

# 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

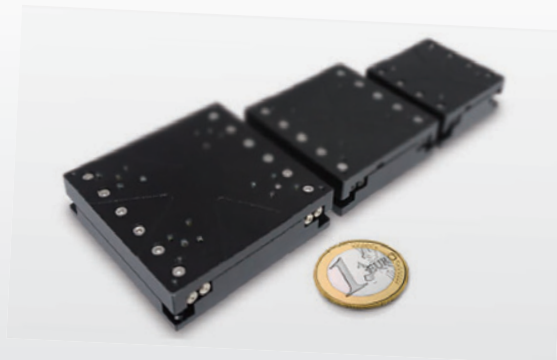
## Travel range

└ 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)



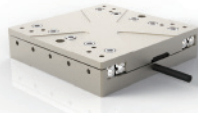
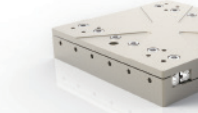

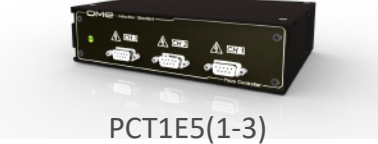
- \*1. Vertical stage only
- \*2. Inductive sensor only
- \*3. Optical sensor only



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
<p><b>Linear stage</b></p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>PST1E520A</p> </div> <div style="text-align: center;">  <p>PST1E528A</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>PST1E536A</p> </div> <div style="text-align: center;">  <p>PST1E544A</p> </div> </div>
<p><b>Vertical stage</b></p>	<div style="text-align: center;">  <p>PST8E510A</p> </div>
<p><b>Piezo controller</b></p>	<div style="text-align: center;">  <p>PCT1E5(1-3)</p> </div>

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



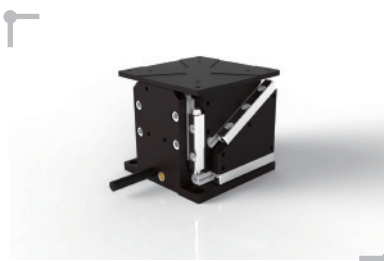
Vertical stage



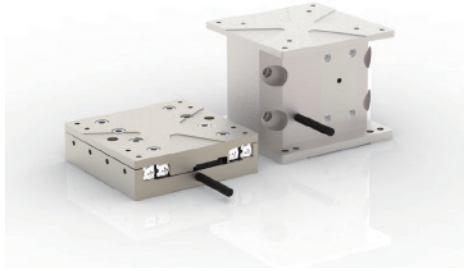
Piezo controller



Applications



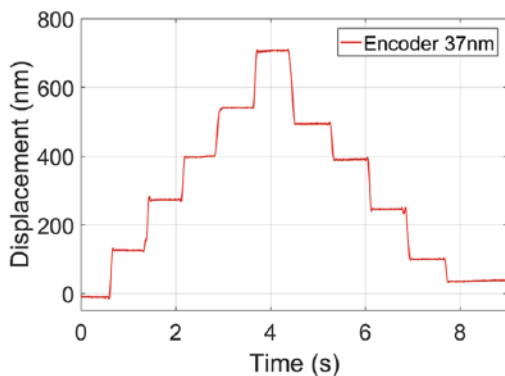
## Inductive sensor standard series



- 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
- Compatible 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	$\pm 200 \mu\text{rad} / \pm 100 \mu\text{rad}$				
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				
	Compatible controller	PCT1E51, PCT1E52, PCT1E53				

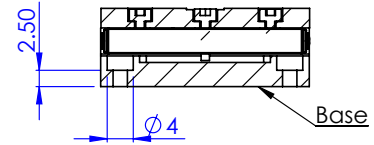
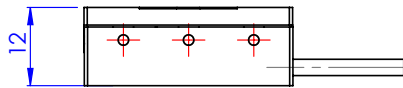
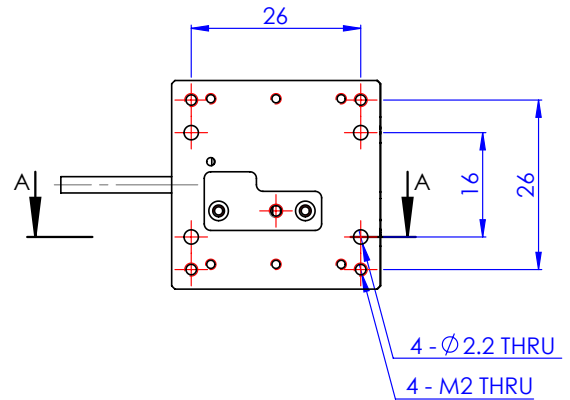
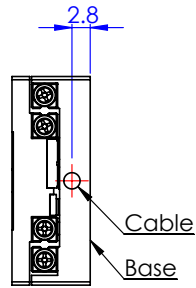
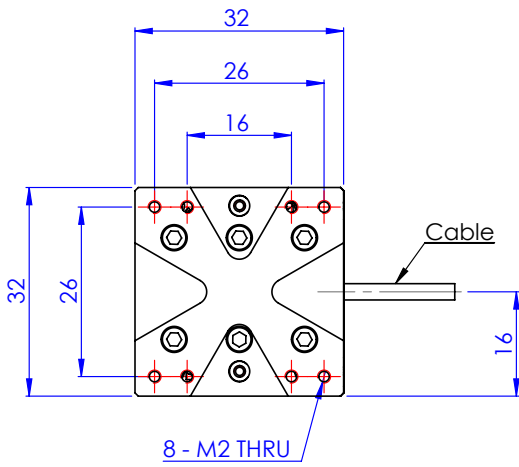
## Motion performance



