

Anywire

AnyWire eco Sho-Haisen Catalog

New Sensor Network Technology
AnyWire for wiring savings

Open Network

eco Sho-Haisen System

AnyWire DB A20 series

Motion

Field Network

PC Interface

I/O Interface

Ethernet

O R B I T

PLC I/O

Dear Valued customer,

March 1st, 2023

ANYWIRE CORPORATION

Notification of price revision

We are afraid that the prices listed in this catalog are not the current standard prices.

Please contact our distributors for sales prices.

Sincerely,

eco Sho-Haisen System
AnyWire DB A20 series catalog

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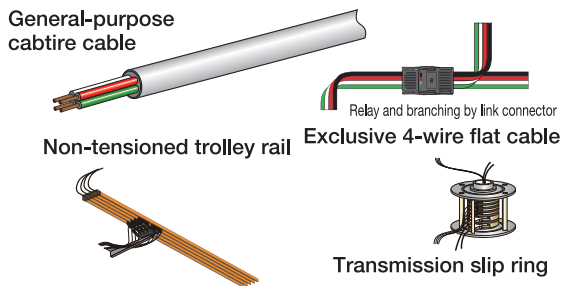
Aiming at “eco”

“AnyWire DB A20 series” is a Sho-Haisen system that focuses on “ecology” a critical issue of present day industries. This series offers features to meet requirements in resource savings, space savings and cost savings.

This is “eco”

Media Free

Noise resistant AnyWire does not force customers to use expensive shield wires or exclusive electric wires. Various media such as general-purpose electric wires and existing constructed spare wires can be used. In addition, since transmission through sliding type connection media such as trolley rails and slip rings is available, Sho-Haisen (wiring savings) allows you to save on wiring even in locations that were conventionally impossible, resulting in great contribution to on-site eco.



*For details on use, contact us separately.
*This system does not guarantee data in an off-line state.

In other words,

- Expensive exclusive shield wires are unnecessary
- Existing electric wires can be used as they are

Then, eco.

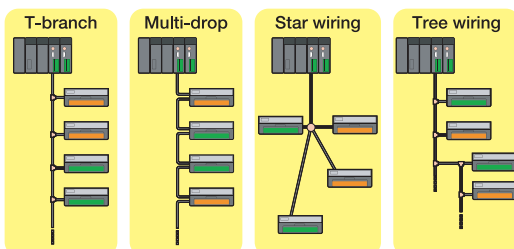
This is “eco”

Topology Free

All types of electric wires can be used, so we release customers from troublesome restrictions even at actual wiring sites. This system has neither restrictions in the transmission line branch method nor in the concept of main lines and sub lines.

After installing each unit at the respective sites, customer only needs to connect electric wires in the desired order, then connection is completed. For expansion, it is only required to carry out at the nearest location.

In addition to wiring savings, use quantity of electric wires can be cut, and environmental load is significantly reduced.



*Number of branches should be 10 or less as a reference.
However, in order to obtain a more stable transmission state, it is recommended to configure using a minimum number of branches wherever possible.

In other words,

- Handling in the shortest distance is possible
- Easy improvement and no waste

Then, eco.

*Secret of “no waste”

Use of link connector allows for “no electric wire” cuts, “no waste,” and simple, convenient and speedy “eco branch.”

For details, see page 03! →

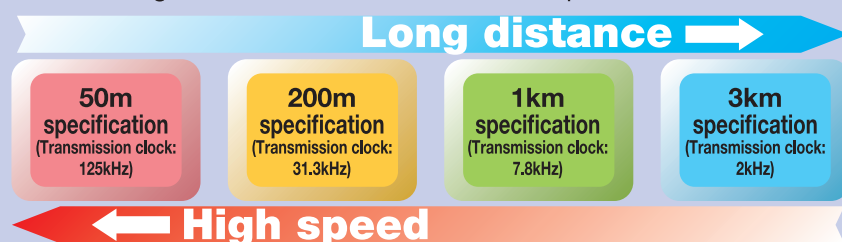
What is eco Sho-Haisen “AnyWire DB A20 series?”

**Environmentally-responsive
Sho-Haisen system specializing
in high-speed and long-distance transmission.**

Difference from other AnyWire Sho-Haisen systems

◆Specializing in high-speed and long-distance transmission

DB A20 series has the following four transmission modes and responds to various situations.



◆Realized inputs/outputs at a maximum of 512/512 points

Apart from the above transmission modes, inputs/outputs can be set at several points

(*Number of settable modes depends on master unit).

- **A maximum of 512 input points and 512 output points can be handled**
- **Digital I/O and various analog I/O can be mixed**
- **For digital I/O, the lineup consists of 4/8/16/32 points which can efficiently distribute I/O**
- **For analog I/O, general input/output such as 420mA, 0 to 5V, and input terminals for temperature, humidity, pulse and current measurement, etc., are available**

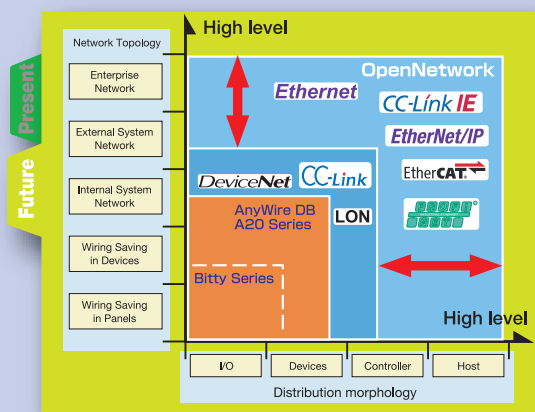
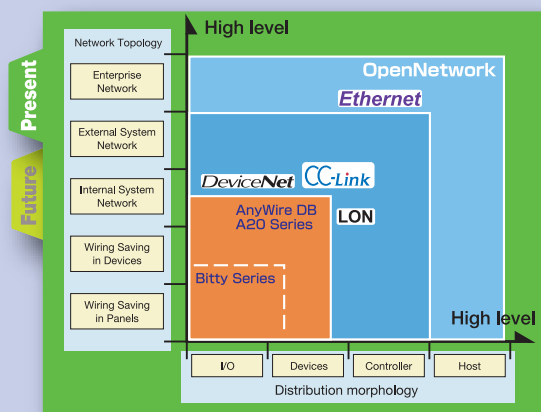
*See the table at right for transmission mode, number of I/O and response time...

■DB A20 series basic specifications: 1 cycle time Unit: ms

Speed (distance) set	50m specification (125kHz)	200m specification (31.3kHz)	1km specification (7.8kHz)	3km specification (2kHz)
Number of points set				
Input 32 points/Output 32 points	0.42	1.7	6.8	24.8
Input 64 points/Output 64 points	0.7	2.7	10.9	40.7
Input 128 points/Output 128 points	1.2	4.8	19.1	72.4
Input 256 points/Output 256 points	2.2	8.9	35.5	135.9
Input 512 points/Output 512 points	4.3	17.1	68.2	262.9

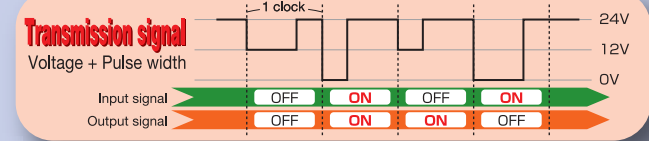
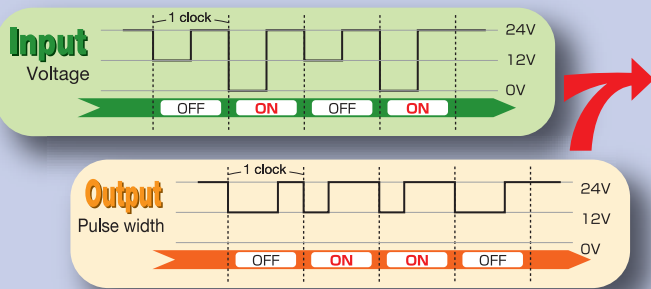
*Actual transmission delay (transmission cycle time) is a value between 1 cycle time and 2 cycle time.
*In order to securely make an input signal response, provide an input signal longer than 2 cycle time.
*The above values are for basic specifications. For details, see the user's manuals of each master unit.

Positioning of AnyWire Sho-Haisen system



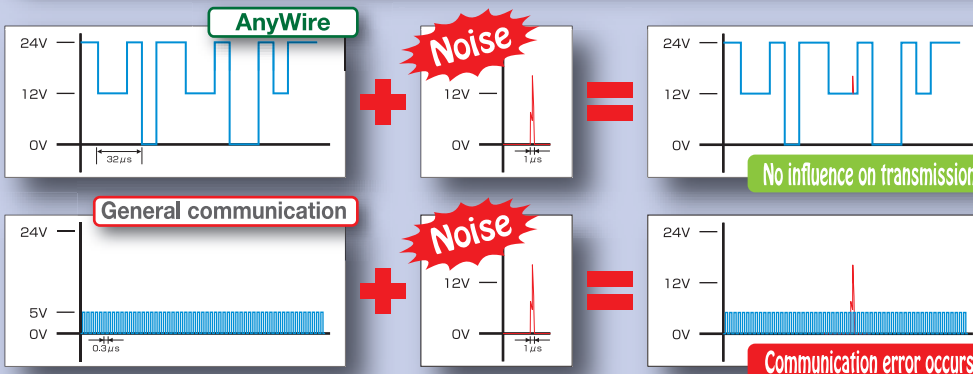
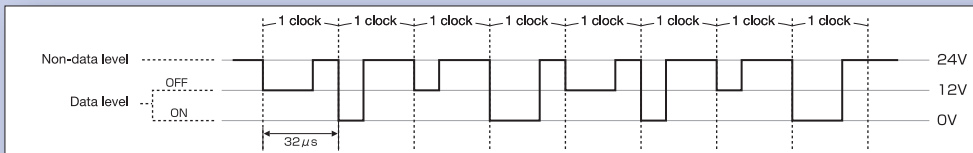
AnyWire Sho-Haisen system is a distribution I/O system of “sensor/actuator levels” which provide the greatest use amount for electric wires. Even with greater reliance on open networks and Ethernet for industries in the future, the number of wirings in sensor cannot be significantly reduced. On the other hand, wiring has tended to increase tremendously, and become more complicated in response to equipment density growth, enhancement of safety features and traceability, etc. AnyWire Sho-Haisen system is optimum as a system to complement these open networks and Ethernet for industries.

High-efficiency transmission protocol



For transmission signal of AnyWire Sho-Haisen system, "Input" is expressed by voltage, and "Output" is expressed by fluctuation in pulse width. This allows for transmission of information of 2 bits in 1 transmission clock. Furthermore, the ratio of actual data to the entire signal is high, and a very high effective transmission speed is realized even at a low transmission clock frequency.

High noise resistance is secured



AnyWire Sho-Haisen system is

- ① Different in transmission voltage
Transmission voltage of AnyWire is 24V DC while that of other methods is 5V DC. Greater margin for noise can be taken.
- ② Different in transmission clock frequency
Transmission clock frequency of AnyWire is 31kHz while that of other methods is approximately 500kbps to 3Mbps. With a sufficiently large clock width, hardly susceptible to noise.

AnyWire's unique high-efficiency transmission is indispensable for decreasing transmission clock frequency while securing highly effective transmission speed.

Noise resistance is enhanced with low transmission clock, and transmission errors hardly occur because of high noise resistance, and error correction codes that occupy higher ratios in other methods can be omitted and high-efficiency transmission can be achieved because transmission errors hardly occur.

As described above, AnyWire's unique transmission method has many unprecedented features and realizes user-friendly usability.

Breakthrough "eco branch" system

When a user uses the Sho-Haisen and the field bus, etc., the user considers "branching" at the site. There are two reasons for this. One is "there are many restrictions and conditions on branching," however, AnyWire's Sho-Haisen system has a feature of "no limitation in branching" and offers a solution to this problem. The other is "branching work itself is difficult." When Sho-Haisen is adopted, there are many distributed points, or there is no space for laying many electric wires in many cases, so connection/branching works are very difficult in such locations.

Therefore, AnyWire has come up with a link connector that realizes "eco branch."

Features of link-connector and how to use

- Branching can be made even in the middle of wiring because of crimping.
- No waste is produced because an electric wire is not cut/sheath is not stripped.
- There is no difference between male and female, and are the same models, so it is easy to understand.
- A terminal that can be directly connected by the link connector is available.



You can sandwich wire in a sleeve even in the middle or at the end of an electric wire.

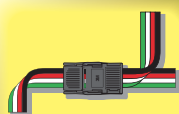


Clamp with a dedicated tool to crimp. (See the accessory items.)



T-branch, 4-branch or extension is allowed. Working time is significantly reduced.

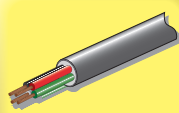
Media Free All types of transmission media (electric wire) can be used



4-core flat cable

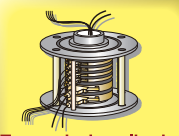
Our four-core flat cable "FK4-075-100" realizes unprecedented usability by using our link connector "LP4-BK-10P."

It is possible to branch and extend electric wires without cutting wires and peeling the coating. Work time can also be reduced, and this is an eco standard combination which produces no electric wire and coating waste.



General-purpose cabtire cable

Inexpensive general-purpose cabtire cables which are available anywhere can also be used. Thick, hard and expensive exclusive cables which are difficult to handle but are typical of networks and shielded are made unnecessary. Even spare electric wires and electric wires which have already been used can be used as they are for the high noise-resistant AnyWire Sho-Haisen system as they are. Link connectors for general-purpose cabtire cables are also available.



Transmission slip ring

Slip ring can also be used for transmission of the AnyWire Sho-Haisen system. (Note) Such a system requires an increase in the number of poles of slip rings with an increase in the number of I/O points, and additional installation is not realistic. The AnyWire Sho-Haisen system can transmit input/output signals of a maximum 1024 points in a four-core cable, for not only new installations but also replacement and reconstruction can be flexibly responded.

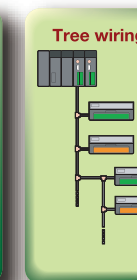
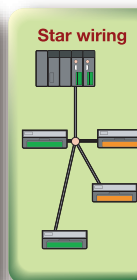
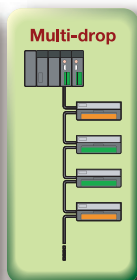
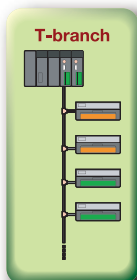


Non-tensioned trolley rail

Trolley rail (non-tensioned type) is also transmission media for the AnyWire Sho-Haisen system. (Note) As with the case with slip rings, increase in the number of poles directly leads to an increase in costs, and it is very difficult to configure flexible systems and add I/O because there are some physical restrictions, however, many problems are solved by using the AnyWire Sho-Haisen system.

(Note) For details on use, contact us separately.
(Note) This system does not guarantee data in an off-line state.

Topology Free No limitation in branching



AnyWire Sho-Haisen system allows flexible branching and connection.

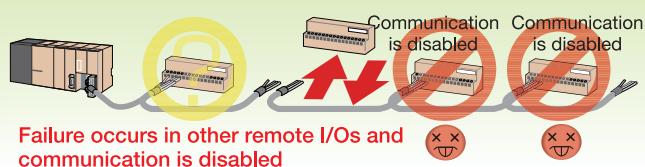
There is no detailed specification for how to branch or minimum distance between respective I/O terminals, and various wiring methods such as T-branch, multi-drop, star and tree can be selected. Additionally, there is no problem if these methods are combined. In addition, this system also allows attachment/detachment while online (power-on), and any other device other than the separated terminals operates as is with no problem.

*In order to facilitate disconnection when trouble occurs, it is recommended to wire with T-branch.
*For a stable transmission state, it is recommended to decrease the number of branches wherever possible (10 or less branches).

Connection and disconnection in a live-line state

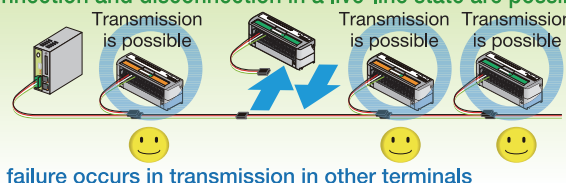
Conventional remote I/O communication method

Connection and disconnection in a live-line state are difficult



AnyWire Sho-Haisen System

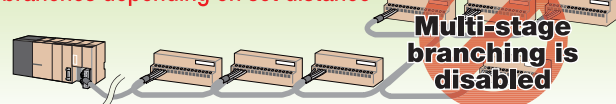
Connection and disconnection in a live-line state are possible



Limitation in number of branches

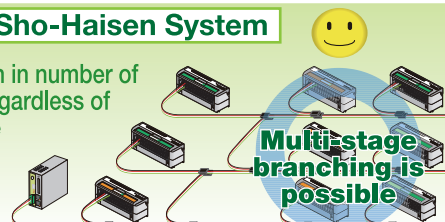
Conventional remote I/O communication method

Limitation in number of branches depending on set distance



AnyWire Sho-Haisen System

No limitation in number of branches regardless of set distance



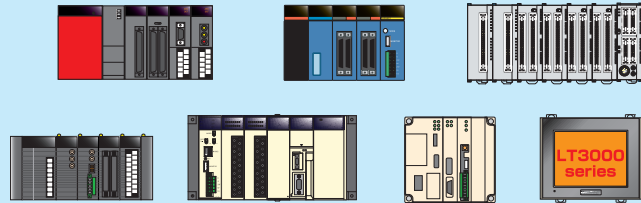
Any Controller

AnyWire aims for a Sho-Haisen system which can be connected to any controller. This system can be connected to all controllers considered such as various PC expansion BUS slots, Open Networks for FA and Ethernet for industries, including PLC and FA systems of each company.

AnyWire Sho-Haisen system always generates ideas and develops products from an on-site perspective.

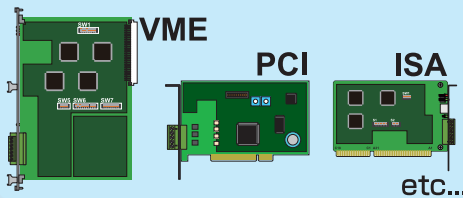
Any controller can be used

PLC & controller of each company



etc...

For various PC-BUS types



etc...

Open Network



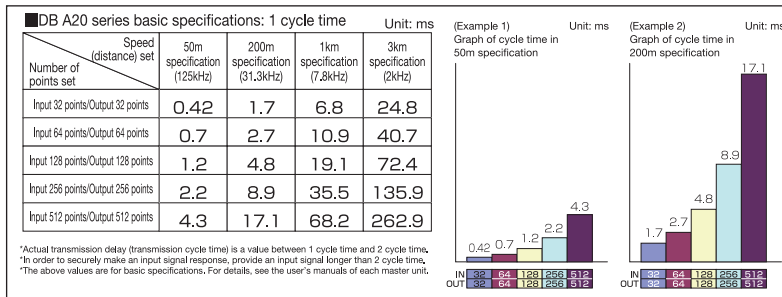
etc...

Real Time

Stable transmission reliability

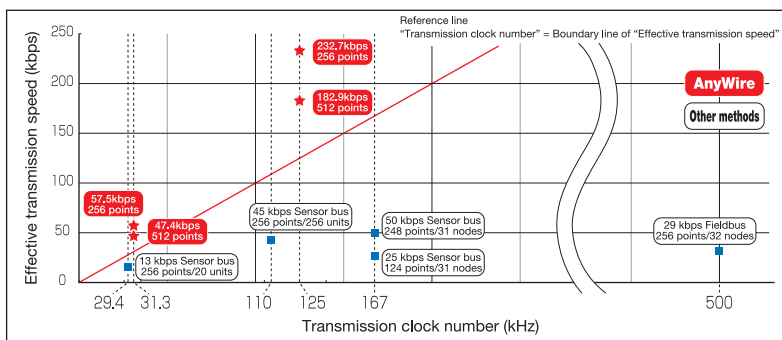
Stable transmission by cyclic transmission

- 1 cycle time is confirmed at a moment when the "number of input/output points" and "distance (speed)" are set.



No retry caused by transmission errors due to noise

- Transmission in low clock itself is possible even at many points by high-efficiency transmission signal. High noise resistance is realized.
- Transmission reliability is ensured because countermeasures for emergency noise errors are taken by "2 consecutive checks."



In general data transmission, a relationship between the transmission clock number (kHz) and effective transmission speed (kbps) is as follows.

"Transmission clock number" > "Effective transmission speed"

Furthermore, the difference becomes larger as transmission efficiency deteriorates, and this tendency does not change even with a full duplex transmission method.

AnyWire Sho-Haisen system realizes "effective transmission speed" above "Transmission clock number" by the unique high-efficiency transmission (see the lower left diagram).

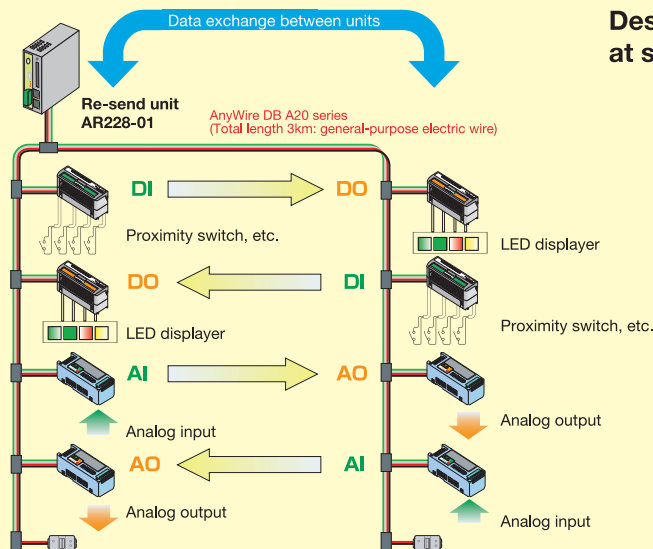
Transmission method with poor efficiency only increases the transmission clock number in order to increase the effective transmission speed, and noise resistance is degraded if the transmission clock number increases. For this reason, retry to send out data often occurs due to a transmission error in a high noise environment, resulting in a vicious cycle of decreasing effective transmission speed. "High-efficiency and low clock transmission" of the AnyWire Sho-Haisen system is a transmission method which realizes high noise resistance and stable transmission reliability by a cyclic transmission with an approach completely reverse to the conventional method and by cyclic transmission.

If transmission reliability is stable, response speed can be calculated at a desk, therefore, stable transmission reliability is a significant advantage when control logic is designed. AnyWire Sho-Haisen system is also system friendly to a designer.

Case No.1

<Transmission between terminals>

Digital, analog signal passing



Controller is not used.

Desire to realize remote manual operation at some points by easy methods.

Desire to turn on/off remote indication lamp by turning ON/OFF switch.

Desire to operate bulb remotely.

Desire to analog-output analog input remotely.

The above one-to-one connections result in bulky wiring, obstructions, requires a great amount of care, and proves troublesome when increasing/decreasing the number of points. Such problems are resolved.

Operations of 512 points distributed at a maximum 64 points can be realized between places 3km apart at a maximum from each other only by laying two transmission lines and placing terminals of input and output.

There is no restriction in placing inputs and outputs. This can be used only by simple setting.

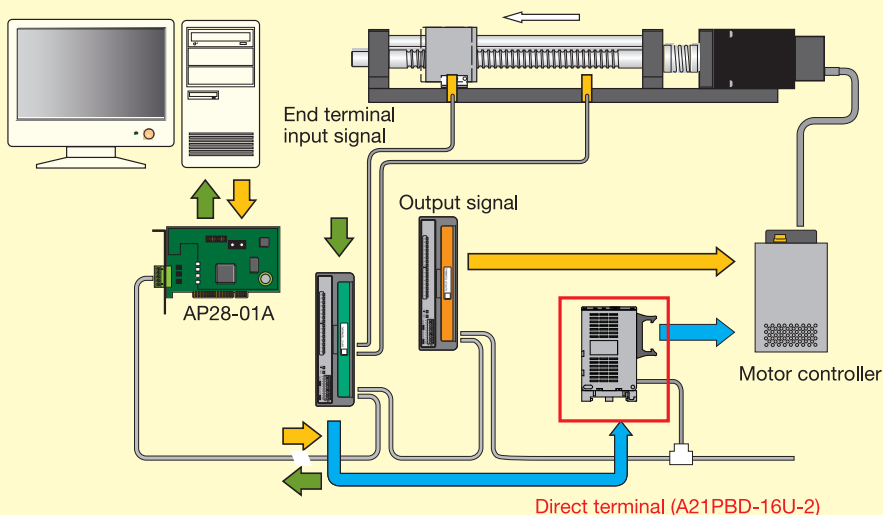
Case No.2

<Direct terminal>

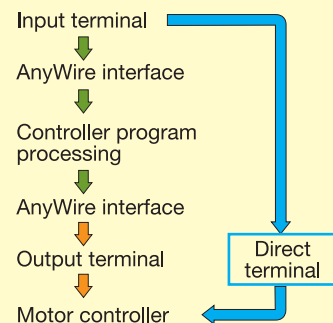
Also desire to control limit signals for actuators through Sho-Haisen system.

