

Trimax SM-3500

A Lightweight Device Bursting with Great Features

If there is one trend we at TELE-satellite have been observing in recent months it's that small, handy and inexpensive digital satellite meters have sprung to prominence. We only need to look back a handful of years to bring back memories of bulky and heavy devices carrying price tags that were far too hefty for average private users. Think of the price of a small used car to give you some impression.

In recent issues we have already introduced some representatives of the new and lightweight generation of signal meters, and this time we'd like to draw your attention to the new Trimax SM-3500, complete with a fully-fledged review of its features.

Packed in a sturdy cloth bag this new arrival only has the size of small brick, but without the corresponding weight. With just half a kilo it must be one of the lightest meters on the market today, especially since that figure already includes the battery pack.

On the meter's top an F socket is available for signal

input, while all other connections to the outside world are positioned on the bottom side of the Trimax SM-3500. In detail, there is the power input, audio and video input and output and a USB interface for PC connectivity.

The high-resolution 3.5" display is protected by a robust flap and – thanks to its dimensions – is very easy to read. Slightly below the display a total of 29 buttons are available to access all functions and features of the SM-3500.

Four of them are designed as so-called function keys right below the display and another eight are placed on

the lower right segment and also serve as function keys. A numeric pad as well as a cross-shaped cursor key with central OK button in the upper right corner complement the control layout.

We particularly appreciated the perfect pressure point of all buttons which provide just enough feedback without having to press them too hard.

Even when using the carrying case with the transparent protective foil over the control panel the device is easy to operate while at the same time being protected from dirt, rain, splashing water or other potentially harmful elements. All buttons are cleverly arranged and clearly labelled.

Thanks to the 12 function keys – which access certain frequently used modes and features at the touch of a single button – the meter is not only easy but also very quick to use. The device even comes with a sun visor which can be velcroed to the meter so that you'll be able to read the display also in the middle of the day under direct sunlight.

Speaking of the display, we

can commend Trimax for offering such a bright and crisp screen which truly proves its merits in everyday use.

Trimax ships the SM-3500 in stylish carton packaging which includes the meter itself as well as all special equipment secured in precisely shaped foam padding.

The package comes with a charging cable for wall outlets and a 12 V car charger together with the power pack, connecting cable for hooking up the meter with a PC, A/V cable, carrying strap, CD with an English-language manual and F adaptor for connecting the signal line to the device.

Overall, the workmanship of the SM-3500 leaves nothing to be desired and the manual turns out to be very well designed and provides answers to any questions that may arise when working with this new Trimax signal meter.

Everyday use

When the device is switched on for the first time the display shows the main menu right away. In addition, all five coloured LEDs initially light up during booting.

These LEDs are located between the upper and lower function keys and indicate whether the integrated battery pack is being charged, whether a transponder is actively read and locked, whether 13V or 18V supply voltage is provided and whether a 22 kHz signal for the high band is being generated.

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Available online starting from 29 January 2010

This way you always know the operating mode of the meter at a single glance, which is a feature we have badly missed in so many competing products.

Even though we could hardly wait for re-adjusting our 120 cm antenna on our editorial office's roof with the help of the SM-3500, we still started out with changing the settings to meet our local requirement first. To do this, we entered the settings menu and discovered that the number of available OSD languages beats the usual range for signal meters by far.

Apart from standard options such as English, French, German and Spanish we were also offered Russian, Turkish, Czech, Portuguese, Slovenian, Polish, Italian and Greek.

With the help of a timer mode it is possible to define a set period of time after which the meter turns off to save battery live of the lithium-ion pack, which comes with a capacity of 1950mA and thus should provide enough power to completely adjust a satellite antenna.

In case previously found channels are already stored in the SM-3500's internal memory, these entries can be conveniently deleted, moved or sorted by either alphabet or satellite using a dedicated menu item.

The unit also displays the currently installed software release so that it's easy to find out if an upgrade is available for download from the manufacturer's website at www.trimaxtec.com.

The SM-3500 comes with a comprehensive database of pre-stored satellite and transponder entries.

A total of 55 European, Asian and American orbital positions complete with transponder data can be retrieved

and offer great help for exactly aligning an antenna.

