Desigo™ RX

Room unit with PPS2 interface

QAX33.1

for use with:
– devices of the ranges Desigo RXC, RXB, RXL, and RXA (PPS2)
– Desigo PX Automation stations [1]
– devices with a PPS2 interface

- **Room temperature measurement**
- **Room temperature setpoint adjuster**
- **Rocker switch for control mode selection (○ / Auto) and manual control of the fan in fan-coil systems (up to 3 speeds)**
- **PPS2 interface to controller**
- **Socket for commissioning and service tool or service terminal**

Use

The room unit is used in rooms controlled by an individual room control system, to measure the room temperature and for operation of a room controller. The QAX33.1 is typically used in conjunction with a fan-coil system (for fan control).

It can also be used in conjunction with a Desigo PXC… automation station [1].

The room unit incorporates a socket for a commissioning and service tool or service terminal. This tool socket provides access via the PPS2 interface or via a bus system (e.g. LONWORKS® bus) to the connected individual room controller.

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1) If room units QAX32.1, QAX33.1, QAX34.1 or QAX84.1 are used in conjunction with a PXC automation station, the room unit will show the request of the user and not the effective state.

Ordering

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

Example:
30   Room units   QAX33.1

Equipment combinations

The room unit is suitable for use in conjunction with all controllers which incorporate a PPS2 room unit interface (e.g. Desigo RX, Desigo PX).
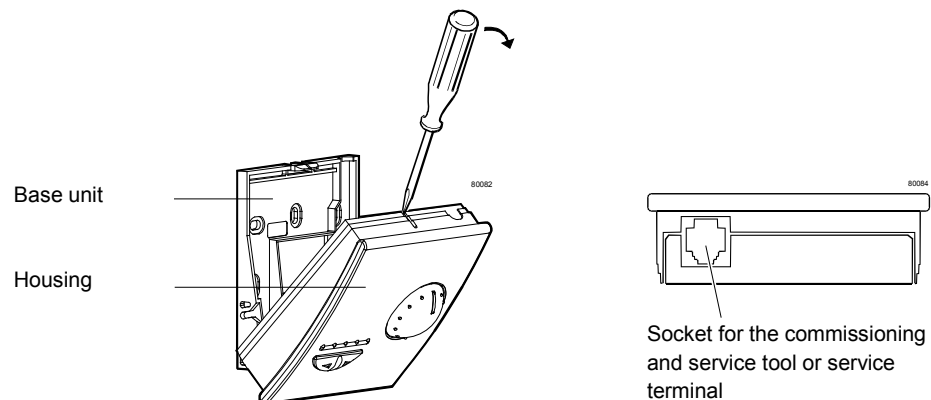
Mechanical design

The room unit is designed for surface mounting (with knock-outs for cable entry from the top or bottom) or for mounting on a recessed conduit box with the cables connected from the rear.

The unit comprises a housing and base unit, connected by releasable snap-fittings.
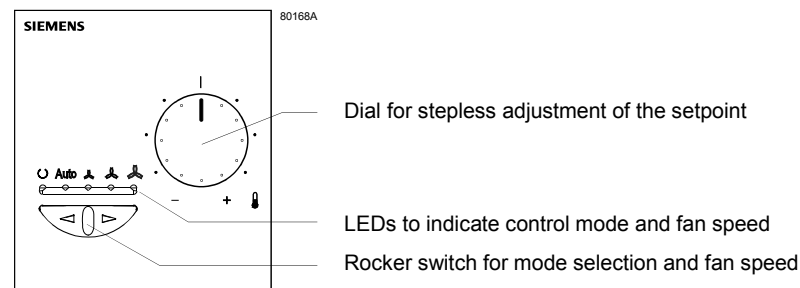
The base unit accommodates the screw terminals which have an integrated terminal strip.

The housing accommodates a printed circuit board, room temperature sensor element, setpoint adjuster, rocker switch for mode selection and fan speed selection, plug-in connectors and a socket for the commissioning and service tool or service terminal.

Both the housing and base are made of plastic.

Base unit

Housing

Socket for the commissioning and service tool or service terminal

Operator controls and indication

Dial for stepless adjustment of the setpoint

LEDs to indicate control mode and fan speed

Rocker switch for mode selection and fan speed

Rocker switch for selection of mode and fan speeds

The controller control mode can be selected on the basis of occupancy, using the rocker switch on the room unit. The same switch can also be used for manual selection of up to three fan speeds.

Pressing once in the direction of the left arrow switches one stage to the left, and pressing once in the direction of the right arrow switches one stage to the right. The current control mode or the manually selected fan speed is indicated by LED.

Position	Fan control [1]	Control mode [1]
⏻	Fan controlled automatically by controller	The controller operates at the "setback" setpoints (at night, or when room is unoccupied or occupied intermittently)
Auto	Fan controlled automatically by controller	Comfort mode (room occupied)
⌓ (Manual, fan speed 1)	Manual, fan speed 1	
⌓ (Manual, fan speed 2)	Manual, fan speed 2	
⌓ (Manual, fan speed 3)	Manual, fan speed 3	

[1] For details of these functions, refer to the application description for the relevant controller range.

