



BW-PS8D Series

8 channel high precision Pressure

Scanning Valve

Data sheet



Introduction

The BW-PS8D is an 8-channel scanning output device with a differential pressure test range up to 40KPa. It can measure multi-point pressure values in drones and wind tunnel environments. This product has a total of 8 sets of test valves. The pressure value is circulated in a scanning manner, and the rate can reach up to 200Hz. The device can directly output the air pressure value in digital form, eliminating the need for converter accessories required by traditional analog devices. Its comprehensive accuracy can stably reach 0.05% of the total range.

BW-PS8D uses a high-quality and reliable differential pressure thin-film pressure sensing chip, and uses algorithms to ensure measurement accuracy. At the same time, the sealing design and strict processes ensure that the product can still accurately measure air pressure values in harsh environments. Through various compensations such as air pressure correction system, nonlinear compensation, temperature compensation and drift compensation, the errors caused by interference can be greatly eliminated and the product accuracy level can be improved. BW-PS8D is a fully autonomous digital pressure scanning valve with a small volume, which can be easily integrated into the user's system.

Characters

- High accuracy in high pressure environments
- Dynamic barometric measurement
- Mechanical pneumatic calibration system
- working temperature: $-10^{\circ}\text{C}\sim+60^{\circ}\text{C}$
- Excellent over pressure performance
- High long-term stability

Application

- Wind tunnel monitoring
- pneumatic probe
- UAV
- Large aircraft

Feature



Electrical Specifications

Power Supply	9~36V DC
Working Current	40mA (DC 12V)
Working Temperature	-10~+60°C
Storage Temperature	-20~+80°C



Performance Index

	Range	Diff Pressure		
		7KP	20KPa	40KPa
Pressure Index	Accuracy	0.025%FS	0.05%FS	0.1%FS
	Zero Point Offset	< 0.05 %FS		
	Temperature zero return difference (42h)	0.02uV/V		
	Over pressure performance	2MPa		
	Physical Characteristics	Size	L80.5*W20.5*H31.5 (mm)	
Interface	Net Weight	90g		
	Output Frequency	5~200Hz		
	Baud rate of serial communication	921600		
Pressure Chip Test Stability	Digital output format	ASCII		
	Load Static pressure Characteristic	≤ 0.03 ±%FS/10MPa		
	Long-term Stability (1000h, 135°C)	±5uV/V		
MTBF	Nonlinearity	≤ 0.3±%FS		
Working Temperature	≥900 hs/time			
	-10°C ~ +60°C			

Stability: Temperature rise from room temperature 23 ° C to 85 ° C, hold for 30hs and then return to room temperature, and measure the zero drift during the whole 42 hours

all values in this table are tested under the condition of voltage 5V DC and temperature 25±3°C.



