

# Automatic Engine Controller - Model AEC101



## Features

- Automatic Engine Controller with Built-in SWICHGAGE® Instruments and Hourmeter
- Quick and Easy to Install
- Advanced, Rugged, Reliable Cascade Design
- Very Low Competitive Cost
- Operates on 12 or 24 Volt Systems
- First-out Indication

The AEC101 Automatic Engine Controller provides you with simple-yet sophisticated, engine automation. It features basic automatic start/stop capabilities plus other features found on more sophisticated and expensive controllers-all in an easy to install panel.

The AEC101 operates from 12 or 24 volt systems. It includes crank and rest cycles, sensing circuits for crank disconnect and overspeed, overcrank, and re-crank on false starts. The top LED for engine running indicates when crank disconnect occurs. Up to six first-out indicating LEDs for shutdown. Four of the six shutdown LEDs are dedicated for low oil pressure, high engine temperature, overspeed, and underspeed. Two remaining LEDs can be setup for first-out shutdown indication through auxiliary input 1 and 2.

The built in oil pressure and water temperature SWICHGAGE® instruments provide visual indication and can be set to initiate shutdown on critical pressure and temperature.

The electromechanical quartz based hourmeter can record up to 9,999.9 hours. It is housed in a shockproof case and built to be rugged and durable for a long life.

The Cascade controller allows manual or automatic selection of the operation sequence.

The AEC101 has additional features as listed below:

- Adjustable Overspeed circuit
- Adjustable Overcrank circuit
- Adjustable Shutdown Lockout Delay
- Engine Running Indication LED
- Re-Cranks Engine on False Starts
- Advanced Microprocessor Technology
- Convenient Hat Bracket design for simple engine mounting
- Built-in Hourmeter
- Oil Pressure SWICHGAGE®
- Temperature SWICHGAGE®

## How to Order

**Specify AEC101.**

## Sequence of Operation

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The following sequence is pre-programmed into the AEC101. Refer to “00-02-0594 Cascade Installation and Operations Manual” for additional settings of the controller.

### Operation Sequence with Panel in Auto:

When the AEC101 receives an automatic start signal the engine will begin to crank and the Shutdown Lockout time delay will begin. The Shutdown Lockout Delay does two functions. It allows the AEC101 to disregard signals from the low oil pressure and high temperature SWICHGAGE® at engine start-up. Also, if the engine false starts, the recrank will be delayed to allow the engine to stop moving before engaging the starter. If the engine fails to start after the set number of crank and rest attempts, the AEC101 will indicate an Overcrank LED. The engine will be locked out from any further start attempts.

**NOTE:** All shutdown conditions can be reset by pressing the OFF button followed by pressing the Auto button to initiate auto sequence.

Once Crank Disconnect speed is reached the Engine Running LED will turn on steady. The engine will also run at full governed speed while in operation. If the speed exceeds the Overspeed setpoint, the AEC101 will initiate an engine shutdown and the Overspeed LED will turn on. The engine will be locked out from any further start attempts.

If a low oil pressure or high temperature conditions occurs while the engine is running, the AEC101 will shutdown the engine and the appropriate LED will turn on. The engine will be locked out from any further start attempts.

**NOTE:** The Shutdown Lockout Delay must have expired to get a shutdown on low oil pressure or high engine temperature.

### Operation Sequence with Panel in Manual:

When the manual button on the Cascade Controller is pressed, an automatic start signal is simulated. Therefore, the controller will operate the same as it does in AUTO. However, it will continue to run as long as there are no signals from monitored conditions or until the OFF or AUTO buttons are pushed. Keep in mind, it will still shutdown the engine if a monitored condition occurs such as low oil pressure, high engine temperature, or loss of speed signal.

## Specifications

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**Operating Voltage:** 9-35VDC continuous – operates during total blackout for 2 seconds minimum.

### Environmental

**Operating Temperature:** -40 to 85°C (-40° to 185°F)

**Storage Temperature:** -40 to 85°C (-40° to 185°F)

**Humidity:** 0-100%, non condensing

### Inputs

- Dedicated digital inputs for low oil pressure, high engine temperature, remote call to run, DC charge fail/Alternator fail. Two auxiliary inputs are configurable for multiple functions.

