LACUNA SYSTEMS LTD

TM2 TERRESTRIAL METER OPERATING INSTRUCTIONS

1. Box contents

Instructions, TM2 meter, mains charger, in-car charger and a protective case.

2. Getting started …..

To turn the meter **ON** press and release the **UP** and **DOWN** arrow buttons at the same time.

The start-up screen shows four modes.
At the SET BACKLIGHT option choose to suit conditions by

DSB Sat. Locator Software version 4.0.7 Zone 4	Battery Contents ¢¢¢¢¢¢¢¢93%	SET BACKLIGHT (Mode exits)	Rowridge C23 SS Searching

To turn the meter OFF press and hold the **Up** button. The sounder will beep.

Shutting off ...

3. Charge the battery

The battery will need to be charged for about 12 hours before its first use and whenever it fails to last enough time to perform installations.
Plug the charger into the mains, switch on the power supply, and then the meter. The meter will analyse the battery state and BOOST or TRICKLE charge until charging complete.

Analysing charge..	Boost charging	Trickle charging	Charge complete

During normal charging, the charger and meter may become warm. After several normal charge and discharge cycle the battery will reach full capacity.
Use only the charger supplied with your meter. The warranty will be invalidated if the meter is damaged through the use of a different charger.
The meter battery is protected from over charging. Spare batteries can be obtained from distributors for extended use in the field.

4. Data Zones

The meter is pre-programmed with data for all current DTTV transmitters split into six sections. A map of zones and transmitters in each is on the back of this leaflet. In addition, a seventh data section contains all analogue channel step-through data, and the meter can be used for either type of installation. Analogue channels are marked '**A**'
NEW TRANSMITTER DATA: When broadcast parameters are changed the new information can be obtained from the download page at :
www.lacunasystems.co.uk/tm2tech.htm
Download software and instructions from there.

5. Screen data displayed

The three signal parameters displayed are
- Carrier/Noise (CN) in dB
- Signal Strength (SS) in dB
- Bit Error Ratio (PQ) as a number of errors
- Pass / Fail (Pass= C/N ratio above 21)

Zone 1
Blisdale
Caldbeck
Chatton
Emley Moor
Fenham
Idle
Keighley
Lancaster
Oliver's Mount
Pendle Forest
Pontop Pike
Saddleworth
Winter Hill
Winter Hill B

Zone 2
Belmont
Brierley Hill
Bromsgrove
Chesterfield
Fenton
Lark Stoke
Malvern
Nottingham
Sandy Heath
Sheffield
Storeton
Sutton Coldfield
Tacolneston
Waltham

Zone 3
Bluebell Hill
Crystal Palace
Dover
Dover B
Guildford
Hastings
Heathfield
Hemel Hempstead
Midhurst
Oxford
Reigate
Sudbury
Sudbury B
Tunbridge Wells

Zone 4
Beacon Hill
Bristol King's Weston
Caradon Hill
Hannington
Huntshaw Cross
Huntshaw Cross B
Ilchester Crescent
Mendip
Plympton
Redruth
Rowridge
Salisbury
Stockland Hill
Whitehawk Hill

Zone 5
Aberdare
Blaenplwyf
Brougher Mountain
Carmel
Divis
Kilvey Hill
Limavady
Llanddona
Moel-y-Parc
Pontypool
Presely
Ridge Hill
The Wrekin
The Wrekin B
Wenvoe

Zone 6
Angus
Black Hill
Bressay
Craigkelly
Darvel
Durris
Eitshall
Keelylang Hill
Knock More
Rosemarkie
Rosneath
Rumster Forest
Selkirk
Torosay

Zone 7
VHF Channels A1 to A20 and UHF channel data A21 to A69. This data is provided as step-through using the arrow buttons.

6. Using the meter

First refer to the chart on the back of this leaflet to identify the Data Zone containing the transmitter. Switching between them is easy and the meter will remember the last used transmitter.

