

# AFR-500

## Advanced Air-Fuel Ratio Control System

- State-of-the-art, stand-alone air/fuel ratio control system for carbureted, gaseous-fueled engines (single and dual regulator/bank)
- Fully scalable, flexible solution suitable for either stand-alone service or networked into existing engine/package control systems, including the Altronic DE-4000 system
- Embedded configuration and monitoring is web browser-based and platform-independent
- Advanced control setpoint mapping to support optimized emissions control strategies
- Incorporates modern lambda (UEGO) sensor technology as well as the capacity to access new sensors as they emerge
- Simple system installation and compatible with existing EPC-style control valves, AGV-5, and other industry-standard actuators
- Integrated temperature monitoring for catalytic converter monitoring
- Standard 8" and 15" HDMI displays available as well as custom HMIs available for use with optional ACM-4000 Computer Module
- Suitable for use in Class I, Division 2, Group C and D hazardous area

Built on the tradition of excellence in stationary gas engine air-fuel ratio control first established by the EPC-series product line, Altronic's AFR-500 Advanced Air-Fuel Control System has been engineered and built to provide a new level of scalability, reli-

ability, and value to operators and users globally. This innovative new system can be deployed on carbureted engines in both single regulator (one AFR-500 module) and dual regulator configurations (using two AFR-500 modules).

The 24VDC-powered AFR-500 module (below) is designed to be DIN-rail mounted in a control panel or other suitable enclosure on both new and existing installations. In addition to on-board temperature protection, analog and digital control inputs, and advanced control setpoint mapping, the AFR-500 operates using modern, field-proven UEGO (wide-band) exhaust sensor. Addressing specific field requirements in managing frequent and substantial changes in engine load and fuel gas btu levels, the system is engineered to offer rapid and precise control of existing Altronic EPC-series stepper motor-based control valves, the Altronic AGV-5 fuel control actuator, and many other third-party 4-20mA-compatible devices. Standard 8" and 15" HMI displays are available through the integration of the optional ACM-4000 Altronic Computing Module.

AFR-500 is built with simple configuration and system networking in mind. Full Ethernet and ModBus TCP compatibility provides full access to the configuration and operation of the system. Utilizing the same web browser-based approach incorporated into the DE-4000 the AFR-500 can easily accessed from a PC or other similar device using the on-board Ethernet port. This high level of connectivity also allows for its full integration as an add-on module for a DE-4000 Next-Generation Safety Shutdown and Control System.

The AFR-500 system is suitable for use in Class I, Division 2, Group C and D hazardous areas.

