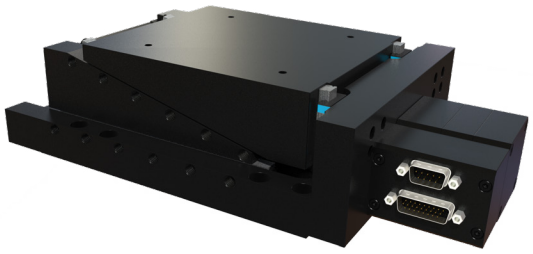
1040 CLASSIC ROAD | APEX, NC 27539
P: 866.906.2709 | F: 919.882.1430
www.griffinmotion.com

ELV-012-BS-A-M-S-0-00

Precision Z Motion Platform

FEATURES

- 12.5mm Z Travel
- High rigidity wedge design
- Zero backlash, precision ground ball screw
- Optical limit switches with home
- High resolution linear encoder
- Brushless servo motor drive
- Crossed Roller Bearings



The ELV-BS series stages are designed for a variety of applications. These reliable ball screw stages combine high speed and high accuracy and are built for high duty cycles and long life for laboratory, factory automation and semiconductor processing equipment. They are safe for upright or inverted use and can be configured with custom payload mounting holes. The wedge design and crossed roller bearings offer an extremely rigid Z stage.

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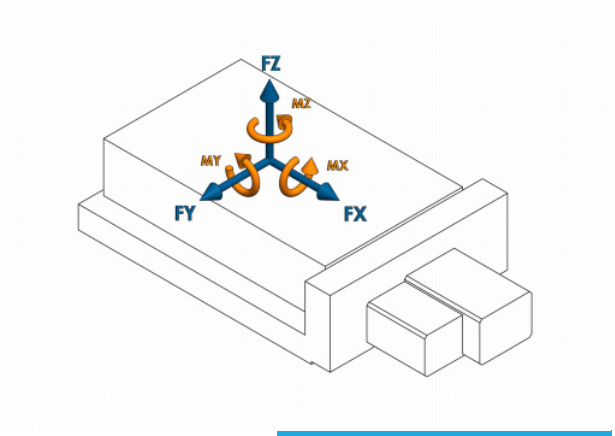
Product Specifications

Encoder Output	A quad B, index
Force X (N)	100
Force Y (N)	100
Force Z (N)	100
Height (mm)	66
Length (mm)	293
Limit Switches	Yes
Linear Accuracy (µm)	5
Linear Encoder Resolution (µm)	0.1
Linear Repeatability (µm)	1
Linear Velocity (mm/s)	35
Moment X (N·m)	5
Moment Y (N·m)	5
Moment Z (N·m)	5
Moving Mass Z (kg)	1.7
Pitch +/- (arc-sec)	10
Screw Lead (mm)	2
Stage Mass (kg)	6.00
Width (mm)	165
Yaw +/- (arc-sec)	10



LOAD DIRECTIONS

Part Number Description

ELV	ELV Series
012	12.5mm Travel
BS	Ball Screw Drive
A	Brushless Servo Motor
M	0.1µm Linear SS Scale
S	Standard Precision
0	No Additional Options
00	Standard Product (Call for custom)

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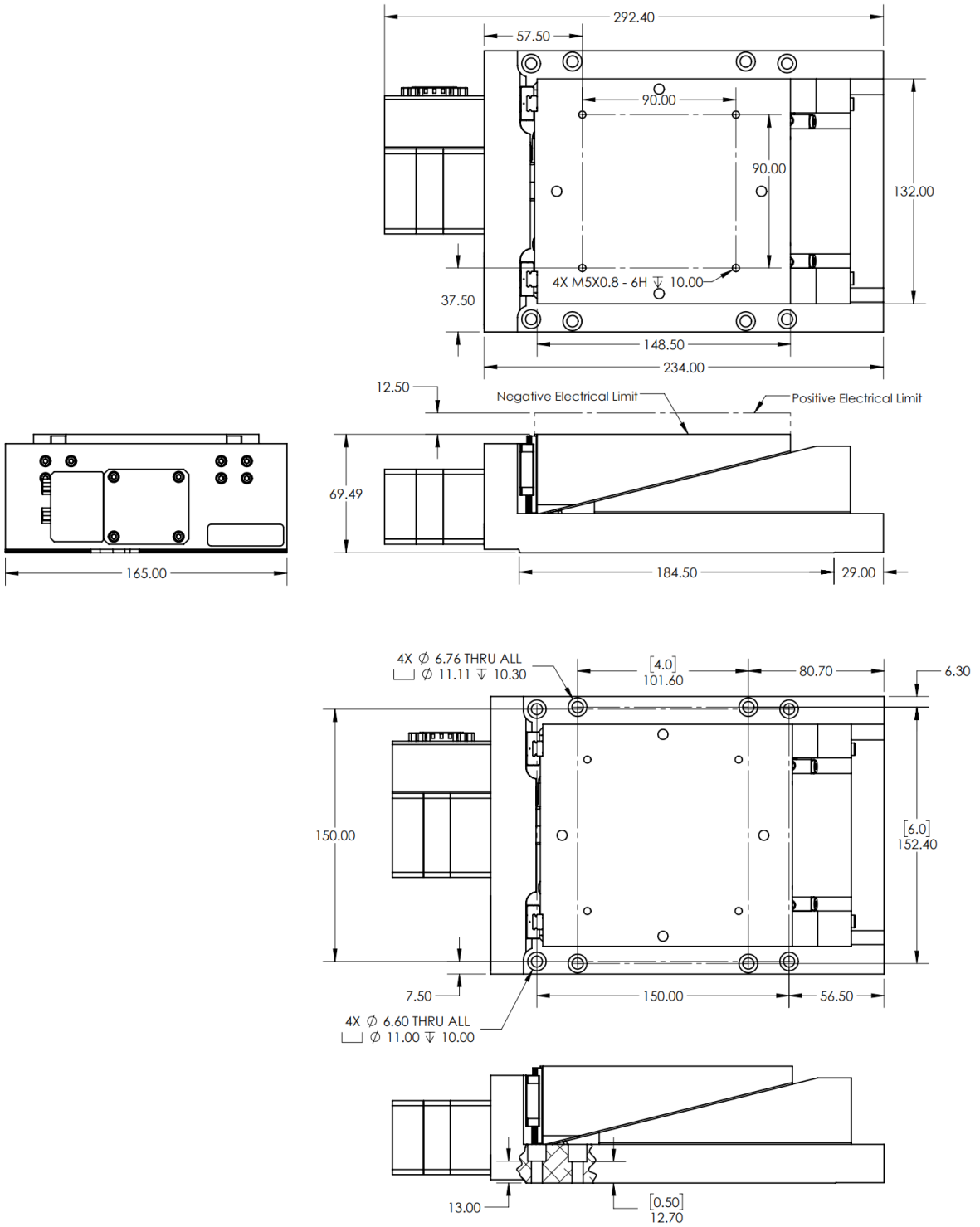
Mechanical Specifications



