

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide : KXG06020/KXG06030

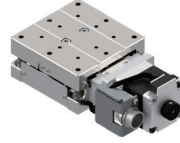
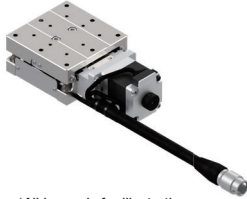
KXG06020T-C

KXG06030T-C

KXG06020M-C

KXG06030M-C

RoHS



Freely customize the motor

*All image is for illustrative purposes only.

KXG06 020 T - C-

1 2 3 4

MA-

3 4

● Cable P.1-207~
● Electrical specification P.C-019~

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)

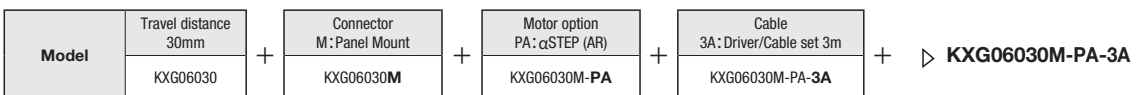
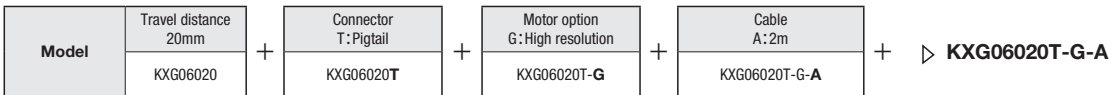
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

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



- New
- Motorized Stage
- X
- XY
- Z
- Horizontal Z
- XYZ
- Goniometer
- Rotary
- Unit
- Controller
- Linear Ball
- CAVE-X Linear ball
- Cross Roller
- Slide Guide
- 40
- 50
- 60
- 70
- 80
- 100
- 120
- Other
- C
- 001

New

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

Other

**C
002**

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			
Main materials-Finishing		Special Steel—Electroless nickel plating			
Weight		0.72kg	0.71kg	0.82kg	0.81kg
Accuracy specification	Resolution	Full/Half	2μm/1μm		
		Micro step	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			
Origin sensor		Available			
Slit origin sensor		—			
Provided screw (Hexagon-headed bolt)		4 of M4 - 10			

※ 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	KXG06020T(Pigtail)	0.72kg	0.81kg	0.72kg	0.81kg	1.15kg
	KXG06020M(Panel Mount)	0.71kg	0.80kg	0.71kg	0.80kg	
	KXG06030T(Pigtail)	0.82kg	0.91kg	0.82kg	0.91kg	1.25kg
	KXG06030M(Panel Mount)	0.81kg	0.90kg	0.81kg	0.90kg	

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 is our own management model.

Motorized Stage

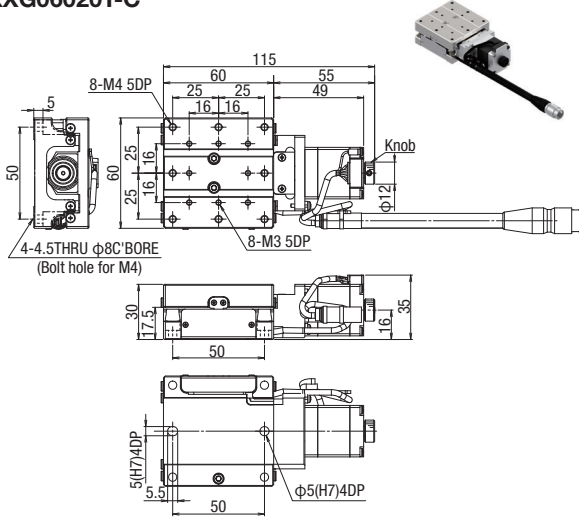
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXG06020/KXG06030

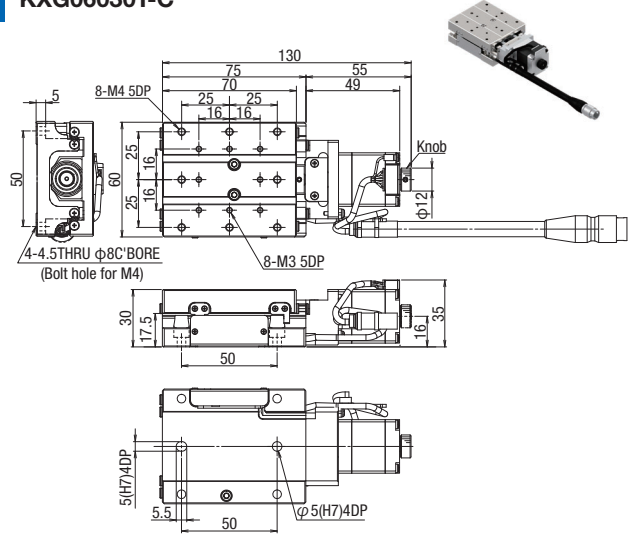
Dimensions

※All image is for illustrative purposes only.

