

# AnyWireASLINK System Product Guide

## ASLINKSENSOR [Photo Interrupter type]

### B297SB-01-1K40

#### [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, lay the transmission lines and I/O cables so as to keep them 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 stressed nor disconnected even if they are stressed.
  - 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 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 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.

#### [Type]

AnyWireASLINK: Photo interrupter type (U-shaped standard)

B297SB-01-1K40

Input 1 point

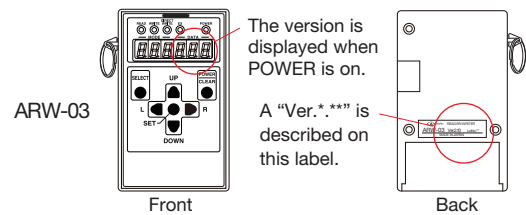
#### [Function]

Model	ASLINKSENSOR 2-wire (non-insulation)
Detection method	Transmission type
Function	Alarm judgment value
	Alarm judgment time
	Light ON/dark ON
	Operation mode
	Sensing level drop
	Slave unit voltage drop

#### [Contents in package]

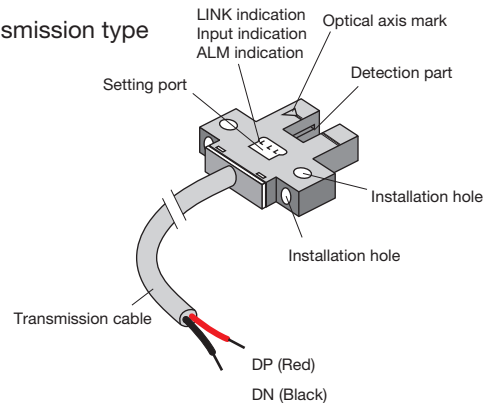
Unit ... 1 unit

\*An "address writer ARW-04 (Ver.04-1.01 or higher) or ARW-03 (Ver.2.10 or higher)" is required for setting to the unit. Prepare it together.



