



**BAB** TECHNOLOGIE GmbH

# **HTS10**

## HYBRID TAST SENSOR

### Mounting instruction

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EN



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# HTS10

The **HTS10** combines the advantages of tactile key operation and those of a precise touch screen. With its configurable mechanical buttons any desired function can be triggered immediately. The high-resolution 10-inch touch display enables precise operation of the **CUBEVISION 2+ APP**. With the CUBEVISION building visualization, which is optimized for touch operation, you can use all the advantages of the touchscreen and optimize them with a dynamic function assignment of the mechanical keys. The buttons are assigned via the **CUBEVISION 2+**. You create your scenes in the Smart Function Creator and these are automatically assigned to the slide menu on the side and marked with the selected icons. As a user, you can easily determine the key assignment yourself, from simple lighting control to complex smart home functions.

In the **HTS10** there are already integrated following sensors: TVOC / eCO<sub>2</sub>, brightness, temperature and humidity. The values of these sensors are clearly displayed in the Launchpad. There is also the option of transferring the measured values from these sensors with configurable offset values to the KNX bus. This means that these measured values can be used for building control.

In order to reduce energy consumption, the display can go into sleep mode after a set time. The display is switched on again by pressing any button. The stored functions of the buttons are also deactivated in idle mode.

An integrated camera as well as the technically adapted microphone and loudspeaker unit can be used for your video intercom system.

The **HTS10** is mounted on a standard flush-mounting installation box and is easily suitable for retrofitting. With the help of this standard flush-mounted box, different installation versions can be carried out:

- External power supply 10–32 V DC in WLAN mode
- Flush-mounted power pack 230V in WLAN operation

The **HTS10** in the model variants 041 1x is intended for horizontal installation.



# 1 NOTES

## IMPORTANT INFORMATION

### Packing

- Do not unpack the **HTS10** until you reach your destination.
- Only transport the **HTS10** in its original packaging.
- Only ship the **HTS10** in its original packaging. For this reason, we recommend that you keep the original packaging!

**NOTE: We would like to point out that the sender, not the carrier, is liable for damage caused by improper packaging.**

### Connecting

- Only use a sufficiently dimensioned power supply unit!
- Please pay attention to the polarity (+ plus and - minus) and the correct supply voltage (10-32 V DC Volt).
- For safety reasons, please also measure the voltage at the terminals directly on the **HTS10**, even while the **HTS10** is switched on (also under load).
- Use cables with sufficient cable cross-section and consider the voltage drop, depending on the cable length.

**ATTENTION: Applying a voltage outside the permitted voltage range (see technical data) may damage the HTS10.**

### Pre-installed software

The **HTS10** is supplied with the software pre-installed for the device, including all usage APP (applications) and it is optimized for these applications.

**ATTENTION: By installing additional software on your HTS10, even if you know the sources, you endanger the stable performance generated for the delivery state.**

**Should you install additional software on the HTS10, you are solely responsible for any damage to the device or loss of data that may result from the use of such applications.**

## 2

## OVERVIEW OF COMPONENTS

In the appendix under “[Article numbers and identifiers](#)” the components are again listed with the article number for inspection.

All dimensions of the individual components can also be found in the appendix under the chapter “[Dimensions](#)”.

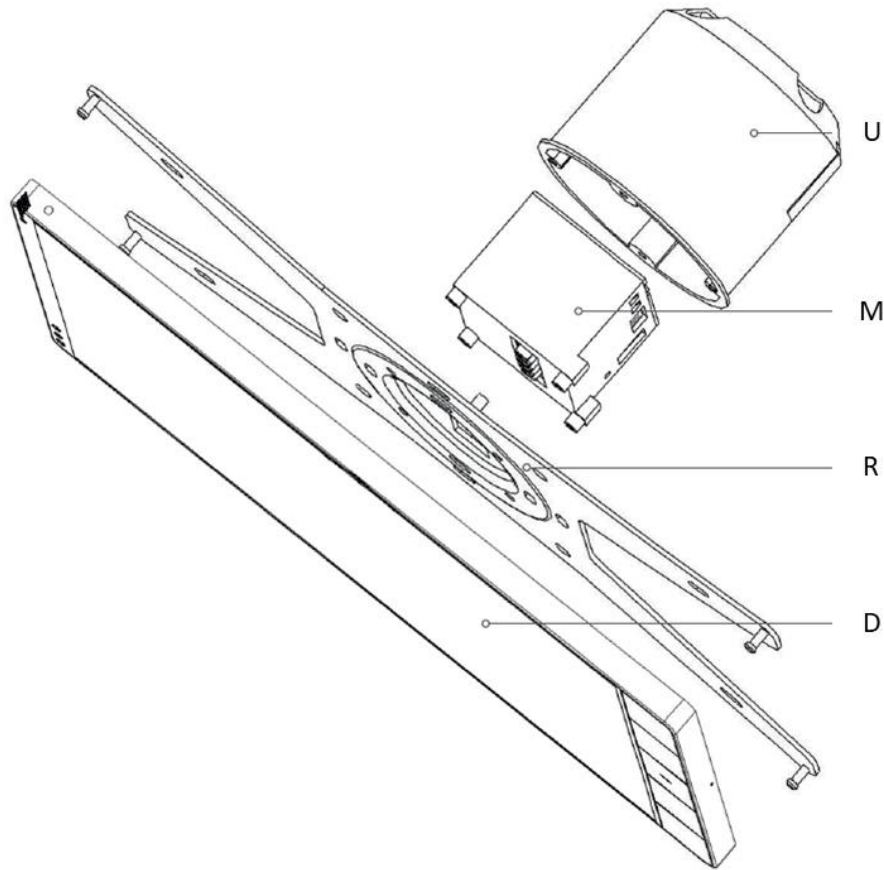


Figure 1: HTS10 overview

U) Standard flush-mounting installation box

M) Possible modules:

- Flush-mounted switching power supply 230 V item no. 35425

R) Mounting frame (wall bracket)

D) Hybrid-push button sensor with neodymium magnets for locking

## 2.1 HTS10 MOUNTING FRAME

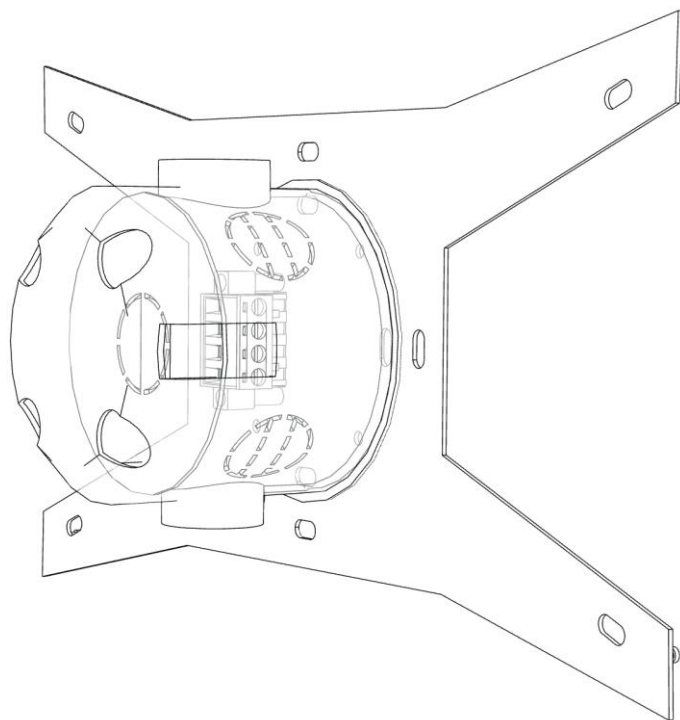


Figure 2: Mounting frame with flush mounted installation box

Mounting frame suitable for a standard flush-mounted installation box:

- Suitable for problem-free retrofitting, standard dimensions of installation
- The mounting frame is completely sunk into the housing and thus ensures a perfect connection to the wall.
- Due to the magnets integrated in the holder and the direct passage of the connections, the device is simply put on and is immediately ready for use.
- The locking screws on the top and bottom protect the HTS10 to take away.
- Existing bores and forms enable assembly to various flush mounting standards in Europe, the USA and Asia.

