

# Pura

## Trace Moisture

### 2-Wire / 3-Wire / Digital Transmitter

### User's Manual



Please fill out the form(s) below for each instrument that has been purchased.

Use this information when contacting Michell Instruments for service purposes.

Transmitter	
Code	
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	



## Pura 2-Wire / 3-Wire / Digital Transmitter

For Michell Instruments' contact information please go to  
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## Contents

Safety .....	vi
Electrical Safety .....	vi
UL Approval.....	vi
Pressure Safety.....	vi
Toxic Materials .....	vi
Repair and Maintenance .....	vi
Calibration .....	vi
Safety Conformity .....	vi
Abbreviations.....	vii
Warnings.....	vii
1 INTRODUCTION .....	1
1.1 Features .....	1
2 INSTALLATION .....	2
2.1 Unpacking the Instrument.....	2
2.2 Unpacking the Pura SEN .....	3
2.2.1 Unpacking Pura OEM-single bag, PREMIUM (PRM)-double bag versions .....	3
2.3 Pura SEN .....	4
2.4 Pura OEM, PRM .....	4
2.5 Preparation of the Transmitter Cable.....	5
2.6 Transmitter Mounting.....	6
2.6.1 Pura SEN - Sample Block (Optional) .....	6
2.6.2 Pura OEM & PRM Connection .....	8
2.6.3 Pura SEN - Direct Pipeline Connection.....	9
2.6.4 Transmitter Cable Connection.....	10
3 OPERATION .....	11
4 MAINTENANCE.....	12
5 FAULT CONDITIONS .....	13

## **Figures**

Figure 1	Transmitter Unpacking Method .....	3
Figure 2	Unpacking - Pura OEM & PREMIUM (PRM) - Single / Double Bag .....	3
Figure 3	Pura SEN .....	4
Figure 4	Pura OEM, PRM .....	4
Figure 5	Connector Terminal Block Removal .....	5
Figure 6	Rear of Connector Terminal Block - 2-wire .....	5
Figure 7	Electrical Connections - 2-wire .....	5
Figure 8	Rear of Connector Terminal Block - 3-wire .....	6
Figure 9	Rear of Connector Terminal Block - 4-wire .....	6
Figure 10	Sensor Block Connection .....	7
Figure 11	Inlet/Outlet Identification .....	8
Figure 12	Transmitter Mounting - Pipe or Duct .....	9
Figure 13	Connector Installation .....	10
Figure 14	Installation Location .....	11
Figure 15	Indication of Dead Space .....	11
Figure 16	SEN Dimensional Drawing .....	16
Figure 17	OEM & PRM Dimensional Drawing .....	16

## **Appendices**

Appendix A	Technical Specifications .....	15
	A.1 Dimensional Drawings .....	16
Appendix B	EU Declaration of Conformity .....	18
Appendix C	Quality, Recycling & Warranty Information .....	20
	C.1 Pressure Equipment Directive (PED) 97/23/EC .....	20
	C.2 Recycling Policy .....	20
	C.3 WEEE Compliance .....	20
	C.4 RoHS2 Compliance .....	21
	C.5 Warranty .....	21
	C.6 REACH Compliance .....	22
	C.7 Calibration Facilities .....	22
	C.8 Return Policy .....	23
	C.9 Manufacturing Quality .....	23
Appendix D	Return Document & Decontamination Declaration .....	25

## 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.

## UL Approval (2-wire version ONLY)

This product (2-wire version only) is UL approved within the operating temperature range of -20°C to +60°C. The IP66 rating of this product is outside the scope of UL Approval, but this product has been verified as being IP66 by independent, UKAS accredited, 3rd party listing.

## Pressure Safety

DO NOT permit pressures greater than the safe working pressure to be applied to the instrument. The specified safe working pressure is 24 MPa (240 barg / 3480 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. For Michell Instruments' contact information please go to [www.michell.com](http://www.michell.com).

## Calibration

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

Michell Instruments can offer a variety of re-calibration and exchange transmitter schemes to suit your specific needs. Your local representative will be pleased to provide detailed, custom advice.

## 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:

barg	bar gauge
°C	degrees Celsius
°F	degrees Fahrenheit
dp	dew point
DC	direct current
fps	feet per second
µm	micro-meter
NI/min	normal liters per minute
mA	milliampere
Mpa	megapascal
m/sec	meters per second
Nm	Newton meter
psig	pounds per square inch
ppm <sub>v</sub>	parts per million by volume
RH	relative humidity
scfh	standard cubic feet per hour
V	volts
Ω	ohms

## 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 Pura Series of transmitters has been manufactured, tested and calibrated to the highest available standards and should arrive in perfect working order, ready for installation into a gas measurement application.

If there are any questions about the transmitter or how to install it, not detailed in this Manual, contact your local representative. Refer to [www.michell.com](http://www.michell.com) for details of Michell Instruments' worldwide offices' contact information.

### 1.1 Features

The Pura Series are a continuous, on-line, 4-20 mA/digital transmitter family for the measurement of moisture content in air and other non-corrosive gases.

