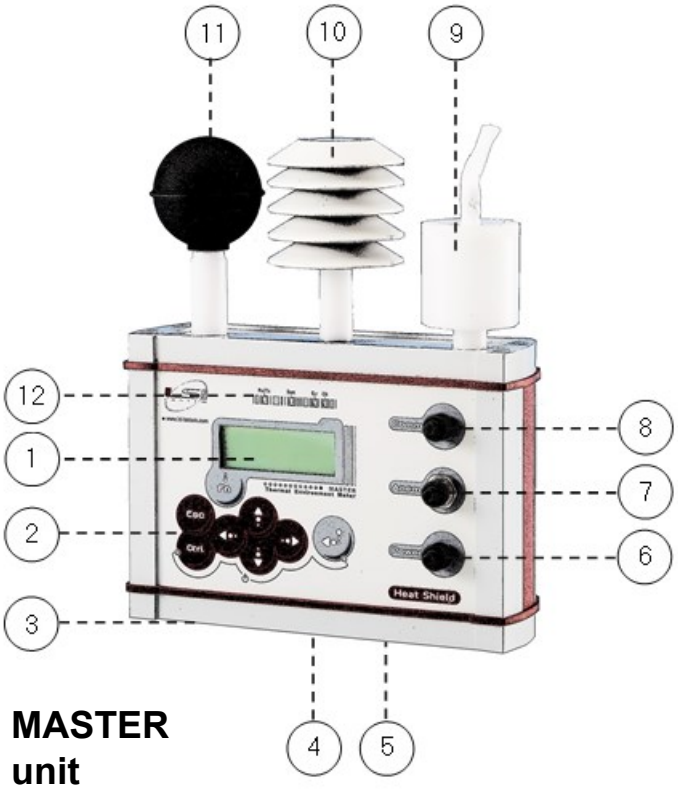
Heat Shield

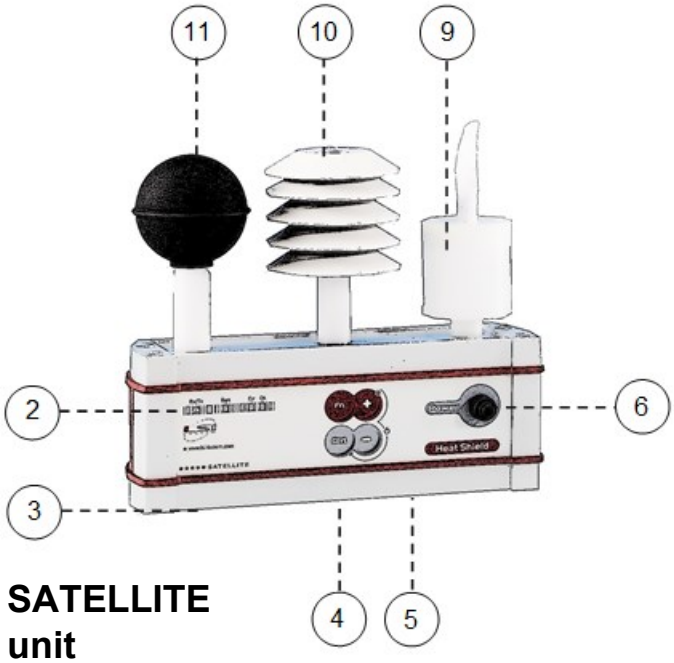
Quick user guide

INSTRUMENT DESCRIPTION



MASTER unit

(1) – LCD display 4x20 chrs.
(2) – Keyboard
(3) – Base mounting
(4) – Tripod mounting (BVA325)
(5) – Reset
(6) – Power supply / battery charger
(7) – Anemometer input
(8) – RS-232 serial port
(9) – Wet bulb temperature sensor
(10) – Air temperature sensor
(11) – Radiant temperature sensor
(12) – Working status LEDs
(13) – Protective shell



SATELLITE unit

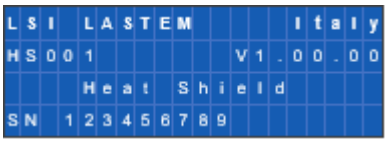
Hot wire anemometer

HOW TO USE HEAT SHIELD MASTER

Switch on/off

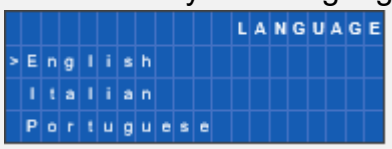
Press together Ctrl + *.

