



# Viper 20A Series

20 port Ethernet M12 switches



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# 1. General Information

## 1.1. Legal Information

The contents of this document are provided “as is”. Except as required by applicable law, no warranties of any kind are made in relation to the accuracy and reliability or contents of this document, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Westermo reserves the right to revise this document or withdraw it at any time without prior notice.

Under no circumstances shall Westermo be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.

More information about Westermo can be found at [www.westermo.com](http://www.westermo.com).

## 1.2. About This Guide

This guide is intended for installation engineers and users of the Westermo products.

It includes information on safety and regulations, a product description, installation instructions and technical specifications.

## 1.3. Software Tools

Related software tools are available at [www.westermo.com/support/software-tools](http://www.westermo.com/support/software-tools).

## 1.4. License and Copyright for Included FLOSS

This product includes software developed by third parties, including Free/Libre Open Source Software (FLOSS). The specific license terms and copyright associated with the software are included in each software package respectively. Please visit the product web page for more information.

Upon request, the applicable source code will be provided. A nominal fee may be charged to cover shipping and media. Please direct any source code request to your normal sales or support channel.

## 1.5. WeOS Management Guide

This product runs WeOS (Westermo Operating System). Instructions for quick start, configuration, factory reset and use of USB port are found in the WeOS Management Guide at [www.westermo.com](http://www.westermo.com).

## 2. Safety and Regulations

### 2.1. Warning Levels

Warning signs are provided to prevent personal injuries and/or damages to the product. The following levels are used:





| Level of warning   | Description   | Consequence personal injury    | Consequence material damage    |
|--|---|--------------------------------|--------------------------------|
| <br>WARNING | Indicates a potentially hazardous situation   | Possible death or major injury | Major damage to the product    |
| <br>CAUTION | Indicates a potentially hazardous situation   | Minor or moderate injury       | Moderate damage to the product |
| <br>NOTICE  | Provides information in order to avoid misuse of the product, confusion or misunderstanding | No personal injury             | Minor damage to the product    |
| <br>NOTE  | Used for highlighting general, but important information                                    | No personal injury             | Minor damage to the product    |

Table 1. Warning levels

## 2.2. Safety Information

### Before installation:

Read this manual completely and gather all information available on the product. Make sure it is fully understood. Check that your application does not exceed the safe operating specifications for the product.

This product relies on convection cooling. Make sure that it is installed so that the ambient temperature is within the specified temperature range, e.g. by avoiding obstruction of the airflow around the product. Also see [EN 45545-2 Mounting Notes \[16\]](#) chapter.



### **WARNING - PREVENT ACCESS TO HAZARDOUS VOLTAGE**

Before mounting, using or removing this product: Prevent access to hazardous voltage by disconnecting the product from all power supply.



### **WARNING - HAZARDOUS VOLTAGE**

Do not open the connected product. Hazardous voltage may occur within this product when connected to power supply.



### **CAUTION - HOT SURFACE**

Be aware of that the surface of this product may become hot. When this product is operated at high temperatures, the external surface of the product may exceed Touch Temperature Limit according to EN/IEC/UL 60950-1.



### **NOTICE - PROTECTIVE EARTHING CONDUCTOR**

Before powering-up, a protective earthing conductor must be connected to the protective earth terminal with at least AWG15. Note that this product can be connected to two different power sources.



### **NOTICE - REDUCE RISK OF FIRE**

To reduce the risk of fire:

1. Use only No. 21 AWG or larger power cable
2. Use only No. 26 AWG or larger telecommunication line cord



### **NOTICE - CONNECT EXTERNAL FUSE**

The product has no internal fuse and should be connected via an external fuse for protection. The fuse must be UL approved and rated for at least 160 VDC / 1.5 A.



### **NOTICE - MECHANICAL FORCE ON VENTILATION MEMBRANE**

Do not cover or bring mechanical force to the ventilation membrane on the back of the product.

