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2015-11

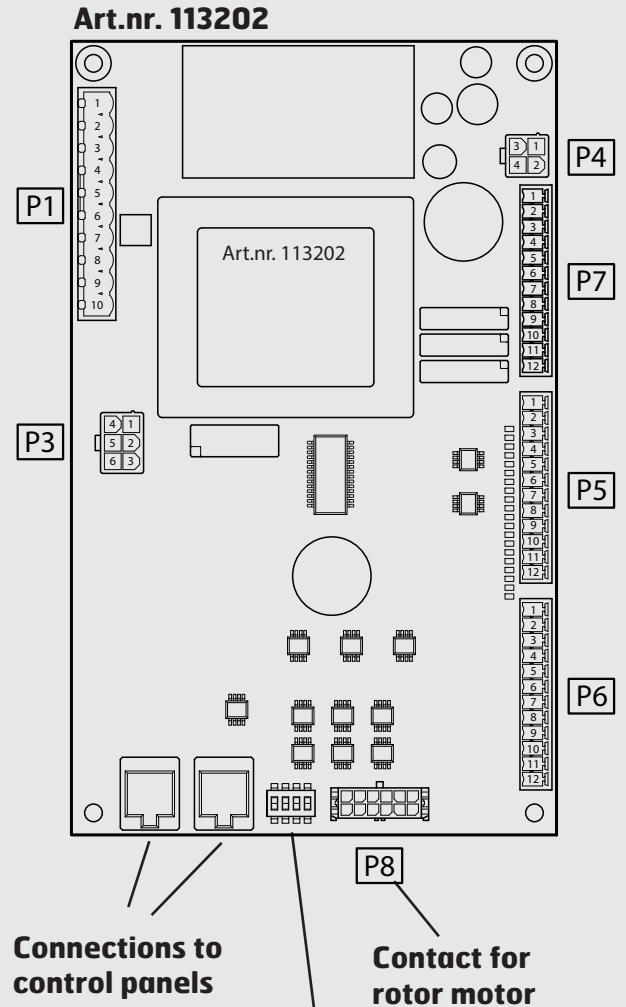
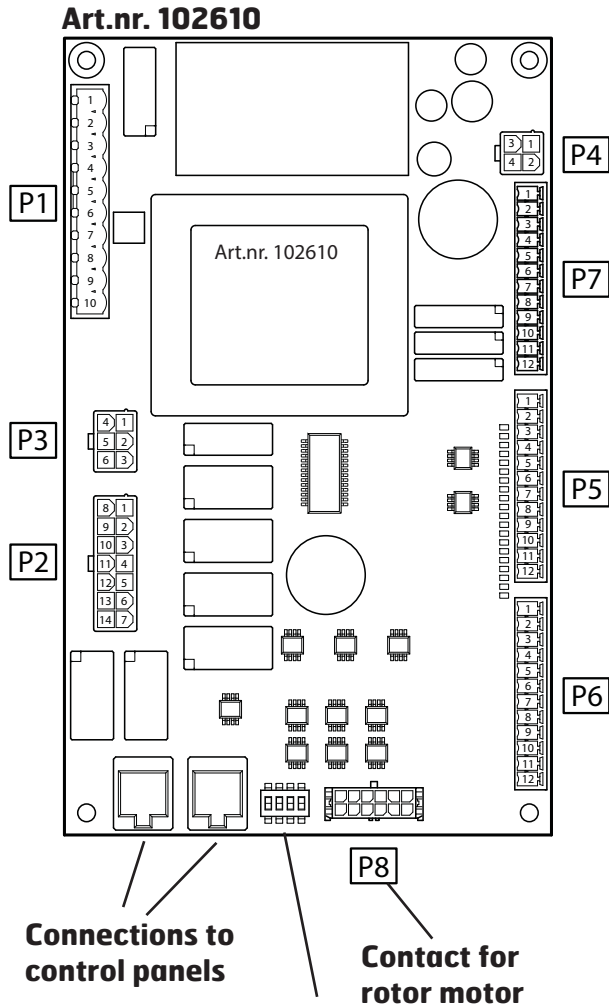
# CS60



