

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide : KXG06020/KXG06030

KXG06020T-C

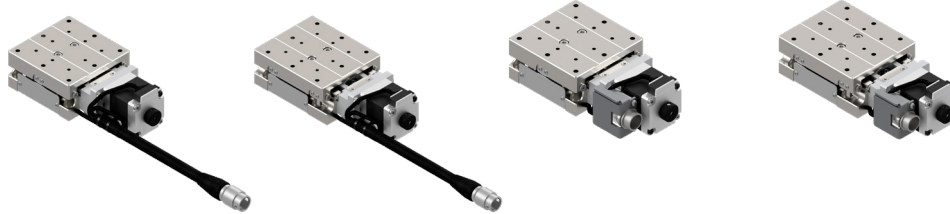
KXG06030T-C

KXG06020M-C

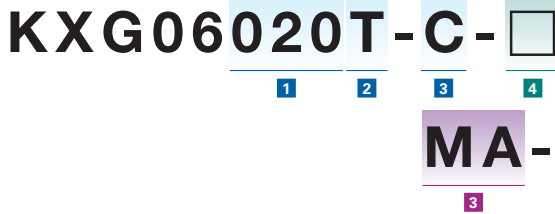
KXG06030M-C

RoHS

Freely customize the motor



* All image is for illustrative purposes only.



▶ Cables P.1-287~

▶ Electrical specification P.1-077~

1 Travel distance

020	20mm
030	30mm

2 Connector specifications

T	Pigtail	
M	Panel Mount	

3 Motor Option

Code	Specification
C	Standard
F	High-torque
G	High resolution
H	High-torque・High resolution
MG	With electromagnetic brake(□28)

*Motor option MG: Brake release needs to be controlled by the customer.

4 Cable option (Motor: C・F・G・H・MG)

Code	Specification	Cable type
Blank	Cable is not included (Standard)	—
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK

*Cannot choose MGE in combination with ③ and ④.

*Motor code: When MG is selected, a brake cable (one end loose robot cable) of the same length as the motor/sensor cable is attached.

3 Motor option

Code	Specification
MA	With electromagnetic brake (□42_100V)
MB	With electromagnetic brake (□42_200V)
PA	αSTEP (AR Series)
ZA	αSTEP (AZ Series)
EA	Motor for EtherCAT
UG	Servo motor(MINAS A6)
UA	Servo motor(J4)

4 Cable option (Motor: MA・MB・PA・ZA・EA・UG・UA)

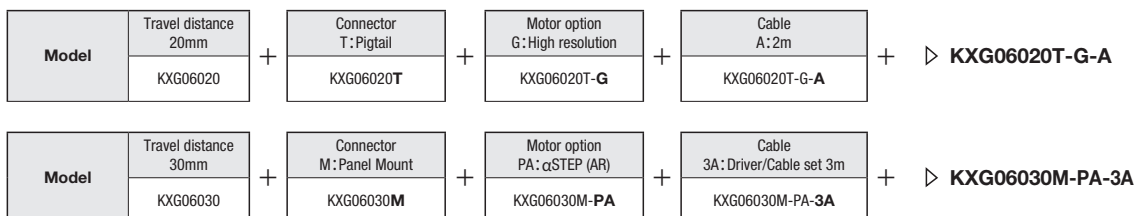
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier)・Cable option

Code	*Combination Motor	Blank			3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	3	5	MA/MB	PA/ZA	EA/UG/UA	MA/MB	PA/ZA	EA/UG/UA
Cable	Sensor	2m	3m	5m	3m			5m		
	Motor	Not included			3m			5m		
	Electromagnetic brake	Not included			3m	—	—	5m	—	—
	Encoder	Not included			—	—	3m	—	—	5m
Driver (Amplifier)		Not included			Included					

*Motor driver (amplifier)/cable combination

Selection Example



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT Linear Ball

PG Linear Ball

KXG/KXL Linear Ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

Specification

		SPEC			
Model		KXG06020T-C	KXG06020M-C	KXG06030T-C	KXG06030M-C
Mechanical specification	Travel distance	20mm		30mm	
	Stage surface size	60×60mm		60×70mm	
	Connector type	Pigtail	Panel Mount	Pigtail	Panel Mount
	Feed screw (Ball screw)	φ8 Lead 1			
	Guide	Linear Ball Guide			
Accuracy specification	Main materials-Finishing	Special Steel—Electroless nickel plating			
	Weight	0.72kg	0.71kg	0.82kg	0.81kg
Sensor	Resolution	2μm/1μm			
		0.1μm (1/20 On resolution)			
	MAX speed	20mm/sec			
	Uni-directional positioning accuracy	5μm			
	Repeatability positioning accuracy	±0.5μm			
	Load capacity	10kgf【98N】			
	Moment stiffness	Pitch0.08/Yaw0.05/Roll0.05["/N・cm]		Pitch0.06/Yaw0.05/Roll0.05["/N・cm]	
	Lost motion	1μm			
	Backlash	1μm			
	Straightness	3μm			
Sensor	Parallellism	15μm			
	Motion parallellism	10μm			
	Pitching/Yawing	20"/15"			
	Limit sensor	Available			
Sensor	Origin sensor	Available			
	Slit origin sensor	—			
Provided screw (Hexagon-headed bolt)		4 of M4 - 10			

※ Might be changed specification due to motors.

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

Resolution · MAX speed · Weight

Motor code	C	F	G	H	MG	MA · MB	
Type	Standard	High-torque	High resolution	High-torque · High resolution	With electromagnetic brake:□28mm	With electromagnetic brake:□42mm	
Motor model*3	C005C-90215P-1	PK525HPB-C1	PK523HPMB-C1	PK525HPMB-C1	C103A-90215PM	PKE545MC-A1	
Step angle	0.72°		0.36°		0.72°		
Resolution	Full/Half	2μm/1μm		1μm/0.5μm		2μm/1μm	
	Micro step (1/20 On resolution)	0.1μm		0.05μm		0.1μm	
MAX speed	20mm/sec	30mm/sec	20mm/sec	30mm/sec	20mm/sec	25mm/sec	
Weight	KXG06020T(Pigtail)	0.72kg	0.81kg	0.72kg	0.81kg	0.77kg	1.15kg
	KXG06020M(Panel Mount)	0.71kg	0.80kg	0.71kg	0.80kg	0.76kg	
	KXG06030T(Pigtail)	0.82kg	0.91kg	0.82kg	0.91kg	0.87kg	1.25kg
	KXG06030M(Panel Mount)	0.81kg	0.90kg	0.81kg	0.90kg	0.86kg	

Motor code	PA	ZA	EA	UG	UA	
Type	αSTEP (AR Series)	αSTEP (AZ Series)	Motor for EtherCAT	MINAS A6	J4	
Motor model*3	ARM24SAK	AZM24AK	STM28W100A	MSMF5AZL1A2	HG-KR053	
Resolution	1μm(1000P/R setting)			23 Bit encoder (8388608P/R)*1	22 Bit encoder (4194304P/R)*2	
MAX speed	30mm/sec	40mm/sec	40mm/sec	50mm/sec		
Weight	KXG06020T(Pigtail)	0.75kg		0.72kg	0.96kg	0.98kg
	KXG06020M(Panel Mount)					
	KXG06030T(Pigtail)	0.85kg		0.82kg	1.06kg	1.08kg
	KXG06030M(Panel Mount)					

*1 Optional encoder cable is for incremental system.

*2 When constructing an absolute system, it is necessary to install a battery in the amplifier.

*3 Model numbers include Suruga Seiki's proprietary management codes.

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

060

Motorized Stage

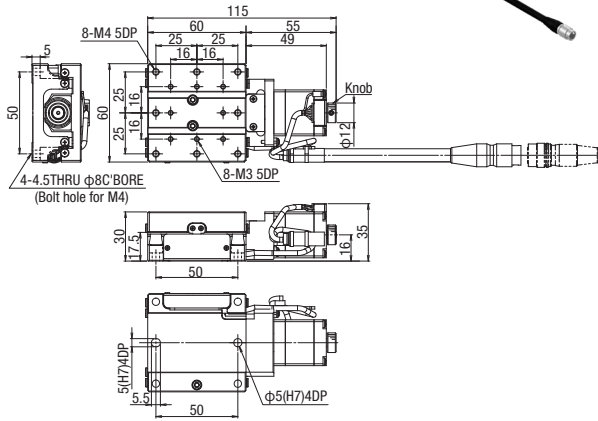
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXG06020/KXG06030

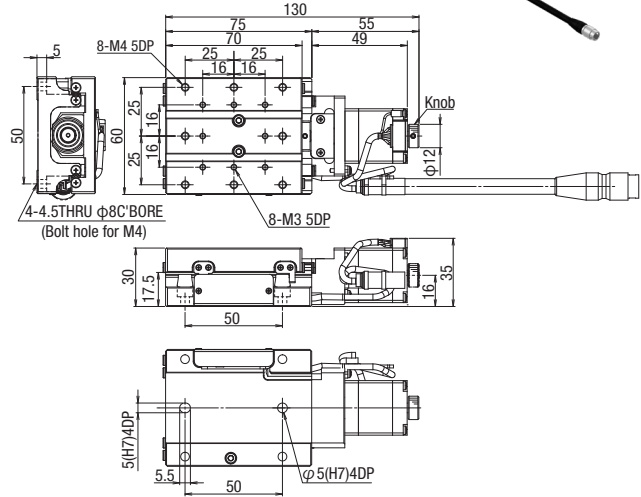
Dimensions

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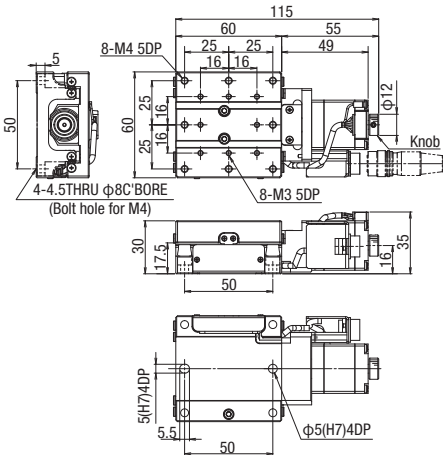
KXG06020T-C



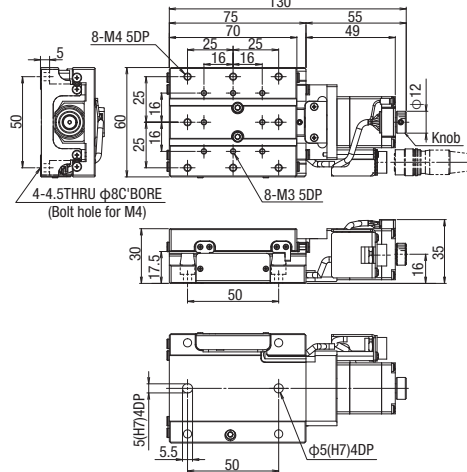
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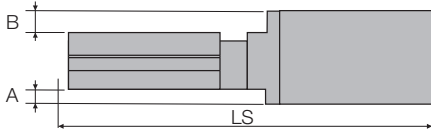
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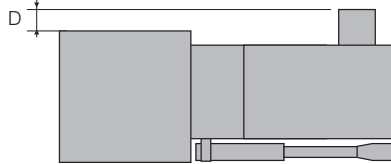
KXG06030M-C



