

Remote Coupler System DeviceNet version

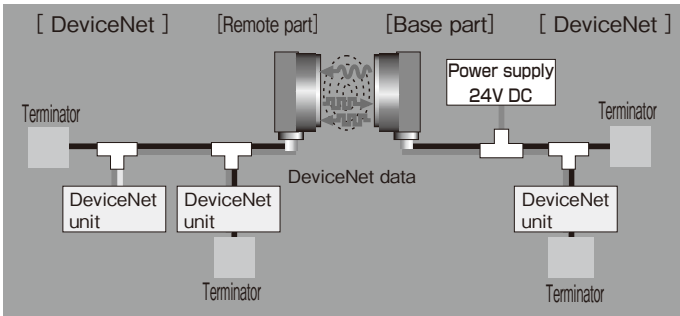
Normal type

Remote : RCD33T-211-DNC
Base : RCD33E-211-DNC

Anti-weld slag type

Remote : RCD33T-TF211-DNC
Base : RCD33E-TF211-DNC

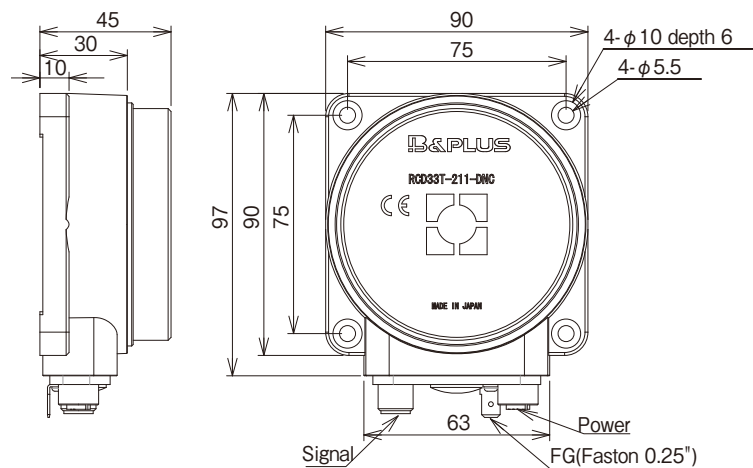
Construction of the system



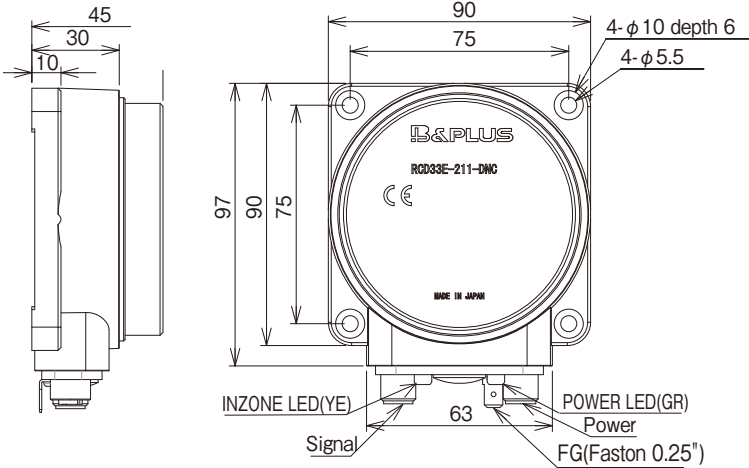
[Function of each Component]

- Remote** Mounted on a moving side. It transmits DeviceNet data to the Base and supplies power to connected DeviceNet interface device.
- Base** Mountes on the fixed side. It transmits DeviceNet data to the Remote and supplies power to the Remote inductively through air-gap.