### Outputs

- 7 Outputs
  - 4 configurable auxiliary sinking outputs (1A DC protected)
  - 3 dedicated outputs for Crank, Fuel, Alternator Excitation

**Crank Attempts:** 3, 5, 10, Continuous

**Crank Rest:** 5-60 seconds, Adjustable

**Shutdown lockout time delay:** 5, 10, 15, 20, 25, 30 sec.

### Speed Sensing Input:

Magnetic Pickup (5-120VAC RMS / 0-10 kHz)

AC frequency (30-600 VAC RMS / 16-80 Hz)

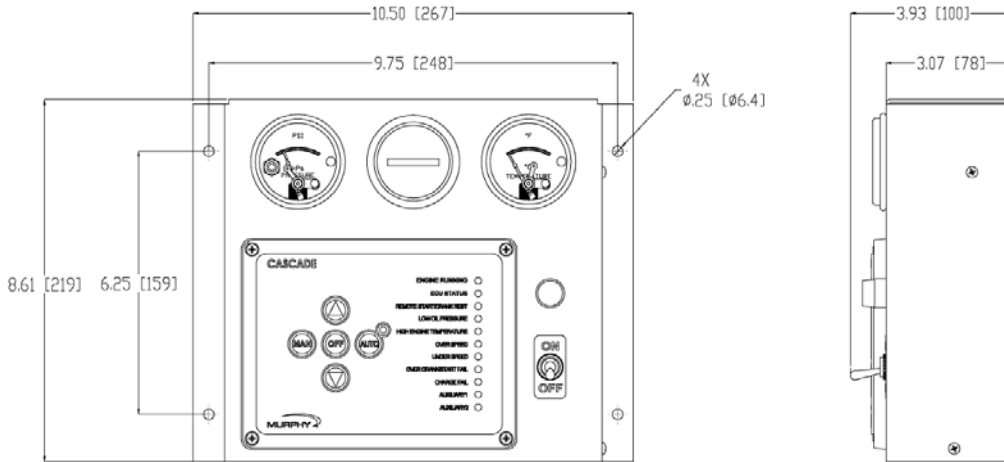
**Crank disconnect speed setting:** Field settable 0-9999 RPM (16-60 Hz AC freq input)

**Housing:** Powdercoated 14 Gauge Cold Rolled Steel

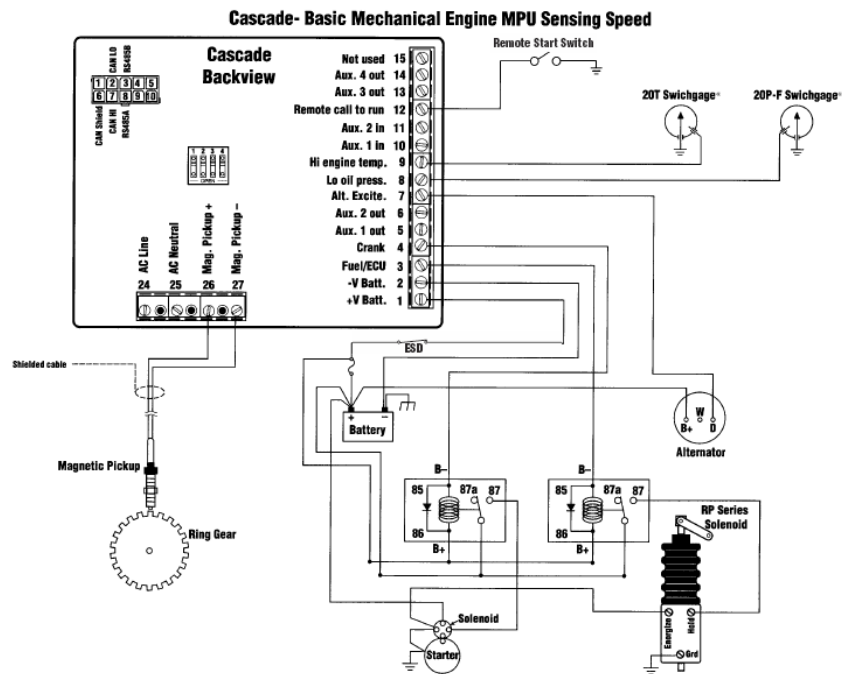
**Shipping Weights:** 7 Lb. (3175 g.) approximately.

**Shipping Dimensions:** 12 x 12 x 5.5 in. (305 x 305 x 140 mm) approx.

# Product Dimensions



# Typical Wiring Diagram



**NOTE:** This diagram represents typical wiring scenario, and is not the schematic to the panel.

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