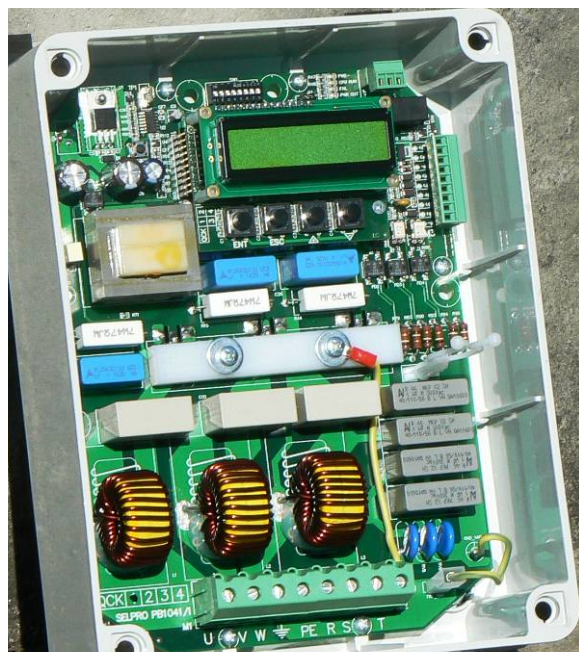


3 Phase FANs Speed Controller

RDM

Regolatore di Tensione VAC
VAC Stepless Controller
Regulateur de Vitesse VAC
VAC Spannungs-regelgeräte
Regulador de Velocidad VAC



RDM300

The RDM300 regulators are multifunction three-phase power units driven by a latest-generation extended range (-40/85 °C) microprocessor, for the phase-cutting regulation (SCR) of AC voltage.

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 motors connected to fans, pumps, agitators.

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.

APPLICATIONS

When applied on motors of **AXIAL** and **CENTRIFUGAL** fans, the RDM300 regulator allows the airflow stepless modulation in direct or reverse proportion to the received control signal, which can be in mA-Vdc-kohm (NTC); the regulation of the AC output voltage varies from 0% to 100% of the AC mains voltage (RPM%).

The RDM300 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– RPM%) is adjusted manually;

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

OPERATING MODE

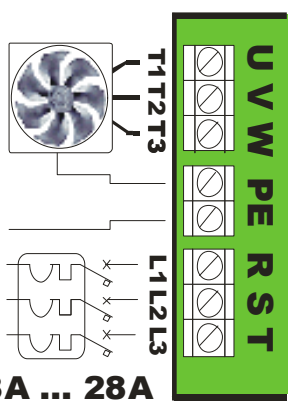
MASTER (Controller Mode): the VAC output varies in direct/inverse proportion to the control signal in mA-Vdc-kohm (NTC), in order to maintain the value measured by the connected transducer/sensor within the proportional band (Pb) and the selected and active Set Point (selection through SP1 or SP2 with contact SP).

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

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

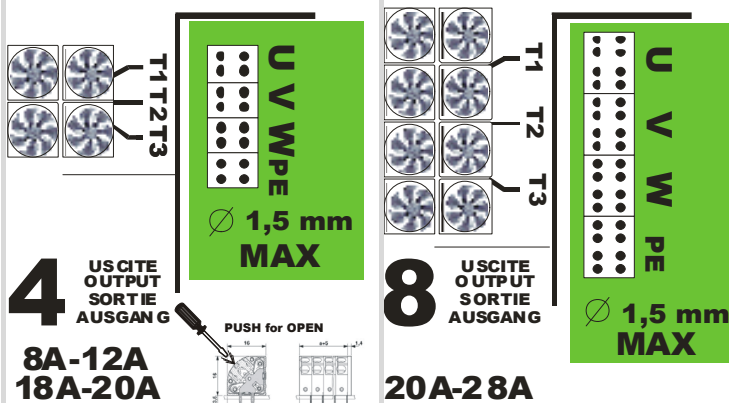
ELECTRICALS CONNECTIONS

Power Supply & Load



8A ... 28A

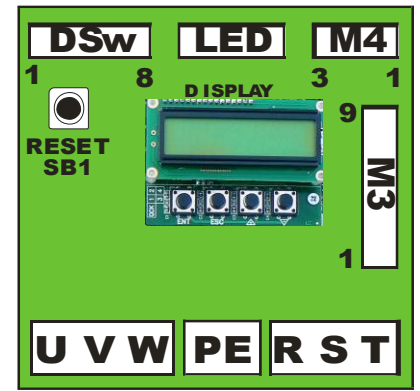
Power Supply & Load with Multi-Connection Option



