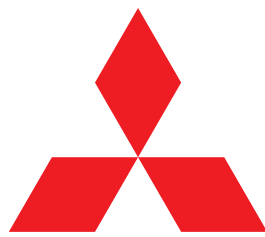




Flexible Sensor Network



**MITSUBISHI  
ELECTRIC**

&



**Innovative sensor network solution  
resulting from combined expertise**



**Strengthened industrial automation solutions  
using a fusion of two network technologies.  
Introducing a new level of sensor network innovation.**



**Strong collaboration between AnyWire and Mitsubishi Electric industrial automation networks**

Mitsubishi Electric, the developer of the open network CC-Link, is now partnered with the leading maker of flexible sensor networks, Anywire. From information systems, to every corner of the production facility, all networking needs can be satisfied. This coordination of industrial automation products supports a total solution for optimization of the entire factory.

\* As of May 2010, Anywire has become part of the Mitsubishi Electric Corporation Group.



Mitsubishi Electric Corporation is a global leader in industrial automation technology and industrial networks.

As a total solution provider, Mitsubishi Electric Corporation offers a wide range of advanced industrial automation products and solutions. From high level information systems to low level field networks, Mitsubishi Electric Corporation can provide a seamless network that optimizes operations from development to maintenance.



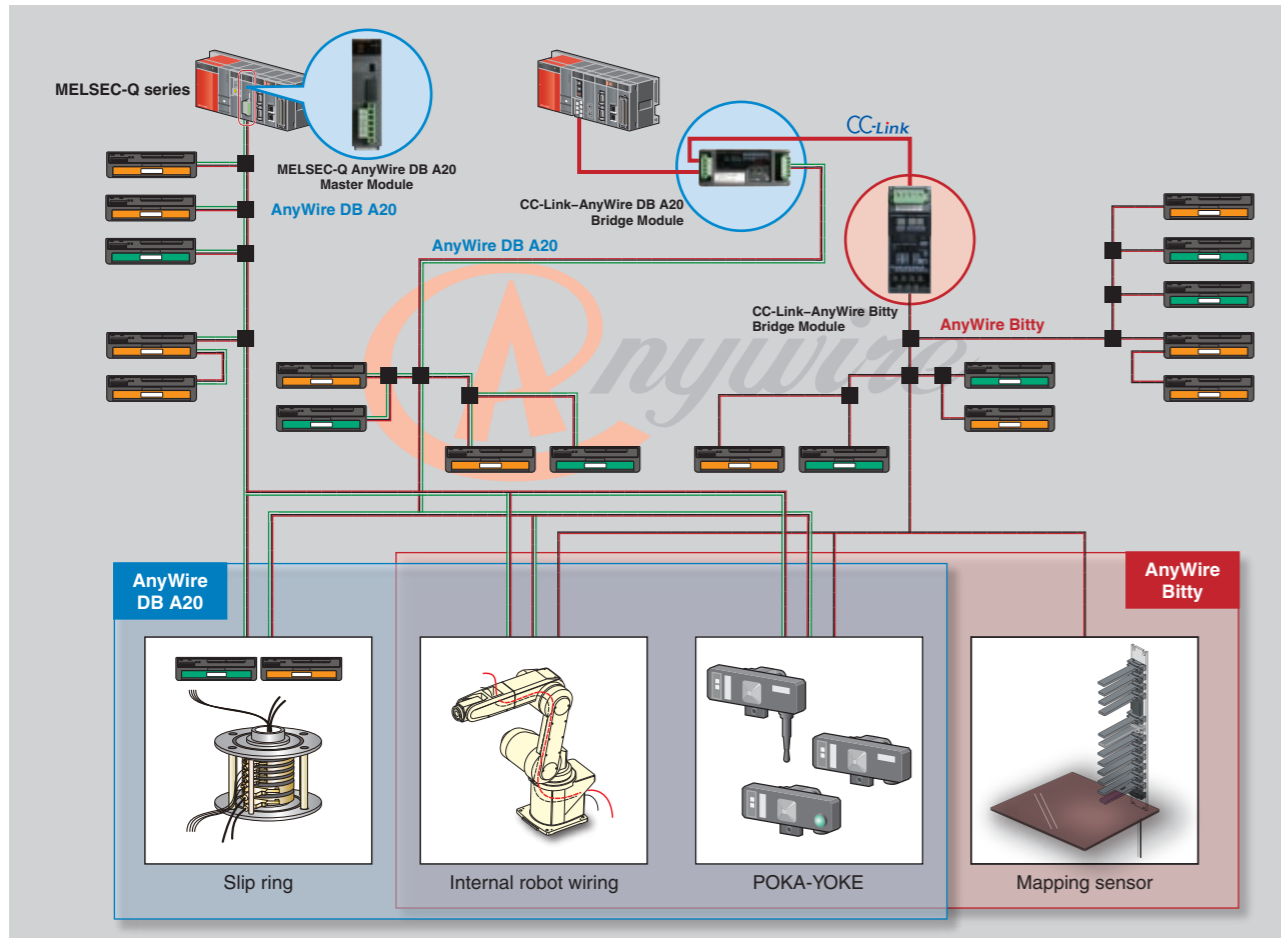
Anywire has consistently stayed one step ahead when it comes to reducing wiring in industrial settings and has caused a stir in the industry with their advanced technology.

