

SSEL

First Step Guide Sixth 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 in the contained model or any missing parts, contact IAI 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 of the controller"	
Accessories			
2	Fieldbus Connector	DeviceNet type	SMSTB2.5/5-ST-5.08AU (Supplier : PHOENIX CONTACT)
		CC-Link type	
		PROFIBUS-DP type	9-pin D-sub (female) connector.
		EtherNet/IP type	Ethernet straight cable (Category level 5e or higher)
3	Fieldbus Terminal Resistance	DeviceNet type	Installed if this controller is at the end of the network
		CC-Link type	130Ω1/2W, 110Ω1/2W enclosed one unit each
		PROFIBUS-DP type	Installed if this controller is at the end of the network
		EtherNet/IP type	Not necessary
4	AC Power Supply Plug		
5	System I/O Plug (2 Units)		
6	First Step Guide	ME0264	
7	Safety Guide	M0194	

2. Teaching Tool (to be purchased separately)

A teaching tool such as PC software is necessary to perform commissioning of this product.
 Any of the following teaching tools may be used.

No.	Part Name	Model
1	PC Software (with RS232C cable + Emergency Stop Box)	IA-101-X-MW
2	PC Software (with USB converter adapter + RS232C cable + Emergency Stop Box)	IA-101-X-USBMW
3	PC Software (with the cable complying with Safety Category Class 4 specifications + Emergency Stop Box)	IA-101-XA-MW
4	Teaching Pendant	SEL-T
5	Teaching Pendant (with deadman switch)	SEL-TD
6	Teaching Pendant (with deadman switch + TP Adapter (IA-LB-TG))	SEL-TG
7	Teaching Pendant	IA-T-X
8	Teaching Pendant (with deadman switch)	IA-T-XD

3. Instruction Manuals related to this product

No.	Part Name	Manual No.
1	SSEL Controller Instruction Manual	ME0157
2	PC Software IA-101-X-MW/IA-101-X-USBMW	ME0154
3	Teaching Pendant SEL-T/TD/TG	ME0183
4	Teaching Pendant IA-T-X/XD	ME0160
5	DeviceNet Instruction Manual	ME0124
6	CC-Link Instruction Manual	ME0123
7	PROFIBUS-DP Instruction Manual	ME0153
8	EtherNet/IP Instruction Manual	ME0308

4. How to read the model plate

Model	MODEL SSEL-C-2-200A-100AB-DV-2-1
Serial number	SERIAL No. 600061190
	MADE IN JAPAN

5. How to read the model of the controller

SSEL - C - 2 - 200A - 100AB - DV - 2 - 1											
① ② ③ ④ ⑤ ⑥ ⑦											
Model table											
Series	Controller Type	Number of axes	Motor Output	Encoder Type	Brake	Creep	Home sensor	Synchronization Designation	Standard I/O	I/O Flat cable length	Power-supply Voltage
SSEL	C (Standard Type) CS (Standard Type)	1 (1-axis) 2 (2-axis)	30D (30W for RCS2) 30R (30W for RC) 60 (60W) 100 (100W) 150 (150W) 200 (200W) 300 (300W) 400 (400W) 600 (600W) 750 (750W)	WAI (Battery-less absolute/ Incremental) A (Absolute) G (Spurious absolute)	Not Specified (w/o brake) B (w/ brake)	Not Specified (w/o creep) C (w/ creep)	Not Specified (w/o home sensor) L (Applicable to Home Sensor LS)	Not Specified (No synchronization) M (Master-axis designation) S (Slave-axis designation)	DV DeviceNet CC CC-Link PR PROFIBUS-DP EP EtherNet/IP	0 : None	1 : Single-Phase 100V 2 : Single-Phase 200V

Basic Specifications

Specifications

Specification Item	Single-Axis Type	2-Axis Type
Max. Connected Axis Output	100V AC Type 400W 200V AC Type 800W	
Control Power Capacity	100V AC Type Single-phase 100V to 115V Power Fluctuation ±10% or less 200V AC Type Single-phase 200V to 230V Power Fluctuation ±10% or less	
Motor Power Source Voltage	100V AC Type Single-phase 100V to 115V Power Fluctuation ±10% or less 200V AC Type Single-phase 200V to 230V Power Fluctuation ±10% or less	
Power Supply Frequency	50/60Hz	
Rush Current ^{Note1}	55A (Control) 55A (Drive)	55A (Control) 110A (Drive)
Leakage Current ^{Note2}	1.0mA or less	
Power Capacity for Electro-magnetic Brake Power Unit ^{Note3} (In the case of the actuator with a brake)	24V DC±10% Rated 0.5A MAX. 1A	24V DC±10% Rated 1A MAX. 2A
Heat Generation for Electro-magnetic Brake Power Unit (In the case of the actuator with a brake)	12W	24W
Transient Power Cutoff Durability	50Hz : 10ms, 60Hz : 8ms	
Insulation Resistance	500V DC 100MΩ or more	
Insulation Strength	1500V AC for 1min. (actuator the time of connection 1000V AC for 1min.)	
Axis Control System	AC Full-digital Servo	
Position detection method	Incremental Encoder or Absolute Encoder	
Battery for Backup	For Absolute Data Memory Backup : AB-5 manufactured by our company (Option) For System Memory Backup : AB-5 manufactured by our company (Option)	
Program language	Super SEL language	
Max. Number of program steps	9999 steps	
Max. Number of positions	20000 positions	
Max. Number of programs	128 programs	
Max. Number of multitask programs	8 programs	
Data storage device	Flash ROM + SRAM Backup (Option)	
Data input method	Teaching pendant or PC software	
Serial Communication Interface	RS232C: 1CH... Dedicated protocol (at AUTO Mode) or for connection to PC software	
USB Interface	1CH (B Connector)... Dedicated protocol (at AUTO Mode) or for connection to PC software	
Communication Cable Length	RS232C 15m or less USB 5m or less	
Field Bus Port	1 channel Complying with the standards for each field bus (Refer to the Wiring diagram for the connector). Either of DeviceNet / CC-Link / PROFIBUS-DP/ EtherNet/IP	
System I/O	Emergency-stop input, Safety gate input	
Protective functions	Overvoltage, motor overcurrent, motor overload, driver temperature error, encoder error, etc.	
Drive-source cutoff method	Internal Relay	
Regenerative Resistor	Built-in 20W Power Source (External Expansion Available)	
Environment	Ambient air temperature	0 to +40°C
	Ambient humidity	10 to 95%RH (non-condensing)
	Ambient environment	Free of corrosive gases, especially, no excessive dust
	Ambient storage temperature	-25 to 70°C, batteries (option) excluded
	Ambient storage humidity	10 to 95%RH (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)
	Impact	147mm/s ² , 11ms Semi-sine wave pulse three times to each of the directions X, Y and Z
Protection class	IP20	
Cooling Method	Forced Air Cooling	
Weight	1380g	
External Dimensions	(Refer to External Dimensions Section)	

