LMR PLUS Diesel PLUS

World Class Manufacturer of Fire Pump Controllers

EATON
Powering Business Worldwide

World Class Quality

When there's a call to start a fire pump in an emergency situation, you need a fire pump controller that you can count on to start every time, without fail-because life safety depends on it. Eaton's fire pump controllers are designed and manufactured in accordance with the strictest fire protection, electrical and insurance codes in the world, thereby ensuring they meet or exceed all required standards.

Our in house engineering, design, fabrication, powder paint and electrical / mechanical assembly departments allow us to achieve world class quality while remaining flexible and responsive to customer needs. Since the majority of internal fire pump controller components are manufactured by Eaton, consistency of design is assured.

Eaton fire pump controllers are microprocessor based and are available in both Electric and Diesel Engine models. Electric controllers are available as Full or Limited Service units, and can be supplied with an integral or stand alone Automatic Transfer Switch. Diesel Engine controllers are available with an Input range from 90-240VAC - autodetect, and Output of 12 or 24VDC - DIP switch selectable.

World Class Support and Service

Deciding to use one of Eaton's fire pump controllers, ensures that you'll receive World Class support and service.

When your order is received, our team of support specialists ensure all details are verified as correct before proceeding and processing your order.

In order to meet customer requested delivery dates, orders are entered into our production system and are electronically scheduled and tracked throughout the production cycle.

We also believe that customer training is one of the cornerstones of success. Technical, hands-on training is available at our manufacturing facility or on site, if required. As well, product engineering seminars are held on a regular basis, and can be arranged by contacting your local Eaton fire pump controller representative.

As a global supplier of fire pump controllers, we are constantly striving to improve our local field support network by adding key, industry specific representatives in strategic markets. All of our representatives are factory trained and attend regular technical upgrading sessions.

FD120 Diesel Engine Controller

The DIESEL Plus Fire Pump Controllers from Eaton Corporation are designed to control and monitor 12 or 24 volt, diesel fire pump engines and are among the most technically advanced diesel engine controllers available.

They are an enhanced version of the original microprocessor-based, FD100 Series of diesel engine controllers. Programming is straightforward due to the use of the core firmware and menu structure utilized in the LMR Plus Series of electric controllers.

The use of an embedded web page for retrieving diagnostics and history reports, along with USB and Ethernet communication ports for downloading data, make the Diesel Plus Series of controllers easy to troubleshoot and maintain. As well, critical information can be easily accessed and used for report generation and analysis, which aids in providing effective, reliable fire protection.

DIESEL PLUS CONTROLLERS

Features

DUAL OUTPUT
12 or 24Vdc outputs
DIP Switch Selectable
UNIVERSAL SUPPLY VOLTAGE
Supply Voltage Range: 90Vac to 240Vac
COMPACT SIZE
W: 19 inches D: 10.5 inches
H: 33 inches Feet: 18 Inches
MODE SELECTOR
Manual-Off-Auto Selector Switch
Front Panel Mounted behind a Breakable Glass Cover
KEYPAD/LCD DISPLAY
Front Panel Accessible
Backlit, 4x40 Character LCD
EMBEDDED WEB PAGES
View Current Status, Set Points, Diagnostics and History
Access Pages via Ethernet

Engine Board

INCOMING POWER TERMINALS
Connect 120/220V Power Wires
LINE FILTER
Reduces/Eliminates Incoming Voltage Transients
AC POWER DISCONNECT BREAKER
Switch AC Power On or OFF
Illuminates When Energized
CIRCUIT BREAKERS
CB1: Battery #1 Breaker
CB2: Battery #2 Breaker
LED's Illuminate When Energized
OUTPUT RELAYS
Control Relay 7: Fuel Stop
Control Relay 8: Crank Battery #1
Control Relay 9: Crank Battery #2
LED's Indicate Coil Status
30A Trace on the Circuit Board

Communication

Canbus
The controller can communicate with the diesel engine electronic control module (ECM) and log key engine data via the Canbus (SAE J1939) engine port.
USB
The USB port is used to download the controller message history, statistics, diagnostics, status and configuration data to a USB disk drive. The USB port can also be used to upload custom messages, additional languages, and update the microprocessor firmware.
Ethernet
An external computer can communicate with the Diesel Plus controller via Ethernet.
Modbus
The Diesel Plus fire pump controllers communicate to systems using the Regular level of Modbus (includes both RTU and ASCII transmission modes). Communication settings are user configurable through the Diesel Plus configuration menu.

