IAI
Quality and Innovation

XSEL-R/S, RX/SX, RXD/SXD

First Step Guide Seventh Edition

Thank you for purchasing our product.
Make sure to read the Safety Guide and detailed Instruction Manual (DVD) included with the product in addition to this First Step Guide to ensure correct use.
This Instruction Manual is original.

⚠ Warning : Operation of this equipment requires detailed installation and operation instructions which are provided on the DVD Manual included in the box this device was packaged in. It should be retained with this device at all times.
A copy of the DVD Manual can be requested by contacting your nearest IAI Sales Office listed at the back cover of the Instruction Manual or on the First Step Guide.

Product Check

This product is comprised of the following parts if it is of standard configuration:
If you find any fault in the contained model or any missing parts, contact us or our distributor.

1. Parts (Options are excluded.)

No.	Part Name	Remarks	Quantity R/RX/RXD	Quantity S/SX/SXD
1	Controller	Refer to “How to read the model plate” and “How to read the model of the controller.”		
Accessories				
2	System I/O plug	MC1.5/9-ST-3.5 (Maker: PHOENIX CONTACT)	2	2
3	AC Power Supply plug	GMSTB2.5/6-STF-7.62 (Maker: PHOENIX CONTACT)	1	1
		In the case of XSEL-SX4-NNN10040 or 12040 PC4/6- STF-7.62 (Maker: PHOENIX CONTACT)	-	1
4	Brake Power Input Plug	MC1.5/2-ST-3.5 (Maker: PHOENIX CONTACT)	1	1
5	Dummy plug	DP-2	-	1
6	First Step Guide		1	1
7	Operation Manual (DVD)		1	1
8	Safety Guide		1	1

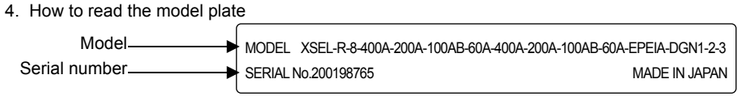
2. Teaching tool (Optional accessory)
The personal computer application software or teaching pendant is required for the operations including program creation and setup such as position setting and parameter setting with teaching. Any of teaching tools needs to be prepared.

No.	Part Name	Model	Applicable Controller R/RX/RXD	Applicable Controller S/SX/SXD
1	PC Software (with RS232C Cable + Emergency Stop Box)	IA-101-X-MW	○	×
2	PC Software (with USB Conversion Adapter + RS232C Cable + Emergency Stop Box)	IA-101-X-USBMW	○	×
3	PC Software (Safety Categories 4 compliance cable + 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. Operation manuals related to this product, which are contained in the operation manual (DVD).

No.	Name	Manual No.
1	XSEL-R/S/RX/SX/RXD/SXD Operation Manual	ME0313
2	SEL language programming manual	ME0224
3	XSEL Controller P/Q/PX/QX/PCT/QCT/R/S/RX/SX/RXD/SXD RC Gateway Function Operation Manual	ME0188
4	PC Software IA-101-X-MW/IA-101-X-USBMW Operation Manual	ME0154
5	Teaching pendant SEL-T/TD/TG Operation Manual	ME0183
6	Teaching pendant IA-T-X/XD Operation Manual	ME0160
7	DeviceNet Operation Manual	ME0124
8	CC-Link Operation Manual	ME0123
9	PROFIBUS Operation Manual	ME0153
10	EtherNet Operation Manual	ME0140
11	EtherCAT Operation Manual	ME0309
12	EtherNet/IP Operation Manual	ME0308
13	IA Net Operation Manual	ME0307

4. How to read the model plate



5. How to read the model

5.1 Controller for Single-Axis Robots and Orthogonal Robots

XSEL – R – 8 – 400A – 200A – 100AB – 60A – 400A – 200A – 100AB – 60A – EPEIA – DGN1 – 2 – 3
❶ ❷ ❸ ❹(Axis 1) ❹(Axis 2) ❹(Axis 3) ❹(Axis 4) ❹(Axis 5) ❹(Axis 6) ❹(Axis 7) ❹(Axis 8) ❺ ❻ ❼ ❽

Model table

❶ Series	❷ Controller type	❸ Number of axes	❹ Details of axis 1 to axis 8 (Note 1): Motor Wattage	Encoder type	Brake	Creep	Home Sensor (LS)	Synchronization Designation	❺ Network Slot: Slot 1	Slot 2	Slot 3	❻ I/O slots: Slot 1	Slot 2	❼ I/O Flat cable length	❽ Power supply voltage
XSEL	R (Standard Type) S*1 (Global Type)	1 (1-axis) 2 (2-axis) 3 (3-axis) 4 (4-axis) 5 (5-axis) 6 (6-axis) 7 (7-axis) 8 (8-axis)	12 (12W) 20 (20W) 30D (30W for DS) 30R (30W for RS) 60 (60W) 100 (100W) 100S (100W for Linear) 150 (150W) 200 (200W) 200S (200W for Linear) 300 (300W) 400 (400W) 600 (600W) 750 (750W)	I (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 (w/ Home Sensor)	Not Specified (No Synchronization) M (Master-Axis Designation) S (Slave-Axis Designation)	E Not for use EP EtherNet/IP Communication Board EC EtherCAT Communication Board	E Not for use DV DeviceNet Input256/ Output256 CC CC-Link Input256/ Output256 PR PROFIBUS Input256/ Output256	E IA Net not Corresponding IA IA Net Corresponding	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board MC Electronic Cam Pulse I/O Board DG DV Gateway Master Board	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board MC Electronic Cam Pulse I/O Board	2 : 2m (Standard) 3 : 3m 5 : 5m 0 : None	2: Single-phase 200V 2L: Only for Linear Single-phase 200V 3: 3-phase 200V 3L: Only for Linear 3-phase 200V

*1 In this type, the safety circuit can be configured with the motor driving power source separated.
Note 1 Any of the RCS2-R**7 series, RCS-RB75 series unit, RCS-G20, RCS-R* or the linear motor actuator (LSA) is not connected

5.2 SCARA Robot + Controller for Single-Axis Robots and Orthogonal Robots (4 axes Max.)

XSEL – RX8 – NNN5020H – 400A – 200A – 100AB – 60A – EPEIA – DGN1 – 2 – 3
❶ ❷ ❸ ❹(Axis 5) ❹(Axis 6) ❹(Axis 7) ❹(Axis 8) ❺ ❻ ❼ ❽