#### [Name of each part]

##### ■ Transmission type

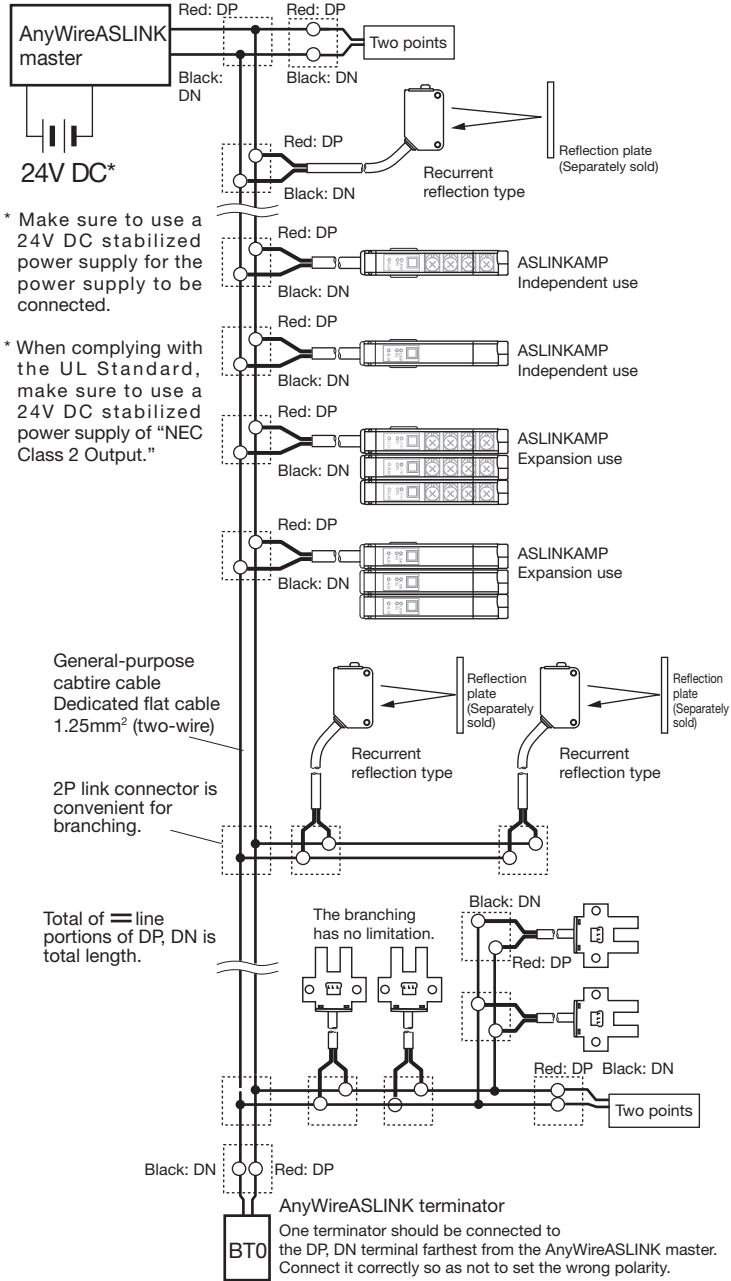


## [AnyWireASLINK Connection Method]

The AnyWireASLINK can employ a two-wire or four-wire terminal selectively depending on the load current.  
 This Products Guide describes a two-wire (non-isolated) terminal.  
 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.**  
 In the case of hybridization, refer to the Four-Wire (Isolated) Terminal Products Guide separately.

## [Connection Example]

### ■ Connection example using a two-wire (non-isolated) terminal



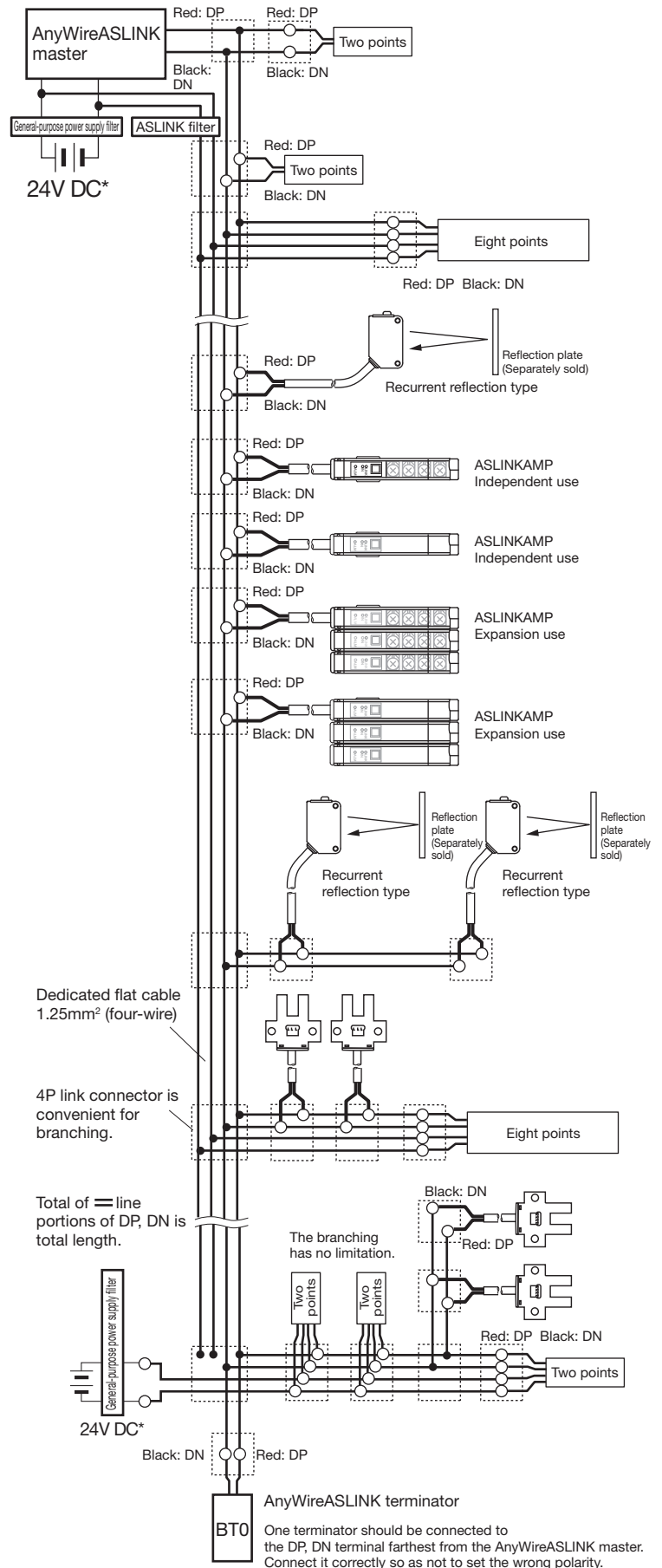
### ■ Relationship between the size and length of the transmission line and the supply current (Table 1)

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



- 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 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 "BT0 (polar)" to the terminal on the transmission line farthest from the AnyWireASLINK master.

### ■ Example of mixture of 2-wire (non-insulation), 4-wire (insulation) terminals



- In the case of connection to a load (e.g. input/output port) controlled by a different power supply than that used in the AnyWireASLINK, make sure to use a four-wire (isolated) terminal. Otherwise, a malfunction may occur.

