VALLOX

Model
Vallox Exxeo
Vallox Exxeo DPC

Document
D11350

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18.10.2023

MANUAL

VALLOX

Exxeo

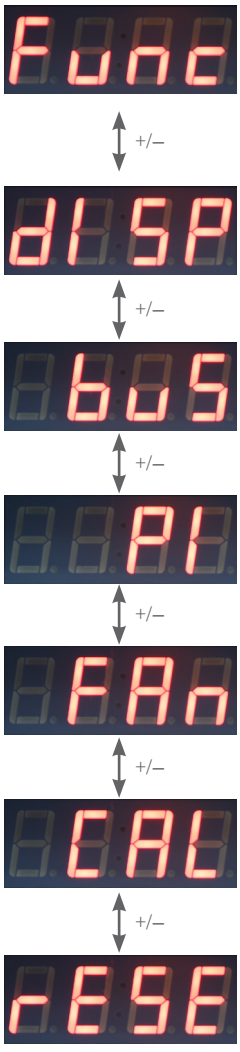
Control panel manual

CONTROL PANEL FUNCTIONS

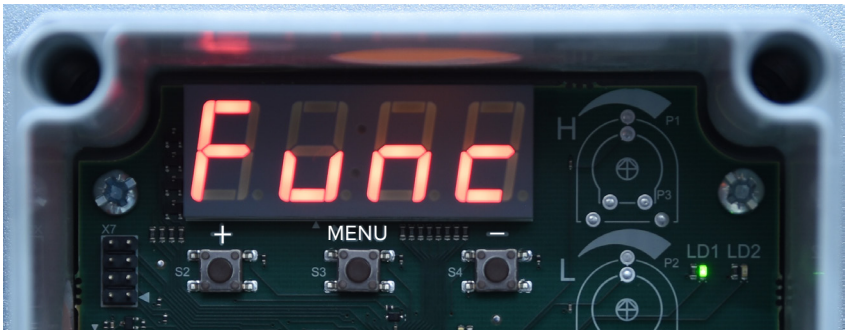
Open the roof fan maintenance door. Remove the control panel lid. Connect the supply voltage to the roof fan to open the Function menu on the control panel.

Main menus

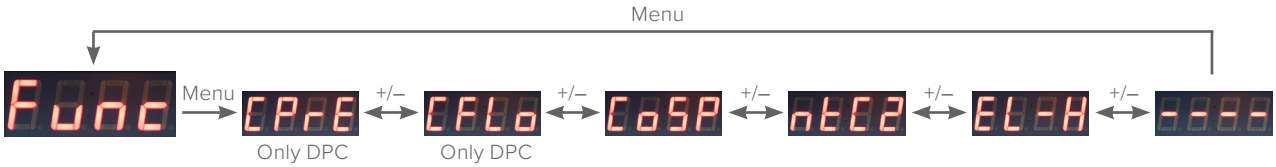
1. Function
2. Display
3. Modbus
4. PI (only in the DPC model)
5. Fan
6. Calibration (only in the DPC model)
7. Reset



Use the +/– buttons to move between the main menus. Use the Menu button to access the contents of the menu. Use the Menu button to return to the main menu.



1. Function menu



1.1 Constant Pressure menu

The Constant Pressure function maintains a constant pressure in the extract air chamber (only in the pressure transmitter model Vallox Exxeo DPC). You can choose two limit values for the extract air chamber pressure. The Low value specifies the minimum extract air chamber pressure, and the High value specifies the maximum extract air chamber pressure. If analog control is used (0–10 VDC), the minimum extract air chamber pressure equals 0 VDC and the maximum extract air chamber pressure equals 10 VDC. If digital control is

NOTE
Before activating the Constant Pressure control, remove the measuring tube of the + connector as shown in the figure.

Press the Menu button to open the Constant Pressure menu.

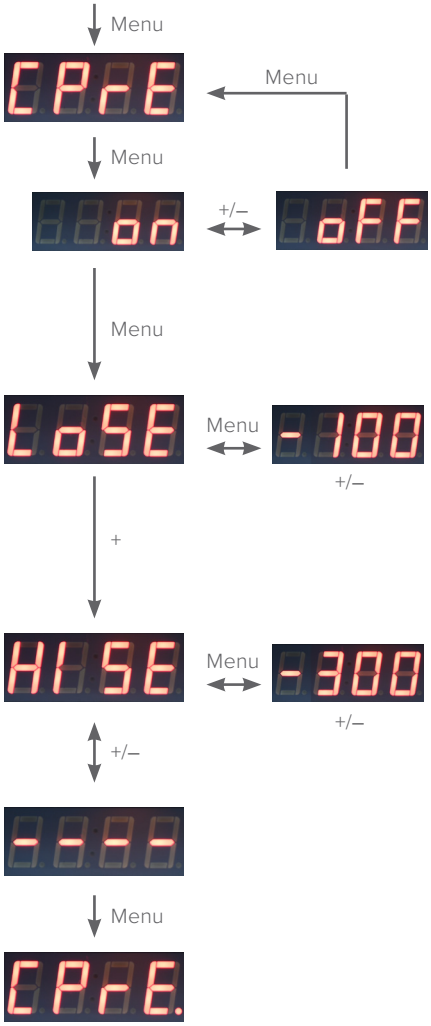
Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting. Selecting Off takes you back to the Constant Pressure menu.

