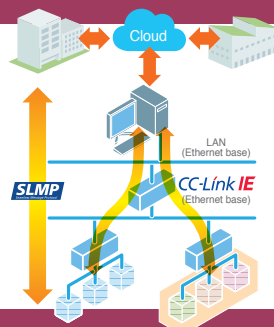


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POINT 3

CSP+*2 allows easy configuration of devices!

- Use the engineering tool to configure devices graphically
- Get better access to production information



P8

For more information (FAQ, specifications) P10

CC-Link IE is a gigabit Ethernet-based industrial network promoted by the CC-Link Partner Association (CLPA).

*1: SLMP (Seamless Message Protocol) is a common protocol that realizes system management and operation over multiple physical layer networks.

*2: CSP+ is a profile for using various CC-Link family devices with a single engineering tool.



POINT
1

With **CC-Link IE** + **SLMP** Seamless Message Protocol, you can:

Send information seamlessly from IT systems to production equipment!

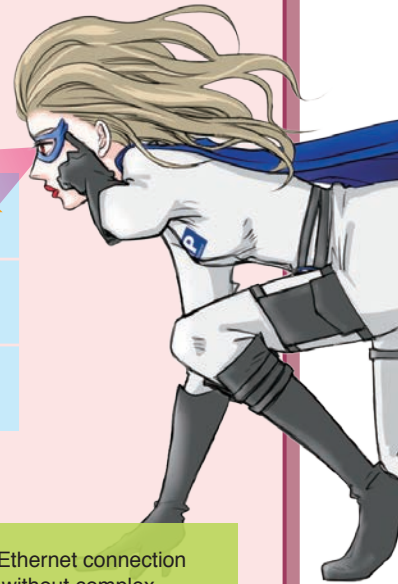
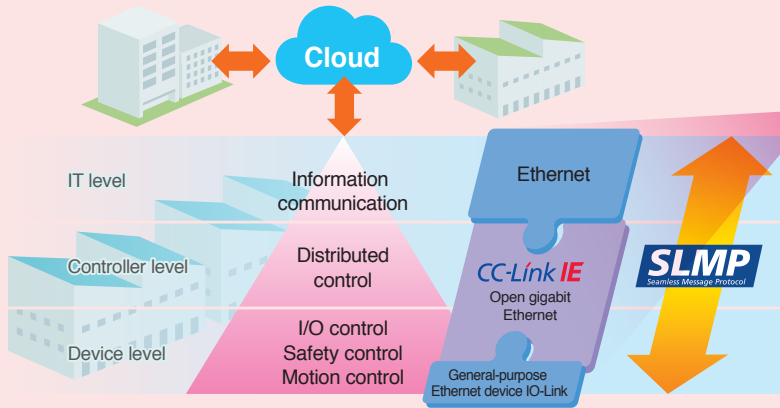


Easily transfer information across different networks with a seamless protocol!

Here's what you can do with CC-Link IE + SLMP



SLMP (Seamless Message Protocol) is a common protocol for achieving system management and operation without worrying about differences in networks. SLMP directly conveys information between the production site and IT system, making it easy to share information over a wide area.



Advantages for device manufacturers

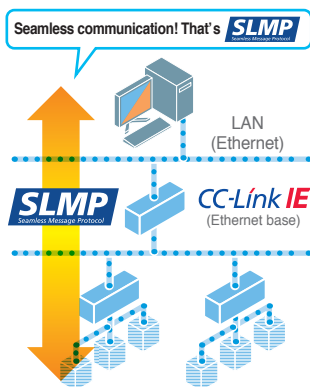
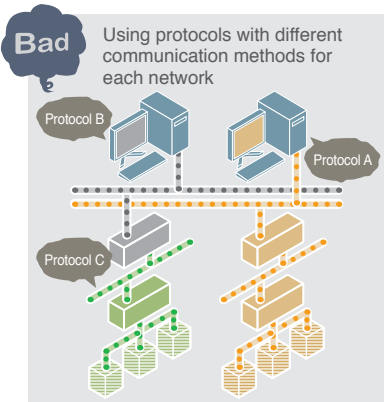
SLMP is a client-server type protocol. This protocol can be created easily without dedicated hardware. Just install the software in your existing Ethernet-compatible devices.

Advantages for users

By using devices with SLMP, an Ethernet connection can be created between devices without complex settings needed for general-purpose Ethernet communication. Share information from your IT systems to your production equipment using seamless information transmission that easily crosses network boundaries.



Easily transfer information across different networks!!