Note 1 Rush current at the power connection continues for about 5 msec. Consider the safety rate at the time when rush current passes. The rush current value varies depending on the impedance of the power line.

Note 2 The leaked current value is for the single controller not connected to the actuator.

The leaked current varies depending on the surrounding environment.
 When the leakage protective measure is taken, measure the leakage current at the leakage breaker installation location.

Note 3 The brake is an instantaneous over excitation brake. Current of max. 1A per axis passes during 100msec of brake release.

Table 1 Motor Power Unit Capacity and Heat Generation

Actuator or Motor Capacity [W]	Rated Motor Power Capacity [VA]	Peak Max. Motor Power Capacity [VA]	Heat Generation in reaching the rated motor power capacity [W]
20	26	78	1.6
30	46	138	2.1
60	138	415	3.9
100	234	701	6.1
150	328	984	8.3
200	421	1,263	9.1
400	796	2,388	19.8
600	1,164	3,492	27.2
750	1,521	4,564	29.8
100 (Linear Actuator S6SS)	101	303	3.7
100 (Linear Actuator S8SS)	159	477	4.1
100 (Linear Actuator S8HS)	216	648	3.8
100 (Linear Actuator N10SS)	379	1137	4.5
200 (Linear Actuator S10SS)	343	1,029	5.3
200 (Linear Actuator S10HS)	417	1,251	5.0
200 (Linear Actuator H8SS)	189	567	5.4
200 (Linear Actuator H8HS)	379	1,137	5.4
200 (Linear Actuator L15SS)	189	567	5.4
200 (Linear Actuator N15SS)	486	1458	4.4
200 (Linear Actuator N15HS)	773	2319	6.4
300 (Linear Actuator N19SS)	662	1,986	11.6
400 (Linear Actuator W21SS)	920	2,760	16.7

Table 2 Control Power Unit Capacity and Heat Generation

Control Power Capacity [VA]	Control Power Unit Heat Generation [W]
60	36

[Power Capacity and Heat Generation]

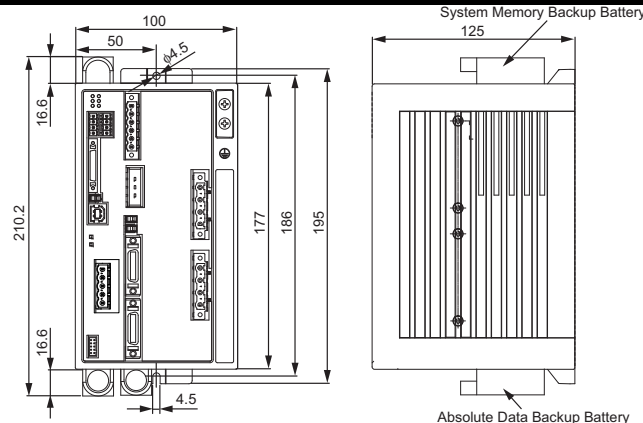
Rated Power Capacity [VA] = First Axis Momentary Maximum Motor Power Capacity [VA] □ Second Axis

Momentary Maximum Motor Power Capacity [VA] □ Control Power Capacity [VA]

Momentary Maximum Power Capacity [VA] = First Axis Momentary Maximum Motor Power Capacity [VA] □ Second Axis Momentary Maximum Motor Power Capacity [VA] □ Control Power Capacity [VA]

Heat Generation in reaching the Rated Capacity [W] = First Axis Motor Power Unit Heat Generation in reaching the Rated Capacity [W] □ Second Axis Motor Power Unit Heat Generation in reaching the Rated Capacity [W] □ Control Power Unit Heat Generation [W]

External Dimensions

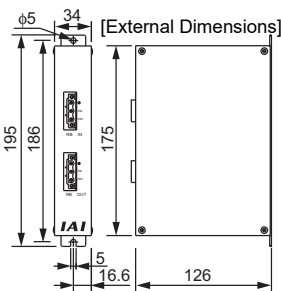


- The dimensions are the same no matter of single axis type, double axis type or the type of the fieldbus.
- The above figure shows the condition where the system memory backup battery (option) and absolute data backup battery (option) have been attached.

Regeneration Unit (Option) : REU-1, REU-2

Regenerative Resistor Unit: This unit converts the regenerative current brought at the time of the motor deceleration into heat

[Specification]		Specification
Item		Specification
Dimensions		W34 × H195 × D126mm
Weight		0.9kg
Internal Regenerative Resistor		235Ω 80W
Connection Cable (Accessories)	REU-1	Model : CB-ST-REU010 1m
	REU-2	Model : CB-SC-REU010 1m



[Installation Standards]

When it is installed horizontally

Connected Actuator Motor Capacity Total	No. of Connected Regenerative Resistance Units
to 200W	Not Required
to 800W	1

When it is installed vertically

Connected Actuator Motor Capacity Total	No. of Connected Regenerative Resistance Units
to 200W	Not Required
to 600W	1
to 800W	2

* More regenerative resistance may be required depending on the operating condition.

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.

