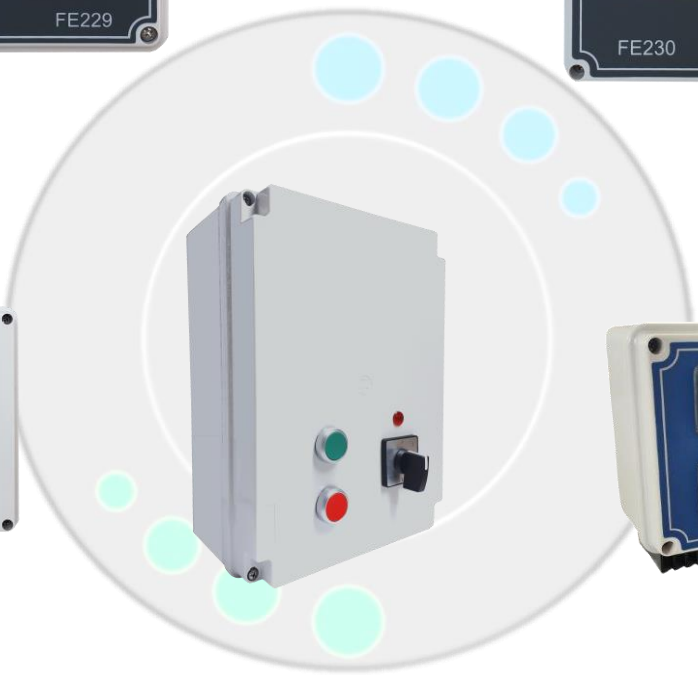
Wall mounted and built-in

SPEED CONTROLLERS

for AIR INTAKE, VENTILATION and EXTRACTION SYSTEMS



FASAR elettronica

Air intake and ventilation

Our speed regulators for single-phase motors

SPEED REGULATORS (wall mounting)

• Phase cut technology

p/n FE229: 5A motor control (for continuous use 4,5A), light and gas solenoid valve control

p/n FE230 (digital): 4,5A motor control, light and gas solenoid valve control

p/n FE263: 8A motor control, light and gas solenoid valve control

p/n FE263/I: 8A motor control, light and gas solenoid valve control

p/n FE282: 10A motor control, light and gas solenoid valve control

p/n FE282/I: 10A motor control, light and gas solenoid valve control

p/n FE1052: 8A motor control (continuous use), 10A motor control (discontinuous use), light and gas solenoid valve control

p/n FE1023 (digital): 10A motor control, light and gas solenoid valve control

p/n FE1031: 5A motor control (for continuous use 4,5A), gas solenoid valve or other load control

p/n FE1032: 8A motor control, gas solenoid valve or other load control

p/n FE1032/I: 8A motor control, gas solenoid valve or other load control

p/n FE1033:10A motor control, gas solenoid valve or other load control

p/n FE1033/I:10A motor control, gas solenoid valve or other load control

• Inverter technology

p/n FE1018: 3,5A motor control

p/n FE1019: 8A motor control

p/n FE1024: 3,5A motor control, light and gas solenoid valve control

p/n FE1025: 8A motor control, light and gas solenoid valve control

p/n FE1026: 3,5A motor control by remote 0-10Vdc input signal

p/n FE1027: 8A motor control by remote 0-10Vdc input signal

• Auto-transformer , 5 speeds

p/n FE1048: analog, 3A

p/n FE1049: analog, 5A

p/n FE1050: analog 7,5A

p/n FE1051: analog 10A

p/n FE1055: digital, 3A

p/n FE1056: digital 5A

p/n FE1057: digital 7,5A

p/n FE1058: digital 10A

• Electromechanical

p/n FE1037: 10A motor control, 3 speeds

p/n FE1054: 10A motor control, 3 speeds, light control

p/n FE1040: 10A motor control, 4 speeds

SPEED REGULATORS (built-in)

• Phase cut technology

p/n FE1038: 4,5A motor control, light and gas solenoid valve control

p/n FEGR016: 4,5A motor control, light and gas solenoid valve control

p/n FEGR017: 4,5A motor control, light and gas solenoid valve control

p/n FE1008: 1,5A motor control by remote 0-10Vdc input signal

p/n FEGF01: On/Off and 1,5A motor control by 2 temperature probes (for oven hoods)

p/n FEGF021: On/Off and 1,5A motor control with temperature probe and microswitch (for oven hoods)

ELECTRONIC REGULATORS (wall-mounting)

- **Phase-cut technology**

FE229 - 5A
(4,5A continuous use)

FE230 - 4,5A

FE263 - 8A

FE282 - 10A

FE1023 - 10A

FE1031 – 5A
(4,5A continuous use)

FE1032 - 8A

FE1033 - 10A

FE1052 – 8/10A

FE263/I - 8A

FE1032/I - 8A

FE282/I - 10A

FE1033/I - 10A

GENERAL FEATURES

Advanced control systems, some of them with **microprocessor**, for the speed control of a **4,5, 8 and 10 Ampere 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 or in the following models:

- FE230/T: 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 coils;
- FE230/R: with radio receiver for remote control;
- FE230/U: with humidity and temperature sensor to automatically control the motor speed (example for dishwasher hoods).

