

# HT157

DIGITAL INTEGRATING SOUND LEVEL METERS TYPE 1

HT157 and HT155 are mobile integrating sound level meters Type 1 (**Class 1**) which can be used to **monitor** the **equivalent level of noise (Leq)**, measure **Peak values**, check **soundproofing levels**, **acoustic pollution**, etc. they are also indicated for **certification according to the laws** currently in force as regards **environmental noise measurements** and in **working environments**. These devices have a **wide measuring range (from 25 to 140dB)** and **multiple functions** such as **statistic analysis**, **24H analysis**, **integration of Leq over time**, which are indispensable elements when measuring. These models also allows carrying out **detailed analyses of spectrum components of noise** using integrated **octave-band filters** and **1/3 octave-band filters** (only HT157) and they are provided with an **internal memory to save data** and with a **USB interface for transferring data to the PC** through **dedicated software** in a Windows environment with **possibility of numerical, graphic and statistic display**.

Sound level meters are provided with a practical and **resistant case** with a mobile calibrator for preliminary checks before each measurement is carried out.



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## Functions and characteristics

	<b>HT155</b>	<b>HT157</b>
Sound level meter category	Typo 1	Typo 1
Noise measuring range	25÷140dB	25÷140dB
Noise measuring resolution	0.0÷10.1dB	0.0÷10.1dB
Dynamic range	> 90dB	> 90dB
Measurement of sound pressure level (SPL)	•	•
Measurement of equivalent noise levels (Leq)	•	•
Frequency weighting	A / C / Z	A / C / Z
Integration over time	F/S/ Impulse	F/S/ Impulse
Peak measurements (Peak-, Peak+)	•	•
Statistic analysis of noise type "A"	•	•
24H analysis of noise	•	•
Octave-band spectrum analysis	-	•
1/3 octave-band spectrum analysis	-	•
1/2 condenser microphone	•	•
Analogue AC output	•	•
Internal calibration in Class 1	•	•
Provided mobile calibrator	•	•
Internal memory for data saving	(128 groups)	(128 groups)
Interface with USB Pen Drive	•	•
USB interface for PC connection	•	•



## Main features

<b>Display:</b>	LCD, dot-matrix (240x160pxl) with backlight
<b>External power supply:</b>	Adapter 100-240VAC/5VDC
<b>Internal power supply:</b>	4x1.5V alkaline batteries type AA LR6
<b>Reference standards:</b>	IEC 61672:2002 type1 IEC 61260:1995 type1 ( <b>HT157</b> ) IEC 60804:1985 type1 IEC 60651:1979 type1DLgs 477/91, 195/06
<b>Size:</b>	285x90x3
<b>Weight (batteries included):</b>	500 g



## Included accessories

<b>HT151</b>	Mobile calibrator Class 1
	Power supply 100-240VAC/5VDC with USB output
	Mini-USB/USB cable for PC connection
	USB Pen Drive (TRASCEND JF V30/2GB)
	USB cable for connecting the Pen Drive to the device
	Wind protection 60mm
	Windows software for data transfer
	Transport case
	4x1.5V alkaline batteries type A LR06
	User manual, Calibration certificate of sound level meter and calibrator



## 1. TECHNICAL SPECIFICATION

Accuracies are referred at the temperature of 23°C±5°C with <80%HR

### MEASUREMENT RANGE

- Type A weighting: 25 ÷ 140dB
- Type C weighting: 30 ÷ 140dB
- Type Z (linear) weighting: 35 ÷ 140dB
- Peak C SLM: 50 ÷ 143dB

Range [dB]	0 ÷ 90	10 ÷ 100	20 ÷ 110	30 ÷ 120	40 ÷ 130	50 ÷ 140
A Weighting	25 ÷ 90	25 ÷ 100	25 ÷ 110	30 ÷ 120	40 ÷ 130	50 ÷ 140
C Weighting	30 ÷ 90	30 ÷ 100	30 ÷ 110	30 ÷ 120	40 ÷ 130	50 ÷ 140
Z Weighting	35 ÷ 90	35 ÷ 100	35 ÷ 110	35 ÷ 120	40 ÷ 130	50 ÷ 140
Peak C	50 ÷ 93	50 ÷ 103	50 ÷ 113	50 ÷ 123	60 ÷ 133	70 ÷ 143

### FREQUENCY WEIGHTING (Type A / C / Z)

- It complies with IEC61672:2002Class 1,CNS 7129,IEC60651:1979Type 1,IEC60804:2000Type 1

### MICROPHONE

- Pre-polarized condenser ½ " with pre-amplifier
- Nominal sensitivity (at reference conditions): 50mV/Pa
- Frequency range: 10Hz ÷ 20kHz
- Noise: < 16dB(A)

### AC OUTPUT

- Output ratio: 1mV AC / 0.1dB
- Maximum output voltage: 3.2Vrms
- Output impedance: 1kΩ

### PC CONNECTION

- mini-USB: compliance with 1.1 and 2.0 release
- Connection to USB pen drive: suggested TRASCEND JF V30 2GB

