

PROMAX NEWSLETTER

N° 18



TV EXPLORER HD: H.264 / MPEG-4 AVC picture ✓

PROMAX-27: Cable TV analyser with IPTV & VoIP QoS ✓

TV HUNTER: Aligning antennas, quickly and easily ✓

PROLITE-75: FTTx Analyser for deployment of networks ✓

DIGITAL to TV: TV Broadcast and distribution ✓

AGIL-T: Programmable selective amplifiers ✓



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Digital to TV (DTTV)

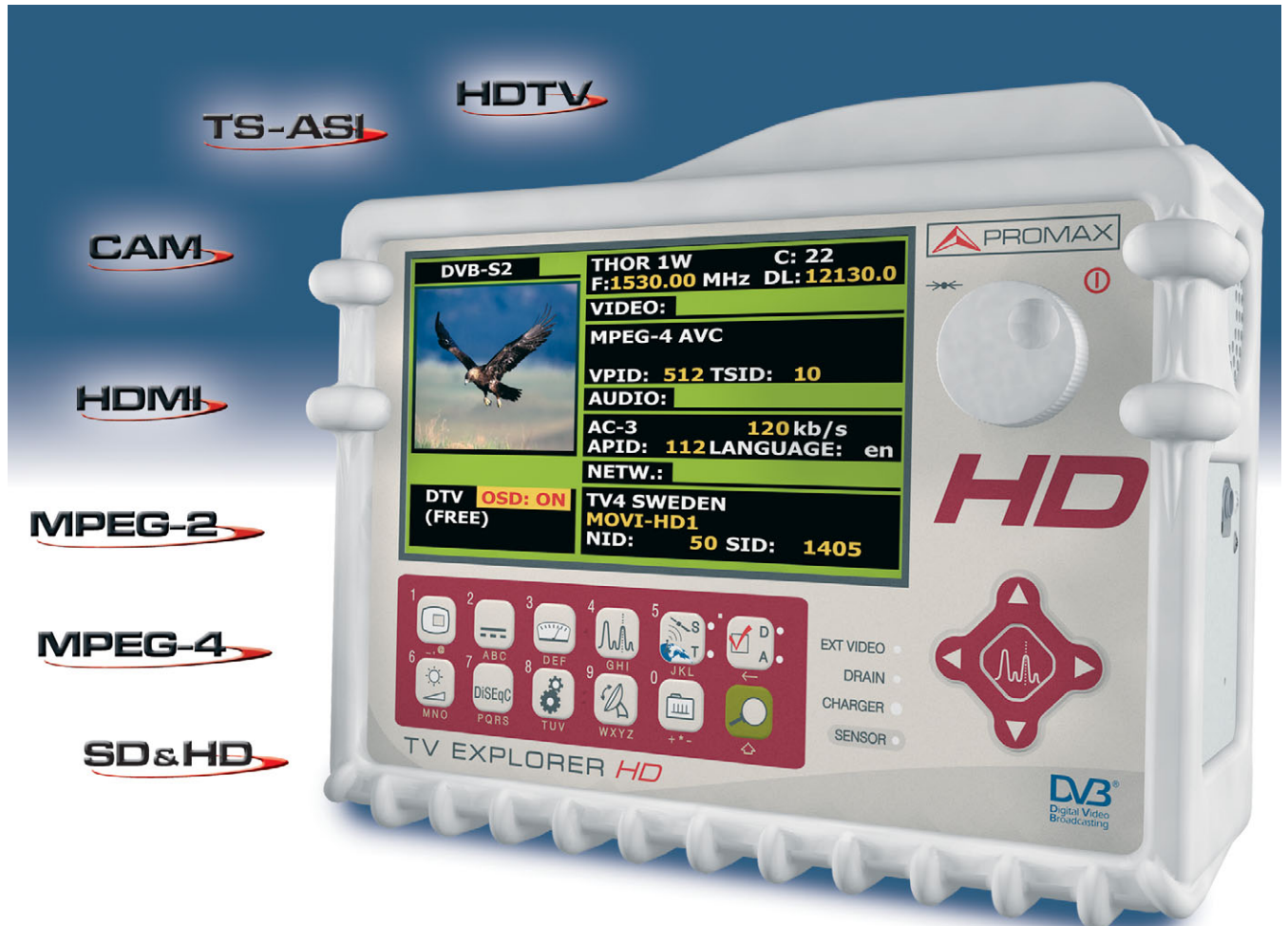
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H.264 / MPEG-4 AVC PICTURE TV EXPLORER HD

PROMAX launches its new **TV EXPLORER HD**. This new jewel of the **PROMAX** range will become a reference in the industry for being the very first meter of its kind to actually meet the requirements to be called a real HDTV instrument.



