The newly developed S130 enables an optimal operation of brushless generators of new or old manufacturing, with dynamo exciter, even when il is facing the most difficult conditions of use. It employs the most sophisticated technologies offered by electronics and it enables the feeding of exciters with rated voltage values up to 100V, therefore it can be used on almost all currently machines available in the market. It ensures optimum alternator performances, under load, no load and transitory condition, in particular during the start-up of asynchronous motors. In addition, it is equipped with internal protections against a persistent overload and against over-voltage, which could be dangerous for the machine and supplied appliances.

All components are epoxy resin potted, in order to ensure a precise and safe reliability over time, in any environment and to avoid damages caused by vibrations. The S130 is cased in a strong plastic box. It is furthermore supplied with terminals for electric connection and with an internal fuse bloc equipped with a quick blowing fuse for the protection of the exciting stator against short circuits.

NOMINAL TENSION:

Δ 100÷260V at 50/60Hz
⅄ 300÷490V at 50/60Hz

EXCITATION:

Ie = 10A | Ve ≤ 100V

OVERALL DIMENSIONS:

137mm x 108mm x 50mm
weight: 800gr.

MAIN FEATURES:

Steady state accuracy ±1%

Continuous rated current 10A

Excitation rated voltage ≤100 V.

Working temperature range -20/+65°C.

EQUIPMENT

Voltage adjustment trimmer;
Stability control trimmer;
V/Hz threshold setting trimmer;
Max excitation current setting trimmer;
Protection against over voltage (factory pre-set at +25% before resin potting, the valve can be customized according to customers' needs);
Minimum self-excitation voltage: 3,5 Volt;
Wire jumper (1) for the possible connection to a potentiometer of 1000Ω - 1/4 Watt for remote voltage setting (variation range 10%);
Wire jumper (2) for freq. selection 50 or 60Hz;
Wire jumper (3) (red) for operation at 115 V;
Parallel input (to match with S155) and remote distance signals;
Equipped with a filter for electromagnetic compatibility (according CEI rules in force);
Equipped with an input for auxiliary winding (only if the alternator is equipped with) to allow high short-circuit current.

If different voltage or frequency are needed, BELTRAME CSE will supply the regulator

PERFORMANCES

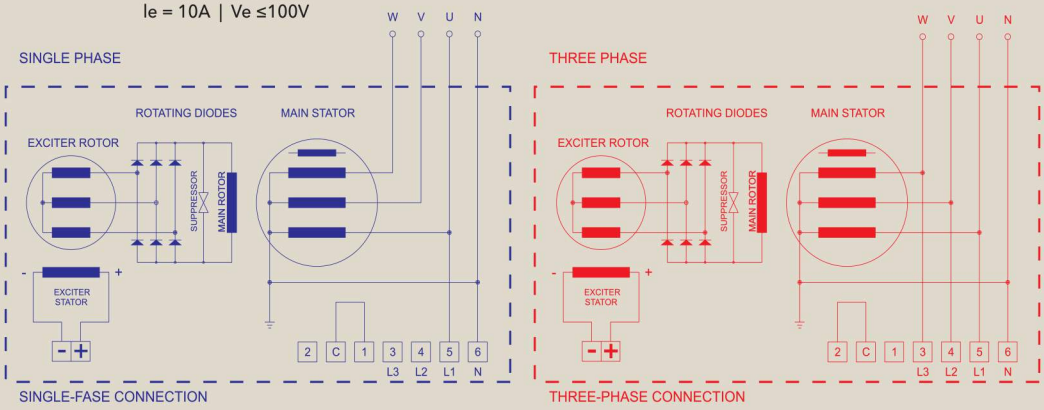
The new AVR S130 is designed to optimize the alternator performances even in special alternators. It is the smallest and the most powerful in its range and it can reach an output excitation current of 10 A. It is equipped with an over-voltage protection shown by a yellow led. Moreover, it includes a low speed protection shown by a red led. The low speed protection is adjustable by means of a trimmer (Freq) which allows to set the trigger point where the machine reaches the rated voltage (40-50 or 50-60 Hz); before the trigger point is reached the generator output voltage is adjusted proportionally to the frequency; by starting from a residual of 3,5 V, the rated voltage is reached when the frequency is equal to the one set on the trimmer (Freq); above the trigger point and up to the rated speed the voltage remains at the normal value. During this phase a compound like regulation can be obtained with the advantages and precision of an electronic regulator. This system enables also the insertion of heavy loads without affecting the diesel engines efficiency, may they be turbo compressed or old ones. Complete with Maximum Excitement Current Protection function, controlled by trimmer named "Reg. Current".