After few seconds Heat Shield Shows its PN, version and serial number.



Then it shows day/time. If day/time is correct select Esc ESC otherwise go to *Change day/ time*.

During **first switch-on** Heat Shield asks to select the system language.



Select the language using and confirm using .

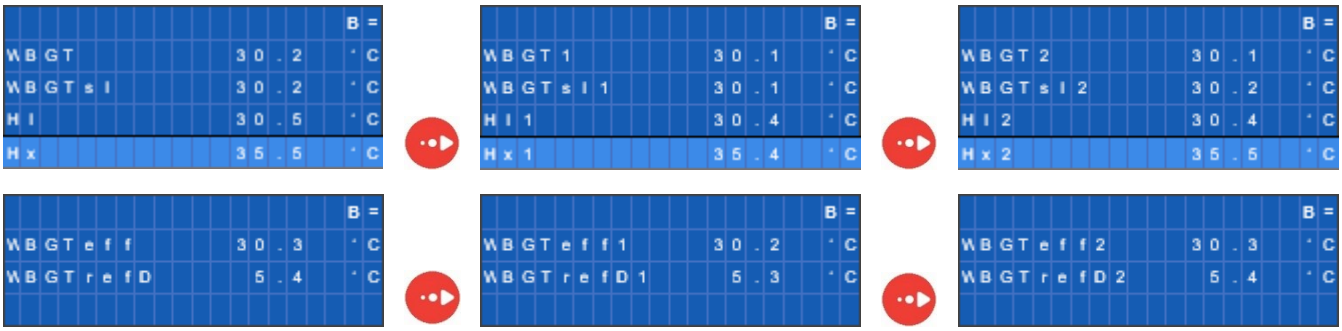
Change date/time

Move the cursor ^^ below the date to change using , change the date and/or time using . Press to confirm. Press Esc to exit.

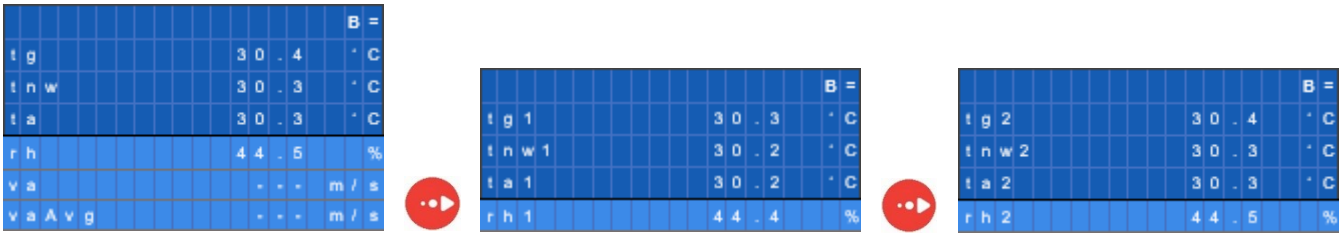
Measurement display

Heat Shield MASTER shows measurements and indexes from its sensors and, when connected, from SATELLITE units.

moves to different group of measurements/indexes.



* The proper way to select a combination of buttons is to keep pressure over the “Ctrl” button first, then push&release the second one, then release the “Ctrl” button.



Use and to scroll the group to the next/previous one. and scroll vertically each group.

Data logging

To start data logging go to measurements screen and press Ctrl + . Press Ctrl + to stop data logging.

Go to SURVEY for more information.

