MICHELL Instruments

Condumax II

Hydrocarbon & Water Dew-Point Analyzer

Transportable Sampling System

User's Manual

97438 Issue 1.3
March 2016

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

Use this information when contacting Michell Instruments for service purposes.

Instrument	
Code	
Serial Number	
Invoice Date	
Location of Instrument	
Tag No	

Instrument	
Code	
Serial Number	
Invoice Date	
Location of Instrument	
Tag No	

Instrument	
Code	
Serial Number	
Invoice Date	
Location of Instrument	
Tag No	

Condumax II Transportable Hydrocarbon & Water Dew-Point Analyzer Sampling System

For Michell Instruments' contact information please go to www.michell.com

Contents

Figures

Appendices

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.

Electrical Safety

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

Pressure Safety

DO NOT permit pressures greater than the safe working pressure to be applied to the instrument. Refer to Appendix A, Technical Specifications, for pressure information.

Toxic Materials

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

Repair and Maintenance

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

Calibration

The recommended calibration interval for the Condumax II Transportable is one year, unless it is to be used in a mission-critical application or in a dirty or contaminated environment in which case the calibration interval should be reduced accordingly. The instrument should be returned to the manufacturer, Michell Instruments, or one of their accredited service agents for re-calibration (go to www.michell.com for contact information).

Safety Conformity

This product meets the essential protection requirements of the relevant EU directives.

Abbreviations

The following abbreviations are used in this manual:

AC	alternating current
atm	pressure unit (atmosphere)
barg	pressure unit (=100 kP or 0.987 atm) (gauge)
°C	degrees Celsius
°F	degrees Fahrenheit
EU	European Union
HCdp	hydrocarbon dew point
Hz	Hertz
lbs	pounds
kg	kilograms
mm	millimeter
Nm^3/h	normal cubic meters per hour
psig	pound(s) per square inch (gauge)
scfh	standard cubic feet per hour
V	Volts
"	inches
%	percentage

Warnings

The following general warnings listed below are applicable to this instrument. They are 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.

Where this symbol appears in the following sections it is used to indicate areas of potential risk of electric shock.

1 INTRODUCTION

The Condumax II Transportable Hydrocarbon Dew-Point Analyzer Sampling System should be used in conjunction with the Condumax II Hydrocarbon Dew-Point Analyzer User's Manual.

The sampling system is in a custom designed, heavy duty, 316 stainless steel carry case. The case is fitted with six feet on the base (for transportation), and on the base edge (for upright analyzer system operation). It has six folding carry handles for ease of mobility by two persons and can be transported between sites using a vehicle.

It features a Condumax II hydrocarbon dew-point analyzer, installed into the sampling system for automatic measurements that can be taken under supervision by an operator. The analyzer should not be left alone for extended periods unattended. It is designed for operator monitored use only.

Warning!

This instrument can weigh up to 60kg (132lbs).

Manual lifting and handling should be done by two people observing appropriate precautions.

NOTE: During transportation, and when not in actual operation, the unit must be stored on its back (the six main feet opposite the lid face) and with the lid in place to prevent damage and contamination.

NOTE: When not in use, the sample hoses should be disconnected from their connections, and the dust protection caps should be replaced.

To assure correct measurement performance of this system in outdoor field use, the ambient air temperature must be at least 5°C above both the hydrocarbon dew-point temperature of the process gas sample at the cricondentherm condition, typically 27 barg (392 psig), and water dew point at full process line pressure.

The Condumax II Transportable Hydrocarbon Dew-Point Analyzer Sampling System is specifically designed for the measurement of hydrocarbon & water dew points in natural gas. It is a rudimentary sampling system suitable for spot check measurements under the supervision of an operator. The system is configured with the necessary pressure let-down and flow control required for measurement at pressure before finally venting to an atmospheric or a low pressure flare vent line system.

A fast loop bypass flow arrangement is included to reduce sample flow response / time lag and to enable the filter to be drained automatically of any potential hydrocarbon liquids and hydrates that may be formed.

The system is configured for connection directly to transmission pipeline natural gas at, typically, 70 barg (1015 psig) pressure (100 barg/ 1450 psig maximum). Sample gas pressure reduction is incorporated via an electrically heated regulator for analysis at intermediate pressure. It has an adjustment range up to 35 barg (500 psig) fitted with line pressure gauge, 100 barg/ 1450 psig scale (analysis pressure indicated by the Condumax II Main Unit).

