

Options

DeviceNet Connection Specification

Model

(Actuator model)-**DV**



Item	Specification
Numbers of input/output points	Maximum 256 input points / Maximum 256 output points
Communication standard	An interface module certified under DeviceNet 2.0 is used.
Communication speed	500 / 250 / 125 Kbps
Number of occupied node	1 node
Connector type (controller end)	MSTBA2.5/5-G-5.08-AUM by Phoenix Contact (*1)

*1 Cable-end connector: SMSTB2.5/5-ST-5.08AU by Phoenix Contact (standard accessory)

CC-Link Connection Specification

Model

(Actuator model)-**CC**



Item	Specification
Numbers of input/output points	Maximum 256 input points / Maximum 256 output points
Communication standard	CC-Link, Ver. 1.10 (certified)
Communication speed	10M / 5M / 2.5M / 625K / 156Kbps
Station type	Remote device station
Number of occupied stations	1 to 3 stations (selectable)
Connector type (controller end)	MSTBA2.5/5-G-5.08-AUM by Phoenix Contact (*1)

*1 Cable-end connector: SMSTB2.5/5-ST-5.08AU by Phoenix Contact (standard accessory)

Profibus Connection Specification

Model

(Actuator model)-**PR**



Item	Specification
Numbers of input/output points	Maximum 256 input points / Maximum 256 output points
Communication standard	An interface module certified under Profibus-DP1.10 is used.
Communication speed	12M/1.5M/500K/93.75/187.5K/93.75K/19.2K/9.6K
Address of occupied node	1 address (1 to 99; settable using the rotary switch on the board)
Connector type (controller end)	D-sub, 9-pin connector

Ethernet Connection Specification

Model

(Actuator model)-**ET**



Item	Specification
Network specification	10BASE-T / 100BASE-T (auto negotiation)
Communication standard	IEEE 802.3
Communication speed	10M/100Mbps
Connector	RJ-45
Cable	Category 5 UTP twisted cable

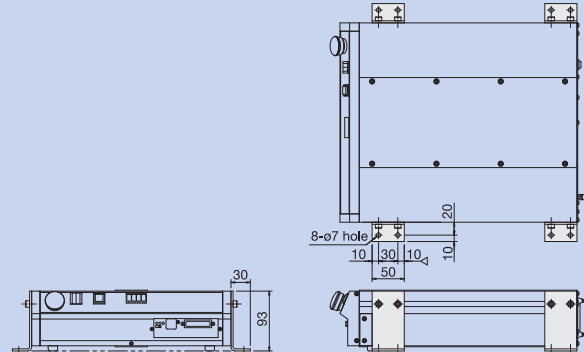
Actuator Bracket (A set of 4 pieces; supplied with bolts/nuts for installation to actuator)

Model

TT-FT



Dimensions



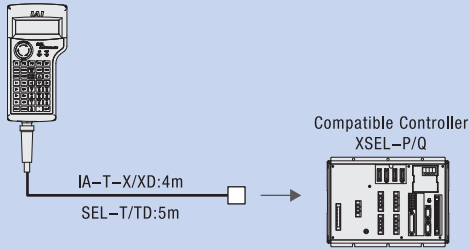
Features

This is a teaching device that provides information on functions such as programs, position input, running tests, and monitoring.

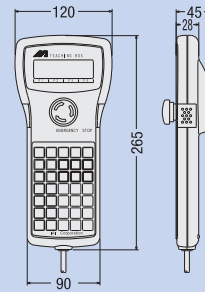
Model

Model	Description
IA-T-X	Standard Type
IA-T-XD	Deadman Switch Type
SEL-T	Standard Type
SEL-TD	ANSI Compatible Type (Deadman Switch)

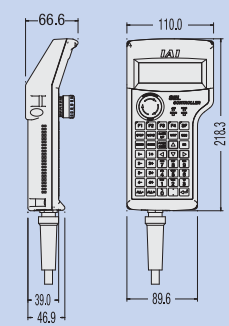
Configuration



IA-T-X/XD



SE-T/TD



Model	IA-T-X/XD	SEL-T/TD
Ambient Operating Temp./Humidity	0°C~40°C Below 85%RH	
Protective Structure	Not subject to corrosive gases or significant powder dust.	IP54
Weight	Approx. 650g	Approx. 400g (ex. Cable)
Cable Length	4m	5m
Display	20 Characters x 4 Lines (LCD)	