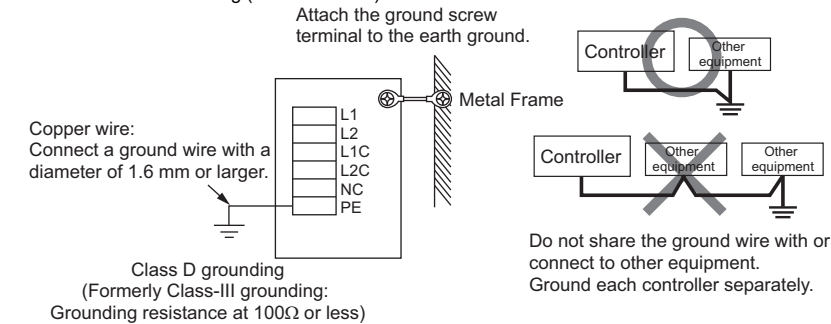
- Location subject to electrostatic noise
- Location where a high electrical or magnetic field is present
- Location with the mains or power lines passing nearby

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.

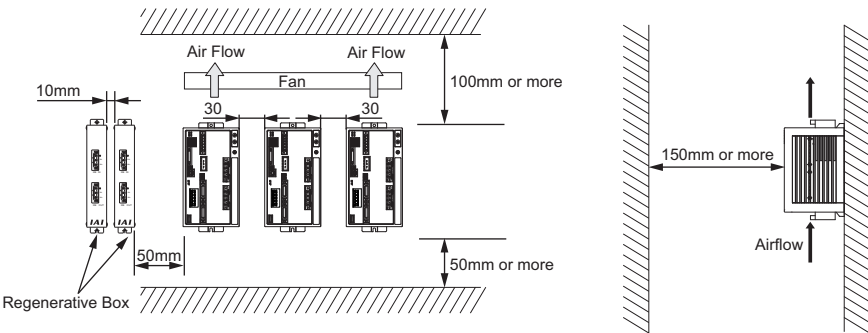
3. Noise Sources and Elimination

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.

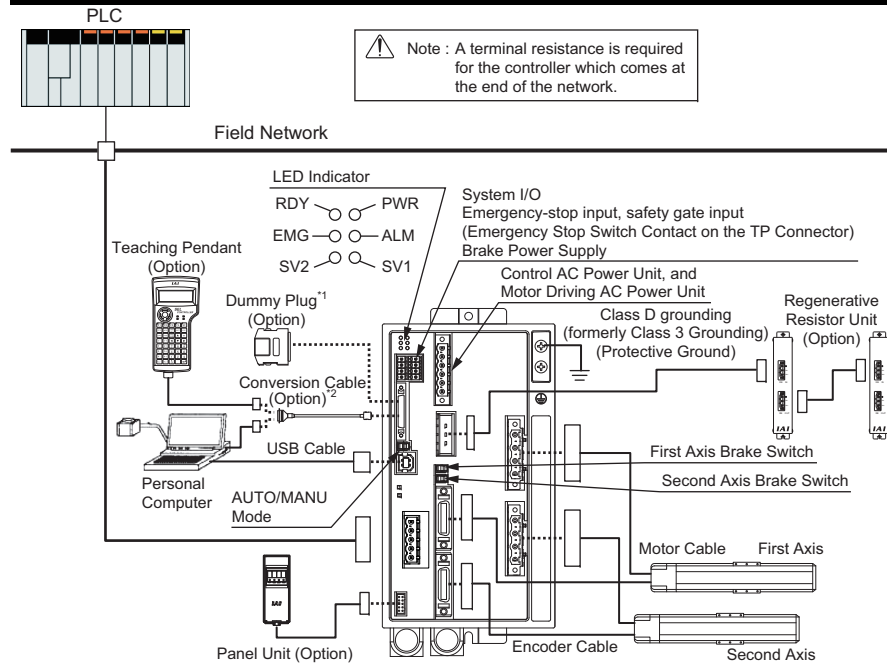
- AC solenoid valves, magnet switches and relays
[Measure] Install a Surge absorber parallel with the coil.
- DC solenoid valves, magnet switches and relays
[Measure] Install a diode parallel with the coil. Use a DC relay with a built-in diode.

4. Heat Radiation and Installation

Conduct design and manufacture in consideration of the control box size, controller layout and cooling in such a way that the temperature around the controller will be 40°C or less.



Wiring



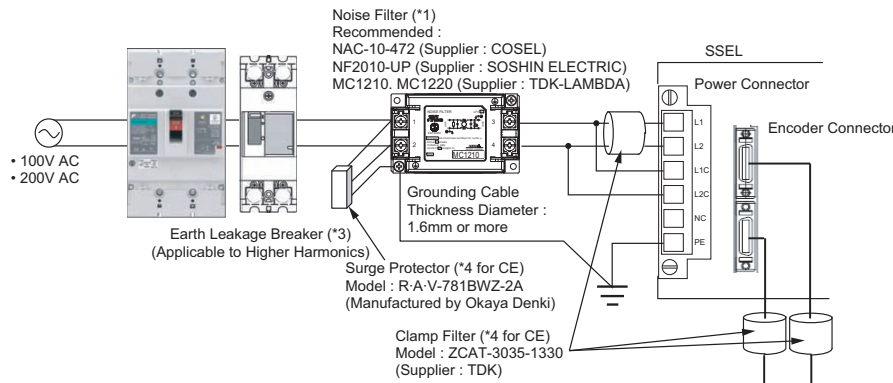
Warning : When the PC is connected to the controller using the USB cable, the emergency stop box can not be connected. In the case of stop in an emergency, process it in the system.

- When the PC is connected to the controller using the USB cable, it is required to attach the dummy plug to the controller to short circuit the Safety Gate Signal for the PC application software and teaching pendant.
- The conversion cable and dummy plug differ depending on the model code of SSEL.