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.

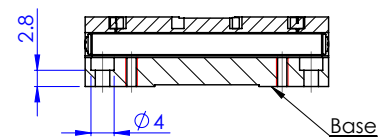
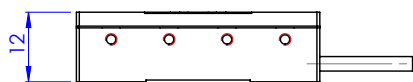
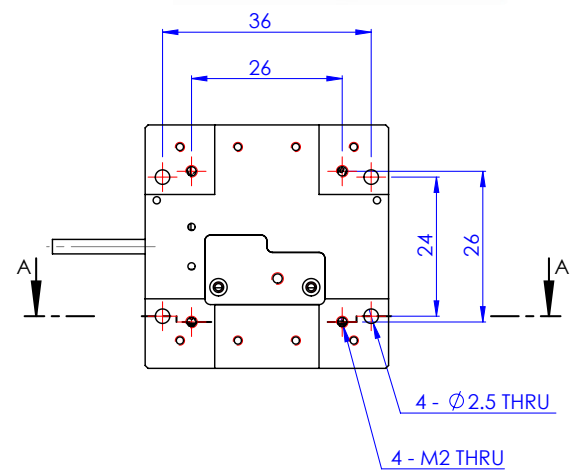
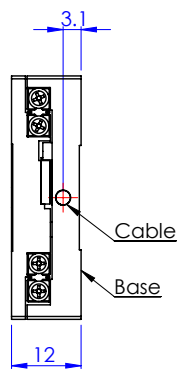
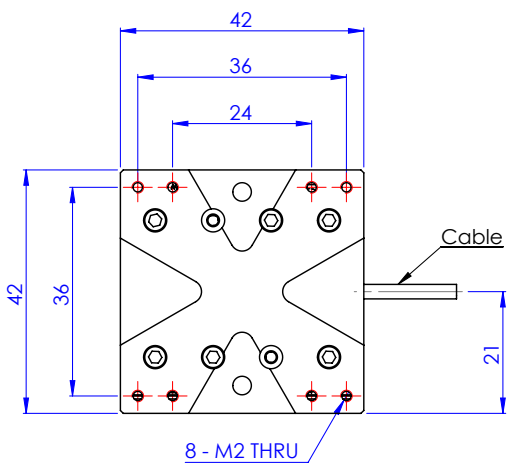
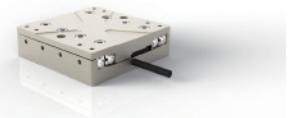