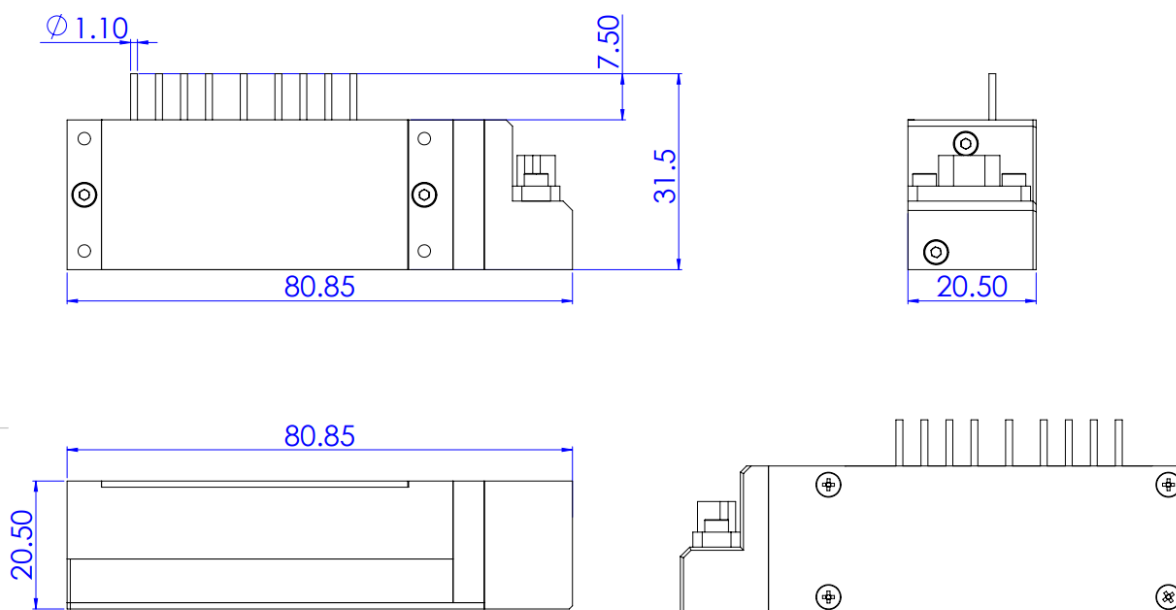
Mechanical

Connector	RS422 (without cable)
IP Grade	IP41
Shell Material	aviation aluminum
Installation	9 group 1.1mm Metal airtight tube(RF1.25mm)



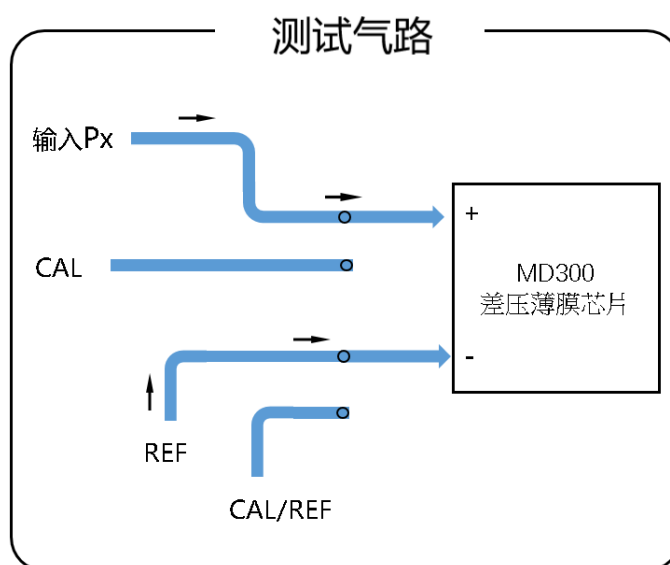
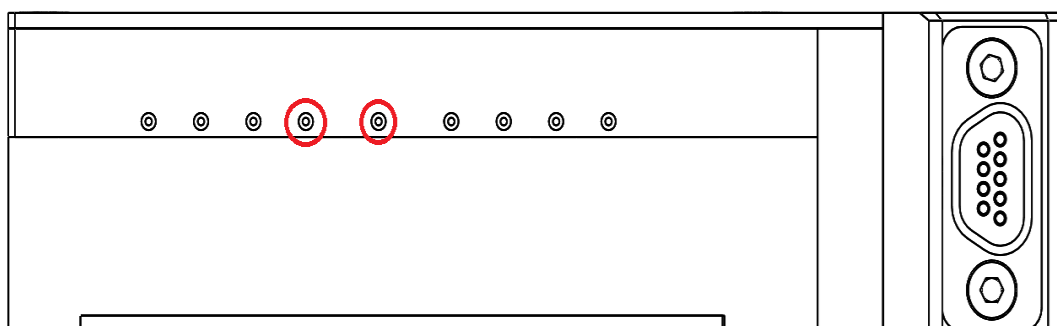
Package Size

L80.5*W20.5*H31.5 (mm)



