HD RANGER *2*

Field strength meter for the High Definition TV era

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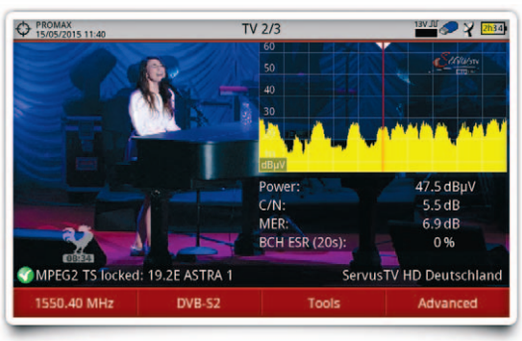
DVB T/T2 DVB S/S2 DVB C/C2

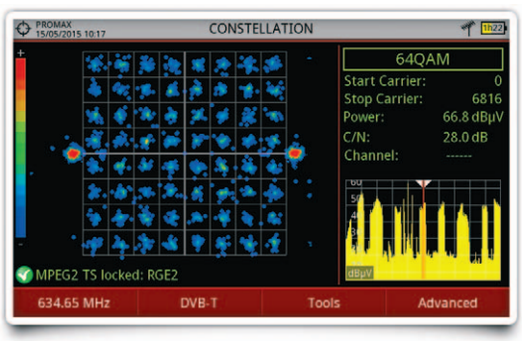
DOLBY DIGITAL PLUS · LTE · ip:tv · Optical fibre capable · HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE · ASI-TS IN&OUT

HD RANGER 2

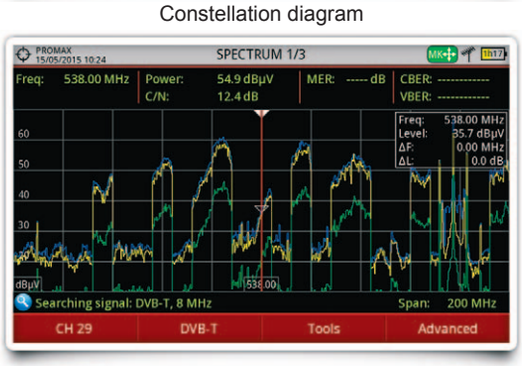
- Broadcast, Satellite TV and Cable TV
- DVB-S2, DVB-T2, DVB-C2, DVB-S, DVB-T, DVB-C
- Video: MPEG-2, MPEG-4 H.264 (resolutions 1080i, 720p and 576i)
- Available versions for ATSC and ISDB-T / TB standards
- Broadcasting parameters analysis
- Basic Transport Stream analysis
- Audio: Dolby Digital Plus, HE-AAC, AAC and MPEG-1/2
- Picture formats: 16:9 and 4:3
- Constellation diagram
- HDMI interface
- CAM module (Conditional Access) for encrypted channels



Spectrum, TV picture and Measurements: 3 functions in a single screen



Constellation diagram



Ultra fast spectrum analyser with professional functions

- ASI-TS input and output
- Optical fibre measurements available

HD RANGER 2

Unprecedented computing power

Triple Split Display

Because of the latest processing speeds available, which allow higher processing capability, the ***HD*** **RANGER** ***2*** can display information on several screens at any single time. These screens can be either overlapped or shown in a split screen format.

Dynamic echoes analysis

The information about the various echoes received at the test point is displayed on a bespoke screen where data is laid down in a comprehensive way including power, delay and other channel details.

DVB T2/C2/S2	ü
DOLBY DIGITAL PLUS	ü
Optical measurements	£
5 GHz RF input	£

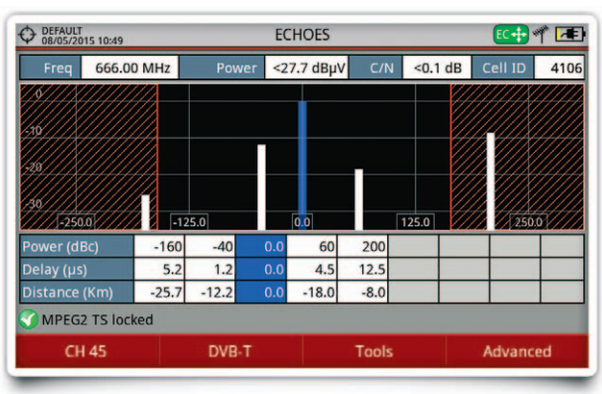
£ Optional

ü Included

Spectrum analyser

We present a new ultra fast spectrum analyser function with higher dynamic range, better accuracy and improved resolution.

