Televes®

H30

Refs. 593101, 593102

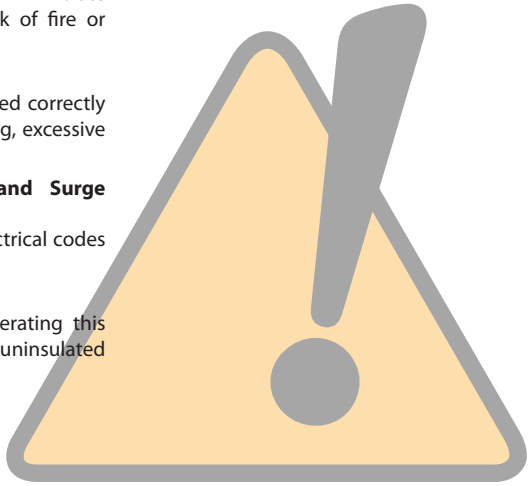
EN **CATV Meter / Analyzer**

Instruction Manual

Index

Safety requirements

- **Product inspection**
  - Inspect the equipment for shipping damage. Should any damage be discovered, immediately file a claim with the carrier.
- **Read and Follow All Instructions**
  - All the safety and operating instructions should be read prior to and followed while operating this product.
- **Cleaning**
  - Follow the cleaning instructions contained in the Maintenance section of this manual.
- **Attachments**
  - Do not use attachments that are not approved by the product manufacturer.
- **Water and Moisture**
  - This product is weather resistant but is not submersible.
- **Power Sources**
  - This product should be operated only from the type of power source specified.
- **Grounding or Polarization**
  - Do not bypass or defeat electrical plug polarization or grounding. Doing so will violate the warranty and may pose a risk of fire or electrocution.
- **Wire Protection**
  - Ensure all connected wiring is routed correctly to avoid damage including pinching, excessive bends, or compression.
- **Electrical Supply, Grounding, and Surge Protection**
  - Ensure that all local or national electrical codes are followed.
- **Power Lines**
  - Always use caution and avoid operating this or any connected equipment near uninsulated power lines or any other hazards.
- **Servicing**
  - There are no user serviceable parts except the battery. Do not attempt to service this product or remove covers other than the battery cover. Refer all servicing to qualified service personnel. Follow the instructions in this manual when replacing the battery.
- **Heat**
  - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.



EN

Overview

Introducing the H30.

New from Televes, a go-to meter designed with the needs of a Cable TV operator in mind.

The **H30** is a light weight, rugged unit, packed with all the features needed to install and troubleshoot a television system using QAM digital modulation as well as NTSC analog signals.

This handy little unit is even inexpensive enough to leave in your headend and use its unique in its class remote measurement and control capabilities to provide long term monitoring or to troubleshoot those hard to find, intermittent problems.

Available for the first time in such a portable and affordable package, its real time digital processing engine gives the installers the lab-precision measurements needed in today's fulfilment environment.

Key Features

- **User friendly**, handheld QAM meter.
- **Remote measurements and control** in an affordable package.
- Complete portfolio of Analog/Digital measurements with easy-to-read **pass/fail indicators**.
- **Quick and easy to use interface** with features such as Channel measurements, System Scans, Tilt Function, Constellation Diagram, Spectrum Analyzer, Voltmeter, Hum, Service Identification (option 593210), Datalogger, and more.
- Rugged, light weight, fully automatic, fast, and accurate.
- **Automatic** through-the-cloud software **updates**.
- 100% automatic ITU-T J.83 Annex A/B/C parameter detection and measurement with **no setup needed**.
- **1 GHz spectrum range** with selectable span.
- **PASS/FAIL Indicators**: Icons indicate if a measurement is good, bad, or in the warning zone for quick and easy status checks. Reduce installer entry errors and improve decision making.
- **Control your H30 remotely and make measurements from any internet connected device**. Ideal for extended signal tests over time in headends and broadband distribution networks. Leave your **H30** connected to your headend or anywhere in your plant and control the unit and measure signals and quality parameters remotely. Once finished, export the results to your computer using the included **Remote Application** software.

General Specification

Display	2.8″TFT 400 x 240 full color
Weight	1.12 lb (510 g)
Dimensions	6.9 x 3.9 x 2 in / 175 x 100 x 52 mm (H x W x D)
AC Adaptor	Input: 100-240V~ 50-60Hz Output: 12VDC, 2A
Battery	LiIon smart battery (7.2VDC, 2300mAh)
Operating Time	> 5 hours
Operating Temperature	23ºF to 104ºF (-5ºC to 45ºC)
Storage Temperature	-4ºF to 158ºF (-20ºC to 70ºC)
Humidity	5% to 95% non-condensing
Ruggedness	Survives 1 m (3 ft) drop to concrete on all sides
Interfaces	USB 2.0, RJ45 10/100-T Ethernet interface for Remote Control, Measurements, Datalog Retrieval and Automatic Software Updates
Storage	400 MB (internal) for measurements
Power up time	< 10 seconds

