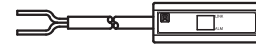
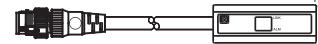


AnyWireASLINK System Products Guide

Tool Answer Unit



B281SB-ID08-□□20



Smartclick is a registered trademark of OMRON Corporation.

This Products Guide describes individual products. To understand the products, please read the contents of this document.

Function list

Model	Specification	Functions		
Tool answer unit 2-wire type (non-isolated)	Input: 8 points	Identification data input	ID proxy response	Remote unit voltage drop
		○	○	○

■ Note on use ⇒ To set addresses and other parameters, Address Writer ARW-04 (Ver. 04-1.01 or later version) is required. Prepare the Address Writer separately.

[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.



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



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



- 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 system power before installing or replacing the product.
- 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.



- 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, install 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 device. Doing so may cause a failure.
- Do not disconnect or reconnect between the transmission line and remote units when the transmission line is active. Doing so may cause a malfunction.
- Use the AnyWireASLINK within the range of the specifications and conditions shown below.

[Warranty]

Warranty period

The warranty period of the delivered product shall be one year after delivery to the place specified by the customer.

Scope of warranty

If a fault occurs with the product under the normal operating conditions assumed in the product specifications and according to the instructions of this Products Guide within the above warranty period, faulty parts shall be replaced or repaired free of charge.

Note: The following cases are exempted from the scope of warranty:

- (1) User's improper handling or use of the product
- (2) When the fault is caused by any factor other than the delivered product
- (3) When the fault is caused by modification or repair of the product by any person other than the supplier
- (4) When the fault is caused by a natural disaster or other factor which is not attributable to the supplier

The term "Warranty" mentioned here means warranty of the delivered product only. We shall not be liable for incidental damage resulting from a fault of the delivered product.

Repair at user's cost

Investigations and repairs after elapse of the warranty period shall be conducted at user's cost.

Even in the warranty period, we shall accept order of repair of a fault or investigation of a cause of a fault beyond the above scope of warranty at user'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.

[Type]

B281SB-ID08-C20	Loose wire type
B281SB-ID08-G220	Cable type with M12 Smartclick connector

[What is a Tool Answer Unit?]

The tool answer unit can send tool type and other information to the master unit by combining 8-bit input signals as identification data.

Also, this unit incorporates the ID proxy response function, enabling ID (for up to 16 units) registered in this unit to be sent back to the master unit on behalf of the relevant remote unit.

With this function, you need not execute the automatic address recognition procedure, even if configuration of remote units is changed for each tool.

[Relationship between address and ID]

The AnyWireASLINK system is based on the concept of ID, in addition to address setting specific to each remote unit. Based on address of each remote unit, ID is used for differentiation between input and output.

	Address	ID (Hexadecimal number)	ID (Decimal number)
Output remote unit	0 to 255	0000 _H to 00FF _H	0 to 255
Input or mixed input/output remote unit	0 to 255	0200 _H to 02FF _H	512 to 767

[Automatic address recognition]

The operation to register ID of connected remote units in the EEPROM of the master unit is called "automatic address recognition".

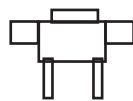
The master unit checks if a remote unit corresponding to the registered ID is present or not. If there is no response from the relevant remote unit, it is detected as a disconnection error.

* For details, refer to the manual for the master unit.

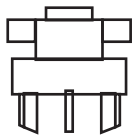


The ID proxy response function enables only ID information to be sent back to the master unit on behalf of the relevant remote unit. Contents of parameters other than ID is not included in the response.

