



HOTEL SOLUTION™

## Room operator unit

## HTC3.2/..

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/HRC3.2 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 k $\Omega$  NTC room sensor or via an externally connected NTC 10 k $\Omega$  room sensor

## Types

---

<b>HTC3.2/BB</b>	Room operator unit for Bticino Living cover plate range
<b>HTC3.2/BW</b>	Room operator unit for Bticino Light cover plate range
<b>HTC3.2/VB</b>	Room operator unit for Vimar Idea cover plate range
<b>HTC3.2/VW</b>	Room operator unit for Vimar Plana or Ikon cover plate range

## Ordering

---

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

Example                    30      Ro      om 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

---

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

## Mechanical design

The room operator unit comprises:

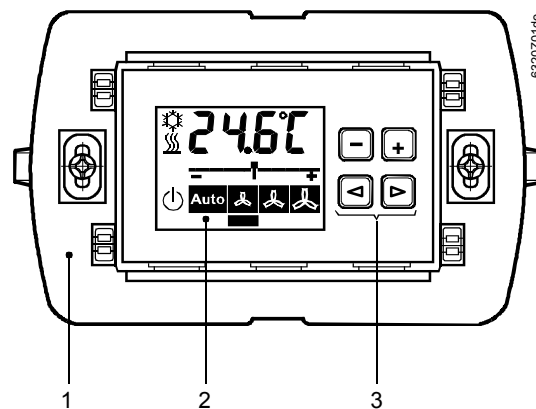
- Printed circuit board with the electronic circuit, LCD display, buttons for operation, with terminal block and DIP switches
- Base frame:
  - Bticino Living/Type L4703 for HTC3.2/BB
  - Bticino Light/Type N4703 for HTC3.2/BW
  - Vimar Idea/Type 16713 for HTC3.2/VB
  - Vimar Plana or Ikon/Type 20613 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 <ul style="list-style-type: none"> <li>• Bticino Living/Type L4703 for HTC3.2/BB</li> <li>• Bticino Light/Type N4703 for HTC3.2/BW</li> <li>• Vimar Idea/Type 16713 for HTC3.2/VB</li> <li>• Vimar Plana or Ikon/Type 20613 for HTC3.2/VW</li> </ul>																				
2	Display <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>Heating symbol</td> </tr> <tr> <td style="text-align: center;"></td> <td>Cooling symbol</td> </tr> <tr> <td style="text-align: center;"><b>24.6°C</b></td> <td>Temperature setpoint display (digits) in °C or °F</td> </tr> <tr> <td style="text-align: center;"></td> <td>Setpoint adjustment indicator (bar)</td> </tr> <tr> <td colspan="2">Display fan status</td> </tr> <tr> <td style="text-align: center;"></td> <td>= Off</td> </tr> <tr> <td style="text-align: center;"><b>Auto</b></td> <td>Automatic control</td> </tr> <tr> <td style="text-align: center;"></td> <td>Stage 1</td> </tr> <tr> <td style="text-align: center;"></td> <td>Stage 2</td> </tr> <tr> <td style="text-align: center;"></td> <td>Stage 3</td> </tr> </table>		Heating symbol		Cooling symbol	<b>24.6°C</b>	Temperature setpoint display (digits) in °C or °F		Setpoint adjustment indicator (bar)	Display fan status			= Off	<b>Auto</b>	Automatic control		Stage 1		Stage 2		Stage 3
	Heating symbol																				
	Cooling symbol																				
<b>24.6°C</b>	Temperature setpoint display (digits) in °C or °F																				
	Setpoint adjustment indicator (bar)																				
Display fan status																					
	= Off																				
<b>Auto</b>	Automatic control																				
	Stage 1																				
	Stage 2																				
	Stage 3																				
3	Buttons for operation <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>Pushbutton for reducing predefined setpoint in steps of 0.5 K or 1.0 K</td> </tr> <tr> <td style="text-align: center;"></td> <td>Pushbutton for increasing predefined setpoint in steps of 0.5 or 1.0 K</td> </tr> <tr> <td style="text-align: center;"></td> <td>Pushbutton for gradually decreasing fan speed</td> </tr> <tr> <td style="text-align: center;"></td> <td>Pushbutton for gradually increasing fan speed</td> </tr> </table>		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												
	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  $\pm 2$  K or by  $\pm 4$  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")

