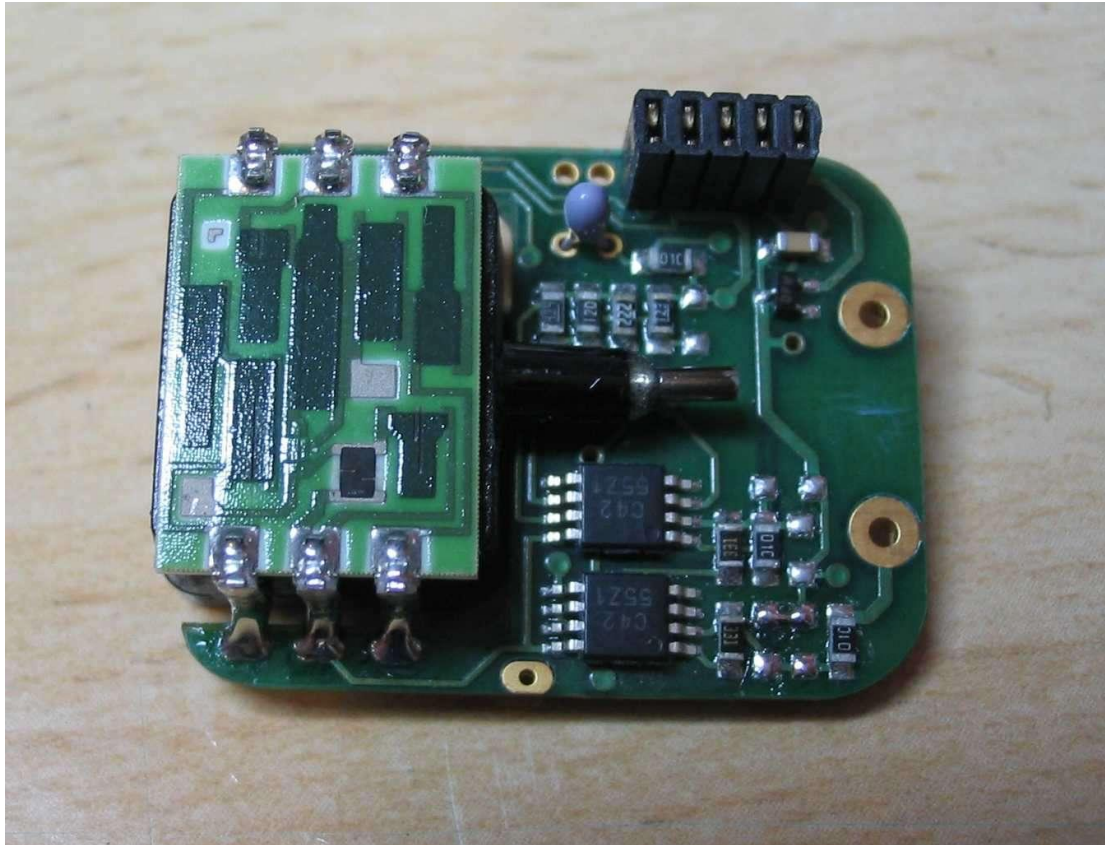


## BW14a Pitot Sensor Board



Pressure measuring range	+/- 1200pA*
Measuring resolution	2.5pA
Pressure accuracy	+/- 25pA at 25°C
Temperature measuring range	0..50°C
Resolution	1°C
Operating temperature range	0..50°C
Weight	6g
Transmit rate	Variable (see text)
Battery	Remote Tadiran TLH4986
Battery Life	tba
Radio Frequency	433.92MHz
RF Emission category	MPT1340, ETS 300-220
Typical TX range	20m (free space)

Ordering Information:	Order Code	Description
	301100502	Differential Pressure transmitter +/- 1200pA

## Differential pressure Transmitter

### Operating Modes

The sensors have 2 modes that can be set up via the RS232 connector.

#### Normal Mode

A pressure threshold value is used to enable the transmitter.

If        measured pressure > ambient pressure + threshold  
            or  
            measured pressure < ambient pressure - threshold

the sensor will measure pressure at the sample rate (64Hz), average the readings and transmit.

