

# 1 EU - TYPE EXAMINATION CERTIFICATE

## 2 Product or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU – Annex III

3 EU - Type Examination Certificate No.: **TRAC14ATEX0042X (incorporating variations V1 to V5)**

4 Product: **Process Moisture Analyser,  
QMA601-Ex1, QMA601-Ex2 QMA601-Ex3 & QMA601-Ex4**

5 Manufacturer: **Michell Instruments Ltd.,**

6 Address: **Unit 48, Lancaster Way Business Park, Ely, Cambridgeshire, CB6 3NW,  
United Kingdom**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Element Materials Technology, Notified Body number 2812, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential reports **TRA-022213-33-00A, TRA-024251-33-00A, TRA-027025-33-00A, TRA-035534-33-00B & TRA-048861-33-00A**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0:2012+A11:2013 EN 60079-1:2014**

Except in respect of those requirements listed at section 18 of the schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall include the following:

 **II 2G Ex db IIB+H2 T6 Gb Tamb = -40 °C to +60 °C**

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the Element Materials Technology Ex Certification Scheme.

*S.P. Winsor*

S P Winsor, Certification Manager

Issue date: 2020-03-05

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## 13 SCHEDULE TO EU - TYPE EXAMINATION CERTIFICATE

## 14 CERTIFICATE NUMBER TRAC14ATEX0042X (incorporating variations V1 to V5)

## 15 Description of Product

The QMA601-Ex Process Moisture Analyser is designed to provide measurement of trace moisture content in various process operations. The measurement is provided by comparing the difference in frequency of two oscillating quartz crystal.

The Process Moisture Analyser consists externally of a cylindrical Ex d tb certified aluminium enclosure with a threaded lid (Certificate: IECEx PTB 07.0027U/ PTB06ATEX1023U/ PTB06ATEX1023U). There are four model variations covered by this assessment. The QMA601-Ex1/Ex3 are display versions and utilise a glass window in the lid allowing the user to view and use the LED touch screen display. The QMA601-Ex2/Ex4 version use a blind aluminium lid with no glass window present. Enclosure has a free volume of 21 litres.

There are 4 x M20 Cable entries on the enclosure with which only suitably rated cable entry devices are to be used. There are 4 x ½" NPT Ex d tb certified flame arrestors present (either Michell FA/BR range or M.A.M FT/VS 16090 range) on the enclosure, two for the process inlet pipes, and one for outlet pipe. An enclosure breather, of the same, (either Michell FA/BR range or M.A.M FT/VS 16090 range) is also fitted.

Internally the QMA601-Ex consists of a display screen, main PCB and user terminals, mains filter PCB and power connection terminals, power supply unit and an oven assembly. Within the oven assembly is the process moisture analyser system. The analyser system is primarily made up of gas sample lines processing stages & Sensor. All internal joints are vacuum brazed or welded full circumference joints and are 100% leak checked at 3 bar (1.5 x max working pressure of 2 bar, as stipulated by the manufacturer). Total combined allowable flow rate into the enclosure is limited to 5.0 LPM.

A heater is present within the assembly and is utilised to retain the internal operating temperatures at lower ambient temperatures. A temperature controller on the main PCB switches the heater off when a temperature of 70 °C is reached internally. An additional thermostat is present and activated at 70 °C. This thermostat complies with EN60730 and is co-located with the coin cell PCB. An additional non-resettable thermal fuse is included as a further regulatory device which activates at 73 °C.

16 Test Report No. (as added for this issue of the certificate): TRA-048861-33-00A.

## 17 Specific Conditions of Use

1. Clean only with a damp or anti-static cloth.
2. External Cables shall be suitable for use at temperatures of 86 °C.
3. Maximum combined process flow into the enclosure shall not exceed 5.0 ltr/min.
4. Only suitably certified cable glands, blanking elements and thread adapters must be used.
5. The enclosure must be earthed externally using the earth point provided.
6. Do not open when energized or when an explosive atmosphere may be present.



Attention is drawn to the operating and installation instructions which may contain useful information in relation to conditions of use.

## 18 Essential Health and Safety Requirements (Directive Annex II)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

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### 19 Drawings and Documents

The list of controlled technical documentation is given in Appendix A to this schedule.

