

# **Easidew PRO I.S. Process Dewpoint Transmitter User's Manual**



**KAHN**

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## **CAUTION**

Use of any electrical device in a Class 1 Division 1 environment requires proper use to minimize risk of explosion and personnel injury or death.

Use of this Easidew PRO I.S. transmitter in a Class 1 Division 1 environment requires that the user follow all instructions herein as well as all applicable National Electrical Code and National Fire Protection Association (NFPA) requirements for this and any other device installed in the same environment.

### 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 qualified personnel and good engineering practice for all procedures in this manual.

#### Pressure Safety

DO NOT permit pressures greater than the safe working pressure to be applied to the instrument. The specified safe working pressure is 5000 PSIG. Refer to the Specification section of this Manual.

#### 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.

#### Calibration

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

### ABBREVIATIONS

bara	bar absolute
barg	bar gauge
°C	degrees Celsius
°F	degrees Fahrenheit
DC	direct current
µm	micro-metre
mA	milli Ampere
Mpa	megapascal
mW	milli Watts
nF	nano-Farad
NI/min	normal litres per minute
Nm	Newton metre
ppm(v)	parts per million by volume
RH	relative humidity
V	volts

Note: Abbreviations are not pluralized, they remain the same in both the singular and plural.

## 1. INTRODUCTION

Thank you for choosing the EASIDEW PRO I.S. Process Dew-point Transmitter from Kahn Instruments. Your EASIDEW PRO I.S. has been manufactured, tested and calibrated to the highest available standards and should come to you in perfect working order, ready for installation into your gas measurement application.

If you have any questions about the instrument or how to install and operate it, please contact Kahn Instruments, Inc. at:

**KAHN INSTRUMENTS, INC**  
885 Wells Road  
Wethersfield, CT 06109  
Phone: 860-529-8643  
Fax: 860-529-1895  
Email: [hygros@kahn.com](mailto:hygros@kahn.com)  
Web: [www.kahn.com](http://www.kahn.com)

## 2. ABOUT EASIDEW PRO I.S. PROCESS DEWPOINT TRANSMITTER

The EASIDEW PRO I.S. is a continuous, on-line, 4-20 mA transmitter for the measurement of moisture content in air and other non-corrosive gases, and is designed specifically for use within Class I, Divisions 1 and 2 (FM and CSA Certification).

Its key features are:

- Class I, Divisions 1 and 2, group, A,B,C and D (FM and CSA certification)
- Zone 0, ATEX and IECEx certification
- Rugged weatherproof housing to NEMA 4/IP66
- 2-wire connection / Linear 4 –20mA signal
- Operating pressure range - up to 45 Ched
- Operating range - 148°F to +68°F dew point
- Powered by any DC source from 12 to 28 V
- Output configurable for dew point or ppm(v)

## 3. FACTORY CALIBRATION

The EASIDEW PRO I.S. is fully factory-tested and calibrated prior to delivery and is supplied with its own calibration certificate, providing direct traceability to both US *National Institute of Standards and Technology* (NIST) and UK *National Physical Laboratory* (NPL) Humidity Standards. The sensor is certified at thirteen dew-point levels across its operating range against a certified reference hygrometer using a mass-flow humidity generator system as a source of reference calibration gas.

Periodic re-calibration is recommended in order to maintain the highest quality of measurement in your application. Kahn Instruments recommends that you have your EASIDEW PRO I.S. re-calibrated annually unless it is used in a mission-critical application or in a dirty or contaminated environment, in which case the calibration interval should be reduced accordingly.

Kahn Instruments can offer a variety of re-calibration and exchange transmitter programs to suit your specific needs. Kahn Instruments will be pleased to provide detailed, custom advice.

### 4. PREPARATION FOR USE

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
- Quantity (3) cable crimps
- Mounting Bracket (optional)

The Easidew PRO I.S. is protected within the shipping box by the inclusion of a small red 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.

Just 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 - ***do not handle the sintered guard.***

The Easidew PRO I.S. Transmitter can be mounted either in a flow-through sample block (optional) or directly inserted into a pipe or duct. It can be operated at pressures up to 5000 PSIG when used with the bonded seal provided.

**NOTE:** Pass the bonded seal over the 5/8"-18 UNF mounting thread and assemble into the sampling location by hand, using the wrench flats only. **DO NOT grip and twist the Easidew PRO I.S. cover when installing the transmitter.** When installed, fully tighten using a wrench until the bonded seal is fully compressed to a torque of 22.5 foot pounds to 24.0 foot pounds.

The recommended gas flow rate, when mounted in the optional sampling block, is 2 to 10 scfh/min. However, for direct insertion applications, gas flow can be from static to 30 ft/sec.

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

The optional bracket needs to be attached to the Easidew PRO I.S. (see *Figure 4.1*) using the hex screws provided. It can be installed either horizontally or vertically and can then be attached to a wall or plate to provide support for the transmitter.



*Figure 4.1 Wall-mount bracket*

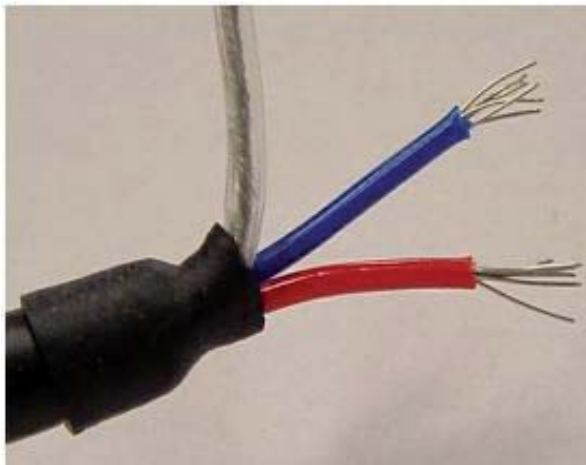
## 5. TRANSMITTER CABLE

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

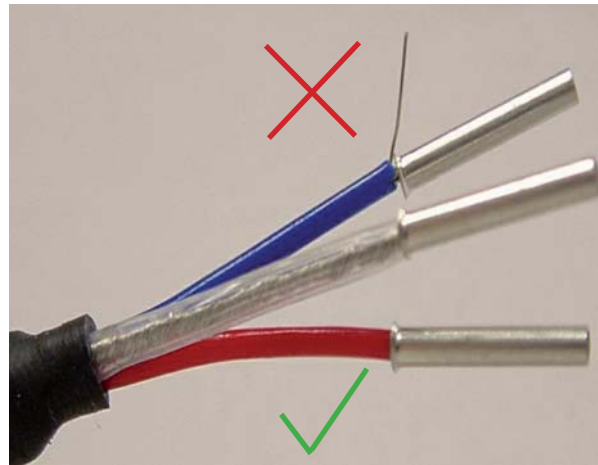
### 5.1 Preparation of the Sensor Cable

**NOTE:** To comply with Hazardous Area Certification of the product, it is essential that the crimps supplied be installed onto any cable which, in turn, is installed into the connector.

