

Wall mounted and built-in SPEED CONTROLLERS

*for AIR INTAKE, VENTILATION
and EXTRACTION SYSTEMS*



FASAR
electronica

Air intake and ventilation

Our speed regulators for single-phase motors

ELECTRONIC REGULATORS (wall mounting)

• Phase cut technology

Models available

p/n FE229 - 4,5 A with motor and light control
p/n FE230 - 4,5 A with motor and light control (digital)
p/n FE263 - 8 A with motor and light control
p/n FE282 - 10 A with motor and light control
p/n FE1052 - 8/10 A with motor and light control
p/n FE1023 - 10 A with motor and light control (digital)
p/n FE1031 - 4,5 A with motor control
p/n FE1032 - 8 A with motor control
p/n FE1033 - 10 A with motor control

• Inverter technology

Models available

p/n FE1018 single-phase inverter 3,5 A with motor control
p/n FE1019 single-phase inverter 8 A with motor control
p/n FE1024 single-phase inverter 3,5 A with motor and light control
p/n FE1025 single-phase inverter 8 A with motor and light control
p/n FE1026 single-phase inverter 3,5 A with remote motor control by 0-10 vdc signal
p/n FE1027 single-phase inverter 8 A with remote motor control by 0-10vdc signal

ELECTRONIC REGULATORS (built-in)

• Phase cut technology

Models available

p/n FE1038 - 4 A with motor and light control
p/n FEGR016 - 4 A with motor and light control
p/n FEGR017 - 4 A with motor and light control
p/n FEGR020 - 1,5 A with motor and light control
p/n FE1008 - 1,5 A with remote motor control by 0-10 vdc signal
p/n FEGF01/FEGF021 - 1,5 A with temperature probe and microswitch (for oven hoods)

ELECTROMECHANICAL REGULATORS

• Electromechanical controllers for common wire motors

Models available

p/n FE1037 3 step electromechanical controller 10 A
p/n FE1054 3 step electromechanical controller 10 A with light control
p/n FE1040 4 step electromechanical controller 10 A

• Auto-transformer for 2 wires single-phase induction motors

Models available

p/n FE1048, FE1049, FE1050, FE1051 - 5 step auto transformer 3 - 5 - 7,5 - 10A
p/n FE1055, FE1056, FE1057, FE1058 - digital 5 step auto transformer 3 - 5 - 7,5 - 10A

ELECTRONIC REGULATORS (wall-mounting)

- Phase-cut technology



GENERAL FEATURES

Advanced control systems, some of them with **microprocessor**, for the speed adjustment of a **4,5, 8 and 10 A single-phase induction motor**. Available with digital, analog and remote control.

The p/n **FE230**, microprocessor-based system with low consumption when in stand-by, is available in the basic version (without sensors, without receiver for remote control, without serial communication port RS-485), or:

- FE230/T: equipped with NTC probe to automatically control the motor speed (the speed changes according to the detected temperature) or with thermal contact to protect the motor wirings;
- FE230/R: equipped with radio receiver for the management of p/n FE1004 (optional 433,92 MHz 5-button remote control).
- FE230/U with humidity sensor FOR DISHWASHER: allows you to control the hood motor in manual or automatic mode by means of probe measurements at the opening of the machine.