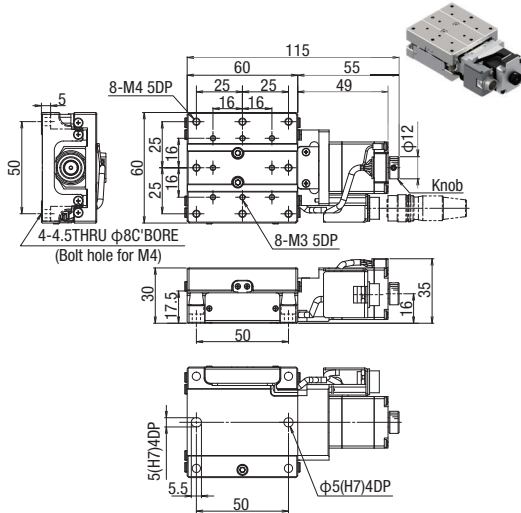
KXG06020T-C



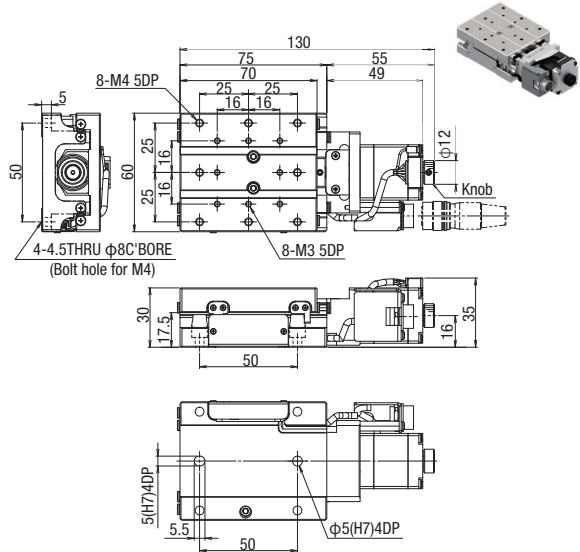
KXG06030T-C



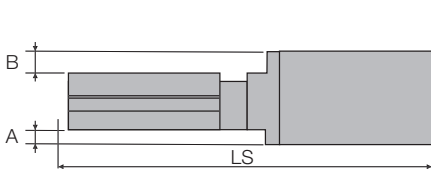
KXG06020M-C



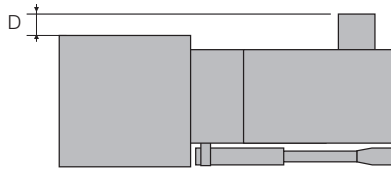
KXG06030M-C



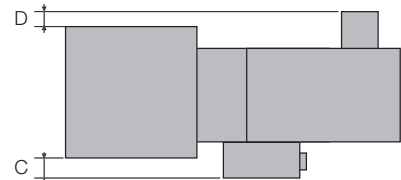
Side view



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	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-C			M	—	—	—	—	134.5	149.5
KXG06***T-F	F	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	134.5	149.5
KXG06***T-H	H	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-H			M	—	—	—	—	134.5	149.5

*Travel distance

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

Other

C
003

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

Linear Ball Guide: KXG06020/KXG06030

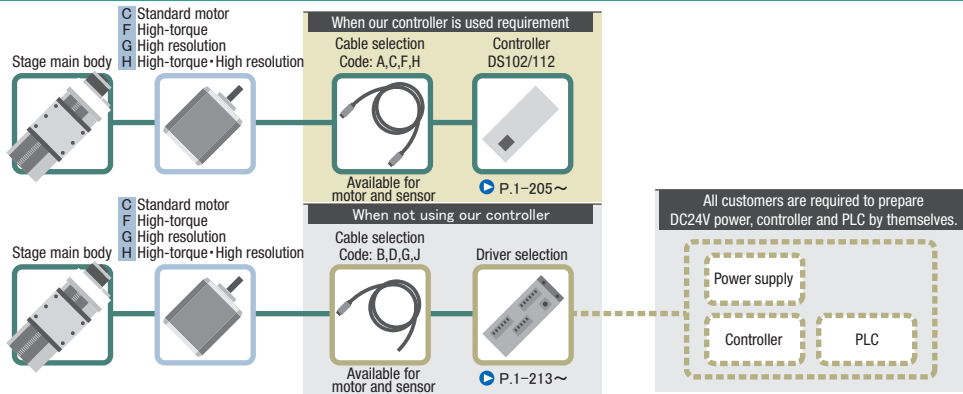
Motor option

C Standard motor
Motor model: C005C-90215P-1

F High-torque
Motor model: PK525HPB-C1

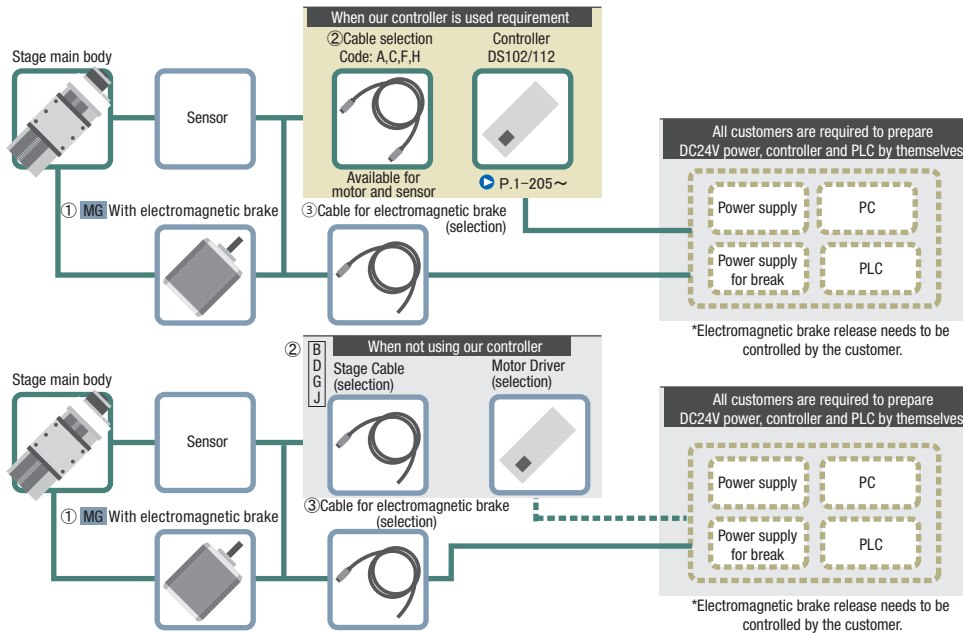
G High resolution
Motor model: PK523HPMB-C1

H High-torque · High resolution
Motor model: PK525HPMB-C1



Motor option

MG With electromagnetic brake
Motor model: C103A-90215PM

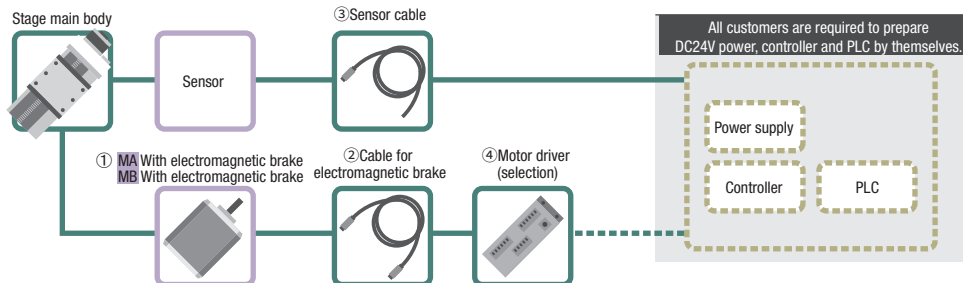


Code	① Motor model	② Motor · Sensor cable selection	③ Cable for electromagnetic brake
MG	C103A-90215PM	A · B · C · D : D214-2-□E(K) F · G · H · J : D214-2-□R(K)	BCBL2-S-□ (*)

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

Motor option

MA With electromagnetic brake
MB With electromagnetic brake
Motor model: PKE545MC-A1
*Driver: MA: 100V, MB: 200V



