



XR-3(W) Modular Test Instrument Base Unit Operation Manual



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This manual covers basic operations and functions of the XR-3. For detailed instructions on how to use the instrument for different applications, see the Application Notes available on our website, <http://www.tescomusa.com>

1. Introduction to XR-3 Modular Test Instrument

The XR-3 is a revolutionary test instrument platform. The base unit is a rugged chassis, display, and portable power supply that accepts easily swappable modules for testing a variety of signals used in the telecommunications industry.

The XR-3 is economically efficient because it allows you to choose only the test modules that your application requires. In the future as your testing needs change, you'll need only a new module, not an entire instrument.

Test modules that "slide and click" into the XR-3 available now include satellite (offerings for North American DBS and VSAT and non-North American DTH applications), cable TV (digital QAM), and Off-Air broadcast (digital 8VSB). Additional modules will follow.

The XR-3 platform is ideal for installers and private cable operators that demand fast, easy signal measurements today and in the future.

GENERAL FEATURES

- Durable case with rubber shock guards
- Color graphic LCD screen, sunlight readable
- Glow-in-the-dark numeric keypad front panel
- Rechargeable / Easily Replaceable Li-Ion battery
- USB computer interface for firmware updates
- Operates while charging via AC
- Quick charge battery with universal AC or vehicle 12 VDC
- Modular design for longer life and more flexibility
- Accepts easily-swappable modules for several types of signal test applications
- Optional Wi-Fi feature

Symbols Used

The following symbols may be used in this manual and/or marked on the instrument.



Hazardous areas on the instrument are marked with this symbol. Consult this manual to learn the nature of the hazard and proper actions for safe operation.



Indicates an earth ground terminal



Indicates possibility of electric shock



Indicates a protective conductor terminal



Indicates direct current (DC)

Safety Instructions

- Read and follow all instructions in this manual.
- Cleaning: Unplug and turn unit off before cleaning. Clean with a dry cloth only.
- Use only the charger supplied with the unit or equivalent charger rated at 14V, 2.1A.
- Use only the cord supplied with the charger or equivalent cord rated for at least 1A.
- Servicing should be done by qualified service technicians only.
- The beeper is quite loud so it can be heard outdoors over traffic noise. To avoid hearing damage during prolonged use, protective earpieces are recommended.
- Use of the instrument in a manner not consistent with the instructions in this manual may impair the safety features and lead to damage or injury.

Standard Accessories



Accessories included with your XR-3:

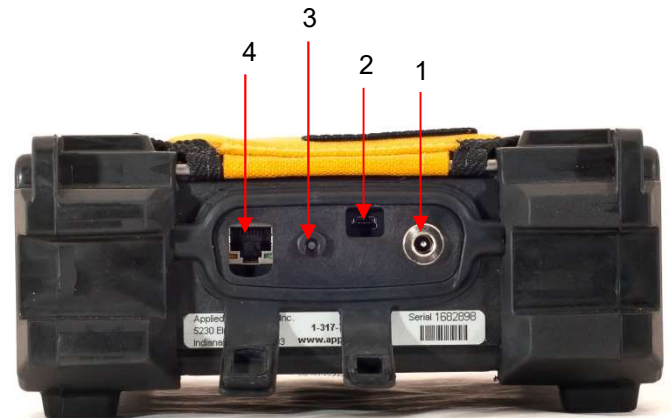
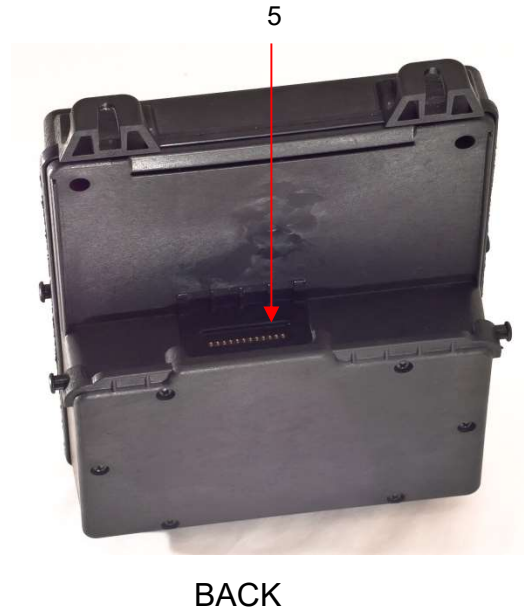
- AC adapter and related line cord
- DC vehicle charge cord
- USB data transfer cable
- Cordura Protective Flap
- Shoulder Strap
- Signal splitter / combiner
- Desktop kickstand that props up meter for bench height use

Optional Accessories

Optional Accessories for the XR-3 include:

- Various snap-in modules for test signal applications
- Hard shell protective carrying case with foam padding molded for base instrument, modules, and accessories
- Model NS-1 handheld broadband noise test signal generator (5 to 2150 MHz)
- Model PC-2X handheld CW two carrier frequency agile test signal generator (channel 1 from 5 to 50 MHz, channel 2 from 50 to 204 MHz)

Connections



BOTTOM

- 1) Charge cord port for battery charger
AC charging via wall outlet (100-240VAC, 50-60 Hz Input and 15VDC output)
DC charging from 12VDC (at least 1 amp) vehicle outlet (cigarette adapter)
- 2) PC port - USB connection to PC for updating software and transferring files
- 3) Audible tone (speaker) port
- 4) Ethernet (option to be offered in future) port
- 5) Base-to-module connection port

DC Charge Port

The XR-3 connects to its external AC to DC switching power supply for charging its internal battery from an AC outlet. The XR-3 can be used while connected to the AC/DC charger. The XR-3 also connects to a 12VDC adapter in a vehicle only for battery charging.

PC Connection

The XR-3 connects to a USB port of a PC via the supplied cable. PC software is available for download from our website (www.appliedin.com). The FlashUpdate program is used for updating the instrument with the latest firmware and the MeterMaid program is used for transferring saved scan files from the XR-3 to the PC.

Audible Tone Port

The XR-3 emits audible tones when:

- Instrument is powered on
- Buttons are pressed
- Scans are complete
- Digital signal locks are obtained

Ear protection is recommended if using the meter for prolonged periods with the sounder turned on. The audible tone feature can be turned OFF in the Options menu, if so desired.

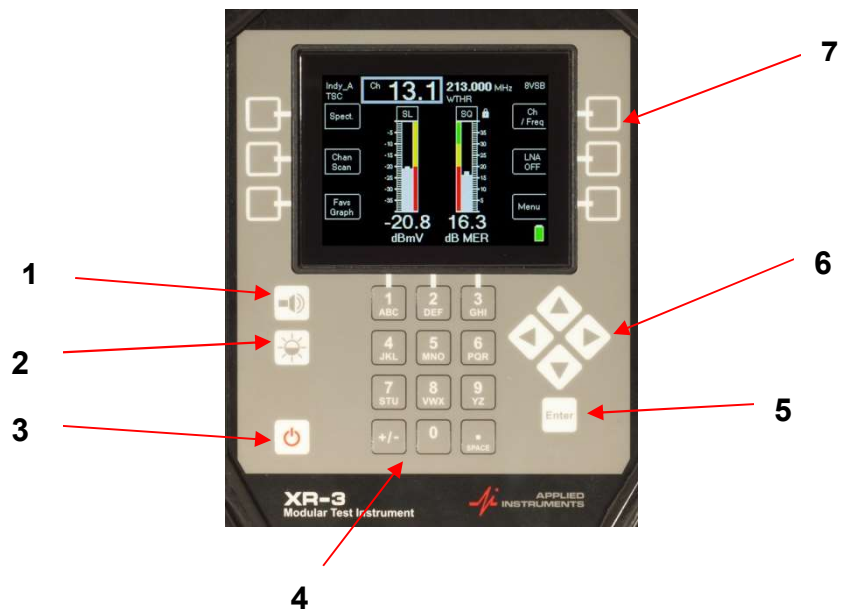
Base-to-Module Connection Port

The module connector has two functions:

- Supplies voltage to power the module
- Sends control signals and data between the module and base unit

