

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide : KXG06020/KXG06030

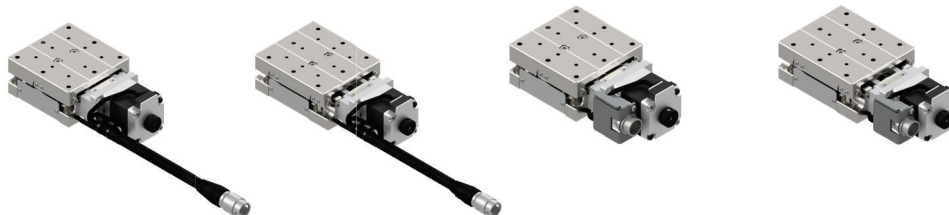
KXG06020T-C

KXG06030T-C

KXG06020M-C

KXG06030M-C

RoHS



*All image is for illustrative purposes only.

Freely
customize
the motor

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	3	5	3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	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				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	+	▷ KXG06020T-G-A
	KXG06020		KXG06020T		KXG06020T-G		KXG06020T-G-A		
Model	Travel distance 30mm	+	Connector M: Panel Mount	+	Motor option PA: αSTEP (AR)	+	Cable 3A: Driver/Cable set 3m	+	▷ KXG06030M-PA-3A
	KXG06030		KXG06030M		KXG06030M-PA		KXG06030M-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

C
001

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			
	Parallelism		15μm			
	Motion parallelism		10μm			
Pitching/Yawing		20"/15"				
Sensor	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	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 is our own management model.

Motorized Stage

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear
BallCAVE-X
Linear ballCross
RollerSlide
Guide

□40

□50

□60

□70

□80

□100

□120

Other

C
002

Motorized Stage

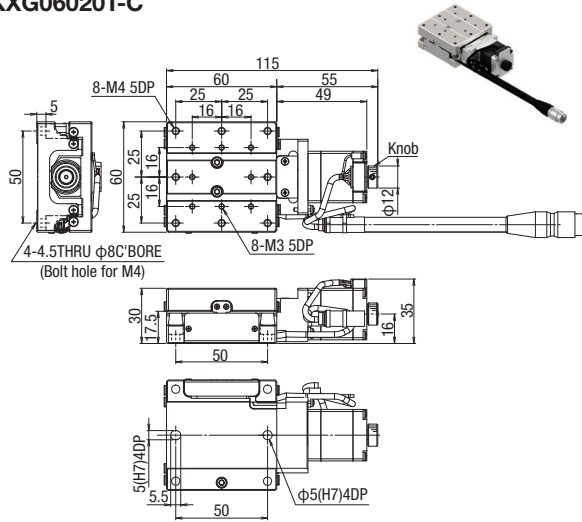
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXG06020/KXG06030

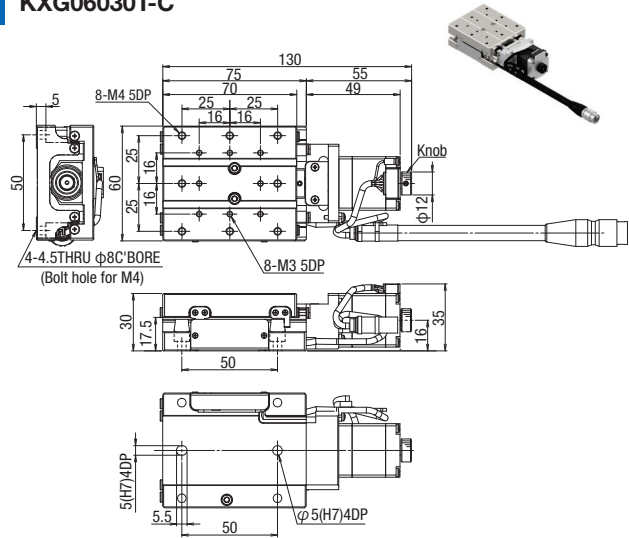
Dimensions

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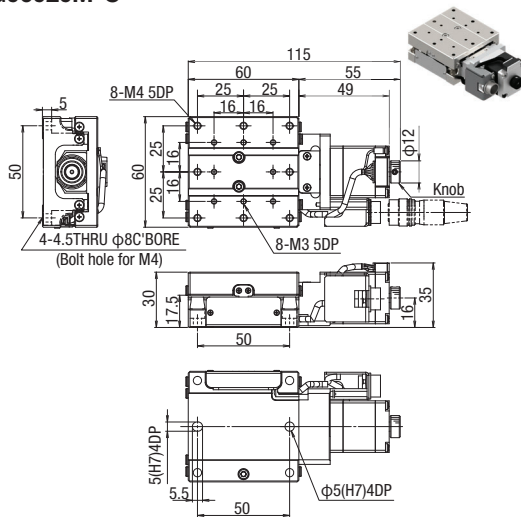
KXG06020T-C



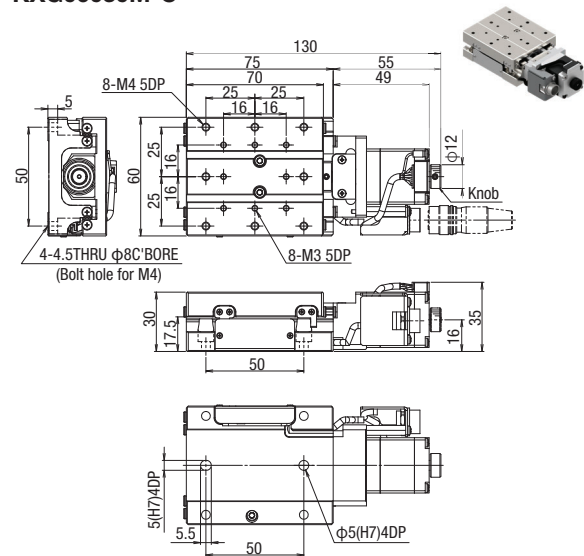
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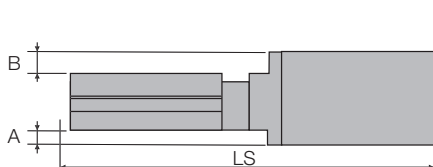
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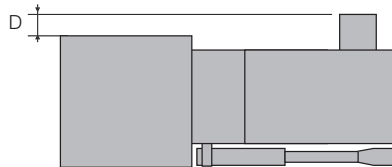
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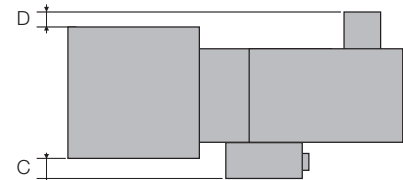
Side view



