

Industrial Cellular Router

Merlin 4400 Series

- **Secure by design**
 - Secure Boot ensures software is authentic and unmodified
 - Trusted Platform Module keeps cryptographic keys secure
 - Cybersecurity suite: 802.1X, VPN encryption, stateful firewall
- **Versatile LTE router for utility, industrial and trackside applications**
 - Zero-touch large scale deployment
 - Multi-service support: LTE, Ethernet, RS-232/485, Digital Input
 - Industrial SCADA protocol gateway and conversion
 - IEC 61850-3 Class 1 for medium voltage substations
 - EN 50121-4 trackside approval
- **Robust and resilient**
 - Isolated power supply protects against transients and ground loops
 - Dual SIM card
 - Wide voltage input 9.6 to 60 VDC
 - Wide temperature range



The Merlin 4400 series of versatile cellular routers is designed from the ground up to achieve best-in-class Cybersecurity both in hardware and software. A tamper-resistant chip keeps cryptographic keys secure. Secure Boot guarantees that the unit boots using only software that is signed and trusted by Westermo. A set of cybersecurity tools is available as standard. High security VPNs, stateful inspection firewall, user authentication and 802.1x are just a few of the features available to keep the device secure both locally and when transmitting data over the internet or private network.

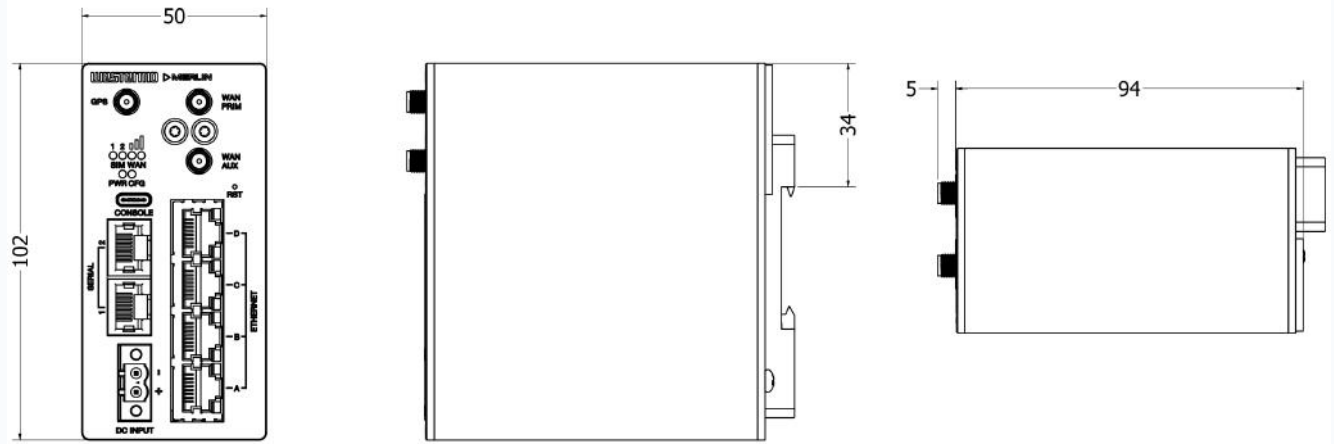
The system has a pair of legacy ports. One is configurable to act either as a RS-232 serial port or as a dry contact digital input. The second is a serial port and is configurable to act either as RS-232 or RS-485. The serial ports facilitate applications where it is necessary to migrate from modems to an IP infrastructure. The industrial protocol gateway feature enables several devices using different protocols to be accessed via a common protocol interface.

The Merlin 4400, like all the members of the Merlin family, is compatible with the Activator zero-touch deployment software. The Activator software ensures that configurations are generated and deployed from a central server, reducing configuration mistakes and increasing efficiency during the installation phase of a project.

This compact unit is suited to tight spaces. Its high MTBF, wide temperature range and voltage supply ensure the Merlin can deal with the demands of industrial, smart grid and trackside applications.