Model	Applicable Conversion Cable	Applicable Dummy Plug
SSEL-C	CB-SEL-SJ002	DP-3
SSEL-CS	CB-SEL-SJS002	DP-4S

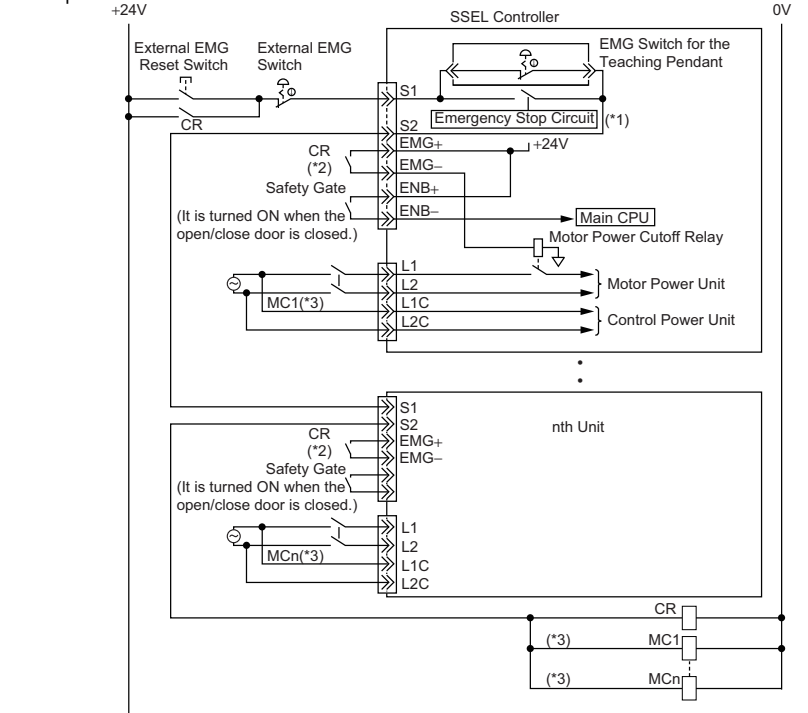
Power Supply and Emergency Stop Circuit

• SSEL Controller Power Supply Wiring (The Client should prepare it).



- Make sure to install the noise filter.
- Follow the instructions below for the selection of the circuit breaker.
Breaker Rated Current Value > Power Capacity / AC Input Voltage
(Refer to "Power Capacity and Heat Generation" for Power Capacity.)
 - Three times more than the rated current might flow through the controller during acceleration. Select one that does not trip when the above current passes. If a trip occurs, select an interrupter that possesses the rated current of one grade higher.
 - Select an interrupter that does not trip with the in-rush current. (Refer to the operating characteristic curve described in the manufacturer's catalog.)
 - For the rated breaking current, select the current value which can break the current even when a short circuit occurs.
Breaking current > A short circuit occurs = Primary Power Supply Capacity / Power-Supply voltage
Consider margin for the rated current on the circuit breaker.
- A ground fault circuit interrupter needs to be selected carefully considering the purposes of prevention of fire and protection of human.
Have a measurement of the leak current where a ground fault circuit interrupter is to be installed.
Use the "harmonic type" for the ground fault circuit interrupter.
- For the CE marked type, the attachment of the clamp filter for each model shown in the figure, and the connection to the surge protector, are required.
In addition, for all the cables to be connected to the SSEL, arrange them with a length less than 30 m.

- Emergency Stop Input Cable Arrangement Example
Following is an example of an emergency stop circuit of the whole system when the emergency stop for multiple controllers is included in it.



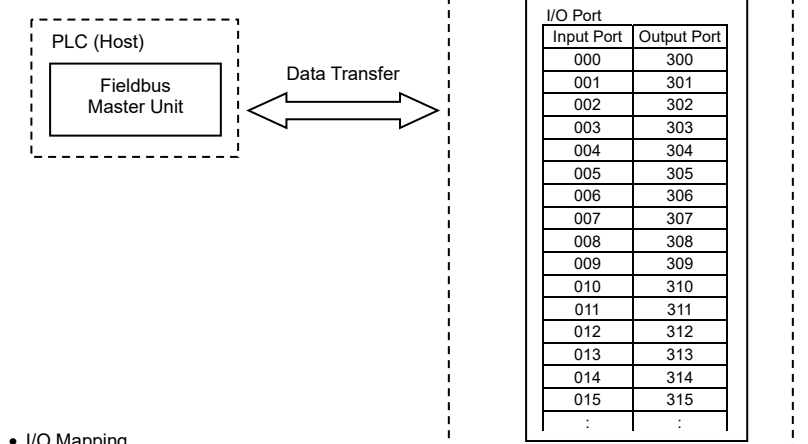
- The connection of the teaching pendant is automatically recognized using the controller.
- For the CR contacts between EMG "+" and EMG "-", use 24V DC, 0.5A/contact or more.
- When the safety category demands a break in the driving source, connect the MC.
Select contact rating for MC based on the current value found in the circuit breaker selection.
Make sure the total current to flow in S1 and S2 do not exceed 0.5A. In case it does, have a supportive relay to be equipped.

I/O Port

I/O port is a place where the data inside SSEL Controller is sent and received.

1 port can handle data of 1 contact (1 bit).

Data is transferred via Fieldbus.



• I/O Mapping

At delivery, the I/O port numbers and their functions are show below for the SSEL controller.

The port numbers and their function assignments can be changed in the I/O parameters.

[Please refer to the "SSEL Controller Instruction Manual" for the details.]

	PLC (Host)		SSEL Controller	
	Port No.	Function	Port No.	Function
Input	016	Program select (RPG No.1)	008	General-purpose Input
	017	Program select (RPG No.2)	009	General-purpose Input
	018	Program select (RPG No.4)	010	General-purpose Input
	019	Program select (RPG No.8)	011	General-purpose Input
	020	Program select (RPG No.10)	012	General-purpose Input
	021	Program select (RPG No.20)	013	General-purpose Input
	022	Program select (RPG No.40)	014	General-purpose Input
	023	Software reset (Restart)	015	General-purpose Input
	000	Program Start	300	Alarm Output
	001	General-purpose Input	301	Ready Output
	002	General-purpose Input	302	General-purpose Output
	003	General-purpose Input	303	General-purpose Output
	004	General-purpose Input	304	General-purpose Output
	005	General-purpose Input	305	General-purpose Output
Output	006	General-purpose Input	306	General-purpose Output
	007	General-purpose Input	307	General-purpose Output

(Note) Number of I/O ports is interpreted as follows.

