

# ENGLISH

## User manual



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## 1. SAFETY PRECAUTIONS AND PROCEDURES

This apparatus conforms to safety standard EN 61010-1, relating to electronic measuring instruments. For your own safety and that of the apparatus, you must follow the procedures described in this instruction manual and especially read all the notes preceded by the symbol  carefully.

Take extreme care for the following conditions when measuring:

- Do not perform measurement under humid or wet environment.
- Do not operate the meter under the environment with explosive gas (material), combustible gas (material), steam or filled with dust.
- If any unusual condition of testing end (metal part) and attachment of the meter such as breakage, deformation, fracture, foreign substance, no display, etc., do not conduct any measuring.

The herewith symbols are used:



CAUTION - refer to the instruction manual - an improper use may damage the instrument or its components.



Meter double insulated.



Meter compliance to CE mark standards.

### 1.1. PRELIMINARY

- This instrument can be used for sound level measurement from 30dB up to 130dB and frequency enclosed in 31.5 ÷ 8kHz range.
- You must comply with the usual safety regulations aimed at protecting the instrument against an incorrect operation.
- Calibrate the instrument before operation if the instrument was not in use for a long time or operated at bad environment (see chapter 4.3.2)
- Check if the battery is installed correctly.

### 1.2. DURING USE

Read the recommendation which follow and the instruction in this manual:



#### CAUTION

Non compliance with the warnings and/or the instructions for use may damage the apparatus and/or its components or injure the operator.

- Do not operate the instrument at temperature and humidity environment external to reference conditions of chapter 6.3.1.
- Wind blowing across the microphone would bring additional extraneous noise. Once using the instrument in the presence of wind, it is a must to mount the windscreen to not pick up undesirable signals.
- Keep the microphone dry and avoid severe vibration.
- During measuring, if the value of reading remains unchanged, check if the MAX/MIN function is active.

### 1.3. AFTER USE

- Once the measurements are completed, switch OFF the meter.
- If the instruments is not be used for a long period, remove the battery.

## 2. GENERAL DESCRIPTION

The meter can perform the herewith functions:

- Sound Pressure Level (SPL) measurements with 30dB to 130dB range.
- A or C frequency weighted measurements.
- FAST or SLOW integrations measurements.
- MAX and MIN value of SPL.
- AC or DC analogical outputs used with multimeters or external data loggers.
- Manual range selection.

On frontal panel of meter there are four function keys for selection of above specifications (see chapter 4.2). Measurement value is shown on the wide LCD display with relative measures unit and symbols of selected functions.

On side panel there are the terminals for AC and DC analogical outputs with 3.5mm coax plug and the input for external 9VDC adapter for use of meter without internal battery.

On back panel there is the screw for mounting external tripod during performing measures.

### 3. PREPARATION FOR USE

#### 3.1. INITIAL

All the equipment has been checked mechanically and electrically prior to shipment. Every care has been taken to ensure that the instrument reaches you undamaged.

However, it is wise to carry out a rapid check in order to detect any possible damage that might have been caused during transport. Should this be the case, immediately enter the usual claims with courier.

Check the packaging contained according to packaging list reported in chapter 6.4.1 In case of discrepancies contact the dealer.

In the event of re-shipment of the equipment please follow the instructions reported in chapter 7.

#### 3.2. SUPPLY VOLTAGE

The instrument is battery supplied; it use a single battery model 9V NEDA 1604 IEC 6F22 JIS 006P included in packaging. The battery autonomy is about 30 hours.

The symbol " $\text{⊕}$ " appears when the battery is nearly discharged. In case replace it following the instructions in chapter 5.2.

Meter can be supplied also with external 9VDC adapter (see chapter for electrical specifications) with the herewith plug type:



#### 3.3. CALIBRATION

The instrument fulfils the technical characteristics listed in this manual. The performance of the specifications is guaranteed for one year.

#### 3.4. STORAGE

In order to guarantee the accuracy of the measurements, after a period of storage in extreme environment condition, wait for the time necessary so that the apparatus returns to normal measuring conditions (see chapter 6.3.1).

