TYPE-EXAMINATION CERTIFICATE

1. **Type-examination Certificate (Module A)**

2. **Equipment or Protective System intended for use in potentially explosive atmospheres (Directive 2014/34/EU)**

3. **Type examination certificate Nr** **ITS15ATEX48339X R.0**

4. **Product:** Setpoint – Machinery Protection System, model VC-8000

5. **Manufacturer:** BK Vibro America Inc.
   Brüel & Kjær Vibro GmbH

   Applicant: BK Vibro America Inc.

6. **Address:** 1100 Mark Circle, Gardnerville, NV 89410, USA
   Leydheckerstr. 10, 64293 Darmstadt, Germany

   Address: 1100 Mark Circle, Gardnerville, NV 89410, USA

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

8. INTERTEK ITALIA S.p.A., certifies that the equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmosphere, given in Annex II of the Directive.

   The examination and tests results are recorded in confidential technical evaluation Intertek Report Nr. 102173086DAL-002 Issue: 0 Dated: 2015-11-11, 103103177DAL-002 Issue: 1 Dated: 2018-01-05, 103930580DAL-002 Issue: 2 Dated: 2019-05-14, 104274653DAL-002 Issue: 3 Dated: 2020-05-18 and 104892401DAL-002 Dated: 2022-03-08.

9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018, EN 60079-7:2015 +A1:2018 and EN 60079-15:2019 except in respect of those requirements referred to at item 16 of the Schedule.

10. If the sign X is placed after the certificate number, it indicates that the product is subject to Special Conditions for Safe Use specified in the schedule to this certificate.

11. This 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 the product shall include the following:

    II 3 G
    Ex ec nC IIC 160°C (T3) Gc
    Tamb: -20°C ÷ +65°C

09 June 2022

Certificate issue date

Todd L. Relyea
Certification Officer
Intertek Italia S.p.A.

This certificate has been issued by Intertek Italia S.p.A. on transfer from Intertek Testing & Certification Ltd. using the same issued original certificate number.

SCHEDULE

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13. DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM

The Setpoint – Machinery Protection System consists of a 4-slot, 8-slot, or 16-slot backplane, a rack connect module (RCM), one or two system access modules (SAM), and a combination of universal monitory modules (UMM), temperature monitoring modules (TMM) and power connection modules (PCM).
RCM and SAM are required in all configurations; however, UMM and TMM are optional. A combination of UMM and TMM can be from one of each module or up to 14 combined for 16-slot model. RCM consists of: primary power input, secondary power input, discrete contact control inputs, rack fault relay, reset button, LED indicators, buffered transducer outputs. PCM is a modified RCM containing only the power circuits.
SAM provides access for: configuring all modules, connection to the control network, local display connection, system event and alarm lists, and connection to condition monitoring host computer.
UMM is 4-channel machine monitoring modules that supports various sensors including but not limited to proximity, velocity, acceleration, seismic, pressure, LVDT or process variable. All channels are independent and may be configured to use any of the sensors.
TMM is a 6-channel machine monitoring module that supports thermocouple and RTD inputs or external process variable. Remote display contains of a LCD display, display board and a door of the enclosure. Setpoint Modules can be removed while the system is powered (hot swap) only in non-hazardous environment.
Remote display contains of a LCD display, display board and just a door of the enclosure.
Setpoint Modules can be removed while the system is powered (hot swap) only in non-hazardous environment.
Product is nC due to presence of sealed relays; all other components evaluated are non-arcing (ec).

Transient voltage (<1 sec): Vmin = 18VDC, Vmax = 36VDC
Operation Input voltage: Vmin = 22VDC, Vmax = 30VDC, Pmax = 160W
Relay Contact Parameters: Vmax = 30VDC, Imax = 5A

14. DRAWINGS AND DOCUMENTS

TITLE	DOCUMENT Nr	LEVEL	DATE
*Hazardous Area Installation Manual	S1160865.002	006	02-Mar-2022
*Marking Label-VC-8000	S100426-AGENCY	005	07-Feb-2022
Schematic Temperature Monitor	S100446-AGENCY	005	19-Oct-2020
Display Card	S100449-AGENCY	001	13-Sep-2017
Backplane 16 slot	S100452-AGENCY	001	13-Sep-2017
Backplane 8 slot	S100455-AGENCY	001	13-Sep-2017
Backplane 4 slot	S100521-AGENCY	001	13-Sep-2017
Schematic Vibration Monitor	S100551-AGENCY	004	07-Oct-2020
Connector Card	S100555-AGENCY	004	13-May-2020
*System Monitor	S100560-AGENCY	003	10-Dec-2021
Label, VC-8000, Warning, Explosive atmosphere	S100567-AGENCY	001	13-Sep-2017
Specifications VC-8000, UMM PCB	S100569-AGENCY	002	08-Oct-2020
Specifications VC-8000, TMM Board	S100570-AGENCY	002	08-Oct-2020
*Specifications VC-8000, SAM Board, Agency	S100571-AGENCY	002	10-Dec-2021
Specifications VC-8000, RCM PCB, Agency	S100572-AGENCY	002	08-Oct-2020