Hydrocarbon dew-point analysis pressure is adjusted by a heated pressure regulator in the range up to 35 barg (500 psig), but it is typical for measurements to be made at the cricondentherm condition of 27 barg (400 psig), where the highest HC dew-point temperature will be detected on the retrograde phase envelope.

The water dew point is measured at full pipeline pressure, to determine the highest water dew point for the gas sample being analyzed.

The complete Condumax II Hydrocarbon Dew-Point Analyzer Sampling System can be located close to the gas sample take-off point in a potentially explosive environment - suitable for IEC Zone 1 or 2 hazardous area, NEC Class 1, Division 1, Groups B, C, D.

A set of 3 (2m each) hoses is provided to allow connection to the sample, exhaust and filter drain/bypass, via a ¼" NPT(M) fitting. Standard fitting assembly practices should be used. **NOTE: Sealing tape must be used to seal fitting to the sample tapping point.** The use of thread sealants is NOT recommended when making measurements with this type of dew-point analyzer, as contamination of the measurement instruments is likely to occur from sealant ingestion into the sampling system.

The sampling system is designed for temporary installation and should not be left unattended.

Operator attendance is required at all times. Prolonged periods of operator absence are not advised.

During operation the sampling system must be located in an environment with a temperature of at least +10°C (+18°F) above the highest envisaged dew-point temperature, both hydrocarbon at cricondentherm and water at line pressure.

It is not advised to operate the analyzer in excessive wind, rain and snow.

All sample gas wetted metallic parts are constructed from AISI 316L stainless steel with Viton soft parts that comply with the NACE standard ANSI/NACE-MR0175/ISO-15156 (latest edition). Tube fittings are twin ferrule compression type.

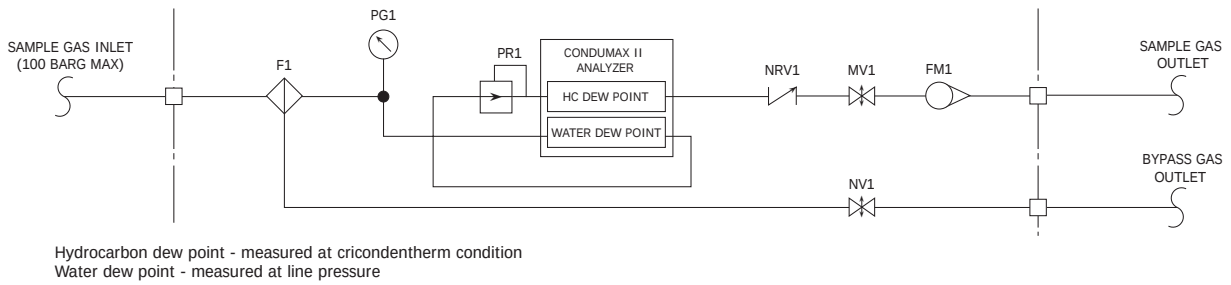


Figure 1 *Flow Schematic*

The gas handling components are as follows:

Coalescing Filter (**F1**)	Provides protection of the moisture sensor within the Condumax II instrument.
Pressure Gauge (**PG1**)	Provides indication of sample gas inlet pressure.
Pressure Regulator (**PR1**)	Allows the user to manually set the sample gas analysis pressure for hydrocarbon dew-point measurement.
Non-return valve (**NRV1**)	Provides system protection from back pressure of vent gas when sample gas is not flowing.
Metering Valve (**MV1**)	Allows the user to manually set the sample gas flow rate across the dew-point sensors.
Flowmeter (**FM1**)	Provides indication of the sample gas flow rate across the dew-point sensors.
Needle Valve (**NV1**)	Allows the user to manually control the bypass flow rate across the coalescing filter.