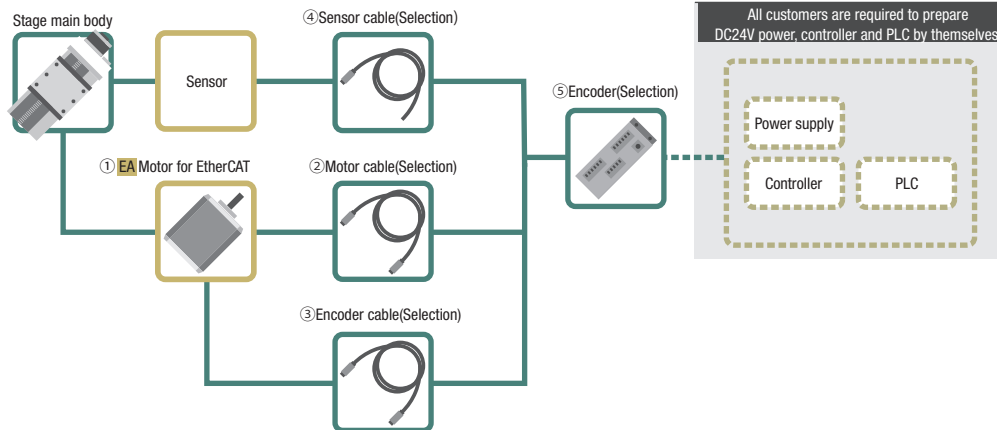
Code	① Motor model	② Cable for electromagnetic brake set (*)	③ Sensor cable selection	④ Driver selection
MA · MB	PKE545MC-A1	3A : CC030VPPFB 5A : CC050VPPFB Blank · 3 · 5 : Not included	3A · 3 : HR10AP-S-SB-6-3 5A · 5 : HR10AP-S-SB-6-5 Blank : HR10AP-S-SB-6-2	[MA]3A · 5A : RKSD503M-A [MB]3A · 5A : RKSD503M-C Blank · 3 · 5 : Not included

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

- New
- Motorized Stage
- X
- XY
- Z
- Horizontal Z
- XYZ
- Goniometer
- Rotary
- Unit
- Controller
- Linear Ball
- CAVE-X Linear ball
- Cross Roller
- Slide Guide
- 40
- 50
- 60
- 70
- 80
- 100
- 120
- Other
- C 005

Motor option

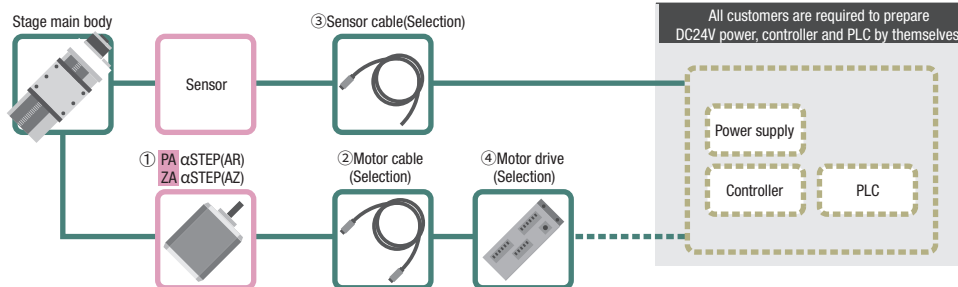
EA Motor for EtherCAT
 Motor model
 STM28W100A



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

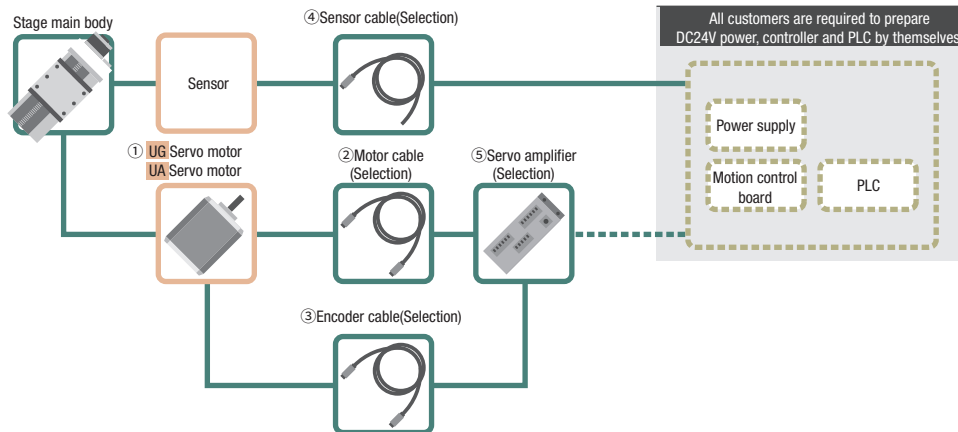
PA αSTEP (AR Series)
 Motor model
 ARM24SAK
ZA αSTEP (AZ Series)
 Motor model
 AZM24AK



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

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

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

- 40
- 50
- 60
- 70
- 80
- 100
- 120
- Other

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYG06020/KYG06030

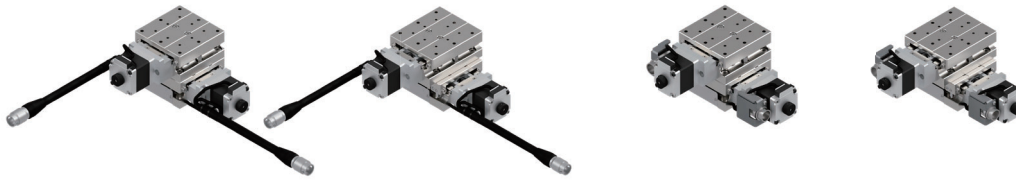
KYG06020T-C

KYG06030T-C

KYG06020M-C

KYG06030M-C

RoHS



Freely customize the motor

*All image is for illustrative purposes only.

KYG06020 T - C -

1 2 3 4

MA -

3 4

▶ Cable P-1-207~
▶ Electrical specification P.C-019~

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)

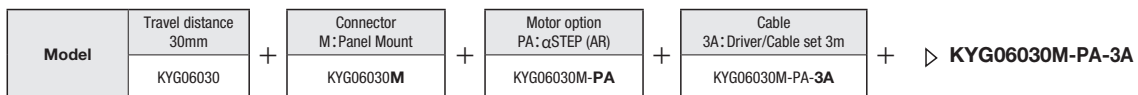
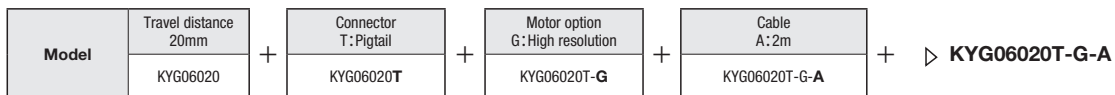
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier) · Cable option

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

*Motor driver (amplifier)/cable combination

Selection Example



New

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

Other

C 007

Specification

		SPEC			
Model		KYG06020T-C	KYG06020M-C	KYG06030T-C	KYG06030M-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		1.44kg	1.42kg	1.64kg	1.62kg
Accuracy specification	Resolution	Full/Half	2μm/1μm		
		Micro step	0.1μm (1/20 On resolution)		
	MAX speed	20mm/sec			
	Load capacity	9kgf [88.2N]			
	Squareness	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			
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)					
	KYG06030T(Pigtail)	1.70kg		1.64kg	2.12kg	2.16kg
	KYG06030M(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 is our own management model.

