

► MEASURING INSTRUMENTS

S 80 — Handheld Satellite Analyzer



Handheld Satellite Analyzer

S 80

S 80 is a handheld measuring instrument designed to cover signals within the Ku and C bandsatellite range. It analyses sat signals, both digital and analogue. Built on innovation and sporting ease of use in the field, the unit is housed in a robust plastic case and is further protected against accidental falls with a shock absorbing rubber holster. A neck strap allows the installer to free his hands whenever required while keeping the unit handy.

DVB-S

The unit is fitted with a 50 dB input attenuator sporting 10 dB steps and a wide graphic LCD display to show spectrum and spectrum expansion of the satellite band transponder, Digital Channel Power (DCP), level, C/N, BER & MER of QPSK-modulated SCPC/MCPC signals. A number of menus guides the installer while preparing the unit for different operations such as sourcing power to an LNB, sending DiSEqC⁽¹⁾ commands for fast switching (or steering motorized dishes), capturing data for logging and setting RS 232 parameters for proper interconnectivity. A 100 program storage is provided, too.

The front panel keypad and the input connector are designed for adverse field use where hostile elements such as water, humidity and dust typically are commonplace. The shaft encoder and the retro-illumination of the readout provided makes the unit even more user-friendly.

The frequency coverage is 920 to 2150 MHz and tuning selection includes frequency, program and a dual marker for both analogue and digital signal measurements. A useful tone duplicates signal level measurement aurally without the need of watching the readout all the times. A "Hold" function allows "maximum", "minimum" and "freeze" viewing of spurious signals for analysis. Spectrum analysis is made possible from full frequency spectrum mode down to a 10 MHz zoom of the band selected, with different steps in between.

Data Logger is based on any number of programs, up to 28, and allows for BER and MER of digital signals to be captured as well. You can also capture for logging a measurement just taken. A Tilt function is available to view level imbalance among a number of programs, from 2 to 28.

An optional Network Information Table (NIT) card enhances the user-friendliness of the unit greatly. In fact when the card is fitted, not only does the related B-NIT feature allow BER reading and identification of closely positioned satellites during dish peaking, but also identification of the desired transponder even after frequency conversion during distribution.

You can connect the unit to a personal computer via the RS232 provided. This enables the unit to be programmed or its logged data elaborated further by a PC for protocol or other purposes. Or you can connect the unit to an external printer straightforward for a hard copy printout of the logged data.

Long operational runs in the field are ensured owing to the high-capacity Ni-MH battery-pack provided. An extra battery pack can even be carried in the field securely attached to one's waistband to extend working hours further.

⁽¹⁾ DiSEqC is a trade mark of Eutelsat

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TECHNICAL SPECIFICATIONS

INPUT

- **Level :**
 - 40 to 120 dBμV from 920 to 2150 MHz: Analogue SAT, 1 MHz BW digital signal.
 - 44 to 124 dBμV from 920 to 2150 MHz: 30 MHz BW digital signal.
 - Aural tone proportional to signal level.
- **Unit of Measure :**
 - dB for ratio measurements.
 - dBμV — dBmV — dBm for level and power measurements. Selectable.
- **Attenuator :**
 - 0 to 50 dB in 10 dB steps. Manually selectable or autoranging.
- **Attenuator Accuracy :** ± 2 dB
- **Measuring Bandwidth (RBW) :** 5 MHz @ -3 dB
- **Input impedance :** 75 ohm unbalanced. See (1) on special features.
- **Input Connector :** Female "F" connector with a protective "L-shaped" adapter.
- **Maximum Applicable Voltage :** ±100 VDC and 5 Vpp RF
- **LCD Indication :**
 - Numeric for level, four digit, 0.1 dB resolution.
 - Numeric for DCP, four digit, 0.1 dB resolution.
 - Analogue by means of a bargraph.
 - Analogue by means of a histogram.

FREQUENCY

- **Frequency Range :** 920 to 2150 MHz
- **Frequency Response Accuracy :** ±2 dB throughout the entire frequency range.
- **Tuning Selection :**
 - By frequency. Continuous PLL frequency synthesis in 125 kHz steps.
 - By program. Recall of any program out of those stored, up to 100.
- **Frequency Reading :** Frequency reading is rounded off to the nearest 100 kHz in the 1st IF mode, to the nearest MHz in L.O. mode.
- **Storage :** 100 programs.