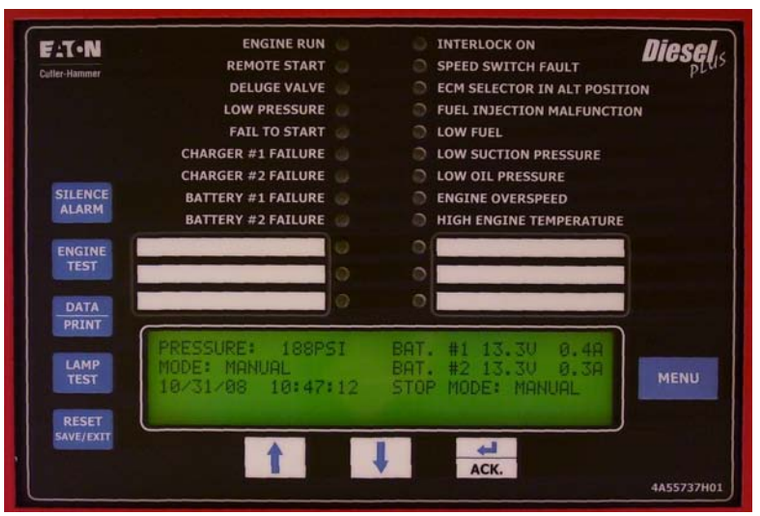
Power I/O Board

Provides Power to Display Board
Accepts Customer Inputs
Houses 6 Control Relays
Accepts Optional Relay Output Boards

Battery Chargers

Dual 10Amp, Current Limiting, Solid State Battery Chargers
Input Voltage Range: 90-240Vac
Output Voltage Range: 12-24Vdc

Approvals:



LMR Plus Electric Controllers

The LMR Plus Series of Electric Fire Pump Controllers represent the next step in fire protection from EATON.

These state of the art controllers are an enhanced version of the original microprocessor-based, LMR Series. Programming remains straightforward due to the retention of the core firmware and menu structure present in previous models.

The use of an embedded web page for retrieving diagnostics and history reports, along with USB and Ethernet communication ports for downloading data, make the LMR Plus Series of controllers easy to troubleshoot and maintain. As well, critical information can be easily accessed and used for report generation and analysis, which aids in providing effective, reliable fire protection.

All LMR Plus controllers can be programmed for either fully automatic or semi automatic operation.

Power I/O Board

True RMS Reading

Incoming line voltage is run directly to the I/O board from the incoming lines. The I/O board measures the incoming voltages and provides the information to the logic board. True RMS voltage readings are displayed on the LCD Display.

Customer Connection Terminals

Connection terminals for external customer connections, are located on the top of the Power I/O board.

Output Relays

Seven socket mount, 8 Amp, 2 Form-C (DPDT) output relays are provided standard on each power I/O board. They are designated for: Common Alarm, Phase Failure, Phase Reversal, Pump Run, Startup, Acceleration and Future #1. Each socket has an LED mounted on the I/O board which indicates each relay's coil status.

Optional Output Relay Boards

There is provision to add up to eight additional relay outputs, via optional relay output boards. Each board contains a maximum of 2 additional relays. The Power I/O Board will accept a maximum of 4 optional boards which mount in a snap-on configuration. Each board provides an area for the user to label the terminal number and relay name.

Programming Menu

The LMR Plus programming menu is divided into 8 different sub-menus. Each sub-menu contains information relative to it's particular function.

