

NIPPON THOMPSON CO., LTD. (JAPAN)

Head Office : 19-19, Takanawa 2-chome, Minato-ku,
Tokyo, 108-8586, Japan
Phone : +81 (0)3-3448-5850
Fax : +81 (0)3-3447-7637
E-mail : ntt@ikonet.co.jp
URL : https://www.ikont.co.jp/eg/
Plant : Gifu, Kamakura



IKO INTERNATIONAL, INC. (U.S.A.)

East Coast Operation (Sales Head Office)

91 Walsh Drive,
Parsippany, NJ, 07054,
U.S.A.
Phone : +1-973-402-0254
Toll Free : +1-800-922-0337
Fax : +1-973-402-0441
E-mail : eco@ikonet.co.jp



Midwest Operation

101 Mark Street, Unit-G,
Wood Dale, IL, 60191,
U.S.A.
Phone : +1-630-766-6464
Toll Free : +1-800-323-6694
Fax : +1-630-766-6869
E-mail : mwo@ikonet.co.jp

West Coast Operation

9830 Norwalk Boulevard, Suite 198,
Santa Fe Springs, CA, 90670,
U.S.A.
Phone : +1-562-941-1019
Toll Free : +1-800-252-3665
Fax : +1-562-941-4027
E-mail : wco@ikonet.co.jp

Silicon Valley Sales Office

1500 Wyatt Drive, Suite 10,
Santa Clara, CA, 95054,
U.S.A.
Phone : +1-408-492-0240
Toll Free : +1-800-252-3665
Fax : +1-408-492-0245
E-mail : wco@ikonet.co.jp

Southeast Operation

3235 Satellite Boulevard Building 400, Suite 230,
Duluth, GA, 30096,
U.S.A.
Phone : +1-770-418-1904
Toll Free : +1-800-874-6445
Fax : +1-770-418-9403
E-mail : seo@ikonet.co.jp

Southwest Operation

6191 N STATE HIGHWAY 161, STE 440,
IRVING, TX 75038-2264,
U.S.A.
Phone : +1-972-925-0444
Toll Free : +1-800-295-7886
Fax : +1-972-707-0385
E-mail : swo@ikonet.co.jp

IKO THOMPSON BEARINGS CANADA, INC.(CANADA)

Suite 700 - 6733 Mississauga Road, Mississauga,
Ontario, L5N 6J5, Canada
Phone : +1-647-931-3933
E-mail : itc@ikonet.co.jp

IKO BRASIL SERVIÇOS EMPRESARIAIS LTDA. (BRAZIL)

Rua Frei Caneca 1407,
Condominio Edificio Barão de Monte Cedro,
Cjs. 801/802, Consolação, São Paulo- SP
Cep: 01307-909
Phone : +55 (0)11-2366-3033
E-mail : itb@ikonet.co.jp

NIPPON THOMPSON EUROPE B.V. (EUROPE)

The Netherlands (Sales Head Office)

Keersopstraat 35,
3044 EX, Rotterdam,
The Netherlands
Phone : +31 (0)10-462 68 68
E-mail : nte@ikonet.co.jp



Germany Branch

Mündelheimer Weg 54,
40472 Düsseldorf,
Germany
Phone : +49 (0)211-41 40 61
Fax : +49 (0)211-42 76 93
E-mail : ntd@ikonet.co.jp

Regensburg Sales Office

Im Gewerbepark D 04,
93059 Regensburg,
Germany
Phone : +49 (0)941-20 60 70
Fax : +49 (0)941-20 60 719
E-mail : ntdr@iko-nt.eu

U.K. Branch

2 Vincent Avenue, Crownhill,
Milton Keynes, Bucks, MK8 0AB,
United Kingdom
Phone : +44 (0)1908-566144
E-mail : sales@iko.co.uk

Spain Branch

Autovia Madrid-Barcelona, Km. 43,700
Polig. Ind. AIDA - Nove A-8, Ofic. 2-1^a
19200-Azuqueca de Henares,
(Guadalajara) Spain
Phone : +34 949-26 33 90
Fax : +34 949-26 31 13
E-mail : nts@ikonet.co.jp

France Branch

Bâtiment le Raphaël-Paris, Nord 2,
22 avenue des Nations
BP54394 Villepinte
95943 ROISSY C.D.G Cedex
France
Phone : +33 (0)1-48 16 57 39
Fax : +33 (0)1-48 16 57 46
E-mail : ntf@ikont.eu

IKO THOMPSON ASIA CO., LTD. (THAILAND)

Unit 305,3rd Fl., Zuellig house, 1-7 Silom Rd.,
Silom Bangrak, Bangkok 10500, Thailand
Phone : +66 (0)2637-5115
Fax : +66 (0)2637-5116
E-mail : ita@ikonet.co.jp

IKO THOMPSON KOREA CO.,LTD. (KOREA)

201, Worldvision Bldg., 77-1, Yeouinaru-ro,
Yeongdeungpo-gu, Seoul, Korea
Phone : +82 (0)2-6337-5851
Fax : +82 (0)2-6337-5852
E-mail : itk@ikonet.co.jp

IKO-THOMPSON (SHANGHAI) LTD. (CHINA)

Shanghai (Sales Head Office)

2301-02, 2310, MetroPlaza No.555, LouShanGuan
Road, ChangNing District, Shanghai,
People's Republic of China, 200051
Phone : +86 (0)21-3250-5525
Fax : +86 (0)21-3250-5526
E-mail : ntc@ikonet.co.jp

Beijing Branch

Room 1909, Tower C Oriental Media Center,
Guanghua Road No. 4 Chaoyang District, Beijing,
People's Republic of China, 100026
Phone : +86 (0)10-6515-7681
Fax : +86 (0)10-6515-7689
E-mail : ntc@ikonet.co.jp

Guangzhou Branch

Room 834, Garden Tower, Garden Hotel
368 Huanshi East Road, Yuexiu District, Guangzhou,
Guangdong
People's Republic of China, 510064
Phone : +86 (0)20-8384-0797
Fax : +86 (0)20-8381-2863
E-mail : ntc@ikonet.co.jp

