

# EM500 SERIES

## FOR ELECTRONICALLY GOVERNED ENGINES

### DESCRIPTION

The EM500 Series is a very flexible platform for diesel engine control and monitoring, featuring LOFA's powerful First Fault Diagnostics (FFD). After pinpointing the initial failure, FFD stores it in memory and alerts the end user via a single bright LED. FFD monitors battery charge, low oil pressure, high temperature, two additional engine faults and diagnostic blink code. The microprocessor-based solid-state design uses high power semiconductors instead of outdated electromechanical relays to ensure reliable and reliable high current switching.

The integral throttle control works with most electronic engines by offering programmable choice of voltage, Pulse Width Modulation (PWM) or CANbus throttle control. A single momentary toggle switch adjusts the throttle with programmable throttle ramp time and engine speed limits. When teamed with LOFA's MSS200 Auto-Start Module, the EM500's flexible throttle control makes an ideal auto-start control system. Alternately, the EM500 can be programmed to operate in dual-speed mode via a toggle switch or external input.

Standard VDO Cockpit International analog gauges display current operating parameters reported by the ECU, including RPM, engine temperature and oil pressure. Additional gauges can be installed for engine oil temperature or other ECU parameters. With the addition of the optional Diagnostic Program Gauge (DPG), virtually any SAE J1939 parameter or diagnostic code can be monitored.

The Diagnostic Program Gauge (DPG) features a backlit LCD display with three push buttons in a 2" gauge. Additionally, three bright LEDs indicate Preheat, Service Due and Auxiliary input. The LCD is clearly readable in both bright sunlight as well as total darkness. The DPG allows each system to be field programmed to suit the customer's unique requirements. After programming, the DPG can be removed in cost-sensitive applications.

Some of the EM500 Series programmable features include:

- Engine brand (Caterpillar, Deutz, John Deere, Perkins, etc.)
- Throttle type (Voltage, PWM or CANbus)
- High idle speed
- Throttle ramp time
- Charge indication mode (lamp input or system voltage)



Pictured Above: EM500

The standard system terminates to a sealed Deutsch weatherproof plug. This wiring solution offers a robust connection that performs well in harsh environments and allows simplified installation. The design allows efficiently installing custom plug-and-play engine wiring harnesses as well as standard harness extensions.



## FEATURES AND BENEFITS

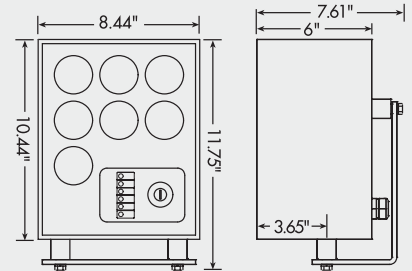
- Engine monitoring and diagnostics via First-Fault Diagnostics (FFD) for battery charge, low oil pressure, high temperature, two additional engine faults and diagnostic blink code
- Ultra-bright LEDs display First-Fault Diagnostics (FFD) - highly visible in direct sunlight
- Integral programmable throttle via momentary toggle switch for voltage, PWM or CANbus throttle
- VDO Cockpit International gauges - world-class instruments set the industry standard for quality and reliability
- Heavy-duty IP 64 water-resistant key switch with booted key capable of up to 75A @ 12V
- Optional flip-down key switch cover available for wash-down when booted key is removed
- Preheat indication on the optional DPG
- Heavy-duty powder-coated Aluflex™ aluminum enclosure with integrated isolation mounting designed to withstand the most extreme industrial applications
- Versatile design enables customization to each customer's specific application
- Output for external engine running or blink code indicator
- Optional lockable vandal-protection door which can be easily installed in the field
- Simple plug-and-play installation customized to the specific application allows rapid equipment completion

## SPECIFICATIONS

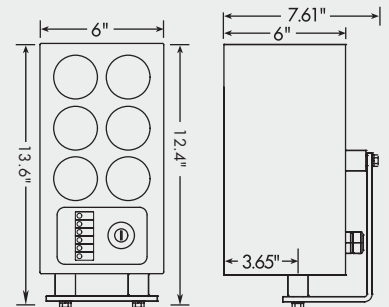
- Standby current: 50 mA @ 12 VDC, 80 mA @ 24 VDC
- Operating temperature: -40° to 185° F (-40° to 85° C)
- Key Switch: 75 A for 1 second (5% duty cycle)/18 A continuous @ 12V; 25,000 mechanical cycles)
- Optional 24V model available
- Reverse polarity protection
- 2-year limited warranty

## DIMENSIONS

EM500 G7  
Seven Gauge Openings



EM500 G6  
Six Gauge Openings



### Solid State Inputs/Outputs

- SAE J1939 Bus (CANbus 1.0 thru 2.0B)
- Auxiliary Switch Input
- Analog (4-20 mA) Input
- Throttle Output (Voltage, PWM or CANbus)
- ECU Control Output (2 A continuous)
- Starter Solenoid Output
- Error/Engine Run Output (2 A continuous)
- Switched Battery Output (Fused, 15 A continuous)
- Preheat Indication Input (ground or battery active)
- Warning Lamp Input
- Battery Charge Indication/Alternator Excitation (3 A continuous output)