



# VFSC9

## Electronic fan speed controller

VFSC9 are electronic fan speed controllers for single phase induction motors (110–240 VAC / 50–60 Hz). They have a selectable analog input (0–10 VDC / 0–20 mA / PWM) and Modbus RTU communication. Compared to phase angle control (Triac fan speed controllers), the VFSC9 series generates an output signal with almost perfect sinusoidal shape, while the EMC pollution remains limited, the power factor exceeds 95 %.

### Key features

- Integrated EMC filter, Class B (if shielded motor cable < 10 m)
- AC chopping technology (Pulse-Width Modulation) with IGBT's
- Selectable analog input 0–10 VDC / 0–20 mA / PWM
- Modbus RTU (RS485) communication
- Ready to use in default Modus, advanced settings can easily be modified via 3SModbus software or Sensistant
- Software configurable network bus terminator (NBT)
- Stand-by power consumption: < 1 W
- Two LED indications
- Potentiometer knob\*
- Adjustable minimum and maximum PWM duty cycle
- Multiple control possibilities: Modbus, Analog Input / Potentiometer\*
- Adjustable OFF level: 1–4 VDC / 2–8 mA / 10–40 % PWM
- Passive heatsink
- Adjustable acceleration / deceleration time
- Digital input for run / stop command
- Enclosure: reinforced ABS UL94-V0 (IP, grey (RAL 7035))

\*Potentiometer knob is available only for the FP version



### Technical specifications

Supply voltage	110–240 VAC / 50–60 Hz (single phase)	
Minimum PWM duty cycle	20–65 %	
Maximum PWM duty cycle	70–90 %	
Acceleration / deceleration rate	1–10 %/s	
Off level	1–4 VDC / 2–8 mA / 10–40 % PWM	
Protections	fuse, motor thermal contact (TK) input	
Protection class	IP54	
Ambient conditions	Operating temperature	-10–40 °C
	Relative humidity	< 85 % (non-condensing)

### Area of use

- Fan speed control of ventilation systems
- For indoor use only

### Standards

- Low Voltage Directive 2014/35/EC
- EMC Directive 2014/30/EC: EN 61000-6-2:2005 / AC: 2005; EN 61000-6-3:2007 / A1:2011 / AC:2012; EN 61000-6-3: 2014



For more detailed information about the product series features visit:  
<http://www.sentera.eu/Downloads>

### Article codes

Code	Max. output current, I <sub>max</sub>	Max. load	Potentiometer
VFSC9-25-FP	2,5 A	600 W	yes
VFSC9-25-FC			no

### Wiring and connections

L	Supply voltage 110–240 VAC / 50–60 Hz	
N	Neutral	
PE	Earth terminal	
U1, U2	Regulated output to the motor	
TK, GND	Thermal contact input	
Di, GND	Digital input	
Ai, GND	Analog input	
+V	Supply output 15 VDC for external potentiometer 10 kΩ	
A	Modbus RTU (RS485), signal A	
/B	Modbus RTU (RS485), signal /B	
RJ45 connector on PCB	Modbus RTU (RS485) connection	
Approved cables	L, N, PE	0,75–1,5 mm <sup>2</sup> , 3-wire cable
	U1, U2	0,75–1,5 mm <sup>2</sup> , 2-wire screened cable
	TK, GND	0,75–1,5 mm <sup>2</sup> , 2-wire screened cable
	Di, GND	0,5–1,25 mm <sup>2</sup>
	Ai, GND	0,5–1,25 mm <sup>2</sup> , screened / shielded
	+ V	
	A, /B, GND	Cat 5 network cable, screened, foil-shielded, twisted pair (S/FTP)

