HORIZON

For a reliable solution!

Digital Terrestrial Alignment & Installation Meter

Instruction Booklet

Version 3 - February 2005

www.horizonhge.com

Thank you for choosing our latest and most innovative terrestrial meter.
It has been designed and manufactured to a very high standard and offers a UNIQUE way of identifying transmission via DVB-T without the need to look at the spectrum or even see a picture. It can also show signal strength for adjacent analogue channels.
The HDTM lists can be reprogrammed to include only the transmitters you are interested. It also has a default list for all UHF channels The procedure for making this selection and programming is discussed in this document.

The meter has four modes, CHARGING, METER, SETUP and PROGRAMMING. Each of these modes is covered in this guide.

PLEASE NOTE: The METER is delivered with ONLY the default ch plan and needs to be programmed from the website with additional local transmitters prior to use.

Please note that this manual was current at the time of publication, however, the latest news and updates are available from www.horizonhge.com/user guide.html

In the box

HDTMv2 meter with internal battery, protective case and neck strap

BNC to IEC adapter

two 10 dB attenuator

AC Mains charger lead

DC Car charger lead

Computer programming lead

Your HDTMv2 is supplied with this user guide, the meter, a protective leather case,BNC to IEC adapter, 10 dB attenuator, car and mains lead and a computer programming lead (serial interface).
The mains lead should match your region and if not of the correct type can be obtained from Horizon or local supplier / importer.

Please depose of the packaging carefully and recycle where possible.

**WARNING: The neck strap can present a choking hazard.
Use only when falling, slipping is not a possibility**

Charging The Battery

The meter's battery will **NOT** be charged when you receive it. We recommend that you charge the unit for an initial **24 hours** to fully charge the batteries and to balanced out the cells. We also recommend this if the unit has not been used for a long period of time.

The battery will need to be recharged occasionally even if the meter is not used. Recharge battery every three weeks to keep the battery pack charged.

The battery pack is replaceable, slide the meter out of it's protective case and simply open the cover on the bottom of the unit to access the batteries. Simply disconnect the batteries from it's connector. If the battery is disconnected the meter will indicate flat battery (0%) even if the replacement pack is partly charged. This is because the meter will lose it's calibration for the pack. Simply recharge the battery fully to reset the battery indicator. Please not that if the replacement pack is charged to 50% it will only take half the normal time to charged it.

There is no difference between charging the unit from the mains or in a vehicle.

PLEASE NOTE that it is NOT possible to use the HDTMv2 meter when the battery are being charged.

Charging with the AC mains lead.

Open the flap at the back of the HDTMv2 to access the mains inlet. Plug the AC mains lead into this port and the other end to your local supply socket. The battery is fully charged when you see the words "Trickle Charge" on the HDTM's screen.
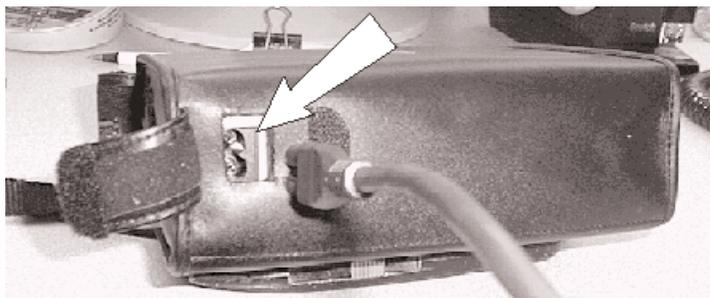
Charging from a Vehicle (DC car lead).

The Vehicle (12 VDc) charge port is on the right side of the unit. Plug the DC car charger lead into the bottom socket and the other end to the vehicle's 'lighter' socket. Please note that on certain vehicle's the lighter socket is switched off, unless the vehicle is running.
The DC car charger lead supplied with the HDTM is the only lead to be used for vehicle charging. The use of another lead will damage the meter and will void the warranty.


The HDTMv2 can remain connected to either power source, in a "Trickle Charge" state, for an extended period of time without damaging any internal components or the battery pack.

To Turn The Meter ON

Connect a BNC jumper from the HDTM "INPUT" socket on the front of the meter to the aerial. An alternative is to use the BNC to IEC adapter and use standard aerial (IEC) plugs. Generally point the aerial in the transmitter direction.

