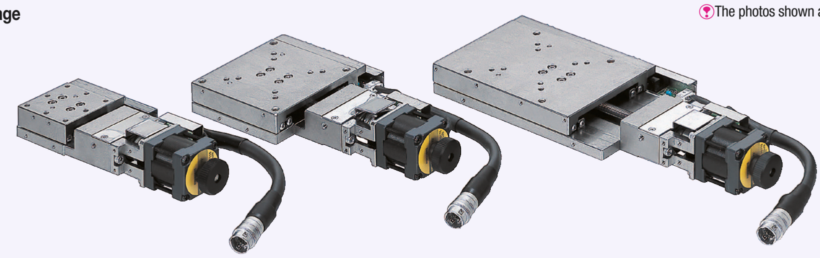
[Motorized] X-Axis, Linear Ball Slide

■**Features:** Integrated Linear Ball Guide Stage with high precision and rigidity, yet economical. The carriage height is 20mm.

■**X-Axis Motorized Stage**

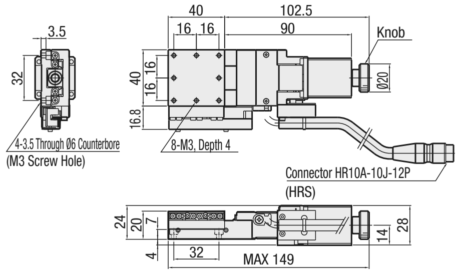
The photos shown are cover position R type.



For Controllers and Handset Terminals, see **P.2014**.

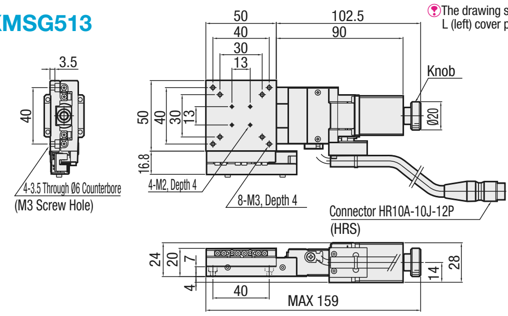
RoHS

XMSG413

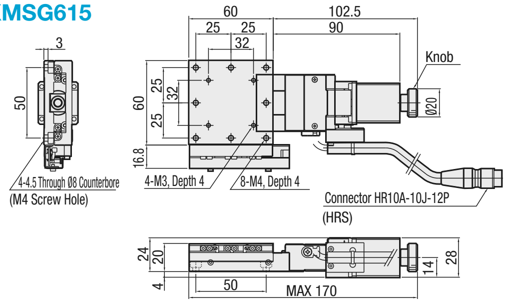


XMSG513

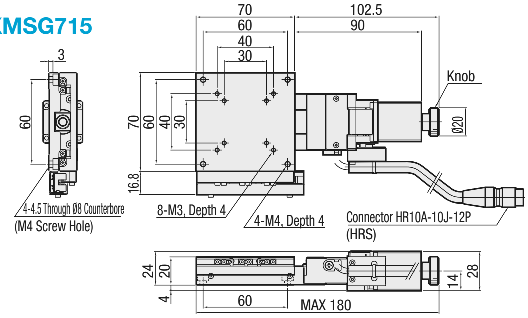
The drawing shows L (left) cover position.



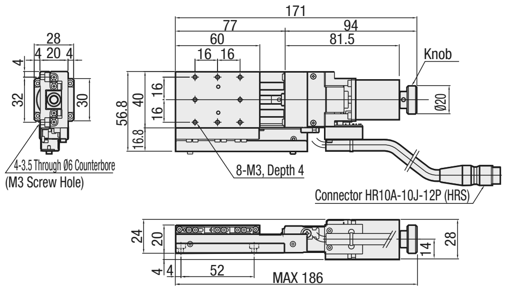
XMSG615



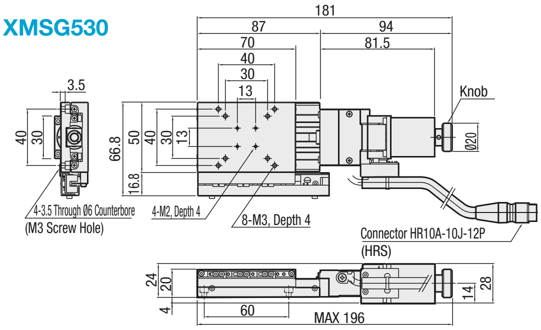
XMSG715



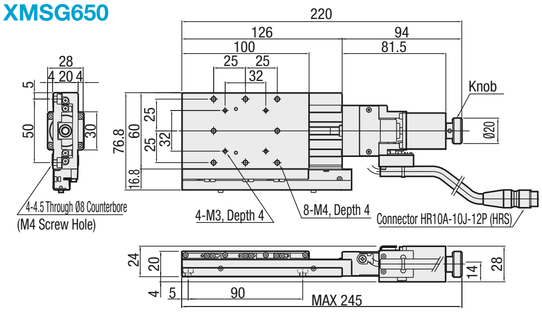
XMSG430



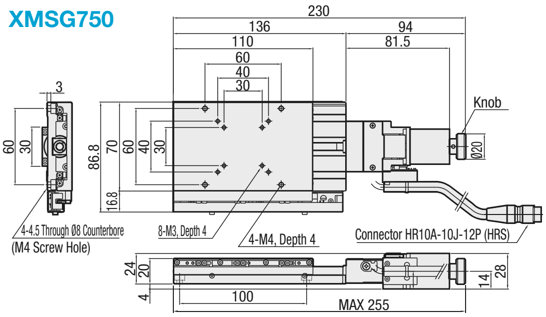
XMSG530



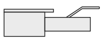
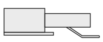
XMSG650



