

GatewayR Unit RGW

First Step Guide Seventh 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

The standard configuration of this product is comprised of the following parts.

If you find any fault with the product you have received, or any missing parts, contact us or our distributor.

1. Parts

No.	Part Name	Model	Reference
1	Controller Main Body	Refer to "How to read the model plate", "How to read the model"	
Accessories			
2	Connector for Emergency Stop	MC1.5/2-STF-3.81 (Supplier : PHOENIX CONTACT)	Recommended Cable Size 0.5 to 1.25mm ² (AWG20 to 16)
3	Fieldbus Connector	DeviceNet type	MSTB2.5/5-ST-5.08ABGYAU (Supplier : PHOENIX CONTACT)
		CC-Link type	
		PROFIBUS type	Prepare Dsub 9-pin (female) connector.
		SIO (RS485 conformance)	MC1.5/4-ST-3.5 (Supplier : PHOENIX CONTACT)
4	Fieldbus Terminal Resistor	DeviceNet type	Use a termination resistor with the last in the DeviceNet trunk.
		CC-Link type	130Ω1/2W, 110Ω1/2W enclosed one unit each
		PROFIBUS type	Prepare it if the controller comes to the end
		SIO (RS485 conformance)	Built-in terminal resistance (220Ω)
5	Terminal Resistance PCB	TN-1	ROBONET Terminal Resistor Circuit Board
6	First Step Guide	ME0211	
7	Safety Guide	M0194	

2. Teaching Tool (to be purchased separately)

There are two software programs required to commission a ROBONET system. To edit controller parameters, use "ROBO CYLINDER PC Software". To configure the gateway parameters, use "ROBONET Gateway Parameter Setting Tool", which is available for download from the Intelligent Actuator.com website.

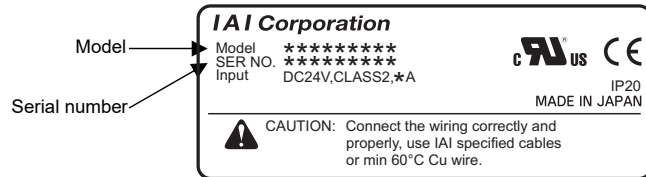
No.	Part Name	Model
1	PC Software (RS232C converter adapter and external equipment communication cable are included)	RCM-101-MW
2	PC Software (USB converter adapter, USB cable and external equipment communication cable are included)	RCM-101-USB
3	Touch Panel Teaching	CON-PT
4	Touch Panel Teaching (with deadman switch)	CON-PD
5	Touch Panel Teaching (deadman switch and TP Adapter RCB-LB-TG are included)	CON-PG
6	Teaching Pendant	CON-T
7	Teaching Pendant (deadman switch and TP Adapter RCB-LB-TG are included)	CON-TG
8	Simple Teaching Pendant	RCM-E
9	Data Setter	RCM-P
10	Touch Panel Display	RCM-PM-01

(Note) Other teaching tools than the PC software can be used for individual operations such as position table settings, however they cannot be used for the ROBONET startup settings.

3. Instruction manuals related to this product

No.	Name	Manual No.
1	ROBONET Instruction Manual	ME0208
2	SCON Controller Instruction Manual	ME0161
3	PCON-C/CG/CF Controller Positoner Type Instruction Manual	ME0170
4	ERC2 Actuator with integrated Controller Instruction Manual (SIO type)	ME0159
5	ERC2 Actuator with integrated Controller Instruction Manual (PIO type)	ME0158
6	PC Software	RCM-101-MW/ RCM-101-USB Instruction Manual
7	Touch Panel Teaching	CON-PT/PD/PG Instruction Manual
8	Teaching Pendant	CON-T/TG Instruction Manual
9	Simple Teaching Pendant	RCM-E Instruction Manual
10	Data Setter	RCM-P Instruction Manual
11	Touch Panel Display	RCM-PM-01 Instruction Manual
12	Instruction Manual for the serial communication [for Modbus] (When RGW-SIO is used with SIO Thru Mode)	ME0162

4. How to read the model plate



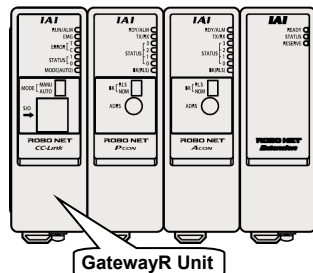
5. How to read the model

RGW-DV : GatewayR Unit DeviceNet Type
RGW-CC : GatewayR Unit CC-Link Type
RGW-PR : GatewayR Unit PROFIBUS Type
RGW-SIO : GatewayR Unit SIO Type

Basic Specifications

A typical ROBONET system is constructed not only with the Gateway R Unit that is explained in this manual, but also with RACON, RPCON, Simple Absolute R Unit, extension unit and ROBO Cylinder Controller to connect to the extension unit. Please refer to First Step Guide and Instruction Manual of each device for additional instruction related to that device.

Gateway R Unit is a communication unit to be connected to the field network and must be located on the most left side of the ROBONET system.



1. RGW-DV

Item	Specifications
Communication Protocol	DeviceNet2.0 (certified interface)
For Communication	Master/Slave Connection
Bit Strobe	
Polling	
Cyclic	
Baud Rate	500k/250k/125kbps
Communication Cable Length ^(Note 1)	Baud Rate Max. Network Length Max. Branch Line Length Total Branch Line Length
	500kbps 100m 6m 39m
	250kbps 250m 78m
	125kbps 500m 156m
	(Note) When DeviceNet dedicated thick cable is used
Number of Occupied Nodes	1 node
Communication Power Supply	Voltage 24V DC Current Consumption 60mA Externally Supplied (Supplied from DeviceNet communication cable side)
Communications Cable	DeviceNet dedicated cable

Note 1 Refer to the instruction manuals for the master unit and the mounted programmable logic controller (stated as PLC from now on) when a T-junction communication is to be conducted.

2. RGW-CC

Item	Specifications
Communication Protocol	CC-Link Ver.1.10/Ver.2 ^(Note 1) (certified)
Baud Rate	10M/5M/2.5M/625k/156kbps
Communication System	Broadcast polling system
Synchronization System	Frame synchronization system
Transmission Path Format	Bus format (EIA RS485 conformance 3-line type)
Error Control System	CRC (X ¹⁶ + X ¹² + X ⁵ + 1) ⁻¹
Number of Occupied Stations	Remote Device Station [Refer to Field Network Wirings and Settings Section]
Communication Cable Length ^(Note 2)	Baud Rate 10Mbps 5Mbps 2.5Mbps 625kbps 156kbps
	Total Cable Length 100m 160m 400m 900m 1200m
Communications Cable	CC-Link dedicated cable

Note 1 If the host CC-Link master unit is Ver. 1, RGW-CC is 4-pole occupied remote device station, thus a limitation to the number of controllable axes occurs. Refer to Instruction Manual for the details.