Their key features are:

- Accuracy  $\pm 1^{\circ}\text{C dp}$
- $0.5^{\circ}\text{Cdp}$  ( $0.9^{\circ}\text{Fdp}$ ) repeatability
- 2-wire connection - linear 4–20 mA signal
- 3-wire connection - linear 4-20 mA signal
- Digital transmitter - 4-wire connection - digital string signal (**NOTE: only works with the Pura AOL monitor**)
- Operating pressure range - up to 24 MPa (240 barg / 3480 psig)
- Operating range - 120 to  $-40^{\circ}\text{Cdp}$  ( $-184$  to  $-40^{\circ}\text{Fdp}$ )
- Moisture content  $\text{ppm}_v$  (2-wire)
- Powered by any DC source from 12 to 28 V



## 2 INSTALLATION

### 2.1 Unpacking the Instrument

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

	Pura SEN (transmitter, no block version)		
	2-wire	3-wire	Digital Transmitter
Calibration Certificate	✓	✓	✓
Transmitter Connector	✓	✓	✓
Connector Gasket	✓ Round	✓ Square	✓ Square
97070 User's Manual	✓	✓	✓
Leak Test Certificate	✗	✗	✗
VCR Seal (for sample block)	✓	✓	✓

	Pura OEM / Pura PREMIUM (PRM)		
	2-wire	3-wire	Digital Transmitter
Calibration Certificate	✓	✓	✓
Transmitter Connector	✓ Already Fitted	✓ Already Fitted	✓ Already Fitted
Connector Gasket	✓ Round	✓ Square	✓ Square
97070 User's Manual	✓	✓	✓
Leak Test Certificate	✓	✓	✓

**NOTE:** If any component is not present in the packing box, contact Michell Instruments immediately.

**NOTE:** Packing tube and foam protectors are not needed for operation. Save all the packing materials for the purpose of returning the instrument for re-calibration or any warranty claims.

## 2.2 Unpacking the Pura SEN

Unpack the dew-point transmitter packing tube as follows (see *Figure 1*).

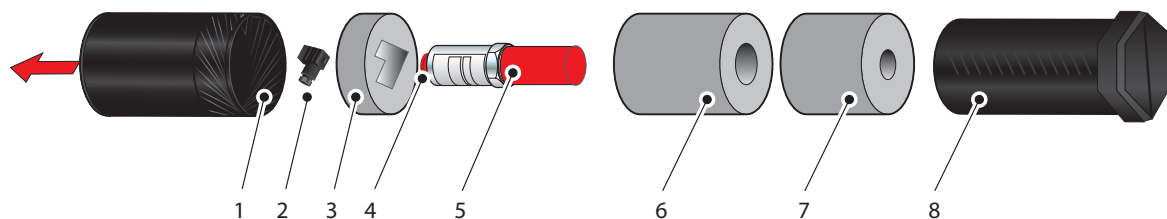


Figure 1 *Transmitter Unpacking Method*

1. Unscrew the cap (1) from the packing tube (8).
2. Remove the foam block (3) containing the connector (2).
3. Pull out the transmitter (5) from the tube, complete with the two foam covers (6) and (7), the red protective cap (4) and the connector gasket (3-wire or digital sensor only).
4. Remove the foam covers from the transmitter but leave the red plastic protective cover (5), the red cap (4) and the connector gasket in place until ready for installation.

**NOTE:** The transmitter sensing element is protected while in transit by a red cover containing a small desiccant capsule. The connection pins are protected by a red plastic cap. None of these plastic items are required for the operation of the transmitter.

**NOTE:** Keep the connector (2) in a safe place until the transmitter is ready for wiring.

### 2.2.1 Unpacking Pura OEM-single bag, PREMIUM (PRM)-double bag versions

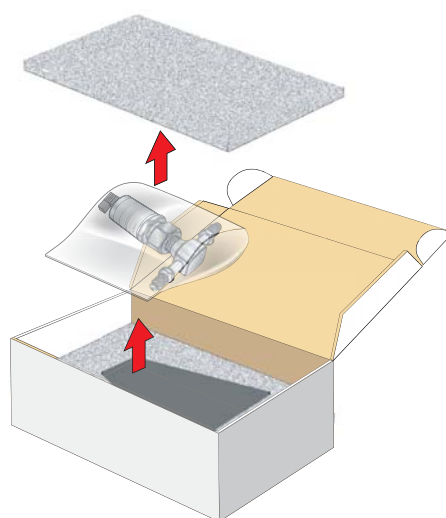


Figure 2 *Unpacking - Pura OEM & PREMIUM (PRM) - Single / Double Bag*

2.3 Pura SEN

NOTE: For environmental and operating conditions, refer to Appendix A, Technical Specifications.

