

Open Network

Introduction  
Case  
Examples

AnyWireASLINK



Automobiles



Semiconductors



Resin molding



Woodworking  
machinery



Food and beverages



Agriculture-related

## DigitalLinkSensor

# AnyWireASLINK system

PC Interface

I/O Interface

Ethernet

PLC

+ Innovatively diagnosing Sho-Haisen

+ Diagnosis of sensor

## Anywire

AnyWireASLINK system  
Application Catalog

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### ◇ Icon explanation

#### Digital link function



##### Sensing level monitoring

ASLINKAMP and ASLINKSENSOR can not only sense whether the sensor is ON/OFF, but can also monitor the sensing level itself, realizing preventive maintenance to prevent "momentary stops" before they happen.



##### Read-out/writing of sensor sensitivity setting

Since it is possible to read and write boundary values (threshold values) where the sensor turns ON/OFF and set sensor sensitivity from a higher controller, it is possible to maintain operation of sensors that have suffered a drop in sensitivity until maintenance.



##### Sensor cable disconnection detection

Use of ASLINKER\* allows you to detect if the sensor is disconnected, so when the sensor signal is OFF, it is possible to determine whether the "sensor is OFF" or "the sensor is OFF because the electric wire is disconnected," reducing the time it takes to find the cause.

\*Since there are some restrictions, please contact us for details.



##### Countermeasure for interference of photoelectric sensor is unnecessary

Since ASLINKAMP and ASLINKSENSOR operate in time division, no interference occurs even when some sensors are simultaneously installed, and a shielding plate for interference countermeasure which has conventionally been required is unnecessary.

#### RAS function



##### Transmission line disconnection detection

When the transmission line (DP/DN line) is disconnected, the master detects this and notifies an error, and at the same time, lights the ASLINKMASTER indication lamp.

In addition, disconnection location of the transmission line can be searched from the separated address number.



##### Transmission line short-circuit detection

When the transmission line (DP/DN line) is short-circuited, the master detects this and immediately stops transmission, and notifies an error, and at the same time, lights the ASLINKMASTER indication lamp.



##### Transmission circuit drive power supply drop detection

When voltage of 24V DC power supplied to ASLINKMASTER drops, the master detects this and stops transmission, and notifies an error, and at the same time, lights the ASLINKMASTER indication lamp.



##### ID (address) duplex, non-setting detection

ASLINKMASTER recognizes ID (address) set to the connected digital link unit and digital link sensor, and notifies errors if there is any duplex or unset unit or sensor. In addition, error is also indicated with the associated terminal.

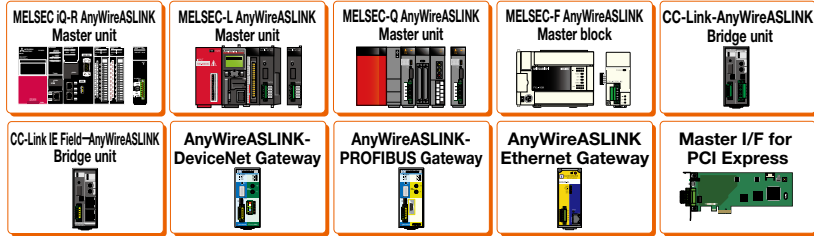
## Product configuration of AnyWireASLINK

### AnyWireASLINK System

Master unit

#### ASLINKMASTER

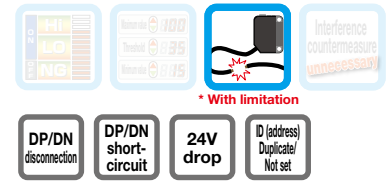
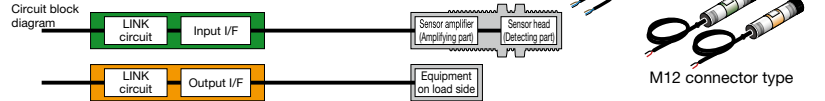
Master unit compatible with MELSEC sequencers and various industrial open networks that are widely used



Digital link unit (I/O terminal)

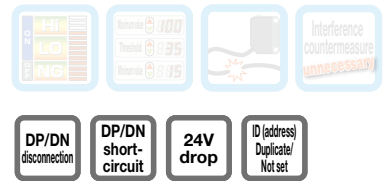
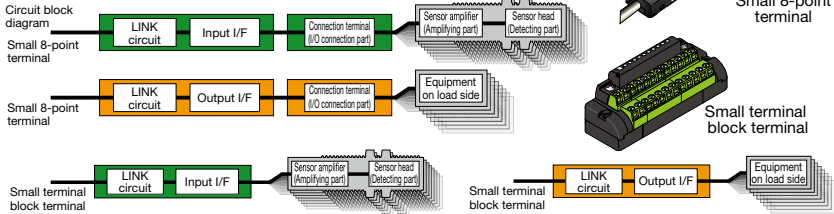
#### ASLINKER

General-purpose input/output equipment ready unit



#### ASLINKTERMINAL

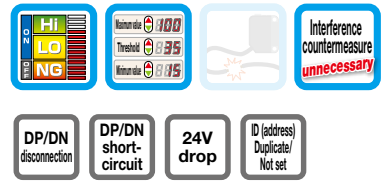
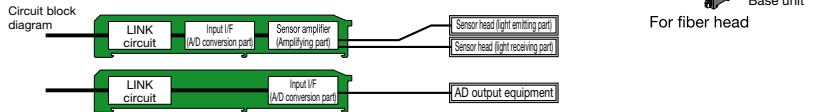
General-purpose input/output equipment ready terminal



Digital link sensor (Direct coupled Sho-Haisen type sensor & amplifier)

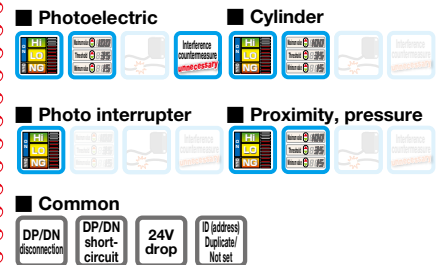
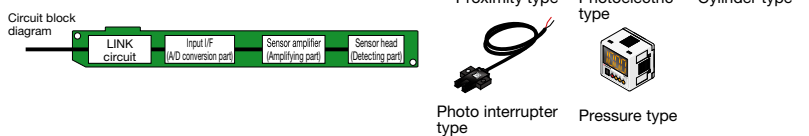
#### ASLINKAMP

Multi-amplifier and analog input unit compatible with commercial sensor head



#### ASLINKSENSOR

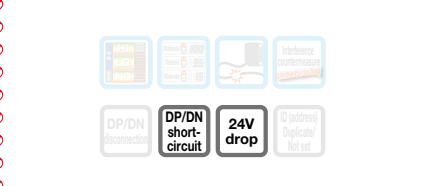
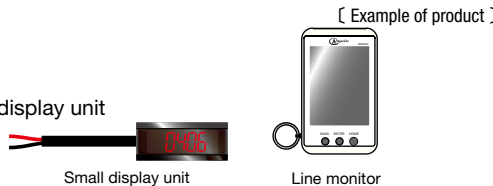
Digital link function built-in sensor