The typical high definition formats used in broadcast are 1080i (1920x1080 pixels) and 720p (1280x720 pixels). Most of the TV programmes using these video resolutions are compressed in **MPEG-4**. The **TV EXPLORER HD** is able to display those TV programmes thanks to its state of the art electronics.

HDTV content is expensive to produce and therefore it is usually protected by encryption. Once again the **TV EXPLORER HD** is setting new standards with its CAM interface that allows the encrypted high definition programmes to be displayed as well.

Millions of people in Europe are now served with digital TV broadcasting only. Analogue switch off is history for them. For these and those who still are in the migration process from analogue to digital, the use of digital TV distribution equipment will be more frequent every day. This type of equipment, such as our **Digital To TV** system, manipulates digital signals and very often use **TS-ASI** (Transport Stream) as the standard interface. So having **TS-ASI** input and output becomes a fundamental feature in a TV Analyser if it really wants to be future proof.

Would it be possible to have all those features in a 2 kg meter?

- ▶ MPEG-2 and MPEG-4 decoding for SD and HD formats
- ▶ 1080i, 720p, 576i video resolutions
- ▶ 16:9 and 4:3 screen formats
- ▶ HDMI interface
- ▶ DVB-T, DVB-C and DVB-S/S2
- ▶ CAM Conditional Access Module for encrypted channels
- ▶ TS-ASI input and output

Cable TV analyser with IPTV & VoIP QoS PROMAX-27

PROMAX ELECTRONICA S.A. is now presenting its new cable TV analyser **PROMAX-27**. This product is an evolution of the **PROMAX-26** which has successfully been in the market for almost two years now. It includes all the functions of its predecessors adding longer battery operating time thanks to the use of new Li+ battery technology and offering brand new features to help cable TV installers to better perform challenging installation and maintenance works in modern networks.

QoS Quality of service

Most systems have been offering internet connections to their subscribers for years. Cable TV operators upgrade their networks to offer IPTV and VoIP services searching for higher revenues. From subscriber side this means to be able to watch a TV programme or to receive a phone call in addition to the web browsing possibility using the same network connection. But IPTV and VoIP services have special requirements compared to internet web browsing or file downloading.

Services with different technical requirements coexist in the same network. If a group of packets is delayed while downloading a file, the user can hardly notice it. On the contrary if these packets are part of a live TV picture or audio broadcast then subscriber will immediately notice that there is a problem in the transmission.

For this reason it is necessary to introduce the concept of QoS (Quality of service).

Network optimisation

To optimise network performance in all cases every packet will need to be



classified and given a priority level. In other words all data is given a QoS, depending on the type of information it carries.

DOCSIS / EURODOCSIS protocols

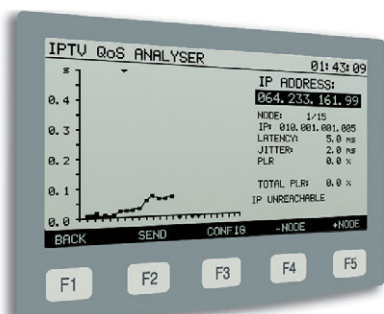
UGS Unsolicited Grant Service (used for VoIP)

rtPS Real Time Polling Service (used for IPTV)

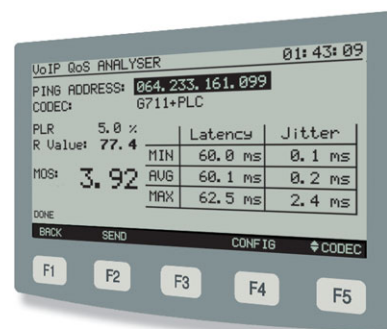
nrtPS Non Real Time Polling Service
BE Best Effort (used for web browsing or file downloading)
 Measurements such as packet latency or jitter can vary substantially depending on whether the test packet

stream is set with rtPS or BE quality of service for the whole cable TV network will behave differently and make different effort levels to route the packets.

PROMAX-27 has dedicated menus to perform all those measurements in every case in the proper way.

