

CONFIGURATION FOR MEASURING LEVEL AND POWER

TUNING	Digital frequency synthesis. Continuous tuning from 5 to 862 MHz and from 900 to 2150 MHz
Tuning modes	Frequency, Channel or Memory.
	Channel plan configurable on demand
Resolution	5-862 MHz: 50 kHz 900-2150 MHz: 500 kHz 50 kHz
Automatic search	Threshold level selectable
Memory	99 positions for measurement configurations
RF INPUT	
Impedance	75 Ω
Connector	Universal, with BNC or F adapter
Maximum signal	130 dB μ V
Maximum input voltage	
DC to 100 Hz	50 V rms (powered by the AL-103 power charger) 30 V rms (not powered by the AL-103 power charger)
5 MHz to 2150 MHz	130 dB μ V

LEVEL MEASUREMENT

Measurement range	
Terrestrial TV & FM bands	20 dB μ V to 120 dB μ V (10 μ V to 1 V)
Satellite TV band	30 dB μ V to 120 dB μ V (31.6 μ V to 1 V)
Reading	Auto-range, reading is displayed on an OSD window
Digital	Absolute value calibrated in dB μ V, dBmV or dBm
Analogue	Relative value through an analogue bar on the screen
Measurement bandwidth	230 kHz (Terrestrial band) ■ 4 MHz (Satellite band) (maximum band ripple 1 dB).
Audible indicator	LV audio. A tone with pitch proportional to signal strength.
Accuracy	
Sub-band	± 1.5 dB (30-120 dB μ V, 5-45 MHz) (22°C \pm 5°C)
Terrestrial bands	± 1.5 dB (30-120 dB μ V, 48,25-861 MHz) (22°C \pm 5°C)
Satellite band	± 1.5 dB (40-100 dB μ V, 900-2150 MHz) (22°C \pm 5°C)
Overrange indication	- , -

MEASUREMENTS IN TV MODE

Terrestrial bands	
Analogue channels	Level, Video-Audio ratio and Carrier-Noise ratio (Auto and Referenced).
Digital channels	Channel power (Auto) and Carrier-Noise ratio (Auto and Referenced).
Satellite band	
Analogue channels	Level and Carrier-Noise ratio (Auto and Referenced)
Digital channels	Channel power (Auto) and Carrier-Noise ratio (Auto and Referenced).
DATALOGGER function	Automatic acquisition of up to 9801 measurements

SPECTRUM ANALYSER MODE

Satellite band	20 dB μ V to 120 dB μ V (10 μ V to 1 V)
Terrestrial bands	20 dB μ V to 120 dB μ V (10 μ V to 1 V)
Measurement bandwidth	
Terrestrial	50 kHz, 230 kHz, 1 MHz selectable
Satellite	50 kHz, 230 kHz, 4 MHz selectable
Span	
Terrestrial	<i>Full span</i> (full band), 500, 200, 100, 50, 32, 16, 8 MHz selectable.
Satellite	<i>Full span</i> (full band), 500, 200, 100, 50, 32, 16, 8, 4 MHz selectable.
Markers	2 with level, frequency, level difference and frequency difference indications.
Detection	By peak or average.
Measurements	
Terrestrial bands	
Analogue channels	Level and Carrier-Noise ratio (Referenced)
Digital channels	Channel power (Integration method) and Carrier-Noise ratio (Referenced).
Satellite band	
Analogue channels	Level and Carrier-Noise rate (Referenced)
Digital channels	Channel power (Integration method) and Carrier-Noise ratio (Referenced).

MONITOR DISPLAY

Monitor	TFT colour 5 inches (PROLINK-4C Premium) or B & W 4 ½ inches (PROLINK-4 Premium).
Colour system	PAL, SECAM and NTSC
TV standard	M, N, B, G, I, D, K and L
Synchronism and Burst	Graphic representation over the picture
Spectrum mode	Variable span, dynamic range and reference level
Sensibility	40 dB μ V for correct synchronism
Synchronism 50/60 Hz	Automatic selection according to the system

VIDEO SIGNAL

External video input	Scart (automatic or selectable)
Sensibility	1 V _{pp} (75 Ω) positive video
Video output	Scart (75 Ω)

SOUND

Input	Scart
Outputs	Built in speaker, Scart
Demodulation	AM, FM, TV and NICAM (for PAL B/G, PAL I and SECAM L standards), selectable
De-emphasis	50 μ s
Subcarrier	Digital frequency synthesis
Variable	From 4 to 9 MHz, 10 kHz resolution
Fixed	
Terrestrial	According to the active standard: 4.50 - 5.50 - 5.74 - 6.00 - 6.26 - 6.50 - AM - FM - LV - OFF.
Satellite	5.80 - 6.50 - 6.65 - 6.80 - 7.02 - LV - OFF

CONFIGURATION FOR MEASURING DIGITAL PARAMETERS

TUNING:

COFDM:	from 40 to 870 MHz.
Resolution:	166 kHz (BW = 8 MHz) / 125 kHz (BW = 7 MHz and 6 MHz).
QAM:	from 47 MHz to 862 MHz.
Resolution:	50 kHz.
QPSK:	from 950 MHz to 2150 MHz.
Resolution:	500 kHz.