Starting with the original development of the world's first 'double duplex' communication chip, new products designed to conserve wiring and connect system sensors are continuously being developed.



# From the time of its release until today, this sensor network continues to be "state-of-the-art."

These sensors can be used all over the factory. Sensors are an indispensable part of industrial automation and by reducing the amount of wiring and man-hours spent connecting, testing, and troubleshooting those wires, costs can be reduced. Achieve a high degree of freedom by choosing the cable type and prevent wastefulness by using products from the thorough lineup, such as integrated sensors that conserve wiring. Mitsubishi Electric Corporation and Anywire provide a state-of-the-art sensor network solution.



## Reduced design and start-up cost

<b>Topology free</b>	Create connections in whichever configuration is most convenient (star, bus, tree, etc.) Wiring can be done freely.	<b>Use general purpose cable</b>	In addition to general purpose cable, slip ring connections, trolley rail connections, etc. can be used.
<b>Power and data transmission</b>	Conserve wiring by sending power and data over the same (4 conductor) wire.	<b>No wasted I/O points</b>	Spread out or concentrate I/O points where they're needed and avoid unused points. Add additional points flexibly, if and when they're needed.

## Conserve wiring by consolidating various sensors

<b>Mapping Terminal Sensor → P.7</b>	As new generations of FPD production advance, ever larger sizes of glass substrate need to be moved from point to point. Only by sensing every part of the manufacturing process can the prevention of cracks forming be ensured. The AnyWire mapping sensor accomplishes this with high performance sensing and the ability to conserve points and wiring.	<b>POKA-YOKE Terminal → P.9</b>	The "POKA-YOKE" system by AnyWire has started a revolution in production processes. Using this low-cost design, a system to allow fast and accurate picking of parts for small quantities of complex production items can be easily constructed.
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## ► Mitsubishi Electric Corporation Products

### DB A20 series

#### ■ AnyWire DB A20 Master Module QJ51AW12D2

<b>Q bus connection</b>	<b>Maximum total cable distance 3km</b>	<b>Topology free</b>
<b>Maximum points 1024</b>	<b>4-wire configuration</b> <small>(2 for communication, 2 for power)</small>	<b>Variable transmission speed</b> 125kHz / 31.3kHz / 7.8kHz / 2kHz



#### ■ CC-Link-AnyWire DB A20 Bridge Module NZ2AW1C2D2

<b>CC-Link Ver.2.0</b>	<b>Maximum total cable distance 3km</b>	<b>Topology free</b>
<b>Maximum points 1024</b>	<b>4-wire configuration</b> <small>(2 for communication, 2 for power)</small>	<b>Variable transmission speed</b> 125kHz / 31.3kHz / 7.8kHz / 2kHz



