

Product Overview

The AX-FC-EVS electronic speed controllers are designed for the automatic regulation of single-phase, voltage-controllable electric motors (230V AC, 50/60 Hz). Equipped with Modbus RTU communication, the units provide remote control capability, adjustable off-level settings, configurable minimum and maximum output voltages, and a time-limited motor operation mode activated via a logic or switch input.



Products Features

- Electronic Speed Control
- 1.5A, 3A, 6A and 10A Models
- Suitable for 230Vac 50/60Hz Motors
- Green LED operating indication
- 1 regulated output for the motor
- 1 unregulated output (230V AC / maximum 2A) for 3-wire motor connection or voltage supply
- 1 low voltage supply output (+12V DC / 1mA) for external 10k Ω potentiometer
- Minimum and maximum output voltage setting by trimmers or via Modbus
- Modbus RTU (RS485) communication
- Invertible Analogue input signal 0-10/10-0V DC or 0-20/20-0mA
- Wall Mount Unit
- Illuminated power switch

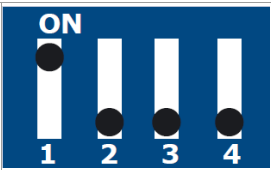
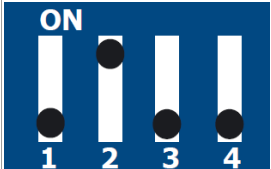
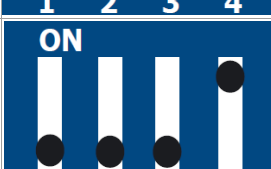
Product Specifications

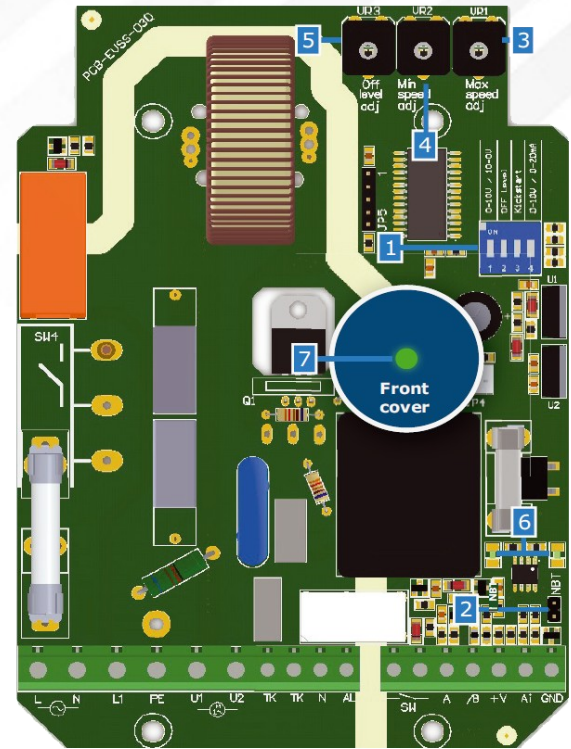
Power Supply:	230V AC $\pm$ 10%, 50/60Hz
Analogue Input:	0-10/10-0V DC or 0-20/20-0mA
Logic Input:	Timer start (min. 2.5V DC > 30ms)
Max Load:	Every version have different load.
Output:	Regulated = 30 -100%, (69-230V AC) Unregulated = 230V AC / maximum 2A
Minimum Output (V) Settings: (Umin)	30-70%, (69-161V AC)
Maximum Output (V) Settings: (Umax)	75-100%, (175-230V AC)
Off Level:	Ascending Model (0-4V DC / 0-8mA) Descending Model (10-6V DC / 20-12mA)
Supply Output:	+12V DC / 1 mA
Ambient Temp:	-20 - 40°C
Ambient Humidity:	0-80% RH (Non-Condensing)
Ingress Protection:	IP54 (EN 60529)
COO:	Made in Belgium

Product Order Codes

Part Number	Description
AX-FC-EVS1-2	Electronic Fan Speed Controller 1.5Amp, Fuse (F 3.15 A H, 250V AC)
AX-FC-EVS3-2	Electronic Fan Speed Controller 3.0Amp, Fuse (F 5.0 A H, 250V AC)
AX-FC-EVS6-2	Electronic Fan Speed Controller 6.0Amp, Fuse (F 10.0 A H, 250V AC)
AX-FC-EVS10-2	Electronic Fan Speed Controller 10.0Amp, Fuse (F 16.0 A H, 250VAC)

Settings

1– DIP Switch Settings		
Ascending / descending input mode selection (DIP switch, position 1)		ON – Descending mode: 10-0V DC / 20-0mA OFF – Ascending mode: 0-10V DC / 0-20mA
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 (0-20mA/20-0mA) OFF – Voltage mode (0-10V DC/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



