

RCP6S Fieldbus Communication

First Step Guide Third Edition

Thank you for purchasing our product.

Make sure to read the Safety Guide and detailed Instruction Manual as well as this First Step Guide to ensure correct use. This Instruction Manual is original.

Warning : Read the instruction manual carefully and follow the instruction manual when handling this equipment. Please download the user's manual from our website. You can download it free of charge. User registration is required for first time users.
URL: www.iai-robot.co.jp/data_dl/CAD_MANUAL/
Keep a printout of the introduction manual near the equipment in which this product is installed so that it can be checked at all times, or display it on your computer, tablet terminal, etc. so that you can check it immediately.
If you need a bound copy of the instruction manual, order it from the nearest sales office listed in the First Step Guide or at the end of the instruction manual. It will be provided for a fee.

- Using or copying all or part of this Instruction Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

Product Check

This product is comprised of the following parts if it is of standard configuration.

If you find any fault in the contained model or any missing parts, contact us or our distributor.

1. Parts

No.	Part Name	Model	Number	Remarks
1	Controller Main Body	Refer to each instruction manual of an actuator.	-	
2	Gateway Unit	Refer to "How to read the model plate", "How to read the model".	1	
Accessories				
3	Hub Unit (Option)	Refer to "How to read the model plate", "How to read the model".	-	To be prepared separately
4	Drive Cutoff Connector (1)	FKCN2.5/4-STF-5.0 (Ax0-7) (Supplier : PHOENIX CONTACT)	1	Recommended cable size 1.25 to 0.5mm ² (AWG16 to 20)
5	Drive Cutoff Connector (2)	FKCN2.5/4-STF-5.0 (Ax8-15) (Supplier : PHOENIX CONTACT)	1	Recommended cable size 1.25 to 0.5mm ² (AWG16 to 20)
6	System I/O Connector	DFMC1.5/7-ST-3.5 (Supplier : PHOENIX CONTACT)	1	Recommended cable size • Brake Release Input 1.25 to 0.5mm ² (AWG16 to 20) • Other than above 1.25 to 0.3mm ² (AWG16 to 22)
7	Dummy Plug	DP-5	1	For the safety category compliant type (RCP-P6GWG)
8	DeviceNet Connector (For DeviceNet Type)	MSTB2.5/5-STF-5.08 AU M (Supplier : PHOENIX CONTACT)	1	Prepare a terminal resistance separately if this controller is to be allocated at the terminal.
9	CC-Link Connector (For CC-Link Type)	MSTB2.5/5-STF-5.08 AU (Supplier : PHOENIX CONTACT)	1	Terminal resistance (130Ω/1/2W, 110Ω/1/2W) enclosed one unit each
10	Safety Guide	M0194	1	
11	First Step Guide	ME0350	1	

* Select the cable thickness allowable for the current figured out in the <Calculation of 24V DC Power Capacity, Number of Connectable Axes>.

Drive Cutoff Connector (1) (2)



DeviceNet Connector



System I/O Connector



CC-Link Connector



Dummy Plug (DP-5)



CC-Link Connector Enclosed Terminal Resistance



2. Teaching Tool (Please purchase separately)

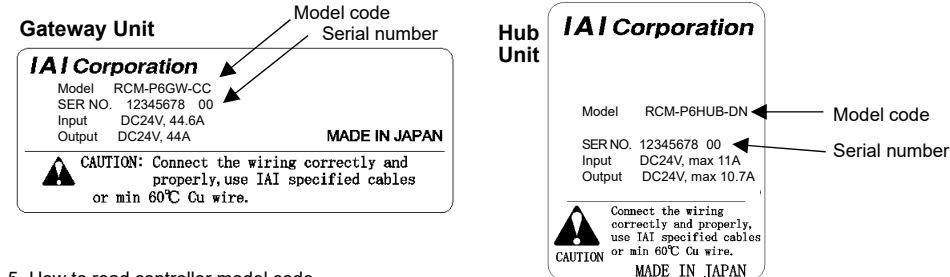
A teaching tool such as PC software is necessary when performing the setup for position setting, parameter setting, etc. that can only be done on the teaching tool. Please prepare either of the following teaching tools.

No.	Part Name	Model
1	PC Software (Includes RS232C exchange adapter + Peripheral communication cable)	RCM-101-MW
2	PC Software (Includes USB exchange adapter + USB cable + Peripheral communication cable)	RCM-101-USB
3	Touch Panel Teaching Pendant TB-01 (Standard/with dead-man switch attached on the left/with dead-man switch attached on the right)	TB-01/01D/01DR
4	Touch Panel Teaching Pendant TB-02 (Standard/with dead-man switch attached on the left)	TB-02/02D
5	Touch Panel Teaching Pendant TB-03	TB-03

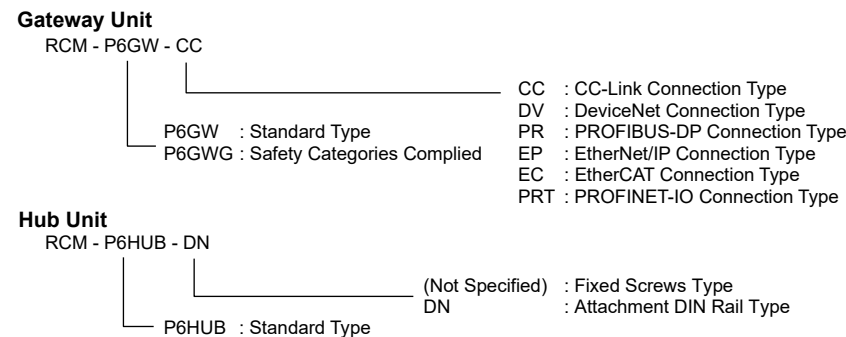
3. Instruction manuals related to this product

No.	Part Name	Model
1	Instruction Manual for the RCP6S Fieldbus Communication	ME0349
2	Instruction Manual for the Serial Communication [for Modbus]	ME0162
3	Instruction Manual for the RCP6 (S) (CR) Slider Type and Wide Slider Type	ME3749 and ME3750
4	Instruction Manual for the RCP6 (S) Rod Type and Wide Rod Type	ME3751 and ME3752
5	Instruction Manual for the RCP6 (S) Radial Cylinder Type and Table Type	ME3753 and ME3754
6	Instruction Manual for the RCP6 (S) W Rod, Wide Rod and Radial Cylinder Dust proof/Splash proof Type	ME3759 to ME3761
7	PC Software RCM-101-MW/RCM-101-USB Instruction Manual	ME0155
8	Touch Panel Teaching TB-01 Applicable for Position Controller Instruction Manual	ME0324
9	Touch Panel Teaching TB-02/TB-03 Applicable for Position Controller/ELECYLINDER Instruction Manual	ME0355/ME0376