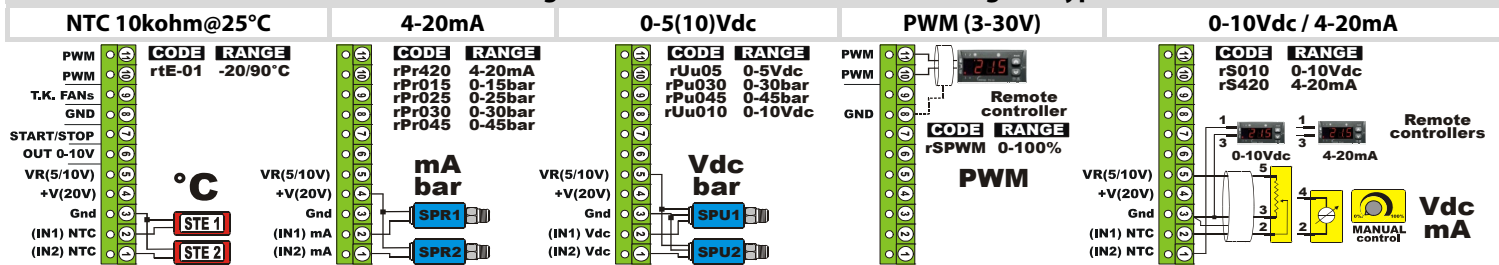
8A-12A
18A-20A

20A-28A

Components Placement



Available regulations software mode & sensors/signals type



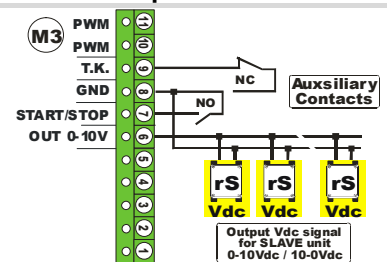
INPUTs	Control Signals	Reset
NTC input	10kohm @ 25°C	SB1
Vdc Input	0-10 / 10-0 Vdc Ri : 10 kohm Input	RESET
mA Input	4-20 / 20-4 mA Ri : 100 ohm Input	
PWM Input	PWM (PPM – Triac) extended range (from 5 to 30 V)	
AUX. Output	0-10Vdc or 10-0Vdc Output for aux. extra power (SLAVE)	Push bottom
AUX. Command	Start/Stop STOP remote TK Motor Thermal Contact	
RESET Command	SB1 Reset Button for Alarms and Configurations	

DISPLAY

LCD back lighted with 32 characters on two lines,
with four push buttons: Enter-Escape-Up-Down



Vdc Output & Aux. contact



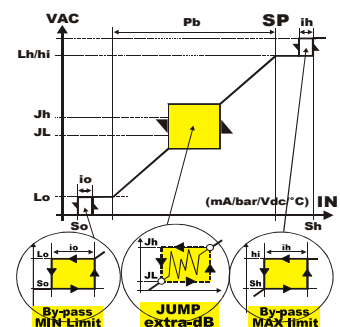
Selectable regulation modes

Control MODE	Probe	Range	Code
Factory selection	NTC(10k)	-20/90°C	rtE-01
MASTER	4-20mA	4-20mA	rPr420
		0-15bar	rPr015
		0-25bar	rPr025
		0-30bar	rPr030
		0-45bar	rPr045
	0-5 Vdc	0-5 Vdc	rUu 05
		0-30bar	rPu030
		0-45bar	rPu045
	0-10Vdc	0-10Vdc	rUu010
		0-10Vdc	rUu010
		0-10Vdc	rUu010
SLAVE	4-20mA	4-20mA	rS 420
	0-10Vdc	0-10Vdc	rS 010
	PWM	0-100%	rS PWM