Wiring and connections

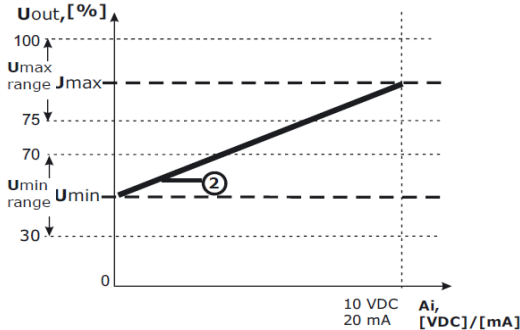
L	Supply voltage 230 VAC ± 10 % – 50 / 60 Hz
N	Neutral
PE	Earth terminal
L1	Unregulated output (230 VAC / max. 2 A)
U1,U2	Regulated output to the motor
SW	Remote control switch / timer start switch
A	Modbus RTU (RS485) signal A
/B	Modbus RTU (RS485) signal /B
+V	Supply output +12 VDC / 1 mA
Ai	Analogue input 0-10V DC/0-20mA (10-0VDC/20-0 mA) / Logic input for timer function
GND	Ground
Connections	Cable cross section max. 2.5 mm ²
	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!

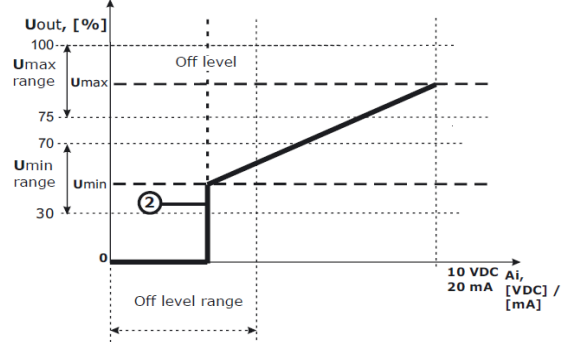
Operational Diagrams

Operating Modes

Off Level Disabled



Off Level Enabled

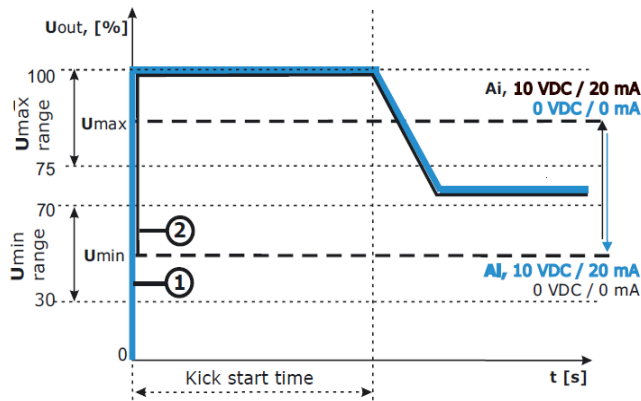


Descending mode calculation formula	$U_{out} = U_{max} - \frac{A_i}{A_{i_{max}}} (U_{max} - U_{min})$
Ascending mode calculation formula	$U_{out} = U_{min} + \frac{A_i}{A_{i_{max}}} (U_{max} - U_{min})$

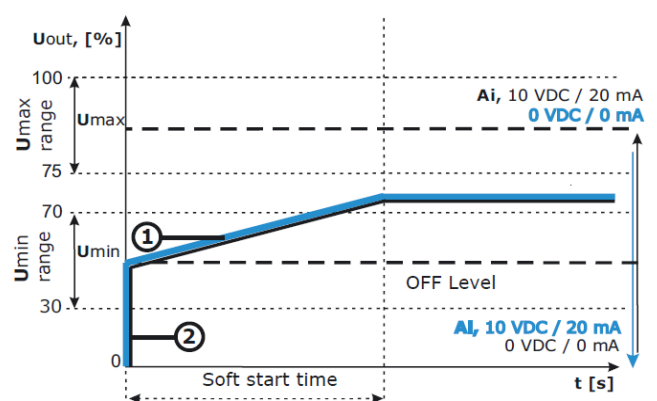
Descending calculation formula	$U_{out} = U_{max} - \frac{A_i - \text{Off level}}{A_{i_{max}} - \text{Off level}} (U_{max} - U_{min})$
Ascending calculation formula	$U_{out} = U_{min} + \frac{A_i - \text{Off level}}{A_{i_{max}} - \text{Off level}} (U_{max} - U_{min})$