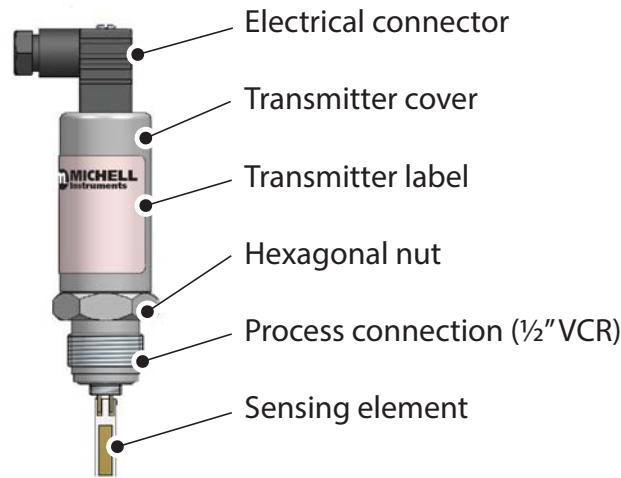
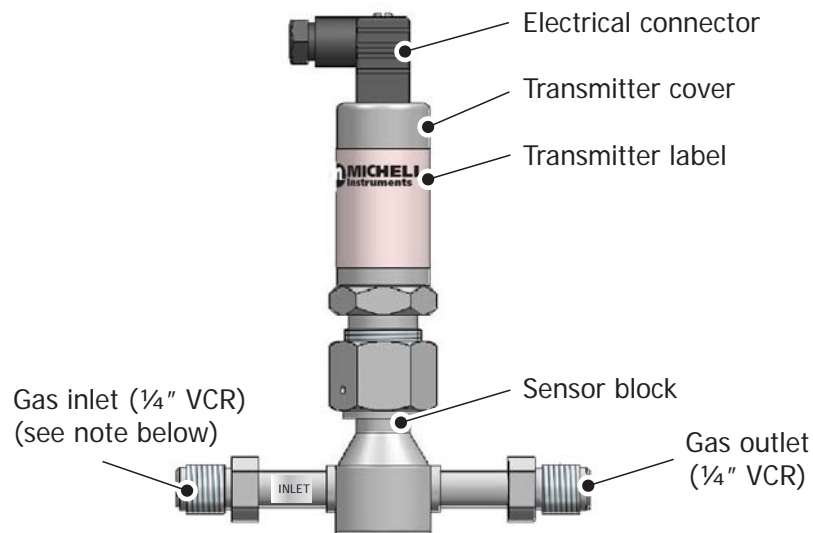


Figure 3 Pura SEN

2.4 Pura OEM, PRM

NOTE: For environmental and operating conditions refer to Appendix A, Technical Specifications.

NOTE: The OEM and PRM transmitters are protected in transit by putting in a plastic bag filled with nitrogen. The Pura OEM has single bag protection and the Pura PRM has double bag protection.



NOTE: The Pura has a uni-directional connection and must be connected so the upstream flow is connected to the inlet port of the Pura block (marked with a silver label).

Figure 4 Pura OEM, PRM

## 2.5 Preparation of the Transmitter Cable

The transmitter cable is NOT supplied as standard. A cable can be obtained by contacting your local distributor or Michell Instruments (see [www.michell.com](http://www.michell.com) for details).

Cable connection to the Pura transmitter is made via the removable connector. Removing the central screw enables the connector terminal block to be removed from the outer housing by using a small screwdriver to prise it clear.

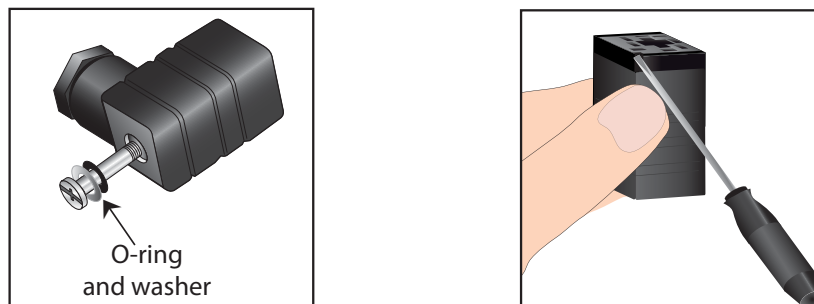


Figure 5 Connector Terminal Block Removal



**Caution:** When removing the central screw ensure that the small sealing O-ring and the washer are retained on the screw and are present during re-installation.

For the transmitter to work properly, and to achieve maximum performance, the transmitter cable must be connected to the transmitter connector as shown in the drawings below:

### 2-wire

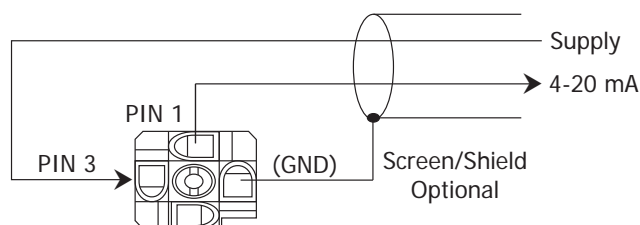


Figure 6 Rear of Connector Terminal Block - 2-wire



**Always connect the 4-20 mA return signal to a suitable load before the power is applied. Without this connection the sensor may be damaged if allowed to operate for prolonged periods.**