Digital link monitor

#### ASLINKMONITOR

Optional address sensing level display unit



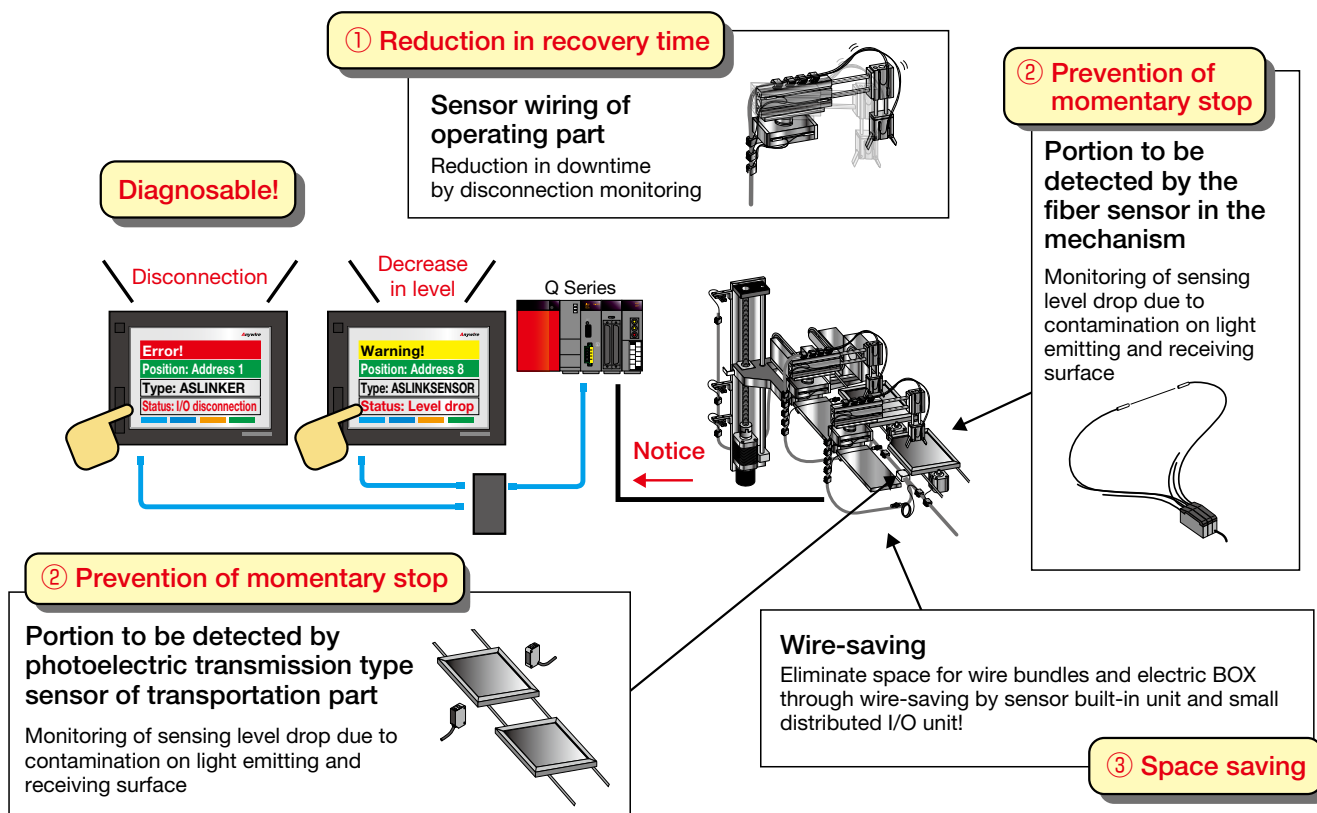


**keyword**

▶ Momentary stops

▶ BOX-less

▶ Wire-saving



### 1. Customer's purpose

To enhance availability and productivity of component manufacturing equipment

### 2. Reason

Because sensor disconnection or sensor-induced momentary stops frequently occur, stopping equipment → Countermeasure for this decrease in availability is necessary

Want to increase production without increasing floor space → Increasing installation density by saving space for equipment is necessary

### 3. What AnyWireASLINK offered

“Diagnosable”

① Since sensor disconnection can be detected, recovery time can be reduced

② Monitoring of drops in sensing level due to contamination, misalignment of an optical axis, etc., at all times prevents momentary stops

“Small-sized, fewer-point and multi-distributed units”

③ Small-sized equipment lineup comparable with relay connectors and relay terminals for both fewer-point and collective multi-point

Wire-saving and Box-less make input and output terminals unnecessary because of the integration of sensor functionality in a single unit, realizing small wire-space

### 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Fiber amplifier	B289SB-01AF-CAM20-V (Master), B289SB-01AF-CAS-V (Slave)	···ASLINKAMP
- Cylinder sensor	B285SB-01-1K1 (for direct installation of cylinder manufactured by SMC)	···ASLINKSENSOR
- Photoelectric transmission type sensor	B283SB-PC-SET	···ASLINKSENSOR
- D-I/O	B281SB-02U-CC20 (Input)	···ASLINKER

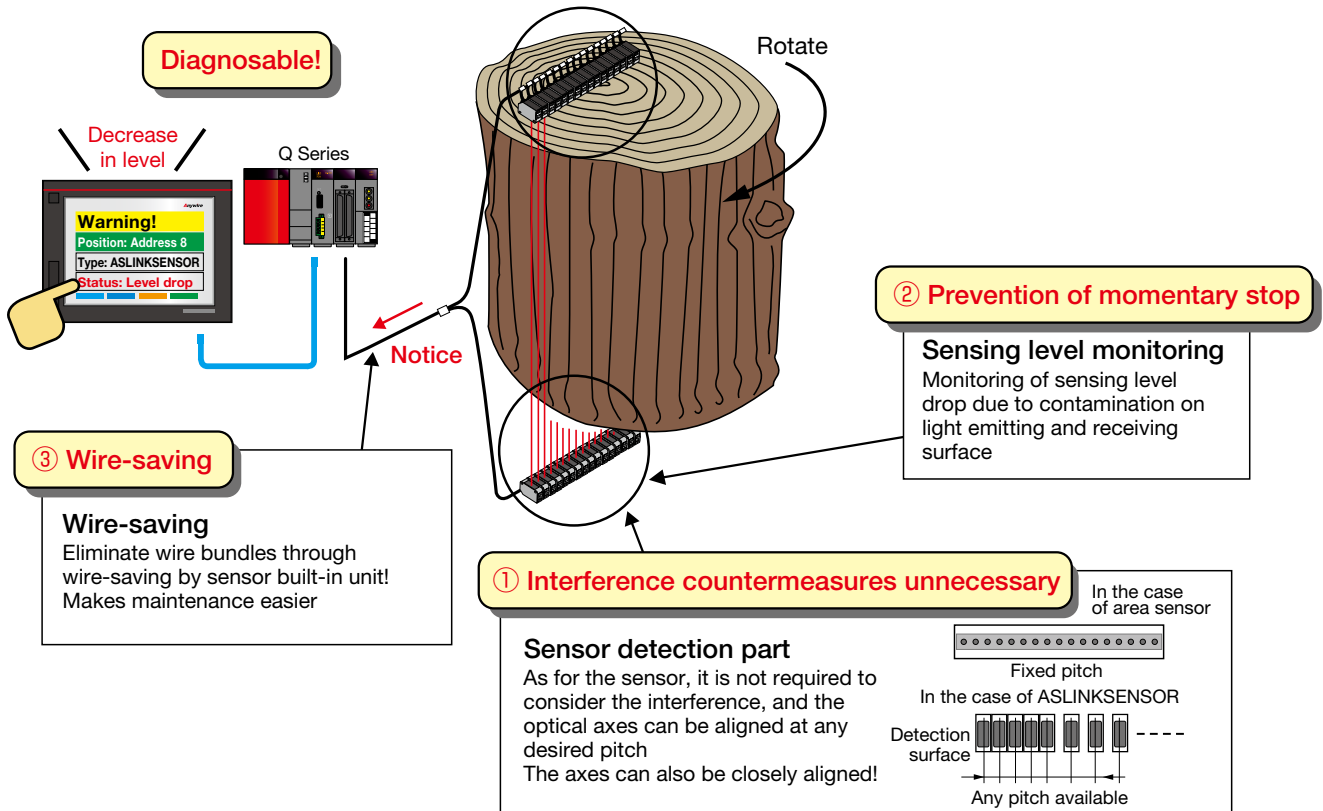


**keyword**

▶ Momentary stops

▶ No interference photoelectric sensor

▶ Sensing level monitoring



### 1. Customer's purpose

High functionality of raw wood working machinery

### 2. Reason

In order to increase accuracy and reduce waste loss by narrowing the pitch of the photoelectric detection section as a part of high functionality → Countermeasure for optical interference is necessary

### 3. What AnyWireASLINK offered

“Wire-saving sensor”

- ① ASLINK sensor (photoelectric type) requires no interference countermeasure because it operates in time division. It is possible to “closely contact and arrange many sensors” which is normally not possible with photoelectric sensors. That is, the ultimate narrow pitch arrangement is realized

<What was provided by introduction + a >

“Diagnosable”

