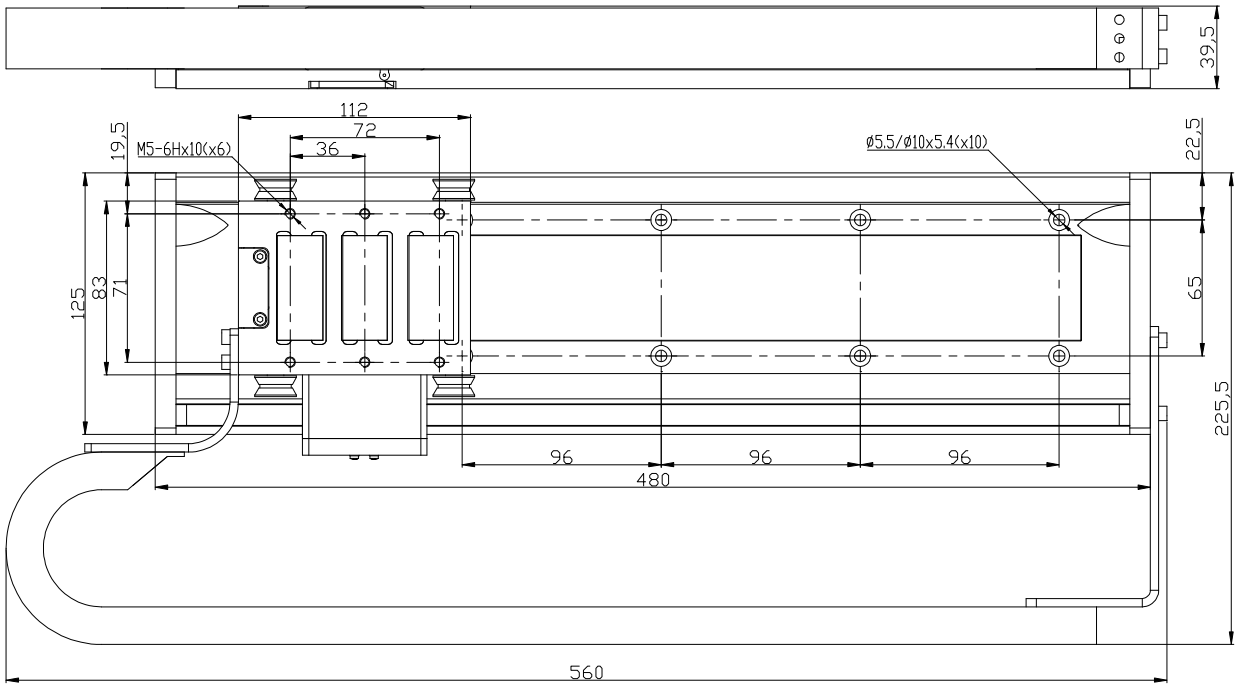
LINEAR STAGE
LSMM-T-24-110-50-C-GS1-IL-RA-288-N0-A



FEATURES:

- Iron-core three-phase linear synchronous motor with rare-earth magnets for high force density.
- Direct drive (no gear, no backlash), low profile (height 40 mm)
- Optimal solution for compact design and low price
- Magnetic preloaded roller guide, sine magnetic encoder, thermistors for overheating protection.
- High precision, repeatability and resolution, low cogging, smooth movement.
- High motor stiffness and large bandwidth by position regulator with encoder feedback.

APPLICATIONS:

Pick and place machines, factory automation, teaching.

CONSTRUCTION:

Motor consist of a movable lamination stack with epoxy encapsulated windings (forcer) and fixed steel plate with glued permanent magnets (stator). The smoothness of movement is achieved by sinusoidal commutation of motor phases currents.

SPECIFICATION LSMM-T-24-110-50-C-GS1-IL-RA-288-N0-A	Unit	**Value**
Pole pair length **2P**	mm	24
Peak / Continuous force **Fp / Fa (duty cycle 10% / 100%**)	N	323 / 113
Bearing friction torque **Fb** / Cogging (detent) force **Fc**	N	6 / 4
Peak / Continuous current at **Fp / Fa**	Arms	6,0 / 2,0
Inductance **L**	mH	41
Resistance **R**	Ohm	6,3
Maximum velocity **Vp** / **Va** at 310 VDC and Fp / Fa	m/s	2,6 / 4,6
Carriage / Stand (for 48 mm stroke, as shown) weight	kg	1,8 / 4,7
Maximal user payload	kg	20
Straightness	mm	0,1
Sine encoder pitch	mm	2
Position accuracy / Repeatability / Resolution	mm	0,1 / 0,01 / 0,001

Available strokes: S =96**n mm, where n=1..9; Stage length: L=S+272 mm. Cable length is 3 m.

