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Avtex AMR994X Mobile Internet Solution User Manual

Avtex AMR994X Mobile Internet Solution

Contents

Antenna Installation

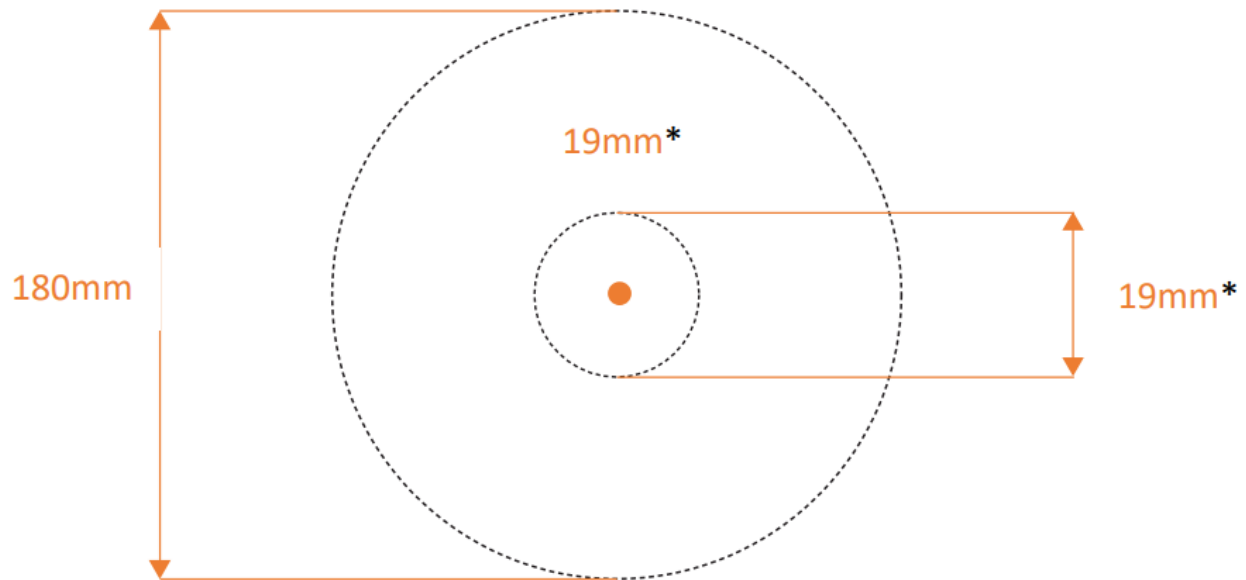This antenna does not require a ground plane in order to operate, so may be fitted on a metal or plastic roof panel.

Step 1

When the antenna is to be co-located with other antennas or roof mounted equipment, try to achieve a minimum of 30cm (12″) clearance around the antenna in order to avoid de-tuning and interference issues. The antenna will fit on a panel up to 9mm (0.35in) thick – an extender kit is supplied for thicker panels.

Step 2

Mask the panel area around the hole position to protect the paintwork and headliner. Drill a pilot hole, and then either use a hole cutter of correct size or increase the hole diameter to 19mm (or 25mm if using extension bolt), ensuring that drill/cutter bit does not contact the internal headliner. Clean area around the hole, carefully removing all swarf, debris and any grease.
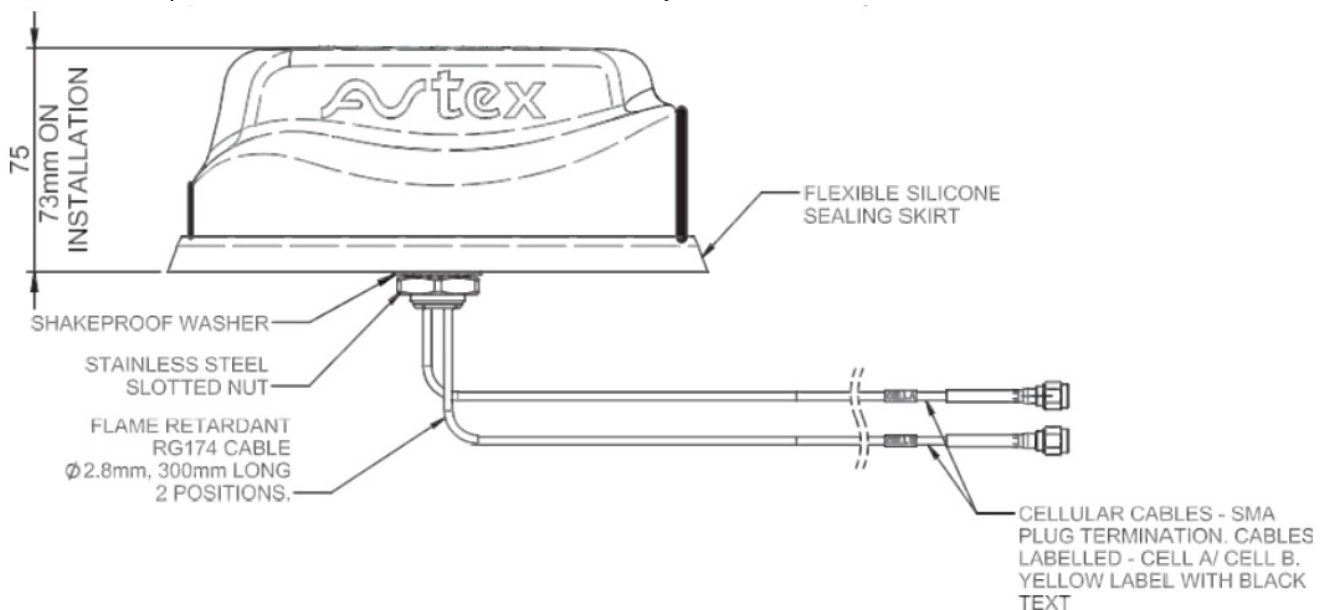
19mm*