PIC. 1: Operating diagram for voltage regulator type S130 on brushless alternator.

NOMINAL TENSION:
Δ 100÷260V at 50/60Hz
λ 300÷490V at 50/60Hz

EXCITATION:
Ie = 10A | Ve ≤100V

N.W.: To use the regulator type S130 at full power (10A), fix the regulator onto a surface that is at least double its own size.



INSTALLATION AND ASSEMBLY

The regulator must be installed inside the machine or inside the control and command panel, in order to be protected against accidental contacts. Its installation should be done in an easily and accessible place with a clean and dry air exchange in recommended. Use the two holes on the corners and 4MA screws to secure the machine.

ACCEPTANCE

Regulators are normally supplied with standard packaging. With a small extra charge and upon customer request, a special packaging can be provided (for sea shipping, airfreight, etc). At the receipt of the package, check the AVR conditions with the carrier an if any damages is found, report it into the acceptance form.

STORAGE

If the regulators are not going to be used immediately, store them in a clean and dry place with a temperature between -30°C and +70°C. In case storage temperature favouring condensation, protecting terminals against humidity is essential. Check terminals regularly.

ELECTRIC CONNECTION

Terminals for connection to machine are placed on one side of the plastic case; PIC. 1 shows the wiring diagram (for single phase 100-260V and three phases 300-490V at 50/60 Hz.

- Single phase sensing: connect "C" terminal to "1" terminal. ("sensing" wire jumper closed).
- Three phases sensing: connect "C" terminals to "2" terminal. ("sensing" wire jumper closed).
- External sensing: open the "sensing" wire jumper and connect the external sensing to the left of the two terminals. ("C" terminal connected to "1" terminal).

INSTRUCTIONS FOR THE REGULATION

- For 115 V output voltage, cut the red wire jumper.
- To adjust the output voltage at the desired value, turn the Volt trimmer (turning it clockwise the value increases and vice-versa).
- If a stability adjustment is required, turn the STAB trimmer (generally by turning it clockwise a better condition is achieved).
- If required by application, by applying a wire jumper between "stab" terminal blocks, further stability adjustment can be achieved.

N.W.: each variation of STAB trimmer requires a voltage adjustment by means of the Volt trimmer.

- For the adjustment of the trigger point (low speed) use the Freq. trimmer (variation from 40 to 50 Hz or from 50 to 60 Hz), the red led goes off once the set value is reached.

-In case of a machine working at 60 Hz, interrupt the Freq wire jumper (2) and adjust the Volt trimmer until the desired voltage is reached.

- For remote control of output voltage (10%) cut the Volt wire jumper (1) and connect a 1000Ω ¼ W linear potentiometer between the two wire ends. When calibrator wiring are close to power cables, shielded cable should be used. Connect the shield to the upper of the two terminals, the other side of the shield remains floating. To adjust the Excitation current, bring the generator at full load, then turn trimmer "Reg. Current" clockwise until the red led called IMax. will light. Now turn the trimmer "Reg. Current" anticlockwise few degrees.

ELECTRICAL WIRING INSTRUCTIONS

Before the AVR S130 is connected make sure that the value of the insulation towards grounding and among the phases of all windings, is higher than 1MΩ at a temperature of 20°C. The value shall be measured with a manual or battery operated Megger providing 500 Volt direct voltage. In case this value is lower, insulation recovery is fundamental, as well as checking the machine is well cleaned. The S130 AVR is equipped with a protective extra-fast fuse 10 A 10,3x38 mm type. Before replacing fuse, stop the machine and remove the fuse holder's cover.

Use only FF10 AMP 10,3x38 extra fast fuses.

By applying simple changes to the wiring diagram in picture 1, the S130 AVR can be employed with all alternator types.