Dynamic Echoes screen



HD RANGER 2 Transport Stream analyser

ü Professional grade equipment functions

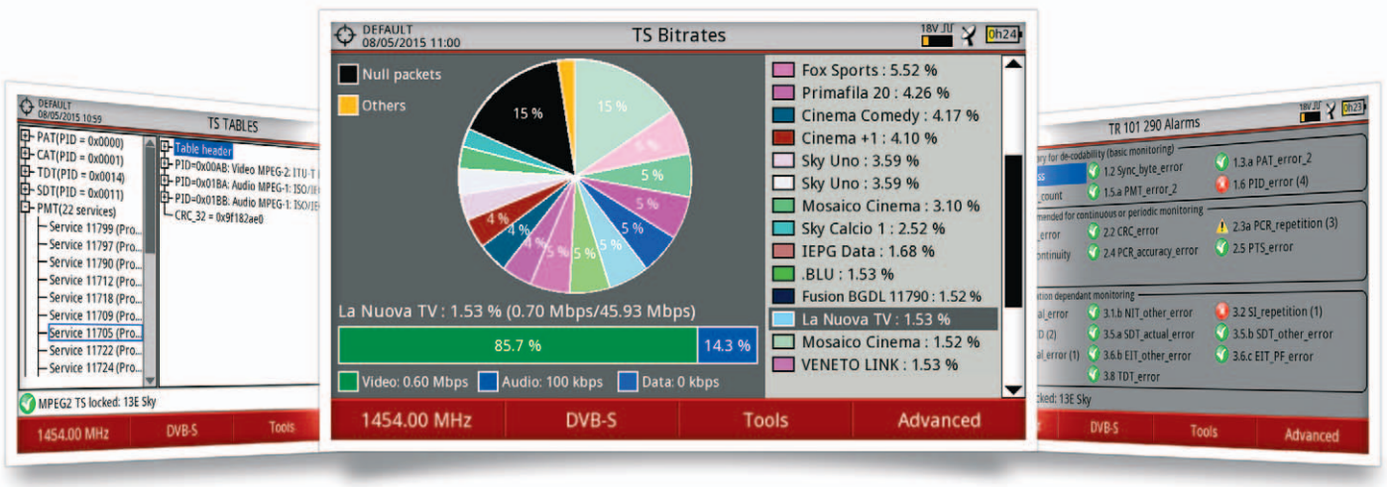


Table Analyser

This function shows every detail of the transport stream tables in real time on a tree diagram. This is an outstanding function which is normally only available in more expensive equipment. It is possible to navigate through the tree branches using the joystick or the touch screen functionality.

Bitrate Analyser

It shows the real time bitrate used by each one of the services in a transport stream on a pie chart. The graphic is dynamic and it is refreshed so that variations in the bitrate distribution among the services can be seen at a glance.

TR 101 290 Alarms

This is a dynamic tool as it displays in real time the evolution of the TS and the alarms that may occur. The priority levels of alarms are set according to the recommendations by technical standards TR 101 290 measurement guidelines by the DVB group.

HD RANGER 2 Transport Stream recording

ü Record TS from any input source in the analyser: RF, ASI or IP

ü Work with a stored TS as if it was live

Full TS Recording capability: Record, analyse, decode and copy a Transport Stream

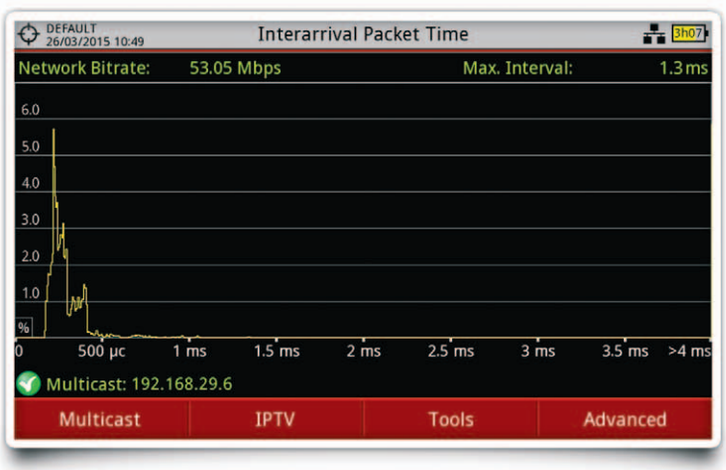
The transport stream recording capability is a function available for *HD* **RANGER** *2* that enables the instrument to capture the received TS in real time into its internal memory.

The recorded TS can then be decoded, analysed or even copied into a USB stick directly connected to the instrument.

HD RANGER 2 IPTV test and measurement

ü Receive, decode, measure, identify and troubleshoot your multicast IPTV system using your field strength meter

ip:tv



Measurements under IPTV

ü Measurements over **multicast reception:**
- Received packets / missing / fixed
- Buffer usage percentage
- Transport stream bitrate
- Etc

ü Measurements over **received traffic:**
- Data network bitrate and IP packets received with errors

ü **Internet parameters:**
- Ethernet speed
- Multicast address
- Protocol (UDP / RTP)
- Data about error correction (FEC)
- TS packets
- Etc