4. How to read the model plate



5. How to read controller model code



Basic Specifications

Built-in Controller

Specification Item	Details of Specifications
Number of Controlled Axes	1-axis
Power-supply Voltage	24V DC ± 10%
Control Power Capacity	0.3A (Built-in Controller only)
Load Current (Including current consumption for control)	Motor Type: 28P, 35P, 42P, 56P, 56SP, 60P High-thrust function is disabled: 1.7A max. High-thrust function is enabled: Rated at 3.2A, 4.2A max. 5.7A max.
Power Supply for Electromagnetic Brake (for actuator equipped with brake)	24V DC ± 10% 0.15A (Note) 0.7A is required for 0.2sec at brake release.
Heat Generation	5W (Motor type 28P, 35P, 42P, 56P) 19.2W (Motor type 56SP, 60P)
Rush Current (Note 1)	8.3A with in-rush current protection circuit (Motor type 28P, 35P, 42P, 56P) 10A with in-rush current protection circuit (Motor type 56SP, 60P)
Motor Control System	Weak field-magnet vector control
Corresponding Encoder	Battery-less absolute encoder Resolution 8192pulse/rev
Cable Length	Between gateway unit and Hub: 10m max. Between gateway unit and RCP6S actuator: 20m max.
Serial Communication (SIO Port)	RS485: 2CH (based on Modbus Protocol RTU/ASCII) Based on ASCII is 1CH Speed: 9.6 to 230.4Kbps
External Interface	Fieldbus connection (Note) Connection of gateway unit is necessary separately. CC-Link, DeviceNet, PROFIBUS-DP, EtherCAT, EtherNet/IP, PROFINET-IO
Data Setting and Input	PC software, Touch panel teaching
Data Retention Memory	Saves position data and parameters to non-volatile memory (There is no limitation in number of writing.)
LED Display	SV (GR) / ALM (RD): Servo ON / Alarm generated and emergency stop
Insulation Resistance	500V DC 10MΩ or more
Protection Function against Electric Shock	Class I basic insulation
Cooling Method	Natural air-cooling

Note 1 In-rush current will flow for approximately 1 to 5msec after the power is turned on (at 40°C).
The value of inrush current differs depending on the impedance of the power supply line.

Gateway Unit

Specification Item	Details of Specifications
Number of Controlled Axes	16-axes max. (Four axes for gateway unit itself) For those except for CC-Link which are used in the direct indication mode, the maximum number of the axes should be eight (and two axes with the gateway unit itself).
Power-supply Voltage	24V DC ± 10%
Control Power Capacity	0.6A (Gateway unit itself 0.3A+Fieldbus module 0.3A)
Motor Power Capacity	Current consumption 51.2A
Cooling Method	Natural air-cooling
Emergency-stop Input	B contact input
Enable Input	None
T.P. Enable Input	Equipped
Enable Operation	Servo OFF or shutdown (Select the parameter)
Backup Memory	FRAM (256kbit), No limitation in number of writing
Calendar Function	Equipped (Data retained for ten days after power cutoff)
Gateway Board	SYS LED×1 (RUN/ALM), EMG LED×1, MODE LED×1 (AUTO/MANU),
LED Display	T.ERR LED×1, C.ERR LED×1, Status LED lamp for each fieldbus module LED×2
Tool Connection	T/P connector : RS485 1ch (based on Modbus protocol) USB connector : USB 1ch
Electromagnetic Brake Compulsory Release Feature	System I/O connector: External brake release signal input (24V DC) * Used only when RCP6S connected directly to gateway. Invalid when hub connected.
Protection Function against Electric Shock	Class I basic insulation
Insulation Strength	500V DC 10MΩ
Mass	250g
External Dimensions	35W×115H×123D

Hub Unit

Specification Item	Details of Specifications
Number of Controlled Axes	4-axes max.
Power-supply Voltage	24V DC ± 10%
Control Power Capacity	0.3A (Hub unit itself)
Motor Power Capacity	Total connected axes MAX. 12.8A
Cooling Method	Natural air-cooling
Emergency-stop Input	None
Enable Input	None
T.P. Enable Input	None
Backup Memory	None
LED Display	System status LED×1 (RUN/ALM), Axis status LED×4 (RUN/ALM)
Tool Connection	None
Electromagnetic Brake Compulsory Release Feature	Brake release switch×4
Protection Function against Electric Shock	Class I basic insulation
Insulation Strength	500V DC 10MΩ
Mass	80g
External Dimensions	30W×115H×45D

Specification of Environment (Built-in Controller, Gateway Unit and Hub Unit in Common)

Specification Item	Details of Specifications
Surrounding Air Temperature	0 to 40°C
Surrounding Humidity	85%RH or less (non-condensing)
Surrounding Environment	Refer to Installation Environment
Surrounding Storage Temperature	-20 to 70°C
Usage Altitude	85%RH or less (non-condensing)
Protection Class	1,000m or lower above sea level
Vibration Durability	Frequency 10 to 57Hz / Swing width: 0.075mm Frequency 57 to 150Hz / Acceleration: 9.8m/s ² XYZ Each direction Sweep time: 10 min. Number of sweep: 10 times
Shock Resistance	Dropping height 800mm 1 corner, 3 edges and 6 surfaces
Pollution Degree	Pollution degree 2
Protection Class	IP20

<The Calculation of 24V DC Power Capacity, Number of Connectable Axes>

To calculate the number of axes connectable to one unit of the gateway unit and the current amperage of 24V DC, figure out (1) to (4) below and follow (5).

(1) The Calculation of Number of Connectable Axes, and Motor Current Consumption

Condition 1: Sum total of motor current consumption connectable to one unit of hub unit

Condition 2: Number of controlled axes connectable to corresponding 1 unit: 4-axes or less

* By adjusting the number of connected axes or motor type, select the connected axes so each hub unit satisfies the formulas below.

- Sum total of motor current consumption for hub unit= Motor current consumption of 1st axis
+ Motor current consumption of 2nd axes (if connected)
+ Motor current consumption of 3rd axes (if connected)
+ Motor current consumption of 4th axes (if connected) ≤ 12.8A 1)

- Sum total of motor current consumption = Motor current consumption of hub unit 1st unit
+ Motor current consumption of hub unit 2nd units (if connected)
+ Motor current consumption of hub unit 3rd units (if connected)
+ Motor current consumption of hub unit 4th units (if connected) 2)

(2) Control Power Current Consumption:

0.3A × Number of actuator + 0.6A (Gateway unit) + 0.3A × Number of hub unit 3)

(3) Rush Current: 8.3A (RCP6S Motor type 28P, 35P, 42P, 56P and RCM-P6PC) / 10A (RCP6S Motor type 56SP, 60P, RCM-P6AC and RCM-P6DC) 4)

(4) Current Consumption of Brake Release Power (RCP6 and RCP6S): Number of actuators with brake × 0.07A 5)

* When servo is on, it should be 0.5sec or less, after that retaining of released status should be 0.1A/axis.

When using the control power source and the motor power source in common, calculate with the number of

brake-equipped actuators × 0.1A.

(5) Selection of Power Supply: Usually, the rated current is to be approximately 1.2 times higher than the total of Control Power

2) + 3) + 5) above considering approximately 30% of margin to the load current.

However, considering the inrush currents 4), even though it is a short time, select a power supply with "sufficient peak load capacity.

Inrush current of 4) from occurring at the same time by having the timing of emergency stop release (turning the motor

power on) and timing to turn the servo on shifted (Note 1) from each other and so on. Huge current flow of the same time

may cause a transient voltage drop.

Be careful especially when selecting a power source equipped with remote sensing.

Note 1 The timing to turn the servo on can be tuned in Parameter No. 165 "Latency after Shutdown Release".

(Note) Ensure motor and control power supplies reference the same potential when using multiple power supplies.

● (Reference) Selection of Power Supply Protection Circuit Breaker

It is recommended that the power supply protection is conducted on the primary side (AC power side) of the 24V DC power supply unit. When selecting the protection breaker, consider the rated cutoff current of the circuit breaker so a cutoff is surely performed even in the case of inrush current of 24V DC power supply unit or a short-circuit of the power supply.