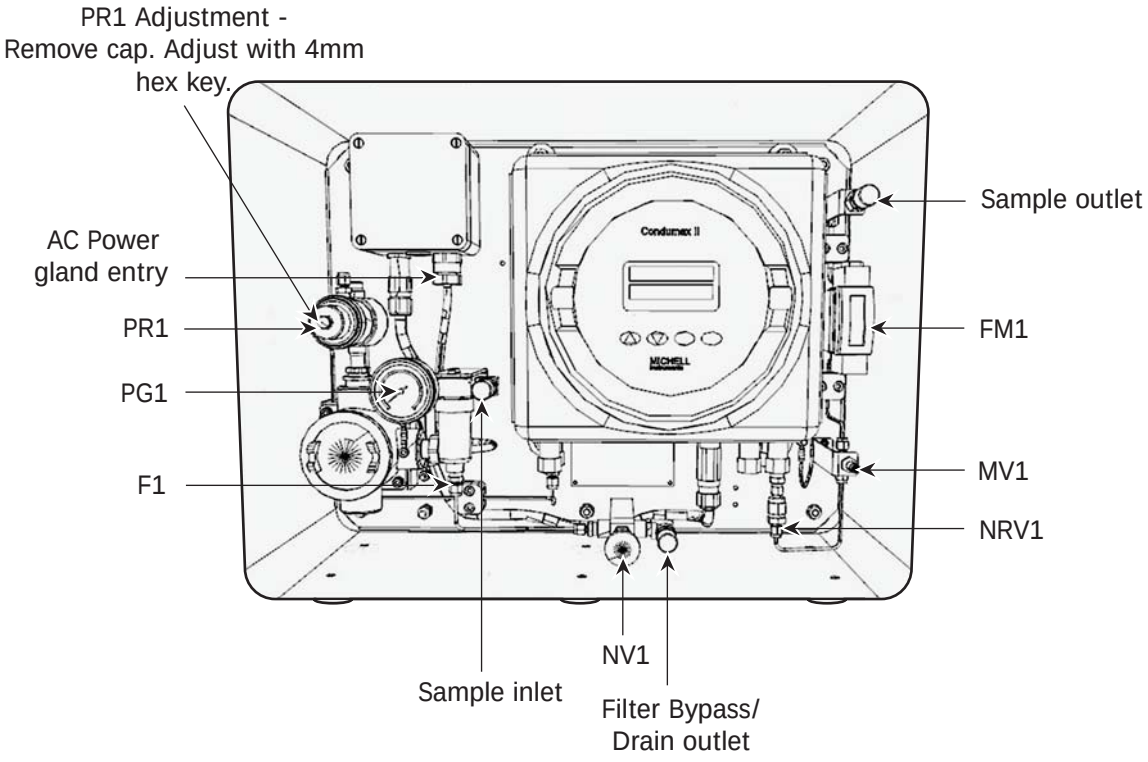


Figure 2 *Components*

2 INSTALLATION

The Sampling System should be transported in the horizontal position.

Before operation follow the procedure below:

1. Remove the lid of the case by undoing the 4 latch clips.
2. Bring the sampling system into the vertical position, as indicated on the label on the side of the case.
3. Make sample gas inlet, outlet and bypass connections using hoses provided (Minimess 1620 self sealing fittings with ¼" NPT connections). Maximum inlet pressure 100 barg (1450 psig).

Figure 3 *Hose Connection*

4. A single phase 240 or 110 V AC (check label on the **POWER CIRCUITS** junction box) mains power supply is required to operate the sampling system and analyzer. Make electrical connections to the **POWER CIRCUITS** junction box using suitable M20 cable glands.

   Terminals are marked:

   L - live, **N** - neutral, ⏚ - earth. Minimum cable requirements 3c x 0.75mm^2.

   NOTE: The user cannot change the specified power supply voltage.

2.1 Orientation for Transportation/Storage and Operation

The Condumax II Transportable must NOT be transported in the upright/vertical orientation as the shock absorbent design is only effective in the horizontal position.

Figure 4 *Horizontal Orientation for Transportation/Storage*

NOTE: Lid must be in place and clasps tightly shut

Figure 5 *Vertical Orientation for Operation*

3 OPERATION

Operation of the Sampling System should be carried out in conjunction with, and referring to, the Condumax II Dew-Point Hygrometer User's Manual.

Before commencing the start-up procedure ensure that the installation conforms to the correct hazardous area and local plant standards.

Before any gas pressure is applied, check that all valves and regulators are in the fully closed position.

WARNING

A mandatory purge procedure is stipulated as part of the certification of the Condumax II product.

This procedure must be completed before any power or signal connections are made to the Condumax II.

This procedure must also be carried out at any time following service or maintenance periods that cause any of the Condumax II or associated gas handling equipment sample lines to be disconnected.