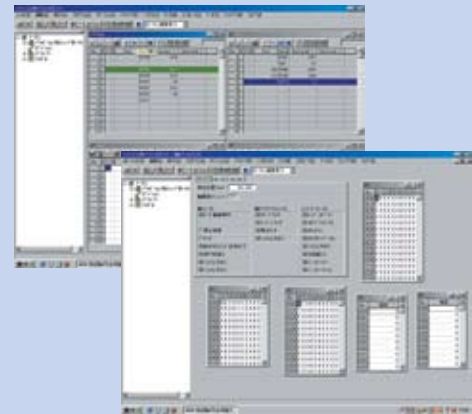
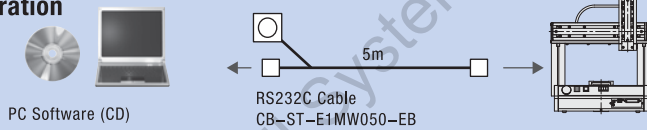
PC Software (for Windows PCs only)

Features

A startup support software program offering program/position input function, test operation function, monitoring function, and more. The functions needed for debugging have been enhanced to help reduce the startup time

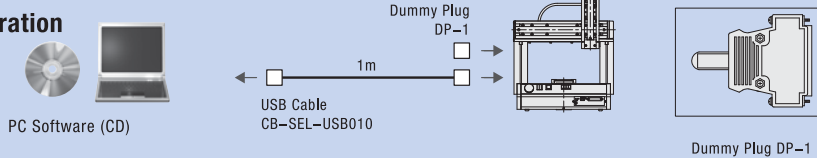
Model IA-101-X-MW (RS232C Cable Included)

Configuration



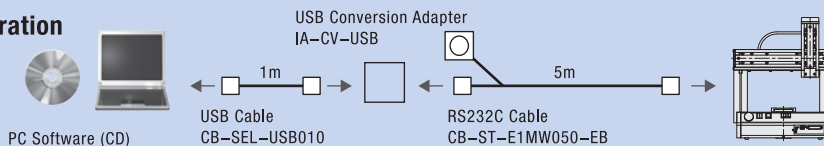
Model IA-101-TT-USB (USB Cable Included)

Configuration



Model IA-101-X-USBMW (USB Conversion adapter + Cable Included)

Configuration



Notes on Catalog Specifications

Speed

"Speed" refers to the set speed at which the actuator slider is moved. The slider accelerates from a stationary state. Once the set speed is reached, the slider will move at that speed until immediately before the target position (specified position), where the slider will decelerate to a stop.

Acceleration /Deceleration

"Acceleration" refers to the rate of change of speed from a stationary state until the set speed is reached. "Deceleration" refers to the rate of change of speed from the set speed until the slider stops. Acceleration and deceleration are set in "G" (0.3 G = 2940 mm/sec 2).

Duty

IAI recommends that our actuators to be used at a duty of 50% or less as a guideline in view of the relationship of service life and accuracy.

$$\text{Duty (\%)} = \frac{\text{Acceleration / Deceleration time}}{\text{Motion time + Inactivity}} \times 100$$

Positioning repeatability

"Positioning repeatability" refers to the positioning accuracy when the actuator is repeatedly moved to a pre-stored position. It is different from "absolute positioning accuracy."