Remote : RCD33T-211-DNC / RCD33T-TF211-DNC



Base : RCD33E-211-DNC / RCD33E-TF211-DNC



pin	signal(5pin)	power(4pin)
1	shield	24V DC
2	V +	-
3	V -	0 V
4	CAN H	-
5	CAN L	-

pin	signal(5pin)	power(4pin)
1	Shield	24V DC
2	V +	-
3	V -	0 V
4	CAN H	-
5	CAN L	-

Specification

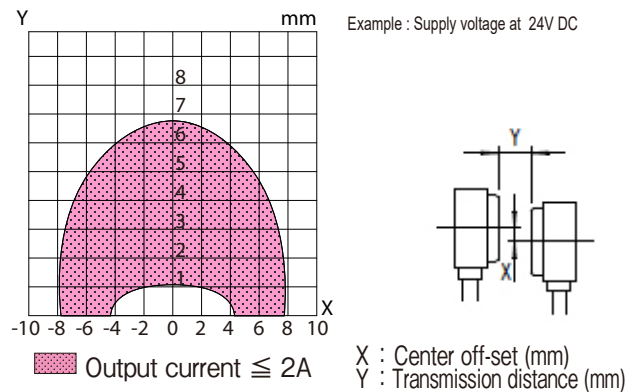
Type number	RCD33T-211-DNC / RCD33T-TF211-DNC
Output voltage	24 V DC±1.5 V
Output current	≤ 2 A
Transmitting distance	3...5 mm
Center off-set	± 4 mm
Operating temperature	0...+50 °C
Degree of protection	IP 67
Connector Signal/ Power	M12/5 pin Male / M12/4 pin Female
Available connector cable Signal/Power	No.0935 614 105/5M[5m] / TM-4DBX5HG2-1/3[5m]
Material	Normal Case:Aluminum anodized finish /Active surface:ABS + PBT
Anti-weld slag type	Case:Aluminum anodized finish /Active surface:PTFE
Bundled items	Ferrite clamp

Type number	RCD33E-211-DNC / RCD33E-TF211-DNC
Supply voltage	24 V DC ± 5 % (include ripple)
Current consumption	≤ 3 A
Communication	DeviceNet (CAN-bus) data
Baud rate	125K....500K bps *1
Transmission delay	Max 0.4 μsec. (equivalent to network length 89m)
Start-up time	≤ 2 sec *2
Operating temperature	0...+50 °C
Connector Signal/ Power	M12/5 pin Male / M12/4 pin Male
Available connector cable Signal/Power	No.0935 614 105/5M[5m] / TM-4DSX5HG2-1/3[5m]
Degree of protection	IP 67
Material	Normal Case:Aluminum anodized finish /Active surface:ABS + PBT
Anti-weld slag type	Case:Aluminum anodized finish /Active surface:PTFE
Bundled items	Ferrite clamp

*1 There is no need to switch the communication speed. It corresponds to the speed of the network within the specifications.

*2 It means the time from when the remote section and base section are energized in the transmittable area until non-contact signal transmission becomes possible. The time until communication is established as DeviceNet varies depending on the system configuration.

Transmitting Area Diagram (Non-flush mounted)

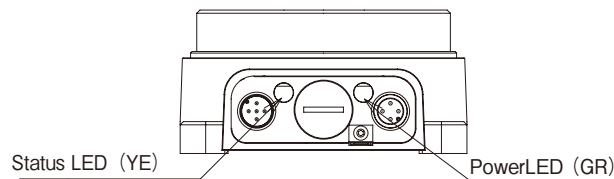


*Design it so that it can be used under the wiring and surrounding environment conditions specified in the specifications. Also, design to satisfy "transmission distance", "center off-set", "output voltage", and "output current". Designs outside the specifications may cause unexpected malfunctions, troubles, and failures due to deterioration of internal parts.

*In a remote coupler system, the control signal may become unstable outside the specified range. If the operation of the equipment is affected, make sure to enter the specifications before starting data communication.

LED indication

Base : RCD33E-211-DNC/RCD33E-TF211-DNC
The LED indicates the operating status of the product.



	LED	interval of blinking	State
POWER LED (Green)	ON	—	The power supply is supplied.
	OFF	—	The power supply is not supplied.
STATUS LED (Yellow)	ON	—	Remote part is in the transmitting area.
	Blink	OFF: 0.85s ON: 0.6s	Remote part is outside of the transmitting area.
	Blink	OFF: 2.9s ON: 0.1s	Heat is generated in excess because of the overcurrent. *3
	OFF	—	V+/V- not connected.

*3 If abnormal heat is generated, the power supply will be stopped. When the heat generation subsides, it will be resupplied.

