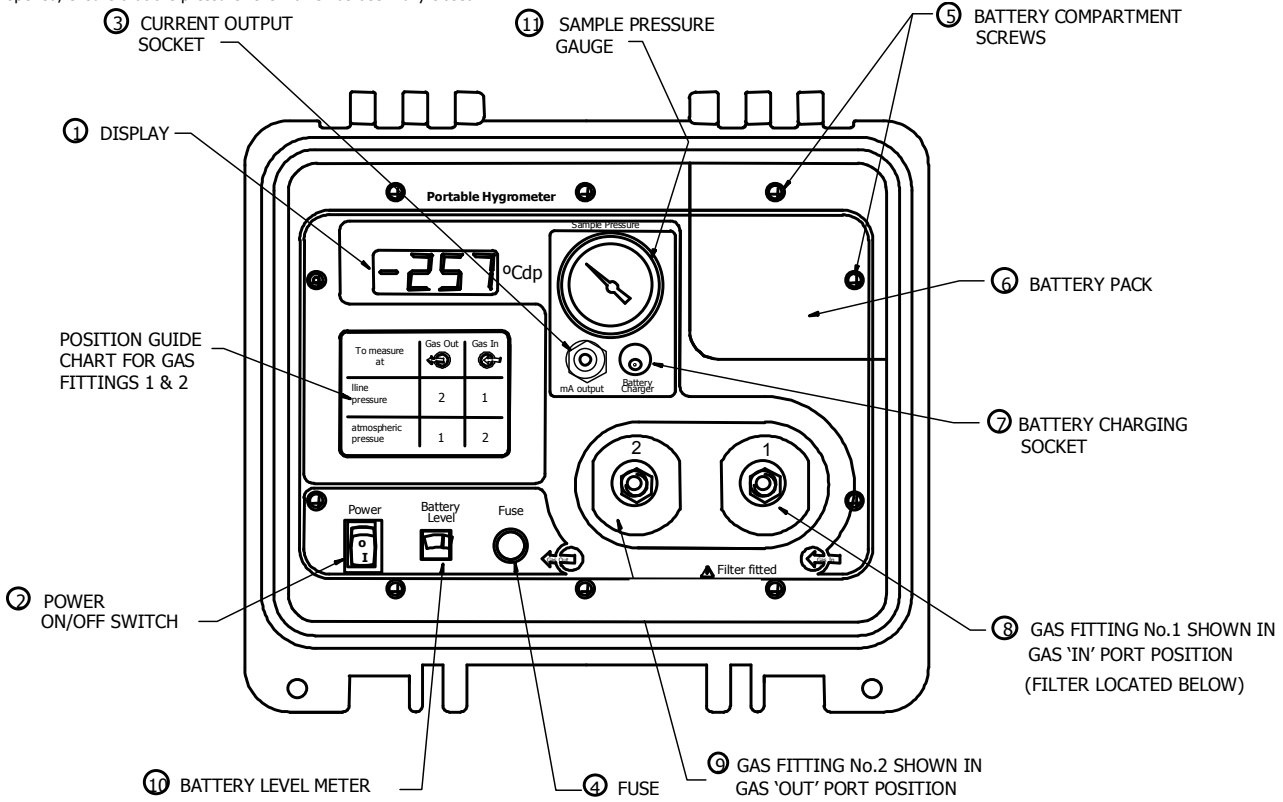
PREPARATION

On delivery, please check that all the following standard components are present in the packing box:

- EASIDEW including 2m PTFE 6mm OD sample pipe
- Battery Charger
- Mains Lead for Charger
- 4-20mA Jack Plug
- Users Guide
- Certificate of Calibration

Before using the Easidew for the first time we recommend that you charge the battery pack for a minimum of 12 hours.

The case has a pressure relief valve on the exterior below the handle. When closed, the case is totally sealed. If the instrument is taken through altitude changes, vacuum conditions will occur within the case. If this occurs, before opening the lid, open the black pressure relief valve by one turn (anticlockwise) for a few seconds. This will equalise the pressures. When the case has been opened, ensure that the pressure relief valve has been fully closed.