*Figures 5.1 and 5.3, 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.*

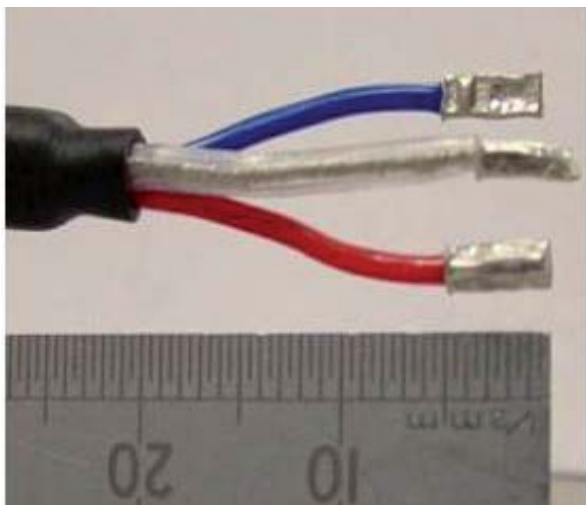


*Figure 5.1 Bare wires*



*Figure 5.2 Crimped wires*

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 0.2 inches (see *Figure 5.3*). When the crimps are installed into the connector terminal block, insure they are fully inserted, as shown in *Figure 5.4*, before tightening the terminal clamping screw.



*Figure 5.3 Cut to 0.2 inches*

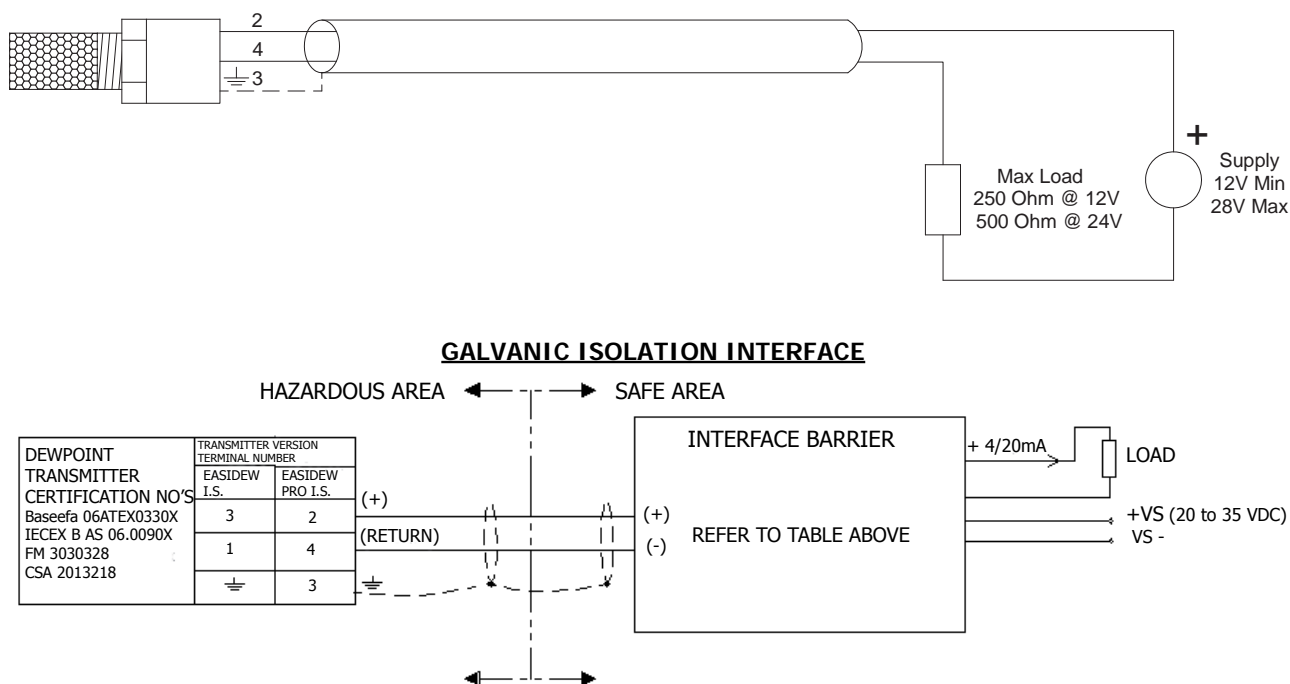


*Figure 5.4 Connection to Easidew PRO I.S.*

When all wire connections are made, insure that there is a minimum clearance distance and a minimum creepage distance in air of 0.08 inches between each terminal.

**CAUTION:** Always connect the 4-20 mA return signal to a suitable load (see *Figure 5.5*) before the power is applied. Without this connection, the transmitter may be damaged if allowed to operate for prolonged periods.

### Electrical Connection



*Figure 5.5 Hazardous Area Connection*

## 6. INSTALLATION IN HAZARDOUS AREAS

The EASIDEW PRO I.S. is certified intrinsically safe for use in hazardous areas.

**For Hazardous Area Certification, see Section 10 of this manual.**

Before using the EASIDEW PRO I.S. in any hazardous environment, ensure that you are fully familiar with the above FM and CSA standards relating to the certification of this instrument; and up-to-date codes of practice in the country of installation.

The EASIDEW PRO I.S. must be installed using a specified GALVANICALLY ISOLATED INTERFACE unit as shown in the system drawings on page 13 (Baseefa), page 29 (IECEX) and page 33 (CSA).

**NOTE:** Installation of the EASIDEW PRO I.S. *MUST* be as per the system drawings in order to comply with the Intrinsic Safety Certification.

## 7. OPERATION

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

### 7.1 Measurement Range and Analog Output

The standard Easidew PRO I.S. is delivered with the 4–20 mA output signal set to cover the range  $-148^{\circ}\text{F}$  to  $+68^{\circ}\text{F}$  dew point. Please note, however, that the transmitter output range can easily be changed to cover any dew-point range or to provide an output in terms of moisture content in the range 0 - 3000 ppm(v).

Non-standard ranges can either be programmed at the factory, or by the customer, using the Easidew Communications Kit (EA2-CK) and Easidew application software, both of which can be purchased from Kahn Instruments.

The application software help file will provide detailed instructions on how to perform this task.

### 7.2 Dry Down

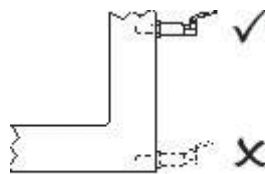
If the Easidew PRO I.S. is installed into a new application, then the time taken for the sensor to dry down from ambient conditions to the operational dew-point level of the process will normally be shorter than the time taken to dry down the process itself.

However, if the Easidew PRO I.S. is installed into an application which has previously been purged with dry gas, then there may be a significant time required for sensor dry down. The exact time taken will depend on a number of factors such as target dew point, construction of the sampling system (see below) and flow rate of the gas.

### 7.3 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 (see *Figure 7.1*), as entrained liquids may be drawn into the sensing element.



*Figure 7.1 Installation location*

#### Minimize Dead Space in Sample Lines

Dead space (see *Figure 7.2*) 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 7.2 Indication of dead space*

### **Remove Any Particulate Matter or Oil from the Gas Sample**

Particulate matter at high velocity can damage the sensing element. At low velocity, particulate matter may "blind" the sensing element by coating it and thereby reduce its response speed. If particulate, such as degraded desiccant, scale or rust is present in the sample gas, use an in-line filter.

### **Use High Quality Sample Tube and Fittings**

Kahn 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.

## **8. MAINTENANCE**

Routine maintenance of the Easidew PRO I.S. is confined to regular re-calibration by exposure of the Easidew PRO I.S. to sample gases of known moisture content to insure that the stated accuracy of the Easidew is maintained. Calibration services traceable to the National Institute of Standards and Technology (USA) and National Physical Laboratory (UK) are provided by Kahn Instruments.

