[Motorized] XYZ-Axis Linear Ball

Spec.Change Printed in Purple

Features: Integrated Linear Ball Slide Guides with High Precision and rigidity.

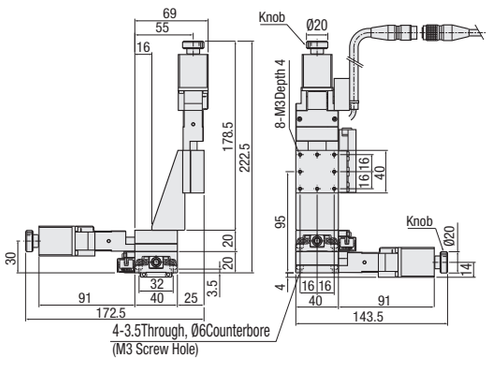
XYZ-Axis Motorized Stage

M Material: 440C Stainless Steel
S Surface Treatment: Electroless Nickel Plating
A Accessory XYZMSG 413, 513: SCB3-8 (4pcs.)
A Accessory XYZMSG 615, 715: SCB4-8 (4pcs.)

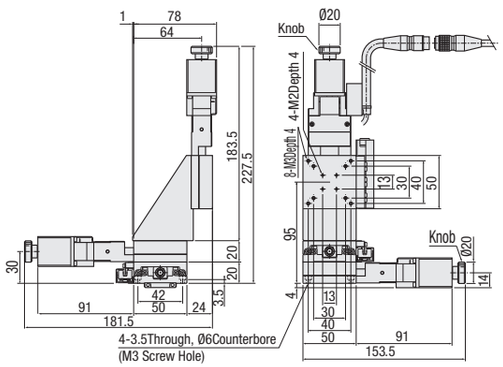
For Controllers, Handset Terminals, see P. 1-1735-93~P. 1-1735-94 The Hex Wrench dedicated for tightening XY-bottom axis is included with. * The sensor cover position shown on the photo is L (Standard).

The drawings are for the R (right) Cover Position Type.

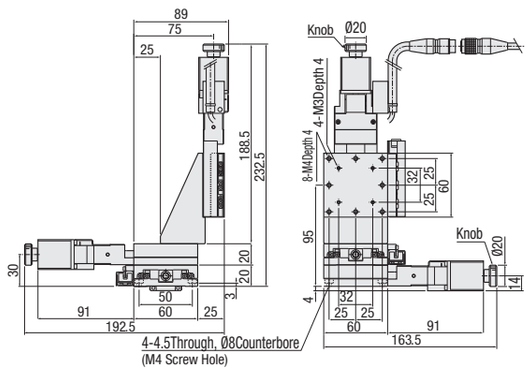
XYZMSG413



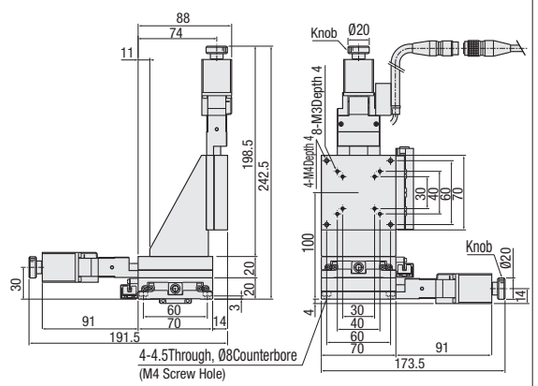
XYZMSG513



XYZMSG615



XYZMSG715



For CAD data, see the MISUMI website.

Part Number		Sensor			Motor	Cable	Mechanical Standards			Accuracy Standards*4		
Type	No.	Cover Position	Logic	Voltage (V)			Stage Surface (mm)	Travel Distance (mm)	Weight*3 (kg)	Unidirectional Positioning Accuracy	Pitching	Yawing
XYZMSG	413	L (Standard) R (Reversed)	A (All N.C.) B (All N.O.) C (Limit Switches are N.C; Home Sensor is N.O.)	5*1 24*1	C (Standard) D (High Torque) E (High Resolution) MA*2 (With Electromagnetic Brake) PA*2 (α- Step) UA*2 (Servo Motor)	N (Cable not included (separately sold)) M*2 (For Motor with Electromagnetic Brake) P*2 (For α- Step) U*2 (For Servo Motor) For combination of motors and cables, see the table below.	40×40	13	0.6	6µm or less	15''	10''
	513						50×50		0.8			
	615						60×60	15	0.9			
	715						70×70		1.2			

*1 24VDC sensors cannot be operated from the MSCTL102/112 controller. When selecting 5V for voltage configuration, applying over 5V voltage will cause breakage.
*2 For motor options MA and PA, the driver is included in the set. For motor option U, the amp is included in the set. With motor option MA, only cable option M is selectable. With motor option PA, only cable option P is selectable. With motor option U, only cable option U is selectable. In all three cases, cable option N (no cable) is not selectable.
*3 The value is for C Type of Motor.
*4 Accuracy specifications are for single axis (horizontal orientation) configuration.

