

TR-3 Channel Editor

Software Manual



Trilithic Company Profile

Trilithic is a privately held manufacturer founded in 1986 as an engineering and assembly company that built and designed customer-directed products for telecommunications, military, and industrial customers. From its modest beginnings as a two-man engineering team, Trilithic grew over the years and broadened its offerings of RF and microwave components by adding broadband solutions to its product line. This was accomplished with the acquisition of components manufacturer Cir-Q-Tel and instruments manufacturer Texscan.

Today, Trilithic is an industry leader providing telecommunications solutions for major broadband, RF, and microwave markets around the world. As an ISO 9001:2008 certified company with over 40 years of collective expertise in engineering and custom assembly, Trilithic is dedicated to providing quality products, services, and communications solutions that exceed customer expectations.

Trilithic is comprised of five major divisions:

- **Broadband Instruments and Systems**
Offers test, analysis, and quality management solutions for the major cable television systems worldwide.
- **RF Microwave Components**
Provides components and custom subsystems for companies specializing in cellular, military, and other wireless applications.
- **Emergency Alert Systems**
Leading supplier of government-mandated emergency alert systems used by broadcast TV, cable TV, IPTV, DBS, and radio stations.
- **XFTP**
Offers a specialty line of field technical products for cable operators and technicians, as well as a line of products for installing electronics in the home of the future.
- **Network Services**
Provides network data management and support services to safeguard and protect your network and data by employing certified, experienced, and dedicated network engineers.

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Chapter 1

General Information

Helpful Website

The following website contains general information which may be of interest to you:

<http://www.trilithic.com>

Trilithic's website contains product specifications and information, tips, release information, marketing information, Frequently Asked Questions (FAQs), bulletins, and other technical information. You can also check this website for product updates.

Where to Get Technical Support

Trilithic technical support is available Monday through Friday from 8:00AM to 5:00PM EST. Callers in North America can dial 1-317-895-3600 or 1-800-344-2412 (toll free). International callers should dial 1-317-895-3600 or fax questions to 1-317-895-3613. You can also e-mail technical support at techsupport@trilithic.com.

For quicker support response when calling or sending e-mail, please provide the following information:

- Your name and your company name
- The technical point of contact (name, phone number, e-mail)
- The TR-3 serial number
- A detailed description of the problem you are having, including any error or information messages

How this Manual is Organized

This manual is divided into three chapters. The chapters are organized in the order in which you might set up and use the various features.

Chapter 1, “General Information,” introduces you to the TR-3 Channel Editor software manual and how it is organized. You’ll see where to get technical support, and be made aware of the conventions used in the manual.

Chapter 2, “Introduction,” introduces you to the TR-3 Channel Editor software and its features. The installation of TR-3 Channel Editor software is also covered in this chapter.

Chapter 3, “Using TR-3 Channel Editor,” covers the use of features within TR-3 Channel Editor software. Connecting and setup of your TR-3 are covered in this chapter.

Conventions Used in this Manual

This manual has several standard conventions for presenting information.

- Connections, menus, menu options, and user-entered text and commands appear in **bold**.
- Section names, Web, and e-mail addresses appear in *italics*.



A ***NOTE*** is information that will be of assistance to you related to the current step or procedure.



A ***CAUTION*** alerts you to any condition that could cause a mechanical failure or potential loss of data.



A ***WARNING*** alerts you to any condition that could cause personal injury.

What is the TR-3 Channel Editor Software?

The TR-3 Channel Editor software is the support software for the TR-3 Signal Level Meter and includes functions that simplify setup and enhance the efficiency of using your meter.

The TR-3 Channel Editor software is easy to use and includes a library of pre-stored standard international channel plans that may be opened, configured, saved, and downloaded to your meter or multiple meters to ensure consistent operation.

Channel parameters may be edited, including frequency and Analog or Digital type channels. Favorite / Tilt channels can be selected and the measurement bandwidth of digital channels can be set. Also, the measurement units (dBmV or dB μ V) can be set using this software.

