

IVT-1260 / 2460

GENERATOR AUXILIARY EXCITATION DEVICE OPERATION MANUAL



The IVT-1260/2460 is used to boost motor starting capacity in shunt generators. It achieves boosting power by converting DC battery power to an AC source for use by the AVR. This independent power behaves in the same way as a PMG, augmenting the generator's ability to handle a larger motor starting current, thereby exceeding its normal motor starting capabilities. It is easy to install, allowing the unit to be integrated to the generator excitation systems quickly.

Applicable to AVR Models : McPherson EA08A · EA125-8 · EA448 · ADVR-12

Leroy Somer R448 · R449 · R438

Basler AVC63-12 · AVC125-10 · CATERPILLAR VR6

1.0 Specification

Input Measurement Voltage S1 · S2

Volts 80 – 600 Vac (Single phase)

Frequency 50/60 Hz

Auxiliary Power Output OUT1 · OUT2

Volts 180 Vac (Single phase)

Frequency 400/480 Hz

Battery Power Input B+ · B-

IVT-1260 Volts 12 Vdc (10 - 14 Vdc) / 60A

IVT-2460 Volts 24 Vdc (20 - 28 Vdc) / 30A

Battery Voltage Reverse Polarity Protection Function

Battery Current Limit Function

Fuse: IVT-1260(60A) / IVT2460(30A)

Static Power Consumption

< 1 watt (hibernate < 0.5 watts)

