



Handbook

Version 6-2018



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HMBox Usage

Screed should be dry before parquet, tiles or other flooring materials are being laid onto it. If you start laying too early, it can lead to flaws and damage in your flooring material.

Rule of thumb: At a proper room climate ($> 18^{\circ}\text{C}$ temperature, 60% humidity) the drying process needs about 1 week per 1cm screed.

If the screed is thicker than 4cm, you can calculate with 2 extra weeks for every additional cm.

Furthermore the screed type, the heating method and the flooring material play important roles – Please always consider the manufacturer's specifications.

A long drying period does not guarantee a dry floor, because the wrong room climate can extend it considerably. That is why the professional examination of the remaining humidity is very important.

We recommend placing the HMBox on the screed at a remaining humidity of about 80% rel.H (that is roughly the same as 2,5CM% for cement screeds and 0,6CM% for anhydrite screeds) Screed floors with floor heating have to be heated conforming to standards before an HMBox measurement is started. If the floor heating is deactivated during the measuring, it should be activated again. At a properly heated screed the rise of temperature should not cause a rise in humidity. If the measurement results are negative, the heating process has to be repeated. The HMBox does not have to be removed during that time, as long as the screed humidity does not rise above 90% rel. humidity.

IMPORTANT: When the humidity level reaches 90% rel. humidity, there is a chance, that condensate is building up inside of the measurement chamber. This can lead to a time-displaced dry-curve of the screed. If the HMBox is placed on a screed, that is too wet, for too long, there is a high chance of the sensors getting contaminated. In that case you should check and maybe calibrate your sensors – see chapter 10 “Sensor check and calibration” in this document.

HMBox - Case



Screw driver – for uplifting the HMBox

HMfix – adhesive for mounting the HMBox

Stanley knife – for removal of remaining HMfix

Quick measurement container

HMBox

Release agent –
for residue free
removal of the HMfix



Mounting the HMBox



1. Apply Release Agent

Please leave container in the case, turn cover to the left and open it.

Apply agent on the alu-ring

! ATTENTION !: a thin film must be applied before adhesive application.
This simplifies the later removal of the Hmfix adhesive.



2. Hmfix

Without exception **only** this special adhesive should be used.

!!! Other adhesives could damage the sensors or cause falsified measurement results.!!!

Please clean closure and thread of adhesive residue after every use. Afterwards thread with release agent (small white tin).



3. Hmfix application

apply a closed application around the ring with a thickness of ~ 3mm. The Hmfix requires approximately ½ hour to harden.



4. HMBox bonding

direct to the selected location and just lightly press downward.



Activating the HMBox



1. Start **HMBox-APP** on Smartphone and log in with your user account data.



2. Under „**My HMBoxes**“ add a HMBox with “+”
ALWAYS pay attention, that you have an active Bluetooth-connection as well as an existing network.

Cancel	Connect
HMBox	
HMBox Nr.	
Name	

3. Fill in all data and „**Connect**“
HMBox Nr.: 6-digit number (starting with 9)
Name: Name of the location on the Project
(e.g. Living room)

Activating the HMBox



Speichern	
Adresse	
Adressausw:	Neue Adresse eingeb ▾
Straße	
Hausnummer	
Stiege	
Tür	
Postleitzahl	
Stadt	
Land	
Anzahl der Räume	0
Fläche (m ²)	0

4. Fill out all of the given fields and „**Save**“

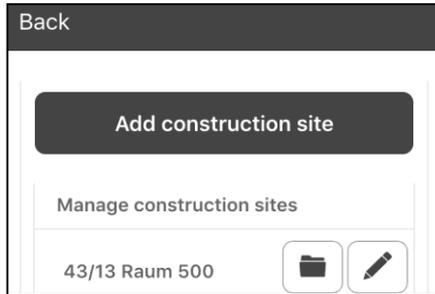
You can choose an existing address or fill in a new address



