REACT V GMBa

Instructions for Use

16/05/2025
Art. 1546422

Key to symbols

Symbols on the machine

This product complies with applicable EU directives

Symbols in this user manual

Warning/Caution!

Risk of crushing

Application area

The product is a variable flow damper or constant flow damper designed for comfort ventilation indoors. The product is used to regulate the supply air or exhaust air flow in ventilation ducts.

The product may not be used for anything other than its intended use.

General

Read through the entire Instructions for Use before you install/use the product and save the instructions for future reference. It's not permissible to make changes or modify this product other than those specified in this document.

The packaging contains the following items

1 x REACT V GMB

1 x Instructions for Use

Protective equipment

Always use appropriate personal protective equipment for the work in question, in the form of gloves, respirators and protective glasses during handling, installation, cleaning and service/maintenance.

Electrical safety

Permitted voltage, see "Electrical data". It is not permissible to insert foreign objects into the product's contactor connections or the electronics' ventilation openings; risk for short circuiting.

24 V isolation transformer to be connected should comply with the provisions of IEC 61558-1.

Cable sizing must be carried out for cabling between the product and the power supply source.

Disconnect the power supply when working on the product and it is not required to be running.

Always follow the local/national rules for who shall be permitted to carry out this type of electrical installation.

Other risk

When the product is voltage fed, the damper will either open or close. This can entail a certain risk of pinch injuries, for example, on the fingers if these are placed between the damper blade and ventilation duct when the damper blade rotates. The product's actuator is equipped with a release button that permits manual control of the damper blade, always ensure this is activated before working on the internal parts of the damper.

Handling

- Always use appropriate transport and lifting devices when the product is to be handled to reduce ergonomic loads.
- The product must be handled with care.
- It is not permissible to carry the product by the measuring tubes.

Installation

- Moist, cold and aggressive environments must be avoided.
- Avoid installing the product near a heat source.
- Assemble the product according to applicable industry regulations.
- Install the product so that it is not accessible by unauthorized persons, for example above a suspended ceiling.
- Install the product for easy access during service/maintenance.
- Supplement the duct system with a cleaning hatch in the vicinity of the product to facilitate cleaning.
- If the product is mounted above a fixed ceiling, the inspection hatch must be located so that the product is accessible for inspection.
- If the product is mounted so that it is possible to gain access to the inside of the product, it must be supplemented with appropriate protection, for example, a ventilation unit.
- If the product is mounted in cold areas, the whole product must be insulated on the outside against condensation.
- For installation, the accessory FSR is recommended.
- The product can be installed position-independent.
- It is recommended to mount the product so that the product's display is visible.
- The product must be laid down prior to installation so that it cannot fall over.
- Check to make sure that the product doesn't have any visible defects.
- Check that the product is properly secured after it has been installed.
- Use the product's eyes to secure the cables with cable ties.
- Check that all cables are properly secured in place after installation.
- Check that the actuator/controller is properly mounted.

The document was originally written in Swedish

Installation, torque, dimensions and weights

Circular design

Dimensions

REACT V GMB Size	Duct size (Nominal) Ød (in)	Inlet diameter Ød (in)	A (in)	B (in)	C (in)	E (in)	Torque (lbf. In.)	Weight (lb)	Flow range (cfm)		Tolerance Q[2] ±5% (cfm)
									Min.	Max. = Vnom[1]	
100	4	3.9	18.7	19.1	7.5	2	44	3.5	11	142	4
125	5	4.9	18.7	19.1	8.5	2	44	4.0	19	229	4
160	6	5.9*	18.7	19.1	10.0	2	44	4.6	34	390	4
200	8	7.8	18.7	19.1	11.8	2	44	6.0	53	619	6
250	10	9.8	20.7	21.1	13.8	2	44	7.5	85	996	11
315	12	11.8*	22.0	22.4	16.3	2	89	9.9	133	1583	17
400	16	15.7	27.4	27.8	19.9	2.4	89	14.3	216	2627	28
500	20	19.6	32.3	33.1	23.8	2.4	89	20.1	347	4026	42
630	24	23.8*	36.0	36.8	28.9	2.4	89	30.9	636	6420	68

*Dimensions including DUCT ADAPTER.

[1]Vnom at 0.5 inWG in pressure reading.

[2]Installed according to the instructions.