Transient Max. Power

500 VA

Response Time

10ms

Operating Environment

Operating Temperature -40 – +70 °C

Storage Temperature -40 – +85 °C

Relative Humidity < 95%

Vibration 3 Gs @ 100 – 2K Hz

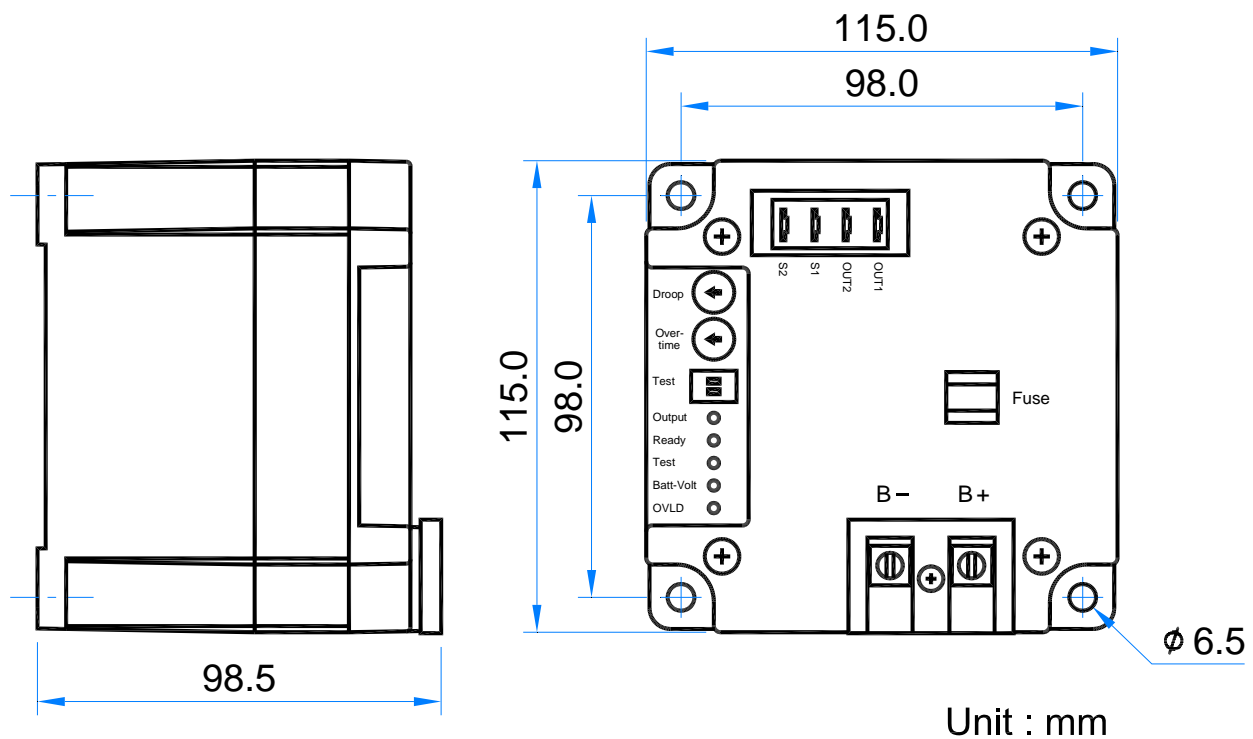
Dimensions

115.0 (L) x 115.0 (W) x 98.5 (H) mm

Weight

0000 g +/- 2%

2.0 Outer shape / Dimensions



3.0 Description

Item\ Settings	0	1	2	3	4	5	6	7	8	9
Drop	10 %	11 %	12 %	13 %	14 %	15 %	16 %	17 %	18 %	19 %
Overtime	15 Sec	20 Sec	25 Sec	30 Sec	35 Sec	40 Sec	45 Sec	50 Sec	55 Sec	60 Sec

Over-Time is the time in seconds that the IVT is activated every time it senses a drop in voltage. This timer can be set from 15 to 60 seconds.

Drop is the level of sensitivity set on the trigger that turns the IVT "ON," when it senses a drop in voltage on terminals S1, S2. This droop can be adjusted 10 to 19 percent of the preset working voltage.

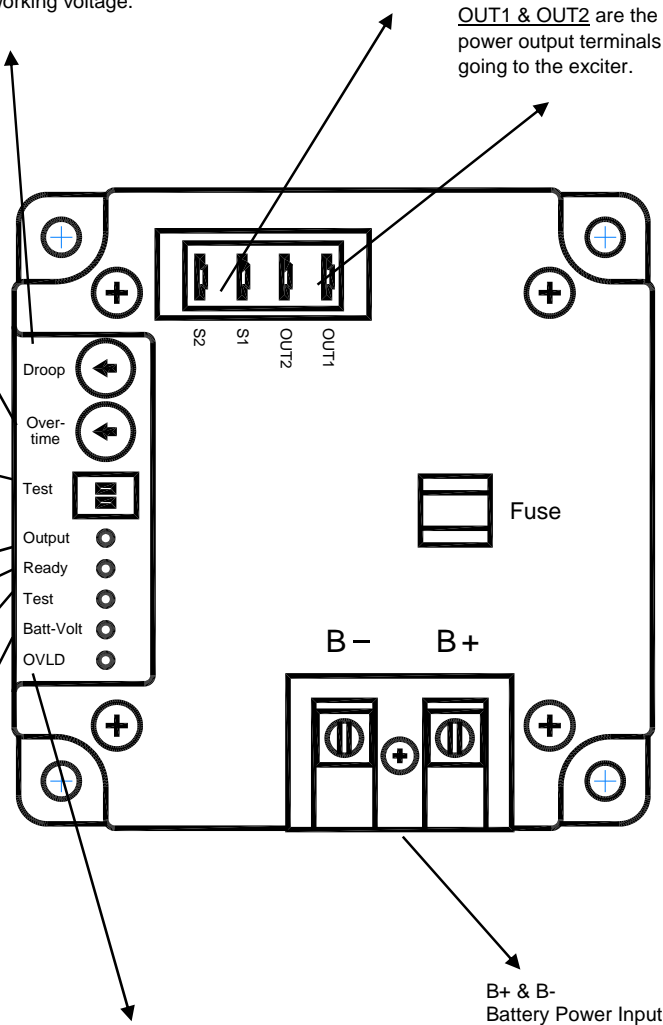
S1 & S2 are the voltage sensing input terminals

OUT1 & OUT2 are the power output terminals going to the exciter.

To Test the IVT by Moving DIP-SW1 to "ON"

1. Remove any wires from the Power Output terminals OUT1 & 2 before starting.
2. Move DIP-SW1 to ON to start the test, terminals OUT1 & 2 will now energize for 5 seconds
3. The TEST LED should show a steady glow indicating a good test or a flashing LED if the IVT is damaged.
4. Move the DIP-SW1 back to OFF and put back the wires OUT1 & 2

WARNING: When doing the Output Power Test DO NOT touch terminals (OUT1 & 2). These emit a dangerous high voltage at 400Hz during the test. Also be careful not to short these terminals, as you can damage the IVT.



Output LED (Green)
Boost Power ON LED indicator

Ready LED (Green)
Flashing: Waiting
Steady Light: Sensing voltage is stable and boosting power is on standby ready for activation.

