Remote I/O **RT** Series

It's fast, connected and tough!

Update cycle as fast as 0.5 ms

High-speed internal communication enables high-speed device control and status monitoring. Contributes to faster production tact time.

Max. connection units 18

Supports a total of 512 bytes (4096 points) of I/O. The type and number of units can be selected according to the equipment specifications.

New New

Remote I/O for the worksite

IP65/IP67 design for tough use

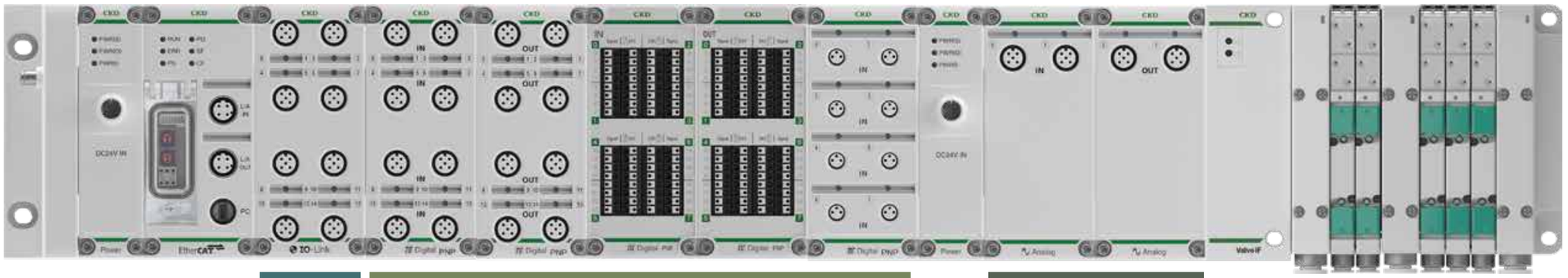
IP65/IP67 (dust-proof/jet-proof) design. Ready to be installed in the vicinity of the actuator. Layout flexibility is improved as control panel is not required.

∗The push-in terminal block is IP40.

Remote I/O IP65 IP67

∗1

End Unit	Power Supply	Device unit	IO-Link master	Digital input (M12)	Digital output (M12)	Digital input Push-in terminal block 32 points	Digital output Push-in terminal block 32 points	Digital input (M8)	Power	Analog input (M12)	Analog Output (M12)	Valve interface	Valve manifold



Count as a connected unit
Do not count as a connected unit
Input
Output

∗1
The valve interface and valve manifold must be prepared separately. For details, refer to the plug-in block manifold (CC-1595AA). Valve interface and valve manifold are not UL compliant.

IO-Link

Electric gripper with built-in controller

Electro pneumatic regulators

Flow rate controller

Electric actuator

Flow rate sensor for water

Solenoid valve

Flow rate sensor for fluids

Flow rate sensor for air

Pressure sensor

Contact sensor

Digital input/output

Cylinder switch

Pressure switch

Pneumatic valve

Vacuum ejector

Analog input/output

Measuring hand

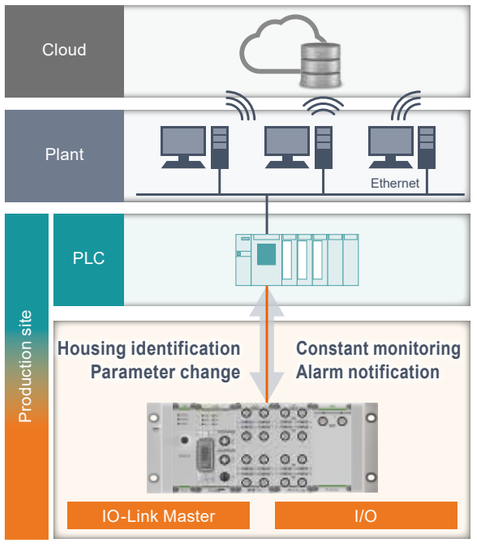
Flow rate sensor

Electro pneumatic regulators

Digitalization of worksites and reduced wiring of sensors with IO-Link

IO-Link

IO-Link is a digital communication standard for sensors/actuators at factory sites. (IEC 61131-9)
Unlike analog communication, it enables the transmission of parameters and event data.