If you select On, the Pressure Low Setpoint menu for the extract air chamber opens in the display. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired value (0–2,500 Pa). The minimum pressure cannot be higher than the maximum pressure. Press Menu to confirm the setting.

Use the + button to exit to the Pressure High Setpoint menu for the extract air chamber. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired value (0–2,500 Pa). The maximum pressure cannot be lower than the minimum pressure. Press Menu to confirm the setting.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu. If the status is active, there is a dot in the bottom right corner of the display.



1.2 Constant Flow menu

used, the minimum extract air chamber pressure = Ext L is active and the maximum extract air chamber pressure = Ext H is active.

The Constant Flow function maintains a extract air flow (only in the pressure transmitter model Vallox Exxeo DPC). You can choose two limit values for the extract air flow. The Low value specifies the minimum air flow and the High value specifies the maximum air flow. If analog control is used (0–10 VDC), the minimum air flow equals 0 VDC and the maximum air flow equals 10 VDC. If digital control is used, the minimum air flow = Ext L is active and the maximum air flow = Ext H is active. Using the air flow temperature compensation function requires installing the NTC 1 temperature sensor. The temperature measurement NTC 1 is used to correct the change due to the density of air in the air flow. The K value is a model-specific value of the Vallox Exxeo roof fan. An incorrect K value results in an incorrect air flow measurement result.

Use the + button to proceed to the Constant Flow menu.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting. Selecting Off takes you back to the Constant Flow menu.

Selecting On opens the Low Flow Setpoint menu. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired value (0.01–5 m^3/s). The Low Flow Setpoint cannot be higher than the maximum air flow. Press Menu to confirm the setting.

Use the +/– buttons to proceed to the High Flow Setpoint menu. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired value (0.01–5 m^3/s). The High Flow Setpoint cannot be lower than the minimum air flow. Press Menu to confirm the setting.

Use the + button to proceed to the air flow temperature compensation menu (NTC 1 Temp).

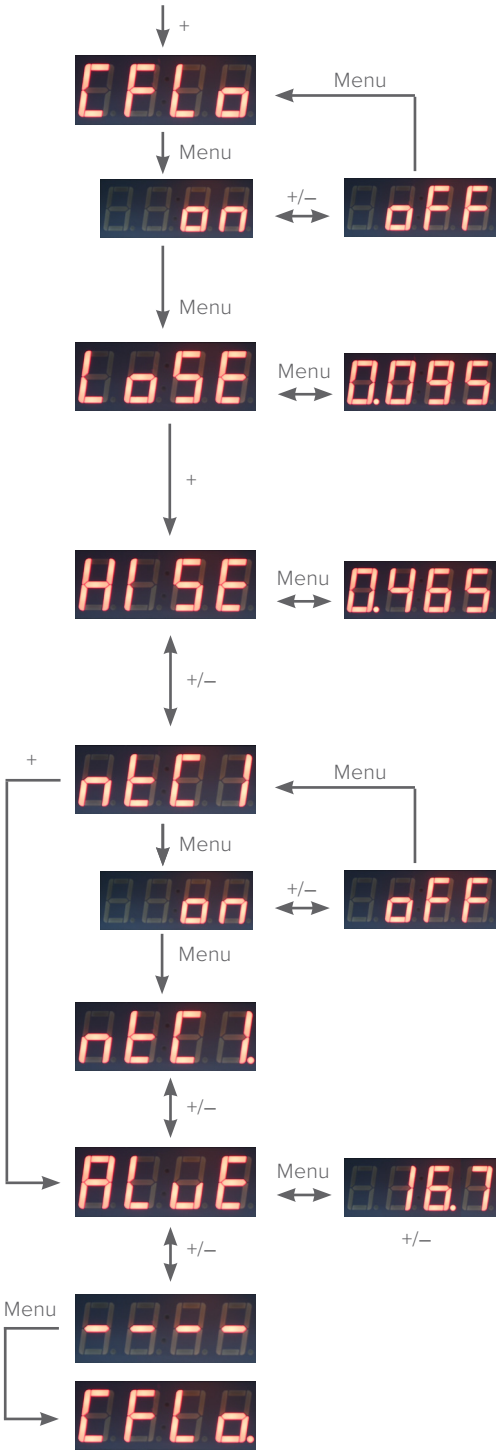
Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting.