User manual

Test mode gas path

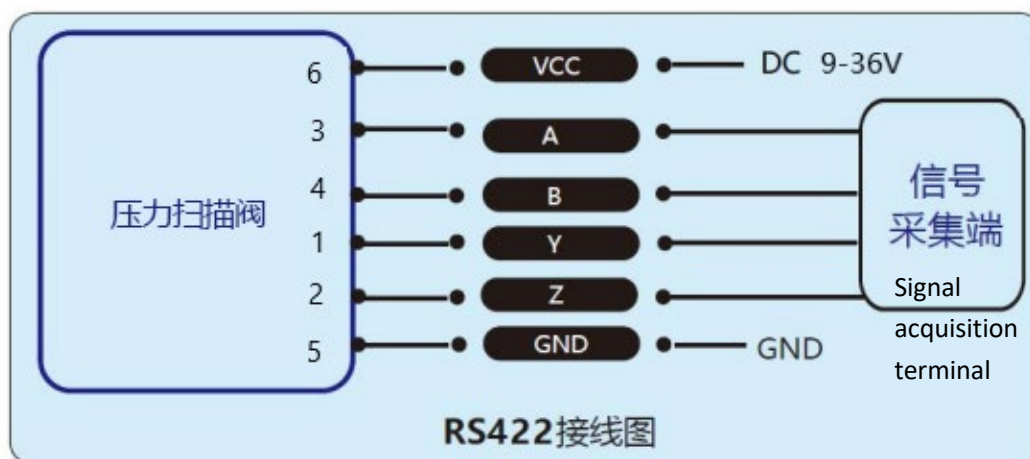


The gas route in the test environment has 8 input terminals Px and the differential pressure common pressure terminal REF. The gas path is switched to the test environment through the front PA piston air nozzle, the test pressure is directly input to the differential pressure chip through the upper air nozzle, and then the differential pressure is input to the pressure chamber through the atmospheric pressure to complete the differential pressure comparison and obtain the complete data.

Electrical Connection

Cable Definition

6	5、8	4	3	2	1	7	9
DC 9-36V	GND	RXD- (B)	RXD+ (A)	TXD- (Z)	TXD+ (Y)	INT	NC

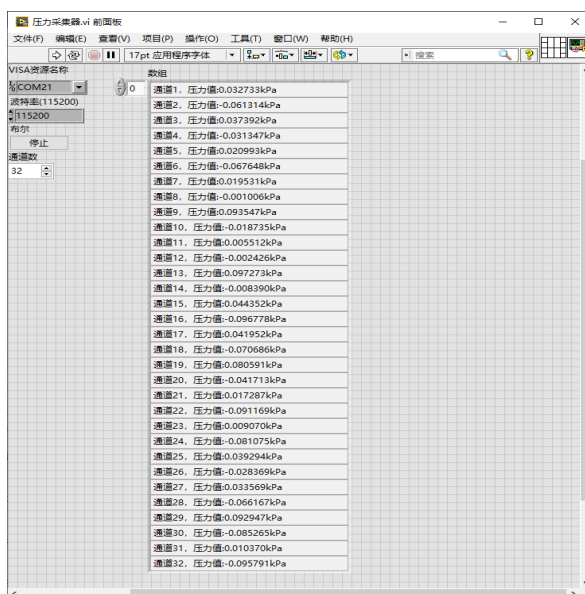


Accessories

Parts Name	Qty
2mm_PU hose (Length30cm)	1
RS422 to USB adapter	1
Portable waterproof and seismic case	1
Rubber tube sleeve (single nozzle)	1

Debug software

8-channel pressure scanning valve with software host computer can be directly connected through 422 to USB serial port, power supply needs external 9-36V DC power supply, the software is divided into the overview of 8-channel data and the overall complete wave mode of two parts.



The complete wave pattern is a group of 8 channels ,The presentation is as follows:



Order information

Model	Interface mode	Package condition
BW-PS8D-422	RS422	IP41/RS422

Standard

- Enterprise quality system standard: ISO9001:2015 standard (Certificate number: 23919Q10455R0S)
- CE certification (Certificate number: M.2019.103.UY1151)
- GJB 899 reliability evaluation and acceptance test
- GB/T 28855-2012 Silicon based pressure sensor
- Quality control of GJB 909A key parts and important parts
- GB/T 15478-2015 Pressure sensor performance test method
- JJF1059.1-2012 Measurement uncertainty evaluation and expression
- JB/T 6170-1992 General technical conditions for pressure sensors
- JJF 1509-2015 Resistance strain gauge pressure sensor type evaluation outline
- DIN 16086-2006 Electric pressure measuring instrument. Pressure sensor, pressure measuring instrument. Data sheet concept, specification
- SJ 54409.3-2003 CYYZ-004 differential pressure sensor specification
- QJ28A-1998 Pressure sensor static performance uncertainty calculation method

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**High precision 8 channel pressure
scanning valve**

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