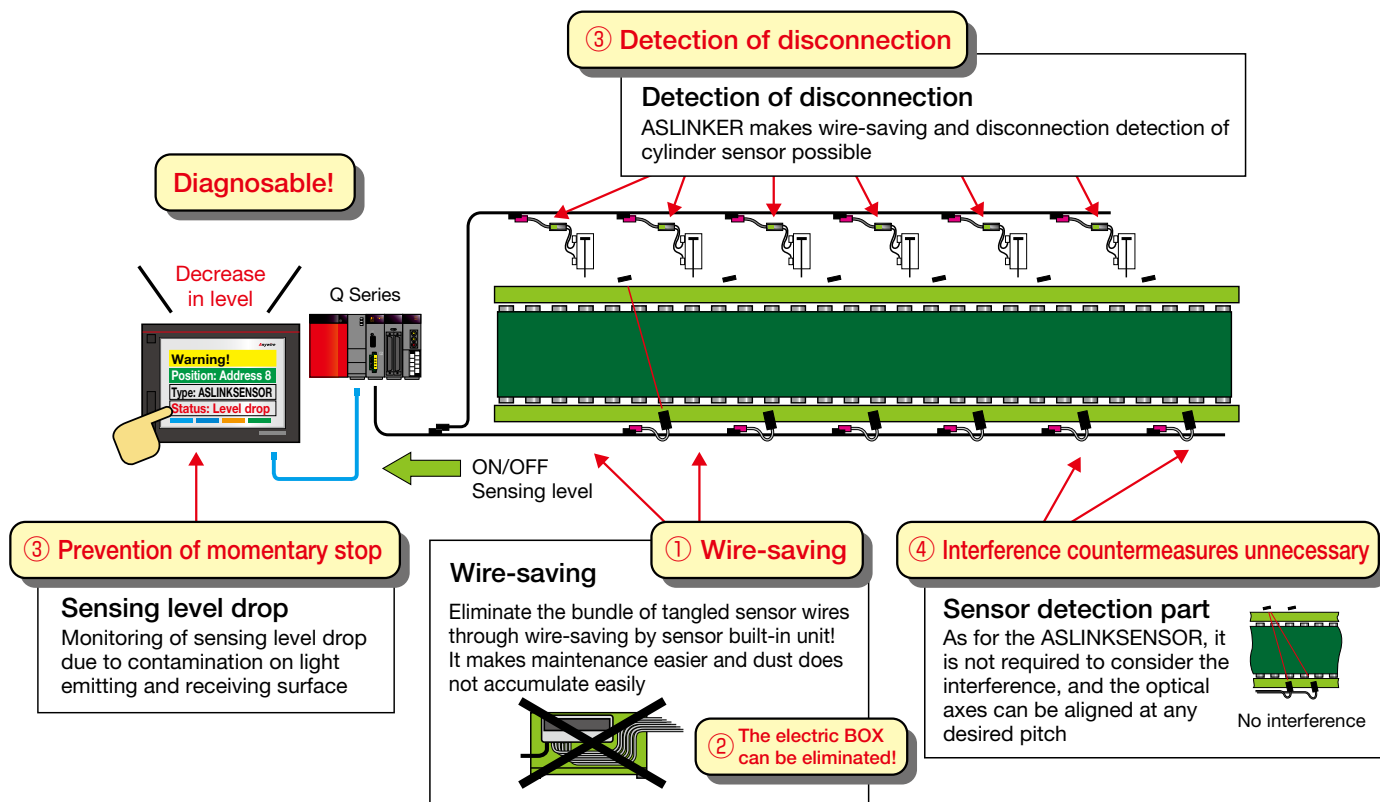
- ② Accumulation of woodchips, unstable detection due to contamination and momentary stops due to optical axis misalignment are prevented by monitoring the sensing level at all times
- ③ Wire-savings makes equipment smaller and lightweight, and makes maintenance such as replacement of sensors easier

### 4. Introduced equipment

- Master unit QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation) ···ASLINKMASTER
- Photoelectric transmission type sensor B283SB-PC-SET ···ASLINKSENSOR



**keyword** ▶ Man-hour savings ▶ Space savings ▶ Wire-saving ▶ Disconnection detection



### 1. Customer's purpose

Easy to start-up, downsized, and diagnosable equipment

### 2. Reason

In order to reduce time for site installation, start-up and delivery → Decreasing the number of bridge wires for equipment electrical components to reduce man-hours is necessary

In order to respond to needs for placing many devices in order to increase receiving quantity → Saving space for equipment is necessary

### 3. What AnyWireASLINK offered

“Man-hour savings”

- ① Reduction in man-hours necessary for site installation and start-up is possible because the number of wires is drastically reduced (32 point wiring example: 1/4 the wire connection time, 1/10 the number of check points) \*Our work comparison

“Space-savings”

- ② Space to store relay BOX and bundle of wires is significantly reduced and equipment is downsized via small-sized I/O devices and sensor functionality integrated units comparable with relay connectors and relay terminals

<What was provided by introduction + a >

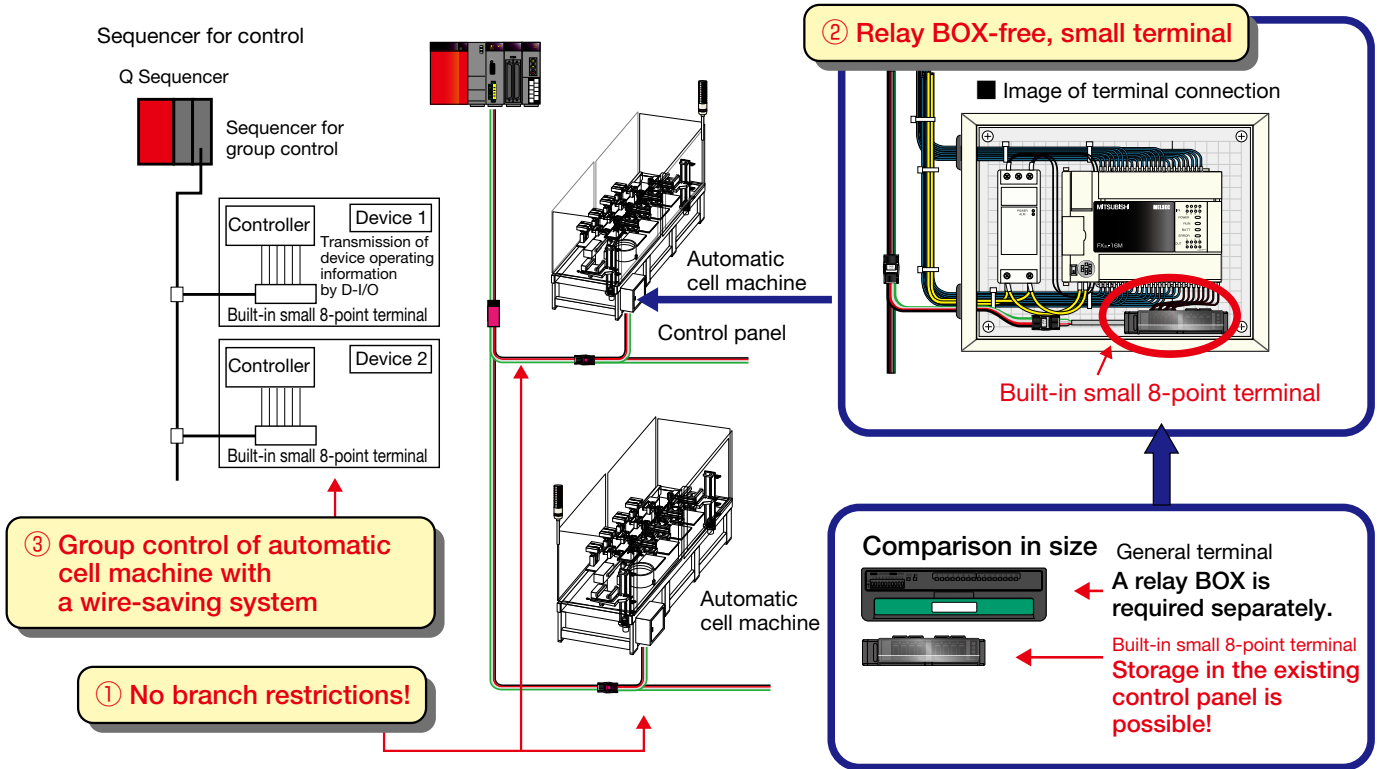
“Diagnosable”

- ③ Preventive maintenance can be realized and recovery time can also be reduced even in cases of disconnection because sensor disconnection and the sensing level can be grasped and monitored
- ④ Placement of the sensor is easy because ASLINK sensors (photoelectric type) do not require taking interference into consideration

### 4. Introduced equipment

- Master unit QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation) ...ASLINKMASTER
- Photoelectric recurrent reflection type sensor B283SB-01-1KR-V ...ASLINKSENSOR
- D-I/O B281SB-02U-CC20 (Input) ...ASLINKER

**keyword** ▶ Space-savings ▶ Small and light weight ▶ Fewer-point multi-distributed



## 1. Customer's purpose

Additional installation of a system to collect operating information from independent device groups of various PLC manufacturers

## 2. Reason

In order to increase availability by grasping the operating status of each device and controlling them at all times → Retrofittable information collection system is necessary