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	—	—	—	—	115	130
KXG06***T-F	F	□28	T	—	—	—	—	134.5	149.5
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	115	130
KXG06***T-H	H	□28	T	—	—	—	—	134.5	149.5
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			3.5			

*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			4			

*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			3.5			
KXG06***T-ZA	ZA	□28	T	—	—	—	—	138	153
KXG06***M-ZA			M			3.5			

*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			3.5			

*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			3.5			
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M			3.5			

*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
004

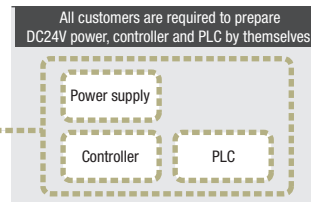
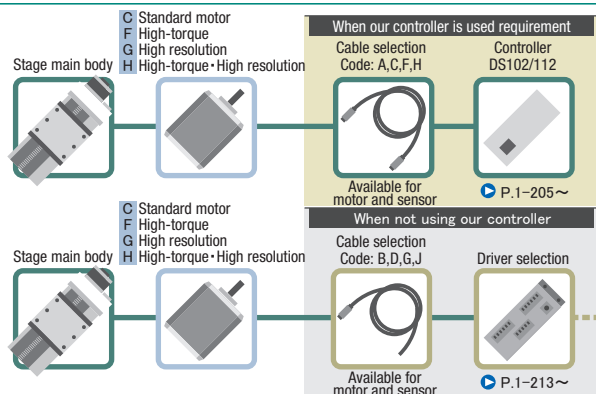
Motorized Stage

CAVE-X POSITIONER

Linear Ball Guide: KXG06020/KXG06030

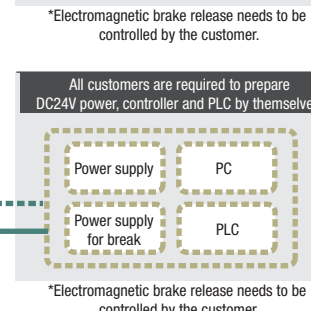
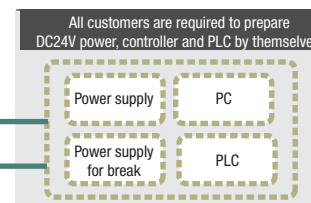
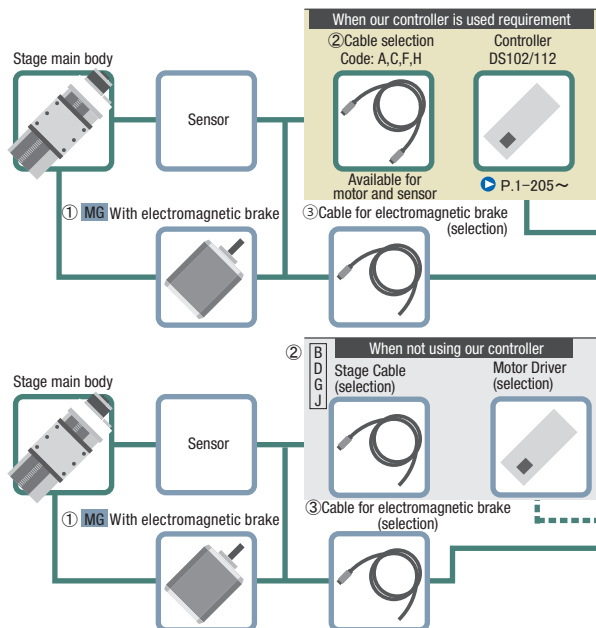
Motor option

- 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

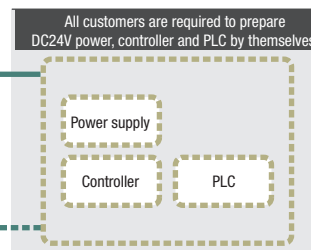
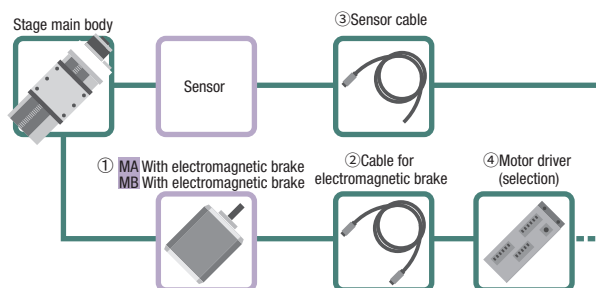


Code	① Motor model	② Motor • Sensor cable selection	③ Cable for electromagnetic brake
MG	C103A-90215PM	A • B • C • D : D214-2-□E(K) F • G • H • J : D214-2-□R(K)	BCBL2-S-□ (*)

(*) 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
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 : 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.