Installation

• To avoid the influence of surrounding metal and mutual interference between products, be sure to open a space larger than the value shown in the table below.(Fig.1)

Type code	A(Surrounding)	B(depth)	C (Paralell installation)
RCD33T-211-DNC / RCD33T-TF211-DNC	50mm	45mm	300mm
RCD33E-211-DNC / RCD33E-TF211-DNC			

- Use the included Ferrite clamp to clamp the communication line cable and power cable together within 15 cm from the base and remote parts. (Fig.2)

- When installing a ferrite clamp, be careful not to apply excessive stress to the cable due to sudden bending at the connector end or both ends of the ferrite clamp.

- When routing cables with bends, install them above the bend radius of the cables to be used.

- Install so that water and cutting water do not get on the end (wiring part) of the cable. Moisture is transmitted from the cable core to the main body, causing short circuits and corrosion.

- Fix the peripheral cables and install them so that they will not be shaken or shocked.

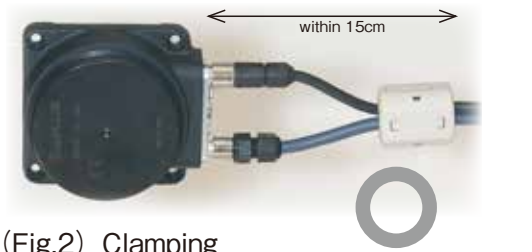
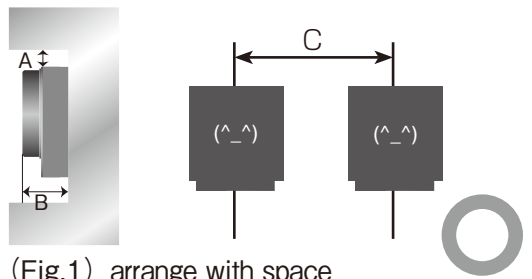
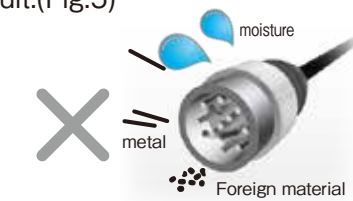
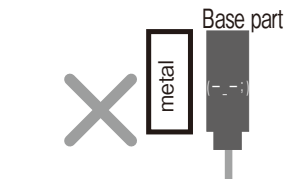
- Use the tab terminal (FG) in a place where the noise environment is bad. (Fig.3)

- To reduce the effect of self-heating, it is recommended to install it on metal using case mounting screws.

- Since metal overheating and internal elements may be damaged, install the base so that it does not face the metal before turning on the power. (Fig.4)

- Do not put metal objects between the operating heads.

- If foreign material get inside the device from the end of the connector, it may cause fire, smoke, fire, electric shock, or malfunction due to malfunction or short circuit.(Fig.5)



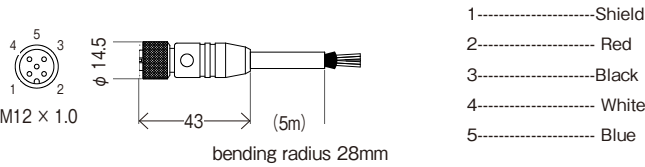
Optional parts

[communication cable / power cable]

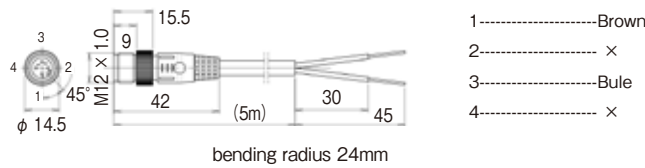
Recommended connector cable is available as an option. Please use in combination with the remote coupler system.

■ for RCD33T Remote part

Commnication cable No.0935 614 105/5M (M12/5 pin female, 5m)



Power cable TM-4DBX5HG2-1/3 (M12/4 pin male, 5m)



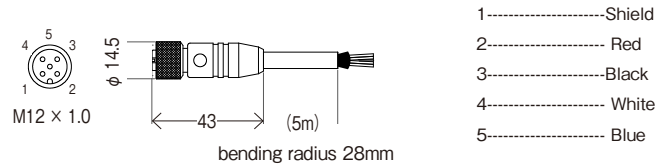
[Ferrite clamp]

