	4A	
	ΙΑΙ	
	Quality and Innovation REC-GW. RCON-EC	
	RCON-GW-TRE	
	EC Gateway Unit, EC Connection Unit,	
	First Step Guide Fourth 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 instruction manual when handling this product. Please downloaded instruction manual from our website. You can download it free of charge. User registration is required for the first time downloading. 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. 	
F T E n E o T T	REC system is constructed with EC Gateway Unit (REC-GW), EC Connection Unit (RCON-EC) and REC ierminal Unit (RCON-GW-TRE) that are explained in this manual. C Gateway Unit is a communication unit to be connected to the field network and must be located on the nost left side of the REC system. EC Connection Unit is a unit to be connected to the ELECYLINDER and must be located on the right side of the EC Gateway Unit is a terminal resistor that should be allocated at the most right end of REC system. The ECC Terminal Unit is capable of being connected to each system of RCON and RSEL.	
	EC Gateway Unit	
6	ELECYLINDER to be connected to the EC connection unit is not capable of use in the single	
U		
	solenoid system. Do not fail to use it in the double solenoid system.	

If you find any fault in the contained model or any missing parts, contact us or our distributor. 1. Parts

(1) FC Gateway Unit (RFC-GW)

	(' '				
ſ	No.	Part Name	Part Name Model		Remarks
	1	EC Gateway Unit	Refer to "How to read the model plate", "How to read the model code"	1	
Accessories		-			
	2	REC Terminal Unit (Terminal Resistance)	RCON-GW-TRE	1	Select-TRN (with no terminal unit) in the option if it is not necessary
	3	CC-Link Connector (Enclosed for CC-Link Connection Type)	MSTB2.5/5 -STF-5.08 AU (Manufactured by PHOENIX CONTACT)	1	Terminal Resistance (130Ω/110Ω) enclosed one unit each Recommended Cable: Dedicated cable for CC-Link
	4	DeviceNet Connector (Enclosed for DeviceNet Connection Type)	MSTB2.5/5 -STF-5.08 AU M (Manufactured by PHOENIX CONTACT)	1	Recommended Cable: Dedicated cable for DeviceNet
ľ	5	First Step Guide	ME0395	1	This Manual
ſ	6	Safety Guide	M0194	1	

(2) EC Connection Unit (RCON-EC)

No.	Part Name	Model	Number	Remarks
1	EC Connection Unit	Refer to "How to read the model plate", "How to read the model code"	1	4 axis type
Acc	essories			
2	Drive Source Cutoff Connector	DFMC1.5/4-ST-3.5 (Manufactured by PHOENIX CONTACT)	1	Recommended Cable Size 0.5 to 1.25mm ² (AWG20 to 16, Copper Wire) * Use cables with their rated temperature on the isolation sheath at 60°C or higher
3	First Step Guide	ME0395	1	This Manual
4	Safety Guide	M0194	1	

rately)

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 USB Exchange Adapter + USB Cable + Peripheral Communication Cable)	RCM-101-USB	
2	Touch Panel Teaching Pendant TB-02 (Standard/ Dead Man's Switch Mounted)	TB-02/TB-02D	
3	Touch Panel Teaching Pendant TB-03	TB-03	
3. Instruction manuals related to this product			
No.	Name	Manual No.	
1	REC Instruction Manual	ME0394	

2	PC Software RCM-101-MW/RCM-101-USB Instruction Manual	ME0155
3	Touch Panel Teaching Pendant TB-02 Applicable for Position Controller Instruction Manual	ME0355
4	Touch Panel Teaching Pendant TB-03 Wired Link Applicable for Position Controller Instruction Manual	ME0376

How to read the model plate (This design is what is after UL/CE acquired.)

