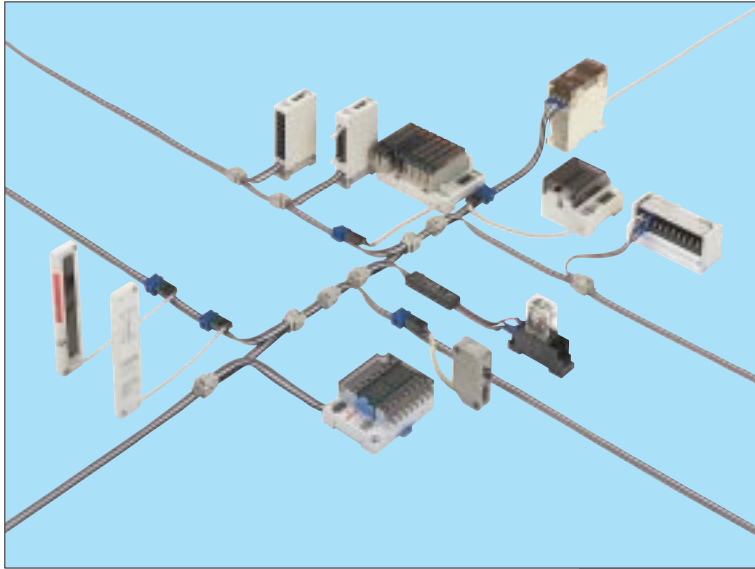


S-LINK

Sensor & Wire-saving Link System

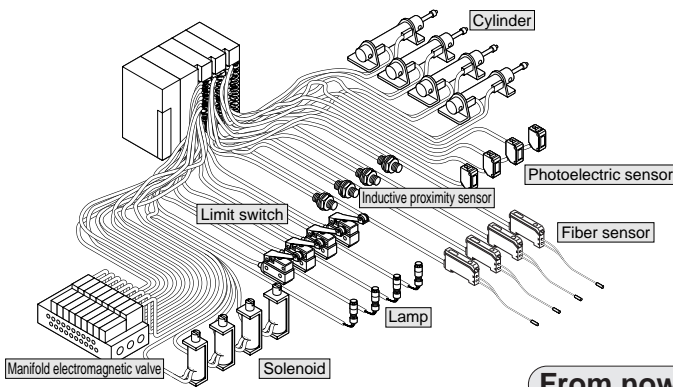


'T'-branch Multi-drop System Enabling Flexible Cable Layout

CE Marked
Conforming to EMC Directive
(Except some components)

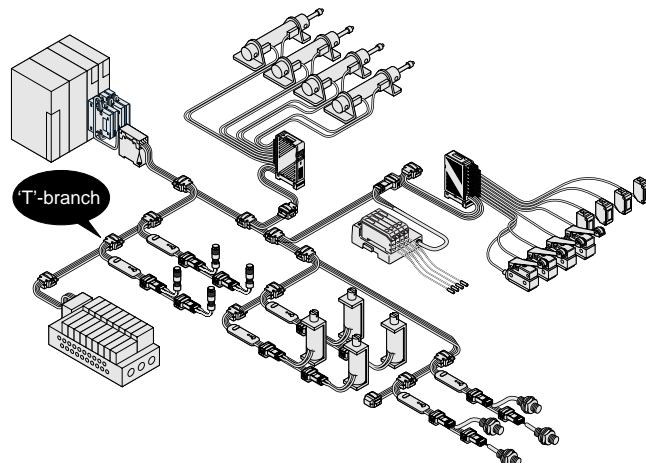
Till now

Many wires, high cost, and yet miswiring.
(Point-to-point wiring)



From now on

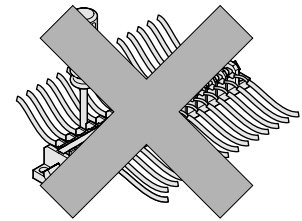
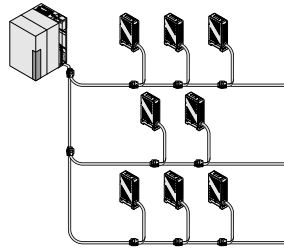
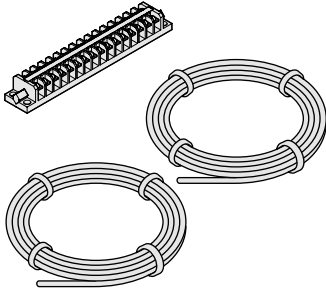
'T'-branch **S-LINK** saves wires throughout the layout!
(Tree architecture)
Moreover, wiring and maintenance is significantly simplified.



Three concepts of S-LINK

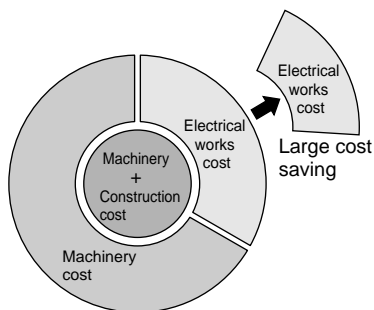
Wire-saving

- The use of wires is greatly reduced and the number of connecting terminal blocks is minimized, resulting in large reduction in cost, as well as, the waste generated during wiring.
- The layout of devices becomes flexible and the design is easier due to the 'T'-branch multi-drop wiring.
- Since the wiring is simple, miswiring is also sharply decreased.

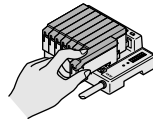


Quick construction

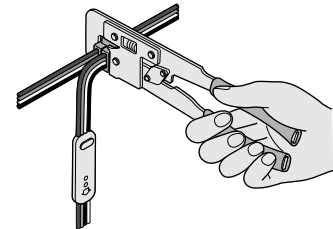
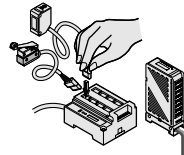
- The time required for equipment wiring is greatly reduced, contributing to reduction in electrical works cost. Further, design and maintenance personnel expenses are also sharply decreased.
- Sensors can be easily connected with plug-in connection.
- The addition of an I/O output device is easy. Construction can be done in a short time.



• Connection by plug-in unit

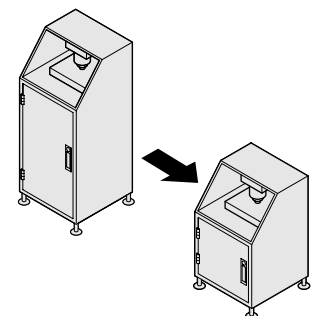
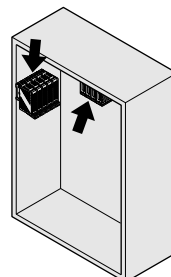
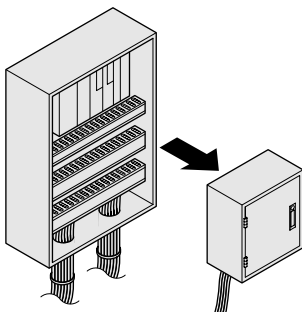


• Connection by connector



Space-effective

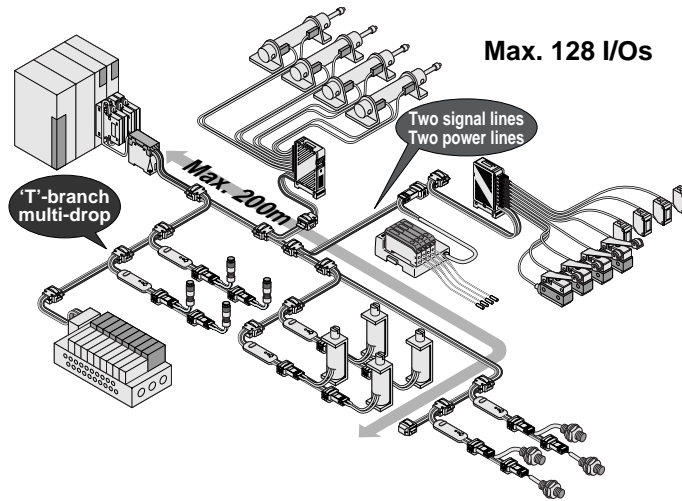
- The control box can be of smaller size since connecting terminal blocks are not needed.
- S-LINK devices are compact. Hence, the control box can be mounted in a tight space.
- It contributes to the miniaturization of the machine due to reduced wiring space.



S-LINK

S-LINK Transmits 128 I/Os on Two Signal Lines and Realizes 'T'-branch Multi-drop Wiring (Tree Architecture)

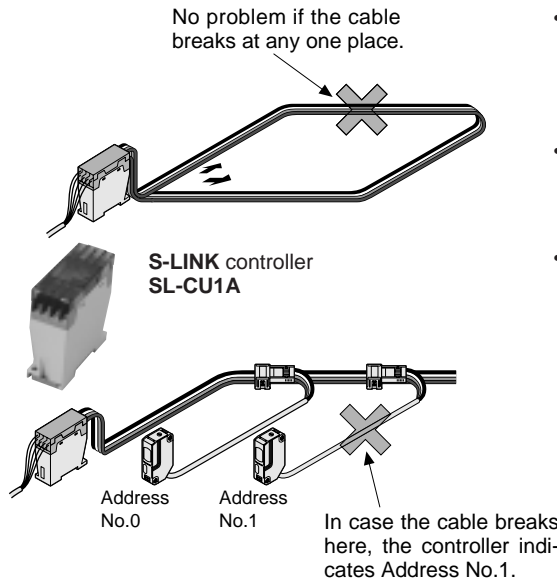
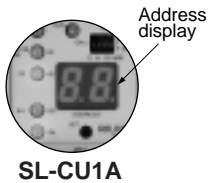
S-LINK enables transmission of 128 I/Os of sensors, switches, or actuators on two signal lines up to 200m (400m with the booster). The **S-LINK** lines can be branched off in any direction, at any point, so that a flexible cable layout is possible. The original SUNX signal processing enables highly reliable 'T'-branch multi-drop wiring.



Caution: The connectable I/O number might decrease from 128 points depending upon the type of devices and their place of connection.

Highly Reliable Signal Transmission

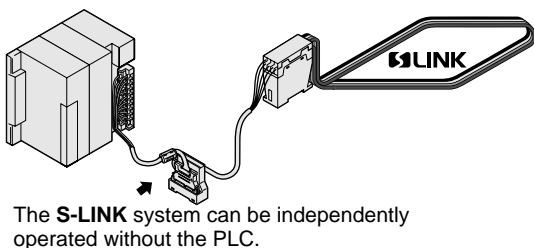
- The loop wiring maintains the signal transmission over the entire system even if the loop may break at any one place.
- If the cable breaks somewhere, the controller finds out the addresses of all disconnected units, and displays their first address. Specifying error addresses shortens the repairing time.



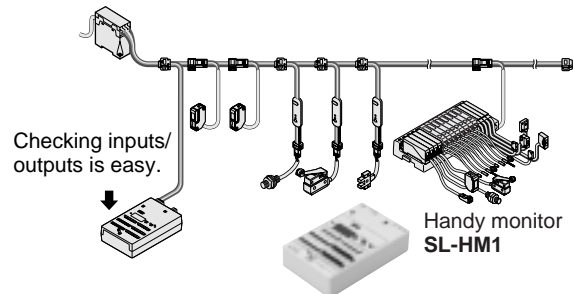
- The **S-LINK** system automatically turns its power off when excess current flows through the signal lines due to a short-circuit.
- The double code collation makes the signal transmission secure and reliable.
- **S-LINK's** unique signal transmission, large voltage amplitude (0 - 24V) and wide pulse width (35 μ s) provide high noise immunity. The signal transmission time is 5ms approx. for 32 points, or 11ms approx. for 128 points.

Easy Input/Output Check

- Since the **S-LINK** system can operate even when the PLC is disconnected, the system construction time can be drastically reduced by parallel development of the software (PLC program) and the hardware (equipment assembly, I/O device check). Further, in case of an error, it can be immediately found whether the error is on the PLC side or the I/O device side.
- A handy monitor which can check I/O devices is available. The handy monitor can be hooked up to the **S-LINK** signal transmission lines at any place. I/O states can be checked in batches of 16. The handy monitor is also incorporated with the **S-LINK** controller 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.



The **S-LINK** system can be independently operated without the PLC.