Status bar

It contains some Heat Shield working information:

where:

a: storing in progress.
nn: survey number.
ss:mm: can have the following meanings:
- on programmed survey, it is the time to reach the starting time of the survey (*s*="-").
- on programmed survey, during survey, it is time to reach the end of the survey (*s*="-").
- During survey, it is the time from the beginning of the survey. It is available only if survey end has not been programmed (*s*="+").

Eee: number of errors.
ru: radio signal with battery level. "-" radio on, "1" receiving data from SATELLITE unit 1, "2" receiving data from SATELLITE unit 2. It does not appear with mode set to WBGT 1 amb (no SATELLITE unit used) and in models without the internal radio module.
LI: shows alternatively the battery level (B) and Memory status (M).
100%: battery at full charge/full memory; 0%: low battery/memory empty; other levels indicated: 80%, 60%, 40%, 20%.

SETUP

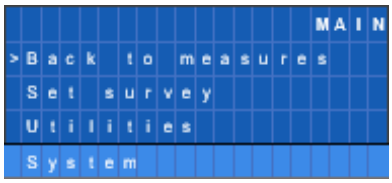
It is possible to change some factory setup parameters.

Browsing

Push to go on the MAIN menu.

Use to scroll each in formation, and to enter;

Esc to return to previous selection, it goes to Measurements when pushed from MAIN menu.



Change parameters

Depending by the situation it is possible to change the parameters from a selectable list (example: language) or using the arrows (example: day/time).

SURVEY

Getting started

1. Check battery status.
2. Check memory status.
3. Mount each unit. See examples at the end of this document.
4. Remove the cellophane bags protecting the sensors. In order to preserve the relative humidity sensor from deterioration due to any pollutants in the environment, it is recommended not to discard the bags and to reuse them before storing the instrument in its case.
5. Ensure that the relative humidity sensor (10) has not deteriorated. If the sensor has code PRTHA0700, the sensing element can be replaced if it produces obviously inaccurate measurements, and if it has code PRTHB0700, the decontamination function can be used to attempt to restore it. For more information please refer to the INSTUM_01517 manual.
6. Top up the wet bulb temperature sensor (9) tank on the MASTER unit and any SATELLITE units, if used, with demineralized water. Unscrew the tank cap without removing the cotton sock. The water should not exceed the 4/5 of the tank capacity. Then, screw the cap back on. Remember to remove the water before putting away the instrumentation.
7. First switch-on the MASTER unit and later the SATELLITE units, if used.
8. Check measurements from MASTER unit and SATELLITE units, if used.
9. Attention: radiant temperature sensor (11) would need up to 20 minutes to acclimatize.

Survey setup

Go to Survey setup.

1. **Start/stop**: select the way to start survey (manually/selected day-time) and stop survey (manually/selected day-time/after a period time). During survey all measurements are stored.
2. **Nr survey**: Heat Shield assign a progressive number to each survey. It is possible to change (1 ÷ 99) the first assigned number during measurement.
3. **Mode**: Heat Shield can perform measurement from the base unit only (*WBGT1 amb*), from MASTER unit plus one SATELLITE (*WBGT 2 amb*), from MASTER unit plus two SATELLITE units (*WBGT 3 amb*). Or perform one measurement which show average value of the measurement coming from base unit and two SATELLITE units (*WBGT subject, WBGT+PMV/PPD*) as per ISO7243-1989 requirements.
4. **Subject parameters**: define the parameters of the subject according to the selected survey mode, in order to produce the calculation of indices whose result is applicable to the subjects considered.
5. **Anemometer**: if not connected select *Not used* or select a default air speed value, otherwise specify the type: *Hot wire* or *Rotor* anemometer.
6. **Measure unit**: select *Celsius* or *Fahrenheit*.

Survey start/stop

Each survey starts and stops using the programmed mode.
The start and stop commands are enabled only in the measurements mask.

If starting mode is manual, push 

to start. Push 

to stop survey, this stops survey anyway even if automatic stop mode is programmed.