Model table

❶ Series	❷ Controller type	❸ SCARA Robot Model	❹ Details of axis 5 to axis 8 (Note 1): Motor Wattage	Encoder type	Brake	Creep	Home Sensor (LS)	Synchronization Designation	❺ Network Slot: Slot 1	Slot 2	Slot 3	❻ I/O slots: Slot 1	Slot 2	❼ I/O Flat cable length	❽ Power supply voltage
XSEL	RX4 (1unit of SCARA) RX5 (1unit of SCARA+Single Axis 1Axis) RX6 (1unit of SCARA+Single Axis 2Axis) RX7 (1unit of SCARA+Single Axis 3Axis) RX8 (1unit of SCARA+Single Axis 4Axis) SX4*1 (1unit of SCARA) SX5*1 (1unit of SCARA+Single Axis 1Axis Safety Category Type) SX6*1 (1unit of SCARA+Single Axis 2xis Safety Category Type) SX7*1 (1unit of SCARA+Single Axis 3Axis Safety Category Type) SX8*1 (1unit of SCARA+Single Axis 4Axis Safety Category Type)	NNN1205 to 8040H NNN10040 to 12040 (Standard Type) NSN5016H to 6016H (High-Speed Type) NNC1205 to 8040H (Clean Type) NNW2515H to 8040H (Splash Proof Type) TNN3015H to 3515H (Wall-Mount Type) UNN3015H to 3515H (Wall-Mount Inverse Type) HNN5020H to 8040H (Ceiling-Mount Type) INN5020H to 8040H (Inverse type)	12 (12W) 20 (20W) 30D (30W for DS) 30R (30W for RS) 60 (60W) 100 (100W) 100S (100W for Linear) 150 (150W) 200 (200W) 200S (200W for Linear) 300 (300W) 400 (400W) 600 (600W) 750 (750W)	I (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 (w/ Home Sensor)	Not Specified (No Synchronization) M (Master-Axis Designation) S (Slave-Axis Designation)	E Not for use EP EtherNet/IP Communication Board EC EtherCAT Communication Board	E Not for use DV DeviceNet Input256/ Output256 CC CC-Link Input256/ Output256 PR PROFIBUS Input256/ Output256	E IA Net not Corresponding IA IA Net Corresponding	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board DG DV Gateway Master Board	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board	2 : 2m (Standard) 3 : 3m 5 : 5m 0 : None	3: 3-phase 200V

*1 In this type, the safety circuit can be configured with the motor driving power source separated.
Note 1 RCS2-R**7 Series, RCS-RB75 Series, RCS-G20, RCS-R* and Linear Motor Actuator (LSA) are to be connected using the relay box.

[Restrictions on Connected Axes to XSEL-RX/SX]

SCARA Model	Total Wattage and Number of Connectable Axes: Single-phase type	Total Wattage and Number of Connectable Axes: 3-phase type
IX-NNN1205/1505/1805	1500W in total or less 4 axes at maximum 750W max. for 1 axis	1500W in total or less 4 axes at maximum 750W max. for 1 axis
IX-□N□2515H/3015H/3515H		1500W in total or less 4 axes at maximum 750W max. for 1 axis
IX-□N□5020H/6020H		600W in total or less 4 axes at maximum 600W max. for 1 axis
IX-□N□70□□H/□80□□H		unavailable
IX-NSN5016H/6016H		unavailable
IX-NNN10040/12040		unavailable

5.3 Controller for SCARA Robot 2-Unit Connection Dedicated

XSEL – RXD8 – NNN5020H – NNN5020H – EPEIA – DGN1 – 2 – 3
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

Model table

❶ Series	❷ Controller type	❸ SCARA Robot Model 1	❹ SCARA Robot Model 2	❺ Network Slot: Slot 1	Slot 2	Slot 3	❻ I/O slots: Slot 1	Slot 2	❼ I/O Flat cable length	❽ Power supply voltage
XSEL	RXD8 (For connection of 2 units of SCARA) SXD8*1 (For connection of 2 units of SCARA Safety Category Type)	NNN1205 to 1805 NNN2515H to 6030H (Standard Type) NNC1205 to 1805 NNC2515H to 6030H (Clean Type) NNW2515H to 6030H (Splash Proof Type) TNN3015H to 3515H (Wall-Mount Type) UNN3015H to 3515H (Wall-Mount Inverse Type) HNN5020H to 6020H (Ceiling-Mount Type) INN5020H to 6020H (Inverse type)	NNN1205 to 1805 NNN2515H to 6030H (Standard Type) NNC1205 to 1805 NNC2515H to 6030H (Clean Type) NNW2515H to 6030H (Splash Proof Type) TNN3015H to 3515H (Wall-Mount Type) UNN3015H to 3515H (Wall-Mount Inverse Type) HNN5020H to 6020H (Ceiling-Mount Type) INN5020H to 6020H (Inverse type)	E Not for use EP EtherNet/IP Communication Board EC EtherCAT Communication Board	E Not for use DV DeviceNet Input256/ Output256 CC CC-Link Input256/ Output256 PR ProfiBus Input256/ Output256	E IA Net not Corresponding IA IA Net Corresponding	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board DG DV Gateway Master Board	E (Not for use) N1 Extension PIO Input32/Output16 NPN Board N2 Extension PIO Input16/Output32 NPN Board N3 Extension PIO Input48/Output48 NPN Board P1 Extension PIO Input32/Output16 PNP Board P2 Extension PIO Input16/Output32 PNP Board P3 Extension PIO Input48/Output48 PNP Board	2 : 2m (Standard) 3 : 3m 5 : 5m 0 : None	3: 3-phase 200V

*1 In this type, the safety circuit can be configured with the motor driving power source separated.

[Limitations in SCARA Robot Combination in XSEL-RXD/SXD]
(1) 3-phase type

First Unit	Second Unit
IX-NNN1205/1505/1805 IX-□N□2515H/3015H/3515H	IX-NNN1205/1505/1805 IX-□N□2515H/3015H/3515H
IX-□N□5020H/6020H	IX-NNN1205/1505/1805

Basic Specifications

Specifications

Specification Item			XSEL-R/RX/RXD	XSEL-S/SX/SXD
Number of controlled axes			XSEL-R/S : 1-axis to 8-axis XSEL-RX/SX : SCARA Robot 1-axis to 4-axis, Additional 5-axis to 8-axis XSEL-RXD/SXD : SCARA Robot 1-axis to 4-axis , 5-axis to 8-axis	
Applicable motor capacity			20W to 750W	
Total connectable wattage			3-phase type controller: 2400W Single-phase type controller: 1600W	
Control Power supply voltage			Single-phase AC200V to 230V±10%	
Motor Driving Source Voltage			3-phase AC200V to 230V±10% / Single-phase AC200V to 230V±10%	
Power Supply Frequency			50Hz/60Hz	
Rush Current (Note 1)	Control power supply		60A	
	Motor drive power supply	Less than 1200W	60A (MAX.)	
		1200W or more	120A (MAX.)	
Leakage Current (Note 2) (Excluding Higher Harmonic Content)	Control power supply		0.4mA	0.2mA
	Motor drive power supply		2mA or less	
Heat Generation			[Refer to the Item for the Power Capacity and Heating Value]	
PIO Power Supply (Note 3)			DC24V±10%	
Electromagnetic Brake Power Supply (For the actuator with the brake)			DC24V±10% Per 1 actuator Approx. 0.35A (Supplied from external equipment)	
Transient Power Cutoff Durability			10ms (when power source frequency 50Hz is used), 8ms (when power source frequency 60Hz is used)	
Motor Control System			AC Full - digital Servo	
Applicable Encoder			Incremental Serial Encoder or Absolute Serial Encoder	
Speed Setting			From 1mm/s The upper limit depends on the specifications of actuator	
Acceleration Setting			From 0.01G The upper limit depends on the specifications of actuator	