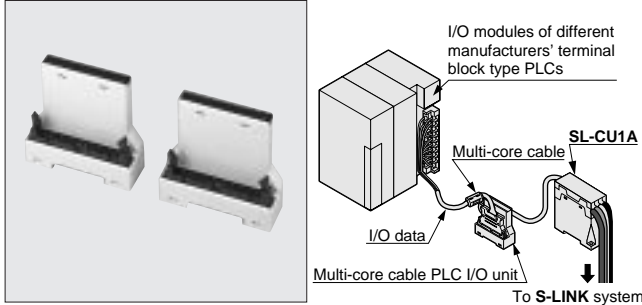


Note: Although, **SL-HM1** incorporates the functions of the **SL-CU1A** controller, PLC I/O connectors cannot be connected.

Suitable for Various PLCs

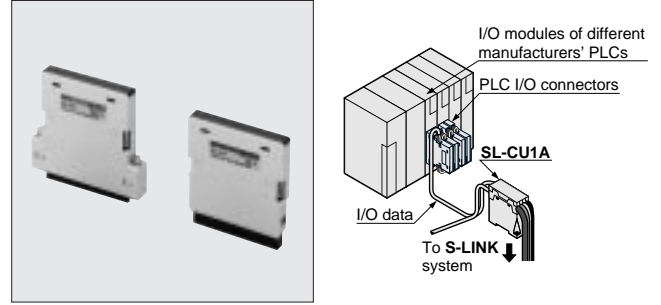
• Connectable to terminal block type PLC

Multi-core cable PLC I/O units **SL-S**, **SL-SP**, **SL-P**, **SL-PP** are connectable to terminal block type PLCs.



• Easily connectable to different manufacturers' PLCs

PLC I/O connectors **SL-S**, **SL-P** are one-touch connectable to different manufacturers' PLC I/O modules.



Connectable PLC manufacturers

- Matsushita Electric Works • Mitsubishi Electric Corp. • Omron Corp.
- Yokogawa Electric Corp. • Sharp Corp. • Fuji Electric Works • Hitachi
- Yasukawa Electric Corp. • Toshiba Corp. • Toshiba Machine Co.

※ Please refer to P.44 for the connectable PLCs of each manufacturer.

Suitable for PLC Bus

• Direct connection to PLC bus

S-LINK controller for direct connection to Matsushita Electric Works' PLC FP3/FP10SH/FP10S bus line or Yokogawa Electric's PLC FA-M3 series bus line, and **S-LINK** control boards for direct connection to the bus line of Matsushita Electric Works' board type PLC, FP-C or Sharp's board type PLC, J-board Z-300 series, are available. Since they incorporate the **S-LINK** control functions and the PLC I/O connector functions, large cost and space savings are achieved.

For Matsushita Electric Works PLC FP3/FP10SH/FP10S
SL-FP3



For Yokogawa Electric PLC FA-M3 series
SL-FAM3



For Matsushita Electric Works PLC FP-C
SL-FPC

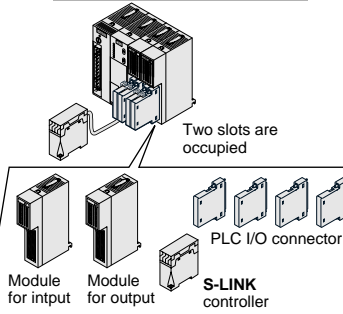


For Sharp J-board Z-300 series
SL-Z300

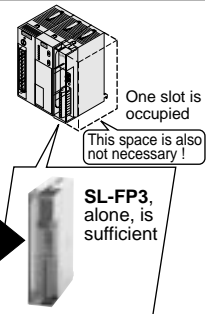


In case Matsushita Electric Works PLC bus S-LINK controller SL-FP3 is used.

Normal construction



Construction using SL-FP3



Suitable for Personal Computers

• Direct connection to personal computers

As control by personal computers has spread in recent years, **S-LINK** control boards for direct connection to PCI bus, PC/AT and compatibles (ISA bus) and to NEC PC/FC-98 series (C bus) have been developed, in order to enable control of the **S-LINK** system by a personal computer. Further, **S-LINK** control board for direct connection to the VME bus line is also available. Flexibility in design has been increasingly improved.

For VME bus
SL-VMES2



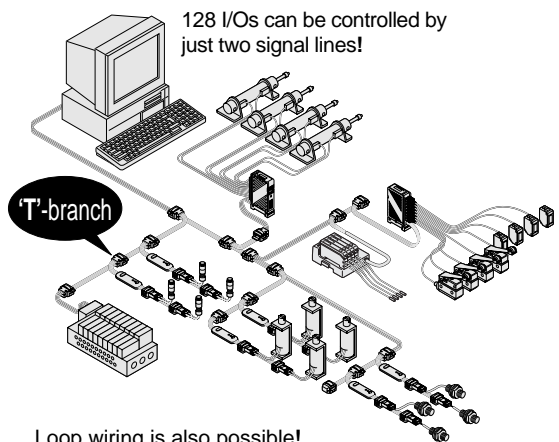
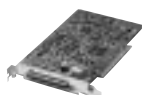
For PC/AT
SL-PCAT



For PC/FC-98 series
SL-PC98



For PCI
SL-PCI



S-LINK

Compatible with Global Fieldbus Networks

Globally, fieldbus networks for FA are spreading rapidly to realize wire-saving connections between PLCs of different manufactures, or high performance devices, such as, temperature controllers, graphic panels etc. SUNX has developed gateway controllers which enable connection of **S-LINK** to the fieldbus networks being used in different parts of the world. Hence, wire-saving connections and other advantages of **S-LINK** can be realized even when using fieldbus networks.



For Device Net
SL-GU1-D

For PROFIBUS-DP
SL-GU1-P

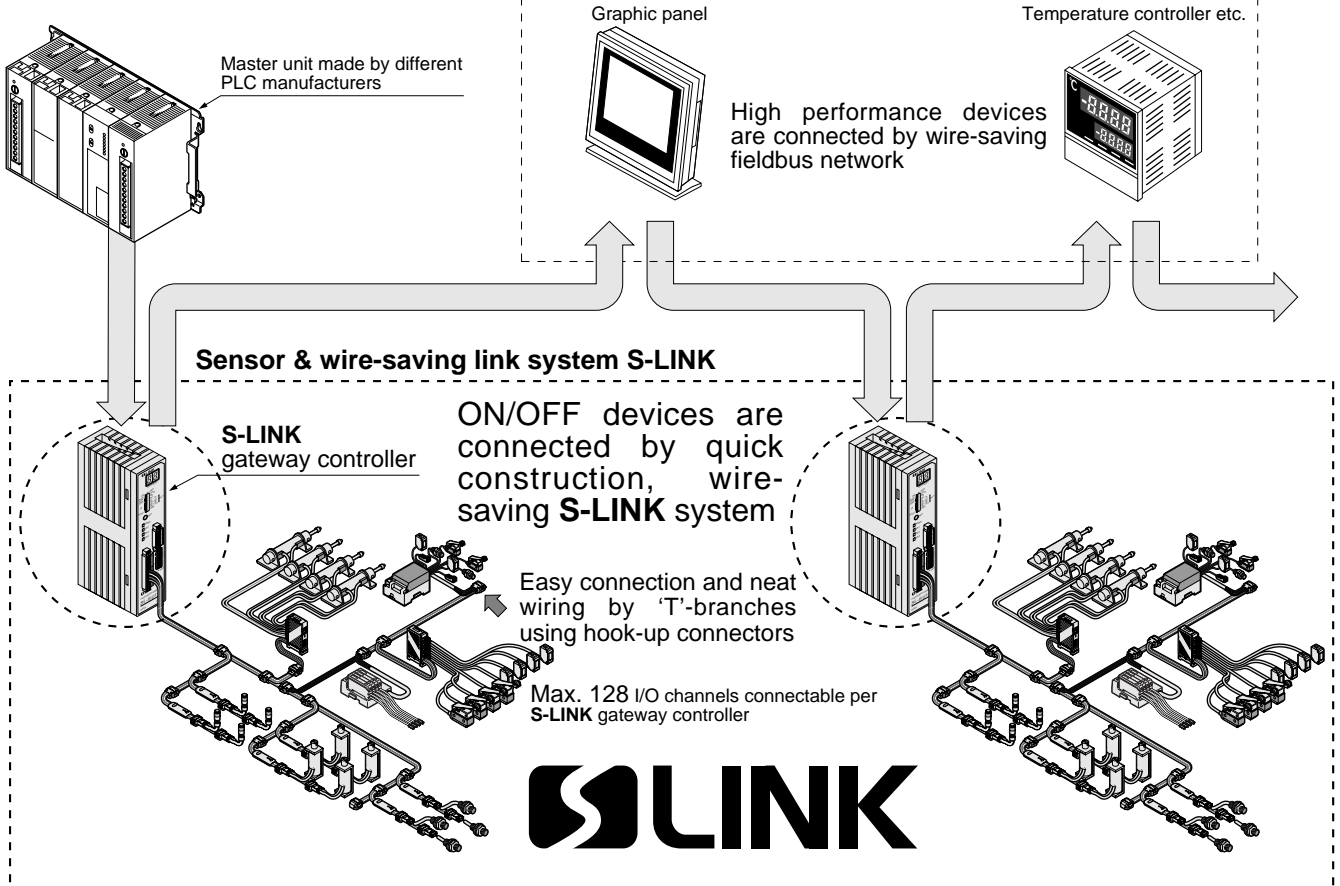
For INTERBUS
SL-GU1-I

For CC-link
SL-GU1-C

For JPCN-1/RS-485
SL-CU1-485



Suitable devices for different manufacturers' fieldbus networks



• **Seamless connection to fieldbus networks**

S-LINK can be connected seamlessly to fieldbus networks using the **S-LINK** gateway controllers.

• **Advanced wire-saving connection with S-LINK and fieldbus networks**

Wire-saving connections can be realized even when using fieldbus networks. An efficient wire-saving network can be implemented by connecting distributed bit level data I/O devices, such as, sensors, switches, etc., by **S-LINK**.

※ **Advantage of using with higher level networks**

Since the higher level networks mostly use cascade wiring with shielded twisted pair cable, the flexibility in wiring and wiring operations have not improved. In **S-LINK**, 'T'-branch flexible layout can be realized using different types of quick connecting hook-up connectors, and distributed ON/OFF data devices, such as, switches, sensors, etc., can be efficiently wired. In this manner, an exceedingly efficient wire-saving link system can be realized in combination with higher level networks.

• **Long distance transmission**

The max. transmission distance is as follows.
DeviceNet: 500m, PROFIBUS-DP and CC-Link: 1,200m, INTERBUS: 13km, JPCN-1/RS-485: 1,000m.

S-LINK can transmit up to 400m using the booster (**SL-BS1A**). Hence, a system of total 1,600m can be constructed with PROFIBUS-DP or CC-Link (DeviceNet: 900m, INTERBUS: 13.4km).

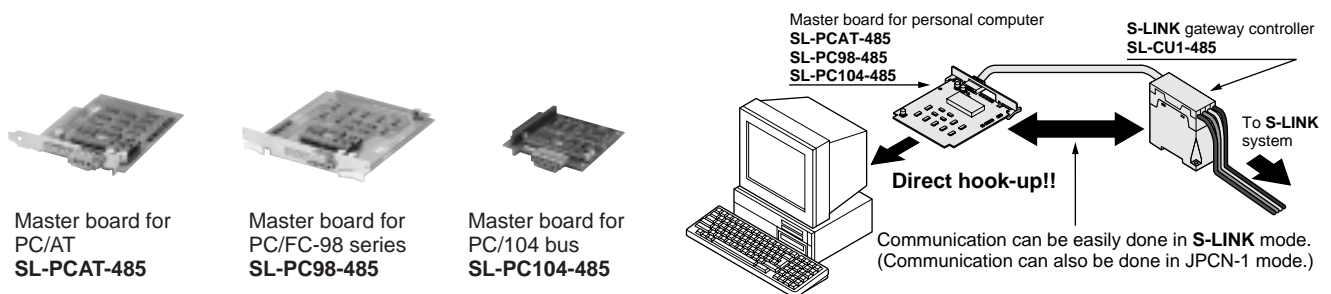
• **Total I/O channels 8,064 Nos.**

Up to 99 Nos. of **S-LINK** gateway controllers can be connected as slaves to one PROFIBUS-DP master unit [DeviceNet: 63 Nos., INTERBUS: 256 Nos., JPCN-1/RS-485: 31 Nos., CC-Link: 32 Nos. (Note 2)]. Since max. 128 Nos. I/O devices can be connected to one **S-LINK** gateway controller, I/O signal of total 12,672 channels [DeviceNet: 8,064 channels, INTERBUS: 4,096 channels (Note 3), JPCN-1/RS-485: 3,968 channels, CC-Link: 2,048 channels (Note 2)] can be transmitted.

