

VAV-Regulator

327 VAV Compact



DESCRIPTION

Compact controller for pressure and volumetric air flow control

- Pressure sensor, controller and damper actuator in one unit (compact)
- Sensor signal conversion into flow or pressure
- Parameterization via service connector using handheld (GUIV3-M) or PC-software (WIN-VAV2 with interfaces GUIV3-S or GUIV3-M)

DETAILED DESCRIPTION

Application	The compact VAV controllers of 327 series are used for pressure and volumetric air flow control of VAV dampers in HVAC installations.
Sensor	The differential pressure sensor is available as dynamic version (500 1500 Pa) or static version (400 600 1000 Pa).
Actuator	There are three different gearboxes available (5 10 15 Nm).
Control function	Pressure, volumetric air flow or „Open-Loop“ (continuous control).
Pressure or volumetric air flow control	Reference value (min...max) via analogue setpoint or digital communication (for example BMS).
Building management system	Modbus-System for example with itaMAX system.
Bus operation	Settings via Service connector possible by using handheld (GUIV3-M) or PC-software (WIN-VAV2 with Interface GUIV3-S or GUIV3-M).
Parameterization	Setting tool GUIV3-M, PC interface GUIV3-S + PC software WIN-VAV2.v
Operating and service devices	Setting tool GUIV3-M, PC interface GUIV3-S + PC software WIN-VAV2.
Electrical connection	See electrical installation.
Sales, mounting & setting	The actuators will be mounted by VAV manufacturer (OEM). The application will be preset and calibrated accordingly. Therefore 327 VAV actuators are sold exclusively to VAV boxmanufacturers (OEM).

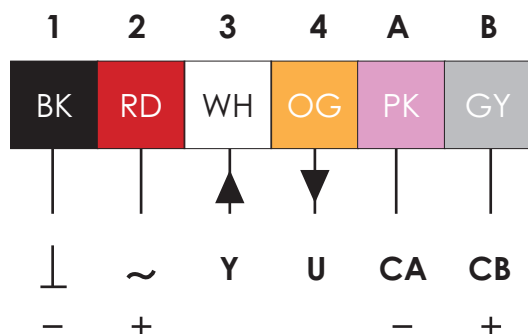
TECHNICAL DATA

Electrical data	Normal voltage	24 VAC/DC, 50/60 Hz
	Normal voltage range	19...29 VAC/DC
	Power consumption motor	< 3,0 W
	Power consumption standby	< 2, 0 W
	Wire sizing	< 5,5 VA
	Control	(0) 2...10 VDC / Ri > (100 k Ω) 50k Ω (0) 4...20 mA / Rext. = 500 Ω
	Feedback signal	(0) 2...10 VDC, max. 5mA
	Priority control	close/min/btw/max/open/stop
	Connection motor	cable 1000mm, 4 x 0,75 mm ² (halogen free) or screw terminals 0,5...1,5 mm ²
	Connection GUIV	via service plug
Modbus	Protocol	Modbus RTU
	Medium	cable 1000 mm, 2 x 0,38 mm ² (halogen free) RS-485, not electrically isolated or screw terminal.
	Number of nodes	max. 128
	Baud rates	1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 76800 / 115200 Bd
	Byte sequence	MSB / LSB
	Byte format	1 start bit, 8 data bits, 2 stop bits, none parity 1 start bit, 8 data bits, 1 stop bit, even parity 1 start bit, 8 data bits, 1 stop bit odd parity
	Termination	external (1200)
	Response time	≤ 10 ms + delay
	Standard parameter	19200 Bd, 1 start bit, 8 data bits, 1 stop bit, even parity, 0 ms delay
	Sensor	Sensor
Burst pressure		1 bar
Nominal value		damper manufacturer specific value min / btw / max based on nominal
Medium		air -40°C...85°C / 5...95% r.H., non condensing

TECHNICAL DATA

Sensor	Mounting position	independent of position
	Material	PA, glass, LCPT (dynamic version) Tygon-ST (R-3607), PA66 GF25 V0 (static version)
	Connection	tube clip Ø 4-6 mm
Functional data	Torque	5 10 15 Nm
	Synchronized 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°) 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°) > 1.500.000 cycles (max. ± 5°)
	Safety	Protection class
Degree of protection		IP 42 (cable downwards, tube clip connected) IP 20 (with screw terminals)
EMC		CE (2014/30/EU)
LVD		CE (2014/35/EU)
RoHS		CE (2011/65/EU - 2015/863/EU - 2017/2101/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.F., non-condensing (EN 60730-1)
Maintenance		maintenance free
Dimensions / Weight		Dimensions
	Weight	5 Nm: 450 g 10/15 Nm: 550 g