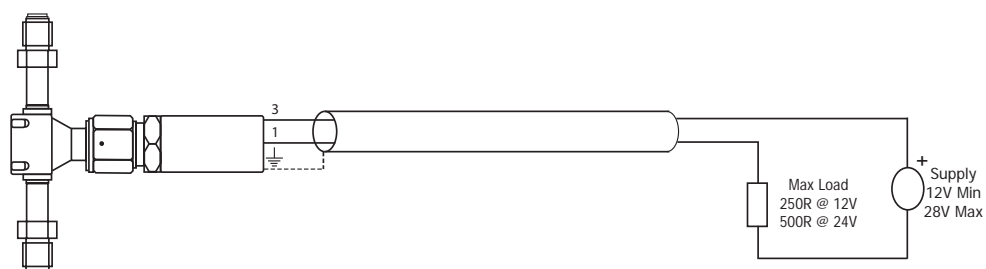


Figure 7 Electrical Connections - 2-wire

3-wire

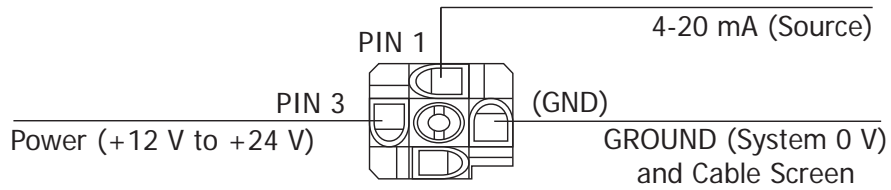


Figure 8 Rear of Connector Terminal Block - 3-wire

4-wire Digital String

**NOTE: Digital String will only work with Pura AOL Monitor**

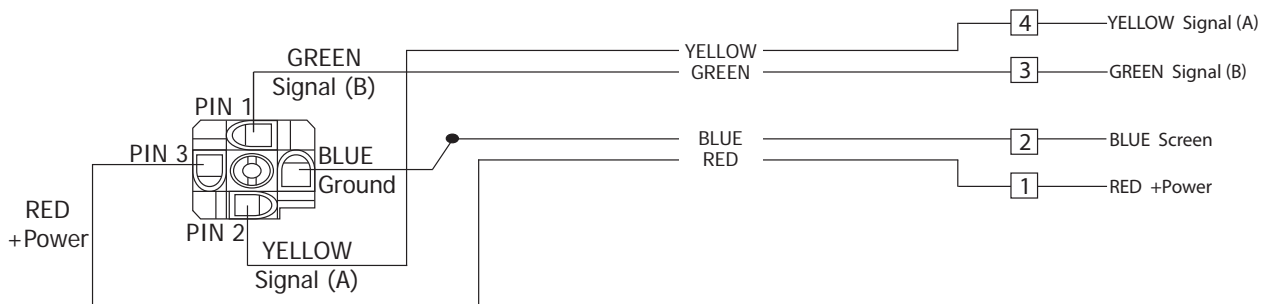


Figure 9 Rear of Connector Terminal Block - 4-wire

2.6 Transmitter Mounting

2.6.1 Pura SEN - Sample Block (Optional)

Prior to installation of the transmitter, unscrew and remove the red plastic cover and HDPE guard and retain for future use. Take care to prevent any contamination of the transmitter before installation - **handle the transmitter by the main body only, avoiding contact with the sensor guard.**

The recommended gas 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, gas flow should be from static to 10 m/sec (32.8 fps).



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 (see *Figure 10*) :

1. Remove the red protective cover (2) from the tip of the transmitter (1).
2. Fit the ½" VCR gasket (3) over the threaded part of the transmitter body.



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

3. Screw the transmitter (1) into the sensor block (4) and, holding the Pura transmitter stationary with a spanner/wrench, tighten the gas line nut 1/8 of a turn using a second spanner/wrench. **NOTE: Use the flats of the hexagonal nut and not the transmitter body.**
4. Fit the transmitter cable/connector assembly to the plug located on the base of the transmitter and tighten the fixing screw (see *Figure 5*).

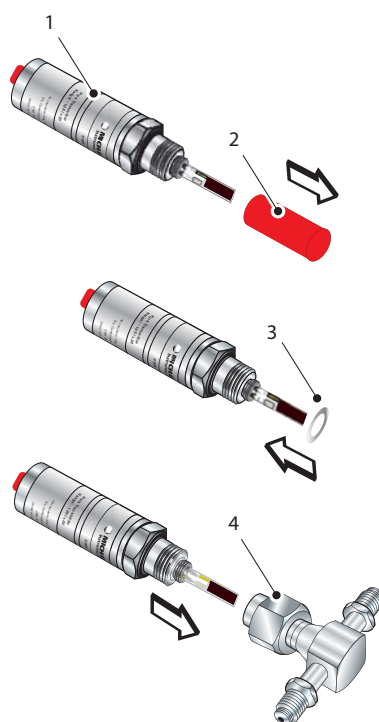


Figure 10 *Sensor Block Connection*

### 2.6.2 Pura OEM & PRM Connection

The Pura OEM and PRM have been assembled and packaged within a Class 100 clean-room environment. To maintain this level of cleanliness the packaging should only be opened within the same, or cleaner, environment.

Michell Instruments recommends the use of Swagelok® retained gasket assemblies, containing silver plated, stainless steel ¼" VCR gaskets, when connecting the Pura into a gas line. The distance between the inlet and outlet gas connection ports is set at a pitch of 120mm (4.7").

1. Install the sealing gasket onto the VCR connections on either the Pura or the connecting gas lines. Ensure that the Pura is offered into the gas line with reference to the gas flow direction and the inlet port, as indicated on the Pura body.

