

# EPC-50/50e

## Air/fuel ratio control for low-horsepower carbureted natural gas-fueled engines

- Designed specifically for use on low-horsepower stoichiometric natural gas-fueled engines
- Accurate closed-loop control of air/fuel ratio for minimum engine emissions
- Precise full authority actuation using digitally-controlled valves for positive fuel control
- Modbus-based EPC terminal program and expanded I/O available to implement advanced control strategies
- Fully supports Modbus RTU communications with included PC monitoring software
- CSA certified for use in Class I, Division 2, Groups C and D hazardous areas

The Altronic EPC-50 is an air/fuel ratio controller designed for use on low-horsepower, carbureted natural gas-fueled engines. It employs microprocessor technology, allowing for a high level of sophistication in control strategy, ease of configuration and diagnostic capability. The EPC-50 and associated small engine-specific control valves are designed for use on engines operating at or near a stoichiometric air/fuel ratio and is ideally suited for application with 3-way catalytic converters. While it is designed to be mounted in the engine/compressor control panel, a NEMA 3R housing (720004-1) is also available as an alternative mounting option.

The single control output of the EPC-50 allows for its use on any engine application incorporating a single fuel gas regulator. An oxygen sensor is used in the exhaust stream to sense O<sub>2</sub> content, and a thermocouple input signals when proper exhaust temperature has been reached to allow for accurate sensor operation. A system fuel control valve installed in the fuel line to the carburetor is precisely adjusted by a stepper-motor under microprocessor control to maintain the correct O<sub>2</sub> content in the exhaust. The desired air/fuel ratio can be easily adjusted by changing the control target voltages through the sealed membrane keypad or through the use of a PC. The EPC-50 also incorporates a thermocouple input and a dedicated output for implementation of catalyst over-temperature protection. A second digital output is available for use as an alarm for diagnostics or uncontrolled operation.

The EPC-50 has an alphanumeric LCD display showing the target voltage, sensor voltage, operating temperature, stepper motor position and diagnostic information.

Power requirement is 24 (12–30) VDC, 1 amp. In remote areas, power can be provided by the Altronic 24VDC Alternator Power Package. Refer to Altronic Form ALT.



## EPC-50 Exhaust Oxygen Setpoint and Gain Biasing Kit Available

Engineered to provide expanded control functionality on engines that operate under dynamic load conditions, Altronic offers a low-cost retrofit kit for new and existing EPC-50 systems. The EPC-50 Exhaust Oxygen Setpoint and Gain Biasing Kit (691306-KT) effectively converts the unit to an EPC-50e, which allows users to simply and cost-effectively implement an exhaust O<sub>2</sub> setpoint or control gain biasing strategy through the use of an external adaptor mounted to the EPC-50 terminal strip, an associated 5V transducer input, and a new EPC-50 Terminal Program. The Terminal Program also features a data logging function which can be used as a convenient aid when calibrating the maps used for biasing sensor targets and control gain.



## Specifications

<b>CONTROLLER</b> .....	EPC-50-1
<b>INPUTS</b>	
Oxygen Sensor .....	1
Thermocouples (Type K) .....	2
<b>OUTPUTS</b>	
Fuel Valves .....	1
Alarm .....	1
<b>POWER REQUIREMENT</b> .....	10-30 Vdc, 1 Amp
<b>MOUNTING</b> .....	Back Panel
<b>DISPLAY</b> .....	Alphanumeric 2x16
<b>TEMPERATURE</b> .....	-40°F to +185°F / -40°C to +70°C
<b>COMMUNICATIONS</b> .....	ModBus RTU Protocol (RS-485)

## Ordering Information

**CONTROLLER**  
1-channel, back mount, stoichiometric ..... EPC-50-1

### CONTROL VALVES

Control Valve, 75" NPT, below 250 HP .....	690153-1
Control Valve, 1.5" NPT below 300 HP .....	690154-5
Control Valve, 1.5" NPT, below 250 HP .....	690154-2
Cable Assembly, Control Valve, 30 ft. ....	693013-1
Cable Assembly, O <sub>2</sub> Sensor, 25 ft. ....	693006-1
Cable Assembly, O <sub>2</sub> Sensor, 50 ft. ....	693006-2

### 691305-1 ACCESSORY KIT

Oxygen Sensor .....	610621
Cable Assembly, Control Valve, 30 ft. ....	693013-1
Cable Assembly, O <sub>2</sub> Sensor, 25 ft. ....	693006-1

### 691305-2 ACCESSORY KIT

Oxygen Sensor .....	610621
Cable Assembly, Control Valve, 30 ft. ....	693013-1
Cable Assembly, O <sub>2</sub> Sensor, 50 ft. ....	693006-2

NOTE: Order one Type K Thermocouple per engine, plus one for Catalyst Out

### EXHAUST OXYGEN SETPOINT AND GAIN BASING KIT (EPC-50e)

Includes External Adaptor, Software CD, Screwdriver ..... 691306-KT

### ENCLOSURE (Optional)

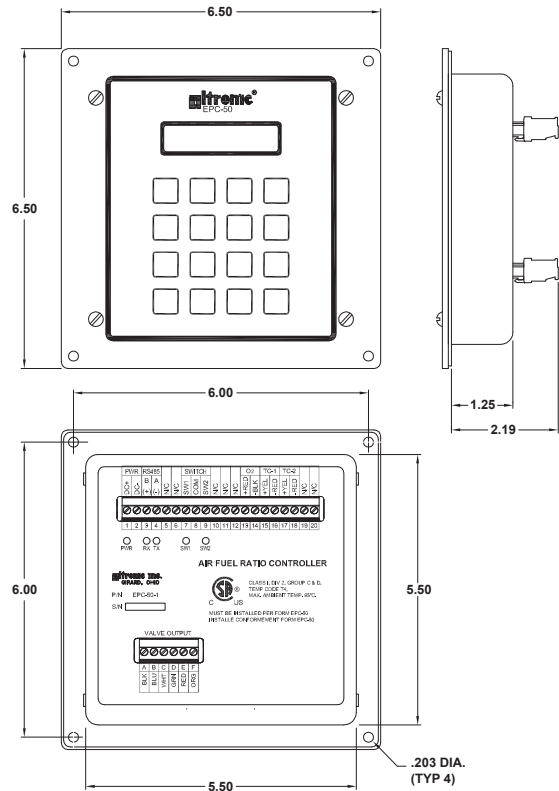
NEMA 3R ..... 720004-1

**altronic**  
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## Display Module Dimensions



## General Installation Layout