Home

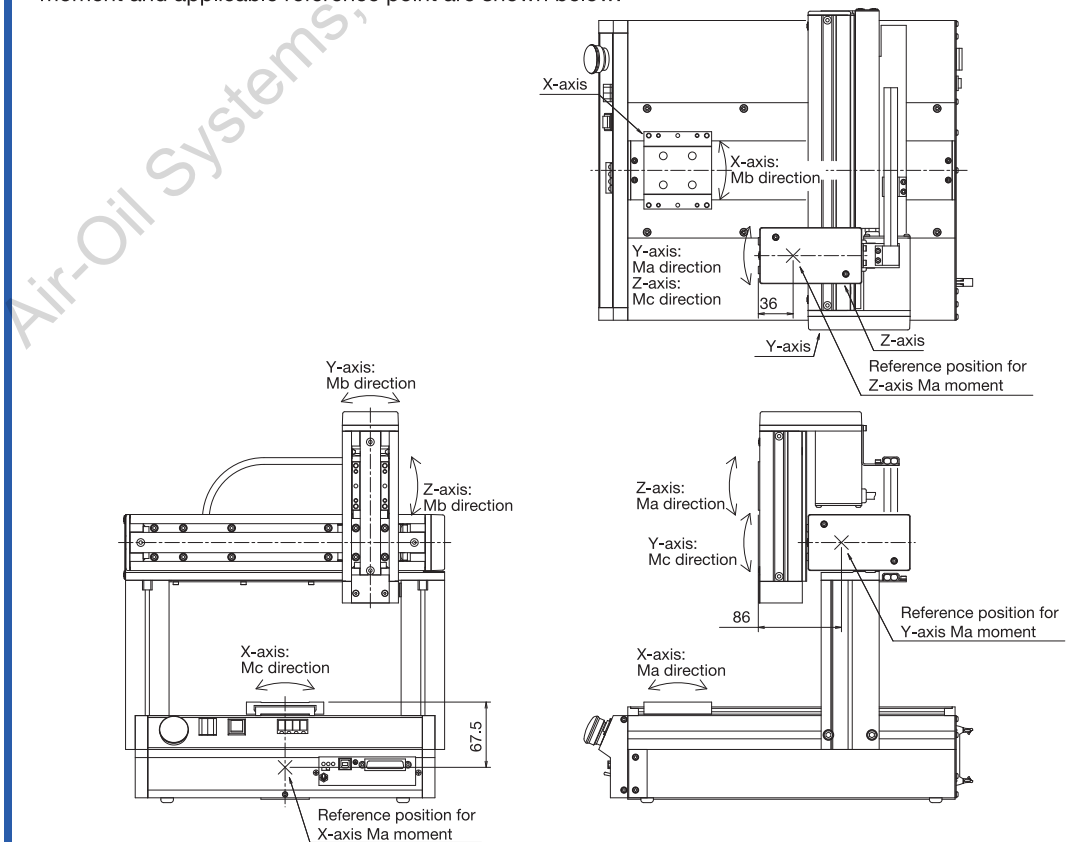
The home is located on the motor side on the actuator for standard specification, or on the counter-motor side of the actuator in the reversed-home specification.

During home return the slider moves until it contacts the mechanical end, and then it reverses its direction. Be careful to prevent contact with surrounding parts.

Allowable load moment

(Ma, Mb, Mc)

The load moment is calculated by assuming a travel life of 5,000 km. Note that if the specified moment value is exceeded, the service life of the guide will be reduced. The direction of each moment and applicable reference point are shown below:



Programming

Super SEL Language

Super SEL is one of the simplest of many robot languages available today.

Super SEL has single-handedly resolved the age-old challenge of "embodying advanced controls using simple language."

Super SEL employs the step method in which all steps are executed one by one from the top. Since commands are input in the order of operations, even a beginner can easily create a program.

Programming in Super SEL involves two types of data: the "program data" used for executing axis movement commands, external communication commands and various other commands; and the "position data" consisting of the record of positions to which each axis will be moved.

Up to 6000 steps of program data can be input, and these command steps can be divided into a maximum of 64 individual programs.

Up to 3000 positions can be registered, with each position consisting of data corresponding to three axes.

To move each axis, simply include a movement command in the program data and specify the number corresponding to the desired position data. The axis will then move to the position registered under the specified position data number.

