SYSTEMS

S-LINK V
Wire-saving System

S-LINK
Wire-saving System

LP-F10
Laser Marker

LP-200
Laser Marker

S-LINK

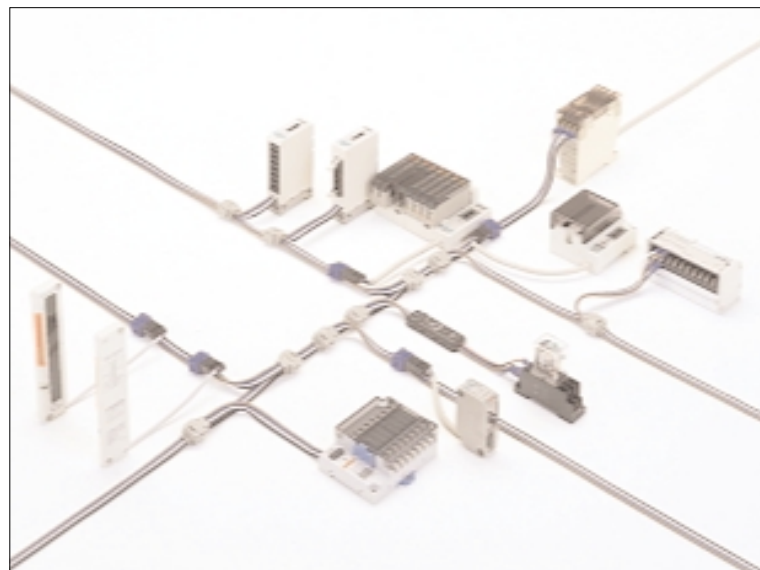## Sensor & Wire-saving Link System

S-LINK transmits 128 points on two signal lines, and 'T'-branch multi-drop system enabling flexible cable layout

This product is introduced to only limited countries. Please contact our office for details.

CE
Conforming to EMC Directive
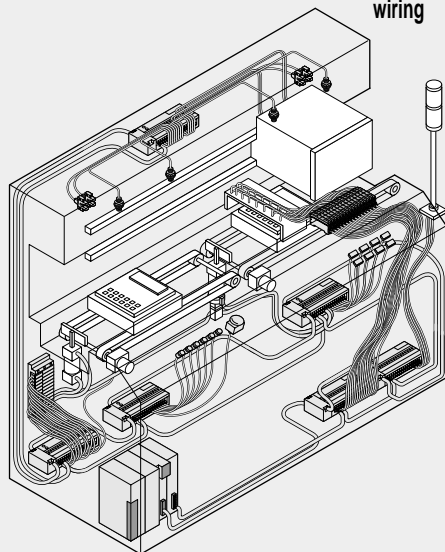(Excluding some components)

We've realized a wire-saving system that's easy to use

Remote I/O

Just with the wire-saving between the PLC and the sub-stations, you'll be able to save a mountain of I/O device connection wires.
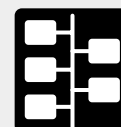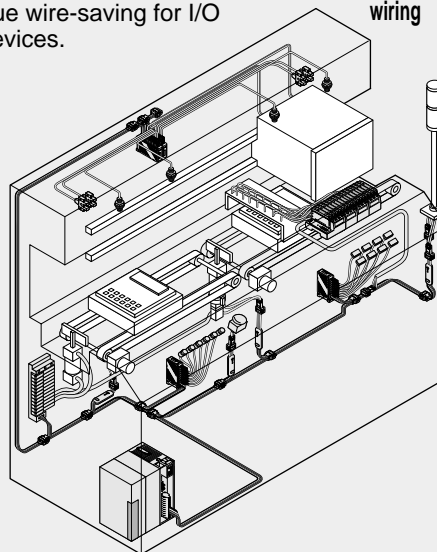
The remote I/O is one-dimensional wiring

S-LINK

Allows for great wire-saving for all connections. Installation is made easy with no faulty wiring. The power supply line can also be wired up together enabling true wire-saving for I/O devices.

The S-LINK is two-dimensional wiring

S-LINK

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Various PLCs and PCs can be utilized

Via PLC I/O connectors, it can be linked to various PLCs from any maker. Also available is a control unit enabling a direct connection with any PLC bus line.

We've provided a PCI bus, ISA bus, C bus (PC/FC-98 Series), PC/104 bus, Compact PCI bus, and VME bus compatible computer control board.

Also corresponds to the open network, which is growing fast throughout the globe.

In addition, **S-LINK** compatible controllers made by partner makers are consistently being introduced onto the market.

Programming unnecessary

The **S-LINK** can be setup with just hardware connections rendering specialized programming knowledge unnecessary. Anyone can use it with ease.

Fully functional S-LINK I/O device lineup

About 60 types of **S-LINK** I/O devices are made available enabling various devices to be easily connected in any location with great wire-saving.

In addition, **S-LINK** compatible I/O devices made by partner makers are consistently being introduced onto the market.
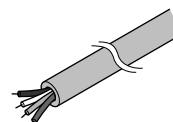
Commercially available cables can also be used

You can use, apart from specially made 4-core cables, commercially available cables such as flexible, heat-resistant, or fluorine resin sheath cables singly or in combination (conductor cross-section area 0.5 to 1.25 mm^2, the **SL-TW** series has a conductor cross-section area of 0.5 to 0.75 mm^2).
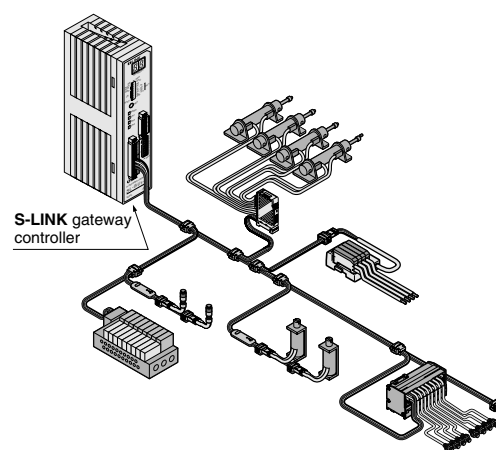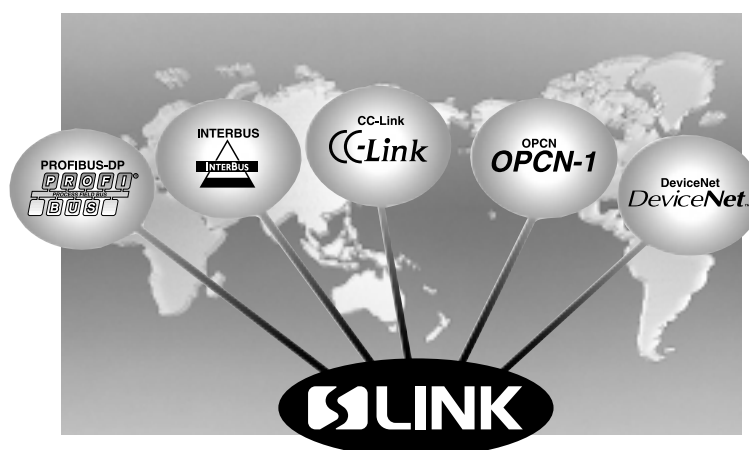
Flat cable
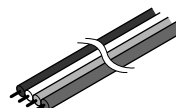
Cabtyre cable

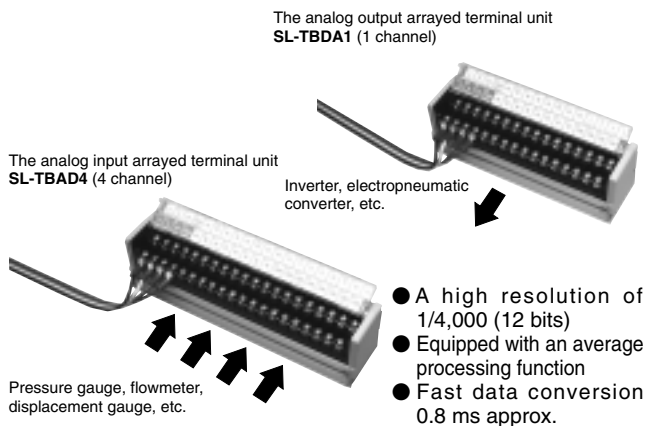## Upper-level network connection possible

Because it can be connected to any main open network, long-distance and multi-point transmission networks can be constructed enabling a greatly enhanced network upgrade. Also, by wiring up scattered bit-oriented I/O devices that include mostly connected sensors and switches, an efficient wire-saving layout can be realized. If exporting equipment that was setup with any open network, it can be made to correspond to different networks just by installing an **S-LINK** gateway controller with the entire **S-LINK** system left as it is.

PROFIBUS-DP

INTERBUS

CC-Link

OPCN OPCN-1

DeviceNet

S-LINK gateway controller

S LINK

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## Wire-saving for analog devices also possible SL-TBAD4/TBDA1

Also available is the A/D conversion function equipped **SL-TBAD4** and the D/A conversion function equipped **SL-TBDA1** enabling easy analog device wire-saving.

The analog output arrayed terminal unit
SL-TBDA1 (1 channel)

The analog input arrayed terminal unit
SL-TBAD4 (4 channel)

Inverter, electropneumatic converter, etc.

Pressure gauge, flowmeter, displacement gauge, etc.

● A high resolution of 1/4,000 (12 bits)
● Equipped with an average processing function
● Fast data conversion 0.8 ms approx.

Labor-saving sensor connection to the power supply SL-T8PW

Provided are 8-branch connector tap **SL-T8PW** units that can link up to 8 thru-beam type photoelectric sensor emitters via snap male connectors.

Supplying power to the emitters can be done in an efficient, wire-saving manner without wasting I/O unit points or installing separate wiring. Connecting **S-LINK** I/O devices also possible.

SL-T8PW
8-branch connector tap

The emitter of the thru-beam type photoelectric sensor
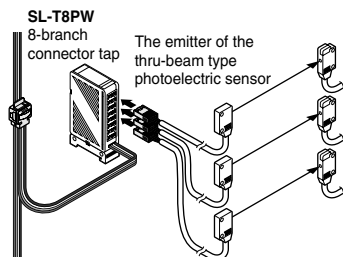
High noise immunity

Large voltage amplitude (24 V) and wide pulse width (35 μs) signal transmissions make for units less prone to impulse noise effects with no code errors.
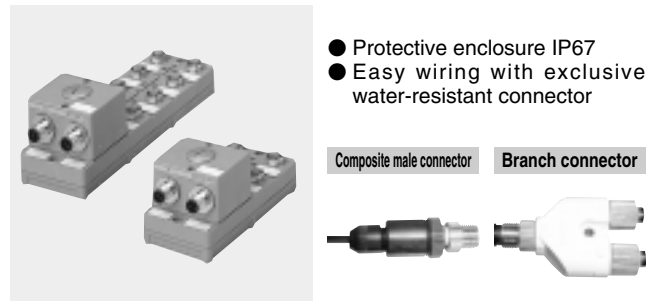
We've realized the industry's highest level of noise proofing enabling them to be used even in worksites with conventional, high-priced optical communication remote I/O units.

Highly efficient transmission

These units use a simple transmission format that covers most I/O data transmission signals enabling a delayed transmission time of approx. 11 ms for 128 points. (Of course, the fewer the point count means less delay time)

Wire-saving also possible in areas prone to water splashes SL-TW series

Available is the **SL-TW** series environment resistant I/O units that can be used even in areas prone to water exposure. An IP67 protective construction (IEC 60529) casing has been realized. Because they are equipped with waterproof connectors, they can be used safely even where water splashes may occur.

● Protective enclosure IP67
● Easy wiring with exclusive water-resistant connector

Composite male connector   Branch connector

Conforms to CE marking

Because it conforms to CE marking (EMC directive), it can be used even in Europe.

Conforming to EMC Directive
(Excluding some components)

Specifies malfunctioning S-LINK I/O devices

In the event that verification cannot be obtained from an **S-LINK** I/O unit, such as if the main cable is cutoff, the address of the particular unverifiable I/O unit is specified and displayed allowing equipment recovery time to be greatly reduced.