If you choose On, the air flow temperature compensation menu opens. If the status is active, there is a dot in the bottom right corner of the display.

Use the + button to proceed to the K value menu. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the K value. Press Menu to confirm the setting.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu. If the status is active, there is a dot in the bottom right corner of the display.



1.3 Constant Speed menu

The fan can be controlled by 0–10 VDC analog control or by digital control. You can choose two limit values for the fan control. The Low value specifies the minimum fan control percentage and the High value specifies the maximum fan control percentage. If analog control (0–10 VDC) is used, the minimum fan control percentage equals 0 VDC and the maximum fan control percentage equals 10 VDC. If digital control is used, the minimum fan control percentage = Ext L is active and the maximum fan control percentage = Ext H is active. See section 1.5 for the fan control options.

Use the + button to proceed to the fan control menu.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting. Selecting Off takes you back to the main menu (in the basic model, the On status is always active).

Selecting On opens the Low Speed Setpoint menu for setting the minimum fan control percentage. Use the Menu button to proceed to the setting mode. Set the desired value using the +/– buttons (0...100%). The Low Speed Setpoint percentage cannot be higher than the High Speed Setpoint percentage. Press Menu to confirm the setting.

Use the + button to proceed to the High Speed Setpoint menu for setting the maximum fan control percentage. Use the Menu button to proceed to the setting mode. Set the desired value using the +/– buttons (0...100%). The High Speed Setpoint percentage cannot be lower than the Low Speed Setpoint percentage. Press Menu to confirm the setting.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu. If the status is active, there is a dot in the bottom right corner of the display.

1.4 Outdoor air compensation menu (NTC 2 Temp)

The outdoor air compensation function (NTC 2 installed) can be used to control the fan speed as a function of the outdoor temperature. When the outdoor temperature drops below the temperature set for starting the outdoor air compensation function, the fan starts to decrease the fan speed linearly by the specified percentage, until the end temperature for outdoor air compensation is reached. The fan speed is restricted by a specified percentage when the outdoor air compensation end temperature is reached.

Use the + button to proceed to the outdoor air compensation menu.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the outdoor air temperature compensation function to On or Off. Press Menu to confirm the setting. Outdoor air compensation requires installing the NTC 2 sensor (outdoors). Selecting Off takes you back to the Main menu.

If you select On, the Compensation Start menu opens. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the start temperature (+10...–10°C). Press Menu to confirm the setting.

Use the + button to proceed to the Compensation Stop menu. Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the end temperature for compensation (–10...–30°C). The compensation is applied linearly between the start and end temperature. Press Menu to confirm the setting.

Use the + button to proceed to the maximum temperature drop menu for the compensation function (Temp Drop). Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the maximum Temp Drop as a percentage. Press Menu to confirm the setting.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu. If the status is active, there is a dot in the bottom right corner of the display.

1.5 Digital and analog control menu (External Control)

If analog control is selected, the external voltage (0–10 VDC) controls the fan according to the Low and High setpoints specified. If digital control is selected, the external digital data controls the fan according to the Low and High setpoints specified. Grounding the connectors Ext L and Ext H controls the fan's minimum and maximum according to the settings. If digital or analog control is not active, the fan is controlled according to the minimum value setting.

Use the + button to proceed to the External Control menu.

Use the Menu button to proceed to the 0–10 VDC Control mode. 0–10 VDC Control uses the 0–10 VDC input. The Low and High settings specify the control range according to the control mode selected.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting. If digital and analog control are Off, Constant Pressure, Constant Flow and fan control use the minimum setpoint.

If the status is active, there is a dot in the bottom right corner of the display.

Use the + button to proceed to the External Control menu. The Low and High setting of the selected control is set by using the external controls Ext L and Ext H.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to select On or Off. Press Menu to confirm the setting.

