

DAQP-STG

- **Strain gauge, bridge sensors:** ± 0.1 to ± 1000 mV/V (@ $5 V_{DC}$ excitation)
- **Piezoresistive bridge:** ± 0.5 to ± 10000 mV/mA (@ 1 mA excitation)
- **Voltage input:** ± 500 μ V to ± 10 V
- **RTD** *Resistance Temperature Detector (Pt100 to Pt2000)*
9 resistance ranges (8 to 4000 Ω)
- **Resistance:** 25 m Ω to 100 k Ω
- **Isolation:** 350 V_{DC}
- **Signal connection:** 9-pin SUB-D socket

Additional signal input using MSI

- **IEPE®** *Constant current powered sensors (accelerometers, microphones); 12 ranges (± 100 mV to 10 V); requires MSI-BR-ACC*
- **THERMOCOUPLE** *full range of TC type requires MSI-BR-TH-x*
- **CHARGE** *Charge up to 50000 pC requires MSI-BR-CH-50*
- **VOLTAGE** *up to ± 200 V requires MSI-BR-V-200*



Module specifications

	DAQP-STG
Gain	0.5 to 10 000
Voltage input ranges	$\pm 0.5, \pm 1, \pm 2.5, \pm 5, \pm 10, \pm 25, \pm 50, \pm 100, \pm 250, \pm 500$ mV, ± 1 V, ± 2 V, ± 5 V, ± 10 V
Sensitivity @ $5 V_{DC}$ excitation	$\pm 0.1, \pm 0.2, \pm 0.5, \pm 1, \pm 2, \pm 5, \pm 10, \pm 20, \pm 50, \pm 100, \pm 200, \pm 400, \pm 1000$ mV/V
Resistance	25 mOhm to 100 kOhm
Input impedance	>100 MOhm (power off: 50 kOhm)
Input noise	7 nV * $\sqrt{\text{Hz}}$
Voltage input accuracy	± 0.05 % of reading ± 0.02 % of range ± 10 μ V
Gain drift	typical 10 ppm/K max. 20 ppm/K
Offset drift	typical 0.3 μ V/ $^{\circ}$ C + 10 ppm of range/ $^{\circ}$ C, max 2 μ V/ $^{\circ}$ C + 20 ppm of range/ $^{\circ}$ C
linearity	typical 0.02 %
Excitation voltage	0, 0.25, 0.5, 1, 2.5, 5, 10 and 12 V_{DC} software programmable (16 Bit DAC)
Accuracy	± 0.03 % ± 1 mV
Drift	± 10 ppm/K ± 50 μ V/K
Current limit	100 mA
Protection	Continuous short to ground
Excitation current	0.1, 0.2, 0.5, 1, 2, 5, 10 and 20 mA software programmable (16 Bit DAC)
Accuracy	0.05% ± 2 μ A
Drift	15 ppm/K
Compliance voltage	12 V
Output impedance	>1 MOhm
Supported sensors	4- or 6-wire full bridge 3- or 5-wire $\frac{1}{2}$ bridge with internal completion (software programmable) 3- or 4-wire $\frac{1}{4}$ bridge with internal resistor for 120 and 350 Ohm (software programmable) ¹⁾ 4-wire full bridge with constant current excitation (piezoresistive bridge sensors) Potentiometric Resistance Resistance Temperature Detection: Pt100, Pt200, Pt500, Pt1000, Pt2000
Bridge resistance	80 Ohm to 10 kOhm @ $\leq 5 V_{DC}$ excitation
Shunt calibration	Two internal shunt resistors 59.88 kOhm and 175 kOhm
Shunt and completion resistor accuracy	0.05 % ± 15 ppm/K
Automatic bridge balance	Input range 500 μ V to 1 V: ± 200 % of Range 2.5 V to 5 V : ± 20 % of Range
Bandwidth (-3 dB)	300 kHz

Filters (low pass)	10 Hz, 30 Hz, 100 Hz, 300 Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz, 100 kHz
Filter characteristics standard DAQP-STG	10 Hz to 100 kHz: Butterworth or Bessel 40 dB/dec (2nd order; ± 1.5 dB @ f_0) 300 kHz: Bessel 60 dB/dec (3rd order; 0 to -3 dB @ 300kHz)
Option S6 (DAQP-STG-S6)	10 Hz to 100 kHz: Bessel 80 dB/dec (4th order; ± 1.5 dB @ f_0) 300 kHz: Bessel 60 dB/dec (3rd order; 0 to -3 dB @ 300kHz)
Typical SNR @ 100 kHz [1 kHz] and 5 V_{DC} excitation	66 dB [84 dB] @ 1 mV/V 82 dB [100 dB] @ 50 mV/V
Typical CMRR @ 0.1 mV/V [1 mV/V] and 5 V_{DC} excitation	160 dB [160 dB] @ DC 115 dB [110 dB] @ 400 Hz 110 dB [105 dB] @ 1 kHz
Isolation	$\pm 350 V_{DC}$ continuous (for input, excitation and TEDS interface)
Common mode voltage	$\pm 350 V_{DC}$ input to housing
Over voltage protection	$\pm 50 V_{DC}$ input (+) to input (-)
Output voltage	$\pm 5 V$
Output resistance	< 1 Ohm
Output current	Max. 5 mA; short to ground protected for 10 seconds
RS-485 interface	Yes
Supported TEDS chips	DS2406, DS2430A, DS2431, DS2432, DS2433
MSI support	MSI-BR-TH-x, MSI-BR-ACC, MSI-BR-V-200, MSI-BR-CH-50
Power supply voltage	$\pm 9 V_{DC}$ (± 1 %)
Power consumption	Typ. 1.7 W @ 350 Ohm, 2.15 W @ 120 Ohm (both full bridge @ 5 V_{DC} excitation) Absolute max.: 3 W (maximum excitation @ maximum current)