EN

Technical Specifications

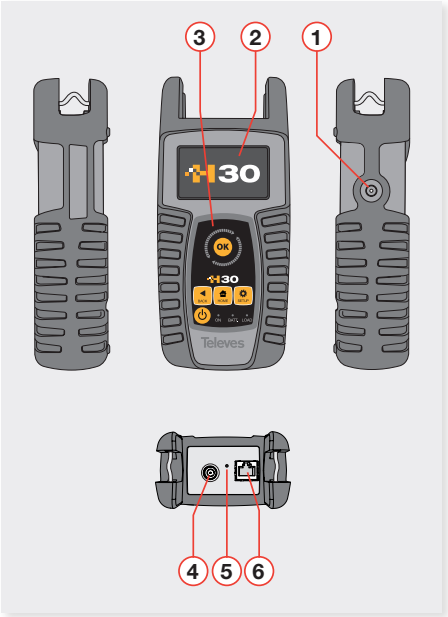
Frequency	
Range	5 MHz to 1002 MHz
Resolution	50 kHz
Tuning	Frequency or channel
Input	
Impedance	75Ω F-type connector
Spectrum Analyzer	
Span	2.5, 6.25, 12.5, 25, 62.5, 125, 250, 500 MHz and Full
Scale	5 and 10 dB/div
Automatic and manual reference level	✔
Reverse Path Ingress Scan	
Range	Selectable 5 to 42MHz, 5 to 68MHz, and 5 to 85MHz
Mode	Peak, Average, Min, and Real-time
Digital Measurements	
Demodulation	ITU-T J.83 Annex A/B/C standard
Support	16, 32, 64, 128 and 256 QAM, QPSK
Symbol Rate	2 to 6.9 MS/sec
Q.A.L. Technology (QAM Auto Lock)	Automatic detection of signal characteristics and modulation parameters
DFE filter	On / Off
Power	-30 to +60 dBmV
C/N	Up to 45 dB
MER	Up to 40 dB
Accuracy	±2 dB
Resolution	0.1 dB
Pre-BER and Post-BER (Annex B)	1.0E-3 to 1.0E-8
BER (Annex A/C)	1.0E-3 to 1.0E-8
Constellation	
Display	16, 32, 64, 128 and 256 QAM
Zoom Capability	✔
Channel Equalizer	
Graphical representation	✔

Analog Measurements	
Level measurement	-30 to +60 dBmV
V/A	up to 30 dB
C/N	up to 45 dB
Accuracy	±2 dB
Resolution	0.1 dB
CSO/CTB	✔
Channel Plans	
Factory channel plans	Standard CATV, Return, HRC, IRC, Broadcast, CCIR
Custom channel plans (learning plan)	Up to 16 channel plans
System Scan	
Channels	Up to 100 channels (analog and/or digital)
Measurements	Level bar representation and C/N BER/MER of the selected channel
Tilt	
Channels	Up to 100 channels (analog and/or digital)
Selectable markers	✔
Pass/Fail Indicators	
Factory profiles	Trunk, Tap, End of line, Ground Block, Modem Setup
Custom profiles	up to 10 profiles
Voltmeter	
Range	9V to 150V
Accuracy	±1%
Hum	
Range	2 to 5%
Accuracy	±1%
Speed Test	**Option 593211**
Download and upload Speed	Up to 20Mbps
Ping times	✔
Service Info	**Option 593210**
Channel parameters	NIT, PAT, TSID, CBRT
Service parameters	SID, VID, AID, bitrate, encode type

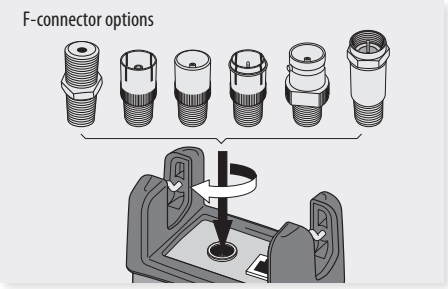
Specifications are subject to change without notice.

Description of equipment components

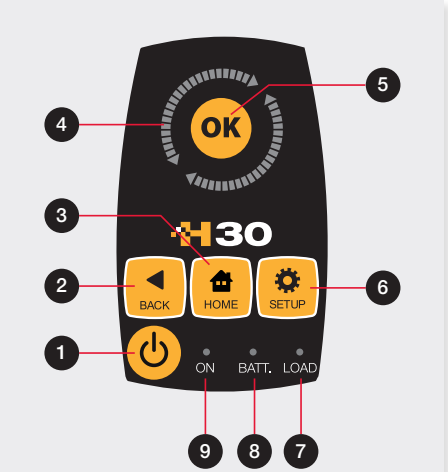
Connectors and controls



1. External power connector (12VDC).
2. LCD display.
3. Keyboard and LED indicators
4. RF F-connector (see options below).
5. Reset.
6. Ethernet connector.



Keyboard

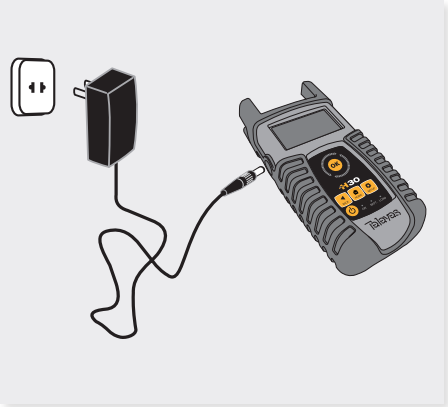


1. **Device On/Off button**: To turn the equipment off, press and hold for approximately 3 seconds.
2. **Back button**: Return to the previous menu or close a parameter entry window.
3. **Home button**: Return to the main menu.
4. **Rotating selector**: Used to scroll through options.
5. **OK Button**: To confirm selection.
6. **Setup button**: Parameter window for the current function.
7. **LED Load**: Indicates if the equipment is powering an external load.
8. **LED Charging Battery**: Indicates if the battery is charging.
9. **LED Power ON**: Illuminated when the equipment is on.

EN

Power supply

A DC adapter is provided to power and charge the meter. Plug the adapter into a properly grounded electrical supply and the power connector on the side of the unit.



When external power is supplied, the battery management system automatically controls the charging process.

A battery icon indicates the charge status of the battery.

When the battery is fully charged, the battery icon is completely filled. As the battery discharges, the amount the icon is filled decreases in steps.

The icon shows 5 states representing the approximate battery charge:

- Battery charge less than 5%.
- Battery charge between 5% and 25%.
- Battery charge between 25% and 50%.
- Battery charge between 50% and 75%.
- Battery charge greater than 75%.

