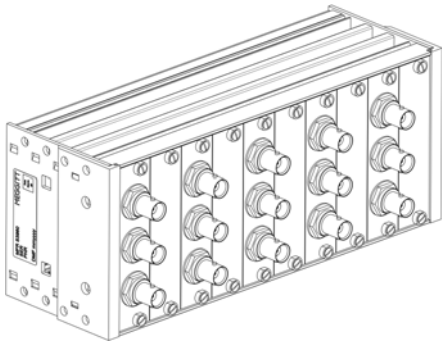
DATA SHEET

vibro-meter®

# VibroSmart® VSA00x BNC cable assemblies and BNC patch panels



**Example VSA004 BNC patch panel with 5 populated slots**

## KEY FEATURES AND BENEFITS

- From the vibro-meter® product line
- Designed for operation with VibroSmart® VSV30x + VSB300 monitoring modules
- VSA003 cable assembly with female BNC connectors for use with patch panels
- Flexible and durable cables with stranded centre conductors and braided shields, terminated with BNC connectors
- VSA004 BNC patch panel with 10 slots
- Robust all-aluminium construction

## APPLICATIONS

- Simplifies installation and wiring of a VibroSmart® system when signal sharing of buffered "raw" outputs via front-panel BNC connectors is required
- Vibration and/or combustion monitoring
- Machinery protection and/or condition monitoring

## DESCRIPTION

### Introduction

The VibroSmart® distributed monitoring system (DMS) is a system of modular and scalable products designed for condition monitoring and machinery protection applications for power generation turbines, oil and gas applications and auxiliary balance-of-plant equipment.

VibroSmart® modules can be mounted directly on machinery, eliminating the need for costly cabling, because it is designed and certified to work in extremes, such as harsh industrial environments characterized by potentially explosive atmospheres (Ex Zone 2), high temperatures (70°C, 158°F) and high mechanical stress. VibroSmart® complements the VM600$^{Mk2}$/VM600 series of rack-based solutions from Meggitt's vibro-meter® product line and is compatible with the same VibroSight® machinery monitoring system software.

The VibroSmart® VSA00x BNC cable assemblies and BNC patch panels are accessories designed for operation with VibroSmart VSV30x + VSB300 monitoring modules. The VSA003 is a BNC cable assembly while the VSA004 is a BNC patch panel.



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## DESCRIPTION *(continued)*

### Introduction *(continued)*

More specifically, VSA003 BNC cable assemblies and VSA004 BNC patch panels make the buffered sensor "raw" outputs from VSV30x + VSB300 monitoring modules available via BNC connectors in a rack, panel or other enclosure in order to allow test and measurement equipment to be more easily connected to these VibroSmart module signals.

### VibroSmart distributed monitoring system

A VibroSmart® distributed monitoring system (DMS) is a network of small and economical modules providing measurement, communications or other functions that are connected together in distributed, networked measurement blocks in order to provide the functionality normally offered by rack-based machinery monitoring systems. A VibroSmart system consists of one or more measurement blocks, each containing up to sixteen VibroSmart modules, such as VSV30x + VSB300 monitoring modules, a power supply and an optional host computer running the VibroSight® software.

### VSA003 BNC cable assembly

The VSA003 BNC cable assembly is designed to connect the buffered sensor "raw" outputs available from VSV30x + VSB300 monitoring modules to other systems.

The VSA003 uses a 2 m long cable, one end of which is terminated with flying leads crimped with wire-end ferrules for easy connection to a VSV30x + VSB300 module (via the terminal base's J2 connector). The other end of the cable is terminated with female BNC connectors for use with patch panels such as the VSA004 BNC patch panel.

### VSA004 BNC patch panel

The VSA004 BNC patch panel is designed to provide a permanently installed patch panel that makes the buffered outputs from VSV30x + VSB300 monitoring modules available via BNC connectors in a rack, panel or other enclosure.

The VSA004 is a robust aluminium enclosure with a standard height of 2U (HE). It provides 10 individual slots with a standard width of 4 TE that can be populated with either a blank slot panel or a populated slot panel with cutouts for three BNC connectors (female), corresponding to the buffered "raw" outputs of a VSV30x + VSB300 module. That is, the RAW CH1, RAW CH2 and RAW AUX signals.