- Rated Breaking Current > Short-circuit Current = Primary Power Supply Capacity / Power Voltage
- (Reference) In-rush Current of IAI Power Supply Unit PS241 = 50 to 60A, 3msec

● DeviceNet Interface

Item	Specification			
Communication Protocol	DeviceNet2.0			
	Group 2 dedicated server			
	Network-powered insulation node			
Baud Rate	Automatically follows the master			
Communication System	Master-slave system (Polling)			
Number of Occupied Channels	Max. 72CH (Input, Output)			
Number of Occupied Nodes	1 Node			
Communication Cable Length (Note 1)	Baud Rate	Max. Network Length	Total Branch Line Length	Max. Branch Line Length
	500kbps	100m	39m	6m
	250kbps	250m	78m	
	125kbps	500m	156m	
Communications Cable	Use the dedicated cable.			
Connector (Note 2)	MSTB2.5/5-GF-5.08 AU (Manufactured by PHOENIX CONTACT or equivalent)			
Consumption Current of Communication Power Supply	60mA			
Communication Power Supply	24V DC (Supplied from DeviceNet)			

Note 1 For T branch communication, refer to the Instruction Manuals for the master unit and programmable logic controller (PLC) to be mounted.

Note 2 The cable-side connector is a standard accessory.

● CC-Link Interface

Item	Specification					
Communication Protocol	CC-Link ver1.10 or ver2.00					
Station Type	Remote device station (MAX. four stations occupied)					
Baud Rate	10M/5M/2.5M/625k/156kbps					
Communication System	Broadcast polling system					
Number of Occupied Stations	Max. 63stations					
Communication Cable Length (Note 1)	Baud Rate (bps)	10M	5M	2.5M	625k	156k
	Total Cable Length (m)	100	160	400	900	1200
Communications Cable	Apply the dedicated cable					
Connector (Note 2)	MSTB2.5/5-GF-5.08 AU (Manufactured by PHOENIX CONTACT or equivalent)					

Note 1 For T branch communication, refer to the Instruction Manuals for the master unit and PLC to be mounted.

Note 2 The cable-side connector is a standard accessory.

● PROFIBUS-DP Interface

Item	Specification		
Communication Protocol	PROFIBUS-DP		
Baud Rate	Automatically follows the master		
Communication System	Hybrid System (Master-slave system or token passing system)		
Occupied Area	Max. 144bytes (Input, Output)		
Number of Occupied Stations	Max. 32stations/segment 126stations are available by the repeater		
Communication Cable Length	MAX. Total Network	Baud Rate	Cable Type
	100m	3,000/6,000/12,000kbps	Type A cable
	200m	1,500kbps	
	400m	500kbps	
	1000m	187.5kbps	
	1200m	9.6/19.2/93.75kbps	
Communications Cable	Equipped with shield twist pair cable AWG18		
Connector ^(Note 1)	9-pin female D-sub connector		
Transmission Path Format	Bus/Tree/Star		

Note 1 Please prepare a 9-pin male D-sub connector for the cable-end connector.

● EtherNet/IP Interface

Item	Specification	
Communication Protocol	IEC61158 (IEEE802.3)	
Baud Rate	10BASE-T/100BASE-T (Autonegotiation setting is recommended)	
Communication Cable Length	Follows EtherNet/IP specifications (Distance between hub and each node: 100m max.)	
Number of Connection	Follows master unit	
Available Node Addresses for Setting	0.0.0.0 to 255.255.255.255	
Communications Cable (Please prepare separately)	Category 5e or more (Double shielded cable braided with aluminum foil recommended)	
Connector	RJ45 connector × 1pc	

● EtherCAT Interface

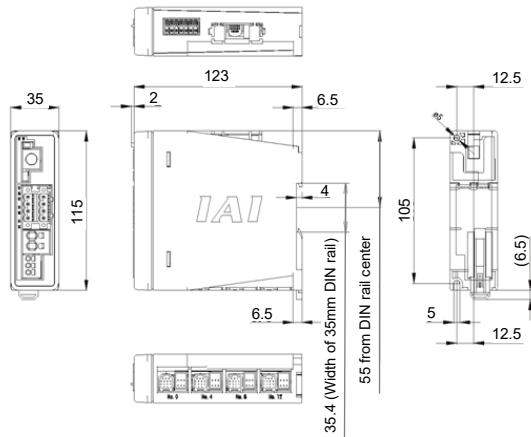
Item	Specification
Communication Protocol	IEC61158 type 12
Physical Layer	100Base-TX (IEEE802.3)
Baud Rate	Automatically follows the master
Communication Cable Length	Follows EtherCAT® specifications (Distance between each node: 100m max.)
Slave Type	I/O slave
Available Node Addresses for Setting	0 to 65535
Communications Cable (Please prepare separately)	Category 5e or more (Double shielded cable braided with aluminum foil recommended)
Connector	RJ45 connector × 2pcs (Input × 1, Output × 1)
Connect	Daisy chain only

● PROFINET-IO Interface

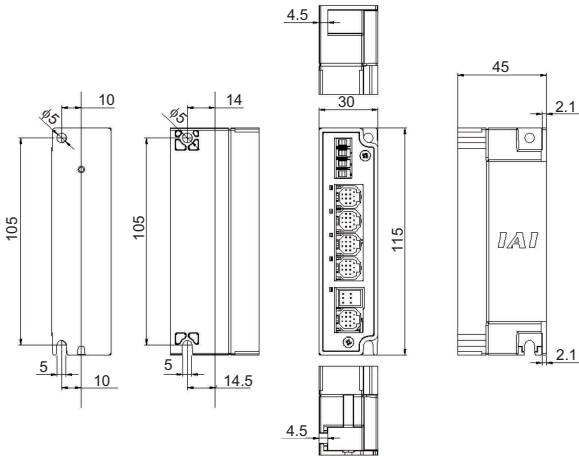
Item	Specification
Communication Protocol	IEC61158 (IEEE802.3), IEC61784
Baud Rate	100Mbps
Communication Cable Length	Distance between each segment: 100m Max.
Number of Connection	Follows master unit
Available Node Addresses for Setting	0.0.0.0 to 255.255.255.255
Communications Cable (Please prepare separately)	Category 5 or more (Double shielded cable braided with aluminum foil recommended)
Connector	RJ45 connector × 1pc
GSDML File Version	Ver. 2.3

External Dimensions

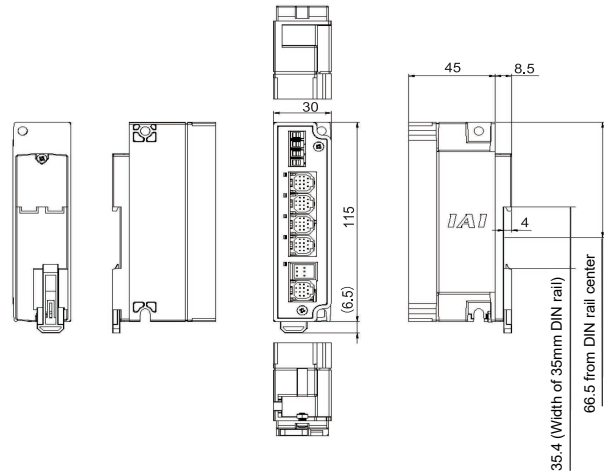
Gateway Unit (Attachment Screws and Attachment DIN Rail Type)



Hub Unit Fixed Screws Type



Hub Unit Attachment DIN Rail Type



Installation Environment

This product is capable for use in the environment of pollution degree 2¹ or equivalent.

*1 Pollution Degree 2: Environment that may cause non-conductive pollution or transient conductive pollution by frost (IEC60664-1).

1. Installation Environment

Do not use this product in the following environment.

- Location where the surrounding air temperature exceeds the range of 0 to 40°C
- Location where condensation occurs due to abrupt temperature changes
- Location where relative humidity exceeds 85%RH
- Location exposed to corrosive gases or combustible gases
- Location exposed to significant amount of dust, salt or iron powder
- Location subject to direct vibration or impact
- Location exposed to direct sunlight
- Location where the product may come in contact with water, oil or chemical droplets
- Environment that blocks the air vent [Refer to Noise Elimination and Mounting Method]

When using the product in any of the locations specified below, provide a sufficient shield.