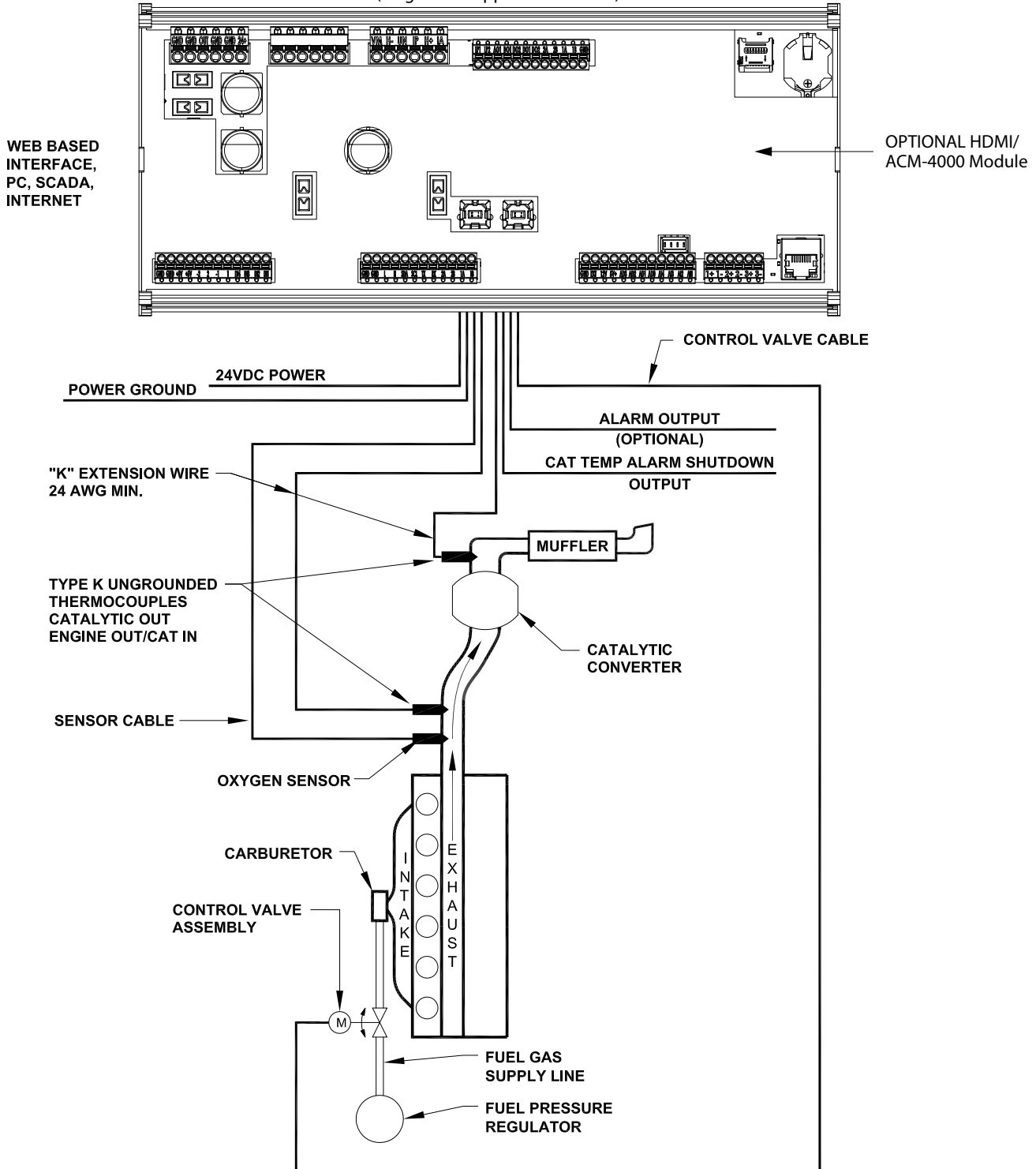


## System Configuration

The AFR-500 is easily setup in the field through the use of an integrated, web-based configuration tool. In taking this innovative approach, the user is empowered to easily install and adjust the operation of the device without the need for complex programming software or know-how. Key values such as target O<sub>2</sub> setpoint values and catalyst temperature safety shutdown levels are simply entered and adjusted. This same level of access also allows for comprehensive monitoring of the performance of the system and the associated application, including key parameter trending and datalogging.

### AFR-500 SYSTEM DIAGRAM

(Single bank application shown)



## To Order

AFR-500 Control Module .....	691790-1
Control Valve, 0.75" NPT Piston-Style Stepper, <250 HP.....	690153-1
Control Valve, 1.5" NPT Piston-Style Stepper, <250 HP.....	690154-5
Control Valve, 1.5" NPT Piston-Style Stepper, <500 HP.....	690154-2
Control Valve, 1.5" NPT Piston-Style Stepper, <1000 HP.....	690154-1
Control Valve, 1.0" NPT Butterfly-Style Stepper, <500 HP.....	690210-1
Control Valve, 2.0" NPT Butterfly-Style Stepper, <1000 HP.....	690220-1
Control Valve, 2.5" NPT Butterfly-Style Stepper, <1500 HP.....	690225-1
Control Valve, 3.0" NPT Butterfly-Style Stepper, <2000 HP.....	690230-1
Control Valve, 1.0" NPT Fuel Pressure Control, <500 HP.....	690318-1

### 691808-1 Wideband Sensor Accessory Kit

Wideband Oxygen Sensor.....	691806
Cable Assembly, Control Valve, 25 ft. ....	693005-1
Cable Assembly, Wideband Oxygen Sensor, 25 ft. ....	693226-1

