AnyWireASLINK System Products Guide

A. Ver.1.1
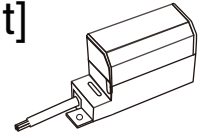
ASLINKTERMINAL [ASLINK Power Distribution Unit]

BL296-0□PW-4A-20

[Type]

BL296-04PW-4A-20	4 ports	e-CON(4-pole)
BL296-08PW-4A-20	8 ports	

[Notes on Safety]

Precautions that must be observed in order to use this system safely are indicated as shown below.
You must observe these precautions.

⚠WARNING — A WARNING indicates a potentially hazardous situation which, if not handled correctly, could result in death or serious injury.

⚠CAUTION — A CAUTION indicates a potentially hazardous situation which, if not handled correctly, may result in personal injury or property damage.

⚠WARNING
- ○ System Safety
  This system is intended for general industrial applications. It does not have 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.
- ○ Prolonged continuous flow of a rated load current or higher or a transit current due to load short-circuit, etc., in the hybrid unit including the output unit and the output circuit may result in smoking or firing. An external safety device such as a fuse must be installed.

⚠CAUTION
- ○ 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 has a high noise margin, keep the transmission line and I/O cables away from high-voltage and power cables.
- ○ Connectors and terminals
  - 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 within the range of the specifications and conditions shown below.

[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 as 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 Products Guide, 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 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 damages 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.

■ Changes in the product specifications and the descriptions in the manual
The descriptions in this manual may be subject to change without notice.

[About Pictogram*1]

A	Ver. 1.0*2	**A.**	Compatible with Ver. 1.1*3

*1 The pictogram may not be marked (or stuck) depending on the product.
*2 AnyWireASLINK device not compatible with Ver. 1.1 (word transmission and single unit simplified replacement functions)
Some products, not marked with the Ver. 1.1 pictogram, are compatible with the functions included in Ver. 1.1. Refer to the lot No. and the product guide for ultimate confirmation.
*3 For details of Ver. 1.1, refer to the following pages.

This unit is applicable to both Ver. 1.0 and Ver. 1.1 of the AnyWireASLINK system, because of characteristics of the product.

[About AnyWireASLINK Ver. 1.1]

New functions have been added to AnyWireASLINK products in May 2019 onward. Also, for the purpose of differentiation of compatible functions, indication of product lot number (lot No.) has been changed.

Compatible functions vary depending on lot No. Please understand the following description thoroughly to use each product.
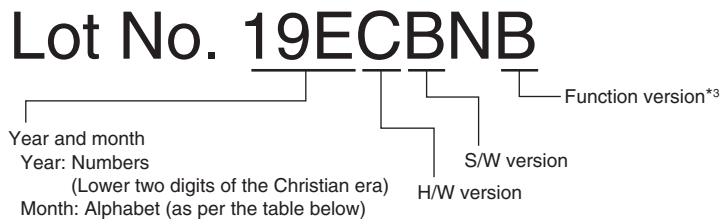
Functions added to Ver. 1.1 are as follows:

Functions available with Ver. 1.1	Word transmission*1*2
	Single unit simplified replacement*1

*1 To use these functions, the master unit compatible with each function is required.
   For details, refer to this manual together with the manual for the master unit.
*2 You can use this function with the word-transmission AnyWireASLINK system connected.
   To handle word data, word address settings are required for slave units.
   It depends on slave units whether word address setting is enabled or not.

[About Lot No.]

As a result of the addition of functions, indication of lot No. has been changed from 3 digits (conventional format: year and month only) to 6 digits or 7 digits.

Example:

Lot No. 19ECBNB

Function version*3

Year and month
 Year: Numbers
  (Lower two digits of the Christian era)
 Month: Alphabet (as per the table below)

S/W version

H/W version

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L
Month	1	2	3	4	5	6	7	8	9	10	11	12

"19E" means May 2019.

*3 Some products have no indication of function version.

[About Word Transmission]

The master unit compatible with the word transmission function provides areas for transmission and receiving of word data (numerical information) such as analog data and sensing level data.
Using this function enables reduction of occupancy of bit information area by word data.
To enable word transmission, it is necessary that the system should be configured only with slave units compatible with the word transmission function.
A slave unit incompatible with the word transmission function cannot be connected to the AnyWireASLINK system to conduct word transmission.
For slave units that handle word data, word address settings are required.

This unit is applicable to both Ver. 1.0 and Ver. 1.1 of the AnyWireASLINK system, because of characteristics of the product.
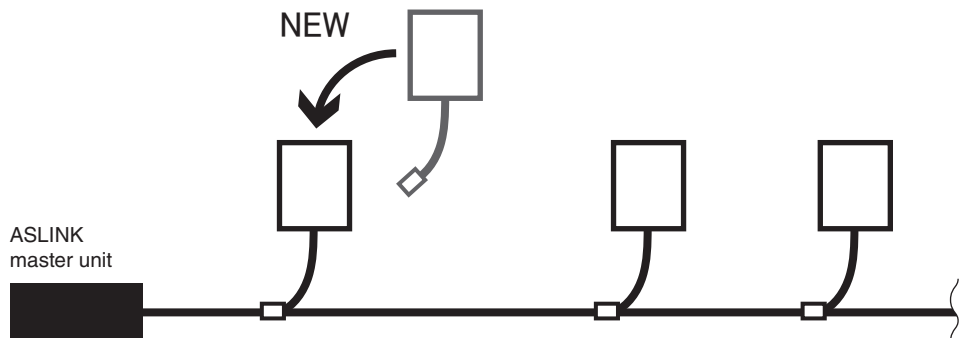
[About Single Unit Simplified Replacement]

During replacement of a slave unit, this function enables automatic settings of address and parameters of the existing slave unit into a new slave unit.
(After replacement of the slave unit, address and parameter setting procedure using the address writer is not required.)

