

# M28SH51-Txx

HIGH TORQUE Bipolar Stepping motor - 1,8°



## Introduzione

The M28SH51-Txx is a bipolar stepper motor with terminal-box equipped with a 1000 counts/rev Line-Driver incremental encoder.  
The connection of the motor and the ecoder is made through M12 circular connectors.

Phase A

Phase  $\bar{A}$

Phase B

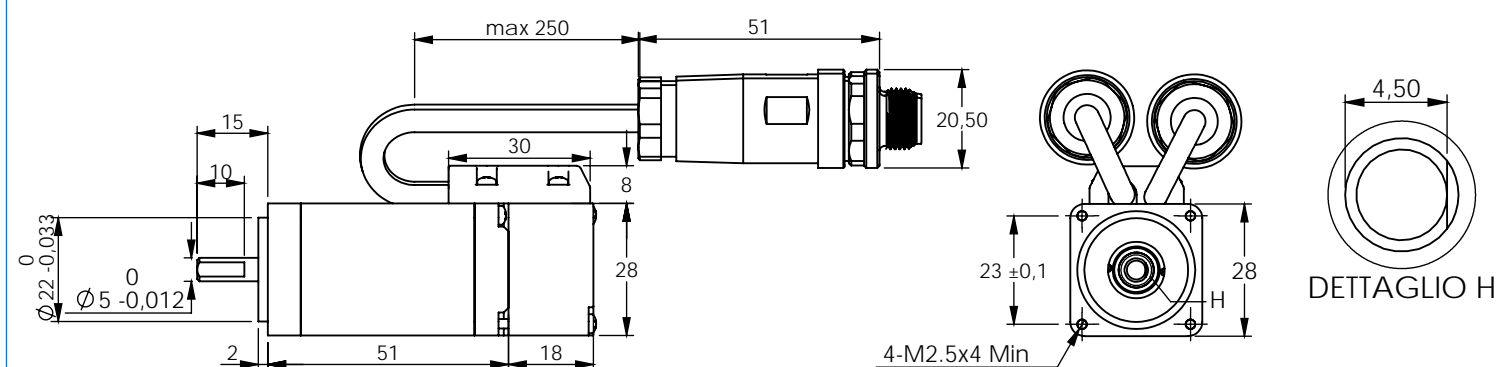
Phase  $\bar{B}$



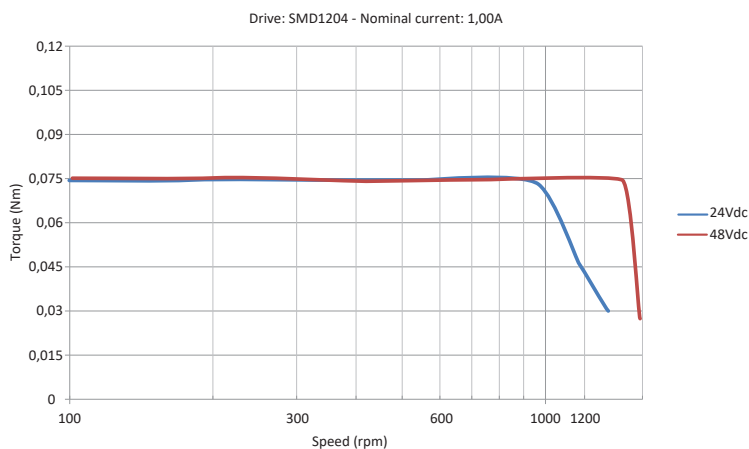
## Specifications

Model	Current/ phase	Resistance/ phase	Inductance/ phase	Detent torque	Holding torque	Rotor inertia	Encoder	Weight
M28SH51-TO1000L05C	1,00A	3,30Ω	4,2 mH	8 mNm	0,14 Nm	18 gcm <sup>2</sup>	Line-driver	305g

## Mechanical dimensions



## Speed vs Torque curve



## Motor characteristics

Step Angle	1,8° ± 5%
Insulation Class	B
Ambient Temperature	-10 °C .. +35 °C
Temperature Rise	80°C max (2 phase ON)
Insulation Resistance	100 MΩ min 500Vdc
Dielectric Strength	500 VAC FOR ONE MINUTE
Shaft Radial Play	0,02mm (with 400g load)
Shaft Axial Play	0,08mm (with 400g load)
Max Radial Force	28N (20mm FROM FRONT FLANGE)
Max Axial Force	10 N

## Caution

Insert and tighten firmly the connectors before powering the motor. **Never disconnect any connector when powered.** Installation and maintenance must be carried out by qualified technicians only. The operator must have detailed information to be able to carry out this work.

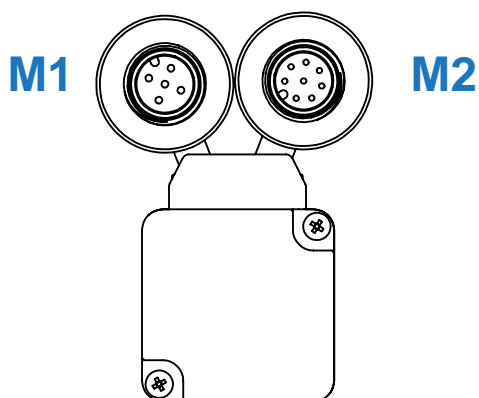
- Unexpected dangers may be encountered
- An incorrect use may destroy this product and the connected equipments.

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## Connectors layout



## Encoder characteristics

	LINE DRIVER
V <sub>SUPPLY</sub>	+5 V <sub>DC</sub>
I <sub>MAX</sub> (NO LOAD)	80 mA
I <sub>MAX</sub>	60 mA each channel
F <sub>OUT MAX</sub>	300 KHz
COUNT/REV	1000
PROTECTION DEGREE	IP54
WORKING TEMPERATURE	-20 .. +80 °C

## Motor connector

M1	M12 5 Pin male		PIN	Description	Cable color matching	
			1	Phase A -	BROWN	
			2	Phase A	WHITE	
			3	Phase B -	BLUE	
			4	Phase B	BLACK	
			5	Shield	GREY	

## Line-Driver encoder connector

M2	M12 8 Pin male		PIN	Description	Cable color matching	
			1	Channel Z +	WHITE	
			2	V <sub>IN</sub> (+5V <sub>DC</sub> )	BROWN	
			3	Channel A +	GREEN	
			4	Channel A -	YELLOW	
			5	Channel B +	GREY	
			6	Channel B -	PINK	
			7	Common	BLUE	
			8	Channel Z -	RED	