(1) EC Gateway Unit



Mark Explanation of Mark Â Use IAI specified cables only. How to read the model code (1) EC Gateway Unit <u>REC</u> - <u>GW</u> - <u>CC</u> - <u>TRN</u> - <u>**</u> < Series < Identification for IAI use only > * There is no identification in < Type GW : : Gateway Unit some cases Option >
 TRN : With No Terminal Unit < I/OType >-CC : CC-Link Connection Type DV : DeviceNet Connection Type EP : EtherNet/IP Connection Type PRT : PROFINET IO Connection Type CIE : CC-Link IE Field Connection Type EC : EtherCAT Connection Type PR : PROFIBUS-DP Type (2) EC Connection Unit <u>RCON - EC - 4</u> < Number of Axes > < Series > 4 : 4 axis type * only 4 axis type < Type >_____ EC : ELECYLINDER

(3) ELECYLINDER

* ÉLECYLINDER available for connection to REC System is only Option: ACR. - [<u>EC</u>-- <u>ACR</u> _) - [- (

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LED Display		
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3 5	wironmontal Specificat	
<u>э. с</u>	Itom	
- 1		
H		
H	Surrounding Air Temperatu	
ŧ	Surrounding Humidity	
me	Peripheral Ambience of Us	
Lon	Surrounding Storage Temp	
Envi	Vibration Durability	
ī	Protection Class	
Ē	Altitude	
Cool	ing Method	
Diele	ectric Withstanding Voltage	
Dicit	some vannstanding voltage	

(1) EC Gateway Unit	

AUTO/MANU Switch	_
T.P.(SIO) Connector	
USB Connector	

24V Power	L	
Supply Connect	tor	
Connector for	or	
FG Connecti	on	

Basic Specifications

Supply	
	Specification
	24V DC ±10%
	Refer to section in [Current Amperage]
е	-
	Refer to section in [Current Amperage]
	Refer to section in [Current Amperage]
ndurance	By 24V power supply
tric Shock	Class III
Part	Creation
	1 to 16 even
	FRAM 256kbit
	Communication System: DS 485, Baud Pate: 0.6/10.2/38.4/57.6/115.2/230.4kbps
	Communication System: ISB, Baud Pate: 12Mbpc
	None
ace	CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO
	Unavailable to Control
	24V DC ±10%
	None
	-
	Drive source cutoff with semiconductor (Power MOSFET)
	Break Contact Input
	Turning servo OFF + Drive source cutoff
	None
	Available
	Turning servo OFF
	Overcurrent, temperature error, encoder line breakage and overload
e Feature	None
	Refer to section in [Troubleshooting (LED Display)]
ature	Brake release switch equipped on EC Connection Unit
	Jog switch equipped on EC Connection Unit
	CE and UL
tions	
	Specification
	Pollution Degree 2
re	0 to 55°C
	5%RH to 85%RH (Should be no-condensing or freezing)
е	Refer to section in [Installation Environment]
erature	-20 to 70°C
	Frequency 10 to 57Hz/Swing width: 0.075mm Frequency 57 to 150Hz/Acceleration: 9.8m/s ² XYZ Each direction Sweep time: 10min. Number of sweep: 10times
	IP20
	1000m

Names for Each Part

Between power supply terminal and FG $500V DC 10M\Omega$ or more

Natural air-cooling





Тор

(2) EC Connection Unit



External Dimensions

1. EC Gateway Unit			
Item	Specification		
External Dimensions	30W × 115H × 95D [mm]		
Mass	Approx. 135g		



2 EC Connection Unit

Item	Specification
External Dimensions	22.6W × 115H × 95D [mm]
Mass	Approx. 114g



3. REC Terminal Unit

Item	Specification
External Dimensions	12.6W × 115H × 95D [mm]
Mass	Approx. 48g









U/A\L

- 10-

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 ambient temperature is out of the range between 0 and 55°C
- · Location where condensation occurs due to abrupt temperature changes
- Location where relative humidity is out of the range between 5%RH and 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] • Place with an altitude of 1,000m or more

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 absorbency 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.





(Class D grounding)

1) Wire is to be twisted for the 24V DC power supply.