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TITLE	DOCUMENT Nr	LEVEL	DATE
Specifications Backplane, 8 slot	S100573-AGENCY	001	13-Sep-2017
Specifications Backplane, 16 slot	S100574-AGENCY	001	13-Sep-2017
Specifications VC-8000, Display/BNC Board	S100575-AGENCY	001	13-Sep-2017
Drill DWG, SP-2020 Backplane, 4-slot	S100581-AGENCY	001	13-Sep-2017
Power Connection Module	S100850-AGENCY	001	13-Sep-2017
VC-8000-RCK, Outline and Dimension	S1089867-AGENCY	002	13-May-2020
*MPS, BOM, AGENCY CONTROLLED COMPONENTS (14 Pages)	S1219238-AGENCY	008	02-Mar-2022
*VC-8000 DISPLAY BOARD Agency	S106592-03-AGENCY	004	21-Dec-2021
Specification VC-8000, Display Board	S106592-AGENCY	002	13-May-2020

*Note: An * is included before the title of documents that are new or revised.*

Copies of the above listed documents are kept at Intertek Italia S.p.A. archive.

15. **SPECIAL CONDITIONS FOR SAFE USE**

- To be installed inside an ATEX certified tool secured IP54 enclosure that has a suitable service temperature range. The equipment must be mounted horizontally. Mounting of the equipment within a suitable enclosure will cause the internal ambient enclosure temperature to be higher than the maximum external enclosure ambient temperature. The equipment shall not form part of the external enclosure (panel mounted, for example). The maximum surface temperature measured according test conducted per Clause 26.5.1 IEC/EN/UL/CSA 60079-0 Standard was 109.43°C. End user must verify that the enclosure in which this equipment is installed is suitably rated for service per this temperature. All cable entries into the enclosure shall be fitted with ATEX certified cable glands that have a minimum ingress protection of IP54. The cable glands shall have an operating temperature range equal to or greater than the ambient operating temperature.
- Must be powered from an isolated SELV source.
- Transient protection shall be provided on the supply to limit transients to max: 50.4 Vpk (140% of the peak voltage).
- USB connectors are not for use in hazardous area and will be internal to installation in an ATEX certified IP54 enclosure.
- System chassis ground must follow section 3.4.1 of the Hazardous Area Installation Manual; Document: S1160865.
- Module hot-swapping is not allowed in hazardous locations.
- Any Ethernet connectors used shall be checked to ensure that the mechanical retaining clip is undamaged and provides a mechanically secured and retained connection.

16. **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

The relevant essential Health and Safety Requirements have been identified and assessed in Intertek Report Nr. 104892401DAL-002 Dated 08 March 2022.

SCHEDULE

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17. **ROUTINE (FACTORY) TESTS**

A routine electric strength test will be required between the connector pins and the enclosure of each device. A test voltage of 500V r.m.s. or 700VDC is to be applied for 60s and no breakdown of insulation or separation shall occur. Alternatively, a test shall be carried out at 1.2 times the test voltage, but maintained for at least 100 ms.

18. **DETAIL OF CERTIFICATE CHANGES**

08 March 2022(R.0):
Performed under Intertek Report No. 104892401DAL-002.

- Initial release by Intertek Italia S.p.A. NB 2575 based on the assessment performed on December 2020 and on the certificate legal ownership transferred from Intertek Testing & Certification Ltd. (NB 0359); the same issued original certificate number is used.
- Updated standards from: EN 60079-0:2012 + A11:2013 and EN 60079-15:2010 to: EN IEC 60079-0:2018 and EN 60079-15:2019.
- Added UKEX certification.
- Updated the protection type from “Ex nA” to “Ex ec” - Added standard EN 60079-7:2015.
- Replaced connector J18 of front panel.
- Updated C104 of SAM board.
- Added alternate model for LCD panel.
- Updated Special condition of use from:

To be installed inside an ATEX certified IP54 enclosure that has a suitable service temperature range. Mounting of the equipment within a suitable enclosure will cause the internal ambient enclosure temperature to be higher than the maximum external enclosure ambient temperature. The equipment shall not form part of the external enclosure (panel mounted, for example). All cable entries into the enclosure shall be fitted with ATEX certified cable glands that have a minimum ingress protection of IP54. The cable glands shall have an operating temperature range equal to or greater than the ambient operating temperature.

To:

To be installed inside an ATEX certified tool secured IP54 enclosure that has a suitable service temperature range. The equipment must be mounted horizontally. Mounting of the equipment within a suitable enclosure will cause the internal ambient enclosure temperature to be higher than the maximum external enclosure ambient temperature. The equipment shall not form part of the external enclosure (panel mounted, for example). The maximum surface temperature measured according test conducted per Clause 26.5.1 IEC/EN/UL/CSA 60079-0 Standard was 109.43°C. End user must verify that the enclosure in which this equipment is installed is suitably rated for service per this temperature. All cable entries into the enclosure shall be fitted with ATEX certified cable glands that have a minimum ingress protection of IP54. The cable glands shall have an operating temperature range equal to or greater than the ambient operating temperature.