ü **IPTV service decoded**

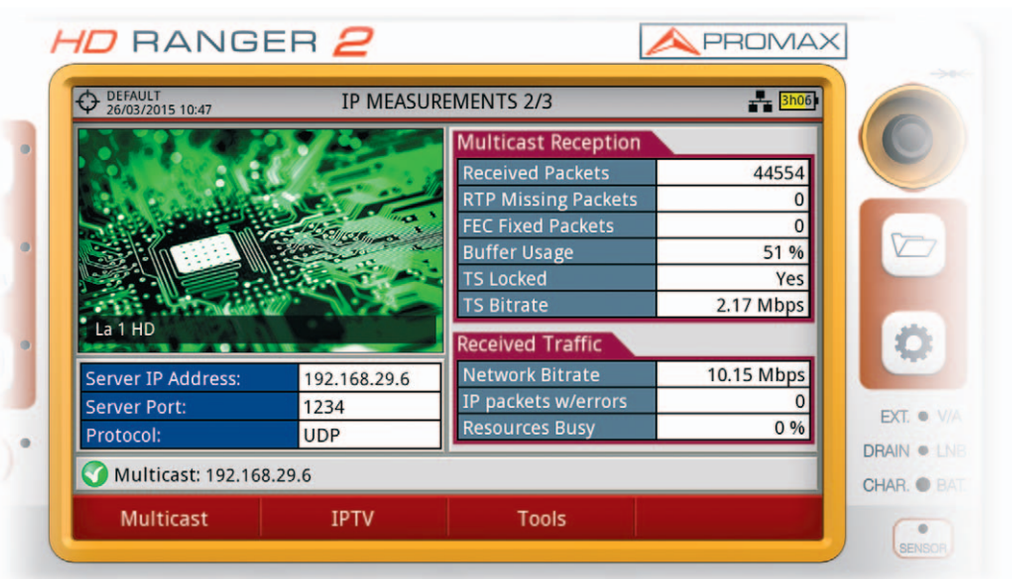
ü **Server IP address and communication protocol (UDP / RTP)**

PING utility

It is a diagnosis tool that sends several ICMP (Internet Control Message Protocol) packets from the ***HD*** **RANGER** ***2*** to another equipment connected to the IPTV network. Under optimal conditions, the responses will be received at similar time intervals.

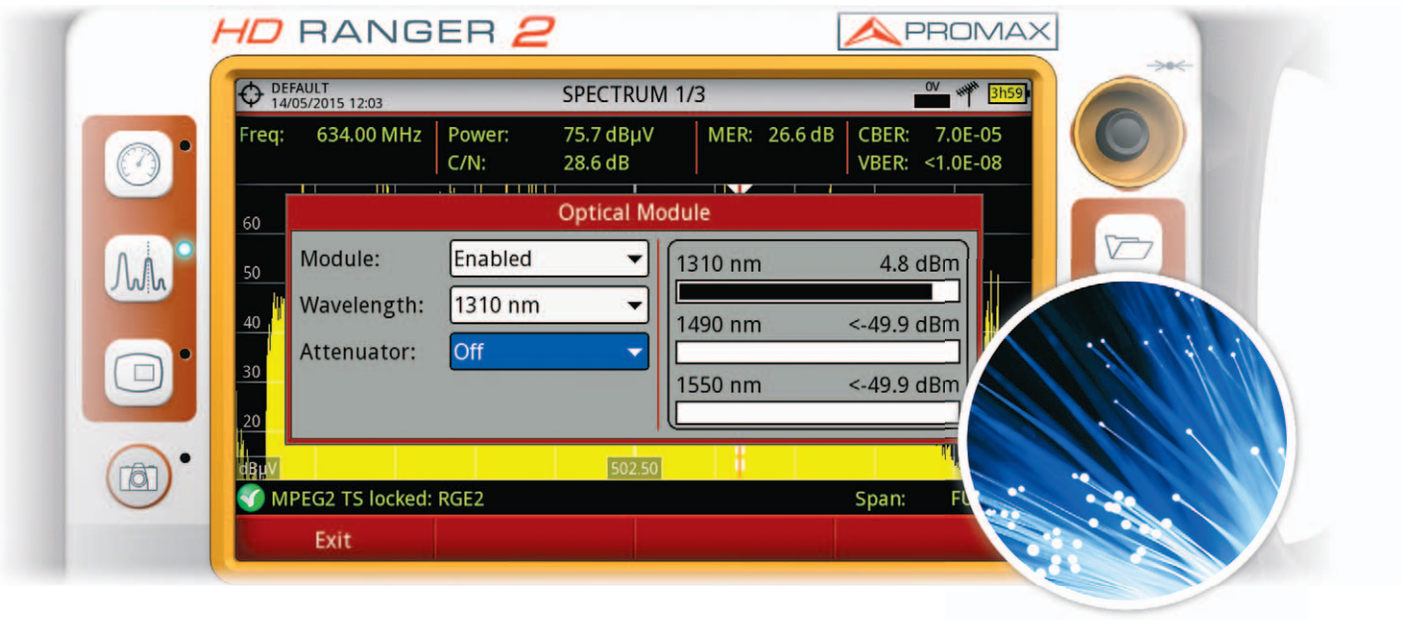
Interarrival packet time

This great feature allows to visualize the distribution of the IP Packets in function of their interarrival times. Its purpose is to check the packet reception continuity for the selected stream.



HD RANGER 2 Optical fibre measurements

ü Turn your field strength meter into a true universal telecommunications analyser



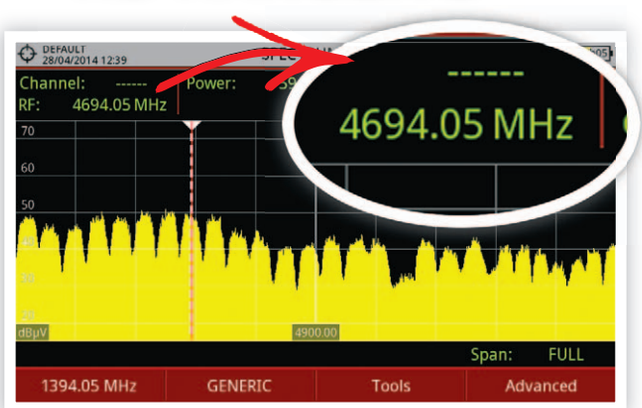
Selective optical power meter

The ***HD*** **RANGER** ***2*** selective optical power meter combined with a portable triple laser source such as **PROLITE-105** (sold separately) forms a complete Optical Loss Test Set to measure fibre attenuation. This is of great interest in live FTTH/GPON installations certification or even before they are in service.