It turned out, however, that this database is not fully up-to-date, for example regarding the two most popular European positions ASTRA 19.2° East and HOTBIRD 13° East.

We should add at this stage that all entries can easily be edited manually, so that any

wrong satellite or transponder data can be corrected at any time, if need be.

On a brighter note, we loved the fact that this meter cannot only be used for the Ku band, but a number of alternative LOF values (for the C band, among others) can be selected or any required LOF can even be entered manually. This makes the SM-3500 a perfect match even for out-

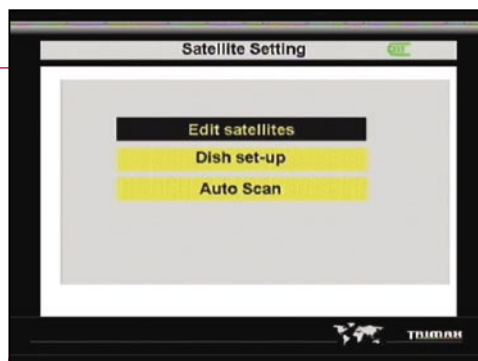


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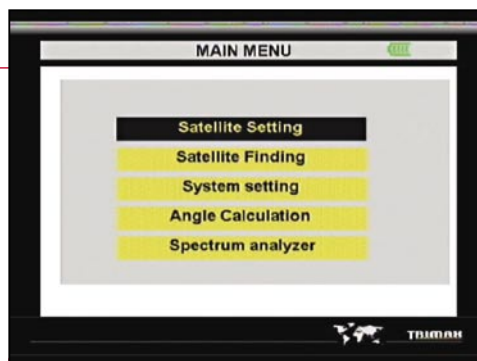
Trimax SM-3500
 A well-balanced digital meter with spectrum display and TV mode.



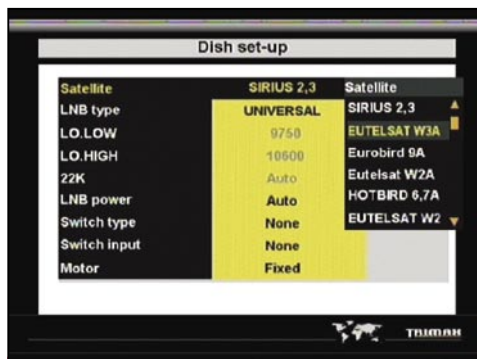
Comprehensive list of pre-stored satellite and transponder data |



Satellites/transponders can easily be edited manually |



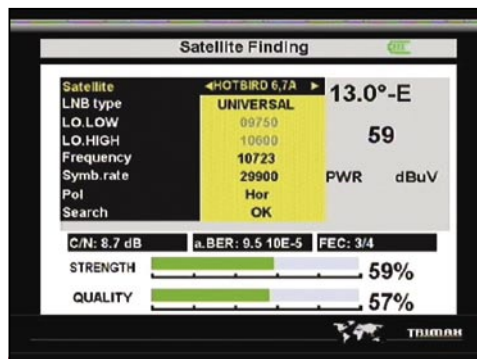
Main menu |



Various setting options for each satellite entry |



Of course DiSEqC is supported |



Antenna reading for HOTBIRD satellites at 13° East |

of-the-ordinary LNBs.

More often than not multi-switches are used and with its DiSEqC 1.0 and 1.1 compatibility this meter is nicely equipped for these jobs as well. Even DiSEqC 1.2 and 1.3 (USALS) for motorized antennas are supported.

The user-friendliness of this neat little device is further enhanced by the fact that all parameters (such as LOF or DiSEqC) for all required satellites can be set beforehand and can later be retrieved with the single touch of a button. This saves valuable time and lets you focus on your actual task of antenna alignment when up on the roof.

Now that all basic settings were completed we climbed up to the antenna and loosened its alignment screws. In general, the SM-3500 provides two ways of adjusting an antenna. One is based on a satellite search mode while the other relies on a spectrum display.

If you intend to use the satellite search mode all you have to do is select the desired satellite and the meter will immediately activate the first transponder that is pre-stored

for that particular position. Of course you're free to switch to another transponder on the same satellite but this turned out to be of no special use as the SM-3500 uses the pre-stored transponder to identify the satellite position with the help of transmitted NIT data.