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

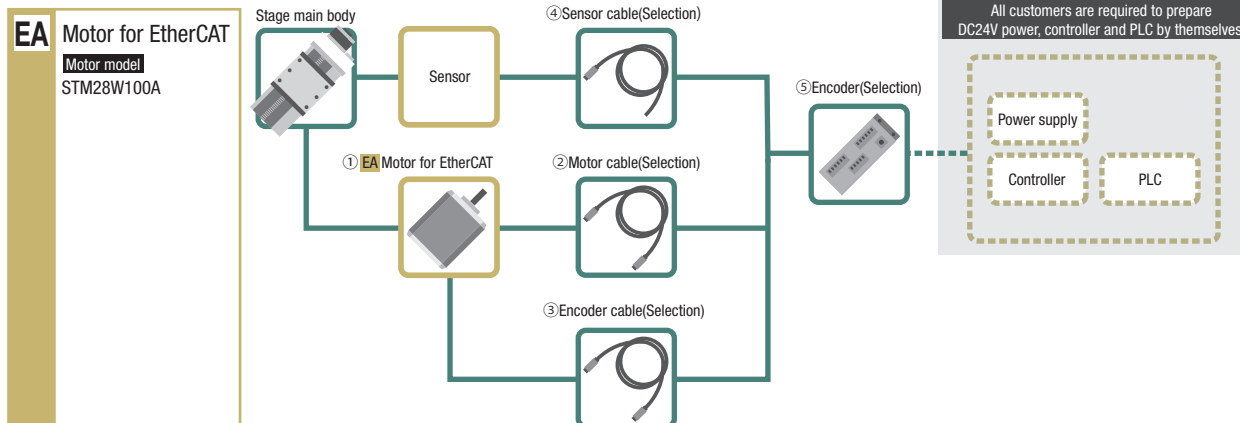
100

120

Other

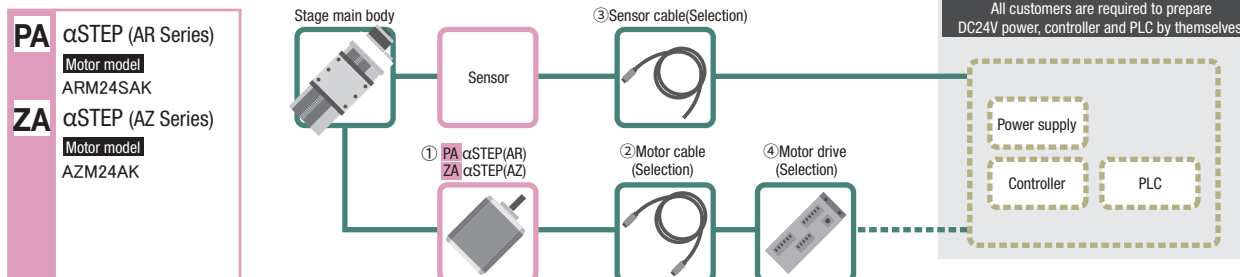
C
005

Motor option



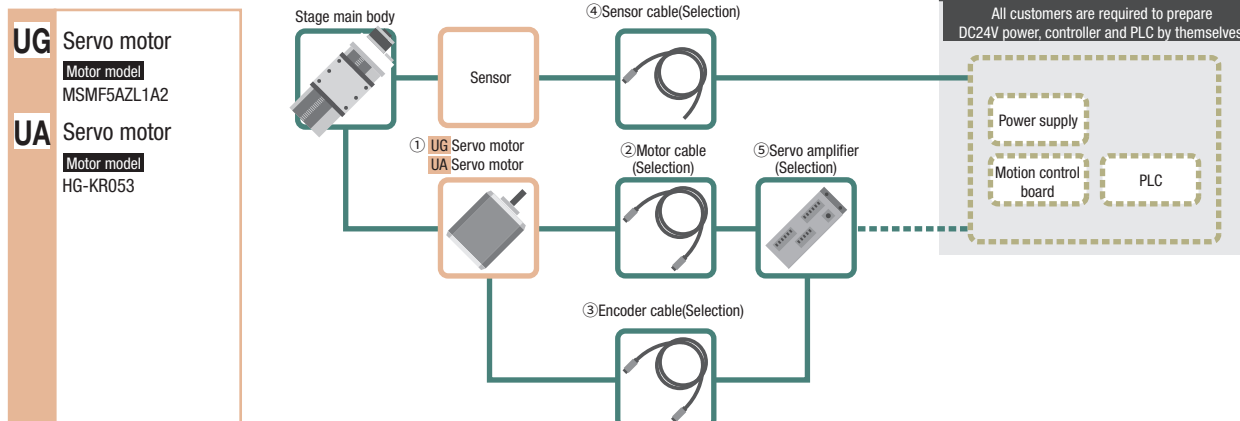
Code	① Motor model	② Motor cable selection	③ Encoder cable selection	④ Sensor cable selection	④ Driver selection
EA	STM28W100A	3A : D214-3-3R2 5A : D214-3-5R2 Blank : 3・5 : Not included	3A : D214-3-3RE2 5A : D214-3-5RE2 Blank : 3・5 : Not included	3A・3 : HR10AP-S-SB-6-3 5A・5 : HR10AP-S-SB-6-5 Blank :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

Motor option



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



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

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

▶ 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	3	5	3A			5A		
	Motor	MA/MB/PA/ZA/EA/UG/UA			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				3m	—	—	5m	—	—
	Encoder				—	—	3m	—	—	5m
Driver (Amplifier)		Not included			Included					

*Motor driver (amplifier)/cable combination

Selection Example

Model	Travel distance 20mm KYG06020	+	Connector T: Pigtail KYG06020T	+	Motor option G: High resolution KYG06020T-G	+	Cable A: 2m KYG06020T-G-A	+	▷ KYG06020T-G-A
Model	Travel distance 30mm KYG06030	+	Connector M: Panel Mount KYG06030M	+	Motor option PA: αSTEP (AR) KYG06030M-PA	+	Cable 3A: Driver/Cable set 3m KYG06030M-PA-3A	+	▷ KYG06030M-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

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			
Accuracy specification	Weight		1.44kg	1.42kg	1.64kg	1.62kg
	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				
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	KYG06020T(Pigtail)	1.44kg	1.62kg	1.44kg	1.62kg	1.54kg	2.30kg
	KYG06020M(Panell 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(Panell 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(Panell Mount)					
	KYG06030T(Pigtail)	1.70kg		1.64kg	2.12kg	2.16kg
	KYG06030M(Panell 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.

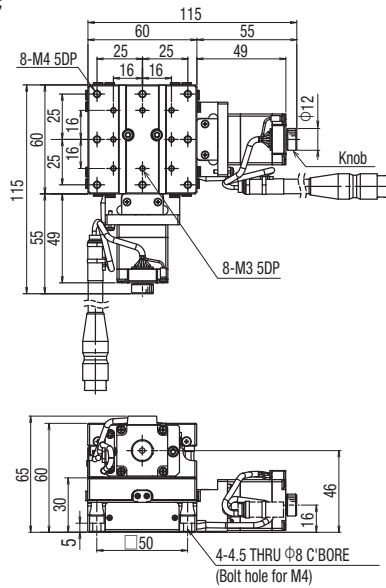
Motorized Stage

CAVE-X POSITIONER

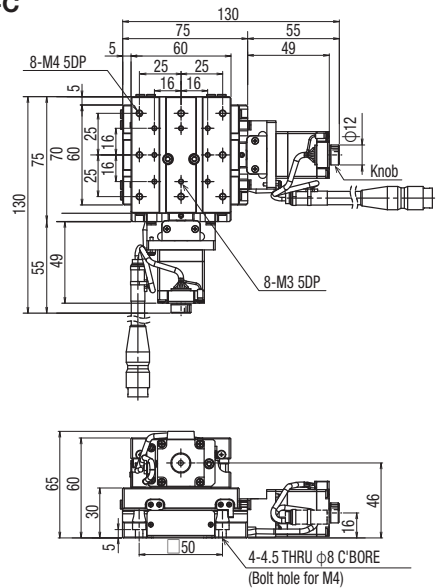
XY-axis Linear Ball Guide: KYG06020/KYG06030

