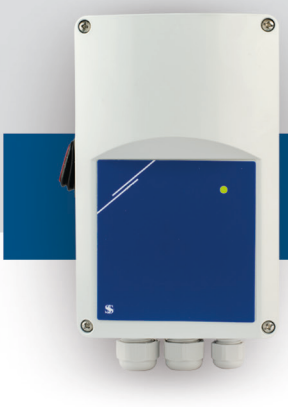


EVS

Electronic fan speed controller

The EVS-1-XX-DM electronic speed controllers automatically control the speed of single-phase voltage controllable electric motors (230 VAC, 50 / 60 Hz). These units are equipped with Modbus RTU communication and provide a wide range of functionalities: remote control options, adjustable off level, min. and max. output voltage settings, and time-limited motor operation initiated by a logic or switch signal.

Key features

- Invertible analogue input signal: 0—10 / 10—0 VDC or 0—20 / 20—0 mA
- Minimum and maximum output voltage setting by trimmers or via Modbus
- Off level setting by trimmer or via Modbus
- Modbus RTU (RS485) communication
- Kick start or soft start
- Remote control input with selectable functionality (normal or timer)
- Analogue input (normal or logic functionality - only for the timer start)
- 1 regulated output for the motor
- 1 unregulated output (230 VAC / max. 2 A) for 3-wire motor connection or voltage supply
- 1 low voltage supply output (+12 VDC / 1 mA) for external 10 kΩ potentiometer
- Green LED operating indication
- Illuminated power switch

Technical specifications

Power supply, Us		230 VAC ± 10 % - 50 / 60 Hz
Regulated output		30—100 % Us (69—230 VAC)
Maximum load		Max. load depends on the version
Unregulated output		230 VAC / max. 2 A
Analogue input		0—10 / 10—0 VDC or 0—20 / 20—0 mA
Logic input		Timer start (min. 2,5 VDC > 30 ms)
Minimum output voltage setting, Umin		30—70% Us (69—161 VAC)
Maximum output voltage setting, Umax		75—100 % Us (175—230 VAC)
Off level		0—4 VDC / 0—8 mA for ascending mode 10—6 VDC / 20—12 mA for descending mode
Supply output		+12 VDC / 1 mA
Protections		Overvoltage and overcurrent
Protection standard		IP54 (according to EN 60529)
Ambient conditions	Temperature	-20—40 °C
	Rel. humidity	0—80 % rH (non-condensing)

Area of use

- Fan speed control in ventilation systems
- Applications where Modbus communication or a timer function is needed
- For indoor use only

Modbus registers

The parameters of the unit can be configured through the 3SModbus software platform. You can download it from the following link: http://www.sentera.eu/english/hvac-software-downloads.html

You can find register maps in the mounting instructions. Download them from: http:www.sentera.eu/products

Article codes

	Max. rated current, [A]	Fuse rating (5*20 mm), [A]
EVS-1-15-DM	1,5	F 3,15 A H 250 VAC
EVS-1-30-DM	3,0	F 5,0 A H 250 VAC
EVS-1-60-DM	6,0	F 10,0 A H 250 VAC
EVS-1100-DM	10,0	(6,3*32 mm) F 16,0 A H 250 VAC

Standards

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC: EN 61326
- WEEE Directive 2012/19/EU
- RoHs Directive 2011/65/EU

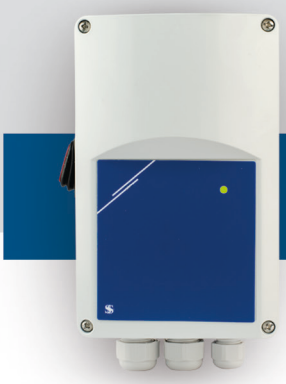
Accessories

Logic controllers, switches, timers, potentiometers, converters & relay modules	• CNVT-PWM-010V converter • PWM converter

Combine with

Logic controllers, switches, timers, potentiometers, converters & relay modules	• MTP-X10K potentiometer • MTV series of potentiometers • DTA series • DTAP series • MCS series
Electronic heater controllers	• EH2 series • EH3 series • AH2 series
Sensors, sensor switches & sensor controllers	**Room sensors / switches** **Duct sensors / switches** **Pressure transmitters**