■ Step 1   Turn OFF the 24V DC power supply for the master unit.

■ Step 2   Disconnect a slave unit to be replaced.

ASLINK
master unit
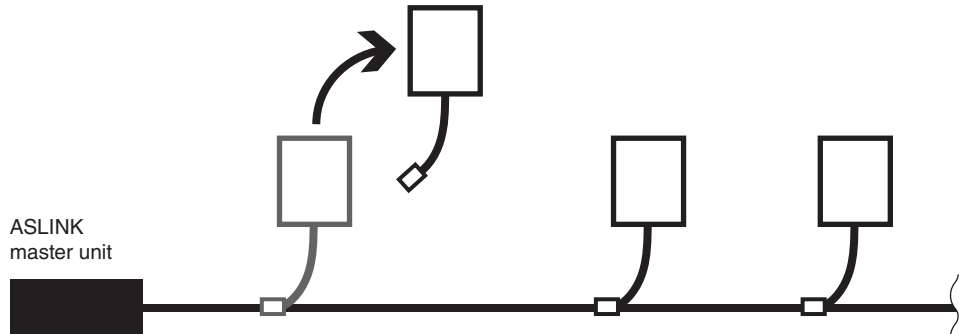
■ Step 3   Connect a new slave unit.

NEW

ASLINK
master unit

■ Step 4   Turn ON the 24V DC power supply to the master unit.
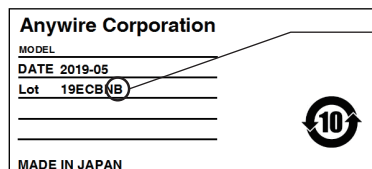
⚠ **CAUTION**

- It is necessary that both the master unit and slave unit should be compatible with the single unit simplified replacement function.
- Before disconnection and connection of the slave unit, be sure to turn OFF the power supply.
- For compatibility of a slave unit with the single unit simplified replacement function, see the lot No. and the manual for the slave unit.
- When a slave unit of a new function version is replaced with that of an old function version, the single unit simplified replacement function cannot be used.
- Operation is enabled in the case where the model of the slave unit before replacement is the same as that after replacement.
- If the model of the slave unit before replacement is different from that after replacement, a model mismatching error occurs, disabling address and parameter settings.
- Operation is enabled in the case where the address of the slave unit for replacement is the factory-set address (bit address 511).
- Several slave units cannot be simultaneously replaced. For replacement of several slave units, conduct the replacement procedure for each unit one by one.
- For a slave unit incompatible with the single unit simplified replacement function, set an address and parameters by using the address writer as in the conventional manner.
- For details of the single unit simplified replacement function (limitations, conditions, etc.), refer to the manual for the master unit.

■ Identification of function version

Function version information is given on the lot label.
* The design and contents of the lot label may vary depending on the product model and lot No.

Anywire Corporation
MODEL
DATE 2019-05
Lot   19ECB NB
MADE IN JAPAN

Function version:
When an equipment parameter is changed due to functional upgrading, etc., the function version will be updated (for example: A→B→C).
When a slave unit of a new function version is replaced with that of an old function version, the single unit simplified replacement function cannot be used.

[Functions]

■ Function list

Model	Specifications	Connection targets
ASLINKTERMINAL power distribution unit e-CON (4-pole)	4 ports, 8 ports	General-purpose sensors and switches General-purpose output devices

[How to Connect AnyWireASLINK]

The AnyWireASLINK can employ a two-wire or four-wire terminal selectively depending on the load current.

If the load current is small, using a two-wire (non-isolated) terminal allows for achieving simplified wiring without local power supply.

In the case of prioritizing the sites of concentrated loads and/or the number of connections, hybridization with a four-wire (isolated) terminal, which supports local power supply, is also possible.

Make sure to use a four-wire (isolated) terminal in the case of input and load driving using an external power supply.

[System Configuration Example]

■ Relationship between the size and length of the transmission line and the supply current (Table 1)

Size of the transmission line (DP, DN)	Supply current on the transmission line (DP, DN)		
	Total length: 50m or less	Total length: Over 50m, no longer than 100m	Total length: Over 100m, no longer than 200m
1.25mm^2	MAX 2A	MAX 1A	MAX 0.5A
0.75mm^2	MAX 1.2A	MAX 0.6A	MAX 0.3A
0.5mm^2	MAX 0.8A	MAX 0.4A	MAX 0.2A

⚠ **CAUTION**

- Refer to Table 1 so that the size and length of the transmission line and the allowable supply current lie within an appropriate range.
- Connect the same symbols (DP, DN) correctly between the AnyWireASLINK master unit and each device.
- The branching length or branch number has no limitation.
- Include the length of the cable provided with the terminal in the "total line length."
- Connect the terminator (with polarity) to the DP, DN terminal farthest from the AnyWireASLINK master unit.

