

AUTOMATIC VOLTAGE REGULATOR

S 2022



BELTRAME
CENTRO SERVIZI ENERGIA



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S2022 is the new **DIGITAL** controller manufactured by BELTRAME CSE. It controls alternators excitation and its easy programmable software makes it suitable for a wide alternators range. Several parameters can be optimize on this devise.

FEATURES FUNCTIONS

- Four control modes:
 - Automatic Voltage Regulation (AVR);
 - Current regulation (FCR);
 - Power Factor Regulation (PF);
 - Reactive power regulation (VAR).
- In AVR modes 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 voltage/frequency ratio [V/Hz];
- Six generator protection functions:
 - Protection from excitation over-voltage;
 - Protection from excitation over-current (OE limit);
 - Protection from generator over-voltage;
 - Protection from under current excitation (UE LIM);
 - Lack of field voltage;
- Generators parallel connection with "droop" reactive compensation and differential reactive compensation.

INPUTS AND OUTPUTS

- Aux supply input (12÷35Vdc);
- Single-phase or three phase input of power (max 440Vac 0÷500Hz) and PMG;
- Sensing input (0÷490Vac);
- Amperometric input (1A or 5A nom.);
- Analog input (± 5 V) providing a proportional and remote control to the voltage regulating point;
- Three digital inputs (up/down/parallel);
- Power output up to a maximum of 10A in continuous duty and positive ceiling voltage of 20A for 10s.;
- Analog input for 1 k Ω potentiometer for remote control from the voltage regulation.

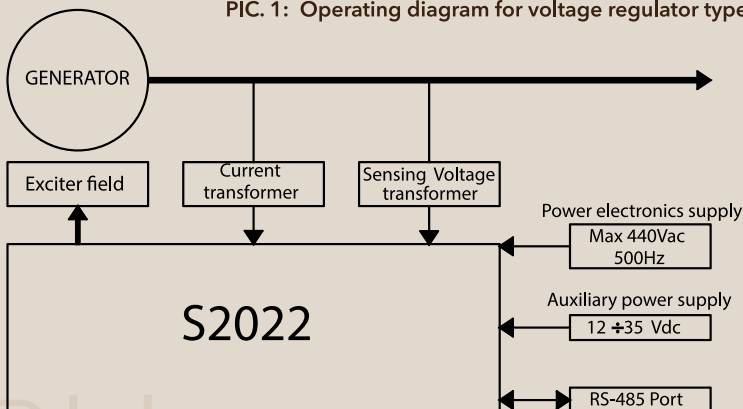
HMI INTERFACE

- RS-485 communication port.
- On the regulator there are buttons for navigation and modification of parameters and a display for view of the same, in addition to the most important values;

TECHNICAL FEATURES

Max. output current in continuous duty: **10A**
 Maximum output current for 10 sec. : **20A**
 Auxiliary input frequency range: **0Hz ÷ 500Hz**
 Alternator nominal frequency: **50Hz or 60Hz**
 Temperature range in duty: **-40°C ÷ +60°C**
 Temperature range in stock : **-40°C ÷ 80°C**
 Overall dimensions in mm:
length 200, width 110, height 72, weight 1406 gr
 Precision: **≥0,25%**

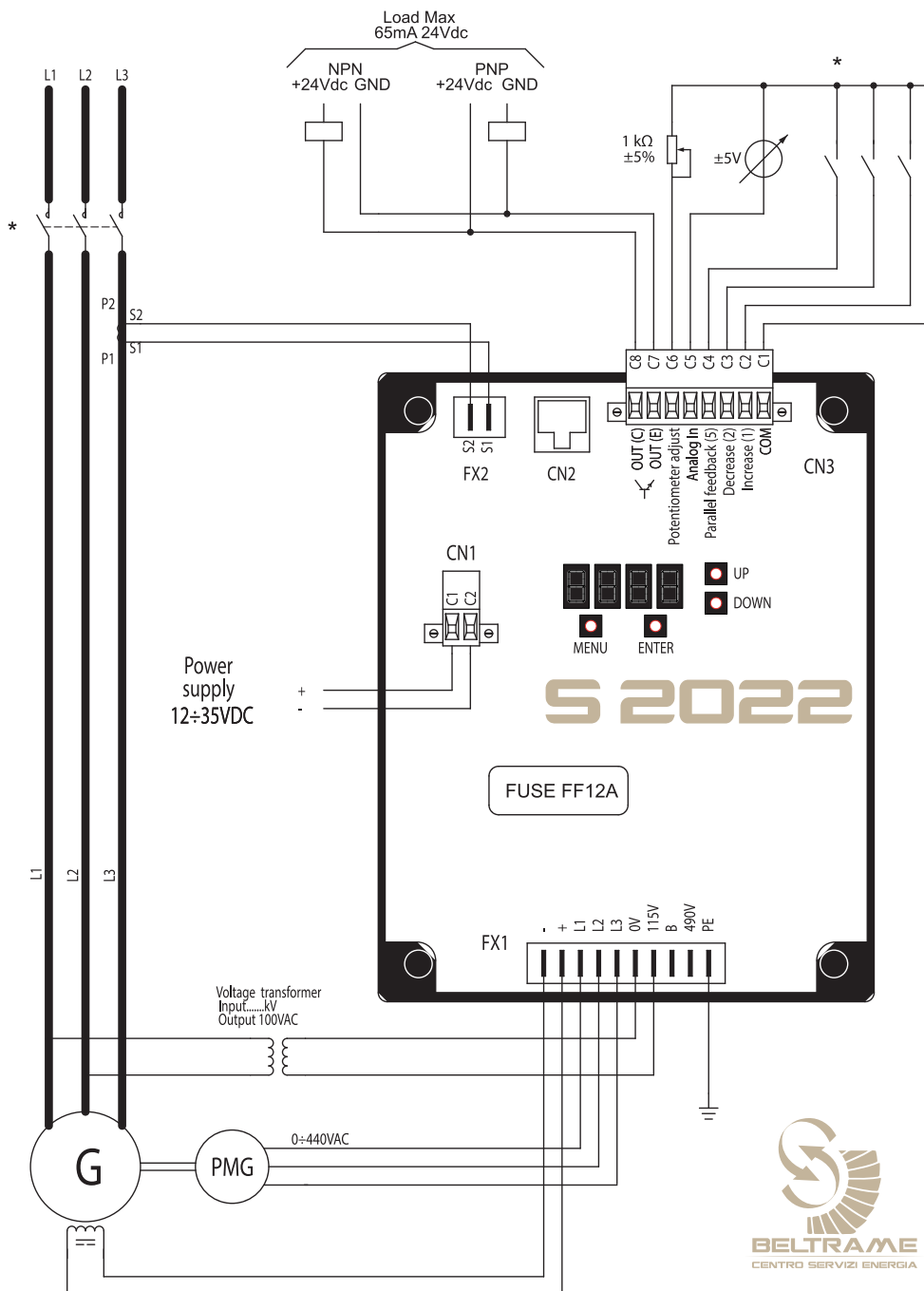
PIC. 1: Operating diagram for voltage regulator type S2022.



APPLICATIONS

In the typical application described here, the AVR S2022 controls the excitation field of a synchronous generator. The display control panel, and the serial communication ports using the PC software, ease the on-site/remote use of the system.

S2022 Medium Voltage Connection - Connection through PMG power source and reference voltage from voltage transformer.



S2022 Low Voltage Connection - Connection through aux. winding or DC power source and reference voltage directly from riser.