### PST1E520A



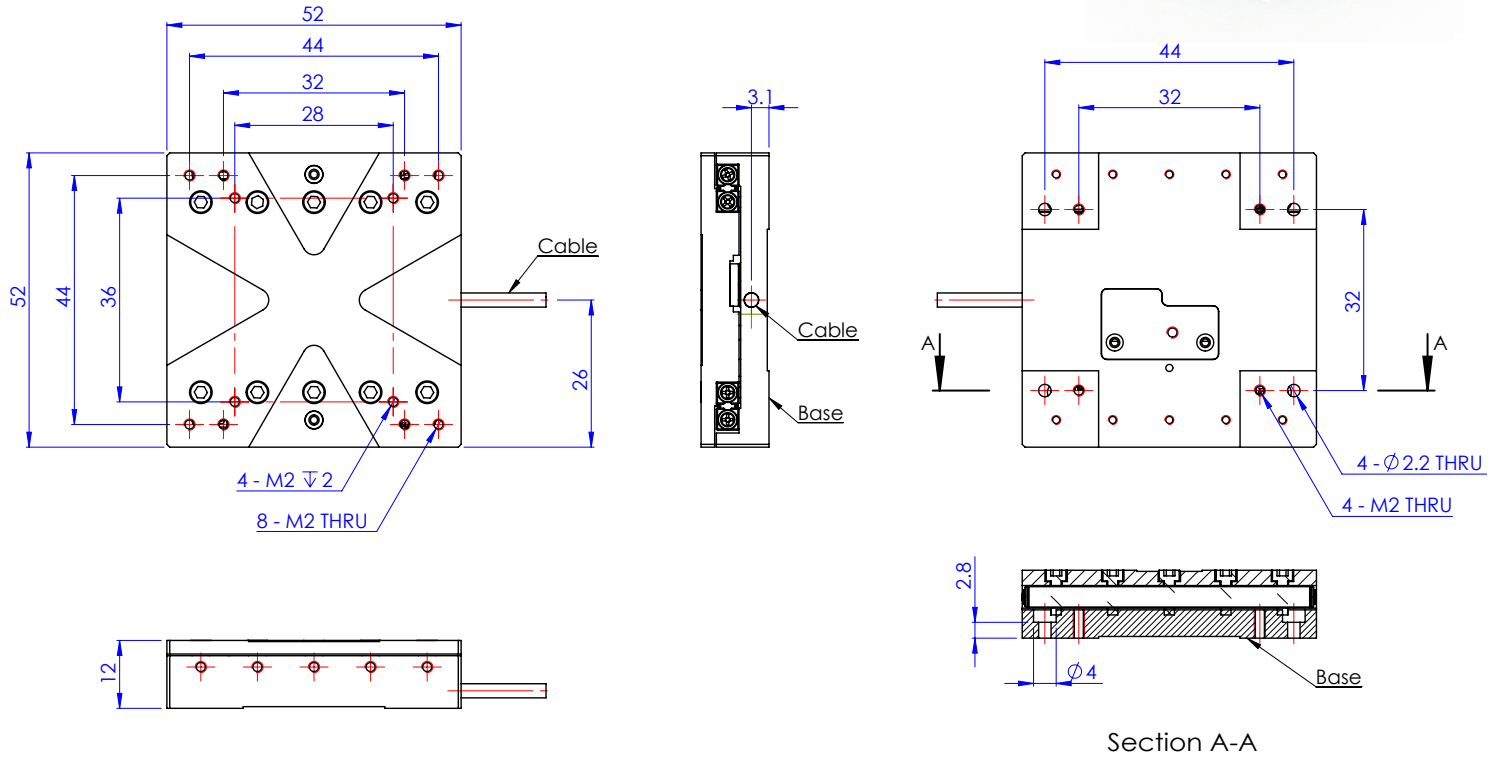
Section A-A

### PST1E528A

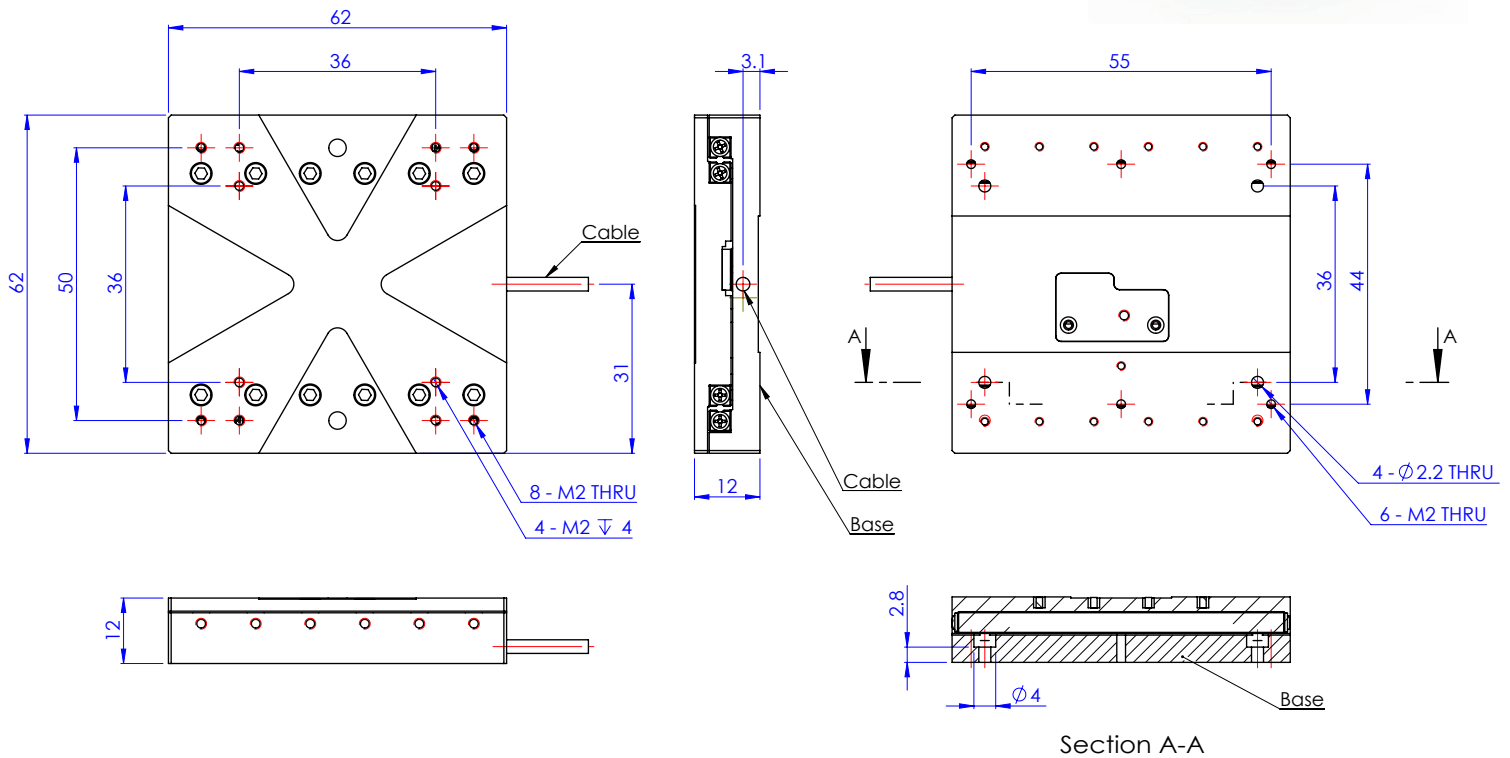


Section A-A

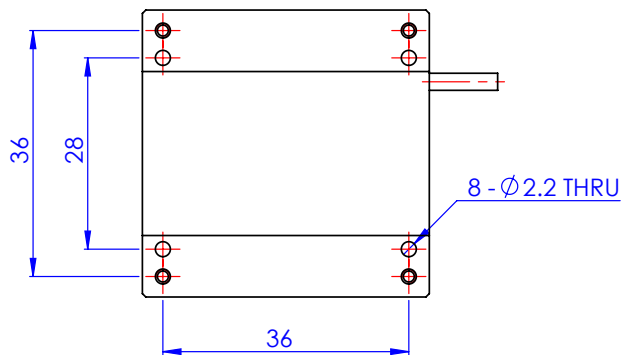
