

Customization

Business Field

- Logistic Device**
- Medical Device**
- Cosmetic Device**
- Surveillance Device**
- Semiconductor Device**

Logistic Device : AF Module

PT-AF50

Speed	10mm/sec
Thrust Force	10gf
Stroke	5mm
Resolution	2μm(MR Sensor)
Power Consumption	<400mW
Size	15.5mm x 15.8mm x 12mm
Actuator	TULA50x1



PT-AF35

Speed	8mm/sec
Thrust Force	20gf
Stroke	5mm
Resolution	2μm(MR Sensor)
Power Consumption	<300mW
Size	15.5mm x 15.8mm x 13mm
Actuator	TULA35x1



Medical Device : AF Module

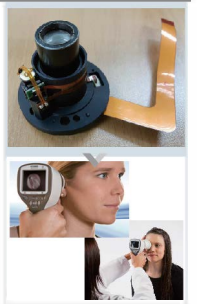
PT-AF50SD

Speed	10mm/sec
Thrust Force	20gf
Stroke	5mm
Resolution	1μm(Magnetic Encoder)
Lens size	Φ16
Power Consumption	<600mW
Actuator	TULA50x2



PT-AF700

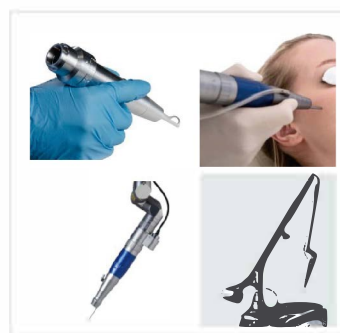
Speed	10mm/sec
Thrust Force	40gf
Stroke	8mm
Resolution	1μm(Magnetic Encoder)
Lens size	Φ19
Power Consumption	<500mW
Actuator	TULA70x1



Cosmetic Device : Moving Module

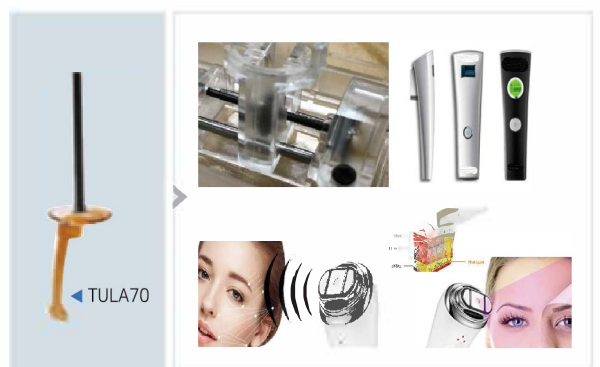
- Zooming module for Motorized Hand Piece

Items	Contents
Application	Moving module
Actuator	TULA70 X 1
Stroke	6mm
Size	Φ40 X 29mm
Resolution	1um
Communication	RS232
Temperature	0~60°C
Power	DC5V



- Piezo motor for HIFU Device with Pieze Motor

Items	Contents
Application	HIFU Device
Actuator	TULA70 X 1
Stroke	10~15mm
Speed	>15mm/sec



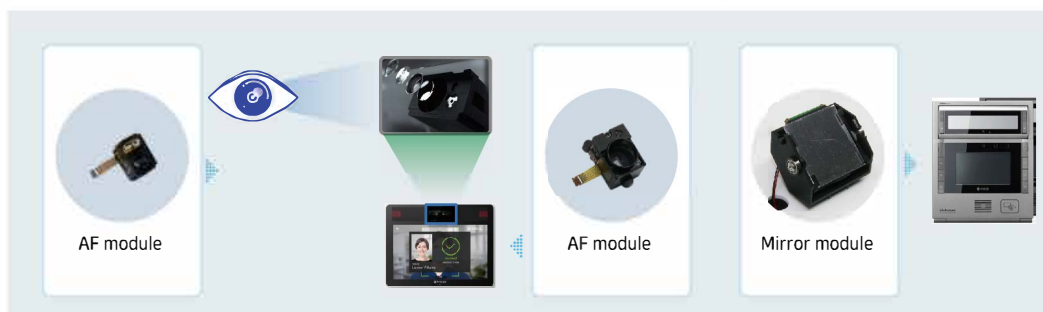
Ultrasonic HiFu Lifting

It is a device using the principle of regeneration when the skin is injured. It gives high-intensity ultrasonic stimulation to the skin, but only damages the inside of the targeted skin without damaging the skin surface, changing it to a new skin using the human body's regenerative ability



Surveillance Device : AF Module

IRIS Recognition

	AF35B-IR1	AF35-IR2	MR50-IR3
Max Speed	≥ 8mm/s	≥ 8mm/s	≥ 100°/s
Resolution	1μm ± 3	1μm ± 3	0.01°
Driving Frequency	110~130kHz	90~110kHz	60 ~ 70kHz
Power Consumption	≤ 120mW	≤ 120mW	≤ 750mW
Operating Temperature	-20°C ~ 75°C	-20°C ~ 75°C	-20°C ~ 75°C
Dimension(W×L×H)	15.6mm x 10mm x 11.2mm	15.5mm x 21.5mm x 12.25mm	63.7mm x 34.5mm x 45.9mm
Actuator	TULA35B (1EA)	TULA35 (1EA)	TULA50 (1EA)
Lens Weight	0.5g	2.0g	N/A
Mirror Weight	N/A	N/A	4.0g
Angle	N/A	N/A	±11°
Stroke	0.6mm	0.8mm	N/A