Technical features
Speed regulators with motor, light and solenoid valve control

	FE229	FE263	FE282	FE1052	FE230	FE1023
						
Power supply	220-240Vac - 50/60Hz	220-240Vac - 50/60Hz	220-240Vac—50/60Hz	220-240Vac—50/60Hz	85-265Vac - 50Hz	85-265Vac - 50Hz
Maximum load MOTOR	4,5 A	8 A	10 A	8 A continuous use 10 A discontinuous use	4,5 A	10 A
Maximum load LIGHTS	5 A	5 A	5 A	5 A	2 A	2 A
Gas solenoid valve control	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Bipolar switches and rotary knob	Bipolar switches and rotary knob	Bipolar switches and rotary knob	Bipolar switches and rotary knob	Digital keyboard with 5 keys	Digital keyboard with 5 keys
Dimensions in mm	128x88x73	158x113x95	158x143x95	150x110x130	158x118x77	195x180x77
Weight in kg	0,31	0,78	0,82	0,85	0,37	0,90
IP protection	IP55	IP50	IP50	IP50	IP56	IP50
Trimmers for the adjustment of MIN and MAX speed	Yes	Yes	Yes	Yes	Yes	Yes
Protection fuse	Yes	Yes	Yes	Yes	Yes	Yes
Thermal contact	No	No	No	No	Yes, in the version FE230/T	Yes, in the version FE1023/T

Technical features
Speed regulators with motor and an optional load control

	FE1031	FE1032	FE1033
			
Power supply	220-240Vac - 50/60Hz	220-240Vac - 50/60Hz	220-240Vac—50/60Hz
Maximum load MOTOR	4,5 A	8 A	10 A
Optional load characteristics	230Vac 50Hz max 1A	230Vac 50Hz max 1A	230Vac 50Hz max 1A
Controls	Bipolar switch and rotary knob	Bipolar switch and rotary knob	Bipolar switch and rotary knob
Dimensions in mm	128x88x73	158x113x95	158x143x95
Weight in kg	0,31	0,78	0,82
IP protection	IP55	IP50	IP50
Trimmers for the adjustment of MIN and MAX speed	Yes	Yes	Yes
Protection fuse	Yes	Yes	Yes
Cable glands	No	No	No

ELECTRONIC REGULATORS

• Inverter technology controllers

The inverter technology provides the **best energy efficiency** concerning the realization of variable flow systems: it is widely documented that the advantages resulting from the use of inverter are particularly marked in those plants in which the operating cycle is most varied.

The use of the inverters also allows to exploit particularly large speed intervals and operation dynamics, to decrease motor's stress reducing the negative effects caused by acceleration and deceleration transient, to implement protection functions to safeguard the motor and electronics.

Our catalog offers **several models of single-phase inverters** for induction motors, able to cover a wide range of applications related to the air intake and the air treatment in the professional and industrial sector: the solutions proposed are technologically advanced because they are characterized by a **sophisticated motor control algorithm** and a simple user interface.

The **possibility to customize the management software** in function of the specific application together with the options to be integrated on the board (serial communication port RS-485, radio receiver, 0-10 V input to be used as an alternative to the potentiometer) make our inverters ideal for all installations that require flexibility, efficiency and reliability over time.

Advantages of the use of single-phase inverter with induction motors:

- Possibility to control the speed efficiently and with wide dynamics: the inverter modulates the motor rotation speed according to the real extraction requirements.
- Absence of in line phase shift between voltage (V) and current (I): power factor close to 1.
- Reduction of the wear rate of the mechanical components of the motor: the soft starts e soft stops reduce the stress on the motor and on the mechanical components (absence of inrush speed during the start phase). Starting with controlled power consumption.
- Reliability due to integrated electronic protections (overload, maximum operating temperature).
- Energy saving thanks to the efficiency of the system, and better performance of the motor. Since the power absorbed by the motor is proportional to the cube of the rotation speed, adjusting the speed (only the one needed and when needed) you will get a significant energy saving: halving the speed of motor rotation, the power used will be one eighth of the full operation power. The efficiency of the inverter is of the order of 98%.

FE1018 - FE1019 motor control (3,5 A - 8 A)



The **FE1018** and **FE1019** (in the picture, the 3,5 A model FE1018) are two models of **single-phase frequency converters** for the control of induction motors that respectively absorb up to 750 W (max current absorption of 3,5A) and 1500 W (max current absorption 8A) of electrical power. The front panel integrates the on/off switch and a rotary knob to vary continuously the motor's speed: the microprocessor, which is the heart of the inverter, allows to manage appropriate **acceleration and deceleration ramps** and to realize **protection** techniques for possible overloading and/or overheating of the devices.