## **2.3. Care Recommendations**

Follow the care recommendations below to maintain full operation of the product and to fulfill the warranty obligations:

- Do not drop, knock or shake the product. Rough handling above the specification may cause damage to internal circuit boards.
- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the product.
- Do not paint the product. Paint can clog the product and prevent proper operation.

If the product is used in a manner not according to specification, the protection provided by the equipment may be impaired.

If the product is not working properly, contact the place of purchase, nearest Westermo distributor office or Westermo technical support.

## **2.4. Maintenance**

No maintenance is required, as long as the product is used as intended within the specified conditions.

## **2.5. Product Disposal**

This symbol means that the product shall not be treated as unsorted municipal waste when disposing of it. It needs to be handed over to an applicable collection point for recycling electrical and electronic equipment.

By ensuring the product is disposed of correctly, you will help to reduce hazardous substances and prevent potential negative consequences to both environment and human health, which could be caused by inappropriate disposal.



Figure 1. WEEE symbol for treatment of product disposal

## 2.6. Compliance Information

### 2.6.1. Agency Approvals and Standards Compliance

| Type                               | Approval/Compliance  |
|------------------------------------|--|
| Climate                            | <ul style="list-style-type: none"> <li>EN 50155/IEC 60571 class TX, Railway applications - Electronic equipment used on rolling stock</li> <li>IEEE 1478 class 1, condition E4 (incl Salt Mist), Environmental conditions for transit rail car electronic equipment</li> </ul>   |
| EMC                                | <ul style="list-style-type: none"> <li>EN/IEC 61000-6-2, Immunity industrial environments</li> <li>EN/IEC 61000-6-4, Emission industrial environments</li> <li>EN 50121-4/IEC 62236-4, Railway signalling and telecommunications apparatus</li> <li>EN 50121-3-2/IEC 62236-3-2 Railway applications – Rolling stock – apparatus</li> <li>Tested and verified for Class S1, DB EMC Regulation 06, Commodity team Radio compatibility in VDB Rev 1.0 (Shunting Radio).</li> <li>Tested and verified for FCC part 15</li> <li>E-Mark, Road Vehicles, E1 10R-058547</li> </ul> |
| Mechanical (Shock and vibration)   | <ul style="list-style-type: none"> <li>EN 61373 category 1, class A and B</li> <li>EN 60068-2-27 20 g, 11 ms and 100 g, 6 ms</li> </ul>  |
| Insulation (Coordination and test) | <ul style="list-style-type: none"> <li>EN 50124-1, Railway applications – Insulation coordination</li> <li>EN 50155/IEC 60571, Railway applications - Electronic equipment used on rolling stock</li> </ul>  |
| Fire protection                    | <ul style="list-style-type: none"> <li>EN 45545-2, Fire protection on railway vehicles</li> <li>NFPA 130, Fire protection for fixed guideway transit and passenger rail system</li> </ul>  |

Table 2. Agency approvals and standards compliance

#### 2.6.2. FCC Part 15.105

This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment.

This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the users own expense.

### **2.6.3. Simplified Declaration of Conformity**

Hereby, Westermo declares that this product is in compliance with applicable EU directives. The full EU declaration of conformity and other detailed information is available at [www.westermo.com/support/product-support](http://www.westermo.com/support/product-support).



*Figure 2. The European conformity marking*



## 3. Product Description

### 3.1. Product Description

The Viper-20A series is a series of managed 20 port switches optimised for the needs of the railway rolling stock market. Gbps ports cope with high bandwidth devices such as access points and NVRs (Network Video Recorders).

The Viper is designed to withstand the tough environment on-board trains, exposing the switch to constant vibration, extreme temperatures, humidity and a demanding electrical environment.

A GORE-TEX® membrane prevents internal condensation. Threading integrated in chassis provides for additional vibration resistance. High-level isolation between all interfaces enables direct connectivity to vehicle auxiliary power and protects against overvoltage and flashover. IP67 protection prevents ingress of water and dust. An overall optimised design results in an extremely compact package in combination with very high MTBF for easy integration and low lifecycle cost.