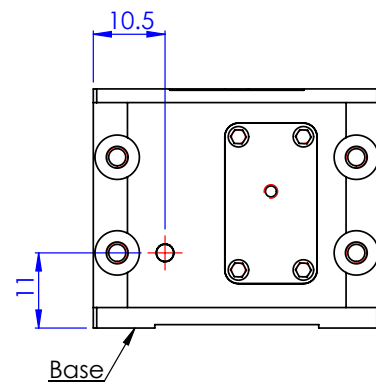
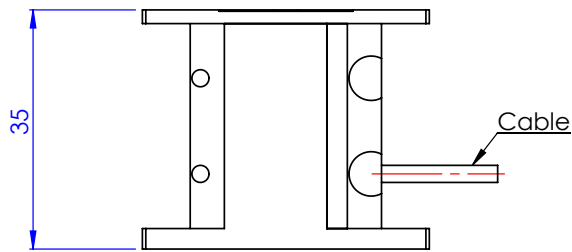
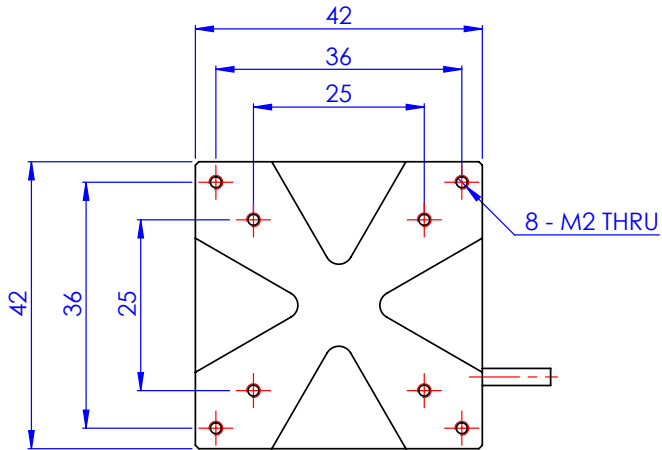
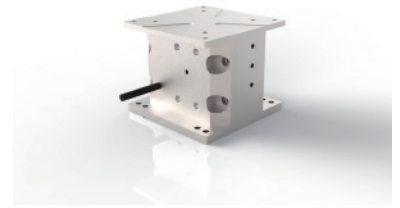
## PST1E536A