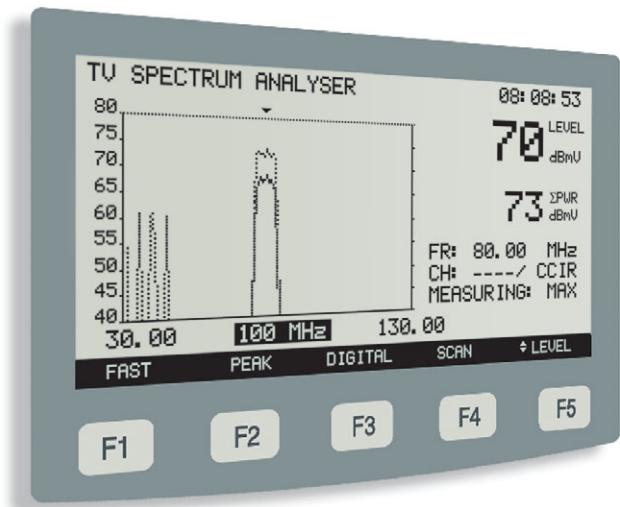


IPTV QoS analyser



VoIP QoS analyser

Cable TV & DATA analyser PROMAX-27

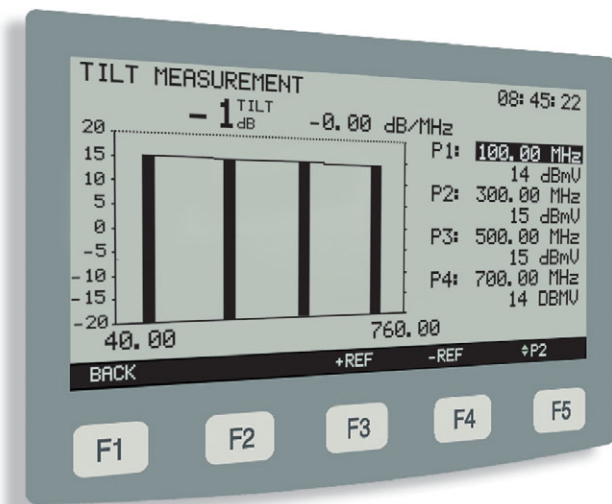
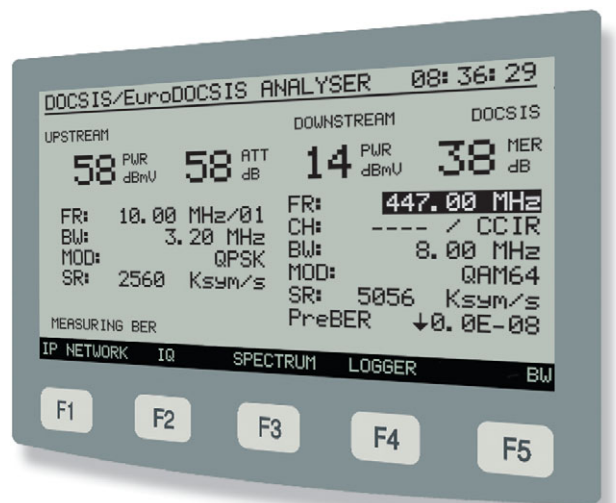


Max Hold detection

In spectrum analyser it is now possible to use **MAX HOLD** function. This function is extremely useful for identifying interfering signals specially in the return path.

High cable modem output power

The upstream power available from the cable modem is up to 58 dBmV. This is important nowadays because the modern cable modems can reach this range.

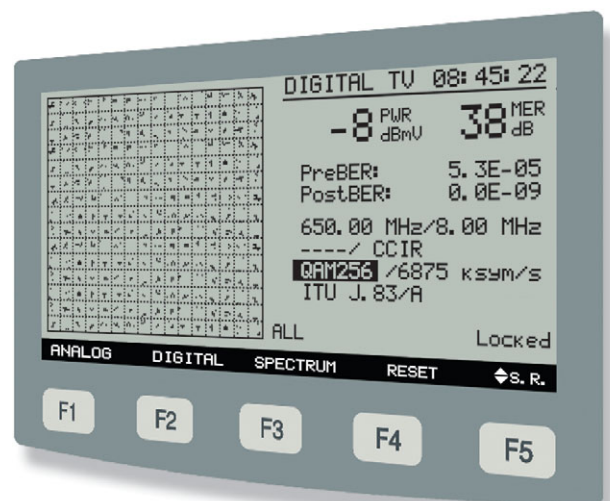


Tilt function

It now shows four frequencies that can be tuned anywhere in the band simultaneously. It is also possible to display the average tilt between the two pilots which are more distant in frequency.

