

Vac stepless controllers

for

Three-phase asynchronous Motors of
Axial & Centrifugal Fans

DRM 300

eliwell



Soluzioni per la regolazione dei ventilatori
Fan speed control solutions
Soluciones para la regulación de ventiladores
Des solutions pour la régulation des ventilateurs
Lösungen für die Regelung der Lüfter.
Решения для регулировки вентиляторов

DRM300

The DRM300 regulators are multifunction SLAVE power units driven by a latest-generation extended range (-40/85 °C) microprocessor, for the phase-cutting regulation (SCR) of AC voltage.

When applied on asynchronous motors of **AXIAL** and **CENTRIFUGAL** fans, the DRM300 regulator allows the airflow stepless modulation in direct or inverse proportion, to the received controls signals.

The controller can work with mA - Vdc - PWM control signals; with N° 2 inputs, the controller automatically select the greater in value.

APPLICATIONS

The given AC voltage variation allows controlling the speed of three-phase asynchronous motors, applied to machines whose motor torque-speed characteristic is quadratic, such as fans motors, pumps, agitators.

The regulation of the AC output voltage varies from 0% to 100% of the AC mains voltage (RPM% fans).

The AC voltage regulation requires the use of motors suitable for phase-cutting control (class F or H and defluxed), since they must be able to stand an increase of the internal temperature, due to the same VAC phase-cutting.

By controlling the system with an SCR, the magnetic resonance caused by VAC regulation generates acoustic peaks (extra-dB) in the motor; three-phase noise-suppressor filters (NTF300) are available on request.

For the complete NO-noise applications, in compliance with EN61000-3-2 6 3-12, are available the DSV300, VAC step-controllers series

OPERATING MODE

SLAVE (Power Unit): the VAC output varies in direct/inverse proportion to the control mA/Vdc/PWM signal.

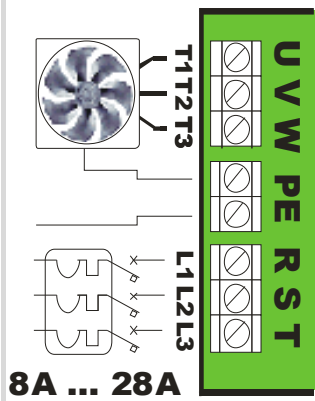
The DRM300 regulator can be used in Air-Conditioning, Refrigeration, Ventilation, Heating, Destratification, Heat Ventilation, Air Extraction and Air Handling systems, in the following applications:

-Manual speed regulator: driven through an external **0-10Vdc** or **4-20mA** control signal (manual potentiometer), for the control of Ventilation systems where the airflow rate (mc/h) is adjusted manually;

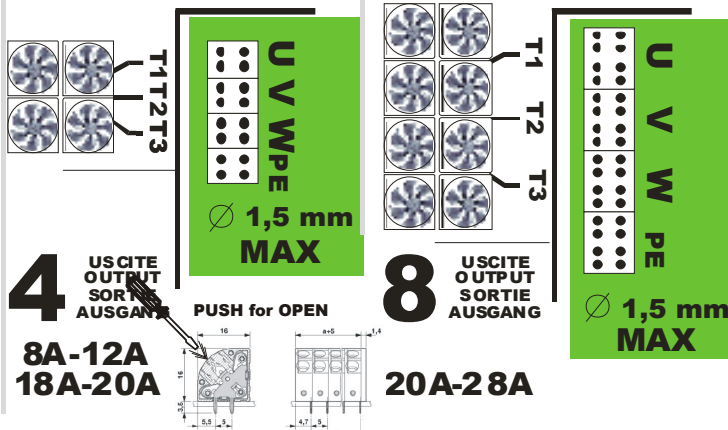
-Automatic speed regulator: driven by a remote regulation system through **0-10Vdc**, **4-20mA** or **PWM** (PMM) control signals, to control Temperature, Pressure (Ventilated Heat Exchangers of Air cooled Condensers, Dry Coolers, Air Heater), Airflow differential Pressure (Laminar Flow Systems, Hood Extractor Fans).

ELECTRICAL CONNECTION

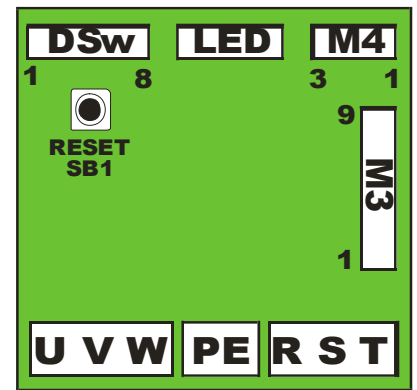
Power Supply & Load



Power Supply & Load with Multi-Connection Option

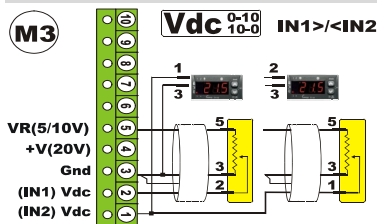


Components Placement

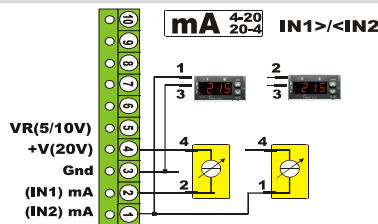


Control signals input connection for Manual or Automatic regulation

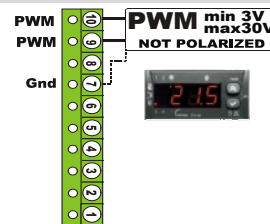
0-10Vdc / 10-0Vdc



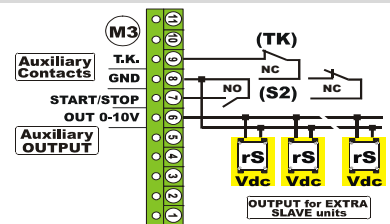
4-20mA / 20-4mA



PWM (3-30V)