Note 2 Refer to the instruction manuals for the master unit and the mounted programmable logic controller (stated as PLC from now on) when a T-junction communication is to be conducted.

*1 CRC : Cyclic Redundancy Check It is a data error detection method often used for the synchronous transmission

3. RGW-PR

Item	Specifications
Communication Protocol	PROFIBUS DP-V1
Interface Specifications	PROFIBUS DP Slave Type (RS-485 Insulation Type)
Baud Rate	12M/6M/3M/1.5M/500k/187.5k/93.75k/45.45k/19.2k/9.6kbps
Communication Cable Length	Baud Rate 12/6/3Mbps 1.5Mbps 500kbps 187.5kbps 93.75/45.45/19.2/9.6kbps
	Total Cable Length 100m 200m 400m 1000m 1200m
Connector Specification	9-pin D-sub female connector
Address Range	1 to 125

4. RGW-SIO

Item	Specifications
Communication Protocol	RS485 conformance
Communication System	Start-Stop Synchronization System Half-Duplex Communication
Transmission Mode	Modbus RTU
Communication Mode (SW selection)	Modbus gateway mode
Slave ID	Fixed to 63 (3FH)
Baud Rate ^(Note 1)	9.6kbps 19.2kbps 38.4kbps 57.6kbps 115.2kbps 230.4kbps
Delay Time between Frames	t3.5 (character)
Data Transfer Buffer Max. Length	160bytes
Bit Length	8bits
Start Bit	1bit
Stop Bit	1bit
Parity	None
Communications Cable	Twisted-pair shielded cable (Recommended : Taiyo Cabletec Corporation HK-SB/20276 × Length [m] 2P × AWG22)
Cable Length	MAX. 100m

Note 1 It is recommended to have 230.4kbps that is in common with the baud rate of ROBONET main unit. 9.6kbps cannot be applied in SIO Thru Mode. It causes a communication error.

5. Common Specifications

Item	Specifications
Power Supply	24V DC±10%
Current Consumption	Total current consumption of all the connected units [Refer to current consumption and heat generation of each unit stated below.]
Heat Generation	Total heat generation consumption of all the connected units [Refer to current consumption and heat generation of each unit stated below.]
Number of Max. Controllable Axes	16-axis (Controllable range in Modbus Gateway Mode could be 5 to 10 axes at maximum depending on the way to use.)
For Communication	Communication Protocol RS485 conformance
	Communication System Start-Stop Synchronization System Half-Duplex Communication
	Baud Rate 230.4kbps
	Error Control System Non parity bit, CRC ¹
	Communication Cable Length Total Cable Length 30m or less (when extension unit is used)
Environment	Surrounding air temperature 0 to 40°C
	Surrounding humidity 95%RH or less (non-condensing)
	Surrounding environment [Refer to Installation Environment section]
	Surrounding storage temperature -25 to 70°C
	Surrounding storage humidity 95%RH or less (non-condensing)
	Vibration durability XYZ Each direction 10 to 57Hz Pulsating amplitude 0.035mm (continuous) 0.075mm (intermittent) 57 to 150Hz 4.9m/s ² (continuous) 9.8m/s ² (intermittent)
	Protection class IP20
Cooling Method	Natural air-cooling
Insulation Resistance	Between power supply terminal and FG 500V DC 10MΩ or more
Product Life	(Reference) 5 to 10 years: It varies significantly by the effects of the usage condition (especially temperature).
External Dimensions	34W × 105H × 73.3D [mm]
Weight	Approx. 140g

*1 CRC : Cyclic Redundancy Check It is a data error detection method often used for the synchronous transmission

[Current Consumption and Heat Generation of Each Unit]

Unit	Current Consumption	Heat Generation
GatewayR Unit	MAX. 600mA	6W
RACON Unit	Motor Type	Standard Type / High Accel/Decel Type
		Rated MAX. ^(Note 1) Rated MAX. ^(Note 1)
	10, 20	1.3A 4.4A 1.3A 2.5A
	30	1.3A 4.0A 1.3A 2.2A
	20S	1.7A 5.1A 1.7A 3.4A
	RCA-RA3□/RGS3□/RGD3□, RCA2-SA4□/TA5□	
	2 (RCL)	0.8A 4.6A — —
RPCON Unit	5 (RCL)	1.0A 6.4A — —
	10 (RCL)	1.3A 6.4A — —
	Motor Type	Rated MAX. ^(Note 2)
Simple Absolute R Unit	20P, 28P, 28SP	0.4A 2.0A
	35P, 42P, 56P	1.2A 2.0A
Extension Unit	MAX. 300mA	7.2W
	MAX. 100mA	2.5W

Note 1 The current becomes maximum when the excitation phase of the servo-motor is detected, which is performed during the initial servo-motor ON processing after the power is injected (Normal: Approx. 1 to 2sec, Max.: 10sec).

Note 2 The current is maximized at the excitation phase detection conducted in the first servo ON process after the power is supplied (ordinary 100ms). However, approximately 6A current flows at the recovery (when the drive power is supplied) from an emergency stop (approx. 1 to 2ms).

<Calculation of 24V DC Power Capacity>

- Current Consumption of Actuator Controller
= RACON Rated Current × Number of Connected Controller to RACON (≥ 1) + RPCON Rated Current × Number of Connected Controller to RPCON (≥ 1)
- Current Consumption of Other Units
= 0.6A (Gateway R Unit) + 0.3A × Number of Simple Absolute R Units + 0.7A × Number of Extension Units + Current of Controllers Connected to Extension Unit:
- For the current of the controller connected to the extension unit, refer to Instruction Manual of the connected controller. The value of 1) + 2) should equal to the load current of the whole ROBONET.
- Current Consumption at Excitation Phase Detection
= RACON Max. Current × Number of RACON Units to Turn Servo ON at the Same Time (≥ 1) + RPCON Max. Current × Number of RPCON Units to Turn Servo ON at the Same Time (≥ 1)

Usually, the rated current is to be approximately 1.3 times higher than 1) + 2) above considering approximately 30% of margin to the load current. However, considering the current of 3), even though it is a short time, select a power supply with "peak load corresponding" type or that with enough capacity. Also pay attention to the peak current stated in "Note 2" at the bottom of the table above for RPCON.