It is not necessary to carry out this procedure if, during a shut down period, the sample lines have not been disconnected or if the power (electrical) connections only have been disconnected.

Before commencement of the start-up procedure ensure that the power connections to the Condumax II are fully isolated and, if necessary, observe the stipulated de-energization period of 45 minutes.

3.1 Sample Flow Start Up Procedure

1. Unscrew and remove the Condumax II flameproof enclosure cover after first loosening the hex grub screw.

2. The user interface/display assembly uses two ¼-turn bayonet style fasteners, (finger operated), to secure it - turn clockwise to lock, counter-clockwise to release. The display must be supported once it is removed from the fasteners. The right hand fastener can be positioned to the left hand mount, as shown below.

Figure 6 *Removal of Interface/Display*

3. Locate the solenoid valve and the manual override operating adjuster (brass screw handle) mounted on the base of the solenoid valve body.

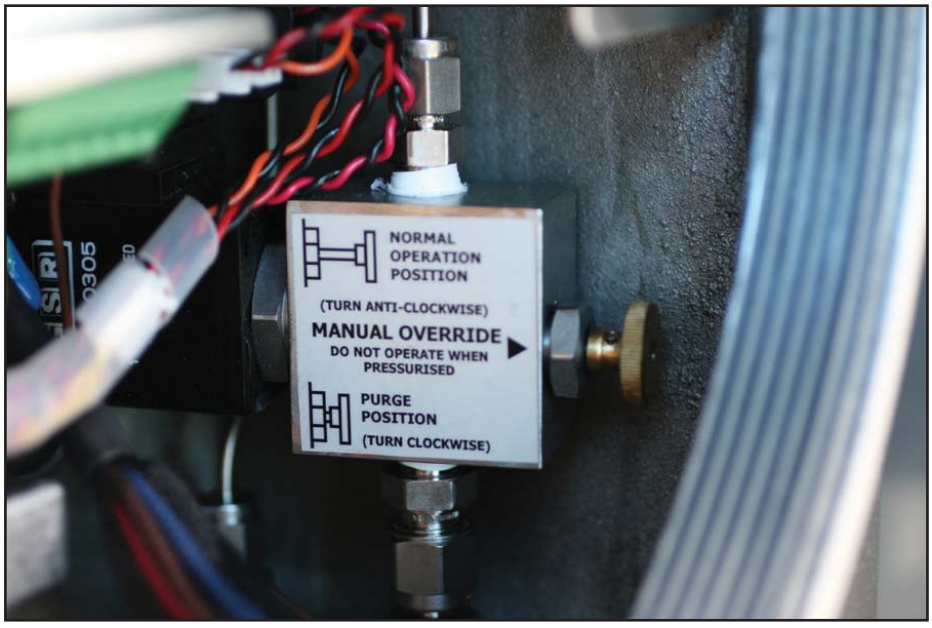


Figure 7 *Solenoid Valve Location*

4. Adjust the solenoid valve to the **PURGE POSITION** (fully screwed in clockwise) as shown on the label attached to the solenoid valve.

5. Allow the sample gas to enter the system.

6. Open the Bypass Needle Valve (**NV1**) one full turn.

7. Adjust the HCdp Flow Metering Valve (**MV1**) to indicate a sample gas flow rate of approximately 0.12m³/h (full-scale) on the HCdp Flowmeter (**FM1**).

8. Allow the sample gas to purge the system for a minimum of 3 minutes.

9. Re-adjust the solenoid valve to the **NORMAL OPERATING POSITION** (fully unscrewed counter-clockwise) as shown on the label attached to the solenoid valve.

10. Re-fit the Condumax II user interface/display assembly and flameproof enclosure cover. **NOTE: Make sure the hex grub screw is tightened to prevent inadvertent removal.**

11. After the flameproof enclosure cover has been refitted, the Condumax II is ready for power up. Apply the power supply to the system.

12. The HCdp Pressure Regulator (**PR1**) is used to set the HCdp gas analysis pressure. Pressure is indicated on the main display of the Condumax II. It is normal practice for an analysis pressure of 27 barg (391 psig) to be set for hydrocarbon dew point, as it is the recognized cricondentherm condition (pressure at which the highest hydrocarbon dew-point temperature will exist). To adjust the **PR1** - remove the cap to uncover the adjustment screw. Make the adjustment with a 4mm hex key.

