Relative Pressure Sensor FW, ±100 hPa 1021532

Instruction sheet

07/21 GH

1. Safety instructions

- To avoid permanent damage to the internal semiconductor sensor, the maximum permitted relative pressure of 4000 hPa must never be exceeded.

Only suitable for use with non-corrosive gases such as air, helium or nitrogen.

- Do not exceed the maximum temperature of the measured medium of 100°C!
- Do not allow the sensor element to come into contact with water.

2. Description

Relative pressure sensor with a measurement range up to 100 hPa, suitable for measuring the pressure on the piston of the Stirling engine D 1000817 (for a pV diagram).

For two-port measurement using the sensor, hose connections are provided for two inputs.

The sensor box is designed to be detected automatically by the CMA interfaces distributed by 3B.

3. Equipment supplied

1 Sensor box

1 Silicone hose, internal Ø 2mm, 1mm long

1 PVC hose, internal Ø 3.5mm, 1mm long

Additionally required:

1 Sensor cable	1021514

4. Technical data

Measurement range:	± 100 hPa
Sensor type:	Semiconductor sensor
Accuracy:	± 1 %
Resolution:	± 0.01 hPa
Connections:	2 hose connections, 4.8 mm diameter

5. Instructions

- Cut the silicone hose into sections of the required length.

- Using the lengths of hose, make the pressure connections between the sensor box and the Stirling engine.
- Note the “positive” and “negative” labelling of the hose connections - connect the hoses correctly according to the effective direction of the pressure.
- During the experiment, check that no elastic expansion of the hose is occurring – this can cause the pressure reading to be lower than the correct value.

6. Application

Measurement of the pressure difference in the Stirling engine D 1000817.

7. Sample experiment

Recording operating pressures in Stirling engine 1000817 **while it is in motion**

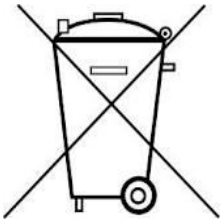
Apparatus required:

1 VinciLab	1021477
1 Relative pressure sensor, ±100 hPa	1021532
1 Sensor cable	1021514
1 Stirling engine D	1000817

- Set up the Stirling engine D as described in its manual.
- Start VinciLab.
- Connect the relative pressure sensor to the VinciLab and wait for the sensor to be detected.
- Use a suitable length of silicone hose to make the pressure connection between the “positive” hose connection of the sensor box and one of the two hose connections of the Stirling engine. The two hose connections of the engine are identical in their function.
- Allow the engine to heat up and, after a few minutes, set it running.
- Start a measurement on VinciLab.
- Measure the pressures.
- Evaluate the curve resulting from the measurements (fig. 1).

8. Disposal

- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.



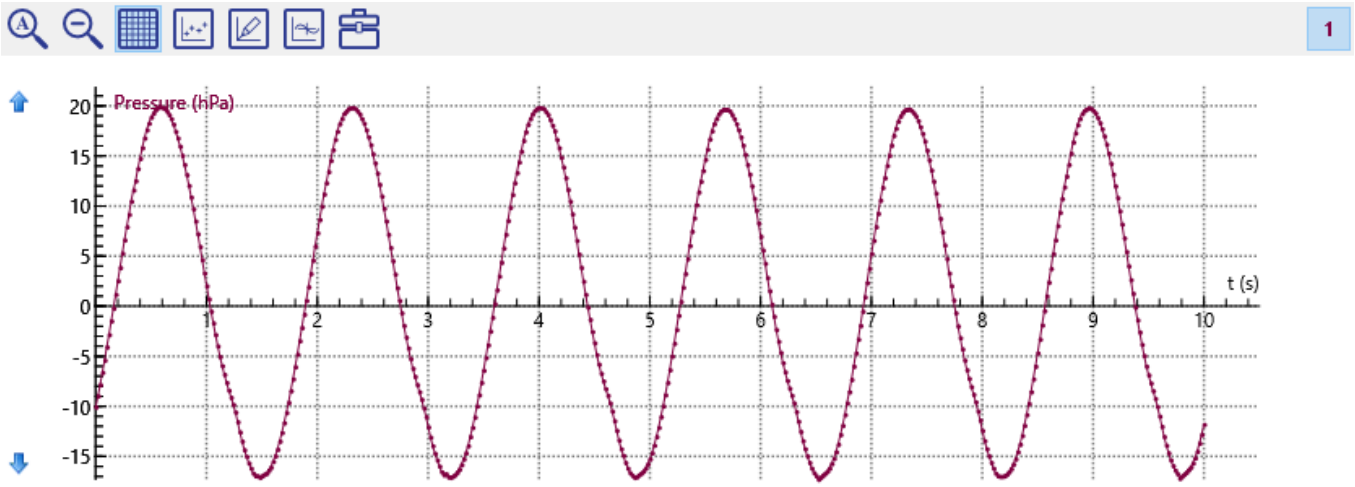


Fig. 1 Trace of pressure in the Stirling engine D