The included Ferrite clamp is available as an option in case it is damaged or lost.
Ferrite clamp: DK-Z / RFC-H13 (common to remote and base parts)

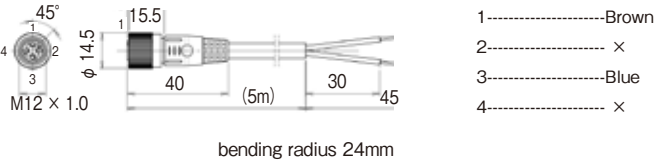


■ for RCD33E Base part

Commnication cable No.0935 614 105/5M (M12/5 pin female, 5m)



Power cable TM-4DSX5HG2-1/3 (M12/4 pin female 5m)



Wiring example

Please read the DeviceNet Installation Manual carefully when wiring. The relationship between trunk lines and drop lines may change due to the addition of additional terminating resistors caused by the installation of a remote coupler system. Also, the maximum cable length may change due to propagation delay of the remote coupler system. Please check the following wiring example carefully before installing the network.

* This document is adapted from the DeviceNet Installation Manual, 3rd Edition.

[network cable length]

-DeviceNet sets the network cable length as follows according to the communication speed.

Data rate	Maximum network length		drop line	Total length of drop line
	thick cable	thin cable		
500k bit/s	≤ 100m	≤ 100m	≤ 6m	≤ 39m
250k bit/s	≤ 250m		≤ 6m	≤ 78m
125k bit/s	≤ 500m		≤ 6m	≤ 156m

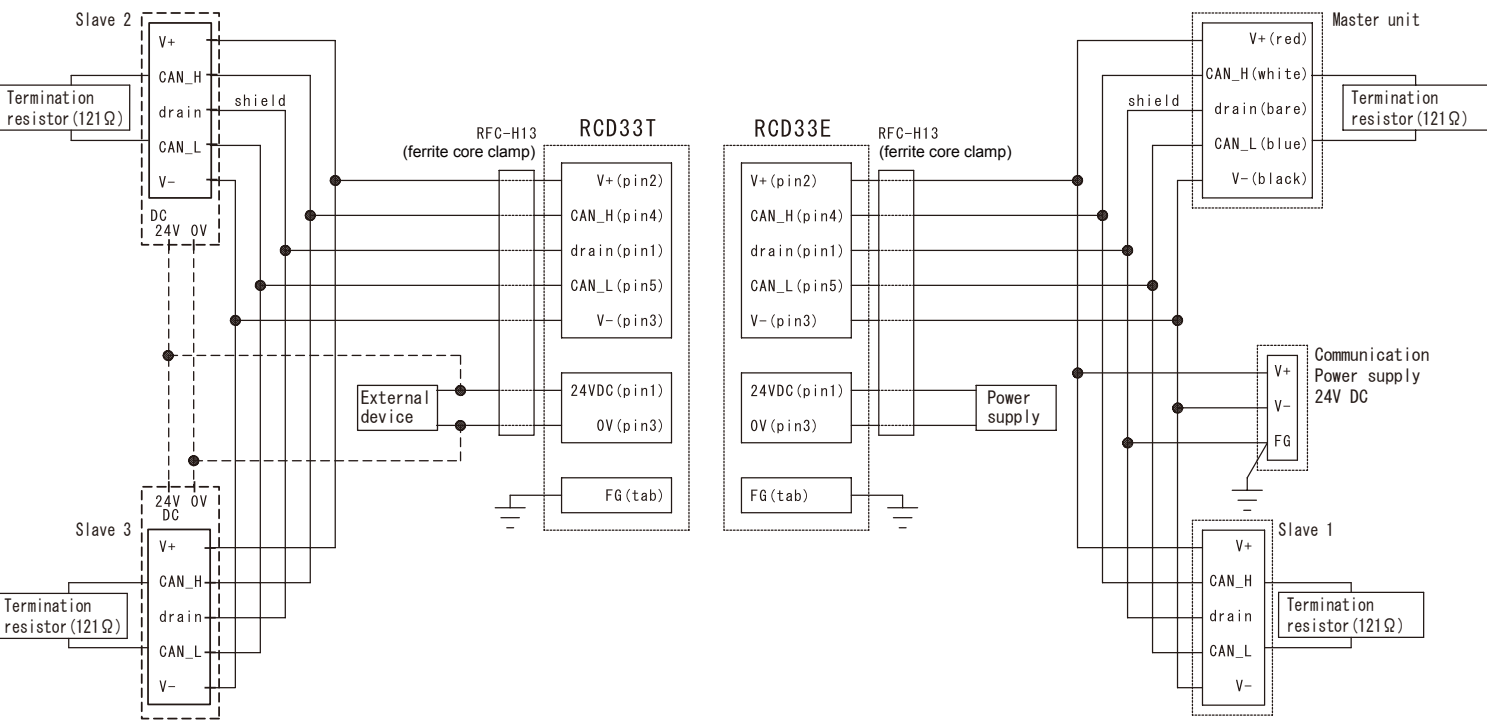
The maximum network length is the longer of the distance between the most distant nodes or the distance between termination resistors.

