

Easidew PRO I.S.

Intrinsically Safe Dew-Point Transmitter



The Easidew PRO I.S. is a rugged intrinsically safe 2-wire dew-point transmitter for trace moisture measurement in liquids and gases. It is certified for use in IS Class 1 Div 1 Groups A,B,C and D, Ex II 1G EX ia IIC T4 and I.S. I 1 ABCD T4 (Ta = +60°C) hazardous area locations.

Highlights

- $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$) accuracy
- Moisture in gases or liquids capability
- 2-wire connection
- Output configurable in ppm_v and ppm_w moisture content

Simple Operation

The Easidew PRO I.S. is easy to install and operate. It requires a 12 to 28 V DC supply and provides a linear 4-20 mA signal representing moisture content.

Moisture in Gases

The output can be configured by the customer, using simple software, to any range within -100 to $+20^{\circ}\text{C}$ (-148 to $+68^{\circ}\text{F}$) dp, or 0 - $3,000$ ppm_v in gases. As the Easidew PRO I.S. responds to water vapor pressure in the gas sample, it will give the user an accurate determination of the actual dew-point at pressure up to 45 MPa (450 barg / 6500 psig). Flow rate is not critical to measurement accuracy (1 to 5 NI/min (2.1 to 10.5 scfh)), though speed of response will be improved by operating at a higher sample flow.

Moisture in Liquids

In addition to its Moisture in Gases capabilities the Easidew PRO I.S. can be used to monitor moisture in non-polar liquids. It is factory programmed to provide an output in ppm_w . This requires the saturation constants of the liquid to be programmed into the transmitter either at the factory or by the user, using the application software, available as a free download from www.michell.com

Technical Specifications

Performance		
Measurement range (dp)	-100 to $+20^{\circ}\text{C}$ (-148 to $+68^{\circ}\text{F}$) dew point	
Accuracy (dp)	$\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$) dp ($+20$ to -60°C ($+68$ to -76°F)) $\pm 2^{\circ}\text{C}$ ($\pm 3.6^{\circ}\text{F}$) dp (-60 to -100°C (-76 to -148°F))	
Response time	5 mins to T95 (dry to wet)	
Repeatability	0.5°C (0.9°F) dew point	
Electrical output/input		
Output signal	4-20 mA (2-wire connection, current source) User configurable over range	
Output	Dew point, moisture content for ppm_v , ppm_w	
Output range	Dew point: -100 to $+20^{\circ}\text{C}$ (-148 to $+68^{\circ}\text{F}$) Moisture content in gas: 0 - 3000 ppm_v Moisture content in liquid: 0 - 3000 ppm_w	
Supply voltage	12-28 V DC	
Load resistance	Max $250\ \Omega$ @ 12 V; $500\ \Omega$ @ 24 V	
Current consumption	Max 23 mA depending on output signal	
Saturation constants (For moisture in liquids measurements only)	6-point look-up table for saturation constants up to 3000 ppm_w over the temperature range 0 to $+50^{\circ}\text{C}$. 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.	
Operating conditions		
Operating humidity	0-100% RH	
Operating temperature	-40 to $+60^{\circ}\text{C}$ (-40 to $+140^{\circ}\text{F}$)	
Operating pressure	45 MPa (450 barg / 6500 psig) max	
Flow rate	1 to 5 NI/min (2.1 to 10.5 scfh) mounted in sampling block; 0 to 10 m/sec (0 to 32.8 fps) direct insertion	
Mechanical specification		
Hazardous Area Certificates	ATEX - II 1 G Ex ia IIC T4 ($-20^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$) FM - IS / I / 1 / ABCD / T4 Ta = $+70^{\circ}\text{C}$ CSA - IS Class 1 Div 1 Groups ABCD T4 IECEX - Ex ia IIC T4 ($-20^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)	
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	$80\mu\text{m}$ sintered guard HDPE Guard $<10\mu\text{m}$ (optional)	
Mounting Thread	$5/8''$ - 18 UNF	
Weight	1.27kg (2.8lbs)	
Electrical connections	Screw terminal, M20 x 1.5mm	
Fault 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 KFD2-CR-EX1.30200 KFD0-CS-EX1.50P KFD0-CS-EX2.50P KFD2-STC4-EX1.H MTL5041, MTL5040	

Easidew PRO I.S.

