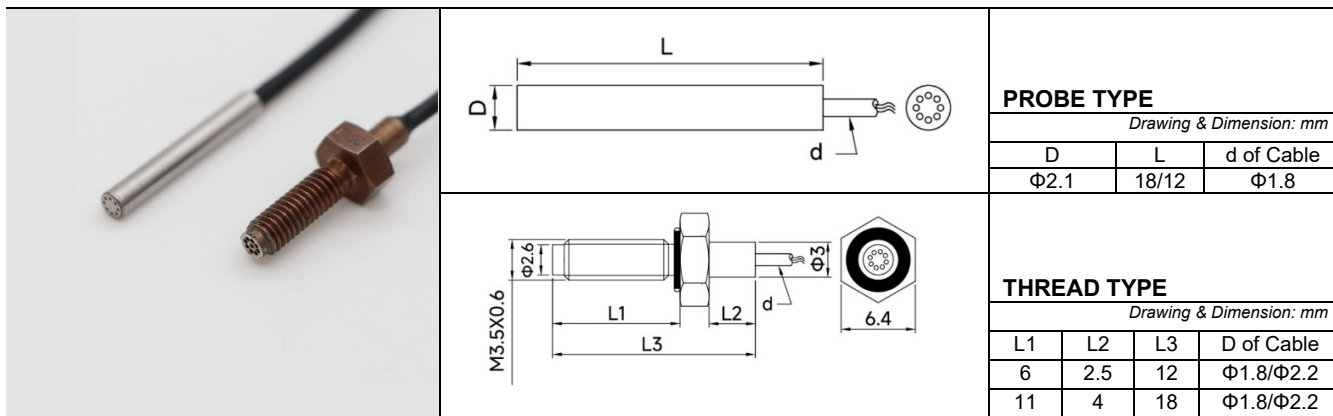


ESM502



■ **Range:** 50Kpa~4000 Kpa/ Absolute ■ **Nature Frequency:** 200KHz ■ **Accuracy:** 0.25%~0.5%/FS ■ **Working Temp.:** -55℃~+125℃

Description

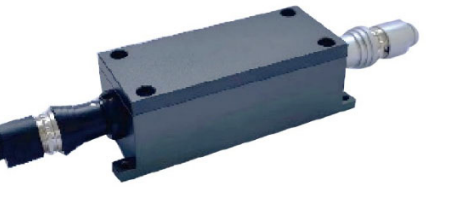
The ESM500 series represents a cutting-edge line of silicon piezoresistive dynamic pressure sensors, leveraging advanced MEMS technology to deliver exceptional performance. These sensors deliver exceptional dynamic response, superior measurement accuracy, and outstanding long-term stability, making them versatile solutions for precision pressure sensing across various research and engineering domains.

ESM502 sensor leverages MEMS pressure-sensing technology to achieve high linear accuracy and exceptional temperature stability. Through silicon-silicon direct bonding and an optimized inverted V-groove design, we've maximized the active sensing area while creating our most compact pressure sensor available—perfect for applications where space is at a premium.

Features & Benefits & Applications

AERODYNAMIC SENSORS	MODEL
• Miniature & ultra-thin design • Minimal flow field disturbance • Optimal for precision aerodynamic research pressure measurement	ESM 502 ESM 503 ESM 504
HYDRODYNAMIC SENSORS	MODEL
• Compact form factor & High sensitivity • Excellent dynamic response • Ideal for pulsating pressure measurements	ESM 505 ESM 506
HIGH-FREQUENCY SENSORS	MODEL
• Advanced dynamic pressure sensing • Complemented by the miniaturized ESM 400	ESM 507 ESM 508
APPLICATIONS	
• Engine air intake systems • Wind tunnel model testing • Aerodynamic research applications • Hydraulic scaled models • Fluid dynamics research • Cylinder combustion testing	

Signal Conditioner for ESM502 (OPTIONAL)



The photograph shows a black, rectangular signal conditioner with two aviation plugs. The technical drawing below provides the dimensions: overall length is 66 mm, mounting hole spacing is 57 mm, and height is 24 mm. The side view shows a width of 21 mm. The drawing is labeled "Drawing & Dimension: cm".

66
57
24
Aviation plug
Aviation plug
21
Drawing & Dimension: cm

Technical Performance of ESM502

Pressure Range	Absolute	KPA	50	100	160	250	400	600	1000	1600	2500	4000
	Absolute	PSI	7.2	14.5	23.2	36.2	58.0	87.0	145.0	232.1	363.6	580.2
Overpressure			200%/FS									
Nature Frequency			>200kHz									
Excitation of pressure Sensor			1mA				1.5mA			12VDC		
Excitation of pressure Transducer			± 15VDC				12~24VDC					
Output / F.S			mv		0-5V			0-10V			4-20mA	
Input Impedance			3 KΩ~6 KΩ									
Out Impedance			3 KΩ~6 KΩ									
Working Temperature			-40℃~-+85℃(-40°F to +185°F)						-55℃~-+125℃(-67°F to +257°F)			
Storage Temperature			-55℃~-+125℃(-67°F to +257°F)									
Compensation Temperature			-55℃~-+125℃(-67°F to +257°F)									
Measurement Medium			Non-corrosive, dry, and clean gas									
Accuracy of Transducer (signal amplified)			0.50%						1.0%			
Accuracy of Sensor			0.25%						0.50%			
Non-linearity			± 0.20%~± 1.0%									
Zero Shift			0.1mv/8h						0.2mv/8h			
Thermal Zero Shift			0.02%FS/℃ (± 0.75% /100°F)						0.05%FS/℃ (± 1.88% /100°F)			
Thermal Sensitivity Shift			0.02%FS/℃ (± 0.75% /100°F)						0.05%FS/℃ (± 1.88% /100°F)			
Cable			5 leads 28AWG 1 meter length									
Weight of Sensor			3-8 Gram									
Weight of Amplification Adapter			90 Gram									

Ordering Code

ESM5		Ultraminiature High Sensitivity Pressure Sensor										
ESM5	02-V	R10	A	T	S2	A	Code	Model				
							02	Ultraminiature High Sensitivity Pressure Sensor (mv output)				
							02-I	Ultraminiature High Sensitivity Pressure Transducer (Current output, with signal conditioner)				
							02-V	Ultraminiature High Sensitivity Pressure Transducer (Voltage output, with signal conditioner)				
							Code	Span	Code	Span	Code	Span
							R01	0~50Kpa	R05	0~400Kpa	R09	0~2500Kpa
							R02	0~100Kpa	R06	0~600Kpa	R10	0~4000Kpa
							R03	0~160Kpa	R07	0~1000Kpa		
							R04	0~250Kpa	R08	0~1600Kpa		
							Code	Pressure Type				
							A	Absolute				
							Code	Sensor Type				
							P	Probe				
							T	Thread				
							Code	Output				
							S1	4-20mA/24VDC (two wires)				
							S2	0-5V/12-24VDC (three wires)				
							S3	0-10V/12-24VDC (three wires)				
							S4	mv output/1.5mA (constant current) (four wires)				
							S7	mv output/12VDC (constant voltage) (four wires)				
							S11	0.1-5V/12-24VDC (20kHz)(three wires)				
							S12	0-5V/±12VDC/±15VDC (20kHz)(four wires)				
							S13	0-5V/±12VDC/±15VDC (100kHz)(four wires)				
							S14	0-5V/±12VDC/±15VDC (200kHz)(four wires)				
							Code	Electric connection				
							D	Direct Cable 1m				
							A	Aviation Plug (for 02-I/V)				