Address display
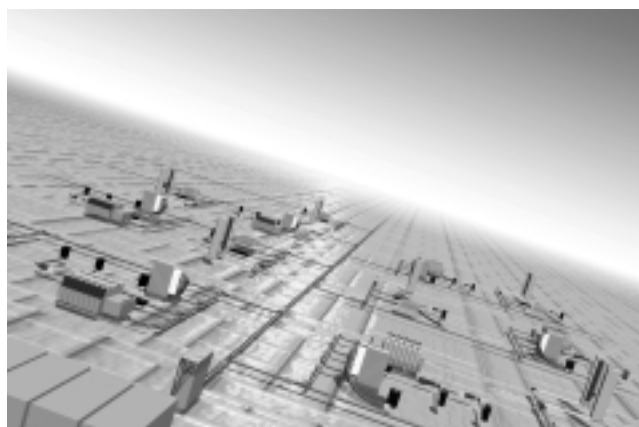
SL-CU1A
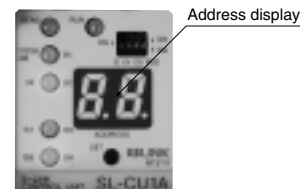
Equipped with an output hold function

S-LINK output devices are equipped with an output hold function. When the signal transmission line is shutdown, the output status values immediately prior to the malfunction are stored greatly reducing the effect on the output devices. [Excluding **SL-CH□(-PN)**]

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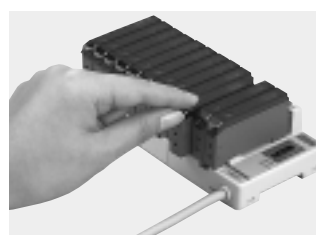## T-branch connector hookup to transmission lines

The transmission line connection is realized via T-branch multi-drop wiring with hook-up connectors. Adding devices is rendered easy and maintenance is easy.

Layout-free

Because **S-LINK** I/O devices can be connected to any arbitrary main cable / branch cable location, a universal layout is possible greatly decreasing the design workload.
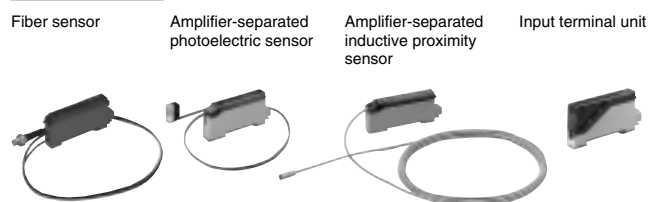
Plug-in connection

The plug-in connection of sensors achieves wire-saving.

Plug-in units

Fiber sensor   Amplifier-separated photoelectric sensor   Amplifier-separated inductive proximity sensor   Input terminal unit

## Simple and reliable connections

We've provided all types of hook-up connectors. Connections from **S-LINK** I/O devices to the main cable and from sensors and other devices to **S-LINK** I/O devices are all realized with one-touch hook-up connectors. They can be connected anywhere quickly and maintenance is easy.

Branch cable to main cable connection and S-LINK I/O device to main cable connection

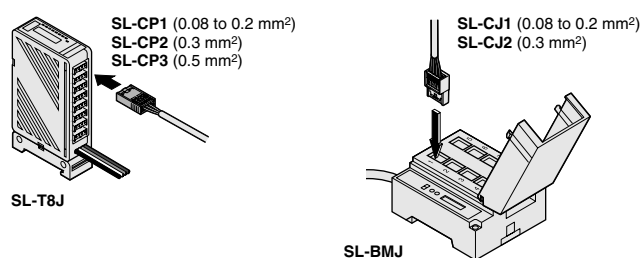※The values in ( ) represent conductor cross-section areas.

SL-J1A

SL-CP2 (0.3 mm^2)
SL-CP3 (0.5 mm^2)

SL-JK (For cable end)
SL-JK1 (For 'T'-branch)
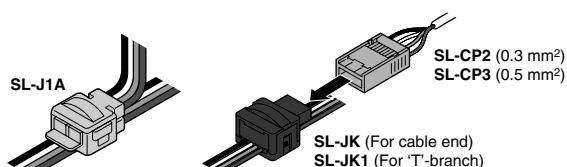
In addition, to enhance the reliability of the crimping, **S-LINK** exclusive pliers are made available so that anyone can do it with ease.

Exclusive pliers
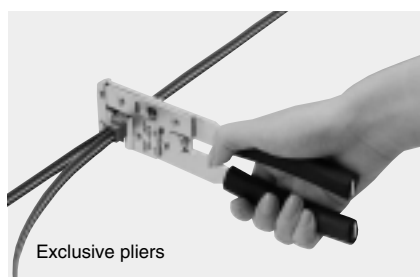
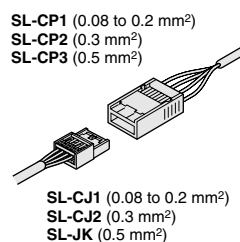**Connection from various connected units to S-LINK I/O devices**

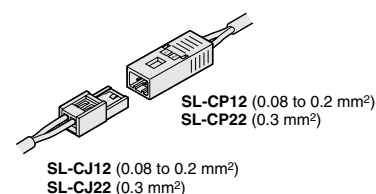※The values in ( ) represent conductor cross-section areas.

SL-CP1 (0.08 to 0.2 mm^2)
SL-CP2 (0.3 mm^2)
SL-CP3 (0.5 mm^2)

SL-CJ1 (0.08 to 0.2 mm^2)
SL-CJ2 (0.3 mm^2)

SL-T8J

SL-BMJ

Connected device extensions

※The values in ( ) represent conductor cross-section areas.

4-pin type	2-pin type

SL-CP1 (0.08 to 0.2 mm^2)
SL-CP2 (0.3 mm^2)
SL-CP3 (0.5 mm^2)

SL-CP12 (0.08 to 0.2 mm^2)
SL-CP22 (0.3 mm^2)

SL-CJ1 (0.08 to 0.2 mm^2)
SL-CJ2 (0.3 mm^2)
SL-JK (0.5 mm^2)

SL-CJ12 (0.08 to 0.2 mm^2)
SL-CJ22 (0.3 mm^2)

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Direct main cable connecting of sensors and actuators possible

S-LINK direct hook-up area sensor
SL-N15

S-LINK direct hook-up photoelectric sensor
SL-A series
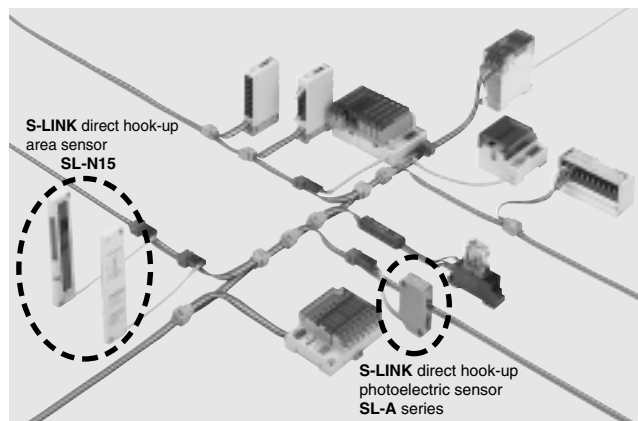
All types of transmission line direct-connecting type sensors are made available. Even partner makers are putting on the market manifold electromagnetic valves and limit switches that can be directly connected with the **S-LINK** system making wire-saving and labor-saving a reality.

Items offered by partner makers

Limit switch manufactured by Matsushita Electric Works, Ltd.

Ultrasonic sensors manufactured by Matsushita Electric Works, Ltd.

Manifold electromagnetic valve manufactured by Koganei Corp.

Manifold electromagnetic valve manufactured by SMC Pneumatics

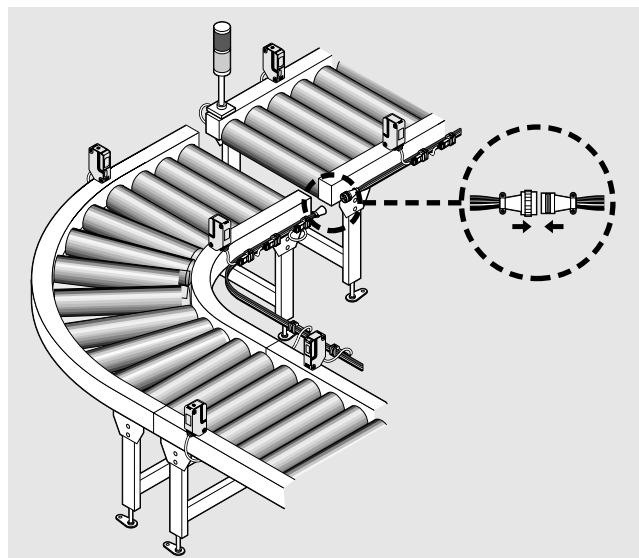Manifold electromagnetic valve manufactured by CKD Corp.

Component indicator lamp manufactured by Yazaki Industrial Chemical Co., Ltd.
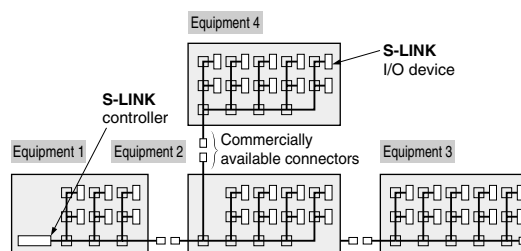
Mid-system main / branch cable installation and removal possible

For conveyors or other large scale equipment, transport can also be done after dividing the whole into units of several meters in length right at the factory. Then, reassembly and wiring can be effectuated onsite afterwards. Because the **S-LINK** can be easily divided even from mid-system main / branch cables with the help of commercially available connectors and terminals, the segmented equipment can be wired up prior to transport. Once onsite, assembly work is all but complete with just the connecting of the individual units to each other.
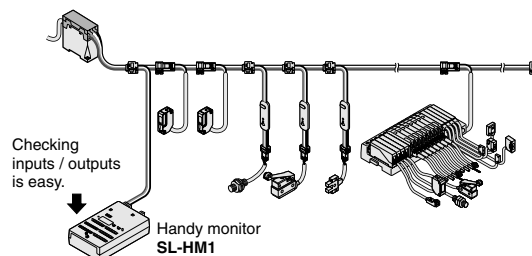
In addition, when assembling the equipment, the **S-LINK** can work even disconnected from the PLC enabling software (PLC programming) and hardware (machine assembly, I/O check) work to be done concurrently, which results in quick delivery time. With the handy monitor, I/O devices can be checked for each piece of equipment separately enabling subcontractors to conduct check work on delivery. This results in a total delivery deadline reduction and clearly defined subcontractor responsibilities. Also, checking can be performed even without programming so you'll know immediately if malfunctions are coming from the PLC or the **S-LINK**.

Dividing equipment into subunits possible

Equipment 4

S-LINK I/O device

S-LINK controller

Commercially available connectors

Equipment 1   Equipment 2   Equipment 3

Individual equipment subunits can be checked separately

Checking inputs / outputs is easy.

Handy monitor
SL-HM1

SYSTEMS

Wire-saving System

S-LINK V

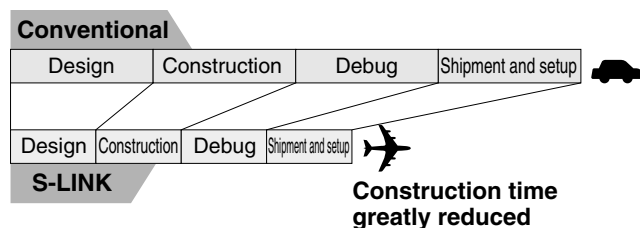**S-LINK**

Laser Marker

LP-F10

LP-200

Total cost reductions and great savings in setup time

By introducing the **S-LINK**, you can reduce the total cost of system construction to one-fifth. Total costs including for materials go down dramatically and, by decreasing the workload, construction time is lessened which means you can easily meet that tough deadline.