Dimensions

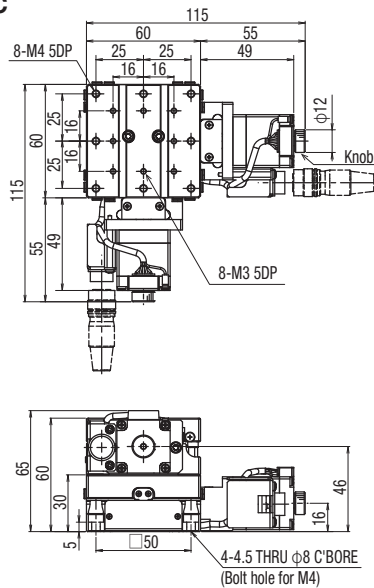
KYG06020T-C



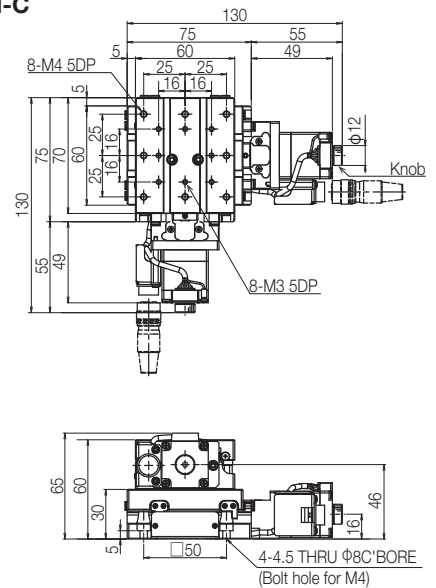
KYG06030T-C



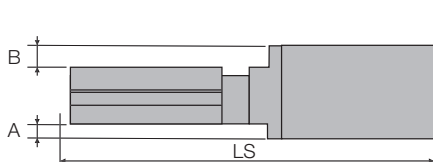
KYG06020M-C



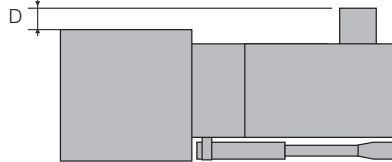
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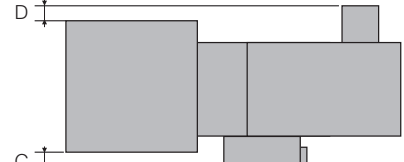
Side view



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	—	—	—	—	134.5	149.5
KXG06***T-F	F	□28	T	—	—	—	—	115	130
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	134.5	149.5
KXG06***T-H	H	□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			3.5			

*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			4			

*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			3.5			
KXG06***T-ZA	ZA	□28	T	—	—	—	—	138	153
KXG06***M-ZA			M			3.5			

*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			3.5			

*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			3.5			
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M			3.5			

*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
010

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	3	5	3A			5A		
		MA/MB/PA/ZA/EA/UG/UA	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		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		

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			
	Guide		Linear Ball Guide			
	Main materials-Finishing		Special Steel—Electroless nickel plating			
Weight		1.08kg	1.07kg	1.18kg	1.17kg	
Accuracy specification	Resolution	Full/Half	2μm/1μm			
		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	
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	KZG06020T(Pigtail)	1.08kg	1.17kg	1.08kg	1.17kg	1.13kg	1.51kg
	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	1.61kg
	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)					
	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.

Motorized Stage

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear
BallCAVE-X
Linear ballCross
RollerSlide
Guide

□40

□50

□60

□70

□80

□100

□120

Other

C
012

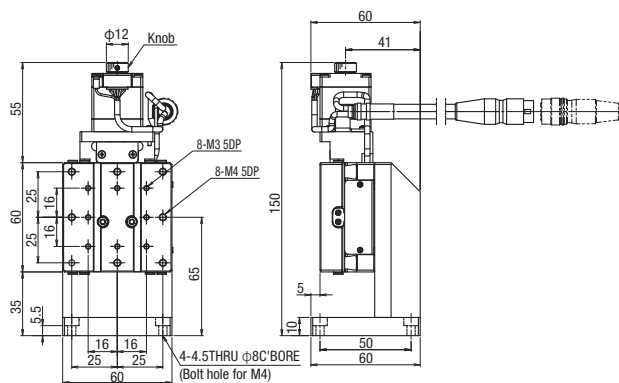
Motorized Stage

CAVE-X POSITIONER

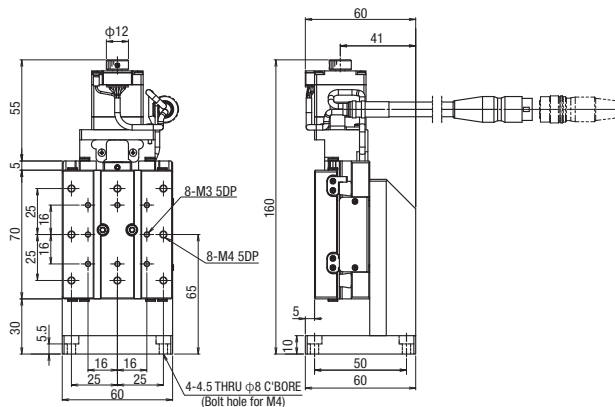
Z-axis Linear Ball Guide: KZG06020/KZG06030

Dimensions

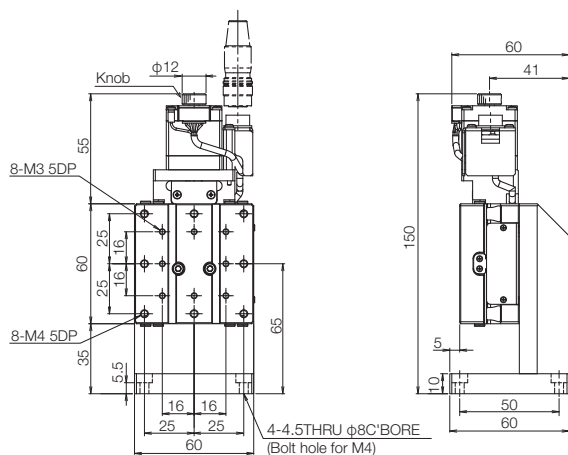
KZG06020T-C



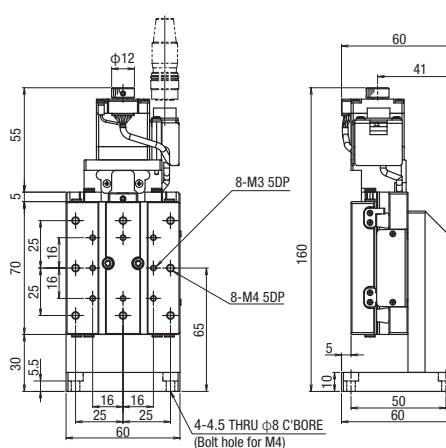
KZG06030T-C



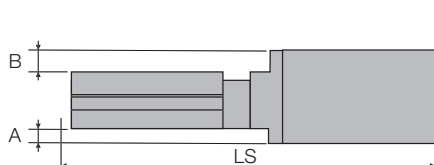
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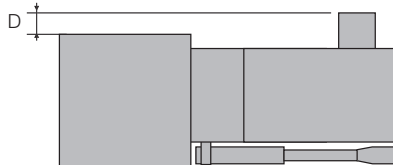
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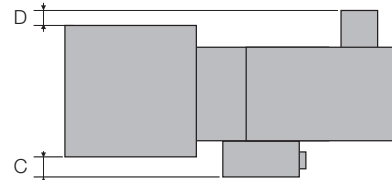
Side view



