

**0701 FCU Operator Panel Office 802501**
**Use of the application program**

Product family:	Heating, Air conditioning, Ventilation
Product type:	FanCoilUnit Control Elements
Manufacturer:	Siemens
Name:	FCU Operator Panel Office UP 237E DELTA i-system, titanium white
Order no.:	5WG1 237-2EB11
Name:	FCU Operator Panel Office UP 237E DELTA i-system, carbon metallic
Order no.:	5WG1 237-2EB21
Name:	FCU Operator Panel Office UP 237E DELTA i-system, aluminium metallic
Order no.:	5WG1 237-2EB31
Name:	FCU Operator Panel Office UP 252E DELTA profil, pearl grey
Order no.:	5WG1 252-2EB01
Name:	FCU Operator Panel Office UP 252E DELTA profil, titanium white
Order no.:	5WG1 252-2EB11
Name:	FCU Operator Panel Office UP 252E DELTA profil, anthracite
Order no.:	5WG1 252-2EB21
Name:	FCU Operator Panel Office UP 252E DELTA profil, silver
Order no.:	5WG1 252-2EB71
Name:	FCU Operator Panel Office UP 254E DELTA style, titanium white / metallic silver
Order no.:	5WG1 254-2EB11
Name:	FCU Operator Panel Office UP 254E DELTA style, basalt black / metallic silver
Order no.:	5WG1 254-2EB21

**Commissioning**

Before commissioning an FCU (Fan-Coil Unit) Operator Panel Office by means of the ETS (engineering tool software), it must be attached to a bus transceiver module (BTM) UP 117/11.

The BTM UP 117/11 serves to supply the operator panel with power and receives and transmits data via the *instabus*.

The openings for the pushbutton for toggling between normal mode / addressing mode and for the LED displaying normal mode / addressing mode are visible once the rotary knob (to adjust the setpoint shift) has been removed.

**Note:** The bus transceiver module UP 117/11 and the associated DELTA frame are not supplied and must be ordered separately.

**Functional description**
**Pushbutton**

A parameter can be used to set whether the toggling between "comfort mode" (person present) and "energy-saving mode" (no person present) is effected via a presence detector connected to the bus or using the pushbutton on the operator panel.

If a presence detector is installed, the pushbutton on the operator panel serves only to adjust the fan speed level by pressing it briefly several times until the LED of the desired fan speed level illuminates.

If no presence detector is installed, then the pushbutton can be used to toggle between comfort and energy-saving mode (room in use / not in use) by pressing it briefly. Pressing it for a longer time sets a desired fan speed level or switches off the fan (if the user doesn't like its noise or the air-stream) or switches it back to the automatic fan speed control mode.

When the button is pressed for a longer time – duration of time is a parameter which can be set – the illuminated LED for displaying the current position moves step by step towards the extreme right or left position and back again therefrom, remaining in a new position for 0.5 s each time until the button is released. If there is no repeated pushbutton activity during an interval of 2 s, the pre-set fan speed level is transmitted to the FCU controller (FCC). If the button is activated again during this interval, the interval until the value is transmitted recommences after the button has been released.

Adjustment of the LED from the "Auto" position leads to the fan control being switched from automatic to manual operation and adjustment to the "Auto" position, from manual to automatic operation.

If fan speed "0" is selected, the fan is switched off and any open valve is closed, i.e. the room is neither heated nor cooled. This is recognizable by the fact that the two-colored LED for displaying heating or cooling operation is not illuminated. If, for example, the room temperature falls beneath the frost alarm threshold whilst the fan is switched off, the FCU controller automatically opens the heating valve and switches the fan to automatic operation.

**Rotary knob**

The rotary knob of the FCU Operator Panel Office serves to shift the room temperature setpoint to a higher or lower value. The shifting range depends on the parameter setting.

**LED displays**

The clear-to-view and self-explanatory operator panel contains besides the pushbutton and the rotary knob 5 yellow light-emitting diodes (LEDs) for displaying the automatic fan speed control (Auto) by the FCU controller

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and/or the current fan speed level adjusted by the room user, 3 green LEDs for displaying the current room operating mode and a two-coloured LED for displaying whether the heating valve (LED glows red) or the cooling valve (LED glows green) is open, i.e. whether the room is being heated or cooled.

If, for example, a room user opens a window and if this information is transmitted to the FCU controller, the LED displaying the current operating mode starts flashing and the controller e.g. immediately closes an open heating or cooling valve. The room is then neither heated nor cooled as long as the room temperature is not below the frost protection threshold or as long as the heat protection threshold is not exceeded. The room user can recognize this by the fact that the two-colored LED for displaying heating or cooling operation is not illuminated.

**Behavior at bus voltage failure**

In case of a bus voltage failure there will be no action initiated by the Operator Panel.

**Behavior at bus voltage recovery**

At bus voltage recovery the current status values (control value of PI controller, status of comfort mode, standby mode and protective mode, fan status and window status) are queried from the FCU controller (FCC) after a waiting period of 2s to 15s (depending on the physical address), accepted and displayed. The "read" flags of the objects 23, 31, 17, 10, 12 and 13 of the FCC must therefore be set. On object 13 the "read" flag must only be set if the status of a window contact is transferred or queried via object 10 to or from the FCC.

