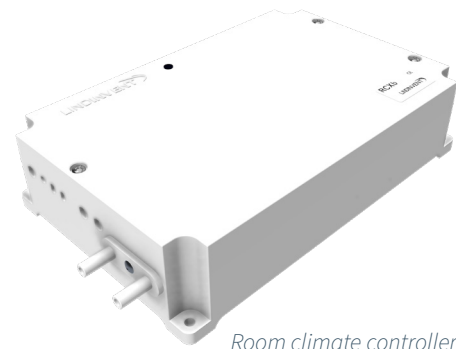# RCXb ROOM CLIMATE CONTROLLER
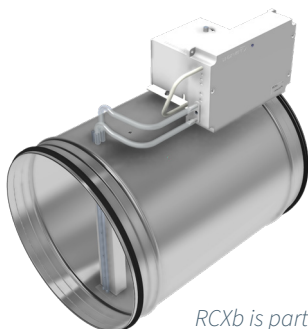
Room climate controller RCXb.

INTRODUCTION

Room climate controller RCXb is part of the duct-mounted room climate control unit DCV-RCb. The controller is intended for on-demand control of room climate in larger spaces.

FUNCTION

The room climate controller works continuously with input data from sensors to maintain setpoints for air quality and room temperature. RCXb is used for climate control in conjunction with Lindinvent's reactive supply air device.

- Equipped with an internal airflow sensor and a duct temperature sensor. Both are factory calibrated
- Connections for a range of additional sensors
- Activates airflow and lighting using an externally connected occupancy detector or via CAN-messages
- Controls additional cooling and heating in sequence
- Enables connection of lighting to presence-controlled lighting zones
- Connects via Node-ID to a local area network (CAN) for stable communication between cooperating units
- Gateway NCE is connected to the local network for access and communication via a parent system
- The controller is programmable and its parameters can be read or set locally via handset or centrally over the network
- Equipped with Bluetooth® for communication via mobile application LINDINSIDE

RCXb is part of room climate control unit DCV-RCb.

TECHNICAL SPECIFICATIONS

Airflow measurement and control

Airflow sensor: Digital, integrated.
Recommended measuring range: 0.5 to 6.0 m/s
Maximum range: 0.2 to 7.0 m/s
Tolerance*: ± 5 % or atleast ± y l/s
(y = duct area in dm^2) *Applies together with Lindinvent's controller.
Performance: Change effected within 5 s
(95% within 4 s)

Duct temperature measurement

Type of sensor:
Sensor with NTC thermistor.
Accuracy: ± 0.5K

Design features

Spacious enclosure with breakable cutouts adapted for cables ~4 & ~6 mm. The cover, which is removable, replaces at reassembley the need for cable glands by clamping the cables. External holes for attachment. Lid with LED tube for exposure of an RGB LED showing operating mode.

General

Dimensions (mm): 200 x 130 x 45 (LxWxH)
Material: Polystyrene (Enclosure)
Nettweight: 0.4 kg
Colour: RAL 9003
IP-class: Complies with IP53
Temperature limits:
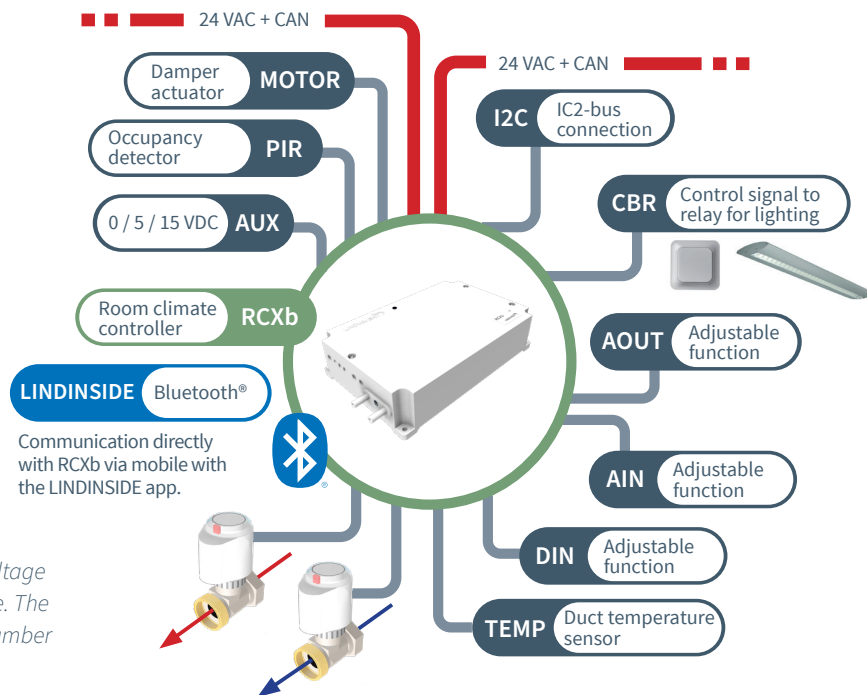Operation: 10 °C to 40 °C; <85% RF
Storage: -20 °C to 50 °C; <90% RF

Electrical system

Supply voltage: 24 VAC
Effect: 1.5 VA
CE-marking: Complies with EMC and the low voltage directive.