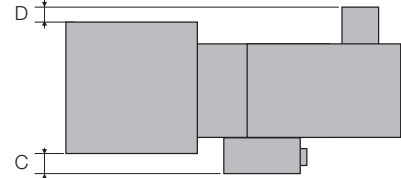
Side view



Top view : Connector : T(Pigtail)



Top view : Connector : M (Panel Mount)



C Standard motor

Motor Model C005C-90215P-1

F High-torque

Motor Model PK525HPB-C1

G High resolution

Motor Model PK523HPMB-C1

H High-torque • High resolution

Motor Model PK525HPMB-C1

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-C	C	□28	T	—	—	—	—	115	130
KXG06***M-C	C	□28	M	—	—	—	—	115	130
KXG06***T-F	F	□28	T	—	—	—	—	134.5	149.5
KXG06***M-F	F	□28	M	—	—	—	—	134.5	149.5
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G	G	□28	M	—	—	—	—	115	130
KXG06***T-H	H	□28	T	—	—	—	—	134.5	149.5
KXG06***M-H	H	□28	M	—	—	—	—	134.5	149.5

*Travel distance

Dimensions

MG With brake

Motor Model C103A-90215PM

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MG	MG	□28	T	—	—	—	—	149	164
KXG06***M-MG			M						

*Travel distance

MA MB With brake

Motor Model PKE545MC-A1

*When the driver is selected MA: 100V, MB: 200V

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MA(MB)	MA・MB	□42	T	6	6	-	2	163	178
KXG06***M-MA(MB)			M						

*Travel distance

PA αSTEP (AR Series)

Motor Model ARM24SAK

ZA αSTEP (AZ Series)

Motor Model AZM24AK

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-PA	PA	□28	T	—	—	-	—	128.5	143.5
KXG06***M-PA			M						
KXG06***T-ZA	ZA	□28	T	—	—	-	—	138	153
KXG06***M-ZA			M						

*Travel distance

EA Motor for EtherCAT

Motor Model STM28W100A

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-EA	EA	□28	T	—	—	—	—	143.8	158.8
KXG06***M-EA			M						

*Travel distance

UG Servo motor MINAS A6 (Panasonic)

Motor Model MSMF5AZL1A2

UA Servo motor J4 (Mitsubishi Electric corporation)

Motor Model HG-KR053

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-UG	UG	□38	T	4	4	—	2	174	189
KXG06***M-UG			M						
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M						

*Travel distance

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Rolleer

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

062

Motorized Stage

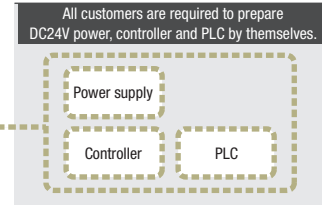
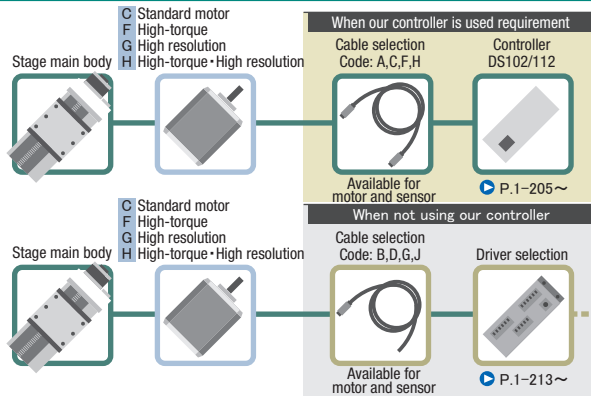
CAVE-X POSITIONER

Linear Ball Guide: KXG06020/KXG06030

Motorized Stage

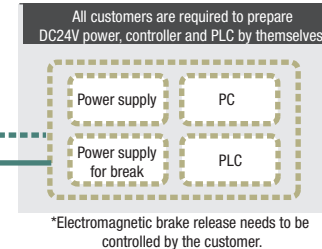
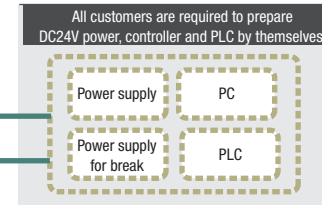
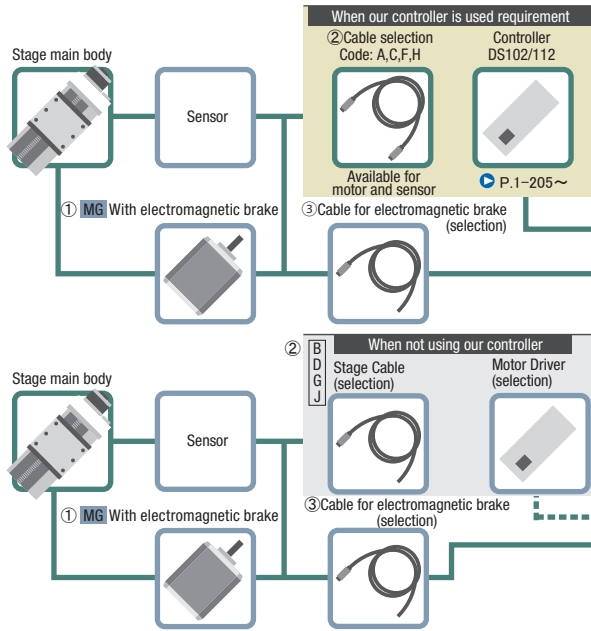
Motor option

C	Standard motor Motor model C005C-90215P-1
F	High-torque Motor model PK525HPB-C1
G	High resolution Motor model PK523HPMB-C1
H	High-torque·High resolution Motor model PK525HPMB-C1



Motor option

MG	With electromagnetic brake Motor model C103A-90215PM
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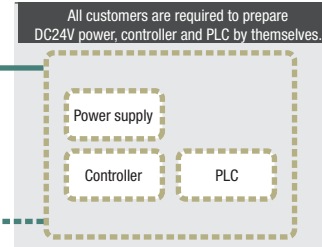
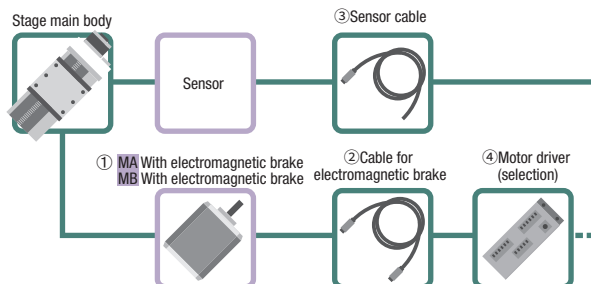


Code	① Motor model	② Motor · Sensor cable selection	③ Cable for electromagnetic brake
MG	C103A-90215PM	A · B · C · D : D214-2-□E(K) F · G · H · J : D214-2-□R(K)	BCBL2-S-□ (*)

(*) A brake cable (one end loose robot cable) of the same length as the motor/sensor cable is included.

Motor option

MA MB	With electromagnetic brake Motor model PKE545MC-A1 *Driver MA: 100V MB: 200V
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Code	① Motor model	② Cable for electromagnetic brake set (*)	③ Sensor cable selection	④ Driver selection
MA MB	PKE545MC-A1	3A : CC030VPFB 5A : CC050VPFB Blank · 3 · 5 : Not included	3A · 3 : HR10AP-S-SB-6-3 5A · 5 : HR10AP-S-SB-6-5 Blank : HR10AP-S-SB-6-2	[MA]3A · 5A : RKSD503M-A [MB]3A · 5A : RKSD503M-C Blank · 3 · 5 : Not included

(*)Cable for electromagnetic brake and motor cable set.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

40

50

60

70

80

100

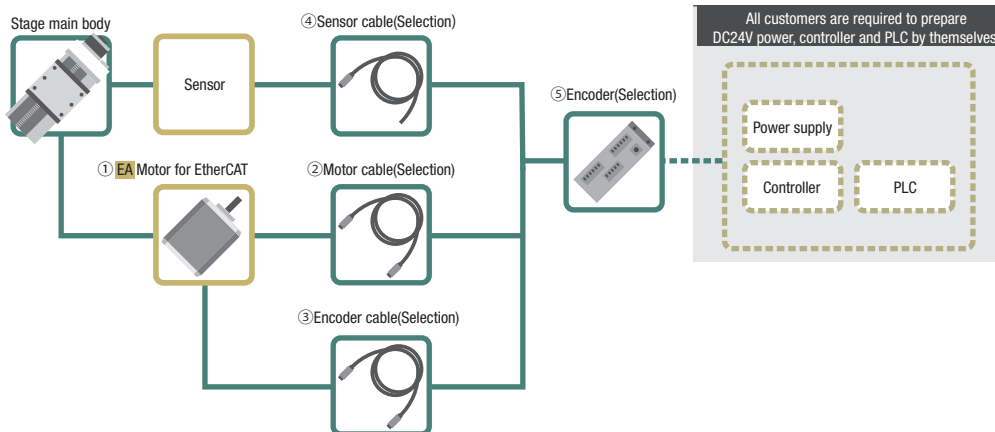
120

180

Other

Motor option

EA Motor for EtherCAT
 Motor model
 STM28W100A

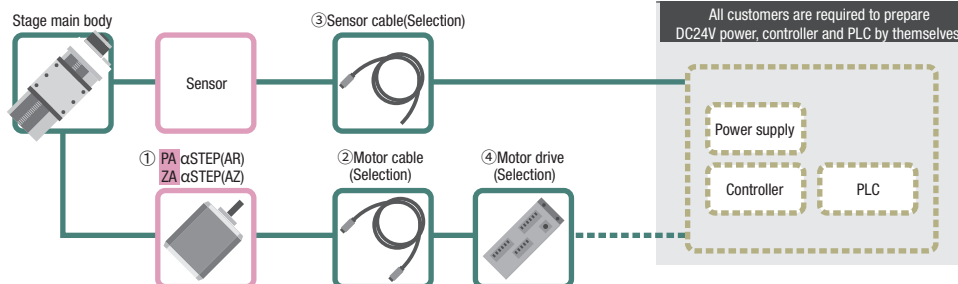


Code	① Motor model	② Motor cable selection	③ Encoder cable selection	④ Sensor cable selection	④ Driver selection
EA	STM28W100A	3A : D214-3-3R2 5A : D214-3-5R2 Blank · 3 · 5 : Not included	3A : D214-3-3RE2 5A : D214-3-5RE2 Blank · 3 · 5 : Not included	3A · 3 : HR10AP-S-SB-6-3 5A · 5 : HR10AP-S-SB-6-5 Blank : HR10AP-S-SB-6-2	3A · 5A : DS1000A-EC-28 Blank · 3 · 5 : Not included