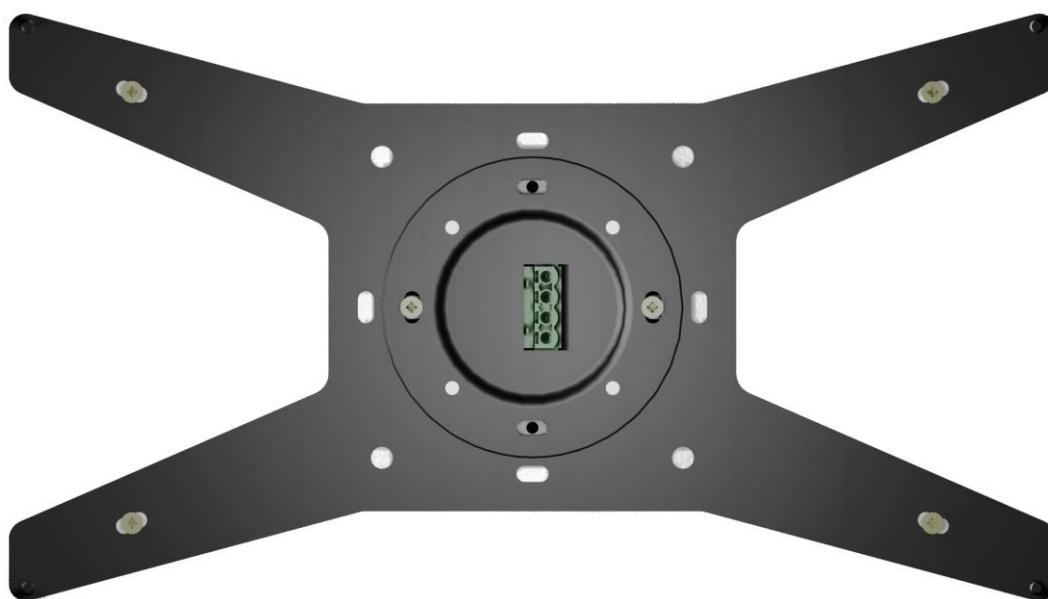


Figure 3: HTS10 mounting frame screwed on



## 2.2 HTS10 (FRONT SIDE)

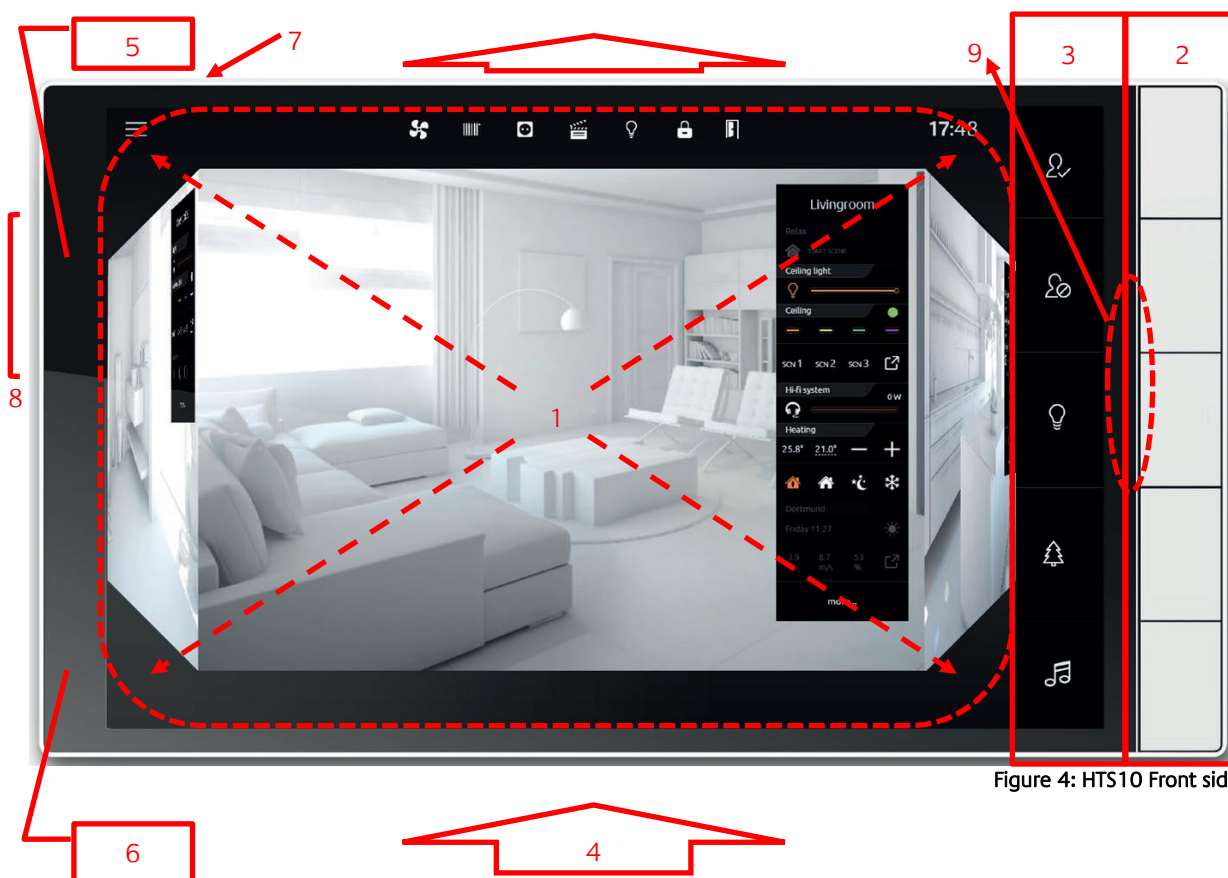


Figure 4: HTS10 Front side

- 1 – Control surface (capacitive touch display)
- 2 – Micro buttons for free function assignment in software
- 3 – Graphic label area for button (selectable icons)
- 4 – Air duct of the sensors (temperature, humidity, TVOC, eCO<sub>2</sub>)
- 5 – Camera
- 6 – Brightness sensor
- 7 – Reset opening
- 8 – Speaker
- 9 – Microphone



## 2.3 INTEGRATED SENSORS / SETTINGS

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In the **HTS10** are integrated already some sensors: TVOC / eCO<sub>2</sub>, brightness, temperature and humidity. The values of these sensors are clearly displayed on the launchpad. There is also the option of transferring the measured values from these sensors to the KNX bus. This means that these measured values can be used for building control.

In order to reduce energy consumption, the display can go into sleep mode after a set time. The display is switched on again by pressing any button. The stored functions of the buttons are also deactivated in idle mode.

### 2.3.1 TVOC/eCO<sub>2</sub> SENSOR

---

The TVOC / eCO<sub>2</sub> sensor in the **HTS10** can be used to determine the indoor air quality. This sensor determines TVOC values (sum of volatile organic compounds). It should be noted that this sensor and the associated measuring method is **not** in accordance of DIN EN ISO 13199 and DIN EN 12619.

Due to the variability of the composition of the VOC spectrum and the resulting variety of possible effect endpoints, no reliable dose-effect relationships can be given. TVOC concentrations are therefore not suitable as the sole criterion for a health assessment, but rather are to be viewed as an indicator for the overall situation and the possible need for specific individual substance considerations.

The displayed value can only be rated as a recommendation and does **not** correspond to DIN EN ISO 16000 / 16017-1.

The use of these measured values in ventilation systems can therefore significantly improve the air quality of rooms, but does not comply with legal standards. The measuring ranges of the sensors are for:

- eCO<sub>2</sub> from 400 to 32,768 ppm (ppm = parts per million)
- TVOC from 0 to 29,206 pp (ppb = parts per billion)

### 2.3.2 BRIGHTNESS SENSOR

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A brightness sensor is integrated in the **HTS10**, which can be used for brightness-dependent control, e.g. light control.

The measuring range of the sensor is: 0 to 35,000 lux

### 2.3.3 TEMPERATURE SENSOR

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Due to the integrated temperature sensor, the **HTS10** can be used as a room controller to control the temperature for heating and cooling. Temperature deviations due to the position of the sensor in **HTS10** and due to the installation location can be largely compensated for with an appropriate offset.

The temperature range of the sensor is: 0 to 50 degrees Celsius

### 2.3.4 HUMIDITY SENSOR

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The **HTS10** also has a moisture sensor. The humidity sensor in combination with the temperature sensor can be used to determine the humidity saturation of the room air. In this way, the dew point can be determined, e.g. to avoid the formation of Mold.

The measuring range of the humidity sensor is: 0 to 100% relative humidity

## 3 ASSEMBLY

A standard flush mounted installation box is a prerequisite for installing the **HTS10**. With the help of the standard flush-mounted box, can be carried out different installation versions:

- External power supply 10–32 V DC with an output of 12 W in WLAN mode
- Flush-mounted power supply unit 230V in WLAN operation (installation box 60mm deep), power consumption 15 W

The following pictures show how the individual components are arranged and the order in which they are assembled.

