

Motorized Extended Guide Goniometer

Stage Size 40 × 40 mm

OSMS-40A

RoHS

CE

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability.

Their smooth motion makes them ideal for frequent angle adjustment.



- Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- ▶ Contact our Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- ▶ Contact our Sales Division if you desire a rotation center height not listed in the catalog.
- ▶ Manual type (GOHT-40) is also available.

[Reference](#) E174

[WEB Reference](#) [Catalog Code](#) W7092



GOHT-40A***

Specifications

Part Number			OSMS-40A60	OSMS-40A75
(Opposite Model)			OSMS-40A60R	OSMS-40A75R
Mechanical Specifications	Travel [°]	±5		±4
	Stage Size [mm]	40×40		40×40
	Travel Mechanism (reduction ratio)	Worm gear (1: 332)		Worm gear (1: 406)
	Positioning Slide	Extended Contact Ball Guide		Extended Contact Ball Guide
	Stage Material	SUS440C quench hardened		SUS440C quench hardened
	Finish	Super black chrome		Super black chrome
	Weight [kg]	0.4		0.4
Size Tolerance	Stage Height [mm]	15		15
	Rotation Center Height [mm]	60±0.1		75±0.1
	Rotation Center Deflection Accuracy [mm]	Within φ0.01		Within φ0.01
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.00217	about 0.00177
		(Half) [°/pulse]	about 0.00108	about 0.00089
	MAX Speed [°/sec]		10	8.9
	Positional Repeatability [°]		±0.004	±0.004
	Load Capacity [N]		19.6(2.0kgf)	19.6(2.0kgf)
	Moment Stiffness [°/N·cm]		Roll 0.6 Yaw 0.6	Roll 0.6 Yaw 0.6
	Lost Motion [°]		0.02	0.02
Sensor	Sensor Part Number		Micro photo sensor: GP1S092HCPIF(Sharp Corporation): Limit Sensor	
	Limit Sensor		Equipped (NORMAL CLOSE)	
	Origin Sensor		None	

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK523HPB-C12 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC5 ~ 24V±10%
	Current Consumption	40mA or lower (20mA per sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction) ; Limit Sensor When shaded: Output transistor ON (conduction): Origin sensor

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-5MA, SG-55M, SG-55MA, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U

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40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