Regulation Parameters

Regulation Parameters	Code
Fans Set-Point	SP
Fans Proportional Band	Pb
Cut-Off (Vac) Limit	So
Minimum RPM / Vac Limit	Lo
Maximum RPM / Vac Limit	hi
JUMP for extra-dB Frequencies	Jh/JL
Input value for by-pass MIN limit (Cut-Off)	So
Input value for by-pass MAX limit	Sh
Acceleration / Deceleration Starter	dE
Programmable Vdc Control Output	DSw3

Function Diagram



CONTROL FUNCTION Selection - DS_w (Dip-Switch)

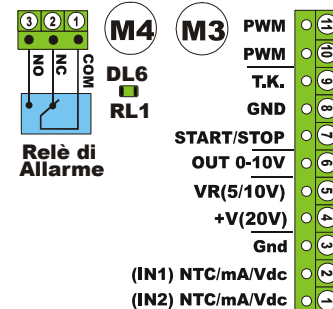
1	OFF	Set-Point @ MAX Vac	ON	Set-Point @ Min Vac
2	OFF	DIRECT Mode	ON	REVERSE Mode
3	OFF	Vac Output LIN	ON	Vac Output QUAD
4	OFF	S/S contact = NO	ON	S/S contact = NC
5&6	OFF	ON OFF ON	Relays Setting ALARM-RL1	
	OFF	OFF ON ON		
7	OFF	Cos-φ memorized	ON	adjustable Cos-φ
8	OFF	Customer option	ON	Customer option



LED

DL1	PWR	DL6	RL1
DL2	CPU RUN		
DL3	FAIL - KO		
DL4	PWR OUT		
DL5	% PWM		
DL1	Supply OK		
DL2	CPU O.K.		
DL3	Regulator K.O.		
DL4	Start Vac Output		
DL5	PWM Control		
DL6	RL1 ON		

Signal & Contact Connection

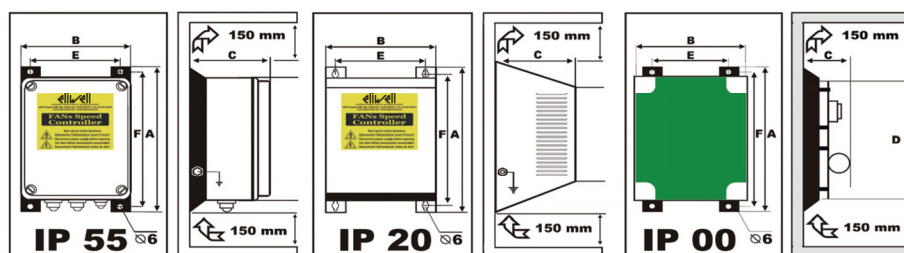


ELECTRICAL DATA

Power Supply	400Vac -15% / +20% 50/60Hz extended range - 230Vac / 480Vac on request														
Rated current (RMS @ 50°C)	8A		12A			18A		20A			28A				
Protection Case	IP00	IP55		IP00	IP20	IP55		IP55		IP00	IP20	IP55		IP00	IP55
EMC Compliance (EN 61800-3)	Applications for PDS Systems (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	≤ 50°C		85% non condensing								Ageing Characteristics			60.000 h	

MECHANICAL DIMENSIONS

Model	Amp	IP	A	B	C
RDM308	8	00	225	234	80
		55	253	234	116
RDM312	12	00	285	175	100
		20	295	201	100
RDM318	18	55	285	201	130
		55	285	201	162
RDM320	20	00	285	201	130
		20	295	201	130
RDM328	28	55	350	235	180
		00	350	203	141
		55	350	235	204



eliwell

inven'sys
Controls