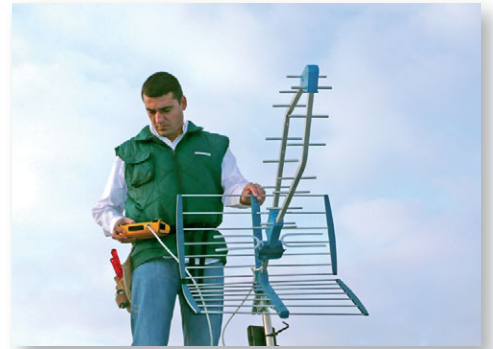
Wide MER measuring range

The MER measuring range can reach 37 dB at 50 dBμV channel power thus allowing **PROMAX-27** to operate in such conditions where other instruments can not.



TVHUNTER: Aligning antennas fast and easily

The **TVHUNTER** is a small handheld easy to use meter, that has been designed for the installation of Digital Terrestrial Television systems.



External antenna power

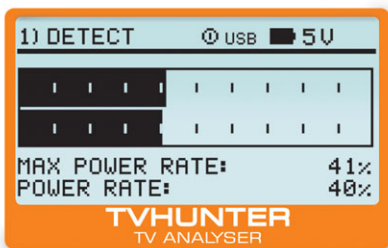
The meter includes a power supply for external active antennas or preamplifiers. It is possible to select 5 V, 12 V, 18 V or 24 V depending on the requirements of the external device.

Easy to use



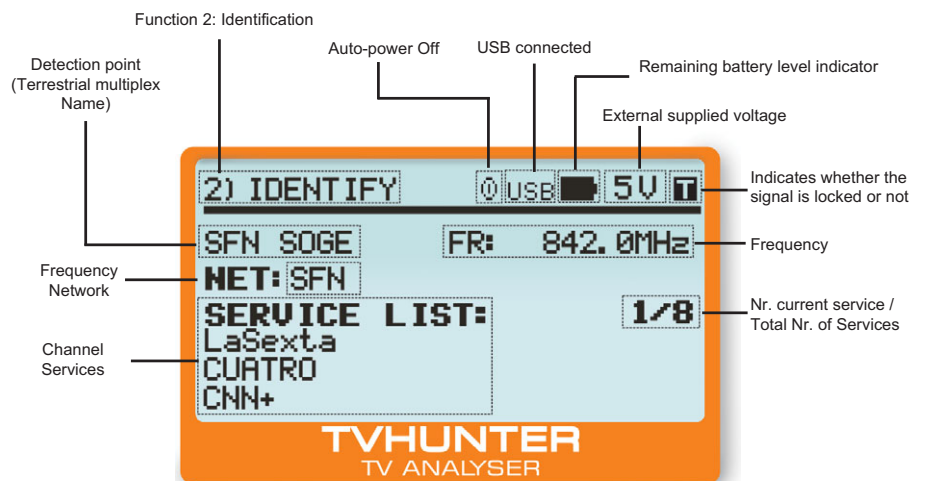
1.- Detection

It detects signals from any analogue or digital terrestrial broadcast with the built-in wide band detector. In this mode the meter shows information about the received signal power in the form of two graphic bars with two different time constants and an audible indicator to help align the aerial to the optimum detection.



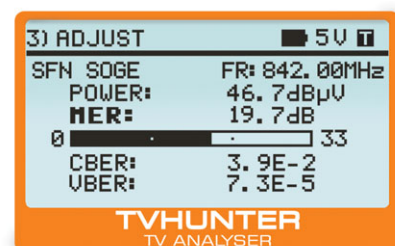
2.- Identification

In this mode the TVHUNTER shows information about the received digital channel and programmes included in the service list as well.



3.- Adjustment

It allows to optimise the digital measurements such as channel power, MER, VBER and CBER on preselected channels. All information is displayed on the screen in a very convenient way so that optimising the aerial alignment becomes really easy. MER in particular is shown numerically and through a graphic bar as well. VBER and CBER can be shown together or graphically.