## 4. OPERATING INSTRUCTIONS

### 4.1. INSTRUMENT DESCRIPTION

#### 4.1.1. Commands description

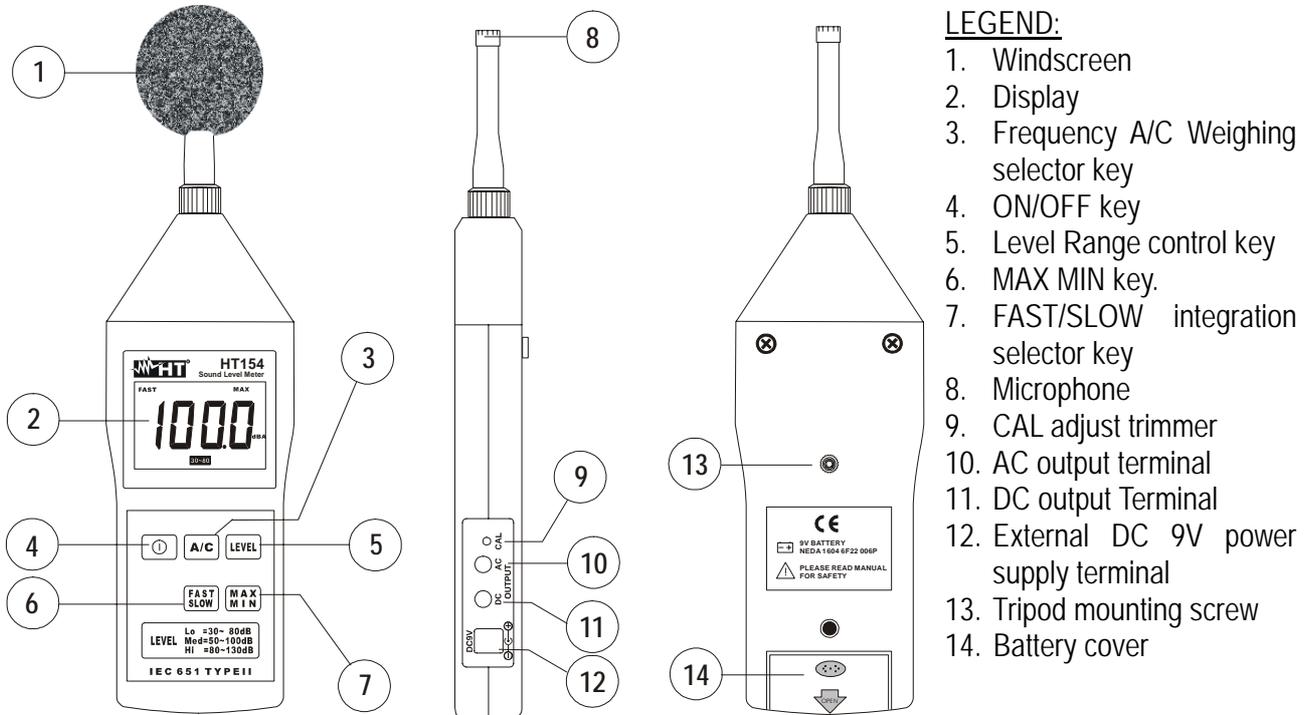


Fig. 1: Instrument description

#### 4.1.2. Display symbols description

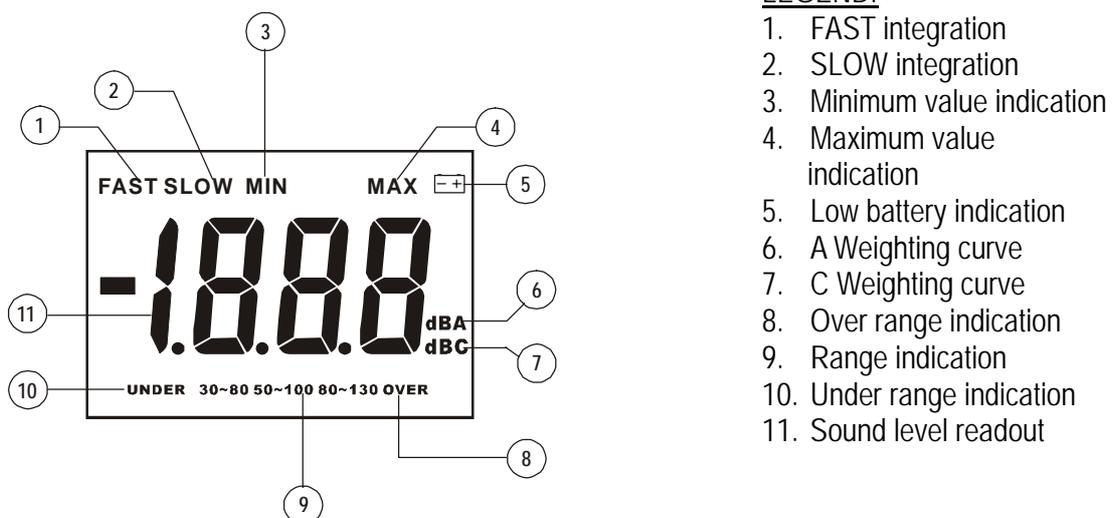


Fig. 2: Display description

## 4.2. FUNCTION KEY DESCRIPTION

### 4.2.1. ON/OFF key

Pressing of  $\text{\textcircled{O}}$  key permits to turn ON or switch OFF the meter in any moment.

### 4.2.2. A/C function key

Using the **A/C** key it is possible to select the A or C frequency weighting:

- A weighting: Normally it is used for general sound level measurements.
- C weighting: Used for checking the low-frequency content of noise.

### 4.2.3. LEVEL key

Cyclically pressing of **LEVEL** key permits to select the desired range choosing the herewith values:

- 30 ÷ 80dB
- 50 ÷ 100dB
- 80 ÷ 130dB

The selected range is indicated in the bottom area of LCD.

### 4.2.4. FAST/SLOW key

Press the **FAST/SLOW** key to select the corresponding time integrations. In particular:

- FAST: Used for Normal Measurements.
- SLOW: Used for checking the average level of fluctuating noise.

### 4.2.5. MAX/MIN key

This function allows the instrument to storing the MIN and MAX values of the Sound Pressure Level. Select the proper range as described in chapter 4.2.2 before using the MAX/MIN function.

Pressing **MAX/MIN** key the symbol "MAX" is shown in the top of display. In this mode the instrument measures and shows the maximum value of the sound Pressure Level. This value will be automatically updated if a bigger value will occur.

Pressing again the **MAX/MIN** the symbol "MIN" is shown in the top of display. In this mode the instrument measures and shows the minimum value of the Sound Pressure Level. This value will be automatically updated if a lower value will occur.