Desire to minimize delay times from detection to stop.

Use of transmission between terminals together with normal transmission



AnyWire direct terminal can configure direct signal flows of blue arrow in addition to normal signal flows from green arrow to orange arrow. In other words, because transmission between terminals can be performed at the terminal, time can be significantly reduced while the Sho-Haisen system is used.

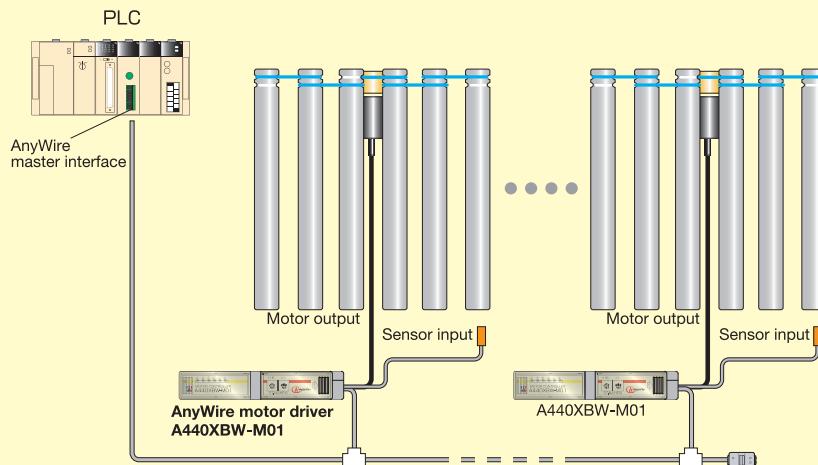


Case No.3

<Conveyor control by zone grabbing>

Desire to establish a next generation conveyor for energy savings, man-hour savings and wiring savings at a time that requires ecologically-minded initiatives.

AnyWire Sho-Haisen driver substitutes for complicated controls at end.



Motor driver grabs the front, rear and own sensors, and independently judges the position of a load to control the motor. Host controller has only to command the operation pattern, and programs can be significantly reduced. Motor can be rotated only at necessary locations, and energies can be saved on a conveyor line.

*Contact our sales representative for A440XBW-M01.

Case No.4

<Trolley & slip ring>

Desire to control multiple points on a rotating body and linear moving objects...

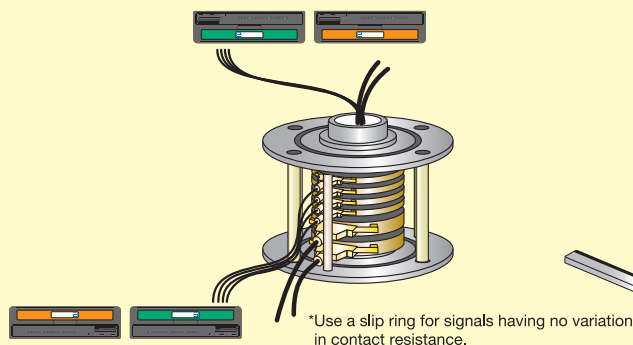
Desire to minimize the number of electric poles and rails by using the Sho-Haisen system...

AnyWire's system can be used for transmission media including contact points.

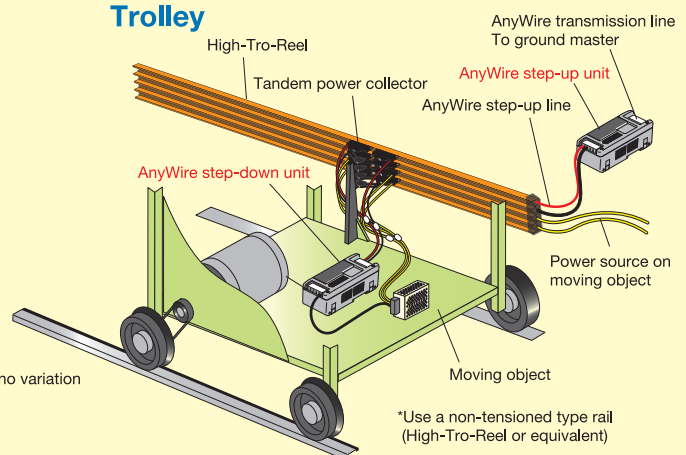
2 electric poles for slip ring signals or 2 trolley rails allows to transmit input/output of 512 points at maximum onto rotating parts and linearly moving parts.

A transmission signal step-up/down buffer unit is used together for removal of oxidized film on contact parts.

Slip ring for signals



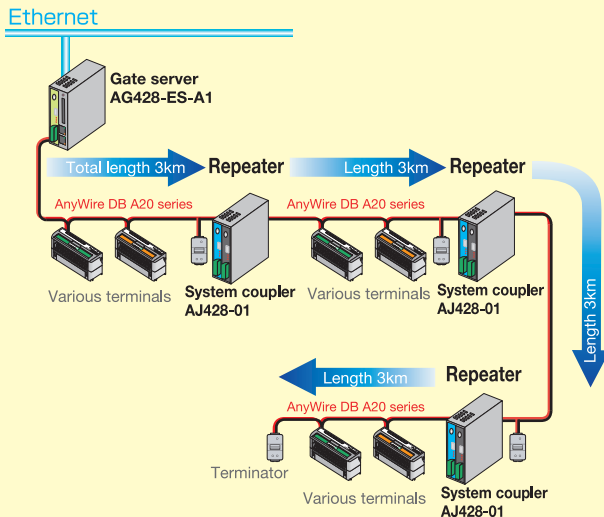
Trolley



Case No.5

<Very long distance transmission by use of repeater>

Expansion of “distance” and “branching” is possible by repeater function.



Desire to establish a system in which a small number of D-I/O blocks with the same configuration are scattered over a long distance.

Total length is insufficient...

If a small number to tens of D-I/O blocks are scattered over a long distance, the AnyWire Sho-Haisen system which uses existing cables and general-purpose cables in small numbers and in many distributed areas is convenient. DB A20 series allows transmission distances of up to 3km particularly in order to respond to long distance transmissions.

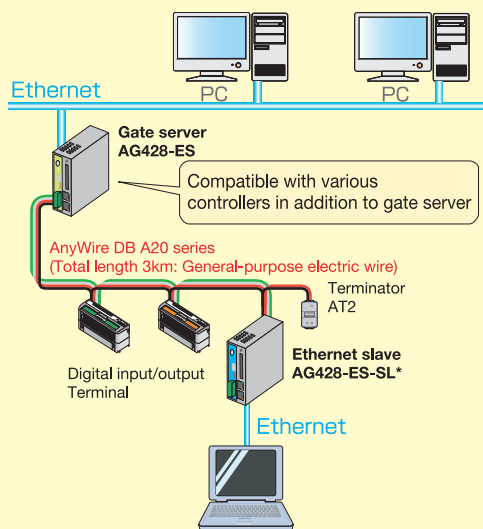
If it is still insufficient, the length can be extended by a repeater. Systems are joined by a repeater, then there is no logical limitation* in distance.

*It is necessary to take transmission delay time into consideration.
*Contact our sales representative for AJ428-01.

Case No.6

<Monitoring by data preemptive unit>

Monitoring by Ethernet



Desire to debug on-site in advance without waiting for completion of host controller. Furthermore, desire to install sub-monitors at any position.

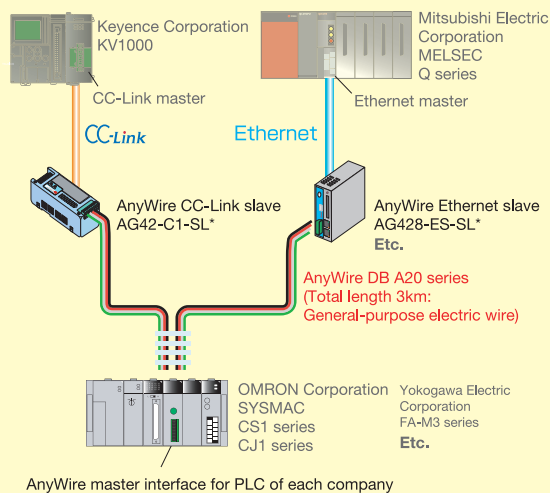
If any Ethernet slave unit is inserted into the AnyWire transmission line, a monitor port can be installed by Ethernet connection at any place. Connection of laptop computer, etc., allows D-I/O input monitor, compulsory output, analog monitor, and compulsory analog output operation from this port. This allows to debug only at end even if equipment and program on the host are not established. In addition, a local monitor can be installed at any place by SCADA, etc.

*Contact our sales representative for AG428-ES-SL.

Case No.7

<Communication between various different models>

Data exchange between various controllers with free cable



Links distributed to various different models to re-establish a system.

Distributed control by PLCs of different manufacturers had been performed, but desire to link collective inputs/outputs.

Highly functional method such as network connection is troublesome.

D-I/O connection requires excessively large number of points.

When PLCs of different manufacturers are linked, there has been no means but special methods which are used in some industries.

If a few points are connected, a method to connect with parallel input/output can be adopted. However, if several hundreds of points are connected, cables and connectors are bulky and complicated.

In this case, please consider adopting an AnyWire slave interface, slave gateway.

Slot-in allows for a simple data link.

Multiple points are connected by serial transmission as if they were performed by parallel connection.

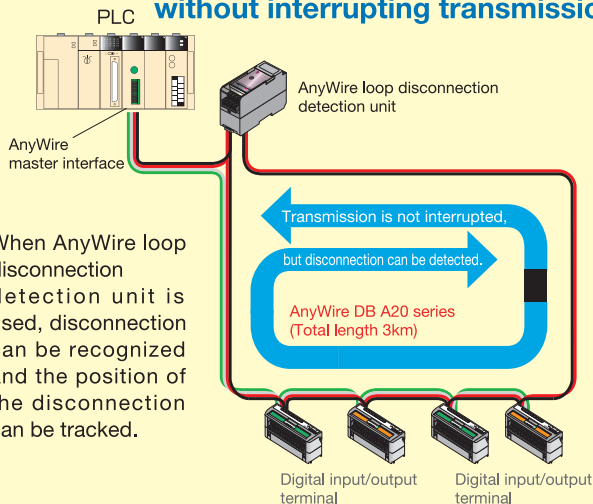
*Contact our sales representative for AG42-C1-SI and AG428-ES-SL

Case No.8

<Loop wiring & coupling>

Loop wiring prevents interruption of transmission even if it is disconnected. However, desire to know that wiring is disconnected.

Loop wiring detects disconnection without interrupting transmission.

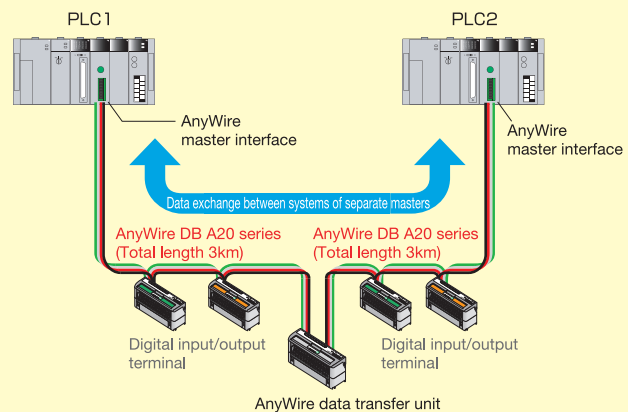


When AnyWire loop disconnection detection unit is used, disconnection can be recognized and the position of the disconnection can be tracked.

Desire to connect between multiple AnyWire Sho-Haisen systems

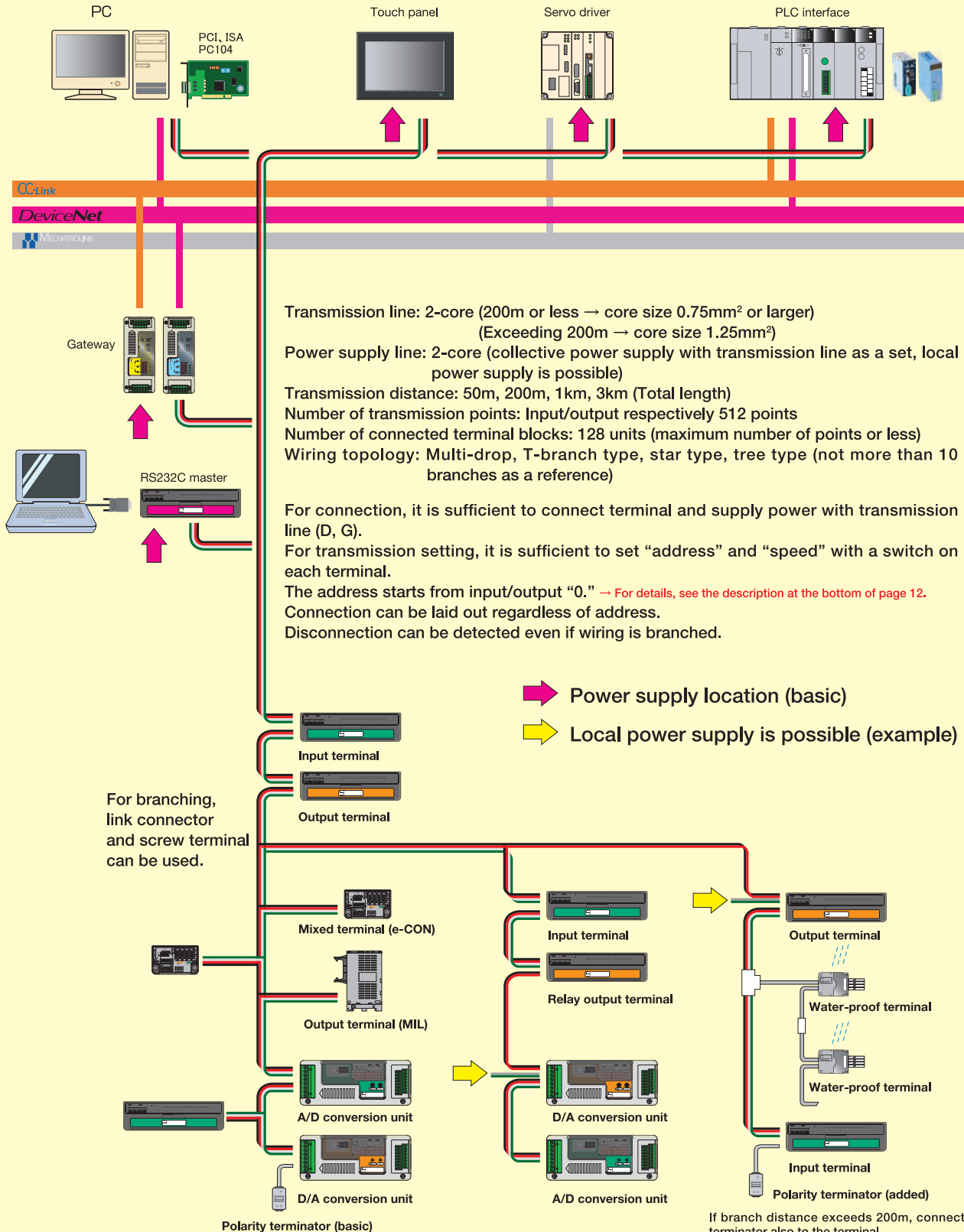
Data exchange by 2 AnyWire systems

Easy linkage between devices configured in block units by AnyWire



System configuration

Various master interfaces



If branch distance exceeds 200m, connect a terminator also to the terminal.
Up to two pieces can be connected except for basic type.

DB A20 series basic transmission specifications

Item	Contents
Effective data transmission rate	240.2 kbps/512 points (at transmission clock: 125kHz)
Transmission method	Double duplex total frame/cyclic system
Synchronization system	Frame/bit synchronization system
Data length/frame	1 bit – 512 bits
Connection mode	Bus type (multi-drop type, T-branch type, star type, tree type)
Transmission protocol	Exclusive protocol (AnyWire Bus protocol)
Error control	Double collation system
Maximum number of connecting I/O points <small>Note 1)</small>	1024 points (IN 512 points + OUT 512 points)
Maximum number of connected terminal blocks	128 terminals (3km or less: 32 terminals, 2km or less: 64 terminals, 1km or less: 128 terminals)
Maximum cycle time <small>Note 2)</small>	[0.7ms/128 points] [1.2ms/256 points] [2.2ms/512 points] [4.3ms/1024 points]
RAS function	Branch disconnection detection, transmission line short-circuit detection
Transmission distance (total length)	[50m/125kHz] [200m/31.3kHz] [1km/7.8kHz] [3km/2kHz]
Transmission cable <small>Note 3)</small>	Cable free
	- Up to total length 200m
	General-purpose (VCTF) 2-core/0.75mm ² – 1.25mm ² (D, G only)
	Other general-purpose electric wire 2-core/0.75mm ² – 1.25mm ² (D, G only)
	Exclusive flat cable 0.75mm ² (D, G, 24V, 0V)
	- Exceeding total length 200m
	General-purpose (VCTF) 2-core/0.9mm ² – 1.25mm ² (D, G only)

Note 1) Maximum number of points for transmission differs depending on the master unit.

Note 2) The above described number of points is a representative example of IN, OUT total. The actual cycle time varies depending on the master unit.

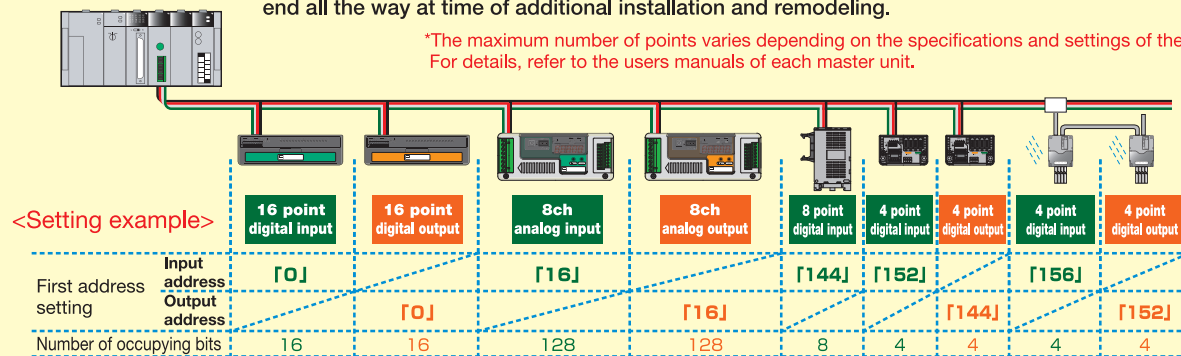
Note 3) When 24V power is also collectively supplied in a 4-core cable, it is necessary to consider voltage drop due to consumption current apart from total length of transmission line.

Address setting

In the system of the AnyWire DB A20 series, address setting of the slave unit (various terminals) is of a “decimal” “2 bit unit.”

For an address, the first address of an individual slave unit is set with the DIP SW (dip switch).

Since input/output are handled respectively in separate systems, input can be set in a range of “0 to 511” at maximum and output can similarly be set in a range of “0 to 511” at maximum*. In this case, an address can be assigned freely regardless of terminal connection sequence, therefore, it is unnecessary to review wire handling and route the wiring from the furthest end all the way at time of additional installation and remodeling.



*The maximum number of points varies depending on the specifications and settings of the master. For details, refer to the users manuals of each master unit.

*For analog terminal, occupying number varies depending on the setting.

Master Units for DB A20 series

◆PLC Interface



Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
I/F for Mitsubishi Electric MELSEC Q series	512	512	500	98x27.4x90	QJ51AW12D2	Sold by Mitsubishi Electric
Master I/F for Yokogawa Electric FA-M3 series	512	512	500	100x29x92.7	AFSR01-D2	78,000
Master I/F for OMRON CJ1 series	512	512	500	65x31x90	AFCJ01-D2	78,000
Master I/F for OMRON CS1 series	512	512	500	130x34.5x110.5	AFCS01-D2	78,000
Master I/F for Toshiba S2T	512	512	500	130x35x113	AF611-D2	78,000
Master I/F for Fuji Electric SX	512	512	500	105x34.8x97.3	NP1L-AW1-D2	78,000
Master I/F for PANASONIC FPΣ	512	512	500	60x30x90	AFSP01-D2	78,000

*Master I/F for Sharp JW20/30/300 series, master I/F for Yaskawa Electric MP2000 series also available. For details, contact our sales representative.

*Consumption current is external supply part only. For details, refer to the operation manual.

◆Touch Panel Interface



Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Master I/F for digital LT 3000 series	448	448	200	90x71x23.5	AFLT01-D2	60,000

*Consumption current is external supply part only. For details, refer to the operation manual.

◆PC Interface



Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Master I/F for PCI bus	512	512	500	174.6x106.7x21.5	AP28-01A	78,000
Master I/F for PC104 bus	512	512	500	96x90x15.2	APC28-104	68,000
RS-232C gateway (Note 1)	512	512	500	140x40x60	AG20-232C	60,000
RS485 Modbus serial I/F	512	512	500	140x40x60	AG20-485MD	60,000

Note 1: Driver development is required because protocol specifications differ depending on the connected equipment. For details, contact our sales representative.

*Consumption current is external supply part only. For details, refer to the operation manual.

Master Units for DB A20 series

◆Open FieldBus Gateway



AG22-C1



NZ2AW1C2D2



AG22-D1

Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Gateway for CC-Link ver 1.1	256	256	400	140x57x54.5	AG22-C1	60,000
Gateway for CC-Link ver 2.0	512	512	400	140x57x54.5	NZ2AW1C2D2	Sold by Mitsubishi Electric
Gateway for DeviceNet	512	512	400	140x57x54.5	AG22-D1	68,000
Gateway for RTEK	-	-	-	-	Under contemplation	Under contemplation
Gateway for EtherCAT	-	-	-	-	Under contemplation	Under contemplation
Gateway for ProfiNet	-	-	-	-	Under contemplation	Under contemplation

◆Ethernet gateway



AG428-ES

Support protocol	
Ethernet/IP	Scheduled
Modbus/TCP	<input type="checkbox"/>
Mitsubishi Electric MC protocol	<input type="checkbox"/>
Yokogawa Electric personal computer protocol	<input type="checkbox"/>
Interface	
Ethernet 10/100Mbps	2 ports
AnyWire Sho-Haisen (DB A20)	<input type="checkbox"/>
AnyWire monitor port	<input type="checkbox"/>
RS-232C, CF, USB	<input type="checkbox"/>



AG428-EC

Support protocol	
Ethernet/IP	Scheduled
Modbus/TCP	<input type="checkbox"/>
Mitsubishi Electric MC protocol	<input type="checkbox"/>
Yokogawa Electric personal computer protocol	<input type="checkbox"/>
Interface	
Ethernet 10/100Mbps	1 port
AnyWire Sho-Haisen (DB A20)	<input type="checkbox"/>
AnyWire monitor port	<input type="checkbox"/>
CF	<input type="checkbox"/>

Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Ethernet gate server	512	512	250	40x100x104	AG428-ES	Open
Ethernet gate I/O	512	512	250	40x100x104	AG428-EC	Open
CF memory for AG428 (industry specifications)				CF Type 2 compatible	AES-CF□□-T (Note 1)	Open

Note 1: Contact our sales representative for details on model name, capacity, etc.