## 3. What AnyWireASLINK offered

“Fewer restrictions on branch and transmission line”

- ① AnyWireASLINK has a small number of cable designation conditions, therefore, wiring can be carried out without much effort even if devices are dispersed throughout the site. Existing wiring and wire materials, if any, can also be used (it is necessary to adapt to wire diameter and total length)

“Space-savings”

- ② If information collection devices are added, small-sized I/O devices comparable to relay connectors and relay terminals allow for them to be stored in the existing panel  
No need expend time and effort and cost related to newly installing a relay BOX

“Configuration with gateways for easy data collection”

- ③ In the wiring-saving system, controllers(PLC) for each device are connected with the higher Sequencer for group control by utilizing the free I/O points of PLC  
Even if the brands and models of the PLC for each device in the network vary, a data collection network for operation status monitoring can be easily constructed

**In this example great introduction benefits can be gained if information collection and designation of each device are allowed with a few I/O points**

## 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Built-in small 8-point terminal	BL296SB-08F-4-20 (Input)	···ASLINKTERMINAL

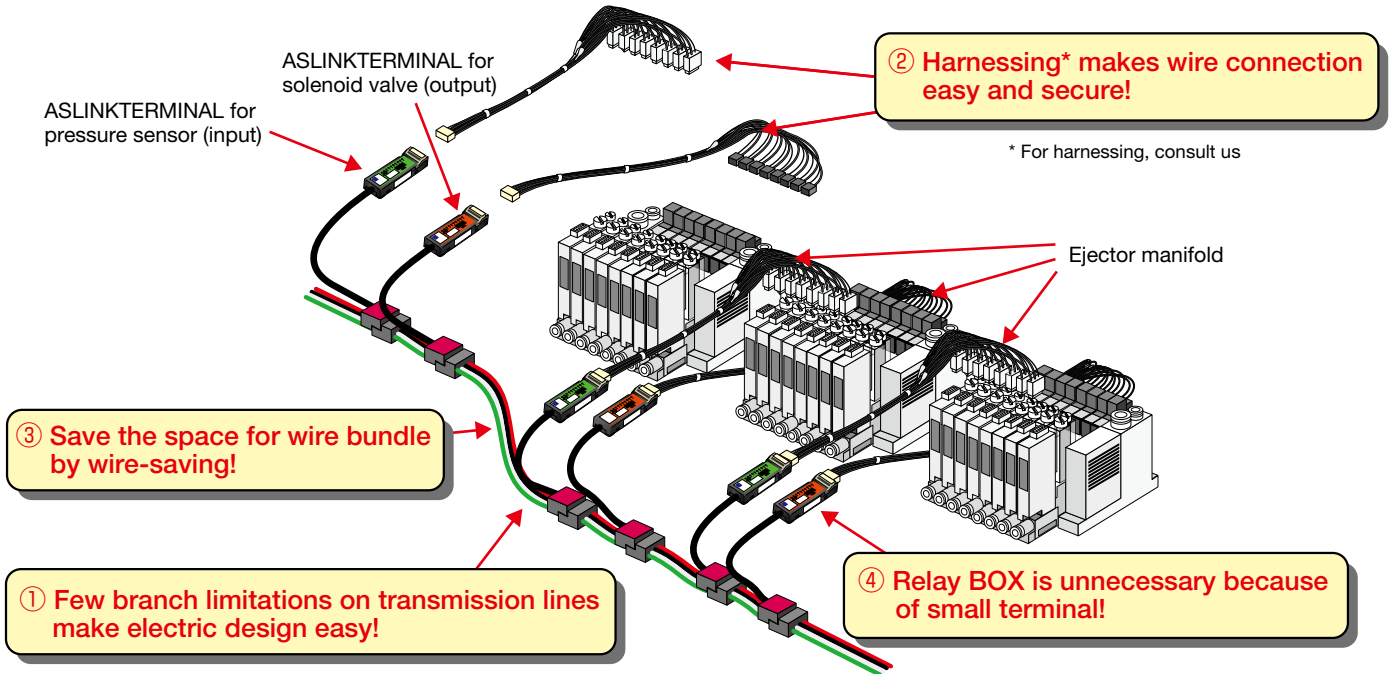


**keyword**

▶ Downsizing

▶ BOX-less

▶ Reduction in mis-wiring



\* For harnessing, consult us



### 1. Customer's purpose

Downsizing of equipment, prevention of improper assembly and man-hour savings

### 2. Reason

Because several tens of pressure sensor-equipped ejectors are installed and this bundle of wires applies pressure to the inside of the device, almost reaching its limit → Reducing wiring is necessary

Because improper construction occurred due to the bundles of wires making assembly efficiency poor → Reducing the number of wiring locations is necessary

In order to target "downsizing" as a new mass-production machine → Downsizing by space-saving is necessary

### 3. What AnyWireASLINK offered

"Topology-free, wire-saving"

① Virtually no branch restrictions, so transmission lines can be laid in every corner of the equipment

② Working time is reduced and mistakes decrease because the number of wire connecting locations is drastically reduced

③ Wiring storage space can be reduced because there is no bundle of cables

"Downsizing, fewer-point, multiple-distributed"

④ Small-sized equipment lineup comparable with relay connectors and relay terminals for both fewer-point and collective multi-point

Terminals can be stored in the wiring duct and a relay BOX is unnecessary

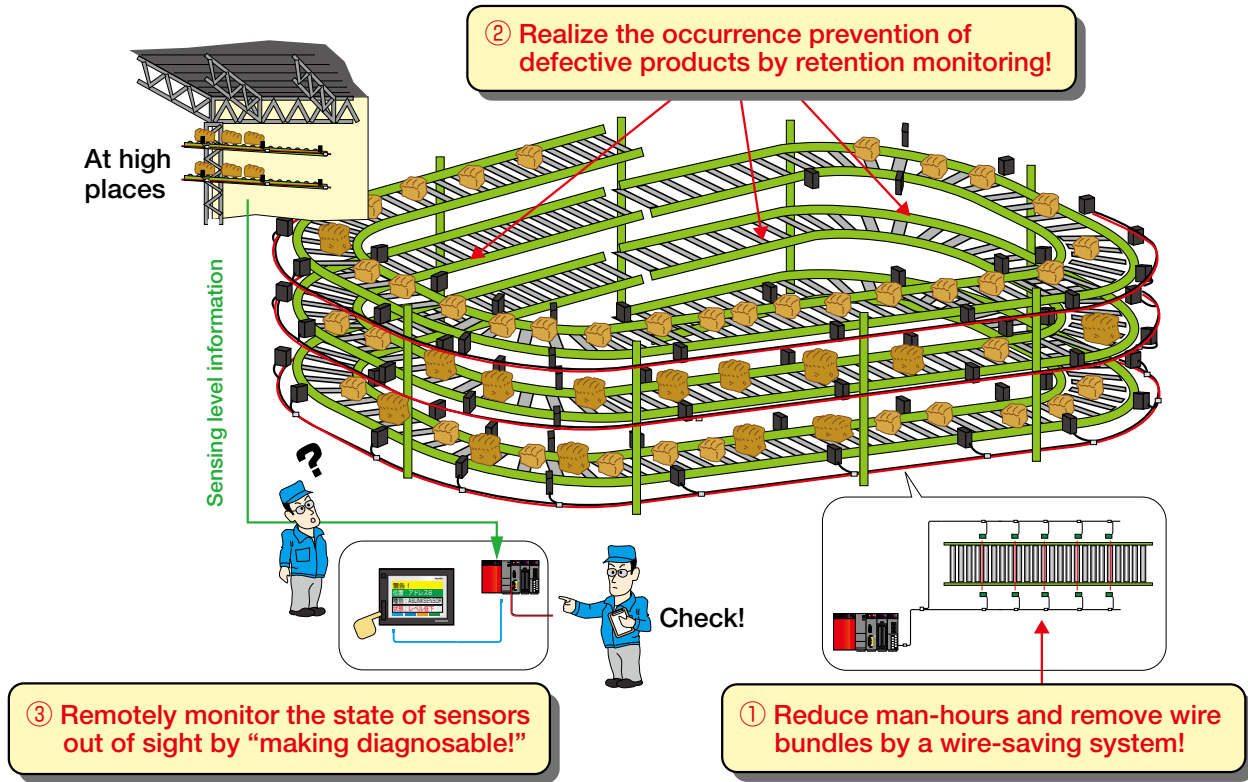
### 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Small 8-point terminal	BL296SB-08F-20 (Input)	···ASLINKTERMINAL
- Small 8-point terminal	BL296PB-08F-20 (Output)	···ASLINKTERMINAL





