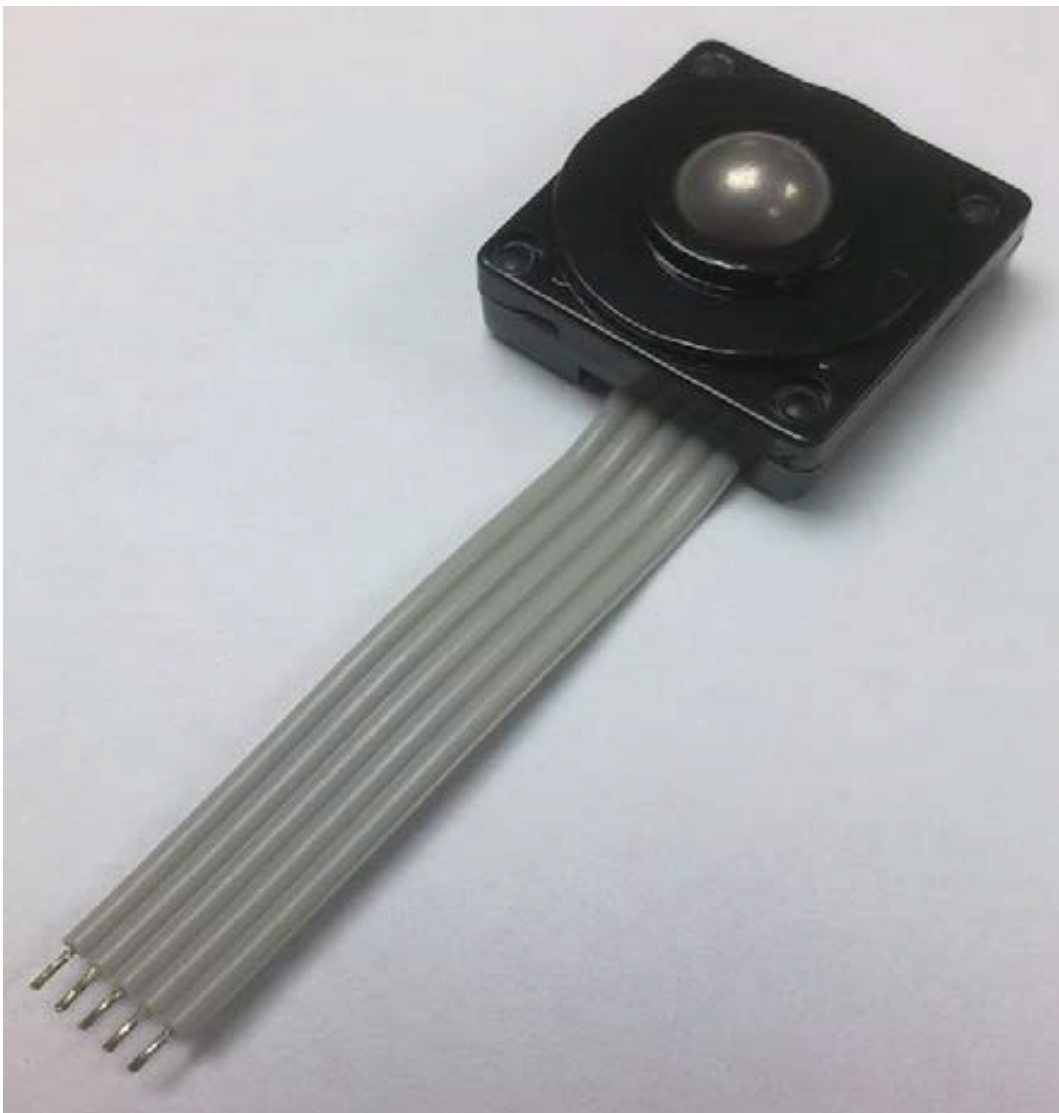

7mm Optical Trackball Set

Specification V0.93



7mm Optical Trackball Set

Product Specification V0.91

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1 Product Description

The 7mm Optical Trackball Set with Pixart PAW3204OA optical sensor internally to the sensor interface of trackball MCU used.

Optical trackball set, also called ATBS, has adopted own Patented Mirror Reflected Lens (known as MR Lens) technology and that makes it become an extraordinarily cursor control ability among current market. ATBS also has its own patent-pending dust-proof technology which can prolong the trackball life time.

