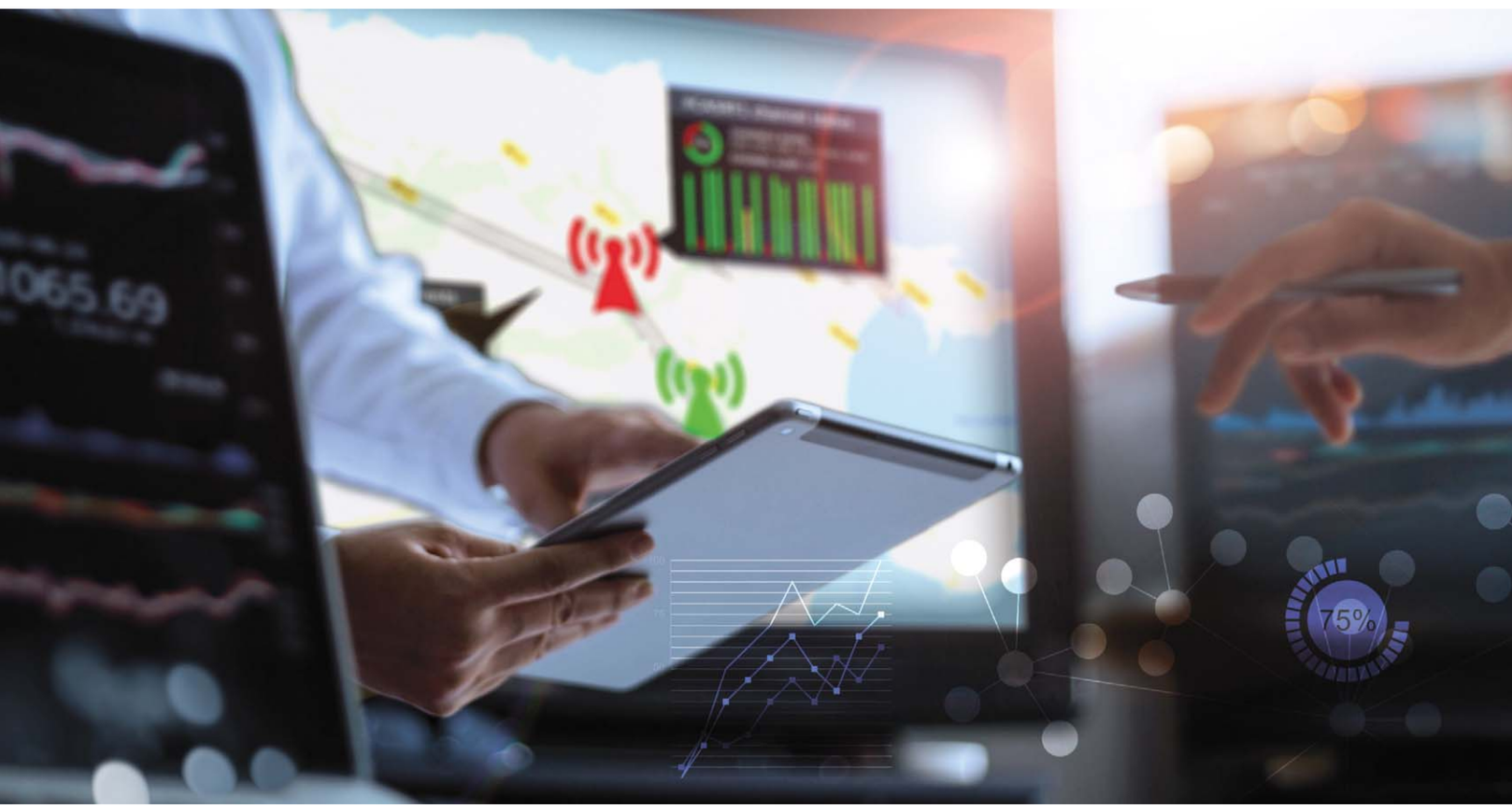
PROMAX

PROWATCHNeo monitoring system

PROWATCH*Neo*



SNMP

SNMP COMPATIBLE

Easily scalable

WEB SERVER

WEB SERVER CONTROL

Total flexibility

H.265

HEVC H.265

High Effciency Video Codec

4K ULTRAHD

4 K

Ultra high definition

PROWATCH*Neo* MONITORING SYSTEM

DVB T/T2
DVB C/C2
DVB S/S2
ISDB-T/TB
ATSC
J.83 B

REMOTE MONITORING SYSTEM

After more than 50 years of experience in test and measurement solutions, PROMAX is proposing the **PROWATCH*Neo***, oriented to supervise radio and TV broadcasting, cable TV and satellite TV networks, in the 5 to 2500 MHz frequency band. It also monitors IPTV, TS (over ASI) or WiFi signals in the 2.4 GHz and 5.7 GHz ranges. It is possible to survey digital terrestrial transmissions in DVB-T, DVB-T2, ATSC, ISDB-T/TB and J.83B, Cable TV in QAM and DVB-C2 and satellite in DSS, DVB-S and DVB-S2.

PROWATCH*Neo* provides full remote control for the different parameters in all the sites to warrant quality of the complete network.

WiFi
ASI-TS IN&OUT
ip:tv
OPTICAL

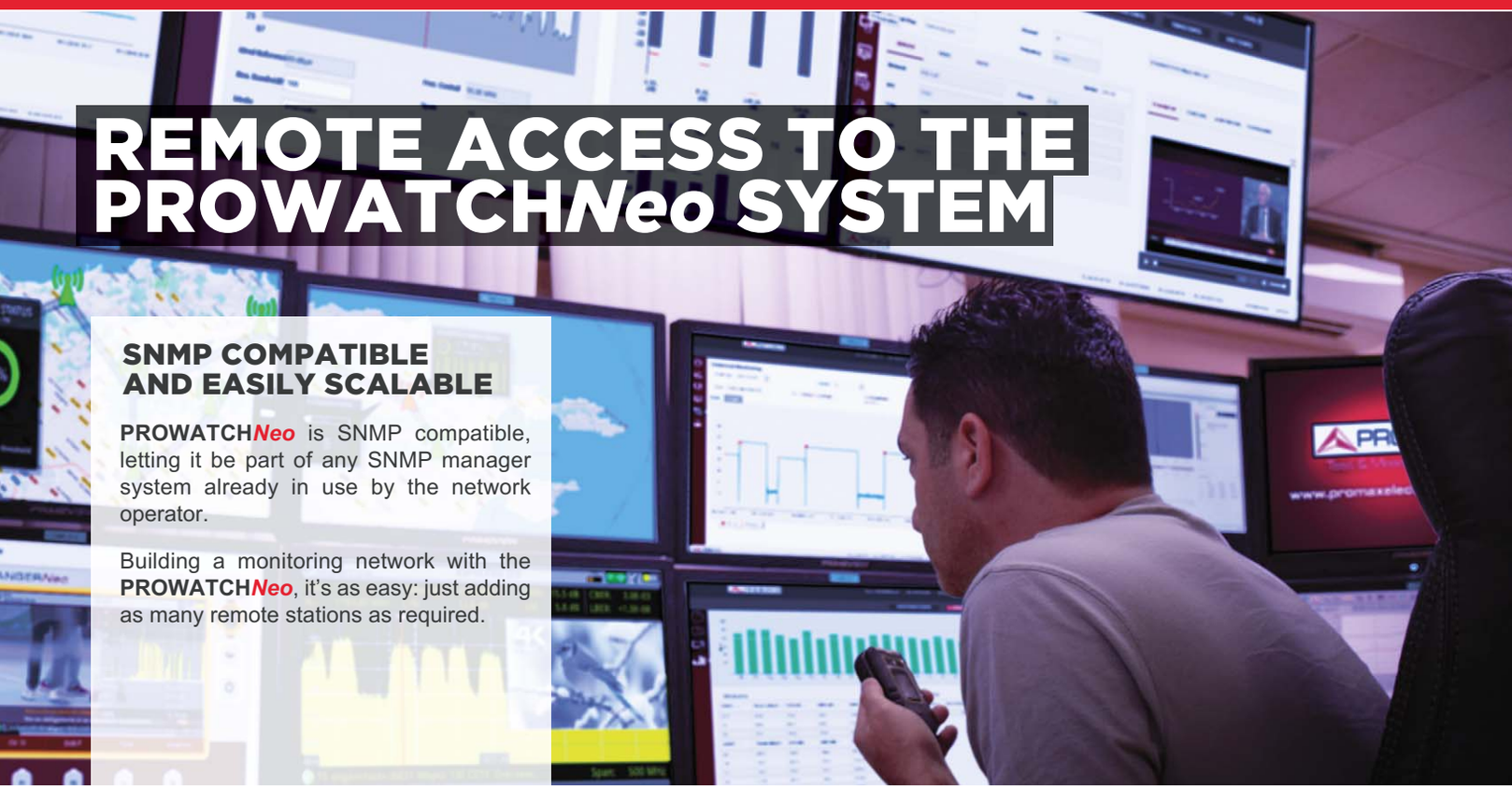
FOR ANALOG, DIGITAL AND OPTICAL SIGNALS

PROWATCH*Neo* is the ally of the supervisory bodies of the radio-electric public domain during the analog-to-digital transition, because it is natively compatible with both analog and digital radio and television broadcasts.

