Room operator unit HTC3.2/..  

HOTEL SOLUTION™ Room unit to operate individual room control systems in hotel rooms
- Displays room temperature setpoint and setpoint adjustment
- Individual setpoint adjustment with “plus” and “minus” membrane switches
- Individual manual fan-speed selection for fan control (up to 3 speeds) or selection of “Auto” operating mode
- Measurement of room temperature with a built-in or externally connected temperature sensor

Application

The HTC3.2 operator unit for control of indoor room conditions is used in conjunction with the HRC3.1/HRC3.2 room controllers. The room operator unit detects the temperature and transmits it to the HRC3.1/HCR3.2 room controllers for room temperature control. The room operator unit displays the operating mode in the hotel room and can be used to operate the fan coil unit, either manually or automatically via the connected room controller.
### Function

The HTC3.2 room operator unit communicates with the HRC3.1 or HRC3.2 room controller via a serial port, performing the following functions:

- Displays the room temperature setpoint
- Transmits the manual room temperature setpoint adjustment
- Displays the manual room temperature setpoint adjustment
- Transmits the manually set fan speed
- Displays the manual or automatic fan speed
- Transmits the "Auto" operating mode signal for automatic selection of the fan speed
- Measures and transmits the room temperature detected via the built-in 10 kΩ NTC room sensor or via an externally connected NTC 10 kΩ room sensor

### Types

- **HTC3.2/BB**: Room operator unit for Bticino Living cover plate range
- **HTC3.2/BW**: Room operator unit for Bticino Light cover plate range
- **HTC3.2/VB**: Room operator unit for Vimar Idea cover plate range
- **HTC3.2/VW**: Room operator unit for Vimar Plana or Ikon cover plate range

### Ordering

When ordering, please specify the quantity, product name and type code:

- 30 Room units **HTC3.2/BB**

The following items depend on the desired overall program and installation type and must be ordered separately from the corresponding frame supplier:

- Flush-mounted or cavity wall box for integration.
- Cover frame of the corresponding supplier with desired surface.

### Compatibility

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room controller</td>
<td>HRC3.1</td>
<td>N6313</td>
</tr>
<tr>
<td>Room controller</td>
<td>HRC3.2</td>
<td>N6314</td>
</tr>
<tr>
<td>Room operator unit on same room bus</td>
<td>HTC3.2/..</td>
<td>N6320</td>
</tr>
<tr>
<td>Cable temperature sensor</td>
<td>HSE1.1</td>
<td>N6221</td>
</tr>
<tr>
<td>Room temperature sensor in VIMAR idea housing</td>
<td>HSE1.2</td>
<td>N6221</td>
</tr>
<tr>
<td>Magnetic card reader on same room bus</td>
<td>HMR3.1/A</td>
<td>N6334</td>
</tr>
<tr>
<td>Magnetic card holder on same room bus</td>
<td>HMH3.1/A, HML3.1/A</td>
<td>N6335</td>
</tr>
<tr>
<td>Transponder card reader on same room bus</td>
<td>HTR3.1/B</td>
<td>N6336</td>
</tr>
<tr>
<td>Transponder card holder on same room bus</td>
<td>HTH3.1/B</td>
<td>N6337</td>
</tr>
<tr>
<td>Chip card reader on same room bus</td>
<td>HCR3.2/..</td>
<td>N6332</td>
</tr>
<tr>
<td>Chip card holder on same room bus</td>
<td>HCH3.2/..</td>
<td>N6333</td>
</tr>
</tbody>
</table>
Mechanical design

The room operator unit comprises:

- Printed circuit board with the electronic circuit, LCD display, buttons for operation, with terminal block and DIP switches
- Base frame:
  - Bticino Living/Type L4703 for HTC3.2/BB
  - Bticino Light/Type N4703 for HTC3.2/BW
  - Vimar Idea/Type 16713 for HTC3.2/VB
  - Vimar Plana or Ikon/Type 20613 for HTC3.2/VW

Note

The printed circuit board is permanently glued into the base frame and cannot, therefore, be replaced.