FTTx Analyser for deployment of networks PROLITE-75



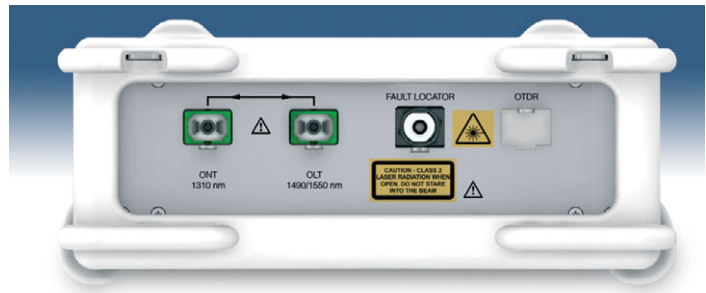
FTTx Analyser

The Quality our benchmark

FTTx Analyser for deployment of networks



- Selective Hand-held Optical Analyser for FTTx /PON systems, optimised for GPON architecture.
- Filtered and individualised measurements for each wavelength (1310 for Upstream; 1490 and 1550 for Downstream).
- 10 user-adjustable threshold sets: Each set contains maximum and minimum threshold values for each wavelength.
- High selectivity in wavelength measurement.
- Relative measurements: Losses with respect to a user-adjustable reference value.
- Upgradeable with two additional modules: OTDR and Spectrum Analyser.

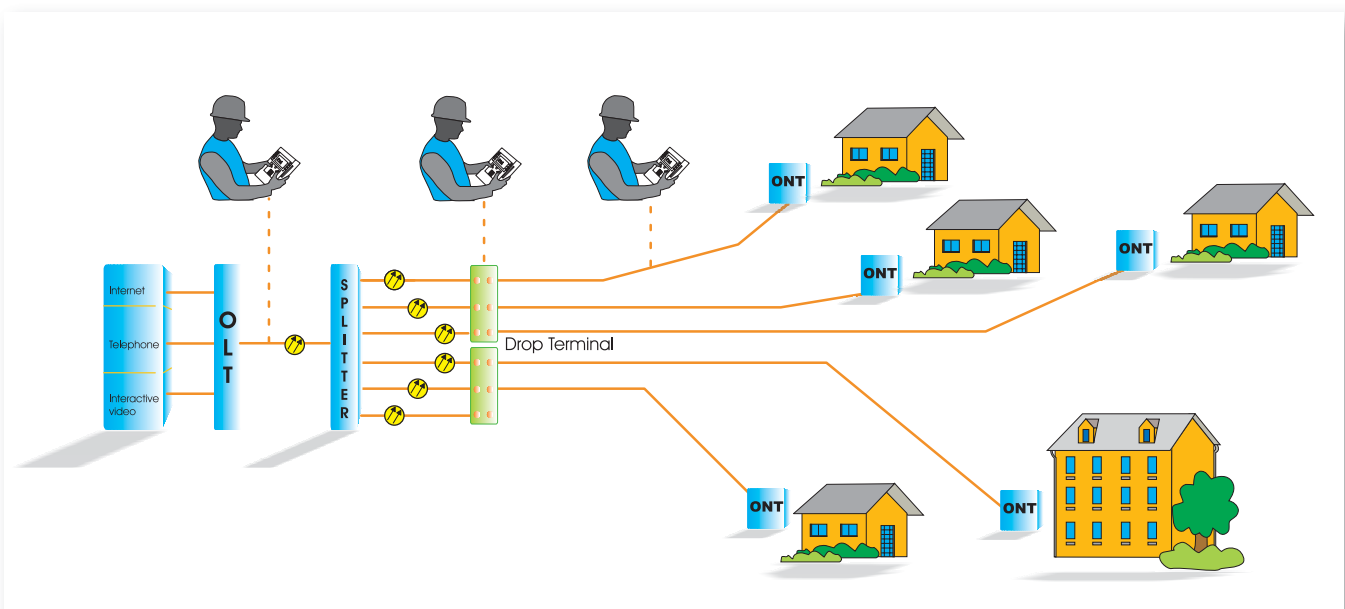


Fibre Optic Networks

GPON is known as a fibre optic network that can manage speeds over 1 Gbps, using only passive elements.

GPON (Gigabit Passive Optical Network) is the most used technology in the applications where the optical fibre arrives to the user (**FTTH** - Fibre To The Home).