## PST1E544A



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 <sub>dc</sub>
Input current	4~6	A
Output voltage	0~90	V <sub>dc</sub>
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

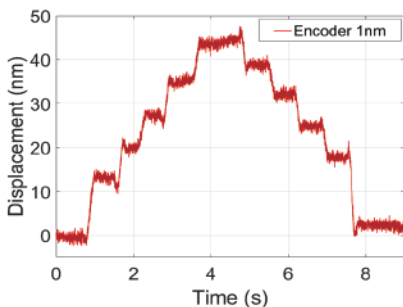
# Optical sensor high-precision/standard series



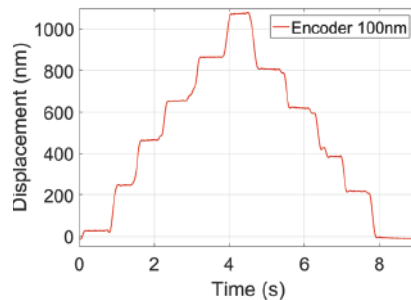
- Piezo drive
- 1 nm/ 100 nm resolution
- Up to 4 kg loading for linear type; 150 g for vertical type
- Travel range: 28 to 44 mm for linear type; 10 mm for vertical type
- Models:  
PST1E128A-144A and PST8E110A (High-precision)  
PST1E328A~344A, and PST8E310A (Standard)
- Compitable controller: PCT1E1(1-3)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

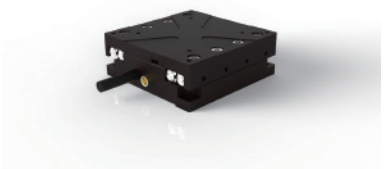
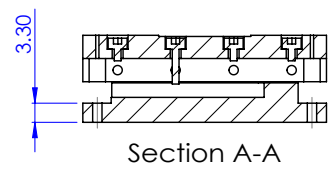
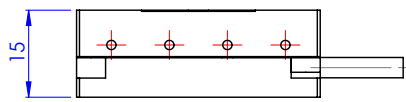
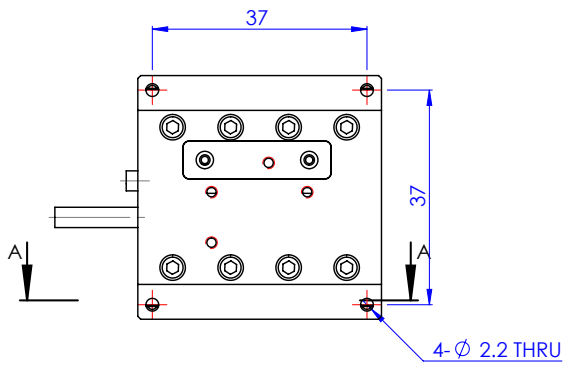
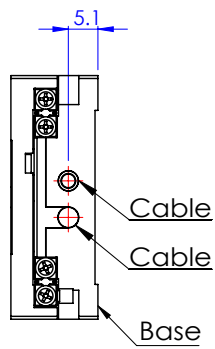
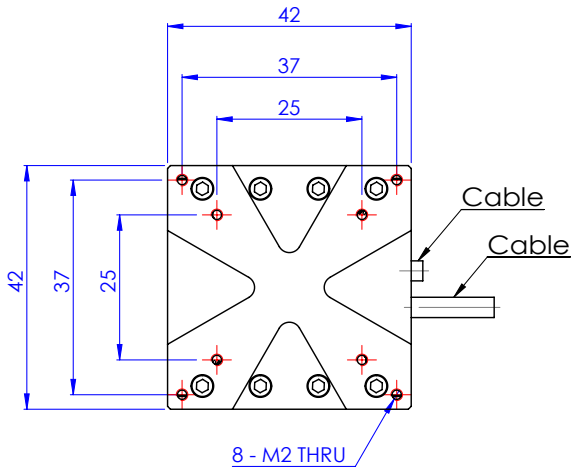


