

## DESCRIPTION

The LVU-153 is a low cost, microprocessor controlled unit designed to start and stop the genset manually using the key switch and pushbuttons on the front panel. It has solid state outputs enabling it to interface directly with relay coils.

When the engine is running, the unit monitors fault conditions and shuts-down the engine automatically in the occurrence of an alarm. The alarms are identified by a group of LEDs displaying only the first occurring one.

The LVU-153 is also able to control 'Energize to Stop' type of engines. The engine type selection is made by a jumper switch.

In the OFF position, the DC supply is removed from the module, thus zero power consumption is achieved.

The unit powers up when the RUN position on the front panel is selected. If required, the PREHEAT/STOP (⌘) button may be depressed as long as needed. This will activate the AUXILIARY output and the related front panel led marked (⌘).

The engine is started using the pushbutton marked CRANK (I). This will also energize the fuel solenoid output. Once the engine is running, the switch should be released. However the internal logic inhibits cranking when the engine is running.

The alarm checking is only enabled after the protection hold-off timer is expired. This timer resets to 12 seconds if:

- the unit is powered up,
- or CRANK (I) button is pressed,
- or PREHEAT/STOP (⌘) button is pressed,
- or the engine gets running.

The occurrence of below fault conditions will cause the engine to be stopped immediately:

- Overspeed,
- Underspeed,
- High engine temperature,
- Low oil pressure,
- Auxiliary shutdown.



selected, the AUXILIARY output will be energized during stop timeout and the led associated with this condition will turn on.

Only the first occurring fault will be indicated. To reset the fault condition, turn the switch to the OFF position for a few seconds.

The Charge Fail condition is treated as a warning only and do not cause the engine to stop. The input monitors the D+ terminal of the charge alternator.

To shut-down the engine manually

-if the engine is an 'Activate to Stop' type, press the PREHEAT/STOP (⌘) button until the engine comes to rest. Then select the OFF position on the switch.

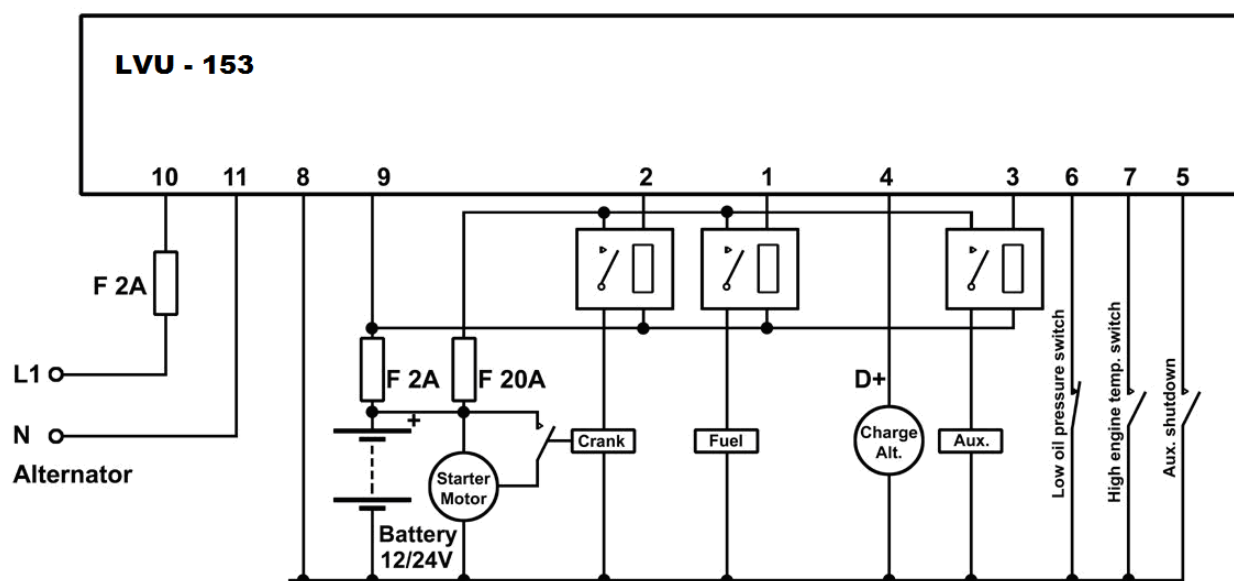
-if the engine is an 'Activate to Start' type, select the OFF position on the switch.

The limits for the correct generator frequency are 25 to 57 Hz for 50Hz operation and, 25 to 78Hz for 70Hz operation.

The unit has Energize to 9top and 70Hz options selected by jumper switches situated at the side panel of the unit.

The unit uses high current two part connectors for easy replacement.

## TYPICAL CONNECTION DIAGRAM



### INPUTS

DC SUPPLY: 12 or 24 volts DC, (+) and (-) terminals.

L1: Generator phase voltage.

NEUTRAL: Generator neutral terminal.

HIGH TEMP SWITCH: Negative closing switch input.

LOW OIL PRESSURE: Negative closing switch input.

AUX: Spare fault input. A negative supply connection to this input will cause the engine immediately stopped and an alarm given (independent of the protection hold-off timer).

CHARGE: Connect the charge alternator's D+ end to this terminal. This terminal will supply the excitation current and measure the voltage of the charge alternator.

### OUTPUTS

FUEL SOLENOID, START, AUXILIARY: These are fully protected, negative pulling solid state outputs. Each output is rated 1.2amps@28V-DC.

### OPTIONS

JUMPER SELECTABLE STANDARD FEATURES:

Genset control,  
Activate to Start,  
Energize to Stop,  
50Hz nominal,  
60Hz nominal.

### TECHNICAL SPECIFICATIONS

Alternator Voltage: 15 to 300 V-AC

Alternator Frequency: 50 or 60 Hz nominal.

Overspeed: nominal frequency + 14%  
(+24% overshoot)

Underspeed: 25Hz

DC Supply Range: 8 to 33 V-DC.

Current consumption: 80mA max. (Outputs open).

Charge fail threshold: 6 V-DC.

Charge excitation current: via 82 ohms resistor connected to the FUEL output.

Operating temp.: -20°C (-4°F) to 70 °C (158°F).

Storage temp.: -30°C (-22°F) to 80 °C (176°F).

Maximum humidity: 95% non-condensing.

Dimensions: 72x72x38mm (WxHxD)

Panel cutout dimensions: 68x68 mm

Weight: 100g (approx.)

Installation: Front panel mounted. Retaining steel spring provided.

Conformity (EU directives)

-73/23/EEC and 93/68/EEC (low voltage)

-89/336/EEC, 92/31/EEC and 93/68/EEC (EMC)

Norms of reference:

EN 61010 (safety requirements)

EN 50081-2 (EMC requirements)

EN 50082-2 (EMC requirements)

OPTIONAL FEATURES: (SUBJECT TO SPECIAL ORDER) Engine control (without alternator), Remote start input (LVU-154), High power relay outputs (LVU-151).