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Product manual

# Compact apartment VAV unit

## CAVU

Airflow regulation

Version 1.0.4
Date: 21.10.2021

# CAVU

Compact apartment VAV unit (CAVU) is used for air regulation in areas with high demand for comfort and low noise. It is mainly used in residential or office buildings with central air preparation.
CAVU consists of two VAV units (supply and extract) with integrated silencers.

Optional CAVU-S unit, with more compact dimensions is possible.

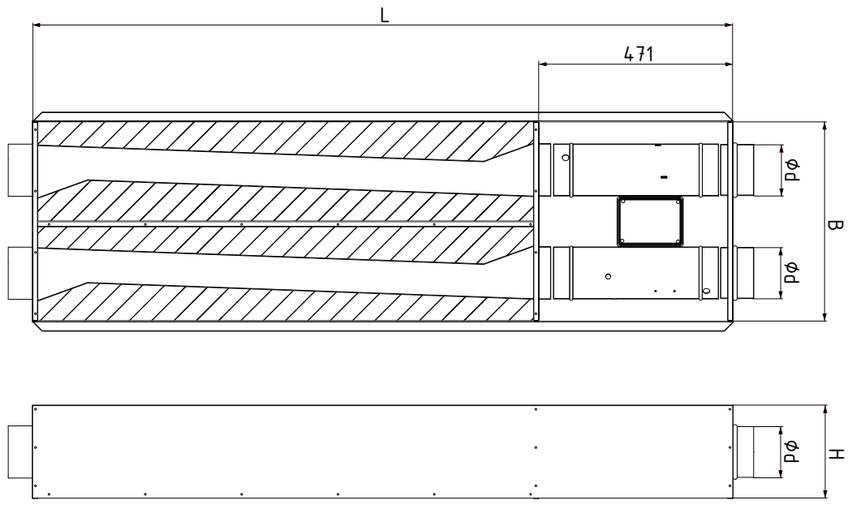


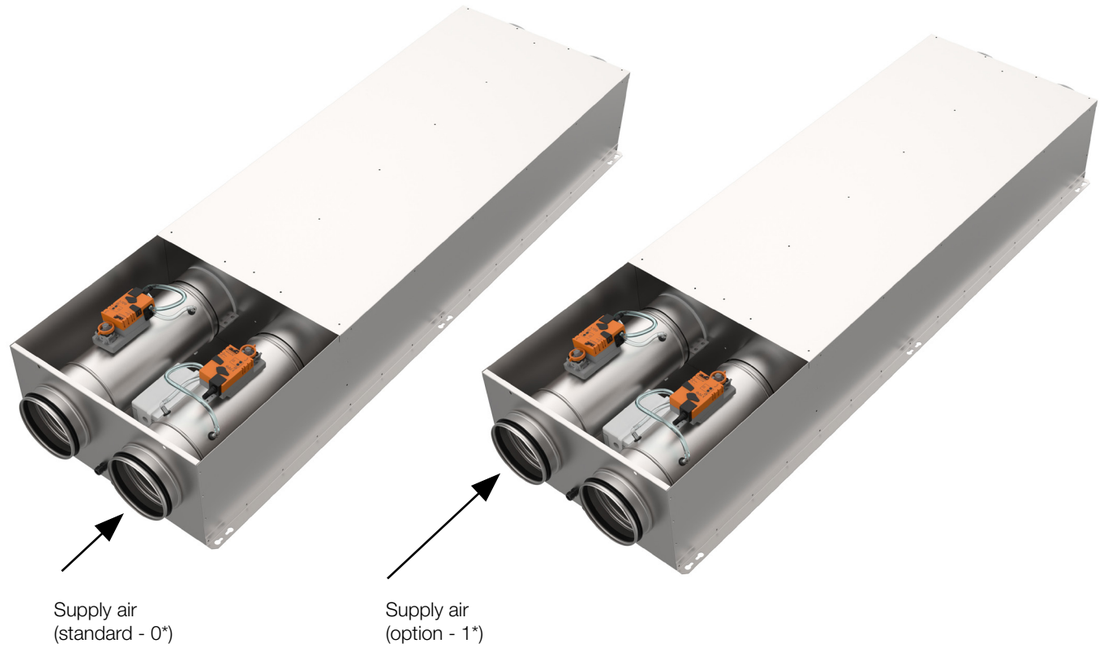


- Compact (all in one) casing
- Minimal installation cost
- Adjustable air volume
- Maintenance-free
- Low sound power levels
- Energy saving (demand controlled)
- Indoor air quality improvement
- Simple and easy to use
- Wide variety of control modes
- Protocols: MPBUS, MODBUS, BACNET, KNX

**DIMENSIONS**

| VAV ød [mm] | B [mm] | H [mm] | L [mm] |
|---|---|---|---|
| **125** | 490 | 230 | 1700 |
| **160** | 535 | 260 | 1700 |






Product overview
Ordering key
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Actuators
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## ORDERING KEY

| (1) Compact apartment VAV unit | | (2) Diameter | | (3) Communication type | | (4) Supply air side |
|---|---|---|---|---|---|---|
| **CAVU** | - | **ød** | - | **MP** | - | **0** |

(1) CAVU

(2) Diameter **ød**

(3) Communication type
**MP** - Belimo LMV/NMV MP
**MF** - Belimo LMV/NMV MF
**SGB** - Siemens GDB/GLB
**MOD-S** - Siemens GDB/GLB MOD
**MOD/BAC** - Belimo LMV/NMV MOD
**KNX-S** - Siemens GDB/GLB KNX
**KNX** - Belimo LMV/NMV KNX
**BAC** - Siemens GDB/GLB BA
**PP** - Gruner 327VM
**MOD-G** - Gruner 327MODBUS

(4) Supply air side
**0** - Supply air right / Extract air left
**1** - Supply air left / Extract air right

## CODIS E35-VAV

Codis E35 helps control ventilation more efficiently by demanding just the right amount of fresh air needed for optimal indoor conditions.