### Bitty series

#### ■ CC-Link-AnyWire Bitty Bridge Module NZ2AW1C1BY

<b>CC-Link Ver.1.1</b>	<b>Maximum total cable distance 100m</b>	<b>Topology free</b>
<b>Maximum points 512</b>	<b>2-wire power connection</b>	<b>Variable transmission speed</b> 27.0kHz



Anywire Corporation Products

DB A20 series

POKA-YOKE

7-segment LED display type POKA-YOKE terminal (installs on pipe construction shelving)

A227XB-73M2-P



A227XB-73MLU-P(-H1)



Pipe construction shelving instillation type POKA-YOKE terminal

Model	I/O points		Dimensions (mm)	Pipe diameter	Current consumption (mA)
	Input	Output			
A227XB-73M2-P	1	1	110 x 103 x 67	φ28	61
A227XB-73MLU-P(-H1)	1	1	110 x 36 x 67	φ28	61

\* Models ending in "H1" adhere to the A027-HP28-H1-5P standard.  
Models that do not end in "H1" adhere to the A027-HP28-5P standard.

Various I/O units



Refer to the website of Anywire Corporation for details regarding AnyWire DB A20 series I/O product specifications.

Bitty series

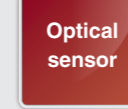
POKA-YOKE

Pipe construction shelving instillation type POKA-YOKE terminal

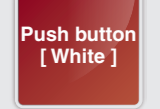
A027XB-02G2-P



A027XB-02GL-P-H1

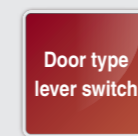


A027XB-02GN2-P-H1



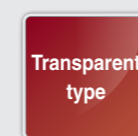
Model	I/O points		Dimensions (mm)	Pipe diameter	Current consumption (mA)
	Input	Output			
A027XB-02G2-P	1	1	110 x 103 x 66	φ28	35
A027XB-02GL-P-H1	1	1	110 x 41 x 61	φ28	35
A027XB-02GN2-P-H1	1	1	110 x 41 x 66	φ28	35

Pipe construction shelving instillation, door type POKA-YOKE terminal



Model	I/O points		Dimensions (mm)	Pipe diameter	Current consumption (mA)
	Input	Output			
A027XB-F02G2-P(-H1)	1	1	110 x 103 x 66	φ28	Standby: 19 Operation: 522

POKA-YOKE Terminal (dustproof) 70mm & 140mm types

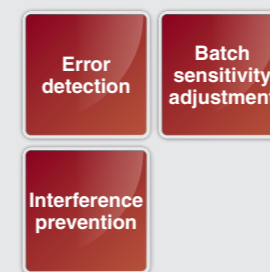
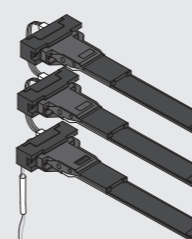


Model	I/O points		Sensor specification	Dimensions (mm)	Instillation	Current consumption (mA)
	Input	Output				
A027PB-T07P02D-P	—	1	transmitter	70 x 30 x 10	M3 screw	21
A027XB-T07P02D-C	1	1	receiver	70 x 30 x 10	M3 screw	25
A027PB-T14P02D-P	—	1	transmitter	140 x 30 x 10	M3 screw	21
A027XB-T14P02D-C	1	1	receiver	140 x 30 x 10	M3 screw	25

(70mm short type pictured above)

MAPPING

Mapping terminal



Mapping terminal set

Model	Input	Instillation pitch (mm)
A032C□□□-STPY-□□□□□□□□	Diffusion reflection type	15-

Mapping terminal set (Address, Single slave sensor unit)