Thorough type testing at independent ISO/IEC 17025 and ILAC MRA certified labs, accredited to a wide range of standards, show that the Viper series fulfills EN 50155 and other requirements. The state-of-the-art Westermo production facility ensures the quality of each individual unit, e.g. through temperature cycling burn-in testing.

Meeting the requirements of the railcar market, the Viper is very well suited for deployment in any other application with severe operating conditions and tough environments, for instance in the mining industry.

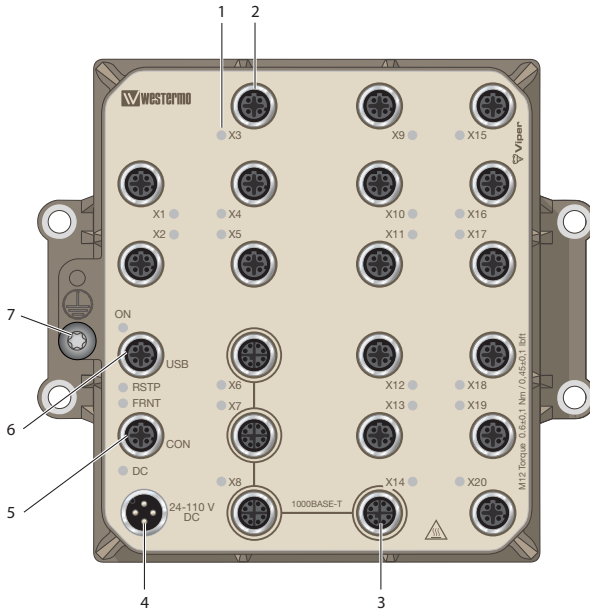
### 3.2. Available Models

All switches are managed. Viper x20A is used when referring to both models 120A and 220A.

| Art. no.  | Model          | Software | Gbps ports |
|-----------|----------------|----------|------------|
| 3635-0910 | Viper-120A     | L2       | -          |
| 3635-0920 | Viper-220A     | L3       | -          |
| 3635-1210 | Viper-120A-T4G | L2       | 4          |
| 3635-1220 | Viper-220A-T4G | L3       | 4          |

Table 3. Available Viper-x20A models

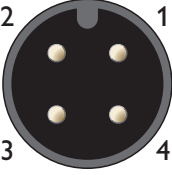
### 3.3. Hardware Overview



| No. | Description                 | No. | Description      |
|-----|-----------------------------|-----|------------------|
| 1   | LED indicator               | 2   | 100 Mbps port    |
| 3   | Gbps port                   | 4   | Power connection |
| 5   | Console port                | 6   | USB port         |
| 7   | Protective earth connection |     |                  |

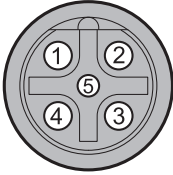
Figure 3. Location of interface ports and LED indicators

### 3.4. Connector Pinout

| Pin no. | Signal | Illustration  |
|---------|--------|---|
| 1       | +DC1   |  |
| 2       | +DC2   |   |
| 3       | -COM   |   |
| 4       | -COM   |   |

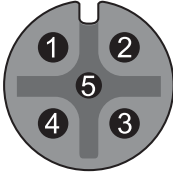
Viper-x20A supports redundant power connection. The positive inputs are +DC1 and +DC2. The negative input for both supplies is -COM

Table 4. Power connector

| Pin no. | Signal          | Illustration  |
|---------|-----------------|---|
| 1       | NC <sup>a</sup> |  |
| 2       | TX              |   |
| 3       | RX              |   |
| 4       | NC <sup>a</sup> |   |
| 5       | GND             |   |

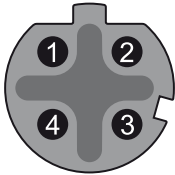
<sup>a</sup>No Connect. Do not connect.

Table 5. Console connector

| Pin no. | Signal          | Illustration   |
|---------|-----------------|--|
| 1       | DN              |  |
| 2       | VBUS            |  |
| 3       | NC <sup>a</sup> |  |
| 4       | DC              |  |
| 5       | GND             |  |


<sup>a</sup>No Connect. Do not connect.

