



## EP-300 Digital & Analogue TV Analyser with faster true BER for QPSK COFDM or QAM

The new EP300 is a powerful TV system equalisation tool with enhanced Digital TV measurement performance. Unaohm's legendary instantaneous real-time spectrum display response is improved with precision calibration that reduces the need to switch between Measurement and Spectrum modes for exacting measurements.

Complete true Bit Error Rate signal quality measurement systems for Digital Satellite (QPSK) is standard with Digital Terrestrial (COFDM) or Digital Cable (QAM) available as options. Errors are shown with little latency and in precise detail with calibrated MER. For RU errors a helpful timer counts Seconds Minutes and Hours since Lock was last lost.

Analogue and Digital Data Logging is more comprehensive and easier to use making the EP300 ideal for logging MATV, SMATV and UBB TV distribution system signal levels across DTH, MDU and MRE installations. Pulse Encoder and Keyboard enhance ease of use, speeding function access. The On Screen Display includes a transparent mode that improves visibility of detail under the OSD. Users can define Satellite LNB Local Oscillator in order to display down-link frequency on screen. Protective rubber mouldings improve the EP300's impact resilience and a sealed lead acid battery is included or Factory Option of a 12V/3.8Ah NiMH battery pack makes the unit ~2kg lighter whilst providing in excess of 1 hour of autonomous operation. EP300 is the first Digital TV meter fully approved by Foxtel and Austar.

EP300 total reliability for your TV measurements includes:

- Analogue and Digital True Bit Error Rate for Satellite QPSK with Terrestrial COFDM or Cable QAM optional, for MATV, SMATV, CATV and UBB applications.
- 45-2,150MHz frequency range with 5-65MHz factory option.
- Signal Level, Digital Channel Power, Carrier to Noise and Vision to Audio ratio measurements.
- Spectrum Measurement Bandwidth selectable.
- Real Time Spectrum with averaging Video Filter selectable.
- Enhanced Data Logging functions.
- 100 Preset storage locations.
- Pulse Encoder knob and Keyboard that enhance speed of use.
- Teletext; DiSEqC 1.1; SCART and RS232 are standard.
- High resolution 4&1/2" Cathode Ray Tube screen.
- Network Information Table option displays DVB standard network name, program list and satellite to assist with identification where necessary.
- 13V-18V step-selectable line power @ up to 500mA for mast amplifiers or LNBFs.
- Internal or external AC DC power supply enhances portability and allows remote operation.
- 6.5Ah SLA battery minimises likelihood of a flat battery.
- 3.8Ah Ni-MH option saves 2kg to enhance in field comfort.

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# SPECIFICATIONS

## EP300



### INPUT

**Level:** 20 to 130 dB $\mu$ V (-90 to 20dBm) for VHF/UHF/SAT.  
**Unit of measure** dB for ratio measurements.  
dB $\mu$ V, dBmV, dBm and V selectable for level & power measurements.  
**Attenuator** 0 to 80 dB in 10 dB steps. Manually selectable or autoranging.  
**Attenuator Accuracy**  $\pm$  1.0 dB VHF/UHF  $\pm$  1.5 dB SAT.  
**Measurement Technique** Peak value for FM, Average value for AM.  
**Measurement Reading** CRT On Screen Display to rms value for sinewave.  
**Measurement Bandwidth** 100 kHz or 1 MHz (@-3dB), selectable. VHF/UHF/SAT.  
**Input Impedance** 75 ohm unbalanced. See (1) under Factory Options.  
**Input Connection** BNC. BNC-to-IEC and BNC-to-F adapters provided.  
**Maximum Voltage Applicable** 100 Vdc or 5Vrms RF.  
**CRT Indication** Numerical via On Screen Display, 0.1 dB resolution.  
Analogue level and Digital Channel Power (relative)  
by means of a bargraph against a 30 dB calibrated scale.  
Aural tone with pitch proportional to signal strength.

### FREQUENCY

**Frequency Range** 45 to 900 MHz for VHF/UHF and CATV bands.  
900 to 2150 MHz for SATellite band.  
**Frequency Response Accuracy**  $\pm$  2.0 dB, 45 to 2050 MHz.  
 $\pm$  2.5 dB, 2050 to 2150 MHz.  
**Tune by** • Frequency, continuous via pulse encoder in 50 kHz steps PLL freq. synth.  
or direct frequency entry via keypad.  
• Channel. VHF/UHF/CATV channel to the TV standard of country selected.  
• Program. Recall of any program stored, up to 100.

**Storage Capability** 100 programs.  
**Frequency Resolution** 50 kHz for VHF/UHF/CATV bands; 125 MHz for SAT.  
**Frequency Accuracy** Better than 0.001%.

### SPECTRUM ANALYSER

**Presentation** Frequency on Y (vertical) axis, level on X (horizontal) axis.  
Switchable video filter.  
**Frequency Range** L 45 to 156 MHz.  
M 156 to 470 MHz.  
H 470 to 900 MHz.  
SAT 900 to 2150 MHz.  
**Level** 20 to 130 dB $\mu$ V for all bands.  
**Frequency Response** Numerical level reading according to frequency marker position  
(as in measurement),  $\pm$  1 dB.  
Linearised response curve on the CRT.  
**Spectrum Analysis** Full panoramic spectrum of the band selected.  
8 step expansion of a portion of the band spectrum  
from 1% minimum to 1 to 5 carriers according to band selected.  
**Resolution bandwidth** 1 MHz (Wide) or 100kHz (Narrow) @-3dB for all bands.  
**Refresh Rate** Real time.  
**Frequency Marker** Selectable throughout entire range for frequency or level.

### MONITOR

4&1/2" black & white CRT with Brightness and Contrast controls.  
**TV Standard** PAL BG. See (2) under Factory Options.  
**Functions** • On Screen Display against black background, transparent or disengaged.

