


ENGLISH


User manual



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1. PRECAUTIONS AND SAFETY MEASURES

The instrument has been designed in compliance with the safety directives relevant to electronic measuring instruments. For your safety and in order to prevent damaging the instrument, please carefully follow the procedures described in this manual and read all notes preceded by symbol  with the utmost attention. Before and after carrying out measurements, carefully observe the following instructions:

- Do not carry out any measurement in humid environments.
- Do not carry out any measurements in case gas, explosive materials or flammables are present, or in dusty environments.
- Do not carry out any measurement in case you find anomalies in the instrument such as deformation, substance leaks, absence of display on the screen, etc.

The following symbols are used in this manual:



Caution: observe the instructions given in this manual. Improper use may damage the instrument or its components.



This instrument belongs to Class 2 (double insulation).



This instrument complies with the standards relevant to CE marking.

1.1. PRELIMINARY INSTRUCTIONS

- We recommend following the normal safety rules devised to protect the instrument against incorrect use.
- In case the instrument has not been used for a long time, or has been used in critical conditions, we recommend performing a new calibration before use (see § 5.4).
- Check that the battery is correctly inserted.

1.2. DURING USE

Please carefully read the following recommendations and instructions:



CAUTION

Failure to comply with the caution notes and/or instructions may damage the instrument and/or its components or be a source of danger for the operator.

- Do not perform any test under environmental conditions exceeding the limits indicated in § 8.3
- Always use the wind protection in case measurements are performed in windy environments.
- Avoid mechanical shocks and keep the microphone dry.
- While measuring, if the value of the quantity being measured remains unchanged, check if the HOLD function is enabled.

1.3. AFTER USE

- At the end of measurements, switch off the instrument.
- If the instrument is not to be used for a long time, remove the battery.

2. GENERAL DESCRIPTION

The instrument has the following functions:

- Measurement of Sound Pressure Level (SPL).
- Weighted frequency measurements through A or C curve.
- Measurement carried out with FAST or SLOW integration.
- Measurement of maximum and minimum values of SPL.
- Analogue AC/DC output which can be used with external multimeters and/or dataloggers.
- Automatic range selection.
- PC connection through software **SoundLink** for recording operations

On the instrument's front panel there are function keys to select the above-mentioned functions (see § 4.3). The measured value appears on the wide LCD display with the indication of the measuring unit and of the enabled functions.

On the side of the instrument there are: the analogue AC/DC output, the terminal for the connection of the external power supply with no use of the battery, the mini USB port for PC connection and the adjustment trimmer.

On the back side of the instrument there is a hole to rest it onto a possible tripod while carrying out measurements.

3. PREPARATION FOR USE


3.1. INITIAL CHECKS

Before shipping, the instrument has been checked from an electric as well as mechanical point of view. All possible precautions have been taken so that the instrument is delivered undamaged. However, we recommend checking the instrument in order to detect possible damage suffered during transport. In case anomalies are found, immediately contact the Dealer or HT's After-sales Service.

We also recommend checking that the packaging contains all components indicated in § 8.4.1. In case of discrepancy, please contact the Dealer.

In case the instrument should be returned, please follow the instructions given in § 9.

