



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX ETL 17.0045X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 4	Issue 3 (2020-12-10)
Date of Issue:	2022-06-09		Issue 2 (2020-05-27)
Applicant:	<b>BK Vibro America Inc</b> 1100 Mark Circle Gardnerville, NV 89410 <b>United States of America</b>		Issue 1 (2019-05-23)
Equipment:	<b>Setpoint – Machinery Protection System</b>		Issue 0 (2018-01-11)
Optional accessory:			
Type of Protection:	<b>Increased Safety 'ec', Sealed Device 'nC'</b>		
Marking:	Ex ec nC IIC 160°C (T3) Gc -20°C ≤ Tamb ≤ +65°C		

Approved for issue on behalf of the IECEx  
Certification Body:

**Todd L. Relyea**

Position:

**Certification Officer**

Signature:  
(for printed version)

Date:  
(for printed version)

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**United States of America**

**intertek**



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Manufacturer: **BK Vibro America Inc**  
1100 Mark Circle  
Gardnerville, NV 89410  
**United States of America**

Manufacturing locations: **BK Vibro America Inc**  
1100 Mark Circle  
Gardnerville, NV 89410  
**United States of America**

**Brüel & Kjær Vibro GmbH**  
Leydheckerstr. 10  
64293 Darmstadt  
**Germany**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-15:2017](#) Explosive atmospheres - Part 15: Equipment protection by type of protection "n"  
Edition:5.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

### Test Reports:

[US/ETL/ExTR17.0055/00](#)  
[US/ETL/ExTR17.0055/03](#)

[US/ETL/ExTR17.0055/01](#)  
[US/ETL/ExTR17.0055/04](#)

[US/ETL/ExTR17.0055/02](#)

### Quality Assessment Reports:

[DE/PTB/QAR11.0003/05](#)

[US/ETL/QAR17.0010/02](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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 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).

See ANNEX I for manufacturer's documentation.

## Routine 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.

## SPECIFIC CONDITIONS OF USE: YES as shown below:

1. To be installed inside an IECEx 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 IECEx 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.
2. Maximum ambient temperature where the unit is installed shall not exceed 65°C.
3. Transient protection shall be provided on the supply to limit transients to max: 50.4 Vpk (140% of the peak voltage).
4. USB connectors are not for use in hazardous area and will be internal to installation in an IECEx certified IP54 enclosure.
5. System chassis ground must follow section 3.4.1 of the Hazardous Area Installation Manual; Document: S1160865.
6. Module hot-swapping is not allowed in hazardous locations.
7. Any Ethernet connectors used shall be checked to ensure that the mechanical retaining clip is undamaged and provides a mechanically secured and retained connection.



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

-Updated standards from: IEC 60079-0:2011, Edition 6 and IEC 60079-15:2010, Edition 4 to: IEC 60079-0:2017 Edition 7 and IEC 60079-15:2017 Edition 5.

-Updated the protection type from "Ex nA" to "Ex ec" - Added standard IEC 60079-7:2015 Edition 5.1.

- Replaced connector J18 of front panel
- Updated C104 of SAM board to lower value
- Added alternate model for LCD panel

- Updated Special condition of use from:

To be installed inside an IECEx 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 IECEx 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 IECEx 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 IECEx 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.

-corrected TYPE OF PROTECTION from "Enclosed Break nC" to :Sealed Device nC".

## Annex:

[G104892401DAL-001 - Annex for IECEx\\_ETL\\_17.0045X issue 4\\_1.pdf](#)



# Annex to IECEx Certificate of Conformity

<b>Certificate No:</b>	<b>IECEX ETL 17.0045X</b>	<b>Issue No. 4</b>
<b>Annex No. 1</b>		

<b>Technical Documents</b>			
<b>Title:</b>	<b>Drawing No.:</b>	<b>Rev. Level:</b>	<b>Date:</b>
*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
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

<b>Required Manufacturer Routine Testing</b>		
<b>Test</b>	<b>Title/Description of Test</b>	<b>Standard and Clause</b>
1	<p><b>Routine Electric Strength Test</b></p> <p>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.</p>	IEC 60079-7: 2010, Clause 6.1