Specification Item		XSEL-R/RX/RXD	XSEL-S/SX/SXD
Serial Communication Interface	Teaching port	Connector dedicated for teaching tool (X-SEL Serial Communication protocol (Format B)) Connector : D-sub 25 pin	
	Port 1	RS232C: 1CH Baud rate: MAX. 38.4kbps Connector: D-sub 9 pin Control available with serial communication (Cable length Max.10m)	
	Port 2	[General-purpose RS232C] RS232C: 1CH Baud rate: MAX. 38.4kbps Connector: D-sub 9 pin Control available with serial communication (Cable length Max.10m)	
		[RC Gateway] RS485: 1CH (Modbus protocol RTU/ASCII conformance) Baud rate: MAX. 230.4kbps Connector: D-sub 9 pin Control available with serial communication (Cable length Max.100m)	
External Interface	PIO Type	PIO Board MAX. 2 pieces Signal I/O dedicated for 24V DC (Input and output ports, selected from NPN/PNP) [Refer to How to read the model]	
	Field Network Type	DeviceNet, CC-Link, PROFIBUS-DP, EtherNet/IP, EtherCAT, EtherNet (For either of DeviceNet, CC-Link or PROFIBUS-DP and either of EtherNet/IP or EtherCAT, either of the boards can be inserted at the same time.) [Refer to each Fieldbus Instruction Manual]	
Expanded I/O Unit (option)		PIO Board MAX. 4 pieces	
Data Setting and Input		PC software or teaching pendant	
Program Specification		Super SEL language	
Max. Number of Program Steps		9999 Step	
Max. Number of Positions		1-Axis Type: 53332 positions, 5-Axis Type: 22856 positions 2-Axis Type: 40000 positions, 6-Axis Type: 20000 positions 3-Axis Type: 32000 positions, 7-Axis Type: 17776 positions 4-Axis Type: 26666 positions, 8-Axis Type: 16000 positions	
Max. Number of Programs		128 programs	
Max. Number of Multitask Programs		16 programs	
Data Retention Memory		Flash ROM + SRAM	
Clock Function		Retaining time after power turned off: approximately 10 days Time for battery charge after power is on after the clock data is lost: approximately 100 hours	
Panel Unit PU-1 (option)		Controller status display	
System I/O		Emergency stop input, safety gate input, system ready output and other safety circuit inputs and outputs	
Safety Circuit Configuration	Drive-source Cutoff Method	Internal Relay	External Safety Circuit
	Emergency-Stop Input	b Contact (Normally Closed) Input (internal power supply)	b Contact (Normally Closed) Input (external power supply, duplication available)
	Enable Input	b Contact (Normally Closed) Input (internal power supply)	b Contact (Normally Closed) Input (external power supply, duplication available)
System Ready Output		No-voltage contact (relay) output Max.200mA (DC24V)	
Protective Functions		Motor over current, overload, motor driver temperature check, overload check, encoder open circuit detection, soft limit over, system abnormality, battery abnormality	
Regenerative Resistor		Equipped with built-in 1kΩ/20W regenerative resistor Extension available with connecting an external regenerative resistor	
Absolute Battery		Actuators except for SCARA Robot: Built in controller (AB-5) SCARA Robot: Built in main body	
Protection Function against Electric Shock		Class 1 In case grounding conducted on ground terminal in addition to basic insulation for electric shock proof.	
Overvoltage Category		Category 2 Voltage durability 2500V at less than 300V AC for input rating	
Insulation Resistance		10MΩ□ or more (Between power terminal and I/O terminal and also all external terminals and case at the power supply of DC500V)	
Insulation strength		1500V AC for 1 min.	
Cooling Method		Forced Air-Cooling	
Environment	Surrounding air temperature	0 to +40°C	
	Surrounding humidity	85% RH or less (non-condensing)	
	Surrounding environment	[Refer to the Item for the Installation Environment]	
	Surrounding storage temperature	-20 to 70°C (The Absolute Battery is excluded.)	
	Surrounding storage humidity	85% RH or less (non-condensing)	
	Maximum Operation Height	1000m	
	Vibration Resistance	10 to 57Hz in XYZ directions/Pulsating amplitude 0.035mm (continuous), 0.075mm (intermittent) 57 to 150Hz/4.9m/s² (continuous), 9.8m/s² (intermittent)	
	Protection Class	IP20	
	Pollution Degree	Pollution Degree 2	
External Dimensions		[Refer to the External dimensions Dimension]	
Weight	With no Absolute Battery Unit	Approx. 5.2kg	3-phase type: Approx. 4.7kg Single-phase type: Approx. 5.2kg
		-	XSEL-SX4-NNN10040, 12040: Approx. 5.2kg
	With the Absolute Battery Unit	Approx. 5.8kg	3-phase type: Approx. 5.3kg Single-phase type: Approx. 5.8kg

Note 1 Rush current at the power connection continues for 3 msec. Note that the value of in-rush current differs depending on the impedance of the power supply line.

Note 2 Leak current varies depending on the capacity of connected motor, cable length and the surrounding environment. Measure the leak current at the point where a ground fault circuit interrupter is to be installed when leakage protection is conducted.
Regarding the leakage breaker, it is necessary to have a clear purpose for selection such as a fire protection or protection of human body. Use the harmonic type (for inverter) for a leakage breaker.

Note 3 Power supply is not necessary if PIO is not to be used.

Note 4 The converter box is to be used for the connection when connecting an actuator of ABZ (UVW) Parallel Encoder LSA Series or RCS2-RA7/SRA7 Series.

[Power Capacity and Heating Value]

Rated Power Capacity [VA] = Total Capacity of Motor Power [VA] + Total of the power consumption at the control part [VA]

Heating Value [W] = Total Output Loss [W] + (Total of internal power consumption [VA] × 0.7 (Efficiency) × 0.6 (Power factor))

- Select the Motor Driving Power [VA] from the Table 1 and 2.
- Figure out the total of the power consumption at the control part [VA] with the total of power of the actually mounted components • quantity, by selecting the applicable ones from Table 3 Control Power Source (Internal Consumption and External Consumption).
- To calculate the sum total of output loss [W], refer to the “Output Loss” column in Table 1 below and select the values corresponding to the output losses of each connected actuator.
- For the inner power demand (VA) for calculating the heating value (W) in the control unit, select the components which are being placed, from the columns of Control Power Supply (Internal Consumption) and External Power Supply (Internal Consumption) in Table 3 and calculate it using the formula “Power • Quantity of the Placement Component”

Table: 1 Motor Power Capacity of Single-Axis Actuator and Output Loss

Wattage of Actuator Motor [W]	Motor Power Capacity [VA]	Output loss = Heat Generation [W]
20	26	1.58
30	46	2.07
60	138	3.39
100	234	6.12
150	328	8.30
200	421	9.12
400	796	19.76
600	1164	27.20
750	1521	29.77
100 (Linear Actuator LSAS-N10SS)	379	4.48
200 (Linear Actuator LSAS-N15SS)	486	4.37
200 (Linear Actuator LSAS-N15HS)	773	6.42

Table: 2 Motor Volt Amperage of SCARA Robot and Output Loss

SCARA Robot	Wattage [W] (Rated output)	Motor Power Capacity [VA] (Note 1)	Output loss = Heat Generation [W]
NN□1205, NN□1505, NN□1805	129.8	216.3	8.13
NN□2515H, NN□3515H, TNN3015H, TNN3515H, UNN3015H, UNN3515H	1117.9	1863.1	44.8
NN□50□□H, NN□60□□H, HNN5020H, HNN6020H, INN5020H, INN6020H	2218.0	3696.7	69.7
NN□70□□H, NN□60□□H, HNN7020H, HNN8020H, INN7020H, INN8020H	3880.6	6467.7	93.2
NSN5016H, NSN6016H	4102.9	6338.1	95.2
NNN10040, NNN12040	6412.6	10687.7	131.6