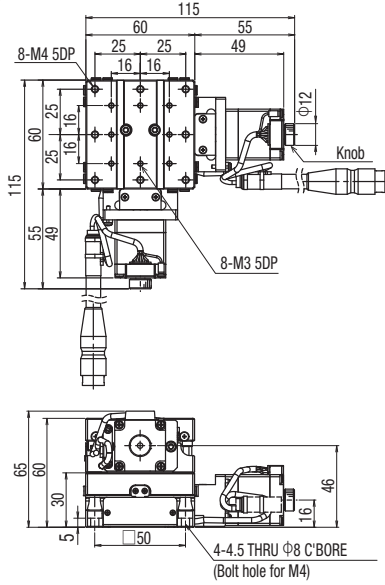
Motorized Stage

CAVE-X POSITIONER

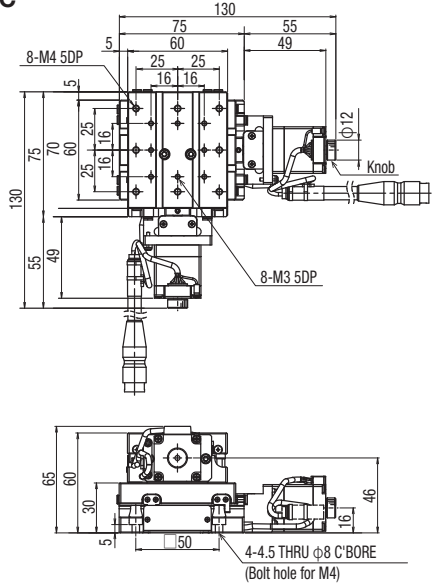
XY-axis Linear Ball Guide: KYG06020/KYG06030

Dimensions

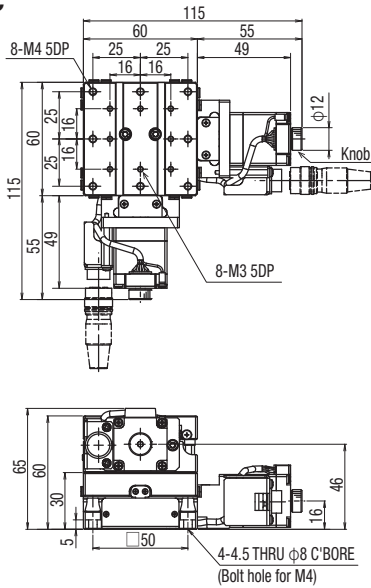
KYG06020T-C



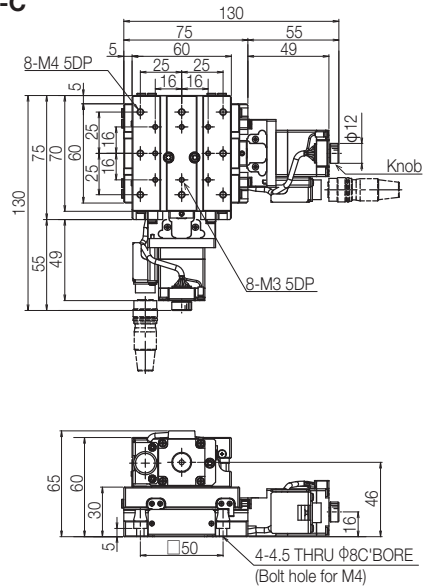
KYG06030T-C



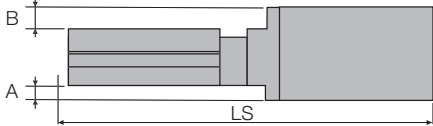
KYG06020M-C



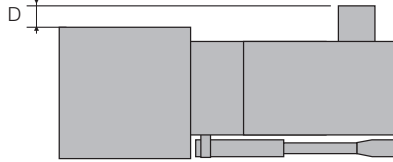
KYG06030M-C



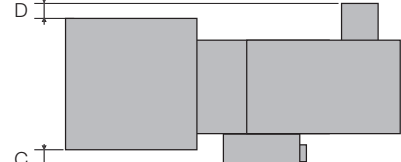
Side view



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

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

Other

C 009

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.

KZG06 020 T - C-□

1 2 3 4

MA-□

3 4

☉ Cable P.1-207~

☉ Electrical specification P.C-019~

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

Model	Travel distance 20mm	+	Connector T: Pigtail	+	Motor option G: High resolution	+	Cable A: 2m	+	▷ KZG06020T-G-A
	KZG06020		KZG06020T		KZG06020T-G		KZG06020T-G-A		
Model	Travel distance 30mm	+	Connector M: Panel Mount	+	Motor option PA: αSTEP (AR)	+	Cable 3A: Driver/Cable set 3m	+	▷ KZG06030M-PA-3A
	KZG06030		KZG06030M		KZG06030M-PA		KZG06030M-PA-3A		

Motorized Stage

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

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

- 40
- 50
- 60
- 70
- 80
- 100
- 120
- Other

New

Motorized Stage

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	Micro step	0.1μm (1/20 On resolution)			
	MAX speed	20mm/sec			
	Load capacity (Excitation)	3kgf [29.4N]			
	Perpendicularity	10μm / full stroke		15μm / full stroke	
Single axis accuracy specification	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.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

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	1.51kg
	KZG06020M(Panel Mount)	1.07kg	1.16kg	1.07kg	1.16kg	
	KZG06030T(Pigtail)	1.18kg	1.27kg	1.18kg	1.27kg	1.61kg
	KZG06030M(Panel Mount)	1.17kg	1.26kg	1.17kg	1.26kg	

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

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)					
	KZG06030T(Pigtail)	1.21kg		1.18kg	1.42kg	1.44kg
	KZG06030M(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 is our own management model.

□40

□50

□60

□70

□80

□100

□120

Other

C
012

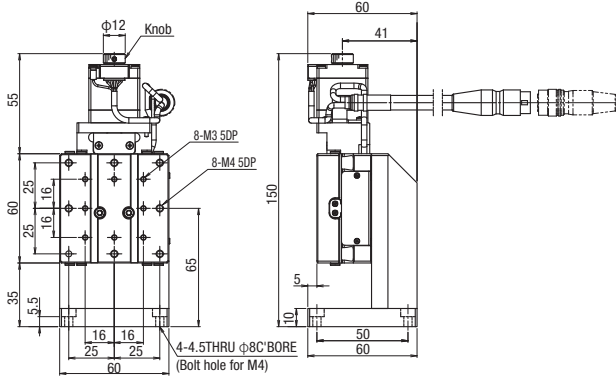
Motorized Stage

CAVE-X POSITIONER

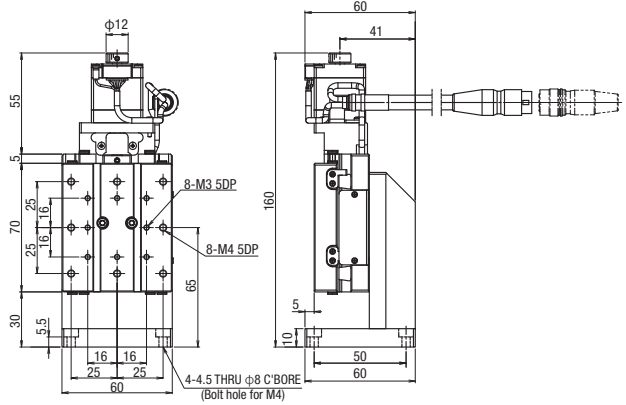
Z-axis Linear Ball Guide: KZG06020/KZG06030