TECHNICAL DATA



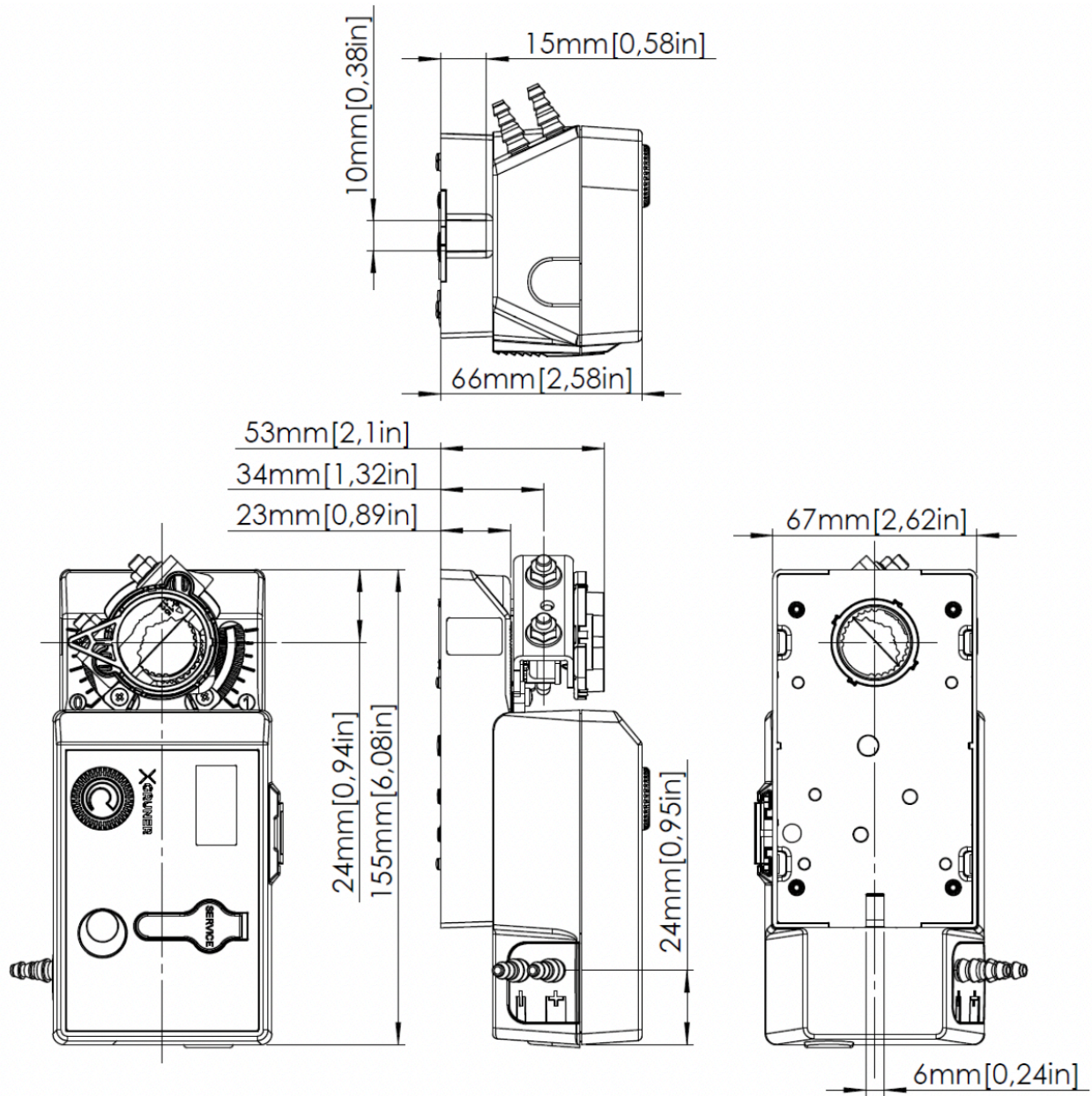
No.	Designation	Wire Colour	Function
1	-	black	Power supply 24VAC/DC
2	+	red	
3	Y	white	Setpoint signal 0-10 VDC
4	U	orange	Feedback signal 0-10 VDC
A	CA-	pink	Modbus RTU Connection (RS485)
B	CB+	grey	

