

MVS

Electronic fan speed controller for DIN rail

The MVS series control the speed of single-phase voltage controllable electric motors (230 VAC / 50–60 Hz) based on a standard input control signal. They 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.

Key features

- Invertible analogue input signal: 0–10 / 10–0 VDC or 0–20 / 20–0 mA
- Minimum and maximum output voltage setting via trimmers or Modbus
- Off-level value setting via trimmer or Modbus
- Modbus RTU (RS485) communication
- Kick start or soft start
- Remote control input with selectable functionality (normal or timer mode)
- Analogue input (normal or timer functionality - only for the timer to 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
- DIN rail mounted
- Green LED operating indication

Area of use

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

Technical specifications

Power supply	230 VAC ±10 % / 50–60 Hz	
Regulated output	30–100 % Us	
Maximum 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	
Timer input	Timer start (min. 2,5 VDC > 30 ms)	
Off level	0–4 VDC / 0–8 mA for ascending mode 10–6 VDC / 20–12 mA for descending mode	
Minimum output voltage setting, U _{min}	30–70 % Us	
Maximum output voltage setting, U _{max}	75–100 % Us	
Supply output	+12 VDC / 1 mA	
Enclosure	PA- UL94 V0, green RAL 6017	
Protections	Overvoltage and overcurrent	
Protection standard	IP20 (according to EN 60529)	
Ambient conditions	Operating temperature	-20–40 °C
	Storage temperature	-40 – 50 °C

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 Modbus Register Map of the product.



Article codes

Article code	Max. rated current, [A]	Fuse rating	
		Fuse 1	Fuse 2
MVS-1-15CDM	1,5	F 0,630 A H 250 V (5*20 mm)	F 3,15 A H 250 V (5*20 mm)
MVS-1-30CDM	3,0		F 5,0 A H 250 V (5*20 mm)
MVS-1-60CDM	6,0		F 10,0 A H 250 V (5*20 mm)
MVS-1-100CDM	10,0		F 16,0 A H 250 V (6,3*32 mm)

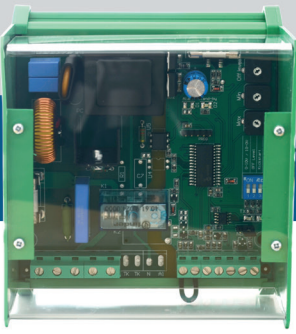
Standards

- Low Voltage Directive 2014/35/EU
 - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendments AC:1993, A1:2000, A2:2013, AC:2016-12 and AC:2019-02 to EN 60529
 - EN 60730-1:2016 Automatic electrical controls for household and similar use - Part 1: General requirements Amendments A1:2019 and A2:2022 to EN 60730-1
- EMC Directive 2014/30/EU
 - EN 61000-3-2:2014 Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
 - EN 61000-6-2:2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments Amendment AC:2005 to EN 61000-6-2
 - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
 - EN 60730-1:2016 Automatic electrical controls for household and similar use - Part 1: General requirements Amendments A1:2019 and A2:2022 to EN 60730-1
- RoHS Directive 2011/65/EU
 - EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances



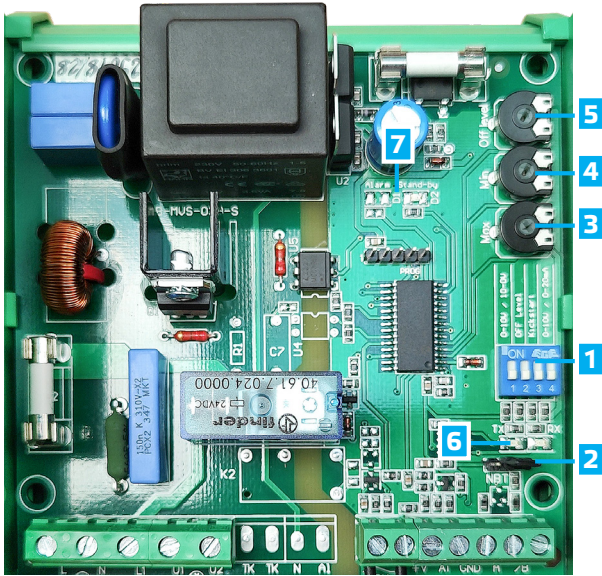
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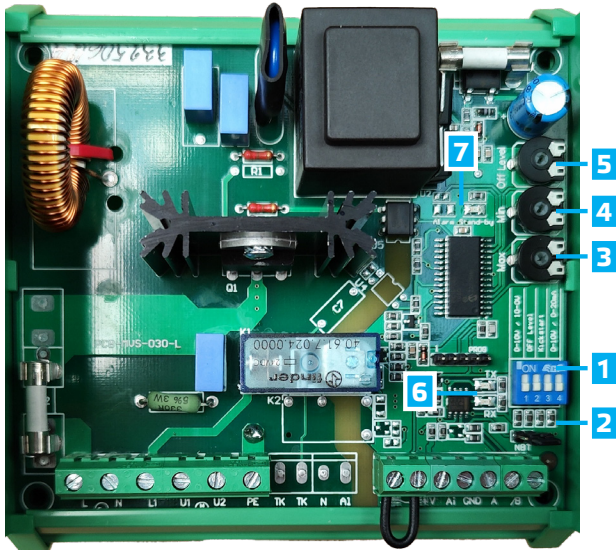


