



RedFox 5528 Series

Industrial routing 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.

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.

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

This product runs WeOS (Westermo Operating System). Instructions for quick start, configuration and factory reset are found in the WeOS user documentation at 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
 WARNING	Indicates a potentially hazardous situation	Possible death or major injury	Major damage to the product
 CAUTION	Indicates a potentially hazardous situation	Minor or moderate injury	Moderate damage to the product
 NOTICE	Provides information in order to avoid misuse of the product, confusion or misunderstanding	No personal injury	Minor damage to the product
 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.



WARNING - HAZARDOUS VOLTAGE

The product must be installed by qualified service personnel and built in to an apparatus cabinet or similar, where access is restricted to service personnel only.

Before powering up, a protective earthing conductor must be connected to the protective earthing terminal. Westermo recommends a cross-sectional area of at least 4 mm² on the protective earthing conductor.

Do not open a connected product. Hazardous voltage may occur when connected to a power supply.

Disconnect all network connectors and cable distribution system connectors, including power supply, before disconnecting the protective earthing terminal.



WARNING - PROTECTIVE FUSE

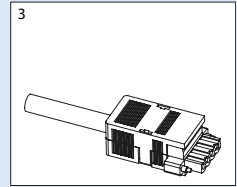
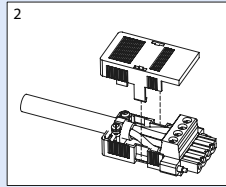
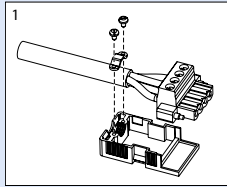
The power supply wiring must be sufficiently fused. It must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations. Refer to the user guide for detailed information.

Replacing the internal fuse must only be performed by Westermo qualified personell.



WARNING - PREVENT ACCESS TO HAZARDOUS VOLTAGE CABLE

Apply the protective cap (delivered with the MV product) on the power cable, according to the illustrated steps below. To prevent accidentally pulling out wires, make sure the power cable and the wires are firmly attached to the protective cap. For screw connectors, make sure the screws are properly tightened, as well as routing the wires separately from other wires.



WARNING - REDUCE THE RISK OF FIRE

To reduce the risk of fire, use only no. AWG 26 or larger telecommunication line cord. Regarding power cable dimensions, refer to the user guide for detailed information.



CAUTION - CLASS 1 LASER PRODUCT

Do not look directly into a fibre optical port or any connected fibre, although the product is designed to meet the Class 1 Laser regulations and complies with 21 CFR 1040.10 and 1040.11.



CAUTION - WIRING

Ensure that the temperature rating of the cable is sufficient for the application before connecting to the field wiring terminals.



CAUTION - CORROSIVE GASES

If the product is placed in a corrosive environment, it is important that all unused connector sockets are protected with a suitable plug, in order to avoid corrosion attacks on the gold plated connector pins.



CAUTION - HANDLING OF SFP TRANSCEIVERS

SFP transceivers are supplied with plugs to avoid contamination inside the optical port. They are very sensitive to dust and dirt. If the fibre is disconnected from the product, the protective plugs on the transmitter/receiver must be connected. The protective plugs must be kept on during transportation. The fibre optics cables must be handled the same way.



CAUTION - ELECTROSTATIC DISCHARGE (ESD)

Prevent damage to internal electronic parts from electrostatic discharge (ESD) by discharging your body to a grounding point (e.g. use of a wrist strap).

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. 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

2.5. Compliance Information

2.5.1. Agency Approvals and Standards Compliance

Type	Approval/Compliance
EMC	<ul style="list-style-type: none">• EN 50121-4/IEC 62236-4, Railway signalling and telecommunications apparatus• EN/IEC 61000-6-1, Immunity residential environments• EN/IEC 61000-6-2, Immunity industrial environments• EN/IEC 61000-6-3, Emission residential environments• EN/IEC 61000-6-4, Emission industrial environments
Safety	<ul style="list-style-type: none">• EN/IEC/UL 60950-1, IT equipment

Table 2. Agency approvals and standards compliance

2.5.2. FCC Part 15.105 Notice

This product has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the unit and receiver
- Connect the product into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

2.5.3. Corrosive Environment

This product has been successfully tested in a corrosion test according to IEC 60068- 2-60, method 3. This means that the product meets the requirements to be placed in an environment classified as ISA-S71.04 class G3.



