

QCP Pressure Transducer — QCP-PUREGAS 1400 Series

UHP VCR-sealed gauge pressure transducer for high-purity gases (semiconductor).

Certifications

Quality Lab Solutions data sheet R4



Applications

- Semiconductor
- Solar Photovoltaic
- Flat Panel Display
- High-purity gas systems

Special Features

- SEMI-compliant 316L VAR wetted parts; electropolished ($R_a \leq 0.13 \mu\text{m}$)
- Fully welded 9/16-18 UNF VCR connection (male or female)
- Helium leak rate $5 \times 10^{-12} \text{ Pa} \cdot \text{m}^3/\text{s}$
- Outputs: 4–20 mA (2-wire) or 0–10 V (3-wire)
- Ranges: –1–15 bar; –1–35 bar; –1–210 bar; overpressure to 30/70/500 bar
- Accuracy $\pm 0.5 \% \text{ FS}$; repeatability $\leq 0.1 \% \text{ FS}$; hysteresis $\leq 0.12 \% \text{ FS}$
- IP67; vibration 5 g (20–2000 Hz); shock 100 g/11 ms
- ATEX II 3G Ex ec ic IIC T6..T4 Gc; IECEx Ex ec ic IIC T6..T4 Gc; CE; RoHS



QCP-PUREGAS 1400

Description

The QCP-PUREGAS 1400 is a compact gauge pressure transducer for high-purity gas distribution in semiconductor equipment. A fully welded 316L VAR stainless-steel body with VCR 9/16-18 UNF sealing provides leak-tight service; wetted parts are electropolished to SEMI standards for cleanliness. Digitally compensated electronics deliver outputs of 4–20 mA (2-wire) or 0–10 V (3-wire) over ranges from –1–15 bar to –1–210 bar, with $\pm 0.5 \% \text{ FS}$ accuracy and stable repeatability. Protection includes IP67 ingress rating, vibration resistance to 5 g and mechanical shock to 100 g. Suitable for Class 100 cleanroom handling and supplied with CE, RoHS, ATEX II 3G and IECEx approvals for use with high-purity gases.

Specifications

TECHNICAL SPECIFICATIONS	
Pressure range	−1–15 bar; −1–35 bar; −1–210 bar
Pressure reference	Gauge
Accuracy	±0.5 % FS
Hysteresis & repeatability	Hysteresis ≤ 0.12 % FS; Repeatability ≤ 0.1 % FS
Temp. drift	Total error: ±0.5 % FS (−20 to 50 °C); ±1.0 % FS (−20 to 85 °C)
Ambient temp.	−20 to 85 °C
Medium temp.	−20 to 100 °C (non-Ex limits)
Storage temp.	−20 to 85 °C
EMC-interference	Designed for high immunity per IEC 61000 series
EMC-immunity	IEC 61000-4-2 ESD ±4 kV contact/±8 kV air; IEC 61000-4-3 10 V/m 80 MHz–6 GHz; IEC 61000-4-4 ±2 kV EFT; IEC 61000-4-5 ±0.5/±1 kV surge; IEC 61000-4-6 10 V; IEC 61000-4-8 100 A/m
Connector Material	Stainless steel 316L
Vibration resistance	5 g (20–2000 Hz)
Shock resistance	100 g/11 ms
Protection	IP67
Wetted Parts	316L VAR stainless steel; electropolished (SEMI F19/F20)
Approvals/Certification	CE; RoHS; ATEX II 3G Ex ec ic IIC T6..T4 Gc; IECEx Ex ec ic IIC T6..T4 Gc
Electrical Outputs	4–20 mA; 0–10 V
Process connections	9/16-18 UNF-2A VCR male; 9/16-18 UNF-2A VCR female
Anti-Vibration	Yes
Overpressure/Burst Pressure	30 bar; 70 bar; 500 bar
Housing Material	Stainless steel 316L
Electrical connections	M12×1 4-pin; M12 straight cable
Power Supply	11–28 V DC (4–20 mA); 15–28 V DC (0–10 V)
Helium Leak Rate	5×10^{-12} Pa·m ³ /s
Semiconductor standards	SEMI F19 (electropolish), SEMI F20 (materials); ISO 14644 Class 5 assembly
Cleanroom Packaging	Double packaging per SEMI E49.6