If the load power consumption is large, a four-wire (isolated) terminal can be selected. This terminal can correspond to I/O of the controller with an external power supply.

Dedicated flat cable 1.25mm^2 (four-wire)

4P link connector is convenient for branching.

The sum of the portions of DP, DN is the total line length.

The branching has no limitation.

AnyWireASLINK terminator

One terminator should be connected to the DP, DN terminal farthest from the AnyWireASLINK master. Connect it correctly so as not to set the wrong polarity.

[Installation Location]

- Locations where this product is not directly subject to vibration or shock
- Locations where this product is not directly exposed to dust
- Locations where this product is not directly exposed to conductors, such as metal chips or spatters
- Locations without condensation
- Locations where the atmosphere is free of corrosive gases, flammable gases, and sulfur
- Locations far from high-voltage or high-current cables
- Locations far from servos, inverters, and other cables and controllers that generate high-frequency noise

[Notes on Combined Use with Four-Wire (Isolated) Terminal]

If the total length of the sections where all the DP, DN, 24V, and 0V lines run in parallel in the power supply system is more than 50m, connect an ASLINK filter (Type ANF-01) or a filter manufactured by COSEL Co., Ltd. (Type EAC-06-472) in series to the 24V and 0V lines at a position where these four lines start running in parallel.
This will improve noise resistance, suppress the adverse effects of crosstalk caused by transmitted signals, and stabilize signals.
The above filters must be inserted regardless of whether power is supplied to all terminals collectively from the power supply for the master or power is supplied to each terminal individually from their local power supply.

> Insert the "ASLINK filter [Type ANF-01]" regardless of installation method and distance when complying with CE Standard.

■ Filter allowable current

Product	Type	Allowable power current
ASLINK filter	ANF-01	MAX 5A/24V DC
Filter of COSEL Co., Ltd.	EAC-06-472	MAX 6A/24V DC

■ AnyWire Type: ANF-01 Connection example
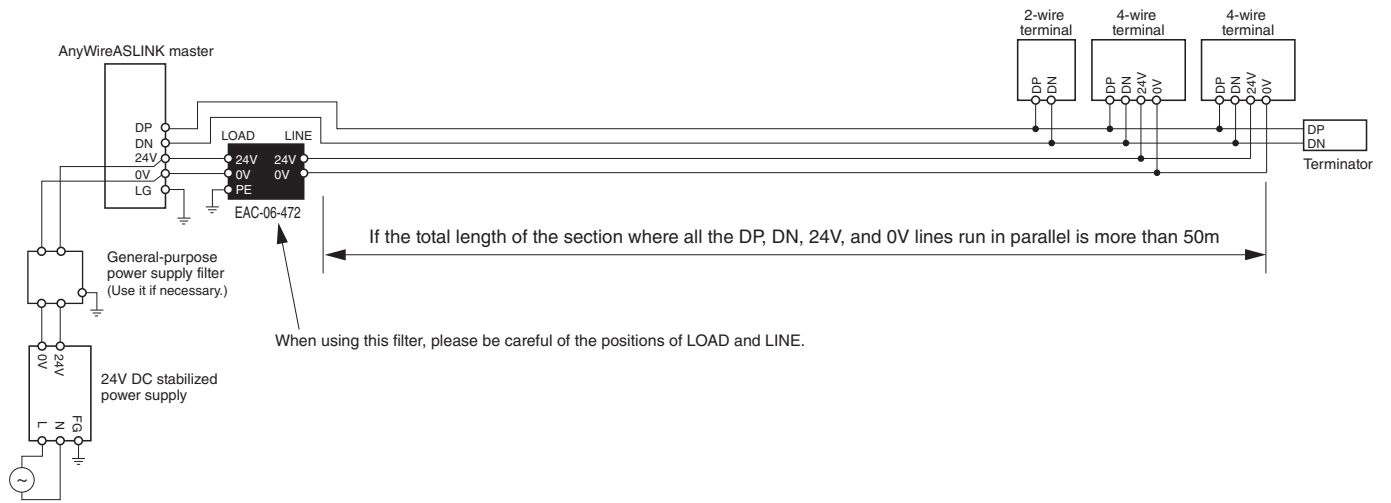
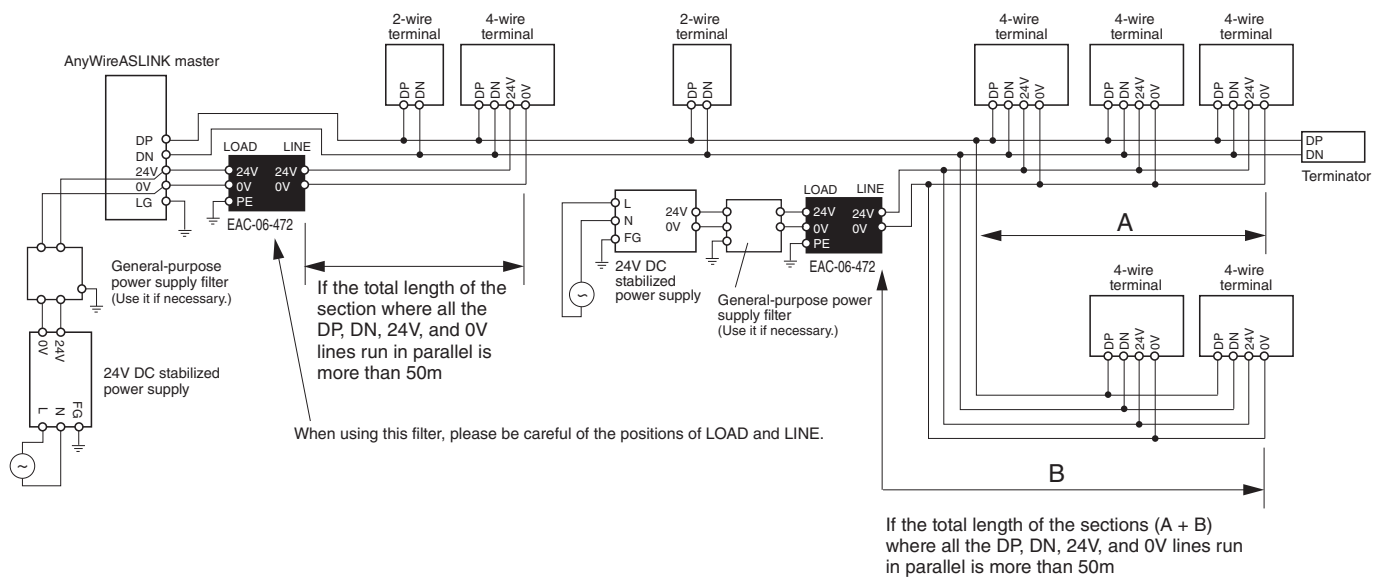① Power supply to the entire system

