GOVERNOR QUICK START GUIDE

INSTALLATION

MIXER/THROTTLE BODY ASSEMBLY

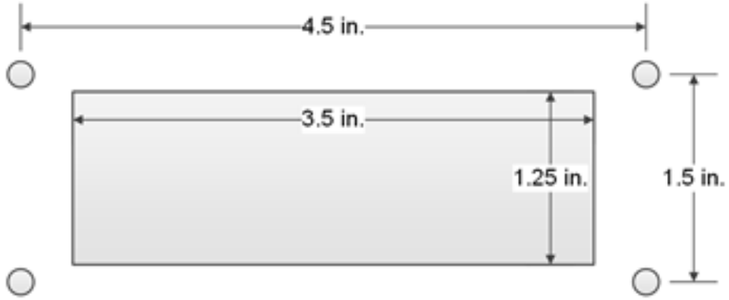
The mixer/throttle body assembly is to be installed on the intake manifold of the engine using the bolts provided. Below are install notes:

- Torque 5/16” bolts to 13 ft-lbs
- Torque 3/8” bolts to 23 ft-lbs
- If more than one mounting orientation is possible with the kit provided, the mixer/throttle body assembly should be installed in the orientation which places the axis of the throttle shaft as close to horizontal as possible.
- Use only black pipe or brass fittings when plumbing the fuel line
    - Under no circumstances should galvanized fittings be used to install the fuel piping.
- Install the AFRC digital power valve as close to the mixer as possible.

Each engine type will use a different intake mounting flange and mounting procedure. The installation manual for the specific engine model should be used to ensure correct setup.

PANEL SWITCH ASSEMBLY

- Identify an appropriate location in the instrument panel that will accommodate the drill/cutout pattern for the assembly.
- Drill and cutout the identified location based on the template shown below.
    - Use a 3/16” drill bit for the mounting holes.
- Use included 8-32 hardware to secure the assembly to the panel.
- Carefully route the integrated harness to the Governor module assembly installation location.



MAGNETIC PICKUP

- Identify a 5/8”-18 threaded location directly over the flywheel teeth and remove the placeholder cap, if necessary.
- Thread the magnetic pickup into the identified location until the sensor makes contact with the flywheel teeth.
- Rotate the magnetic pickup out 1/4 turn after making contact with the flywheel.
    - 1/4 turn will provide a gap of 0.013”.
- Secure the position of the magnetic pickup using the jam nut on the sensor.
- Carefully route the integrated harness to the Governor module assembly installation location.
    - Avoid routing near ignition or alternator wires.

SUCTION OR DISCHARGE SENSOR

- Close the valve of the pressure that the sensor is going to be monitoring at the point where it enters the panel.
- Inside of the panel, install appropriate fittings into the stainless line of the pressure to be monitored taking into consideration the physical size of the sensor.
- Before installing the sensor to the fittings, apply an appropriate amount of thread sealant.
- Install sensor to fitting and torque to 15 ft-lbs.
- Carefully route the integrated harness to the Governor module assembly installation location.
    - If an EMIT annunciator is used, route the wiring to the annunciator module

MOUNTING THE GOVERNOR MODULE

The governor module can be mounted directly in the panel using the Module Panel Mount Kit (14205), or within the EIM outdoor box using the If mounting directly in the panel, using the Module EIM Mount Kit (14206).

To mount within the panel:

- Remove the three screws and the end cap on one side of the module using a No. 0 Phillips screw driver.
- Slide the two DIN rail mounting clips onto the reverse side of the module with the larger tab side of the clip oriented towards the top.
- Reinstall the end cap using the original three screws and a No. 0 Phillips screw driver.
- If there is no existing DIN rail in the panel, find a location and install the DIN rail section included in the kit.
- Snap the DIN rail mounting clips installed on the module onto DIN rail.
- Install the included DIN rail stops on each end of the module.

To mount within the EIM outdoor box:

- Insert the four plastic flange ears, two on each side, into the module end caps.
- Secure the module into the base of the EIM using the four 6-32 screws included in the kit.