CAUTION - CORROSIVE GASES

If the product is placed in a corrosive environment, it is important that all unused connector sockets are protected with a suitable plug, in order to avoid corrosion attacks on the gold plated connector pins.

2.5.4. 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.



Figure 2. The European conformity marking

3. Product Description

3.1. Product Description

The RedFox industrial rack is a high performance industrial Ethernet switch designed for high network traffic applications. Various port configurations are available that can be further customised with SFP transceivers. RedFox is powered by WeOS, the Westermo network operating system.

RedFox-5528 is designed for 19" cabinet according to the ETSI standard, which makes it suitable for use in control room networks as well as for cabinets installed along railway trackside installations. RedFox-5528 is designed to run efficiently from a DC power supply (not considered DC mains). The unit is also equipped with configurable I/O fault contact that makes it ideal for easy installations and monitoring in industrial applications.

Only industrial grade components are used, which gives Redfox- high MTBF hours that ensures a long service life. A wide operating temperature range of -40 to +74°C (-40 to +165°F) can be achieved with no moving parts or cooling holes in the case. RedFox has been tested both by Westermo and external test labs to meet many standards regarding EMC, isolation, climate, vibration and shock, all to the highest levels suitable for heavy industrial environments and rail trackside application.

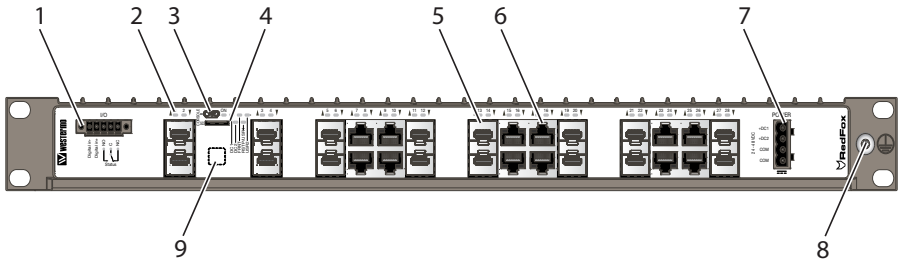
WeOS has been developed to allow offer cross platform and future-proof solutions. WeOS can deliver 20 ms ring recovery performance even for networks with video or EtherNet/IP traffic. For more WeOS functionality, please see the WeOS datasheet.

3.2. Available Models

Art. no.	Model	No. of copper ports	No. of SFP ports	MV	LV
3641-4500 3641-4400	RedFox-5528-T28G-LV RedFox-5528-E-T28G-LV ^a	28	-		24-48 VDC
3641-4505 3641-4405	RedFox-5528-T28G-MV RedFox-5528-E-T28G-MV ^a	28	-	48-110 VDC	
3641-4510 3641-4410	RedFox-5528-F4G-T24G-LV RedFox-5528-E-F4G-T24G-LV ^a	24	4		24-48 VDC
3641-4515 3641-4415	RedFox-5528-F4G-T24G-MV RedFox-5528-E-F4G-T24G-MV ^a	24	4	48-110 VDC	
3641-4520 3641-4420	RedFox-5528-F16G-T12G-LV RedFox-5528-E-F16G-T12G-LV ^a	12	16		24-48 VDC
3641-4525 3641-4425	RedFox-5528-F16G-T12G-MV RedFox-5528-E-F16G-T12G-MV ^a	12	16	48-110 VDC	

^aSelective sales approval, contact Westermo before ordering

3.3. Hardware Overview



No.	Description	No.	Description
1	I/O connection	2	LED indicators
3	Console port	4	Micro SD
5	100/1000 Mbit/s SFP slots (number depending on model)	6	10/100/1000 Mbit/s TX ports (number depending on model)
7	Power Input	8	Protective earth
9	Label with QR code ^a		

^aThe base MAC address and production date of the product is included in the front label QR code

Figure 3. Location of interface ports and LED indicators, illustrated by a RedFox-5528-F16G-T12G-LV/MV

3.4. Connector Information

3.4.1. Power Input and I/O

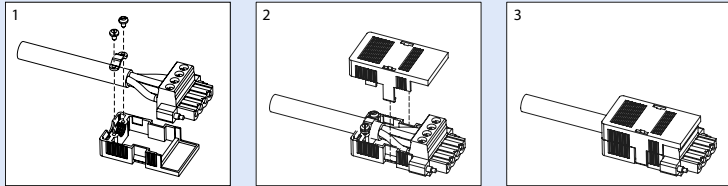
Illustration	Position	Product marking	Direction	Description
	1	+DC1	Input	Supply voltage
	2	+DC2	Input	Supply voltage
	3	-COM	Input	Common
	4	-COM	Input	Common

Table 3. Power input and I/O



WARNING - PREVENT ACCESS TO HAZARDOUS VOLTAGE CABLE

Apply the protective cap (delivered with the MV product) on the power cable, according to the illustrated steps below. To prevent accidentally pulling out wires, make sure the power cable and the wires are firmly attached to the protective cap. For screw connectors, make sure the screws are properly tightened, as well as routing the wires separately from other wires.



3.4.2. I/O Connection

Illustration	Pin no.	Product marking	Direction	Description
	1	Digital in-	Input	Digital in-
	2	Digital in+		Digital in+
	3	Status NO	Output	Alarm (status) relay contact
	4	Status C		
	5	Status NC		

Table 4. I/O connection

The Digital in is an opto-isolated digital input, which can be used to monitor external events.

The Status output is a potential free, opto-isolated, alternation (Form-C) solid-state relay. This can be configured to monitor various alarm events within the RedFox-5528 product, see *WeOS Management Guide*. An external load in series with an external DC or AC voltage source is required for proper functionality.

Unit condition	Status NO- C	Status NC-C
Unpowered / pre-operational or Alarm active	OPEN	CLOSED
Operational and Alarm inactive	CLOSED	OPEN

Table 5. Status output



NOTE

Digital In-, Digital In+ and Status NO/C are backward compatible with RFIR-x19/27 products.

3.4.3. Console Port

The console port can be used to connect to the CLI (Command Line Interface). The console connector is a micro USB cable that connects to a FTDI FT232R USB to serial converter internally. For drivers, refer to www.ftdichip.com and download the appropriate VCP driver

3.4.4. SFP Transceivers

The product supports Westermo labelled transceivers only. See Westermo's modular transceivers datasheets 100 Mbit and 1 Gbit for supported SFP transceivers.

Each SFP slot can hold one SFP transceiver. See "Transceiver User Guide 6100-0000" for transceiver handling instructions.



CAUTION - HANDLING OF SFP TRANSCEIVERS

SFP transceivers are supplied with plugs to avoid contamination inside the optical port. They are very sensitive to dust and dirt. If the fibre is disconnected from the product, the protective plugs on the transmitter/ receiver must be connected. The protective plugs must be kept on during transportation. The fibre optics cables must be handled the same way.

3.4.4.1. Cleaning SFP Transceivers

In the event of contamination, the optical connectors in the SFP transceivers should only be cleansed with recommended cleaning fluids below and correct cleaning equipment.

- Methyl, ethyl, isopropyl or isobotyl alcohol
- Hexane
- Naphtha

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/ USR1	OFF	RSTP disabled
	GREEN	RSTP enabled
	BLINK	Product selected as RSTP/STP root switch
	USR1	Configurable, see <i>WeOS Management Guide</i>
FRNT	OFF	FRNT disabled
	GREEN	FRNT OK
	RED	FRNT error
	BLINK	Product configured as FRNT focal point
DC1	OFF	Product has no power
	GREEN	Power OK on DC1
	RED	+DC1 input voltage is below operating voltage limit
DC2	OFF	Product has no power
	GREEN	Power OK on DC2
	RED	+DC2 input voltage is below operating voltage limit
USR2	Configurable, see <i>WeOS Management Guide</i>	
TX/FX ports	OFF	No link
	GREEN	Link established
	GREEN FLASH	Data traffic indication
	YELLOW	Port alarm and no link. Or if FRNT or RSTP mode, port is blocked.

Table 6. LED indicators

3.6. Dimensions

Dimensions are stated in mm.