## BELIMO ZTH

Adjustment device ZTH-EU and NFC for VAV terminal units with Belimo volume flow controllers, used to facilitate service and commissioning.
**ORDERING KEY: RVPA-ZTH-EU**


## Gruner GUIV3-M

Adjustment device GUIV3-M for VAV terminal units with Gruner volume flow controllers, used to facilitate service and commissioning.
**ORDERING KEY: RVPA-GUIV3-M**


## Siemens AST20

Adjustment device Type AST20 for VAV terminal units with Siemens volume flow controllers, used to facilitate service and commissioning.
**ORDERING KEY: RVPA-AST20**




## ACCESSORIES

### ORDERING KEY ACCESSORIES

| (1) Type | (2) Built in sensor | (3) Protocol |
|---|---|---|
| E35 - VAV - | H - | B |

(1) **E35 - VAV**

(2) **C** - CO2 sensor
**H** - Humidity sensor
**CH** - CO2 and humidity sensor

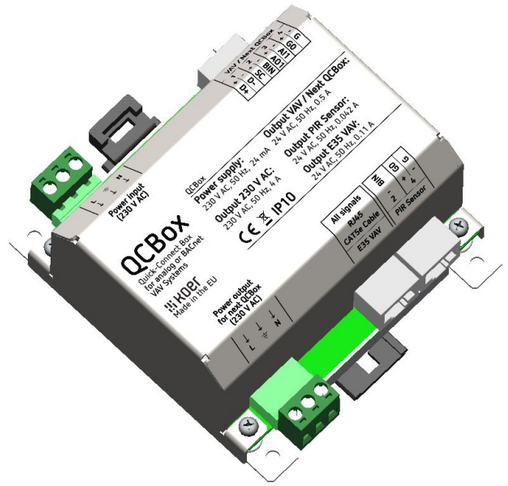
(3) **B/RS** - BACNet

# CODIS E35

Device can be used for temperature, air quality and humidity control of individual zones as part of a Demand Controlled Ventilation system, HVAC system or as a standalone controller.

E35-VAV… can be used in HVAC systems for:
- Heating
- Cooling
- Ventilation
- Dehumidification


1




2

| MODEL | E35-VAV | E35-VAV-B/RS | E35-VAV-C | E35-VAV-C-B/RS | E35-VAV-H | E35-VAV-H-B/RS | E35-VAV-H-C | E35-VAV-H-C/RS | QCB | QCAdapter |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Temperature | Temperature BACNet / RS485 | Temperature CO2 | Temperature CO2 BACNet / RS485 | Temperature Humidity | Temperature Humidity BACNet / RS485 | Temperature Humidity CO2 | Temperature Humidity CO2 BACNet / RS485 | Quick connect box with power supply | Quick-Connect Adapter |





E35-VAV… can control of the following operational elements:
- Damper actuators
- Heat exchange actuators
- Radiator/Floor heating actuator
- Modulating electric heaters
- EC motor fanT

E35-VAV hardware features:
- Resistive Color TFT touchscreen display
- Built-in sensors:
- Temperature
- CO2 (optional)
- Relative Humidity (optional)
- Three analog 0…10 V DC outputs
- One analog 0…10 V DC input
- One analog resistive input
- One binary input
- RS-485 transceiver (optional)
- Galvanic isolated RS-485 transceiver (optional)
- Real Time Clock
- Easy wall mounting
- Power supply 24 V AC/DC

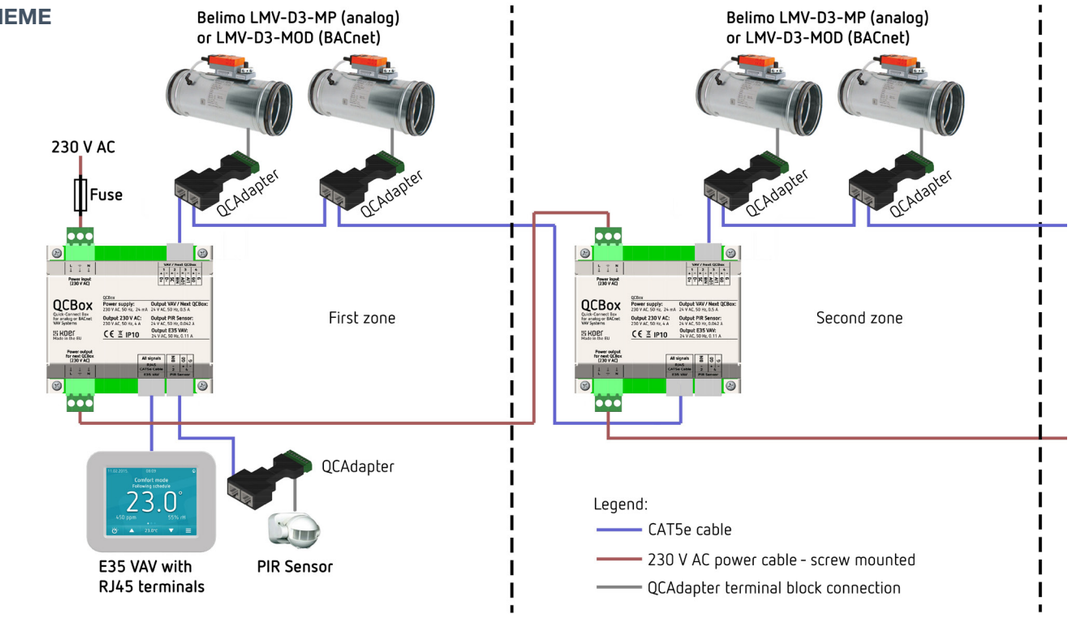
E35-VAV software features:
- PID control based on temperature, air quality and * humidity parameters
- Weekly scheduler, four preset modes, up to eight scheduler timers per day
- Occupied mode function
- Three operating modes: Comfort, Economy, Standby
- Protection functionality in Standby mode
- Password protected menu and advanced menu
- Window contact or presence sensor input
- Automatic or manual changeover
- Standby, Dim and Night Mode display brightness
- Easily configurable commissioning and working parameters
- Setpoint limitations for users
- BACnet MS/TP communication protocol (optional)
- Internal Temperature Compensation Algorithm

**For more details:**

(1) CODIS E35 VAV

(2) QCB Quick-Connect Box

## WIRING SCHEME



# Belimo motor drive

- motor drives : Belimo (MP, ModBus/Bacnet, MF, KNX)
- power supply - AC 24V, 50/60 Hz
  - DC 24V
- diagnostic socket for service and PC-Tool software

Version

| Type | Torque | Energy consumption | Dimensioning | Weight |
|---|---|---|---|---|
| LMV-D3-MP | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| NMV-D3-MP | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |
| LMV-D3-MOD/BAC | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| NMV-D3-MOD/BAC | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |
| LMV-D3-MF | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| LMV-D3-KNX | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| NMV-D3-KNX | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |

| **Control variables** | | |
|---|---|---|
| $V_{nom}$ | specific nominal volume flow, suitable for VAV units | |
| $\Delta p$ @ $V_{nom}$ | 50...450 Pa | |
| $V_{max}$ | 20...100% | |
| $V_{min}$ | 0...100% | |
| $V_{mid}$ | 50% od $V_{min}$ do $V_{max}$ | |
| **Classic control** | | |
| VAV mod for referent variables Y (connection 3) | - DC 2...10V / (4...20mA with 500Ω impedance)<br>- DC 0...10V / (0...20mA with 500Ω impedance)<br>- Adjustable DC 0...10V | }input impedance min. 100 kOhm |
| Actual signal value mod U5 (connection 5) | - DC 2...10V<br>- DC 0...10V<br>- Adjustable : volume flow, damper position or differential pressure | } max. 0.5 mA |
| CAV mode (constant volume flow) | CLOSED / Vmin / Vmid / Vmax / OPEN* (*only with AC 24V supply) | |
| **Actuator** | | |
| Connection | Cable, 4 x 0,75 $mm^2$ | |
| Protection | | |
| Safety class | III Safety extra - low voltage | |
| Level of protection | IP54 | |
| Electromagnetic compliance | CE according to 89/336/EEC | |
| Mode | Type 1 (according to EN 60730-1) | |
| Rated power | 0,5kV (according to EN 60730-1) | |
| Operating temperature | 0...+50°C | |
| Non operating temperature | -20...+80°C | |
| Relative humidity | 5...95% r.h., no condensation (according to EN 60730-1) | |
| Maintainance | Not required | |

