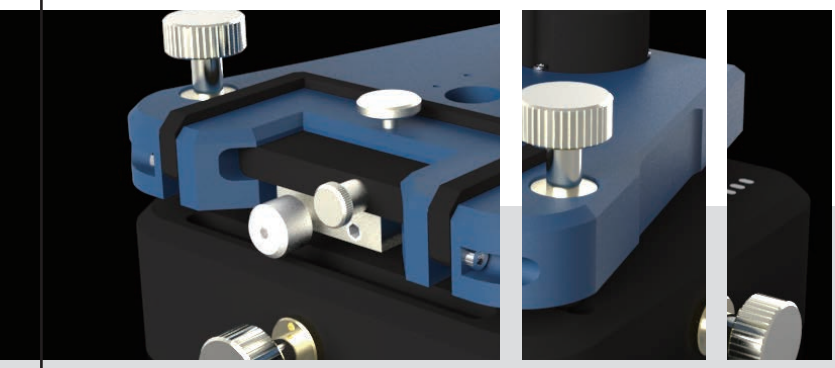
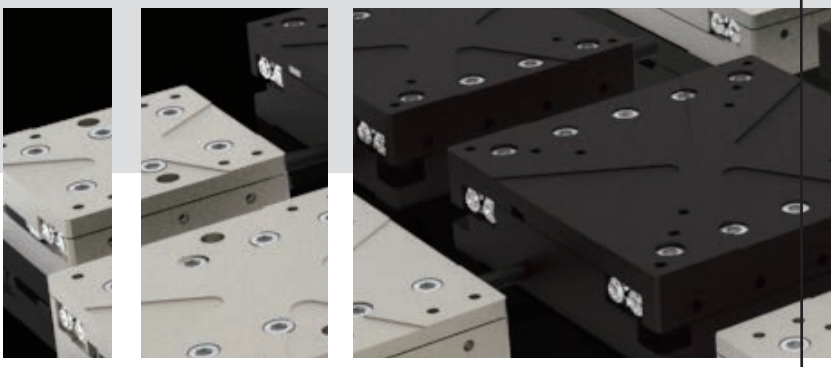
OME Technology Co.,Ltd.



Nano metrology

Your navigator in nano motion & metrology

Nano positioning



Nano motion and metrology navigator

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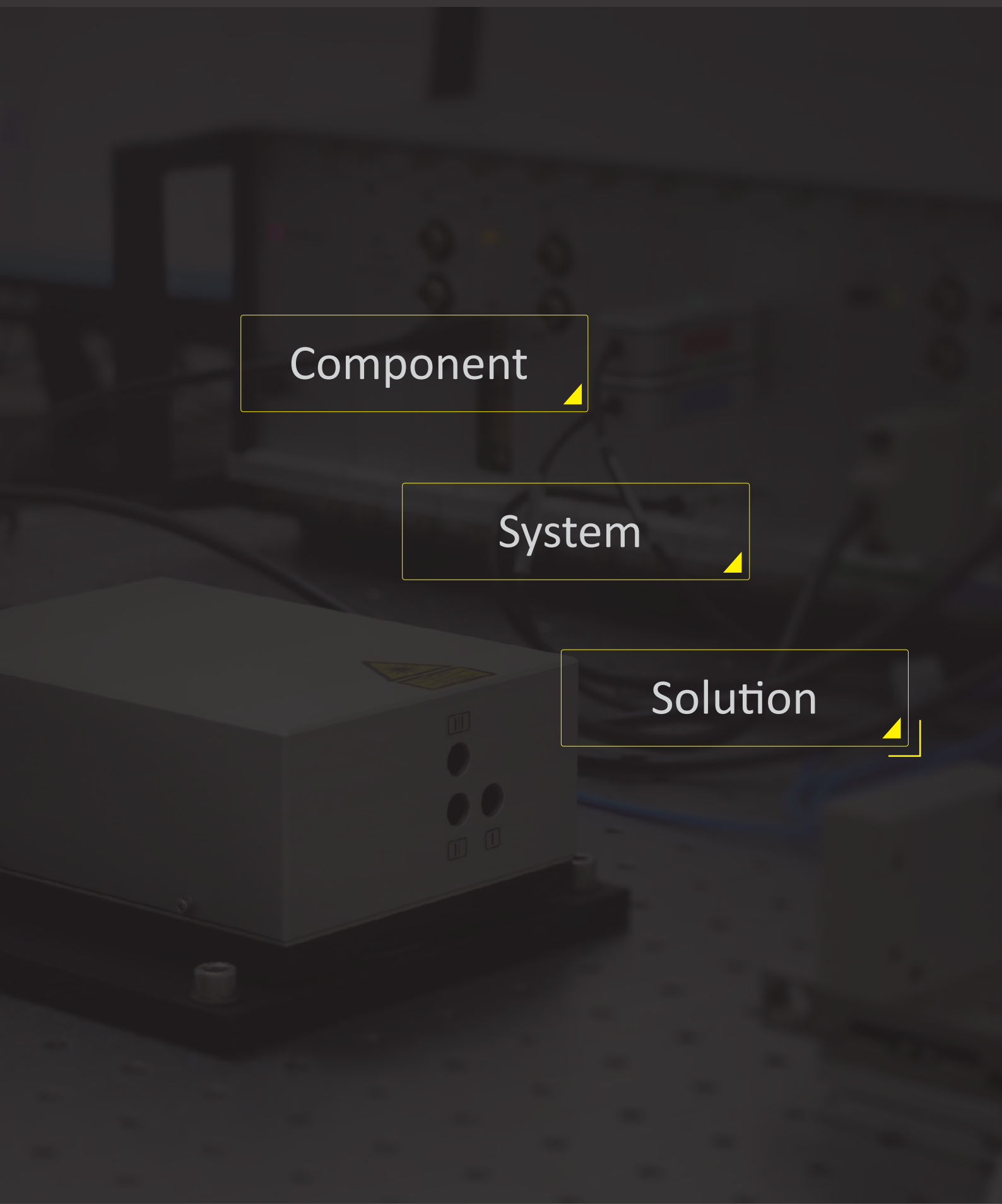
Website Facebook LinkedIn

The professional team from various fields in Taiwan provides the best solution for your requirements.

The micro-nano system department is established for providing more cutting-edge technology services for customers. We provide both solutions of nano-scale positioning and measuring system including piezo motion stage, actuator, atomic force microscope and customized solutions. We also dedicate to developing many innovative designs for the products and have related patents. Our positioning and measuring technologies can be applied in many fields such as nanometrology, high-precision manufacturing, semiconductor industry, optical communication industry, and biomedical engineering.