Pressing **MAX/MIN** key for at least 1 second to escape this mode and back to normal measurements.

### 4.3. MEASUREMENTS



#### CAUTION

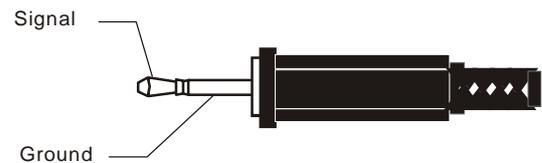
Wind blowing across the microphone would bring additional extraneous noise. Once using the instrument in the presence of wind with speed higher than 10m/s, it is a must to mount the windscreen to not pick up undesirable signals. Keep the microphone dry and avoid sever vibration.

1. Turn ON the meter.
2. Performing calibration operation if the meter was not used for a long time using the standard portable calibrator (see chapter 4.3.2).
3. Pressing **A/C** key to select the desired frequency weighing (see chapter 4.2.2)
4. Pressing **FAST/SLOW** key to select the corresponding time integration (see chapter 4.2.4).
5. Pressing **LEVEL** key to select the desired SPL range (see chapter 4.2.3).
6. Reading at display the measured SPL value.
7. If the message **OVER** or **UNDER** are shown on the display, use **LEVEL** key to select a higher or lower range respectively.
8. Pressing the **MAX/MIN** key to shows the Maximum or Minimum SPL value at display (see chapter 4.2.5).

#### 4.3.1. Connection to analogical AC and DC output

HT154 meter can be connected to accuracy multimeters and/or external data logger for recording scope using the analogical DC or AC output (see Fig. 1) using 3.5mm coax plug supplied as standard accessory. Technical specifications of output analogical are shown in the herewith figure:

<b>AC Output</b>	<b>DC Output</b>
➤ 1Vrms at selected FS	➤ Output: 10mV/dB
➤ Output impedance: about 50Ω	➤ Output impedance: about 100Ω