Table 6. USB connector

| Pin no. | Signal | Illustration  |
|---------|--------|---|
| 1       | TD+    |  |
| 2       | RD+    |   |
| 3       | TD-    |   |
| 4       | RD-    |   |

MDI, MDI-X and auto MDI/MDI-X modes are supported. The table shows signals in MDI mode.

**Table 7. 100 Mbps Ethernet connector**

| Pin no. | Signal | Illustration  |
|---------|--------|---|
| 1       | DA+    |  |
| 2       | DA-    |   |
| 3       | DB+    |   |
| 4       | DB-    |   |
| 5       | DD+    |   |
| 6       | DD-    |   |
| 7       | DC-    |   |
| 8       | DC+    |   |

**Table 8. Gbps connector**

### 3.5. LED Indicators

| LED       | Status      | Description   |
|-----------|-------------|---|
| ON        | OFF         | Product has no power  |
|           | GREEN       | All OK, no alarm condition  |
|           | RED         | Alarm condition, or until product has started up. (Alarm conditions are configurable, see <i>WeOS Management Guide</i> )  |
|           | BLINK       | Location indicator ("Here I am!"). Activated when connected to WeConfig tool, or upon request from web or/and CLI. RED BLINK during boot indicates pending cable factory reset. |
| RSTP      | OFF         | RSTP disabled   |
|           | GREEN       | RSTP enabled  |
|           | BLINK       | Product selected as RSTP/STP root switch  |
| FRNT      | OFF         | FRNT disabled   |
|           | GREEN       | FRNT OK   |
|           | RED         | FRNT error  |
|           | BLINK       | Product configured as FRNT focal point  |
| DC        | OFF         | Product has no power  |
|           | GREEN       | Power OK on DC1 and DC2   |
|           | RED         | Power failure on DC1 or DC2   |
| X1 to X20 | OFF         | No link   |
|           | GREEN       | Link established  |
|           | GREEN FLASH | Data traffic indication   |
|           | YELLOW      | Port alarm, or port is set in blocking state by link redundancy protocol  |

Table 9. LED indicators

### 3.6. Dimensions

Dimensions are stated in mm.