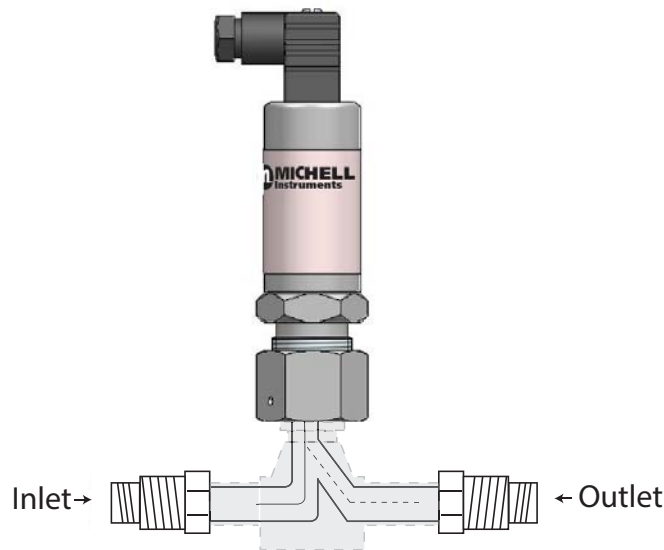


Figure 11 *Inlet/Outlet Identification*



**NOTE:** In order to identify the Inlet and Outlet without dismantling the instrument it is necessary to look through the Inlet/Outlet holes. Looking through the INLET hole a shiny end can be seen, looking through the OUTLET hole an elongated shape can be seen.

2. Tighten the female nut firmly, finger tight.
3. Hold the Pura transmitter stationary with a spanner/wrench and tighten the gas line nut 1/8 of a turn using a second spanner/wrench.
4. Repeat this operation on the remaining gas connection port.



**CAUTION:** Over-tightening the nuts can cause irrecoverable damage to the seals and seatings.

### 2.6.3 Pura SEN - Direct Pipeline Connection

The transmitter may be directly mounted into a pipe or duct.



**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 1/2" VCR male process connection thread to match the transmitter body thread. Fixing dimensions are shown in *Figure 12*. 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.

#### Procedure



**The following procedure must be carried out by competent personnel.**

1. Ensure that the red protective cover has been removed from the tip of the transmitter.



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

2. After first checking that the pipeline has a wide enough bore to accept the transmitter's process connection, screw the transmitter into the pipe. Tighten enough to obtain a gas tight seal. (Torque will depend upon the pipeline material.)

Michell Instruments recommends the use of Swagelok® retained gasket assemblies, containing silver plated, stainless steel 1/2" VCR gaskets, when connecting the Pura into a gas line.

**NOTE: Do not overtighten or the thread on the pipework may be stripped.**

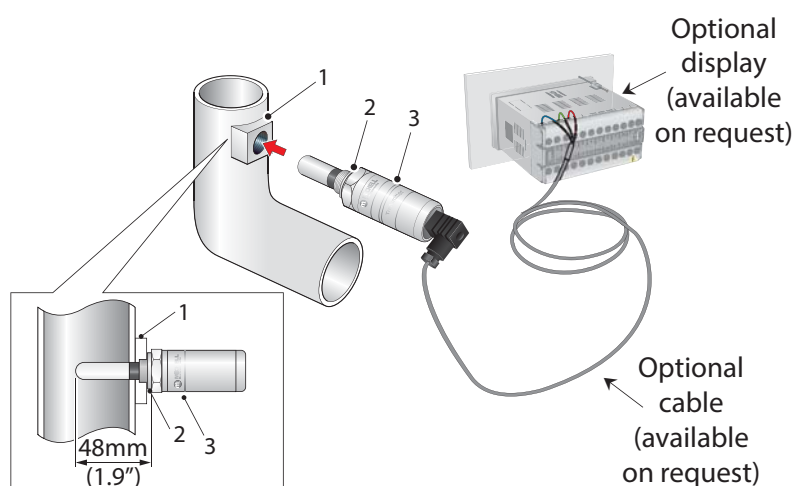


Figure 12 Transmitter Mounting - Pipe or Duct



### 2.6.4 Transmitter Cable Connection

When installing the connector, and to ensure that full ingress protection is achieved, the securing screw (with the O-ring and washer) must be tightened to a minimum torque setting of 3.4 Nm (2.5 ft-lbs). The transmitter cable used must be a minimum diameter of 4.6mm (0.2").

