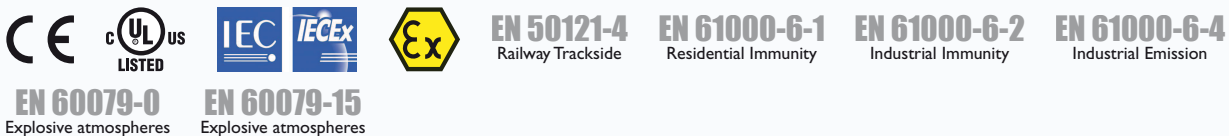


Industrial Ethernet Extender Wolverine DDW-142-EX

- **Compact Industrial Ethernet Extender**
 - Point-to-point, ring or multidrop applications
 - Advanced WeOS functionality
 - Low power consumption
- **Designed for use in industrial applications**
 - Redundant 24-48 VDC dual input power supply
 - Highly configurable I/O contact
 - Robust metal DIN rail housing
- **Robust for long service life**
 - Market-leading MTBF (Mean Time Between Failures)
 - -40 to +70°C without moving parts or ventilation holes
 - Industrial, marine and trackside type tested
- **Unique future proof industrial networking solutions**
 - Resilience and high availability solutions
 - Serial legacy support
 - Designed based on IEC 62443 demands



Westermo's Ethernet extender technology based on SHDSL makes it possible to reuse many types of pre-existing copper cables, which can lead to considerable financial savings when installing new or updating existing systems. The SHDSL technology enables long distance connections of Ethernet interface (up to 15 km/9.3 mi) at data rates up to 15.3 Mbit/s on a single twisted pair cable. By using two pairs "bonded", this rate can be doubled up to 30.6 Mbit/s. The built-in switch allows two Ethernet devices to be attached. The DDW-142-EX also supports one serial RS-232 interface.

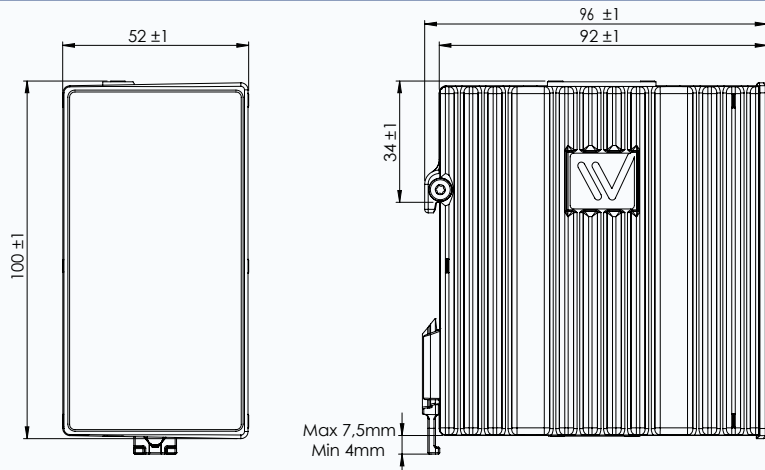
Only industrial-grade components are used which ensures a long service life and an MTBF (Mean Time Between Failures) of up to 437,000 hours according to the tough military standard MIL-HDBK-217. A wide operating temperature range up to -40 to +70°C (-40 to +158°F) is supported with no moving parts or ventilation holes in the case.

The DDW-142-EX is often used in applications on railways, roads or with utilities where failure could result in significant costs. To ensure reliable operation, the DDW-142-EX has been tested both by Westermo and external test labs to meet the most recognized standards related to EMC, isolation, vibration and shock. All to the highest levels suitable for the tough applications the product is designed for.

The DDW-142-EX is powered by Westermo Operating System, WeOS. WeOS delivers unique security functionality as well as allowing the products to form part of a resilient multimedia ring network using the Westermo FRNT protocol or industry standard STP/RSTP. In addition, it contains amazing serial connectivity capability – from being able to simulate an old AT modem, convert Modbus RTU to TCP or encapsulate serial data into an IP packets. The DDW-142-EX is incredibly flexible and easy to use. A basic point-to-point or multidrop network can be created without the need for any kind of configuration.

Specifications - DDW-142-EX

Dimensional drawing



Housing

| | |
|------------------------|---|
| Dimensions (W x H x D) | 52 x 100 x 101 mm (2.04 x 3.93 x 3.97 inches) |
| Housing | Full metal |
| Weight | 0.7 kg |

Power parameter

| | |
|----------------------------------|--------------------------------------|
| Rated voltage | 24 to 48 VDC |
| Operating voltage | 19 to 60 VDC |
| Rated current (without USB load) | 245 mA at 24 VDC 124 mA at 48 VDC |
| Galvanic isolation to all ports | yes |

Environmental

| | |
|------------------------------------|------------------------------|
| Operating temperature | -40 to +70°C (-40 to +158°F) |
| Storage and transport temperatures | -50 to +85°C (-58 to +185°F) |
| Ingress protection | IP40 |
| Humidity (operating) | 5-95% relative humidity |
| Corrosive gases | IEC 60068-2-60 |
| Altitude | 2000 m/80 kPa |