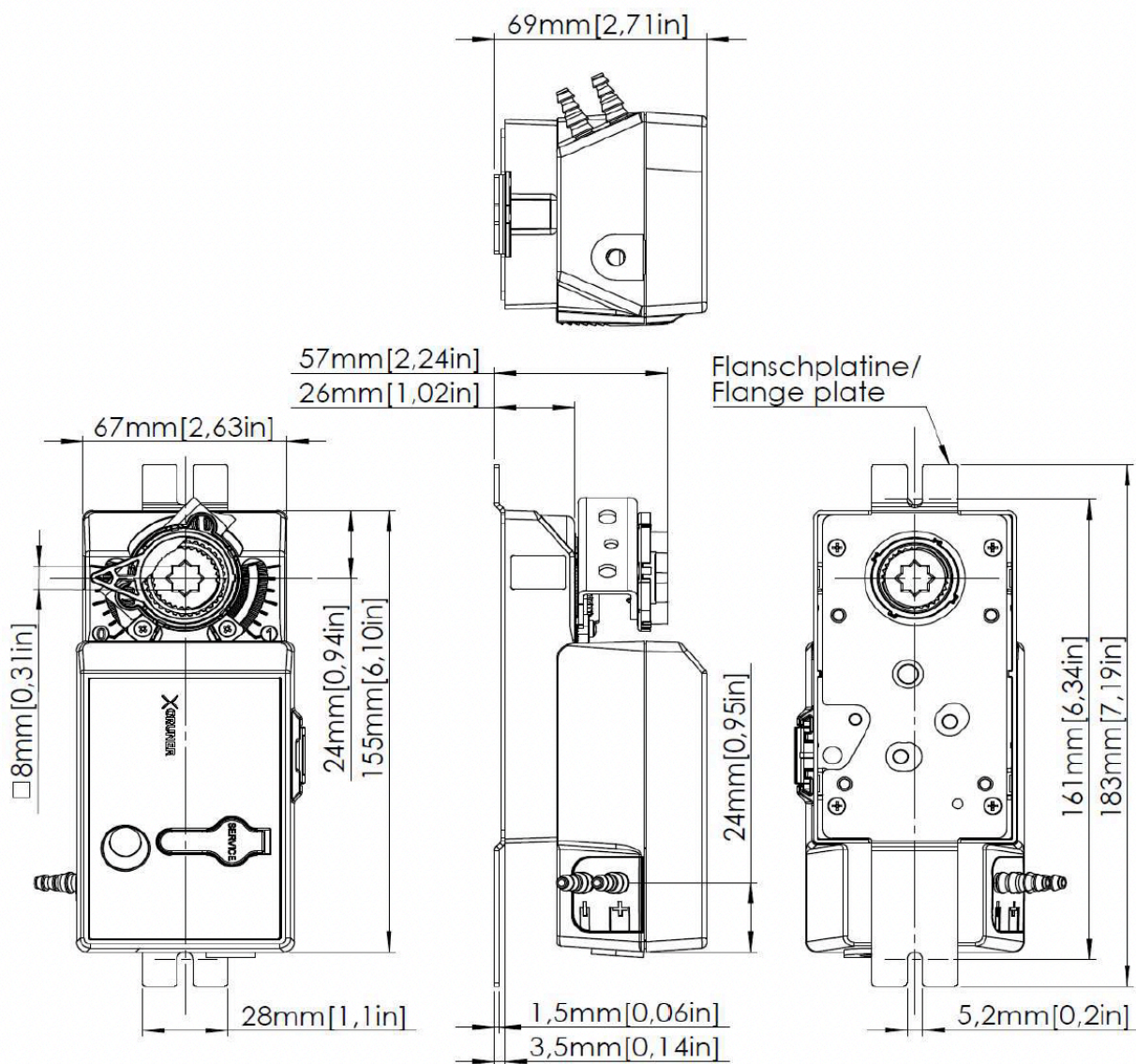
SAFETY INSTRUCTIONS

Safety remark

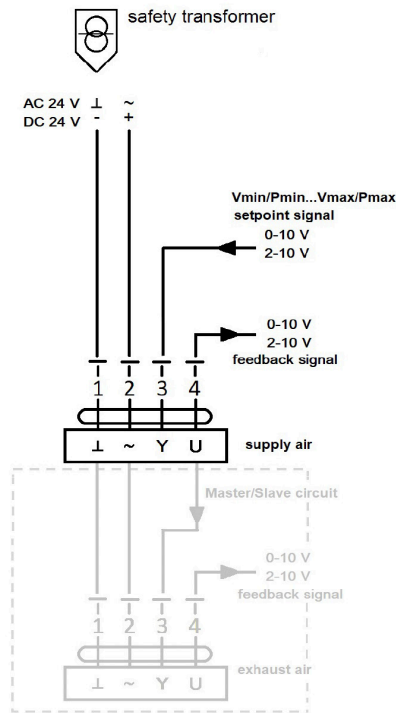
- Connect via safety isolation transformer!
- The device is not allowed to be used outside the specified field of application, especially in air planes.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- The device may only be opened at the manufacturer's site.