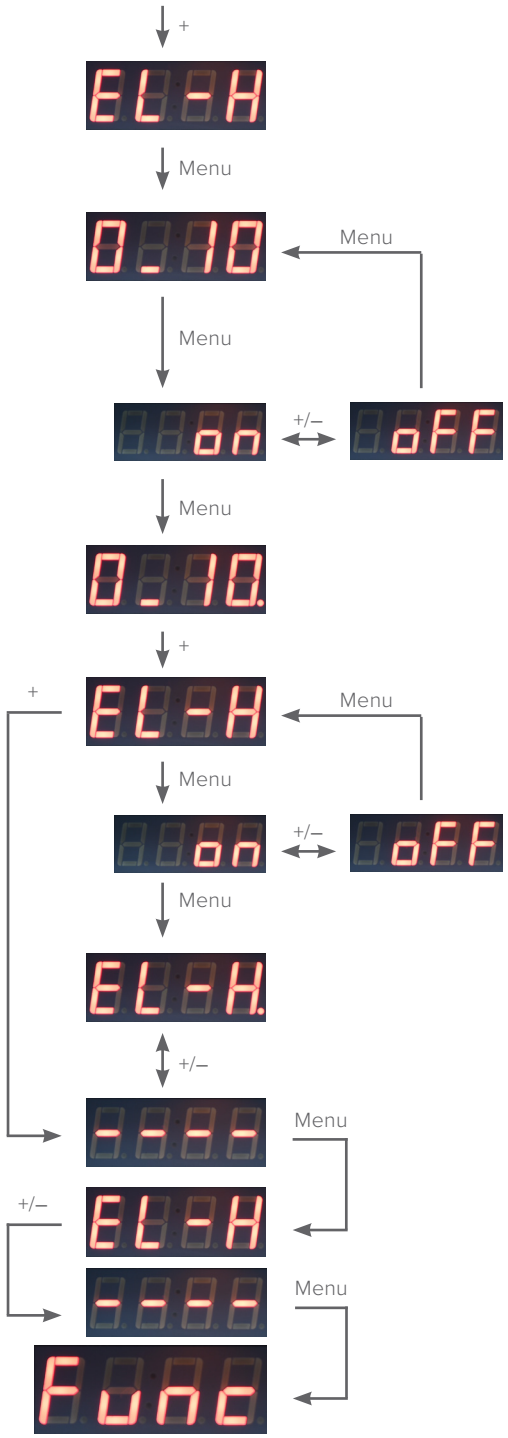
The Digital and analog control menu display opens. If the status is active, there is a dot in the bottom right corner of the display.

Use the + button to proceed to the return menu.

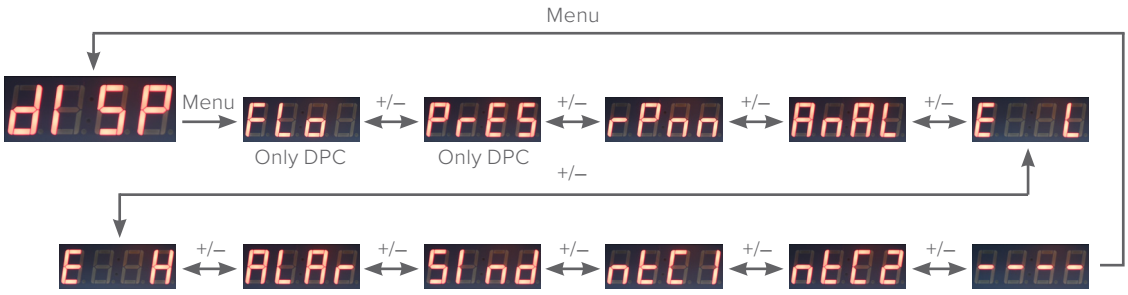
Use the Menu button to return to the Main menu.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu.



2. Display menu



2.1 Flow menu

Press the Menu button to open the Flow menu. The menu will not open if the control is not fitted with a pressure sensor.

Use the Menu button to view the measured flow (m³/s).

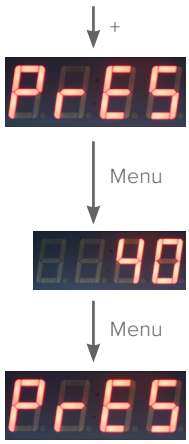
Use the Menu button to return to the Main menu.

2.2 Pressure menu

Use the + button to proceed to the Pressure menu. The menu will not open if the control is not fitted with a pressure sensor.

Use the Menu button to view the pressure sensor reading (Pa).

Use the Menu button to return to the Main menu.



2.3 Fan speed menu (RPM)

Use the + button to proceed to the fan speed menu.

Use the Menu button to view the fan speed (RPM). If the display shows no reading, the speed in RPM is not available.

Use the Menu button to return to the Main menu.

2.4 Analog Input menu

Use the + button to proceed to the Analog Input menu.

Use the Menu button to proceed to the analog input value (VDC).

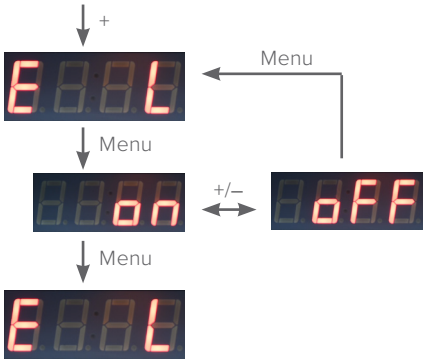
Use the Menu button to return to the Main menu.

2.5 Digital input minimum value status menu (External Input L)

Use the + button to enter the digital input minimum setting mode menu.

Use the Menu button to view the mode setting. On = the minimum value has been selected, Off = no minimum value has been selected.

Use the Menu button to return to the Main menu.

