AnyWireASLINK System Product Guide

ASLINKSENSOR

B285SB-01-1K1

[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

- O 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.
- O Always turn off the power before attempting to mount or replace.
- O 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

- O System power supply
  Use a stable, 24V DC power supply. Use of an unstable power supply may cause problems with the system.
- O 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.
- O 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.
- O Do not impose any external loads on the units. Doing so may cause a failure.
- O Do not disconnect or reconnect between the transmission line and slave units. A malfunction may occur.
- O 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 acordance 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 ASLINKSENSOR: Cylinder type

B285SB-01-1K1	ϕ4 compatible with rounded groove

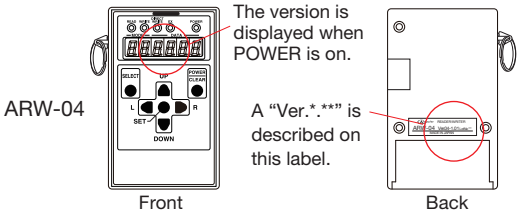
[Function]

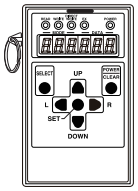
Model	ASLINKSENSOR 2-wire (non-insulation)
Detection method	Cylinder type
Function	Threshold
	Alarm judgment value
	Alarm judgment time
	Normally open/Normally close
	Operation mode
	Sensing level drop
	Slave unit voltage drop

[Contents in package]

B285SB-01-1K1	Unit … 1 unit

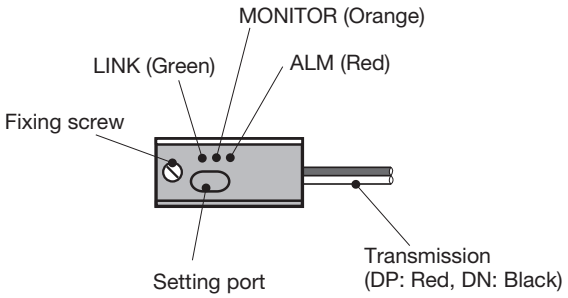
*An “address writer ARW-04 (Ver.04-1.01 or higher) or ARW-03 (Ver.2.10 or higher)” is required for setting to the unit. Prepare it together.





ARW-03
is also available.

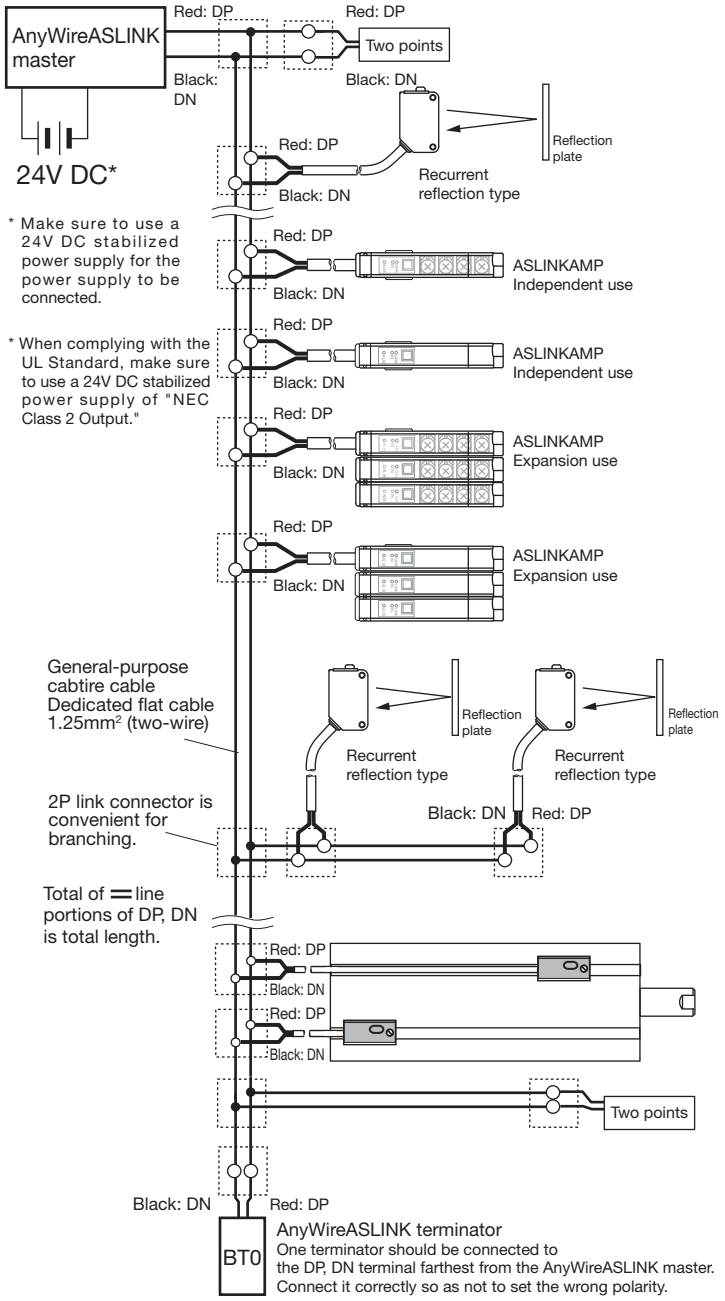
[Name of each part]