3.5mm output plug

Fig. 3: Description of analogical outputs

### 4.3.2. Calibration procedure

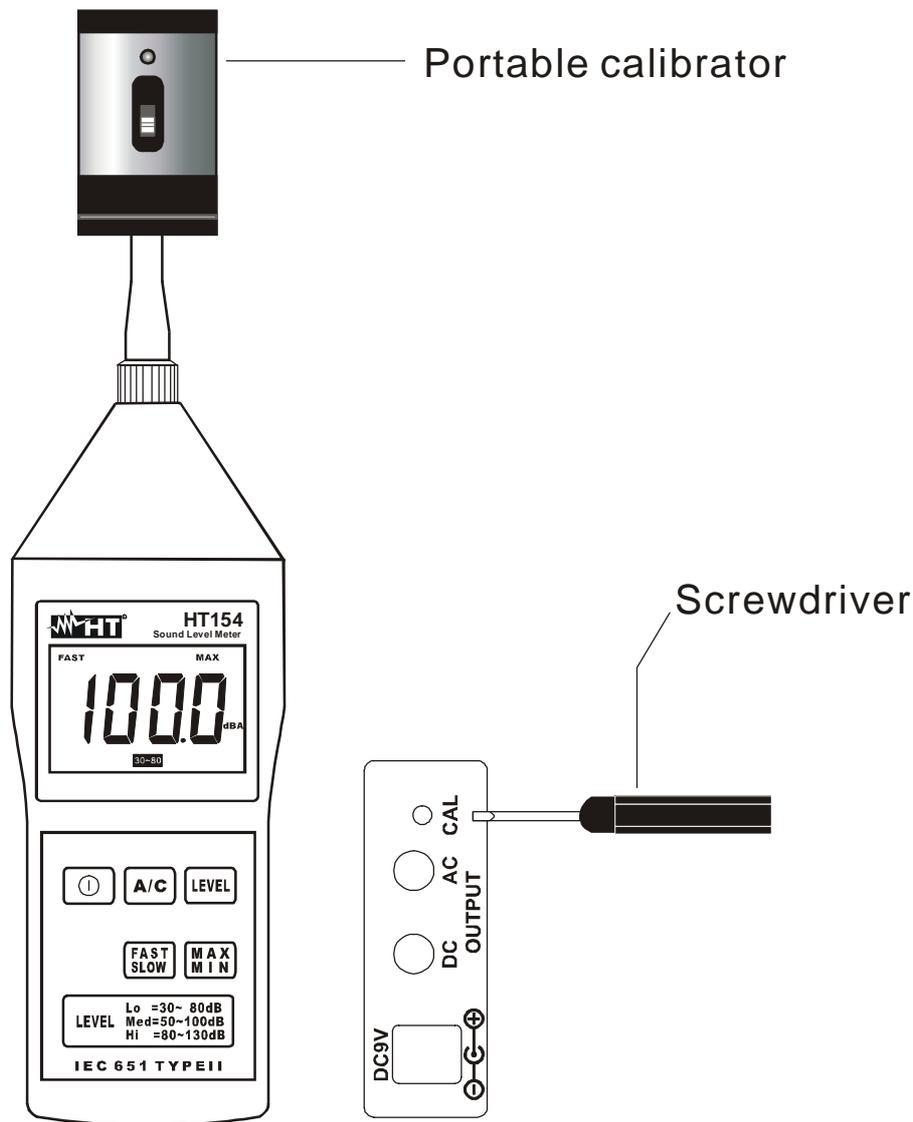


Fig. 4: Connection of meter to portable calibrator HT150

1. Turn ON the meter.
2. Setting herewith configuration:  
**Frequency Weighting: A (dBA)**  
**Integration time: FAST**
3. Inserting with care the portable calibrator HT150 on meter microphone up to listen a click, as shown in Fig.4.
4. Pressing **LEVEL** key and selecting "50-100" range at display.
5. Turn ON calibrator and select **94dB** level at 1kHz sinusoidal frequency. Red LED on calibrator must be ON.
6. Insert the screwdriver inside "CAL" trimmer and adjust the measured value up to read "94.0" at display.
7. Extract from microphone and switch OFF calibrator.

## 5. MAINTENANCE

### 5.1. GENERAL INFORMATION

This digital meter is a precision instrument. Whether in use or in storage, please do not exceed the specification requirements to avoid any possible damage or danger during use. Do not place this meter in high temperature or humidity or expose to direct sunlight. Be sure to turn the meter off after use. For long time storage, remove the battery to avoid leakage of battery liquid that would damage the interior parts.

### 5.2. BATTERY REPLACEMENT

When LCD displays the symbol "⊕⊖" replace battery.

1. Switch OFF the meter.
2. Remove the battery cover.
3. Remove the battery from the battery fastener carefully.
4. Set the new battery of the same type (9V battery, 006P or IEC6F22 or NEDA 1604) into battery fastener and return it to the battery case.
5. Replace the battery cover.
6. Do not scatter old batteries in the environment. Use the appropriate containers for disposal.

