



HOTEL SOLUTION™

Room operator unit

HTC3.1/A

**Room operator unit with
built-in sensor**

HTC3.1S/A

Room unit for operation of the individual room control system 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)
- Membrane switch for selection of "Auto" mode
- Room temperature detected with connected temperature sensor
- Room temperature detected with built-in temperature sensor (HTC3.1S/A)

Application

The HTC3.1A and HTC3.1S/A room operator units are used in conjunction with a HRC3.. room controller. The room operator unit detects the temperature and transmits it to the HRC3.. room controller for room temperature control.

The room operator unit indicates 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.

Functions

The HTR3.1/A or HTR3.1S/A room operator unit communicates with the HRC3.. 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
- Detects and transmits the room temperature with an externally connected 10k Ω NTC room temperature sensor (HTC3.1/A only)
- Detects and transmits the room temperature with a built-in 10k Ω NTC room temperature sensor (HTC3.1S/A only)

Types

HTC3.1/A	Room operator unit
HTC3.1/SA	Room operator unit with built-in sensor

Ordering

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

Example 30 Room operator units **HTC3.1/A**

Compatibility

See assortment overview, N6301.

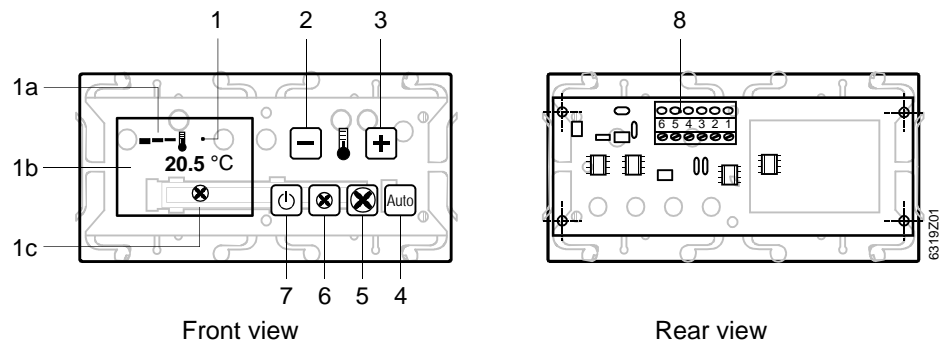
Mechanical design

The room operator unit comprises:

- Printed circuit board with the electronic circuit, LCD display, membrane switches for operation and terminal block
- Front plate
- Operator panel

The components are snap-mounted in the front-plate unit. The operator panel label has an adhesive strip on the back. After removal of the protective transparent film from the display window, and of the backing paper from the adhesive operator panel label, the latter can be affixed to the front plate.

Unlike the HTC3.1/A, the HTC3.1S/A room operator unit has a built-in temperature sensor.



Key

- 1 LCD panel
- 1a Setpoint adjustment indicator (bar)
- 1b Temperature setpoint display (digits)
- 1c Fan status display
 - ☐ = Off
 - ⊗ = Speed 1
 - ⊗ = Speed 2
 - ⊗ = Speed 3
- 2 Membrane switch for reducing predefined setpoint in steps of 0.5 or 1.0 K
- 3 Membrane switch for increasing predefined setpoint in steps of 0.5 or 1.0 K
- 4 Membrane switch for switching to "Auto" mode
- 5 Membrane switch for gradually increasing fan speed
- 6 Membrane switch for gradually decreasing fan speed
- 7 Membrane switch for switching to "Fan OFF" mode
- 8 Terminal block

The guest can use the room operator unit to do the following:

- Adjust the preset room temperature setpoint by ± 2 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 eight bars across the top 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 "Pre-comfort" 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.

Base frame

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

- SIEMENS-DELTA *futura*
- VIMAR *idea*
- Bticino *Classic*
- GEWISS *Playbus*
- AVE *Systema 45*

Up to 5 room operator units may be connected to one room controller.

The maximum permitted current associated with the supply voltage from the HRC3.. room controller must not be exceeded.

For further information, see data sheets N6313 and N6314.

Addressing

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

The addresses of the room operator units are defined by their ID number, and the temperature measurement function is enabled by setting the MST flag. The factory settings are always ID = 1 and MST = 0.

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

- First room operator unit ID=1 MST=0 Master (sensor enabled)
- Second room operator unit ID=2 MST=1 Slave
- Third room operator unit ID=3 MST=1 Slave
- Fourth room operator unit ID=4 MST=1 Slave
- Fifth room operator unit ID=5 MST=1 Slave

Several control loops

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

Example with two control loops:

- First room operator unit for control loop 1 ID=1 MST=0
- Second room operator unit for control loop 2 ID=2 MST=0

Changing ID and MST

After a power failure, the room operator unit can be set to initialization mode by operating the keys in the following sequence approximately 6 to 12 seconds after power has been restored to the room controller or room operator unit:

1. Hold down key 7
2. Hold down key 4
3. Release key 7
4. Release key 4

The current device address will now be displayed, alternating with the letters "Id". The value can be modified with the "Minus" and "Plus" keys (keys 2 and 3).

After setting the required ID number, the ID number setting is confirmed with key 6.

The current MST number will now be displayed, alternating with the letters "MST". The value can be modified with the "Minus" and "Plus" keys (keys 2 and 3).

After setting the required MST number, the setting is confirmed with key 6.

