



# WPAK63 General Type Isolation-Film Pressure Sensor

**(Model No. WPAK63)**

**Manual Version: 1.3**

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Please keep the manual properly, in case you need help during the usage in the future.

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## WPAK63 General Type Isolation-Film Pressure Sensor

### Product Description

WPAK63 series is a pressure core encapsulated by high precision imported diffused silicon pressure sensitive chip and mature production process. It is the core component for manufacturing pressure sensor and pressure transmitter. As a high performance pressure sensitive element, it can be easily amplified and assembled into a transmitter with standard signal output.

The company can undertake special customization according to the needs of users, such as full welded structure, wide temperature compensation, customized shape, high reliability, strong impact and vibration resistance pressure sensors, to provide customers with more reliable solutions.



Picture 1: Sensor

### Main features :

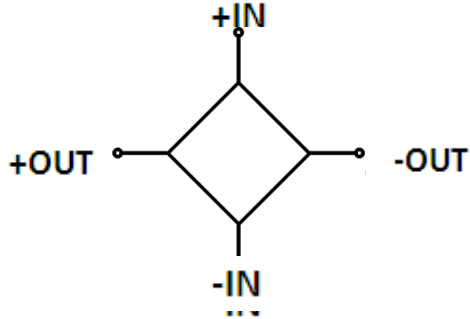
- $\Phi 19\text{mm}$  standard OEM pressure core, strong interchangeability with similar products at home and abroad
- All stainless steel 316L package, anti-erosion
- wide temperature compensation  $-10\sim+70^{\circ}\text{C}$
- Constant current and constant voltage excitation are optional
- Normalized output provided
- Glue-filled and moisture-proof circuit board

### Application:

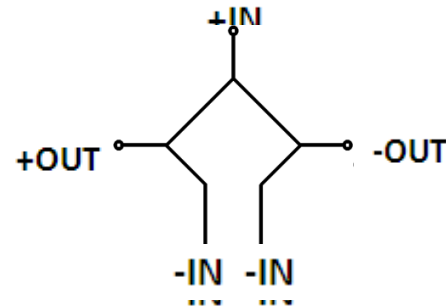
- process control system
- Pressure calibration instrument
- Hydraulic system
- Biomedical instruments
- Hydraulic system and valve
- Liquid level measurement
- Military equipment
- Refrigeration equipment and HAVC system
- Navigation
- Aircraft and Avionics Systems

## Equivalent circuit diagram

(1) Four wire (compensation)



(2) Five wire (uncompensated)



## Technical parameters

Detection range	-100kPa~0~10kPa...100MPa	
Pressure Type	Gauge pressure、Absolute pressure、Sealing pressure	
Power supply	1.5mA 或 10V	
input resistance	Constant current: 2kΩ~5KΩ; Constant Voltage : 3kΩ~18kΩ	
Electrical Connection	Pin or Wiring	
Compensation Temperature	0°C~60°C、-10°C~70°C	≤35kPa: 0°C~60°C, >35kPa: -10°C~70°C
Working Temperature	-40°C~120°C	
Storage Temperature	-40°C~125°C	
Insulation resistance	≥200MΩ/250VDC	
Response Time	≤1ms	Up to 90%FS
Measuring Medium	Liquid and Gas	
Mechanical vibration	20g (20~5000HZ)	
Impact	100g (10ms)	
Lifespan	10×10 <sup>6</sup> (Pressure Cycle)	

Structural Performance Index	
Diaphragm material	316L
Housing Material	316L
Infused Liquid	Silicone oil
Seal Ring	Butyl cyanogen or fluororubber

Basic parameter index						
Item	Condition	Min	Special	Max	Unit	Remarks
Non-linear		-0.3	±0.25	0.3	%FS	Note(1)
Hysteresis		-0.05	±0.03	0.05	%FS	
Repeatability		-0.05	±0.03	0.05	%FS	
Zero Point Output		-2	±1	2	mV	
Full-scale output	1.5mA ,10kPa	20			mV	
	1.5mA,other range	50	90	150		
	10V,10kPa	30				
	10V,other range	60	100	110		
Zero Point Output	10kPa	-2	±1.5	2	%FS	Note(2)
	Other range	-1.5	±0.75	1.5		
Sensitivity drift		-1.5	±0.75	1.5	%FS	Note(2)
Heat Hysteresis		-0.075	±0.05	0.075	%FS	Note(3)
Stability		-0.3	±0.2	0.3	%FS/Year	

Notes:

- (1) Adopt BFSL least square method.
- (2) Compensation temperature range, 0°C~60、-10°C~70°C, refer to 30°C; -20°C~85°C refer to 32.5°C.
- (3) Through high and low temperature, return to the reference temperature.

