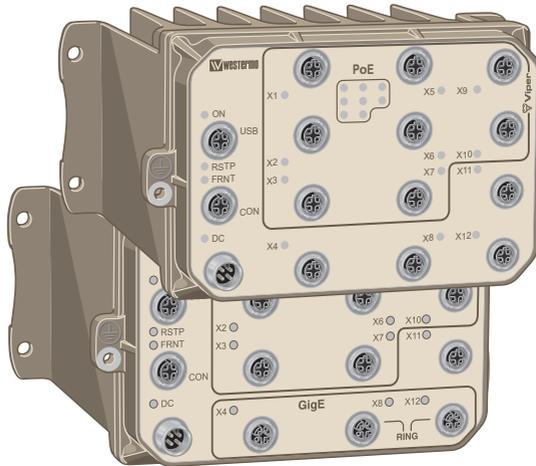2 TEST

# Viper-12-PoE
S E R I E S

*12-port Ethernet M12 switch*
*with Power over Ethernet*

WESTERMO

### Software tools

Related software tools are available in the folder software tools under technical support on the Westermo website.

### Legal information

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy and reliability or contents of this document. 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.

# Safety

⚠ **Before installation:**
Read this manual completely and gather all information on the unit. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this unit.

This unit should only be installed by qualified personnel.

This unit should be built-in to an apparatus cabinet, or similar, where access is restricted to service personnel only. The power supply wiring must be sufficiently fused, and if necessary it must be possible to disconnect manually from all power supply. Ensure compliance to national installation regulations. This unit relies on convection heating. 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 unit. Also check chapter CEN/TS 45545-2 mounting notes.

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

⚠ **WARNING**
Do not open connected unit. Hazardous voltage may occur within this unit when connected to power supply.

Before powering-up, a protective earthing conductor must be connected to the protective earthing terminal and have a cross-sectional area of at least 1.5 mm². Note that this unit can be connected to two different power sources.

When this unit is operated at an ambient temperature above +60°C (+140°F), the External Surface of Equipment may exceed Touch Temperature Limit according to EN/IEC/UL 60950-1. To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

# Care recommendations

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

- Do not attempt to dissassemble the unit. There are not any user serviceable parts inside.
- Do not drop, knock or shake the unit. 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 unit.
- Do not expose the unit to any kind of liquid (water, beverages, paint etc), unless all connectors are connected or fitted with protective caps (delivered with the unit), tightened to the specified torque. Connected cables must have the appropriate ingress protection code.
- Do not use or store the unit in dusty or dirty areas, unless all connectors and the ventilation membrane are sufficiently protected.
- Do not cover or bring mechanical force to the ventilation membrane on the back of the unit.

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

## Maintenance
No maintenance is required, as long as the unit is used as intended within the specified conditions.

# Agency approvals and standards compliance

| Type | Approval / Compliance |
|------|----------------------|
| EMC | EN 61000-6-1, Immunity residential environments |
| | EN 61000-6-2, Immunity industrial environments |
| | EN 61000-6-4, Emission industrial environments |
| | EN 50121-3-2, Railway applications – Rolling stock – apparatus |
| | EN 50121-4 / IEC 62236-4, Railway signaling and telecommunications apparatus |
| Safety | EN 60950-1, IT equipment |
| Environmental | EN 61373<br>Railway applications – Rolling stock equipment. Shock and vibration tests |
| | IEEE 1478<br>Environmental conditions for transit rail car electronic equipment |
| | EN 50124-1<br>Railway applications – Insulation coordination |
| | EN 50155<br>Railway applications – Electronic equipment used on rolling stock |
| | IEC 60068-2-27, (shock 100g, 6 ms, halfsine) |
| | CEN/TS 45545-2<br>Fire safety standard |

**FCC Part 15.105 Notice:** This equipment 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 equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

# Declaration of Conformity

## Declaration of Conformity

The manufacturer      Westermo Teleindustri AB
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

| Type of product | Model | Art no |
|---|---|---|
| 12-port managed Gig Ethernet M12 PoE Switch | Viper-112-T3G-P8, Viper-212-T3G-P8 | 3641-0570, 3641-0595 |

is in conformity with the following EU directive(s).