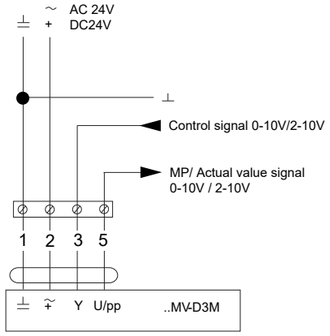
## Operation specification:

| | |
|---|---|
| Rated voltage | DC 15 V (from regulator VRP…) |
| Voltage range | DC 13,5…16,5 V |
| Mesuring range | 0…100 Pa 0…300 Pa 0…600 Pa |
| Mesuring principle | Inductive membrane differential presure mesurement |
| Output signal | DC 0…10 V (proportional pressure for VRP..) |
| Linearity | ±1% from extreme value (FS) |
| Histeresis | 0.1% typ. |
| **Temperature influence** | |
| zero position | ±0.1% / K ±0.05% / K ±0.05% / K |
| Mesuring range | ±0.1% / K t = +10…+40°C (referent temperature to = 5°C) |
| Installation position | Vertical |
| Position dependance | Max. ±4,5 Pa za 90° rotation from horizontal |
| Electric connection | Cable 1 m , with 4 pole connector |
| Protection class | III (safety extra-low voltage) IP4 |
| Operating temperature | 0…+50°C |
| Storage temperature | – 0...+80°C |
| Humidity test | to EN 60335-1 |

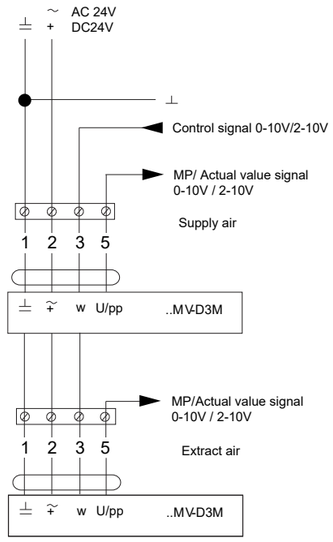


## Wiring diagram

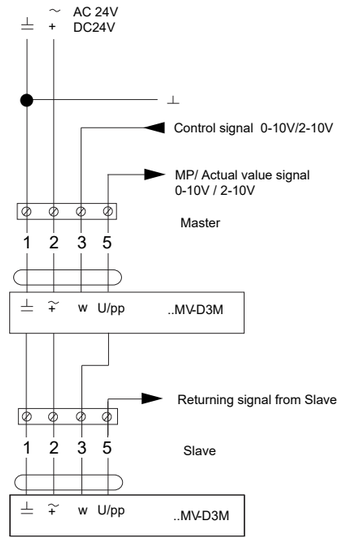
Analog control signal



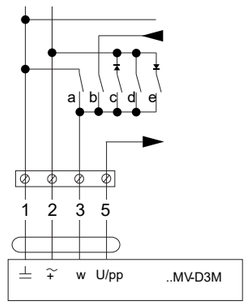

Analog control signal
supply/extract in paralel mode



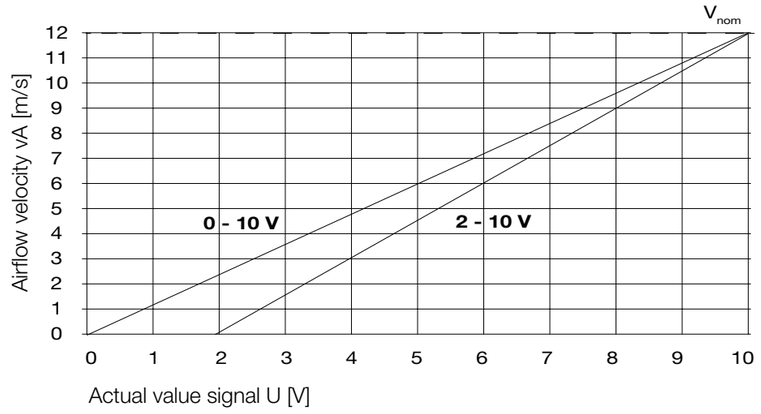

Analog control signal
master / slave mode




Constant mode:
- Standard 0,1V closing




## ACTUATORS




**0 - 10 V** $V_{act} = \frac{U_{act} - V_{nom}}{10}$

**2 - 10 V** $V_{act} = \frac{U_{act} - 2}{8} * V_{nom}$


# Siemens motor drive

- motor drives : Siemens (KNX, ModBus, Bacnet, Analogue)
- power supply - AC 24 V ±20% 50/60 Hz

Version

| Type | Torque | Energy consumption | Dimensioning | Weight |
|---|---|---|---|---|
| GDB181.1E/3 | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| GLB181.1E/3 | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |
| GDB181.1E/MO | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| GLB181.1E/MO | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |
| GDB181.1E/BA | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| GLB181.1E/BA | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |
| GDB181.1E/KN | 5Nm | 2W | 4VA (max- 8A @ 5ms) | ≈ 500g |
| GLB181.1E/KN | 10Nm | 3W | 5VA (max- 8A @ 5ms) | ≈ 700g |

| **Damper actuator** | |
|---|---|
| Normal torque | 5 Nm (GDB) / 10 Nm (GLB) |
| Maximum torque | <7 Nm (GDB) / <14 Nm (GLB) |
| Normal rotation angle / maximum rotation angle | 90˚ / 95˚ ±2˚ |
| Running time for normal rotation angle 90˚ | 150 s (50Hz) / 125 s (60Hz) |
| Direction of rotation (Adjustable with e.g. ACS941) | Clockwise / Counterclockwise |

| **Signal inputs** | |
|---|---|
| Input voltage | DC 0/2 ... 10 V |
| Max. perm input volume | DC 35 V |
| Contact Sensing | |
| Contact open | DC 30 V contact voltage |
| Contact closed | DC 0 V, 8 mA contact current |

| **Signal outputs** | |
|---|---|
| Output voltage | DC 0/2 ... 10 V limited to DC 12 V |
| Max. output current | DC ±1 mA |
| Time constant (actual value U) | 0,05...5 s |
| Resolution 0.01 S / factory settin 1 s | |

| **Degree of protection and safety class** | |
|---|---|
| Degree of protection acc. to EN 60529 (cf. mounting instructions | IP54 |
| Safety class acc. to EN 60730 | 6 x 0.75 $mm^2$ |

| **Enviromental conditions** | |
|---|---|
| Operation / transport | IEC 721-3-3 / IEC 721-3-2 |
| Temperature | 0 ... 50˚C / -25...70˚C |
| Humidity (non-condensing) | <95% r.h. / <95% r.h. |