Note: We recommend a mounting height of 1.5 m to ensure good usability and a good view of the **HTS10**.

### 3.1 MOUNTING TYPE

#### 3.1.1 ON STANDARD FLUSH MOUNTING BOX USING WLAN

For installation with an external power supply (10–32 V DC / 12 watts) and the use of a network connection via WLAN, the connection terminal included in the scope of delivery is sufficient.

Note that the clamp is attached asymmetrically to the mounting frame. Incorrect placement of the **HTS10** will always result in damage. It is also important to ensure that the clamp itself is not rotated. Due to the leverage of the mounting frame, the effort would not be very high to be able to mount the clamp incorrectly.

During assembly, make sure that the connections are tight and that the connection cable is relieved of strain if possible.

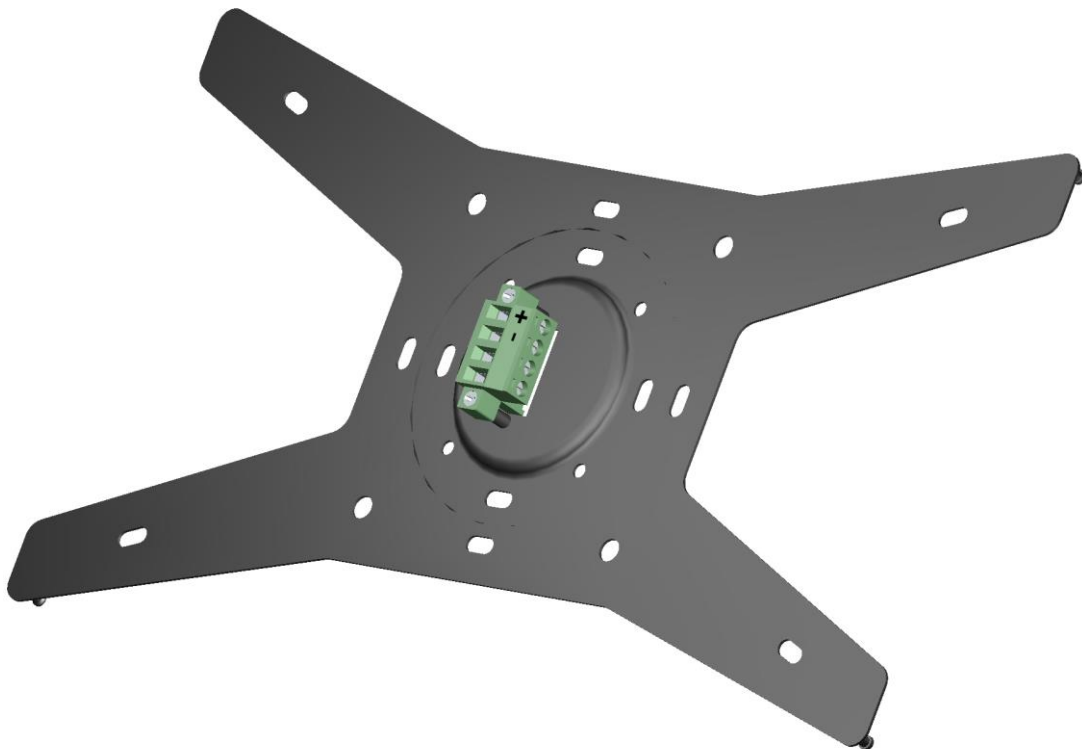


Figure 5: HTS10 mounting frame with connection terminal

### 3.1.2 MOUNTING WITH 230V FLUSH-MOUNTED POWER SUPPLY

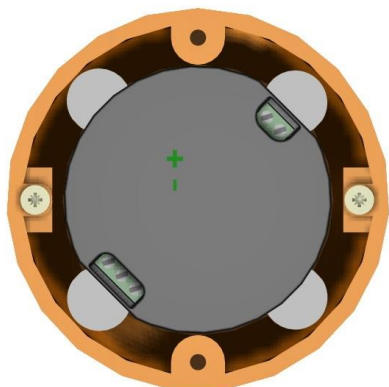


Figure 6: 230 V DC power supply in flush mounted box 60mm deep

Suitable for installation in a flush-mounted installation box (60mm deep), the **HTS10** can also be used with a 230V flush-mounted power supply unit (module - article no. 35425) in WLAN mode. The 230 V AC power supply unit (module - article no. 35425) is available as an accessory.

The connections are marked accordingly. Make sure that no polarity reversal errors occur.

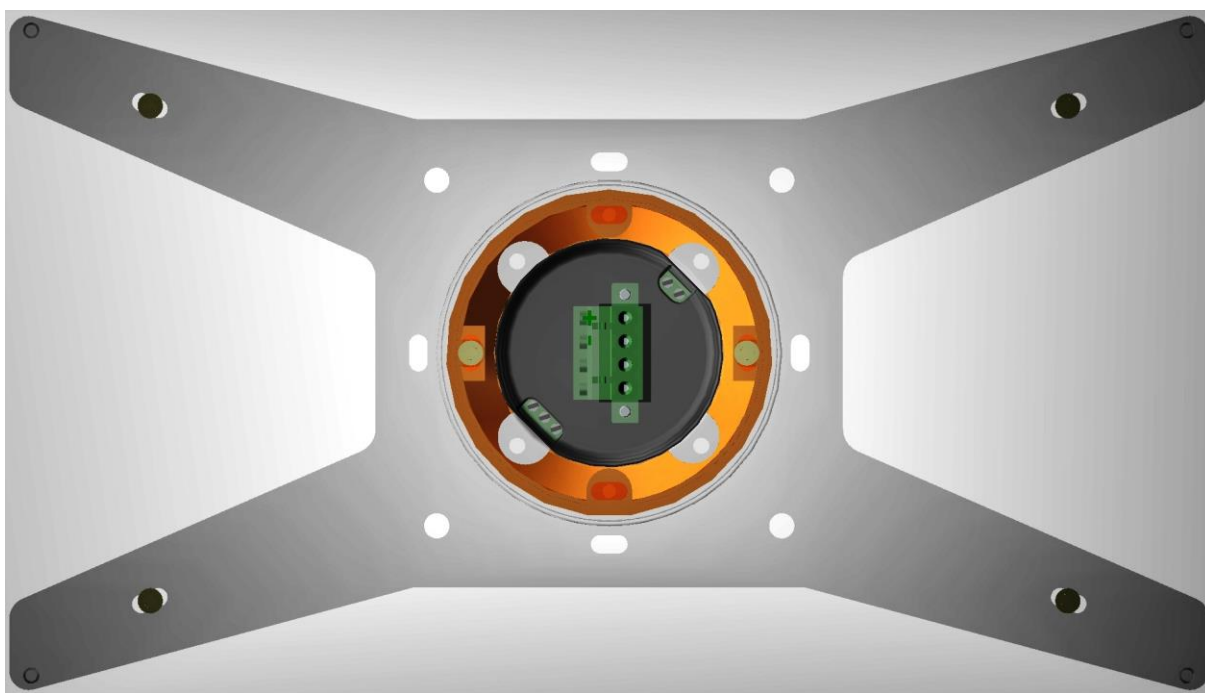


Figure 7: HTS10 mounting frame with 230 V DC power supply

Note: In order to have enough space for installation and to avoid contact errors and to relieve the cable connections, we recommend the HW installation box with extended installation space, e.g. KAISER 9268-94, F-tronic M140007, etc. for installation with a flush-mounted power supply unit.

## 3.2 MOUNTING AND REMOVAL THE HTS10

The **HTS10** is installed on a standard flush-mounted installation box. The wall bracket is screwed onto this device box so that it is screwed in such a way that the **HTS10** has the exact final assembly position.

1. Depending on the installation version, all necessary connections, such as network cables or power supply, are available in the flush-mounted installation box with the correct plugs and connectors. (Pay attention to the polarity and the permissible voltage value)
2. If it is intended for your type of installation, connect the power supply to the mains cable and make sure that there is sufficient fuse to the connections for your **HTS10**.
3. When all the necessary connections are in place, hang the **HTS10** tilting from above in the wall bracket so that the guide pins fit exactly. The **HTS10** is held on the metal wall bracket by integrated magnets.
4. In addition to the magnets and the removal protection, the **HTS10** can be screwed to the wall bracket (orange arrow). Use a suitable tool to screw the **HTS10**.