Note 1 Calculated with 0.6 for power factor

Table: 3 Motor Driving Power and Output Loss

			Control power supply		External Power Source (24VDC)		Quantity	
			Internal Consumption [VA]	External Consumption [VA]	Internal Consumption [VA]	External Consumption [VA]		
Base Unit			31.4				1	
Driver	Per Board		6.26				[Refer to Table 4]	
Encoder Section	Per axis		2.38	3.57				
Fan Unit	Per fan		5.71					
Axis Sensor	Per axis		4.57					
I/O Board	DIO (48 points)	N1, N2 P1, P2	5.95		14.52		0 to 2	Number of PCBs on PIO Board 1 and 2
	DIO (96 points)	N3, P3	8.33		26.81		0 to 2	
	Electronic Cam	MC	16.7				0 to 2	
Network Module	DeviceNet	DV	1.98		3.43		0 to 1	Number of PCBs on Field Network Board 1
	CC-Link	CC	5.67				0 to 1	
	PROFIBUS-DP	PR	1.98				0 to 1	
	EtherNET/IP	E	1.98				0 to 1	Number of PCBs on Field Network Board 2
	EtherCAT	E	3.93				0 to 1	
Teaching pendant	IA-T-X/XD			3.57			0 to 1	
	SEL-T/TD/TG			6.67			0 to 1	
Brake	Per axis		SCARA Robot 0.28		2.5	SCARA Robot 1.0	Total number of brake-equipped actuators 0 to 8	
			Added Axis 0.14			Added Axis 5.8		
Connector terminal	Per axis					5.7	0 to 8	

Table: 4 Number of Controlled Parts

	Number of axes							
	1-Axis	2-Axis	3-Axis	4-Axis	5-Axis	6-Axis	7-Axis	8-Axis
Driver	1	1	2	2	3	3	4	4
Encoder Section	1	2	3	4	5	6	7	8
Fan Unit	XSEL-R/RX/RXD : 6 Unit XSEL-S/SX/SXD (3-phase type) : 5 Unit XSEL-S (Single-phase type), XSEL-SX4-NNN10040, 12040 : 6 Unit							
Axis Sensor	1	2	3	4	5	6	7	8

[Selection of Circuit Interrupter]

- 3 times of the rated current flows to the controller during the acceleration/deceleration. Select one that does not trip when the above current passes. When it trips, select the breaker with a rated current one rank above. (Confirm that Operation Characteristic Curve described in the catalogue of each manufacturer.)
- Select the breaker that does not trip with the rush current.
  (Confirm that Operation Characteristic Curve described in the catalogue of each manufacturer.)
- For the rated breaking current, select the current value which can break the current even when a short circuit occurs.
  Rated Breaking Current > Short-circuit Current = Primary Power Supply Capacity/Power Voltage
- Consider margin for the rated current on the circuit breaker.

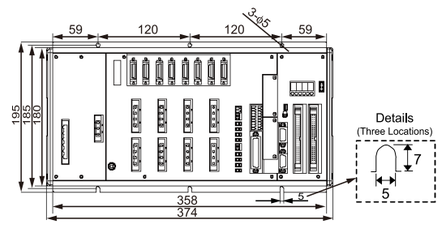
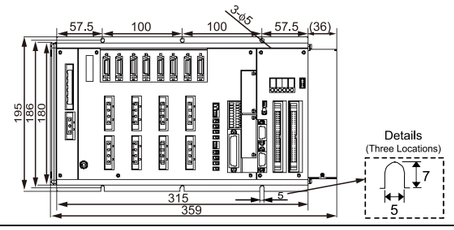
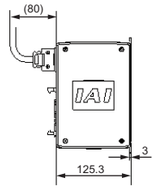
Rated current of circuit breaker >
rated voltage amperage [VA] / AC input voltage × Margin (1.2 to 1.4 for reference)

[Selection of Leakage Breaker]

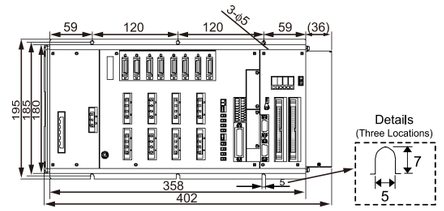
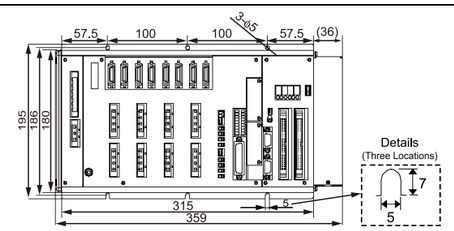
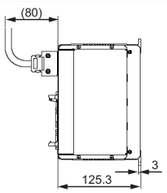
- Regarding the leakage breaker, it is necessary to have a clear purpose for selection such as a fire protection or protection of human body.
- Leak current varies depending on the capacity of connected motor, cable length and the surrounding environment. Measure the leak current at the point where a ground fault circuit interrupter is to be installed when leakage protection is conducted.
- Use the applicable to higher harmonics type leakage breaker.

External Dimensions

1. Absolute Battery Non-Equipped Type

Controller Type	All Types Equipped
R (Single-phase/ 3-phase type) S (Single-phase type) RX/RXD (3-phase type) XSEL-SX4-NNN10040, 12040	
S/SX/SXD (3-phase type)	
Side View	

2. Absolute Battery Equipped Type

Controller Type	All Types Equipped
R (Single-phase/ 3-phase type) S (Single-phase type) RX/RXD (3-phase type)	
S/SX/SXD (3-phase type)	
Side View	

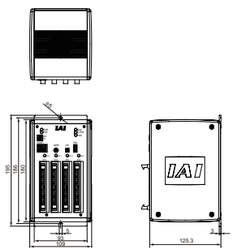
Extension I/O Unit (Option)

It is to be used when the number of I/O points on the controller is not enough.
The connection between the controller and the extension I/O unit is to be established with IA Net communication.

[Specification]

Item		Specification
Input Power Supply Voltage		DC24V±10%
Current Supplied from XSEL Controller		0.75A (Max.)
Heat Generation		47W (Max.)
Number of Mounted Extension I/O Boards		1 to 4
Mountable PIO Board	NPN type	Input 32 Points/Output 16 Points
		Input 16 Points/Output 32 Points
		Input 48 Points/Output 48 Points
	PNP type	Input 32 Points/Output 16 Points
		Input 16 Points/Output 32 Points
		Input 48Points/Output 48 Points
Connection Cable		IA Net Cables (Model CB-RS-IAN□□□) 2m in standard (Max.10m)
Environment: Surrounding air temperature		0 to +40°C
Environment: Surrounding humidity		85%RH or less (non-condensing)
Environment: Surrounding environment		(Refer to the Item for the Installation Environment).
Environment: Surrounding storage temperature		-20 to 70°C
Environment: Surrounding storage humidity		85%RH (non-condensing)
External Dimensions		109 × 195 × 125.3mm
Weight		Approx. 1.5kg (Max.)

[External Dimensions]



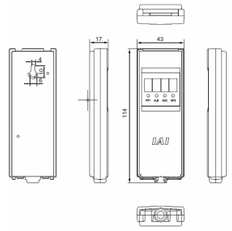
Panel Unit (Option) : PU-1

This is the display board consists of four digits of seven-segment displays and LED lamps.
The status of a controller such as the error codes can be checked on it if it is connected to XSEL controllers.
Also, if connected to an extension I/O unit, the condition of each I/O unit whether it is in normal or error condition.

