



VibroSmart® communications interface module

VSI010, VSB010 and VSF00x

FEATURES

- » VibroSight® compatible hardware from the Vibro-Meter® product line
- » Communications interfaces for industry standard fieldbuses: Modbus RTU, PROFIBUS DP and Modbus TCP
- » PROFIsafe safety layer to ensure more reliable PROFIBUS DP communications
- » Two VSI010 modules per VibroSmart measurement block allows redundant operation
- » Redundant communications and redundant power supply inputs for improved availability
- » AND, OR and majority voting logic functions for the combination of alarm and status information for a VibroSmart measurement block
- » Discrete outputs: 2 local SPDT relays
- » Real-time Ethernet communications
- » Live insertion and removal of modules (hot-swappable) with automatic reconfiguration
- » Fully software configurable
- » Robust enclosures with DIN rail mounting adaptor (on terminal base)



VSI010
communications interface module
(and VSB010 terminal base)

APPLICATIONS

- » Communications bridge between a VibroSmart system and third-party systems, such as a DCS or PLC
- » Machinery protection and/or condition monitoring



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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, reducing the need for expensive cabling, because they are designed and certified to work in extremes, such as harsh industrial environments characterised by potentially explosive atmospheres (Ex Zone 2), high temperatures (up to 70 °C) and high mechanical stress. VibroSmart complements the VM600 series of rack-based solutions from Meggitt Sensing Systems' Vibro-Meter® product line and is compatible with the same VibroSight® software.

The VSI010 communications interface module is an optional communications module for use with other VibroSmart modules in a monitoring system. The VSI010 module supports up to two fieldbus channels and allows the data from the VibroSmart modules in a measurement block to be read by fieldbus master devices.

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 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, a power supply and an optional host computer running the VibroSight software.

A measurement block is a logical grouping of VibroSmart modules that allows data such as tachometer, trigger and alarm information to be shared, for example, in order to monitor the same machine. Measurement blocks are configured using the VibroSight software.

Note: A VibroSmart system is limited to a maximum of two VSI010 modules per measurement block.

A VibroSmart module consists of an electronics module (providing configurable machinery monitoring functions) that clips into a VibroSmart terminal base,

which mounts on a DIN rail. A range of plug-in fieldbus communications adaptors that interface directly with the VSI010 module are available to provide an integrated solution for interfacing to fieldbuses.

VibroSmart terminal bases incorporate buses and connectors to provide all of the I/O connections required to interface to a VibroSmart module. Terminal bases also include non-volatile memory to store the configuration of the attached VibroSmart module, which allows modules to be hot-swapped. Modules and terminal bases use mechanical key-coding for a system that is simple to operate and use.

Different VibroSmart modules, terminal bases and fieldbus communications adaptors can be combined to offer unique combinations of functionality, versatility and safety assurance. In this way, a monitoring system can be built to meet the exact needs of an application resulting in a more cost-effective and reliable solution.

VSI010 communications interface module

The VibroSmart VSI010 communications interface module acts as a data communications bridge between a measurement block and external devices that use fieldbus networks. To do this, the VSI010 acts as a fieldbus server (slave) device and obtains measurements and data from the other VibroSmart modules in the same measurement block, such as VSV30x monitoring modules.

The VSI010 module then shares this information with third-party systems such as a DCS or PLC over one of the industry standard communications interfaces (fieldbuses) supported. The VSI010 supports up to two serial-based communications interfaces (Modbus RTU or PROFIBUS DP) or up to two Ethernet-based communications interfaces (Modbus TCP).

In addition, the VSI010 module has eight basic and four advanced logic functions that can be used to combine alarm and status information from other VibroSmart modules in the same measurement block in order to drive the module's relays.

Like all VibroSmart modules, the VSI010 is fully software configurable using the VibroSight software. The information to be shared from the other VibroSmart modules is selected and assigned to fieldbus registers using a flexible memory map in VibroSight.

DESCRIPTION *(continued)***Communications**

All VibroSmart modules and devices communicate using a system bus (SBUS), based on Ethernet technology, that supports data transfer rates of 100 Mbps at distances up to 100 m. The SBUS ensures the transfer of both non-real-time (standard) and real-time (time critical) information between VibroSmart modules, and supports communication with the host computer running the VibroSight software.

VibroSmart modules can either be located side-by-side (adjacent to each other) or separate from one another. This flexibility allows the functionality of the monitoring system to be distributed depending on the size of and access to the machine being monitored.

VibroSmart modules that are located side-by-side can communicate directly (no Ethernet cabling required) using the sidebus connectors on the terminal base that support both SBUS and redundant power supply distribution. VibroSmart modules that are mounted separate from one another can communicate over standard and redundant Ethernet networks of shielded twisted-pair Ethernet cable using the Ethernet connectors on the terminal base. However, using these Ethernet connectors does require that the power supply is distributed separately.

Discrete signal interface (DSI) inputs and tachometer signals can be connected directly to individual modules (locally). Alternatively, to reduce external wiring, these signals can be connected to a single VibroSmart module and shared among modules in the same measurement block using the SBUS.

Software

The VibroSight software supports the configuration and operation of VibroSmart modules, including the configuration of the VSI010 fieldbuses used to share measurements and data via Modbus or PROFIBUS.

Refer to the VibroSight software data sheet for further information.

Applications information

The VSI010 communications interface module is designed for sharing the data generated by VibroSmart systems that monitor, protect, analyse and diagnose critical assets such as gas turbines, steam turbines and other rotating machines.