Dimensions

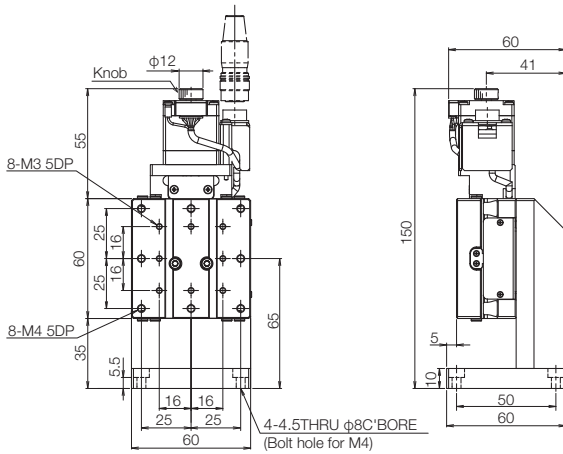
KZG06020T-C



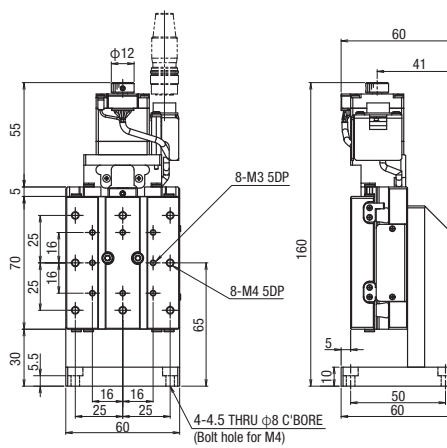
KZG06030T-C



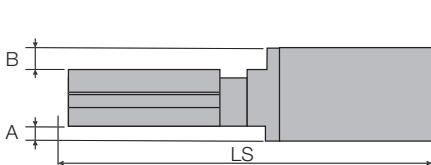
KZG06020M-C



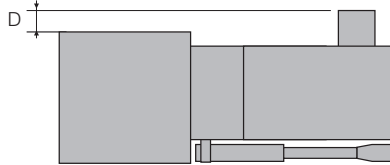
KZG06030M-C



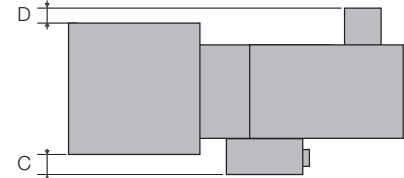
Side view



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	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-C	C	<input type="checkbox"/> 28	M	—	—	—	—	115	130
KXG06***T-F	F	<input type="checkbox"/> 28	T	—	—	—	—	134.5	149.5
KXG06***M-F	F	<input type="checkbox"/> 28	M	—	—	—	—	134.5	149.5
KXG06***T-G	G	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-G	G	<input type="checkbox"/> 28	M	—	—	—	—	115	130
KXG06***T-H	H	<input type="checkbox"/> 28	T	—	—	—	—	134.5	149.5
KXG06***M-H	H	<input type="checkbox"/> 28	M	—	—	—	—	134.5	149.5

*Travel distance

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

Other

C
013

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

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

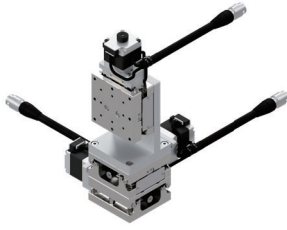
Other

Motorized Stage

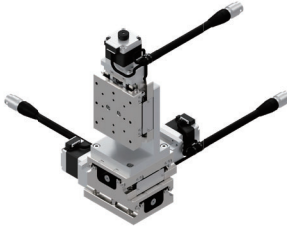
CAVE-X POSITIONER

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.

KWG06 020 T - C - □

1 2 3 4

MA - □

3 4

▶ Cable P.1-207~
▶ Electrical specification P.C-019~

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)

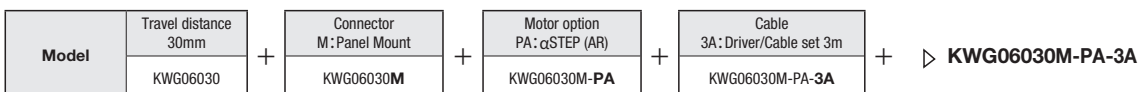
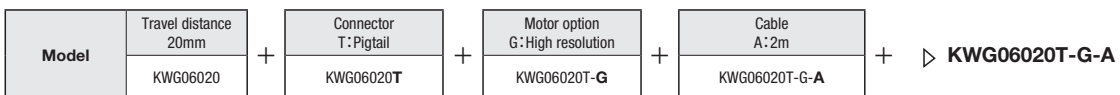
Code	Specification
Blank	Sensor cable 2m One end loose wire
3	Sensor cable 3m One end loose wire
5	Sensor cable 5m One end loose wire
3A	Driver (Amplifier)/Cable set 3m
5A	Driver (Amplifier)/Cable set 5m

Driver (Amplifier) · Cable option

Code	*Combination	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	—
Driver (Amplifier)	Not included						Included				

*Motor driver (amplifier)/cable combination

Selection Example



New

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

Other

C

015

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 is our own management model.

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear
Ball

CAVE-X
Linear ball

Cross
Roller

Slide
Guide

40

50

60

70

80

100

120

Other

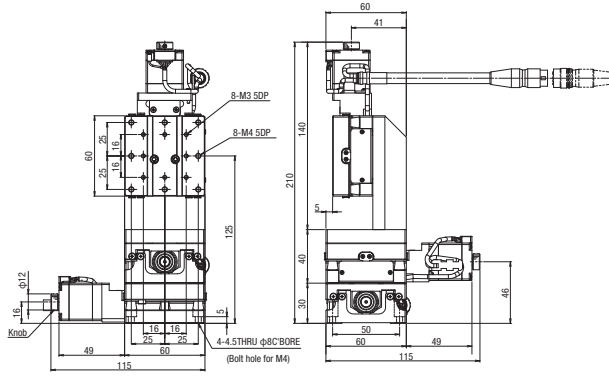
Motorized Stage

CAVE-X POSITIONER

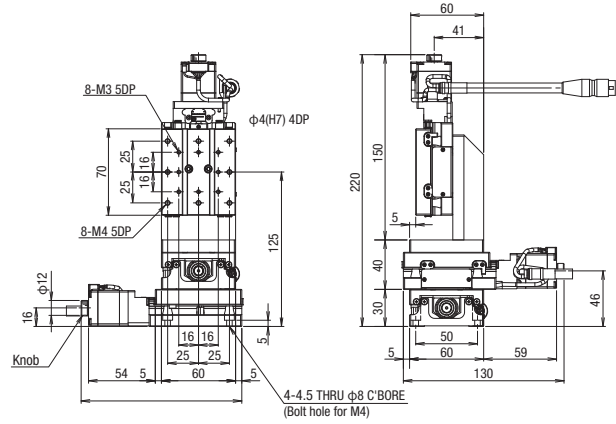
XYZ-axis Linear Ball Guide: KWG06020/KWG06030