[Specification]

Item		Specification
Current Consumption		100mA
Cable Length		1, 3, 5m
Environment: Surrounding air temperature		0 to +40°C
Environment: Surrounding humidity		10 to 95%RH or less (non-condensing)
Environment: Surrounding environment		(Refer to the Item for the Installation Environment).
Environment: Surrounding storage temperature		-20 to 70°C
Environment: Surrounding storage humidity		10 to 95% or less (non-condensing)
External Dimensions		43×17×114mm
Weight		0.3kg (including cables)

[External Dimensions]



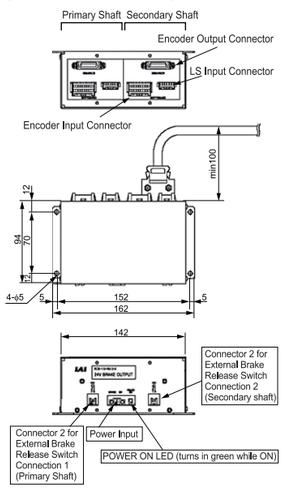
Brake Box (Option): RCB-110-RA13-0

Brake Box: A brake release unit dedicated for NS-MZMS, NS-MZMM, NS-LZMS, NS-LZMM, ZR Brakes for two axes can be controlled with one brake box.

[Specification]

Item		Specification
Input Power Supply Voltage		DC24V/10%
Input Power Supply Current		1A
Heat Generation		1.2W
Connection Cable		Encoder Cables (Model CB-RCS2-PLA010) 1m
Environment: Surrounding air temperature		0 to +40°C
Environment: Surrounding humidity		85%RH or less (non-condensing)
Environment: Surrounding environment		(Refer to the Item for the Installation Environment).
Environment: Surrounding storage temperature		-20 to 70°C
Environment: Surrounding storage humidity		85%RH or less (non-condensing)
External Dimensions		W162×H94×D65.5mm
Weight		0.8kg

[External Dimensions]



[24V Power Supply Connector]

Connector on Cable Side (Enclosed in standard package)	MC1.5/2-STF-3.5 (PHOENIX CONTACT)		
Applicable Cable	AWG28 to 16		
Terminal Assignment	Pin No.	Signal	Information
	1	0V	Power Supply Grounding for Brake Excitation
	2	24VIN	For Brake Excitation and 24V Power Supply

[Connectors 1 and 2 for external brake release switch connection]

Connected Equipment	Brake Release Switch		
Connector on Cable Side (Please prepare separately)	XAP-02V-1 (Contact BXA-001T-P0.6)(JST)		
Switch Rating	DC30V Minimum Current 1.5mA		
Terminal Assignment	Pin No.	Signal	Information
	1	BKMRL	Brake Release Switch Input
	2	COM	Power Supply Output for Brake Release Switch Input
Weight	0.8kg		

(Note) Short circuit of pin No. 1 and 2 of this connector releases the brake compulsorily.
Brake release is available in the same manner as the brake release switch equipped on the main body.
Do not keep the compulsory release condition while in automatic operation.

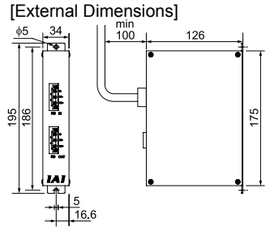
Regenerative Resistor Unit (Option): REU-1

This is a unit that converts the regenerative current to heat when the motor decelerates.

[Specification]

Item		Specification
Internal Regenerative Resistor		220Ω/80W
Accessories		Controller link cable (Model CB-ST-REU010) 1m
Environment: Surrounding air temperature		0 to +40°C
Environment: Surrounding humidity		85%RH or less (non-condensing)
Environment: Surrounding environment		(Refer to the Item for the Installation Environment).
Environment: Surrounding storage temperature		-20 to 70°C
Environment: Surrounding storage humidity		85%RH or less (non-condensing)
External Dimensions		W34 × H195 × D126mm
Weight		0.9kg

[External Dimensions]



[Number of Connectable]

To calculate the total number of necessary units, select the suitable conditions from the table below for the actuator type connected to XSEL controller and sum up the numbers.

Total Number of Connected Units = Number in 1) + Number in 2) + Number in 3)

Calculation Table for Necessary Number of Regenerative Units

No.	Actuator Type		Quantity
1)	Total capacity of single-axis actuator motors in horizontally oriented installation	0 to 100W	Not required
		to 600W	1 Unit
		to 1200W	2 Units
		to 1800W	3 Units
		to 2400W	4 Units
2)	Total capacity of single-axis actuator motors in vertically oriented installation	0 to 100W	Not required
		to 600W	1 Unit
		to 1000W	2 Units
		to 1400W	3 Units
		to 2000W	4 Units
		to 2400W	5 Units
3)	SCARA Robot	IX-NNN1205/1505/1805	Not required
		IX-NNN2515H/3515H, IX-NNW2515H/3515H, IX-TNN(UNN)3015H/3515H, IX-NNC2515H/3515H	1 Unit / Per controller
		IX-NNN50□□H/60□□H, IX-NNW50□□H/60□□H, IX-HNN(INN)50□□H/60□□H, IX-NNC50□□H/60□□H	3 Units / Per controller
		IX-NNN70□□H/80□□H, IX-NNW70□□H/80□□H, IX-HNN(INN)70□□H/80□□H, IX-NNC70□□H/80□□H IX-NNN10040/12040	4 Units / Per controller
		IX-NSN5016H/NSN6016H	3 Units / Per controller

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 Heat Radiation and Installation]

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

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

2. Storage and Preservation Environment

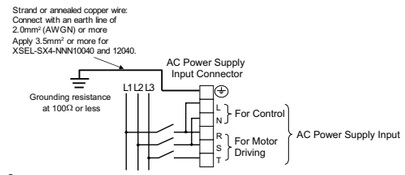
- Storage and preservation environment follows the installation environment. However, the ambient temperature should be from -20 to 70°C and the relative humidity to be 85%RH at maximum. Especially in a long-term storage, consider to avoid condensation of surrounding air. Unless specially specified, moisture absorbency protection is not included in the package when the machine is delivered. In the case that the machine is to be stored and preserved in an environment where dew condensation is anticipated, take the condensation preventive measures from outside of the entire package, or directly after opening the package.

Installation and Noise Elimination

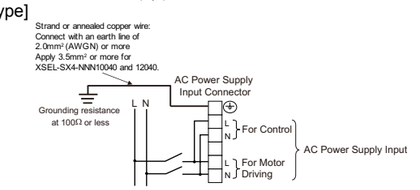
1. Protective Ground

For grounding, make sure to conduct grounding resistance 100Ω or less.
The wiring should apply a twist line or an annealed copper wire of 2.0 mm or more.
Apply 3.5mm2 or more for XSEL-SX4-NNN10040 and 12040.

[3-phase type]

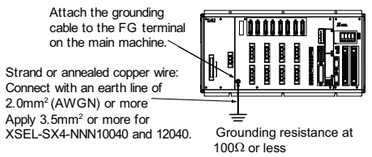


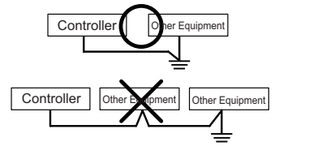
[Single-phase type]



2. Noise Elimination Grounding (Frame Ground)

For grounding, make sure to conduct grounding resistance 100Ω or less.
Connect with twist wire or annealed copper wire with 2.0 mm^2 or more.





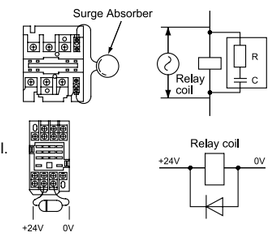
Do not share the ground wire with or connect to other equipment.
Ground each controller separately.

3. Precautions regarding wiring method

(1) Use a twisted cable for connection to the power supply.
(2) To reduce the interference to each other, have the I/O line, communication and encoder lines, power and driving supply lines separate from each other.

