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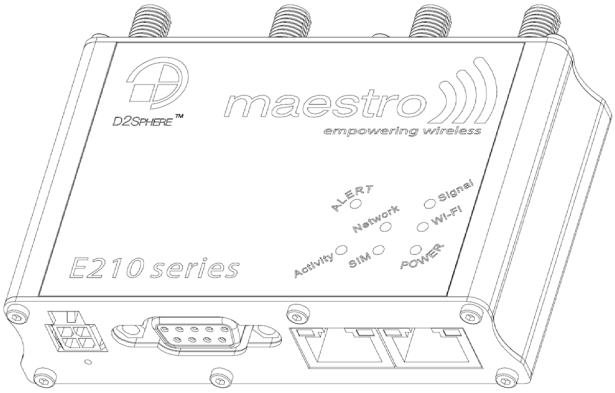

E210 Series
Cellular Router
User Guide

Part Number PMD-00017
Revision A October 2019

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Revision History

Date	Rev.	Comments
Sep., 2017	1.0	First release
Oct., 2017	1.1	RAM size and model list
Nov., 2017	1.2	Compatible models
Jun., 2018	1.3	Compatible models
Apr., 2019	1.4	Power consumption, Accessories and LED Status Indicator.
July 2019	A	Initial Lantronix document. Added Lantronix document part number, Lantronix logo, branding, contact information, and links.

For the latest revision of this product document, please check our online documentation at www.lantronix.com/support/documentation.

Table of Contents

1 Safety Precautions

1.1 General precautions

The router generates radio frequency (RF) power. When using the router, care must be taken to ensure safety as well as compliance with all the regulations that surround the use of RF equipment.

Do not use the router in aircraft, hospitals and petrol stations or in places where using GSM, W-CDMA and LTE equipment or any other RF equipment is prohibited, and make sure that the router is not interfering with nearby equipment such as pacemakers or medical equipment.

All antennae of the router should be directed away from computers, office equipment, home appliances, etc., and always keep the router at a minimally safe distance of 26.6cm or more from human bodies.

Do not put the antenna inside metallic boxes or other containers.

1.2 Using the router in vehicles

Check for regulations/law, if any, for authorising the use of GSM, W-CDMA and LTE equipment in vehicles in your country before installing the router.

Installation of the router should be done by qualified personnel. Consult your vehicle dealer for any possible interference concerns to the use of the router.

Battery of the vehicle could be drained after an extended period when the router is powered by the vehicles main battery.

1.3 Protecting your router

Please install and operate the router with care, and complying the following;

Do not expose the router in extreme conditions such as high humidity/rain, high temperature, direct sunlight, caustic/harsh chemicals, dust, or water.

Do not try to disassemble or modify the router as there is no user serviceable parts inside and the warranty would be voided in the case of tampering.

Do not drop, hit, shake the router in extreme vibrations.

Do not pull the power supply cable. Please attach or detach it by holding the connector after switching off the supply.

Install and connect the router in accordance with this document.

Failure to do so will void the warranty.

2 E210 Series Compatible Models

Please refer to the E210 Series product page on the Lantronix website for ordering information.

Model name	Territories or Operator(s)	Cellular type [1]	Bands [2]	Fallback mode(s) [1]	Bands [2]	Location services	Planned certifications [3]	FCS [4]	Order code
E213	World	Dual mode LTE-M1 / NB-IoT	12[a]/28/13/20/ 26[b]/8/3[c]/4/2/1	2G λ2	5/8/3/2	same as E214G's	*TBD*	Jun. '18	E213
E214	EMEA	LTE cat. 1	28/20/8/3/1/7	3G ζ3; 2G λ3	8/1; 8/3		RED [5], GCF	Sep. '18	E214#02
	Asia Pacific		28/5/8/3	3G ζ2	5/8/1	×	RCM; NCC; NBTC; SIRIM; IDA	Jun. '18	E214#358S#158
	China; Indonesia; India		5/8/3/1/ TDD 40/41[d]	3G ζ3; 2G λ3	8/1; 8/3	same as E214G's	CCC, NAL, SRRC; Postel; WPC	Sep. '18	E214#078
E214G	Verizon Wireless		13/4	×	N/A	IZat™ gen. 8C gpsOne	FCC [6], Verizon Wireless	Jun. '18	E214G#01
	AT&T Wireless, T-Mobile USA, Sprint		12[a]/5/4/2	3G ζ3	5/4/2		ISED; FCC [6], PTCRB, AT&T Wireless		E214G#00
E215	EMEA, [most of] Asia Pacific	3G ζ1	8/1	2G λ1	8/3	×	RED, GCF; SIRIM		E215#02
E218	NTT docomo	LTE cat. 4	19/21/1	×	N/A		JPA, JRF		E218#1JL
	KDDI		18/11/1						E218#1BI
E218G	Asia Pacific		28/5/8/3/1/7	3G ζ3	5/8/1	same as E214G's	RCM; NCC; NBTC; SIRIM; IDA	Sep. '18	E218G#04

Please consult us regarding the models or features shown in grey, which are subject to MOQ and other considerations.