CONNECTION DIAGRAM

24 VAC + CAN

24 VAC + CAN

- Damper actuator — **MOTOR**
- Occupancy detector — **PIR**
- 0 / 5 / 15 VDC — **AUX**
- Room climate controller — **RCXb**
- **LINDINSIDE** Bluetooth®
  Communication directly with RCXb via mobile with the LINDINSIDE app.

- **I2C** — IC2-bus connection
- **CBR** — Control signal to relay for lighting
- **AOUT** — Adjustable function
- **AIN** — Adjustable function
- **DIN** — Adjustable function
- **TEMP** — Duct temperature sensor

Connection diagram for RCXb. The regulator is connected to CAN and voltage fed via Lindinvent's 4-conductor cable. The cable is also used for connecting a number of accessories.

INPUT AND OUTPUT SIGNALS

Equipment connected to AIN, AOUT or DIN is activated by setting a predefined function.

CONNECTIONS

- Two terminals for 24 VAC + CAN.
- Terminal for AIN1 and AOUT1 (0 to 10 VDC, dedicated for the damper actuator)
- Terminal for AIN2 and AIN3 (general 0 to 10 VDC)
- Terminal for AOUT2 och AOUT3 (general 0 to 10 VDC)
- Terminal for generic power supply (AUX: 0, 5, 15 VDC)
- Terminal for occupancy detector, PIR (24 VAC/15/5 VDC)
- Terminal for lighting control box CBR
- Terminal fitted with duct temperature sensor, NTC
- Terminal for DIN1 (PULL-UP [+5V] or 0 to 5 VDC)
- Two terminals for 24 VAC and TRIAC (terminals intended for valve actuators; maximum load per TRIAC corresponds to 10 pcs 1W thermal actuator)
- Terminal for I2C-bus
- Bluetooth®

WAYS TO COMMUNICATE

Look for details about a specific interface via it's product name and product description.

- Logging in to the controller via mobile phone and the LINDINSIDE app
- Lindinvent's central unit with LINDINSPECT® via Gateway NCE
- An external parent system through Gateway NCE and ModbusRTU or ModbusTCP

## TROUBLESHOOTING AND ALARM NOTIFICATION

Systems with LINDINSPECT®, see below, continuously log operational data such as air flows and temperatures. An alarm flag is set in case of deviation. The availability of visualized operating data enables effective troubleshooting. Deviating values are noticed and analyzed.

EASY COMMISSIONING

The internal flow sensor is pre-calibrated. In connection with commissioning, only the channel dimension or k-factor is specified together with a few other selected control parameters.

VISUALIZATION WITH LINDINSPECT®

LINDINSPECT® is a powerful web-based tool that is part of the system software that enables a central and coordinated optimization, administration and visualization of everything from control units to supplementary systems for comfort and sustainable energy use in buildings.
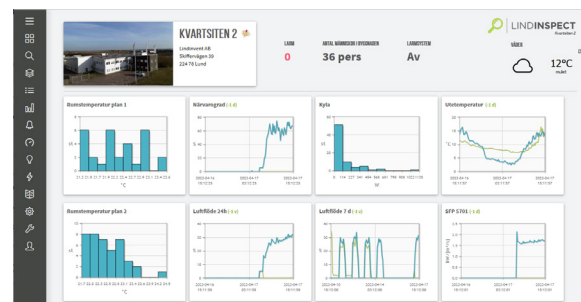
Detail from the start page in LINDINSPECT® where climate control can be visualized and administered.

LINDINVENT®

ACCESSORIES:

Examples of products that can be connected to or interact with RCXb. Accessories are ordered separately. For technical specifications, see the product description.

Flow balancing
See airflow control unit DCV-BLb.

Additional airflow measurement
See measuring unit DCV-MFb.

Occupancy detector
- GO-C
- PD-2400

Other sensors
- GTQ-V, Temperature- and CO_2, wall mounted
- GTQ-D, Temperature- and CO_2, duct mounted

Additional heat or cooling
- CBT - Connection box for Heating batteries and electric radiators
- CBF-S or CBF-E Connection box for air fan cooling

Radiator valve control
- A40405 (24VAC, On/Off NC),
- A41405 (24VAC, On/Off, NO)
- APR40405 (0 to 10V, NC)

Lighting control
CBR - Lighting connection box.
See SBDb for DALI lighting control.

Setpoint switch panel
The CAN-connected wall-mounted panel DRP allows users temporarily to adjust the room temperature setpoint or activate forced ventilation

COMPLEMENTARY DOCUMENTATION

Document can be viewed on the product page at www.lindinvent.com

Document	Comments
Installation instructions	Combined installation instructions for DCV-RCb and room climate controller RCXb (mounting + connection).
Operation instructions	Instructions for handling the mobile application LINDINSIDE for setting the node ID and for accessing settings in the controller.
Maintenance instructions	Considered maintenance free. For cleaning and control measurement of the flange, see the maintenance instructions for SPMF.
External connection diagram	Shows how conductors from equipment are connected to RCXb.
Environmental product declaration	For assessment at Byggvarubedömningen.
Modbus list	Last entry in the modbus list for RCXb.
AMA-text	Available for download in pdf and word formats via the product's website.