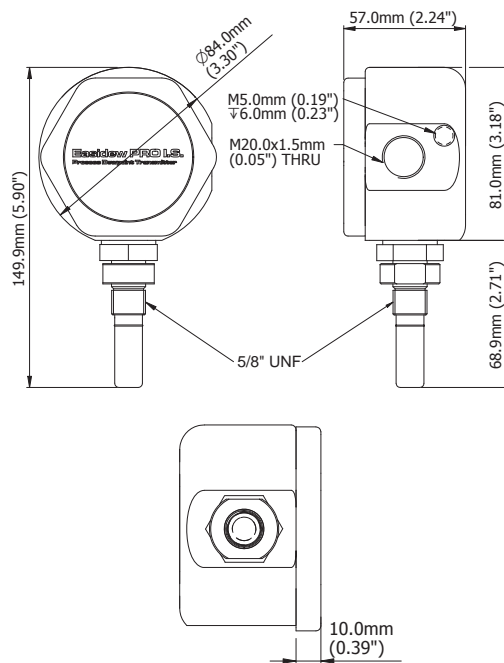
Electrical Connections

4-20 mA connections 2-wire	
Pin 2	POWER
Pin 4	4-20 mA

Accessories and Spare Parts

Wall mounting bracket for Easidew PRO I.S.	EPR-BRK
Cable entry adapter M20 to 1/2" NPT, brass	CEA-M20-NPT-B
Cable entry adapter M20 to 1/2" NPT, SS	CEA-M20-NPT-SS
Cable entry adapter M20 to 1/2" BSP, brass	CEA-M20-BSP-B
Cable entry adapter M20 to 1/2" BSP, SS	CEA-M20-BSP-SS
Hazardous area cable gland, brass ø3-8mm cable	CG-M20-B
Hazardous area cable gland, SS ø3-8mm cable	CG-M20-SS
SS sintered guard replacement	SSG
KFD0-CS-EX1.50P galvanic isolator (for Easidew PRO I.S. - Pepperl & Fuchs)	GI-PF-01
SS sample block (5/8" UNF thread with 1/8" NPT ports)	CSB
3/4"-16 UNF to 5/8" UNF male adapter, SS (Panametrics thread)	APT-PAN
G 1/2" to 5/8" UNF male adapter, SS (E&H or GEI thread)	APT-GEI
1/2" BSP to 5/8" UNF thread adapter	APT-BSP
Easidew communications kit	EA2-CK
Adapter for EA2-CK for use with Easidew PRO I.S.	EPR-CK-ADT
Easidew Sampler (see Accessories Section for details)	EA2-SAM
10 pk particulate filter cartridges (for SS filter unit (9996061))	SSF-PF-10PK

Dimensions



Ordering Codes

To construct the order code, select the relevant feature from the tables below, starting with the base model, which is {Feature A} and then add on options to create a string: {Feature A}+{Feature B}+{Feature C}

Order example: EPR-IS+0/2P-500PG

Easidew PRO I.S. Transmitter, ATEX Certified, 2-wire, ATEX certified, with 0 - 2 ppm_v output range at 500 psig

EPR-IS		0/2P-500PG		EPR-LQ-IS		0/3000		01			
Base Model - for measurements in gas {Feature A}				Base Model - for measurements in liquids {Feature A}							
Easidew PRO I.S. Transmitter, ATEX certified with sintered guard				EPR-IS		Easidew PRO I.S. Transmitter, ATEX certified with sintered guard					
Range {Feature B}				Range {Feature B}							
-100 to +20°C (-148 to +68°F) dp range				100		0-3000 ppm _w (standard)		0/3000			
Non-standard measurement range: v = zero value, w = full scale value, x = unit (C = °Cdp, F = °Fdp, P = ppm _v) y = Pressure for ppm _v conversion in barg/psig, z = pressure unit (PG=psig, PA=psia, BG=barg, BA=bara) blank = 0 barg/0 psig				v/wx-yz		Programmed user-supplied range (y = ppm _w zero value, z = ppm _w full scale value)		y/z			
Liquid {Feature C}				Liquid {Feature C}							
Programmed user-supplied CS values		00		Butane		06					
Methane		01		Isobutane		07					
Propane		02		Pentane		08					
Ethane		03		1-Butene		09					
Propylene		04		Cyclopentane		10					
Ethylene		05									