Legend

MVS-1-15CDM and MVS-1-30CDM



MVS-1-60CDM and MVS-1100CDM



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)	*	MVS is the first or last unit
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3 - Max. speed trimmer		Adjusts the maximum output voltage from 175 VAC (left) to 230 VAC (right)
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4 - Min. speed trimmer		Adjusts the minimum output voltage from 69 VAC (left) to 161 VAC (right)
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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
	Cont. green	Normal operation
	Blinking green	Stand-by mode

* indicates that the jumper has been applied.



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Wiring and connections

MVS-1-15CDM and MVS-1-30CDM

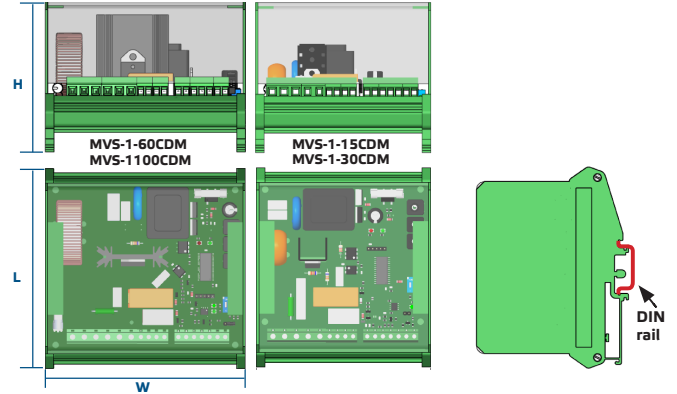
L	Supply voltage 230 VAC ±10 % / 50–60 Hz
N	Neutral
L1	Unregulated output (230 VAC / max. 2 A)
U1, U2	Regulated output to the motor
SW	Remote control switch / timer start switch
+V	Supply output +12 VDC / 1 mA
Ai	Analogue input 0–10 VDC / 0–20 mA
GND	Ground
A	Modbus RTU (RS485) signal A
/B	Modbus RTU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

MVS-1-60CDM and MVS-1100CDM

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

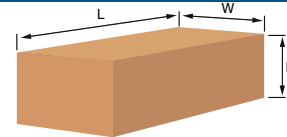
Caution: If an AC power supply is used with any of the units in a Modbus network, the GND terminal should NOT BE CONNECTED to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and / or the computer!

Fixing and dimensions



Articles	Height [mm]	Length [mm]	Width [mm]
MVS-1-15CDM, MVS-1-30CDM	96	127	112
MVS-1-60CDM, MVS-1100CDM			128

Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
MVS-1-15CDM	Unit (1 pc.)	220	130	110	0,403 kg	0,505 kg
	Box (15 pcs.)	590	380	280	6,04 kg	8,56 kg
MVS-1-30CDM	Unit (1 pc.)	220	130	110	0,441 kg	0,543 kg
	Box (15 pcs.)	590	380	280	6,615 kg	9,135 kg
MVS-1-60CDM	Unit (1 pc.)	220	130	110	0,496 kg	0,598 kg
	Box (15 pcs.)	590	380	280	7,44 kg	9,96 kg
MVS-1100CDM	Unit (1 pc.)	220	130	110	0,515 kg	0,617 kg
	Box (15 pcs.)	590	380	280	7,725 kg	10,245 kg

Global trade item numbers (GTIN)

Packaging	Unit	Box
MVS-1-15CDM	05401003010556	05401003502235
MVS-1-30CDM	05401003010563	05401003502242
MVS-1-60CDM	05401003010570	05401003502259
MVS-1100CDM	05401003010587	05401003502266



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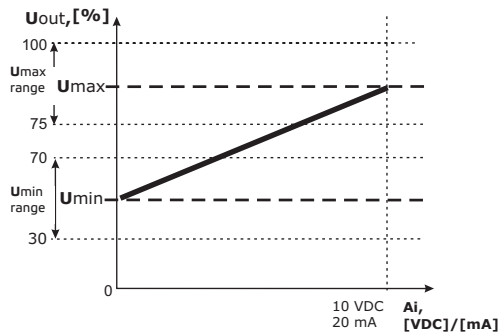
Operational diagrams

Operating modes

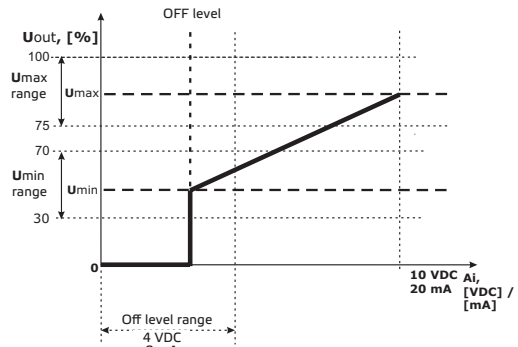
Analogue input function - Normal mode

This mode is activated either directly via the Ai or remotely via a switch (= turning on the controller).