To remove the **HTS10**, first check whether the **HTS10** has been screwed to the wall bracket to prevent theft (orange arrow). Make sure the locking screws have been removed. Failure to observe the anti-theft device and the required high tensile force of the integrated magnets to remove it would otherwise damage your **HTS10**. Tilt the **HTS10** upwards out of the guide pins.

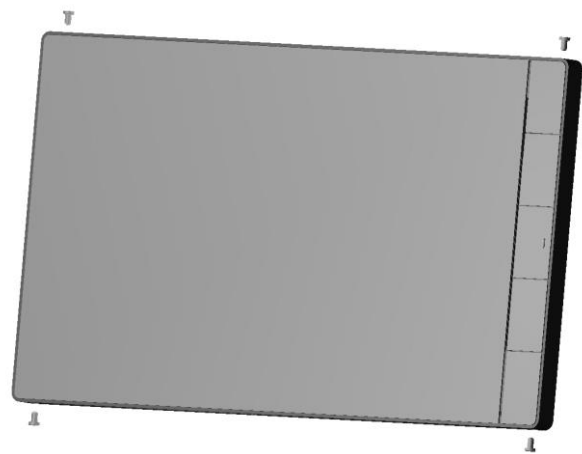


Figure 8: HTS10 locking screws

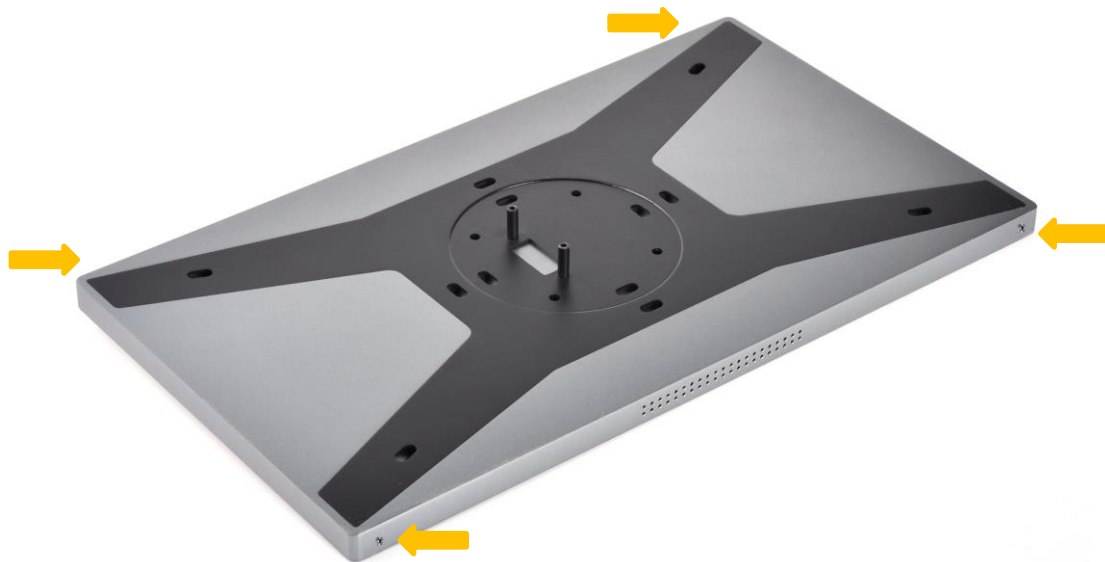


Figure 9: Remove HTS10

## 4 OPERATION

### 4.1 HTS10 SWITCH ON / SWITCH OFF AND DEVICE SETTINGS

The operating system of the **HTS10** is Android. In this respect the handling of the device corresponds to that of other Android devices (smartphones, tablets).

Further information on Android usage can be found at:

<https://support.google.com/android#topic=7313011>

#### Switch on

The **HTS10** starts as soon as it is connected to the required power supply, also when it is plugged into the mounting bracket. There is no ON/OFF switch. It is configured for continuous use 24/7. On the upper edge of the **HTS10** is a single small hole (7 - [HTS10 \(front side\)](#)), behind where the reset button is located.

After starting the **HTS10** device, **CUBEVISION 2+ APP** should open directly.

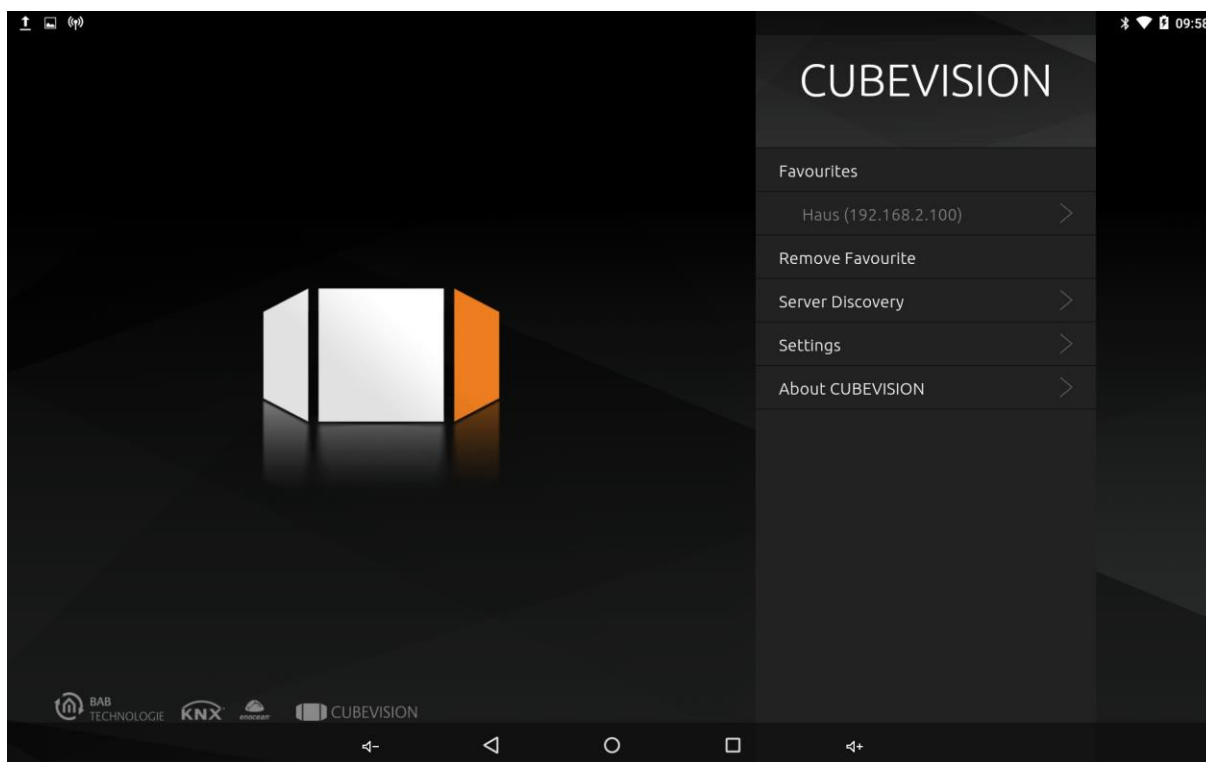


Figure 10: HTS10 - CUBEVISION 2+ start page

It would be possible that the system window opens with the applications (APP) available on the device. Here you can open **CUBEVISION 2+** via the APP icon. There is also a CUBEVISION Update APP in the APP overview. This is required to update the **CUBEVISION 2+ APP**.

In order to adjust the device settings, you have to open the APP "Settings". You can access the system window with the help of the menu

To adjust device settings (language, network), you must open the "Settings" APP. You can access the system interface using the menu or by swiping down from the top edge of the screen.