From a fully discharged state, a full charge takes approximately 8 hours and a 3 hour charge will provide approximately a 75% charge.

The charge management system will detect various conditions preventing charging, such as a battery that is over a safe temperature.

Battery Recommendations

To maximize battery life:

- Avoid fully discharging the battery.
- The battery should always be charged with the battery pack attached to the device and using the supplied DC adapter or applying a constant voltage within the specified range (12-15VDC).
- For long term storage, keep the unit at room temperature, or about 25º C. Start with a charged battery and re-charge the battery every 2 to 3 months.

Product operation

1. Channel Info

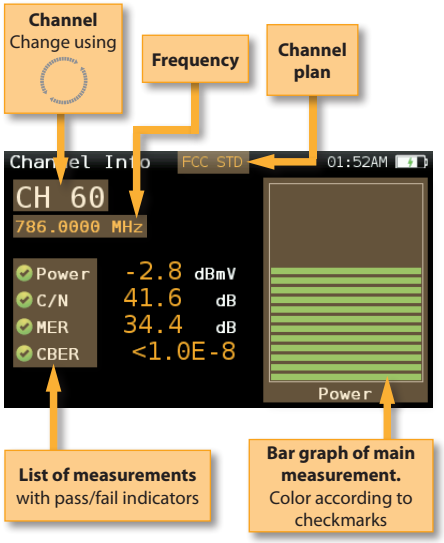
Analog and digital channels are very different in terms of signal content and power distribution and thus require the advanced SLM techniques provided in the Televes **H30**.

In analog mode, video and audio levels, V/A and Carrier to Noise (C/N) are measured.

In digital mode it´s Power, C/N, Pre-BER and Post-BER.

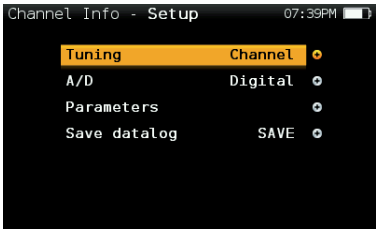
1.1. Main window

Below is a capture of a Channel Info window with a brief explanation of its features.



1.2. Setup

Press SETUP to change the Channel Info options.



- **Tuning**: Channel, Frequency
- **A/D**: Auto, Analog, Digital
- **Parameters**:

  Bandwidth: Auto, 6 MHz, 7MHz, 8MHz

  Symbol Rate: Auto, 6111, 5156, Other

  Constellation: Auto, 4QAM, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM

  Standard: ITU J.83-A, J.83-B, J.83-C

  DFE: OFF, ON.
- **Save datalog**: Saves the current measurements. You can see the datalogs using the remote control application.

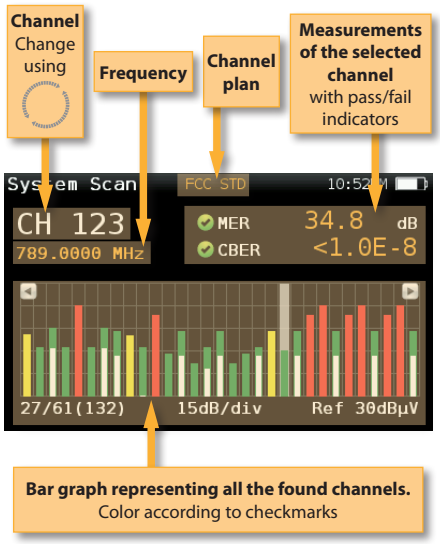
2. System Scan

This function scans the selected channel plan and detects every existing analog and digital channel in real time to determine the overall frequency response of the system.

The scan measurement leverages the location based thresholds to clearly show whether or not signal levels comply with the cable system's specifications with their green, yellow and red bars. This gives an easy-to-understand real-time view of the system, including the BER and MER values of the selected channel.

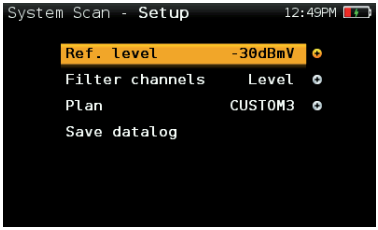
2.1. Main window

Below is a capture of a System Scan window with a brief explanation of its features:



2.2. Setup

Press  to change the System Scan options.



- **Ref. Level**: Select the reference level of the bar graph.
- **Filter channels**: Level, None

  User can choose to filter the channels that don´t meet a minimum level.
- **Plan**: FCC STD, FCC RETURN, FCC IRC, FCC HRC, FCC OFFAIR, CCIR, Custom plans.
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

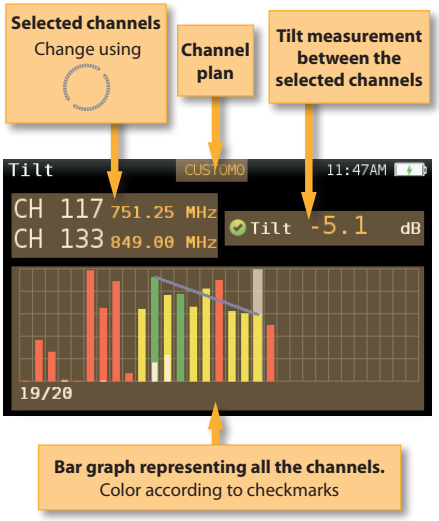
3. Tilt

Any number of analog, digital or DOCSIS channels can be measured using the tilt measurement, and you can even select which carriers are your reference points to determine the tilt between any of the channels included in the measurement.

The Tilt measurement leverages the location based thresholds to clearly show whether or not signal levels comply with the cable system's specifications with their green, yellow and red bars.

