

FläktGroup

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COMPACT CONTROLLER CET.ACEC

OPERATION MANUAL



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FläktGrou product range - here an example with a CET.ACEC compact controller

1 Safety and User Information

FläktGroup CET.ACEC compact controllers are constructed using state-of-the-art technology and according to recognized safety regulations.

Use the FläktGroup CET.ACEC as intended by the manufacturer and only when it is in perfect working order. Observe the operation manual and be aware of the dangers and safety precautions, otherwise there may be risk of death or injury to the user or third persons. Adverse affects to the CET.ACEC compact controller itself, connected units or other equipment may also occur!

Have all faults repaired by an authorized specialist without delay!

All information in this chapter is important and relevant for your safety. However, not all of the information contained in the present manual is labeled with special danger pictograms.

1.1 Availability of the operation manual

This operation manual contains important instructions regarding safe and correct operation of the FläktGroup CET.ACEC compact controller.

The current operation manual is intended to be used by operators, building services engineers, technical personnel or instructed staff as well as electrical specialists.



This operation manual must be available at the location of the FläktGroup CET.ACEC compact controller at all times. Anyone who works with or at the FläktGroup CET.ACEC compact controller must read and observe this operation manual.

1.2 Scope of application of the operation manual

This operation manual provides information about the following:

- Assembly/disassembly
- installation
- Commissioning and testing
- Operation
- Troubleshooting
- Maintenance and Cleaning

1.3 Symbols used

The following symbols are used to highlight particular text sections in this operation manual:

- This symbol is used for normal lists.
- This symbol indicates instructions to follow.
- ✓ This symbol indicates the result of an action.



notice!

Additional details on using the unit are specified here.

1.4 Identification of safety information

The following designations/symbols are used in this manual to specify safety-relevant information:


The following designations/symbols are used in this manual to specify safety-relevant information:

1.4.1 DANGER - Death/serious irreversible injury

⚠ DANGER

Indicates an extremely hazardous situation which **will result in death or serious irreversible injury**, if the safety instruction is not followed.

Example:



	⚠ DANGER
	<p>Electrocution through hazardous voltage will lead to death or serious injury!</p> <ul style="list-style-type: none"> • Disconnect the unit from the power supply and ensure the power cannot be switched back on. • Ensure the unit is voltage-free and isolated, earth and short circuit the unit, cover or shield off neighboring live components.

1.4.2 ATTENTION – Environmental or material damage

ATTENTION

Indicates actions that can result in damage to equipment or property.

Examples:

	ATTENTION
	<p>Environmental damage! Heavily contaminated filters can have a negative impact on production processes. Depending on the filtered-out materials, contaminated filters are therefore classified as hazardous waste and must be properly disposed of according to the prevailing guidelines and laws.</p>
	ATTENTION
	<p>Damage to the unit! This symbol precedes a warning on static-discharge damage to the unit.</p>

1.5 Used safety symbols



Electrical hazard



PERSONAL injury



Environmental damage



Damage to the unit



Damage through static discharge!

1.6 Safety-conscious work procedures

When working on 400 V/50 Hz power supplies:

	DANGER
	<p>Electrocution through hazardous voltage will lead to death or serious injury.</p> <ul style="list-style-type: none"> • Disconnect the unit from the power supply and ensure the power cannot be switched back on. • Ensure the unit is voltage-free and isolated, earth and short circuit the unit, cover or shield off neighboring live components.

	ATTENTION
	<p>Damage to the unit!</p> <p>While carrying out adjustment work on the FläktGroup CET.ACEC compact controller, make sure that you discharge yourself statically before touching the circuit board and electrical components.</p>

- Observe all assembly instructions for the FläktGroup CET.ACEC compact controller.
- Fluctuations or deviations of the line voltage may not exceed the tolerance limits stated in the technical data, otherwise functional failures and excessive pressures cannot be excluded.

1.7 Proper use

The FläktGroup CET.ACEC compact controller is specifically designed for controlling or as controller for air-handling units of FläktGroup and depending on the equipment version, regulating other units within a building automation system.

The FläktGroup CET.ACEC compact controller can be employed :

- to assign setpoints for room temperature
- to select fan speed
- **for the control of:**
 - AC motor 3-speed
 - EC motor continuously variable (0-10 VDC)
 - 2-point valve body 2-pipe heater
 - 2-point valve body 2-pipe cooling
 - 2-point valve body 2-pipe Change Over, heating or cooling
 - 2-point valve body 4-pipe heating and cooling
- **for processing:**
 - External window contact or fault signal
 - External clock timer or card reader)
 - External switch-over of heating/cooling medium
 - Room temperature probe (NTC)
 - External inlet sensor (NTC)

– **for forwarding the following specifications with Modbus:**

- setpoints such as room or supply air temperature
- fan operating modes such as automatic operation
- Activation window or fault input
- Activation card reader input or reader input
- Activation switch-over of heating/cooling medium
- Internal or external room temperature measurements
- Inlet temperature measurement

The FläktGroup CET.ACEC compact controllers are supplied in the IP30 protection class, which protects the unit against outside influences:

*Protection IP30
residential area*

- In protection type IP30 according to DIN EN 60529 for residential areas. May only be used indoors; in this case - ensure that the unit is protected against dust and other substances.

Proper use also includes observance of the operation manual and the inspection and maintenance conditions stipulated by FläktGroup.

Improper use

Any use other than that described above is considered **improper**. The manufacturer/supplier is not liable for any damages arising from improper use. The user alone bears the risk.



RISK OF PERSONAL INJURY!

The FläktGroup CET.ACEC compact controller may not be operated:

- in areas subject to explosion risk
- In rooms with conductive dust
- in rooms with strong electromagnetic fields
- in rooms with aggressive atmosphere that attacks plastics, for instance.