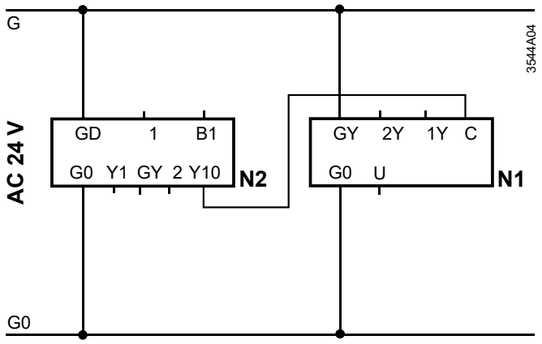
| Air volume controller | |
|---|---|
| 3-position controller with hysteresis | |
| $V_{max}$ | 20 ... 100% |
| $V_{min}$ | -20 ... 100% |
| $V_{mid}$ | 0 ... 100% |
| $V_n$ | 1...3.16 |

| Differential pressure sensor | |
|---|---|
| Connection tubes (inerior diameter) | 3 ... 8 mm |
| Measuring range | 0 ... 500 Pa |
| Operation range | 0 ... 300 Pa |
| Precision at 23°C, 966 mbar and optional mounting position | |
| Zero point | ± 0.2 Pa |
| Amplitude | ± 4.5 of the measured value |
| Drift | ± 0.1 Pa / Year |
| Max. permissible operation pressure | 3000 Pa |
| Max. permissible overload on one side | 3000 Pa |

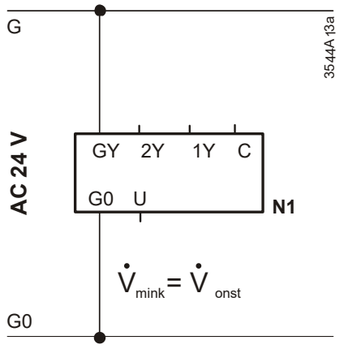
| Connection cable | |
|---|---|
| Cable length | 0.9 m |
| Number of cores and cross-sectional area | 6 x 0.75 $mm^2$ |

## Wiring diagram

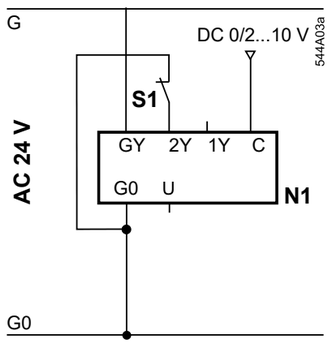
Supply / extract air control in
operating mode “con”
N1 GDB181.1E/3 or GLB181.1E/3
N2 Supervisory controller, e.g. RCU5.. or RCU6.




Supply / extract air control in
operating mode “con”




Complete shutoff in
operating mode “con”
N1 GDB181.1E/3 or GLB181.1E/3
S1 Window switch (Window closed – switch open)




# Gruner motor drive

- motor drives : Gruner (327V)
- Running time 100 s / 90°, 150 s / 90°
- Torque 5 -10 - 15 Nm
- Nominal voltage 24 VAC/DC
- Control 3 (EN 60730-1)
- Sensor 250 Pa (dynamic)
- Communication Modbus RTU

| **Damper actuator** | |
|---|---|
| Nominal voltage | 24 VAC/DC, 50/60 Hz |
| Nominal voltage range | 19...29 VAC/DC |
| Power consumption motor (motion) | 3 W |
| Power consumption standby (end position) | 2 W |
| Wire sizing | 5,5 VA |
| Control | Modbus RTU / analog<br>(0)2...10 VDC / Ri > (100 kΩ) 50 kΩ<br>(0)4...20 mA / Rext. = 500 Ω |
| Feedback signal | Modbus RTU / analog<br>(0)2...10 VDC, max. 0,5 mA |
| Priority control | close / min / btw / max / open / stop |
| Connection motor | cable 1000 mm,<br>4 x 0,75 $mm^2$ (halogen free) |

| **Sensor** | |
|---|---|
| Measuring range - dynamic version | 500-1500 Pa |
| Measuring range - static version | 400-600-1000 Pa |
| Burst pressure | 1 bar |
| Nominal value damper manufacturer specific value | damper manufacturer specific value Vmin / Vbtw / Vmax based on Vnom |
| Media | air<br>-40°C…85°C / 5…95% r.H., non condensing |
| Mounting position | independent of position |
| Connection | tube clip Ø 4-6 mm |

| **Functional data** | |
|---|---|
| Torque | 5 -10 - 15 Nm |
| Synchronised speed | ±5% |
| Direction of rotation | adjustable |

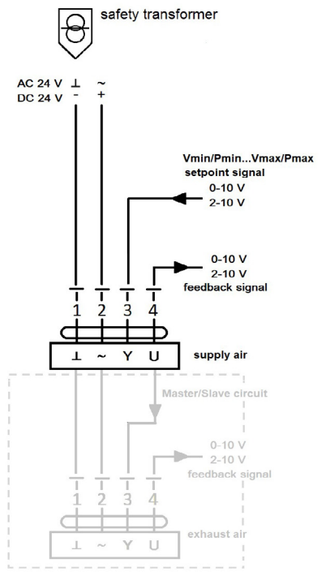
| | |
|---|---|
| Manual override | gear de-clutch with pushbutton, lockable |
| Angle of rotation | 0°…max. 95° can be limited with adjustable mechanical end stops |
| Running time | 5 Nm: 100 s / 90° (adjustable 20...120 s / 90°)<br>10 & 15 Nm: 150 s / 90° (adjustable 70...420 s / 90°) |
| Sound power level | < 35 dB(A) @ standard running time |
| Shaft coupling | universal clamp (Ø 20 mm) or form fit □ 8/10/12 mm |
| Position indication | mechanical with pointer |
| Service life | > 100 000 cycles (0°...95°...0°)<br>> 1 500 000 partial cycles (max. ±5°) |

| **Safety** | |
|---|---|
| Protection class | III (safety extra-low voltage) |
| Degree of protection | IP 42 (cable downwards, tube clip connected)<br>IP 20 (with screw terminals) |
| EMC | CE (2014/30/EU) |
| LVD | CE (2014/35/EU) |
| RoHS | CE (2011/65/EU - 2015/863/EU - 2017/2102/EU) |
| Mode of operation | Typ 1 (EN 60730-1) |
| Rated impulse voltage | 0,5 kV (EN 60730-1) |
| Control pollution degree | 3 (EN 60730-1) |
| Ambient temperature normal operation | 0°C...+50°C |
| Storage temperature | -20°C...+80°C |
| Ambient humidity | 5...95% r.H., non condensing (EN 60730-1) |
| Maintenance | maintenance free |

| **Dimensions** | |
|---|---|
| Dimensions | 155 x 67 x 66 mm |
| Weight | 5 Nm: 450 g<br>10/15 Nm: 550 g |