Selective Optical-to-RF converter

RFoG (Radiofrequency-over-Glass), as well as optical TV&SAT distribution, is used more and more by operators because it allows them to benefit from the advantages of fibre optics to compete with FTTH service providers. The RF signal at the converter output can be analysed, measured and decoded by the meter as one would usually do with any signal over copper wires.

HD RANGER 2 5 GHz auxiliary RF input

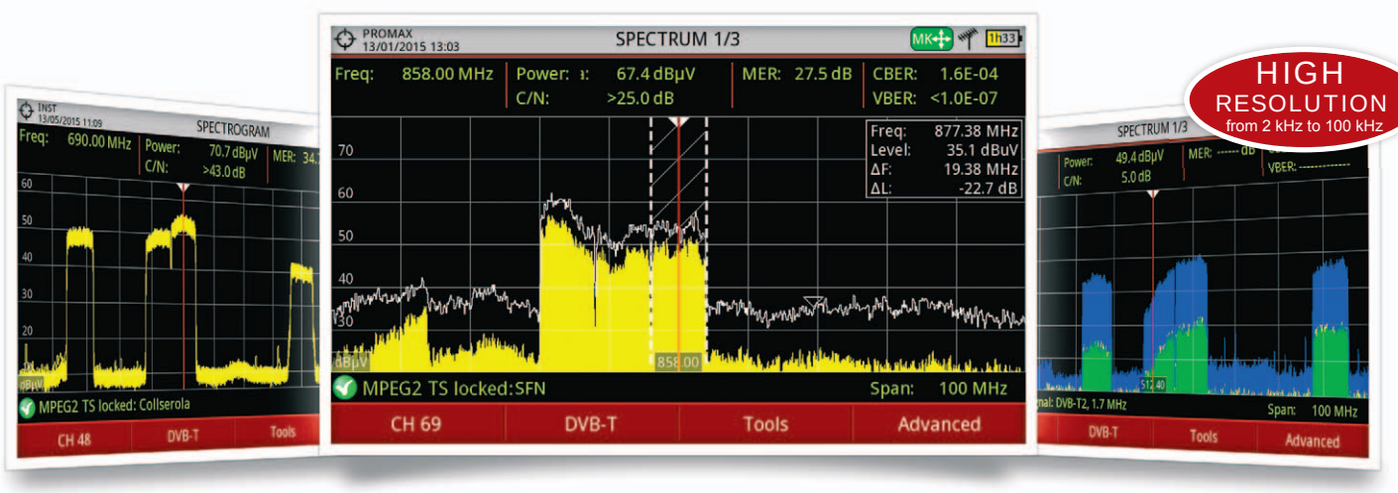


The ***HD*** **RANGER** ***2*** optical fibre option comes along with a 5 GHz RF auxiliary input which can be used among other applications for direct connection to optical LNBs with 5.4 GHz output. This RF input covers three bands:

Band I	From 2150 MHz to 3000 MHz
Band II	From 3400 MHz to 4400 MHz
Band III	From 4400 MHz to 5400 MHz

HD RANGER 2 Professional spectrum analyser

ü High-end spectrum analyser capabilities



Merogram and Spectrogram

These functions have been developed to allow an early detection of intermittent impairments that may occur in very short periods of time and can not be monitored otherwise.

High resolution spectrum

Several resolution filters are available: 2, 10, 20 and 100 kHz in terrestrial band, and 10, 20 and 100 kHz in satellite band.

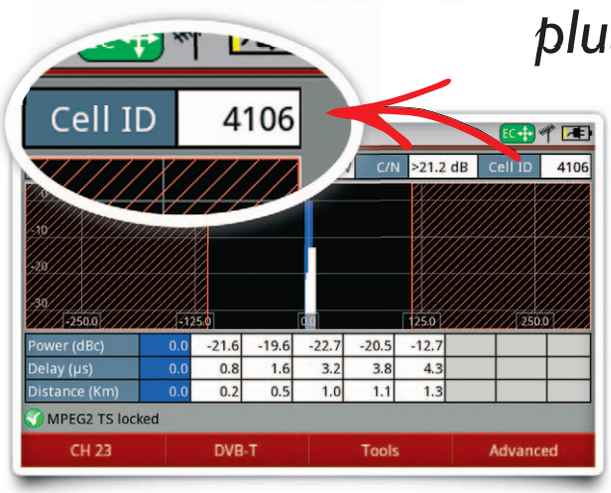
Enhanced marker: Multiple traces at a time

Markers can be set to display values from any of the several traces that can be displayed on the spectrum analyser screen. The marker can for instance be linked to a MAX HOLD trace or to a real time scan so that signal levels and frequencies are displayed.

90 ms sweep time & amazing resolution

Variable span, 10, 5, 2 or 1 dB/DIV vertical scales, MAX and MIN hold, persistence control, etc... are some of the outstanding features of the ***HD*** **RANGER** ***2*** spectrum analyser function.
Several resolution filters are available: 2, 10, 20 and 100 kHz in terrestrial band, and 10, 20 and 100 kHz in satellite band.