After this input, the settings are saved and all LCD segments are illuminated for approximately 4 seconds. This allows you to check that all the available LCD display characters are still operating correctly.

Mounting location

The temperature sensor connected to the room operator unit HTC3.1/A, or the HTC3.1S/A room operator unit with the built-in temperature sensor must be installed in a suitable location for measurement of the room temperature.

The HTC3.1/A room operator unit, which does not have a built-in temperature sensor, is not restricted in this way. 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.



Caution

- Do not connect an external room sensor to the HTC3.1S/A room operator unit.
- 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 HTC3.1S/A room operator unit with the built-in sensor.

For the HTC3.1/A room operator unit with an external type HSE1.2 sensor, a temperature offset of -1 K must be set.

Mounting

- The HTC3.1/A or HTC3.1S/A 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 operator 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.
- First press the room operator unit into the base frame and remove the protective transparent film from the display window. There is no access to the protective film on the display window once the front-plate label is in position. Only then should you attach the adhesive front-plate label. It is important to follow this sequence, because if the front-plate label is fitted first, it is then difficult to press the unit into the base frame.
- To remove the unit, it must be unscrewed from the wall together with the base frame.
- The screw terminals of the room operator unit can accommodate only one wire with a maximum diameter of 1 mm. When connecting the bus, therefore, we recommend that the room operator unit should be connected as the last room-bus device.
- The device is designed for fixed installation in a dry, enclosed space.
- For installation in a 4-module mounting box, depth 50 mm
- Mount 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

If several devices are operated by the same room controller, an address must be set for each one (see "Engineering notes"). Only one device will operate with the factory-set default.

Note In the standard application with only one room operator unit, the defaults are ID = 1 and MST = 0 (sensor active). The room operator units are therefore factory-set to these defaults.

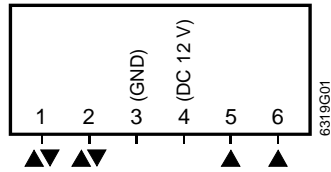
Depending on the location of the sensors, the measured value may need to be adjusted with the SCOPE or HSC tool (see "Engineering notes").

Technical data

Power supply (from HRC3..)	Working voltage	DC 9..15 V
	Current	20 mA
Bus interface	Bus voltage	SELV DC 12 V
	Type	RS485
	Transmission speed	4800 baud
Temperature signal input	Voltage	DC 0...12 V \cong 10...40 °C
	Current	1 mA
	Measuring element	NTC 10kOhm
Setpoint correction	Correction range	± 2 or ± 4 K
	Resolution	0.5 K or 1 K
Parameters	Parameters set with internal software and stored in EEPROM	
Environmental conditions	Operating temperature:	-5...+50 °C
	Transport temperature:	-25...+65 °C
	Humidity	<95 % non-condensing
	Air pressure during operation:	Min. 700hPa (3000m above sea level)
	Air pressure during transportation:	Min. 700hPa (10, 000m above sea level)
Standards		
Product safety	Automatic electrical controls for household and similar use	EN 60 730-1 and EN 60 730-2-11
Electromagnetic compatibility	Emitted interference in accordance with	EN 61000-6-3
	Interference immunity in accordance with	EN 61000-6-2
Housing protection	Protection standard	IP 20 to EN 60529
	Protection class	III to IEC1140
CE conformity	Meets the requirements of	
UL/CUL approval	EMC Directive	89/336/EEC
	Low Voltage Directive	73/23/EEC
		UL/CUL 916
Dimensions	Suitable for flush mounting in rectangular flush-mounting box or cavity-wall box	4 modules
Color	Operator panel label	Pantone black 7U2Y
Dimensions	See also dimension diagrams	103mm x 51mm x 25mm
Weight	Excluding packaging	0.050 kg
	With packaging	0.068 kg

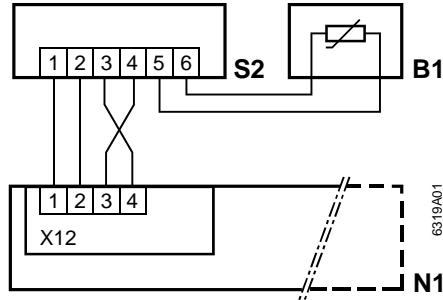
Connection diagrams

Connection terminals



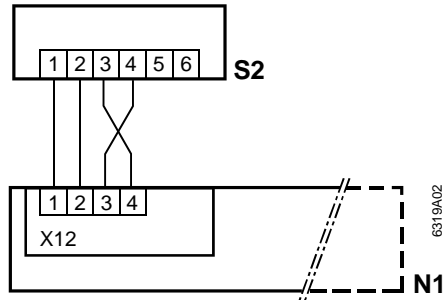
- 1 Serial port, RS485+
- 2 Serial port, RS-485-
- 3 Working voltage DC 0 V
- 4 Working voltage DC 12 V
- 5,6 Connection for 10 k Ω NTC temperature sensor

Wiring diagram HTC3.1/A



- S2 Room operator unit, type HTC3.1/A
- B1 Temperature sensor, 10 k Ω , NTC (e.g. HSE1.1, HSE1.2)
- N1 HRC3.. room controller

Wiring diagram HTC3.1S/A



- S2 Room operator unit, type HTC3.1S/A
- N1 HRC3.. room controller



Caution

Note the cross-over between pins 3 and 4.

Dimensions

Dimensions in mm