Auxiliary Contacts & OUTPUT 0-10Vdc



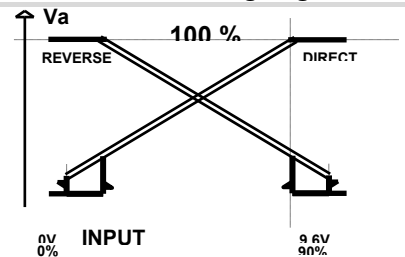
INPUTs

Control signals

Reset

Functions working diagram

Vdc Input	0-10 Vdc / 10-0Vdc	Ri : 10 kohm	Input
mA Input	4-20 mA / 20-4 mA	Ri : 100 ohm	Input
PWM Input	PWM (PPM) extended range	(from 3 to 30 V)	
AUX. Output	0-10Vdc	Output for aux. extra power (SLAVE)	
AUX. Contact	S2	STOP remote	TK
RESET Command	SB1	Reset Button for Alarms and Configurations	



CONTROL FUNCTION Selection - DSw (Dip-Switch)

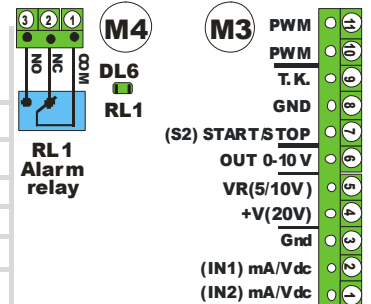
1	OFF	IN1 & 2 for 0-10Vdc	ON	IN1 & 2 for 4-20mA
2	OFF	DIRECT mode	ON	REVERSE mode
3	OFF	Vac OUTPUT > LIN	ON	Vac OUTPUT > QUAD
4	OFF	For S2 contact NO	ON	For S2 contact NC
5&6	OFF	ON	OFF	ON
7	OFF	Cos-φ memorized	ON	Adjustable Cos-φ
8	OFF	Available for custom use	ON	Available for custom use



LEDs

DL1	PWR
DL2	CPU RUN
DL3	FAIL - KO
DL4	PWR OUT
DL5	% PWM
DL6	RL1 ON

Signal & Contact Connection



ELECTRICAL DATA

Power Supply

400Vac (-15% /+20%) 50/60Hz Aut. Sel. - 230Vac/500Vac on request

Rated current (RMS @ 50°C)

8A

12A

18A

20A

28A

Protection Case available

IP00

IP55

IP00

IP20

IP55

IP55

IP00

IP20

IP55

IP00

IP55

EMC Compliance (EN 61800-3)

Applications for PDS Systems – Civil limit

(Regulator with connected fans – Residential, Commercial & Light Industrial Filter)

Limit Harmonic Current (LHC) Compliance (EN61000-3-2 & 3-12)

The regulator does NOT have any internal filter for the suppression of harmonic distortions caused by electronic regulation – for compliance see user manual

Control Circuit Power

3 VA

Environmental Pollution

High pollution

Thermally Dissipated Power

4 W/Amp

Insulation Characteristics

4000 Vac

°C/UR% Work Environment

-20T50°C

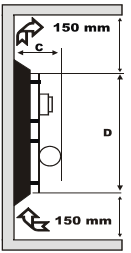
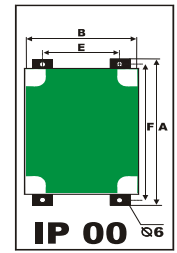
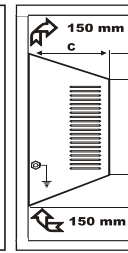
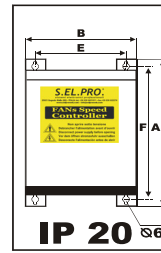
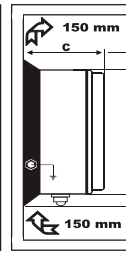
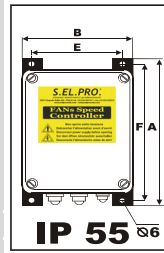
85% not condensing

Ageing Characteristics

60.000 h

MECHANICAL DIMENSIONS

Model	Amp	IP	A	B	C
DRM308	8	00	225	234	80
		55	253	234	116
DRM312	12	00	295	201	100
		55	285	201	130
DRM318	18	55	285	201	162
DRM320	20	00	295	192	130
		55	350	235	181
DRM328	28	00	350	203	141
		55	350	235	204



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Controls