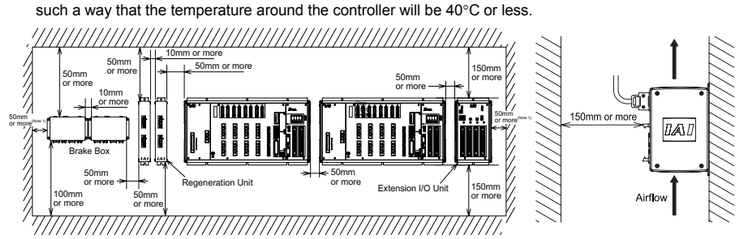
4. Noise Sources and Elimination

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:
(1) AC solenoid valves, magnet switches and relays
[Measure] Install a Surge Absorber parallel with the coil.
(2) DC solenoid valves, magnet switches and relays
[Measure] Install a diode parallel with the coil.
Use a DC relay with a built-in diode.



5. Heat Radiation and Installation

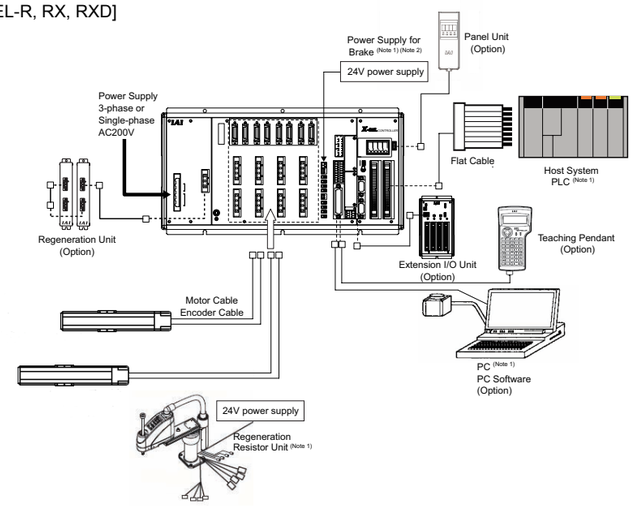
Conduct design and manufacture in consideration of the control box size, controller layout and cooling in such a way that the temperature around the controller will be 40°C or less.



Note 1 Install the devices (controller, extension I/O unit, regenerative unit and brake box) away from a wall for 50mm or more.

Wiring Layout Diagram

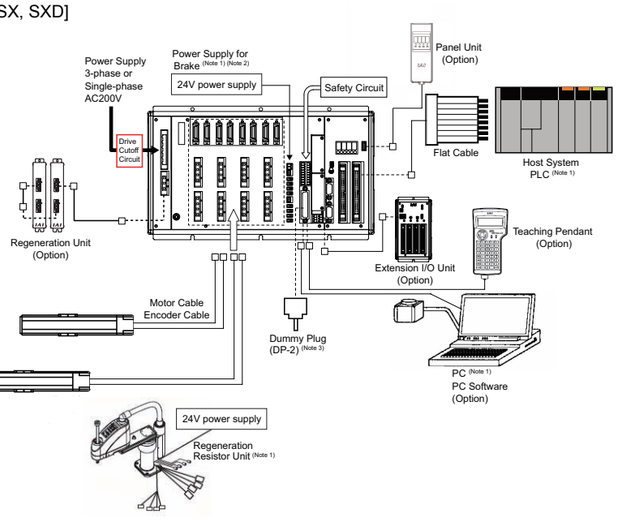
[XSEL-R, RX, RXD]



Note 1 Please prepare separately.
Note 2 For an actuator equipped with a brake, supply of power +24V to the controller for the brake operation is required.

⚠ Caution: In the case of ICSA, ICSPA (Orthogonal Robot) and SCARA robot, a number is attached to each cable.
Connect it according to the controller connector number.
For the actuator regarded as that for single-axis robot, the connector Nos. are not indicated.
In such case, give a number to each connector to avoid any mistake.

[XSEL-S, SX, SXD]



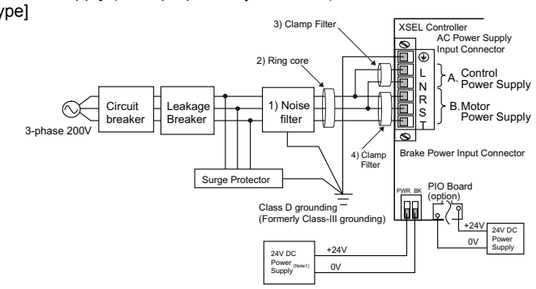
Note 1 Please prepare separately.
Note 2 For the SCARA Robot of those except for IX-NNN1205/1505/1805 (equipped with no brake), it is necessary to supply power to the controller for the brake operation.
Note 3 Put the dummy plug (DP-2) when a connection of the teaching tool such as PC is not necessary.

⚠ Caution: In the case of ICSA, ICSPA (Orthogonal Robot) and SCARA robot, a number is attached to each cable.
Connect it according to the controller connector number.
For the actuator regarded as that for single-axis robot, the connector Nos. are not indicated.
In such case, give a number to each connector to avoid any mistake.

⚠ Warning:
- In the case PC is connected to XSEL-S, SX or SXD, internal components of the controller may get burnt down if the following cable is used.
- Standard PC cable B-ST-E1MW050 (black) enclosed in PC Software IA-101-X-MW Even though the PC software can be used, use CB-ST-A1MW050 (gray) for the cable.

Wiring for the Power/Emergency Stop Circuit and Brake Forced Release Switch

● Wiring for Power Supply (to be prepared by customer)
[3-phase type]

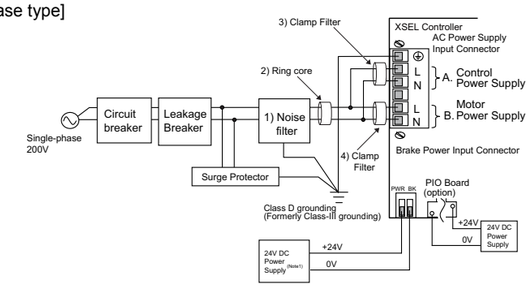


The power consumption and heat generation of X-SEL controller may differ depending how to construct the options. Select the circuit breaker and leakage breaker that suits to the specification. [Refer to Basic Specifications]

Note 1 It is not required when there is no actuator with the brake.

Parts Name		Model	Supplier	Position to Attach
1)	Noise Filter	TAC-20-683	COSEL	Attach in range of 300mm or less from controller
		NF3020C-SVA	SOSHIN ELECTRIC Co., Ltd.	
2)	Ring Core	ESD-R-25	NEC TOKIN	
3)	Clamp Filter	ZCAT3035-1330	TDK	Attach as close as possible to controller
4)	Clamp Filter	RFC-H13	Kitagawa Industries Co., Ltd.	
5)	Surge Protector	R·A·V-781BXZ-4	Okaya Denki	Attach at the input terminal of noise filter

[Single-phase type]



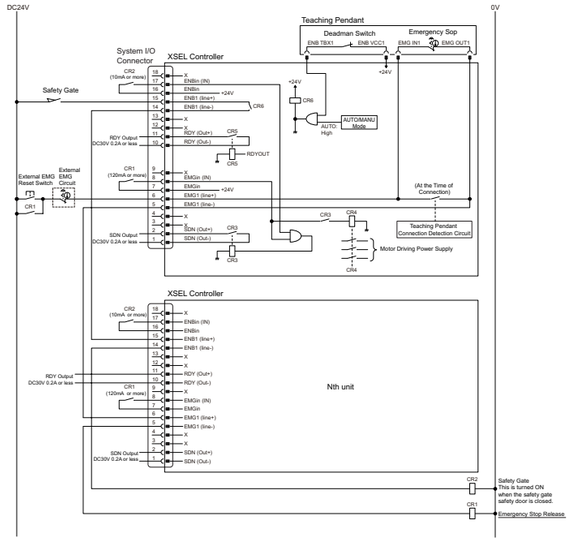
The power consumption and heat generation of X-SEL controller may differ depending how to construct the options. Select the circuit breaker and leakage breaker that suits to the specification. [Refer to Basic Specifications]

Note 1 It is not required when there is no actuator with the brake.

