

Relative Pressure Sensor, ± 100 hPa U11321

Instruction sheet

03/08 Hh



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 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 Wilke-type Stirling engine U8440480 (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 3B NET/log™ unit.

3. Equipment supplied

- 1 Sensor box
- 1 MiniDIN 8-pin connector cable, 60 cm long
- 1 Silicone hose, internal diameter 2 mm, 1 m long

4. Technical data

Measurement range:	± 100 hPa
Sensor type:	Semiconductor sensor
Accuracy:	± 1 %
Resolution:	± 1 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 U8440480, and analysis of the data using 3B NETlab™.

7. Sample experiment

Recording operating pressures in Stirling engine U8440480 while it is in motion

Apparatus required:

1 3B NETlog™ unit	U11300
1 3B NETlab™ program	U11310
1 Relative pressure sensor, ± 100 hPa	U11321
1 Wilke-type Stirling engine	U8440480

- Set up the experiment as shown in fig. 1.
- Connect the relative pressure sensor to the 3B NETlog™ unit 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.
- Open the application program (template) for the experiment with the ± 100 hPa relative pressure sensor on the 3B NETlab™ unit.
- Measure the pressures.
- Evaluate the curve resulting from the measurements (fig. 2).



Fig. 1 Experiment set-up for recording operating pressures in the Wilke-type Stirling engine while in motion

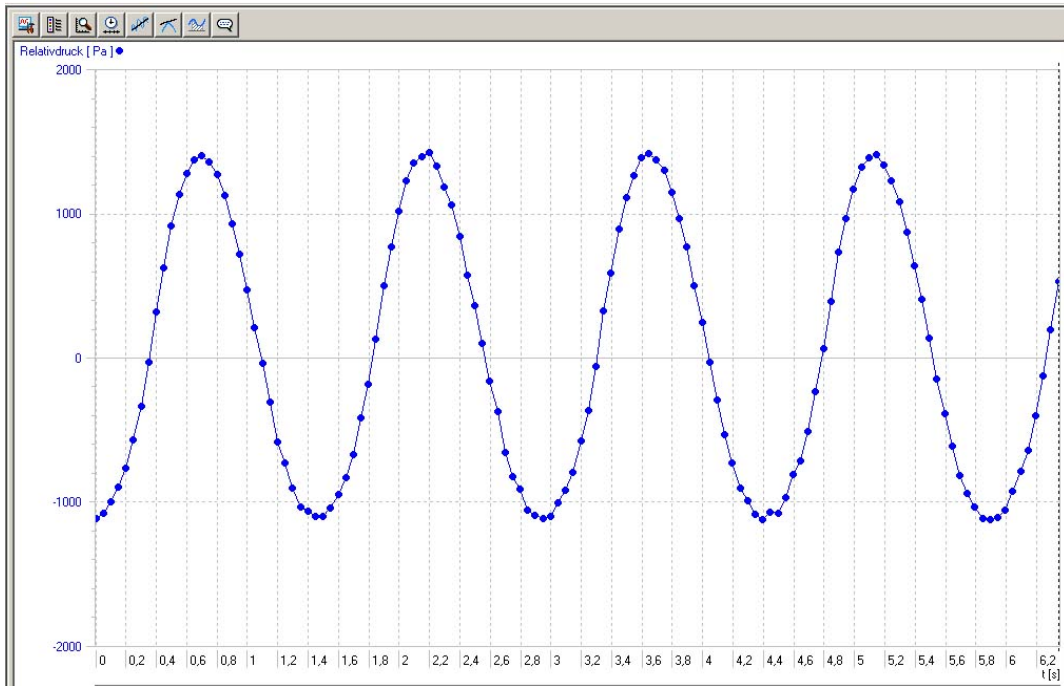


Fig. 2 Trace of pressure in the Wilke-type Stirling engine