3.2. INSTRUMENT POWER SUPPLY

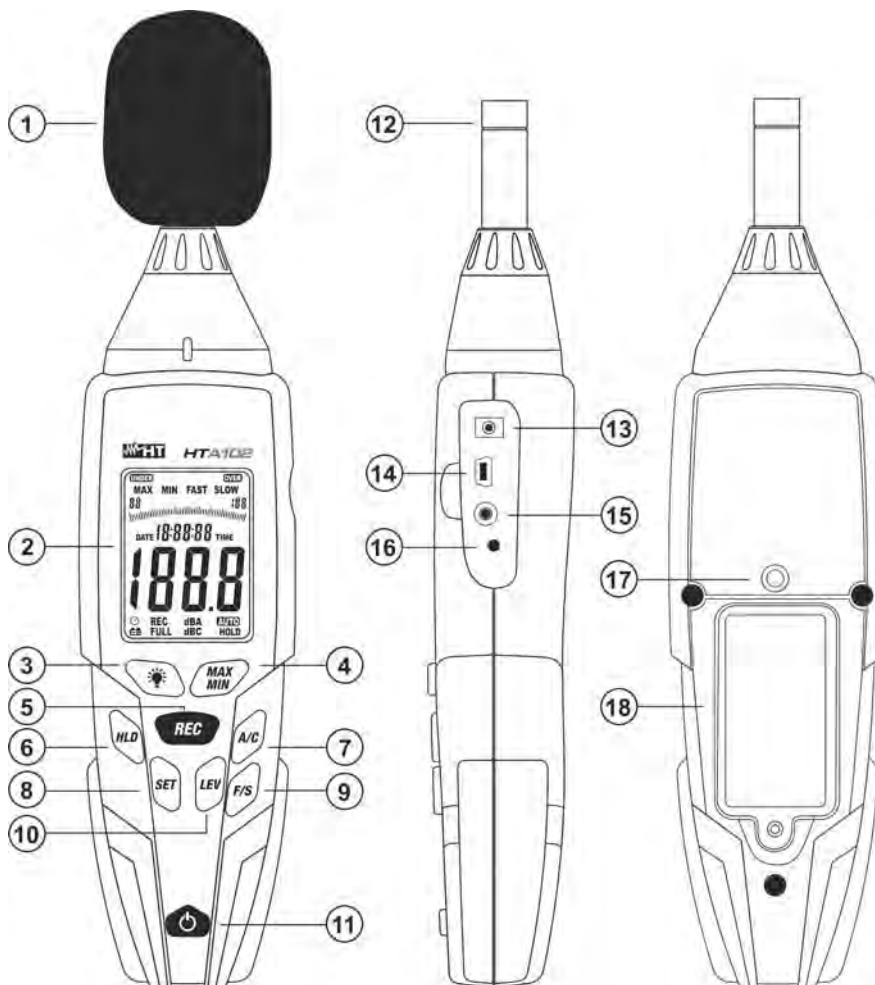
The instrument is supplied through 1x9V alkaline battery type IEC 6F22, included in the package. The “” symbol appears when the battery is flat. Replace the battery by following the instructions given in § 7.2. The instrument may be supplied also through an external DC 9V supply (see electrical specifications in § 8.2), also included in the package.

3.3. STORAGE

In order to guarantee precise measurement, after a long storage time under extreme environmental conditions, wait for the instrument to come back to normal operating conditions (see § 8.3).

4. NOMENCLATURE

4.1. DESCRIPTION OF THE INSTRUMENT

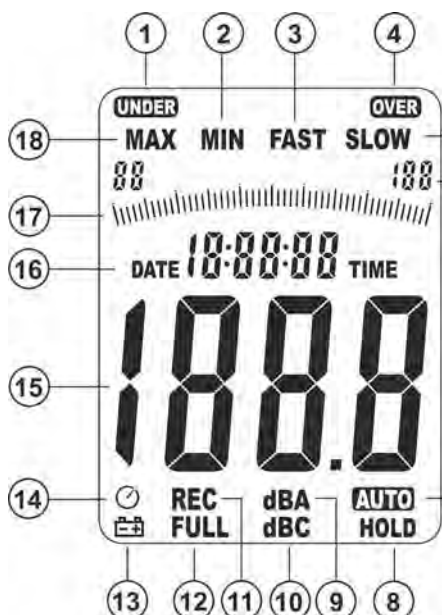


CAPTION:

1. Wind protection screen
2. LCD display
3. Key
4. Key **MAX/MIN**
5. Key **REC**
6. Key **HLD**
7. Key **A/C**
8. Key **SET**
9. Key **F/S**
10. Key **LEV**
11. Key **ON/OFF**
12. Microphone
13. Input for external power supply
14. Mini USB port
15. Analogue AC/CD output
16. Adjustment trimmer
17. Hole for tripod insertion
18. Battery compartment

Fig. 1: Description of the instrument

4.2. DESCRIPTION OF THE DISPLAY



CAPTION:

1. Low value indication
2. Active MIN function
3. Active FAST function
4. Full scale indication
5. Active SLOW function
6. Measuring range indication
7. Active autorange
8. Active HOLD function
9. Weighting unit A
10. Weighting unit C
11. Active recording
12. Memory full
13. Low battery indication
14. Active Auto Power OFF function
15. LCD display
16. System time
17. Analogue bargraph
18. Active MAX function

Fig. 2: Display description

4.3. DESCRIPTION OF FUNCTION KEYS


4.3.1. Key ON/OFF

Pressing key **ON/OFF** allows turning on the instrument. Press and hold key **ON/OFF** until the countdown “3”, “2” “1” is over and with indication “P-OFF” shown on the display to turn off the instrument.