IR Filter Change for Day and Night

	ICR50-A		ICR70-B	
Max Speed	>10mm/s		Max Speed	>20mm/s
Resolution	On-Off System		Resolution	On-Off System
Driving Frequency	70±10%kHz		Driving Frequency	50±10%kHz
Power Consumption	< 500mW		Power Consumption	< 700mW
Operating Temperature	-15°C~70°C		Operating Temperature	-15°C~70°C
Dimension(W×L×H)	33.6 × 33 × 5.3mm		Dimension(W×L×H)	45.1 × 37.3 × 8.9mm
Actuator	TULA50×1		Actuator	TULA70×1
Filter Size	10.6×9.4mm		Filter Size	18.1×12.8mm
Stroke	10.0mm		Stroke	13.5mm
				

Semiconductor Device : Moving Module

Max Speed	>10mm/s
Resolution	On-Off system
Driving Frequency	70 ±10% kHz
Power Consumption	< 500mW @21V
Operating Temperature	-15°C ~ 70°C
Dimension(W×L×H)	38mm X 27mm X 6.7mm
Actuator	TULA50
Stroke	13mm



Others

☐ OIS(Optical Image Stabilizer) Module

PT-OIS50-14

Speed	20mm/sec
Thrust Force	20gf
Stroke	2mm
Resolution	5µm (Hall Sensor)
Power Consumption	<1000mW
Size	43mm×43mm×9.2mm
Actuator	TULA50×2
Usage	Tele Zoom Lends



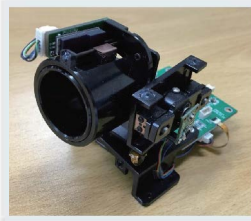
PT-OIS50-17

Speed	15mm/sec
Thrust Force	20gf
Stroke	2mm
Resolution	5µm (Hall Sensor)
Power Consumption	<1000mW
Size	Φ43mm×14.2mm
Actuator	TULA50×2
Usage	Super Zoom Lends



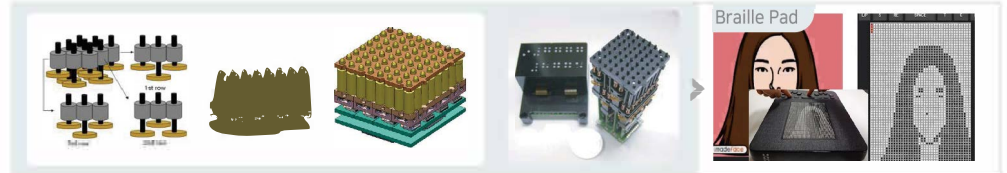
☐ Pan / Tilt / Zoom Module

Stroke	Pan ±10 °, Tilt ±10 °, Zoom 15mm
Resolution	Pan 0.1 °, Tilt 0.1 °, Zoom 0.5µm
Repeatability	Pan ±0.3 °, Tilt ±0.3 °, Zoom ±2
Lens size	Φ23
Actuator	TULA70



☐ Braille/Haptic Module

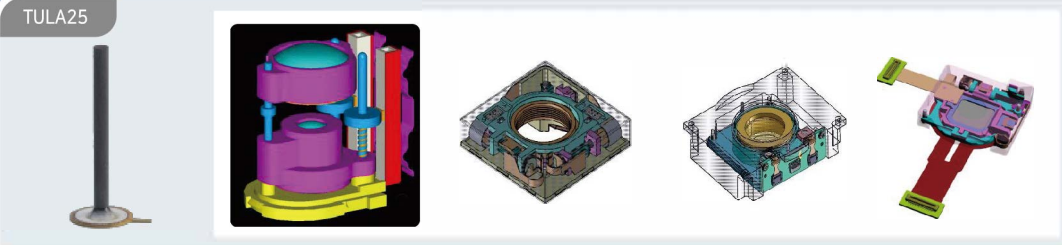
- Bralle terminal
- It's applicable to bank ATM
- Customizing
- 3D Display image
- Actuator : TULA25



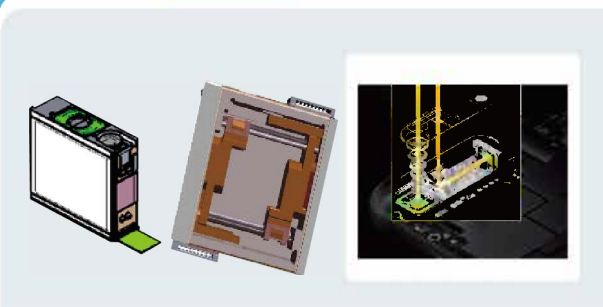
☐ Smart Application(Future Market)