## **9. SINTERED GUARD**

The sintered guard provides protection to the dew-point sensor, and should be replaced at regular intervals, depending on the contamination in the gas being measured. When replacing the HDPE guard, care should be taken to handle it on the lower part only to prevent contamination.

## 10 Hazardous Area Certification

The Easidew PRO I.S is certified compliant to the ATEX Directive (94/9/EC), and IECEx for safe use within a hazardous area and has been assessed so by Baseefa Ltd.

This product conforms to the Standards:

EN 60079-0:2012  
EN60079-11:2012

IEC60079-0:2011  
IEC60079-11:2011

and is attributed with a product certification code:

**II 1 G Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +70°C)**

ATEX Certificate Number :	Baseefa 06ATEX0330X/3
ATEX System Certificate Number:	Baseefa 07Y0027
IECEx Certificate Number:	IECEx BAS 06.0090X

The Easidew PRO I.S is also certified for use in Hazardous Areas by FM Approvals and CSA, with certification code:

**IS / I / 1 / ABCD / T4 Ta = +70°C, Entity Ex90385, IP66**

FM Certificate Number:	3030238
CSA Certificate Number:	2013218

This product also holds GOST-R and GOST-K certificates.

### 10.1 Terminal Parameters

U <sub>i</sub>	= 28 V
I <sub>i</sub>	= 93 mA
P <sub>i</sub>	= 651 mW
C <sub>i</sub>	= 37 nF
L <sub>i</sub>	= 0

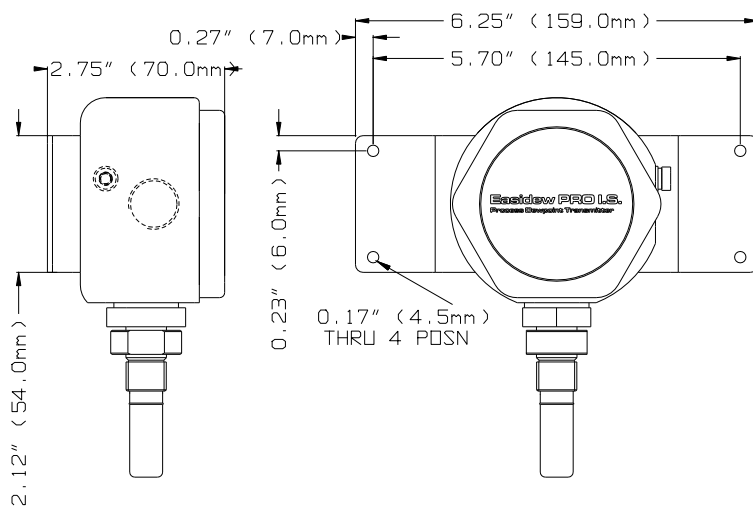
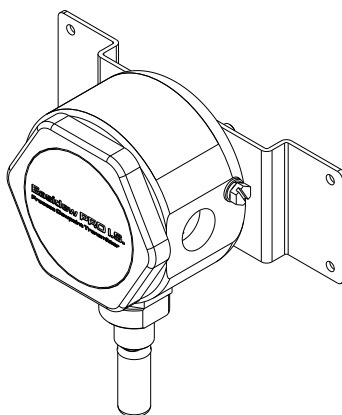
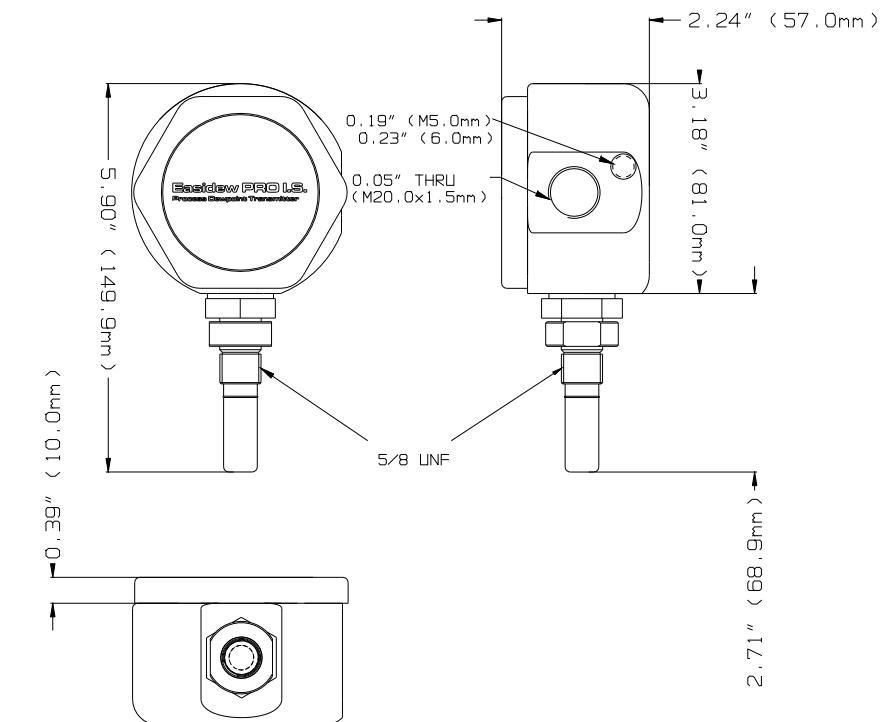
### 10.2 Special Conditions of Use

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.

The plastic plug and socket create a potential for electrostatic discharge so must not be rubbed with a dry cloth or cleaned with solvents.

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.

## 11. EASIDEW PRO I.S. DIMENSIONAL DRAWING



12. CERTIFICATES

12.1 Baseefa 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)
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 d.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

**TABLE A**

Type	Certificate Number	Interface	Connection to Easidew I.S.
Isolated Repeater	BAS988ATEX7343	KFD0-CS-Ex1.50P	Pin 1 (+) Pin 2 (-)
Dual Isolated Repeater	BAS988ATEX7343	KFD0-CS-Ex2.50P	Channel 1 - Pin 1 (+) Channel 1 - Pin 2 (-) Channel 2 - Pin 4 (+) Channel 2 - Pin 5 (-)
Transmitter Supply Isolator	BAS000ATEX7164	KFD2-CR-Ex1.20200	Pin 1 (+) Pin 3 (-)
Transmitter Supply Isolator	BAS000ATEX7164	KFD2-CR-Ex1.30200	Pin 1 (+) Pin 3 (-)
Smart Transmitter Power Supply	BAS988ATEX7060	KFD2-STC4-Ex1 H	Pin 1 (+) Pin 3 (-)
Repeater Power Supply	BAS01ATEX7155	MTL5041	Pin 2 (+) Pin 1 (-)
Dual Loop Isolator	BAS988ATEX2227	MTL5040	Pin 2 (+) Pin 1 (-) Pin 5 (+) Pin 4 (-)
Repeater Power Supply	BaseefaTEX0213	MTL5541	Pin 2 (+) Pin 1 (-)

**HAZARDOUS AREA** ← **SAFE AREA**

**GALVANIC ISOLATION INTERFACE**

**SYSTEM LABEL**

MICHELL Instruments  
EASIDEW I.S. DEWPOINT TRANSMITTER  
SYSTEM CERTIFICATE No's: Baseefa07Y0027  
Ex ia IIC T4 (-20C TO + 60C)

DEWPOINT TRANSMITTER  
CERTIFICATION No's:  
Baseefa06ATEX0330X  
IECEX BAS 06.0090X

INTERFACE BARRIER  
+ 4/20mA  
LOAD  
+VS (20 TO 35V DC)  
VS -

REFER TO TABLE ABOVE.