- Full spectrum with marker. • Expanded (SPAN) spectrum with marker.
- Measurement of Digital Channel Power, level, C/N or V/A.
- Full screen analogue TV-picture. • Teletext.
- Digital BER, MER and NIT functions. • Video monitor (via SCART).
- Level display as a relative bargraph with analogue TV-picture portion.
- Horizontal TV sync-pulse display with analogue TV-picture portion.

### AUDIO

**Demodulators** AM or FM for VHF/UHF/CATV, FM for SAT.  
**Subcarrier Tuning** VHF/UHF/CATV bands automatic to selected TV-standard.  
SAT band 5.5 to 9.77 MHz adjustable in 10 kHz PLL steps.  
**SAT Bandwidth** 70 and 300 kHz.  
**SAT Deemphasis** Flat, J17, 50 $\mu$ s, 75 $\mu$ s.  
**SAT Noise Reduction** Switchable.

**DATA LOGGER** **Storing capability** 700 measurements.

### AUXILIARY INPUTS & OUTPUTS

**SCART socket** Complete, video & audio input/output (1V-75 $\Omega$ ; 0.3 V-600 $\Omega$ ).  
**Vdc Power** 11V @ 150mA. short circuit protected.  
**22 kHz Tone** 0.6Vpp on 18 ohm load, 22 kHz  $\pm$  1 kHz square wave.  
**DiSeqC** 1.1; 2.0. *DiSeqC is a trade mark of Eutelsat.*  
**LNB Power** 13 or 18 V @ up to 500mA max. short circuit protected.  
**RS 232 Serial Port** Female 9-pin "D" connector  
for data exchange with a PC, external printer, modem.

### QPSK CARD for DVB-Satellite standard with the EP300

**Frequency Range** 950 to 2150 MHz. **Symbol rate** 1 to 45 MS/s.  
**Code rate** Automatically selected. **CFO** Centre Frequency Offset  $\pm$  3 MHz.  
**Ch BER** pre-Viterbi BER E2 to E6. **pV BER** post Viterbi BER E2 to E8.  
**RU** Reed Solomon damaged packets. **Timer** Lock time in Seconds Minutes and Hours.  
**MER** Digital calibrated in dB. **Power Index** Low / OK / High signal level indicator.  
**Centre Freq. Offset** (AFC)  $\pm$  3 MHz. **Lock Indicators** Locked, Unlocked, No Signal.

### COFDM CARD for DVB-Terrestrial optional and as an alternative to QAM

**Frequency Range** 50 to 860 MHz. **Modulation** 16 QAM, 64 QAM, QPSK or Automatic.  
**Code rate** 1/2, 2/3, 3/4, 5/6, 7/8, Auto. **Guard interval** 1/4, 1/8, 1/16, 1/32 or Automatic.  
**Bandwidth** 7 - 8 MHz. user selectable. **Number of Carriers** 2000, 8000 or Automatic.  
**Spectrum Polarity** Direct, Inverted. **Hierarchy** Non hierarchical.  
**Ch BER** pre-Viterbi BER to E7. **pV BER** post-Viterbi BER.  
**RU** Reed Solomon damaged packets. **Timer** Lock time in Seconds Minutes and Hours.  
**MER** Digital calibrated in dB. **Power Index** Low / OK / High signal level indicator.  
**CFO** channel centre offset in MHz. **Lock Indicators** Locked, Unlocked, No Carrier.

### QAM CARD for DVB-Cable optional and as an alternative to COFDM

**Frequency Range** 45 to 860 MHz. **Symbol Rate** 1 to 7MS/s.  
**Code Rate** Automatically selected. **Spectrum Polarity** Automatic.  
**Modulation** 64; 128; 256 QAM. **BER** Channel BER (pre FEC) to E8.  
**RU** Reed Solomon damaged packets. **Timer** Lock time in Seconds Minutes and Hours.  
**MER** Digital calibrated in dB. **Power Index** Low / OK / High signal level indicator.  
**Centre Freq. Offset** AFC; 0.5 MHz. **Lock Indicators** Locked, Unlocked, No Carrier.

**NIT CARD (option)** identifies broadcaster / satellite from DVB Network Information Table.

### POWER SUPPLY

**Internal Vdc Power** 12V/6.5Ah sealed, rechargeable lead-acid battery.  
**Battery Charger** External mains BCH16/3, included. 10 to 14 hrs recharge time.  
**External Vdc Power** BCH16/3 included or other 12 to 18V/3A @ 45VA source.  
**Warning Indicators** LED for charging, OSD for battery low warning.

### AMBIENT

**Operating Temperature** 5°C to 40°C.

### MECHANICAL

**Dimensions** (W x H x D) 320x115x335 mm.  
**Weight** 6 kg with carrying case. 8.3 kg with carrying case and internal SLA 6.5Ah battery.  
**Case** EP300 includes a robust nylon bag with accessory compartment and lifting strap that incorporates a clever sun shield that simplifies use in broad daylight.

### ACCESSORIES INCLUDED

- Power supply/charger unit BCH16/3.
- Adapter BNC/IEC P80A.
- Adapter BNC/F P82.
- 5 AT (lag) fuse 5 for battery.
- Nylon carrying case.
- Instruction manual.
- Sealed, lead-acid battery 12 V/ 6.5 Ah.

### ACCESSORY OPTIONS

- QAM card or OFDM card.
- NIT (Network Information Table) card.
- Adapters BNC/DIN P79 - P81.
- 12V/3.8Ah Ni-MH battery kit.

**FACTORY OPTIONS** (1) 50 $\Omega$  input. (2) SECAM / NTSC. (3) 5-65MHz Return Path.

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