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2 Product Specification

2.1 Electrical

<i>Electrical</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Test Conditions</i>	<i>Comments</i>
Power rating					
Supply voltage	2.5V	2.7V	2.9V	VDD	
Supply current			9.5mA		

The following table shows the pin out of solder

<i>Pin out</i>	<i>Signal of PAW3204OA</i>
1	SCLK
2	SDIO
3	MOTSWK
4	GND
5	VDD

2.2 Tracking

<i>Tracking Speed</i>	<i>Resolution</i>	<i>Test Conditions</i>	<i>Comments</i>
Resolution – Low Speed (20mm/sec)	1200cpi (+/-) 15%	With SPCP868A MCU	USB interface and 100rpt
Resolution – High Speed (200mm/sec)	900cpi (+/-) 15%		

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2.3 Physical

Physical	Min	Typ	Max	Test Conditions	Comments
Interface protocol		USB		With SPCP868A MCU	
Ball					
Operating Force	0.3N (30gf)	2.0N (204gf)	10.0N (1020gf)	For both X and Y axis, Horizontal 0 degrees	
Operation Angle	-40 degrees		40 degrees		
TBM dimensions					
Height		9.90mm			
Length		17.00mm			
Width		17.00mm			
Weight (with ball)	2.9g	3.2g	3.5g		
Ball					
Weight	1.3g	1.4g	1.5g		
Diameter		7mm			
Color		Nature			

2.4 Environmental Conditions

Environment	Min	Typ	Max	Test Conditions	Comments
Operating temperature	0°C (32°F)		55°C (131°F)		
Storage temperature	-40°C (-40°F)		70°C (158°F)		
Humidity (operating & storage)	5%		95%	Non condensing	

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3 Tests

All tests and measurements were conducted under the following conditions unless otherwise specified:

- (1) Temperature: $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ ($77^{\circ}\text{F} \pm 18^{\circ}\text{F}$)
- (2) Humidity: 50% ~ 60% RH
- (3) Atmospheric Pressure: 86kPa (860mBar) ~ 106kPa (1060mBar)

3.1 Tolerance & Reliability Tests

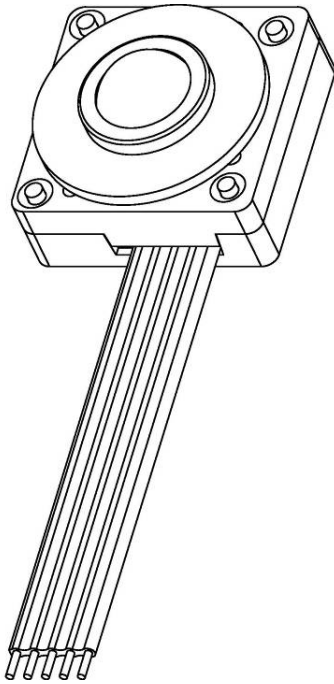
Item	Test Conditions	Specifications
Ball lifetime	(1) Operating angle 0 degrees (2) Drag force $1.0\text{N} \pm 0.25\text{N}$ (100gf \pm 25gf) load (3) Tracking speed 20cm/sec	Travel distance: 80km TBM tracking accuracy performance meets or exceeds the specification as described in section 2.2.
Shock tolerance	Drop test conditions: (1) Height: 70cm (2) Floor surface: asphalt tile over concrete or equivalent	No cracks or breakage (excl. cosmetic scratches) No functional defects for the switch actuation. TBM tracking accuracy performance meets or exceeds the specification described in section 2.2
Vibration Test		Meets IEC-68-2-36
Shock Test		Meets IEC-68-2-27
Electrical MTBF		150,000hr
Radiant intensity	60 mW/sr	No performance degradation