Motor option

PA αSTEP (AR Series)
 Motor model
 ARM24SAK

ZA αSTEP (AZ Series)
 Motor model
 AZM24AK

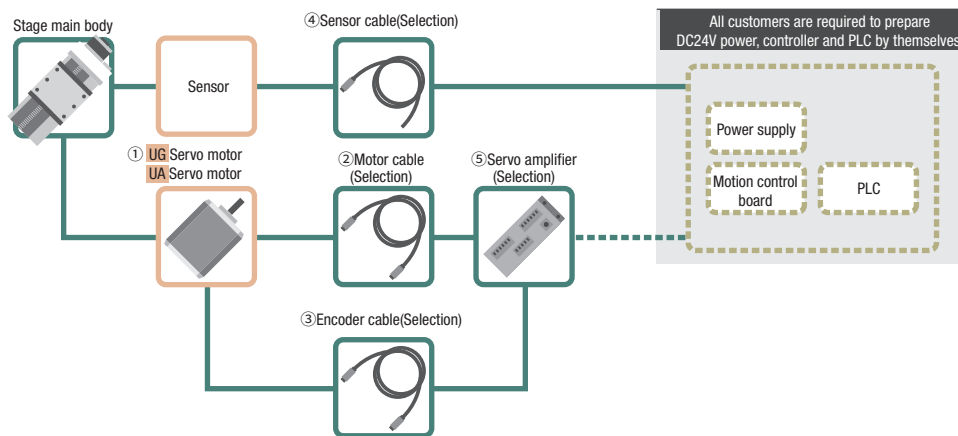


Code	① Motor model	② Motor cable selection	③ Sensor cable selection	④ Driver selection
PA	ARM24SAK	3A : CC030VA2R2 5A : CC050VA2R2 Blank · 3 · 5 : Not included	3A · 3 : HR10AP-S-SB-6-3 5A · 5 : HR10AP-S-SB-6-5 Blank : HR10AP-S-SB-6-2	3A · 5A : ARD-K Blank · 3 · 5 : Not included
ZA	AZM24AK	3A : CC030VZ2R2 5A : CC050VZ2R2 Blank · 3 · 5 : Not included		3A · 5A : AZD-K Blank · 3 · 5 : Not included

Motor option

UG Servo motor
 Motor model
 MSMF5AZL1A2

UA Servo motor
 Motor model
 HG-KR053



Code	① Motor model	② Motor cable selection	③ Encoder cable selection	④ Sensor cable selection	⑤ AC servo amplifier selection
UG	MSMF5AZL1A2	3A : MFMCA0030EED 5A : MFMCA0050EED Blank · 3 · 5 : Not included	3A : MFECA0030EAD 5A : MFECA0050EAD Blank · 3 · 5 : Not included	3A · 3 : HR10AP-S-SB-6-3 5A · 5 : HR10AP-S-SB-6-5 Blank : HR10AP-S-SB-6-2	3A · 5A : MADLT05SF Blank · 3 · 5 : Not included
UA	HG-KR053	3A : SVPM-J3HF1-B-3-02S 5A : SVPM-J3HF1-B-5-02S Blank · 3 · 5 : Not included	3A : SVEM-J3HF1-B-3 5A : SVEM-J3HF1-B-5 Blank · 3 · 5 : Not included		3A · 5A : MR-J4-10A Blank · 3 · 5 : Not included

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

40

50

60

70

80

100

120

180

Other

1

064

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYG06020/KYG06030

KYG06020T-C

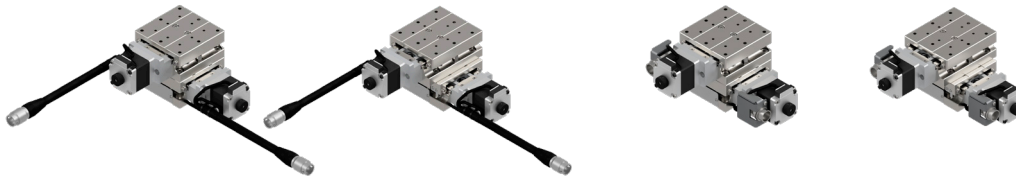
KYG06030T-C

KYG06020M-C

KYG06030M-C

RoHS

Freely customize the motor



* All image is for illustrative purposes only.

KYG06020T-C-

1 2 3 4

MA-

3 4

▶ Cables P.1-287~
▶ Electrical specification P.1-077~

1 Travel distance

020	20mm
030	30mm

2 Connector specifications

T	Pigtail	
M	Panel Mount	

3 Motor Option

Code	Specification
C	Standard
F	High-torque
G	High resolution
H	High-torque·High resolution
MG	With electromagnetic brake(□28)

*Motor option MG: Brake release needs to be controlled by the customer.

4 Cable option (Motor: C·F·G·H·MG)

Code	Specification	Cable type
Blank	Cable is not included (Standard)	—
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK

*Cannot choose MGE in combination with ③ and ④.
*Motor code: When MG is selected, a brake cable (one end loose robot cable) of the same length as the motor/sensor cable is attached.

3 Motor option

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EA	Motor for EtherCAT
UG	Servo motor(MINAS A6)
UA	Servo motor(J4)

4 Cable option (Motor: MA·MB·PA·ZA·EA·UG·UA)

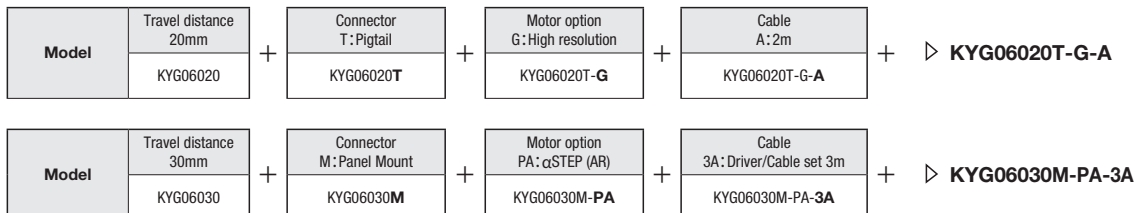
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier) · Cable option

Code	*Combination Motor	Blank			3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	3	5	MA/MB	PA/ZA	EA/UG/UA	MA/MB	PA/ZA	EA/UG/UA
Cable	Sensor	2m	3m	5m	3m			5m		
	Motor				3m			5m		
	Electromagnetic brake	Not included			3m	—	—	5m	—	—
	Encoder				—	—	3m	—	—	5m
Driver (Amplifier)		Not included			Included					

*Motor driver (amplifier)/cable combination

Selection Example



Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1
065

Specification

		SPEC			
Model		KYG06020T-C	KYG06020M-C	KYG06030T-C	KYG06030M-C
Mechanical specification	Travel distance	20mm		30mm	
	Stage surface size	60×60mm			
	Connector type	Pigtail	Panel Mount	Pigtail	Panel Mount
	Feed screw (Ball screw)	φ8 Lead 1			
	Guide	Linear Ball Guide			
Accuracy specification	Main materials-Finishing	Special Steel—Electroless nickel plating			
	Weight	1.44kg	1.42kg	1.64kg	1.62kg
Sensor	Resolution	2μm/1μm			
	MAX speed	20mm/sec			
	Load capacity	9kgf [88.2N]			
	Squareness	10μm full stroke		15μm full stroke	
	Limit sensor	Available			
Stage axis accuracy specification	Origin sensor	Available			
	Slit origin sensor	-			
	Provided screw (Hexagon-headed bolt)	4 of M4 - 10			
Stage axis accuracy specification	Uni-directional positioning accuracy	5μm			
	Repeatability positioning accuracy	±0.5μm			
	Lost motion	1μm			
	Backlash	1μm			
	Straightness	3μm			
	Pitching/Yawing	20"/15"			

※ Might be changed specification due to motors.

Resolution · MAX speed · Weight

Motor code	C	F	G	H	MG	MA · MB	
Type	Standard	High-torque	High resolution	High-torque · High resolution	With electromagnetic brake □28mm	With electromagnetic brake □42mm	
Motor model*3	C005C-90215P-1	PK525HPB-C1	PK523HPMB-C1	PK525HPMB-C1	C103A-90215PM	PKE545MC-A1	
Step angle	0.72°		0.36°		0.72°		
Resolution	Full/Half	2μm/1μm		1μm/0.5μm		2μm/1μm	
	Micro step (1/20 On resolution)	0.1μm		0.05μm		0.1μm	
MAX speed	20mm/sec	30mm/sec	20mm/sec	30mm/sec	20mm/sec	25mm/sec	
Weight	KYG06020T(Pigtail)	1.44kg	1.62kg	1.44kg	1.62kg	1.54kg	2.30kg
	KYG06020M(Panel Mount)	1.42kg	1.60kg	1.42kg	1.60kg	1.52kg	
	KYG06030T(Pigtail)	1.64kg	1.82kg	1.64kg	1.82kg	1.74kg	2.50kg
	KYG06030M(Panel Mount)	1.62kg	1.80kg	1.62kg	1.80kg	1.72kg	

Motor code	PA	ZA	EA	UG	UA	
Type	αSTEP (AR Series)	αSTEP (AZ Series)	Motor for EtherCAT	MINAS A6	J4	
Motor model*3	ARM24SAK	AZM24AK	STM28W100A	MSMF5AZL1A2	HG-KR053	
Resolution	1μm(1000P/R setting)			23 Bit encoder (8388608P/R)*1	22 Bit encoder (4194304P/R)*2	
MAX speed	30mm/sec	40mm/sec	40mm/sec	50mm/sec		
Weight	KYG06020T(Pigtail)	1.50kg		1.44kg	1.92kg	1.96kg
	KYG06020M(Panel Mount)	1.50kg		1.44kg	1.92kg	1.96kg
	KYG06030T(Pigtail)	1.70kg		1.64kg	2.12kg	2.16kg
	KYG06030M(Panel Mount)	1.70kg		1.64kg	2.12kg	2.16kg

*1 Optional encoder cable is for incremental system.

*2 When constructing an absolute system, it is necessary to install a battery in the amplifier.

*3 Model numbers include Suruga Seiki's proprietary management codes.

- X
- XY
- Z
- Horizontal Z
- XYZ
- Goniometer
- Rotary
- Unit
- Controller

KXT Linear Ball

PG Linear Ball

KXG/KXL Linear Ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

180

Other

1

066

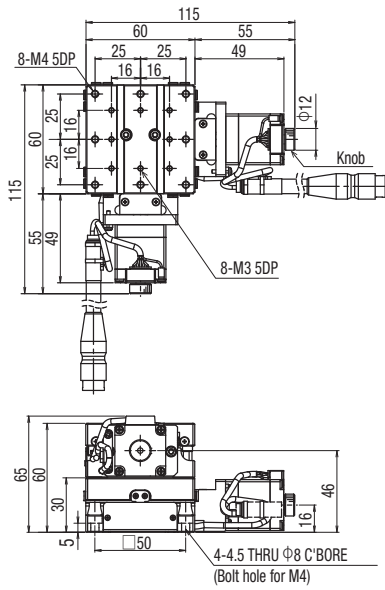
Motorized Stage

CAVE-X POSITIONER

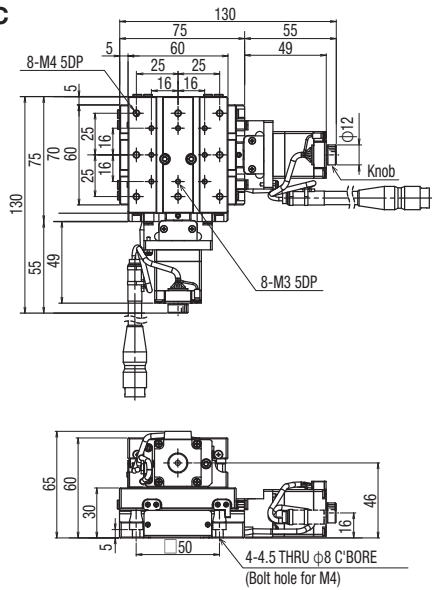
XY-axis Linear Ball Guide: KYG06020/KYG06030