Dimensions

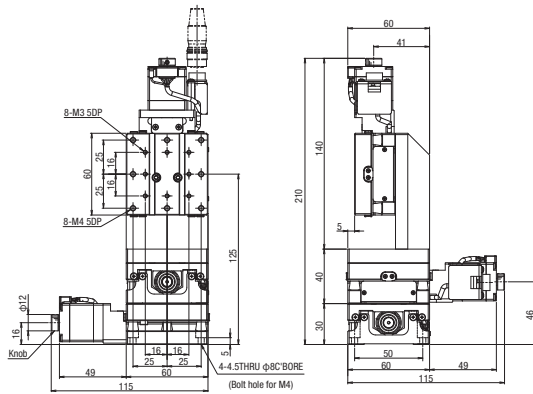
KWG06020T-C



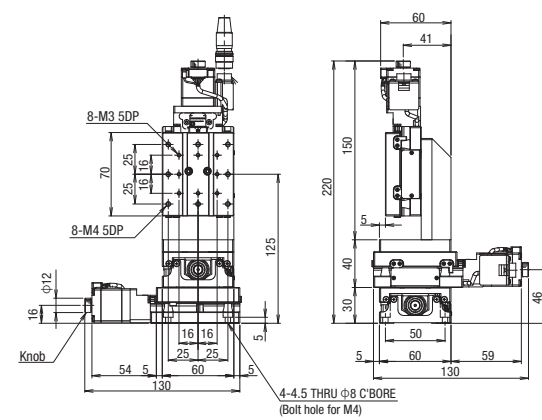
KWG06030T-C



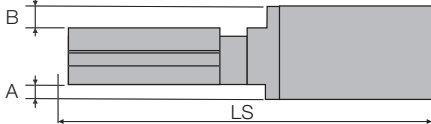
KWG06020M-C



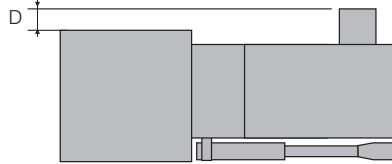
KWG06030M-C



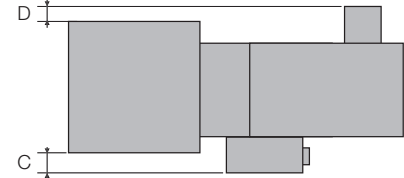
Side view



Top view : Connector : T(Pigtail)



Top view : Connector : M(Panel Mount)



C Standard motor

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	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-C			M	—	—	—	—	134.5	149.5
KXG06***T-F	F	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	134.5	149.5
KXG06***T-H	H	<input type="checkbox"/> 28	T	—	—	—	—	115	130
KXG06***M-H			M	—	—	—	—	134.5	149.5

*Travel distance

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

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						

*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

Electrical Specification: KXG Series

Motor · 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			
Motor size	□size L size	37mm	56.5mm	37mm
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	—			
Connector	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.)		
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.1-213~ for details of single motor specification.

(*3) Model is our own management model.

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.	

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

□40

□50

□60

□70

□80

□100

□120

Other

Motor · Electrical specification(With electromagnetic brake)

Motor code	MG	MA	MB	
Model (*1)	KXG06020/KXG06030			
Motor Specification (*2)	Type	5 phase stepping motor (0.75A/Phase)		
	Feature	With electromagnetic brake □28mm		
	Model (*3)	C103A-90215PM		
	With electromagnetic brake	Available		
	Manufacturer	Oriental Motor Co., Ltd.		
	Step angle	0.72°		
	Mass	0.17kg		
	Motor size	□size	□28mm	
		L size	65.5mm	
	Max. Holding Torque	0.048N · m		
Driver model	CVD507-K-A9	RKSD503M-A	RKSD503M-C	
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			
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.1-213~ for details of single motor specification.

(*3) Model is our own management model.

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>[Electromagnetic brake]</p>
	Motor · Electromagnetic brake side	
MA · MB	Electromagnetic brake side	<p>[Receiver cable] Model:HR10AP-S-SB-6-□(□ is the length)*for fixing</p> <p>[Pin allocation (common)]</p> <p>Pigtail:HR10A-7J-6P(73) (HRS) Panel Mount:HR10A-7R-6P(73) (HRS)</p>
	Sensor	

Motorized Stage

CAVE-X POSITIONER

Electrical Specification: KXG Series

Motor · Electrical specification(αSTEP · Motor for EtherCAT)

Motor code	PA	ZA	EA
Model (*1)	KXG06020/KXG06030		
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.		SURUGA SEIKI
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: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: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)
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.1-213~ for details of single motor specification.

(*3) Model is our own management model.

Pin allocation · Connection diagram

Motor Code	Motor · Encoder	Sensor (common)														
PA	<p>Motor</p> <p>Driver side Connector:43025-1000(Molex) or 1-794617-0(TE Connectivity)</p> <p>Motor side Connector:43020-1000(Molex) or 1-794615-0(TE Connectivity)</p> <p>3m, 5m</p>	<p>Sensor side Connector (Female): HR10A-7P-6S (73) (HRS)</p> <p>ULAWM20276 AWG28 3P Black</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <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> </table> <p>*The shields are connected with the connector shell.</p>	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-															
ZA	<p>Motor</p> <p>Driver side Connector:55100-0670(Molex)</p> <p>Motor side Connector:DF62C-13S-2.2C(HRS)</p> <p>Driver side Connector:J11DF-06V-KX (J.S.T.MFG.)</p> <p>3m, 5m</p>	<p>Pin allocation (common)</p> <p>Pigtail:HR10A-7J-6P(73) (HRS)</p> <p>Panel Mount:HR10A-7R-6P(73) (HRS)</p>														
EA	<p>Motor</p> <p>Driver side Connector:PAP-04V-S(J.S.T.MFG.) Contact:SPHD-002T-P0.5(J.S.T.MFG.)</p> <p>Motor side Connector:ZER-06V-S(J.S.T.MFG.) Contact:SZE-002T-P0.3(J.S.T.MFG.)</p> <p>3m, 5m</p>	<p>Pin allocation (common)</p> <p>Pigtail:HR10A-7J-6P(73) (HRS)</p> <p>Panel Mount:HR10A-7R-6P(73) (HRS)</p> <p>1 CWLS output 2 CCWLS output 3 ORG output 4 N.C. 5 Power input(+) 6 Power input(-)</p> <p>Sensor substrate</p>														
	<p>Encoder</p> <p>Driver side Connector:PUDP-10V-S(J.S.T.MFG.) Contact:SPUD-002T-P0.5(J.S.T.MFG.)</p> <p>Motor side Connector:GHR-08V-S(J.S.T.MFG.) Contact:SSHL-002T-P0.2(J.S.T.MFG.)</p> <p>3m, 5m</p>															