② Local power supply/branching
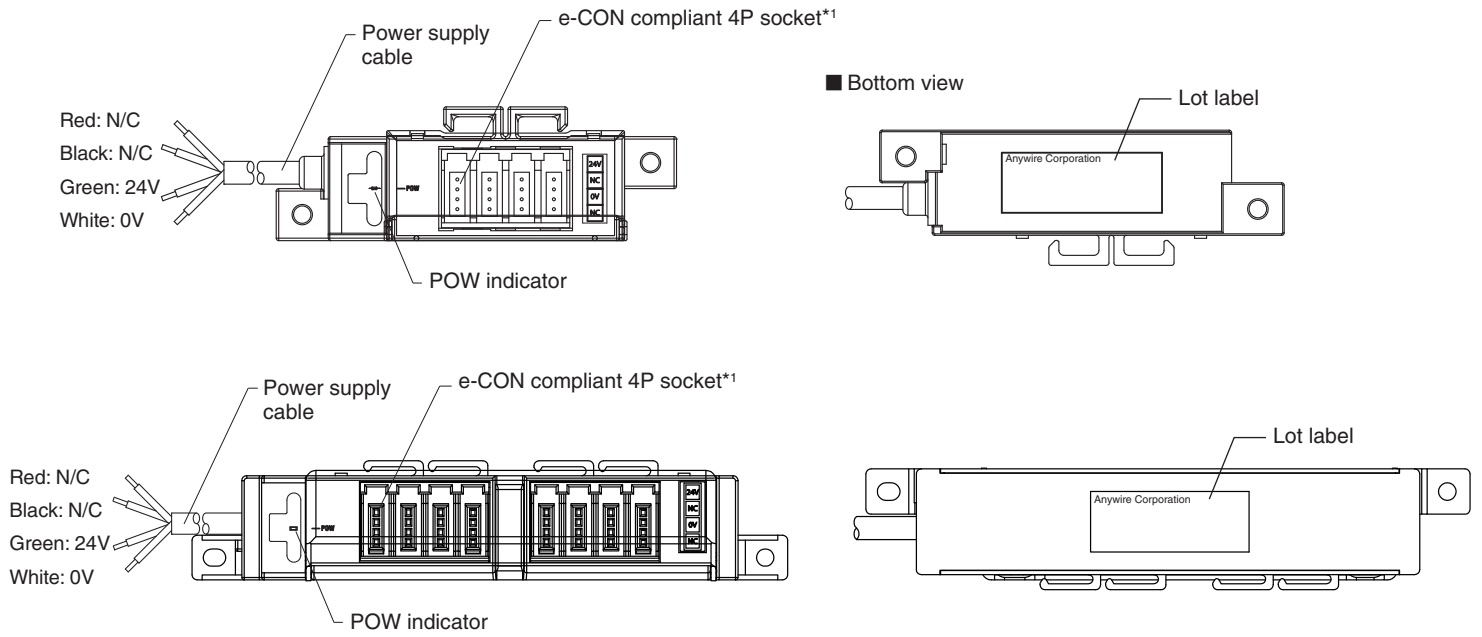
■COSEL Co., Ltd. Type: EAC-06-472 Connection example
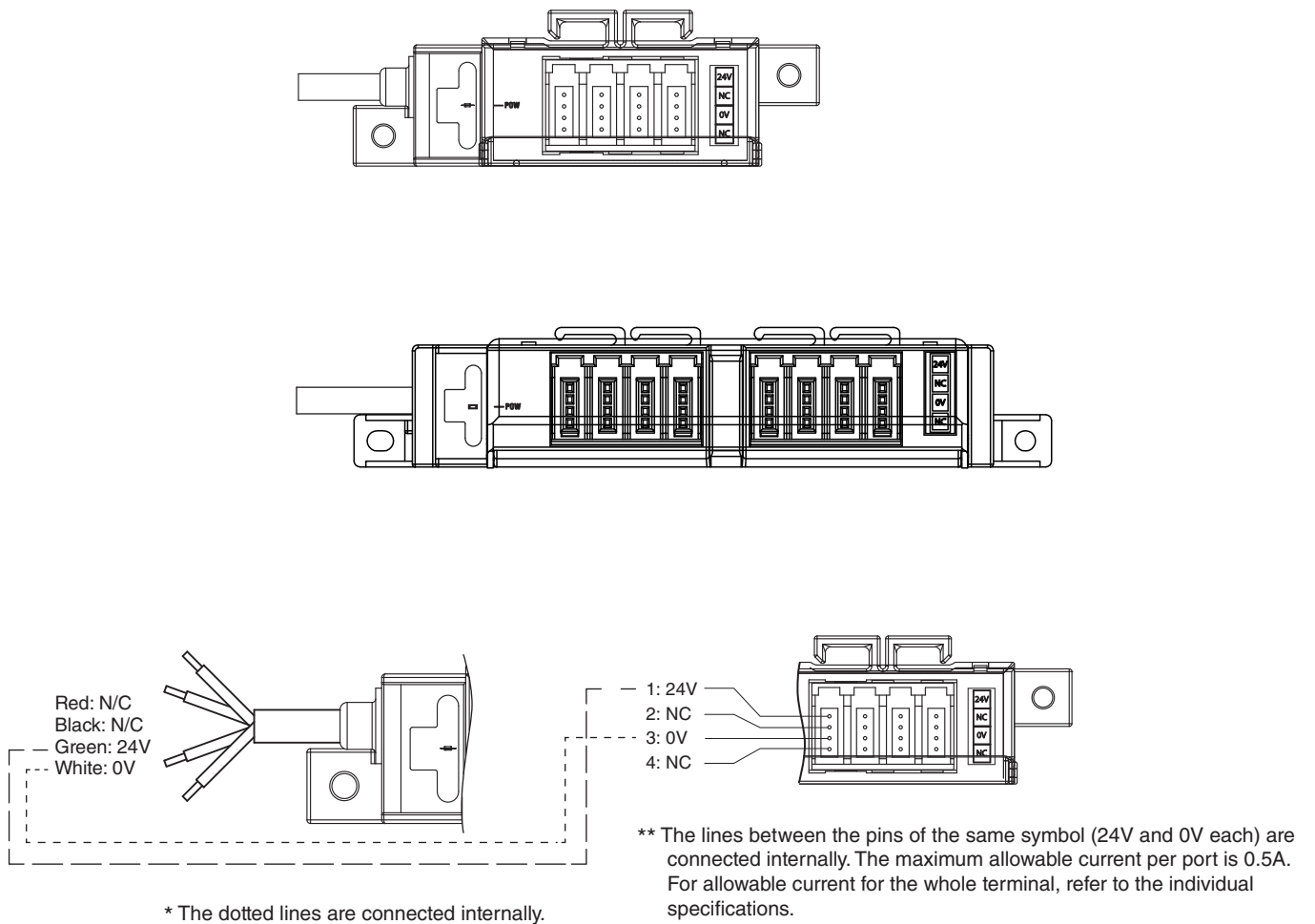
① Power supply to the entire system

