

UK Type Examination Certificate CML 23UKEX1554X Issue 0**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Process Moisture Analyser QMA601-Ex1, QMA601-Ex2, QMA601-Ex3, QMA601-Ex4 & QMA601-LR**
- 3 Manufacturer **Michell Instruments Ltd**
- 4 Address **48 Lancaster Way Business Park
Ely, Cambridgeshire
CB6 3NW
United Kingdom**

- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

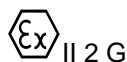
The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018

EN 60079-1:2014

- 10 The equipment shall be marked with the following:



Ex db IIB+H2 T6 Gb

Ta=-40°C to +60°C





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11 Description

The QMA601 & QMA601-LR Process Moisture Analyzers are 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 QMA601-LR Analyzer provides an low range trace moisture content output.

The Process Moisture Analyser consists externally of a cylindrical Ex db certified aluminium enclosure with a threaded lid (Certificate: IECEx PTB 07.0027U / PTB 06ATEX1023U). The lid utilises a glass window in the allowing the user to view and use the LED touch screen display.

There are four model variations covered by this assessment:

QMA601-Ex1 (24V DC)

QMA601-Ex3 (240V AC)

QMA601-LR-Ex1 (24V DC)

QMA601-LR-Ex3 (240V AC)

The enclosure has a free volume of 19 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 db 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 & QMA601-LR consist 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.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	02 Feb 2024	R17126A/00	Issue of Prime Certificate

Note: Drawings that describe the equipment are listed in the Annex.



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13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.
- ii. The enclosure shall with 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.
- iii. 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.

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. Clean only with a damp or anti-static cloth
- ii. External Cables shall be suitable for use at temperatures of 86 °C
- iii. Only suitably certified cable glands, blanking elements and thread adapters must be used.
- iv. The enclosure must be earthed externally using the earth point provided.
- v. Do not open when energised or when an explosive atmosphere may be present.

Certificate Annex

Certificate Number CML 23UKEX1554X
Equipment Process Moisture Analyser QMA601-Ex1, QMA601-Ex2,
QMA601-Ex3, QMA601-Ex4 & QMA601-LR
Manufacturer Michell Instruments Ltd



The following documents describe the equipment defined in this certificate:

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Drawing No	Sheets	Rev	Approved date	Title
Ex90572	1 to 6	07	02 Feb 2024	QMA601/-LR PROCESS MOISTURE ANALYZER- ATEX/IECEX/UKCA CERTIFICATION DRAWING