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

DIMENSIONS:

SCALE NTS

DRAWING UNITS mm

PRO 11165 1008/11 IMA

03 PRO Variation 1602/09 IMA

02 08057 27/05/08 IMA

01 CERT ISS 28/01/07 MSB

ISSUE MOD. No. DATE SIGN

DRAWING NUMBER

**Ex90352**

EASIDEW I.S. and EASIDEW PRO I.S.  
DEWPOINT TRANSMITTER SYSTEM  
DRAWING

USED ON MICHELL INSTRUMENTS LTD. CAMBRIDGE ©

SHEET 1 OF 1 A3

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MICHELL Instruments

CHECKED *msb* DATE: 3/01/11

APPROVED *msb* DATE: 17/09/11

DRAWN MSB DATE: 10/03/06

100mm

4 inches

MICHELL INSTRUMENTS LTD. 0111105 D0F03



Certificate Number  
Baseefa06ATEX0330X



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## Schedule

14

Certificate Number Baseefa06ATEX0330X

### 15 Description of Equipment or Protective System

The Easidew I.S. Dewpoint transmitter is a 4-20mA output loop powered dewpoint sensor.

The apparatus comprises two PCBs housed in a small metal enclosure, a humidity sensor that extends from the metal enclosure and a 4 way plug and socket. The enclosure screws into a pipe or vessel so that the humidity sensor is in the medium to be measured. The 4 way plug and socket contains two 4-20mA loop connections, one RS485/earth connection and one RS485 connection.

The 4-20mA loop connections may be made to terminals 1 & 3 only:

$U_i = 28V$   
 $I_i = 93mA$   
 $P_i = 651mW$   
 $C_i = 37nF$   
 $L_i = 0$

### 16 Report Number

06(C)0372

### 17 Special Conditions for Safe Use

- 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 I.S. Dewpoint Transmitter does not withstand the 500Vac insulation test to frame. This must be taken into account when installing the equipment.

### 18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

### 19 Drawings and Documents

Number	Sheet	Issue	Date	Description
Ex90347	1	01	29/01/07	Easidew I.S. 2-Wire Transmitter. ATEX & IECEx Certification Drawing
Ex90347	2	01	29/01/07	Easidew I.S. 2-Wire Transmitter. ATEX & IECEx Certification Drawing
Ex90347	3	01	29/01/07	Easidew I.S. 2-Wire Transmitter. Processor & Connector P.C.B. Track Layouts. ATEX & IECEx Certification Drawing
Ex90347PL	1 & 2	01	09/01/07	Easidew I.S. 2-Wire Transmitter. ATEX Certification

These drawings are common to and held with IECEx BAS 06.0090X.

Certificate Number  
Baseefa06ATEX0330X/1



Issued 19 March 2009  
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**1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres  
Directive 94/9/EC**

**3 Supplementary EC - Type Examination Certificate Number:** Baseefa06ATEX0330X/1

**4 Equipment or Protective System:** Easidew I.S. Dewpoint Transmitter

**5 Manufacturer:** Michell Instruments Limited

**6 Address:** Ely, Cambridgeshire, CB6 3NW  
(Formerly Nuffield Close, Cambridge, CB4 1SS)

**7** This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0330X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 4014

Project File No. 09/0005

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

**Baseefa**

Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ  
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601  
e-mail [info@baseefa.com](mailto:info@baseefa.com) web site [www.baseefa.com](http://www.baseefa.com)  
Baseefa is a trading name of Baseefa Ltd  
Registered in England No. 4305578. Registered address as above.

**R S SINCLAIR**  
DIRECTOR  
On behalf of  
Baseefa

Certificate Number  
Baseefa06ATEX0330X/1



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13.

## Schedule

14

Certificate Number Baseefa06ATEX0330X/1

### 15 Description of the variation to the Equipment or Protective System

#### Variation 1.1

To permit the addition of a variant named the Easidew Pro I.S.

The terminal parameters remain unchanged and are listed in full in the prime of this certificate.

The terminal numbers of the Easidew I.S. Pro are different from those on the existing variant. For clarity the user terminal numbers for both variants are listed below:-

#### Easidew I.S. Dewpoint Transmitter

- The 4-20mA user terminals are terminals 1 & 3.
- The earth terminal is marked with an earth symbol.

#### Easidew Pro I.S. Dewpoint Transmitter

- The 4-20mA user terminals are terminals 2 & 4.
- The earth terminal is terminal 3.

### 16 Report Number

None.

### 17 Special Conditions for Safe Use

None additional to those listed previously

### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

### 19 Drawings and Documents

Number	Sheet	Issue	Date	Description
Ex90347	1 to 7	04	16/02/09	Easidew I.S. 2-Wire Transmitter ATEX & IECEx Certification Drawing
Ex90347PRO PL	1 & 2	01	16/02/09	Easidew Pro I.S. 2-Wire Transmitter. ATEX Certification

These drawings are common to, and held with, IECEx BAS06.0090X/1.

Ex90347 sheet 6 is also common to Baseefa T09/0005.

Certificate Number  
Baseefa07Y0027



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## TYPE EXAMINATION CERTIFICATE

### Intrinsically Safe System Intended for use in Potentially Explosive Atmospheres

- 3 Type Examination Certificate Number: **Baseefa07Y0027**
- 4 System: **Easidew I.S. Dewpoint Transmitter System**
- 5 Certificate Holder: **Michell Instruments Limited**
- 6 Address: **Nuffield Close, Cambridge, CB4 1SS.**
- 7 This system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8 Baseefa (2001) Ltd. certifies that this system has been found to comply with the following standards  
**EN 60079-25: 2004**
- 9 The examination and test results are recorded in confidential Report No. **06(C)0372**
- 10 If the sign "X" is placed after the certificate number, it indicates that the system is subject to special conditions of safe use specified in the schedule to this certificate.
- 11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified intrinsically safe system and not to specific items of equipment therein. It is the responsibility of the system certificate holder to supply the relevant documentation to the installer of the intrinsically safe electrical system referred to in this certificate.  
  
The installer has the responsibility to ensure that the system conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.
- 12 The marking of the system shall include the following :  
**Ex ia IIC T4 (-20°C ≤ T<sub>a</sub> ≤ +60°C)**  
  
This certificate may only be reproduced in its entirety, without any change, schedule included.


Baseefa Customer Reference No. **4014**

Project File No. **06/0372**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the system may be used in particular industries or circumstances.