You can pause an active survey at any time by pressing 

. While paused, the instrument will update and show measures on the display, but data logging is stopped. By pressing again the same key combination, the data logging resumes normally. While paused, the instrument will show a '*P*' in the top-left of the display.

HS MANAGER

HS Manager is a PC tool used to download the stored data and perform data analysis.

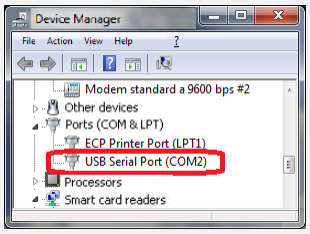
Installation

The software can be found on the MW6501 USB pen drive and on the website www.lsi-lastem.com.
Run Setup and follow its instructions.
During the first run, the program asks to install a new Heat Shield unit.

1. Connect Heat Shield MASTER to PC via RS-232 port (8) using its cable and USB adapter.
2. Go to “Communication” and select the PC port where the USB adapter is connected.
3. Select “Go” until the instrument is found. Select “end” to terminate this procedure.

Prior to start, install the USB/RS-232 adapter driver in your PC.

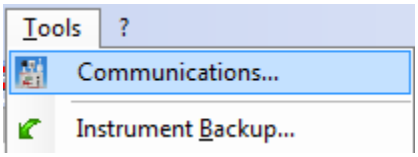
To detect the PC port where the USB adapter is connected, go to (Windows) Control Panel Device Manager Universal Serial bus controller and look for the COM number of the USB serial port.



Data download

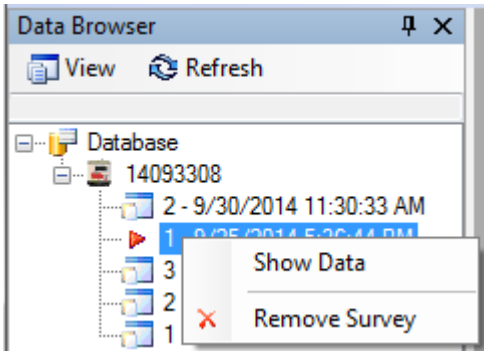
While Heat Shield MASTER is connected to PC:

- Select "Communications" from Tools.
- Select the instrument serial number and press Lab.Data.
- Select the data limits and select <Download>.
- When finish press Close.



Data display

- From the browser, expand “Database”, select instrument serial number.
- Select the survey of interest.
- Left key on the mouse to select “Show Data”.
- Select data limits and press Ok.



EXAMPLES

Fig. 1 - WBGT 1 environment measurement and index from MASTER unit only.

Fig. 2 - WBGT environments: separate measurements and indexes from MASTER unit and one SATELLITE unit.