Input	000 to 299 (MAX. 300 points)
Output	300 to 599 (MAX. 300 points)

Initial Setting (I/O parameter)

No.	Parameter Name	Initial Value (Reference)	Input Range	Reference
1	I/O Port Allocation Type	1	0, 1	0: Fixed Allocation 1: Automatic Allocation (Order of Priority : Field Bus Port) →Standard I/O Board (Slot 1)
14	Number of Network I/F Card Remote Input Ports	64	0 to 256	Multiples of 8 Set up the number of input ports to be used for Fieldbus. For No. 14 and 15, choose the greater number and input the same value.
15	Number of Network I/F Card Remote Output Ports	64	0 to 256	Multiples of 8 Set up the number of output ports to be used for Fieldbus. For No. 14 and 15, choose the greater number and input the same value.
16	Network I/F Module Fix-Allocated Input Port Start No.	0	-1, 0 to 299	Multiples of 8 (Unavailable when it is negative figure) Input which input port is to be used for Fieldbus.
17	Network I/F Module Fix-Allocated Output Port Start No.	300	-1, 300 to 599	Multiples of 8 (Unavailable when it is negative figure) Input which output port is to be used for Fieldbus.
18	Network I/F Module Error Monitor	1	0 to 5	0: No Monitoring 1: Monitoring

The occupied address area on the PLC side is determined by the number of used inputs and outputs.
Refer to the instruction manual of the master unit for the details.

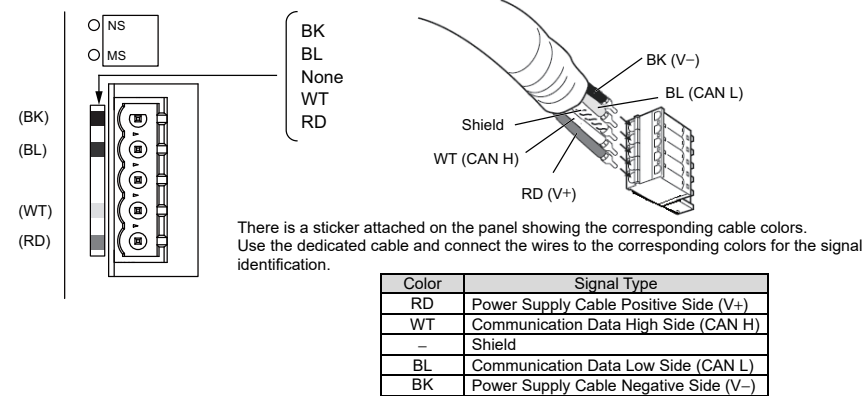
DeviceNet

Specification				
Item	Specification			
Communication Protocol	DeviceNet 2.0 (Certified Interface)			
For Communication	Master/Slave Connection		Bit Strobe	
	Communication Cable Length		Polling	
	(Note1)		Cyclic	
Baud Rate	500k/250k/125kbps			
Communication Cable Length (Note1)	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 cable is used			
No. of Occupied Nodes	1 node			
Communication Power Supply	Voltage 24V DC±10% Current Consumption 60mA Externally Supplied (Supplied from DeviceNet communication cable side)			
Communication Cable	Dedicated cable for DeviceNet			

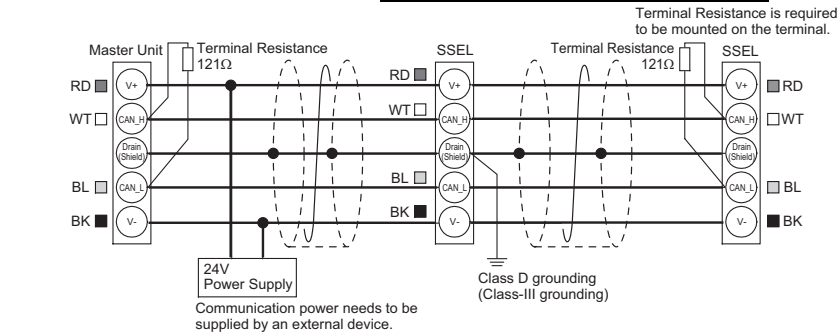
Note 1 Refer to the Instruction Manuals for the master unit and the mounted programmable logic controller (stated as PLC from now on) when a T-junction communication is to be conducted.

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

The connection connector is enclosed as a standard option.
Connector : SMSTB2.5/5-ST-5.08AU(Supplier : PHOENIX CONTACT)



There is a sticker attached on the panel showing the corresponding cable colors.
Use the dedicated cable and connect the wires to the corresponding colors for the signal identification.



- Network Type Setting
The I/O Parameter No. 225 "Network I/F Module Control" has been set to "2H" (DeviceNet) when the unit is delivered. (Therefore, the setting is not necessary.)
- Node Addresses
Station number is set with parameter.
Set the node address to I/O Parameter No. 226 "Network I/F Module Communication Attribute 1". The setting range is from 0 to 63. (Set in delivery : 0)
(Note) "D75: Fieldbus Parameter Error" would occur if the set address is out of the allowable range.
- Baud Rate Setting
There is no need to set the baud rate since it automatically follows the master setting.
(Note) Make sure to reboot the controller after the parameter setting is complete, and do not forget to turn the mode changeover switch to "AUTO" side.

CC-Link

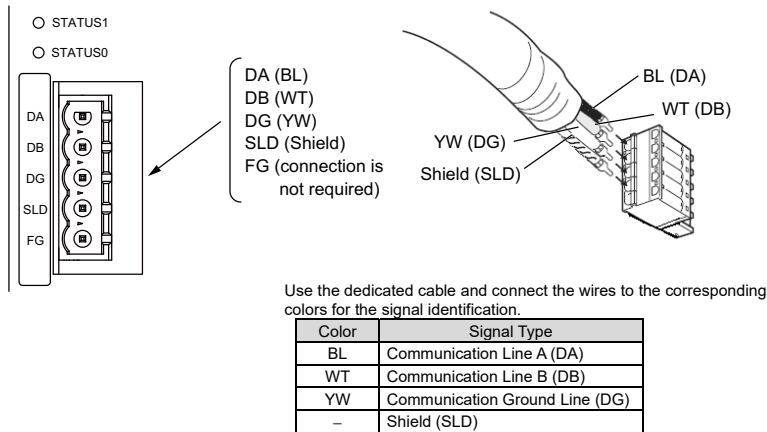
Item	Specification					
Communication Protocol	CC-Link Ver1.10					
Baud Rate	10M/5M/2.5M/625k/156kbps					
Communication System	Broadcast Polling System					
Synchronization System	Frame synchronization system					
Transmission Path Format	Bus format (EIA RS485 conformance 3-line type)					
Error Control System	CRC ($X^{16} + X^{12} + X^5 + 1$)*1					
No. of Occupied Stations	Remote Device Station [Refer to Field Network Wirings and Settings Section]					
Communication Cable Length (Note1)	Baud Rate	10Mbps	5Mbps	2.5Mbps	625kbps	156kbps
	Total Cable Length	100m	160m	400m	900m	1200m
Communication Cable	Dedicated cable for CC-Link					

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.