[Connection Example]

You can select use of either a two-wire or four-wire terminal for the AnyWireASLINK according to 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 a local power supply.
If you are prioritizing the sites of concentrated loads or the number of units connected, 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 using a two-wire (non-isolated) terminal



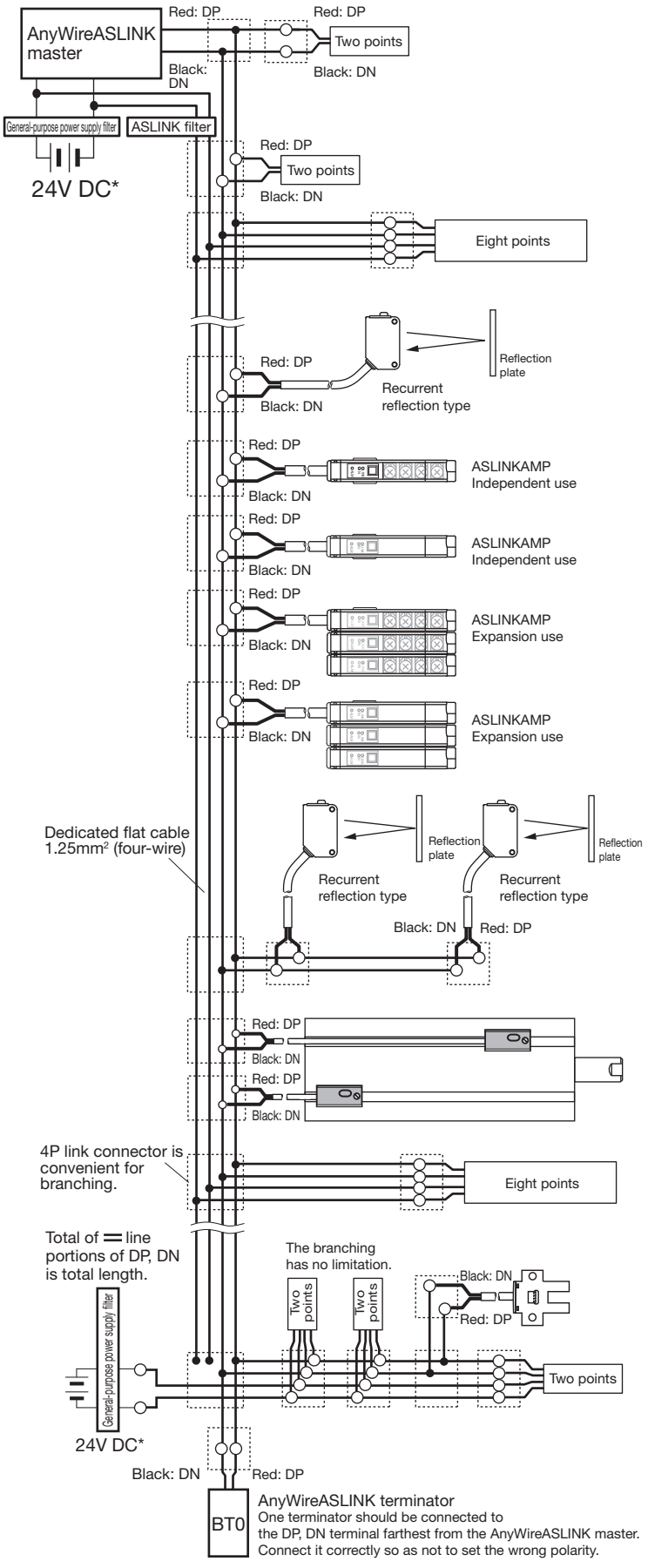
■Relationship between the size and length of the transmission line and the supply current (Table 1)

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
1.25mm²	MAX 2A	MAX 1A	MAX 0.5A
0.75mm²	MAX 1.2A	MAX 0.6A	MAX 0.3A
0.5mm²	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 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



CAUTION

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.