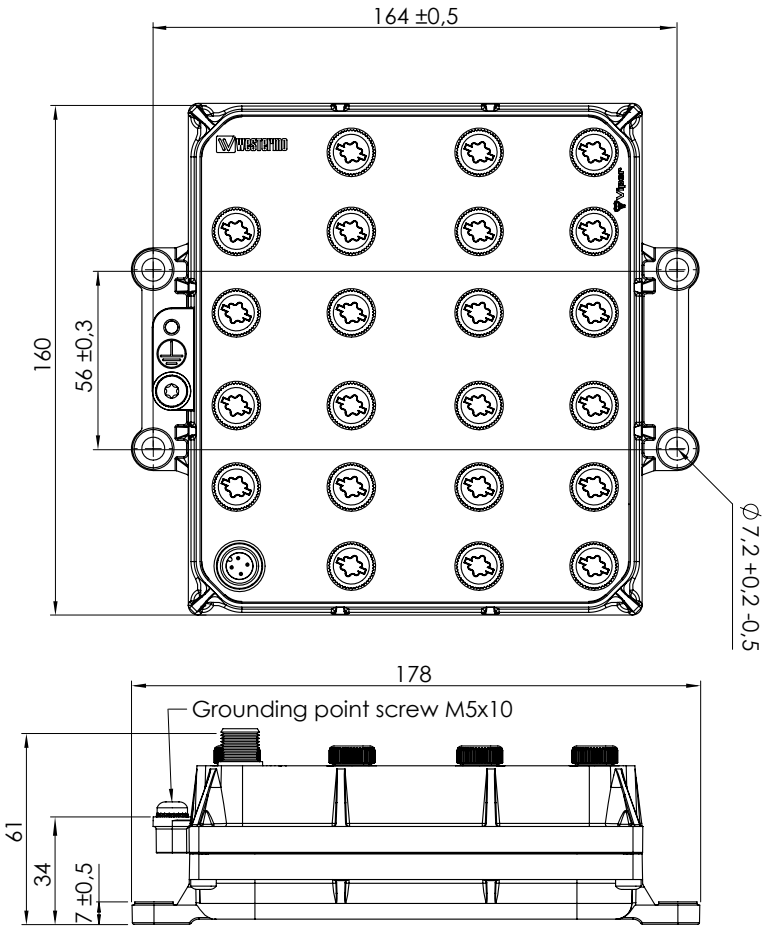


Figure 4. Dimensional drawing

## 4. Installation

### 4.1. Wall Mounting

The product can be wall mounted vertically or horizontally. There are four pieces of 7 mm bores for this. Use four M5, M6 or 1/4" screws with 12 mm washers on a flat and stable surface.

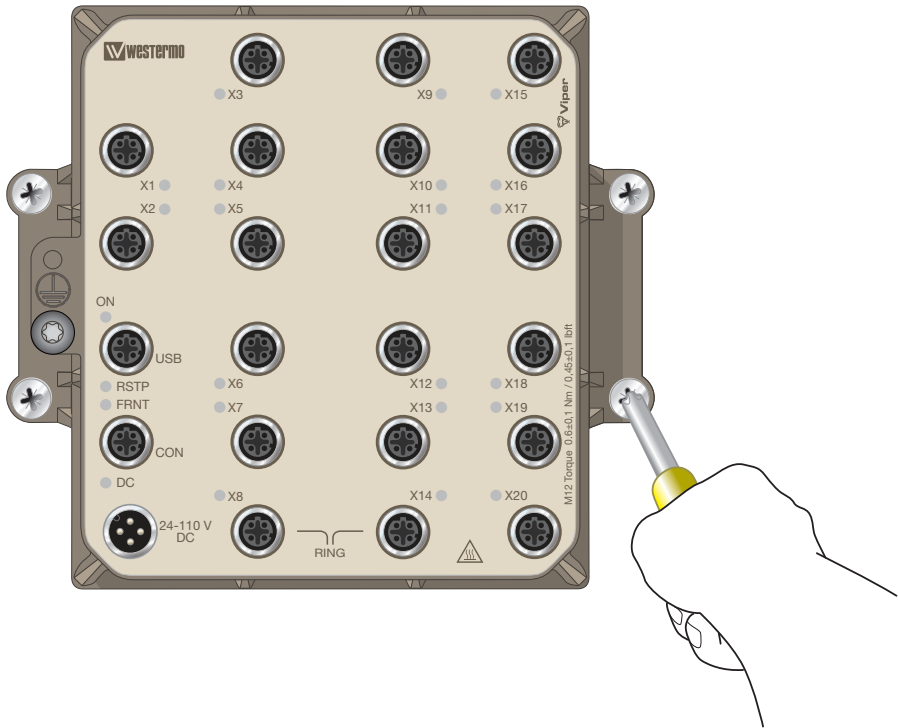


Figure 5. Wall mounting

### 4.2. Connection of Cables

Recommended tightening torque for the M12 connectors is 0.6 Nm. All M12 connections are screw connections.

When connecting the power cable, ensure that the pins are connected correctly before tightening the power cable to the unit.



#### **NOTE - CONNECT EXTERNAL FUSE**

This product has no internal fuse and should be connected via an external fuse for protection. The fuse must be UL approved and rated for at least 160 VDC / 1.5 A.



#### **NOTE - UNUSED CONNECTORS**

Unused connectors must be covered by a protective cap (delivered with the product), tightened to the specified torque in order to fulfill the specified ingress protection code.

### **4.3. Cooling**

This product relies on convection cooling. Make sure that it is installed so that the ambient temperature is within the specified temperature range, e.g. by avoiding obstruction of the airflow around the product.