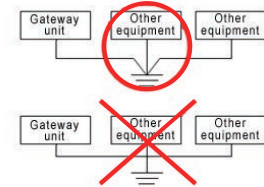
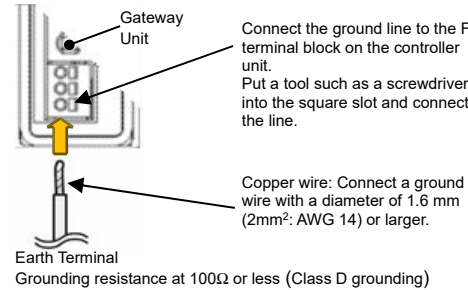
- Location subject to electrostatic noise
- Location where high electrical or magnetic field is present
- Location with the mains or power lines passing nearby

2. Storage and Preservation Environment

- Storage and preservation environment follows the installation environment. Especially in a long-term storage, consider to avoid condensation of surrounding air. Unless specially specified, moisture absorbency protection is not included in the package when the machine is delivered. In the case that the machine is to be stored in an environment where dew condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

Installation and Noise Elimination

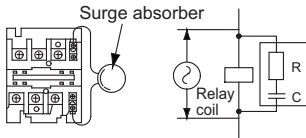
1. Noise Elimination Grounding (Frame Ground)



Do not share the ground wire with or connect to other equipment. Ground wach unit.

2. Precautions regarding wiring method

- 1) Wire is to be twisted for the 24V DC power supply.
- 2) Separate the signal and encoder lines from the power supply and power lines.

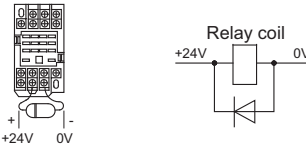


3. Noise Sources and Elimination

Carry out noise elimination measures for electrical devices on the same power path and in the same equipment.

The following are examples of measures to eliminate noise sources.

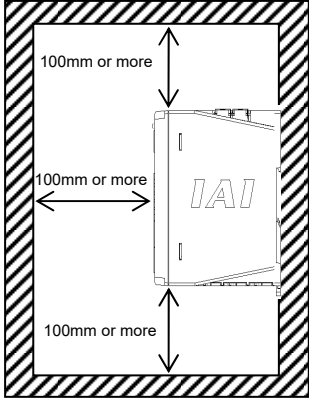
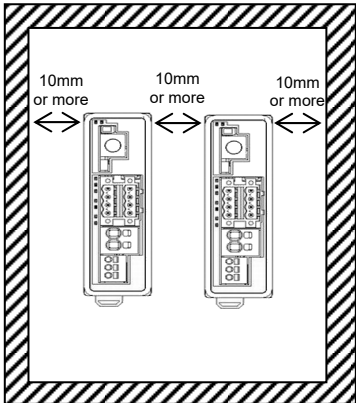
- 1) AC solenoid valves, magnet switches and relays [Measure] Install a Surge absorber parallel with the coil.
- 2) DC solenoid valves, magnet switches and relays [Measure] Mount the windings and diodes in parallel. Select a diode built-in type for the DC relay.



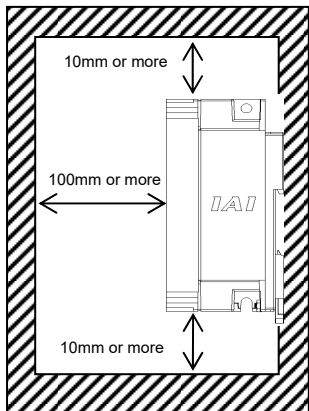
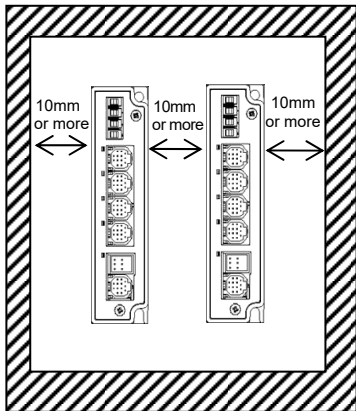
4. Cooling Factors and Installation

Design and Build the system considering the size of the controller box, location of the controller and cooling factors to keep the surrounding temperature around the controller below 40°C. Pay a special attention to the battery unit since the performance of it would drop both in the low and high temperatures. Keep it in an environment in the room temperature as much as possible. (Approximately 20°C is the recommended temperature.)

Gateway Unit



Hub Unit



Operation Mode Selected

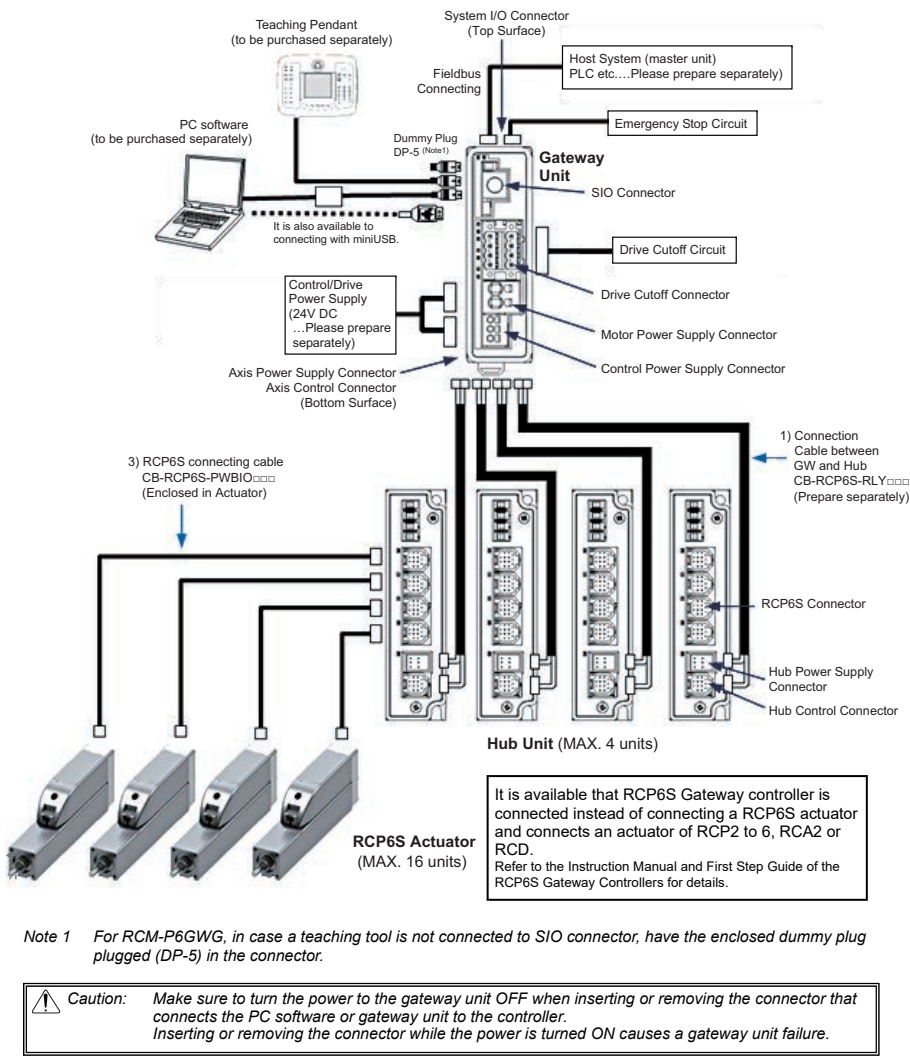
This controller are available to select from 6 types of operation modes.

The settings are to be established with Gateway Parameter Setting Tool.