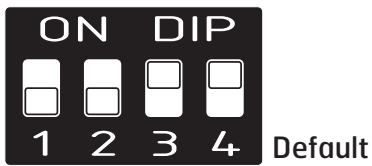
- E** **Guide for connection and configuration**  
Automatic control

# 1 CU60 connections

## 1.1 Printed circuit board layout

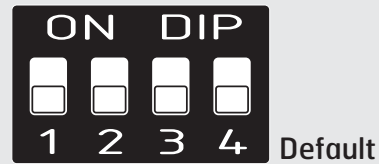


### 1.2 Dipswitch settings



Nr	OFF	ON
1	Electric heating battery	Water-based heating battery
2	Torque guard	Rotor guard (requires external component)
3	Rotor motor Type 2	Rotor motor Type 1
4	AC fans	EC fans

### 1.2 Dipswitch settings



Nr	OFF	ON
1	Electric heating battery	Water-based heating battery
2	Not in use	Not in use
3	Not in use	Not in use
4	Not in use	Not in use

### 1.3 Contact connections

Contact	No.	Function	I/O Type	Max. load [A]	Min. load [mA]
<b>P1</b>					
P1	1	PE	-	-	-
P1	2	L (230 V/50 Hz power supply)	I	-	-
P1	3	N (230 V/50 Hz power supply)	I	-	-
P1	4	EV1 heating battery/pump motor ON/OFF 230 V/50 Hz	DO	10.0	-
P1	5	N (power to heating battery/pump motor)	O	10.0	-
P1	6	VVX1 rotor OFF/ON 230 V/50 Hz	DO	1.0	100
P1	7	N (power to rotor motor)	O	1.0	-
P1	8	M5 damper motor OFF/ON 230 V/50 Hz	DO	1.0	100
P1	9	L (power to damper motor)	O	1.0	-
P1	10	N (power to damper motor)	O	1.0	-
<b>P2</b>					
P2	1	M2 power to exhaust air fan	DO	1.7	100
P2	2	M2 MAX - Voltage MAX speed for exhaust air fan	I	-	-
P2	3	M2 NORMAL - Voltage NORMAL speed for exhaust air fan	I	-	-
P2	4	M2 MIN - Voltage MIN speed for exhaust air fan	I	-	-
P2	5	M1 power to supply air fan	DO	1.7	100
P2	6	M1 MAX - Voltage MAX speed for supply air fan	I	-	-
P2	7	M1 NORMAL - Voltage NORMAL speed for supply air fan	I	-	-
P2	8	N (power to transformer)	O	2.5	-
P2	9	N (power to supply air fan)	O	1.7	-
P2	10	N (power to exhaust air fan)	O	1.7	-
P2	11	NC-not used	-	-	-
P2	12	L (power to transformer)	O	2.5	-
P2	13	NC-not used	-	-	-
P2	14	M2 MIN - Voltage MIN speed for exhaust air fan	I	-	-
<b>P3</b>					
P3	1	N (power to fans)	O	1,0	-
P3	2	N (power to fans)	O	1,0	-
P3	3	N (power to fans)	O	1,0	-
P3	4	L (power to fans)	O	1,0	-
P3	5	L (power to fans)	O	1,0	-
P3	6	L (power to fans)	O	1,0	-
<b>P4</b>					
P4	1	AM1 0-10 V supply air fan	AO	-	30 KOHM
P4	2	G0	O	-	-
P4	3	AM2 0-10 V exhaust air fan	AO	-	30 KOHM
P4	4	G0	O	-	-