TR-3 Channel Editor Features

With the TR-3 Channel Editor software, you can do the following:

- **Change and Customize Channel Plans**
Select from standard international channel plans to configure your meter.
- **Select Favorite / Tilt Channels**
Select six (6) favorite channels for easy access with your meter.
- **Set Analog and Digital Channels**
Customize your channel plan by setting analog and digital channels for measurement.
- **Set Digital Bandwidth and Units of Measure**
Set the measurement bandwidth for the digital channels in your meter and select the measurement units (dBmV or dB μ V).

Installing the TR-3 Channel Editor Software

This section describes how to install the TR-3 Channel Editor software on your system.

Requirements

To operate the TR-3 Channel Editor software, you need the following minimum requirements:

- 200 MHz Pentium-II
- 64 MB RAM
- 100 MB free disk space
- Windows 2000, XP, Vista, or 7 (Also Windows Server 2000, 2003, and 2008 supported)
- Color monitor
- Windows compatible mouse
- Trilithic TR-3 Data Cable (included)
- Trilithic Serial to USB Adapter (included)
- Available Serial COM Port (DB9) or USB 2.0 Port

Installing TR-3 Channel Editor

Once you have made sure that your system meets the minimum requirements, you're ready to install the TR-3 Channel Editor software.



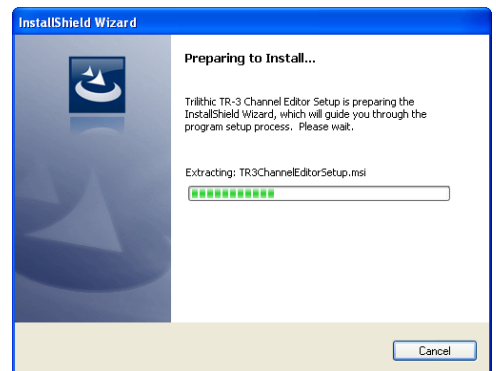
NOTE: Be sure to check the CD for release notes that may affect the installation and configuration process!

NOTE

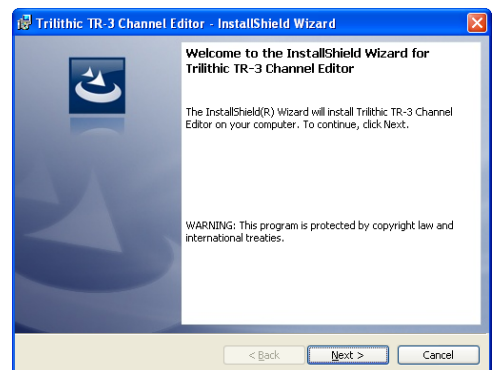
To install the TR-3 Channel Editor software, do the following:

1. Depending on the operating system you are installing the TR-3 Channel Editor software on, you may need to log on as the local administrator. (Check with your network or systems administrator if you're not sure about your current login account permissions.)
2. Insert the TR-3 Channel Editor software CD in the appropriate drive.

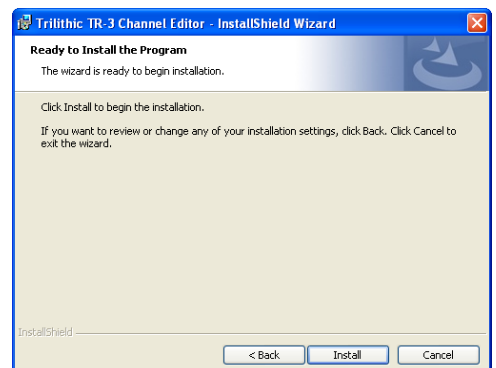
3. If you have Autorun enabled for the CD-ROM drive, the TR-3 Channel Editor software setup program will start automatically. Otherwise, click **Start**, then click **Run**, and type `[drive]:\TR3ChannelEditorSetup.exe`, then click **OK**. (Substitute the appropriate drive path in the command.) The Setup program starts and displays the Preparing to Install... screen.



