

Cloud VAV Controller set with Room Unit of Choice and Integrated pressure sensor, controller and damper actuator for pressure-independent temperature control VAV, Simple VAV and Demand Control Ventilation applications in the comfort zone.

- NFC interface for Smartphone Powerless Commissioning
- Workforce Efficiency Improvement with Cloud operation
- BACnet MS/TP Integration
- With AI for CO₂ sensor
- Standardized Control Applications for easy implementations.



22RT-A001



22RT-A002



22RT-A003



LMV-BAC-001



LMV-BAC-002



| Set Type | ZoneEase VAV Controller Actuator | Room Unit |
|------------|----------------------------------|------------|
| ZE-SET001 | LMV-BAC-001 | 22RT-A001 |
| ZE-SET002* | LMV-BAC-001 | 22RT-A002* |
| ZE-SET003 | LMV-BAC-001 | 22RT-A003 |
| ZE-SET004 | LMV-BAC-002 | 22RT-A001 |
| ZE-SET005* | LMV-BAC-002 | 22RT-A002* |
| ZE-SET006 | LMV-BAC-002 | 22RT-A003 |

Brief description

| | |
|--|--|
| Application | The ZoneEase VAV has PI control characteristics and is used for pressure-independent temperature control of VAV units in the comfort zone. |
| Pressure measurement | The integrated maintenance-free Belimo D3 pressure valve sensor is also suitable for very small volumetric flows. It is for this reason that it enables versatile applications in the comfort zone, e.g. in offices, hospitals, hotels, residential construction, cruise ships, etc. |
| VAV – Temperature control | For pressure-independent temperature control VAV applications, room temperature is obtained from Room Unit. Room Temperature Setpoint is obtained from the Room Unit through manual buttons (22RT-A001 only) or APP or from command through BACnet MS/TP. The operating range \dot{V}_{min} ... \dot{V}_{max} or reheating valve or electric reheater are controlled based on heating demand or cooling demand, depending on temperature difference (setpoint minus actual), P-Band value (adjustable) and Tn value (adjustable Integral gain) |
| VAV/CAV – variable/constant volumetric flow control | For variable volumetric flow applications with a modulating reference variable, The operating range \dot{V}_{min} ... \dot{V}_{max} can be controlled via BACnet, APP or Room Unit (22RT-A001) |
| VAV – Demand Control Ventilation (DCV) | For DCV applications, The operating range \dot{V}_{min} ... \dot{V}_{max} are controlled based on demand, depending on CO ₂ difference (setpoint minus actual), Tn_CO ₂ value (adjustable) and Tn_CO ₂ value (adjustable) |
| Integration | BACnet MS/TP integration |
| BACnet function | Addressable from 1 to 127 in a singular BACnet MS/TP network. Recommended to have repeater for every 32 BACnet Devices. Entire BACnet internetwork address limited by 4194303 device, as according to BACnet Limitation. |
| Additional Sensor integration | A CO ₂ Sensor can be connected to the ZoneEase Compact Controller for data collection purpose in Temperature controlled applications and as an control input for DCV application. |
| Operating and service devices | Actuator and Room Unit NFC interface for Android Smartphone Belimo Assistant App. |
| Test function / test display | The ZoneEase VAV features two LEDs which shows power status, bus communication, adaptation |
| OEM factory settings | The ZoneEase VAV is mounted on the VAV box unit by the unit manufacturer, who adjusts and tests it according to the application. |

For measuring the temperature, humidity and CO₂ in the room. The room units can be seamlessly connected to existing third-party controllers. With MP-Bus communication and integrated 0...10 V output. The device is parametrised via NFC using the Belimo Assistant App.



