



Easidew PRO I.S. Process Dew-Point Transmitter User's Manual



97130 Issue 16
March 19

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Use this information when contacting Michell Instruments for service purposes.

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Serial Number	
Invoice Date	
Location of Instrument	
Tag No	

Transmitter	
Code	
Serial Number	
Invoice Date	
Location of Instrument	
Tag No	

Transmitter	
Code	
Serial Number	
Invoice Date	
Location of Instrument	
Tag No	



Easidew PRO I.S.

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Safety

The manufacturer has designed this equipment to be safe when operated using the procedures detailed in this manual. The user must not use this equipment for any other purpose than that stated. Do not apply values greater than the maximum value stated.

This manual contains operating and safety instructions, which must be followed to ensure the safe operation and to maintain the equipment in a safe condition. The safety instructions are either warnings or cautions issued to protect the user and the equipment from injury or damage. Use competent personnel using good engineering practice for all procedures in this manual.

Electrical Safety

The instrument is designed to be completely safe when used with options and accessories supplied by the manufacturer for use with the instrument.

Pressure Safety

DO NOT permit pressures greater than the safe working pressure to be applied to the instrument. The specified safe working pressure is 45 MPa (450 barg / 6500 psig). Refer to Appendix A, Technical Specifications.

Toxic Materials

The use of hazardous materials in the construction of this instrument has been minimized. During normal operation, it is not possible for the user to come into contact with any hazardous substance, which might be employed in the construction of the instrument. Care should, however, be exercised during maintenance and the disposal of certain parts.

Repair and Maintenance

The instrument must be maintained either by the manufacturer or an accredited service agent. Refer to www.michell.com for details of Michell Instruments' worldwide offices contact information.

Calibration

The recommended calibration interval for the Easidew PRO I.S. is 12 months. The instrument should be returned to Michell Instruments or one of their accredited service agents for re-calibration.

Safety Conformity

This product meets the essential protection requirements of the relevant EU directives. Further details of applied standards may be found in the Technical Specifications, Appendix A.

Abbreviations

The following abbreviations are used in this manual:

bara	bar absolute
barg	pressure unit (=100 kP or 0.987 atm) gauge
°C	degrees Celsius
°F	degrees Fahrenheit
DC	direct current
µm	micro-meter
lbf-ft	pound foot
NI/min	normal liters per minute
mA	milliampere
Mpa	megapascal
m/sec	meters per second
mW	milli Watts
nF	nano-Farad
Nm	Newton meter
ppm _v	parts per million by volume
RH	relative humidity
scfh	standard cubic feet per hour
scfs	standard cubic feet per second
V	Volts

Warnings

The following general warning listed below is applicable to this instrument. It is repeated in the text in the appropriate locations.



Where this hazard warning symbol appears in the following sections it is used to indicate areas where potentially hazardous operations need to be carried out.

1 INTRODUCTION

The Easidew PRO I.S. has been manufactured, tested and calibrated to the highest available standards and should arrive in perfect working order, ready for installation into a gas or liquid measurement application.

For questions about the instrument or how to install and operate it, contact your local representative. Refer to www.michell.com for details of Michell Instruments' worldwide offices' contact information.

1.1 Features

The Easidew PRO I.S. is a continuous, on-line, 4-20 mA transmitter for the measurement of moisture content in air, other non-corrosive gases and non-polar liquids. It is designed specifically for use within Zone 0, 1 & 2 hazardous areas.

Its key features are:

- Measurement range -110 to +20°Cdp (-166 to +68°Fdp)
- Moisture in gases (ppm_v) or liquids (ppm_w)
- Hazardous area certifications (ATEX, IECEx, FM, CSA, GOST)
- Calibration certificate (UKAS and NIST)
- Accuracy ±1°Cdp
- 2-wire and linear 4-20 mA output
- Non-standard outputs configurability

2 INSTALLATION

2.1 Unpacking the Instrument

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

- Easidew PRO I.S. Transmitter
- Bonded seal
- Certificate of calibration
- 3 off cable crimps
- Mounting bracket (optional)

The Easidew PRO I.S. is protected within the main packaging by a blue cap covering the transmitter connector and a small desiccant capsule installed inside the plastic protective transit cover. Neither of these items is required for the operation of the Easidew PRO I.S.

Prior to installation of the Easidew PRO I.S., unscrew and remove the plastic protective transit cover and retain for future use. Take care to prevent any contamination of the transmitter before installation. **NOTE: Do not handle the sintered guard.**

2.2 Transmitter Mounting

The Easidew PRO I.S. Transmitter can be mounted either in a flow-through sampling block (optional extra) or directly inserted into a pipe or duct and can be operated at pressures up to 45 MPa (450 barg / 6500 psig) when fitted with the bonded seal provided.

For mounting instructions see Sections 2.2.2 or 2.2.3.

When installed, fully tighten using a wrench until the seal is fully compressed and to the following torque settings:

- 5/8" - 18 UNF 30.5 Nm (22.5 ft-lbs)

The recommended fluid flow rate, when mounted in the optional sampling block, is 1 to 5 NI/min (2.1 to 10.6 scfh). However, for direct insertion applications, fluid flow can be from static to 10 m/sec (32.8 fps).

After installation into the flow stream, the Easidew PRO I.S. housing (provided it is not mounted onto a wall bracket) may be positioned at any angle, through approximately 330° of rotation, to allow for the cable gland positioning. To position the housing - loosen the large clamping nut sufficiently to allow free rotation of the sensor assembly within the transmitter body.



The Easidew PRO I.S. is fitted with a mechanical stop to prevent over-rotation of the sensor assembly within the transmitter body - this could damage the sensor wires.

Rotate the sensor housing until the cable gland is in the desired position. While firmly holding the housing in position, re-tighten the large clamp nut up against the housing seal using a spanner/wrench of the correct size. **NOTE: Do not apply excessive force.**

2.2.1 Wall Mount Bracket

The Easidew PRO I.S. can be supplied with an optional wall-mounting bracket. This allows the customer to physically support the transmitter, ensuring that the stress on the mounting flange is kept to a minimum.

The bracket needs to be attached to the Easidew PRO I.S. (see *Figure 1*) using the hex screws provided. It can be fitted either horizontally or vertically and can then be attached to a wall or plate to provide support for the transmitter.



Figure 1 *Wall-Mount Bracket*

2.2.2 Transmitter Mounting - Sample Block (Optional)



The following procedure must be carried out by a qualified installation engineer.

To mount the transmitter into the sensor block (preferred method), proceed as follows, refer to *Figure 2*.