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

If any of the side-by-side lines of DP, DN, 24V and 0V exceeds the total length of 50m in a power supply system to be supplied, serially connect the “ASLINK filter [Type ANF-01]” or “filter of COSEL Co., Ltd. [Type EAC-06-472]” to 24V and 0V in the starting position of the side-by-side lines.

This will improve noise resistance, reduce the impact of crosstalk by transmission signals and stabilize the signals.

In any case of power supply to the entire system from the master driving power supply or power supply from the local power supply, insert a filter.

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

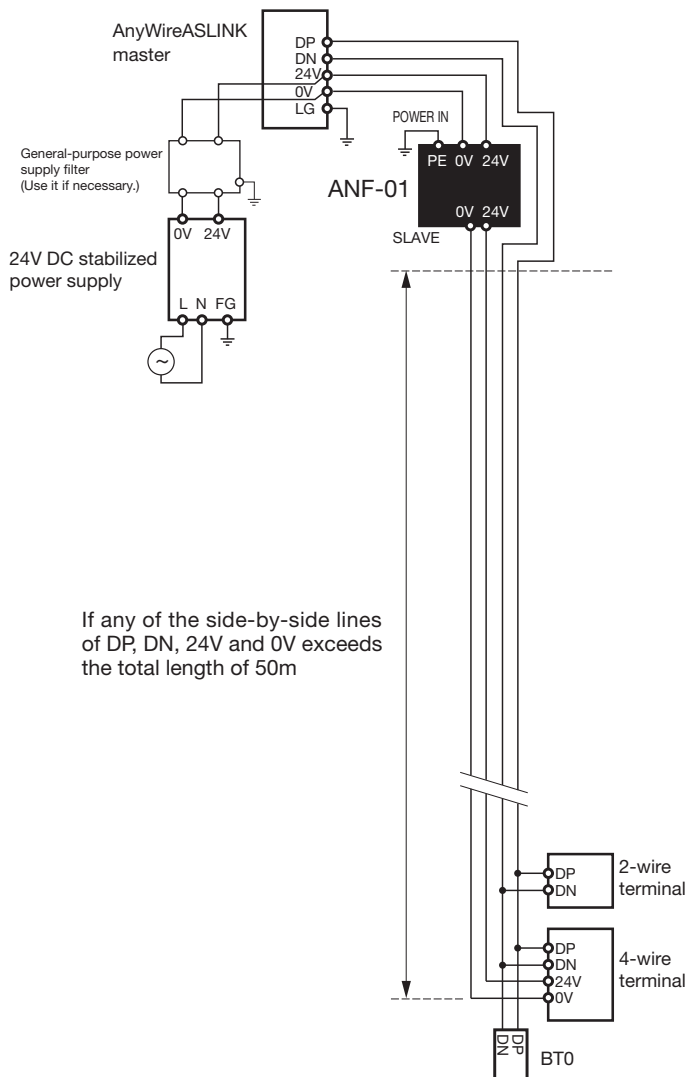
■ Filter allowable power current

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

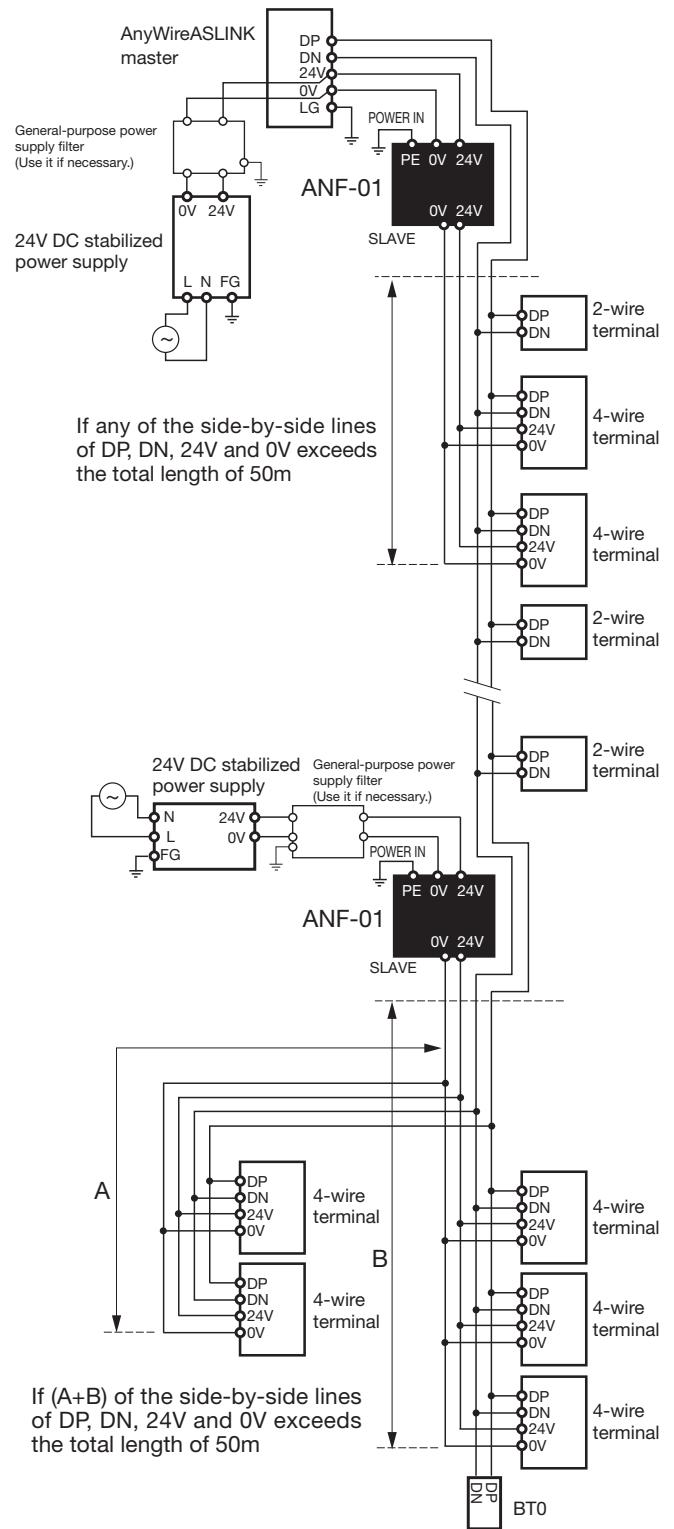
■ AnyWire Type: ANF-01 Connection example

(Figures below are wiring diagrams for explanation.  
Adjust actual terminal arrangement depending on each device.)

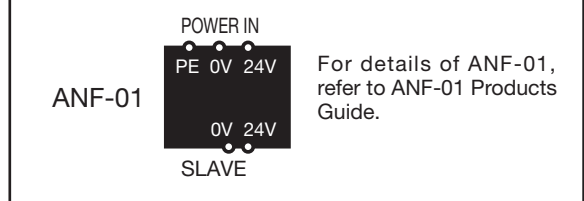
① Power supply to the entire system



② Local power supply/branching



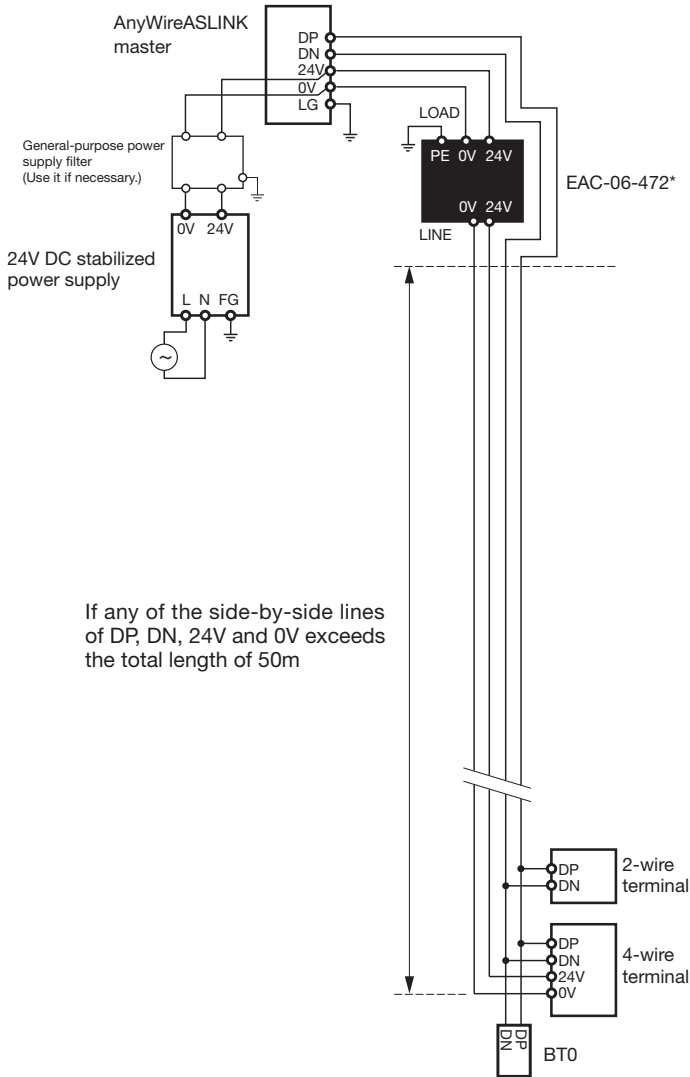
■ Filter notation in the drawing



■ COSEL Co., Ltd. Type: EAC-06-472 Connection example

(Figures below are wiring diagrams for explanation.  
Adjust actual terminal arrangement depending on each device.)