Wuhan Branch

Room 2300, Truroll Plaza No.72, Wusheng Road,
Qiao kou District, Wuhan, Hubei,
People's Republic of China, 430033
Phone : +86 (0)27-8556-1610
Fax : +86 (0)27-8556-1630
E-mail : ntc@ikonet.co.jp

Shenzhen Branch

Room1808, KEENSTAR Building 18,
Chuangye 2nd Rd 248, Bao'an, Shenzhen, Guangdong,
People's Republic of China, 518081
Phone : +86 (0)755-2265-0553
Fax : +86 (0)755-2298-0665
E-mail : ntc@ikonet.co.jp

Xian Branch

Room 2010, Block B, Chaoyang International Plaza,
No. 166,
Changle West Road, Xincheng District Xi'an, Shanxi,
People's Republic of China, 710032
Phone : +86 (0)29-8323-5915
E-mail : ntc@ikonet.co.jp

Qingdao Branch

Room 608, Building 47, Huarun City,
No. 101 Shenzhen Road, Laoshan District,
Qingdao City, Shandong
People's Republic of China, 266100
Phone : +86 (0)532-8670-2246
Fax : +86 (0)532-8670-2242
E-mail : ntc@ikonet.co.jp

Shenyang Branch

2-1203 Tower I. City Plaza Shenyang NO.206,
Nanjing North Street, Heping District,
Shenyang, Liaoning
People's Republic of China, 110001
Phone : +86 (0)24-2334-2662
Fax : +86 (0)24-2334-2442
E-mail : ntc@ikonet.co.jp

Ningbo Office

Room 3406, Zhongnongxin Building, No.181,
Zhongshan East Road, Haishu District,
Ningbo, Zhejiang
People's Republic of China, 315000
Phone : +86 (0)574-8718-9535
Fax : +86 (0)574-8718-9533
E-mail : ntc@ikonet.co.jp

IKO

New

Alignment Stage

SA---DE/T

Unlimited Rotation Type Now Available
With Absolute Encoder Specification



• The specifications and dimensions of products in this catalog are subject to change without prior notice. • When these products are exported, the exporter should confirm a forwarding country and a use, and, in case of falling under the customer's requirements, take necessary procedures such as export permission application. • Although all data in this catalog has been carefully compiled to make the information as complete as possible, NIPPON THOMPSON CO., LTD. shall not be liable for any damages whatsoever, direct or indirect, based upon any information in this catalog. NIPPON THOMPSON CO., LTD. makes no warranty, either express or implied, including the implied warranty of merchantability or fitness for a particular purpose. • Reproduction and conversion without permission are prohibited.



ISO 9001 & 14001 Quality system registration certificate

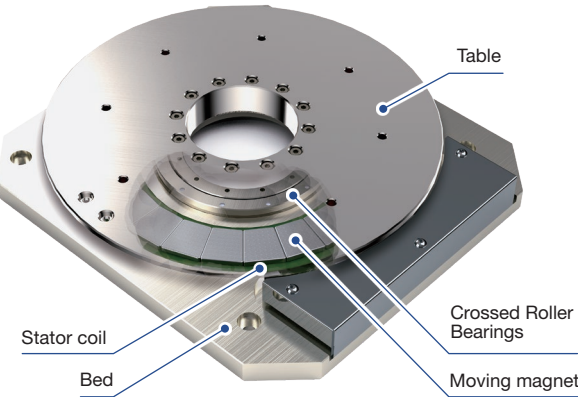
CAT-2997.1E

Printed in Japan © 2026.1 (AK)

NIPPON THOMPSON CO., LTD.

https://www.ikont.co.jp/eg/

Structure



SA...DE Alignment Stages use the direct drive method to achieve low profile and compact XYθ motion.

While the conventional rotation type (SA...DE/S) has limited rotation operating angles, the new unlimited rotation type (SA...DE/T) supports operating angles beyond 360° and continuous rotating operation.

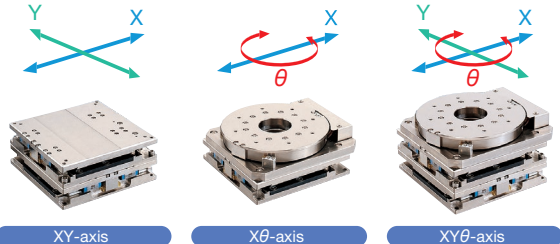
New: SA...DE/T is now available with absolute encoder specification, in addition to the conventional incremental encoder, providing high resolution and excellent noise resistance.

SA...DE/T Features

1

Free combination of X, Y, and θ axes

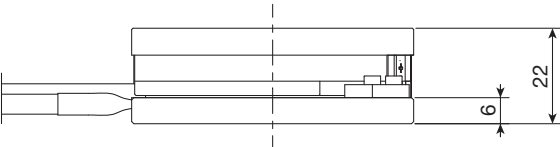
When combined with the linear motion X table, SA...DE/X is an extremely compact alignment stage with three operating directions (X, Y, and θ axes).



2

Thin and Compact

IKO Crossed Roller Bearings are used as the rotation guiding parts for the direct drive method so an extremely low sectional height is achieved.

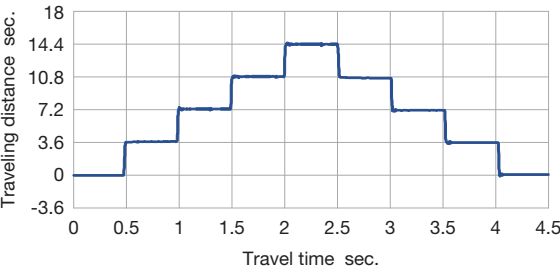


3

High Resolution and High Responsiveness

Performing full-closed loop control of the direct drive-type stage with a built-in high resolution encoder provides high resolution and high accuracy.