2) Separate the signal and encoder lines from the power

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

[Measure] Install a Surge absorber parallel with the coil.

1) AC solenoid valves, magnet switches and relays

2. Precautions regarding wiring method

supply and power lines. 3. Noise Sources and Elimination

sources.

Connect the ground line to the FG terminal block on the controller unit. Put a tool such as a screwdriver into the square slot and connect IIO I the line Copper wire: Connect a ground wire with



Grounding resistance at 100Ω or less

Farth Terminal



- Do not share the ground wire with or connect to other equipment. Ground each controller
- Surge absorber Relay coi +24V



2) DC solenoid valves, magnet switches and relays [Measure] Consider whether to attach a diode in parallel STDto the coil or to use a diode built-in type. +24V





4. Cooling Factors and Installation

single solenoid system. ELECYLINDER may not operate as commanded by a host PLC if the setting is changed to the single solenoid system.

Power Supply and Stop Circuit (Example)

In the diagram below shows a circuit related to REC system drive source cutoff.

For REC system, 24V power is supplied from the EC Gateway Unit, but the circuit related to the drive-source cutoff is on the EC Connection Unit side

- Each unit of EC Connection Unit possesses a drive cutoff circuit by semiconductor gathered for the four axes, and the motor power source is to be cut off by the stop switch on the teaching pendant. Also, the drive source cutoff circuit by semiconductor possesses features to detect the over current and to limit the in-rush current.
- Each driver unit possesses an interface (Drive source cutoff connector: MPI/MPO) available for external drive source cutoff prepared for each axis



REC Gateway Unit RCON-EC Unit

- Note 1 If nothing is connected to the SIQ connector short-circuit should be made inside the controller
- Note When externally shutting off the motor drive source, connect a contact such as a relay to the wiring between the MPI* and MPO* terminals.
 - When supplying power by turning ON/OFF 24 VDC, leave 0 V connected and supply/cut off +24 V. • Make sure to have the right cable diameter and length that would not have the voltage dropped at the wiring of the drive cutoff connector
 - There may be a case of an alarm being generated because of the voltage drop at the controller power supply due to inappropriate cable diameter or length. In such a case, adjust the output voltage of the power supply to keep 24V for the supply to the controller

Warning : Note that the stop switch on the teaching pendant cannot have a stop for the system side even though it can have a stop for all the actuators connected to REC System.

Current Amperage

The current amperage should be divided into the control power capacity and motor power capacity. Each power supply should be input from the 24V power supply connector on the EC Gateway Unit. The necessary capacity of the current amperage should be figured out by [Total of control power capacity of

used units] + [Total of motor power capacity of used actuators]. It is necessary that the rated current of 24V power supply satisfies the rated current of the motor power capacity and the peak current satisfies the maximum current of the motor power capacity. However, when several axes get connected, unless all the actuators operates at the same time, the rated current and maximum current would not flow at the same time, thus the calculation should not be simply the total of all the axes

The specifications related to the power capacities should be as shown below.

Item	Specification				Supply Current
Power Supply Voltage	24V DC ±10%	Supply Cullent			
Control Power Capacity	EC Gateway Unit (Terr	ninal Uni	t Included)		0.8A
(for one unit)	EC Connection Unit				0.1A
			Brake: Not equ	uipped	0.3A
	24V Type ELECYLINDER		Brake: Equipped		0.5A
Control Power capacity	200V Type ELECYLINDER (Per 1 axis)		Brake: Not equ	uipped	0.32A
ELECYLINDER)			Brake: Equipped	EC-S10□/S10X□	0.54A
,				EC-S13¤/S13X¤ EC-S15¤/S15X¤	1.2A
	Motor type			Rated Current	Max. current
Motor power capacity	250/420/560	When power-saving setting inactivated		2.3A	3.9A
(1 axis per ELECYLINDER)	33P/42P/30P	When power-saving setting activated		_	1.9A
	S30		R3□Type	-	1.9A
	20P	Slim ar	nd Small Type	-	1.7A
In-Rush Current (Note)		40A (with in-rush current limiting circuit)			