**keyword** ▶ Wire-saving ▶ Preventive maintenance ▶ Increase in yield rate



### 1. Customer's purpose

Increase yield rate of products

### 2. Reason

During conveyor transport of products, transported products are often retained and fall due to deterioration of the rollers (causing defective products)

In order to add a system that monitors transport status at all times and reduces occurrence of defective products by prompt action  
→ Monitoring the retrofittable operating status is necessary

### 3. What AnyWireASLINK offered

“Wire-saving sensor”

- ① ASLINK sensor (photoelectric type) is directly connectable with the transmission line, and is sanitary as it eliminates the bundles of wires which accumulate contaminants easily. Additional work and maintenance is also easy because equipment is downsized and lightweight, and all sensor connections are sufficiently branch-connected via wire-saving

“Diagnosable”

- ② Incidents of falling products (defective products) are significantly reduced because occurrence of product retention can be monitored and proper action can be taken immediately when retention occurs
- ③ Abnormalities that occur in high locations that are not visible can also be caught at ground level by monitoring the sensing level, preventing momentary stops

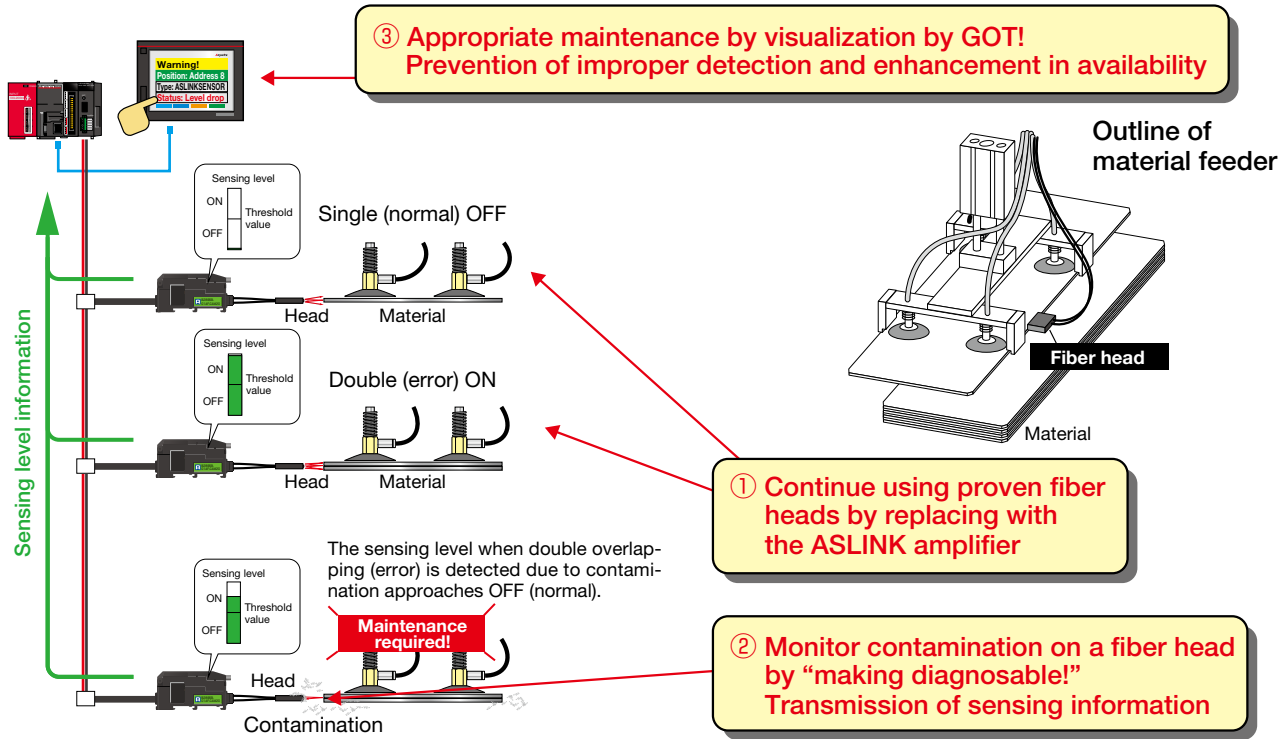
### 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Photoelectric sensor transmission type	B283SB-PC-SET	···ASLINKSENSOR



**keyword**

▶ Sensing level monitoring ▶ Preventive maintenance ▶ Wire-saving fiber amplifier



### 1. Customer's purpose

Prevention of improper detection of work

### 2. Reason

In a workpiece (flat plate) feed part, where one sheet is supposed to be transferred one at a time, two overlapped sheets end up being transferred together, causing feed errors. Therefore, the number of workpieces was detected using a fiber sensor. However, because chips adhered to workpieces contaminate the fiber head surface, resulting in improper detection, the fiber head often does not function sufficiently.  
→ Countermeasures for prevention of improper detection are necessary

### 3. What AnyWireASLINK offered

"Diagnosable"

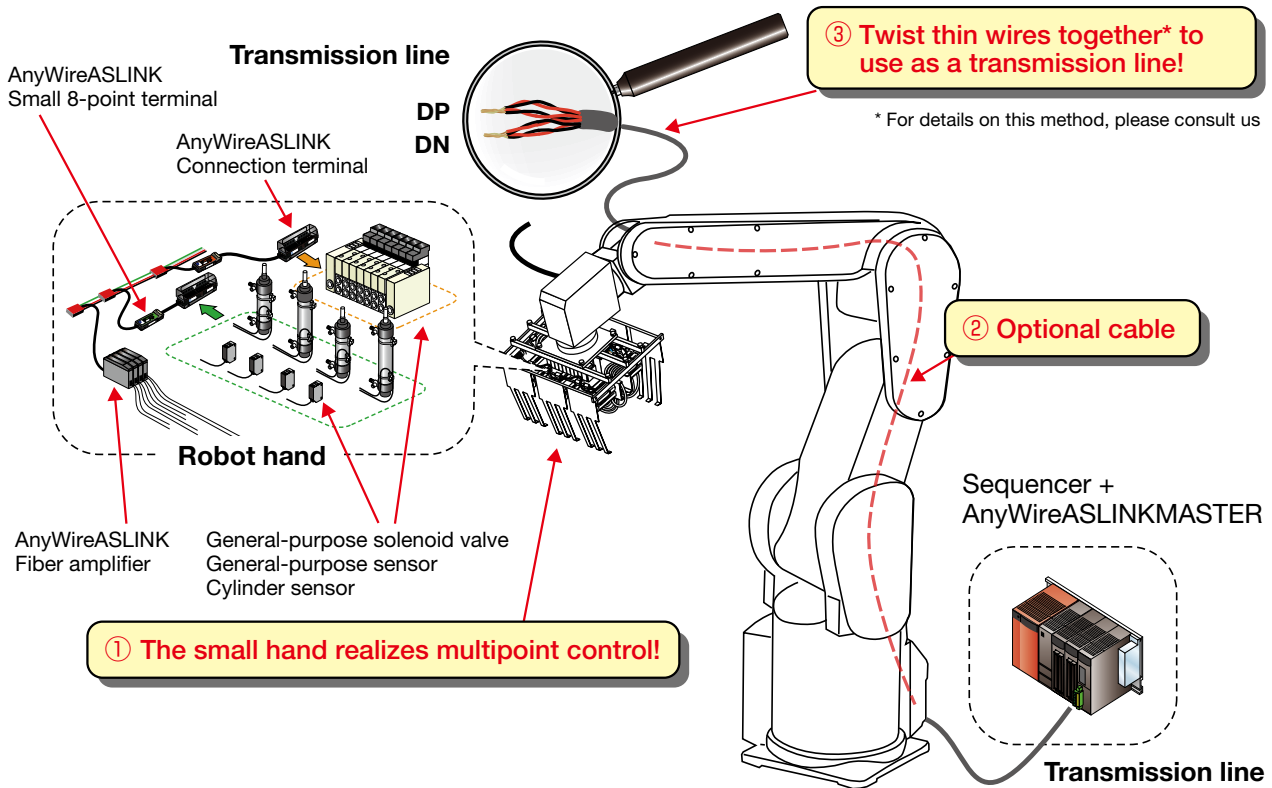
- ① Proven fiber heads of the existing machine can be used as is, only replacing the amplifier part with AnyWireASLINK. This allowed the detection function of workpiece sheet numbers to continue unchanged.
- ② Contamination of the head by chips and contaminants which caused improper detection can be recognized as a "reduction in sensing level".
- ③ Visualization of status by GOT allowed preventive maintenance (proper maintenance) for improper detection.