- Notes: 1) The total No. of I/O channels may be less than the maximum No. mentioned above depending on the master unit capacity. Also, the No. of devices connectable to the **S-LINK** system may be less than 128 Nos., depending on the type of devices and places connected.
2) In case of the **S-LINK** gateway controller for CC-Link, the No. of controllable I/O channels varies with the No. of units connected to CC-Link.
3) For INTERBUS, one master unit can control up to 4,096 I/O channels only.

• **Personal computer can be used as master (for JPCN-1/RS-485)**

PC/AT or compatible (ISA bus), NEC PC/FC-98 series personal computer or PC/104 bus board can be used as a master unit. Long distance and multi-point control is easily possible with a personal computer when the JPCN-1/RS-485 master board and the **S-LINK** gateway controller for JPCN-1/RS-485, **SL-CU1-485**, are used.



The master boards for personal computers can be used in the following two modes:

- ① **S-LINK** mode (using RS-485 communication)
- ② JPCN-1 mode
(Please arrange a driver software separately, when using the JPCN-1 mode.)

S-LINK

I/O Unit Selectable According to the Application

1 Channel I/O Unit SL-CH1, SL-CH1-PN

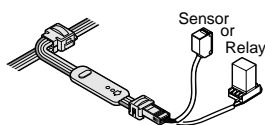
- **Different devices can be simply connected at any place**
SL-CH1(-PN) can be used as either an input unit or an output unit by switch selection. Hence, a sensor, limit switch, etc., is connectable when it is used as an input unit, and a relay, lamp, etc., is connectable when it is used as an output unit. It can be connected by a 'T'-branch at any place on the **S-LINK** cable.



Application

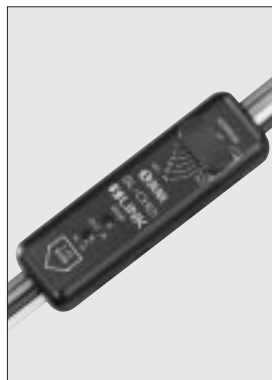
Sensor or relay

It handles either the input signal from a sensor or the output signal to a relay.



2 Channel I/O Unit SL-CH21, SL-CH21-PN, SL-CH21K

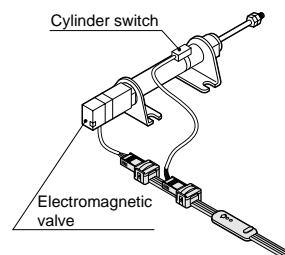
- **Both input and output devices are connectable**
SL-CH21(-PN) allows connection of one input and one output device. It is useful for a mechanism using both input and output devices.
SL-CH21K, isolation type for power supply remote control function of NEC FA personal computer FC-98/FC98-NX series, is also now available.



Application

Cylinder with electromagnetic valve

It handles both the input signal from a cylinder switch and the output signal to an electromagnetic valve.



NEW

2 Channel Input Unit SL-CH20, SL-CH20-PN

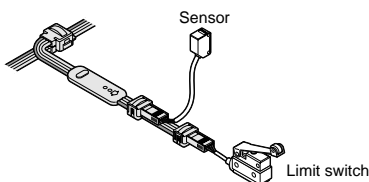
- **Two input devices are connectable**
SL-CH20(-PN) allows connection of two input devices, and handles both signals. It contributes to cost-effectiveness if you use several input devices.



Application

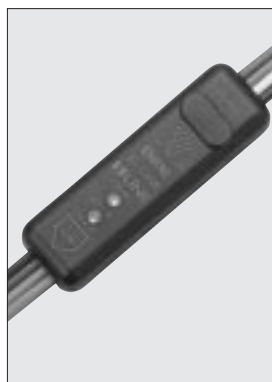
Sensor and limit switch

It handles two input signals from a sensor and a limit switch, two sensors, or two limit switches.



2 Channel Output Unit SL-CH22, SL-CH22-PN

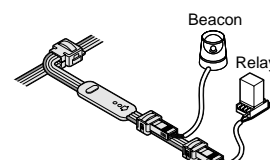
- **Two output devices are connectable: drive current 100mA max. each**
SL-CH22(-PN) allows connection of two output devices, and handles both signals. It can supply 100mA max. current to each device, so that ordinary DC relays or solenoid valves can be activated.



Application

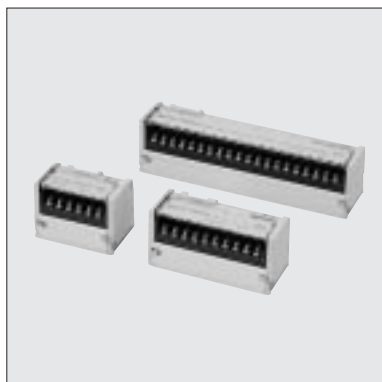
Beacon and relay

It handles two output signals to a beacon and a relay, two relays, or two solenoid valves.



NEW

I/O Arrayed Terminal Unit SL-TB□, SL-TB□-PN, SL-TBP□, SL-TBP□-PN, SL-TBP□-TY



- **Screw-on terminal unit**
 Depending upon the model, 4 Nos., 8 Nos. or 16 Nos. of input/output devices (NPN/PNP type) can be connected to the terminal units. Further, since power supply terminals for the input/output devices have been incorporated on all terminal units, neat wiring is possible.
- **Output signal hold**
 The output arrayed terminal unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission lines. This limits the effect on an output device, should a failure occur.
- **Separate load power supply type output terminal is now available**
 Separate load power supply type output terminal **SL-TBP□-TY** which enables 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, in the event of the output device failure, is now available.

NEW

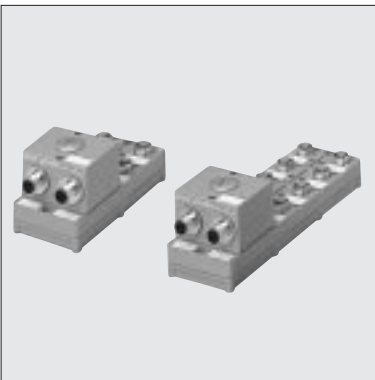
Analog I/O Arrayed Terminal Unit SL-TBAD4, SL-TBDA1



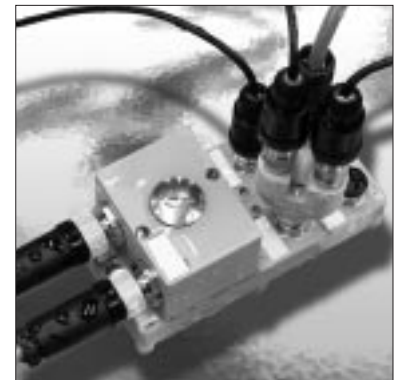
- **High resolution**
A high resolution of 1/4,000 (12 bits) can be realized.
- **Fast data conversion**
They have a fast data conversion time of 1ms approx., for analog to digital, or digital to analog.
- **Input range settable for each channel (SL-TBAD4)**
In case of the analog input arrayed terminal unit **SL-TBAD4**, it is possible to set the input range for each input channel. As the analog input range can be 4 to 20mA, 1 to 5V, 0 to 10V or -10 to +10V, it can be selected according to the output of the connected analog device.

NEW

Environment Resistant I/O Unit SL-TW4, SL-TW4-PN, SL-TW8, SL-TW8-PN, SL-TW2P2, SL-TW2P2-PN, SL-TWP4, SL-TWP4-PN

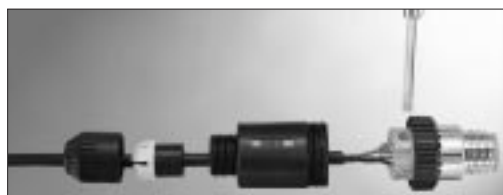


- **Reliable design with IP67 protection**
It has IP67 (IEC 60529) protection, which makes it safe even against water splashes. Besides wire-saving in equipment/machinery which requires waterproofing, it can be used to simplify construction at places where so far 'water-resistant box + cable ground + terminal block', etc., were used.



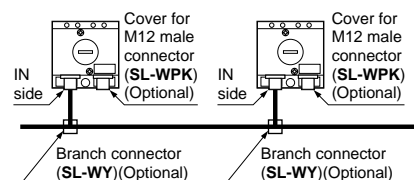
- **Wide variety**
Four types of units are available: input unit (4 or 8 inputs), I/O unit (2 inputs and 2 outputs), or output unit (4 outputs).

- **Easy wiring with exclusive water-resistant connector**
M12 composite 4-pin connectors having IP67 protection are available for connection of the main cable, branch cables or I/O devices. Troublesome soldering is absolutely not required, and cables of I/O devices can be connected simply by a screwdriver. Four types of composite male connectors are available to suit the cable diameter of different I/O devices. Further, a branch connector which can not only branch the main cable easily, but can also connect a set of emitter/receiver of a thru-beam type photoelectric sensor (1 set) as 1 input channel, is available.

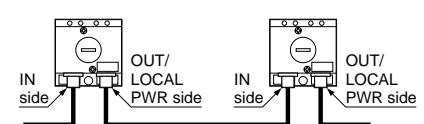


- **'T'-branch wiring and cascade wiring possible**
Main cable and branch cable can not only be 'T'-branched, but can also be cascade wired.

<'T'-branch wiring>



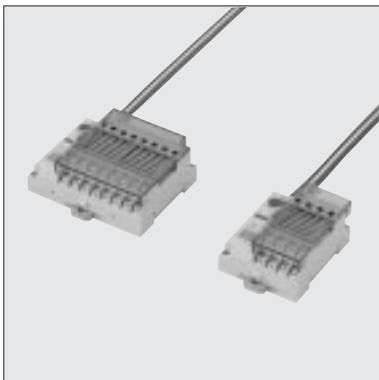
<Cascade wiring>



S-LINK

I/O Unit Selectable According to the Application

Relay Output Terminal Unit SL-TPR4, SL-TPR8



• Output device control through relays

These are 4 channel and 8 channel relay output terminal units. The integrated relay can drive AC actuators up to 250V 2A.

• Output signal hold

The relay output terminal unit is incorporated with an output signal hold function, which retains the output state just before an error occurs on the signal transmission lines. This limits the effect on an output device, should a failure occur.

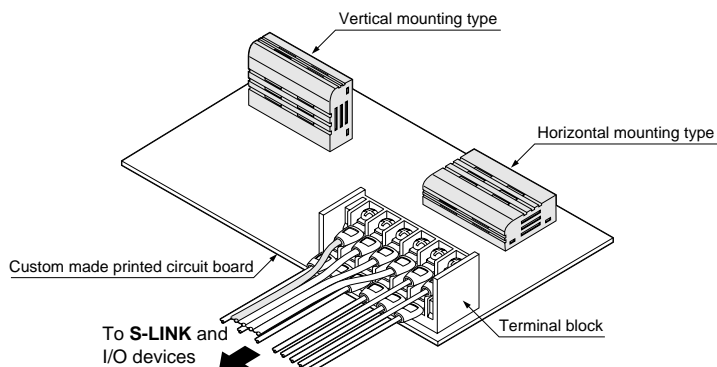
On-board I/O Module SL-M□, SL-MP□



• I/O interface for custom made PCB

These are IC type modules with external address setting switches and indicators. The modules are available as vertical mounting type and horizontal mounting type. Selection can be made depending upon the custom PCB design and the component space available.

Mounted PCB illustration



NEW

NEW

8 Channel Snap-connector I/O Unit SL-T8J, SL-T8J-PN, SL-TP8J, SL-TP8J-PN



• 8 input devices or 8 output devices are connectable

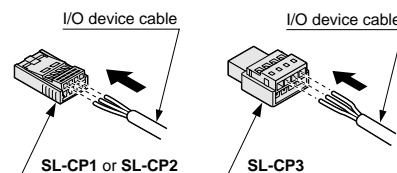
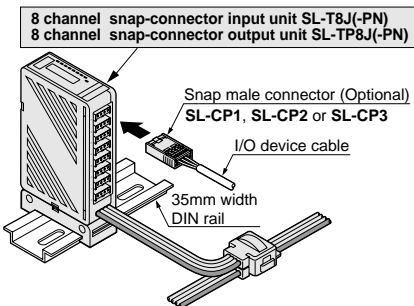
The slim and compact snap-connector I/O unit interfaces 8 input devices or 8 output devices with the S-LINK system. Its connections are very easy with the snap male connectors (optional).