Operation Mode	Contents	Overview
Simple Direct Mode	The target position can be indicated directly by inputting a value. Also, monitoring of the current position is available in 0.01mm unit. Those other than the target position are to be indicated in the position table, and the setting can be done for 768 points at maximum.	
Positioner 1 Mode	The 768 points of position data can be registered at the maximum and is able to stop at the registered positions. Also, monitoring of the current position is available in 0.01mm unit.	
Direct Indication Mode	The target position, speed acceleration/deceleration and pressing current limit can be indicated with inputting a number. As well as monitoring of the current position in 0.01mm unit, monitoring of current speed and command current is also available. * For those except for CC-Link, the maximum number of the connectable axes should be eight axes when a hub unit is used and two when not used.	
Positioner 2 Mode	This is the operation mode of the position data of 768 points at maximum set in the position table. The monitoring of the current position is not available. This mode is that the transferred data is reduced from Positioner 1 Mode.	

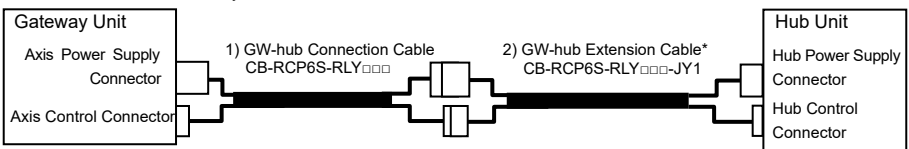
Operation Mode	Contents	Overview
Positioner 3 Mode	This is the operation mode of the position data of 256 points at maximum set in the position table. The monitoring of the current position is not available. This is the mode to control with the minimized number of signals to perform the positioning operation by reducing the amount of sent and received data from Positioner 2 Mode.	
Positioner 5 Mode	This is the operation mode of the position data of 16 points at maximum set in the position table. It is a mode that enabled to monitor the current position in 0.1mm unit by number of position table from Positioner 2 Mode.	

Wiring Diagram

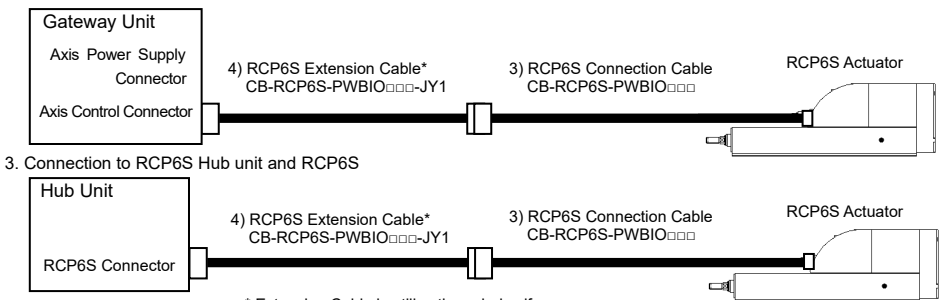


Connection Cable

1. Connection to RCP6S Gateway Unit and Hub Unit



2. Connection to RCP6S Gateway Unit and RCP6S



3. Connection to RCP6S Hub unit and RCP6S



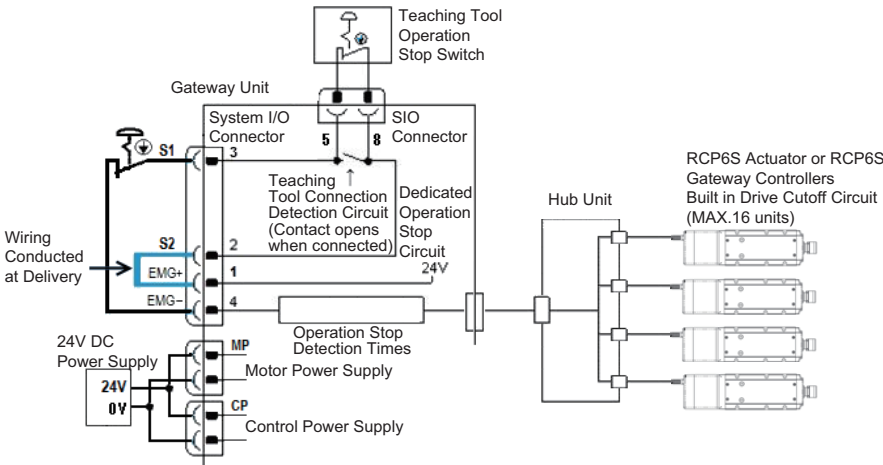
* Extension Cable is utilize these holes if necessary.

□□□ in the cable model code should be the cable length. e.g.) 030=3m, -RB should be included in the model code when it is the robot cable.
The maximum length should be 10m between the gateway and hub unit.
The maximum length should be 20m from the gateway unit to RCP6S regardless of a hub unit is used or not used.

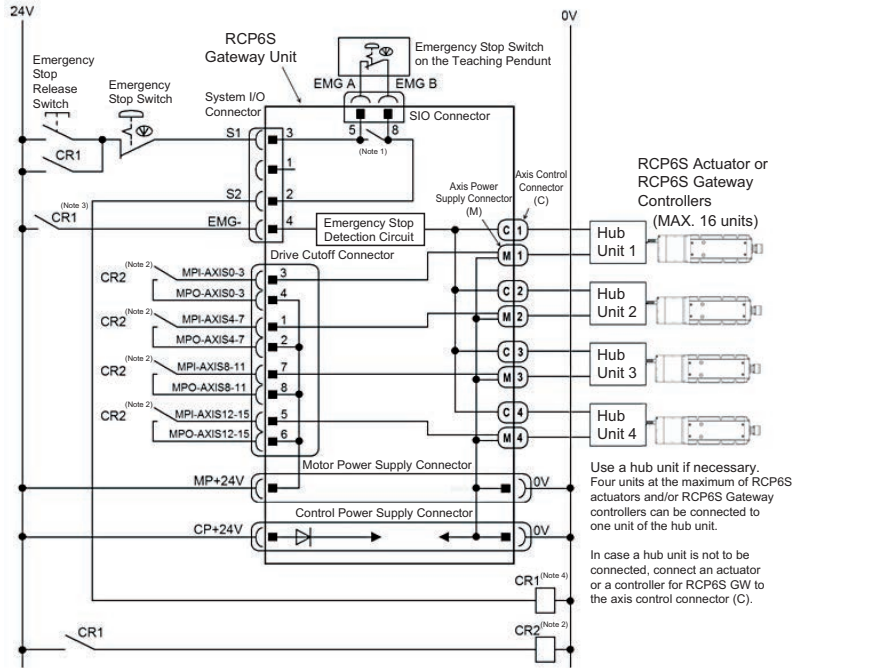
1, 3, 5 and 10m are prepared in standard for 1)
1, 3, and 5m are prepared in standard for 2) and 4)

Power Supply and Emergency Stop Circuit

The following diagram shows an example of how the emergency stop switch for the teaching pendant may be included in the emergency stop circuit you may construct.