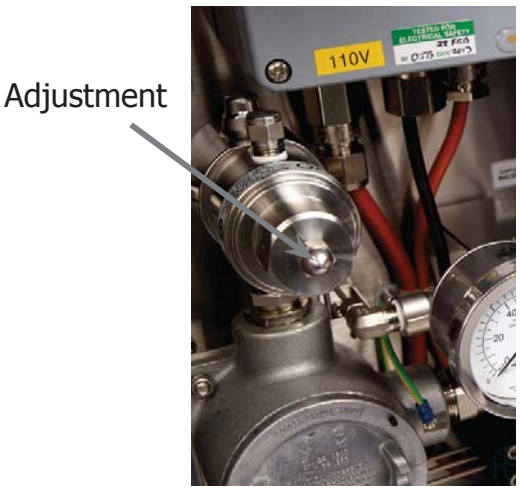
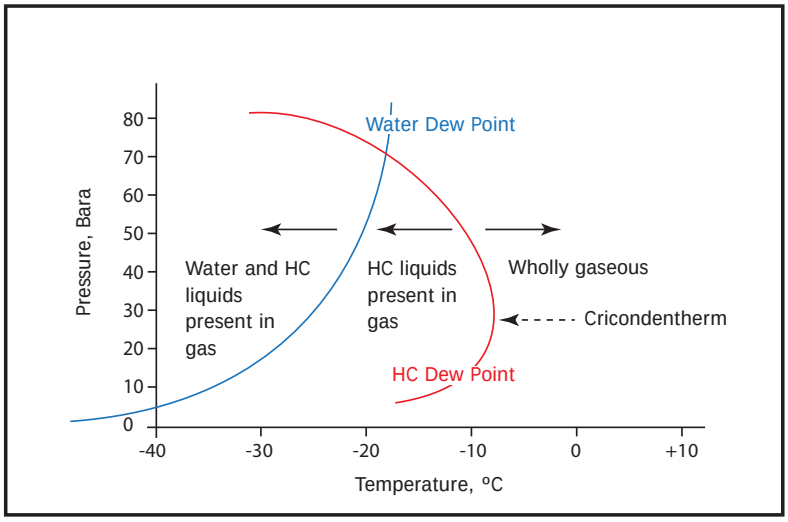


Figure 8 *PR1 Adjustment Point*

Water dew point is measured at the prevailing full line pressure, the condition at which the highest water dew point will exist.



13. Re-adjust the hydrocarbon & water dew-point sample gas flow rate to approximately 0.06Nm³/h (2.1scfh) using the Sample Flow Metering Valve (**MV1**) and allow the readings to stabilize - the readings from the first 2 or 3 HC dew-point measurement cycles should be disregarded.

3.2 Sample Flow Shut Down Procedure

WARNING

If accessing inside the Condumax II Exd housing for maintenance, a mandatory waiting period is stipulated as part of the certification of the Condumax II product.

After power down, a minimum period of 45 minutes must be observed before removing the cover of the Condumax II Exd housing.

1. Isolate the Sampling System from the sample gas supply line.
2. Allow a short time for the Sampling System to vent/depressurize before attempting to carry out any work on the system.
3. Isolate the Sampling System from the power supply.
4. If moving, transporting or storing the Condumax II, remove the sample hoses and refit the caps to the quick connect couplings. Note the orientation requirements in Section 2.1.

3.3 Pressure Regulator Temperature Control

This operation will expose electrical parts operating at high voltage. Therefore, power must be isolated from the supply for the Sampling System before making adjustments.

The heated pressure regulator contains an adjustment for the temperature control set-point (factory-set to approximately +24ºC (+75°F)). It may need adjustment to increase/decrease the heat requirements to the regulator dependent on the high/low inlet gas pressure.

To make an adjustment proceed as follows:

1. Unscrew and remove the cover of the junction box after first loosening the hex grub screw.
2. Adjust the heater output by turning the potentiometer - clockwise to increase and anti-clockwise to decrease.
3. The seven markings around the potentiometer equate to an approximate temperature value for the heater of:

   1 = +24ºC (+75°F) Recommended setting
   2 = +27ºC (+80°F) May be advised by Michell dependent upon application
   3 = +29ºC (+85°F) May be advised by Michell dependent upon application
   4 = +35ºC (+95°F) May be advised by Michell dependent upon application
   5 = +43ºC (+110°F) May be advised by Michell dependent upon application
   6 = +54ºC (+130°F) Should not be set
   7 = +79ºC (+175°F) Should not be set

4. Replace the junction box cover and tighten the hex grub screw.

4 MAINTENANCE

WARNING

This system operates under high pressure. Isolate power and sample gas and depressurize the Sampling System before attempting any maintenance or servicing.