Model	Input	Instillation pitch*(mm)	Instillation pitch*(mm)	Current consumption (mA)
A032SB-MX100-03-STP	Diffusion reflection type	45 x 100 x 15	15-	9
A032SB-MX150-03-STP	Diffusion reflection type	45 x 150 x 15	15-	9
A032SB-MX165-03-STP	Diffusion reflection type	45 x 165 x 15	15-	9
A032SB-SX100-03-STP	Diffusion reflection type	45 x 100 x 15	15-	9
A032SB-SX150-03-STP	Diffusion reflection type	45 x 150 x 15	15-	9
A032SB-SX165-03-STP	Diffusion reflection type	45 x 165 x 15	15-	9
A032SB-SV100-03-STP	Diffusion reflection type	45 x 100 x 15	15-	9
A032SB-SV150-03-STP	Diffusion reflection type	45 x 150 x 15	15-	9
A032SB-SV165-03-STP	Diffusion reflection type	45 x 165 x 15	15-	9

\* 11 to 14mm pitch can also be supported, please consult separately.

Various I/O units



Refer to the website of Anywire Corporation for details regarding AnyWire Bitty series I/O products specifications.



# Mapping sensor terminal

## The mapping sensor terminal is an indispensable part of the FPD manufacturing process

The mapping sensor detects the FPD glass substrate while conserving wiring

### Easy connection of wire-conserving sensors

#### Includes error detection function

The error detection function identifies in which comb a failure occurred and when

- If a comb becomes detached
- If a comb is not receiving power
- If communication with a comb sensor is lost
- If an electrical component of the comb breaks down

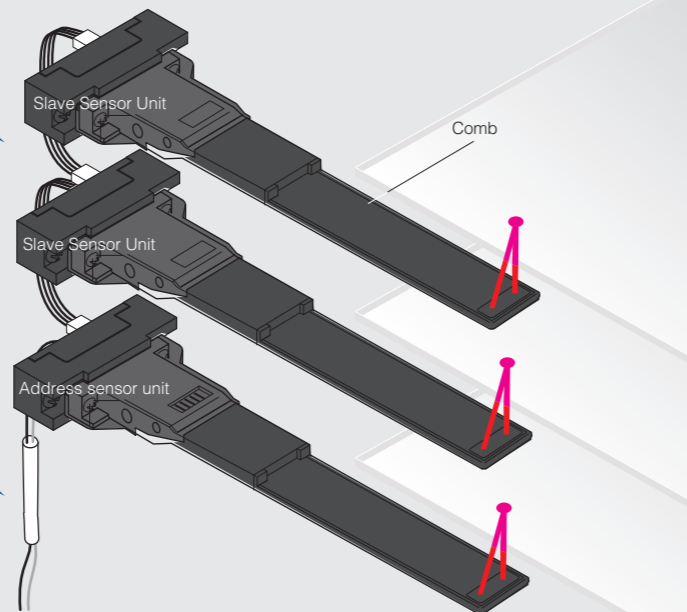
#### Conserve wiring with a single 2 conductor cable!

Conserve wiring neatly by using a multi-stage configuration

- Only 2 wires from the sensor terminal
- Decrease environmental impact by reducing the amount of required wiring
- Increase the flexibility of use through space-saving lightweight construction

#### Perfect for glass substrate

- The distance from the glass can be detected with a high level of accuracy
- It is possible to support various angles of pitch



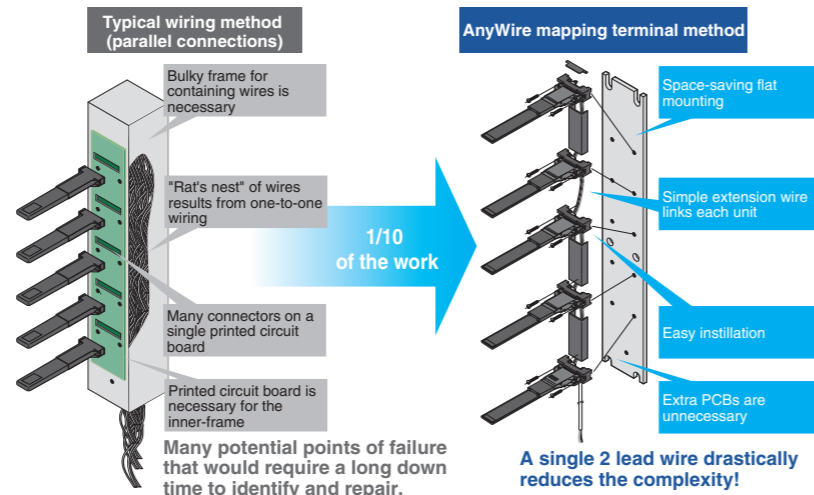
### Multi-stage sensor for detection of FPD clear glass and wafer