- The device is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

TECHNICAL DRAWING



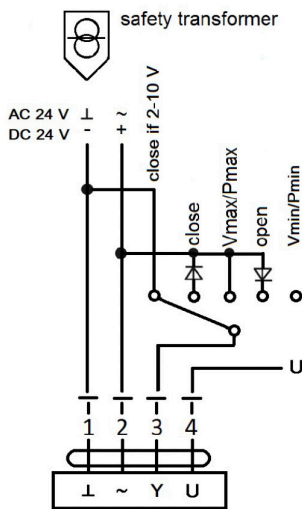


VAV – Variable operation min ... max



- Mode 2-10V:
Damper closed < 0,8 V (adjust table via WINVAV2 0,2 V ... 1,8 V)
- Master/Slave circuit possible

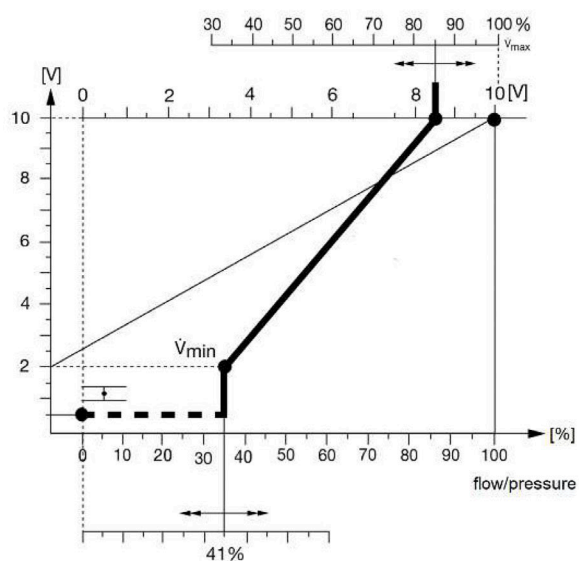
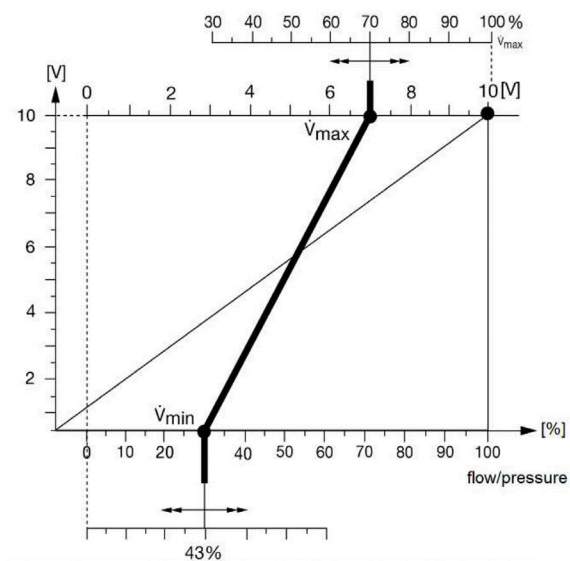
CAV – step operation close / min / btw / max / open