Seamless SLMP

(SLMP: Seamless Message Protocol)

SLMP is a protocol that expands Ethernet's standard frames, and makes seamless transmission across network levels possible. (Protocol frame format → Page 10)

Using Ethernet devices with SLMP, bi-directional data transfer using the server-client function is possible without complex settings needed for general-purpose Ethernet communication.

POINT
2

With **CC-Link IE** + **SLMP** Seamless Message Protocol, you can:

Collect, change, and monitor information easily!



• **Visualize production information in real time!**

Plus!

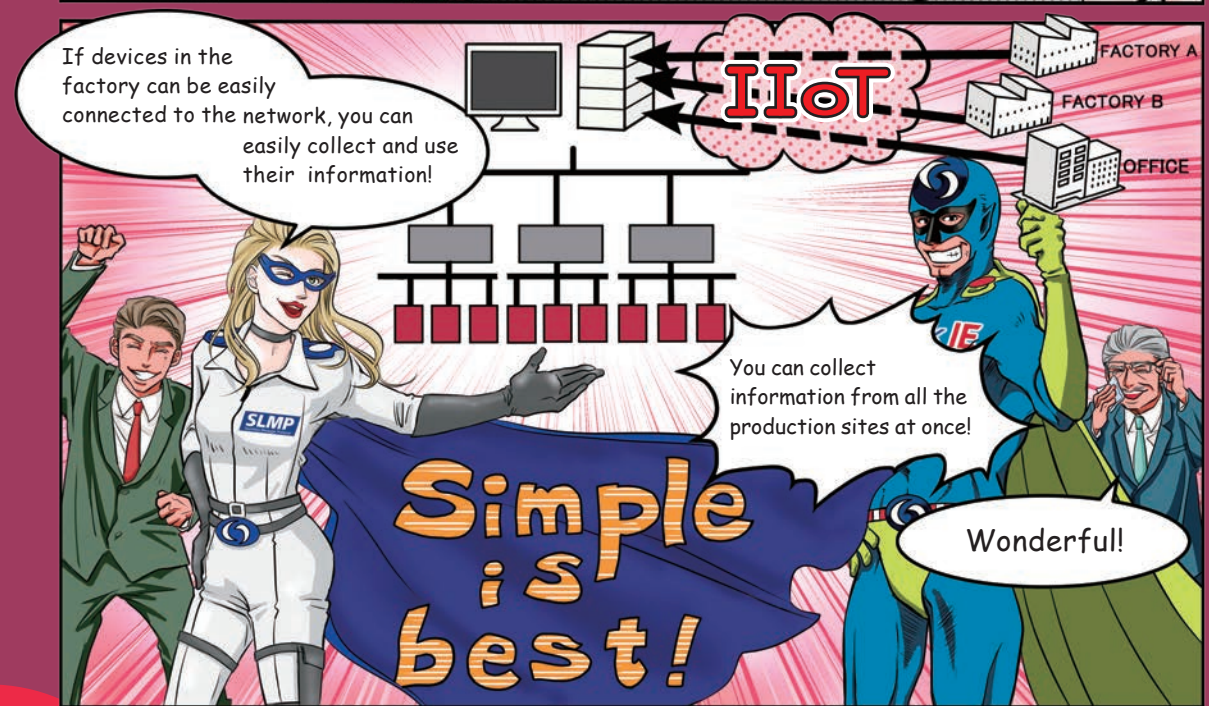
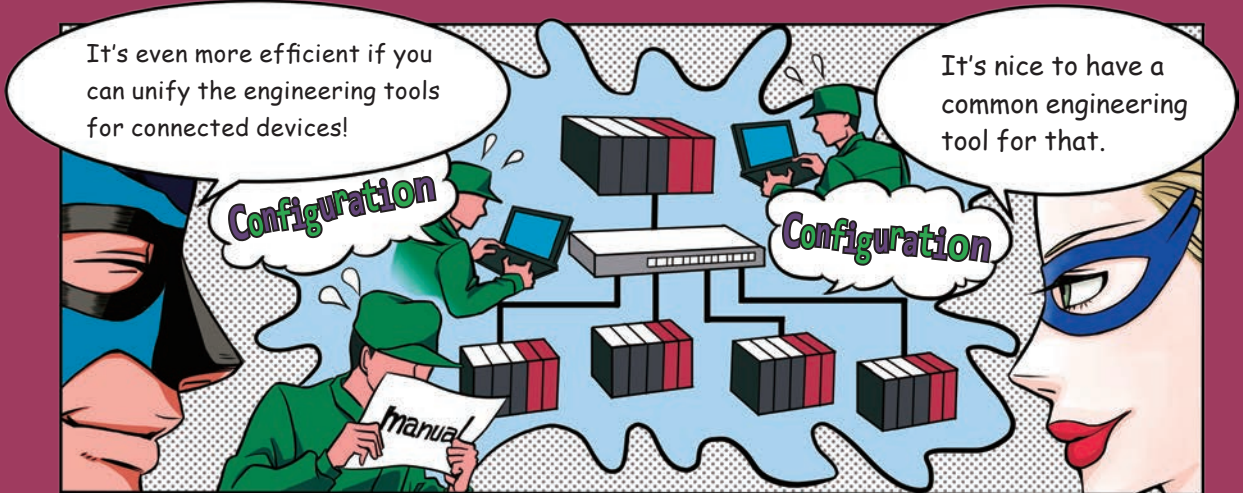
Directly monitor maintenance data and diagnostic information from the data server or host devices.