Features of IO-Link

Constant monitoring via digital data is possible.

Parameters can be set and changed via the network, enabling remote operation of the device.

Model Nos. and serial Nos. can be checked via the network.

Settings can be copied from the IO-Link master, making troublesome parameter resetting during maintenance unnecessary.

Device failure and disconnection can be confirmed.

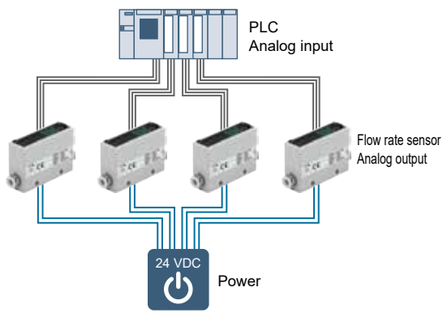
The network can also be changed to Ethernet connection, making the device a part of IoT.

80% reduction in wiring processes with IO-Link

IO-Link master supplies power and communication from a single source.

Analog input system

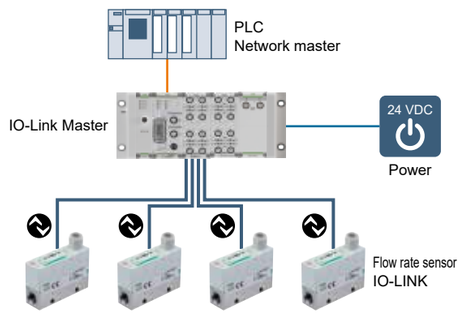
- Branched wiring power supply.
- Branched wiring of power supply and analog input.



Number of wiring lines 5 units × 4 sensors = 20 units

IO-Link system

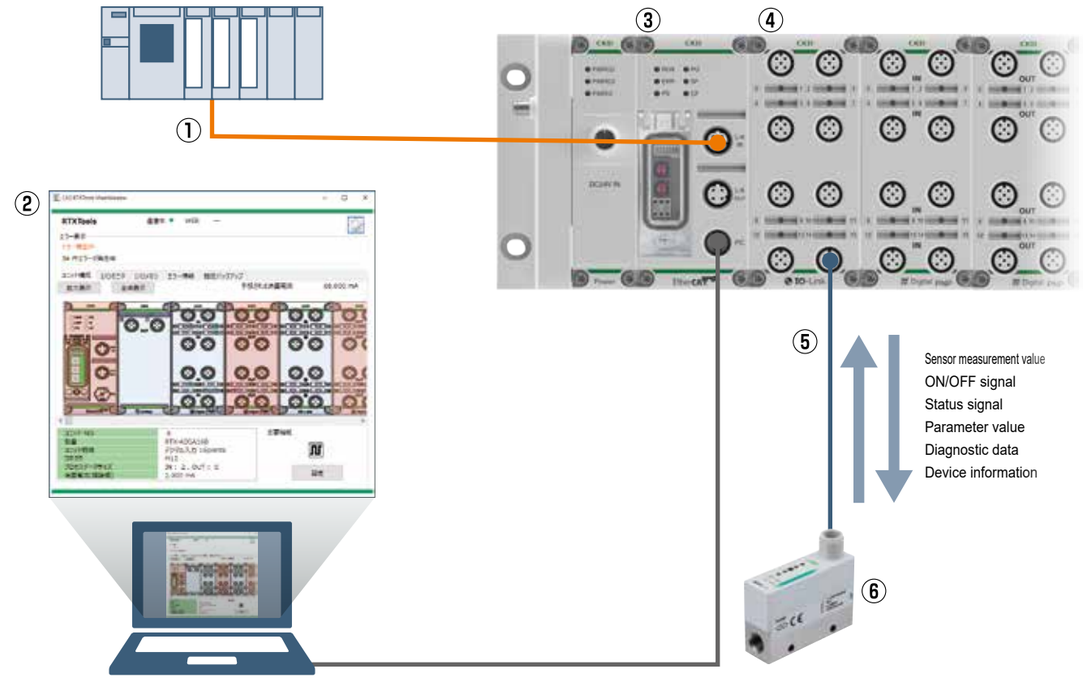
- Power is supplied only to the IO-Link master.
- IO-Link master supplies power and signal from a single source.