Dimensions

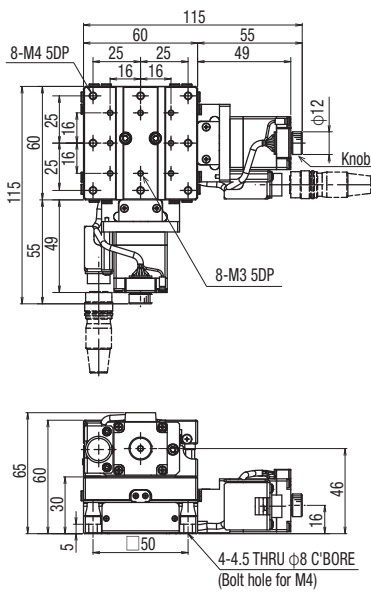
KYG06020T-C



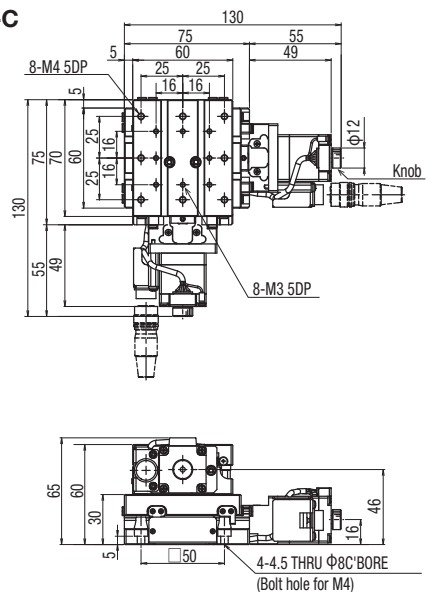
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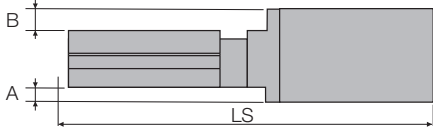
KYG06020M-C



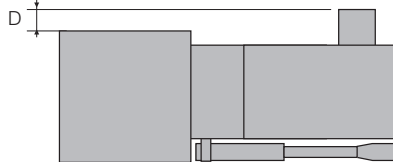
KYG06030M-C



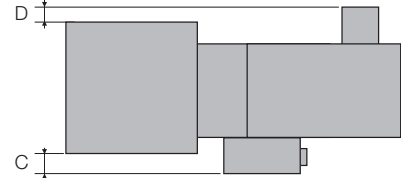
Side view



Top view : Connector : T (Pigtail)



Top view : Connector : M (Panel Mount)



C Standard motor

F High-torque

G High resolution

H High-torque • High resolution

Motor Model: C005C-90215P-1

Motor Model: PK525HPB-C1

Motor Model: PK523HPMB-C1

Motor Model: PK525HPMB-C1

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-C	C	□28	T	—	—	—	—	115	130
KXG06***M-C			M						
KXG06***T-F	F	□28	T	—	—	—	—	134.5	149.5
KXG06***M-F			M						
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M						
KXG06***T-H	H	□28	T	—	—	—	—	134.5	149.5
KXG06***M-H			M						

*Travel distance

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

067

Dimensions

MG With brake

Motor Model C103A-90215PM

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MG	MG	□28	T	—	—	—	—	149	164
KXG06***M-MG			M						

*Travel distance

MA MB With brake

Motor Model PKE545MC-A1

* When the driver is selected MA: 100V, MB: 200V

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MA(MB)	MA・MB	□42	T	6	6	-	2	163	178
KXG06***M-MA(MB)			M						

*Travel distance

PA αSTEP (AR Series)

Motor Model ARM24SAK

ZA αSTEP (AZ Series)

Motor Model AZM24AK

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-PA	PA	□28	T	—	—	-	—	128.5	143.5
KXG06***M-PA			M						
KXG06***T-ZA	ZA	□28	T	—	—	-	—	138	153
KXG06***M-ZA			M						

*Travel distance

EA Motor for EtherCAT

Motor Model STM28W100A

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-EA	EA	□28	T	—	—	—	—	143.8	158.8
KXG06***M-EA			M						

*Travel distance

UG Servo motor MINAS A6 (Panasonic)

Motor Model MSMF5AZL1A2

UA Servo motor J4 (Mitsubishi Electric corporation)

Motor Model HG-KR053

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-UG	UG	□38	T	4	4	—	2	174	189
KXG06***M-UG			M						
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M						

*Travel distance

Motorized Stage

CAVE-X POSITIONER

Z-axis Linear Ball Guide: KZG06020/KZG06030

KZG06020T-C



KZG06030T-C



KZG06020M-C



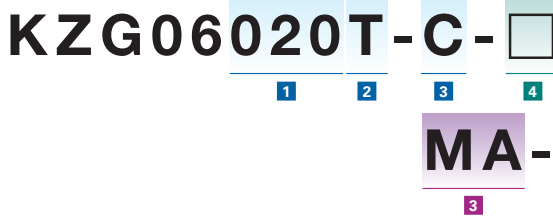
KZG06030M-C



RoHS

Freely customize the motor

All image is for illustrative purposes only.



▶ Cables P.1-287~
▶ Electrical specification P.1-077~

1 Travel distance

020	20mm
030	30mm

2 Connector specifications

T	Pigtail	
M	Panel Mount	

3 Motor Option

Code	Specification
C	Standard
F	High-torque
G	High resolution
H	High-torque・High resolution
MG	With electromagnetic brake(□28)

*Motor option MG: Brake release needs to be controlled by the customer.

4 Cable option (Motor: C・F・G・H・MG)

Code	Specification	Cable type
Blank	Cable is not included (Standard)	—
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK

*Cannot choose MGE in combination with ③ and ④.

*Motor code: When MG is selected, a brake cable (one end loose robot cable) of the same length as the motor/sensor cable is attached.

3 Motor option

Code	Specification
MA	With electromagnetic brake (□42_100V)
MB	With electromagnetic brake (□42_200V)
PA	αSTEP (AR Series)
ZA	αSTEP (AZ Series)
EA	Motor for EtherCAT
UG	Servo motor(MINAS A6)
UA	Servo motor(J4)

4 Cable option (Motor: MA・MB・PA・ZA・EA・UG・UA)

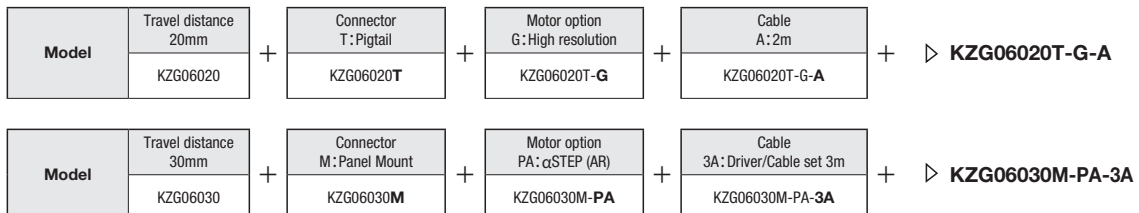
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier)・Cable option

Code	*Combination Motor	Blank			3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	3	5	MA/MB	PA/ZA	EA/UG/UA	MA/MB	PA/ZA	EA/UG/UA
Cable	Sensor	2m	3m	5m	3m			5m		
	Motor				3m			5m		
	Electromagnetic brake	Not included			3m	—	—	5m	—	—
	Encoder				—	—	3m	—	—	5m
Driver (Amplifier)		Not included			Included					

*Motor driver (amplifier)/cable combination

Selection Example



Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

069

Specification

		SPEC			
Model		KZG06020T-C	KZG06020M-C	KZG06030T-C	KZG06030M-C
Mechanical specification	Travel distance	20mm		30mm	
	Stage surface size	60×60mm		60×70mm	
	Connector type	Pigtail	Panel Mount	Pigtail	Panel Mount
	Feed screw (Ball screw)	φ8 Lead 1			
Accuracy specification	Guide	Linear Ball Guide			
	Main materials-Finishing	Special Steel — Electroless nickel plating			
	Weight	1.08kg	1.07kg	1.18kg	1.17kg
	Resolution	Full/Half	2μm/1μm		
Sensor	MAX speed	0.1μm (1/20 On resolution)			
	Load capacity (Excitation)	20mm/sec			
	Perpendicularity	10μm / full stroke		15μm / full stroke	
	Limit sensor	3kgf [29.4N]			
Single axis accuracy specification	Origin sensor	Available			
	Slit origin sensor	-			
	Provided screw (Hexagon-headed bolt)	4 of M4 -10			
Single axis accuracy specification	Uni-directional positioning accuracy	5μm			
	Repeatability positioning accuracy	±0.5μm			
	Lost motion	1μm			
	Backlash	1μm			
	Straightness	3μm			
Pitching/Yawing	20"/15"				

※ Might be changed specification due to motors.

Resolution · MAX speed · Weight

Motor code	C	F	G	H	MG	MA · MB
Type	Standard	High-torque	High resolution	High-torque · High resolution	With electromagnetic brake □ 28mm	With electromagnetic brake □ 42mm
Motor model*3	C005C-90215P-1	PK525HPB-C1	PK523HPMB-C1	PK525HPMB-C1	C103A-90215PM	PKE545MC-A1
Step angle	0.72°		0.36°		0.72°	
Resolution	Full/Half	2μm/1μm		1μm/0.5μm		2μm/1μm
	Micro step (1/20 On resolution)	0.1μm		0.05μm		0.1μm
MAX speed	20mm/sec	30mm/sec	20mm/sec	30mm/sec	20mm/sec	25mm/sec
Weight	KZG06020T(Pigtail)	1.08kg	1.17kg	1.08kg	1.17kg	1.13kg
	KZG06020M(Panel Mount)	1.07kg	1.16kg	1.07kg	1.16kg	1.12kg
	KZG06030T(Pigtail)	1.18kg	1.27kg	1.18kg	1.27kg	1.23kg
	KZG06030M(Panel Mount)	1.17kg	1.26kg	1.17kg	1.26kg	1.22kg

Motor code	PA	ZA	EA	UG	UA	
Type	αSTEP (AR Series)	αSTEP (AZ Series)	Motor for EtherCAT	MINAS A6	J4	
Motor model*3	ARM24SAK	AZM24AK	STM28W100A	MSMF5AZL1A2	HG-KR053	
Resolution	1μm(1000P/R setting)			23 Bit encoder (8388608P/R)*1	22 Bit encoder (4194304P/R)*2	
MAX speed	30mm/sec	40mm/sec	40mm/sec	50mm/sec		
Weight	KZG06020T(Pigtail)	1.11kg		1.08kg	1.32kg	1.34kg
	KZG06020M(Panel Mount)	1.11kg		1.08kg	1.32kg	1.34kg
	KZG06030T(Pigtail)	1.21kg		1.18kg	1.42kg	1.44kg
	KZG06030M(Panel Mount)	1.21kg		1.18kg	1.42kg	1.44kg

*1 Optional encoder cable is for incremental system.

*2 When constructing an absolute system, it is necessary to install a battery in the amplifier.

*3 Model numbers include Suruga Seiki's proprietary management codes.