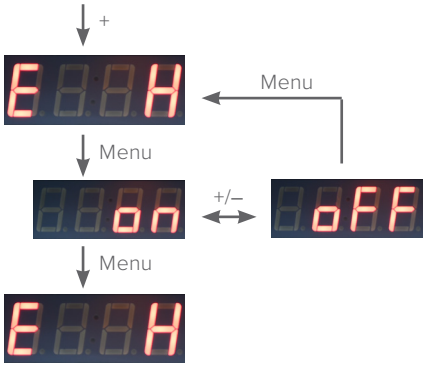


2.6 Digital input maximum value status menu (External Input H)

Use the + button to enter the digital input maximum setting mode menu.

Use the Menu button to view the mode setting. On = the maximum value has been selected, Off = no maximum value has been selected.

Use the Menu button to return to the Main menu.



2.7 Alarm menu

Press + to proceed to the Alarm menu.

Use the Menu button to view the alarms. Use the +/– buttons to move in the menu.

0= no alarms

Er01 = control setting not achieved
Er02 = pressure sensor not responding
Er03 = NTC 1 error
Er04 = NTC 2 error
Er05 = EXTL and EXTH active simultaneously
Er06 = fan speed (RPM) cannot be read from the actuator
Er07 = on/off status cannot be read from the actuator

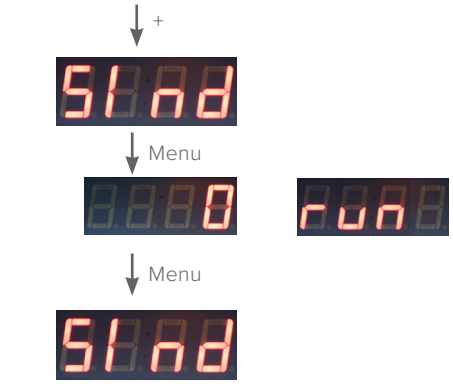
Use the Menu button to return to the Main menu.

2.8 Status Indication menu

Use the + button to proceed to the status indication menu.

Use the Menu button to view the status setting.
0 = fan is not available, Run = fan is in operation.

Use the Menu button to return to the Main menu.



2.9 Air flow temperature compensation menu (NTC 1 Temp)

Use the + button to proceed to the air flow temperature compensation menu.

Use the Menu button to view the temperature setting (°C). If the display shows no reading, no NTC sensor has been connected.

Use the Menu button to return to the Main menu.

2.10 Outdoor air compensation menu (NTC 2 Temp)

Use the + button to proceed to the outdoor air compensation menu.

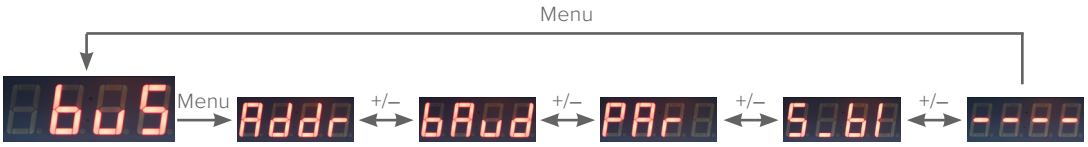
Use the Menu button to view the temperature setting (°C). If the display shows no reading, no NTC sensor has been connected.

Use the Menu button to return to the Main menu.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu.

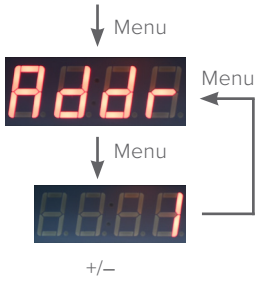
3. Modbus menu



3.1 Address menu

Press the Menu button to open the Address menu.

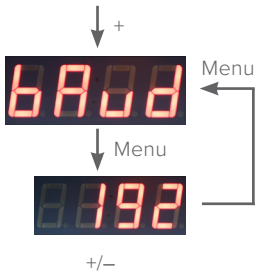
Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired address (1...247). Press Menu to confirm the setting.



3.2 Baud Rate menu

Use the + button to proceed to the Baud Rate menu.

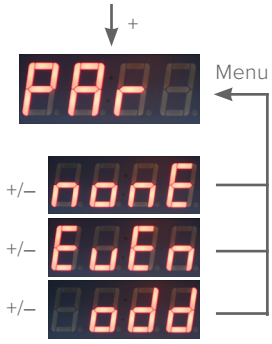
Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired value (96/192/384). Note! The actual value is a one hundred multiple of the setpoint. Press Menu to confirm the setting.



3.3 Parity Bit menu

Use the + button to proceed to the Parity Bit menu.

Use the Menu button to proceed to the setting mode. Use the +/– buttons to set the desired Parity Bit. Press Menu to confirm the setting.