FE1024 - FE1025 Motor, light and solenoid valve control (3,5 A - 8 A)



FE1024 and **FE1025** are two models of single-phase frequency converters to control induction motors that respectively absorb up to 750 W (max current absorption of 3,5A), and 1500 W (max current absorption 8A) of electrical power. These devices include a manual switch for the lighting system and the automatic activation of an **optional load** (safety solenoid valve). A few seconds after the motor activation, the optional load is activated (signaled by a dedicated led). By switching off the motor, the other load is immediately turned off. It is possible to set the value of the minimum and maximum motor speed through two trimmers. To reduce the stress on the motor, **ramps of acceleration and deceleration** are performed in both phases of switching on/off, and in the transients of speed-change. The inverter integrates a **cooling fan** that triggers automatically when the motor is activated. In the picture, the 3,5 A model (FE1024).

FE1026 - FE1027 motor control via 0-10Vdc signal (3,5 A - 8 A)



FE1026 and **FE1027** (in the picture, the 3,5 A model FE1026) are the new frequency converters designed for **stand-alone or electric panel installations**: the motor speed can be varied remotely through a **0-10 Vdc signal**, like the one commonly provided by a PLC. The power unit can be installed near the motor, optimizing the wiring and minimizing the interference, while the analog control signal 0-10V can be provided by any user interface or **remote supervision unit**. The ability to manage the activation of the motor and the variation of its speed through a simple 0-10Vdc analog signal allows ample scope for application: apart from the classic control by PLC, any remote device capable of providing the required analog voltage, in discrete steps or continuously variable, can be used.

Technical features
Inverter regulators

p/n	FE1018	FE1019	FE1024	FE1025	FE1026	FE1027
						
Power supply	230 Vac - 50Hz	230 Vac - 50Hz	230 Vac - 50Hz	230 Vac - 50Hz	230 Vac - 50Hz	230 Vac - 50Hz
Maximum load MOTOR	3,5 A	8 A	3,5 A	8 A	3,5 A	8 A
Maximum load LIGHTS	-	-	2 A	2 A	-	-
Motor control	Bipolar switch and rotary knob	Bipolar switch and rotary knob	Bipolar switch and rotary knob	Bipolar switch and rotary knob	0-10 Vdc signal	0-10 Vdc signal
Lights control	-	-	Bipolar switch	Bipolar switch	-	-
Gas solenoid valve characteristics	-	-	230 Vac 50Hz max.1A On/off indication led	230 Vac 50Hz max.1A On/off indication led	-	-
Microprocessor control system	Yes	Yes	Yes	Yes	Yes	Yes
Motor protection fuse	16A F	16A F	16A F	16A F	16A F	16A F
Light and solenoid valve protection fuse (total)	-	-	3,15A T	3,15A T	-	-
Weight (kg) and dimensions (mm)	1,0 - 200x180x100	1,6 - 200x225x100	1,1 - 200x180x100	1,7 - 200x225x100	1,0 - 200x180x100	1,6 - 200x225x100
0-10Vdc input signal	-	-	-	-	Yes	Yes
IP protection	IP20	IP20	IP20	IP20	IP20	IP20

Small suction systems and air quality control in indoor environments, such as:

- Professional kitchens
- Home kitchens
- Canteens and public places
- Workplaces, offices and schools
- Sport facilities and recreational facilities
- Laboratories
- Health facilities

They require suction groups of small and medium power that use cheap, **simple and common single-phase induction motors.**



SINGLE PHASE INVERTER
for professional and industrial ventilation



Complete series from 200 W to 1500 W
(customisable performances)

When the following performance are required:

- Minimum consumption with maximum efficiency
- Reliability
- Quietness
- Maximum operational dynamic
- Ease of installation and adjustment
- Possibility of automatic control and interfacing with air quality control sensors
- Performances that can be customized

ELECTRONIC REGULATORS (built-in)

• Phase-cut technology

DIGITAL

FE1038 – 4 A: A practical solution that integrates power board and user interface into a single control unit for fast and easy panel mounting. Controls single-phase 4A induction motors (maximum current absorbed by the motor, 900W), lighting system and solenoid valve.