Standard series

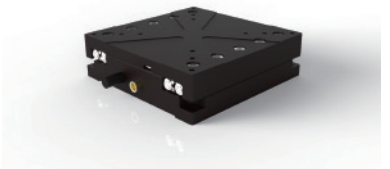
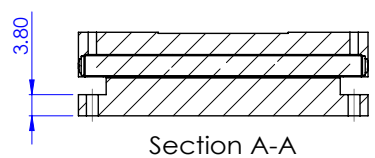
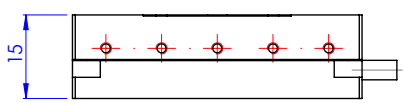
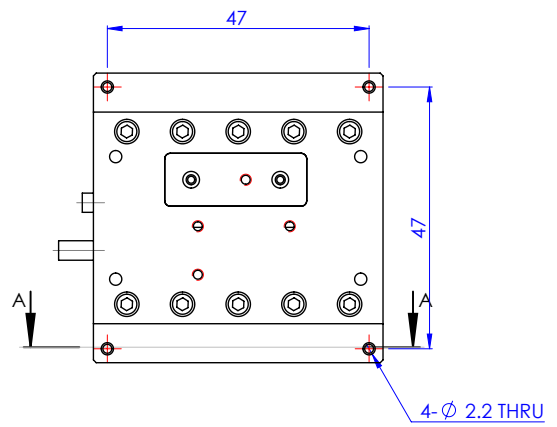
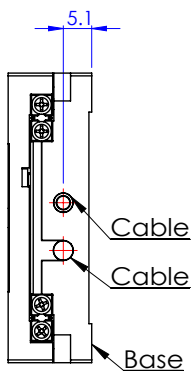
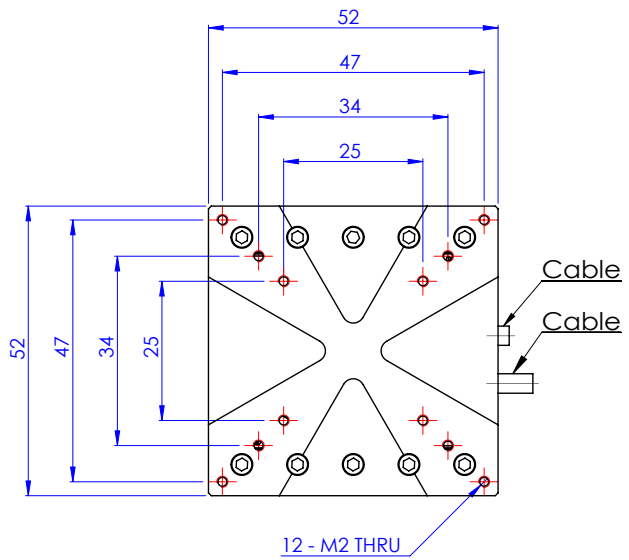
The optical high-precision (standard) series stages with closed-loop function offer 15 (150) nm and 50 (300) nm for step capability and repeatability, respectively. The performance data is verified by the triple beam interferometer (SP 2000 TR, SIOS Meßtechnik GmbH) for providing the best quality of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