4.3.2. Key HLD

Pressing key **HLD** activates/deactivates function **HOLD**, i.e. the value of the quantity measured is frozen on the main display. Symbol "HOLD" appears at the bottom of the display. Key **HLD** is also used to confirm parameters when setting the system date/time (see § 4.3.9) and the sampling interval (see §).

4.3.3. Key

Pressing key  allows activating/deactivating the display's backlight. The same key can be used to define the sampling interval during a recording carried out by the instrument (see § 5.2).

4.3.4. Key A/C

Press key **A/C** to select weighting curves A or C. Curve “A” is used for generic measurements of sound pressure level (SPL), while curve “C” is used for SPL measurements with low-frequency components. In case weighting C gives much higher results than weighting A, many low-frequency noise components are present. Indications “**dBA**” (weighting A) or “**dBC**” (weighting C) are shown on the display.

4.3.5. Key LEV

Press key **LEV** to select measuring range (see Fig. 2 – part 6). The following ranges are available: **30 ÷ 80dB** (low), **50 ÷ 100dB** (medium), **80 ÷ 130dB** (high), **30 ÷ 130dB** (Autorange). Message “AUTO” (see Fig. 2 – part 7) appears when “Autorange” is selected. Message “UNDER” (see Fig. 2 – part 1) appears when the measured value is lower than the minimum value of the selected range. Message “OVER” (see Fig. 2 – part 4) appears when the measured value is higher than the maximum value of the selected range. Key **LEV** is used also when setting system date/time (see § 4.3.9).

4.3.6. Key F/S

Press key **F/S** to select integrations: “**FAST**” → used for measuring short SPL (once every 125ms) or “**SLOW**” → used to evaluate the average value of SPL changing over time (once every second).

4.3.7. Key MAX MIN


Press key **MAX MIN** to activate/deactivate measurement of Maximum and Minimum values of sound pressure level (SPL). Before using this function, select the most appropriate range (see § 4.3.5). Symbols “MAX” or “MIN” appear on the top of the display and the Maximum or Minimum values are shown on the display. These values are automatically updated, as soon as the instrument measures a higher (MAX) or lower (MIN) value. Press and hold key **MAX MIN** (>2s) to quit and go back to measuring mode.

4.3.8. Key REC

Press key **REC** to activate/deactivate recording of sound pressure level (SPL) on the instrument (see § 5.2).

4.3.9. Key SET

Key **SET** allows for the following operations:

- Activation/deactivation of the instrument's auto power OFF (APO) function. Symbol “” appears and disappears n/from the display (operation not possible with active HOLD function).
- Setting of system date/time, following this procedure:
 1. Switch off the instrument by pressing the **ON/OFF** key.
 2. Press and hold key **SET** and switch on the instrument using key **ON/OFF**. Release key **SET** with message “TIME” shown on the display. The following screen (see Fig. 3 – left side) indicating the current date (e.g.: 26/03/18) is shown on the display.

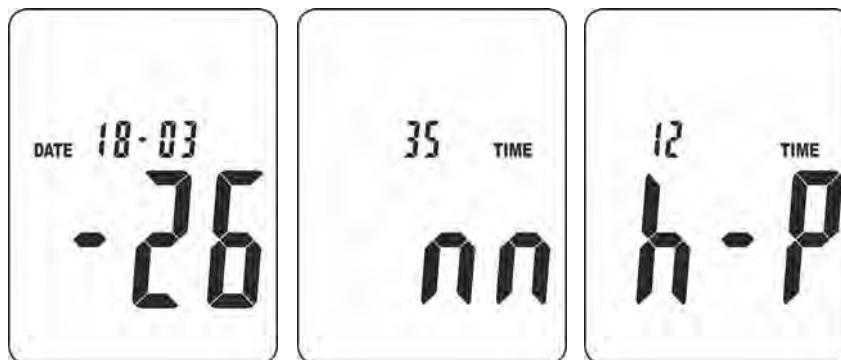


Fig. 3: System time setting

3. Press key **SET** to enter the programming section of “Minutes”. The screen in Fig. 3 – Middle appears on the display.
4. Press key **LEV** to set the Minutes and key **SET** to proceed and set the Hour (see Fig. 3 – right side).
5. Press key **LEV** to set the Hour, considering specification “h – P” = PM or “h – A” = AM
6. Press key **SET** to proceed and set the Date. The screen in Fig. 4 – left side appears on the display.

