POWER ELECTRONICS

HYUNDAI HDEC-1000 COMPATIBLE
AUTOMATIC VOLTAGE REGULATOR

USER MANUAL

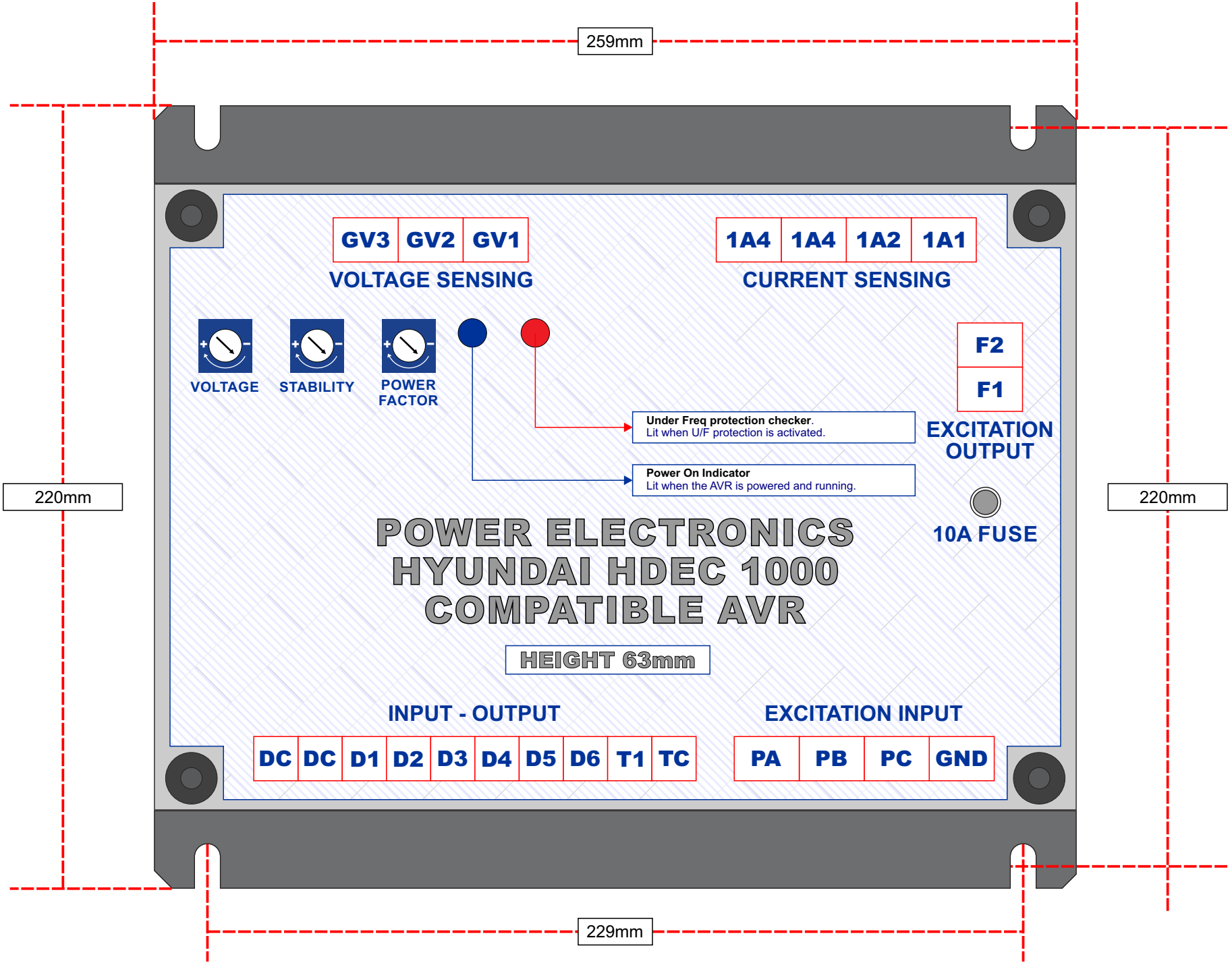
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HYUNDAI HDEC-1000