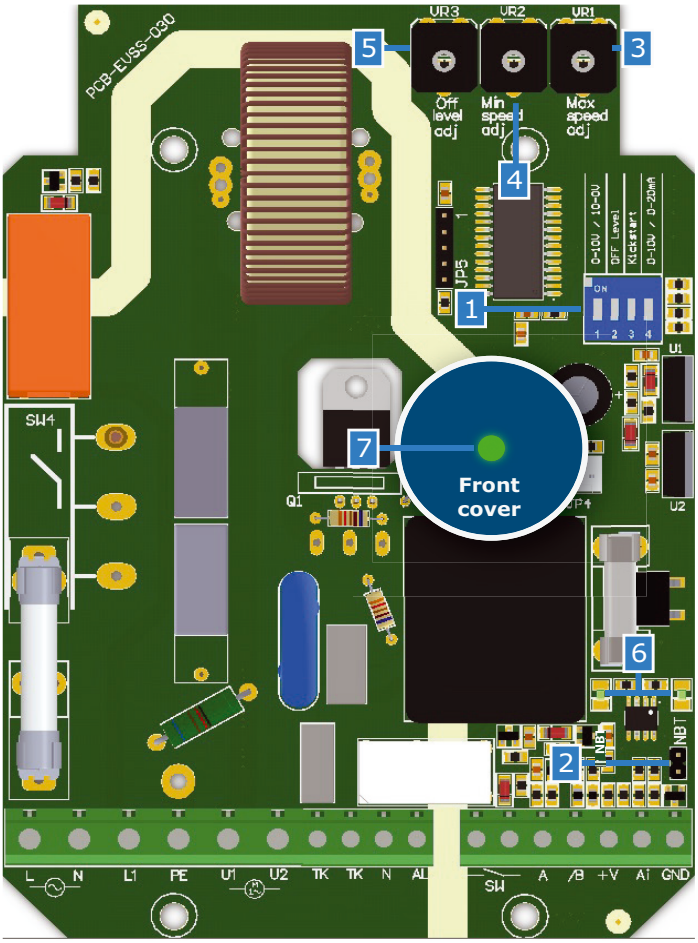
For more detailed information about the product series features visit:
http://www.sentera.eu/english/download-catalogue.html



SENTERA CONTROLS

EVS

Electronic fan speed controller



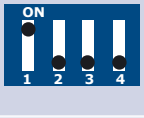
Wiring and connections

L	Supply voltage 230 VAC ± 10 % – 50 / 60 Hz	
N	Neutral	
PE	Earth terminal	
L1	Unregulated output (230 VAC / max. 2 A)	
U1, U2	Regulated output to the motor	
SW	Remote control switch / timer start switch	
A	Modbus RTU (RS485) signal A	
/B	Modbus RTU (RS485) signal /B	
+V	Supply output +12 VDC / 1 mA	
Ai	Analogue input 0—10 VDC / 0—20 mA (10—0 VDC / 20—0 mA) / Logic input for timer function	
GND	Ground	
Connections	Cable cross section	max. 2,5 mm²
	Cable land clamping range	3—6 mm / 5—10 mm

Caution: *If an AC power supply is used with any of the units in a Modbus network, the GND terminal should NOT BE CONNECTED to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and / or the computer!*

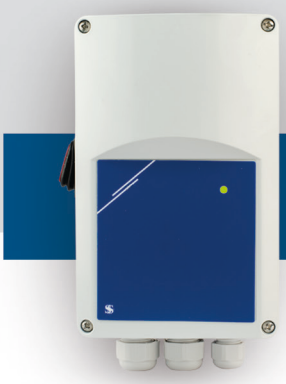
Settings

1 - DIP switch settings

Ascending / descending input mode selection (DIP switch, position 1)		ON – Descending mode: 10—0 VDC / 20—0 mA OFF – Ascending mode: 0—10 VDC / 0—20 mA
OFF level selection (DIP switch, position 2)		ON - enabled OFF - disabled
Kick start selection (DIP switch, position 3)		ON – Kick start enabled OFF – Soft start enabled
Input mode selection (DIP switch, position 4)		ON – Current mode (0—20 mA / 20—0 mA) OFF – Voltage mode (0—10 VDC / 10—0 VDC)

2 - Network bus resistor jumper (NBT)	* ☐ ☐	EVS is the first or last unit
3 - Max. speed trimmer		Adjusts the maximum output voltage from 175 VAC (left) to 230 VAC (right)
4 - Min. speed trimmer		Adjusts the minimum output voltage from 69 VAC (left) to 161 VAC (right)
5 - Off level trimmer		**Ascending mode** Off value from 0 VDC (left) to 4 VDC (right) in voltage mode Off value from 0 mA (left) to 8 mA (right) in current mode **Descending mode** Off value from 10 VDC (left) to 6 VDC (right) in descending and voltage mode Off value from 20 mA (left) to 12 mA (right) in descending and current mode
6 - Modbus communication indication	Blinking green	Transmitting / receiving
7 - Operating LED indication (on the front cover)	Cont. green	Normal operation
	Blinking green	Stand-by mode

*☐☐ indicates open (OFF) position of the jumper.