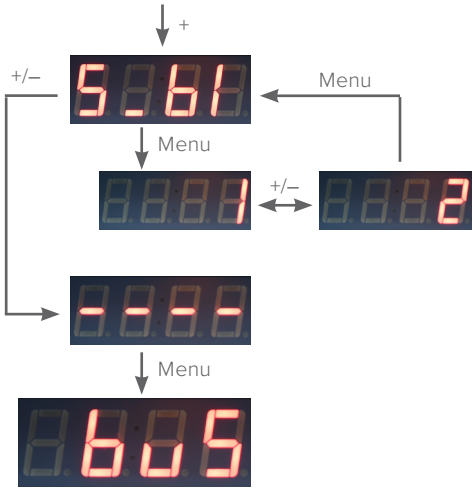
3.4 Modbus Stopbits menu

Use the + button to proceed to the Modbus Stopbits menu.

Use the Menu button to proceed to the setting mode. Use the1 +/– buttons to set stopbit 1 or 2. Press Menu to confirm the setting.

Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu.



4. PI control menu

The PI control can be used to control the desired air flow or chamber pressure. The P and I factory settings of the fans are shown in the table below. Depending on the control method, the factory settings may need to be amended. The default settings are the factory settings of the air flow control.

P value menu:

- The menu can be used to control the Propotional gain. The higher the P value, the less impact it has on the control. The lower the P value, the more impact it has on the control.
- A theoretically functional P control value is, depending on the control method, approximately 2–5% of the maximum value for the fan air flow or pressure.

I value menu:

- The menu can be used to control the Integrator gain. The higher the I value, the less impact it has on the control, and the exact setpoint may not be reached. The lower the I value, the more impact it has on the control, and a fairly exact setpoint may be reached.
- A theoretically functional I control value is, depending on the control method, approximately 0.5–2% of the maximum value for fan air flow or pressure.

P value adjustment range 1...200, factory setting 20.

I value adjustment range 1...50, factory setting 5.

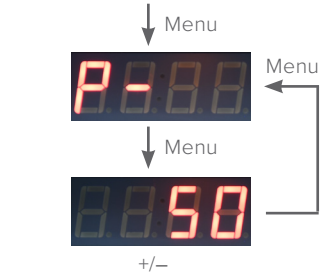
THE FACTORY SETTINGS OF THE PI CONTROL

	Air Flow Control		Pressure Control	
	P value	I value	P value	I value
Vallox Exxeo 150	5	2	5	2
Vallox Exxeo 300	10	3	10	3
Vallox Exxeo 700	20	5	20	5
Vallox Exxeo 1400	20	5	20	5
Vallox Exxeo 2000	30	10	20	5
Vallox Exxeo 2500	75	30	20	5
Vallox Exxeo 4100	100	40	20	5

4.1 Proportional gain menu (P value)

Press the Menu button to open the P gain menu.

Use the Menu button to proceed to the setting mode.
Use the +/– buttons to set the desired value (2...9,999).
Press Menu to confirm the setting.



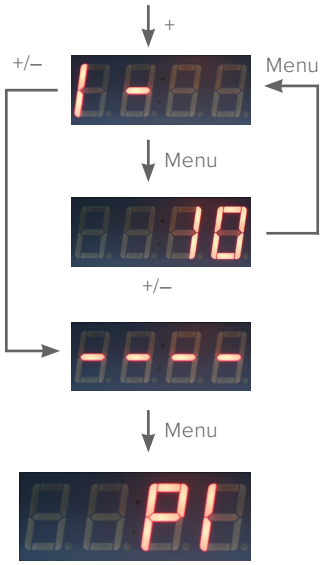
4.2 Integration time menu (I Value)

Use the + button to proceed to the Integration time menu.

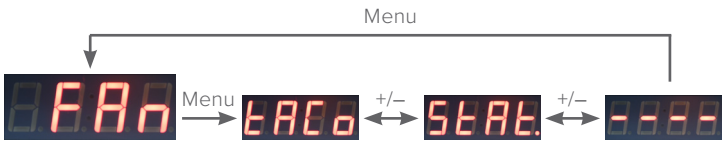
Use the Menu button to proceed to the setting mode.
Use the +/– buttons to set the desired value (5...90).

Press Menu to confirm the setting. Use the + button to proceed to the return menu.

Use the Menu button to return to the Main menu.



5. Fan error data menu



NOTE
Only one of the two Error data menus may be active.

5.1 Error data based on RPM menu (Tacho)

Press the Menu button to open the error data menu based on the RPM information. Press the +/– buttons simultaneously for a minimum three seconds to set the error data. If the status is active, there is a dot in the bottom right corner of the display.

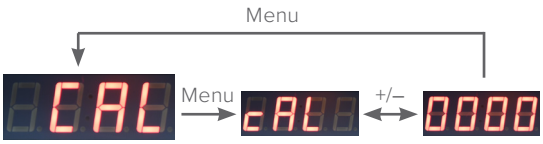
5.2 Error data based on the status information (Status)

Use the + button to proceed to the fan status information setting menu. Press the +/– buttons simultaneously for a minimum three seconds to set the error data. If the status is active, there is a dot in the bottom right corner of the display.