Front Panel Buttons

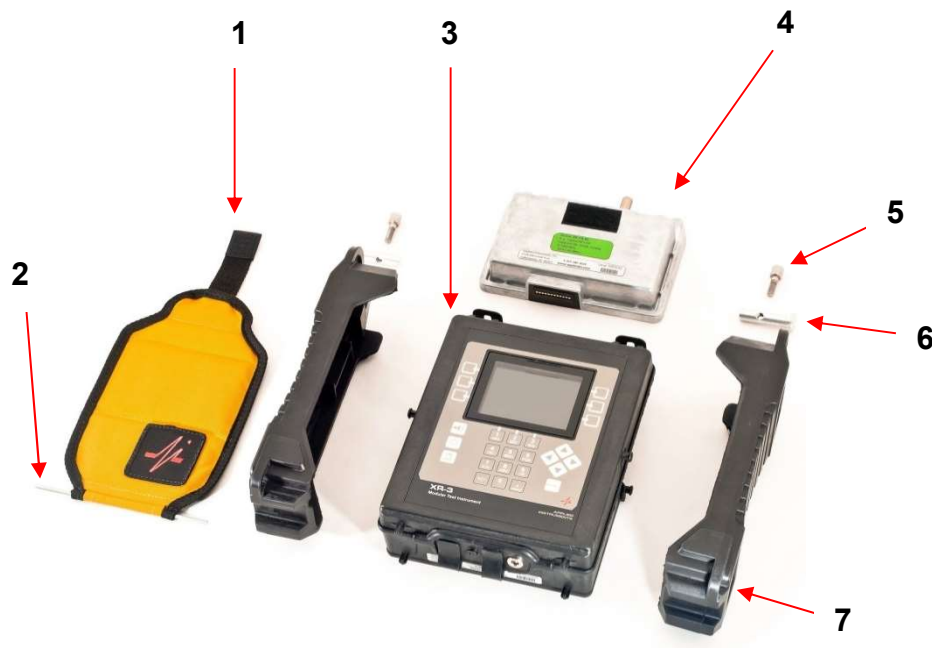
- 1) Audible Tone
- 2) Screen Brightness
- 3) ON / OFF Power
- 4) Alphanumeric Keypad
- 5) Enter button
- 6) Arrow keys
- 7) Soft-keys (six)



XR-3 Construction

Parts of the XR-3:

- 1) Cordura protective flap
- 2) Flap axle
- 3) XR-3 instrument base
- 4) Module (swappable)
- 5) Thumb screw (tuner lock down screw) to secure module (x2)
- 6) Threaded cross dowel pin to secure module (x2)
- 7) Rubber shock guard (x2)



Battery Replacement

The XR-3 includes a replaceable Li-Ion rechargeable battery. When the battery wears out in the future, battery replacement is simple.

Required Tools:

1x #2 Phillips screwdriver

1x Safety glasses

Estimated completion time: 5 +/- minutes, depending on mechanical aptitude and proficiency

Battery replacement procedure:

- 1) Wear safety glasses
- 2) Stand instrument upright on solid stable surface
- 3) Unfasten flap's Velcro from rear of module body and fold flap downwards
- 4) Loosen (2) thumb screws until they fall out of the (2) threaded dowel pins on top of instrument
- 5) Remove (2) threaded dowel pins by pushing them gently from the middle of the unit outwards
- 6) Remove module by grasping the top, first pulling outwards and then upwards



- 7) Remove each rubber shock guard by gently pulling the top of each outwards. You will notice that the plugs in the middle of each rubber shock guard will pop out of place as you pull. Pull shock guards downward, taking care to slowly remove both rubber shock guards from base unit while keeping the flap axle attached between them. Use caution so that the flap axle doesn't pop out and cause injury to an eye or other body part.



- 8) Place unit front panel down on a solid stable surface. It's a good idea to place a towel or other soft fabric under the unit to protect the display from getting scratched.

- 9) Use Phillips screwdriver to remove (6) screws from battery compartment lid



- 10) Pick lid upwards to remove it, taking care not to damage the gasket underneath



- 11) Pull up on foil tab of battery to lift battery out of compartment



- 12) Install new battery in compartment, taking care to properly align battery contacts and leave the tab sticking up to aid in future battery replacement
- 13) Complete steps 1 to 12 in reverse order to close battery compartment and reassemble instrument
- 14) After replacing the battery, you'll need to enter the Date and Time in the Option menu. Your Options menu settings will return to the Pre-Set / default settings (i.e. for Level value, Sounder, Shutdown, Key Beep, Sort Order, Display Theme), so you'll need to re-customize those settings. You'll then need to select your Limits file and Channel Plan. When saving scan files, you'll also need to re-enter the Technician and Location. This applies to both the satellite and cable/off-air modules. If you had saved Favorites and Tilts to a base channel plan, you'll also need to re-select those.

Modules

Swapping Modules

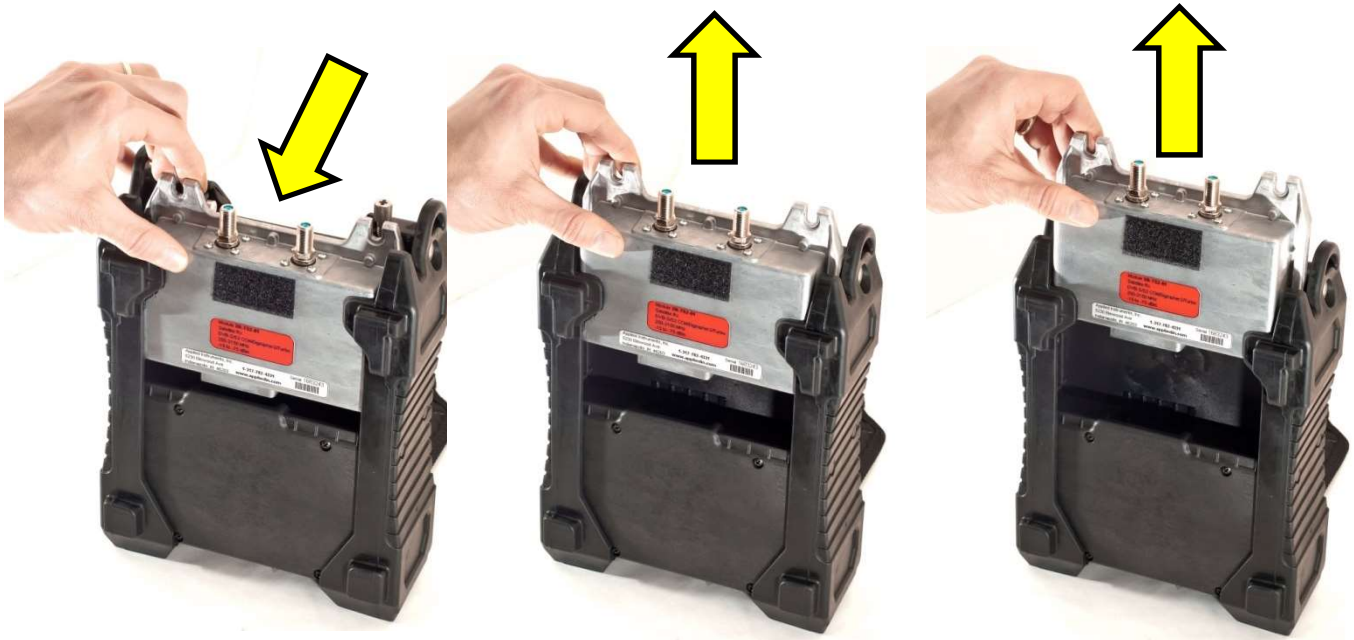
Installing a module is as easy as sliding the module down until it clicks into place.

How to insert module:

- 1) With your fingers, loosen thumb screws on top of XR-3 base and rotate them upwards.
- 2) Guide module down between rubber shock guards on top rear area of unit, pulling module towards the rear as you push it down gently.
- 3) Push module down firmly until you hear a click when the lip of the module falls into the slot of the XR-3 base.
- 4) Rotate thumb screws downwards and then finger-tighten them to secure the module to the XR-3 base unit.

How to remove module:

- 1) Complete module insertion steps 1 to 4 in reverse order. See pictures below. The trick is to pull module up out of slot when removing.



Module Availability

XR-3 modules available now include DBS Satellite, VSAT Satellite, and Cable TV / Off-Air broadcast. Other modules will follow.

Module Part Number	Description	Application
XR-TS2-01	Satellite Meter North American DBS / Broadcast TVRO 250-2150 MHz	DISH, DIRECTV, Bell TV, Shaw Direct, and more
XR-S2XACM-01	Satellite Meter VSAT, Broadcast TVRO, International DTH 900-2150 MHz	C Band, Ku Band, iDirect, Hughes, and more
XR-S2XACM-02	Satellite Meter w/NIT VSAT, Broadcast TVRO, International DTH 900-2150 MHz	C Band, Ku Band, iDirect, Hughes, and more
XR-CA-02	Signal Meter - Cable & Off-Air (J.83B) / VHF / UHF 5-1000 MHz	UHF Off-Air, CATV, SMATV (i.e. DISH Smartbox, Blonder Tongue headends)



2. PC Software Updates

Updates to the Field Guide and to the instrument firmware are available from the Applied Instruments website.

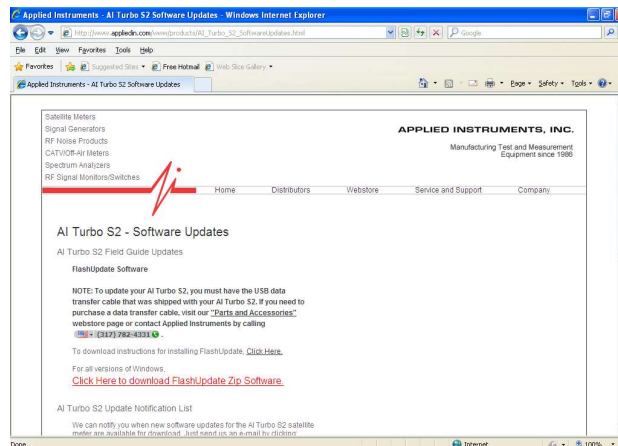
Requirements

- 1) A PC running any version of Microsoft Windows
- 2) An open USB connection port on your PC
- 3) An internet connection
- 4) The USB data transfer cable provided with the instrument

Installation

Before you can update your instrument, you must obtain and install the FlashUpdate software application onto your PC:

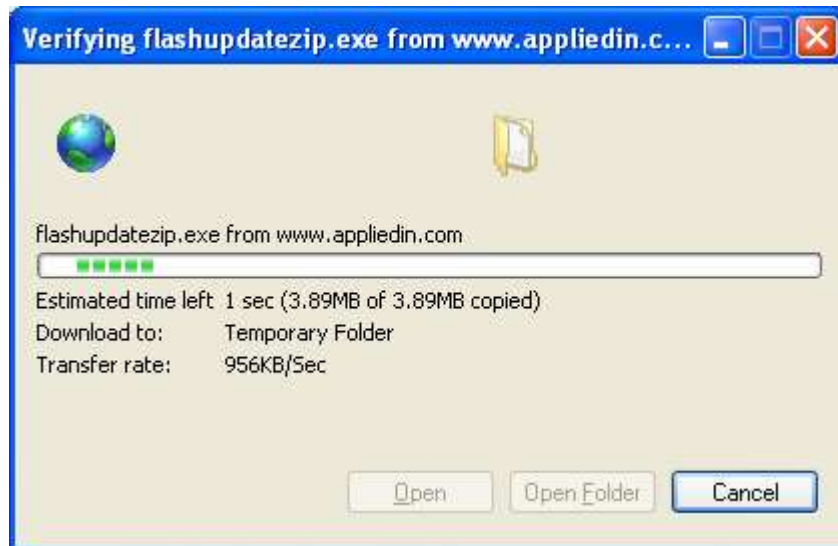
- 1) Ensure that you are signed on as Administrator or have Administrator rights for Microsoft Windows.
- 2) Temporarily disable your computer's anti-virus software and firewall so it doesn't interfere with the installation of the FlashUpdate and MeterMaid programs and the related USB drivers. If you have a hardware firewall, either stand-alone, or in a router, you may have to either modify the settings of the device to permit access to our program or entirely by-pass the router or other inhibiting hardware device.
- 3) Go to the Applied Instruments website www.appliedin.com. With your mouse, move your cursor over Service and Support and click on it, then click Software Updates, then click on 'XR-3 Modular Test Instrument'. Then click on "Click Here to Download FlashUpdate Zip Software" or use the following link directly:
www.appliedin.com/downloads/flashupdatezip.exe



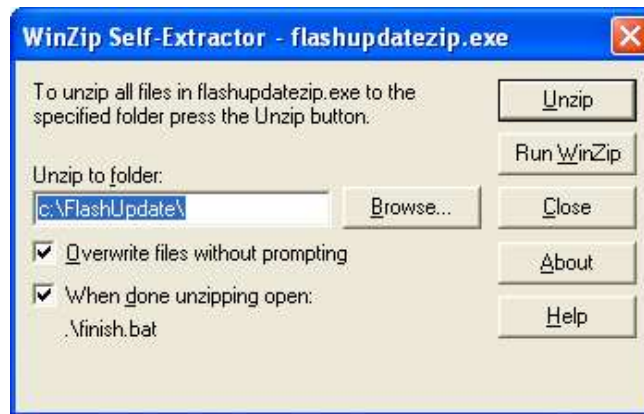
- 4) This is a self-extracting archive file. You may choose to open or run the file directly from the website or may save it to your disk and then open or run it. It is recommended that you run the file. The instructions below assume that you have chosen to run the file.



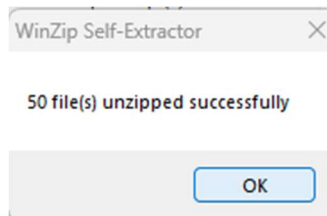
You may receive a warning message. Press Run to continue to open the file.



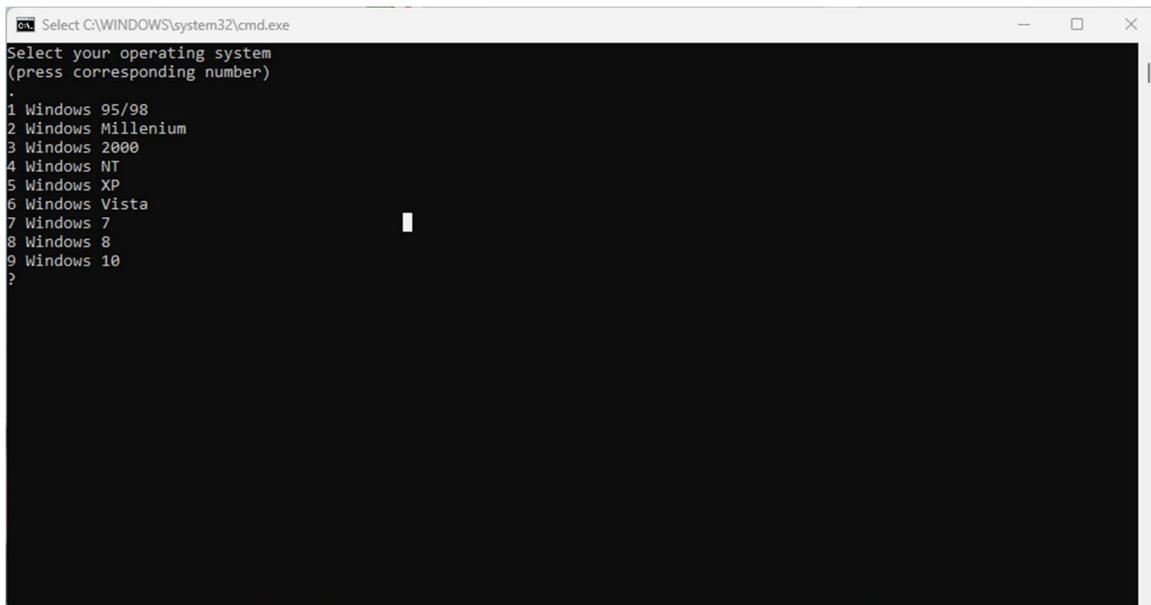
- 5) When you open this self-extracting archive file, the WinZip Self-Extractor program will appear. It is recommended that you press the Unzip button to unzip the files to the default location (c:\FlashUpdate\). If you wish to unzip the files to another location, type that desired destination folder into the field titled 'Unzip to folder' or press the Browse button and then navigate the network to select the desired destination folder.

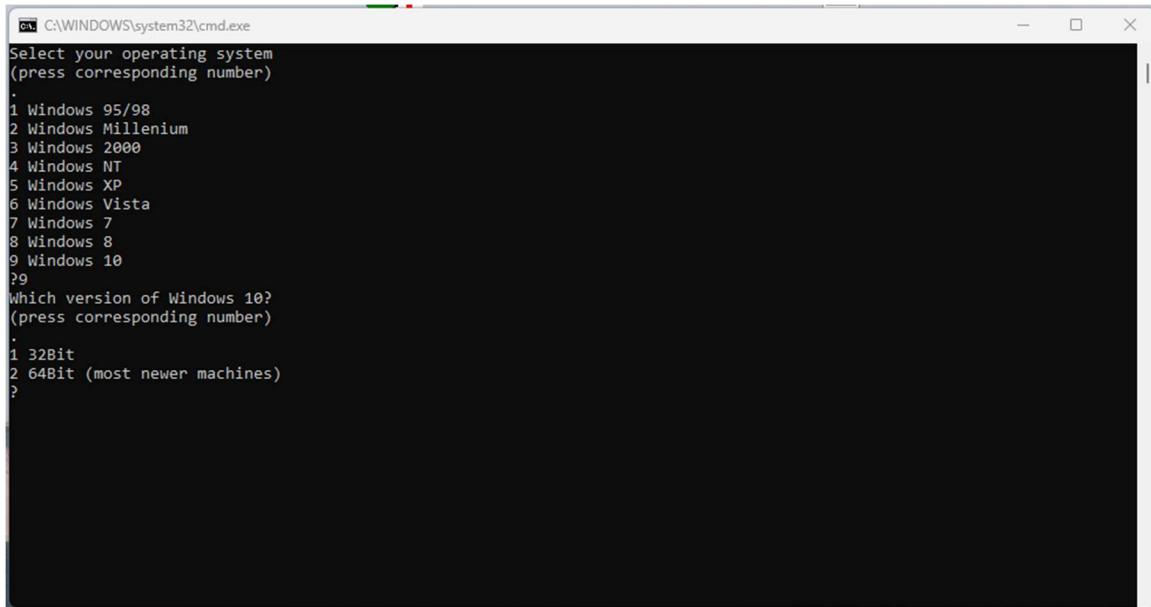


- 6) It will unzip several files onto your PC to the location you indicated. Press OK.



- 7) A Command Prompt screen will appear. Using your computer's keyboard, type the number that corresponds to your computer's operating system. If you aren't sure of which Operating System you are running, please proceed to Step 8. If you already know your Operating System, please proceed to Step 9.





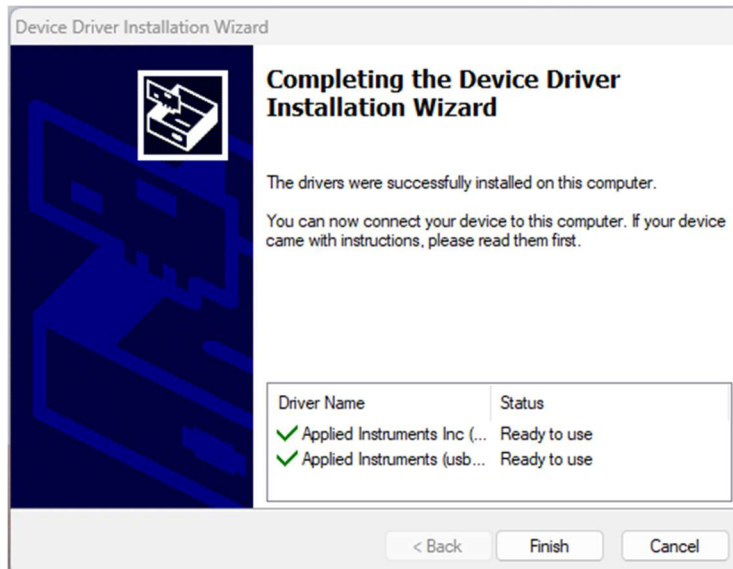
```
C:\WINDOWS\system32\cmd.exe
Select your operating system
(prompt corresponding number)
.
1 Windows 95/98
2 Windows Millenium
3 Windows 2000
4 Windows NT
5 Windows XP
6 Windows Vista
7 Windows 7
8 Windows 8
9 Windows 10
?9
Which version of Windows 10?
(prompt corresponding number)
.
1 32Bit
2 64Bit (most newer machines)
?
```

- 8) To find out which Operating System you are running on your PC, using your mouse, right click on the My Computer icon. Scroll to Properties and left click on it. On the General tab, underneath System, it will tell you which Operating System is installed on your PC (i.e. Microsoft Windows XP).

Another method to find out which Operating System you're running is by using Windows Explorer.

Path: Windows Explorer → Help → About.

- 9) Device Driver Installation Wizard will start. Click Next to install the device drivers. Click Finish to complete the installation.



- 10) Close your internet browser window if you still have it open and view your desktop screen.
- 11) You will notice that two new shortcut icons have been installed on your desktop. If the icons do not appear on your desktop, you can use "My Computer" or Windows Explorer to navigate to the C:\FlashUpdate\ folder and open FlashUpdate.exe from there and you can also copy and paste shortcut icons from the folder to your Desktop. If you're running Windows Vista or Windows 7 and the shortcut icons do not appear on the desktop after downloading, please right click with your mouse on the Desktop and select Refresh and then the shortcuts should appear. If you choose an installation location other than the default folder, then the shortcuts won't work.

FlashUpdate is the program used to download the latest firmware updates to the XR-3 instrument. Application filename: FlashUpdate.exe

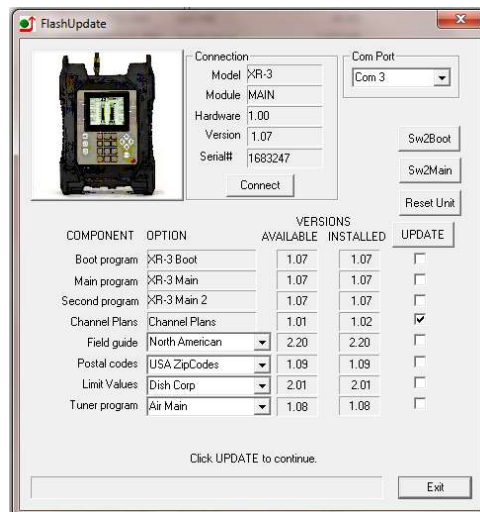


MeterMaid is the program used to upload stored Channel Scans, Favorites, Spectrum Scans, Constellation Scans, Limits files, Channel Plans, Proof of Performance Scans, and Limit Scans from your XR-3 instrument to the PC. Application filename: MeterMaid.exe

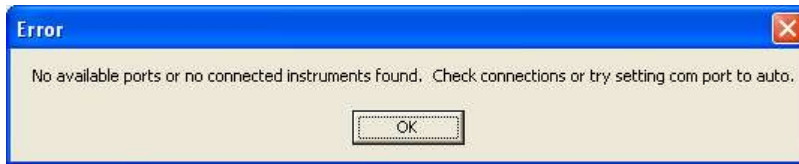


Updating

- 1) Ensure you have an active internet connection.
- 2) Plug your XR-3 into an AC outlet to prevent any potential problems due to a low battery.
- 3) Connect the XR-3 to your PC using the supplied USB data transfer cable and turn the instrument on.
- 4) Double click the FlashUpdate shortcut icon or start the application from wherever you saved it (i.e. your C drive).
- 5) If connection is established, a picture of the XR-3 will appear in the top left corner of the FlashUpdate program and the top center portion of the program will be filled in with data obtained from the instrument (i.e. serial number, loaded software version, etc.). If the connection is working, proceed to Step 7. If connection is not established, proceed to Step 6.

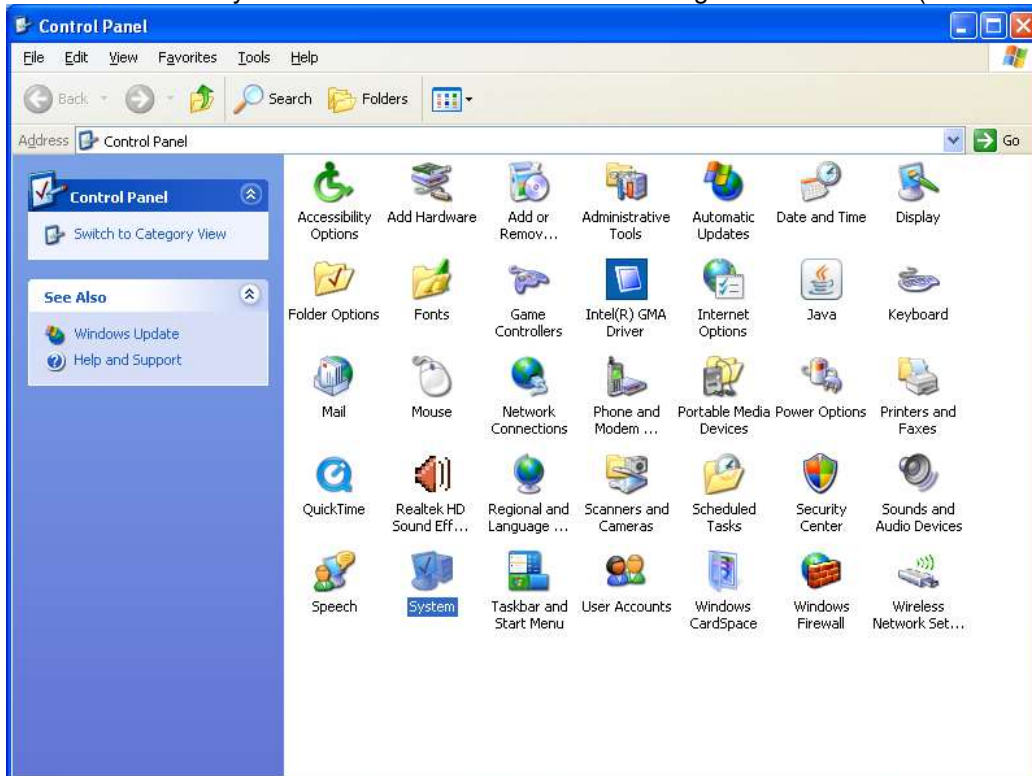


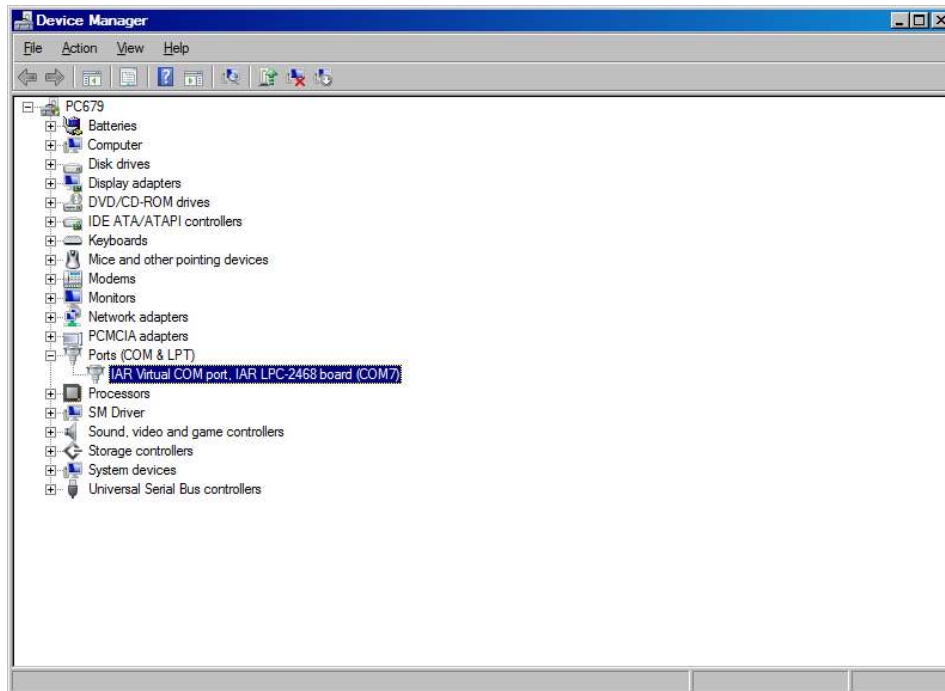
6) If the connection is not working, you will get an error message after a delay.



In this case, check to be sure the instrument is on and the USB data transfer cable is fully seated. Click "Connect" to retry the connection. With the USB connection, the computer should automatically establish connection with the meter. If you don't know the com port number, you can choose Auto or try all available ports or you can check your COM port assignments in the Device Manager section of the Windows Control Panel.

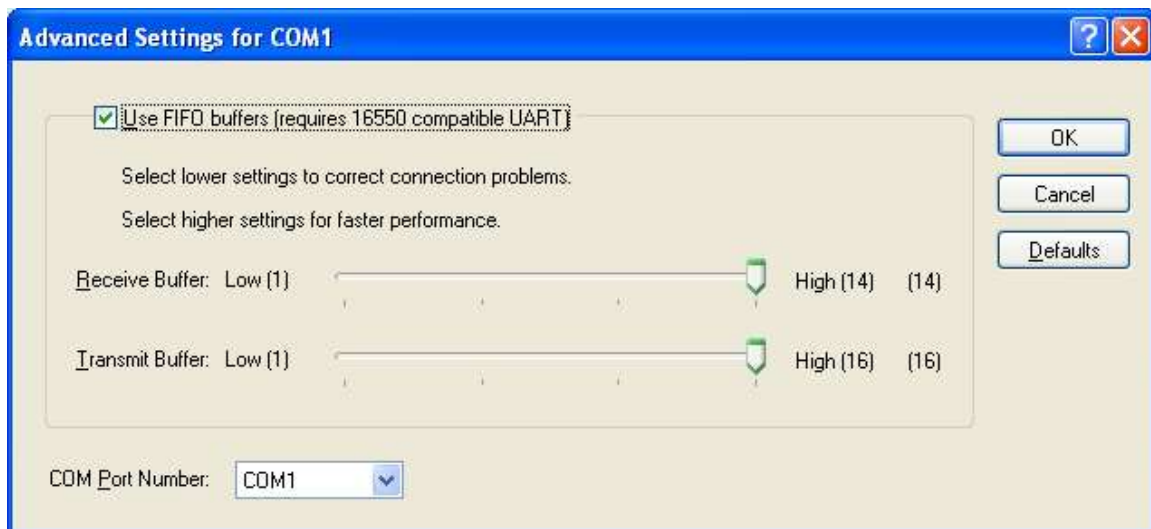
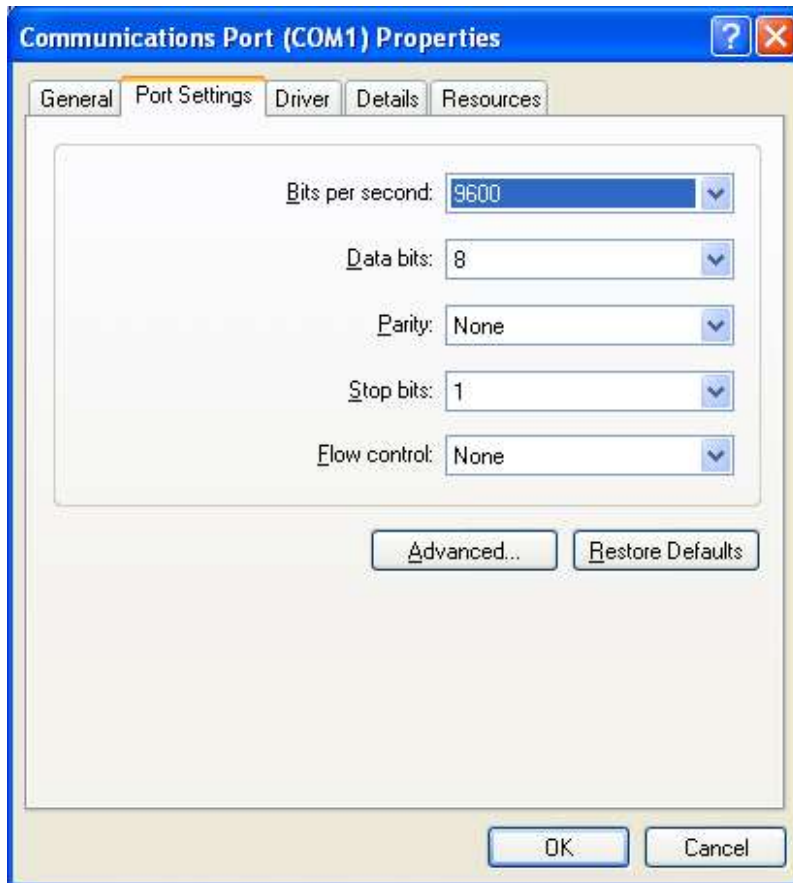
Path: Control Panel-->System-->Hardware Tab-->Device Manager button-->Ports (COM & LPT)





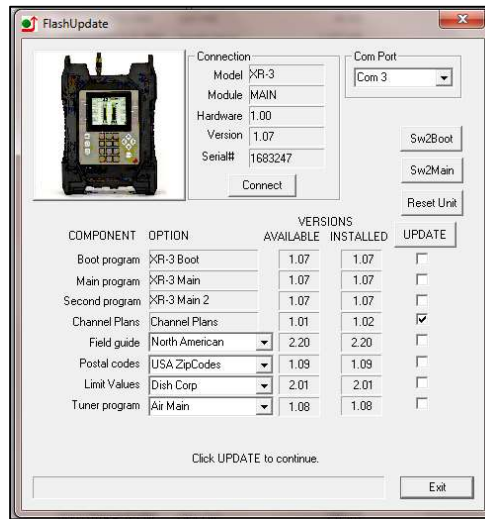
If you see that your Communications Port is set to something other than COM ports 1 through 12, you will need to reassign the COM port. To reassign the COM port, right click with your mouse

on the desired COM port and select Properties. Then click on the Port Settings tab. Then click on the Advanced button. Using the drop down menu at the bottom of the Advanced Settings screen, reassign the COM port to an open (unused) port to any COM port from COM1 to COM12. Then press OK twice and exit out of the Device Manager and exit out of the Control Panel.



- As soon as the connection is established, the application will access the website and obtain the latest available versions for the various software components. These will be compared

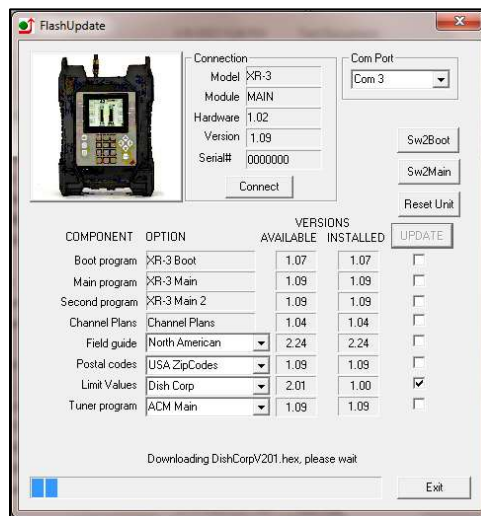
with the versions installed on your instrument. Any component with a newer version available will be checked. Normally, there is no need to check anything that isn't already checked and we don't recommend manually check marking the boxes.



- 8) For satellite module applications, select your desired Limit Values file: Dish East, Dish Central, Dish West, C Band Limits, or No Limits. See Limit Values section below for more details.
- 9) For satellite module applications, select your postal code region: USA ZipCodes, Canadian Postal, or No Postal Code (if located outside of North America).

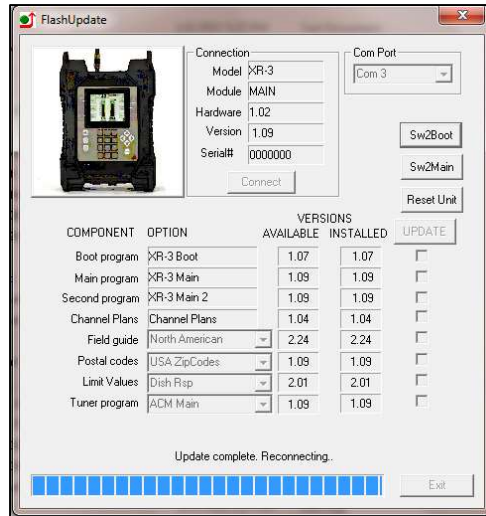
Click "UPDATE" to start updating the instrument. The progress bar at the bottom will show the installation progress of each component. In the screenshot from the example shown below, the program has detected that one component needs to be updated (it automatically placed one check mark next to the item that needs updated). The blue status bar at the bottom of the program will reset itself after each component is downloaded.

The download process can take up to approximately 5 minutes to complete, depending on the number of components that need to be updated.



The word “REMOTE” should appear on the LCD screen of the XR-3 to indicate that the instrument is being programmed and controlled remotely. Standby while the instrument is updated. Do NOT press any buttons on the XR-3 meter while the update is in progress. Do NOT bump or unplug the USB data transfer cable from the meter while the update is in progress.

- 10) When finished, the program will display “Update Complete. Reconnecting”, click “Exit”. You may now disconnect the XR-3 instrument from the computer and it is ready to use.



Channel Plans (applies to CATV / Off-Air module only)

Standard Channel Plans for the CATV / Off-Air module are available. These may be revised or added to in the future. The standard channel plans include:

Standard Cable plans:

EIASTD
HRC
IRC
PAL BG
PAL I
SECAM

Standard Off-Air plans:

NTSC ATSC
FM N. Am

Field Guides (applies to satellite modules only)

There are several global Field Guides (satellite transponder databases) available now and more may be added in the future. You can select the Field Guide you need using the pull down list.

The different Field Guides cover different regions of the world:

North American Field Guide
South American Field Guide
European Field Guide
African Field Guide
Middle East Field Guide
Asian Field Guide
South Pacific Field Guide

NE Pacific Field Guide

If you simply want to change Field Guides even though no new versions are available, you may need to also put a check in the box before clicking "UPDATE". Only components that are checked will be updated.

Limit Values (currently applies to satellite modules only)

For technicians that will be using the meter for Dish Network related work, there are three Limit Value databases available, 'Dish East' 'Dish Central' and 'Dish West'. The files are calculated off your geographical location.

- Ohio south to Alabama and east would use Dish East Limits
- North Dakota south to Texas and west use Dish West Limits
- North Dakota south to Texas through Ohio south to Alabama use Dish Central Limits

***Borders overlap into two limit files. Example: Texas can use either Dish West or Central limits*

If you will not be using the XR-3 for Dish Network applications, select 'No Limits'. You can select the Limit Values you need using the pull down list.

If you will be using the XR-3 for C Band applications, select 'C Band Limits'

Postal Codes (applies to satellite modules only)

Postal Code files provide look-up of latitude and longitude based on the postal code. Postal code files for the United States and Canada are available now and more may be added in the future. You can select the Postal Code file you need using the pull down list.

If you simply want to change your Postal Code file, even though no new versions are available, you may need to also put a check in the box before clicking "UPDATE". Only components that are checked will be updated.

If you are using the meter outside of the United States and Canada, then choose "No Postal Codes." This allows you to type in and save your latitude and longitude coordinates for your location. Based on the lat/long coordinates provided, the meter can still calculate the azimuth, elevation, and skew settings of the dish antenna as it relates to each satellite.

Future Updates

You may check for an update by connecting your XR-3 to your computer and performing steps 1 through 7 in the Updating section. Make sure your Internet connection is active (if you have a dial-up connection to the Internet.) It is recommended you check for updates regularly (i.e. monthly), for satellite work anyway.

3. Wi-Fi Software Updates

With the Wi-Fi option, you can still use the USB connection, or you can update the meter without a PC, just using the Wi-Fi connection to a wireless router or mobile hotspot to access the internet.

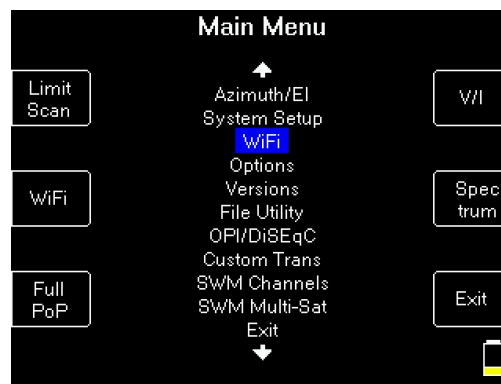
Requirements

Wi-Fi Network or mobile hotspot.

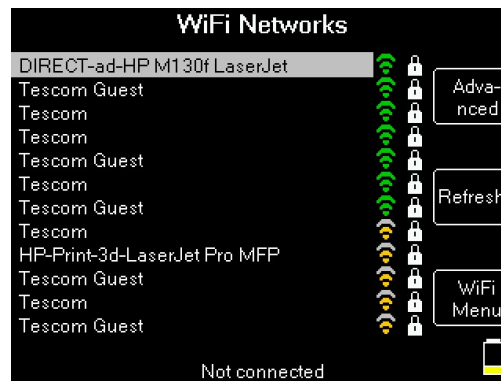
Wi-Fi Networks

Select Wi-Fi from Main Menu.

Hint: Once on the Main Menu screen, you can press the “Wi-Fi” soft key or press the number “5” on the meter’s numeric keypad twice to skip down 10 spaces to toggle to Wi-Fi quicker.



The meter will populate a list of available Wi-Fi networks within range.



The network name being broadcast (SSID), signal strength indicator, and encryption status of each Wi-Fi network are displayed.

The signal strength is displayed using a color coded icon:

Green = strong signal, should work fine

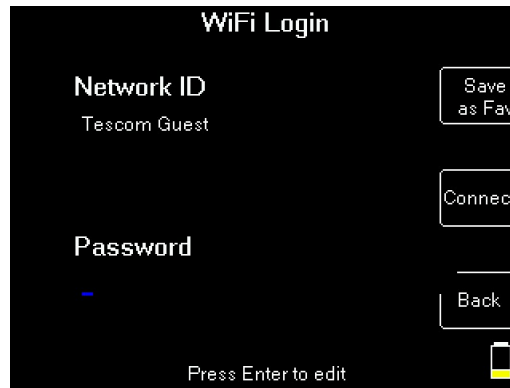
Yellow = medium signal, some delays may be encountered

Red = weak signal, likely will not work reliably

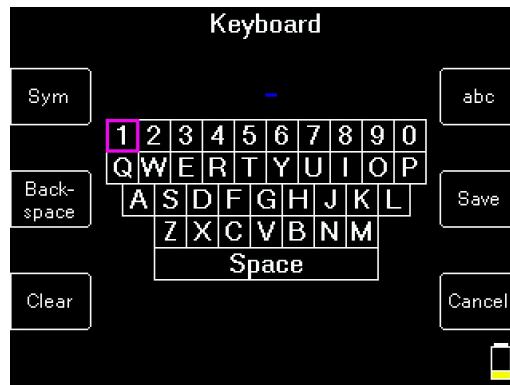
To connect to one of the Wi-Fi networks within range, select the network name using the up or down arrow buttons, and press Enter. If network is not encrypted, meter will begin to connect.

If network is encrypted, you will go to a login screen to enter a password.

Wi-Fi Login



To enter a password, first press the Enter key. An on-screen keyboard will appear.



There are three different views for the on-screen keyboard:

- Upper case letters and numbers – Press “ABC” soft-key
- Lower case letters and numbers – Press “abc” soft-key
- Symbols – Press “Sym” soft-key

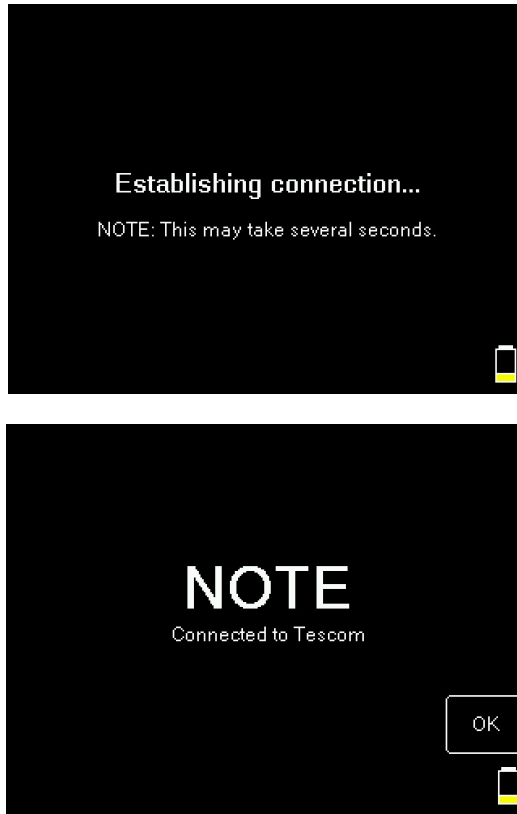
Use the four arrow buttons to select a character and press Enter to record it. When all characters are entered, press “Save” soft key to save the entire field.

Other soft-keys:

- Backspace – to delete the character to the left of the cursor
- Clear – to delete all characters and “clear” the field
- Save – to save the entire field and exit from the keyboard screen
- Cancel – to return to previous screen without saving changes

After you have entered a password, you can press “Save as Fav” to save it as one of your favorite Wi-Fi networks. You can save up to five favorite Wi-Fi networks.

Press “Connect” to connect to the specified network, meter will begin to connect



Now press OK to return to the Wi-Fi Menu screen. The connection status is shown at the bottom of the Wi-Fi Menu and Wi-Fi Networks screens.

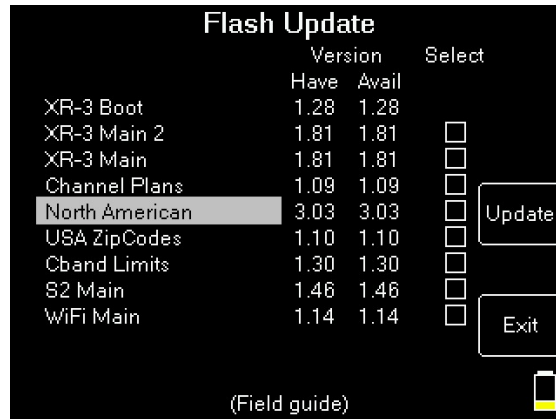
Software Update

When you select “Software Update” from the Wi-Fi Menu, the meter will connect to the server (using file directory path specified in the Download Configuration screen within the Options screen) and obtain the latest available versions for the various software components.

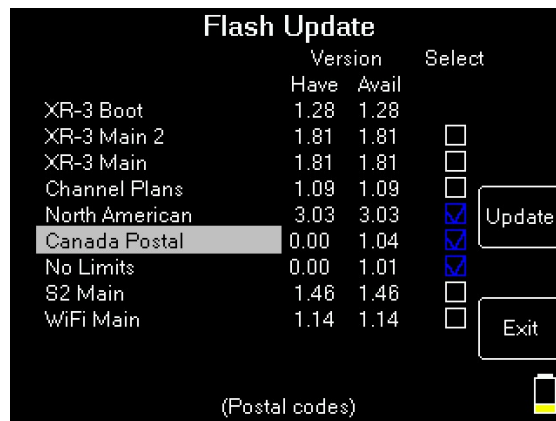


You will briefly see “Opening XR-3.txt” message.

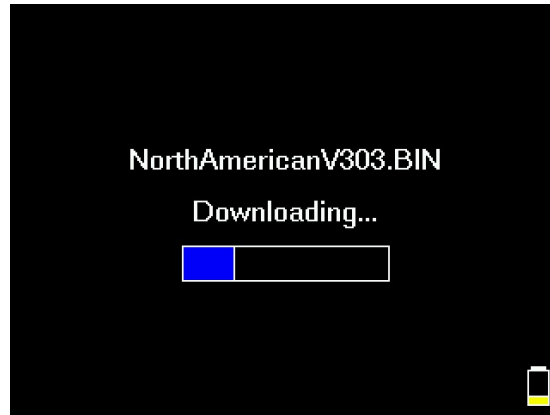
Then you will see the versions installed (Have column) and versions available (Avail column) for each XR-3 software component. If the version installed is lower than the version available, the meter will automatically place a check mark next to the related component. You can manually check or uncheck a software component by highlighting it with the up or down arrows and pressing Enter. Normally, there is no need to check anything that is not already checked and we do not recommend manually check marking the boxes. A description of the type of each software component is displayed at the bottom center of the screen.



Some components have different options available. To see all available options, highlight the component using the up or down arrows and then press the left or right arrow to select between the various options. For example, when you scroll down to the Field Guide field, you can select North American, South American, European, African, etc. For Postal Codes, you can select USA Zip Codes, Canadian Postal, or No Postal Codes. For Limit Values, you can select Dish East, Dish Central, Dish West, C Band Limits, or No Limits.



When you have the desired components selected, press Update. The meter will begin downloading each component and will display a progress bar for each.



The download process can take up to 8 minutes to complete, depending on the number of components that need to be updated. When complete, the meter will reboot and default back to the main Run screen.

4. Power

Battery Charge

- 1) Charging: Use either the AC adapter or the 12VDC vehicle charger. To fully charge a dead battery, it should require approximately 3 hours. It is okay to leave the meter charging all night since the meter will go into trickle charge mode when the battery is almost fully charged. During cold weather keep the XR-3 indoors in a warm environment while charging. The battery charge temperature range is 41°F to 100°F (5°C to 38°C).
- 2) Discharge / Charge: Before initial use of the meter you should fully discharge the battery and then recharge overnight. To discharge the battery, disable the automatic shut-off in the Options menu and then leave XR-3 powered on until it shuts off.
- 3) Battery Charge Symbol: The battery symbol indicating remaining battery life in the lower right corner of the LCD display can be misleading. It is normal for the battery symbol of a fully charged battery to quickly drop by $\frac{1}{4}$. The symbol should remain in the middle two segments for the longest time period, and will again drop faster when the last battery symbol segment is displayed. In summary the symbol drops by 25% quickly, remains in the middle 50% the longest, and then the last 25% drops quickly.

The symbol's (and the battery's discharge) behavior is not exactly linear. The battery charge indicator is based on the internal battery voltage, which changes slowly during the normal period of operation but quickly when the battery is either fully charged or nearly discharged. Therefore, the battery indicator will only appear full or empty for a short time. Most of the time, it will appear $\frac{1}{2}$ or $\frac{3}{4}$ full. When the charge indicator shows $\frac{1}{4}$ charge, you will need to charge it soon. It will shut off very soon after the indicator goes to empty.

- 4) Automatic Shutoff: If desired you can activate the automatic shutoff feature. To activate it, press MENU → OPTIONS and then scroll to the Shutdown field with your Up/Down arrows and use the Left/Right arrows to choose the desired auto shut-down time (5 min, 10 min, 15 min, NONE). The auto shutdown feature is turned off (set to NONE) in its default state.

- 5) LNA/LNB Power Awareness: Only turn on LNA/LNB power (to power a LNA, pre-amp, or LNB) while taking measurements. To extend battery run time, avoid powering an LNA/LNB while not actually taking measurements.
- 6) Attempting to turn on a unit when the battery contains insufficient charge may result in beeps and/or a flash on the LCD but will not harm the unit.

AC Power

When 110VAC or 220VAC power is applied to the external AC to DC switching power supply, it supplies 15VDC power to charge the battery, run the meter, and power the LNA, pre-amp, or LNB. In this case, the power available to the LNA or LNB is limited to 750 mAmps to avoid overdriving the power circuit and the battery charging circuit.

DC Power

When external 12VDC power is provided from a vehicle, it supplies enough power only to charge the battery, but not enough power to run the instrument while the battery is being charged.

5. Troubleshooting / FAQs

- a) My XR-3 instrument is displaying a message on the screen that says “ERROR Module not found”. Why is this message displayed?
 - i) It means the XR-3 base instrument isn’t detecting the presence of the module. If you encounter this message, power the unit off, remove the module, reinsert the module, and power the unit back on again.
- b) My serial number is missing off the back of my XR-3 instrument. How can I obtain my serial number to check with the factory if it’s still under warranty?
 - i) Connect your XR-3 meter to the PC, power it on, and open the FlashUpdate or MeterMaid program. The serial number of the connected unit will be displayed in FlashUpdate and MeterMaid if proper connection is established.
 - ii) Turn the XR-3 on. Then go to MENU, Versions, to see the base unit’s serial number and the module’s serial number, along with the loaded software versions.
- c) While attempting to download or install the FlashUpdate application, the download just seems to stall out and not make any progress. What could be the cause of this?
 - i) This issue is most likely caused by your anti-virus software or firewall blocking our program. Please temporarily disable your computer’s anti-virus software and firewall so it doesn’t interfere with the installation of the FlashUpdate and MeterMaid programs and the related USB drivers. If you have a hardware firewall, either stand-alone, or in a router, you must either modify the settings of the device to permit access to our program or you will have to entirely by-pass the router or other inhibiting hardware device. Also ensure that you are signed on as Administrator or have Administrator rights for Microsoft Windows.

If your company has a strict policy and the firewall blocks any executable files, then please contact your IT department and ask for assistance. Applied Instruments is more than happy to speak to the IT department about a work-around solution.

6. Replacement Parts & Accessories

Standard Accessories

Item Description	Part Number
Padded Cordura Flap for model XR-3	978-09390
Axle for Cordura Flap for model XR-3	976-09400
Threaded Cross Dowel Pin to secure module (qty 1)	940-89900
Thumb Screw (Tuner Lock-Down Screw) to secure module (qty 1)	940-89901
Battery door gasket for model XR-3	975-09340
Shoulder Strap	978-01843
Replacement Battery for model XR-3	742-00016
120-240VAC/15VDC AC Adapter and related line cord for model XR-3	990-08520
12VDC Vehicle Battery Charge Cord	967-20003
USB Data Transfer Cable	983-00002
Desktop kickstand for model XR-3	976-08430
Replacement Double Female F-Connector Barrel	715-01026
Signal splitter / Combiner (5-2150 MHz, single side power passing)	340-00012

Optional Accessories

Item Description	Part Number
Hard Shell Protective Carrying Case	978-00008
NS-1 Handheld Broadband RF Noise Generator (5-2150 MHz)	NS-1
PC-2X 2 Carrier Frequency Agile Signal Generator	PC-2X

7. Maintenance and Repairs

Disconnect and turn off the unit before cleaning. Clean with a dry cloth only.

Repair Services

In the event that a unit is damaged or otherwise not performing as specified, repair and maintenance service is available.

Warranty repair will be performed within one year from the date of purchase at no charge. Warranty repair includes defects in material and workmanship only. If unit is under warranty (standard warranty period is 12 months), charges do not apply unless instrument has been opened, abused, or exposed to moisture.

Beyond one year, TesCom offers flat rate repairs. Pricing is listed on our website at www.tescomusa.com

Shipping charges to our factory are the responsibility of the customer. Return shipping charges are included in the flat rate repair. Return shipping for warranty repairs is covered for customers located within the continental USA.

If you need to return equipment for service, please visit our website to request an RMA.

<https://tescomusa.com/pages/rma-request>

Version Updating

As our product lines are refined and features and performance are enhanced, we will upgrade older units at a nominal cost when possible. Shipping charges are additional. Contact us at +1 (800) 888-1978 for price and schedule if you are interested in having a unit updated.

Calibration

Periodic calibration of modules may be necessary to ensure that the unit is operating within the original factory specifications. A standard calibration charge will be incurred.

8. Specifications

XR-3 Base Instrument Specifications

Battery.....	rechargeable Li-Ion, 4400mAh 12.6V Max
Run time/charge.....	4 +/- hours for a single LNA/LNB (depends on LNA/LNB current draw)
Universal AC charger.....	AC input: 100 to 240 VAC ~1.0A Max., 50-60 Hz DC output: +15VDC, 2.0A (center pin positive, 2.1mm) fast charge and then trickle
Vehicle charger.....	12VDC
Computer Interface.....	USB (Ethernet optional)
Size/Weight (without rubber guards)	7.6"W x 6.7"H x 2.40"D / 3.2 lbs. 19.3cm x 17.0cm x 6.1cm / 1450 g
Operating Temperature Range.....	-20°F to 120°F (-29°C to 49°C)
Battery Charge Temperature Range.....	41°F to 100°F (5°C to 38°C)
Warranty.....	12 month limited

Specifications subject to change without notice.

WARRANTY

The Applied Instruments XR-3 is warranted against defects in materials and workmanship for a period of twelve months. Applied Instruments agrees to repair or replace any assembly or component found to be defective under normal use during this period. Our obligation under this warranty is limited solely to repairing the instrument proven to be defective within the scope of the warranty when returned to the factory. Transportation to the factory is to be prepaid by the customer. Authorization (RMA#) by Applied Instruments is required prior to shipment.

TesCom assumes no liability for secondary charges or consequential damages and, in any event, TesCom's liability for breach of warranty under any contract shall not exceed the purchase price of the instrument shipped, and against which a claim is made.

Any application recommendation made by TesCom for the use of its products is based upon tests believed to be reliable, but TesCom makes no guarantee of the results to be obtained. This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for TesCom any liability in connection with the sale of our products other than that set forth herein.

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