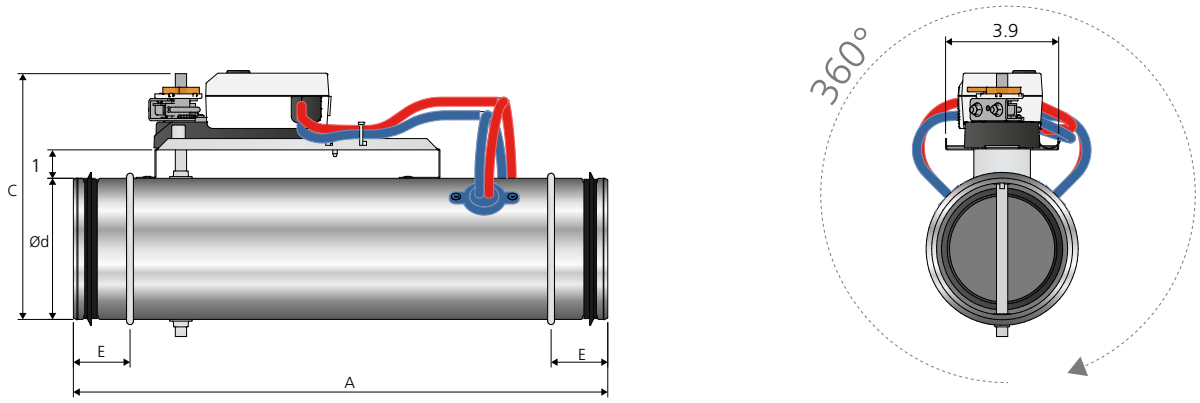


Figure 1. Dimensions (in), REACT V GMB circular. The damper can be installed at an optional angle.

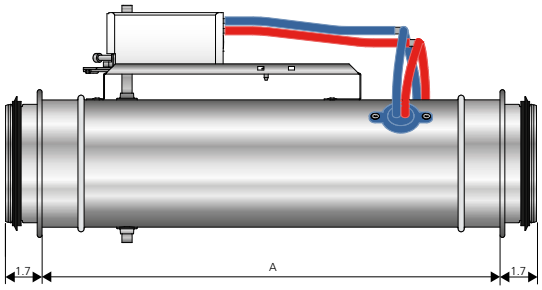


Figure 2. Dimensions with DUCT ADAPTER installed (in), REACT V GMB circular.

Installation

- The product's air flow measurement requires a straight duct section as per the installation figures.
- In unfavourable conditions before or with disruption, the product's tolerances cannot be guaranteed.
- Installation is position independent.
- The product can be installed horizontally or vertically.
- Instructions for Use are supplied on delivery, but can also be downloaded from www.swegon.com.

Straight duct section requirements

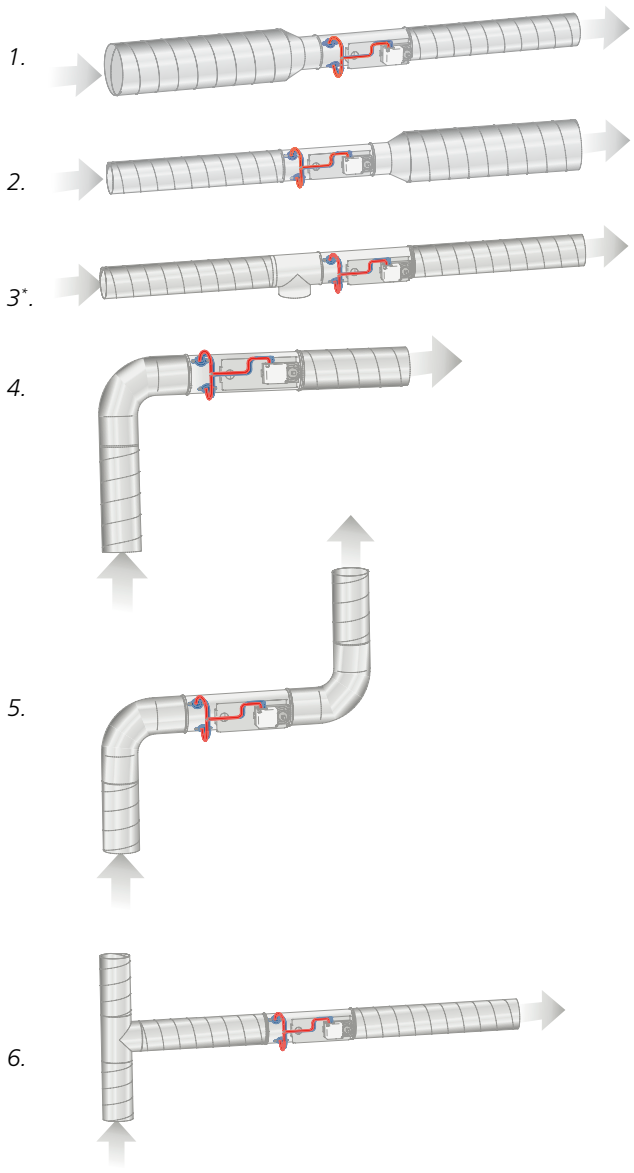


Figure 3. Straight duct section requirements in circular ducts, number of Ø before product:
Images 1-5 require no straight duct section (image 3 illustrates a T piece with a cleaning hatch).*
Image 6 requires a straight duct section before the damper equivalent to 4 x the diameter of the duct.