1. Remove the protective cover (2) (and its desiccant capsule) from the tip of the transmitter (1).
2. Fit the seal (4) over the threaded part of the transmitter body.



WARNING: Under no circumstances should the sensor guard be handled with the fingers.

3. Screw the transmitter (1) into the sample block (3) and tighten to the recommended torque setting (see Section 2.2). **NOTE: Use the flats of the hexagonal nut and not the sensor body.**
4. Connect a cable (5) to the connector terminal block (see Section 2.3).

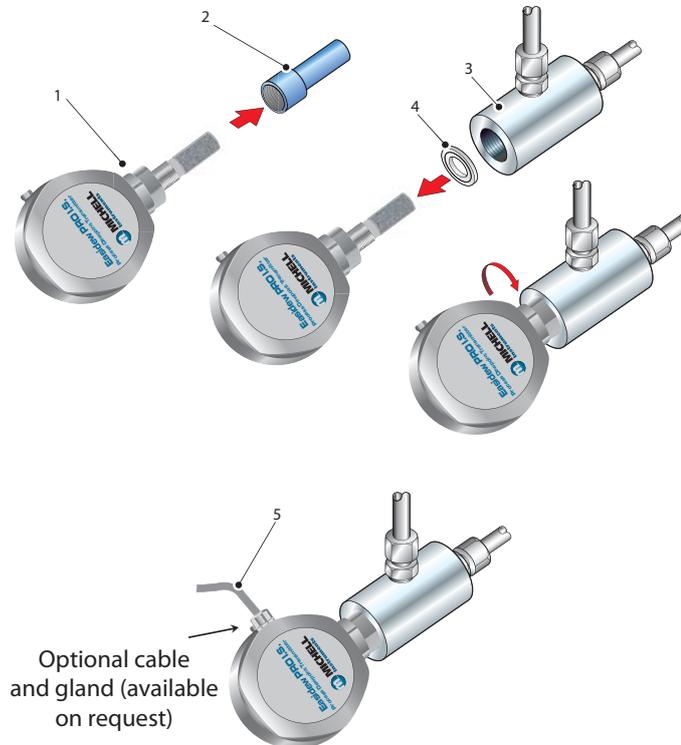


Figure 2 Transmitter Mounting - Sensor Block

2.2.3 Transmitter Mounting - Direct Pipeline Connection

The transmitter may be directly mounted into a pipe or duct as shown in *Figure 3*.



CAUTION: Do not mount the transmitter too close to the bottom of a bend where any condensate in the pipeline might collect and saturate the probe.

The pipe or duct will require a thread to match the transmitter body thread. Fixing dimensions are shown in *Figure 3*. For circular pipework, to ensure the integrity of a gas tight seal, a mounting flange will be required on the pipework in order to provide a flat surface to seal against.



The following procedure must be carried out by competent personnel.

1. Ensure that the protective cover (and its desiccant capsule) has been removed from the tip of the transmitter.



WARNING: Under no circumstances should the sensor guard be handled with the fingers.

2. Fit a bonded seal (2) over the threaded part of the transmitter body.
3. Screw the transmitter into the pipe (1). Tighten enough to obtain a gas tight seal. (Torque will depend upon the pipeline material.) **NOTE: Do not overtighten or the thread on the pipework may be stripped.**

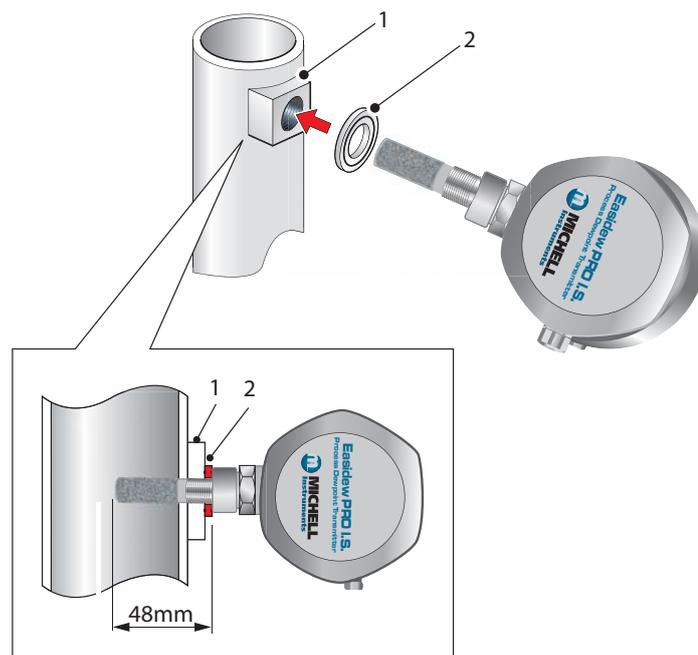


Figure 3 Transmitter Mounting - Pipe or Duct

2.2.4 Transmitter Mounting - With Additional Process Connection Adapter



The following procedure must be carried out by a qualified installation engineer.

To mount the adapter into the transmitter, proceed as follows (see *Figure 4*) :

1. Ensure that the protective cover (2), and its desiccant capsule (2a), have been removed from the tip of the transmitter.
2. Fit the bonded seal (3) over the threaded part of the transmitter body.
3. Screw the adapter (4) onto the threaded part of the transmitter and tighten to 30.5 Nm (22.5 ft-lbs). **NOTE: Use the flats of the hexagonal nut and not the sensor body.**



WARNING: Under no circumstances should the sensor guard be handled with the fingers.

4. Screw the transmitter (1) with its seal (3) and adapter (4) into the sample block (see Section 2.2.2) or pipeline (see Section 2.2.3) and fully tighten using a wrench until the seal is fully compressed and to the following torque settings:

G 1/2" BSP	56 Nm (41.3 ft-lbs)
3/4" - 16 UNF `	40 Nm (29.5 ft-lbs)
1/2" NPT	Use a suitable sealant e.g. PTFE tape using correct taping procedures

NOTE: Use the flats of the hexagonal nut and not the sensor body.