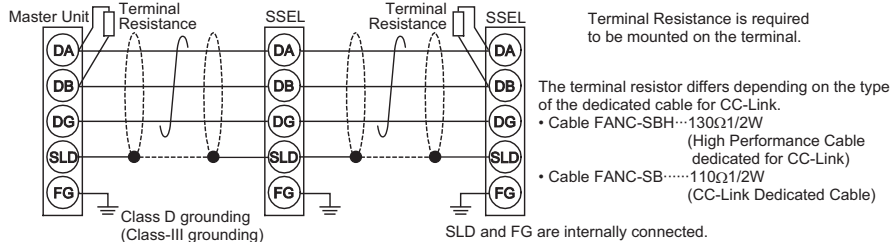
*1 CRC : Cyclic Redundancy Check It is a data error detection method often used for the synchronous transmission

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

The connection connector is enclosed as a standard option.
Connector : SMSTB2.5/5-ST-5.08AU (Supplier : PHOENIX CONTACT)



Use the dedicated cable and connect the wires to the corresponding colors for the signal identification.



- Network Type Setting
The I/O Parameter No. 225 "Network I/F Module Control" has been set to "1H" (CC-Link) when the unit is delivered. (Therefore, the setting is not necessary.)
- Node Addresses
Set the station number to I/O Parameter No. 226 "Network I/F Module Communication Attribute 1". The setting range is from 1 to 63. (Set in delivery : 0)
(Note) "D75: Fieldbus Parameter Error" would occur if either of the occupied stations is set to a station number 0 or more than 65.
- Baud Rate Setting
Set the baud rate to the bits 0 to 3 in I/O Parameter No. 227 "Network I/F Module Communication Attribute 2". The setting range is from 0 to 4H.

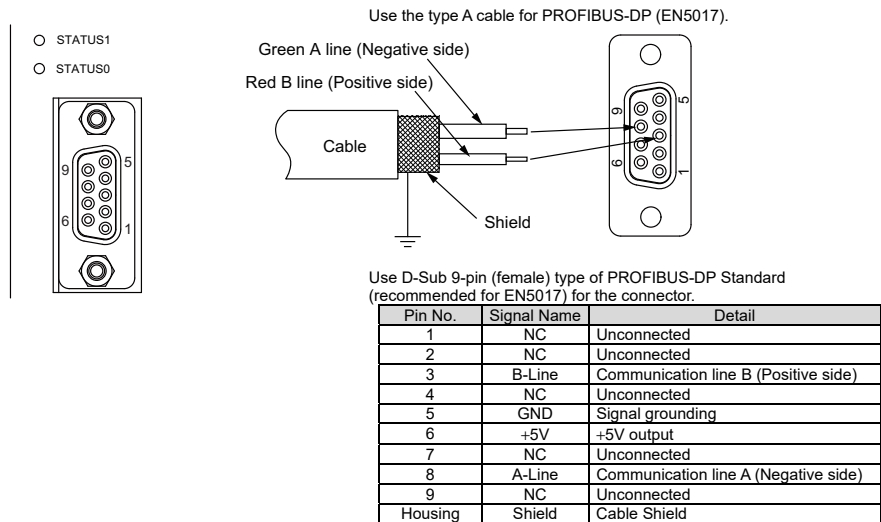
Value set in I/O parameter No.227	Baud Rate [bps]
0	156k
1	625k
2	2.5M
3	5M
4 (Set in delivery)	10M

(Note) Set the baud rate to match with the setting in the master station.

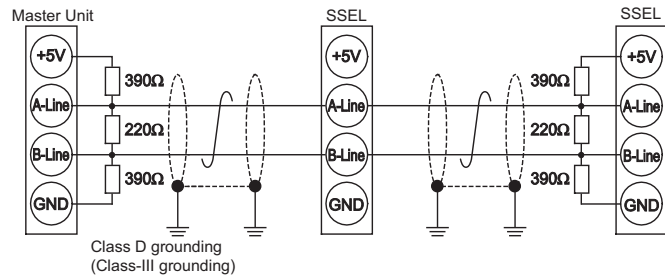
PROFIBUS-DP

Item	Specification					
Communication Protocol	PROFIBUS-DP (RS485 conformance)					
Communication System	Hybrid System (Master-Slave System or Token Passing System)					
Baud Rate	9.6k to 12Mbps (Automatically follows the master)					
Communication Cable Length (Type A Cable)	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	1500m
No. of Occupied Nodes	1 node					
Communication Cable	Type A Cable for PROFIBUS-DP (Standard EN50170)					

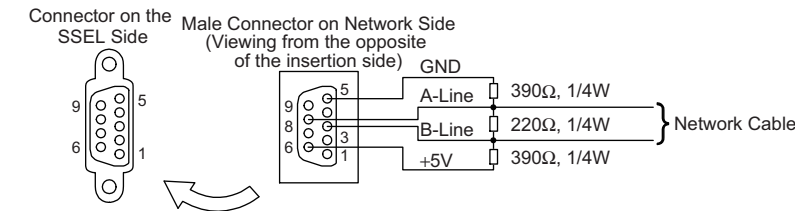
- Wiring
For details, refer to the Instruction Manuals of the master unit and PLC in which the master unit is installed.



Use D-Sub 9-pin (female) type of PROFIBUS-DP Standard (recommended for EN5017) for the connector.