A general problem is that a number of satellite transponders (for example on TURKSAT 42° East) transmit incorrect NIT information which naturally also results in incorrect readings of the signal meter.

That is why Trimax has gone to great lengths in checking the accuracy of the first transponder of each satellite so that with the pre-stored default settings a correct reading is always guaranteed.

Needless to say that we started out with great expectations and we were extremely curious as to how precisely the meter's search mode actually worked. The moment we selected HOTBIRD 13° East in the menu the low threshold tuner started to measure and check all incoming signals.

It felt like no time at all until we had moved the antenna to a position that made the

signal bars jump forward. Still, the meter could not yet lock a signal, which meant that we had not quite arrived at HOTBIRD. We kept moving the antenna very carefully towards the East until the SM-3500 confirmed we had found HOTBIRD at 13° East.

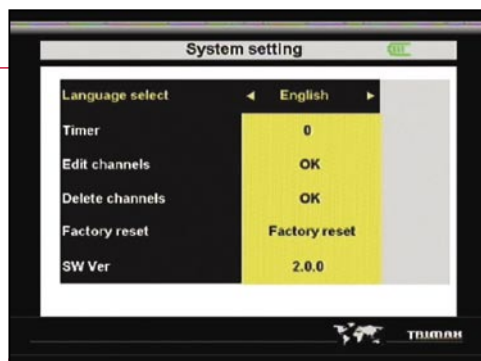
We liked the fact that this new Trimax meter does not only indicate the percentage of signal quality and signal strength, but also C/N (carrier-to-noise), BER (bit error rate) and signal level in dBuV, all of which make finding the perfect antenna alignment so much easier. When using a professional Promax meter for checking our results later we were able to verify that the SM-3500's job was nothing short of brilliant!

Let's look at option 2 now, which is using the integrated spectrum analyzer. Here you first adjust the antenna until the spectrum level starts to peak. Then you use satellite search to further fine-tune your antenna alignment.

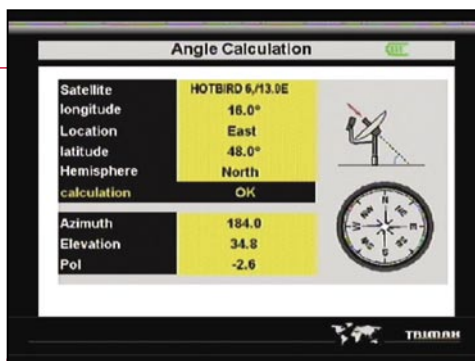
In professional use spectrum display can be extremely helpful whenever installers are already familiar with spectrum patterns of specific satellites so that they can determine the required satellite by simply looking at the spectrum display.

With all our enthusiasm regarding the SM-3500's capabilities we almost forgot that for any of the two modes to actually deliver results some homework needs to be

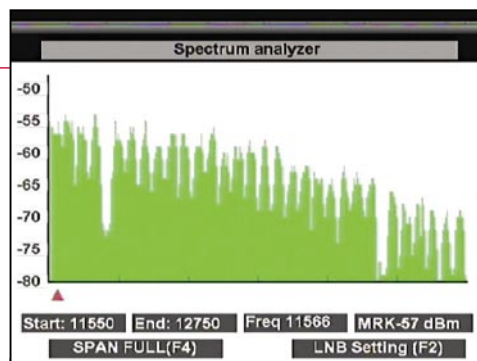




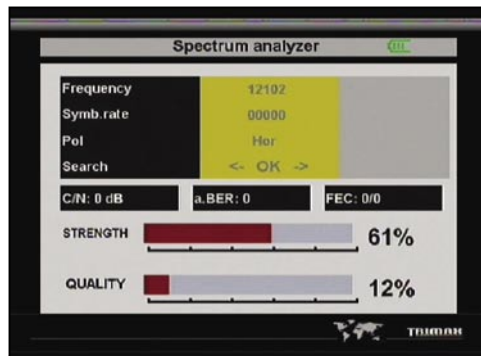
SM-3500 system settings |



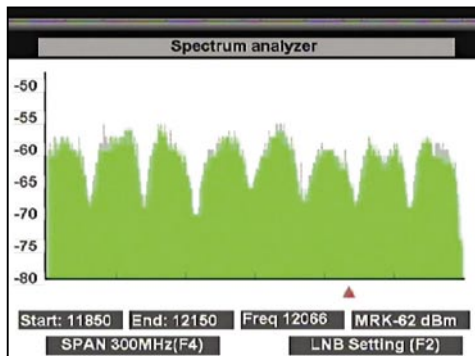
Azimuth, elevation and polarisation angle calculations |