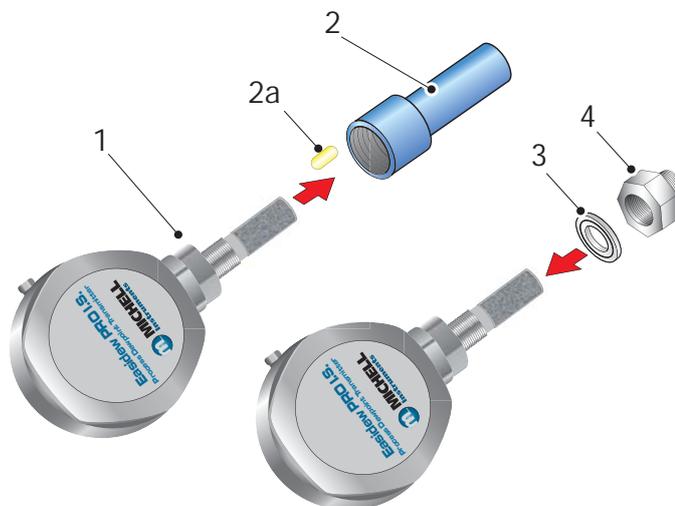


Figure 4 Transmitter Mounting with Adapter

2.3 Preparation of the Sensor Cable

The sensor cable is NOT supplied as standard.



The crimps supplied must be fitted onto any cable installed into the connector in order to comply with Hazardous Area Certification of the product.

When making a cable assembly it is important that the cable is correctly terminated (see below).

NOTE: *Figure 5* shown below, should be followed in detail. The crimps should be applied such that there is no possibility of a conductor strand of a core becoming free.

When the crimp is made it should have a minimum of 2 positions of crimping. After the crimp is made it should be trimmed to a length of 5mm.

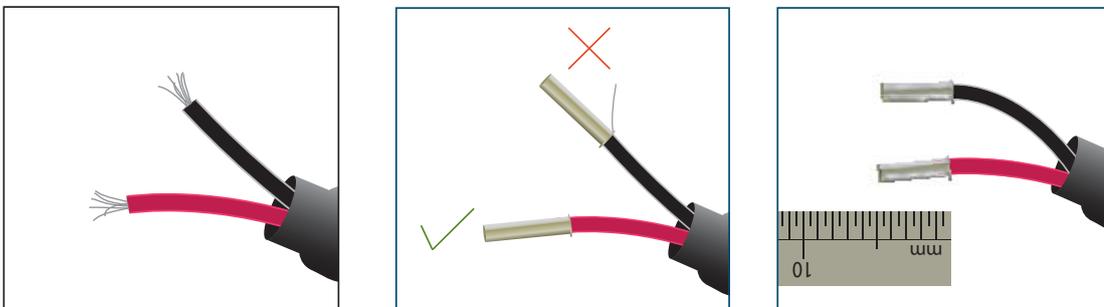


Figure 5 *Wire and Crimp Details*

Cable connection to the Easidew PRO I.S. is made via the connector terminal block.

When the crimps are installed into the connector terminal block ensure they are fully inserted, before tightening the terminal clamping screws.

NOTE: Ensure the assembled green wire in terminal 3 remains connected.



Figure 6 *Terminal Block Connection*

When all wire connections are made, ensure that there is a minimum clearance distance and a minimum creepage distance in air of 2mm (0.8") between each terminal.

2.4 Electrical Schematic

NOTE: The screen/shield should be connected for maximum performance and to avoid interference.



Always connect the 4-20 mA return signal to a suitable load (see Figure 7) before the power is applied. Without this connection, the transmitter may be damaged if allowed to operate for prolonged periods.

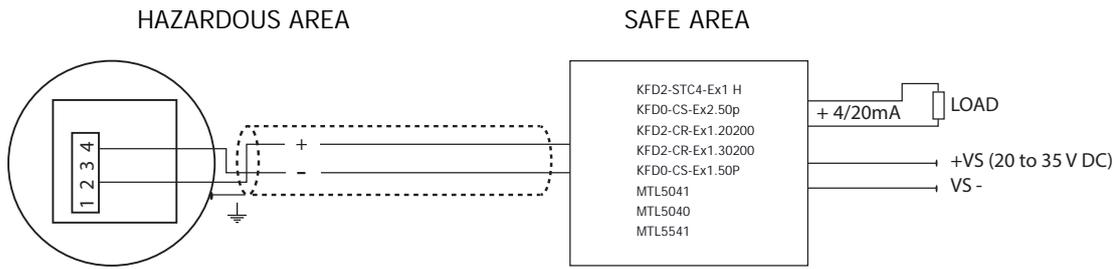


Figure 7 Hazardous Area Connection

1. Connect cable screen to cable gland.
2. Refer to system drawing in Appendix B.

2.4.1 Electrical Boundaries

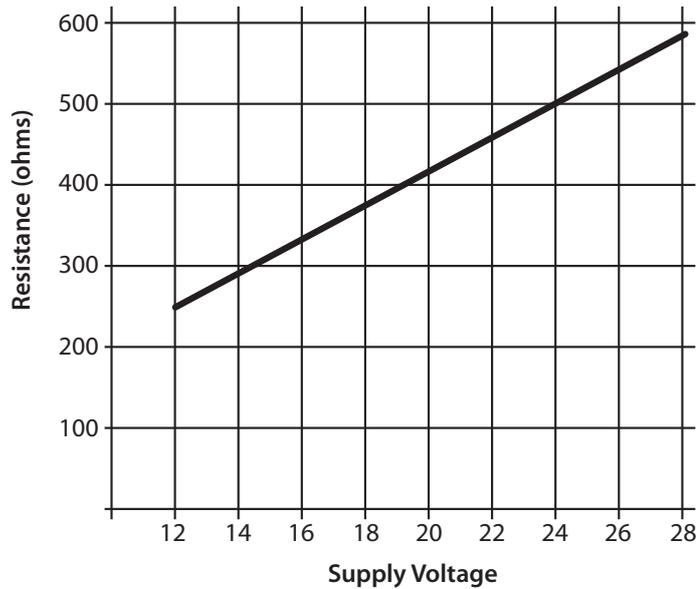


Figure 8 Maximum Load of Easidew PRO I.S. - Including Cable Resistance

3 OPERATION

3.1 Measurement and Configuration

The Easidew PRO I.S. can be configured to provide an output of 4-20 mA (2-wire connection) for the following:

Dew point	-110 to +20°C (-166 to +68°F)
Moisture content in gas	0 - 3000 ppm _v
Moisture content in liquids	0 - 3000 ppm _w

The Easidew PRO I.S. can be purchased factory configured as required. Alternatively, the Easidew PRO I.S. can be configured by the customer, using the Easidew Communications Kit (EPR-CK) and Easidew Application Software. The Easidew Communications Kit can be purchased from Michell Instruments or a local representative. For a free copy of the Application Software contact Michell Instruments' UK office (see www.michell.com for details of Michell's contact information).

For moisture content in gas, the calculation from the measured dew point is assumed to be at atmospheric pressure. Alternatively, a fixed gas pressure needs to be programmed into the Easidew PRO I.S.