- Precision & accuracy
- Reliable stability
- Best service


Microscope System
• Ultra-high Precision Multi-axis Stage
• Sample Manipulation System
Academic Research
• Optical System and Precise Positioning
• Nano Material Research
Biomedical technology
• Reagent Testing、Biochip and Medicine Development
• Cell Manipulation and Artificial Fertilization
High-Precision Manufacturing
• Aspherical Lens Precision grinding and Manufacturing
• Micro-electromechanical System and Laser Machining
Semiconductor
• Nano Positioning / Compensating Manufacturing Equipment
• Wafer and Circuit Components Testing
Applications of Nano Positioning & metrology


Component
System
Solution

Piezo Stage

High Precision Positioning,
high Loading Capacity, and Compact Size

Suitable for optical applications,
semiconductor, MEMs, biotechnology,
and precision machining.

Model Selection

PST 1 E 1 28 A

Product
- PST - Piezo positioning stage

Form
- 1 - Linear stage
- 8 - Vertical stage

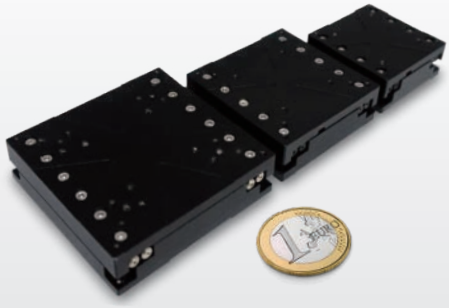
Feedback
- 0 - Open loop
- E - Closed-loop

Material
- A - Anodized aluminum
- S - Stainless steel

Travel range
- 10 - 10 mm (*1)
- 20 - 20 mm (*2)
- 28 - 28 mm
- 36 - 36 mm
- 44 - 44 mm

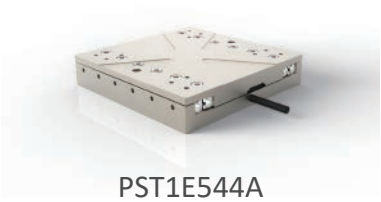
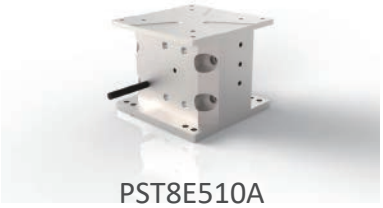
Resolution
- 0 - Open loop
- 1 - 1 nm (*3)
- 3 - 100 nm (*3)
- 5 - 37 nm (*2)

*1. Vertical stage only
*2. Inductive sensor only
*3. Optical sensor only



By years of development, the piezoelectric positioning system has been successfully introduced to many laboratories and research centers in Taiwan, Korea, Japan, Denmark, USA, and Germany.

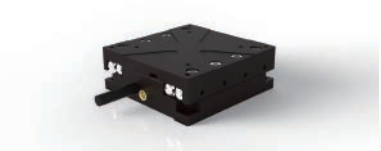
Category

Inductive sensor series	Model number
Linear stage	 PST1E520A
	 PST1E528A
	 PST1E536A
	 PST1E544A
Vertical stage	 PST8E510A
Piezo controller	 PCT1E5(1-3)

High positioning precision, compact structure, reliable stability and no backlash of the piezo positioner is compatible for the applications in the fields of nano technology, semiconductor equipment, ultra-precision manufacturing, optical systems, optical communication industries, and biomedical industry.

Optical sensor series	Model number

Linear stage



PST1E128A, PST1E328A

PST1E136A, PST1E336A

PST1E144A, PST1E344A

Vertical stage

PST8E110A, PST8E310A

Piezo controller

PCT1E3(1-3), PCT1E1(1-3)

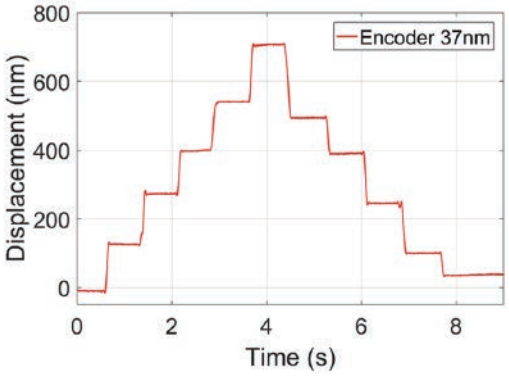
Applications

Inductive sensor standard series

- Piezo drive
- 37 nm resolution
- Up to 4 kg loading for linear type; 150 g for vertical type
- Travel range: 20 to 44 mm for linear type; 10 mm for vertical type
- Models: PST1E520A-544A and PST8E510A
- Compitable controller: PCT1E5(1-3)

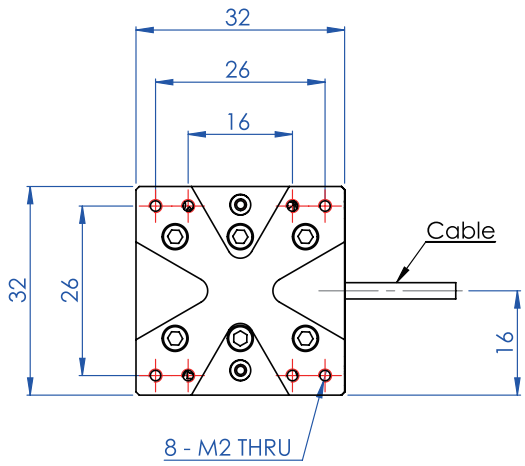
Inductive sensor standard series						
Model number		PST1E520A	PST1E528A	PST1E536A	PST1E544A	PST8E510A
Mechanical Properties	Travel range (mm)	20	28	36	44	10
	Dimension L, W, H (mm)	32x32x12	42x42x12	52x52x12	62x62x12	42x42x35
	Guide Type	Crossed roller bearings				
	Material	Anodized aluminum as standard; Stainless steel				
	Weight (g)	28	46	71	108	97
	Allowable Load	4 kg				150 g
	Allowable Axis Load	150 g				
	Pitch / Yaw	±200 µrad/ ±100 µrad				
Motion Performance	Maximum Speed	10 mm/s				
	Encoder Resolution	37 nm				
	Min. incremental motion	150 nm				
	Bidirectional repeatability	300 nm				
Control	Home function	yes				
	Limit function	yes				
	Compitable controller	PCT1E51, PCT1E52, PCT1E53				

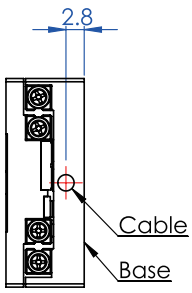
Motion performance

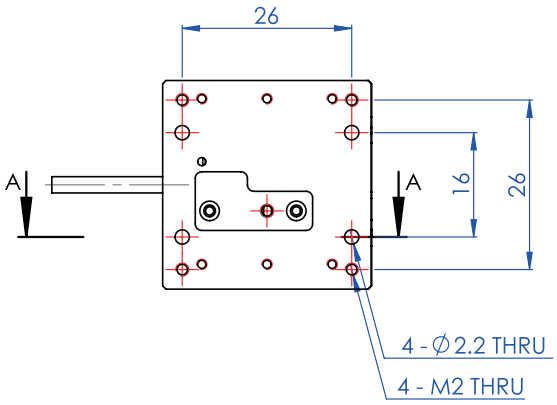


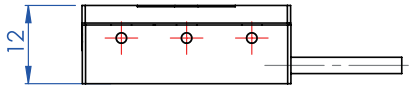
The inductive standard series stages with closed-loop function offer 150 nm and 300 nm for step capability and repeatability, respectively. The performance data is verified by the triple beam interferometer (SP 2000 TR, SIOS Meßtechnik GmbH) for providing the best quality of the measuring result.