• Output signal hold

The 8 channel snap-connector output unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission lines. This limits the effect on an output device, should a failure occur.

• Snap male connector

SL-CP1, for 0.08 to 0.2mm² conductors, **SL-CP2**, for 0.3mm² conductors, and **SL-CP3**, for 0.5mm² conductors, clamp the inner conductors of a cable, and establish conduction simply by pressing, so that there is no need to strip the wire insulation.



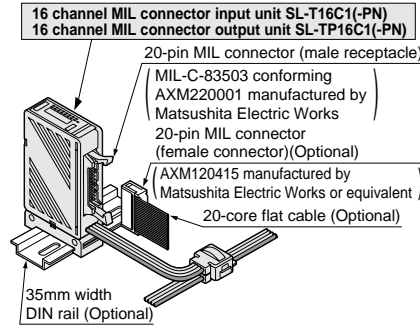
NEW

NEW

16 Channel MIL Connector I/O Unit SL-T16C1, SL-T16C1-PN, SL-TP16C1, SL-TP16C1-PN

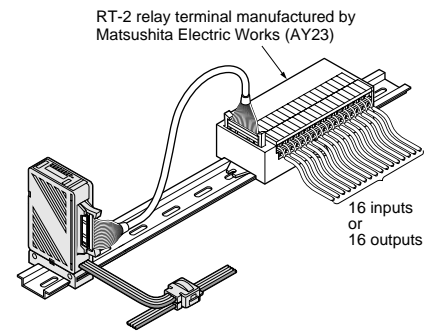


- **16 I/Os connectable via a MIL connector**
The slim and compact MIL connector I/O unit connects 16 input/output devices to the S-LINK system by a 20-pin MIL connector.



- **Output signal hold**
The 16 channel MIL connector output unit is incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission lines. This limits the effect on an output device, should a failure occur.

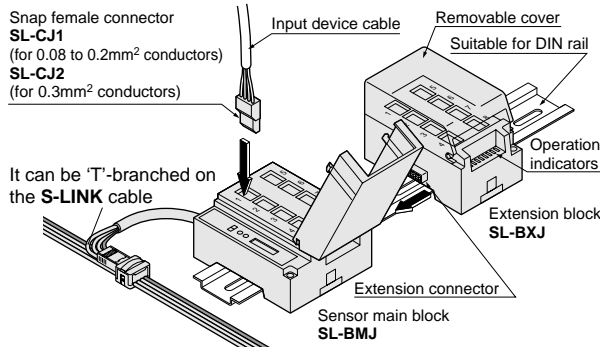
- **Matsushita Electric Works relay terminals are connectable with MIL connector cables (SL-T□16C1 only)**
RT2 relay terminal (AY23), PC relay terminal (AY11)/PC terminal (AY10), or CT-2 connector terminal (AYC) manufactured by Matsushita Electric Works are directly connectable via a MIL connector cable as the pin arrangements match.



Snap-connector Sensor Block SL-BMJ, SL-BXJ

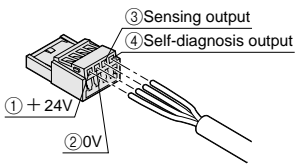
- **Max. 16 input devices are connectable**

The snap-connector sensor block (main or extension) interfaces maximum 16 input devices, such as, sensors or switches, to the S-LINK system. Their connections are very easy with the snap female connectors (optional).



- **Snap female connector**

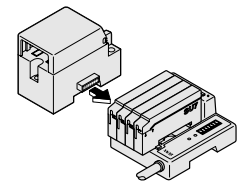
SL-CJ1, for 0.08 to 0.2mm² conductors, and **SL-CJ2**, for 0.3mm² conductors, clamp inner conductors of a cable, and establish conduction simply by pressing, so that there is no need to strip the wire insulation.



- **Combination with plug-in unit sensor blocks**

The snap-connector sensor block (main or extension) is combinable with the plug-in unit sensor block (main or extension).

(**SL-BMJ** can be followed by two **SL-BXs**.
SL-BM can be followed by one **SL-BXJ**.)



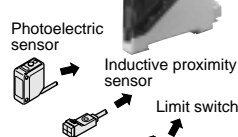
Plug-in Unit Sensor Block SL-BM, SL-BX

- **Plug-in units**

The following sensor units can be plugged in on the sensor block.

Plug-in units

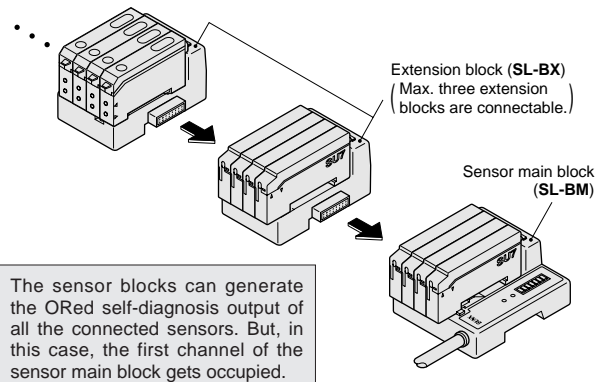
- Fiber sensor
- Digital setting (Note1) **FX-D1J** (Red LED)
- Auto-setting **FX-A1J** (Red LED) **FX-A1GJ** (Green LED)
- Manual setting **FX-M1J** (Red LED) **FX-M1GJ** (Green LED)
- Amplifier-separated photoelectric sensor **SU-7J**
- Input terminal unit (Note 2) **SL-TJ1**



Various input devices are connectable

- **Max. 16 sensors are connectable**

One plug-in unit sensor main block can be followed by max. three extension blocks, so that max. 16 plug-in units are connectable.

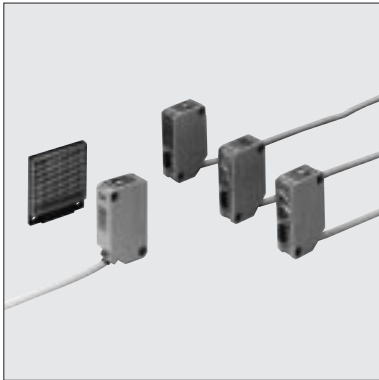


Notes: 1) In case the digital setting fiber sensor **FX-D1J** is connected to the plug-in unit sensor block, Output 2 cannot be used.
2) PNP output type sensor cannot be connected to input terminal unit **SL-TJ1**.

S-LINK

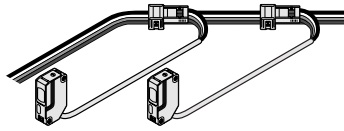
I/O Unit Selectable According to the Application

S-LINK Direct Hook-up Photoelectric Sensor SL-A□



• **Direct hook-up to S-LINK cable**

The sensor **SL-A□** can be hooked up to the **S-LINK** cable without any interface.



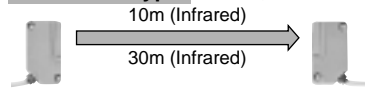
• **No interference**

A total of 128 sensors can be connected in one **S-LINK** system without any interference.

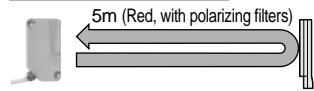
Note: If sensors are mounted next to each other, their addresses should be separated by 4, or more.

• **All four types are available**

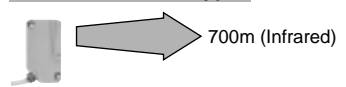
Thru-beam type SL-A11, SL-A13



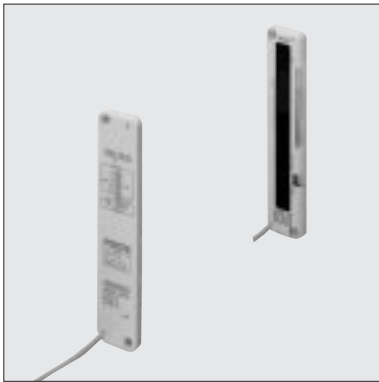
Retroreflective type SL-A19



Diffuse reflective type SL-A12



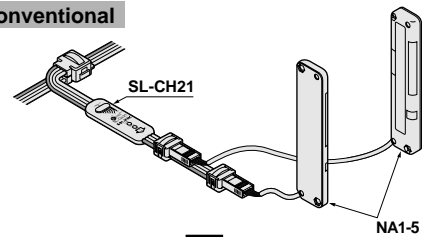
S-LINK Direct Hook-up Area Sensor SL-N15



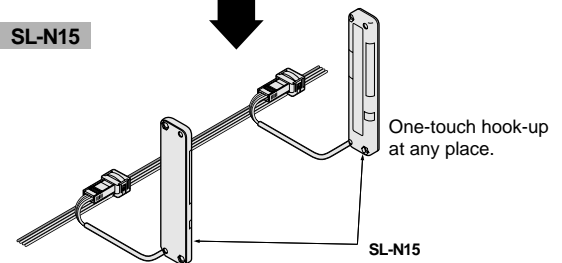
• **Direct hook-up to S-LINK cable**

The area sensor **SL-N15** can be hooked up to the **S-LINK** cable without any interface. Conventionally, **NA1-5** has been interfaced by **SL-CH21** with three branch points, but **SL-N15** allows you to hook up the emitter and the receiver to the **S-LINK** cable, without any interface.

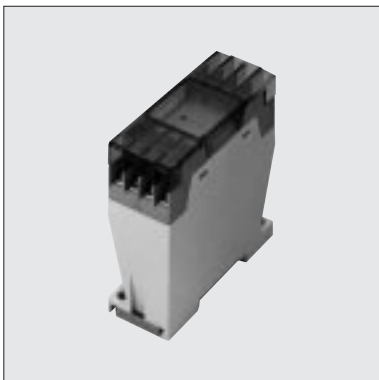
Conventional



SL-N15



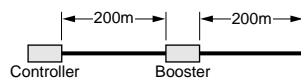
Booster SL-BS1A



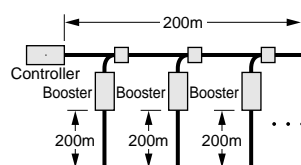
• **Cable extension to total 400m**

The booster extends the **S-LINK** cable by 200m, to a total 400m length. Loop wiring is also possible beyond the booster.

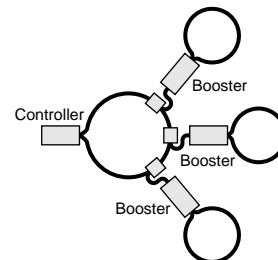
① **Total 400m in series**



② **200m extension from a branch point**



③ **Satellite loops around main loop**



Notes: 1) Cable extension may not be possible depending on the type and number of I/O devices connected.
2) 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.

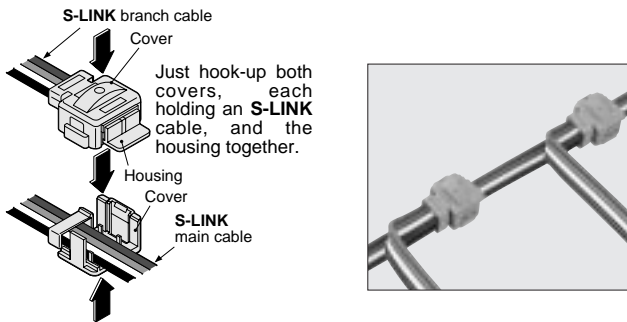
Simple Construction

NEW

S-LINK Hook-up Connector SL-J1A, SL-JK, SL-JK1, SL-J3A, SL-JE, SL-JE-RC

• Simple hook-up

No need to connect a cable on a terminal with screws. Wire insulation stripping, and crimp contact fitting have been inevitable until the **S-LINK** hook-up connector was introduced. Using the hook-up connector saves your time and space, and enables a flexible cable layout.

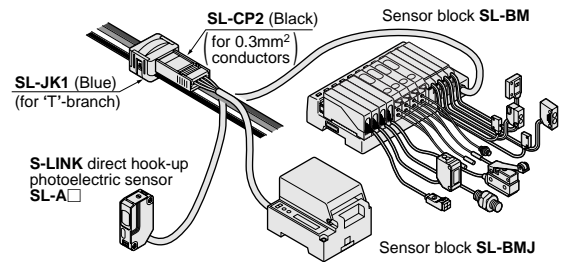


※ Use exclusive **S-LINK** cables.