Maintenance of the Condumax II Transportable Hydrocarbon Dew-Point Analyzer Sampling System should be carried out with reference to the Condumax II Hydrocarbon Dew-point Analyzer User's Manual.

Routine maintenance of the system is confined to filter element replacements.

Calibration requirements and methods of implementation are described in the Condumax II Hydrocarbon Dew-Point Analyzer User's Manual.

4.1 Filter Element Replacement

Life expectancy of the filter element is dependent upon operating conditions in each specific application. As a minimum, it is recommended that the filter element be cleaned or changed every 12 months. If inspection of the removed element shows that it is in good/poor condition after 12 months operation then the period between cleaning/ replacement may be reduced/increased accordingly.

To replace the filter element, proceed as follows:

1. Isolate the sampling system from sample gas supply.
2. Allow a short time for the Sampling System to vent/depressurize before attempting to carry out any work on the system.
3. Disconnect the tube from the drain port of the filter bowl by releasing the tube fitting nut. DO NOT undo/loosen the tube fitting body, i.e. threaded joint!
4. Unscrew and remove the filter bowl and then the filter element. **NOTE: the filter bowl is sealed with a Viton O-ring.**
5. Discard the old used filter element and replace with a new filter element (Michell item no. SSF-CF-LON-10PK).
6. Replace the filter bowl, ensuring the O-ring is correctly seated and reconnect the tube to the drain port. **Tighten securely**.
7. Resume operation in accordance with the Start-Up Procedure (Section 2.2).

Appendix A

Technical Specifications

Appendix A Technical Specifications

General Specifications	
Case	316 stainless steel
Case Dimensions	640 x 490 x 330mm (25 x 19.3 x 13")
Gas Connections	Minimess quick connect, 316 stainless steel braided Length - 3m each hose
Gas Flow Rate	0.06Nm³/h (2.1scfh)
Gas Pressure	100 barg (1450 psig) max
Filter	Coalescing, Borosilicate, glass-bonded micro-fibers bonded with Kynar fluorocarbon (PVDF) resin (99.5% removal of 0.1 micron particles and aerosols (BS4400)
Power Supply	110 V AC, 60Hz (CSA) OR 240 V AC, 50Hz (ATEX)
Gas Wetted Bore	PTFE, 2mm internal diameter
Process Connection	316 stainless steel, 1/4 NPT male
Power Consumption	< 300 W
Weight	60kg (132lbs) max

Appendix B

Hazardous Area Certification

Appendix B Hazardous Area Certification

The Condumax is certified compliant to the ATEX Directive (94/9/EC) and IECEx for use within Zone 1 and Zone 2 Hazardous Areas and has been assessed so by TRaC (Notified Body 0891).

The Condumax is certified compliant to North American Standards (USA and Canada) for use within Class I, Division 1, Groups B, C and D Hazardous Locations and has been assessed so by CSA.

B.1 Product Standards

This product conforms to the Standards:

EN60079-0:2012	IEC60079-0:2011
EN60079-1:2007	IEC60079-1:2007
CSA C22.2 No. 142-M1987	UL508
C22.2 No. 30-M1986	UL1203

B.2 Product Certification

This product is attributed with the product certification codes:

ATEX & IECEx
II 2G Ex d IIB + H2 T4 Gb (-40°C to +45°C)
T3 Gb (-40°C to +60°C)

North American
Class I, Division 1, Groups B, C & D, T4, Tamb -40°C to +60°C

B.3 Global Certificates/Approvals

ATEX	TRAC11ATEX21319X
IECEx	TRC 11.0008X
cCSAus	1701657
TC TR Ex	RU C-GB. ГБ05.B.00152

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

Special attention should be paid to the *Special Conditions for Safe Use* and the *Conditions of Certification* listed in the certificates shown on the website.