<Selection of Power Supply Protection Circuit Breaker>

- (1) It is recommended that the power supply protection is conducted on the primary side (AC power side) of the 24V DC power supply unit.
24V DC Power Supply Unit can be selected only considering the in-rush current.
It is not necessary to consider the in-rush current from RACON or RPCON.
(Note) In-rush current is not a guaranteed value. It also may vary depending on the impedance of the power line.
- (2) When having a circuit breaker to the AC power supply side, pay attention to the in-rush current to the DC power supply unit and the rated interrupting current of the circuit breaker.
- Rated Interrupting Current > Short Circuit Current = Primary Side Power Capacity / Power Supply Voltage
 - (Reference) In-rush Current of IAI Power Supply Unit PS241 = 50 to 60A, 3ms

6. Operation Modes and Main Functions (Excluding the RGW-SIO)

The modes can be selected with ROBONET Gateway Parameter Setting Tool in PC software.

Positioner 2 Mode is available when the parameter setting tool version is Ver. 1.0.3.0 or later and the firmware version of Gateway R Unit is Ver. 000B or later.

Electromagnetic Valve Mode 1 and 2 are available when the parameter setting tool version is Ver. 1.0.4.0 or later and the firmware version of Gateway R Unit is Ver. 000F or later.

Main Functions	Positioner 1 Mode	Simple Direct Mode	Direct Numeric Specification Mode	Positioner 2 Mode	Electromagnetic Valve Mode 1	Electromagnetic Valve Mode 2
Position Number Specification	○	○	×	○	○	○
Number of Registered Positions	768 points/ 1-axis	768 points/ 1-axis	-	768 points/ 1-axis	7 points/ 1-axis	3 points/ 1-axis
Position Data Direct Specification Movement	△(Note 1)	○	○	△(Note 1)	△(Note 1)	△(Note 1)
Velocity, Acceleration and Deceleration Direct Designation	△(Note 1)	△(Note 1)	○	△(Note 1)	△(Note 1)	△(Note 1)
Pressing Operation	○	○	○	○	○	○
Completed Position Number Monitor (Read)	○	○	×	○	○	○
Current Position Monitor (Read)	×	×	○	×	×	×
Velocity Monitor (Read)	×	×	○	×	×	×
Current Value Monitor (Read)	×	×	○	×	×	×
Max. Value for Position Data Specification ^(Note 2) (mm or deg)	Position Table Setting	9999.99	9999.99	Position Table Setting	Position Table Setting	Position Table Setting

Note 1 Although an operation cannot be performed with specifying values directly, it is available to operate by rewriting the data on the position table from the write command.
Please note, however, that the EEPROM has a 100,000 write limitation. Consider the effect of this mode with regard to product lifespan.

Note 2 The maximum value for the direct specification of the position data and writing with the write command is 9999.99.
This is the maximum value that can be written to the data field; however, the maximum value input should not exceed the actuator stroke.

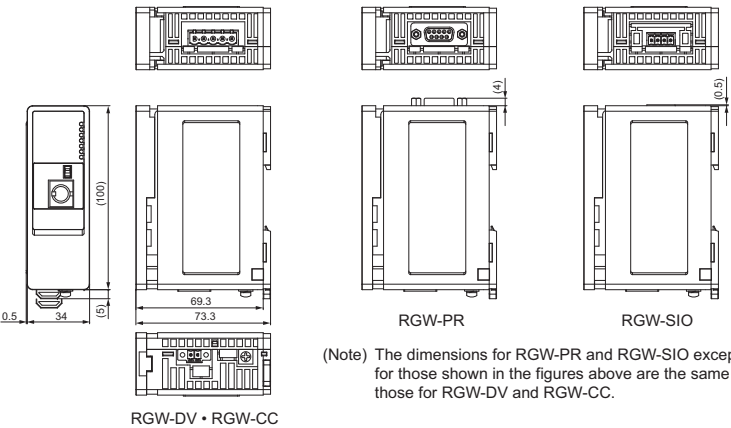
7. RGW-SIO Functions

It is available in RGW-SIO to perform a control using Modbus Protocol, and there are Modbus Gateway Mode and SIO Thru Mode.

The control is performed with Read/Write command for both cases.

Regarding Read/Write command, refer to ROBONET Instruction Manual for Modbus Gateway Mode and that of Serial Communication [for Modbus] for SIO Thru Mode.

External Dimensions



Installation Environment

This product is capable for use in the environment of pollution degree 2*1 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 Installation and Noise Elimination Section]

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

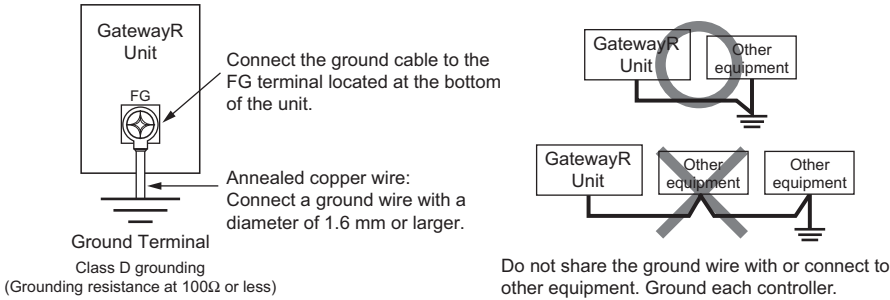
- Location subject to electrostatic noise
- Location where high electrical or magnetic field is present
- Location with the mains or power lines passing nearby

2. Storage and Preservation Environment

The storage and preservation environment should comply with the same standards as those for the installation environment. In particular, when the machine is to be stored for a long time, pay close attention to environmental conditions so that no condensation forms. Unless specially specified, moisture absorber protection is not included in the package when the machine is delivered. In the case that the machine is to be stored and preserved in an environment where 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)



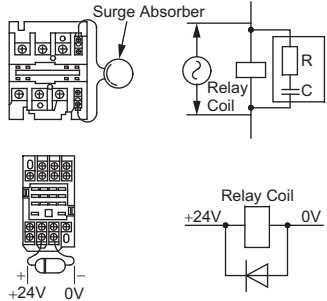
2. Precautions regarding wiring method

- Twist the wires for the 24V DC power unit.
- Separate the communication line from the power line.