AnyWire's original technology mapping terminal sensor achieves a thickness of just 2.75mm and is able to meet the demand for a range of pitch values.

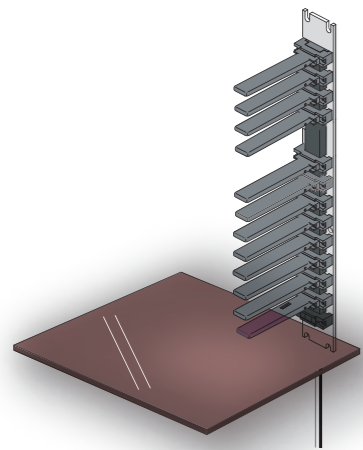
### The mapping system has an interference prevention function and ability to conserve wiring

By using the original "Bitty technology" it is possible to connect more than 70 devices using only a 2 conductor wire, thus reducing wiring costs and man-hours associated with installing and maintenance of the connections. Furthermore, reliability can be improved due to fewer wires exposed to stress from movement or vibration.

### Superiority of wire-conserving sensors



Mapping terminal (For detection of FPD glass)



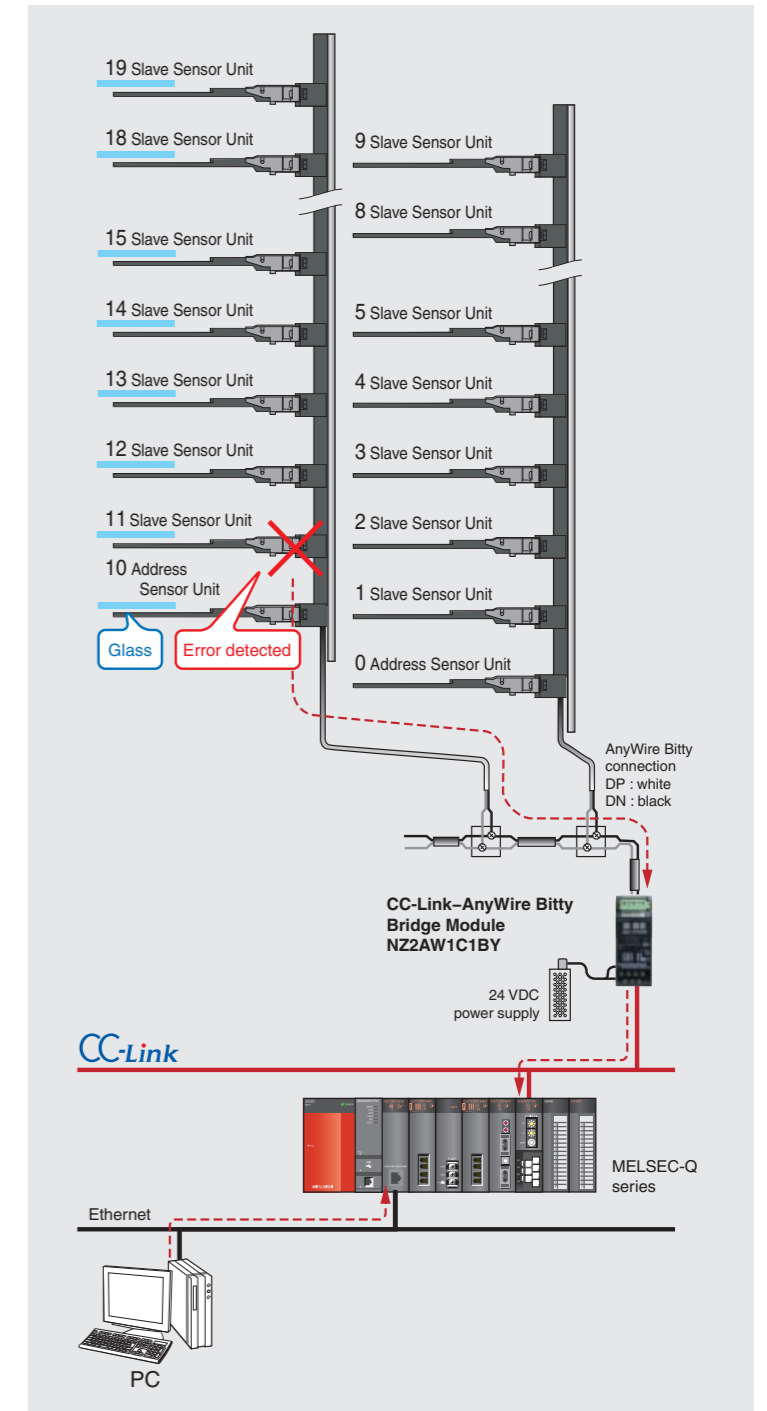
## System example : FPD manufacturing

For clear FPD glass



### Features

- It is easy to build the system while save wiring
- Even when the object distance varies, it is still reliably detected
- Maintains stable operation even when
- Batch sensitivity adjustment included
- Can be freely used in other applications
- Fully compatible the CC-Link