For specific applications, contact your nearest Meggitt Sensing Systems representative.

SPECIFICATIONS**Processing functions**

Communications	: Fieldbus server (slave) device acting as a data bridge between the modules in a VibroSmart measurement block and fieldbus master devices (third-party systems)
• <i>Number of channels</i>	: Up to 2 fieldbus ports
• <i>Number of registers</i>	: Up to 750 outputs (registers) per fieldbus port
Logic functions	: Combination of alarm and status information from the modules in a VibroSmart measurement block
Relay outputs	: Actuation based on logic function outputs and relay settings such as normally energised or de-energised, and latched or unlatched

SPECIFICATIONS *(continued)*

Fieldbus interfaces – serial

Network interface	: RS-485 (half-duplex)
Number	: 2, available on J5 and J6 of the terminal base (see Connectors on page 8)
Data transfer rate	: Up to 12 Mbps
Distance between serial fieldbus devices	: Up to 100 m. Note: The supported distances also depend on the applicable fieldbus standard (physical interface).
Network topologies	: Linear (daisy-chained) for half-duplex (RS-485) networks
Protocols	: Modbus RTU or PROFIBUS DP. Note: Individual PROFIBUS slots can be configured as PROFIsafe to help ensure more reliable communications.

Fieldbus interfaces – Ethernet

Network interface	: 100BASE-TX
Number	: 1, available on J4 of the terminal base (see Connectors on page 8)
Data transfer rate	: Up to 100 Mbps
Distance between Ethernet fieldbus devices	: Up to 100 m
Network topologies	: Linear and star. Note: The supported network topologies also depend on the applicable fieldbus standard (protocol).
Protocols	: Modbus TCP

Notes

The VSI010 module firmware supports the Modbus RTU, PROFIBUS DP and Modbus TCP fieldbus communications protocols. The actual communications interfaces used in an application depends on the configuration of the VSI010 module (Modbus ports or PROFIBUS ports) and the fieldbus communications adaptor (VSF001 or VSF002).

The permitted fieldbus combinations are:

- Up to two serial-based fieldbuses (Modbus RTU) using the VSF001 (see **VSF001 serial fieldbus communications adaptor on page 10**).
- Up to two serial-based fieldbuses (PROFIBUS DP) using the VSF001 (see **VSF001 serial fieldbus communications adaptor on page 10**).
- Up to two Ethernet-based fieldbuses (Modbus TCP) using the VSF002 (see **VSF002 Ethernet fieldbus communications adaptor on page 10**).

When using serial-based fieldbus communications, only one protocol can be used at a time, so a single VSI010 module can support either up to two Modbus RTU or up to two PROFIBUS DP fieldbuses.

Alarm combination

Logic functions	: AND, OR and majority voting logic, with optional inversion of individual inputs
Basic logic functions	
• <i>Number</i>	: 8
• <i>Configurable inputs</i>	: From the sensor OK checks, measurement alarms (Danger+, Alert+, Alert-, Danger-) and validity indicators, logic function outputs, DSI inputs and module operating modes of the modules in the same measurement block as the VSI010
Advanced logic functions	
• <i>Number</i>	: 4
• <i>Configurable inputs</i>	: From the basic logic function outputs of the module

SPECIFICATIONS *(continued)*

Discrete signal interface (DSI) inputs

Control signal

- *Alarm bypass (AB)* : A closed contact between the DSI AB and RET inputs inhibits the local relay outputs
- *Alarm reset (AR)* : A closed contact between the DSI AR and RET inputs resets the alarms latched by the module
- *Trip multiply (TM)* : A closed contact between the DSI TM and RET inputs multiplies the alarm levels by a scale factor (software configurable), to enable trip multiplier-based adaptive monitoring
- *Fieldbus communication stop (FBCS)* : A closed contact between the DSI FBCS and RET inputs stops the module's fieldbus communications

Operating principle

: Detection of an open circuit or a closed circuit on the input. These control signals can be connected directly to individual modules (locally) or connected to a single module (the DSI Master) and shared among modules in the same measurement block using the SBUS (remotely).

Discrete outputs

Local relays

- *Number* : 2
- *Configurable functions* : Normally energised (NE) or normally de-energised (NDE). Latched or unlatched.
- *Configurable inputs* : From the logic function outputs of the module

Relay characteristics

Type and contact arrangement

: Single-pole double-throw (SPDT), with all contacts (COM, NC and NO) available on J3 of the terminal base (see **Connectors on page 8**)

Nominal switching capacity (resistive load)

: 0.5 A 125 V_{AC} / 2 A 30 V_{DC}

Maximum switching power (resistive load)

: 60 W (62.5 VA)

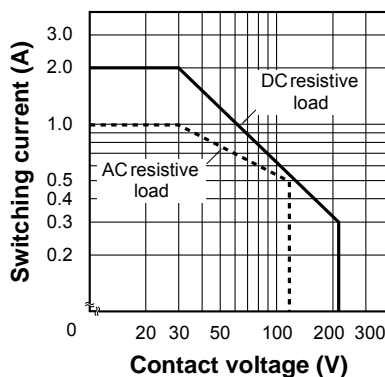
Maximum switching voltage

: 125 V_{AC} / 220 V_{DC}

Maximum switching current

: 2 A

Maximum switching capacity curves:




Operate / release time

: 4 ms (max.) / 4 ms (max.)