• Socket-branch hook-up connector SL-JK and SL-JK1

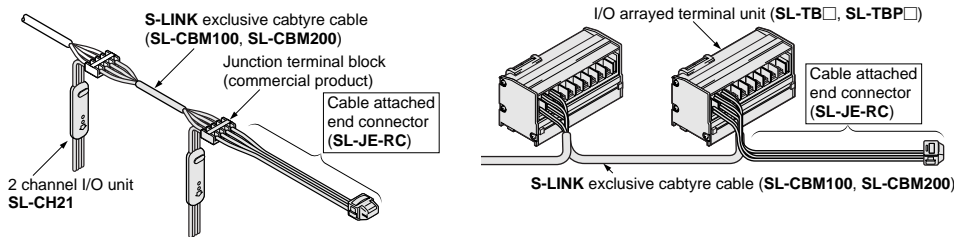
By connecting the socket-branch hook-up connector **SL-JK** and **SL-JK1** to the **S-LINK** cable and using the snap male connector **SL-CP**, **S-LINK** devices can be connected very easily. They can also be disconnected easily when required.

Illustration of connected S-LINK devices



• Cable end connector optimum for cable termination available

When cabtyre cable is used as the main cable, the end connector can be easily connected.



NEW NEW

NEW NEW NEW

NEW NEW

Snap Connector SL-CJ1, SL-CJ2, SL-CJ12, SL-CJ22, SL-CP1, SL-CP2, SL-CP3, SL-CP12, SL-CP22

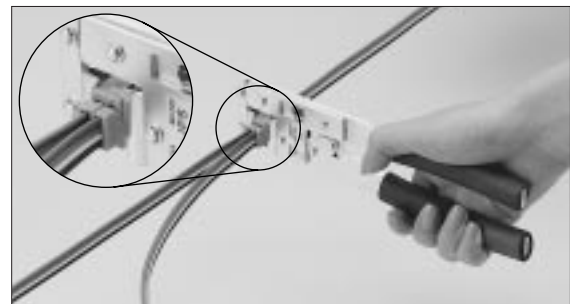
• Wire clamping in a snap

SL-CJ1, for 0.08 to 0.2mm² conductors, and **SL-CJ2**, for 0.3mm² conductors, are used with **SL-BMJ** or **SL-BXJ**. **SL-CP1**, for 0.08 to 0.2mm² conductors, **SL-CP2**, for 0.3mm² conductors, and **SL-CP3**, for 0.5mm² conductors, are used with **SL-T8J(-PN)** or **SL-TP8J(-PN)** I/O unit and **SL-JK** or **SL-JK1** hook-up connector. Further, if **SL-CP3** is used, **S-LINK** I/O devices can be easily connected/disconnected from the main/branch cable. Moreover, 2-pin type hook-up female connectors **SL-CJ12** (for 0.08 to 0.2mm²), **SL-CJ22** (for 0.3mm²) and 2-pin type hook-up male connectors **SL-CP12** (for 0.08 to 0.2mm²), **SL-CP22** (for 0.3mm²) are also available for extension of 2-wire I/O devices. Wire clamping is easy. Just insert wires of the cable into the specified holes of the connector and press. There is no need to strip the wire insulation.

S-LINK Exclusive Pliers SL-JPS, SL-JPD, SL-JPE, SL-JPC

• Fastening of hook-up connector is simple and reliable

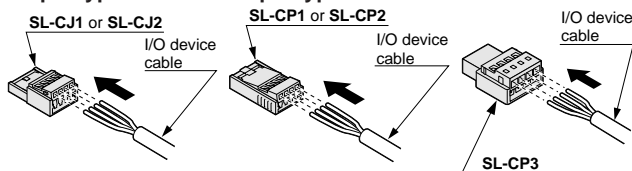
The **S-LINK** exclusive pliers make wiring with hook-up connectors simple and reliable. The spring slide-back mechanism improves the productivity. Ratchet mechanism type **SL-JPD** is also available.



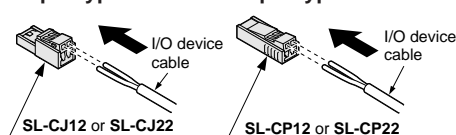
Snap female connector

Snap male connector

<4-pin type>



<2-pin type>



S-LINK

Simple Construction

NEW

Water-resistant Connector SL-WP4, SL-WP5, SL-WP6, SL-WP8, SL-WJ8, SL-WY, SL-WE

• Easy wiring with exclusive water-resistant connector

M12 composite 4-pin connectors having IP67 protection are available for connection of the main cable, branch cables or I/O devices.

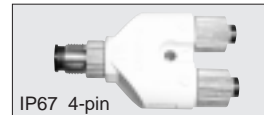
Troublesome soldering is absolutely not required, and cables of I/O devices can be connected simply by a screwdriver. Four types of composite male connectors are available to suit the cable diameter of different I/O devices.

Further, a branch connector which can not only branch the main cable easily, but can also connect a set of emitter/receiver of a thru-beam type photoelectric sensor (1 set) as 1 input channel, is available.

• Branching of main/branch cable possible

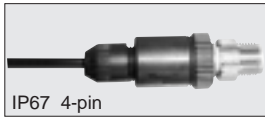
A branch connector which can be used to branch the main/branch cable is available. Moreover, it can connect a set of emitter/receiver of a thru-beam type photoelectric sensor as 1 channel.

<Branch connector>



SL-WY

<Composite male connector>



SL-WP4: Suitable cable diameter
 $\phi 3$ to $\phi 4$ mm

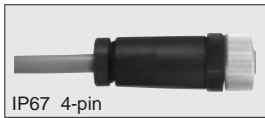
SL-WP5: Suitable cable diameter
 $\phi 4$ to $\phi 5$ mm

SL-WP6: Suitable cable diameter
 $\phi 5$ to $\phi 6$ mm



SL-WP8: Suitable cable diameter
 $\phi 6$ to $\phi 8$ mm

<Composite female connector>



SL-WJ8: Suitable cable diameter
 $\phi 6$ to $\phi 8$ mm

• Environment resistant end connector available

It is used when the environment resistant I/O unit **SL-TW** is connected at the end of the main cable.

<Environment resistant end connector>



SL-WE

Handy Monitor SL-HM1

• Easy input/output check

A handy monitor which can check I/O devices is available. The handy monitor can be hooked up to the **S-LINK** signal transmission lines at any place. I/O states can be checked in batches of 16. The handy monitor is also incorporated with the **S-LINK** controller 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: Although **SL-HM1** incorporates the functions of the **SL-CU1A** controller, PLC I/O connectors cannot be connected.

S-LINK Family Products: Launched One After Another

Controllers Suitable for S-LINK

• **Controllers for S-LINK released by other companies!!**

Matsushita Electric Works, Mitsubishi Electric Corp., and Toyoda Machine Works have released controllers incorporating **S-LINK** controller functions so that the **S-LINK** system can be controlled without a separate **S-LINK** controller.



Please contact Matsushita Electric Works, Mitsubishi Electric Corp., and Toyoda Machine Works for details.

• **FP0-SL1 manufactured by Matsushita Electric Works**

Extremely small, large cost reduction

The CPU unit of the PLC (programmable logic controller), I/O module, PLC I/O connector and the **S-LINK** controller functions are incorporated in an extremely small body of W30×H90×D60mm. The space required is greatly reduced and compactness can be achieved. Further, large cost reduction can also be realized.

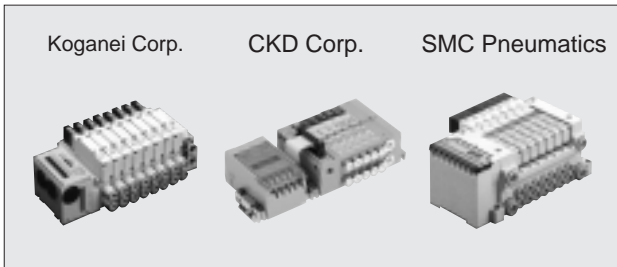
No. of control points: S-LINK 128 points + Normal wiring 96 points

On the **S-LINK** side 64 inputs and 64 outputs (fixed), a total of 128 points can be controlled and, by adding 3 Nos. of I/O modules, a max. of 96 points can be controlled by normal wiring.

Manifold Electromagnetic Valves Suitable for S-LINK

• **'T'-branch connection manifold electromagnetic valves**

Manifold electromagnetic valves capable of direct 'T'-branch connection to the **S-LINK** cable are available from Koganei Corp., SMC Pneumatics and CKD Corp.



Please contact Koganei Corp. (Humphry Products Company in U.S.A. and Canada), SMC Pneumatics or CKD Corp. for details.

Limit Switches Suitable for S-LINK

• **Direct connection of limit switches to S-LINK system!!**


Limit switches which can be directly connected to the **S-LINK** system transmission line by 'T'-branch connection are available from Matsushita Electric Works.



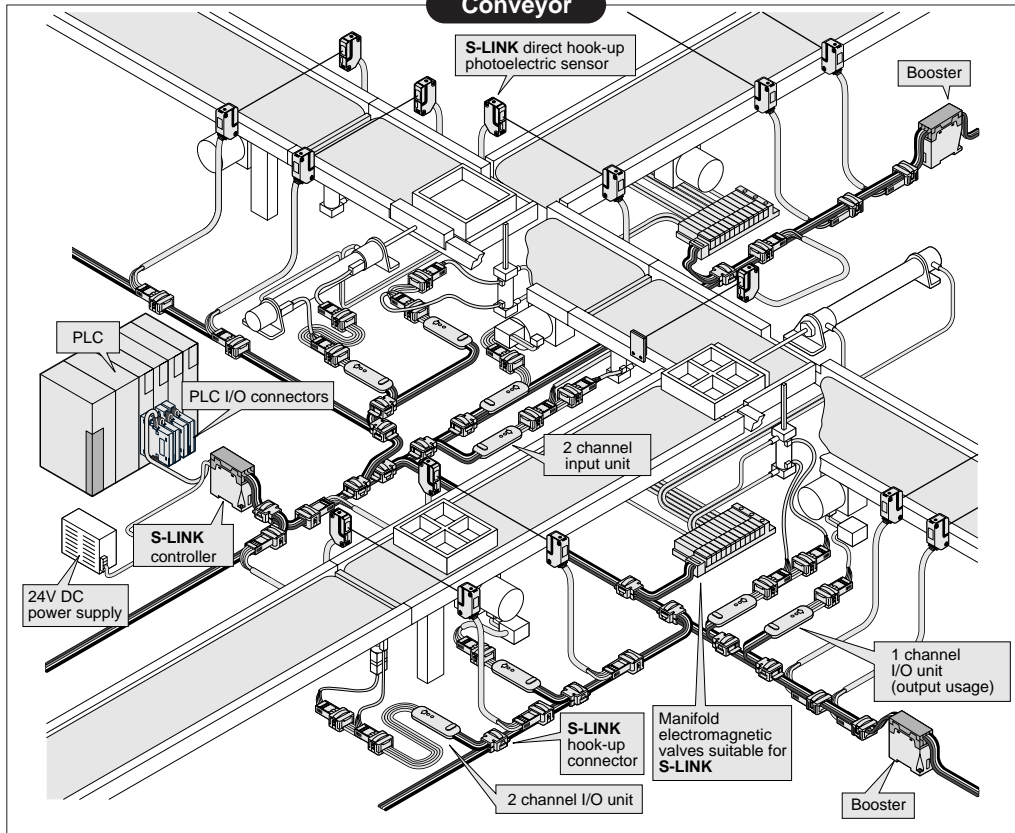
Please contact Matsushita Electric Works for details.

S-LINK

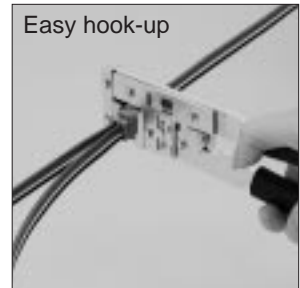
APPLICATIONS

 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.