• **Change states, monitor the status, and diagnose connected devices.**

POINT
3

With **CC-Link IE** + **SLMP** | **CSP+** :

CSP+ allows easy configuration of devices by engineering tools!



• Use various different types of devices with a single engineering tool!

Plus!

Graphical configuration eliminates the need for manuals!

• The CSP+ adoption rate is continuing to grow!

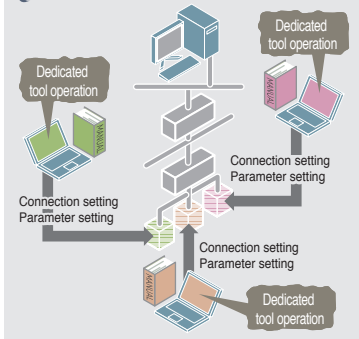
Here's what you can do with **CC-Link IE** + **SLMP** | **CSP+**



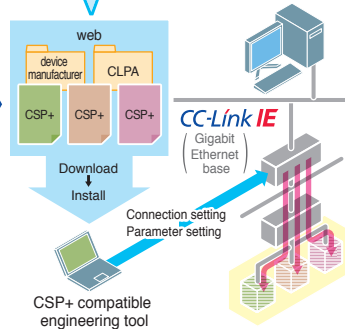
Use various different types of devices with a single engineering tool!

Bad

Dedicated tools are needed, and the operation methods are all different.



By installing the CSP+ file, multiple devices can be set with one tool.



Expand the engineering tool functions with CSP+

Install the CSP+ (device profile) provided by CLPA or the device manufacturer in the engineering tool to increase functionality!

(CSP+: Control & Communication System Profile)

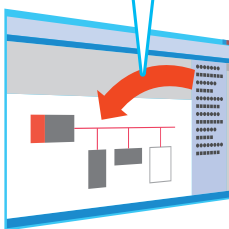
There's no need for dedicated device setting tools!
Multiple devices can be configured and operated with one engineering tool!

The CSP+ file is the device profile that allows CC-Link IE and CC-Link compatible products to be configured for the network.

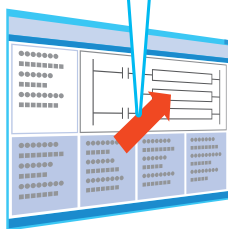
Plus!

Graphical configuration eliminates the need for manuals!

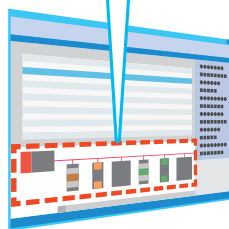
Drag & drop the device name to the network



View the device assignment list while programming



View the connected devices



Easy-to-use operation screens

Configure devices and set parameters just by dragging and dropping!

Assign devices and configure slaves with a common operating method!

Automatically detect devices to display the model information and system configuration!



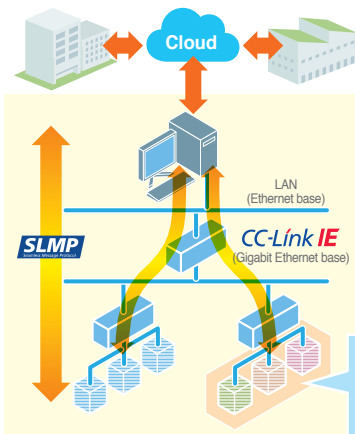
The CSP+ adoption rate is continuing to grow!