Restrictions in Unit Connection

(1) Number of EC Connection Units to Connect

The maximum number of control axes to be connected to one EC Gateway Unit should be 16 axes. From the structural perspective of the unit, it can accept connection without any upper limit, but make it accept 4 units (for 16 axes) of EC Connection Units at the maximum. (One unit occupies domains and axis numbers for four axes regardless of whether to connect ELECYLINDER to the units or not.) Have two EC Gateway Units or more in the construction when it is necessary to control 17 axes or more of actuators.

(2) Current Restrictions

Shown below is the restricting values of current for selecting calculation.

Item	Restricting Value of Current for Selecting Calculation	
Control Power Supply (CP)	9.0A or less	
Motor Power Supply (MP)	37.5A or less	

Shown below is some examples for calculation

[Control Power Supply] * EC Gateway Unit should be excluded from the target for calculation. For 24V type ELECYLINDER (Brake: Equipped) × 16 axes: 0.5A × 16 axes = 8.0A EC Connection Unit 0.1A × 4 = 0.4A 8.4A total => OK

[Motor Power Supply]

- For 24V type 35P ELECYLINDER (power saving setting disabled) × 16 axes:
- Rated current 2.3A × 16 axes = 36.8A => OK Note For the models with no description of the rated current for the motor current amperage, calculate with the maximum current.
- Note When the operation pattern is to have all the axes operate acceleration and deceleration only and the operation duty is 100%, it is necessary that the calculation is done with the maximum current for the motor power supply.

Linking Units

REC system is capable to link 4 units (for 16 axes) at the maximum with the EC Gateway Unit allocated at the left end as the interface for the field network connection and freely construct with combination of multiple EC Connection Units. There is an order of allocation for each unit.

EC Gateway Unit (Left End) - EC Connection Unit (No Order among) - REC Terminal Unit (Right End)



- Each unit should be linked in the process shown below. (Make sure it gets linked before connected to the DIN rails.) 1) Twist the operation parts of the link upper parts and the link bottom parts towards the panel side and place them at the panel side end.
- 2) Adjust the position of two units so the link upper parts come to Point [A], link bottom parts to [B] and the four positioning bosses to [C] and all the six points fit to each other.
- 3) Once positioning is done, firmly insert the connectors at two points
- 4) Twist the operation parts of the link upper parts and the link bottom parts towards the rear side till they make click feeling Link Upper Parts



Field Network Wirings and Settings

The field network connector is allocated on the top of the EC Gateway Unit. Refer to Names for Each Partl.

1. CC-Link (REC-GW-CC)















3. DeviceNet (REC-GW-DV)



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

Connector Name	CC-Link IE Field Connector	Remarks				
able Side	Ethernet ANSI/TIA/EIA-568-B Category 5e and above 8P8C modular plug equipped with shield (RJ-45)	Please prepare separately				
controller Side	Ethernet ANSI/TIA/EIA-568-B Category 5e and above 8P8C modular Jack equipped with shield (RJ-45)					

Pin Io.	Signal Name	Description	Applicable cable diameter
1	TP0+	Data 0+	
2	TP0-	Data 0-	It is recommended
3	TP1+	Data 1+	to prepare a
4	TP2+	Data 2+	straight STP cable
5	TP2-	Data 2-	in Category 5e or
6	TP1-	Data 1-	above for the
7	TP3+	Data 3+	Ethernet cable.
8	TP3-	Data 3-	

Slave Devices

Ethernet Straight Cable Category 5e or more Double shielded cable braided with aluminum foil recommended (Note) Terminal resistance is not required

Refer to the instruction manuals for the master unit and PLC to connect for the details

supplied by an external device.

