# Managed EN 50155 Switch

## Viper-112


- Compact rail-approved Ethernet switch solution
  - Single model 24 – 110 VDC power range
  - 12 x 100 Mbit/s Ethernet ports
  - WeOS – Layer 2 switching functions
- Externally tested and verified to EN50155
  - Surge resistance and isolation
  - Magnetic field immunity & conducted emission
  - Shock and vibration
- Designed for long life and extreme operational environments
  - IP65 anti-condensation GORE-TEX® membrane
  - Ambient temperature –40°C (–40°F) to +70°C (+158°F)
  - Integrated M12 threading & high MTBF, 554,000 hours
- Design and production testing to match requirements for train control
  - Post production testing exceeding EN50155 mandatory requirement
  - Burn in and isolation test on all units
  - Manufactured according to IPC-A-610D class2

CE FC Part 15 | EN 61000-6-2 Industrial Immunity | EN 61000-6-3 Residential Emission | EN 50155 On Board Rail | EN 50121-4 Railway Trackside

The Viper-112 is a managed 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. The Westermo WeOS operating system provides an extensive suite of IP networking standards allowing resilient and flexible networks to be created, meeting the needs of the rail market.

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 EN50155.

Westermo understand that systems on railcars are required by the EN50155 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 IP65 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 IP65 seal is maintained for the life of the product.

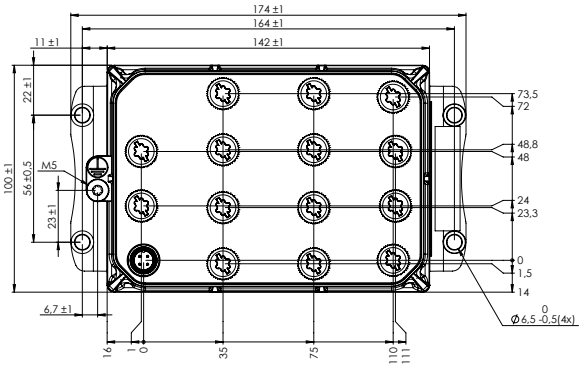
The EN50155 standard requires mandatory performance and isolation testing. Not only does Westermo meet these, we exceed them in order to meet the additional manufacturer requirements for train control. Westermo's Swedish factory has been building Ethernet switches for the railcar market for many years and fully understands the measures that are required to provide the highest quality manufactured solutions.

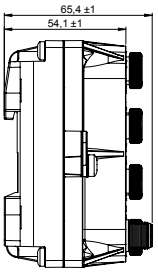
Meeting the requirements of the railcar environment, makes the Viper very well suited for deployment in any application with severe operating conditions and extreme environments.

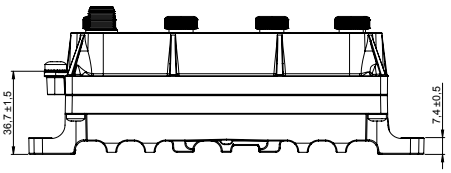
| Ordering Information | |
|---|---|
| **Art.no** | **Description** |
| 3641-0555 | Viper-112, Managed EN 50155 Switch |
| 3641-0190 | M12 USB memory |
| 3146-11xx | Patch and power cables, see www.westermo.com |

# Specifications Managed EN 50155 Switch – Viper 112

## Dimensional drawing




| | |
|---|---|
| Weight | 1.4 kg |
| Degree of protection | IP 65 |

| 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 |
| USB | 1 x USB 2.0, 480 Mbit/s |
| CON | 1 x RS-232, 115.2 kbit/s |

| 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 55024, Immunity IT equipment |
| | FCC part 15 Class B |
| | EN 50121-4/IEC 62236-4, Railway signaling and telecommunications apparatus |
| | EN 50121-3-2 Railway applications – Rolling stock – apparatus |
| | EN 55022, Emission IT equipment |
| Safety | IEC/EN 60950-1, IT equipment |
| 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 |