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	—	—	—	—	134.5	149.5
KXG06***T-F	F	□28	T	—	—	—	—	115	130
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	134.5	149.5
KXG06***T-H	H	□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			3.5			

*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			4			

*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			3.5			
KXG06***T-ZA	ZA	□28	T	—	—	—	—	138	153
KXG06***M-ZA			M			3.5			

*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			3.5			

*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			3.5			
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M			3.5			

*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
014

Motorized Stage

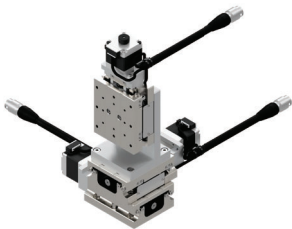
CAVE-X POSITIONER

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

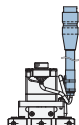
● Cable P.1-207~

● 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 (□42_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	3	5	3A	5A
		MA/MB/PA/ZA/EA/UG/UA	MA/MB/PA/ZA/EA/UG/UA	MA/MB/PA/ZA/EA/UG/UA	MA/MB/PA/ZA/EA/UG/UA	MA/MB/PA/ZA/EA/UG/UA
	Sensor	2m	3m	5m	3m	5m
	Motor				3m	5m
	Electromagnetic brake				3m	5m
	Encoder				3m	5m
	Driver (Amplifier)				3m	5m

*Motor driver (amplifier)/cable combination

Selection Example

Model	Travel distance 20mm KWG06020	+	Connector T: Pigtail KWG06020T	+	Motor option G: High resolution KWG06020T-G	+	Cable A: 2m KWG06020T-G-A	+	▷ KWG06020T-G-A
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Model	Travel distance 30mm KWG06030	+	Connector M: Panel Mount KWG06030M	+	Motor option PA: αSTEP (AR) KWG06030M-PA	+	Cable 3A: Driver/Cable set 3m KWG06030M-PA-3A	+	▷ KWG06030M-PA-3A
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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

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			
Accuracy specification	Guide	Linear Ball Guide			
	Main materials-Finishing	Special Steel—Electroless nickel plating			
	Weight	2.52kg	2.49kg	2.82kg	2.79kg
	Resolution	2μm/1μm			
Sensor	Full/Half	0.1μm (1/20 On resolution)			
	Micro step	20mm/sec			
	MAX speed	3kgf [29.4N]			
	Load capacity	10μm / full stroke			
Provided screw (Hexagon-headed bolt)	Squareness	15μm / full stroke			
	Perpendicularity	10μm / full stroke			
	Limit sensor	Available			
	Origin sensor	Available			
Single-axis accuracy specification	Slit origin sensor	—			
	Uni-directional positioning accuracy	5μm			
	Repeatability positioning accuracy	±0.5μm			
	Lost motion	1μm			
Resolution • MAX speed • Weight	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(Panell 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(Panell 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(Panell Mount)					
	KWG06030T(Pigtail)	2.91kg		2.82kg	3.54kg	3.60kg
	KWG06030M(Panell 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

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
016

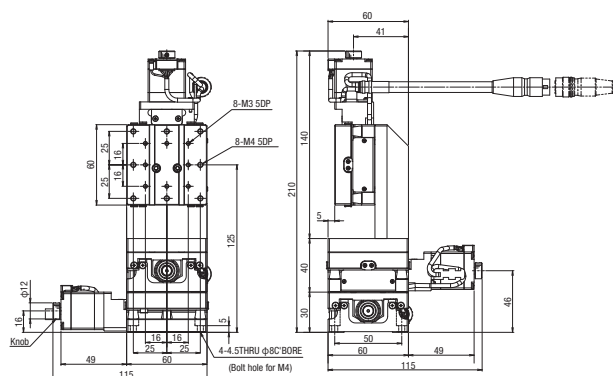
Motorized Stage

CAVE-X POSITIONER

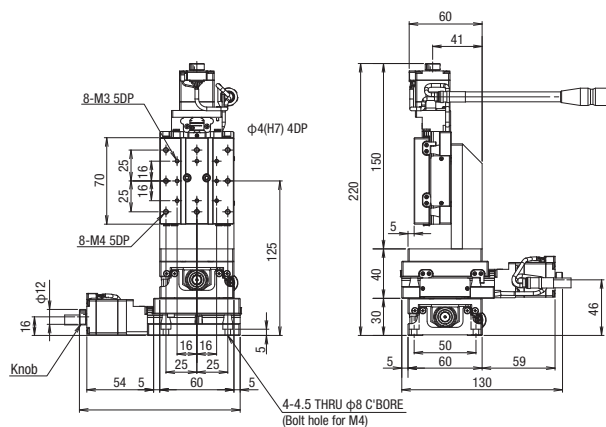
XYZ-axis Linear Ball Guide: KWG06020/KWG06030

Dimensions

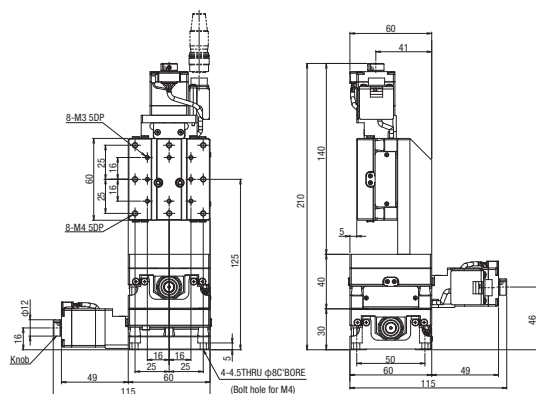
KWG06020T-C



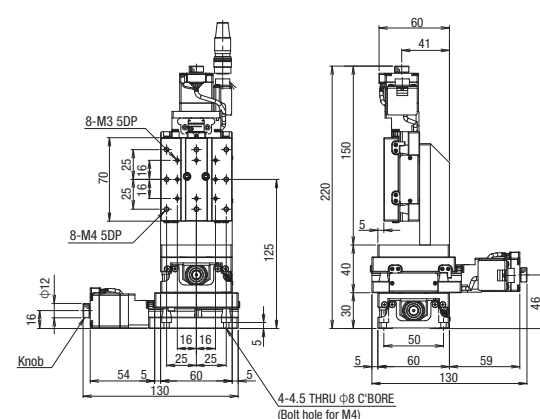
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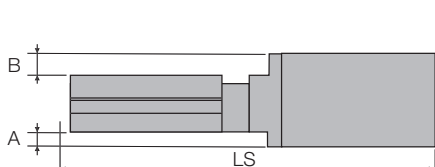
KWG06020M-C