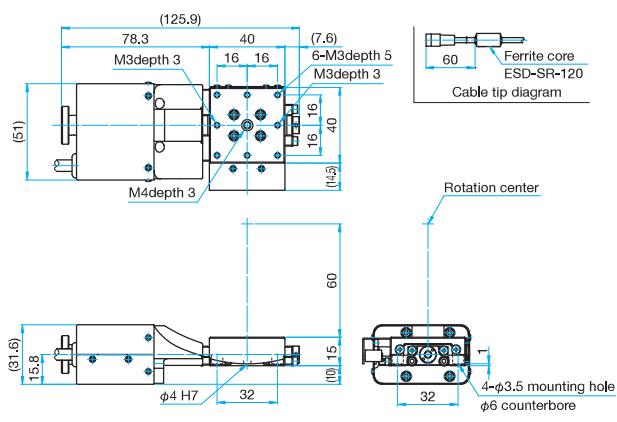
120 × 120 mm

Others

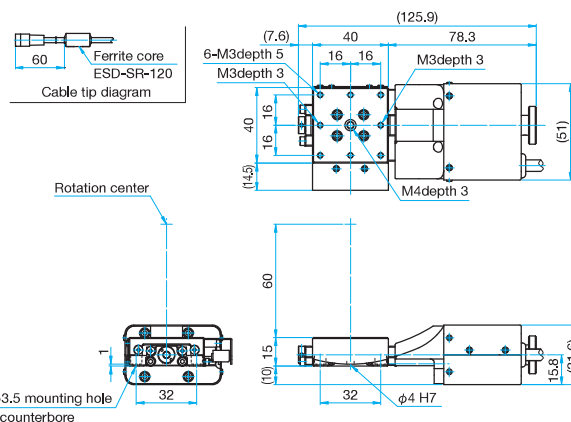


Outline Drawing

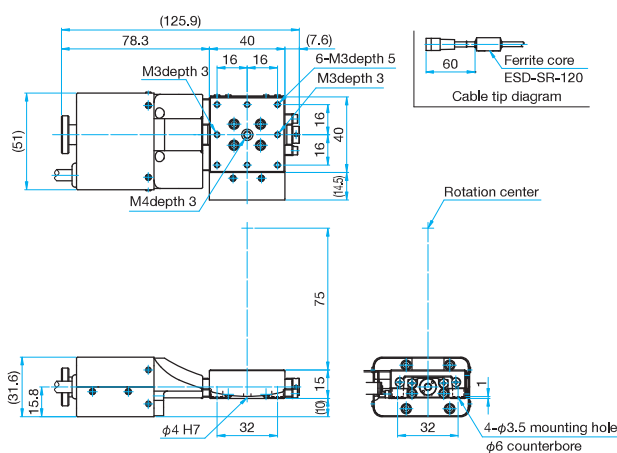
OSMS-40A60 Hexagon socket head cap screw M3×6...4 screws, Attachment pins



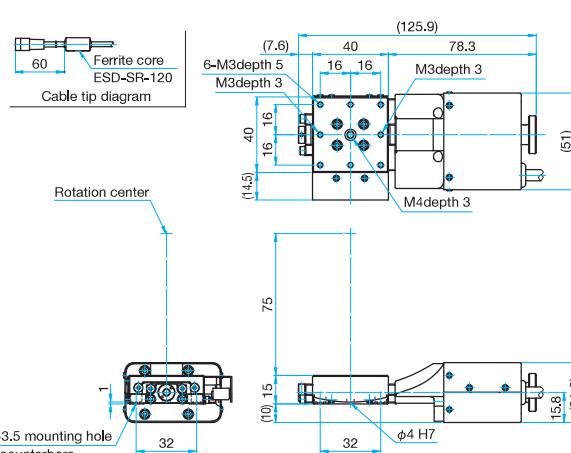
OSMS-40A60R Hexagon socket head cap screw M3×6...4 screws, Attachment pins



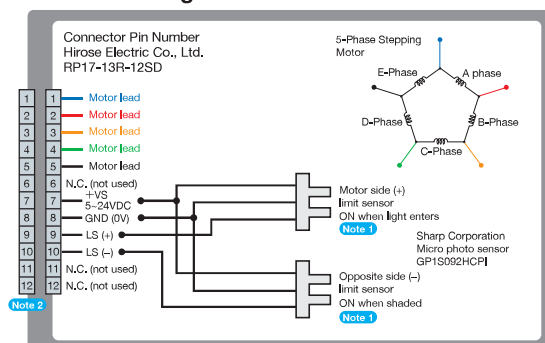
OSMS-40A75 Hexagon socket head cap screw M3×6...4 screws, Attachment pins



OSMS-40A75R Hexagon socket head cap screw M3×6...4 screws, Attachment pins



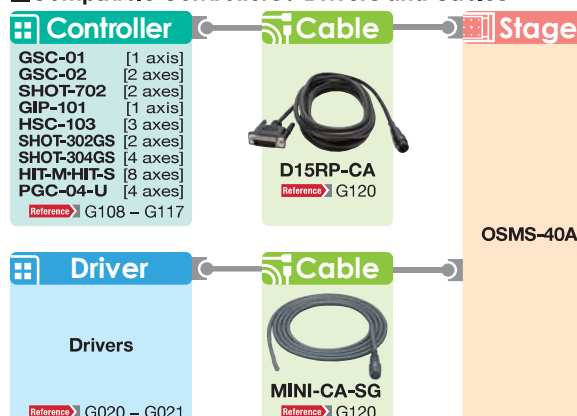
Connection Diagram



Note 1 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with origin and proximity origin sensors. Limit sensors are used as origin detection sensors.

Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

Compatible Controllers / Drivers and Cables



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40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others

Motorized Extended Guide Goniometer

Stage Size 60 × 60 mm

OSMS-60A

RoHS

CE

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability.

