

iQ Sensor Solution

e-Factory

Connecting! Visualizing!
For a more seamless sensor control!

iQ Sensor Solution

iQSS



GLOBAL IMPACT OF MITSUBISHI ELECTRIC



Through Mitsubishi Electric's vision, "Changes for the Better" are possible for a brighter future.

Changes for the Better

"Changes for the Better" represents the Mitsubishi Electric Group's attitude to "always strive to achieve something better", as we continue to change and grow. Each one of us shares a strong will and passion to continuously aim for change, reinforcing our commitment to creating "an even better tomorrow".

Mitsubishi Electric is involved in many areas including the following:

Energy and Electric Systems

A wide range of power and electrical products from generators to large-scale displays.

Electronic Devices

A wide portfolio of cutting-edge semiconductor devices for systems and products.

Home Appliance

Dependable consumer products like air conditioners and home entertainment systems.

Information and Communication Systems

Commercial and consumer-centric equipment, products and systems.

Industrial Automation Systems

Maximizing productivity and efficiency with cutting-edge automation technology.

Our advances in AI and IoT are adding new value to society in diverse areas from automation to information systems. The creation of game-changing solutions is helping to transform the world, which is why we are honored to be recognized in the 2019 "Forbes Digital 100" as one of world's most influential digital corporations.

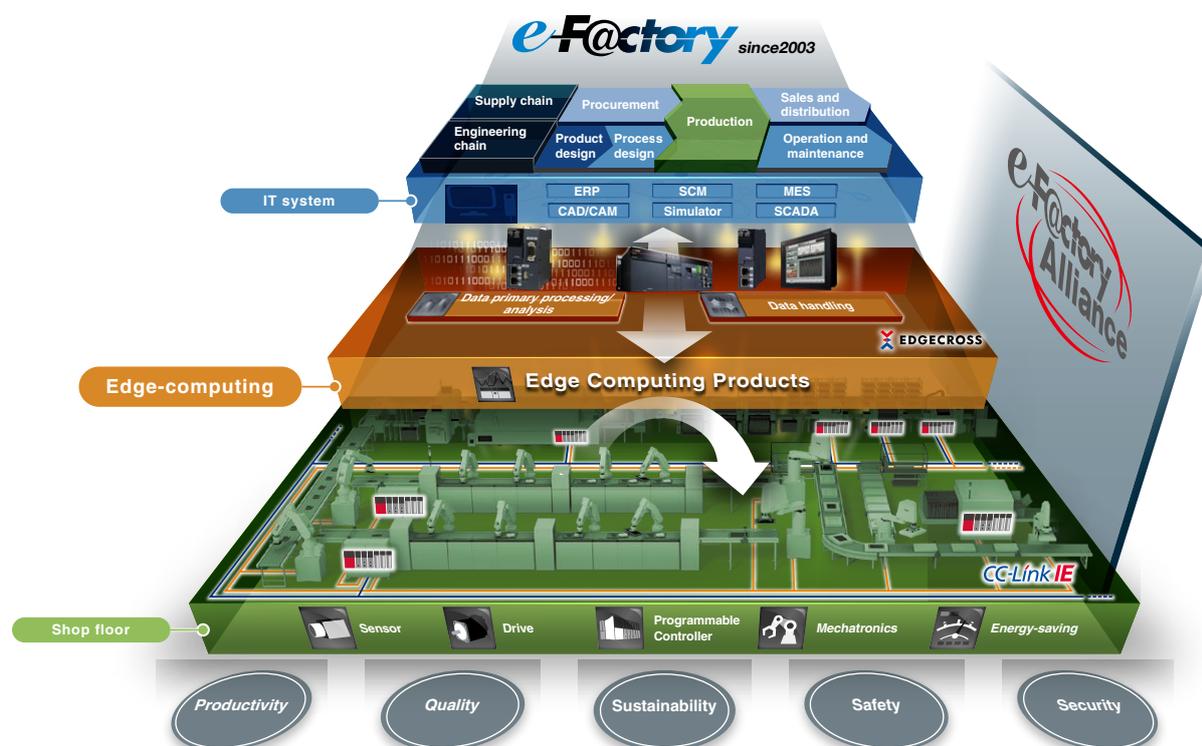


Mitsubishi Electric FA integrated solution



e-F@ctory is the Mitsubishi Electric solution for improving the performance of any manufacturing enterprise by enhancing productivity, and reducing the maintenance and operations costs together with seamless information flow throughout the plant by using a combination of factory automation and IT technologies.

iQ Sensor Solution (iQSS) is a solution for the sensor level in e-F@ctory.



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Mitsubishi Sensor Solution

Easy Setup, Visualization

Sensors used on the manufacturing floor are becoming more advanced and complex.

Managing sensor configuration tools, and maintaining and starting up equipment can be costly and time consuming.

Through a collaboration with partner manufacturers, Mitsubishi Electric offers an engineering tool that enables intuitive configuration and maintenance of sensors.

iQ Sensor Solution (iQSS) provides a solution that enhances the interaction between sensors and programmable controllers, HMIs and engineering softwares, which effectively reduces the customer's TCO*1.

*1. TCO: Total Cost of Ownership

iQSS covers all the sensors from general sensors to advanced sensors



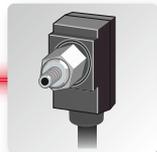
Vision sensors



Laser displacement sensors



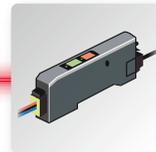
Contact displacement sensors



Pressure sensors



Fiber sensors



Pressure sensors



Photoelectric sensors



Proximity sensors



Bar-code readers

Ethernet

CC-Link IE

CC-Link

AnyWireASLINK

Panasonic

Anywire

OPTEX
FA

NSD Corporation

CKD

MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED

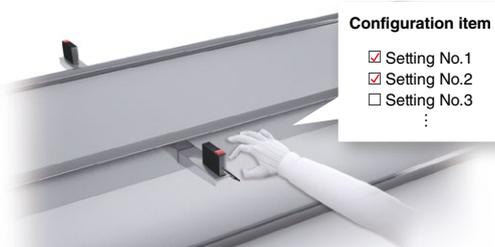
MITSUBISHI ELECTRIC
Changes for the Better



Issues at production site

■ Sensor setting

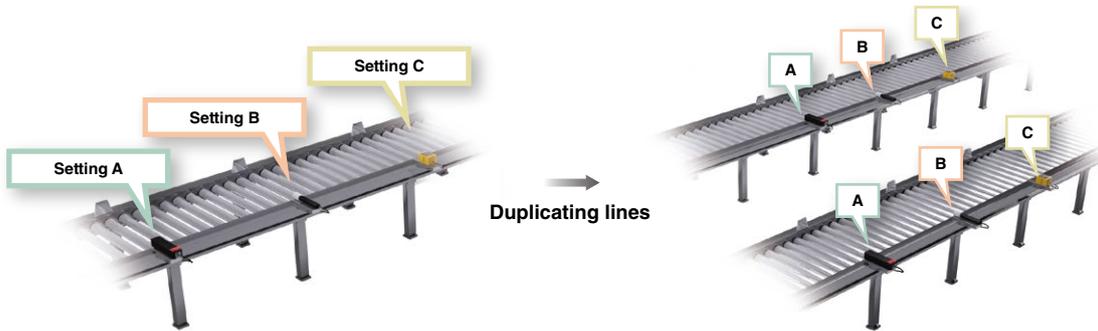
Complex sensors require many setting items, increasing setup and maintenance time.



Management of many setting items can be difficult.

■ Duplicating lines

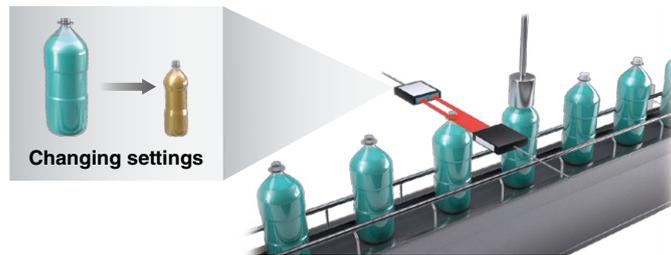
When reorganizing a factory space, parameters for each sensor on the existing lines must be individually set. Creating multiple lines takes time.



Setting parameters for each sensor individually can be difficult.

■ Changing the set-up

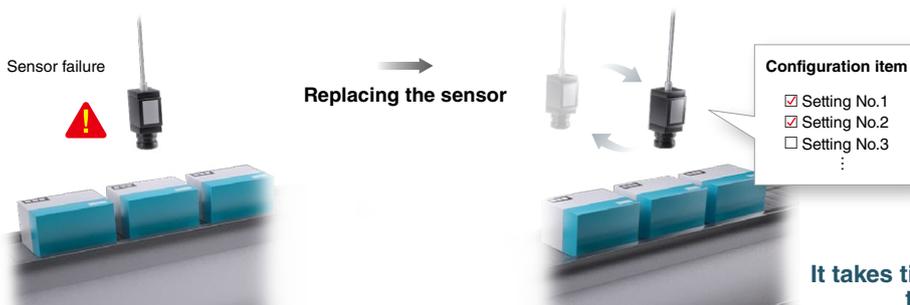
When you manufacture multiple products on a single line, sensor parameters have to be changed every time the product changes. Changing the set-up takes time.



Changing settings requires time.

■ Replacing sensors

When sensors fail, they don't just have to be replaced. It is also necessary to reset the parameters for the new sensor. System recovery takes time.



It takes time for the system to recover.

Enhanced coordination between third-party partners sensors and Mitsubishi programmable controllers, HMIs and engineering software reduces customers' TCO.

System design

To manage projects simply, we provide a workspace tree that enables projects to be managed in a single location, and a system configuration chart that depicts the entire system graphically.



System configuration management

Testing & startup

Functions that allow monitoring from a single screen based on the system configuration chart are provided so that the causes of problems can be identified quickly. This also shortens the time taken to adjust sections involving multiple devices.



Monitoring

Lower TCO

Lower development costs

Easy startup

P.8

Easy programming

P.11

Dedicated linkup tool

P.14

Lower production costs

Easy tuning

P.10

Lower maintenance costs

Sensor monitoring

P.9

Backup/restore

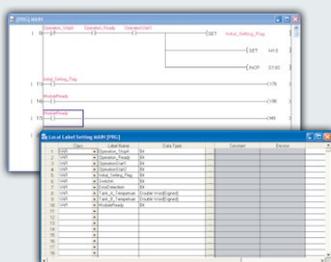
P.12

Easy logging
(Future release)

P.13

Programming

The labels used by PLCs can also be used by HMIs and sensors. This eliminates all troubles of label setting. GOT sample screen libraries, sample ladders and function blocks, etc. are supported.