The FläktGroup CET.ACEC compact controller may not be operated:

- in humid rooms
- in rooms with dust-laden air

1.8 Modifications and changes

You are not allowed to change, add, or modify the FläktGroup CET.ACEC compact controller in any way.

Changes or modifications on the FläktGroup CET.ACEC compact controller will invalidate the CE conformity and render all warranty claims null and void.

1.9 Spare parts

You may use only original FläktGroup spare parts, since FläktGroup is not liable if any third-party spare components are used.

1.10 Disposal

Equipment and operating supply materials must be disposed of according to the material type in a safe and environmentally friendly manner.

1.11 Personnel selection and qualification



Ensure that every person working on the FläktGroup CET.ACEC compact controller has read and studied the entire operation manual, especially the chapter on safety. It is too late to do this after the work has already begun.

All electrical connections may only be carried out by tradespeople with sufficient knowledge based on their professional training and experience in the following areas:

- occupational health and safety regulations
- Accident prevention regulations
- Directives and recognized codes of practice

All skilled staff must be able to assess the entrusted work and must be able to recognize and avoid all associated dangers.

2 Technical description

2.1 Packaged content

- FläktGroup CET.ACEC:*
- **Compact controller** for assembly on a flush-mounted socket (protection class IP30) consisting of top and mounting plate
 - **Supplementary sheet** – for connection and operation overview of the controller.



- Optional:*
- **Sensor** – room-temperature sensor type 903.414, R= 10 kOhm/25 °C
 - **Sensor** – attached sensor for the water inlet temperature type 903.434, R= 10 kOhm/25 °C

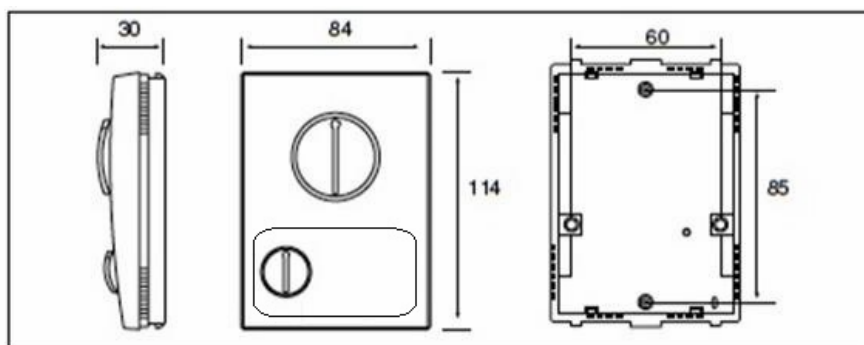
2.2 Product features and functions

All functions of the FläktGroup CET.ACEC compact controller for the control of Fläkt-Group air-handling units are brought together into one version. This serves the direct control of FläktGroup air-handling units or the communication of the user with the Fläkt-Group control/monitoring systems.

2.3 Equipment features of the FläktGroup CET.ACEC compact controller

Type	Equipment features															
	Setpoint assignment		Connection to the unit										Other			
	Setting fan speed	Setting room temperature	AC ventilator (3-speed)	EC ventilator (continuously variable) 0-10 VDC	Heating valve (2-point)	Cooling valve (2-point)	Valve heating or cooling Change Over (2-Point)	Input for window- or fault contact	Input clock timer or card reader	Input for the switch-over of heating/cooling medium	Input for the room temperature sensor	Input of the inlet-temperature sensor	Modbus RTU (RS485)	Integrated room temperature sensor	Network interface	Automatic valve and fan control
CET.ACEC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

2.4 Technical data and accessories



Type series	CET.ACEC
Area of application	Comfort area
Ambient atmosphere	
Allowed ambient temperature	0 °C to 50 °C
Permissible ambient relative humidity	<95% r.h
Allowed storage temperature	-15 °C to 65 °C
Permissible storage relative humidity	<95% r.h
Electromagnetic compatibility	
Electromagnetic interference (EMI)	EN 61000-6-3 2011-09
Electromagnetic interference shielding (EMS)	EN 61000-6-2 2011-06
Mechanical data	
External dimensions (W/H/D)	84 x 114 x 30 mm
Mounting	on the wall
Weight	165 g
Casing material	Bayblend® FR3010
Casing front panel	Similar to RAL 9010 (white)
Casing rear section (if necessary surface-mounted socket)	Similar to RAL 9010 (white)
Protection type (according to DIN 40050)	IP30
Application position	installed vertically
Cable entry point	from behind
Electrical data	
Supply voltage	230 V AC 50/60 Hz
EC fan outlet (digital)	230 V AC, 50 Hz max. 1.25 A (3 A peak)
Fan output (analog)	0-10 V DC – 1 mA max. 10? Load
Valve outputs (digital)	230 VAC, 50/60 Hz max. 0.8 A (on/off or PWM)
Comfort/economy input (digital) (Clock timer or card reader)	3.3VDC
Release input (digital) (Window or fault contact)	3.3VDC
Change-over contact heating/cooling (digital)	
External room temperature sensor input (analog)	NTC sensor, 10 K? at 25°C, Beta 3435.
External input inlet-temperature sensor (analog)	NTC sensor, 10 K? at 25°C, Beta 3435.
Room temperature sensor	Integrated
Options	
External room temperature sensor	Type 903.414

Type series	CET.ACEC
Flow/inlet temperature sensor defective	Type 903.434

2.4.1 Accessories

Optional accessories	Sensor type 903.414
Mechanical data	
External dimensions (W/H/D)	84 x 84 x 22 mm
Allowed ambient temperature	-35 °C to 70 °C
Fixation	on the wall
Weight	40 g
Casing color	RAL 9010 (pure white)
Application position	vertical
Protection type (according to DIN 40050)	IP20
Cable entry point	Cable inlet from behind, for flush-mounted box
Electrical data	
Resistance	10 kOhm/25 °C
VOLTAGE	Max. 12 V

Optional accessories	Sensor Type 903.434
Mechanical data	
External dimensions of bulb	6 x 35 mm
Maximum ambient temperature	100 °C
Mounting	on pipework
Weight	40 g
Casing color	RAL 9010 (pure white)
for OP5I	similar to RAL 7035 (light grey)
Application position	arbitrary
Protection type (according to DIN 40050)	IP43
Cable length	2 m
Electrical data	
Resistance	10 kOhm/25 °C
VOLTAGE	Max. 12 V

3 Assembly and Installation

⚠ DANGER

Electrocution through hazardous voltage will lead to death or serious injury.
 The electrical installation and (dis)assembly of the FläktGroup CET.ACEC compact controller may only be carried out by qualified electricians in compliance with this operation manual and current VDE regulations.