Their smooth motion makes them ideal for frequent angle adjustment.



- Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- ▶ Contact our Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- ▶ Manual type (GOHT-60) is also available.

Reference E178

WEB Reference Catalog Code W7093



GOHT-60A***

Specifications

Part Number		OSMS-60A60	OSMS-60A85	OSMS-60A105
(Opposite Model)		OSMS-60A60R	OSMS-60A85R	OSMS-60A105R
Mechanical Specifications	Travel [°]	±14	±9	±7
	Stage Size [mm]	60×60	60×60	60×60
	Travel Mechanism (reduction ratio)	Worm gear (1: 246)	Worm gear (1: 314)	Worm gear (1: 380)
	Positioning Slide	Extended Contact Ball Guide	Extended Contact Ball Guide	Extended Contact Ball Guide
	Stage Material	SUS440C quench hardened	SUS440C quench hardened	SUS440C quench hardened
	Finish	Super black chrome	Super black chrome	Super black chrome
	Weight [kg]	0.85	0.75	0.75
Size Tolerance	Stage Height [mm]	25	20	20
	Rotation Center Height [mm]	60±0.1	85±0.1	105±0.1
	Rotation Center Deflection Accuracy [mm]	Within ϕ 0.01	Within ϕ 0.01	Within ϕ 0.01
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.00293	about 0.00229
		(Half) [°/pulse]	about 0.00146	about 0.00115
	MAX Speed [°/sec]	10	8	6.6
	Positional Repeatability [°]	±0.004	±0.004	±0.004
	Load Capacity [N]	29.4 (3.0kgf)	29.4 (3.0kgf)	29.4 (3.0kgf)
	Moment Stiffness [°/N·cm]	Roll 0.3 Yaw 0.3	Roll 0.3 Yaw 0.3	Roll 0.3 Yaw 0.3
Sensor	Lost Motion [°]	0.02	0.02	0.02
	Sensor Part Number	Micro photo sensor: GP1S097HCZ0F(Sharp Corporation): Limit Sensor, Origin Sensor		
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sensor	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK523HPB-C12 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC5 ~ 24V±10%
	Current Consumption	60mA or lower (20mA per sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction): Limit sensor When shaded: Output transistor ON (conduction): Origin sensor

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-5MA, MC-S0514ZU, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, HSC-103, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04-U

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40 × 40 mm

60 × 60 mm

80 × 80 mm

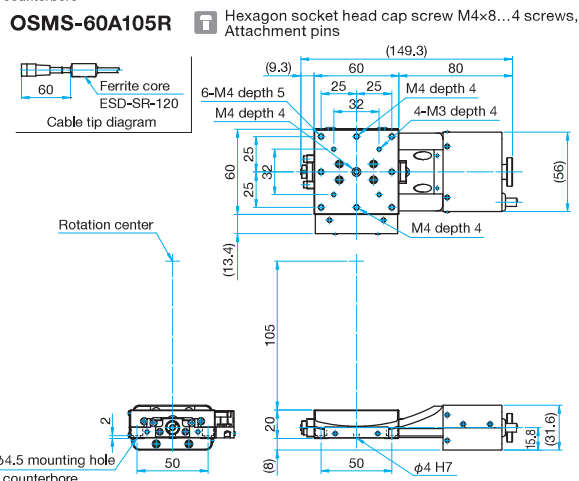
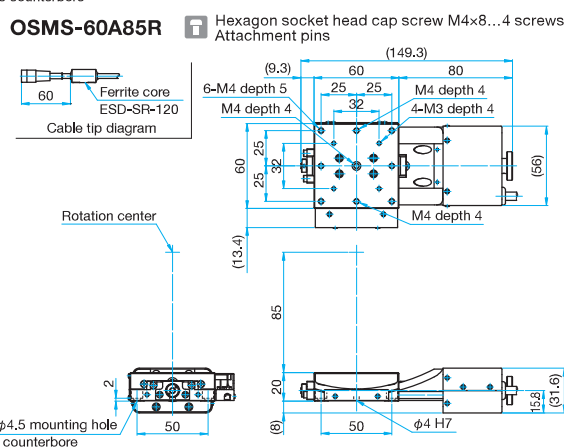
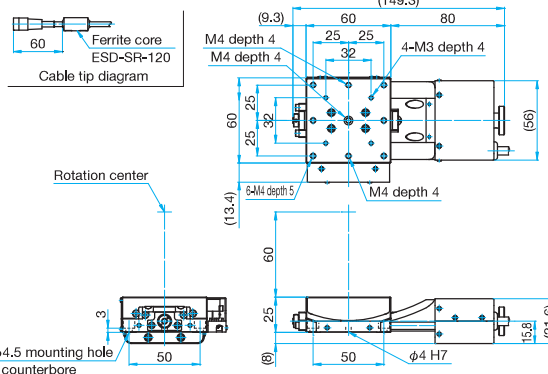
85 × 85 mm

