



#### Main Characteristics

- **Frequency-Filter Sound Pressure Level limiter based on the measurement of SPL**
- **It does not cut out the music. With the ENOS (Extraneous Noise Override System) option the reproduction of music in venues such as bars, pubs and cafés is possible.**
- **Control by emission Sound Pressure Level or reception SPL (insulation)**
- **50 dB correction range (attenuation)**
- **Registers acoustical parameters like LAeq, LAeq1'max, LAeq1'min, LFmax, and percentiles (interval and sessions)**
- **Registers all incidents: Disconnection from the mains, sensor tampering**
- **Can be completely sealed**
- **Adaptable to any kind of regulation**
- **Data retrieval by serial connection with PC and modem.**
- **Internal continuous self-verification system**
- **Several predictive control algorithms**
- **Massive Data Storage for periods longer than 1 month**

The **LRF-05** frequency sound level recorder-limiter measures, records and controls the sound pressure level in the establishment where it is installed. The **LRF-05** is inserted into the reproduction chain, between the mixing desk and the crossover, intervening in the entire sound chain.

The **LRF-05** automatically corrects excesses in the musical signal level of up to 50 dB. If this 50 dB is exceeded, the **LRF-05** penalises with a 60 dB attenuation during a programmable time interval. The wide dynamic attenuation range provides the user of the sound system with considerable room for manoeuvre in which the **LRF-05** corrects the signal level excesses without restrictive attenuations. The **LRF-05** is equipped with different predictive reply algorithms for this function, ranging from the most stable, based on the (recommended) Leq10s parameter to the most restrictive, based on Leq125 ms.

The **LRF-05** includes the **ENOS** (Extraneous Noise Override System) option, specially designed for music reproduction in venues with a high level of ambient noise: bars, pubs etc. It does not cut out the music.

The **LRF-05** functions according to the sound levels measured in the establishment by means of a sensor designed on the basis of the latest technology developed by **CESVA** in the field of sound measurement and/or according to the sound pressure levels in the dwelling next door to the establishment, calculated on the basis of the levels measured by the sensor by octave bands (centred on 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 8 kHz) and of the existing insulation levels, by octave bands, between the establishment and the dwelling. This spectral function allows the user to obtain the maximum sound pressure level in the establishment without exceeding the permitted sound level limit in adjacent buildings.

The **LRF-05** is also equipped with a recording function that allows the user to store information concerning sound levels measured in the establishment and concerning incidents that occur, (tampering with the equipment), during a minimum period of one month, (Leq time over 6 minutes). The **LRF-05** allows you to programme the periodicity of information storage, (from 2 min. to 1 h. in 1-min. steps). The information for each session is also stored, allowing you to demonstrate the sound levels generated by your activity to the authorities. The information stored can be retrieved directly from the **LRF-05**, by transferring it to a PC via a serial port or modem.

The **LRF-05** works by connection to the mains. When the **LRF-05** is disconnected from the mains, it records this incident and turns off automatically, attenuating to 60 dB until the next time it is connected to the mains. The information stored is not lost. When the unit is connected to the mains once more, the **LRF-05** continues to function as normal.

A luminous remote display can be connected to the **LRF-05**, allowing you to observe from anywhere in the establishment, and in real time, the sound pressure level measured along with the attenuation level applied by the **LRF-05**.

The **LRF-05** is equipped with an internal continuous self-verification system that allows you to detect and record possible tampering with both the measurement equipment and the musical chain.



### Inputs and Outputs

#### Audio Inputs and Outputs

**Asymmetrical E/S Connectors (non-balanced):**

RCA

**Symmetrical E/S Connectors (balanced):**

Input: XLR female

Output: XLR male

**Input impedance:**

100 k $\Omega$

**Output impedance:**

100  $\Omega$

**Minimum output charge:**

47 k $\Omega$

**Total harmonic distortion (THD):**

< 80 dB

**Absolute maximum input level:**

$\pm 18$  V

**Maximum input level without distortion:**

$\pm 14$  V

**Frequency response ( $\pm 0.5$  dB)**

20 to 20.000 Hz

**Typical noise (20 – 20,000 Hz):**

Balanced: 180 $\mu$ V

Non-Balanced: 130 $\mu$ V

#### DL-3E external display connection output

XLR with 3 contacts (male)

#### Modem connection output

DB-9 plug (male)

#### RS-232 serial connection output

DB-9 socket (female)

### Attenuator

**Range of attenuation:**

0 – 50 dB

**Penalisation attenuation:**

60 dB

**Typical attenuation error :**

0 dB

**Maximum attenuation error (0 - 50 dB)**

1 dB

#### SUPPLIED ACCESSORIES

Sensor LXM-8

Cable CNOMX9

SFTL05 Software for PC

### Sensor

**Measurement range:**

60 – 120 dB

**Frequency range:**

20 — 20.000 Hz

### Octave Filters

IEC-61260 (1995) standardised type 1 octave filters.

Central frequencies according to ISO-266 (1975) recommendation.

The frequency margin comprises the octave bands centred in the frequencies: 31'5, 61,125, 250, 500, 1000, 2000 and 4000,8000 Hz and those cover the ones which are recommended for the description of sound insulation of buildings (preferential frequencies: 125, 250, 500, 1000, 2000, 4000 Hz).