The system features several configuration options including the ability to add support for the monitoring of networks that operate over optical fibre.

MONITORING ALL SIGNALS IN A SINGLE SWEEP

FM radio, DAB digital radio, analog television and digital television. All the broadcasting technologies are analyzed in a single sweep, providing the information needed by the supervisory bodies of the radio-electric public domain for a quick and accurate decision making.



REMOTE ACCESS TO THE PROWATCH*Neo* SYSTEM

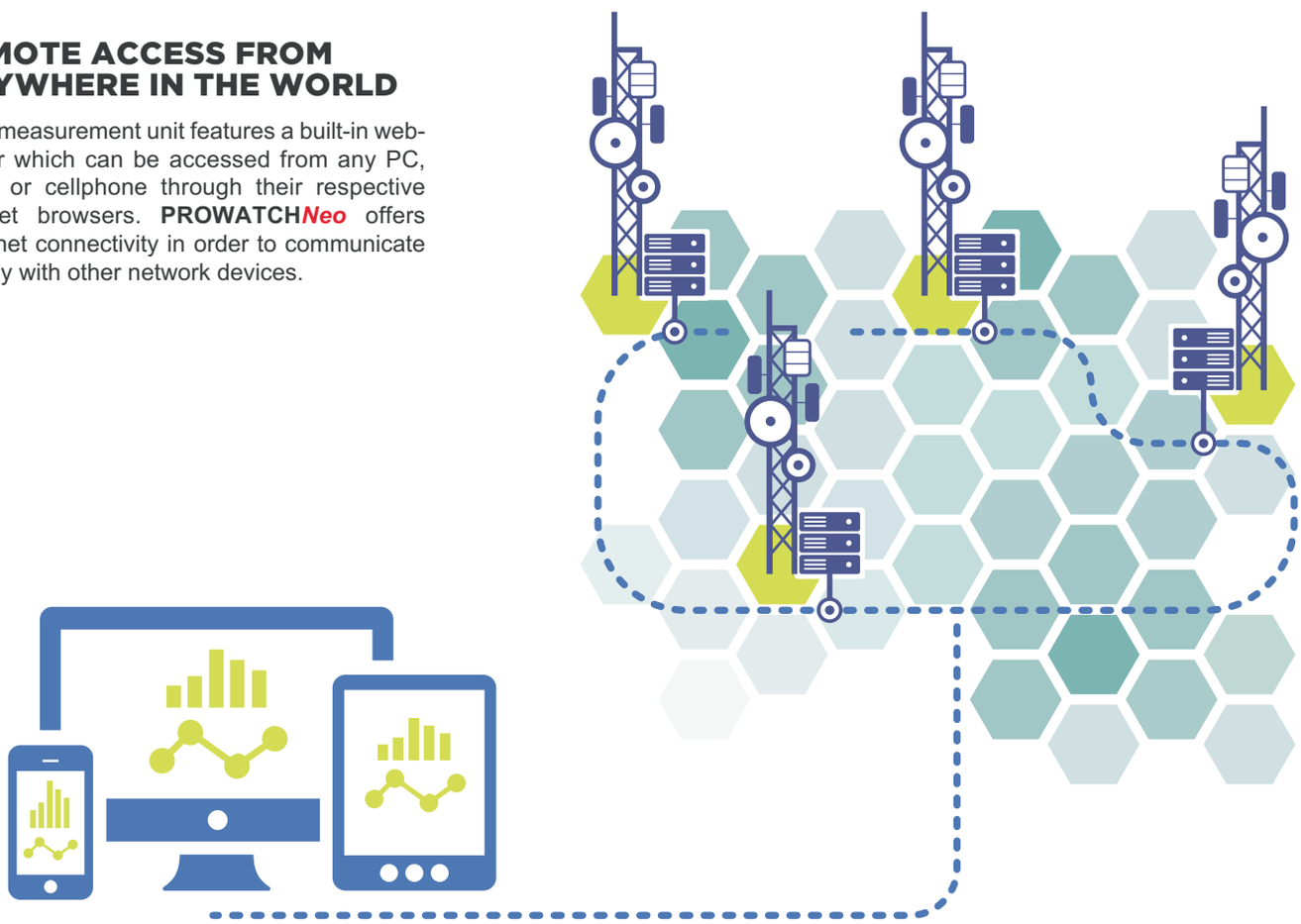
SNMP COMPATIBLE AND EASILY SCALABLE

PROWATCH*Neo* is SNMP compatible, letting it be part of any SNMP manager system already in use by the network operator.

Building a monitoring network with the **PROWATCH*Neo***, it's as easy: just adding as many remote stations as required.

REMOTE ACCESS FROM ANYWHERE IN THE WORLD

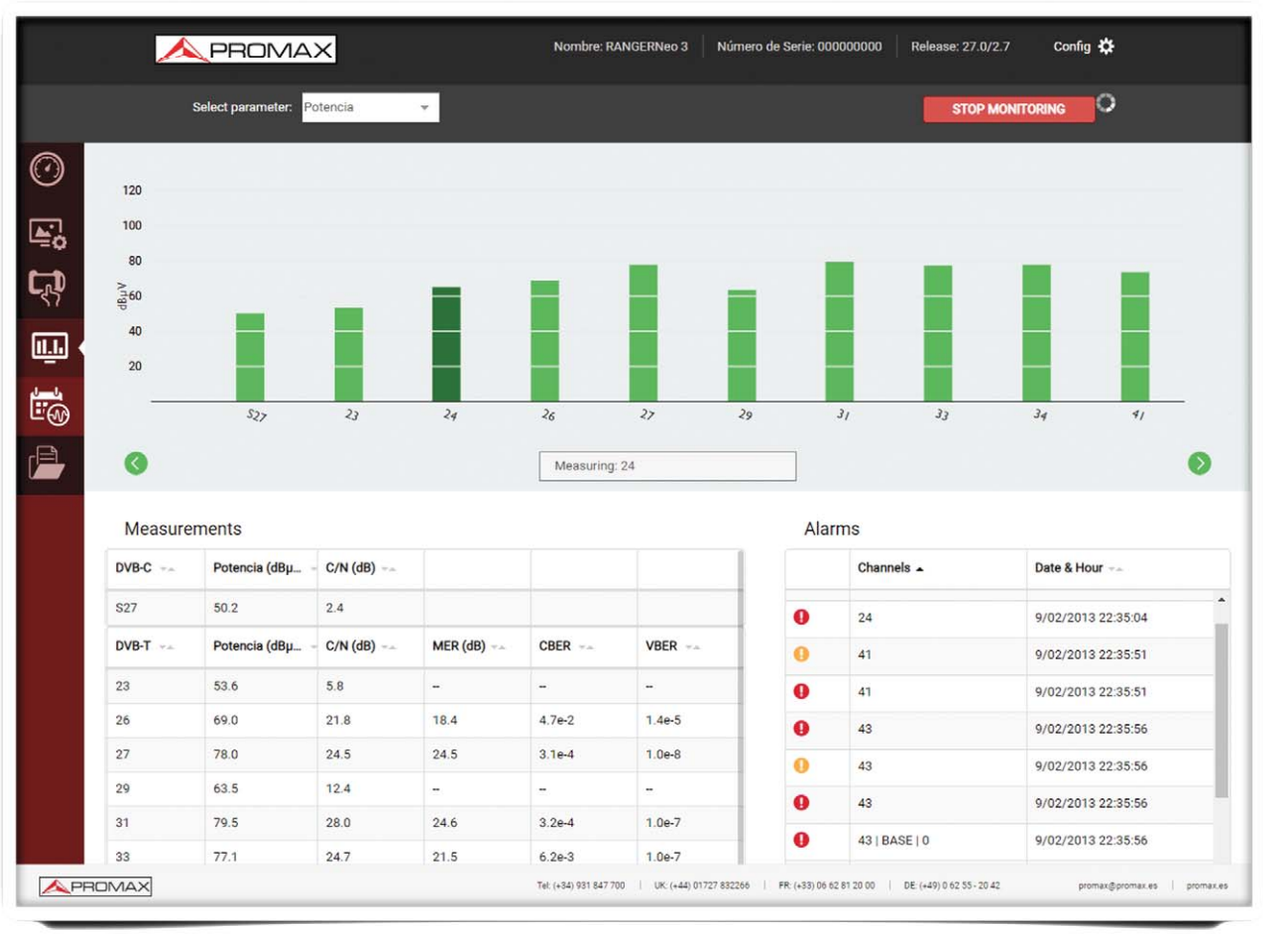
Each measurement unit features a built-in web-server which can be accessed from any PC, tablet or cellphone through their respective internet browsers. **PROWATCH*Neo*** offers Ethernet connectivity in order to communicate directly with other network devices.