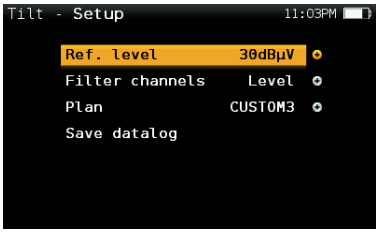
3.1. Main window

Below is a capture of a Tilt window with a brief explanation of its features:



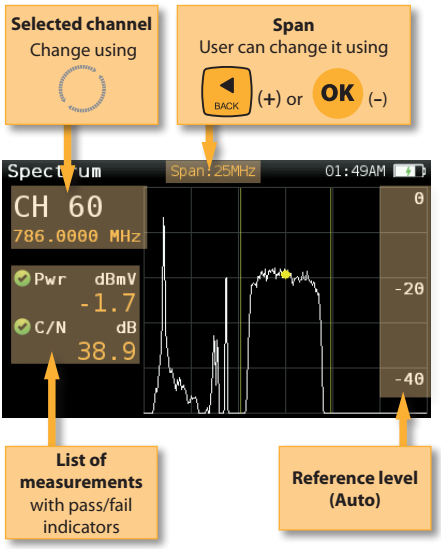
3.2. Setup

Press  to change the Tilt options.



- **Ref. Level**: Select the reference level of the bar graph.
- **Filter channels**: Level, None

  User can choose to filter the channels that don´t comply a minimum level.
- **Plan**: FCC STD, FCC RETURN, FCC IRC, FCC HRC, FCC OFFAIR, CCIR, Custom plans.
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.



4. Spectrum

Real-time processing speeds ensure capture of any fast, intermittent plant impairments.

Due to the accuracy and level of detail provided by this spectrum analyzer, the **H30** is the ideal tool for identifying and locating noise, interference, ingress and other waveforms that may be affecting cable services quality.

4.1. Main window

Below is a capture of a Spectrum window with a brief explanation of its features:

4.2. Setup

Press 

to change Spectrum options.

- **Span**: 2.5MHz, 6.25MHz, 12.5MHz, 25MHz, 62.5MHz, 125MHz, 250MHz, 500MHz, Full.

  Set the span of the spectrum. To easily change the span, use the **OK** Button to decrease the span and the Back Button to increase the span.
- **dB/div**: 5 dB/div, 10 dB/div
- **Tuning**: Channel, Frequency
- **A/D**: Auto, Analog, Digital.
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

5. Constellation

Digital video often does not show signal impairment until it is too late due to the small margin between acceptable quality and failure.

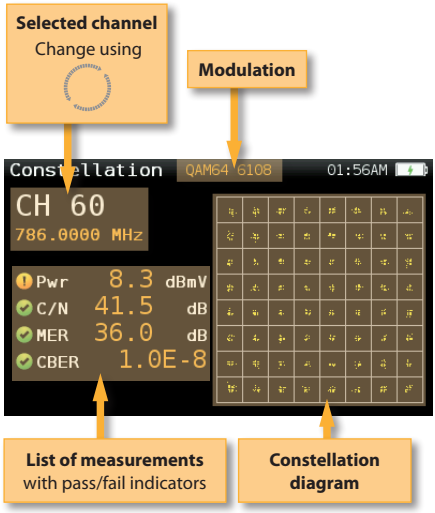
Constellation diagrams are an indispensable tool to help detect the presence of noise, phase jitter, interference, and gain compression, all of which impact overall signal quality and thus reduce Modulation Error Ratio (MER).

Ideally, each of the symbols in a constellation diagram should display a clean dot indicating a perfect QAM signal.

The **H30**'s real time constellation, allows the installer to assess the size and shape of the build up of dots indicative of problems which contribute to bit errors leading to service disruption

5.1. Main window

Below is a capture of a Constellation window with a brief explanation of its features:



5.2. Setup

Press SETUP to change Constellation options.

- **Zoom**: OFF, 1st, 2nd, 3rd, 4th.

  Select a quadrant of the constellation to be represented for more detailed view. Select Zoom OFF for the full constellation.

- **Parameters**:

  Bandwidth: Auto, 6 MHz, 7MHz, 8MHz

  Symbol Rate: Auto, 6111, 5156, Other

  Constellation: Auto, 4QAM, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM

  Standard: ITU J.83-A, J.83-B, J.83-C

  DFE: OFF, ON.

- **Tuning**: Channel, Frequency

- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

6. CTB & CSO

Cable TV networks are generally located in densely populated areas or extend over large geographical regions. This makes cascading large numbers of amplifiers a frequent necessity that can be the cause of quality of service to drop below minimum acceptable levels.

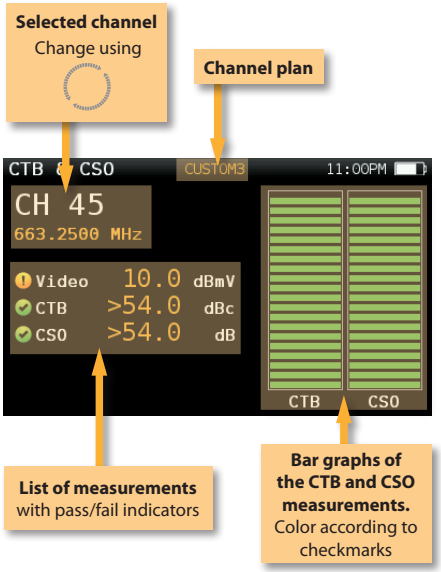
Composite second order (CSO) and composite triple beat (CTB) are commonly used quality parameters that can be measured with the **H30** to ensure the best possible quality video for customers receiving analog signals.

In order to get an accurate measurement of CTB and CSO, the meter must be tuned to an analog channel with unmodulated video and audio carriers. Many operators will choose to leave an unmodulated channel on the system to allow for

this measurement at any time without affecting customers.