New

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

40

50

60

70

80

100

120

Other

Motor · Electrical specification(Servo motor)

Motor code		UG	UA	
Model (*1)		KXG06020/KXG06030		
Motor Specification (*2)	Type	Servo motor	Servo motor	
	Feature	High speed	High speed	
	Model (*3)	MSMF5AZL1A2	HG-KR053	
	With electromagnetic brake	-		
	Manufacturer	Panasonic	Mitsubishi Electric corporation	
	Step angle	Both absolute and incremental 23 bits encoder (8388608P/R) (*4)	Both absolute and incremental 22 bits encoder (4194304P/R) (*5)	
	Mass	0.32kg	0.34kg	
	Motor size	□size	□38mm	□40mm
		L size	72mm	66.4mm
	Maximum torque	0.48N · m	0.56N · m	
Driver model	MADLT05SF	MR-J4-10A		
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)	Motor: Manufacturer standard Encoder: Manufacturer standard Sensor:HR10A-7J-6P(73)(HRS)	
	Panel Mount	Motor: 172167-1 (TE Connectivity) Encoder: 172169-1 (TE Connectivity) Sensor:HR10A-7R-6P(73)(HRS)	Motor: Manufacturer standard Encoder: Manufacturer standard Sensor:HR10A-7R-6P(73)(HRS)	
	Receiving connector	Motor: 172159-1 (TE Connectivity) Encoder: 172161-1 (TE Connectivity) Sensor:HR10A-7P-6S(73)(HRS)	Motor:JN4FT04SJ1-R (JST) Encoder: 1674320-1 (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.1-213~ for details of single motor specification.

(*3) Model is our own management model.

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

(*5) 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: [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) ULAWM20276 AWG28 3P Black</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <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> <tr><td>Shield</td><td></td></tr> </table> <p>*The shields are connected with the connector shell.</p> <p>[Pin allocation] Pigtail:HR10A-7J-6P(73) (HRS) Panel Mount:HR10A-7R-6P(73) (HRS)</p>	Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-	Shield	
	Pin		Signals															
1	CWLS																	
2	CCWLS																	
3	ORG																	
4	NORG																	
5	V+																	
6	V-																	
Shield																		
Encoder	<p>[Receiver cable] Model:MFCA0030EAD(3m)/MFCA0050EAD(5m) *for fixing</p>																	
UA	<p>Motor: [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>[結線圖]</p> <table border="1"> <tr><td>1</td><td>CWLS output</td></tr> <tr><td>2</td><td>CCWLS output</td></tr> <tr><td>3</td><td>ORG output</td></tr> <tr><td>4</td><td>N.C.</td></tr> <tr><td>5</td><td>Power input(+)</td></tr> <tr><td>6</td><td>Power input(-)</td></tr> </table> <p>Sensor substrate</p>	1	CWLS output	2	CCWLS output	3	ORG output	4	N.C.	5	Power input(+)	6	Power input(-)				
	1		CWLS output															
2	CCWLS output																	
3	ORG output																	
4	N.C.																	
5	Power input(+)																	
6	Power input(-)																	
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>																	

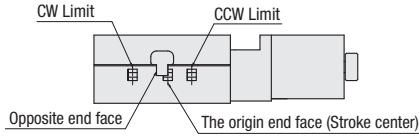
Motorized Stage

CAVE-X POSITIONER

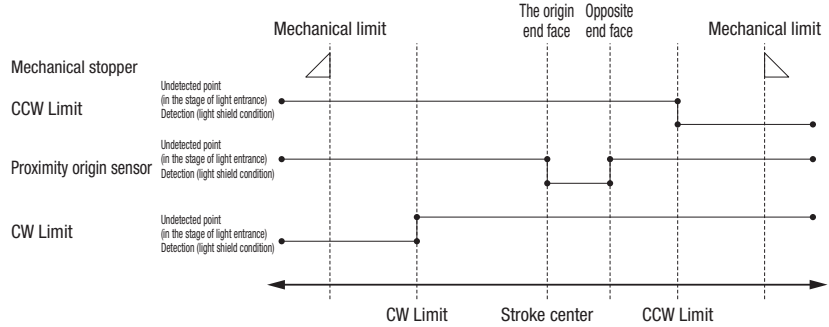
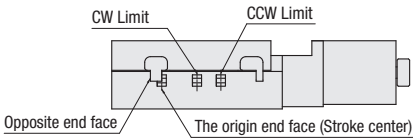
Electrical Specification: KXG Series

Timing chart

KXG06020



KXG06030



Unit [mm]	Reference coordinate	Mechanical limit	CW Limit	The origin end face Stroke center	Opposite end face	CCW Limit	Mechanical limit
KXG06020	Return to origin	11.5	10.5	0	5	10.5	11.5
KXG06030	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.

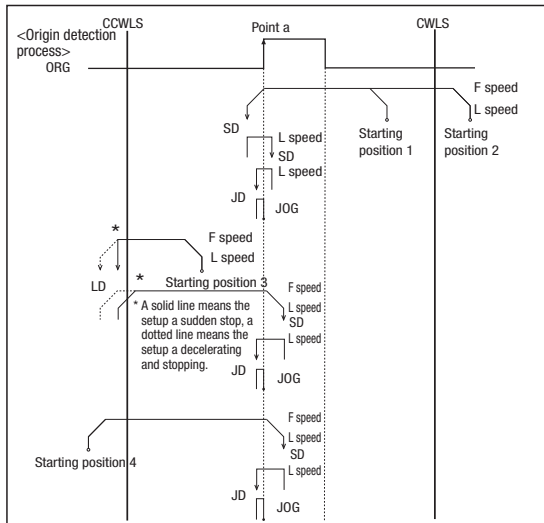
Return to origin method

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.