Number of wiring lines 1 unit × 4 sensors = 4 units

General analog input units do not supply power to the sensor.
✳The CKD analog input unit also supplies power to the sensors.

System configuration



(1) Host communication cable

(2) device unit setting tool*

- Software for setting and monitoring the device unit, IO-Link master, and each unit (RTX Tools).
- Automatically recognizes connected units and visually displays them.
- Settings of each unit and diagnosis information (overcurrent, short-circuit, error, etc.) can be confirmed.
- Connect PC and RT with USB cable

✳Available free of charge on the CKD website

(3) device unit

- I/O 512byte (4096 points).
- The unit status is reported to the PLC at the beginning of the periodic communication data for upper level communication.
- Error information of each unit can be referred to from the upper level, contributing to reduced maintenance hours.

(4) IO-Link master

- 8 ports/unit.
- Port class A.
- Data size can be changed per port. Since data is only occupied by the data size of connected IO-Link devices, adjustments can be made even when connecting many non-IO-Link master units.
- Max. occupied 64byte (512 points)/unit.
- The basic settings of the connected device are read, making settings easy.

(5) Communication cable for IO-Link device

- Conventional 3-wire non-shielded cable for sensor.
- Max. cable length: 20 m.

(6) IO-Link device

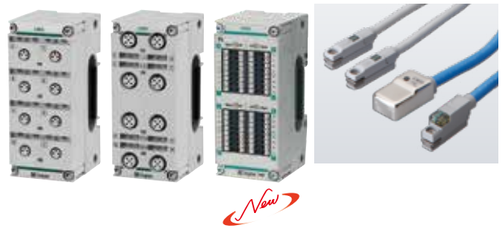
- One port to one on the IO-Link master.
- Up to 8 units can be connected to CKD IO-Link master.

CKD

Unit lineup meets on-site needs

Digital input unit

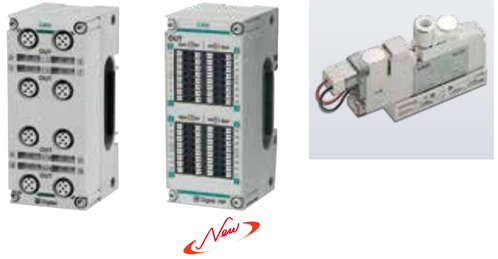
M8 / M12 / Push-in terminal block / 2-wire/3-wire Cylinder switch, etc.



Input the digital signal (ON/OFF signal). Signals from the 2-wire/3-wire cylinder switches are fetched and fed back to the PLC through the device unit of the remote I/O. This enables network management. Using a Y-splitter connector, two switches can be input through a single port. (M12 type only)

Digital output unit

M12 / Push-in terminal block / Single valve, etc.



The digital signal (24 VDC 0.5 A) is output. The single valve, vacuum switching unit, etc., can be operated. It is ideal for installing a vacuum switching unit or the like locally close to the actuator by using communication from the PLC. Using a Y-branch connector, it's possible to output to two devices from a single port. (M12 type only)

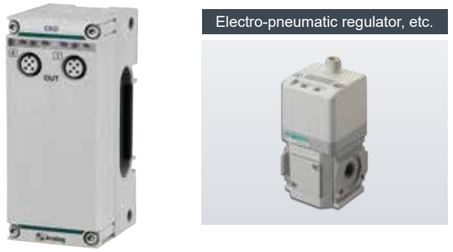
Analog input unit

Pressure sensor, etc.