[Remote coupler system installed]

The remote coupler system has a propagation delay of Max 0.4 μ sec. When calculating the maximum network length, the actual cable length + propagation delay (equivalent to 89 m) is the longest. The maximum network length should be the path with the longest actual cable length + propagation delay (equivalent to 89 m). The maximum network length should be the path with the longest actual cable length + propagation delay (equivalent to 89 m).

The distance from the trunk line to the remote coupler system should be less than 6 m.

Wiring

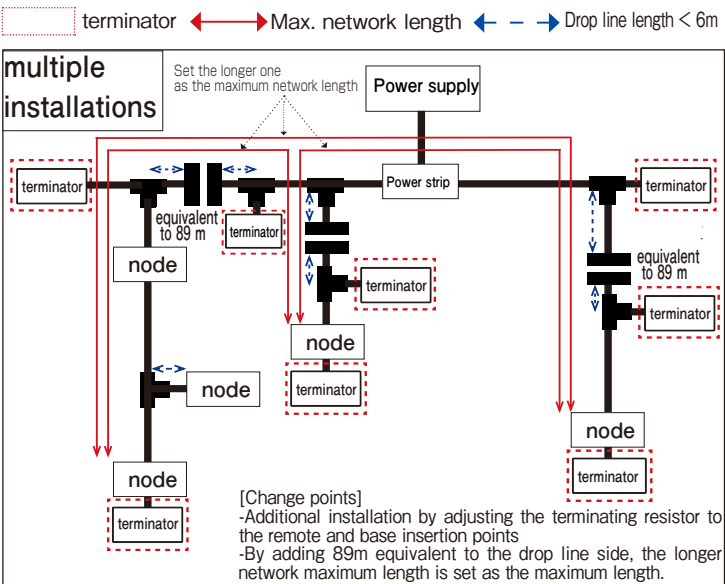
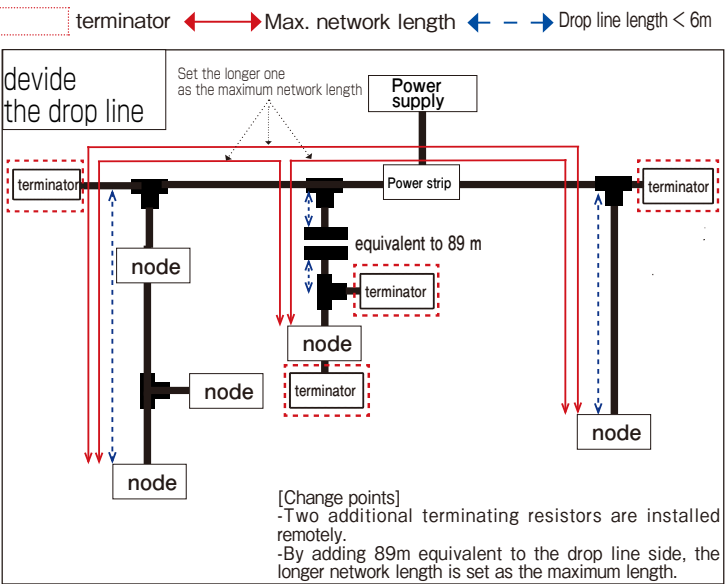
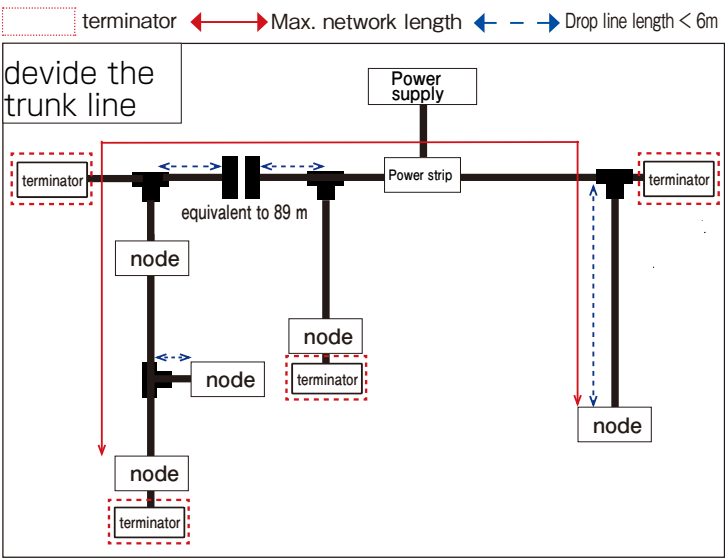
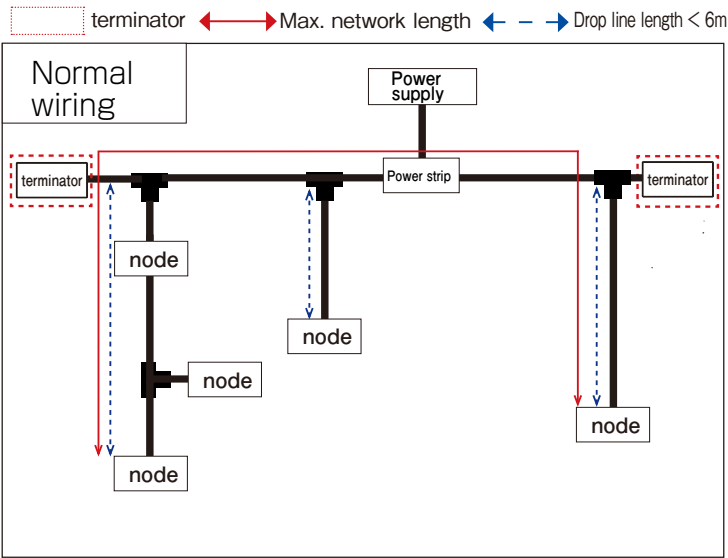