3. Noise Sources and Elimination

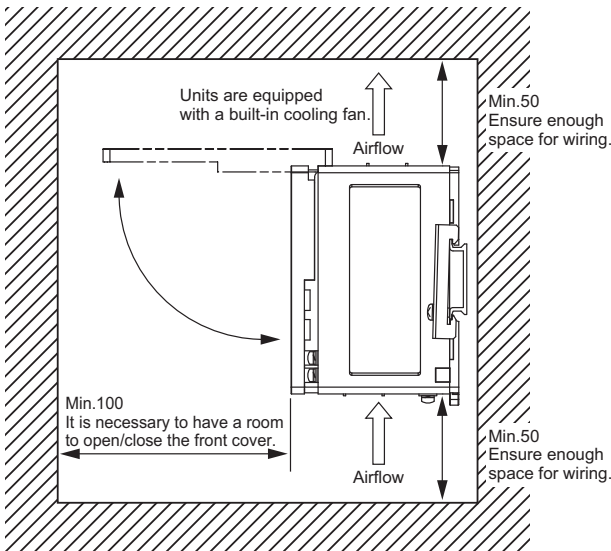
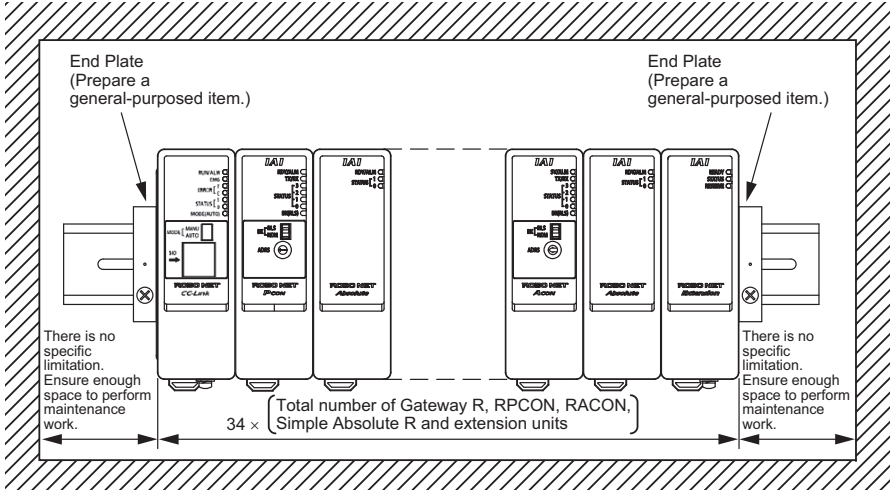
Carry out noise elimination measures for power devices on the same power path and in the same equipment.
The following are examples of measures to eliminate noise sources.

- AC solenoid valves, magnet switches and relays
[Measure] Install a Surge absorber parallel with the coil.
- DC solenoid valves, magnet switches and relays
[Measure] Install a diode parallel with the coil. Use a DC relay with a built-in diode.

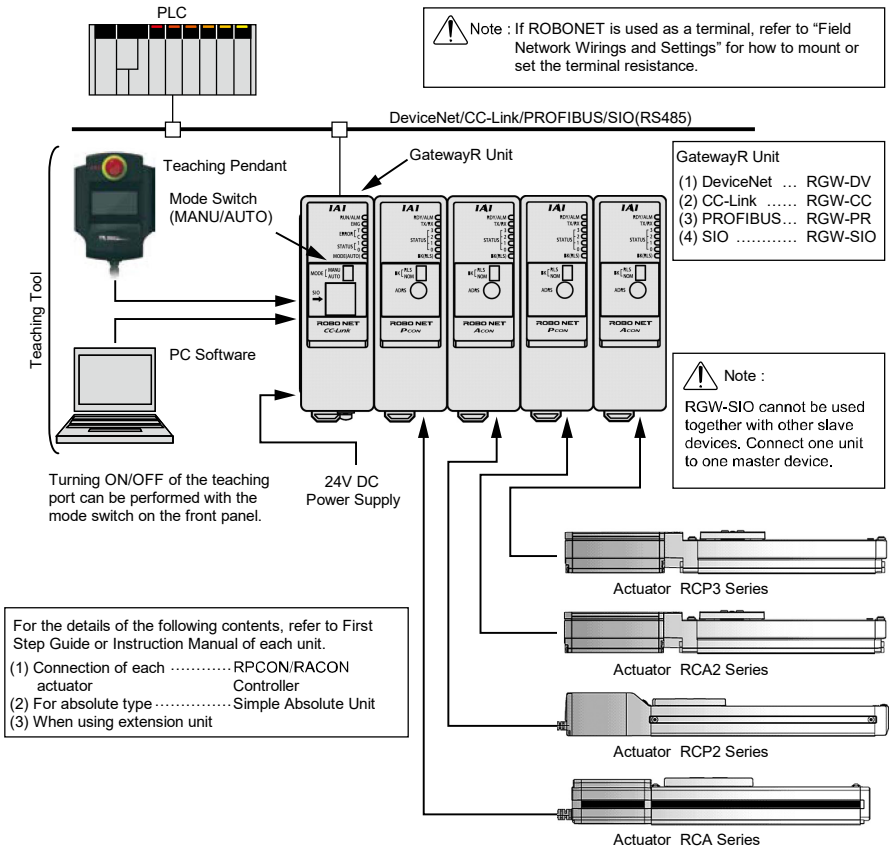


4. Heat Radiation and Installation

Design and Build the system considering the size of the controller box, location of the controller and cooling factors to keep the ambient temperature around the controller below 40°C.



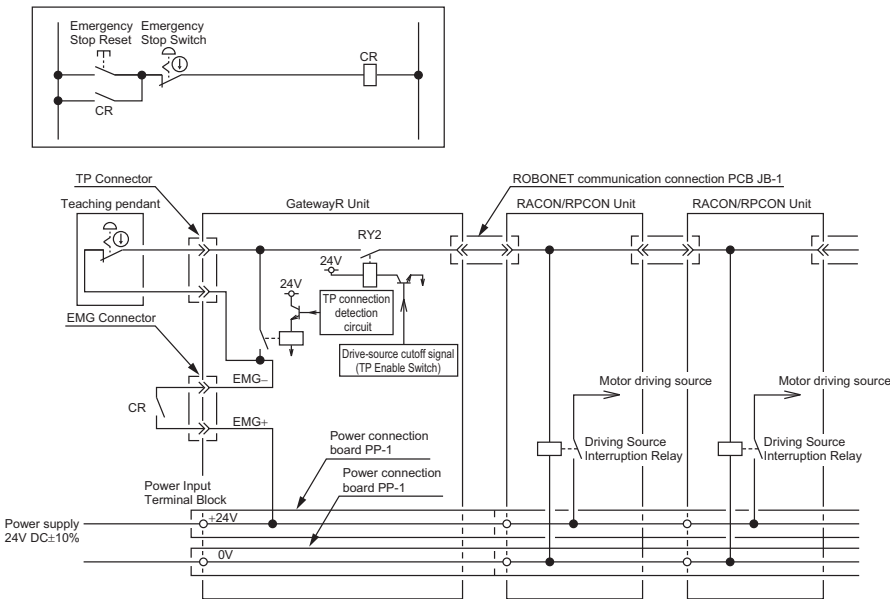
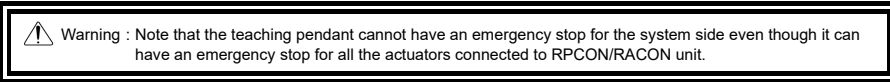
System Configuration (Example)



Power Supply and Emergency Stop Circuit (Example)

When having an emergency stop, connect the emergency stop signal on the system side to EMG connector on Gateway R Unit. CR is an emergency stop relay for the entire system.