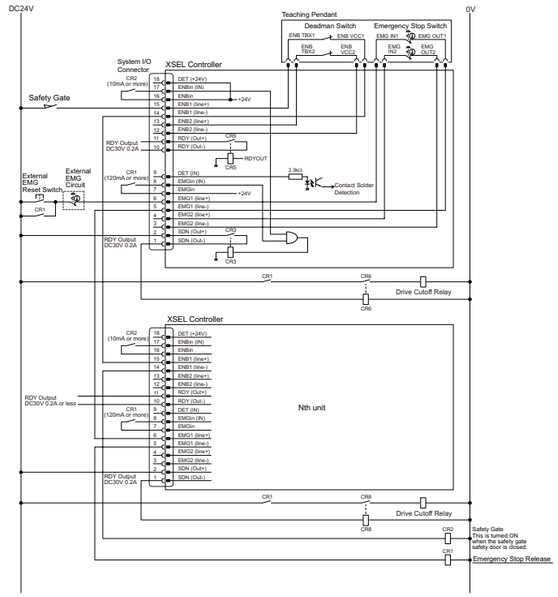
Parts Name		Model	Supplier	Position to Attach
1)	Noise Filter	NBH-20-432	COSEL	Attach in range of 300mm or less from controller
2)	Ring Core	ESD-R-25	NEC TOKIN	
3)	Clamp Filter	ZCAT3035-1330	TDK	Attach as close as possible to controller
4)	Clamp Filter	RFC-H13	Kitagawa Industries Co., Ltd.	
5)	Surge Protector	R·A·V-781BWZ-2A	Okaya Denki	Attach at the input terminal of noise filter

● Wiring for Emergency Stop Input

[XSEL-R, RX, RXD]
This shows of emergency stop for two or more machines, using the emergency stop circuit for the entire machine.



[XSEL-S, SX, SXD]



⚠ Note:
- Do not fail to lay out (EMGin, EMG1, SDN, ENBin and ENB1) regardless of the safety category.
- EMG2 and ENB2 are mandatory to realize Safety Category 3, and they enable the double layout of the safety circuit.
- DET is an input to detect the operational errors (mainly at soldered contact points of relay) in the safety circuit, and do not forget to use it if it is required to have XSEL Controller detect the contact solder. When closing in the safety circuit side to control the contact solder and other errors, it is possible to realize Safety Category 4 without connecting to the controller. [Refer to the operation manual of XSEL-R/S/RX/SX/RXD/SXD]

I/O Signals

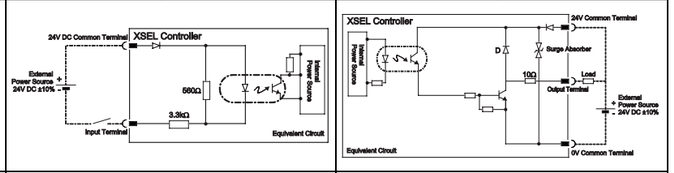
There are 32 points of input and output on PIO board or 48 points of input and output on the multi-point PIO board in PIO (24V input and output). There are NPN type and PNP type for both, and selection can be made to find the suitable one for the specifications.
[Refer to the instruction manual of XSEL-R/S, RX/SX or RXD/SXD for the PIO board terminal assignment.]

XSEL Mode Display	Polarity	Input and Output Points	Model
N1	NPN	Input 32 Points, Output 16 Points	IA-103-X-32
N2		Input 16 Points, Output 32 Points	IA-103-X-16
N3		Input 48 Points, Output 48 Points	IA-IO-3204-NP
P1	PNP	Input 32 Points, Output 16 Points	IA-103-X-32-P
P2		Input 16 Points, Output 32 Points	IA-103-X-16-P
P3		Input 48 Points, Output 48 Points	IA-IO-3204-PN

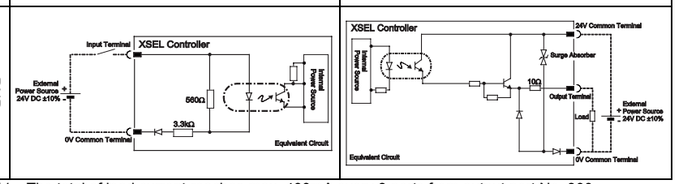
● PIO Input and Output Interface

Specification			Input		Output		
	Input Voltage		24VDC±10%	Load voltage		24VDC±10%	
	Input Current		7mA/1 Circuit	Load Current	I/O	100mA/1 Circuit, 400mA*1 / 8 Port	
	ON/OFF Voltage	ON	Min. 16VDC		Multipoint I/O	50mA/1 Circuit, 400mA*2 / 24 Port	
		OFF	Max. 5VDC				
	Insulation Type		Photocoupler Insulation	Insulation Type		Photocoupler Insulation	

NPN



PNP



*1 The total of lead current reaches max. 400mA every 8 ports from output port No. 300.
*2 The total of lead current reaches max. 400mA every 24 ports from output port No. 300.

● For PIO Board (N1, N2, P1 and P2)

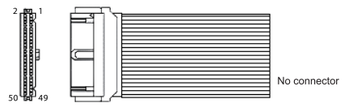
Supply 24V to Terminal 1 and 0V to Terminal 50.

Accessory I/O Cable (Model: CB-X-PIO□□□ □□□ indicates the cable length. Example 020=2m)

Flat cable : KFX-50(S) (Color) (Supplier: Kaneko Cord)

Socket (with strain relief) : XG4M-5030-T (Supplier: OMRON)

No.	Color	No.	Color	No.	Color	No.	Color	No.	Color
1	Brown-1	11	Brown-2	21	Brown-3	31	Brown-4	41	Brown-5
2	Red-1	12	Red-2	22	Red-3	32	Red-4	42	Red-5
3	Orange-1	13	Orange-2	23	Orange-3	33	Orange-4	43	Orange-5
4	Yellow-1	14	Yellow-2	24	Yellow-3	34	Yellow-4	44	Yellow-5
5	Green-1	15	Green-2	25	Green-3	35	Green-4	45	Green-5
6	Blue-1	16	Blue-2	26	Blue-3	36	Blue-4	46	Blue-5
7	Purple-1	17	Purple-2	27	Purple-3	37	Purple-4	47	Purple-5
8	Gray-1	18	Gray-2	28	Gray-3	38	Gray-4	48	Gray-5
9	White-1	19	White-2	29	White-3	39	White-4	49	White-5
10	Black-1	20	Black-2	30	Black-3	40	Black-4	50	Black-5



● Multipoint PIO Board (N3 and P3)

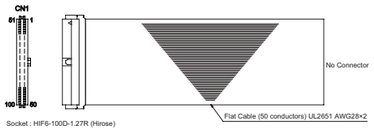
The power supply line on IN000 to 023/OUT300 to 323 side and the power supply line on IN024 to 047/OUT324 to 347 side are insulated. Connect an external power source to each power terminal.

