

G-TRAN Series
PRESSURE SENSOR UNIT
MODEL SAU
Specifications



Components Division,
ULVAC, Inc.

<http://www.ulvac.co.jp/>

1. Specifications

The SAU pressure sensor unit is a dedicated sensor unit for the SH2/ST2 multi-ionization gauge.
Please note that this unit cannot be used independently.

1.1. Basic specifications

Name	Pressure sensor unit	
Model	SAU	
Measurement principle	Pressure gauge for gauge pressure based on the ambient atmospheric pressure	
Joint	NW16	
Measurement pressure range	-100 kPa to 0 kPa (gauge pressure) * SH2/ST2 reduced pressure: Approximately $8.0 \times 10^{+3}$ Pa to approximately $1.0 \times 10^{+5}$ Pa (reduced as absolute pressure)	
Accuracy (gauge pressure)	$\pm 3\%$ F.S. ($\pm 3 \times 10^{+3}$ Pa) 0 to 50°C (reference temperature 25°C) * As absolute pressure, affected by altitude and atmosphere	
Temperature characteristics	ZERO	$\pm 0.2\%$ F.S./°C
	SPAN	$\pm 0.1\%$ F.S./°C
Repeatability	$\pm 2\%$ F.S.	
Analog output	0 to 5 V	
	Response speed	Approx. 5 ms or lower
	Linearity	$\pm 0.5\%$ F.S.
	ZERO voltage	1 ± 0.04 V
	SPAN voltage	4 ± 0.04 V
	Output impedance	1kΩ or lower
Response time	Approx. 5 ms	
Materials	SUS316L, case: aluminum	
Withstand pressure	$2 \times 10^{+5}$ (absolute pressure) * Take the withstand pressure for flanges, clamps, and other components into account separately.	
Compensation temperature	0 to 50°C	
Operating temperature range	-20 to 70°C	
Operating humidity range	35 to 85% RH	
Storage temperature	-20 to 70°C	
IP code	IP40	
Power supply voltage	12 to 24 VDC $\pm 10\%$ consumption current 15 mA or lower (at 24 VDC) Ripple 0.1 V (p-p) or lower	
I/O connector	D-sub 9 pin (2.6mm screw) SH2/ST2 Connection: RJ-45 jack connector (option)	
Weight	Approx. 140 g	
Internal volume	Approx. 787mm ³	
External dimensions	φ30x67.5	

1.2. Standard Accessory

Quick manual	Paper	1copy
--------------	-------	-------

1.3. Option

Unit cable: GUC for SH2 / ST2 multi-ionization gauge.	0.5,1.0,2.0m
Inspection certificate	

1.4. Connection with External Devices

Terminal number	Sensor	Function
1	Power supply +15 VDC	Power supply (12 to 24 VDC)
2	N.C	
3	N.C	
4		
5	Analog output	Pressure signal voltage (0 to 5 VDC)
6	GND	Sensor ground
7	GND	Sensor ground
8	N.C	
9	N.C	

1.5. Analog Output

This unit outputs the measured pressure as a 0 to 5 VDC signal.

1.5.1 Pressure conversion equation

Convert the analog output to pressure based on the following equation.

