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AECM103FBSL 3 POS. IGNITION KEY SWITCH REPLACEMENT

DESCRIPTION

The Model AECM103FBS lite is an Automatic Engine Control Module designed to work as a replacement of standard 3 position ignition key switch for diesel and petrol generating sets such as Kipor, Honda, etc. It will indicate the start engine failure with blinking “START FAIL” LED on the front panel. “Low Fuel” shutdown condition is indicated with steady LED.

Local operation of the module is via rocker switch mounted on the front panel with AUTO/STOP and RUN positions. Remote control of the module is via terminal 1.

Optional control: wireless (key fob), BVS (Battery Voltage Sensor).

4 OPTIONS TO START THE ENGINE:

1. Turn the rocker switch into RUN position (i.e local start request)
2. Make the link between terminal 1 and 8 to operate the generator in remote wired mode.
3. Press button “A” on the key fob to activate the remote wireless start mode)
4. BVS detected the Low Battery Voltage threshold.

Start sequence: the stop relay R3 will energize breaking connection between terminals #4 and #5, the fuel relay R1 will energize connecting terminals #1 & #2, then the start relay R2 will energize for 5 sec connecting terminals #2 & #3. If the engine has not fired by the end of 1st attempt, the starter is turned off for a resting period. The sequence will then repeat up to a maximum number of start attempts. Following a successful start, (sensed by controller terminals 11 and 12), the start relay R2 is de-energized and latched out to prevent reengagement of the starter with the engine running**.**
Controller connections 11 and 12 are compulsory, otherwise the module will crank the running engine 3 times!

4 OPTIONS TO STOP THE ENGINE:

1. Turn the rocker switch into STOP/AUTO position if the rocker switch was initially in RUN position (i.e remove local start request)
2. Remove the link between terminal 1 and 8 if the module was initially operating the generator in remote wired mode.
3. Press button “B” on the key fob (if the module was initially operating the generator in remote wireless mode)
4. BVS detected the High Battery Voltage threshold (or BVS disabled).

IMPORTANT NOTES

The starter relay can only energize for 2nd and 3rd crank cycle if 100~240VAC is NOT sensed, to confirm that the engine is stationary. The loss of AC signal on terminals #11 and #12 during normal generator run will cause a fault condition (LOW FUEL LED LIT) and generator stops.

Should the engine still fail to start after the maximum number of attempts, “START FAIL” is displayed and the starter is latched out until reset via “STOP/AUTO” position of rocker switch or remotely via terminal 1 if the engine start was initially made via remote start signal.

REMOVE OR DISCONNECT THE ORIGINAL IGNITION KEY SWITCH FROM THE GENERATOR COMPLETELY BEFORE FITTING THE MODULE!

Relay outputs are provided for:

- Fuel Solenoid Output
- Starter Motor Output
- Stop Relay Output

Inputs/outputs are available for:

- Remote Start (terminal 1)
- AC generator output sensing (terminals 11 and 12)
- Battery positive (terminal 7)
- Battery negative (terminal 8)
- BVS inputs (15 & 16) optional

Alarm channels are provided to monitor the following:

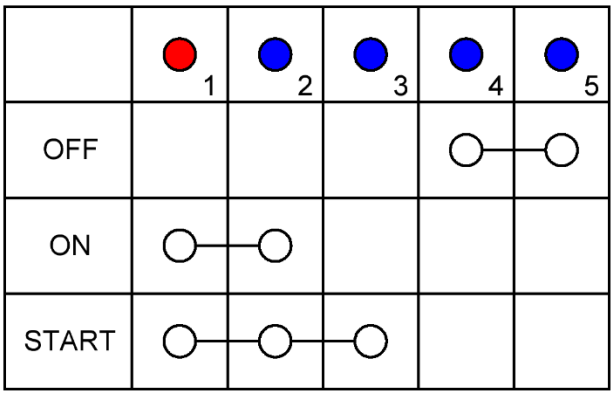
- AC alternator output
- Fail to Start

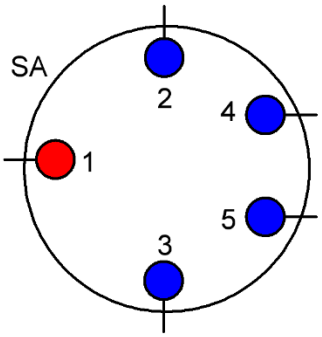
The AECM 103FBS lite series modules have been designed for front panel mounting.
The module is fitted into the 68X68mm cut-out with the fixing clips removed. These are then fitted from the rear.