Straight duct section requirements in case of sound attenuator with baffle

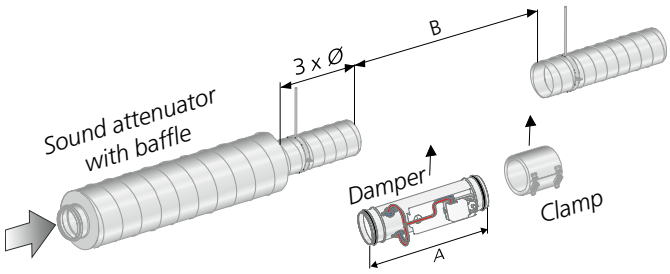


Figure 4. Straight duct section requirements 3 x Ø in case of sound attenuator with baffle or centre body.

Installation in the duct system

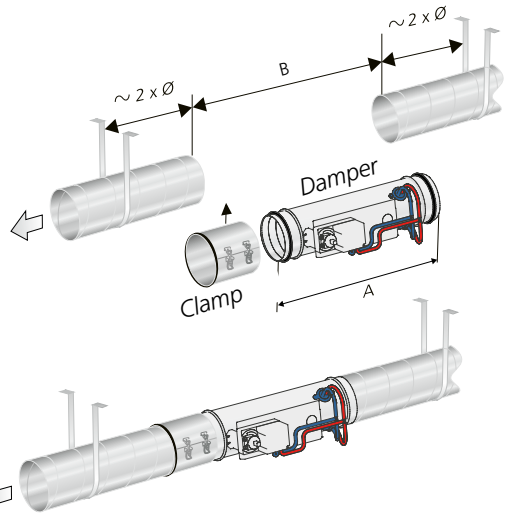


Figure 5. Installation in the duct system. The ducts must be firmly fixed to the frame of the building on each side of the product.

Rectangular design

Dimensions

REACT V GMB Size	Duct size (Nominal) (in)	Inlet dimensions BxH (in)	Torque (lbf. in.)	Weight (lb)	Flow range (cfm)		Tolerance Q* ±5% (cfm)
					Min.	Max. = Vnom*)	
200 x 200	8x8	7.9x7.9	44	13.2	142	773	17
300 x 200	12x8	11.8x7.9	44	15.9	212	1161	25
400 x 200	16x8	15.7x7.9	44	18.3	282	1547	36
500 x 200	20x8	19.7x7.9	44	20.9	354	1934	44
600 x 200	24x8	23.6x7.9	44	23.2	424	2320	53
700 x 200	28x8	27.6x7.9	44	25.8	494	2708	61
800 x 200	32x8	31.5x7.9	44	28.4	566	3093	70
1000 x 200	39x8	39.4x7.9	44	33.5	706	3867	89
300 x 300	12x12	11.8x11.8	44	19.4	322	1767	40
400 x 300	16x12	15.7x11.8	44	22.1	430	2356	53
500 x 300	20x12	19.7x11.8	44	24.9	538	2945	68
600 x 300	24x12	23.5x11.8	44	27.8	646	3534	81
700 x 300	28x12	27.6x11.8	44	30.2	752	4123	93
800 x 300	32x12	31.5x11.8	44	33.3	860	4712	108
1000 x 300	39x12	39.4x11.8	44	39.0	1076	5890	133
400 x 400	16x16	15.7x15.7	44	26.5	578	3168	72
500 x 400	20x16	19.7x15.7	44	29.5	723	3960	91
600 x 400	24x16	23.5x15.7	44	32.4	867	4752	108
700 x 400	28x16	27.6x15.7	44	35.9	1013	5543	127
800 x 400	32x16	31.5x15.7	44	39.2	1157	6335	144
1000 x 400	39x16	39.4x15.7	44	45.2	1445	7920	180
1200 x 400	47x16	47.2x15.7	89	51.6	1735	9503	216
1400 x 400	55x16	55.1x15.7	89	57.8	2023	11088	252
1600 x 400	63x16	63.0x15.7	89	63.9	2314	12670	288
500 x 500	20x20	19.7x19.7	44	33.5	909	4973	114
600 x 500	24x20	23.5x19.7	44	36.8	1089	5967	136
700 x 500	27x20	27.6x19.7	89	40.6	1271	6962	159
800 x 500	32x20	31.5x19.7	89	43.9	1453	7956	182
1000 x 500	39x20	39.4x19.7	89	50.7	1816	9946	227
1200 x 500	47x120	47.2x19.7	89	57.6	2178	11935	273
1400 x 500	55x20	55.1x19.7	89	64.6	2543	13925	318
1600 x 500	63x20	63.0x19.7	89	71.4	2905	15912	362
600 x 600	24x24	23.5x23.5	89	41.9	1309	7178	163
700 x 600	27x24	27.6x23.5	89	45.9	1530	8373	191
800 x 600	32x24	31.5x23.5	89	49.4	1748	9571	218
1000 x 600	39x24	39.4x23.5	89	57.1	2184	11963	273
1200 x 600	47x24	47.2x23.5	89	64.6	2621	14355	328
1400 x 600	55x24	55.1x19.7	89	71.4	3057	16747	381
1600 x 600	63x24	63.0x19.7	89	79.6	3494	19139	436
700 x 700	28x28	27.6x27.6	89	49.2	1788	9793	222
800 x 700	32x28	31.5x27.6	89	54.5	2043	11192	256
1000 x 700	39x28	39.4x27.6	89	62.6	2553	13988	320
1200 x 700	47x28	47.2x27.6	89	70.6	3064	16787	384
1400 x 700	55x28	55.1x27.6	89	78.9	3577	19584	447