Language

The language sub-menu allows the user to select English, French, Spanish or Other languages to be viewed on the LCD Display. Several other languages can be uploaded into the controller.

Regional

Regional settings include the ability to program the date by adjusting the Month, Day, Year and Day of Week. As well, the Current Time can be adjusted on the 24 hour clock.

Pressure

A variety of pressure settings can be programmed in the pressure sub-menu. These settings include disabling the pressure sensor; setting of the start point, stop point, low pressure alarm, high pressure alarm, stop mode, proof pressure switch (for foam units), low suction shutdown (low foam interlock), pressure deviation and hourly pressure recording.

Timers

Timers in the LMR Plus that can be programmed include:
Run Period Timer (RPT)
RPT Start Mode
Acceleration Timer (AT)
Weekly Test Timer
Fail to Start Timer (FST)
Sequential Start Timer (SST)

Main Menu Password

A password can be programmed by the user to protect access to the Main Menu.

Alarm Set Points

There are five settable alarm points that can be programmed by the user. They include:
Phase Rotation
Over Voltage (OV)
Under Voltage (UV)
Over Frequency (OF)
Under Frequency (UF)

Custom Inputs / Outputs

There is provision on the Power I/O Board to accept up to 9 additional inputs and 9 additional outputs. Each of the inputs can be labeled using one of 11 pre-set input descriptions or assigned a custom description that is programmed by the user. The optional outputs can be programmed to indicate up to 25 output conditions. As well, two optional alarm LED's can be programmed for up to 12 alarm conditions.
All optional inputs, outputs and LED's can be linked, as required. Inputs can be programmed to energize the common alarm output, link to relays and optional LED's and latch until reset by the user. Outputs can be programmed for fail safe and latch until reset by the user. Optional inputs and outputs can be programmed with time delay functions.

System Configuration Menu

The system configuration menu section is password protected and contains settings such as system voltage, frequency, CT ratio etc.

Drain Valve Solenoid

All LMR Plus electric controllers are equipped with a drain valve solenoid used for weekly test purposes.

Membrane Keypad

The membrane keypad mounts on the inside of the front door of the controller. Access for programming is provided through a panel cutout.

NEMA Rating

The standard membrane keypad is rated for NEMA 2, 3R, 4, 4X and 12.

Alarm & Status LED's

A total of 20, (10 Status - 10 Alarm) LED's provide indication on the membrane keypad.

USB External Drive

Message history, statistics, diagnostics and system status can be uploaded from the LMR Plus controller to an external USB drive. The information can then be transferred and viewed on an external computer. As well, the USB drive can be used to transfer externally created custom messages into the controller.

Embedded Webpage

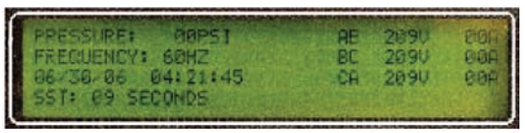
The embedded webpage is a multifunction tool that will allow the user to view the current status of the controller as well as display all current readings, set points, and history. An external computer can be connected via Ethernet port to access the page.

LCD Display

The Logic Control Board contains a 4 Line by 40 Characters wide, backlit, LCD display which is capable of generating multiple languages.

Standard language selection includes English, French or Spanish. Additional languages are available. (Contact factory for availability).

The display will show the current system pressure, time and date, voltage and amps reading for all three phases, the system frequency and any custom messages, alarms or timers.



FT SERIES TRANSFER SWITCH CONTROLLER WITH ATC-300 MICROPROCESSOR

FT Series Transfer Switch Controller with ATC-300 Microprocessor

The automatic transfer switch option may be added to any FD electric type fire pump controller whenever automatic transfer from normal to alternate power is required.

All Eaton FT Series controllers are in compliance with Arrangement I "Combination Fire Pump Controller and Power Transfer Switch" per NFPA 20 – 2010 Edition.

All approved electric motor driven fire pump controllers combined with an automatic power transfer switch shall have an isolation switch and circuit breaker on the emergency/alternate power side for all power supply configurations, regardless of generator size.

