

## PBC

### Room operating unit with temperature display

Room operating unit for individual room control in HVAC systems. Used in conjunction with PRONTO PRFA., PRONTO IRC PRU/A, PRFB., PRVU, SMART SMVU and INTEGRAL RS NRU., NRK..

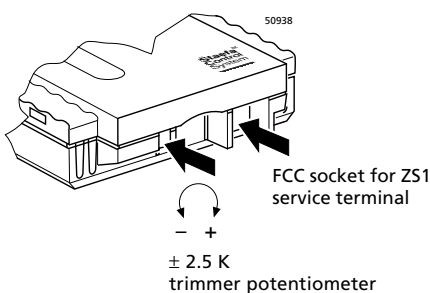
- T1 temperature sensor
- Setpoint adjuster
- Room temperature display
- Socket for ZS1 service terminal (for PRONTO IRC controllers only)



PBC

#### Technical data

Power supply:	
Nominal voltage	DC 15 V from PRU/A, NRU., NRK., AC 24 V, 50/60 Hz from other controllers
– Max. tolerance	± 15 %
Power consumption	Max. 0.7 VA
Product data:	
Sensor element	T1 (PTC)
Trimmer range	± 2.5 K
Setpoint adjustment range	± 3.0 K, stepless (rotary knob)
Room temperature display	3-digit LCD
Display range (selected by switch)	0 ... 50 °C / 32 ... 122 °F Resolution 0.5 °C / 1 °F
Connections:	
Screw terminals	2.5 mm <sup>2</sup>
Service socket	FCC 4/4 pin
Weight without unit base (including packaging)	0.15 kg
Dimensions (w x h x d)	80 x 135 x 37 mm
Colour:	
Housing	NCS 0003-R20B (white)
Operator elements	NCS 1005-R20B (light grey)
Safety:	
Product safety	EN 61010-1
– Contamination level	2 (normal non-conductive contamination)
Electrical safety	SELV
General ambient conditions:	
Usage	For indoor use
Operating temperature	0 ... 50 °C
Storage temperature	– 25 ... 70 °C
Ambient humidity	Max. 65 %rh annual mean, non-condensing
Conformity	This product meets the requirements for <b>CE</b> -marking



#### Ordering information

The base unit and electronic assembly are supplied separately and must be ordered as separate items:

PBC	Electronic assembly (without base unit)
PB2	Base unit with transparent protective cover
22845	Service cable for ZS1 service terminal

#### Ordering example

<b>PBC</b>	(Electronic assembly)
<b>PB2</b>	(Base unit)
<b>22845</b>	(Service cable)

#### Principle of operation

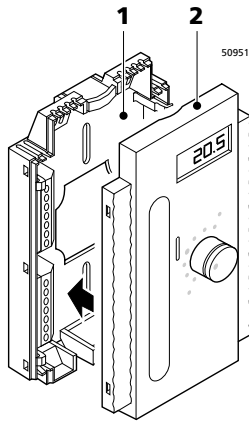
The room temperature is measured with a built-in *T1 temperature sensor* (PTC silicon resistance element, see sheet 1713). If a sill-line sensor is used (such as the PFB-T1, for example), the room temperature sensor must not be connected (see "Terminal layout", page 2).

The *stepless rotary knob* on the room operating unit allows the setpoint defined in the connected controller to be reset locally by ± 3 K.

The *LCD display* shows the current room temperature in degrees Celsius (0...50 °C) or degrees Fahrenheit (32 ...122 °F). The preferred temperature scale can be selected with switch S4 inside the unit.

A *trimmer potentiometer* on the underside of the room operating unit can be used to recalibrate the measured sensor signal by ± 2.5 K (see "Commissioning", page 3).

An *FCC- telephone socket* on the underside of the unit is provided for connection of the ZS1 service terminal, used in conjunction with the PRONTO IRC controllers for parameter setting and diagnostics.



## Construction

### 1 Base unit PB2 (1) with 2 x 7 connection terminals

Not shown: Transparent, recyclable cover (PET) to protect the base unit after mounting.

### 2 PBC electronic assembly, comprising:

- Printed circuit board with rotary knob for setpoint adjustment and LCD display
- Unit cover

## Mounting

Mounting instructions (Ref. 35642) are enclosed with the room operating unit.