Ordering Example: Part Number XYZMSG413 - Sensor LA5 - Motor C - Cable N

Days to Ship

Configure Online

Common Specifications

Feed Screw	Ball Screw Ø6, Lead 1
Guide	Linear Ball Guide
Resolution *1	2µm/Pulse (Full) 1µm/Pulse (Half)
Positioning Repeatability	Within ±0.5µm
Load Capacity	49N
Lost Motion	1µm or less
Backlash	0.5µm or less
Parallelism	15µm or less

*1 Stage travel per one pulse.
Accuracy specifications are for single axis (horizontal orientation) configuration.

Motor/Cable Application Table

Motor	Cable
C,D,E	N (Not Provided)
MA	M
PA	P
UA	U

For the cable for C, F or G, see MSCB on P. 1-1735-95

Max. Speed

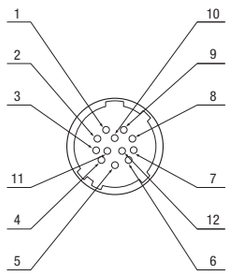
Motor	(mm/sec)	Motor	(mm/sec)
C	10	MA	10
D	25	PA	30
E	20	UA	50

Note that the speed and positioning time will vary depending on the usage conditions. The values shown here are MISUMI's reference values. Operation at these values is not guaranteed.

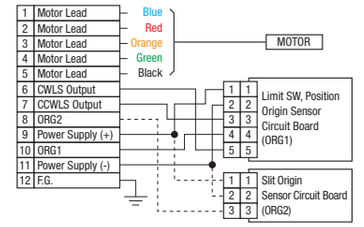
Electrical Specifications

Motor	Type	5-Phase Stepping Motor 0.75A/Phase (Oriental Motor Co., Ltd.)
	Step Angle	0.72°
Compatible Receptacle Connector		HR10A-10P-12S (Hirose Electric Co., LTD.)
Sensor	Current Consumption	100mA or less (25mA per Sensor)
	Control Output	NPN Open Collector Output DC5 ~ 24V, 16mA or less
		Residual Voltage 1V or less (when load current is 16mA)
	Output Logic	N.C ••• Light seen N.O ••• Light blocked <Internal Circuit> K: Emitter Cathode V: Receptor Supply+ A: Receptor Anode O: Output G: Receptor Supply-

Connector Pin Configuration

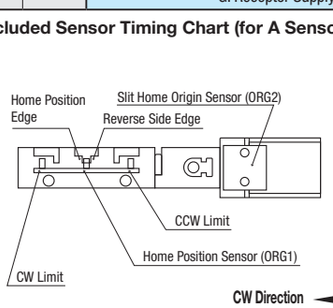


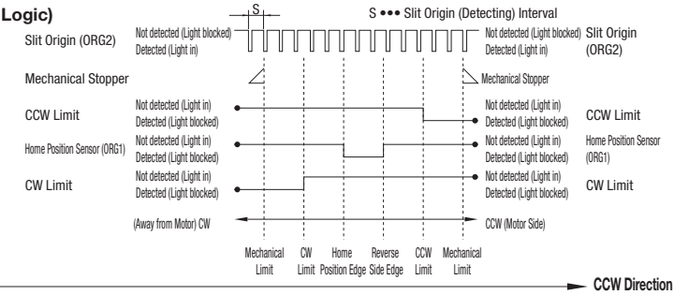
Connecting Diagram



* The dotted line connections are not functional when a standard cable is used.

Included Sensor Timing Chart (for A Sensor Logic)





CW Direction ←							→ CCW Direction
Travel Distance	Reference Position	Mechanical Limit	CW Limit	Home	Other Signal Edge	CCW Limit	Mechanical Limit
13	Homing	8	7.5	0	2	6.5	7
15	Homing	9	8.5	0	2	7.5	8
30	Homing	16.5	16	0	2	15	15.5
50	Homing	26.5	26	0	2	25	25.5
Common		Slit Home Position (Detecting) Interval S=1					

• Homing Routine Above: When MSCTL102/112 controller is used and when the Homing Routine Type 3 (see below) is executed.
• The coordinates shown are design values. There may be approx. ±0.5mm misalignment on the physical dimensions.

(Unit: mm)

Recommended Homing Method

Type3	After detection is executed in the CCW direction, the process of detecting in the CCW direction is begun based on the ORG signal.
Type4	After detection is executed in the CW direction, the process of detecting in the CW direction is begun based on the ORG signal.
Type9	After Type 3 is executed, the process of detecting in the CCW direction is begun based on the TIMING signal.
Type10	After Type 4 is executed, the process of detecting in the CW direction is begun based on the TIMING signal.