6.1 Changing Data Zones: press the two arrow buttons to start/restart the meter and release them. IMMEDIATELY move your fingers over to the **mode** and middle **UP** arrow button, and press and hold them for about 3 seconds. The current Data Zone will display. Use the arrow buttons to scroll to the dataset. Press the **mode** button to select it.

6.2 Changing Transmitters: press and hold the **mode** button, and use the **UP/DOWN** arrows to scroll through the transmitters. The meter will remember the last used transmitter, and will start next time with this transmitter selected.

6.3 Installing an antenna: assemble the antenna, tightening brackets enough to maintain its position, but loose enough to move the antenna with one hand. Move the antenna to approximately the right orientation that points it at the transmitter. Steadily move the antenna and when the meter has identified the transmitter it will beep and the bottom line will show **PASS** or **FAIL**. Watch the meter display until the signal strength bar starts to rise, peak and fall off. Move the antenna slowly into the position that gives the highest reading.

For Digital TV transmitters the meter will indicate if the carrier to noise ratio level is adequate for successful reception by showing **PASS**. If the meter shows **FAIL** or if there is no PQ (BER) readout the installation is incorrect and the antenna must be re-positioned. When you have optimised the Carrier/Noise reading you should peak the BER setting by fine tuning the antenna orientation..

If the PQ (BER) reading rises totally across the display you will need to calibrate it so that it shows a usable value that peaks at about 80% of the display bar. See the Section **7. Calibration** for details.

Every transmitter has **6** digital MUXs that must be checked to ensure good reception across all DTTV channels. Use the UP arrow to scroll through them and check that each will **pass** the Carrier/ Noise test.

Rowridge C23 SS Searching	Rowridge C23 SS■■■■■■ 75 PQ■■■■■■■ 81 CN■■■■■ PASS 25

7. Calibration

The PQ (BER) display bar can be calibrated to show a useful value that can be seen to rise, peak and fall off again as you optimise the antenna. These settings can be changed for each MUX on each transmitter.

The selected MUX must be locked on with a **Pass** Carrier/Noise level. Enter the calibration process by pressing and holding the **mode** button.

Press either arrow button to show the current setting (a number between 0 and 255) and then adjust the value using the arrow buttons. When the calibration is correct press **mode** to exit to **Save setting** or use the down arrow to scroll to either: Restore data for all MUXs, Restore data for this MUX or Abort the changes made. The **mode** button selects options.

User Cal. Set-up BER Cal	User Cal. Set-up BER Cal 010	Exit cal: Save setting

8. Meter connections

At the bottom of the meter back there are two screws that are used to remove the cover of the compartment for the replaceable battery. You can buy spare batteries from your distributor and install them in the field giving extended use.

The security case screws must not be removed or the warranty will be invalidated.

On one side of the meter there is a UHF connector for connecting to the antenna.

On the other side there are two connection sockets. The 6-pin Mini-Din socket is used with the computer interface download lead to program new transmitter data into the meter and the other is the charger jack socket for both the mains charger and the In-car charging lead.

9. Care of the meter

Do not put any foreign objects into the meter sockets.

Never use the meter where it will be subjected to excessive heat, moisture or vibration.

The meter cannot be used for installations while it is being charged.

The meter will power off if not used for 10 minutes

Clean the meter with a soft cloth very slightly dampened with water. Do not use any type of abrasive, scouring powder or solvent such as alcohol or benzene as it may mar the case or screen.

10. WARRANTY:

The meter, **apart from the battery**, is protected by a twelve month parts and labour guarantee from the time of purchase provided it has not been subjected to misuse, neglect or accidental damage.

If any repair, or attempt to repair has been carried out by anyone other than our authorised service staff or agents, the warranty will be invalidated. This does not affect your statutory rights.

Several of our domestic and international distributors have been trained and authorised to repair the meter. If your meter needs repair check first with the distributor who sold it to you.

11. Contact details

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