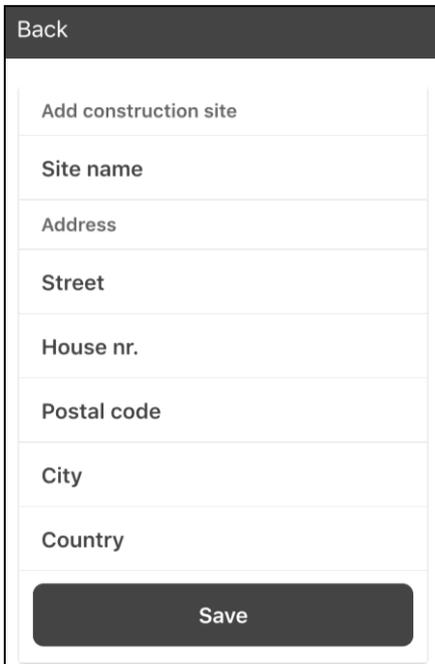
5. Under “My HMBoxes”  create the desired construction site (this is only possible before or during the activation)



Activating the HMBox



6. Under **„Add construction site“** you can set up a new project see below 7. or you choose an existing site



7. Fill out all of the given fields and **„Save“**

Site name: Name of the project

Street:

House nr.:

Postal code:

City:

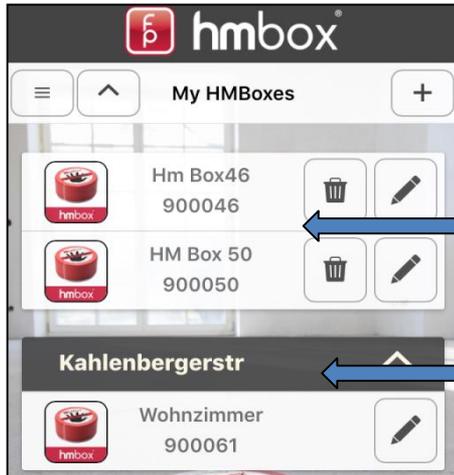
Country:

} Address of the project

with “Back”, back to the main menu



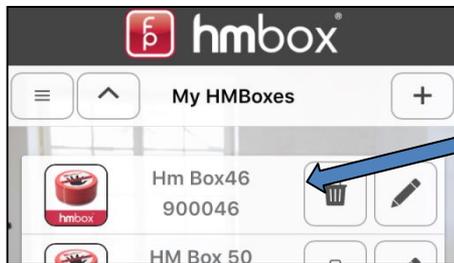
Activating the HMBox



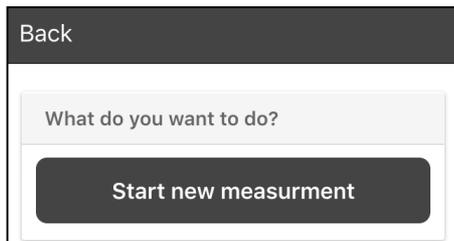
8. Now the HMBox is shown under „My HMBoxes“

HMBoxes, that are not activated, appear at the top (have not been assigned to a project)

HMBoxes, that are actually taking measurements (appear under the assigned project)



9. Select the desired HMBox by clicking on it.



10. Press „**Start New Measurement**“

Activating the HMBox



Back

Site information

Constructio

Room name

Building unit

Stair nr.

Storey

Top nr.

Floor heating

Activate alarm

Activate GSM

Meas. interval 1 hours

Reset battery

Start measurement

11. Here the previous set up project can be selected and possibly changed.
(Simplifies the project management later)

Select the desired project

Fill in the exact details of the project

Alarm and GSM should always be activated

Measurement interval of 1h is pre-set. Interval is adjustable

Reset the battery is only required by battery change

12. Press „**Start Measurement**“

now the settings on the smartphone will be sent to the HMBox.
This means that the Alarm and GSM have been switched on
and the measurements begin.

ATTENTION: It is necessary to wait for the activation check!!



Checking the Activation

The transfer of the entered data and the activation of the APP to the HMBox will take approximately 2 minutes.