Accessory I/O Cable

(Model: CB-X-PION□□□ □□□ indicates the cable length. Example 020=2m)

Flat cable: (50 conductors) UL2651 AWG28×2

Socket: HIF6-100D-1.27R (Supplier: Hirose)



Cable 1

No.	Color	No.	Color	No.	Color	No.	Color	No.	Color
1	Brown-1	11	Brown-2	21	Brown-3	31	Brown-4	41	Brown-5
2	Red-1	12	Red-2	22	Red-3	32	Red-4	42	Red-5
3	Orange-1	13	Orange-2	23	Orange-3	33	Orange-4	43	Orange-5
4	Yellow-1	14	Yellow-2	24	Yellow-3	34	Yellow-4	44	Yellow-5
5	Green-1	15	Green-2	25	Green-3	35	Green-4	45	Green-5
6	Blue-1	16	Blue-2	26	Blue-3	36	Blue-4	46	Blue-5
7	Purple-1	17	Purple-2	27	Purple-3	37	Purple-4	47	Purple-5
8	Gray-1	18	Gray-2	28	Gray-3	38	Gray-4	48	Gray-5
9	White-1	19	White-2	29	White-3	39	White-4	49	White-5
10	Black-1	20	Black-2	30	Black-3	40	Black-4	50	Black-5

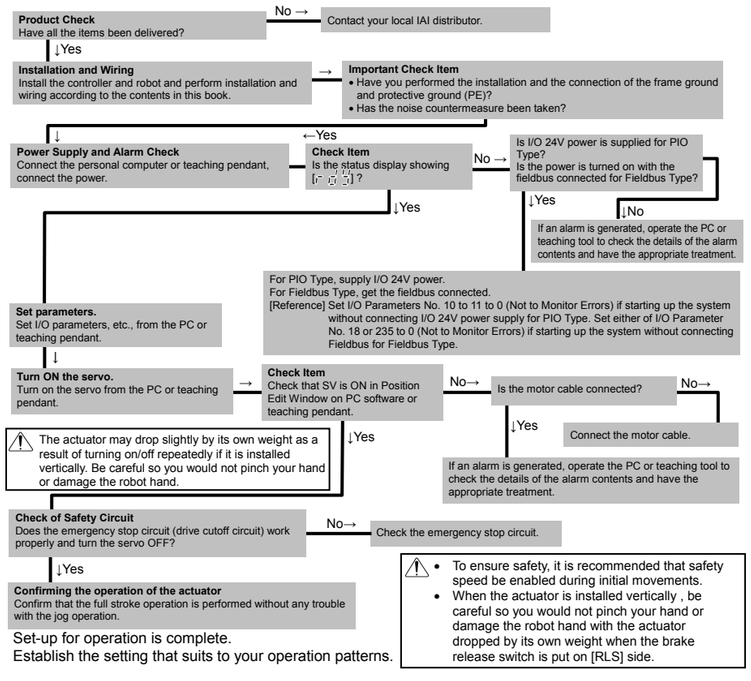
Cable 2

No.	Color	No.	Color	No.	Color	No.	Color	No.	Color
51	Brown-1	61	Brown-2	71	Brown-3	81	Brown-4	91	Brown-5
52	Red-1	62	Red-2	72	Red-3	82	Red-4	92	Red-5
53	Orange-1	63	Orange-2	73	Orange-3	83	Orange-4	93	Orange-5
54	Yellow-1	64	Yellow-2	74	Yellow-3	84	Yellow4	94	Yellow-5
55	Green-1	65	Green-2	75	Green-3	85	Green-4	95	Green-5
56	Blue-1	66	Blue-2	76	Blue-3	86	Blue-4	96	Blue-5
57	Purple-1	67	Purple-2	77	Purple-3	87	Purple-4	97	Purple-5
58	Gray-1	68	Gray-2	78	Gray-3	88	Gray-4	98	Gray-5
59	White-1	69	White-2	79	White-3	89	White-4	99	White-5
60	Black-1	70	Black-2	80	Black-3	90	Black-4	100	Black-5

Starting Procedures

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

⚠ Note:
- Make sure to put the brake release switch of the controller on the right side (NOM) before turning ON the power. If on the left (RLS), the actuator may drop with its weight and pinch yourself or damage the work piece.
- Make sure to connect the robot with the manufacturing number indicated on the controller.
  Connecting a robot not indicated may cause a wrong operation.



Set-up for operation is complete.
Establish the setting that suits to your operation patterns.

⚠
- To ensure safety, it is recommended that safety speed be enabled during initial movements.
- When the actuator is installed vertically , be careful so you would not pinch your hand or damage the robot hand with the actuator dropped by its own weight when the brake release switch is put on [RLS] side.

● Troubleshooting

Shown below are the alarms that you may often see after power up. Please follow the instructions below.
Please refer to the Operation Manual for other alarms.

Status display	Status contents	Cause and Remedy
ErG	During Emergency-stop	It is not an alarm. • It is generated when the emergency stop switch in the teaching pendant or the personal computer application software is not cancelled. In such case, cancel it. • It is generated when the personal computer cable is not connected to the emergency stop box. Please establish the connection. • Check the emergency stop circuit.
Enb	Safety Gate Remains Open Deadman Switch OFF	It is not an alarm. • It is generated when the system I/O ENB signal is opened. Check the ENB signal. (It is generated when the safety gate is open. Close the safety gate.) • This occurs when AUTO/MANU switch is on MANU side for XSEL-R/RX/RXD Controller but PC or teaching pendant is not connected. Connect the personal computer or the teaching pendant or set the AUTO/MANU switch to "AUTO ". • When the actuator is to be started up, hold the deadman switch on the teaching pendant to turn it ON.
ACF	AC Power Interruption Momentary Power Failure Power Voltage Drop	It is generated when the power voltage is not supplied. It will be generated, for example, in the case that the 100V AC is supplied to the controller with 200V AC specified. Check the power supply.
E914	Absolute Data Backup Battery Voltage Error	It will be generated in the case that the battery has not been attached, or the battery voltage is dropped. In the case of the actuator for the single-axis robots or Cartesian robots with the absolute data specifications, it is generated when the power is connected for the first time. Perform the absolute reset.
Ed19	Encoder Reception Time Out	It is generated when the encoder is broken, the cable is broken or the encoder cable is not connected to the controller. Check the wiring.
EE69 EE6C	24V I/O error DO Output Current Error	It is generated when the +24V power for I/O is not supplied. Check the power supply. (How to start up the controller without connecting the I/O 24V power) Set the I/O parameter No. 10 to No. 13 corresponding to "0 ".
EdS□	FieldBus Error	It is generated when the fieldbus link connection is not established. Check the link cable connection, I/O parameter and PLC parameter settings. (How to start up the controller without connecting the field bus) Set the I/O parameter No. 18 or No. 235 corresponding to "0 ".
E6A8	RC Gateway Serious Breakdown Error	When the RC gateway is used and an error occurs in the controller mount SIO (serial communication), it is caused. The following causes are supposed. • All effective RC axes are missing (not recognized). → A cable disconnection or wire breaking is supposed. Check the wiring. • The power switch on the main CPU shows 0V. → Set the +5V power switch to right side (+5V supply side). • The DPRAM access right can not be obtained for one hour or more in the mount SIO. → Check the parameters for the X-SEL or RC controller. • A serious error such as a CPU error is caused in the mount SIO. → It is caused by the hardware breakdown. Consult with our company.

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