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

	FE229	FE263– FE263/I	FE282—FE282/I	FE1052	FE230	FE1023
						
Power supply	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac—50/60Hz	230Vac—50/60Hz	85-265Vac - 50/60Hz	230Vac - 50/60Hz
Maximum load MOTOR	4,5A continuous use 5A discontinuous use	8A	10A	8A continuous use 10A discontinuous use	4,5A	10A
Maximum load LIGHTS	5A	2A	2A	2A	2A	2A
Gas solenoid valve control	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A
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	158x130x95	158x140x95	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	Calibration procedure via software	Calibration procedure via software
Protection fuse	T10A	F12,5A	F12,5A	F12,5A	T10A	F12,5A (Motor) T3,15A (Light and gas solenoid valve)

Technical features
Speed regulators with motor and an optional load control

	FE1031	FE1032—FE1032/I	FE1033—FE1033/I
			
Power supply	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac—50/60Hz
Maximum load MOTOR	4,5A continuous use 5A discontinuous use	8A	10A
Gas solenoid valve control	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A	230Vac – 50Hz, max.1A
Controls	Bipolar switches and rotary knob	Bipolar switches and rotary knob	Bipolar switches and rotary knob
Dimensions in mm	128x88x73	158x130x95	158x140x95
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	T10A	F12,5A	F12,5A

ELECTRONIC REGULATORS

- **Inverter technology controllers**

The inverter technology provides the **best energy efficiency** in terms of variable flow systems: it is widely documented that the advantages resulting from the use of inverters 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, decreasing the motor's stress and reducing the negative effects caused by acceleration and deceleration transient, to implement protection functions to safeguard both 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 start & stop function reduces the stress on the motor and its mechanical components (absence of inrush speed during the start phase), by starting with controlled power consumption.
- Reliability due to integrated electronic protections (overload, maximum operating temperature).
- Allows for energy saving thanks to the efficiency of the system and improves motor performance. Since the power absorbed by the motor is proportional to the square of the rotation speed, adjusting the specific speed you will obtain a significant energy saving: by halving the speed of motor rotation, the power used will be one eighth of the full operation power. The inverter technology allows for and efficiency 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 3,5A and 8A. The front panel integrates the on/off switch and a rotary knob to vary the motor's speed: the microprocessor, which is the heart of the inverter, allows to manage appropriate **acceleration and deceleration ramps** and program **protection** setups 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 3,5A and 8A. 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 specific 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 on/off switching phases, 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 input 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 a wide range of applications: apart from the classic control by PLC, any remote device capable of providing the required analog voltage, in discrete intervals or continuously variable, can be used.

Technical features
Inverter regulators

	FE1018	FE1019	FE1024	FE1025	FE1026	FE1027
						
Power supply	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac - 50/60Hz	230Vac - 50/60Hz
Maximum load MOTOR	3,5A	8A	3,5A	8A	3,5A	8A
Maximum load LIGHTS	-	-	2A	2A	-	-
Motor control	Bipolar switch and rotary knob	Bipolar switch and rotary knob	Bipolar switch and rotary knob	Bipolar switch and rotary knob	0-10Vdc Signal	0-10Vdc Signal
Lights control		-	Bipolar switch	Bipolar switch	-	-
Gas solenoid valve characteristics	-	-	230Vac 50Hz max. 1A On/off indication led	230Vac 50Hz max. 1A On/off indication led	-	-
Microprocessor control system	Yes	Yes	Yes	Yes	Yes	Yes
Trimmers for the adjustment of MIN and MAX speed	-	-	2 Trimmer	2 Trimmer	-	-
Motor protection fuse	F16A	F16A	F16A	F16A	F16A	F16A
Light and solenoid valve protection fuse (total)	-	-	T3,15A	T3,15A	-	-
Motor thermal contact	NC	NC	NC	NC	NC	NC
IP protection	IP20	IP20	IP20	IP20	IP20	IP20
Weight (kg)	1,0	1,6	1,1	1,7	1	1,6
Dimensions (mm)	200x180x100	200x225x100	200x180x100	200x225x100	200x180x100	200x225x100

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)

DIGITAL

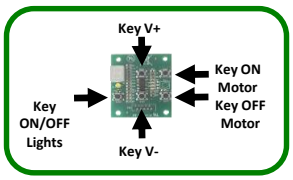
FE1038 – 4,5 A: A practical solution that integrates a power board and user interface into a single control unit for fast and easy panel mounting. Controls single-phase 4A induction motors (maximum current absorbed by the motor, 900W), lighting system and solenoid valve.

