

Standard Features	
Stage	Linear Stage
Travel	200mm - 1000mm in 100mm increments
Motor	Ironless Core Linear Motor
Feedback	Non-Contact Optical Encoder
Scale	Stainless Steel Scale
Resolution	1Vp-p Analog Output (5nm with 4096 Interpolation) Digital Output Options: 5mm, 1mm, 0.5mm, 0.2mm, 100nm, 50nm, 20nm**, 10nm**, and 5nm** (* Reduced Speeds Apply)
Sensors	Integrated Home and End of Travel Limits
Bearings	Dual Recirculating Ball Rail Bearings
Hard Stops	Shock Absorbing 1/2" Stroke
Cables	High Flex, 10M Cycle, 3m Length, 4.8mm Dia (Encoder), 5.2mm Dia (Motor)
Structure	Anodized Aluminum 6061-T6 Optional: Stainless Steel
Environment	Standard
Temperature	0°C to 50°C
Humidity	10% to 80% Non-Condensing
Precision	6-D Nano Precision™ Test Methods

- ALIO's Gantry is Designed to be Easily Customizable to Meet Customer Specific Requirements**
- Y Axis Top Down Mounting (Face Mounting Shown)
 - Large or Small Cable Tracks
 - Mix and Match Travel
 - Risers Available (Custom Height)
 - Multiple Cable Routing and Connectorization Options
 - Customer Cable Routing Available
 - Granite, Optical Table, and Breadboard Bases
 - Single Axis Versions Available
 - Z Axis Options Available
 - X and X Controlled Yaw Available
 - Various Material Options Available
 - Inch Spacing Versions Available (see page 3)

ALIO INDUSTRIES PROPRIETARY DOCUMENT
 5335 XENON ST, ARVADA, CO 80002 USA
 (Tel) 303.339.7500 - WWW.ALIOINDUSTRIES.COM

TRAVEL	B (QTY)
200	16
300	24
400	24
500	32
600	32
700	40
800	40
900	48
1000	48

DRAWN	QWOLF	2017-02-08		
CHECKED				
Tolerances: Surface Roughness:			TITLE	
x.x ± .05 in x.xx ± .01 in x.xxx ± .005 in ANGLES ± 0.5° MATERIAL			AI-LM-(X_TRAVEL)X-(Y_TRAVEL)Y-uII-SNH	
FINISH SEE NOTES			SIZE	REV
			B	E2
			DWG NO	0010-08112
			SCALE	4

NOTE: MODEL AI-LM-600XX-600Y-uII-SNH SHOWN WITH ALL AXES AT MID STROKE POSITION


ALIO STAGE AND MOTOR SPECIFICATIONS

MODEL	UNITS	AI-LM-20000-U11	AI-LM-30000-U11	AI-LM-40000-U11	AI-LM-50000-U11	AI-LM-60000-U11	AI-LM-70000-U11	AI-LM-80000-U11	AI-LM-90000-U11	AI-LM-100000-U11	
NOMINAL TRAVEL	mm	200	300	400	500	600	700	800	900	1000	
TRAVEL DEFINED FROM HOME	mm	+/- 100	+/- 150	+/- 200	+/- 250	+/- 300	+/- 350	+/- 400	+/- 450	+/- 500	
TRAVEL BETWEEN LIMITS (+0mm/-3mm)	mm	+/- 103	+/- 153	+/- 203	+/- 253	+/- 303	+/- 353	+/- 403	+/- 453	+/-503	
SHOCK ABSORBING HARD STOP LOCATION (+/- 1mm)	mm	ENGAGE: +/- 103 BOTTOM OUT: +/- 116	ENGAGE: +/- 153 BOTTOM OUT: +/- 166	ENGAGE: +/- 203 BOTTOM OUT: +/- 216	ENGAGE: +/- 253 BOTTOM OUT: +/- 266	ENGAGE: +/- 303 BOTTOM OUT: +/- 316	ENGAGE: +/- 353 BOTTOM OUT: +/- 366	ENGAGE: +/- 403 BOTTOM OUT: +/- 416	ENGAGE: +/- 453 BOTTOM OUT: +/- 466	ENGAGE: +/- 503 BOTTOM OUT: +/- 516	
PERFORMANCE SPECIFICATIONS [1]		STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	STD PRCSN ULTRA	
LINEAR DISPLACEMENT ACCURACY	um	+/- 12 +/- 2 +/- 1	+/- 12 +/- 2 +/- 1	+/- 16 +/- 2 +/- 1	+/- 20 +/- 2 +/- 1	+/- 24 +/- 2 +/- 1	+/- 28 +/- 2 +/- 1	+/- 32 +/- 2 +/- 1	+/- 36 +/- 2 +/- 1	+/- 40 +/- 2 +/- 1	
BIDIRECTIONAL LINEAR REPEATABILITY	um	+/- 1.0		+/- 1.0		+/- 1.0		+/- 1.0		+/- 1.0	
RESOLUTION	nanometers	5 nm (standard)		5 nm (standard)		5 nm (standard)		5 nm (standard)		5 nm (standard)	
STRAIGHTNESS	um	+/- 5 +/- 3	+/- 5 +/- 3	+/- 5 +/- 3	+/- 6 +/- 4	+/- 8 +/- 4	+/- 10 +/- 4	+/- 12 +/- 5	+/- 14 +/- 5	+/- 16 +/- 5	
FLATNESS [2]	um	+/- 10 +/- 6	+/- 10 +/- 6	+/- 10 +/- 6	+/- 12 +/- 8	+/- 16 +/- 8	+/- 20 +/- 8	+/- 24 +/- 10	+/- 28 +/- 10	+/- 35 +/- 10	
PITCH	arc-sec	20		20		20		25		30	
YAW	arc-sec	20		20		20		25		30	
ROLL	arc-sec	20		20		20		25		30	
MOTION PROFILE SPECIFICATIONS											
MAX VELOCITY WITH AC DRIVE [3]	m/s	2.5		2.5		2.5		2.5		2.5	
MAX VELOCITY WITH 48VDC DRIVE [3]	m/s										
MAX ACCELERATION WITH AC DRIVE [3]	G	2.5		2.5		2.5		2.0		1.5	
MAX ACCELERATION WITH 48VDC DRIVE [3]	G										
MAX (VERTICAL) PAYLOAD CAPABILITY	kg	25		25		25		25		25	
MAX (HORIZONTAL) PAYLOAD CAPABILITY	kg	30		30		30		30		30.0	
MAX MOMENT LOAD (YAW AND PITCH)	Nm	70		70		70		70		70.0	
MAX MOMENT LOAD (ROLL)	Nm	82		82		82		82		82.0	
ASSEMBLY MASS	kg	28		30		33		38		45	
MOVING MASS (Y / X)	kg	3.5 / 17		3.5 / 20		3.5 / 23		3.5 / 26		3.5 / 29	