100 × 100 mm

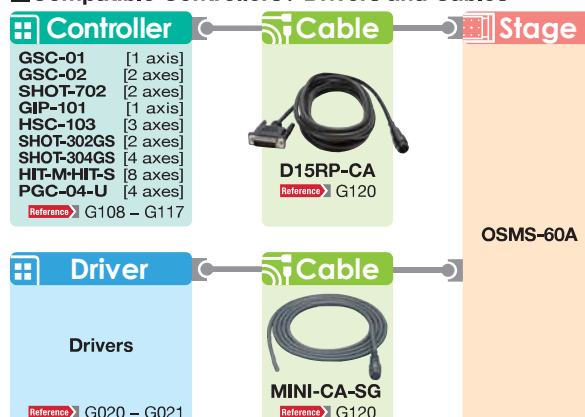
120 × 120 mm

Others

OSMS-60A60R Hexagon socket head cap screw M4x8...4 screws,
Attachment pins



Compatible Controllers / Drivers and Cables



Note 1 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with proximity origin sensors.

Note 2 Compatible cable connector:
Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

Two Axis Motorized Extended Guide Goniometer

Stage Size 40 × 40 mm / 60 × 60 mm

OSMS-B

RoHS

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability. Their smooth motion makes them ideal for frequent angle adjustment.



- Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- Contact our Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- Manual type $\alpha\beta$ axis (GOHT-40,60) is also available.

Reference E176 – E179

WEB Reference Catalog Code W7104, W7105



GOHT-**B**B

Specifications					
Part Number			OSMS-40B60	OSMS-60B60	OSMS-60B85
(Opposite Model)			OSMS-40B60R	OSMS-60B60R	OSMS-60B85R
Mechanical Specifications	Travel [°]	Upper β axis	±5	±14	±9
		Lower α axis	±4	±9	±7
	Stage Size [mm]		40×40	60×60	60×60
	Travel Mechanism (reduction ratio)	Upper β axis	Worm gear (1: 332)	Worm gear (1: 246)	Worm gear (1: 314)
		Lower α axis	Worm gear (1: 406)	Worm gear (1: 314)	Worm gear (1: 380)
	Positioning Slide		Extended Contact Ball Guide	Extended Contact Ball Guide	Extended Contact Ball Guide
	Stage Material		SUS440C quench hardened	SUS440C quench hardened	SUS440C quench hardened
	Finish		Super black chrome	Super black chrome	Super black chrome
Size Tolerance	Weight [kg]		0.8	1.6	1.5
	Stage Height [mm]		30	45	40
	Rotation Center Height [mm]		60±0.2	60±0.2	85±0.2
	Rotation Center Deflection Accuracy [mm]		Within ϕ 0.01	Within ϕ 0.01	Within ϕ 0.01
Accuracy Specifications	Resolution	(Full) [°/pulse]	Upper β axis	about 0.00217	about 0.00229
			Lower α axis	about 0.00177	about 0.00198
		(Half) [°/pulse]	Upper β axis	about 0.00108	about 0.00115
			Lower α axis	about 0.00089	about 0.00095
	MAX Speed [°/sec]		8	8	6
	Load Capacity [N]		14.7 (1.5kgf)	19.6 (2.0kgf)	19.6 (2.0kgf)
Sensor	Sensor Part Number		Micro photo sensor: GP1S092HCPIF (Sharp Corporation)		
	Limit Sensor		Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sensor		None	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)
	Proximity Origin Sensor		None	None	None