180mm

19mm*

* 25mm if using extension bolt

Step 3

The adhesive pad provides a means to affix the antenna and to prevent rotation during installation, it also augments the sealing function of the antenna to the mounting panel provided by the sealing boot – it is recommended that the installation is not carried out in temperatures of less than 50°F (10°C).
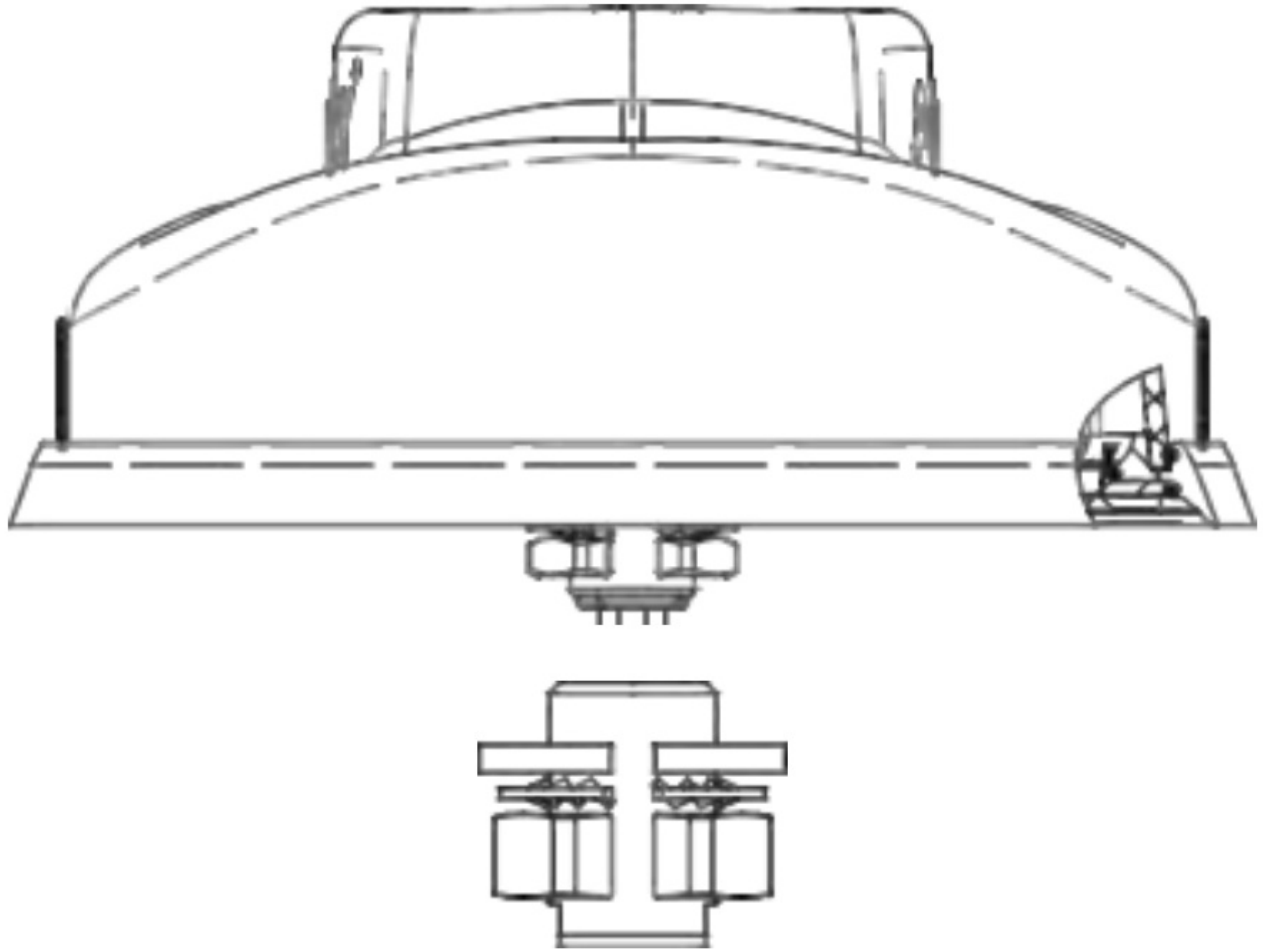
Step 4

Remove the protective backing from the underside of the antenna and feed the coaxial cables through the panel. Position the antenna over the hole ensuring correct secure location and stick the antenna to the panel by applying firm downward pressure. The antenna can be fixed in any orientation.

75

73mm ON INSTALLATION

FLEXIBLE SILICONE SEALING SKIRT

SHAKEPROOF WASHER

STAINLESS STEEL SLOTTED NUT

FLAME RETARDANT RG174 CABLE Ø2.8mm, 300mm LONG 2 POSITIONS.

CELLULAR CABLES - SMA PLUG TERMINATION. CABLES LABELLED - CELL A/ CELL B. YELLOW LABEL WITH BLACK TEXT

Step 5
If required, an extension bolt is supplied which can be fixed over the existing bolt enabling the antenna to be fitted with various panel depths.

Step 6
A slotted/split nut is provided in order to simplify fitting it over the coaxial cables. When fitting the nut, it is important to ensure that the cables are held centrally whilst the nut is correctly started on the threads. The nut should fit freely by hand and only require a final tighten with a spanner. Assemble the nut and washer from the underside and tighten to a recommended torque of 5Nm (3.6 flub's). Ensure that the sealing boot is properly compressed.

Wherever possible we recommend you test the system before installation.
Avtex recommends installation to be carried out by a professional installer.
The antenna can be positioned in any orientation.
The antenna is designed for a permanent installation and under normal circumstances once installed should not be removed.
If preferred some additional silicone can be applied around the base

Installation Warning

Routing and terminating coaxial cable(s)

Connect the extension coaxial cables to the antenna and route the cables to the radio equipment.

When routing the cables take care to avoid running them adjacent to any existing vehicle wiring or fouling any moving vehicle components.
The cables must not be routed in front of any airbag device. Fit the correct coaxial connectors or adapters to the

cables as required. If extension cables are required, please contact your retailer.

Commission and test

Check the comms cables:

- Earth continuity: connector body to vehicle ground should measure <0.20 (where applicable).
- For L TE elements connector body to center pin should measure low resistance (elements are DC grounded). WiFi elements should measure open circuit using the same test.
- Carry out VSWR check – the VSWR on all feeds should meet the specification in product data sheet.
- Connect the Cellular/L TE and WiFi cables (if applicable) or secure unused pigtails.

⚠ RF Safety Note – Ensure that the antenna is mounted in such a way that no person is likely to be within a distance of 30cms (12″) from the antenna during use. Ensure that the antenna is used only as supplied. The co-axial cables should not be cut shorter or otherwise modified.

⚠ General Safety Note – Make sure that the product is mounted so that it cannot fall and cause injury. Do not chew the product or put it in your mouth. Do not leave children unsupervised with the product or packaging.

🗑 Waste electrical products should not be disposed of with household waste. All electronic products with the WEEE logo must be collected and sent to approved operators for safe disposal or recycling. Please recycle where facilities exist. Many electrical/electronic equipment retailers facilitate "Distributor Take-Back scheme" for household WEEE. Check with your Local Authority or electronic retailers for designated collection facilities where WEEE can be disposed of for free.

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals, EC 1907/2006). This product contains Lead (CAS No. 7439-92-1) which is classified as an SVHC (Substance of Very High Concern) as being toxic to reproduction under Article 57c. of REACH. Do not chew parts or put them in mouth, keep away from unsupervised children. Dispose of parts as WEEE waste do not send to landfill.

CE **Object Reference:** L45GA
Object Description: Low Profile MiMo Antenna with active GNSS Antenna
Manufacturer: Avtex, Galon Point, 1 Fountain Lane, Cardiff, CF3 0FE, UK

This declaration is issued under the sole responsibility of the manufacturer. The object of the declaration described above is in conformity with the relevant Union Harmonization Legislation below: Directive 2014/53/EU – Radio Equipment Directive (RED) Harmonised Standards and References: EN 301 489-1 (V2.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements". Referencing EN 61000-4-2:2009 – Electrostatic Discharge Immunity and EN 61000-4-3:2006 +A1:2008 +A2:2010- Radiated RF Immunity EN 300 440-1 V1 .6.1 (2010-08) – Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1 GHz to 40GHz frequency range; Part 1: Technical characteristics and Test methods in accordance with EN 300 440-2 V1 .4.1 (2010-8) – Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1 GHz to 40GHz frequency range.

Low Voltage Directive: Directive 2006/95/EC (Electrical Equipment designed for use within certain voltage limits) of August 2007. Compliance is declared according to:

EN62368-1: 2014 Audio/video, information and communication technology equipment.

Safety requirements: RoHS 2 compliance is declared per Directive 2011/65/EU and its subsequent amendments with exemption 6.c applied. This product contains lead as an alloying element in a copper alloy containing up to 4% lead by weight.

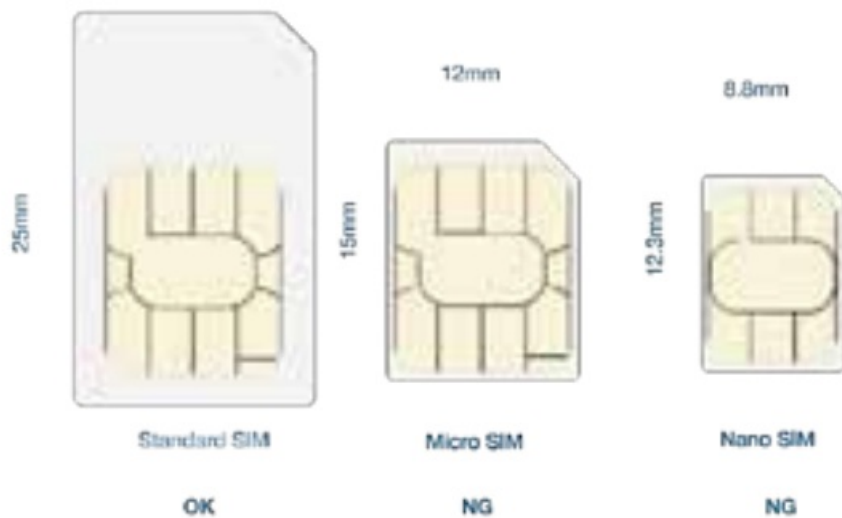## AMR994X Basic Setup

Router

Step 1

After SIM card activation please follow below:

- A standard size SIM must he used. (See below)
- Insert the SIM card into the SIM 1 holder, (SIM 1 is closest to drawing on the device)
- Push the SIM 1, ident of the card towards centre of the device until you feel "click."
- If also using SIM 2 the SIM orientation will be opposite, ident facing edge of the device.

Please Note: Your AMR984X will function fully with only one SIM, which can be inserted into either slot.

Step 2

Attach the antennas as follows.

- Leads from the antenna:
  - Cell A > Mobile main antenna connector
  - Cell B > Mobile AUX antenna connector
- WIFI Stick antennas> WiFi antenna connectors.

Please take care of centre pins when inserting into connectors

Step 3
Please attach the fixing bracket with the 3 screws (supplied) to the rear of the AMR994X, then attach insider your vehicle. Alternatively use the two "key slots" on the cabinet and use appropriate screws for your fittings.

Step 4
Connect the power adapter to the socket on the front of the device. Then plug the other end of the power adapter into a power outlet.
Please use the power cables supplied with the product.

Step 5
At power up of the AMR994X please always allow 2-3 minutes for the device to fully boot up and establish network connection. See below the power indicator light (RUN) on the device, when blinking device is operational.

		On, solid	Router is powered on (System is initializing)
RUN	GREEN	On, liking	Router Starts Operating
		Off	Router is powered off

Step 6

The WiFi SSID is the network that will be visible when you search with any compatible WiFi device, the WiFi password is the unique password for your AMR994X.

The SSID and password are written on the label on the side of the AMR994X and will also contained on the label inside the box.

(We recommend keeping a confidential record of the password, SSID, IP address, device serial number and password for your reference and logging on extra devices in the future).

Please Note: Your AMR994X can have up 100 separate devices connected at any time, but too many devices logged onto the router can slow down performance and use extra data.

Smart Device

To connect the AMR994X to any Smart device, iPhone, Android device, iPad etc. Either using the standard WiFi setup in the device's settings menu or by scanning either of the QR codes that can be seen on the AMR985.

Step 1
Using the camera on your smart device scan the QR code on the AMR_994X, select the message when it appears on the screen select.

Step 2
Select join, your device will automatically logon to the AMR 994X without the need for you to input the device password. Your device will now have internet connection via the AMR994X.

Windows Machine

Step 1
Perform a basic Wi-Fi scan on Windows device.

Step 2
Highlight Avtex **** and select connect.

Step 3
Input the password from the label of the Avtex**** and press Next.

Step 4
Confirmed connected as standard network connection.

Connecting Avtex Television

It is recommended wherever possible to use an ethernet cable to connect the AMR994X to your television to fully optimise connectivity.

Below is connection method for wireless connection, both connection methods are also included in your television's instruction manual.

Step 1
Perform a standard Base station scan within the Network configuration Option on your Avtex Connected TV, look for Avtex_AMR_**** highlight and press OK.
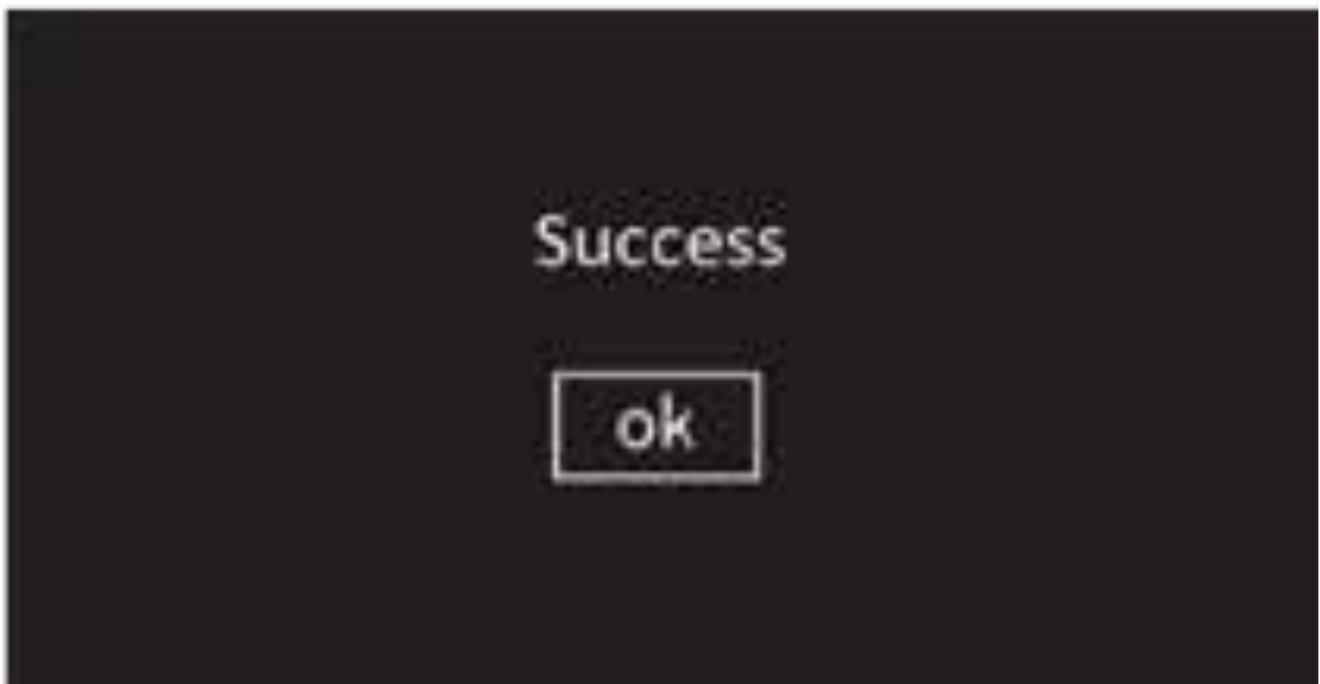
Step 2
Select Password and press OK.

Step 3
Input the password from the front of the AMR_994X and press Return (upper/lowercase sensitive), you can use the numerical keys on the remote control to direct enter numbers.

Step 4
Wait for the "Success" message, press OK on the remote control and your Avtex Connected Series television will now have network connection.

Accessing Web-interface

Once your SIM card is setup the AMR99X is ready to go and as long as you have sufficient network coverage your devices will be able to access the internet. Wherever possible it is strongly advised to leave all options in the factory default settings.

However, if you need to access any of the top-level settings please see below.

To access the web settings, you need to be logged onto the AMR as previously mentioned and then in the browser enter the IP address of the AMR, the IP address is 192.168.1.1

Username: – Avtex
Password: – 123456789

It is possible to access this from any web browser on a connected PC/laptop, tablet, smart phone or television.

You are then presented with a status overview page, where the user can see Device name, L TE signal strength, SIM slot active(Active link), a L TE/WiFI toggle tab (Switch internet connection), and other status conditions.

The IP address and password will also be listed on the device, and on the spare label included with the standard accessories.

1. L TE/WiFi Option (see page 15)
2. Device Name
3. Device powered on time.
4. SIM in use (WWAN1 is SIM1)
5. Time of network connection
6. Carrier Information

L TE/ WiFi Toggle

It is strongly advised wherever possible to use a L TE (mobile connection) but the AMR994X can also connect to a local WiFi to create a local access point. To access this feature, you will need to connect via the IP address as previously described and select the "Switch Internet Connection" tab,

1. Set "Internet via WiFi "to ON
2. Select the "Submit "option
3. Available WiFi access points will be shown in the list. Select the wanted WiFi access point by selecting the corresponding "Join" button and input the password when prompted.

Please Note: Accessing any local WiFi may have limited download speeds and each device connected to the AMR will affect the connection speed.

The AMR will be connected to the WiFi and your devices need to be\ connected to the AMR using usual login procedure as explained previously.

Leaving in L TE mode the AMR will automatically connect whenever a network signal is available.

If the WiFi network employs a Captive Portal then you will need to consult with the provider if you wish to gain access.

AMR984X – Advanced Settings

It is strongly recommended to only access the AMR994X overview menu as explained above, however you can enter the advanced settings and alter default parameters within the device.
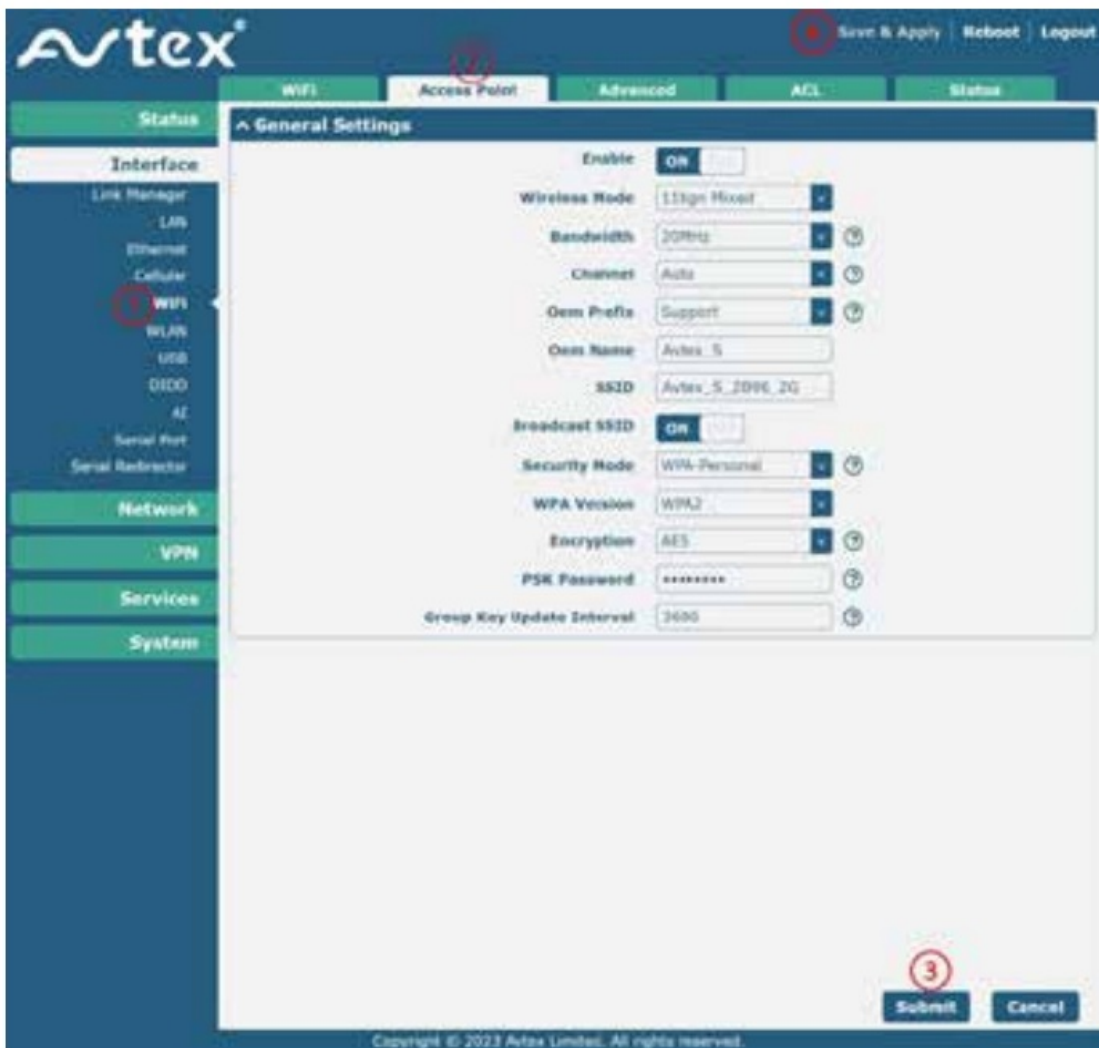
To access the advanced menu settings, you need to be logged onto the AMR as previously mentioned and then in the browser enter the IP address of the AMR, the IP address is 192.168.1.1

Username: – ad min
Password: – 987654321
Changing SSID and security settings

Select WiFi (1) Select Access Point (2) Make wanted changes and then select "Submit" (3) and the "Save and Apply" (4) to save.

AMR994X Re-boot I Factory Reset

Using the Reset button with pin if required the AMR994X can be rebooted/totally reset and all settings can be restored to the factory settings, this will reset SSID to original and all passwords to the values listed on the external of the device.

Function	Description
Reboot	Press and hold the RST button for 2 to 7 seconds under the operating status
Restore to factory default settings	Wait for 0-20 seconds after powering up the router, press and hold the RST button with a pointed pin until all five LEDs start blinking one by one, and release the button to return the router to factory defaults.

After reboot or factory restore allow up to 3 minutes before the AMR994X is once again visible as a WiFi network

It is suggested the router is fully powered down when not in use for a period of time

Name		Colour	Status	Description
Run		Green	On, Solid	Router is powered on (System is initialising)
			On, blinking	Router starts operating
			Off	Router is powered Off
MDM		Green	On, Solid	Link connection is wo
			On, blinking	Data is sent and received
			Off	Link connection is not working
USR	USR-Open VPN	Green	On, Solid	OpenVPN connection is established
			Off	OpenVPN connection is not established
	USR-IP sec	Green	On, Solid	IPsec connection is established
			Off	IPsec connection is not established
RSSI		Green	On, Solid	Received Signal Strength Indication greater than -73 dBm (Strong signal)
		Green	On, blinking	Received Signal Strength Indication -91 to -73 dBm (Moderate signal)
		Green	Off	Received Signal Strength Indication -111 to -93dBm (Weak signal)
		Green	Off	No signal
WLAN		Green	On, solid	WiFi is enabled and working
			Off	WiFi is disabled or not working

AMR994X Specifications

Cellular Interface

Number of antennas: 2
Connector: SMA-K
SIM: 2, Standard SIM

Ethernet Interface

Number of ports : 5 x 10/100 Mbps, 5 LAN by default, can be configured as 1 WAN +4 LAN
WAN port: Support 802.3af & 802.3at PD feature on ETH0
Magnet isolation protection: 1.5 KV

WiFi Interface

Number of antennas: 2
Connector: RP-SMA-K
Standards: 802.11 b/g/n, supports AP and Client modes
Frequency bands : 2.4 GHz
Security: WEP, WPA, WPA2
Encryption: 64/128 AES, TKIP
Data speed : 2*2 MIMO, 300 Mbps

DI/DO

Type: 1 x DI + 1 x DO, wet contact
Isolation: 3 KV
Socket form: 2 * 3-pin 3.5 mm female socket 2 * 3-pin 3.5 mm female socket
Level: 3 to 30Vdc = HIGH, 0 to 1 Vdc = LOW
Absolute maximum VDC: 30 Vdc (DI/DO)
Absolute maximum ADC: 10 mA (DI/DO)

Device Interface

- 1 x GPS interface (Optional, depending on the cellular module)
- 1 x 480Mbps high-speed USB2.0 interface

Others

Reset button: x reset button (RST button) 1 x RUN, 1 x MOM, 1 x USR, 1 x RSSI,
LED indicators: 1 xWiFi

Power Supply and Consumption

Connector: 2 pin 3.5 mm socket with lock
Input voltage: 9 to 36V DC
Power consumption: Idle: 100 mA@12 V
Data link: 1.0 A (peak) @12 V

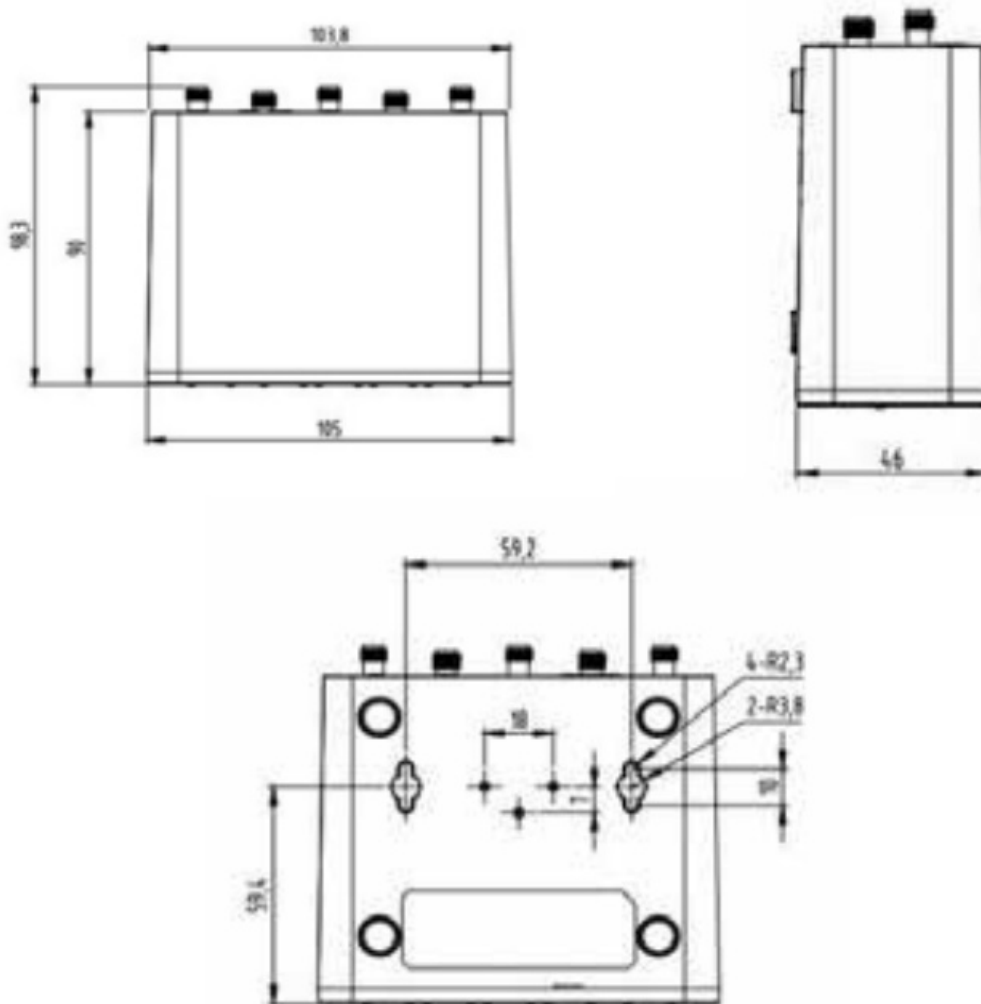## Physical Characteristics

Ingress protection: IP30
Housing & Weight: Plastic, 250 g
Dimensions: 105 x 90 x 46 mm
Installations: Desktop, wall mounting and 35 mm DIN rail mounting.
Operating Temperature Storage Temperature -40~+85 C : -25~+70 C

Terms and Conditions

Terms and conditions as regards installation and maintenance of your Avtex AMR-994X Router & 5G Antenna ('AMR-994X') (for full terms and conditions see **www.avtex.co.uk**).

Your AMR-994X is a rugged design specifically for use on the move and is covered by a limited 1 year parts and workmanship warranty ('warranty'). The router is designed to be maintenance free and the antenna cover need only be gently washed occasionally to maintain optimum signal reception. Please do not remove the antenna cover, use solvents, drive your vehicle through an automated wash nor use a pressure washing device directly on the cover. All of these actions may result in damage and will void the warranty. Fitting of the antenna is permanent and whilst installation is simple Avtex Limited ('Avtex') recommend it be carried out by a professional installer. Avtex accepts no responsibility for any liability arising directly or indirectly from the installation nor removal of the AMR-994X. You should ask your installer for a warranty covering the removal of the antenna in the event of any defect including installation. Only defects relating to the manufacture of or defective parts comprising the AMR-994X as a result of faulty workmanship are covered by the warranty. Specifically excluded is any liability relating to damage to your vehicle orcaravan or any part of it arising from, either directly or indirectly from the installation or removal of the

AMR-994X.

Please register your product within 28 days of purchase at **www.avtex.co.uk/support**. In the event of a warranty claim please ensure you retain a proof of purchase as your warranty may be void if proof cannot be provided. Your warranty is not transferrable to a new owner if your vehicle is sold. It is not recommended that the antenna be removed in any event, except in the circumstances of a warranty claim and only then by a professional installer.

Communications technologies are fast changing and whilst we anticipate your product will serve you for its lifetime Avtex cannot be responsible for changes in technology beyond its control or any issues beyond our control howsoever they may arise. For that reason the warranty is limited in that regard and excludes any such issues. Any problems relating to the SIM card/sin the AMR- 994X, data usage and signal reception are excluded from the warranty, and you should contact your SIM provider.

Customer Support

AVTEX LIMITED
Galon Point
1 Faountain Lane
St Mellons
Cardiff CF3 0FE
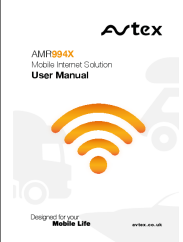United Kingdom

T: 02920 84670
E: **info@avtex.co.uk**
Model:AMR994X

Documents / Resources

	Avtex AMR994X Mobile Internet Solution [pdf] User Manual AMR994X, AMR994X Mobile Internet Solution, Mobile Internet Solution, Internet Solution, Solution

References

- **User Manual**