Furthermore, the position of the potentiometer to shift the set point value will be queried and the corresponding value will be sent to the FCC.

**Communication objects****Linking the communication objects of FCU controller REG 540 and operator panel**

The following table shows which communication objects of the Fan-Coil Unit Controller REG 540 have to be linked with those of the operator panel office by a common group address.

FCU Controller REG 540		FCU Operator Panel	
No.	Object name	No.	Object name
5	Setpoint adjustment	0	Setpoint shifting
23	Control value of PI controller	1	Status heating / cooling mode
9	ON command for comfort mode	2	Comfort mode
31	Status of comfort mode	3	Status of comfort mode
10	ON command for standby mode	4	Standby mode
11	ON command for night setback	5	Night mode
12	ON command for frost protection	6	Frost-/ heat protection
16	Toggling to automatic mode	7	Fan automatic mode
17	Fan status	8	Fan status
15	Manual operation of fan	9	Fan rotational speed
13	Input for window contact	10	Status of window *

\* If no window contact is connected then this object must not be linked with the FCC.

**FCU Operator Panel Office, communication objects**

no.	Object name	Function	Type	C	R	W	T	U
01.01.001	0701 FCU Operator Panel Office 802501	5/WG1 237-2EB_1	Siemens					
0	Setpoint shifting	EIS 5001	2 Byte	✓	✓	✓		
1	Status heating / cooling mode	Positioning value of PI regula	2 Byte	✓	✓	✓	✓	
2	Comfort mode	On / Off	1 Bit	✓	✓	✓		
3	Status of comfort mode	On / Off	1 Bit	✓	✓	✓	✓	
4	Standby mode	On / Off	1 Bit	✓	✓	✓	✓	
5	Night mode	On / Off	1 Bit	✓	✓	✓	✓	
6	Frost/heat protection	On / Off	1 Bit	✓	✓	✓	✓	
7	Fan automatic mode	On / Off	1 Bit	✓		✓		
8	Fan status	Automatic / manual mode	1 Bit	✓	✓	✓	✓	
9	Fan rotational speed	0% ... 100%	1 Byte	✓		✓		
10	Status of window	1=open / 0=closed	1 Bit	✓	✓	✓	✓	

**Note:**

The view of the objects can be influenced by the user, therefore the view shown above may vary.

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Maximum number of group addresses: 40

Maximum number of assignments: 40

Obj	Object name	Function	Type	Flags
0	Setpoint shifting	EIS 5001	2 Byte	CRT
<p>This object contains the current setpoint shift value. The setpoint shift value, which is set by the rotary knob, is transferred after a modification and a waiting period of approximately 2 s to the FCC. If a new setpoint value shift occurs again during the waiting period, the waiting period starts anew.</p> <p><u>Note:</u> This object must be linked with object 5 of the FCC.</p>				
1	Status heating/cooling mode	Positioning value of PI controller	2 Byte	CWTU
<p>Via object 1 "Status heating/cooling mode" the FCU operator panel can query from the FCC the positioning value respectively the FCC transmits it to the FCU operator panel. The positioning value of PI controller is used for the control of the two-colored LED for display of heating and cooling operation (red = heating mode, green = cooling mode, dark = both valves closed).</p>				
2	Comfort mode	On / Off	1 Bit	CRT
<p>If switch-over between comfort mode and energy-saving mode occurs through the pushbutton of the FCU operator panel, each short actuation of this pushbutton leads to an immediate transmission of the object 2 "Comfort Mode" either with the value "1" or the value "0" (toggle function) to the FCC, since a person either steps into the room or leaves the room and thereby turns the "Comfort mode" on or off.</p> <p>A parameter setting determines when "Comfort mode" is switched off, if object 4 "Standby mode" or object 5 "Night mode" should be transmitted additionally with the value "1". This determines whether it is switched back to standby or night mode when leaving the room.</p> <p>If on the other hand the switch-over between comfort and standby mode occurs through a presence detector, then each actuation of the pushbutton leads (after its release) to a displacement of the turned on fan LED by one step to the right or to the left.</p>				
3	Status of comfort mode	On / Off	1 Bit	CWTU
<p>If the value "0" (comfort mode = OFF) is received through the object 3 "Status of comfort mode", the LED for the indication of "Comfort mode" is turned off. Correspondingly, it is switched on after receipt of the value "1" and the LED for the indication of an unoccupied room is turned off.</p>				
4	Standby mode	On / Off	1 Bit	CWTU
<p>If the FCU operator panel receives the value "1" (standby mode = ON) through the object 4 "Standby Mode", the LED for the indication of an unoccupied room is turned on and the LED to indicate the comfort mode is turned off.</p> <p>The LED to indicate an unoccupied room is only turned off after receipt of the value "0" through the object 4, if the night mode is also turned off. It is turned on and stays turned on if either the standby mode or the night mode will be turned on or still is.</p>				