Label programming

Operation & maintenance

Batch download/upload functions are provided for PLC, HMI and sensor settings to reduce backup tasks.



Sensor configuration download/upload



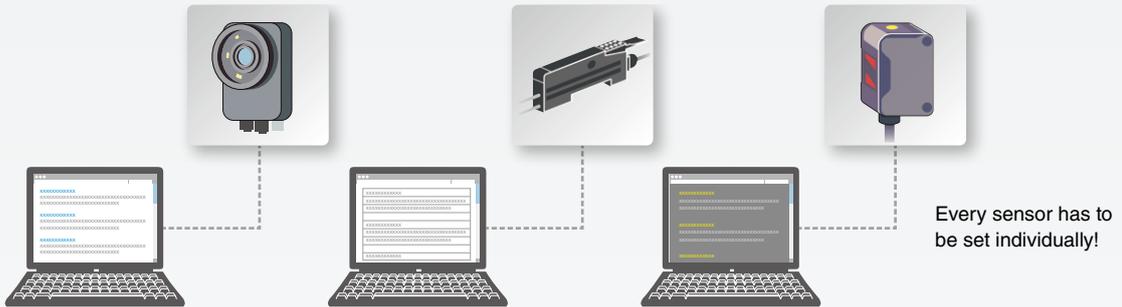
iQSS eliminates all troubles of conventional sensor control.

Easy startup

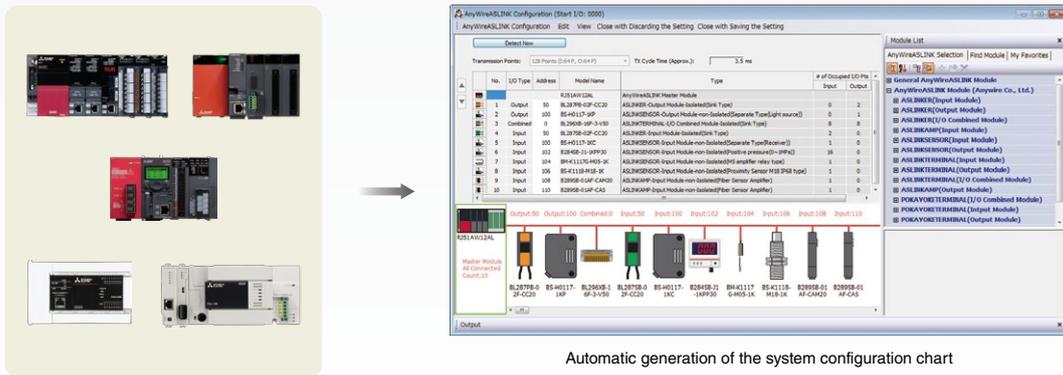


Easy system startup

New sensors from different manufacturers require different configuration methods. Manually entering the same sort of data for every sensor is a real pain...



With iQSS, a system configuration chart is automatically generated for iQSS-compatible third-party partner sensors.



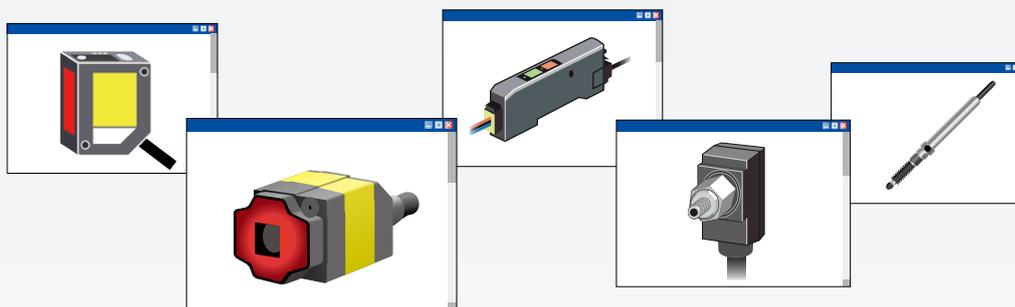
Lower development costs

Sensor monitoring

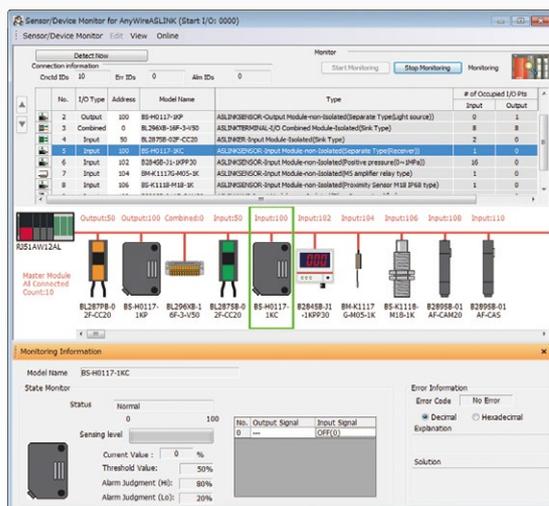


Easy sensor monitor

Each manufacturer uses a different tool. So it is necessary to open different monitor windows for each type of sensor when monitoring sensors.



With iQSS, iQSS-compatible third-party partner sensors can be displayed in a single window, allowing comprehensive monitoring.



Monitor information window is shown from the system configuration chart



GOT monitor information screen

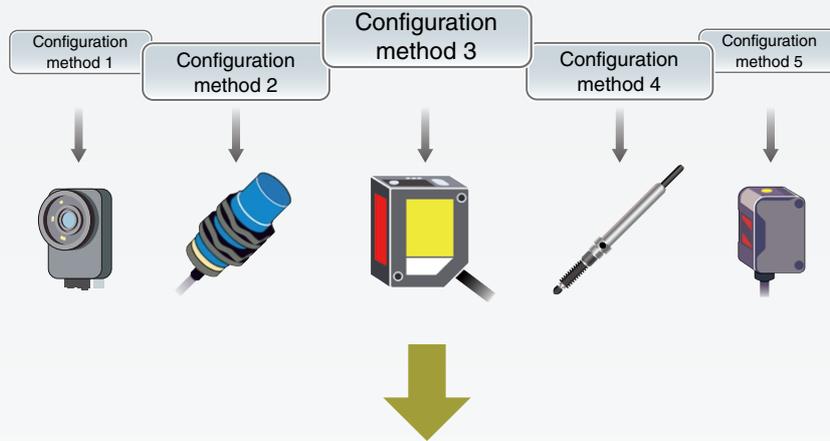
Lower maintenance costs

Easy tuning



Easy modification of sensor parameter setting

The parameter configuration methods and tools are different for each sensor, so configuration is really difficult...



With iQSS, parameters of different manufactures sensors can be set through integrated operation in the engineering environment or from the GOT (HMI), reducing set-up time.

Item	Parameter Name	Initial Value	Read Value	Write Value	Setting Range	Unit	Description
Module Parameter 1	Transmittance	50	50	50	0 to 1000		
Module Parameter 2	Amplitude	10	5	5	0 to 1000		
Module Parameter 3	Amplitude	0	20	20	0 to 1000		
Module Parameter 4	Amplitude	0	20	20	0 to 1000		
Module Parameter 5	Amplitude	0	20	20	0 to 1000		
Module Parameter 6	Amplitude	0	20	20	0 to 1000		
Module Parameter 7	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 8	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 9	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 10	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 11	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 12	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 13	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 14	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 15	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 16	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 17	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 18	ChangeOverPosition	0	0	0	0 to 1000		
Module Parameter 19	ChangeOverPosition	0	0	0	0 to 1000		

Parameter processing window is shown from the system configuration chart

GOT parameter information screen

Lower production costs

Easy programming



Easy programming

Label names need to be assigned to devices to improve program readability. Remembering devices where information for each sensor are stored and then manually entering the label names may lead to an error...

	Class	Label Name	Data Type
1	VAR_GLOBAL	Operation_Stop_A	Bit
2	VAR_GLOBAL	Operation_Ready	Bit
3			
4			
5			
6			
7			
8			



With iQSS, the label name data for sensors can be imported easily, even for different brands! No need to manually enter label names!^{*1} Programming is also easy using function blocks (FBs), sample ladders and sample screens.

	Class	Label Name	Data Type
1	VAR	Operation_StopA	Bit
2	VAR	Operation_Ready	Bit
3	VAR	OperationStart1	Bit
4	VAR	OperationStart2	Bit
5	VAR	Initial_Setting_Flag	Bit
6	VAR	SwitchA	Bit
7	VAR	ErrorDetection	Bit
8	VAR	Tank_A_Tempertuer	Double Word(Signed)
9	VAR	Tank_B_Tempertuer	Double Word(Signed)
10	VAR	ModuleReady	Bit
11			

Import sensor label in the label setting screen

Label names, which are text strings that can be displayed instead of device names, make programming more efficient and help prevent device input errors.

*1. Easy programming is not supported by Ethernet and CC-Link IE Field Network.

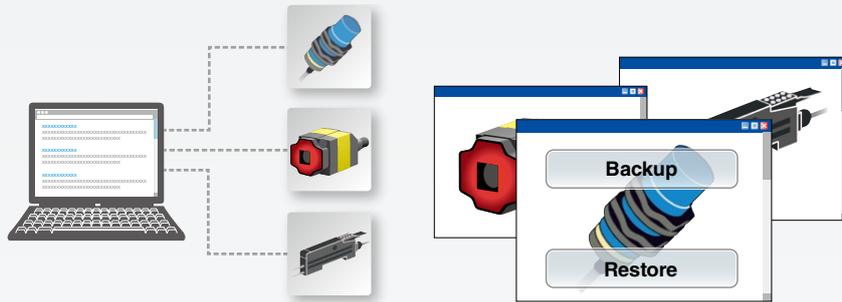
Lower development costs

Backup/restore

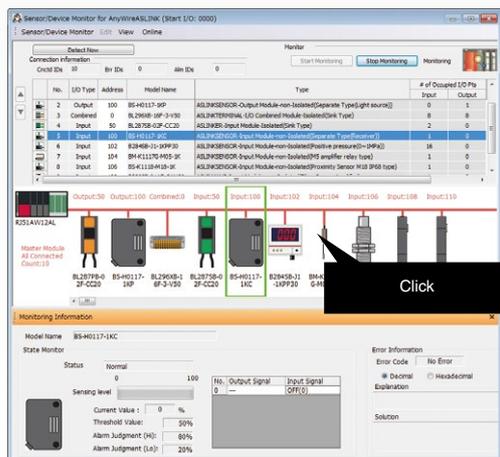


Easy backup/restore

Backing up the sensor parameter settings is a real problem because the different manufacturers all have their own tools.