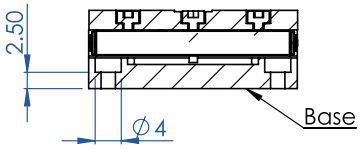
PST1E520A





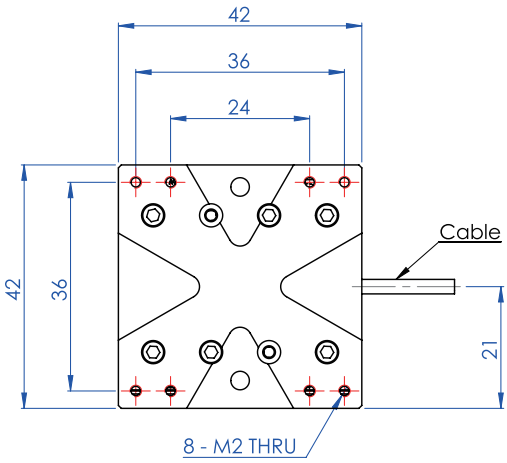


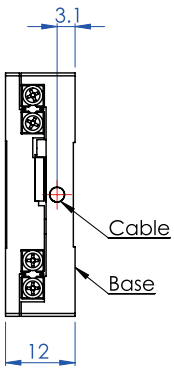


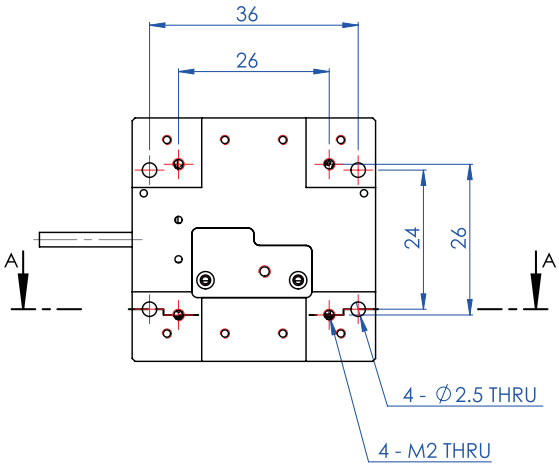


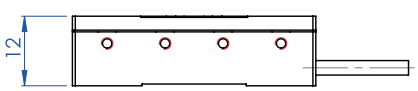
Section A-A

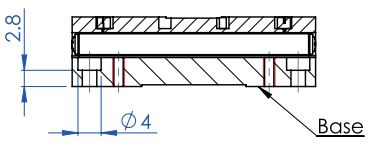
PST1E528A





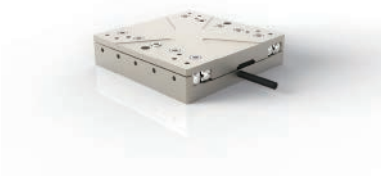


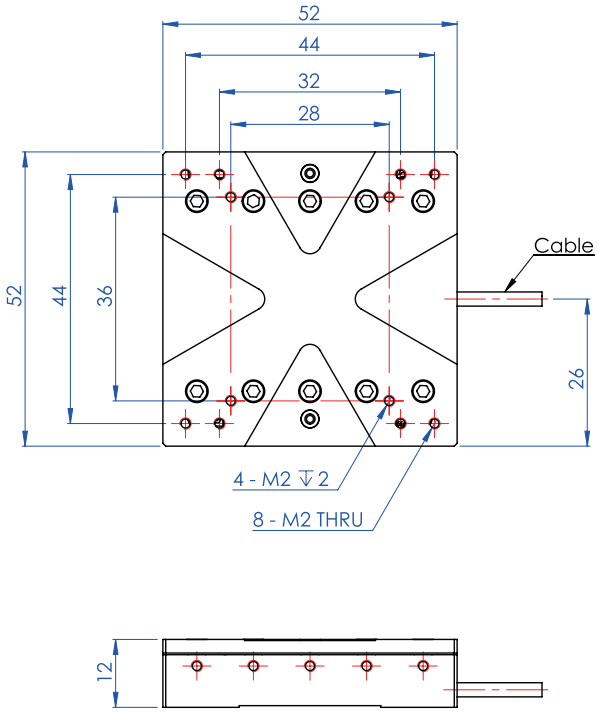


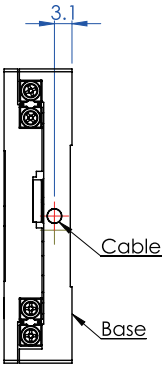


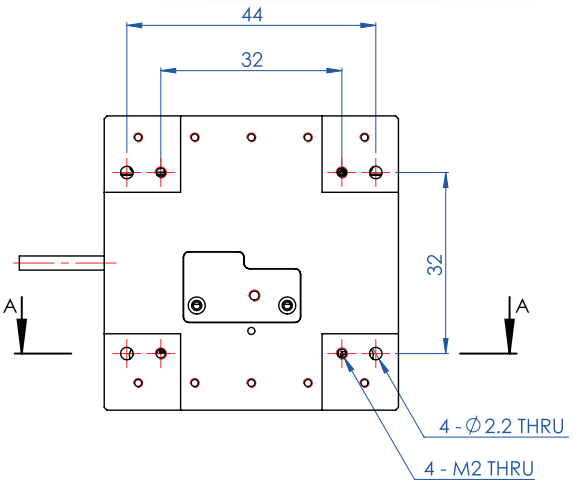