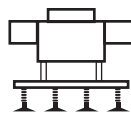
[Application Example]



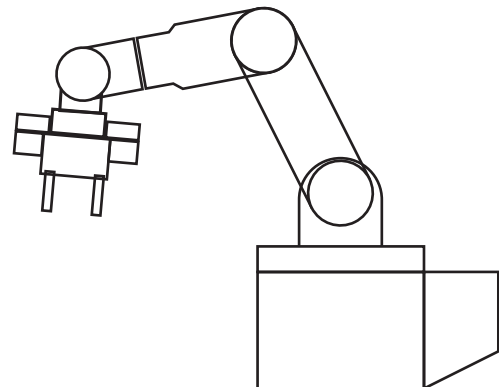
Tool A



Tool B



Tool C



Before

[Without tool answer unit]

- ① Turn OFF the power supply for the AnyWireASLINK system.
- ↓
- ② Remove tool A.
- ↓
- ③ Connect tool B.
- ↓
- ④ Turn ON the power supply for the AnyWireASLINK system.
- ↓
- ⑤ If there is a difference in configuration of remote units, execution of automatic address recognition is required.

[Key points]

- If all remote units are normally operating during execution of automatic address recognition, there is no problem. However, if any remote unit malfunctions, the master unit registers the current status as normal configuration. Use caution.
- The master unit cannot identify which tool is currently connected.

After

[With tool answer unit]

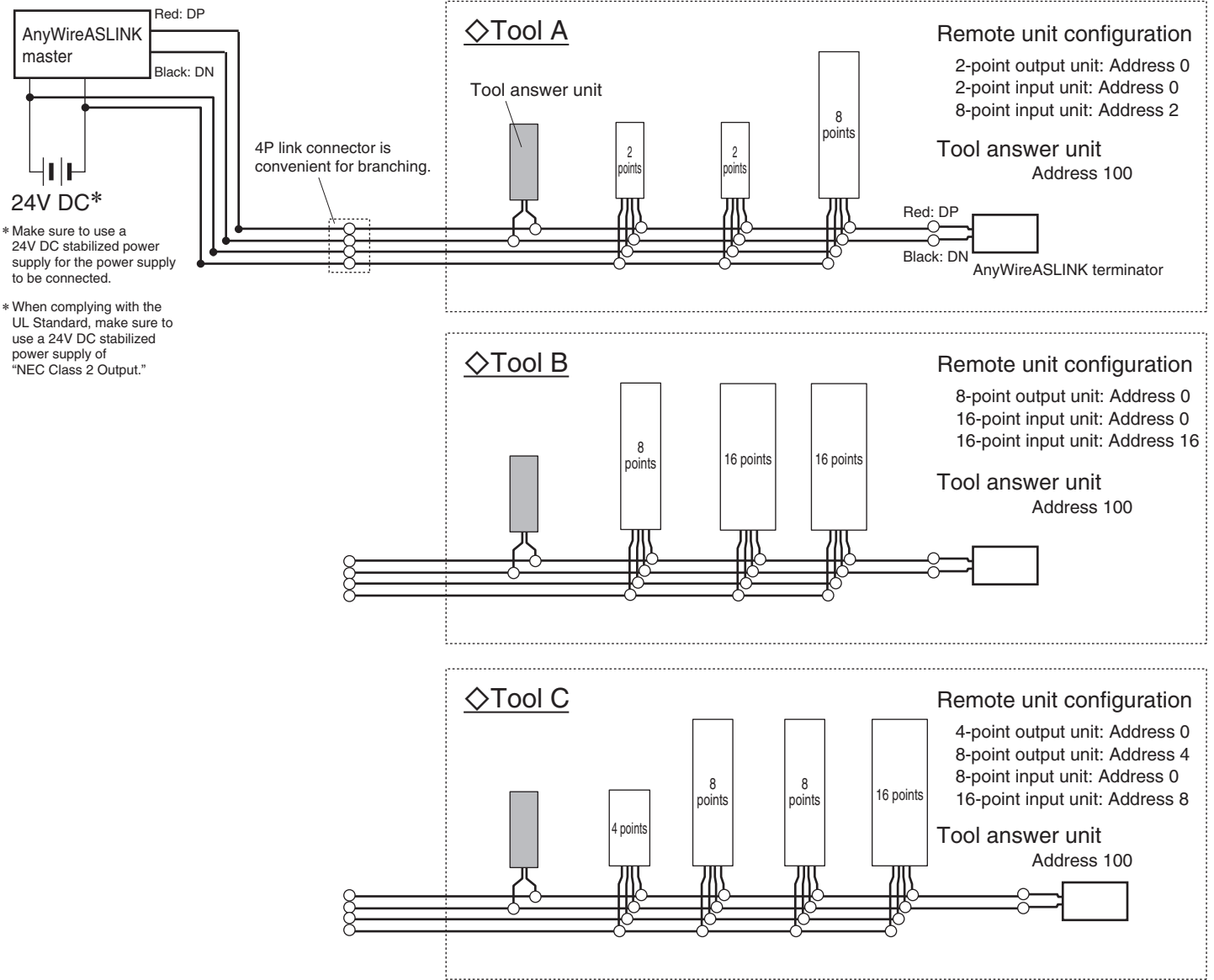
- ① Turn OFF the power supply for the AnyWireASLINK system.
- ↓
- ② Remove tool A.
- ↓
- ③ Connect tool B.
- ↓
- ④ Turn ON the power supply for the AnyWireASLINK system.
- ↓
- ⑤ Even if there is a difference in configuration of remote units, execution of automatic address recognition is not required.