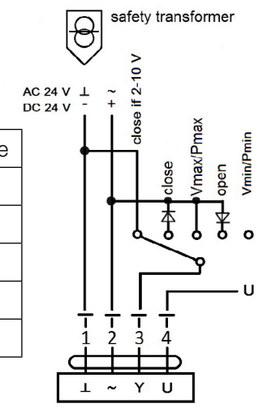
## Wiring diagram

**VAV**
**– variable operation min … max**
-Mode 2-10V:
Damper closed < 0,8 V (adjustable via WIN-VAV2 0,2 V … 1,8 V)
-Master/Slave circuit possible




**CAV**
**– step operation close / min / btw / max / open**

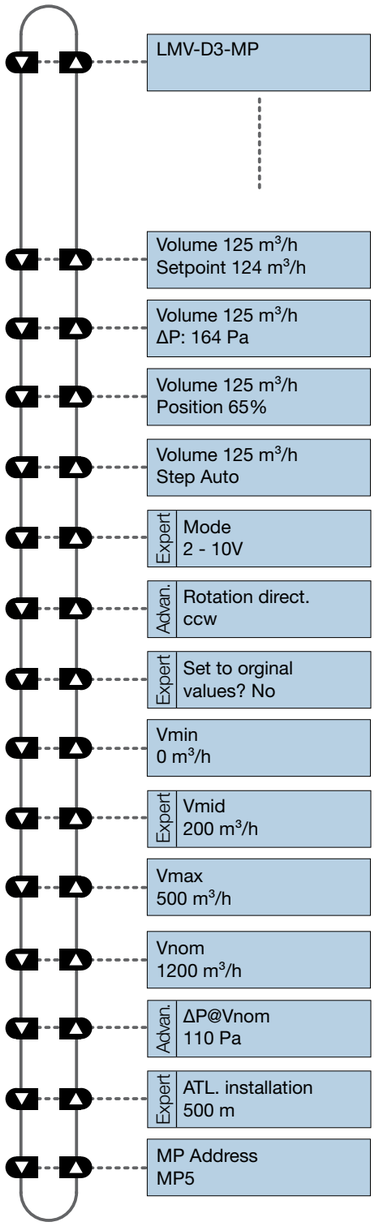
| Signal/ Function | Min | Max | Btw | Open | Close |
|---|---|---|---|---|---|
| Open line | X | | | | |
| GND (2.10 V) | | | | | X |
| Full wave | | X | | X | |
| Pos. Hal-wave | | | | X | |
| Neg. Hal-wave | | | | | X |



# BELIMO ZTH

Adjustment device ZTH-EU for VAV terminal units with Belimo volume flow controllers, used to facilitate service and commissioning.

Service tool for parameterizable and communicative actuators / VAV controllers and HVAC performance devices from Belimo. Connection via service socket on the device or MP/ PP connection ZIP USB function.




## Instructions

Pressing the buttons ◀▲ ,you scroll through the main menu. In order to prepare the selected values (parameters), it is necessary to follow the steps in the picture.

AUTO / OPEN / CLOSE / Min / Mid / Max / Stop

2 - 10V / 0 - 10V (only with MF/MP types)

ccw / cw

No / Yes

0...Vmax

Vmin...Vmax

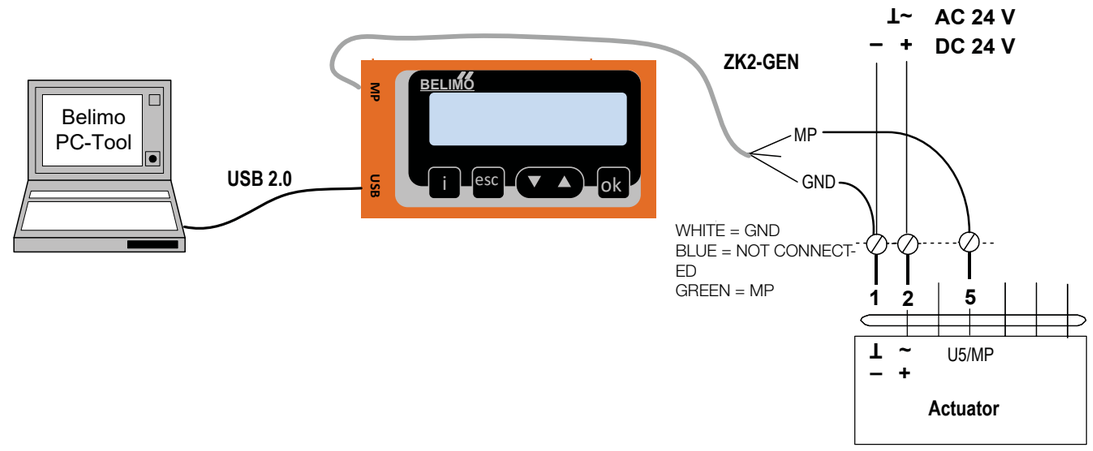
Vmin...Vnom, minimum 20% of Vnom

0...3000 m

PP, MP1...MP8
(on MF types only PP)



## PARAMETRIZATION



# Gruner GUIV3-M

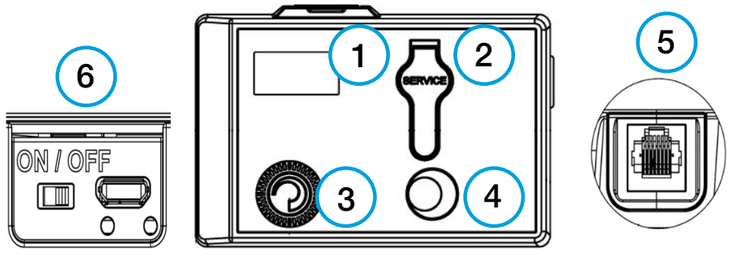
GUIV will start via on/off switch. If GUIV is connected to an actuator, the data will be read out and shown in the display. The control panel is used to set various operating modes, override controls and parameter settings. The GUIV features a micro USB. This allows to use the GUIV as an interface converter between WINVAV2 software and actuator or for loading a battery pack.