For moisture content measurement in liquid, the Easidew PRO I.S. requires the saturation constant of the liquid to be programmed into the transmitters, either at the factory or by the customer using the Application Software.

The transmitter requires a 6-point look-up table for saturation constants up to 3000 ppm_w over the temperature range 0 to +50°C (+32 to +122°F). Saturation constants for 8 common liquids can be programmed into the Easidew PRO I.S. via the Application Software. Alternatively, the user can program saturation constants manually. The Application Software Help file provides detailed instructions on how to perform this task.

3.2 Sampling Hints

Operation is very simple, assuming the following installation techniques are adhered to:

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 as entrained liquids may be drawn into the sensing element.

Minimize Dead Space in Sample Lines:

Dead space causes moisture entrapment points, increased system response times and measurement errors, as a result of the trapped moisture being released into the passing sample gas and causing an increase in partial vapor pressure.

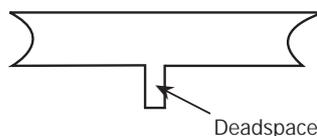


Figure 9 *Indication of Dead Space*

Remove Any Particulate Matter or Oil from the Gas Sample:

Particulate matter at high velocity can damage the sensing element and similarly, at low velocity, they may 'blind' the sensing element and reduce its response speed. If particulate, such as degraded desiccant, pipe scale or rust is present in the sample gas, use an in-line filter, as a minimum level of protection. For more demanding applications Michell Instruments offers a range of sampling systems (for more information contact www.michell.com).

Use High Quality Sample Tube and Fittings:

Michell Instruments recommends that, wherever possible, stainless steel tubing and fittings should be used. This is particularly important at low dew points 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.

Position Transmitter away from Heat Source:

It is recommended, as good instrumentation practice, that the transmitter is placed away from any heat source to avoid adsorption/desorption.

4 MAINTENANCE

Calibration

Routine maintenance of the Easidew I.S. is confined to regular re-calibration by exposure of the transmitter to sample gases of known moisture content to ensure that the stated accuracy is maintained. Calibration services traceable to the UK *National Physical Laboratory* (NPL) and the US *National Institute of Standards and Technology* (NIST) are provided by Michell Instruments.

Michell Instruments offers a re-calibration service to suit specific needs. A Michell representative can provide detailed, custom advice (for Michell Instruments' contact information go to www.michell.com).

Sensor Guard Replacement

The sensor is supplied with a stainless steel sintered guard.

The stainless steel guard provides <math><80\mu\text{m}</math> protection to the dew-point sensor. It is designed to show any contamination and the guard should be changed if the surface becomes discolored.

When replacing the guard, care should be taken to handle the guard by the bottom part only. A replacement guard (SSG) can be obtained by contacting Michell Instruments (www.michell.com) or your local distributor.

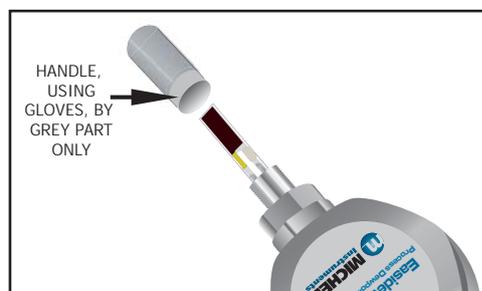


Figure 10 Replacement of Sensor Guard

Bonded Seal

If the installed bonded seal gets damaged or lost, a pack of 5 replacement bonded seals can be obtained by contacting Michell Instruments, or your local distributor, and quoting part number 5/8-BS.

Appendix A

Technical Specifications

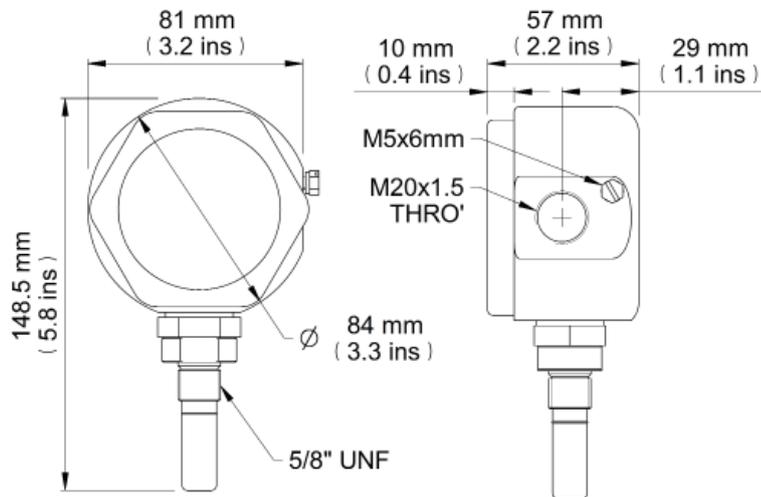
Appendix A Technical Specifications

Product	Easidew PRO I.S. for Gases	Easidew PRO LQ I.S. for Liquids
Performance Specifications		
Measurement range	-110 to +20°C dew point -100 to +20°C dew point	0 to 1000 ppm _w
Accuracy	±1°C dew point (+20 to -60°C) ±2°C dew point (-60 to -110°C)	
Response time	5 mins to T95 (dry to wet)	
Repeatability	0.5°C dew point	
Calibration	Traceable 13-point calibration and certificate	
Electrical Specifications		
Output signal	4–20 mA (2-wire connection, current source); User configurable over range	
Output	Dew point or moisture content	Moisture content
Analog output scaled range	Dew point: -110 to +20°C or -100 to +20°C Moisture content in gas: 0 to 3000 ppm _v Non-standard: mg/m ³ , lbs/MMSCF natural gas	Moisture content in liquid: 0 to 1000 ppm _w Non-standard available upon request
Supply voltage	12–28 V DC	
Load resistance	Max 250 Ω @ 12 V (500 Ω @ 24 V)	
Current consumption	23 mA max, depending on output signal	
Saturation constants (for moisture in liquids measurements only)	6-point look-up table for saturation constants up to 1000 ppm _w over the temperature range 0 to +50°C; saturation constants for 10 common liquids can be programmed into the Easidew PRO LQ I.S. via the application software; alternatively the user can program saturation constants manually	
CE conformity	Approved	
Operating Specifications		
Operating temperature	-40 to +60°C	
Compensated Temperature Range	-20 to +50°C NOTE: The transmitter accuracy statement is only valid for the temperature range: -20/+50°C	
Storage Temperature	-40 to +60°C	
Operating pressure	45 MPa (450 barg) maximum	
Flow rate	1 to 5 NI/min mounted in standard sampling block 0 to 10 m/sec direct insertion	0.1 to 0.3L/min through Easidew sample block 0.1 to 1m/s direct insertion
Mechanical Specifications		
Ingress protection	IP66 in accordance with standard BS EN 60529:1992; NEMA 4 protection in accordance with standard NEMA 250-2003	
Intrinsically safe area certificates	ATEX: II 1 G Ex ia IIC T4 Ga (-20°C to +70°C) IECEX: Ex ia IIC T4 Ga (-20°C to +70°C) TC TR: 0Ex ia IIC T4 Ga (-20°C to +70°C) FM: Class I, Division 1, Groups A B C D, T4 cCSAus: Class I, Division I Groups A B C D, T4	
Russian pattern approval	Russia (GOST-R), Kazakhstan (GOST-K)	
Canadian pressure vessel cert	C.R.N. — 11 Canadian provinces	
Oxygen service	Optional: cleaned for enriched oxygen	
Housing material	316 stainless steel	
Filter (sensor protection)	Standard: Stainless steel sintered guard (for protection against fine particulate >80µm) Optional: HDPE guard (for protection against fine particulate >10µm)	
Process connection and material	316 stainless steel 5/8" — 18 UNF with bonded seal, G1/2" and 3/4" UNF adaptors available (material certificate to BS EN 10204 3.1 — see 'accessories and spare parts' on product order codes)	
Weight	1.27kg	
Electrical connections	Screw terminal via female M20 x 1.5mm gland	