[Key points]

- Even if configuration of remote units is different, the ID proxy response function enables the master unit to acquire correct information on configuration of remote units for each tool.
- Since the user need not frequently execute automatic address recognition, possible risk of registering incorrect configuration can be reduced.
- The master unit can identify which tool is currently connected by the identification information.

[Example of Connections]

□ When the tool answer unit address is common to all configurations
(In this example, address "100")



■ Example of settings

	Remote unit configuration				ID registered in the tool answer unit
Tool A	Output 0 — Set address 0 ID (Decimal number)	Input 0 512	Input 2 514		4, 520, 528
Tool B	Output 0 0	Input 0 512	Input 16 528		4, 514, 520
Tool C	Output 0 0	Output 4 4	Input 0 512	Input 8 520	514, 528

Key points

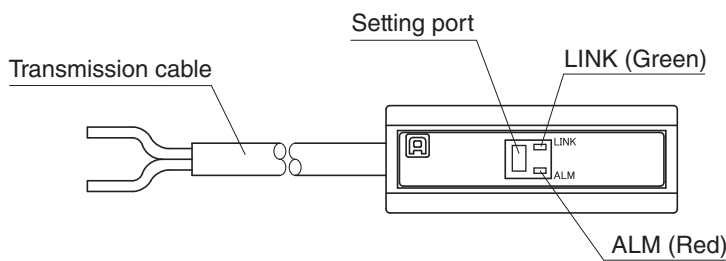
- Register proxy response IDs in the tool answer unit, so that there is no difference in configuration of remote units depending on which tool is currently connected.
- After address settings in remote units (including the tool answer unit) and ID registration in the tool answer unit are completed, execute automatic address recognition.*
- Up to 16 types of ID can be registered in one tool answer unit.
If the types of ID subject to proxy response is more than 16, provide an additional tool answer unit.

* For details, refer to the manual for the master unit.

[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

[Name of Each Part]



* This figure shows B281SB-ID08-C20.

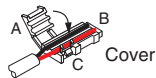
[Connection Method]

■ B281SB-ID08-C20

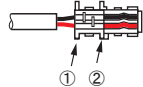
Example) When the LP connector (LP2-PWH-10P) is attached to the end of transmission cable

Wire color	Pin No.
Black (DN)	1
Red (DP)	2

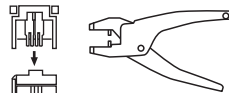
Place the wires in the grooves so that the black wire (DN) is on the hinge side of the cover, fold A over B and engage the hook C to fasten it.



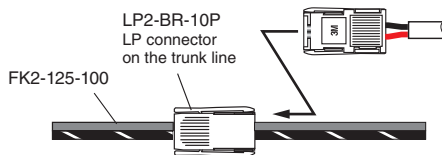
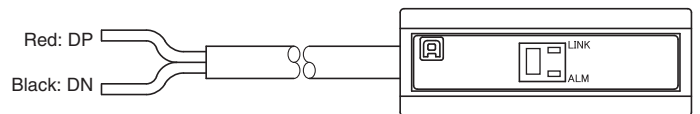
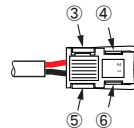
The condition in which the cover is fitted. Ensure that the hooks ① and ② are engaged.