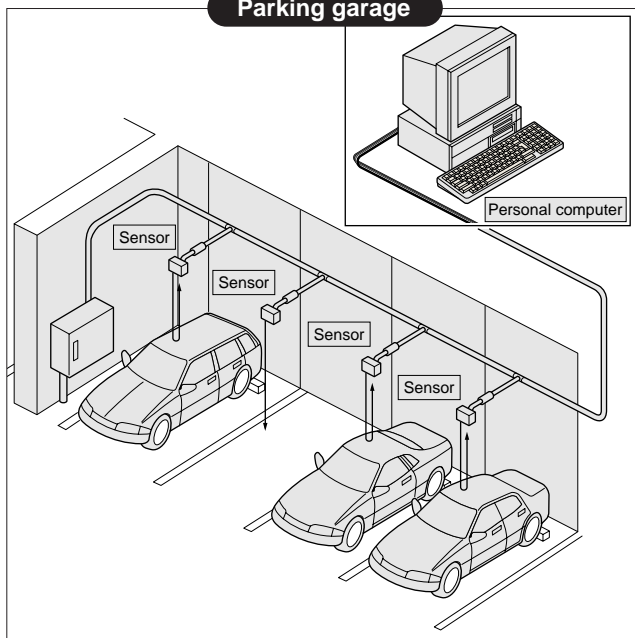
Distributed Installation



In a product transportation equipment, there are many input and output devices spread over various places. Although wire-saving has always been desired to reduce the cost and shorten the time of installation, long distance transmission and product reliability are essential. **S-LINK** allows a cable length of 200m, normally, and 400m along with a booster. The double code collation check plus high noise immunity enable signal transmission reliability. Furthermore, the **S-LINK** tree wiring architecture enables you to branch off sub-trunk lines or branch lines and hook-up input and output devices, anywhere you like. Test and installation block-by-block, and layout change after installation are quite simple jobs.

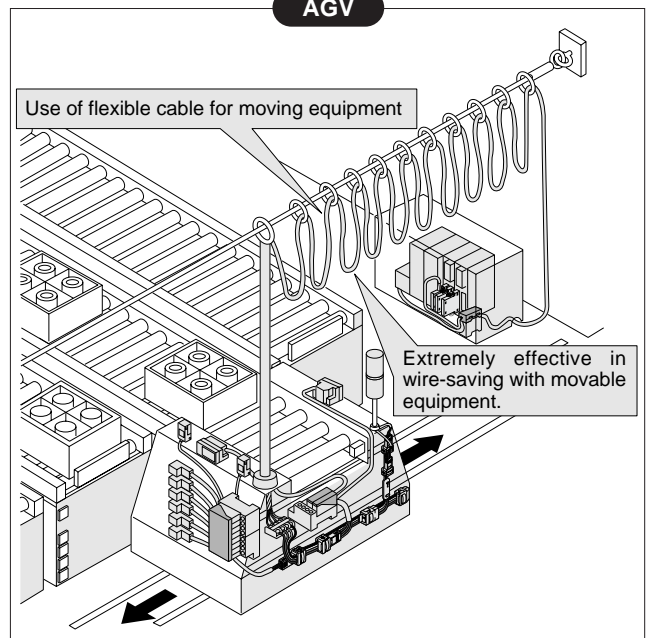


Parking garage



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

AGV

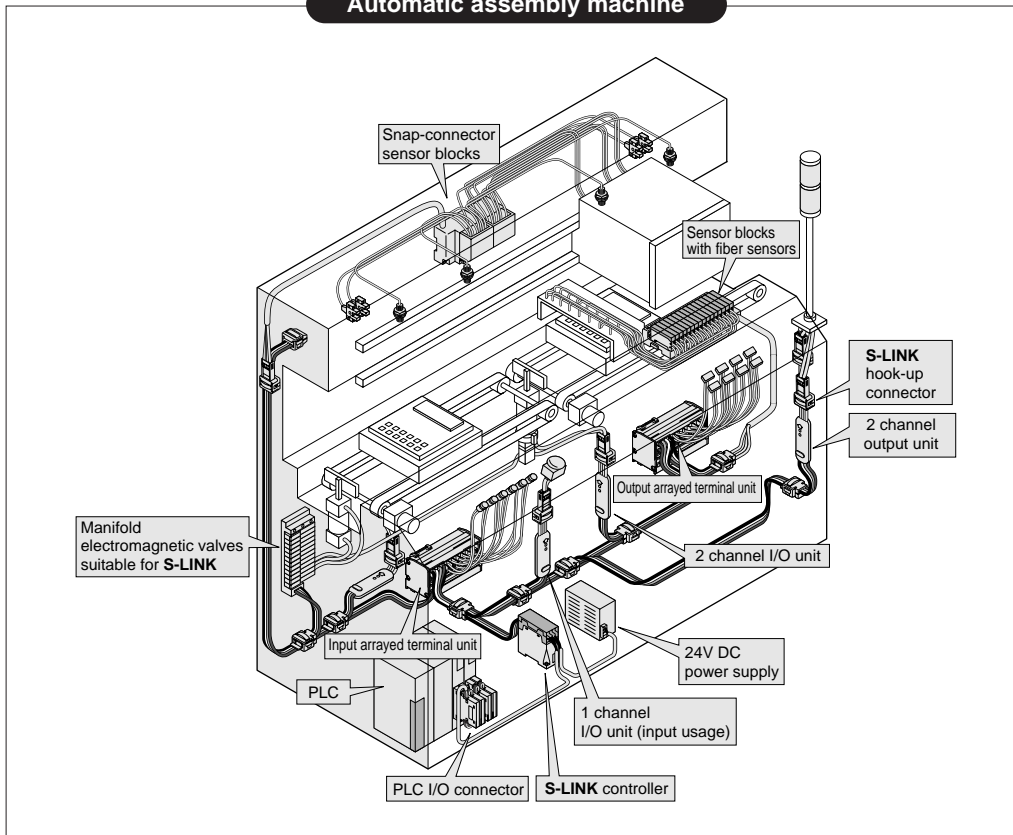


The signal transmission to AGV from a stationary controller has been very difficult. As the **S-LINK** system allows use of commercial cables in the system, the AGV equipped with the sensors and actuators can be linked with the stationary controller via one flexible cable. Besides, the **S-LINK** alarm capability, that generates an error output for a cable break, enables quick repair and ensures the system reliability.

APPLICATIONS

Integrated Installation

Automatic assembly machine

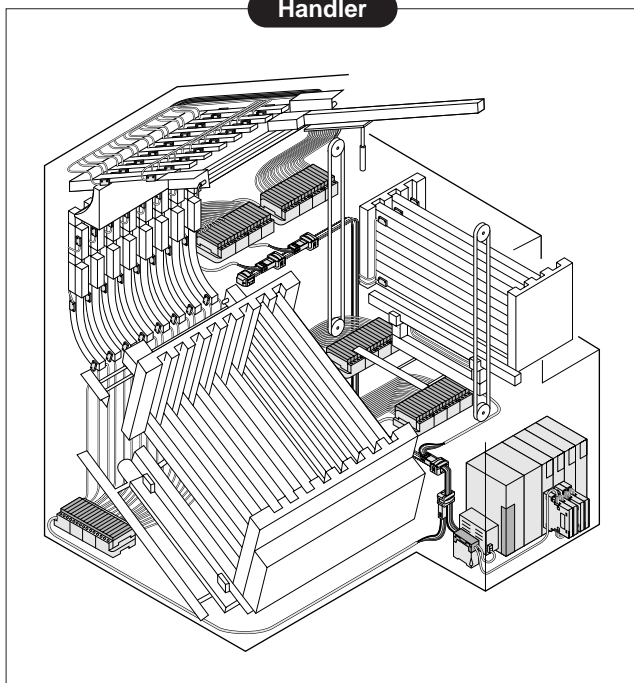


In an automatic assembly machine, there are many input and output devices distributed in various tight spaces. As the machine becomes more complex, the task of reducing the cable volume becomes more difficult. Wire-saving is the primary requirement, but reliability of signal transmission is also indispensable. 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.

Plug-in connection

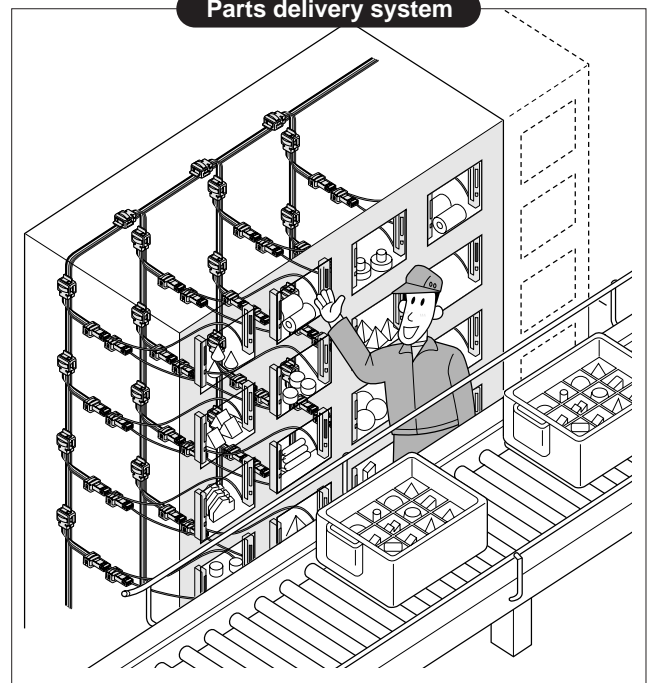


Handler



An IC handler uses many sensors. The **S-LINK** system contributes in reducing wires in order to miniaturize the machine.

Parts delivery system



In a parts-taking verification system, the parts shelves are equipped with a number of area sensors at the front. 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 area sensors with effective space and wire saving.

S-LINK

S-LINK SYSTEM CONFIGURATION EXAMPLE

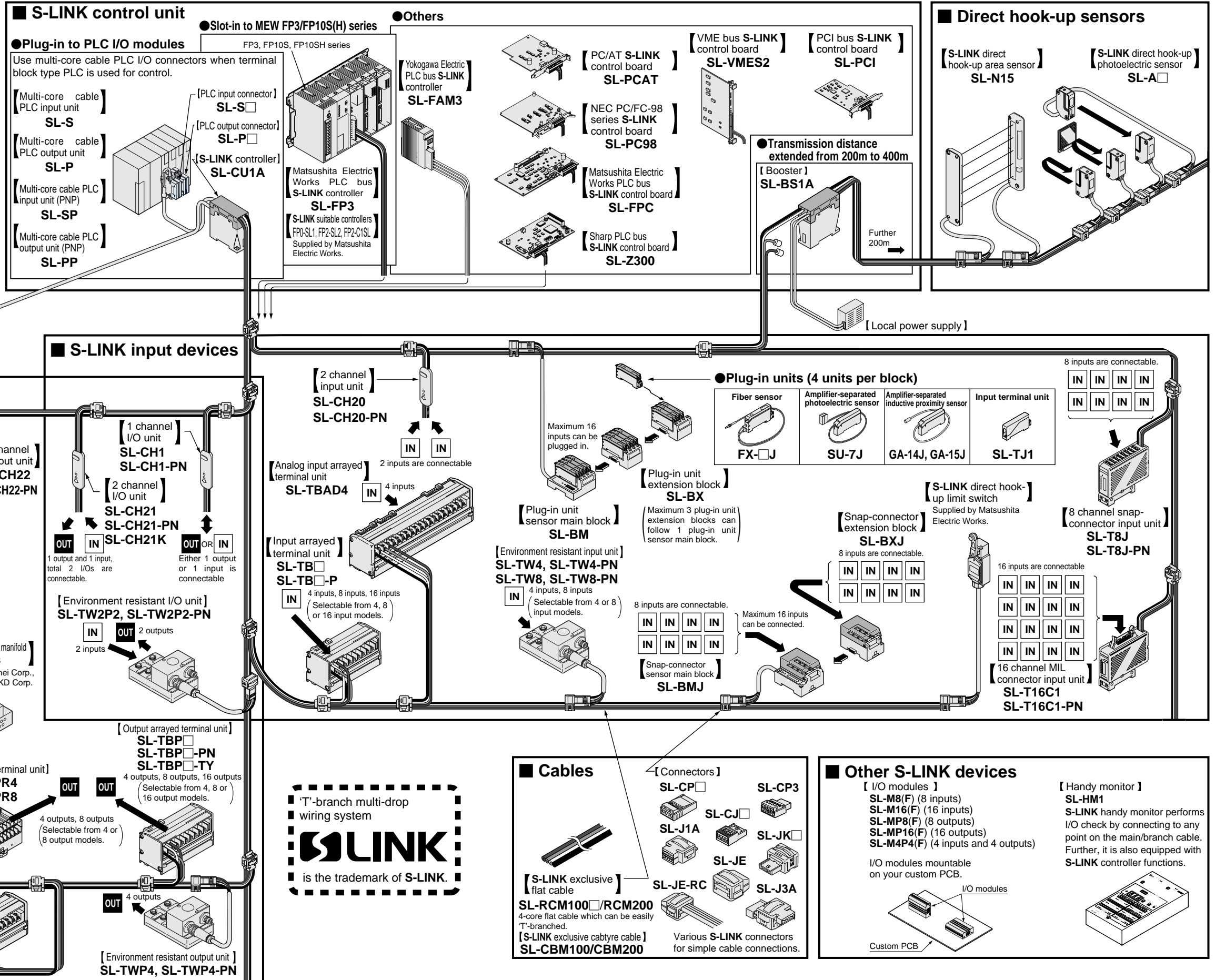
S-LINK is a wire-saving system which allows connection to max. 128 I/O devices by using one controller.