[Measurement conditions] Model number: SA120DE/T
Carrying mass: 1000 g
Feed command: 3.6 sec



4

NEW

Absolute Encoder Specification Now Available

With absolute encoder specification, return to origin operation is not required because absolute position information is read from the scale. Further, the use of high-speed serial communication enables high speed, high resolution, and excellent noise resistance.

NO HOMING

ORG

Return to origin/magnetic pole position detection operation not required

HIGH RESOLUTION AND HIGH SPEED

High resolution and high-speed travel

NOISE REDUCTION

Improved noise reduction

Identification Number

Example	SA	120	DE	/	5	XYS	R	4
	1	2	1		3	4	5	6

1

Model code

Model code	
SA...DE	Alignment Stage SA...DE

2

Size

Table size [mm]	
65	ø65
120	ø120
200	ø200

3

Resolution

Resolution	
1	0.1 μm
5	0.5 μm

Specify the resolution of the encoder for X-axis or XY-axis.
When selecting only S: θ-axis or only T: θ-axis in 4, set "No symbol" for the resolution.

Alignment Stage SA...DE/T with absolute encoder specifications are individually ordered products.
For more information, please contact IKO.

4

Axial configuration

Axial configuration	
X	Only X-axis
S	Only θ-axis (limited operating angle specification)
T	Only θ-axis (unlimited rotation specification)
XY	X and Y-based two-axis configuration
XS	X and θ-based two-axis configuration (θ-axis limited operating angle specification)
XT	X and θ-based two-axis configuration (θ-axis unlimited rotation specification)
XYS	X, Y, and θ-based three-axis configuration (θ-axis limited operating angle specification)
XYT	X, Y, and θ-based three-axis configuration (θ-axis unlimited rotation specification)

5

Surface treatment*

Surface treatment	
No symbol	Electroless nickel plating
R	Black chrome surface treatment

When T (unlimited rotation specification) is included in the axis configuration, black chrome surface treatment is not applicable.
*Surface treatment is performed on the surfaces of table and bed.

6

Specification number

Specification number	
4	Specification number 4 (The specification number is limited to 4)

Specifications

Model and size	SA65DE/X	SA120DE/X	SA200DE/X	SA65DE/S SA65DE/T	SA120DE/S SA120DE/T	SA200DE/S SA200DE/T
Sectional shape						
Maximum thrust N	25	70	400 (250)	Maximum torque 0.5N·m	Maximum torque 2.0N·m	Maximum torque 8.0 (6.0)N·m
Rated thrust N	3.5	15	70	Rated torque 0.06N·m	Rated torque 0.4N·m	Rated torque 2.0N·m
Maximum load mass kg	2.4	5.9	30.0 (20.0)	2.2	6.8	21.2 (17.1)
Effective stroke length mm or operating angle deg	10	20	20	/S 50°	/S 60°	/S 280°
				/T Unlimited rotation	/T Unlimited rotation	/T Unlimited rotation
				/T Absolute Unlimited Rotation	/T Absolute Unlimited Rotation	/T Absolute Unlimited Rotation
Resolution μm	0.1	0.5	0.1	0.5	0.1	0.5
Maximum speed mm/s	270	500	270	800	270	800
Positioning repeatability μm	±0.5	±0.5	±0.5	±0.5	±0.5	±0.5

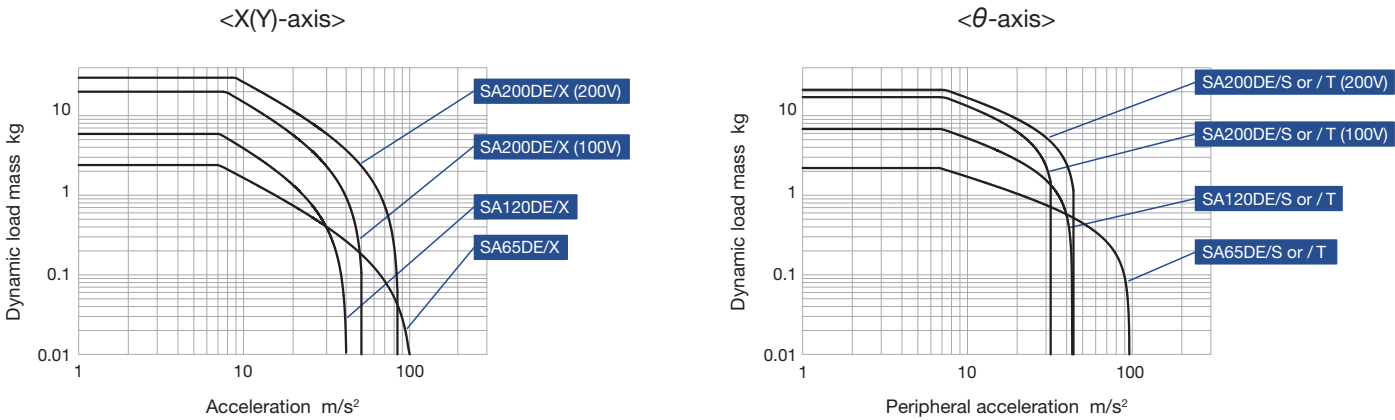
Remark Numbers in parentheses indicate values when used with an ADVA-R5ML driver or AD7A-R5MV driver.