### GENERAL CHARACTERISTICS

- Level linear range: >90dB
- Resolution: 0.1dB (Statistic), 0.01dB (1/1 e 1/3 OCT)
- Frequency range: 10Hz ÷ 20kHz (±0.2dB) ; 1Hz ÷ 23kHz (±1.0dB)
- Range gain: -10dB, 0dB, 10dB, 20dB, 30dB, 40dB
- Range control error: ≤ 0.1dB
- Self-generated noise voltage: <4μV (1Hz ÷ 23kHz linear)
- Background noise: <13dB(A), 15dB(C), 25dB(Z)
- Total noise: <18dB(A), 23dB(C), 28dB(Z)
- Measuring voltage range: 15μV ÷ 10V (TRMS)
- Frequency weighting: A / C / Z
- Time weighting: Fast, Slow, Impulse, Peak C+, Peak C-
- A/D internal converter: 24 bit
- Anti-aliasing filter: cut-off frequency 23.5kHz, attenuation 100dB
- Sampling rate: 20.8μs (48kHz)
- Intergration time: 1s ÷ 24h pre-defined or customized
- Internal memory: 64kBytes flash memory
- Data storage: max 128 groups / max 256 calibrations



**CHARACTERISTICS OF STATISTICAL ANALYSYS**

- Features: SLM statistical analysis with A frequency weighting  
Frequency integration with customized interval  
SLM statistical analysis during 24 hours (24H)

Type of analysis	Measured parameters (*)
Statistical	$L_{AFp}$ , $L_{AFmax}$ , $L_{AF5}$ , $L_{AF10}$ , $L_{AF50}$ , $L_{AF90}$ , $L_{AF95}$ , $L_{AFmin}$ , $SD$ , $L_{Aeq1s}$ , $L_{Aeq,T}$ , $L_{AE}$ , $L_{AfeqT}$ .
24H	$L_d$ , $L_n$ , $L_{dn}$ more than the parameters of statistical analysis
Integration	$L_{xyp}$ , $L_{xyi}$ , $L_{xeq,1s}$ , $L_{xeq,T}$ , $L_{AE}$ , $E$ , $C_{peak+}$ , $C_{peak-}$ , $L_{AFmax}$ , $L_{AFmin}$ , $L_{AfeqT}$ , $L_{ASeqT}$ , $L_{AlegT}$

(\*) X = A/C/Z frequency weighting ; Y = F/S/I time weighting constants

**CHARACTERISTICS OF 1/1 OCT AND 1/3 OCT**

- Features: Noise's real-time OCT and 1/3 OCT spectral analysis with integral measuring
  - Frequency weighting: A/C/Z
  - Spectral analysis interface: all spectrum frequencies
  - Total analysis interface: performed with digital filter
  - Z weighting added with one digital high-pass filter (cut-off frequency: 4Hz)
  - Filter type: digital, G=2 for 1/1 and 1/3 octave analysis
  - Central frequency of 1/1 analysis:
    - 16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz
  - Central frequency of 1/3 analysis:
    - 12.5Hz, 16Hz, 20Hz, 25Hz, 31.5Hz, 490Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
  - Measured parameters (\*):  $L_{fmeq,1s}$ ,  $L_{fmeq,T}$ ,  $L_{xyp}$ ,  $L_{xyi}$ ,  $L_{xeq,1s}$ ,  $L_{xeq,T}$ ,  $L_{AE}$ ,  $E$ ,  $C_{peak}$ ,  $T_m$
- (\*)  $f_m$  = central frequency ; X = A/C/Z frequency weighting ; Y = F/S/I time weighting constants
- Noise exposure (E)'s range:  $0 \div 65.535Pa^2h$

**CHARACTERISTICS OF HT151 PORTABLE CALIBRATOR**

- Selectable SLM levels: 94dB and 114dB (reference to  $2 \times 10^{-5}Pa$ )
- Accuracy:  $\pm 0.3dB$  (94dB) ;  $\pm 0.5dB$  (114dB)
- Reference frequency: 1kHz  $\pm 1\%$
- Distortion:  $\leq 1\%$
- Reference standard: IEC 60942:2003 Class 1 and ANSI S1.40:1984
- Stability time: 3s
- Working temperature:  $-10^\circ C \div 50^\circ C$  ( $-14^\circ F \div 122^\circ F$ )
- Storage temperature:  $-25^\circ C \div 0^\circ C$  ( $-13^\circ F \div 158^\circ F$ )
- Humidity :  $< 90\%HR$
- Atmospheric pressure: 65kPa  $\div$  100kPa
- Power supply: 1x9V battery type IEC 6F22 or NEDA 1604
- Dimensions: 117(L) x 53( $\varnothing$ ) mm
- Weight (with battery and 1/2 " adapter): 250g



## 2. GENERAL SPECIFICATIONS

### Display:

- Type of display: LCD, (240x160pxl), with backlight
- Sampling update : 1Hz (numerical), 10Hz (graphics)

### Power supply:

- Internal supply: 4x1.5V alkaline batteries type IEC LR6, AA
- Battery life: about 8 hours
- External supply: adapter AC100-240V, 50/60Hz / 5VDC 2A

### Mechanical specifications:

- Dimensions: 285 (L) x 90 (W) x 39 (H)mm
- Weight (with batteries): 500g

### Environmental conditions:

- Max height: 2000m
- Reference temperature: 23°C ± 5°C
- Working temperature: 5 ÷ 40 °C
- Working humidity: <80%RH (up to 31°C) and <50%RH (at 40°C)
- Storage temperature: -10 ÷ 60 °C
- Storage humidity: <70%RH

### Standard reference:

- Statistical and integration analysis: IEC 61672:2002 Class 1, CNS 7129  
IEC 60651:1979 Type 1, IEC60804:2000 Type 1
- 1/1 and 1/3 octave analysis: IEC 61260:1995 Class 1

This meter is compliance to the requirements of 2004/108/EEC EMC Directive