OPERATION

Operation of the Easidew is very simple:

1) The gas fittings are marked No.1 and No.2. The orifice sizes are No.1, 4.0mm and No.2, 0.4mm. Ensure that the correct gas fitting is fitted on the gas 'IN' or 'OUT' ports, for the type of measurement you want to make. Refer to the 'position guide chart for gas fittings 1 & 2' on the front panel of the instrument. The gas fittings should initially be screwed in finger tight and then tightened an extra quarter turn using a spanner (also see note regarding the maximum pressure ratings overleaf):

For line pressure measurements - ensure that the gas fitting marked **1** is fitted in the gas 'IN' port and the gas fitting marked **2** in the gas 'OUT' port position.

For atmospheric pressure measurements - ensure that the gas fitting marked **2** is fitted in the gas 'IN' port and the gas fitting marked **1** in the gas 'OUT' port position.

The gas sample should always be piped to enter the gas 'IN' port regardless of the positions of gas fittings **1** or **2**. This information is also shown graphically on the overlay of the instrument.

2) Connect the sample line to the instrument gas 'IN' port.
3) Switch the instrument on
4) The displayed dew point should be rapidly changing as the sensor dries down to the dew point of the gas
5) Allow the gas to flow until the display shows a stable reading. Typically this would be around 15 to 30 minutes, dependant on the actual dew point of the gas.
6) Switch the unit off and disconnect pipe work.

Please note:
For potentially dirty / contaminated gases filters are essential – the filter fitted as part of the sampling system should be checked before and after use and replaced regularly as required.

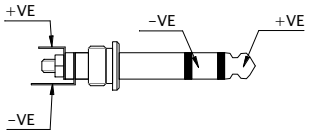
USER CONTROLS

⑧,⑨ **Gas Fittings 1 and 2** -The EASIDEW can be used for measurements at either atmospheric or line pressure (up to 20 barg) by utilising fittings with a different sized orifice in the gas 'IN' port position to provide both flow and pressure control. The gas fittings are a Legris push fit type and suitable for 6mm O.D. PTFE pipe. There is a 32mm particulate filter (99.5% removal of 0.1 micron particles) fitted as standard under the gas 'IN' port position.

⑥ **Battery Pack** - Located in the top right hand corner of the instrument. It can be accessed by removing two screws ⑤. The cells are permanently assembled together and no attempt should be made to take the assembly apart. The battery pack contains 4 x "C" NiMH cells, which can be recharged using the supplied charger, via the battery-charging socket ⑦. The battery pack should be recharged whenever the battery level meter ⑩ is in the red region. The battery pack will charge whether the instrument is being used or switched 'off', however, the battery level meter will only indicate when the instrument is switched 'on'. It is **not** possible to use standard "C" cells to power the instrument.

Spare battery packs are available from Michell Instruments. Please contact Customer Service quoting Part No. 9961586.

③ **4 – 20 mA Output Socket** -The EASIDEW provides a linear 4-20 mA output scaled –100 to +20 °C. The socket accepts a ¼" 3-pole Jack Plug (supplied) and should be wired as shown below:



② **Power Switch** - Switches the EASIDEW on/off. The battery pack can be charged with the switch in either position.

④ **Fuse** -This fuse (200 mA fast blow) provides protection for a fault on the digital display. The battery charger circuit has its own fuse protection.

① **Digital Display** - indicates the measured dew point in ° C from +20 to –99.9.
Note: Above 0° C a leading zero is shown e.g. 010.5.

Under certain conditions the following error messages may be displayed.
ErrL = Under range. **ErrH** = Over range. **Err I** = Sensor error, open circuit or sensor disconnected. An error message may also be displayed for the first few seconds after switching on. This is normal and does not indicate a problem.

⑪ **Sample Pressure Gauge** – indicates sample pressure 0-300psi or 0-20bar.

Which Gases to Measure?

The EASIDEW is suitable for measurement of the moisture content of a wide variety of gases. In general, if the gas (in conjunction with water vapour) is not corrosive to ceramics or base metals then it will be suitable for measurement by the EASIDEW.

Sampling Hints

Be Sure the Sample is Representative of the Gas Under Test:

The sample point should be as close to the critical measurement point as possible.
Never sample from the bottom of a pipe – entrained liquids may be drawn into the Easidew.

Minimize Dead Space in Sample Lines:

Dead space in sample lines causes moisture entrapment points, increased system response times or measurement errors as the trapped moisture is released into passing sample gas causing an increase in partial vapour pressure.