*)Vnom at 0.5 inWG in pressure reading.

*Installed according to the instructions.

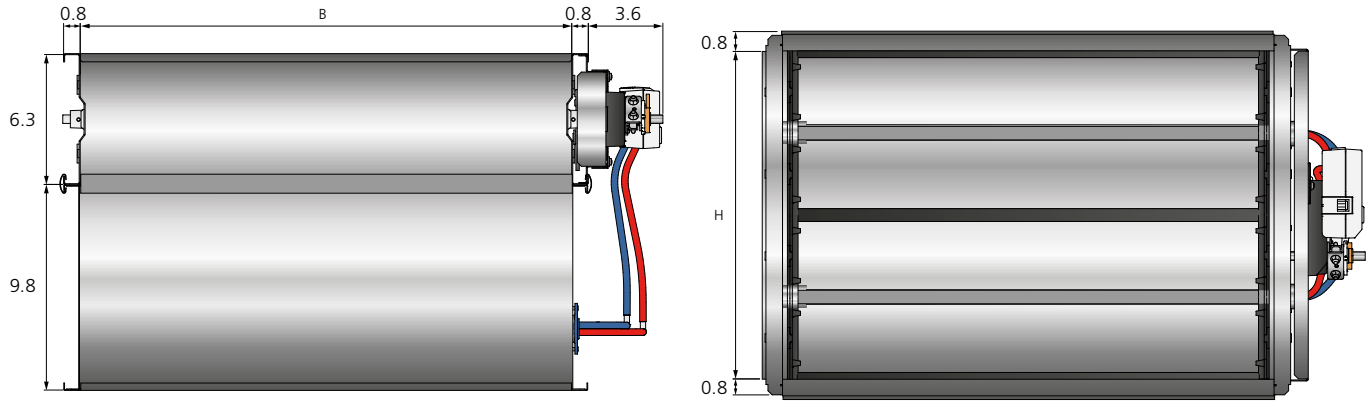


Figure 6. Dimensions (mm), REACT V GMB rectangular.

Installation

- The product's air flow measurement requires a straight duct section as per the installation figures.
- In unfavourable conditions before or with disruption, the product's tolerances cannot be guaranteed.
- Damper shafts must be installed horizontally.
- For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.
- Instructions for Use are supplied on delivery, but can also be downloaded from www.swegon.com.

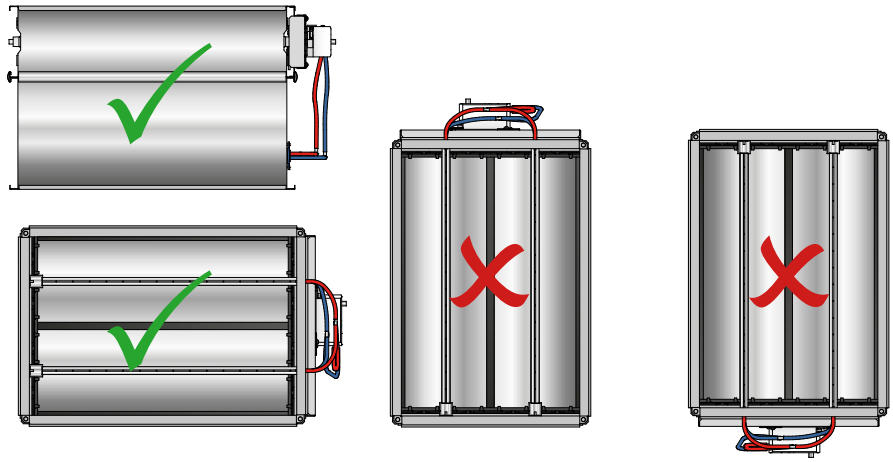


Figure 7. Installation - For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.