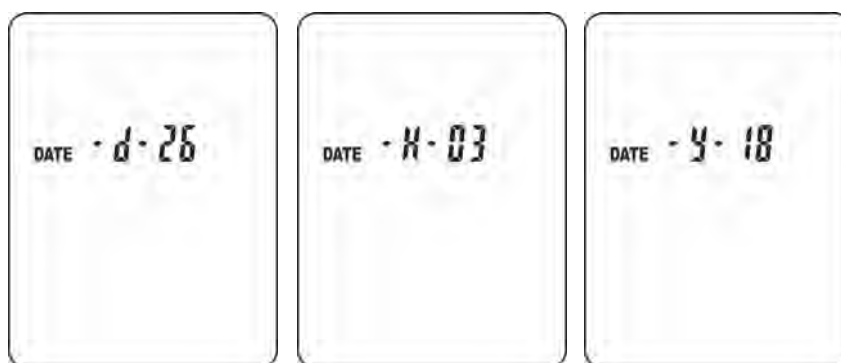


Fig. 4: System date setting

7. Press key **LEV** to set the Day and key **SET** to proceed (see Fig. 4 – middle).
8. Press key **LEV** to set the Month and key **SET** to proceed (see Fig. 4 – right side).
9. Press key **LEV** to set the Year and key **HLD** to confirm date/time and quit the programming section.
10. Once the Year is set, by pressing key **SET** again, the following screen is shown on the display.

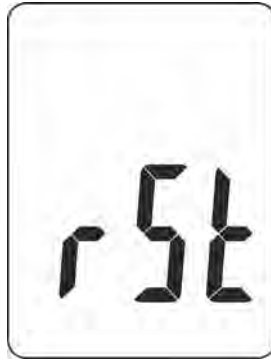


Fig. 5: Activating the instrument's reset

11. Press key **SET** to save date/time and exit the programming section.

OR

12. Press key **HLD** to reset. In this case, system date/time is automatically set back to default configuration by the instrument. This condition must be used in case it is not possible to set the date/time because of low battery or when battery is replaced.

5. OPERATING INSTRUCTIONS

5.1. REAL-TIME MEASUREMENT OF SOUND PRESSURE LEVEL



CAUTION

Always use the wind protection screen in case measurements are performed in windy environments, and anyway in case wind is stronger than 10m/s. Avoid mechanical shocks and keep the microphone dry.

1. Switch on the instrument using key **ON/OFF**.
2. Check system date/time and, if necessary, reset it (see § 4.3.9).
3. Carry out a full calibration in case the instrument has not been used for a long time, by using the mobile calibrator **SC05** supplied (see § 5.4).
4. Press key **A/C** to select the weighting curve (see § 4.3.4).
5. Press key **F/S** to select the integration type (see § 4.3.6).
6. Press key **LEV** to select an appropriate range for the sound pressure level (SPL) to be measured (see § 4.3.5).
7. Read the indication of measured SPL on the display.
8. For a better comfort, use the provided tripod by inserting it into the relevant threaded hole on the instrument's back side (see Fig. 1 – part 17).
9. For functions HOLD and MAX MIN see § 4.3.2 and 4.3.7

5.2. RECORDING OF SOUND PRESSURE LEVEL

The instrument allows recording the sound pressure level (SPL) over time, with programmable sampling interval. Each recording is saved in the internal memory and can be downloaded and shown on the PC through the provided software **SoundLink**.

1. Switch on the instrument using key **ON/OFF**.
2. Check system date/time and, if necessary, reset it (see § 4.3.9).
3. Switch off the instrument using key **ON/OFF**.
4. Perform the internal memory's zeroing by pressing and holding key **REC** while the instrument is switched on using key **ON/OFF**. The following screen appears on the display for a moment.