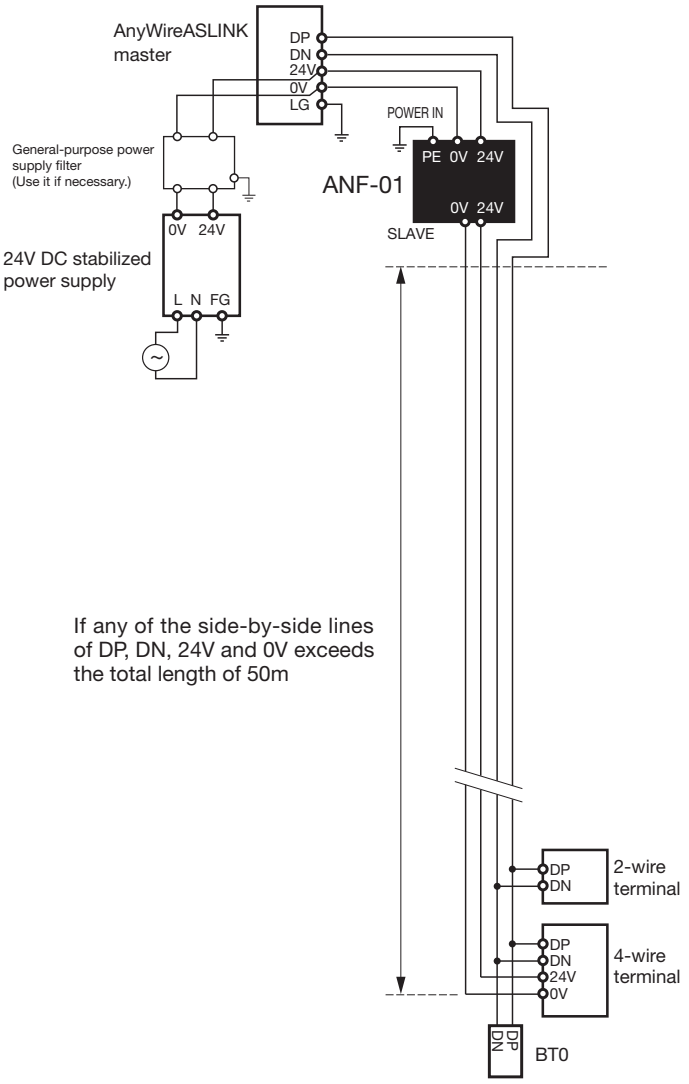
> Insert the “ASLINK filter [Type ANF-01]” regardless of installation method and distance when complying with CE Standard.

■Filter allowable power current

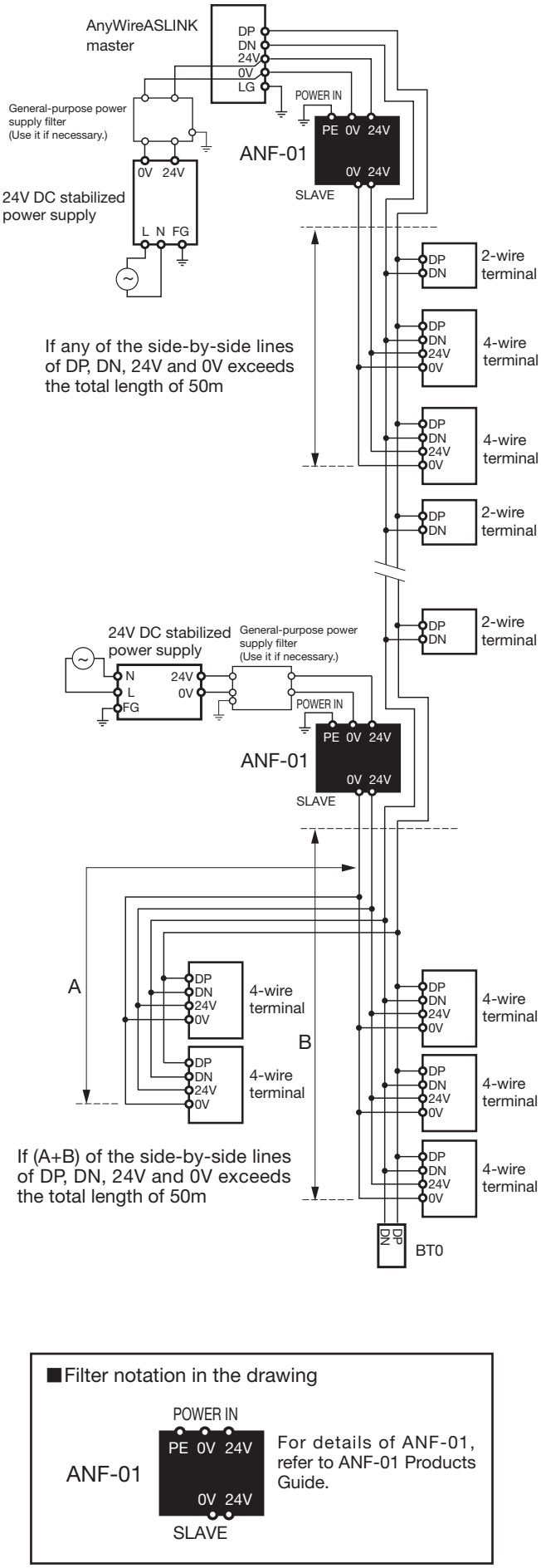
Model	Type	Allowable power current
ASLINK filter	ANF-01	MAX 5A/24V DC
Filter of COSEL Co., Ltd.	EAC-06-472	MAX 6A/24V DC