Section A-A

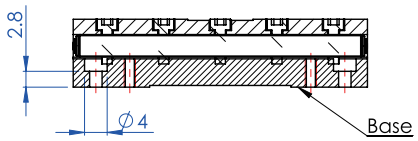
PST1E536A





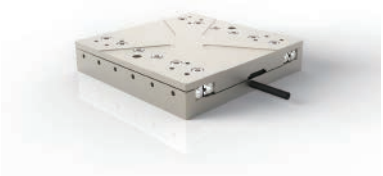


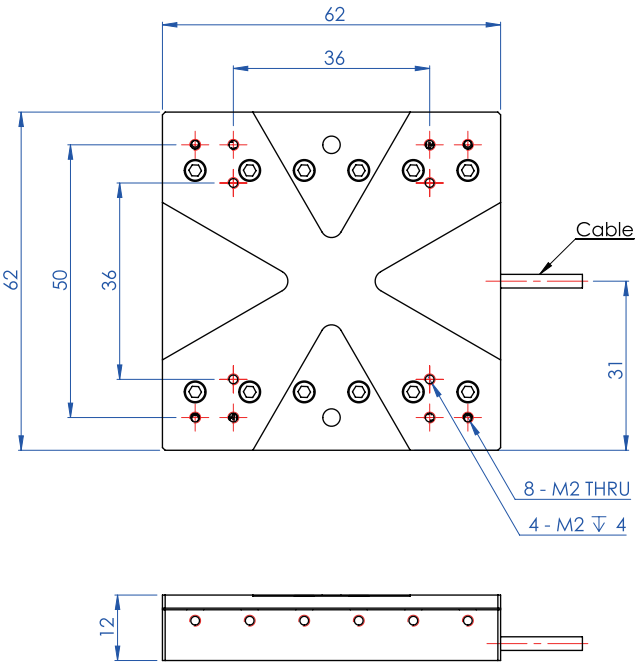


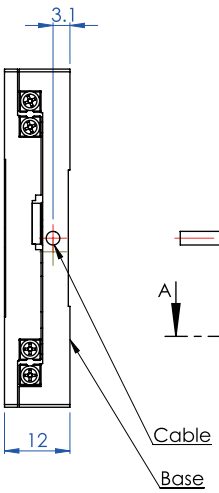


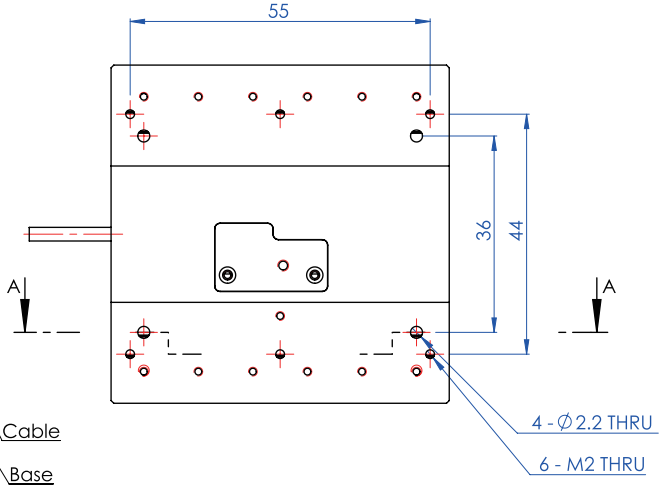
Section A-A

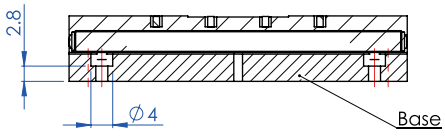
PST1E544A





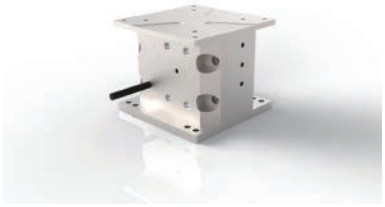


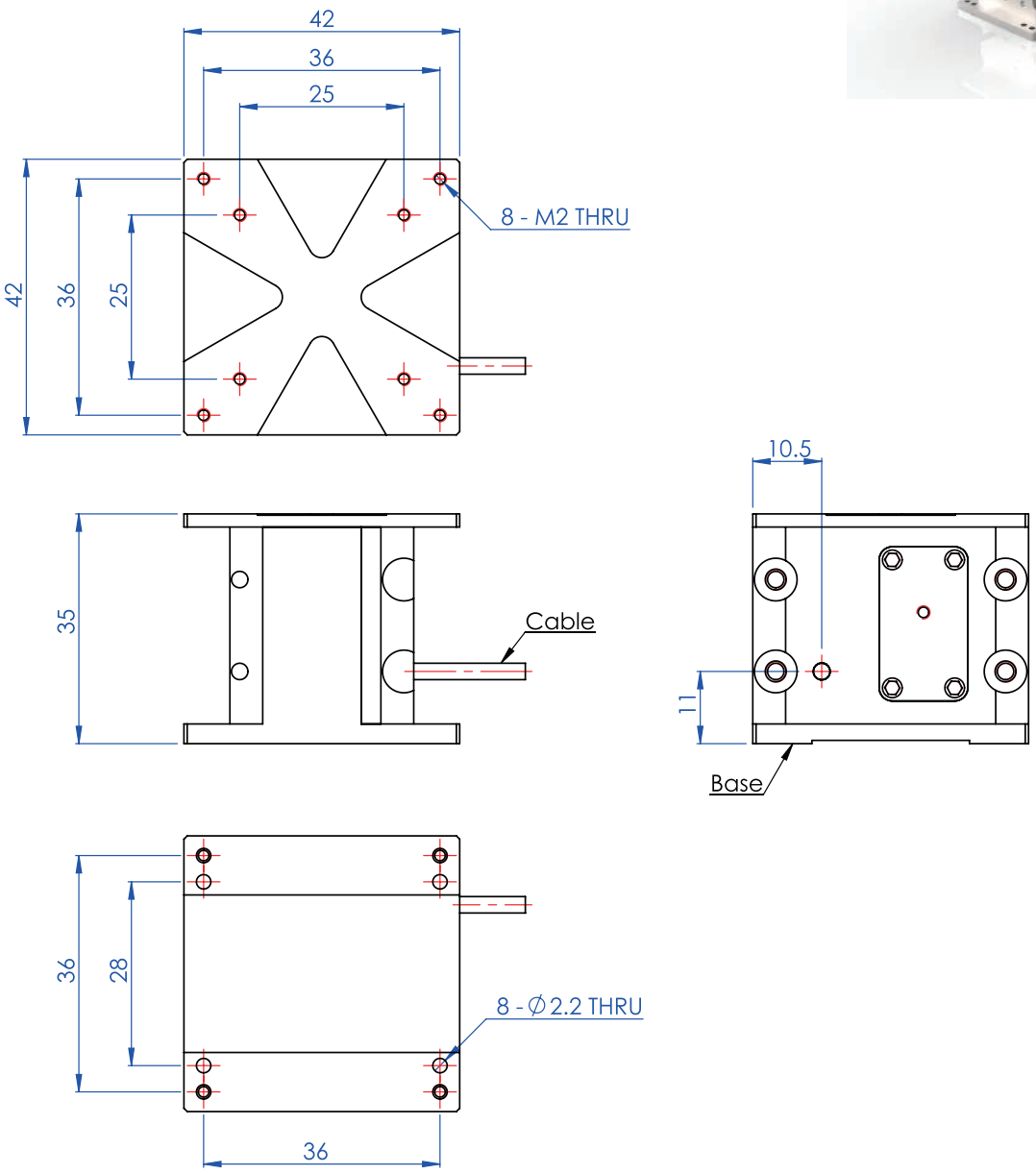




Section A-A

PST8E510A





PCT1E5(1-3)