The VSA004 BNC patch panel is a DIN-rail mounting device, making it suitable for industrial environments where equipment must be installed on DIN rails. Its compact dimensions also allow it to be deployed within an industrial housing with a particular IP or NEMA rating, in order to provide environmental protection.

### Applications information

VSA003 BNC cable assemblies are typically used with VSA004 BNC patch panels in order to make the buffered "raw" outputs from VSV30x + VSB300 monitoring modules readily available via BNC connectors in a rack, panel or other permanent enclosure.

As each populated VSA004 BNC patch panel slot uses a VSA003 BNC cable assembly to connect to a VSV30x + VSB300 module, one VSA003 is automatically included for each populated panel slot in an order, although they can also be ordered separately.

For specific applications and other information, contact your local Meggitt representative.

## SPECIFICATIONS

### VSA003 BNC cable assembly

| | |
|---|---|
| Cable type | : RG316/U coaxial cable with 50 Ω impedance.<br>This is a small cable (2.5 mm outer diameter) that is flexible and durable due to its stranded centre conductor, PTFE dielectric, braided shield and FEP outer jacket. |
| Cable number | : Each VSA003 BNC cable assembly consists of 3 × RG316/U coaxial cables, contained in a flexible, braided PET sleeve that is attached to the coaxial cables using heat-shrink tubing |
| Connectors | : One end of a VSA003 BNC cable assembly is terminated with female BNC connectors and is suitable for use with VSA004 BNC patch panels. The other end of a VSA003 consists of flying leads crimped with wire-end ferrules, suitable for use with standard connectors such as spring connection or screw terminal.<br>Note: The VSA003 BNC cable assembly is provided with insulating bushings to help ensure that the cable assembly and patch panel are electrically isolated. |
| Length | : Standard cable length of 2 m.<br>See **Mechanical drawings starting on page 5**. |
| Weight | : 150 g (0.33 lb) approx. |

## SPECIFICATIONS *(continued)*

### VSA004 BNC patch panel

| | |
|---|---|
| Construction | : Extruded aluminium frame and solid aluminium structural parts |
| Number of slots | : 10.<br>Each slot can be populated either with a populated slot panel with cutouts for 3 × BNC connectors (female), or with a blank slot panel.<br>Note: If all 10 slots are populated, it can be difficult for all of the cable assemblies to exit at the rear of the VSA004 BNC patch panel's housing (depending on the distance between the rear of the VSA004 and the DIN rail). In this case, the cable assemblies can exit using the slots in the top and bottom of the VSA004 BNC patch panel's housing. |
| Mounting | : The VSA004 BNC patch panel has a DIN-rail mounting adaptor on the rear of the device in order to allow installation on a TH 35 DIN rail (according to EN 50022 / IEC 60715). For example, TH 35-7.5 or TH 35-15. |
| Dimensions | : Standard rack height of 2U × 223 mm.<br>2 HE (height units) × 04 TE (divider units).<br>See **Mechanical drawings starting on page 5**. |
| Weight | : 750 g (1.7 lb) approx. |

#### Individual slot panels

| | |
|---|---|
| Construction | : Solid aluminium |
| Types | |
| • Blank panel | : Blank (solid) slot panel |
| • Populated panel | : Populated slot panel with cutouts for 3 × BNC connectors (female).<br>Each populated panel is used to provide the buffered sensor ("raw") outputs from one VSV30x +VSB300 monitoring module, with the signals ordered as per the channel LEDs on the front panel of the VSV30x module: CH1 (upper), CH2 (middle) and AUX (lower), when viewed from the front.<br>Note: Insulating bushings (provided) are required to help ensure that the cable assembly and slot panels are electrically isolated. |
| Mounting | : The slot panels have two captive screws to install the panel in a VSA004 BNC patch panel slot |
| Dimensions | : Standard rack height of 2U × 20 mm.<br>2 HE (height units) × 4 TE (divider units).<br>See **Mechanical drawings starting on page 5**. |