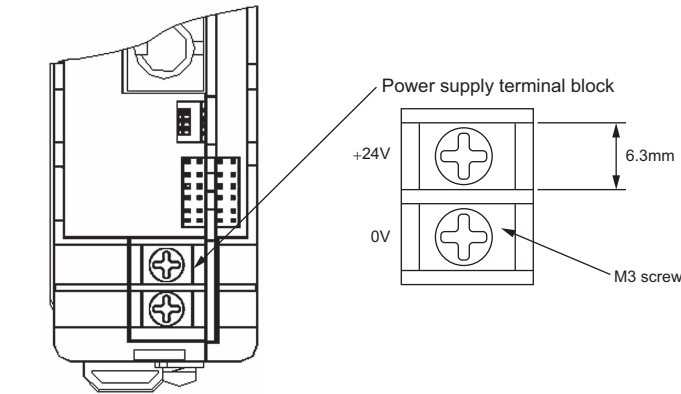
[Refer to First Step Guide or Instruction Manual for Extension Unit REXT if the extension unit is used.]



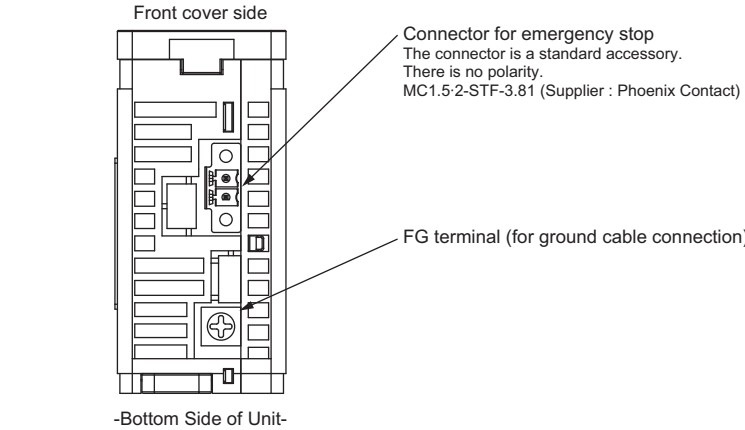
CR Contact Capacity : 24V DC 160mA or more
CR Load Current : 160mA ± 10mA (current consumption caused by emergency stop circuit of each unit) × Total Number of RPCON/RACON Units

[Refer to First Step Guide or Instruction Manual for Extension Unit REXT if the extension unit is used.]

Have the front cover open when wiring the power line.
It is possible to connect up to a 2mm² (AWG14) conductor, at a maximum, when an appropriate solderless terminal is applied. However, it is also possible to use multiple conductors by applying terminal to each side of the terminal block.
It is recommended to have the power to be supplied from both ends with the cables of the same thickness so the power supply can be evenly allocated to each unit if the thickness is 1.25mm² (AWG16) or more on one end.



Connect the cable for the emergency stop circuit to the connector located at the bottom side of the unit.
Apply a vinyl cable for electrical devices with AWG20 to 16 (0.5 to 1.25mm²) or equivalent for the wiring.

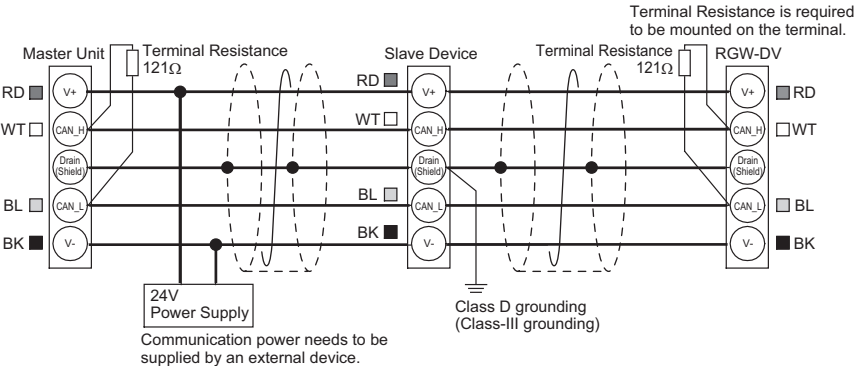
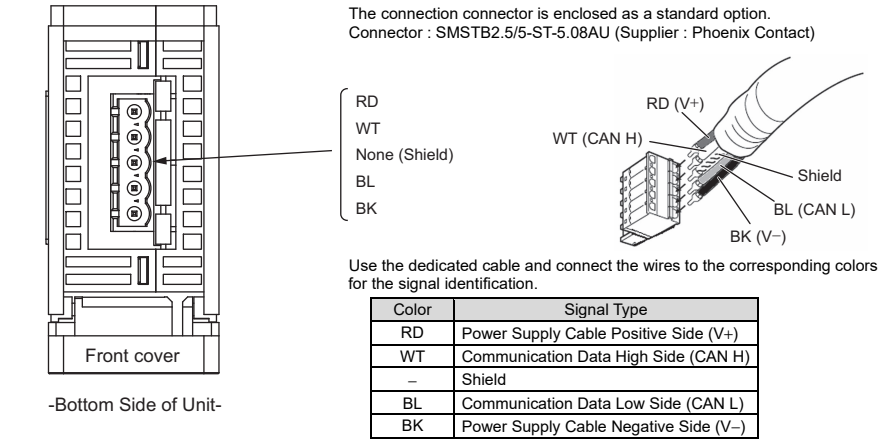


Field Network Wirings and Settings

1. DeviceNet (RGW-DV)

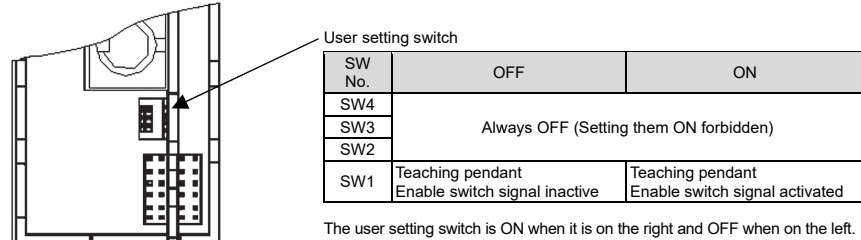
[1] Wiring

For details, refer to the Instruction Manuals of the master unit and PLC in which in the master unit is installed.