6.1. Main window

Below is a capture of a CTB & CSO window with a brief explanation of its features:



6.2. Setup

Press SETUP to change CTB & CSO options.

- **Tuning**: Channel, Frequency.
- **CSO offsets**: The CSO measure is carried out in different frequencies (at a variable range from the video carrier) within the selected channel. This allows setting these frequencies in kHz from the video carrier.
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

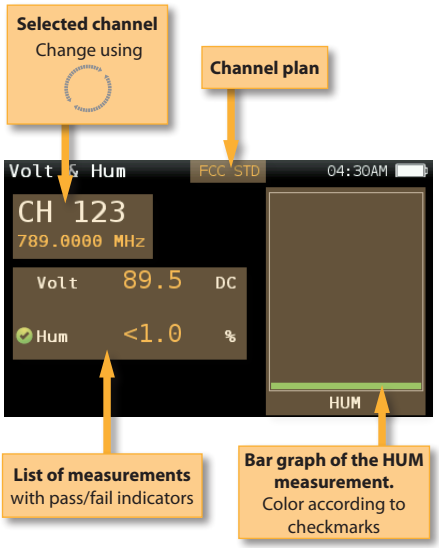
7. Voltmeter & Hum

H30 measures the voltage present at the RF input.

The HUM measurement indicates the variation in percentage of the video carrier amplitude of the TV signal. This will help you diagnose those ground and power interference problems that may result from a defective power supply or faulty/ overloaded power inserters.

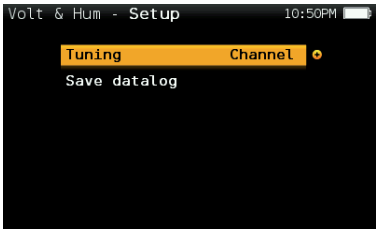
7.1. Main window

Below is a capture of a Voltmeter & Hum window with a brief explanation of its features:



7.2. Setup

Press SETUP to change Voltmeter & Hum options.



- **Tuning**: Channel, Frequency.
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

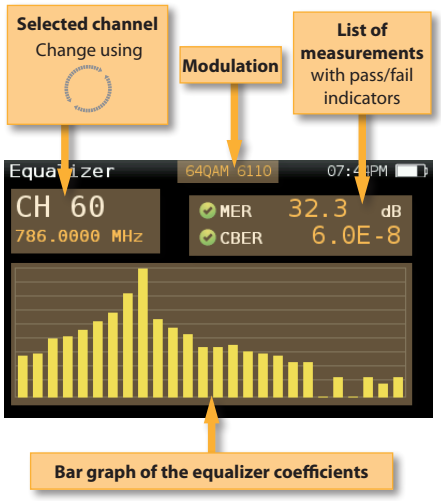
8. Equalizer

Displays a bar chart representing the equalizer coefficients needed to correct the phase and amplitude distortions in the QAM signal.

This feature helps identify impedance mismatches, echos, and micro-reflections.

8.1. Main window

Below is a capture of an Equalizer window with a brief explanation of its features:



8.2. Setup

Press SETUP to change Equalizer options.

- **Parameters**: Auto, 6 MHz, 7MHz, 8MHz.

  Bandwidth: Auto, 6 MHz, 7MHz, 8MHz
  Symbol Rate: Auto, 6111, 5156, Other
  Constellation: Auto, 4QAM, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
  Standard: ITU J.83-A, J.83-B, J.83-C
  DFE: OFF, ON
- **Tuning**: Channel, Frequency
- **Save datalog**: Saves the current scan measurements. You can see the datalogs using the remote control application.

9. Learning plan

Analyzes the input signal to the meter and automatically detects all channels.

This feature automatically identifies the channels as either analog or digital and performs measurements on each.

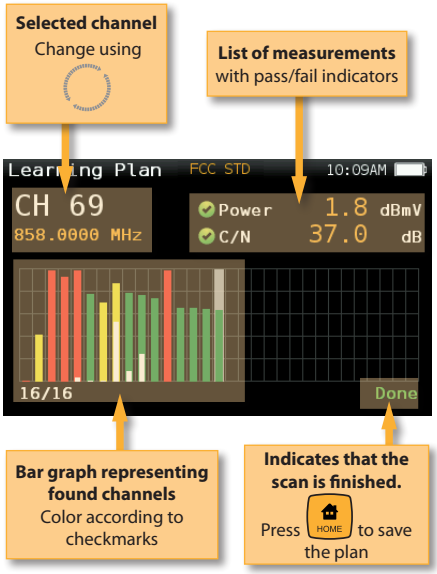
A bar graph is displayed with the height representing the power for digital channels and the level of the video carrier for the analog channels.

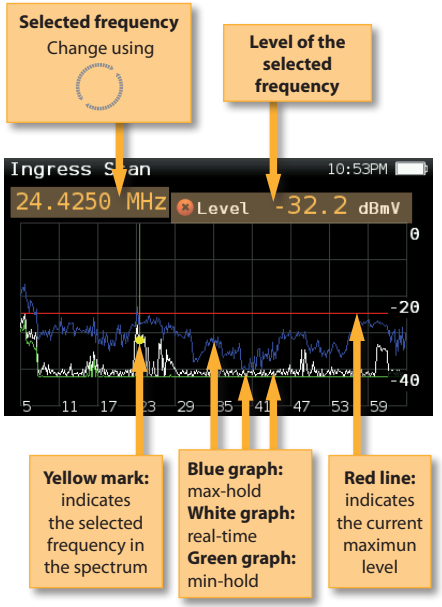
The measurements made for analog channels are video carrier level and V/A. For digital channels the measurements are power and C/N.

The analog channels will have an extra, smaller white bar indicating the level of the audio carrier.