IN Indicates an input device (Limit switch, photoelectric sensor, inductive proximity sensor, push-button switch, cylinder switch, etc.)

OUT Indicates an output device (Lamp, buzzer, relay, electro-magnetic valve, solenoid, etc.)

The number of **IN** and **OUT** shows the number of connections that can be made to that device.

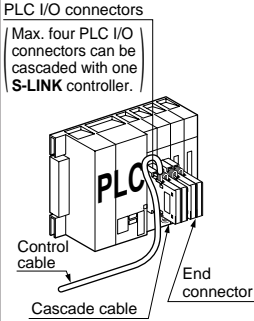




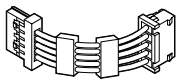
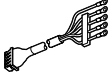
Note: Please refer to P. 30, 31 for products compatible with fieldbus networks



S-LINK

ORDER GUIDE

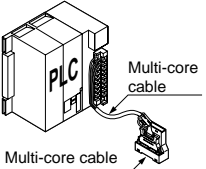

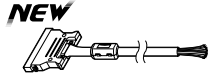
PLC related units

Designation	Appearance (Note1)	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) PLC I/O connectors Max. four PLC I/O connectors can be cascaded with one S-LINK controller. 	  Fujitsu connector specs. MIL connector specs. PLC input connectors PLC output connectors (same shape)  The listed PLC I/O modules (NPN only) 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)	SL-S1	SL-P1	Matsushita Electric Works Toshiba Machine Co.	FP3, FP10S FP10SH TC200	AFP33027 TC64DI	AFP33487 TC64DON		
		SL-S2	SL-P2	Fuji Electric Co.	NS series F55 F70	NS-X64-1 NS-XY64-1 (X side) NV1X3204 NV1X3204-W NV1X3206 NC1X3204 NC1X3204-3 NC1X3206 NC1X6404 NC1X6406 NC1W6406T(X side)	NS-Y64-T1 NS-XY64-1 (Y side) NV1Y32T05P1 NC1Y32T05P1 NC1Y64T05P1-1 NC1W6406T(Y side)		
		SL-S3	SL-P3	Mitsubishi Electric Corp.	AnS AnN, AnA, AnU QnA, QnAs A2CJ	A1SX41 A1SX42 A1SH42 (X side) AX42 AH42 (X side) AJ35TC1-32D	A1SY41 A1SY42 A1SH42 (Y side) AY42 AH42 (Y side) AJ35TC1-32T		
		SL-S4	SL-P4	Sharp Corp.	JW20, JW20H JW30H JW50H	JW-234N JW-264N JW-34NC JW-64NC	JW-232S JW-262S JW-32SC JW-62SC		
		SL-S5	SL-P5	Omron Corp.	CVM1, CV, C500 C1000H, C2000H C200H series CQM1	C500-ID219 C200H-ID216 C200H-ID217 CQM1-ID213	C500-OD213 C200H-OD218 C200H-OD219 CQM1-OD213		
		SL-S5	SL-P5	Yokogawa Electric Corp.	FA500 FA-M3	XD64-6N WD64-6N (X side) F3XD32-3N F3XD64-3N	YD64-1A WD64-6N (Y side) F3YD32-1A F3YD64-1A		
		SL-S5	SL-P5	Toshiba Corp.	T3	DI-335 DI-335H	DO-335		
		SL-S5	SL-P5	Yasukawa Electric Corp.	GL20, GL40S, GL60S GL60H, GL70H	—————	B2604		
		SL-S6	SL-P6	Hitachi	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: 70mm		It links two PLC I/O connectors.		
				SL-F150	Length: 150mm				
				SL-F250	Length: 250mm				
				SL-F1000	Length: 1,000mm				
Control cable		SL-C1000	Length: 1m		It links the S-LINK controller and the first PLC I/O connector.				
		SL-C2000	Length: 2m						
		SL-C5000	Length: 5m						
		NEW SL-C2000F	Length: 2m						

- 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-P1**, **SL-S6** 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.



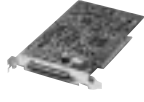
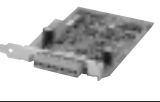





ORDER GUIDE

PLC related units

Designation		Appearance (Note)		Model No.		Description
				For input	For output	
Multi-core cable PLC I/O unit	NPN type			SL-S	SL-P	The multi-core cable PLC I/O unit, connectable with any type of screw-on terminal type PLC I/O module via the multi-core cable, 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: 2m	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.

Note: 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**.

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.
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. (By using this control board, the SL-CU1A controller, the PLC I/O connectors, and their link cables are not required.)
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. (By using this control board, the SL-CU1A controller, the PLC I/O connectors, and their link cables are not required.)
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. (By using this control board, the SL-CU1A controller, the PLC I/O connectors, and their link cables are not required.)
NEC PC/FC-98 series S-LINK control board		SL-PC98	It can be fitted into the expansion slot (C bus) of NEC PC/FC-98 series to control the S-LINK system. (By using this control board, the SL-CU1A controller, the PLC I/O connectors, and their link cables are not required.)
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 to control the S-LINK system. (By using this controller, not only the SL-CU1A controller, the PLC I/O connectors, and their link cables, but also the PLC I/O modules are not required.)
Yokogawa Electric PLC bus S-LINK master unit		SL-FAM3	It can be directly connected to the bus line of the FA-M3 PLC manufactured by Yokogawa Electric to control the S-LINK system. (By using this master unit, not only the SL-CU1A controller, the PLC I/O connectors, and their link cables, but also the PLC I/O modules are not required.)
Matsushita Electric Works PLC bus S-LINK control board		SL-FPC	It can be directly connected to the bus line of the FP-C PLC manufactured by Matsushita Electric Works to control the S-LINK system. (By using this control board, not only the SL-CU1A controller, the PLC I/O connectors, and their link cables, but also the PLC I/O modules are not required.)
Sharp PLC bus S-LINK control board		SL-Z300	It can be directly connected to the bus line of the J-board Z-300 series PLC manufactured by Sharp to control the S-LINK system. (By using this control board, not only the SL-CU1A controller, the PLC I/O connectors, and their link cables, but also the PLC I/O modules are not required.)

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

S-LINK


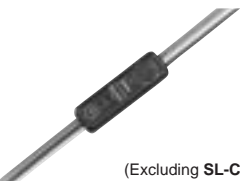




ORDER GUIDE

Products for fieldbus network

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

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



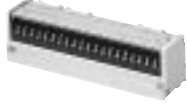




S-LINK I/O devices

Designation	Appearance (Note)	Model No.	Description
1 channel I/O unit	 CE	SL-CH1	NPN type
		SL-CH1-PN	PNP type
2 channel I/O unit	 CE (Excluding SL-CH21K)	SL-CH21	NPN type
		SL-CH21-PN	PNP type
		NEW SL-CH21K	Photocoupler isolation (NPN) type
2 channel input unit	 CE	SL-CH20	NPN type
		SL-CH20-PN	PNP type
2 channel output unit	 CE	SL-CH22	NPN type
		NEW SL-CH22-PN	PNP type
Connector I/O unit	 CE	SL-T8J	NPN type
		NEW SL-T8J-PN	PNP type
		SL-TP8J	NPN type
		NEW SL-TP8J-PN	PNP type
16 channel MIL connector input unit	 CE	SL-T16C1	NPN type
		NEW SL-T16C1-PN	PNP type
		SL-TP16C1	NPN type
16 channel MIL connector output unit		NEW SL-TP16C1-PN	PNP type

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

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S-LINK I/O devices

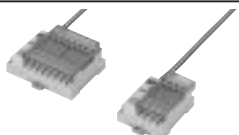








Designation		Appearance (Note)	Model No.	Description	
I/O arrayed terminal unit	Input terminal		SL-TB4	4 NPN inputs	They are screw-on terminal units to which 4, 8 or 16 input devices are connectable. Since power supply terminals have been provided for each input channel, neat wiring is possible.
			SL-TB4-PN	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	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-TBP16-PN	16 PNP outputs	
			SL-TBP4-TY	4 NPN outputs	
Separate load power supply type		SL-TBP8-TY	8 NPN outputs		
		SL-TBP16-TY	16 NPN outputs		
Analog I/O arrayed terminal unit	Input terminal	NEW 	SL-TBAD4	4 inputs	This is an analog input terminal unit which can connect 4 devices having an analog output.
	Output terminal	NEW 	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.
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 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.
			SL-TW2P2-PN	2 PNP inputs and 2 PNP outputs	They are incorporated with an output signal hold function, which retains the output state just prior to an error on the signal transmission line.
	Output unit		SL-TWP4	4 NPN outputs	These can connect 4 output devices. They feature IP67 (IEC 60529) protection, which can withstand water splashes.
SL-TWP4-PN			4 PNP outputs	They are 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.

S-LINK

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S-LINK I/O devices

Designation		Appearance (Note 1)	Model No.	Description	
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)	
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. One SL-BMJ can be extended by one SL-BXJ or two SL-BXs , 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		SL-BM	It allows connection of various kinds of plug-in units of fiber sensors, amplifier-separated photoelectric sensors, amplifier-separated inductive proximity sensors and input terminal units. One SL-BM can be extended by three SL-BXs 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		SL-BX	It can follow either main block, and allows connection of four plug-in units.	
Plug-in unit	Digital setting fiber sensor (Note 3)		FX-D1J	Red LED	Its thickness is merely 10mm. The incident light intensity and the threshold value can be seen at a glance from the backlit LCD. Further, threshold value setting is simple by using the industry's first jog switch. (For details, refer to P.64~ for the FX-D1 series.)
	Auto-setting fiber sensor		FX-A1J	Red LED	Its thickness is merely 10mm. The sensitivity setting is simple by using the industry's first jog switch. Level indicators, comprising of 10 LEDs, which enable confirmation of the set sensitivity at a glance, have been incorporated. (For details, refer to P.64~ for the FX-A1 series.)
	Manual setting fiber sensor		FX-A1GJ	Green LED	
				FX-M1J	Red LED
	FX-M1GJ			Green LED	
Amplifier-separated photoelectric sensor		SU-7J	Its thickness is merely 10mm. The sensitivity is automatically set with ease. 12 kinds of sensor heads are suitable with it. (For details, refer to P.350~ for the SU-7 series.)		
Amplifier-separated inductive proximity sensor	One-touch clamping type		GA-14J	Its thickness is merely 10mm. 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 or less. (For details, refer to P.686~ for the GA-10 series.)	
	Screw tightening type		GA-15J		
Input terminal unit		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.		

Notes: 1) Components with 'CE' mark conform to the CE marking EMC Directive.

2) Relay output is 'Contact a' only. Further, when replacing the relay, use PA relay (APA 3312) made by Matsushita Electric Works.

3) Output 2 cannot be used when connection is made to the plug-in unit sensor block.