Test LED (Green)
When flashing: Power Output Test failed.
If LED is steady the test was successful.

Bat-Volt LED (Red) Battery Voltage LED indicator

Model IVT-1260: 10 to 14Vdc: If voltages go above or below this range the Red LED turns on and the boost functions stops

Model IVT-2460: 20 to 28Vdc: If voltages go above or below this range the Red LED turns on and the boost functions stops.

Remember, generally, the AVR is not in boost mode and no battery power is used. HOWEVER, if the IVT turns on for a few seconds, current use is large, and the battery voltage may drop. If the battery is weak, the IVT will immediately stop operating, and the RED LED Bat-Volt will light alerting to change or charge the battery.

OVLD LED (Red) Auxiliary Power Overload Light
When Boost Power is ON and the current from the battery exceeds 60A at 12V or 30A at 24V, the ITV starts a current limiting function and the OVLD LED will turn on.

4.0 Auxiliary Boost Power Starting Procedure

Without the IVT, when a heavy load is placed on a generator, its output voltage drops, as it tries to start large pumps or motors, etc.) The load will, momentarily, appear to have a short circuit to the generator, zapping the power to the AVR and excitation circuits, and the motors fail to start. With the IVT, however, as soon as the voltage drops between 10% and 19%, the ITV takes over, using the battery to immediately power the voltage regulator and the exciting system. Finally, when the IVT output times out (Overtime setting), the auxiliary boost stops; the regulator returns to normal shunt operation; and, battery power is no longer needed. See the Auxiliary Power start process in Diagram 2:

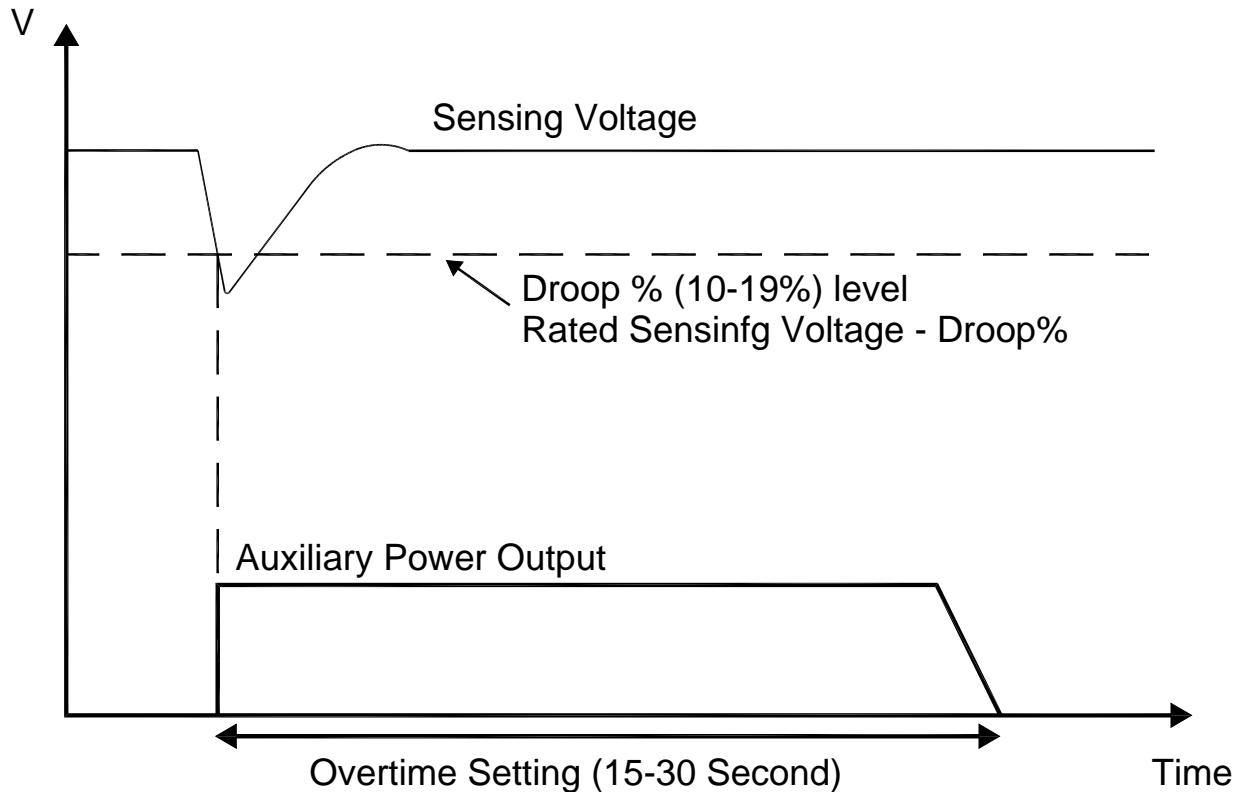


Diagram 2. Auxiliary Power Initiation Process

When the generator's load is within 100% of its rated power, its output voltage should be within 10%. However, to avoid the IVT starting frequently and consuming battery power, the Droop setting trigger voltage should be set higher than 10%. At higher than 10% Droop, when the load exceeds (overload) the rated power of the generator (for example, when starting a motor), the sensing voltage drops instantaneously to the Droop setting (10% to 19 %) and the ITV starts within 10ms, instantly delivering power to the AVR and excitation system. When the ITV times out when reaching the Overtime setting of 15 to 60 seconds, the power from the ITV slowly turns off to avoid unstable voltage output from the generator.