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

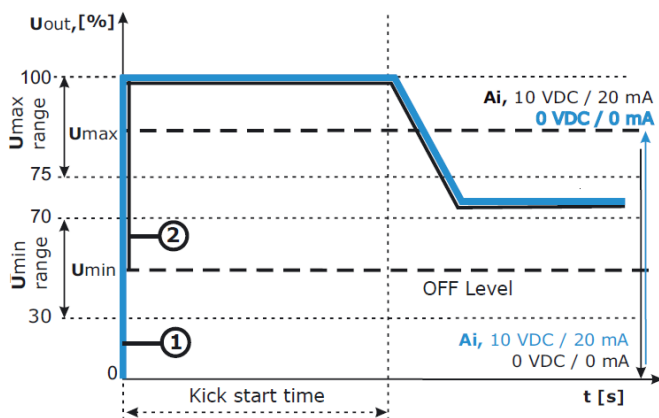
Kick Start Enabled



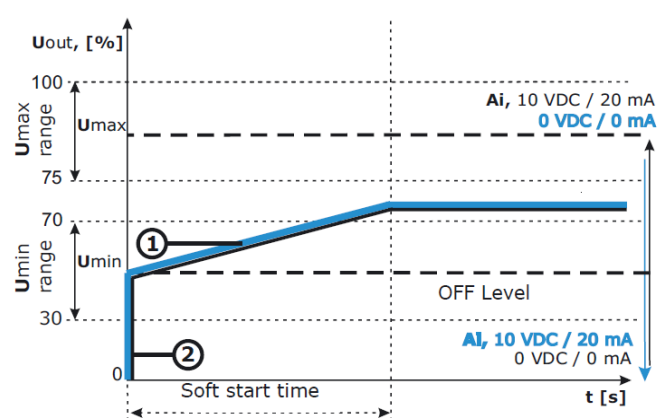
Soft Start Enabled



Kick Start & Off Level



Soft Start & Off Level

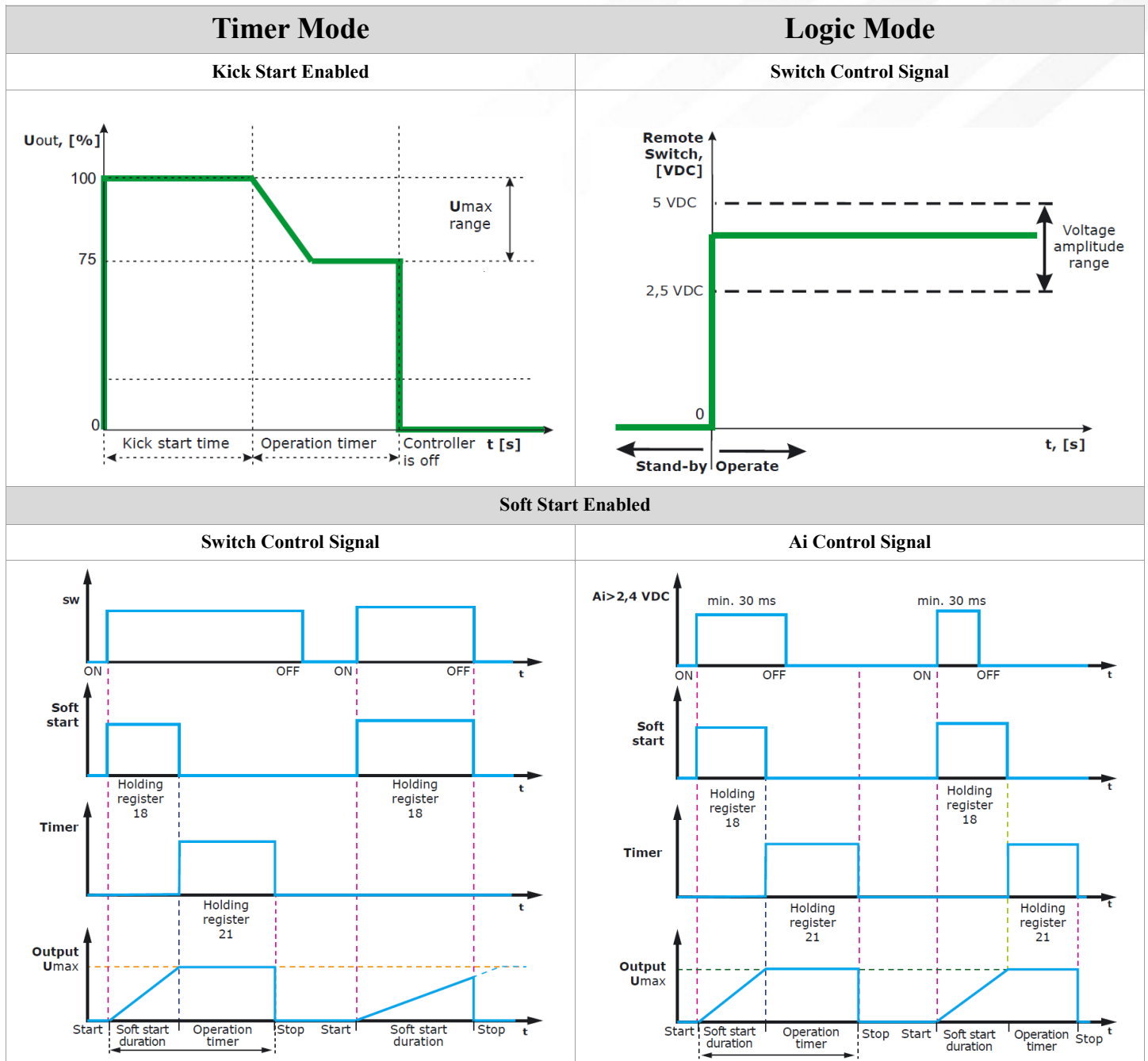


1- Descending mode

2- Ascending mode

Ascending / Descending input mode

Operational Diagrams



Dimensions/Drawings