AnyWireASLINK master

2-wire terminal
4-wire terminal
4-wire terminal

DP
DN
24V
0V
LG

LOAD   LINE
24V   24V
0V   0V
PE
EAC-06-472

DP DN
DP DN 24V 0V
DP DN 24V 0V

DP
DN
Terminator

If the total length of the section where all the DP, DN, 24V, and 0V lines run in parallel is more than 50m

General-purpose power supply filter (Use it if necessary.)

When using this filter, please be careful of the positions of LOAD and LINE.

24V
0V

24V DC stabilized power supply

L N FG

② Local power supply/branching

AnyWireASLINK master

2-wire terminal
4-wire terminal
2-wire terminal
4-wire terminal
4-wire terminal
4-wire terminal

DP
DN
24V
0V
LG

LOAD   LINE
24V   24V
0V   0V
PE
EAC-06-472

General-purpose power supply filter (Use it if necessary.)

24V
0V

24V DC stabilized power supply

L N FG

If the total length of the section where all the DP, DN, 24V, and 0V lines run in parallel is more than 50m

When using this filter, please be careful of the positions of LOAD and LINE.

L
N
FG

24V
0V

24V DC stabilized power supply

LOAD   LINE
24V   24V
0V   0V
PE
EAC-06-472

General-purpose power supply filter (Use it if necessary.)

A

4-wire terminal
4-wire terminal

DP DN 24V 0V
DP DN 24V 0V

B

DP
DN
Terminator

If the total length of the sections (A + B) where all the DP, DN, 24V, and 0V lines run in parallel is more than 50m

[Name of Each Part]

Power supply cable

e-CON compliant 4P socket*1

Red: N/C
Black: N/C
Green: 24V
White: 0V

POW indicator

■ Bottom view

Lot label

Anywire Corporation

Power supply cable

e-CON compliant 4P socket*1

Red: N/C
Black: N/C
Green: 24V
White: 0V

POW indicator

Lot label

Anywire Corporation

*1 The connector shall be separately prepared.