MOTOR INFORMATION		DEFAULT MOTOR
MOTOR TYPE	--	LINEAR BRUSHLESS SERVO MOTOR
MOTOR MODEL	--	P16-4p
MAGNETIC PITCH (N-N)	mm	30.48
MAX VOLTAGE (LINE TO LINE) [4]	V	500
ELECTRICAL TIME CONSTANT	msec	0.20
MAX MOTOR TEMP	°C	130
THERMISTOR SENSOR (OPTIONAL)	--	NEG COEFF. THERMISTOR
MOTOR CONNECTION	--	DELTA
FORCE CONSTANT	N/Apk	28.7
PHASE RESISTANCE (@25°C) [5]	Ohm	5.9
PHASE RESISTANCE (@130°C) [5]	Ohm	8.3
INDUCTANCE	mH	1.8
CONTINUOUS FORCE [6]	N	186
CONTINUOUS CURRENT [6]	Apk	6.5
PEAK FORCE [7]	N	589
PEAK CURRENT [7]	Apk	20.5
BACK EMF CONSTANT	V/m/s	28.7

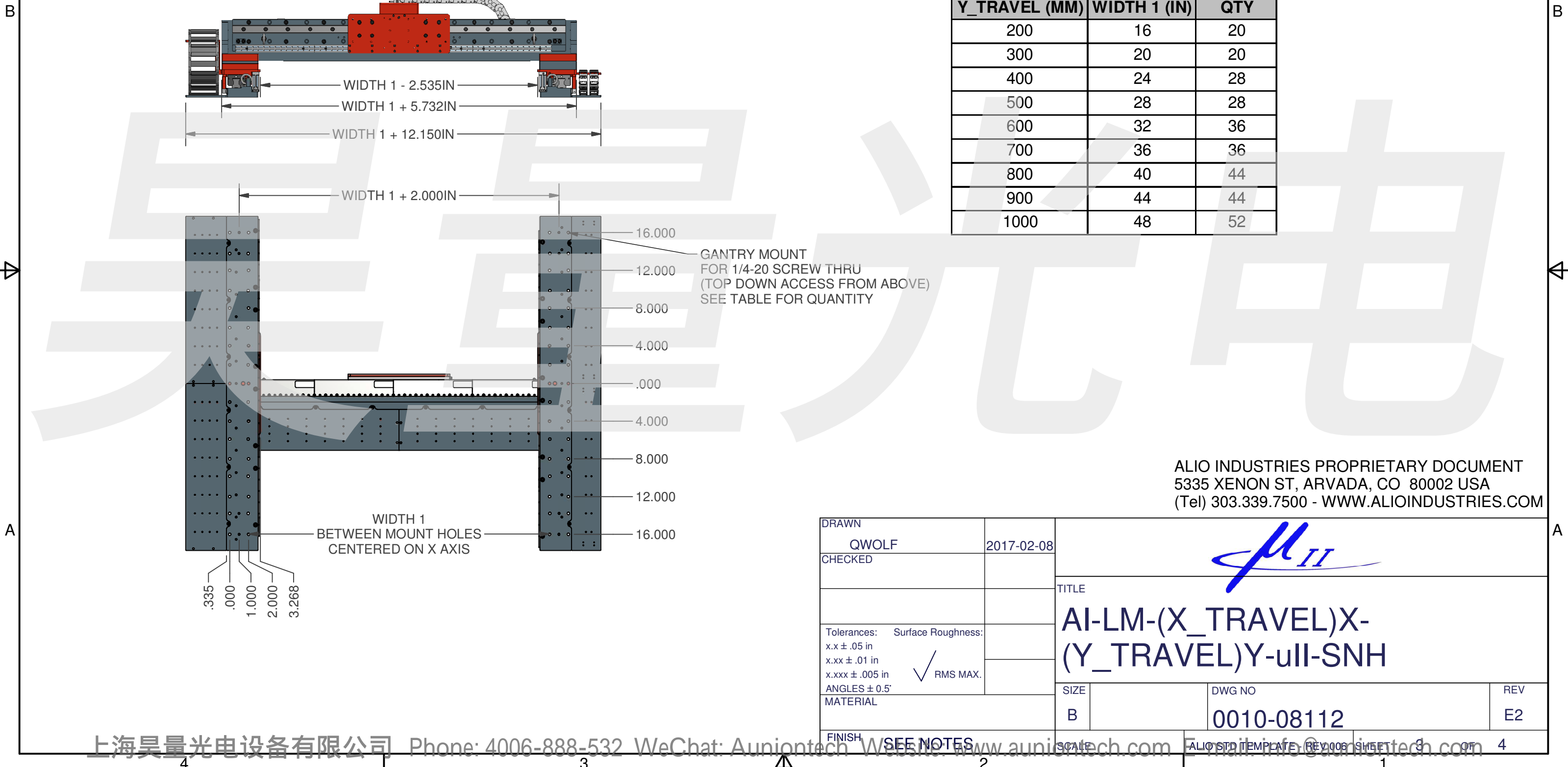
- Notes:
- Specifications measured on stage centerline, 50mm from mounting surface. ALIO provides NIST traceable proof for all options/specs per quote.
 - Flatness specifications dependent on system base. Contact ALIO for more information.
 - Stage limitation at no load. Does not account for drive or resolution limitations.
 - Back EMF plus IR drop must not exceed maximum line to line bus voltage.
 - Resistance values do not include cable resistance. Cable resistance adds 0.22 ohm/m for Delta connection and 0.66 ohm/m for Wye Connection.
 - Continuous operating limits are based on continuous operation at maximum temperature with aluminum heat sink (300mm x 12.5mm x motor length).
 - Maximum on time at peak operating limits is 10 seconds.