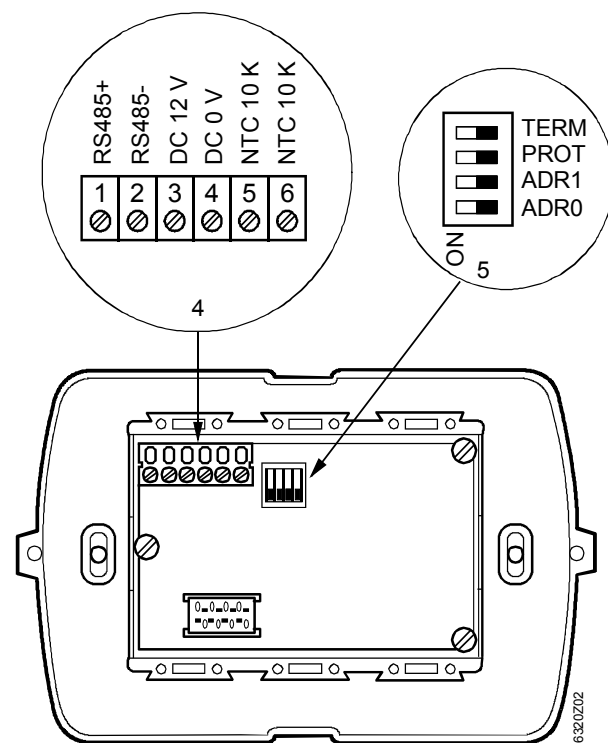
Switching to "Auto" causes the fan speed to be set automatically by the controller (Speed 1, 2 or 3). The fan status is indicated by symbols across the bottom of the LCD display panel.

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.

#### Rear view



#### Key

4	Terminal block	<ul style="list-style-type: none"> <li>• Connection to room controller</li> </ul>
5	DIP switches	<ul style="list-style-type: none"> <li>• Bus address setting (ADR0, ADR1)</li> <li>• Protocol setting               <ul style="list-style-type: none"> <li>– PROT = 0, for HRC3.1/HRC3.2 room controller</li> <li>– PROT = 1, for HRC3.8 room controller</li> </ul> </li> <li>• Control of RS485 bus termination resistance               <ul style="list-style-type: none"> <li>– TERM = 0, bus termination resistance disabled</li> <li>– TERM = 1, bus termination resistance enabled</li> </ul> </li> </ul>



#### Important note

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

**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.

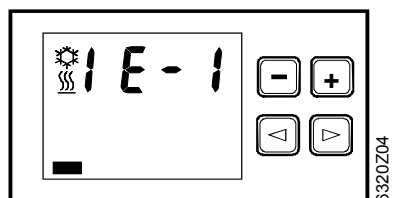
**Opening display**

The configuration menu is identified as shown below.



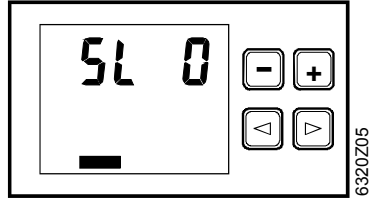
The buttons are used to move to the previous and next menu respectively. The buttons are used for settings within a given menu.

**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



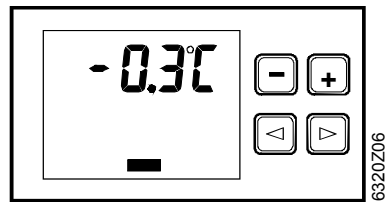
In a control loop with several room units, the temperature is measured in one device only (the master). The LS flag (SL = 0) determines whether the room unit should measure the temperature, or whether it is a slave device (SL = 1), in which case the temperature sensor is disabled.

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

Note

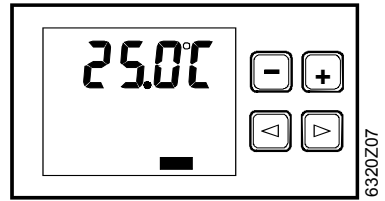
Further control loops can also be defined by means of a special application in the room controller. In such cases, other room units can measure the temperature on the same room bus.

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	Pattern	Description
	All symbols OFF	No supply voltage to the HTC3.2 Possible causes: <ul style="list-style-type: none"> <li>- Room controller off or faulty</li> <li>- Bus cable not correctly connected, or connection broken</li> <li>- HTC3.2 faulty</li> </ul>
	All symbols flashing (2 Hz)	No communication with the room controller Possible causes: <ul style="list-style-type: none"> <li>- Wrong bus address set on HTC3.2</li> <li>- Wrong bus address set in room controller</li> <li>- Bus cable not correctly connected, or connection broken</li> <li>- Room controller in "Stop" mode</li> <li>- Faulty RS485 interface</li> </ul>

## Technical data

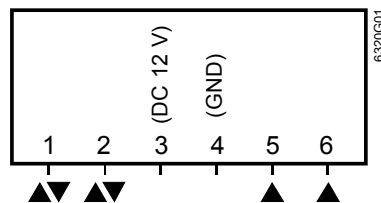
Power supply (from HRC3..)	Operating voltage	DC 9..0.15 V
	Current	20 mA
Bus interface	Bus voltage	SELV DC 12 V
	Type	RS485
	Transmission speed	4800 baud
Temperature signal input	Measuring range	5 ... 45 °C
	Measuring current	1 mA
	Measuring element	NTC 10 kΩ
Setpoint correction	Correction range	±2 or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