### 5.3. CLEANING

For cleaning the instrument use a soft dry cloth. Never use a wet cloth, solvents or water, etc.

### 5.4. END OF LIFE



Caution: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal



## 6. TECHNICAL SPECIFICATIONS

### 6.1. TECHNICAL CHARACTERISTICS

Accuracy is referred to the herewith conditions: 23°C ± 5°C with <80% RH.

- **Sound Pressure Level (SPL)**

Range		Dynamic range	Resolution	Accuracy	Frequency range
Lo	30 ÷ 80dB	50dB	0.1dB	±1.5dB	31.5Hz ÷ 8kHz
Med	50 ÷ 100dB				
Hi	80 ÷ 130dB				

- **Time weighting**

Function	Integration time
FAST	125ms
SLOW	1sec

- **Analogical Output**

Output	Voltage output	Output impedance
AC Output	1Vrms at Full Scale of the selected range	50Ω
DC Output	10mV/dB	100Ω

- **Microphone**

½ inch Electret condenser microphone

- **Safety**

Comply with: IEC 61672 Type 2  
 For inside use, max height: 2000m; 6561ft

### 6.2. GENERAL CHARACTERISTICS

#### Mechanical characteristics

Size: 280(L) x 80(W) x 32(H)mm; 11.02 x 3.15 x 1.26 in  
 Weight (including battery): about 300g; 9.65 ounces

#### Supply

Battery type: 1 battery x 9V NEDA 1604, IEC 6F22, JIS 006P battery.  
 Low battery indication: Symbol "⊕⊖" is displayed when battery level is too low.  
 Battery life: About 30 hours.  
 External adapter: 9VDC output voltage (8 ÷ 13VDC max)  
 output current :>30mADC

#### Display

Characteristics: 3 ½ digit  
 Display Update: 0.5s

### **6.3. ENVIRONMENTAL CONDITIONS**

#### **6.3.1. Climatic conditions**

Reference temperature:	23° ± 5°C; 73° ± 41°F
Operating temperature:	5 ÷ 40 °C; 41 ÷ 104 °F
Operating humidity:	<80% RH
Storage temperature:	-10 ÷ 60 °C; 14 ÷ 140 °F
Storage humidity:	<70% RH

#### **6.3.2. EMC**

<b>This instrument complies with the requirements of European Directive EMC 2004/108/EC</b>
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### **6.4. ACCESSORIES**

#### **6.4.1. Standard accessories**

The accessories contained inside the packaging are the following:

- Instrument HT154
- Portable calibrator HT150
- Wind Screen
- Screwdriver
- Plug for analogical DC/AC output
- Carrying case
- Battery
- Instruction manuals

## 7. SERVICE

### 7.1. WARRANTY CONDITIONS

This instrument is guaranteed for one year against material or production defects, in accordance with our general sales conditions. During the warranty period the manufacturer reserves the right to decide either to repair or replace the product.

Should you need for any reason to return back the instrument for repair or replacement take prior agreements with the local distributor from whom you bought it. Do not forget to enclose a report describing the reasons for returning (detected fault). Use only original packaging. Any damage occurred in transit due to non original packaging will be charged anyhow to the customer.

The warranty doesn't apply to:

- Accessories and batteries (not covered by warranty).
- Repairs made necessary by improper use (including adaptation to particular applications not foreseen in the instructions manual) or improper combination with incompatible accessories or equipment.
- Repairs made necessary by improper shipping material causing damages in transit.
- Repairs made necessary by previous attempts for repair carried out by non skilled or unauthorized personnel.
- Instruments for whatever reason modified by the customer himself without explicit authorization of our Technical Dept.

The contents of this manual may not be reproduced in any form whatsoever without the manufacturer's authorization.

**Our products are patented and our logotypes registered. We reserve the right to modify specifications and prices in view of technological improvements or developments which might be necessary.**

### 7.2. SERVICE

Shouldn't the instrument work properly, before contacting your distributor make sure that batteries are correctly installed and working, check the test leads and replace them if necessary.

Should you need for any reason to return back the instrument for repair or replacement take prior agreements with the local distributor from whom you bought it. Do not forget to enclose a report describing the reasons for returning (detected fault). Use only original packaging. Any damage occurred in transit due to non original packaging will be charged anyhow to the customer.

The manufacturer will not be responsible for any damage to persons or things.