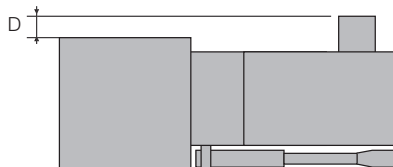
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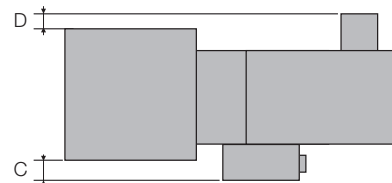
Side view



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	—	—	—	—	134.5	149.5
KXG06***T-F	F	□28	T	—	—	—	—	115	130
KXG06***M-F			M	—	—	—	—	134.5	149.5
KXG06***T-G	G	□28	T	—	—	—	—	115	130
KXG06***M-G			M	—	—	—	—	134.5	149.5
KXG06***T-H	H	□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			3.5			

*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			4			

*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			3.5			
KXG06***T-ZA	ZA	□28	T	—	—	—	—	138	153
KXG06***M-ZA			M			3.5			

*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			3.5			

*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			3.5			
KXG06***T-UA	UA	□40	T	5	5	—	—	168.4	183.4
KXG06***M-UA			M			3.5			

*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
018

CAVE-X POSITIONER

Electrical Specification: KXG Series

Motor • Electrical specification(5 phase stepping motor)

Motor code		C	F	G	H
Model (*1)		KXG06020/KXG06030			
Motor Specification (*2)	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
Connector	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.)			
Sensor board	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.

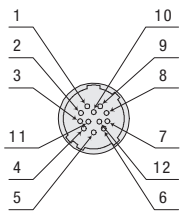
(*3) Model is our own management model.

Pin allocation • Connection diagram

C • F • G • H

Available for motor and sensor

【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+)	
10	ORG output	
11	Power input GND	
12	F.G.	

5 phase stepping motor

Sensor substrate

Regulator

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(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 42mm		
	L size	65.5mm		
	Max. Holding Torque	0.048N · m		
Connector	Driver model	CVD507-K-A9		
	Input power (Voltage · frequency)	DC24V±10% 1.4A(MAX)		
	Electromagnetic Brake Input Power	DC24V±5% 0.05A		
		Single phase AC100-120V 50/60Hz		
Sensor board	Limit sensor	Available		
	Origin sensor	Available		
	Slit origin sensor	—		
Sensor board	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	【Receiver cable】Model:BCBL2-S-□(□ is the length)*Flexible cable Motor side Connector:PAP-02V-S(J.S.T.MFG.) Contact:SPHD-002T-P0.5(J.S.T.MFG.) UL20276 AWG24 1P Black 2m⁺⁵⁰₋₀mm, 4m⁺⁵⁰₋₀mm, 6m⁺¹⁸⁰₋₀mm Blue (Black Dot) 1 DC24V Pink (Black Dot) 2 GND Shield ※ The shields are disconnected with the connector.	【Electromagnetic brake】 Motor:C103A-90215PM(ORIENTAL MOTOR) Connector:PALR-02VF(J.S.T.MFG.) Contact:SPAL-002T-P0.5(J.S.T.MFG.) UL3265 AWG26 Heat-shrinkable tubingΦ3 100mm⁺³⁰₋₀mm Signals Pin DC24V 1 Red GND 2 Black Motor brake(Motor side) Signals Motor brake DC24V Motor brake GND
	Motor · Electromagnetic brake side	【Receiver cable】Model:CC030VPFB(3m)/CC050VPFB(5m) *for fixing Driver Side Connector:5557-06R-210(Molex) Motor Side Connector:5559-06P-210(Molex) 3m, 5m 80mm 3m, 5m	Driver Side Stick Terminal:AI0.5-8WH (Phoenix Contact) Motor Side Connector:5559-02P-210(Molex) 3m, 5m
MA · MB	Sensor	【Receiver cable】Model:HR10AP-S-SB-6-□(□ is the length) *for fixing Sensor side Connector (Female):HR10A-7P-6S(73) (HRS) ULAWM20276 AWG28 3P Black 2m⁺⁵⁰₋₀mm, 3m⁺⁵⁰₋₀mm, 5m⁺¹⁵⁰₋₀mm *The shields are connected with the connector shell. Pin Signals 1 CWLS 2 CCWLS 3 ORG 4 NORG 5 V+ 6 V-	【Pin allocation (common)】 Pigtail:HR10A-7J-6P(73) (HRS) Panel Mount:HR10A-7R-6P(73) (HRS) 【Connection diagram】 Sensor substrate 1 CWLS output 2 CCWLS output 3 ORG output 4 N.C. 5 Power input(+) 6 Power input(-) CWLS ORG Vin GND Regulator

Motorized Stage

CAVE-X POSITIONER

Electrical Specification: KXG Series

Motor · Electrical specification(αSTEP · Motor for EtherCAT)

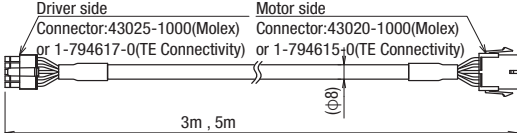
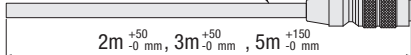
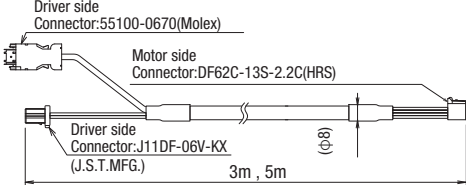
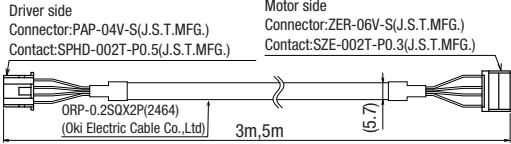
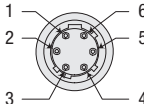
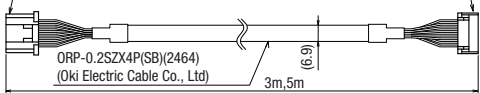
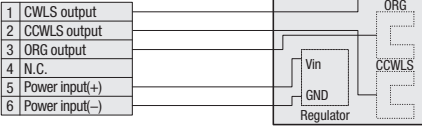
Motor code		PA	ZA	EA
Model (*1)		KXG06020/KXG06030		
Motor Specification (*2)	Type	αSTEP (AR Series)	αSTEP (AZ Series)	2 phase closed Loop stepping motor
	Feature	Small step-out ,incremental	Small step-out ,absolute	Small step-out ,incremental,EtherCAT
	Model (*3)	ARM24SAK	AZM24AK	STM28W100A
	With electromagnetic 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.1-213~ for details of single motor specification.