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

40

50

60

70

80

100

120

180

Other

1

070

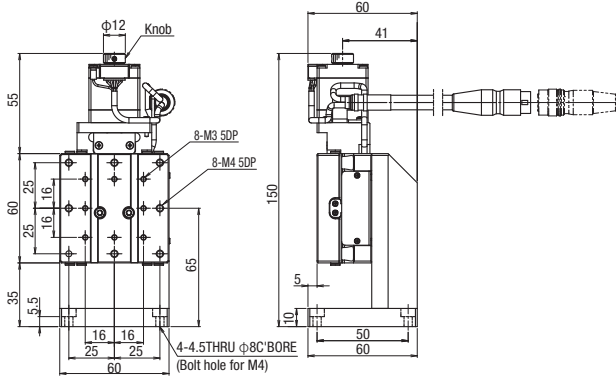
Motorized Stage

CAVE-X POSITIONER

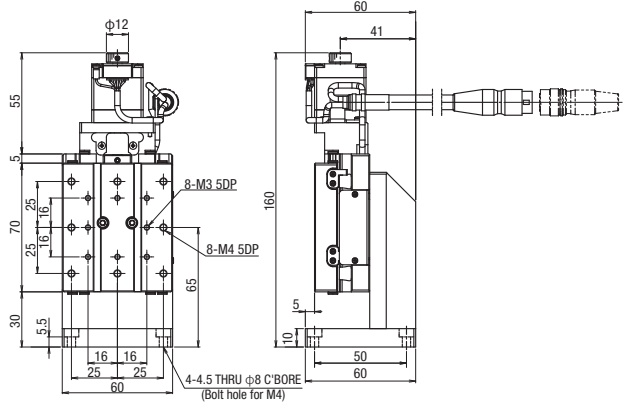
Z-axis Linear Ball Guide: KZG06020/KZG06030

Dimensions

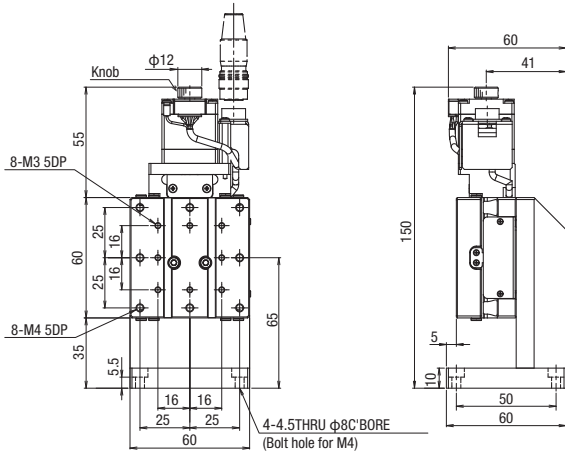
KZG06020T-C



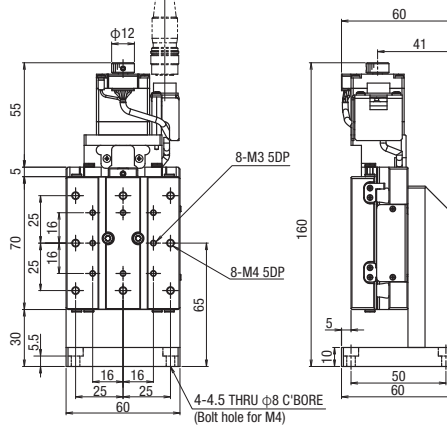
KZG06030T-C



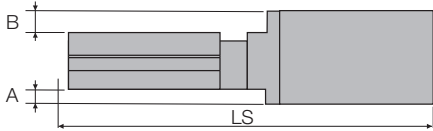
KZG06020M-C



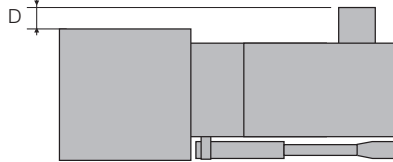
KZG06030M-C



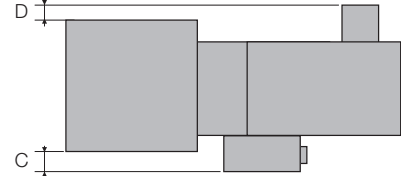
Side view



Top view : Connector : T (Pigtail)



Top view : Connector : M (Panel Mount)



C Standard motor

Motor Model: C005C-90215P-1

F High-torque

Motor Model: PK525HPB-C1

G High resolution

Motor Model: PK523HPMB-C1

H High-torque • High resolution

Motor Model: PK525HPMB-C1

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-C	C	□28	T	—	—	—	—	115	130
KXG06***M-C			M						
KXG06***T-F	F	□28	T	—	—	—	—	134.5	149.5
KXG06***M-F			M						
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M						
KXG06***T-H	H	□28	T	—	—	—	—	134.5	149.5
KXG06***M-H			M						

*Travel distance

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

071

Dimensions

MG With brake

Motor Model C103A-90215PM

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MG	MG	□28	T	—	—	—	—	149	164
KXG06***M-MG			M						

*Travel distance

MA MB With brake

Motor Model PKE545MC-A1

* When the driver is selected MA: 100V, MB: 200V

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MA(MB)	MA・MB	□42	T	6	6	—	2	163	178
KXG06***M-MA(MB)			M						

*Travel distance

PA αSTEP (AR Series)

Motor Model ARM24SAK

ZA αSTEP (AZ Series)

Motor Model AZM24AK

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-PA	PA	□28	T	—	—	—	—	128.5	143.5
KXG06***M-PA			M						
KXG06***T-ZA	ZA	□28	T	—	—	—	—	138	153
KXG06***M-ZA			M						

*Travel distance

EA Motor for EtherCAT

Motor Model STM28W100A

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-EA	EA	□28	T	—	—	—	—	143.8	158.8
KXG06***M-EA			M						

*Travel distance

UG Servo motor MINAS A6 (Panasonic)

Motor Model MSMF5AZL1A2

UA Servo motor J4 (Mitsubishi Electric corporation)

Motor Model HG-KR053

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-UG	UG	□38	T	4	4	—	2	174	189
KXG06***M-UG			M						
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M						

*Travel distance

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

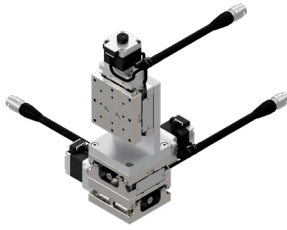
072

Motorized Stage

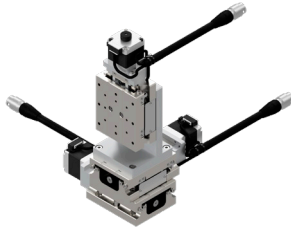
CAVE-X POSITIONER

XYZ-axis Linear Ball Guide: KWG06020/KWG06030

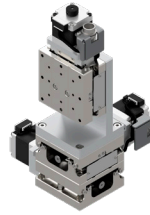
KWG06020T-C



KWG06030T-C



KWG06020M-C



KWG06030M-C



RoHS

Freely customize the motor

All image is for * illustrative purposes only.

KWG06020T-C-

1 2 3 4

MA-

3 4

▶ Cable P.1-287~
▶ Electrical specification P.1-077~

1 Travel distance

020	20mm
030	30mm

2 Connector specifications

T	Pigtail	
M	Panel Mount	

3 Motor Option

Code	Specification
C	Standard
F	High-torque
G	High resolution
H	High-torque·High resolution
MG	With electromagnetic brake (□42)

*Motor option MG: Brake release needs to be controlled by the customer.

4 Cable option (Motor: C·F·G·H·MG)

Code	Specification	Cable type
Blank	Cable is not included (Standard)	—
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK

*Cannot choose MGE in combination with ③ and ④.

*Motor code: When MG is selected, a brake cable (one end loose robot cable) of the same length as the motor/sensor cable is attached.

3 Motor option

Code	Specification
MA	With electromagnetic brake (□42_100V)
MB	With electromagnetic brake (□42_200V)
PA	αSTEP (AR Series)
ZA	αSTEP (AZ Series)
EA	Motor for EtherCAT
UG	Servo motor(MINAS A6)
UA	Servo motor(J4)

4 Cable option (Motor: MA·MB·PA·ZA·EA·UG·UA)

Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier) · Cable option

Code	*Combination Motor	Blank			3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	3	5	MA/MB/PA/ZA	EA/UG/UA	MA/MB/PA/ZA	EA/UG/UA		
Cable	Sensor	2m	3m	5m	3m			5m		
	Motor	Not included			3m			5m		
	Electromagnetic brake	Not included			3m	—	—	5m	—	—
	Encoder	Not included			—	—	3m	—	—	5m
Driver (Amplifier)		Not included			Included					

*Motor driver (amplifier)/cable combination

Selection Example

Model	Travel distance 20mm	+	Connector T: Pigtail	+	Motor option G: High resolution	+	Cable A: 2m	+	▶ KWG06020T-G-A
	KWG06020		KWG06020T		KWG06020T-G		KWG06020T-G-A		

Model	Travel distance 30mm	+	Connector M: Panel Mount	+	Motor option PA: αSTEP (AR)	+	Cable 3A: Driver/Cable set 3m	+	▶ KWG06030M-PA-3A
	KWG06030		KWG06030M		KWG06030M-PA		KWG06030M-PA-3A		

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

1

073

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

40

50

60

70

80

100

120

180

Other

1

074

Specification

		SPEC			
Model		KWG06020T-C	KWG06020M-C	KWG06030T-C	KWG06030M-C
Mechanical specification	Travel distance	20mm		30mm	
	Stage surface size	60×60mm		60×70mm	
	Connector type	Pigtail	Panel Mount	Pigtail	Panel Mount
	Feed screw (Ball screw)	φ8 Lead 1			
	Guide	Linear Ball Guide			
Main materials-Finishing		Special Steel—Electroless nickel plating			
Weight		2.52kg	2.49kg	2.82kg	2.79kg
Accuracy specification	Resolution	2μm/1μm			
	Full/Half Micro step	0.1μm (1/20 On resolution)			
	MAX speed	20mm/sec			
	Load capacity	3kgf [29.4N]			
	Squareness	10μm / full stroke		15μm / full stroke	
Perpendicularity	10μm / full stroke		15μm / full stroke		
Sensor	Limit sensor	Available			
	Origin sensor	Available			
	Slit origin sensor	-			
Provided screw (Hexagon-headed bolt)		4 of M4 - 10			
Single-axis accuracy specification	Uni-directional positioning accuracy	5μm			
	Repeatability positioning accuracy	±0.5μm			
	Lost motion	1μm			
	Backlash	1μm			
	Straightness	3μm			
	Pitching/Yawing	20"/15"			

※ Might be changed specification due to motors.

Resolution · MAX speed · Weight

Motor code	C	F	G	H	MG	MA · MB	
Type	Standard	High-torque	High resolution	High-torque · High resolution	With electromagnetic brake□28mm	With electromagnetic brake□42mm	
Motor model*3	C005C-90215P-1	PK525HPB-C1	PK523HPMB-C1	PK525HPMB-C1	C103A-90215PM	PKE545MC-A1	
Step angle	0.72°		0.36°		0.72°		
Resolution	Full/Half	2μm/1μm		1μm/0.5μm		2μm/1μm	
	Micro step (1/20 On resolution)	0.1μm		0.05μm		0.1μm	
MAX speed	20mm/sec	30mm/sec	20mm/sec	30mm/sec	20mm/sec	25mm/sec	
Weight	KWG06020T(Pigtail)	2.52kg	2.79kg	2.52kg	2.79kg	2.67kg	3.81kg
	KWG06020M(Panel Mount)	2.49kg	2.76kg	2.49kg	2.76kg	2.64kg	
	KWG06030T(Pigtail)	2.82kg	3.09kg	2.82kg	3.09kg	2.97kg	4.11kg
	KWG06030M(Panel Mount)	2.79kg	3.06kg	2.79kg	3.06kg	2.94kg	

Motor code	PA	ZA	EA	UG	UA	
Type	αSTEP (AR Series)	αSTEP (AZ Series)	Motor for EtherCAT	MINAS A6	J4	
Motor model*3	ARM24SAK	AZM24AK	STM28W100A	MSMF5AZL1A2	HG-KR053	
Resolution	1μm(1000P/R setting)			23 Bit encoder (8388608P/R)*1	22 Bit encoder (4194304P/R)*2	
MAX speed	30mm/sec	40mm/sec	40mm/sec	50mm/sec		
Weight	KWG06020T(Pigtail)	2.61kg		2.52kg	3.24kg	3.30kg
	KWG06020M(Panel Mount)					
	KWG06030T(Pigtail)	2.91kg		2.82kg	3.54kg	3.60kg
	KWG06030M(Panel Mount)					

*1 Optional encoder cable is for incremental system.