With iQSS, the settings for iQSS-compatible partner sensors can be backed up and restored using the SD memory card in programmable controllers!



Backup

Restore



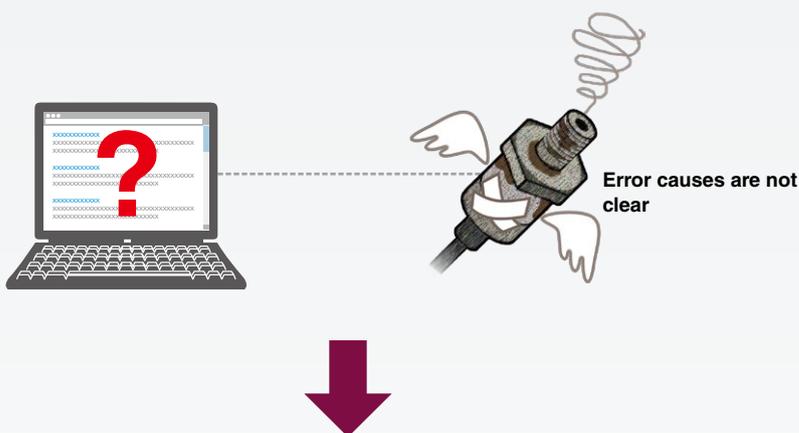
Lower maintenance costs

Easy logging (Future release)



Easy history collection and management Future release

How the histories of sensors with no logging function can be managed?



With iQSS, the sensor data can be stored as a programmable controller logging data. Data management and analysis for sensors without logging functions are also possible, helping to improve traceability.

No.	ID Type	Address	Model Name	Type	# of Observed I/O
2	Output	100	BS-H117-XP	ASLSENSOR-Output Module-non-Switched(Separate Type)(Light source)	0 / 1
3	Combined	0	BL290B-19P-3V50	ASLSENSOR-Input Module-non-Switched(Separate Type)	8 / 8
4	Input	300	BL290B-Q2P-CC20	ASLSENSOR-Input Module-non-Switched(Separate Type)	2 / 0
6	Input	102	B24GR-3I-3PP30	ASLSENSOR-Input Module-non-Switched(Pneumatic pressure)(3-3PPPa)	16 / 0
7	Input	104	BS-K1170-405-0E	ASLSENSOR-Input Module-non-Switched(405mA relay type)	1 / 0
8	Input	106	BS-K1118-3E-2E	ASLSENSOR-Input Module-non-Switched(Pneumatic Sensor H18 3Pa type)	1 / 0

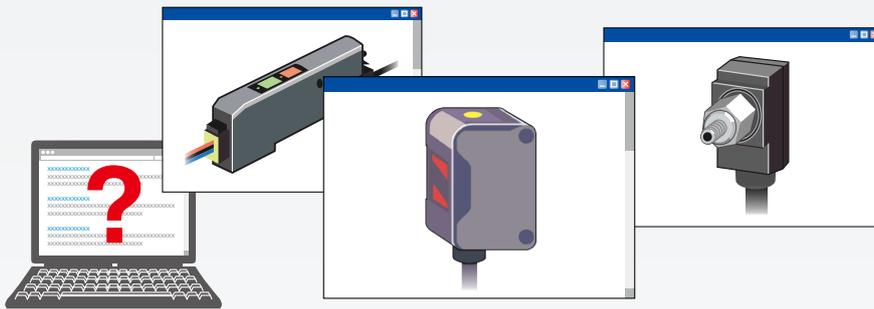
Lower maintenance costs

Dedicated linkup tool



Dedicated tool startup

It's hard to figure out which dedicated tool to start to change the sensor configuration...



With iQSS, all of your dedicated tools and manuals can be started from the engineering environment.

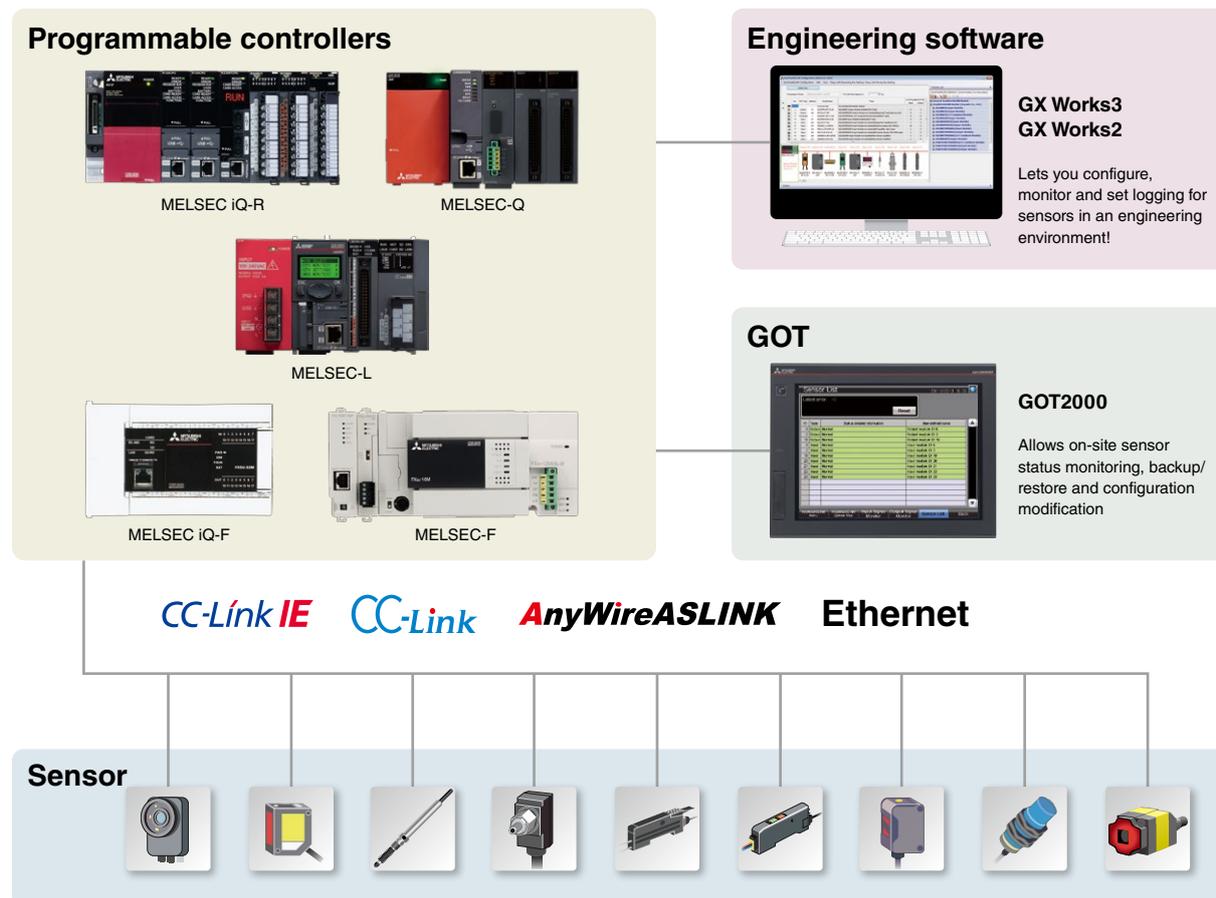
The screenshot shows the iQSS software interface. On the left, a 'System Configuration Chart' displays a tree view of modules. A 'Click' callout points to the 'HL-C2' module. On the right, a detailed configuration window for 'HL-C2' is shown, featuring various settings for 'Head A', 'Head B', 'OUT1', and 'OUT2'. The window includes sections for 'Initiation', 'Head/OUT Configuration', 'Judgment Output', 'Filter Operation', and 'Digital Output'. A 'Capture' button is visible at the bottom of the configuration window.

Dedicated tool is started from the system configuration chart

Lower development costs

iQSS system configuration

iQSS is a solution to construct a system to manage all Mitsubishi Electric programmable controllers and sensors with engineering software. The MELSEC programmable controllers and iQSS partner sensors can be easily connected to the network.