Motor / Sensor Specifications			
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)	
	Motor Part Number	PK523HPB-C12 (□28mm)	
	Step Angle	0.72°	
Sensor	Power Voltage	DC5 ~ 24V±10%	
	Current Consumption	80mA or lower (40mA or lower a per axis 20mA or lower per a sensor)	120mA or lower (60mA or lower a per axis 20mA or lower per a sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower	
	Output Logic	When shaded: Output transistor OFF (no conduction): Limit sensor When shaded: Output transistor ON (conduction): Origin sensor	

Compatible Cable		
Cable	Driver Cable	D15RP-CA (Controller), MINI-SG-CA (Driver)

Compatible Driver / Controller		
Control System	Compatible Driver	SG-5M, MC-S0514ZU, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-02, HSC-103, SHOT-702, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U

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40 × 40 mm

60 × 60 mm

80 × 80 mm

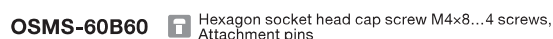
85 × 85 mm

100 × 100 mm

120 × 120 mm

Others

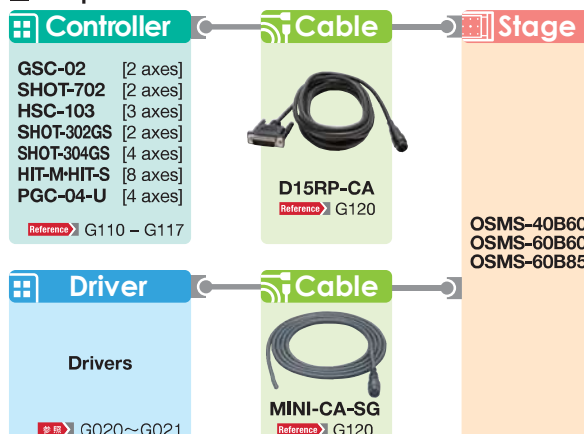
OSMS-40B60 Hexagon socket head cap screw M3x6...4 screws,
Attachment pins



Note 1 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with origin and proximity origin sensors. Limit sensors are used as origin detection sensors.

Note 2 Compatible cable connector:
Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

■ Compatible Controllers / Drivers and Cables



Others

Motorized Crossed Roller Goniometers

Stage Size 60 × 60 mm

SGSP-A

RoHS

Aluminum body motorized goniometer with crossed roller bearings.



- Light weight with compact footprint.
- Rotation center heights available: 75mm, 100mm or 130mm.

Guide

- After purchasing two α axis stages, to assemble them into an $\alpha\beta$ axis stage, assembly adjustment cost and performance inspection cost will be charged separately.

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40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others

Specifications

Part Number		SGSP-60A75	SGSP-60A100	SGSP-60A130
Mechanical Specifications	Angle Range [°]	±7	±5	±4
	Stage Size [mm]	60×60	60×60	60×60
	Positioning Slide	Crossed roller guide	Crossed roller guide	Crossed roller guide
	Travel Mechanism	Worm and worm wheel	Worm and worm wheel	Worm and worm wheel
	Stage Material	Aluminum	Aluminum	Aluminum
	Finish	Black anodized	Black anodized	Black anodized
	Weight [kg]	0.65	0.55	0.65
Size Tolerance	Stage Height [mm]	35	30	35
	Rotation Center Height [mm]	75	100	130
	Rotation Center Deflection Accuracy [mm]	φ0.05	φ0.05	φ0.05
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.002	about 0.001
		(Half) [°/pulse]	about 0.001	about 0.0005
	MAX Speed [°/sec]	6	6	6
	Positional Repeatability [°]	±0.004	±0.004	±0.004
	Load Capacity [N]	24.5 (2.5kgf)	24.5 (2.5kgf)	24.5 (2.5kgf)
	Moment Stiffness [°/N·cm]	1	1	1
	Lost Motion [°]	0.02	0.02	0.02
Sensor	Sensor Part Number	Micro photo sensor: GP1S092HCPI(Sharp Corporation)		
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sensor	None	None	None
	Proximity Origin Sensor	None	None	None