MP-BUS®



Type Overview

| Type | Communication | Output signal active CO ₂ | Output signal active humidity | Output signal active temperature |
|------------|---------------|--------------------------------------|-------------------------------|----------------------------------|
| 22RTM-19-1 | MP-Bus | 0...5 V, 0...10 V, 2...10 V | 0...5 V, 0...10 V, 2...10 V | 0...5 V, 0...10 V, 2...10 V |
| 22RTH-19-1 | MP-Bus | - | 0...5 V, 0...10 V, 2...10 V | 0...5 V, 0...10 V, 2...10 V |
| 22RT-19-1 | MP-Bus | - | - | 0...5 V, 0...10 V, 2...10 V |

Technical data

| | | |
|-------------------------------|---------------------------|--|
| Electrical data | Nominal voltage | AC/DC 24 V |
| | Nominal voltage range | AC 19.2...28.8 V / DC 19.2...28.8 V |
| | Power consumption AC | 1 VA |
| | Power consumption DC | 0.5 W |
| | Electrical connection | Spring loaded terminal 0.25...1.5 mm ² |
| | Cable entry | Back side Top side Bottom side |
| Data bus communication | Communication | MP-Bus |
| | Number of nodes | MP-Bus max. 8 (16) |
| Functional data | Sensor Technology | CO ₂ : NDIR (non dispersive infrared) dual channel |
| | Application | Air |
| | Voltage output | 1 x 0...5 V, 0...10 V, 2...10 V, min. resistance 5 kΩ (Type 22RT-19-1) 2 x 0...5 V, 0...10 V, 2...10 V, min. resistance 5 kΩ (Type 22RTH-19-1) 3 x 0...5 V, 0...10 V, 2...10 V, min. resistance 5 kΩ (Type 22RTM-19-1) |
| | Output signal active note | Output 0...5 V, 0...10 V (factory setting), 2...10 V selectable via NFC |
| | Display | LED, The LED is used for the CO ₂ TLF (traffic light function). The LED can be parametrised and deactivated via Belimo Assistant App. (Type (P-)22RTM-...) |
| | | |

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|----------------|---------------------------------|---|
| Measuring data | Measured values | CO ₂ Relative humidity Dew point Temperature |
| | Measuring range CO ₂ | Default setting: 0...2000 ppm |
| | Measuring range humidity | Default setting: 0...100% RH |
| | Measuring range temperature | Default setting: 0...50°C [32...122°F] |
| | Measuring range dew point | Default setting: -50...50°C [-60...120°F] |
| | Accuracy CO ₂ | ±(50 ppm + 2% of measured value) |
| | Accuracy humidity | ±2% between 0...90% RH @ 25°C |
| | Accuracy temperature active | ±0.5°C @ 25°C [±0.9°F @ 77°F] |
| | Long-term stability | ±20 ppm p.a. ±0.25% RH p.a. @ 25°C @ 50% RH ±0.03°C p.a. @ 25°C [±0.05°F p.a. @ 77°F] |
| | | |
| Materials | Housing | PC, white, RAL 9003 |
| Safety data | Protection class IEC/EN | III, Protective Extra-Low Voltage (PELV) |
| | Degree of protection IEC/EN | IP30 |
| | EU Conformity | CE Marking |
| | Quality Standard | ISO 9001 |
| | Ambient humidity | Max. 95% RH, non-condensing |
| | Ambient temperature | 0...50°C [32...122°F] |
| | Storage temperature | -40...70°C [-40...160°F] |

Safety notes



This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

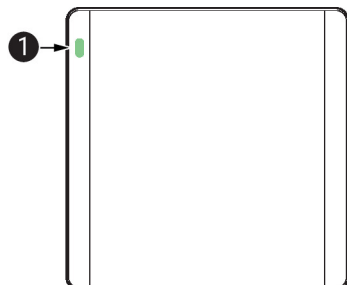
Remarks

| | |
|--|---|
| General remarks concerning sensors | The measuring result is influenced by the thermal characteristics of the wall. A solid concrete wall responds to thermal fluctuations within a room more slowly than a light-weight structure wall. A room sensor always detects a mixture of air and wall temperature. This means that the radiant heat of the wall, which is important for comfort, is also included in the measurement result. |
| Build-up of self-heating by electrical dissipative power | Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. The dissipative power should be taken into account when measuring temperature. Belimo room sensors have adaptive temperature compensation for the entire supply voltage range. This ensures that the ambient temperature is detected with the highest accuracy at all times. |
| Application notice for humidity sensors | The humidity sensor is extremely sensitive. Touching the sensor element or exposing it to aggressive substances like chlorine, ozone, ammonia, hydrogen peroxide or ethanol (i.e. as a cleaning agent) may affect the measurement accuracy. Long term operation outside the recommended conditions (5...50°C and 20...80% RH) can result in a temporary offset. After returning into the recommended range, this effect disappears. |

Information self-calibration feature CO₂

All CO₂ sensors are subject to drift caused by the aging process of the components, resulting in regular re-calibration or replacement of units. However, the dual channel technology integrates automatic self-calibration technology vs. common used ABC-Logic sensors. Dual channel self-calibration technology is ideally suited for applications operating 24/7 hours such as those in hospitals or other commercial applications. Manual calibration is not required.