SPECIFICATIONS *(continued)*

Breakdown voltages

- *Between open contacts* : 250 V_{AC} (353 V_{PEAK})
 - *Between contact and coil* : 250 V_{AC} (353 V_{PEAK})
- Mechanical life : >10⁸ operations (min.)
Electrical life : >10⁵ operations (min.)

 **For Ex Zone 2 applications, the voltage and current switched by a VSI010 relay must be limited in accordance with Table A.1 of IEC/EN 60079-11, with a maximum voltage of 45 V or a maximum current of 0.95 A.**

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

(according to IEC 60529)

: IP20.


It is also possible to deploy VibroSmart modules and devices within an industrial housing in order to attain a protection rating of IP56.
Contact Meggitt Sensing Systems for more information.

 **For Ex Zone 2 applications, a VSI010 (and corresponding VSB010) must be installed in an enclosure that ensures a protection rating of at least IP54 (or equivalent).**


Potentially explosive atmospheres

Available in Ex approved versions for use in hazardous areas

Type of protection Ex nA: non-sparking		
Europe	EC type examination certificate	LCIE 14 ATEX 1027 X II 3 G (Zone 2) Ex nA IIC T6...T4 Gc
North America	cCSAus certificate of compliance	cCSAus 70059792 Class I, Division 2, Groups A, B, C, D Ex ic nA IIC T6...T4 Gc Class I, Zone 2 AEx ic nA IIC T6...T4 Gc
International	IECEx certificate of conformity	IECEx LCIE 14.0056X Ex nA IIC T6...T4 Gc
Russian Federation	TR CU certificate of conformity	TC RU C-CH.MШ06.B.00207 2Ex nA IIC T6...T4 Gc X

 **When using protection mode “Ex nA” (non-sparking), the user shall ensure that the equipment is installed in an enclosure that ensures a protection rating of at least IP54 (or equivalent).**

 **For specific parameters of the mode of protection concerned and special conditions for safe use, refer to the Ex certificates that are available from Meggitt SA.**

 **For the most recent information on the Ex certifications that are applicable to this product, refer to the *Ex product register (PL-1511)* document that is available from Meggitt SA.**

SPECIFICATIONS *(continued)***Approvals**

Conformity	: CE marking, European Union (EU) declaration of conformity. EAC marking, Eurasian Customs Union (EACU) certificate/declaration of conformity.
Electromagnetic compatibility	: EN 61000-6-2:2005. EN 61000-6-4:2007 + A1:2011. EN 61326-1:2006. TR CU 020/2011.
Electrical safety	: EN 61010-1:2010. TR CU 004/2011.
PROFIBUS and PROFINET International (PI)	: Certificate no. Z02058: DP-V0: MS0, Sync, Freeze, Fail_Safe. DP-V1: MS1, MS2, I&M. Physical layer: RS485.
Environmental management	: RoHS compliant (2011/65/EU)
Hazardous areas	: Ex approved (see Potentially explosive atmospheres on page 6)
Russian federal agency for technical regulation and metrology (Rosstandart)	: Pattern approval certificate CH.C.28.004.A N° 60224, dated 11.11.2015

SBUS communications

Type	: Real-time Ethernet
Network interface	: 100BASE-TX
Data transfer rate	: Up to 100 Mbps
Distance between devices	: Up to 100 m at 100 Mbps (100BASE-T compliant)
Network topologies	: Linear and HSR ring
Number of modules	: Up to 128 modules per VibroSmart system (without using VSN010 real-time Ethernet switches): • Up to 16 modules per measurement block (2 VSI010 modules max.) • Up to 8 measurement blocks per VibroSmart system.
Signals shared across a measurement block	
• <i>Real-time</i>	: Tachometric time-stamp, trigger and alarm messages
• <i>Non-real-time</i>	: Remote DSI inputs. Measurement data (processed outputs and extracted data).

Note: SBUS is the system bus, based on real-time Ethernet, used by a VibroSmart system for all communications. The SBUS supports inter-module communication between VibroSmart modules such as the transfer of non-real-time information and real-time information such as tachometric time-stamps, triggers and alarms. The SBUS supports extra-module communications such as the exchange of commands, configuration information and measurement data between VibroSmart modules and a host computer running the VibroSight software, and communication between VibroSmart modules and a network time server.

Configuration

VibroSmart modules	: Fully software configurable over Ethernet, using a host computer running the VibroSight software
Terminal bases	: A DIP switch on the terminal base selects either the sidebus connector (J1x) or the Ethernet connector (Ethx) as the active SBUS port for each side of the terminal base. Only two physical ports can be active at any one time, that is, either J11 or Eth1 (right side) and either J10 or Eth2 (left side).
Fieldbus communications adaptors	: A switch on the VSF001 selects either half-duplex (2-wire) or full-duplex (4-wire) operation.

SPECIFICATIONS *(continued)*

Time synchronisation

Local synchronisation between VibroSmart devices (inter-module)

- *Protocol* : Precision time protocol (PTP)
- *Accuracy* : <1 μ s between VibroSmart modules in the same measurement block
- *Required* : Yes (mandatory).
For each VibroSmart measurement block, one module automatically acts as the PTP server (slave) for the other (client) modules in the measurement block.

Global synchronisation between VibroSmart and other systems (extra-module)

- *Protocol* : Network time protocol (NTP)
- *Accuracy* : <10 ms between VibroSmart modules and an NTP server
- *Required* : No (optional).
For a system, an NTP server can be manually configured as a common time reference in order to synchronise VibroSmart devices and a host computer and/or third-party systems, such as a DCS or PLC.

