

**PTF 4000 – Dipping-Bell Primary Pressure Standard class 0.02%****Fields of application**

Best measurement results for adjustment- test- and calibration works in the field of low pressure applications.

For example:

- Laboratory
- University
- Cleanroom measurements
- Pressure transmitters
- Pressure sensors

**Basic principle of Dipping-Bell**

On one side of a beam balance, a hanging bell-shaped hollow cylinder (bell) with exactly known effective cross-sectional area immerses in a sealing liquid with low surface tension is mounted. On the other side from the beam balance a pan with weights. Pressure, conducted through the liquid under the bell, results in a buoyancy which is compensated by removing weights from the other side. This method is based on the basic definition: Pressure equals force divided by area.

**Functionality PTF 4000**

The PTF4000 Pressure Primary Standard is a state-of-the-art application of this basic principle. The dipping-bell, made from a thin-walled stainless pipe – closed on the top, is located as underload on a precision balance with electronically controlled force compensation. The pressure to be measured passes through two tubes through the sealing liquid under the bell, thus resulting in a buoyancy. The resulting force is measured and compensated electronically. Complex control algorithms compute under consideration of environmental factors (optional) high precision and reproducibility.

This results in the following advantages:

- » Direct display without manipulation
- » Easily automated by data output
- » Permanent reproducibility
- » Optimal damping of pressure fluctuations

**Technical Data**

Measuring range:	Nominal range -2000 ... 2000 Pa (Without underload)	Second range 0 ... 4000 Pa (With underload)
Error limit:	± 0,02 % FS	
Resolution:	0,01Pa	
Units of measurement:	mbar, Pa, hPa, kPa, psi, mmHg, ...	
Measured value display:	7-Seg. LED, 14 mm	
Reproducibility:	0,005 %	
Settling time:	~2,5 s	
Operating temperature:	15...35 °C	
Relative humidity:	25% - 85% (non-condensing)	
Temperature coefficient:	-0,003 %/K (Will be compensated by connected Meteo Station HM30 )	
Pressure connection:	2x M10x1mm screwing	
Supply voltage:	12V DC, 1.5A (external Power Supply inclusive)	
Power consumption:	18 W (VA)	
Net weight:	25 kg	
Dimension:	400 x 240 x 700 mm	
Serial interface:	USB / RS 232 for HM30 Meteo Station	
Sealing liquid:	Fluorinert FC-40	
Option:	Meteo Station for compensation of the environmental influences	