Units that input analog signals (voltage/current). The pressure sensor analog signal can be input to monitor the current pressure.

Analog output unit

Electro-pneumatic regulator, etc.



Units that output analog signals (voltage/current). Analog signal output to the electro pneumatic regulator enables pressure control.

✳The CKD analog input (output) unit can supply analog signals and power (24 VDC), contributing to reduced wiring.

Power supply unit

As the power supply for unit and load power supply are separated, it is possible to shut OFF the load power supply without interrupting communication. You can add any number of units according to the connected load.

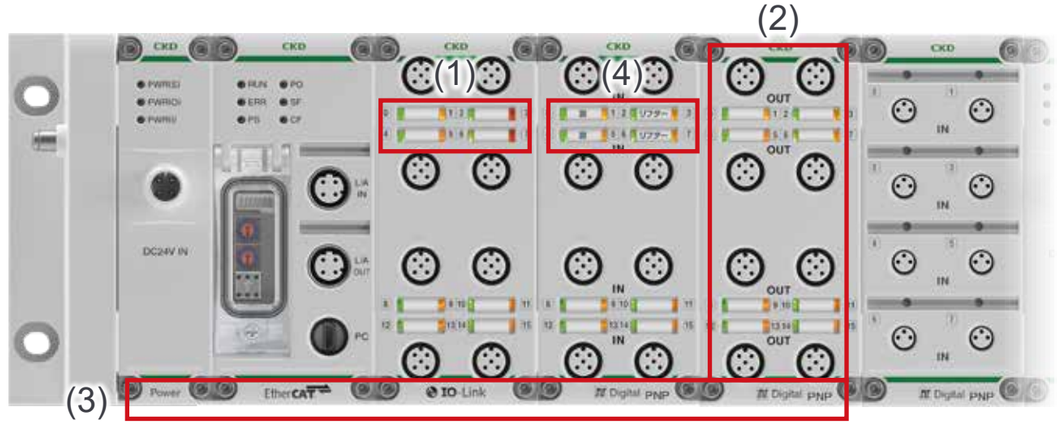
Valve interface

Plug-in valve TVG connection interface. Up to 32 solenoid valves can be connected.

Discrete model No.:
TVG□P-TB-□-□ □KA1□

For details, refer to the plug-in block manifold TVG Series (CC-1595AA). Valve interface and valve manifold are not UL compliant.

Easy-to-use design



(1)I/O status is displayed clearly with the 3-color LEDs
Green: Normal
Red: Error (disconnection, communication error, etc.)
Orange: Information (Output, etc., above set value)

(2) Pin layout that enables easy plug rotation

(3) Function, input and output of each unit are clearly displayed

(4) Tag plates can be attached to the LED section

Remote I/O model No. system

Category		Head model No.	Network	Appearance	Listed page
Remote I/O	Single unit	RT-X	EtherNet/IP EtherCAT New PROFINET IO-Link(✳1)		1
	Manifold IP65 IP67 (✳4)	RT-E RT-F (✳2)			17

✳1: IO-Link Network between the master unit and subordinate IO-Link devices.
✳2: RT-E: Direct mount, RT-F:DIN rail mount
✳3: Contact CKD for models with solenoid valves.
✳4: IP40 when including the push-in terminal block.

Compatible with global standards

CE UKCA cULus RoHS

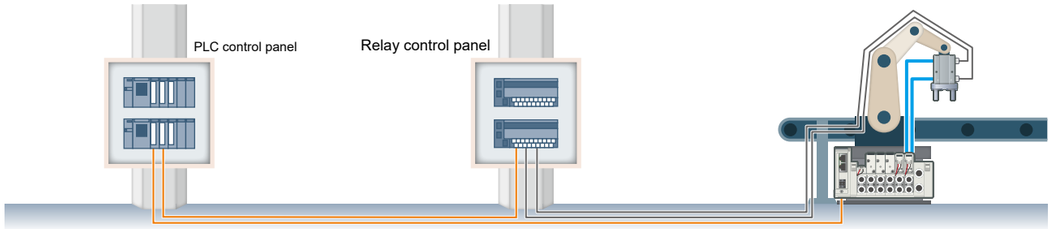
Waterproof remote I/O changes site layout