Address plugs

01884
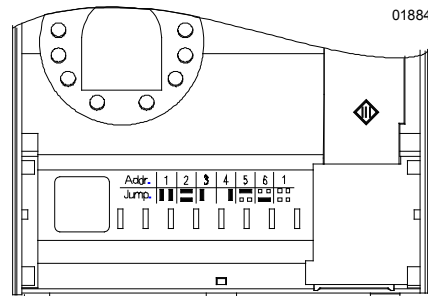
Address plugs inside the housing
They allow setting the address in cases where several room units are connected to one controller.
The room units are delivered with address 1.

Disposal

The device is classified as waste electronic equipment in terms of the European Directive 2012/19/EU (WEEE) and should not be disposed of as unsorted municipal waste.
The relevant national legal rules are to be adhered to.
Regarding disposal, use the systems setup for collecting electronic waste.
Observe all local and applicable laws.

Engineering notes

The device receives its power from the connected controller via the PPS2 interface (extra low voltage). Only one room unit may be connected to a RX… room controller.

A maximum of 5 room units may be connected to a PXC… automation station (they are identified by different settings of their address plugs)

A twisted-pair cable is required for the connection to the controller.
Desigo RX uses four-core cables, Desigo PX uses two-core cables (see the respective installation guides). Screening is not required.

Mounting

- The room unit is suitable for wall-mounting and for mounting on a recessed conduit box.
- Do not mount in recesses, shelves, behind curtains or doors, or above or near heat sources.
- Avoid exposure to direct sunlight or draughts.
- The electrical wiring conduit must be sealed where it joins the room unit, to prevent the occurrence of draughts in the conduit which could affect the sensor.
- The specified ambient conditions must be complied with.
- Mounting instructions are printed on the room unit packaging.
- A mounting kit is included with the unit.

Installation notes

Local installation regulations must be observed.

🛑 **Note!**
The room unit is not protected against connection to AC 230 V.

Commissioning notes

Response on start-up

After an interrupt of the PPS2 interface the communication will only be re-established when the connected controller polls the PPS2 addresses. The duration of the corresponding cycle is:

RXA: 10 sec; RXB, RXL and RXC: 3 min; PX: 30 sec.

The following routine occurs in the room unit when the power supply is connected (via the PPS2 interface) or after a reset via the controller:

Step	Function	Description
1	LED test	The LEDs are operated in sequence for 1 s each
2	Device ready	After a delay of 1 s the device will be ready for PPS2 communication. The actual control mode is displayed after a further delay of 5 s.

Technical data

Supply voltage	Operating voltage range	DC 12...15 V (SELV)
		DC 12…15 V class 2 (US)
	The room unit receives its power from the connected controller, via the PPS2 interface	
	Power consumption (from controller)	Max. 0.10 VA
Function data	Temperature sensor	
	Measuring element	NTC resistor
	Measuring range	0 ... 40 °C
	Response time	$\leq$ 8 min
	Accuracy (5 ... 30 °C)	$\pm$ 0.5 K
	Accuracy (25 °C)	$\pm$ 0.25 K
	Setpoint correction	
	Correction range (determined by controller)	max. $\pm$ 12 K (default $\pm$ 3 K)
	Accuracy over full correction range	10 %
	Indication (control mode)	2 LEDs, yellow
Interfaces	Type of interface between controller and room unit	PPS2 (point-to-point interface, Version 2)
	Baud rate	4.8 kbit/s
Cable connections	Connection terminals (screw terminals)	Stranded or solid conductors 0.8 ... 2.5 mm²
	Single cable length controller – Room unit	See Installation guidelines: Desigo RXC: CA110334, Desigo RXB & RXL: CM110381 Desigo RXA: CA2Z3884 Desigo PX: CA110396
	Cable type	2-core or 4-core, twisted pairs, unscreened
	Connecting cable for service tool	Off-the-shelf, max. 3 m
Protection data	Housing protection	IP 30 to EN 60529
	Protection class	III to EN 60730-1

Ambient conditions	IEC 721		Operation	Transport
	Ambient air conditions		Class 3K5	Class 2K3
	Temperature		0 ... 50 °C	– 25 ... 70 °C
	Humidity		< 85 %rH	< 95 %rH
	Mechanical conditions		Class 3M2	Class 2M2
Standards, directives and approvals	Product standard	EN 60730-1	Automatic electrical controls for household and similar use	
	Electromagnetic compatibility (Applications)		For use in residential, commerce, light-industrial and industrial environments	
	EU conformity (CE)		CA2T1741xx *)	
	UL certification (US)		UL916, http://ul.com/database	
	RCM-conformity (EMC)		A5W00005055 *)	
	EAC conformity		Eurasia conformity	
Environmental compatibility	Product environmental declaration (contains data on RoHS compliance, materials composition, packaging, environmental benefit, disposal)		A6V10736277_en--_a *)	
Dimensions	See "Dimensions"			
Color	Housing front, dial		NCS S 0502-G, ≈ RAL 9003 signal white	
	Housing, base unit, rocker switch		RAL 7035 light grey	
Weight	Excluding packaging		0.12 kg	

*) The documents can be downloaded from http://siemens.com/bt/download.