CC-Link Slave Interface



◆CC-Link Slave Interface



AFMP-02-C



AFSR02



AFCJ02



AFCS02

Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
CC-Link Slave I/F for Yaskawa Electric MP			-	19.3x130x107.8	AFMP-02-C	Open
CC-Link Slave I/F for Yokogawa Electric FA-M3 series			-	100x28.9x93.2	AFSR02	Open
CC-Link Slave I/F for OMRON CJ1 series			-	65x31x90	AFCJ02	Open
CC-Link Slave I/F for OMRON CS1 series			-	110.5x34.5x130	AFCS02	Open

Other Units

◆Trolley Buffer Unit

Set transmission mode (distance setting) to "1km specification (transmission clock 7.8kHz)" or "3km specification (transmission clock 2kHz)" to use regardless of actual transmission distance.



A215T-T1



A215T-R1

Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Step-up unit: (24V DC → 100V DC)	512	512	Max625	140x57x44	A215T-T1	36,000
Step-down unit: (100V DC → 24V DC)	512	512	84	140x57x44	A215T-R1	27,000

*There are requirements for use. Contact our sales representative before use.

◆Data transfer unit



Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Unit for mutual data drive-in between AnyWire Buses of two different systems For 128 points	128	128	50	100x40x60	ADT20XB-256	Made-to-order △

*There are requirements for use. Contact our sales representative before use.

◆Resend Unit (Resend Unit: Transmission master between terminals)



Product specifications	Support I/O points		Consumption current (mA)	Dimensions (mm)	Model	Standard price (¥)
	Input	Output				
Transmits between input terminal and output terminal set on the same address	Total 512		150	100x40x106	AR228-01	Open

◆Direct Output Terminal



Dimension A: 89.5x71x31

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Dimension (mm)	Model	Standard price (¥)
Input	Output						
	16	Tr output	NPN	-	A	A21PBD-16U-2	36,000 △

*Contact our sales representative for detailed specifications and how to use, etc.

Output terminal to detect input signal of any (settable) address and directly respond to it
Higher response is possible than through control program of controller (maximum 2 cycle times)

◆Remote Control Relay Terminal



Dimension A: 100x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Dimension (mm)	Model	Standard price (¥)
Input	Output						
4	4	Remote control relay		-	A	A20XB-08RR1	28,000 △

*4 circuits output for PANASONIC remote control relay control
(With relay state feedback input)

Terminator (Terminator for DB A20 Line)

◆Terminator

Product specifications	Dimensions (mm)	Model	Standard price (¥)
For DB A20 Line terminal, with polarity (attachment holder included)	44x24x12	AT2	1,100

Accessories

◆Debugger/Monitor Tool (Debugger, monitor tool)

Product specifications	Details	Model	Standard price (¥)
DB monitor software for PC	I/O monitor software for Windows PC Windows 98/98SE/ME/2000/XP/Vista/7/8 compatible	Contact us *Downloadable from our website for free	Free of charge
Connection cable for DB monitor	Cable to connect PC and AnyWire DB master (PC side: RS232C)	CA-PCRM-15C	10,000

◆AnyWire Cable/Connector (AnyWire transmission cable & connector)

Product specifications	Details	Model	Standard price (¥)
4-core flat cable (100m winding)	AWG16 (1.25sq) × 4-core Insulating coating outer diameter ϕ 2.5±0.1mm (Conductor resistance 0.015Ω/m, Allowable current 5A)	FK4-125-100	Open
	AWG18 (0.75sq) × 4-core Insulating coating outer diameter ϕ 2.5±0.1mm (Conductor resistance 0.025Ω/m, Allowable current 5A)	FK4-075-100	Open
LP connector (10 connectors included) *Crimp type link connector (Allowable current 5A) Body color Red: for wire diameter size 1.25sq Black: for wire diameter size 0.75sq Gray: for wire diameter size 0.5sq White: for wire diameter size 0.3sq	For 4-core flat cable (1.25sq) (coating outer diameter ϕ 2.54mm Cover: White Body: Red) Pin protector type	LP4-WR-10P	Open
	For 4-core flat cable (0.75sq) (coating outer diameter ϕ 2.54mm Cover: Black Body: Black)	LP4-BK-10P	Open
	For 4-core flat cable (0.75sq) (coating outer diameter ϕ 2.54mm Cover: White Body: Black) Pin protector type	LP4-WH-10P	Open
	For cabtire cable (Coating outer diameter ϕ 1.1 to 1.4mm Cover: White Body: White)	LP4-WW-10P	Open
	For cabtire cable (Coating outer diameter ϕ 2.1 to 2.4mm Cover: Orange Body: Black)	LP4-OR-10P	Open
	For cabtire cable (Coating outer diameter ϕ 1.8 to 2.1mm Cover: Yellow Body: Black)	LP4-YE-10P	Open
	For cabtire cable (Coating outer diameter ϕ 2.1 to 2.4mm Cover: Orange Body: Gray)	LP4-ORG-10P	Open
	For cabtire cable (Coating outer diameter ϕ 1.8 to 2.1mm Cover: Yellow Body: Gray)	LP4-YEG-10P	Open
	Crimping tool dedicated to LP connector (The connector can be crimped by pliers, etc., however, a dedicated tool is recommended)	LP-TOOL	Open
EP connector (8 connectors are included) * Crimp type sensor connector e-con compliant	For sensor connection (0.14 to 0.2sq, Coating outer diameter ϕ 0.8 to 1.0mm Color: Red)	EP4-RE-8P	Open
	For sensor connection (0.14 to 0.2sq, Coating outer diameter ϕ 1.0 to 1.2mm Color: Yellow)	EP4-YE-8P	Open
	For sensor connection (0.14 to 0.2sq, Coating outer diameter ϕ 1.2 to 1.6mm Color: Orange)	EP4-OR-8P	Open
	For sensor connection (0.3 to 0.5sq, Coating outer diameter ϕ 1.0 to 1.2mm Color: Green)	EP4-GR-8P	Open
	For sensor connection (0.3 to 0.5sq, Coating outer diameter ϕ 1.2 to 1.6mm Color: Blue)	EP4-BL-8P	Open
	For sensor connection (0.3 to 0.5sq, Coating outer diameter ϕ 1.6 to 2.0mm Color: Gray)	EP4-GL-8P	Open
Crimping tool for EP connector	Crimping tool dedicated to EP connector (The connector can be crimped by pliers, etc., however, a dedicated tool is recommended)	EP-TOOL	Open

◇Flat cable appearance photo



4-core flat cable
AWG16 (1.25sq)×4-core
(DN:DP:0V:24V from the left)



4-core flat cable
AWG18 (0.75sq)×4-core
(DN:DP:0V:24V from the left)



When using in combination with the dedicated flat cable and LP connector (link connector), connect wires so that the black electric wire (DN line) is on the hinge side (No. 1) of the connector body as shown in the photo.

Digital Input/Output Terminals

◆ Standard terminal block type



Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		DC input	NPN	50	31	A	A20SB-04U	13,000
8		DC input	NPN	117	31	B	A20SB-08U	16,000
16		DC input	NPN	233	31	C	A20SB-16U	25,000
32		DC input	NPN	417	31	D	A20SB-32U	45,000
4		DC input	PNP	43	31	A	A20SB-04US	14,300 △
16		DC input	PNP	200	31	C	A20SB-16US	27,500 △
32		DC input	PNP	360	31	D	A20SB-32US	49,500 △
	4	Tr output	NPN	13	31	A	A20PB-04U	14,000
	8	Tr output	NPN	21	31	B	A20PB-08U	18,000
	16	Tr output	NPN	33	31	C	A20PB-16U	28,000
	32	Tr output	NPN	50	31	D	A20PB-32U	52,000
	16	Tr output	PNP	30	31	C	A20PB-16US	30,800 △
	32	Tr output	PNP	43	31	D	A20PB-32US	57,200 △

◆ Standard terminal block type (With short-circuit protection)

Dimension A: 65x40x60
Dimension B: 100x40x60
Dimension C: 140x40x60
Dimension D: 190x40x60

	4	Tr output	NPN	30	31	A	A20PB-04T	Under development
	8	Tr output	NPN	42	31	B	A20PB-08T	Under development
	16	Tr output	NPN	58	31	C	A20PB-16T	32,300 △
	32	Tr output	NPN	100	31	D	A20PB-32T	Under development

◆ For 3-wire sensor connection Standard terminal block type



Dimension A: 65x40x60
Dimension B: 100x40x60
Dimension C: 140x40x60
Dimension D: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
8		DC input	NPN	117	32	C	A20SB-08UD	19,000
16		DC input	NPN	233	32	D	A20SB-16UD	28,000
16		DC input	PNP	233	32	D	A20SB-16USD	30,800 △
8	8	DC input / output	NPN	106	32	D	A20XB-16UD	32,000

Digital Input/Output Terminals

◆Screw-up terminal block type



Dimension A: 65x40x60
Dimension B: 100x40x60
Dimension C: 140x40x60
Dimension D: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		DC input	NPN	50	31	A	A20SB-04U-1	14,300
8		DC input	NPN	117	31	B	A20SB-08U-1	17,600
16		DC input	NPN	233	31	C	A20SB-16U-1	27,500
32		DC input	NPN	417	31	D	A20SB-32U-1	49,500
8		DC input	PNP	117	31	B	A20SB-08US-1	19,400 △
16		DC input	PNP	233	31	C	A20SB-16US-1	30,300 △
32		DC input	PNP	417	31	D	A20SB-32US-1	54,500 △
	4	Tr output	NPN	13	31	A	A20PB-04U-1	15,400 △
	8	Tr output	NPN	21	31	B	A20PB-08U-1	19,800
	16	Tr output	NPN	33	31	C	A20PB-16U-1	30,800
	32	Tr output	NPN	50	31	D	A20PB-32U-1	57,200

◆For 3-wire sensor connection Screw-up terminal block type



Dimension A: 65x40x60
Dimension B: 100x40x60
Dimension C: 140x40x60
Dimension D: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
8		DC input	NPN	117	32	C	A20SB-08UD-1	20,900
16		DC input	NPN	233	32	D	A20SB-16UD-1	30,800
8		DC input	PNP	117	32	C	A20SB-08USD-1	23,000 △
16		DC input	PNP	233	32	D	A20SB-16USD-1	33,900 △
8	8	DC input/output	NPN	106	32	D	A20XB-16UD-1	35,400

◆Spring type terminal block type <Made-to-order>



Dimension A: 65x40x60
Dimension B: 100x40x60
Dimension C: 140x40x60
Dimension D: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		DC input	NPN	50	32	A	A20SB-04U-3	13,000 △
8		DC input	NPN	117	32	B	A20SB-08U-3	16,000 △
16		DC input	NPN	233	32	C	A20SB-16U-3	25,000 △
32		DC input	NPN	417	32	D	A20SB-32U-3	45,000 △
	4	Tr output	NPN	13	32	A	A20PB-04U-3	14,000 △
	8	Tr output	NPN	21	32	B	A20PB-08U-3	18,000 △
	16	Tr output	NPN	33	32	C	A20PB-16U-3	28,000 △
	32	Tr output	NPN	50	32	D	A20PB-32U-3	52,000 △

Digital Input/Output Terminals

◆Relay terminal Standard terminal block type



Dimension A: 100x40x60
Dimension B: 140x40x60
Dimension C: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
	8	Relay output 8 points common	Relay	113	33	B	A20PB-08R	23,000
	4	Relay output 4 points common	Relay	90	33	A	A20PB-04RS	17,000
	8	Relay output All points independent circuit	Relay	104	33	B	A20PB-08RS	23,000
	16	Relay output All points independent circuit	Relay	165	33	C	A20PB-16RS	34,000

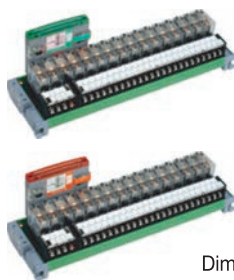
◆Relay terminal Screw-up terminal block type



Dimension A: 100x40x60
Dimension B: 140x40x60
Dimension C: 190x40x60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
	8	Relay output 8 points common	Relay	113	33	B	A20PB-08R-1	24,600
	8	Relay output All points independent circuit	Relay	104	33	B	A20PB-08RS-1	24,600
	16	Relay output All points independent circuit	Relay	165	33	C	A20PB-16RS-1	38,500

◆Relay terminal Standard terminal block type (G2R relay mounting type)

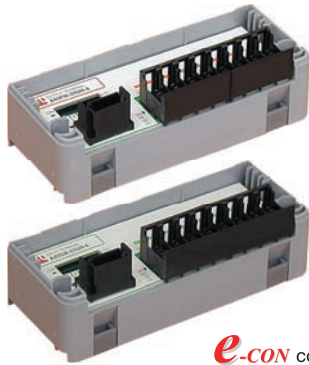


Dimension A: 252.5x79x85.5

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
16		24V DC All points independent circuit	Relay	154	34	A	A220SB-16RS	58,000
16		100V AC All points independent circuit	Relay	154	34	A	A220SB-16RS1	58,000
16		200V AC All points independent circuit	Relay	154	34	A	A220SB-16RS2	65,800
	16	Relay output All points independent circuit	Relay	465	34	A	A220PB-16RS	58,000
	16	Relay output 8 points common With power input terminal	Relay	465	34	A	A220PB-16R2	58,000

Digital Input/Output Terminals

◆ Flat compact terminal Connector type



Dimension A: 65x40x31.5
Dimension B: 100x40x31.5

e-con compliant

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		DC input	NPN	100	35	A	A29SB-04U-4	12,000
8		DC input	NPN	100	35	B	A29SB-08U-4	15,000
16		DC input	NPN	192	35	B	A29SB-16U-4	20,000
2	2	DC input / Tr output	NPN	39	35	A	A29XB-04U-4	15,000
8	8	DC input / Tr output	NPN	125	35	B	A29XB-16U-4	26,000
	4	Tr output	NPN	13	35	A	A29PB-04U-4	13,000
	8	Tr output	NPN	25	35	B	A29PB-08U-4	17,000
	16	Tr output	NPN	29	35	B	A29PB-16U-4	23,000

◆ Flat compact terminal Connector type (with short-circuit protection)

2	2	DC input / Tr output	NPN	40	35	A	A29XB-04T-4	16,500	△
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◆ Universal terminal Connector type



Dimension A: 89.5x54x100
Dimension B: 89.5x44x100

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)	
Input	Output								
32		DC input	NPN	300	36	A	A235SB-32U-2	38,000	
16		DC input	PNP	150	36	B	A235SB-16US-2	24,000	
32		DC input	PNP	300	36	A	A235SB-32US-2	40,000	
16	16	DC input / Tr output	NPN	180	37	A	A235XB-32U-2	42,000	△
16	16	DC input / Tr output	PNP	180	37	A	A235XB-32US-2	45,000	△
	32	Tr output	NPN	58	36	A	A235PB-32U-2	46,000	
	16	Tr output	PNP	29	36	B	A235PB-16US-2	26,000	
	32	Tr output	PNP	58	36	A	A235PB-32US-2	49,000	

◆ Universal terminal Connector type (transmission terminal block)

Dimension A: 89.5x54x100

32		DC input	NPN	300	37	A	A235SB-32UJ-2T ^{Note 1)}	38,000	△
16	16	DC input / Tr output	NPN	180	37	A	A235XB-32U-2T	42,000	
	32	Tr output	NPN	58	37	A	A235PB-32UJ-2T ^{Note 2)}	46,000	△

Note 1): With NC terminal

Note 2): With load power terminal

◆ Universal terminal Connector type (with short-circuit protection)

Dimension A: 89.5x54x100

16	16	DC input / Tr output	NPN	196	38	A	A235XB-32T-2	44,000	△
	32	Tr output	NPN	92	38	A	A235PB-32T-2	49,000	△

Digital Input/Output Terminals

◆ Ultracompact terminal Connector type (e-CON)



Dimension A: 75x24x16.4

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
1		DC input	NPN	36	38	A	A242SB-01U-4	5,300
2		DC input	NPN	49	38	A	A242SB-02U-4	7,300
1	1	DC input / Tr output	NPN	39	38	A	A242XB-02U-4	7,800
	1	Tr output	NPN	26.5	38	A	A242PB-01U-4	5,300
	2	Tr output	NPN	29.5	38	A	A242PB-02U-4	7,300
Dedicated DIN rail adaptor (5 adaptors included)							ADP-42	900

◆ Compact terminal Connector type



Dimension A: 89.5x52x31
Dimension B: 89.5x56.5x31
Dimension C: 89.5x71x31

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
8		DC input e-CON	NPN	125	39	A	A21SB-08U	15,000
8		DC input	NPN	125	39	C	A21SB-08U-2	15,000
16		MIL20P	NPN	188	39	C	A21SB-16U-2	20,000
	8	Tr output e-CON	NPN	21	39	A	A21PB-08U	17,000
	8	Tr output	NPN	21	39	C	A21PB-08U-2	17,000
	16	MIL20P	NPN	26	39	C	A21PB-16U-2	23,000

Note: LP connector (refer to page 16) is necessary to connect a transmission line.
(LP4-WH-10P cannot be used because its pin protecting structure interferes with the terminal housing.)

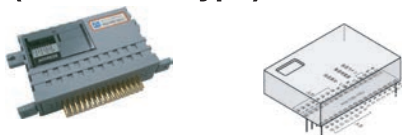
◆ Water-proof type mini terminal IP66 structure



Dimension A: 51x40x21

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		DC input	NPN	56	39	A	A219SB-04U	12,000
2	2	DC input / Tr output	NPN	46	40	A	A219XB-04U	14,000
	4	Tr output	NPN	29	39	A	A219PB-04U	12,000
Dedicated DIN rail adaptor (5 adaptors included)							ADP-19	800

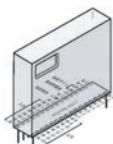
◆ Module type terminal (Horizontal type)



Dimension A: 61x38x15.3

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)	
Input	Output								
16		DC input	NPN	96	40	A	A221SB-16U	15,000	△
8	8	DC input / Tr output	NPN	60	40	A	A221XB-16U	19,000	△
	16	Tr output	NPN	39	40	A	A221PB-16U	16,000	△

◆ Module type terminal (Vertical type)



Dimension A: 61x38x15.3

16		DC input	NPN	96	40	A	A221SB-16U-1	15,000	△
	16	Tr output	NPN	39	40	A	A221PB-16U-1	16,000	△

Terminals



Analog Input/Output Terminals

◆ Compact terminal Analog signal input/output type



Dimension A: 89.5x52x31

Note: LP connector (refer to page 16) is necessary to connect a transmission line. (LP4-WH-10P cannot be used because its pin protecting structure interferes with the terminal housing.)

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
2		Multi-input Input signal switching type	4-20mA	55	41	A	A21SB-J2AV1	34,000
			0-20mA					
			1-5V					
			0-5V					
			0-10V					
2		Voltage input	±10V	55	41	A	A21SB-J2V5	34,000 △
2		Voltage input	0-500mV	55	41	A	A21SB-J2V6	34,000 △
	2	Current output	4-20mA	88	41	A	A21PB-J2A1	38,000
	2	Current output	0-20mA	88	41	A	A21PB-J2A2	38,000
	2	Voltage output	1-5V	58	41	A	A21PB-J2V1	38,000
	2	Voltage output	0-5V	58	41	A	A21PB-J2V2	38,000
	2	Voltage output	0-10V	58	41	A	A21PB-J2V3	38,000
	2	Voltage output	±10V	58	41	A	A21PB-J2V5	38,000 △

◆ Analog signal terminal Euro terminal block type



Dimension A: 140x57x44

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		Current input	4-20mA	163	41	A	A22SB-J4A1	49,000
8		Current input	4-20mA	163	41	A	A22SB-J8A1	59,000
4		Current input	0-20mA	163	41	A	A22SB-J4A2	49,000
8		Current input	0-20mA	163	41	A	A22SB-J8A2	59,000
4		Voltage input	1-5V	163	41	A	A22SB-J4V1	49,000
8		Voltage input	1-5V	163	41	A	A22SB-J8V1	59,000
4		Voltage input	0-5V	163	41	A	A22SB-J4V2	49,000
8		Voltage input	0-5V	163	41	A	A22SB-J8V2	59,000
4		Voltage input	0-10V	163	41	A	A22SB-J4V3	49,000
8		Voltage input	0-10V	163	41	A	A22SB-J8V3	59,000
	4	Current output	4-20mA	229	41	A	A22PB-J4A1	59,000
	8	Current output	4-20mA	267	41	A	A22PB-J8A1	75,000
	4	Current output	0-20mA	229	41	A	A22PB-J4A2	59,000
	8	Current output	0-20mA	267	41	A	A22PB-J8A2	75,000
	4	Voltage output	1-5V	163	41	A	A22PB-J4V1	59,000
	8	Voltage output	1-5V	163	41	A	A22PB-J8V1	75,000
	4	Voltage output	0-5V	163	41	A	A22PB-J4V2	59,000
	8	Voltage output	0-5V	163	41	A	A22PB-J8V2	75,000
	4	Voltage output	0-10V	163	41	A	A22PB-J4V3	59,000
	8	Voltage output	0-10V	163	41	A	A22PB-J8V3	75,000

Note: A22SB/PB series can be used only with 200m/1km/3km specifications.

Analog Input/Output Terminals

◆ Analog signal terminal Standard terminal block type



Dimension A: 140×40×60

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		Current input	4-20mA	163	42	A	A20SB-J4A1	38,000
8		Current input	4-20mA	163	42	A	A20SB-J8A1	48,000
4		Current input	0-20mA	163	42	A	A20SB-J4A2	38,000
8		Current input	0-20mA	163	42	A	A20SB-J8A2	48,000
4		Voltage input	1-5V	163	42	A	A20SB-J4V1	38,000
8		Voltage input	1-5V	163	42	A	A20SB-J8V1	48,000
4		Voltage input	0-5V	163	42	A	A20SB-J4V2	38,000
8		Voltage input	0-5V	163	42	A	A20SB-J8V2	48,000
4		Voltage input	0-10V	163	42	A	A20SB-J4V3	38,000
8		Voltage input	0-10V	163	42	A	A20SB-J8V3	48,000
4		Voltage input	0-25V	163	42	A	A20SB-J4V4	38,000 △
8		Voltage input	0-25V	163	42	A	A20SB-J8V4	48,000 △
4		Voltage input	±10V	163	42	A	A20SB-J4V5	38,000 △
8		Voltage input	±10V	163	42	A	A20SB-J8V5	48,000 △
	4	Current output	4-20mA	-	42	A	A20PB-J4A1	59,000
	8	Current output	4-20mA	-	42	A	A20PB-J8A1	75,000
	4	Current output	0-20mA	-	42	A	A20PB-J4A2	59,000
	8	Current output	0-20mA	-	42	A	A20PB-J8A2	75,000
	4	Voltage output	1-5V	-	42	A	A20PB-J4V1	59,000
	8	Voltage output	1-5V	-	42	A	A20PB-J8V1	75,000
	4	Voltage output	0-5V	-	42	A	A20PB-J4V2	59,000
	8	Voltage output	0-5V	-	42	A	A20PB-J8V2	75,000
	4	Voltage output	0-10V	-	42	A	A20PB-J4V3	59,000
	8	Voltage output	0-10V	-	42	A	A20PB-J8V3	75,000
	4	Voltage output	±10V	-	42	A	A20PB-J4V5	59,000 △
	8	Voltage output	±10V	-	42	A	A20PB-J8V5	75,000 △

Temperature/Humidity Input Terminals

◆Temperature/humidity input terminals



Compact terminal type

Dimension A: 31×52×79.5

Note: LP connector (refer to page 16) is necessary to connect a transmission line. (LP4-WH-10P cannot be used because its pin protecting structure interferes with the terminal housing.)