## Instructions

To perform parameterization, it is necessary to connect the drive with the adjustment device GUIV3-M.
The adjustment device contains a circular button and a confirmation button. With circular button you scroll through the main menu and you can change the values (parameters).

**Menu points GUIV3-M**

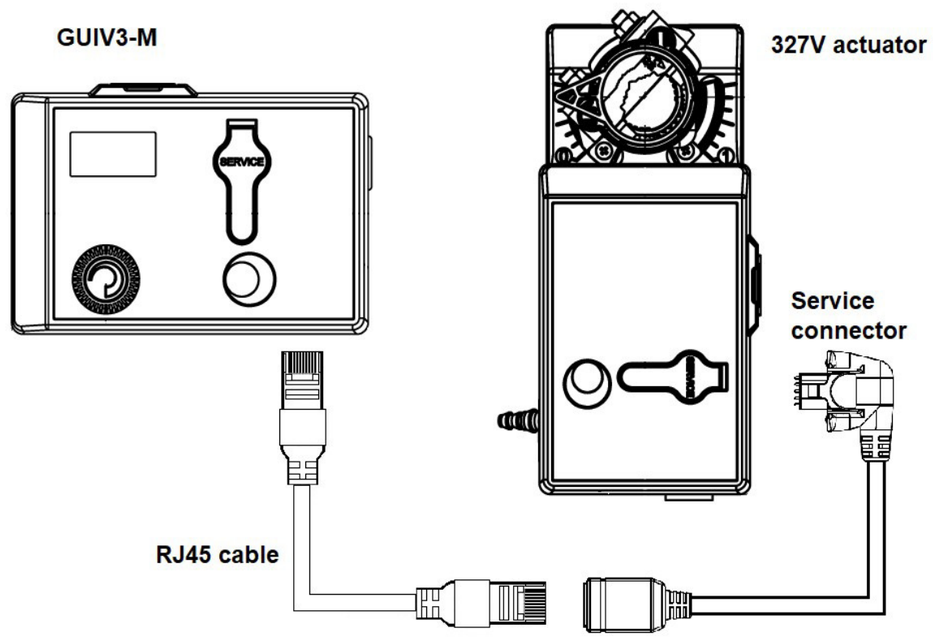
1.Act / Set
Shows actual value / setpoint (override function).
2.Min
Adjust the desired min value (setpoint Y = 0 / 2 V DC).
3.Max
Adjust the desired max value (setpoint Y = 10 V DC).
4.Diag
Diagnostic menu:
y/u – shows setpoint / feedback signal
off – return to first level
oP – opens the damper
cL – closes the damper
Hi – activates max. value
Lo – activates min. value
bE – activates between value
St – diagnostic mode on, motor off
Adp – adaption drive (only 15 Nm or Modbus version)
123 – software version
5.Mode
0An (0-10 VDC | normal direction of rotation) 2An (2-10 VDC | normal direction of rotation)
2Ai (0-10 VDC | inverse direction of rotation) 2Ai (2-10 VDC | inverse direction of rotation)
6.Com
Setting the Modbus address (1...247) and communication parameters (if Modbus version).
7.Nom
Volumetric air flow: Shows & setting the nominal value depending on the VAV-Box
Pressure: Setting the correction factor
Settings
327 VAV actuators can be set directly on the display. All 327 VAV actuators can communicate via service connector with setting tool GUIV3-M or with setting software WIN-VAV2.
GUIV3-S is used as an interface for setting software WIN-VAV2.
Accessories
GUIV3-M – service connector + handheld tool GUIV3-M
WINVAV2-Bundle – service connector + PC interface GUIV3-S +
setting software WIN-VAV2.




1. Display
2. Port for service-plug
3. Rotary selector switch
4. LED push button
5. RJ45 socket
6. On/off Switch and Micro-USB Interface



## PARAMETRIZATION



# Siemens AST20

## Instructions

Pressing the UP/DOWN buttons, you scroll through the main menu. Button ENTER opens submenu or allows changing the selected value using UP/DOWN button.
The pictures show the way of changing the values (parameters).

| AST20 <> VAV Modbus | 1/1 SVC |
|---|---|
| Online view | ▶ |
| Field device configuration | ▶ |
| Bus configuration | ▶ |
| Diagnostics and maintenance | ▶ |
| AST20 settings | ▶ |
| Mass configuration | ▶ |

| Field device configuration | 1/2 SVC |
|---|---|
| Operating mode | VAV mode |
| Opening dir | CW |
| Adaptive pos | On |
| Vn value | 2.04 |
| Vmin | 10% |
| Vmax | 90% |
| Vnom | 450 m3/h |

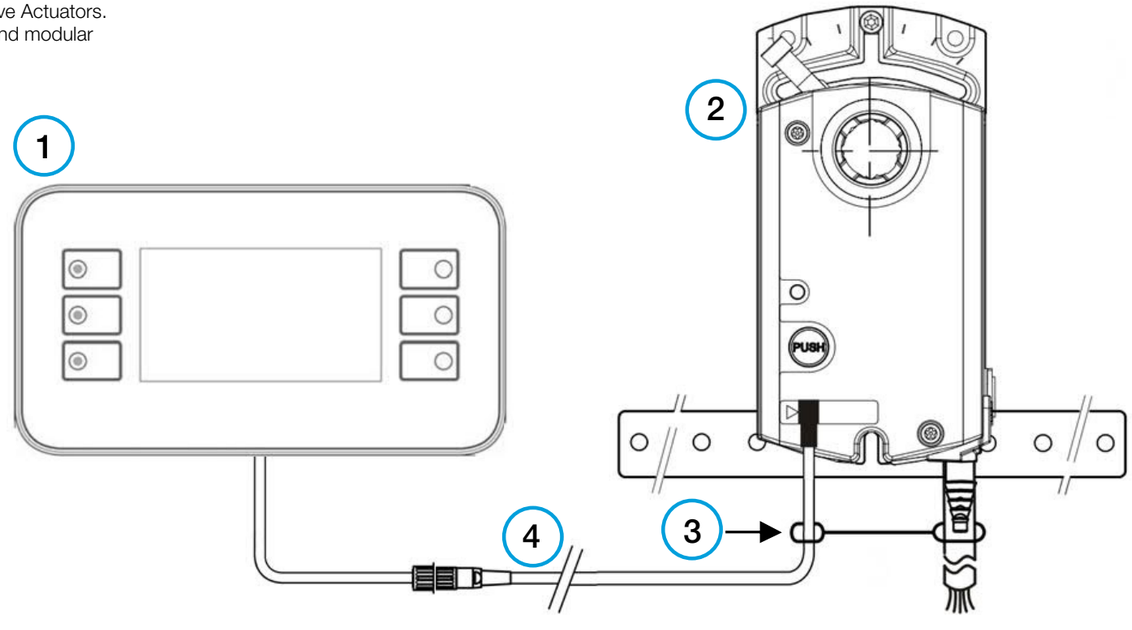
| Field device configuration | 1/2 SVC |
|---|---|
| Operating mode | VAV mode |
| Opening dir | CW |
| Adaptive pos | On |
| Vn value | 2.04 |
| Vmin | 10% |
| Vmax | 90% |
| Vnom | 450 m3/h |