*2 When constructing an absolute system, it is necessary to install a battery in the amplifier.

*3 Model numbers include Suruga Seiki's proprietary management codes.

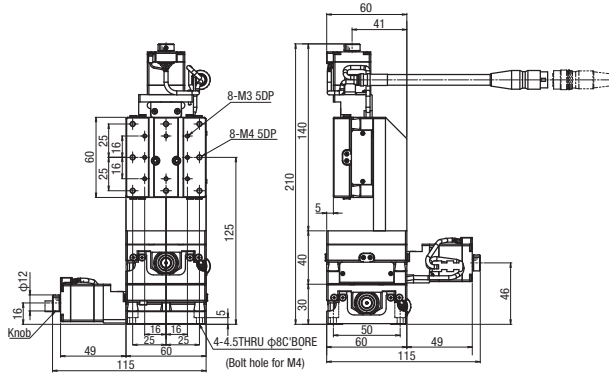
Motorized Stage

CAVE-X POSITIONER

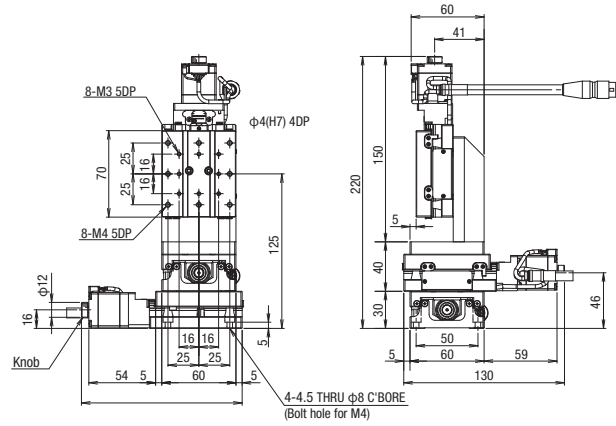
XYZ-axis Linear Ball Guide: KWG06020/KWG06030

Dimensions

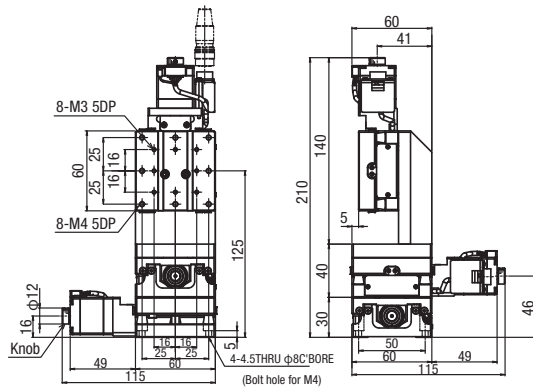
KWG06020T-C



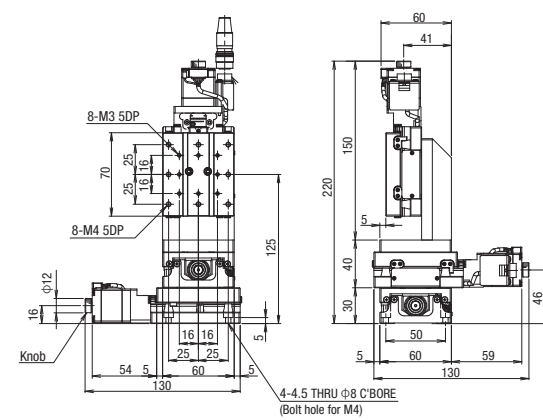
KWG06030T-C



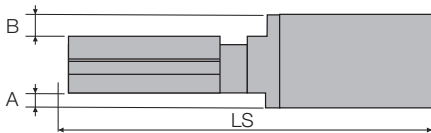
KWG06020M-C



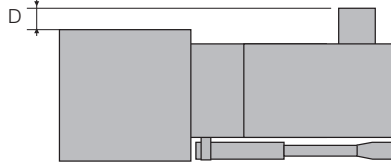
KWG06030M-C



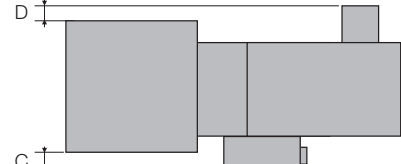
Side view



Top view : Connector : T (Pigtail)



Top view : Connector : M (Panel Mount)



C Standard motor

F High-torque

G High resolution

H High-torque • High resolution

Motor Model: C005C-90215P-1

Motor Model: PK525HPB-C1

Motor Model: PK523HPMB-C1

Motor Model: PK525HPMB-C1

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-C	C	□28	T	—	—	—	—	115	130
KXG06***M-C			M						
KXG06***T-F	F	□28	T	—	—	—	—	134.5	149.5
KXG06***M-F			M						
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M						
KXG06***T-H	H	□28	T	—	—	—	—	134.5	149.5
KXG06***M-H			M						

*Travel distance

Motorized Stage

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT

Linear Ball

PG

Linear Ball

KXG/KXL

Linear Ball

Cross

Roller

Slide

Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

Dimensions

MG With brake

Motor Model C103A-90215PM

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MG	MG	□28	T	—	—	—	—	149	164
KXG06***M-MG			M						

MA MB With brake

Motor Model PKE545MC-A1

* When the driver is selected MA: 100V, MB: 200V

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-MA(MB)	MA・MB	□42	T	6	6	-	2	163	178
KXG06***M-MA(MB)			M						

PA αSTEP (AR Series)

Motor Model ARM24SAK

ZA αSTEP (AZ Series)

Motor Model AZM24AK

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-PA	PA	□28	T	—	—	-	—	128.5	143.5
KXG06***M-PA			M						
KXG06***T-ZA	ZA	□28	T	—	—	-	—	138	153
KXG06***M-ZA			M						

EA Motor for EtherCAT

Motor Model STM28W100A

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-EA	EA	□28	T	—	—	—	—	143.8	158.8
KXG06***M-EA			M						

UG Servo motor MINAS A6 (Panasonic)

Motor Model MSMF5AZL1A2

UA Servo motor J4 (Mitsubishi Electric corporation)

Motor Model HG-KR053

Model	Motor code	Motor size	Connector type	A(mm)	B(mm)	C(mm)	D(mm)	LS(mm)	
								*20mm	*30mm
KXG06***T-UG	UG	□38	T	4	4	—	2	174	189
KXG06***M-UG			M						
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M						

X

XY

Z

Horizontal

Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

Motorized Stage

CAVE-X POSITIONER

Electrical Specification: KXG Series

Motorized Stage

Electrical Specification (5 phase stepping motor)

Motor code	C	F	G	H
Model (*1)	KXG06020/KXG06030			
Type	5 phase stepping motor (0.75A/Phase)			
Feature	Standard	High-torque	High resolution	High-torque · High resolution
Model (*3)	C005C-90215P-1	PK525HPB-C1	PK523HPMB-C1	PK525HPMB-C1
With electromagnetic brake	—			
Manufacturer	Oriental Motor Co., Ltd.			
Step angle	0.72°		0.36°	
Mass	0.11kg	0.2kg	0.11kg	0.2kg
Motor size	□28mm			
□ size				
L size	37mm	56.5mm	37mm	56.5mm
Max. Holding Torque	0.048N · m	0.073N · m	0.038N · m	0.081N · m
Driver model	CVD507-K-A9			
Input power (Voltage · frequency)	DC24V±10% 1.4A(MAX)			
Electromagnetic Brake Input Power	—			
Pigtail	HR10A-10J-12P(73) (Hirose Electric Co., Ltd.)			
Panel Mount	HR10A-10R-12P(73) (Hirose Electric Co., Ltd.)			
Receiving connector	HR10A-10P-12S(73) (Hirose Electric Co., Ltd.)			
Limit sensor	Available			
Origin sensor	Available			
Slit origin sensor	—			
Sensor model	Photo microsensor EE-SX4320 (Omron Co., Ltd.)			
Power-supply voltage	DC5~24V±5%			
Current consumption	Total 60mA or less			
Control output	NPN open collector output DC30V 10mA or less			
Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)			

(*1) The electric specification of XY (KYG), Z (KZG), XYZ (KWG) are the same.

(*2) See page P.1-297~ for details of single motor specification.

(*3) Model numbers include Suruga Seiki's proprietary management codes.

Pin allocation · Connection diagram

Available for motor and sensor

C · F · G · H

【Pin allocation (common)】
 Pigtail : HR10A-10J-12P(73) (HRS)
 Panel Mount : HR10A-10R-12P(73) (HRS)

【Pin allocation (common)】

1	Motor lead (Blue)	Blue
2	Motor lead (Red)	Red
3	Motor lead (Orange)	Orange
4	Motor lead (Green)	Green
5	Motor lead (Black)	Black
6	CWLS output	
7	CCWLS output	
8	N.C.	
9	Power input (V+)	Vin
10	ORG output	ORG
11	Power input GND	GND
12	F.G.	

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

□40

□50

□60

□70

□80

□100

□120

□180

Other

Electrical Specification (With electromagnetic brake motor)

Motor code	MG	MA	MB
Model (*1)	KXG06020/KXG06030		
Motor Specification (*2)	Type	5 phase stepping motor (0.75A/Phase)	5 phase stepping motor (0.35A/Phase)
	Feature	With electromagnetic brake □28mm	With electromagnetic brake □42mm
	Model (*3)	C103A-90215PM	PKE545MC-A1
	With electromagnetic brake	Available	Available
	Manufacturer	Oriental Motor Co., Ltd.	
	Step angle	0.72°	
	Mass	0.17kg	0.52kg
	Motor size	□ size □28mm L size 65.5mm	□42mm 75mm
	Max. Holding Torque	0.048N · m	0.27N · m
	Driver model	CVD507-K-A9	RKSD503M-A
Input power (Voltage · frequency)	DC24V±10% 1.4A(MAX)	Single phase AC100-120V 50/60Hz	Single phase AC200-240V 50/60Hz
Electromagnetic Brake Input Power	DC24V±5% 0.05A		DC24V±5% 0.08A
Connector	Pigtail	Motor · Sensor:HR10A-10J-12P(73)(HRS) Electromagnetic brake side:PALR-02VF(JST)	Motor:5557-06R-210(MOLEX) Electromagnetic brake side:5557-02R-210(MOLEX) Sensor:HR10A-7J-6P(73)(HRS)
	Panel Mount	Motor · Sensor:HR10A-10R-12P(73)(HRS) Electromagnetic brake side:PALR-02VF(JST)	Motor:5557-06R-210(MOLEX) Electromagnetic brake side:5557-02R-210(MOLEX) Sensor:HR10A-7R-6P(73)(HRS)
	Receiving connector	Motor · Sensor:HR10A-10P-12S(73)(HRS) Electromagnetic brake side:PAP-02V-S(JST)	Motor:5559-06P-210(MOLEX) Electromagnetic brake side:5559-02P-210(MOLEX) Sensor:HR10A-7P-6S(73)(HRS)
Sensor board	Limit sensor	Available	
	Origin sensor	Available	
	Slit origin sensor	-	
	Sensor model	Photo microsensor EE-SX4320 (Omron Co., Ltd.)	
	Power-supply voltage	DC5~24V±5%	
	Current consumption	Total 60mA or less	
	Control output	NPN open collector output DC30V 10mA or less	
	Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)	

(*1) The electric specification of XY (KYG), Z (KZG), XYZ (KWG) are the same.

