

AUTOMATIC VOLTAGE REGULATOR

S 2006



BELTRAME
CENTRO SERVIZI



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Having more than thirty years' experience in the control system field, Beltrame CSE has developed S2006, a new digital voltage regulator which allows optimum operation of the brushless generators and the ones with dymamo exciter.

Operating parameters are easily configurable and its installation could be done also by unskilled staff.

The AVR S2006 is completely in compliance with the following standards: CEI-016, CEI-021, attached terna A70

FEATURES FUNCTIONS

- Six control modes:
 - Manual field voltage regulator (FVR);
 - Regulation in open loop (PWM);
 - Automatic Voltage Regulation (AVR);
 - Manual field Current Regulation (FCR);
 - Power Factor Regulation (PF);
 - Reactive power regulation (VAR);
- In AVR mode the voltage regulation is made by "soft- start" ramp;
- Wide range of regulations and "set points" for each functioning mode;
- Protection for over excitation (OEL) and under excitation (UEL) when working in AVR, VAR and PF modes;
- Compensation for under-frequency or limitation of the voltage/ frequency ratio [V/Hz];
- Parallel managing with Main or with other AVR S2006;
- Ten generator protection functions:
 - Protection from excitation over-voltage;
 - Protection from over temperature;
 - Protection from excitation over-current;
 - Protection from generator over-voltage;
 - Protection from generator under-voltage;
 - Surveying timer (watchdog);
 - Lack of sensing;
 - Excitation diodes controlling device (optional);
 - Lack of field voltage;
 - Generators parallel connection with "droop" reactive compensa- tion and differential reactive compensation.

INPUTS AND OUTPUTS

- Single-phase or three phase auxiliary input of

power (60÷480V ac/dc 40÷500Hz);

- Single phase or three phases rms generator voltage sensing 100÷500V ac);
- AC and DC power supply regulator by 20V to 300V (redundant);
- Single phase generator current (nominal 1A or 5A);
- Analog inputs and outputs (± 10 Vdc and 4÷20 mAdc) providing a proportional and remote control the regulating point;
- Power output up to a max. of 25A in continuous duty and positive ceiling voltage of 40A for 10s;
- Sixteen digital inputs for the interface;
- Sixteen exit relays for controlling the system or for warning.

HMI INTERFACE

The HMI front panel includes control buttons and LED indicator.

- Five communication ports: CANBUS port for specific communication with a redundant AVR S2006;
- RS-485 communication port;
- USB communication port;
- Ethernet communication port;
- IEC 61850 communication port.

TECHNICAL FEATURES

Max. output current in continuous duty: **25A**

Maximum output current for 10 sec. : **40A**

Auxiliary input frequency range: **40Hz ÷ 500Hz**

Alternator nominal frequency: **50Hz or 60Hz**

Temperature range in duty: **0°C ÷ +60°C**

Temperature range in stock : **-20°C ÷ 75°C**

Overall dimensions in mm:

length 380, wide 340, height 130,

weight 5700gr

Precision: **$\geq 0,25\%$**

APPLICATIONS

In the typical application illustrated in the next page, the digital voltage regulator type S2006, controls the field excitation of synchronous generator. The front panel control, the availability of Ethernet connection and USB, make the system easily manageable on-site and remotely. It is complete of communication port for IEC 61850 control.

FIG. 1: Operating diagram for voltage regulator type S2006.

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