Indicators and Operation



1 CO₂ TLF (traffic light function), available on the (P-)22RTM-.. sensor

Colours: green, yellow and red. LED can be parametrised and deactivated via Belimo Assistant App.

Parts included

Screws

Accessories

| Tools | Description | Type |
|-------|--|----------------------|
| | Belimo Assistant App, Smartphone app for easy commissioning, parametrising and maintenance | Belimo Assistant App |
| | Converter Bluetooth / NFC | ZIP-BT-NFC |

Service

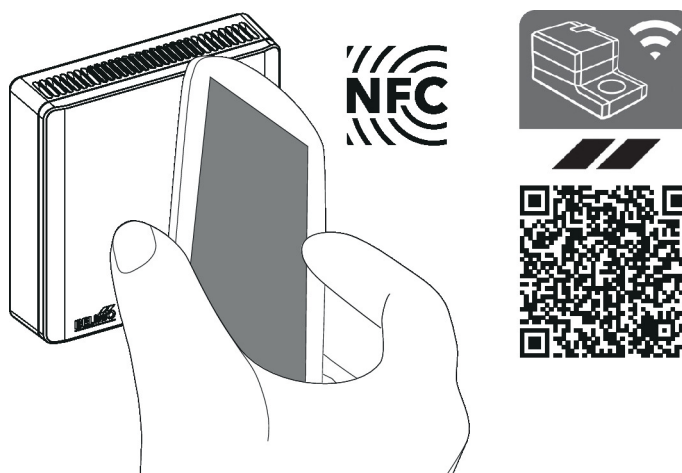
NFC connection Belimo equipment marked with the NFC logo can be operated and parameterized with the Belimo Assistant App.

Requirement:

- NFC- or Bluetooth-capable smartphone
- Belimo Assistant App (Google Play & Apple AppStore)

Align NFC-capable smartphone on the sensor so that both NFC antennas are superposed.

Connect Bluetooth-enabled smartphone via the Bluetooth-to-NFC Converter ZIP-BT-NFC to the sensor. Technical data and operation instructions are shown in the ZIP-BT-NFC data sheet.



Wiring diagram

Notes Analogue outputs: The analogue outputs AO1, AO2 and AO3 can be parametrised via NFC.