Use Ø5.5/Ø10x5.4 holes for stator mounting to machine stand, 6x M5-6Hx10 threaded holes for load mounting to carriage.

Axis can be overturned (fixed carriage with windings and movable stator (stand) with magnets). In this case use M5-6Hx10 holes on carriage for fixed mounting to stand, and Ø5.5/Ø10x5.4 threaded holes for load mounting to stator.

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Pin assignment for Encoder LM10 D-Sub-9M plug

P2 9 pin D-Sub Encoder Male Connector, Front view

Reference –	grey	*RM*	**6**
Cosinus +	red	*BM*	**7**
Sinus –	yellow	*AM*	**8**
Ground	white	*0V*	**9**

1	*SI*		Inner shield
2	*RP*	Pink	Reference +
3	*BP*	blue	Cosinus +
4	*AP*	green	Sinus +
5	*5V*	brown	Supply voltage +5V

Outer shield is connected to metal plug housing.

All sin, cos, ref voltages are differential 1Vptp (point to point) voltages of encoder with return GND. Voltage range of sin, cos, ref differential inputs is 2.5V +- 0.25V (from 2.25 to 2.75). Use twisted pair screened cable, outer shield connection to connector's case.

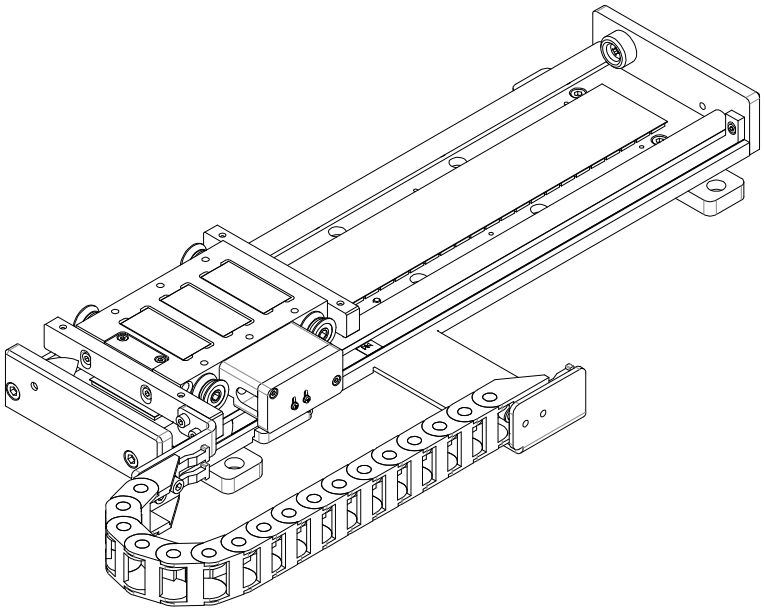
Wire assignment for Motor Cable UNITRONIC-FD CY 5x0,34 (27443) Ø6,8 mm

Wire number	*Wire color*	*Cross Section*	Description	Connection
01	*Black*	*0.75 qmm*	*U*	Motor phase U
02	*Black*	*0.75 qmm*	*V*	Motor phase V
03	*Black*	*0.75 qmm*	*W*	Motor phase W
	Yellow-Green	*0.75 qmm*	*GND*	Motor case, ground
		0.34 qmm	*PTC1*	PTC pin 1
		0.34 qmm	*PTC2*	PTC pin 2
		0.34 qmm	*KTY1*	*KTY* pin 1
		0.34 qmm	*KTY2*	*KTY* pin 2

PTC is optional (not included in standard version) non-linear positive temperature coefficient thermistor correspondent to DIN-44081 norm. Three serial connected PTC are mounted in motor windings and changes resistance from approx. 150 Ohm at 115 Co to more that 12 KOhm at 125 Co. PTC can be used in servo-amplifier for motor overheating protection.

KTY is optional linear positive temperature coefficient thermistor with resistance approx 1 KOhm at 20 C^o and temperature coefficient 0.61%/K. It is mounted in motor case. KTY can be used in servo-amplifier for motor temperature measurement and overheating warning.

ORDER EXAMPLE: **LSMM-T-24-110-50-GS1-IL-RA-288-N0-A, where LSMM** –Linear motor stage; **T**-table (i.e. motor+bearing+encoder); **24**-linear pole pitch, mm; **110**-forcer length, mm; **50**-magnet width, mm; **G**-code of internal wiring; **S**-internal star connection; **1**-number of parallel coils; **IL**-bearing code; **RA**-magnetic encoder with sinus output 1Vpp, 2 mm pitch; **288**-stroke, mm; **N0**-Motor cable 3 m long without connector, flying leads; **A**-Revision number (Standard).



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