4. EtherCAT (REC-GW-EC)

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

Connector Name	EtherNet/IP, PROFINET IO Connector	Remarks
Cable Side	Ethernet ANSI/TIA/EIA-568-B Category 5 and above 8P8C modular plug equipped with shield (RJ-45)	Please prepare separately
Controller Side	Ethernet ANSI/TIA/EIA-568-B Category 5 and above 8P8C modular Jack equipped with shield (RJ-45)	

Top View of Connector on EC Gateway Unit side

Pin No.	Signal Name	Description	diameter
1	TD+	Data sending+	It is recommende to prepare a straight STP cabl
2	TD-	Data sending-	
3	RD+	Data receiving+	
4	-	Disconnected	
5	-	Disconnected	in Category 5 or
6	RD-	Data receiving-	above for the
7	-	Disconnected	Ethernet cable.
8	-	Disconnected	

6 +5V

7 NC

Starting Procedures

+5V Output (Insulation)

Disconnected

Type A: EN5017)

When using this product for the first time, make sure to avoid mistakes and incorrect wiring by referring to the procedure below.

In this section, explains how to start up especially for REC system. Follow an instruction manual for each device for how to link to other devices, controllers and actuators that are linked in the network.

1. LED Display on EC Gateway Unit Panel Color Display GN T RUN OR GN SYS OR STOP RD

MODE	GN
C ERR	OR
STATUS 0	-
STATUS 1	-

Panel Display	Color	Status	Explanation
	GN	Illuminating	Inside bus communication in normal conditions
T RUN		Flashing	Waiting for initializing communication, Initializing communication failed
	OR	Illuminating	Inside bus communication in error
	GN	Illuminating	Servo ON
SYS		OFF	Servo OFF
	RD	Illuminating	Alarm being generated, stop switch on teaching pendant valid (while pressed and held)
_	GN	Illuminating	Movement to forward end completed
Forward End		OFF	Stop
2.1.3	RD	Illuminating	Alarm being generated
Backward	CN	Illuminating	Movement to backward end completed
End	GN	OFF	Stop

1. CC-Link (REC-GW-CC)

Name	Panel Display	Color	Status	Explanation
	RUN	GN	Illuminating	Succeeded in refresh and polling reception after getting into network, or succeeded in refresh reception
TATUS U			OFF	1. Not in network 2. Carrier detected for channel 3. Timeover 4. In hardware reset
	ERR	ERR OR	Illuminating	 CRC Error Station number setting error at reset release (65 stations or more including 0 or occupied station number) Baud rate setting error at reset release
STATUS 1			Flashing (Flash for 0.4sec)	Numbers changed from station numbers and baud rate setting numbers at reset release
			OFF	 Communication in normal conditions In hardware reset

Troubleshooting (LED Display)

On REC Gateway Unit, there are the monitor LEDs for the field network and communication You can confirm the communication establishment and also communication errors on these LEDs. Refer to [Names for Each Part] for the position and name of each LED lamp.

	Status	Explanation	
	Illuminating	Inside bus communication in normal conditions	
	Flashing	Waiting for initializing communication	
	Illuminating	Inside bus communication in error	
	Illuminating	Operating in normal conditions	
	Illuminating	Gateway alarm being generated	
	Illuminating	Stop switch on teaching pendant valid (while pressed and held)	
	OFF	Stop switch on teaching pendant invalid	
	Illuminating	In AUTO (automatic operation) Mode	
	OFF	In MANU (manual operation) Mode	
	Illuminating	Error occurred in field network	
	OFF	Field network operating in normal conditions	
Differs depending on field network (Refer to [Field Network Communication Conditions from 1 to 7])		Differs depending on field network (Refer to [Field Network Communication Conditions from 1 to 7])	
	-	Differs depending on field network (Refer to [Field Network Communication Conditions from 1 to 7])	

[Field Network Communication Conditions]

