❑ Upgrading Software and Datalogger

If your Software, DataMeter, Voyager or DataVision version was released before this sensor came out you may require an upgrade so that it recognises and is calibrated for the Barometric scales. LogIT brand products require Version **j** or later to support this product. If, when using the sensor for the first time, your software displays mV or UNKNOWN SENSOR or DataMeter/Voyager displays ??? then they require updating. DataMeter, Voyager & DataVision can be downloaded quickly and freely from our website at **www.logitworld.com**

LogIT *brand* software - if you cannot upgrade from our web site return original disc directly to DCP below & mark package for the "Upgrade Department". *Third party software* (eg Insight, Datalogging Insight) may have to be returned directly to the publishers, but please see our web site for some of these updates.

❑ Upgrading CheckIT

ChecKIT should display the unit hPa; If it displays mV or ??? when the probe is plugged in you will need to send the CheckIT back for a free upgrade.

Note: A CheckIT upgrade is free but we can only upgrade one CheckIT free of charge per sensor purchased. If returning hardware please ensure it is sent by secure / registered post as we cannot accept any liability for non arrival or damage of your equipment. These upgrade terms are only valid for UK customers - for overseas information please contact your LogIT supplier.

LogIT is a joint British development between DCP Microdevelopments Limited and SCC Research

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DP/MF220202/042-3

Microsense® Barometric Air Pressure sensor for LogIT system

❑ Introduction

This Microsense sensor measures air pressure in the barometric range 800 to 1100 hPa (1hPa = 1 millibar of pressure). It allows direct measurement of atmospheric pressure for meteorological studies or measure altitude and can also be used for other classroom experiments requiring high resolution readings in this range.

The default unit and scale displayed on a LogIT display and software is the standard SI unit for barometric pressure, hPa (hectopascals) and many software titles such as LogIT Lab 2 also allow you to select other scale options as required (for example psi or millibar), or you can convert kPa to suitable units using the conversion formula below.

Conversion:1 kPascal =10 millibar = 10 hPa = 0.14504 psi

This Air pressure sensor has a narrower range but much higher resolution than the General Air Pressure sensor which measures from 0 to 210kPa (0 to 2100 hPa/millibars).

❑ Instructions for use

The brass connection port on the Microsense Barometric Air Pressure sensor is specially designed to accept various sizes of flexible tubing (eg silicone) with an inside diameter of 2mm to 4mm - the actual usable size of tubing depends upon the thickness and type of tube material as some tubing is more flexible than others (this might be considered if measuring atmospheric pressure outside whilst keeping the sensor inside). The sensor can be used with a suitable Microsense sensor extension cable upto a maximum length of 3 metres.

The default scale measuring unit is hPa but some software also allows other scales to be selected.

• Note: If your datalogger display shows ??? or unknown sensor you will need an upgrade - please see back page for details

If performing an experiment where small changes in pressure occur, on no account should the range of the sensor be exceeded beyond 2100hPa. Wherever possible a simple safety valve should be added if you are unsure as to how high the pressure in an experiment is likely to reach - this can easily be achieved by adding a balloon to the apparatus.

This pressure sensor is mainly designed to look at small changes in biology or weather investigations but it can also be used for measuring altitude.

The sensor can measure absolute barometric pressure, which is dependant on altitude and atmospheric pressure. Hence, in order to calculate altitude, a reference reading at ground level is required as atmospheric pressure is constantly fluctuating:

Conversion: 1hPa = 8m (approx)

❑ Specifications

Sensor type:	Solid state silicon device for air or dry gas
Range:	800 to 1100 hPa
Accuracy:	+/- 2%

❑ Care

In common with all Microsense sensor's, the pressure sensor is designed to be as robust as possible without compromising flexibility and performance, but please note:

- Only use this sensor to measure non-corrosive/non-ionic media such as air or dry gases - NEVER LIQUIDS.
- If measuring atmospheric pressure outside protect the sensor and data logger/interface from the weather - a small hole or port in the building or enclosure is all that is required.
- Take care not to apply excessive force to the brass pressure port. If applying external pressures we recommend the use of flexible silicone tubing or similar to connect to port to prevent excessive force (inside diameter of 2mm to 4mm depending on the tube material).

❑ Experiment ideas

- Atmospheric pressure studies
- Changing altitude (walking, climbing stairs)
- Logging altitude on Fairground rides
- Respiration of Insects
- Rates of reaction in a sealed container
- Low pressure Boyles Law
- Transpiration - *see experiment below*