Specifications and Performance

Identification number		SA65DE			SA120DE			SA200DE (1)(2)		
		/S	/T	/T Absolute	/S	/T	/T Absolute	/S	/T	/T Absolute
Maximum torque (1)	N·m	0.5			2.0			8.0 (6.0)		
Rated torque (2)	N·m	0.06			0.4			2.0		
Maximum load mass	kg	2.2			6.8			21.2 (17.1)		
Effective operating angle	Degree	50	Unlimited rotation	Unlimited rotation	60	Unlimited rotation	Unlimited rotation	280	Unlimited rotation	Unlimited rotation
Resolution	Second	0.64	0.63	0.31	0.36		0.15	0.25	0.5	0.08
	-	5625 pulses/deg	2052000 pulses/rev	4197304 pulses/rev	10000 pulses/deg	3600000 pulses/rev	8388608 pulses/rev	14400 pulses/deg	2592000 pulses/rev	16777216 pulses/rev
Maximum speed (3) (4)	degree/s	720			400	720		270	720	
Positioning repeatability (5)	Second	±1.3		±0.7	±0.8		±0.6	±0.5	±1.0	±0.5
Inertia moment of moving table	kg·m²	0.00012			0.002			0.013		
Total mass (6)	kg	0.5			2			6		
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep condensation free)								

Notes (1) The duration of maximum torque is up to 1 second.
(2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
(3) For the case of exceeding the displayed speed, please contact IKO.
(4) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
(5) When the temperature of the product is constant.
(6) Mass of the cord is not included.
(7) Values in parentheses in the limited operating angle specifications /S indicate values when used with an ADVA-R5ML driver (100V).
(8) Values in parentheses in the unlimited rotation specifications /T indicate values when used with an AD7A-R5MV driver (100V).

Dynamic load mass



Remark: Dynamic load mass of θ -axis is a value calculated as cube of steel. And, the acceleration is converted as value of stage periphery.

Mounting

The typical tightening torque to be used when fixing SA...DE in place is indicated in the following table. When high accuracy is required with no vibration and shock, it is recommended to tighten the screws with a lower torque than that indicated in the table and use an adhesive to prevent screws from loosening.

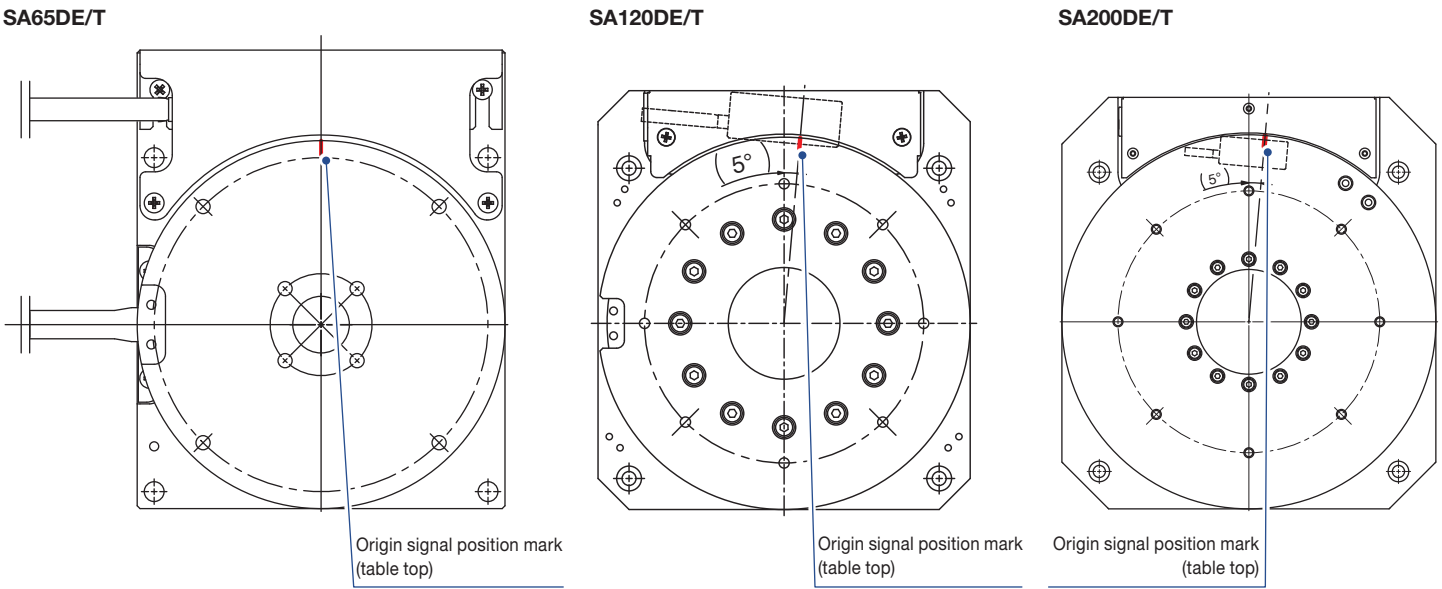
Screw tightening torque

Unit: N·m			
Bolt size	Female thread component		
	Copper	Aluminum alloy	
			Screw insert
M3 × 0.5	1.7	About 60% of steel value	About 80% of steel value
M4 × 0.7	4.0		
M6 × 1	13.3		

Sensor Specification

Origin signal position of the SA...DE/T (unlimited rotation specification)

The table top of the SA...DE/T is engraved with a mark showing the origin signal detection position (red line in the figure below). The origin signal is detected when the table is at the position shown in the figure.
The SA...DE/T does not have a built-in limit sensor or pre-origin sensor. When using with a limited stroke range, install external sensors, stoppers, etc., as needed.



System Configuration

Three series of dedicated drivers, ADVA, AD7A and MR-J4, are available for the Alignment Stage SA. The system configuration varies depending on the driver used. Table 1 shows the incremental encoder specification Alignment Stage SA...DE and applicable driver types. Table 2 shows the identification numbers of tables and applicable MR-J4 drivers. For more information on absolute encoder specifications, see page 10.

Table 1. Applicability table of SA...DE model and driver types

Driver	Command type	SA...DE/S (Limited operating angle)	SA...DE/T (Unlimited rotation)	SA...DE/X
ADVA	EtherCAT	○	-	○
	Pulse train command	○	-	○
AD7A (1)	EtherCAT/Pulse train command	-	◇	-
MR-J4	SSCNET III/H	○	○	○
	Pulse train command	◇	◇	◇

Note (1) Command method (EtherCAT or pulse train commands) for the AD7A can be switched via mode selection.
Remark ◇ is individually corresponding. If needed, please contact IKO.
The use of drivers other than those listed above can also be considered. If needed, please contact IKO.