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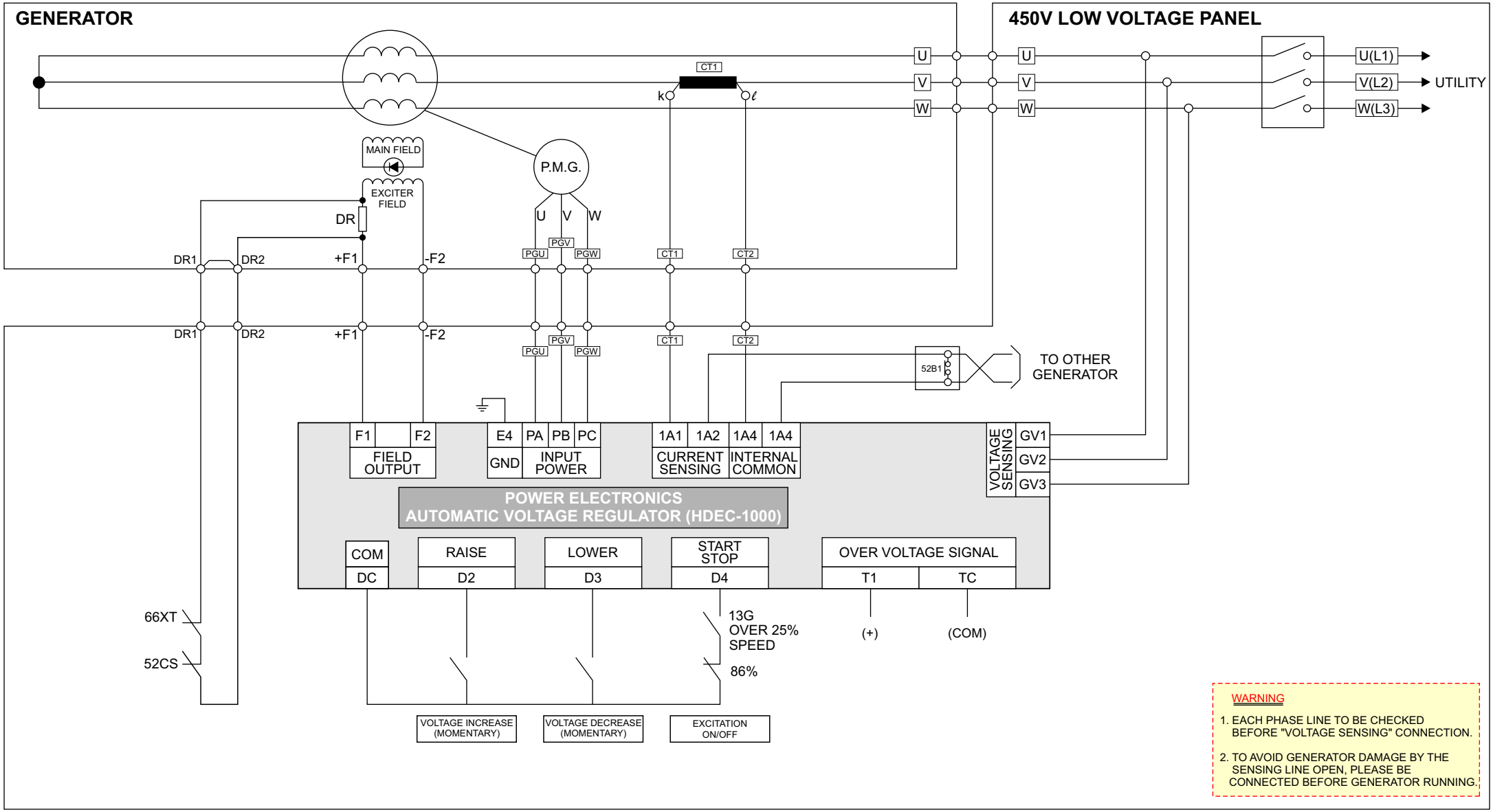



259mm
220mm
220mm
229mm
GV3
GV2
GV1
VOLTAGE SENSING
1A4
1A4
1A2
1A1
CURRENT SENSING
VOLTAGE
STABILITY
POWER FACTOR
Under Freq protection checker.
Lit when U/F protection is activated.
Power On Indicator
Lit when the AVR is powered and running.
F2
F1
EXCITATION OUTPUT
10A FUSE
POWER ELECTRONICS
HYUNDAI HDEC 1000
COMPATIBLE AVR
HEIGHT 63mm
INPUT - OUTPUT
DC
DC
D1
D2
D3
D4
D5
D6
T1
TC
EXCITATION INPUT
PA
PB
PC
GND