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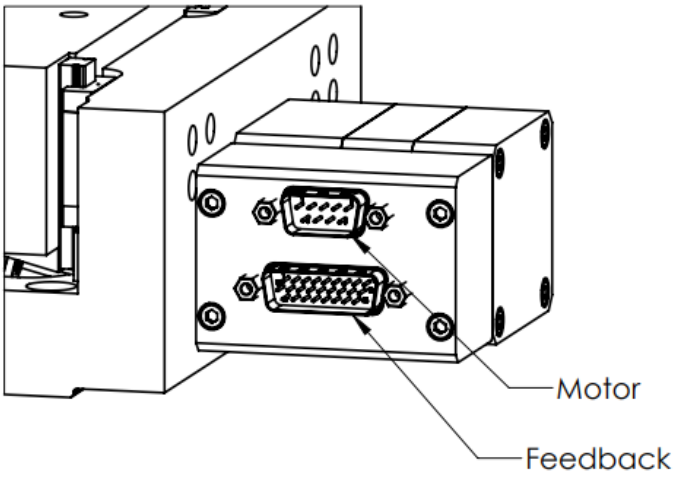
Electrical Pinout

Feedback Connector (DSUB26HD MALE)	
DSUB26HD PIN	NAME +5V
1	+5V
2	A+
3	B+
4	Z+
5	LIM+
6	*
7	*
8	*
9	*
10	*
11	A-
12	B-
13	Z-
14	LIM-
15	*
16	*
17	*
18	*
19	GND
20	HALL A
21	HALL B
22	HALL C
23	*
24	*
25	*
26	*
* Reserved	



Motor Connector (DSUB9 MALE)	
DSUB9 PIN	NAME
1	*
2	*
3	*
4	*
5	*
6	PHASE A
7	PHASE B
8	PHASE C
9	*
* Reserved	

Motor Specifications	
Motor Type	3Φ Brushless DC
BEMF Constant (V/KRPM)	1.88
Electrical Time Constant (ms)	0.38
Max Bus Voltage (VDC)	40
Max Continuous Current (A)	3.0
Motor Force Constant (N/A)	50.8
Peak Current (A)	10.0
Pin-Pin Inductance (mH)	0.55
Pin-Pin Resistance (ohm)	1.51
Magnetic Poles (#)	6

Feedback Specifications	
Supply Voltage (V)	5.0±10%
Supply Current (mA)	200
Encoder Feedback	Yes
Encoder Type	Incremental
Encoder Output	Square Wave Quadrature, RS-422 compatible, A,B,Z, Differential Pairs
Encoder Resolution	10000 cts/mm
Hall Switch Output	Open-Collector, No Internal Pullup Resistor
Hall Switch Max Current (mA)	-20
Limit Switchs	Yes
Limit Switch Output Type	Open-Collector, No Internal Pullup Resistor
Limit Switch Output Current (mA)	-20
Limit Switch Output Low (V)	0.8

The encoder will output one index pulse near center travel. This pulse is highly repeatable and can be used upon power-up to find an absolute position to use for further measurements.

Two limit switches are provided at the ends of travel. The limit switches will be pulled low throughout the travel range of the stage. The output will swing to high-impedance at the end of travel and remain high impedance until the mechanical limit of the stage is reached.