[2] Setting of User Setting Switch

Turn OFF the power before performing this operation. Open the front cover when operating and checking the user setting switch.



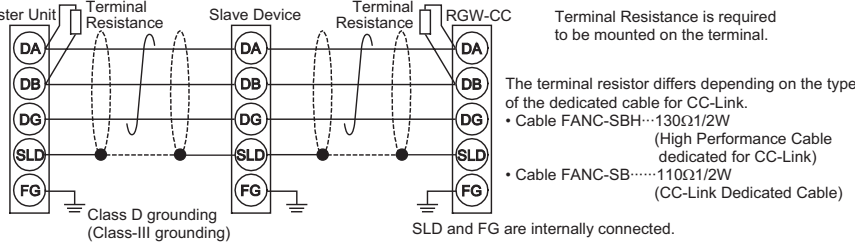
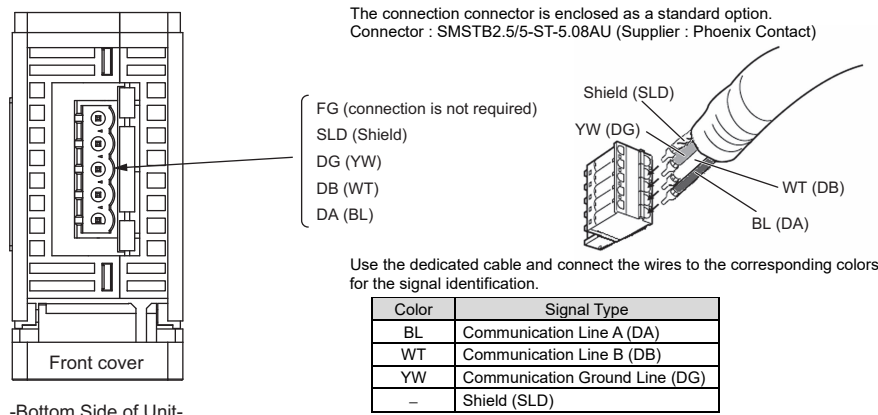
[3] Gateway Parameter Setting

"ROBONET Gateway Parameter Setting Tool" is used to perform the settings for the node address (MAC ID), number of axes, axis number, operation modes, etc.. Refer to ROBONET Instruction Manual for the details of how to use the tool.
In an ordinary case, the node address for the master unit is set to 63. The addresses for the slave units are set one to another in the range of 00 to 62. For the settings of such as the data address on the occupied PLC side or the parameters, refer to ROBONET Instruction Manual and those of the master unit and the mounted PLC.

2. CC-Link (RGW-CC)

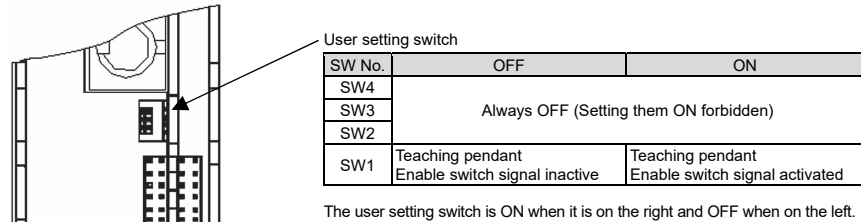
[1] Wiring

For details, refer to the Instruction Manuals of the master unit and PLC in which in the master unit is installed.



[2] Setting of User Setting Switch

Turn OFF the power before performing this operation. Open the front cover when operating and checking the user setting switch.



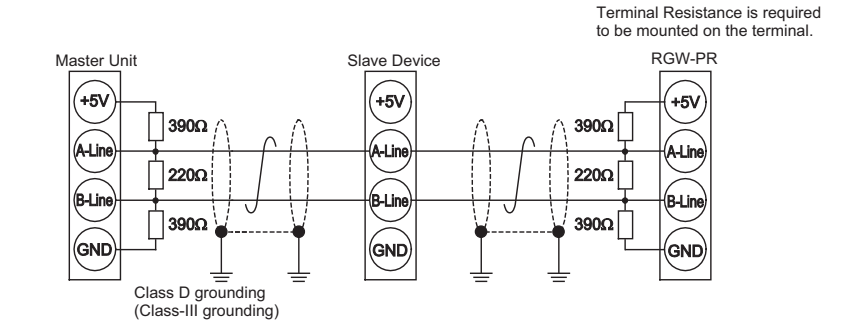
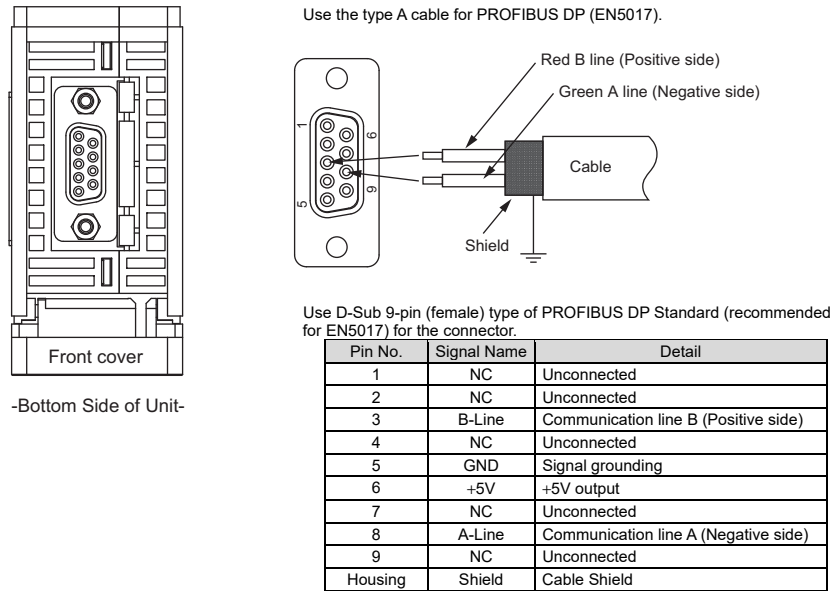
[3] Gateway Parameter Setting

"ROBONET Gateway Parameter Setting Tool" is used to perform the settings for the station number, number of axes, axis number, operation modes, etc.. Refer to ROBONET Instruction Manual for the details of how to use the tool.
In an ordinary case, the node address is set to 00 for the station number of the master unit. The addresses for the slave units are set in the range of 01 to 64 considering the number of occupied stations. For the settings of such as the data address on the occupied PLC side or the parameters, refer to ROBONET Instruction Manual and those of the master unit and the mounted PLC.

