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(6)

QPS Evaluation Services Inc



EU-Type Examination Certificate (1)

- Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 (2)
- EU-Type Examination Certificate Number: QPS 20ATEX1000X (3) Issue Number:
- OPIS 35 monochromatic IR laser for use with HyperFlux PRO Plus 785 Raman (HFPP) or the (4) Product: Process Guardian Raman (PGR) spectroscopy systems and optional Integrated Fiber Switch (IFS)
- **Tornado Spectral Systems Inc.** (5) Manufacturer:

5155 Spectrum Way, Unit# 6, Address: Mississauga, Ontario L4W 5A1

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

QPS Evaluation Services Inc. 81 Kelfield St., Units 7-9, Toronto, ON M9W 5A3, Canada, Notified Body Number 2900, 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 (8) design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential test report number ATX33332-1

Compliance with the Essential Health and Safety Requirements has been assured by compliance with: (9)

EN IEC 60079-0 : 2018 EN IEC 60079-11 : 2012 EN IEC 60079-28 : 2015

except in respect of those requirements listed at item 18 of the Schedule.

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use (10)specified in the schedule to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product.

- Further requirements of the Directive 2014/34/EU article 13 apply to the manufacturing process and supply of this product. (11)These are separately certified and not covered by this certificate.
- (12) The marking of the product shall include the following: II 1GD

IFS



OPIS 35 II 1G [Ex ia op is IIC T4 Ga] II 1D [Ex ia op is IIIC T4 Da]

II 1G [Ex ia IIC Ga] II 1D [Ex ia IIIC Da]

Date of certification: 14 December 2023

Kob Kahul

Rob Kohuch **Certification Manager QPS Evaluation Services Inc.**



EU-Type Examination Certificate without signature shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by QPS Evaluation Service Inc. The SCC Accreditation Symbol is an official symbol of the accreditation body and notifying authority, used under license.

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(13) SCHEDULE

(14) to EU-Type Examination Certificate QPS 20ATEX1000X

Issue No. 02

(15) **Description and Electrical data**

The OPIS 35 is an accessory for use with the HyperFlux PRO Plus 785 Raman (HFPP) or the Process Guardian Raman (PGR) spectroscopy systems. The HFPP and PGR is generally referred to as the Raman Analyzer. When used properly together with the Raman Analyzer the OPIS 35 makes the configuration compatible with IECEx and ATEX requirements for a Zone 0 potentially explosive atmosphere. The OPIS 35 cannot be used as a stand-alone unit, independent of a Tornado Raman Analyzer. As such, the HFPP or PGR user manual contain the necessary details for use.

Raman Analyzer can be connected to an additional optional accessory called an Integrated Fiber Switch (IFS). The IFS connects to the Raman Analyzer via a USB cable. The IFS allows a single OPIS 35 optical output to be switched between various output connectors. Only a single output can be used at a time. The IFS only contains passive optical elements related to the switching the optical signal sent from the OPIS 35. It cannot increase the optical power in any way. The IFS contains IS barriers for additional connection in the hazardous area and marked with entity parameters.

All of the components, OPIS 35, Raman Analyzer & IFS, are located in the non-hazardous area only.

The laser power limiting circuit design of the OPIS 35 was assessed per 60079-11 §5.2 *Level of protection "ia"* as it applies to 60079-28. The protective circuit is located fully outside of the hazardous location and there is only an optical output, therefore IS spark testing and IS thermal testing detailed in 60079-11 are not applicable. The circuit was assessed for maximum power output under normal and fault conditions as it relates to the maximum optical output power.

The 'ia' markings that are part of the Ex protection method relate to the IS barriers installed as part of the end device

The design of the OPIS 35 has not changed since the original evaluation, but it is now being considered for use in combination with the HyperFlux PRO Plus 785 Raman (HFPP) or Process Guardian Raman (PGR) spectroscopy systems and with the additional option of using an Integrated Fiber Switch (IFS).

(16) Report Number: ATX3332-1

- (17) Specific conditions of use:
 - 1. The OPIS 35 cannot be used as a stand-alone unit, independent of a the HyperFlux PRO Plus 785 Raman (HFPP) or the Process Guardian Raman (PGR) spectroscopy systems. As such, the User Manual is a necessary companion to this device.

(18) Essential Health and Safety Requirements

Met by compliance with the requirements mentioned in item 9.

(19) Remarks and additional information: N/A

Certificate history

(20) Issue 00 - 2021-Jan-25; Initial certificate. Issue 01 - 2021-July-28 Issue 02 - 2023-Dec.-14