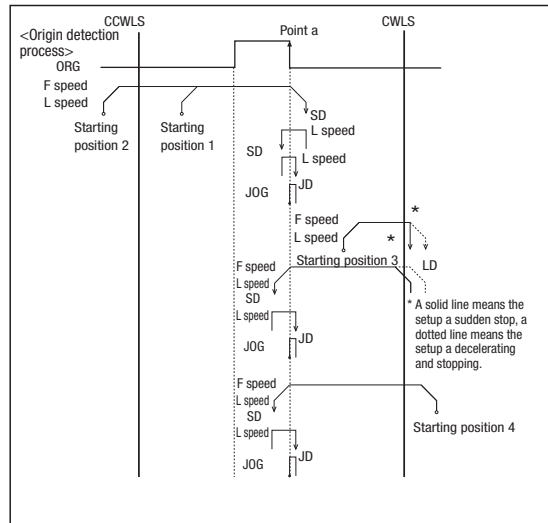
■ KXG06020/KXG06030 recommended return to origin Return to origin sequence P.1-201~

- 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]



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

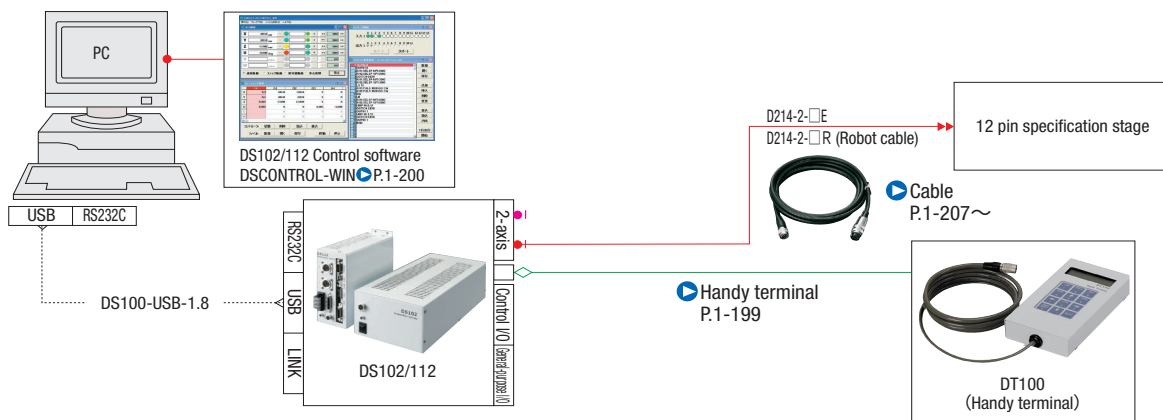
- Linear Ball
- CAVE-X Linear ball
- Cross Roller
- Slide Guide
- 40
- 50
- 60
- 70
- 80
- 100
- 120
- Other

New	
Motorized Stage	
X	
XY	
Z	
Horizontal Z	
XYZ	
Goniometer	
Rotary	
Unit	
Controller	
Linear Ball	
CAVE-X Linear ball	
Cross Roller	
Slide Guide	
<input type="checkbox"/> 40	
<input type="checkbox"/> 50	
<input checked="" type="checkbox"/> 60	
<input type="checkbox"/> 70	
<input type="checkbox"/> 80	
<input type="checkbox"/> 100	
<input type="checkbox"/> 120	
Other	
C	
024	

Connectin example

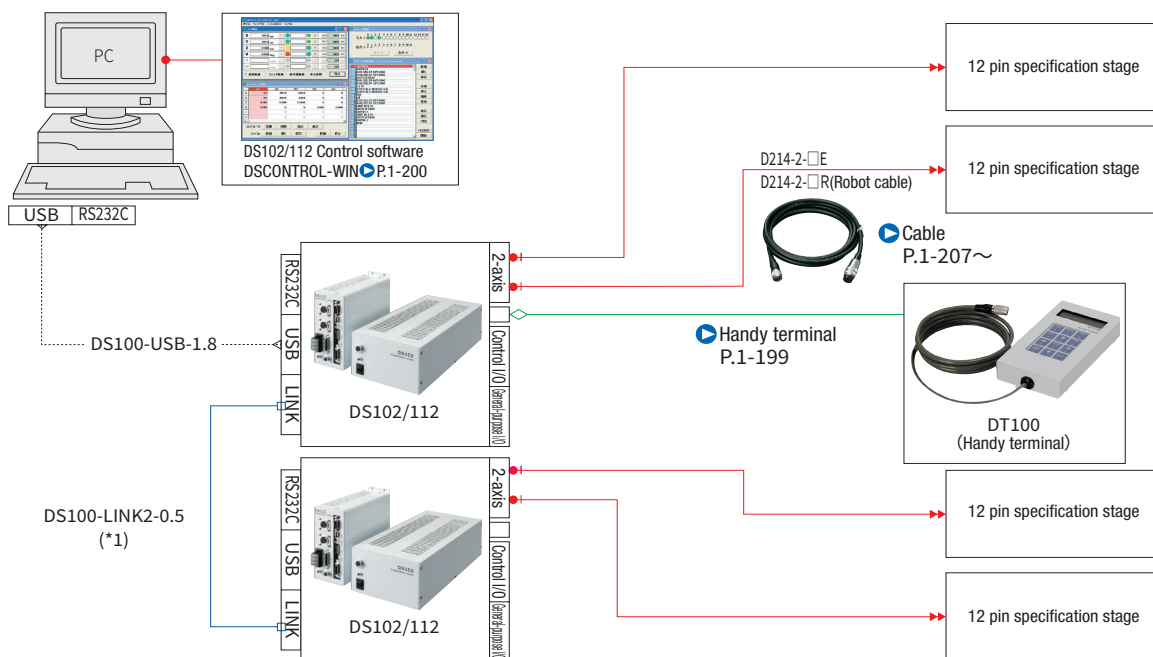
■ Connection example 1 Motorized Stage 1axis: When holding a terminal device (using control software)

*USB cable connection between PC and controller.



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

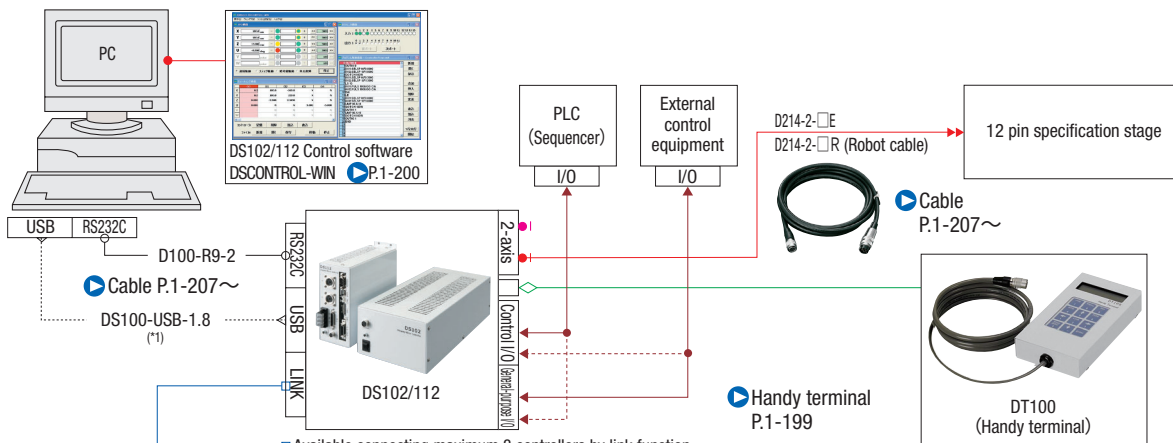
*USB cable connection between PC and controller.



(*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.

(*1) Using the USB hub, it is controllable in a single PC up to four link networks (24-axis).