SENTERA CONTROLS

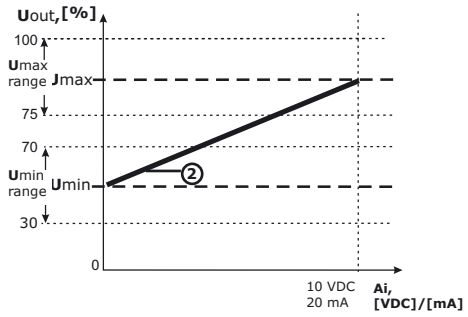
EVS

Electronic fan speed controller

Operational diagrams

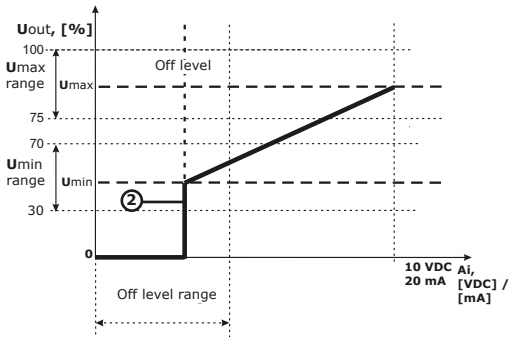
Operating modes

Off level disabled



Descending mode calculation formula	$Uout = Umax - \frac{Ai}{Aimax}(Umax - Umin)$
Ascending mode calculation formula	$Uout = Umin + \frac{Ai}{Aimax}(Umax - Umin)$

Off level enabled

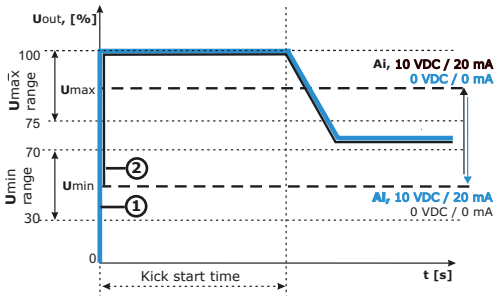


Descending calculation formula	$Uout = Umax - \frac{Ai - Offlevel}{Aimax - Offlevel}(Umax - Umin)$
Ascending calculation formula	$Uout = Umin + \frac{Ai - Offlevel}{Aimax - Offlevel}(Umax - Umin)$

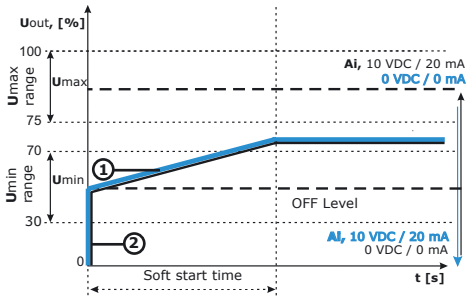
Note: *The operational diagrams for Descending mode are mirror images of the diagrams above for Ascending mode.*

Ascending / Descending input mode

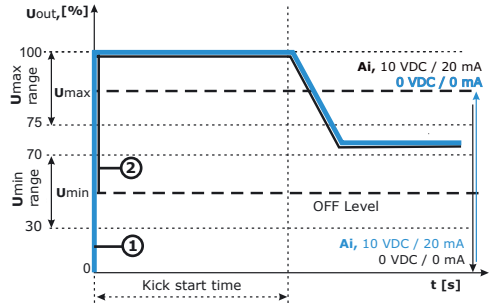
Kick start enabled



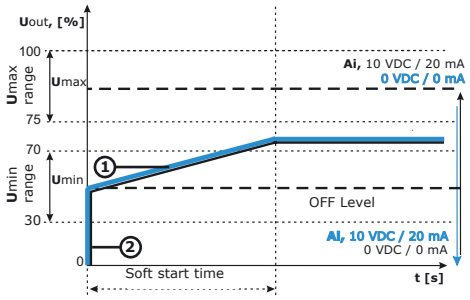
Soft start enabled



Kick start & off level



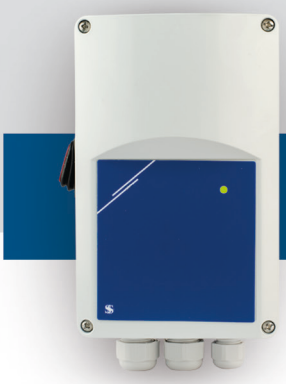
Soft start & off level



① - **Descending mode**

② - **Ascending mode**

Note: *More details about EVS control functionalities you can find in our mounting instruction published on our site. Please follow the link: http://www.sentera.eu*