[Pin Assignment]

Red: N/C
Black: N/C
Green: 24V
White: 0V

1: 24V
2: NC
3: 0V
4: NC

* The dotted lines are connected internally.

** The lines between the pins of the same symbol (24V and 0V each) are connected internally. The maximum allowable current per port is 0.5A. For allowable current for the whole terminal, refer to the individual specifications.

[Various Settings]

For this unit, address and parameter settings are not required.

[Monitor Display]

LED name	Display status		Description
POW (Green)	Lit	▬▬▬	Normal
	Unlit	☐	No power supplied

POW indicator

POW
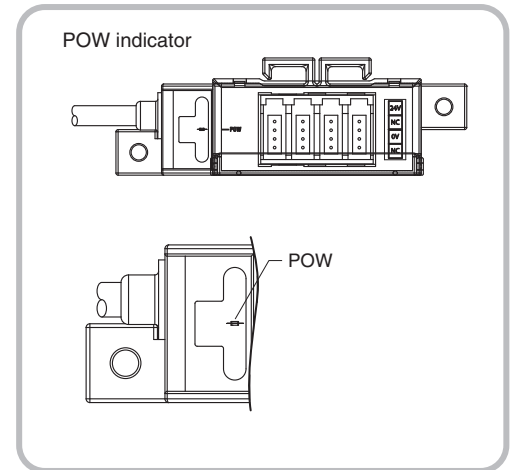
[Troubleshooting]

<POW indicator does not light up>

Things to be checked	Remedy
Check connection status of this unit.	1) Disconnect this unit once, and then reconnect it. 2) Check for wire break and reverse polarity.

[Specifications]

■General specifications

Operating ambient temperature/humidity	0 to 55°C, 10 to 90%RH No condensation
Storing ambient temperature/humidity	-25 to 75°C, 10 to 90%RH No condensation
Resistance to vibration	Based on JIS B 3502 and IEC 61131-2
Resistance to shock	Based on JIS B 3502 and IEC 61131-2
Atmosphere	No corrosive gas
Operating altitude*1	0 to 2000m
Pollution level*2	2 or less

*1 Do not use or store AnyWireASLINK devices in an environment where the pressure exceeds the atmospheric pressure at an altitude of 0 meters. Doing so may result in malfunction.

*2 "Pollution level" is an index that indicates the degree of occurrence of conductive substances in the environment where the device is used.
Pollution level 2 means the occurrence of only pollution by non-conductive substances. In such an environment, however, electrical conduction could occur due to accidental condensation.

■Transmission specifications

Service power supply voltage	24V DC +15% to -10% (21.6 to 27.6V DC) with a ripple of 0.5Vp-p or less
Transmission method	DC power supply superimposed total frame/cyclic method
Synchronization method	Frame/bit synchronization method
Transmission procedure	AnyWireASLINK protocol
Connection mode	Bus type (Multi-drop method, T-branch method, Tree branch method)
Number of connection points*3	Number of bit points 512 points max. (Input: 256 bits/Output: 256 bits) Number of word points 1024 words max. (Input: 512 words/Output: 512 words)
Number of connection units	Up to 128 units
RAS functions	Detection of transmission line disconnection, detection of transmission line short-circuit, detection of transmission power drop, detection of duplicated/unregistered IDs

*3 The number differs depending on the master unit. Be sure to refer to the manual of the master unit for the number.
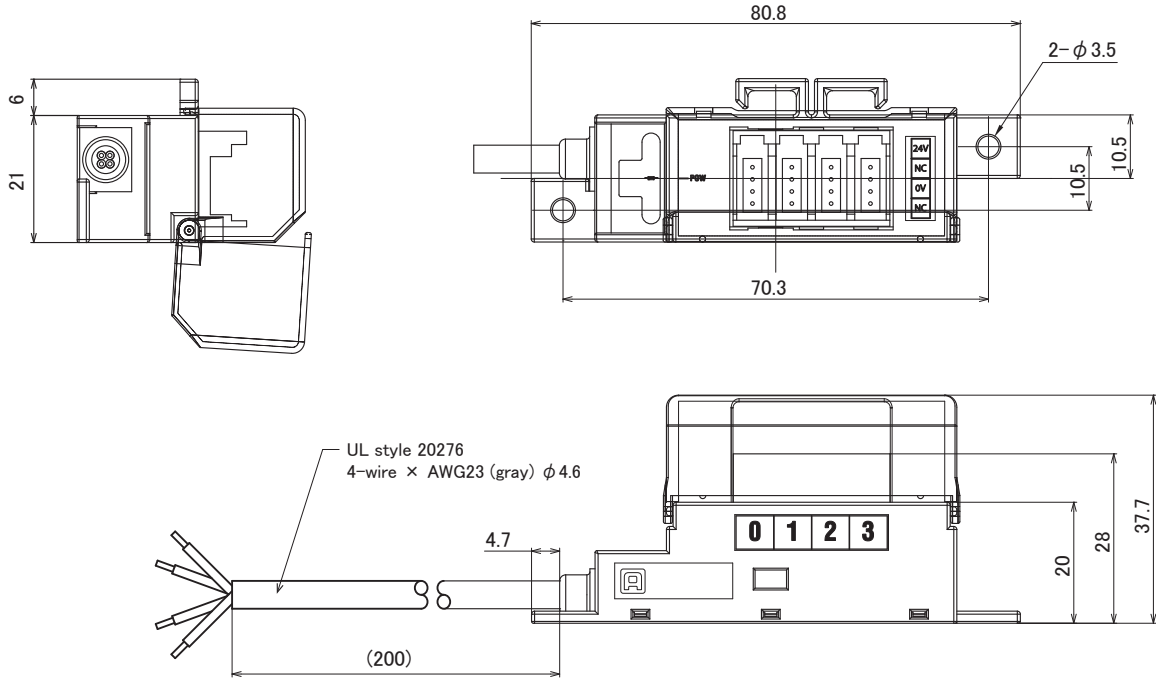
■Individual specifications