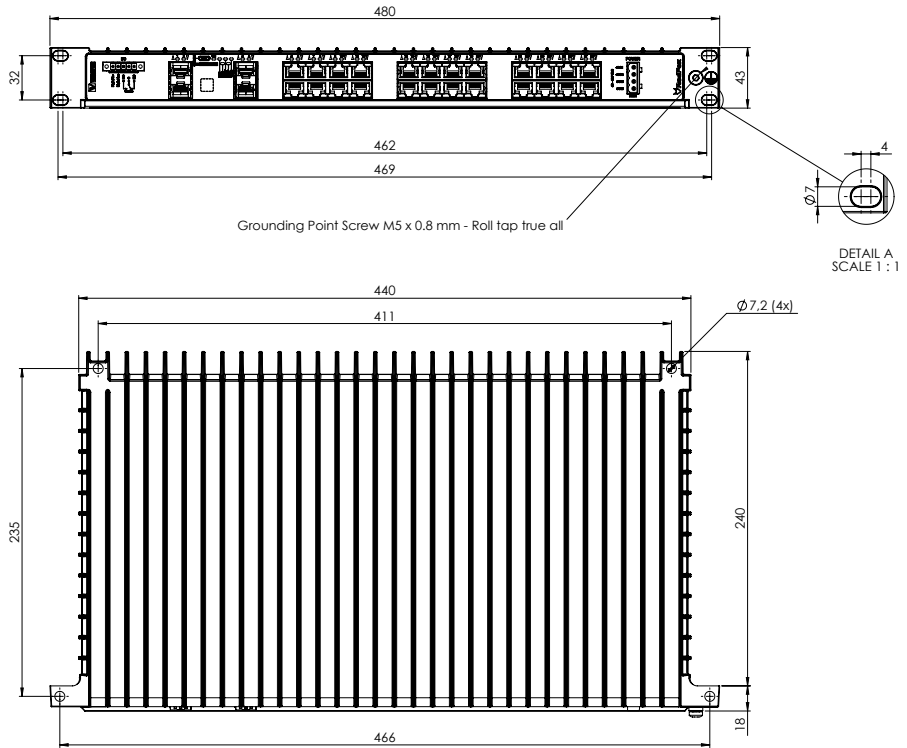


Figure 4. Dimensional drawing

Illustrated by RedFox-5528-F4G-T24G-MV/LV.

4. Installation

4.1. Mounting

RedFox is designed for installation in 19" rack solutions according to ETSI standard, with a shallow depth of 240 millimetres. It can also be wall mounted as an installation option.

4.1.1. Rack Mounting

The product can be mounted in all directions inside a 19" apparatus cabinet. Use M6x25 or 1/4x1".

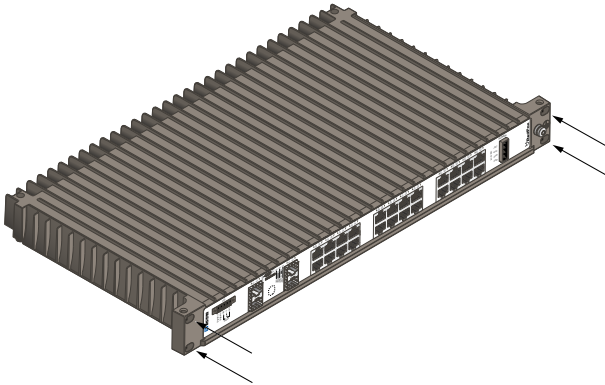


Figure 5. Rack mounted product

4.1.2. Wall Mounting

The product can be wall mounted in all directions. Use maximum 6.4 mm or 1/4" screws.

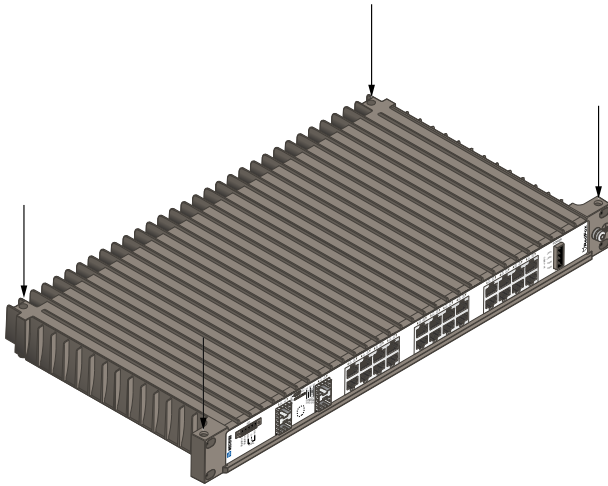


Figure 6. Wall mounted product

4.2. Earth Connection

For correct function, the earth connection needs to be properly connected to a solid ground. See the figure below. Torque: 3.2 Nm.

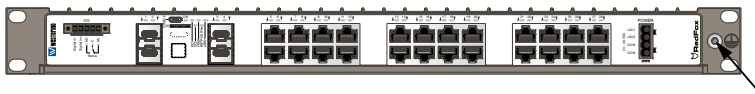


Figure 7. Earth connection

4.3. Cooling

This product relies on convection cooling. To avoid obstruction of the airflow around the product, follow the spacing recommendations.

For mounting in 19" apparatus cabinet without forced ventilation, a minimal spacing of 1U according to IEC 60297 or 45 mm (1.75") above/below is recommended. With forced ventilation, no minimal spacing is required as long as the temperature of the rear cooling plates does not exceed +85°C (+185°F).

For wall mounting in an area without forced ventilation, a minimum spacing of 45 mm (1.75") above/below and 10 mm (0.4") left/right is recommended. For areas with forced ventilation, no minimal spacing is required as long as the temperature of the rear cooling plates does not exceed +85°C (+185°F).

5. Specifications

5.1. Interface Specifications

DC, Power port		
Rated voltage	For LV models: 24-48 VDC For MV models: 48-110 VDC	
Operating voltage	For LV models: 18-60 VDC For MV models: 36-154 VDC	
Rated current	RedFox-5528-(E-)T28G-LV:	1.10 A at 24 VDC 0.54 A at 48 VDC
	RedFox-5528-(E-)T28G-MV:	0.52 A at 48 VDC 0.24 A at 110 VDC
	RedFox-5528-(E-)F4G-T24G-LV:	1.20 A at 24 VDC 0.55 A at 48 VDC
	RedFox-5528-(E-)F4G-T24G-MV:	0.54 A at 48 VDC 0.24 A at 110 VDC
	RedFox-5528-(E-)F16G-T12G-LV:	1.30 A at 24 VDC 0.64 A at 48 VDC
	RedFox-5528-(E-)F16G-T12G-MV:	0.65 A at 48 VDC 0.28 A at 110 VDC
Fuse rating Component: U2 (LV), U1 (MV)	All models ^a	4A(T)
Rated frequency	DC	
Inrush current, I _{pt}	For all LV-models:	125 mA ² s at 24 VDC 82 mA ² s at 48 VDC
	For all MV-models:	34 mA ² s at 48 VDC 33 mA ² s at 110 VDC
Startup current ^b	2x nominal current	
Polarity	Reverse polarity protected	
Redundant power input	Yes	
Isolation	All other ports	
Connector	Detachable screw terminal	
Conductor cross section	0.2-2.5 mm ² (AWG 24-12)	
Stripping length cable	7 mm	
Tightening torque, terminal screw	0.5 - 0.6 Nm	

DC, Power port

Shielded cable	Not required
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^aDenote time-delay fuse

^bRecommended external supply current capability for proper startup

I/O connection, Digital input

Isolation to	All other ports
Connector	Detachable screw terminal
Conductor cross section	0.14 - 1.5 mm ² (AWG 28-16)
Stripping length cable	7 mm
Tightening torque, terminal screw	0.22 - 0.25 Nm
Terminal torque, screw flange	0.3 Nm
Maximum voltage/current	60 VDC, $I_{IN} \leq 2.9$ mA at 60 VDC
Voltage levels	Logic one: >8 VDC Logic zero: <5 VDC

I/O connection, Relay output

Connect resistance	Maximum 30 Ω
Isolation to	All other ports
Connector	Detachable screw terminal
Conductor cross section	0.14 - 1.5 mm ² (AWG 28-16)
Stripping length cable	7 mm
Tightening torque, terminal screw	0.22 - 0.25 Nm
Terminal torque, screw flange	0.3 Nm
Maximum voltage/current	60 VDC/80 mA