### 1.3 Contact connections

Contact	No.	Function	I/O Type	Max. load [A]	Min. load [mA]
<b>P5</b>					
P5	1	B1 - supply air sensor	AI	-	-
P5	2	G0	-	-	-
P5	3	F10 - overheating thermostat	DI	-	-
P5	4	G0	-	-	-
P5	5	SP0 - stop	DI	-	-
P5	6	SP1 - MIN speed	DI	-	-
P5	7	SP2 - NORMAL speed	DI	-	-
P5	8	SP3 - MAX speed	DI	-	-
P5	9	SP4 - increased supply air flow	DI	-	-
P5	10	G0	-	-	-
P5	11	TMP - heating OFF/ON	DI	-	-
P5	12	G0	-	-	-
<b>P6</b>					
P6	1	CON - not used	DI	-	-
P6	2	G0	-	-	-
P6	3	P1 - filter guard	DI	-	-
P6	4	HA - home/away function	-	-	-
P6	5	BR - external fire/smoke detector	DI	-	-
P6	6	G0	-	-	-
P6	7	RS - rotor guard	DI	-	-
P6	8	G0	-	-	-
P6	9	B5 - return water sensor	AI	-	-
P6	10	G0	-	-	-
P6	11	EV2 - heating 0-10 V	AO	-	30 KOHM
P6	12	G0	-	-	-
<b>P7</b>					
P7	1	B3 - exhaust air sensor	AI	-	-
P7	2	G0	-	-	-
P7	3	B4 - outdoor air sensor	AI	-	-
P7	4	G0	-	-	-
P7	5	TS - temperature setpoint value 0-10 V	AI	-	-
P7	6	CO - cooling 0-10 V	AO	-	-
P7	7	G0	-	-	-
P7	8	ALA - buzzer alarm A-prio	DO	1.0	10
P7	9	ALB - buzzer alarm B-prio	DO	1.0	10
P7	10	REA - supply to alarm outputs	-	1.0	-
P7	11	CO1 - DX cooling OFF/ON	DO	1.0	10
P7	12	REC - supply to DX cooling	-	1.0	-

#### DI (digital inputs)

All function selections are made by connecting the respective input to G0.

#### AI (analog inputs)

All setpoint values are set by connecting the source between the respective input and G0.

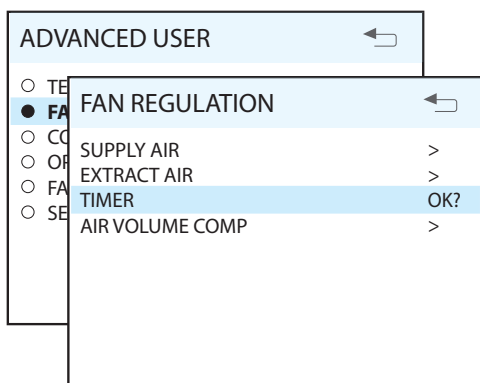
## 2 Connection and configuration

### 2.1 Speed selection via terminal blocks on CU60

The speed can be controlled via the inputs on terminal block P5. These inputs have higher priority than the speed selected on the control panel and the latter will therefore be overridden.

<b>SP0 STOP</b> <b>Terminal block P5-5</b>	Used when no one is in the building. <b>STOP must not be used in residential buildings.</b>
<b>SP1 MIN</b> <b>Terminal block P5-6</b>	Used when no one is in the building.
<b>SP2 NORMAL</b> <b>Terminal block P5-7</b>	Used under normal conditions. In this position, the air flow must be adjusted according to the relevant regulations.
<b>SP3 MAX</b> <b>Terminal block P5-8</b>	Used if increased air flow is required on account of a higher number of people or higher humidity level. For example, in connection with shower use or drying clothes. This operating mode is usually used for limited periods of time.
<b>SP4 AV comp.</b> <b>Terminal block P5-9</b>	Used when different air volumes are required for supply air and exhaust air. For example in connection with the use of a kitchen fan with its own motor, where an increased supply air flow is required.

When activating each input, the basic settings are used that were set for the speed selected under the 'Advanced user/Fan control' menu.