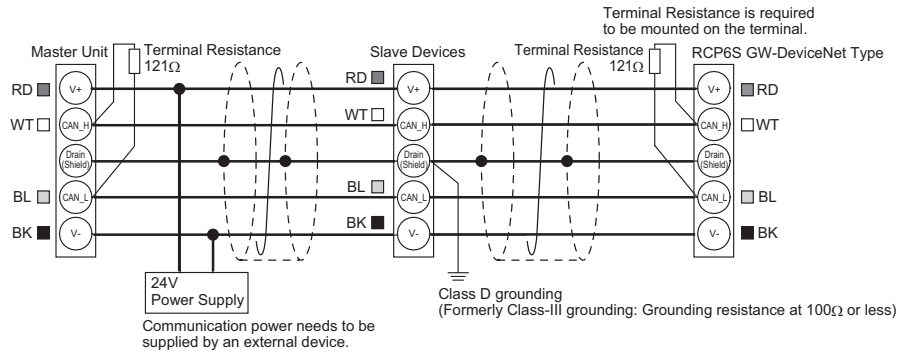
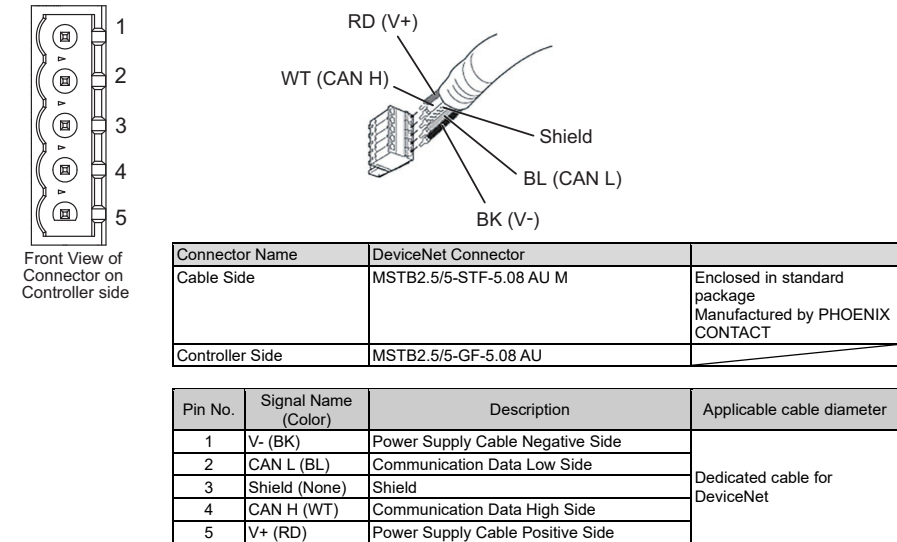
Example for shutting off motor power supply externally at emergency stop input.



- Note 1 RCM-P6GW : When there is nothing plugged in the SIO connector, S1 and S2 are short-circuited inside the controller.
RCM-P6GWG : When there is nothing plugged in the SIO connector, S1 and S2 are not short-circuited.
To make them short-circuited, have the enclosed dummy plug DP-5 plugged in the SIO connector.
- Note 2 When the motor power must be disconnected externally for safety category compliance, apply a safety rated relay between MPI-AXIS* and MPO-AXIS*.
- Note 3 The rating for the emergency stop signal (EMG-) to turn ON/OFF at contact CR1 is 24V DC and 10mA or less.
- Note 4 For CR1, select the one with coil current 0.1A or less.
- (Note) When supplying the power by turning ON/OFF the 24V DC, keep the 0V being connected and have the +24V supplied/disconnected (cut one side only).

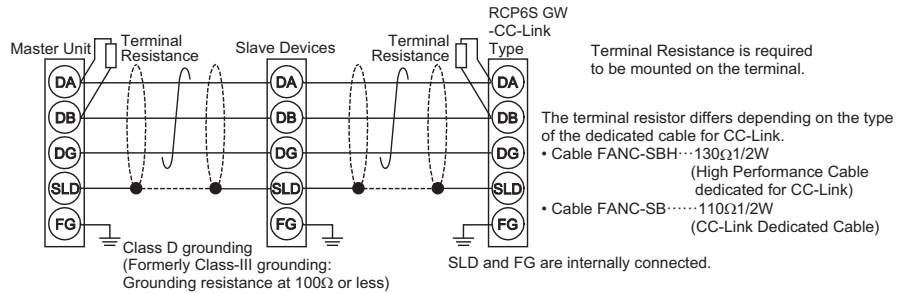
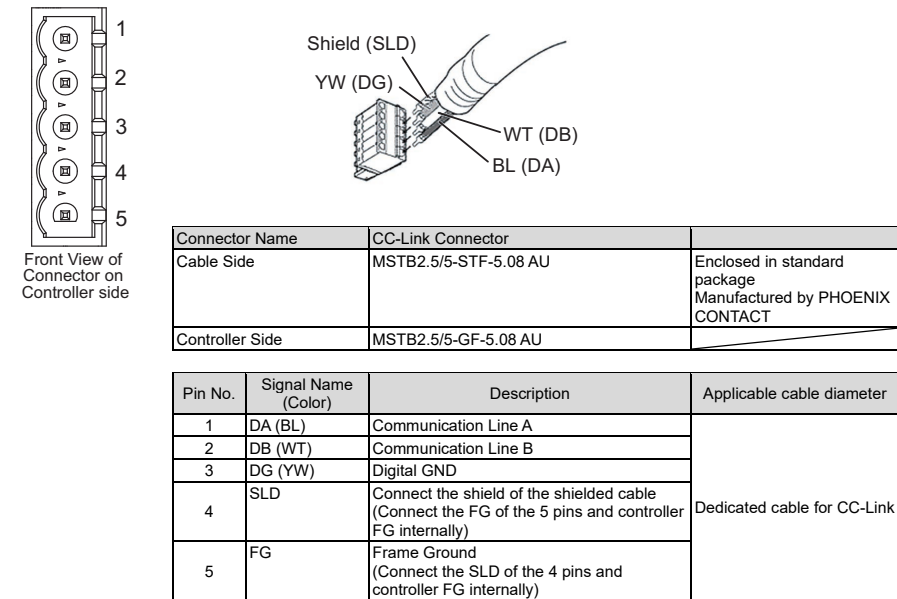
DeviceNet Type

Refer to the instruction manuals for each fieldbus master unit and mounted PLC for the details.



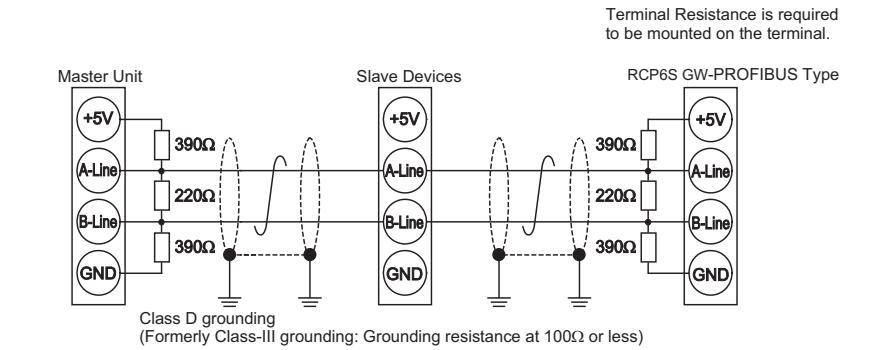
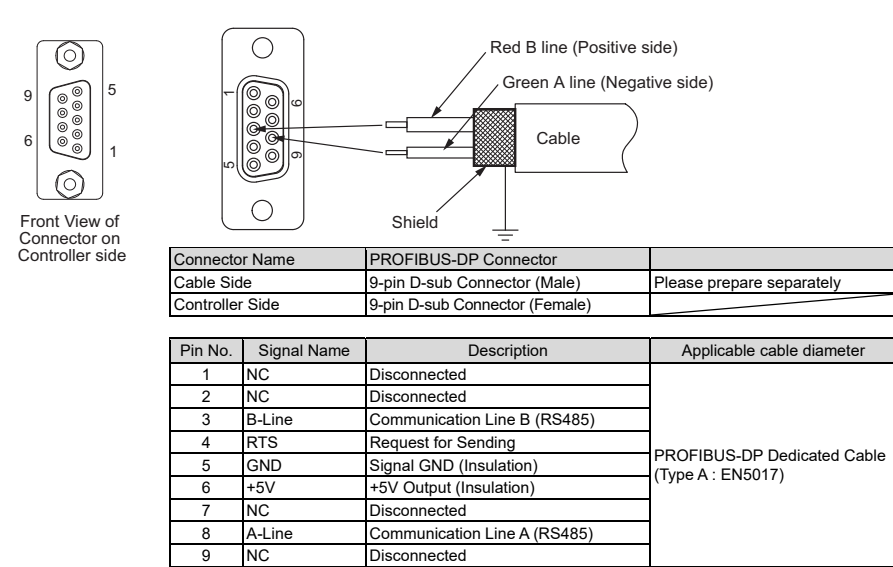
CC-Link Type

Refer to the instruction manuals for each fieldbus master unit and mounted PLC for the details.