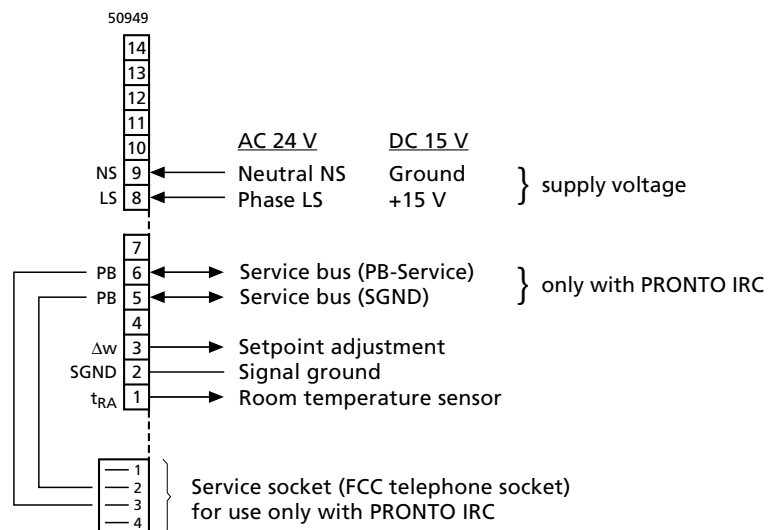
The room operating unit may be flush-mounted on a wall box or screwed directly onto the wall.

If the built-in temperature sensor is used, the following must be noted:

- Mount in the occupied area, approximately 1.5 m above floor level and at least 0.5 m from any adjacent wall
- Do not expose to direct sunlight
- Do not mount on external walls, in recesses, behind curtains or in the vicinity of chimneys, doors and lamps.

See sheet 1659 for dimensions and further mounting instructions.

## PBC terminal layout



## Connection to the controller

Use twisted pair cable to connect the PBC room operating unit and the controller. Screening is not required.

See the relevant controller description for:

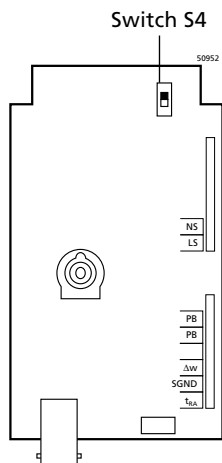
- Connection diagrams.
- Cable types and admissible lengths.

## Service (for PRONTO IRC controllers only)

To set the PRONTO IRC controller parameters and read controller data, the ZS1 service terminal may be connected to the FCC telephone socket on the room operating unit (see page 1). It is then possible to set the parameters of all controllers connected to the same trunk.

Initialisation is only possible with the ZS1 connected directly to the relevant controller.

If there is no requirement for communication with the controllers from the room operating unit, there is no need to wire the service bus (see "Terminal layout", page 2).



↑ Display in °C (factory setting)

↓ Display in °F

## Commissioning

The PBC room operating unit is commissioned as follows:

### 1. Select temperature scale for display (°C or °F)

The preferred scale for the temperature display can be selected on switch S4 before fitting the PBC electronic assembly to the PB2 base unit.

### 2. Calibrating the display

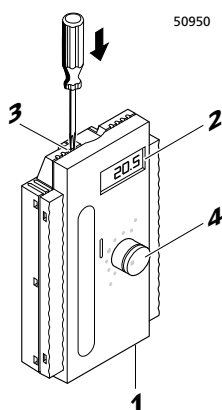
With PRONTO IRC PRUIA, PRFB., PRVU and SMART SMVU

- Connect the ZS1 service terminal to the service socket (1) on the PBC
- Use CMD 01 on the ZS1 to display the measured room temperature
- If the LCD display (2) differs from the measured value:
  1. Depress button (3) with a small screwdriver: → °C or °F will flash
  2. Use the rotary knob (4) to match the LCD display (2) to the measured temperature
  3. If the adjustment range is not wide enough, wait until flashing stops (approx. 10 s), turn the rotary knob back and repeat steps 1 and 2.
- If the temperature now displayed deviates from the actual room temperature (as measured by a separate thermometer), the displayed value can be re-calibrated with the trimmer potentiometer accessible from the bottom of the unit (see diagram on page 1 for position).

See Manual P6 for a description of the ZS1 service terminal.

### Important:

**On no account must Step 2 ('Calibrating the display') be omitted.**



With INTEGRAL RS NRU., NRK..:

- With the NBRN operator terminal read the temperature at the corresponding input of the NRU.. or NRK.. RS module
- If the LCD display (2) differs from the measured value:
  1. Depress button (3) with a small screwdriver: → °C or °F will flash
  2. Use the rotary knob (4) to match the LCD display (2) to the measured temperature
  3. If the adjustment range is not wide enough, wait until flashing stops (approx. 10 s), turn the rotary knob back and repeat steps 1 and 2.
- If the temperature now displayed deviates from the actual room temperature (as measured by a separate thermometer), the displayed value can be re-calibrated with the trimmer potentiometer accessible from the bottom of the unit (see diagram on page 1 for position).

See Manual K23 for a description of the NBRN operator terminal.

With PRONTO PRFA..:

1. Use a separate thermometer to establish the room temperature
2. Depress button (3) with a small screwdriver: → °C or °F will flash
3. Use the rotary knob (4) to match the LCD display (2) to the measured temperature
4. If the adjustment range is not wide enough, wait until flashing stops (approx. 10 s), turn the rotary knob back and repeat steps 2 and 3.

Recalibration with the trimmer potentiometer does not apply in this case.