(*2) See page P.1-297~ for details of single motor specification.

(*3) Model numbers include Suruga Seiki's proprietary management codes.

Pin allocation · Connection diagram

	Motor Sensor	【Motor · Sensor(common)】 Same as motor model C · F · G · H	
MG	Electromagnetic brake side	<p>【Receiver cable】Model:BCBL2-S-□(□ is the length)*Flexible cable</p> <p>UL20276 AWG24 1P Black</p> <p>Motor side Connector:PAP-02V-S(J.S.T.MFG.) Contact:SPHD-002T-P0.5(J.S.T.MFG.)</p> <p>2m⁺⁵⁰₋₀ mm, 4m⁺⁵⁰₋₀ mm, 6m⁺¹⁸⁰₋₀ mm</p> <p>Blue (Black Dot) Pin 1 Signals Pink (Black Dot) Pin 2 DC24V Shield 2 GND</p> <p>※ The shields are disconnected with the connector.</p>	<p>【Electromagnetic brake】</p> <p>Motor:C103A-90215PM(ORIENTAL MOTOR)</p> <p>Connector:PALR-02VF(J.S.T.MFG.) Contact:SPAL-002T-P0.5(J.S.T.MFG.)</p> <p>UL3265 AWG26</p> <p>Heat-shrinkable tubingΦ3</p> <p>100mm⁺³⁰₋₀ mm</p> <p>Signals Pin DC24V 1 GND 2</p> <p>Motor brake(Motor side) Signals Motor brake DC24V Motor brake GND</p>
		Motor · Electromagnetic brake side	<p>【Receiver cable】Model:CC030VPFB(3m)/CC050VPFB(5m) *for fixing</p> <p>Driver Side Connector:5557-06R-210(Molex)</p> <p>Motor Side Connector:5559-06P-210(Molex)</p> <p>3m, 5m</p>
MA · MB	Sensor	<p>【Receiver cable】Model:HR10AP-S-SB-6-□(□ is the length) *for fixing</p> <p>Sensor side Connector (Female): HR10A-7P-6S (73) (HRS)</p> <p>ULAWM20276 AWG28 3P Black</p> <p>2m⁺⁵⁰₋₀ mm, 3m⁺⁵⁰₋₀ mm, 5m⁺¹⁵⁰₋₀ mm</p> <p>*The shields are connected with the connector shell.</p> <p>Orange/Black Pin 1 CWLS Orange/Red Pin 2 CCWLS Gray/Black Pin 3 ORG Gray/Red Pin 4 NORG White/Black Pin 5 V+ White/Red Pin 6 V- Shield</p>	<p>【Pin allocation (common)】</p> <p>Pigtail:HR10A-7J-6P(73) (HRS)</p> <p>Panel Mount:HR10A-7R-6P(73) (HRS)</p> <p>【Connection diagram】</p> <p>1 CWLS output 2 CCWLS output 3 ORG output 4 N.C. 5 Power input(+) 6 Power input(-)</p> <p>Sensor substrate CWLS ORG CCWLS V_m GND Regulator</p>

Motorized Stage

CAVE-X POSITIONER

Electrical Specification: KXG Series

Motorized Stage

Electrical Specification (αSTEP · Motor for EtherCAT)

Motor code		PA	ZA	EA
Model (*1)		KXG06020/KXG06030		
Motor Specification (*2)	Type	αSTEP (AR Series)	αSTEP (AZ Series)	2 phase closed Loop stepping motor
	Feature	Small step-out ,incremental	Small step-out ,absolute	Small step-out ,incremental,EtherCAT
	Model (*3)	ARM24SAK	AZM24AK	STM28W100A
	With electromagnetic brake	—		
	Manufacturer	Oriental Motor Co., Ltd.		
	Step angle	0.36°(1000P/R時)		
	Mass	0.15kg	0.15kg	0.12kg
	Motor size	□ size L size	□28mm 54.5mm	59.3mm
	Max. Holding Torque	0.055N · m	0.095N · m	0.085N · m
	Driver model	ARD-K	AZD-K	DS1000A-EC-28
Input power (Voltage · frequency)	DC24V±10%	DC24V±5%	DC24V±10%	
Electromagnetic Brake Input Power	—			
Connector	Pigtail	Motor:43025-1000 (MOLEX) or 1-794617-0(TE Connectivity) Sensor:HR10A-7J-6P(73)(HRS)	Motor:DF62B-13EP-2.2C(HRS) Sensor:HR10A-7J-6P(73)(HRS)	Motor:B06B-ZESK-D (JST) Encoder:SM08B-GHS-TB (JST) Sensor:HR10A-7J-6P(73)(HRS) Driver I/O Connector Housing:PUDP-24V-S Driver I/O Contact:SPUD-002T-P0.5:SPUD-002T-P0.5
	Panel Mount	Motor:43025-1000 (MOLEX) or 1-794617-0(TE Connectivity) Sensor:HR10A-7R-6P(73)(HRS)	Motor:DF62B-13EP-2.2C(HRS) Sensor:HR10A-7R-6P(73)(HRS)	Motor:B06B-ZESK-D (JST) Encoder:SM08B-GHS-TB (JST) Sensor:HR10A-7R-6P(73)(HRS) Driver I/O Connector Housing:PUDP-24V-S Driver I/O Contact:SPUD-002T-P0.5
	Receiving connector	Motor:43020-1000 (MOLEX) or 1-794615-0(TE Connectivity) Sensor:HR10A-7P-6S(73) (HRS)	Motor:DF62C-13S-2.2C(HRS) Sensor:HR10A-7P-6S(73)(HRS)	Motor:ZER-06V-S (JST) Encoder:GHR-08V-S (JST) Sensor:HR10A-7P-6S(73)(HRS)
Sensor board	Limit sensor	Available		
	Origin sensor	Available		
	Slit origin sensor	—		
	Sensor model	Photo microsensor EE-SX4320 (Omron Co., Ltd.)		
	Power-supply voltage	DC5~24V±5%		
	Current consumption	Total 60mA or less		
	Control output	NPN open collector output DC30V 10mA or less		
	Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)		

(*1) The electric specification of XY (KYG), Z (KZG), XYZ (KWG) are the same.

(*2) See page P.1-297~ for details of single motor specification.

(*3) Model numbers include Suruga Seiki's proprietary management codes.

Pin allocation · Connection diagram

Motor Code	Motor · Encoder	Sensor (common)
PA	Motor [Receiver cable] Model:CC030VA2R2(3m)/CC050VA2R2(5m) *Flexible cable 	Sensor side Connector (Female): HR10A-7P-6S (73) (HRS) ULAWM20276 AWG28 3P Black
	Encoder [Receiver cable] Model:D214-3-3R2(3m)/D214-3-5R2(5m) *Flexible cable 	
ZA	Motor [Receiver cable] Model:CC030VZ2R2(3m)/CC050VZ2R2(5m) *Flexible cable 	*The shields are connected with the connector shell.
	Encoder [Receiver cable] Model:D214-3-3R2(3m)/D214-3-5R2(5m) *Flexible cable 	
EA	Motor [Receiver cable] Model:D214-3-3R2(3m)/D214-3-5R2(5m) *Flexible cable 	[Pin allocation (common)] Pigtail:HR10A-7J-6P(73) (HRS) Panel Mount:HR10A-7R-6P(73) (HRS)
	Encoder [Receiver cable] Model:D214-3-3R2(3m)/D214-3-5R2(5m) *Flexible cable 	
		[Connection diagram]

Electrical Specification (Servo motor)			
Motor code	UG	UA	
Model (*1)	KXG06020/KXG06030		
Motor Specification (*2)	Type	Servo motor	
	Feature	High speed	
	Model	MSMF5AZL1A2	
	With electromagnetic brake	—	
	Manufacturer	Panasonic	
	Step angle	Both absolute and incremental 23 bits encoder (8388608P/R) (*3)	
	Mass	0.32kg	
	Motor size	□ size	□ 38mm
		L size	72mm
	Maximum torque	0.48N · m	
Driver model	MADLT05SF		
Input power (Voltage · frequency)	Three and Single phase AC200-240V 50/60Hz		
Electromagnetic Brake Input Power	—		
Connector	Pigtail	Motor: 172167-1(TE Connectivity) Encoder: 172169-1(TE Connectivity) Sensor:HR10A-7J-6P(73)(HRS)	
	Panel Mount	Motor: 172167-1 (TE Connectivity) Encoder: 172169-1 (TE Connectivity) Sensor:HR10A-7R-6P(73)(HRS)	
	Receiving connector	Motor: 172159-1 (TE Connectivity) Encoder: 172161-1 (TE Connectivity) Sensor:HR10A-7P-6S(73)(HRS)	
Sensor board	Limit sensor	Available	
	Origin sensor	Available	
	Slit origin sensor	—	
	Sensor model	Photo microsensor EE-SX4320 (Omron Co., Ltd.)	
	Power-supply voltage	DC5~24V±5%	
	Current consumption	Total 60mA or less	
	Control output	NPN open collector output DC30V 10mA or less	
	Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)	

(*1) The electric specification of XY (KYG), Z (KZG), XYZ (KWG) are the same.

(*2) See page P.1-297~ for details of single motor specification.

(*3) Optional encoder cable is for incremental system.

(*4) When constructing an absolute system, it is necessary to install a battery in the amplifier.

