User Guide
6622-2221
29000447

MR-210/260/270

MR-210
GSM/GPRS Router

MR-260
GSM/GPRS/Edge/3G/
HSDPA/HSUPA Router

MR-270
GSM/GPRS/Edge/3G/
HSDPA/HSUPA Router

www.westermo.com

Legal information

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy and reliability or contents of this document. 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 the following Internet address:

http://www.westermo.com

Safety

Before using this unit:

Read this manual completely and gather all information on the unit. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this unit.

Hazardous voltages may occur within this unit when connected to a power supply.

Prevent access to hazardous voltages by disconnecting the unit from its power supply.

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

Before installation:

This unit should only be installed by qualified personnel.

This unit should be built-in to an apparatus cabinet, or similar, where access is restricted to service personnel only.

The power supply wiring must be sufficiently fused, and if necessary it must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations.

This unit uses convection cooling. To avoid obstructing the airflow around the unit, follow the spacing recommendations (see Installation section).

Care recommendations

Follow the care recommendations below to maintain full operation of unit and to fulfil the warranty obligations.

This unit must not be operated with covers or lids removed.
Do not attempt to disassemble the unit. There are no user serviceable parts inside.
Do not drop, knock or shake the unit, rough handling beyond the specification may cause damage to internal circuit boards.
Do not use harsh chemicals, cleaning solvents or strong detergents to clean the unit.
Do not paint the unit. Paint can clog the unit and prevent proper operation.
Do not expose the unit to any kind of liquids (rain, beverages, etc). The unit is not waterproof.-Keep the unit within the specified humidity levels.
Do not use or store the unit in dusty, dirty areas, connectors as well as other mechanical part may be damaged.
If the unit is not working properly, contact the place of purchase, nearest Westermo distributor office or Westermo Tech support.

GSM specific safety

Please read and follow the guidelines listed below. The precautions must be observed during all phases of the operation. Breaking these rules may be dangerous, illegal or affect performance of the unit and/or invalidate the unit's approval and/or warranty.

General

Remember to follow any special regulations and warnings in force in any area and never use the unit whenever it's forbidden to use it. Do not use the unit when it may cause interference or danger. A wireless device exposed to interference above specified limits could result in deteriorated performance.

Hospitals or other Medical environment

Do not use the unit in a medical environment such as health care facilities. Follow any regulations or rules that instruct you to not use the unit.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6") inches be maintained between cellular wireless equipment and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of-Wireless Technology Research.

Persons with pacemakers:

- Should ALWAYS keep the the unit and its antenna more than six inches from their pacemaker when the unit is turned ON.
- If you have any reason to suspect that interference is taking place, turn your wireless equipment OFF immediately.

Hearing Aids

Some digital wireless equipment may interfere with some hearing aids. In the event of such interference, you may want to consult your service provider [or call the customer service line to discuss alternatives.]

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if they are adequately shielded from external RF energy.-Your physician may be able to assist you in obtaining this information.

Turn the wireless equipment OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Aircraft

Do not use the unit in an aircraft. The use of a wireless unit in an aircraft may be dangerous to the operation of the aircraft, disrupt the wireless network, and may be illegal.

Failure to observe these instructions may lead to suspension or denial of cellular services to the offender, legal action, or both.

Vehicle

If the unit is incorrectly installed in a vehicular environment, the operation of the unit could interfere with the vehicle electronics. Faulty installation and/or operation can constitute a safety hazard.

For Vehicles equipped with an airbag

An air bag inflates with great force. DO NOT place objects, including either installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

Blasting areas

Do not use the unit where blasting is in progress or in "blasting areas".
Observe restrictions and follow any regulation or rules.

Explosive atmospheres

Do not use the unit in any area with a potentially explosive atmosphere.
Potentially explosive areas are often, but not always, clearly marked.
They include fuelling areas such as petrol stations, below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powder.

RF energy

The DR-260/3G is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.
Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals from the wireless unit. All radio-transmitting devices send signals, which may cause interference in different electronic devices. To avoid interference, place the units antenna a sufficiently long distance from other electronics.

Critical applications

Cellular units operate using radio signals and cellular networks cannot be guaranteed to connect in all conditions. Therefore you should never rely solely on a wireless device for essential communications, for example medical emergencies.

Backup copies

Remember to make backup copies of all important data, for example PIN/PUK codes, contents of SIM card etc.

Antenna care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the unit and may violate current regulations.

Do not touch the antenna unnecessarily when the unit is in use. Contact with the antenna affects call quality and may cause the unit to operate at a higher power level than otherwise needed.

Maintenance

No maintenance is required, as long as the unit is used as intended within the specified conditions.

Agency approvals and standards compliance

Type		Approval / Compliance	
EMC		EN 55024, EN 55024 A1, EN 55024 A2, Electromagnetic compatibility - Immunity IT equipment	
		EN 55022, EN 55022 A1, Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement	
		FCC part 15 Class B	
Safety		IEC / EN 60950-1, IT equipment	
R&TTE	Article 3.1a	EN 60950	Safety
		EN 50385	EMF exposure
	Article 3.1b	EN 301 489-1	ERM/EMC
		EN 301 489-7	ERM/EMC GSM
		EN 301 489-24	ERM/EMC 3G
	Article 3.2	EN 301 908-1	ERM 3G
		EN 301 908-2	ERM 3G
		EN 301 511	GSM

FCC Part 15.105 Notice: This equipment 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 equipment 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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 equipment and receiver
- Connect the equipment 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.

Westermo Teleindustri AB

Declaration of conformity

The manufacturer Westermo Teleindustri AB
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

Type of product	Model	Art no
Cellular router	MR-210 EDGE	3622-0201

is in conformity with the following EC directive(s).

No	Short name
1999/5/EC	Radio equipment and Telecommunications terminal equipment (R&TTE)

References of standards applied for this EC declaration of conformity.