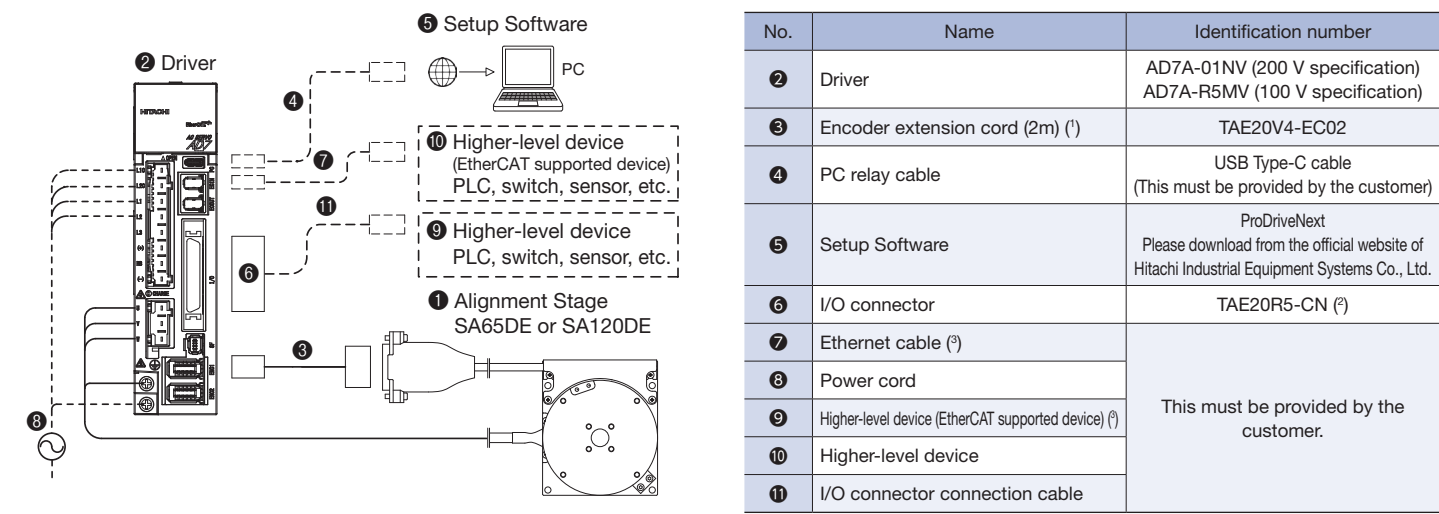
Table 2. Identification numbers of SA...DE and applicable MR-J4-10B-RJ

Identification number of table	Identification number of driver
SA65DE /S	MR-J4-10B-RJ /SA65DE -S
SA65DE /T	MR-J4-10B-RJ /SA65DE -T
SA65DE /X	MR-J4-10B-RJ /SA65DE -X
SA120DE /S	MR-J4-10B-RJ /SA120DE -S
SA120DE /T	MR-J4-10B-RJ /SA120DE -T
SA120DE /X	MR-J4-10B-RJ /SA120DE -X
SA200DE /S	MR-J4-10B-RJ/SA200DE -S2
SA200DE /T	MR-J4-10B-RJ /SA200DE -T
SA200DE /X	MR-J4-10B-RJ /SA200DE -X

System Configuration

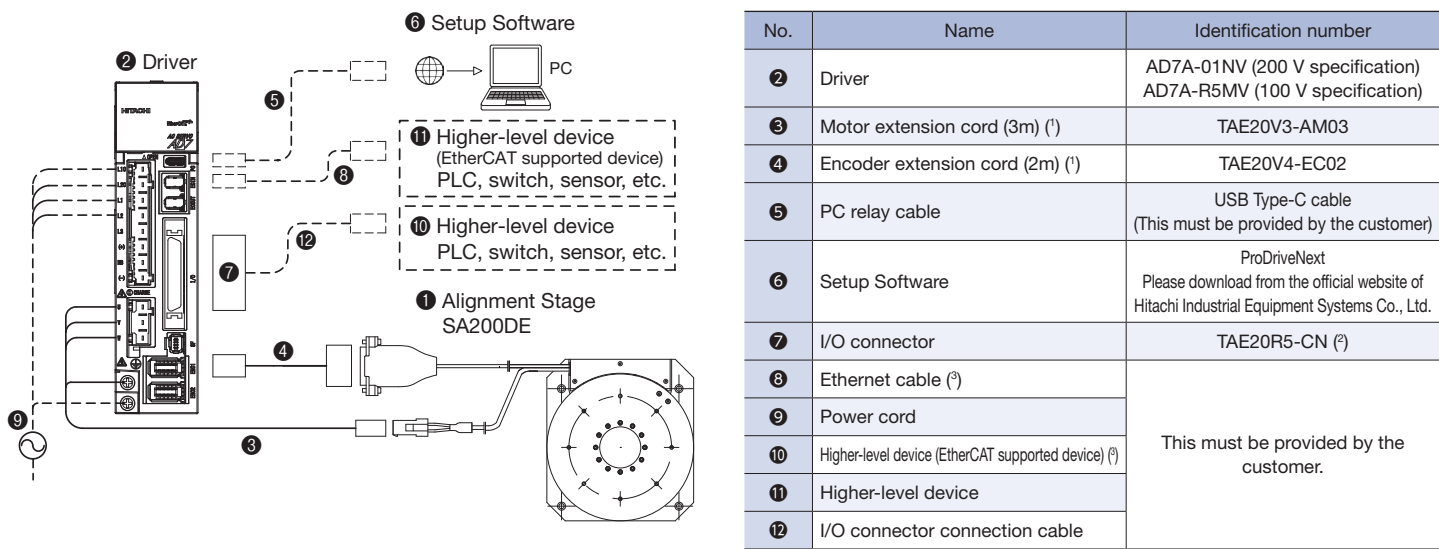
System configuration for the incremental encoder specification is shown below. For more information on absolute encoder specifications, see page 10.