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
2		Multi-input	4-20mA	55	42	A	A21SB-J2AVRT1	42,000
			0-20mA					
		Input signal switching type	1-5V					
			0-5V					
			0-10V					
1		Temperature input	-					
1		Humidity input	-					

◆Temperature input terminals

Screw type Euro terminal block type



Dimension A: 140×57×48

4		Temperature input -270 to 1370°C	Thermocouple	167	42	A	A22SB-J4TK1	68,000
4		Temperature input -200 to 850°C	Pt100	133	43	A	A22SB-J4PT1	68,000
4		Temperature input -20 to 200°C	Pt100	133	43	A	A22SB-J4PT1A	68,000

Pulse Counter Input terminals

◆Pulse input terminal

Screw type Euro terminal block type



Dimension A: 140×57×48

Number of I/O points		Input/output specifications	Method	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
Input	Output							
4		Pulse input	2kHz	92	43	A	A22SB-J4PL1	49,000
8		Pulse input	2kHz	92	43	A	A22SB-J8PL1	59,000
4		Pulse input	30Hz	92	43	A	A22SB-J4PL2	49,000
8		Pulse input	30Hz	92	43	A	A22SB-J8PL2	59,000

Current Input Terminals (Current measurement terminals)

◆Multi-circuit current measurement terminals



Accuracy: Current: F.S.±1%

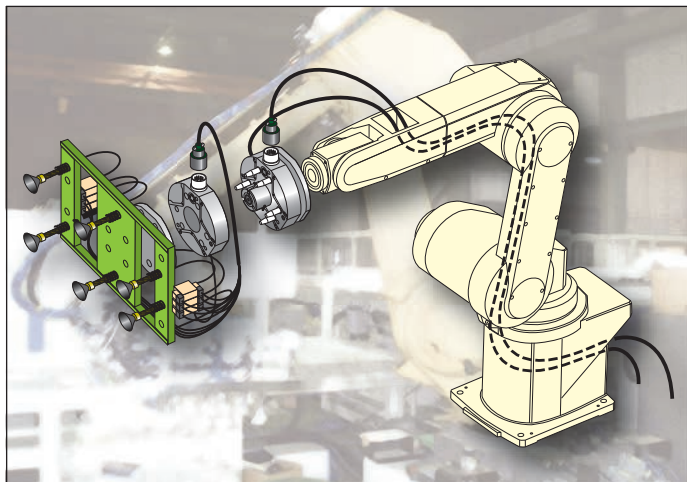
System	Specifications	Input element			Input range Rated voltage	Input range Rated voltage	Consumption current (mA)	Detailed specifications page	Dimension (mm)	Model	Standard price (¥)
		Voltage	Current	Current connection							
Current 8 circuits Ct built-in type	5A input		8ch	Internal through type CT		5A	121	43	A	A220SB-J8ACC1	Open △

Dimension A: 185×79×51.5



Adoption in various automation fields <1>

Palletizing system



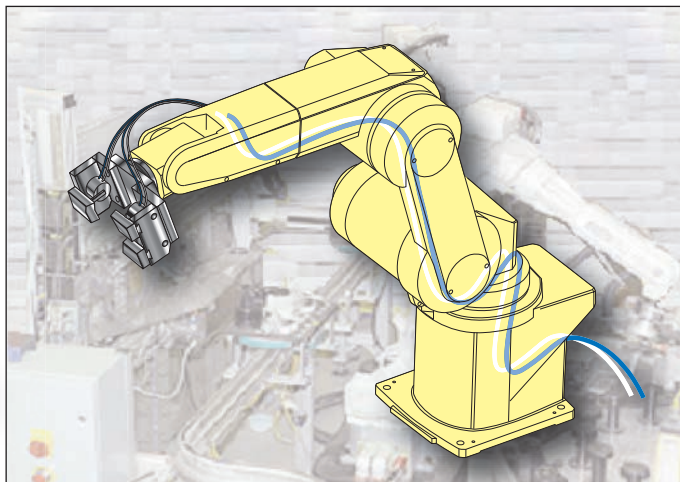
■ System overview

Robotics device to stack pallets and pool them temporarily, and then automatically feed them as necessary. Digital signals of a total of 120 points for 60 solenoid valves and 60 sensors are connected at the tip end of a robot. Typically, a 120-core cable is necessary, however, the AnyWire Sho-Haisen system allows for wiring to a controller with a pair of cables. This simplifies external cables for an arm and also prevents disconnections, etc.

■ Key points

- Wiring is saved (Sho-Haisen available) while controller and robot tip end equipment are kept as they are
- Better availability cable can be used
- Wiring is simplified and maintainability is also improved

Material handling



■ System overview

Used in vehicle-related component manufacturing systems. As AnyWire does not limit cables, use of spare wiring in machines allowed establishment of a system in which no cable protrudes from the arm. 16 sensors and an AnyWire terminal of 16 outputs for air valve are installed in a box at the tip end of the arm, and control the system.

■ Key points

- I/O can be expanded while wiring in a machine is used as it is
- Transmission line connection using connectors and terminal blocks can be established
- AnyWire which is hardly susceptible to noise can be wired parallel to power
- Compatible with various interfaces such as open net connections and parallel connections

Plating equipment



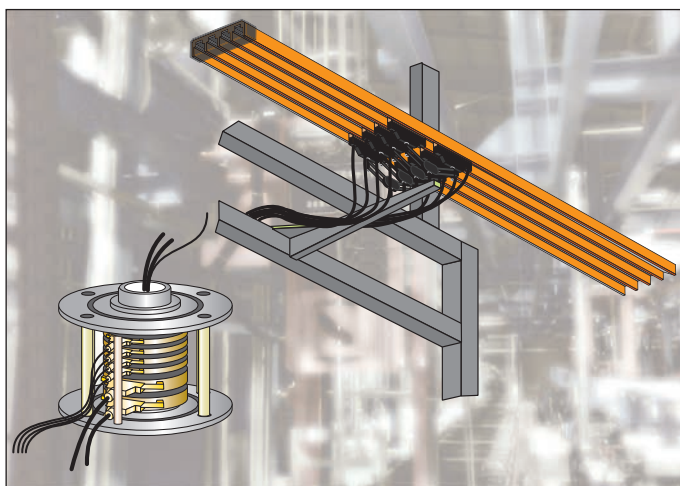
■ System overview

Used for transfer equipment on a plating line. Transfer gondolas are connected by a curtain rail cable. In this cable, a Sho-Haisen line is routed parallel to a power supply such as a power and inverter line for operation.

■ Key points

- Different media "curtain cable"
- Inverter noise
- Parallel wiring with power line

Transfer gondola



■ System overview

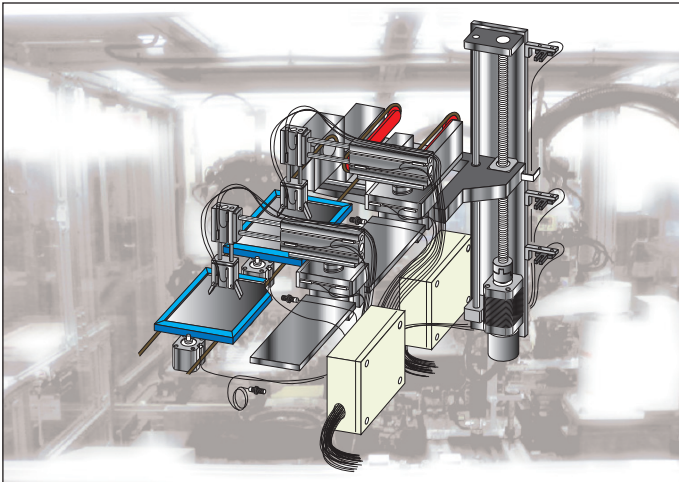
Used for basket transfer crane. With this equipment, a Sho-Haisen line is connected to a three-phase power line of dewatering motor through mechanical slip rings. On a rotating body, various sensors are connected to the terminals and slip rings are controlled only by power and a 2-core Sho-Haisen system.

■ Key points

- Different media "slip ring" "trolley rail"
- Reduction in number of poles of slip ring and trolley rail

Adoption in various automation fields <2>

Pick & play system



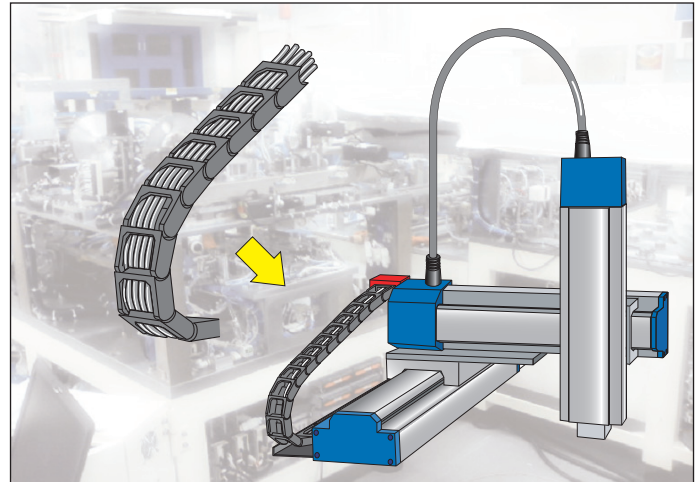
■ System overview

AnyWire Sho-Haisen system is used at the tip end of a lens assembling robot. A compact terminal which saves space is connected to the tip end of a robot, and wiring savings in the drive device are optimized. In addition, "e-CON connector" which allows savings in man-hours is adopted for wiring of terminals, and significant reductions in installation man-hours can be realized in comparison with conventional ones.

■ Key points

- The tip end of the robot requires compact I/O terminals
- "e-CON" connector reduces man-hours for wiring of I/O

Component stacking equipment system



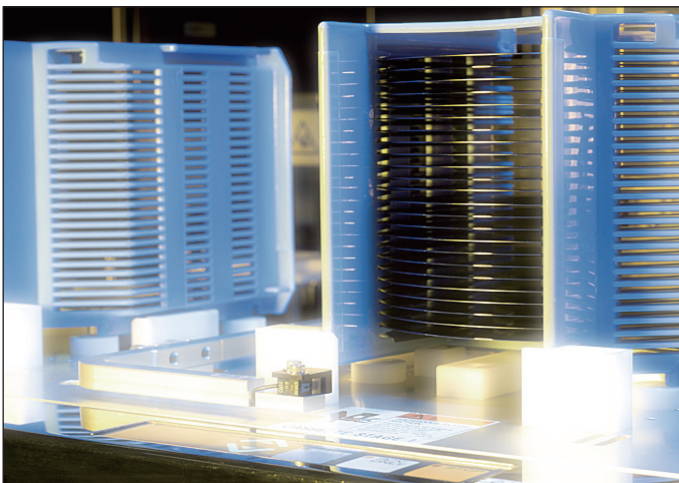
■ System overview

AnyWire Sho-Haisen system is used for wiring savings in component stacking machines. There is no wiring for sensors and actuators in cable bearers, and the wiring is replaced with AnyWire's wiring, therefore, the system is significantly downsized, contributing to prevention of disconnection, maintainability and cost reductions.

■ Key points

- Wiring savings in cable bearer
(Contribution to prevention of disconnection, improvement of maintainability, reduced man-hours and cost reductions)
- To each I/O unit using general-purpose electric wires and robot cables (no limit in branching)
- Wiring is simplified and maintainability is also improved

Wafer transfer system



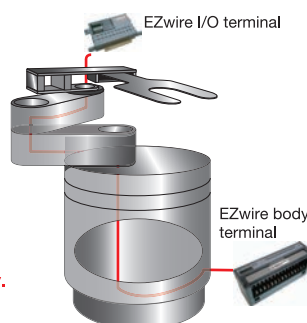
■ System overview

Used for wafer transfer robots. A raceway in a transfer robot is extremely thin, and connection is difficult with typical parallel wiring. AnyWire Sho-Haisen terminal is wired with thin cables of 0.25sq or less and the arm at the tip end is controlled.

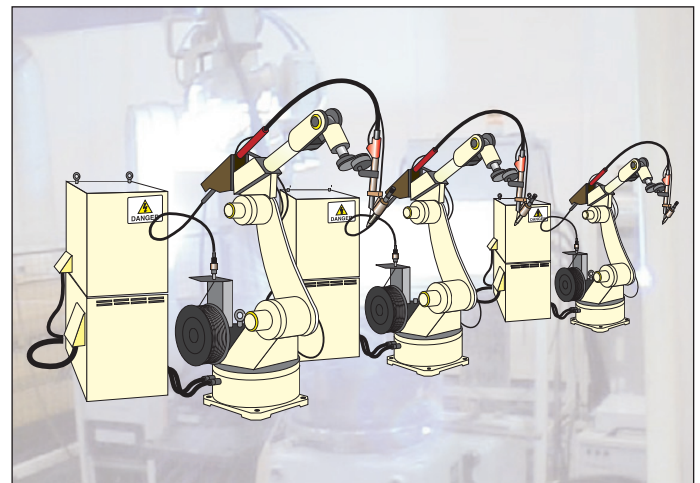
■ Key points

- Reduction in number of cables
- Wiring savings using thin cables
- Downsizing of system and arm

*For details on EZwire, contact us separately.



Welding robot



■ System overview

Used for the tip end of vehicle component welding robots. On a welding line, the influence of noise is a concern, however, the AnyWire Sho-Haisen system has a high noise margin and can be used with no problems. Spare wires can also be used and cables outside of a robot are also reduced.

■ Key points

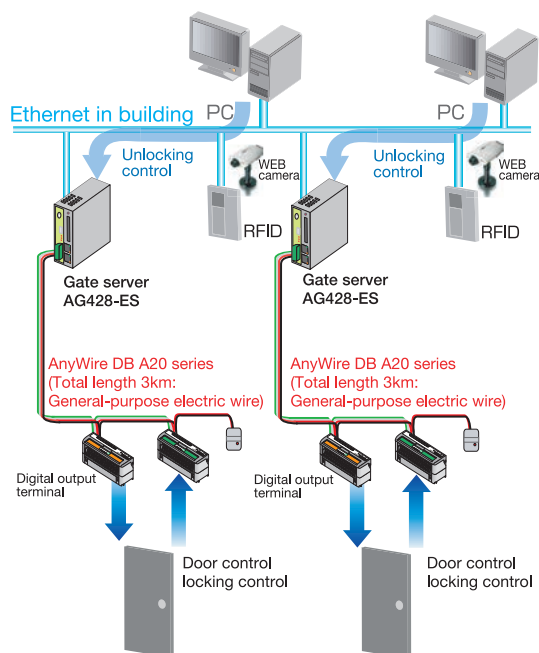
- High resistance for noise margin
- Only 2 wires to the tip end
- Spare wires can be used

AnyWire System Applications

Adoption in various automation fields <3>

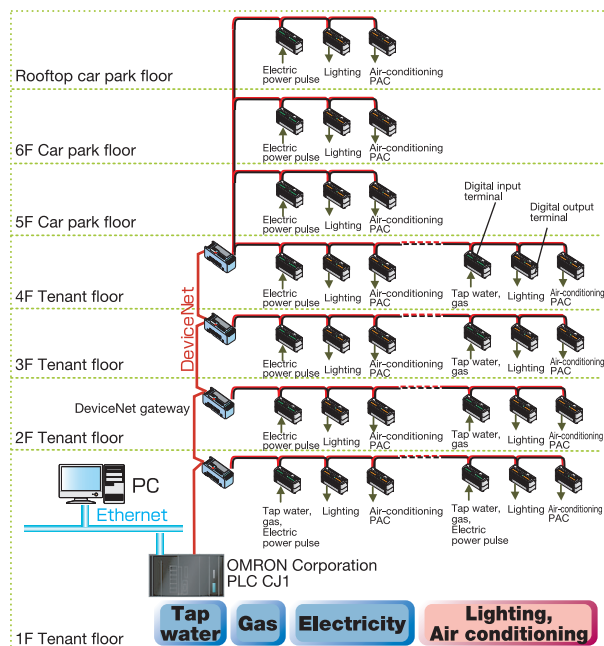
Security system

■System configuration example



Tenant monitoring system

■System configuration example



■System overview

AnyWire is used for security systems in buildings. A central control room in a building performs air-conditioning management, security management of the building and monitoring. Recently, a problem involving security countermeasures has come up, and this application is used as an entrance and exit control system in a building. This is a system to control opening/closing of electric locks installed in doors by AnyWire output terminals and check door opening/closing states by AnyWire input terminals.

■Key points

- It is necessary to add I/O components using a LAN in a building as it is
 - I/O components compatible with various signals can be used
 - Response to security countermeasures such as IP filtering
 - Why is the I/O of AnyWire Sho-Haisen used, and not the Ethernet I/O?
- In general, when electric wires are newly laid in building facilities, a legal application is necessary again. However, the AnyWire Sho-Haisen system can re-use the existing wiring which has been used in a conventional system and typical general-purpose electric wires can be replaced as they are, and significant reduction in work period and cost can be realized. In addition, Ethernet requires an IP address for each device while the AnyWire Sho-Haisen can exchange I/O data at a maximum of 1024 points with one IP address. Another advantage is that the AnyWire Sho-Haisen system is compatible with various wiring methods such as T-branch, star, tree, and multi-drop.
- It is possible to respond to high speed of some milliseconds without the user having to wait.

■System overview

Tenants on the first to 4th floors and car parks on the 5th and 6th floors and rooftop are collectively controlled in the central monitoring room. Tenant facilities of up to 122 stores are scattered on the respective first to 4th floors, and various digital/analog input/output terminals of the AnyWire Sho-Haisen system are decentrally-installed at necessary locations. Wiring between each terminal is connected with cabtire cables without shield taking advantage of free cables, which is a feature of AnyWire. Electric energy and other utilities for each tenant are measured at various input terminals, and air-conditioning packages and lighting are controlled by the digital output terminals.

■Key points

In large shopping centers, tenant commercial facilities of approximately 100 or more stores are operated. Conventionally, metrics on electric energy, gas usage and tap water usage for each store have been carried out by inefficient manual work. The use of the AnyWire Sho-Haisen system allows for automatically acquiring data and collectively monitoring states in real time.

Reasons why AnyWire was used are listed as follows.

- Pulses can be measured by inexpensive digital input (cost ratio of 1/5 or less)
- Real time monitoring by cyclic stable transmission
- Scattered measurement points can be connected with general-purpose electric wires
- Topology free (T-branch, tree, multi-drop, star)
- High compatibility with open network for industries, Ethernet



IT Automation



Security

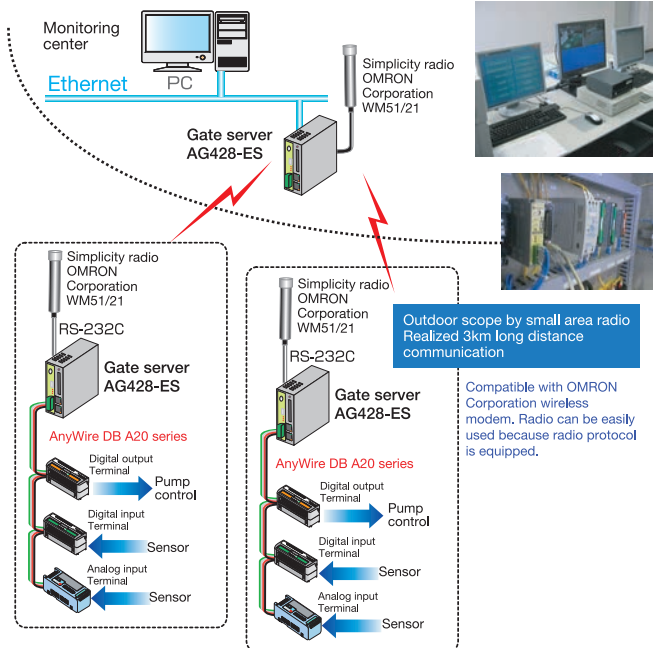


Utility Automation

Adoption in various automation fields <4>

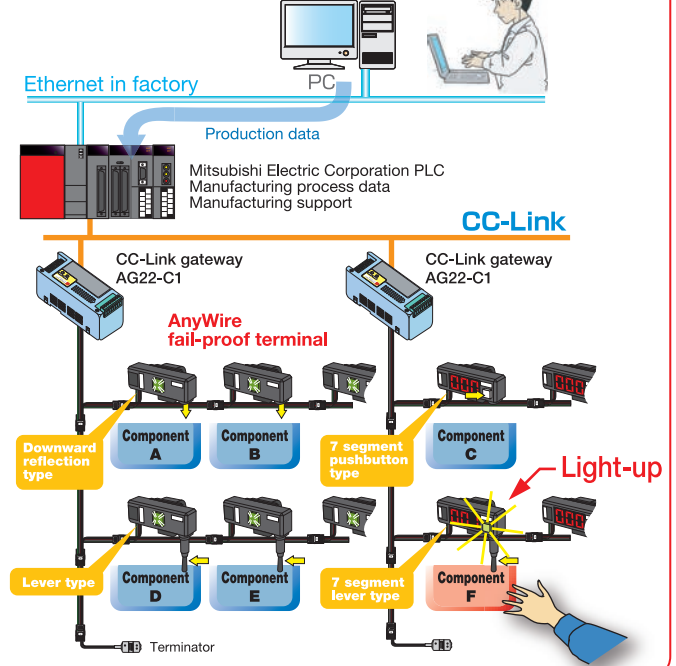
Unwiring of tap water monitoring system

System configuration example



Cell production support (fail-proof)

System configuration example



System overview

Used in sewer manhole pump monitoring control systems. The manhole pump system consists of multiple manhole pumps around sewage central processing sites.

The function of the manhole pump is to sequentially transport sewage to the central processing site by pump. Control boxes are installed on power poles, tank water levels in manholes are controlled, and pumps are controlled according to water level. The status of each manhole pump is remotely managed at the monitoring center located in the central processing site.

Key points

- A telephone line was installed for each pump location in order to monitor manhole pump failures. However, high maintenance costs (monthly telephone bill) were required
- Use of WM51 allows for communication with pump place 1km or more away without relays
- No use of carrier significantly reduces maintenance cost
- Inexpensive establishment with gate server and WM51
- Compatible with various I/O signals
- Available for sending email at power failure by option
- Available for storing processing data in media
- Improvement in maintainability by fanless device

System overview

For cell production systems in automobile plants, picking systems have been introduced for the purpose of preventing operator mistakes, improvement in working speeds and reductions in cost related to work.

If "fail-proof terminals" of the AnyWire "system sensor series" are introduced, lamps are lit in assembling order and operators can assemble as instructed completely paperless. For the "fail-proof terminal," any system can be established in combination with sensor types and in combination with various terminals such as indication methods. Assorted numbers of the associated goods and components for each shipping address can be displayed on each "fail-proof terminal."

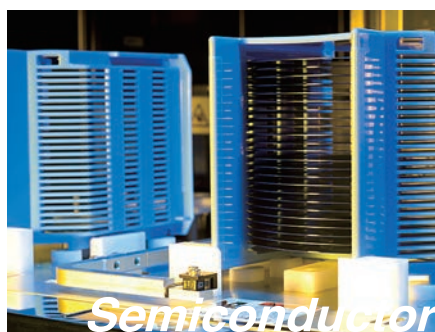
"For details on "fail-proof terminals," contact us separately.