Power supply (input)

- Voltage : 24 V_{DC} nominal (+16 to +32 V_{DC} input range)
- Redundancy : Two separate inputs for connection to different external power supplies

Power supply to fieldbuses (output)

- Constant voltage : +5 V_{DC} \pm 2% (90 mA max.)

Power consumption

- Total power consumption : <8 W, including fieldbus power supply

LED indicators

- Status :
 - Diag – indicates the status of the module, such as normal operation, configuration status or internal hardware or firmware failures.
 - Network – indicates Ethernet link activity and status, and network time server synchronisation.
 - Safety – indicates the status of the module's safety function and any active adaptive monitoring functions (AB or TM).
- Fieldbus 1 and Fieldbus 2 :
 - Link – indicates the link status for each fieldbus.
 - Activity – indicates the activity status for each fieldbus.

Connectors

- J1 to J6 : 10-pin terminal strip headers (male).
Compatible with 10-pin BCF plug-in connectors (female) with PUSH IN spring connections having a clamping range from 0.14 to 1.5 mm² (26 to 16 AWG) and a recommended stripping length of 9 mm.
See **Recommendations for reliable connections on page 16.**
- *J1, bottom rear* : Redundant power supply inputs and local DSI inputs
- *J2, bottom centre* : Reserved for future use
- *J3, bottom front* : Local relay contacts (COM, NC and NO)
- *J4, top front* : Ethernet-based fieldbuses 1 and 2 that support communication between the VSI010 module (fieldbus server) and a fieldbus master.
Note: A VibroSmart VSF002 Ethernet fieldbus communications adaptor is required.

SPECIFICATIONS *(continued)*

- *J5, top centre* : Serial-based fieldbus 1 that supports communication between the VSI010 module (fieldbus server) and a fieldbus master.
Note: A VibroSmart VSF001 serial fieldbus communications adaptor is required.
- *J6, top rear* : Serial-based fieldbus 2 that supports communication between the VSI010 module (fieldbus server) and a fieldbus master.
Note: A VibroSmart VSF001 serial fieldbus communications adaptor is required.
- J10, right side : Proprietary connectors.
J11, left side Sidebus connectors for SBUS communications (extra-module and inter-module) to a VibroSmart network and for the distribution of power to modules (redundant physical paths).
- Eth1, bottom right : 8P8C (RJ45) connectors, female.
Eth2, bottom left Ethernet connectors for SBUS communications (extra-module and inter-module) to a VibroSmart network.
The Ethernet connectors (Ethx) are IEEE 802.3 Ethernet compatible with an isolation voltage of 1500 V_{RMS}.

Physical

- Module mounting : The VSI010 module clips into the VSB010 terminal base, which mounts on a TH 35 DIN rail, such as a TH 35-7.5.
- Connection to other modules : Sidebus connectors J10 and J11 allow direct connections between modules that are located side-by-side.
Ethernet connectors Eth1 and Eth2 allow connections between modules mounted further apart, using twisted-pair Ethernet cable.
- Connection to a host computer : Ethernet connectors Eth1 and Eth2 allow connections to a host computer or network, using twisted-pair Ethernet cable
- Ethernet cabling
 - *Cable lengths (network segments) less than 50 m* : Category 5 enhanced (Cat 5e) cable of type SF/UTP.
A SF/UTP cable has overall (outer) screening using braided or foil shielding.
 - *Cable lengths (network segments) up to 100 m* : Augmented category 6 (Cat 6a) or augmented category 7 (Cat 7a) cable of type S/FTP.
A S/FTP cable has overall (outer) screening using braided shielding and individual pair shielding using foil.
- Connection to a fieldbus (third-party system) : Connector J4 is dedicated to Ethernet-based fieldbuses, while connector J5 and J6 are dedicated to serial-based fieldbuses.
See **Fieldbus interfaces – serial on page 4**.
- Connection to a power supply : VibroSmart modules that are located side-by-side can distribute the power supply via the sidebus connectors J10 and J11 when at least one module is connected to the external +24 V_{DC} supply.
VibroSmart modules that are mounted separate from one another require that each module is connected to the external +24 V_{DC} supply via its J1 connector.
- Dimensions
 - *VSI010 module* : See **Mechanical drawings on page 11**
 - *VSB010 terminal base* : See **Mechanical drawings on page 11**
- Weight
 - *VSI010 module* : 300 g (0.66 lb) approx.
 - *VSB010 terminal base* : 550 g (1.21 lb) approx.

SPECIFICATIONS *(continued)*

VSF001 serial fieldbus communications adaptor

Network interface	: Supports two serial fieldbus interfaces. RS-485 (up to 12 Mbps).
Fieldbus connectors	: Two 9-pin D-sub connectors
VibroSmart connectors	: Plugs directly into the J4, J5 and J6 screw-terminal connectors on the VSB010 terminal base used by a VSI010 module, with retaining screws
Dimensions	: See Mechanical drawings on page 14
Weight	: 66 g (0.15 lb) approx.

VSF002 Ethernet fieldbus communications adaptor

Network interface	: Supports two Ethernet fieldbus interfaces. IEEE 802.3u 10/100BASE-T (up to 100 Mbps).
Fieldbus connectors	: Two 8P8C (RJ45) connectors
VibroSmart connectors	: Plugs directly into the J4 screw-terminal connector on the VSB010 terminal base used by the VSI010 module, with retaining screws
Dimensions	: See Mechanical drawings on page 15
Weight	: 40 g (0.09 lb) approx.