Lineup of iQSS supporting products

AnyWireASLINK

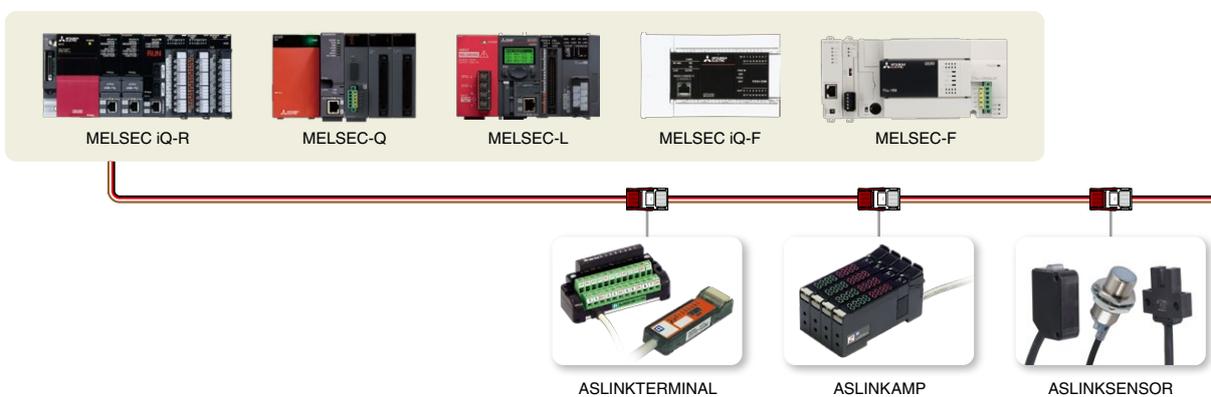
MELSEC iQ-R     

MELSEC-Q, MELSEC-L      

MELSEC iQ-F   

MELSEC-F     

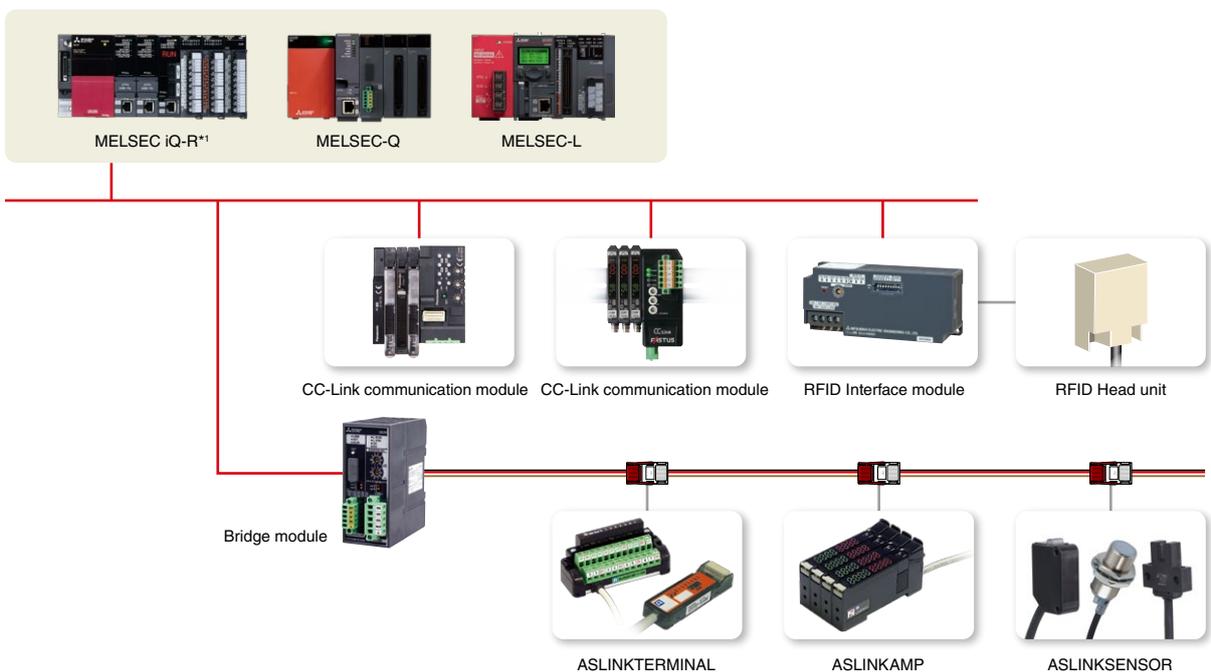
AnyWireASLINK makes it possible to centrally monitor (visibility) the state of all sensors from the programmable controller, by that improving the operation rate and reducing set-up time. AnyWireASLINK also helps to save space in the machine and control system that uses various sensors.



CC-Link

MELSEC iQ-R, MELSEC-Q, MELSEC-L      

CC-Link is a high-speed and highly-reliable deterministic I/O control network which realizes reduced wiring whilst offering multi-vendor compatible products. This global standard open field network originates from Japan and Asia.



*1. MELSEC iQ-R Series do not support easy label import.

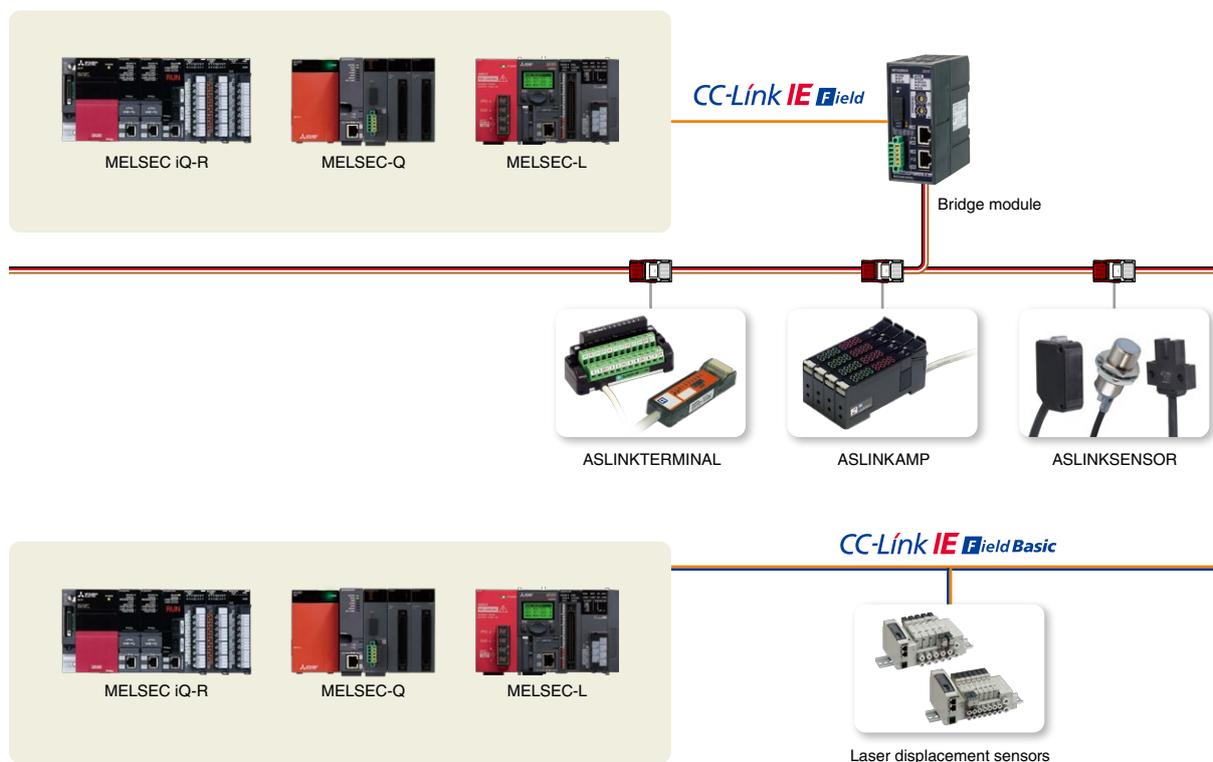
- Easy startup
- Sensor monitoring
- Easy tuning
- Easy programming
- Backup/restore
- Easy logging
- Dedicated linkup tool

CC-Link IE

CC-Link IE **Field**, MELSEC iQ-R, MELSEC-Q, MELSEC-L

CC-Link IE **Field Basic**, MELSEC iQ-R, MELSEC-Q, MELSEC-L

CC-Link IE Field and CC-Link IE Field Basic are all-round versatile gigabit Ethernet based networks realizing flexible wiring topologies according to the layout of production lines, equipment, and devices.



Ethernet

MELSEC iQ-R, MELSEC-Q MELSEC-L

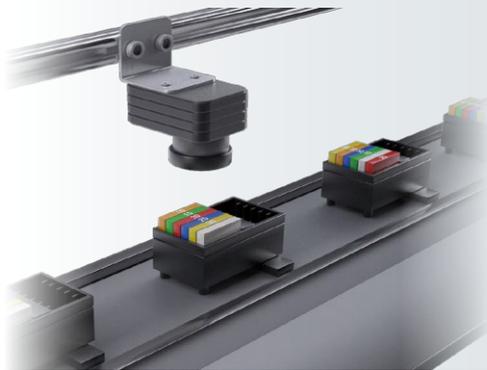
Many devices are connectable via widely available Ethernet.*1



*1. Easy label import is not supported.

Vision sensors

Machine vision system is used to identify size, shape, color and position of objects for outer-appearance inspection, positioning control, and prints confirmation



Fuse verification

Fuse colors and prints on the fuses are identified to verify their installed positions.

OPTEX FA CO., LTD.



■ LED lighting controller with Ethernet connectivity OPPD-30 series



Ethernet



OPPD-30E series

- New-generation LED lighting controller for image processing realizes predictive lighting maintenance through automatic lighting control and IoT (Internet of Things) setups
- Interlock with "FALUX sensing" equipped with LED lighting of OPTEX FA. Realizes lighting brightness monitoring and dimming feedback control
- Dimming and illumination control through Ethernet communication is possible. Communication can be easily established simply by connecting a LAN cable
- Easy setting with dedicated computer software. Setting such as dimming, illumination control, and frequency is possible
- Compact size of W 48 x H 72 x D 72 mm. Size was reduced to nearly 38% that of the conventional model
- iQSS easily realizes downloading of dimming and illumination control settings, backup/restoration of settings, and monitoring of lighting brightness/temperature/error information

OPTEX FA CO., LTD.

URL : <https://www.optex-fa.jp/>

Japan TEL : +81-75-325-1314

E-mail : faovs@optex-fa.com

Laser displacement sensors

A laser displacement sensor can measure the work height and detect positions for height control in micron accuracy



Measuring surface variations on HDD

The disc surface height is checked to remove any defects before proceeding to the next assembly line. By measuring the height of the mirrored-surface disc, the surface variations and fixed accuracy can be measured to judge whether products are defects or not.

Panasonic Industrial Devices SUNX Co., Ltd

Panasonic

■ Ultra high-speed/high-precision laser displacement sensor HL-C2



Ethernet



Ultra high-speed/high-precision laser displacement sensor HL-C2

- Industry's leading-edge performance (resolution: 0.01 μm , linearity: $\pm 0.02\%$ F.S.)
- A wide lineup of sensor heads 8 types of measurement center distance (8/10/15/30/50/85/110/350 mm)
- Controller connectable to 2 sensor heads*1

*1. Capable of outputting computation results of two sensor heads.

Panasonic Industrial Devices SUNX Co., Ltd
URL : <http://panasonic.net/id/pidsx/global>
 Support line : +81-568-33-7861
 Facsimile : +81-568-33-8591

OPTEX FA CO., LTD.



High-performance multi laser displacement sensor CD5 series, C-MOS laser displacement sensor CD33 series



Bus connection



Sensor head

- High-performance multi laser displacement sensor CD5 Series
- C-MOS laser displacement sensor CD33 series
- Control unit
- Laser displacement sensor control unit UQ1 series**

**1. Supports the MELSEC-Q Series.

[High-performance multi laser displacement sensor CD5 series]

- Highest-in-class repeat accuracy and linearity
- Variety of sensor heads includes for transparent and mirror-surface objects measurement and long distance measurement with a longest-in-industry range of 2 m

[C-MOS laser displacement sensor CD33 series]

- A light weight with approx. 65 g, ideal for installation in a machine
- Specular reflection type for mirror-surface and transparent objects measurement are also available

[Laser displacement sensor control unit UQ1 series]

- The control unit can be directly installed onto the programmable controller base unit, offering the connection to displacement sensors. Complex communication setting is no longer required
- Measured values are acquired, processed, analyzed and output, all at the control unit side, eliminating the need of the CPU side programs
- TCO is reduced to 1/3 compared to equivalent competitor products

OPTEX FA CO., LTD.