MAINTENANCE

Routine maintenance of the EASIDEW is confined to regular re-calibration of the C2TX EASIDEW sensor and replacement of the filter cartridge. This re-calibration work can only be done by exposure of the sensor to sample gases of known moisture content. Calibration services traceable to the National Physical Laboratory (UK) & the National Institute of Standards and Technology (USA) are provided by Michell Instruments. In most applications annual re-calibration ensures that the stated accuracy of the EASIDEW is maintained.

Sensor Replacement

1. Remove battery pack (see Section USER CONTROLS Battery Pack)
2. Remove the remaining 8 screws from the top plate.
3. Lift the top plate of the instrument out of the case complete with all the electronics and sensor.
4. Undo the screw from the centre of the sensor connecting plug and pull off the connector.
5. Unscrew the sensor from the block.

Fitting the replacement is simply a reversal of the above procedure.

Filter Cartridge Replacement

Unscrew the gas inlet fitting to reveal the filter, which can then simply be removed for checking or replacement.

Replacement cartridges are available from Michell Instruments. Please contact Customer Service quoting Part No. 9996031 (pack of 10).

CAUTION

Maximum operating pressure 20 Barg when using legris fittings and PTFE pipe.

It is important that the gas fittings are correctly tightened before use. Failure to do so will affect the instrument's pressure rating.

CUSTOMER SERVICE CONTACT DETAILS

For advice on this, or any other Michell Instruments product, please feel free to contact us via our Web site: www.michell.com

APPENDIX 1 TECHNICAL SPECIFICATIONS

Sensor type:	C2TX Easidew transmitter
Sensor Torque Loading	Minimum 30.5Nm
Calibration range:	-100 to +20 °C dew point
Dew-Point accuracy:	±2.0 °C across the whole range
Gas temperature:	-40 to +60 °C
Operating environment:	-20 to +50 °C
Storage temperature:	-40 to +75 °C
Temperature coefficient:	Temperature compensated
Interchangeability:	Sensor fully interchangeable
Gas fittings:	Legris type push fit pneumatic fittings
Output:	4-20 mA current source over the entire dew-point range. Max load resistance 400 ohms
Power:	Internal re-chargeable battery pack (4 x "C" NiMH cells) charged by external 95-260 V AC powered charger (supplied). 12-16 hours normal operation between charges
Charge time:	Approx. 12 hours
Operating pressure:	10^{-6} vacuum to 20 barg
Flow rate:	1 to 5 litres/minute
Traceable certification:	-90 to +82 °C dew point traceable to the NPL (UK); -75 to +20 °C dew point traceable to NIST (USA) [For dew points < -90 °C: Direct reference to a fundamental cooled mirror dew point meter]
Environmental protection:	IP68 with case fully closed
Case:	Polypropylene
Dimensions:	274W x 250D x 124H approx. when closed
Weight:	4.0 Kg

APPENDIX 2 RECYCLING

Michell Instruments Limited is concerned with the protection of the environment. It is our commitment to reduce and eliminate from our operations, wherever possible, the use of substances which may be harmful to the environment. Similarly, we are increasingly using recyclable and/or recycled material in our business and products wherever it is practical to do so. The product you have purchased may contain recyclable and/or recycled parts and we will be happy to provide you with information on these components should you desire it.

APPENDIX 3 HAZARDOUS PRODUCTS

The Consumer Protection Act 1987, Section 6 of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 1988, require that we advise the recipients and users of our products of any potential hazards associated with their storage, handling or use. The product detailed in this manual and all of our other products are not hazardous to health when stored and used within the technical and environmental limitations specified in our relevant catalogue or specification sheet. Should you require any further specific information regarding individual components of this product, please contact our Technical Sales Department.

APPENDIX 4 WEEE & RoHS

The Waste Electronic and Electrical Equipment (WEEE) Directive, and the Restriction of Hazardous Substances (RoHS) Directive place new rules upon European manufacturers of electrical and electronic equipment. The Directives aim to reduce the impact that electronic devices have on the environment.

Michell Instruments are aware of the WEEE and RoHS Directives, and have investigated their requirements. Michell products are currently exempt from the RoHS Directive, however all future products will be developed entirely using compliant materials. Furthermore, Michell is taking active steps to remove non-compliant materials and components from existing products wherever possible.

Michell is also progressing towards full compliance with the WEEE Directive. In the short term this will result in additions to product labeling, though in the long term customers may be required to return certain instruments for treatment at the end of their working life.

June 2006

EASIDEW
Portable Hygrometer with Gauge

Users Guide

Issue 01, June 2009 Manual No. 97133