### External display (optional)

DL-3E external LEDs display: indicates, in real time, the sound pressure level in dBA and the LRF-05 attenuation in dB. The display updates every 2 seconds.

### Dimensions and weight

440x 226x 95 mm

2 units 19" rack

4 kg

### Mains feed

220V — 50-60 Hz

### Maximum consumption

13W

### Storage capacity (it can be increased)

10 days (TLeq = 2 min)

34 days (TLeq = 7 min)

48 days (TLeq = 10 min)

9 months (TLeq = 1 h)

#### OPTIONAL ACCESSORIES

**CB004**

Sound Calibrator

**DL-3E**

External Display

**ALIC-1**

Sealing Pincers

**PLOM-1**

Lead seal of  $\varnothing 9$  mm (1kg)

**ALAMB-1**

Sealing wire (50m roll)

**BT245**

Bluetooth™ device for the Limiter

**BT002**

Bluetooth™ device for the PC

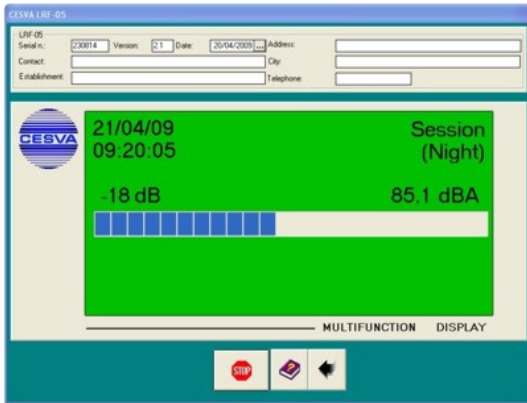
**DL100**

Giant External Display

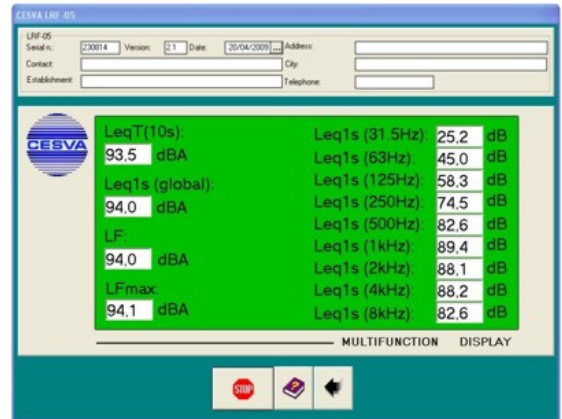
*The characteristics, technical specifications and*

The **LRF-05** is supplied with the software application that allows you to:

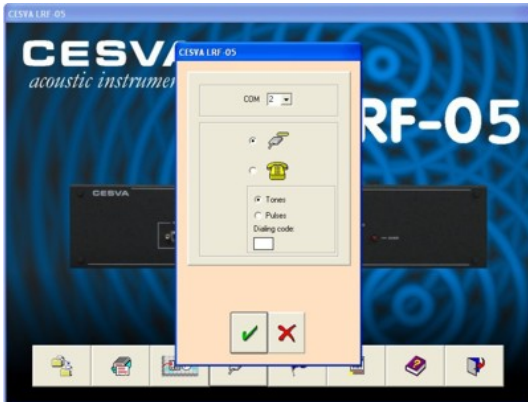
- Display sound level and incidences in real time.
- Generate graphics. Time history of the sound levels
- Obtain data in electronic format
- Programme all the parameters by modem.
- Create reports in 6 different languages.
- Programme the LRF-05 with a special tool.



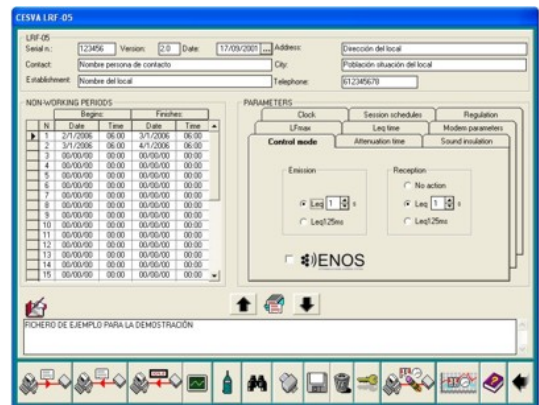
Real time data acquisition by modem



Test



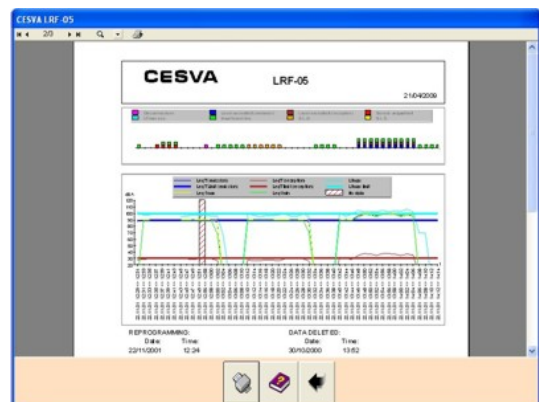
MODEM configuration



Programming of the LRF-05



Graphic display of data (sound levels and incidences)



Generation of reports

The characteristics, technical specifications and