Key points

- Easy construction
 - Power and data are simultaneously transmitted through 4-core general-purpose electric wires
 - Free wiring branching (such as T-branch, multi-drop, tree)
 - Link connectors simplify connection work and change construction
 - High freedom degree of wiring route because of high noise resistance
- Any controller can be used
 - Connectable to open networks for all industries, Ethernet, and PLC of each company
- Terminal specifications reflecting requests from sites
 - Bright and visible display unit
 - Lever switch with rubber cover resistant to rough operation
 - Node No. can be easily set on site



Agriculture



Semiconductor

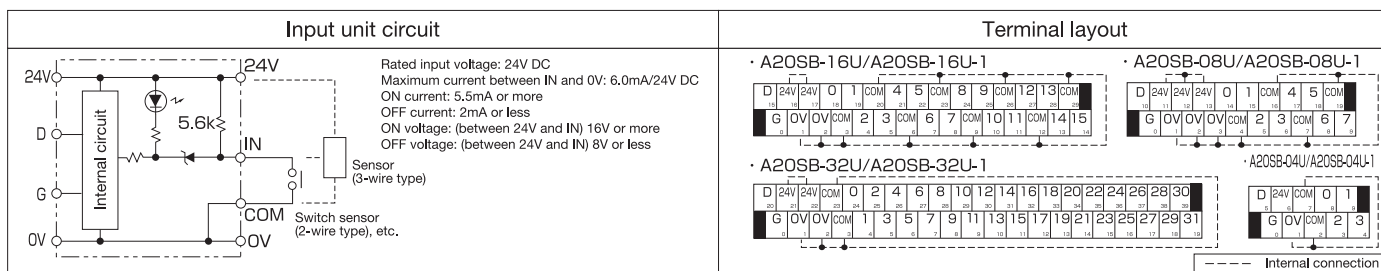


Material Handling

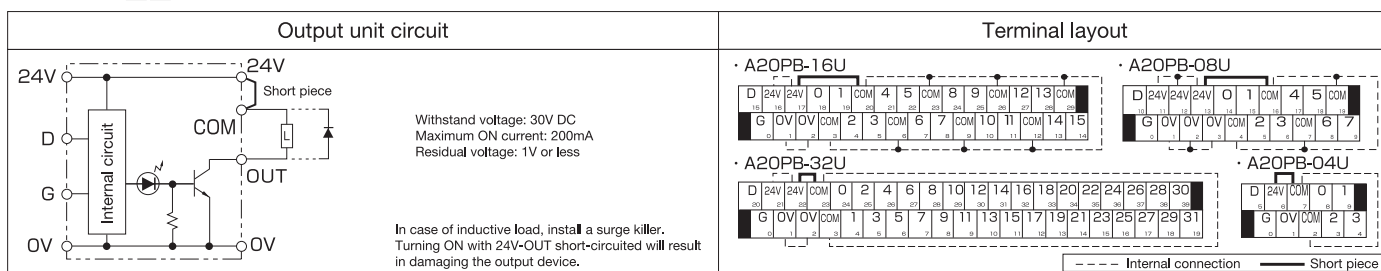
AnyWire System Specification

<Input/output circuit and terminal layout>

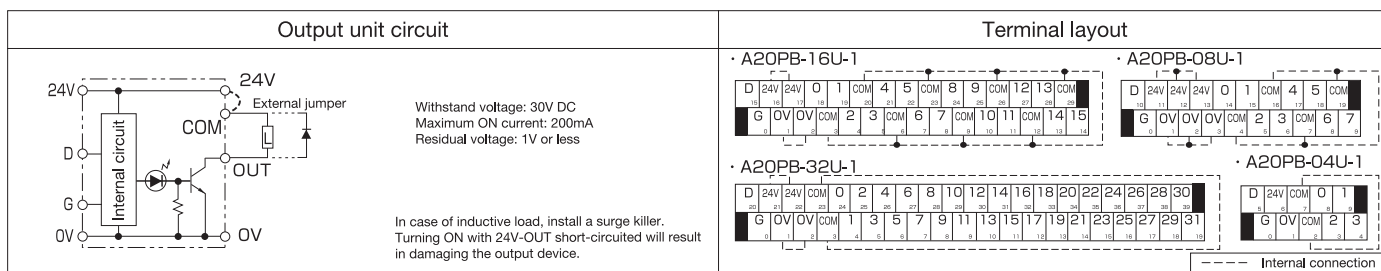
• A20SB-□□U / A20SB-□□U-1



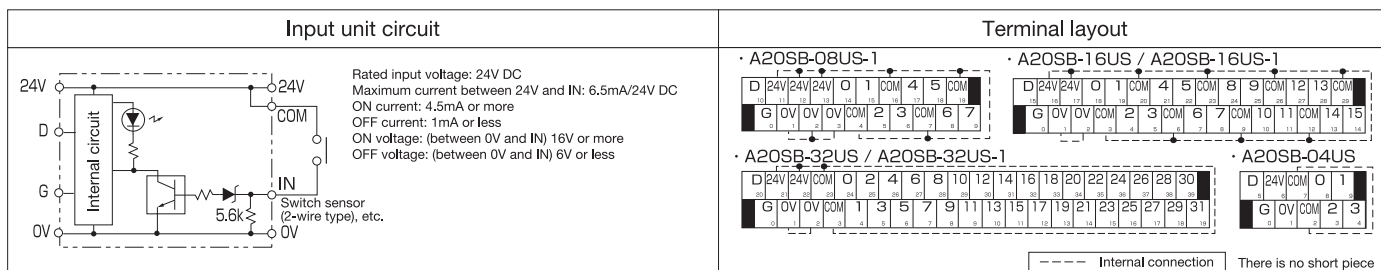
• A20PB-□□U



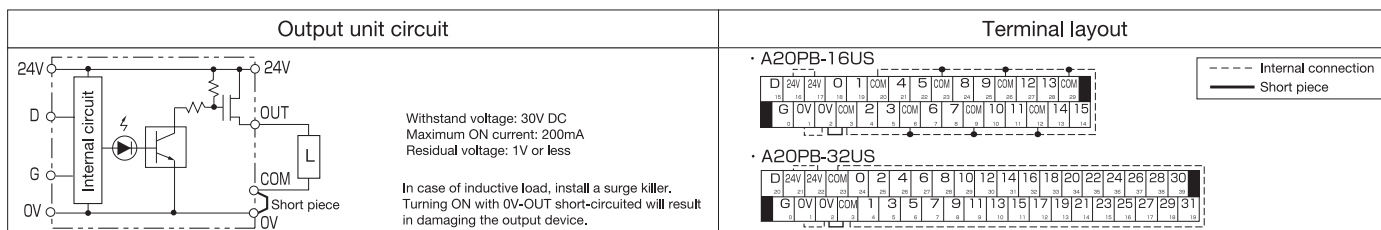
• A20PB-□□U-1



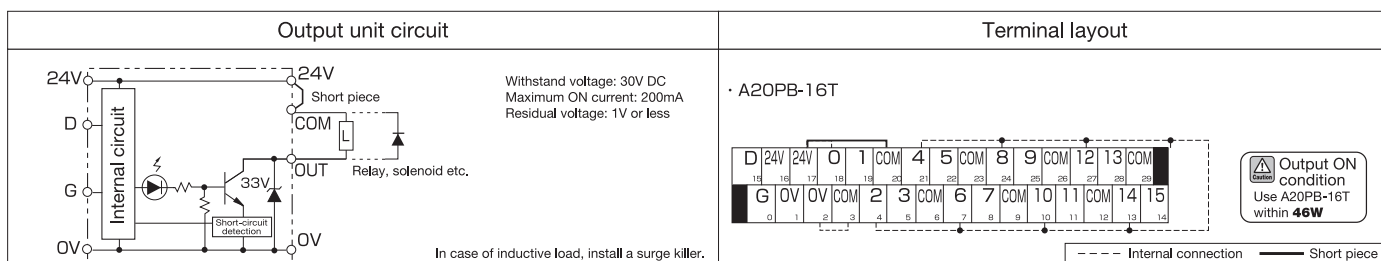
• A20SB-□□US / A20SB-□□US-1



• A20PB-□□US

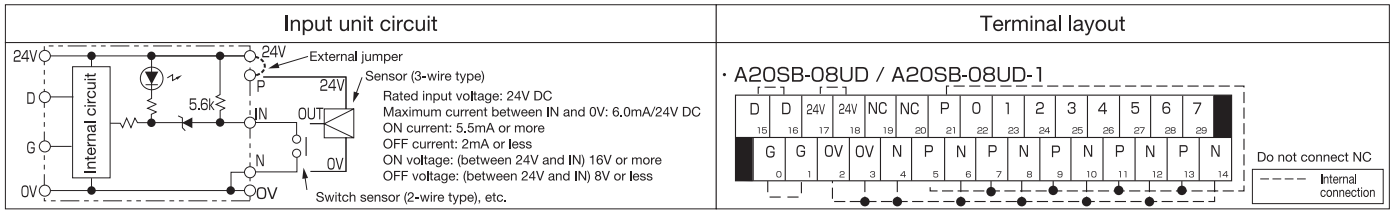


• A20PB-16T

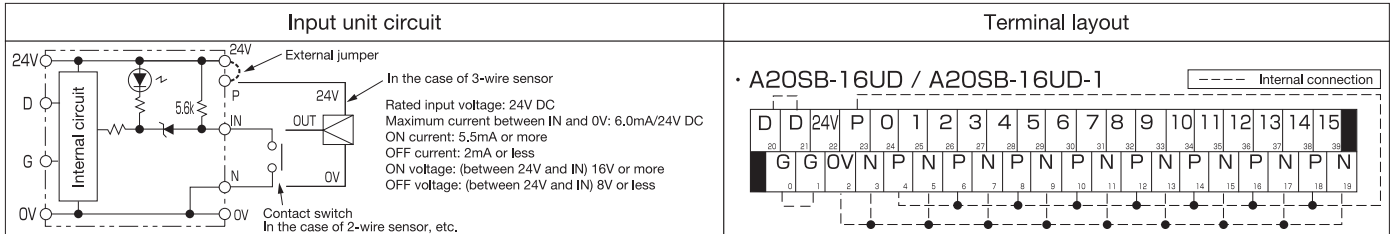


<Input/output circuit and terminal layout>

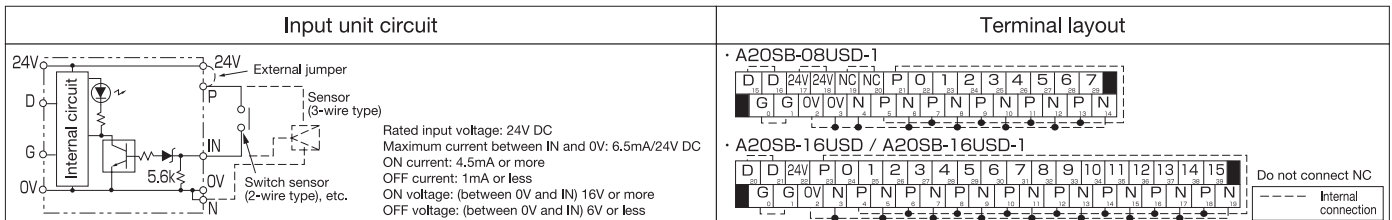
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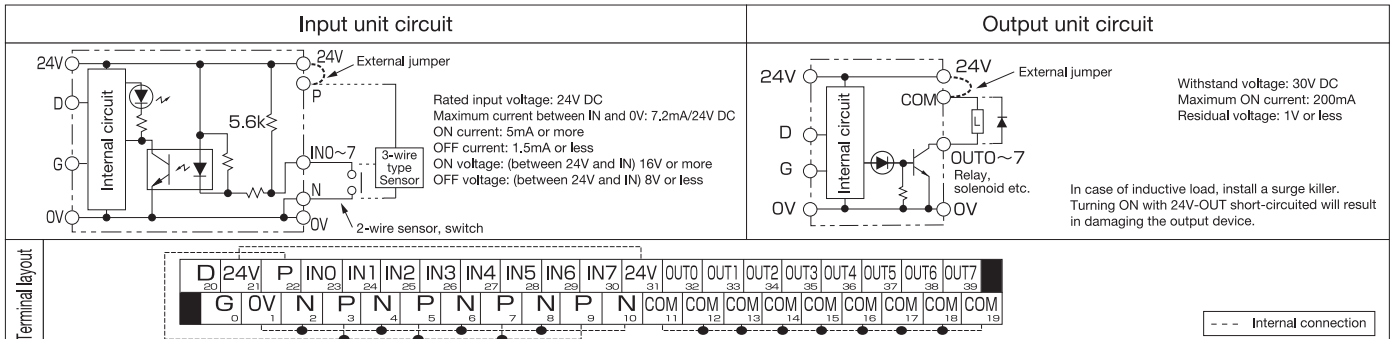
• A20SB-16UD / A20SB-16UD-1



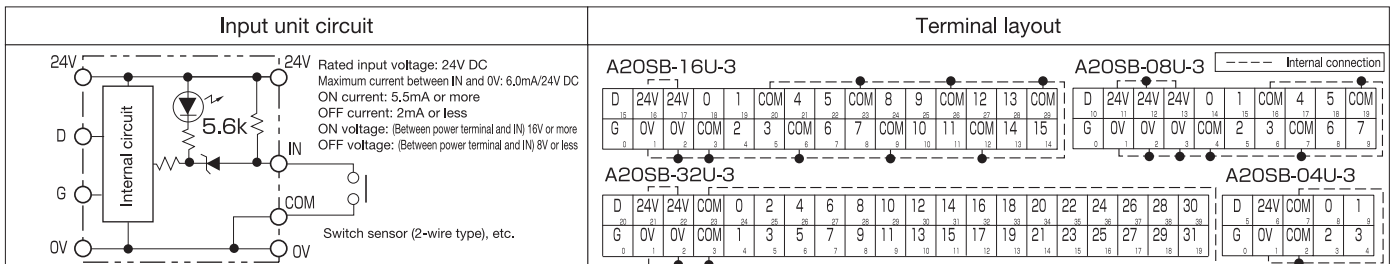
• A20SB-16USD / A20SB-□□USD-1



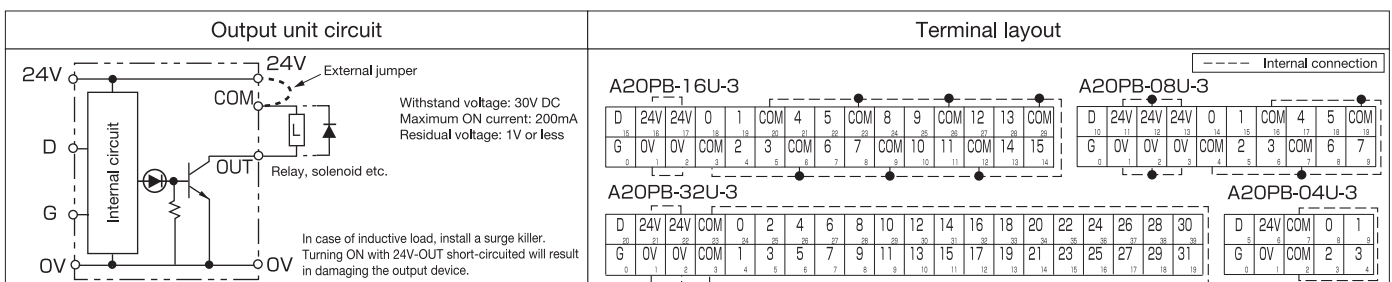
• A20XB-16UD/A20XB-16UD-1



• A20SB-□□U-3



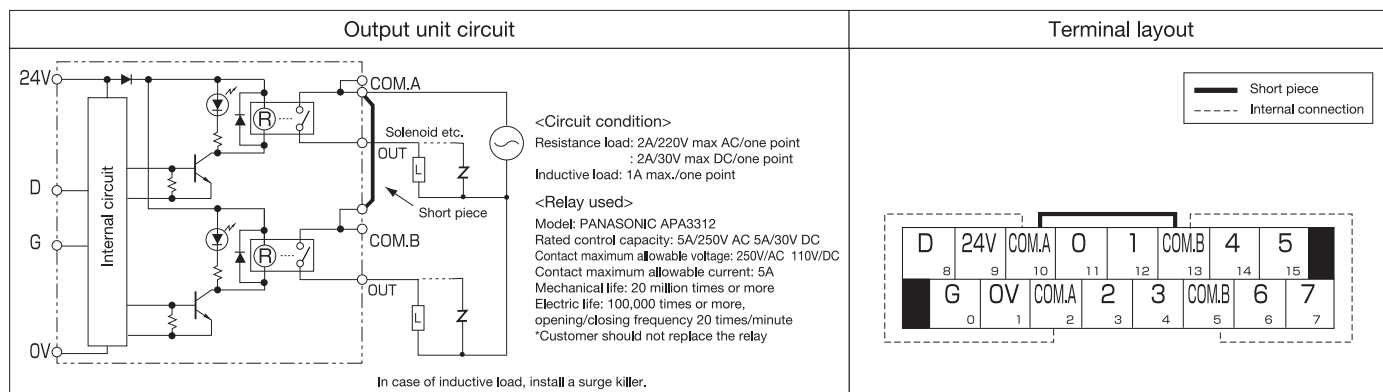
• A20PB-□□U-3



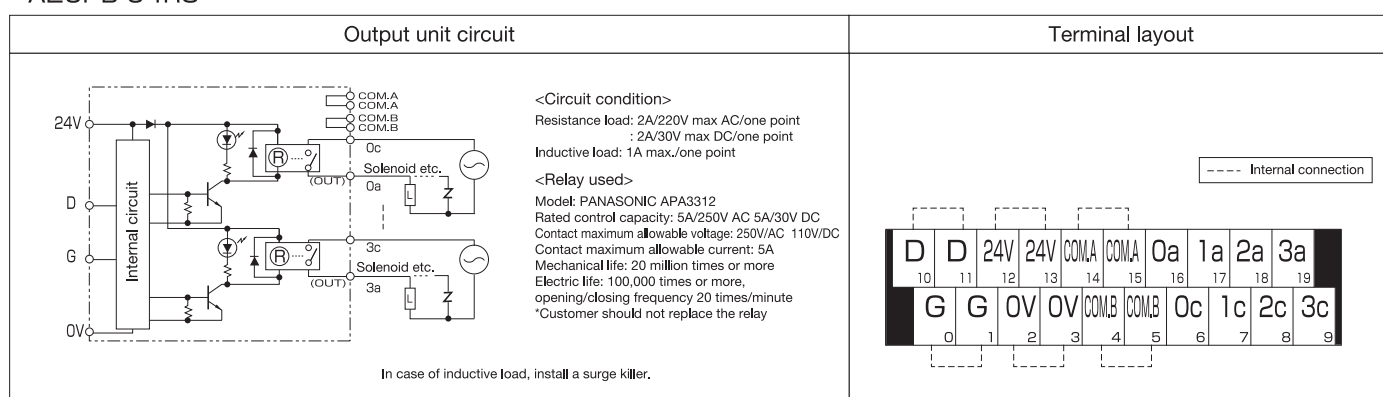
AnyWire System Specification

<Input/output circuit and terminal layout>

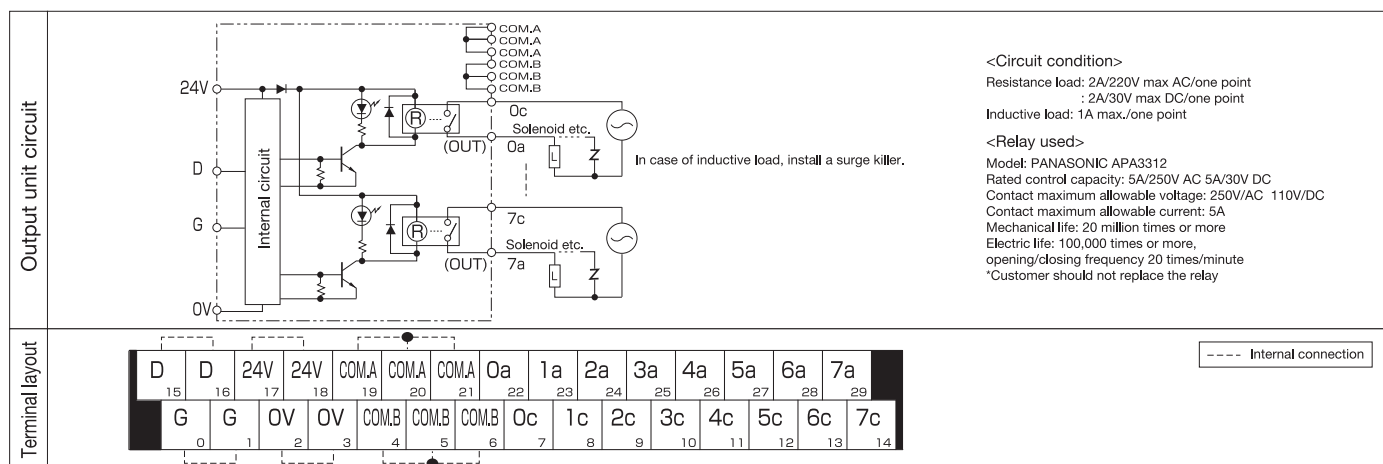
• A20PB-08R/A20PB-08R-1



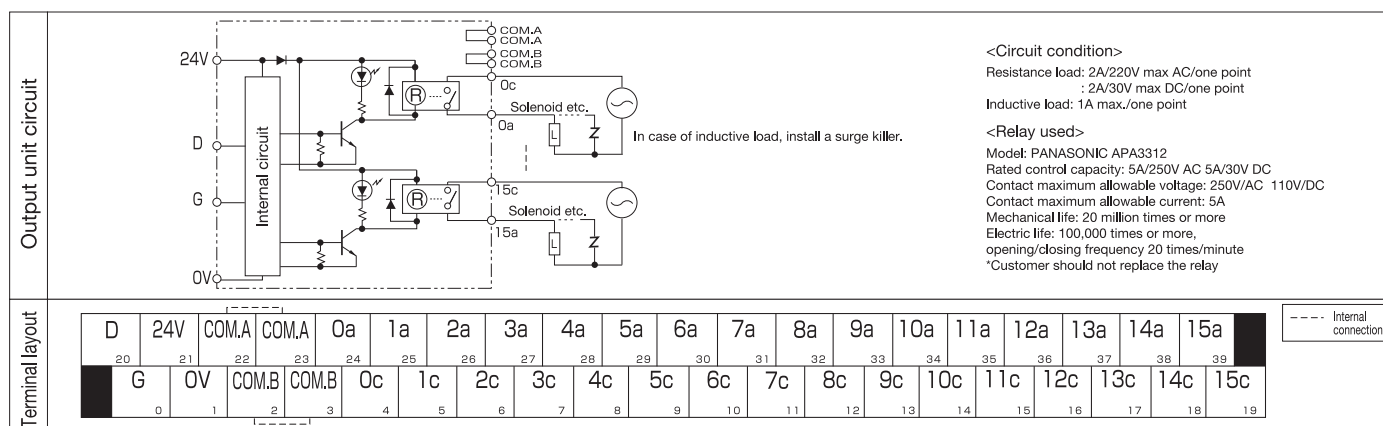
• A20PB-04RS



• A20PB-08RS/A20PB-08RS-1



• A20PB-16RS/A20PB-16RS-1



<Input/output circuit and terminal layout>

• A220SB-16RS□

Install a surge killer in order to protect the load.

	A220SB-16RS	A220SB-16RS1	A220SB-16RS2
<Circuit condition>			
Input current	• : 21.8mA/one point	• : 11mA/50Hz 100V AC/one point	• : 5.5mA/50Hz 200V AC/one point
Input voltage	• : OFF → ON 16.8V DC (min.)	• : OFF → ON 80V AC (min.)	• : 4.5mA/60Hz 200V AC/one point
	• : ON → OFF 3.6V DC (max.)	• : ON → OFF 30V AC (max.)	• : OFF → ON 160V AC (min.)
			• : ON → OFF 60V AC (max.)
<Relay used>			
Model	• : OMRON G2R-1-S	• : OMRON G2R-1-S	• : OMRON G2R-1-S
Rated voltage	• : 24V DC	• : 100V AC	• : 200V AC
Rated current	• : 21.8mA	• : 11mA/50Hz	• : 5.5mA/50Hz
		• : 9mA/60Hz	• : 4.5mA/60Hz
Operating voltage	• : 70% or more(V)	• : 80% or less (V)	• : 80% or less (V)
Recovery voltage	• : 15% or more (V)	• : 30% or more (V)	• : 30% or more (V)
Maximum allowable voltage	• : 170%(V) at 23°C	• : 140%(V) at 23°C	• : 140%(V) at 23°C
Maximum opening/closing frequency	• : Mechanical 18000 times/h	• : Mechanical 18000 times/h	• : Mechanical 18000 times/h
	• : Rated load 1800 times/h	• : Rated load 1800 times/h	• : Rated load 1800 times/h
Durability	• : Mechanical 20 million times or more	• : Mechanical 10 million times or more	• : Mechanical 10 million times or more
	• : Electrical 100,000 times or more/rated load	• : Electrical 100,000 times or more/rated load	• : Electrical 100,000 times or more/rated load
	• (At the above maximum opening/closing frequency)	• (At the above maximum opening/closing frequency)	• (At the above maximum opening/closing frequency)

----- Internal connection

D	24V	24V	NC	a0	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12	a13	a14	a15
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
G	OV	OV	NC	c0	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14	c15
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

• A220PB-16RS

In case of inductive load, install a surge killer.