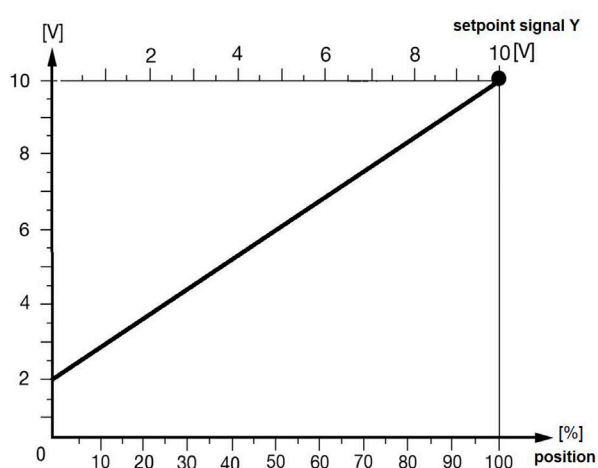
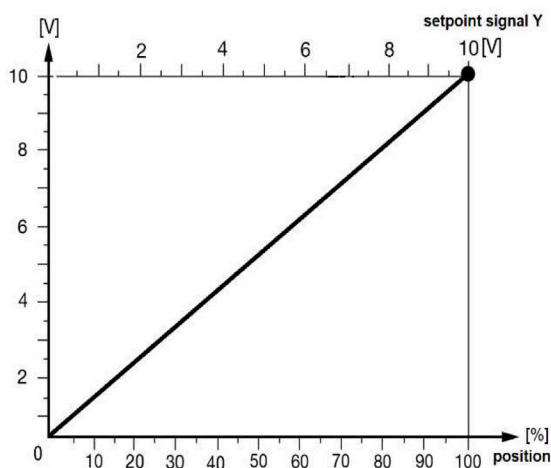
Signal	Min	Max	Btw	Open	Close
Open line	X				
GND 2..(10V)					X
Full-wave		X			
Pos. Half-wave				X	
Neg. Half-wave					X

Override matrix can be changed via WIN-VAV2 software.

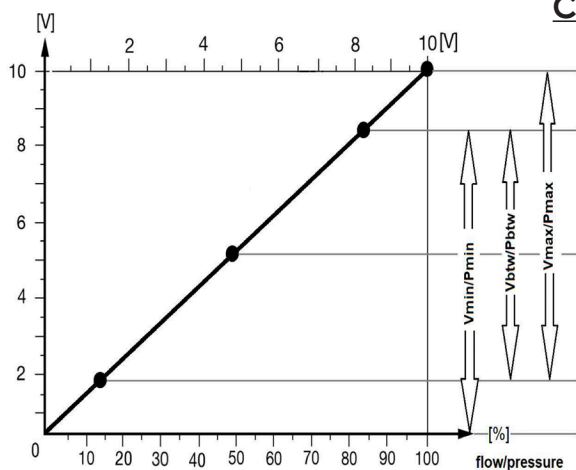
VAV-adjustment



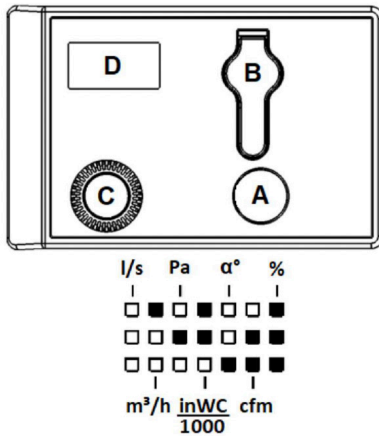
Open -Loop function 0-10V / 2-10 V



CAV-adjustment



Display of 327VM or GUIV3-M



LED button (A)

LED off - no power supply

LED on - actuator is on position

LED blinks - actuator drives on position, hasn't reached his desired values

Service connector (B)

The service connector serves in combination with GUIV, for parameterization and diagnostic of the controller.

Value selector (C)

The rotary selector can be used to change the values shown in the display.

Display (D)

The display with backlight is used for setting different values directly on the actuator without additional setting tools. The unit matrix can read out on label / can check with desired values in display.

I/s (Volumetric) = No square is shown in display

m³/h (Volumetric) = Only upper square is shown in display

Pa (Pressure) = Only middle square is shown in display

inWC/1000 = Upper & middle square are shown in display

α° (Angle) = Only lower square is shown in display

Cfm = Middle & lower square are shown in display

Operation 327V

By pressing the LED button (< 3sec) a reference drive starts.


Pressing the LED button (> 3sec) starts an adaption drive.

Operation 327VM

By pressing the LED button (< 3sec) the next menu point can be selected.

Pressing the LED button (> 3sec) the menu point can be edited. Push LED button for confirming the selected value.

