

# SOUND LEVEL ANALYSER

**Model : HD2010**

## Application

- Workplace noise.
- Acoustic pollution and environmental noise evaluation in general.
- Identification of noise sources either impulsive or with tonal components.
- Evaluation of noise emissions from machines or equipments.
- Insulation efficiency evaluation.
- Acoustics in buildings.
- Noise monitoring, even by remote control via PC.

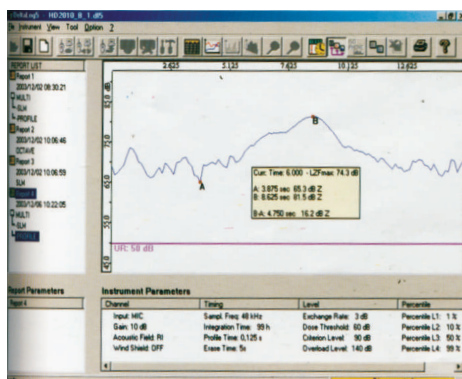
CE



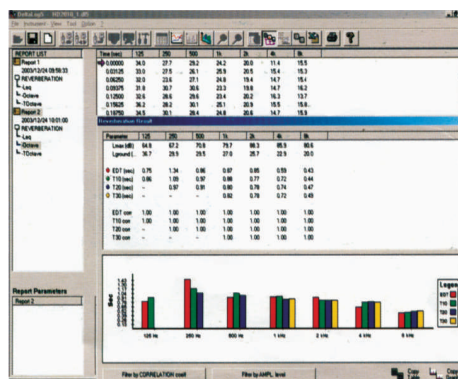
**HD2010** is an integrating type 1 portable sound level meter according to IEC 61672, IEC 60651 and IEC 60804 standards for performing either spectral or statistical analysis. Meter as a wide graphic display with 128 X 64 pixels.

Together with the logging of the 3 parameters, the spectral analysis is carried out in real time, by octave bands and optionally by third octave bands. The **HD 2010** calculates the spectrum of the sound signal twice a second and integrates it linearly up to 99 hours. Spectra are displayed together with an A, C or Z wideband level.

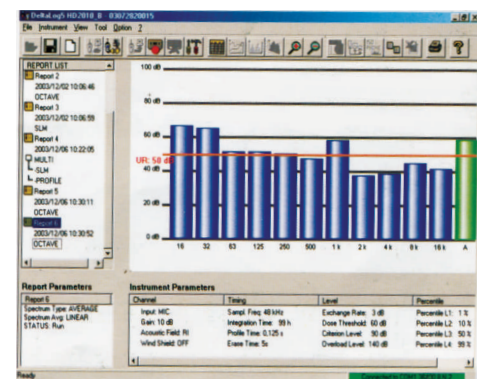
Spectrum of octave band



Reverberation time of octave band



Spectrum of octave band



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## TECHNICAL SPECIFICATIONS

<b>Display</b>	: 3 ½ digit LCD Graphic 128 x 64 Condenser
<b>Microphone</b>	: ½ " detachable from preamplifier
<b>Waterproof microphone for outdoor measures</b>	: Optional
<b>Outputs</b>	: AC, DC
<b>Internal Data Storage</b>	: 2 MB + 2 MB (Opt)
<b>Power supply</b>	: Batt. 4 x AA and DC 9V / 200 mA
<b>Measuring dynamics</b>	: 20 dB-140 dB in 5 range of 80 dB o(opt), 2 ranges of 110 dB
<b>Measuring Parameters</b>	: Lp, Lmax, Lmin, Leq, SEL, DoseP, Dose, LN
<b>Frequency weighting</b>	: Simultaneous, RMS A, C, Z (LIN) , peak C, Z
<b>Temporal weighting</b>	: Simultaneous, FAST, SLOW & IMPULSE
<b>Octave band spectral analysis from 16 Hz to 16 kHz</b>	: Parallel Real time (Optional)
<b>Third octave band spectral</b>	: Parallel Real Time 16 HZ to 20 KHZ (Optional)
<b>Spectral analysis mode</b>	: Linearity averaged spectrum
<b>Statistical analysis</b>	: Classes of 0,5 dB, 4 selectable percentil levels between L1 & L99
<b>Reverberation time</b>	: Optional
<b>Storage of instantaneous&amp;/or integrated levels</b>	: 3 selectable Parameters
<b>Storage of frequency spectrum</b>	: Octave spectrum or (optional) of 1/3 octaves
<b>Single storage of statistical analysis</b>	: 3 selectable percentile levels
<b>Sound Level profile</b>	: Optional
<b>Spectrum Profiles</b>	: Optional
<b>Interval Integration</b>	: Optional (3 Spectrum integrated parameters at intervals from 1.5 to 99 hrs.)
<b>Back erase function of undesired sound events</b>	: Upto 60 s
<b>Possibility of synchronized audio recording</b>	: yes
<b>Automatic calibration</b>	: yes
<b>Upgradeable firmware</b>	: yes
<b>Interface for portable 24 column printer</b>	: yes
<b>Extension cable for preamplifier</b>	: max 10 m – opt max 100 m
<b>Remote control</b>	: RS232
<b>Compliance &amp; standards</b>	: IEC651 & IEC 804 class 1, IEC 1672 class1, IEC 1260 class 1
<b>Instrument dimensions</b>	: 445 x 100 x 50 mm with preamplifier
<b>Instrument weight</b>	: 740 g with batteries

