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ULVAC SHOWCASE

Hot Cathode Gauge
Transducer Type
SH200 Series

SH200-A / R / E



New series of transducer type "G-RTAN series Multi Ionization Gauge" that is capable of connection to different type sensor heads. This product, which is a B-A type ionization vacuum gauge, can measure ultra-high vacuum. Improved to be more user-friendly taking over the concept of wide-range measurement and low running cost.

Features

- ULVAC own concept: Capable of connection of different measurement range sensor heads according to application.
- Compact: Significantly miniaturized compared to the previous series (56% reduction of controller volume). World's smallest class.
- High usability: Set point setting, condition check, etc. by connecting PC/Android.
- Larger selection: EtherCAT spec to be available in addition to analog output spec and serial communication spec.
- Filament life notification function: An advance warning can be made before the life of ionization vacuum gauge by watching filament power.
- Wide range measurement: Measurement from atmospheric pressure to ultra high vacuum ($1 \times 10^{+5}$ to 5×10^{-8} Pa) is possible (when using with an optional unit SWU10-R).
- Precise atmospheric pressure sensing: Atmospheric pressure check for chamber open is available (when using with an optional unit SAU).

Applications

- Process control in high vacuum range for vacuum equipments for semiconductors or electric devices.
- Ultimate pressure check for in-line or batch type vacuum equipments which have many process chambers.
- Pressure measurement for high vacuum or ultra-high vacuum equipments.

Specifications

Model	SH200-A	SH200-R	HT200-E (scheduled for release)
Type	Analog output type	Serial communication type	EtherCAT communication type
Applicable ionization gauge sensor head	M-44(NW16), M-45(NW25), M-46(ICF070)		
Connectable sensors	Multi ionization gauge SH200: 1 Pirani vacuum gauge sensor unit SWU10-R: 1 (option) Pressure sensor unit SAU: 1 (option)		
Repeatability (N ₂)	SH200 simple mode: ±2%		
Sampling time	60 ms, 5x moving average		
Value output	Output voltage: 0 to 10 VDC, LOG output: 0.75 V/1 decade Pressure conversion equation: $V=7.25+0.75 \times (\text{Log}P-2)$ $P=10^{\{(V-7.25)/0.75+2\}}$		
Update time	60msec		
Control input signals	FIL ON/OFF, FIL 1/2, DEGAS ON/OFF Operates with open collector input, negative logic	-	-
Control output signals	Sensor error, Setpoint 1/2/3, Emission valid Watch of electric power of filament Rating: 24V _{MAX} , 50mA _{MAX} Saturation voltage:1V	-	-
Communication type	-	RS232C/RS-485	EtherCAT
LED display	POWER: Power, ERROR LED (Blinking pattern and color change depending on each mode)		
Emission current	1mA (1×10 ⁻³ Pa or lower), 10μA (1×10 ⁻³ Pa or higher)		
Degas Method	Electron bombard type 1mA, 330V		
Maximum pressure of sensor	2×10 ⁺⁵ Pa (1.5 × 10 ⁺³ Torr, 2 × 10 ⁺³ mbar) (Absolute pressure) * Need separate measures as a capacity to resist pressure, such as flange and clamp		
Internal volume of sensor	17cm ³ (M-44), 19cm ³ (M-45), 17cm ³ (M-46)		
Operating temperature range	10 to 50°C (50 to 122?)		
Operating humidity range	15 to 80% (not condensing)		
Storage temperature	-20 to 65°C (-4 to 149?) (At non-energizing, not condensing)		
IP rating	IP30		
Power supply voltage	DC20 to 28V (Ripple, Noise 1% or less) Lower than 8W		
Input/output connector	D-sub15-pin (M2.6 screw)		
Weight	Sensor unit: approx. 280g, sensor head (M-44/45): 80g, (M-46): 300g		
Dimension W x D x H	69mm×63mm×90mm (sensor unit only)		
Applicable standard	CE		
Option	Multi Ionization Gauge Sensor head	M-44(NW16), M-45(NW25), M-46(ICF070) Material of gas contacting sections: Filament 1, 2 -Ir/Y ₂ O ₃ Other: PtC-Mo, SUS304, W, Kovar glass, Kovar/Ni plating	
	Pirani Vacuum Gauge	SWU10-R *Previous model SPU also available	
	Pirani Vacuum Gauge Sensor head	SWP-16(NW16), SWP-25(NW25), SWP-R1/8(R1/8), SWP-P18(Φ18 pipe end), SWP-P15(Φ15 pipe end), SWP-CF16(ICF034) Material of gas contacting sections : Filament-Pt, Other-BS/Ni plating, Ni, Solder	
	Pressure switch	SAU(NW16) Material of gas contacting sections : SUS316L	
	Unit cable	GUC-200P (for SWU10-R) : 0.5m, 1m, 2m GUC-200A (for SAU) : 0.5m, 1m, 2m	
	Display unit	1CH: ISG1(DC24V)	
	Display cable	Cable between SH200 and display unit 2m, 5m, 10m, 15m, 20m, 25m, 30m, 35m, 40m	