Fig. 6: Zeroing of the internal memory


5. Switch off the instrument using key **ON/OFF**.
6. Set the sampling interval by pressing and holding key  while the instrument is switched on using key **ON/OFF**. The following screen appears on the display:



Fig. 7: Setting of the sampling interval

7. Press key **LEV** to set the sampling interval in range **1s ÷ 59s**
8. Press key **HLD** to confirm and go back to measuring screen.
9. Carry out a full calibration in case the instrument has not been used for a long time, by using the mobile calibrator **SC05** supplied (see § 5.4).
10. Press key **A/C** to select the weighting curve (see § 4.3.4).
11. Press key **F/S** to select the integration type (see § 4.3.6).
12. Press key **LEV** to select an appropriate range for the sound pressure level (SPL) to be measured (see § 4.3.5).
13. Connect the provided external power supply to the instrument's input (see Fig. 1 – part 13).
14. Looking at the indicated system time (see Fig. 2 – part 16), press key **REC** to activate recording in the desired instant. Message "REC" appears at the bottom of the display (see Fig. 8).



Fig. 8: Activation of SPL recording

15. Press key **REC** to end and automatically save recording in the desired instant.
16. Connect the instrument to the PC via the provided USB cable (see Fig. 1 – part 14).
17. Launch software **SoundLink**.
18. Press key **SET**, excluding the auto power OFF function (symbol "⊙" not present on the display), checking for the correct connection between instrument and software (see the software's Help on line).
19. Select command **DataLogger** in software SoundLink. The following screen appears on the PC.

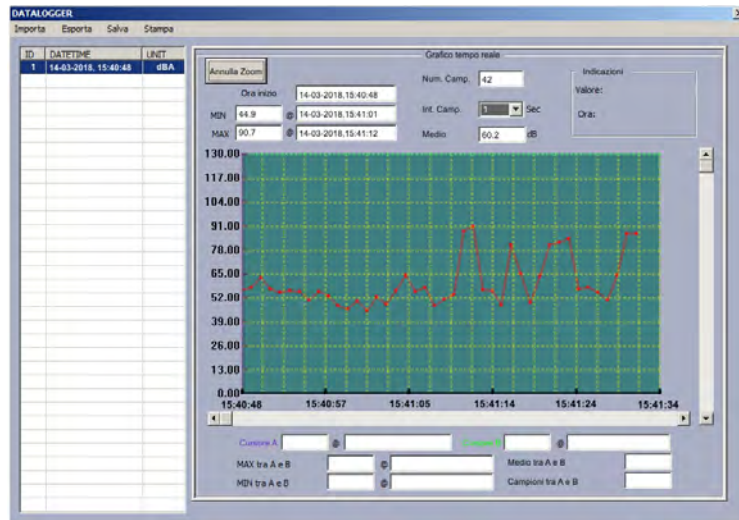


Fig. 9: Download and display of recording on software SoundLink

20. Double-click the name of recording. The relevant graph is found in the software's screen.

For information about the use of software SoundLink, please refer to the Help on line of the software itself.

21. Switch off the instrument using key **ON/OFF**.

5.3. CONNECTION TO ANALOGUE AC/DC OUTPUT

The instrument can be connected to external multimeters and/or dataloggers for recording through the analogue AC/DC output found on the instrument's side (see Fig. 1 – part 15) by using a 3.5mm jack, not provided. The characteristics of the analogue output are indicated in the following Fig. 10