No	Title	Issue
EN 60950-1	Information technology equipment - Safety -- General requirements	2006 +A11:2009
EN 55022	Information technology equipment - Emission	2006 +A1:2007
EN 55024	Information technology equipment - Immunity	1998 +A1:2001 +A2:2003
EN 61000-3-2	Electromagnetic compatibility (EMC): Limits - Limits for harmonic current emissions	2006
EN 61000-3-3	Electromagnetic compatibility (EMC) : Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.	1995 +A1:2001 +A2:2005
EN 301489-7	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)	V1.3.1
EN 301489-17	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment: Specific conditions for Broadband Data Transmission Systems	V2.1.1
EN 301511	Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands.	V9.0.2

The last two digits of the year in which the CE marking was affixed: 11

Signature

Pierre Öberg
Technical Manager
25th January 2011

Postadress/Postal address	Tel.	Telefax	Postgiro	Bankgiro	Org.nr/ Corp. identity number	Registered office
S-640 40 Stora Sundby Sweden	016-428000 Int+46 16428000	016-428001 Int+46 16428001	52 72 79-4	5671-5550	556361-2604	Eskilstuna

Westermo Teleindustri AB

Declaration of conformity

The manufacturer Westermo Teleindustri AB
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

Type of product	Model	Art no
Cellular router	MR-260 3G	3622-0202

is in conformity with the following EC directive(s).

No	Short name
1999/5/EC	Radio equipment and Telecommunications terminal equipment (R&TTE)

References of standards applied for this EC declaration of conformity.

No	Title	Issue
EN 60950-1	Information technology equipment - Safety -- General requirements	2006 +A11:2009
EN 55022	Information technology equipment - Emission	2006 +A1:2007
EN 55024	Information technology equipment - Immunity	1998 +A1:2001 +A2:2003
EN 61000-3-2	Electromagnetic compatibility (EMC): Limits - Limits for harmonic current emissions	2006
EN 61000-3-3	Electromagnetic compatibility (EMC) : Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.	1995 +A1:2001 +A2:2005
EN 301489-24	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services: Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment	V1.4.1
EN 301489-17	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment: Specific conditions for Broadband Data Transmission Systems	V2.1.1
EN 301908-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks: Harmonized EN for IMT-2000.	V3.2.1

The last two digits of the year in which the CE marking was affixed: 11

Signature

Pierre Öberg
Technical Manager
25th January 2011

Postadress/Postal address	Tel.	Telefax	Postgiro	Bankgiro	Org.nr/ Corp. identity number	Registered office
S-640 40 Stora Sundby Sweden	016-428000 Int+46 16428000	016-428001 Int+46 16428001	52 72 79-4	5671-5550	556361-2604	Eskilstuna

Westermo Teleindustri AB

Declaration of conformity

The manufacturer Westermo Teleindustri AB
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

Type of product	Model	Art no
Cellular router	MR-270 3G	3622-0205

is in conformity with the following EC directive(s).

No	Short name
1999/5/EC	Radio equipment and Telecommunications terminal equipment (R&TTE)

References of standards applied for this EC declaration of conformity.

No	Title	Issue
EN 60950-1	Information technology equipment - Safety -- General requirements	2006 +A11:2009
EN 55022	Information technology equipment - Emission	2006 +A1:2007
EN 55024	Information technology equipment - Immunity	1998 +A1:2001 +A2:2003
EN 61000-3-2	Electromagnetic compatibility (EMC): Limits - Limits for harmonic current emissions	2006
EN 61000-3-3	Electromagnetic compatibility (EMC) : Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.	1995 +A1:2001 +A2:2005
EN 301489-7	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)	V1.3.1
EN 301489-17	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment: Specific conditions for Broadband Data Transmission Systems	V2.1.1

The last two digits of the year in which the CE marking was affixed: 11

Signature

Pierre Öberg
Technical Manager
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S-640 40 Stora Sundby Sweden	016-428000 Int+46 16428000	016-428001 Int+46 16428001	52 72 79-4	5671-5550	556361-2604	Eskilstuna

Type tests and environmental conditions

Phenomena	Test	Description	Test levels
ESD	EN 61000-4-2	Enclosure contact	± 4 kV
		Enclosure air	± 8 kV
RF field AM modulated	EN 61000-4-3	Enclosure	3 V/m 80% AM (1 kHz), 80 – 1 000 MHz, 1 400 MHz – 2 000
Fast transient	EN 61000-4-4	Signal ports	± 0.5 kV
		Power ports	± 1 kV
Surge	EN 61000-4-5	Telecom/Signal ports	± 0.5 kV line to earth
		Power ports	± 2 kV line to earth, ± 2 kV line to line
RF conducted	EN 61000-4-6	Power ports	3V/m 80% AM (1 kHz), 0.15 – 80 MHz
Voltage dips and interruption	EN 61000-4-11	AC power ports	10 & 100 ms, interruption 10 ms, 30% reduction 100 ms, 60% reduction 5000 ms, >95% reduction +30% above & –20% below rated voltage
Radiated emission	EN 55022	Enclosure	Class B
	FCC part 15		Class B
Conducted emission	EN 55022	AC power ports	Class A
	FCC part 15	AC power ports	Class B
	EN 55022	DC power ports	Class B
Temperature	Operating	MR-210 / MR-260	–20 to +55° Celsius (–25 to +70°C restricted operation) –4 to +131° Fahrenheit (–13 to +158°F restricted operation)
		MR-270	0 to +55° Celsius (0 to +70°C restricted operation) 32 to +131° Fahrenheit (32 to +158°F restricted operation)
	Storage & Transport		–40 to +85° Celsius –40 to +185° Fahrenheit
Humidity		Operating	5 to 95% relative humidity
		Storage & Transport	5 to 95% relative humidity
Altitude		Operating	2000 m / 70 kPa
Reliability prediction (MTBF)	Bellcore RQGR at 40°C	MR-210	203 000 hours
		MR-260	218 000 hours
		MR-270	139 000 hours
Enclosure			Pressed steel
Dimension W x H x D		MR-210 / MR-260	173 x 36 x 119 mm 6.8 x 1.4 x 4.7 inches
		MR-270	210 x 41 x 150 mm 8.3 x 1.6 x 5.9 inches
Weight		MR-210 / MR-260	0.49 kg
		MR-270	0.9 kg
Degree of protection	IEC529	Enclosure	IP 40
Cooling			Convection
Mounting			Horizontal on 35 mm DIN-rail or flat on level surface