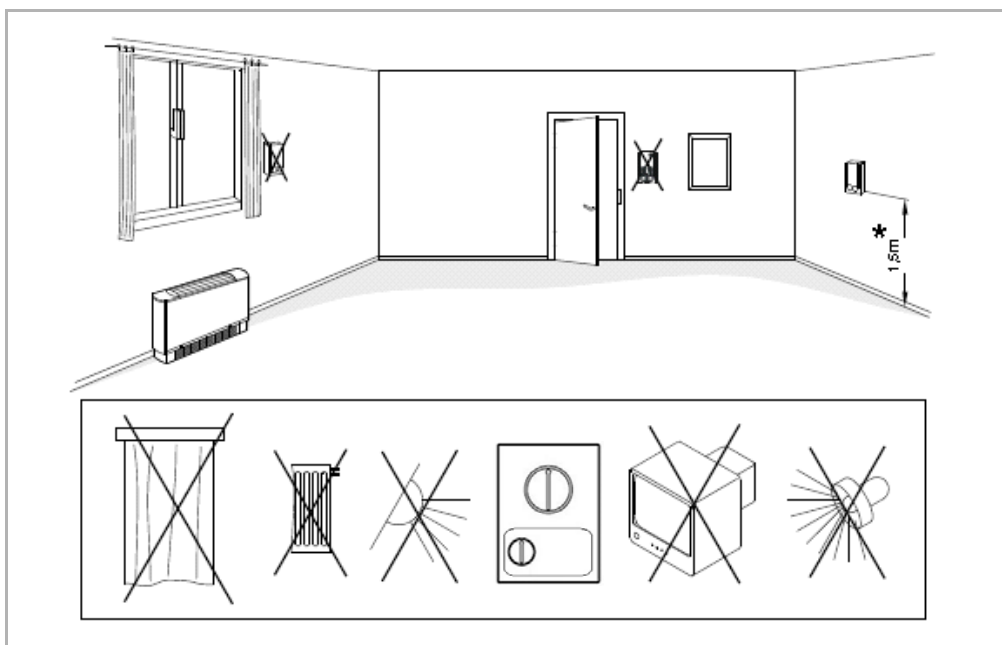
- Before drilling, ensure that the drilling area is free from electrical cables and pipes.
- Mount the FläktGroup CET.ACEC compact controller only in closed rooms.

3.1 Planning of mounting



NOTICE!

- The installation site of the CET.ACEC compact controller or the room temperature sensor is crucial for the precise control of room temperature. Therefore do not mount the CET.ACEC compact controller or the sensor
- next to doors, windows, passages etc., since intense movement of air can cause incorrect measurements,
 - on hot or cold walls (e.g. chimney, outside wall), since the wall temperature can cause incorrect measurements,
 - behind curtains or net curtains, since the insulating layers of air can cause incorrect measurements,
 - adjacent to the unit's discharge grilles, since the discharge temperature can cause incorrect measurements
 - below cold surfaces like windows, since descending cold air flow can cause incorrect measurements.



*Mounting the
 FläktGroup
 CET.ACEC compact
 controller/
 room temperature sensor*

*** recommended
 installation height = 1.5 m**



NOTICE!

- If a FläktGroup fan-coil unit has a heating or cooling change-over function, the mounting location of the inlet-water temperature sensor is of decisive significance for the accuracy of the automatic switch-over.
- Therefore, mount the flow sensor on the piping at a position where the current water temperature can be best recorded. Pay attention that the sensor is not mounted at a position where the water flow can be blocked, e.g. by a valve.

3.2 Mounting the FläktGroup CET.ACEC compact controller



NOTICE!

- Use the drilling template for wall mounting of the FläktGroup CET.ACEC compact controller (see „Drilling hole spacing for FläktGroup CET.ACEC compact controller“ on page 26).
- Make sure that the mounting plate is not deformed during installation.

The casing of the FläktGroup CET.ACEC compact controller (IP30) is suitable for on-wall and flush-mounted sockets.



NOTICE!

- When mounting the CET.ACEC compact controller in a flush-mounted socket, especially a hollow-wall socket, ensure that nothing can impede the correct measurement of the room temperature. To avoid draught, provide appropriate insulation of the flush-mounted socket, if necessary.
- If the control panel is mounted into a flush-mounted socket, edges of the mounting plate may remain visible, which depends on the socket used and the way it is mounted. If necessary, use paint, wall paper, or similar means to prepare the installation surface.
- It also possible to hide the visible edges of the mounting plate by using a wall-lamp socket with vertical mounting dimensions (screw clearance) of 60°mm



- Apply a screwdriver on the bottom side of the CET.ACEC compact controller to unlock the front panel and lift the front panel upwards away from the mounting plate, as depicted in the figure.
- Route the wires through the opening in the mounting plate of the CET.ACEC compact controller.
- Secure the mounting plate of the CET.ACEC compact controller on the wall or in the flush-mounted socket.

3.3 Installation of the FläktGroup CET.ACEC compact controller

For the connection of the CET.ACEC compact controller we recommend the use of the following cables or a comparable model.