HD RANGER 2 Dynamic echoes analysis plus CELL ID indication



A must-have utility to align terrestrial aerials

Dynamic echoes measurement is an essential function in DVB-T, DVB-T2 and recently in DVB-C2 as well. HD RANGER 2 covers all these standards. The information about the various echoes received at the test point is displayed on a bespoke screen where data is laid down in a comprehensive way including power, delay and other channel details.

The **Cell ID** indication shows the main signal transmitter, if available.

HD RANGER 2 Automatic task planner

The HD RANGER analyser working anytime and anywhere

Sometimes it is difficult to find out the source of a signal interference because it only appears at certain times of the day when may be impossible to take measurements. In these cases it is useful to schedule the field strength meter to auto-power on, take measurements or screenshots and store them in its internal memory.

The Task Planner function allows the user to set-up a task list, selecting when to start, a repetition rate and other parameters. The equipment can be switched off after setting all parameters and it will wake-up, at the required time, to perform the scheduled tasks.

Signal coverage analysis: Drive test GPS option

- ✓ Automatic measurements on a moving vehicle.
- ✓ Measurements along with geolocation data.
- ✓ Data can be stored in XML format in the analyser's memory, memory stick or PC.

HD RANGER 2 Details that make the difference

Great connectivity: Much more than a RF analyser

- ASI-TS input/output
- Optional optical fibre connectivity
- 5 GHz optional aux RF input
- IPTV output
- HDMI
- Optional GPS input
- A/V input/output
- Upgrades & file transfer to PC/USB

It includes the latest standards & technologies

- Built-in LTE filters
- DAB and DAB+ audio option (decode + measurements)
- DVB-S2 multistream
- PLS - Physical Layer Scrambling
- 16/32 APSK constellations and VCM/ACM modulation schemes
- Constellation diagram for all DVB standards

Optimising user operation

- Simultaneous traces (real-time plus stored traces) in spectrum analyser
- Field strength meter capabilities
- Copy files directly to USB mass storage device
- Free lifetime upgrades
- H.265 (HEVC) identification
- Data acquisition (*Datalogger*)



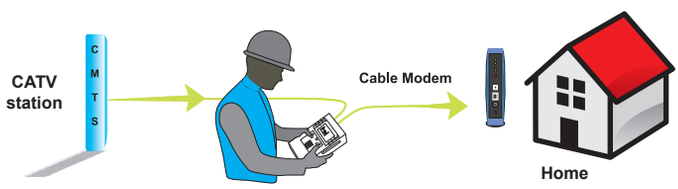
		HD RANGER Lite	HD RANGER +	HD RANGER 2
STANDARDS	DVB systems	DVB T/C/S DVB T2/C2/S2	DVB T/C/S DVB T2/C2/S2	DVB T/C/S DVB T2/C2/S2
	Dolby Digital Plus	ü	ü	ü
	DAB / DAB+ digital radio		£	£
	Analog TV and FM radio	ü	ü RDS	ü RDS
TFT-LCD	LCD screen features	7" (16:9)	7" (16:9)	7" (16:9) touch screen
	Triple split display	ü	ü	ü
CONNECTIVITY	HDMI output			ü
	IPTV input			ü
	ASI-TS input and output			ü
	Encrypted channels (CAM modules)			ü
	Audio/Video input and output		ü	ü
	USB connection	ü	ü	ü
	Optical fibre measurements		£	£
	GPS		£	£
ADVANCED FUNCTIONS	Transport Stream analyser			ü
	Dynamic echoes analysis	ü	ü	ü
	Merogram and Spectrogram		ü	ü
	Signal monitoring		ü	ü
	MER by carrier measurement		ü	ü
	MER measurement	ü	ü	ü
	Ultra fast spectrum analyser	ü	ü	ü
	Constellation diagram	ü	ü	ü
	LTE ingress test	ü	ü	ü
	Internal LTE filters		ü	ü
OTHER	Soft carrying bag	ü	ü	ü
	Hard transport case		ü	ü
	Battery	> 2 h	> 4 h	> 4 h
	3 GHz band extension	£	£	£
	19" rack mounting option		£	£

ü Included £ Optional

PROMAX-37 *50 years edition*

Cable TV & Data Analyser DOCSIS 3.0

*PROMAX-37 is an analyser for the installation, configuration and maintenance of video and high speed data interactive services over TV networks based on the **EuroDOCSIS** and **DOCSIS** 3.0 standard. It allows the qualification of VoIP and IPTV services. It incorporates the most advanced functions such as channel bonding.*



PROMAX-37 measurements

ü **Downstream:**
- Σ Power measurement
- Channel power measurement
- Quality test: MER, BER, Pre BER and Post BER
- Constellation diagram
- Full band power
- Frequency, channel and active channel plan
- Modulation type and symbol rate

ü **Upstream:**
- Σ Power measurement
- Power measurement
- Attenuation at CMTS
- Frequency and bandwidth
- Modulation and symbol rate

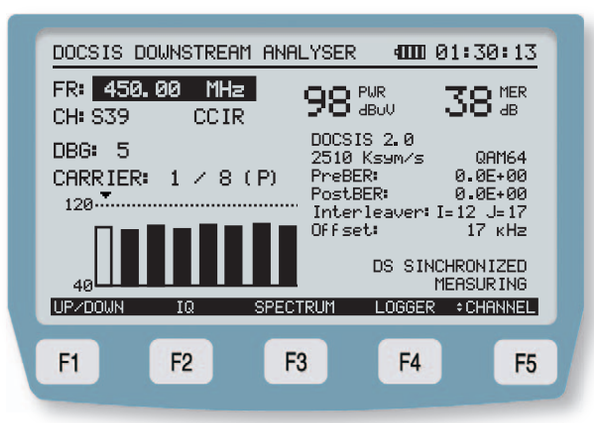
ü **Communications Test (in Registered mode):**
- IPTV analyser (television over IP)
- VoIP analyser (voice over IP)
- IP report
- Ping test
- Ratio of lost packets

ü **Digital and analog channel TV measurements**

ü **Serial interface to External Cable Modem (loop-through mode)**

Downstream Analyser and Channel Bonding

The downstream analysis of the **PROMAX-37** can simultaneously display the power of all the channels that form the channel bonding.



PROMAX-12

Cable TV analyser

- From 5 to 1005 MHz
- BER & MER on QAM digital signals
- MULTISTANDARD: 16/32/64/256 QAM Annex A/B/C QPSK
- Analogue and Digital channels measurement
- Broadband power detection
- SCAN, TILT, Transient detector...
- C/N, CSO, CTB, VAC VOLTAGE, HUM
- MAX and MIN hold
- Channel power by integration
- Datalogger
- Measurements printing and PC connection

TV STANDARD DVB T OPTIONAL

Digital channel power
Just press a button to measure channel power (by integration), C/N, BER and MER.

Datalogger
Store, review, print and analyse the measurements.

Scan
Graphical interpretation, adjusment and signal optimisation.

Constellation diagram
Signal quality at a glance through graphical evaluation.

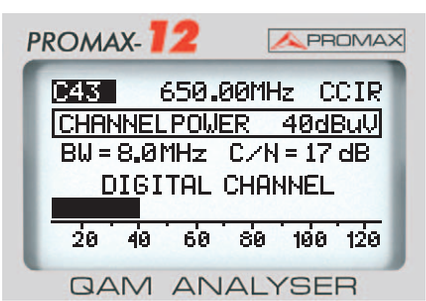
Spectrum analyser
With MAX HOLD and MIN HOLD functions.

Return path
Spectrum analyser with max hold function to test upstream transmission and return path noise.

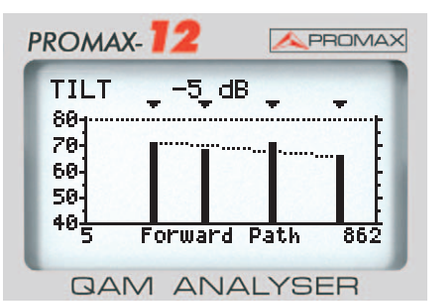
Transient detector
Return path impulsive noise evaluation tool.

Intermodulation (CTB/CSO)
Assess how interference is compromising the quality of your cable TV network.

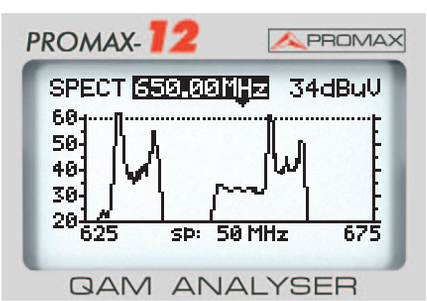
Tilt function
It provides a graphical and numerical representation of the signal level of any 4 given pilot frequencies. It is very useful for amplifier slope and gain adjustments.



Digital channel power measurement

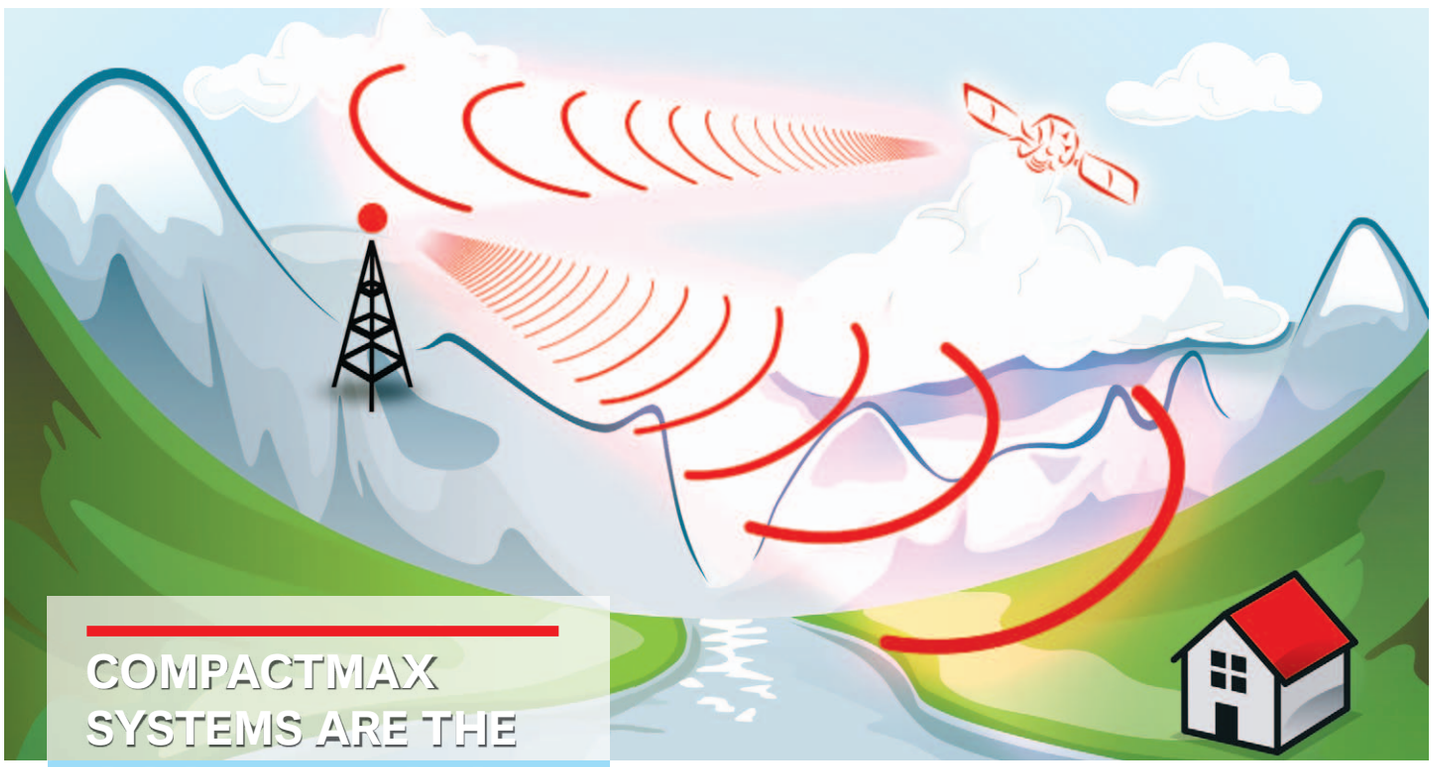


TILT function



Spectrum analyser

CompactMax TV distribution system



COMPACTMAX SYSTEMS ARE THE COST-EFFECTIVE SOLUTION FOR DVB-T / T2 DISTRIBUTION IN SHADOW AREAS AND HOSPITALITY

DVB S/S2 DVB T/T2

WEBSERVER control

ü **Receive Satellite TV channels in SD / HD and distribute them in DVB-T/T2**

CompactMax-2 DVB-S2 to DVB-T2

Dynamic programme lineup:
Change the programme grid without need to retune every TV on the system

Processing Digital-to-digital:
Preserving 100% of the original quality

Convert Satellite TV channels to DVB-T2

CompactMax-2 is a compact transmodulation system that allows to distribute Satellite TV channels (DVB-S or DVB-S2) in Second Generation Digital Terrestrial Television (DVB-T2) format.

It can be connected to up to **4 satellite inputs** (2 inputs for free view channels and 2 for encrypted ones) to deliver up to 2 DVB-T2 muxes with dynamic webserver management via remote control. It is integrated into a 19" 1U Rackmount case. It can also be mounted directly on the wall.

- **4 satellite inputs transmodulated into 2 DVB-T2 muxes.**
- **2 CI slots for decoding encrypted channels.**
- **Services filtering to select the desired output programmes.**
- **PID remapping and regeneration of PAT, PMTs, SDT and NIT tables.**
- **Webserver for remote control and management via LAN or Internet.**

ü Three versions available

	CompactMax-1	CompactMax-2	CompactMax-3
Number of inputs	DVB S/S2 x4	DVB S/S2 x4	DVB S/S2 x4
Number of outputs	DVB T x8	DVB T/T2 x2	DVB T/T2 x2
Common Interface slots	x2	x2	

EN-206 *HD multistandard Modulator*

DVB-T® DVB-C®

The **EN-206** home modulator receives the HDMI high definition audio / video signal from TV satellite receivers, closed-circuit television cameras (CCTV) or video players and modulates it into **DVB-T** and **DVB-C** so that it can be distributed over coaxial cable. It can also modulate a transport stream file from a USB pendrive.

The **EN-206** can be conveniently configured from a PC using its internal web server. It can also be set up via the built-in keyboard and display.

The **EN-206** includes a passive RF combiner that works even if the modulator is off. It can also be daisy-chained with other **EN-206** modulators and with any other RF signal so that the number of channels in the SMATV system can be increased as desired.

WEB SERVER | Full HD 1080 | MULTI STANDARD | USB | HDMI

TVHUNTER+ *DVB-T/T2 meter for antenna alignment*

The TVHUNTER+ is the solution for the DTT installers, because it allows making all necessary measurements in a quick way, achieving the best quality of reception.

The **TVHUNTER+** guides the user through three steps: Detection of the transmitter, identification of the multiplex signal and fine-tuning adjustment in order to obtain the best quality signal.

The equipment determines if the quality of the signal is enough for reception. The **TVHUNTER+** processes all the information and gives to the installer just the information he requires, making his work as easy as possible.

DVB-T/T2®

SATHUNTER+ *Satellite hunter* DVB S/S2

ü Satellite dish alignment easy and fast with PROMAX SATHUNTER+

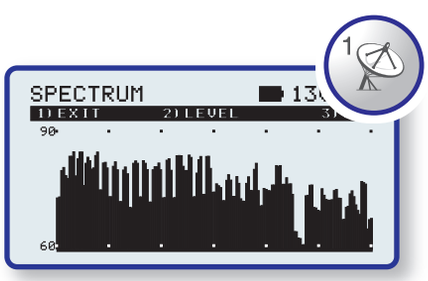
When you are setting up a satellite dish on a roof, you want to feel safe and you take up only the tools that are essential to do your job easy. Thinking about your needs, PROMAX designed the **SATHUNTER+** field strength meters that can be carried in your pocket.

With the **SATHUNTER+** you will align the antennas faster and will easily adjust them to the required broadcaster. It can be operated with 3 simple steps: **Detect**, **Identify** and **Adjust**.

Easy satellite dish alignment

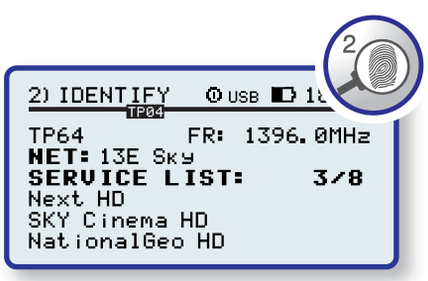

Convenient and ergonomic


It fits in your pocket



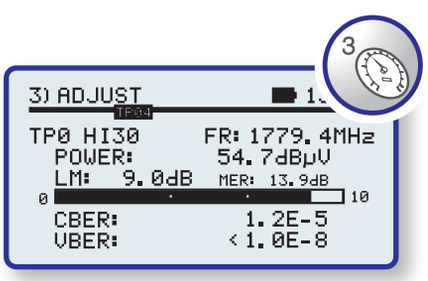
1.- Detection

It detects signals from any analogue or digital satellite 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 **SATHUNTER+** shows information about the received digital channel and programmes included in the service list as well.

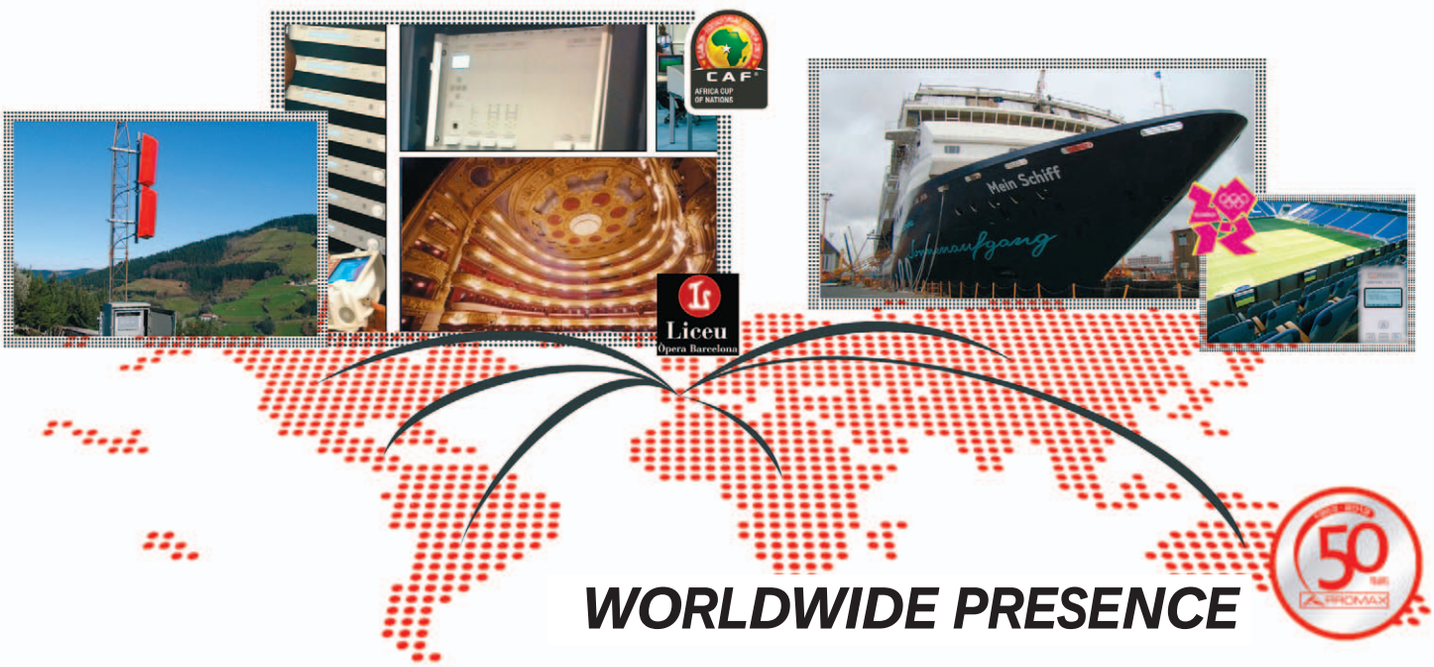


3.- Adjustment

It allows fine pointing the reception antenna, 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.

PROMAX

Test and Measurement



WORLDWIDE PRESENCE

Optical fibre equipment

- Optical power meters
- Optical attenuators
- LASER light sources
- OTDR
- Optical spectrum analysers
- Fusion splicers, measurement and connectivity kits
- Field strength meters and optical to RF converters
- Digital TV headends with optical inputs and outputs

For more information visit us at **www.promaxelectronics.com** or contact our distributor:

PROMAX

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