FE1038

FRONT PANEL
(optional) p/n FE1039

FEGR017- 4,5 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

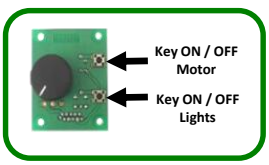


DIGITAL USER INTERFACE
for regulators FEGR017 and FEGR020

POLYCARBONATE PANEL
p/n FE1015 for regulators
FEGR017 and FEGR020

ANALOG

FEGR016 – 4,5A (max absorption): 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

0-10Vdc CONTROL

FE1008 – 1,5 A (max absorption) 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 - On/Off and 1,5A motor control by 2 temperature probes (for oven hoods)

FEGR021 - On/Off and 1,5A motor control with temperature probe and microswitch (for oven hoods)

FEGR021

FEGF01

Technical features
Built-in phase-cut technology controllers

	FE1038	FEGR016	FEGR017	FE1008	FEGF01	FEGR021
						
Motor type	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase	Single-phase
Power supply	220-240Vac - 50Hz	220-240Vac - 50Hz	220-240Vac - 50Hz	220-240Vac - 50/60Hz	220-240Vac - 50Hz	220-240Vac - 50Hz
Maximum load MOTOR	4,5A	4,5A	4,5A	1,5A	1,5A	1,5A
Maximum load LIGHTS	2A	2A	2A	Not handled	Not handled	Not handled
Solenoid valve control	230Vac—50Hz, max 1A	Yes	Yes	Not handled	Yes	Yes
User interface	Keyboard 4 keys	Keyboard 2 keys and rotary knob	Keyboard 5 keys	None	None	None
Visual signals	7-segment red Display, Yellow and red led	None	7-segment red Display, Yellow and red led	None	None	None
Polycarbonate frontal panel	Optional - p/n FE1039	Optional - p/n FE1016	Optional - p/n FE1015	None	None	None
Microprocessor control system	Yes	Yes	Yes	Yes	Yes	Yes

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**

FE1037 – 10 A FE1054 – 10 A FE1040 – 10 A

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.

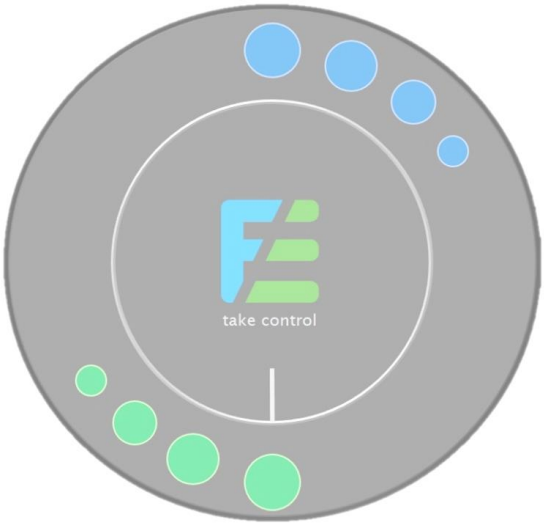
FE1040 is a 4-speed electromechanical controller for common wire motors, for a maximum current absorption of 10A, already included with the cable glands.

	FE1037	FE1054	FE1040
			
Power supply	230Vac -50/60Hz	230Vac -50/60Hz	230Vac -50/60Hz
Maximum load MOTOR	10A	10A	10A
Maximum load LIGHT		6A (res.)	
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

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

	FE1048	FE1049	FE1050	FE1051
				
Power supply	230Vac -50/60Hz	230 Vac -50/60Hz	230Vac -50/60Hz	230Vac -50/60Hz
Maximum load MOTOR	3A	5A	7,5A	10A
Maximum auxiliary output (ex. Gas solenoid valve)	3A	3A	3A	3A
Dimensions in mm	240x190x200h	240x190x200h	300x220x160h	300x220x160h
Weight in kg	4,5	4,8	8,5	8,9
IP protection	IP56	IP56	IP56	IP56
Protection fuse auxiliary output	T3,15A	T3,15A	T3,15A	T3,15A
Motor thermal contact	NC	NC	NC	NC
Controls	5-speed switch	5-speed switch	5-speed switch	5-speed switch

	FE1055	FE1056	FE1057	FE1058
				
Power supply	230Vac -50/60Hz	230 Vac -50/60Hz	230Vac -50/60Hz	230Vac -50/60Hz
Maximum load MOTOR	3A	5A	7,5A	10A
Maximum auxiliary output (ex. Gas solenoid valve)	3A	3A	3A	3A
Dimensions in mm	240x190x160h	240x190x160h	300x220x120h	300x220x120h
Weight in kg	4,5	4,8	8,5	8,9
IP protection	IP56	IP56	IP56	IP56
Protection fuse motor	T4A	T6,3A	T8A	T12,5A
Protection fuse auxiliary output	T3,15A	T3,15A	T3,15A	T3,15A
Motor thermal contact	NC	NC	NC	NC
Controls	Digital keyboard with 6 keys	Digital keyboard with 6 keys	Digital keyboard with 6 keys	Digital keyboard with 6 keys



FASAR ELETTRONICA S.r.L.
Strada della Marina 9/6 - 60019 Senigallia (AN) Italy
T: 071.6609805
www.fasar.it - www.fasarelettronica.com - commerciale@fasar.it