| No | Short name |
|---|---|
| 2014/30/EU | Electromagnetic Compatibility (EMC) |
| 2014/35/EU | Low Voltage Directive (LVD) |
| 2011/65/EU | Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) |

References of standards applied for this EU declaration of conformity.

| No | Title | Issue |
|---|---|---|
| EN 50121-3-2 | Railway applications – Electromagnetic compatibility – Rolling stock - Apparatus | 2006 |
| EN 50121-4 | Railway applications – Electromagnetic compatibility – Emission and immunity of the signaling and telecommunications apparatus | 2006 |
| EN 61000-6-1 | Electromagnetic compatibility - Generic standards - Immunity for residential, commercial and light-industrial environments | 2007 |
| EN 61000-6-2 | Electromagnetic compatibility - Generic standards - Immunity for industrial environments | 2005 |
| EN 61000-6-4 | Electromagnetic compatibility - Generic standards - Emission standard for industrial environments | 2007 +A1:2011 |
| EN 60950-1 | Information technology equipment – Safety – General requirements | 2006 +A11:2009 +A1:2010 +A12:2011 |
| EN 50581 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances | 2012 |

The last two digits of the year in which the CE marking was affixed:      16

Signature

Pierre Öberg
Technical Manager
22nd March 2016

*6641-2252*

# Declaration of Conformity

**Westermo Teleindustri AB**

# Declaration of Conformity

The manufacturer        Westermo Teleindustri AB
                        SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

| Type of product | Model | Art no |
|---|---|---|
| 12-port managed Ethernet M12 PoE Switch | Viper-112-P8, Viper-212-P8 | 3641-0580, -0590 |

is in conformity with the following EU directive(s).

| No | Short name |
|---|---|
| 2014/30/EU | Electromagnetic Compatibility (EMC) |
| 2014/35/EU | Low Voltage Directive (LVD) |
| 2011/65/EU | Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) |

References of standards applied for this EU declaration of conformity.

| No | Title | Issue |
|---|---|---|
| EN 50121-3-2 | Railway applications – Electromagnetic compatibility – Rolling stock - Apparatus | 2015 |
| EN 50121-4 | Railway applications – Electromagnetic compatibility – Emission and immunity of the signaling and telecommunications apparatus | 2015 |
| EN 61000-6-1 | Electromagnetic compatibility - Generic standards - Immunity for residential, commercial and light-industrial environments | 2007 |
| EN 61000-6-2 | Electromagnetic compatibility - Generic standards - Immunity for industrial environments | 2005 |
| EN 61000-6-4 | Electromagnetic compatibility - Generic standards - Emission standard for industrial environments | 2007 +A1:2011 |
| EN 60950-1 | Information technology equipment – Safety – General requirements | 2006 +A11:2009 +A1:2010 +A12:2011 |
| EN 50581 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances | 2012 |