SENTERA CONTROLS

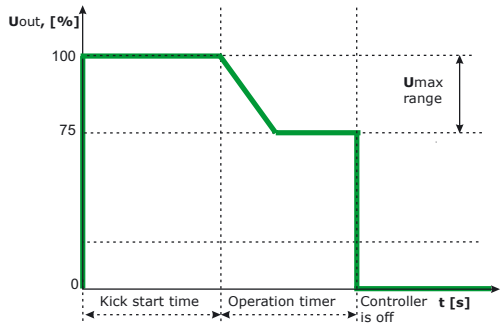
EVS

Electronic fan speed controller

Operational diagrams

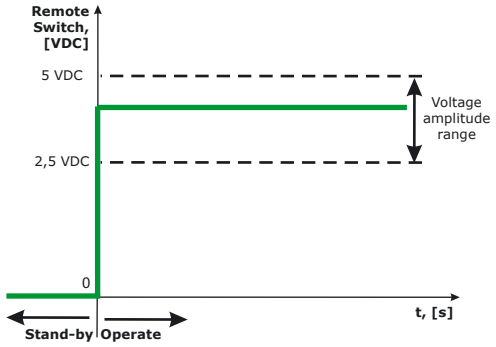
Timer mode

Kick start enabled



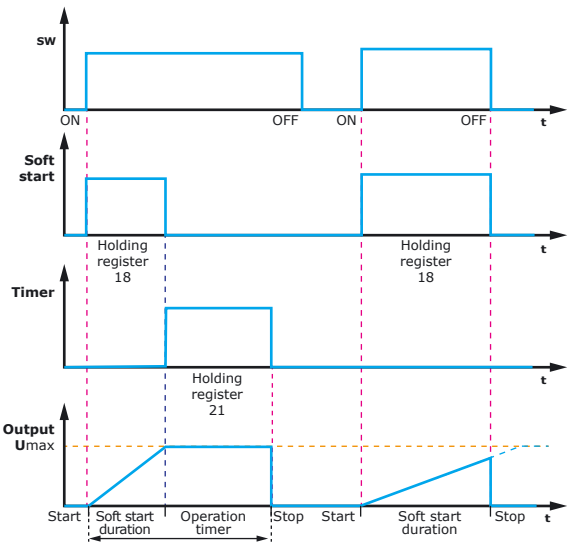
Logic mode

Switch control signal

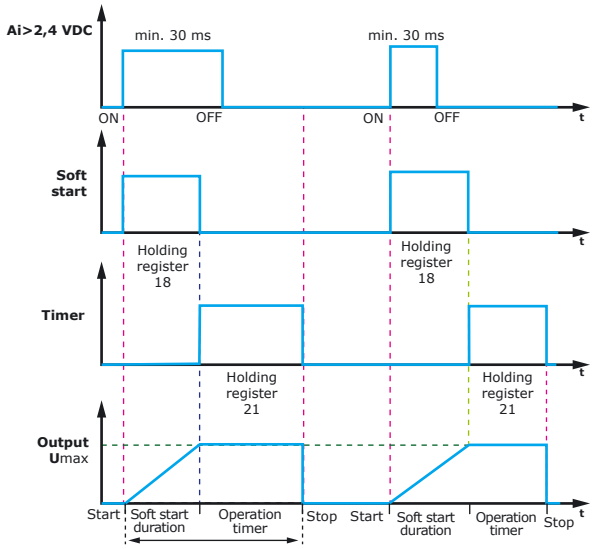


Soft start enabled

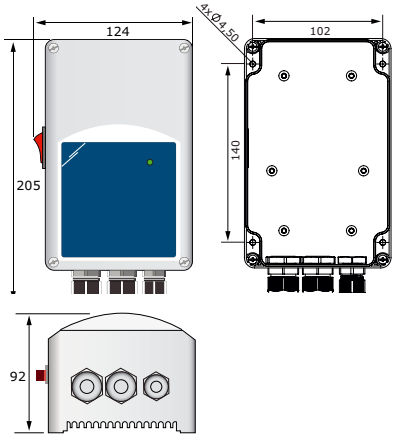
Switch control signal



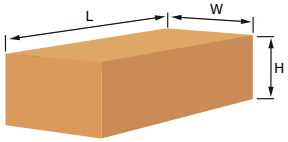
Ai control signal



Fixing and dimensions



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
EVS-1-15-DM	Unit (1 pc.)	208	128	108	0,63 kg	0,80 kg
	Box (15 pcs.)	545	405	245	9,50 kg	12,84 kg
EVS-1-30-DM	Unit (1 pc.)	208	128	108	0,68 kg	0,84 kg
	Box (15 pcs.)	545	405	245	10,16 kg	13,44 kg
EVS-1-60-DM	Unit (1 pc.)	208	128	108	0,84 kg	1,00 kg
	Box (15 pcs.)	545	405	245	12,54 kg	15,84 kg
EVS-1100-DM	Unit (1 pc.)	208	128	108	0,91 kg	1,08 kg
	Box (15 pcs.)	545	405	245	13,65 kg	17,04 kg