■AnyWire Type: ANF-01 Connection example

①Power supply to the entire system



②Local power supply/branching

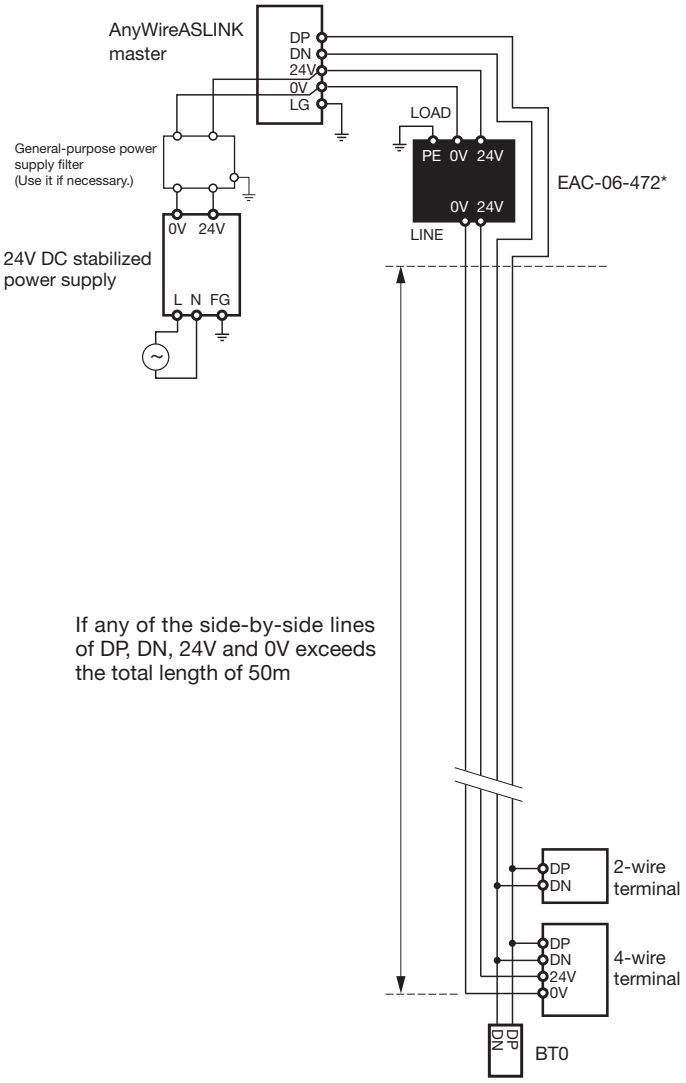


■Filter notation in the drawing

For details of ANF-01, refer to ANF-01 Products Guide.

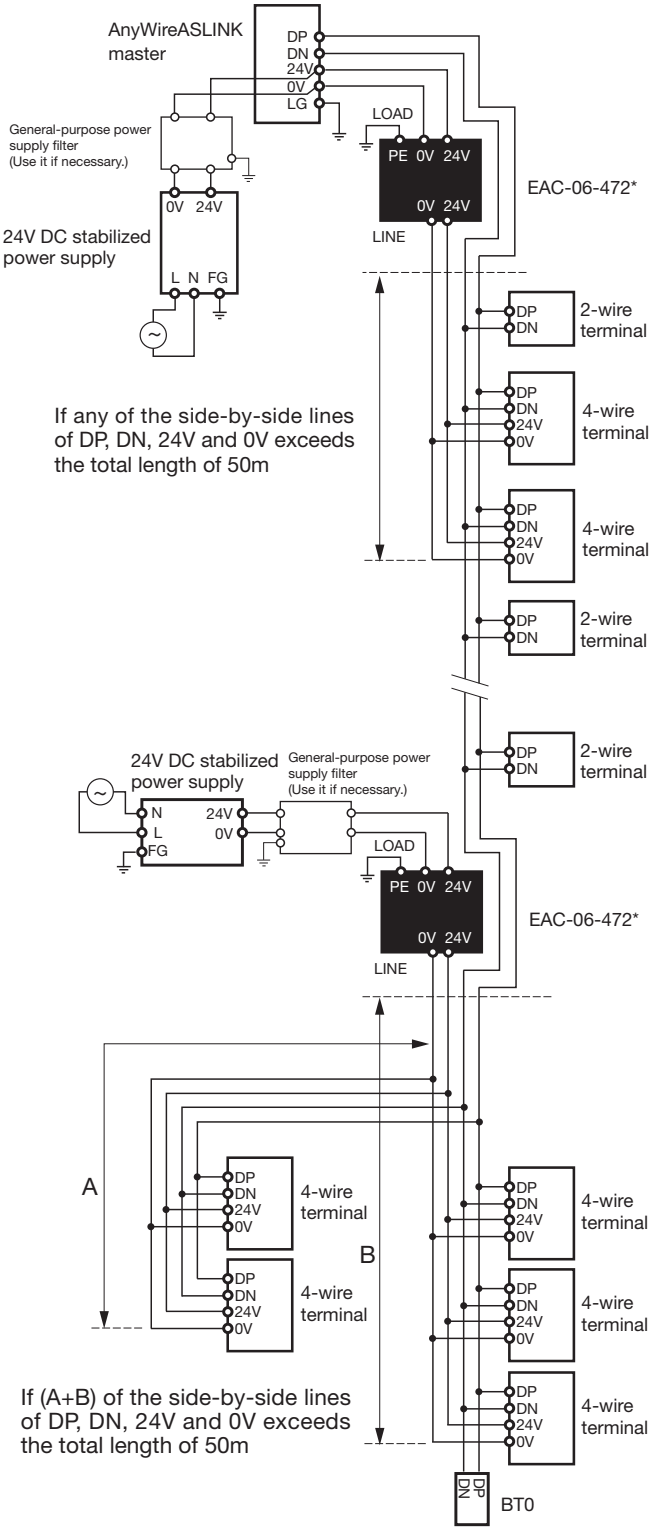
■COSEL Co., Ltd. Type: EAC-06-472 Connection example