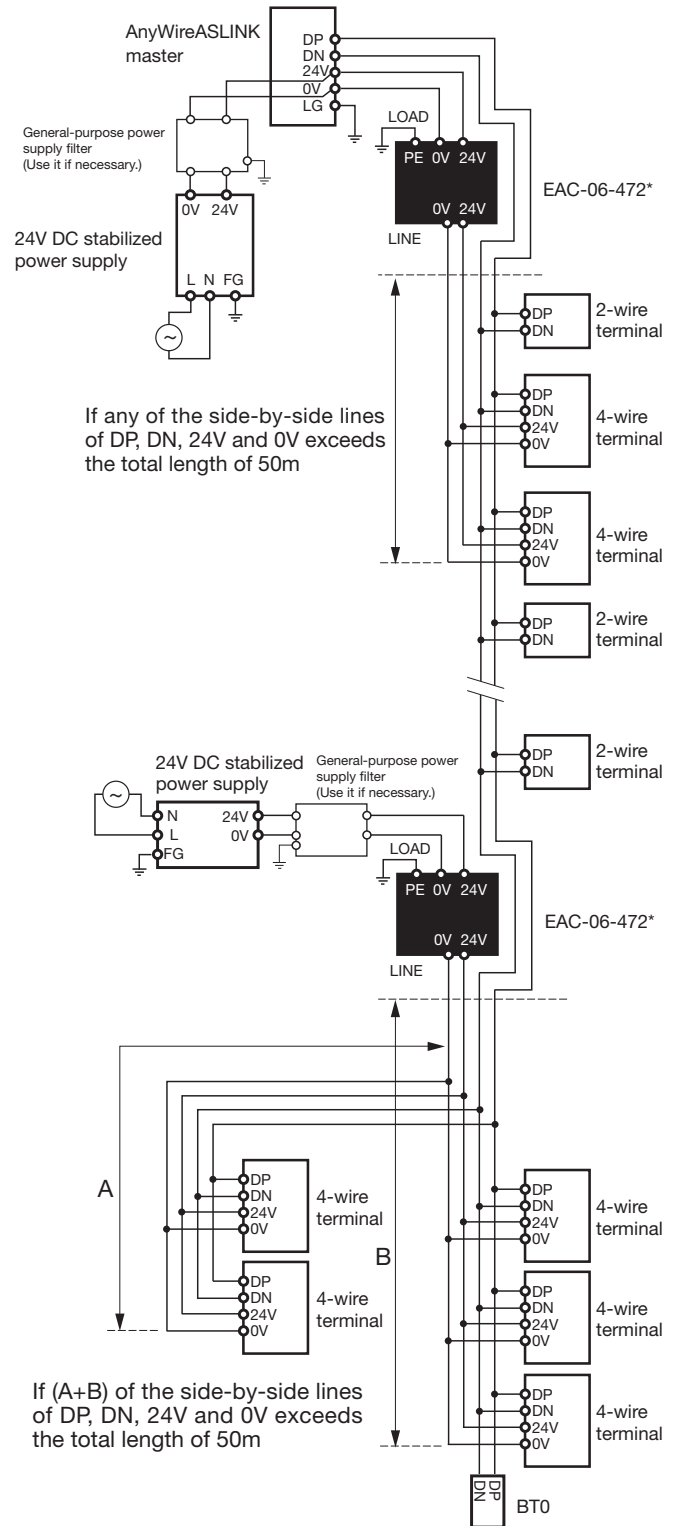
① Power supply to the entire system -----



If any of the side-by-side lines of DP, DN, 24V and 0V exceeds the total length of 50m

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

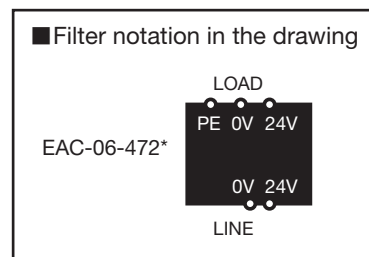
② Local power supply/branching -----



If any of the side-by-side lines of DP, DN, 24V and 0V exceeds the total length of 50m