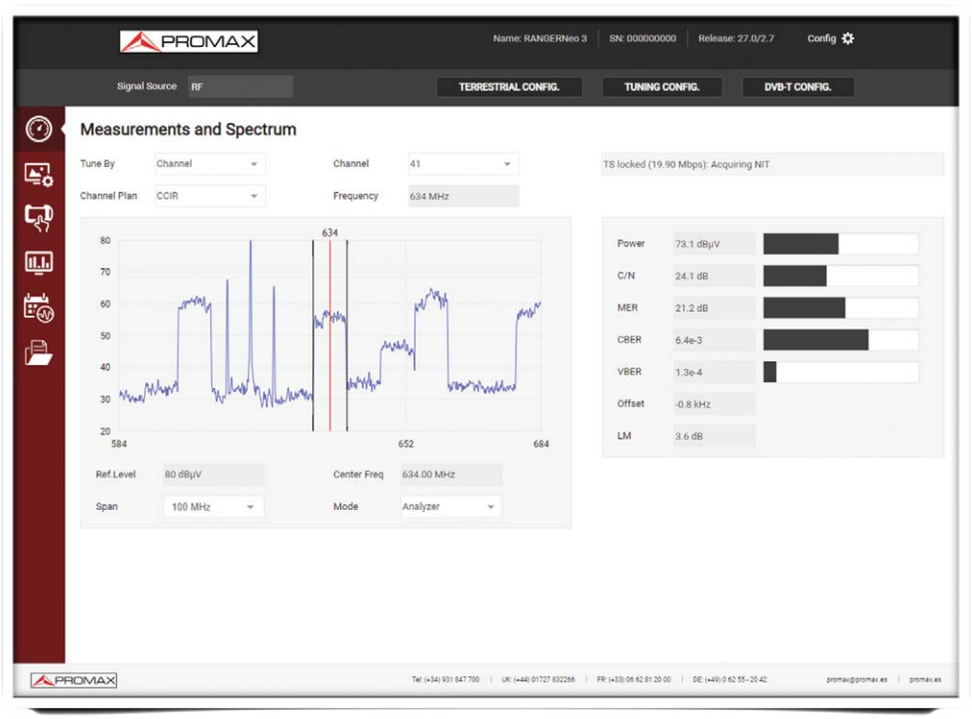
REMOTE CONTROL OF THE SYSTEM

EFFICIENT AND HASSLE-FREE MONITORING SOLUTION

Each measurement station can be set up to carry out tasks autonomously. Through its straightforward interface, it is possible to choose the channels or frequencies that are to be monitored as well as the threshold values and alarms.



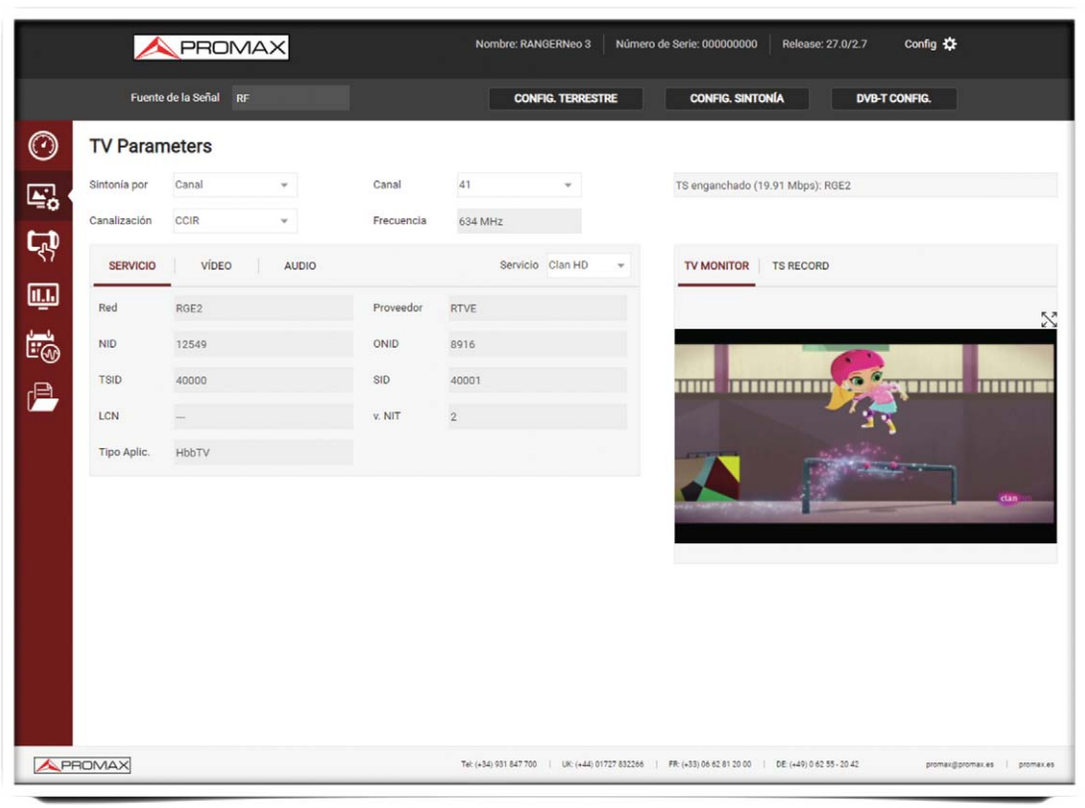
INCLUDING RANGER*Neo* HARDWARE POWER



JUST LIKE BEING THERE

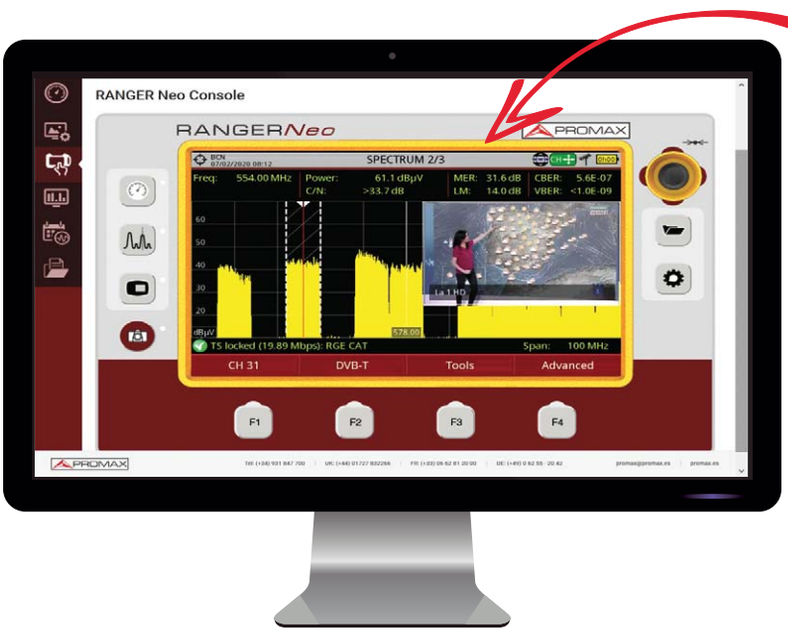
It is also possible to get remote and manual access to a wide range of functions allowing the users to work with the device as they would do physically on site.

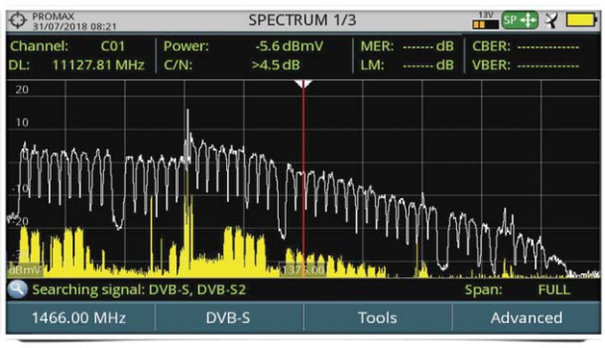
This is essential to carry out a deep analysis of the alarms that may have been raised.



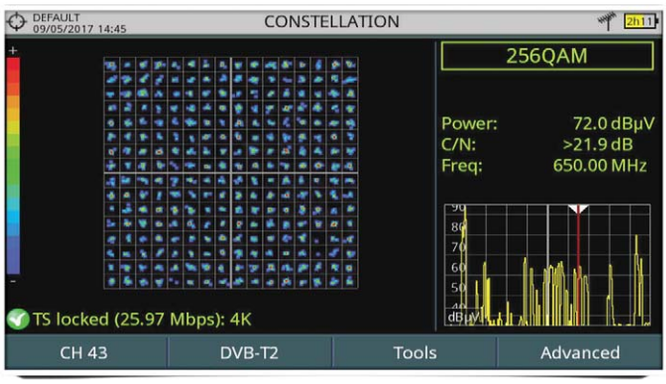
REMOTE SYSTEM CONTROL

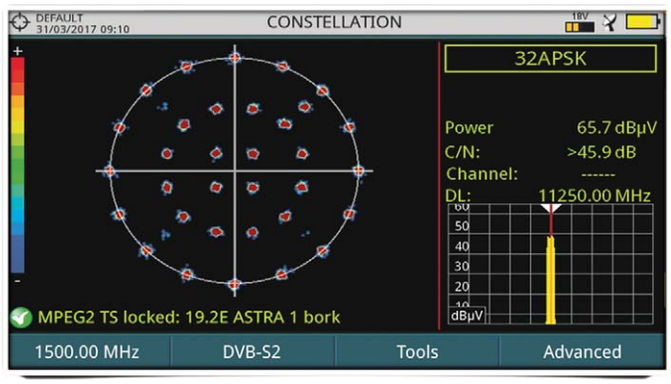
The remote console allows connecting to a measuring equipment and using it as one would do physically. Requiring just an Internet browser, with no need for additional software. **Just like being there on site.**