Table 3. System configuration for SA65DE/T, SA120DE/T with driver AD7A



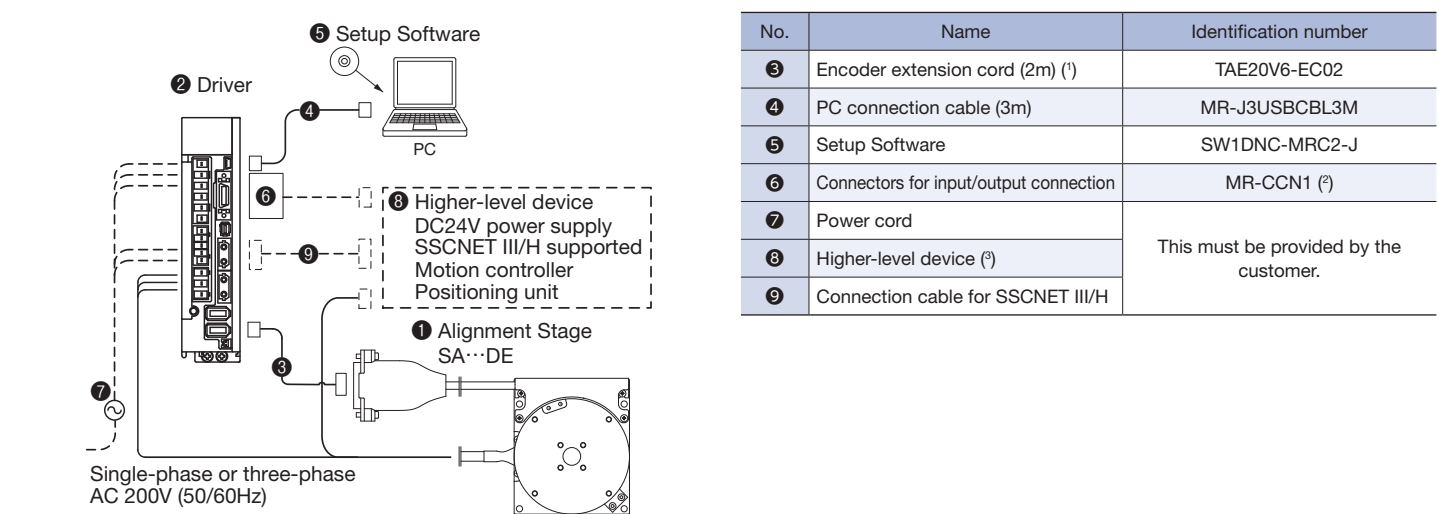
Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The I/O connector TAE20V5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.
⁽³⁾ Required only when using the AD7A in EtherCAT command mode. Not required when using with pulse train commands.
(Command method [EtherCAT or pulse train] for the AD7A can be switched via mode selection.)

Table 4. System configuration for SA200DE/T with driver AD7A



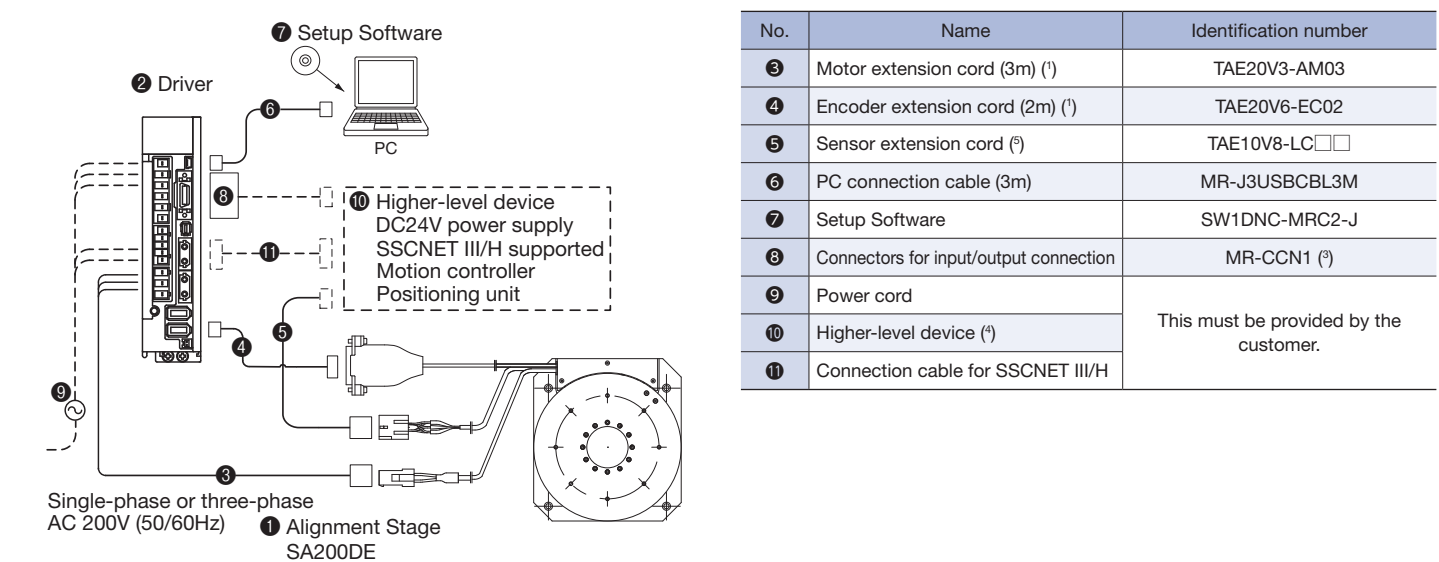
Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The I/O connector TAE20V5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.
⁽³⁾ Required only when using the AD7A in EtherCAT command mode. Not required when using with pulse train commands.
(Command method [EtherCAT or pulse train] for the AD7A can be switched via mode selection.)