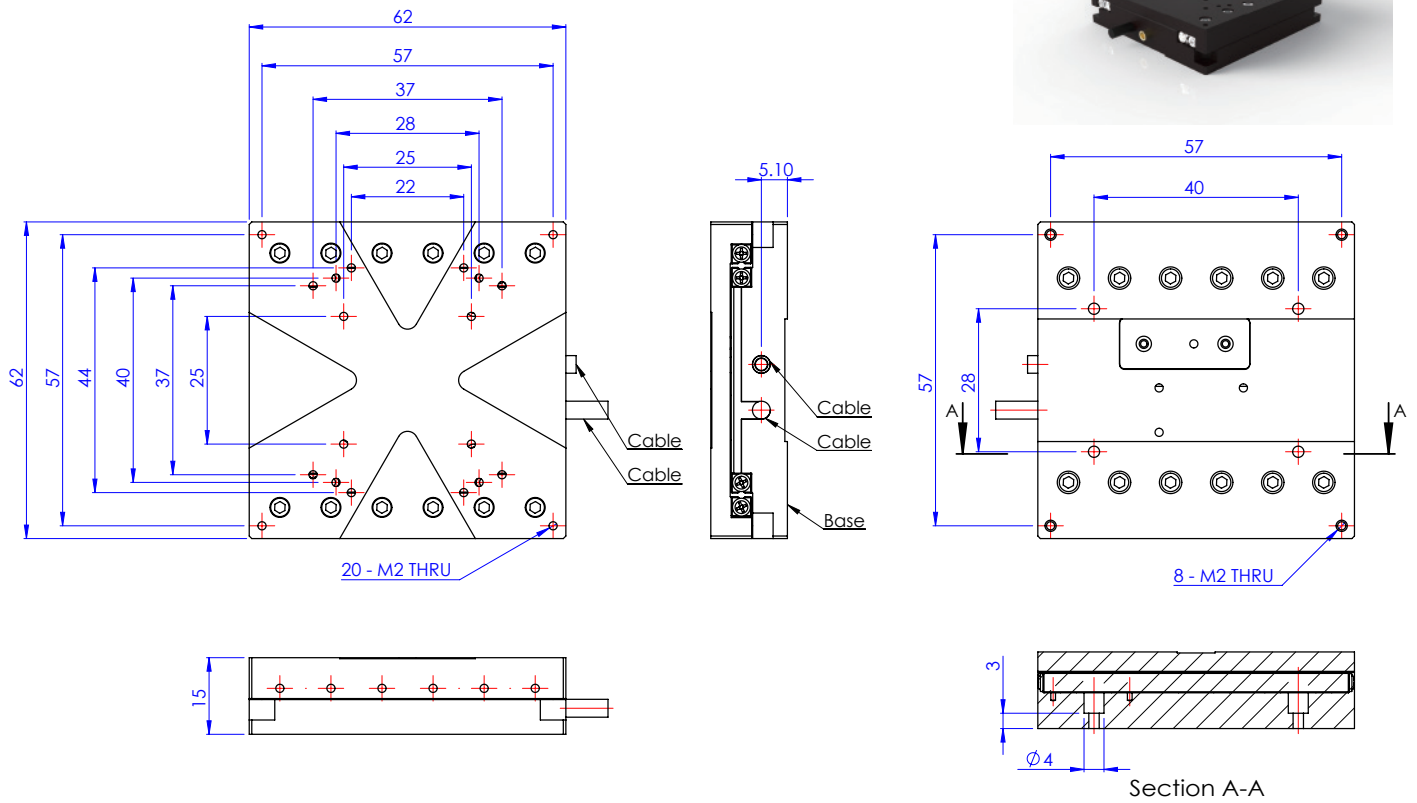
### PST1E128A/PST1E328A



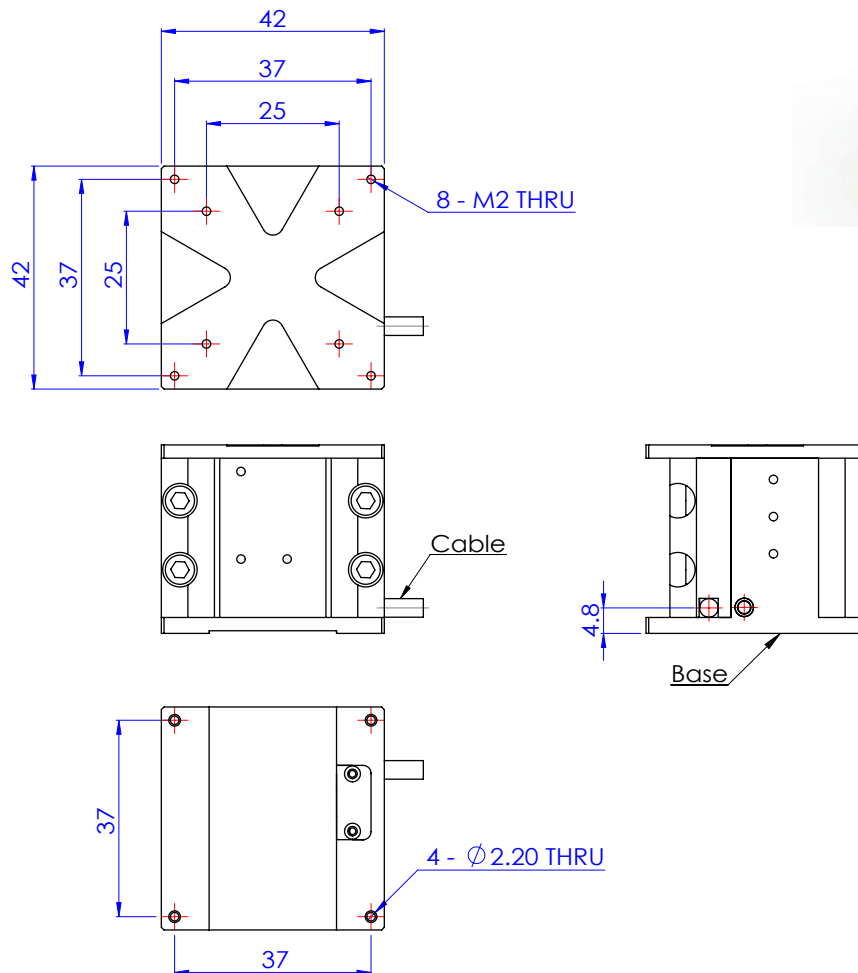
### PST1E136A/PST1E336A



### 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

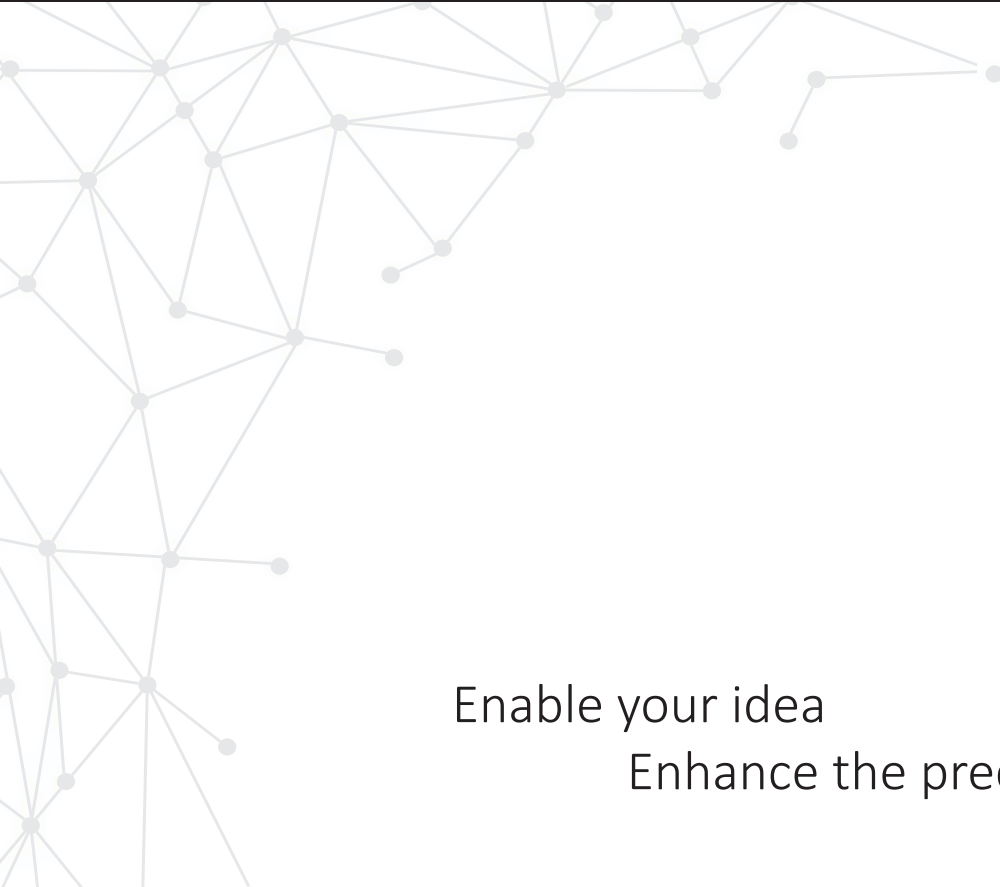
ITEM	DESCRIPTION	UNIT
Dimension	130x180x45	mm
Supported axis-quantity	1~3	Port
Compatible stage type	Optical series	--