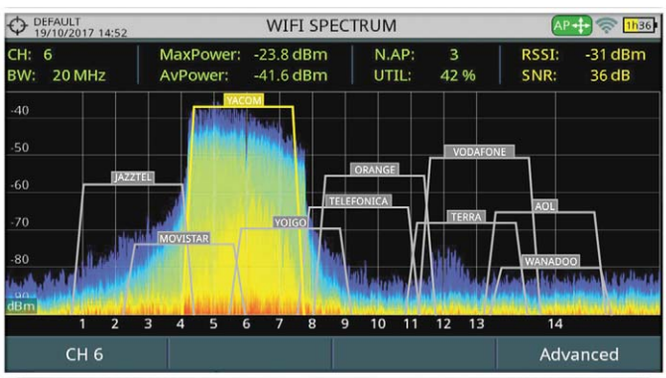


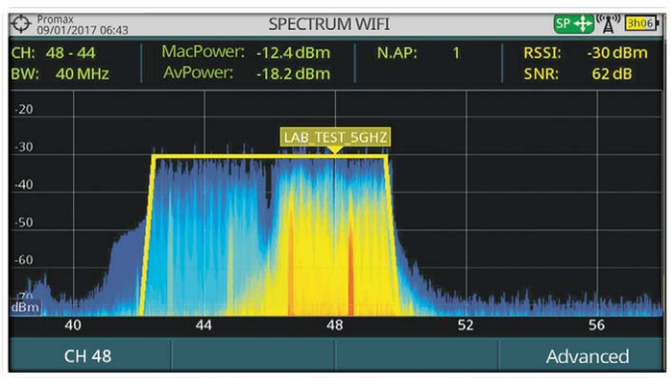
Professional spectrum analyzer: Freeze the spectrum graph and compare it with the running trace. Save that information and use it to identify satellites based on their spectrum footprint.





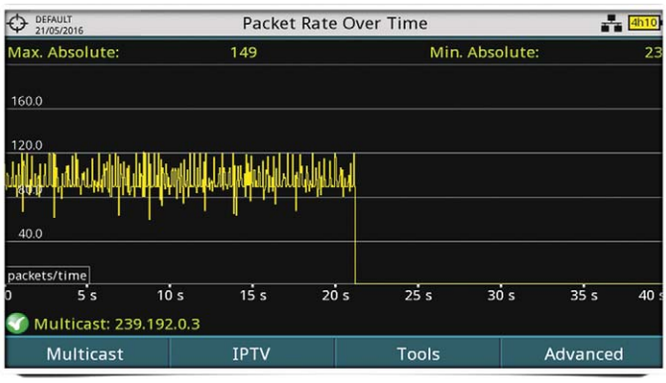
The fastest way to identify signal impairments. There are different types of constellation diagrams for the different modulation modes.



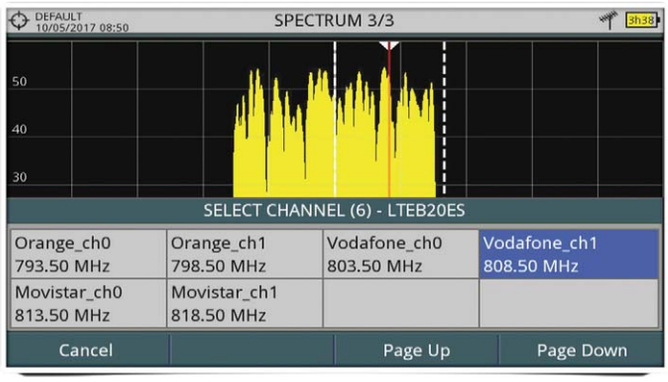


2.4 & 5.7 GHz WiFi analyzer. Simultaneous real spectrum analyzer information + WiFi access point data.

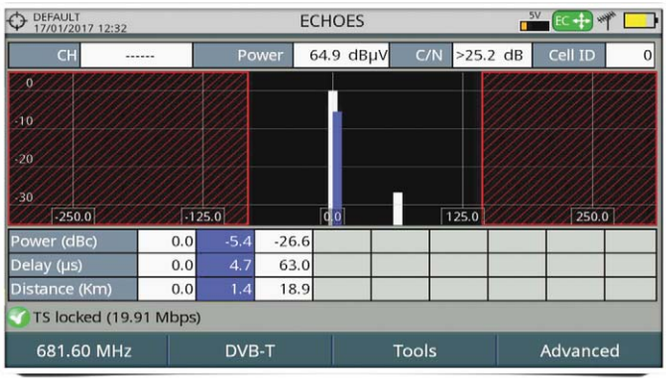
JUST LIKE BEING THERE ON SITE



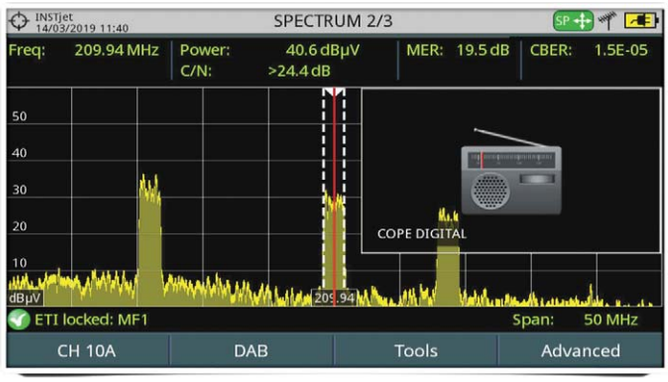
PING, Trace, Average packet delay and IPDV identify the reasons for communication problems, from complete service interruptions to uncontrolled delays.



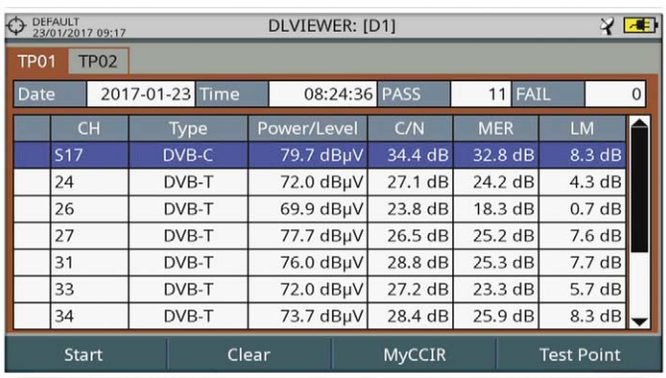
The use of smart phones is widespread worldwide. Identify operators quickly and easily.



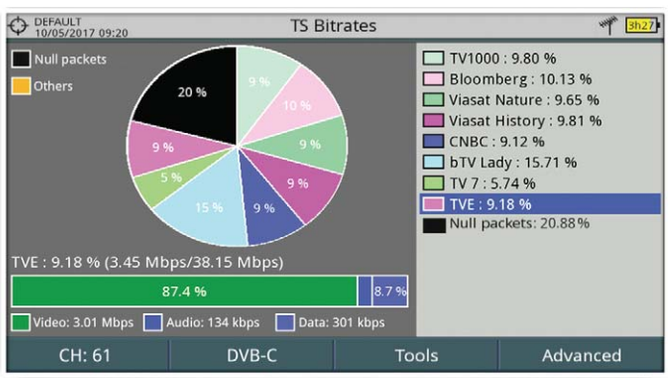
Dynamic echoes analyzer, a must-have utility for testing DVB-T, DVB-T2 and DVB-C2 networks.



The DAB+ includes Reed-Solomon error correction algorithm which makes it more robust against transmission impairments.



Powerful Datalogger and Task Planner.

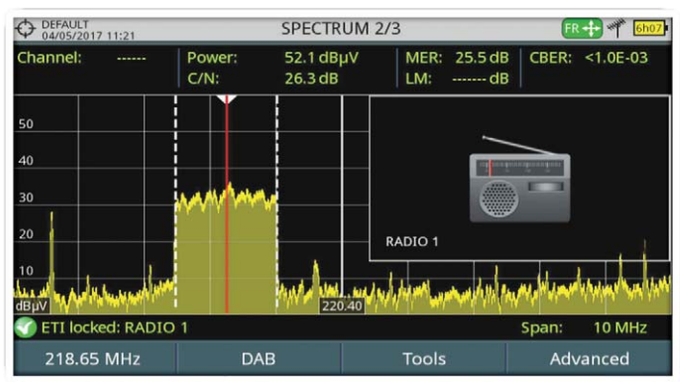


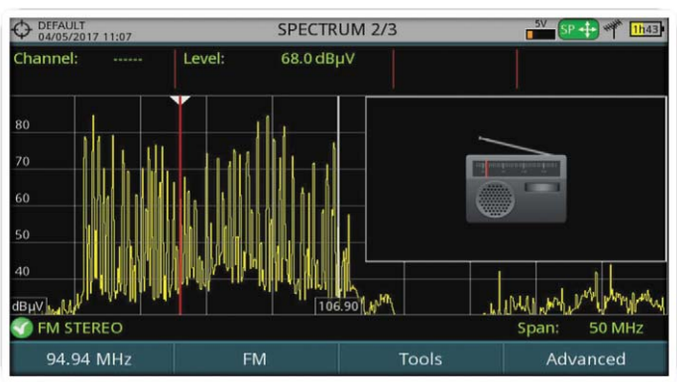
The bitrate analysis shows on a pie chart the real-time bitrate used by each one of the services in a transport stream.