The **S-LINK** system:

• A hardware-only construction makes layout design simple

• With hook-up connectors, construction time is greatly reduced

• Layout modifications made easy

• Equipment divided into separate segments make for easy debugging

• Segmented equipment can be easily interlinked with commercially available connectors

Conventional

| Design | Construction | Debug | Shipment and setup |

| Design | Construction | Debug | Shipment and setup |
S-LINK

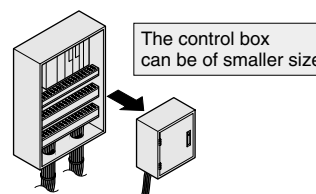**Construction time greatly reduced**

Auxiliary materials reduced

Great reductions in auxiliary materials such as cable racks, cable ducts, intermediate terminal blocks, and cables. This system also contributes greatly to the reduction waste caused by cutting cable ends.
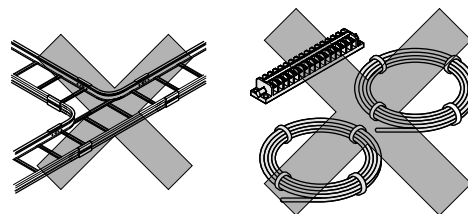
Space-saving

Because of great reductions in the amount of intermediate terminal blocks and cables needed, you can save space and minimize the size of your control board and machines. This will finally let you put all that wasted space to good use.
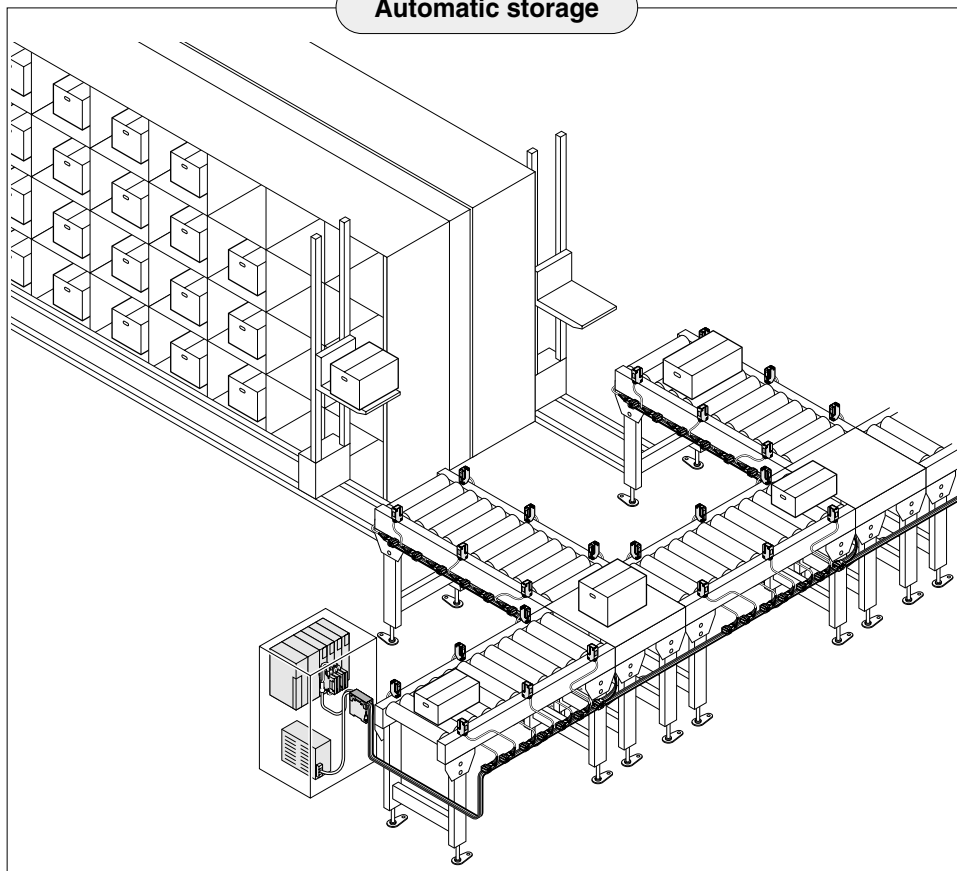
The control box can be of smaller size

S-LINK

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APPLICATIONS

Distributed installation

Automatic storage

Because conveyors have multiple I/O device points, wire-saving and construction efficiency are the key to lowering overall costs. Other systems may be wire-saving but if they can't prove useful for long-distance distribution lines or be reliable, then they are useless. On this point, the **S-LINK** system offers a total wiring length of 400 m 1312.336 ft, 800 m 2624.672 ft when using booster, with reliable T-branch I/O device connections that can be mounted in any desired location.

Because T-branching renders layout designing simple, not only is it a wire-saving and construction efficient system, but you can even save time in the actual design stage.

In addition, you can divide main and branch cables in mid-system with commercially available connectors and terminals so the time it takes to setup your conveyor decreases greatly.
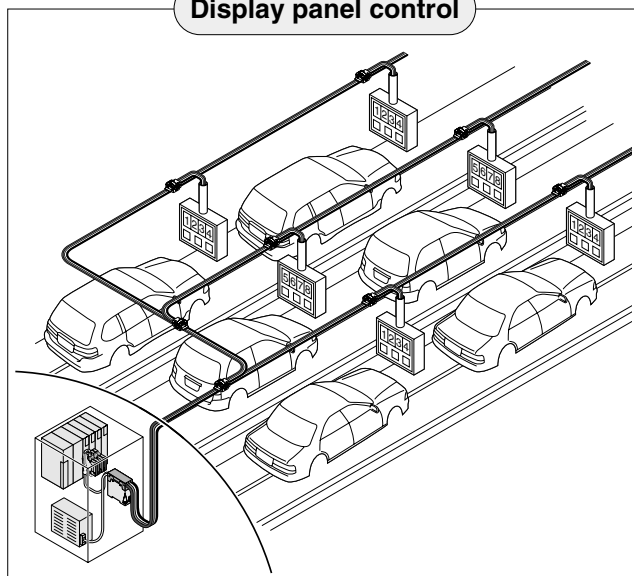
Easy hook-up

Parking garage

Personal computer
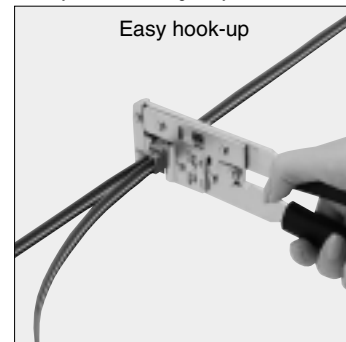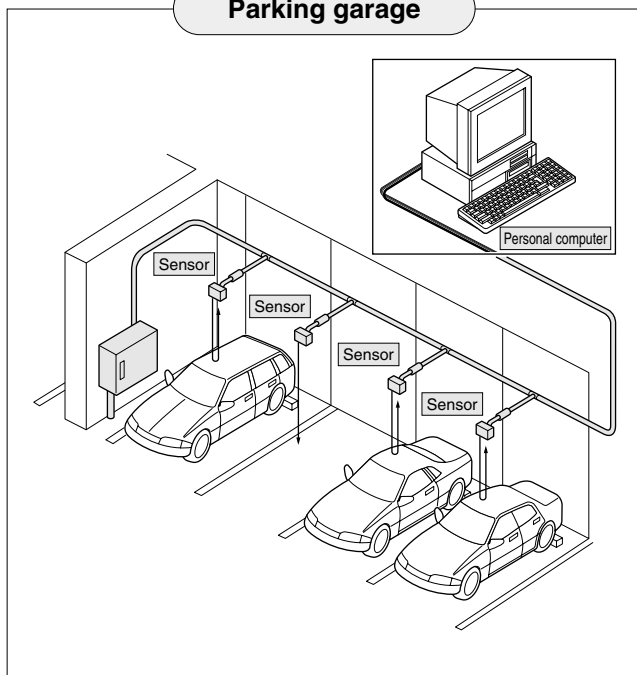
The **S-LINK** system is very suitable to wire up car detection sensors in a large parking garage.
It reduces wires and installation time.

Display panel control

Display equipment can be mounted in automobile production lines to notify operators when malfunctions occur or just to keep a reliable count of units in each line.

Because each type of display equipment shows variegated data, they necessitate a great amount of wiring. This wiring must be conducted in very large factories requiring a substantial amount of cables and wires. A wire-saving system in this situation would be most effective.

Using the **S-LINK** system means that even display equipment can be wired up with just one flat cable clearing up all the bulky wiring inside the display panels themselves and realizing great material cost savings as well as a reduced workload.

APPLICATIONS

### Integrated installation

Automatic assembly machine
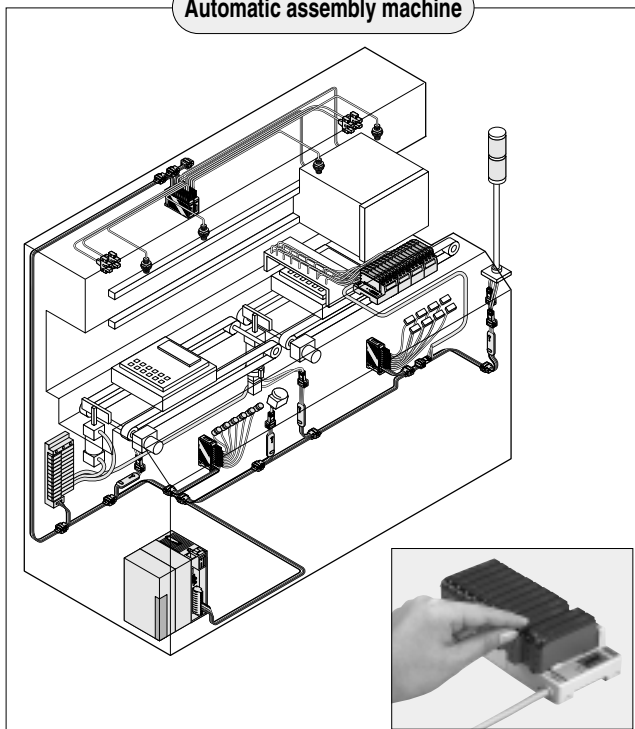
Wire-saving systems are being greatly emphasized even for assembly lines peppered with multiple I/O devices.

Also, to enhance productibility, using a wire-saving system is the key to reliability and avoiding the occurrence of troubles.

In the **S-LINK** loop wiring, the system maintains signal transmission even when the loop may break at any one place. In the **S-LINK** standard wiring, the controller reveals disconnected device addresses when the signal transmission line may break. Further, even if excess current may flow by a short-circuit between the signal transmission lines, the controller shuts down the entire system.

**S-LINK** is a wire-saving system optimal for automatic assembly machinery.

Turntable
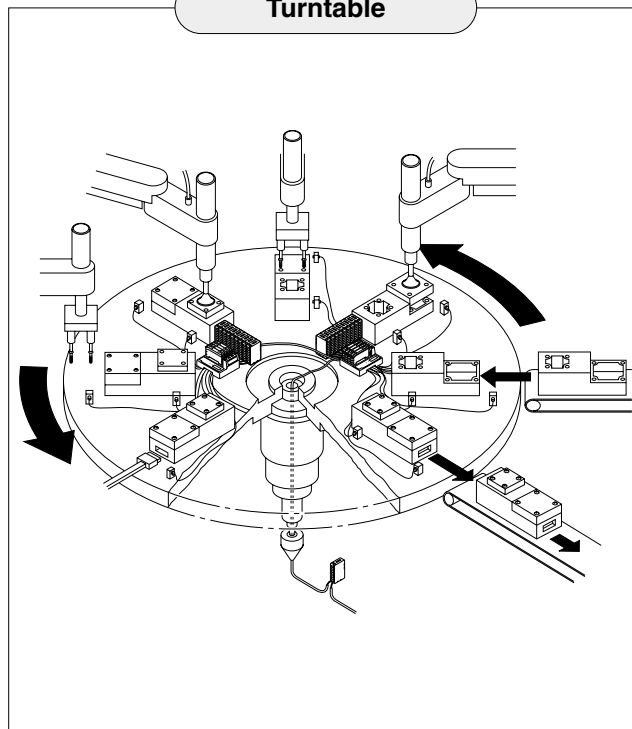
Wiring I/O devices mounted on a rotating board (turntable) can prove to be quite a difficult task. That's because a slip ring that has just as many terminals as wires has to be used. Therefore, developing a large-scale slip ring with a reduced I/O point count was our challenge.