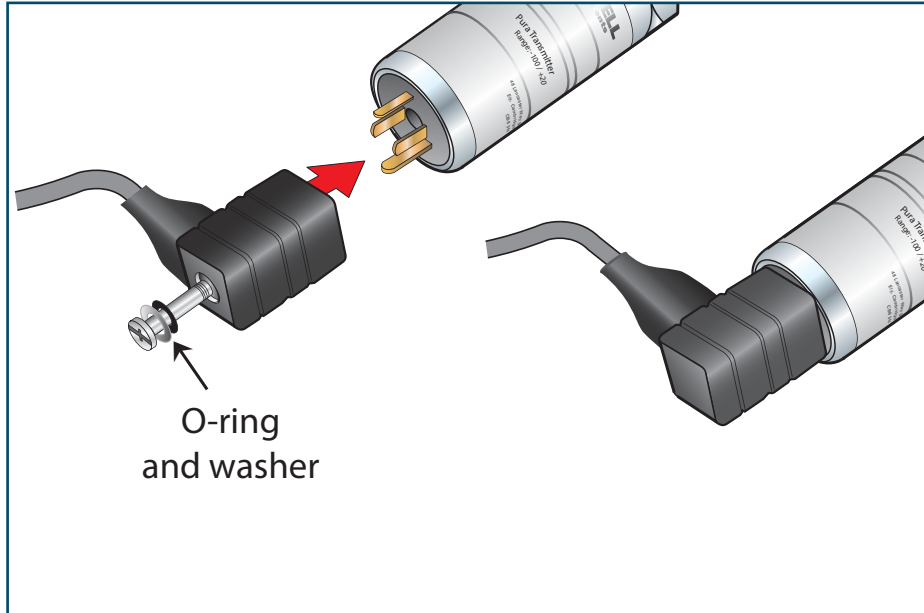


Figure 13 *Connector Installation*

### 3 OPERATION

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

#### 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 as entrained liquids may be drawn into the sensing element.

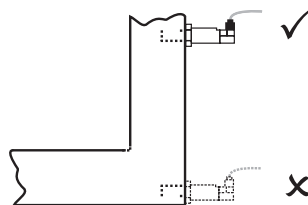


Figure 14 *Installation Location*

##### 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.

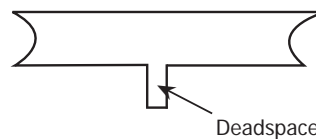


Figure 15 *Indication of Dead Space*

##### 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](http://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 Pura is confined to regular re-calibration by exposure of the Pura to sample gases of known moisture content to ensure that the stated accuracy of the Pura 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](http://www.michell.com)).

## 5 FAULT CONDITIONS

### 2-wire & 3-wire 4-20 mA Output Only

Message Displayed	Cause	Action
Current output is 0 mA constantly	Power failure	Check power supply to transmitter  Check transmitter cable for continuity/damage  Rectify/replace cable
	Instrument failure	Contact instrument supplier
Current output is 4 mA constantly	Transmitter desiccated	Check gas source supply
	Transmitter contaminated	Replace/re-calibrate transmitter
Current output is 20 mA constantly	Gas is wetter than -40°Cdp (-40°Fdp)	Check gas source supply
	Transmitter contaminated	Replace/re-calibrate transmitter
Current output is 23 mA constantly	Instrument failure	Contact instrument supplier

Digital String - See Pura AOL Manual

# Appendix A

## Technical Specifications

Appendix A Technical Specifications

Performance Specifications		
	Pura 2-Wire	Pura 3-Wire / Digital Transmitter
Measurement Range (dp)	-120 to -40°C (-184 to -40°F) dew point	
Accuracy (dp)	±1°C from -40 to -60°C (-40 to -76°F) ±2°C from -60 to -100°C (-76 to -148°F) ±4°C from -100 to -120°C (-148 to -184°F) (estimated)	
Repeatability	0.5°C (0.9°F) dew point	
Electrical Specifications		
Output Signal	4-20 mA, 2-wire connection, current source (user-configurable over range using communication kit and software)	<b>3-wire</b> 4-20 mA, 3-wire connection, current source (user-configurable over range using communication kit and software) <b>Digital Transmitter</b> , digital string (signal), 4-wire connection (user-configurable over range via monitor front panel)
Output	Dew point or moisture content for ppm <sub>v</sub>	Dew point
Output Range	-120 to -40°Cdp (-184 to -40°Fdp)	
Supply Voltage	12 to 28 V DC	
Load Resistance	Max 250 Ω @ 12 V (500 Ω @ 24 V)	Max 300 Ω @ 12 V (900 Ω @ 24 V)
Current Consumption	23 mA	
Supply Voltage Influence	±0.005% RH/V	
Operating Specifications		
Operating Humidity	0 -100% RH	
Operating Temperature	-40 to +60°C (-40 to +140°F)	
Operating Pressure	24 MPa (240 barg / 3480 psig)	
Flow Rate	1 to 10 NI/min (2.1 to 21.2 scfh) (5 NI/min (10.6 scfh) optimum)	
Mechanical Specifications		
Ingress Protection	IP66 in accordance with standard BS EN 60529:1992 NEMA 4 in protection accordance with standard NEMA 250-2003	
Housing Material	Stainless steel	
Mounting Thread	¼" male VCR gas in/out connections ½" male VCR sensor connection	
Weight	<b>PRM and OEM versions:</b> 450g (15.87oz) <b>Pura SEN version:</b> 180g (6.34oz)	
Interchangeability	Fully interchangeable transmitter (of same type only - i.e. 2-wire with 2-wire)	
Electrical Connections	Screw terminal	
Fault Conditions (factory programmed)	<b>Condition</b> Sensor fault Under-range dew point Over-range dew point	<b>Output</b> 23 mA 4 mA 20 mA

A.1 Dimensional Drawings

Pura Transmitter (SEN)

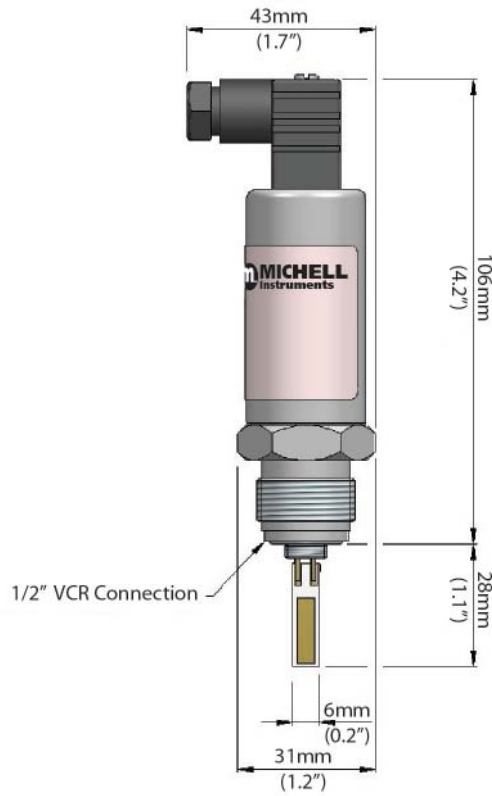


Figure 16 SEN Dimensional Drawing

Pura OEM & Pura Premium (PRM)