The LED-Light on top of the HMBox begins to blink red which means that the measurement process and the Anti-Theft protection have been started.

A measurement takes place in the background, the GSM reception is tested and at the same time the data is sent to the server.

Once the activation process is complete, an audible „peep series“ will sound three times. The signal indicates the reception strength of the GSM reception (e.g. 3x5 the best reception, 3x1 worst reception). Measurement data will now be sent to the server and can be read via smartphone after about 2 minutes. It is very important to wait for the first measurement data, to make sure, that everything is working correctly!

The HMBox now performs a measurement each hour and records them. Every 12 hours the data is transferred to the server via GSM.

The next transmission of the measured data is therefore 12 hours after activation at the site. From this time forward you can call up the data on your smartphone over the *HMBox-App* or from your workstation over the *FP Desktop Professional Software* (without having to be on site).



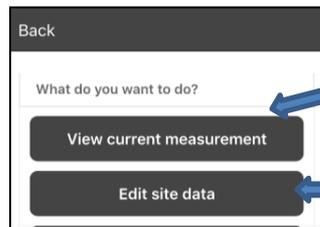
Manual synchronisation



1. A **manual synchronisation** is **only** possible on site in the direct vicinity of the HMBox (~ 8m), Bluetooth connection must be active and sufficient network connection

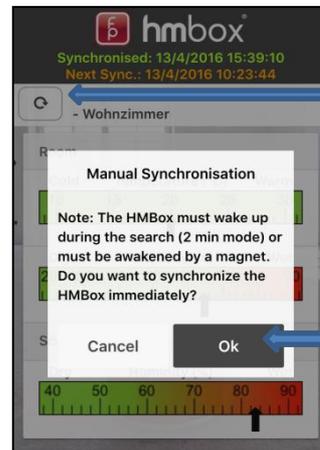
Select a HMBox

Box is highlighted in green



2. **“View current measurement”**

(here you can also change the project data under „Edit site data“, if necessary)



3. Press the wheel  in the upper left corner

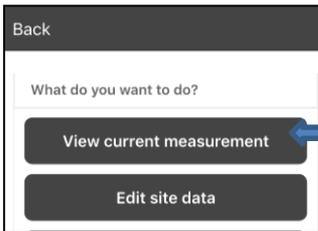
Press „OK“

Connection to the HMBox will start

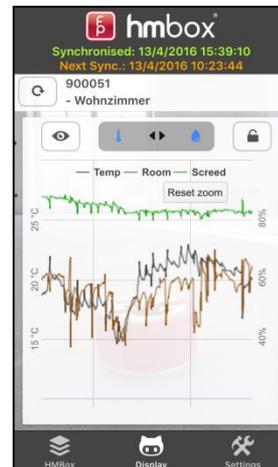
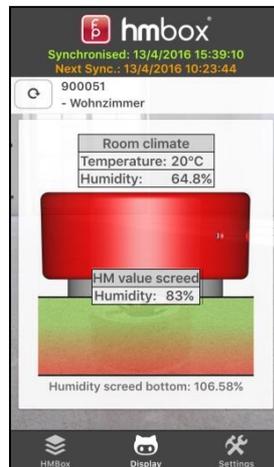
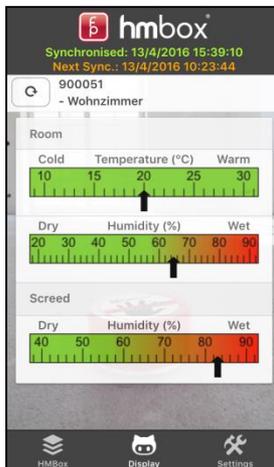
View measured data