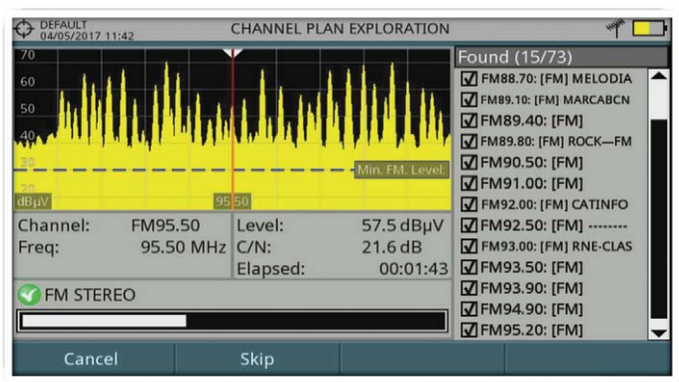
FM, RDS AND DAB+ RADIO

DAB+ DIGITAL RADIO

DAB+ is an evolution of DAB (Digital Audio Broadcast) that among other differences uses AAC+ audio codec. It also includes Reed-Solomon error correction algorithm which makes it more robust against transmission impairments. **PROWATCH*Neo*** DAB option is compatible with both standards.





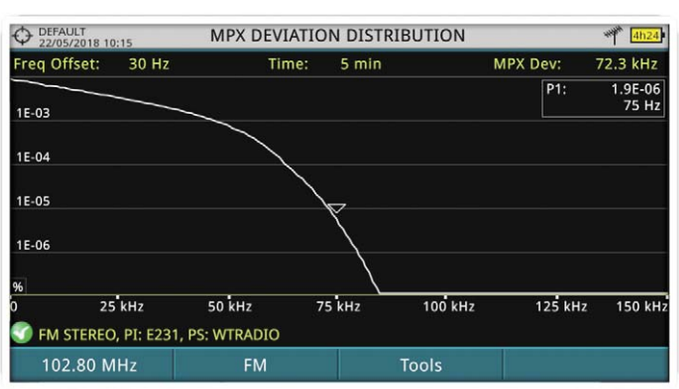


The PROWATCH *Neo* include an FM radio receiver and analyzer.

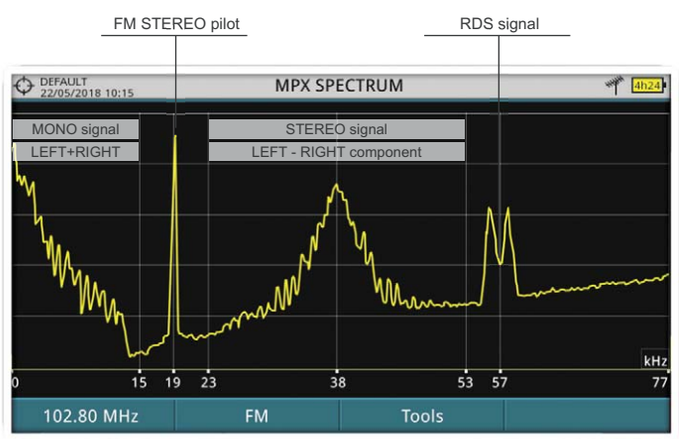
ADVANCED FM OPTION

ADVANCED MEASUREMENTS OVER FM RADIO

- Modulation Power
- Stereo Pilot Detection and frequency deviation
- MPX Frequency Deviation
- L+R, L-R, L, R Frequency Deviation
- RDS Frequency Deviation
- Offset
- % time frequency deviation > 75 kHz



MPX Histrogram
All parameters such as FM deviation sampling and refresh rates are set according to ITU-R SM.1268-2 and ITU-R SM.1268-4. Both normal and cumulative histograms are available.



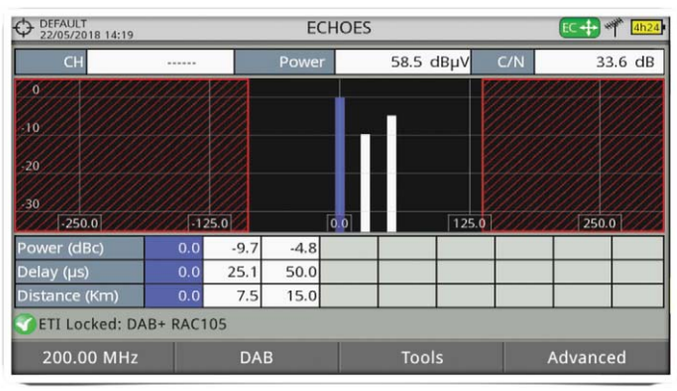
MPX Spectrum display
Spectrum analysis of the MPX can have a variety of applications namely the detection of interferring signals which can not be seen otherwise.

ADVANCED DAB/DAB+ OPTION

ADVANCED MEASUREMENTS OVER DAB/DAB+ RADIO

The new advanced DAB option allows professional users to do DAB signal quality measurements and it includes many functions which are normally available in higher cost products only such as ETI recording, constellation diagram or echoes analysis.

ETI recording
ETI stands for Ensemble Transport Interface and it may be described as the equivalent to the Transport Stream for DAB. It is possible to record ETI on the analyzer so that it can then be copied to an external device for further analysis.

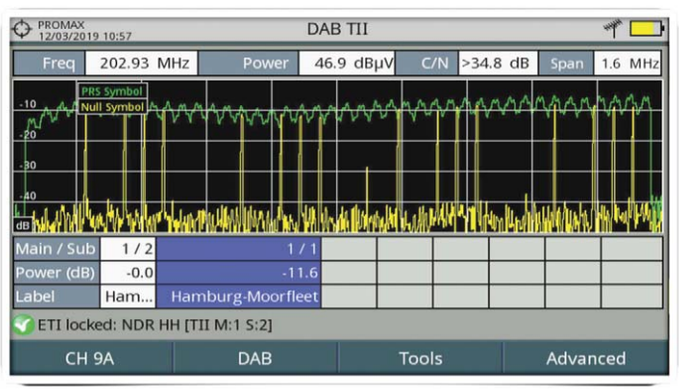


Dynamic echoes analysis
DAB can also be operated in a Single Frequency Network (SFN) and therefore the dynamic echoes analysis becomes a handy function to have.

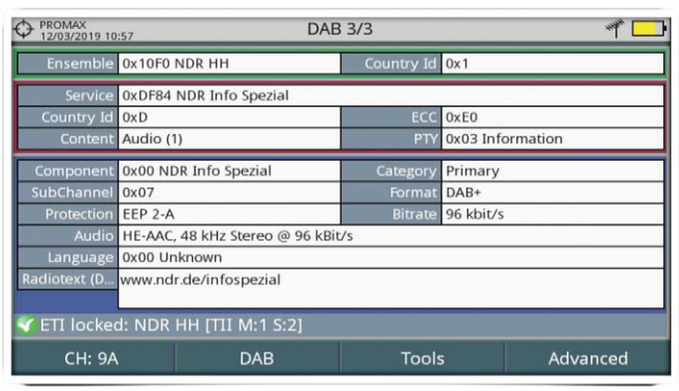
ADVANCED DAB/DAB+ OPTION

ADVANCED MEASUREMENTS OVER DAB/DAB+ RADIO

- ETI Recording and Playing
- IQ Recording
- Constellation
- Slideshow
- Full ensemble CBER
- Echoes
- Power, C/N, MER measurements
- NSC CBER
- FIC CBER
- TII
- Audio decoding



Transmitter Identification Information TII
Each transmitter operating in the area is identified by its TII.
All TII details are displayed along with the spectral representation of the mux showing the PRS and Null symbols which can be easily identified by colour. A label can be edited and assigned to each transmitter.



Down to the smallest detail
t is also possible to display plenty of useful information about the DAB mux and audio ensembles such as Ensemble and Country IDs, ECC, PTY, Component and SubChannel information or even the detail of the Radiotext.

SPECTRUM MONITORING SYSTEM

DYNAMIC SPECTRAL DATABASE WITH TERRESTRIAL AND SATELLITE ADVANCED ANALYSIS

OPTION FOR PROWATCH *NEO* MONITORING SOLUTIONS WHICH FACILITATES SPECTRUM BASED SIGNAL ANALYSIS.

Spectrum trace samples taken from the RF input are continuously stored in a database and analyzed by this solution. If required, alarms notifying identified events can be generated.

The spectral database, as well as the alarms created, can be reviewed anytime.

HIGH STORAGE CAPACITY DATABASE

More than 11 months of recorded spectrum traces depending on the setup.

SPECTRUM TRACE RELOAD

Examine any spectral sample without interrupting the ongoing analysis.

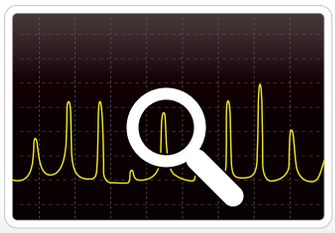
UP TO 16 RF INPUTS

Multiple configuration setups available with optional redundant power supply.