Figure 11: HTS10 - menu of device

Via the device menu you go to the main page of the **HTS10**

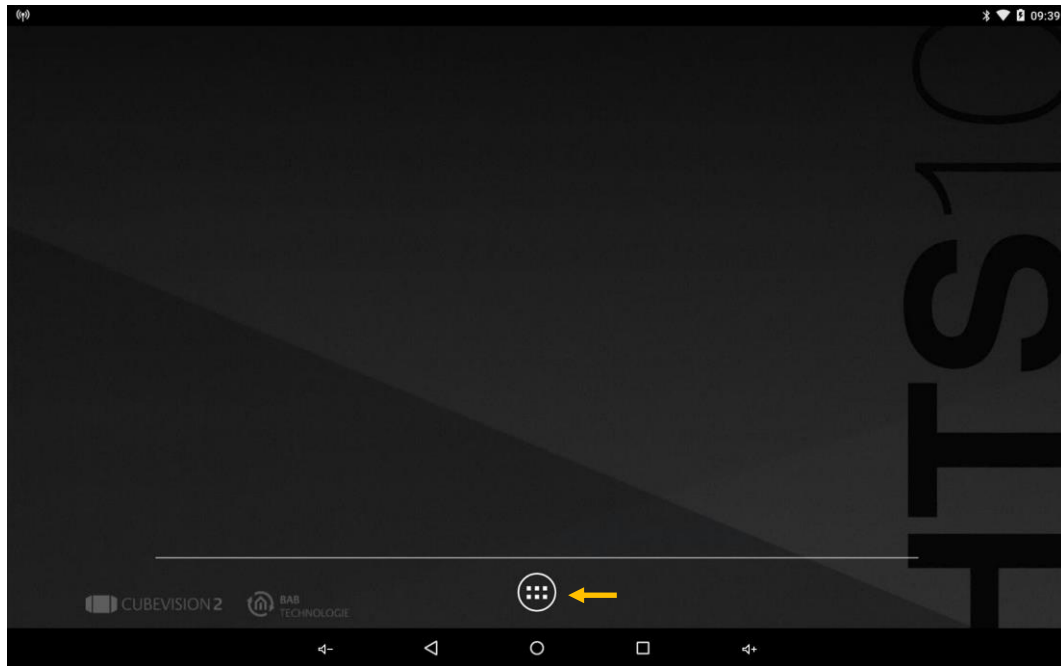


Figure 12: HTS10 - homepage

To make device adjustments such as language, network, etc. click on the APP button (orange marking).

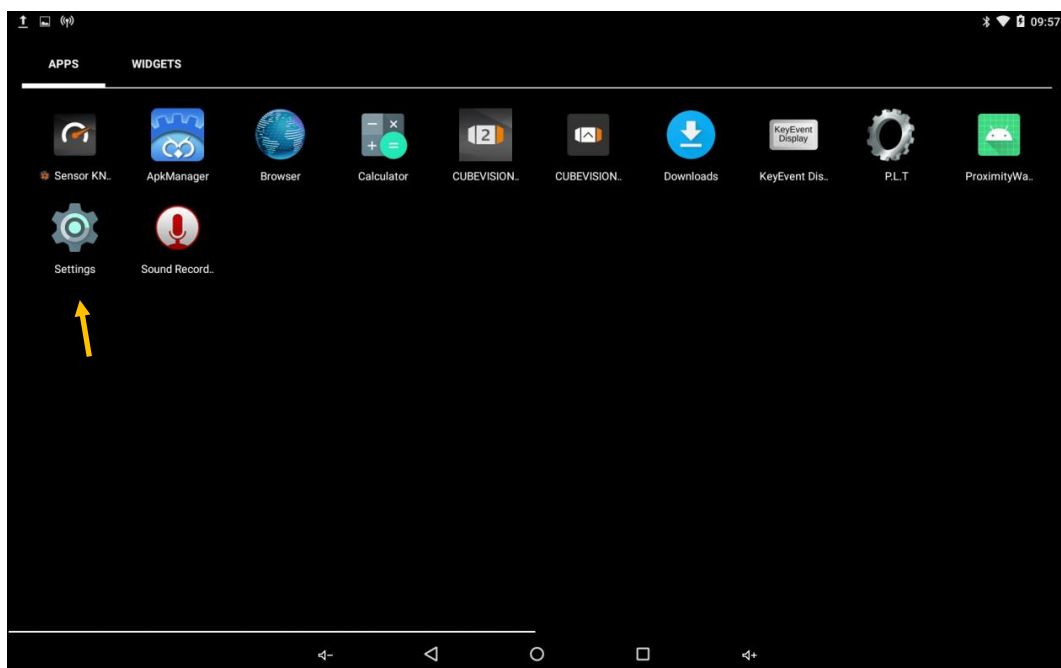


Figure 13: HTS10 - device settings

## 4.1.1 DEVICE SETTINGS: LANGUAGE, NETWORK OF THE HTS10

In the "Settings" APP, open the required menu items for language, Wi-Fi or Ethernet.

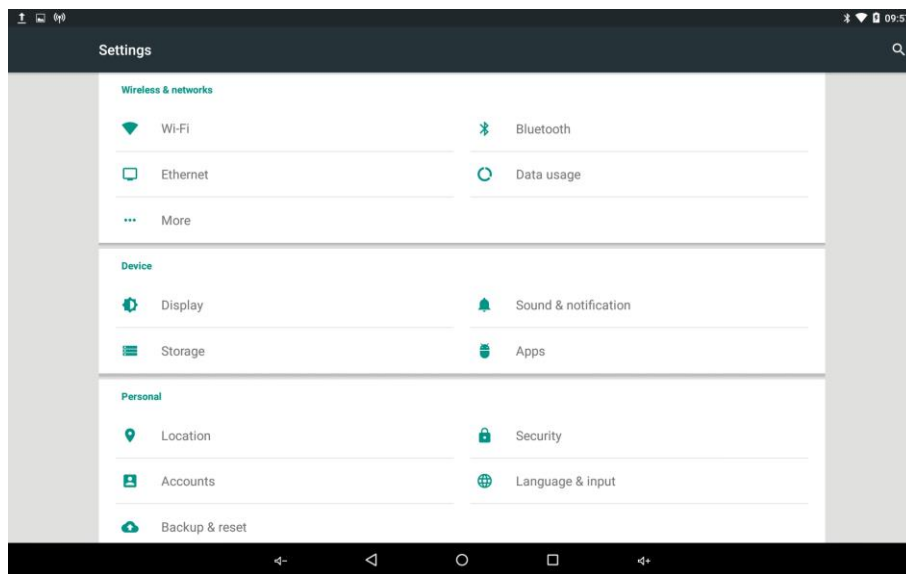


Figure 14: HTS10 - device settings (language, network)

## 4.1.2 NETWORK SETTINGS (WI-FI, ETHERNET)

In the "Settings" APP, open the respective menu items for the LAN or WLAN settings.

Following settings are available:

### **DHCP**

Network settings are obtained automatically from a DHCP server.

### **IP-address/ subnet mask / gateway**

Static IP address assignment consisting of IP address, subnet mask and gateway.

### **DNS server**

It is name resolution service. In small networks mostly provided by the router (gateway).

**Internet-based services will not work without a valid DNS entry**

### **NTP Server**

It is service to synchronize the system time. NTP server list: e.g., <http://www.pool.ntp.org/zone/europe>

In order to be able to use the integrated sensors for the KNX bus, open the KNX Sensor APP, where you can configure the integrated sensors. Here you can set offset values for correcting the measurement values based on the mounting position of the sensor inside of HTS10.

### **Switch off**

The HTS10 can only be switched off by interrupting the power supply



## 4.2 CONFIGURATION OF PRE-INSTALLED SOFTWARE

The software, required for building control is already preinstalled on your **HTS10**. For the use of the **HTS10** essentially 3 APPs are necessary:

- (1) KNX sensor APP
- (2) CUBEVISION Update APP
- (3) CUBEVISION 2+ APP

By swiping down from the upper edge of the screen or with Android control buttons, you can access the system interface of the **HTS10**.



Figure 15: APP configuration

## 4.2.1 KNX SENSOR APP

You can configure the integrated sensors at **HTS10** with help of the KNX Sensor APP. You can thus assign the sensors a KNX group address for the use of the measured values in your building control. Furthermore, you can configure offset values to correct the measurement values due to the mounting position of the sensor in the **HTS10**.

To determine the data source of the values, assign a physical address of **HTS10**. Depending on the requirements and use of the measured values, you can configure the conditions for the value transmission, individual transmission intervals and value changes.