Use the + button to proceed to the return menu.

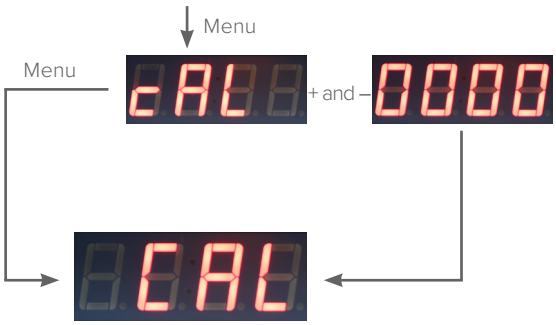
Use the Menu button to return to the Main menu.

6. Calibration menu

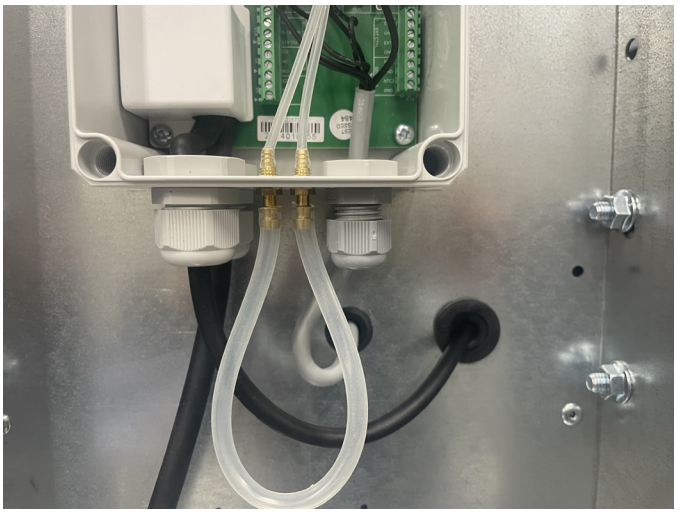


To calibrate the pressure sensor, connect the tubes as shown in the figure below.

Press the Menu button to open the Calibration menu. Press the +/– buttons simultaneously for at least three seconds to perform the calibration. When the calibration is complete, the display shows ‘0000’ for five seconds. The Calibration menu appears automatically after this.



If you do not wish to perform the calibration, press Menu to return to the main menu.

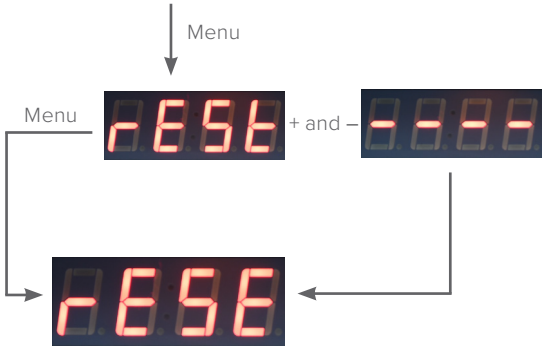


7. Reset menu

NOTE
A reset cancels any changes made to the settings by the user.

Press the Menu button to open the Reset menu. Press the +/– buttons simultaneously for a minimum three seconds to reset the settings. When the settings have been reset, the display shows '----' for five seconds. The Reset menu appears automatically after this.

If you do not wish to reset the settings, press Menu to return to the main menu.



BASIC/FACTORY SETTINGS

	Basic setting	Factory setting (Air Flow Control)	Factory setting (Pressure Control)
Fan control (Constant Speed)	Active		
Low speed setpoint	20%		
High speed setpoint	100%		
Digital and analog control (External Control) 0–10 VDC	Active		
Constant Pressure Control	Inactive		
Pressure Low Setpoint	-100 Pa		
Pressure High Setpoint	-300 Pa		
Constant Flow Control	Inactive		
Low Flow Setpoint	0.1 m^3/s		
High Flow Setpoint	0.5 m^3/s		
K value, Constant Flow	16.7	Exxeo 150 = 12.5 Exxeo 300 = 16.7 Exxeo 700 = 22.2 Exxeo 1400 = 44.4 Exxeo 2000 = 66.7 Exxeo 2500 = 147.2 Exxeo 4100 = 147.2	
Outdoor temperature, Compensation start	5°C		
Outdoor temperature, Compensation stop	-20°C		
Maximum temperature drop for compensation (Temp Drop)	30%		
Address	1		
Baud Rate	192		
Parity Bit	EuEn		
Modbus Stopbits	1		
P value	20	Exxeo 150 = 5 Exxeo 300 = 10 Exxeo 700 = 20 Exxeo 1400 = 20 Exxeo 2000 = 30 Exxeo 2500 = 75 Exxeo 4100 = 100	Exxeo 150 = 5 Exxeo 300 = 10 Exxeo 700 = 20 Exxeo 1400 = 20 Exxeo 2000 = 20 Exxeo 2500 = 20 Exxeo 4100 = 20
Integration time (I value)	5	Exxeo 150 = 2 Exxeo 300 = 3 Exxeo 700 = 5 Exxeo 1400 = 5 Exxeo 2000 = 10 Exxeo 2500 = 30 Exxeo 4100 = 40	Exxeo 150 = 2 Exxeo 300 = 3 Exxeo 700 = 5 Exxeo 1400 = 5 Exxeo 2000 = 5 Exxeo 2500 = 5 Exxeo 4100 = 5