Ethernet TX^a	
Electrical specification	IEEE std 802.3
Data rate	10 Mbit/s, 100 Mbit/s, 1000 Mbit/s, manual or auto
Duplex	Full or half, manual or auto
Circuit type	TNV-1
Transmission range	Up to 100 m with CAT5e cable or better
Isolation	All other ports
Cabling	Shielded cable CAT5e or better is recommended
Conductive chassis	Yes

^a10/100/1000 Mbit/s ports are:

RedFox-5528-(E-)T28G-LV and MV: 1-28

RedFox-5528-(E-)F4G-24G-LV and MV: 5-28

RedFox-5528-(E-)F16G-T12G-LV and MV: 7-10, 15-18, 23-26

SFP ports^a	
Optical/Electrical specification	IEEE std 802.3
Data rate	100 Mbit/s, 1000 Mbit/s ^b
Duplex	Full or half, manual or auto
Transmission range	Depending on transceiver
Connector	SFP slot holding fibre transceiver

^aSFP ports are:

RedFox-5528-(E-)F4G-T24G-LV and MV: 1-4

RedFox-5528-(E-)F16G-T12G-LV and MV: 1-6, 11-14, 19-22, 27-28

^b100 Mbit/s or 1000 Mbit/s transceiver supported

Console port	
Electrical specification	USB 2.0 device interface
Data rate	Up to 480 Mbps (high-speed mode)
Circuit type	SELV
Maximum supply current	100 mA
Connector	USB Micro B connector in device mode

Micro SD	
Electrical specification	Secure Digital 2.0
Circuit type	SELV
Maximum supply current	100 mA
Connector	Micro SD connector

5.2. 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	± 2 kV
		I/O ports	
		Earth port	
Surge	EN 61000-4-5	Power port	L-E: ± 1 kV, 12Ω , $9 \mu\text{F}$, $1.2/50 \mu\text{s}$ L-E: ± 2 kV, 42Ω , $0.5 \mu\text{F}$, $1.2/50 \mu\text{s}$ L-L: ± 0.5 kV, 2Ω , $18 \mu\text{F}$, $1.2/50 \mu\text{s}$ L-L: ± 1 kV, 42Ω , $0.5 \mu\text{F}$, $1.2/50 \mu\text{s}$
		I/O port	L-E: ± 2 kV, 42Ω , $0.5 \mu\text{F}$, $1.2/50 \mu\text{s}$ L-L: ± 1 kV, 42Ω , $0.5 \mu\text{F}$, $1.2/50 \mu\text{s}$
		Ethernet (shield on cable)	L-E: ± 2 kV, 2Ω , $1.2/50 \mu\text{s}$
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) 10 V/m at (2-6 GHz) 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	
		I/O port	
Radiated RF emission	CISPR 16-2-3	Enclosure	Residential (30-6000 MHz)
	ANSI C63,4		FCC Part 15 B, Class B (30 MHz -25.5 GHz)
Conducted RF emission	CISPR 16-2-1	Power port	Class B
		Ethernet ports	EN 61000-6-3
Dielectric strength	EN 60950-1	Power port to all other ports	1500 VAC rms, 60 s
		Ethernet ports to all other ports	
		Gbps Ethernet ports to all other ports	1500 VAC rms, 60 s