Connection type	Terminal number	Manufacturer	Cable type	Cross section
AC fan, valves	3,4,5,6,7,8	LAPP cable	ÖLFLEX® CLASSIC 110	1.5 mm ²
Fan EC (0-10V)	9,10	LAPP cable	ÖLFLEX® CLASSIC 110 CY	0.75 mm ²
Status signals	13,14,15,16	LAPP cable	ÖLFLEX® CLASSIC 110	0.75 mm ²
Sensor inputs	11,12,13	LAPP cable	ÖLFLEX® CLASSIC 110	0.75 mm ²
Modbus interface	A,B	LAPP cable	UNITRONIC® Li2YCYC TP	0.5 mm ²

The following steps are necessary to connect the CET.ACEC compact controller:

- Connecting mains electrical supply
- Connect HVAC equipment
- or connect status signals
- Connect external sensors, if required
- Connect Modbus interface, if required

3.3.1 Modbus Network



NOTICE!

- If the Modbus network is longer than 100 meters, a 120 Ω resistance should be installed at the start and end of the bus.
- The shielding of cables must be connected to at least one point on the PE conductor.
- Also note the address setting described in Chapter „Set Modbus address“ on page 22.

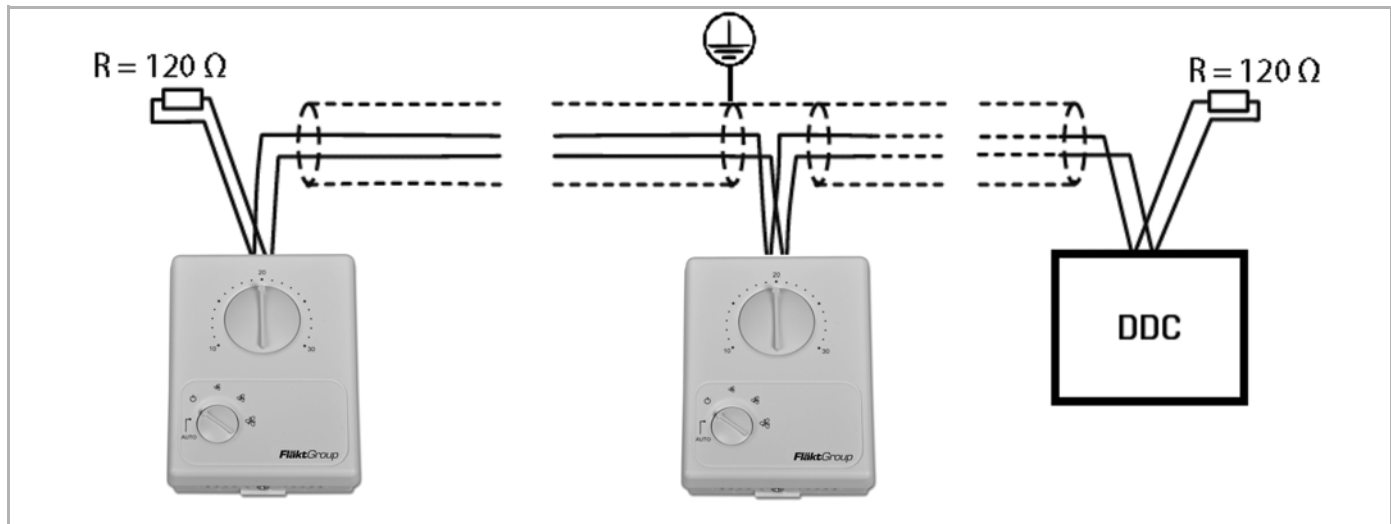


Fig. 3-1: Modbus Network

Terminal connections:

- M1 Supply voltage phase (L)
- M2 Supply voltage neutral wire (N)*
- M3 Common neutral conductor voltage outputs
- M4 Fan outlet – speed 1 / secondary outlet
- M5 Fan outlet – speed 2
- M6 Fan outlet – speed 3
- M7 Valve outlet – cooling
- M8 Valve outlet – heater / heating or cooling change over
- M9 Fan outlet (0-10V) +
- M10 Fan outlet (0-10V) -
- M11 Inlet room-temperature sensor
- M12 Inlet-water temperature sensor (inlet temperature)
- M13 Common connection for analog and digital inputs*
- M14 Change-over contact heating/cooling (digital)
- M15 Digital input Economy Mode (clock timer/card reader)
- M16–Digital input window contact
- A Modbus RTU RS485 connection (+)
- B Modbus RTU RS485 connection (-)

** If several wires lead to the clamp, then an appropriate clamp connection must be created on-site that conducts only one wire below this clamp.*