#### Adjustment (supply air and exhaust air)

This dialog is identical for the supply air and exhaust air fans. The fans are adjusted individually to the desired capacity for the respective speed.

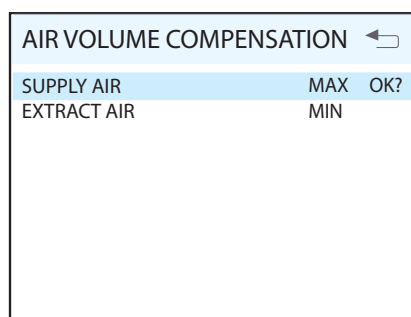
SUPPLY AIR		
MIN SPEED	50%	OK?
NORMAL SPEED	75%	
MAX SPEED	100%	

Parameters that can be adjusted:

Parameter	Default	Area	Unit
MIN - Supply air	50	20-100	%
NORMAL - Supply air	75	20-100	%
MAX - Supply air	100	20-100	%
MIN - Exhaust air	50	20-100	%
NORMAL - Exhaust air	75	20-100	%
MAX - Exhaust air	100	20-100	%

For more information about adjustment, see the installation instructions for the ventilation unit.

#### SP4 - Air volume compensation



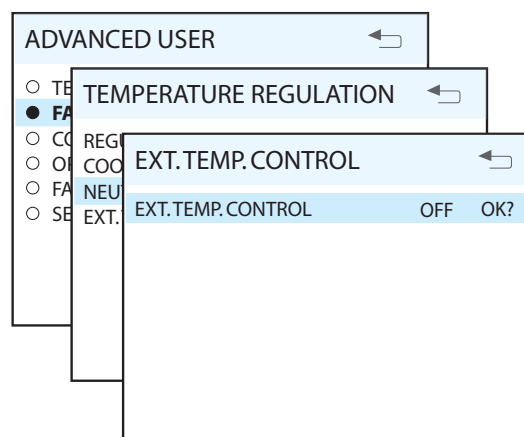
For SP4 - Air volume compensation, the following parameters can be adjusted.

Parameter	Default	Area	Unit
Supply air	MAX	MIN-MAX	
Exhaust air	MIN	MIN-MAX	

### 2.2 Temperature setpoint value via terminal blocks on CU60

The temperature setpoint value can be controlled from an external 0-10 V signal.

The function must be activated in the 'Advanced user/Temperature control' menu and the value entered overrides the temperature setting in the control panel.

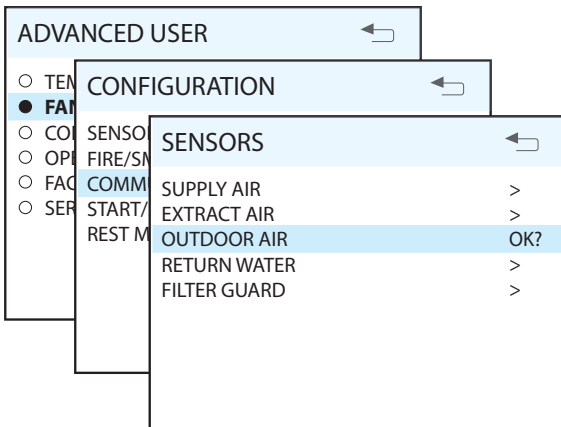


The signal is connected to terminal block **P7-5** 0-10V in and **P7-7** GO

### 2.3 Extract air sensor

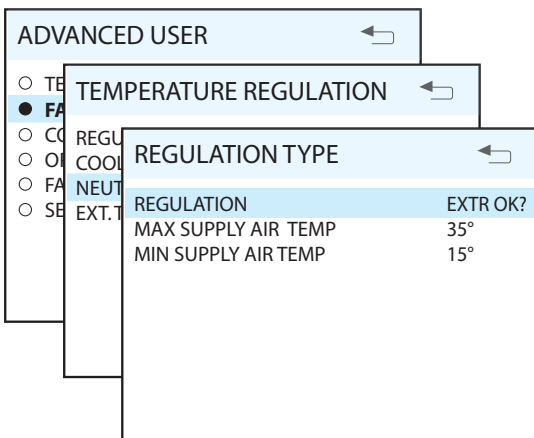
To be able to use extract air control, another temperature sensor must be connected to the unit. The sensor is connected between terminal blocks **P7-1** and **P7-2**.