ALARM NOTIFICATION BY E-MAIL

Create email lists to notify to when alarms are triggered.

CUSTOMIZABLE PROGRAMMABLE ANALYSIS MODES

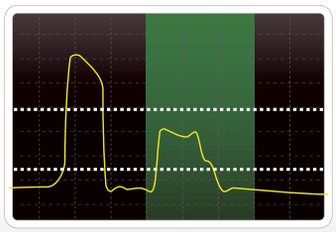


FM ANALYSIS

Identify new radio stations or detect those gone missing by comparison with a reference spectrum sample.

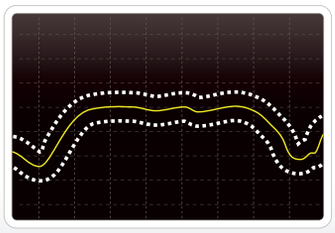
RF/TV ANALYSIS

Continuously scan all TV channels (in terrestrial television and CATV) or Satellite transponders and verify them against a reference spectrum sample.



MAX/MIN MARGIN

Define which thresholds our signal must fall within.



DEVIATION

Capture a spectrum sample and specify the maximum acceptable deviation allowed as a percentage figure.

1

PLUG

Up to 16 RF inputs with optional power supply which ensures 24/7 operation.

2

CONFIGURE

4 dynamic analysis modes that can be customized while in operation and alarm notification by e-mail.

3

ANALYZE

Registering and storing of spectrum samples for a period of up to 11 months.

4

PROCESS

Recall and display any registered spectrum sample fromany date.

LIVE SPECTRUM TRACE DISPLAY AND HISTORICAL REPORT

CHECK RELEVANT INFORMATION ANYTIME WITHOUT INTERRUPTING THE ONGOING MONITORING TASK

The remote control GUI includes a **real time** monitoring screen to survey up to 16 spectrum traces simultaneously, and a historical **spectrum display area** which allows choosing the specific sample to load on screen from the historical register.

PROFESSIONAL MONITORING

*The spectrum monitoring solution is available as an option for **PROWATCH Neo+** and **PROWATCH Neo 2** systems, which inherit sector leader field strength meter technology from our R&D labs at PROMAX.*

- ✓ **Flexible setup:** Customize the solution in order to carry out any analysis mode within customised frequencies and level margins.
- ✓ **Rack mount with redundant power supply option:** Different available setups with up to 16 RF inputs.
- ✓ **Real-time monitoring:** Display on screen the last spectrum trace captured for every input.
- ✓ **Simultaneous display of all inputs:** Display 1, 2, or all the active inputs simultaneously.
- ✓ **Historical spectrum trace:** Recall spectrum traces from any date.
- ✓ **Back and forward:** When working with the database, scroll back and forward along the timeline from a specific date.
- ✓ **Without interrupting the monitoring task:** The spectrum trace and alarms database is accessed without interrupting the ongoing real-time analysis.

SPECIFICATIONS	SPECTRUM MONITORING OPTION
Technology	Solution based on the PROWATCH *Neo* model technology, developed by PROMAX
RF commuting switch	
Frequency margin	From 5 MHz to 2.5 GHz
Output impedance	50 Ω
Input isolation	≥ 65 dB
Maximum input power	25 dBm (measurement range from 31 to 130 dBµV)
Connectors	SMA
Acquisition rate	
Single RF input	1 sample every 200 ms
More than one RF input	Depending on setup
Spectrum samples database	
Storage capacity	500,000 RF spectrum samples
Access time	16 seconds (worst case scenario – 6000 spectrum samples search)
Maximum registering time	
1 sample every 200 ms	> 1 day
1 sample every 1 s	> 5 days
1 sample every 1 min	> 11 months
Setup information	
Basic data	Monitoring name and description
Operation band	Terrestrial or satellite
Number of inputs to monitor	From 1 to 16 (depending on the option chosen)
Timing setup	Start date, Duration, Periodicity, Stopping mode (manual, based on a date or after a number of iterations)
Spectrum setup	Start frequency, End frequency, Reference level, Resolution Filter, Video Filter, Averaging
Satellite setup	LNB (KaKu o C), Oscillator configuration
Measurement setup (optional)	To measure Power level and C/N: marker Frequency, BW
Alarm generation algorithms	
FM	Identification of carrier changes based on a minimum user-defined level and against a spectrum sample reference stored as a correct template
TV	Identification of carrier changes based on a channel plan, a minimum user-defined level and against a spectrum sample reference stored as a correct template.
MÁX/MIN	Spectrum band supervision of level so as to control that minimum and maximum user-defined thresholds are not surpassed.
% deviation	Spectrum supervision and detection of deviation amount from a user-defined threshold over a spectrum sample reference stored as a correct template.
Information display on screen	
Real time	Simultaneous display of 1, 2 or all the active inputs along with alarms information.
Historical spectrum samples view	Display a specific date and time, backwards and forward in time, etc. Monitoring is not interrupted.

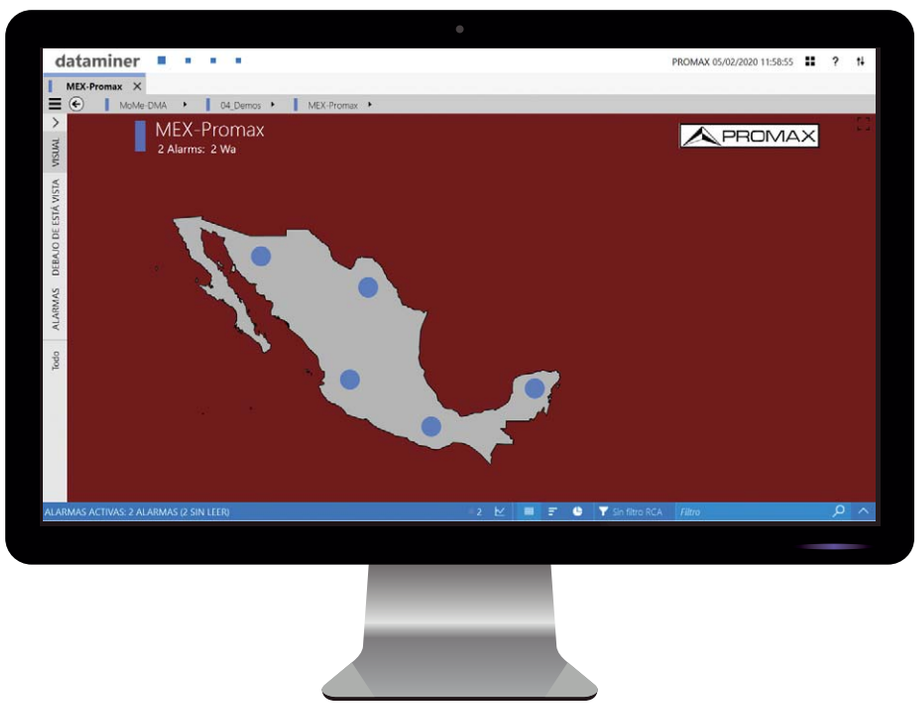
	REDUNDANT POWER SUPPLY (OPTIONAL)
Input	Double input (from 100 to 240 V, 47 to 63 Hz) to connect it to two mains circuits
Features	Power supply fault warning, Hot swappable power supplies, Audible power supply fault warning

PROWATCH *Neo*+	Remote 24/7 monitoring system.
PROWATCH *Neo* 2	Advanced remote 24/7 monitoring system. With TS-ASI input, Transport Stream and IPTV analysis.
OPTIONS	
OP-00X-PN-S	Spectrum monitoring and storage
OP-00X-PN-8	8 RF inputs (system embedded in 1U rack format)
OP-00X-PN-16	16 RF inputs (system embedded in 2U rack format)
OP-00X-PN-R	Redundant power supply (requires the 2U rack format regadless of the number of inputs)
OP-00X-WL	WiFi 5 GHz and LTE 2.6 GHz
OP-00X-PS	Optical measurements in FTTH, Cable TV and Satellite networks (included WiFi 5 GHz and LTE 2.6 GHz)
OP-00X-DAB2	Advanced DAB and DAB+ measurements for PROWATCH *Neo* 2
OP-00X-FM	Advanced FM measurements for PROWATCH *Neo* 2
PROWATCH TM	Telemetry gathering system
OP-00X-PDU	Remote reset via PDU
AM-060	Antenna for drive test and coverage analysis

DataMiner® COMPATIBLE

THE LEADER NMS SOFTWARE SOLUTION IN THE BROADCAST INDUSTRY

*PROMAX can provide the MIB files that will allow the integration of the monitoring and telemetry equipment in any **SNMP control system**, including some of the most renowned SNMP managers in the broadcast industry such as the DataMiner®.*



GEOLOCATION OF THE MEASUREMENT STATIONS

Easily identify on a map the actual physical location of each automated measurement stations to make easier the interpretation and management of the incidents.