### Baseefa

Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ  
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601  
e-mail [info@baseefa.com](mailto:info@baseefa.com) web site [www.baseefa.com](http://www.baseefa.com)  
Baseefa is a trading name of Baseefa (2001) Ltd  
Registered in England No. 4305578 at the above address

  
**R. S. SINCLAIR**  
DIRECTOR  
On behalf of  
Baseefa (2001) Ltd.

Certificate Number  
Baseefa07Y0027



Issued 23 March 2007  
Page 2 of 2

13

## Schedule

14

Certificate Number Baseefa07Y0027

### 15 System Description

The Easidew I.S. Dewpoint Transmitter System comprises:

1. Apparatus that may be installed in a Non Hazardous Area (Safe Area.)
  - 1.1 An isolated barrier of one of the following types:-  
 Pepperl & Fuchs type KFD2-CR-Ex1.20200 to certificate BAS00ATEX7164  
 Pepperl & Fuchs type KFD2-CR-Ex1.30200 to certificate BAS00ATEX7164  
 Pepperl & Fuchs type KFD2-CR-Ex1.50P to certificate BAS98ATEX7343  
 Measurement Technology Limited type MTL5041 to certificate BAS01ATEX7155  
 Measurement Technology Limited type MTL5040 to certificate BAS98ATEX2227
  - 1.2 The above apparatus is to be supplied from apparatus situated in the safe area which is unspecified except that it must not be supplied from nor contain in normal or abnormal conditions a source of potential with respect to earth in excess of 253 Volts r.m.s. or 253 Volts d.c.
2. Apparatus that may be installed in a Hazardous Area
  - 2.1 Easidew I.S. Dewpoint Transmitter to certificate numbers Baseefa06ATEX0330X and IECEx BAS06.0090X
3. Permissible Interconnecting Cables
  - 3.1 The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area cables must not exceed the following values:-

GROUP	C μF	L mH	OR	L/R Ratio μH/Ω
IIC	46nF	4.2mH		54μH/Ω
IIB	613nF	12.6mH		217μH/Ω
IIA	2.11μF	33mH		435μH/Ω

### 16 Report

06(C)0372

### 17 Special Conditions for Safe Use

None.

### 18 Drawings and Documents

Number	Issue	Date	Description
Ex90352 sheet 1	01	26/01/07	Easidew I.S. Dewpoint Transmitter System Drawing

Certificate Number  
Baseefa07Y0027/1



Issued 23 June 2008  
Page 1 of 3

# 1 SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE

## 2 Intrinsically safe System Intended for use in Potentially Explosive Atmospheres

3 Supplementary Type Examination Certificate Number: **Baseefa07Y0027/1**

4 Equipment: **Easidew I.S. Dewpoint Transmitter System**

5 Manufacturer: **Michell Instruments Limited**

6 Address: **Ely, Cambridgeshire, CB6 3NW  
(formerly Cambridge, CB4 1SS.)**

7 This supplementary certificate extends Type Examination Certificate No. Baseefa07Y0027 to apply only to the design of the specified intrinsically safe system, and not to specific items of equipment therein, in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **4014**

Project File No. **08/0350**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

### Baseefa

Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ  
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601  
e-mail [info@baseefa.com](mailto:info@baseefa.com) web site [www.baseefa.com](http://www.baseefa.com)  
Baseefa is a trading name of Baseefa Ltd  
Registered in England No. 4305578. Registered address as above.

  
R S SINCLAIR  
DIRECTOR  
On behalf of  
Baseefa

Certificate Number  
Baseefa07Y0027/1



Issued 23 June 2008  
Page 2 of 3

13

## Schedule

14

Certificate Number Baseefa07ATEX0027/1

### 15 Description of the variation to the Equipment

#### Variation 1.1

To permit the use of additional Pepperl + Fuchs safety isolator types KFD0-CS-Ex2.50P and KFD2-STC4-Ex1.H.  
For completeness, the below list shows all isolators now covered by this certificate:-

Type	Certificate No.	Isolation Interface
Isolated Repeater	BAS98ATEX7343	KFD0-CS-Ex1.50P *
Dual Isolated Repeater	BAS98ATEX7343	KFD0-CS-Ex2.50P *
Transmitter Supply Isolator	BAS00ATEX7164	KFD2-CR-Ex1.20200 *
Transmitter Supply Isolator	BAS00ATEX7164	KFD2-CR-Ex1.30200 *
Smart Transmitter Power Supply	BAS99ATEX7060	KFD2-STC4-Ex1.H
Repeater Power Supply	BAS01ATEX7155	MTL5041 *
Dual Loop Isolator	BAS98ATEX2227	MTL5040 *

\* These isolators were present in the original certificate.

When using a Pepperl & Fuchs type KFD2-STC4-Ex1.H the capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area cables must not exceed the following values:-

GROUP	C $\mu\text{F}$	L mH	OR	L/R Ratio $\mu\text{H}/\Omega$
IIC	40nF	4.2mH		54 $\mu\text{H}/\Omega$
IIB	613nF	12.6mH		217 $\mu\text{H}/\Omega$
IIA	2.11 $\mu\text{F}$	33mH		435 $\mu\text{H}/\Omega$

When using any of the other isolators listed above the capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area cables must not exceed the following values:-

GROUP	C $\mu\text{F}$	L mH	OR	L/R Ratio $\mu\text{H}/\Omega$
IIC	46nF	4.2mH		54 $\mu\text{H}/\Omega$
IIB	613nF	12.6mH		217 $\mu\text{H}/\Omega$
IIA	2.11 $\mu\text{F}$	33mH		435 $\mu\text{H}/\Omega$

### 16 Report Number

None.

### 17 Special Conditions for Safe Use

None.

Certificate Number  
Baseefa07Y0027/1



Issued 23 June 2008  
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**18 Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

**19 Drawings and Documents**

Number	Sheet	Issue	Date	Description
Ex90352	1	02	27/05/08	Easidew I.S. Dewpoint Transmitter System Drawing

Certificate Number  
Baseefa07Y0027/2



Issued 19 March 2009  
Page 1 of 2

1 **SUPPLEMENTARY TYPE EXAMINATION CERTIFICATE**

2 **Intrinsically safe System Intended for use in Potentially Explosive Atmospheres**

3 Supplementary Type Examination Certificate Number: **Baseefa07Y0027/2**

4 Equipment: **Easidew I.S. Dewpoint Transmitter System**

5 Manufacturer: **Michell Instruments Limited**

6 Address: **Ely, Cambridgeshire, CB6 3NW**  
(formerly Nuffield Close, Cambridge, CB4 1SS)

7 This supplementary certificate extends Type Examination Certificate No. Baseefa07Y0027 to apply only to the design of the specified intrinsically safe system, and not to specific items of equipment therein, in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 4014

Project File No. 09/0005

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

**Baseefa**

Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ  
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601  
e-mail [info@baseefa.com](mailto:info@baseefa.com) web site [www.baseefa.com](http://www.baseefa.com)  
Baseefa is a trading name of Baseefa Ltd  
Registered in England No. 4305578. Registered address as above.

**R S SINCLAIR**  
**DIRECTOR**  
On behalf of  
Baseefa

Certificate Number  
Baseefa07Y0027/2



Issued 19 March 2009  
Page 2 of 2

13

## Schedule

14

Certificate Number Baseefa07ATEX0027/2

### 15 Description of the variation to the Equipment

#### Variation 2.1

To permit the addition of a variant named the Easidew Pro I.S.

The terminal parameters for the Easidew Pro I.S. remain unchanged and are listed in full on the prime of this certificate.

The terminal numbers of the Easidew I.S. Pro are different from those of the existing variant. For clarity the user terminal numbers for both variants are listed below:-

- Easidew I.S. Dewpoint Transmitter:-

The 4-20mA user terminals are terminals 1 & 3.

The earth terminal is marked with an earth symbol.

- Easidew Pro I.S. Dewpoint Transmitter:-

The 4-20mA user terminals are terminals 2 & 4.

