

Transducer Selection

The 2000 Series is able to work with any pressure transducer which can be powered from a 15V supply and gives either a 0-5V or 0-10V output.



It is very important to select a transducer to match the required pressure range to be measured. This is because transducers are typically accurate over a 10 to 1 range, therefore using a 10Bar sensor at 1mBar will give poor results.

To cover a range of pressures/vacuums it will be required to use several transducers.

There are many different manufacturers of transducers that can be used with the Transmille 2000 Series calibrator, for example :

Sensor Technics

Provides a low cost range of suitable transducers covering gauge, absolute & differential available off the shelf with typical accuracy of 0.2% FSO.

The CTE 7000 Series provides low pressure ranges from 10mBar to 7Bar.

The CTE 8000 Series provides high pressure ranges up to 100Bar.

See www.sensortech.com for details

Druck

Provides a range of standards grade transducers covering gauge, absolute & differential available with typical accuracy of 0.04%.

The PMP 4000 Series provides pressure ranges from 70mBar to 700Bar.

See www.druck.com for details

Connecting to the 2000 Series Calibrators

Most transducers have a connector to allow transducers to be easily changed for a different range. This allows a common lead to be used for connection to the calibrator for transducers for the same manufacturer.



Note : For transducers from different manufacturers, different connection leads will be required as the transducer connectors will be different.

The connection lead from the 2000 series to the transducers is usually 3 wire, +15V, ground and signal. This lead can be easily constructed by the user, or supplied from Transmille for the *Sensor Technics / Druck* ranges of transducer.

Pressure Equipment Connections

There are a large number of types of fittings for pressure equipment. This means it is necessary to obtain adaptors to connect one type of fitting to another.

These adaptors can be supplied by local hydraulic suppliers to suit specific conversions as there are a large number of types of connections.

See www.flowtech.co.uk for details

Pressure Calibration using a Transducer

In order to calibrate a gauge or another transducer, it is necessary to provide a source of pressure which can be connected to both the equipment under test and also the reference transducer.

The usual way of providing pressure is by using a hand pump. Transmille recommend the Druck PV 411 hand pump which can provide both pressure and vacuum and hydraulic (adaptor required).

As both the equipment under test and the transducer need to be connected to the same pressure/vacuum source a 'T' piece is required (note : the Druck PV 411 hand pump has 2 outlets, so a T piece is not needed).

Pressure units and conversions

There are a large number of different units used for pressure. These can be easily converted from one to another using widely available conversion factors (see www.sensortech.com for an online conversion tool).



Even though a transducer may be specified in a specific unit, eg. Bar there is no reason why it cannot be used for any other measurement unit, eg. psi

Calibration of the reference transducer

Before a transducer is used as a reference, it must be calibrated. This is required to provide traceability and the sensitivity co-efficient. This co-efficient must be used in Transmille's 2000 Series Virtual Front Panel or ProCal software packages to provide the correct scaling factors.

For example, if a 10Bar transducer produced an output of 5.0821V for 10Bar then the scale factor entered in POD mode for the 2000 Series VFP would need to be :

$$10 / 5.0821 = 1.9676$$

Transmille EA006 Pressure Calibration Kit

This option includes the Druck PV411 hand pump, a calibrated SensorTechnic 10Bar transducer with connection lead and a standard air line connector for transducer to hand pump connection.