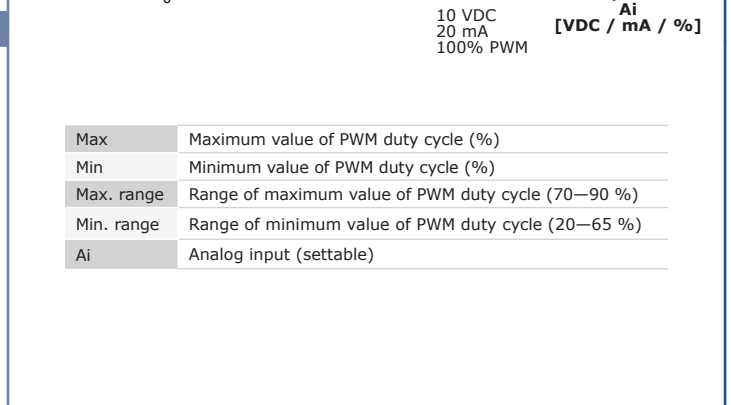
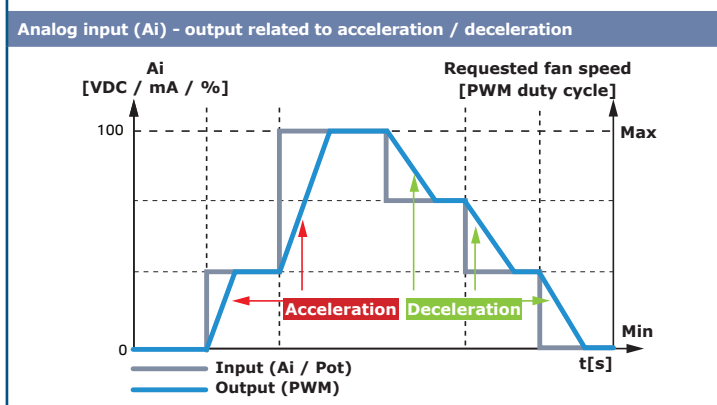
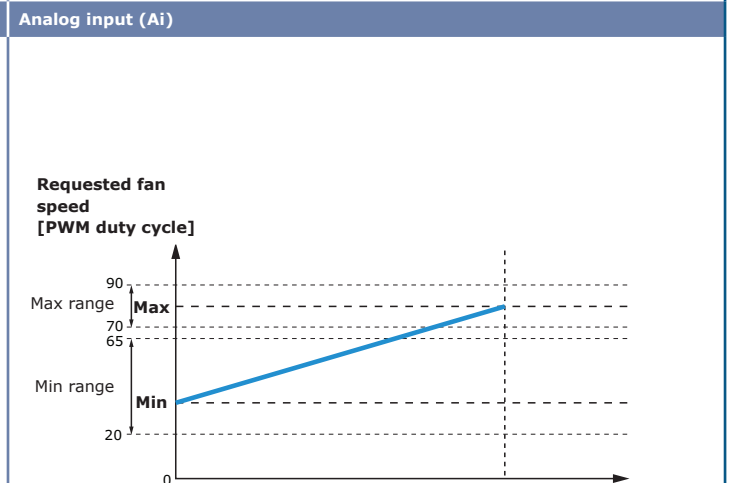
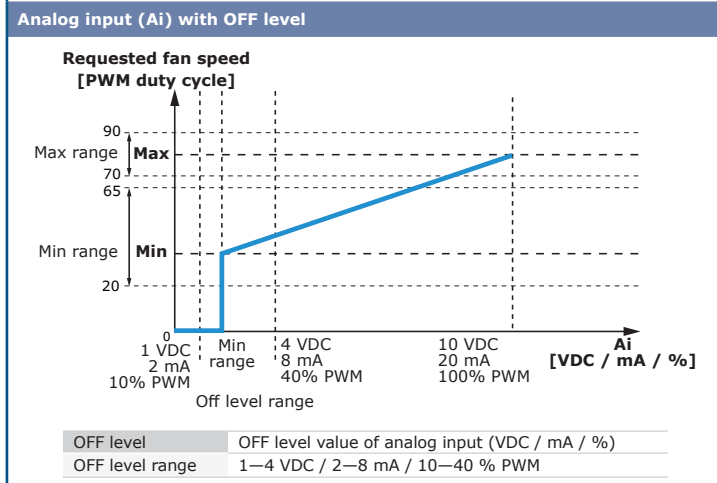
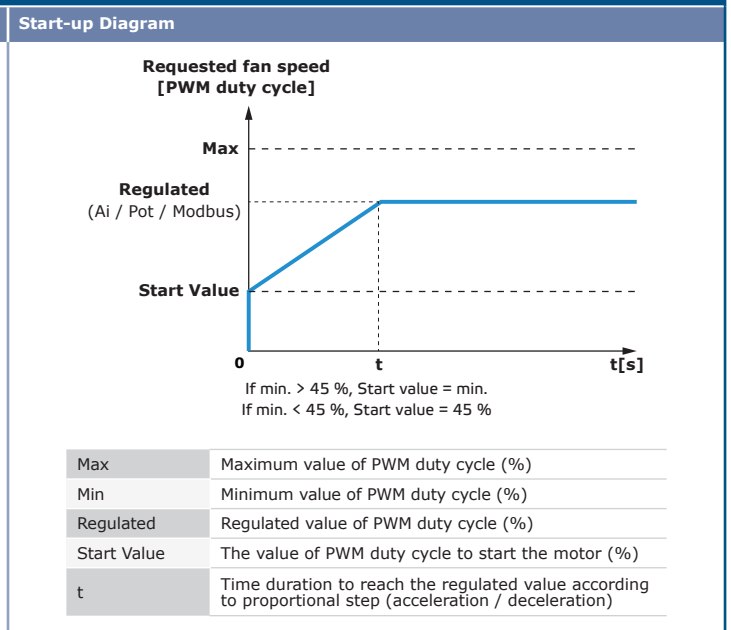
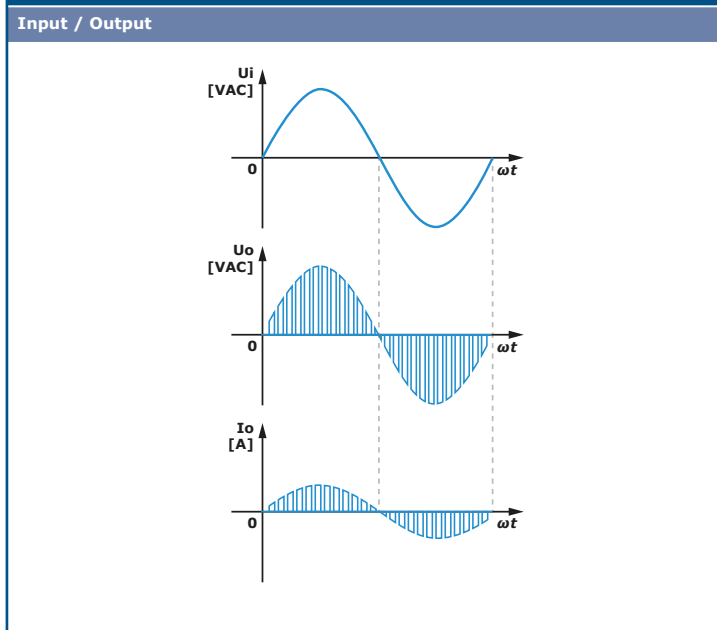
**Caution:** Use power cables according to the specified mains voltages for the permanent installation. Connect the earth terminal of the motor with low impedance to the nearest earth grounding electrode system.