Operator controls, connections and display elements

Front view

Key

1 Base frame with fixing screws
- Bticino Living/Type L4703 for HTC3.2/BB
- Bticino Light/Type N4703 for HTC3.2/BW
- Vimar Idea/Type 16713 for HTC3.2/VB
- Vimar Plana or Ikon/Type 20613 for HTC3.2/VW

2 Display

- Heating symbol
- Cooling symbol
- Temperature setpoint display (digits) in °C or °F
- Setpoint adjustment indicator (bar)

- Display fan status
  - Off
- Automatic control
- Stage 1
- Stage 2
- Stage 3

3 Buttons for operation

- Pushbutton for reducing predefined setpoint in steps of 0.5 K or 1.0 K
- Pushbutton for increasing predefined setpoint in steps of 0.5 or 1.0 K
- Pushbutton for gradually decreasing fan speed
- Pushbutton for gradually increasing fan speed
The guest can use the room unit to do the following:

- Adjust the preset room temperature setpoint by ±2 K or by ±4 K in eight steps. The step size of 0.5 or 1.0 K can be configured in the room controller. The eight temperature-change increments are indicated by a horizontal scale across the center of the LCD display panel.
- Enable fan speeds 1, 2 and 3 manually
- Change from manual to automatic mode ("Auto")

Switching to "Auto" causes the fan speed to be set automatically by the controller (Speed 1, 2 or 3). The fan status is indicated by symbols across the bottom of the LCD display panel.

The temperature setpoint valid for the room is displayed in digits on the LCD display panel. Throughout the period for which the guest is checked in, the individual setpoint-setting remains valid. It cannot be overwritten by the hotel service staff.

When the guest leaves the room (removing the access card from the card holder) the system switches automatically to "Auto", and the "Precomfort" room operating mode with the energy-saving function (widening of the deadband) comes into effect. When the guest returns to the room, the "Auto" mode remains active and the "Comfort" room operating mode, with the guest's personally selected setpoint adjustment, is restored.

In conjunction with the HOTEL SOLUTION system, the room temperature setpoints preset for a given room are automatically re-instated when the guest checks out.

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**Key**

4 Terminal block

- Connection to room controller

5 DIP switches

- Bus address setting (ADR0, ADR1)
- Protocol setting
  - PROT = 0, for HRC3.1/HRC3.2 room controller
  - PROT = 1, for HRC3.8 room controller
- Control of RS485 bus termination resistance
  - TERM = 0, bus termination resistance disabled
  - TERM = 1, bus termination resistance enabled

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**Important note**

The bus termination resistance must be enabled on the last bus device only.
Engineering notes

Base frame
The room unit is designed for flush wall mounting in conjunction with base-frames and cover plates from various manufacturers:

- Bticino Living for HTC3.2/BB
- Bticino Light for HTC3.2/BW
- Vimar Idea for HTC3.2/VB
- Vimar Plana or Ikon for HTC3.2/VW

Up to 4 room units may be connected to one room controller.

Important note
The maximum permitted current associated with the supply voltage from the HRC3.1/HRC3.2 room controller must not be exceeded.
(For further information, see data sheet CM2N6313 and CM2N6314.)

Addressing
The room temperature control algorithm is not in the room unit itself, but in the controller application. To enable the room controller to communicate with the room unit, the latter must be assigned with an address.

The addresses of the room operator units are set by DIP switch on the back of the room comfort operator unit.

- First room operating unit  ADR0=0,  ADR1 = 0
- Second room operating unit  ADR0=1,  ADR1 = 0
- Third room operating unit  ADR0=0,  ADR1 = 1
- Fourth room operating unit  ADR0=1,  ADR1 = 1

Configuration menu
The room operator unit includes a configuration menu for setting certain parameters.

After a restart, the configuration menu can be displayed as follows:

1. Hold down
2. Press and hold
3. Release
4. Release

Important note
The configuration menu can only be displayed provided that no other buttons are pressed when the room operator unit is restarted.

Opening display
The configuration menu is identified as shown below.

The $<$ $>$ buttons are used to move to the previous and next menu respectively.
The $-$ $+$ buttons are used for settings within a given menu.

Room sensors
For room temperature measurement, the internal or external room sensor can be selected. The default is temperature measurement via the internal temperature sensor.
Slave On/Off

In a control loop with several room units, the temperature is measured in one device only (the master). The LS flag (SL = 0) determines whether the room unit should measure the temperature, or whether it is a slave device (SL = 1), in which case the temperature sensor is disabled.

The default setting is SL = 0, i.e. temperature measurement active.

Note

Further control loops can also be defined by means of a special application in the room controller. In such cases, other room units can measure the temperature on the same room bus.

Offset correction

The error in an NTC 10 kΩ room sensor error combined with a measurement error results in an error in the measured temperature reading. This can be corrected by setting an offset correction value.