SPECIFICATION

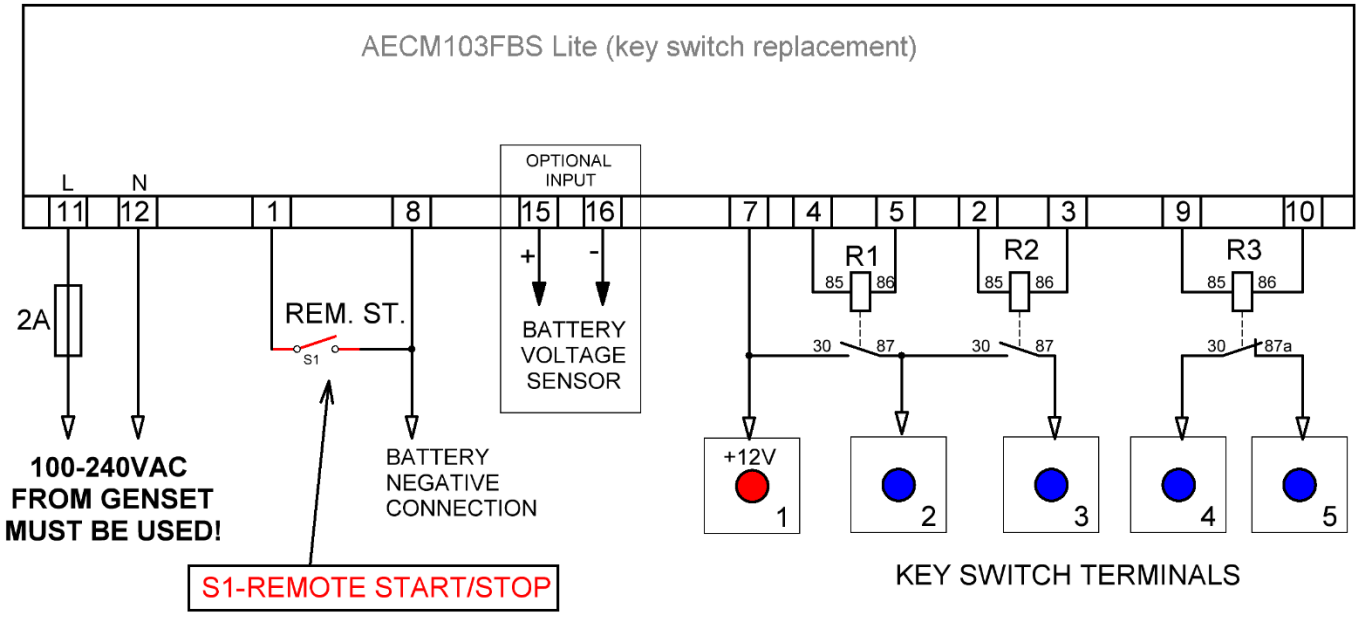
DC Supply: 12Vdc (engine starting battery)
Max. Standby Current: 9.8 mA @ 12 V
Number of attempts: 3
Crank duration: 5 sec
Pause between each attempt: 10 sec
Hold-off timer set for: 7 sec
Starter relay R2 output: 40A Max (supplied with the module)
Fuel relay R1 output: 40A Max (supplied with the module)
Stop relay R3 output: 40A Max (supplied with the module)
Dimensions: 72 X 72 X 60 mm
Operating Temperature Range: -30 to +70°C

Wiring Diagram





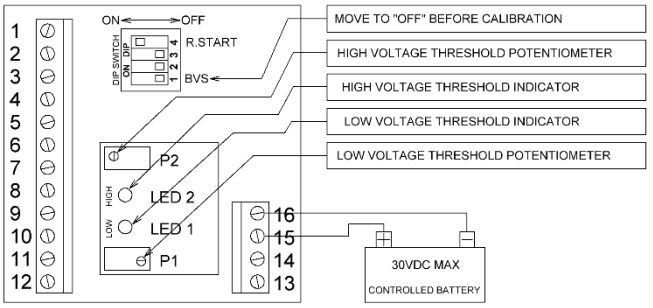
STANDARD IGNITION
KEY SWITCH
REPLACEMENT

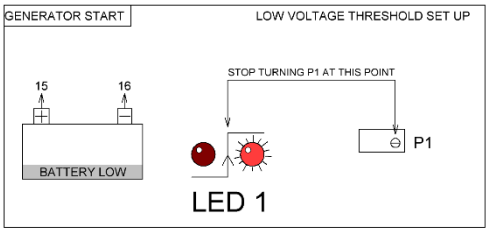


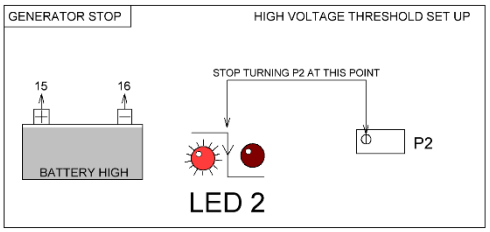
BVS set up (optional)

Default settings (unless special instructions are provided): start@11.8V stop@13.8V

NOTE: YOUR BVS SET FOR: START@11.8VDC AND STOP@13.8VDC
(UNLESS SPECIFIED BY CUSTOMER)







NOTE

It is advisable to use an adjustable DC power supply unit (0V to 30V adjustable voltage output), instead of real battery to speed up the process of calibration.

HOW TO SET UP THE BVS LOW THRESHOLD

1. Disable BVS via DIP switch 1 (move to Off position)
2. Connect your discharged (ready to be charged) battery to terminals 15 and 16
3. Start turning P1 (very slowly) and find the position when LED1 changes its state from Off to On
4. Stop turning immediately when you notice this change.

HOW TO SET UP THE BVS HIGH THRESHOLD

1. Disable BVS via DIP switch 1 (move to Off position)
2. Connect your fully charged battery to terminals 15 and 16
3. Start turning P2 (very slowly) until LED2 changes its state from On to Off
4. Stop turning immediately when you notice this change
5. Enable BVS via DIP switch 1 (move to On position).

Q1: Which way do I need to turn the pot?

A: To increase your high voltage threshold-turn the pot P2 anticlockwise.
To increase your low voltage threshold-turn the pot P1 clockwise.

For instance: your current low voltage threshold is 11.8Vdc. You would like to change it to 12.5Vdc. Discharge your battery down to 12.5Vdc, disable BVS via DIP switch 1, connect your battery to terminals 15 and 16, start turning P1 clockwise until you see the LED1 switched On, stop turning P1 immediately when you notice this change. Enable BVS via DIP switch 1.

Q2: How many turns these potentiometers have?
A: Up to 30 turns.