## AST20

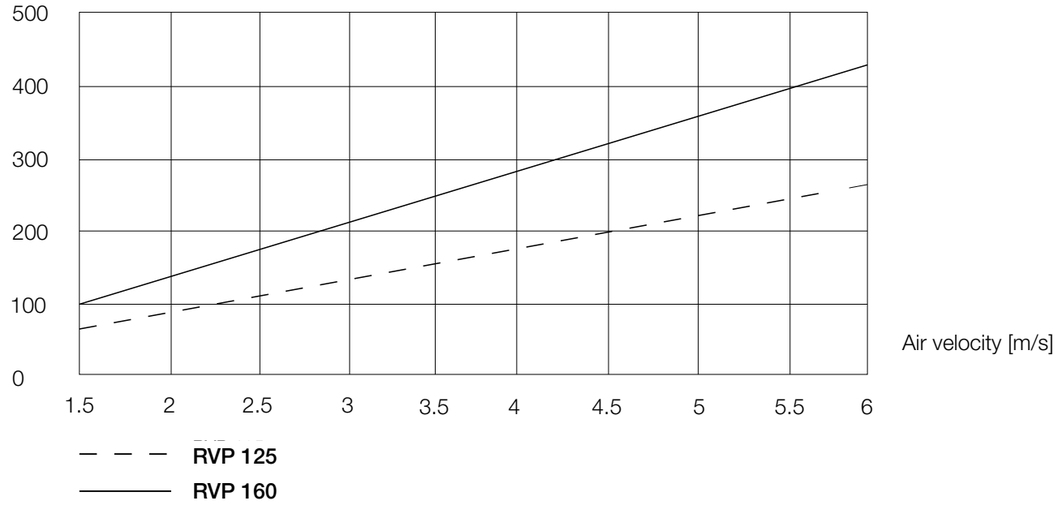
1. AST20
2. G..B181.1E/.. , ASV181.1E/3, or G..B111../MO
3. Strain release strip
4. Connection cable (7-pin or 6-pin)

Handheld Tool for VAV Compact Controllers and Communicative Actuators.
For configuration and maintenance of OpenAir VAV compact and modular controllers and actuators with Modbus RTU communication

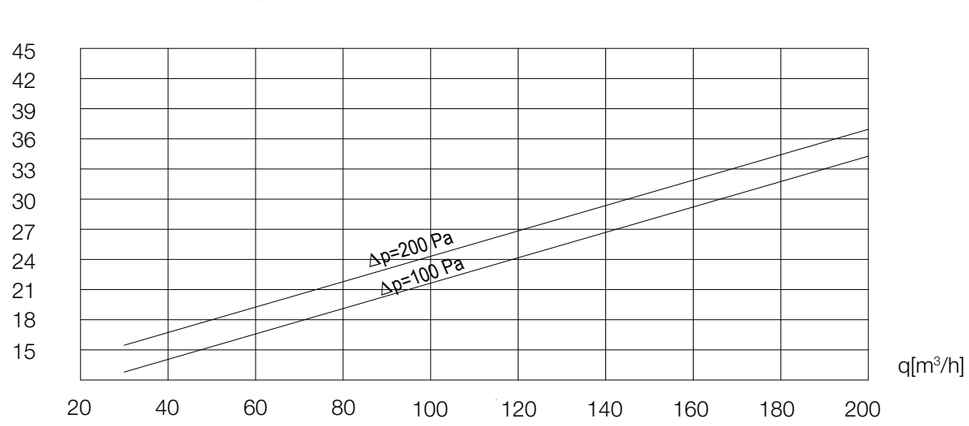


## Sound and pressure drop CAVU

Air volume [m³/h]

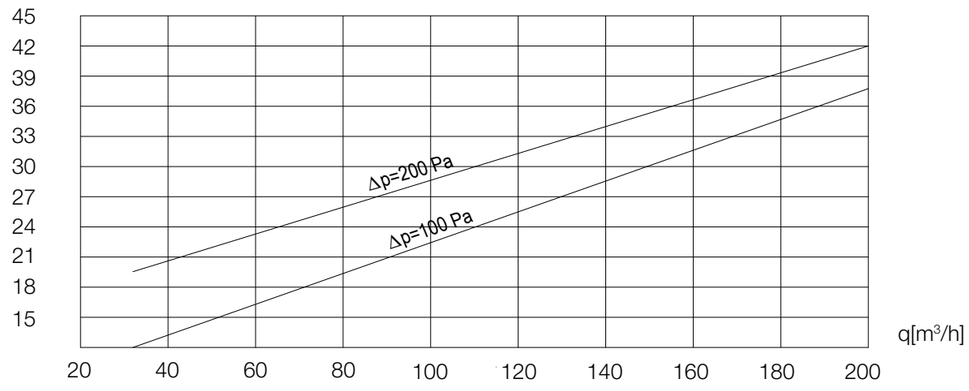



Lw[dB(A)]




**Air-regenerated noise 125**

Lw[dB(A)]