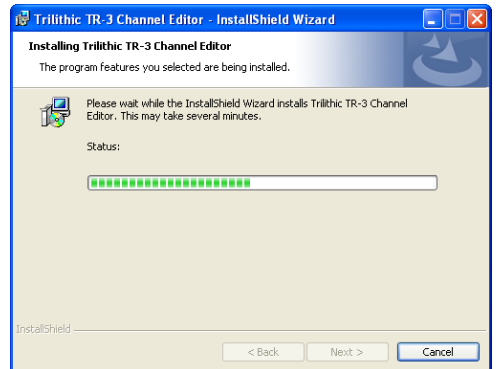
4. The Initial Setup screen appears, click **Next**.



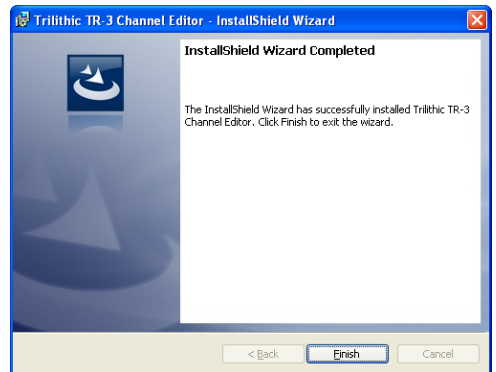
5. The Ready to Install the Program screen appears, click **Install** to start the installation process.



6. The Trilithic installation procedure installs the files and installs the TR-3 Channel Editor icon on your desktop. While the software is being installed, a screen appears that shows the progress of the installation. (The entire installation process should only take a few minutes at most.)



7. When the TR-3 Channel Editor software has been installed on your system, the Installation Complete screen appears, click **Finish** to complete the installation.



8. This completes the Trilithic TR-3 Channel Editor installation procedure. The TR-3 Channel Editor icon now appears on the desktop.



USB Driver Installation

The USB drivers required for the TR-3 to communicate with the PC software are installed automatically with the software installation for the following (32-bit) Operating Systems:

Windows 2000
Windows XP
Windows Server 2000
Windows Server 2003

For other Operating Systems listed below, the USB drivers will require an additional installation procedure:

Windows XP	(64-bit)
Windows Server 2003	(64-bit)
Windows Vista	(32 & 64-bit)
Windows Server 2008	(32 & 64-bit)
Windows 7	(32 & 64-bit)

For these Operating Systems, perform the following USB driver Installation procedure:

1. Plug the TR-3 Serial to USB Adapter into a USB port on your computer. (It is not necessary for the other end of the adapter to be connected to the TR-3 for the USB driver installation.)
2. A “Install New Hardware Wizard” will appear on your computer.
3. Follow the Hardware Wizard prompts to find the driver from the USB Driver folder included on the software CD and Install.



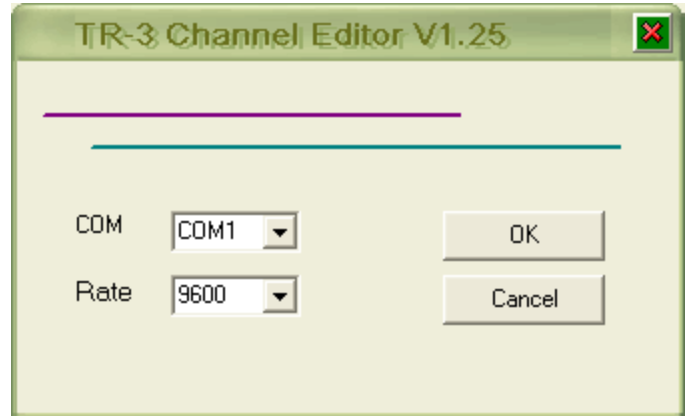
NOTE

Two Driver files are required for the TR-3 Serial to USB Adapter. After the first driver is installed, the Hardware Wizard will prompt you to install the second driver.

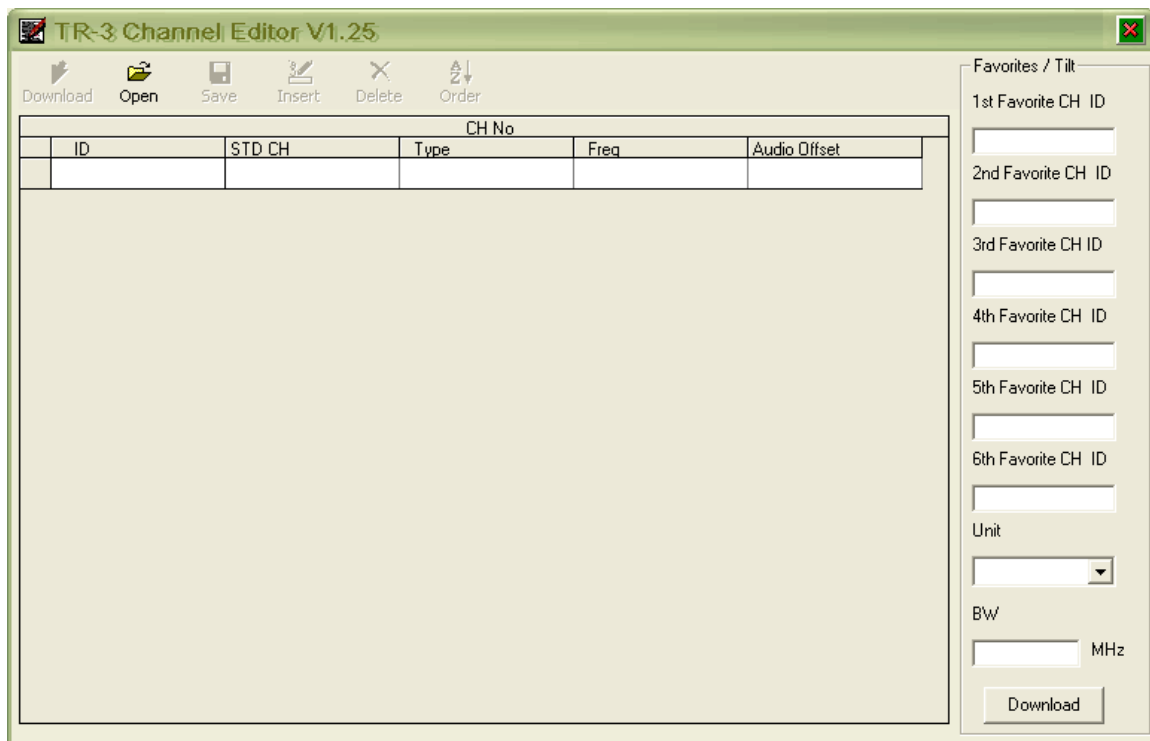
Learning Your Way Around

Once you have installed the TR-3 Channel Editor software, you are ready to learn your way around. Start the TR-3 Channel Editor software by double-clicking the desktop icon. The TR-3 Channel Editor Communication Settings screen appears.

To open the TR-3 Channel Editor software for preview, without communication to the meter, it is not necessary to select the COM port. See the *Using TR-3 Channel Editor* section in the next chapter for COM selection and connection to your TR-3.






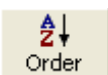


Click the **OK** button and the TR-2 Channel Editor screen will appear as shown below.



Toolbar

The TR-3 Channel Editor software toolbar provides a quick way to access a number of convenient commands and features.

Icon	Description
 Download	Downloads all Channel Plan and Favorite / Tilt configurations to your meter.
 Open	Permits the user to open a pre-stored base channel plan or previously saved plan.
 Save	Permits the user to save a custom configured channel plan.
 Insert	Permits the user to insert a new channel into the selected location of the plan.
 Delete	Permits the user to delete a selected channel of the channel plan.
 Order	Permits the user to sort the channels in order of frequency after configuring a custom channel plan.

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Using TR-3 Channel Editor

This chapter tells you how to connect your TR-3 to your PC with the TR-3 Channel Editor software, how to configure channel plans, set favorite channels, and download channel plans.

Connecting to the TR-3

Before you can download channel plans to your TR-3, you must connect the TR-3 to the PC as follows:

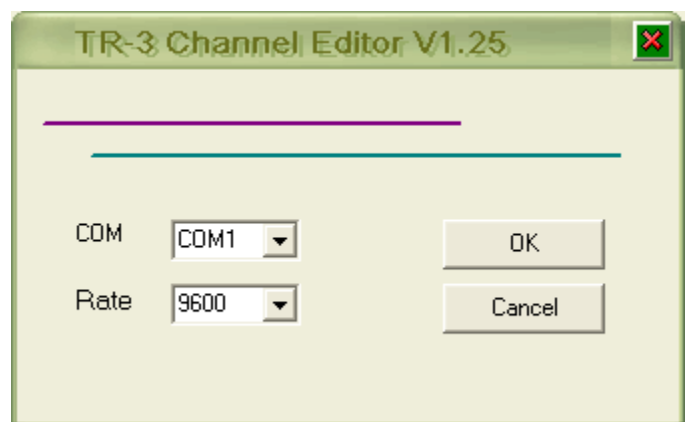
1. Before starting the TR-3 Channel Editor software, you should determine if only TR-3 data cable will be used by connection to a serial (DB9) COM port or if the data cable will be used with the Serial to USB Adapter for connection to a USB port.

If using the Serial to USB Adapter, first be sure the required USB drivers are installed, see the [USB Driver Installation](#) section in the previous chapter.

2. If only the TR-3 data cable will be used, connect it to an available serial (DB9) COM port on your computer.


If the data cable will be used with the Serial to USB Adapter, connect the USB connector of the Serial to USB Adapter to an available USB port on your PC and then connect the TR-3 Data Cable to the serial connector of the Serial to USB Adapter.

3. Connect the other end of the TR-3 Data Cable to the charger input on the bottom of the TR-3.
4. Start the TR-3 Channel Editor software by double-clicking the desktop icon. The TR-3 Channel Editor communications screen will appear.

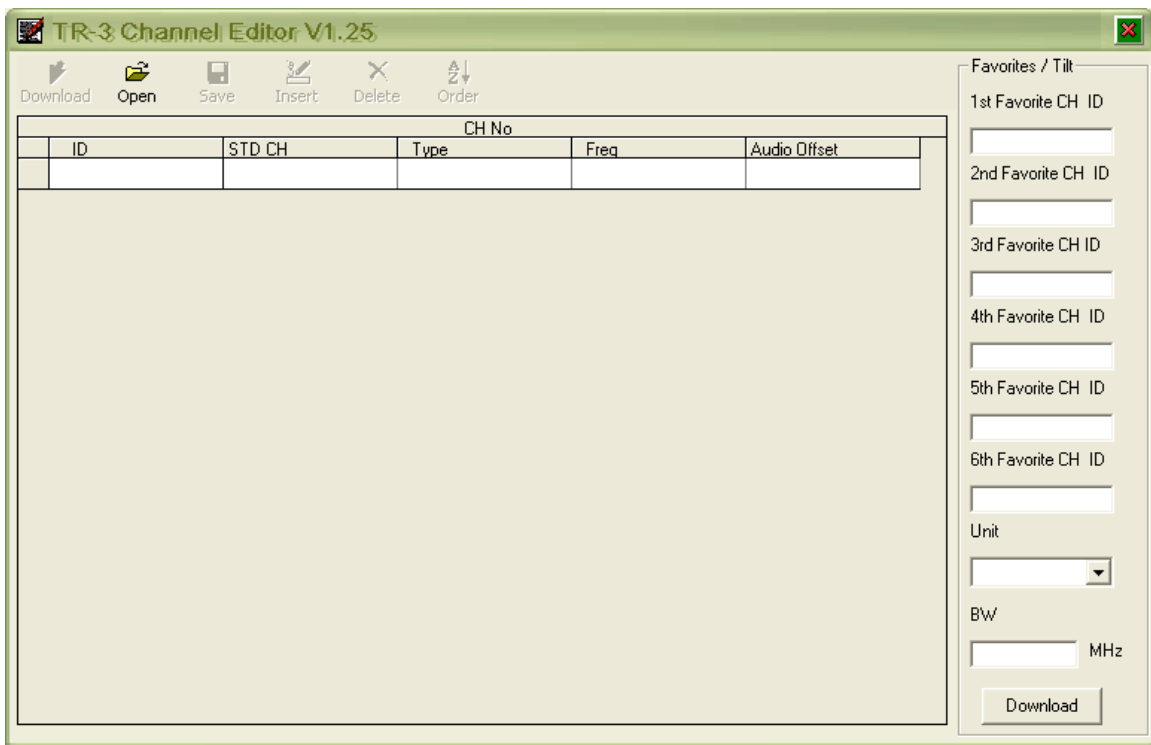


5. If the Serial to USB Adapter is being used, the software will automatically find and select the Virtual COM Port assigned to your USB connection.

If only the serial data cable is used for connection to a serial COM Port (DB9) on your PC, select the appropriate COM port from the drop-down menu.


 **NOTE** *Since the TR-3 data is unidirectional from the PC to the TR-3 through the power jack connector, the software cannot confirm the meter is receiving data. It is important to make sure all connections between the PC and the meter are made securely.*

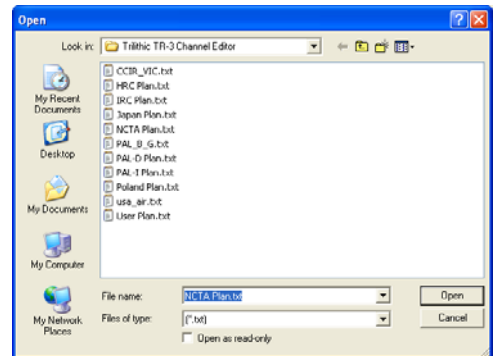
6. Click the **OK** button and the TR-3 Channel Editor software will appear.



Opening Channel Plans

To open a pre-stored base channel plan or previously saved channel plan:

1. Click the  button on the TR-3 Channel Editor toolbar, the **Open** window will appear.
2. Select the desired channel plan to open and then click on the **Open** button.
3. The selected channel plan will be displayed as shown below.



ID	STD CH	Type	Freq	Audio Offset
1	2	TV	55.25	4.50
2	3	TV	61.25	4.50
3	4	TV	67.25	4.50
4	1	TV	73.25	4.50
5	5	TV	77.25	4.50
6	6	TV	83.25	4.50
7	95	TV	91.25	4.50
8	96	TV	97.25	4.50
9	97	TV	103.25	4.50
10	98	TV	109.25	4.50
11	99	TV	115.25	4.50
12	14	TV	121.25	4.50
13	15	TV	127.25	4.50
14	16	TV	133.25	4.50
15	17	TV	139.25	4.50
16	18	TV	145.25	4.50
17	19	TV	151.25	4.50
18	20	TV	157.25	4.50

Configuring Channel Plans

Each channel of the plan is listed with an ID number for the channel, channel number, type of channel (Analog or Digital), Frequency (Video frequency or center frequency for digital channels), and Audio Offset (for analog channels).

The full plan may be viewed by moving the scroll bar at the right of the plan. A channel plan may be selected by clicking on the ID number for the channel or by using the Up and Down arrow keys on your PC keyboard to move through the channels.

NCTA Plan					
	ID	STD CH	Type	Freq	Audio Offset
▶	5	250	TV	46.00	4.50
	1	2	TV	55.25	4.50
	2	3	TV	61.25	4.50
	3	4	TV	67.25	4.50

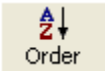
Changing Channel Parameters

Each channel parameter may be changed by clicking on the desired field and editing as shown below:

- STD CH:** Enter from 1 to 3 characters for a channel number. A channel number should be used only once in a plan.
- Type:** Click to select from **TV** (analog) or **DIGI** (digital) type channel.
- Freq:** Displays the Video Frequency for **TV** (analog) channels or center frequency for **DIGI** (digital) channels. Enter a frequency in MHz from 46 to 1000 MHz.
- Audio Offset:** Displays the frequency offset in MHz between the Video and Audio carriers for **TV** (analog) channels. Select from 4.50, 5.50, 6.00, or 6.50 MHz. This parameter is not used for digital channels.

Sorting Channels


If channel frequency parameters have been changed or new channels added, it may be desirable to sort the new plan configuration by frequency so they will be displayed in the correct order by the TR-3.

To sort the channels in the plan by frequency, click the  button on the TR-3 Channel Editor toolbar.

Adding a Channel

A channel may be added to the plan as follows:

1. Select the location for the new channel by clicking on the ID number for the channel.

2. Click on the  button on the TR-3 Channel Editor toolbar, the **Do you wish to insert a channel** window will appear.



3. Select the **Yes** button to insert the new channel or **No** to cancel without inserting a new channel. A new channel will be inserted at the selected ID location with the following default parameters:


STD CH: 250
Type: TV
Freq: 46.00 MHz
Audio Offset: 4.50 MHz

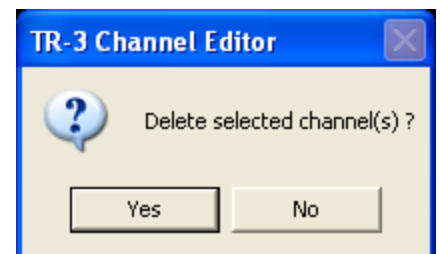
4. Edit each parameter as desired for the new channel as described above in [Changing Channel Parameters](#).

Deleting a Channel

A channel may be deleted from the plan as follows:

1. Select the channel to be deleted by clicking on the column to the left of the ID number. The row for the selected channel will be highlighted as shown in the beginning of this section:

2. Click on the  button on the TR-3 Channel Editor toolbar, the **Delete selected channel(s)** window will appear.



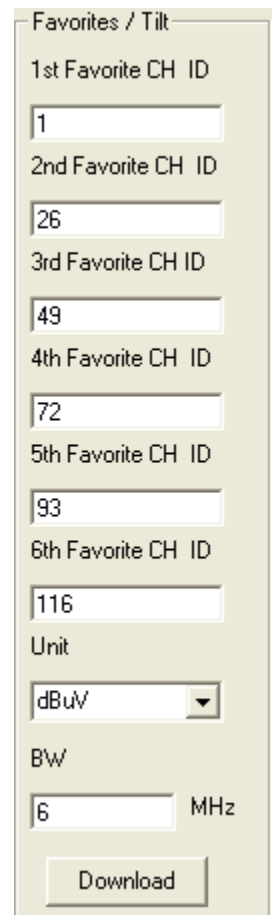
3. Select the **Yes** button to delete the selected channel or **No** to cancel without deleting the channel. The selected channel will be deleted.

Setting Favorite / Tilt Channels

Six (6) channels may be selected as Favorite channels for easy access with your TR-3. The favorite channels with the lowest and highest frequencies are also used for the Tilt calculation by the TR-3.

Favorite channels may be set as follows:

1. In the Favorites / Tilt section at the right side of the TR-3 Channel Editor software screen, select the box associated with a favorite channel and enter the ID number for the desired favorite channel.
2. Repeat for each of the six (6) favorite channels.



Favorites / Tilt

1st Favorite CH ID
1

2nd Favorite CH ID
26

3rd Favorite CH ID
49

4th Favorite CH ID
72

5th Favorite CH ID
93

6th Favorite CH ID
116

Unit
dBuV

B/W
6 MHz

Download



You must enter the ID number for each favorite channel, not the channel number. These may not be the same depending on the channel plan.

Setting Units of Measurement and Digital Bandwidth

The units of measurement (dBmV or dB μ V) displayed on your TR-3 may be selected. Also, the measurement bandwidth used for digital channels in the channel plan may also be set.

To set measurement units:


1. Select the **Unit** drop-down menu.
2. Select either dBmV or dB μ V.

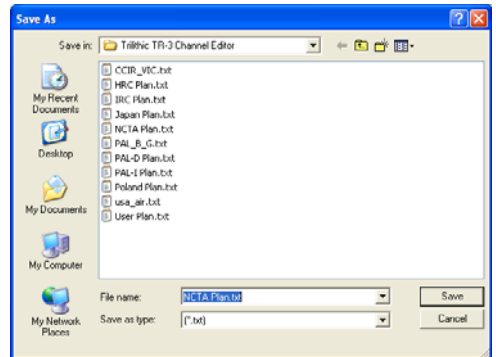
To set Digital Bandwidth:

1. Select the **BW** field.
2. Enter the digital channel bandwidth from 4.0 to 9.9 in MHz.

Saving a Channel Plan

A custom configured channel plan may be saved for later recall as follows:

1. When all channels have been configured, favorite channels selected, and measurement units and digital bandwidth set as desired, click on the  button on the TR-3 Channel Editor toolbar, the **Save As** window will appear.
2. Select the name of the channel plan to save and then click on the **Save** button. A new channel plan should always be saved with a new name so the base channel plan remains unchanged for later use or reference.
3. The selected channel plan will be saved.




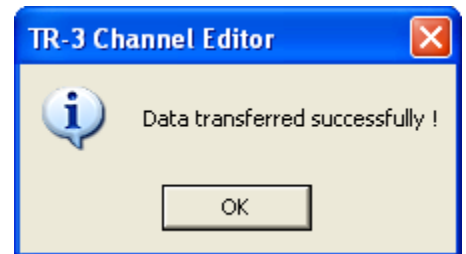
Downloading a Channel Plan

Channel plans from the pre-stored plans or custom configured plans with the TR-3 Channel Editor software can be downloaded to your meter.

Download a Full Channel Plan Configuration

To download a complete channel plan including all channel parameters, favorite channels, measurement units, and digital bandwidth perform the following steps:

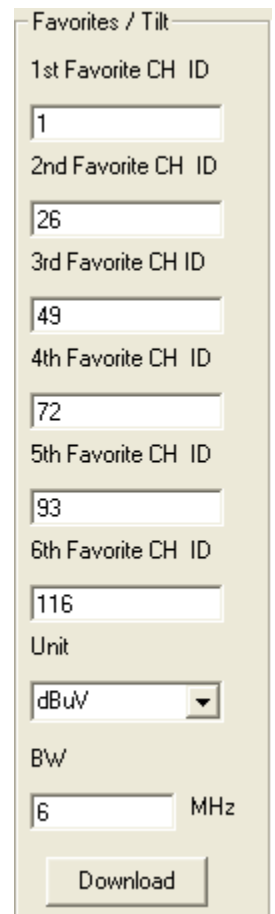
1. Be sure that the TR-3 data cable (and Serial to USB Adapter if used) is properly connected to your PC and to the TR-3 connector (as described in *Connecting to the TR-3*).
2. Turn on the TR-3 Meter.
3. Click on the  button on the TR-3 Channel Editor toolbar, the progress bar below the toolbar will advance as data is transferred to the TR-3.
4. After all of the data has been transferred (approximately 40 seconds), the TR-3 display backlight will illuminate momentarily and the meter will reset to the lowest channel. Also, a message window will appear to confirm the data has been transferred.



Download New Favorite Channels Only

If no changes are made for any channel and only favorite channels, measurement units, or digital bandwidth data require downloading, these can be quickly downloaded as follows:

1. Be sure that the TR-3 data cable (and Serial to USB Adapter if used) is properly connected to your PC and to the TR-3 connector (as described in *Connecting to the TR-3*).
2. Turn on the TR-3 Meter.
3. Click on the **Download** button below the Favorites / Tilt section of the TR-3 Channel Editor window.



Favorites / Tilt

1st Favorite CH ID
1

2nd Favorite CH ID
26

3rd Favorite CH ID
49

4th Favorite CH ID
72

5th Favorite CH ID
93

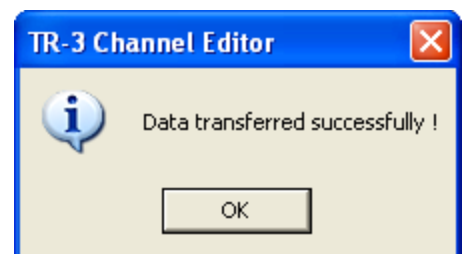
6th Favorite CH ID
116

Unit
dBuV

BW
6 MHz

Download

4. After all of the data has been transferred (approximately 5 seconds), the TR-3 display backlight will illuminate momentarily and the meter will reset to the lowest channel. Also, a message window will appear to confirm the data has been transferred.



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