### Dimension

Gauge pressure 10kPa~3MPa	Absolute pressure/Sealing Pressure Pressure <25MPa	Sealing Pressure ≥25MPa

### Electrical Connection

Electrical Connection	Unit (mm)
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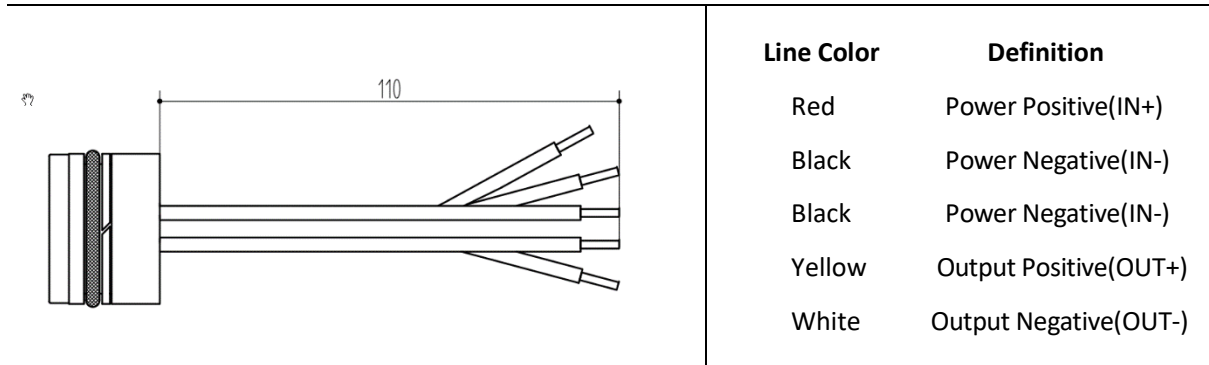
#### 6-Pin Lead-out

	<table border="1"> <thead> <tr> <th>Pin</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Power Positive(IN+)</td> </tr> <tr> <td>5</td> <td>Unused</td> </tr> <tr> <td>2</td> <td>Output Positive(OUT+)</td> </tr> <tr> <td>4</td> <td>Output Negative(OUT-)</td> </tr> <tr> <td>1</td> <td>Power Negative(IN-)</td> </tr> <tr> <td>6</td> <td>Power Negative(IN-)</td> </tr> </tbody> </table>	Pin	Definition	3	Power Positive(IN+)	5	Unused	2	Output Positive(OUT+)	4	Output Negative(OUT-)	1	Power Negative(IN-)	6	Power Negative(IN-)
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#### 4-Line Lead-out

	<table border="1"> <thead> <tr> <th>Line Colour</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Power Positive(IN+)</td> </tr> <tr> <td>Black</td> <td>Power Negative(IN-)</td> </tr> <tr> <td>Yellow</td> <td>Output Positive(OUT+)</td> </tr> <tr> <td>White</td> <td>Output Negative(OUT-)</td> </tr> </tbody> </table>	Line Colour	Definition	Red	Power Positive(IN+)	Black	Power Negative(IN-)	Yellow	Output Positive(OUT+)	White	Output Negative(OUT-)
Line Colour	Definition										
Red	Power Positive(IN+)										
Black	Power Negative(IN-)										
Yellow	Output Positive(OUT+)										
White	Output Negative(OUT-)										

5-Line Lead-out



Detection Ranges

Detection Range					
Range Code	Pressure Type	Detection Range	Overload Pressure	Burst pressure	OType Circle
10k	G	0~10kPa	300% FS	600% FS	NBR
20k	G	0~20kPa	300% FS	600% FS	NBR
35k	G、A	0~35kPa	300% FS	600% FS	NBR
70k	G	0~70kPa	300% FS	600% FS	NBR
100k	G、A	0~100kPa	200% FS	500% FS	NBR
160k	G、A	0~160kPa	200% FS	500% FS	NBR
250k	G、A	0~250kPa	200% FS	500% FS	NBR
500k	G、A	0~500kPa	200% FS	500% FS	NBR
1M	G、A、S	0~1MPa	200% FS	500% FS	NBR
1.6M	G、A、S	0~1.6MPa	200% FS	500% FS	NBR
2.5M	G、A、S	0~2.5MPa	200% FS	500% FS	NBR
4M	S	0~4MPa	200% FS	400% FS	NBR
6M	S	0~6MPa	200% FS	400% FS	fluororubber
10M	S	0~10MPa	200% FS	400% FS	fluororubber
16M	S	0~16MPa	200% FS	400% FS	fluororubber
25M	S	0~25MPa	150% FS	400% FS	fluororubber
40M	S	0~40MPa	150% FS	300% FS	fluororubber
60M	S	0~60MPa	150% FS	300% FS	fluororubber
100M	S	0~100MPa	150% FS	300% FS	fluororubber

NBR-acrylnitrile-butadiene rubber

## Cautions

- 超量程或降量程选用时，幅度控制在 $\pm 30\%FS$  以内。

When over range or down range is selected, the amplitude shall be controlled within  $\pm 30\% FS$ .

- 压力方式分表压、绝压、密封压，根据需要合理选用。

The pressure types include gauge pressure, absolute pressure and sealing pressure, which can be reasonably selected according to needs.

- 确认系统的最大过载，系统的最大过载应小于传感器的过载保护极限，否则会影响产品的使用寿命，甚至损坏产品。

Confirm the system's max overload. The maximum overload of the system should be less than the overload protection limit of the sensor.

- 禁止用任何硬物触碰膜片，否则会导致膜片破裂。

Do not touch the diaphragm with any hard objects, otherwise the diaphragm will break.

- 制造负压芯体的材料、工艺与正压不都相同，不能用表压芯体替代负压芯体。

The material and manufacturing process of the negative pressure core are different from the positive pressure core, and the gauge pressure core cannot be used to replace the negative pressure core.

- 安装前请仔细核对使用说明书，避免错误的安装导致损坏产品。

Please carefully check the manual before installation to avoid damage to the product caused by wrong installation.

- 错误的使用，会导致危险和人身伤害。

Incorrect use will lead to danger and personal injury.

- 芯体从壳体拔出，禁止拉导线和和管腿。

Pull out the core from the shell, do not pull the conductor and pin.

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