Press and hold for 5 seconds
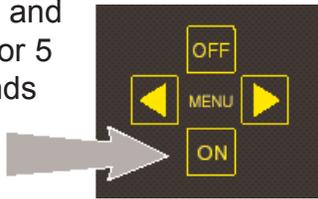
```
         Horizon LTD.
(c)  2005    HDTM2.00
Sudbury
Battery              85%
```

First screen indicates version number, transmitter list code and battery strength. The meter scrolls to next screen automatically.

Transmitter   CH No

Signal level (RF Level) in bar graph form in the range of 35 to 75 dBuV with over and under indication

```
Caldbeck              23
RF Level      <35dBuV
|||||  - - - - - - - - - - - - - - - -
                    [||||]
```

The second screen indicates the first transmitter in the menu, the CH number, RF signal level received in dBuV, in bargraph format and battery level.

Battery level

To Select different channels

```
Caldbeck              23
RF Level      <35dBuV
|||||  - - - - - - - - - - - - - - - -
                    [||||]
```
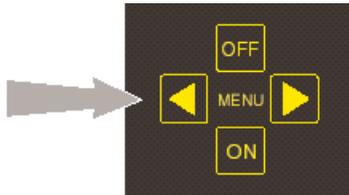
Each transmitter has more than 1 channel transmitting. Each channel is called a MUX. Each MUX transmits several channels. In the UK their is 6 channels.

Right & Left arrows for less than 5 seconds scrolls the different channels

```
Caldbeck              23
RF Level      <35dBuV
|||||  - - - - - - - - - - - - - - - -
                    [||||]
```

By pressing the right or left key for less than 5 seconds enables to select the different channels.

Selecting A Transmitter

```
Wenvoe                30
RF Level      <35dBuV
|||||  - - - - - - - - - - - - - - - -
                    [||||]
```
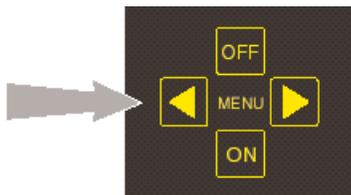
The default CH plan is allows the user to step through all channels. This allows for both analog and digital transmissions to be detected (in RF level mode) and digital transmissions (in BER mode).

Right & Left arrows for 5 seconds scrolls transmitters

Find the transmitter you are interested in by scrolling through the stored memory. Hold the right or left key for 5 seconds or more. A default CH plan is located as first position. **The METER is delivered with ONLY the default ch plan and needs to be programmed from the website with additional local transmitters prior to use.**

```
Wenvoe                30
RF Level      <35dBuV
|||||  - - - - - - - - - - - - - - - -
                    [||||]
```

Selecting different measuring methods
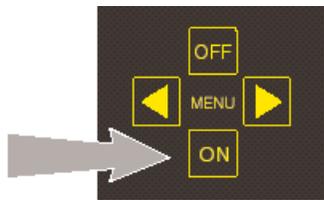
The meter can measure RF level (both analogue and digital channels). BER (Bit Error Rate) in bargraph form for Pre BER and in numerical value for post VITERBI BER. BER can only be measured on digital channels.

```
Wenvoe            30
RF Level    <35dBuV
|||||  - - - - - - - - - - - - - - - - -
                 [||||]
```

Press the DOWN button to toggle different modes.

```
Wenvoe            30
B E R  1.00E-4    ****
||||||||||||||||||||||||||
S N 29dB         [||||]
```
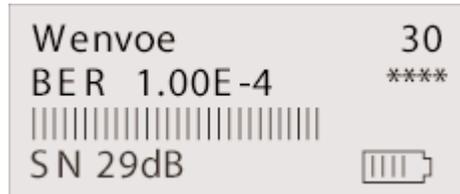
Press the down button to toggle between the RF or BER modes.