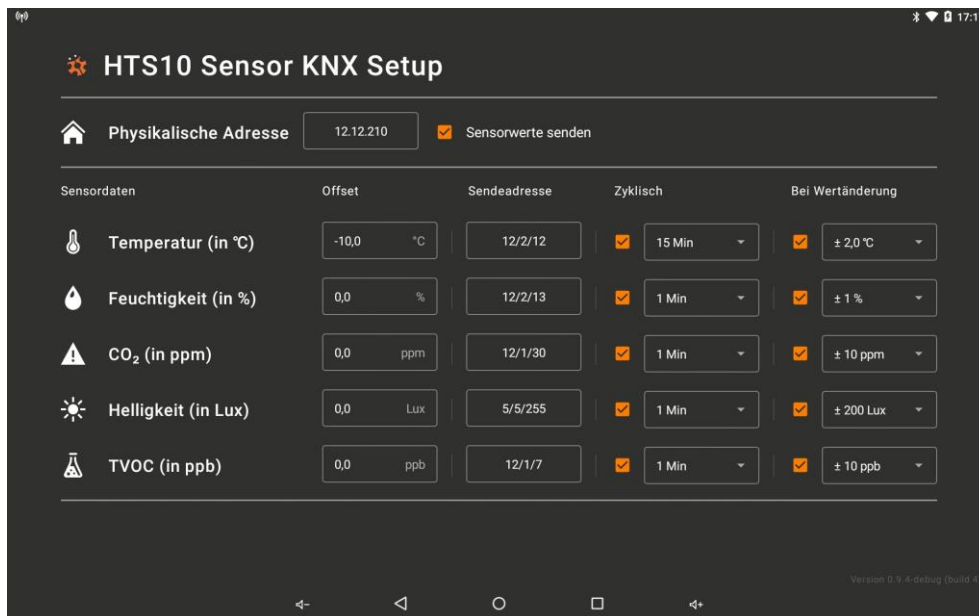


Figure 16: KNX Sensor APP - configuration

The following data types are used to transmit the sensor data:

- Temperature (in °C): EIS 5 2 bytes, DPT 9.001
- Humidity (in %): EIS 5 2 bytes, DPT 9.007
- CO<sub>2</sub> (in ppm): EIS 5 2 bytes, DPT 9.008
- Brightness (in Lux): EIS 5 2 bytes, DPT 9.004
- TVOC (in ppb): EIS 5 2 bytes, DPT 9.008

## 4.2.2 UPDATER APP

There is a separate APP for updating the device and the **CUBEVISION 2+ APP**. If necessary or if you have relevant information about an update, start this APP and follow the installation instructions.

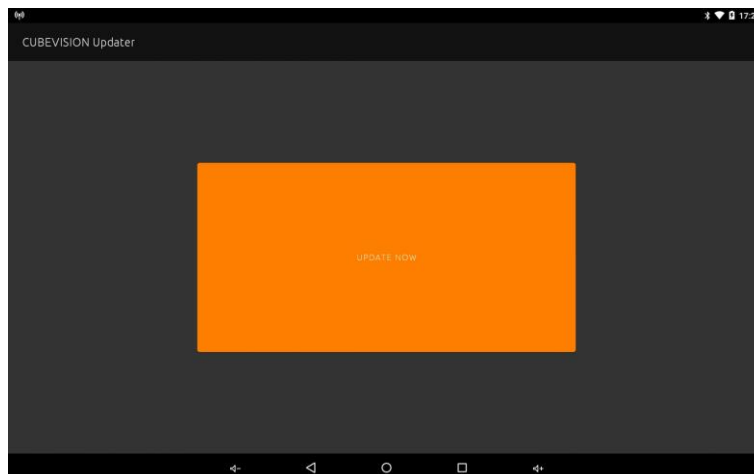


Figure 17: CUBEVISION UPDATER APP

### 4.2.3 CUBEVISION 2+ APP

The **CUBEVISION 2+ APP** is the control as well the visualization of your building. The handling of this APP corresponds to the versions of this application, which are also available for WEB browsers or for the iOS or Android operating systems.

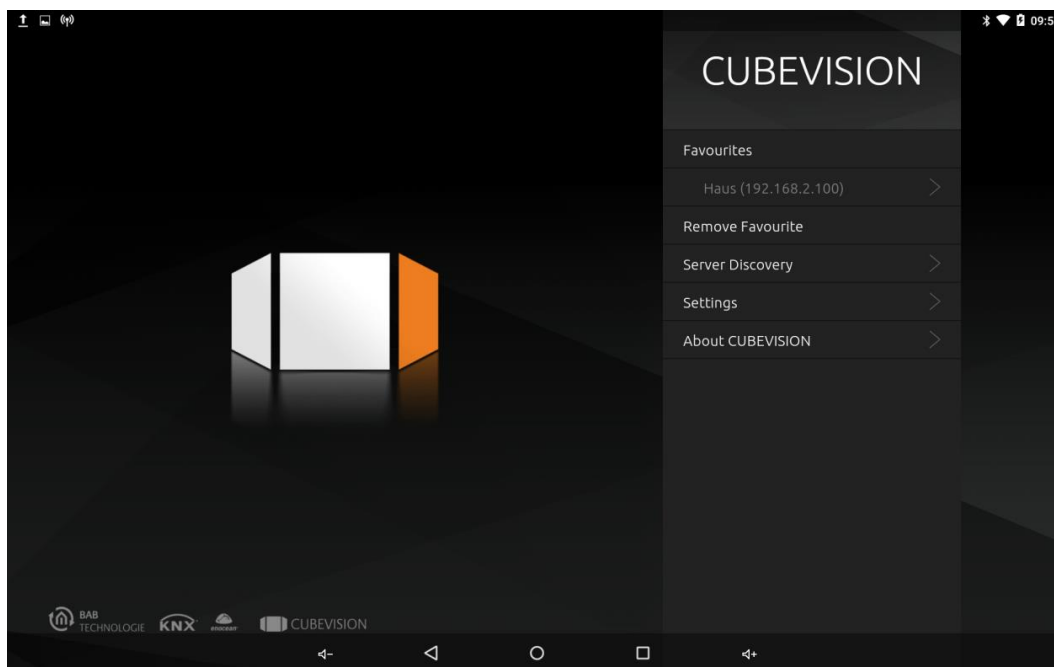


Figure 18: CUBEVISION 2+ APP - start page

In order to be able to use the visualization of **CUBEVISION 2+**, you still have to search for the required server on which your visualization is available. To do this, go to the “Searching server” menu item and search for the server, select the server accordingly or enter the corresponding IP address.

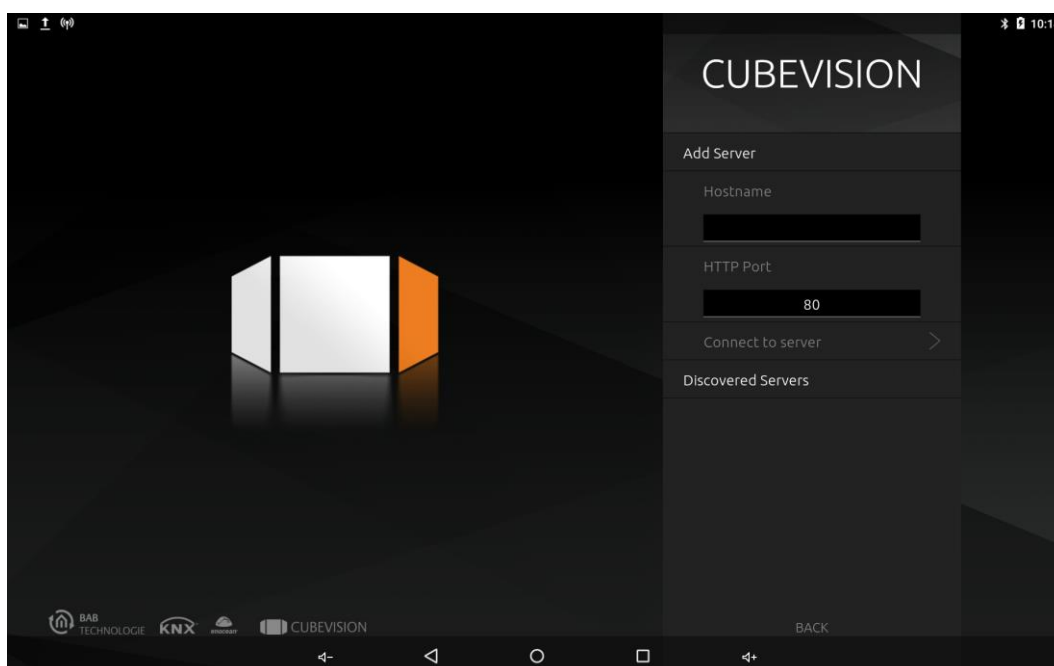


Figure 19: CUBEVISION 2+ APP - server discovery

After selecting the server, you still have to activate the visualization to be controlled if you have several projects on your server.

You can scroll down via the “Settings” menu item to get to the “Sensor adjustments” menu item. The "sensor adjustments" in this menu item are for the display only. The offset values of the "KNX Sensor APP" are not taken into account here. This allows you to set separate offset values that correspond to the immediate installation location of the **HTS10**. This separation of the offset values gives the user a realistic representation of the displayed measured values.