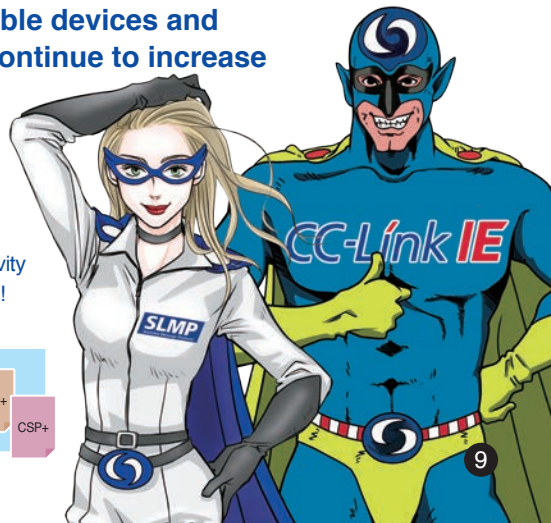
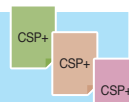
CSP+ compatible devices and applications continue to increase

CLPA continues to work with device manufacturers to increase the number of compatible certified devices!

IIoT is delivering further productivity improvements and better uptime!



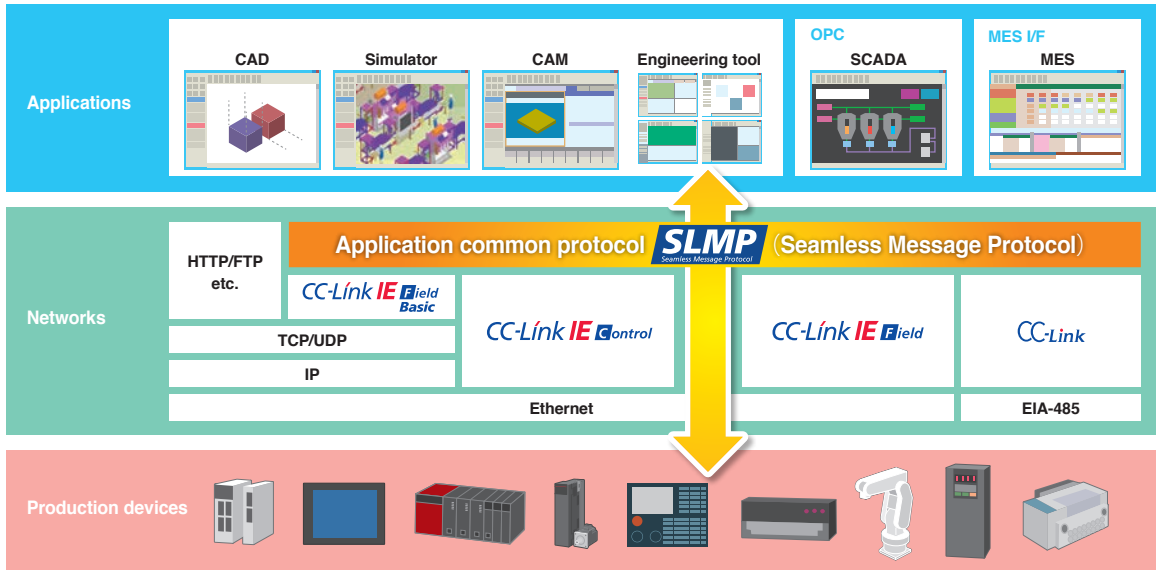
- Semiconductor manufacturing systems
- Machine tools
- Robotics, etc.



More information on



SLMP details



[List of SLMP Commands]

Item	Details	Command name
Internal memory	Reads and writes the bit device and word device.	Read/Write/Read Random/Write Random/Entry Monitor Device/Execute Monitor/Read Block/Write Block
Label	Designates the label, and reads and writes the data.	Label Read/Label Write/Label Read Random/Label Write Random
Dual port memory	Reads and writes the data for the local station's dual port memory.	Read/Write
Expansion module	Reads and writes the data for the expansion module's dual port memory.	Read/Write
Remote control	Remotely operates the module at the designated location.	Remote Run/Remote Stop/Remote Pause/Remote Latch Clear/Remote Reset/Read Type Name
Remote password	Designates the remote password, and controls access of other devices.	Lock/Unlock
File	Reads and writes the files in the designated device.	Read Directory/Search Directory/Search File/New File/Delete File/Copy File/Change File State/Change File Date/Open File/Read File/Write File/Close File
Device connection	Detects the connected external device, and sets the IP address.	Node Search/IP Address Set
Parameter setting	Reads and writes the parameters for the external device.	Device Info Compare/Parameter Get/Parameter Set/Parameter Set Start/Parameter Set End/Parameter Set Cancel
Device monitor	Retrieves the operation status and error codes from the external device.	Status Read/Status Read2/Communication Setting Get

[Frame format]

Request command (example: Read)

Header	Sub-header	Network No.	Station No.	Request destination module I/O No.	For future expansion	Request data length	Monitor timer	Request data	
					Command	Sub-command	Device code	Head device No.	No. of device points