Motor / Sensor Specifications

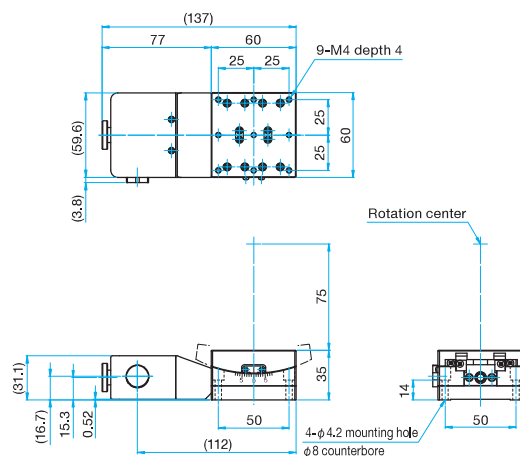
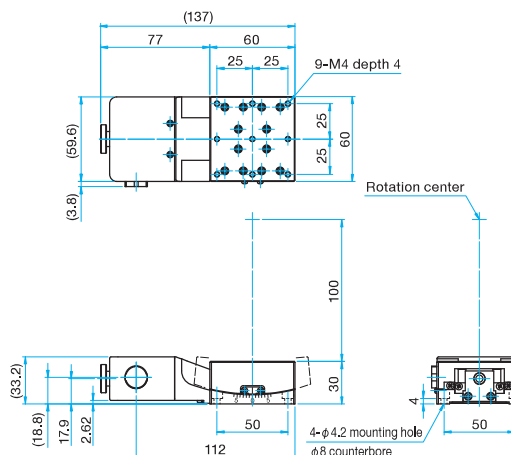
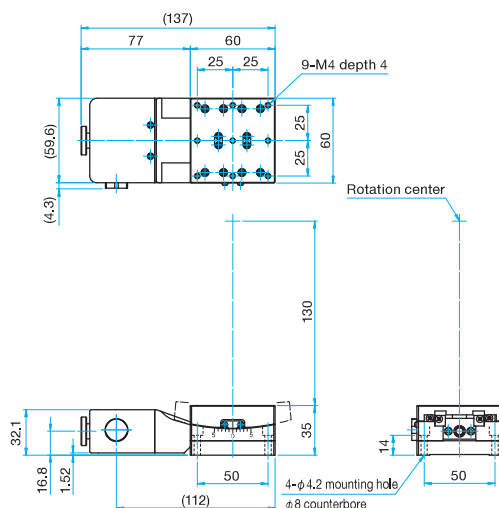
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	C9863-90215P
	Step Angle	0.72°
Sensor	Power Voltage	DC5 ~ 24V±10%
	Current Consumption	40mA or lower (20mA per sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction)

Compatible Driver / Controller

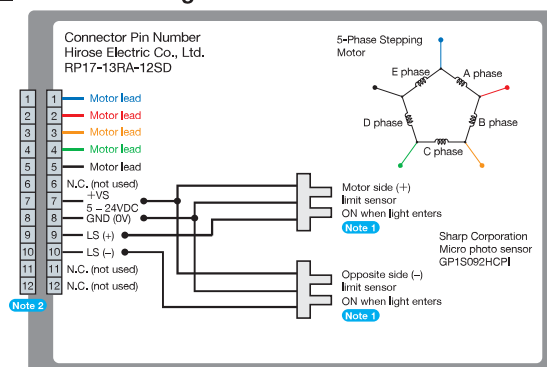
Control System	Compatible Driver	SG-5M, SG-55M, SG-514MSC
	Compatible Controller	GSC-01, GSC-02, SHOT-702, HSC-103, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U