(*3) Model is our own management model.

Pin allocation · Connection diagram

Motor Code		Motor · Encoder		Sensor (common)															
PA	Motor	【Receiver cable】Model:CC030VA2R2(3m)/CC050VA2R2(5m) *Flexible cable 		【Receiver cable】Model:HR10AP-S-SB-6-□ (□ is the length) *for fixing Sensor side Connector (Female): HR10A-7P-6S (73) (HRS) ULAWM20276 AWG28 3P Black  <table border="1" data-bbox="1078 1424 1350 1543"><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> *The shields are connected with the connector shell.		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	Motor	【Receiver cable】Model:CC030VZ2R2(3m)/CC050VZ2R2(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:D214-3-3RE2(3m)/D214-3-5RE2(5m) *Flexible cable 		【結線圖】 															

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 L size	□40mm 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	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.

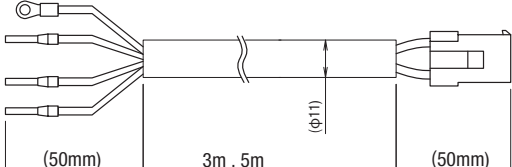
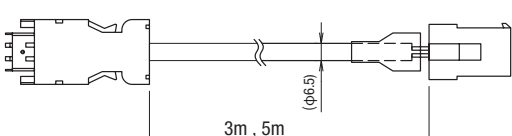
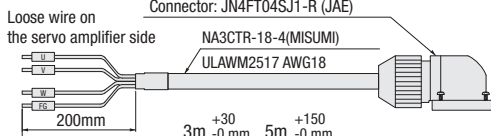
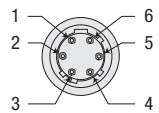
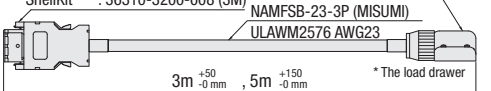
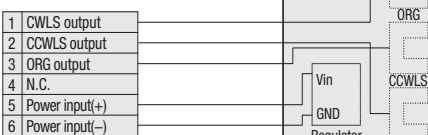
(*2) See page P.1-213~ for details of single motor specification.

(*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	Motor	【Receiver cable】Model:MFMA0030EED(3m)/MFMA0050EED(5m) *Flexible cable 	【Receiver cable】Model:HR10AP-S-SB-6-□ (□ is the length) *for fixing Sensor side Connector (Female): HR10A-7P-6S (73) (HRS) ULAWM20276 AWG28 3P Black  <table><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> *The shields are connected with the connector shell.	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	【Receiver cable】Model:MFCA0030EAD(3m)/MFCA0050EAD(5m) *for fixing 																
UA	Motor	【Receiver cable】Model:SVPM-J3HF1-B-□-02S *Flexible cable Motor side Connector: JN4FT04SJ1-R (JAE) Loose wire on the servo amplifier side NA3CTR-18-4 (MISUMI) ULAWM2517 AWG18 	1 2 3 4 5 6 														
	Encoder	【Receiver cable】Model:SVEM-J3HF1-B-□ *Flexible cable Motor (encoder) side Connector:1674320-1 (TE Connectivity) Servo amplifier side Receptacle : 36210-0100FD (3M) ShellKit : 36310-3200-008 (3M) NAMFSB-23-3P (MISUMI) ULAWM2576 AWG23  * The load drawer	【結線圖】 														

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

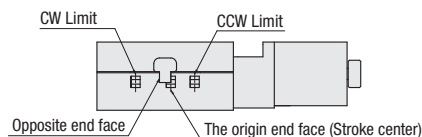
Motorized Stage

CAVE-X POSITIONER

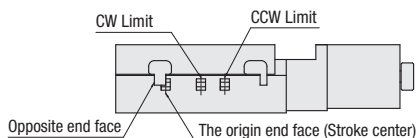
Electrical Specification: KXG Series

Timing chart

KXG06020



KXG06030

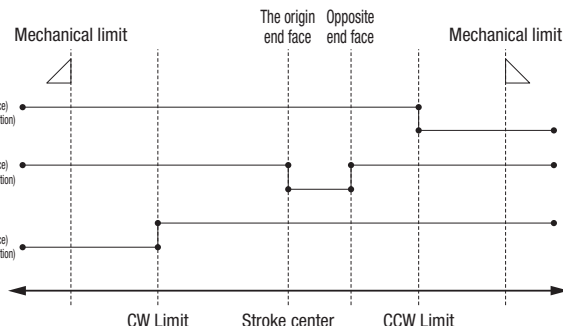


Mechanical stopper

CCW Limit

Proximity origin sensor

CW Limit



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~

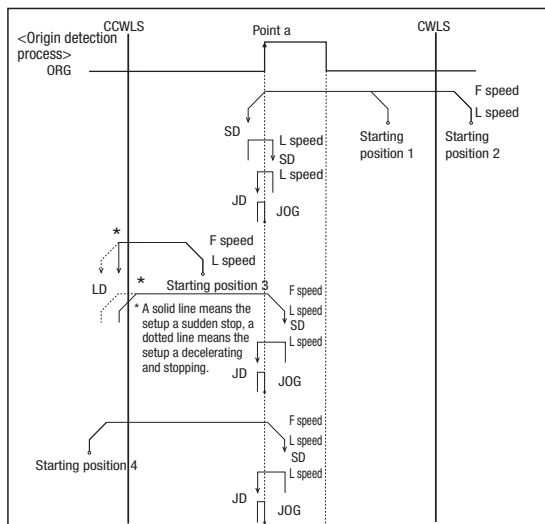
Type 3: Detect in the direction of CCW and perform detected process for CCW edge of ORG signal.