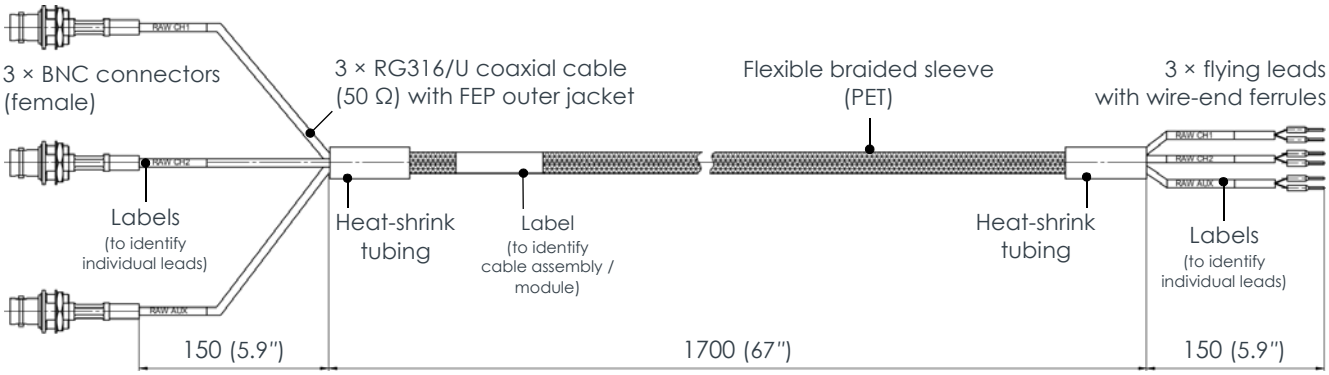
## General

#### Environmental

| | |
|---|---|
| Operating | |
| • *Temperature* | : −20 to 70°C (−4 to 158°F) |
| • *Humidity* | : 0 to 90% non-condensing |
| Storage | |
| • *Temperature* | : −40 to 85°C (−40 to 185°F) |
| • *Humidity* | : 0 to 95% non-condensing |
| Protection rating | : The VSA003 and VSA004 must be deployed within an industrial housing with a particular IP or NEMA rating, in order to provide the required environmental protection.<br>Contact Meggitt for further information. |

## MECHANICAL DRAWINGS

### VSA003 BNC cable assembly




Notes

All dimensions in mm (in) unless otherwise stated.

Labels are located at both ends of each cable making up the cable assembly in order to help identify individual BNC connectors and flying leads (RAW CH1, RAW CH2 and RAW AUX).

A label is located on the cable assembly's sleeve in order to help identify the cable assembly / module, as follows:

- For a VSA003 BNC cable assembly ordered on its own (spare part), this label uses the cable assembly's part number (PNR 934-128-000-011).
- For a VSA003 BNC cable assembly ordered and specified as part of a VSA004 BNC patch panel, this label uses a VSV30x module name (TAG) that helps identify the VSV30x module used as the signal source for the populated BNC patch panel slot. The names (TAGs) used are specified in a tagging file (see **Ordering information starting on page 8**).

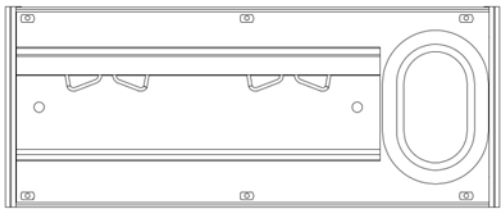
As the VSA003 BNC cable assembly is designed for use with VSA004 BNC patch panels, a VSA003 is also supplied with insulating bushings (3 × two-part) to help ensure that the cable assembly is electrically isolated from the panel.