B.4 Special Conditions of Use

1. Do not open when an explosive gas atmosphere may be present.
2. External cables shall be compatible with a temperature of 81°C (T4) or 96°C (T3).
3. Maximum process pressure shall not exceed 100 barg for the hydrocarbon dew-point circuit.
4. Maximum process pressure shall not exceed 206 barg for the water dew-point circuit.
5. Maximum combined process flow into the enclosure shall not exceed 7.75 LPM.
6. All process lines shall be purged to ensure the process gas or liquid is above its upper explosive limit before applying power.
7. Where painted or powder coated, the enclosures could present an electrostatic hazard. Clean only with a damp or anti-static cloth.
8. The enclosure is to be earthed externally using the earth point provided.
9. Only suitably ATEX / IECEx certified (as appropriate) cable glands and blanking elements shall be used.

Refer to the relevant sections within this manual for the connection, wiring and cable glanding requirements.

B.5 Maintenance and Installation

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

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

Appendix C

Pressure Equipment Directive Compliance Statement

Appendix C Pressure Equipment Directive Compliance Statement

The Pressure Equipment Directive 97/23/EC has been implemented in United Kingdom Law by the Pressure Equipment Regulations 1999.

The regulations require that all pressure equipment and assemblies within scope must be safe when placed on the market or put into service.

All equipment has been assessed and is classified according to the classification charts detailed in Annex B of these regulations as falling into the Sound Engineering Practice (SEP) Conformity Assessment Category.

Michell Instruments Ltd warrants that the equipment has been designed and manufactured according to sound engineering practice.

Appendix D

EU Declaration of Conformity

Appendix D EU Declaration of Conformity (Main Analyzer Instrument ONLY)

MICHELL Instruments

EU Declaration of Conformity

Manufacturer: Michell Instruments Limited

Address: 48 Lancaster Way Business Park
Ely, Cambridgeshire
CB6 3NW. UK.

CE

Equipment Type: **Condumax II Hydrocarbon & Water Dew-point Analyzer**

Directive 94/9/EC ATEX & **2014/34/EU ATEX** (effective date 20th April 2016)

Provisions of the Directive fulfilled by the Equipment:

Group II Category 2G **Ex d IIB + H2 Gb**
Tamb -40°C to +45°C T4
Tamb -40°C to +60°C T3

Notified Body for EC-Type Examination:
TRaC. Skelmersdale, West Lancashire. WN8 9PN UK. Notified Body No. 0891

Notified Body for Production (QAN):
B.a.s.e.e.f.a, Buxton UK. Notified Body No. 1180

EC-Type Examination Certificate:
TRAC11ATEX21319X

Harmonised Standards used:
EN60079-0:2012.
EN60079-1:2007.

IECEx

Certificate of Conformity No.

IECEx TRC 11.0008X **Ex d IIB + H2 Gb**
Tamb -40°C to +45°C T4
Tamb -40°C to +60°C T3

Standards used:

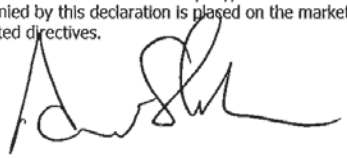
IEC60079-0:2011.
IEC60079-1:2007.

Other Directives

2004/108/EC EMC Directive & **2014/30/EU EMC Directive** (effective date 20th April 2016)
Is in conformity with the following Standard(s) or Normative Document(s):
EN61326-1:1997 *Electrical equipment for measurement, control and laboratory use - EMC requirements. Class B (emissions) and Industrial Locations (immunity).*

2011/65/EU Restriction of Hazardous Substances Directive (RoHS2)
RoHS2 EU Directive 2011/65/EU (Article 3, [24]) states, *"industrial monitoring and control instruments means monitoring and control instruments designed exclusively for industrial or professional use".*
(mandatory compliance effective date 22nd July 2017).

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



Andrew M.V. Stokes, Technical Director
April 2016

ECD Condumax II Issue 08

Appendix E

Quality, Recycling & Warranty Information

Appendix E Quality, Recycling & Warranty Information

E.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.

E.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.

E.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

E.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

E.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.

E.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

E.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.

E.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.

E.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) if the product does not arrive in perfect working order.

Appendix F

Analyzer Return Document & Decontamination Declaration

Appendix F Analyzer Return Document & Decontamination Declaration

Decontamination Certificate

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

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

NOTES:

http://www.michell.com