- The cable color in this wiring diagram shows the cable color when using the recommended connector cable. When wiring, check the instruction manual of the cable you actually use before wiring.

-It does not have a built-in terminator. Install one (two) on each terminal of each network on the base side and the remote side.

-The remote part can be used only with the power supply from the communication connector. Use the power supply from the power connector when using the power supply alone or when the connected slave requires an external power supply.

-Be sure to use a constant voltage power supply such as a switching power supply.
(If you use a power supply that has more ripple than the rating, such as a full-wave rectified power supply, it may cause a malfunction.)



⚠ Precautions for installation and design

■ Be sure to check it as there are various dangers such as failure if it is installed incorrectly.

- Impact and external noise may cause malfunction or failure. Wire the cable away from power lines and high-voltage equipment without giving a shock. (Fig. 6)

-This product has the CE mark on the exterior of the product. However, we do not support surges, so if you use the cable with a cable length of more than 10 m, take measures to prevent excessive surges from being applied.

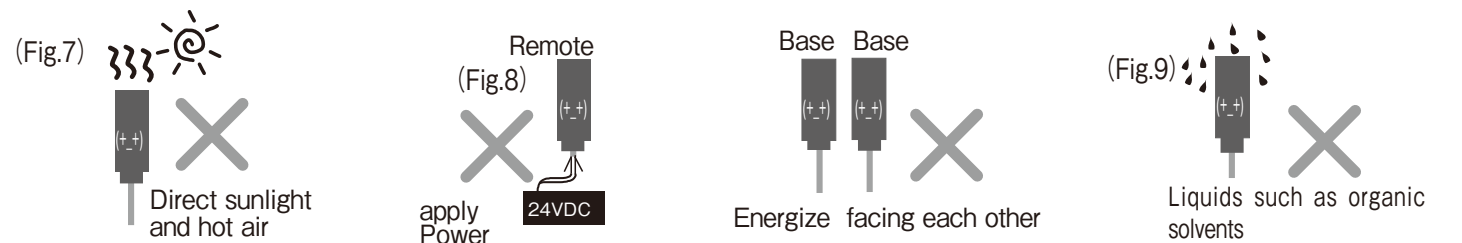
-Use within the range where the total current consumption of the connected devices does not exceed the output current value.