<Relay used>

Model : OMRON G2R-1-S

Rated load : 250V AC 8A (resistance load)

30V DC 8A (resistance load)

250V AC 6A (inductive load)

30V DC 4A (inductive load)

Rated power-on current : 8A

Maximum contact voltage : 380V AC, 125V DC

Maximum contact current : 8A

Maximum opening/closing frequency : Mechanical 18000 times/h

Rated load 1800 times/h

Durability : Mechanical 10 million times or more

Electrical 100,000 times or more/rated load

(At the above maximum opening/closing frequency)

----- Internal connection

D	24V	24V	NC	a0	a1	a2	a3	a4	a5	a6	a7	b8	a8	b9	a9	b10	a10	b11	a11	b12	a12	b13	a13	b14	a14	b15	a15
4	5	6	7	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
G	OV	OV	NC	c0	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14	c15	c16	c17	c18	c19	c20	c21	c22	c23
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

• A220PB-16R2

In case of inductive load, install a surge killer.

<Output circuit>

[Output 8 circuits/common] × 2 sets

1 circuit: 3A (max.)

8 circuits total: 10A (max.)

<Terminal block>

Allowable current: 10A (max.)

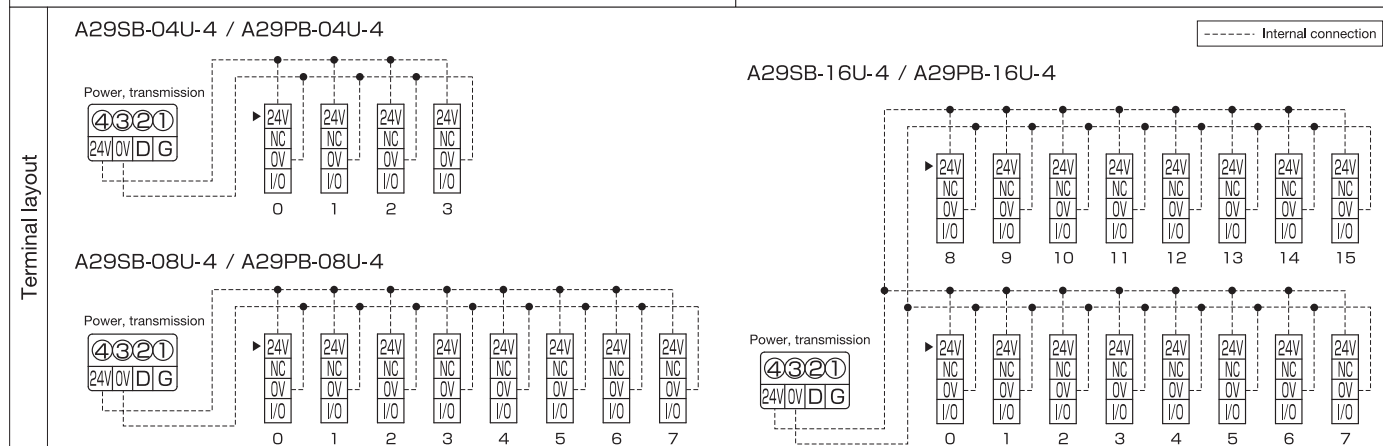
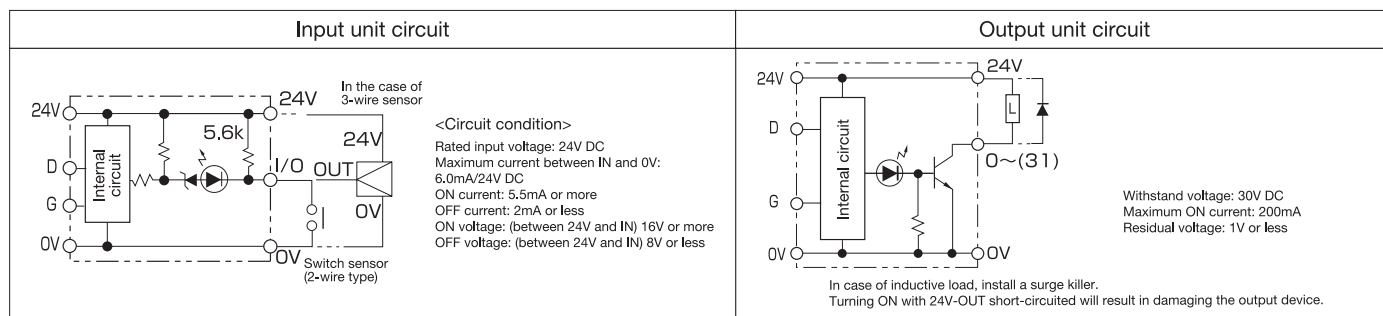
----- Internal connection

D	24V	24V	NC	a0	a1	a2	a3	a4	a5	a6	a7	CMLA	CMLB	a8	a9	NC	a10	NC	a11	NC	a12	NC	a13	NC	a14	NC	a15
4	5	6	7	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
G	OV	OV	NC	COMA	COMA	COMA	COMA	COMA	COMA	COMA	COMA	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	COMB	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	

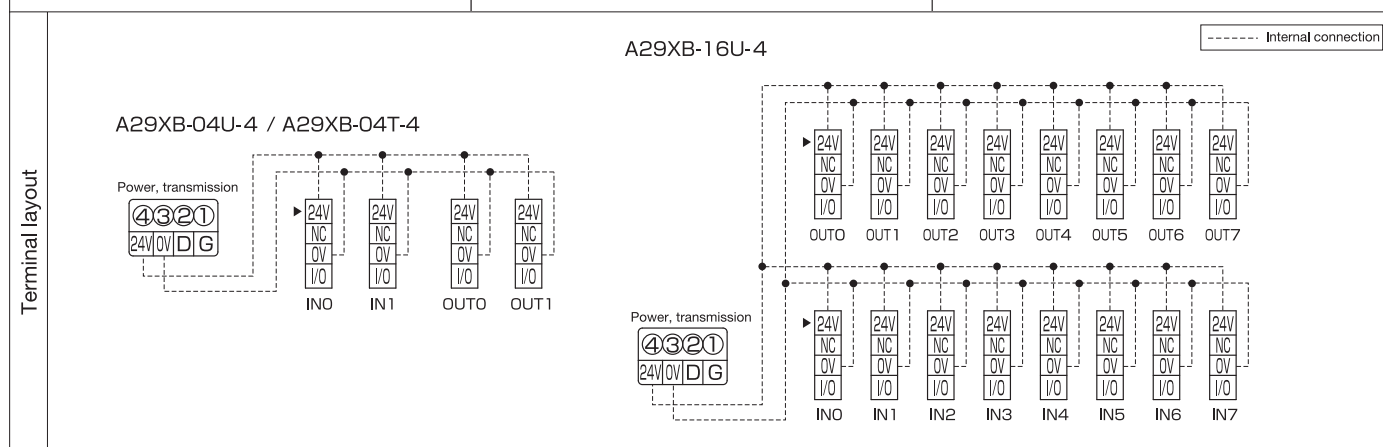
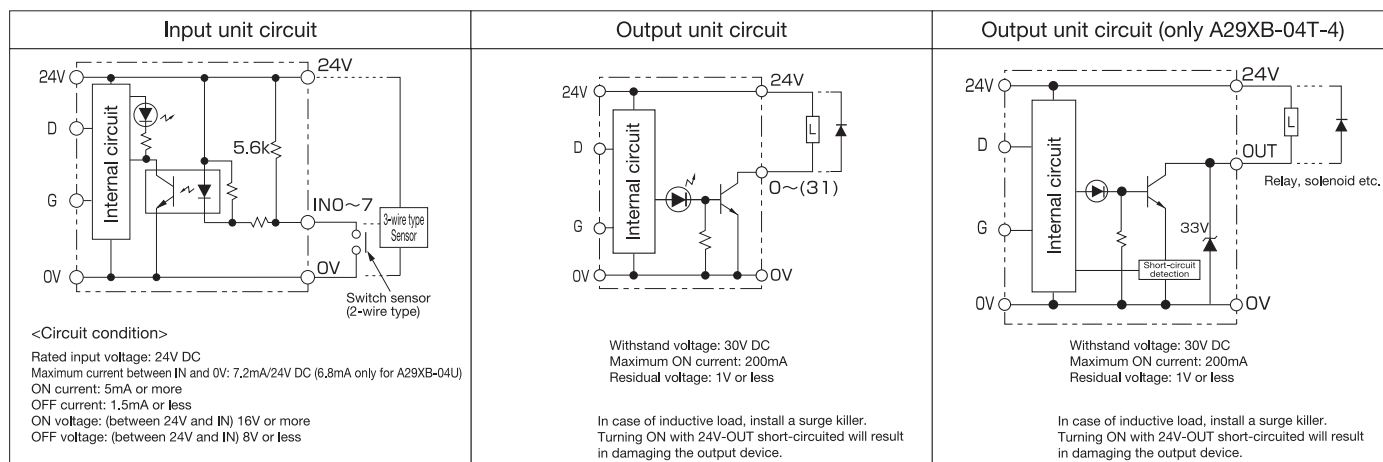
AnyWire System Specification

<Input/output circuit and terminal layout>

· A29SB-□□U-4 / A29PB-□□U-4

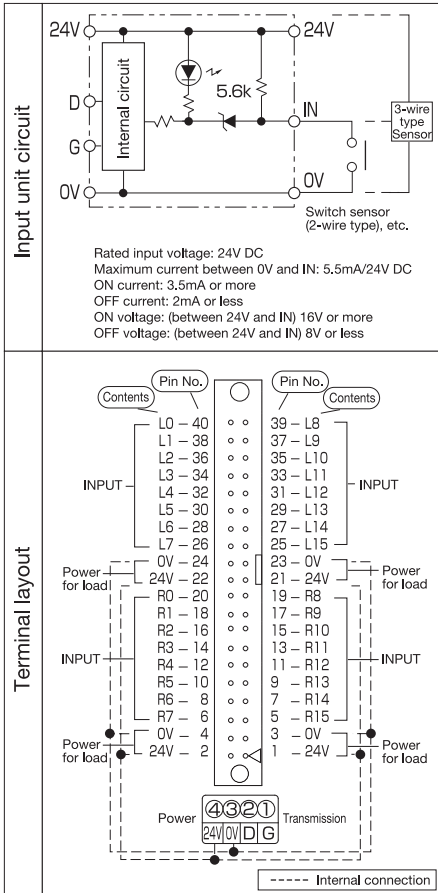


· A29XB-□□U-4 / A29XB-04T-4

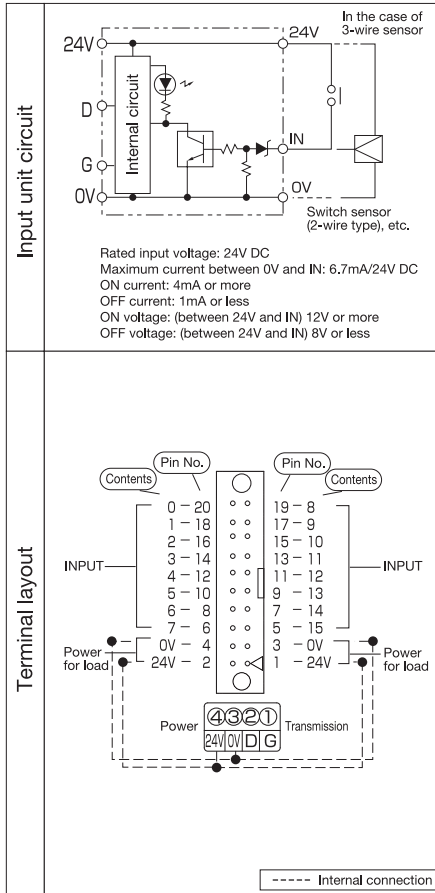


<Input/output circuit and terminal layout>

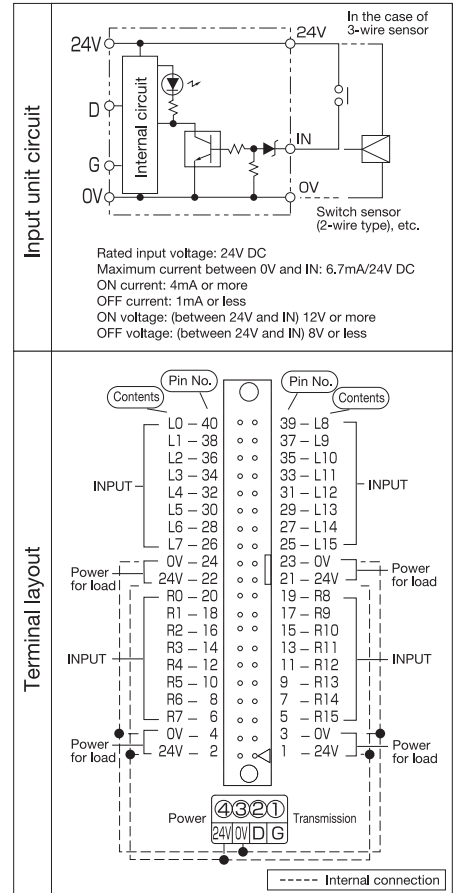
• A235SB-32U-2



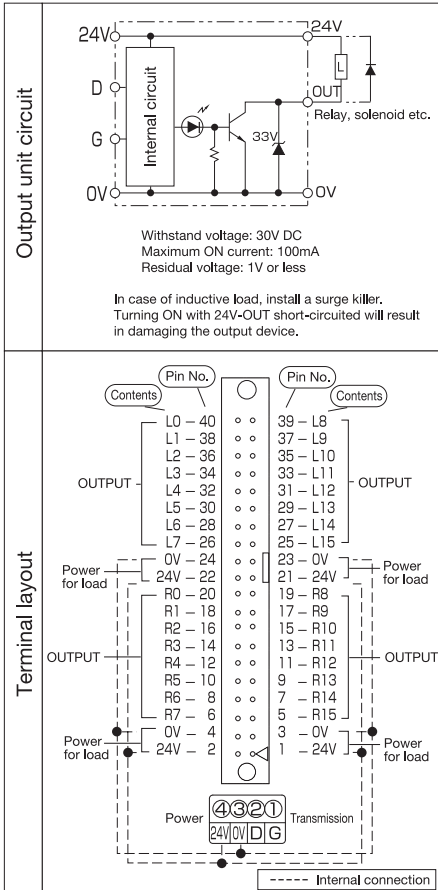
• A235SB-16US-2



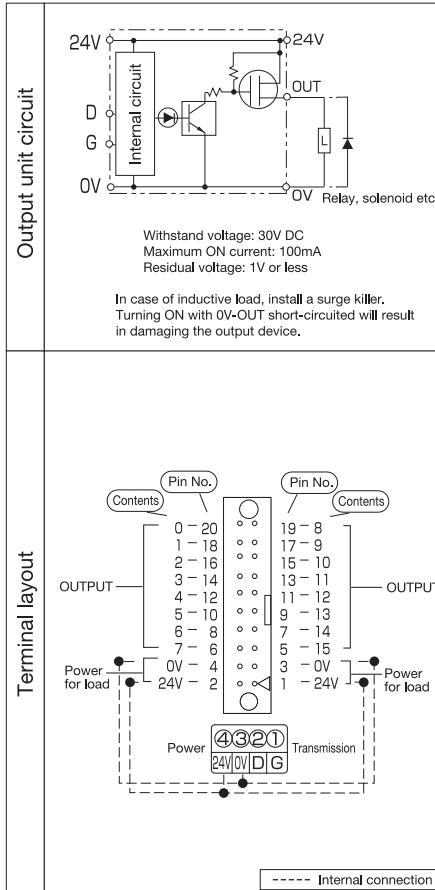
• A235SB-32US-2



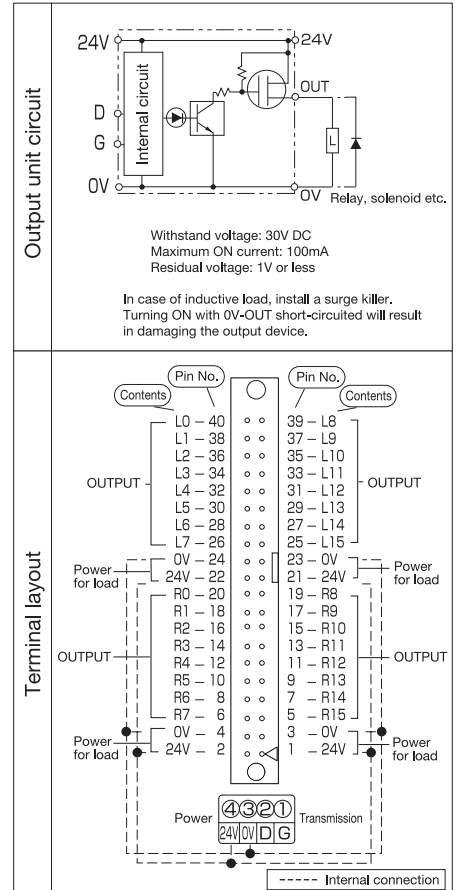
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• A235PB-16US-2



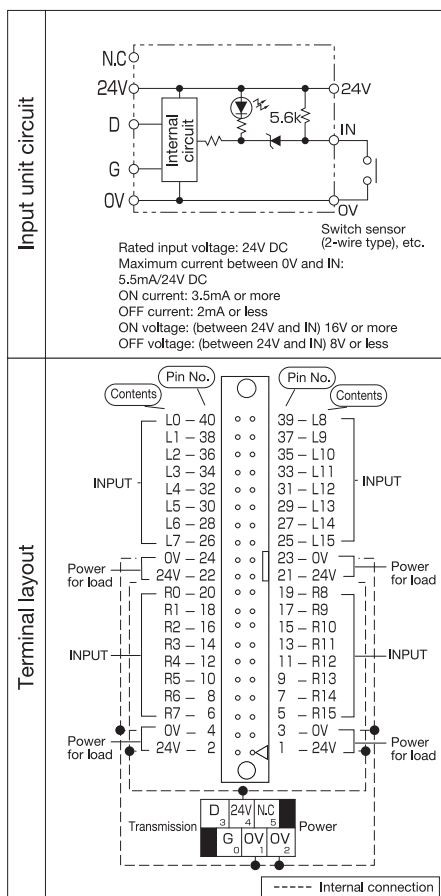
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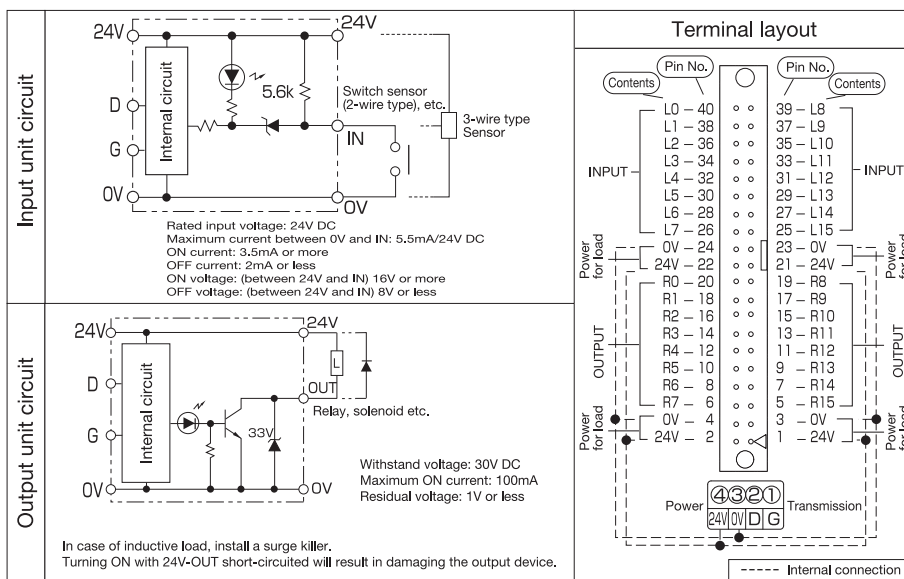
AnyWire System Specification

<Input/output circuit and terminal layout>

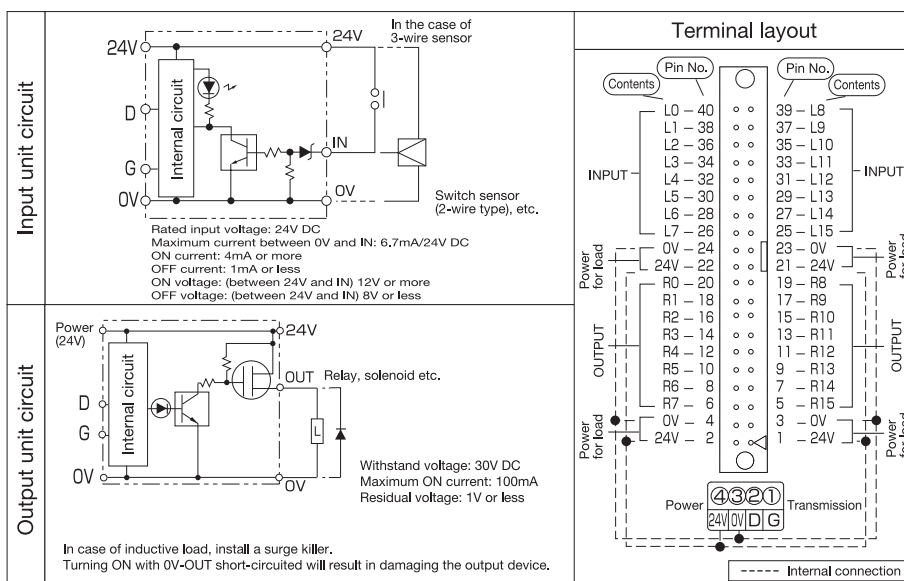
• A235SB-32UJ-2T



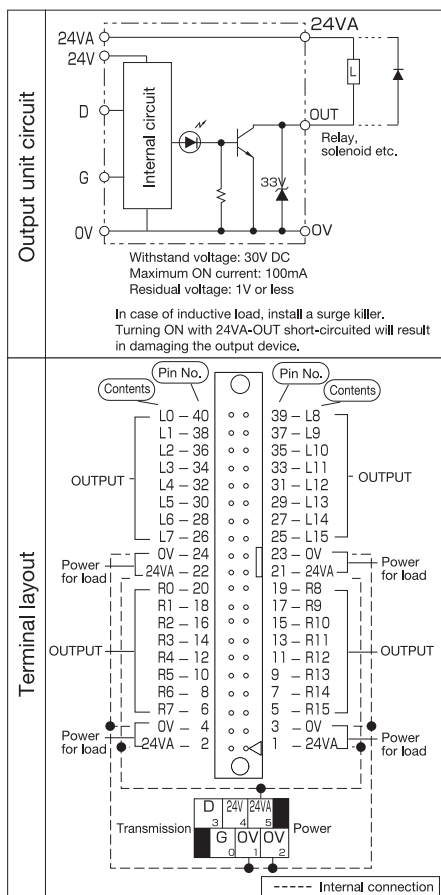
• A235XB-32U-2



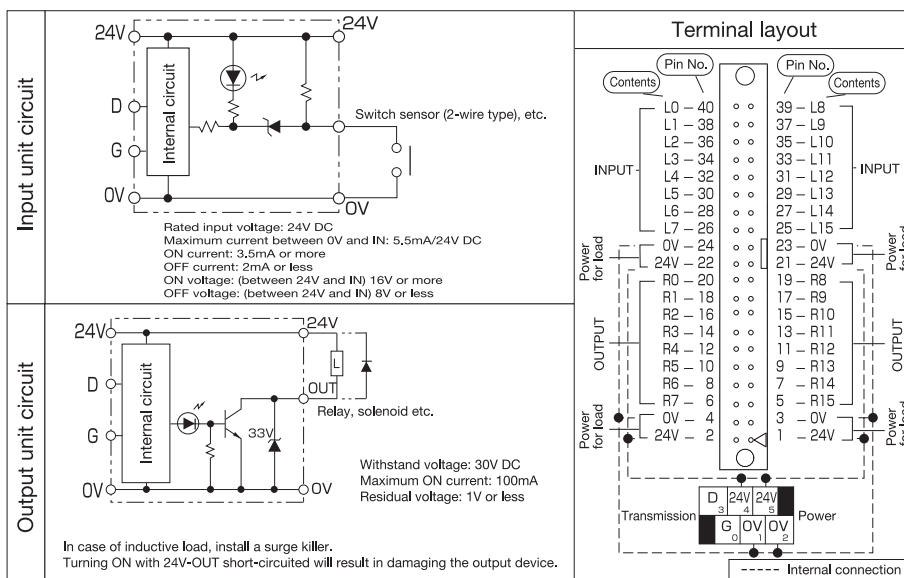
• A235XB-32US-2



• A235PB-32UJ-2T



• A235XB-32U-2T



AnyWire System Specification

<Input/output circuit and terminal layout>

• A21SB-08U / A21SB-08U-2 / A21SB-16U-2

Input unit circuit	Terminal layout: A21SB-08U	Terminal layout: A21SB-08U-2	Terminal layout: A21SB-16U-2
<p>Rated input voltage: 24V DC Maximum current between IN and 0V: 6.0mA/24V DC ON current: 3mA or more OFF current: 1mA or less ON voltage: (between 24V and IN) 14V or more OFF voltage: (between 24V and IN) 7V or less</p> <p>CAUTION If 3 or more units are installed in parallel at regular distances of 10mm or less, use at ambient temperature of 40°C or lower/at 24V DC and ON point number of 50% or less.</p>			