● Program data

No.	B	E	N	Cnd	Cmd	Operand 1	Operand 2
1					HOME	100	
2					HOME	11	
3					YEL	200	
4					WTON	1	
5					MOYL	1	
6					BTON	301	
7					WTON	2	
8					BTOF	301	
9					MOYL	2	
10					BTON	302	

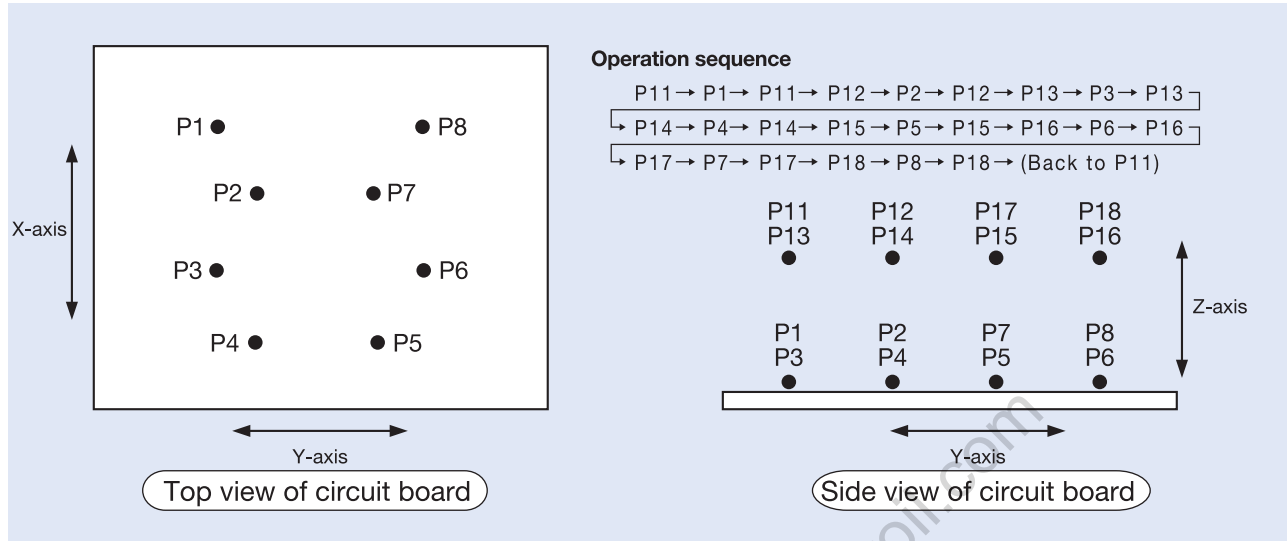
● Position data

No.	Axis1	Axis2	Axis3	V.
1	10.000	150.000	50.000	
2	20.000	140.000	50.000	
3	30.000	150.000	50.000	
4	40.000	140.000	50.000	
5	40.000	110.000	50.000	
6	30.000	100.000	50.000	

Sample Program 1 Soldering

Operation Overview

Register solder positions as position data and move the soldering head (attached to the Z-axis) using a program to the registered positions sequentially.



Position data

	X-axis	Y-axis	Z-axis
P1	10	150	50
P2	20	140	50
P3	30	150	50
P4	40	140	50
P5	40	110	50
P6	30	100	50
P7	20	110	50
P8	10	100	50

	X-axis	Y-axis	Z-axis
P11	10	150	0
P12	20	140	0
P13	30	150	0
P14	40	140	0
P15	40	110	0
P16	30	100	0
P17	20	110	0
P18	10	100	0