Aligning an Aerial / BER Mode

Select local transmitter and BER mode. For BEST result, check each MUX (Ch) on the transmitter and adjust for best performance of all. E.g. peak the bargraph (PRE BER)

If no bargraph and DVB-T is NOT displayed the reception is to low or an analogue transmission

```
Wenvoe            30
BER
|||||||||||||||||||||||||||||
DVB-T            [||||]
```
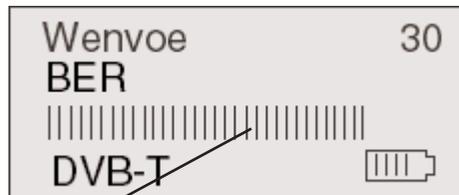
Pre BER bargraph in real time

After approx 10 seconds the post VITERBI BER is displayed in muneric value as well as the 4 quality stars *.
A BER of 2E-6 or less is needed for satisfactory reception or 3 *.

4 Quality star.
*   <2E-4
**   <2E-5
***   <2E-6
****   <2E-7

```
Wenvoe            30
B E R  1.00E-4    ****
||||||||||||||||||||||
S N 29dB    †  [||||]
```
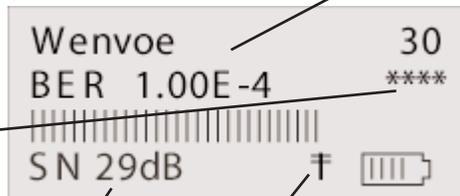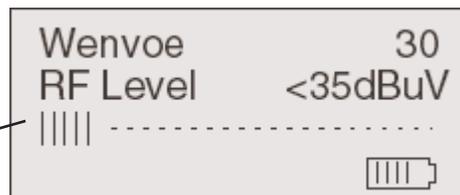
SNR (CN) in dB

Active antenna 5 V Dc on.

Check ALL MUX ch's for optimum performance between all.E.g. peaked out for the weakest of the MUX ch's.

RF Level Mode

```
Wenvoe            30
RF Level    <35dBuV
|||||  - - - - - - - - - - - - - - - - -
                 [||||]
```

Bargraph shows RF level

In RF Level mode the meter indicates the signal level in dBuV. For levels under 35 dBuV an under indicator is shown.

DVB-T is shown if the CH is digital and the meter has locked on to the carrier

```
Wenvoe            30
RF Level    >75dBuV
||||||||||||||||||||||||||||
DVB-T            [||||]
```
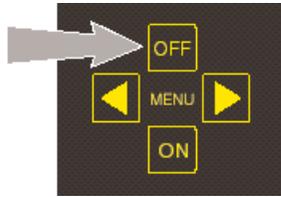
If the meter locks onto a digital carrier DVB-T is displayed and the sounder changes pitch to indicate this.
If the level is higher than 75 dBuV, this is displayed and the supplied 10 dB attenuator should be inserted in the aerial feed to enable readings greater than 75 dBuV.

To Turn The Meter OFF
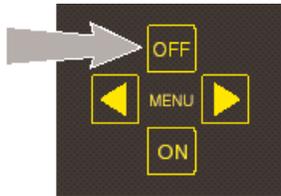
Press for more
than 5 secs

Shutting Down

To turn the HDTM off, press for more than 5 seconds and release the up (OFF) button. The display will indicated "Shutting Down" and then the display screen will go blank.

To Enter Setup Mode

Press and
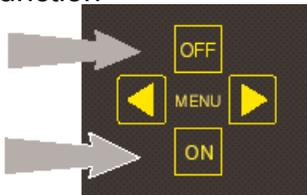hold for 5
seconds

Arrow indicates
selected function

▶ Exit
Backlight on
Clicking on
Sleep   9 Mins

To enter setup mode, press and hold the OFF button for 5 seconds, release once this menu has appeared.

To Change Settings

Press up
or down
to select
function

Auto shut off
timer selected

Clicking on
▶Sleep   6 Mins
Defaults
English

Press down or up keys to select required function.

Press left or
right to
change
function

Cursor will show selected function, press left or right to change. Display will indicate status of function.
Functions in set up mode are:
1. Backlight on/off
2. Antenna power on/off E.g. 5 V Dc for active antenna
3. Backlight on/off
4. Clicking on/off
5. Sleep (Auto shut off timer) 0 to 20 mins
6. Defaults. Reset unit apart from language
7. Language
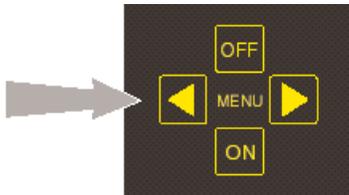
To Exit Setup Mode