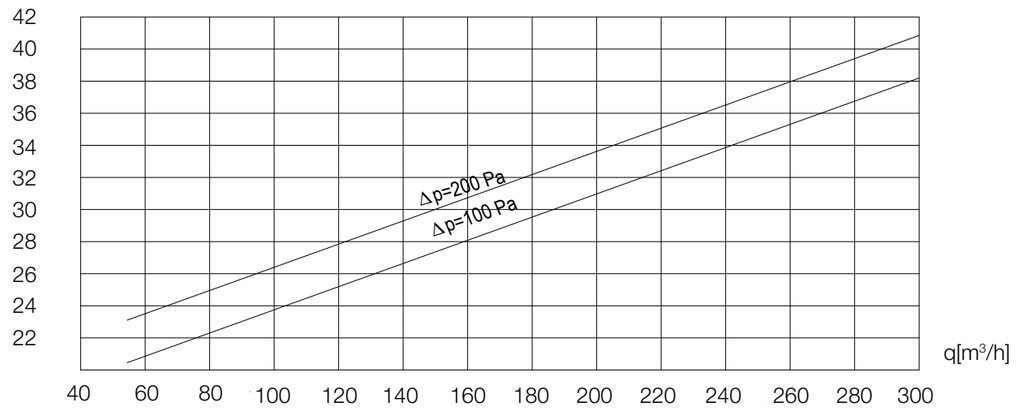

**Case radiated noise 125**

# Sound and pressure drop
# CAVU

| Nominal size | vL [m/s] | Volume flow [m³/h] | Volume flow [l/s] | Δpt = 50 Pa Lw [dB/Oct] Hz 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | LWA [dB(A)] | Δpt = 125 Pa Lw [dB/Oct] Hz 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | LWA [dB(A)] | Δpt = 250 Pa Lw [dB/Oct] Hz 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | LWA [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ø 100 | 1 | 28 | 8 | 34 | 24 | 18 | <16 | <16 | <16 | <16 | <16 | 18 | 34 | 26 | 19 | <16 | <16 | <16 | <16 | <16 | 19 | 29 | 26 | 20 | <16 | <16 | <16 | <16 | <16 | 19 |
| | 3 | 85 | 24 | 51 | 51 | 32 | <16 | <16 | <16 | <16 | <16 | 35 | 55 | 54 | 32 | 19 | <16 | <16 | <16 | <16 | 36 | 53 | 52 | 38 | 27 | <16 | <16 | <16 | <16 | 36 |
| | 5 | 141 | 39 | 56 | 53 | 38 | 29 | <16 | <16 | <16 | <16 | 40 | 58 | 58 | 40 | 30 | 21 | <16 | <16 | <16 | 41 | 62 | 63 | 44 | 31 | 21 | <16 | <16 | <16 | 45 |
| ø 125 | 1 | 44 | 12 | 45 | 38 | 24 | <16 | <16 | <16 | <16 | <16 | 21 | 46 | 40 | 26 | <16 | <16 | <16 | <16 | <16 | 23 | 44 | 40 | 26 | 17 | <16 | <16 | <16 | <16 | 25 |
| | 3 | 133 | 37 | 58 | 50 | 33 | 22 | <16 | <16 | <16 | <16 | 37 | 61 | 53 | 34 | 22 | 22 | <16 | <16 | <16 | 39 | 62 | 58 | 40 | 27 | <16 | <16 | <16 | <16 | 42 |
| | 5 | 221 | 61 | 59 | 55 | 42 | 34 | 24 | <16 | <16 | <16 | 41 | 61 | 57 | 44 | 34 | 34 | <15 | <15 | <16 | 42 | 70 | 66 | 46 | 34 | 24 | <16 | <16 | <16 | 50 |
| ø 160 | 1 | 83 | 23 | 43 | 36 | 27 | 23 | <16 | <16 | <16 | <16 | 25 | 45 | 38 | 29 | 24 | 24 | <16 | <16 | <16 | 27 | 43 | 37 | 28 | 24 | <16 | <16 | <16 | <16 | 26 |
| | 3 | 217 | 60 | 57 | 54 | 40 | 29 | <16 | <16 | <16 | <16 | 38 | 59 | 56 | 41 | 29 | 29 | <16 | <16 | <16 | 40 | 60 | 54 | 47 | 39 | 22 | <16 | <16 | <16 | 43 |
| | 5 | 362 | 101 | 60 | 55 | 45 | 36 | 28 | 17 | <16 | <16 | 42 | 62 | 58 | 47 | 37 | 37 | 19 | <16 | <16 | 44 | 67 | 65 | 51 | 41 | 29 | 19 | <16 | <16 | 49 |

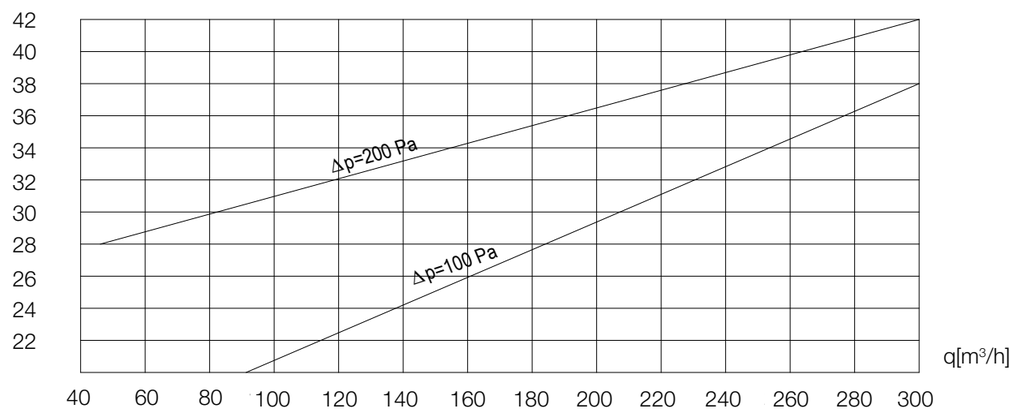
Lw [dB(A)] - Sound power level, flow noise
vL [m/s] - Flow speed, air duct
Δpt [Pa] - Total pressure difference

Lw[dB(A)]




**Air- regenerated noise 160**

Lw[dB(A)]




**Case radiated noise 160**


Product overview
Ordering key
Accessories
Actuators
Parametrization
Diagrams
Maintanace

SolveAir link

DIAGRAMS





# TRANSPORT

After arrival, check the CAVU unit for transport damage and shortcomings. In case of any damage or shortcomings, immediately contact your supplier.

# STORAGE

If the CAVU unit is not installed immediately:

- Remove any wrapping.
- Protect CAVU unit from dust and contamination.
- Do not expose the CAVU unit to the effects of weather - store the CAVU unit in a dry place.
- Do not store the unit below -20 °C or above 50 °C.

**Please properly dispose of packaging material!**

# MAINTENANCE AND OPERATION

Klimaoprema CAVU units are designed with fully enclosed drive mechanism outside of the duct and as such do not require cleaning and regular maintenance. However, activation mechanism should be inspected for proper operation on regular basis.

- After each intervention, provide a systematic cleaning of dust and especially the solenoid and its movable plate
- Check the if the electrical terminals are tightened
- Cleaning instruction: clean with a sponge, with water or a mild detergent
- Disinfection instruction: spray disinfectant (desinfectant may contain alcohol which is flammable, take precaution to avoid ignition)

It is not permitted to alter the dampers in any way nor perform any changes to their structure (except for the service procedures described in this manual) without the manufacturer's consent.

The functional test must be carried out in compliance with the basic maintenance principles of the European norms EN 13306, EN 15423 and EN15650.

# COMMISSIONING

- Carefully unpack CAVU - be careful of sharp edges and do not use excessive force for unpacking
- Inspect the product - check the unit for damage
- Before commissioning: check the product functions

# ACTUATORS

- Electric actuator

klimaoprema

# AIRFLOW REGULATION

Projektiranje, proizvodnja i održavanje opreme za klimatizaciju, ventilaciju i čiste prostore.
Design, production and service of Ventilation, Air-Conditioning and Clean room equipment.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