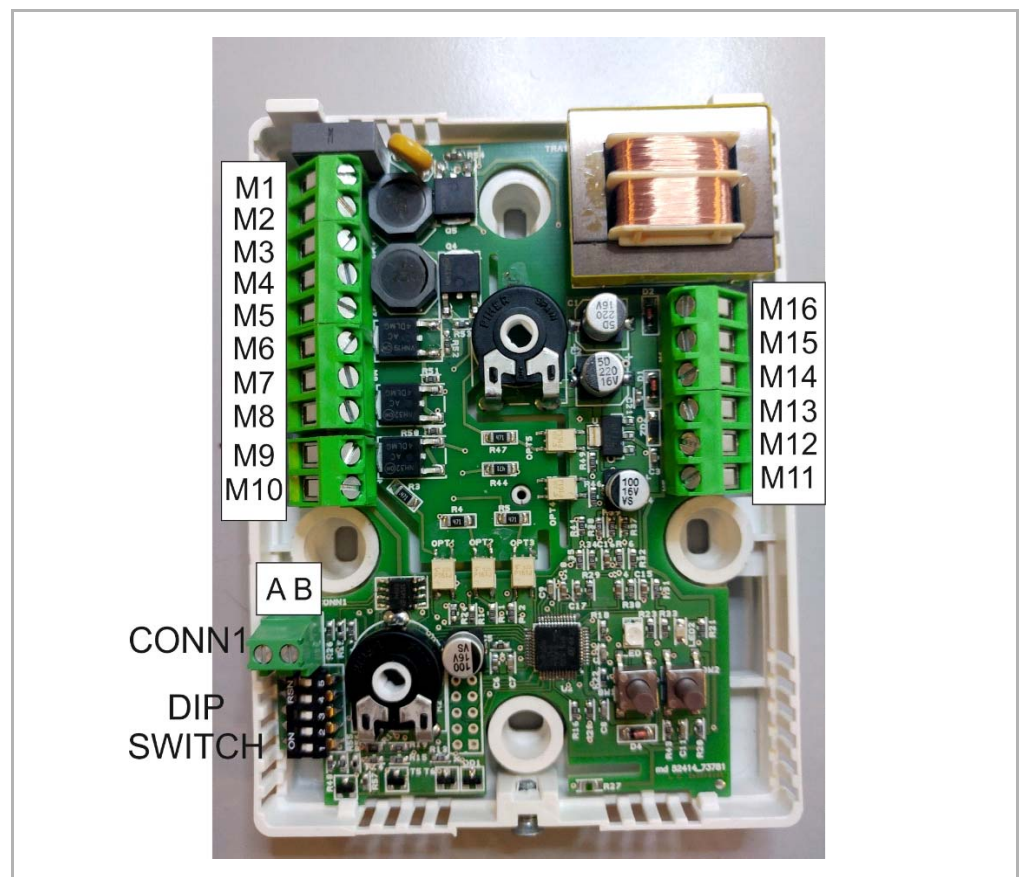


Fig. 3-2: Terminal connections:

3.4 Dismounting the FläktGroup CET.ACEC compact controller



⚠ DANGER

Electrocution through hazardous voltage will lead to death or serious injury.

The FläktGroup CET.ACEC compact controller is powered by the power sections of the air-handling units. Therefore the control panel itself cannot be powered down!

- Disconnect the air-handling units from the power supply and ensure the power cannot be switched back on
 - Ensure the unit is voltage-free and isolated, earth and short circuit the unit, cover or shield off neighboring live components.
-
- Switch off the air handling units and hence power down the CET.ACEC compact controller.
 - As depicted in the figure, apply a screwdriver on the bottom side of the CET.ACEC compact controller to unlock the front panel and lift the front panel upwards away from the rear mounting plate.
 - Using a screwdriver, unscrew the respective clamps and pull the individual wires out.
 - Loosen the mounting plate from the wall.
 - Complete the CET.ACEC compact controller.



Fig. 3-3

4 Commissioning and testing

4.1 Factory settings

When the FläktGroup CET.ACEC compact controller is ordered together with an air-handling unit, it is delivered pre-configured ex works. The configuration is harmonized with the air-handling units.

4.2 Configuration of the FläktGroup CET.ACEC compact controller

Manual parameter settings

Only the first level parameters (number 1 to 11) can be adjusted with the compact controller. The second level parameters (numbers 12 to 33) may only be changed with a supervisor tool at the factory or with the Modbus on-site.

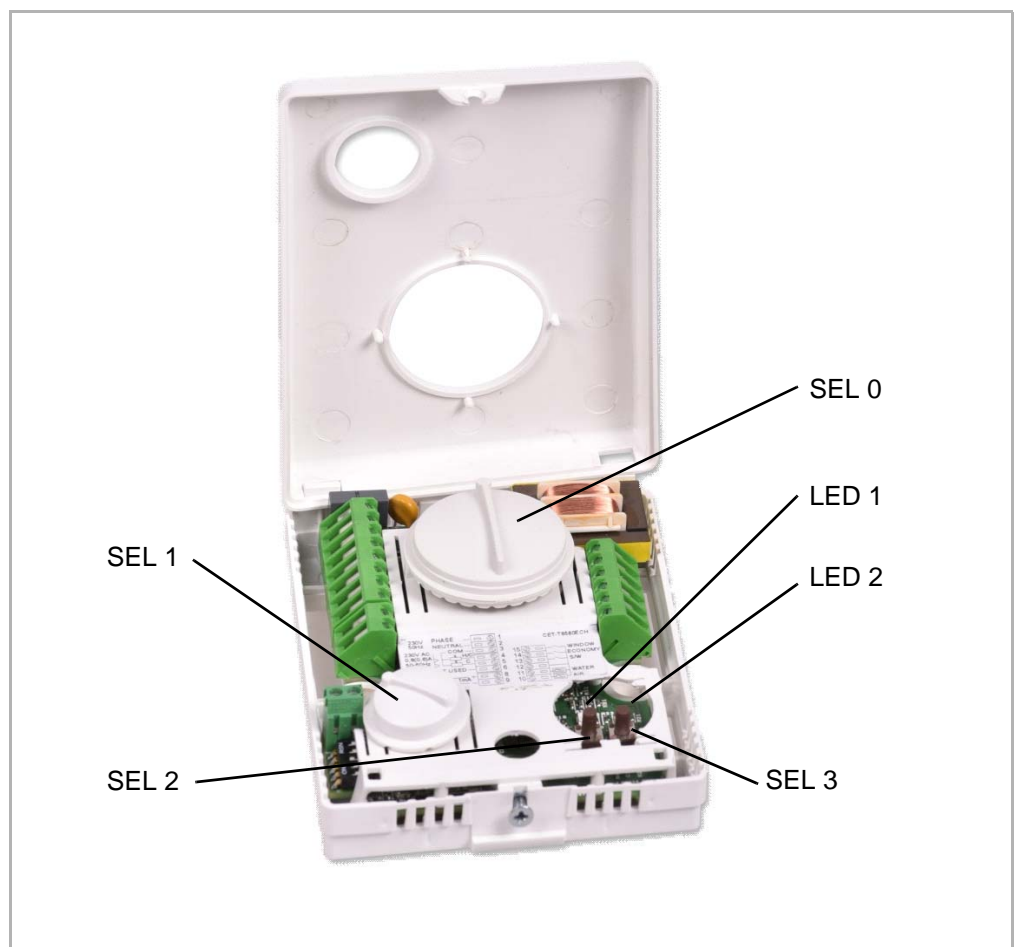


Fig. 4-4: Keys and LEDs used for the parameterization.