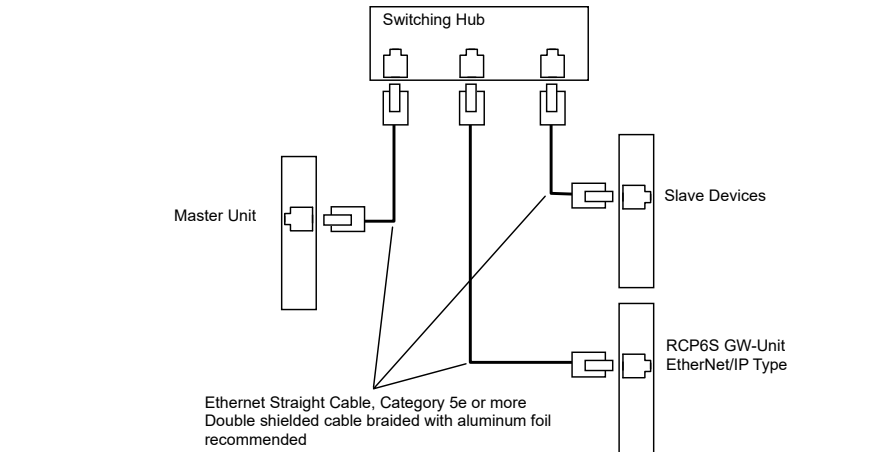
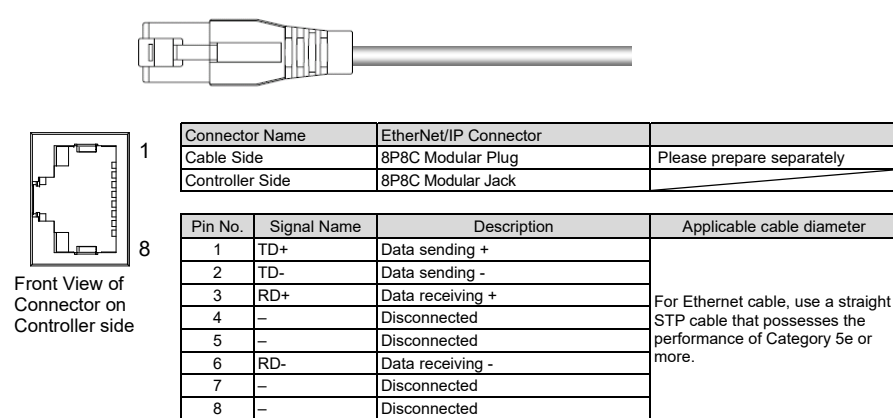
PROFIBUS-DP Type

Refer to the instruction manuals for each fieldbus master unit and mounted PLC for the details.



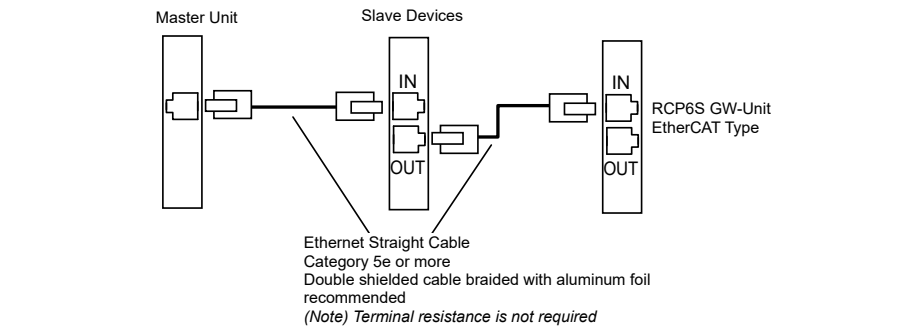
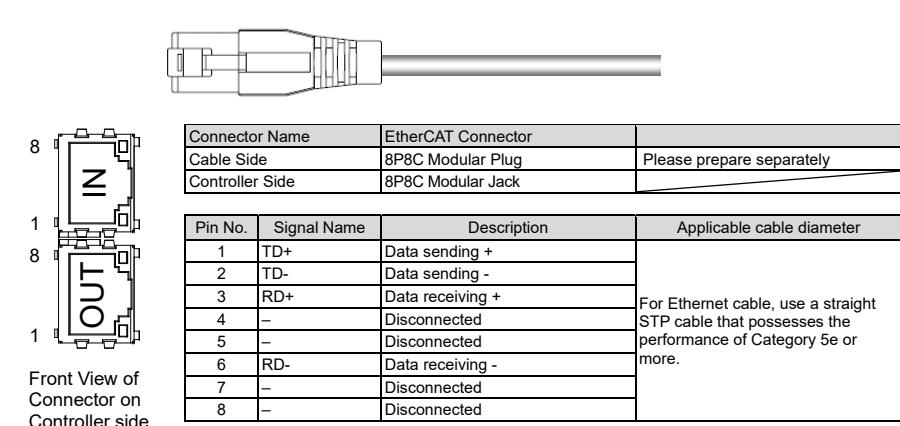
EtherNet/IP Type

Refer to the instruction manuals for fieldbus master unit and mounted PLC for the details.



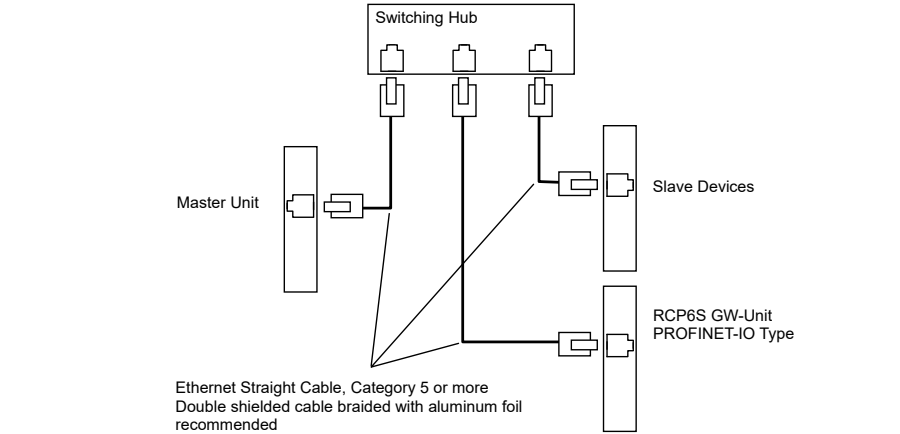
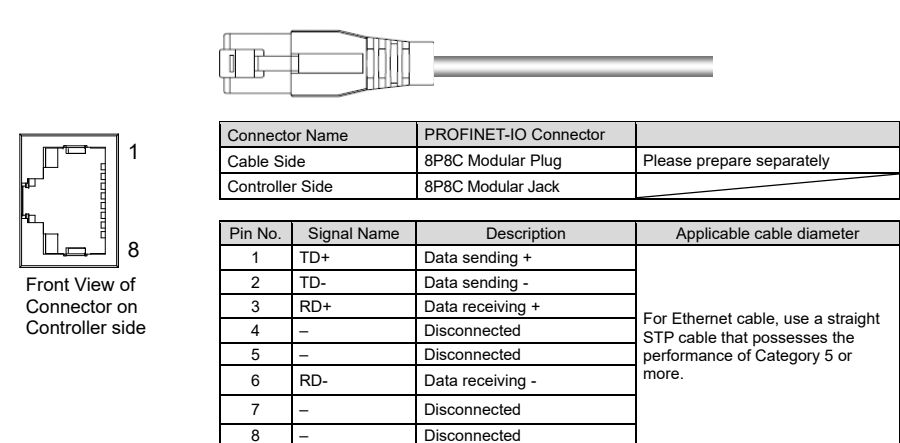
EtherCAT Type

Refer to the instruction manuals for fieldbus master unit and mounted PLC for the details.