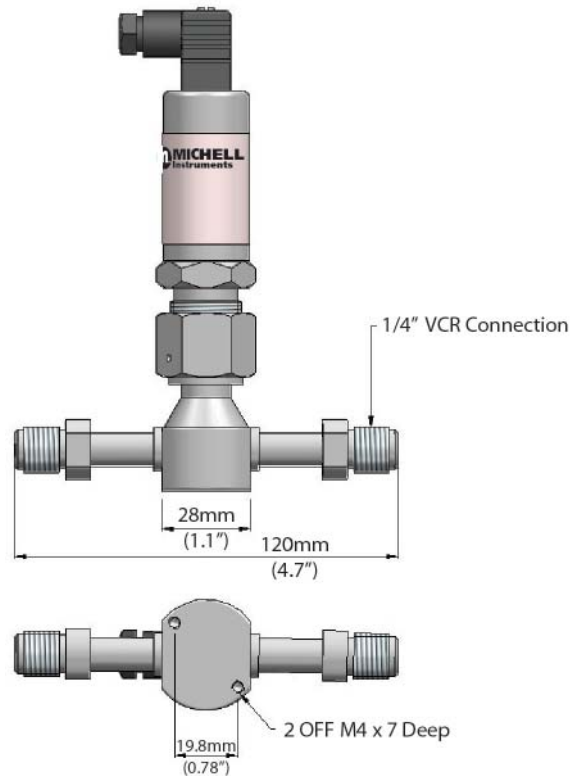


Figure 17 OEM & PRM Dimensional Drawing

# Appendix B

## EC Declaration of Conformity



## Appendix B EU Declaration of Conformity

## EU Declaration of Conformity



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



On behalf of the above named company, I declare that, on the date that the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the directives.

### PURA Premium, PURA OEM and PURA Transmitter

and complies with all the essential requirements of the EU directives listed below.

**2004/108/EC EMC Directive**  
 and (effective from 20<sup>th</sup> April 2016)  
**2014/30/EU EMC Directive**

(effective from 22<sup>nd</sup> July 2017)

**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*". (mandatory compliance effective date 22<sup>nd</sup> July 2017).

and has been designed to be in conformance with the relevant sections of the following standards or other normative documents.

EN61326-1:1997	Electrical equipment for measurement, control and laboratory use – EMC requirements –Class B (emissions) and Industrial Locations (immunity).
EN61010-1:2010	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements

Andrew M.V. Stokes, Technical Director

April 2016

EUD PURA Issue 02

# Appendix C

## Quality, Recycling & Warranty Information

## Appendix C Quality, Recycling & Warranty Information

### C.1 Pressure Equipment Directive (PED) 97/23/EC

The above Directive has been implemented in United Kingdom Law by the Pressure Equipment Regulations 1999.

The Regulations require that all pressure equipment and assemblies within the scope of the Pressure Equipment Directive must be safe when placed on the market or put into service.

Michell Instruments' products have been assessed and, as referenced against the Classification Charts detailed in Annex II of the Directive, do not fall into the requirements for CE marking compliance with the Pressure Equipment Directive.

Article 3, paragraph 3 states that any product containing a pressurized fluid that does not qualify for compliance should, nevertheless, be constructed with Sound Engineering Practice (SEP).

Michell Instruments attests here that its products have been designed, manufactured & tested to assure safe operation, and in accordance with Sound Engineering Practices.

### C.2 Recycling Policy



Michell Instruments is concerned with the protection of the environment. It is our commitment to reduce and eliminate from our operations, wherever possible, the use of substances which may be harmful to the environment. Similarly, we are increasingly using recyclable and/or recycled material in our business and products wherever it is practical to do so.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle responsibly. If batteries are not properly disposed of, these substances can cause harm to human health and the environment.

The product that you have purchased may contain recyclable and/or recycled parts and we will be happy to provide you with information on these components if required. For further information please see the following sections.

### C.3 WEEE Compliance

#### Directive 2012/19/EU 4 July 2012 on Waste Electronic and Electrical Equipment (WEEE)

The Waste Electronic and Electrical Equipment (WEEE) Directive places rules upon European manufacturers of electrical and electronic equipment. The directives' aim is to reduce the impact that electronic devices have on the environment.

Michell Instruments is in full compliance with the WEEE Directive and is registered with an approved recycler (Registration No. WEE/JB0235YW) and treats the requirement of the directive and the protection of the environment with the utmost importance. All Michell Instruments' products are appropriately marked indicating their requirement for recycling.

It may be required to return certain instruments for treatment at the end of their working life.

Feb 2013

## C.4 RoHS2 Compliance

### Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011

The Restriction of Hazardous Substances (RoHS) Directive places rules upon European manufacturers of electrical and electronic equipment. The directives' aim is to reduce the impact that electronic devices have on the environment.

According to the EC Directive 2002/95/EC, Michell Instruments' products qualify as Category 9, Control and Monitoring Equipment. Under the 2002/95/EC Directive, Category 9 products are exempt from compliance with the Directive.