### 4. Introduced equipment

- Master unit	LJ51AW12AL (for L Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Fiber amplifier	B289SB-01AF-CAM20-V	···ASLINKAMP



**keyword** ▶ Downsizing and lightweight ▶ Wire-saving ▶ BOX-less



### 1. Customer's purpose

High functionality of the robot hand part

### 2. Reason

Because high performance hands ready for various workpieces were necessary for new installation of assembly robots  
 → Countermeasures to control the necessary multiple points inside of the hand with optional cables for the robot are necessary

### 3. What AnyWireASLINK offered

“Wire-saving, small-sized terminal”

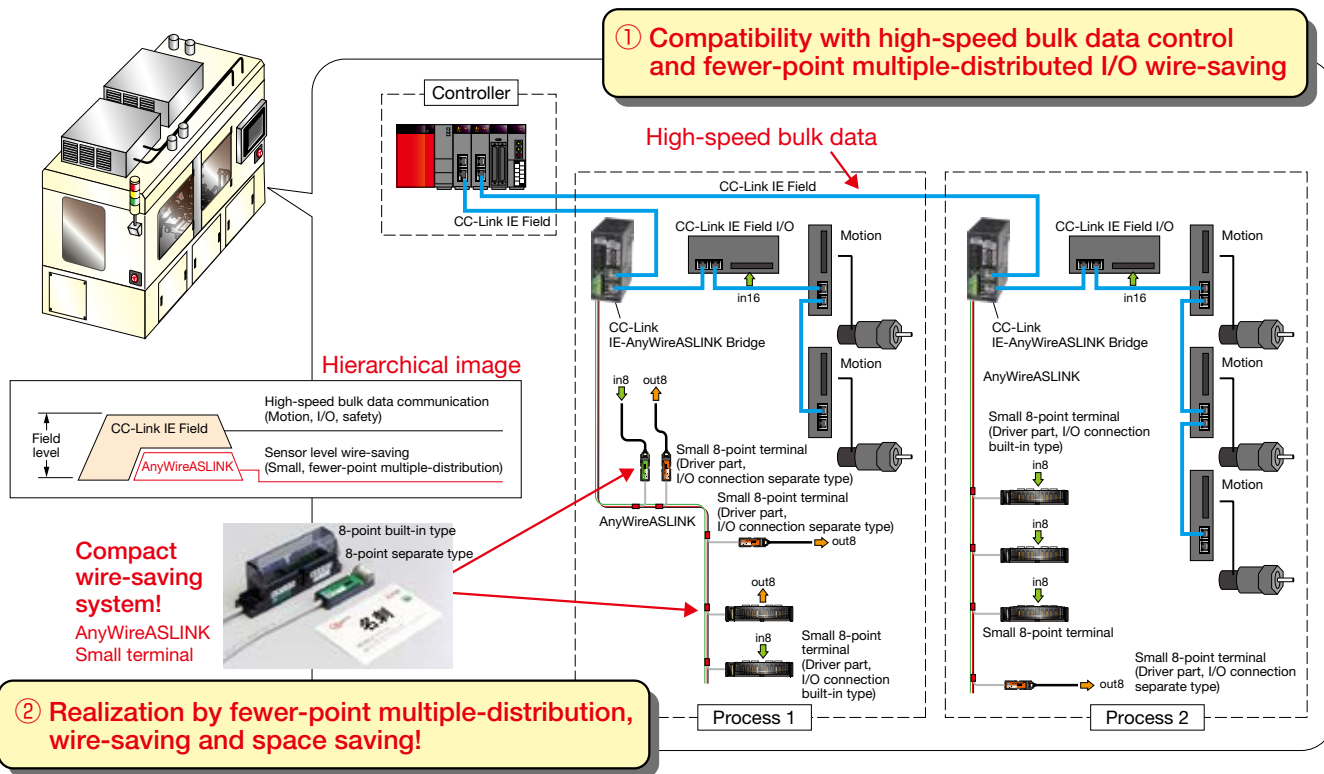
- ① AnyWireASLINK can control up to 512 input and output points even in inside of the robot arm where the number of wires is restricted  
 The small hand (such as no relay BOX) was realized by distributed placement of small-sized terminals
- ② Transmission is possible even with non-dedicated lines, and the use of optional cables is also possible
- ③ Bundle the only leftover LAN cable to ensure wire diameter for transmission!

### 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- Small 8-point terminal	BL296SB-08F-20 (Input)	···ASLINKTERMINAL
- Small 8-point terminal	BL296PB-08F-20 (Output)	···ASLINKTERMINAL
- Fiber amplifier	B289SB-01AF-CAM20-V	···ASLINKAMP



**keyword** ▶ Supplementary to open network ▶ Fewer-point multi-distributed



### 1. Customer's purpose

Enhancement of function and downsizing of new equipment

### 2. Reason

In existing mass-production machinery, motion and I/O systems exist and perform complicated controls  
 New designs employ high-speed bulk data communication in which motion I/O systems can be controlled in the same system, considering a simple configuration  
 Small-sized, fewer-point multi-distributed wire-saving wiring was also necessary in order to also aim for downsizing  
 → High affinity between both systems is important

### 3. What AnyWireASLINK offered

“Small-sized, fewer-point multi-distributed wire saving wiring”

- ① CC-Link IE Field is considered a trunk communication means of control which can balance high-speed bulk data control and fewer-point multi-distributed wire-saving wiring
- ② For small-sized, fewer-point multi-distributed I/O, full use of AnyWireASLINK equipment is also possible with CC-Link IE Field-AnyWireASLINK bridge, and a sensor level network is properly built from a higher network, realizing seamless information coupling

### 4. Introduced equipment

- Master unit	NZ2AW1GFAL	···CC-Link IE Field-AnyWireASLINK Bridge
- Small 8-point terminal	BL296SB-08F-20 (Input)	···ASLINKTERMINAL
- Small 8-point terminal	BL296PB-08F-20 (Output)	···ASLINKTERMINAL
- Built-in small 8-point terminal	BL296SB-08F-4-20 (Input)	···Built-in ASLINKTERMINAL
- Built-in small 8-point terminal	BL296PB-08F-4-20 (Output)	···Built-in ASLINKTERMINAL