①Power supply to the entire system

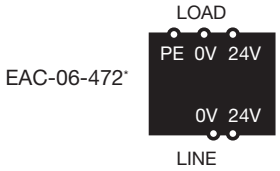


* When using this filter, please be careful of the positions of LOAD and LINE.

②Local power supply/branching



■Filter notation in the drawing



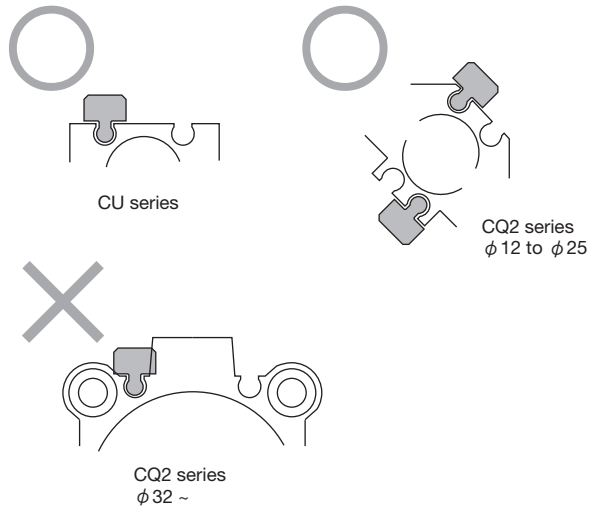
* When using this filter, please be careful of the positions of LOAD and LINE.

[Mounting]

[Confirming Cylinder Body]

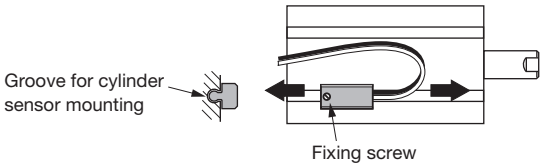
The main unit of this sensor sticks out to the upper surface of the groove.
Make sure it does not interfere with the cylinder body or other structures around the cylinder.

Ex.)



[Sensor Fitting Method]

Insert the cylinder sensor to the groove of the cylinder and slide it to adjust its position. The sensor is fixed when the fixing screw of the cylinder sensor is fixed.

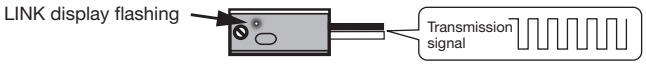


⚠ CAUTION

When securing the unit, allow a margin so that no stress is applied to the cables or connecting connectors etc.
Make sure the cable is not entangled with the cylinder rod etc. in the installation. Do not tighten the cylinder sensor fixing screws excessively. Doing so may cause a failure.

[Sensor Setting and Mounting Adjustment Method]

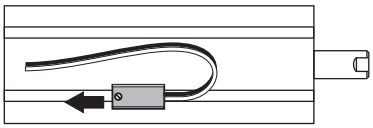
Connect the ASLINKSENSOR to the master unit of the AnyWireASLINK system so that transmission signal is supplied to the cylinder sensor and LINK LED flashes.



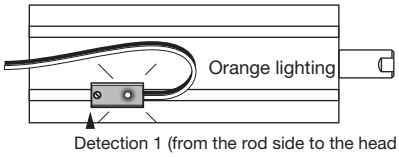
■Adjustment of sensor detection position

A case to attach a sensor to the head side is shown as follows.
Attaching it to the rod side is the same.
* Adjust the position after correctly setting an address number.