⚠ DANGER

Electrocution through hazardous voltage will lead to death or serious injury.

- The settings may only be executed by skilled electricians.
- The covering must be removed from the compact controller before changing the parameters.
- In order to change the parameters, the compact controller must be energized. Once the covering is opened, the electrically charged parts are accessible!

- SEL 0** Is used to select the correct parameter (see „Configuration parameters“ on page 18)
- SEL 1** Is used to determine and change a parameter
- SEL 2 & 3** If both keys are simultaneously pressed for longer than 5 seconds, one reaches the "Parameter Setup Mode"
- SEL 2** Is used in order to confirm a setting. If this key is pressed in the "Parameter Setup Mode" for longer than 5 seconds, all settings are saved. In confirmation, LED 1 blinks three times (green).
- LED 1** If a setting in "Parameter Setup Mode" was already available, this led lights up in green. In case this setting is new, this LED lights up red.
- LED 2** Fault signal filter or external error, if released

4.2.1 Configuration parameters

1st Level Parameter The following parameters can be adapted with the integrated keys as described in Chapter 5.2.2 "Changing 1st Level Parameters".

SELO SWITCH POSITION	PARAMETER NO.	PARAMETER	PARAMETER DESCRIPTION	SEL 1 AUTO	SWITCH POSITION SEL 1 OFF	SWITCH POSITION SEL 1 1	SWITCH POSITION SEL 1 2	SWITCH POSITION SEL 1 3
10	1	COMFORT SETPOINT RANGE	Min. and max. values for temperature set-point	10 – 30 *	12 – 28	13 – 27	14 – 26	15 – 25
12	2	DEAD ZONE	Determines the dead zone for 4-pipe units	4 °C *	3 °C	2 °C	1 °C	0 °C
14	3	Unit type	System type	2-pipe *	4-pipe	Onla fan	2-pipe heating/cooling with secondary output with primary function	2-pipe heating/cooling with secondary output with secondary function
16	4	FAN	Determines the operation of the fan in the dead zone	Fan always switched on in summer and winter operation	Fan switches off in the dead zone – summer and winter operation *	OFF in cooling operation – switched ON in active heating operation	OFF in heating operation – switched ON in active cooling operation	
18	5	OUTPUT TYPE	Determines the control type for the output 1 – depends on type of actuator	ON-OFF*	PWM			
20	6	WINDOW CONTACT	Determines whether the window contact is normally open or normally closed	OPEN CONTACT CONTACT = WINDOW closed*	CONTACT CLOSED = Window closed	CONTACT OPEN = ALARM with LED**	CONTACT OPEN = ALARM without LED**	
22	7	ROOM flushing FUNCTION	Activation or deactivation of the the room flushing function	Deactivated*	Enabled	Disabled		
24	8	WATER TEMPERATURE SENSOR FUNCTION	Determines the function of the water temperature sensor input	Summer / winter switch-over with fan switching*	Summer/Winter switch-over		Sensor not used	
26	9	SUMMER/WINTER SWITCH-OVER	Determines the type of switch-over between summer and winter operation	Central switch or NTC10 K water temperature sensor*		from the compact controller***		
28	10	SENSOR OFFSET	Used to adapt the measurement of the room temperature sensor	0*	+ 1k	- 1k	+ 2k	- 2k

30	11	RESET	Reset from: filter alarm or activation of the factory settings		Resets the filter hours back to 0		Resets the com- pact controller back to the factory setting	
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* Factory setting

** Alarm message via Modbus

2nd Level Parameter The following second level parameters can only be changed with a service tool by FläktGroup customer service:

No.	NAME	DESCRIPTION	Range	UNIT	RES	Factory setting
12	NEUTRAL BAND	Setting of the Proportional Band	1 - 5	°C	0.1	2
13	DELTA ECONOMY	Determines the value which must be added to the room temperature setpoint in summer and subtracted in winter operation when ECONOMY mode is activated.	1 -10	°C	1	2
14	TEMP. FAN SWITCH-ON IN WINTER	Determines the water temperature at which the controller is activated to switch to winter operation (if parameter 9 (AUTO) is set at parameter 9)	20 - 60	°C	0.1	30
15	TEMP. FAN SWITCH-ON IN SUMMER	Determines the water temperature at which the controller is activated to switch to summer operation (if parameter 9 (AUTO) is set at parameter 9)	5 - 25	°C	0.1	18
16	FROST PROTECTION	Determines the temperature at which the room frost function is activated.	0 -10	°C	0.1	4
17	FILTER HOURS (300 HOURS x K)	Determines the operating hours after which the filter must be changed. Value 0 means that this function is deactivated.	0 - 20	h x K	1	0
18	°K OFFSET FOR SEC. OUTPUT	Determines the temperature after which the secondary output is activated.	0-10	°K	0.1	0.5°
19	ANTI-BLOCKING FUNCTION VALVE	Activates or deactivates the anti-blocking function for the valves	ACTIVATED DEACTIVATED	-	-	DEACTIVATED
20	ROOM FLUSHING FUNCTION FAN OFF TIME	Determines the time between two room-flushing function periods. Functions only when parameter 7 is activated.	1 - 60	Min	1	15
21	ROOM FLUSHING FUNCTION FAN ON TIME	Determines the runtime of a room-flushing function period. Functions only when parameter 7 is activated.	1 -10	Min	1	1
22	FAN START DELAY HEATING OPERATION	Determines the start delay of the fan after activation of the heating valve.	0 - 250	s	1	120
23	SECONDARY OUTPUT ANTI-SWING TIME	Determines the switched-on time of the secondary output as soon as the setpoint is achieved.	0-1000	sec	1	60
24	NOT USED					
25	MINIMAL VALUE FAN LEVEL 1	Minimal value for fan speed 1 in manual operation	1.33 -10 V	mV	0.01 V	1333
26	MINIMAL VALUE FAN LEVEL 2	Minimal value for fan speed 2 in manual operation	1.667 -10 V	mV	0.01 V	1667
27	MINIMAL VALUE FAN LEVEL 3	Minimal value for fan speed 3 in manual operation	3.333 -10 V	mV	0.01 V	3333
28	INCREMENTAL VALUE FAN LEVEL 1	Determines the incremental value for fan speed 1 in manual operation	0-10 V	mV	0.01 V	0
29	INCREMENTAL VALUE FAN LEVEL 2	Determines the incremental value for fan speed 2 in manual operation	0-10 V	mV	0.01 V	2333
30	INCREMENTAL VALUE FAN LEVEL 3	Determines the incremental value for fan speed 3 in manual operation	0-10 V	mV	0.01 V	6667