ORDER GUIDE

S-LINK I/O devices




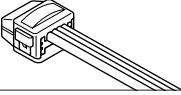







Designation		Appearance	Model No.	Description	
S-LINK direct hook-up photoelectric sensor	<p>Retroreflective type with polarizing filters</p> <p>Thru-beam type Diffuse reflective type</p>		SL-A11	Thru-beam type 10m	
			SL-A13	Thru-beam type 30m	
			SL-A19	Retroreflective type with polarizing filters 0.1 to 5m	
			SL-A12	Diffuse reflective type 700mm	
S-LINK direct hook-up area sensor			SL-N15	Sensing range: 0.2 to 3m (0.05 to 1m when the switch is set to SHORT) • Beam pitch: 25mm • Sensing height: 100mm • Sensing object: ϕ 35mm or more opaque object	
I/O module	Vertical type		SL-M8	8 inputs	These are IC type modules which enable external connection of address setting switches and operation indicators. They increase the design flexibility.
			SL-M16	16 inputs	
			SL-M4P4	4 inputs and 4 outputs	
			SL-MP8	8 outputs	
	Horizontal type		SL-MP16	16 outputs	
			SL-M8F	8 inputs	
			SL-M16F	16 inputs	
			SL-M4P4F	4 inputs and 4 outputs	
Output module		SL-MP8F	8 outputs		
		SL-MP16F	16 outputs		

Simple Wiring
SL-BMW/BW

T⁺-branch Multi-drop
S-LINK

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Connectors

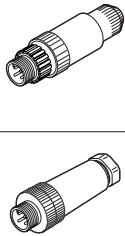
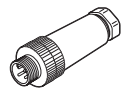
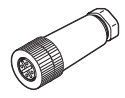
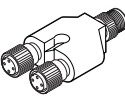
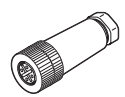
Designation	Appearance	Model No.	Description	
Hook-up connector		SL-J1A (Gray) (1 set: 10 Nos.)	It creates a 'T'-branch connection between two S-LINK exclusive flat cables. For 0.5mm ² flat cable to 0.5mm ² flat cable connection	
Cable extension hook-up connector		SL-J3A (Black) (1 set: 10 Nos.)	It can extend the S-LINK exclusive flat cable. For 0.5mm ² flat cable to 0.5mm ² flat cable connection	
End hook-up connector		SL-JE (Gray) (1 set: 5 Nos.)	It must be connected at the end of the main cable. For 0.5mm ² flat cable	
Cable attached end connector	NEW 	SL-JE-RC (Gray) (1 set: 1 No.)	When cabtyre cable is used as the main cable, the end connector can be easily connected.	
Cable end socket-branch hook-up connector		SL-JK (Light blue) (1 set: 10 Nos.)	It enables one I/O device to be connected at the S-LINK exclusive flat cable end with the snap male connector SL-CP1 , SL-CP2 or SL-CP3 . For 0.5mm ² flat cable	
Socket-branch hook-up connector		SL-JK1 (Blue) (1 set: 10 Nos.)	It enables one I/O device to be branched off in the middle of the S-LINK exclusive flat cable with the snap male connector SL-CP1 , SL-CP2 or SL-CP3 . For 0.5mm ² flat cable	
4-pin type snap female connector		SL-CJ1 (White) (1 set: 10 Nos.)	For 0.08 to 0.2mm ² Wire dia.: $\phi 0.7$ to $\phi 1.2$ mm	It can be plugged into the socket of SL-BMJ or SL-BXJ to connect an input device, or into the snap male connector SL-CP1 , SL-CP2 or SL-CP3 to extend the cable length.
		SL-CJ2 (Black) (1 set: 10 Nos.)	For 0.3mm ² Wire dia.: $\phi 1.1$ to $\phi 1.6$ mm	
2-pin type snap female connector	NEW 	SL-CJ12 (White) (1 set: 10 Nos.)	For 0.08 to 0.2mm ² Wire dia.: $\phi 0.7$ to $\phi 1.2$ mm	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) (1 set: 10 Nos.)	For 0.3mm ² Wire dia.: $\phi 1.1$ to $\phi 1.6$ mm	
4-pin type snap male connector	 NEW 	SL-CP1 (White) (1 set: 10 Nos.)	For 0.08 to 0.2 mm ² Wire dia.: $\phi 0.7$ to $\phi 1.2$ mm	It can be plugged into the socket of SL-T8J or SL-TP8J to connect an I/O device, or into the socket-branch hook-up connector SL-JK or SL-JK1 to connect an S-LINK direct hook-up sensor. Using SL-CP3 , S-LINK I/O devices (with 0.5mm ² cable) can be easily connected/ disconnected from the main/branch cable.
		SL-CP2 (Black) (1 set: 10 Nos.)	For 0.3mm ² Wire dia.: $\phi 1.1$ to $\phi 1.6$ mm	
2-pin type snap male connector	NEW 	SL-CP12 (White) (1 set: 10 Nos.)	For 0.08 to 0.2mm ² Wire dia.: $\phi 0.7$ to $\phi 1.2$ mm	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) (1 set: 10 Nos.)	For 0.3mm ² Wire dia.: $\phi 1.1$ to $\phi 1.6$ mm	

NOTE

The connectors are supplied in sets of 10 Nos. (**SL-JE**: 5 Nos., **SL-JE-RC**: 1 No.)
Please order in units of 10 Nos. (**SL-JE**: 5 Nos., **SL-JE-RC**: 1 No.)
(e.g.) In case 30 Nos. of **SL-J1A** are required, order **SL-J1A** × 3 (sets).

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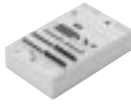
Connectors

Designation	Appearance	Model No.	Description
Water resistant connector	<p>NEW</p> 	<p>SL-WP4 (1 set: 10 Nos.)</p> <p>For 0.18 to 0.75mm² Wire dia.: φ3 to φ4mm</p>	<p>These are composite male connectors for connection of input or output devices to the environment resistant I/O unit SL-TW□, and for connection to the branch connector SL-WY or the composite female connector SL-WJ8.</p>
		<p>SL-WP5 (1 set: 10 Nos.)</p> <p>For 0.18 to 0.75mm² Wire dia.: φ4 to φ5mm</p>	
		<p>SL-WP6 (1 set: 10 Nos.)</p> <p>For 0.18 to 0.75mm² Wire dia.: φ5 to φ6mm</p>	
	<p>NEW</p> 	<p>SL-WP8 (1 set: 10 Nos.)</p> <p>For 0.3 to 0.75mm² Wire dia.: φ6 to φ8mm</p>	
	<p>NEW</p> 	<p>SL-WJ8 (1 set: 10 Nos.)</p> <p>For 0.3 to 0.75mm² Wire dia.: φ6 to φ8mm</p>	
Branch connector	<p>NEW</p> 	<p>SL-WY (1 set: 5 Nos.)</p> <p>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□.</p>	
Environment resistant end connector	<p>NEW</p> 	<p>SL-WE (1 set: 1 No.)</p> <p>It is connected when the environment resistant I/O unit SL-TW□ is used at the end of the main cable.</p>	

NOTE

The connectors are supplied in sets of 10 Nos. (**SL-WY**: 5 Nos., **SL-WE**: 1 No.)
Please order in units of 10 Nos. (**SL-WY**: 5 Nos., **SL-WE**: 1 No.)
(e.g.) In case 30 Nos. of **SL-WP4** are required, order **SL-WP4** × 3 (sets)

Optional units

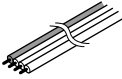
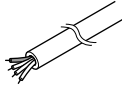
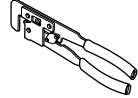
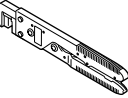
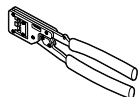
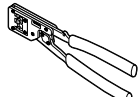



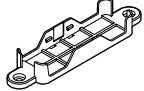
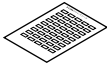
Designation	Appearance (Note)	Model No.	Description
Booster	 <p>CE</p>	SL-BS1A	It can extend the signal transmission distance by 200m. A maximum of seven boosters can be connected for one S-LINK control unit. However, one booster can never be followed by another booster in series.
Handy monitor		SL-HM1	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 'CE' mark conform to the CE marking EMC Directive.

S-LINK

ORDER GUIDE

Others

Designation	Appearance	Model No.	Description		
S-LINK exclusive flat cable		SL-RCM100	Length: 100m	D line: White	S-LINK exclusive flat cable (4-core) • Conductor cross-section area: 0.5mm ² • Outer diameter: ϕ 2.5mm \times 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: 200m		
S-LINK exclusive cabtyre cable		SL-CBM100	Length: 100m	S-LINK exclusive cabtyre cable (4-core) • Conductor cross-section area: 0.5mm ² • Outer diameter: ϕ 7.4mm	
		SL-CBM200	Length: 200m		
S-LINK exclusive pliers		SL-JPS	Hook-up connector (SL-J□) can be connected in one grip.		
S-LINK 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	NEW 	SL-JPE	Snap male connector (SL-CP3) can be connected in one grip.		
SL-CJ1/2/12/22 and SL-CP1/2/12/22 exclusive pliers	NEW 	SL-JPC	Hook-up connector (SL-CJ1/2/12/22, SL-CP1/2/12/22) can be connected in one grip.		
Cover for M12 male connector	NEW 	SL-WPK (1 set: 10 Nos.)	Make sure to put it on the unused main cable side connectors of the environment resistant I/O unit SL-TW□.		
Cover for M12 female connector	NEW 	SL-WJK (1 set: 10 Nos.)	Make sure to put it on the unused I/O side connectors of the environment resistant I/O unit SL-TW□.		
Marking plate	NEW 	SL-MA2 (1 set: 20 Nos.)	It is used to write the I/O device No., address No., etc., on the environment resistant I/O unit SL-TW□.		
I/O unit holder for SL-CH□		MS-SLH (1 set: 5 Nos.)	It is used to mount the SL-CH□ unit.		
Address label		NEW SL-MA1-SET (1 set: 4 sheets)	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 (100m type).		

NOTE

The connectors are supplied in sets of 10 Nos., the marking plate in sets of 20 Nos., the I/O unit holder for SL-CH□ in sets of 5 Nos. and the address seal in sets of 4 sheets.

Please order in units of 10 Nos., 20 Nos., 5 Nos. or 4 sheets, respectively.

(e.g.) In case 10 Nos. of MS-SLH are required, order MS-SLH \times 2 (sets).

In case 8 sheets of SL-MA1-SET are required, order SL-MA1-SET \times 2 (sets).

OPTION

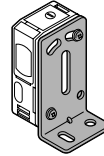
Designation	Model No.	Description
Sensor mounting bracket for SL-A□	MS-NX5-1	Foot angled mounting bracket (The thru-beam type sensor needs two brackets.)
	MS-NX5-2	Foot biangled mounting bracket (sensor protection bracket) (The thru-beam type sensor needs two brackets.)
	MS-NX5-3	Back angled mounting bracket (The thru-beam type sensor needs two brackets.)
Sensor mounting bracket for SL-N15	MS-NA1-1	Four bracket set (Four M4 (length 15mm) screws with washers, eight nuts, four hooks, four spacers and eight M4 (length 18mm) 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 (Four M4 (length 15mm) screws with washers, and four nuts are attached.)
Reflector mounting bracket	MS-RF23	For RF-230
Slit mask for SL-N15	OS-NA1-5 (1 set: 10 sheets)	The seal type slit mask restrains the amount of beam emitted or received.
Connector I/O unit mounting bracket	MS-DIN-3	It is a DIN rail mounting bracket which can be fitted on the mounting base of SL-T8J(-PN), SL-TP8J(-PN), SL-T16C1(-PN) and SL-TP16C1(-PN).

NOTE

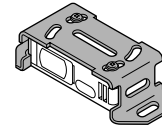
The slit mask for SL-N15 is supplied in sets of 10 sheets. Please order in units of 10 sheets.
(e.g.) In case 20 sheets of OS-NA1-5 are required, order OS-NA1-5 × 2 (sets).

Sensor mounting bracket for SL-A□

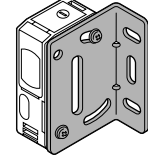
- MS-NX5-1
- MS-NX5-2
- MS-NX5-3



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



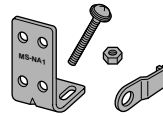
Two M4 (length 25mm) screws with washers and two M4 nuts are attached.



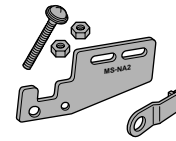
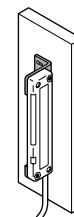
Two M4 (length 25mm) screws with washers and two M4 nuts are attached.

Sensor mounting bracket for SL-N15

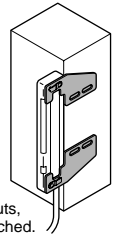
- MS-NA1-1
- MS-NA2-1



M4 screws with washers, nuts and hooks are attached.

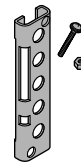


M4 screws with washers, nuts, hooks and spacers are attached.

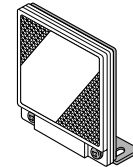
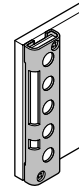


Sensor protection bracket for SL-N15

Reflector mounting bracket for SL-N15



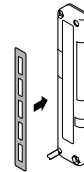
M4 screws with washers and nuts are attached.



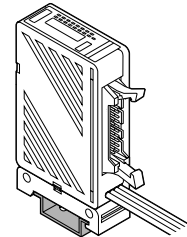
Two M4 (length 10mm) screws with washers are attached.

Slit mask for SL-N15

Connector I/O unit mounting bracket



Since the slit mask is seal type, it can be used by sticking it to the detection surface. Take care that the sensing range will be reduced when the slit mask is used. Please contact our office for details.



Please refer to the S-LINK Design Manual for the specifications and dimensions of the S-LINK devices.