AF and OIS

TULA25



AF and Zoom

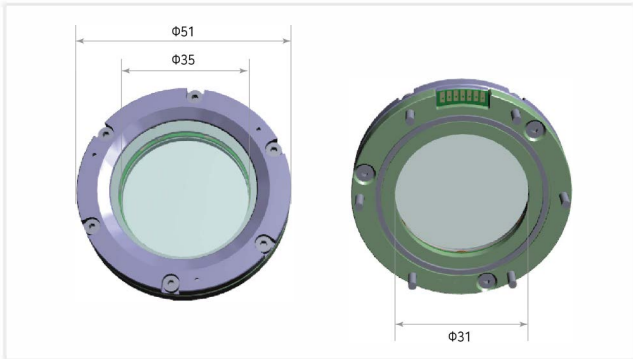


	LENS1	LENS2	LENS3
Type	Object	Zoom	AF
Dimension	20mmX20mmX5.5mm		
Stroke	Fix	< 5mm	< 5mm
Speed	Fix	< 15mm/sec	< 10mm/sec
Repeatability	Fix	±3µm	±3µm
Interface	UART		

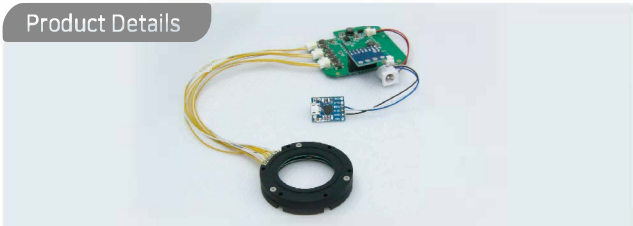
Piezo Vibrator

TULA Vibrator

For lunar probe satellite



Product Details

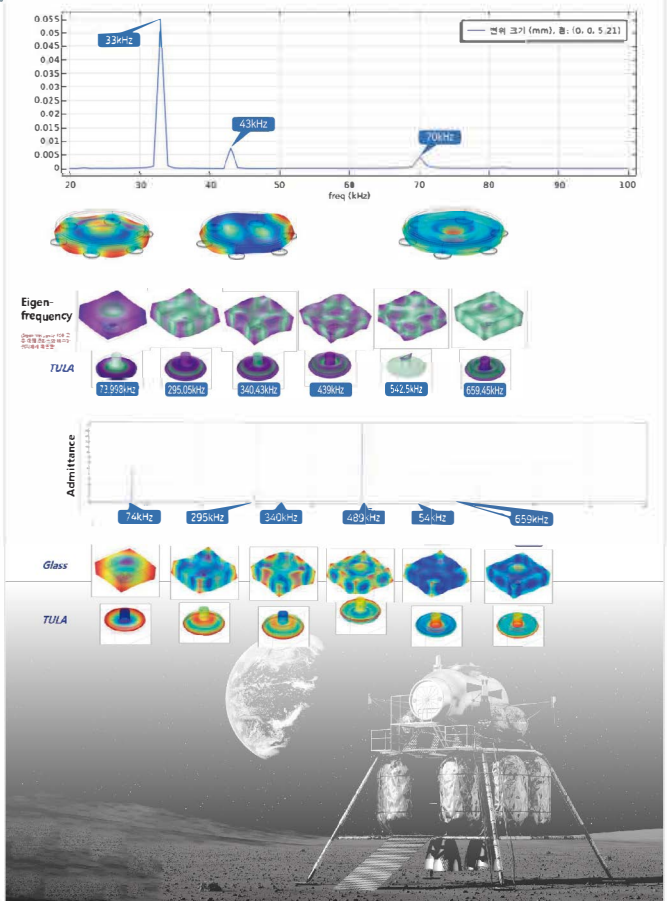


Cleaning system of cover glass on the camera module

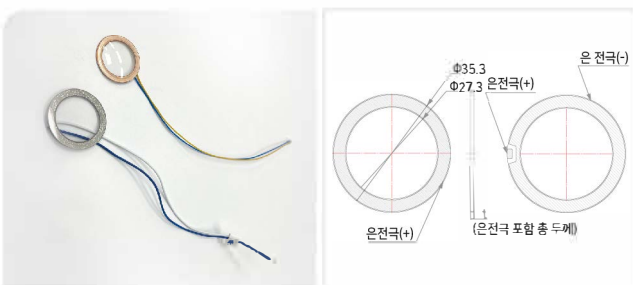
The device module for removing dust or rainwater on surface of camera module in Automobile(Vehicle) and satellite.

• Simulations for Cleaning system from Piezo Vibrator.

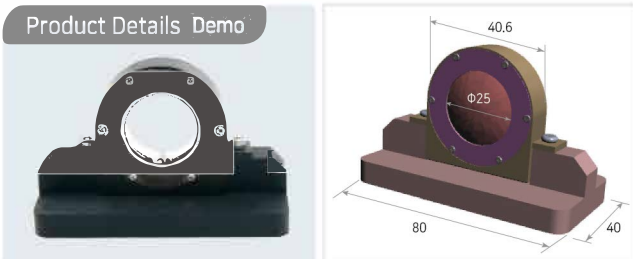
Experimental results



Ring Vibrator



Product Details Demo



Experimental results