The earth terminal is terminal 3.

### 16 Report Number

None.

### 17 Special Conditions for Safe Use

None.


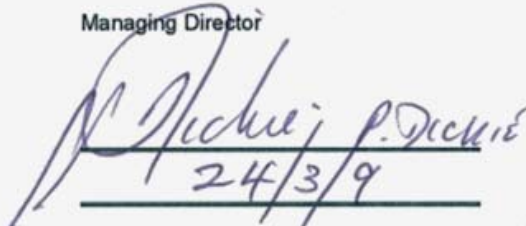

### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

### 19 Drawings and Documents

Number	Sheet	Issue	Date	Description
Ex90352	1	03	16/02/09	Easidew I.S. and Easidew Pro I.S. Dewpoint Transmitter System Drawing

## 12.3 IECEx Certificates

		<h1>IECEx Certificate of Conformity</h1>	
<p align="center"><b>INTERNATIONAL ELECTROTECHNICAL COMMISSION</b>  <b>IEC Certification Scheme for Explosive Atmospheres</b>  <small>for rules and details of the IECEx Scheme visit <a href="http://www.iecex.com">www.iecex.com</a></small></p>			
Certificate No.:	IECEx BAS 06.0090X	issue No.:1	<b>Certificate history:</b> Issue No. 1 (2009-3-24) Issue No. 0 (2007-4-12)
Status:	Current		
Date of Issue:	2009-03-24	Page 1 of 4	
Applicant:	<b>Michell Instruments Limited</b> Unit 48 Lancaster Way Business Park Cambridgeshire CB6 3NW United Kingdom		
Electrical Apparatus:	<b>Easidew I.S. Dewpoint Transmitter</b>		
Optional accessory:			
Type of Protection:	<b>Intrinsic Safety</b>		
Marking:	<b>IECEx BAS 06.0090X</b> <b>Ex ia IIC T4 (-20°C ≤ Ta ≤ +60°C)</b>		
Approved for issue on behalf of the IECEx Certification Body:	R S Sinclair		
Position:	Managing Director		
Signature: (for printed version)			
Date:	24/3/9		
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.			
Certificate issued by: <div style="display: flex; justify-content: space-between; align-items: center;"> <div> <b>Baseefa</b>                      Rockhead Business Park                      Staden Lane                      Buxton                      Derbyshire                      SK17 9RZ                      United Kingdom                 </div>  </div>			



# IECEx Certificate of Conformity

Certificate No.: IECEx BAS 06.0090X

Date of Issue: 2009-03-24

Issue No.: 1

Page 2 of 4

Manufacturer: **Michell Instruments Limited**  
Nuffield Close  
Cambridge  
CB4 1SS  
United Kingdom

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'

*This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

### Test Report:

GB/BAS/ExTR06.0148/00  
GB/BAS/ExTR09.0032/00

Quality Assessment Report:  
GB/BAS/QAR07.0018/00



# IECEx Certificate of Conformity

Certificate No.: IECEx BAS 06.0090X

Date of Issue: 2009-03-24

Issue No.: 1

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Easidew I.S. Dewpoint Transmitter is a 4-20 mA output loop-powered dewpoint sensor. The apparatus comprises two PCBs housed in a small metal enclosure, a humidity sensor that extends from the metal enclosure and a 4-way plug and socket. The enclosure screws into a pipe or vessel so that the humidity sensor is in the medium to be measured. The 4-way plug and socket contains two 4-20 mA loop connections, one RS485/earth connection and one RS485 connection

The 4-20 mA loop connection may be made to terminals 1 & 3 only:

$U_i = 28V$

$I_i = 93mA$

$P_i = 651mW$

$C_i = 37nF$

$L_i = 0$

### CONDITIONS OF CERTIFICATION: YES as shown below:

The wiring connections to the Easidew I.S. Dewpoint Transmitter 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.

The Easidew I.S. Dewpoint Transmitter plastic plug and socket create a potential for electrostatic discharge so must not be rubbed with a dry cloth or cleaned with solvents.

The Easidew I.S. Dewpoint Transmitter does not withstand the 500Vac insulation test to frame and this must be taken into account on installation.



# IECEx Certificate of Conformity

Certificate No.: IECEx BAS 06.0090X

Date of Issue: 2009-03-24

Issue No.: 1

Page 4 of 4

## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Variation 1.1

To permit the addition of a variant named the Easidew Pro I.S.

The input parameters for the Easidew Pro I.S. remain unchanged and are listed in full in the Equipment section of this certificate.

The terminal numbers of the Easidew I.S. Pro are different from those on the existing variant. For clarity the user terminal numbers for both variants are listed below:-

#### Easidew I.S. Dewpoint Transmitter

The 4-20mA user terminals are terminals 1 & 3.

The earth terminal is marked with an earth symbol.

#### Easidew Pro I.S. Dewpoint Transmitter

The 4-20mA user terminals are terminals 2 & 4.

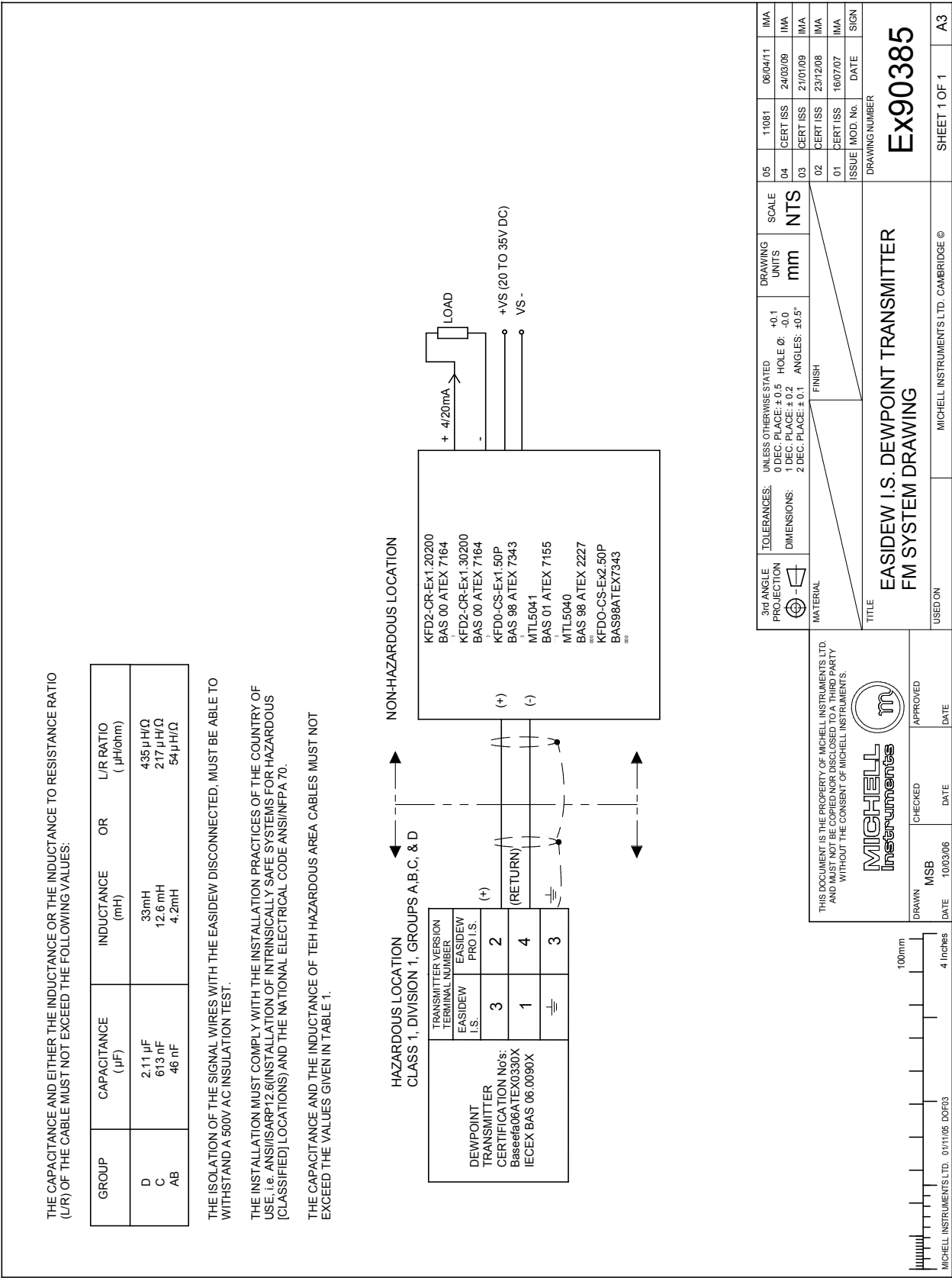
The earth terminal is terminal 3.