SPECTRUM

- **Functions :**
 - Spectrum (full and expanded) 200, 100, 50, 20, 10 MHz expansion steps from 920 to 2150 MHz.
 - Histogram mode. Up to 28 user-defined programs.
 - Hold max, Hold min, Freeze.
 - Two independent markers for frequency and level reading; reading of differences between markers on LCD readout.

DATA LOGGER

- Approximately 1500 single program data-captures (acquisitions).

QPSK DISPLAY

- **Parameter Setting :**
 - Symbol Rate: 1.45 to 36 MS/s (1.0 to 42 typical).
 - Code Rate: Automatic.
 - Spectrum Polarity: Automatic.
- **Locking Indication :** "LOCKED", "UNLOCKED" indication on LCD readout.
- **CH BER Measurement :** 0 to 1. Resolution 2 E-7.
- **CH BER Display :**
 - Numeric: in exponential notation.
 - Analogue: via a bargraph (the longer the bar the better the BER).
- **Post Viterbi BER Measurement :**
 - 0 to 5 E-2. Resolution 2 E-8. Numeric reading.
- **MER :** 5 to 20 dB. Numeric reading.
- **RU count :** Counting of uncorrected errors past the Reed Solomon algorithm, up to 65535 max count.
- **Power Index :** LOW, OK, HIGH for low, correct, high level.
- **CFO :** Shows the offset from nominal centre frequency in MHz.

AUXILIARY INPUTS & OUTPUTS

- **Power to LNB :**
 - 0; 13; 18 V ± 0.5 V. Selectable. 350 mA max current.
 - Overload warning indication and continuity of external circuit provided.
 - Spectrum Polarity: Automatic.
- **22 kHz Tone :** 22 kHz ± 1 kHz / 0.6 Vpp tone. Square wave.
- **DiSEqC Command :** DiSEqC 1.1 and 1.2 (for steerable dishes) protocols.

LCD READOUT

- **Type :** 128 x 64 dot matrix graphic LCD readout.
- **Dimensions :** 71 x 39 mm.
- **Retroillumination :** LED, switchable.

NIT CARD (optional)

- **Standard :** DVB compatible.

RS232 SERIAL PORT

- **Type :** Female 9 pin "D" type socket for data exchange to a PC, serial printer, modem.

POWER SUPPLY

- **Internal VDC Power :**
 - 6V / 3.8 Ah Ni-MH rechargeable battery pack. 1 1/2 hrs continuous operational run (when current draw to LNB is 100 mA max).
 - Overload and continuity indication of the external circuitry.
- **External VDC Power :**
 - 7.5 to 8 V 3 A max for operation and battery charge.
 - 5.5 to 8 V 3 A max for operation only.
- **Mains :**
 - 100 to 240 VAC through an external power supply/charger unit, provided.
- **Battery Charger :**
 - Through external power supply/charger unit, provided.
 - 8 hours charging time.

MECHANICAL

- **Dimensions :** 200 x 105 x 45 (7.8"x4.1"x1.7") mm. WxHxD.
- **Weight :** 0.9 kg with battery pack and holster included.
- **Finishing :** The unit comes with a sturdy antishock protective rubber holster.

AMBIENT

- **Calibrating Temperature :** Tolerance quoted refers to an ambient temperature @ 23 °C ±5 °C
- **Operating Temperature :** +5 °C to +40 °C
- **Relative Humidity :** 80% for a temperature up to 31 °C (linear derating to 50% @ 40 °C).
- **Storing Temperature :** -10 °C to +60 °C

STANDARD ACCESSORIES

- "L-shaped" F/F adapter.
- Rubber Holster.
- Neck and transport strap.
- Instruction manual.
- Power Supply/Charger Unit BCH 7.5/3.3.
- 6 V / 3.8 Ah Ni-MH battery-pack.

OPTIONS

- NIT card.
- Spare waistband-held battery pack BP6.
- Printer, external STP 165.
- Nylon bag for transport C20.



SPECIAL FEATURES

- (1) 50 ohm input impedance