

# Televés®



Refs. 593301, 593302,  
593303. 593304

**EN** Digital processing handheld DVB meter / Analyzer

**Instruction Manual**



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## General Specification

<b>Display</b>	2.8" TFT 400 x 240 full colour
<b>Weight</b>	510g
<b>Dimensions</b>	6.9 x 3.9 x 2 in / 175 x 100 x 52 mm (H x W x D)
<b>AC Adaptor</b>	Input: 100-240V~ 50-60Hz Output: 12VDC, 2A
<b>Battery</b>	Lilon smart battery (7.2VDC, 2300mAh)
<b>Operating Time</b>	Up to 4 hours
<b>Operating Temperature</b>	23°F to 104°F (-5°C to 45°C)
<b>Storage Temperature</b>	-4°F to 158°F (-20°C to 70°C)
<b>Humidity</b>	5% to 95% non-condensing
<b>Ruggedness</b>	Survives 1 m (3 ft) drop to concrete on all sides
<b>Communication Interfaces</b>	USB 2.0 to download Datalogs and software updates
<b>Storage</b>	400 MB (internal) for measurements
<b>Power up time</b>	< 10 seconds

## Technical Specifications

<b>Frequency</b>	
Range	50-880MHz and 950-2200MHz
Resolution	125 kHz
Tuning	Frequency or channel
<b>Input</b>	
Impedance	75Ω F-type connector
<b>Spectrum Analyzer</b>	
Span	5, 10, 20, 50, 100, 200, 500 MHz and Full
Scale	5 and 10 dB/div
Auto and manual reference level	✓
<b>DVB-S Measurements</b>	
Power	45-11 dBuV
CBER	9.9E-2 - 1.0E-6
VBER	1.0E-4 - 1.0E-8
MER	Up to 20 dB
C/N	Auto
<b>DVB-S2 Measurements</b>	
Modulations	QPSK, 8PSK
Power	45-11 dBuV
Link Margin	Up to 10 dB
LDPCBER	9.9E-2 - 1.0E-6
BCHBER	9.9E-2 - 1.0E-8

DVB-T Measurements (Ref. 593301, 593302, 593304 and Opt. 593231)	
Modulations	COFDM (QPSK, 16QAM, 64QAM)
Power	45 - 110 dBuV
CBER	9.9E-2 - 1.0E-6
VBER	1.0E-3 - 1.0E-8
MER	Up to 38 dB
C/N	Auto
DVB-T2 Measurements (Ref. 593302, 593304 and Opt. 593232)	
Modulations	COFDM (QPSK, 16QAM, 64QAM, and 256QAM)
Power	45-110dBuV
LDPCBER	9.9E-2 - 1.0E-6
BCHBER	1.0E-3 - 1.8E-8
Link Margin	Up to 30dB
MER	Up to 38dB
C/N	Auto
DVB-C Measurements Ref. 593303, 593304 and Opt. 593233)	
Modulations	16QAM, 32QAM, 64QAM, 128QAM, and 256QAM
Power	45-110dBuV
CBER	1.0E-2 - 1.0E-8
MER	Up to 38dB
C/N	Auto
Analog Measurements	
Level measurement	-30 to +60 dBmV
V/A	up to 30 dB
C/N	up to 50 dB
Channel Plans	
Factory terrestrial channel plans	CCIR, CCIR + LTE, OIRT, KBW, FCC, DAB, SIM
Factory satellite channel plans	68E INTEL C, 68E INTEL, 42E TURK, 39E HELLAS, 33E EUTEL, 28E EUTEL, 28E ASTRA, 26E BADR, 25E EUTEL, 23E ASTRA, 21E EUTEL, 19E ASTRA, 16E EUTEL, 13E HOTB, 10E EUTEL C, 10 EUTEL, 9E EUTEL, 7E EUTEL, 4E ASTRA, 1W THOR5, 1W THOR6, 5W EUTELC, 5W EUTEL, 7W NILE, 30W HISPAN, 48W AMZC, 48W AMAZ, SIM
Custom channel plans (learning plan)	✓
Configuration	
Units	dBuV, dBmV, dBm
LNB	13, 18 Vdc
LNB Tone	22 Khz
DiSEqC	✓
SCR	Opt. 593234
Features	
Channel Info	✓
System Scan	✓
Learning Plan	✓
Constellation	✓
MPEG	✓

Specifications are subject to change without notice.