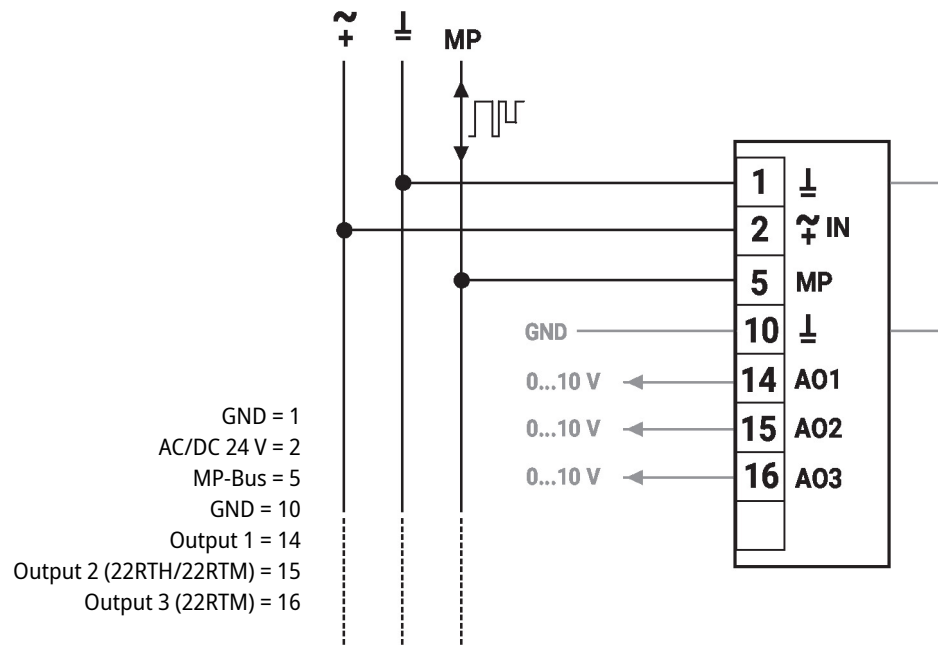


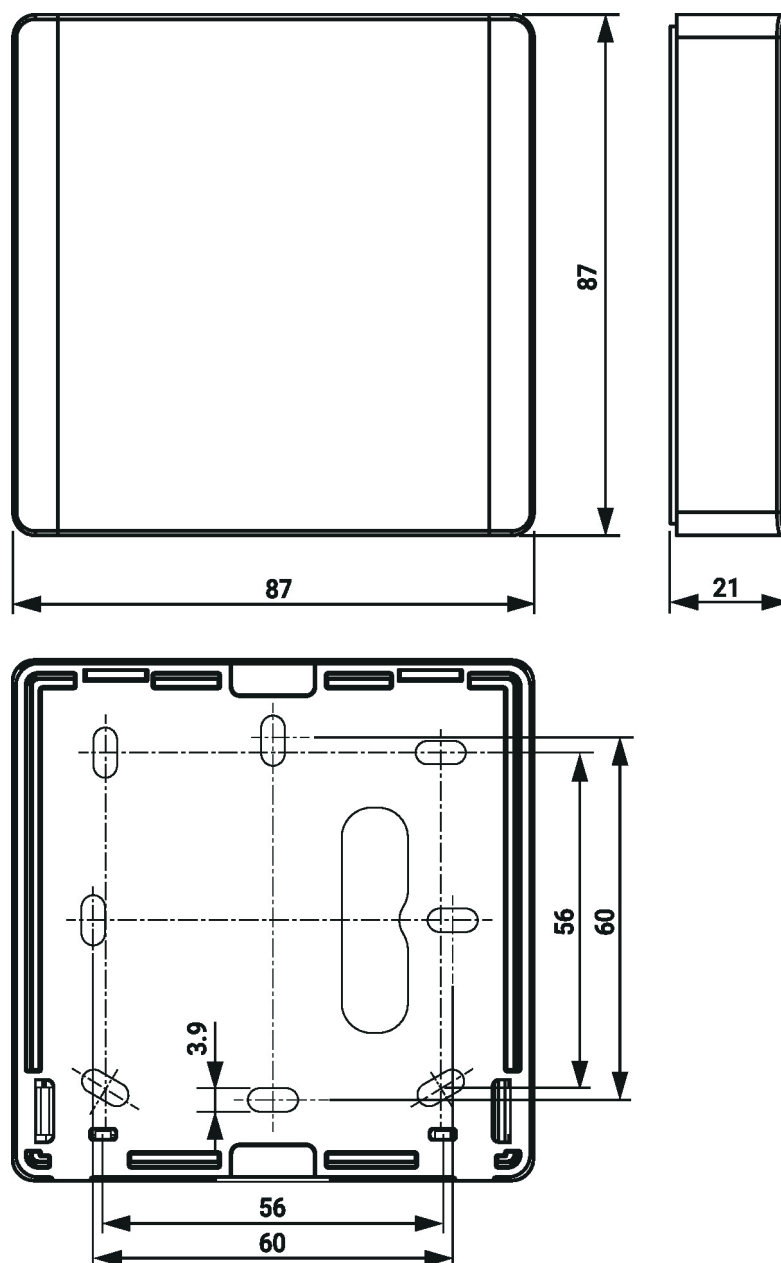
Factory settings:

AO1: Temperature

AO2: Humidity

AO3: CO₂



Dimensions


| Type | Weight |
|------------|---------|
| 22RTM-19-1 | 0.10 kg |
| 22RTH-19-1 | 0.10 kg |
| 22RT-19-1 | 0.10 kg |

Further documentation

- Overview MP Cooperation Partners
- Description Data-Pool Values
- Installation instructions

SALES CONTACT



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