XMSG750



M Material: EN 1.4125 Equiv.
S Surface Treatment: Electroless Nickel Plating

Part Number		Sensor		Voltage (V)	Stage Surface (mm)	Travel Distance (mm)	Weight (kg)	Positioning Accuracy	Moment Rigidity ("/N·cm)			Straightness	Motion Parallelism	Pitching	Yawing	Accessory (4 pcs.)	Unit Price
Type	No.	Cover Position	Logic						Pitch	Yaw	Roll					Type M-L	
XMSG	413	R  L 	A All N.C. C Limit Switches are N.C. Home Sensor is N.O.	5	40x40	13	0.5	6µm or Less	0.22	0.17	0.12	1µm or Less	5µm or Less	15" or Less	10" or Less	SCB3-8	
	513				50x50	13	0.6		0.14	0.10	0.06					SCB3-8	
	615				60x60	15	0.7		0.08	0.07	0.03					SCB4-8	
	715				70x70	15	0.9		0.03	0.03	0.01					SCB4-8	
	430				40x60	30	0.6	12µm or Less	0.24	0.18	0.26	2µm or Less	10µm or Less	20" or Less	15" or Less	SCB3-8	
	530				50x70	30	0.8		0.12	0.13	0.10					SCB3-8	
	650				60x100	50	1.1		0.05	0.05	0.05					SCB4-8	
	750				70x110	50	1.2		0.03	0.03	0.03					SCB4-8	

Photos shown on the left-hand page are Cover Position R Type, and the drawings are Cover Position L type.

Ordering Example	Part Number	-	Sensor
	XMSG413	-	LA

Alterations

Part Number	-	(24V)
XMSG413-LA	-	24V

24VDC sensors cannot be operated from the MSCTL102 controller.
If the 5V sensors are selected, applying voltages exceeding 5V will damage the sensors.

Alteration	Changes Voltage
Code	24V
Spec.	Changes the voltage to 24V compatible one. Please note that sensors cannot be operated from the MSCTL102 controller.

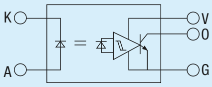
[Common Specifications]

Feed Screw	Ball Screw Ø6, Lead 1
Guide	Linear Ball Guide
Resolution *1	2µm/Pulse (Full) 1µm/Pulse (Half)
MAX Speed *2	10mm/sec (Pulse Rate: 5kHz)

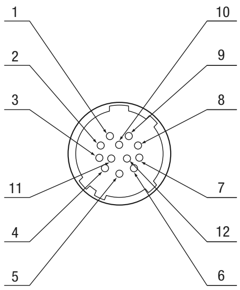
Repeatability	±0.5µm or less
Load Capacity *3	98N
Lost Motion	1µm or less
Backlash	0.5µm or less
Parallelism	15µm or less

*1 Stage travel per one pulse.
*2 Max. speed capable with our controller (MSCTL102) driving in Full Step mode, stage loaded at a max load capacity.
(The value changes depending on the driver and controller used, or the load.)
*3 The load capacity is reduced to 49N for vertical use.

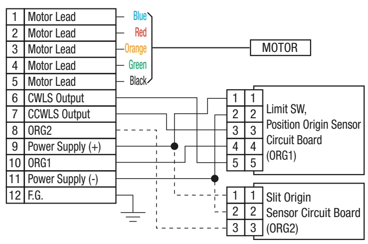
Electrical Specifications

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 0.4V or less (when load current is 16mA)
	Output Logic	N.C.···Light seen N.O.···Light not seen <Internal Circuit>  K: Emitter Cathode V: Receptor Supply+ A: Receptor Anode O: Output G: Receptor Supply-

Connector Pin Configuration

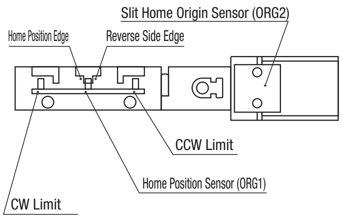


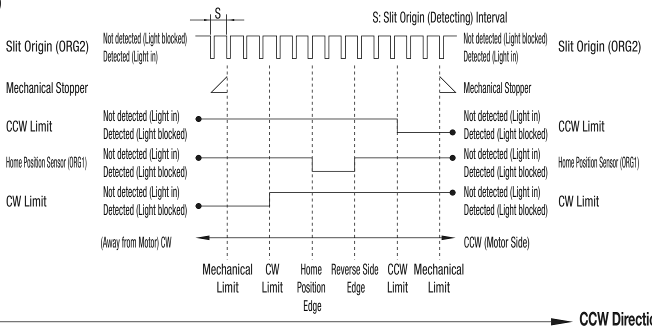
Connecting Diagram



* 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						

(Unit: mm)

- Homing Routine Above: When MSCTL102 controller is used, and 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.

When Recommended Homing Method for MSCTL102 (P.2014) is used

Type 3	Seeks in CCW rotation for an ORG1 signal detection routine on the CCW side edge.
Type 4	Seeks in CW rotation for an ORG1 signal detection routine on the CW side edge.
Type 9	After pattern ① is executed, the TIMING signal detection routine on the CCW side edge is processed.
Type 10	After pattern ② is executed, the TIMING signal detection routine on the CW side edge is processed.