## ORDER CODE

- HD2010 Kit 1** : the kit includes HD2010 sound level meter, carrying case, HD2010PN preamplifier, HD9101 calibrator, MK221 microphone, HD2110/CSNM null-modem serial cable, HD SAV windshield, DeltaLog5 program for PC interfacing.
- HD2010 kit 2** : the kit includes HD2010 sound level meter, carrying case, HD2010PNE2 preamplifier, HD9102 calibrator, UC-52 microphone, HD2110/CSNM null-modem serial cable, HD SAV windshield, DeltaLog5 program for PC interfacing.
- HD2010 kit 3** : sound level meter with weatherproof microphone unit: the kit includes HD2010 sound level meter with option 2 "Data logger", weatherproof microphone unit HD WME950N, HD9101 calibrator, carrying case, HD2110/CSNM null-modem serial cable, DeltaLog5 program for PC interfacing.
- Options and spare parts
- Option 0** : 2MB memory expansion.
- Option 1 "Third Octave"** : Real time third octave spectrum from 16Hz up to 20 kHz.
- Option 2 "Data Logger"** : Automatic recording.
- Option 3 "Extended Range"** : Measurement dynamic range extended to 110 dB.
- Option 4 "Reverberation time"** : Reverberation time measurement either using the sound source interruption or the impulsive source techniques.
- HD9101** : class 1 calibrator according to IEC60942 : 1988. 1000Hz frequency. 94dB/114dB sound levels.
- HD9102** : class 2 calibrator according to IEC60942 : 1988. 1000Hz frequency, 94dB/114dB sound levels.
- HD SAV** : windshield for 1/2" microphones.
- HD SAV2** : windshield with bird spikes for weatherproof microphone unit HD. WME950.
- HD SAVP** : rain shield for weatherproof microphone unit HD. WME950.
- HD2110/CSNM** : null-modem serial cable with standard DB9 connector.
- HD2110/CSM** : serial cable for modem with standard DB25 connector.
- HD2110/CSP** : serial cable for printer with standard DB9 connector.
- HD2010PNE 2** : microphone preamplifier for 1/2" pre-polarized microphones. It is equipped with the CTC function for electric calibration.
- HD2010 PN** : microphone preamplifier with standard connector for 1/2" microphones. It is equipped with the CTC function for electric calibration.
- HD2110P** : microphone preamplifier with standard connector for 1/2" microphones. It is equipped with the CTC function for electric calibration and with a cable driver for extensions up to 100m.
- HD2010PNW** : heated microphone preamplifier for weatherproof microphone unit HD. WME950N with standard connector for 1/2" microphones. It is equipped with the CTC function for electric calibration and with a cable driver for extensions up to 100m.
- MK223** : class 1 microphone with coated membrane for free-field measurements type WS2F according to IEC 61094-4 : 1995.
- MK221** : class 1 microphone for free-field measurements type WS2F according to IEC 61094-4 : 1995.
- MK231** : class 1 microphone for diffuse-field measurements type WS2D according to IEC 61094-4 : 1995.
- UC-52** : class 2 microphone for free-field measurements, type WS2F according to IEC 61094-4 : 1995
- HD. WME950N** : weatherproof microphone unit including : MK223 1/2" condenser microphone, HD2010PNW heated preamplifier, wind and rain shields, bird spike, 5m connecting cable (other lengths on request).
- HD. WME950** : weatherproof microphone unit combined with option 3 "Extended Range" including : MK223 1/2" condenser microphone, HD2010PW heated preamplifier, wind and rain shields, bird spike, 5m connecting cable (other lengths on request).
- AF209, 60** : DC mains power supply with  $V_{in}=230V_{ac}$  and  $V_{out} = 9V_{dc}/300mA$ .
- CPA/3** : 3m extension cable for microphone.
- CPA/5** : 5m extension cable for microphone.
- CPA/10** : 10m extension cable for microphone.
- CPA/20** : 20m extension cable for microphone, combined with option 3 "Extended Range"
- CPA/50** : 50m extension cable for microphone, combined with option 3 "Extended Range"
- VTRAP** : tripod, max height 1550mm.
- HD2010/SA** : support to fix the preamplifier to tripod.
- S' print-BT** : portable serial printer.
- DeltaLog5Mounitor** : program for PC running Windows 95/98/ME/2000/XP for sound monitoring and remote control.
- DeltaLog5Ambiente** : program for PC running Windows 95/98/ME/2000/XP for analysis and processing of the acquired data.
- DeltaLog5Building** : program for PC running Windows 95/98/ME/2000/XP for room acoustics evaluation, option 4 is needed.