MOUNTING THE EIM

The EIM should be mounted in a suitable location on the panel using the EIM Panel Mount Kit (14200), or externally using the EIM Outdoor Mount Kit and Enclosure (14202). Refer to the installation guide if details are needed on mounting.

WIRING

Refer to the wiring diagram on the opposite page for an overview of the wiring used for the governor module. Details for each item are as follow.

Power/CAN Wiring: Wire the power connection on pins 4/5 of the governor module to a suitable fused power source. The module can run off 12V or 24V power sources. Run the three CAN wires (CANH/CANL,CANC) to the EIM, or if multiple ETS modules are used, to the next module in the CAN chain. Switch the CAN termination switch UP on the modules at the ends of the CAN chain.

Panel switches: Wire the speed +/- and governor mode select switches to the governor module pins 8-14 as shown in the diagram on the opposite page. If using an EMIT-supplied harness the wire colors should match the terminal block labels.

Magnetic pickup: Wire the magnetic pickup to pins 16/17 on the governor module

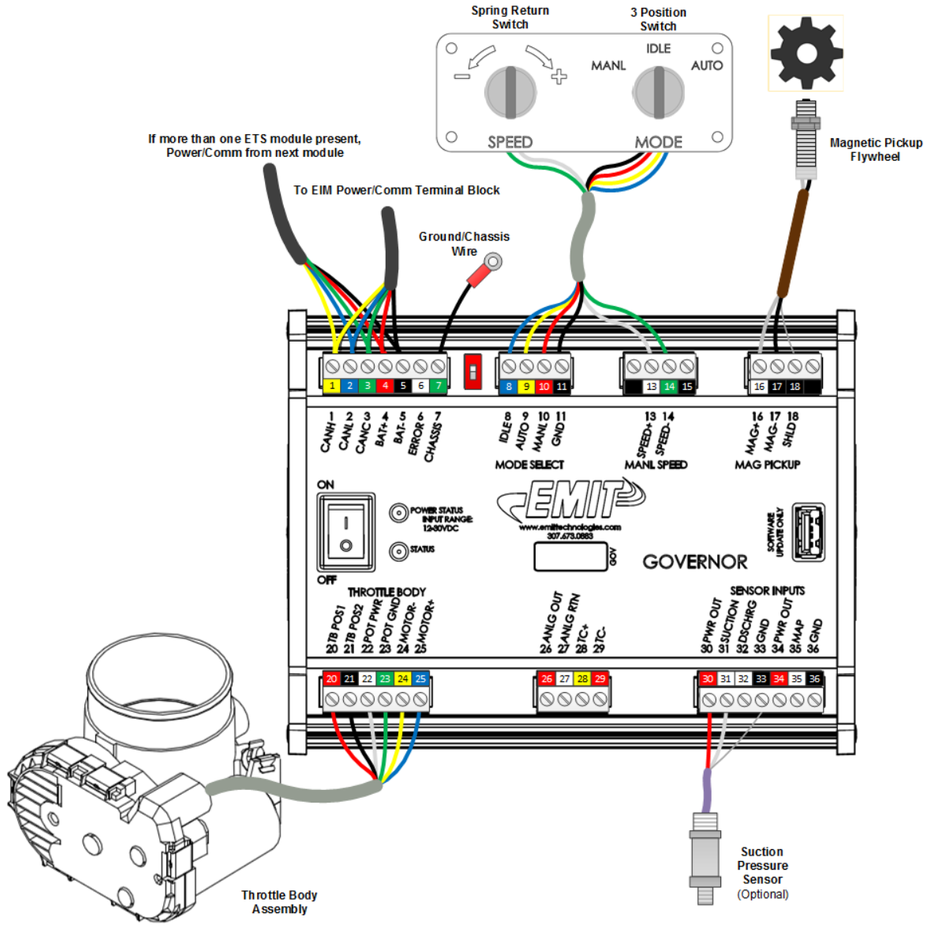
Throttle body: Wire the throttle body assembly to pins 20-25 on the governor module, matching the wire colors to the terminal block label. If a drain wire is present, wire into POT GND (Pin 23). Wire the throttle body cable away from other wiring if possible because it can generate electrical noise.

