

ANT-4V Series

Vertical Translation Stage

Compact construction

Outstanding rigidity

Noncontact direct drive

1 nm resolution with Automation 3200

High repeatability

Outstanding in-position stability

No maintenance

4 mm travel



*U.S. Patent No. 5,731,641
Others Pending*

The ANT-4V represents a significant breakthrough in vertical alignment of high-precision components. This unique, patented device incorporates the best high-performance features: high speed (50 mm per second), high resolution (1 nm), superior in-position stability (4 nm), and high accuracy (200 nm), in one compact package.

Its superior noncontact direct drive employs a high-accuracy encoder for direct position feedback. When

combined with Aerotech's MXH multiplier, it offers an industry-leading 1 nm resolution in addition to high speed and accuracy.

The critical elements of the ANT-4V were selected to operate in a 24/7 industrial environment and, unlike screw- or piezo-based vertical stages, the ANT-4V requires no maintenance and will assure years of trouble-free operation.

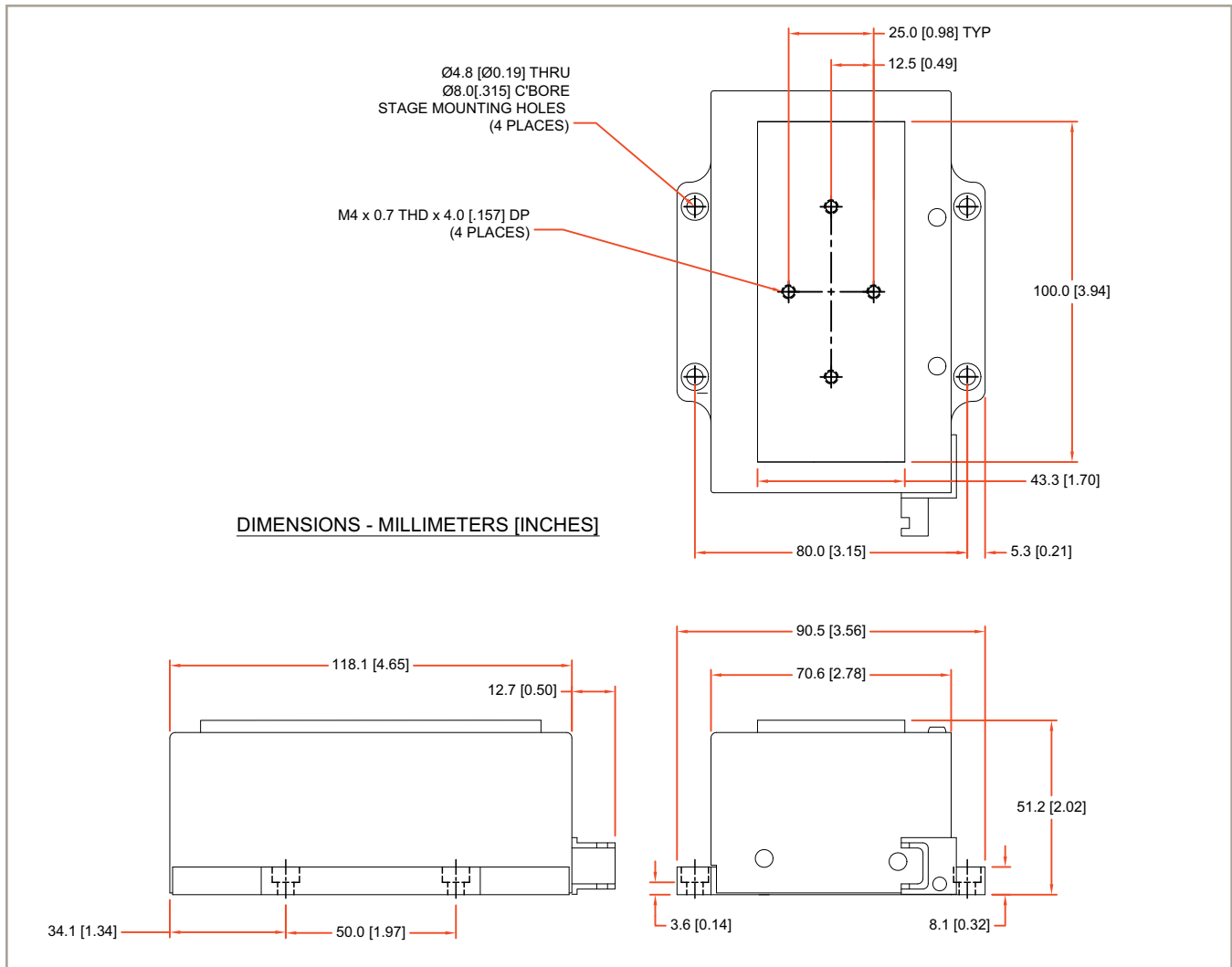
ANT-4V Series SPECIFICATIONS

Basic Model		ANT-4V
Travel		4 mm
Drive System		Linear brushless servomotor (BLMUC-79-A)
Bus Voltage		up to 80 VDC
Continuous Current	A_{pk}	3.1
	A_{rms}	2.2
BEMF, line-line, max.	V/m/sec	4.56
	V/in/sec	0.12
Force Constant, Sinusoidal Drive	N/A_{pk} (lb/A _{pk})	3.96 (0.89)
	N/A_{rms} (lb/A _{rms})	5.61 (1.26)
Resistance, 25°C, line-line	Ohms	4.0
Resistance, 125°C, line-line	Ohms	3.6
Inductance, line-line	mH	0.80
Magnetic Pole Pitch	mm (inch)	16 (0.63)
Resolution		0.001 μ m - 1.0 μ m (Effective 4 μ m pitch encoder)
Maximum Travel Speed		50 mm/s (2 in/s)
Maximum Linear Acceleration		0.2 g
Maximum Load	Horizontal	2.0 kg (4.4 lb)
	Side	0.5 kg (1.1 lb)
Accuracy	Standard	$\pm 2 \mu$ m ($\pm 160 \mu$ in)
	HALAR	$\pm 0.4 \mu$ m ($\pm 32 \mu$ in)
Repeatability ⁽¹⁾		± 200 nm
Straightness	Max	$\pm 2 \mu$ m
Pitch		± 15 arc sec
Yaw		± 20 arc sec
Roll		± 30 arc sec