FE1038

FRONT PANEL
(optional) p/n FE1039

FEGR017- 4 A: It allows the control of 4A single-phase induction motors (max power absorption 900W), and of an external solenoid valve, the lights and a possible optional load at mains voltage. A 5 keys user interface, a LED and a display allow the access to all of the implemented functions and return the main information on the status of the controlled system.

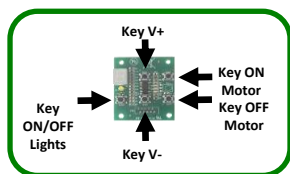


FEGR017

FEGR020 – 1,5 A: It can control 1,5A single-phase induction motors (max power absorption 350W). It handles in a practical and efficient way the extraction motor, an external solenoid valve (usually the gas solenoid valve) and the lighting system. The user interface provides keys, LEDs and display to allow the user to access all implemented features.



FEGR020



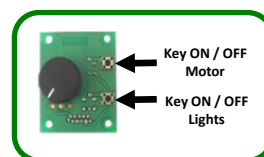
DIGITAL USER INTERFACE
for regulators FEGR017 and FEGR020



POLYCARBONATE PANEL
p/n FE1015 for regulators
FEGR017 and FEGR020

ANALOG

FEGR016 – 4 A (max absorption 900W) With a simple and functional user interface, this controller is equipped with optional inputs and outputs for the handling of sensors and any external command, it can control an additional load voltage, and the firmware can be customized.



ANALOG USER
INTERFACE



POLYCARBONATE
PANEL
p/n FE1016

0-10V CONTROL

FE1008 – 1,5 A (max absorption 350W) It offers the possibility to vary the speed of the motor either by means of a potentiometer (optional), or through a 0-10 V analog input: this last option is very useful in a wide range of applications and in particular, if you want to realize a PLC control. The possibility to assemble expansion connectors on the board for optional inputs and outputs, either analog or digital, gives further versatility to this system. Handling of the motor start through inrush speed. Board with safety insulation from the mains (4000 Vac).



FE1008

AUTOMATIC CONTROLLERS








FEGF01 – FEGR021 with temperature probe and microswitch FOR OVEN HOODS

Allows you to control the hood motor in manual or automatic mode by means of probe measurements at the opening of the machine, or immediately at the oven door opening thanks to the microswitch (for the p/n FEGR021).



Technical features

Built-in phase-cut technology controllers

Part Number	FE1038	FEGR016	FEGR017	FEGR020	FE1008	FEGF01 FOR OVEN HOODS	FEGR021 FOR OVEN HOODS
							
Motor type	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase
Power supply	220-240Vac - 50Hz Single-phase	220-240Vac - 50Hz Single-phase	220-240Vac - 50Hz Single-phase	220-240Vac - 50Hz Single-phase	220-240Vac - 50/60Hz Single-phase	220-240Vac - 50Hz Single-phase	220-240Vac - 50Hz Single-phase
Maximum load MOTOR	4,5A	4A	4A	1,5A	1,5A	1,5A	1,5A
Maximum load LIGHTS	2 A	500 W	500 W	500 W	Not handled	Not handled	Not handled
Phase angle system for the control of the motor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ON/OFF control of lights via relay	Yes	Yes	Yes	Yes	Not handled	Not handled	Not handled
Solenoid valve control	Yes	Yes	Yes	Yes	Not handled	Yes	Yes
User interface	Keyboard 4 keys	Keyboard 2 keys and rotary knob	Keyboard 5 keys	Keyboard 5 keys	None	None	None
Filtering HW and SW EMC	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ability to customize the firmware	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flat cable 10 poles L=310mm with sheath	No	Yes	Yes	Yes	No	No	No
Visual signals	7-segment red display	None	7-segment red display and yellow led	7-segment red display and yellow led	None	None	None
Polycarbonate mask	Optional - p/n FE1039	Optional - p/n FE1016	Optional - p/n FE1015	Optional - p/n FE1015	None	None	None
Microprocessor control system	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inputs/outputs for probes and/or external control	Optional	Optional	Optional	Optional	Optional	Nr. 2 temperature sensors PT1000	Nr. 1 temperature sensors PT1000 + Nr. 1 microswitch door