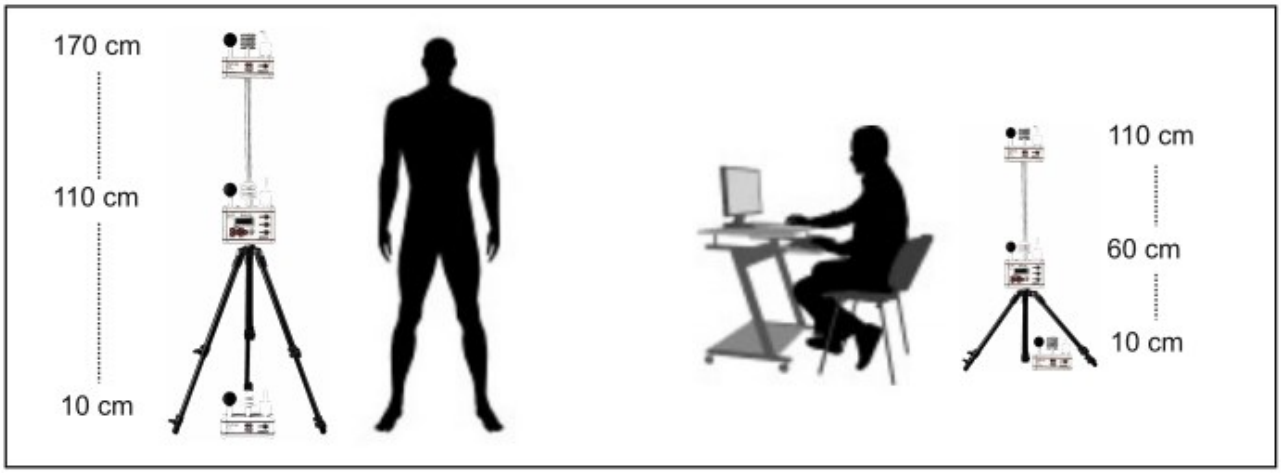


Fig. 3 - Installation of the units in case of WBGT Subject.

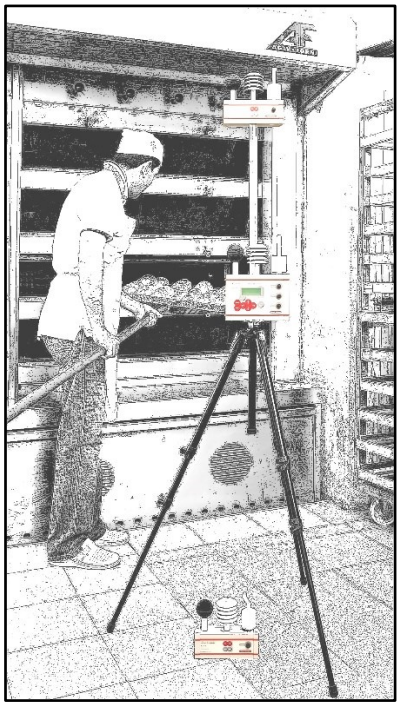


Fig. 4 - WBGT subject: measurements and indexes averages from the MASTER and 2 SATELLITE units.

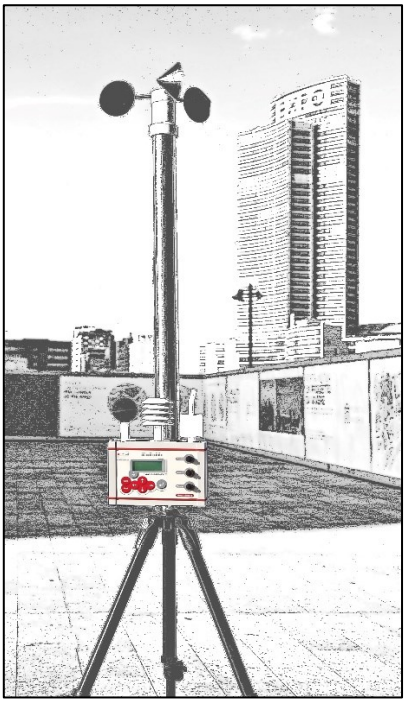


Fig. 5 - Usage of WBGT 1 env. with cup anemometer.