Nominal Stage Weight		1.4 kg (3.1 lb)
Moving Mass		0.4 kg (0.9 lb)
Construction		Aluminum Body/Black Anodize Finish/Hardcoat

Notes:

- Requires Aerotech controls and HAL option.
- For inverted operation, consult factory.

ANT-4V Series DIMENSIONS



ANT-4V Series ORDERING INFORMATION

Ordering Example

ANT	-4V
Series	Travel (mm)
	4 mm

Ordering Information

ANT-4V	4 mm (0.157 in) vertical travel lift stage with proprietary direct-drive motor technology, effective 4 micron pitch sinusoidal output linear encoder and limits. 1 meter cable with 25 pin D connector.
ANT-4V-20RA	20 degree rotary travel stage with proprietary direct-drive motor technology, limits, and sinusoidal linear encoder with 85 arc-sec resolution (before multiplication). Includes 4 mm (0.157 in) vertical travel lift stage with proprietary direct-drive motor technology, 4 micron pitch sinusoidal output linear encoder and limits. Tabletop options include STD (standard) for four- and five-axis versions, and G90 for six-axis versions. Also, the six-axis version is available with the MP-420 option, a breadboard mounting plate.

Accessories

MXH5-D-mm	20-times multiplier, 32 MHz max, 200 nm resolution
MXH10-D-mm	40-times multiplier, 32 MHz max, 100 nm resolution
MXH25-D-mm	100-times multiplier, 32 MHz max, 40 nm resolution
MXH50-D-mm	200-times multiplier, 32 MHz max, 20 nm resolution
MXH100-D-mm	400-times multiplier, 32 MHz max, 10 nm resolution
MXH200-D-mm	800-times multiplier, 32 MHz max, 5 nm resolution
MXH250-D-mm	1000-times multiplier, 32 MHz max, 4 nm resolution
MXH500-D-mm	2000-times multiplier, 32 MHz max, 2 nm resolution
MXC-nn	Multiplier to controller cable; specify length '-nn' in feet
Note: Specify data rate "mm"	2 M=2 MHz, 4 M=4 MHz, 8 M=8 MHz, 16 M=16 MHz, 32 M=32 MHz (MXH only)
HALAR	High accuracy system — linear error correction for accuracy and repeatability.
ALIGNMENT-NPA	Non-precision XY assembly
ALIGNMENT-PA10	XY assembly; 10 arc sec orthogonal
ALIGNMENT-PA5	XY assembly; 5 arc sec orthogonal