5.0 Wiring Connections

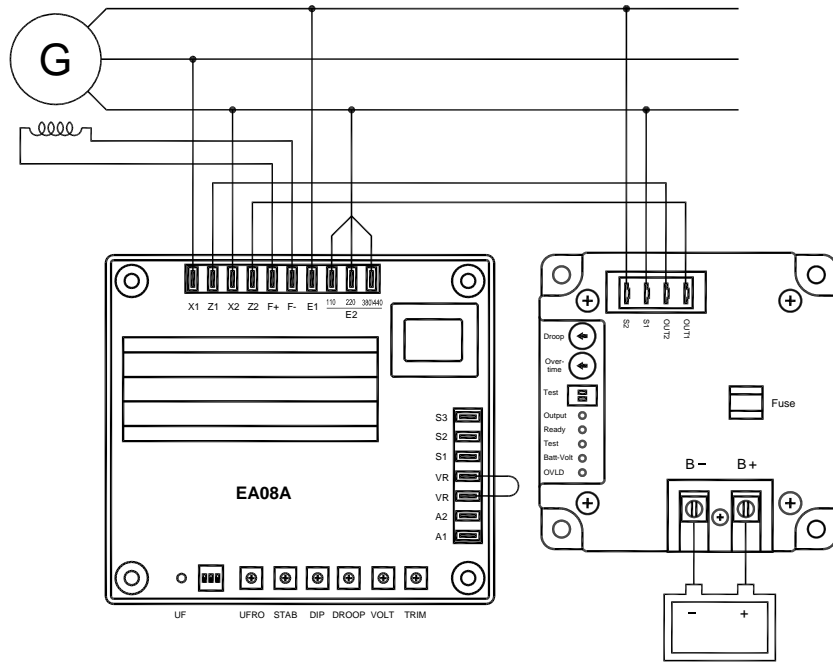


Diagram 3 . IVT-1260/2460 & EA08A Wiring Connection

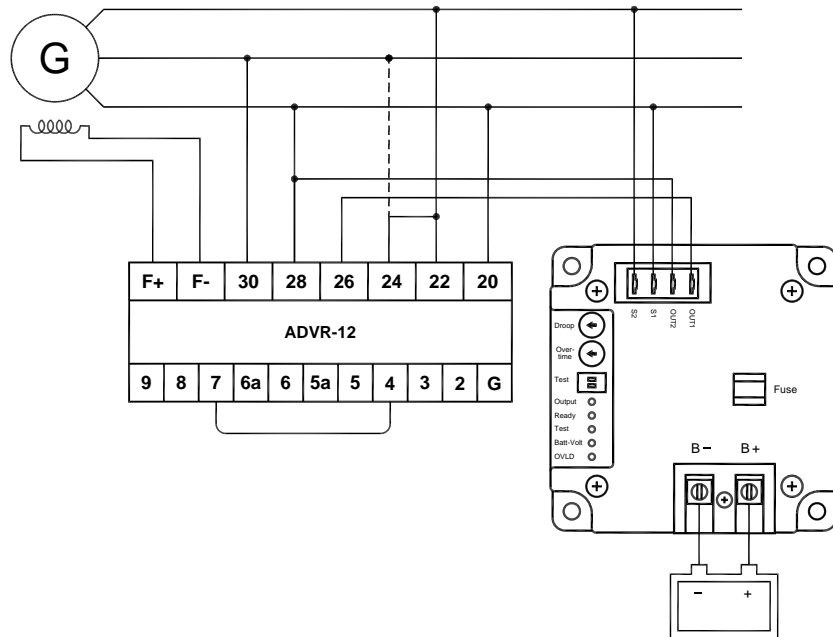


Diagram 4 . IVT-1260/2460 & ADVR-12 Wiring Connection

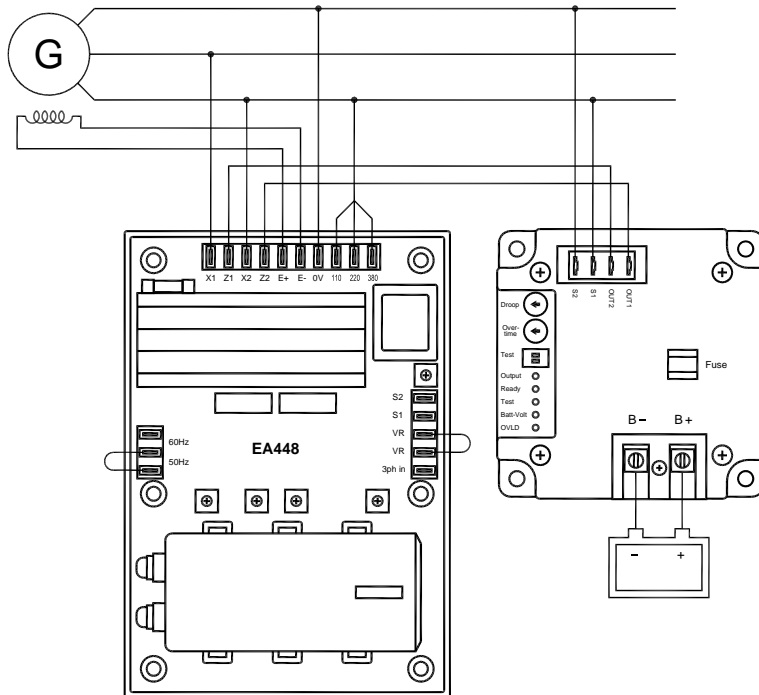


Diagram 5 . IVT-1260/2460 & EA448 Wiring Connection

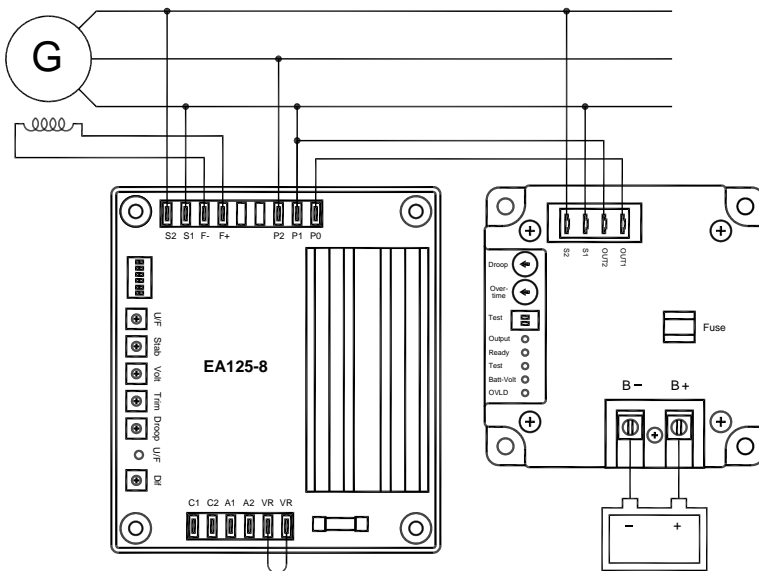


Diagram 6 . IVT-1260/2460 & EA125-8 Wiring Connection

Attention!!

1. All Sensing AC Voltages should be read as average voltage.
2. IVT-1260/2460 highest auxiliary output power is 500VA.
3. IVT-1260/2460 can combine with an auxiliary power AVR (this AVR must use IGBT for excitation control method).

- ※ Please use original factory fuses as replacements.
- ※ Product performance, specification, and outward appearance are subject to change and improvement. Please understand that we cannot provide this information in advance.