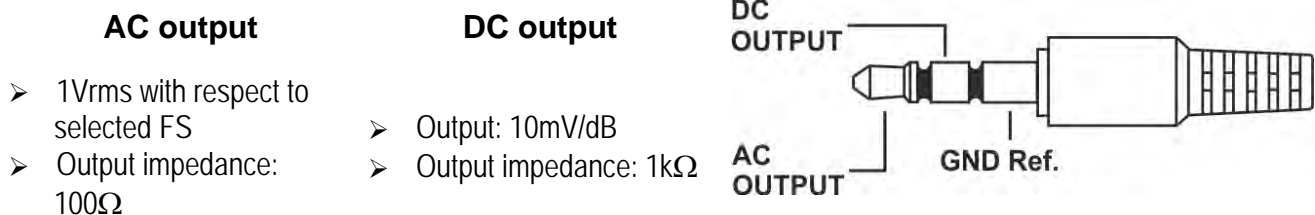


Fig. 10: Analogue AC/CD output characteristics

5.4. CALIBRATION OF THE INSTRUMENT

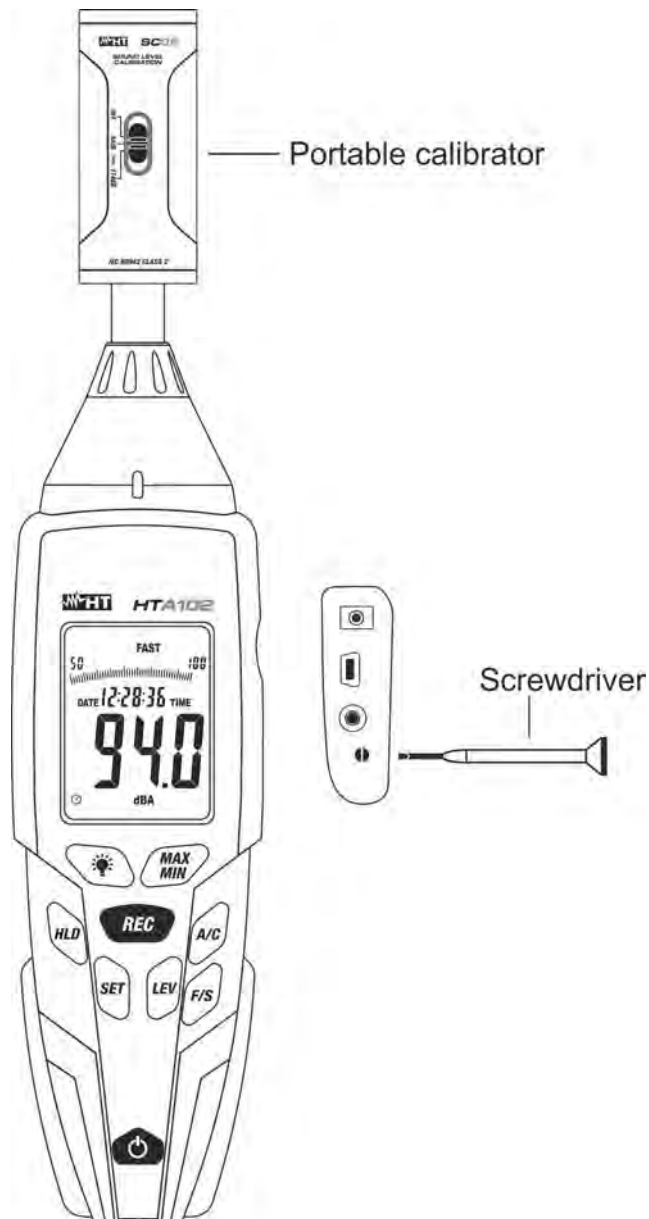


Fig. 11: Connect the mobile calibrator to the instrument

1. Turn on the instrument by means of key **ON/OFF**
2. Set the following configurations:
Weighting curve: A (dBA)
Integration type: FAST
Measuring range: 50 ÷ 100dB
3. Carefully insert the mobile calibrator **SC05** provided into the instrument's microphone until a click is heard, as shown in Fig. 11.
4. Switch on the calibrator by selecting level **94dB** at sinusoidal frequency 1kHz.
5. Insert the provided screwdriver into the trimmer (see Fig. 1 – part 16) and carry out a manual adjustment until the result "94.0" is shown on the display.
6. Extract the calibrator from the microphone and switch it off by moving the relevant selector to the **OFF** position.

6. USING SOFTWARE SOUNDLINK

Software “SoundLink” can be used to connect instrument HTA102 to the PC, start real-time recordings of sound pressure level (SPL) and save data.

6.1. MINIMUM SYSTEM REQUIREMENTS

Hardware:	Pentium IV
RAM memory:	32MB
Output interface:	USB ports
CD-ROM reader:	present
Screen resolution:	800x600 (16 bit)
Operating system:	Windows XP o higher

6.2. INSTALLATION OF SOFTWARE SOUNDLINK AND OF USB DRIVER

1. Insert the installation CD-ROM into the reader of the PC.
2. Launch file “**SoundLink_setup.exe**” found on the CD-ROM and follow the guided installation procedure.
3. Install USB driver by launching files “**CP210XCPInstaller_x86.exe**” (32 bit systems) or “**CP210XCPInstaller_x64.exe**” (64 bit systems) found on the CD-ROM.
4. Use ports **COM3** or **COM4** to connect the instrument to the PC.