Notes

The VSF001 serial fieldbus communications adaptor is required for Modbus RTU or PROFIBUS DP communications interfaces.

The VSF002 Ethernet fieldbus communications adaptor is required for a Modbus TCP communications interface.

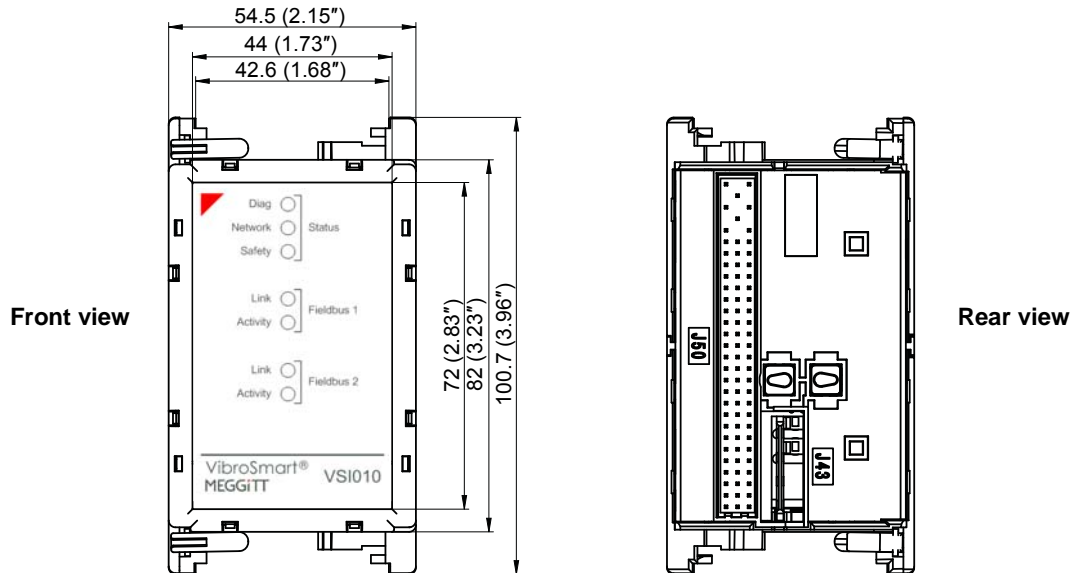
Only one VSF00x fieldbus communications adaptor can be used at a time (due to mechanical constraints), so a single VSI010 module can support either serial-based or Ethernet-based fieldbus communications.

When using serial-based fieldbus communications, only one protocol can be used at a time, so a single VSI010 module can support either up to two Modbus RTU or up to two PROFIBUS DP fieldbuses.

Swapping the VSF00x fieldbus communications adaptor and modifying the VSI010 module's configuration and is all that is required in order to change the communications interface from serial-based to Ethernet-based (or vice versa).