## Resin product manufacturing equipment

Introduction case of company M

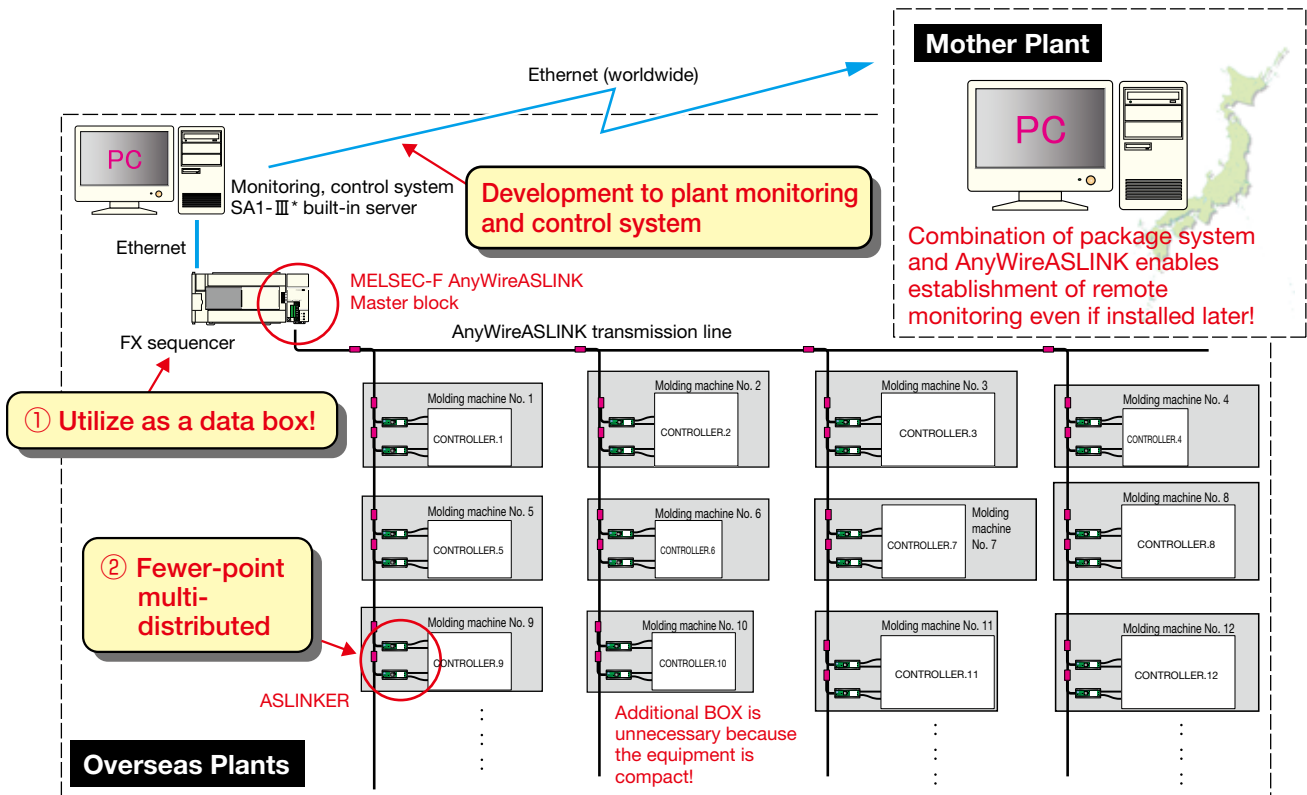
Vol.010

**keyword**

▶ Fewer-point multi-distributed

▶ Small terminal

▶ BOX-less



\* For details of SA1-III, visit the website of Mitsubishi Electric System & Service CO., LTD.



### 1. Customer's purpose

To establish a high productivity production management system with simple additional work

### 2. Reason

It is desired to make resin molding machinery operating at overseas plants diagnosable (recognition and control of operating times, the number of non-defective products, maintenance periods, etc.) and move to more efficient operation

However, device groups cannot be linked via communications because the devices are independent with no open network functionality, and as they are located in overseas plants, only minimum additions are desired

→ If input and output ports can be fully used, it will not depend on the controller. Small-sized devices storable in the existing BOX are necessary

### 3. What AnyWireASLINK offered

“Small-sized, fewer-point multi-distributed information collection system”

① FX3 series is fully used as a bridge with data collection and a higher network

② Even for independently distributed device groups, an information collection system can be established by arranging AnyWireASLINK small-sized devices with fewer branch and cable restrictions below FX

### 4. Introduced equipment

- Master unit FX3U-128ASL-M (for FX Series of Mitsubishi Electric Corporation)

···ASLINKMASTER

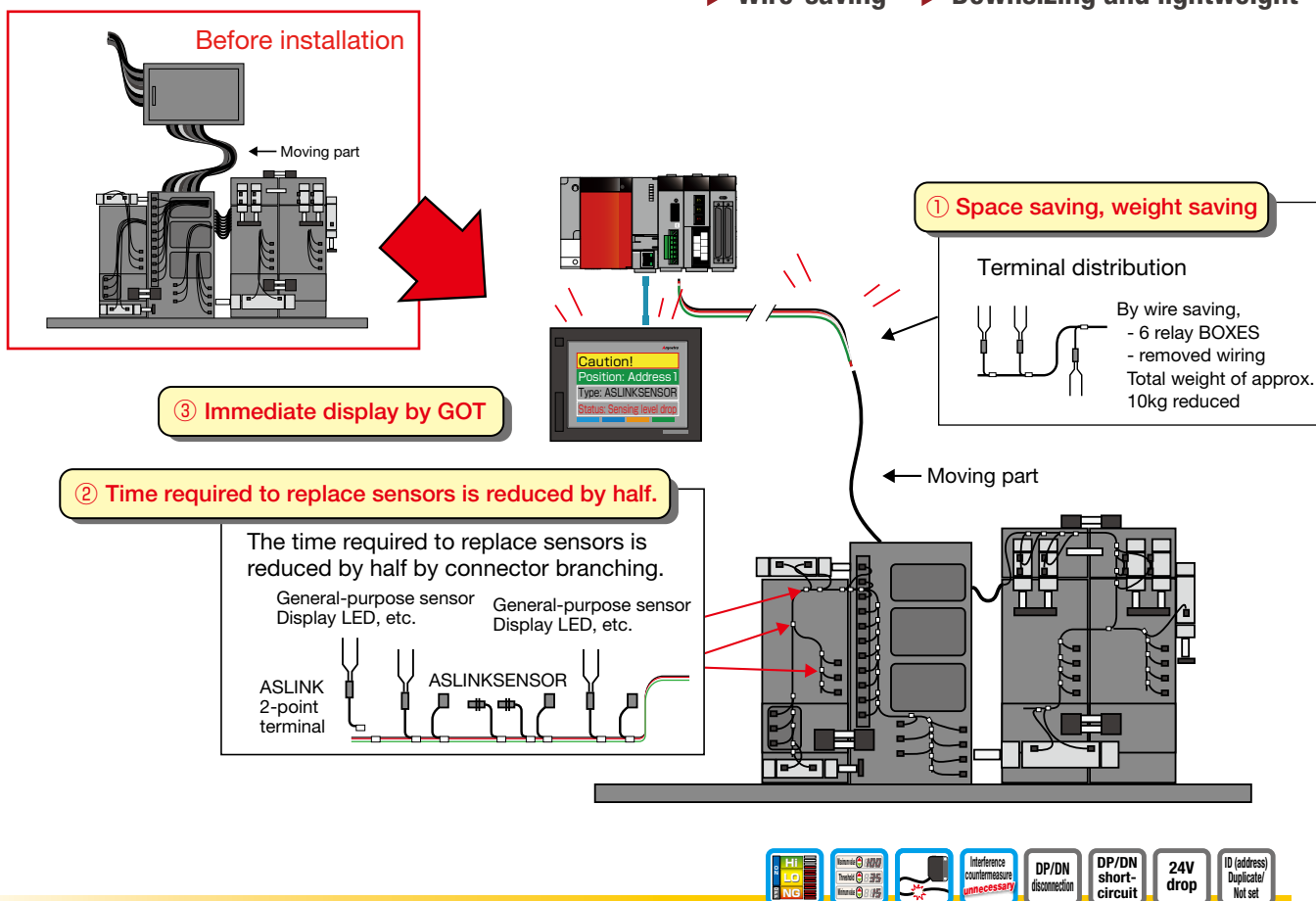
- D-I/O B281SB-02U-CC20 (Input)

···ASLINKER



**keyword**

- ▶ Reduction in maintenance time
- ▶ Man-hour savings
- ▶ Wire-saving
- ▶ Downsizing and lightweight



## 1. Customer's purpose

Enhancement of maintenance ability

## 2. Reason

Because bundles of wires are laid over moving parts and sensor cables are periodically disconnected, this causes equipment to stop and the defective location is difficult to identify. Also, since the operator changes for each product and is not always familiar with the equipment, maintenance takes a long time, decreasing productivity → Improvements to the equipment in which the defective location is clearly visible and can be easily maintained are necessary

## 3. What AnyWireASLINK offered

“Ultimate wire-saving”

- ① ASLINK linker and ASLINK sensor were branch-connected to the transmission line trunk, and the remote I/O and 6 relay BOXES which stored it were removed, eliminating the bundles of wires laid over moving parts which caused disconnections, resulting in the realization of a total reduction in weight of 10kg
- ② Sensor removal and attachment with a crimp connector reduced replacement time by half