Description

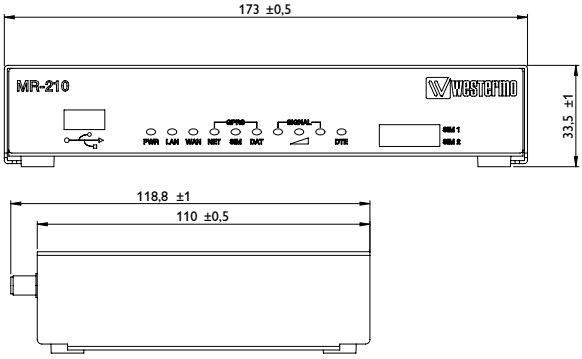
The MR-series are cellular enterprise class routers that provide secure remote access solutions that can save time and money and at the same time reduce the carbon footprint of your organisation.

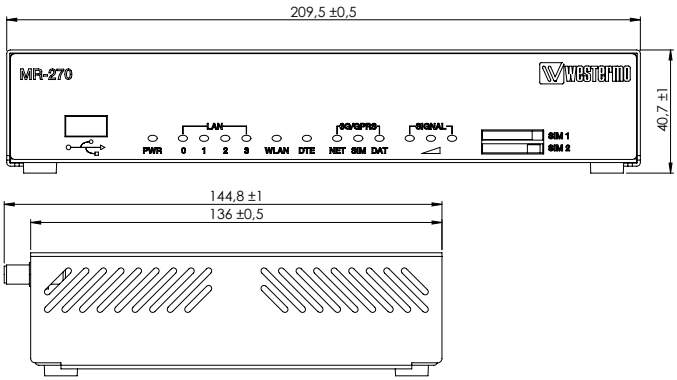
The units gives the user the option of being able to remotely access the PLCs, RTUs etc to monitor the equipment, access the web-configuration, send SMS or email, log to an FTP as well as many other scenarios.

With a feature rich software package, i.e. operating system, the units provides functionality usually found in very costly competing products. Instead of having to resort to expensive reprogramming or equipment change due to network carriers discontinuing their leased line services use the Westermo products. A cost-effective solution where the unit listen to the legacy signals and transfer them securely across the Internet completely transparent to the equipment, all you need is a SIM-card!

Dimensional drawing

MR-210 and MR-260 uses the same casing. The only difference is the number of antenna connectors where the MR-260 has two instead of just one for the MR-210.





Interface specifications

Power		
Rated voltage / Operating voltage	MR-210 / MR-260	9 – 48 VDC
	MR-270	11 – 58 VDC
Rated current (max)	1500 mA @ 12 VDC	
Rated frequency	DC	

RS-232		
Electrical specification	EIA RS-232	
Data rate	300 bit/s – 115.2 kbit/s	
Data format	7 or 8 data bits, Odd, even or none parity, 1 or 2 stop bits	
Protocol	Transparent, optimised by packing algorithm	
Circuit type	SELV	
Transmission range	15 m / 49 ft	
Connection	MR-210 / MR-260	RJ 45
	MR-270	9 pin D-sub female
Shielded cable	Not required	
Conductive housing	Yes	
Number of ports	1	

Ethernet TX		
Electrical specification	IEEE std 802.3. 2005 Edition	
Data rate	10 Mbit/s, 100 Mbit/s, manual or auto	
Duplex	Full or half, manual or auto	
Circuit type	SELV	
Transmission range	100 m / 328 ft	
Isolation to	All other	
Connection	RJ-45 auto MDI/MDIX	
Shielded cable	Not required, except when installed in Railway applications as signalling and telecommunications apparatus and located close to rails.*	
Conductive housing	Yes	
Number of ports	MR-210 / MR-260	1
	MR-270	4

* To minimise the risk of interference, a shielded cable is recommended when the cable is located inside 3 m boundary to the rails and connected to this port.
The cable shield should be properly connected (360°) to an earthing point within 1 m from this port.
This earthing point should have a low impedance connection to the conductive enclosure of the apparatus cabinet, or similar, where the unit is built-in. This conductive enclosure should be connected to the earthing system of an installation and may be directly connected to the protective earth.

Antenna	
Frequency bands	850 MHz – 2100 MHz
Connection	SMA female, impedance: 50 ohm

SIM	
Electrical specification	3 volts SIM supported
Number of slots	2

USB	
Electrical specification	USB 2.0 host interface
Data rate	Up to 12 Mbit/s (full-speed mode)
Circuit type	SELV
Maximum supply current	500 mA in total for both ports
Connection	USB receptacle connector type A
Number of ports	1