URL : <https://www.optex-fa.jp/>

Japan TEL : +81-75-325-1314

E-mail : faovs@optex-fa.com

Compact laser displacement sensor CD22 series, displacement sensor amplifier unit CDA series



CC-Link



- Compact laser displacement sensor CD22 series (RS-485 communication type)
- Laser displacement sensor amplifier unit CDA series
- CC-Link communication unit UC1-CL11

[Compact laser displacement sensor CD22 series]

- Smallest displacement sensor in class of 18 x 31 x 44 mm (W x D x H)
- Repeat accuracy: 1 μm
- Ideal for embedding in a machine and installing on a movable part

[Laser displacement sensor amplifier unit CDA series]

- Connecting an external amplifier unit CDA easily realizes thickness measurement and height difference measurement
- Up to two CD22 series are connectable

[CC-Link communication unit UC1-CL11]

- CC-Link communication unit enables a displacement sensor amplifier to be connected to CC-Link networks
- Measurement value monitoring and remote monitoring of sensors can be easily realized

OPTEX FA CO., LTD.

URL : <https://www.optex-fa.jp/>

Japan TEL : +81-75-325-1314

E-mail : faovs@optex-fa.com

Contact type displacement sensor

Inspection of the work shape and installation accuracy and detection of the work position are possible. Far less affected by the condensation or oil problems, the sensor can achieve stable and high precision measurement in harsh environments



Assembled part measurement

The sensor inspects whether parts are properly assembled within an engineering tolerance.

Panasonic Industrial Devices SUNX Co., Ltd



■ Contact-type digital displacement sensor HG-S



- CC-Link communication unit SC-HG1-C
- Contact-type digital displacement sensor HG-S^{*1}

*1. Additionally use a sensor head and connection cable

[CC-Link communication unit for digital displacement sensor SC-HG1-C]

- Directly transfer measurement values of maximum of 15 digital displacement sensor units to the upper level via CC-Link communication unit

[Contact-type digital displacement sensor HG-S]

- Optical absolute method eliminates "value skipping" and "unset zero point", realizing best-in-class accuracy
- The slim unit body contains plain bearings with 2-point support structure disperses load and achieves superb durability, contributing to a long service life of the sensor
- The controller adapts 2-line digital display
- NAVI function realizes intuitive and excellent ease of use

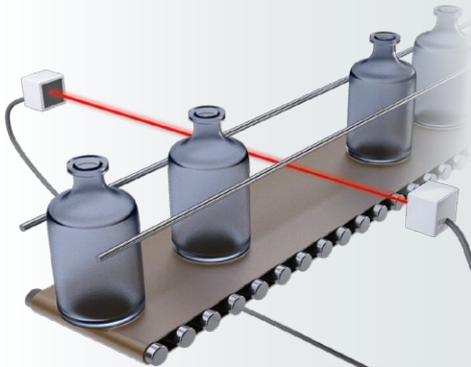
Panasonic Industrial Devices SUNX Co., Ltd
 URL : <http://panasonic.net/id/pidsx/global>

Support line : +81-568-33-7861

Facsimile : +81-568-33-8591

Photoelectric sensors

A photoelectric sensor identifies objects using visible light beams



Identifying bottles on a conveyor

Objects on a conveyor are easily identified by using photoelectric sensors, which are widely available at affordable prices.

Anywire Corporation

Anywire

■ ASLINKSENSOR Photoelectric type



AnyWireASLINK



ASLINKSENSOR

- Photoelectric transmission type
BS-H0117(□)-PC(□)-SET
- Photoelectric recurrent reflection type
BS-H0217(□)-□
- Photoelectric spread reflection type
BS-H0317(□)-□

- IP67 compliant amplifier integrated photoelectric sensor and IP67 company standard oil proof compliant amplifier integrated photoelectric sensor are available
- Directly connectable to AnyWireASLINK transmission line without a remote I/O
- Sensing level is continuously monitored
- ASLINKSENSOR operates in time division. Even if there are multiple sensors, measures to prevent interference are unnecessary
- Reduced wiring realizes simplified setup and maintenance

Anywire Corporation

URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp



Photo interrupters

A photo interrupter identifies objects using visible light beams. Photo interrupters are compact and installable in confined spaces



Detecting the tail of a microchip container

Compact and slim photo interrupters are installable in confined spaces for tail detection.

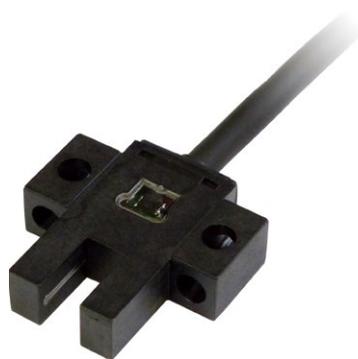
Anywire Corporation

Anywire

■ ASLINKSENSOR Photo interrupter type



AnyWireASLINK



ASLINKSENSOR photo interrupter type
B297SB-01-1K40

- Amplifier integrated photo interrupters are available
- Directly connectable to AnyWireASLINK transmission line without a remote I/O
- Sensing level is continuously monitored
- Reduced wiring realizes simplified setup and maintenance

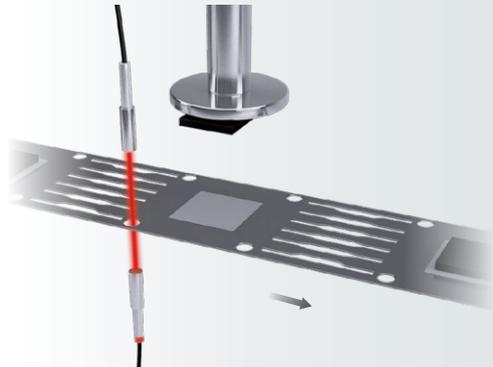
Anywire Corporation

URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp

Laser sensors

Laser beams are used to identify an object in a long distance or in a crowded area to a degree which was not possible with LED beams, allowing high-accuracy detection such as positioning



Positioning of small pierced plates

Directional laser beam, which passes through holes and gets blocked at plate areas, is used for positioning.

Anywire Corporation

Anywire

ASLINKSENSOR Laser type



AnyWireASLINK



ASLINKSENSOR

- Laser spot transmission type BS-L0117-PC-SET
- Laser spot recurrent reflection type BS-L0217-1K

- Amplifier integrated laser spot transmission type and recurrent reflection type are available
- Directly connectable to AnyWireASLINK transmission line without a remote I/O
- Sensing level is continuously monitored
- Upload/download of the sensitivity setting is possible from the higher controller
- Reduced wiring realizes simplified setup and maintenance

Anywire Corporation

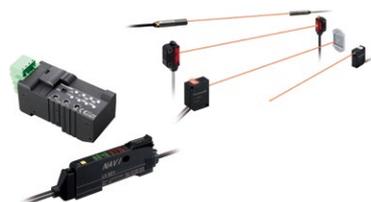
URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp

Panasonic Industrial Devices SUNX Co., Ltd



■ Digital laser sensor LS-500, LS-400



- CC-Link communication unit SC-GU3-01
- Digital laser sensor LS-500, LS-400

- Connectable to versatile sensor amplifiers (for fiber optic, laser, and pressure sensors) via the CC-Link communication unit (SC-GU3-01)
- Industry's smallest laser sensor head can be installed in confined spaces, which were too small for conventional sensors (Industry's smallest as of December 2014)
- All sensor head models comply with the laser class 1 (JIS/IEC/FDA)

Panasonic Industrial Devices SUNX Co., Ltd
URL : <http://panasonic.net/id/pidsx/global>
Support line : +81-568-33-7861
Facsimile : +81-568-33-8591

Fiber sensors

A fiber-optic sensor identifies objects in harsh industrial environments including high temperature, evacuated atmosphere, and areas with chemicals



Detecting miniature objects that are passing through

The fiber-optic sensor detects miniature objects (0402) that pass through the sensing area. Beams from ultra-thin fibers fully enter or get blocked in presence/absence of microchips.

Anywire Corporation

Anywire

■ ASLINKAMP Fiber type



AnyWireASLINK



Fiber-optic amplifier
(with 7-segment display)

ASLINKAMP

- Fiber type B289SB-01AF-CA□-V
- Fiber type with 7-segment display L□-F1011
- Fiber type (IP66) BA-F116-□
- Fiber head AFT-□

- A separated amplifier for general-purpose fiber head and a fiber head are available
- An amplifier can be directly connected to AnyWireASLINK transmission line without a communication unit
- Any number of base units and extension units can be coupled
- Sensing level is continuously monitored
- An amplifier with 7-segment display allows to check the sensing level with the amplifier itself and programmable controller
- ASLINKAMP operates in time division with sensors. Even if there are multiple heads, measures to prevent interference are unnecessary
- Upload/download of sensor sensitivity settings are possible from the higher controller
- Reduced wiring realizes simplified setup and maintenance

Anywire Corporation

URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp

Panasonic Industrial Devices SUNX Co., Ltd



■ Digital fiber sensor FX-500, FX-300



- CC-Link communication unit SC-GU3-01
- Digital fiber sensor FX-500, FX-300

- Connectable to versatile sensor amplifiers (for fiber optic, laser, and pressure sensors) via the CC-Link communication unit (SC-GU3-01)
- Thanks to high optical coupling efficiency, even ultra-small diameter fibers can obtain the large amount of light
- 167 types of fiber-optic heads support many inspection applications
- Affordable tough fiber optic cable with superior specification (bending radius R4, bending tolerance 10 million times)

Panasonic Industrial Devices SUNX Co., Ltd
 URL : <http://panasonic.net/id/pidsx/global>
 Support line : +81-568-33-7861
 Facsimile : +81-568-33-8591

OPTEX FA CO., LTD.