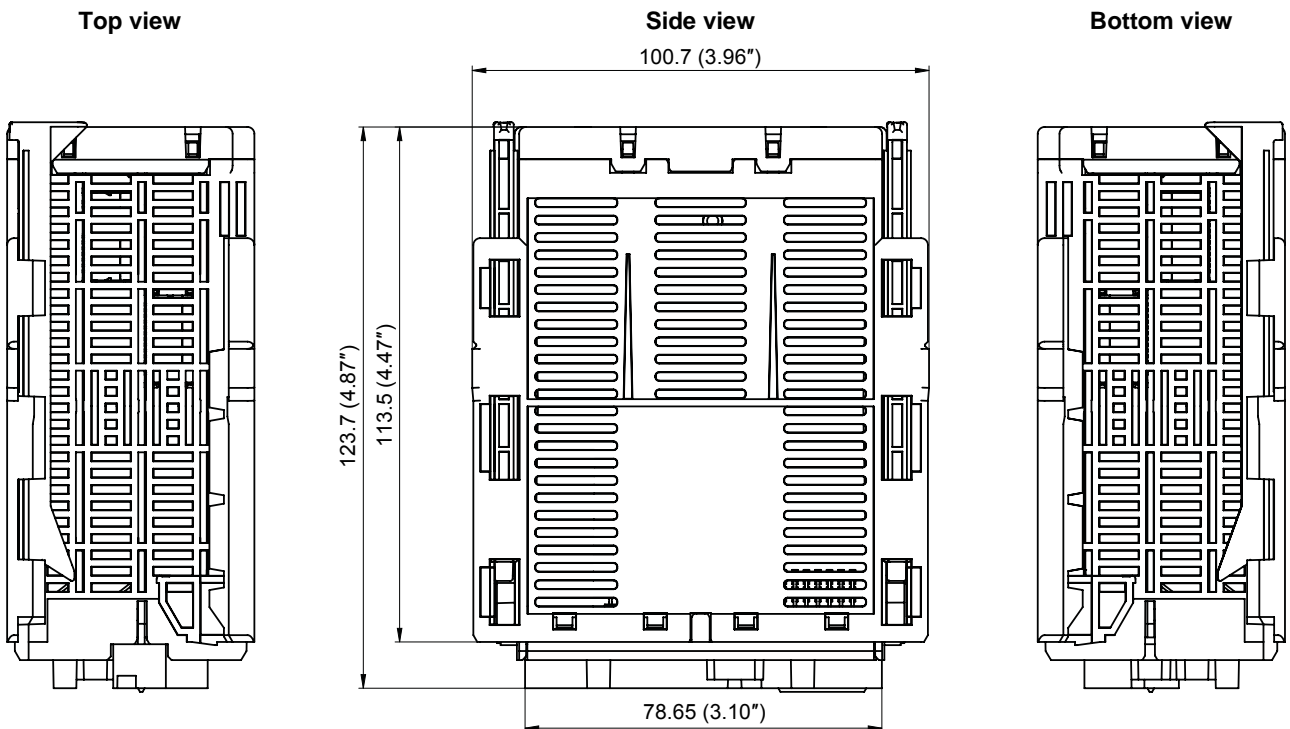
MECHANICAL DRAWINGS

VSI010 module – front view



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

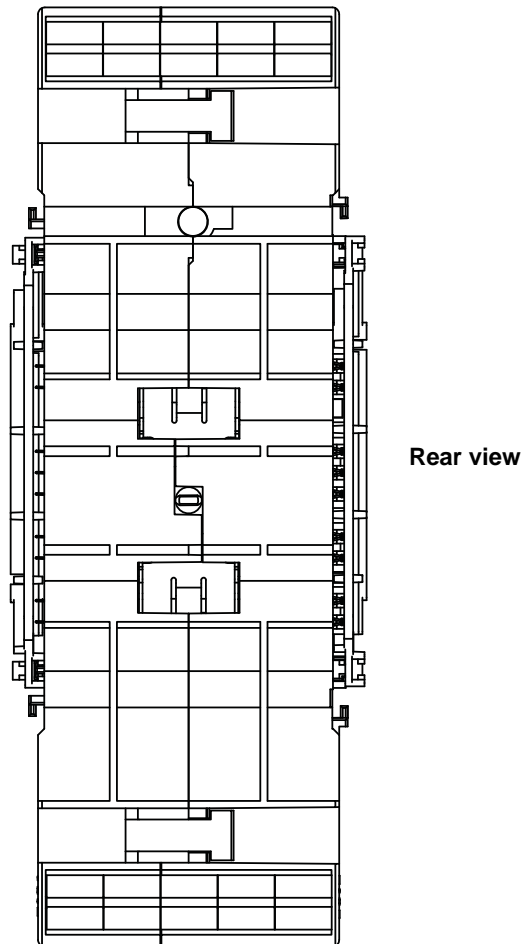
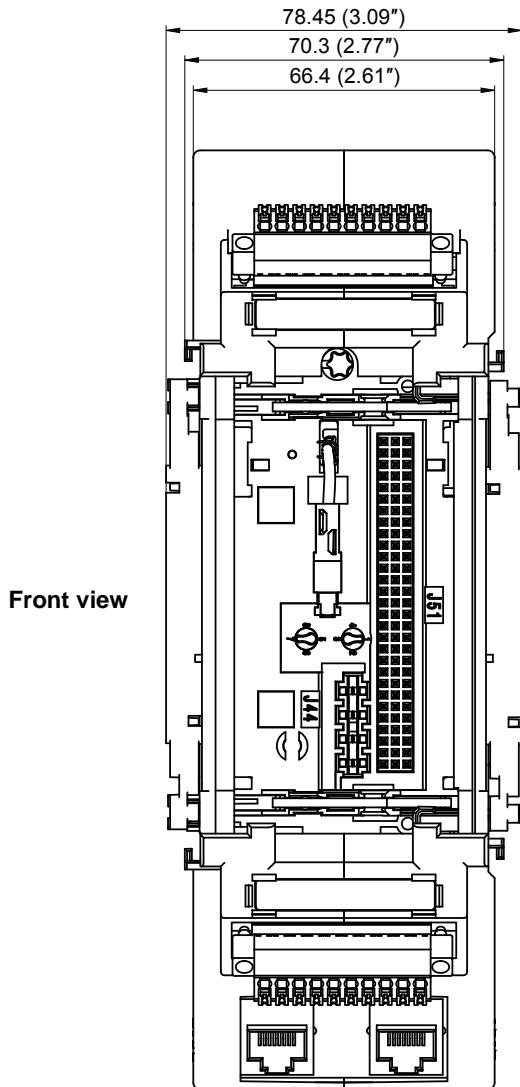
VSI010 module – other views



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

MECHANICAL DRAWINGS (continued)