Also to record a change of address.

ExTR: GB/BAS/ExTR09.0032/00

File Reference: 09/0005

12.4 FM Approved System Drawing



## 12.5 FM Approvals Certificates



# CERTIFICATE OF COMPLIANCE

## HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

**EasiDew I.S. Dewpoint Transmitter**

IS / I / 1 / ABCD / T4 Ta = +70°C – Ex90385; Entity; IP66

## Entity parameters

Voc = 28V      Isc = 93mA      Pi = 651mW      Ci = 37nF      Li = 0

*Special conditions of use*

1. The wiring connections to the free socket shall be made via crimped connectors in such a way that all the strands of wire used are held securely by the crimp.
2. The EasiDew I.S. Dewpoint Transmitter does not withstand the 500V ac insulation test to frame. This shall be taken into account on installation.
3. The plastic plug and socket are non-conducting and may generate an ignition capable level of electrostatic charge under extreme conditions. The user should ensure that the equipment is not installed or used in a location where it may be subjected to external conditions (such as high pressure steam), which might cause a build-up of electrostatic charge on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.

**EasiDew Pro I.S. Dewpoint Transmitter**

IS / I / 1 / ABCD / T4 Ta = +70°C – Ex90385; Entity; IP66

## Entity parameters

Voc = 28V      Isc = 93mA      Pi = 651mW      Ci = 37nF      Li = 0

*Special conditions of use*

1. The wiring connections to the free socket shall be made via crimped connectors in such a way that all the strands of wire used are held securely by the crimp.
2. The EasiDew I.S. Dewpoint Transmitter does not withstand the 500V ac insulation test to frame. This shall be taken into account on installation.
3. The plastic plug and socket are non-conducting and may generate an ignition capable level of electrostatic charge under extreme conditions. The user should ensure that the equipment is not installed or used in a location where it may be subjected to external conditions (such as high pressure steam), which might cause a build-up of electrostatic charge on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.



### Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C and D Hazardous (Classified) Locations when installed in accordance with Entity Concept and Control Drawing Ex90385.

### FM Approved for:

Michell Instruments Limited  
Ely, Cambridgeshire, United Kingdom



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3610	2007
Class 3810	2005

Original Project ID: 3030238

Approval Granted: January 3, 2008

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
090324	June 19, 2009		
110905	September 20, 2011		

FM Approvals LLC

  
\_\_\_\_\_  
J.E. Marquedant  
Group Manager, Electrical

20 September 2011  
Date

## 12.6 CSA Approved System Drawing

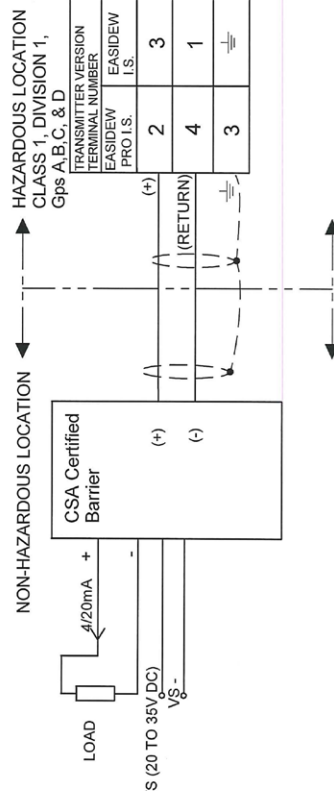
THE CAPACITANCE AND EITHER THE INDUCTANCE OR THE INDUCTANCE TO RESISTANCE RATIO (L/R) OF THE CABLE MUST NOT EXCEED THE FOLLOWING VALUES:

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH) OR L/R RATIO ( $\mu$ H/ $\Omega$ )
AB	46 nF	54 $\mu$ H/ $\Omega$
C	613 nF	217 $\mu$ H/ $\Omega$
D	2.11 $\mu$ F	435 $\mu$ H/ $\Omega$

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 RP12.6 (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:

$$V_{OS} \leq V_{max}, I_{sc} \leq I_{max}, C_{in} \geq C_{cable}, L_{in} \geq L_{cable}$$

Transmitter entity parameters are as follows:

$$V_{max} < 2.8V_{dc}$$

$$I_{max} < 93mA$$

$$C_i = 37nF$$

$$L_i = 0\mu H$$

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	BAS99ATEX7343 UL Canada E106378CUL	KFD0-CS-Ex1.50P	Pin 1 (+) Pin 2 (-)
Dual Isolated Repeater	BAS99ATEX7343 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-OR-Ex1.20200	Pin 1 (+) Pin 3 (-)
Transmitter Supply Isolator	BAS00ATEX7164 UL Canada E106378CUL	KFD2-OR-Ex1.30200	Pin 1 (+) Pin 3 (-)
Smart Transmitter Power Supply	BAS99ATEX7060 UL Canada E106378CUL	KFD2-STC4-Ex1.H	Pin 1 (+) Pin 3 (-)

3d ANGLE PROJECTION	TOLERANCES: UNLESS OTHERWISE STATED 0 DEC. PLACE: $\pm 0.5$ 1 DEC. PLACE: $\pm 0.2$ 2 DEC. PLACE: $\pm 0.1$	DRAWING UNITS mm	SCALE NTS	06 11081	06/04/11	IMA
DIMENSIONS: HOLE $\varnothing$ : $\pm 0.1$ ANGLES: $\pm 0.5^\circ$	FINISH			05 CERT ISS	15/06/09	IMA
				04 CERT ISS	25/03/09	IMA
				03 CERT ISS	16/06/08	IMA
				02 CERT ISS	13/06/08	IMA
				ISSUE MOD. No.	DATE	SIGN
DRAWING NUMBER						
TITLE EASIDEW I.S. & EASIDEW PRO I.S. DEWPOINT TRANSMITTER SYSTEM DRAWIN. CSA						
USED ON MICHELL INSTRUMENTS LTD. CAMBRIDGE ©						
SHEET 1 OF 1 A3						

THIS DOCUMENT IS THE PROPERTY OF MICHELL INSTRUMENTS LTD. AND MUST NOT BE COPIED NOR DISCLOSED TO A THIRD PARTY WITHOUT THE CONSENT OF MICHELL INSTRUMENTS.