■ High-speed digital fiber amplifier D3RF series



- CC-Link communication unit UC1-CL11
- High-speed digital fiber amplifier D3RF series

[CC-Link communication unit UC1-CL11]

- Connectable with sensor amplifiers via CC-Link communication unit
 - Output status check, receiving light amount upload, and setting value upload/download, and teaching execution are enabled
 - Multiple fiber optic amplifiers are connectable to the connectors, saving wiring and space while reducing the system startup time
- [High-speed digital fiber amplifier D3RF series]
- Ultra high-speed response of 16 μ s (single) and 22 μ s (coupled). 100 % display, interference prevention

[Fiber unit NF series]

- About 200 models are available (easy installation, thread, cylindrical, sleeve, flexible, retro-reflective, small object detection, screen/array, limited diffuse reflective, narrow view/wafer mapping, heat resistant, chemical resistant, liquid level, liquid leak/water detection)

OPTEX FA CO., LTD.
 URL : <https://www.optex-fa.jp/>
 Japan TEL : +81-75-325-1314
 E-mail : faovs@optex-fa.com

Pressure sensors

A pressure sensor measures gas pressures and identifies main and absorption pressures in a system



Monitoring the supplied gas pressure

The pressure sensor is useful in controlling compressed air supplied to the system. When supplied air decreases, the pressure also decreases to a level that turns ON the sensor.

Anywire Corporation

Anywire

■ ASLINKSENSOR Pressure type



AnyWireASLINK



ASLINKSENSOR Pressure type B284SB-□-□

- Amplifier integrated pressure sensors are available
- Four rated pressure ranges (four models)*1
- Three sensor output types (1-point type, 2-point type, analog type)
- Directly connectable to AnyWireASLINK transmission line without a remote I/O
- Sensing level is continuously monitored
- Upload/download of the sensitivity setting is possible from the higher controller
- Analog output type can perform A/D conversion, ensuring noise immunity
- Reduced wiring realizes simplified setup and maintenance

*1. 0...100k Pa/0...1000k Pa/0...-100k Pa/-100...100k Pa

Anywire Corporation

URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp

Panasonic Industrial Devices SUNX Co., Ltd



■ Head-separated dual display digital pressure sensor [for gas] DPS-400/DPH-100



- CC-Link communication unit SC-GU3-01
- Head-separated dual display digital pressure sensor [for gas] DPS-400/DPH100

- Connectable to versatile sensor amplifiers (for fiber optic, laser, and pressure sensors) via the CC-Link communication unit (SC-GU3-01)
- DPS-400 series are the only sensor amplifiers, which are capable of transmitting displayed pressure values (digital values) via CC-Link network
- Compact sensor heads*¹ are installable from above by using a hexagonal wrench
- Three rated pressure ranges*²

*1. Heads can be installed close to each other as they are placed from above.
 *2. -100.0k Pa...+100.0k Pa/0...+1.000M Pa/0...-101.0k Pa

Panasonic Industrial Devices SUNX Co., Ltd
URL : <http://panasonic.net/id/pidsx/global>
 Support line : +81-568-33-7861
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Proximity sensors

A proximity sensor is a robust sensor, which detects metal works and such without any physical contact



Detecting metal works for suction

A proximity sensor can detect a metal work in a harsh environment e.g. a robot arm grasps (suction) a door in the automotive assembly line with metal chips, oil, and dusts spatter.

Anywire Corporation

Anywire

ASLINKSENSOR Proximity type



AnyWireASLINK



Amplifier integrated sensor

Amplifier integrated sensor (sputter ready type)

ASLINKSENSOR

- Proximity type (standard type) BS-K1117-M□-□
- Proximity type (sputter ready type) BS-K1117S-M□-□
- Proximity type (non-shield type) BS-K1217-M□-□
- Proximity type (full stainless steel body type) BS-K1117M-M□-□
- Proximity type (chemical-capable (fluorine resin body) type) BS-K1117C-M□-□
- Proximity type (polyarylate body type IP68) BS-K1118-M□-□
- Proximity type (all metal detection type) BS-K4117-M□-□
- Proximity type (capacitance type) BS-K5217-M□-□
- Proximity type (amplifier relay type) BM-K1117G-□-□

- IP67 compliant, IP67 company standard oil resistance, IP68 compliant amplifier integrated proximity sensor and IP67 company standard oil resistance amplifier relay type proximity sensor are available
- Directly connectable to AnyWireASLINK transmission line without a remote I/O
- Sensing level is continuously monitored
- Switching between N/O and N/C is possible
- Upload/download of sensor sensitivity settings are possible from the higher controller
- Reduced wiring realizes simplified setup and maintenance

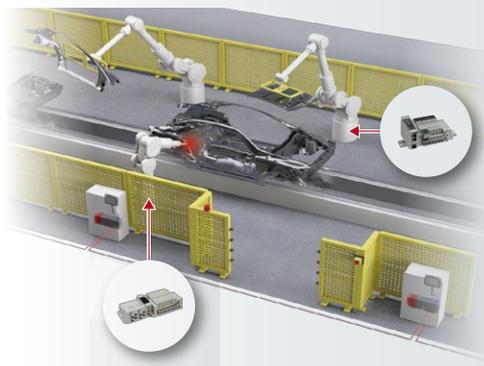
Anywire Corporation

URL : <http://www.anywire.jp/>

E-mail : info_e@anywire.jp

Solenoid valve

Solenoid valve enables driving of an air cylinder and a robot hand. A manifold type solenoid valve allows driving of large actuators in a limited space



Clamp operation at car welding process

Driving of clamping or unclamping of the welding jig air cylinder attached to a robot is enabled in automotive production line.

CKD Corporation



■ Less wiring block manifold M4G/MN4G-T8 series, W4G-T7 series



Less wiring block manifold (IP20) 4G series



Less wiring block manifold (IP65) W4G series

[M4G/MN4G-T8 series]

- Applicable cylinder bore size: up to $\phi 100$. Three different valve sizes are available. Driving of air cylinder up to $\phi 100$ bore size is possible
- Continuous energization is possible (low-heat-generation, electric power saving circuit option)
- Protective structure: IP20
- Available in PNP or NPN (either 32 points output or 16 points output)
- Maintenance information such as number of operations and energization time can be output

[W4G-T7 series]

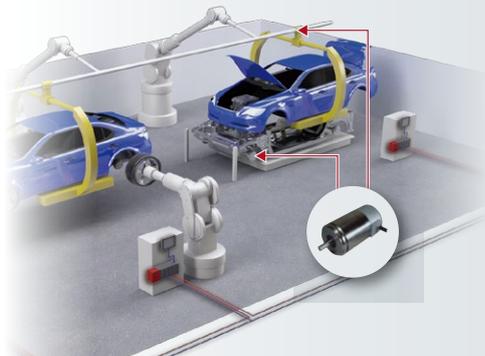
- Applicable cylinder bore size: up to $\phi 125$. Two different valve sizes are available. Driving of air cylinder up to $\phi 125$ bore size is possible
- Available in PNP or NPN (from among 32 points output, 16 points output, and 16 points input or output)
- Protective structure: IP65
- Maintenance improvement. Plug-in type allows valve replacement easy
- Maintenance information such as number of operations and energization time can be output

CKD Corporation

URL : <https://www.ckd.co.jp/english>

Encoder

A position sensor which converts mechanical displacement of rotation direction and linear direction to digital amount



Synchronous control between the main production line and the sub production line

An encoder detects the position of the main and the sub conveyor line to perform synchronous control of two lines.

NSD Corporation



Multi-turn type ABSOCODER sensor MRE®



Bus connection



Programmable controller unit type converter

- Position detection unit VS-Q262B-M2PG*1
- Positioning unit VS-Q262-M2PG*1

Multi-turn type ABSOCODER sensor MRE®

*1. Supports the MELSEC-Q Series.

- NSD made ABSOCODER® is a position sensor. Non-contact structure provides a robust feature in harsh environments with vibration, impact, water, oil, or dust
- Absolute sensor ABSOCODER® does not lose the current position on the control line even if the power is off or an accidental noise occurs, allowing quick recovery of the synchronized control lines
- ABSOCODER® reduces limit switches for position detection and proximity sensors, eliminating troubles of replacement and adjustment of switches
- Units can be directly mounted on the MELSEC programmable controller base unit, realizing reduced wiring. Position data can be easily retrieved with MOV instruction, allowing easier control system configuration

NSD Trading Corporation

URL : <http://www.nsdcorp.com>

TEL : +81-52-261-2352 FAX: +81-52-252-0522

E-Mail : foreign@nsdcorp.co.jp

Abocoder. MRE®



Easy startup



Sensor monitoring



Easy tuning



Easy programming



Backup/restore



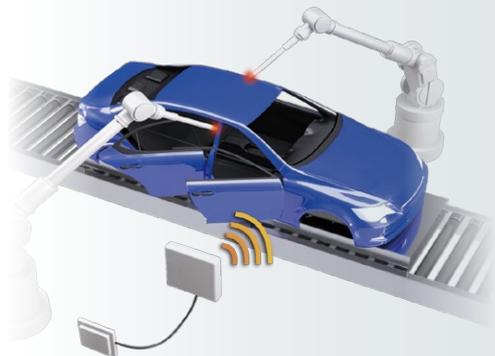
Easy logging



Dedicated linkup tool

RFID

Radio-frequency identification (RFID) technology uses wireless communication to identify and control objects attached with RFID tags



Car assembly line using RFID technology

RFID tags containing car type, operation instructions, and process history are attached to each trolley. At each process, pre-installed antennas automatically receive such information from the RFID tags on the trolleys.

Mitsubishi Electric Engineering Co., Ltd.

MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED

■ CC-Link compatible RFID interface unit



CC-Link



CC-Link compatible RFID interface unit
ECL2-V680D1**

*1. Compatible with Omron RFID system V680 series

- RFID interface units are installable as CC-Link remote device stations for distributed control
- Equipped with test and measurement functions required for startup and maintenance
- RFID interface units enable connections to Omron's V680 series RFID systems (all antennas and RFID tags)
- Function block (FB) library, which simplifies programming, is available

Mitsubishi Electric Engineering Co., Ltd.