Display of 327VM or GUIV3-M

1	Act. 	4	Diag.
	Set. 	5	Mode
2	Min.	6	Com.
3	Max.	7	Nom.

LED button (A)

LED off - no power supply

LED on - actuator is on position

LED blinks - actuator drives on position, hasn't reached his desired values

Service connector (B)

The service connector serves in combination with GUIV, for parameterization and diagnostic of the controller.

Value selector (C)

The rotary selector can be used to change the values shown in the display.

Display (D)

The display with backlight is used for setting different values directly on the actuator without additional setting tools. The unit matrix can read out on label / can check with desired values in display.

l/s (Volumetric) = No square is shown in display

m³/h (Volumetric) = Only upper square is shown in display

Pa (Pressure) = Only middle square is shown in display

inWC/1000 = Upper & middle square are shown in display

a° (Angle) = Only lower square is shown in display

Cfm = Middle & lower square are shown in display

Operation 327V

By pressing the LED button (< 3sec) a reference drive starts.

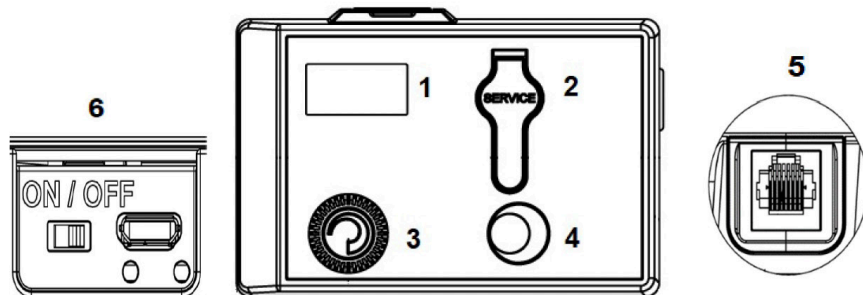
Pressing the LED button (> 3sec) starts an adaption drive.

Operation 327VM

By pressing the LED button (< 3sec) the next menu point can be selected.

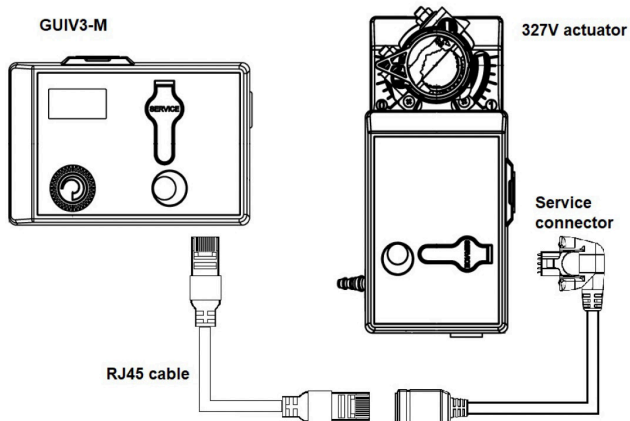
Pressing the LED button (> 3sec) the menu point can be edited. Push LED button for confirming the selected value.

Settings and tool functions for 327V / VM actuators via GUIV3-M

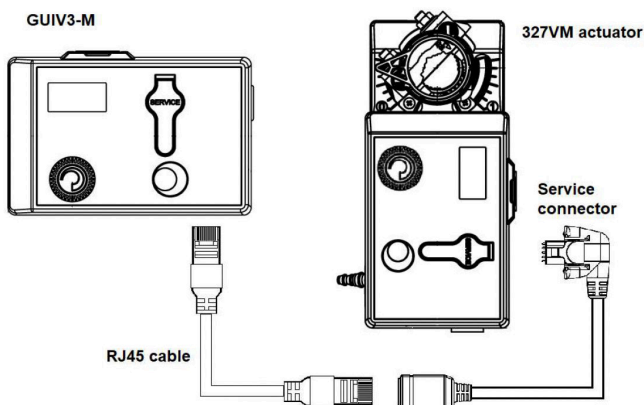


- 1) Display
- 2) Port for service-plug
- 3) Rotary selector switch

- 4) LED push button
- 5) RJ45 socket
- 6) On/off Switch and Micro-USB interface



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.



Menu items:

- Act/set – actual value/setpoint
- Min
- Max
- Diag – override control
- Mode – 0..10 V or 2..10 V
- Com – Modbus address and parameters
- Nom – Nominal value or correction factor