- Bus Termination
When connecting to the network terminal, apply a terminal resistor to PROFIBUS-DP Communication Connector as shown below or apply a connector already equipped with a terminal resistor.
• An example for a connector equipped with a terminal resistor : SUBCON-PLUS-PROFIB/AX/SC (PHOENIX CONTACT)
- Connection of Terminal Resistor



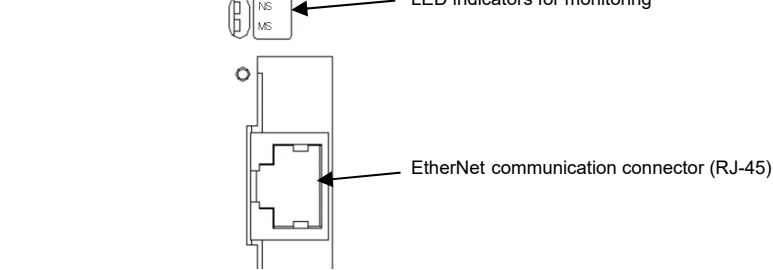
- Network Type Setting
The I/O Parameter No. 225 "Network I/F Module Control" has been set to "3H" (PROFIBUS-DP) when the unit is delivered. (Therefore, the setting is not necessary.)
- Node Addresses
Set the node address to I/O Parameter No. 226 "Network I/F Module Communication Attribute 1". The setting range is from 0 to 125. (Set in delivery : 1)
(Note) "D75: Fieldbus Parameter Error" would occur if the set address is out of the allowable range.
- Baud Rate Setting
There is no need to set the baud rate since it automatically follows the master setting.
(Note) Make sure to reboot the controller after the parameter setting is complete, and do not forget to turn the mode switch to "AUTO" side.

EtherNet/IP

• Specification

Item	Specification
Device Type	Generic Device
IP Address	1.0.0.1 to 255.255.255.254
Port No.	2222 (UDP), 44818 (TCP/IP)
Baud Rate	10/100Mbps
Communication Mode	10BASE-T/100BASE-T (Half Duplex / Full Duplex)
Communication Cable Length	In accordance with specification at EtherNet/IP (The distance between the hub and each node must be within 100 m)
Communication Cable	Category level 5 or higher (Aluminum tape and braided double-shielded cable are recommended.)
Connector	RJ45 Connector (1 per connector)

• Interface Section



(Note) Refer to the instruction manual for the details of the LED display.

• EherNet/IP Connector

Pin No.	Signal Name	Signal Abbreviation
1	Data transmitted +	TD+
2	Data transmitted -	TD-
3	Data received +	RD+
4	Not used	
5	Not used	
6	Data received -	RD-
7	Not used	
8	Not used	
Connector Hood	Protective grounding	FG

• Network Type Setting

The I/O Parameter No. 225 "Network I/F Module Control" has been set to "7H" (EtherNet/IP) when the unit is delivered. (Therefore, the setting is not necessary.)

• Set IP address

Have the settings established for I/O Parameters No. 132 to 135 "Network I/F Module Self IP Address". Setting range: 1.0.0.1 to 255.255.255.254 (This parameter is set to 192.168.0.1 at delivery.)

• Setting the Subnet Mask

Have the settings established for I/O Parameters No. 136 to 139 "Network I/F Module Subnet Mask". Setting range: 0.0.0.0 to 255.255.255.255 (This parameter is set to 255.255.255.0 at delivery.)

• Setting the Default Gateway

Have the settings established for I/O Parameters No. 140 to 143 "Network I/F Module Default Gateway". Setting range: 0.0.0.0 to 255.255.255.255 (This parameter is set to 0.0.0.0 at delivery.)

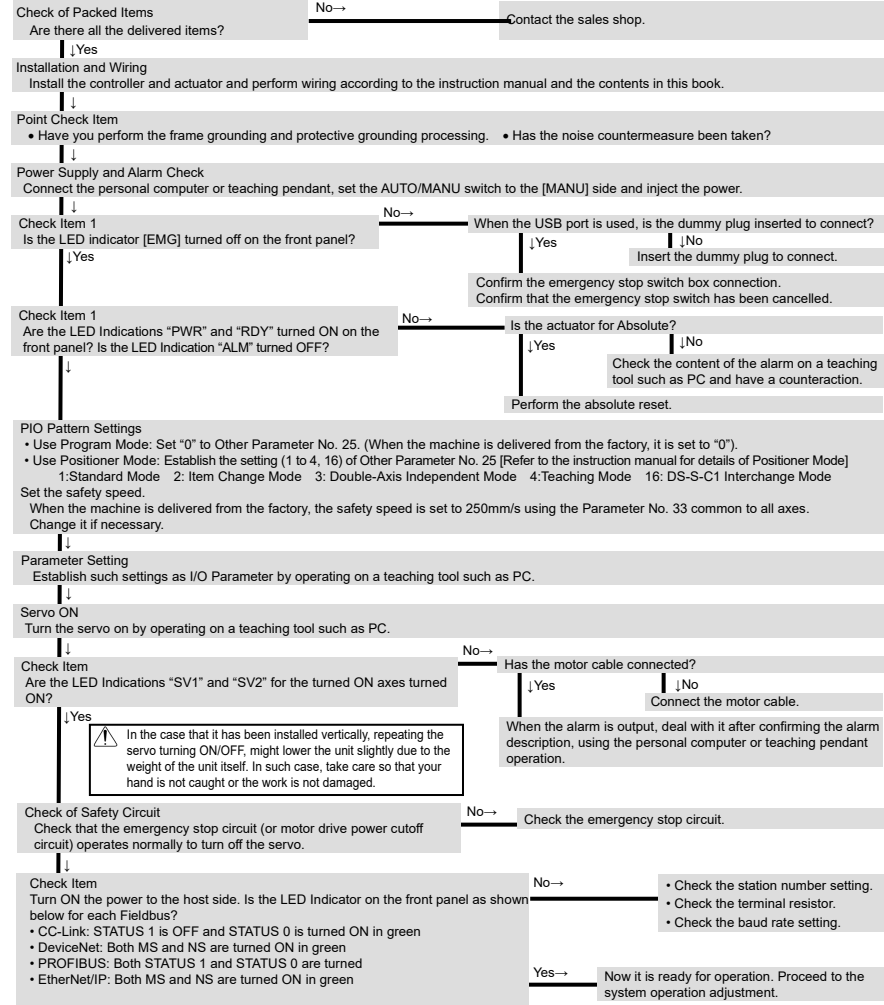
• Baud Rate Setting

Have the settings established for I/O Parameter No. 227 "Network I/F Module Baud Rate". (Auto negotiation setting is recommended.)