3. PROFIBUS (RGW-PR)

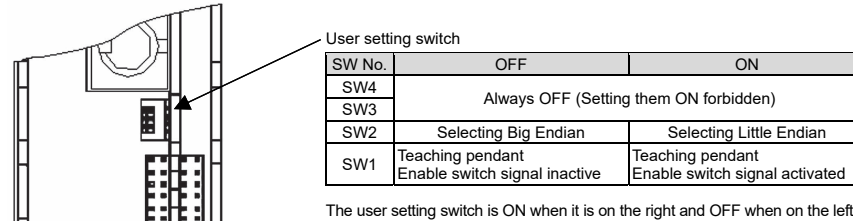
[1] Wiring

For details, refer to the Instruction Manuals of the master unit and PLC in which in the master unit is installed.



[2] Setting of User Setting Switch

Turn OFF the power before performing this operation. Open the front cover when operating and checking the user setting switch.



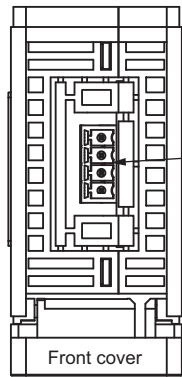
[3] Gateway Parameter Setting

"ROBONET Gateway Parameter Setting Tool" is used to perform the settings for the node address, number of axes, axis number, operation modes, etc.. Refer to ROBONET Instruction Manual for the details of how to use the tool.
In an ordinary case, the node address for the master unit is set to 02. Node address 00 is either for the monitor or for the inspection functions while 01 is for monitoring devices. Set the slave unit numbers within the range up to 125 at the maximum in the order of 03, 04, 05, ... from the closer to the further from the master unit. For the settings of such as the data address on the occupied PLC side or the parameters, refer to ROBONET Instruction Manual and those of the master unit and the mounted PLC.

4. SIO (RGW-SIO)

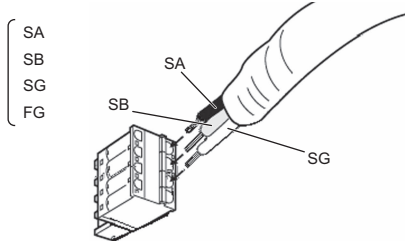
[1] Wiring

For details, refer to the Instruction Manuals of the master unit and PLC in which in the master unit is installed.



-Bottom Side of Unit-

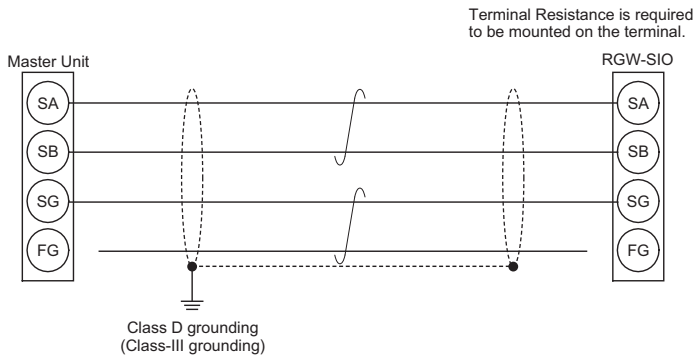
The connection connector is enclosed as a standard option.
Connector : MC1.5/4-ST-3.5 (Supplier : Phoenix Contact)



Apply a STP cable with 2 pairs of harnesses (AWG22).
Recommended Cable : HK-SB/20276 × L [m] 2P × AWG22 (Taiyo Cabletec Corporation)

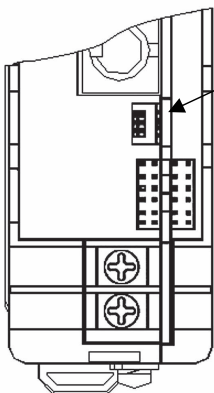
Signal Name	Signal Type
SA	Communication line A (Positive side)
SB	Communication line B (Negative side)
SG	Signal grounding
FG	Frame Ground (connected to the body frame)

⚠ Note : RGW-SIO cannot be used together with other slave devices. Connect one unit to one master device.



[2] Setting of User Setting Switch

Turn OFF the power before performing this operation. Open the front cover when operating and checking the user setting switch.



SW No.	OFF	ON
SW4	Always OFF (Setting them ON forbidden)	
SW3		
SW2	Modbus Gateway Mode	SIO Thru Mode
SW1	Teaching pendant Enable switch signal inactive	Teaching pendant Enable switch signal activated

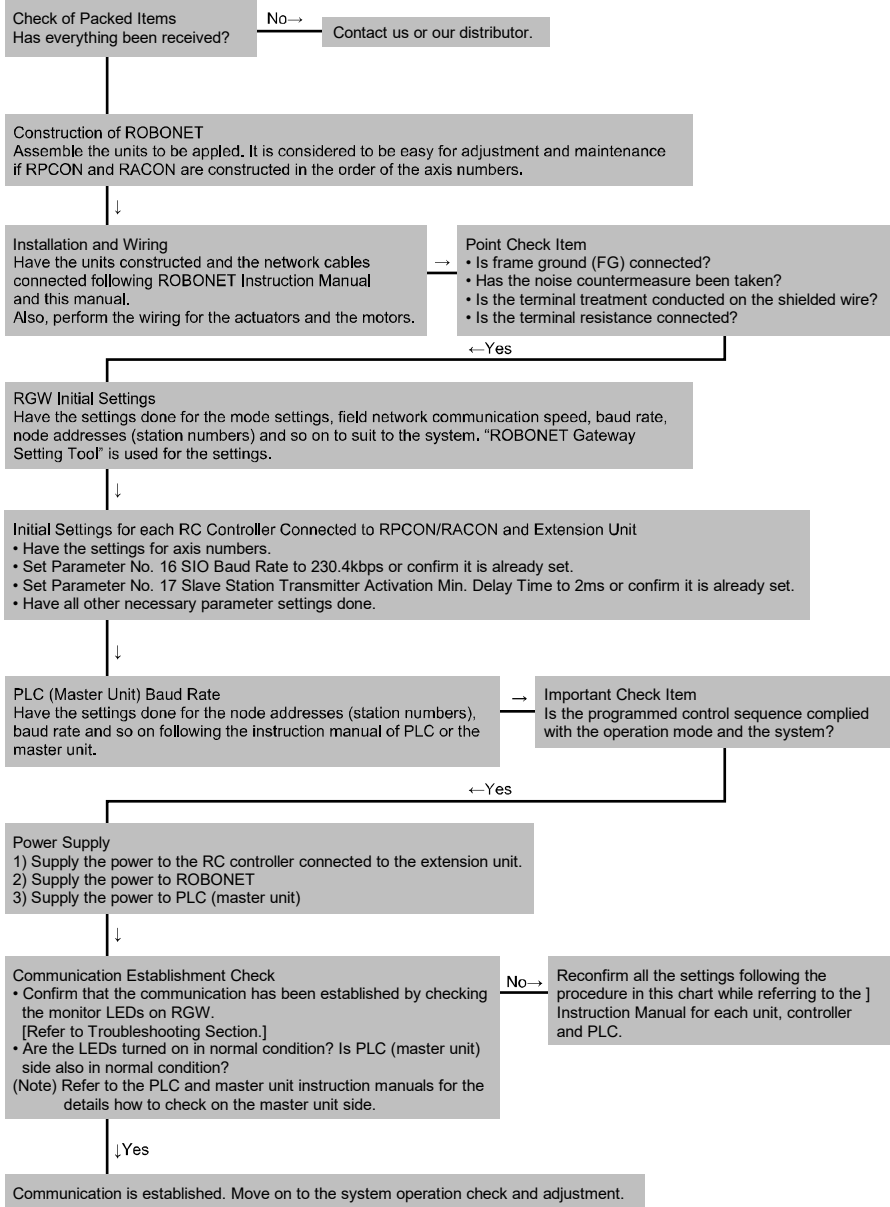
The user setting switch is ON when it is on the right and OFF when on the left.