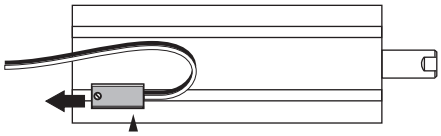
① Fully insert the piston rod to the head side and move the cylinder sensor to the arrow direction.



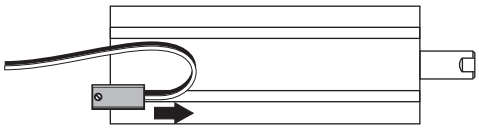
② First, mark (detection 1) a position where orange LED lights.



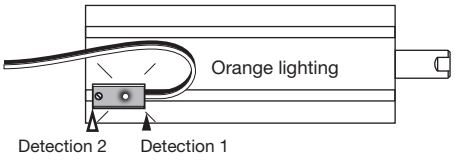
③ Further, move the sensor forward until the orange LED is turned off.



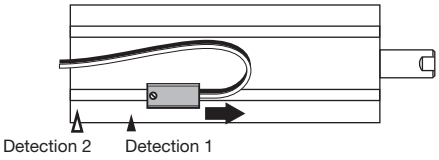
④ Then, move the sensor from the head side to the arrow direction.



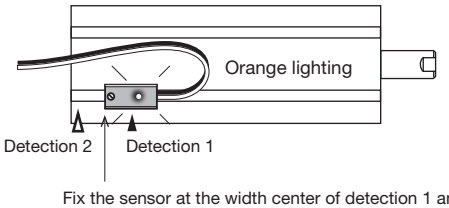
⑤ In the same way as above, mark (detection 2) a position where orange LED lights.



⑥ Further, move the sensor forward until the orange LED is turned off.



⑦ Fix the ASLINKSENSOR at the center of the lighting positions (detection 1 and 2) of the orange LED.



Make sure to perform “Teaching Operation” described in P7 in this status.

[Installation Location]

- Places free from direct vibration and shock.
- Places not directly exposed to dust.
- Places where conductors such as metal waste or sputter do not adhere directly to the main unit.
- Places free from condensation.
- Places free from corrosive gas, flammable gases and 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 total length.

[How to connect]

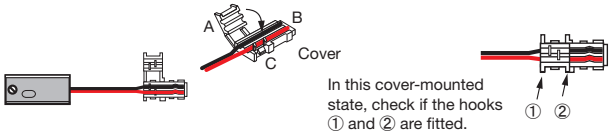
Connect the transmission line from the unit body (DP, DN) to the transmission line of the AnywireASLINK system (DP, DN).
Pay attention to the polarity.

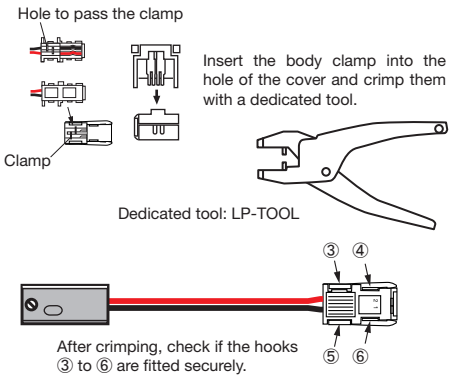
■Example of mounting an LP connector to the end of the transmission line

Applicable LP connector: LP2-PWH-10P
LP4-WW-10P

(2P)

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.





(4P)

[Various settings]

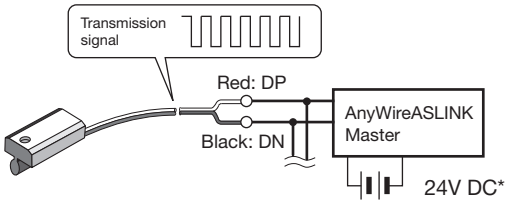
■Item

Address number setting	Teaching	Parameter setting

■Common procedure for address writer operation

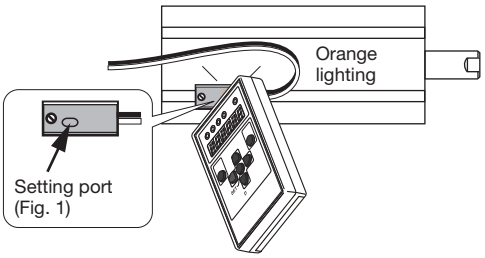
Be sure to connect to the AnyWireASLINK master unit to use.
An address writer ARW-04 (Ver.04-1.01 or higher) or ARW-03 (Ver.2.10 or higher) is required for operation.
For details about the operation method, refer to the address writer's Products Guide.

1. Connect the ASLINKSENSOR to the master unit of the AnyWireASLINK system.
   Transmission signal is required to write or read an address number or parameter.
   Set with the address writer while supplying the transmission signal to the transmission line of the terminal (DP, DN).



* Make sure to use a stable, 24V DC power supply.

2. Setting is required for all ASLINKSENSORs.
   Direct the address writer to the setting port (Fig. 1) of the unit to set.