(Note) Make sure to reboot the controller after the parameter setting is complete, and do not forget to turn the mode switch to "AUTO" side.

Starting Procedures

When using this product for the first time, work while making sure to avoid omission and incorrect wiring by referring to the procedure below.



Troubleshooting

If an error has occurred, it is possible to check the operation condition on the status LEDs on the front panel.

• In the case of DeviceNet:

LED Indicators for Monitoring				Condition	Treatment
MS	OR	NS	OR		
GN	OR	GN	OR		
Illuminating	-	Illuminating	-	In normal operation	
Illuminating	-	OFF	OFF	Waiting for the completion of the node address duplication check on the master side	• Check if the communication speed of the master is the same as that for all the slave units. • Correct the setting and re-start the machine. • Check if the connector is connected correctly.
Illuminating	-	Flashing	-	Waiting for the establishment of the connection with the master	• Check if the master is operated normally. • Check if it has been registered in the master's scanning list.
-	Illuminating	OFF	OFF	A hardware error occurred.	• Contact our company.
-	Flashing	OFF	OFF	Dip Switch Setting Error	• Check if the communication speed of this unit is the same as that of the master. • Check if the configuration has been set correctly.
Illuminating	-	-	Illuminating	Duplicated node address or Busoff (Communication stop due to frequent data error) detection	• Correct the node address and restart the machine. • Check if there is any noise source close to the unit or the communication cable is not arranged parallel to the power line, and check for the influence of the noise.
Illuminating	-	-	Flashing	Communication Time-out	• Check if the communication speed of this unit is the same as that of the master.
In NS, green light is turned ON and flashes repeatedly or red light and green light flash repeatedly.				Communication Error	• Check if it has been registered in the master's scanning list. • Check if the I/O area is not duplicated with that of the other slave unit. • Check if the I/O area does not exceed the area permitted by the master unit. (in the case of fixed allocation)

• In the case of CC-Link

STATUS1	STATUS0	Condition
Illuminating	Illuminating	Impossible condition
Illuminating	OFF	• An error occurs. (CRC Error, Station Setting Error or Communication Speed Setting Error) • Since turning the power ON or software reset till completion of CC-Link initialization
OFF	Illuminating	Normal Communication Status
OFF	OFF	Power Failure: Remote station power unit breakdown or communication cable breakage
Flashing	Illuminating	Impossible condition
Flashing	OFF	The station number setting or the baud rate setting is changed during the communication

• In the case of PROFIBUS-DP

LED	Color	Illumination Status	Indication Description (Meaning)
STATUS 1	GN	Illuminating	Online from fieldbus and communication in normal condition.
		Flashing	Offline from fieldbus.
STATUS 0	GN	Flashing	Communication error is occurred.
		Illuminating	In normal operation.
STATUS 0	OR	Flashing	Getting ready for operation.
		Illuminating	An error detected on communication-related hardware during preparing for operation.

• In the case of EtherNet/IP

Name	Illumination Status	Detail
NS	OFF	The power is turned off or IP address is not yet set.
	Illuminating (GN)	Connection has been established and proper communication is in progress.
	Flashing (GN)	The system is online but connection is not yet established. Communication is stopped (the network is normal). Check the status of the master unit.
	Illuminating (RD)	A communication error is present. Communication cannot be established because an error, such as duplicate IP addresses, has been detected.
	Flashing (RD)	A communication error is present. (A communication timeout has been detected.)
MS	OFF	The power is turned off.
	Illuminating (GN)	Operation is normal. The system is in the scanner (master) control mode.
	Flashing (GN)	Connection is not yet established with the scanner (master). Check the setting of configuration information. Check if the scanner (master) is idle.
	Illuminating (RD)	A hardware error is present. The board must be replaced. Please contact IAI.
MS	Flashing (RD)	A configuration error, invalid setting or other minor error is present. The problem can be resolved by, for example, setting the problem item or items again.



IAI Corporation

Head Office: 577-1 Obane Shimizu-KU Shizuoka City Shizuoka 424-0103, Japan
TEL +81-54-364-5105 FAX +81-54-364-2589
website: www.iai-robot.co.jp/

IAI America, Inc.

Head Office: 2690 W. 237th Street, Torrance, CA 90505
TEL (310) 891-6015 FAX (310) 891-0815
Chicago Office: 110 East State Parkway, Schaumburg, IL 60173
TEL(847) 908-1400 FAX (847) 908-1399
Atlanta Office: 1220 Kennestone Circle, Suite 108, Marietta, GA 30066
TEL (678) 354-9470 FAX (678) 354-9471
website: www.intelligentactuator.com

IAI Industrieroboter GmbH

Ober der Röth 4, D-65824 Schwalbach am Taunus, Germany
TEL 06196-88950 FAX 06196-889524
website: www.iai-automation.com

Technical Support available in Great Britain



Duttons Way, Shadsworth Business Park, Blackburn, Lancashire, BB1 2QR, United Kingdom
TEL 01254-685900
website: www.lcautomation.com

IAI (Shanghai) Co., Ltd.

SHANGHAI JIAHUA BUSINESS CENTER A8-303, 808, Hongqiao Rd. Shanghai 200030, China
TEL 021-6448-4753 FAX 021-6448-3992
website: www.iai-robot.com

IAI Robot (Thailand) Co., Ltd.

825 PhairojKijja Tower 7th Floor, Debaratana RD., Bangna-Nuea, Bangna, Bangkok 10260, Thailand
TEL +66-2-361-4458 FAX +66-2-361-4456
website: www.iai-robot.co.th

Manual No.: ME0264-6D