## MECHANICAL DRAWINGS *(continued)*

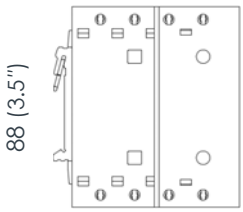
### VSA004 BNC patch panel

**Front view (unpopulated)**

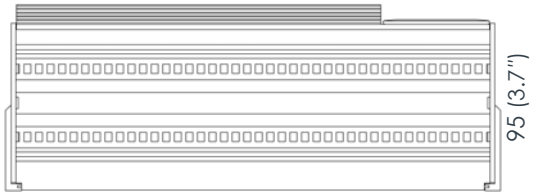

**Rear view**



**Side view**

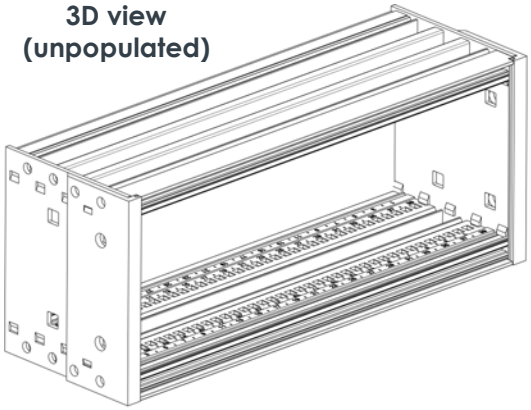


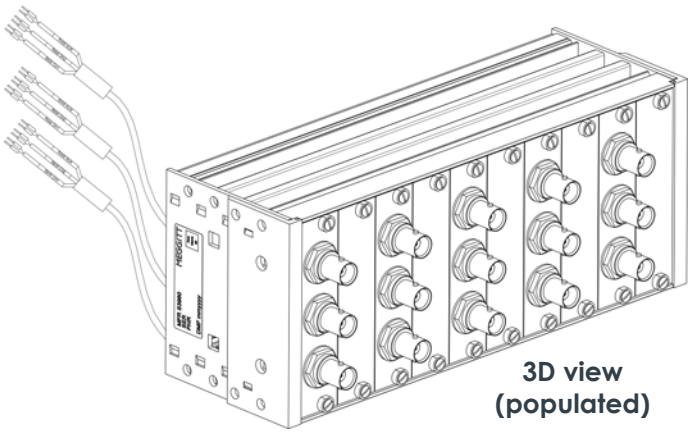

**Top view**




Note: All dimensions in mm (in) unless otherwise stated.

**3D view (unpopulated)**

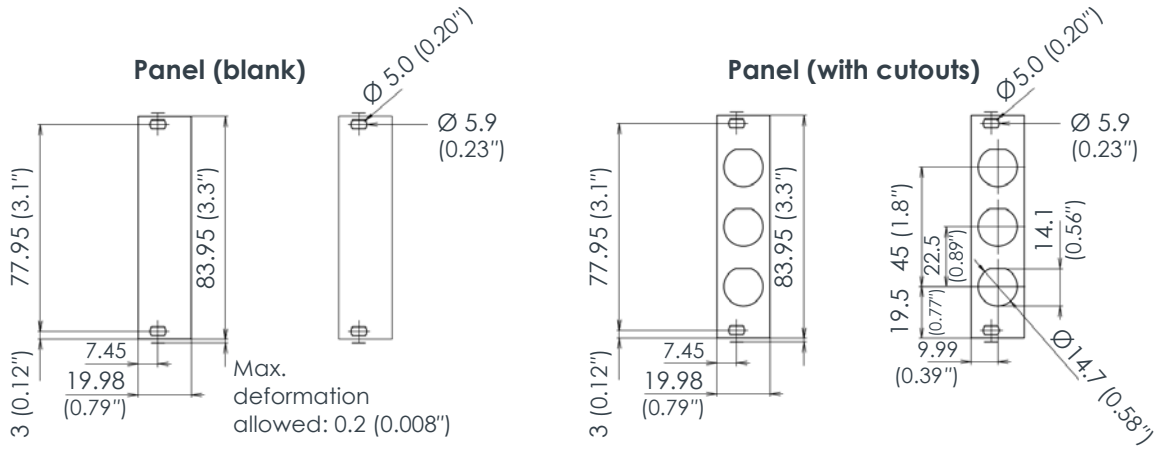




**3D view (populated)**

## MECHANICAL DRAWINGS *(continued)*

### Individual slot panels




Note: All dimensions in mm (in) unless otherwise stated.