Address number setting

The address number is used to set which number of the transmission frame to start with for the terminal to occupy.
Set the address number in a range from "0" to "254."

⚠ CAUTION

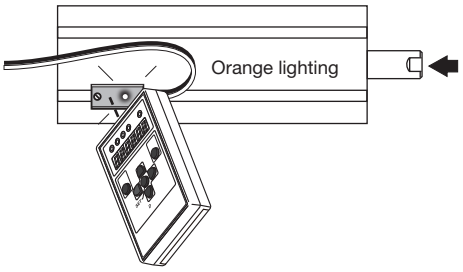
The default address-number setting of the terminal is "255," which means no setting.
If the address number setting is "255," the terminal cannot perform input/output operations.
Make sure to use the terminal after setting the address number within the range of "0 to 254."

Teaching

Store the status at the time with a piston on the ASLINKSENSOR.

[SET ON setting]

Perform setting on the detection position adjusted in P5 in a state that MONITOR (orange) lights.



* SET OFF operation is not included in this sensor.

Parameter setting

■Setting of threshold

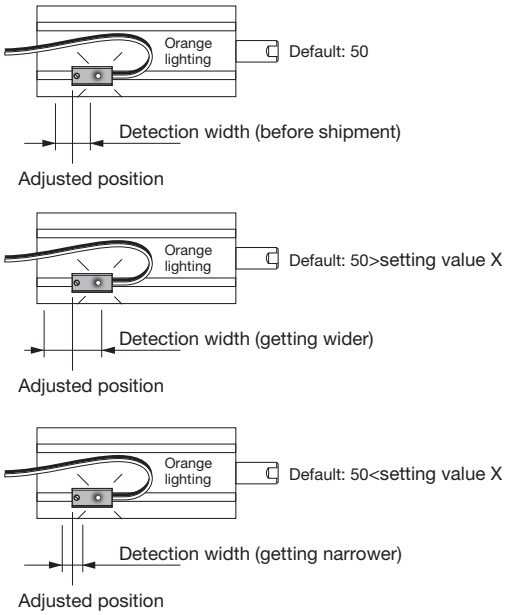
When the ASLINKSENSOR sensing threshold is changed, the width for ON detection can be changed.
If you want to change detection timing or detecting in narrower range, change setting.

- Address writer (ARW-04, ARW-03): Parameter 01

Setting value of threshold X	Result
50＞X (X:0～49)	The detection width gets wider than before shipment.
50＜X (X:51～100)	The detection width gets narrower than before shipment.

[Image of Threshold and Detection Width]

Example in the case that a piston is on the head side



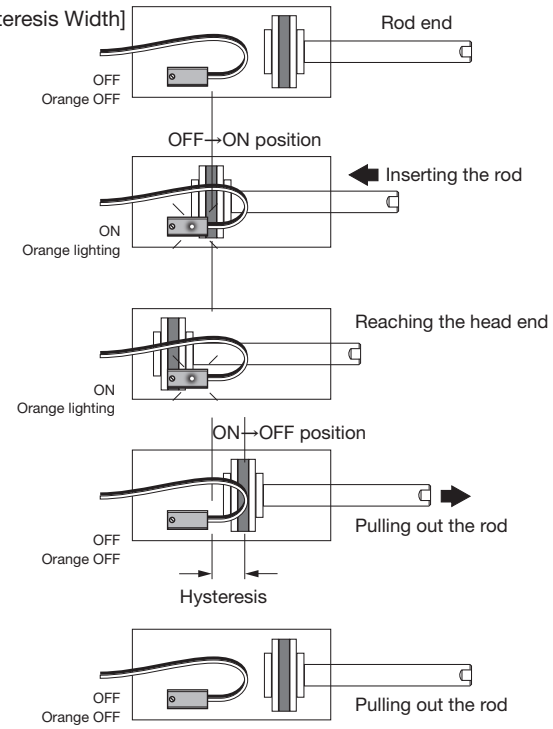
■Setting of hysteresis

- Address writer (ARW-04, ARW-03): Parameter 02

Setting range
0 - 100

Default: 5

[Image of Hysteresis Width]



■Alarm value Hi setting

Set an upper limit for the alarm judgment value.

* Set the alarm value under the condition of Hi>threshold.

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

Setting range
0 - 100

Default: 80

■Alarm value monitor time setting

Set a monitor time for the alarm judgment value.

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

Variable	Unit
3 - 255	100ms

Default: 5

■Setting of normally open/normally close

Set normally open/normally close.

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

Variable	Details
0	Normally open
1	Normally close

Default: 0

■Setting with/without operation mode change

Set with/without diagnosis function.

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

Variable	Details
0	Unavailable (Simple mode)
1	Available (Normal mode)

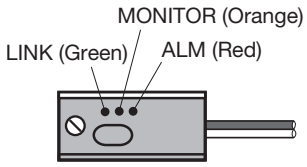
Default: 0

Parameters [4] and [8.] and subsequent parameters are parameters in the system domain.
Do not change the setting.