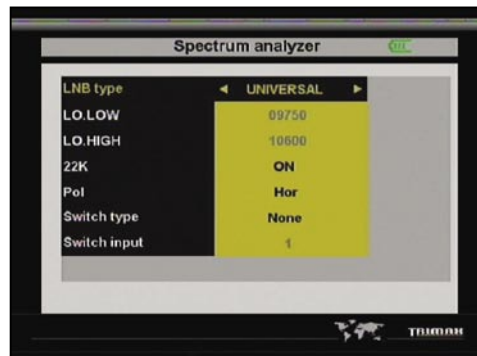
HOTBIRD 13° East spectrum display |



Reading a signal peak out of the spectrum display |



Spectrum display with 300 MHz bandwidth |



LNB settings of the spectrum display |

done first. Basically, this consists of getting the azimuth and elevation of the antenna right, or at least close.

This is where the Trimax meter has another ace up its sleeve: Thanks to built-in

calculation routines you only need to enter your exact geographical position and the desired satellite position for the SM-3500 to come up with the right azimuth, elevation and polarisation angle values. Could you even ask for more?

Actually, there still is more. The meter comes with a fully featured tuner and is therefore capable of performing an automatic channel search thanks to pre-stored satellite and transponder data. All

channels that are found are stored in a dedicated channel list and can be watched on the meter's display – provided they are transmitted free-to-air. So if you're still not quite sure you've hit the right satellite you can always tune into the channels to see for yourself whether or not you're spot on.

And for the DXers amongst you we are happy to confirm that in TV mode the SM-3500 is able to read and display data such as the PIDs of a specific channel as well as the currently received transponder and satellite, which is an extremely valuable additional bonus feature.

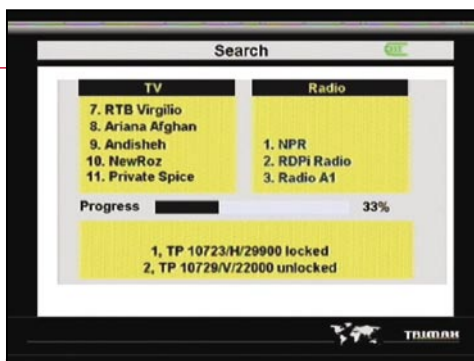
And while we're at it, feed hunters and DXers will show particular interest in the spectrum display. Apart from being able to show the spectrum for different bandwidths each signal peak can be marked with the cursor so that the Trimax meter can read the actual signal strength.

With the help of all the function keys it is also child's play to change the polarisation or band, which means a complete satellite can be scanned for feeds in a matter of seconds. In addition, LNB