S-LINK enables the connection of up to 128 I/O points on a 4-pole slip ring. A compact slip ring can be used without worrying about I/O points.
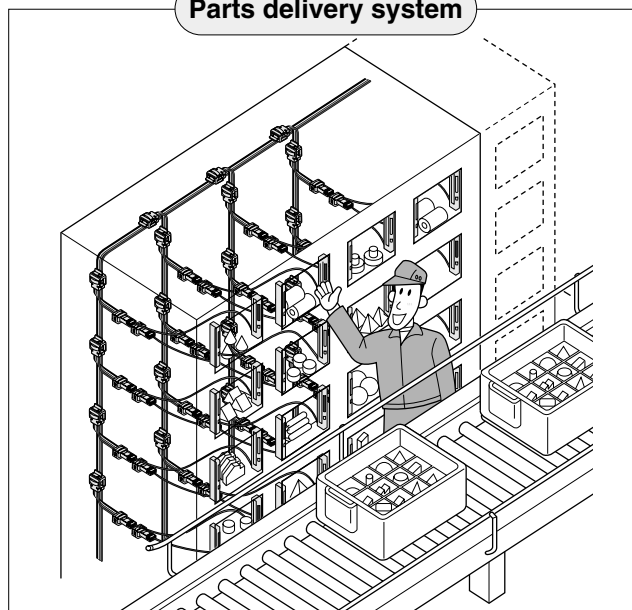

Handler
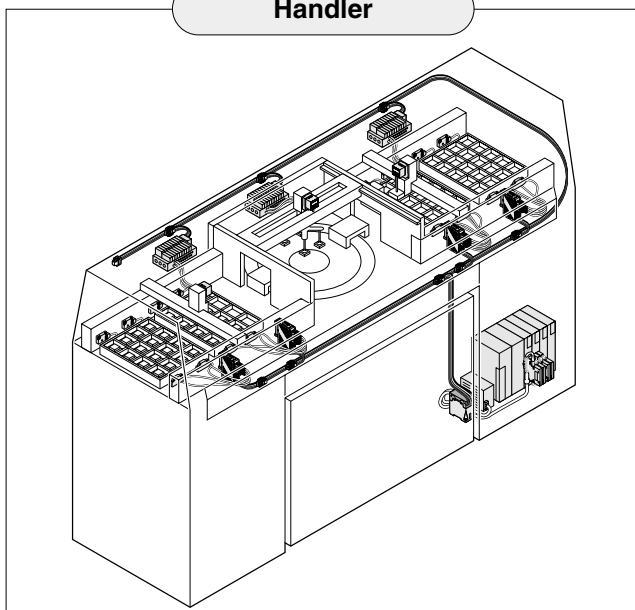
The handler in IC test equipment uses multiple sensors. For this reason, reducing wires or making them more compact as well as lowering cost or minimizing equipment are lingering issues.

S-LINK makes wire-saving and space-saving a reality and solves these problems all at once.

Parts delivery system

Parts delivery system utilize many small picking sensors that verify the selection of components by personnel.

The inputs equal the number of shelves and if job indicators are used, there are an equal number of outputs.

The **S-LINK** system wires up all the picking sensors with effective space and wire saving. Also, adding more boxes is made easy.

Wire-saving System

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SYSTEM LAYOUT

Upper-level control devices	S-LINK control components

PLC
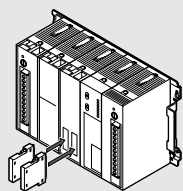
PLC I/O connectors (connectable PLC)
SL-S□, **SL-P□**

CE

Multi-core cable PLC I/O units (screw-on terminal type PLC)
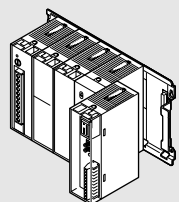**SL-S**, **SL-SP**, **SL-P**, **SL-PP**

CE

S-LINK controller
SL-CU1A

CE

Booster
SL-BS1A

CE

PLC (Direct connection to PLC bus)

S-LINK controller for direct connection to PLC bus / S-LINK control boards

For Matsushita Electric Works, Ltd. PLC FP3/FP10SH
SL-FP3

For Mitsubishi Electric Corp. PLC MELSEC-Q series
SL-MEL-Q
New

CE

For Yokogawa Electric Corp. PLC FA-M3 series
SL-FAM3

CE

For Matsushita Electric Works, Ltd. PLC FP-C **SL-FPC**

For Sharp Manufacturing Systems Corp. J-board Z-300 series **SL-Z300**

CE

Items offered by partner makers

Controllers manufactured by Matsushita Electric Works, Ltd.

FP0-SL1 FP2-SL2 FP2-C1SL

Controllers manufactured by Mitsubishi Electric Corp.
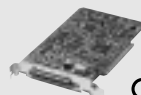
A1SJ71SL92N

Controllers manufactured by Toyoda Machine Works, Ltd.

THU-5291

Personal Computers
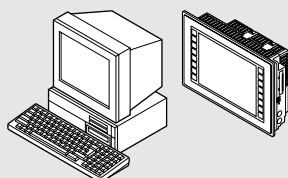
For PCI bus **SL-PCI**

CE

For ISA bus **SL-PCAT**

CE

For C bus **SL-PC98**
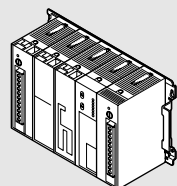
For VME bus **SL-VMES2**

For PC/104 bus **SL-PC104**
New

CE

For compact PCI bus **SL-CPCI**
New

CE
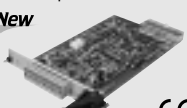
Open network compatible PLC

For CC-Link
SL-GU1-C

CE

((-Link

For Device Net
SL-GU1-D

CE

DeviceNet.

For PROFIBUS-DP
SL-GU1-P

CE

PROFI BUS
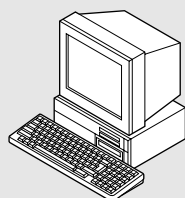
For INTERBUS
SL-GU1-I

CE

INTERBUS

For OPCN-1 / RS-485
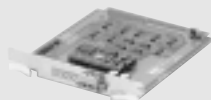**SL-CU1-485**

OPCN-1

PC ＋ OPCN-1 / RS-485 compatible master station board

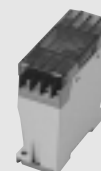Master board for PC/AT
SL-PCAT-485

Master board for PC/FC-98 series
SL-PC98-485

Master board for PC/104 bus
SL-PC104-485

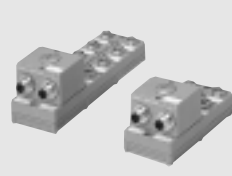**S-LINK** gateway controller for OPCN-1 / RS-485
SL-CU1-485

S-LINK

SYSTEMS

Wire-saving System
S-LINK V
S-LINK

Laser Marker
LP-F10
LP-200

SYSTEM LAYOUT

S-LINK I/O devices

Analog I/O arrayed terminal unit
SL-TBAD4, **SL-TBDA1**

CE | 4 inputs
1 output

Environment resistant I/O unit
SL-TW☐(-PN)

CE | 4 or 8 inputs
4 outputs
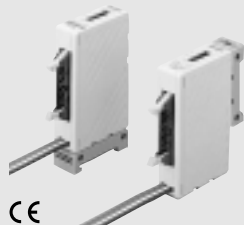2 inputs and 2 outputs

1 • 2 channel I/O unit
SL-CH☐(-PN)

CE

8 channel snap-connector I/O unit
SL-T8J(-PN), **SL-TP8J(-PN)**

CE

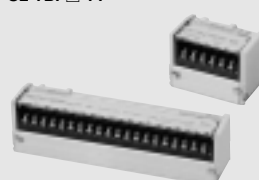16 channel MIL connector I/O unit
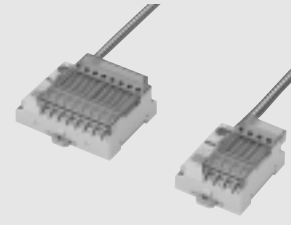**SL-T16C1(-PN)**, **SL-TP16C1(-PN)**

CE

8-branch connector tap
SL-T8PW

New

CE

I/O arrayed terminal unit
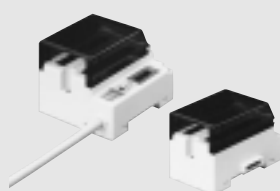**SL-TB☐(-PN)**, **SL-TBP☐(-PN)**
SL-TBP☐-TY

CE | 4, 8 or 16 inputs
4, 8 or 16 outputs

Relay output terminal unit
SL-TPR4, **SL-TPR8**
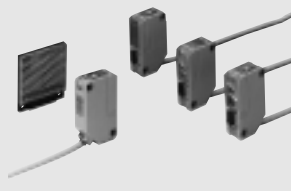
Snap-connector sensor block
SL-BMJ, **SL-BXJ**

CE

Plug-in unit sensor block
SL-BM, **SL-BX**
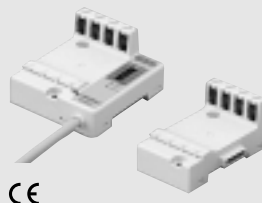
CE

S-LINK direct hook-up
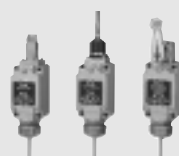photoelectric sensor
SL-A☐

S-LINK direct hook-up picking sensor
SL-N15

CE

Items offered by partner makers

Limit switch manufactured by
Matsushita Electric Works, Ltd.

Ultrasonic sensors
manufactured by
Matsushita Electric Works, Ltd.

Manifold electromagnetic valve
manufactured by Koganei Corp.

Manifold electromagnetic valve
manufactured by SMC Pneumatics

Manifold electromagnetic valve
manufactured by CKD Corp.
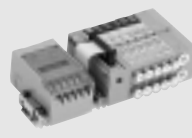
Component indicator lamp
manufactured by Yazaki
Industrial Chemical Co., Ltd.

