Easidew Transmitter

(for Domnick Hunter)

Users Guide

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1. INTRODUCTION

The Easidew Tx is a continuous, on-line instrument for the measurement of moisture content in air and other gases over an operating range of -100 to +20 °C dew point. Current output is standard and factory set at 4-20 mA. The Easidew Tx (smart sensor element) operates as a 4-20 mA transmitter providing a linear analogue output to an external control or monitoring device.

Michell Instruments' calibration facilities are amongst the most sophisticated in the world and have been recognised for their excellence by the National Physical Laboratory (**NPL**) UK. Our humidity calibration laboratory is accredited by **UKAS** for dew-point measurements in the range -90 to +82 °C dew point (calibration accreditation number 0179). It is also traceable directly to the National Institute of Standards & Technologies (**NIST**) USA over the range -75 °C to +20 °C dew point. Our full range calibration facility extends from -100 °C to +90 °C dew point.

2. PREPARATION

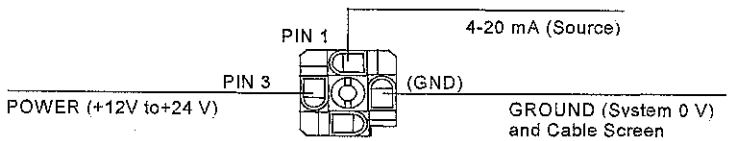
On delivery, please check that all the following standard components are present in the packing box:

1) Easidew Transmitter 2) Sensor Seal 3) Sensor Connector

4) User Guide 5) Certificate of Calibration

2.1 Sensor Cable (available as an option from Michell Instruments)

The sensor can be connected via the removable connector. The inner section of the connector can be removed by first withdrawing the central screw and then prising out the terminal block with a small screwdriver. The sensor should be wired as shown below.



VIEW ON REAR OF CONNECTOR

Cable is not supplied as standard, but can be supplied as an option. Standard cable lengths of 0.8 and 2 metres are available. Longer cable lengths can be supplied on request from Michell. Alternatively, users can provide their own cable but must ensure that it meets the requirements listed under Technical Specifications, see Appendix 1.

2.2 Easidew Transmitter installation

Just prior to installation of the Sensor, unscrew/remove the protective plastic cover and retain for future use. Take care to prevent any contamination of the Sensor before installation (do not touch or handle the sintered guard).

The Easidew Tx has a 5/8"-18 UNF mounting thread and can be mounted either in its flow-through sensor sampling block or directly inserted into a pipe or duct. The bonded seal provided is designed for operation at pressures up to 40MPa when the Easidew Tx is fitted using the 5/8"-18 UNF mounting thread. The seal should be placed over the Easidew Tx before it is screwed into the sampling location.

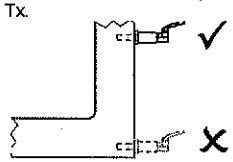
A high integrity stainless steel sampling block can be supplied on request. When connected to a stainless steel tubing system, the Easidew Tx and sampling block need no additional support. However, should PTFE tubing be used, it may be necessary to secure the sampling block using a suitable spring clip or clamp. Michell recommend a gas flow rate of 1 to 5 litres/minute when the Easidew Tx is mounted in the standard sampling block. For direct insertion applications, gas flow can be from static to 10 metres / second.

3. OPERATION

Operation of the Easidew Tx is very simple assuming that sensible precautions are taken to protect the Easidew Tx from damage.

3.1 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. Also, never sample from the bottom of a pipe – entrained liquids may be drawn into the Easidew Tx.



Minimise 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.

Remove Any Particulate Matter or Oil from the Gas Sample: Particulate matter at high velocity can damage the Easidew Tx. Similarly, at low velocity, they may "blind" the Easidew Tx and reduce its response speed. If particulate, such as degraded desiccant or pipe scale and rust, is likely to be present in the sample gas, use a particulate in-line filter. Michell technical sales will be happy to give advice.

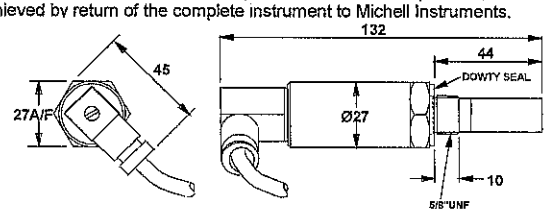
Use High Quality Sample Tube and Fittings: We recommend that, wherever possible, stainless steel tubing and fittings be used. This is particularly important at low dew point since other materials have hygroscopic characteristics and adsorb moisture on the tube walls, slowing down response and, in extreme circumstances, giving false readings. For temporary applications, or where stainless steel tubing is not practical, use high quality thick-walled PTFE tubing

3.2 Which Gases to Measure?

The Easidew Tx 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 Tx.

4. MAINTENANCE

Routine maintenance of the Easidew Tx is confined to regular re-calibration. This work can only be done by exposure of the Easidew Tx 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 Tx is maintained. Easidew Tx's are fully interchangeable with a wide range of 4-20 mA Interface Devices. Easidew Tx interchangeability is also not affected by cable length; therefore, this method of maintaining calibration can be used for all Easidew Tx installations. For applications where the Easidew Tx is not required for continuous operation, re-calibration of the Easidew Tx can be achieved by return of the complete instrument to Michell Instruments.



APPENDIX 1 TECHNICAL SPECIFICATIONS for Easidew Transmitter

Type:	Michell Ceramic Sensor
Calibration range:	-100 to +20 °C dew point
Power supply:	12 to 28 V DC
Output:	4-20mA current source over the entire dew point range
Interchangeability:	Fully interchangeable Easidew Transmitters
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 coefficients:	Temperature compensated
Operating pressure:	10^{-5} Bar a vacuum to 40MPa
Flow rate:	1 to 5 litres/minute mounted in standard sampling block 0 to 10 metres/second direct insertion (80µm sintered guard)
Traceable certification:	-90 to +82 °C dew point traceable to the National Physical Laboratory; -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:	IP65 (Optional IP66 or NEMA 4)
Weight:	0.15Kg

Fault conditions:

Condition	*Output*	
Sensor fault	2 mA	Factory programmed
Under range dew point	4 mA	
Over range dew point	20 mA	

NOTE: The current output range and the fault conditions are user programmable. Software to allow this is available from Michell Instruments direct or web site www.michell-instruments.com, as a free download.

Sensor Cable: Copper braid screened cable; 4 core 7/0.2 (0.22mm²), stranded, tinned copper conductors, PVC, insulated, Melinex taped, Black PVC outer. Max length 800 metres.

Max. load (current source) 200 Ω at Vsupply = 12 V, 750 Ω at Vsupply = 24 V.
Absolute max. load is 1 KΩ at Vsupply = 28 V

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 and RoHS

The Waste Electronic and Electrical Equipment (WEEE) Directive, and the Restriction of Hazardous ...stances (RoHS) Directive place new rules upon European manufacturers of electrical and ...ctronic 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 labelling, though in the long term customers may be required to return certain instruments for treatment at the end of their working life.

June 2006

APPENDIX 5 CUSTOMER SERVICE CONTACT DETAILS

For advice on this, or any other Michell Instruments product, please feel free to contact us on any of the numbers below or alternatively visit our Web Site: www.michell-instruments.com.

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