Table 7. EMC and electrical conditions

Environmental phenomena	Basic standard	Description	Test levels
Temperatures	EN 60068-2-1 EN 60068-2-2	Operational	-40 to +74°C (-40 to +165°F) ^a
		Storage and transport	-50 to +85°C (-58 to +185°F)
Humidity	EN 60068-2-30	Operational	5-95% relative humidity
		Storage and transport	
Corrosive gases	IEC 60068-2-60	Operating	Method 3, 21 days ^b
Altitude		Operational	2000 m/70 kPa
Service life		Operational	20 years according to IEC/TR 62380
MTBF	MIL-HDBK 217F		RedFox-5528-(E)-F4G-T24G-MV: 381,000 hours RedFox-5528-(E)-F4G-T24G-LV: 371,000 hours RedFox-5528-(E)-F16G-T12G-MV: 397,000 hours RedFox-5528-(E)-F16G-T12G-LV: 386,000 hours RedFox-5528-(E)-T28G-MV: 366,000 hours RedFox-5528-(E)-T28G-LV: 356,000 hours
	Telcordia		RedFox-5528-(E)-F4G-T24G-MV: 667,000 hours RedFox-5528-(E)-F4G-T24G-LV: 643,000 hours RedFox-5528-(E)-F16G-T12G-MV: 735,000 hours RedFox-5528-(E)-F16G-T12G-LV: 706,000 hours RedFox-5528-(E)-T28G-MV: 643,000 hours RedFox-5528-(E)-(E)-T28G-LV: 620,000 hours
Vibration	IEC 60068-2-6 (sine)	Operational	2 g rms 5-500 Hz, 5 sweeps
	IEC 60068-2-64 (random)	Operational, endurance test	12 dB/octave, 2-13.2 Hz, 0.011 g ² /Hz, 13.2-100 Hz, 1.0 grms, 150 minutes per axis
			5-2000 Hz, rms 2.3 m/s ² , 1.5h
Shock	IEC 60068-2-27	Operational	30 g, 11 ms
Enclosure	EN 60950-1	Aluminum	Fire enclosure
Weight			3.8 kg

Environmental phenomena	Basic standard	Description	Test levels
Degree of protection	EN 60529	Enclosure	IP40
Cooling			Convection

^aRefer to "Safety and Regulations" chapter regarding touch temperature

^bMethod 3, 21 days corresponds to Harsh Industrial Environment G3 which is defined in ANSI/ISA 17.04: 2015

Table 8. Environmental and mechanical conditions

6. Revision Notes

Revision	Date	Change description
Rev. F	2019-11	2.2 Safety Information and 2.3 Care Recommendations texts are updated to match the new revision of "General and Safety Information" (100-5001). old 2.4 Maintenance deleted, old 2.5 Fibre Optics Handling deleted, old 2.6 Cleaning Optical Connectors deleted (replaced with 3.4.4.1). 3.2 Available Models, table updated (name change HV to MV), 3.4.4 Warning added, 3.4.4.1 new chapter, 5.1 Interface Specifications table updated (name change HV to MV)
Rev. E	2019-10	1.5 WeOS text updated, 3.2 Available Models table updated (name change HV to MV), 3.3 Hardware Overview Figure 3 text updated (name change HV to MV), 3.6 Dimensions text updated (name change HV to MV), 4.1 Mounting text updated, 5.1 Interface Specifications table updated (name change HV to MV), 5.2 Type Test and Environmental Conditions table updated (name change HV to MV)
Rev. D	2019-06	Product name change throughout the user guide. USB port removed in illustrations and information. "Unit" changed to "product". 1.3 Software tools updated, 2.1 Warning levels updated (Caution), 2.2 Safety information updated, 2.3 Care recommendations updated, 2.5 Fibre optic handling updated, 2.7 Product disposal updated, 2.8.1 Agency approvals and standard compliance updated, 2.8.4 Simplified declaration of conformity updated, 3.1 Product description updated, 3.2 Available models updated, 3.3 Hardware overview updated, 3.4.1 Power input and I/O updated, 3.5 LED indicators updated, 3.6 Dimensions updated, 5.1 Interface specifications updated, 5.2 Type test and environmental conditions updated
Rev. C	2018-10	2.2 New warning added, 2.7 Environmental protection updated to Product disposal, 2.8.1 Agency approvals updated, 2.8.3 Corrosive gases upgraded to Caution instead of Notice, 2.8.4 DoC updated, 3.1 Text updated, 3.4.1 Warning updated with illustrations, 3.4.4 Figure 3 deleted (old), 5.1 Fuse rating updated
Rev. B	2017-11	2.2 Safety information; Caution - Class 1 laser product updated, 2.3 Care Recommendations updated, 2.8.3 new chapter added, 3.3 text added, 5.1 Interface Specifications updated - inrush current, SFP ports, 5.2 Type Tests and Environmental Conditions updated - Surge updated, Corrosive gases added, Vibration updated, Radiated RF emission and Conducted RF emission updated
Rev. A	2017-07	First issue of the user guide



Westermo • SE-635 35 Stora Sundby, Sweden

Tel +46 16 42 80 00 Fax +46 16 42 80 01

E-mail: info@westermo.com

www.westermo.com