Table 5. System configuration (SSCNET III/H supported) for SA65DE and SA120DE with driver MR-J4-10B



Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The I/O connector MR-CCN1 is a combined product of 10120-3000PE (connector) and 10320-52F0-008 (cover) from 3M Japan Limited.
⁽³⁾ The higher-level devices are a motion controller, positioning unit and DC24V power supply ready for SSCNET III/H from Mitsubishi Electric Corporation.

Table 6. System configuration (SSCNET III/H supported) for SA200DE with driver MR-J4-10B



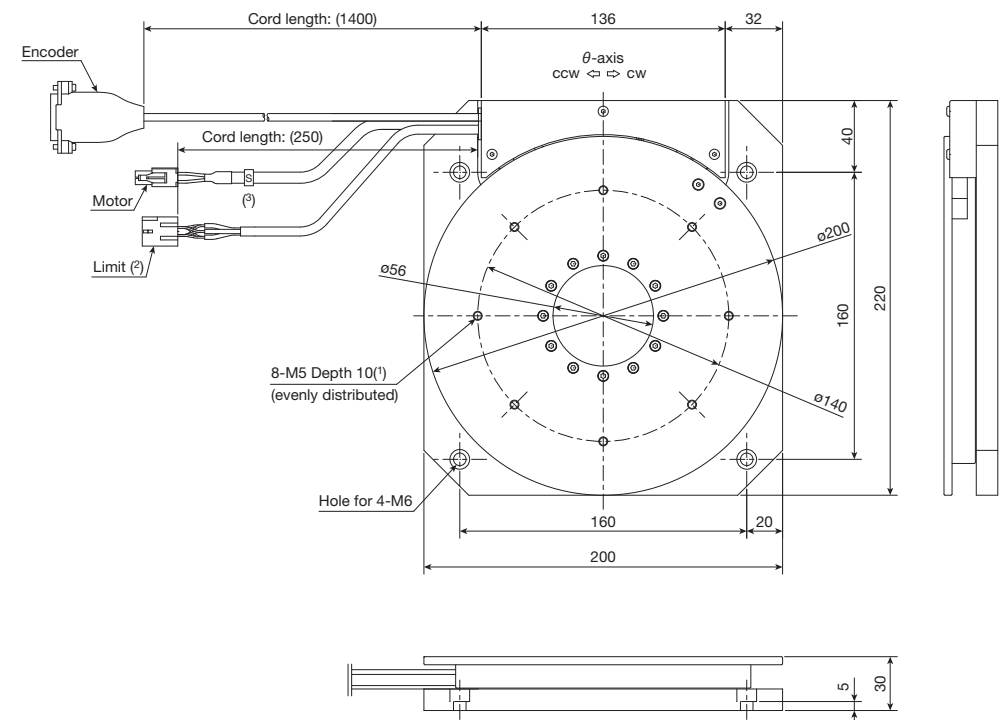
Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The length of the sensor extension cord is specified in the □□ located at the end of the identification number for lengths of 3 to 10m in units of 1m.
⁽³⁾ The I/O connector MR-CCN1 is a combined product of 10120-3000PE (connector) and 10320-52F0-008 (cover) from 3M Japan Limited.
⁽⁴⁾ The higher-level devices are a motion controller, positioning unit and DC24V power supply ready for SSCNET III/H from Mitsubishi Electric Corporation.
⁽⁵⁾ Not available for the SA-DE/T.

