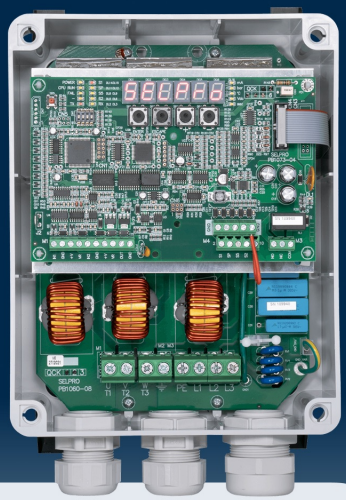
RGM

Digital controller with advanced Wet & Dry system management for three-phase asynchronous fan motors



AC fans

Three-phase

Master & Slave

RGM is a multifunction digital controller designed for **proportional** and **PID** speed control of **high-slip** three-phase **asynchronous motors** used on **axial**, **radial** and **centrifugal fans** in industrial HVAC&R applications. The control principle is based on **mains-balanced phase-cut control**, enabling **smooth**, **precise** and **optimised** control, improving **energy efficiency** and reducing **component wear**.

It supports **proportional Master**, **proportional Slave** and **PID** operating modes, configurable in both **direct** and **reverse mode**, ensuring maximum **application flexibility**. **PID control** with **auto-optimisation** enables stable **operating parameters** even under **variable conditions**.

From a hardware standpoint, **RGM** uses bidirectional thyristors (**TRIAC**) in ratings up to **28 A**, selected for their reliability in handling **medium-high currents**. For higher ratings, pairs of **SCRs** (**Silicon Controlled Rectifiers**) are used, ideal for **high-power applications** thanks to their high **conduction capability**.

A distinctive element of the **RGM** architecture is the **SCR/TRIAC triggering system** implemented with **pulse transformers**, designed to provide a **wide pulse area**. Unlike **optotriac**-based solutions, this approach makes the drive independent of the **supply voltage**, improving **stability** and **reliability** even in the presence of **mains fluctuations**.

The controller features **2 analogue inputs**, compatible with **0–20 mA**, **4–20 mA**, **0–10 Vdc**, **0–5 Vdc** signals and **NTC probes** (**–10 / 90 °C**). Two independent **operating parameter banks** can be configured, allowing the controller to adapt to two different **operating conditions** (e.g. **summer–winter**, **day–night**).

Auxiliary management is handled via **5 on/off contacts** for functions such as **remote Start/Stop**, **TK protection**, **night limit**, **setpoint change** and **reverse mode**.

RGM also provides a proportional **0–10 Vdc output** for driving **slave devices** and a **relay** for **alarm signalling**. Both can be configured to drive an **adiabatic system**, enabling full coordination between **ventilation** and **evaporative cooling**.

The controller is prepared for integration with **BMS systems** via **Modbus RTU slave** connection, enabled with an **optional plug**, for **remote parameter management**.

Protection against **overvoltage** and **electromagnetic disturbances**, combined with an **IP55** protection rating, makes **RGM** ideal for **harsh environments**, withstanding **dust**, **humidity** and **vibrations**.

Special functions such as **defrost** and **anti-freeze protection** increase **operational flexibility**.

Rated current (RMS)

at 50 °C ambient temperature

12A 20A 28A 40A 60A

Supply voltage

Available options:

400 Vac ± 20% 480 Vac +10% -25% 230 Vac ± 10%

50/60 Hz:

Automatic

Control principle

Phase-cut control

Three-phase phase-cut control, mains-synchronised and line-balanced

Inputs

2 Inputs
For sensors and control signals

The controller features **2 analogue inputs**, compatible with **0–20 mA**, **4–20 mA**, **0–10 Vdc**, **0–5 Vdc** signals and **NTC probes** (**–10 / 90 °C**).

0-20 mA | 4-20 mA | 0-10 V | 0-5 V | NTC -10/+90°C

Modbus RS-485 (RTU) connection

The controller is prepared for integration with **BMS systems** via **Modbus RTU slave** connection, enabled with an **optional plug**, for **remote parameter management**.

Slave (optional plug)

Control system

Proportional Master | **Master PID** | **Proportional Slave**

It supports **proportional Master**, **proportional Slave** and **PID** operating modes, configurable in both **direct** and **reverse mode**, ensuring maximum **application flexibility**. **PID control** with **auto-optimisation** enables stable **operating parameters** even under **variable conditions**.

Setpoints and operating profiles

2 Setpoint

2 Banks
Customisable parameters

Two independent **operating parameter banks** can be configured, allowing the controller to adapt to two different **operating conditions** (e.g. **summer–winter**, **day–night**).

Working parameters:

Parameter bank for Setpoint 1 | Parameter bank for Setpoint 2

Digital inputs

5 Inputs
On/Off

Auxiliary management is handled via **5 on/off contacts** for functions such as **remote Start/Stop**, **TK protection**, **night limit**, **setpoint change** and **reverse mode**.

- Remote Start/Stop
- Motor thermal contacts (TK)
- Night speed limit
- Direct/Reverse mode
- Work-bank switch

Auxiliary control outputs and adiabatic system management

RGM also provides a proportional **0–10 Vdc output** for driving **slave devices** and a **relay** for **alarm signalling**. Both can be configured to drive an **adiabatic system**, enabling full coordination between **ventilation** and **evaporative cooling**.

- Proportional output 0(1)–10 Vdc
- On/Off enable command

Digital outputs

1 Output
Relay

The controller is equipped with a **relay** with **configurable functions**, enabling advanced **customisation** for **alarm management** or other **auxiliary components**.

Technical specifications

Control input types	4–20 mA transducer, 0–5 Vdc transducer, NTC probe (–10/+90 °C)
Number of motor connection outputs	1-4 2-8 (20A, 28A)
Interface	Digital
Electrical protections	• Control input protection • Mains overvoltage protection
Protection ratings	IP55 IP20 (on request)
Applicable earthing systems	Full compliance with international earthing standards IT / TT / TN
Operating temperature	-20°C / 50°C
Weight (kg)	• 12A 3,6 kg • 20A 5,3 kg • 28A 6,1 kg • 40A 11,5 kg • 60A 17 Kg
Dimensions H × W × D (mm)	• 12A 285 x 200 x 128 • 20A 350 x 235 x 181 • 28A 350 x 235 x 204 • 40A 415 x 315 x 178 • 60A 491 x 315 x 228

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