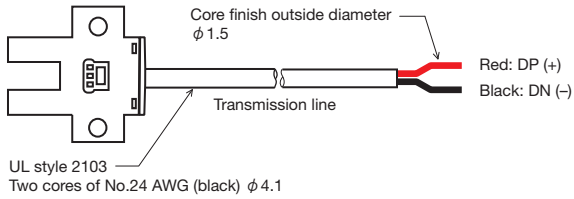
If (A+B) of the side-by-side lines of DP, DN, 24V and 0V exceeds the total length of 50m

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



## [How to connect]

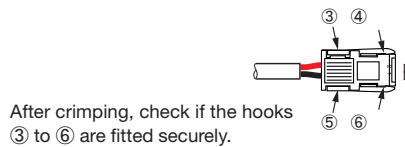
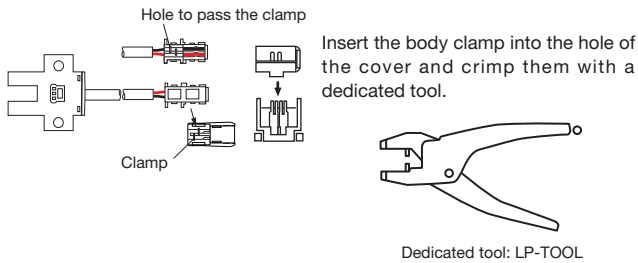
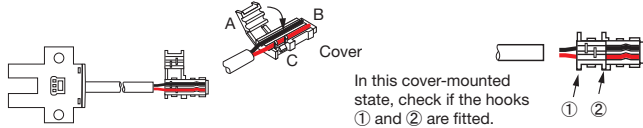
Connect the transmission line included with the base unit body to the transmission line from the master unit.  
Connect correctly for the polarity of +/-.



### ■ Example of mounting an LP connector to the end of the transmission line

Applicable LP connector: LP2-PWH-10P

Place the lines in the groove so that the black line (DN) is positioned nearer the hinge side of the cover, and fold the part A onto the part B side and then hitch the hook C to fix the cover.



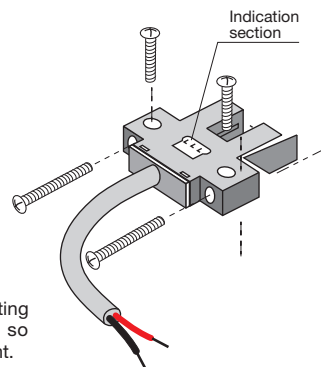
## [Example of installation]

This can be installed in 2 directions.  
M3 fastening torque: 0.5N·m or less

### CAUTION

When securing the unit, allow a margin so that no stress is applied to the cables and connecting connectors etc. Do not tighten the screws excessively. Doing so may cause a failure.

When predicting confirmation of operating state and change of setting, install it so that the indication section is on the front.



## [Installation Location]

- Places free from direct vibration or shock
- Places not directly exposed to dust
- Places not directly exposed to metal waste or sputter
- Places free from condensation
- Places free from corrosive gas, flammable gas or sulfur
- Places away from cables of high voltage or large current
- Places away from cable controllers generating high-frequency noise such as servomotors or inverters

## [Precautions for use]

- This unit is used by connecting to the AnyWireASLINK transmission line. This unit does not operate even if it is directly connected to the I/O card etc., of the sequencer.
- Use this unit in a proper voltage range.
- Also include the attached transmission line included with the unit in the total length.

## [Various settings]

### ■ Items

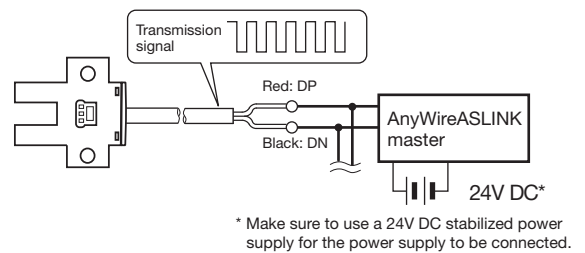
Address No. setting

Parameter setting

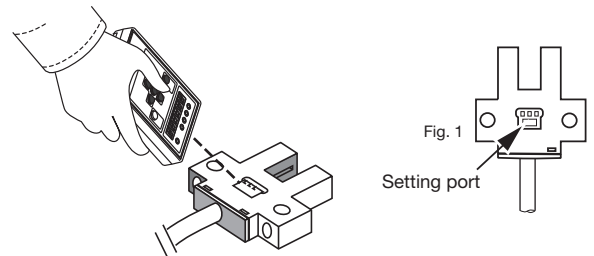
### ■ Common procedure for address writer operation

Be sure to connect to the AnyWireASLINK master unit to use. The operation requires the address writer ARW-04 (Ver.04-1.01 or higher) or ARW-03 (Ver.2.10 or higher). Refer to the address writer's Products Guide for details of the operation method.