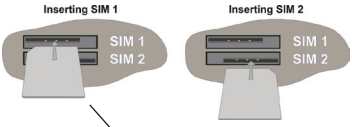
Connections, MR-210 and MR-260

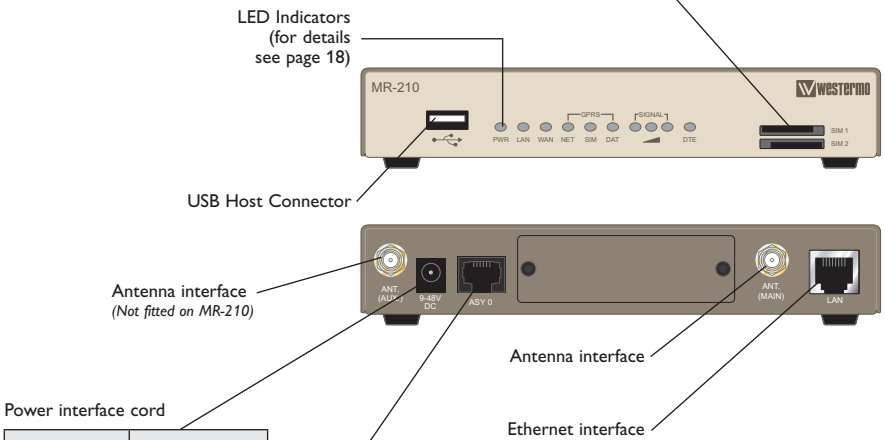
SIM Card Sockets

The two sockets at the left side of the front panel are for the GSM SIM card(s) that you will receive from your service providers. SIM 1 and SIM 2 cannot be used to access two networks simultaneously.

The SIM card(s) should be inserted into SIM cardholders on the right of the front panel as illustrated below.

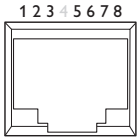
In both cases, the end of the SIM card with the chamfered corner should be inserted first. For SIM 1 the contacts should be face down. For SIM 2 the contacts should be face up.





Cable	Description
Black	– VDC
Red	+ VDC

RS-232

Position	Direction	Description	Connector Description
No. 1	In	RTS (Request To Send)	
No. 2	In	DTR (Data Terminal ready)	
No. 3	Out	RD (Receive Data)	
No. 4	–	Not Connected	
No. 5	Not connected	SG (Signal Ground)	
No. 6	In	TD (Transmit Data)	
No. 7	Out	DCD (Data Carrier Detect)	
No. 8	Out	CTS (Clear To Send)	

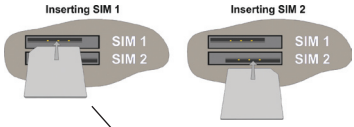
Connections, MR-270

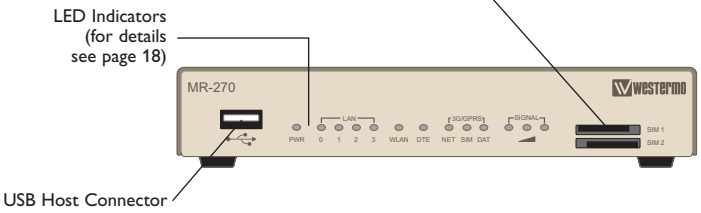
SIM Card Sockets

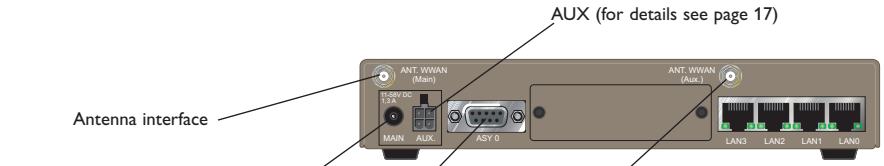
The two sockets at the left side of the front panel are for the GSM SIM card(s) that you will receive from your service providers. SIM 1 and SIM 2 cannot be used to access two networks simultaneously.

The SIM card(s) should be inserted into SIM cardholders on the right of the front panel as illustrated below.

In both cases, the end of the SIM card with the chamfered corner should be inserted first. For SIM 1 the contacts should be face down. For SIM 2 the contacts should be face up.







Power interface cord

Cable	Description
Black	–VDC
Red	+VDC

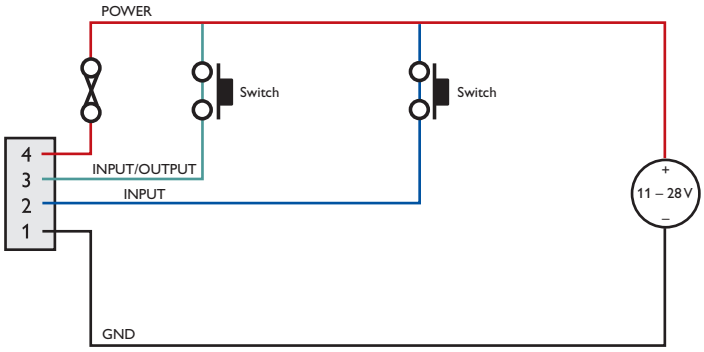
RS-232

Position	Direction	Description	Connector Description
No. 1	Out	Data Carrier Detect (DCD)	
No. 2	Out	Receive Data (RD)	
No. 3	In	Transmit Data (TD)	
No. 4	In	Data Terminal Ready (DTR)	
No. 5	Not connected	Signal Ground (GND)	
No. 6	Out	Data Set Ready (DSR)	
No. 7	In	Request To Send (RTS)	
No. 8	Out	Clear To Send (CTS)	
No. 9	Out	Ring Indicate (RI)	

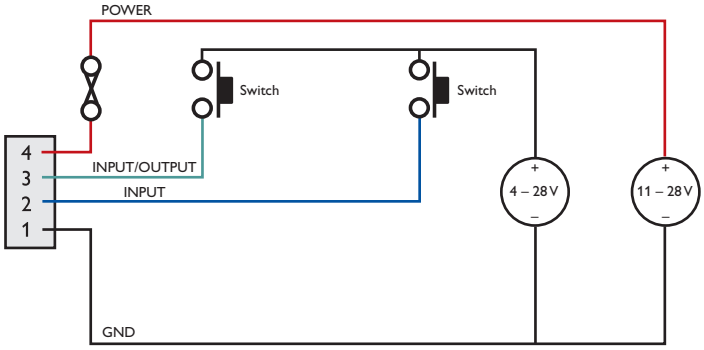
Description of AUX-connector and I/O signal lines

The auxiliary power connector has two programmable signal lines. One is an input line, the other can be configured as either an input line or an output line. The mode of operation of the input/output line is configurable through the CLI.