DRAWN  
DATE 10/03/06

CHECKED  
DATE 05/05/11

APPROVED  
DATE 05/05/11



## 12.7 CSA Certificate of Compliance

	
<h1 style="margin: 0;">Certificate of Compliance</h1>	
<b>Certificate:</b> 2013218	<b>Master Contract:</b> 190597
<b>Project:</b> 2465693	<b>Date Issued:</b> October 28, 2011
<b>Issued to:</b> Michell Instruments Limited Lancaster Way Business Pk, Unit 48 Ely Cambridgeshire, CB6 3NW United Kingdom Attention: Ian Arnold	
<p><i>The products listed below are eligible to bear the CSA Mark shown</i></p> <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;"> <b>Issued by:</b> Chris Burchett         </div> </div>	
<b>PRODUCTS</b> <b>CLASS 2258 04</b> - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations  <b>IS Class I, Division 1 Groups A, B, C &amp; D T4</b>	
<p>The Easidew I.S. and Easidew PRO I.S. Dewpoint transmitters are 4-20mA output loop powered dewpoint sensors.</p> <p>Intrinsically Safe Dewpoint Transmitter Model: "EASIDEW I.S." and "EASIDEW PRO I.S."</p> <p>Temperature code T4; Maximum Ambient +70°C.</p> <p>Entity parameters: Vmax = 28 V, Imax = 93 mA, Pmax = 651 mW, Ci = 37 nF, Li = 0 µH.</p> <p>Easidew I.S.: The 4-20mA loop connection may be made to terminals 1 &amp; 3 only.</p> <p>Easidew PRO I.S.: The 4-20mA loop connection may be made to terminals 2 &amp; 4 only and the earth connection to terminal 3.</p>	
DQD 507 Rev. 2009-09-01	Page: 1



Certificate: 2013218

Master Contract: 190597

Project: 2465693

Date Issued: October 28, 2011

Notes:

**MARKINGS**

- (1) Submitter's name, trademark
- (2) Catalogue / Model designation.
- (3) Complete electrical rating (amps, hertz, and volts).
- (4) Date code / Serial number traceable to month and year of manufacture.
- (5) The CSA Monogram
- (6) Maximum ambient temperature  $T_a = + 70\text{ }^{\circ}\text{C}$
- (7) Reference to control drawings Ex90385CSA
- (8) The words "IS Class I, Division 1, Groups A, B, C and D T4"

**METHOD OF MARKING:**

The permanent markings appear on an self-adhesive metalised polyester manufactured by 3M (CUL MH18072) and Flexcon CO Inc. (CSA 99214) and is mounted on the surface of the apparatus.

**Special conditions of use**

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 I.S. Dewpoint Transmitter does not withstand the 500Vac insulation test to frame. This must be taken into account on installation.

**APPLICABLE REQUIREMENTS**

CAN/CSA-C22.2 No. 0-10

- General Requirements Canadian Electrical Code, Part II - Tenth Edition

CAN/CSA-C22.2 No. 157-92 (R2006)

- Intrinsically Safe and Non-incendive Equipment for use in Hazardous Locations.

C22.2 No. 142-M1987 (R2009)

- Process Control Equipment Industrial Products.



### *Supplement to Certificate of Compliance*

Certificate: 2013218

Master Contract: 190597

*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

#### Product Certification History

Project	Date	Description
2465693	October 28, 2011	Update report 2013218 to reflect ambient temperature change from 60°C Maximum to 70°C Maximum, and Update revised control drawings.

#### History

##### Project 2013218 (Edition 1):

Initial Report and Certificate of Compliance

##### Project 2190915 (Edition 2):

Since the new model only differs by the enclosure and that the minor modifications of the PCBs do not impair the intrinsic safety, no additional testing was deemed necessary.

## 12.8 EC Declaration of Conformity



### EC 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**



#### Directive 94/9/EC ATEX

Provisions of the Directive fulfilled by the Equipment:

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

Notified Body for EC-Type Examination and Production (QAN):

**Baseefa, Buxton. UK. Notified Body No. 1180**

EC-Type Examination Certificate:

**Baseefa06ATEX0330X/3**

Standards used:

**EN 60079-0:2012  
EN60079-11:2012**

#### IECEX

Certificate of Conformity No.

**IECEX BAS 06.0090X (Issue No. 3) Ex ia IIC T4 (-20°C ≤ Ta ≤ +70°C)**

**IEC60079-0:2011  
IEC60079-11:2011**

#### Other Directives

2004/108/EC EMC Directive

2006/95/EC Low Voltage Directive

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

EN61326-1:2006 *Electrical equipment for measurement, control and laboratory use - EMC requirements.*

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.

A handwritten signature in blue ink, appearing to read 'Andrew M.V. Stokes'.

Andrew M.V. Stokes, Technical Director  
October 2012

ECD Easidew PRO IS Issue 04

### 13. TECHNICAL SPECIFICATIONS

<b>Performance</b>	
Measurement Range (dew point)	-148°F to +68°F dew point
Accuracy (dew point)	±3.6°F dew point
Response Time	5 mins to T95 (dry to wet)
Repeatability	1.0°F dew point
<b>Electrical Output/Input</b>	
Output Signal	Output signal 4–20 mA (2-wire) current source, configurable over the entire range Dew point -148 to +68°F -100 to + 20°C 0 – 3000 ppm(v) ppm(v) output or non-standard dew-point range must be specified at time of order
Supply Voltage	12-28 VDC
Load Resistance	Max 250 Ω @ 12 V 500 Ω @ 24 V
Current Consumption	20 mA
Supply Voltage Information	±0.005% RH/V
<b>Operating Conditions</b>	
Operating Humidity	0–100% RH
Operating Temperature	-40 to +158°F
Operating Pressure	5000 PSIG max
Flow Rate	2-10 SCFH mounted in standard sampling block 0 to 30 ft/sec direct insertion
Temperature Coefficient	Temperature compensated across operating temperature range
<b>Mechanical Specification</b>	
FM Certificate	Class I, Division 1, groups A, B, C and D
Ingress Protection	IP66 in accordance with standard BS EN 60529:1992, and NEMA 4 in protection accordance with standard NEMA 250-2003
Housing Material	Stainless steel
Filter	80 μm sintered guard (optional HDPE Guard <10 μm)
Weight	1.7 pounds
Electrical Connections	Screw terminal
Interchangeability	Fully interchangeable transmitters

### 13.1 Fault Conditions

Condition	Output	
Sensor fault	23 mA	} Factory default setting
Under-range dew point	4 mA	
Over-range dew point	20 mA	

User selectable via software

**NOTE:** The current output range and the fault conditions are user programmable. Re-ranging or changing the fault conditions of the Easidew PRO I.S. Transmitter requires the use of a Communications Kit and Configuration Software. Contact Kahn Instruments' Customer Service Department for details.

## 14. CONTACTS

For advice on this, or any other Kahn Instruments product, please feel free to contact us:

**KAHN INSTRUMENTS, INC.**

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Wethersfield, CT 06109 USA  
Phone: 860-529-8643  
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