-To consider and reduce the self-heating of this product, take measures so that it can be used below the specified ambient temperature. In order to reduce the effect of self-heating (heat dissipation), it is recommended to mount it on metal using case mounting screws.

-Installed in a place where it is exposed to direct sunlight or hot air from a heater, it may cause a fire or malfunction. (Fig. 7)

-If you apply power to the remote unit or energize either one with the base units facing each other, a malfunction may occur. (Fig. 8)

-Please use in an environment where organic solvents and liquids containing them do not come in contact. (Fig. 9)



-The remote coupler system is a system that supplies and transmits power and signals in a non-contact manner. Please do not use it for any other purpose.

Design with the combination described in the instruction manual or user's guide. Opposition in any other combination may cause malfunction or damage.

-If power exceeds the rated voltage, there is a risk of heat generation and ignition. Before supplying power, be sure to check that the power supply is specified in the specifications.

-Design so that it can be used under the wiring and surrounding environment conditions specified in the specifications. Also, design to satisfy the "transmission distance", "center off-set", "output voltage", and "output current". Designs outside the specifications may cause unexpected malfunctions, troubles, and failures due to deterioration of internal parts.

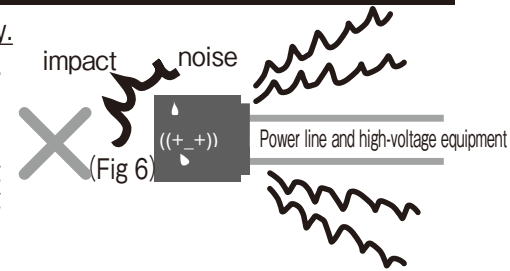
-When wiring for installation, maintenance, failure, etc., be sure to check that the main breaker (power panel) is cut before performing the work. If you work on a live line, you may get an electric shock or malfunction.

-As with other electronic devices, inrush current may occur when the system starts up, so set the power supply in consideration of the inrush current.

-Please note that a capacitor (630VDC 22nFx4) is built in between each power supply pin (24VDC/0V, V+/V-) and FG for withstand voltage test. Please be careful when testing withstand voltage.

-Design the system so that the entire system works safely even if the external power supply is abnormal or the product fails.

-Please be careful about the influence on the material degradation due to the installation environment and the intrusion of foreign material. Especially when using it outdoors, please install it with less influence from ultraviolet rays.



⚠ Other note

■ About product handling

-Do not disassemble or modify our products. It may cause a malfunction, fire, electric shock, etc., or cause serious damage. Also, if it is disassembled or modified, it will not be covered by the warranty.

- If you are in an abnormal condition such as smoke, strange noise, or strange odor, stop using the product immediately because there is a risk of malfunction, fire, electric shock, or accident.

- Be sure to use accessories and specified parts. If you do not use it, it may cause malfunction, accident, malfunction, fire, etc.

- If any equipment is added or moved, please check the installation conditions again.

- If any equipment is added or moved, please check the installation conditions again.

• Please note that the contents and specifications of this manual are subject to change without notice. If you have any questions about the contents of this document, please contact us.

■ Standards and regulations

• The control communication device installed in the product corresponds to a "weak radio station (weak radio wave device)", so the Minister of Internal Affairs and Communications' radio station permit (diploma) is not required. However, please be careful when operating it as it may affect electronic devices and medical devices (pacemakers, etc.).

• When using the product outside Japan, please check the standards and regulations that the system should comply with and take appropriate measures.

Product failures due to mishandling are increasing.
Please be sure to read this manual, and if you have any concerns, please contact the following before energizing.

B & PLUS K.K.

<https://www.b-plus-kk.jp/> E-mail sales@b-plus-kk.jp