The signal lines can be wired as shown in the following diagrams

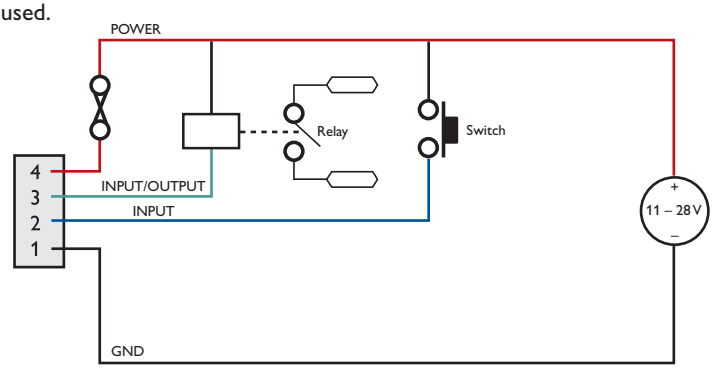


2 Inputs, Supply Voltages up to 28 VDC

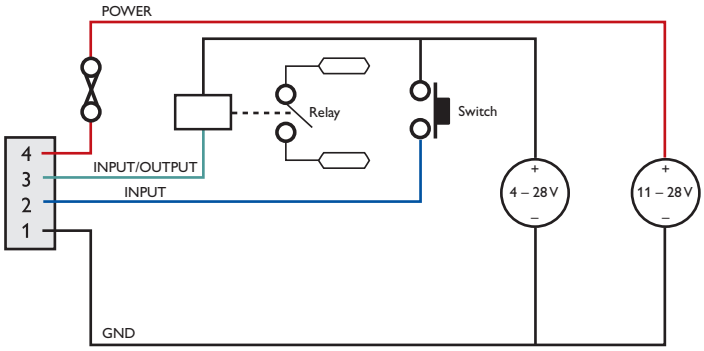


2 Inputs, Supply Voltages up to 58 VDC

If the auxilary power connector is being used, the main power connector should ***NOT*** be used.



1 Input, 1 Output, Supply Voltages up to 28 VDC



1 Inputs, 1 Output, Supply Voltages up to 58 VDC

Input Signal Information

- Applied input voltage to activate: +4 V to +28 VDC
- Applied input voltage to deactivate: 0 V to +1 VDC (Negative voltages can be applied to –28 VDC)
- Maximum input current: 3 mA
- Input protection activates at more than ±28 VDC.

Connector Pin Numbers

External current limiting is needed to protect input voltages above ±28 VDC.

Output Signal Information

- Maximum voltage switched: +28 VDC
- Maximum current switched: +40 mA
- Output leakage current is equivalent to a 10 Kohms resistor to Ground.
- Suggested minimum Relay Coil resistances:
  - Supply Voltage 6 VDC, minimum resistance 100 Ohms
  - Supply Voltage 12 VDC, minimum resistance 240 Ohms
  - Supply Voltage 24 VDC, minimum resistance 480 Ohms
- The output switch is protected against back-EMFs generated at relay turn-off.
- Output protection activates at more than ±28 VDC.
  External current limiting is needed to protect input voltages above ±28 VDC.

LED Indicators MR-210 / MR-260

LED		Status	Description
PWR		OFF	Unit has no power
		GREEN	All OK
		RED	Lit until unit has started up
LAN		OFF	No link
		GREEN	Link established
		GREEN FLASH	Data traffic indication
WAN		OFF	No Service
		1 BLINK	GPRS Mode
		2 BLINKS	EDGE Mode
		3 BLINKS	UMTS (3G) Mode
		4 BLINKS	HSDPA Mode
		5 BLINKS	HSUPA Mode
3G / GPRS	NET	OFF	No wireless network has been detected
		GREEN	A wireless network has been detected
	SIM	OFF	No valid SIM installed
		GREEN	A valid SIM card is installed in the unit
	DAT	OFF	No data is being transferred over the wireless network
		GREEN	Data is being transferred over the wireless network
SIGNAL	ALL	OFF	No signal / less than –113 dBm
	1 LED	GREEN	Low signal strength / between –112 dBm and –87 dBm
	2 LEDs	GREEN	Medium signal strength / between –86 dBm and –71 dBm
	3 LEDs	GREEN	Strong signal strength / between –70 dBm and –51 dBm
DTE		OFF	No connection on serial port, or no data is transmitted or received on the serial port
		GREEN	Terminal connected to the serial port and the DTR signal is on
		GREEN FLASH	Data is transmitted or received on the serial port.

LED Indicators MR-270

LED		Status	Description
PWR		OFF	Unit has no power
		GREEN	All OK
		RED	Lit until unit has started up
LAN 0,1,2,3		OFF	No link
		GREEN	Link established
		GREEN FLASH	Data traffic indication
WLAN		N/A	N/A
DTE		OFF	No connection on serial port, or no data is transmitted or received on the serial port
		GREEN	Terminal connected to the serial port and the DTR signal is on
		GREEN FLASH	Data is transmitted or received on the serial port.
3G / GPRS	NET	OFF	No wireless network has been detected
		GREEN	A wireless network has been detected
	SIM	OFF	No valid SIM installed
		GREEN	A valid SIM card is installed in the unit
	DAT	OFF	No data is being transferred over the wireless network
		GREEN	Data is being transferred over the wireless network
SIGNAL	ALL	OFF	No signal / less than –113 dBm
	1 LED	GREEN	Low signal strength / between –112 dBm and –87 dBm
	2 LEDs	GREEN	Medium signal strength / between –86 dBm and –71 dBm
	3 LEDs	GREEN	Strong signal strength / between –70 dBm and –51 dBm