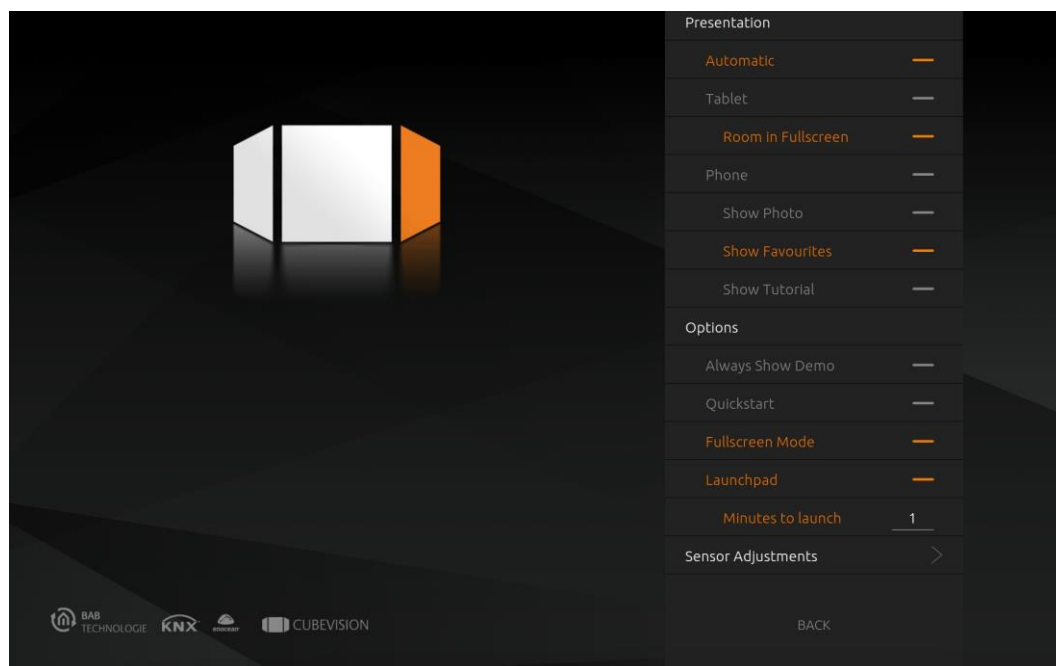


Figure 20: CUBEVISION 2+ APP - sensor adjustments

Under "Sensor settings" you can enter offset values to correct the measured values that are displayed in the Launchpad. This affects the temperature, as the **HTS10** generates its own heat.

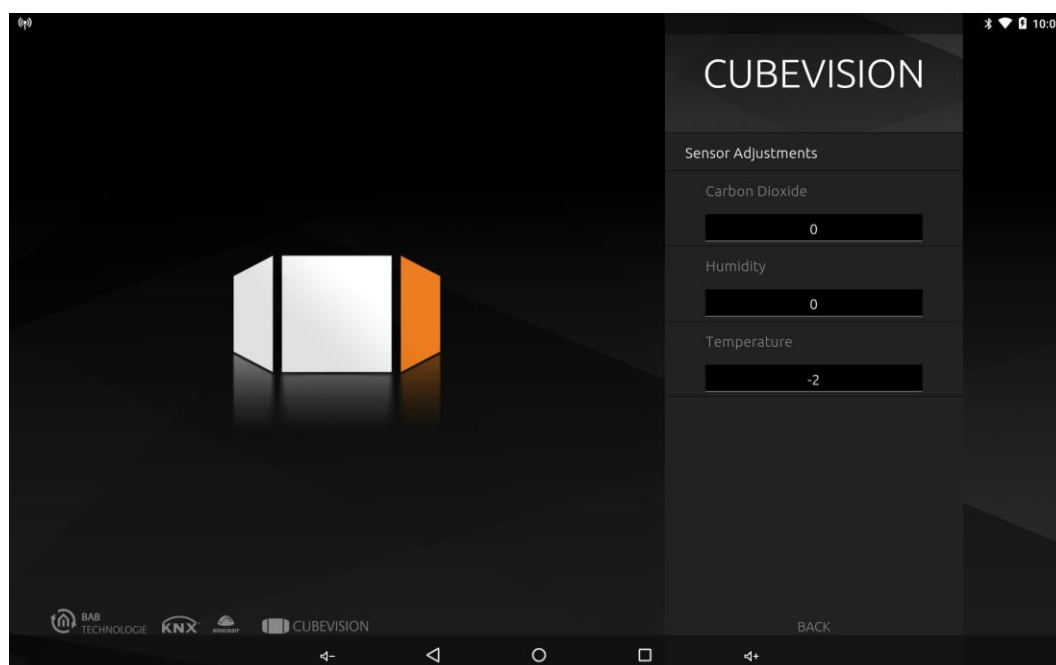


Figure 21: CUBEVISION 2+ APP - offset sensors

As soon as the Launchpad is active after your set start time, you will see the measured values of the integrated sensors. In addition there is displayed a color bar that evaluates the measured air quality in the vicinity of the **HTS10**.

In addition to the measured values, the icons of the buttons, which are also part of the Launchpad, are displayed.

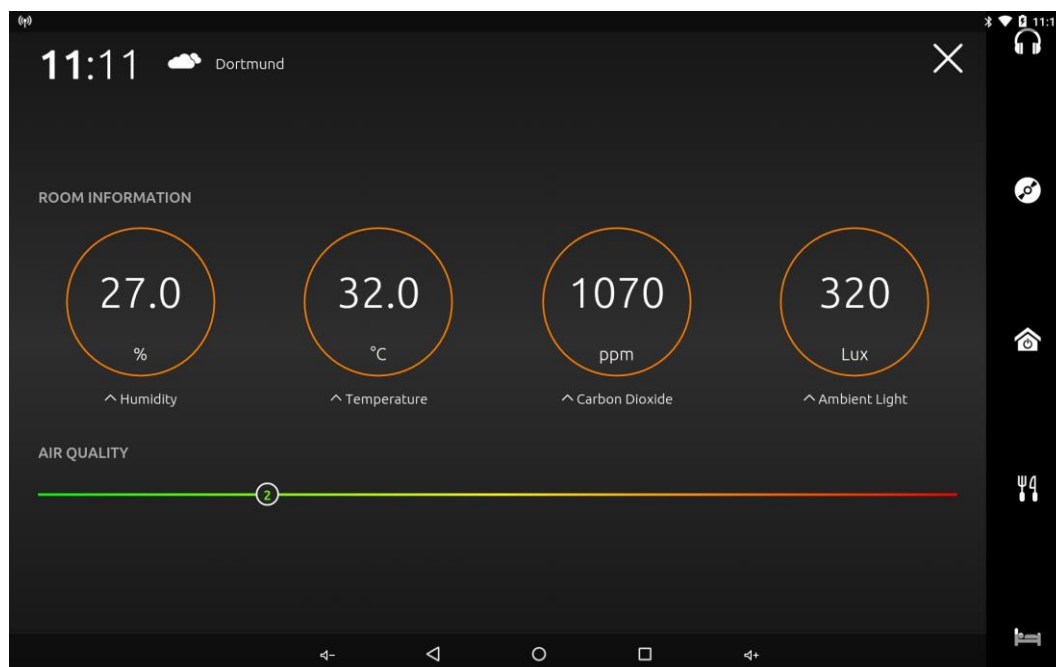


Figure 22: CUBEVISION 2+ APP - display sensor values

Note: In the settings of the **CUBEVISION 2+** you can switch the display to full screen mode. The picture adapts itself completely to the full screen size and the lower menu bar is hidden.

## 4.2.4 CONFIGURATION OF THE MECHANICAL BUTTONS

The mechanical buttons are configured via the "*Smart Function Creator*" and they are a part of the launchpad. This means that as soon as the created functions are generated, they are visible on the launchpad and they are displayed in the vertical field of the launchpad. This function can be triggered using the adjacent mechanical button.

If you are not familiar yet with the "*Smart Function Creator*", you will see the necessary configuration steps below. Only the assignment of the function is shown here, with a corresponding icon for the respective button. In addition, the "*Smart Function Creator*" offers multifarious functions that are not described here, which is part of the CUBEVISION documentation.