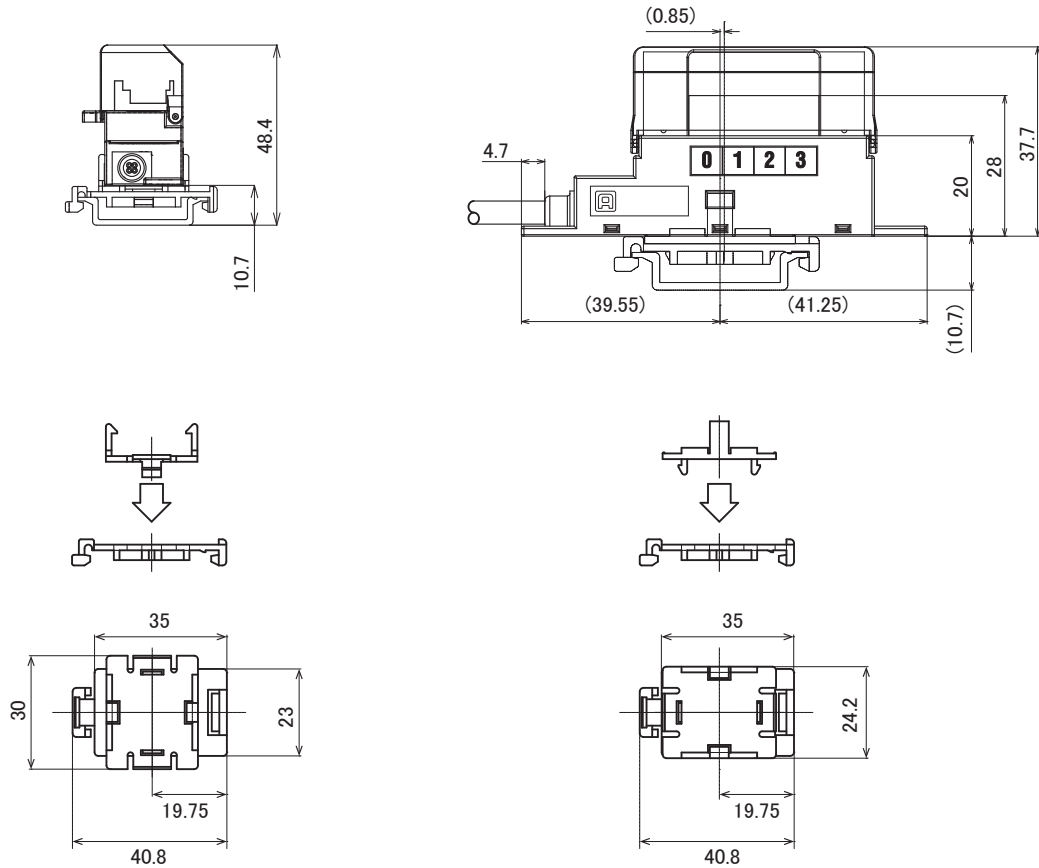| Number of ports	4 ports, 8 ports
Current consumption	1.0mA
Weight	BL296-04PW4: 35g BL296-08PW4: 41g
Allowable current at 24V	BL296-04PW4: 1A max.*4 (whole terminal) BL296-08PW4: 2A max.*4 (whole terminal)