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DESIGN AND MANUFACTURE BY RESEARCH TEAM OF POWER ELECTRONICS C.O. GREECE
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FROM HYUNDAI HDEC-1000 / 450V VERSION TO POWER ELECTRONICS HDEC-1000 AVR EXAMPLE PLAN



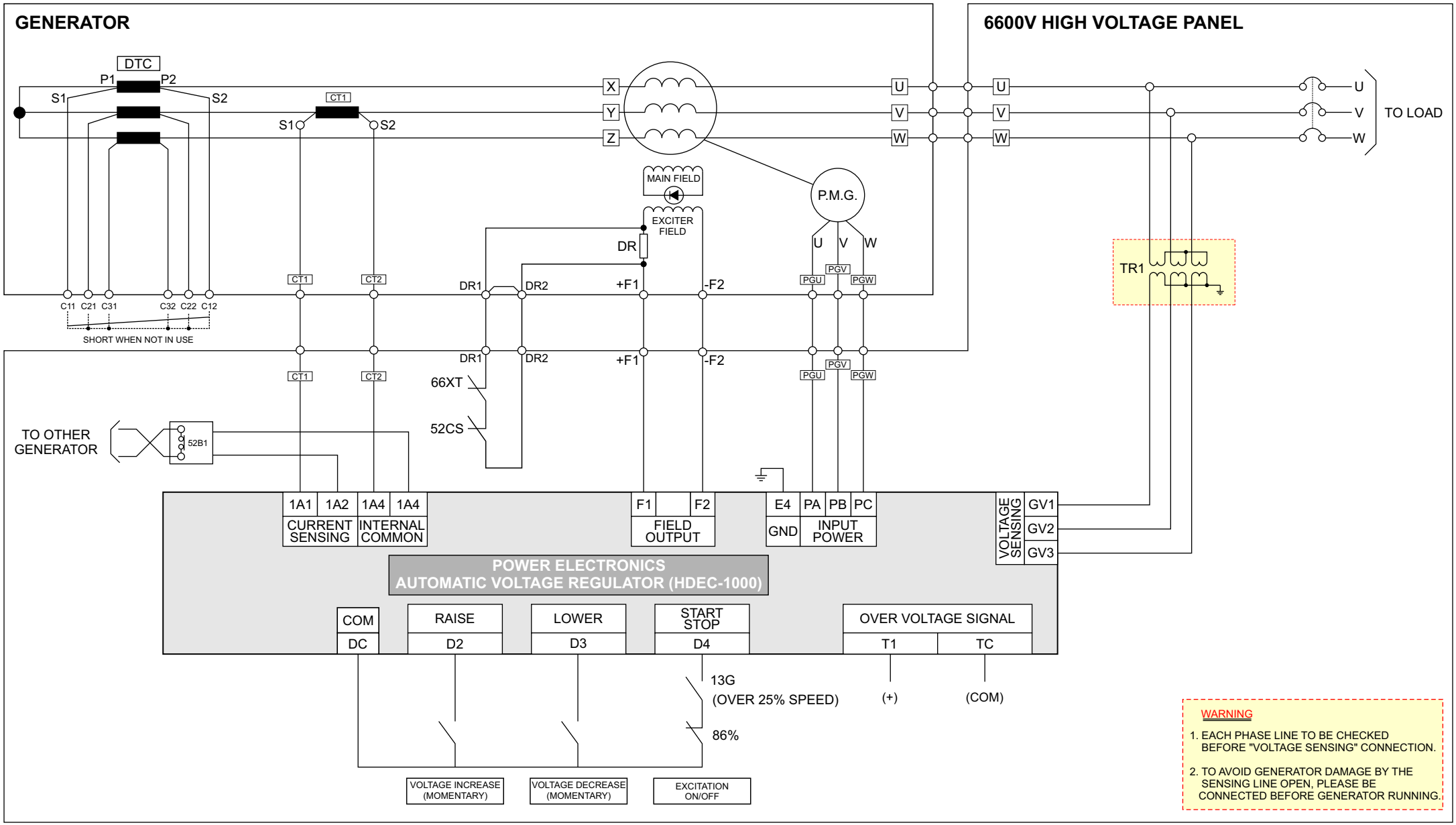
WARNING

1. EACH PHASE LINE TO BE CHECKED BEFORE "VOLTAGE SENSING" CONNECTION.
2. TO AVOID GENERATOR DAMAGE BY THE SENSING LINE OPEN, PLEASE BE CONNECTED BEFORE GENERATOR RUNNING.

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FROM HYUNDAI HDEC-1000 / 6600V VERSION TO POWER ELECTRONICS HDEC-1000 AVR EXAMPLE PLAN



WARNING

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GENERAL DESCRIPTION

MODEL HYUNDAI COMPATIBLE HDEC-1000

TECHNICAL DESCRIPTION

This is the replacement of **HYUNDAI HDEC-1000**