[1] Uplink / Downlink maximum data rates
- *2G: λ1 85.6 / 236.8; or 236.8 / λ2236.8; or λ3296 kbps*
- *NB-IoT: 65 / 27 kbps*
- *LTE-M1: 375 / 300 kbps*
- *LTE cat. 1: 5 / 10 Mbps (FDD); 3.1 / 8.96Mbps (TDD)*
- *3G: 5.76 / ζ1 7.2; or ζ2 10.1; or ζ3 42.2Mbps*
- *LTE cat. 4: 50 / 150 Mbps (FDD); 35 / 130 Mbps (TDD)*

[2] Ranked by increasing frequencies

[a] Also North America's B17 subset

[b] Also KDDI's B18 and North America's B5 subsets, the latter containing NTT DoCoMo's B19 subset, itself containing Japan's B6 subset

[c] Also Japan's B9 subset

[d] In fact, the 2535 MHz ~ 2655 MHz subset of B41

[3] Besides MIL-STD-810G

[4] First customer shipment [date of]

[5] Also EN 60950-1

[6] Also Class I Division 2 for use in explosive atmospheres as a factory option subject to MOQ and other considerations

3 Product Features

3.1 General specification

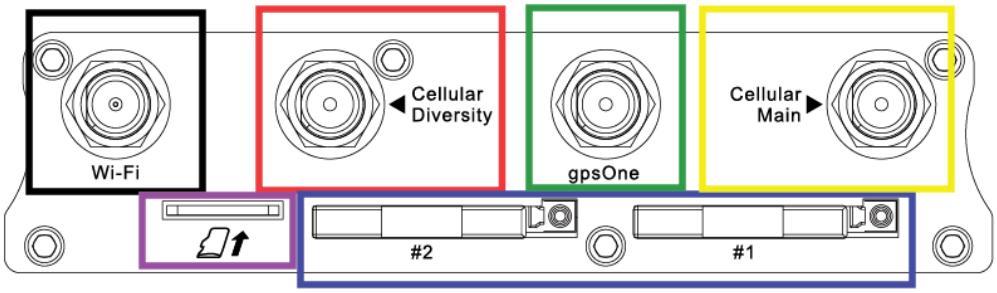
Casing:	Brushed Aluminum
Dimensions:	92x57x22(mm)
Weight:	150 g (approx.)
Operating temperature:	-20 °C ~ +60 °C; up to 95 % R.H.
Storage temperature:	-40 °C ~ +85 °C; up to 95 % R.H.
Flash memory (SPI):	32 MB
RAM (DDR2 SD-RAM):	128 MB
Ethernet LAN & WAN:	10/100BASE-T
Wi-Fi:	IEEE 802.11b/g//n 2.4 GHz
GPS:	IZatTM gen. 8C gpsOne

3.2 Power consumption (mA)

	8V	12V	32V
E213			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	165	110	43
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	265	171	65
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	356	235	91
GPRS (2Tx,3Rx)@900/850MHz (PCL=5)	530	356	135
LTE in communication mode (Tx max.)	420	283	108
E214#358S#158			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	118	79	30
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	145	99	38
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	270	187	73
W-CDMA in communication mode (Tx max.)	575	386	146
LTE in communication mode (Tx max.)	695	471	179
E214G#00			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	137	90	34
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	195	135	51
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	290	203	82
W-CDMA in communication mode (Tx max.)	650	445	170
LTE in communication mode (Tx max.)	730	495	193

	8V	12V	32V
E215#02			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	120	80	29
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	143	98	37
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	265	185	72
GSM in communication mode (PCL=5)	380	252	98
GPRS (2Tx,3Rx)@900/850MHz (PCL=5)	450	307	115
W-CDMA in communication mode (Tx max.)	685	456	173
E218#04			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	163	109	42
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	250	165	61
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	335	225	86
GSM in communication mode (PCL=5)	450	305	115
GPRS (2Tx,3Rx)@900/850MHz (PCL=5)	600	412	158
W-CDMA in communication mode (Tx max.)	740	491	192
LTE in communication mode (Tx max.)	690	465	177
E218G#04			
Idle (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module off)	163	109	42
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card disconnected, cellular module idle)	261	173	64
Stand-by (WLAN, LAN, Wi-Fi, RS-232 & TF card connected, cellular module idle)	346	232	89
GSM in communication mode (PCL=5)	461	313	118
GPRS (2Tx,3Rx)@900/850MHz (PCL=5)	611	420	161
W-CDMA in communication mode (Tx max.)	751	499	195
LTE in communication mode (Tx max.)	701	473	180

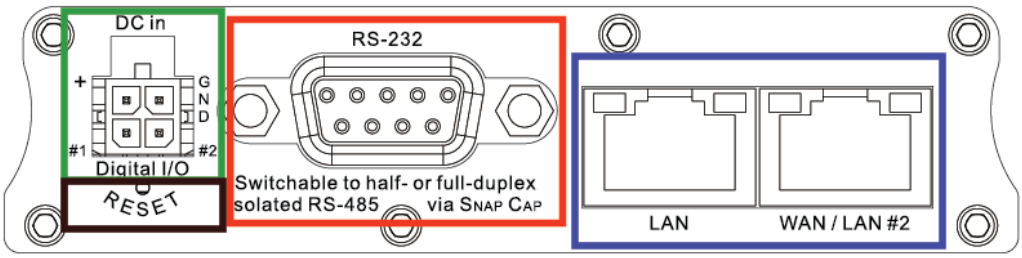
3.3 Back panel connection



Black	–	Wi-Fi antenna, RP-SMA connector
Red	–	Cellular diversity antenna, SMA connector
Green	–	GPS antenna, SMA connector
Yellow	–	Cellular main antenna, SMA connector
Purple	–	MicroSD-XC card slot
Blue	–	Dual SIM slots: Left: SIM 2; Right: SIM 1

Note: Depending on models, number of antenna connectors may vary.

3.4 Front panel connection



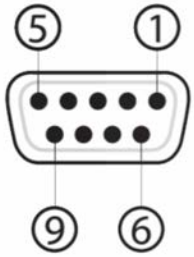
Green – **D.C. Power**: 4-pin Micro-fit 3.0 connector

Top L/R:	8 V ~ 32 Vdc
Bottom L/R:	Two digital I/Os
Digital Input:	0 ~ 1 Vdc as low 1 ~ 36 Vdc as high
Digital Output:	Open collector, 100 mA@24 Vdc max

Black – **Reset button**: Back to default settings (push for 10 sec)

Red – **RS-232**:

1. DCD
2. Rx
3. Tx
4. DTR
5. Ground
6. DSR
7. RTS
8. CTS
9. RI



Blue – **Ethernet ports**:

Left:	LAN
Right:	WAN or set as 2nd LAN

4 Accessories

Power supply / Power cable	
ACC-PS20-F	4-pin Micro-Fit, 1.2 A power adapter with Euro plug 2-pin - Europe
ACC-PS21-F	4-pin Micro-Fit, 1.2 A power adapter with NEMA plug 3-pin - U.S./Europe/Taiwan/Japan
ACC-PS22-F	4-pin Micro-Fit, 1.2 A power adapter with AS3112 plug 3-pin - Australia/New Zealand/China
ACC-PS23-F	4-pin Micro-Fit, 1.2 A power adapter with BS1363 plug 3-pin - U.K./Ireland
ACC-CA10	4-pin Micro-Fit (M) to stripped wire with 2.5 A fuse in 1 m length
Serial and USB cable	
ACC-CA07	DB9(M) to DB9(M) cable
Antennae	
ACC-A31	SISO, 2G, 3G and 4G, 698 – 960 MHz & 1710 – 2690 MHz, 3 m cable
ACC-A31H	SISO, 2G, 3G, 4G and GPS, 698 – 960 MHz & 1710 – 2700 MHz, 3 m cable
ACC-A32	MIMO, 2G, 3G and 4G, 698 – 960 MHz & 1710 – 2690 MHz, 3 m cable
ACC-A32H	MIMO, 2G, 3G, 4G and GPS, GNSS, Galileo & BeiDou, 698 – 960 MHz & 1710 – 2690 MHz, 3 m cable
ACC-A33	MIMO, 2G, 3G, 4G and GPS, 698 – 960 MHz & 1710 – 2690 MHz, 3 m cable
ACC-A33H	MIMO, 2G, 3G, 4G, 698 – 960 MHz & 1710 – 2690 MHz, 3 m cable
Miscellaneous	
ACC-DIN-E210	Metal DIN Rail clip
Snap-cap	Converter: RS-232 DB-9 port into an isolated, half/full-duplex (switchable) 5-pin RS-485 port

5 LED Status Indicator

The E210 operation status is indicated by six LEDs as shown above, and described in the below table;

Name	Color and Status	Description
Wi-Fi	OFF	Wi-Fi network is inactive
	Blue ON	Wi-Fi network is activated
	Blue Flashing	Wi-Fi network data transferring
Activity	OFF	Cellular data service not connected
	Amber ON	Cellular data service connected
	Amber Flashing	Cellular data transferring
Network	OFF	Not registered on cellular network
	Amber ON	Registered on cellular network (home)
	Amber Flashing	Registered on cellular network (roaming)
Signal	OFF	No signal (CSQ=0 to 5, 97, 98, 99)
	Amber Flashing	Weak signal (CSQ ≤ 12)
	Amber ON	Strong signal (CSQ ≥ 12)
Power	OFF	Power off
	Green ON	Power on
Alert	OFF	No alert
	Red Flashing	Booting, SIM card not inserted, FW upgrading
	Red ON	Hardware fault (i.e. overheated, memory corruption)

6 Setup

6.1 Prerequisite

Prior to the E210 series router setup:

- Activated SIM card
- Ethernet cable
- Wi-Fi and cellular antenna
- Ethernet port or Wi-Fi connectivity on the computer
- Web browser; Internet Explorer 8+, Google Chrome, Mozilla Firefox or Safari for accessing the Web Admin Console
- DHCP set to enable

Enabling DHCP on Windows:

Start menu →**Control Panel** →**Network and Internet**

→ **Network and Sharing Center** → **Change adapter settings**

→ Right click on **Local Area Connection** → **Internet Protocol Version 4(TCP/IPv4)**

→ **Properties**

→ **Obtain an IP address automatically** & **Obtain DNS server address automatically**

Enabling DHCP on MAC OS:

→ Launch **System Preferences**, then choose **Network**.

→ Select **Ethernet** from the **adapters list** on the left.

→ Set the Configure IPv4 drop-down to **Using DHCP**

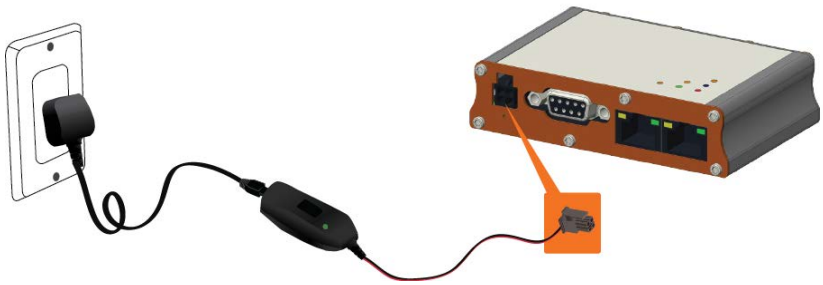
6.2 Connecting the E210 router

Inserting SIM cards

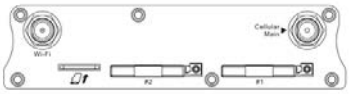
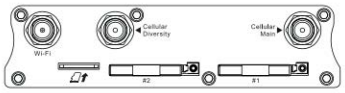
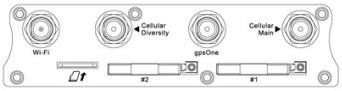
i) Eject the SIM tray by pushing the yellow eject button inwards.
ii) Pull the SIM tray out from the slot.
iii) Place the mini-SIM card on the tray with SIM chip facing up.
iv) Insert the tray back in place carefully.

Connecting the AC power

Connect the A.C. power cord as shown below and refer to **Section 4.3** in Green, **D.C. Power**.



Antenna connection

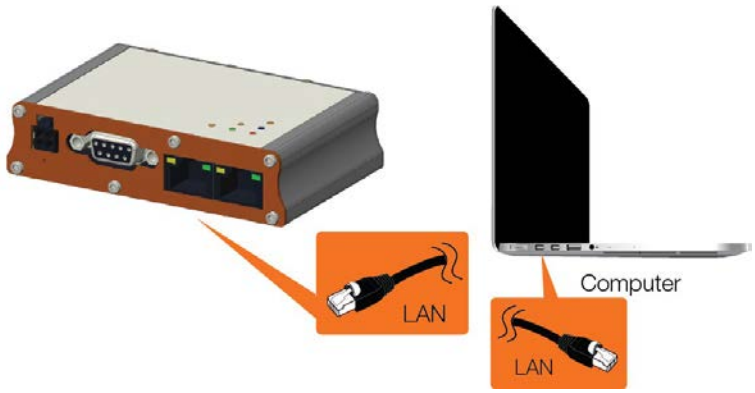
Main	Series	Auxiliary	Picture
Cellular only	E213 E215	N/A	
	E214 E218	Cellular only	
	E214G	GPS and cellular	

Note: Dual cellular antennae improve data throughput/performance on cellular data transfer rate.

Cellular antenna selections base on frequency bands of cellular network operators in individual countries, refer to **Section 2**, **E210 series compatible models** or contact Lantronix technical support at https://www.lantronix.com/support

Connecting the router to a computer

Connect an Ethernet cable between the LAN port of the E210 series router and a computer as shown below and can refer to section 4.2 in Blue, **Ethernet ports**.



6.3 Software configuration

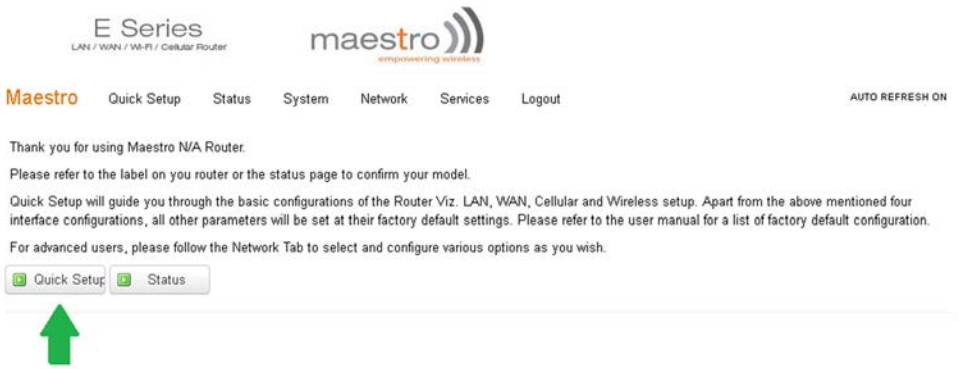
Open a web browser, use the below default LAN IP address;

Parameters	Details
IP Address (LAN)	192.168.1.1
Username	admin
Password	admin

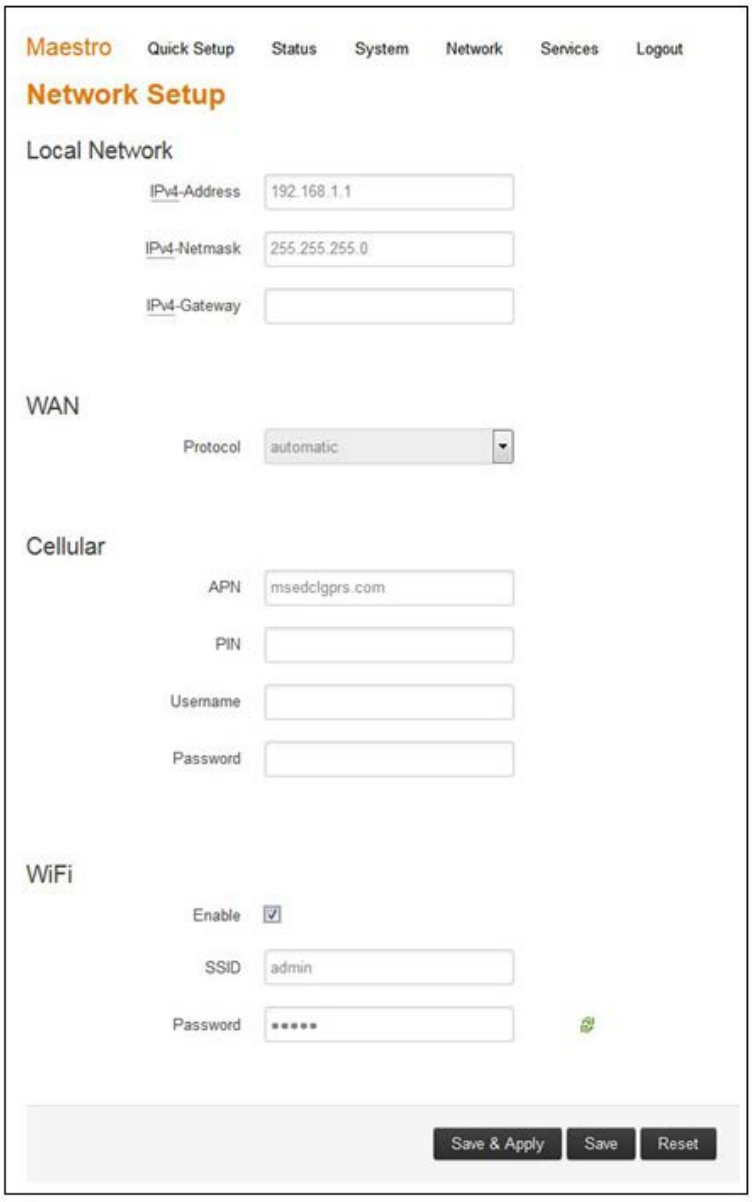
Note: Username and password are both case sensitive.

Enter the above default login credentials when the below appears on the web browser;

Click **Quick Setup** as shown below to go to **Network Setup** page;



Network Setup page;

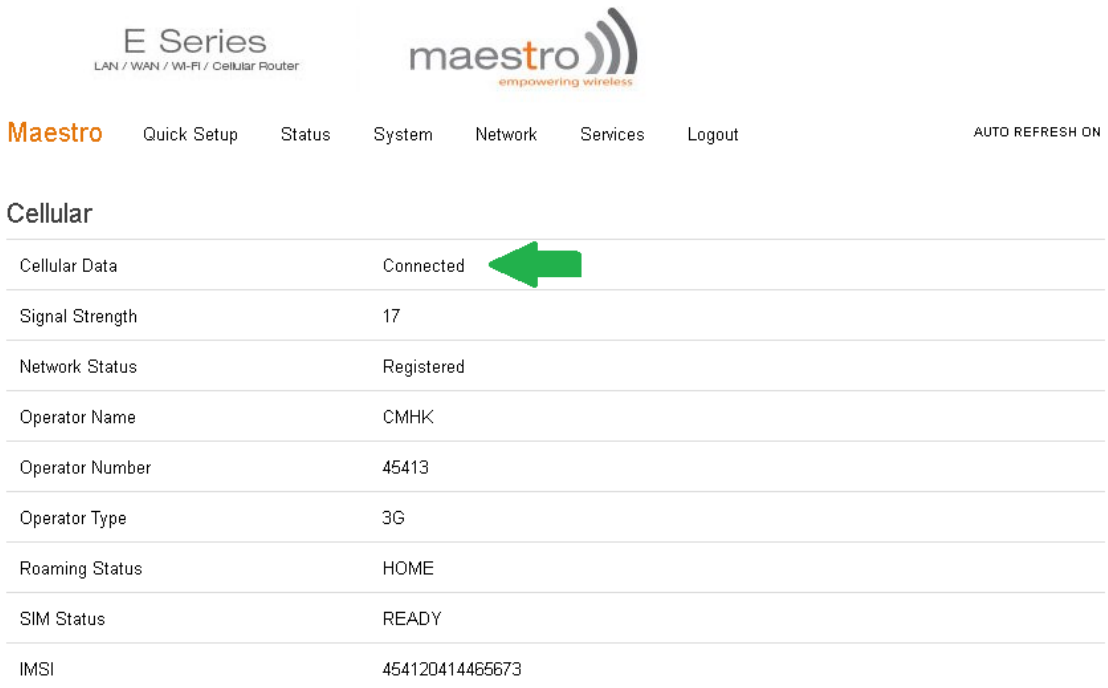


If the above default settings need to be changed, settings can be manually configured for **LAN, WAN, Cellular** and **Wi-Fi**, then click **Save & Apply** to store the configuration.

In **Cellular**, all fields such as **APN** depend on SIM cards provider/cellular network operator, enquire with them for authentication credentials if needed.

After all of above procedures, cellular connection should be established within one minute with adequate signal reception (if the default setting is used).

To see the status of the cellular connection, from the pull-down menu at the top, click **Status** and scroll down to **Cellular** as shown below;



7 Technical Support

For technical queries, please visit the Lantronix Technical Support website.

Online: https://www.lantronix.com/support