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

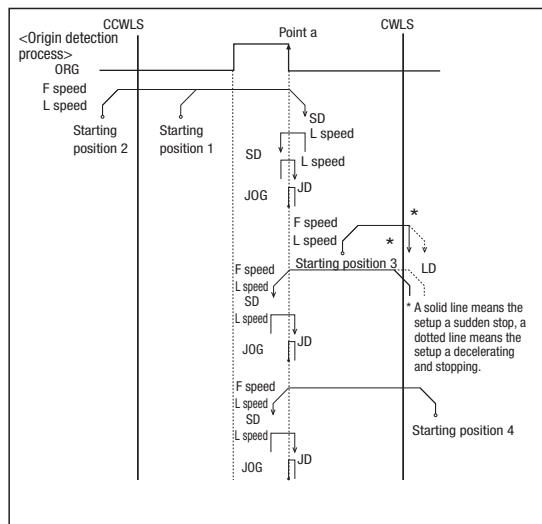
Type 9: After finished Type3, perform detected process for CCW edge of TIMING signal.

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

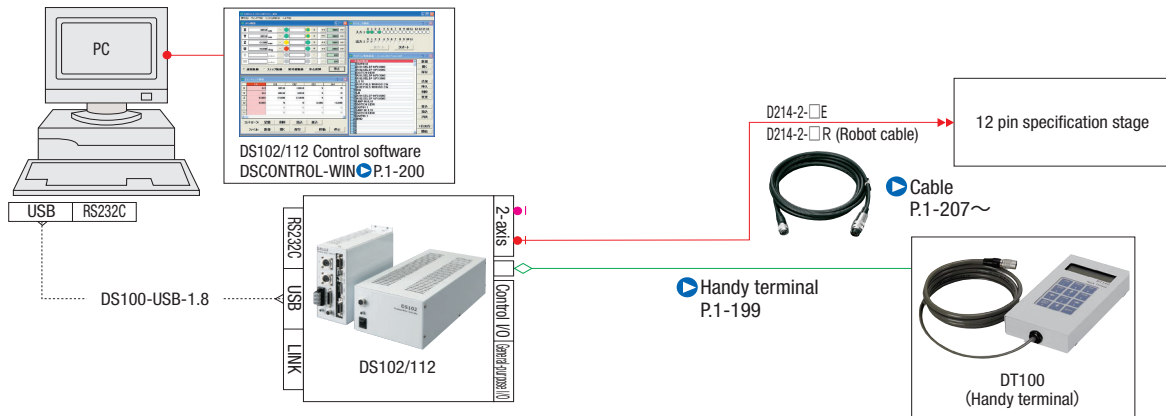
120

Other

Connectin example

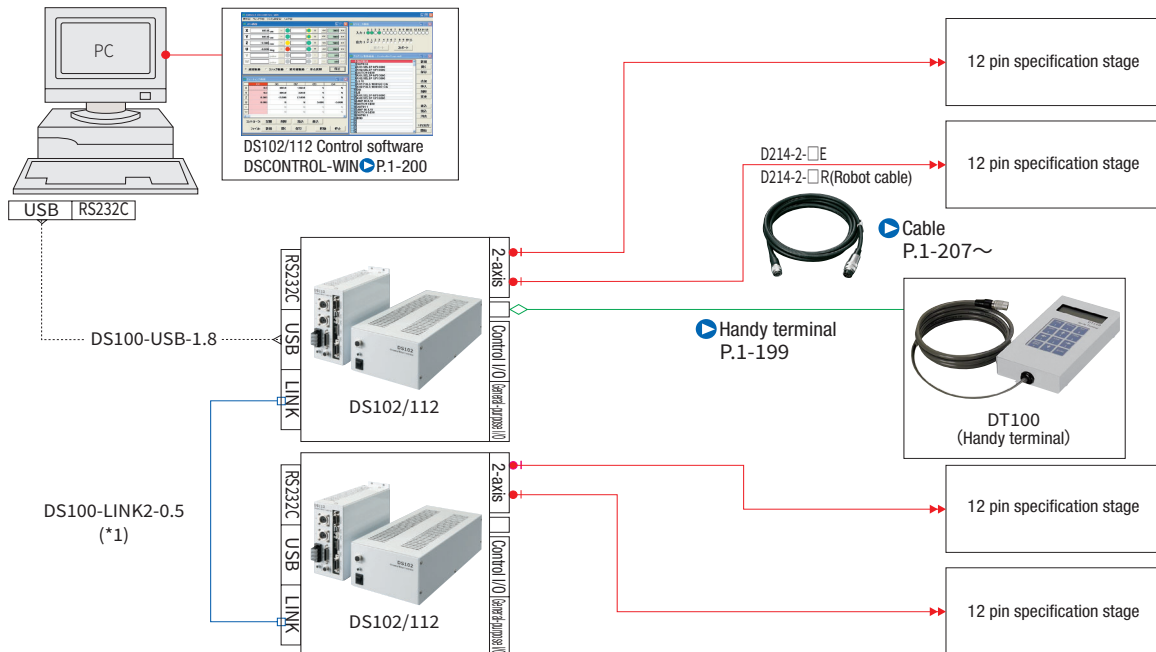
■ Connection example 1 Motorized Stage 1axis: When holding a terminal device (using control software)

*USB cable connection between PC and controller.



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

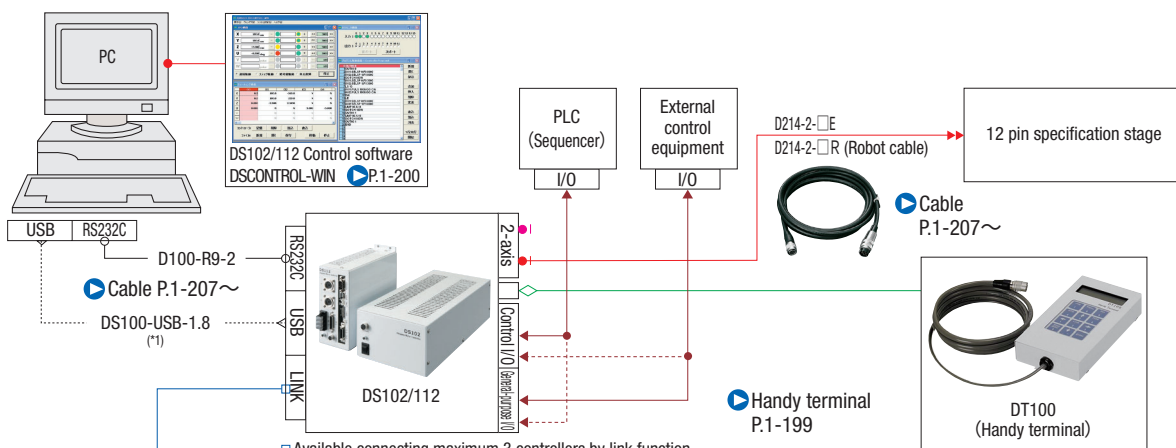
*USB cable connection between PC and controller.



(*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.



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