**3D view (blank)**

**3D view (with cutouts)**

## ORDERING INFORMATION

To order please specify

| Type | Designation | Ordering number (PNR) |
|---|---|---|
| VSA003 | VibroSmart BNC cable assembly – with female BNC connectors and flying leads crimped with wire-end ferrules | 934-128-000-011 |
| VSA004 | VibroSmart BNC patch panel – DIN-rail mounting BNC patch panel with 10 slots | 600-023/x |

Note: When a VSA004 BNC patch panel is ordered, x, the required number of individual (populated) BNC panels are automatically allocated to the 10 available slots of the patch panel in accordance with the following table:

| Number of populated BNC panels (x) | VSA004 BNC patch panel slot number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | O | | | | | | | | | |
| 2 | O | | O | | | | | | | |
| 3 | O | | O | | O | | | | | |
| 4 | O | | O | | O | | O | | | |
| 5 | O | | O | | O | | O | | O | |
| 6 | O | O | | O | O | | O | O | | |
| 7 | O | O | | O | O | | O | O | | O |
| 8 | O | O | | O | O | O | | O | O | O |
| 9 | O | O | O | O | O | | O | O | O | O |
| 10 | O | O | O | O | O | O | O | O | O | O |

Where O indicates a populated slot; indicates an unpopulated slot

Notes

VSA004 BNC patch panel slot number 1 is on the left of the BNC patch panel and patch panel slot number 10 is on the right of the patch panel, when viewed from the front.

For example:
If 1 populated BNC panel is required, slot 1 (left) is fitted with a BNC panel and slots 2 to 10 are fitted with blank panels.
If 5 populated BNC panels are required, slot 1 and every alternate slot thereafter are fitted with BNC panels, and the remaining slots are fitted with blank panels.
If 8 populated BNC panels are required, slots 1 and 2, slots 4, 5 and 6, and slots 8, 9 and 10 are fitted with BNC panels. The remaining slots are fitted with blank panels.

Labelling for signal identification

In order to help simplify the installation and use of BNC cable assemblies and patch panels, labels are added to (i) each populated VSA004 BNC patch panel slot and (ii) any associated VSA003 BNC cable assembly, as follows:
(i) Three labels, each up to 11 characters long, are used on the front panel of each populated VSA004 BNC patch panel slot. Each label is located above the BNC connector corresponding to its signal. Signal names (TAGs) that help identify the individual VSV30x channels used as the signal sources for the BNC connectors are recommended for these labels.
(ii) One label, up to 40 characters long, is used on each associated VSA003 BNC cable assembly. A VSV30x module name (TAG) that helps identify the VSV30x used as the signal source for the populated BNC patch panel slot is recommend for each label.

A tagging file ("BNC panel – TAGs definition" spreadsheet) is used to provide the text (names/TAGs) for the labels. The file should be completed for the populated slots only. If the file is not completed, then generic names will be used for the front panel labels and the VSA003 BNC cable assembly label will use its part number (PNR 934-128-000-011).

Contact Meggitt for further information.

## RELATED PRODUCTS

| | | |
|---|---|---|
| APF19x | 24 $V_{DC}$ power supplies | : Refer to corresponding data sheets |
| APF20x | 24 $V_{DC}$ power supplies with Ex approval | : Refer to corresponding data sheets |
| VSA301 | VibroSmart® buffered output amplifier | : Refer to corresponding data sheet |
| VSI010 + VSB010 | VibroSmart® communications interface module | : Refer to corresponding data sheet |
| VSN010 | VibroSmart® real-time Ethernet switch | : Refer to corresponding data sheet |
| VSV301 + VSB300 | VibroSmart® monitoring module | : Refer to corresponding data sheet |

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The Energy & Equipment division includes the Energy Sensing and Controls product group that specialises in sensing and monitoring solutions for a broad range of energy infrastructure, and control valves for industrial gas turbines, primarily for the Power Generation, Oil & Gas and Services markets. Energy & Equipment is headquartered in Switzerland (Meggitt SA) and incorporates the vibro-meter® product line, which has over 65 years of sensor and systems expertise and is trusted by original equipment manufacturers (OEMs) globally.



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