### 20 Routine Tests

1. The enclosure shall withstand a test pressure of at least 18 bar for not less than 10 seconds in accordance with EN/IEC 60079-1 Clause 16.1. There shall be no damage or deformation which may impair the explosion protection properties of the equipment.
2. The containment system shall withstand a test pressure of at least 3 bar for not less than 120 seconds in accordance with EN/IEC 60079-1 Clause G.4.1. There shall be no damage or deformation which may impair the explosion protection properties of the equipment.

### 21 Specific Conditions for Manufacture

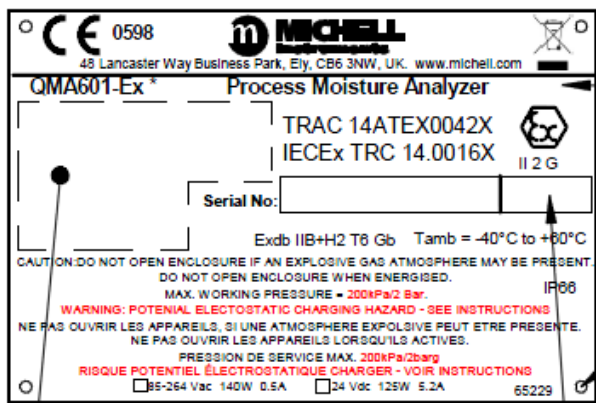
None.

### 22 Photographs

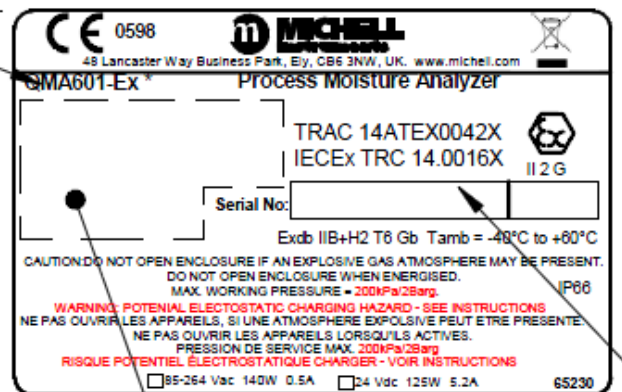


### 23 Details of Markings

Metal label



Metallised Label



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#### 24 Details of Variations to this Certificate

- Variation V1 – Change to flame arrestors.
- Variation V2 – Addition of 24 Vdc models, an Ethernet connection and component changes.
- Variation V3 – Replacement of flame arrestors and breathers allowing amendments to the ambient range + 60° C, temperature class T6 and surface temperature of the complete equipment. A reduction of maximum permitted input flow rate to 5.0 LPM.
- Issue 2 – Typographical corrections section 12.
- Variation V4 - This certificate was originally issued by Notified Body number 0891 under Directive 2014/34/EU. The technical file has been transferred to Element Notified Body number 2812 without further assessment or evaluation.
- Variation V5 - Assessment to EN 60079-1:2014, removal of explosive dust atmosphere marking and reduction of maximum internal pressure to 2 bar.

#### 25 Notes to CE marking

In respect of CE Marking, Element Materials Technology accepts no responsibility for the compliance of the product against all applicable Directives in all applications.

#### 26 Notes to this certificate

Element Materials Technology certification reference: TRA-048861-00 (GU-MILQ-0003).

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

Notified Body number 2812 is the designation for Element Materials Technology Rotterdam BV.

In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variation certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

#### 27 Conditions for the validity of this certificate

This certificate remains valid for so long as:

- (i) The equipment listed in section 4 is manufactured in accordance with the documents listed in Appendix A of this certificate.
- (ii) The standards listed in section 9 of this certificate continue to satisfy the Essential Health and Safety Requirements of Annex II of Directive 2014/34/EU and the generally acknowledged state of the art (e.g. as determined by the publishers of those standards).

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**APPENDIX A - TECHNICAL DOCUMENTS**

<b>Title:</b>	<b>Drawing No.:</b>	<b>Rev. Level:</b>	<b>Date:</b>
QMA601 Process Moisture Analyser IECEx & ATEX Certification drawing. (Sheets 1 to 4)	Ex90572	05	2019-11-29
APPENDIX B. QMA601 User's Manual	97449	3.2	2020-03