Plug-in units (for SL-BM, SL-BX)

Fiber sensor
• **FX-D1J**
• **FX-A1☐J**
• **FX-M1☐J**

CE

Amplifier-separated
photoelectric sensor
SU-7J

CE

Amplifier-separated inductive proximity sensor
GA-14J/15J

Input terminal unit
SL-TJ1

CE

S-LINK

SYSTEMS

S-LINK V
Wire-saving System

S-LINK
Wire-saving System

LP-F10
Laser Marker

LP-200
Laser Marker

SYSTEM LAYOUT

Connectors and cables
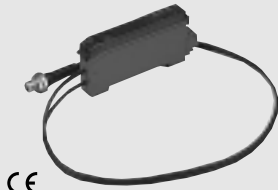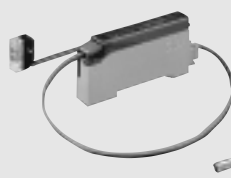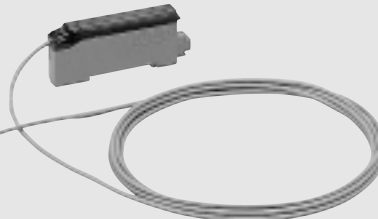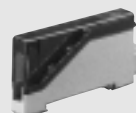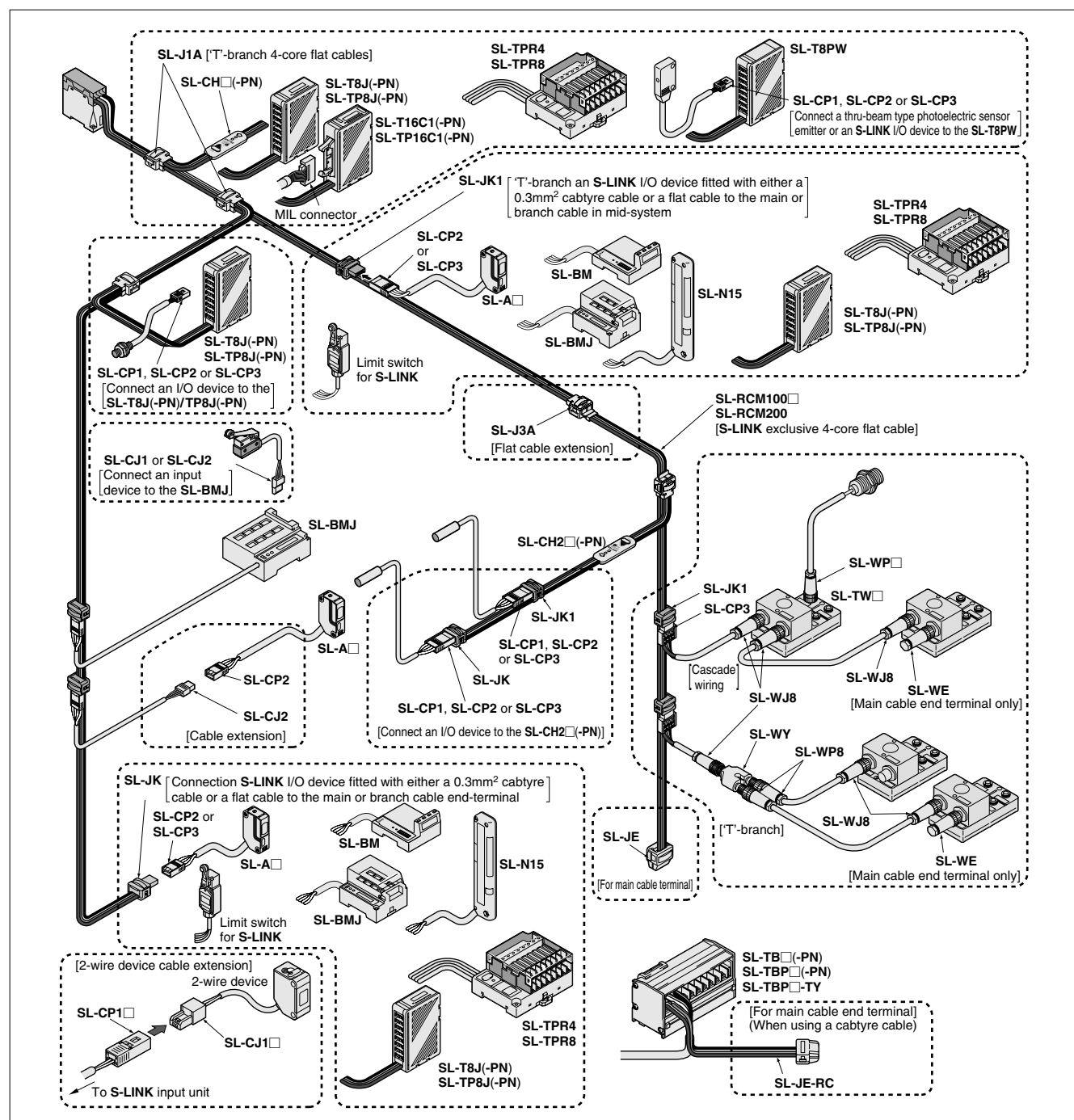

SL-J1A ['T'-branch 4-core flat cables]

SL-CH☐(-PN)

SL-T8J(-PN)
SL-TP8J(-PN)

SL-T16C1(-PN)
SL-TP16C1(-PN)

MIL connector

SL-TPR4
SL-TPR8

SL-T8PW

SL-CP1, **SL-CP2** or **SL-CP3**
[Connect a thru-beam type photoelectric sensor emitter or an **S-LINK** I/O device to the **SL-T8PW**]

SL-JK1 ['T'-branch an **S-LINK** I/O device fitted with either a 0.3mm² cabtyre cable or a flat cable to the main or branch cable in mid-system]

SL-CP2 or **SL-CP3**

SL-A☐

SL-BM

SL-BMJ

SL-N15

SL-TPR4
SL-TPR8

SL-T8J(-PN)
SL-TP8J(-PN)

SL-T8J(-PN)
SL-TP8J(-PN)

SL-CP1, **SL-CP2** or **SL-CP3**
[Connect an I/O device to the **SL-T8J(-PN)/TP8J(-PN)**]

Limit switch for **S-LINK**

SL-CJ1 or **SL-CJ2**
[Connect an input device to the **SL-BMJ**]

SL-BMJ

SL-RCM100☐
SL-RCM200
[**S-LINK** exclusive 4-core flat cable]

SL-J3A
[Flat cable extension]

SL-CH2☐(-PN)

SL-WP☐

SL-TW☐

SL-JK1
SL-CP3

[Cascade wiring]

SL-WJ8

SL-WJ8

SL-WE
[Main cable end terminal only]

SL-A☐

SL-CP2

SL-CJ2
[Cable extension]

SL-JK1

SL-CP1, **SL-CP2** or **SL-CP3**

SL-JK

SL-CP1, **SL-CP2** or **SL-CP3**
[Connect an I/O device to the **SL-CH2☐(-PN)**]

SL-WY

SL-WP8

SL-WJ8

SL-WE
[Main cable end terminal only]

SL-JK [Connection **S-LINK** I/O device fitted with either a 0.3mm² cabtyre cable or a flat cable to the main or branch cable end-terminal]

SL-CP2 or **SL-CP3**

SL-A☐

SL-BM

SL-BMJ

SL-N15

Limit switch for **S-LINK**

SL-JE
[For main cable terminal]

['T'-branch]

[2-wire device cable extension]
2-wire device

SL-CP1☐

SL-CJ1☐

To **S-LINK** input unit

SL-TPR4
SL-TPR8

SL-T8J(-PN)
SL-TP8J(-PN)

SL-TB☐(-PN)
SL-TBP☐(-PN)
SL-TBP☐-TY

[For main cable end terminal]
(When using a cabtyre cable)

SL-JE-RC

Other S-LINK devices

I/O modules
SL-M☐, **SL-M☐F**
8 or 16 inputs
8 or 16 outputs
4 inputs and 4 outputs
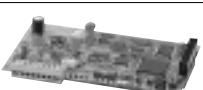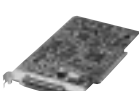
Handy monitor
SL-HM1

S-LINK

SYSTEMS

Wire-saving System   S-LINK V

                      S-LINK

Laser Marker   LP-F10

                LP-200

ORDER GUIDE

S-LINK control units

Designation	Appearance (Note)	Model No.	Description
S-LINK controller		**SL-CU1A**	It supplies the synchronization signal to the complete system to send and receive I/O data from external devices correctly. It also monitors the signal transmission line, and specifies the addresses of the disconnected devices if the line breaks, etc.
Matsushita Electric Works PLC bus **S-LINK** controller		**SL-FP3**	It can be directly connected to the bus line of the FP3, FP10S or FP10SH series PLCs manufactured by Matsushita Electric Works, Ltd. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items. Also, it doesn't need a PLC input or output module.)
Mitsubishi Electric PLC bus **S-LINK** controller	*New*	**SL-MEL-Q**	It can be directly connected to the bus line of the MELSEC-Q series PLC manufactured by Mitsubishi Electric Corp. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items. Also, it doesn't need a PLC input or output module.)
Yokogawa Electric PLC bus **S-LINK** controller		**SL-FAM3**	It can be directly connected to the bus line of the FA-M3 series PLC manufactured by Yokogawa Electric Corp. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items. Also, it doesn't need a PLC input or output module.)
Matsushita Electric Works PLC bus **S-LINK** control board		**SL-FPC**	It can be directly connected to the bus line of the FP-C board type PLC manufactured by Matsushita Electric Works, Ltd. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items. Also, it doesn't need a PLC input or output module.)
Sharp Manufacturing Systems PLC bus **S-LINK** control board		**SL-Z300**	It can be directly connected to the bus line of the J-board Z-300 series board type PLC manufactured by Sharp Manufacturing Systems Corp. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items. Also, it doesn't need a PLC input or output module.)
PCI bus **S-LINK** control board		**SL-PCI**	It can be fitted into the expansion slot (PCI bus) of a personal computer to control the **S-LINK** system. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)
PC/AT **S-LINK** control board		**SL-PCAT**	It can be fitted into the expansion slot (ISA bus) of PC/AT series or compatible to control the **S-LINK** system. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)
PC/FC-98 series **S-LINK** control board		**SL-PC98**	It can be fitted into the expansion slot (C bus) of PC/FC-98 series to control the **S-LINK** system. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)
VME bus **S-LINK** control board		**SL-VMES2**	It can be directly connected to the VME bus line to control the **S-LINK** system. It provides two **S-LINK** ports, each allowing 128 I/O points maximum, so that a total of 256 I/O points can be controlled. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)
PC/104 bus **S-LINK** control board	*New*	**SL-PC104**	Controls the **S-LINK** system by directly coupling (stack) the PC/104 bus line to a PC/104 bus compatible PC board or panel computer. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)
Compact PCI **S-LINK** control board	*New*	**SL-CPCI**	It can be directly connected to the Compact PCI bus line to control the **S-LINK** system. (Has **S-LINK** controller as well as PLC input and output connector functions so you don't have to prepare for these items.)

Note: Components with ' C€ ' mark conform to the CE marking EMC Directive.
The following condition must be met to conform to EN 61000-6-2.
  • **Conditions**
  ① Cable length between the main power supply and the controller should be less than 10 m 32.808 ft.
  ② When the power is supplied from **S-LINK** controller to I/O devices at a cable distance of more than 10 m 32.808 ft add a surge absorber between 24 V and 0 V at a cable distance of less than 10 m 32.808 ft.
  ③ Use a local power supply at a cable distance of less than 10 m 32.808 ft from each I/O device.

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Wire-saving System

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S-LINK

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Products for open network

Designation	Appearance (Note)	Model No.	Description
S-LINK gateway controller for CC-Link	CE	**SL-GU1-C**	**S-LINK** gateway controller for connection to open network CC-Link, promoted by Mitsubishi Electric Corp.
S-LINK gateway controller for DeviceNet	CE	**SL-GU1-D**	**S-LINK** gateway controller for connection to open network DeviceNet.
S-LINK gateway controller for PROFIBUS-DP	CE	**SL-GU1-P**	**S-LINK** gateway controller for connection to open network PROFIBUS-DP.
S-LINK gateway controller for INTERBUS	CE	**SL-GU1-I**	**S-LINK** gateway controller for connection to open network INTERBUS.
S-LINK gateway controller for OPCN-1 / RS-485		**SL-CU1-485**	It incorporates **S-LINK** system control functions and slave functions conforming to OPCN-1 or RS-485 so that it can connect an **S-LINK** system to a OPCN-1 or RS-485 communication system.
OPCN-1 / RS-485 master board for PC/AT		**SL-PCAT-485**	It can be installed in the extension slot (ISA bus) of a PC/AT or compatible so that the personal computer can be used as a OPCN-1 master. It incorporates the **S-LINK** mode (for RS-485 communication) which enables easy control of the **S-LINK** system and the OPCN-1 mode which enables control of OPCN-1 conforming devices.
OPCN-1 / RS-485 master board for PC/FC-98 series		**SL-PC98-485**	It can be installed in the extension slot (C bus) of an PC/FC-98 series so that the personal computer can be used as a OPCN-1 master. It incorporates the **S-LINK** mode (for RS-485 communication) which enables easy control of the **S-LINK** system and the OPCN-1 mode which enables control of OPCN-1 conforming devices.
OPCN-1 / RS-485 master board for PC/104 bus		**SL-PC104-485**	It can be installed in the personal computer or board computer of a PC/104 bus so that the personal computer or board computer can be used as a OPCN-1 master. It incorporates the **S-LINK** mode (for RS-485 communication) which enables easy control of the **S-LINK** system and the OPCN-1 mode which enables control of OPCN-1 conforming devices.

