

Notes for Tensiometer & Pressure Transducer Interfaces

Part No. Description

ST1 Interface for GT3 Standard Tensiometer

Range of Response: 0 to 100 kPa

Output Display: 0 to 100 kPa

Display is 2 decimal places 00.00 kPa.

Output Calibration: Calibration for a 15 PSI Transducer at 4.2 V

ST1-A Interface (mV Output) for Honeywell Transducers with either 1 PSI, 15 PSI or 30 PSI range

Range of Response: -100 kPa to 200 kPa

Output Display: - or + mV in the range -50 mV to 50 mV

Convention is negative for vacuum and no sign for positive pressure.

Display is 3 decimal places 00.000 mV.

Output Calibration: The customer can connect a Honeywell Transducer of choice 1 PSI, 15 PSI or 30 PSI. The output in mV will not exceed the output display range of -50 mV to 50 mV at 4.2 V regulated power supply. The interface output in mV is linear and therefore a 2 point calibration (slope) only is required to convert mV to cm of water or kPa for either the 1 PSI, 15 PSI or 30 PSI Honeywell Transducers.

ST1-B1 Interface (kPa Output) for 1 PSI Transducers

Range of Response: -10 kPa to 10 kPa

Output Display: kPa in the range -10 to 10 kPa

Convention is negative for a vacuum and no sign for a positive pressure.

Display is 3 decimal places 00.000 kPa.

Output Calibration: Calibration of the 1 PSI transducer is at 4.2 V

Note: A transducer specific calibration is required as the response of each of the 1 PSI transducers is different in sensitivity. This correct calibration curve must be known to accurately convert the raw output (mV) to kPa.

ST1-B2 Interface (kPa Output) for 15 PSI Transducers

Range of Response: -100 kPa to 100 kPa

Output Display: kPa in the range -100 to 100 kPa

Convention is negative for a vacuum and no sign for a positive pressure.

Display is 3 decimal places 00.000 kPa.

Output Calibration: Calibration of the 15 PSI transducer is at 4.2 V

Note: A transducer specific calibration is required as the response of each of the 15 PSI transducers is different in sensitivity. This correct calibration curve must be known to accurately convert the raw output (mV) to kPa.



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ST1-B3 Interface (kPa Output) for 30 PSI Transducers

Range of Response: -100 kPa to 200 kPa

Output Display: kPa in the range -100 to 200 kPa

Convention is negative for a vacuum and no sign for a positive pressure.

Display is 3 decimal places 00.000 kPa.

Output Calibration: Calibration of the 30 PSI transducer is at 4.2 V

Note: A transducer specific calibration is required as the response of each of the 30 PSI transducers is different in sensitivity. This correct calibration curve must be known to accurately convert the raw output (mV) to kPa.

System Resolution — General Notes

1. -100 kPa to 200 kPa is a maximum full scale range of 300 kPa.
2. Datalogger resolution is 16 bit or a full scale range divided by 65,000 parts.
3. A pressure of 100 kPa is equivalent to 1020 cm height column of water.
4. The full scale $300 \text{ kPa} / 65,000 = 0.00461 \text{ kPa/bit}$.
5. The equivalent resolution of the interface is $= 0.47 \text{ mm H}_2\text{O}$

Transducer Output — General Notes

Output for full scale at 10 volts:

0 – 1 PSI	is 16.7 mV
0 – 15 PSI	is 0 – 100 mV
0 – 30 PSI	is 0 – 100 mV

Output for full scale at 4.2 volts:

0 – 1 PSI	is 7.0 mV
0 – 15 PSI	is 42 mV
0 – 30 PSI	is 42 mV

Transducer Offset and Interface Autozero Function

Transducers have an offset in them. This can be taken out by using the autozero function in the Smart Interface (ST1-A or ST1-B) in order to bring it back to zero.

Note:

Calibrated units (i.e. those with kPa output [ST1-B]) must be used only with the specific transducer with which the electronics were calibrated.



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