Protocols and Functionality

Ethernet Technologies	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseTX
Cellular Technologies	GSM GPRS Multi-slot class 12, mobile station class B, PBCCH support, coding schemes CS 1-4 EDGE Multi-slot class 12 (max 236.8 Kbit/s), mobile station class B, modulation and coding scheme MCS 1-9 3G (WCDMA) 384 Kbit/s downlink / uplink (MR-260 / MR-270) HSDPA up to 7.2 Mbit/s downlink (MR-260 / MR-270) HSUPA up to 2.0 Mbit/s uplink (MR-260 / MR-270)
Serial Port Technologies	RS-232 Serial Over IP (Serial Extender and Virtual Serial Port) LAPB, MODBUS
Resiliency and High Availability	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid STP (RSTP)
Layer-2 Switching	IEEE 802.1Q Static VLAN and VLAN Tagging IEEE 802.3x Flow Control IGMPv2/v3 snooping Static Multicast MAC filters
Layer-2 QoS	IEEE 802.1p Class of Service Flexible classification VLAN tag, VLAN ID, IP DSCP/ToS, Port ID)
IP Routing, Firewall, VPN and Cyber Security	Static IP routing Dynamic IP routing • BGP • OSPFv2 • RIPv1/v2 VRRP, VRRP+™ GRE Stateful inspection Firewall / ACL, NAT, 1:1 NAT, Port Forwarding IPSec VPN including failover functionality, PSK & X.509, SCEP MR-210 / MR-260 • Encryption package needed, see first page for details. • 5 Non-encrypted tunnels included, supports 50 tunnels in total with upgrade. MR-270 • 5 Encrypted tunnels included, supports 50 tunnels in total with upgrade. L2TP PPTP OpenVPN / SSL VPN TACACS+ RADIUS SMS Control (Requires 3G Option)

Manageability	Management tools • Web interface (HTTP and HTTPS) • Command Line Interface (CLI) via console port, SSHv2 and TELNET • SNMPv1/v2c/v3 • Powerful Packet/Protocol Analyzer with PCAP-export support • Flexible management of configuration and log files • Local file management via HTTP, FTP, TFTP and SCP • Load/save files from/to USB memory stick • Upgrade firmware from USB memory stick Flexible alarm/event handling system Syslog (log files and remote syslog server) Port Monitoring SNTP (NTP client) PPPoA & PPPoE client DHCP client DHCP server DDNS
Programming Custom Control	Python and ScriptBasic

Factory default/reset

Perform the following 4 steps to reset the unit to its factory default settings.

1. Power up the unit.
2. Locate the reset switch on the underside of the unit, near the front ventilation holes.
3. Press and hold the reset switch gently, with the tip of a pen or other similar device, until you see the front LEDs flashing (~5 sec).
4. Remove the tip of the pen and wait for the unit to reboot.

Note! Do not power off the unit while the factory reset procedure is in place

Default Network Settings

IP address (Ethernet ports)	192.168.2.200
Netmask (Ethernet ports)	255.255.255.0
Username	admin
Password	westermo

Required information from SIM-provider/Carrier

SIM PIN number	Some providers do not use PIN numbers
Access Point Name (APN)	Server for network access
APN username	Some providers do not use APN authentication.
APN password	

Reset/set IP address using an RS-232 serial connection

If the IP address of the device is unknown the best way to access the unit is by performing a factory reset, however, in some instances it may be required to only change, or set, the IP address of the device. This can be achieved by connecting an RS-232 cable between the Serial 0 port on the device to your PC.

RS-232 PC settings

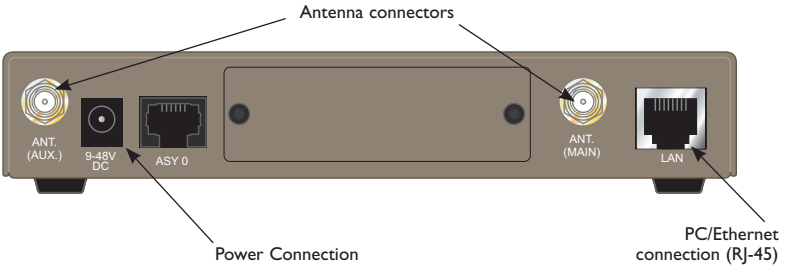
Data rate	115.200 bit/s
Data bits	8
Stop bits	1
Parity	None
Flow control	None

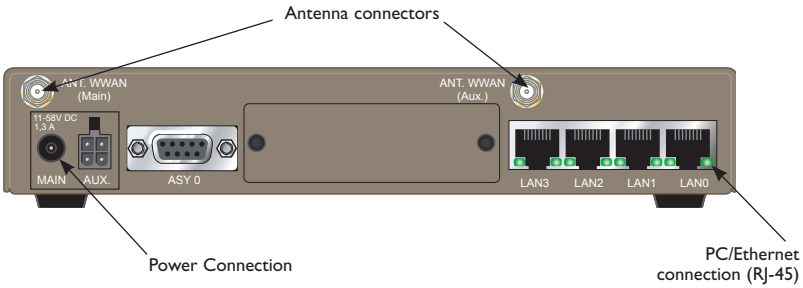
Execute the following commands and change them to match your desired network settings.

```
Eth 0 ipaddr 192.168.2.200
Eth 0 mask 255.255.255.0
Eth 0 gateway 192.168.2.200
Eth 0 status
Config 0 save
```

The device can now be reached on the IP-address configured above.

Step-by-step guide to configure a GPRS/3G/HSPA connection using the web interface





Step 1 – Power-up the unit and wait for it to become ready

Connect the antenna(s) to the unit and insert the SIM card into slot 1. Connect an RJ-45 cable from a/the LAN port to your PC, and then connect the unit to an appropriate PSU and power it up.

The unit will then start up and after about 10 seconds the unit will be accessible via the web-interface.

Step 2 – Configure your PC

Make the following changes in your PC.