Pressure-bond using a dedicated tool by guiding the metal fitting on the connector body into the hole of the cover.

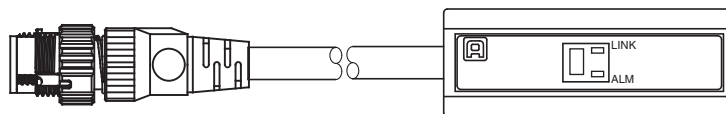
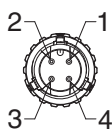


After pressure-bonding, ensure that the hooks ③ to ⑥ are securely engaged.



■ B281SB-ID08-G220

1	N/C
2	DP
3	N/C
4	DN



Smartclick

[Various Settings]

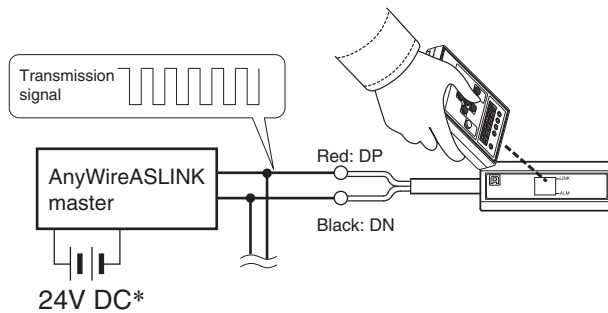
Address setting

Parameter setting

■ Common procedure for address writer operation

Be sure to connect this unit to the AnyWireASLINK master unit.
An address writer is required for the operation.
For details of the operating method, refer to the product guide for the address writer.

1. Connect the tool answer unit to the AnyWireASLINK master unit.
With the transmission signal (DP, DN) being connected, perform settings with the address writer.



* For the power supply to be connected, be sure to use a 24V DC stabilized power supply.

Address setting

Address number set in the tool answer unit is intended to specify the first area that the unit occupies in the transmission frame.



The factory-set address number is "255", which indicates that no address has been set for the unit.
With the address setting of "255", the tool answer unit does not normally operate.

- Set the address number so that the area occupied by the terminal does not exceed the transmission points of the master unit.
- Make sure that the address number setting is not duplicated.
- Also, use the address writer to read an address number that has been written in the terminal.

* For details of the address number setting procedure, refer to the product guide for the address writer.

Parameter setting

* For details of the parameter setting procedure, refer to the product guide for the address writer.

■ Tool identification data [Equipment parameter 1]

This parameter sets tool identification data.

Setting range: 0 to 255

Factory setting: 0

■ Tool identification data destination [Equipment parameter 2]

This parameter sets tool identification data destination.

Variable	Description
0	Input data area + Sensing level*
1	Sensing level*

Factory setting: 0

* For details, refer to the manual for the master unit.

■ Number of IDs for proxy response [Equipment parameter 3]

This parameter sets the number of IDs to be responded on behalf of the remote units.

Setting range: 0 to 16

Variable	Description
0	0 (Proxy response feature not used)
1	1 (Proxy response is made for the ID set in the equipment parameter 4)
2	2 (Proxy response is made for the IDs set in the equipment parameters 4 and 5)
:	:
16	16 (Proxy response is made for the IDs set in the equipment parameters 4 to 19)

Factory setting: 0

■ Proxy response ID [Equipment parameter 4 to 19]

These parameters set proxy response IDs.

Setting range: 0 to 254 (Output remote unit)

: 512 to 766 (Input or mixed input/output remote unit)

* Do not write numbers outside the setting range.

Address of an output remote unit	Variable (ID for proxy response)
0 to 254	0 to 254

Address of an input or mixed input/output remote unit	Variable (ID for proxy response)
0 to 254	512 to 766

Factory setting: 0

* Refer to page 2 for the relationship between address and ID.