Straight duct section requirements

Type of obstruction	Tolerance Q ±5%	Tolerance Q ±10%
One 90° bend	E = 3 x B	E = 2 x B
T piece	E = 3 x B	E = 2 x B

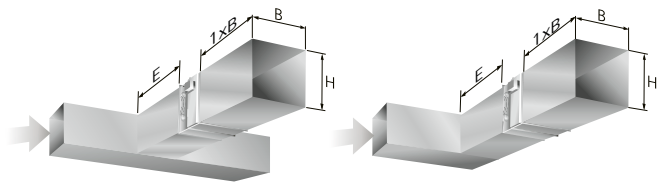


Figure 8. Straight duct section requirements in rectangular ducts.
E = Straight section
B = Width of duct
H = Height of duct

Straight duct section requirements in case of sound attenuator with baffle

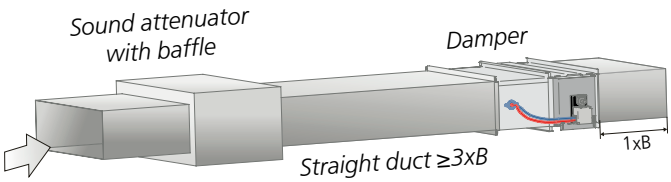


Figure 9. Straight duct section requirements 3 x B in case of sound attenuator with baffle. Applies to both supply and exhaust air.

Connection

1-2 – Supply voltage 24 V AC/DC

1-3 – Control signal (Y) 0..10/(2..10) V DC

1-4 – Actual value signal (U) 0..10/(2..10) V DC

A – Modbus (-CA)

B – Modbus (+CB)

For further calculations of Y and U, see the formulas on page 11.

Load on output 4: max. 0.5 mA.

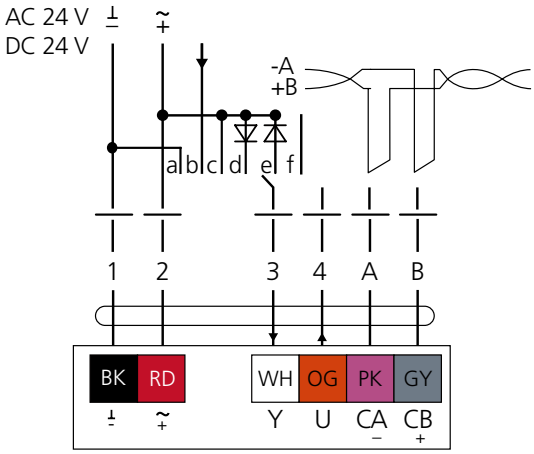


Figure 10. Wiring diagram.

Regulation and forced control via analog control signal

See connection in the wiring diagram, Figure 10.

Signal	a	b	c	d	e	f
	⊥ − 3	3	~ + 3	~ 3	~ 3	3
Mode 2...10 V	Closed	Vmin[1]	Vmax	Open[2]	Closed[3]	Vmin
Mode 0...10 V	Vmin	Vmin[1]	Vmax	Open[2]	Closed[3]	Vmin

[1]Control signal 0-10 V DC / 2-10 V DC
[2]Positive half-wave, AC only
[3]Negative half-wave, AC only

Mode 2-10 V: Damper closed < 0.8 V

 16/05/2025

Handling

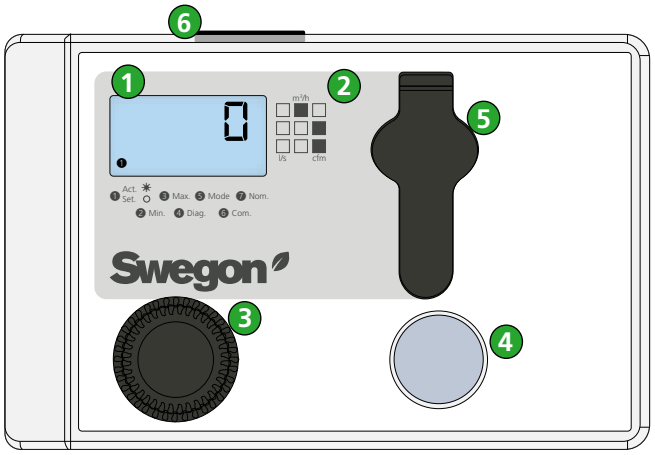


Figure 11. Gruner actuator.

1 Display

Display for setting and changing values directly on the actuator without external tools, with backlighting that goes out automatically. The display only shows three figures; in the case of larger values, apostrophes are shown and the remaining figures are hidden.