IP address	192.168.2.100*
Netmask (Ethernet ports)	255.255.255.0
Gateway	192.168.2.200
Preferred DNS server	192.168.2.200

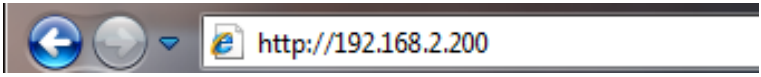
* Can be any address in the 192.168.2.0-255-range except 192.168.2.200.

Note! If you are unsure or unable to change the above – consult your network administrator.

Step 3 – Accessing the unit

Start a web browser on your PC and type in the following address

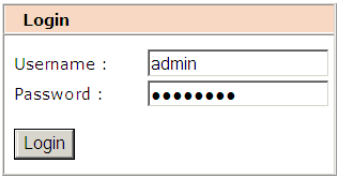
http://192.168.2.200



Step 4 – Login screen

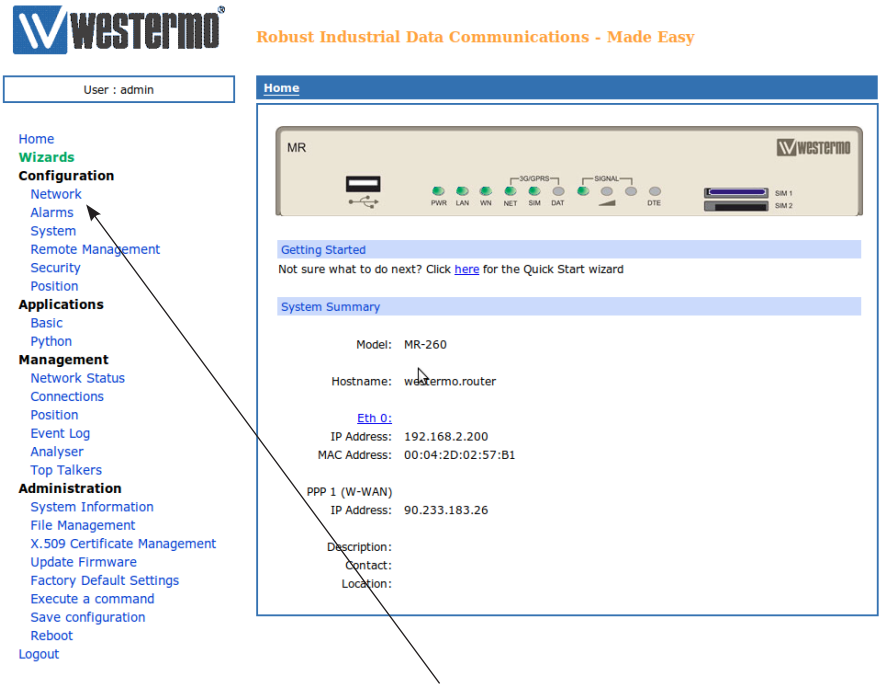
After step 3 you will be presented with a login screen which asks for a username and a password. Please type in the following

Username **admin**
Password **westermo**



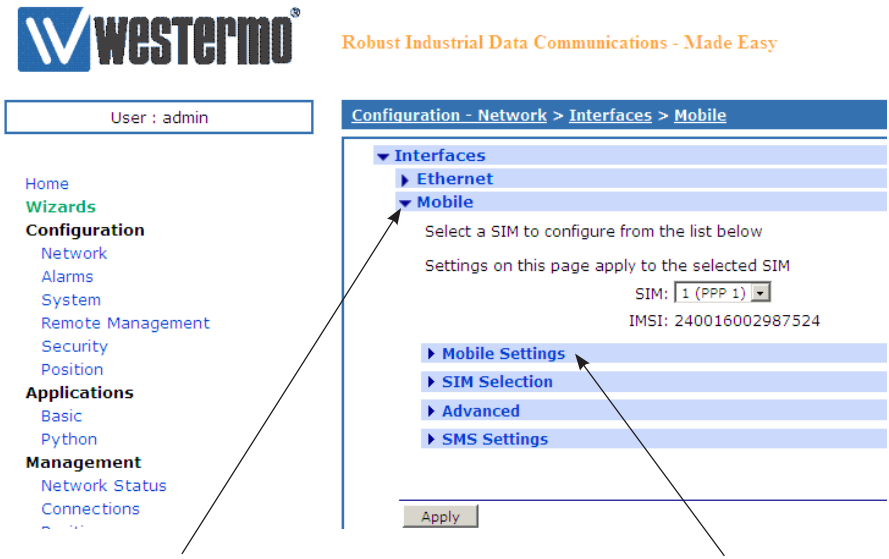
Step 5 – Welcome screen

You have now successfully logged into the unit and are ready to set up your mobile broadband connection.

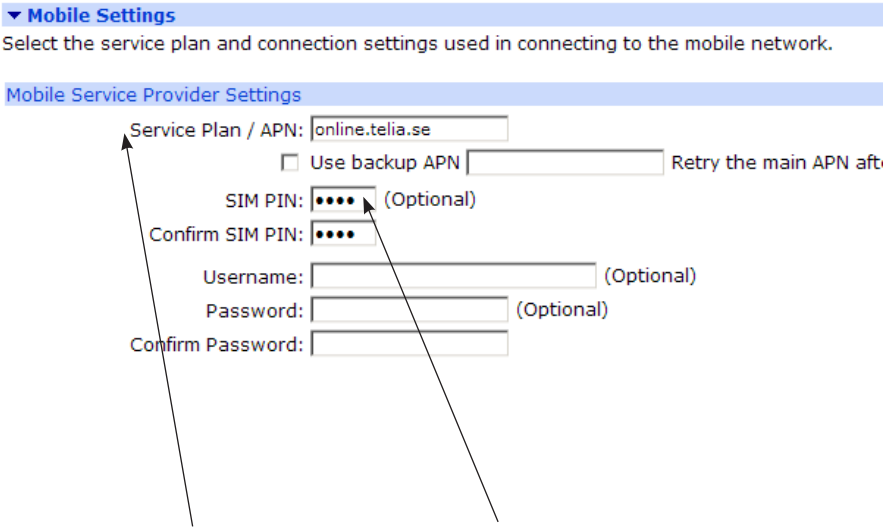


Please click on **Network** under the **Configuration**-menu item.