6.3. MAIN CHARACTERISTICS OF SOFTWARE SOUNDLINK

With launched program, the PC shows the following initial screen:

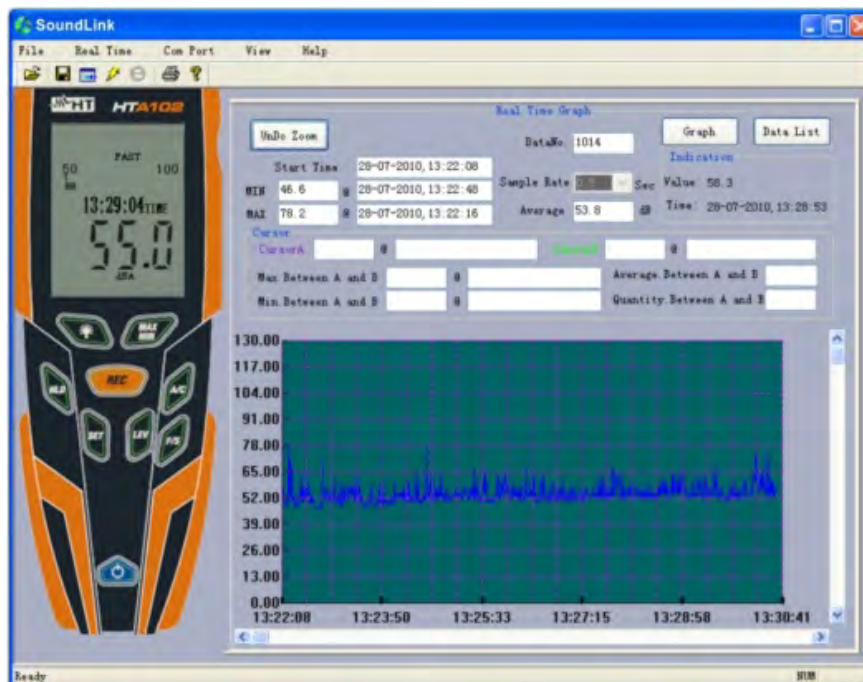


Fig. 12: Starting screen of software SoundLink

Main characteristics of software SoundLink:

- Real-time display of the values shown on the instrument's display
- Setting of sampling interval for recording (DataLogger)
- Starting of SPL recording and display of data in numerical/graphic format.
- Data saving in TXT test format and exporting to an Excel (XLS) file.

For information about the use of software SoundLink, please refer to the Help on line of the software itself.

7. MAINTENANCE

7.1. GENERAL INFORMATION

While using and storing the instrument, carefully observe the recommendations listed in this manual in order to prevent possible damage or danger during use. Do not use the instrument in environments with high humidity levels or high temperatures. Do not expose to direct sunlight. Always switch off the instrument after use. In case the instrument is not to be used for a long time, remove the battery to avoid liquid leaks that could damage the instrument's internal circuits.

7.2. REPLACING THE BATTERY

When the LCD display shows symbol “”, it is necessary to replace the battery.



CAUTION

Only expert technicians should perform this operation. Before carrying out this operation, make sure you have removed the probe from the input terminal.

1. Switch off the instrument
2. Remove the battery compartment cover (see Fig. 1 – part 18).
3. Disconnect the battery from the connector.
4. Connect the new battery to the connector, and pay attention to correct polarity
5. Restore the battery compartment cover to its position.
6. Do not scatter old batteries into the environment. Use the relevant containers for battery disposal.

7.3. CLEANING THE INSTRUMENT

Use a soft and dry cloth to clean the instrument. Never use wet cloths, solvents, water, etc.

7.4. END OF LIFE



Caution: the symbol on the instrument indicates that the appliance and its accessories must be collected separately and correctly disposed of.

8. TECHNICAL SPECIFICATIONS

8.1. TECHNICAL CHARACTERISTICS

Accuracy is referred to a temperature of $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$ with relative humidity $<80\%\text{RH}$.