## 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 Televés **H30FLEX**.

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

In digital mode measurements depend on the modulation:

DVB-S: Power, C/N, MER, CBER, VBER

DVB-S2: Power, C/N, MER, LDPCBER, BCHBER

DVB-T (Ref. 593301, 593302, 593304 and Opt. 593231): Power, C/N, MER, CBER, VBER

DVB-T2 (Ref. 593302, 593304 and Opt. 593232): Power, C/N, Link Margin, LDPCBER, BCHBER

DVB-C (Ref. 593303, 593304 and Opt. 593233): Potencia, C/N, CBER, MER

#### 1.1. Main window

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

The screenshot shows the Channel Info window with the following data:

Channel	CH 60
Frequency	786.0000 MHz
Power	-2.8 dBmV
C/N	41.6 dB
MER	34.4 dB
CBER	<1.0E-8

Callouts in the image explain the following features:

- Channel Change using:** Indicated by a double arrow icon.
- Frequency:** Points to the frequency value (786.0000 MHz).
- Channel plan:** Points to the FCC STD label.
- List of measurements with pass/fail indicators:** Points to the list of metrics (Power, C/N, MER, CBER) which have green checkmarks.
- Bar graph of main measurement:** Points to the Power bar graph, which is green and has a checkmark.

### 1.2. Setup

Press  to change the Channel Info options.



- **Tuning:** Channel, Frequency
- **A/D:** Auto, Analog, Digital
- **Band:** Ter, Sat
- **LNb**
- **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:

**Channel** Change using

**Frequency**

**Channel plan**

**Measurements of the selected channel** with pass/fail indicators

System Scan

CH 69

858.0000 MHz

Power -3.0 dBmV

C/N 34.5 dB

101/101 Ref. 20.0 dBmV

**Bar graph representing all the found channels.**  
Color according to checkmarks

### 2.2. Setup

Press  to change the System Scan options.

System Scan - Setup 04:42AM

- Digital tuning Off
- Ref. Level Auto
- Span Full span
- Plan CCIR
- Save datalog

- **Digital tuning:** If it is ON, allows to see MER and CBER measurements when a digital channel is selected and the user presses Ok button.
- **Ref. Level:** Select the reference level of the bar graph
- **Span:** Select the number of channels showed in the bar graph
- **Band:** Terr, Sat
- **LNB**
- **Save datalog:** Saves the current scan

measurements. You can see the datalogs using the remote control application



### 3. 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 **H30FLEX** is the ideal tool for identifying and locating noise, interference, ingress and other waveforms that may be affecting cable services quality.

#### 3.1. Main window

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

**Selected channel** Change using

**Span** User can change it using

BACK (+) or OK (-)

Spectrum

Span 7.25MHz

CH 60

786.0000 MHz

Pwr dBmV -1.7

C/N dB 38.9

List of measurements with pass/fail indicators

**Reference level Change**

#### 3.2. Setup

Press  to change Spectrum options.



- **Span:** 5MHz, 10MHz 20MHz, 50MHz, 100MHz, 200MHz, 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.

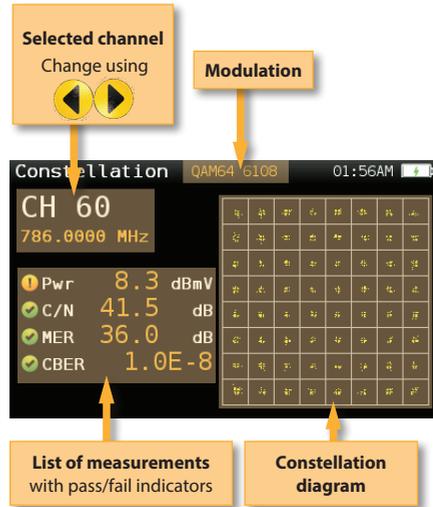
- **Ref. Level:** Select the reference level of the spectrum graph
- **dB/div:** 5 dB/div, 10 dB/div
- **Tuning:** Channel, Frequency
- **A/D:** Auto, Analog, Digital.
- **Band:** Terr, Sat
- **LNB**
- **Save datalog:** Saves the current scan measurements. You can see the datalogs using the remote control application.