- Piezo controller for inductive sensor series
- Compact size
- Expandable (controller stackable)
- Selective control interface quantity (1~3)
- Customized design
- Model type: PCT1E51,PCT1E52, PCT1E53

Technical data

of the piezo controller for inductive sensor based stage

ITEM	DESCRIPTION	UNIT
Dimension	130x180x45	mm
Supported axis-quantity	1~3	Port
Compatible stage type	Inductive series	--
Communication interface	Virtual COM over USB-B 2.0	--
Commands	ASCII	--
Input voltage	15	V_{dc}
Input current	4~6	A
Output voltage	0~90	V_{dc}
Output current	0.3	A
Resolution	37	nm
Output maximum frequency	15,000	Hz
Weight	580	g
Power supply	90	W
User interface	C#	--

Compact controller size

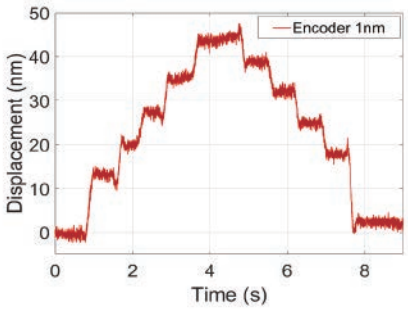
Flexible and expandable design

Optical sensor high-precision/standard series

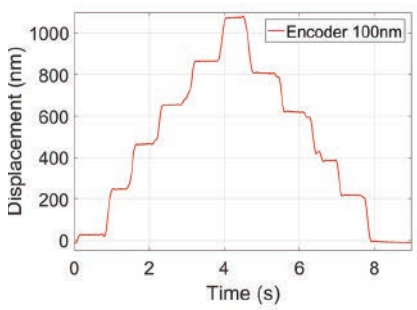
- Piezo drive
- 1 nm/ 100 nm resolution
- Up to 4 kg loading for linear type; 150 g for vertical type
- Travel range: 28 to 44 mm for linear type; 10 mm for vertical type
- Models:
  PST1E128A-144A and PST8E110A (High-precision)
  PST1E328A~344A, and PST8E310A (Standard)
- Compitable controller: PCT1E1(1-3) and PCT1E3(1-3)

Optical sensor high-precision/standard series					
Model number		PST1E128A/328A	PST1E136A/336A	PST1E144A/344A	PST8E110A/310A
Mechanical Properties	Travel range (mm)	28	36	44	10
	Dimension L, W, H (mm)	42x42x15	52x52x15	62x62x15	42x42x37
	Guide Type	Crossed roller bearings			
	Material	Anodized aluminum as standard; Stainless steel			
	Weight (g)	53	85	130	165
	Allowable Load	4 kg			150 g
	Allowable Axis Load	150 g			
	Pitch / Yaw	±200 µrad/ ±100 µrad			
Motion Performance	Maximum Speed	10 mm/s			
	Encoder Resolution	1 nm/ 100 nm			
	Min. incremental motion	15 nm/ 300 nm			
	Bidirectional repeatability	50 nm/ 500 nm			
Control	Home function	yes			
	Limit function	yes			
	Compitable controller	PCT1E11, PCT1E12, PCT1E13/ PCT1E31, PCT1E32, PCT1E33			

Motion performance



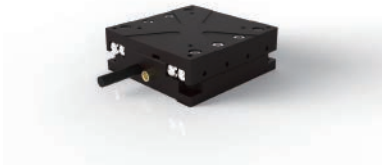
High-precision series

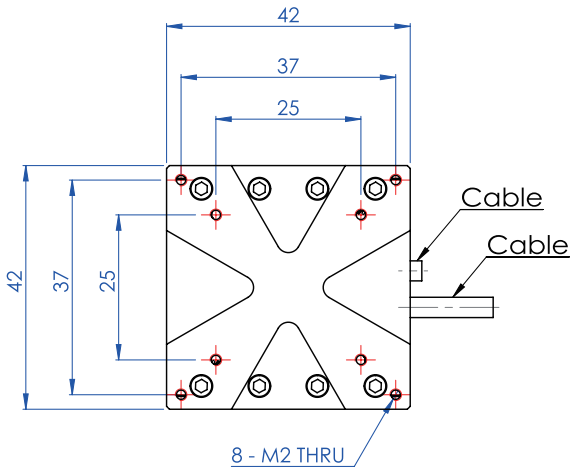


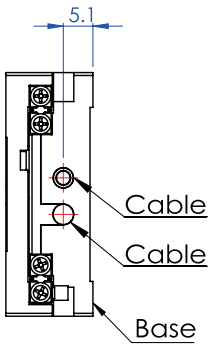
Standard series

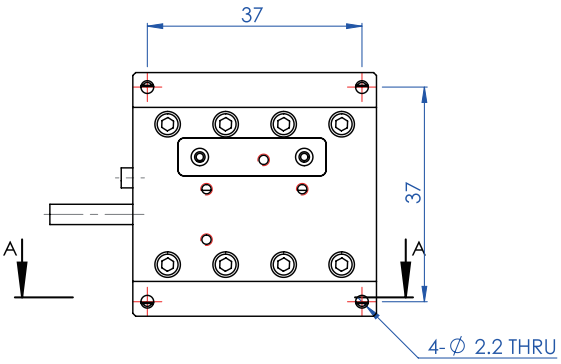
The optical high-precision (standard) series stages with closed-loop function offer 15 (150) nm and 50 (300) nm for step capability and repeatability, respectively. The performance data is verified by the triple beam interferometer (SP 2000 TR, SIOS Meßtechnik GmbH) for providing the best quality of the measuring result.