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## Operational diagrams

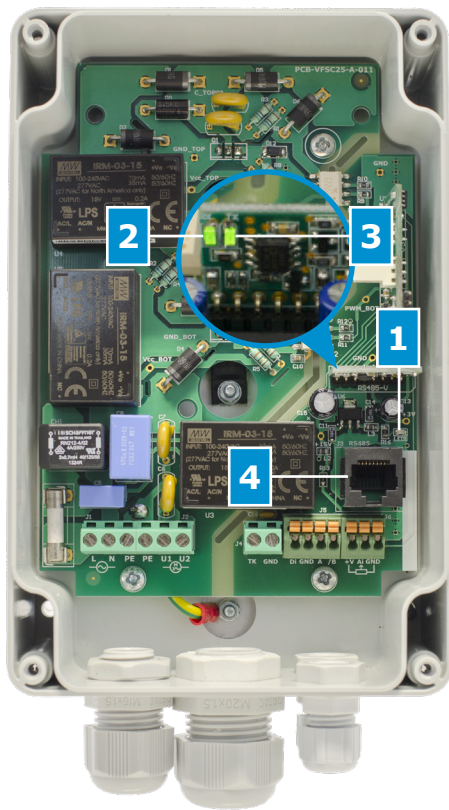


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## Settings and indications



Power ON indication (on the front of the enclosure)	Blinking green	Stand-by mode
	Continuous green	Run mode
Motor TK indication (on the front of the enclosure)	Red LED on	Alarm indication
1 - 3,3 VDC supply indication	Green LED on	3,3 VDC supply available
2 - RS485V board Rx	Blinking green	Controller receives packages via Modbus
3 - RS485V board Tx	Blinking green	Controller transmits packages via Modbus
4 - RJ45 Socket		Modbus RTU communication is available via the internal RJ45 connector or via the screw clamps A and /B

## Modbus registers



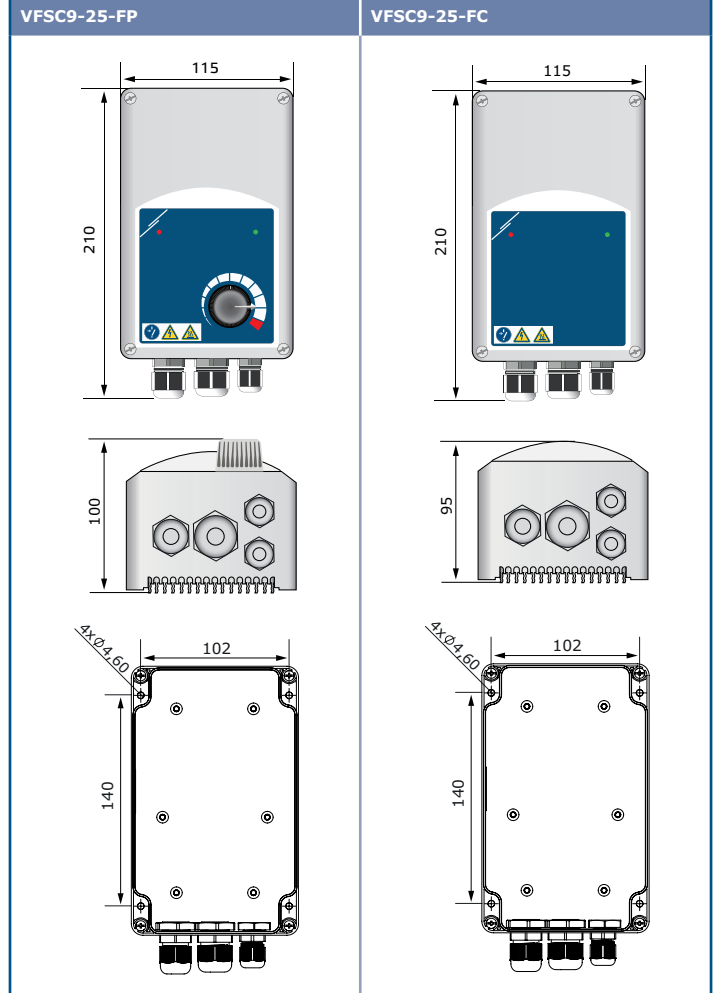
The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.



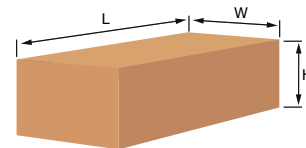
The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:  
<https://www.sentera.eu/en/3SMCenter>

For more information about the Modbus registers, please refer to the product Modbus Register Map.

## Fixing and dimensions



## Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
VFSC9-25-FP	Unit (1 pc.)	210	125	105	0,75 kg	0,85 kg
VFSC9-25-FC	Unit (1 pc.)	210	125	105	0,74 kg	0,84 kg
VFSC9-25-FP	Box (15 pcs.)	590	380	280	11,25 kg	13,65 kg
VFSC9-25-FC	Box (15 pcs.)	590	380	280	11,10 kg	13,50 kg