9.1. Main window

Below is a capture of a Learning Plan window with a brief explanation of its features:





10. Ingress Scan

Help identify reverse path problems before your customers are affected.

Poorly shielded coaxial cable and faulty terminations are important sources of ingress noise which can easily add up in the return due to the large number of subscriber-generated signals that are sent back to the headend.

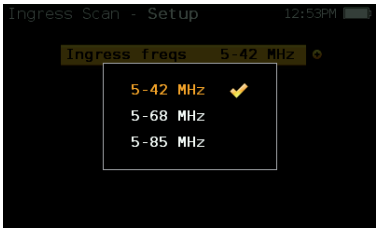
The combined and amplified interference is often responsible for service disruption, so having a good reverse path ingress scan tool is a must.

10.1. Main window

Below is a capture of an Ingress Scan window with a brief explanation of its features:

10.2. Setup

Press SETUP to change Ingress Scan options.



- **Ingress frequencies**: 5-47 MHz, 5-68 MHz, 5-85 MHz.

  Select the span of the graph.

EN

11. Speed Test
(Option 593211)

Allows you to check your basic network performance parameters so you don't need to get your laptop out.

This function attempts to connect to the server (the server is selected automatically by the **H30** by location), checks the DHCP protocol and the connection to the Internet.

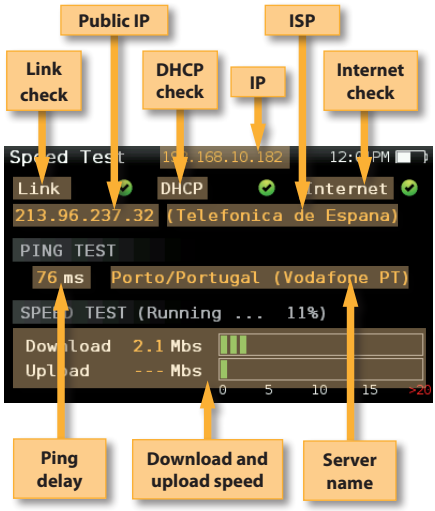
If it is all right, the **H30** makes a ping to the server and shows the delay times.

Finally, the **H30** makes a download and upload speed test.

To start a new test, prees **OK** button.

11.1. Main window

Below is a capture of a Speed Test window with a brief explanation of its features:



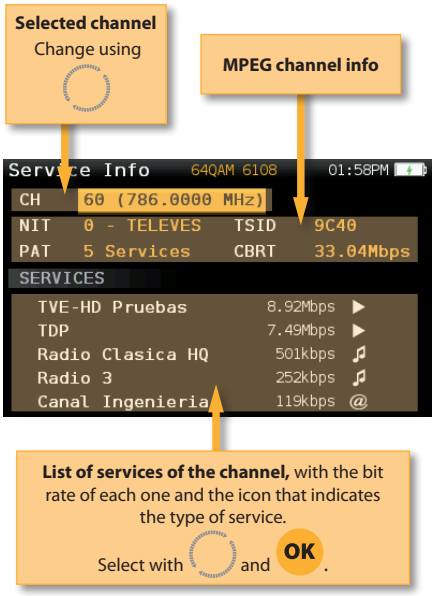
12. Service Info
(Option 593210)

The **H30**'s Service Info feature will tell you what program content is on that QAM channel.

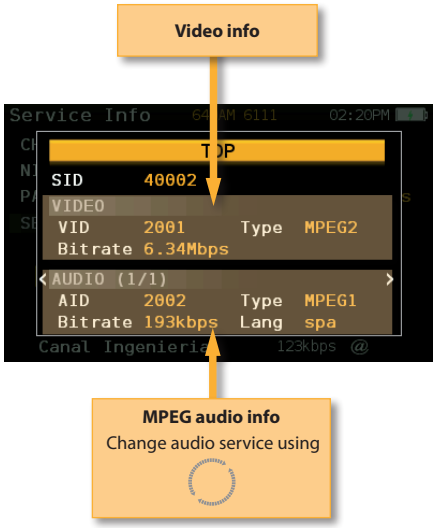
In addition to the short description of the service, you'll get the important parameters including the NIT (Network Information Table), PAT (Program Association Table), TSID (Transport Stream Id) and CBRT (Channel Bit Rate) for the channel. And for each individual service you'll get the SID and the VID (Video Id)/AID (Audio Id), encode type and bit rate for both the audio and video, all of which greatly help when trouble shooting your encoder configuration.

12.1. Main window

Below is a capture of a Service Info window with a brief explanation of its features:

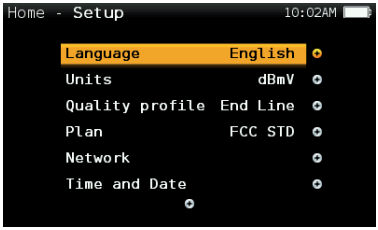


Once a service is selected, it will be displayed the information for that service:



13. Setup

Change main configuration settings:



- **Language**: English, Español.
- **Units**: dBµV, dBmV, dBm
- **Quality profiles**: Trunk, Tap, End Line, Ground.

  Different thresholds are available for different testing locations.
- **Plan**: FCC STD, FCC RETURN, FCC IRC, FCC HRC, FCC OFFAIR, CCIR, and customers plans saved using Learning Plan.
- **Network**:

  IP: Auto, Manual

  Network Info: IP, Gateway, DNS

  IP Auto, sets the IP, default gateway and DNS automatically. Results are shown in Network info section.

  Man. IP.

  When Manual IP is selected, the user must set the IP.

  Man. GW.

  When Manual IP is selected, the user must set the gateway.

  Man. DNS.