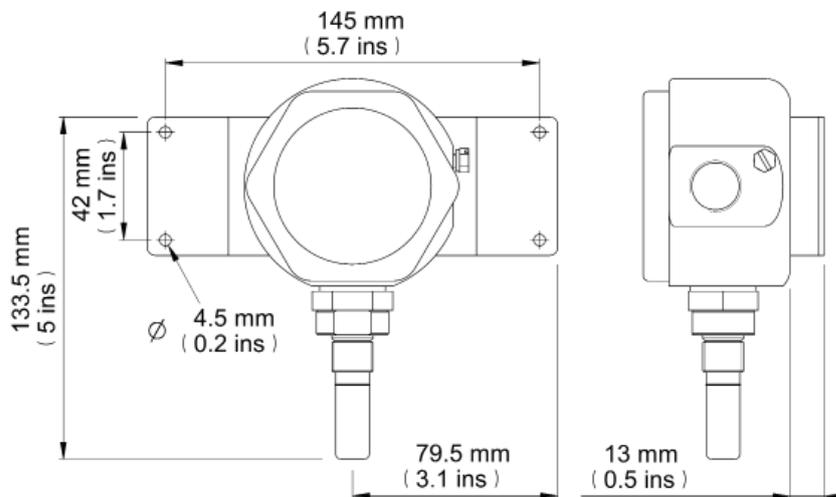
Diagnostic conditions (factory programmed)	Condition		Output	
		Sensor	fault	23 mA
		Under-range dew point	4	mA
		Over-range dew point	20	mA
Approved galvanic isolators	KFD2-CR-EX1.20200	KFD0-CS-EX2.50P	MTL5040	KFD0-CS-EX1.50P
	KFD2-CR-EX1.30200	KFD2-STC4-EX1.H	MTL5541	MTL5041

A.1 Dimensions

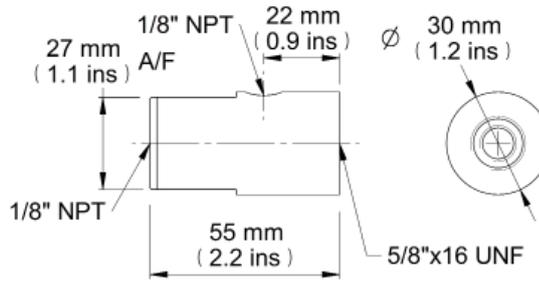
Transmitter for Cable Gland Installation



Transmitter with Wall Mount Bracket



Optional Sample Block



Bonded Seal

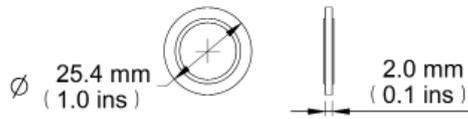


Figure 11 *Dimensions*

Appendix B

System Drawings

Appendix B System Drawings

B.1 Baseefa Approved System Drawing

TABLE A

Type	Certificate Number	Interface	Connection to Easidew I.S.
Isolated Repeater	BAS98ATEX7343	KFD0-CS-Ex1.50P	Pin 1 (+) Pin 2 (-)
Dual Isolated Repeater	BAS98ATEX7343	KFD0-CS-Ex2.50P	Channel 1 - Pin 1 (+) Channel 1 - Pin 2 (-) Channel 2 - Pin 4 (+) Channel 2 - Pin 5 (-)
Transmitter Supply Isolator	BAS00ATEX7164	KFD2-CR-Ex1.20200	Pin 1 (+) Pin 3 (-)
Transmitter Supply Isolator	BAS00ATEX7164	KFD2-CR-Ex1.30200	Pin 1 (+) Pin 3 (-)
Smart Transmitter Power Supply	BAS98ATEX7080	KFD2-STC4-Ex1.H	Pin 1 (+) Pin 3 (-)
Repeater Power Supply	BAS01ATEX7155	MTL5041	Pin 2 (+) Pin 1 (-)
Dual Loop Isolator	BAS98ATEX2227	MTL5040	Pin 2 (+) Pin 1 (-) Pin 5 (+) Pin 4 (-)
Repeater Power Supply	BaseefaTEX0213	MTL5541	Pin 2 (+) Pin 1 (-)

THE CAPACITANCE AND EITHER THE INDUCTANCE OR THE INDUCTANCE TO RESISTANCE RATIO (L/R) OF THE CABLE MUST NOT EXCEED THE FOLLOWING VALUES:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH) OR	LR RATIO (µH/Ω)
IIC	SEE NOTE 1 * 40 nF	4.2mH	54 µH/Ω
IIB	613 nF	12.6mH	217 µH/Ω
IIA	2.11 µF	33mH	435 µH/Ω

THE ISOLATION OF THE SIGNAL WIRES WITH THE EASIDEW DISCONNECTED, MUST BE ABLE TO WITHSTAND A 500V AC INSULATION TEST.

AT INSTALLATION OF SYSTEM PERFORM A RISK ASSESSMENT IN ACCORDANCE WITH EN60079-25:2004 a1.10 AND INSTALL LIGHTENING PROTECTION AS NECESSARY.