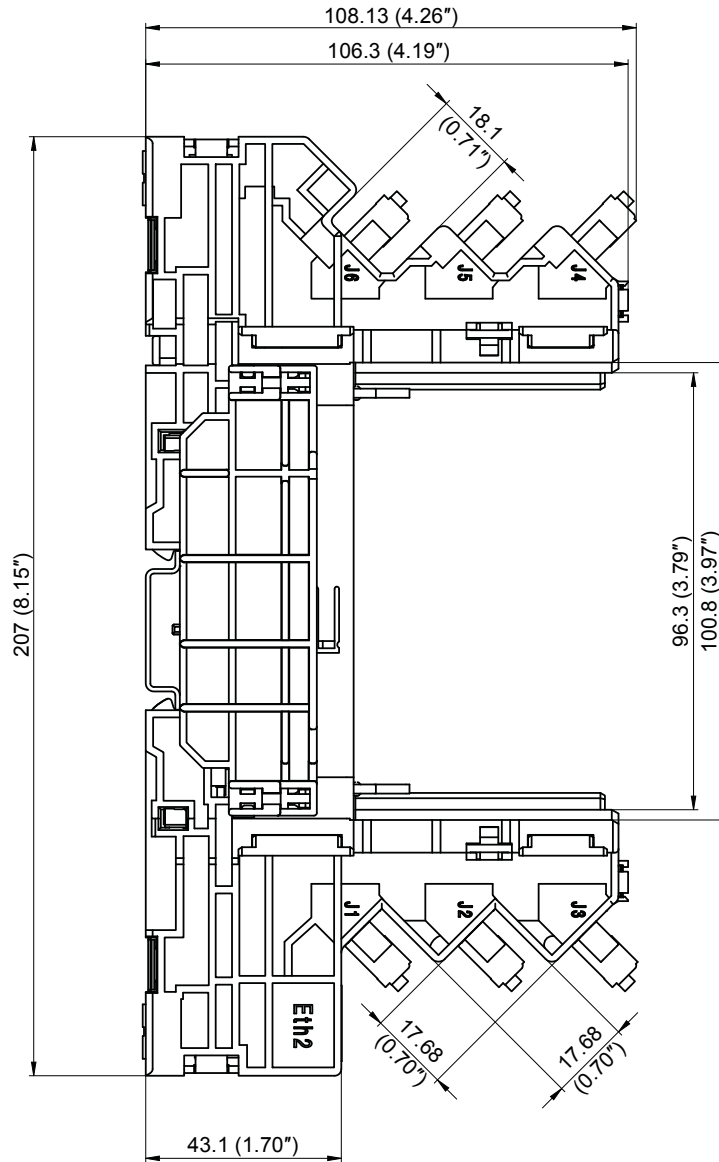
VSB010 terminal base – front and rear views



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

MECHANICAL DRAWINGS (continued)

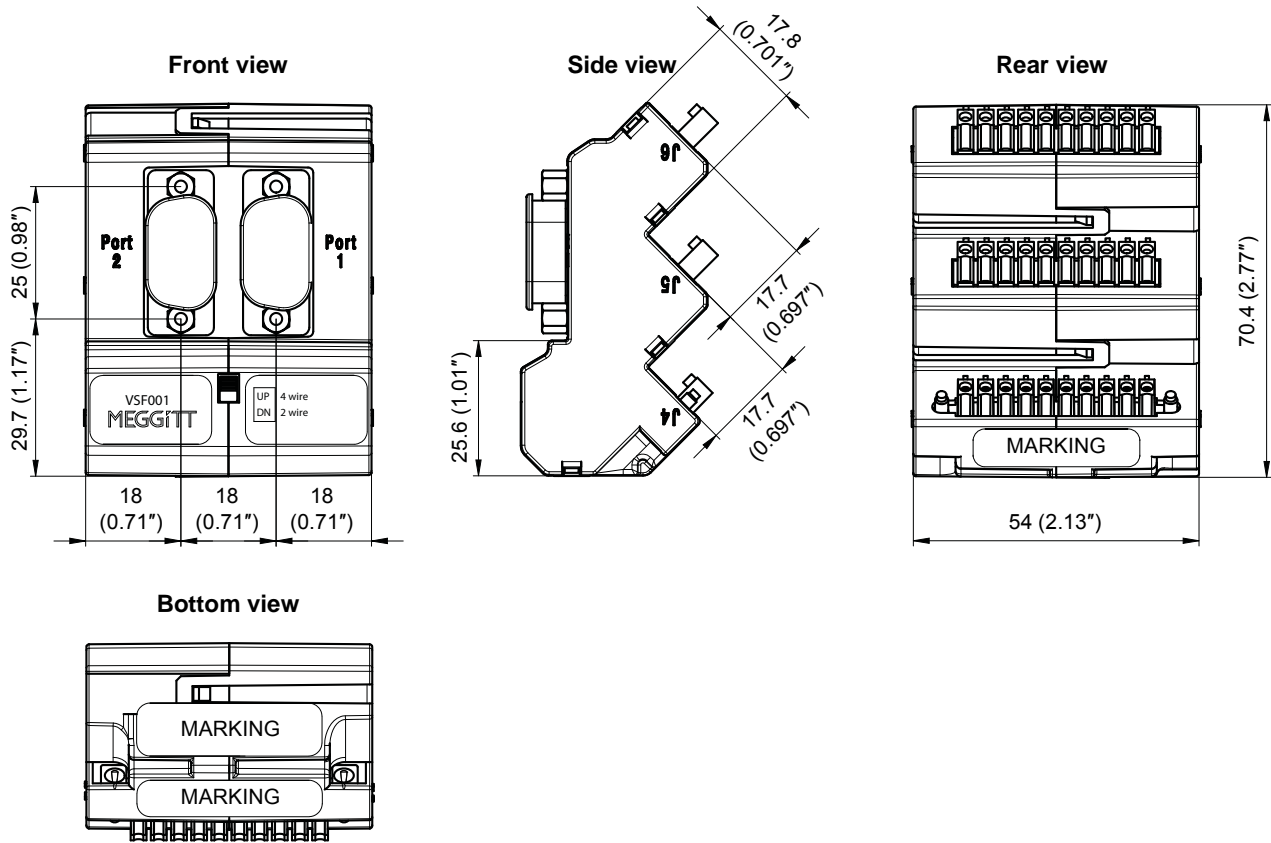
VSB010 terminal base – side view



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

MECHANICAL DRAWINGS (continued)

VSF001 serial fieldbus communications adaptor



Notes

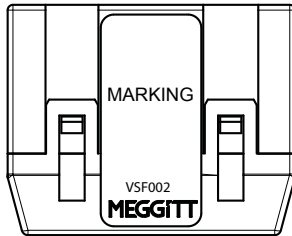
All dimensions are in mm (in) unless otherwise stated.