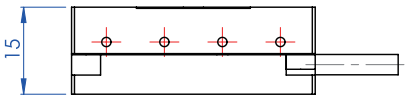
PST1E128A/PST1E328A

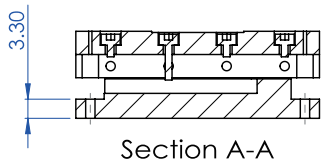




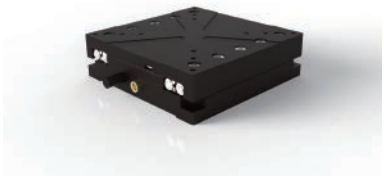


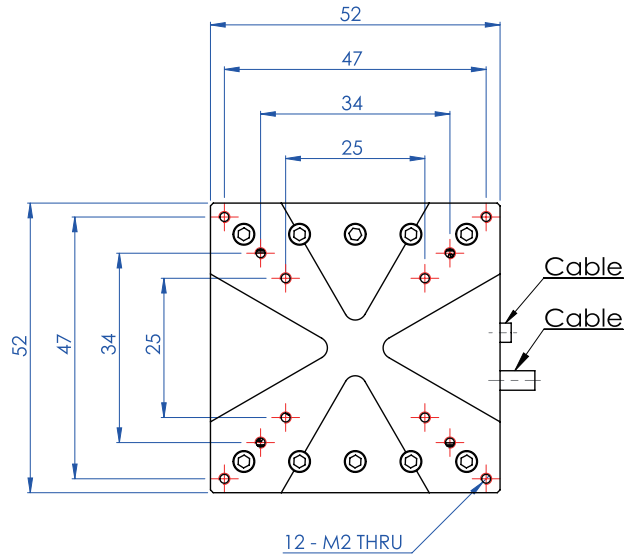


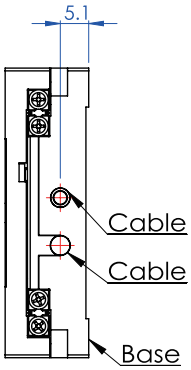


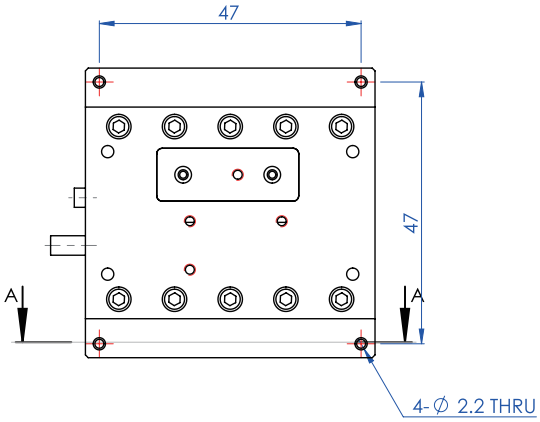


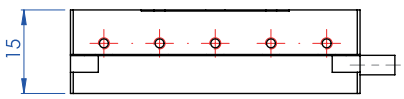
PST1E136A/PST1E336A

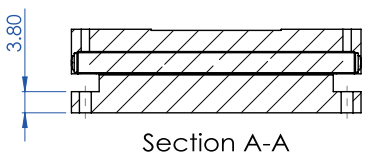




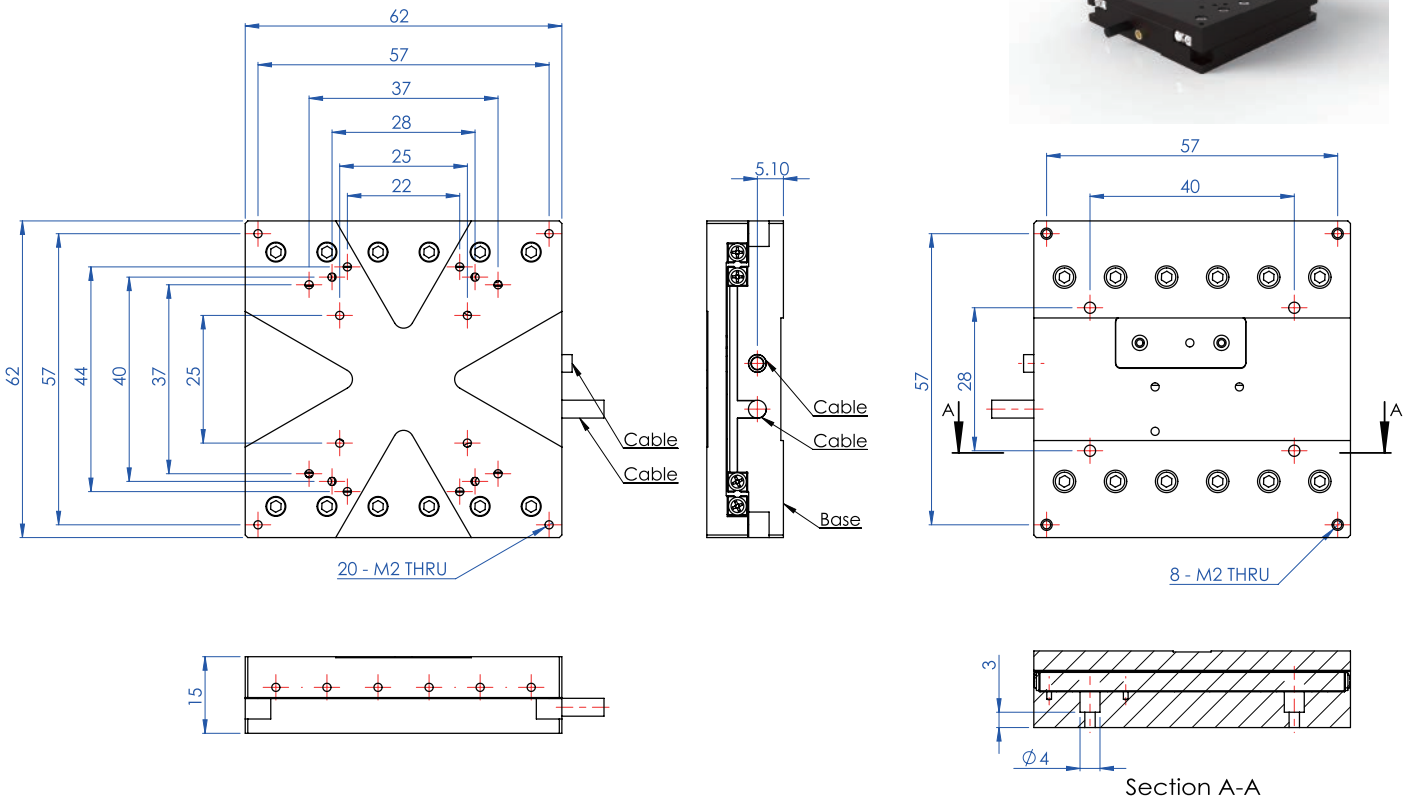




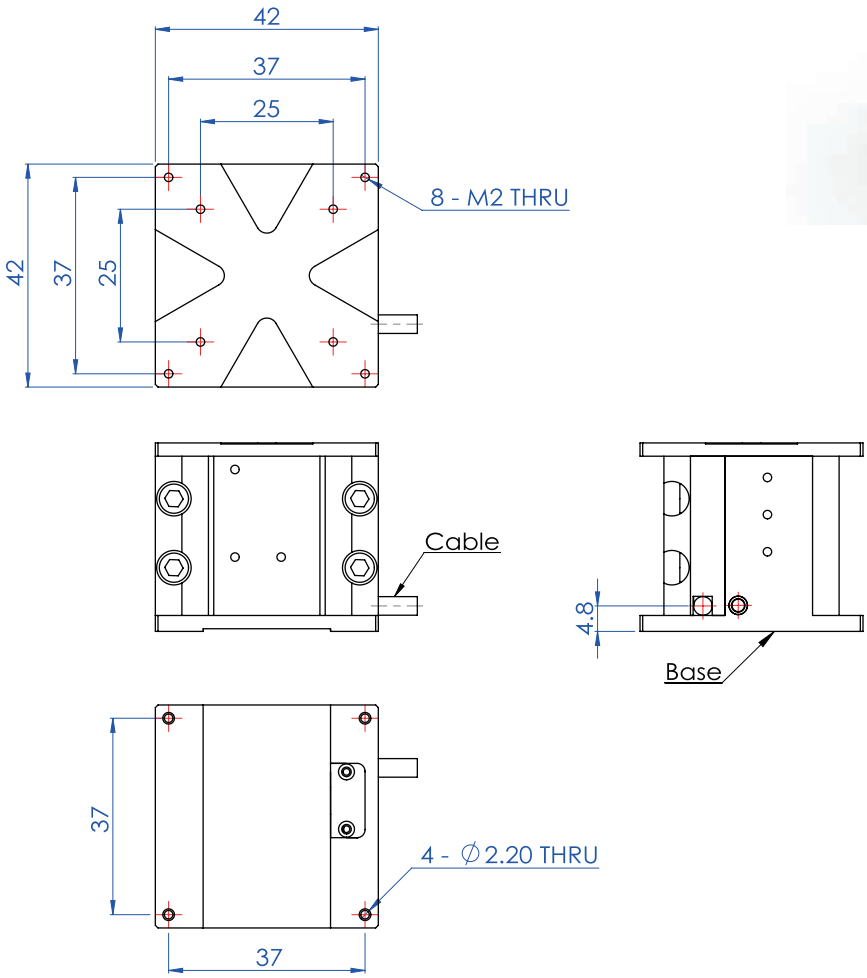




PST1E144A/PST1E344A



PST8E110A/PST8E310A



PCT1E1(1-3)/PCT1E3(1-3)

- Piezo controller for optical sensor series
- Compact size
- Expandable (controller stackable)
- Selective control interface quantity (1~3)
- Selective control interface (USB/SMA)
- Customized design
- Model type:
  PCT1E11,PCT1E12, PCT1E13
  PCT1E31,PCT1E32, PCT1E33

Technical data

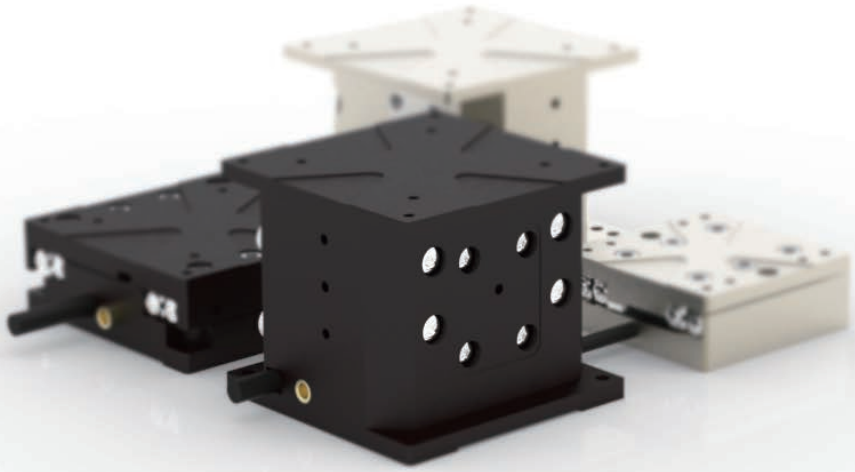