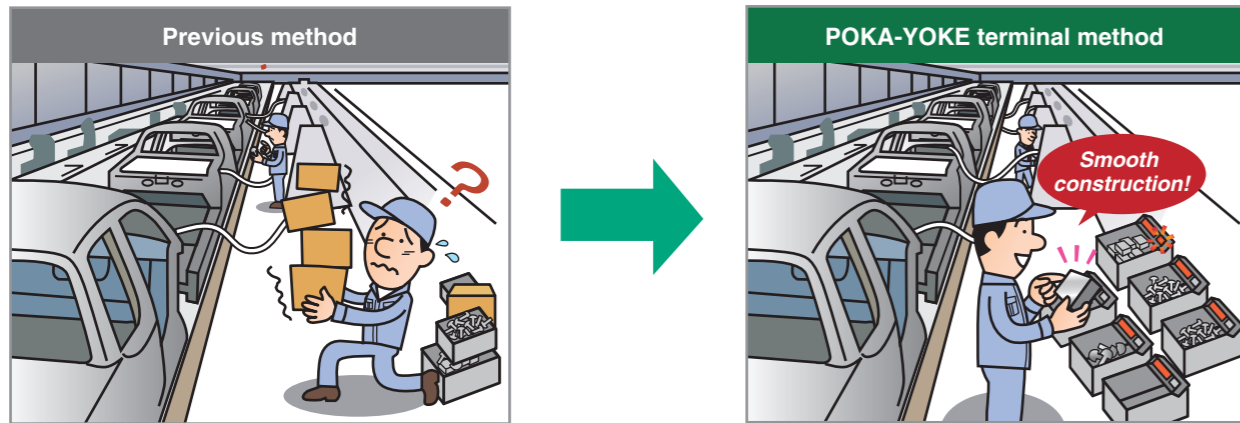


# POKA-YOKE Terminal

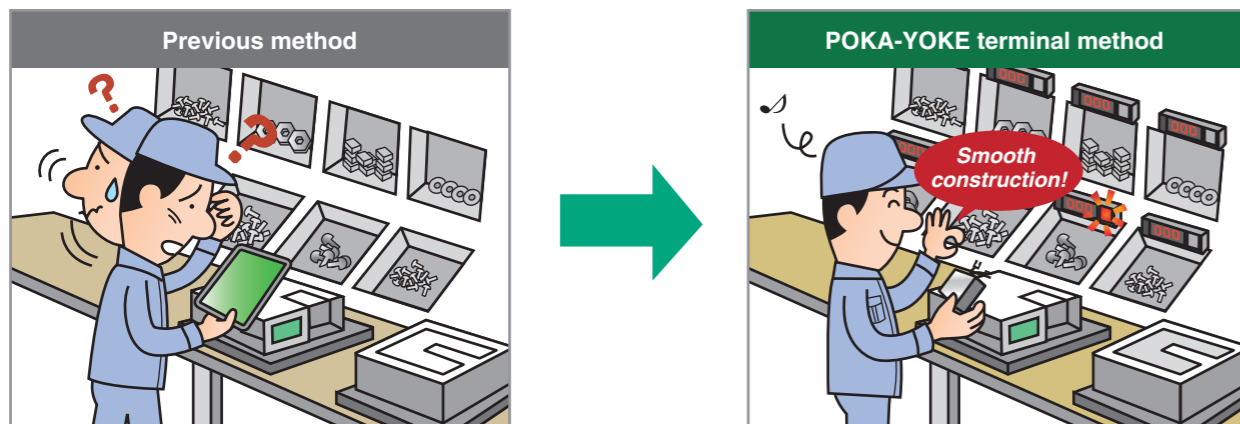
## Before and after adoption of pokayoke terminals

Situations where using POKA-YOKE terminals can help:

### In an automotive assembly line:



### In a consumer electronics assembly line:

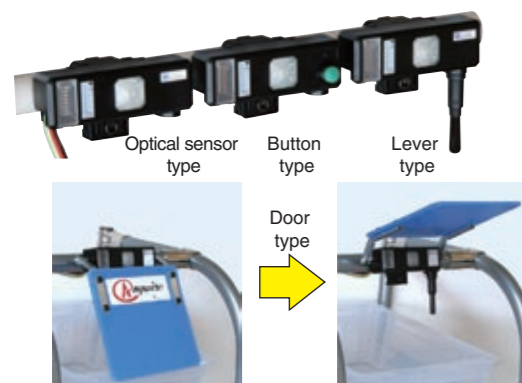


- × It takes time and effort to continue referring back to the instruction sheet
- × It is easy to forget the location of a required part.
- × It creates a situation where only one hand is available for working
- × More time is required to complete each job
- × There is a possibility of using the wrong parts

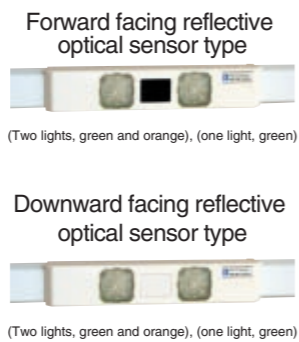
- It becomes unnecessary to refer to a list or instructions
- It is quick and easy to locate the correct parts
- It is easy to work with both hands
- The time reacquired for assembly of each item is decreased
- Quality can be increased by improving accuracy