- 1000 = 1´00
- 10000 = 10´0
- 1278 = 1'27

2 Unit matrix

The unit matrix can be read on the label/checked against required values on the display

l/s:	No square is shown on the display
m^3/h:	Only the top square is shown on the display
cfm:	The middle and bottom squares are shown on the display

3 Value selector

To change the values shown on the display

4 Pushbutton and LED lighting

Off:	No power
On:	Required set point achieved
Flashing:	Required set point not achieved
Pressing button:	Select between the menus

5 Service port

For connection of the hand-held terminal Gruner GUIV3-M

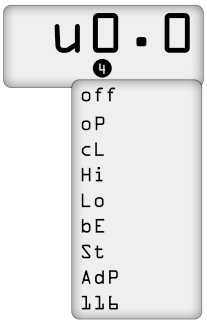
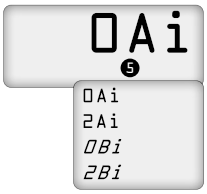
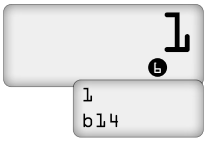
6 Release button

Pressed button:	Actuator disconnected, the motor stops, manual overriding possible
Released button:	Returns to standard mode

Setting and reading of parameters

1. Select required menu by pressing the Pushbutton.
2. Press and hold the Pushbutton for more than 2 seconds (the value will flash in the display) to make it possible to make changes in the selected sub menu.
3. To save the selected value, press the Pushbutton once (the value flashes three times when a new value has been accepted).

Settings for actuator

Menu	Display	Description
❶ Act.✳ Set.o		Alternately shows actual value / set point Change of unit
❷ Min.		Adjustment to required min. value (set point Y = 0/2 V DC) The min. value must be less than the max. value Min. value is greater than the max value = forced to min. value
❸ Max.		Adjustment to required max. value (set point Y = 10 V DC) The max. value must be greater than the min. value
❹ Diag.	 off oP cL Hi Lo bE St AdP 111	Alternately shows set point (y) / feedback signal (u) Forced control Normal Operation Opens the damper fully Closes the damper fully Damper regulates to selected max. value The damper is regulated to selected min. value Damper regulates to selected intermediate value, 50% of nominal value Actuator stops in the current position End position calibration (Applies to 15 Nm or Modbus version) Shows the current software version
❺ Mode	 0Ai 2Ai *0Bi* *2Bi*	Actuator control 0-10 V DC, Analog, Inverted direction of rotation 2-10 V DC, Analog, Inverted direction of rotation *0-10 V DC, Bus, Inverted direction of rotation. Can only be changed via Modbus.* *2-10 V DC, Bus, Inverted direction of rotation. Can only be changed via Modbus.*
❻ Com.	 1 b14	Bus communication, see Handling Modbus Modbus address 1…247 Communication settings b1…b32
❼ Nom.		Shows the nominal air flow The display only shows three figures; in the case of larger values, apostrophes are shown and the remaining figures are hidden

How to use Modbus

Modbus tables can be found in separate document (REACT Gruner – Modbus settings).

Menu 6 (Com) makes it possible to set Modbus address and communication settings. The Modbus address can be set between 1 and 247. Communication settings can be set between b1 and b32, see table below.

Display number	Baud Rate - Parity - Stop bit
1	1200-None-2
2	1200-Even-1
3	1200-Odd-1
4	2400-None-2
5	2400-Even-1
6	2400-Odd-1
7	4800-None-2
8	4800-Even-1
9	4800-Odd-1
10	9600-None-2
11	9600-Even-1
12	9600-Odd-1
13	19200-None-2
14[1]	19200-Even-1
15	19200-Odd-1
16	38400-None-2
17	38400-Even-1
18	38400-Odd-1
19	1200-None-1
20	2400-None-1
21	4800-None-1
22	9600-None-1
23	19200-None-1
24	38400-None-1
25	76800-None-1
26	115200-None-1
27	76800-None-2
28	76800-Even-1
29	76800-Odd-1
30	115200-None-2
31	115200-Even-1
32	115200-Odd-1

[1] Standard setting

Trouble shooting

The product does not communicate over Modbus

- Make sure that the product is energized.
- Check the product's Modbus connection.
- Check the product's communication settings.
- Check that the product has the right and unique Modbus address.

The product shows incorrect/no air flow

- Make sure that the product is energized.
- Check that the motor's set size (Vnom) corresponds with the physical size of the damper, see "Handling".
- Make sure that the product is installed according to the recommended distance to disruptions, see "Installation".
- Check that there is an air flow.
- Make sure that the product is correctly oriented in terms of air direction. The air flow must follow the instructions on the product.
- Check that the measuring tubes are mounted correctly, plus to plus (red), minus to minus (blue).
- Check that the measuring tubes are undamaged and not creased.
- Check with the help of the K-factor and the pressure difference between the red and blue measuring tubes that the flow is within the product's measurement range.