31	PRIORITY SETTING ROOM TEMPERATURE SETPOINT	Determines the priority between the manual rotary switch (LOCAL) or the setpoint via Modbus (REMOTE)	LOCAL REMOTE			LOCAL
32	Priority setting Fan Operation	Determines the priority between the manual rotary switch (LOCAL) or the setpoint via Modbus (REMOTE)	LOCAL REMOTE			LOCAL

4.2.2 Change of 1st level parameters

For access to the "Parameter Setup Mode", please proceed as follows:

- Set the SEL 0 rotary switch to 10 °C.
- Set the SEL 1 rotary switch to the position AUTO.
- Press SEL 2 and 3 simultaneously for longer than five seconds.
- ✓ As confirmation that the compact controller is now in "Parameter Setup Mode", LED 1 alternately blinks red and green for approximately three seconds.
- ✓ After approximately three seconds,
 - LED 1 lights continuously red **or**
 - LED 1 lights continuously green, if parameter 1 was set to AUTO.
- Now with rotary switch SEL 0, select the parameter which you would like to change and use the rotary switch SEL 1 to select the desired setting.
- ✓ If this setting is already available, LED 1 continuously shines green.
- If the LED 1 lights up red, press the key SEL 2, which should make LED 1 now shine continuously green.
- If you still want to change or check other parameters, proceed as described above.
- If you wish to save these settings, you must press SEL 2 longer than five seconds.
- ✓ As confirmation that the settings have been saved, LED 1 blinks three times green, and then the compact controller leaves the "Parameter Setup Mode".

In summary: The rotary switch SEL 0 is used to select the desired parameter

Use rotary switch SEL 1 to determine the settings for these parameters.

Check the parameter settings

You can use rotary switch SEL 1 to check the setting for each parameter. LED 1 shines green for the position of the rotary switch that is set, and red for another position.



NOTICE!

The compact controller automatically leaves the "Parameter Setup Mode" if keys or rotary switch are not touched for more than two minutes.

Reset the compact controller to factory settings

- Set the SEL 0 rotary switch to 10 °C.
- Set the SEL 1 rotary switch to the position AUTO.
- Press SEL 2 and 3 simultaneously for longer than five seconds.
- ✓ As confirmation that the compact controller is now in "Parameter Setup Mode", LED 1 alternately blinks red and green for approximately three seconds.
- ✓ After approximately three seconds,
 - LED 1 lights continuously red **or**
 - LED 1 lights continuously green, if parameter 1 was set to AUTO.
- Set the SEL 0 rotary switch to 30 °C.
- Set the SEL 1 rotary switch to the position Level 2.
- ✓ LED 2 now blinks rapidly red to show that the factory settings are selected.
- Press the SEL 2 key.
- ✓ LED 1 now blinks green three times to show that the factory settings are selected.

Setting the manual fan speeds

Um die manuellen Ventilatorstufen einzustellen, gehen Sie wie folgt vor:


- Turn the SEL 1 rotary switch to the speed you would like to set, and turn the SEL 0 rotary switch to 10 °C.
- Press the SEL 2 and SEL3 keys simultaneously for more than ten seconds until the LED 1 blinks on and off.
- Turn the SEL 0 rotary switch to the value that corresponds to the mV voltage you would like to set. Press on the SEL 2 key for approx. five seconds until the green LED blinks three times to confirm the setting.
- Repeat these steps for each speed.

Fan speeds -- Incremental values											
SEL 0 Position °C	10 °C	11 °C	12 °C	13 °C	14 °C	15 °C	16 °C	17 °C	18 °C	19 °C	20 °C
mV voltage	0	333	667	1000	1333	1667	2000	2333	2667	3000	3333
SEL 0 Position °C	21 °C	22 °C	23 °C	24 °C	25 °C	26 °C	27 °C	28 °C	29 °C	30 °C	
mV voltage	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	