[Data Configuration]

The tool answer unit enables tool identification data to be output to the input information area (depending on the setting of equipment parameter 2).

* For sensing level storage areas, refer to the manual for the master unit.








[When tool identification data is output to the input information area (Input: 8 points)] *n = Address number of the terminal
(Equipment parameter 2: Variable 0)

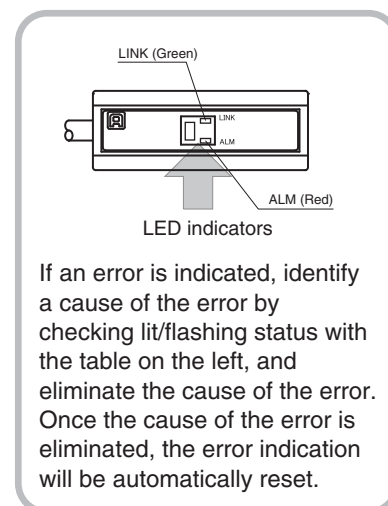
Data configuration (bit)							
n+7	n+6	n+5	n+4	n+3	n+2	n+1	n
0 to 255 (Set value of equipment parameter 1)							

[When tool identification data is not output to the input information area (Input: 0 points)]
(Equipment parameter 2: Variable 1)

Data configuration (bit)							
n+7	n+6	n+5	n+4	n+3	n+2	n+1	n
Idle	Idle	Idle	Idle	Idle	Idle	Idle	Idle

[LED Indication]

LED name	Display status	Description
LINK	Lit 	Transmission signal error
	Flashing 	Transmission signal received
	Unlit 	No transmission signal (disconnection and reverse connection of DP and DN lines included)
ALM	Flashing 	Remote unit voltage drop
	Unlit 	Normal
LINK ALM	Alternate flashing LINK  ALM 	The master unit detects duplication or setting incompleteness of ID (address) of this unit. * Only when the disconnection ID response function is inactive.



To identify a cause of error/alarm at occurrence of a trouble, refer to "Troubleshooting" in the next section.

[Troubleshooting]

<LINK does not flash>

Things to be checked	Remedy
Check connection status of this unit.	Disconnect the tool answer unit once, and then re-connect it.
Check connection status of the master unit.	Check if the "LINK" LED on the master unit is flashing, and take the following actions. 1) If LINK on the master unit is flashing and LINK on the remote unit is lit, it is possible that the master unit is damaged. Please contact our Support section. 2) If LINK on the master unit is flashing and LINK on the remote unit is unlit, it is possible that the power (24V DC) is not supplied to the master unit, there is a disconnection on the transmission line (DP, DN), or the remote unit has been damaged. Check the power supply to the master unit, and contact our Support section, if required. 3) If LINK on the master unit is not flashing, check the power supply to the master unit. Also, since there is a possibility that some system error has occurred, refer to the user's manual of the master unit.

<ALM is flashing>

Things to be checked	Remedy
Check the voltage (24V DC) of external power supply to the master unit.	Adjust the voltage of external power supply to the master unit so that it will be in the range from 21.6 to 27.6V. (Recommended voltage is 26.4V.) Check the total length. Review the total length and wire diameter of transmission line so that the load will not exceed the current limit supplied by the transmission line and adjust the connected load. (In the case of the wire size of 1.25mm ² and total length of 50m or less, the current supplied by the transmission line is 2A.)

<LINK and ALM flash alternately>

Things to be checked	Remedy
Check the address of the tool answer unit.	The address of the tool answer unit has not been set (255), or the address is duplicated. Take the following actions. 1) Change the address in the range of 0 to 254. 2) Check if there is a remote unit on which the indicator lamps are flashing in the same manner and reset the addresses so that they are not duplicated.

[Equipment Parameters and Their Settings]

Equipment parameter	Setting item	Explanation	Variable	Description
1	Tool identification data	This parameter sets tool identification data. Factory setting: 0000	0000 to 0255	0 to 255
2	Tool identification data destination	This parameter sets tool identification data destination. Factory setting: 0000	0000	Input data area + Sensing level
			0001	Sensing level
3	Number of IDs for proxy response	This parameter sets the number of IDs to be responded on behalf of the remote units. Factory setting: 0000	0000	0 (Proxy response feature not used)
			0001	1 (Proxy response is made for the ID set in the equipment parameter 4)
			0002	2 (Proxy response is made for the IDs set in the equipment parameters 4 and 5)
			:	:
			0016	16 (Proxy response is made for the IDs set in the equipment parameters 4 to 19)
4 to 19	Proxy response ID	These parameters set proxy response IDs. Factory setting: 0000	0000 to 0254 0512 to 0766	ID of output remote unit 0000 to 0254 ID of input or mixed input/output remote unit 0512 to 0766

[Specifications]

■ General specifications

Operating ambient temperature/humidity	0 to +55°C, 10 to 90%RH No condensation
Storing ambient temperature/humidity	-25 to +70°C, 10 to 90%RH No condensation
Vibration resistance	Based on JIS B 3502 and IEC 61131-2
Shock resistance	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: 1024 points max. (Input: 512 bits, Output: 512 bits) Number of word points: 1024 words max. (Input: 512 words, Output: 512 words)
Number of connection units*3	Up to 256 units
RAS features	Detection of transmission line disconnection, transmission line short-circuit, transmission power supply drop, and duplicated/unregistered ID

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

■ Individual specifications B281SB-ID08-C20

Data occupied	Input: 8 points
Current consumption	4mA
Weight	8.4g

■ Individual specifications B281SB-ID08-G220

Data occupied	Input: 8 points
Protective structure*4	IP67 (Oil resistance based on in-house standard)
Current consumption	4mA
Weight	18g

4 Oil resistance has been checked with the oil and cutting oil specified by in-house standard. This unit hardly suffers damage from oil, but it is not guaranteed that the unit does not suffer damage. Do not use this unit at a position where it is always exposed to oil splash or oil jet.

* Our specified cutting oil

Non-water-soluble type (Yushion Cut KM557, KZ313S),

Water-soluble type (Yushiroken EC50, AP-EX-E7, FGS700):

Immersion at ambient temperature of 55°C

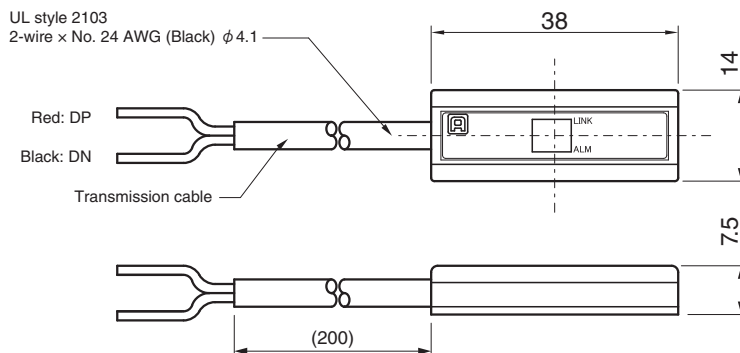
* Our specified lubricating oil

(Velocite Oil No. 3): Immersion at ambient temperature of 55°C

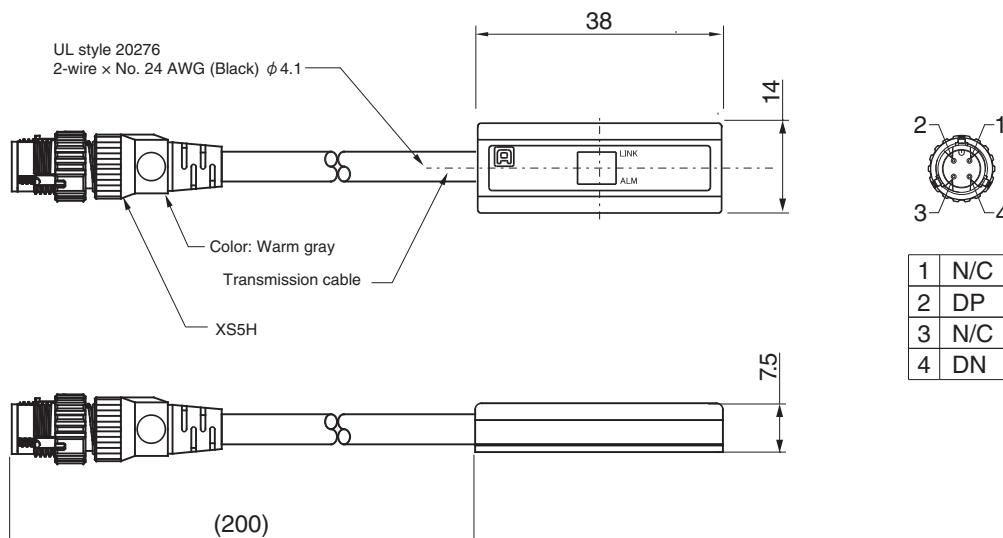
[Outside Dimensions]

Unit: mm

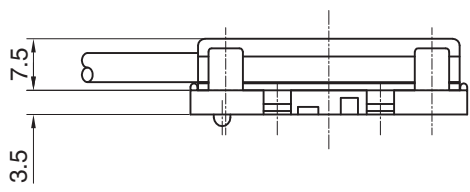
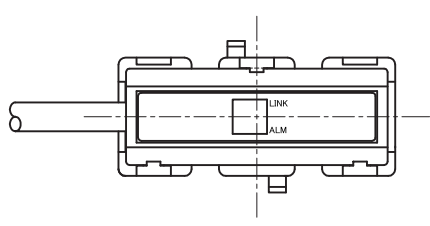
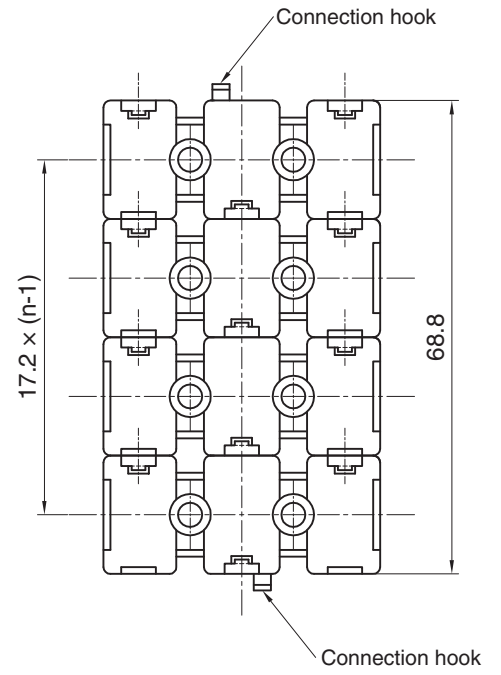
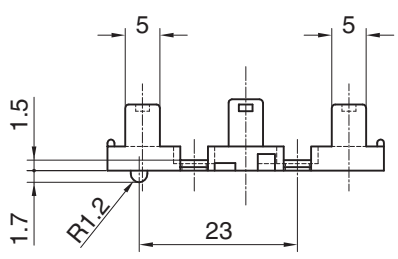
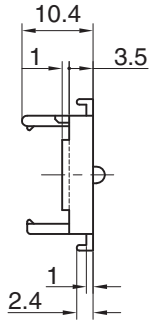
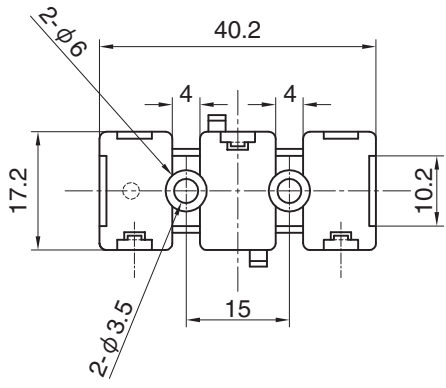
■ B281SB-ID08-C20



■ B281SB-ID08-G220



■ADP-81(Dedicated mounting adapter) *Optionally available



【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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