THE SYSTEM MUST BE MARKED WITH A DURABLE LABEL. THE LABEL SHOULD APPEAR ON OR ADJACENT TO THE PRINCIPAL ITEM OF ELECTRICAL APPARATUS IN THE SYSTEM OR AT THE INTERFACE BETWEEN THE INTRINSICALLY SAFE AND NON-INTRINSICALLY SAFE CIRCUITS. THIS MARKING SHALL INCLUDE THE FOLLOWING INFORMATION:
Baseefa 07Y0027 AND THE WORD SYST OR SYSTEM.

NOTE 1. 46nF MAXIMUM CABLE CAPACITANCE IS ACCEPTABLE IN IIC INSTALLATIONS

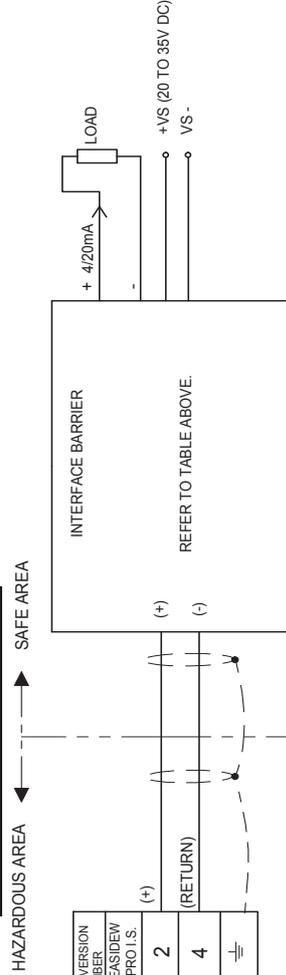
FOR THE INTRINSIC SAFETY ISOLATORS SHOWN IN THE LIST BELOW.

FOR ISOLATORS NOT LISTED BELOW, BUT APPEARING IN TABLE A, ONLY 40nF

MAXIMUM CABLE CAPACITANCE IS ACCEPTABLE.

- KFD0-CS-Ex1.50P
- KFD0-CS-Ex2.50P
- KFD0-CR-Ex1.20200
- KFD0-CR-Ex1.30200
- MTL5041
- MTL5040
- MTL5541

GALVANIC ISOLATION INTERFACE

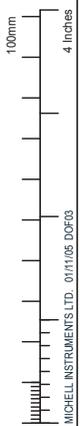


MICHELL Instruments
EASIDEW I.S. DEWPOINT TRANSMITTER
SYSTEM CERTIFICATE No's: Baseefa07Y0027
Ex Ia IIC T4 (20C TO + 70C)

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DRAWN	CHECKED	APPROVED
MSB		
DATE	DATE	DATE
10/03/06		



3/4 ANGLE PROJECTION	TOLERANCES: UNLESS OTHERWISE STATED 0 DEC. PLACE: ±0.5 1 DEC. PLACE: ±0.2 2 DEC. PLACE: ±0.1	DRAWING UNITS	SCALE	05	13395	16/12/13	IMA
MATERIAL	DIMENSIONS: HOLE Ø: -0.0 FINISH	mm	NTS	04	11165	10/08/11	IMA
				03	PRO	18/02/09	IMA
				02	08657	27/05/08	IMA
				01	CERT ISS.	26/01/07	MSB
					ISSUE MOD. No.	DATE	SIGN
DRAWING NUMBER							
Ex90352							
TITLE EASIDEW I.S. and EASIDEW PRO I.S. DEWPOINT TRANSMITTER SYSTEM DRAWING							
USED ON MICHELL INSTRUMENTS LTD. CAMBRIDGE ©							
SHEET 1 OF 1 A3							

B.2 FM Approved System Drawing

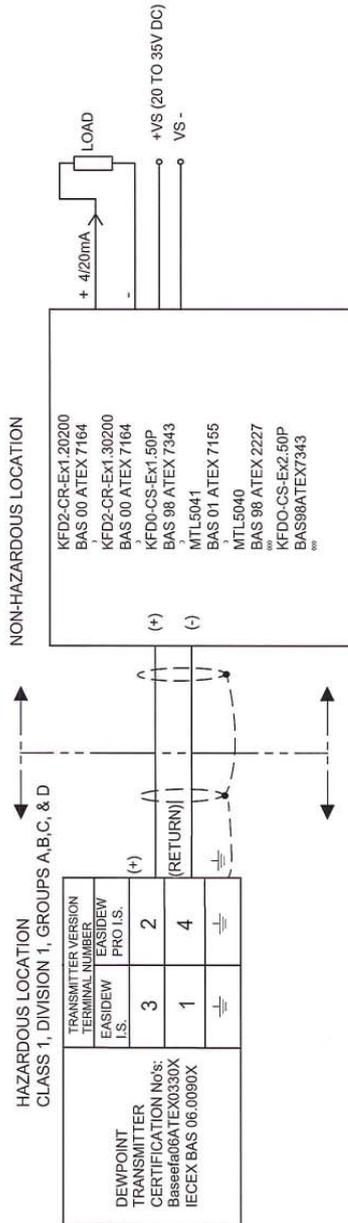
THE CAPACITANCE AND EITHER THE INDUCTANCE OR THE INDUCTANCE TO RESISTANCE RATIO (L/R) OF THE CABLE MUST NOT EXCEED THE FOLLOWING VALUES:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH) OR	L/R RATIO (µH/ohm)
D	2.11 µF	33mH	435 µH/Ω
C	613 nF	12.6 mH	217 µH/Ω
AB	46 nF	4.2mH	54 µH/Ω

THE ISOLATION OF THE SIGNAL WIRES WITH THE EASIDEW DISCONNECTED, MUST BE ABLE TO WITHSTAND A 500V AC INSULATION TEST.

THE INSTALLATION MUST COMPLY WITH THE INSTALLATION PRACTICES OF THE COUNTRY OF USE, i.e. ANSI/ISARP12.5(INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS [CLASSIFIED] LOCATIONS), AND THE NATIONAL ELECTRICAL CODE ANSINFPFA 70.

THE CAPACITANCE AND THE INDUCTANCE OF TEH HAZARDOUS AREA CABLES MUST NOT EXCEED THE VALUES GIVEN IN TABLE '1'.