This AVR has no need for any kind of modifications.
This goes for the cables as well as the mounting.
Its all the same except one thing, its better.

This is a special analog and digital hybrid design that combines the best of both world.
As for the main operation, the AVR is pure analog.
No operation temperature can change it behavior.
No hangs, no restart. Never. It will just work.

As for the digital potentiometer the AVR is also digital -as the original- so you have the same functionality and absolute compatibility.

Note that TC & T1 are supported exclusively as a fixed overvoltage trip output.



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ADJUSTMENTS

- **VOLT** for voltage output level
- **STAB** for stability voltage control
- **P/F** for power factor correction

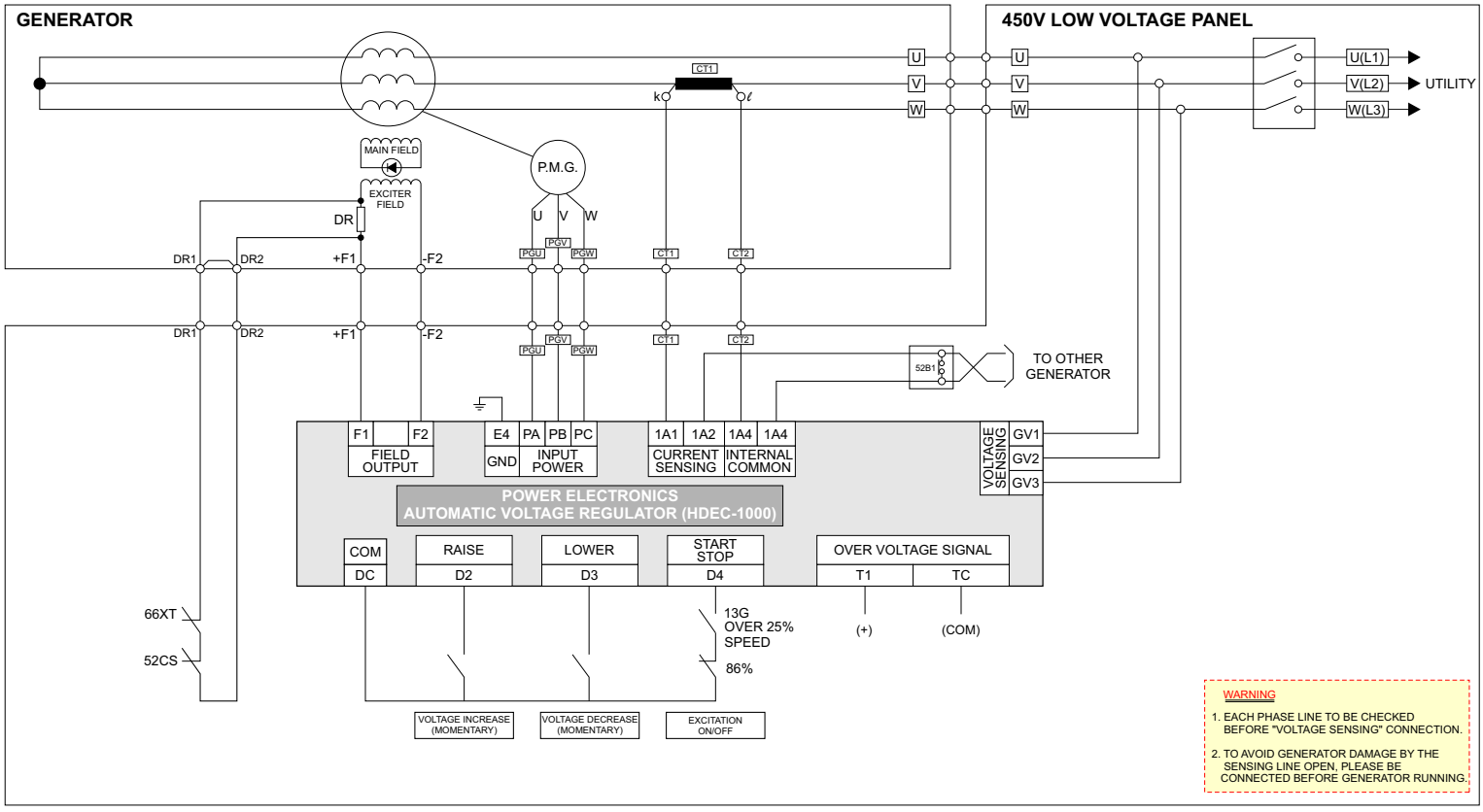
Dimensions (mm)