$$P = -25 \times V + 25 \quad \Leftrightarrow \quad V = (25 - P) / 25$$

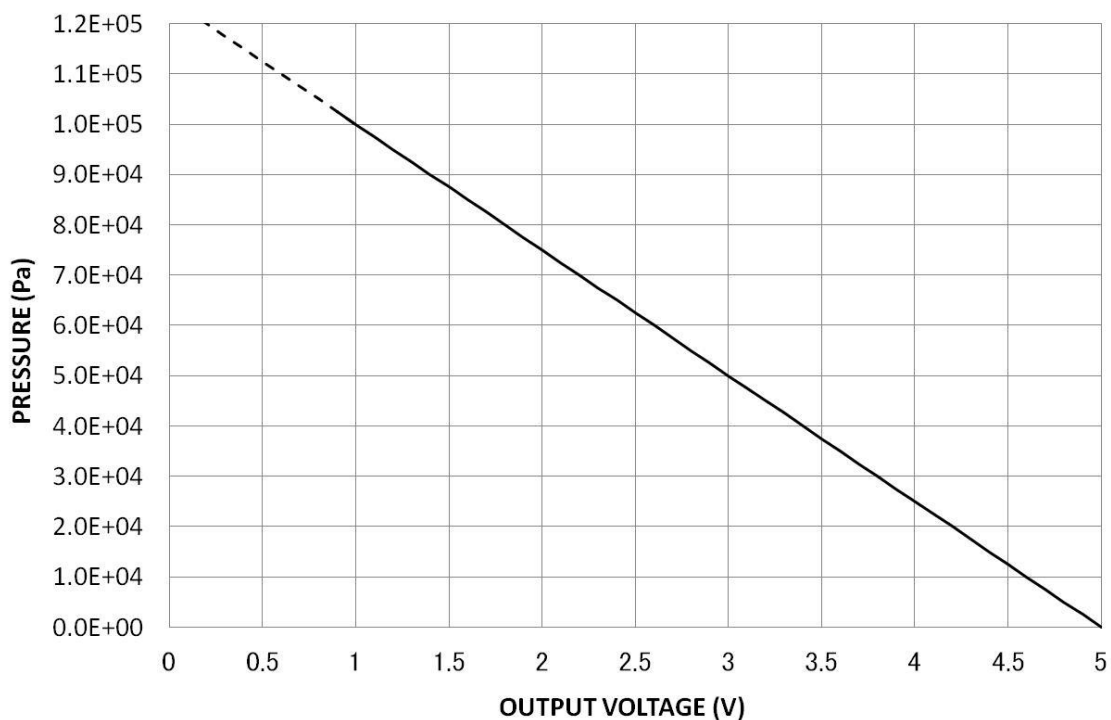
P: Pressure (Pa) V: Output voltage (V)

1.5.2 Analog output

The analog output in several states that can occur during measurements is shown in Table 0-1 Analog output states.

Table 0-1 Analog output states

Operating state	Analog output voltage
At atmospheric pressure	1 V
During normal measurements	1 to 5 V voltage corresponding to the measured pressure
During vacuum pumping	5 V
When it exceeds atmospheric pressure to a large degree. Abnormal power supply voltage, sensor malfunction, etc.	0.1 V or less



2. Warranty

This product was shipped after rigid company inspection. However, in case any failure occurs under ULVAC's responsibility, such as defect in manufacturing and damage during transportation, Buyer shall inform ULVAC, Inc. or the local ULVAC representatives. ULVAC will repair or exchange it at free of charge.

Warrantable Items: Pressure sensor unit delivered to the customer

Duration of guarantee

One (1) year after shipping date from ULVAC

Warranty scope

- 1) Domestic business in Japan: Product, which has damage, caused by a failure on delivery.
- 2) Direct export transaction: Product, which has damage, caused by a failure on delivery. The warranty scope shall conform to the new INCOTERMS.
- 3) Products not satisfying meet the standard specifications although the product is used under the normal service conditions such as temperature range and power etc.

Response procedure

- 1) Domestic business in Japan: ULVAC send a replacement or Buyer return the defective items to ULVAC, Inc. or to the local ULVAC representatives for repair. If field service is required, Buyer shall ask ULVAC, Inc. or the local ULVAC representatives.
- 2) Direct export transaction: ULVAC send a replacement or Buyer return the defective items to ULVAC, Inc. or to the local ULVAC representatives for repair. Return charge shall be paid by Buyer.

Disclaimer

- 1) Failure occurred after expiration of warranty period
- 2) Failure caused by force majeure, such as fire, storm and flood damage, earthquake, lightning strike, war etc
- 3) Failure occurred due to carelessness handling or faulty usage
- 4) Products remodeled, disassembled or repaired without ULVAC's acceptance
- 5) Failure occurred under abnormal environment, such as intense electromagnetic field, radiation, high-temperature, high-humidity, flammable gases, corrosive gases, dust etc.
- 6) Failure occurred by noise
- 7) Product deficiency or secondary damage occurred to Buyer, from law suit to ULVAC by third party for patent infringement.
- 8) Sensor head being used (expiration of life, measurement error, etc.)
- 9) Sensor head cable in use (cable burnout due to improper installation, poor contact, etc.)

Others

- 1) In case, special agreement or memorandum for specifications is made individually, the descriptions are prior to this article "13 Product Warranty".
- 2) Buyer shall inform ULVAC when this product is exported out of Japan. In the meantime, Buyer shall take necessary procedures according to Foreign Exchange and Foreign Trade Law.
- 3) As for the question and consultation, Buyer shall check the model and serial number and ask the local representative or ULVAC, Inc.
- 4) The content of this document is subject to change without notice in future.

3. Dimensions

3.1. SAU dimensions