The sensor must then be activated. This is done in the 'Advanced user/Configuration/Sensor/Extract air' menu, where the sensor is switched ON.



### 2.4 Extract air control

When the extract air sensor is installed, the control must also be activated. This is done in the 'Advanced user/ Temperature control/Control type' menu. Change from the SUPPLY option and replace with EXTRACT. Adjust the max. and min. temperatures required for the supply air as well.



The following parameters can be adjusted for EXTRACT air control:

Parameter	Default	Area	Unit
MAX Supply air temp.	35	15-45	°C
MIN Supply air temp.	16	5-25	°C

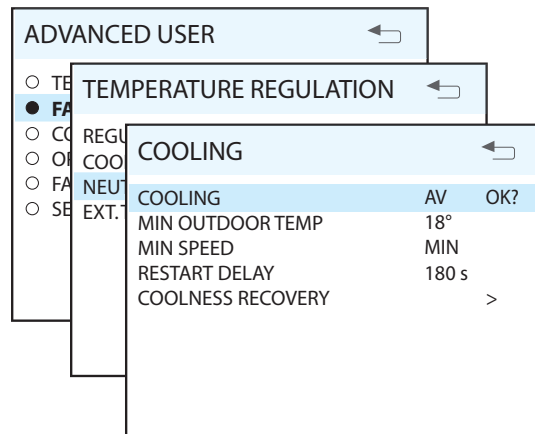
### 2.5 Cooling

The cooling function controls two outputs on CU60, an analog 0-10 V and a digital OFF/ON for DX cooling. Analog 0-10 V is connected between terminal blocks **P7-6** and **P7-7**.

Digital DX is connected between terminal blocks **P7-11** and **P7-12**.

The cooling function is activated in the 'Advanced user/ Temperature control/Cooling' menu.

When the cooling function is activated, the controller type is switched automatically to Exhaust air.



The following parameters can be adjusted for the cooling function:

Parameter	Default	Area	Unit
MIN Outdoor air temp.	17	5-25	°C
MIN Speed	NORMAL	NORM, MAX	°C
Operating delay	180	0-300	s

### 2.6 Alarm

There are two digital outputs for alarms. Both outputs have a shared power supply on terminal block **P7-10**.

**A-alarm** is connected to terminal block **P7-8**.

**B-alarm** is connected to terminal block **P7-9**.

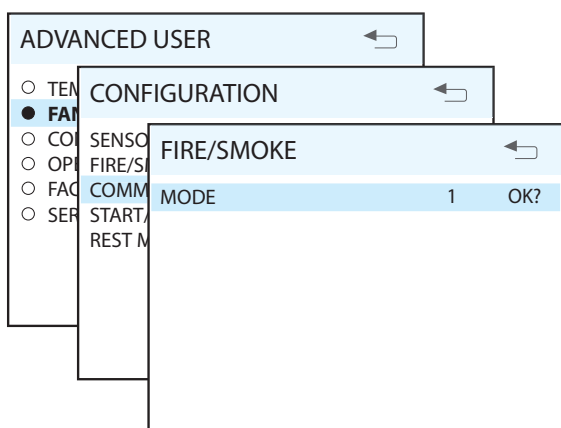
### 2.7 Heating element OFF/ON

If the unit has an electric heating battery, it can be switched OFF/ON via a digital input on the board. To switch the element off, jumper terminal blocks **P5-11** and **P5-12**.