  When Manual IP is selected, the user must set the DNS.
- **Time and Date**:

  Set current time (hour and minutes) and date (day of the month, month and year)
- **Update firmware**: ON, OFF

  When ON, every time the **H30** is connected to the internet, it will allow the user to update the firmware if a new version is available.

EN

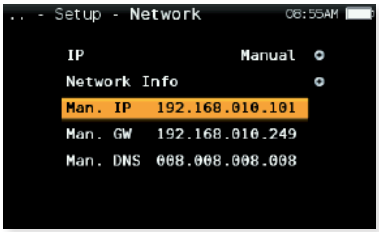
Ethernet Features

Set the network parameters in the **H30** to use the Ethernet port.

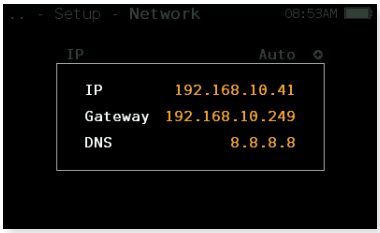
1. Network setup

To configure Internet access, select the function "Setup" from the main menu.

- Then, select the "Network" option and then the "Setup" menu.
- IP selection can be Auto or Manual.
  If you choose "Manual", you must set the IP address, gateway, and DNS in the Man. items:



- If you choose Auto, you can see the IP that the H30 chose automatically in the "Network Info" menu:



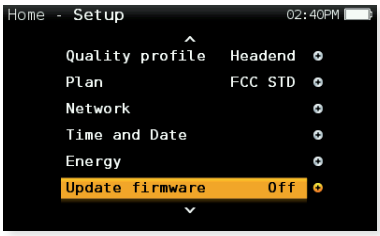
2. Firmware update

Following are details to update the firmware of your **H30.**

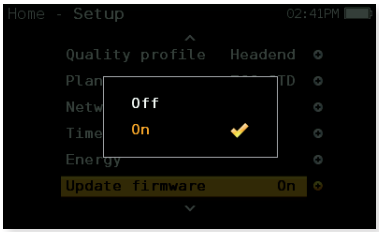
Important:
- You need to have a connection to the internet.
- Configure your network parameters (see section 1.- Network setup).

1.- Connect the **H30** to the external power supply using the source provided with the meter. Connect the H30 to the Internet.

2.- In the main menu, select the fuction "Setup". Then, select "Update firmware".



3.- Press **OK** and the select "On". Press **OK** again to select the On option.



4.- Turn the meter off by pressing the "Device On/ Off" button for some seconds.

5.- The meter will connect to our server, download the new firmware and install it in your **H30**. This process will take around five minutes.

6.- When the installation is complete, press the **OK** button to reboot the meter.

Note: *When your **H30** connects to the server to update the firmware, it checks in our database if you have purchased any of the available options. If so, they will be activated automatically with the update.*

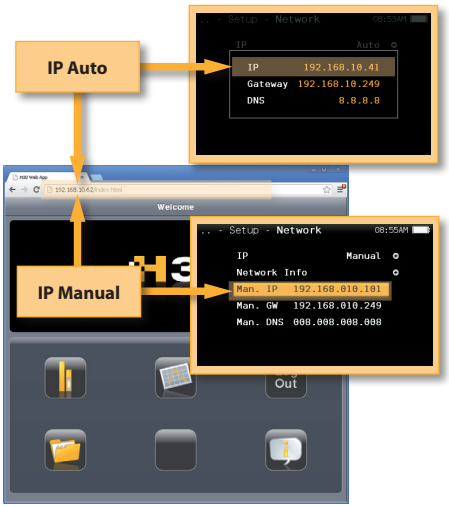
3. Remote Control

Allows remote use of the **H30** with your web browser.

Important:
- You need to have a connection to the internet.
- Your web browser must support HTML5.
- Google Chrome or Safari is recommended.
- Open your browser in your PC or in your tablet.
- Configure your network parameters (see section 1.- Network setup).

To run the remote control application, you must copy the IP in the web browser bar and automatically will appear the main window of the application.

EN



The following functions are available in the remote control application:

- **Channel Info**

Sets the **H30** in Channel Info mode and shows the current Channel Info main window:

- **Spectrum**

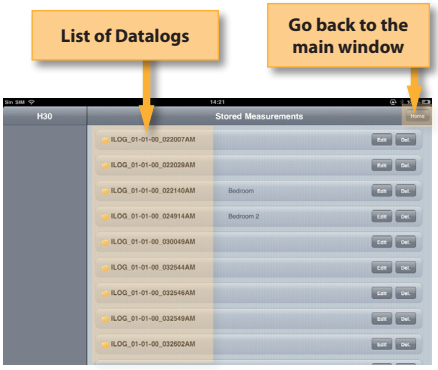
Sets the **H30** in Spectrum mode and shows the current Spectrum main window:

- **Log Out**

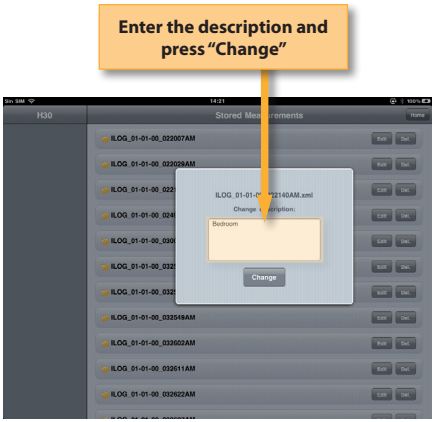
Log out the current session from the **H30**.

- **Datalogs**

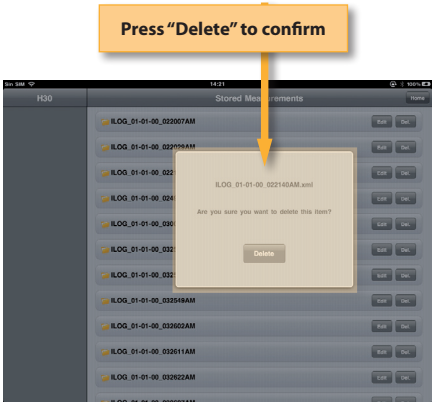
In this section you can see all the measures saved in your **H30** with the "Save Datalog" feature.