MANAGEMENT OF A NETWORK VIA SNMP

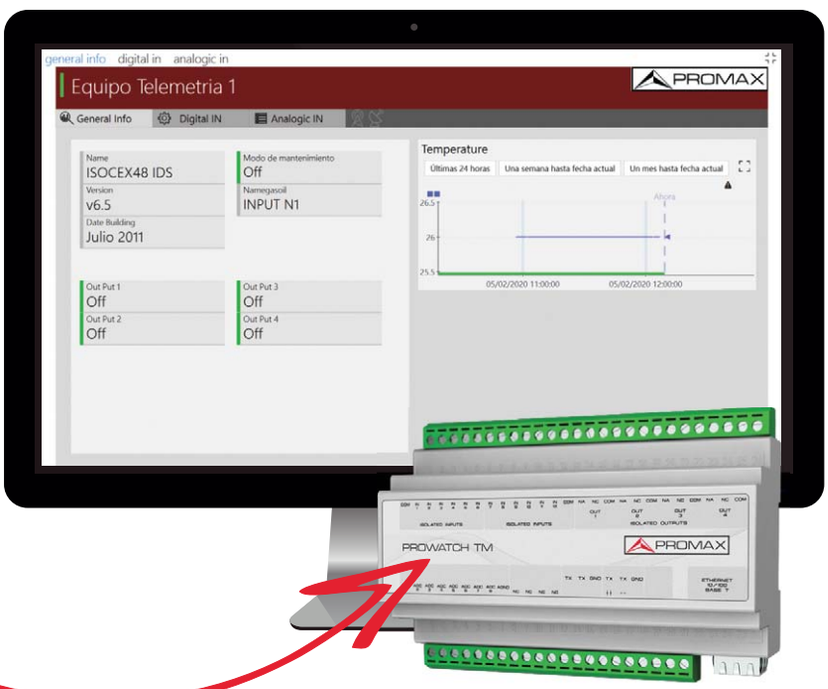
BENEFITS ON USING AN SNMP MANAGER

An SNMP manager is a software usually installed in specific servers and allows for flexible, intuitive management of a network of interconnected devices.

PROWATCH NEO AS A STANDALONE UNIT	PROWATCH NEO + SNMP MANAGER
Data is stored in each unit	Data is stored in a central server
Periodic, manual data maintenance	Automatic management of backups
Each unit is accessed via its IP	Tailor made graphical interface
One user per unit at a given time	Flexible user management
Independent management of other telemetry units	Integrated management of other telemetry units

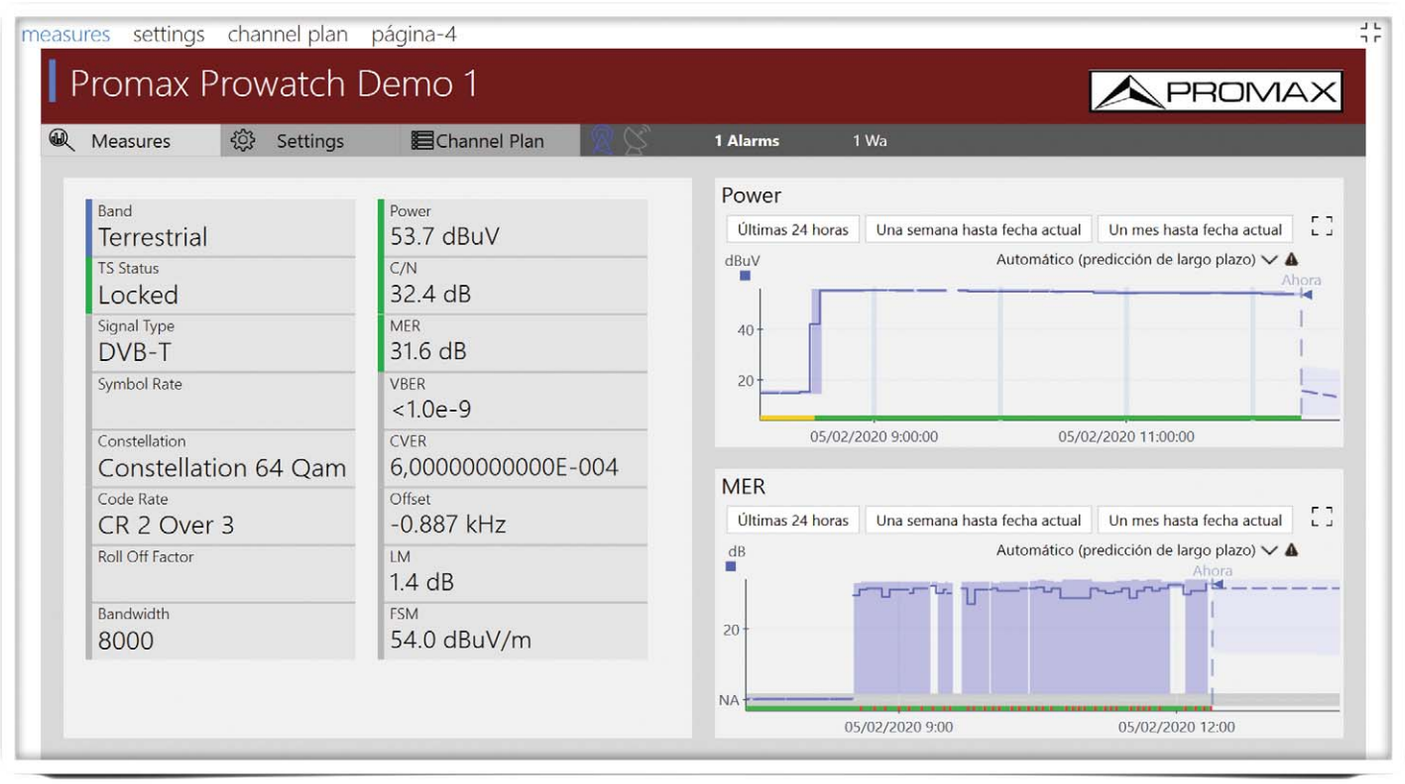
TELEMETRY FOR CONTROL OF SYSTEMS INTEGRATED INTO THE MONITORING STATIONS

In addition to the TV & Radio quality monitoring units themselves, additional systems such as Telemetry units can be provided for the purposes of surveillance and control of the whole set of systems available in the locations where monitoring systems are located, all of this in an entirely integrated manner.