The last two digits of the year in which the CE marking was affixed:        16

Signature

Pierre Öberg
Technical Manager
22nd March 2016

# Type tests and environmental conditions

| Environmental phenomena | Basic standard | Description | Test levels |
|---|---|---|---|
| ESD | EN 61000-4-2 | Enclosure | Contact: ±6 kV  Air: ±8 kV |
| Fast transients | EN 61000-4-4 | Power port | ±4 kV |
| | | Ethernet ports | ±2 kV |
| | | Earth port | ±1 kV |
| Surge | EN 61000-4-5 | Power port | L-E: ±2 kV, 12Ω, 9 µF, 1.2/50 µs<br>L-L: ±1 kV, 2Ω, 18 µF, 1.2/50 µs<br>L-E: ±2 kV, 42Ω, 0.5 µF, 1.2/50 µs<br>L-L: ±2 kV, 42Ω, 0.5 µF, 1.2/50 µs<br>L-E: ±8.4 kV, 100Ω, 0.05/0.1 µs<br>L-L: ±8.4 kV, 100Ω, 0.05/0.1 µs |
| | | Ethernet ports | L-E: ±2 kV, 2 Ω |
| Power frequency magnetic field | EN 61000-4-8 | Enclosure | 300 A/m; 0, 16.7, 50, 60 Hz |
| Pulsed magnetic field | EN 61000-4-9 | Enclosure | 300 A/m |
| Radiated RF immunity | EN 61000-4-3 | Enclosure | 20 V/m @ (80 MHz – 2.7 GHz)<br>10 V/m @ (2.7 Ghz – 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 | 10 V, 80% AM, 1 kHz; (0.15 – 80) MHz |
| | | Earth port | 10 V, 80% AM, 1 kHz; (0.15 – 80) MHz |
| Radiated RF emission | CISPR 16-2-3 | Enclosure | Class A (30 – 6000 GHz) |
| | ANSI C63.4 (FCC Part 15) | | Class A (30 – 6000 GHz) |
| Conducted RF emission | CISPR 16-2-1 | Power port | Class A |
| | | Ethernet ports | Class B |
| Dielectric strength | EN 60950-1 | Power port to all other ports | 1.5 kV ACrms, 50 Hz, 1 min |
| | | Fast Ethernet ports to all other ports (not between PoE ports) | 1.5 kV ACrms, 50 Hz, 1 min |
| | | Gigabit Ethernet ports to all other ports | 500 V ACrms, 50 Hz, 1 min |
| **Environmental** | | | |
| Temperatures | EN 60068-2-1 | Operating | –40 to +70°C (–40 to +158°F)** |
| | EN 60068-2-2 | Storage and transport | –50 to +85°C (–58 to +185°F) |
| Humidity | EN 60068-2-30 | Operating | 5 to 95 % relative humidity |
| | | Storage and transport | 5 to 95 % relative humidity |
| Altitude | | Operating | 2 000 m / 70 kPa |
| Service life | | Operating | 15 years @ 25°C (+77°F) |
| MTBF | | Viper-x12-P8: 448 000 h | MIL-C217F2, GB, 25°C (+77°F) |
| | | Viper-x12-P8-T3G: 403 000 h | |
| Vibration | IEC 60068-2-64 (random) | Operating | 5 – 20 Hz, 0.0405 g²/Hz<br>20 – 150 Hz, –6 dB / oct 5h, 1.14 grms |
| Shock | IEC 60068-2-27 | Operating | 10 g, 30 ms,   20 g, 11 ms, 100 g, 6 ms |
| Enclosure | EN 60950-1 | Zinc (front) Aluminum (rear) | Fire enclosure |
| Dimension W x H x D With connectors | | | See "Dimensions" chapter for details |
| Weight | | | 1.7 kg |
| Degree of protection | EN 60529 | Enclosure | IP67*** |
| Cooling | | | Convection |

\* Only Viper-x12-P8 according to EN 50121-3: 2015
\*\* Refer to "Safety" section
\*\*\* Provided all connectors are connected with IP67 cabling or fitted with protective caps (delivered with the unit), tightened to the specified torque

*6641-2252*

# Description

## Designed for harsh industrial environments

The Viper-12-PoE series is a series of managed rugged Ethernet switches with Power over Ethernet, designed for applications with severe operating conditions and extreme environments.

With an ultra robust design, sealed to IP67 and vibration resistant to and exceeding on-board rail standards these units are ideal for situations where mechanical stress, moisture, condensation, dirt or continuous vibrations could adversely affect the function of standard Ethernet switches. Fully approved for onboard rolling stock, these units can be deployed in e.g. trains, trams, busses, mining trucks, army vehicles and drilling rigs.

## Features for complete network management

Our unique FRNT technology is the fastest and most robust protocol on the market to re-configure a large network in the event of any link or hardware failure. The Viper-12-PoE series also supports STP/RSTP in case of need for standard protocol. IGMPv2/v3 with stop filter and the unique Westermo protocol 'Fast Reconnect' allows a video stream to reconfigure very fast. Advanced functionality for VLANs with support for up to 64 virtual networks, combined with real-time properties is implemented in the switch in order to achieve determinism for real time critical applications.

## Made easy and secure configuration

You can safely access your switch from anywhere in the network, or directly to the product via a console port. The HTTPS secured web configuration interface has been designed 'Made Easy', setting up a redundant ring or a VLAN is just a few clicks away. For more advanced configuration, you will find an SSH encrypted industry standard CLI which allows extremely detailed settings. For safe handling and MIB readout the switch is also equipped with SNMPv3.

## Product models

There are four different models of the Viper-12-PoE series:
3641-0580 Viper-112-P8 managed switch with Layer 2 SW functions.
3641-0590 Viper-212-P8 managed switch with Layer 3 SW functions.
3641-0570 Viper-112-T3G-P8 managed switch with Layer 2 SW functions and three GigE ports.
3641-0595 Viper-212-T3G-P8 managed switch with Layer 3 SW functions and three GigE ports.

# Interface specifications

| DC, Power port | |
|---|---|
| Rated voltage | 48 to 110 VDC |
| Operating voltage | 33.6 to 143 VDC (28.8 to 154 VDC for 100 ms) |
| Rated current | Viper-x12-P8: Max 1.7 A @ 48V<br>Max 0.8 A @ 110 V<br><br>Viper-x12-T3G-P8: Max 1.8 A @ 48V<br>Max. 0.8 A @ 110 V |
| Rated frequency | DC |
| Inrush current, I²t | 21 mA²s @ 48 V<br>68 mA²s @ 110 V |
| Startup current* | Max 1.8 A @ 48 V<br>Max 0.8 A @ 110 V |
| Polarity | Reverse polarity protected |
| Redundant power input | Yes |
| Isolation to | 1500 VAC rms to all other |
| Connection | 4 pin male M12 A-coded connector, use Westermo cable<br>3146-1106 for 1.5 m<br>3146-1107 for 5 m |
| Connector size | M12, recommended cable area 0.5 mm² recommended<br>(minimum 0.25 mm²), cable dimensions depend on choice<br>of M12 connector |

\* External supply current capability for proper start-up

| X1-X12 Ethernet ports* | |
|---|---|
| Electrical specification | IEEE std 802.3. 2005 Edition |
| Data rate | 10 Mbit/s, 100 Mbit/s, manual or auto |
| Duplex | Full or half, manual or auto |
| Circuit type | Viper-x12-P8: X1-X12: TNV-1<br>Viper-x12-T3G-P8: X1-X3, X5-X7, X9-X11: TNV-1<br>X4, X8, X12: SELV |
| Transmission range | Up to 150 m with CAT5e cable or better<br>(non PoE ports only) |
| Isolation to | Other Ethernet ports, 1500 VAC rms (not between PoE ports)<br>USB and CON, 1500 VAC rms<br>DC, 1500 VAC rms |
| Connection | 4-pin M12 D-code, auto MDI/MDI-X, use e g Westermo cable<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 | Not required, but recommended in severe electromagnetic<br>environments |
| Conductive housing | Yes |
| FRNT reconfiguration time | Typically below 20 ms |
| Number of ports | 12 |

\* X1-X3, X5-X7, X9-X11 on Viper-x12-T3G-P8

| X1-X3, X5-X7, X9-X10, PoE ports (additional data) | |
|---|---|
| Electrical specification | IEEE std 802.3af, 2003 edition, IEEE std 802.3at, 2009 edition |
| Transmission range | Up to 100 m with CAT5e cable or better |
| Output voltage | 54 VDC, ±5% |
| Output power* | Max 30.8 W on one port<br>Max 61.6 W in total on all ports |

**\* Note!** As delivered by Power Sourcing Equipment, i e the Viper-12-PoE switch.
Power available at Powered Device is depending on cable resistance.
Note that PoE ports will not deliver any power for a certain time when a 10 ms interruption occurs on the power input. A suggested workaround is to connect a UPS to the secondary power input.
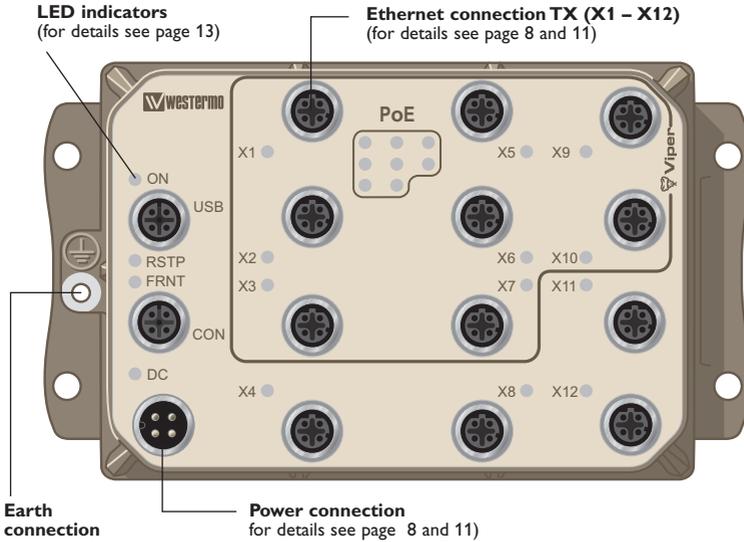
| X4, X8, X12 Gigabit Ethernet ports | |
|---|---|
| Data rate | 10 Mbit/s, 100 Mbit/s, 1000 Mbit/s, manual or auto* |
| Connection | 8-pin M12 X-code |
| Transmission range | Up to 100 m with CAT5e cable or better |
| FRNT reconfiguration time | Typically below 400 ms |

**\* Note!** Full wirespeed (1000 Mbit/s) is not possible between port X4 and the other Gigabit ports due to hardware limitations.
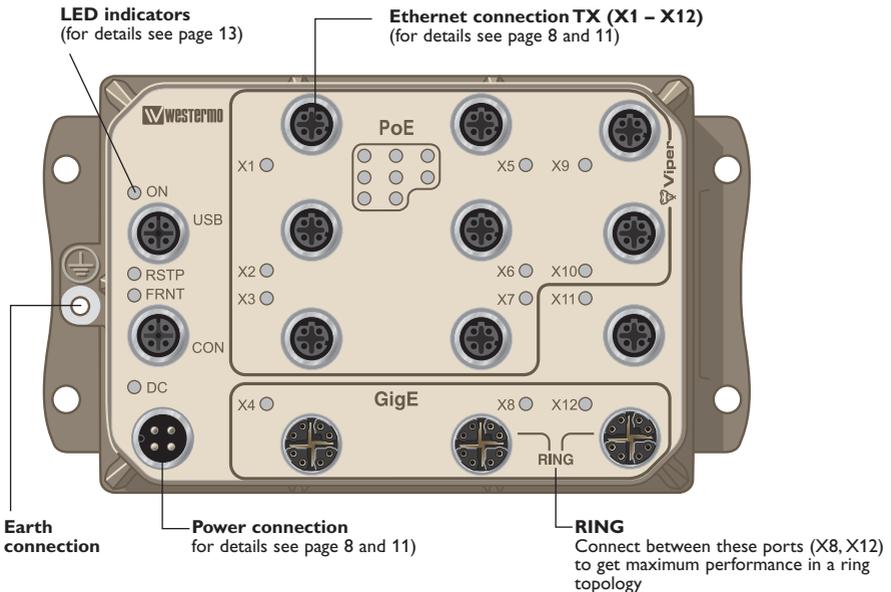
| USB, USB port | |
|---|---|
| Electrical specification | USB 2.0 host interface |
| Data rate | Up to 480 Mbit/s (high-speed mode) |
| Maximum supply current | 500 mA |
| Circuit type | SELV |
| Isolation to | Ethernet ports, 1500 VAC rms<br>DC, 1500 VAC rms<br>No isolation to CON |
| Connection | 5-pin M12 female A-code, use Westermo USB plug 3641-0190 |

| CON, Console port | |
|---|---|
| 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 ports, 1500 VAC rms<br>DC, 1500 VAC rms<br>No isolation to USB |
| Connection | 5-pin M12 female B-code, use Westermo cable 1211-2215 |

## Location of interface ports and LED's
## Viper-112-P8 and Viper-212-P8

**LED indicators**
(for details see page 13)

**Ethernet connection TX (X1 – X12)**
(for details see page 8 and 11)



**Earth connection**

**Power connection**
for details see page 8 and 11)

## Location of interface ports and LED's
## Viper-112-T3G-P8 and Viper-212-T3G-P8

**LED indicators**
(for details see page 13)

**Ethernet connection TX (X1 – X12)**
(for details see page 8 and 11)



**Earth connection**

**Power connection**
for details see page 8 and 11)

**RING**
Connect between these ports (X8, X12) to get maximum performance in a ring topology

*6641-2252*

## Viper-112-P8 / Viper-212-P8
## Viper-112-T3G-P8 / Viper-212-T3G-P8

### Ethernet connection
### (X1-X12 on Viper-x12-P8, X1-X3, X5-X7, X9-X11 on Viper-x12-T3G-P8)
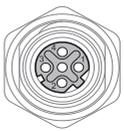
| Pin number | Signal |
|------------|--------|
| No 1 | TD+ |
| No 2 | RX+ |
| No 3 | TX– |
| No 4 | RD– |
| Housing | Shield |

### Power connection

| Pin number | Signal |
|------------|--------|
| No 1 | +DC1 |
| No 2 | +DC2 |
| No 3 | -COM |
| No 4 | -COM |

Viper-12-PoE supports redundant power connection.
The positive inputs are +DC1 and +DC2, the negative
input for both supplies are –COM.

### USB

| Pin number | Signal |
|------------|--------|
| No 1 | DN |
| No 2 | VBUS |
| No 3 | NC |
| No 4 | DP |
| No 5 | GND |

### CON

| Pin number | Signal |
|------------|--------|
| No 1 | NC |
| No 2 | TX |
| No 3 | RX |
| No 4 | NC |
| No 5 | GND |

## Viper-112-T3G-P8 / Viper-212-T3G-P8

### X4, X8, X12

| Pin number | Signal |
|------------|--------|
| 1 | DA+ |
| 2 | DA– |
| 3 | DB+ |
| 4 | DB– |
| 5 | DD+ |
| 6 | DD– |
| 7 | DC– |
| 8 | DC+ |

## Connection to console port

The console port can be used to connect to the CLI (Command Line Interface).

**The following steps needs to be taken**

1. Connect the serial diagnostic cable (use Westermo cable 1211-2215 to the console port).
2. Connect cable to your computer serial port.
3. Use a terminal emulator and connect with correct speed and format (115200, 8N1) to the assigned port.

*For more information about the CLI, see the WeOS management guide.*

## Connection to USB port

The USB port can be used to copy configuration and log files to/from the switch.

**The following steps needs to be taken**

1. Connect the USB plug (use Westermo USB plug 3641-0190) to the USB port.
2. Access the switch CLI (via console cable or SSH)
3. Use the CLI "copy" command to copy files between the USB plug and the switch.

*For more information about the CLI, see the WeOS management guide.*

## LED Indicators

| LED | Status | Description |
|---|---|---|
| ON | OFF | Unit has no power. |
| | GREEN | All OK, no alarm condition. |
| | RED | Alarm condition, or until unit has started up. (Alarm conditions are configurable, see "WeOS Management Guide"). |
| | BLINK | Location indicator ("Here I am!"). Activated when connected to IPConfig Tool, or when configuring the unit via Web or CLI. |
| DC | OFF | Unit has no power. |
| | GREEN | Power OK on DC1 and DC1. |
| | RED | Power failure on DC1 or DC2. |
| FRNT | OFF | FRNT disabled. |
| | GREEN | FRNT OK. |
| | RED | FRNT Error. |
| | BLINK | Unit configured as FRNT Focal Point. |
| RSTP | OFF | RSTP disabled. |
| | GREEN | RSTP enabled. |
| | BLINK | Unit elected as RSTP/STP root switch. |
| X1 to X12 | OFF | No Link. |
| | GREEN | Link established. |
| | GREEN FLASH | Data traffic indication. |
| | YELLOW | Port alarm and no link. Or if FRNT, RSTP or Link Aggregation mode, port is blocked. |
| PoE | OFF | Port does not consume PoE power |
| | GREEN | Port consumes PoE Power |
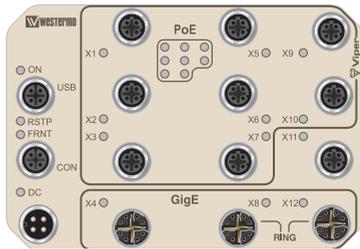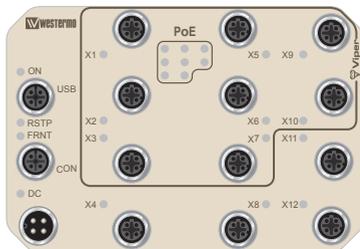
# Wall mounting

There are four 6 mm bore holes intended for mounting the unit. The unit can be mounted vertical or horizontal. Use four M5 screws with 12 mm washer on a flat and stable surface.
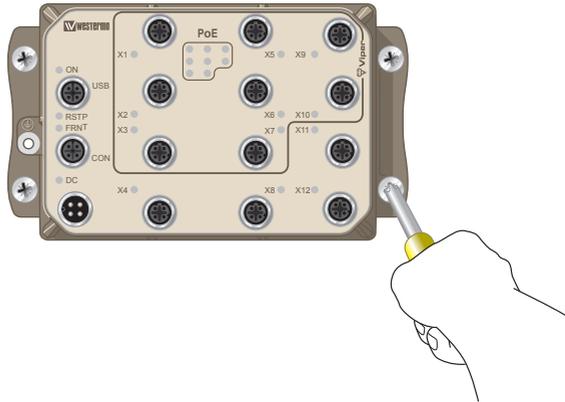


### Connection of cables

Recommended tightening torque for the M12 connectors: 0.6 Nm.

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

### Removal

Disconnect all cables and unscrew the unit from the wall.
Time For Replacement < 15 minutes

### Cooling

This unit uses convection cooling. Avoid obstructing the airflow around the unit. Spacing is recommended for the use of unit in full operating temperature range and service life.

### CEN/TS 45545-2 mounting notes

Two Viper units can be mounted together and as a single interior non-listed group in the sense of CEN/TS 45545-2 definitions. For multiple units the spacing requirements for interior non-listed groups must be met.

# Getting Started

This product runs Westermo Operating System (WeOS) which provides several management tools that can be used for configuration of the unit.

- **IPConfig tool**
  This is a custom Westermo tool used for discovery of attached Westermo units.
  **Note!** Version of IP Config tool must be 10.4.0 or higher.

- **Web**
  Configuration of the unit using the web browser.

- **CLI**
  Configuration of the unit via the Command Line Interface.

If the computer is located in the same subnet as the switch you can easily use a web browser to configure the unit. Within the web you can configure most of the available functions.

For advanced network settings and more diagnostic information, please use the CLI. Detailed documentation is available in the chapter ″The Command Line Management Tool″ in the WeOS management guide.

| | | |
|---|---|---|
| Factory default | *IP address:* | 192.168.2.200 |
| | *Netmask:* | 255.255.255.0 |
| | *Gateway:* | Disabled |

**Note!** If you are not sure about the subnet – consult your network administrator.

# Configuration

**Configure the unit via web browser**

The unit can easily be configured via a web browser.

Open the link http://192.168.2.200 in your web browser, and you will be prompted with a Login screen, where the default settings for Username and Password are:

*Username:* admin

*Password:* westermo

Once you have logged in, you can use the extensive integrated help function describing all configuration options. Two common task when configuring a new switch is to assign appropriate IP settings, and to change the password of the admin account. The password can be up to 64 characters long, and should consist of printable ASCII characters (ASCII 33-126); 'Space' is not a valid password character.

# Referring documents

| Type | Description | Document number |
|------|-------------|-----------------|
| Management Guide | Westermo OS management guide | 6101-3201 |

# Factory reset

It is possible to set the unit to factory default settings by using two standard Ethernet M12 cables.

1. Power off the switch and disconnect all Ethernet cables.

2. Connect one Ethernet cable between Ethernet ports X1 and X6, and the other between Ethernet ports X2 and X5. The ports need to be connected directly by an Ethernet cable, i.e., not via a hub or switch. Use a straight cable – not a cross-over cable – when connecting the ports.

3. Power on the unit.

4. Wait for the unit to start up. Control that the ON LED is flashing red.
   The ON LED flashing indicates that the unit is now ready to be reset to factory default.

You now have the choice to go ahead with the factory reset, or to skip factory reset and boot as normal.

- Go ahead with factory reset:
  Acknowledge that you wish to conduct the factory reset by unplugging the Ethernet cables. The ON LED will stop flashing.
  This initiates the factory reset process*, the unit will restart with factory default settings. When the switch has booted up, the ON LED will show a green light, and is now ready to use.

- Skip the factory reset:
  To skip the factory reset process, just wait for approximately 30 seconds (after the ON LED starts flashing RED) without unplugging the Ethernet cables. The switch will conduct a normal boot with the existing settings.

\* **Note** Do not power off the unit while the factory reset process is in progress.

*6641-2252*

# Dimensions

Measurements are stated in millimeters.