of the piezo controller for **optical** sensor based stage

ITEM	DESCRIPTION	UNIT
Dimension	130x180x45	mm
Supported axis-quantity	1~3	Port
Compatible stage type	Optical series	--
Communication interface	Virtual COM over USB-B 2.0	--
Commands	ASCII	--
Input voltage	15	V_{dc}
Input current	4~6	A
Output voltage	0~90	V_{dc}
Output current	0.3	A
Resolution	1 / 100	nm
Output maximum frequency	15,000	Hz
Weight	580	g
Power supply	90	W
User interface	C#	--

Flexible and expandable design

Compact controller size

Enable your idea
Enhance the precision



OME NANO

Atomic Force Microscope

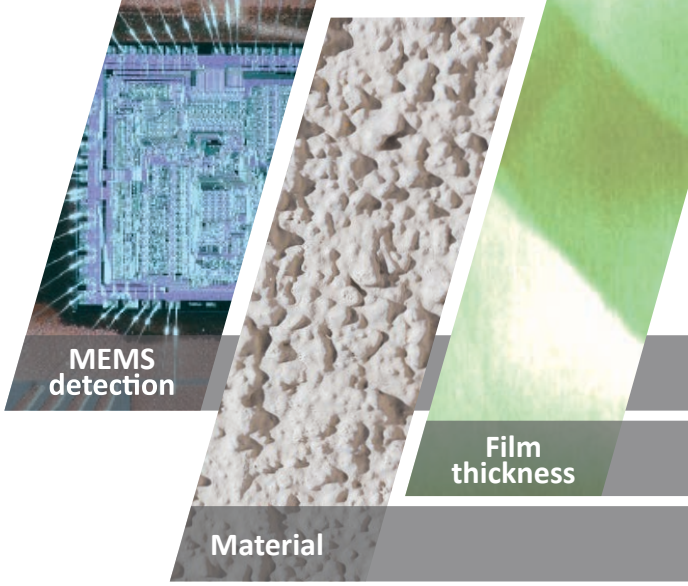
Compact size, Reliable quality, Affordable price,

Best solution, and Innovative design

Suitable for fundamation nano-education and reserches.

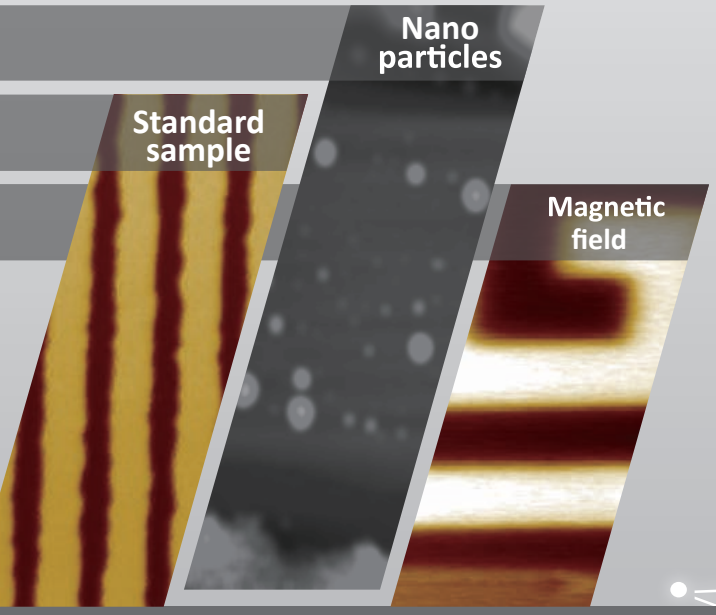
We introduce you the Crabi-AFM.