Measured temperature

This menu displays the current measured temperature including the previously set offset correction value.

LCD display contrast

The LCD display contrast can be adjusted in this menu to suit different lighting conditions.

Mounting instructions

Mounting location

To measure the temperature with the built-in temperature sensor, the HTC3.2/.. room operator unit must be installed in a location suitable for room temperature measurement.

This restriction does not apply if the temperature is measured with an external temperature sensor. A suitable temperature sensor for this unit is the HSE1.1 cable temperature sensor. If the VIMAR idea installation system is used, the room temperature sensor HSE1.2 is also suitable.

Important note

Heat sources result in false temperature measurements. Ensure a minimum distance of 1.5 m from lamps.
Correcting the measured value

If the sensor is in an unsuitable location, the measured value can be corrected with a temperature offset. The correction can be undertaken with the SCOPE or HSC (Hotel Solution Commissioning) tool.

In the standard application the basic setting for the temperature offset is –4 K. This applies to the room operator unit in cases where the temperature is measured with the internal room sensor.

If a type HSE1.2 external sensor is used for temperature measurement, a temperature offset of –1 K must be set.

- The HTC3.2/.. room operator unit should be mounted at eye level in the living area of the hotel room.
- Lamps and other heat sources in the vicinity of the room temperature sensor must not be allowed to distort the measured temperature. The room unit with the built-in temperature sensor is not suitable for mounting within reach of the bed, for example, because items such as bedside lamps cause too great an increase in the measured temperature.
- Conduits must be sealed where they enter wall boxes, so that the temperature is not falsified by draughts.
- To remove the device, it must be unscrewed from the wall together with the base-frame.
- The screw terminals of the room operating unit can accommodate only one wire, with a maximum diameter of 1 mm. When connecting the bus, therefore, we recommend that the room unit should be connected as the last room-bus device.
- The device is intended for fixed installation in a dry, enclosed space.
- For installation in a 3-module mounting box, depth 50 mm
- Must be mounted horizontally only, with the front plate vertical
- Do not install AC 230 V devices in the same mounting box
- Commissioning must be carried out by trained personnel only
- Do not open the unit
- Local safety and installation regulations must be observed

Commissioning

To operate several devices connected to the same room controller, an address must be set for each one (refer to "Engineering notes"). Only one device operates with the factory-set defaults.

Note

In the standard application with only one room unit, the defaults are ADR0=0, ADR1=0 and IE=1 (internal sensor active). These are the factory-set values for the room operator unit.

Measured value corrections are carried out via the configuration menu or the SCOPE or HSC tool, depending on where the sensors are located.
Operating notes

Alarm messages

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All symbols OFF</td>
<td>No supply voltage to the HTC3.2</td>
</tr>
<tr>
<td>Possible causes:</td>
<td></td>
</tr>
<tr>
<td>− Room controller off or faulty</td>
<td></td>
</tr>
<tr>
<td>− Bus cable not correctly connected, or connection broken</td>
<td></td>
</tr>
<tr>
<td>− HTC3.2 faulty</td>
<td></td>
</tr>
<tr>
<td>All symbols flashing (2 Hz)</td>
<td>No communication with the room controller</td>
</tr>
<tr>
<td>Possible causes:</td>
<td></td>
</tr>
<tr>
<td>− Wrong bus address set on HTC3.2</td>
<td></td>
</tr>
<tr>
<td>− Wrong bus address set in room controller</td>
<td></td>
</tr>
<tr>
<td>− Bus cable not correctly connected, or connection broken</td>
<td></td>
</tr>
<tr>
<td>− Room controller in &quot;Stop&quot; mode</td>
<td></td>
</tr>
<tr>
<td>− Faulty RS485 interface</td>
<td></td>
</tr>
</tbody>
</table>