Measuring Range (Gauge Pressure)

Range Code	Measuring Range	Overpressure	Accuracy
01	−1...+15 bar	188%FS	±0.5%FS
02	−1...+35 bar	194%FS	±0.5%FS
03	−1...+210 bar	237%FS	±0.5%FS

Output Signals

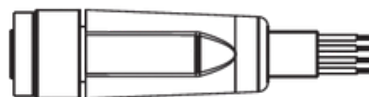
Code	Output	Power Supply	Load
I4	4-20 mA (2-wire)	11-28 VDC	≤(Vs-8V)/0.02A Ω
VX	0-10 V (3-wire)	15-28 VDC	>10 kΩ

Electrical Connections

Code	Description	Pinout
E2	M12×1 4-pin (IEC 61076-2-101)	2-wire current (I4): Pin 1: Supply +; Pin 3: Ground/Return 3-wire voltage (VX): Pin 1: Supply +; Pin 3: Ground; Pin 4: Voltage output; Pin 2: Reserved
E1	M12×1 straight connector with integrated TPUR cable	3-wire voltage (VX): Grey: Supply +; Blue: Ground; Black: Voltage output; White: Reserved 2-wire current (I4): Grey: Supply +; Blue: Ground/Return



M12×1 4-pin (IEC 61076-2-101)



M12×1 straight connector with integrated TPUR cable

Power Supply

Code	Supply
S1	11-28 VDC (for 4-20 mA)
S2	15-28 VDC (for 0-10 V)

Construction Materials

Code	Diaphragm	Pressure Port	Housing
M1	316L VAR stainless steel	316L VAR stainless steel	Stainless steel 316L

Cable Material

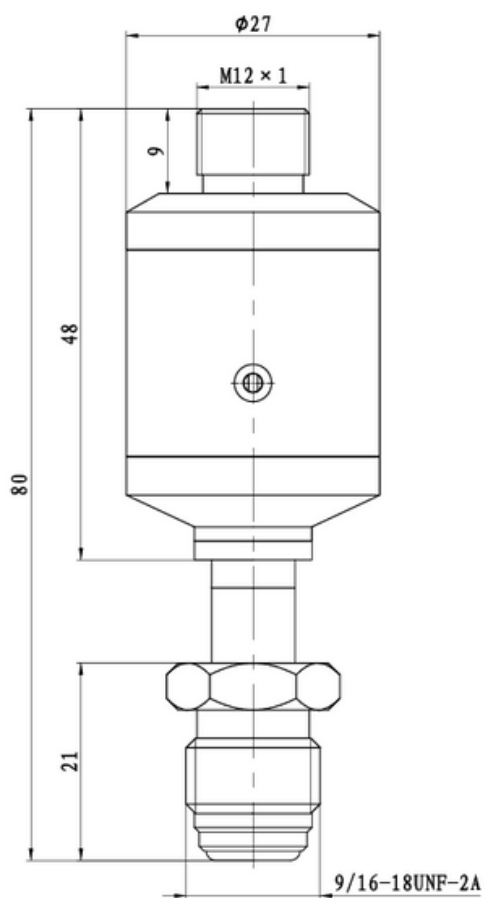
Code	Description
CB1	TPUR (thermoplastic polyurethane)