## 2.8 External fire/smoke detector

An external fire/smoke detector can be connected to the ventilation unit. The detector input can be configured for four different functions for activation. This is done in the 'Advanced user/Configuration/Fire/Smoke' menu. The different functions are shown in the table below.

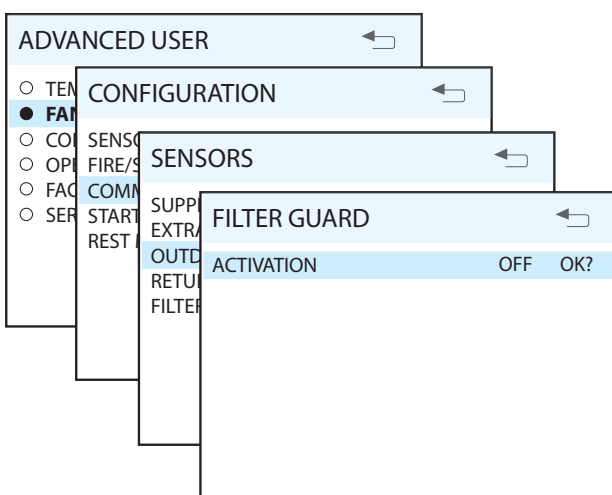
The detector is connected between terminal blocks **P6-5** and **P6-6**.



Position	Supply air fan	Exhaust air fan
<b>1</b>	STOP	STOP
<b>2</b>	MAX	MAX
<b>3</b>	STOP	MAX
<b>4</b>	MAX	STOP

## 2.9 Filter guard

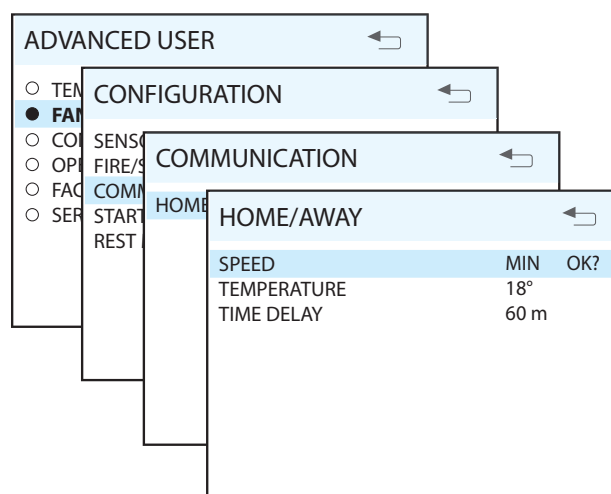
The factory settings include a filter guard that emits a signal to indicate that a filter needs to be changed after a certain time. This can be replaced with a pressure guard that is fitted in the ventilation unit and then connected between terminal blocks **P6-3** and **P6-6**. If the contact is closed, the input is activated. To activate the function, go to the 'Advanced user/Configuration/Sensors/Filter guard' menu and switch the sensor ON.



## 2.10 Home/Away

If you want to use a HOME/AWAY function, a switch can be connected to a digital input on the control board. The input controls three different parameters that can be configured via the 'Advanced user/Configuration/Communication/Home/Away' menu.

The switch is connected between terminal blocks **P6-4** and **P6-6**.



The following parameters can be adjusted for the home/away function:

Parameter	Default	Area	Unit
Speed	MIN	MIN NORMAL MAX	
Temperature	18	10-40	°C
Delay	60	0-120	min.

## 2.11 Rotor guard

By default, the control has an integrated rotor guard that monitors operation. If you want to use an external sensor for monitoring, it can be connected between terminal blocks **P6-7** and **P6-8**. Dipswitch no. 2 must also be switched over to allow the sensor to work. If the sensor is replaced with a jumper, the monitoring is switched off.

## 2.12 Control signal for external heating battery

If necessary, a 0-10 V control signal for an external heating battery can be used. The signal is output between terminal blocks **P6-11** and **P6-12**.



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