[Monitor Display]

Normal status: LINK Flashing, ALM OFF

	LED symbol	Indication status	Details
LED indication	LINK	On	Transmission abnormality
		Flashing	Transmission signal reception
		Off	No transmission signal (including DP, DN disconnection and reverse connection)
	ALM	On	Sensing level drop (When the alarm diagnosis function is available)
		Flashing	Slave unit voltage drop
		Off	Normal
	LINK ALM	Alternate flashing LINK ALM	When the master unit detected that the ID (address) of this unit is duplicate or is not set.
	MONITOR	On	Rod detection
		Off	Rod undetection



[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	- AnyWireASLINK is 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).	- Set any address other than 255.
			- The ASLINKSENSOR has an address duplicated with the other unit.	- 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, and then confirm and adjust the mounting status.

When the following errors are indicated on ARW-04, 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 mounting position correct? → Slide the ASLINKSENSOR from the rod side and head side respectively and adjust it so that it comes at the center of two positions where LED starts lighting ON. -Are the wirings correct? → Confirm the ASLINKSENSOR transmission line is correctly connected to the AnyWireASLINK transmission line (DP, DN). - Is power with proper capacity fed to the AnyWireASLINK master unit and slave unit? → Confirm the power supply. - Was the teaching carried out? → Perform the teaching setting with the work to be actually detected.
Setting cannot be performed with ARW-04 and ARW-03.	- Is connecting correct? → Re-check the connection of the ASLINKSENSOR 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	Contents	Variable default
【01.】 Threshold	0-100	Set the threshold of the light receiving values of detection judgment.	50
【02.】 Hysteresis	0-100	Set the change in the amount of the light receiving value required to turn the detection state from ON to OFF.	5
【03.】 Alarm value Hi	0-100	Set the upper limit of the light receiving value that generates an alarm.	80
【05.】 Alarm value monitor time	3-255	Set the monitor time of the light receiving value that generates an alarm. (1=100 ms)	5
【06.】 Normally open /Normally close	0	Normally open	0
	1	Normally close	
【07.】 Operation mode	0	Simple mode (Preventive maintenance function unavailable)	0
	1	Normal mode (Preventive maintenance function available)	

[Specifications]

■General Specifications

Item	Contents
Ambient temperature/humidity for use	0 - 55°C, 10 - 90%RH (No condensation)
Ambient temperature/humidity for storage	-25 - 75°C, 10 - 90%RH (No condensation)
Withstand voltage	AC1,000V 1 minute Between entire cable and unit body
Insulation resistance	20 MΩ or more in 500V DC Between entire cable and unit body
Atmosphere for use	No corrosive gas
Altitude of use	0 to 2000m
Pollution level	2 or less

■Transmission specifications

Power supply voltage for use	Voltage 24V DC +15% to -10% (21.6 to 27.6V DC Ripple of 0.5Vp-p max.
Transmission method	DC power supply superimposed total frame/cyclic method
Synchronization method	Frame/bit synchronization method
Transmission procedure	Dedicated protocol
Connection mode	Bus type (Multi-drop method, T-branch method, Tree branch method)
Number of connection points	512 max. (IN: 256, OUT: 256)
Number of units connected	Up to 128 units
RAS feature	Transmission disconnection, transmission short-circuit, transmission power supply drop detection ID duplication and ID non-setting

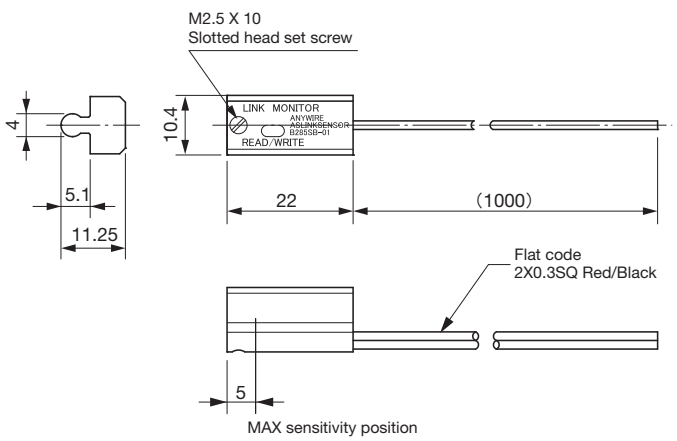
■Individual specifications

Number of occupied points	One-point input
Response time *1	MAX 1.2 ms
Consumption current	13mA
Mass	16g
Detection method	Magnetic induction detection
Corresponding cylinder	Built-in magnetism type

*1 Time from when ON or OFF is detected until the transmission signal is transmitted. The time combining this time and the transmission 2 cycle time is the transmission delay time.

[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。

基于中国标准法的参考规格：GB/T15969.2

[Address]

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