Connector	I/O connector (D-sub15-socket (M2.6mm screw))
Others	Test certificate, Calibration certificate

SH200 series have three options; simple mode with a multi ionization gauge, combination mode with a multi ionization gauge and a pirani gauge (SWU10-R), and triple combination mode with a multi ionization gauge, a pirani gauge (SWU10-R) and a pressure switch (SAU)




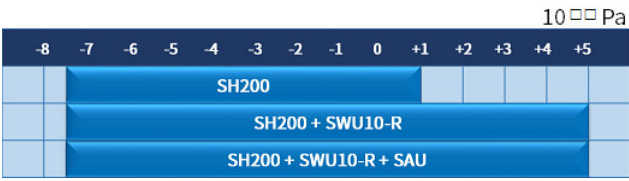
Mode	SH200-A/SH200-R/SH200-E Simple mode	SH200-A/SH200-R/SH200-E + SWU10-R Combination mode	SH200-A/SH200-R/SH200-E + SWU10-R + SAU Triple combination mode
Measurable pressure range	5.0×10^{-8} to $1.0 \times 10^{+1}$ Pa	5.0×10^{-8} to $1.0 \times 10^{+5}$ Pa	5.0×10^{-8} to $1.0 \times 10^{+5}$ Pa
Accuracy	5.0×10^{-8} to $1.0 \times 10^{+1}$ Pa: ±15%	5.0×10^{-8} to 1.0×10^{-1} Pa: ±15% 4.0×10^{-1} to $3.0 \times 10^{+0}$ Pa: ±10 ~ ±15% $3.0 \times 10^{+0}$ to $1.0 \times 10^{+4}$ Pa: ±10% $1.0 \times 10^{+4}$ to $1.0 \times 10^{+5}$ Pa: ±20%	5.0×10^{-8} to 4.0×10^{-1} Pa: ±15% 4.0×10^{-1} to $3.0 \times 10^{+0}$ Pa: ±10 ~ ±15% $3.0 \times 10^{+0}$ to $1.0 \times 10^{+4}$ Pa: ±10% $1.0 \times 10^{+4}$ to $3.0 \times 10^{+5}$ Pa: ±3%F.S.($3.0 \times 10^{+3}$ Pa·Base temperature: 25°C)
Connection image	 SH200	 SH200 SWU10-R	 SH200 SWU10-R SAU
Measurable pressure range image	 <p>Triple combination can be used when "atmospheric pressure" check required to open chamber.</p>		

Image of connection with PC/smartphone



Application software "UL-MOBI"

For PC	Download from ULVAC's website "ULVAC SHOWCASE" download center
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For smartphone

Download from Google Play

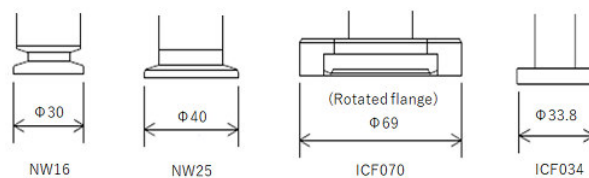
Compatible devices

PC	Windows 10 64 bit or later
Smartphone	Android 6 or later, USB TypeC

Ordering code

contact the nearest distributor regarding other combinations than the following

Main unit	Sensor head	Fitting type	Ordering code
SH200-A (analog output spec)	M-44	NW16	210006962800
	M-45	NW25	210006962900
	M-46	ICF070	210006963000
	Without sensorhead	-	210006963100
SH200-A + pirani unit SWU10-R combination (unit cable 5m)	M-44/SWP-16	NW16/NW16	210006969400
	M-45/SWP-25	NW25/NW16	210006969500
	M-46/ SWP-CF16	ICF070/ICF034	210006969600
SH200-R (serial communication spec)	M-44	NW16	210006963500
	M-45	NW25	210006963600
	M-46	ICF070	210006963700
	Without sensorhead	-	210006963800



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