### **4.4. Replacement of Product**

Disconnect all cables and unscrew the product from the wall. Mount the replacement product and reconnect all cables, observing the instructions in [Connection of Cables \[15\]](#). For easy replication of the configuration of the original product, it is recommended to have the Westermo USB plug permanently connected to the USB port and move it over to the replacement product before it is powered up.

MTTR (Mean Time To Repair), i.e. time for replacement of product is: < 15 minutes.



#### **CAUTION - HOT SURFACE**

Be aware of that the surface of this product may become hot. When it is operated at high temperatures, the external surface may exceed Touch Temperature Limit according to the product's relevant electrical safety standard.

Westermo's products are fanless and use convection cooling. To avoid obstructing the airflow around the product, follow the spacing recommendations.

### **4.5. EN 45545-2 Mounting Notes**

Two product can be mounted together and as a single interior non-listed group in the sense of EN 45545-2 definitions. For multiple product, the spacing requirements for interior non-listed groups must be met.



## 5. Specifications

### 5.1. Interface Specifications

| DC, Power port                 |  |
|--------------------------------|--|
| Rated voltage                  | 24 to 110 VDC  |
| Operating voltage              | 16.8 to 143 VDC (14.4 to 154 VDC for 100 ms)   |
| Rated current                  | Max 670 mA at 24 VDC, max 160 mA at 110 VDC  |
| Rated frequency                | DC   |
| Inrush current, I <sub>t</sub> | Viper-x20 units: 100 mA <sup>2</sup> s at 24 VDC, 140 mA <sup>2</sup> s at 110 VDC<br>Viper-x20-T4G units: 110 mA <sup>2</sup> s at 24 VDC, 140 mA <sup>2</sup> s at 110 VDC |
| Startup current <sup>3</sup>   | Max 1,37 A at 16.8 VDC   |
| Polarity                       | Reverse polarity protected   |
| Redundant power input          | Yes  |
| Isolation                      | 2250 VDC to all other ports  |
| Connector                      | 4-pin, male, M12, A-coded, recommended Westermo cables:<br>3146-1106 for 1.5 m<br>3146-1107 for 5 m  |
| Cable size                     | M12, recommended cable area 0.5 mm <sup>2</sup> (minimum 0.25 mm <sup>2</sup> )<br>Cable dimensions depend on choice of M12 connector  |

<sup>3</sup>Recommended external supply current capability for proper startup

| <b>100 Mbps ports<sup>a</sup></b> |   |
|-----------------------------------|---|
| Electrical specification          | IEEE std 802.3  |
| Data rate                         | 10 Mbps, 100 Mbps, manual or auto   |
| Duplex                            | Full or half, manual or auto  |
| Circuit type                      | TNV-1   |
| Transmission range                | Up to 150 m with CAT5e cable or better  |
| Isolation                         | 2250 VDC to all other ports <sup>b</sup>  |
| Connector                         | 4-pin, female, M12, D-coded, auto MDI/MDI-X, recommended Westermo cables:<br>3146-1100 M12-M12 - 1 m<br>3146-1101 M12-M12 - 5 m<br>3146-1103 RJ45-M12 - 1 m<br>3146-1104 RJ45-M12 - 5 m |
| Shielded cable                    | Required  |
| Conductive chassis                | Yes   |
| FRNT reconfiguration time         | Typically below 20 ms   |

<sup>a</sup>100 Mbps ports are:

X1-X20 on Viper-x20A

X1-X5, X9-X13, X15-X20 on Viper-x20A-T4G

<sup>b</sup>750 VDC after damp heat, according to EN 50155

| <b>Gbps ports<sup>a</sup></b> |  |
|-------------------------------|--|
| Electrical specification      | IEEE std 802.3                               |
| Data rate                     | 10 Mbps, 100 Mbps, 1000 Mbps, manual or auto |
| Circuit type                  | TNV-1  |
| Transmission range            | Up to 150 m with CAT5e cable or better       |
| Isolation                     | 2250 VDC to all other ports <sup>b</sup>     |
| Connector                     | 8-pin, female, M12, X-coded                  |
| Shielded cable                | Required                                     |
| Conductive chassis            | Yes  |
| FRNT reconfiguration time     | Typically below 20 ms                        |

