

TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

- Type Examination Certificate Number:** ITS15ATEX48339X Issue 04
- Product:** Setpoint – Machinery Protection System, model VC-8000
- Manufacturer:** BK Vibro America Inc.
Brüel & Kjær Vibro GmbH
- Address:** 1100 Mark Circle, Gardnerville, NV 89410, USA
Leydheckerstr. 10, 64293 Darmstadt, Germany
- This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- Intertek Testing and Certification Limited, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of the products intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.
- Compliance with the Essential Health and Safety Requirements has been assured by compliance with of EN 60079-0:2012 + A11:2013, and EN 60079-15:2010 except in respect of those requirements referred to within item 14 of the Schedule
- If the sign “X” is placed after the certificate number, it indicates that the product is subject to the special conditions of use specified in the Schedule to this certificate.
- This Type Examination Certificate relates only to the design of the specified product and not to specific items subsequently manufactured.
- The marking of the product shall include the following:



II 3 G Ex nA nC IIC 160°C (T3) Gc
-20°C ≤ Ta ≤ 65°C

Certification Officer:

Kevin J. Wolf

Kevin J. Wolf

Date:

9 December 2020

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11. Description of 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 a 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 (nA).

Transient voltage (<1 sec): $V_{min} = 18VDC$, $V_{max} = 36VDC$

Operation Input voltage: $V_{min} = 22VDC$, $V_{max} = 30VDC$, $P_{max} = 160W$

Relay Contact Parameters: $V_{max} = 30VDC$, $I_{max} = 5A$

12. Report Number

Intertek Report: 102173086DAL-002 Issue: 0 Dated: 2015-11-11.

Intertek Report: 103103177DAL-002 Issue: 1 Dated: 2018-01-05.

Intertek Report: 103930580DAL-002 Issue: 2 Dated: 2019-05-14.

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Intertek Report: 104274653DAL-002 Issue: 3 Dated: 2020-05-18.

Intertek Report: 104456564DAL-002 Issue: 4 Dated: 2020-11-23.

13. Conditions of Certification

(a). Special Conditions of Use

- 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.
- 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; Rev: 003.
- 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.

(b). Conditions of Manufacture - Routine Tests

- **Routine Electric Strength Test per Clause 6.5.1 & 23.2.1 of EN 60079-7: 2010**

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.

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) affected by this variation have been identified and assessed in Intertek Report: 103930580DAL-002 Issue: 1 Dated: 2020-03-20.

15. Drawings and Documents

| Title: | Drawing No.: | Rev. Level: | Date: |
|------------------------------------|-----------------------|-------------|-------------|
| Hazardous Area Installation Manual | Document S1160865.002 | 003 | 07-Apr-2020 |
| *Marking Label-VC-8000 | S100426-AGENCY | 04 | 08-Oct-2020 |

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|--|-------------------|-----|-------------|
| *VC-8000 TMM Agency | S100446-AGENCY | 05 | 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 |
| *VC-8000 UMM AGENCY | S100551-AGENCY | 04 | 07-Oct-2020 |
| Connector Card | S100555-AGENCY | 004 | 13-May-2020 |
| System Monitor | S100560-AGENCY | 001 | 13-Sep-2017 |
| 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 | 001 | 13-Sep-2017 |
| *Specifications VC-8000, RCM PCB, Agency | S100572-AGENCY | 002 | 08-Oct-2020 |
| 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 (15 Pages) | S1219238-AGENCY | 005 | 19-Oct-2020 |
| VC-8000 DISPLAY BOARD Agency | S106592-03-AGENCY | 003 | 13-May-2020 |
| Specifcation VC-8000, Display Board | S106592-AGENCY | 002 | 13-May-2020 |

16. Details of Certificate changes Issue 1

- New issue of ATEX cert under name of BK Vibro America Inc.
- Control drawings are revised to add "BK Vibro America Inc" reference in title block.
- Product name is changed from MX2020 to VC-8000. No technical changes are made to product.

Details of Certificate changes Issue 2

- Update of drawing S1219238-AGENCY from Rev.1 to Rev.2 to modify mSATA DRIVE component information and requirements.

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Details of Certificate changes Issue 3

- Updated drawings (S1160865.002, S100555-AGENCY, S1089867-AGENCY, S1219238-AGENCY, S100426-AGENCY), refer Appendix A for more information.
- Added drawings (S106592-03-AGENCY, S106592-AGENCY), refer Appendix A for more information.
- Added alternate display board
- Updated RCM schematic
- Updated Rack outline and Dimensions
- Updated routine test description to match with the EN 60079-15 standard.
- Updated Specific Conditions of Use, removed “Maximum ambient temperature where the unit is installed shall not exceed 65°C”, added “Must be powered from an isolated SELV source.”

Details of Certificate changes Issue 4

- Updated drawings (S100426-AGENCY, S100551-AGENCY, S100569-AGENCY, S100570-AGENCY, S100572-AGENCY, S1219238-AGENCY, S100446-AGENCY))
- Added alternate manufacturer: Brüel & Kjær Vibro GmbH