1. Select HMBox
HMBox is highlighted in green



2. Press „View current measurement “
(here you can also change the project data under „Edit site data“, if necessary)

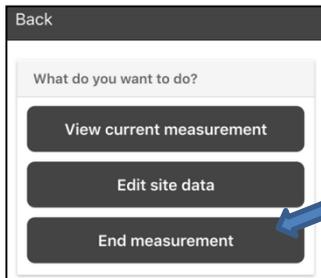


3. Measured data in different views

Deactivating the HMBox



1. Under “*My HMBoxes*”
Select HMBox you want to deactivate
HMBox is highlighted in green
(Bluetooth connection must be active and
sufficient network connection)



2. „*End Measurement*“



With this function, the measurement process is stopped and the GSM and Alarm protection are deactivated. The HMBox can now be removed. The measurement data are saved in the project administration and a measurement protocol can be generated using the “*FP Desktop Professional Software*”.

Removal of the HMBox



1. Place the head of the screwdriver that is found in the HMBox-case carefully underneath the ring on the bottom side of the HMBox and turn right until the box automatically triggers off the ground.
2. The HMBox will be released from the adhesive „Hmfix“ residue free, when the release film has been applied before attaching the HMBox to the substrate. Stubborn residue can be easily removed with the stanley-knife.



Quick Measurement



1. Take the quick measurement container out of the case



2. Put the test material into the container (Country-specific guidelines for taking test samples have to be considered!)



Fill the container approximately to the black sealing ring (See picture on the left)



3. Place the HMBox on the container



4. Start HMBox app and select the HMBox
5. Start quick measurement
6. Select construction site and enter room name

7. Start measurement

The remaining measurement duration is shown in the device screen and in "View current measurement".

8. When the measurement is completed select the HMBox and "View current measurement"

9. Final synchronisation starts automatically

10. Measurement data is visualised in the usual way

11. Completed quick measurements can be viewed at all times in the archive in the corresponding construction site

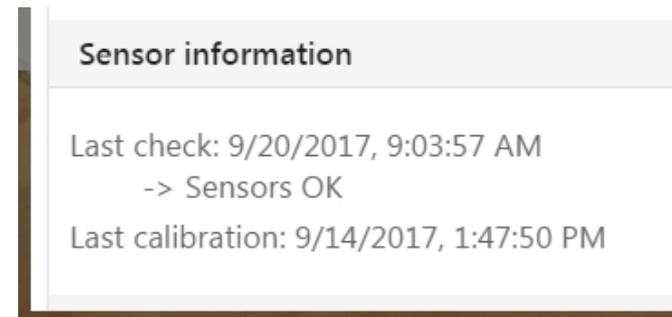


Sensor check and calibration

The measurement results of the HMBox sensors can be influenced by outside factors (e.g. the binding fluids in screed floors) after some time. Mainly the screed sensor is affected, because it is in direct contact to the floor.

To avoid these kind of problems we have developed a quick and easy way for you to check and calibrate your HMBox sensors.

In the „Sensor information“ area of a selected HMBox you can see the last time your HMBox sensors have been checked or calibrated.

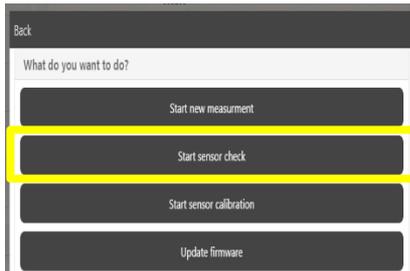


IMPORTANT: Before your HMBox can be calibrated, you need to update the firmware of the device first. If the firmware update has not been activated for your device yet, please contact our customer support.

Sensor check (Smartphone / Desktop)



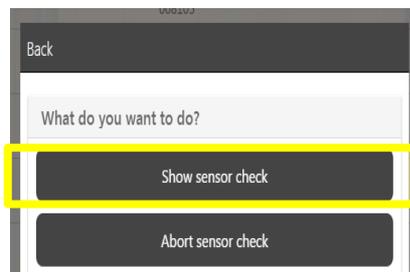
The process starts with a sensor check. Make sure that the HMBox is placed inside its case with the floor sensor facing upwards. The room sensor on the side (black) should point towards one of the two foam material slits (see picture).