### 691808-2 Wideband Sensor Accessory Kit

Wideband Oxygen Sensor.....	691806
Cable Assembly, Control Valve, 50 ft. ....	693005-2
Cable Assembly, Wideband Oxygen Sensor, 50 ft. ....	693226-2

### HDMI Display

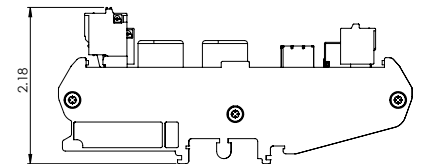
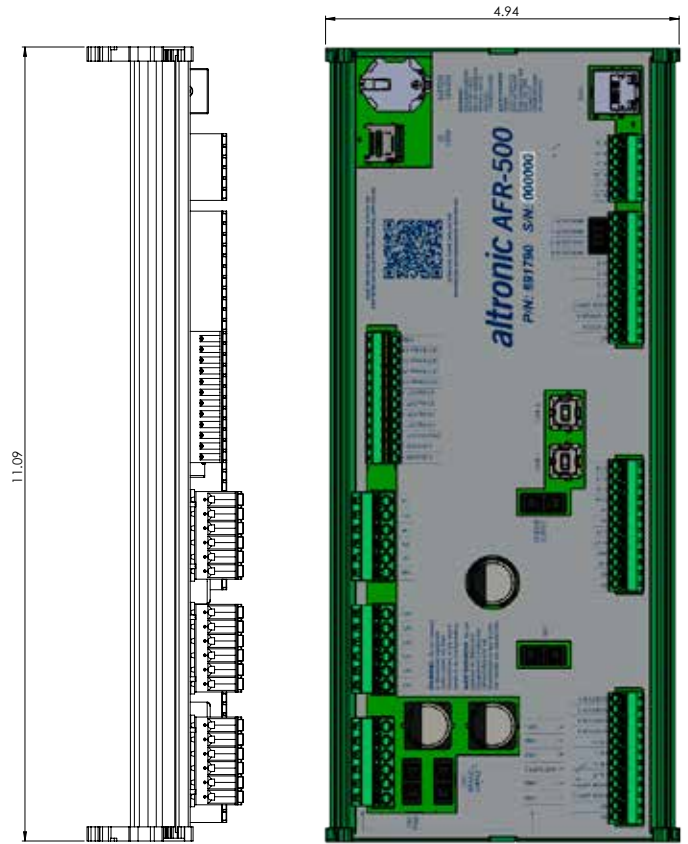
8" HMI Display, Environmental Enclosure.....	691767-8
15" HMI Display, Environmental Enclosure.....	691767-15
ACM-4000 Altronic Computer Module .....	691810-1

### STANDARD AFR-500 AIR/FUEL RATIO CONTROL PANELS

AFR-500 Panel, Single Regulator, 8" Display (DWG:0680-001) .....	1013-6378-00
AFR-500 Panel, Single Regulator, 15" Display (DWG:0680-003) .....	1013-6118-00
AFR-500 Panel, Dual Regulator, 8" Display (DWG:0680-002).....	1013-6379-00
AFR-500 Panel, Dual Regulator, 15" Display (DWG:0680-004).....	1013-6119-00

## Specifications

<b>INPUT</b> .....	Oxygen Sensor, Wideband (1) Analog, 4-20mA (4) Thermocouple, K-style (3)
<b>OUTPUT</b> .....	Actuator Output (Stepper or AGV/APR) (1) Discrete Output (2 High-Side, 2 Low-Side) (4) Analog, 4-20mA (2) Analog, 1-5V (1)
<b>COMMUNICATION</b> .....	Ethernet (1) CanBus (1) RS-485 (2)
<b>POWER REQUIREMENT</b> .....	24VDC, 5 Amps
<b>MOUNTING</b> .....	Back Panel - DIN Rail
<b>TEMPERATURE</b> .....	-4°F to 158°F / -20°C to 70°C



**altronic**

712 Trumbull Avenue, Girard, Ohio 44420  
 (330) 545-9768 / Fax: (330) 545-3231  
 Email: sales.altronic.girard@hoerbiger.com  
 Form AFR-500 5-22 ©2022 Altronic, LLC