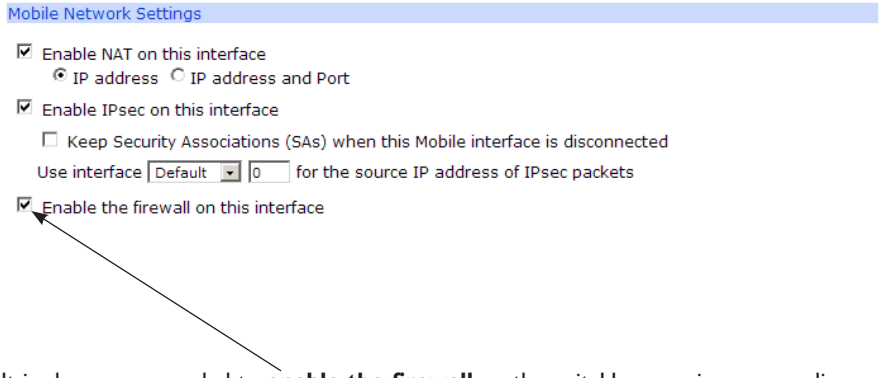
Step 6 – Mobile Setup



First click on **Mobile** under the Interface-context and then click on **Mobile Settings**.

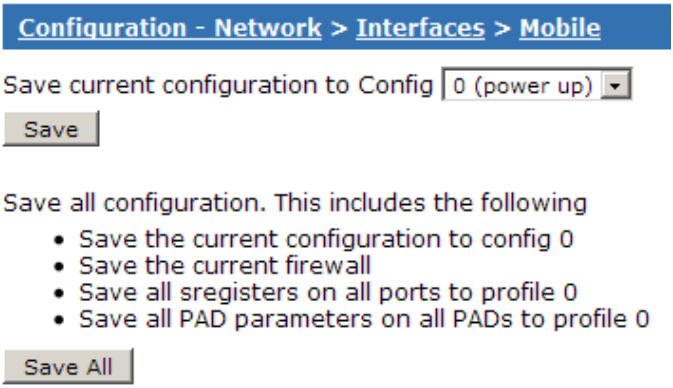


Then fill in the **Service Plan / APN** and the **SIM PIN** number, if the card uses that.



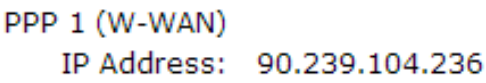
It is also recommended to **enable the firewall** on the unit. However, in some applications there might be a need to open up the firewall for certain protocols, please refer to the reference guide for further information on how to administer the firewall.

To activate your configuration please press **Apply**. To save your configuration first click the **here**-link and on the next page click on **save all.**



Step 7 – Unit ready and online

The easiest way to see that everything works is to click on Home and then look at the details on the left side of the page where the information about PPP1 (W-WAN) is listed.



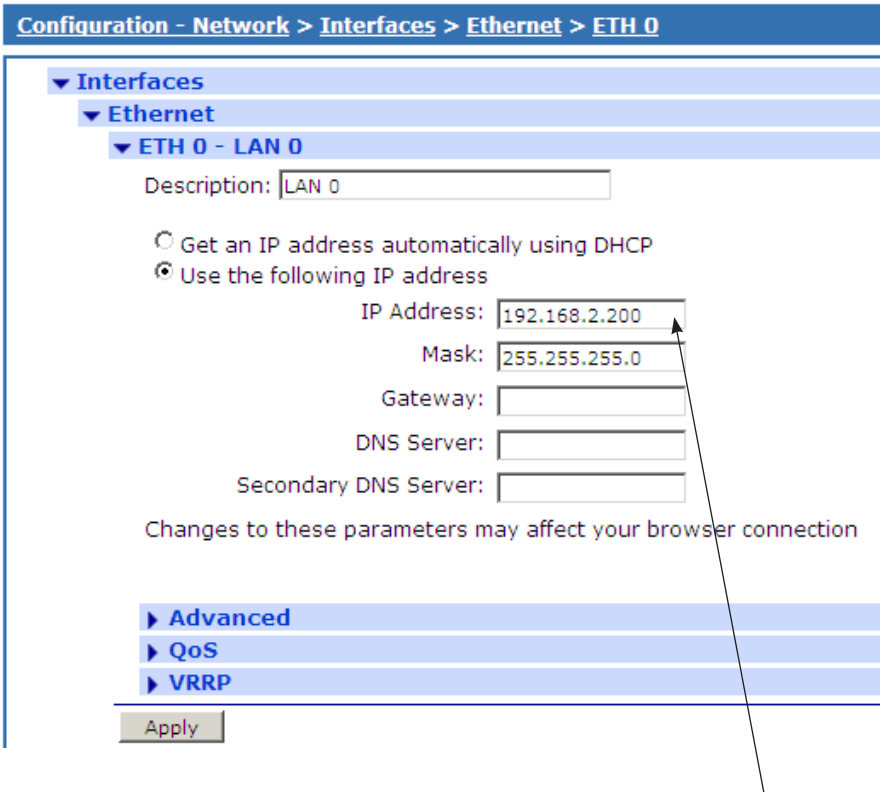
Step 8 – Test your connection

In your Internet browser type in www.westermo.com and test your connection, you should be able to see the Westermo website.

You are now ready to use the MR-210 / MR-260 / MR-270!

Change the IP address of the unit

First follow steps 1 through 5 above.
Then click on Interfaces→ Ethernet → ETH 0 – LAN 0



Type the desired IP address into the text box next to IP Address and then press **Apply** and **Save**.

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