2. CC-Link IE Field (REC-GW-CIE)

Name	Panel Display	Color	Status	Explanation
		GN	Illuminating	Operation in normal conditions
	MS		OFF	Hardware error occurred
31A103 0	IVIS	OR	Illuminating	Error being occurred
			OFF	Operation in normal conditions
	NS	GN OR	Illuminating	Cyclic transmission in process
			Flashing	Cyclic transmission paused
STATUS 1			OFF	Cyclic transmission not conducted, parallel off
			Illuminating	Received data in error
			OFF	Received data in normal conditions
	-	GN	Illuminating	Linkup in process
LINK			OFF	Link-down in process
		OB	Illuminating	Received data in error
L.CR	-	- 0R	OFF	Received data in normal conditions

3. DeviceNet (REC-GW-DV)

Name	Panel Display	Color	Status	Explanation
STATUS 0	MS	GN	Illuminating	Operation in normal conditions
			Flashing (1Hz)	There is no configuration information, or not complete, device trial run necessary
		OR	Illuminating	Malfunction with no opportunity for recovery
			Flashing (1Hz)	Malfunction with opportunity for recovery
		GN/OR	Illuminated by turns	Self - diagnosis
STATUS 1	NS	GN	Illuminating	Online, Connection established
			Flashing (1Hz)	Online, No connection established
		OR	Illuminating	Critical Error
			Flashing (1Hz)	Connection Timeout
		GN/OR	Illuminated by turns	Self - diagnosis
			OFF	Offline

4. EtherCAT (REC-GW-EC)

Name	Panel Display	Color	Status	Explanation
STATUS 0	ERR	OR	Illuminating	Communication component (module) error
			Flashing (continuously)	Construction information (setting) error ON: 200ms / OFF: 200ms
			Flashing (twice)	Communication part circuit error ON: 200ms × 2 / OFF: 1000ms
			OFF	In initializing process
STATUS 1	RUN	GN	Illuminating	In normal operation (OPERATION)
			Flashing (continuously)	In PRE-OPERATION condition ON: 200ms / OFF: 200ms
			Flashing (once)	In SAFE-OPERATION condition ON: 200ms / OFF: 1000ms
		OR	Flashing	Communication component (module) error

5. EtherNet/IP (REC-GW-EP)

Name	Panel Display	Color	Status	Explanation
STATUS 0	MS	GN	Illuminating	Operation in normal conditions
			Flashing	There is no configuration information, or scanner in idol condition
		OR	Illuminating	Malfunction with no opportunity for recovery
			Flashing	Malfunction with opportunity for recovery
STATUS 1	NS	GN	Illuminating	Online, connection established
			Flashing	Online, No connection established
		OR	Illuminating	Critical error, IP address duplicated error
			Flashing	Connection Timeout
		GN/OR	OFF	No IP address

6. PROFIBUS-DP (REC-GW-PR)

Name	Panel Display	Color	Status	Explanation
STATUS 0	MS	GN	Illuminating	Initialization completed
			Flashing	Initialization completed, there is a diagnosis event
		OR	Illuminating	Exception error
		GN/OR	OFF	Not initialized
STATUS 1	NS	GN	Illuminating	Online, data exchange
			Flashing	Online, cleared
		OR	Illuminating	Parameter error
			Flashing	Configuration error
		GN/OR	OFF	Offline

7. PROFINET IO (REC-GW-PRT)

Name	Panel Display	Color	Status	Explanation
	MS	GN	Illuminating	Communication in normal conditions
			Flashing (once)	In network diagnosis
			Flashing (twice)	Engineering tools identifying nodes
STATUS 0		OR	Illuminating	Exception error occurred (malfunction of hardware)
			Flashing (once)	Mismatch of setting an actual network construction
			Flashing (twice)	IP address not established
			Flashing (three times)	Station name not established
			Flashing (four times)	Internal error occurred
		GN/OR	OFF	In initializing process
STATUS 1	NS	GN	Illuminating	Online (communication in normal conditions: RUN)
			Flashing	Online (STOP)
		GN/OR	OFF	No connection

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