The product does not regulate the air flow

- Make sure that the product is energized.
- Check that the damper motor has not become detached from the damper shaft.
- Check that the damper motor works by pressing in the motor's release button, turn the damper shaft, release the release knob and then see whether the damper motor starts to move.
- Check that the product is connected correctly.
- Check that the product is not force controlled.

The product does not regulate on the desired air flow

- Check that the settings for Vmin and Vmax correspond with the required regulation range.
- Check the electrical connection for the required function, see wiring diagrams in the document "REACT Gruner Description of functions & wiring diagrams".

Product does not exit test mode

- Check that the product is connected correctly, check the "Y" signal and the polarity on "G" and "G0". See "Connection".
- Check the setpoint settings for Vmin and Vmax. The value for Vmax must be higher than Vmin in order for the product to be in automatic mode.
- If Modbus communication is used for the damper, test mode can be active via the communication. Try disconnecting the Modbus cables and attempt to set the motor in automatic mode. See "Handling".

Cleaning

Ideally, the product should be cleaned in connection with the cleaning of the rest of the ventilation system.

Cleaning of electrical components

- If needed, use a dry cloth to clean the components.
- Never use water, detergent and cleaning solvent or a vacuum cleaner.

External cleaning

- If necessary use tepid water and a well-wrung cloth.
- Never use detergent and cleaning solvent or a vacuum cleaner.

Internal cleaning

- When cleaning the ventilation system, the product must be dismantled if there are no cleaning hatches close to the product.
- Cleaning equipment such as whisks and the like must not be fed through the product.
- If necessary remove dust and other particles that can be present in the product.
- Never use detergent and cleaning solvent or a vacuum cleaner.

Service/maintenance

- The product does not require any maintenance, except for any cleaning when necessary.
- In connection with a service, mandatory ventilation inspection or cleaning of the ventilation system, check that the general condition of the product appears to be good. Pay particular attention to the suspension, cables and that they sit firmly in place.
- It's not permissible to open or repair electrical components.
- If you suspect that the product or a component is defective, please contact Swegon.
- A defective product or component must be replaced by an original spare part from Swegon.

Materials and surface treatment

All sheet-metal parts are galvanized sheet steel (Z275).

Disposal

Waste must be handled according to local regulations.

Product warranty

The product warranty or service agreement will not be valid/will not be extended if: (1) the product is repaired, modified or changed, unless such repair, modification or change has been approved by Swegon AB; or (2) the serial number on the product has been made illegible or is missing.

Performance checks

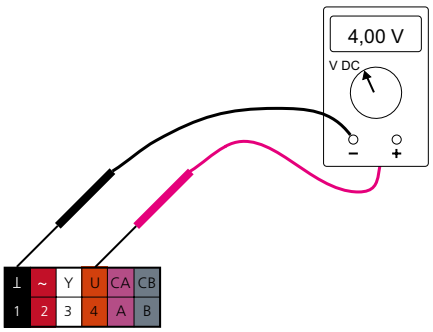


Figure 12. Shows connection to a voltmeter for checking the actual value.

Formulas for calculating air flow

The following applies for analog control.

Control signal 0..10 V DC give the following formulas:

- Calculation of current flow (V_{act}) when you know the value of the control signal (Y) :

$$V_{act} = V_{min.} + \frac{Y}{10\ V\ DC} \bullet (V_{max.} - V_{min.})$$

- Calculation of the current actual value (U) when you know the value of the current flow (V_{act}):

$$U = 10\ V\ DC \bullet \frac{V_{act}}{V_{nom}}$$

Control signal 2..10 V DC gives the following formulas:

- Calculation of current flow (V_{act}) when you know the value of the control signal (Y):

$$V_{act} = V_{min.} + \frac{Y - 2\ V\ DC}{8\ V\ DC} \bullet (V_{max.} - V_{min.})$$

- Calculation of the current actual value (U) when you know the value of the current flow (V_{act}):

$$U = 2\ V\ DC + 8\ V\ DC \bullet \frac{V_{act}}{V_{nom}}$$

Key to formulas above:

Y = control signal in [V] DC
U* = actual value signal in [V] DC, always refers to 0-V_{nom}.
V_{act} = current air flow in [l/s, m³/h, cfm]
$V_{min.}$ = set min. flow in [l/s, m³/h, cfm]
$V_{max.}$ = set max. flow in [l/s, m³/h, cfm]
V_{nom} = nominal flow in [l/s, m³/h, cfm], see tables pages 2 & 4.