<sup>a</sup>Gbps ports are: X6-X8, X14 on Viper-x20A-T4G

<sup>b</sup>750 VDC after damp heat, according to EN 50155

| <b>USB port</b>          |  |
|--------------------------|--|
| Electrical specification | USB 2.0 host interface   |
| Data rate                | Up to 480 Mbps (high-speed mode)                                     |
| Maximum supply current   | 500 mA   |
| Circuit type             | SELV   |
| Isolation                | To Ethernet and DC ports: 2250 VDC<br>No isolation to CON or chassis |
| Connector                | 5-pin, female, M12, A-coded, recommended Westermo USB plug 3641-0190 |

| <b>Console port</b>      |  |
|--------------------------|--|
| Electrical specification | RS-232   |
| Data rate                | 115.2 kbit/s   |
| Data format              | 8 data bits, no parity, 1 stop bit, no flow control  |
| Circuit type             | SELV   |
| Isolation                | To Ethernet and DC ports: 2250 VDC<br>No isolation to USB or chassis                                 |
| Connector                | 5-pin, female, M12, B-coded, recommended Westermo cables: 1211-2215 (serial port) or 1211-4073 (USB) |

## 5.2. Type Tests and Environmental Conditions

| Environmental phenomena | Basic standard           | Description                            | Test levels  |
|-------------------------|--------------------------|--|--|
| ESD                     | EN 61000-4-2             | Enclosure                              | Contact: $\pm 6$ kV<br>Air: $\pm 8$ kV   |
| Fast transients         | EN 61000-4-4             | Power port                             | $\pm 2$ kV   |
|                         |                          | Signal ports                           |  |
|                         |                          | Earth port                             |  |
| Surge                   | EN 61000-4-5             | Power port                             | L-E: $\pm 2$ kV, $42 \Omega$ , $0.5 \mu\text{F}$ , $1.2/50 \mu\text{s}$<br>L-E: $\pm 0.5$ kV, $12 \Omega$ , $9 \mu\text{F}$ , $1.2/50 \mu\text{s}$<br>L-L: $\pm 2$ kV, $42 \Omega$ , $0.5 \mu\text{F}$ , $1.2/50 \mu\text{s}$<br>L-L: $\pm 0.5$ kV, $2 \Omega$ , $18 \mu\text{F}$ , $1.2/50 \mu\text{s}$ |
|                         |                          | Ethernet port                          | L-E: $\pm 2$ kV, $2 \Omega$  |
| Pulsed magnetic field   | EN 61000-4-9             | Enclosure                              | 300 A/m  |
| Radiated RF immunity    | EN 61000-4-3             | Enclosure                              | 20 V/m at (80 MHz to 2 GHz)<br>10 V/m at (2-6 GHz)<br>1 kHz sine, 80% AM   |
| Conducted RF immunity   | EN 61000-4-6             | Power port                             | 10 V, 80% AM, 1 kHz; (0.15-80) MHz   |
|                         |                          | Ethernet ports                         |  |
|                         |                          | Earth port                             |  |
| Radiated RF emission    | CISPR 16-2-3             | Enclosure                              | EN 61000-6-4 (30-6000 MHz)   |
|                         | ANSI C63,4 (FCC Part 15) |  | EN 61000-6-4 (30-6500 MHz)   |
| Conducted RF emission   | CISPR 16-2-1             | Power port                             | EN 61000-6-4   |
|                         |                          | Ethernet ports                         | EN 61000-6-3   |
| Dielectric strength     | EN 60950-1               | Power port to all other ports          | 2250 VDC, 1 min  |
|                         |                          | Ethernet ports to all other ports      | 2250 VDC, 1 min <sup>a</sup>   |
|                         |                          | Gbps Ethernet ports to all other ports | 2250 VDC, 1 min <sup>a</sup>   |

