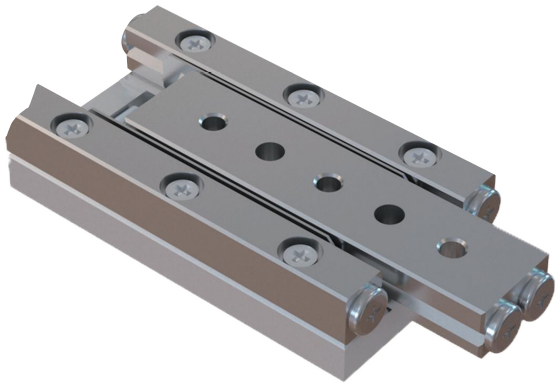
Piezoelectric Inertia Motor



Features

- High-speed displacement
- High resolution
- Compact size
- Suitable for high vacuum environments

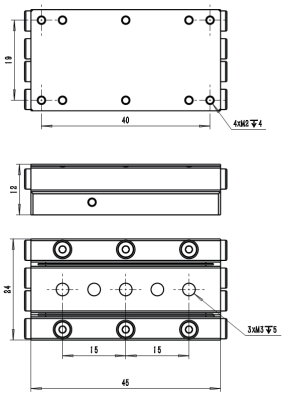
Description

Piezoelectric Inertia Motor is a linear motion positioning device based on stick-slip drive logic, which can achieve millimeter-level motion stroke and nanometer-level positioning accuracy, with the advantages of small size, high stiffness and fast positioning, the motor integrates high-precision closed-loop sensors, which is very suitable for nano-micro displacement control systems.

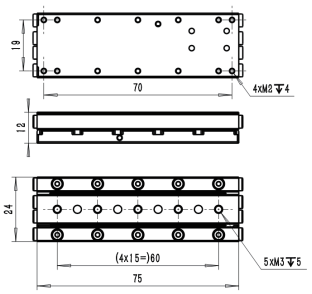
Applications

- Optical stage
- Precision medical testing equipment
- Precision semiconductor equipment

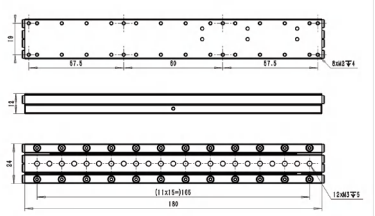
Interface Definition



Applicable model: PMIN-C24X-20A / PMIN-C24X-30A
Unit: mm



Applicable model: PMIN-C24X-50A
Unit: mm



Applicable model: PMIN-C24X-110A
Unit: mm

Technical Specifications

	PMIN-C24X-20A	PMIN-C24X-30A	Unit	Tolerance
Active Axes	X	X		
Motion and positioning				
Travel range	20	30	mm	
Sensor	Linear encoder	Linear encoder		
Open loop resolution	1	1	nm	
Sensor resolution	40	40	nm	
Sensor signal	AqB(Microstep box output)	AqB (Microstep box output)		
Min. displacement	-	-	nm	Typical value
Unidirectional repeatability	500	500	nm	Typical value
Bidirectional repeatability	800	1000	nm	Typical value
Pitch	50	50	arcsec	Typical value
Yaw	50	50	arcsec	Typical value
Closed loop velocity*	10	10	mm/s	Max. value
Mechanical Properties				
Max. vertical load capacity	30	30	N	Max. value
Guide type	Cross roller guide			
Drive Properties				
Motor type	Stick-slip inertial motor			
Drive force	1.5	1.5	N	Typical value
Holding force	2.0	2.0	N	Min. value
Operating voltage	0~70	0~70	V	
Miscellaneous				
Operating temperature range	0~50	0~50	°C	
Drive frequency range	2k-15k(Recommended Drive Frequency Range：5k-7kHz)		kHz	
Material	Aluminum Alloy/Stainless Steel (Base defaults to Stainless Steel)			
Cable length	2	2	m	±0.02 m
Motor interface	Sub-D15 male connector	Sub-D15 male connector		
Dimensions				
A	24	24	mm	
B	11.5	11.5	mm	
L	45	45	mm	

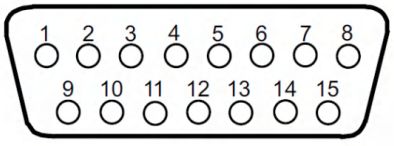
Technical Specifications

	PMIN-C24X-50A	PMIN-C24X-110A	Unit	Tolerance
Active Axes	X	X		
Motion and positioning				
Travel range	50	110	mm	
Sensor	Linear encoder	Linear encoder		
Open loop resolution	1	1	nm	
Sensor resolution	40	40	nm	
Sensor signal	AqB(Microstep box output)	AqB (Microstep box output)		
Min. displacement	-	-	nm	Typical value
Unidirectional repeatability	500	500	nm	Typical value
Bidirectional repeatability	800	800	nm	Typical value
Pitch	50	50	arcsec	Typical value
Yaw	50	50	arcsec	Typical value
Closed loop velocity*	10	10	mm/s	Max. value
Mechanical Properties				
Max. vertical load capacity	30	30	N	Max. value
Guide type	Cross roller guide			
Drive Properties				
Motor type	Stick-slip inertial motor			
Drive force	1.5	1.0	N	Typical value
Holding force	2.0	1.5	N	Min. value
Operating voltage	0~70	0~70	V	
Miscellaneous				
Operating temperature range	0~50	0~50	℃	
Drive frequency range	2k-15k(Recommended Drive Frequency Range：5k-7kHz)		kHz	
Material	Aluminum Alloy/Stainless Steel (Base defaults to Stainless Steel)			
Cable length	2	2	m	±0.02 m
Motor interface	Sub-D15 male connector	Sub-D15 male connector		
Dimensions				
A	24	24	mm	
B	11.5	11.5	mm	
L	75	180	mm	

*PMIN-C24X-50A models default to a stainless steel base. For lightweight requirements, an aluminum alloy version (-AL) is available.
-AL: Aluminum alloy base
* The actual operating speed depends on the power of the drive and control circuit.
* Maximum vertical load: 30N, provided that the center of gravity of the load is located at the center of the motor.
All specifications are based on room temperature conditions (22±3℃).
Usage Precautions:
1. 1. The motor must be used in a clean indoor environment;
2. The motor must be used in conjunction with the drive and control unit provided by YG。

Pin Definition

DB15 Pin definition explaination



PIN	1	2	3	4	5	6	7	8
Definition	Sin+	Sin-	Cos+	Cos-	Index+	Index-	/	HV-
PIN	9	10	11	12	13	14	15	
Definition	GND	Vs	GND	Vs	/	/	HV+	