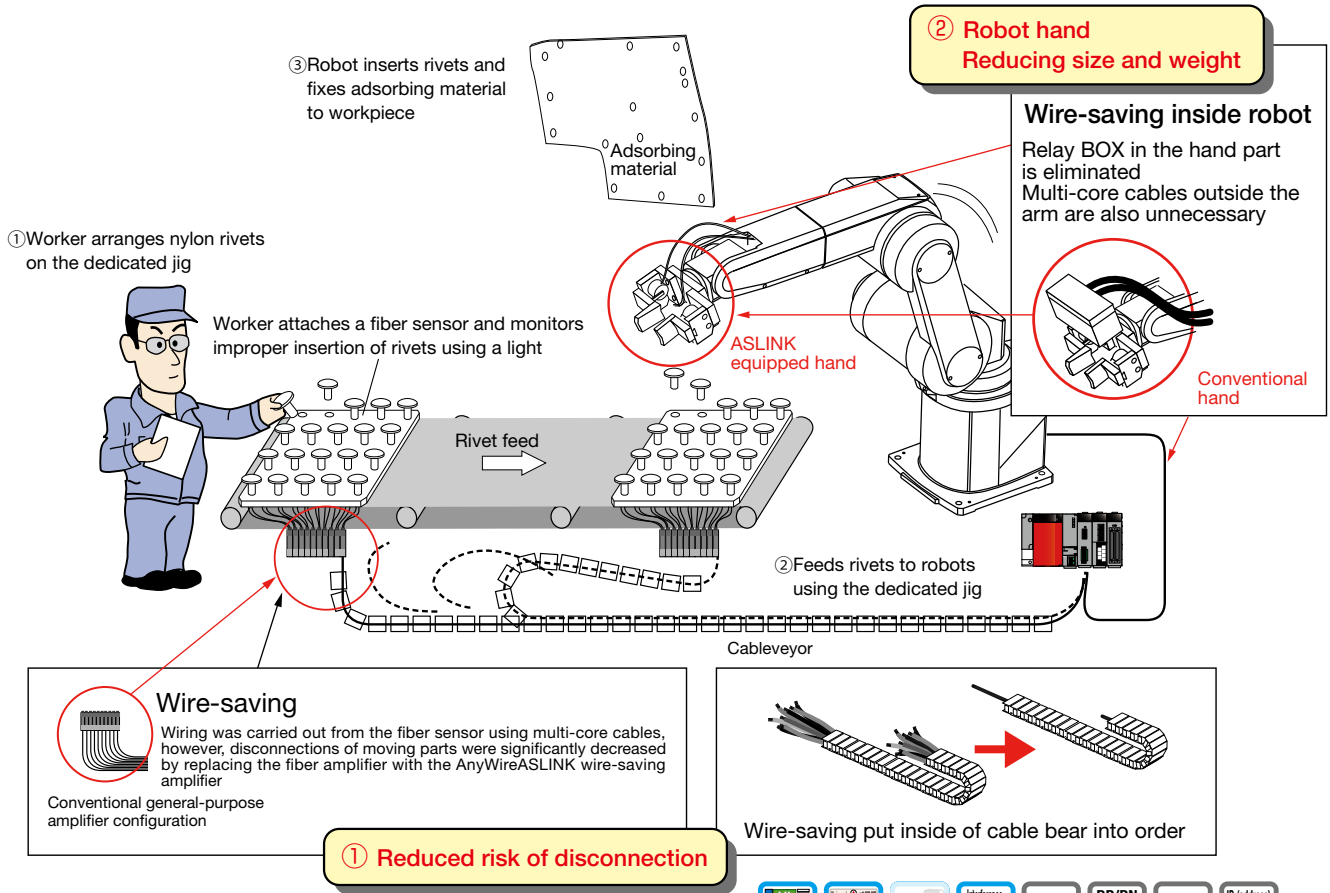
“Diagnosable”

- ③ GOT made it possible to graphically display defective locations, reducing cause identification time by approx. 70%, and “read/write of sensor sensitivity settings” makes setup changes easy

## 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	···ASLINKMASTER
- D-I/O	B281SB-02U-CC20 (Input)	···ASLINKER
- D-I/O	B281PB-02U-CC20 (Output)	···ASLINKER
- Photoelectric transmission type sensor	B283SB-PC-SET	···ASLINKSENSOR
- Proximity type sensor	BS-K1117-M12-1K, BS-K1117-M18-1K	···ASLINKSENSOR

**keyword** ▶ Wire-saving fiber amplifier ▶ Reduced risk of disconnection ▶ BOX-less



### 1. Customer's purpose

Site improvement

### 2. Reason

Some multi-core cables were often disconnected in the cableveyor, stopping the system  
The number of cable cores in the robot arm was insufficient, and the multi-core cables were also routed outside to control the hand part  
The relay BOX on the hand and the external cables affected the moving lines and availability  
→ Wire-saving that does not take up space is necessary

### 3. What AnyWireASLINK offered

“Wire-saving fiber amplifier allowing the use of general-purpose fiber heads”

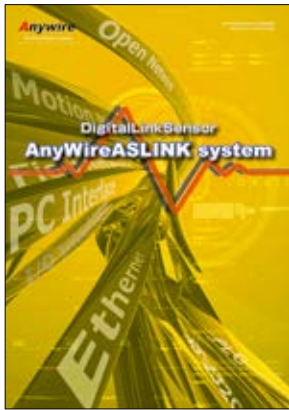
① The fiber head was left unchanged, replacing only the fiber amplifier with the ASLINK amplifier, realizing wire-saving of the fiber part without changing the mechanical design. Risk of disconnection in the cableveyor was significantly reduced

“Small-sized, fewer-point and multi-distributed wire-saving”

② The relay BOX and external multi-core cables are eliminated without decreasing the number of control points via the distributed-arranging of the ASLINK sensor and ASLINK linker in the robot hand and relaying with sensors and valves, and wire-saving. This realized a reduction in size and weight of the hand part and increased efficiency of moving cables

### 4. Introduced equipment

- Master unit	QJ51AW12AL (for Q Series of Mitsubishi Electric Corporation)	··· ASLINKMASTER
- Fiber amplifier	B289SB-01AF-CAM20-V (Master), B289SB-01AF-CAS-V (Slave)	··· ASLINKAMP
- Small 8-point terminal	BL296SB-08F-20 (Input)	··· ASLINKTERMINAL
- Small 8-point terminal	BL296PB-08F-20 (Output)	··· ASLINKTERMINAL
- Proximity type sensor	BS-K1117-M12-1K	··· ASLINKSENSOR

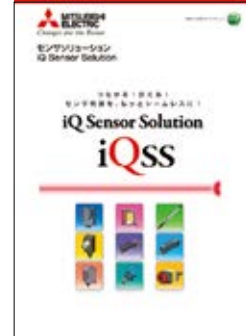


AnyWireASLINK system catalog

### Mitsubishi Electric Corporation Product catalog



MITSUBISHI & Anywire  
L (NA) 08198-N



Sensor Solution  
iQ Sensor Solution  
L (NA) 08253-G

\* Cover design may be subject to change.

#### Contact

Contact by mail

[info\\_e@anywire.jp](mailto:info_e@anywire.jp)

Contact by website

<http://www.anywire.jp>

Price, specifications and design may be subject to change without notice.

#### <Warranty>

◇Warranty period  
The warranty on the delivered Product shall continue to be effective for one (1) year after the delivery thereof to a location designated by the original owner.  
◇Scope of warranty  
Should a defect occur in any part of the Product during the foregoing warranty period when it is used normally in accordance with the specifications described in this User's Manual, the Company shall replace or repair the defect free of charge, except when it arises as a result of:  
(1) Misuse or abuse of the Product by the owner;  
(2) Fault caused by reason of other than the delivered Product;  
(3) The unauthorized modification or repair of the Product by any person other than the Company's personnel;  
(4) Any unusual force of nature, disaster or other cause beyond the Company's control.  
The term "warranty," as used herein, refers to the warranty applicable to the delivered product alone. The Company shall not be liable for consequential or incidental damage resulting from any malfunction.  
◇Repair at cost  
After the expiration of the warranty period, the owner shall be responsible for all costs and expenses incurred for the troubleshooting and repair of the Product. Even during the warranty term, the Company shall repair any defects arising from causes other than within the scope of the warranty as specified above, at the owner's cost.

#### <Notes on Safety>

●: WARNING ○: CAUTION  
●System Safety  
- This system is intended for general industrial applications. It does not include functions for supporting applications requiring higher levels of safety such as safety-related devices or accident prevention systems.  
- The product must not be used for these purposes.  
- Always turn off the power before attempting to mount or replace.  
○System power supply  
Use a stable, 24V DC power supply. Use of an unstable power supply may cause problems with the system.  
○Separately route high-voltage and power cables  
Although the AnyWireASLINK system has a high noise margin, keep the transmission line and I/O cables away from high-voltage and power cables.  
○Connector and terminal connection  
\* Pay careful attention to the length and installation of cable wiring to ensure that connectors and cables are neither overloaded nor disconnected.  
\* Make sure to prevent any metal objects from getting inside the connectors or the terminal blocks.  
\* Short-circuits caused by metal objects or mis-wiring are likely to damage the device.  
○Do not impose any external loads on the units. Doing so may cause a failure.  
○Do not disconnect or reconnect between the transmission line and slave units. A malfunction may occur.  
○Use the AnyWireASLINK system within the range of the specifications and conditions shown below.

# Anywire



ISO9001 / 1400  
Certification

## Anywire Corporation

Headquarters

1 Babazusho, Nagaokakyo-shi, Kyoto 617-8550 JAPAN

<http://www.anywire.jp>

ISO9001 Applicable scope: Headquarters, East Japan Office, Kyoto Factory  
ISO14001 Applicable scope: Headquarters, Kyoto Factory

#### Comments/suggestions about AnyWire products: