

# Unmanaged EN 50155 Switch

## Viper-012

- Compact basic rail-approved Ethernet solution
  - Fully EN50155 compliant
  - Single model 24 – 110 VDC power range
  - 12 100 Mbit/s Ethernet ports
- Externally tested and verified to EN 50155
  - Surge resistance and isolation
  - Magnetic field immunity & conducted emission
  - Shock and vibration
- Designed for long life and extreme operational environments
  - IP67 anti-condensation GORE-TEX® membrane
  - Ambient temperature –40°C (–40°F) to +70°C (+158°F)
  - Integrated M12 threading & high MTBF, 636,000 hours
- Design and production testing to match requirements for train control
  - Post production testing exceeding EN 50155 mandatory requirement
  - Isolation test on all units
  - Manufactured according to IPC-A-610D class2



**EN 50121-4**  
Railway Trackside

**EN 50155**  
On Board Rail

**EN 61000-6-1**  
Residential Immunity

**EN 61000-6-2**  
Industrial Immunity

**EN 61000-6-3**  
Residential Emission

**EN 61000-6-4**  
Industrial Emission

The Viper-012 is a basic unmanaged 12 port switch designed to meet the full requirements of the rail vehicle market. The incredibly compact and robust housing ensures the unit can be built into tight and environmentally hostile spaces.

As is critical for all equipment to be installed in rail vehicles, the Viper has been externally tested across the complete spectrum of standards required by EN 50155.

Westermo understands that systems on railcars are required by the EN 50155 standard to have a useful life of 20 years, so as well as using the highest quality components to deliver extended MTBF figures, we also implement features like the GORE-TEX® membrane in the IP67 enclosure to prevent water build up in the units. Due to the high vibration environment of the rail industry, we have also developed the Viper case with integral threading for the M12 connectors to ensure the IP67 seal is maintained for the life of the product.

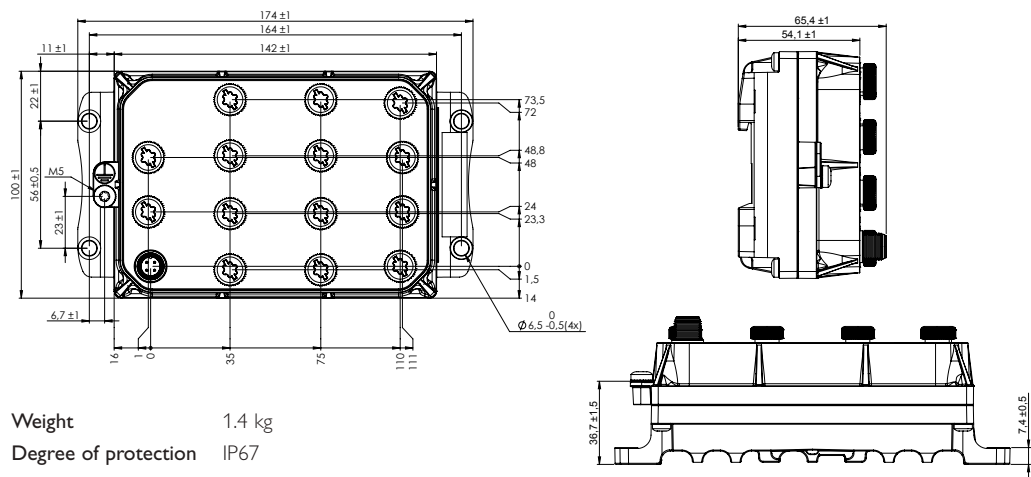
The EN 50155 standard requires mandatory performance and isolation testing. Not only does Westermo meet these, we exceed them in order to meet the additional manufacturer requirements for train control. Westermo's Swedish factory has been building Ethernet switches for the railcar market for many years and fully understands the measures that are required to provide the highest quality manufactured solutions.

Meeting the requirements of the railcar environment, makes the Viper very well suited for deployment in any application with severe operating conditions and extreme environments.

| Ordering Information |                                                                                    |
|----------------------|------------------------------------------------------------------------------------|
| Art.no               | Description                                                                        |
| 3641-0540            | Viper-012, Unmanaged EN 50155 Switch                                               |
| 3146-11xx            | Patch and power cables, see <a href="http://www.westermo.com">www.westermo.com</a> |

# Specifications unmanaged EN 50155 switch – Viper-012

## Dimensional drawing



Weight 1.4 kg  
Degree of protection IP67

| Power             |                                              |
|-------------------|----------------------------------------------|
| Rated voltage     | 24 to 110 VDC                                |
| Operating voltage | 16.8 to 143 VDC (14.4 to 154 VDC for 100 ms) |
| Rated current     | 350 mA @ 24 V and 90 mA @ 110 V              |

| Interfaces               |                                     |
|--------------------------|-------------------------------------|
| X1 – X12, Ethernet ports | 12 x 10/100 Mbit/s                  |
| SRV1 and SRV2            | Service ports that must not be used |

| Temperature         |                              |
|---------------------|------------------------------|
| Operating           | -40 to +70°C (-40 to +158°F) |
| Storage & Transport | -50 to +85°C (-58 to +185°F) |

| Agency approvals and standards compliance |                                                                                      |
|-------------------------------------------|--------------------------------------------------------------------------------------|
| EMC                                       | EN 61000-6-1, Immunity residential environments                                      |
|                                           | EN 61000-6-2, Immunity industrial environments                                       |
|                                           | EN 61000-6-3, Emission residential environments                                      |
|                                           | EN 61000-6-4, Emission industrial environments                                       |
|                                           | EN 50121-4/IEC 62236-4, Railway signaling and telecommunications apparatus           |
|                                           | EN 50121-3-2 Railway applications – Rolling stock – apparatus                        |
| Environmental                             | EN 50155 Railway applications – Electronic equipment used on rolling stock           |
|                                           | EN 61373 – Railway applications – Rolling stock equipment. Shock and vibration tests |
|                                           | IEEE 1478 – Environmental conditions for transit rail car electronic equipment       |
|                                           | EN 50124-1 – Railway applications – Insulation coordination                          |
|                                           | IEC 60068-2-27, (shock 100 g 6 ms), IEC 60068-2-64                                   |
|                                           | CEN/TS 45545-2 – Fire protection                                                     |