Tab. 4-1: Incremental values for DC fan speeds

4.4 Testing operation

⚠ DANGER

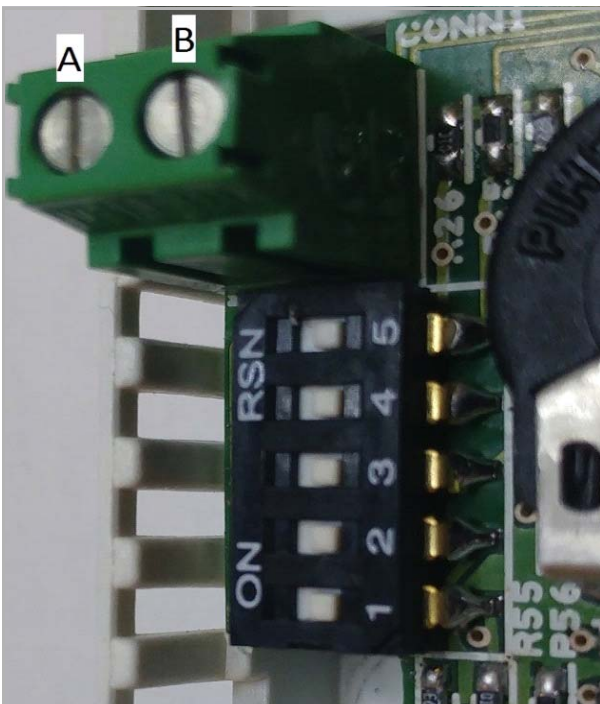


Electrocution through hazardous voltage will lead to death or serious injury.

- The power supply of control panel is provided by the power section of the unit to which the control panel is connected.
- Therefore switch on the power supply or power circuitry of the units only after all installation work has been completed!

- Switch on the power supply of the unit.

4.4.1 Test the FläktGroup CET.ACEC compact controller



- Turn the switch for selecting the fan speed to a position different from AUTO or OFF.
- ✓ At correct connection and switch setting not AUTO or OFF, the fan in the air-handling unit will start.



NOTICE!

You will find additional information on the operation and function of the CET.ACEC compact controller in Chapter „FläktGroup CET.ACEC compact controller operation“ on page 24.

5 FläktGroup CET.ACEC compact controller operation

5.1 Overview of the operating elements






The CET.ACEC compact controller is operated via the operating elements.

1: Rotary switch to set the speed stages of the fan

2: Rotary switch to set the target value of the room temperature

5.2 Explanation of the control elements

5.2.1 Set fan speed

Switch	Setting	Explanation
		Use this rotary switch to specify the speed stages of the fan.
		The fan is switched OFF ¹⁾
		The fan is operated with the preset rotational speed (1-3).
	AUTO	Auto: the speed stages are automatically specified by the controller. The greater the deviation of the room temperature from the setpoint, the higher the fan speed.


¹⁾ If the room temperature drops below 4 °C, the frost protection function is automatically activated (heat valve opens).
The setpoint of 4 °C is parameterizable!



NOTICE!

The manual specification "0" Fan OFF has a lower priority than a specification in the Modbus interface or digital input, i.e. if the compact controller is switched off with the digital input or Modbus, the unit will remain switched off if the rotary switch is e.g. set to fan speed OFF "1".

5.2.2 Presetting setpoint room temperature

Switch	Setting	Explanation
	10 to 30 °C	The setpoint of the room temperature is specified with the rotary switch . ¹⁾ Default setting: 10 to 30 °C

1) The setpoint room temperature can be restricted with the configuration. This means that the rotary switch possibly does not exactly take over the desired temperature as setpoint. It is also possible to enter the room temperature setpoint with the Modbus, in which case there is no need to specify the setpoint with the rotary switch.

5.3 Error Messages

Depending on parameter setting (parameter 6), an external error message can be displayed with the integrated LED. This is only visible in the CET.ACEC if the cover is removed!

With the help of parameter 17, a filter fault based on operating hours can be reported. This fault can only be read out via Modbus and cannot be switched off.

If the CET.ACEC compact controller does not function and also no external error on the window contact (M13-16) is present, check the following points:

- Supply voltage (M1-2)?
- Room temperature setting (is a Modbus connected and the room temperature externally predefined)?
- Fan rotary switch (is a Modbus connected and the fan speed externally predefined)?
- Does the air-handling unit have only one cooling function and has a too high room temperature been set?
- Does the air-handling unit have only one heating function and has a too low room temperature been set?
- Does the air-handling unit have one heating or cooling changeover function? If yes, check the water temperature. In case the water temperature does not match the operating mode, the unit is not released (fan & valve control).

If problems arise in connection with the Modbus communication, check the following points:

- Polarity of the Modbus interface connection, are clamps A (+) and B (-) correctly connected?
- Is the correct type of cable being used (see „Installation of the FläktGroup CET.ACEC compact controller“ on page 14)?
- Is a termination resistor set (see „Modbus Network“ on page 14)?

6 Maintenance and Cleaning

The FläktGroup CET.ACEC compact controller is maintenance-free.

Carry out the following cleaning jobs in regular intervals:

- Clean the FläktGroup CET.ACEC compact controller only with a soft cloth.
- Examine the housing as well as the control elements for damage.



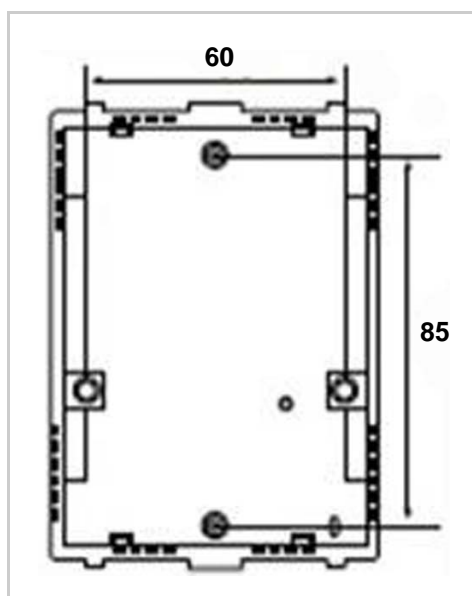
NOTE

Do not clean the casing of the FläktGroup CET.ACEC compact controller with aggressive agents!

Ensure that moisture does not enter the casing!

For unit configuration IP30: Make sure that the ventilation slots in the casing are not closed.

7 Drilling hole spacing for FläktGroup CET.ACEC compact controller



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