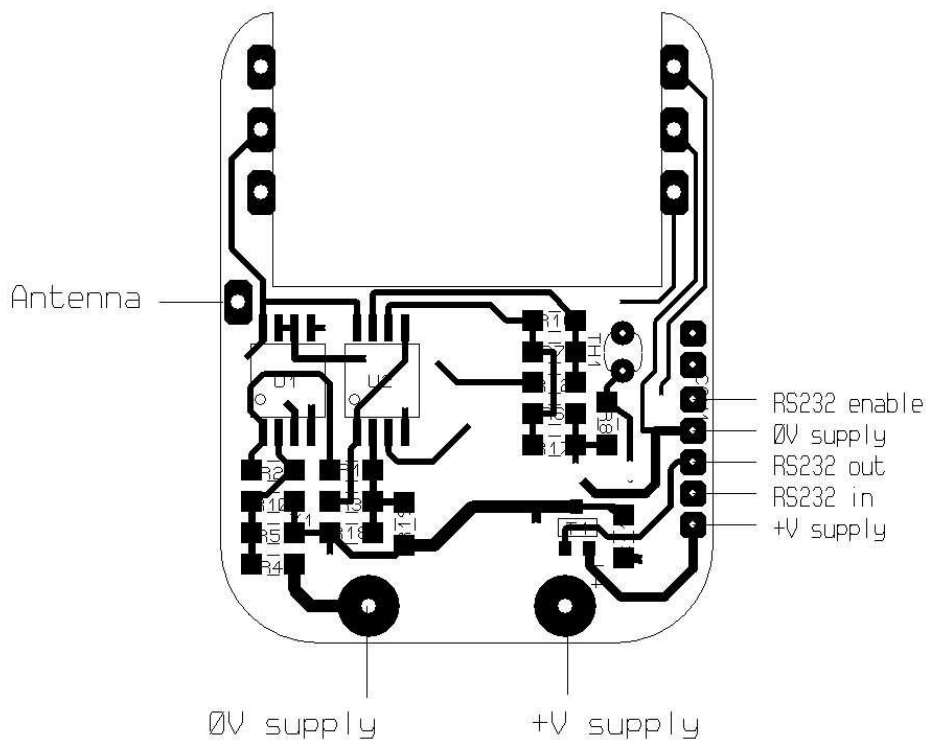
If the measured pressure is between the above values, the sensor will measure pressure at 2.5 sec intervals and will not transmit.

#### Calibration Mode

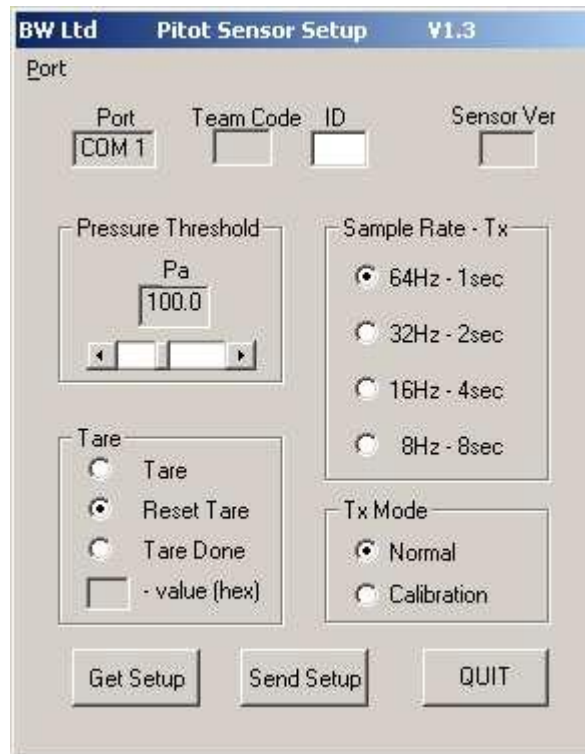
The sensor will measure pressure at the sample rate, average the readings and always transmit.

### Wiring Diagram

NOTE : DAMAGE MAY OCCUR IF THE BATTERY IS WIRED INCORRECTLY



## Differential pressure Transmitter



### RS232 PC Utility

*The white spot on the cable connector goes to the white spot on the sensor header.*

No pressure measurements or RF transmissions are made in this mode.

The following can be set :

- ID Low byte
- Pressure threshold value in increments of 2.5Pa.
- Normal mode or Calibration mode.
- Sample/transmit rate :

Sample Rate (Hz)	Tx Rate (sec)
64	1
32	2
16	4
8	8

## Differential pressure Transmitter

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### Tare Facility

A Tare function has been included in firmware version BW14\_4. This function allows small amounts of sensor/amplifier offsets to be zeroed out with the sensor in ambient air pressure. A Tare value is saved to EEPROM and either subtracted or added to the subsequent pressure readings.

*If the sensor is re-programmed after the Tare operation, the sensors EEPROM should be read first into the programmers memory before re-programming. This will then ensure the Tare value will be retained. Alternatively, the Tare operation can be carried out after re-programming.*

- 1 Check firmware BW14\_4.hex is installed in the sensor (see Firmware Update.doc)
- 2 To initiate the Tare function, select 'Tare' and send this to the sensor, using the PC utility.
- 3 Before connecting power, briefly short the power pins on the sensor to ensure a clean reset.  
Also, ensure that both pressure ports are open to ambient air pressure and that the sensor is not touched, as this may introduce offsets into the amplifiers.  
Also make sure the programming lead is disconnected from the sensor header - only the battery can be connected during 'Tare' (also during normal sensor operation).
- 4 Connect a standard 3.6V battery to the sensor.
- 5 The Tare function will now take place - for about 2 secs.
- 6 Check the Tare status using the PC utility (see below). 'Tare Done' will be selected with the Tare value indicated (in the range 00 to 1F).
- 7 The sensor should now transmit very close to zero Pa in ambient air pressure. (this can be checked by setting the sensor temporarily to calibration mode, to transmit at all times).
- 8 To reset the Tare, select 'Reset Tare' and send this to the sensor. The sensor will now transmit pressure **with** any offsets.
- 9 To initiate the Tare function again, select 'Tare' and send this to the sensor. Repeat #2 to #6 (above).
- 10 Set the ID etc using the utility in the normal way.