[3] Gateway Parameter Setting

The operation is performed with the SIO communication function of the host controller (PLC). Therefore, there is no such notion of node address or station numbers for the master and slave that the ordinary field network has. The host controller directly controls each controller that has the axis number via GatewayR Unit.
"ROBONET Gateway Parameter Setting Tool" is used to perform the settings number of axes, axis number, operation modes, etc.. Refer to ROBONET Instruction Manual for the details of how to use the tool.
For the settings of such as the data address on the occupied PLC side or the parameters, refer to ROBONET Instruction Manual and those of the master unit and the mounted PLC.

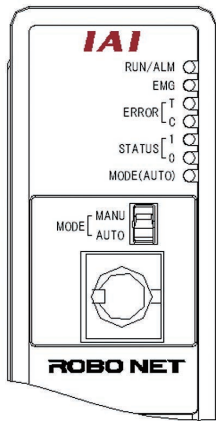
Starting Procedures

When using this product for the first time, pursue work while making sure to avoid omission and incorrect wiring by referring to the procedure below. "PC" stated in this section means "PC software". This section explains the procedure for starting up the RGW Unit. Follow the instructions in Instruction Manual for the installation and wiring of other devices, controllers and actuators that are connected to the network.



Troubleshooting

On GatewayR Unit (RGW), there are the monitor LEDs for the field network and SIO communication. You can confirm the communication establishment and also communication errors on these LEDs.



LED	Color	Description
RUN/ALM	GN	The machine is in the normal operation.
	OR	Error is being occurred.
EMG	RD	In emergency stop.
ERROR	T	OR - The axes configuration set on the PLC side does not match with the actual axes configuration (axis numbers). - There is one or more RC controller connected to RPCON/RACON or extension unit that is not in the standby condition. - Internal bus communication error is being occurred.
	C	OR A communication error is occurred on the field network.
STATUS	1	GN/OR This LED shows the communication status of the field network.
	0	GN/OR [Refer to the following table for the details.]
MODE (AUTO)	GN	AUTO is selected on the mode switch.

[Field Network Communication Status Display]

1. DeviceNet (RCM-GW-DV)

LED	Color	Indication	Description
STATUS-1 (NS)	GN	Illuminating	The connection has been established and the communication is being performed normally.
		Flashing	Online but network connection is not yet established. Communication Stop (Network is normal). Check the scan list.
	OR	Illuminating	A communication error has occurred. The communication cannot be established due to a duplication of node addresses or a Busoff (communication stop due to frequent data error detection).
		Flashing	A communication error has occurred. (Communication time-out is detected.)
	GN/OR	Illuminated by turns	In self-checking process.
STATUS-0 (MS)	—	OFF	The machine is not on-line. The power to the DeviceNet is not supplied.
		Illuminating	The machine is in the normal operation.
	GN	Flashing	Connection to the master is not established. Check if it has been registered in the master's scanning list.
		Illuminating	A hardware error occurred. Board must be replaced. Please contact us.
	OR	Flashing	There is an error occurred, but is not critical such like a configuration error or unmatched baud rate setting. It can be recovered with a rebuild of the settings.
		Illuminated by turns	In self-checking process.
STATUS-0 (RUN)	GN	Illuminated by turns	In self-checking process.
		OFF	Power is not supplied.

2. CC-Link (RCM-GW-CC)

LED	Color	Indication	Description
STATUS-1 (ERR)	OR	Illuminating	A CRC ^{*1} error is detected in data sent to the station. Check the noise elimination treatment, etc.
		Flashing	Baud rate or station number setting is not correct.
		Flashing	The baud rate or station number setting is changed while in communication.
		OFF	The machine is in the normal operation.
STATUS-0 (RUN)	GN	Illuminating	The machine is in the normal operation. (Starts flashing with the communication start)
		OFF	Not in the network or timeout. The illumination is turned off if the communication is shut off for a certain time. Check for wire breakage and condition of connector joint

*1 CRC : Cyclic Redundancy Check It is a data error detection method often used for the synchronous transmission

3. SIO (RCM-GW-PR)

LED	Color	Indication	Description
STATUS-1	GN (LINE-ON)	Illuminating	The connection has been established and the communication is being performed normally.
		Flashing	Online, in the initializing process.
	RD (ERR)	Illuminating	Parameter error, the parameter is not appropriate.
		Flashing	There is a configuration error. (Example) The setting in the configurator does not match with the actual connection.
	(LINE-OFF)	OFF	The status is offline or the power is OFF.
STATUS-0	GN (LINE-ON)	Illuminating	Online, initializing is completed.
		Flashing	Online, in initializing complete error checking process.
	RD (ERR)	Illuminating	Initializing error of the communication board, If the condition does not recover after a reboot, please contact us.
		(LINE-OFF)	OFF

4. PROFIBUS (RCM-GW-SIO)

LED	Color	Indication	Indication Description (Meaning)
STATUS-1 (TxD)	GN	Flashing	Data is being sent (from RGW to RC controllers connected to RPCON/RACON and extension unit).
		OFF	Data sending is being stopped (from RGW to RC controllers connected to RPCON/RACON and extension unit).
STATUS-1 (RxT)	GN	Flashing	Data is being received (from RC controllers connected to PRCON/RACON and extension unit to RGW).
		OFF	Data receiving is being stopped (from RC controllers connected to PRCON/RACON and extension unit to RGW).



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