Specifications - Merlin 4400 Series

Dimensional drawing



Housing

Dimensions (W x H x D)	50 x 102 x 100 mm (2.0 x 4.0 x 4.0 inches)
Housing	Full metal
Weight	500 g

Power parameters

Operating voltage	9.6 to 60 VDC
Power consumption	5 W
Hold up time	200 msec

Environmental

Temperature, operating	-40 to +70°C (-40 to +158°F)
Temperature, storage and transport	-50 to +85°C (-58 to +185°F)
Ingress protection	IP40
Humidity, operating	5-95% relative humidity

Interface

Ethernet	Ethernet 4 x 10/100 Mbit/s, Ethernet TX, RJ45
Mobile	LTE Cat 4; Optional: LTE Cat-M1/NB1
GNSS	GPS, BeiDou, Galileo
SIM cards	2 x Mini-SIM (2FF) card slots to rear, covered by metal plate
Antenna connectors	3 x SMA compatible connectors
Console	USB type-C. Router acts as device
Serial	Two serial ports. One is configurable to act either as RS-232 or as a dry contact digital input. The second serial port is software configurable for RS-232/RS-485

MTBF hours

Telcordia	1.600.000 hours
-----------	-----------------

Approvals	
EMC	<ul style="list-style-type: none"> EN/IEC 61000-6-2, Immunity industrial environments EN/IEC 61000-6-4, Emission industrial environments EN 50121-4, Railway signalling and telecommunications apparatus (pending) IEC 61850-3, Communication networks and systems for power utility automation - Part 3: General requirements
Safety	<ul style="list-style-type: none"> EN 62368-1, Safety Communication Technology UL 62368-1
North American standards/ approvals	UL 62368-1 FCC, PTCRB, AT&T, Verizon, T-Mobile (all pending)

Software Features - Subject to Licence	
Management	Web interface (HTTPS), SMS management support, CLI via console, SSHv2, TFTP, SNMPv1/v2c/3, Secure Copy (SCP), Flexible alarm and event system, Port monitoring
Monitoring	Built-in diagnostics and packet tracing, event logging, SNMP Traps, Syslog
IP Routing	IPv4 and IPv6, IPsec/L2TPv3/GRE/OpenVPN client/server, DMVPN, DHCP, DynDNS, NAT, NAT Traversal, NTP Client, VLAN support, Packet filtering, Port forwarding, BFD, BGPv4, OSPF, RIP (v1 and v2), SNMP v1/v2/v3, TLS 1.2, 802.1x authentication, IEC104, QoS, VRRP, VRF
Firewall	Stateful inspection firewall
IPSec VPN	IKE Version 2, X.509 certificates, ECC, SHA2_512 support, AES_CBC (256), PFS, SCEP, DH_8192
SCADA Protocol Conversion	Control of I/O from SCADA master, IEC 60870-5-104, IEC 60870-5-101, IEC 61850, Modbus RTU, Modbus TCP, Modbus RTU to TCP conversion, DNP3, Serial to Ethernet, MQTT protocol translation
RTU Functionality	Monitoring and Control of I/O from SCADA master, Protocol conversion, Basic PLC functions

Mobile Frequency Bands					
Region	2G Bands	3G Bands	LTE Bands	LTE Category	GNSS
EMEA	900/1800	B1, B8	B1, B3, B7, B8, B20, B28	4	Yes
Australia	-	B1, B5, B8	B1, B3, B5, B7, B8, B28	4	Yes
North America	-	B2, B4, B5	B2, B4, B5, B12, B13, B14, B25, B26, B66, B71	4	Yes
Global Cat-M1/NB1	850, 900, 1800, 1900	-	B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20, B26, B28	Cat-M1/NB1	Yes

Warranty	
Validity	5 years

Art.no.	Product	Ethernet	RS-232/Digital Input	RS-232/RS-485	Region
3460-44100	Merlin-4407-T4-S2-LV-QFZ	4	1	1	EMEA
3460-44310	Merlin-4407-T4-S2-LV-PFP	4	1	1	North America
3460-44200	Merlin-4407-T4-S2-LV-PFJ	4	1	1	Australia
3460-44520	Merlin-4407-T4-S2-LV-QFT	4	1	1	Global Cat-M1/NB1

Accessories	
3125-0150	PS-60, power supply. DIN-mounted. Input voltage: 100 to 240 VAC, 50 to 60 Hz or 110 to 250 VDC
1211-2210	Westermo auxiliary serial adapter cable RJ-45/D-sub, 50cm length
Note: antennas not included	