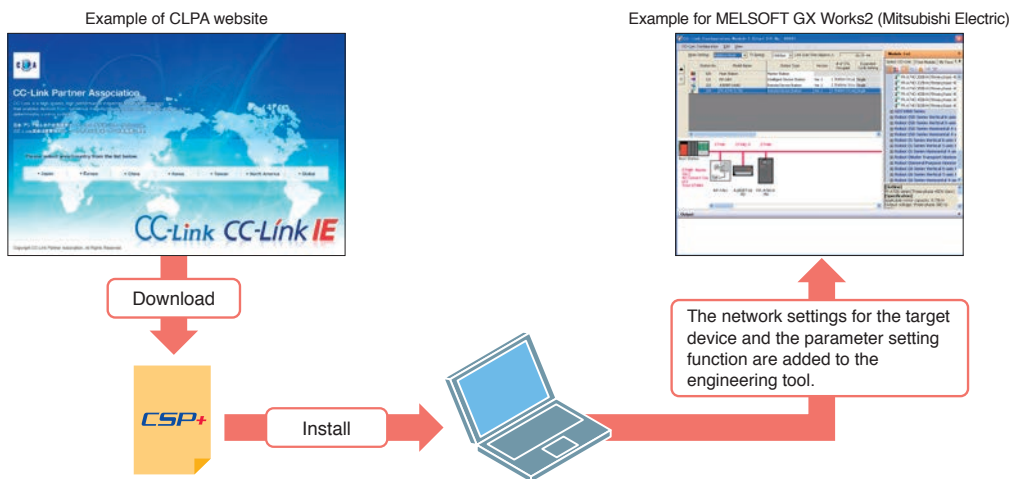
Response statement (at normal end)

Header	Sub-header	Network No.	Station No.	Request destination module I/O No.	For future expansion	Response data length	End code	Response data
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Obtaining the “CSP+” file and installing it into the engineering tool

1. Download the “CSP+” file for the device being used from the CLPA website or device manufacturer’s website.

2. Install the downloaded “CSP+” file into the engineering tool.



Frequent questions

Q1	What can we actually do with SLMP?	A	Here's what you can do: (1) Access information held internally (2) Control from a remote location (remote operation) (3) On-demand communication (4) Access device information (parameter setting, monitor, diagnostics) (5) Access other open networks
Q2	What's different from the MC protocol?	A	Of the Ethernet compatible MC protocols, the 3E frame and 4E frame are SLMP. These are used as expansion functions from the MC protocol to access device information and to access other open networks.
Q3	Are the SLMP commands passed to CC-Link IE?	A	On CC-Link IE, special commands different from the SLMP commands are used. However, if the product is SLMP compatible, the SLMP commands can be sent and received via the CC-Link IE path.
Q4	How does it compare to MODBUS®/TCP?	A	With MODBUS/TCP, accessing the information held internally is the main function. SLMP is superior because it is capable of remote control and on-demand communication, and can access device information and other open networks.
Q5	How is the SLMP certification test carried out?	A	A partner conducts the test based on the SLMP conformance test specifications. Basically, the functions of the supported SLMP command are confirmed and the results are submitted to CLPA. If there are no problems, a certificate will be issued. The test is free of charge and open to anyone.
Q6	What is a “Certified product” and “Compatible product”?	A	“Certified product” refers to a product from a fee paying CLPA member that has passed the certification test. The product information can be listed in a CLPA product catalog or website, and the SLMP logo can be used. A “compatible product” refers to a product from a third party company that has passed the certification test. The product information is not listed in a CLPA product catalog or website, and the SLMP logo cannot be used.
Q7	How can we identify an SLMP compatible product?	A	If the product has the SLMP logo, it is a SLMP compatible product. Even when it does not have the SLMP logo, if the product is listed on the list of SLMP compatible products in a CLPA website, it has passed the conformance test. SLMP is being expanded in phases. Even if the product is compatible, there may be some functions that are not supported.

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[Comic Production]

Kyoto Seika University is the literary agent for all comic illustrations in this booklet.
All illustrations were designed and drawn by Yu Kurumi.
Comic illustrations may not be revised, changed or modified.

Global influence of CC-Link IE and CC-Link continues to spread

CC-Link IE and CC-Link are supported globally by CLPA. With offices throughout the world, support for partner companies can be found locally.

Each regional CLPA office undertakes various support and promotional activities to further the influence of CC-Link IE & CC-Link in that part of the world. For companies looking to increase their business in their local area, CLPA is well placed to assist these efforts through offices in all major regions.



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