

Combustion Management Systems

Main Features

- Micro Modulation Fuel/Air Ratio Control
- UV Flame Safeguard
- Burner Safety Control
- Gas Valve and Pressure Proving
- Precise Target Setpoint Control
- Fuel Flow Metering
- 3 Parameter Trim – O₂, CO₂, CO
- FGR Management Options
- Time Clock Facility
- Upgradable to operate with water level control module

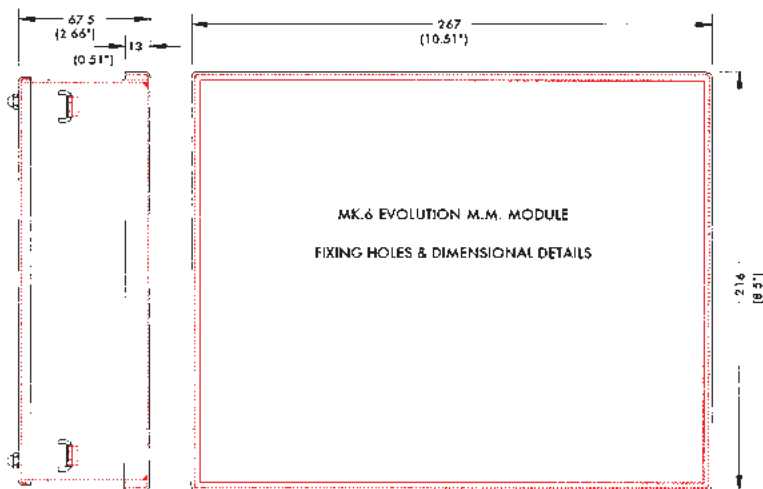
To ensure maximum efficiency in the operation of any boiler, two requirements are of paramount importance.

The first being that the air fuel ratio is kept at the minimum to ensure complete combustion within the limitations of the combustion head design and that these settings once arrived at, are infinitely repeatable to an incredibly high degree of accuracy.

The second requirement should be that the target temperature, or pressure of the boiler, is monitored by the combustion system and that at all times exactly the right amount of fuel and air is fired to achieve the target value.

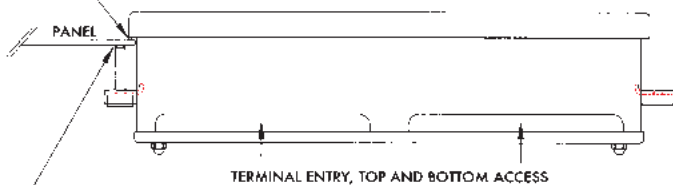
The inherent hysteresis of all mechanical systems that have traditionally involved cams and linkages to characterize the fuel/air ratio have made this sort of accuracy impossible. The accuracy of response of fuel input to the monitored target temperature/pressure of the boiler has meant that the target set by the operator has at most times been exceeded or fallen short of. AutoFlame Engineering was the first in the world to develop a system that overcomes all these problems by utilizing the latest micro processor technology.

The Micro Modulation System provides an easily programmable and flexible means of optimizing combustion quality throughout the load requirement range of the boiler/burner unit while ensuring the temperature is accurate to within 2°F (1°C) and pressure to within 1.5 psi. The positioning accuracy of the direct drive motors controlling the air damper and fuel valve is 0.1° angular at any position in the load range. At the heart of the system is the control module which contains the micro computer and power supply. The front panel of the control module features touch sensitive key pad entry data and a 1/4 VGA graphics display.



— IP65 RUBBER SEAL

CUT OUT REQUIREMENTS:
HEIGHT=210 (8.27") WIDTH=261 (10.28")
MINIMUM DEPTH REQUIREMENT=60 (2.36")



M.M. UNIT CLAMPED TO REAR OF ENCLOSURE USING
4 X M5 SCREWS, THREAD LENGTH 35mm



MECHANICAL SERVICES, INC.

mechanicalservices.com

Peripherals:



Positioning Servomotors



Load Detectors



Flame Scanners



Pressure Sensors



Infrared Upload/Download



Mk6 Evolution M.M. Features & Benefits

Micro Modulation Fuel/Air Ratio Control

Independently controlled fuel and air positioning motors with an accuracy of 0.1° of an angular degree • 4 separate fuel curves • 4 channels dedicated to Servo motors • 2 channels dedicated to variable speed drives • Selectable trim channel (damper or vsd) • 1/4" VGA display • Error diagnostic codes displayed • Single point change facility for commissioned fuel/air ratio • User definable optimum ignition position • FGR Management, delay from start-up to enable FGR until flue gas temp., boiler setpoint or time delay achieved

Exhaust Gas Analysis

CO₂, O₂, CO trim, NO, SO₂ continuous monitoring and display • User definable combustion limits on all Exhaust gas values • Exhaust, ambient temperature and ΔT displayed • Combustion efficiency calculation - net or gross displayed

Burner Control Box Functions

Full flame supervision with UV self-check for continuous operation, patented self adaptive UV amplification • Burner Control Functions with user configurable timings • Gas valve proving system with on-line pressure supervision • Oil pressure monitoring and display with limit checks • Air windbox pressure proving - display and supervision • Lockout history of last 16 incidents with date, time, function & reset • Burner Control Functions (Flame safeguard) selectable

Setpoint control features

Internal 3 term PID control to required setpoint for both pressure and temperature • Software adjustable thermostat/pressure stat. facility • Second setpoint user adjustable • Time clock facility • Outside temperature compensation of boiler setpoint, with night set back facility • Intelligent Boiler Sequencing for both steam & hot water • Intelligent Boiler Sequencing for low pressure steam • Fuel Flow Metering - instantaneous and totalized • Hand/Auto/Low flame hold facilities • 4-20 mA input for external load control • 4-20 mA output of firing rate • Twin burner control capability

User Features

Password protection, user configurable options and parameters • IR coms port for upload/download of commissioned data and operating history • All systems data exports via gateway (Modbus/Metasys) • Internal calendar clock display and logging functions • Proximity Sensor Screen Saver

Specifications

120/230V, 50/60 Hz switchable standard operation • IP65/NEMA 4 enclosure with panel facia mounting • Manufactured under ISO9001, Year 2000 compliant • All inputs and outputs fully self checked (continuous operation)

Patents Applied for/Granted:

GB02138610, 1317356, 02169726, 00195866, 09/234,391 PCT/GB97/02010, 9715898.4, 9715899.2, 9715900.8



MECHANICAL SERVICES, INC.

mechanicalservices.com

Portland 774-1531 • Bangor 947-6250 • Easton 488-6112 • Augusta 626-0822
Heating • Air Conditioning • Ventilation • Systems Cleaning • Energy Controls