Approvals

| | |
|------------|--|
| EMC | EN 61000-6-1, Immunity residential environments |
| | EN 61000-6-2, Immunity industrial environments |
| | EN 61000-6-4, Emission industrial environments |
| | EN 50121-4/IEC 62236-4, Railway and telecommunications apparatus |
| EMI | FCC Part 15.105 class B |
| IECEX/ATEX | IEC 60079-0 General requirements IEC 60079-15 Equipment protected by type of protection "n" |
| Safety | EN/IEC/UL 60950-1, IT equipment |

| Interfaces | |
|--------------------|-------|
| Copper ports | 2 pcs |
| SHDSL ports | 2 pcs |
| RS-232 ports | 1 pcs |
| Console USB 2.0 | 1 pcs |
| I/O Digital input | 1 pcs |
| I/O Digital output | 1 pcs |

| Switch properties | |
|-------------------|----|
| Number of VLAN | 64 |
| Priority queues | 4 |

| Software | |
|----------|---|
| WeOS | WeOS 4; https://www.westermo.com/solutions/weos |
| WeConfig | https://www.westermo.com/solutions/weconfig |

| Warranty | |
|----------|---------|
| Validity | 5 years |

| Art.no. | Product | Functionality |
|-----------|--|---------------|
| 3642-5300 | DDW-142-EX, Industrial Ethernet extender | Layer 2 |

| Accessories | |
|-------------|---|
| 1211-2027 | Diagnostic cable (console, accessories) |
| 3125-0150 | PS-60, power supply, DIN-mounted (accessories) |
| WeConfig | https://www.westermo.com/products/software/weconfig |

Specification WeOS 4

The WeOS operating system has been developed by Westermo for its current as well as future range of Ethernet hardware products. This layer 2 and layer 3 switching solution enables Westermo to create complex multimedia ring networks and routing solutions. WeOS not only provides solutions to many challenging industrial networking issues, but also helps to protect investments by ensuring the future availability of fully compatible solutions. WeOS is the core of our latest ranges of Ethernet hardware allowing complex multimedia ring networks and routing solutions to be created.

Westermo has many years of experience developing products for industrial applications. At the heart of all Westermo networking solutions is the need for ease of use. By standardising on a single operating system for all Westermo Ethernet products this helps to simplify the installation, operation and maintenance of individual devices and complete networks. Once a user is familiar with a Westermo product, that knowledge can be readily applied to all our other devices. A web screen simplifies the configuration of many functions, whilst a command line interface allows for fine tuning.

WeOS incorporates unique functions that allow Westermo solutions to provide integration paths for legacy equipment. WeOS also enables Westermo to deliver a range of unique network security solutions, utilising elements such as stateful inspection firewalls and the IEEE 802.1X standard. Remote secure access can be provided using encrypted VPN tunnels. The WeOS Management Guide, 6101-3201, explains how many of these functions can be set up.

| WeOS Standard - Layer 2 protocols and functionality |
|---|
| Resilience and High Availability FRNTv0/v2 flexible ring topologies (multiring, subrings and ring coupling), Multilink dual homing, IEC 62439-2 Media Redundancy Protocol (MRP) ^a , IEEE 802.1AX/802.3ad Link Aggregation (LACP and static), IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) |
| Layer 2 Switching IEEE 802.1Q Static VLAN and VLAN Tagging, VLAN Q-in-Q tunnelling, VLAN transparency, IEEE 802.3x Flow Control, IGMPv2/v3 Snooping, AVT Dynamic VLAN (Adaptive VLAN Trunking), Management VLAN (Management Interface concept), Static Multicast MAC filters, IEEE 802.1AB Link Layer Discovery Protocol (LLDP) |
| Layer 2 QoS IEEE 802.1p Class of Service, Ingress/inbound rate limiting, Egress/outbound traffic shaping |
| Layer 2 Security IEEE 802.1X Port Access Control, MAC Authentication, IP/MAC address conflict detection, Port Auto-Disable |
| Manageability WeConfig, Web interface (HTTP and HTTPS), Command Line Interface (CLI) via console port, (SSHv2 and Telnet), Local and central user authentication (RADIUS and TACACS+), SNMPv1/v2c/v3, Secure Copy (SCP), USB configuration and backup, BOOTP client, flexible alarm/event handling system, Syslog (log files on RAM/USB and remote syslog server), Digital I/O, Persistent Port Monitoring, NTPv4 Client/Server, DHCP client (including options 60 and 61), DHCP server (including options 1, 3, 6, 7, 12, 15, 42, 61, 66, 67, 82, 121 and 249), DHCP relay agent (including options 54 and 82), DDNS |
| SNMP MIB Support |

^aAvailable as add-on-function. Please see your local Westermo sales contact to purchase a license for your product.

| WeOS Extended - Layer 3 protocols and functionality ^a |
|--|
| IP Routing, Cyber Security and VPN Static IP routing, Floating Static Routes, Dynamic IP routing (OSPFv2, RIPv1/v2), VRRPv2/v3, Static Multicast Routing, Stateful Inspection Firewall, NAT, 1-1 NAT, Proxy ARP for 1-1 NAT, Port Forwarding, DSCP/TOS modification, IPsec VPN (IKEv1 certificates and PSK, ESP, VPN failover), SSL VPN (Client and Server, Local and central authentication with RADIUS, address pool and address per CN, TLS authentication, WeConnect), GRE, Multinetting |
| SNMP MIB Support |

^aProducts with software level WeOS Extended include all functionality listed for WeOS Standard