3.2 ESD Rating & Discharge Points

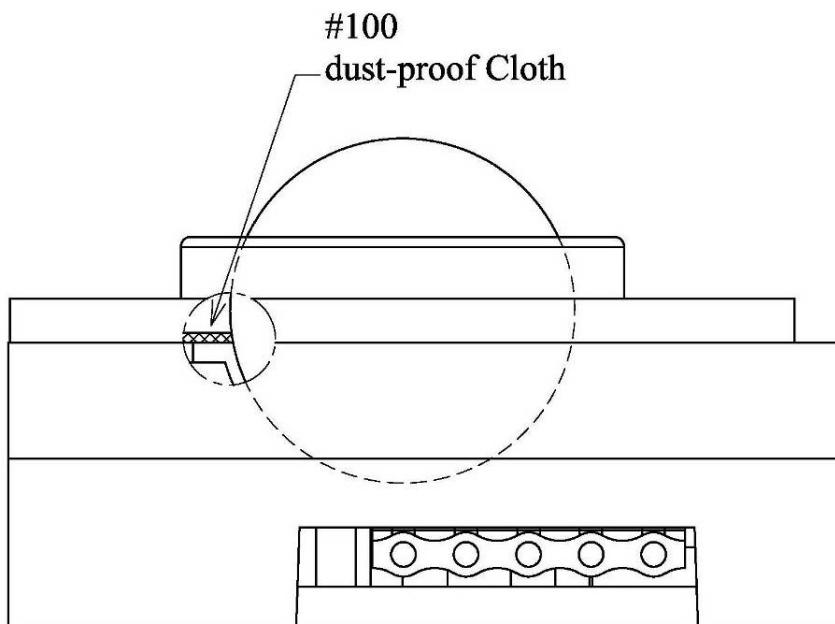
Item	Test Conditions	Specifications
EFT/B (Electrical Fast Transient/Burst)	Tested on IBM PC-Compatible systems	Meets IEC 801-4 level 2 1KV/5KHz
RS Performance (Radiation Susceptibility)	Tested on IBM PC-Compatible systems	Meets IEC 801-3 level 2 3V/m
ESD Rating (ElectroStatic Discharge)	Tested on IBM PC-Compatible systems	Meets IEC 801-2 level 2
	With case	No hardware errors @ 10KV
	With case	No hardware damage @ 12KV
	Without case	No hardware errors @ 8KV
	Without case	No hardware damage @ 10KV

4 Mechanical Drawing

4.1 Track Ball Module Outline



4.2 Dust-proof

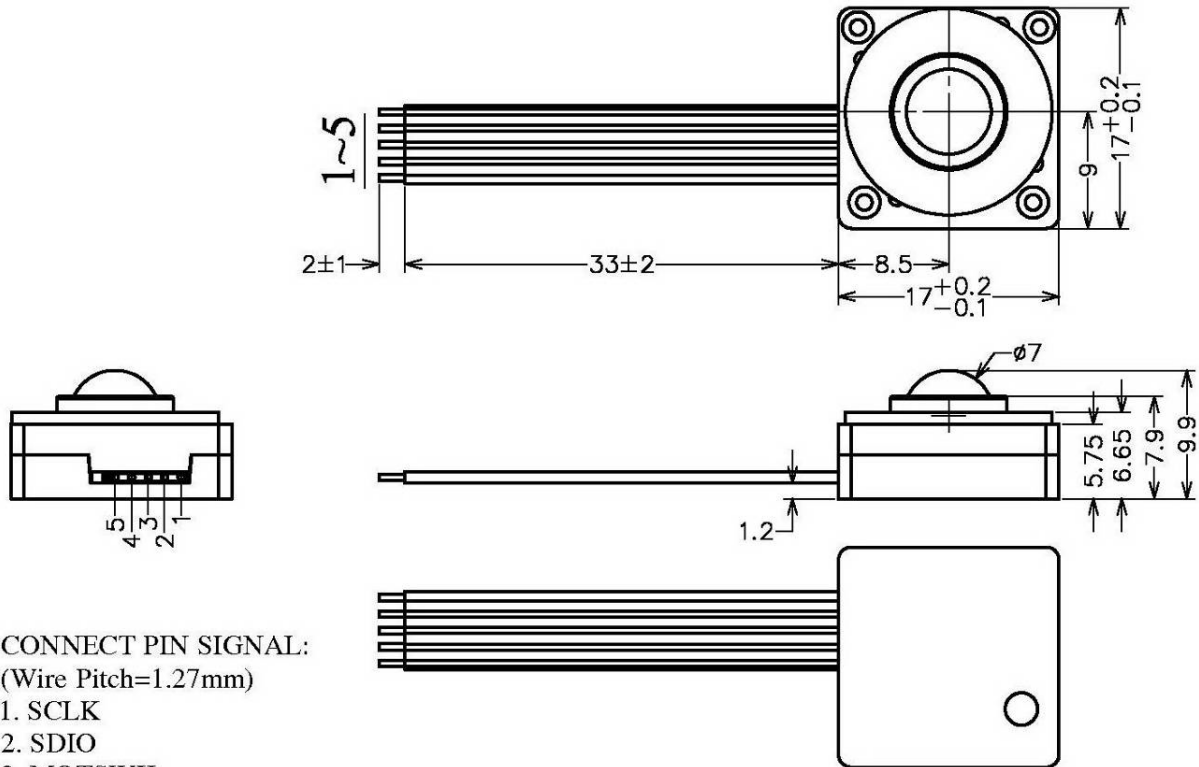


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4.3 Dimension

Unit = mm



CONNECT PIN SIGNAL:
(Wire Pitch=1.27mm)

1. SCLK
2. SDIO
3. MOTSWK
4. GND
5. VDD

Notes:

1. Dimensions tolerance: ± 0.1 mm

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5 Coordinate Position