Obj	Object name	Function	Type	Flags
5	Night mode	On / Off	1 Bit	CWTU
<p>If the value "1" is received (Night mode = ON) through object 5 "Night Mode", the LED to indicate an unoccupied room will be turned on and the LED to indicate "Comfort mode" will be turned off.</p> <p>The LED for the indication of an unoccupied room is only turned off upon receipt of the value "0" through object 5, if the standby mode is turned off, too. It will be turned on and continuous to be on, if either the standby mode or the night mode are going to be turned on or are still on.</p>				
6	Frost / heat protection	On / Off	1 Bit	CWTU
<p>If the value "1" is received (Frost/Heat protection mode = ON) through the object 6 "Frost/Heat protection", the LEDs to indicate the occupied or the unoccupied room will be turned off and the LED to indicate the frost/heat protection mode will be turned on. The LED to indicate the frost/heat protection mode will be turned on until the value "0" is received through the object 6.</p>				
7	Fan automatic mode	On / Off	1 Bit	CT
<p>If the fan speed level is set to "Auto" through the pushbutton, the value "1" is transmitted through this object to the FCC as up from then the FCC shall control the fan speed level automatically.</p>				
8	Fan status	Automatic / manual mode	1 Bit	CWTU
<p>If the value "0" is received through this object, the LED "Auto" will be switched off to indicate that the automatic speed level control has been switched off. If the value "1" is received, it is turned on.</p>				
9	Fan rotational speed	0 ... 100%	1 Byte	CT
<p>After a waiting period of approx. 2 s the value configured to a fan speed level is transmitted through the object 9 "Fan speed". This is done as soon as the room user indicates by releasing the pushbutton (acknowledging the turned on LED) that he desires the indicated fan speed level.</p>				
10	Status of window	1=open / 0=closed	1 Bit	CWTU
<p>If the FCU operator panel receives the value "1" (window open) through this object, the LED which signals the current operating mode (comfort, energy-saving, frost/heat protection) starts flashing.</p> <p>The reaction of the FCC on an open window is configured on the FCC via the parameter window "Window contact".</p>				

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## Parameters

## Parameter window „General“

General	Fan
Setpoint shift	-3 ... +3 K
Switch-over between comfort and energy-saving mode via	local push button
If room is left, switch to	Night mode
Long push button action min.	1 s

Parameter	Settings
<b>Setpoint shift</b>	-1 ... +1 K -2 ... +2 K <b>-3 ... +3 K</b> -4 ... +4 K
This parameter is used to configure by how many degrees Kelvin the room temperature setpoint value can be shifted in the cooler and warmer direction.	
<b>Switch-over between comfort and energy-saving mode via</b>	<b>Operator panel</b> Presence detector
This parameter determines whether a switch-over between comfort and energy-saving mode occurs through the pushbutton of the FCU operator panel or the presence detector. If it occurs through the presence detector, the pushbutton of the FCU operator panel serves exclusively to adjust the fan speed level. Should the switch-over between comfort and energy-saving mode occur through the pushbutton of the FCU operator panel then both of the following parameters are added. They serve for the pre-selection of the desired operating mode when the room is left and for the determination of a long actuation time of the pushbutton. If a decision is made between a short and a long pushbutton actuation, a short button push will lead to switch-over the operating mode and a long one to select a new fan speed level.	
<b>If room is left, switch to</b>	Standby mode <b>Night mode</b>
If the operating mode is switched-over through the pushbutton of the FCU operator panel it is determined by this parameter to which operating mode (standby or night mode) the controller has to be switched.	
<b>Long push button action min.</b>	<b>1 s, 1.5 s, 2 s</b>
This parameter determines how long an actuation period should last at least to be considered as "long".	

## Parameter window „Fan“

General	Fan
Number of fan rotational speed steps	3
Fan speed at step 1 (value 1 ... 255)	85
Fan speed at step 2 (value 1 ... 255)	170
Fan speed at step 3 (value 1 ... 255)	255

Parameter	Settings
<b>Number of fan rotational speed steps</b>	1 2 <b>3</b>
This parameter is used to adjust the number of fan speed steps. If the number is smaller than 3 and if the button is continuously pressed, the illuminated LED for the fan speed level display changes during a long button push only to the max. fan speed level and then it goes back to the left. If this parameter is set to less than 3 only the corresponding number of the following parameters will be displayed.	
<b>Fan speed at step 1</b> (value 1 ... 255)	<b>85</b>
Through this parameter the desired relative fan speed in level 1 is adjusted as a value between 1 and 255, whereby the value 255 is equivalent to the max. possible revolutions per minute.	
<b>Fan speed at step 2</b> (value 1 ... 255)	<b>170</b>
Through this parameter the desired relative fan speed in level 2 is adjusted as a value between 1 and 255, whereby the value 255 is equivalent to the max. possible revolutions per minute.	
<b>Fan speed at step 3</b> (value 1 ... 255)	<b>255</b>
Through this parameter the desired relative fan speed in level 3 is adjusted as a value between 1 and 255, whereby the value 255 is equivalent to the max. possible revolutions per minute.	