URL : <http://www.mee.co.jp/sales/fa/meefan/>

Technical support : 0568-36-2068

Product list

Sensor*1

●: Compatible -: Incompatible

Manufacturer	Series/Model	Connection method					
		AnyWire ASLINK	CC-Link	CC-Link IE Field	CC-Link IE Field Basic	Ethernet*2	Bus connection
Vision sensors							
OPTEX FA CO., LTD.	LED lighting controller with Ethernet connectivity OPPD-30E series *LED lighting for image processing (with sensing function) is supported	-	-	-	-	●	-
Laser displacement sensors							
Panasonic Industrial Devices SUNX Co., Ltd.	Ultra high-speed/high-precision laser displacement sensor HL-C2	-	-	-	-	●	-
OPTEX FA CO., LTD.	Laser displacement sensor control unit UQ1 series *High-performance multi laser displacement sensor CD5 series and C-MOS laser displacement sensor CD33 series are supported	-	-	-	-	-	●*3
	CC-Link communication unit UC1-CL11 *Displacement sensor amplifier unit CDA series and compact laser displacement sensor CD22 series are supported	-	●	-	-	-	-
Contact type displacement sensor							
Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit for digital displacement sensor SC-HG1-C *Contact-type digital displacement sensor HG-S is supported	-	●	-	-	-	-
Photoelectric sensors							
Anywire Corporation	ASLINKSENSOR photoelectric transmission type BS-H0117(□)-PC(□)-SET	●	-	-	-	-	-
	ASLINKSENSOR photoelectric recurrent reflection type BS-H0217(□)-□	●	-	-	-	-	-
	ASLINKSENSOR photoelectric spread reflection type BS-H0317(□)-□	●	-	-	-	-	-

*1. Please refer to P.16...P.33 for compatible functions of each product and iQ Sensor Solution reference manual (SH-081133ENG) for compatible version. Series name only includes products which do not support iQSS. For further details, please refer to the relevant manual for each partner product.

*2. Only when the CPU has a built-in Ethernet port. (Ethernet interface module with built-in Ethernet ports do not support the network)

*3. Supports the MELSEC-Q Series.

●: Compatible -: Incompatible

Manufacturer	Series/Model	Connection method					
		AnyWire ASLINK	CC-Link	CC-Link IE Field	CC-Link IE Field Basic	Ethernet*1	Bus connection
Photo interrupters							
Anywire Corporation	ASLINKSENSOR photo interrupter type B297SB-01-1K40	●	-	-	-	-	-
Laser sensors							
Anywire Corporation	ASLINKSENSOR laser spot transmission type BS-L0117-PC-SET	●	-	-	-	-	-
	ASLINKSENSOR laser spot recurrent reflection type BS-L0217-1K	●	-	-	-	-	-
Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit SC-GU3-01*2 *Digital laser sensor LS-500, LS-400 are supported	-	●	-	-	-	-
Fiber sensors							
Anywire Corporation	ASLINKAMP fiber type B289SB-01AF-CA□-V *Fiber head AFT□ is supported	●	-	-	-	-	-
	ASLINKAMP fiber type (with 7-segment display) L□-F1011 *Fiber head AFT□ is supported	●	-	-	-	-	-
	ASLINKAMP fiber type (IP66) BA-F116-□ *Fiber head AFT□ is supported	●	-	-	-	-	-
Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit SC-GU3-01*2 *Digital fiber sensor FX-300 series, FX-500 series are supported	-	●	-	-	-	-
OPTEX FA CO., LTD.	CC-Link communication unit UC1-CL11 *High speed digital fiber amplifier D3RF series is supported	-	●	-	-	-	-

*1. Only when the CPU has a built-in Ethernet port. (Ethernet interface module with built-in Ethernet ports do not support the network)

*2. Additionally use a cascading connector unit (SC-71), an end unit (SC-GU3-EC), and the computer software (SC-PC1).

●: Compatible - : Incompatible

Manufacturer	Series/Model	Connection method					
		AnyWire ASLINK	CC-Link	CC-Link IE Field	CC-Link IE Field Basic	Ethernet*1	Bus connection
Pressure sensors							
Anywire Corporation	ASLINKSENSOR pressure type B284SB-□-□	●	-	-	-	-	-
Panasonic Industrial Devices SUNX Co., Ltd.	CC-Link communication unit SC-GU3-01*2 *Head-separated dual display digital pressure sensor [for gas] DPS-400/DPH-100 are supported	-	●	-	-	-	-
Proximity sensors							
Anywire Corporation	ASLINKSENSOR proximity type (standard type) BS-K1117-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (sputter ready type) BS-K1117S-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (non-shield type) BS-K1217-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (full stainless steel body type) BS-K1117M-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (chemical-capable (fluorine resin body) type) BS-K1117C-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (polyarylate body type-IP68) BS-K1118-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (all metal detection type) BS-K4117-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (capacitance type) BS-K5217-M□-□	●	-	-	-	-	-
	ASLINKSENSOR proximity type (amplifier relay type) BM-K1117G-□-□	●	-	-	-	-	-
Solenoid valve							
CKD Corporation	Less wiring block manifold M4G/MN4G-T8 series, W4G-T7 series	-	-	-	●	-	-
Encoder							
NSD Corporation	Position detection unit VS-Q262B-M2PG, positioning unit VS-Q262-M2PG *Multi-turn type ABSOCODER sensor MRE® is supported	-	-	-	-	-	●*3
RFID							
Mitsubishi Electric Engineering Company Ltd.	CC-Link compatible RFID interface unit ECL2-V680D1 *Omron RFID system V680 series is supported	-	●	-	-	-	-

*1. Only when the CPU has a built-in Ethernet port. (Ethernet interface module with built-in Ethernet ports do not support the network)

*2. Additionally use a cascading connector unit (SC-71), an end unit (SC-GU3-EC), and the computer software (SC-PC1).

*3. Supports the MELSEC-Q Series.

Programmable controller

●: Compatible -: Incompatible

Manufacturer	Series/Model*1	Connection method					
		AnyWire ASLINK	CC-Link	CC-Link IE Field	CC-Link IE Field Basic	Ethernet	Bus connection
Mitsubishi Electric Corporation	MELSEC iQ-R Series R□CPU*2, R□ENCPU	●	●	●	●	●*3	-
	MELSEC iQ-R Series R□PCPU, R□SFCPU	●*4	-	●*4	-	-	-
	MELSEC iQ-R Series R□PSFCPU	-	-	●*4	-	-	-
	MELSEC-Q Series Q□UDVCP, Q□UDVCP	●	●	●	●	●*3	●
	MELSEC-L Series L□CPU, L□CPU-P	●	●	●	●	●*3	-
	MELSEC-L Series L□CPU-BT, L□CPU-PBT	●	●	●	●	●*3	-
	MELSEC iQ-F Series FX5U, FX5UC	●	-	-	●	●	-
	MELSEC-F Series FX3G, FX3GC, FX3U, FX3UC	●*4	-	-	-	-	-
	MELSEC iQ-R Series Master/local module (for CC-Link) RJ61BT11	-	●	-	-	-	-
	MELSEC-Q Series Master/local module (for CC-Link) QJ61BT11N	-	●	-	-	-	-
	MELSEC-L Series Master/local module (for CC-Link) LJ61BT11	-	●	-	-	-	-
	MELSEC iQ-R Series Master/local module (for CC-Link IE Field Network) RJ71GF11-T2, RJ71EN71	-	-	●	-	-	-
	MELSEC-Q Series Master/local module (for CC-Link IE Field Network) QJ71GF11-T2	-	-	●	-	-	-
	MELSEC-L Series Master/local module (for CC-Link IE Field Network) LJ71GF11-T2	-	-	●	-	-	-
	MELSEC iQ-R Series Master module (for AnyWireASLINK) RJ51AW12AL	●	-	-	-	-	-
	MELSEC-Q Series Master module (for AnyWireASLINK) QJ51AW12AL	●	-	-	-	-	-
	MELSEC-L Series Master module (for AnyWireASLINK) LJ51AW12AL	●	-	-	-	-	-
	MELSEC iQ-F series Master module (for AnyWireASLINK) FX5-ASL-M	●*4	-	-	-	-	-
	MELSEC-F Series Master module (for AnyWireASLINK) FX3U-128ASL-M	●*4	-	-	-	-	-
	CC-Link-AnyWireASLINK Bridge module NZ2AW1C2AL	●	-	-	-	-	-
	CC-Link IE Field Network -AnyWireASLINK Bridge module NZ2AW1GFAL	●	-	-	-	-	-

*1. For more information about supported version of each product, refer to iQ Sensor Solution reference manual (SH-081133). For details about product specifications, refer to the manual of each product.

*2. R00CPU does not support backup/restore as the SD memory card is not supported.

*3. Only when the CPU has a built-in Ethernet port. (Ethernet interface module with built-in Ethernet ports do not support the network)

*4. Backup/restore is not supported

GOT

●: Compatible -: Incompatible

Manufacturer	Series/Model	Connection method					
		AnyWire ASLINK	CC-Link	CC-Link IE Field	CC-Link IE Field Basic	Ethernet*5	Bus connection
Mitsubishi Electric Corporation	GOT2000 series(GT27, GT25)*6	●*7	●	-	-	●	-

*5. Only when the CPU has a built-in Ethernet port. (Ethernet interface module with built-in Ethernet ports do not support the network)

*6. Supplied as sample imaging data, including programmable controllers, to the system makeup.

*7. Use [iQSS Utility] of the dedicated software to enable programmable controllers to monitor and control iQSS supporting devices.

Factory Automation Global website

Mitsubishi Electric Factory Automation provides a mix of services to support its customers worldwide. A consolidated global website is the main portal, offering a selection of support tools and a window to its local Mitsubishi Electric sales and support network.

■ From here you can find:

- Overview of available factory automation products
- Library of downloadable literature
- Support tools such as online e-learning courses, terminology dictionary, etc.
- Global sales and service network portal
- Latest news related to Mitsubishi Electric factory automation

**Mitsubishi Electric Factory Automation
Global website:
www.MitsubishiElectric.com/fa**



Online e-learning

An extensive library of e-learning courses covering the factory automation product range has been prepared. Courses from beginner to advanced levels of difficulty are available in various languages.



■ Beginner level

Designed for newcomers to Mitsubishi Electric Factory Automation products gaining a background of the fundamentals and an overview of various products related to the course.

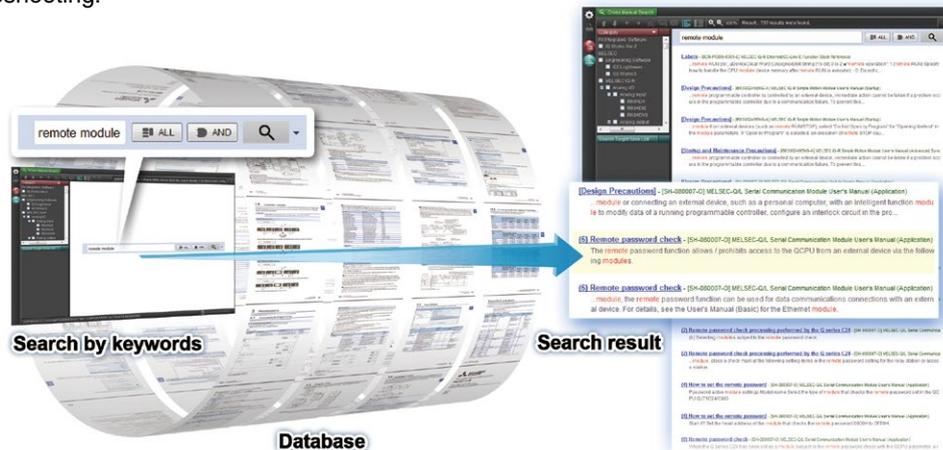
■ Basic to Advanced levels

These courses are designed to provide education at all levels. Various different features are explained with application examples providing an easy and informative resource for in-house company training.