*Note: Does not indicate damper position.

Replacing the damper motor

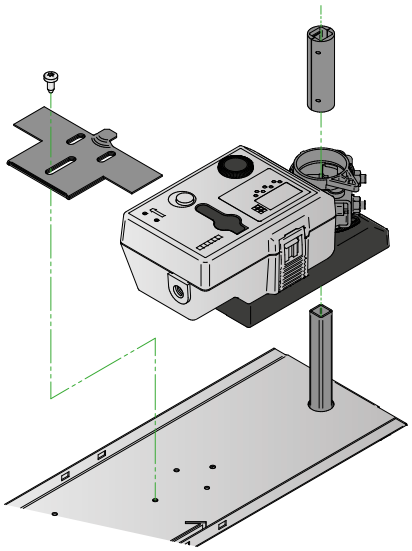


Figure 13. Dismantling the damper motor.

1. *Disconnect the cable.*
2. *Disconnect the measuring tubes.*
3. *Set damper motor to the open position.*
4. *Loosen the nuts on the shaft clamp (nuts: 8 mm).*
5. *Remove 1 screw for the locking strip on the circular design and 2 screws for the locking strip on the rectangular design (screw: TX20).*
6. *Lift off the damper motor and shaft adapter*
   (The rectangular design has a round damper shaft and no shaft adapter).
7. *Reassemble in the reverse order.*
   Note: Positioning of damper blade and locking strip, see figures 14 and 15.

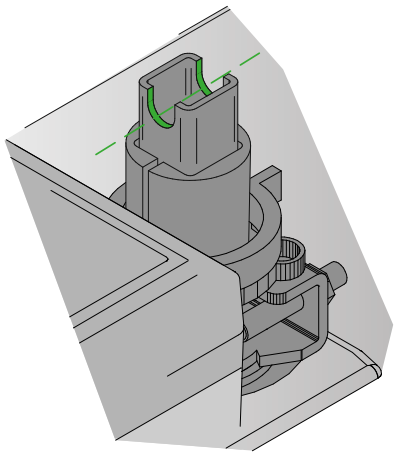


Figure 14. Recess in the damper shaft indicates the position of the damper.

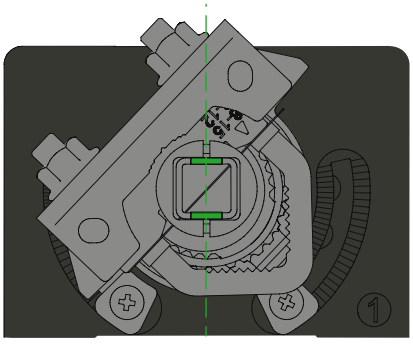


Figure 15. Damper open. Jumper to the left.

Technical data

IP class:	IP42 (Cable installed downwards)
Corrosivity class:	C3
Pressure class:	A
Leakage classes according to SS-EN 1751	
- Leakage class, casing:	C
- Leakage class circular damper, closed:	4
- Leakage class rectangular damper, closed:	3
Running times open/close (90°):	
44 lbf.In:	100 s
89 lbf.In:	150 s
Ambient temperature	
Operation:	32 – 122°F
Storage:	-4 – 176°F
RH:	5 – 95% (non condensing)
CE marking:	2006/42/EC (MD)
	2014/30/EU (EMC)
	2011/65/EU (RoHS2)

Electrical data

Power supply:	24 V AC/DC ±15% 50 - 60 Hz
Fixed connection cable, 39 in with cable size.	
Supply voltage/control signal	4x18AWG
Modbus	2x 22AWG

Power consumption, for transformer rating:		
REACT V GMB 44 lbf.In	2.0 W	3.5 VA
REACT V GMB 89 lbf.In	2.0 W	3.5 VA

Declaration of Conformity

Swegon AB hereby affirms that:

REACT V GMBa complies with the essential characteristic demands and relevant regulations specified in the directives, 2006/42/EC (MD), 2014/30/EU (EMC) and 2011/65/EU (RoHS2):

The following standards have been observed:

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: Generic standards
EN 60730-1:2011	Automatic electrical control and control unit for household use - Part 1: Generic standards
EN 61000-6-2:2007	Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments
EN 61000-6-3:2007	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments

CE

Person responsible for this declaration:

Name: Freddie Hansson, R&D Manager Tomelilla

Address: Industrigatan 5, 273 21 Tomelilla, Sweden

Date: 231117

This declaration is applicable only if the product has been installed according to the instructions in this document and if no modifications or changes have been made on this product.

References

www.swegon.com

Building Materials Declaration

REACT V GMB Product data sheet

REACT Gruner – Description of functions & wiring diagrams

REACT Gruner – Modbus settings