The **H30FLEX'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

#### 4.1. Main window

EN

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



#### 4. Constellation

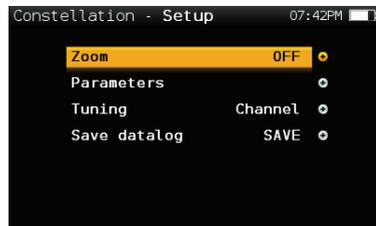
Digital video often does not show signal impairment until it is too late due to the small margin between acceptable quality and failure.

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 signal.

#### 4.2. Setup

Press  to change Constellation options.



- **Zoom:** OFF, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>.

Select a quadrant of the constellation to be

represented for more detailed view. Select Zoom OFF for the full constellation.

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



## 5. 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.

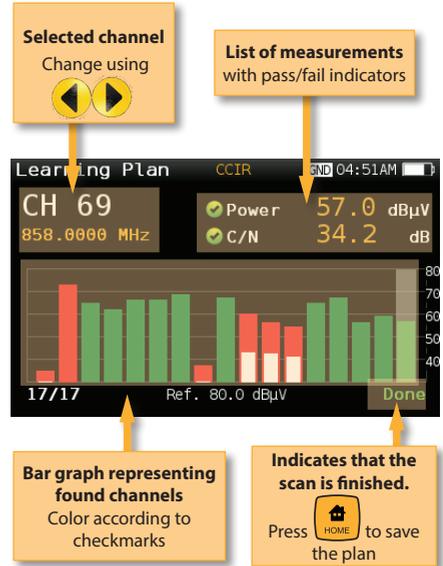
A bar graph is displayed with the height representing the power for digital channels and the level of the video carrier for the analog channels.

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.

### 5.1. Main window

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



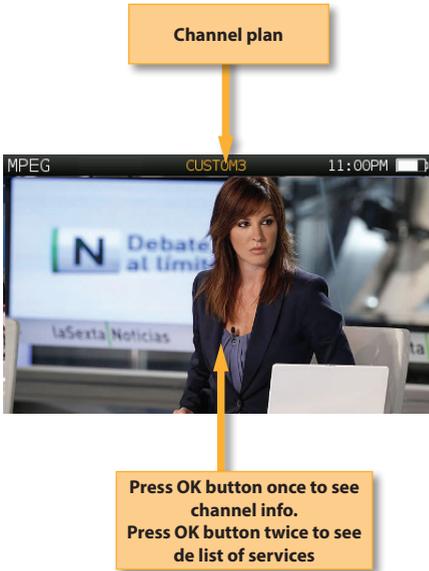
## 6. MPEG

The H30FLEX's MPEG feature will show the image of the selected service.

In addition, you'll get the important parameters including the NIT (Network Information Table) of the channel. And for each individual service you'll get the SID and the VID (Video Id)/AID (Audio Id), and encode type all of which greatly help when trouble shooting your encoder configuration.

### 6.1. Main window

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



HRC, FCC OFFAIR, CCIR, and customers plans

- **Sat Plan:** F68E INTEL C, 68E INTEL, 42E TURK, 39E HELLAS, 33E EUTEL, 28E EUTEL, 28E ASTRA, 26E BADR, 25E EUTEL, 23E ASTRA, 21E EUTEL, 19E ASTRA, 16E EUTEL, 13E HOTB, 10E EUTEL C, 10 EUTEL, 9E EUTEL, 7E EUTEL, 4E ASTRA, 1W THOR5, 1W THOR6, 5W EUTELC, 5W EUTEL, 7W NILE, 30W HISPA, 48W AMZC, 48W AMAZ, SIM, and customers plans

- **Audio Carrier:** 4.5 MHz, 5.5 MHz, 6.0 MHz, 6.5 MHz.

- **Time and Date:**

Set current time (hour and minutes) and date (day of the month, month and year).

- **Energy:**

- Auto suspension
- Auto shutdown

- **About SW:** Shows the firmware version

- **About HW:** Shows the serial number



## 7. 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.
- **Band:** Terr, Sat
- **Terr Plan:** FCC STD, FCC RETURN, FCC IRC, FCC

## Important

To **reset** the meter, press for more than 10 seconds.

European technology **Made in**  **EU**rope

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