Accuracy options

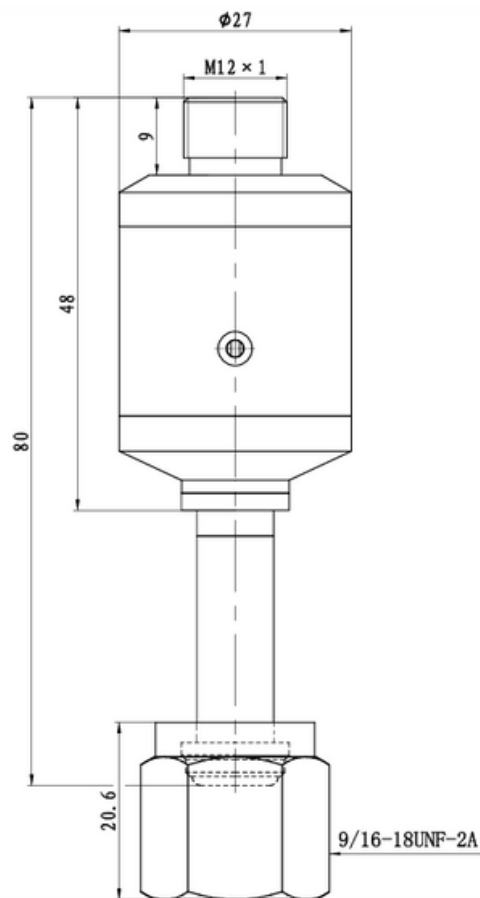
Code	Accuracy
A50	±0.5%FS

Process Connections/Drawings

Code	Thread / Port
P01	9/16-18 UNF-2A, 1/4 VCR male, VCR sealing
P02	9/16-18 UNF-2A, 1/4 VCR female, VCR sealing



P01: 1/4 VCR MALE



P02: 1/4 VCR FEMALE

Process Connection Seal

Code	Seal type
CSV	VCR metal gasket sealing (per VCR)

Certification

Code	Description
C	UK/EU Declaration of Conformity
RO	RoHS
AT	ATEX II 3G Ex ec ic IIC T6..T4 Gc
IX	IECEx Ex ec ic IIC T6..T4 Gc

Order Guide

Segment	Your Code	Options
Product family	QCP-PUREGAS 1400	QCP-PUREGAS 1400
Pressure Reference	GP	Gauge only
Range	01-03	See Measuring range
Accuracy	A50	See Accuracy options
Output	I4/VX	See Output Signals
Power Supply	S1/S2	See Power Supply
Construction Materials	M1	See Construction Materials
Process Connection	P01/P02	See Process Connections & Drawings
Connection Seal	CSV	See Connection Seal
Electrical Connection	E1/E2	See Electrical Connections
Cable Material	CB1	See Cable Material
Certification	CE/RO/AT/IX	See Certification

Ordering Example Gauge -1...+15 bar, $\pm 0.5\%FS$, 4-20 mA (2-wire), 11-28 VDC, 316L VAR wetted parts, 9/16-18 UNF-2A 1/4 VCR male, VCR sealing, M12 4-pin connector, TPUR cable, CE.

Family	Ref	Range	Accuracy	Output	Power Supply	Construction Materials	Process Connection	Process Connection Sealing	Electrical Connection	Cable Material (E1 only)	Certification
QCP-PUREGAS 1400	GP	01	A50	I4	S1	M1	P01	CSV	E2	CB1	C

Notes

Overpressure converted to %FS using bi-directional span (e.g., -1...+15 -> span 16 bar => $30/16 \approx 188\%FS$).

Outputs: 4-20 mA (11-28 VDC), 0-10 V (15-28 VDC). Loads: $\leq (V_s - 8V)/0.02A \Omega$ for current; $> 10 k\Omega$ for voltage.

Electrical pinouts: M12 4-pin (Pin1 V+, Pin3 GND, Pin4 Vout for 3-wire); integrated TPUR cable colors: Grey V+, Blue GND, Black Vout, White Reserved.

Process connections: 9/16-18 UNF-2A male/female with VCR sealing.

Materials: Wetted parts 316L VAR; electropolished per SEMI F19; IP67; EMC per IEC 61000 series; vibration 5g; impact 100g/11ms.