Pin allocation · Connection diagram

Motor Code	Motor · Encoder	Sensor (common)														
UG	<p>Motor</p> <p>[Receiver cable] Model:MFCA0030EED(3m)/MFCA0050EED(5m) *Flexible cable</p>	<p>[Receiver cable] Model:HR10AP-S-SB-6-□ (□ is the length) *for fixing</p> <p>Sensor side Connector (Female): HR10A-7P-6S (73) (HRS)</p> <p>ULAWM20276 AWG28 3P Black</p> <p>*The shields are connected with the connector shell.</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Signals</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CWLS</td> </tr> <tr> <td>2</td> <td>CCWLS</td> </tr> <tr> <td>3</td> <td>ORG</td> </tr> <tr> <td>4</td> <td>NORG</td> </tr> <tr> <td>5</td> <td>V+</td> </tr> <tr> <td>6</td> <td>V-</td> </tr> </tbody> </table>	Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-
	Pin		Signals													
1	CWLS															
2	CCWLS															
3	ORG															
4	NORG															
5	V+															
6	V-															
Encoder	<p>[Receiver cable] Model:MFCA0030EAD(3m)/MFCA0050EAD(5m) *for fixing</p>															
UA	<p>Motor</p> <p>[Receiver cable] Model:SVPM-J3HF1-B-□-02S *Flexible cable</p> <p>Motor side Connector: JN4FT04SJ1-R (JAE)</p> <p>Loose wire on the servo amplifier side</p> <p>NA3CTR-18-4(MISUMI) ULAWM2517 AWG18</p>	<p>[Pin allocation] Pigtail:HR10A-7J-6P(73) (HRS) Panel Mount:HR10A-7R-6P(73) (HRS)</p> <p>Sensor substrate</p>														
	Encoder		<p>[Receiver cable] Model:SVEM-J3HF1-B-□ *Flexible cable</p> <p>Motor (encoder)side Connector:1674320-1 (TE Connectivity)</p> <p>Servo amplifier side Receptacle : 36210-0100FD (3M) ShellKit : 36310-3200-008 (3M)</p> <p>NAMFSB-23-3P (MISUMI) ULAWM2576 AWG23</p> <p>*The load drawer</p> <p>[Connection diagram]</p>													

Motorized Stage

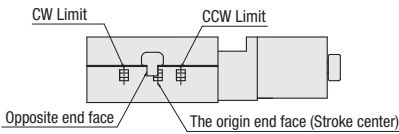
CAVE-X POSITIONER

Electrical Specification: KXG Series

Motorized Stage

Timing chart

KXG06020

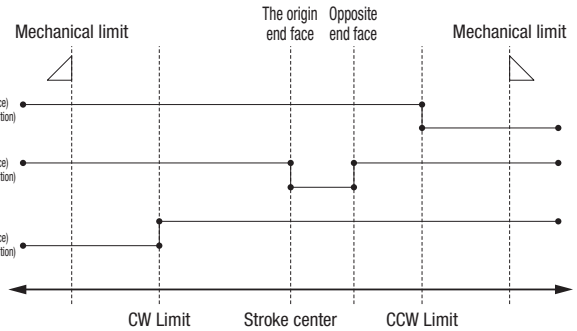


Mechanical stopper

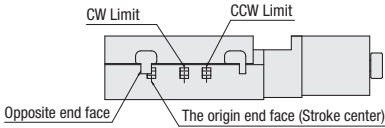
CCW Limit

Origin sensor

CW Limit



KXG06030



Unit [mm]

Direction of CW ←

→ Direction of CCW

	Reference coordinate	Mechanical limit	CW Limit	The origin end face Stroke center	Opposite end face	CCW Limit	Mechanical limit
KXG06020T (M)	Return to origin	11.5	10.5	0	5	10.5	11.5
KXG06030T (M)	Return to origin	16.5	15.5	0	5	15.5	16.5

* Return to origin means that is performed return to origin type 4 using DS102/DS112 series.

* The coordinate value should be on the design. Dimension error may occur about plus or minus 0.5 mm.

Note: The timing chart shows only timing of sensor, it is not for output signal logic.

Refer to ON/OFF display of output transistor that shows on electrical specifications-sensor-output logic for output signal logic.

Return to origin method

Suruga's motorized stages is different from the wire connection as the number of sensors depending on models. It is necessary to choose type to suit correctly as return to origin operation is divided into same types. Selected wrong type may be operated incorrectly. Choose your best one whatever you need according to be recommended as below.

■ KXG06020/KXG06030 recommended return to origin Return to origin sequence P.1-281~

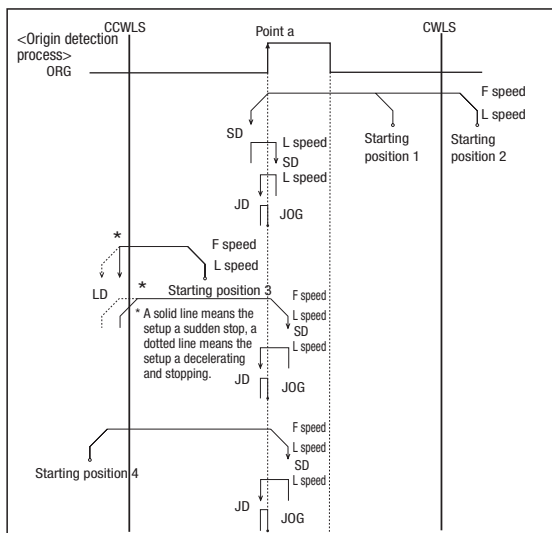
Type 3: Detect in the direction of CCW and perform detected process for CCW edge of ORG signal.

Type 4: Detect in the direction of CW and perform detected process for CW edge of ORG signal.

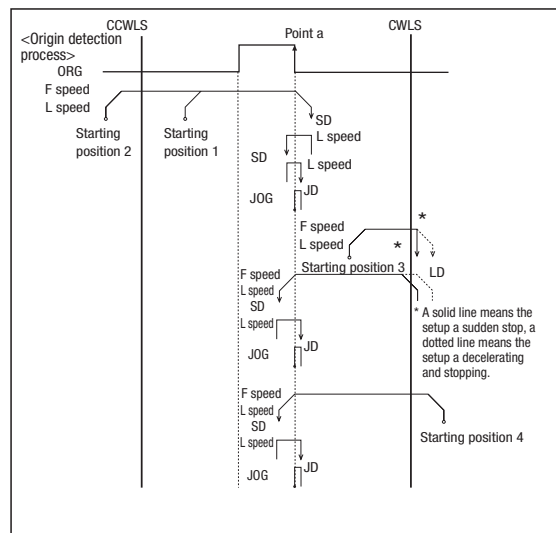
Type 9: After finished Type3, perform detected process for CCW edge of TIMING signal.

Type 10: After finished Type4, perform detected process for CW edge of TIMING signal.

[Type3]



[Type4]



KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

40

50

60

70

80

100

120

180

Other

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

KXT
Linear Ball

PG
Linear Ball

KXG/KXL
Linear Ball

Cross
Roller

Slide
Guide

40

50

60

70

80

100

120

180

Other

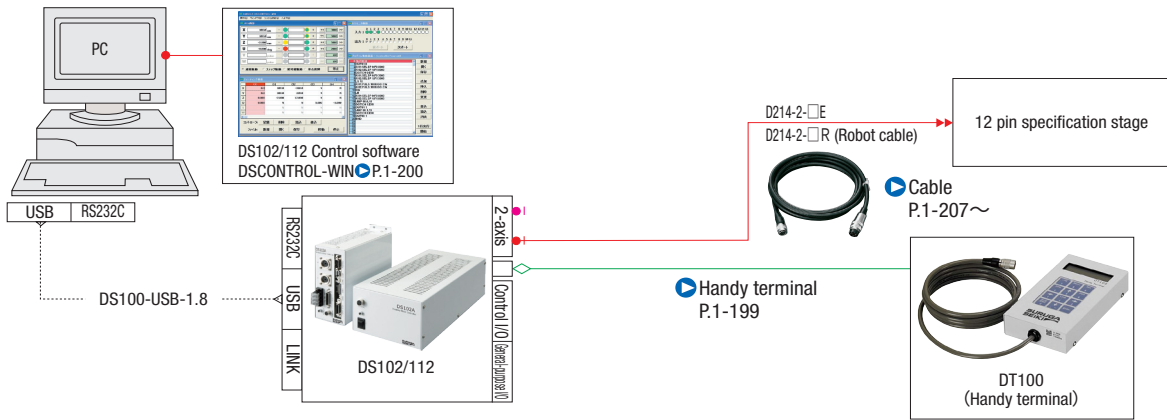
1

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Connectin example

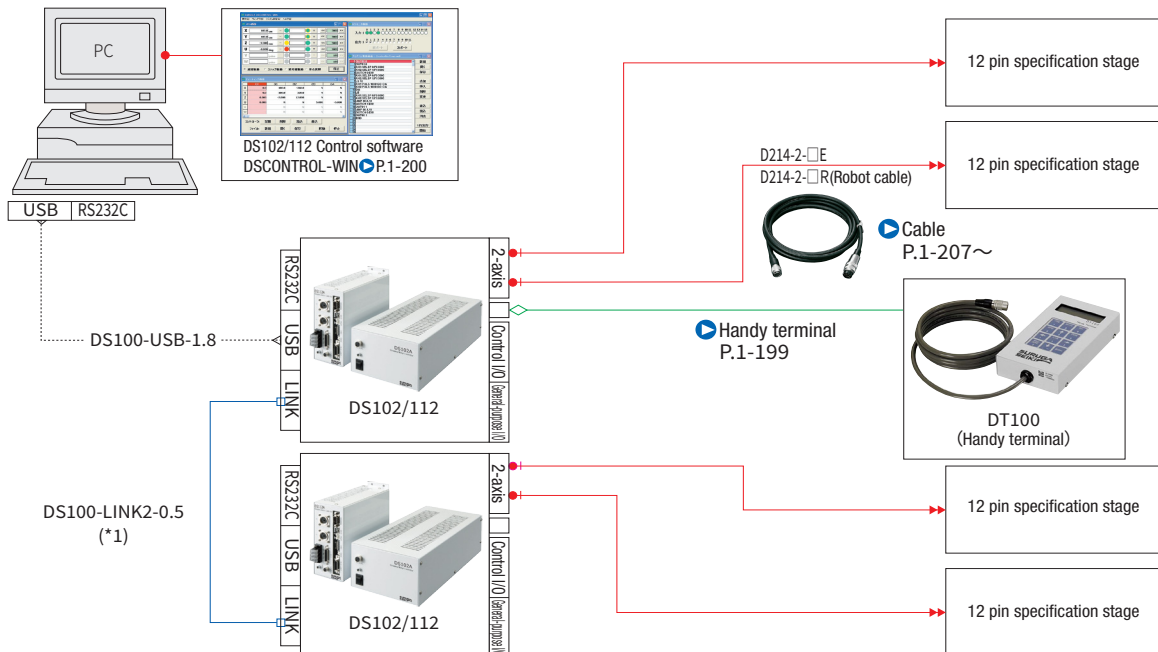
■ Connection example 1 Motorized Stage 1axis: When holding a terminal device (using control software)

*USB cable connection between PC and controller.



■ Connection example 2 Motorized Stage 4axis: When holding a terminal device (using control software)

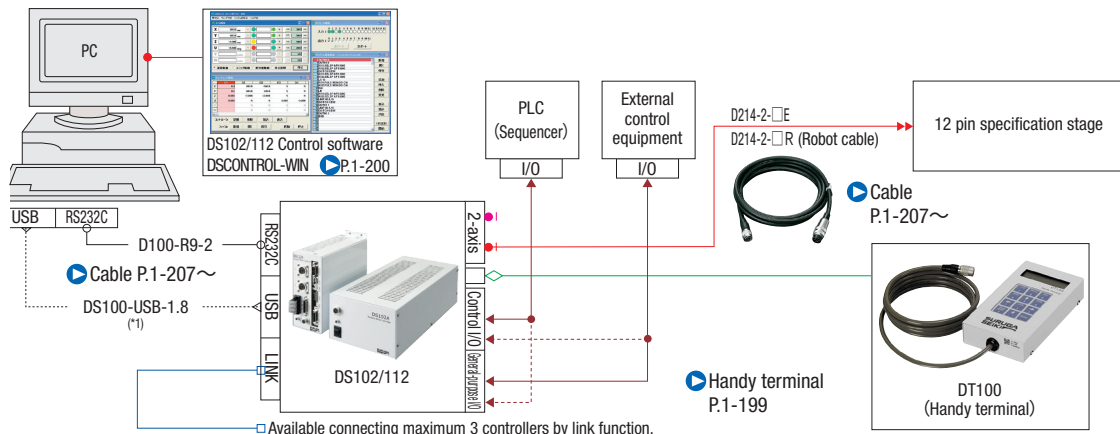
*USB cable connection between PC and controller.



(*1) It is possible to control up to 3 controllers (for a maximum of 6-axis control) with link function.

■ Connection example 3 When controlling from the PLC I/O Unit.

*USB cable connection between PC and controller.



Available connecting maximum 3 controllers by link function.