Benefits

No relay control panel required

Before

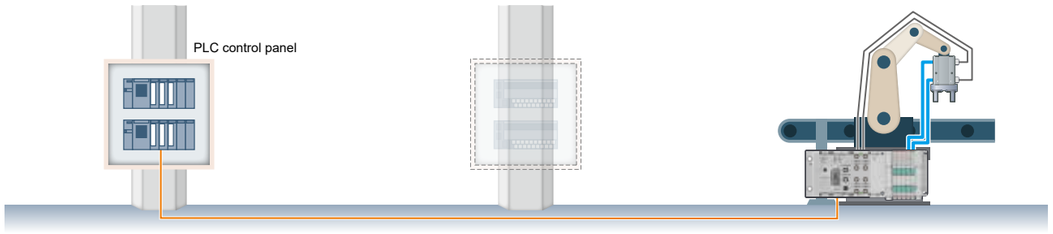
› For terminal blocks that are not water-proof, a control panel is necessary to cover them
› If the control panel is not delivered, assembly cannot start, resulting in loss of start-up time.



After

IP65 structure

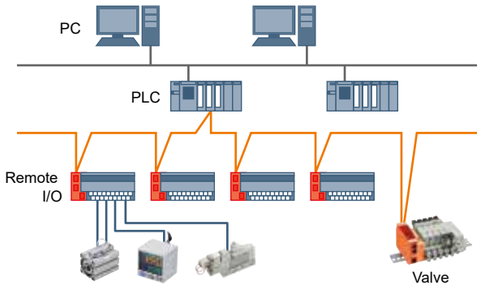
› The water-proof structure eliminates the need for a control panel, reducing the cost of the control panel.
› Assembly starts when remote I/O is delivered. Since there is no need to wait for delivery of the control panel, it contributes to shortening the start-up time of equipment.



Reduced number of communication device units

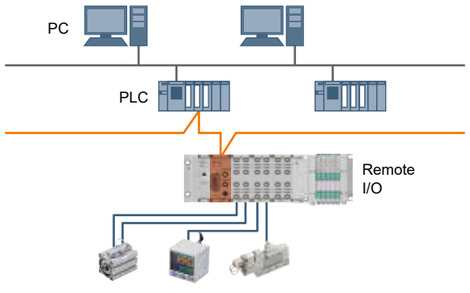
Before

› Sensor system remote I/O and solenoid valve are separated, so a unit communication device unit is required.



After

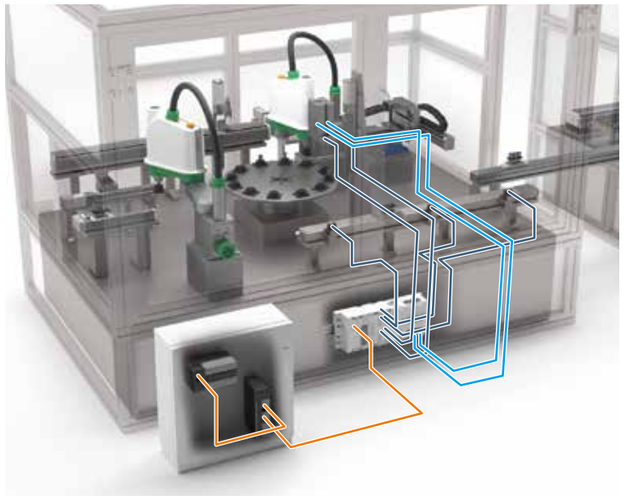
› The only communication device unit is the remote I/O unit, enabling a reduction in the number of communication device units.
› The remote I/O unit can be connected to a PLC or other controller with a single communication line, and long-distance wiring can be connected with a noise-resistant Ethernet cable. Remote I/O can be installed near the actuator for efficient reduced wiring.