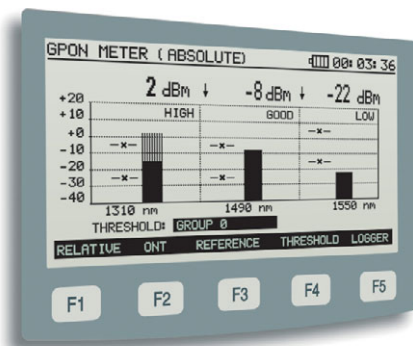
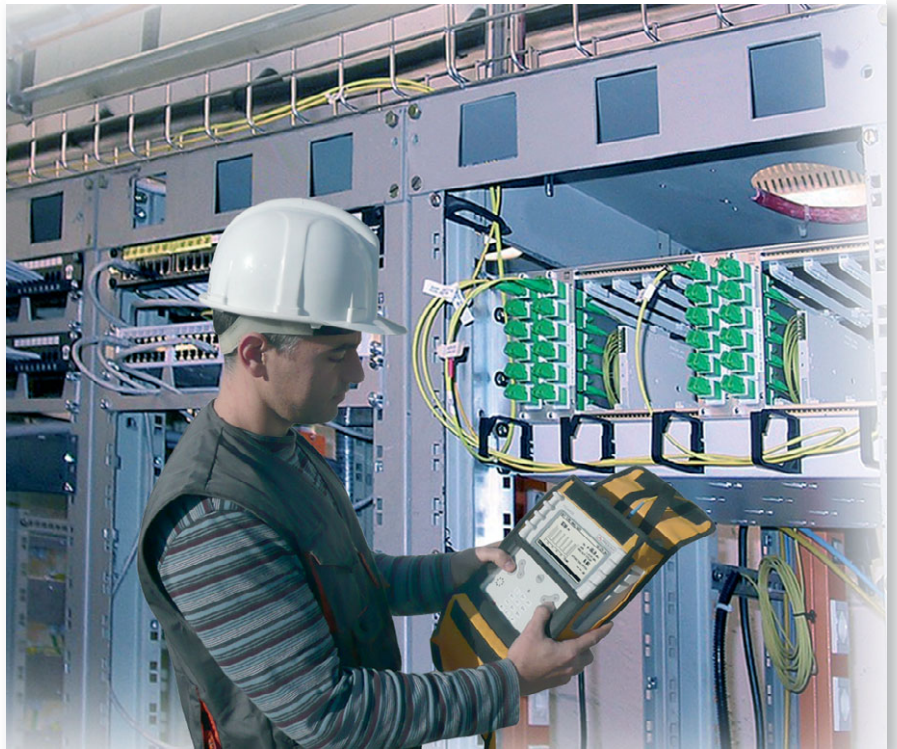
The user has an **ONT** device (Optical Network Termination) that communicates to an **OLT** device (Optical Line Termination) in the network. The **OLT** transmits constantly the Downstream signal, whereas responses from the user's **ONT** are in the form of pulses.



FTTx Analyser for deployment of networks

Intuitive Graphical Interface: Measurements at a glance!

- Numerical and graphical representation (bar graph) of signal power in each wavelength.
- Displays simultaneously all three wavelength measurements.
- Warning LEDs, indicating power with respect to threshold values in three different colours: RED (below minimum threshold), GREEN (between thresholds) and AMBER (above maximum threshold).
- Displays simultaneously average and peak power on the Upstream signal.
- Representation of threshold values on the bar graph for each wavelength.
- Status message on the screen (LOW, GOOD, HIGH) indicating signal power with respect to threshold value.



Analysis of the Upstream signal: Examine in detail your installation

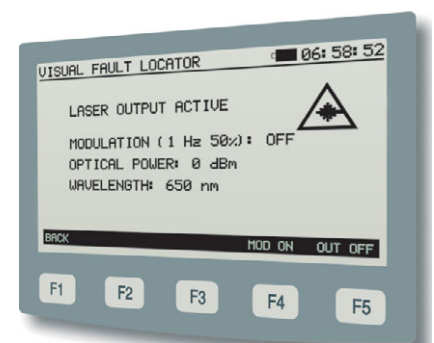
- Graphical representation of the Upstream signal over time.
- High-resolution displaying pulses (up to 50 μ s).
- Complementary measures: Duty Cycle and Extinction Ratio.

Visual Fault Locator: Quickly find any problem

- Visible red laser beam at 650 nm for locating at first sight any failure or damage on fibre.
- Emits laser in the shape of continuous beam or pulses.
- Warning LED indicating hazard when laser is in operation.
- UNIVERSAL 2,5 mm. laser connector.

Easy to use: Plug and Play!

- Simply connect the fibre and read the results.
- Measurement directionality: Avoids mistaking ONT for OLT input.
- Pass-Through connection ports: No service interruption while performing the measurement.
- Ambidextrous keypad.
- Shortcut keys to the most important functions.
- Battery level indicator on screen.



DIGITAL TO TV: TV Broadcast and distribution

Digital To TV (DTTV) is a TV distribution headend with **DVB-T (DTT)** output. The **Digital To TV** system converts any analogue or digital video source to **DVB-T**. Our **DTTV** system exploits the benefits of **DVB-T** technology as a digital TV modulation.

No special receiver required

This new technology, in the same way as the analogue TV modulation in the past, was initially developed and intended for broadcast applications but it can also be used for TV signal distribution over coaxial cable with great technical and practical results. This includes conventional cable TV, any **SMATV** system or even wireless cable such as **MMDS**.

Television broadcasting all over the world is by far the technology that arrives to the highest number of homes. Satellite or cable TV services stay normally at a substantial distance below. As a consequence TV sets tend to incorporate compatible receivers as a standard feature and therefore it makes a lot of sense to use the same modulation schemes for any other applications. At the end of the day you don't need any special receiver and that's a positive point.



Right now we are in the transition from analogue to digital and most newly made TV sets have a built-in **DVB-T** receiver. In any case external **DVB-T** set top boxes are easily

available and cheap.

Wherever you now use an analogue TV modulator you can use a **DVB-T** modulator. That's the idea.



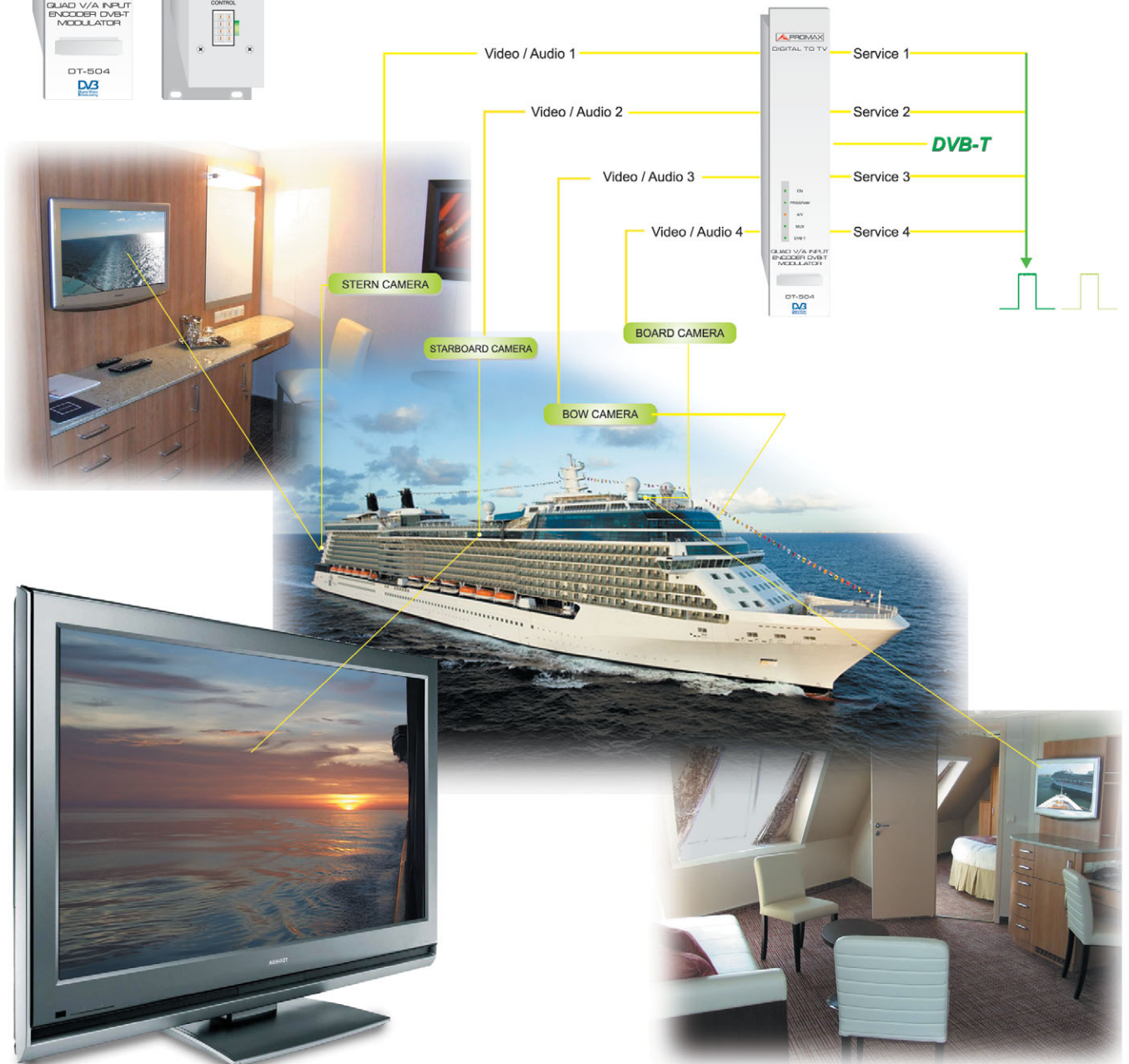
DIGITAL TO TV: TV Broadcast and distribution