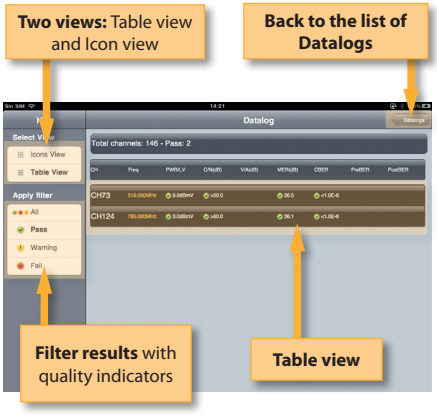
User can add a description for each datalog. Press "Edit" button of the selected Datalog.



User can also delete a log from the list by pressing "Del" button.

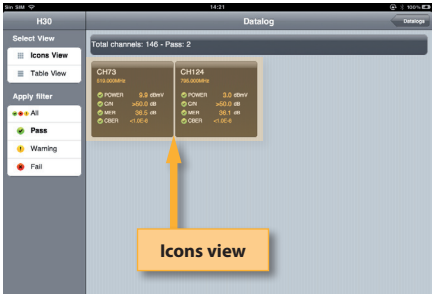


Selecting a Datalog shows a list of all the channels of the selected datalog with its corresponding measurements and pass/fail indicators:



There are two views for the list of channels: Table view and Icons View.

Above is shown the Table View, and below the Icons View.



EN

Maintenance

Always disconnect the unit before cleaning. Use only a mild solution of detergent and water applied with a soft damp cloth. Dry thoroughly before use.

Do not use aromatic hydrocarbons or chlorinated solvents. These products may damage the unit.

Do not use alcohol or alcohol based products on the front panel, especially the display. These products may damage the unit.

Technical support

For any questions, contact Technical Support at www.televes-usa.com.

Before contacting Technical Support for repair, read the manual to ensure proper use and attempt to RESET the unit to clear any problems.

Repair service

Do not return the unit without first contacting Televes Technical Support.

If the unit needs to be returned, Televes will arrange for free shipping. The unit will need to be appropriately packed for shipping.

In compliance with IATA Regulations, when using our shipping service follow these instructions:

- Label the package.
- The equipment should fit as snugly as possible in the box. It is recommended to use the original packing materials.
- Attach the precaution label to the package.

Failure to comply with these shipping requirements may result in the shipping agent rejecting the package.

Warranty

A) Televes warrants, only to the original Purchaser, all Products be free from any defect in materials or workmanship for a period of one (1) year, six (6) months for the battery, from the date of original purchase, unless otherwise specified.

(B) Televes shall, free of charge and in its sole discretion, either repair, replace with a new or factory reconditioned equivalent, or refund the purchase price of the Product(s), that has been determined by Televes to be defective in material or workmanship, subject to the limits of this warranty.

(C) This warranty excludes any inoperability resulting from:

(I) use or installation that is not in strict compliance with the written instructions and specifications;

(II) any modification or alteration performed by any third party not authorized in writing by Televes;

(III) service or repair performed by any third party not authorized in writing by Televes;

(IV) misuse, abuse, intentional harm, or lack of reasonable care;

(V) fire, ice, snow, rain, wind, water, volcano, excessive heat or cold, lightning, flood, power surge, earthquake, or any other acts of God;

(VI) war, crime, strike, riot, electro-magnetic pulse, or any other acts beyond the control of Televes;

(VII) shipping.

(D) All claims under the terms of this warranty must be made in writing, by the original Purchaser, within fourteen (14) days of the defect being known to the Purchaser. Such claims shall be accompanied by a description of any material facts related to the claimed defect and the invoice or other proof of original purchase date and price. If Televes so requests, the Purchaser shall, at Purchaser's expense, deliver the claimed Product(s) to Televes, within 14 days of the date of the return authorization. Under no circumstances shall the Product(s) be returned to Televes without a return authorization.

(E) Any refund to the Purchaser, shall be limited to the purchase price of the Product(s), excluding any applicable taxes, duties, freight costs, removal costs, installation costs, or any other charges incident to the purchase of the product.

(F) Any damage caused by shipper shall be claimed with the shipper in accordance with the shipper's policies and procedures.

(G) Televes shall in no event and under no circumstances be liable or responsible for any consequential, indirect, incidental, punitive, direct or special damages based upon breach of warranty, breach of contract, negligence, strict tort liability or otherwise or any other legal theory, arising directly or indirectly from the sale, use, installation or failure of any product acquired by Purchaser from Televes.

(H) This limited warranty extends to the original Purchaser and cannot be assigned or transferred to any other party without the prior express written permission of Televes, which permission Televes may withhold for any reason or for no reason at all.

(I) Televes will not assume any liabilities for any other warranties, whether statutory, express or implied, made by any other person.

(J) Televes reserves the right to modify or discontinue this warranty at Televes' sole discretion without notification. No other warrantees are expressed or implied.

DECLARATION OF CONFORMITY Nº 130307110243

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: **Televes S.A.**

Address: **Rua Benéfica de Conxo, 17**
15706 - Santiago de Compostela
Spain

Phone / Fax Nº: **981522200 / 981522262**

Hereby declares that the product

Product Name: **H30**

Model Number: **593101**

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(e) and section 15.109(g)

Supplementary Information:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name: **José L. Fernández Carnero**

Signature:

Date: **07/3/2013**

televes.com

593101_593102_003_EN