

VOR/ILS Receiver/Analyzer EVS200

Monitoring terrestrial radio-navigation equipment at airports and field stations



Foto 43151-1

Brief description

VOR/ILS Analyzer EVS200 is a portable combinational measuring instrument for monitoring terrestrial radio-navigation equipment at airports and field stations. It provides high-precision signal analysis of ILS localizers and glidepath transmitters as well as of VOR systems including marker beacon.

Thanks to its high measurement accuracy and fast data output, EVS200 is ideal for dynamic, computer-aided measurement of runway characteristics. The wide input level range and optimal shielding of the modules allow measurements to be carried out close to antennas.

Measurement applications

- Dynamic runway measurements
- Measurement of DDM/SDM on antenna array and runway
- Clearance & glidepath (joint analysis of parameters without switching off transmitter system)

- Qualification of test signals at field testpoints and checking of bearing indication of VOR/DVOR transmitters
- Difference level measurement with dynamic range up to 110 dB
- Measurement of marker beacon signal parameters
- Point-by-point far-field measurement
- Measurement of transmitting antenna characteristic using delta level mode
- Functional monitoring of VOR/ILS transmitter systems in the field including remote data transmission
- Use in flight inspection systems
- Further analysis of received signals via multifunctional output (DSP OUT) and audio output
- Analysis of external audio signals via audio input
- High long-term stability
- High measurement speed, 90 measurements/s in ILS mode
- Minimum susceptibility to interference through special shielding, operational even at high levels up to +15 dBm
- 120 memory channels for DDM/SDM values
- Built-in test equipment (BITE)
- RF spectrum display
- RS-232 interface for remote control of all functions and result output
- Large, illuminated LCD with clear display of results
- Simultaneous indication of parameters on display
- AC-supply-independent operation with built-in battery
- Operation in vehicles from 12 V on-board supply
- Operation from AC supply voltages 87 to 265 V at 47 to 63 Hz
- High mechanical resistance to MIL-810D and DIN-IEC 68

Main features

- VOR/ILS signal analysis with digital signal processor (DSP)
- High measurement accuracy and wide dynamic range

VOR/ILS Receiver/Analyzer EVS200

Specifications

Receiver section

Frequency range	74.7 MHz to 75.3 MHz, 107 MHz to 119 MHz, 319 MHz to 341 MHz
Accuracy	≤ 2 ppm
Resolution	5 kHz
Input voltage	15 dBm max. into 50 Ω
VSWR	<1.5
RF input	BNC (optional N)
Sensitivity	-96 dBm ≥ 18 dB (IF bandwidth 8 kHz)

IF bandwidth

Standard	min. ± 15 kHz (-3 dB), max. ± 40 kHz (-60 dB) min. ± 4 kHz (-3 dB), max. ± 12 kHz (-60 dB)
----------	---

optionally:

	min. ± 19 kHz (-6 dB), max. ± 38 kHz (-60 dB) min. ± 8 kHz (-6 dB), max. ± 20 kHz (-60 dB)
--	---

Demodulation

AM

Absolute level

Display range	-96 dBm to +10 dBm
Accuracy	$\leq \pm 2$ dB

Difference level

Bargraph (quasi-analog)	± 12 dB (rel. to reference level)
Resolution	0.1 dB
Accuracy	$\leq \pm 1$ dB

ILS signal analysis

RF level	-70 dBm to -30 dBm
Frequency range	108 MHz to 118 MHz 328 MHz to 336 MHz

Modulation depth (10% to 80%)

90 Hz/150 Hz $\pm 2\%$	accuracy 0.5%
300 Hz to 4 kHz (identifiable)	$\leq 1.2\%$ of reading

Phase angle 90 Hz/150 Hz

Measurement range	$\pm 60^\circ$
Measurement accuracy	$\leq 0.2^\circ$
Resolution	0.1°

DDM measurement (≥ 30 kHz IF bandwidth)

Localizer mode, measurement accuracy at	
15% to 25% modulation	$\leq \pm 0.0004$ DDM, $\pm 0.1\%$ of reading
10% to 30% modulation	$\geq \pm 0.0004$ DDM, $\pm 0.2\%$ of reading

Glideslope mode (≥ 30 kHz IF bandwidth)

Measurement accuracy at	
30% to 50% modulation	$\leq \pm 0.0008$ DDM, $\pm 0.1\%$ of reading
Resolution (LOC/GS)	0.0001 DDM
Analog DDM output	
Localizer	0 to 1 V in 4 subranges
Glideslope	0 to 1 V in 4 subranges
SDM measurement	
SDM 10% to 80%	accuracy $\pm 1\%$ absolute
Resolution	0.0001 SDM

VOR signal analysis

Azimuth

Accuracy	$\pm 0.1^\circ$
Resolution	0.05° / 0.01° (setup)

AM modulation depth 30 Hz and 9.96 kHz

Accuracy	$\leq 1\%$
Resolution	0.1%

FM deviation

Accuracy	0.5%, ± 0.1 Hz
Resolution	0.1 Hz

General data

RS-232 interface	8N1
Selectable baud rate	1200, 2400, 4800, 9600, 19200
Operating temperature range	-5°C to +45°C
Storage temperature range	-20°C to +60°C
Power supply	
AC	87 to 265 V, 47 to 63 Hz (440 Hz optional), built-in battery charger
External DC	9 to 15 V DC (typ. 12 V DC, 1.4 A)
Battery (optional)	12V / 3.2 Ah
Charging	during AC-supply operation
Operating time	>100 min with average brightness of display
Mechanical resistance	shock-tested to MIL-810D
Vibration test	to DIN-IEC 68-2-36 and 68-2-6
EMC	
RF leakage	to EN 50081-1
RF pickup	to EN 50082-1
Dimensions (W x H x D)	219 mm x 147 mm x 350 mm
Weight	4.9 kg/6.5 kg without/with battery

Ordering information

VOR/ILS Analyzer	EVS200	0796.1800.02
Options		
Battery (optional)	EVS200-B1	0796.2012.00
Remote-Control Software	EVS200-SWF	0798.4358.00
Application Software for analysis and display of results	EVS200-SWA	0798.4287.00
Software for additional analyses	on request	
Weatherproof case with 2 straps	EVS200-T	0798.4264.00