Innovative next-generation, e-Manual

e-Manual Viewer

The e-Manual viewer is a next-generation digital manual offered by Mitsubishi Electric that consolidates factory automation products manuals into an easy-to-use package with various useful features integrated into the viewer. The e-Manual allows multiple manuals to be cross-searched at once, further reducing time for setting up products and troubleshooting.



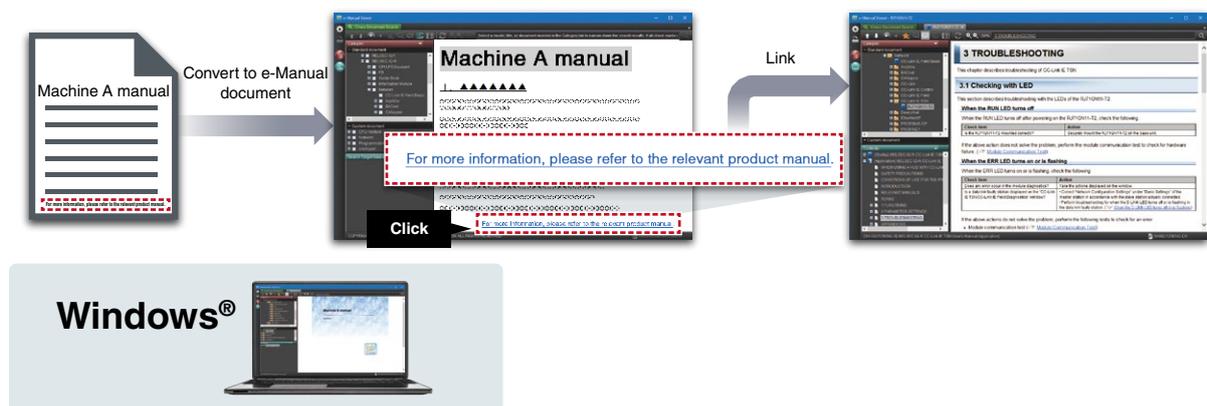
Key features included

- One-stop database containing all required manuals, with local file cache
- Included with GX Works3 engineering software
- Also available in tablet version
- Easily download manuals all at once
- Multiple users can share the latest manuals and knowhow with document sharing function
- Directly port sample programs within manuals to GX Works3
- Downloaded manuals are usable offline



e-Manual Create

e-Manual Create is software for converting word files and chm files to e-Manual documents. e-Manual Create allows users to directly refer to Mitsubishi Electric e-Manuals from user's customized device maintenance manuals and such, supporting quick troubleshooting and reduction in document creation process.



* To obtain the Windows® version of e-Manual Viewer and e-Manual Create, please contact your local Mitsubishi Electric sales office or representative.

Extensive global support coverage providing expert help whenever needed

■ Global FA centers

■ EMEA

Europe FA Center

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Turkey FA Center

MITSUBISHI ELECTRIC TURKEY A.S. Umraniye Branch
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■ Asia-Pacific

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Taipei FA Center

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Korea FA Center

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Thailand

Thailand FA Center

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ASEAN FA Center

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Indonesia FA Center

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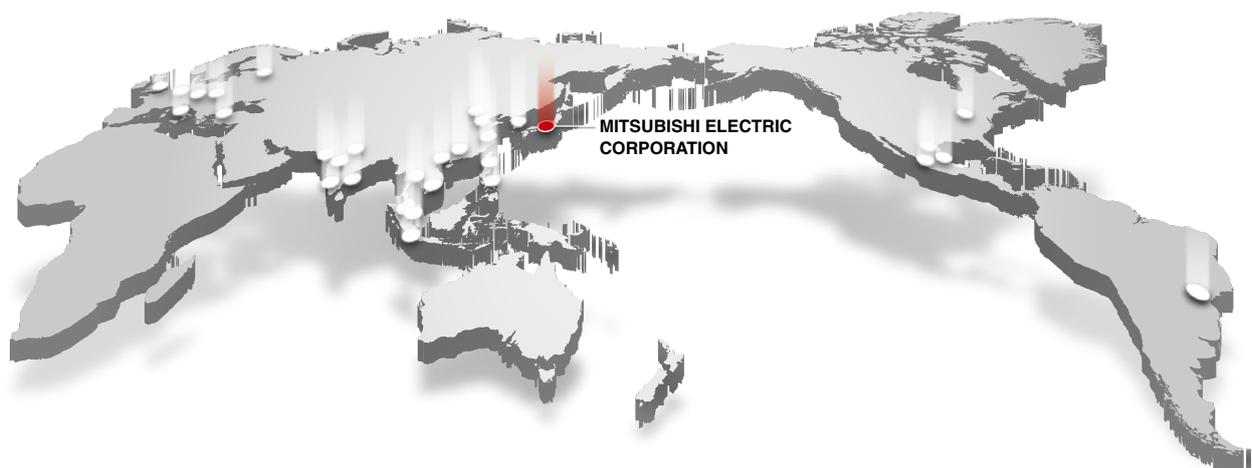
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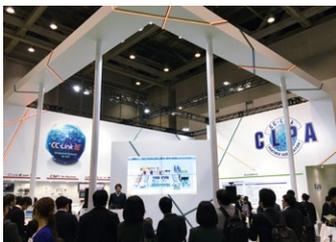
CC-Link Partner Association (CLPA) - Actively promoting worldwide adoption of CC-Link networks

Proactively supporting CC-Link, from promotion to specification development

The CC-Link Partner Association (CLPA) was established to promote the worldwide adoption of the CC-Link open-field network. By conducting promotional activities such as organizing trade shows and seminars, conducting conformance tests, and providing catalogs, brochures and website information, CLPA activities are successfully increasing the number of CC-Link partner manufacturers and CC-Link-compatible products. As such, CLPA is playing a major role in the globalization of CC-Link.



Seminar



Trade show



Conformance testing lab

Visit the **CLPA website** for the latest **CC-Link** information.

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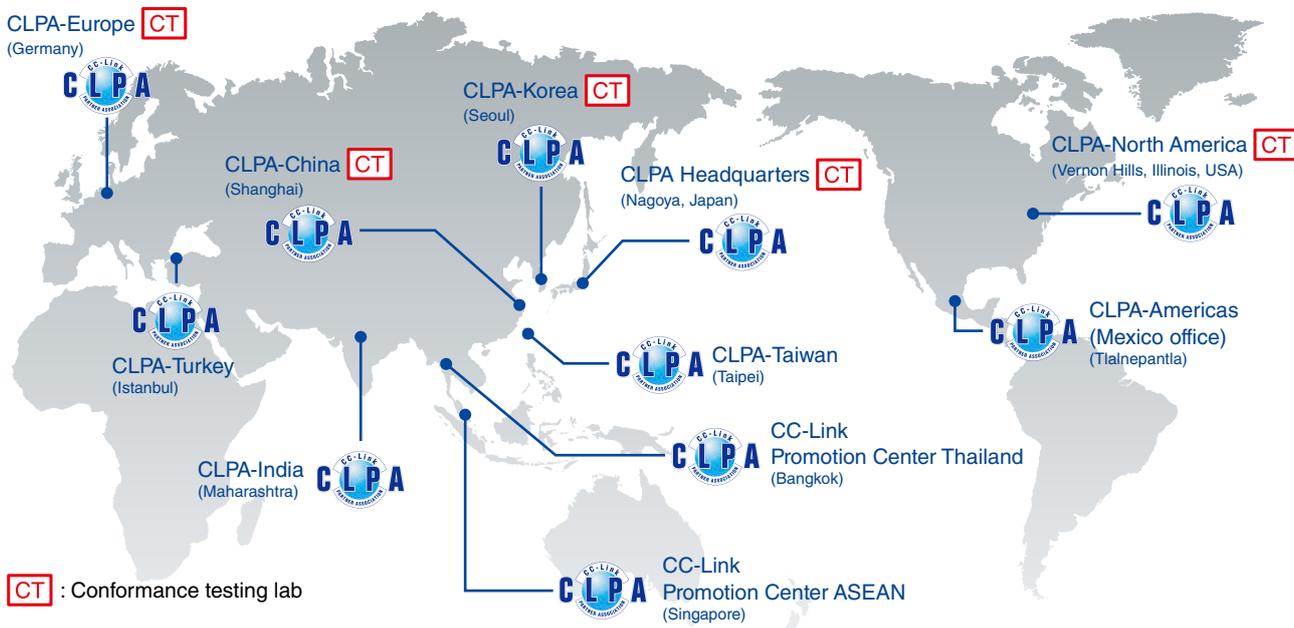


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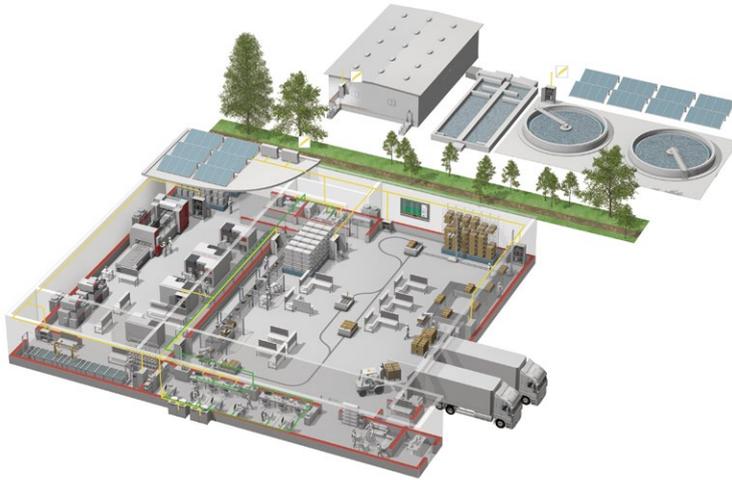
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