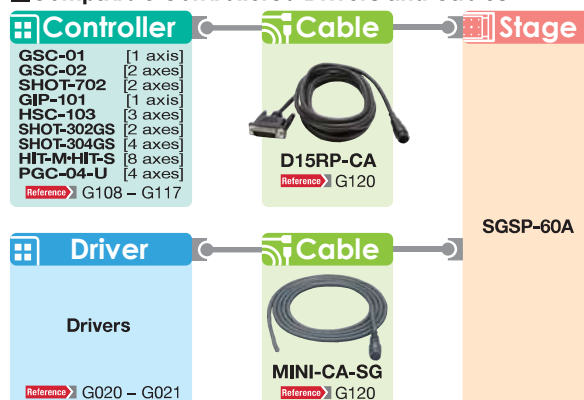
Outline Drawing

SGSP-60A75 Hexagonal socket head cap screw M4×18...4 screws

SGSP-60A100 Hexagonal socket head cap screw M4×18...4 screws

SGSP-60A130 Hexagonal socket head cap screw M4×18...4 screws


Connection Diagram



Compatible Controllers / Drivers and Cables



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40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others

Two Axis Motorized Crossed Roller Goniometers

Stage Size 60 × 60 mm

SGSP-B

RoHS

Two axis aluminum body motorized goniometer with crossed roller bearings.



- Light weight with compact footprint.
- Rotation center heights available: 75mm or 100mm.

Attention

- Preamsembled for best perpendicularity of α and β axis stages.
Note that if you disassemble the two axes, the optimized alignment will be lost.

Specifications

Part Number			SGSP-60B75	SGSP-60B100
Mechanical Specifications	Angle Range [°]	(Upper)	β axis: ± 7	β axis: ± 5
		(Lower)	α axis: ± 5	α axis: ± 4
	Stage Size [mm]		60×60	60×60
	Positioning Slide		Crossed roller	Crossed roller
	Travel Mechanism		Worm and worm wheel	Worm and worm wheel
	Stage Material		Aluminum	Aluminum
	Finish		Black anodized	Black anodized
Size Tolerance	Weight [kg]		1.10 (2 axes)	1.20 (2 axes)
	Stage Height [mm]		55	65
	Rotation Center Height [mm]		75	100
Accuracy Specifications	Rotation Center Deflection Accuracy [mm]		—	—
	Resolution	(Full) [°/pulse]	α axis: about 0.001, β axis: about 0.002	
		(Half) [°/pulse]	α axis: about 0.0005, β axis: about 0.001	
	MAX Speed [°/sec]		6	6
	Load Capacity [N]		19.1 (1.9kgf)	19.1 (1.9kgf)
Sensor	Moment Stiffness [°/N·cm]		—	—
	Lost Motion [°]		—	—
	Sensor Part Number		GP1S092HCPI (Sharp Corporation)	
	Limit Sensor		Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sensor		None	None
	Proximity Origin Sensor		None	None

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	C9863-90215P
	Step Angle	0.72°
Sensor	Power Voltage	DC5 – 24V±10%
	Current Consumption	80mA or lower (40mA or lower a per axis 20mA or lower per a sensor)
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction)

Configuration

Part Number	SGSP-60B75	SGSP-60B100
(Upper) β axis	SGSP-60A75	SGSP-60A100
(Lower) α axis	SGSP-60A100	SGSP-60A130

(Reference) Precision Specifications of Single Axis Stage

Part Number	SGSP-60A75	SGSP-60A100	SGSP-60A130
Accuracy Specifications	Positional Repeatability [°]	±0.004	±0.004
	Moment Stiffness [°/N·cm]	1	1
	Lost Motion [°]	0.02	0.02

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, MC-S0514ZU, SG-514MSC
	Compatible Controller	GSC-02, SHOT-702, HSC-103, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U

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Options

40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

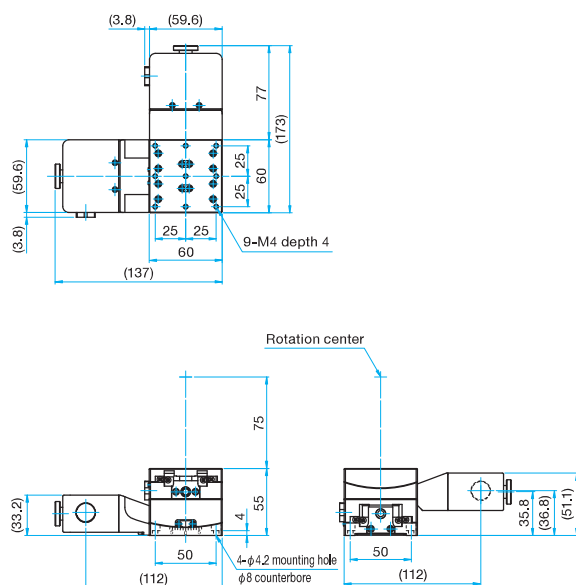
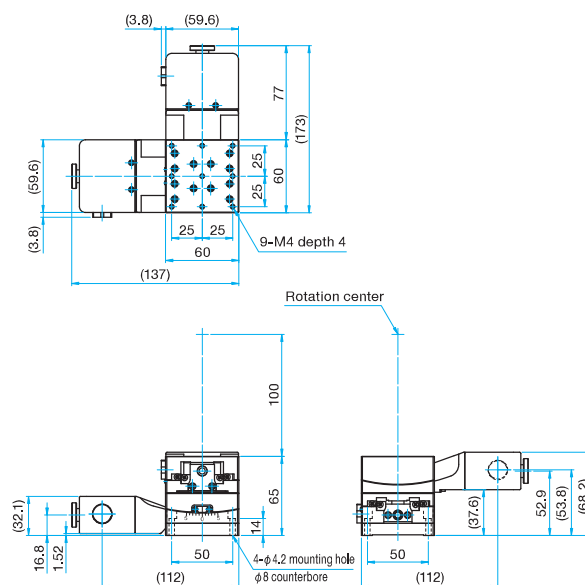
100 × 100 mm

120 × 120 mm

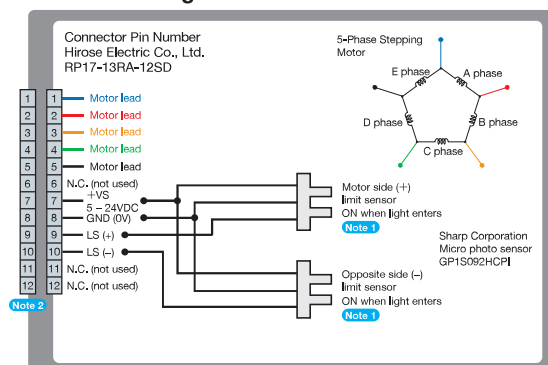
Others



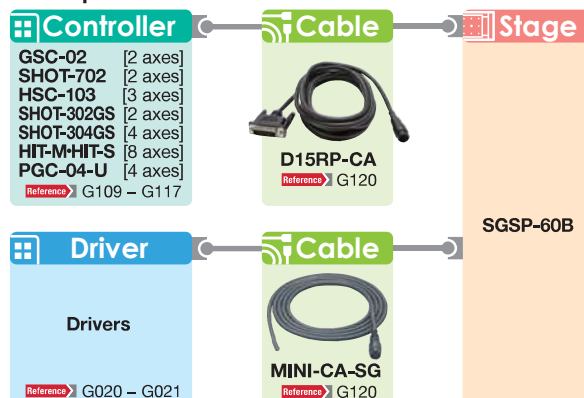
Outline Drawing

SGSP-60B75 Hexagonal socket head cap screw M4x8...4 screws

SGSP-60B100 Hexagonal socket head cap screw M4x18...4 screws


Connection Diagram



Compatible Controllers / Drivers and Cables



Application
Systems

Optics &
Optical
Coatings

Opto-
Mechanics

Bases

Manual
Stages

Actuators &
Adjusters

MotORIZED
Stages

Light Sources &
Laser Safety

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Guide

Controllers/Drivers

Softwares

Stepping Motor

AC Servo Motor

Cables

Piezo

X Translation

Theta Rotation

Goniometer

Vacuum

Options

40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others