Press
up until
curser
is at top

▶ Exit
Backlight on
Clicking on
Sleep   9 Mins

Then press
right key

Overview of Downloading & Programming the Transmitter list.
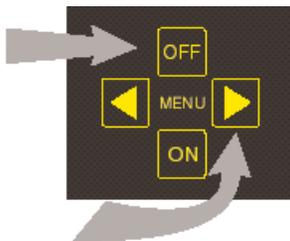
The HDTM meter is supplied with a step through Ch list upon delivery. To customize the meter it's necessary to download the required transmitters that are locally used. We also recommend to download the default step through list as this is useful to check adjacent analogue transmissions. If the installer is travelling to a different area and needs a not programmed transmitter.

Note that the transmitters you choose, need to be selected in the sequence that you want them to appear in the

You can load from one to thirty two transmitters in the memory of the HDTM. The fewer lines you select from your custom list, the quicker you can step through to the one you want when aligning an ariel. Just keep in mind, only one list will be retained in the HDTM memory. The previous list is overwritten by the next programming you do.

Computer Requirements for Downloads and programming

This features requires a Microsoft Operating Systems of Windows98, Windows 98ME, Windows NT, Windows 200 or Windows XP. You will also need an Internet Service Provider (ISP) connection to the internet and an active available 9-pin (COM 1,2,3 or4) serial port connection on your computer.
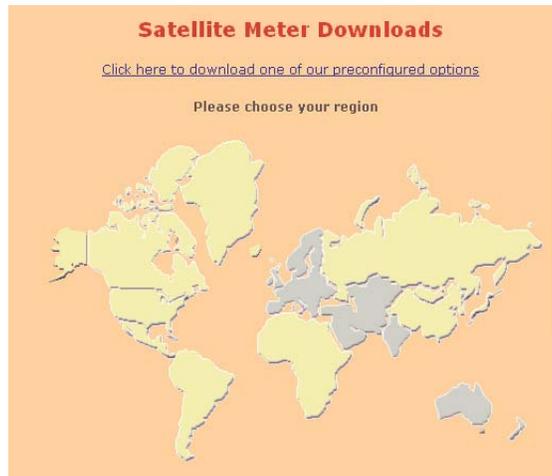
Please note that Horizon or its agents /dealer will NOT advice you on how to modify the software or bios settings on your PC. Contact your computer provider if you have any questions concerning COM port setups.

Serial (COM) Port

To change the transmitter list in your HDTM, go to "www.horizonhge.com" and DOWNLOAD page. Then select HDTM page. The following screen will appear:

Satellite Meter Downloads

Click here to download one of our preconfigured options

Please choose your region

Simply click onto the required region.

On next page, again click on required region and a page as the example will appear:

Enter a name for the file

Select trans-mitters by highliting them, then use arrows to move over to your selection

Selection name:

Email address:

Enter your email adress

Available Transponders

V Pas3R 43W (Europe)
H Pas3R 43W (Europe)
V Hispasat 30W
H Hispasat 30W
V Telstar12 15 West
H Telstar12 15 West
V Telecom 2A/D 8W
H Telecom 2A/D 8W
H Telecom 2C 5W
V Amos 4 W

Selected Transponders

When fin-ished, click generate to recive the email with the file

☑ Send zipped exe file*

*If this boxed is not checked you will receive an ASCII HEX update file rather than a complete exe file. You can use the HEX file with an existing exe file to program your meter.

Generate

Click here to receive a blank Satmeter.exe file (loading program)

Blank Exe

Enter the selection name you want in the top left box and then enter your email address in the right box. This is where the file will be sent to. You can then save or forward this list to others.

Select the transmitter you want by highlighing it. Then press the right key to confirm selection. You can use the left key to deselect any chosen satellite in your list. The up and down keys changes the order of the highlighted satellite in your list.

As default the zip file box is ticked in the lower left corner. This means the selection together with the loading program is sent as a zip file. This is both smaller and avoids being stopped by some anti virus programs. If this is not required un tick this box for an exe file to be sent. Once the selection is complete simply click on the "Generate" box at the bottom.

If you simply want the loading program on its own, do not select any transmitters but simply enter your email address and click on the right bottom box "Blank Exe"

After this, conformation will appear in red. The actual transponder file name will be confirmed.