- Open the menu and start the „*Smart Function Creator*“



Figure 23: Smart Function Creator - open and start

- Select the control elements (one or more) for this function and move the action into the selection field
- Confirm the selection with the checkmark



Figure 24: Smart Function Creator - select control elements

- Selection of an icon

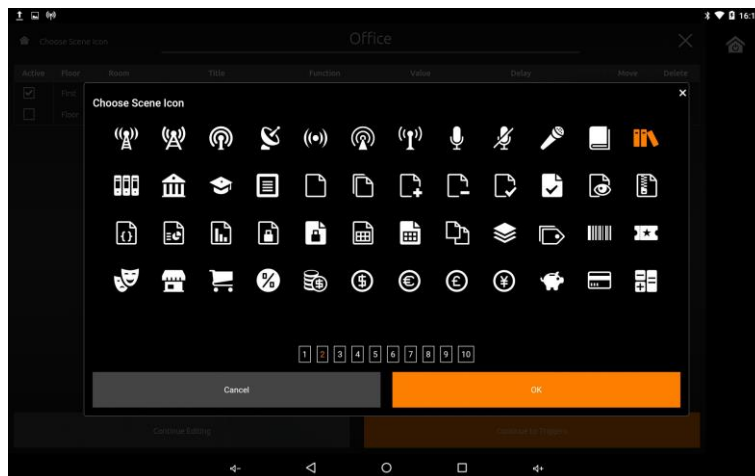


Figure 25: Smart Function Creator - select icon

- Editing of the selected actions:  
e.g. change of values, delays
- Assignment of a scene name  
(title)
- Confirm the changes and  
„Continue to Triggers“

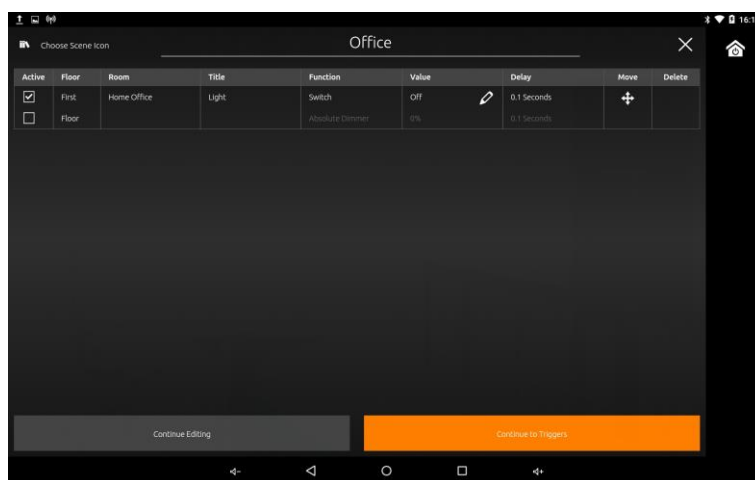


Figure 26: Smart Function Creator – edit control elements

- To be able to trigger the  
function via a mechanical  
button, go to "Manual"

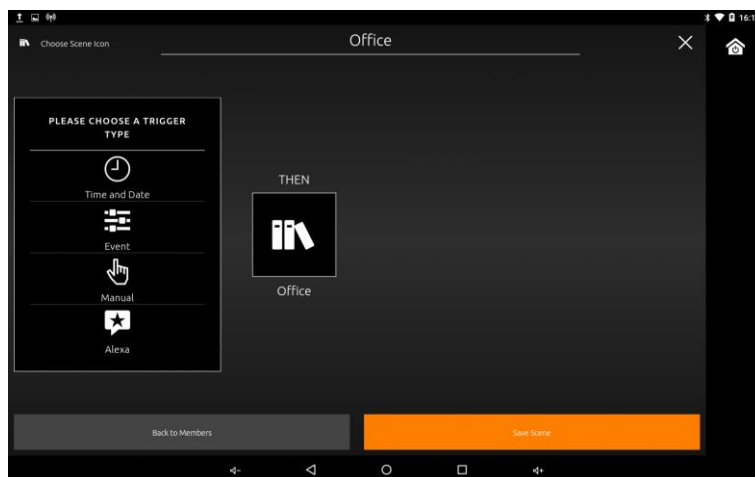


Figure 27: Smart Function Creator - assignment manual

- So that the function is now available in the launchpad, you must activate the "*Show in Launchpad*" field and save with OK

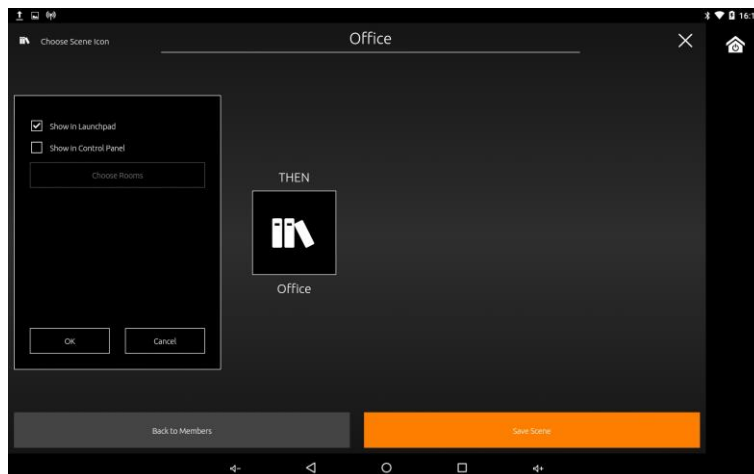


Figure 28: Smart Function Creator - assign to the launchpad

... further functions and logic elements could be added, then save.

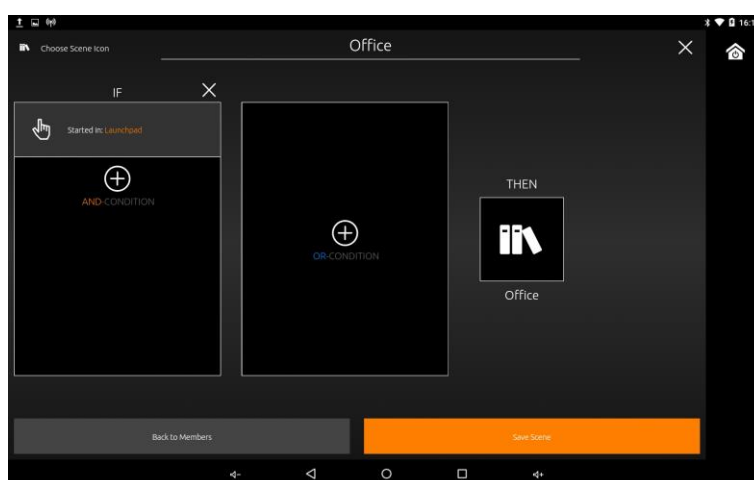


Figure 29: Smart Function Creator – edit functions

If you now activate this function with "Save Scene", your selected icon is displayed in the **HTS10** as a button identifier and is assigned to the button shown on the left.

The button is now assigned a function and can therefore be used.



Figure 30: Smart Function Creator - button assigned and labeled





## 4.3 SOFTWARE / DEVICE SECURITY

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### INSTALLATION ADDITIONAL SOFTWARE

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**By installing additional software on your HTS10, even if you know the sources, you endanger the stable performance generated for the delivery state.**

**Should you install additional software on the HTS10, you are solely responsible for any damage to the device or loss of data that may result from the use of such applications.**



## 5 APPENDIX

### 5.1 ARTICLE NUMBERS AND IDENTIFIERS

#### HTS10 Hybrid Tast Sensor - Model-variants (horizontal installation)

HTS10 black	.....	04111
HTS10 white	.....	04110 <sup>(1)</sup>
HTS10 silver	.....	04112 <sup>(1)</sup>
HTS10 gold	.....	04113 <sup>(1)</sup>

(1) Article on demand

#### HTS10 Hybrid Tast Sensor - Accessories

Flush mounted PS 230V	.....	35425
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### 5.2 DIMENSIONS

HTS10 HYBRID TAST SENSOR	WIDTH	HEIGHT	DEPTH
HTS10	267 mm	152 mm	11 mm



## 5.3 TECHNICAL DATA

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- Hybrid Tact Sensor
  - Control surface: capacitive touch display
  - Control buttons: 5 mechanical buttons
- Display
  - Display: 1920 x 1200 pixels full-HD-LCD
  - Display brightness: 400 cd/cm<sup>2</sup>
- Audio: internal microphone, internal speaker
- Video: internal camera, 1920 x 1080 pixels
- Sensor technology:
  - Temperature
  - Humidity
  - TOVC / eCO<sub>2</sub>
  - Brightness
- Computing unit: Quad-Core, 16 GB flash, 4 GB RAM
- Operation system: Google® Android®
- Network: WLAN, Bluetooth (optional LAN)
- Power supply:
  - 10–32 V DC / 4–12 W
  - optional PoE-switch
  - Screw plug-in terminal up to 2,5 mm
- Status display: RGB-LED
- Ambient temperature: 0° C – 45° C (during operation)