Please note:
Pay attention to the regulator ventilation, especially for absorbed currents near to the maximum ones.
Upon request, we can supply customized wiring for power and other loads.

ELECTROMECHANICAL REGULATORS

- Electromechanical controllers for common wire motors



Phase cut or electromechanical regulators that control the motor and, in some cases, an optional load. On request, we supply the regulators with cable glands and cables.

FE1037 is a 3-speed electromechanical controller for common wire motors, for a maximum current absorption of 10A, already included with the cable glands. FE1054 is the same model, but with light control and horizontal mounting.

FE1040 is a 4-speed electromechanical controller for common wire motors, for a maximum current absorption of 10A, already included with the cable glands.

	FE1037	FE1054	FE1040
Motor type	3 speed single phase induction motors	3 speed single phase induction motors	4 speed single phase induction motors
Power supply	220-240Vac -50/60Hz Single-phase	220-240Vac -50/60Hz Single-phase	220-240Vac - 50/60Hz Single-phase
Maximum load MOTOR	10A	10A (lights: 6A)	10A
Controls	3-speed switch	3-speed switch	4-speed switch
Dimensions in mm	155x115x120	155x115x120	155x115x120
Weight in kg	0,40	0,40	0,40
IP protection	IP56	IP50	IP56
Cable glands	Yes	Yes	Yes

• Auto-transformer for 2 wires single-phase induction motors



FE1048 – 3 A



FE1049 – 5 A



FE1050 – 7,5 A



FE1051 – 10 A



FE1055 – 3 A



FE1056 – 5 A

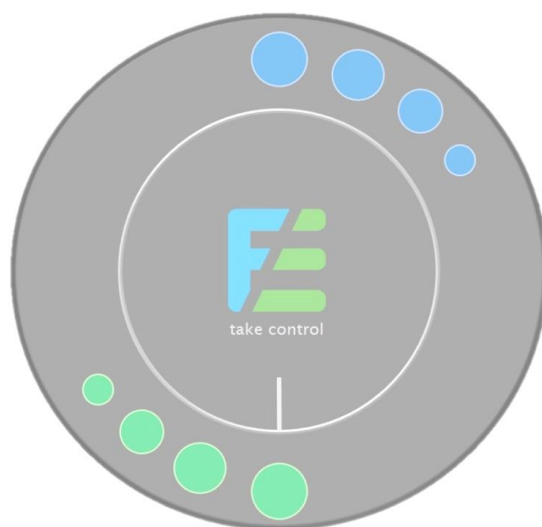


FE1057 – 7,5 A



FE1058 – 10 A

FE1048 – FE1049					FE1050 – FE1051	FE1055-FE1056	FE1057-FE1058
Motor type	2 wires single-phase induction motors						
Power supply	220-240Vac -50/60Hz						
MAX load motor	3A – 5A	7,5A - 10A	3A – 5A	7,5A - 10A			
Controls	5 step switch	5 step switch	6 keys keyboard (1 on/off and 5 speed)	6 keys keyboard (1 on/off and 5 speed)			
Dimensions in mm	240x190x190h	300x220x150h	240x190x160h	300x220x120h			
Protection degree	IP56						



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