1. Connect the ASLINKSENSOR slave to the master unit of the AnyWireASLINK system.  
Set with the address writer while supplying the transmission signal (DP, DN).



2. Setting is required for all ASLINKSENSORS.  
Direct the address writer to the setting port (Fig. 1) of the unit to set. (Put the light emitting and receiving surface as close to the setting port as possible.)



### Address No. setting

An address number is set as a beginning number from which part of the transmission frame is occupied to the terminal.  
Set the address number within the range of "0 to 254."

### CAUTION

The factory address-number setting of the terminal is "255," which means no setting. If the address number setting is "255," the terminal cannot perform an input/output operation. Make sure to use the terminal after setting the address number within the range of "0 to 254."

## Parameter setting

### Setting alarm value Hi

Set the upper limit of an alarm judgment value.

• Address writer (ARW-04, ARW-03): Parameter 03

Variable	Unit
0 - 100	%

Before shipment: 80

\* Set the alarm value under the condition of Hi>Lo.

### Setting alarm value Lo

Set the lower limit of an alarm judgment value.

- Address writer (ARW-04, ARW-03): Parameter 04

Variable	Unit
0 - 100	%

Before shipment: 20

\* Set the alarm value under the condition of Hi>Lo.

### Setting alarm value monitor time

Set the monitor time of the alarm judgment value.

- Address writer (ARW-04, ARW-03): Parameter 05

Variable	Unit
3 - 255	100ms

Before shipment: 50

### Setting Light ON/Dark ON

Set light ON/dark ON

- Address writer (ARW-04, ARW-03): Parameter 06

Variable	Content
0	Dark ON
1	Light ON

Before shipment: 0

### Setting operation mode change

Set with/without alarm diagnosis function.

- Address writer (ARW-04, ARW-03): Parameter 07

Variable	Content	
0	Simple mode	Alarm diagnosis function unavailable
1	Normal mode	Alarm diagnosis function available

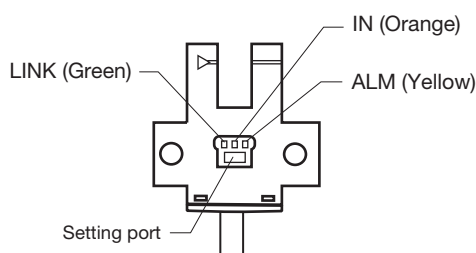
Before shipment: 0

Parameter [8.] and subsequent parameters are parameters in the system domain. Do not change the setting with the address writer.

## Monitor Display

Unit operation status is indicated by the LED.

Display name	Indication class	Content
LINK (Green)	Power/Transmission indication	Flashes when transmission signal is received.
IN (Orange)	Work detection indication	Turns on or off when work is detected.
ALM (Yellow)	Unit trouble indication	Indicates trouble status of the unit.



## Troubleshooting

When the following errors are indicated on the display window of the main body, take measures as shown below.

LINK	IN	ALM	Cause	Measures
○ Off	○ Off	○ Off	- Power supply, AnyWireASLINK are not connected to the ASLINKSENSOR. - Power supply for the AnyWireASLINK system itself is not turned on.	- Confirm that there is no disconnection between the ASLINKSENSOR and the AnyWireASLINK system, and recover the connection. - Confirm the power status of the AnyWireASLINK system, and turn on the power.
● On	○ Off	○ Off	- Directly connected to 24-0V power supply.	- Re-connect to the AnyWireASLINK system.
◎ Flashing (0.5 seconds alternately)	○ Off	◎ Flashing (0.5 seconds alternately)	- The ASLINKSENSOR maintains the address 255 (setting before shipment). - The ASLINKSENSOR has an address duplicated with the other unit.	- Set any address other than 255. - Look for any other unit which has the same error indication, and set any address different from it.
—	—	◎ Flashing (On for 0.2 seconds, off for 1.0 second)	- The internal power voltage of the ASLINKSENSOR lowers.	- Decrease the number of units connected to the same AnyWireASLINK system. - Shorten the transmission line between the ASLINKSENSOR and the master unit.
◎Flashing	—	● On	- The sensing level lowers.	- Check the status of the ASLINKSENSOR, then adjust the optical axis, and clean the light emitting and receiving surfaces, etc.

When the following errors are indicated on the address writer, take measures as shown below.

Indication	Cause	Measures
[E-0303]	The set parameter is incorrect.	Confirm the parameter correspondence table and set the correct parameter.

Take measures as follows in the following case.

Symptom	Measures
Detection cannot be performed.	- Is the wiring correct? → Confirm that the transmission line of ASLINKSENSOR is correctly connected to the transmission line (DP, DN) of AnyWireASLINK. - Is power of proper capacity supplied to the AnyWireASLINK master unit and slave unit? → Check the power.
Setting cannot be performed with an address writer.	- Is connecting correct? → Re-confirm the sensor head and the connection of the transmission line. - Is power fed to the AnyWireASLINK system? → Confirm the power supply. - Is the set parameter correct? → Confirm the parameter correspondence table and set the correct parameter.