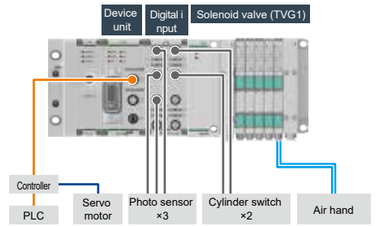
Application

Transport equipment

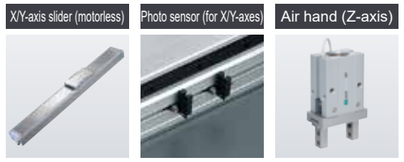
Air piping and electric wiring can be integrated in devices where servo motor drive actuator and air hand are mixed.



Remote I/O configuration

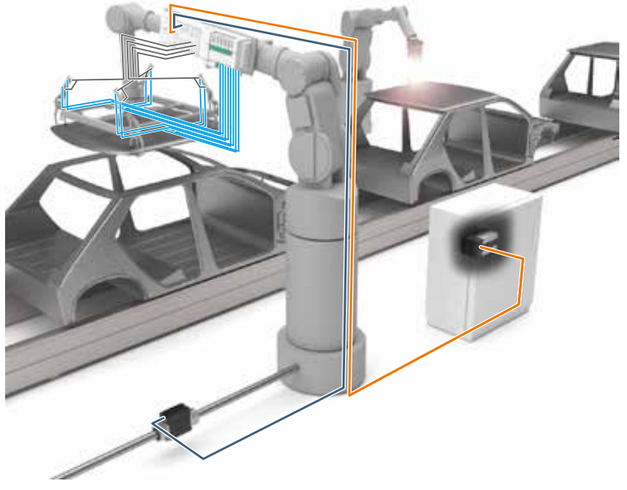


Components configuration

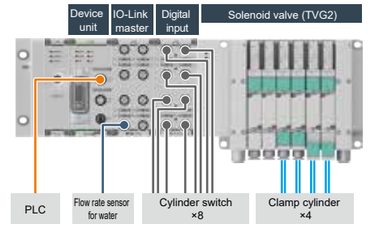


Auto body welding

Contributes to reduced wiring of solenoid valve for cylinder drive and cylinder switch input. Wiring from a PLC (programmable logic controller) can be completed with one Ethernet cable. We contribute to reducing the installation space of components including IO-Link components and improving the wiring layout.



Remote I/O configuration



Components configuration

Remote I/O that can be installed outside the control panel the same as solenoid valves

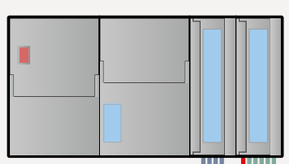
Before (non-waterproof/non-dust-proof I/O unit + control panel)