## There are a variety of POKA-YOKE terminal types

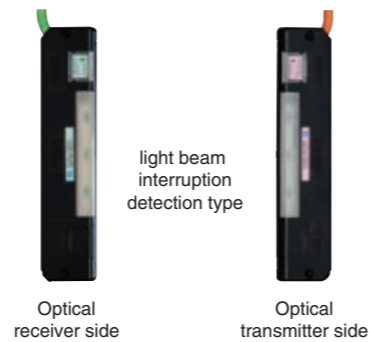
### Tube shelf instillation type



### Steel shelf instillation type (reflective)



### Direct instillation type (transmission type)



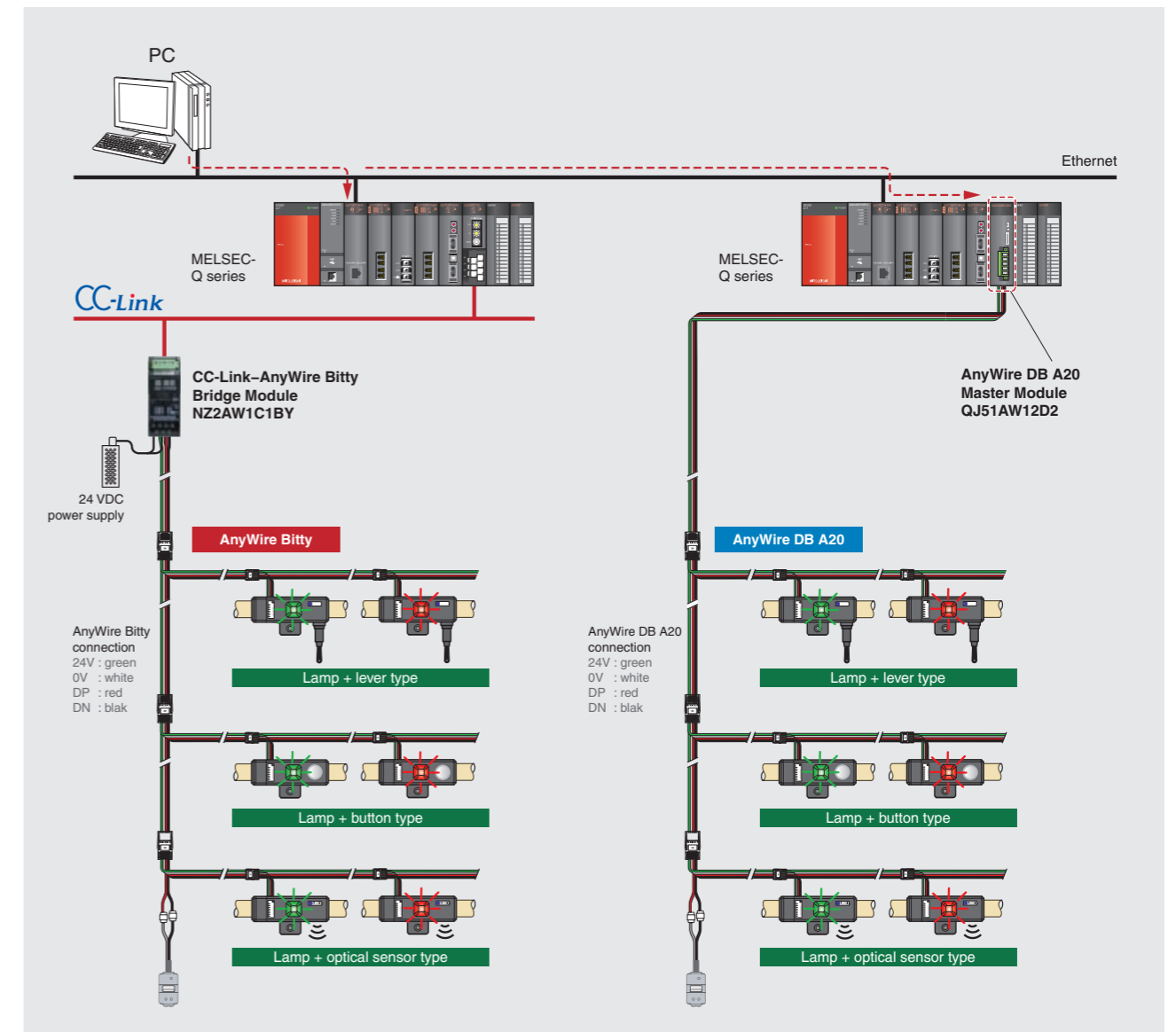
## System example : Parts picking system for car assembly

For automobile manufacturing lines



### Features

- Easy to conserve wiring while constructing the system
- System is easily expanded, allowing a high degree of freedom
- Satisfy various site demands by using several types
- The work of picking parts becomes quick and easy
- The chance of picking the wrong piece is greatly reduced
- Reduces the amount of time necessary to complete item
- Support for CC-Link (NZ2AW1C1BY)
- Direct Q-bus communication (QJ51AW12D2)





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