<sup>a</sup>750 VDC after damp heat, according to EN 50155

Table 10. EMC and electrical conditions

| Environmental phenomena | Basic standard               | Description                          | Test levels   |
|-------------------------|------------------------------|--------------------------------------|---|
| Temperatures            | EN 60068-2-1<br>EN 60068-2-2 | Operational                          | -40 to +70°C (-40 to +158°F) <sup>ab</sup>  |
|                         |                              | Storage and transport                | -55 to +85°C (-67 to +185°F)  |
| Humidity                | EN 60068-2-30                | Operational                          | 5-95% relative humidity   |
|                         |                              | Storage and transport                |   |
| Altitude                |                              | Operational                          | 2000 m/70 kPa   |
| Service life            |                              | Operational                          | 20 years according to IEC/TR 62380  |
| MTBF                    | MIL-217F2, GB, 25°C (+77°F)  |                                      | Viper-x20A:<br>530,500 hours<br><br>Viper-x20A-T4G:<br>522,000 hours                        |
| Vibration               | IEC 60068-2-6 (sine)         | Operational                          | 2 g rms 5-500 Hz, 5 sweeps  |
|                         | IEC 60068-2-64 (random)      | Non-operational long life simulation | 11.44 m/s <sup>2</sup> rms 5-150 Hz, 5 hours<br>2.3 m/s <sup>2</sup> rms 5-2000 Hz, 5 hours |
| Shock                   | IEC 60068-2-27               | Operational                          | 10 g, 30 ms, half sine<br>20 g, 11 ms, saw tooth<br>100 g, 6 ms, half sine                  |
| Enclosure               | EN 60950-1                   | Zinc                                 | Fire enclosure  |
| Weight                  |                              |                                      | 1.6 kg  |
| Degree of protection    | EN 60529                     | Enclosure                            | IP67 <sup>c</sup>   |
| Cooling                 |                              |                                      | Convection  |

<sup>a</sup>Refer to "Safety and Regulations" chapter regarding touch temperature

<sup>b</sup>Operational at +85°C for a limited time

<sup>c</sup>Provided all connectors are connected with IP67 cabling or fitted with protective caps (delivered with the unit) and tightened to the specified torque.

**Table 11. Environmental and mechanical conditions**

## 6. Revision Notes

| Revision | Date    | Change description   |
|----------|---------|--|
| Rev. G   | 2020-1  | 2.6.1 Agency Approvals and Standards Compliance - references to SBB requirements and ÖBB removed.  |
| Rev. F   | 2019-09 | 2.6.1 Agency Approvals and Standards Compliance updated with E-mark  |
| Rev. E   | 2019-06 | Front page updated, 1.3 Software Tools text updated, 2.2 Safety Information: Notice - Mechanical force on ventilation membrane new information, 2.3 Care Recommendations text updated, 4.4 Replacement of Product text updated   |
| Rev. D   | 2018-12 | 2.2 Safety Information updated with specific symbol for Caution - Hot surface, and text in Notice - Connect external fuse, 2.5 Environmental Protection updated to Product disposal, 2.6.3 Declaration of Conformity updated to Simplified Declaration of Conformity, 3.3 Hardware Overview table updated, 4.2 updated with Notice - Connect external fuse, 4.4 symbol for Caution - Hot surface updated, 5.1 Interface specification updated with inrush current, 5.2 Type Tests and Environmental Conditions - enclosure updated, end page updated |
| Rev. C   | 2017-09 | 2.6.1 Mechanical data updated, 3.6 Dimensional drawing updated, 5.1 Transmission range for Gbps ports updated, 5.2 Radiated + Conducted RF emission updated, Enclosure updated   |
| Rev. B   | 2017-07 | New chapter (2.1 Warning levels chapter), Shock and NFPA 130 updated (2.6.1 Agency approvals updated), text updated (3.1 Product description), inrush current updated (5.1 Interface specifications), service life, shock and operating temperature updated (5.2 Type Tests and environmental conditions).   |
| Rev. A   | 2017-05 | First issue of user guide  |





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