Installation	Suitable for flush mounting in rectangular flush-mounting box or rounded hollow wall box	3 modules
	HTC3.2/BB and HTC3.2/BW HTC3.2/VB and HTC3.2/VW	Bticino 503E (angular), PS563N (round) Vimar V71613 (round), V71304 (angular)
Color	Operator panel	Pantone black 7U2Y
Dimensions	HTC3.2/BB – Bticino frame L4703	115 mm x 72 mm x 25 mm
	HTC3.2/BW – Bticino frame N4703	114 mm x 72 mm x 25 mm
	HTC3.2/VB – Vimar frame 16713	118 mm x 75 mm x 26 mm
	HTC3.2/VW – Vimar frame 20613	118 mm x 75 mm x 26 mm
	(without cover; and see dimension diagrams)	
Weight	Excluding packaging	0.066 kg
	With packaging	0.084 kg

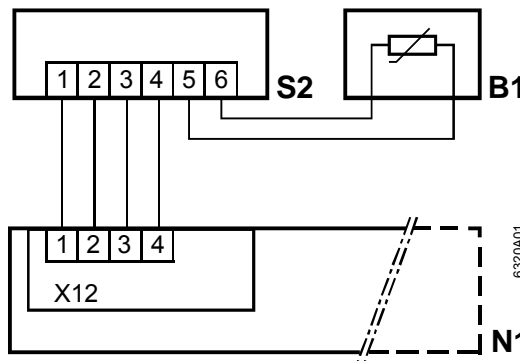
### Connection diagrams

#### Connection terminals



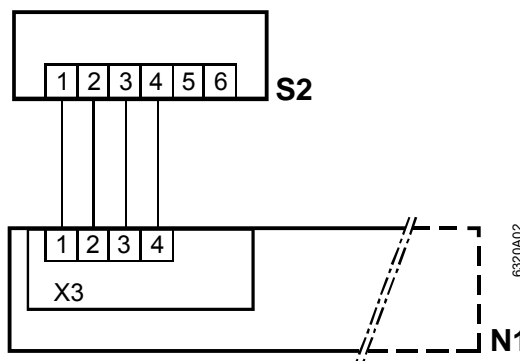
- 1 Serial port, RS485+
- 2 Serial port, RS-485 –
- 3 DC 12 V operating voltage
- 4 DC 0 V operating voltage

#### 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



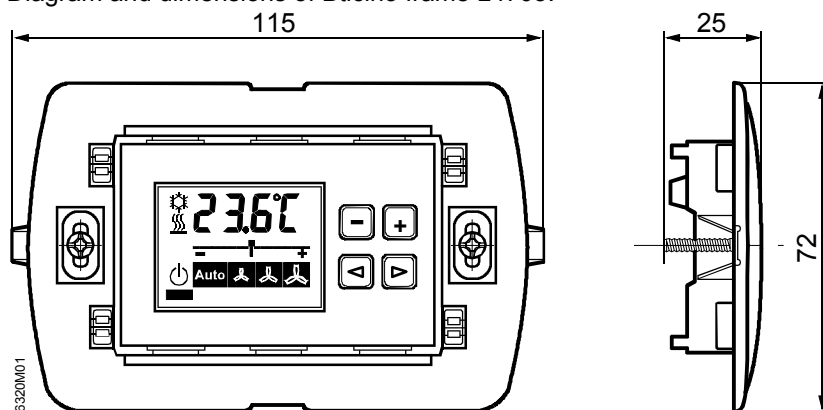
- S2 HTC3.2 room operator unit (internal temperature sensor)
- N1 HRC3.2 room controller

## Dimensions

### HTC3.2/BB

Dimensions in mm

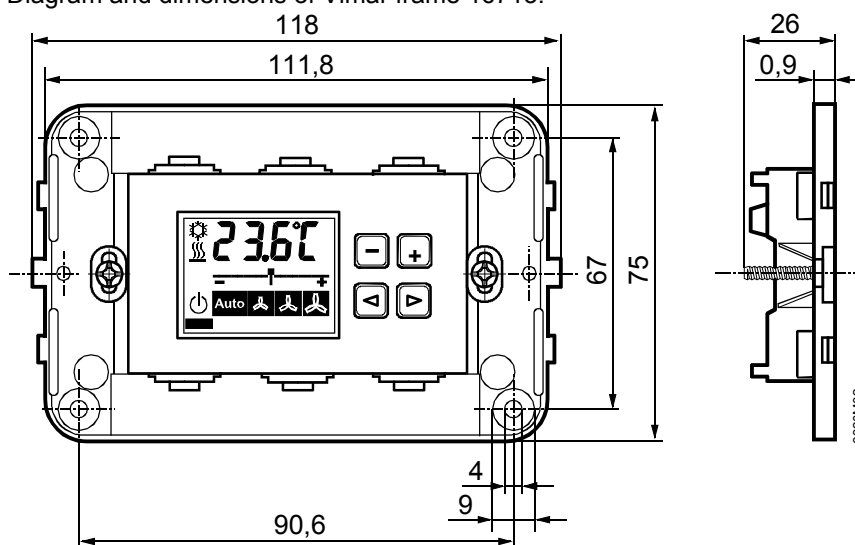
Diagram and dimensions of Bticino frame L4703.



### HTC3.2/VB

Dimensions in mm

Diagram and dimensions of Vimar frame 16713.



Note

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