Length	Width	Height	Weight (Kg)
259	220	65	2.8

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FROM HYUNDAI HDEC-1000 / 450V VERSION TO POWER ELECTRONICS HDEC-1000 AVR EXAMPLE PLAN



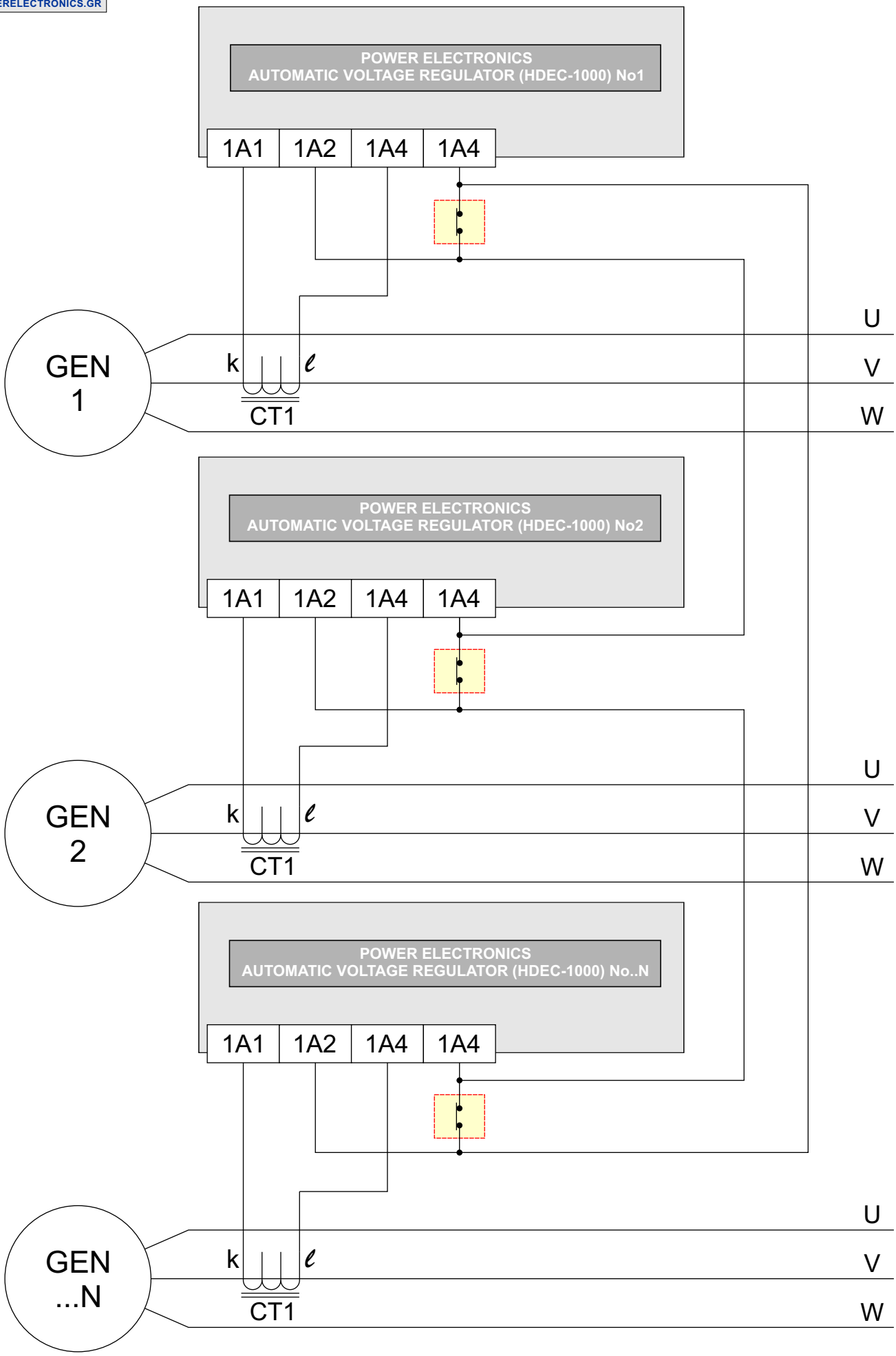
WARNING

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FROM HYUNDAI HDEC-1000 TO POWER ELECTRONICS HDEC-1000 AVR EXAMPLE PLAN PARALLEL CONNECTION FOR CROSS CURRENT COMPENSATION



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INSTRUCTIONS TO INSTALLING AND ADJUSTING THE AVR

MODELS: HDEC 1000 COMPATIBLE

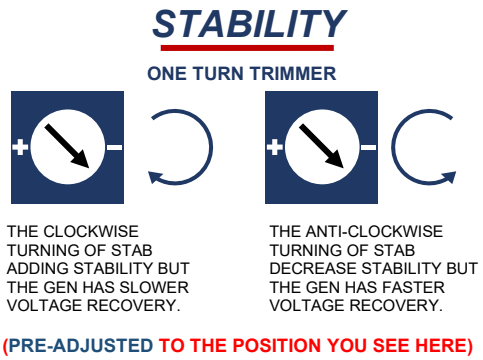
STAB - Stability. The STAB adjustment eliminates voltage fluctuations.

To adjust the STAB trimmer, proceed as follows:

1. Turn the STAB trimmer fully counter-clockwise (approximately 1 turn).

2. Slowly turn the STAB trimmer clockwise and stop just after the voltage fluctuations disappear.

Setting the STAB trimmer too far clockwise will reduce the generator's response sensitivity. This may result in an excessively long voltage recovery time, especially when highly inductive loads are applied.



(PRE-ADJUSTED TO THE POSITION YOU SEE HERE)

VOLT - Voltage.

The VOLT trimmer adjusts the generator output voltage and works in conjunction with the external remote voltage control commands.

To adjust the VOLT trimmer, proceed as follows:

Once the engine is running at the correct speed and frequency, adjust the VOLT trimmer located on the main unit until the required output voltage is reached.
The Raise command (Digital Input D2) and Lower command (Digital Input D3) operate in the same way as on the original AVR.

P/F - Power Factor.

The P/F adjustment is performed when the generator is already operating in parallel with one or more generators.

To adjust the P/F trimmer, proceed as follows:

1. Start with the P/F trimmer in the middle position.
2. Turn the trimmer counter-clockwise to increase the generator current in relation to the other generator(s).
3. Turn the trimmer clockwise to reduce the generator current in relation to the other generator(s).

RED LED

The red LED illuminates when the Under-Frequency (U/F) protection is activated.
The U/F protection setting is factory preset.

BLUE LED

The blue led is an informative indicator that indicates the AVR is powered and operating normally.

LOSS PHASE PROTECTION

The phase-loss protection circuit prevents overvoltage in the event of a phase loss.
The protection will be activated if any of the GV1, GV2, or GV3 phases is disconnected or lost.
At the same time, the main output voltage will drop to zero.