Note: Components with ' CE ' mark conform to the CE marking EMC Directive.
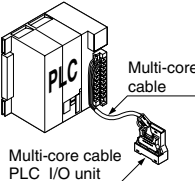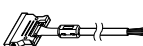　　　The following condition must be met to conform to EN 61000-6-2.
　　　　• **Conditions**
　　　① Cable length between the main power supply and the controller should be <u>less than 10 m</u> 32.808 ft.
　　　② When the power is supplied from **S-LINK** controller to I/O devices at a cable distance of more than 10 m 32.808 ft add a surge absorber between 24 V and 0 V at a cable distance of <u>less than 10 m</u> 32.808 ft.
　　　③ Use a local power supply at a cable distance of <u>less than 10 m</u> 32.808 ft from each I/O device.

PLC related units

Designation	Appearance (Note 1)		Model No.		Description
			For input	For output	
Multi-core cable PLC I/O unit	NPN type	Multi-core cable — Multi-core cable PLC I/O unit CE	**SL-S**	**SL-P**	This is the Multi-core cable PLC I/O unit for connecting the screw-on terminal type PLC with the **S-LINK** system. Interfaces I/O data between the **S-LINK** controller and PLC. It includes the I/O data conversion circuit for serial to parallel or parallel to serial conversion. I/O points: 32 points per unit Connection to screw-on terminal type PLC is by an optional multi-core cable attached with an MIL connector on one end.
	PNP type		**SL-SP**	**SL-PP**	
Multi-core cable			**SL-L2000F**	Length: 2 m 6.562 ft	The multi-core cable attached with an MIL connector on one end links the multi-core cable PLC I/O unit to a screw-on terminal type PLC I/O module.

Notes: 1) Components with ' CE ' mark conform to the CE marking EMC Directive.
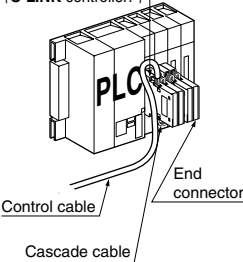　　　　However, note that for the multi-core cable PLC I/O units to conform to CE marking EMC Directive, it is necessary to use cascade cable **SL-F70**, **SL-F150** or **SL-F250**, control cable **SL-C2000F** and multi-core cable **SL-L2000F**.
　　　2) In case the output circuit of the PLC output module contains capacitive components for improving the noise characteristics, since it is possible that the multi-core cable PLC output units **SL-P**, **SL-PP** may not be able to receive the signal correctly, please use output modules which have an output circuit capacitance of 0.01 μF or less.
　　　3) Since the multi-core cable PLC output units **SL-P**, **SL-PP** are high input impedance, time division input type devices, please use PLC output modules whose output circuit can operate at a load current of even 0.1 mA.

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PLC related units

Designation	Appearance (Note 1)		Model No.		Description			
			For input	For output	Manufacturer	PLC	PLC input module (Note 4)	PLC output module (Note 4)
PLC input connector PLC output connector (Note 2, 3)	Fujitsu connector specs. MIL connector specs. PLC input connectors PLC output connectors (same shape) CE The listed PLC I/O modules (NPN I/O type) allow the mating PLC I/O connector to be plugged on them for signal transmission between the PLC and the **S-LINK** controller. (The PLC I/O connector converts I/O data from serial to parallel, and vice versa. I/O points: 32 points per connector)	PLC I/O connectors Max. four PLC I/O connectors can be cascaded with one **S-LINK** controller. PLC End connector Control cable Cascade cable	SL-S1	SL-P1	Matsushita Electric Works, Ltd.	FPΣ (Excluding the FPG-C32T)	FPG-XY64D2T (X side)	FPG-XY64D2T (Y side)
						FP2	FP2-X32D2	FP2-Y32T
						FP3, FP10S FP10SH	AFP33027	AFP33487
					Toshiba Machine Co., Ltd.	TC200	TC64DI	TC64DON
			SL-S2	SL-P2	Fuji Electric Co., Ltd.	NS series	NS-X64-1 NS-XY64-1 (X side)	NS-Y64-T1 NS-XY64-1 (Y side)
						F55	NV1X3204 NV1X3204-W NV1X3206	NV1Y32T05P1
						F70	NC1X3204 NC1X3204-3 NC1X3206 NC1X6404 NC1X6406 NC1W6406T (X side)	NC1Y32T05P1 NC1Y64T05P1-1 NC1W6406T (Y side)
						F80H, F120H F120S F140S F15XS	FTU125A FTU126A FTU127C FTU612A (X side)	FTU222A FTU227C FTU612A (Y side)
			SL-S3	SL-P3	Fuji Electric Co., Ltd.	SX series SPH	NP1X3206-W NP1X6406-W	NP1Y32T09P1 NP1Y64T09P1
					Mitsubishi Electric Corp.	AnS	A1SX41 A1SX42 A1SH42 (X side)	A1SY41 A1SY42 A1SH42 (Y side)
						AnN, AnA AnU, QnA QnAs	AX42 AH42 (X side)	AY42 AH42 (Y side)
						Q	QX41, QX42	QY41P, QY42P
						A2CJ	AJ35TC1-32D	AJ35TC1-32T
			SL-S4	SL-P4	Sharp Manufacturing Systems Corp.	JW20 JW20H JW30H	JW-234N JW-264N	JW-232S JW-262S
						JW50H	JW-34NC JW-64NC	JW-32SC JW-62SC
			SL-S5	SL-P5	Omron Corp.	CS1	CS1W-ID231 CS1W-ID261 CS1W-MD261 (X side)	CS1W-OD231 CS1W-OD261 CS1W-MD261 (Y side)
						CVM1, CV C500 C1000H C2000H	C500-ID219	C500-OD213
						C200H series	C200H-ID216 C200H-ID217	C200H-OD218 C200H-OD219
						CQM1	CQM1-ID213	CQM1-OD213
					Hitachi Ltd.	EH-150	EH-XD32	EH-YT32
					Yokogawa Electric Corp.	FA500	XD64-6N WD64-6N (X side)	YD64-1A WD64-6N (Y side)
						FA-M3	F3XD32-3N F3XD64-3N	F3YD32-1A F3YD64-1A
					Toshiba Corp.	T3	DI-335 DI-335H	DO-335
					Yasukawa Electric Corp.	GL20, GL40S GL60S, GL60H GL70H	———	B2604
			SL-S6	SL-P6	Hitachi Ltd.	H series	XDC24D2H	YTR24DH
			SL-S7	———	Yasukawa Electric Corp.	GL20, GL40S GL60S, GL60H GL70H	B2605	———
End connector			SL-E		It must be connected at the end of the last PLC I/O connector.			
Cascade cable			SL-F70		Length: 70 mm 2.756 in	It links two PLC I/O connectors.		
			SL-F150		Length: 150 mm 5.906 in			
			SL-F250		Length: 250 mm 9.843 in			
			SL-F1000		Length: 1,000 mm 39.370 in			
Control cable			SL-C1000		Length: 1 m 3.281 ft	It links the **S-LINK** controller and the first PLC I/O connector.		
			SL-C2000		Length: 2 m 6.562 ft			
			SL-C5000		Length: 5 m 16.404 ft			
			SL-C2000F		Length: 2 m 6.562 ft			

Notes: 1) Components with 'CE' mark conform to the CE marking EMC Directive.
However, note that for the PLC I/O connectors to conform to CE marking EMC Directive, it is necessary to use cascade cable **SL-F70**, **SL-F150** or **SL-F250** and control cable **SL-C2000F**.
2) The PLC I/O connectors use Fujitsu connectors. However, **SL-S1**, **SL-S6**, **SL-P1** and **SL-P6** connectors use MIL connectors.
3) PLC I/O connectors are connectable to **S-LINK** controller **SL-CU1A** only.
4) X side and Y side indicate the input and the output connectors, respectively, of the compound input / output module.

SYSTEMS

S-LINK V
Wire-saving System

S-LINK
Wire-saving System

LP-F10
Laser Marker

LP-200
Laser Marker

S-LINK

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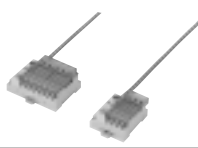
S-LINK I/O devices

Designation		Appearance (Note)	Model No.		Description
1 channel I/O unit		CE	**SL-CH1**	NPN type	It can be used as either an input unit or an output unit by switch selection. Hence, a sensor, limit switch, etc., is connectable when it is used as an input, and a relay, lamp, etc., is connectable when it is used as an output.
			SL-CH1-PN	PNP type	
2 channel I/O mixed unit		CE	**SL-CH21**	NPN type	1 input and 1 output device are connectable.
			SL-CH21-PN	PNP type	
2 channel isolation I/O unit		CE	**SL-CH21K**	NPN type	Electrically insulates output as well as main circuits. It is suitable for power supply remote control function of NEC FA personal computer FC-9821Xa/Ka.
2 channel input unit		CE	**SL-CH20**	NPN type	2 input devices are connectable.
			SL-CH20-PN	PNP type	
2 channel output unit		CE	**SL-CH22**	NPN type	2 output devices are connectable.
			SL-CH22-PN	PNP type	
Connector I/O unit	8 channel snap-connector input unit	CE	**SL-T8J**	8 NPN inputs	8 input or 8 output devices are connectable with snap male connectors. The output unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
			SL-T8J-PN	8 PNP inputs	
	8 channel snap-connector output unit		**SL-TP8J**	8 NPN outputs	
			SL-TP8J-PN	8 PNP outputs	
	16 channel MIL connector input unit	CE	**SL-T16C1**	16 NPN inputs	Since connection can be made with an MIL connector, 16 input or 16 output devices can be connected to this slim I/O unit. The output unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
			SL-T16C1-PN	16 PNP inputs	
	16 channel MIL connector output unit		**SL-TP16C1**	16 NPN outputs	
			SL-TP16C1-PN	16 PNP outputs	
Analog I/O arrayed terminal unit	Input terminal	CE	**SL-TBAD4**	4 inputs	This is an analog input terminal unit which can connect 4 devices having an analog output. Since power supply terminals have been provided for each input channel, neat wiring is possible.
	Output terminal	CE	**SL-TBDA1**	1 output	This is an analog output terminal unit which can connect one device requiring an analog input. It is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.

Note: Components with ' CE ' mark conform to the CE marking EMC Directive.