MODBUS REGISTERS

Holding register	Description	R/RW	Datatype	Unit	Range	Default	Notes
1001	Control mode	R/W	U8		0: Constant speed 1: Constant pressure 2: Constant Flow	0	
1002	Constant pressure setpoint low	R/W	I16	Pa	-2500...0 (modbus)	-100	
1003	Constant pressure setpoint high	R/W	I16	Pa	-2500...0 (modbus)	-300	
1004	Constant flow setpoint low	R/W	I16	l/s	10....5000	100	
1005	Constant flow setpoint high	R/W	I16	l/s	10....5000	500	
1006	Constant speed setpoint low	R/W	I16	%	0...100	20	
1007	Constant speed setpoint high	R/W	I16	%	0...100	100	
1008	Outdoor temperature compensation enabled	R/W	U8		0/1	0	
1009	K value	R/W	I16	K*10	10...9999	160	
1010	Outdoor temp comp enabled	R/W	U8		0/1	0	
1011	Outdoor air compensation start	R/W	I16	c	-10...10	5	
1012	Outdoor air compensation stop	R/W	I16	c	-30...-10	-20	
1013	Outdoor air temperature compensation drop	R/W	I16	%	5....90	30	
1014	Ext control mode	R/W	U8		2: 0 - 10V in 1: L/H 0: Modbus	1	
1015	Measured pressure value	R	I16	Pa	-6000...6000		
1016	Measured flow value	R	I16	l/s	0...5000		
1017	Motor RPM value	R	I16	rpm	0...4000		
1018	External input 0-10VDC value	R	I16	mV	0...10300		
1019	External input 1	R	U8		0/1		
1020	External input 2	R	U8		0/1		
1021	NTC 1	R	I16	*10 ('c)			
1022	NTC 2	R	I16	*10 ('c)			
1023	Alarm	R	U8		0...255		Active alarms in bitfield format. 0 = no alarms 1 = er01 2 = er02 3 = er01 + er02 .....
1024	Status	R	U8				
1025	Modbus address	R	U8				
1026	MODBUS_BAUD_X100	R	I16		In bauds now: 9600,19200, 38400	19200	
1027	Modbus databit	R	U8		8...8	8	
1028	Modbus parity	R	U8		0: none 1: even 2: odd	1	
1029	Modbus stop bits	R	U8		1....2	1	
1030	PID P-value	R/W	I16		2...9999	20	
1031	PID I-value	R/W	I16		5....90	5	
1032	Fan status mode	R/W	U8		0: Tacho 1: Status relay	1	
1033	Modbus control state	R/W	U8		0: Off 1: L 2: H	0	

Constant flow mode related registers (for monitoring etc.)

Holding register	Description	R/RW	Datatype	Unit	Range	Default	Notes
2001	Constant flow setpoint low	R/W	I16	Pa			
2002	Constant flow setpoint high	R/W	I16	Pa			
2003	External input 0-10VDC value	R	I16	mV			
2004	Current measured airflow	R	I16	l/s			
2005	Flow request	R	I16	l/s			
2006	Flow error, request - measured (for PI control)	R	I16	l/s			
2007	Fan speed request, before fan speed change filter	R	I16	%			
2008	Actual fan speed request, .% of 0-10V	R	U16	0.1%	0...1000		
2009	Fan RPM	R	I16	rpm			

Constant pressure mode related registers (for monitoring etc.)

Holding register	Description	R/RW	Datatype	Unit	Range	Default	Notes
3001	Constant pressure setpoint low	R/W	I16	Pa			
3002	Constant pressure setpoint high	R/W	I16	Pa			
3003	External input 0-10VDC value	R	I16	mV			
3004	Current measured pressure	R	I16	l/s			
3005	Pressure request	R	I16	l/s			
3006	Pressure error, request - measured (for PI control)	R	I16	l/s			
3007	Fan speed request, before fan speed change filter	R	I16	%			
3008	Actual fan speed request, .% of 0-10V	R	U16	0.1%	0...1000		
3009	Fan RPM	R	I16	rpm			

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