DT-504 Video and audio into COFDM

The **DT-504** module offers the possibility to build a **DVB-T** multiplex out of four video and audio signals. It is composed of four independent video and audio **MPEG-2** encoders, a multiplexer and a **DVB-T** modulator. Audio inputs can be stereo or mono.

Frequently some TV services are only available as analogue baseband video. That is the case of encrypted programmes which can only be received with a dedicated STB and smart card, signals from CCTV cameras, door entry systems, etc. Thanks to this device originally analogue TV programmes are inserted in the TV distribution network enjoying the benefits of **DVB-T** technology.



Programmable Selective Amplifier **AGIL-T**

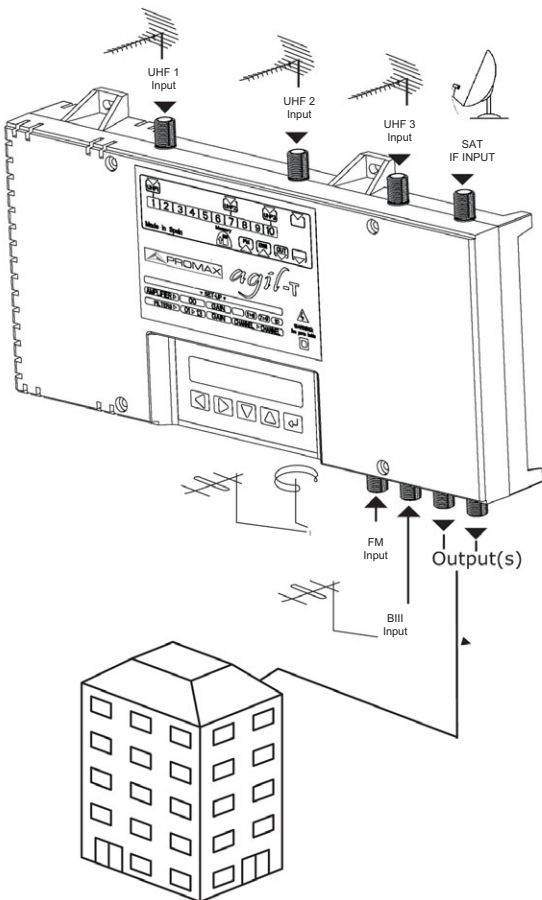
Agil is a programmable head-end unit for use with analogue/digital UHF signals.

Agil is completely transparent to the modulation of any signal received: PAL B/G/I, SECAM L, DVB-T COFDM, QAM etc.

10 UHF programmable filters

Agil has 10 UHF programmable filters with selectable bandwidth between 1 and 6 channels.

The head-end includes an FM input, a BIll input, in some of the models a satellite I.F. Input, the power supply and the password protected programmer.



- 10 fully programmable UHF filters. Each filter can be programmed from channel 21 to channel 69.
- Each UHF filter can be programmed to amplify from 1 to 6 neighbour channels.
- Fully shielded "zamak" die-cast housing.
- BIll and FM inputs.
- Satellite IF amplification as an option.
50 or 40 dB (software selectable) overall UHF Gain.
- Software controlled selection of antenna input connected to the filters.
- Easy programming by 8 digit display showing simultaneously all parameters (Filter number, Attenuation, lower and higher channel) of a filter in a row.
- 8 set-ups Memory card to copy and retrieve system configuration to speed typical installations.
- Easy power supply maintenance/exchange by removing only 4 screws, and without antenna cabling disconnection.
- Power switch-off of internal pre-amplifiers for unused antenna inputs to save power consumption, and avoid unexpected noise.
- Low noise Gallium Arsenide input stages.