● SA65DE/S, SA65DE/T

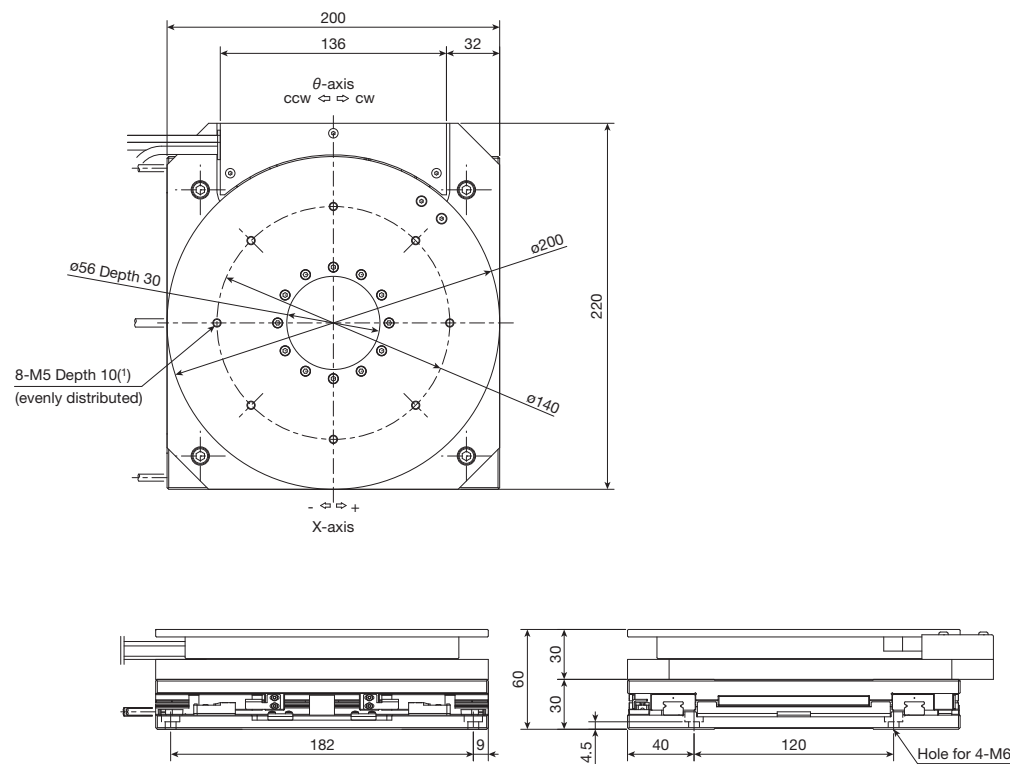


Product dimensions

● SA200DE/S, SA200DE/T



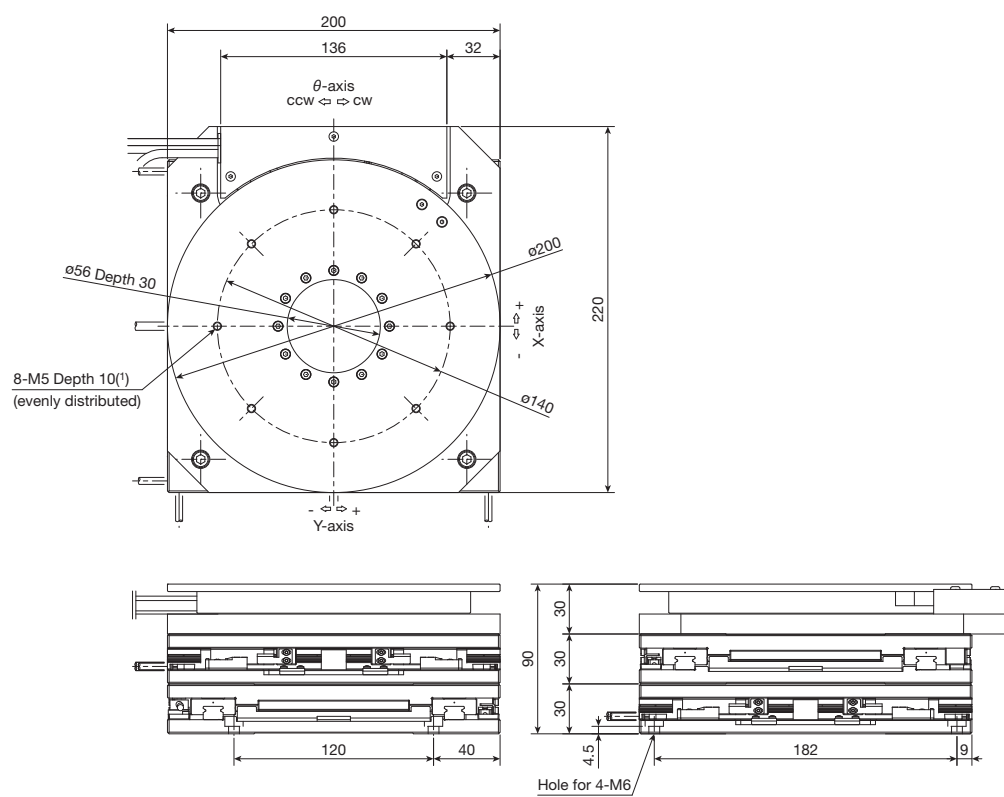
● SA200DE/XS, SA200DE/XT



Note (1) Inserting mounting screws too deeply may affect the running performance of the moving table. Never insert a screw longer than the depth of the through hole.
 (2) The SA200DE/T (unlimited rotation specification) does not have a limit cord or mechanical stopper.
 (3) Both the SA200DE/S and SA200DE/T specifications include the S symbol.

Remark For the cable length, please see the dimension tables for SA200DE/X and SA200DE/S.
 The central hole of the θ -table is a through hole.

● SA200DE/XYS, SA200DE/XYT



Note (1) Inserting mounting screws too deeply may affect the running performance of the moving table. Never insert a screw longer than the depth of the through hole.
Remark For the cable length, please see the dimension tables for SA200DE/X and SA200DE/S.

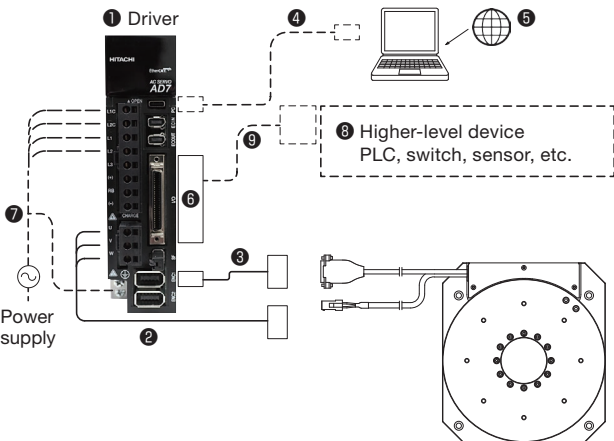
System configuration (SA...DE/T absolute encoder specification)

Alignment Stage SA---DE/T with absolute encoder specifications are individually ordered products. For more information, please contact IKO. The alignment stage drivers for which manufacturing is supported are listed below.

Encoder type	RSF Elektronik rotary encoder model	Compatible driver	Resolution		
			SA65DE/T4	SA120DE/T4	SA200DE/T4
Absolute rotary encoder	AK MCR15	AD7 Series made by Hitachi Industrial Equipment Systems Co., Ltd.	22bit	23bit	24bit
	AK MCR15 M	Mitsubishi Electric Corporation J5 Series			
	AK MCR15 Y	Yaskawa Electric Corporation Σ-7 Series			
	AK MCR15 P	Panasonic Corporation A6L Series			

● System Configuration Example

As an example, the system configuration when using the driver AD7 Series is shown below. For details of system configuration, please contact IKO.



No.	Name	Identification number	Remarks
①	Driver	AD7A-01NV AD7A-R5MV	01NV: Single-phase/Three-phase 200V (100W) R5MV: Single-phase 100V (50W)
②	Motor extension cord	TAE20V3-AM03	Length: 3m
③	Encoder extension cord	TAE20X4-EC02	Length: 2m
④	PC connection cable	—	USB Type C cable This must be provided by the customer.
⑤	Setup software	ProDriveNext	Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
⑥	I/O connector	TAE20R5-CN	10150-3000PE (Connector) 10350-52F0-008 (Cover)
⑦	Power cord	—	This must be provided by the customer.
⑧	Higher-level device		
⑨	I/O connector connection cable		