Program

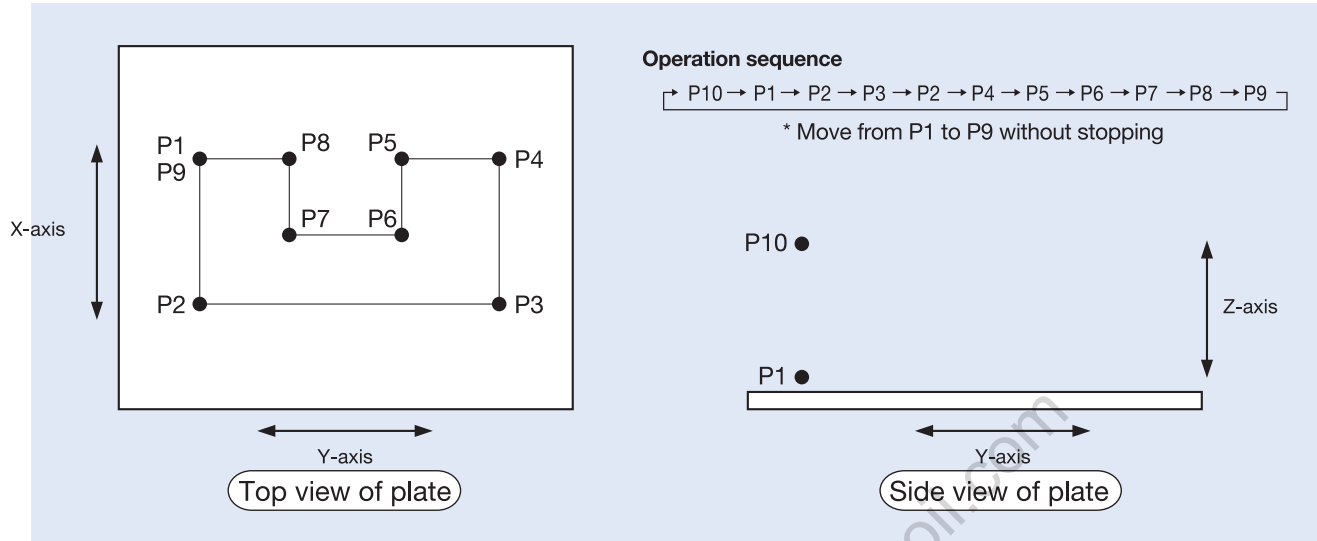
Step	Extension condition	Input condition	Command	Operand 1	Operand 2	Output condition	Comment
1			HOME	100			Bring only the Z-axis to home
2			HOME	11			Bring the X- and Y-axes to home
3			VEL	100			Set the speed to 100 mm/sec.
4			ACC	0.3			Set the acceleration to 0.3 G
5			TAG	1			Destination of GOTO 1 in step 32
6			WTON	16			Stop until start button input 16 turns on
7			MOVP	11			Move to above position 1 (= position 11)
8			MOVP	1			Move (descend) to position 1
9			TIMW	3			Stop for 3 seconds
10			MOVP	11			Move (ascend) to position 11
11			MOVP	12			Move to above position 2 (= position 12)
12			MOVP	2			Move (descend) to position 2
13			TIMW	3			Stop for 3 seconds
14			MOVP	12			Move (ascend) to position 12
<hr/>							
28			MOVP	18			Move to above position 8 (= position 18)
29			MOVP	8			Move (descend) to position 8
30			TIMW	3			Stop for 3 seconds
31			MOVP	18			Move (ascend) to above position 18
32			GOTO	1			Jump to TAG 1
33							
34							

Sample Program 2 Coating

Operation Overview

Apply sealant to a plate along the path illustrated below.

The actuator moves continuously, without stopping, from position 1 to position 9 based on the movement path.



Position data

	X-axis	Y-axis	Z-axis
P1	10	150	50
P2	40	150	50
P3	40	70	50
P4	10	70	50
P5	10	90	50
P6	20	90	50
P7	20	130	50
P8	10	130	50
P9	10	150	50
P10	10	150	0

Program

Step	Extension condition	Input condition	Command	Operand 1	Operand 2	Output condition	Comment
1			HOME	100			Bring only the Z-axis to home
2			HOME	11			Bring the X- and Y-axes to home
3			VEL	100			Set the speed to 100 mm/sec.
4			ACC	0.3			Set the acceleration to 0.3 G
5			TAG	1			Destination of GOTO 1 in step 11
6			WTON	16			Stop until start button input 16 turns on
7			MOVP	10			Move to above position 1 (= position 10)
8			MOVP	1			Move (descend) to position 1
9			PATH	2	9		Move continuously from position 1 being the point of origin, to position 9
10			MOVP	10			Move to above position 1 (= position 10)
11			GOTO	1			Jump to TAG 1



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