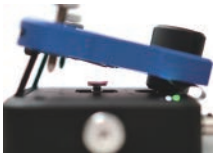
The best budget AFM.



The same image resolution

with half price & 1/5 system size





Crabi-AFM-E-01

- Compact size
- Reliable quality
- Affordable price
- Best solution
- Innovative design

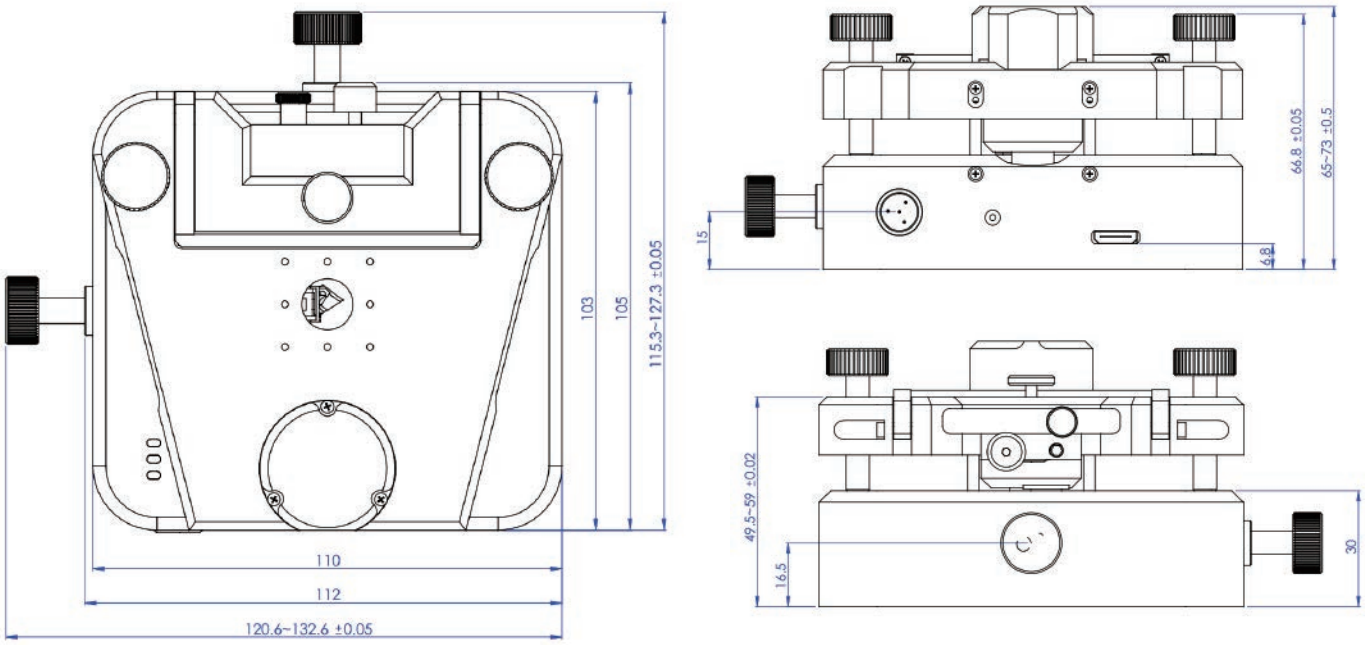
The CrabiAFM system is the most affordable atomic force microscope for nano-education, fundamental research, and related skill training. The patented innovative core technology provides reliable image results with compact system size. The CrabiAFM must be the best solution for your requirements.

Specifications

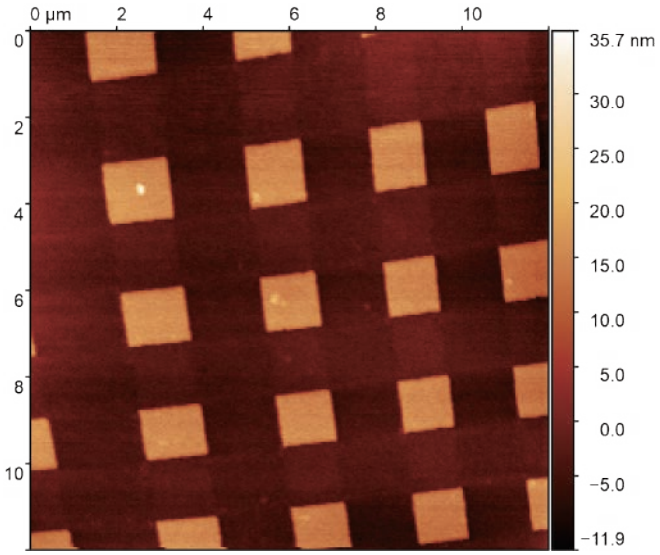
Functions	CrabiAFM-E-01	Unit
DAC/ADC	12	bits
Max. scan range	10	μm
Max. scan height	1.4	μm
XY resolution	2.5	nm
Z resolution	0.35	nm
Scan speed	>2	Hz
Image modes	AC mode, Amplitude error, Phase	--
Spectroscopy modes	Force-distance	--
Max. sample size/height	12/4	mm
Max. sample positioning range	12 in XY	mm
Approach	Auto/ 6 mm	mm
Top image	No	--
Size	110x110x67	mm
Software differences		
Set scanning area angle	Yes	
Set scanning area via resolved image	Yes	
Image display color setting	Yes	

*Core technology patent applying

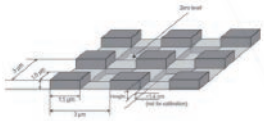
Mechanical drawing



Resolved reference image



Scanning parameters



Scan range: 12 by 12 micron
Scan speed: 1 Hz
Probe frequency: ~300 kHz
Sample: Standard sample from NT-MDT - TGQ1

Sample specification

Grating description	
Structure	- Si wafer
Pattern types	3-Dimensional array of small rectangles
Period	3.0±0,05 µm
Height	20nm ±1,5 nm*
Rectangles side size:	1,5±0,35 µm
Chip size	5x5x0,5 mm
Effective area	central square 3x3 mm

Image Analysis

A free SPM (Scanning probe microscopy) image analyzer is recommended here: **Gwyddion**
It is a modular program for SPM data visualization and analysis. Primarily it is intended for the analysis of height fields obtained by scanning probe microscopy techniques (AFM, MFM, STM, SNOM/NSOM) and it supports a lot of SPM data formats. However, it can be used for general height field and (greyscale) image processing, for instance for the analysis of profilometry data or thickness maps from imaging spectrophotometry.

Refer from: http://gwyddion.net/