LEVEL RANGE

COFDM:	45 dB μ V to 100 dB μ V.
QAM:	45 dB μ V to 110 dB μ V.
QPSK:	44 dB μ V to 114 dB μ V.

IMPEDANCE

75 Ω

MEASUREMENTS

COFDM:

Parameters:	BER after Viterbi. MER selectable and Constellation Diagram. CSI (Channel Status Information) selectable. Qualitative measurement about channel quality. Measures from 0 to 100 %. 0 % value corresponds to maximum quality.
Presentation:	Numeric and level bar. Graph (Constellation).

QAM:

Parameters:	BER before FEC (Forward Error Correction). MER (Modulation Error Ratio) and Constellation Diagram.
Presentation:	Numeric and level bar. Graph (Constellation).

QPSK:

Parameters:	BER before Viterbi. BER after Viterbi.
Presentation:	Numeric and level bar.

WRONG PACKETS	Number of non-correctable packets accumulated during the measurement time, and indicates when the fault was produced. Identification according to levels 1.1, 1.2, 1.3 and 2.1 of TR 101 290 ETSI standard.
DCI FUNCTION	DVB channel identifier. Provides information on the channel whose BER is being measured.
COFDM SIGNAL PARAMETERS	Carriers 2k / 8k (Selected by the user). Guard Interval 1/4, 1/8, 1/16, 1/32 (Selected by the user). Code Rate 1/2, 2/3, 3/4, 5/6, 7/8. Modulation QPSK, 16-QAM, 64-QAM. Spectral inversion Selectable: ON, OFF. Hierarchy Indicates hierarchy mode. FEC Reed-Solomon (204, 188) and Viterbi.
QAM SIGNAL PARAMETERS	Demodulation 16/32/64/128/256 QAM. Symbol rate 1000 to 7000 kbauds. Carrier frequency deviation $\pm 0.08 \times$ Symbol rate. Roll-off (a) factor of Nyquist filter 0.15. Spectral inversion Selectable: ON, OFF
QPSK SIGNAL PARAMETERS	Bandwidth IQ signals variable: 10 MHz to 30 MHz in 2.5 MHz steps. Symbol rate 2 to 45 Mbauds. Carrier frequency deviation $\pm 0.05 \times$ Symbol rate. Roll-off (a) factor of Nyquist filter 0.35. Code Rate 1/2, 2/3, 3/4, 5/6, 7/8 and AUTO. Spectral Inversion Selectable: ON, OFF
VIDEO	Format MPEG-2 / DVB (MP@ML). Conditional access types Common interface, according to available user CAM. (Patent pending). Uncoded FTA standard.
BASE BAND SIGNAL	Transport Stream Interface DVB-PI Maximum frequency 50 Mb/s Output parallel LVDS. D-25 Connector Amplitude (differential) Maximum 450 mV. Minimum 250 mV. Input parallel LVDS. D-25 Connector Amplitude (differential) Minimum 100 mVpp.
TELETEXT	Decodes at 1.5 level
RS-232C INTERFACE	

EXTERNAL UNITS POWER

SUPPLY	Through the RF input connector
Terrestrial	External or 13/15/18/24 V
Satellite	External or 13/15/18 V
22 kHz signal	Selectable
Voltage	0.6 V \pm 0.2 V
Frequency	22 kHz \pm 4 kHz
Maximum power	5 W

DiSEqC¹ GENERATOR According to DiSEqC 1.2 standard

POWER SUPPLY

Internal

Batteries	7.2 V 11 Ah Li-Ion battery
Autonomy	> 2 hours in continuous mode.
Recharging time	4 hours starting of completely discharged (instrument off).

External

Voltage	12 V
Consumption	51 W
Auto power off	After 15 minutes without operating on any control. Deactivable.

OPERATING ENVIRONMENTAL CONDITIONS

Altitude	Up to 2000 m
Temperature range	From 5 to 40 ° C (Automatic disconnection by excess of temperature).
Max. relative humidity	80 % (up to 31°C), decreasing lineally up to 50% at 40° C.

MECHANICAL FEATURES

Dimensions	294 (W) x 106 (H) x 274 (D) mm (without holster)
Weight	5.5 kg

INCLUDED ACCESSORIES

1x CB-044	Rechargeable Li+ battery 7.2 V, 11 Ah
1x AD-055	"F"/F-BNC/F adapter
1x AD-056	"F"/F-"DIN"/F adapter
1x AD-057	"F"/F-"F"/F adapter
1x AL-103	External DC charger
1x DC-261	Carrying bag
1x AA-103	Car lighter charger
1x CA-005	Mains cord

OPTIONAL ACCESSORIES

RP-050	IF satellite generator
NG-281	1 GHz (70 dB) noise generator
NG-282	2 GHz (50 dB) noise generator
LN-370B	Low noise amplifier
CV-245	2.4 GHz band converter
CV-589	5.8 GHz band converter
AMC/1	Master aerial
CI-23	Portable printer
RM-104	Remote control software
RM-204	Monitoring and alarm software
RM-304	Monitoring and alarm system via SMS

¹ DiSEqCTM is a trademark of EUTELSAT.