## Parameter and Item

Parameter	Variable	Content	Variable before shipment
[03.] Alarm value Hi	0-100%	Set the upper limit of the light receiving value that generates an alarm.	80
[04.] Alarm value Lo	0-100%	Set the lower limit of the light receiving value that generates an alarm.	20
[05.] Alarm value Monitor time	3-255	Set the monitor time of the light receiving value that generates an alarm. (1=100 ms)	50
[06.] Light ON/Dark ON	0	Dark ON	0
	1	Light ON	
[07.] Operation mode	0	Simple mode	0
	1	Normal mode	



## [Specifications]

### ■ General Specifications

Ambient temperature/humidity use	0 to 55°C, 10 to 90RH (No condensation)
Ambient temperature/humidity storage	-25 to 75°C, 10 to 90RH (No condensation)
Atmosphere use	No corrosive gas
Altitude use *1	0 to 2000m
Pollution level *2	2 or less

\*1 Do not use or store AnyWireASLINK devices in an environment where the pressure is larger than the atmospheric pressure at an elevation of 0 m. A malfunction may occur.

\*2 Indicates the degree of occurrence of conductive objects in an environment where the device is used. At the level of pollution level 2, only non-conductive contaminants occur. However, the environment may cause temporary conduction due to accidental condensation.

### ■ Transmission specifications

Power supply voltage use	Voltage 24[V] DC+15 to -10%(21.6 to 27.6[V] DC Ripple 0.5[V]p-p max.
Transmission method	DC power supply superimposing total frame cyclic method
Synchronization method	Frame/bit synchronization method
Transmission procedures	Dedicated protocol
Connection form	Bus type (multi-drop, T-branch, tree method)
Number of connection points	MAX 512 points (IN: 256 points, OUT: 256 points)
Number of connection devices	MAX 128 devices
RAS function	Transmission disconnection detection, transmission short-circuit detection, transmission power supply drop detection, ID duplication and ID non-setting detection

### ■ Individual specifications

I/O points	Input 1 point
Current consumption	Supplied from AnyWireASLINK transmission signal (DP, DN) 11 mA
Detection method	Infrared ray transmission
Detection distance	5 mm (groove width)
Response time*3	One cycle
Mass	27g

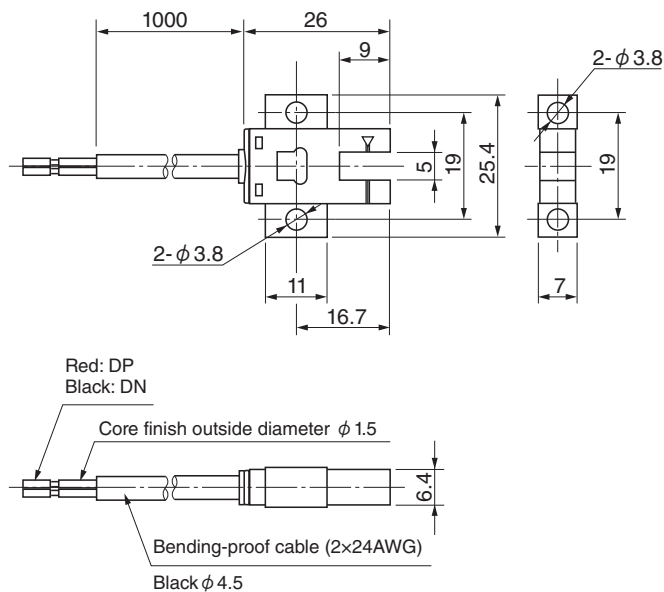
\*3 Time from detection of ON or OFF to sending of transmission signal. This time and transmission 1 cycle time are transmission delay time.

### ■ Sensing Specifications

Function	Invisible light light source type
Light source (Light emitting wavelength)	Infrared ray LED 940 nm

## [Outside Dimensions]

Unit: mm



## [Directive on Waste Electrical and Electronic Equipment (WEEE)]



Note: This symbol mark is for EU countries only. This symbol mark is according to the directive 2012/19/ EU Article 14 Information for users and Annex IX.

This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.

## 【中国版RoHS指令】

的产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 [Cr (VI)]	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
安装基板	×	○	○	○	○	○
框架	○	○	○	○	○	○

本表格依据 SJ/T11364 的规定编制。  
 ○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T26572 规定的限量要求以下。  
 ×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572 规定的限量要求。

基于中国标准的参考规格：GB/T15969.2



## [Address]

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