Pressure sensor (if used): If using a pressure sensor for speed control, wire to the appropriate location on pins 30-36 of the governor module. Most 4-20mA sensors will use a PWR OUT pin for power, and the return pin to the sensor input. If a drain wire is present it can be wired to pin 33 or 36 (GND). If an EMIT annunciator is used, the sensor should be wired to the annunciator module instead and set up in the annunciator, and the annunciator will share the pressure reading to the governor over the communications bus.

Thermocouple (if used): If using a thermocouple for an idle permissive, wire it to the thermocouple input, pins 28/29 on the governor module. If used, the governor will not go above idle speed for any reason while the permissive is not met.

GOVERNOR QUICK START GUIDE (Continued)

WIRING DIAGRAM



GOVERNOR INITIAL SETUP

Security Access

- Press the 'Access: Operator' button in the footer of the display
- Using the keypad on the screen, enter the *Setup* security password, then press the 'Submit' button
  - Passwords for the system are included with a new EIM
- The 'Access:' button will now display 'Access: Setup' after successfully entering the password

Setup Wizard

After entering *Setup* access mode, select the Governor module on the EIM Home screen, select "Setup", "Governor Setup", then "Change Settings". Each step of the setup wizard is detailed below.

Step 1: Engine Setup- Enter the number of flywheel teeth, the idle speed, and the speed alarm limits

Step 2: Control Setup- Choose the control type (fixed speed or pressure-based control), and the target setpoint

Setup Wizard (Continued)

Step 3: (Pressure Control Only) Pressure Control Additional Settings- If using pressure-based speed control, enter the operating range of the engine when in "Auto". Also on this page is the pressure deadband and the response rate, which determines how fast the RPM will change to meet the pressure.

Step 4: (Pressure Control Only if not using EMIT Annunciator) Sensor Setup- Set the low and high range of the sensor used for pressure control.

Review: Review the settings on the final page, and select "Submit" to save

After installing, it is usually a good idea to re-calibrate the throttle body with the engine off. To do this, go to the governor home screen, select "Setup", then select "Throttle Calibration", and finally click "Calibrate Now". The calibration takes around 10 seconds to complete.

GENERAL GOVERNOR USAGE

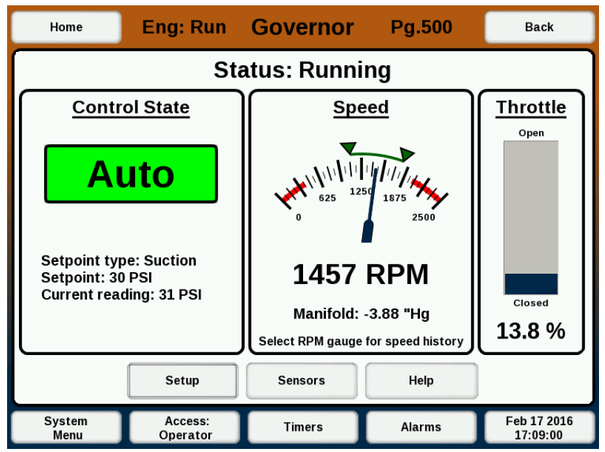
Panel Mode Switch States

IDLE: The governor will hold the configured idle speed

AUTO: The governor will hold the fixed speed setpoint, or will change the speed based on the pressure if using pressure-based speed control

MANL: When first switch to manual mode, the governor will hold whatever the current speed is. The "SPEED" switch can then be used to increase or decrease the speed of the engine by holding the switch at "+" or "-", respectively.

Governor Home Screen



The governor home screen is shown in the example above.

- The top line of the governor home screen shows the current status.
- The left side of the governor home screen shows the control state. The top box will show the state based off of the MODE switch. In the lower part of the box the current parameters of the control state are shown. If in idle or manual mode, a preview of the target control if switched to "AUTO" will be shown.
- The center part of the screen shows the current speed and manifold pressure. The green triangle or range will show the AUTO speed or range. If in a temporary speed mode (Idle or Manual), the temporary speed will be shown as a blue triangle.
- The right side of the screen shows the current throttle position