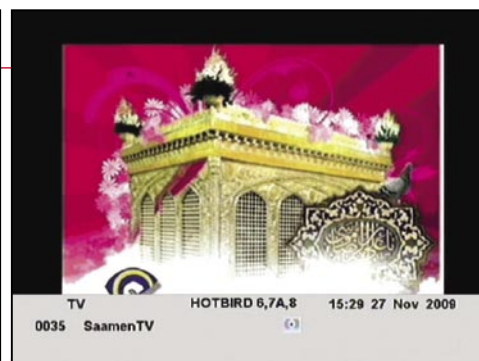




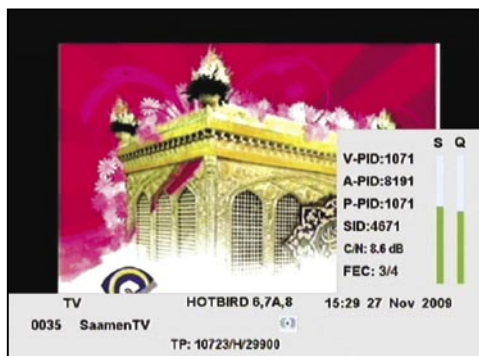
Automatic search on HOTBIRD 13° East |



Channels can be read in based on pre-stored transponder data |



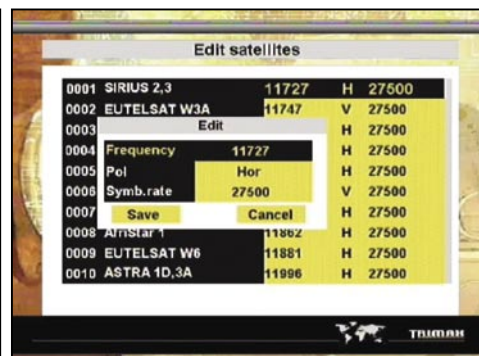
The SM-3500 is able to display free-to-air DVB channels |



The extended info bar provides valuable details for DXers |



Radio channels can be received as well |



The numeric pad makes entering transponder data easy |

settings such as DiSEqC position can be accessed with dedicated function keys as well as right from the spectrum display mode.

As you would expect from a smart meter the search menu pops up by simply pressing the OK button, which means the identified signal peak is analysed and read in with the touch of a button.

We tested this on EUTELSAT W2A at 10° East and were impressed. With the help of the spectrum display we were able to access all active feed transmissions in the meter's display in next to no time, and even transponders that had been newly activated or deactivated were shown using this procedure.

The SM-3500 also worked reliably on SCPC transponders and delivered reasonable results too.

The A/V input and output round off the balanced and positive overall impression of the new Trimax digital meter.

This not only allows displaying the OSD signal on a larger monitor, but also lets you display external sources on the SM-3500's monitor, which is particularly helpful if an external positioner is used,

for example, or if a receiver needs to be connected to the antenna for test reasons. The fact that only composite signals can be processed does not really restrict the usefulness of this feature.

Conclusion

In summary, we were truly impressed with the Trimax SM-3500. This new meter boasts excellent workmanship, a low-threshold tuner capable of also dealing with weaker signals, and great ease-of-use.

Thanks to its lateral blinds the 3.5" TFT display is easy to read even in direct sunlight and the battery pack lasts long enough to align one or even more antennas without having to rush.

Since Trimax is always working on further enhancing its products the SM-3500 comes equipped with a PC interface. Using an MS Windows application new software can be installed in a breeze so that the manufacturer is in a position to add even more features to its latest digital meter.

If you're after a small meter with all features you are likely to ever require, you need not look further.

Expert opinion

- + Very easy to read display
- Low-threshold tuner
- Well-designed OSD
- Easy to use
- Realtime spectrum display
- Battery pack with sufficient power



Thomas Haring
TELE-satellite
Test Center
Austria

- none

TECHNICAL DATA

| | |
|-------------------------------|--|
| Manufacturer | Trimax Technology Limited 9/F, Jiuzhou Electric Building, Hi-tech Industril Park, #12 Keji Road South, Nanshan District, Shenzhen, China |
| Tel | +86-755-26715445 |
| Fax | +86-755-26002191 |
| Email | sales@trimaxtec.com |
| Model | SM-3500 |
| Frequency range | 930~2150 MHz |
| Level range | -65 dBm ~ -25 dBm |
| LNB power supply | 13/18V, max. 400 mA |
| Symbol rate | 1.5~45 Ms/s |
| DiSEqC | Yes |
| Spectral Inversion | Auto conversion |
| Video format | 720x576 (PAL), 720x480 (NTSC) |
| Supply voltage | 12.6V |
| Supply voltage charger | 90~265V, 50/60 Hz |
| Li-oN battery | 1950 mA |
| Supplied items | Protective case, user guide, mains charging unit, car charger, PC connection cable, A/V cable |
| Dimension | 9.5x15.5x4.5mm |
| Net weight | 0.5kg |
| Working temperature | 0°C to +40°C |
| Storage temperatur | -40°C to +65°C |
| Display | 3.5" LCD color display |