• A21PB-08U / A21PB-08U-2 / A21PB-16U-2

Output unit circuit	Terminal layout: A21PB-08U	Terminal layout: A21PB-08U-2	Terminal layout: A21PB-16U-2
<p>Withstand voltage: 30V DC Maximum ON current: 200mA Residual voltage: 1V or less</p> <p>In case of inductive load, install a surge killer. Turning ON with 24V-OUT short-circuited will result in damaging the output device.</p>			

• A219SB-04U

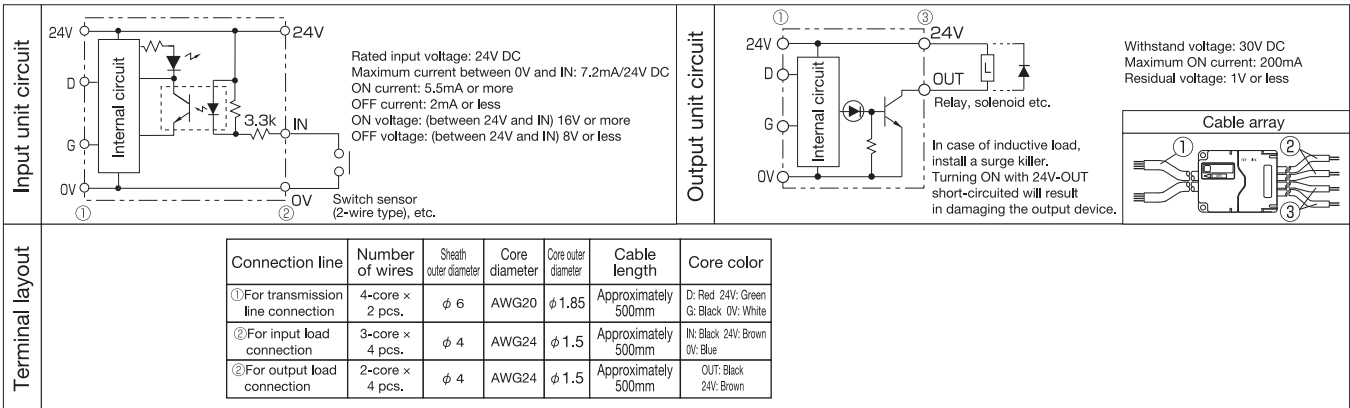
Input unit circuit	<p>Rated input voltage: 24V DC Maximum current between 0V and IN: 7.2mA/24V DC ON current: 5.5mA or more OFF current: 2mA or less ON voltage: (between 24V and IN) 16V or more OFF voltage: (between 24V and IN) 8V or less</p>																					
Terminal layout	<table><tr><th>Connection line</th><th>Number of wires</th><th>Sheath outer diameter</th><th>Core diameter</th><th>Core outer diameter</th><th>Cable length</th><th>Core color</th></tr><tr><td>① For transmission line connection</td><td>4-core x 2 pcs.</td><td>φ 6</td><td>AWG20</td><td>φ 1.85</td><td>Approximately 500mm</td><td>D: Red 24V; Green G; Black 0V; White</td></tr><tr><td>② For input load connection</td><td>3-core x 4 pcs.</td><td>φ 4</td><td>AWG24</td><td>φ 1.5</td><td>Approximately 500mm</td><td>IN: Black 24V; Brown 0V; Blue</td></tr></table>	Connection line	Number of wires	Sheath outer diameter	Core diameter	Core outer diameter	Cable length	Core color	① For transmission line connection	4-core x 2 pcs.	φ 6	AWG20	φ 1.85	Approximately 500mm	D: Red 24V; Green G; Black 0V; White	② For input load connection	3-core x 4 pcs.	φ 4	AWG24	φ 1.5	Approximately 500mm	IN: Black 24V; Brown 0V; Blue
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• A219PB-04U

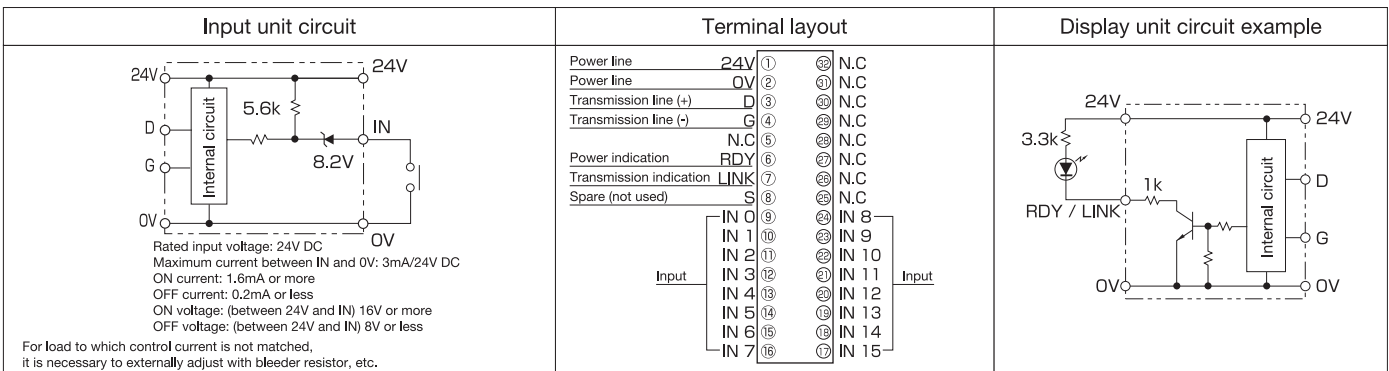
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<Input/output circuit and terminal layout>

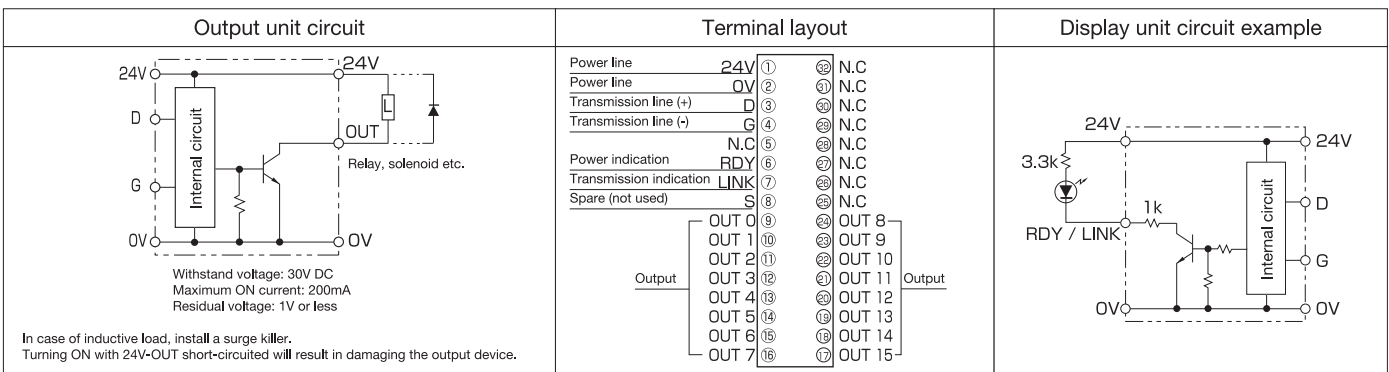
• A219XB-04U



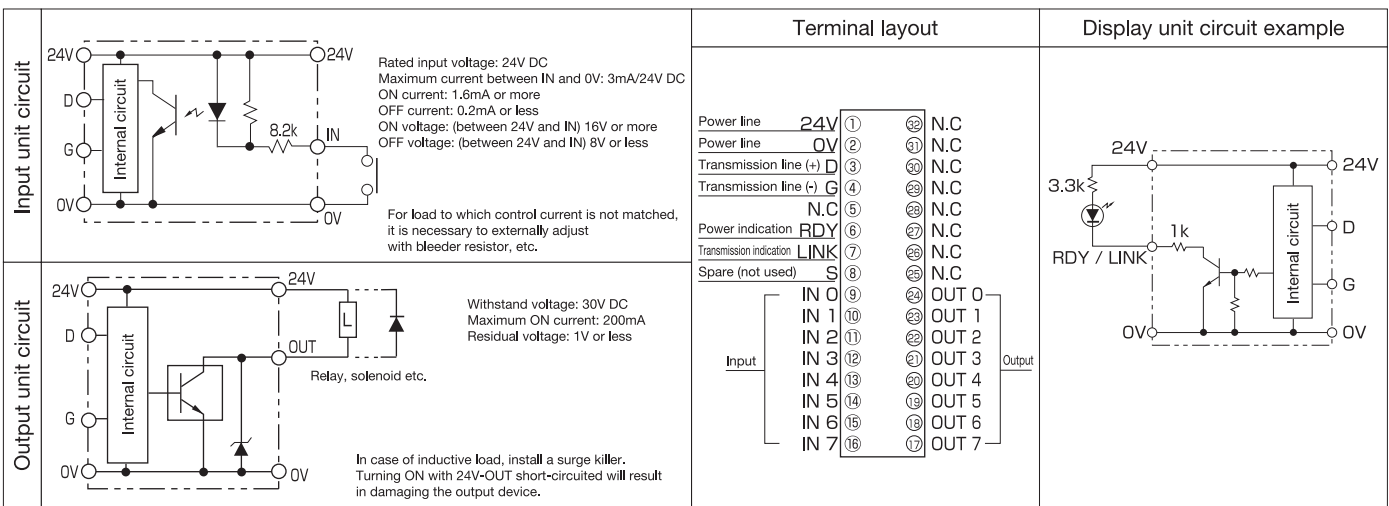
• A221SB-16U / A221SB-16U-1



• A221PB-16U / A221PB-16U-1



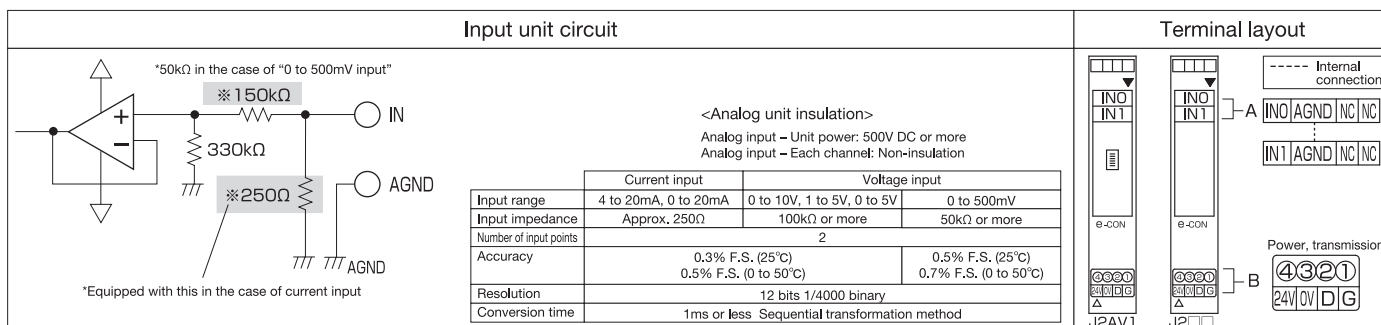
• A221XB-16U



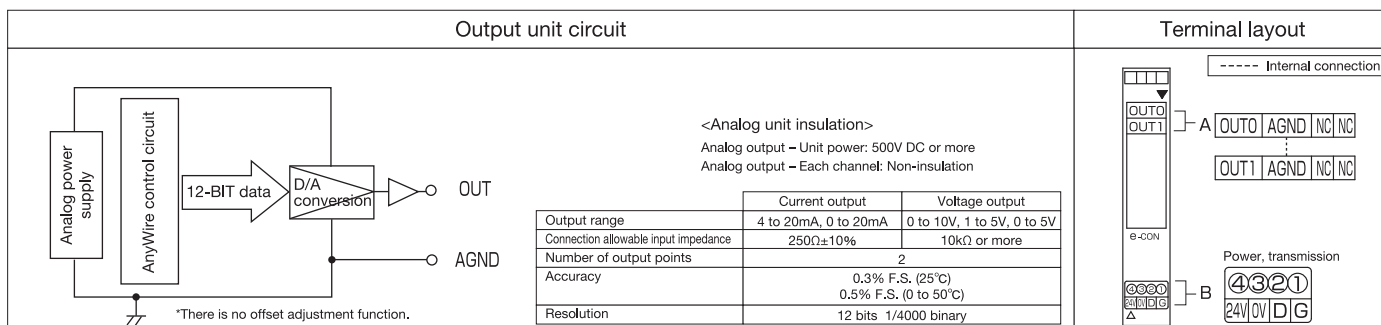
AnyWire System Specification

<Input/output circuit and terminal layout>

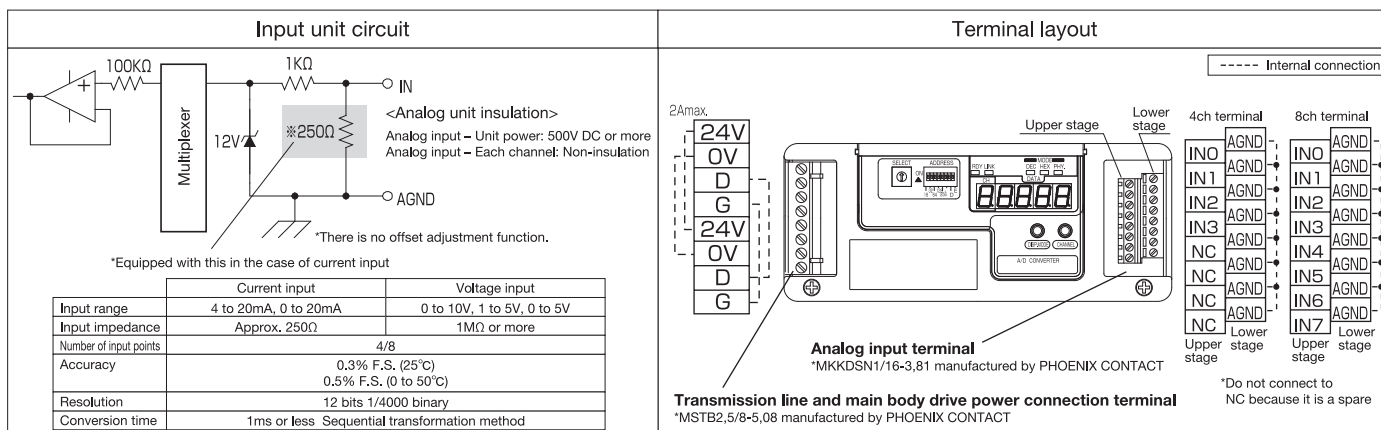
• A21SB-J2□□□



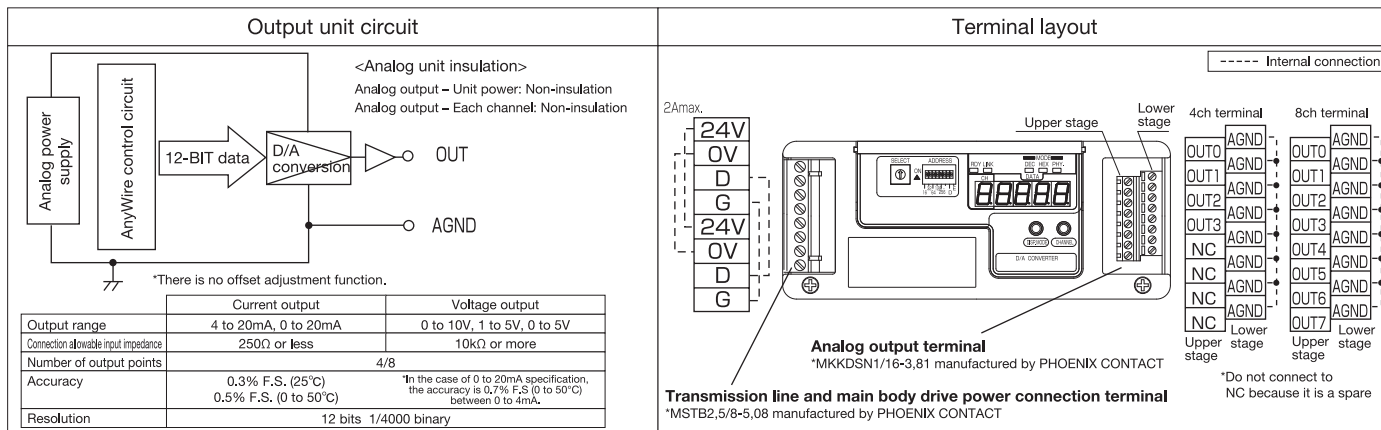
• A21PB-J2□□



• A22SB-J4□□ / A22SB-J8□□



• A22PB-J4□□ / A22PB-J8□□



<Input/output circuit and terminal layout>

• A20SB-J4□□ / A20SB-J8□□

Input unit circuit	<p><Analog unit insulation> Analog input – Unit power: 500V DC or more Analog input – Each channel: Non-insulation</p>		<table border="1"> <thead> <tr> <th></th> <th>Current input</th> <th>Voltage input</th> </tr> </thead> <tbody> <tr> <td>Input range</td> <td>4 to 20mA, 0 to 20mA</td> <td>0 to 10V, 1 to 5V, 0 to 5V, -10 to +10V</td> </tr> <tr> <td>Input impedance</td> <td>Approx. 250Ω</td> <td>250kΩ or more</td> </tr> <tr> <td>Number of input points</td> <td colspan="2">4/8</td> </tr> <tr> <td>Accuracy</td> <td colspan="2">0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)</td> </tr> <tr> <td>Resolution</td> <td colspan="2">12 bits 1/4000 binary</td> </tr> <tr> <td>Conversion time</td> <td colspan="2">1ms or less Sequential transformation method</td> </tr> </tbody> </table>		Current input	Voltage input	Input range	4 to 20mA, 0 to 20mA	0 to 10V, 1 to 5V, 0 to 5V, -10 to +10V	Input impedance	Approx. 250Ω	250kΩ or more	Number of input points	4/8		Accuracy	0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)		Resolution	12 bits 1/4000 binary		Conversion time	1ms or less Sequential transformation method																																																																									
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<p>*Equipped with this in the case of current input</p>																																																																																																
Terminal layout	<p>A20SB-J4□□ (4ch terminal)</p> <table border="1"> <tr> <td>D</td><td>24V</td><td>24V</td><td>N.C</td><td>N.C</td><td>N.C</td><td>N.C</td><td>INO</td><td>IN1</td><td>IN2</td><td>IN3</td><td>N.C</td><td>N.C</td><td>N.C</td><td>N.C</td> </tr> <tr> <td>G</td><td>OV</td><td>OV</td><td>N.C</td><td>N.C</td><td>N.C</td><td>N.C</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td> </tr> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td> </tr> </table>		D	24V	24V	N.C	N.C	N.C	N.C	INO	IN1	IN2	IN3	N.C	N.C	N.C	N.C	G	OV	OV	N.C	N.C	N.C	N.C	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	<p>A20SB-J8□□ (8ch terminal)</p> <table border="1"> <tr> <td>D</td><td>24V</td><td>24V</td><td>N.C</td><td>N.C</td><td>N.C</td><td>N.C</td><td>INO</td><td>IN1</td><td>IN2</td><td>IN3</td><td>IN4</td><td>IN5</td><td>IN6</td><td>IN7</td><td>N.C</td> </tr> <tr> <td>G</td><td>OV</td><td>OV</td><td>N.C</td><td>N.C</td><td>N.C</td><td>N.C</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td><td>AGND</td> </tr> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td> </tr> </table>	D	24V	24V	N.C	N.C	N.C	N.C	INO	IN1	IN2	IN3	IN4	IN5	IN6	IN7	N.C	G	OV	OV	N.C	N.C	N.C	N.C	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	D	24V	24V	N.C	N.C	N.C	N.C	INO	IN1	IN2	IN3	N.C	N.C	N.C	N.C																																																																																	
G	OV	OV	N.C	N.C	N.C	N.C	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND																																																																																		
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14																																																																																		
D	24V	24V	N.C	N.C	N.C	N.C	INO	IN1	IN2	IN3	IN4	IN5	IN6	IN7	N.C																																																																																	
G	OV	OV	N.C	N.C	N.C	N.C	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND	AGND																																																																																	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																																																																																	
<p>*Do not connect to NC because it is a spare</p>																																																																																																

• A20PB-J4□□ / A20PB-J8□□

Output unit circuit	<p><Analog unit insulation> Analog output – Unit power: 500V DC or more Analog output – Each channel: Non-insulation</p>		<table border="1"> <thead> <tr> <th></th> <th>Current output</th> <th>Voltage output</th> </tr> </thead> <tbody> <tr> <td>Output range</td> <td>4 to 20mA, 0 to 20mA</td> <td>0 to 10V, 1 to 5V, 0 to 5V, -10 to +10V</td> </tr> <tr> <td>Connection allowable input impedance</td> <td>250Ω±10%</td> <td>10kΩ or more</td> </tr> <tr> <td>Number of output points</td> <td colspan="2">4/8</td> </tr> <tr> <td>Accuracy</td> <td colspan="2">0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)</td> </tr> <tr> <td>Resolution</td> <td colspan="2">12 bits 1/4000 binary</td> </tr> </tbody> </table>		Current output	Voltage output	Output range	4 to 20mA, 0 to 20mA	0 to 10V, 1 to 5V, 0 to 5V, -10 to +10V	Connection allowable input impedance	250Ω±10%	10kΩ or more	Number of output points	4/8		Accuracy	0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)		Resolution	12 bits 1/4000 binary																																																																												
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• A21SB-J2AVRT1

Input unit circuit	<p><Analog unit insulation> Analog input – Unit power: 500V DC or more Analog input – Each channel: Non-insulation</p>		<table border="1"> <thead> <tr> <th></th> <th>Current input</th> <th>Voltage input</th> </tr> </thead> <tbody> <tr> <td>Input range</td> <td>4 to 20mA, 0 to 20mA</td> <td>0 to 10V, 1 to 5V, 0 to 5V</td> </tr> <tr> <td>Input impedance</td> <td>Approx. 250Ω</td> <td>100kΩ or more</td> </tr> <tr> <td>Number of input points</td> <td colspan="2">2</td> </tr> <tr> <td>Accuracy</td> <td colspan="2">0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)</td> </tr> <tr> <td>Resolution</td> <td colspan="2">12 bits 1/4000 binary</td> </tr> <tr> <td>Conversion time</td> <td colspan="2">1ms or less Sequential transformation method</td> </tr> </tbody> </table>		Current input	Voltage input	Input range	4 to 20mA, 0 to 20mA	0 to 10V, 1 to 5V, 0 to 5V	Input impedance	Approx. 250Ω	100kΩ or more	Number of input points	2		Accuracy	0.3% F.S. (25°C) 0.5% F.S. (0 to 50°C)		Resolution	12 bits 1/4000 binary		Conversion time	1ms or less Sequential transformation method	
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<p>*Equipped with this in the case of current input</p>																								
Terminal layout	<p>INO AGND NC +12V. IN1 IN2 IN3 IN4 IN5 Sensor input. 12V comes out from the inside on the +12V pin Do not connect external power *The sensor input is dedicated only to the attached temperature/humidity sensor (Temperature input: -35 to 120°C/humidity input: 0 to 100% RH)</p> <p>Power, transmission 4 3 2 1 24V OV DG Internal connection</p>																							