Simply collect the email in your email program, like Outlook express. The email will have an attachment, this is the actual loading file preloaded with your selection.

How to Download from the website

Simply double click on the attachment. If this is in exe format the satmeter (loading) program will appear with the file preloaded.

If the file is a zip file, Winzip (if present on your computer) will load and then select extract. This will then load satmeter as above.
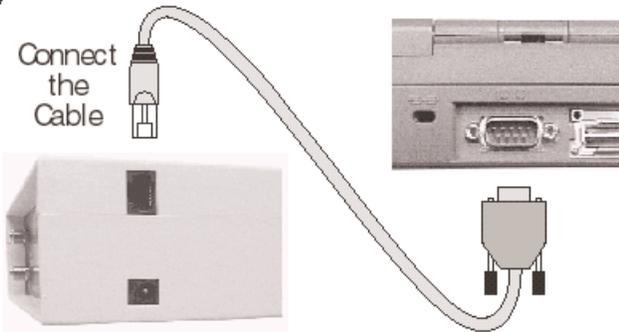
If winzip is not present, please go to www.winzip.com for a free download. There is also a link on our website.

Then

⊕ BirDog Satellite Meter ☒
File   ComPort   Transfer   Help

This screen will appear

---

② Turn the HDSM "off".

Connect the Cable

Then

Program mode

Look at the front of your HDTM. This text will appear if the connection is complete

---

To exit, scroll (with up key) to Exit. Then press right key to exit.

③ Press The "Transfer" Button

⊕ BirDog Satellite Meter ☒
File   ComPort   Transfer   Help

OR

BirDog Satellite Meter ☒
ⓘ   Transfer Complete!
OK

BirDog Satellite Meter ☒
✖   Error - Ack not received
OK

If you see this screen you are DONE. Your programming to the HDTM is complete

Press the OK button and disconnect the lead.

⊕ BirDog Satellite Meter ☒
File   ComPort   Transfer   Help
COM1
√ COM2
COM3
COM4
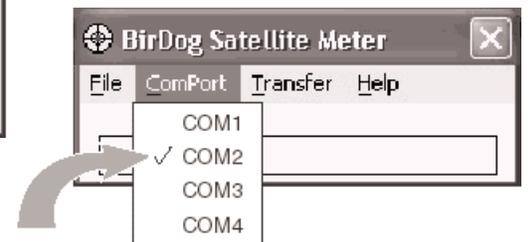
If you get this Error message, change your COM port selection by checking the correct COM number.

Then try to "Transfer" again. A failure to achieve a "Transfer Complete" indicates a COM problem.

The COM port number selection is important, not the specicific IRQ or address of the COM post. If you get in trouble trying to get the COM port working, use a different computer or laptop for downloading and programming your meter.

SPECIFICATION

Battery pack	NiMH 2.4 A, 7.2 V
Intelligent Charger with delta V/T detection	Fast charge (4 hours), then trickle
Universal charger input range	100-240 V Ac @ 0.3 A
Battery life with full charge	More than 6 hours
Unit discharge time (idle state)	~24 days
RF input range	35 dBuV to 75 dBuV
RF input range	167-862 MHz (VHF III and UHF)
Number of transmitters stored in memory	32 (each with upto 32 muxes)
Computer interface	Serial via RS232

LIMITED WARRANTY

Horizon will, at our option, repair or replace any HORIZON Digital Terrestrial Meter found defective in manufacture within the warranty period (1 year).

The warranty period is determined by the date of HDTM purchase. Keep your receipt as proof of purchase. Otherwise the warranty is determined by date of manufacture.

This warranty does not apply to damaged caused by accident, misuse, or tampering with the unit or seals. This does not affect your statuary rights

DECLARATION OF CONFORMITY

Manufacture: Horizon Global Electronics Ltd
Address: Russell House, 140 High Street, Edgware HA8 7LW

Declares that the (Horizon Digital Terrestrial Meter V2 "HDTM V2") is in conformity with the following Directives and Standards.
Low Voltage: 73/23/EEC 93/68/EEC EMC: 89/336/EEC 92/31/EEC 93/68/EEC

Patrik Lagerstedt, Technical Director
Horizon Global Electronics
London 2:nd of January 2005

CE

www.horizonhge.com

HORIZON
For a more reliable solution!