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S-LINK I/O devices

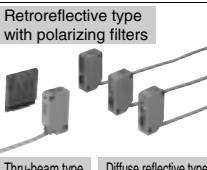| Designation		Appearance (Note 1)	Model No.	Description	
Environment resistant I/O unit	Input unit		SL-TW4	4 NPN inputs	These are units which can connect 4 or 8 input devices. They feature IP67 (IEC 60529) protection, which can withstand water splashes. The input devices can be easily connected by using optional composite connectors.
			SL-TW4-PN	4 PNP inputs	
			SL-TW8	8 NPN inputs	
			SL-TW8-PN	8 PNP inputs	
	I/O mixed unit		SL-TW2P2	2 NPN inputs and 2 NPN outputs	These are units which can connect 2 inputs and 2 outputs. They feature IP67 (IEC 60529) protection, which can withstand water splashes. They are incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
			SL-TW2P2-PN	2 PNP inputs and 2 PNP outputs	
	Output unit		SL-TWP4	4 NPN outputs	These can connect 4 output devices. They feature IP67 (IEC 60529) protection, which can withstand water splashes. They are incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
			SL-TWP4-PN	4 PNP outputs	
I/O arrayed terminal unit	Input terminal		SL-TB4	4 NPN inputs	They are screw-on terminal units to which 4, 8 or 16 input devices are connectable. Since power supply terminals have been provided for two input channel, neat wiring is possible.
			SL-TB4-PN	4 PNP inputs	
			SL-TB8	8 NPN inputs	
			SL-TB8-PN	8 PNP inputs	
			SL-TB16	16 NPN inputs	
			SL-TB16-PN	16 PNP inputs	
	Output terminal		SL-TBP4	4 NPN outputs	They are screw-on terminal units to which 4, 8 or 16 output devices are connectable. The output unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
			SL-TBP4-PN	4 PNP outputs	
			SL-TBP8	8 NPN outputs	
			SL-TBP8-PN	8 PNP outputs	
			SL-TBP16	16 NPN outputs	
			SL-TBP16-PN	16 PNP outputs	
		Separate load power supply type	SL-TBP4-TY	4 NPN outputs	They enable forced turning OFF of the output device connected to the output terminal without halting the complete **S-LINK** system, by switching off the load power supply.
			SL-TBP8-TY	8 NPN outputs	
			SL-TBP16-TY	16 NPN outputs	
Relay output terminal unit	4 relay output		SL-TPR4	4 outputs (Note 2)	They are terminal units to which 4 or 8 output devices can be connected by slim socket relays that can be easily replaced. They are incorporated with an output signal hold function which retains the output state just prior to an error on the signal transmission line.
	8 relay output		SL-TPR8	8 outputs (Note 2)	

Notes: 1) Components with ' C€ ' mark conform to the CE marking EMC Directive.
    2) Relay output is 'Contact a' only. Further, when replacing the relay, use PA relay (APA3312) manufactured by Matsushita Electric Works, Ltd.

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
Designation			Appearance (Note 1)	Model No.	Description	
Sensor block	Snap-connector	Sensor main block		**SL-BMJ**	It allows connection of various kinds of input devices, such as, photoelectric sensors, inductive proximity sensors, limit switches, and push buttons with the snap female connectors. Changes signals from input devices into serial signals and transmits them to the signal transmission line. One **SL-BMJ** can be extended by one **SL-BXJ** or two **SL-BX**s, up to 16 input points. (It can generate the ORed self-diagnosis output of all the connected devices. In this case, the first channel gets occupied.)	
		Extension block		**SL-BXJ**	It can follow either main block, and allows connection of 8 input devices.	
	For plug-in unit	Sensor main block	CE	**SL-BM**	It allows connection of various kinds of plug-in units and changes signals from plug-in units into serial signals and transmits them to the signal transmission line. One **SL-BM** can be extended by three **SL-BX**s or one **SL-BX** plus one **SL-BXJ**, up to 16 input points. (It can generate the ORed self-diagnosis output of all connected units. In this case the first channel gets occupied.)	
		Extension block	CE	**SL-BX**	It can follow either main block, and allows connection of four plug-in units.	
Plug-in unit		Digital setting fiber sensor (Note 2)		**FX-D1J**	Red LED	Its thickness is merely 10 mm 0.394 in. The incident light intensity and the threshold value can be seen at a glance from the backlight LCD. Further, threshold value setting is simple by using the jog switch. (For details, please contact our office.)
		Auto-setting fiber sensor	CE	**FX-A1J**	Red LED	Its thickness is merely 10 mm 0.394 in. The sensitivity setting is simple by using the jog switch. Level indicators, comprising of 10 LEDs, which enable confirmation of the set sensitivity at a glance, have been incorporated. (For details, please contact our office.)
				FX-A1GJ	Green LED	
		Manually set fiber sensor		**FX-M1J**	Red LED	Its thickness is merely 10 mm 0.394 in. Since the sensitivity setting is done by a 12-turn potentiometer, fine setting is possible. (For details, please contact our office.)
				FX-M1GJ	Green LED	
		Amplifier-separated photoelectric sensor	CE	**SU-7J**		Its thickness is merely 10 mm 0.394 in. The sensitivity is automatically set with ease.12 kinds of sensor heads are suitable with it. (For details, refer to p.386～ for the **SU-7** series.)
		Amplifier-separated inductive proximity sensor	One touch clamping type	**GA-14J**		Its thickness is merely 10 mm 0.394 in. The sensitivity is so precisely set with the 18-turn adjuster that the sensor is suitable for sophisticated applications with a high repeatability of 1 μm 0.039 mil or less. (For details, refer to p.754～ for the **GA-10** series.)
			Screw tightening type	**GA-15J**		
		Input terminal unit	CE	**SL-TJ1**		It allows connection of 1 No. of various kinds of input devices, such as, a photoelectric sensor, an inductive proximity sensor or a limit switch.
S-LINK direct hook-up photoelectric sensor		Retroreflective type with polarizing filters		**SL-A11**	Thru-beam type 10 m 32.808 ft	These can be hooked up to the **S-LINK** cable, at any place, without any interface.
				SL-A13	Thru-beam type 30 m 98.425 ft	
				SL-A19	Retroreflective type with polarizing filters 0.1 to 5 m 0.328 to 16.404 ft	
		Thru-beam type	Diffuse reflective type	**SL-A12**	Diffuse reflective type 700 mm 27.559 in	
S-LINK direct hook-up picking sensor			CE	**SL-N15**	Sensing range: 0.2 to 3 m 0.656 to 9.843 ft (0.05 to 1 m 0.164 to 3.281 ft when the switch is set to SHORT) Beam pitch: 25 mm 0.984 in Sensing height: 100 mm 3.937 in Sensing object: ϕ35 mm ϕ1.378 in or more opaque object	It is a parts-taking verification sensor with five sensing beams and can be hooked up to the **S-LINK** cable without any interface. Both the emitter and the receiver are incorporated with bright orange LED job indicators that are easily visible to the operator.

Notes: 1) Components with 'CE' mark conform to the CE marking EMC Directive.
2) Output 2 cannot be used when connection is made to the plug-in unit sensor block.

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Connectors

Designation	Appearance	Model No.	Description
Hook-up connector	(Note)	**SL-J1A** 10 pcs. per set	It creates a 'T'-branch connection between two **S-LINK** exclusive flat cables (4-core). For 0.5 mm^2 flat cable to 0.5 mm^2 flat cable connection (Gray) Applicable hook-up pliers: **SL-JPS**, **SL-JPD**
Cable extension hook-up connector	(Note)	**SL-J3A** 10 pcs. per set	It can extend the **S-LINK** exclusive flat cable (4-core). For 0.5 mm^2 flat cable to 0.5 mm^2 flat cable connection (Black) Applicable hook-up pliers: **SL-JPS**, **SL-JPD**
End hook-up connector	(Note)	**SL-JE** 5 pcs. per set	It must be connected at the end of the main cable. For 0.5 mm^2 flat cable (Gray) Applicable hook-up pliers: **SL-JPS**, **SL-JPD**
Cable attached end connector		**SL-JE-RC**	When cabtyre cable is used as the main cable, the end connector can be easily connected.
Cable end socket-branch hook-up connector	(Note)	**SL-JK** 10 pcs. per set	It enables one I/O device to be connected at the **S-LINK** exclusive 0.5 mm^2 flat cable (4-core) end with the snap male connector (**SL-CP☐**).(Light blue) Applicable hook-up pliers: **SL-JPS**, **SL-JPD**
'T'-branch hook-up connector		**SL-JK1** 10 pcs. per set	It enables one I/O device to be branched off in the middle of the **S-LINK** exclusive 0.5 mm^2 flat cable (4-core) with the snap male connector (**SL-CP☐**).(Blue) Applicable hook-up pliers: **SL-JPS**, **SL-JPD**
4-pin type snap female connector	(Note)	**SL-CJ1** (White) 10 pcs. per set	For 0.08 to 0.2 mm^2 (Conductor cross-section area) Wire dia.: ϕ0.7 to ϕ1.2 mm ϕ0.028 to ϕ0.047 in	This snap female connector is used for plugging into the socket of **SL-BMJ** or **SL-BXJ** to connect an input device, or into the snap male connector **SL-CP1** or **SL-CP2** Applicable hook-up pliers: **SL-JPC**
		SL-CJ2 (Black) 10 pcs. per set	For 0.3 mm^2 (Conductor cross-section area) Wire dia.: ϕ1.1 to ϕ1.6 mm ϕ0.043 to ϕ0.063 in	
4-pin type snap male connector	(Note)	**SL-CP1** (White) 10 pcs. per set	For 0.08 to 0.2 mm^2 (Conductor cross-section area) Wire dia.: ϕ0.7 to ϕ1.2 mm ϕ0.028 to ϕ0.047 in	This snap male connector is used for connecting **S-LINK** I/O devices to **SL-T8J**(-**PN**) and **SL-TP8J**(-**PN**) 8-channel snap-connector I/O units as well as to **SL-JK** and **SL-JK1** hook-up connectors. Applicable hook-up pliers: **SL-JPC** (for the **SL-CP1** and **SL-CP2**) **SL-JPE** (for the **SL-CP3**)
		SL-CP2 (Black) 10 pcs. per set	For 0.3 mm^2 (Conductor cross-section area) Wire dia.: ϕ1.1 to ϕ1.6 mm ϕ0.043 to ϕ0.063 in	
	(Note)	**SL-CP3** (Greenish blue) 10 pcs. per set	For 0.5 mm^2 (Conductor cross-section area) Wire dia.: ϕ1.7 to ϕ2.5 mm ϕ0.067 to ϕ0.098 in	
Environment resistant I/O unit — Composite male connector		**SL-WP4** 10 pcs. per set	For 0.18 to 0.75 mm^2 (Conductor cross-section area) Wire dia.: ϕ3 to ϕ4 mm ϕ0.118 to ϕ0.157 in	These are composite male connectors for connection of input or output devices to the environment resistant I/O unit **SL-TW☐**(-**PN**), and for connection to the branch connector **SL-WY** or the composite female connector **SL-WJ8**.
		SL-WP5 10 pcs. per set	For 0.18 to 0.75 mm^2 (Conductor cross-section area) Wire dia.: ϕ4 to ϕ5 mm ϕ0.157 to ϕ0.197 in	
		SL-WP6 10 pcs. per set	For 0.18 to 0.75 mm^2 (Conductor cross-section area) Wire dia.: ϕ5 to ϕ6 mm ϕ0.197 to ϕ0.236 in	
		SL-WP8 10 pcs. per set	For 0.3 to 0.75 mm^2 (Conductor cross-section area) Wire dia.: ϕ6 to ϕ8 mm ϕ0.236 to ϕ0.315 in	
Composite female connector		**SL-WJ8** 10 pcs. per set	For 0.3 to 0.75 mm^2 (Conductor cross-section area) Wire dia.: ϕ6 to ϕ8 mm ϕ0.236 to ϕ0.315 in	These are composite female connectors for connection to the main cable side of the environment resistant I/O unit **SL-TW☐**(-**PN**), and for connection to the branch connector **SL-WY** or the composite male connector **SL-WP☐**.
Branch connector		**SL-WY** 5 pcs. per set	This is a connector for branching of the main / branch cable and for connection of the thru-beam type photoelectric sensor to the environment resistant I/O unit **SL-TW☐**(-**PN**).
Environment resistant end connector		**SL-WE**	It is connected when the environment resistant I/O unit **SL-TW☐**(-**PN**) is used at the end of the main cable.
Cover for M12 male connector		**SL-WPK** 10 pcs. per set	Make sure to put it on the unused main cable side connectors of the environment resistant I/O unit **SL-TW☐**(-**PN**).
Cover for M12 female connector		**SL-WJK** 10 pcs. per set	Make sure to put it on the unused I/O side connectors of the environment resistant I/O unit **SL-TW☐**(-**PN**).

Note: For UL compatibility, please contact our office.