Communication interface	Virtual COM over USB-B 2.0	--
Commands	ASCII	--
Input voltage	15	V <sub>dc</sub>
Input current	4~6	A
Output voltage	0~90	V <sub>dc</sub>
Output current	0.3	A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



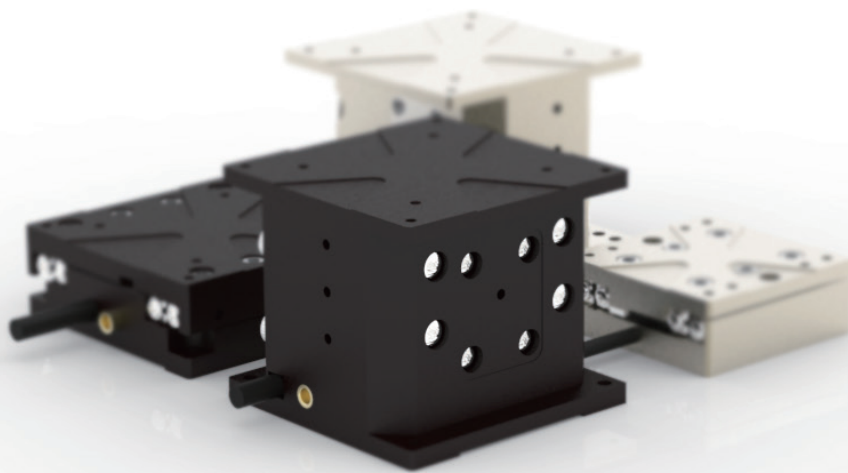
Flexible and expandable design



Compact controller size



Enable your idea  
Enhance the precision



OME NANO