*4 The maximum allowable current per port is 0.5A.
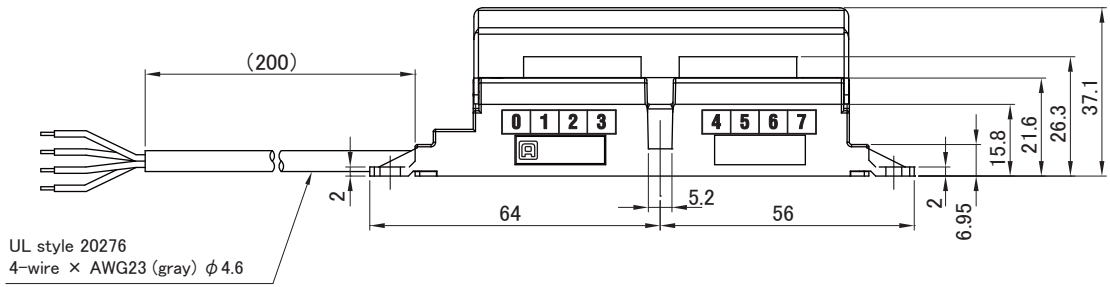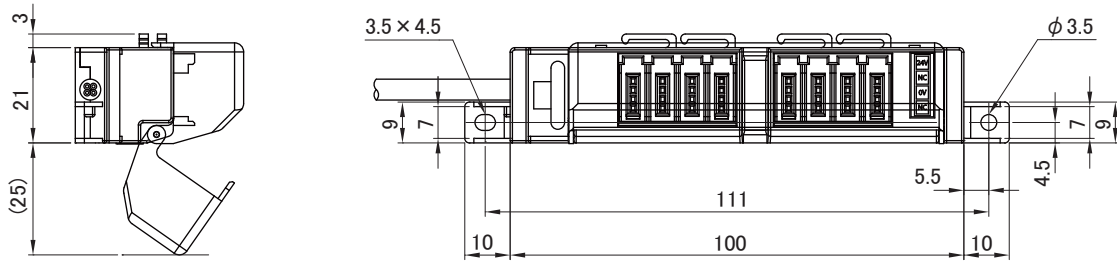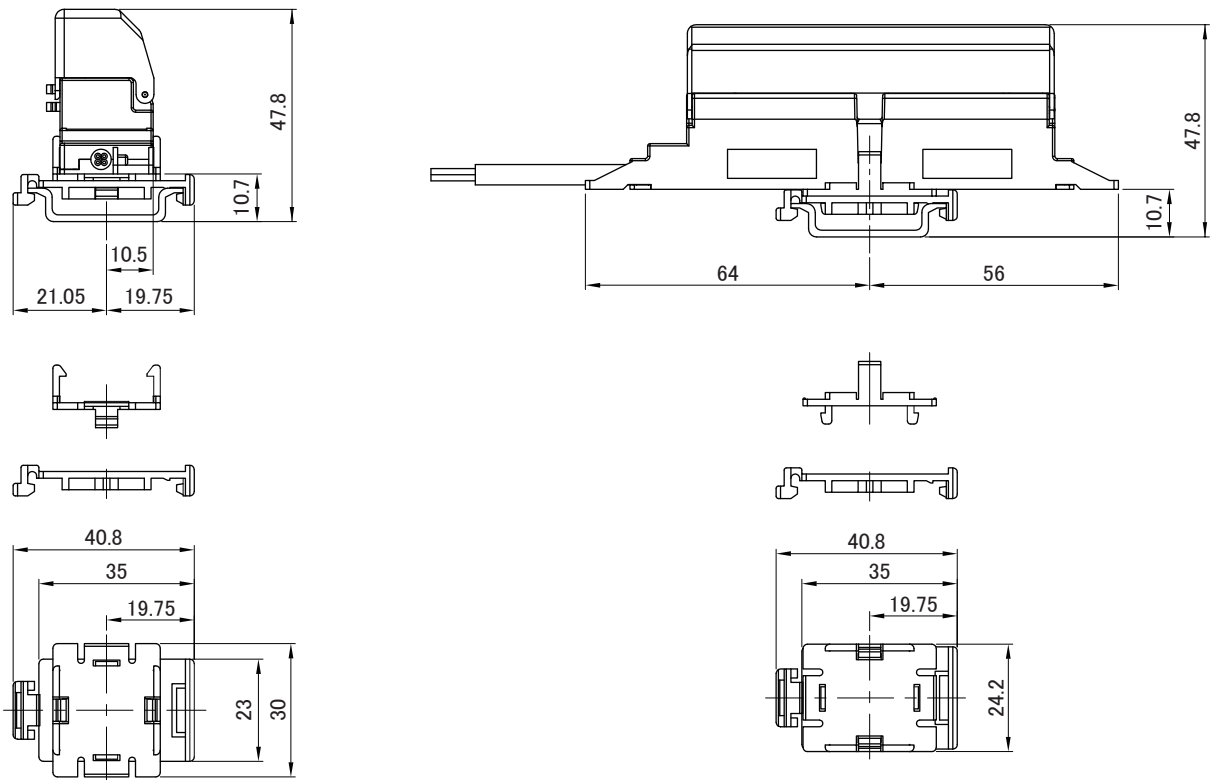
[Outside Dimensions]

Unit: mm

■ BL296-04PW-4A-20

80.8

2−φ3.5

6

21

10.5

10.5

70.3

24V
NC
0V
NC

POW

UL style 20276
4−wire × AWG23 (gray) φ4.6

4.7

(200)

0 1 2 3

37.7

28

20

■ADP-T96 (DIN rail adapter dedicated for mounting) * Optionally available

48.4

10.7

(0.85)

4.7

0 1 2 3

37.7

28

20

(39.55)

(41.25)

(10.7)

35

30

23

19.75

40.8

35

24.2

19.75

40.8

■BL296-08PW-4A-20

Unit: mm

UL style 20276
4-wire × AWG23 (gray) φ4.6

■ADP-T96 (DIN rail adapter dedicated for mounting) * Optionally available

[Address]

Anywire Anywire Corporation

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

Contact   :Contact by mail   info_e@anywire.jp
              :Contact by website   http://www.anywire.jp