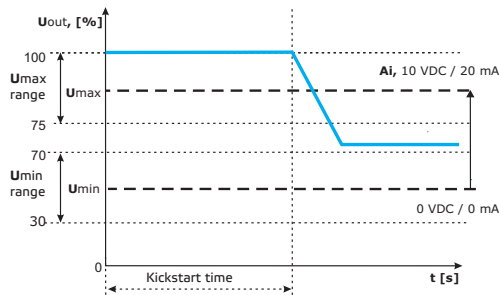
Visualisation of ascending analogue input control



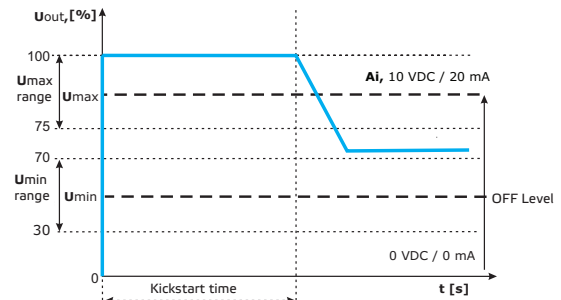
Visualisation of ascending analogue input control and off-level enabled



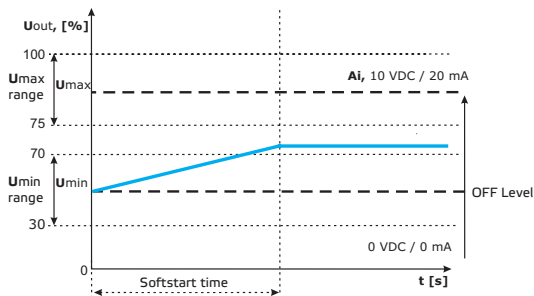
Output with kickstart



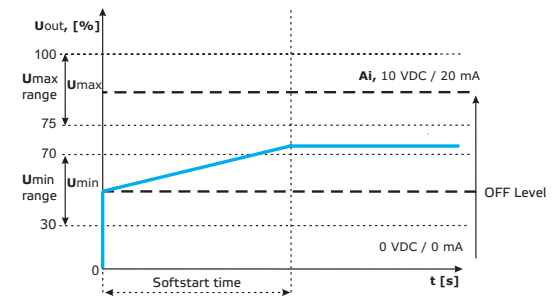
Output with kickstart and off-level enabled



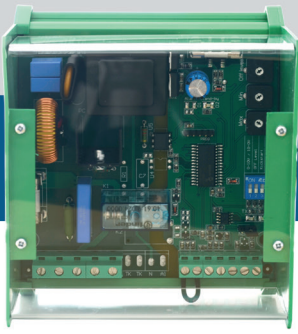
Output with softstart



Output with softstart and off-level enabled



Note: The operational diagrams for descending mode are mirror images of the diagrams above. You can find more details about MVS control functionalities in our mounting instruction published on our site. Please follow the link: <http://www.sentera.eu>



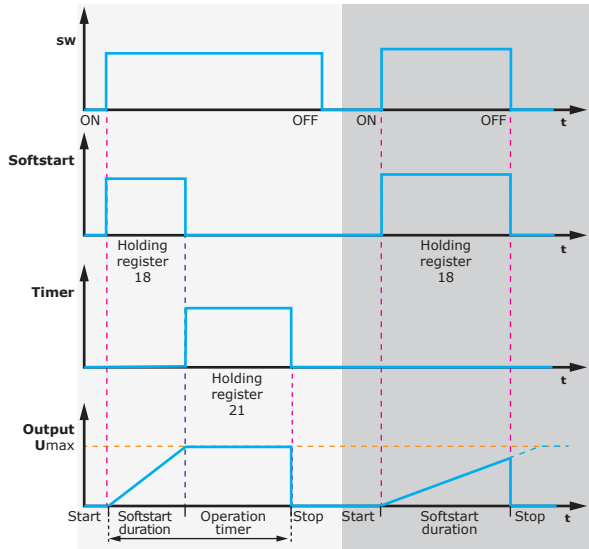
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Operational diagrams

Remote input function - Timer mode

Pulse given via a remote switch



Analogue input function - Timer mode

Pulse given directly on the Ai