 - All electrical specifications may vary by 12% from listed values.
 - Additional motor and travel options are available for each stage for optimized performance as necessary per customer requirements.

ALIO INDUSTRIES PROPRIETARY DOCUMENT
 5335 XENON ST, ARVADA, CO 80002 USA
 (Tel) 303.339.7500 - WWW.ALIOINDUSTRIES.COM

DRAWN	QWOLF	2017-02-08		
CHECKED				
Tolerances: Surface Roughness:			TITLE	
x.x ± .05 in x.xx ± .01 in x.xxx ± .005 in ANGLES ± 0.5°			AI-LM-(X_TRAVEL)X- (Y_TRAVEL)Y-uII-SNH	
MATERIAL			SIZE	REV
			B	E2
FINISH SEE NOTES			DWG NO	
			0010-08112	

NOTE: AI-LM-60000X-60000Y-UII-SNH-E SHOWN.
ALL UNMARKED FEATURES ARE IDENTICAL TO
THE METRIC CONFIGURATION ON PAGE 1.



ENGLISH (INCH) MOUNT CONFIGURATION



Y_TRAVEL (MM)	WIDTH 1 (IN)	QTY
200	16	20
300	20	20
400	24	28
500	28	28
600	32	36
700	36	36
800	40	44
900	44	44
1000	48	52

GANTRY MOUNT
FOR 1/4-20 SCREW THRU
(TOP DOWN ACCESS FROM ABOVE)
SEE TABLE FOR QUANTITY

ALIO INDUSTRIES PROPRIETARY DOCUMENT
5335 XENON ST, ARVADA, CO 80002 USA
(Tel) 303.339.7500 - WWW.ALIOINDUSTRIES.COM

DRAWN	QWOLF	2017-02-08		
CHECKED				
Tolerances: x.x ± .05 in x.xx ± .01 in x.xxx ± .005 in ANGLES ± 0.5° MATERIAL			TITLE AI-LM-(X_TRAVEL)X- (Y_TRAVEL)Y-uII-SNH	
Surface Roughness:  RMS MAX.			SIZE B	DWG NO 0010-08112
FINISH SEE NOTES			SCALE	REV E2