Now select the HMBox in the app and click „Start sensor check“.



Display of an ongoing sensor check.



After the sensor check duration is complete, please click on „Show sensor check“. After a synchronisation with the HMBox you can finish the sensor check. The result window will inform you, if a sensor calibration is necessary or not.

Sensor calibration (Desktop)

The following items are needed to perform a sensor calibration:

- FP Desktop Professional **Software** + Premium Account
- **HMBox**
- HMBox **Case**



- 2x **plastic dish**, 2x **cotton pad**, 2x **calibration fluid** (yellow: Phase 1, green: Phase 2)



The sensor calibration is done in two consecutive phases. Using the determined measurement data, and the resulting deviations, the desired sensor correction data will be calculated directly afterwards.

Sensor calibration (Desktop)

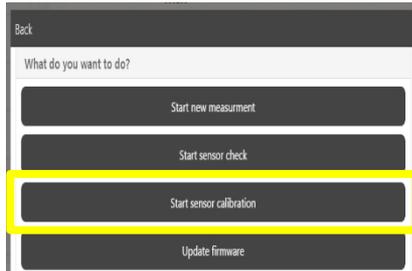


Before the first calibration phase can be started, a few things need to be prepared:

1. Put the cotton pad into the plastic dish
2. Shake the calibration fluid container and pour the fluid into the plastic dish afterwards
 - Phase 1: Container with yellow sticker
 - Phase 2: Container with green sticker
3. Position the plastic dish in the middle of the HMBox hole in the HMBox case, put the HMBox on top of it and close the case.



Sensor calibration (Desktop)



Select your HMBox in the desktop application and click on „Start sensor calibration“.

Click on „Show sensor calibration“ when the first phase is complete. After a short synchronisation with the HMbox the phase will be finished.

Remove the plastic dish, that contains the phase-one-fluid from the case, prepare the phase-two-fluid (Container with the green sticker) in the second plastic dish, place it in the middle of the HMBox hole in the case and put the HMBox on top of it. Now you can start the second phase.

When that phase is also complete, you can finish the sensor calibration. The determined sensor correction data will be automatically applied to future measurements.

Remark: The calibration fluids are one-time-use only. Please empty the plastic dishes after each calibration and clean them with water.

Battery change



You need:

- 1 Torx-Screwdriver Nr. 20



- 4 x AA Lithium Batteries L91 (e.g. Energizer Ultimate Lithium)



Battery change



1.) Carefully remove the three screws on the bottom of the HMBox



2.) Remove the lid carefully, because the antenna cable is attached to it

Battery change



- 3.) Remove the battery pack, change the batteries and put it back in its designated position
- 4.) Put the lid back on top of the HMBox. Use the guiding pin on the lid and the indentation on the case for the correct positioning.
- 5.) Put the bottom screws back in

Please be very careful with the black sealing ring that is attached to the lid. It needs to be properly installed.

Do not use force in any of the steps!

- 6.) When starting your next measurement, please select „Reset battery“. This tells the HMBox, that the batteries have been changed.

Back

Stair nr.	<input type="text"/>
Storey	<input type="text"/>
Top nr.	<input type="text"/>
Max. humidity (%)	<input type="text" value="65"/>
Activate GSM	<input checked="" type="checkbox"/>
Meas. interval	<input type="text" value="1"/> hours
Reset battery	<input checked="" type="checkbox"/>

Start measurement



Additional Information

All HMBox units used are set up and saved in the „Project Administration“ under their project name.

highlighted in green = completed measurements

highlighted in red = active measurements

Should you need more detailed measurement records or reports, we recommend the (purchasable) **FP Desktop Professional Software**. With this software you can easily manage projects and create reports on a Workstation or a mobile laptop.

You can added any number of HMBox units and projects. The data are saved on the HMBox database for an indefinite period of time.



You can delete the HMBox units with this symbol

CAUTION: All deleted data are irrevocable deleted from the App, the browser software and the HMBox Database and can not be restored.



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