For a VSF001 serial fieldbus communications adaptor, a vertical clearance of at least 60 mm (2.36") above the top of the VSB010 terminal base is recommended in order to help ensure that the fieldbus communications adaptor and any associated cabling and connectors can be inserted and removed. In practice, the actual clearance required depends on the type of serial cabling and connectors used.

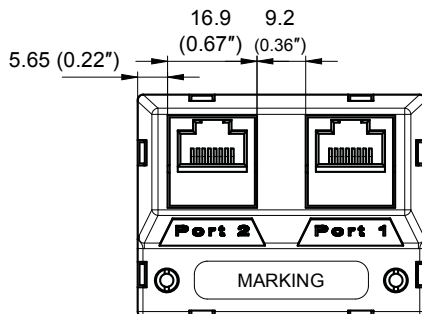
MECHANICAL DRAWINGS (continued)

VSF002 Ethernet fieldbus communications adaptor

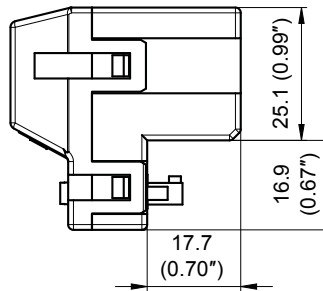
Top view



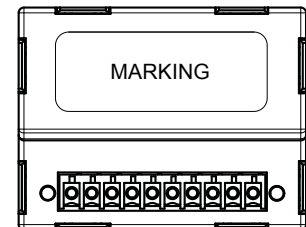
Front view



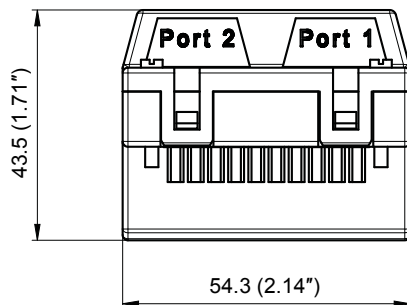
Side view



Rear view



Bottom view



Notes

All dimensions are in mm (in) unless otherwise stated.

For a VSF002 Ethernet fieldbus communications adaptor, a vertical clearance of at least 40 mm (1.57") above the top of the VSB010 terminal base is recommended in order to help ensure that the fieldbus communications adaptor and any associated cabling and connectors can be inserted and removed. In practice, the actual clearance required depends on the type of Ethernet cabling and connectors used.

ORDERING INFORMATION

To order please specify

Type	Designation	Ordering number
VSI010	VibroSmart communications interface module	600-010
VSB010	Terminal base for a VSI010 module	600-011

Notes

The VSB010 is supplied with a set of 6x terminal base BCF plug-in connectors for J1 to J6 that are labelled and mechanically key-coded for the VSI010 / VSB010. Sets of additional connectors can be ordered as VSK003 (see **Accessories on page 16**).

The VSF001 serial fieldbus communications adaptor is required for Modbus RTU and PROFIBUS DP communications interfaces and the VSF002 Ethernet fieldbus communications adaptor is required for a Modbus TCP communications interface. The appropriate fieldbus communications adaptor must be ordered separately (see **Accessories on page 16**).

ACCESSORIES

To order please specify

Type	Designation	Ordering number
VSA001	T30 Torx driver with a length of 150 mm (suitable for the DIN rail adaptor in VSBxxx terminal bases)	975.51.54.0030
VSF001	Serial fieldbus communications adaptor	600-031
VSF002	Ethernet fieldbus communications adaptor	600-032
VSK003	Set of 6x terminal base BCF plug-in connectors for J1 to J6 (labelled and mechanically key-coded for a VSI010 / VSB010)	622-019-200-001

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
VSN010	VibroSmart real-time Ethernet switch	: Refer to corresponding data sheet
VSV300	VibroSmart monitoring module	: Refer to corresponding data sheet
VSV301	VibroSmart monitoring module	: Refer to corresponding data sheet

RECOMMENDATIONS FOR RELIABLE CONNECTIONS

It is highly recommended to terminate all wires connected to the BCF plug-in connectors (female) used by J1 to J6 of the VSB010 terminal base by crimping them with the appropriate industry standard wire-end ferrules, in order to help ensure consistent and reliable connections.

Headquartered in the UK, Meggitt PLC is a global engineering group specializing in extreme environment components and smart sub-systems for aerospace, defence and energy markets.

Meggitt Sensing Systems is the operating division of Meggitt specializing in sensing and monitoring systems, which has operated through its antecedents since 1927 under the names of ECET, Endevco, Ferroperm Piezoceramics, Lodge Ignition, Sensorex and Vibro-Meter. Today, these operations are integrated under one strategic business unit called Meggitt Sensing Systems, headquartered in Switzerland and providing complete systems, using these renowned brands, from a single supply base.

The Meggitt Sensing Systems facility in Fribourg, Switzerland was formerly known as Vibro-Meter SA, but is now Meggitt SA. This site produces a wide range of vibration and dynamic pressure sensors capable of operation in extreme environments, leading-edge microwave sensors, electronics monitoring systems and innovative software for aerospace and land-based turbo-machinery.



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In this publication, a dot (.) is used as the decimal separator and thousands are separated by thin spaces. Example: 12345.67890.

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