TC / T1 - OVERVOLTAGE TRIP OUTPUT

The TC and T1 contacts operate exclusively during an overvoltage condition and provide the trip command to the generator.

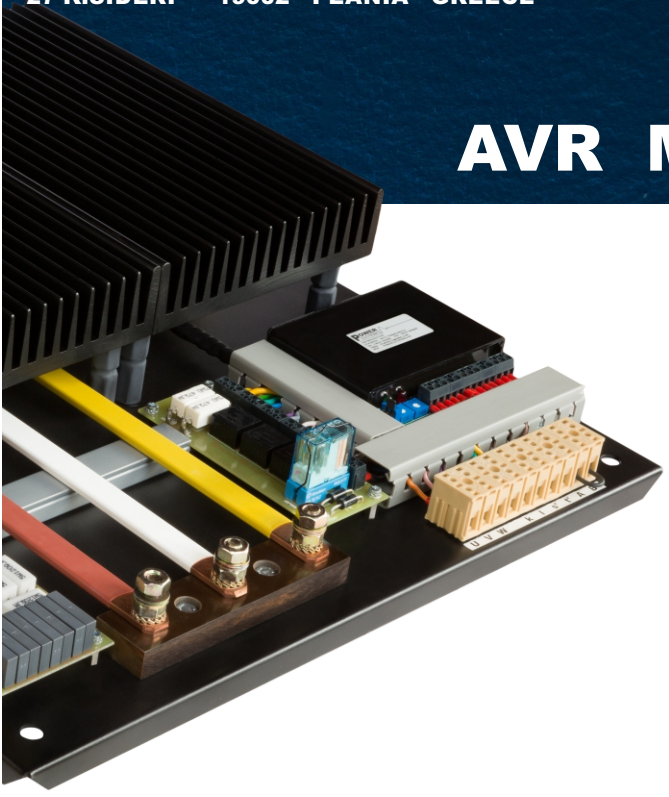
The overvoltage trip function of the TC and T1 contacts is fixed and cannot be changed.
A selector switch on the AVR allows the output contact to be configured as either Normally Open (NO) or Normally Closed (NC) to match the requirements of the existing installation.
The factory setting is Normally Open (NO), with the selector switch in the DOWN position.

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AVR MANUFACTURER



POWER ELECTRONICS is a market leader in professional grade marine Automatic Voltage Regulators. Our company operates since 1985 and deals exclusively with AVRs for ships power generators of all types and power supply capacities.

Our products design philosophy is the bolt on-philosophy. Very easy to understand customized schematics and instructions are provided in both English and Greek languages with every piece of equipment which helps technicians in completing their tasks quickly and easily without expertise. Apart from the POWER ELECTRONICS product line we offer many replacement models such as **6GA-2491** or **EXU-61A**, that are 100% compatible in both connectivity as well as fitting / mounting. The main difference lies in a completely different inner design from the original being much more improved in every aspect. **Everything works just better**.

With POWER ELECTRONICS AVR any kind of generator can be in parallel with any kind of generator.
With POWER ELECTRONICS AVR all the generators act as one. Period.

Life cycle of our products exceed expectations.
AVR systems installed on power generators more than 20 years ago continue to work perfectly until now.
The construction is extra rugged and solid.
All of our products are built to last, as long as possible.

None of our AVR design, no matter the provided power, has any need for active air cooling.
This is possible because of our sophisticated high efficiency design.

POWER ELECTRONICS AVR is designed with extended use of high precision industrial-grade analogue integrated circuits that provide excellent performance even at extremely high ambient temperatures, which could reach 80 degrees Celsius.
Digital integrated circuits present serious malfunctions at ambient temperatures of only 50 degrees Celsius. This is a “starting” temperature in the ship's engine room. This is the reason behind the usage of extended analogue integrated circuits versus digital integrated circuits.

Workmanship of the most advanced models embody a pioneering technique of self-controlling system.
This self-controlling system checks for:

1. Correct phase sequence on U, V, W, terminals.
2. Proper polarity on current transformer's terminals.
3. Correct phase identity at U, V, W, terminals.

Our goal at **POWER ELECTRONICS** is to provide top-quality products that meet and exceed your expectations and for that and we are proud to introduce a **15 YEARS WARRANTY** for our finest and most high-end products.