: Input　: Output　: Air　: Network cable　: Cable that must be replaced

With control panel

Wire length: **Long**
When replacing the switch
Wiring work-hours: **Long**

PLC + I/O unit

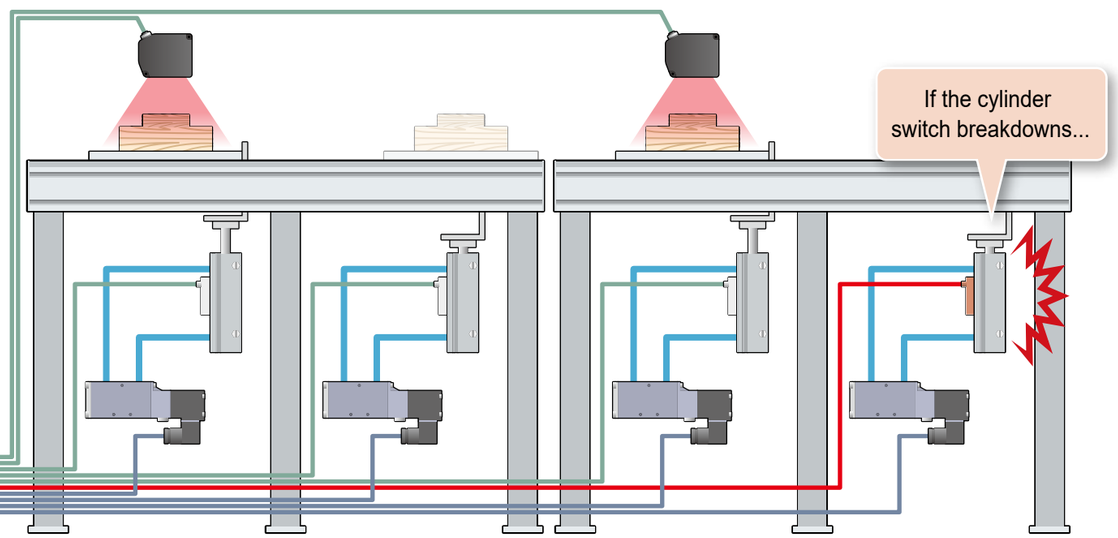


Cable tie disconnection and re-cable tie are necessary when replacing the cylinder switch

Maintenance △

●**Long** sensor cable: Disconnection, noise risk is **large**

Maintenance: Replace the long sensor cable to the PLC

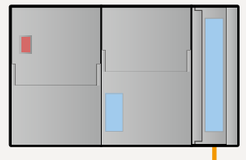


After (waterproof/dust-proof remote I/O + without control panel)

Without control panel

Wire length: **Short**
When replacing the switch
Wiring work-hours: **Short**

PLC + Network master unit

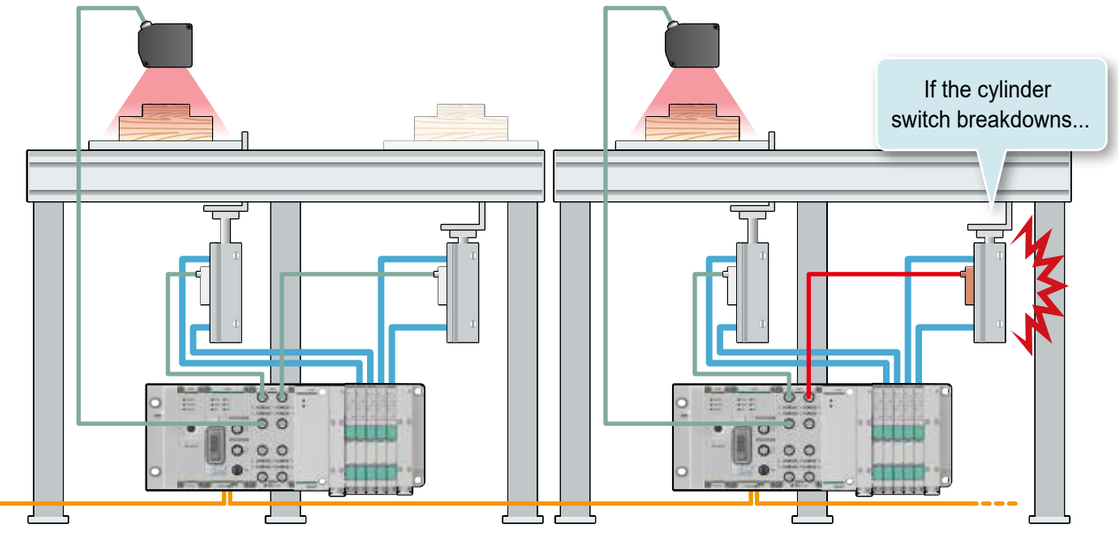


Long-distance wiring is kept **as is** when replacing the cylinder switch

Maintenance ◎

●**Short** sensor cable: Disconnection, noise risk is **small**

Maintenance: Just replace the short sensor cable up to the remote I/O!



CKD