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Basic units

Designation			Appearance	Model No.		Description
I/O module	Vertical type	Input module		**SL-M8**	8 inputs	
				SL-M16	16 inputs	
		I/O mixed module		**SL-M4P4**	4 inputs and 4 outputs	
		Output module		**SL-MP8**	8 outputs	
				SL-MP16	16 outputs	These are IC type modules which enable external connection of address setting switches and operation indicators. They increase the design flexibility.
	Horizontal type	Input module		**SL-M8F**	8 inputs	
				SL-M16F	16 inputs	
		I/O mixed module		**SL-M4P4F**	4 inputs and 4 outputs	
		Output module		**SL-MP8F**	8 outputs	
				SL-MP16F	16 outputs	
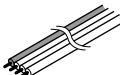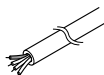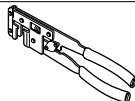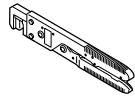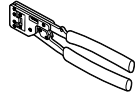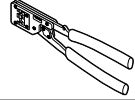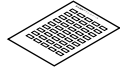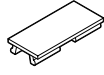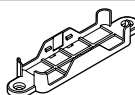
Optional units

Designation	Appearance (Note)	Model No.	Description
Booster		**SL-BS1A**	It can extend the signal transmission distance by 200 m 656.168 ft. A maximum of seven boosters can be connected for one **S-LINK** control unit. However, one booster can never be followed by another booster in series.
Handy monitor		**SL-HM1**	It can be connected at any place on the signal transmission line and the I/O states can be checked in batches of 16. The handy monitor is also incorporated with the **S-LINK** control functions, so that, for example, it can perform an I/O check on conveyor system segments, still under assembly, even without the **S-LINK** controller.

Note: Components with '$C\epsilon$' mark conform to the CE marking EMC Directive.

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Others

Designation	Appearance	Model No.	Description	
8-branch connector tap	*New*	SL-T8PW	Connects easily to up to 8 thru-beam type photoelectric sensor emitters or **S-LINK** I/O devices with snap male connectors.	
2-pin type snap female connector	(Note)	SL-CJ12 (White) 10 pcs. per set	For 0.08 to 0.2 mm² (Conductor cross-section area) Wire dia.: φ0.7 to φ1.2 mm φ0.028 to φ0.047 in	It can be used for cable extension of 2-wire I/O devices by combining with a snap male connector **SL-CP12** or **SL-CP22**.
		SL-CJ22 (Black) 10 pcs. per set	For 0.3 mm² (Conductor cross-section area) Wire dia.: φ1.1 to φ1.6 mm φ0.043 to φ0.063 in	
2-pin type snap male connector	(Note)	SL-CP12 (White) 10 pcs. per set	For 0.08 to 0.2 mm² (Conductor cross-section area) Wire dia.: φ0.7 to φ1.2 mm φ0.028 to φ0.047 in	It can used for cable extension of 2-wire I/O devices by combining with a snap female connector **SL-CJ12** or **SL-CJ22**.
		SL-CP22 (Black) 10 pcs. per set	For 0.3 mm² (Conductor cross-section area) Wire dia.: φ1.1 to φ1.6 mm φ0.043 to φ0.063 in	
Exclusive flat cable (4-core)	(Note)	SL-RCM100	Length: 100 m 328.084 ft	D line: White	**S-LINK** / **S-LINK V** exclusive flat cable (4-core) Conductor cross-section area: 0.5 mm² Outer diameter: φ2.5 mm φ0.098 in × 4
		SL-RCM100-PK		D line: White with pink stripe	
		SL-RCM100-GN		D line: White with green stripe	
		SL-RCM100-GY		D line: White with gray stripe	
		SL-RCM200	Length: 200 m 656.168 ft, D line: White		
Exclusive cabtyre cable (4-core)		SL-CBM100	Length: 100 m 328.084ft	**S-LINK** / **S-LINK V** exclusive cabtyre cable (4-core) Conductor cross-section area: 0.5 mm² Outer diameter: φ7.4 mm φ0.291 in (Hook-up connector cannot be used)	
		SL-CBM200	Length: 200 m 656.168 ft		
Exclusive pliers		SL-JPS	Hook-up connector (**SL-J▢**) can be connected in one grip.	
Exclusive ratchet pliers		SL-JPD	Because of the ratchet mechanism, hook-up connector (**SL-J▢**) can be simply connected in one grip.	
SL-CP3 exclusive pliers		SL-JPE	4-pin type snap male connector (**SL-CP3**) can be connected in one grip.	
Male / female connector exclusive pliers		SL-JPC	Snap female connector (**SL-CJ▢**) and snap male connector (**SL-CP1/CP2** and **SL-CP11/CP12**) can be connected in one grip.	
Address label		SL-MA1-SET 4 sheets per set	By sticking the labels on the respective **S-LINK** devices, the set addresses can be confirmed at one glance. **SL-MA1-SET** is available in white, pink, green and gray colors, as a 4-sheet set, and is convenient when used by matching the color with that of the **S-LINK** exclusive flat cable (100 m 328.084 ft type).	
Marking plate		SL-MA2 20 pcs. per set	It is used to write the I/O device No., address No., etc., on the environment resistant I/O unit **SL-TW▢(-PN)**.	
DIN rail mounting bracket for the **SL-CH▢**		MS-CH × 10 10 pcs. per set	Mounting bracket enabling the **SL-CH▢(-PN)** I/O units to be mounted onto a 35 mm 1.378 in width DIN rail. They can also be affixed with screws. (When affixing with screws, arrange two M4 pan-head screws separately.)	
I/O unit holder for **SL-CH▢**		MS-SLH 5 pcs. per set	It is used to mount the **SL-CH▢(-PN)** unit. (Please arrange two M4 pan-head screws separately.)	

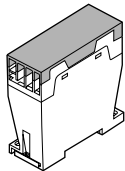Note: For UL compatibility, please contact our office.

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Accessories

• **NPS-CV**
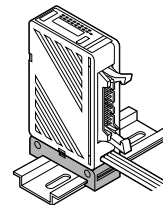(Protective cover for the **SL-CU1A**, **SL-BS1A** or **SL-CU1-485**)

• **RF-230**
(Reflector for the **SL-A19**)

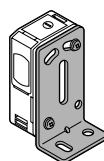• **MS-SL-2**
(Mounting base for connector I/O units)

OPTION

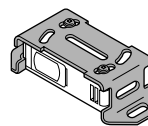| Designation	Model No.	Description
Sensor mounting bracket for **SL-A□**	**MS-NX5-1**	Foot angled mounting bracket (The thru-beam type sensor needs two brackets.)
	MS-NX5-2	Foot biangled mounting bracket (sensor protection bracket) (The thru-beam type sensor needs two brackets.)
	MS-NX5-3	Back angled mounting bracket (The thru-beam type sensor needs two brackets.)
Sensor mounting bracket for **SL-N15**	**MS-NA1-1**	Four bracket set (Four M4 (length 15 mm 0.591 in) screws with washers, eight nuts, four hooks, four spacers and eight M4 (length 18 mm 0.709 in) screws with washers are attached. (Spacers are not attached with **MS-NA1-1**.))
	MS-NA2-1	
Sensor protection bracket for **SL-N15**	**MS-NA3**	It protects the sensor body. Two bracket set (Silver) (Four M4 (length 15 mm 0.591 in) screws with washers, and four nuts are attached.)
	MS-NA3-BK	It protects the sensor body. Two bracket set (Black) (Four M4 (length 15 mm 0.591 in) screws with washers, and four nuts are attached.)
Reflector mounting bracket	**MS-RF23**	Reflector mounting bracket for **RF-230**
Slit mask for **SL-N15**	**OS-NA1-5** 10 sheets per set	The seal type slit mask restrains the amount of beam emitted or received. (Take care that the sensing range will be reduced when the slit mask is used.)
Connector I/O unit mounting bracket, 8-branch connector tap mounting bracket	**MS-DIN-3**	It is a DIN rail mounting bracket which can be fitted on the mounting base of **SL-T8J**, **SL-TP8J**, **SL-T16C1**, **SL-TP16C1** and **SL-T8PW**.
DIN rail adaptor	**MS-DIN-IDC**	This adaptor is used when mounting the **SL-GU1-□** to the 35 mm 1.378 in DIN rail.

DIN rail adaptor
• **MS-DIN-IDC**

Two M4 (length 12 mm 0.472 in) screws with washers
(Two pcs. are attached with the DIN rail adaptor)

DIN rail adaptor **MS-DIN-IDC**

35 mm 1.378 in width DIN rail

Stopper (located on the back)

SL-GU1-□

Sensor mounting bracket for SL-A□
• **MS-NX5-1** • **MS-NX5-2** • **MS-NX5-3**

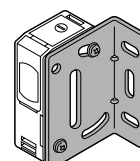Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

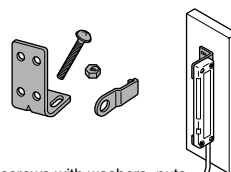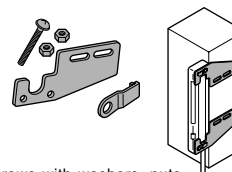Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.

Sensor mounting bracket for SL-N15
• **MS-NA1-1** • **MS-NA2-1**

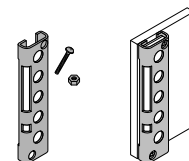M4 screws with washers, nuts and hooks are attached.

M4 screws with washers, nuts, hooks and spacers are attached.

Sensor protection bracket for SL-N15
• **MS-NA3**
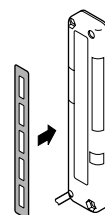• **MS-NA3-BK**

M4 screws with washers and nuts are attached.

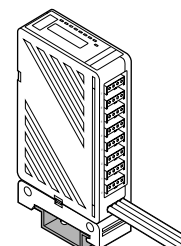### Reflector mounting bracket
• **MS-RF23**

Two M4 (length 10 mm 0.394 in) screws with washers are attached.
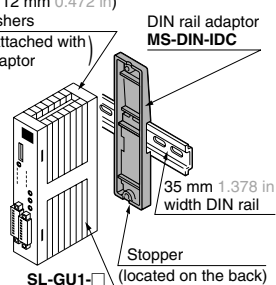
Slit mask for SL-N15
• **OS-NA1-5**

Connector I/O unit mounting bracket, 8-branch connector tap mounting bracket
• **MS-DIN-3**

S-LINK

SYSTEMS

Wire-saving System

S-LINK V

S-LINK

Laser Marker

LP-F10

LP-200

PRECAUTIONS FOR PROPER USE

⚠ • This product does not possess control functions needed for accident prevention or safety maintenance. Handle safety related or emergency stop signals without passing them through the **S-LINK** system due to fail-safe considerations.
• Before touching this product, remove any electrostatic charge that may be present on your body. There is a danger of this product getting damaged due to the electrostatic charge.

The sensor & wire-saving link system **S LINK** are not mutually interchangeable with the flexible wire-saving system **S LINK V** and cannot be mixed and matched. Please exercise caution.

Nevertheless, any of the exclusive 4-core flat cable, connectors, hook-up pliers, or **SL-T8PW** 8-branch connector taps can be used.
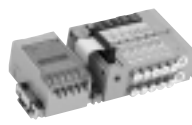
Information about S-LINK partner makers	Refer directly to our partner makers for more details pertaining to the S-LINK compatible devices introduced here.

[Controllers suitable for S-LINK]

Matsushita Electric Works, Ltd.	Mitsubishi Electric Corp.	Toyoda Machine Works Co., Ltd.

[S-LINK direct hook-up I/O devices]

Limit switches Matsushita Electric Works, Ltd.	Ultrasonic sensors Matsushita Electric Works, Ltd.	Component indicator lamp Yazaki Industrial Chemical Co., Ltd.
Manifold electromagnetic valves Koganei Corp.	Manifold electromagnetic valves SMC Pneumatics	Manifold electromagnetic valves CKD Corp.

Information about the 'Design Manual' and 'Construction Manual' for the S-LINK sensor & wire-saving link system

We have two manuals available with more detailed information pertaining to the S-LINK sensor & wire-saving link system. Please contact our office for details.

S-LINK Design Manual

Holds information necessary when designing the layout for the **S-LINK** system. Refer to it for specifications and for illustration showing exterior dimensions.

S-LINK Construction Manual

Holds information necessary when introducing, constructing, and activating the **S-LINK** system. Refer to it for construction or startup cautionary items.