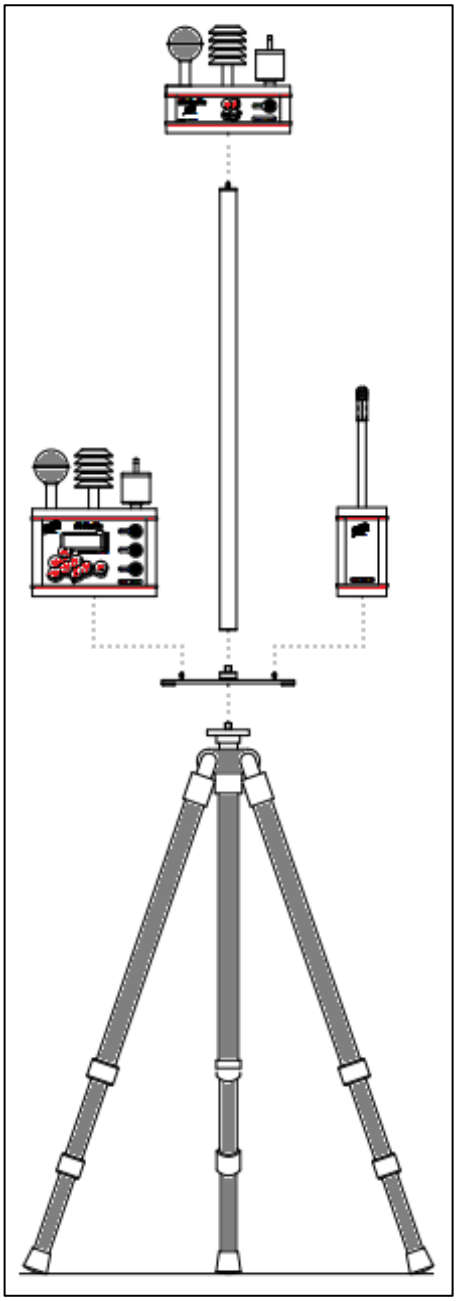


Fig. 8 - Exploded diagram.

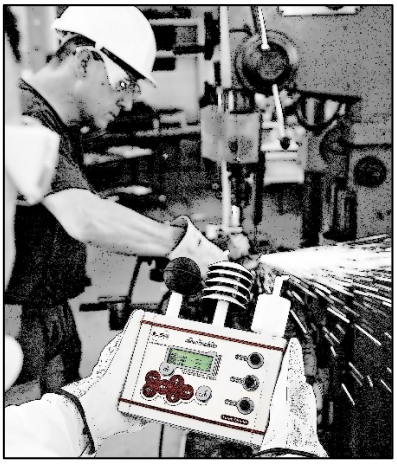


Fig. 6 - Use without data storing.

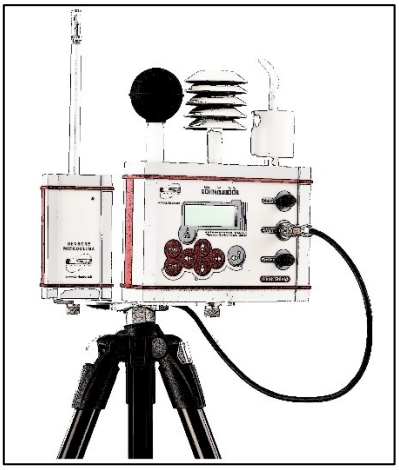


Fig. 7 - Usage of WBGT 1 env. with hot wire anemometer.

VIDEO TUTORIALS

The following video tutorials are available for Heat Shield:

#	Title	YouTube link	QR code
1	Heat Shield introduction	#1-HeatShield introduction - YouTube	
3	Heat Shield operating	#3-HeatShield Operating - YouTube	
4	HS Manager PC software	#4-Heat Shield - HS Manager PC program - YouTube	

NOTES

This manual is an introduction to the use of Heat Shield. For more information refer to the *IN-STUM_01517 User's guide* downloaded from the website www.lsi-lastem.com.

After use

To preserve the relative humidity sensor from deterioration due to any pollutants in the environment, it is recommended to cover it with the original cellophane bag before storing the instrument in its case.

Disposal

Heat Shield is a highly electronic scientific device. In accordance with the standards of environmental protection and collection, LSI LASTEM advises to handle Heat Shield as waste of electrical and electronic equipment (WEEE). It is therefore not to be collected with any other kind of waste.

LSI LASTEM is liable for the compliance of the production, sales and disposal lines of Heat Shield, safeguarding the rights of the consumer. Unauthorized disposal will be punished by the law. Dispose of the dead batteries according to the regulations in force.

How to contact LSI LASTEM

If you need technical support, contact the LSI LASTEM at support@lsi-lastem.com, or fill in the *On-line technical support request* form accessible from the home page of the website www.lsi-lastem.com. For further information:

- Telephone: +39 02 95.414.1 (switchboard operator)
- Address: Via ex S.P. 161 Dosso n. 9 - 20049 Settala (MI) - Italy
- Web site: www.lsi-lastem.com
- Sales: info@lsi-lastem.com
- After-sales service: support@lsi-lastem.com, Repairs: riparazioni@lsi-lastem.com