However, the careful design of all Michell Instruments' products takes into consideration the requirements of the Directive and, wherever possible, compliance is achieved. All future products will be developed entirely using compliant materials. Furthermore, Michell Instruments is taking active steps to remove non-compliant materials and components from existing products wherever these may occur. Presently, none of the non-compliant materials are known to occur in Michell Instruments' products.

The new Directive 2011/65/EU (RoHS2) entered into force on 21 July 2011 and required all Member States to transpose the provisions into their respective national laws by 2 January 2013.

Under the provisions of the RoHS2 EU Directive 2011/65/EU (Article 3, [24]) defines 'Control and Monitoring Equipment' specifically as 'monitoring and control instruments designed exclusively for industrial or professional use'.

RoHS2 EU Directive 2011/65/EU states the closing date for compliance of any Control and Monitoring Equipment product sold into the EU market place as 22nd July 2017.

However, the careful design policy of all Michell Instruments' products continues to attain compliance in the shortest practical timescales and strives to ensure that less than 0.1% of total mass per product, of all non-compliant materials, appear within them. Michell Instruments continues to monitor suppliers and material sources to ensure that compliance of goods provided is maintained.

January 2013

## C.5 Warranty

Unless otherwise agreed, the Supplier warrants that, as from the date of delivery for a period of 12 months, the goods and all their component parts, where applicable, are free from any defects in design, workmanship, construction or materials.

The Supplier warrants that the services undertaken shall be performed using reasonable skill and care, and be of a quality conforming to generally accepted industry standards and practices.

Except as expressly stated, all warranties whether express or implied, by operation of law or otherwise, are hereby excluded in relation to the goods and services to be provided by the Supplier.

All warranty services are provided on a return to base basis. Any transportation costs for the return of a warranty claim shall reside with the Customer.

## C.6 REACH Compliance

Regulation (EC) No. 1907/2006

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Michell Instruments is a manufacturer of moisture measurement and gas analysis instrumentation and is a 'downstream' user of chemicals, as described by the EU Council Directive 76/769/EEC. The products we supply are not raw chemical products (goods).

Under normal and reasonably foreseeable circumstances of application, the goods supplied to you shall not contain or release any prohibited chemicals. No listed SVHC (Substances of Very High Concern) appear within products manufactured by Michell Instruments. Therefore the 0.1% mass per product, or total usage of 1 tonne/year, will never be exceeded. For these reasons we are neither required by obligation for registration nor for the creation of material safety data sheets (MSDS) for our products.

Our continued review of the SVHC Candidate List and latest additions is to ensure we remain compliant.

Michell Instruments maintains a hazardous material register in which MSDS data sheets are collated, and we will check that our suppliers will comply to REACH requirements for all materials and substances we use in the processes of our manufacturing.

In the unlikely event that any chemicals of concern appear in our products in quantities greater than 0.1% of total mass per product we will immediately inform you by correspondence according to the REACH Article 33 requirements. Our current appraisal is, however, that we do not expect or foresee such an incidence.

January 2013

## C.7 Calibration Facilities

Michell Instruments' calibration facilities are among the most sophisticated in the world and have been recognized for their excellence.

Traceability to the National Physical Laboratory (NPL) UK is achieved through our UKAS Accreditation (Number 0179). This covers dew point over the range -90 to +90°C (-130 to +194°F) and also Relative Humidity.

Dew-point calibrations are also traceable to the National Institute for Standards & Technology (NIST) USA over the range -75 to +20°C (-103 to +68°F).

**NOTE: Standard traceable calibration certificates for instruments and sensors are not issued under our UKAS accreditation. UKAS certificates are usually to special order and are clearly identified.**

## C.8 Return Policy

If a Michell Instruments' product malfunctions within the warranty period, the following procedure must be completed:

1. Notify a Michell Instruments' distributor, giving full details of the problem, the model variant and the serial number of the product.
2. If the nature of the problem indicates the need for factory service then the instrument should be returned to Michell Instruments, carriage prepaid, preferably in the original packaging, with a full description of the fault and the customer contact information.
3. Upon receipt, Michell Instruments will evaluate the product to determine the cause of the malfunction. Then, one of the following courses of action will be taken:
  - If the fault is covered under the terms of the warranty, the instrument will be repaired at no cost to the owner and returned.
  - If Michell Instruments determines that the fault is not covered under the terms of the warranty, or if the warranty has expired, an estimate for the cost of the repairs, at standard rates, will be provided. Upon receipt of the owner's approval to proceed, the product will be repaired and returned.

## C.9 Manufacturing Quality

Michell Instruments is registered with the British Standards Institute for Quality Assurance to:

BS EN ISO 9001: 2008

Rigorous procedures are performed at every stage of production to ensure that the materials of construction, manufacturing, calibration and final test procedures meet the requirements laid down by our BSI approved Quality System.

Please contact Michell Instruments ([www.michell.com](http://www.michell.com)) if the product does not arrive in perfect working order.

# Appendix D

## Return Document & Decontamination Declaration

Appendix D 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. <b>Work will not be carried out on any unit that does not have a completed decontamination declaration.</b>				
<b>Decontamination Declaration</b>				
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	





**NOTES:**

**NOTES:**

**NOTES:**



<http://www.michell.com>