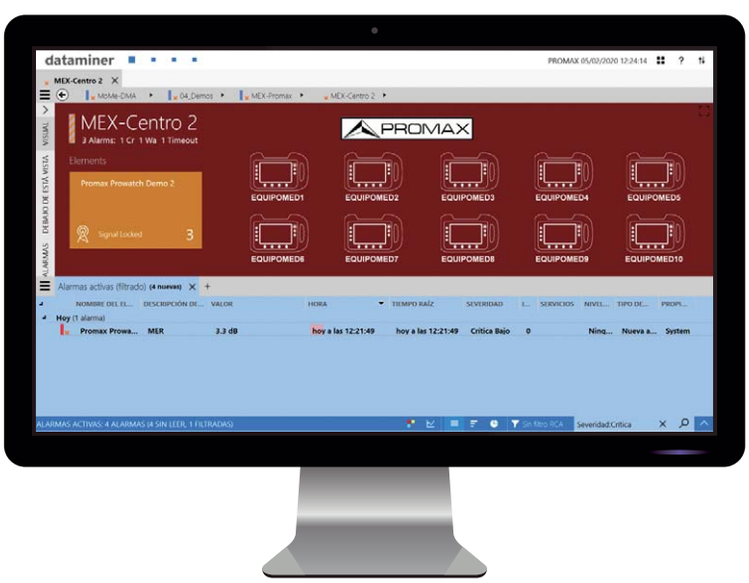
PROWATCH TM TELEMETRY SYSTEM

DataMiner® INTEGRATION

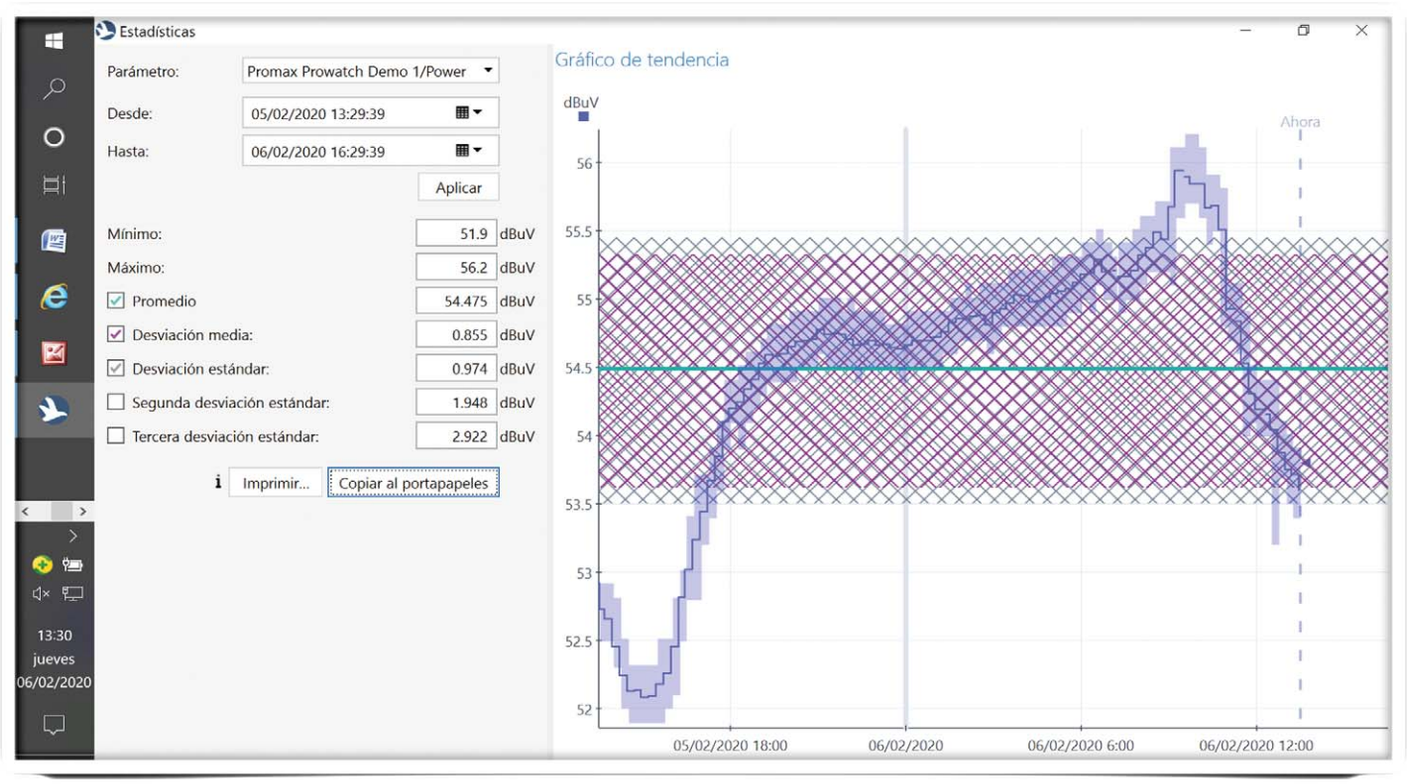


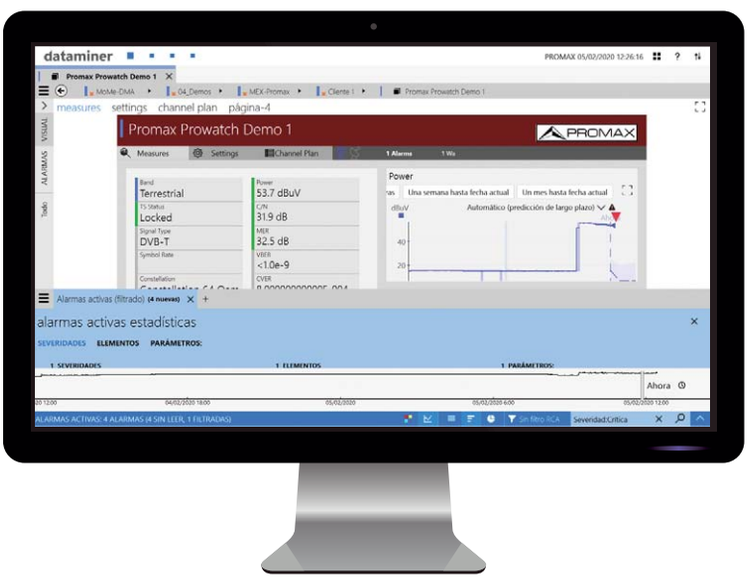
SNMP MANAGER FOR A FLEXIBLE AND INTEGRATED ADMINISTRATION

An SNMP manager will enable a flexible way to visualize data, join screens, organize backups or track the generated alerts and alarms. It will also gain access to the wide range of functions of PROWATCH Neo's embedded webserver itself via an integrated navigation window.



DataMiner® INTEGRATION





SNMP MANAGER FOR A FLEXIBLE AND INTEGRATED ADMINISTRATION

SNMP managers also feature control panels that allow access, for instance, to the analysis of key indicators in real-time or to the configuration of reports that can be edited and inserted into documents or sent via e-mail.

PROWATCH*Neo*

ESPECIFICACIONES	PROWATCH*Neo* +	PROWATCH*Neo* 2
DIGITAL BROADCAST STANDARDS	DVB-T, DVB-T2, DVB-T2 lite, ATSC, ISDB-T/TB, J.83B DVB-C, DVB-C2 DVB-S, DVB-S2, DVB-S2 Multistream DSS, ACM / VCM / CCM DAB, DAB+ (optional) FM	DVB-T, DVB-T2, DVB-T2 lite, ATSC, ISDB-T/TB, J.83B DVB-C, DVB-C2 DVB-S, DVB-S2, DVB-S2 Multistream DSS, ACM / VCM / CCM DAB, DAB+ (optional) FM, FM avanzado (optional) MPEG-TS
AUDIO CODECS	MPEG-1, MPEG-2, HE-AAC, Dolby Digital, Dolby Digital Plus, AAC	
VIDEO CODECS	MPEG-2, MPEG-4 / H.264, HEVC / H.265	
INPUTS AND OUTPUTS	Universal RF input 75 Ω HDMI output IP input for remote control Analogue Video/Audio input 2 x USB (Type-A) for data transfering	Universal RF input 75 Ω HDMI output IP input for remote control Analogue Video/Audio input 2 x USB (Type-A) for data transfering ASI-TS input and output (BNC Female, 75 Ω) IPTV multicast input (UDP / RTP, RJ45) Slot Common Interface
FUNCIONES (COMUNES)	Constellation diagram, LTE ingress test, Dynamic echoes analysis, StealthID (instant identification of tuning parameters), PLS (Physical Layer Scrambling), Ultra fast spectrum analyzer (70 ms sweep time), MAX and MIN hold, FM RDS radio measurement and decoding, Screenshots and Datalogger for measurement reports, Beacon-Flyaways SNG and VSAT, Wideband LNB, WiFi 2.4 GHz, LTE 1.8 GHz, OTT, Service Recording, Field strength measurement, Task planner, Merogram, Spectrogram, Signal Monitoring, Remote control (*webControl*), MER by carrier, GPS coverage analysis (optional), Channel Monitoring	
FUNCTIONS (PROWATCH *Neo* 2)		TS recording, TS Analysis, *Shoulder attenuation*, IPTV multicast measurement and decoding
SPECTRUM ANALYZER Frequency Margin Measurement range Span Resolution bandwidths	From 5 to 1000 MHz (Terrestrial) ; From 250 to 2500 MHz (Satellite) From 10 to 130 dBµV Full / 500 / 200 / 100 / 50 / 20 / 10 MHz	
	100, 200 kHz, 1 MHz	2 kHz (Terrestrial) 10, 20, 40, 100, 200 kHz 1 MHz
MEASUREMENT MODE **(According to standards)** Frequency Margin DVB-T COFDM DVB-T2 Base and Lite COFDM DVB-C QAM DVB-C2 COFDM PAL, SECAM and NTSC analogue TV FM radio DVB-S QPSK DVB-S2 QPSK, 8PSK, 16APSK, 32APSK DSS QPSK	From 5 to 1000 MHz (Terrestrial); From 250 to 2350 MHz (Satellite) Power (35 to 115 dBµV), CBER, VBER, MER, C/N, Link margin Power (35 to 115 dBµV), CBER, C/N, LBER, MER, Link Margin, BCH ESR, Iterations LDP, Wrong packets Power (45 to 115 dBµV), BER, MER, C/N and Link margin Power (45 to 115 dBµV), CBER, MER, C/N, LBER, BCH ESR, Iterations LDP and Wrong packets M, N, B, G, I, D, K y L Level measurement Power (35 to 115 dBµV), CBER, MER, C/N y Link Margin Power (35 to 115 dBµV), CBER, LBER, MER, C/N, BCH ESR, Wrong packets and Link Margin Power (35 to 115 dBµV), CBER, VBER, MER, C/N and Link margin	
INTERNAL STORAGE	7 GB for measurement protocols, screenshots and transport stream recordings	
ETHERNET INTERFACE	SNMP and WEB SERVER	
MECHANICAL FEATURES **Dimensions and Weight**	482.6 (W.) x 44.4 (H.) x 381 (D.) mm.; 2.9 kg	482.6 (W.) x 44.4 (H.) x 381 (D.) mm.; 3.5 kg

PROWATCH *Neo*+	Remote 24/7 monitoring system.
PROWATCH *Neo* 2	Advanced remote 24/7 monitoring system. With TS-ASI input, Transport Stream and IPTV analysis.
OPTIONS	
OP-00X-PN-S	Spectrum monitoring and storage
OP-00X-PN-8	8 RF inputs (system embedded in 1U rack format)
OP-00X-PN-16	16 RF inputs (system embedded in 2U rack format)
OP-00X-PN-R	Redundant power supply (requires the 2U rack format regadless of the number of inputs)
OP-00X-WL	WiFi 5 GHz and LTE 2.6 GHz
OP-00X-PS	Optical measurements in FTTH, Cable TV and Satellite networks (included WiFi 5 GHz and LTE 2.6 GHz)
OP-00X-DAB2	Advanced DAB and DAB+ measurements for PROWATCH *Neo* 2
OP-00X-FM	Advanced FM measurements for PROWATCH *Neo* 2
PROWATCH TM	Telemetry gathering system
OP-00X-PDU	Remote reset via PDU
AM-060	Antenna for drive test and coverage analysis

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