Connection terminals

The tool socket on the room unit provides access to the connected individual room controller via the commissioning and service tool or the service terminal.

The bus cable (Terminals 3 and 4) is therefore looped to the tool socket (Pins 1 and 2). The bus cable is not affected by the room unit.

For connection of a service terminal, the PPS2 interface (Terminals 1 and 2) is also connected to the tool socket.

Terminal layout

8	7	6	5	4	3	2	1	80085
				C–	C+	CP–	CP+	
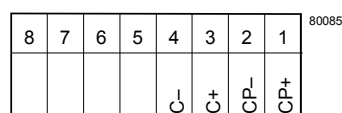
PPS2 interface, supply voltage

CP+	1	Device supply, Data PPS2 (pos.)
CP–	2	Device supply, Data PPS2 (neg.)

Bus connection (looped to tool socket)

| C+	3	With LONWORKS® bus (Desigo RXC): CLA
C–	4	With LONWORKS® bus (Desigo RXC): CLB
	5 ... 8	Not used

Tool socket

Standard type RJ45 tool socket.

12345678

3206Z01
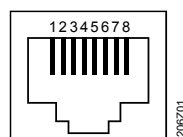
1. With LONWORKS® bus (Desigo RXC): CLA
2. With LONWORKS® bus (Desigo RXC): CLB
3. Not used
4. Not used
5. Not used
6. Not used
7. CP+   Data PPS2
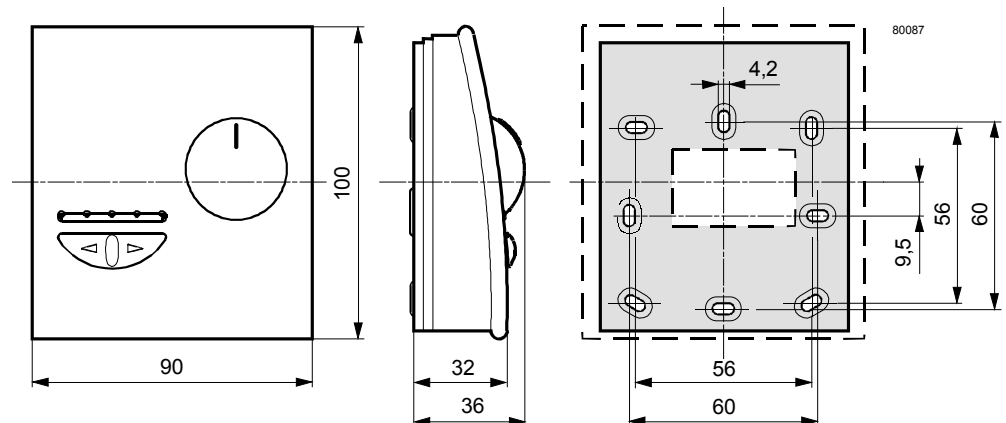8. CP– Data PPS2

Connection diagram (Example: RXC)

The following example shows the room unit connected to a Desigo RXC room controller:

= Twisted pair
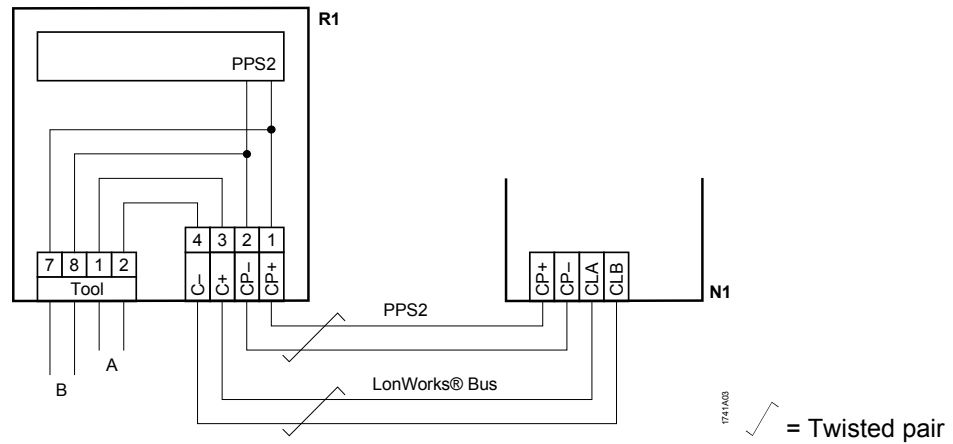
R1 Room unit QAX33.1
N1 Room controller RXC...
A   Connection for RXT10 commissioning and service tool
B   Connection for service terminal with PPS2 interface

Dimensions

All dimensions in mm

Siemens   QAX33.1 – Room unit with PPS2 interface   CA2N1642en_03
Building Technologies   2015-12-23