• A22SB-J4TK1

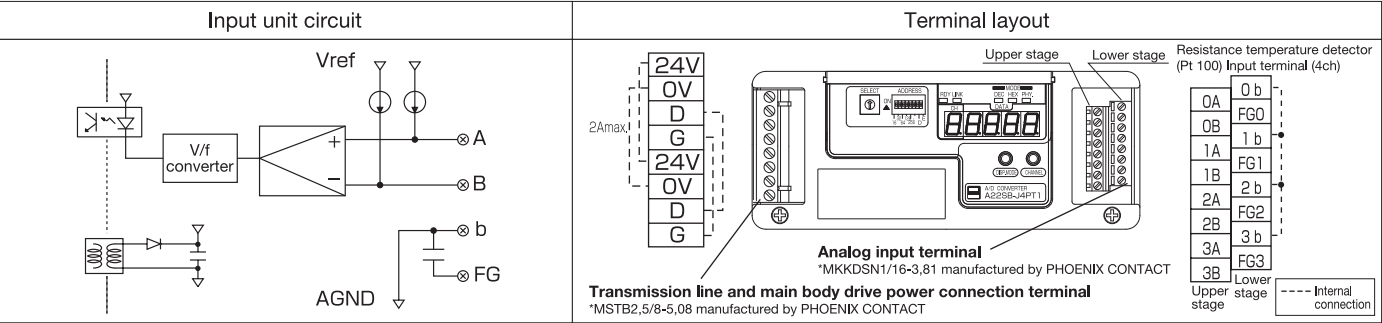
Input unit circuit	<p><Analog unit insulation> Analog input – Unit power: 500V DC or more Analog input – Each channel: Non-insulation</p>		<p>Terminal layout</p> <p>Upper stage Lower stage K thermocouple input terminal (4ch) INO+ INO- IN1+ IN1- IN2+ IN2- IN3+ IN3- Upper stage Lower stage</p> <p>Analog input terminal *7.62mm pitch M3 screw terminal block Transmission line and main body drive power connection terminal *MSTB2,5/8-5,08 manufactured by PHOENIX CONTACT</p>
	<p>Internal connection</p>		

AnyWire System

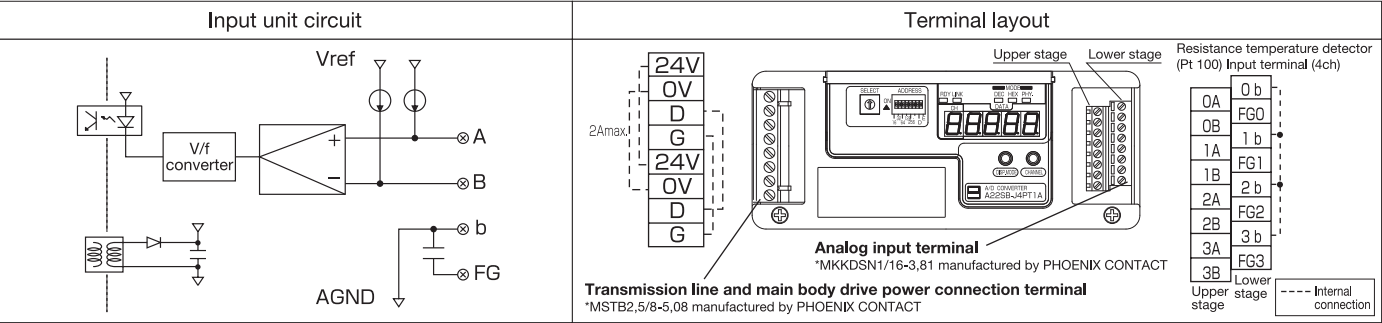
Specification

<Input/output circuit and terminal layout>

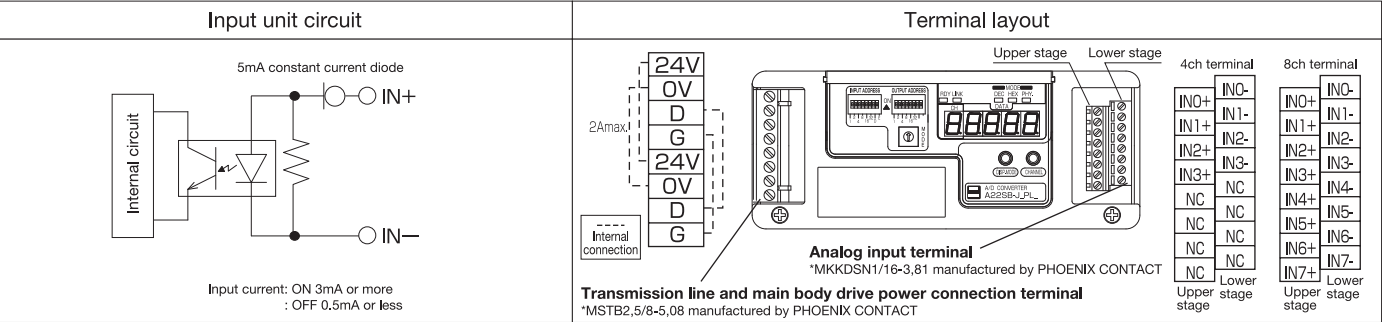
・ A22SB-J4PT1



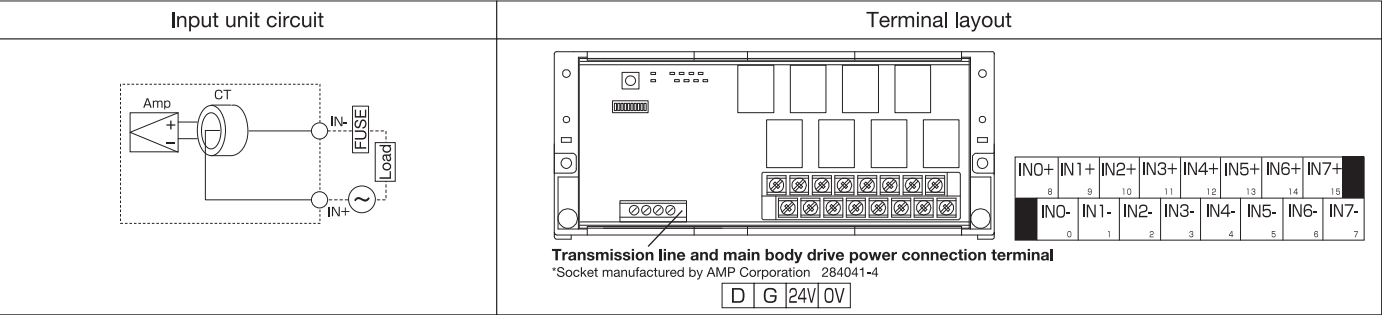
・ A22SB-J4PT1A



・ A22SB-J4PL□ / A22SB-J8PL□



・ A220SB-J8ACC1



Master Units

Model	RoHS	CE
AFSR01-D2	○	-
AFCJ01-D2	○	-
AFCS01-D2	○	-
AF611-D2	×	-
NP1L-AW1-D2	○	-
AFSP01-D2	○	-
AFLT01-D2	○	-
AP28-01A	○	-
AI28-01	○	-
APC28-104	×	-
AG20-232C	○	-
AG20-485MD	○	-
AG22-C1	○	-
AG22-D1	○	-
AG428-ES	×	-
AG428-EC	×	-
AES-CF□□-T	○	-

CC-Link Slave Interface

Model	RoHS	CE
AFMP-02-C	○	○
AFSR02	○	-
AFCJ02	○	○
AFCS02	-	-

Accessories

Model	RoHS	CE
CA-PCRM-15C	○	○
FK4-125-100	-	○
FK4-075-100	○	○
LP4-WR-10P	-	○
LP4-BK-10P	○	○
LP4-WH-10P	○	○
LP4-WW-10P	-	○
LP4-OR-10P	○	○
LP4-YE-10P	○	○
LP4-ORG-10P	○	○
LP4-YEG-10P	○	○
EP4-RE-8P	○	○
EP4-YE-8P	○	○
EP4-OR-8P	○	○
EP4-GR-8P	○	○
EP4-BL-8P	○	○
EP4-GL-8P	○	○

Others Units

Model	RoHS	CE
A215T-T1	×	-
A215T-R1	×	-
ADT20XB-256	○	-
AR228-01	×	-
A21PBD-16U-2	○	-
A20XB-08RR1	○	-

Terminator

Model	RoHS	CE
AT2	○	○

Digital I/O

Model	RoHS	CE
A20SB-04U	○	○
A20SB-08U	○	○
A20SB-16U	○	○
A20SB-32U	○	○
A20SB-04US	-	○
A20SB-16US	○	○
A20SB-32US	○	○
A20PB-04U	○	○
A20PB-08U	○	○
A20PB-16U	○	○
A20PB-32U	○	○
A20PB-16US	○	○
A20PB-32US	○	○
A20PB-04T	Under development	
A20PB-08T	Under development	
A20PB-16T	○	○
A20PB-32T	Under development	
A20SB-08UD	○	○
A20SB-16UD	○	○
A20SB-16USD	○	○
A20XB-16UD	○	○
A20SB-04U-1	○	○
A20SB-08U-1	○	○
A20SB-16U-1	○	○
A20SB-32U-1	○	○
A20SB-08US-1	○	○
A20SB-16US-1	○	○
A20SB-32US-1	○	○
A20PB-04U-1	○	○
A20PB-08U-1	○	○
A20PB-16U-1	○	○
A20PB-32U-1	○	○
A20SB-08UD-1	○	○
A20SB-16UD-1	○	○
A20SB-08USD-1	○	○
A20SB-16USD-1	○	○
A20XB-16UD-1	○	○
A20SB-04U-3	-	○
A20SB-08U-3	○	○
A20SB-16U-3	○	○
A20SB-32U-3	○	○
A20PB-04U-3	-	-
A20PB-08U-3	○	○
A20PB-16U-3	○	○
A20PB-32U-3	○	○
A20PB-08R	○	-
A20PB-04RS	○	-
A20PB-08RS	○	-
A20PB-16RS	○	-
A20PB-08R-1	○	-
A20PB-08RS-1	○	-
A20PB-16RS-1	○	-
A220SB-16RS	○	-
A220SB-16RS1	○	-
A220SB-16RS2	○	-
A220PB-16RS	○	-
A220PB-16R2	○	-
A29SB-04U-4	○	○
A29SB-08U-4	○	○
A29SB-16U-4	○	○
A29XB-04U-4	○	○
A29XB-16U-4	○	○
A29PB-04U-4	○	○
A29PB-08U-4	○	○

Digital I/O

Model	RoHS	CE
A29PB-16U-4	○	○
A29XB-04T-4	○	○
A235SB-32U-2	○	○
A235SB-16US-2	○	○
A235SB-32US-2	○	○
A235XB-32U-2	○	○
A235XB-32US-2	○	○
A235PB-16U-2	○	-
A235PB-32U-2	○	○
A235PB-32US-2	○	○
A235SB-32UJ-2T	-	○
A235XB-32U-2T	○	○
A235PB-32UJ-2T	○	○
A235XB-32T-2	○	○
A235PB-32T-2	○	○
A242SB-01U-4	○	-
A242SB-02U-4	○	-
A242XB-02U-4	○	-
A242PB-01U-4	○	-
A242PB-02U-4	○	-
ADP-42	○	-
A21SB-08U	○	○
A21SB-08U-2	○	○
A21SB-16U-2	○	○
A21PB-08U	○	○
A21PB-08U-2	○	○
A21PB-16U-2	○	○
A219SB-04U	○	-
A219XB-04U	○	-
A219PB-04U	○	-
ADP-19	○	-
A221SB-16U	○	-
A221XB-16U	○	-
A221PB-16U	○	-
A221SB-16U-1	○	-
A221PB-16U-1	○	-

Analog I/O

Model	RoHS	CE
A21SB-J2AV1	○	-
A21SB-J2V5	○	-
A21SB-J2V6	○	-
A21PB-J2A1	○	-
A21PB-J2A2	○	-
A21PB-J2V1	○	-
A21PB-J2V2	○	-
A21PB-J2V3	○	-
A21PB-J2V5	○	-
A22SB-J4A1	○	-
A22SB-J8A1	○	-
A22SB-J4A2	○	-
A22SB-J8A2	○	-
A22SB-J4V1	○	-
A22SB-J8V1	○	-
A22SB-J4V2	○	-
A22SB-J8V2	○	-
A22SB-J4V3	○	-
A22SB-J8V3	○	-
A22PB-J4A1	○	-
A22PB-J8A1	○	-
A22PB-J4A2	○	-
A22PB-J8A2	○	-
A22PB-J4V1	○	-

Analog I/O

Model	RoHS	CE
A22PB-J8V1	○	-
A22PB-J4V2	○	-
A22PB-J8V2	○	-
A22PB-J4V3	○	-
A22PB-J8V3	○	-
A20SB-J4A1	○	-
A20SB-J8A1	○	-
A20SB-J4A2	○	-
A20SB-J8A2	○	-
A20SB-J4V1	○	-
A20SB-J8V1	○	-
A20SB-J4V2	○	-
A20SB-J8V2	○	-
A20SB-J4V3	○	-
A20SB-J8V3	○	-
A20SB-J4V4	○	-
A20SB-J8V4	○	-
A20SB-J4V5	○	-
A20SB-J8V5	○	-
A20PB-J4A1	-	-
A20PB-J8A1	-	-
A20PB-J4A2	-	-
A20PB-J8A2	-	-
A20PB-J4V1	-	-
A20PB-J8V1	-	-
A20PB-J4V2	-	-
A20PB-J8V2	-	-
A20PB-J4V3	-	-
A20PB-J8V3	-	-
A20PB-J4V5	-	-
A20PB-J8V5	-	-
A21SB-J2AVRT1	○	-
A22SB-J4TK1	×	-
A22SB-J4PT1	○	-
A22SB-J4PT1A	○	-
A22SB-J4PL1	×	-
A22SB-J8PL1	×	-
A22SB-J4PL2	×	-
A22SB-J8PL2	×	-
A220SB-J8ACC1	×	-

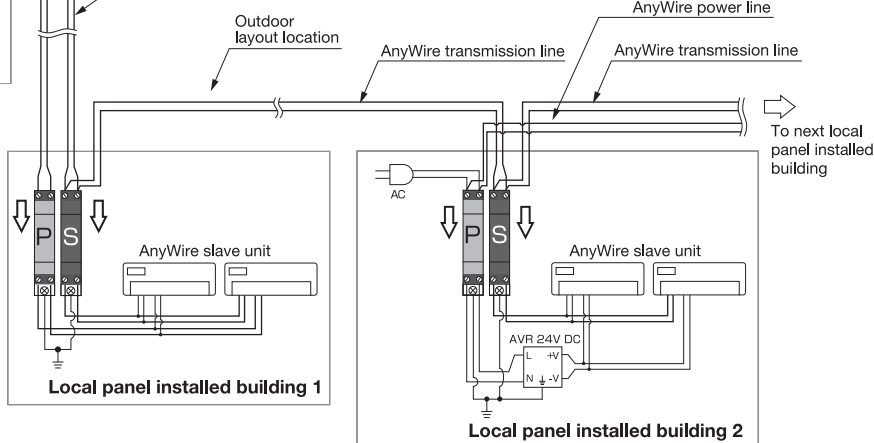
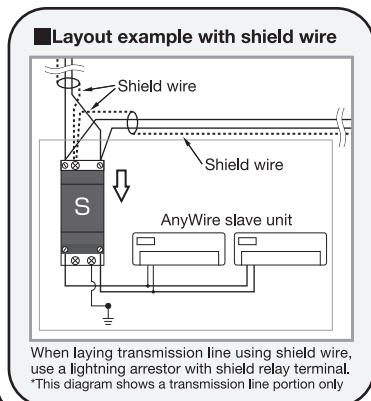
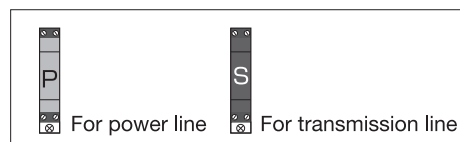
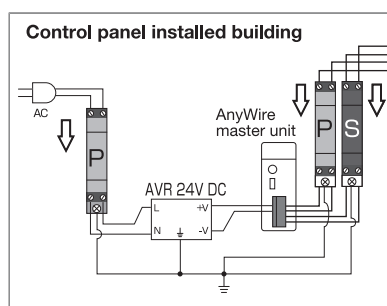
○ : Compatible
- : Non-compatible/Not verified
× : Non-compliant

Lightning surge countermeasures for the Sho-Haisen system

Countermeasures over entire system necessary for lightning surges.

If transmission line (D, G) or power line (24V, 0V) of AnyWire Sho-Haisen system is routed outdoors or used in an area which is often struck by lightning, make sure to countermeasure lightning surges by a lightning arrestor.

Layout example when lightning arrestor is inserted into AnyWire (Mixing system of power supply on master side and power supply on local side)



Recommended lightning arrestor manufacturer: Cooper Industries Japan K.K.
(Formerly: MTL Instruments K.K.)

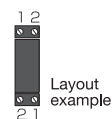
[Applicable model example]

- ◆ **For 100V AC power line**
MA15/D/ITT/SI (100V AC, up to 15A)
- ◆ **For 24V DC power line**
ZB24580 (24V DC, 10A)
IOPHC32 (24V DC, 5A)
SLP32D (24V DC, 1.5A)
- ◆ **For transmission line**
SLP32D (24V, 1.5A, up to 50MHz)
- ◆ **For transmission line (with shield relay terminal)**
FP32 (24V, 0.675A, up to 73MHz)

You can confirm the details of products from Cooper Industries Japan K.K. at the following. (Formerly: MTL Instruments K.K.)
<http://www.cooperindustries.jp/mtl/index.htm>

[Precautions]

- Use an earth line of 2.0mm² or larger.
- Connect an earth line of a lightning arrestor to the earth the same as that of equipment which you want to protect. (Also connect the earth of a DC power source to the same earth)
- Wire an earth line as straight as possible, and as short as possible.
- If a load connected to an AnyWire slave unit is unavoidably placed at a long distance or in another building (other earth), it is recommended to install a lightning arrestor immediately in front of the unit.
- When connecting to the lightning arrestor, fully check pin No. (pins with the same numbers). (Some pin layouts cross each other)
(The illustration at the right does not show actual terminal layout)
- Do not use lightning arrestor for 50m (transmission speed 125kHz) setting of AnyWire DB A20 series.



*For details, contact our sales representative.

Establishing Sho-Haisen system by using trolley rail

AnyWire Sho-Haisen system can use a trolley rail (power collection contact) as media to transmit a transmission signal. However, it does not have a function to keep and ensure immediately previous data for a change in contact resistance and line separation (in other words, disconnection state).

In addition, keep in mind that a settable transmission rate is limited.

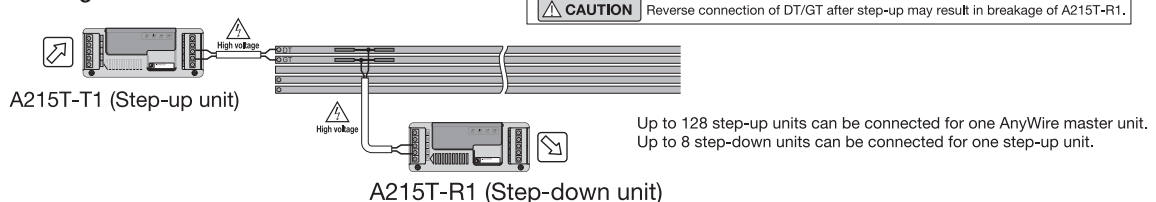
Caution when using a trolley rail for AnyWire

When a trolley rail is used for the AnyWire Sho-Haisen system, it is necessary to remove oxide film generated on a rail surface. Trolley buffer unit "A215T-T1" steps up the transmission line (D, G) of the AnyWire Sho-Haisen line from a normal 24V to 100V to remove the formed oxide film. In addition, it has a function to step down a transmission signal to which "A215T-R1" is stepped up, to a normal voltage. When using a trolley, set the transmission mode (distance setting) to a "1km specification (transmission clock 7.8kHz)" or "3km specification (transmission clock 2kHz).

*Total of transmission length up to the trolley end should be within 1/2 of the set distance specification as a reference.

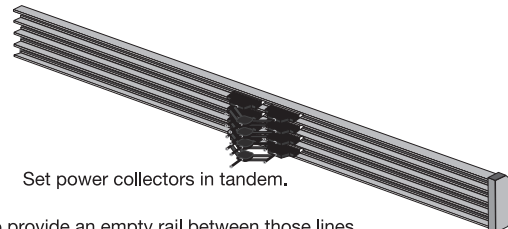
*If the actual transmission distance is shorter, also use with a "1km specification" or "3km specification" setting.

Basic configuration of buffer unit



Recommended rail

PANASONIC Corporation: High-Tro-Reel, Tro-Reel HS
(Both are non-tensioned type)
Hitachi, Ltd.: TOUGH TRO



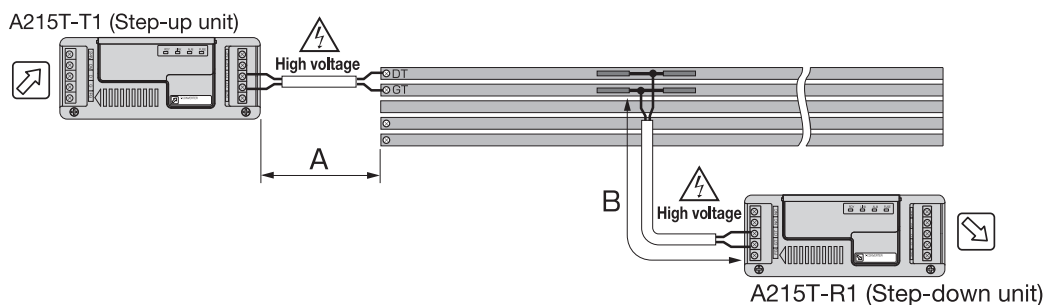
*When transmission line and power line are combined, it is recommended to provide an empty rail between those lines.

Restriction in installation

In applications using a trolley rail, unpredicted line impedance may result in interference and disturbance of transmission waveform in comparison with a layout usage condition by electric wire.

For this reason, this application limits length of cable connecting from step-up unit, step-down unit to trolley rail and power collector.

Total length of "A" and "B" portions in the illustration should be 10m or shorter.



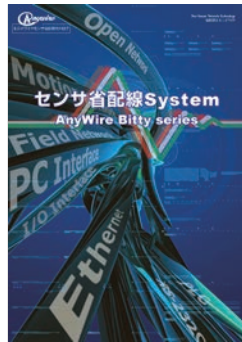
◇Configure an emergency stop circuit in a transmission line other than transmission line of AnyWire Sho-Haisen system.◇

*In actual operation, various external factors influence each other, therefore, a trolley rail cannot be used depending on the individual environment.

As we have a record of high performance under various environments, make sure to contact our sales representative in advance before using a trolley rail.



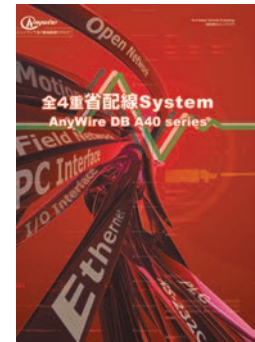
**AnyWireASLINK
system catalog**



Bitty series catalog



DB A20 series catalog



DB A40 series catalog



Pokayoke catalog



Mapping catalog



**iDC Environmental
Monitoring System
catalog**



**Energy monitoring
energy saving support
catalog**

Contact

☐ **Contact by mail**

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☐ **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>

●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.

●: WARNING ○: CAUTION

Anywire



ISO9001 / 14001
Certification

Anywire Corporation

☐ **Headquarters**

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http://www.anywire.jp

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

Comments/suggestions about AnyWire products: