



Model SQT783

Terrestrial Television

Signal Quality Meter

USER MANUAL

Preface

Read this manual carefully before using this meter for the first time. This operating manual will help you in the appropriate and safe use of the meter. The technical specifications and operating methods included in this manual may be subject to change without notice. If after you have used the meter you have questions, please re-read this manual. Should questions remain, please contact your supplier.

Safety Precautions

Follow all Instructions and Warnings.

Safety of persons

Ensure nobody can be hurt by falling tools or parts. For your own security, use an approved safety harness on a sloping roof.

Adapter attention

The meter should only be operated with the supplied mains power adapter. To avoid the danger of electric shock do not open the power adapter or meter, there are no user serviceable parts inside. Incorrect usage of the various connectors can lead to meter destruction.

Proceed carefully with the measuring meter:

- Avoid low temperatures (below 0 °C) and high humidity.
- The TFT display can be damaged by mechanical impact.
- Avoid excessive input voltages, refer to the technical data.

Do not operate with the meter:

- If it has visible damage,
- If there are loose parts inside the meter,
- If meter was located outdoors or in damp for an extended time period.

Electrical Safety:

Do not touch meter with wet hands or use with a damaged power cord.

Liquid:

Do not expose to dripping or splashing liquids. Keep away from objects that contain water such as vases basins and sinks, as it is not weatherproof.

Ventilation:

Keep the slots on the side of the meter uncovered to allow airflow. Do not expose to direct sunlight, place it near a heater or high humidity. Do not stack other electronic equipment on top of the meter.

Cleaning:

Unplug meter before cleaning. Use a soft cloth or mild solution of washing-up liquid to clean. Solvents must not be used.

Storage:

Store meter indoors. In highly humid locations store in a sealed container with dry desiccant or similar moisture absorbent material. Avoid storing in sunlight. Exposure to lightning and other static electricity charges must be avoided.

No User Serviceable Parts Inside:

Do not remove meter from its case. Seek qualified & experienced service personnel to repair meter, or contact your supplier.

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I. Reference

1.1 Features include

- External Power supply
- Replaceable antenna Input, F type Male
- LCD display: 320 x 240pixels RGB colour
- Display size 2.4inch
- Pre BER & Post Viterbi BER
- MER measurement
- Spectrum display
- Constellation display
- Power to Antenna 5V DC
- Keyboard LED backlit
- Program Add, Delete & Edit
- Internal lithium-ion battery: 1800mAh
- Battery charge time: 2.5 hours
- Battery working time: 6 Hours
- Alarm sounds when signal is found
- Power Adapter: 12V DC 1.0A max
- Freq Range 50MHz to 858MHz
- Demodulation: DVB-T/T2 256-QAM, 64-QAM, QAM, etc
- Magnetic compass included
- Snug soft shroud limits damage when dropped
- Bright LED work light illuminates dark corners

II. Product Overview



1. **ON/OFF POWER** switch: Turns the Meter on/off.
2. **DC 12V**: Connects to the 12V DC power adaptor.
3. **POWER** status LED: Red: charge, Blue: working.
4. **LOCK** LED: Glows when any channel is Locked.
5. **SHORT** LED: Indicates 5V DC short circuit @ RF Input.
6. **5V** LED: Glows when 5V DC to Antenna Input active.
7. **LCD** Screen: Shows menus.
8. **QUALITY** 2 Digit No. LEDs: Signal Quality percentage.
9. Compass. 
10. Antenna RF Input: Connect to DVB-T or T2 antenna.
11. **▲ ▼ ◀ ▶** Arrow, **OK & EXIT** keys: Press an Arrow key to select a menu item, then the OK key to confirm or Exit.
12. **ALARM**: Switches On or Off audible signal Lock Alarm.
13. **TP EDIT/LIGHT**: From HOME menu controls LED torch, or from SIGNAL menu Add, Delete or Edit channels.
14. **SPECT**: Enter Spectrum display mode.
15. **METER**: Selects measurement with Constellation.

III. Operation Guide

Connect the terrestrial antenna before powering up the meter.

4.1 Powering Up

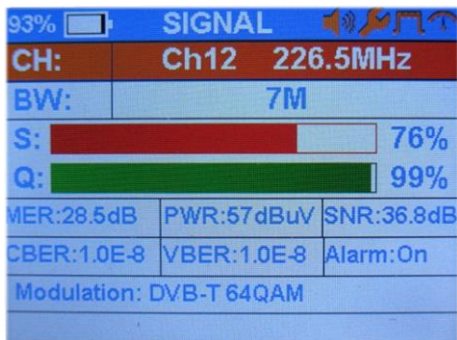
1. Connect the 12V DC power adaptor to the meter & charge fully before use. Allow 2.5 hours for a full charge.
2. Turn the POWER switch on right side of the meter from O to I.



HOME menu is accessed by pressing the **EXIT** key from default start-up SIGNAL mode, so it can be used simply by switching on. Navigate to the required function by pressing the ◀ ▶ ▲ or ▼ keys, and then press **OK**.

4.2 Signal

Home-> Signal -The meter starts in **SIGNAL** mode, tuned to Ch.12.



Press ◀ or ▶
& **OK** keys to
select other
channels by
number.

Centre frequency of the tuned channel displays in MHz.

- Bandwidth **BW** remains **7Mhz** to Lock Australian channels.
- **ALARM**: press this key On or Off to hear the acoustic Lock & Quality Alarm, which varies according to signal Quality.
- **CH EDIT** (SIGNAL) or **LIGHT** (HOME) interface, press the key.
- **SPECTrum**: from HOME press ▶, ▶ & **OK** keys to enter.
- **METER**: Press this key to view measurements with Constellation.
- To turn Alarm Off or On, in SIGNAL mode press **ALARM** key.
- To turn On or Off LED torch light, from HOME Press

TP EDIT/LIGHT key.

4.3 Constellation

Home-> Constellation

Constellation is a relative display of signal quality that shows the individual carriers within the tuned channel.

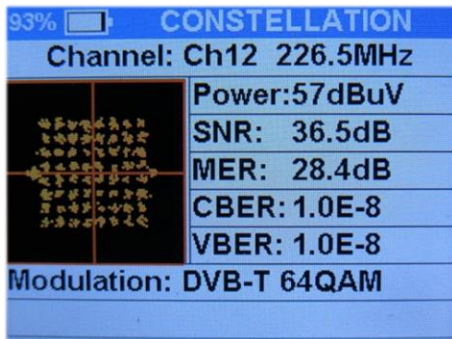


In this mode you see the Constellation with Level & Quality of the channel tuned.

- Press the **OK** key to zoom in.

The Signal level & Quality measurements in this meter are linear over the meter's range from weak to strong signals. They show in graphical Bars, Percentages and an LED display to assist legibility in all conditions. Keep in mind that these indications are relative and therefore may bear little or no relationship to what is seen on other measuring or receiving equipment.

- Press the METER key to see Constellation with:



Power, SNR,
MER, CBER,
VBER, Num:
& Modulation
standard.

Simple explanations of each are:

Power: total signal energy measured in Decibel Microvolts.

SNR: analogue Signal to Noise Ratio of a channel (before Lock).

MER: Modulation Error Ratio of a Digital channel (Locked).

CBER: Bit Error Ratio a logarithmic scale, before Viterbi corrector.

E2 is errors per 100 bits whilst E8 is errors per 100,000,000 bits.

VBER: BER after Viterbi corrector, mostly a high number like E8.

Understanding these industry standard measurements helps installers get better results. Explanations of what these mean can be found perhaps starting by asking professor Google or Siri.

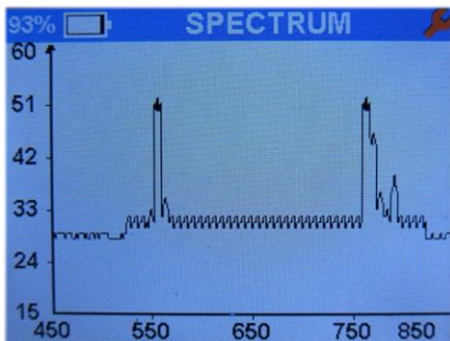
4.4 Spectrum

Home-> Spectrum

Spectrum displays all radio traffic across the meters channel plan. As shipped all TV DAB+ and Lte bands are covered from 174 to 820MHz. This can be expanded by adding channels as required within the meters 50 to 858MHz limits. Channels can be deleted or the meter returned to Factory default in the SETTING menu.

Added channels are retained after power down.

To view Spectrum, select from Main Menu & press the **OK** key.



Frequency Span can be varied by pressing the ◀ or ▶ arrow keys and attenuation value with ▲ & ▼ keys.

This picture shows UHF spectrum, channel 32 with Lte traffic.

4.5 Packet Control

Home-> Packet Ctrl

From **HOME** menu select **Packet Ctrl** and press **OK** to access.

The meter scans continuously, showing or active or Locked DVB-T or DVB-T2 channels in **Green** color whilst channels where

broadcast activity is not detected are **Blue**. As each channel is

scanned it is highlighted with a **Red** background. Signal Quality is

displayed in a relative % and level in dB μ V shows for each channel.



Channel	Freq	S	Level	Q
Ch6	177.5MHz	S:74%	56dBuV	Q:99%
Ch7	184.5MHz	S:77%	58dBuV	Q:99%
Ch8	191.5MHz	S:78%	59dBuV	Q:99%
Ch9	198.5MHz	S:34%	26dBuV	Q:0%
Ch9A	205.5MHz	S:66%	50dBuV	Q:0%
Ch10	212.5MHz	S:34%	26dBuV	Q:0%
Ch11	219.5MHz	S:80%	60dBuV	Q:99%
Ch12	226.5MHz	S:76%	57dBuV	Q:99%
Ch28	529.5MHz	S:34%	26dBuV	Q:0%

A powerful LED Torch light is included. Turn On & Off from the HOME menu by pressing the **TP EDIT/LIGHT** key.

4.6 Settings

Home-> Setting

In **Setting** you can adjust some of the basic functions of your meter.



SETTING	
Brightness:	6
LED backlight:	Auto
Alarm:	On
Lamp:	Off
RF power 5V:	Off
Language:	ENGLISH
Factory default	

- **Brightness:** A mid Brightness setting may extend display life.
- **LED Backlight:** Default is Auto, Off or On can be User selected.
- **ALARM:** Turn Off or On the acoustic signal Lock indicator.
- **LIGHT:** from HOME menu turn On or Off the torch included.
- **5V RF power to RF input:** from SETTING menu Turn On or Off.

This is only required for mast amplifiers and should remain Off.

- **Language:** Select menu language, factory default: ENGLISH.
- **Factory default:** Restore meter parameters to defaults.

4.7 Meter Info

Home-> Meter Info

From here, you can view meter information including

Product Name, Software version, Software Date & Serial Number.

- to turn LED torch On or Off - from HOME press **TP EDIT/LIGHT**.

- for full measurements - from SIGNAL, CONSTELLATION or METER INFO press the **METER** key.

4.8 Charging the Battery

This meter employs a high energy storage Lithium-Ion battery. A Battery Management System within the meter and the battery pack is provided to optimize battery life. In general terms you need not worry about Overcharge or Undercharge, as long as:

- 1/ the meter is *not* left connected to a charge power source,
- 2/ a factory original battery pack is employed and
- 3/ no more than 12V DC is used to charge. Connecting directly to vehicle electrical systems is not recommended. The battery should be charge cycled (charged and discharged) and suffers little memory effect. The cell shaped icon in the top left corner of the screen indicates present battery status.

IV. Additional Information

5.1 Technical Specifications

Frequency Range (hardware)	50MHz to 858MHz
Antenna Input Connector	F type male (incl. f-f adapter)
Antenna Input max voltage.	50V DC
Signal level range dB μ V	<30 to 99
Antenna power maximum	5V @100mA
Channel Bandwidth (hw.)	5, 6, 7, or 8 Megahertz
DC Input Connector voltage	9 to 15V DC, 2.1mm tip+
RS232 3.5mm jack	Reserved for fw. update

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