Technical data

<table>
<thead>
<tr>
<th>Power supply (from HRC3..)</th>
<th>Operating voltage DC 9..0.15 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>20 mA</td>
</tr>
<tr>
<td>Bus interface</td>
<td></td>
</tr>
<tr>
<td>Bus voltage</td>
<td>SELV DC 12 V</td>
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<tr>
<td>Type</td>
<td>RS485</td>
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<tr>
<td>Transmission speed</td>
<td>4800 baud</td>
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<tr>
<td>Temperature signal input</td>
<td></td>
</tr>
<tr>
<td>Measuring range</td>
<td>5 ... 45 °C</td>
</tr>
<tr>
<td>Measuring current</td>
<td>1 mA</td>
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<tr>
<td>Measuring element</td>
<td>NTC 10 kΩ</td>
</tr>
<tr>
<td>Setpoint correction</td>
<td></td>
</tr>
<tr>
<td>Correction range</td>
<td>±2 or ±4 K</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.5 K or 1 K</td>
</tr>
<tr>
<td>Parameter setting</td>
<td>Parameters set with internal software and stored in EEPROM</td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0...+ 50 °C</td>
</tr>
<tr>
<td>Transport temperature</td>
<td>-25...+ 65 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt;95 % non-condensing</td>
</tr>
<tr>
<td>Air pressure during operation</td>
<td>Min. 700 hPa (3000 m above sea level)</td>
</tr>
<tr>
<td>Air pressure during transport</td>
<td>Min. 260 hPa (10 000 m above sea level)</td>
</tr>
<tr>
<td>Industry standards</td>
<td></td>
</tr>
<tr>
<td>Product safety</td>
<td>Automatic electrical controls for household and similar use</td>
</tr>
<tr>
<td>EN 60 730-1</td>
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</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>Emitted interference in accordance with</td>
</tr>
<tr>
<td>EN 61000-6-3</td>
<td></td>
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<tr>
<td>Interference immunity in accordance with</td>
<td></td>
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<tr>
<td>EN 61000-6-2</td>
<td></td>
</tr>
<tr>
<td>Housing protection standard</td>
<td>To EN 60,529</td>
</tr>
<tr>
<td>Protection class</td>
<td>To IEC1140</td>
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<tr>
<td>IP20</td>
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<tr>
<td>III</td>
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<td>Meets the requirements of:</td>
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<tr>
<td>EMC Directive</td>
<td>89/336/EEC</td>
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<tr>
<td>Low-voltage directive</td>
<td>73/23/EEC</td>
</tr>
<tr>
<td>Environmental compatibility</td>
<td>Environmental product declaration</td>
</tr>
<tr>
<td>CM2E6320en provides data on</td>
<td>ISO 14001 (environment)</td>
</tr>
<tr>
<td>environmentally compatible product design and assessment (material composition,</td>
<td>ISO 9001 (quality)</td>
</tr>
<tr>
<td>packaging, disposal)</td>
<td></td>
</tr>
<tr>
<td>UL/CUL approval</td>
<td>UL/CUL 916</td>
</tr>
</tbody>
</table>

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### Installation

Suitable for flush mounting in rectangular flush-mounting box or rounded hollow wall box.

- HTC3.2/BB and HTC3.2/BW
- HTC3.2/VB and HTC3.2/VW

### Color

| Operator panel | Pantone black 7U2Y |

### Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTC3.2/BB</td>
<td>Bticino frame L4703, 115 mm x 72 mm x 25 mm</td>
</tr>
<tr>
<td>HTC3.2/BW</td>
<td>Bticino frame N4703, 114 mm x 72 mm x 25 mm</td>
</tr>
<tr>
<td>HTC3.2/VB</td>
<td>Vimar frame 16713, 118 mm x 75 mm x 26 mm</td>
</tr>
<tr>
<td>HTC3.2/VW</td>
<td>Vimar frame 20613, 118 mm x 75 mm x 26 mm</td>
</tr>
</tbody>
</table>

(without cover; and see dimension diagrams)

### Weight

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluding packaging</td>
<td>0.066 kg</td>
</tr>
<tr>
<td>With packaging</td>
<td>0.084 kg</td>
</tr>
</tbody>
</table>

### Connection diagrams

#### Connection terminals

- 1 Serial port, RS485+
- 2 Serial port, RS4-85 –
- 3 DC 12 V operating voltage
- 4 DC 0 V operating voltage

#### Connection diagram HTC3.2 – external temperature sensor

- S2 HTC3.2 room operator unit (external temperature sensor)
- B1 Temperature sensor 10 kΩ NTC (e.g. HSE1.1, HSE1.2)
- N1 HRC3.1 room controller

#### Connection diagram HTC3.2 – internal temperature sensor

- S2 HTC3.2 room operator unit (internal temperature sensor)
- N1 HRC3.2 room controller
Dimensions

**HTC3.2/BB**  
Diagram and dimensions of Bticino frame L4703.  
Dimensions in mm

**HTC3.2/VB**  
Diagram and dimensions of Vimar frame 16713.  
Dimensions in mm

**Note**  
See the frame supplier documentation for dimensions of other frames and hole spacing (Bticino, Vimar).