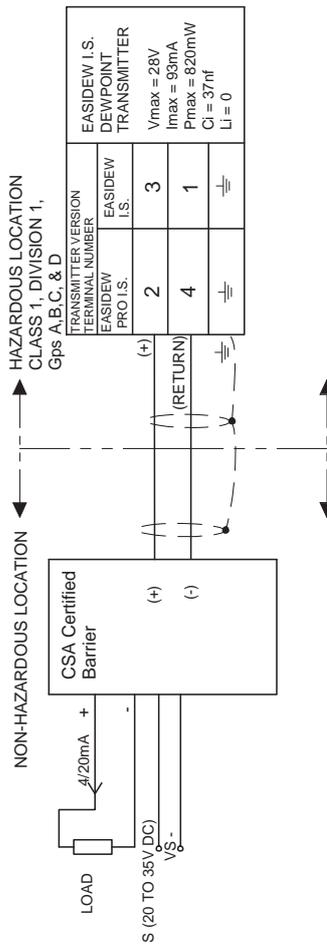
3/4 ANGLE PROJECTION 	TOLERANCES: UNLESS OTHERWISE STATED	±0.1	SCALE NTS DRAWING UNITS mm	06	13395	02/07/14	IMA	
	DIMENSIONS:	HOLE Ø: ±0.0 1 DEC. PLACE ±0.2 2 DEC. PLACE ±0.1		±0.0	05	11081	06/04/11	IMA
		ANGLES: ±0.5°			04	CERT ISS	24/03/09	IMA
					03	CERT ISS	21/01/09	IMA
MATERIAL	FINISH			02	CERT ISS	23/12/08	IMA	
				ISSUE	MOD. No.	DATE	SIGN	
TITLE EASIDEW I.S. DEWPOINT TRANSMITTER FM SYSTEM DRAWING			DRAWING NUMBER Ex90385					
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MICHELL Instruments			CHECKED jmg		MICHELL INSTRUMENTS LTD. CAMBRIDGE ©			
DATE 10/03/06			DATE 16/07/14		DATE 16/07/14			
APPROVED jmg			DATE 16/07/14		DATE 16/07/14			

B.3 CSA Approved System Drawing

THE CAPACITANCE AND EITHER THE INDUCTANCE OR THE INDUCTANCE TO RESISTANCE RATIO (L/R) OF THE CABLE MUST NOT EXCEED THE FOLLOWING VALUES:

GROUP	CAPACITANCE (pF)	INDUCTANCE (mH) OR L/R RATIO (ΩH/ohm)
AB	46 nF	54 ΩH/Ω
C	613 nF	2178 ΩH/Ω
D	2.11µF	4358 ΩH/Ω

THE ISOLATION OF THE SIGNAL WIRES WITH THE EASIDEW DISCONNECTED, MUST BE ABLE TO WITHSTAND A 500V AC INSULATION TEST.
 THE INSTALLATION MUST COMPLY WITH THE INSTALLATION PRACTICES OF THE COUNTRY OF USE, i.e. ANSI/ISA RPT2.8 (INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS [CLASSIFIED] LOCATIONS) AND THE NATIONAL ELECTRICAL CODE ANSI/NFPA 70.
 THE CAPACITANCE AND THE INDUCTANCE OF THE HAZARDOUS AREA CABLES MUST NOT EXCEED THE VALUES GIVEN IN TABLE 1



Intrinsically safe(entity), Class 1, Div1, Group A,B,C,D
 Hazardous Location installations
 1) Control room equipment may not use or generate over 250Vrms.
 2) Wire all circuits for power supply per CEC Part 1.
 3) Use only entity approved safety barrier or other associated equipment that satisfy the following conditions:

$$V_{CC} \leq V_{max}, I_{sc} \leq I_{max}, C_{\Sigma} \leq C_{CABLE}, L_{\Sigma} \geq L_i + L_{CABLE}$$

Transmitter entity parameters are as follows:

$$V_{max} < 2.8Vdc$$

$$I_{max} < 93mA$$

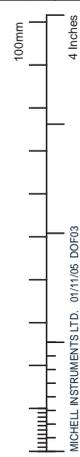
$$C_i = 37nF$$

$$L_i = 0uH$$

4) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPARE INTRINSIC SAFETY.
 5) Ex ia is defined as Intrinsically Safe.

Type	Certificate Number	Interface	Connection to Easidew I.S.
Isolated Repeater	BAS98ATEX7343 UL Canada E106378CUL	KFD0-CS-Ex1.50P	Pin 1 (+) Pin 2 (-)
Dual Isolated Repeater	BAS98ATEX7343 UL Canada E106378CUL	KFD0-CS-Ex2.50P	Channel 1 - Pin 1 (+) Channel 1 - Pin 2 (-) Channel 2 - Pin 4 (+) Channel 2 - Pin 5 (-)
Transmitter Supply Isolator	BAS00ATEX7164 UL Canada E106378CUL	KFD2-CR-Ex1.20200	Pin 1 (+) Pin 3 (-)
Transmitter Supply Isolator	BAS00ATEX7164 UL Canada E106378CUL	KFD2-CR-Ex1.30200	Pin 1 (+) Pin 3 (-)
Smart Transmitter Power Supply	BAS99ATEX7060 UL Canada E106378CUL	KFD2-STC4-Ex1.H	Pin 1 (+) Pin 3 (-)

3rd ANGLE PROJECTION	TOLERANCES: UNLESS OTHERWISE STATED 0 DEC. PLACE: ± 0.5 HOLE Ø: +0.1 1 DEC. PLACE: ± 0.2 ANGLES: ± 0.5° 2 DEC. PLACE: ± 0.1	DRAWING UNITS mm	SCALE NTS	07	13395	16/12/13	IMA
				06	11081	06/04/11	IMA
MATERIAL	FINISH	DRAWING NUMBER	DRAWING NUMBER	05	CERT ISS	15/06/09	IMA
				04	CERT ISS	25/03/09	IMA
				03	CERT ISS	16/06/08	IMA
TITLE EASIDEW I.S. & EASIDEW PRO I.S. DEWPOINT TRANSMITTER SYSTEM DRAWIN. CSA				ISSUE / MOD. No.	DATE	SIGN	
USED ON MICHELL INSTRUMENTS LTD. CAMBRIDGE ©				DRAWING NUMBER Ex90385CSA			
DRAWN MSB				SHEET 1 OF 1			
DATE 10/03/06				A3			



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CHECKED
DATE

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DATE

Appendix C

Hazardous Area Certification

Appendix C Hazardous Area Certification

The Easidew PRO I.S is certified compliant to the ATEX Directive (2014/34/EU), and IECEx for use within Zone 0, 1 and 2 hazardous areas and has been assessed so by Baseefa Ltd (Notified Body 1180).

The Easidew PRO I.S is certified compliant to the North American Standards (USA and Canada) for use within Class I, Division 1, Groups A, B, C & D hazardous locations and has been assessed so by CSA and FM.