Measurement of sound pressure level (SPL)

Range [dB]		Dynamic range	Resolution	Accuracy	Frequency range
Lo	30 ÷ 80	50dB	0.1dB	$\pm 1.4\text{dB}$	31.5Hz ÷ 8kHz
Med	50 ÷ 100				
Hi	80 ÷ 130				
Auto	30 ÷ 130				

Integration

Function	Integration time
FAST	125ms
SLOW	1s

Analogue output

Type	Output voltage	Output impedance
AC	1Vrms with respect to selected FS	100 Ω
DC	10mV/dB	1k Ω

Microphone

Microphone with 1/2" Electret condenser

Reference standards

Noise measurements: IEC61672-1 Class 2
 EMC: IEC/EN61326-1

8.2. GENERAL CHARACTERISTICS

Mechanical characteristics

Size (L x W x H): 260 x 65 x 50mm (10 x 3 x 2in)
 Weight (battery included): 280g (10ounces)
 Mechanical protection: IP40

Power supply

Battery type: 1x9V alkaline battery type IEC 6F22
 Low battery indication: symbol "⎓" on the display
 Battery duration: approx. 30 hours
 External power supply: 100-240VAC, 50/60Hz, 0.3A / 9VDC, 500mA
 Auto Power OFF: after 15 minutes' idling

Display

Characteristics: 4 LCD, Custom, backlit, bargraph
 Display update: 2/s

Recordings

selectable sampling interval between 1s and 59s
 max 32700 recordings can be saved in the internal memory

Output connector

mini USB

8.3. ENVIRONMENTAL CONDITIONS FOR USE

Reference temperature:	23°C ± 5°C (73°F ± 41°F)
Operating temperature:	0°C ÷ 40°C (32°F ± 104°F)
Allowable relative humidity:	<90%RH
Storage temperature:	-10°C ÷ 60°C (14°F ± 140°F)
Storage humidity:	<75%RH
Max operating altitude:	2000m (6562ft)

**This instrument complies with Directive EMC 2014/30/EU
This instrument satisfies the requirements of European Directive 2011/65/EU (RoHS)
and 2012/19/EU (WEEE)**

8.4. ACCESSORIES

8.4.1. Accessories provided

- Portable calibrator SC05
- Wind screen protection
- Adjustment screwdriver
- USB cable
- CD-ROM with software SoundLink
- Tripod
- 9V battery, 2 pcs
- Power supply + 4 universal plugs
- User manual of the instrument
- User manual of calibrator
- Rigid transport case

9. ASSISTANCE

9.1. WARRANTY CONDITIONS

This instrument is warranted against any material or manufacturing defect, in compliance with the general sales conditions. During the warranty period, defective parts may be replaced. However, the manufacturer reserves the right to repair or replace the product. Should the instrument be returned to the After-sales Service or to a Dealer, transport will be at the Customer's charge. However, shipment will be agreed in advance. A report will always be enclosed to a shipment, stating the reasons for the product's return. Only use original packaging for shipment; any damage due to the use of non-original packaging material will be charged to the Customer. The manufacturer declines any responsibility for injury to people or damage to property.

The warranty shall not apply in the following cases:

- Repair and/or replacement of accessories and battery (not covered by warranty).
- Repairs that may become necessary as a consequence of an incorrect use of the instrument or due to its use together with non-compatible appliances.
- Repairs that may become necessary as a consequence of improper packaging.
- Repairs which may become necessary as a consequence of interventions performed by unauthorized personnel.
- Modifications to the instrument performed without the manufacturer's explicit authorization.
- Use not provided for in the instrument's specifications or in the instruction manual.

The content of this manual cannot be reproduced in any form without the manufacturer's authorization.

Our products are patented and our trademarks are registered. The manufacturer reserves the right to make changes in the specifications and prices if this is due to improvements in technology.

9.2. ASSISTANCE

If the instrument does not operate properly, before contacting the After-sales Service, please check the conditions of battery and cables and replace them, if necessary. Should the instrument still operate improperly, check that the product is operated according to the instructions given in this manual. Should the instrument be returned to the After-sales Service or to a Dealer, transport will be at the Customer's charge. However, shipment will be agreed in advance. A report will always be enclosed to a shipment, stating the reasons for the product's return. Only use original packaging for shipment; any damage due to the use of non-original packaging material will be charged to the Customer.