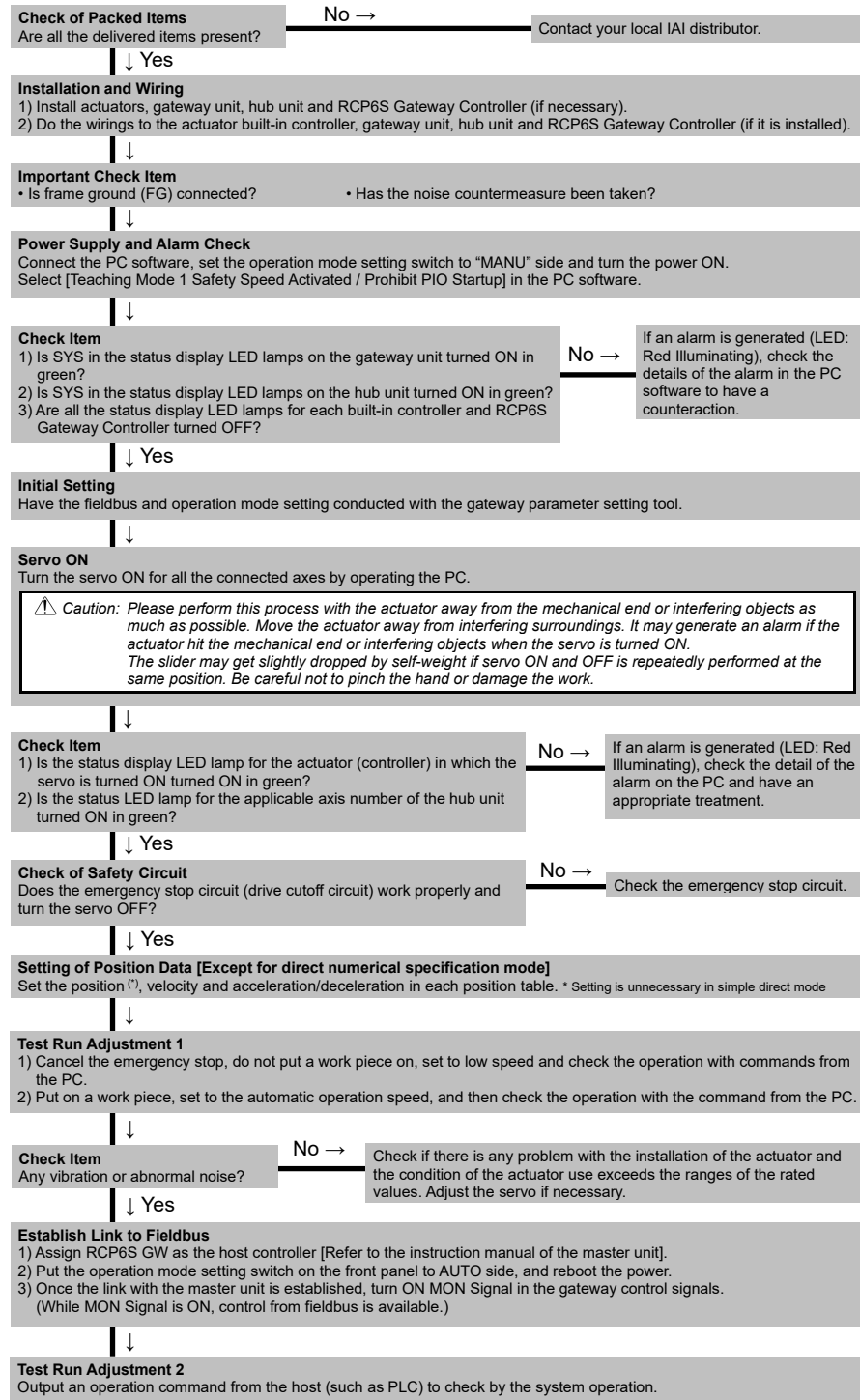
PROFINET-IO Type

Refer to the instruction manuals for fieldbus master unit and mounted PLC for the details.



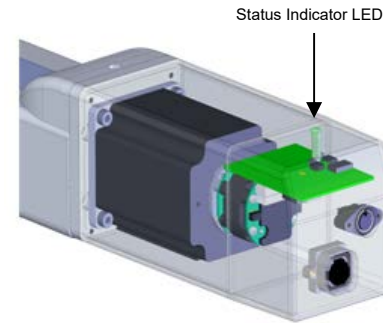
Starting Procedures

When using this product for the first time, make sure to avoid mistakes and incorrect wiring by referring to the procedure below. "PC" stated in this section means "PC software".



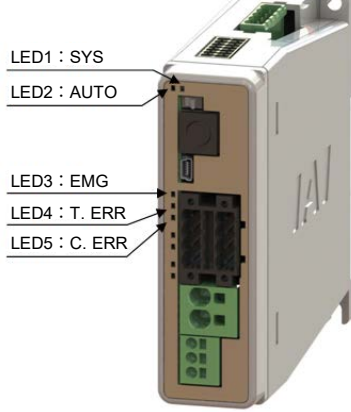
Status Indicator LED

Built-in Controller



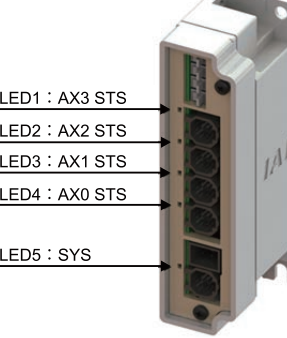
Status of LED	Operation Status
OFF	Operation status
	Servo OFF
Red Illuminating	Alarm (Operation Cancellation Level or more)
Red Flashing	In the Emergency Stop
Green Illuminating	Servo ON
Green Flashing	Motor Driving Power Supply OFF
Orange Illuminating	In initializing process when the power is turned on

Gateway Unit



Symbol	LED	Display Color and Operation Status
LED1	SYS	<u>System Status</u> Ready (Green Illuminating), Alarm (Red Illuminating)
LED2	AUTO	<u>Operation Mode (AUTO/MANU) Status</u> Automatic Operation (AUTO) Mode (Green Illuminating)
LED3	EMG	<u>Emergency Stop (EMG) Status</u> <u>Emergency Stop (EMG)</u> (Red Illuminating)
LED4	T. ERR	<u>Bus Communication Error inside Controller</u> T. ERR (Orange Illuminating)
LED5	C. ERR	<u>Fieldbus Network Communication Error</u> C. ERR (Orange Illuminating)

Hub Unit



Symbol	LED	Display Color and Operation Status
LED1	AX3 STS	<u>Axis No. 0 to 3 Status</u> Servo OFF (OFF) Servo ON (Green Illuminating) Automatic Servo OFF (Green Flashing) Alarm, Emergency Stop (Red Illuminating) Communication Error (Red Flashing)
LED2	AX2 STS	
LED3	AX1 STS	
LED4	AX0 STS	
LED5	SYS	<u>Hub Unit System Status</u> Ready (Green Illuminating) Standby for Communication Establishment (Green Flashing) Control/Motor Power Voltage Drop (Red Illuminating)



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