C.1 Product Standards

This product conforms to the Standards:

EN60079-0:2012	IEC60079-0:2011
EN60079-11:2012	IEC60079-11:2011
FM Class 3600:1998	CAN/CSA-C22.2 No. 0-10
FM Class 3610:2007	CAN/CSA-C22.2 No. 157-92
FM Class 3810:2005	C22.2 No 142-M1987

C.2 Product Certification

This product is attributed with the product certification codes:

ATEX & IECEx
II 1G Ex ia IIC T4 Ga (-20°C to +70°C)

North American
IS, Class I, Division 1, Groups A, B, C & D, T4

C.3 Global Certificates/Approvals

ATEX	Baseefa 06ATEX0330X
ATEX System	Baseefa 07Y0027
IECEX	IECEX BAS 06.0090X
CSA	2013218
FM	3030238
TC TR Ex	RU C-GB. ГБ05.B.00229

These certificates can be viewed or downloaded from our website at:
<http://www.michell.com>

C.4 Terminal Parameters

U_i	= 28 V
I_i	= 93 mA
P_i	= 820 mW
C_i	= 37 nF
L_i	= 0

C.5 Special Conditions

1. The wiring connections to the free socket must be made via crimped connectors in such a way that all the strands of the wire used are held securely by the crimp.
2. The plastic plug and socket create a potential for electrostatic discharge so must not be rubbed with a dry cloth or cleaned with solvents.
3. The Easidew PRO I.S Dew-Point Transmitter does not withstand the 500 V AC insulation test to frame. This must be taken into account when installing the equipment.

C.6 Maintenance and Installation

The Easidew PRO I.S. must only be installed by suitably qualified personnel and in accordance with the instructions provided and the terms of the applicable product certificates.

Maintenance and servicing of the product must only be carried out by suitably trained personnel or returned to an approved Michell Instruments' Service Center.

Appendix D

Quality, Recycling & Warranty Information

Appendix D Quality, Recycling & Warranty Information

Michell Instruments is dedicated to complying to all relevant legislation and directives. Full information can be found on our website at:

www.michell.com/compliance

This page contains information on the following directives:

- ATEX Directive
- Calibration Facilities
- Conflict Minerals
- FCC Statement
- Manufacturing Quality
- Modern Slavery Statement
- Pressure Equipment Directive
- REACH
- RoHS2
- WEEE2
- Recycling Policy
- Warranty and Returns

This information is also available in PDF format.

Appendix E

Return Document & Decontamination Declaration

Appendix E Return Document & Decontamination Declaration

Decontamination Certificate

IMPORTANT NOTE: Please complete this form prior to this instrument, or any components, leaving your site and being returned to us, or, where applicable, prior to any work being carried out by a Michell engineer at your site.

Instrument			Serial Number	
Warranty Repair?	YES	NO	Original PO #	
Company Name			Contact Name	
Address				
Telephone #			E-mail address	
Reason for Return /Description of Fault:				
Has this equipment been exposed (internally or externally) to any of the following? Please circle (YES/NO) as applicable and provide details below				
Biohazards			YES	NO
Biological agents			YES	NO
Hazardous chemicals			YES	NO
Radioactive substances			YES	NO
Other hazards			YES	NO
Please provide details of any hazardous materials used with this equipment as indicated above (use continuation sheet if necessary)				
Your method of cleaning/decontamination				
Has the equipment been cleaned and decontaminated?			YES	NOT NECESSARY
Michell Instruments will not accept instruments that have been exposed to toxins, radio-activity or bio-hazardous materials. For most applications involving solvents, acidic, basic, flammable or toxic gases a simple purge with dry gas (dew point <-30°C) over 24 hours should be sufficient to decontaminate the unit prior to return. Work will not be carried out on any unit that does not have a completed decontamination declaration.				
Decontamination Declaration				
I declare that the information above is true and complete to the best of my knowledge, and it is safe for Michell personnel to service or repair the returned instrument.				
Name (Print)			Position	
Signature			Date	



F0121, Issue 2, December 2011

EU Declaration of Conformity

Manufacturer: Michell Instruments Limited
Address: 48 Lancaster Way Business Park
Ely, Cambridgeshire
CB6 3NW. UK.



Equipment Type: **Easidew PRO I.S. Dew-point Transmitter**

2014/34/EU ATEX Directive

Provisions of the Directive fulfilled by the Equipment:

Group II Category 1G Ex ia IIC T4 -20°C ≤ Ta ≤ +70°C

EC-Type Examination Certificate:

Baseefa06ATEX0330X

Notified Body for Production (QAN & QAR):

SGS Fimko OY, Helsinki, Finland. Notified Body No. 0598

Standards used:

EN60079-11:2012

EN 60079-0:2012

On 7th October 2016 this standard will cease to have harmonised status. **EN60079-0:2012/A11:2013** has now superseded. A technical review of this standard against the old standard showed that the equipment remains in conformance with all relevant clauses and that the State of the Art is maintained. The Essential Health & Safety Requirements of the Directive is still maintained with no changes necessary for the safe and reliable functioning and operation of the product with respect to the risks of explosion).

IECEX

Certificate of Conformity No.

IECEX BAS 06.0090X Ex ia IIC T4 (-20°C ≤ Ta ≤ +70°C)

IEC60079-0:2011

IEC60079-11:2011

Other Directives Is in conformity with the following Standard(s) or Normative Document(s):

2014/30/EU EMC Directive

EN61326-1:2013 *Electrical equipment for measurement, control and laboratory use - EMC requirements. Class B (emissions) and Industrial Locations (immunity).*

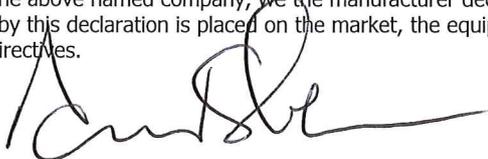
2011/65/EU Restriction of Hazardous Substances Directive (RoHS2)

RoHS2 EU Directive 2011/65/EU (Article 3, [24]) states, "*industrial monitoring and control instruments means monitoring and control instruments designed exclusively for industrial or professional use*".

2014/68/EU PE Directive

This product and sample systems & accessories that may be supplied with it does not bear CE marking for the Pressure Equipment Directive, and are supplied in accordance with Article 4, paragraph 3 of 2014/68/EU by using SEP (sound engineering practice) in the design and manufacturer and are provided with adequate instructions for use.

On behalf of the above named company, we the manufacturer declare under our sole responsibility that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.



Andrew M.V. Stokes, Technical Director
March 2019
Ely, UK.



<http://www.michell.com>