The primary function of the ATC-300 controller is to accurately monitor two power sources and provide the necessary intelligence to operate the transfer switch in an appropriate and timely manner.

It is a compact, door mounted unit, which is accessible through the front door of the fire pump controller and includes an enhanced membrane/keypad with backlit LCD Display. As well as several other functional improvements, the ATC-300 monitors phase loss/reversal and can be programmed to perform an engine test.

The automatic transfer switch is housed in a barriered compartment within the fire pump controller enclosure.

Jockey Pump Controllers
Remote Alarm Panels
Residential Controllers

FDJP – Across-the-Line JOCKEY PUMP CONTROLLERS

The FDJP Jockey Pump Controllers operate Across-the-Line. Full voltage is applied to the motor for starting by the use of a single motor starter. Starting inrush current is approximately 600% of rated full load amperes.

FDJP Standard Features

- Enclosure: NEMA 2
- Dual Set Point Pressure Switch
- Industrial Oil-Tight Pilot Devices
- Circuit Breaker Disconnect
- Magnetic Motor Starter with Adjustable Overload
- Hand-Off-Auto Selector Switch
- One N.O. Auxilliary Contact - Standard on units up to 7.5HP at 480V

Optional

- Elapsed Time Meter
- Run Period Timer
- Pressure, Voltage & Current Display
- Sequential Start Timer
- Additional Output Relay
- Phase Failure & Phase Reversal Outputs
- Power On Indication

Approvals: cULus, SP, N. Y. C. APPROVED

FDJY – WYE-DELTA (Star-Delta) JOCKEY PUMP CONTROLLERS

When six or twelve-lead delta connected jockey pump motors are started wye (star) connected, approximately 58% of line voltage is applied to each winding. The motor develops 33% of full-voltage starting torque and draws 33% of normal locked-rotor current from the line. After a 2 second time delay (during which the motor accelerates), it is reconnected for normal operation.

FDJY Standard Features

- Enclosure: NEMA 2
- Dual Set Point Pressure Switch
- Industrial Oil-Tight Pilot Devices
- Circuit Breaker Disconnect
- Magnetic Motor Starter with Adjustable Overload
- Hand-Off-Auto Selector Switch
- One N.O. Auxilliary Contact - Standard on units up to 7.5HP at 480V

Optional

- Elapsed Time Meter
- Run Period Timer
- Pressure, Voltage & Current Display
- Sequential Start Timer
- Additional Output Relay
- Phase Failure & Phase Reversal Outputs
- Power On Indication

Approvals: cULus, SP, N. Y. C. APPROVED

DFDAP-M / FDAP-M REMOTE ALARM PANELS

The DFDAP-M Diesel and FDAP-M Electric Remote Alarm Panels are microprocessor based units, and accept both normal and supervisory (backup) supply voltages from 110 to 240Vac, 50/60Hz.

Each unit comes equipped with eight user selectable alarm inputs and two 8A/250VAC outputs.

All models feature a lamp test button, which simultaneously tests all LED's.

DFDAP-M / FDAP-M Standard Features

- Enclosure: NEMA 1
- 2 Programmable Alarm Outputs
- Lamp Test Button
- Accepts 110-240V - 50 / 60HZ
- User Selectable Alarm Inputs
- Normal Power ON Indication
- Supervisory Power ON Indication
- Audible Alarm

Approvals: cULus, SP, N. Y. C. APPROVED

FDR RESIDENTIAL CONTROLLERS

The FDR Residential Fire Pump controllers work in conjunction with single phase, electric, residential fire pumps and packages. They are designed to provide fire protection for single and multiple residences.

Available as a Simplex or Duplex unit, all controllers are UL listed and meet or exceed NEMA requirements.

FDR Standard Features

- Enclosure: NEMA 2
- Dual Set Point Pressure Switch
- Run Period Timer
- Emergency Start Operator
- Industrial Oil-Tight Pilot Devices
- Power On Indication

Standard on Duplex Controllers

- Sequential Start Timer

Optional

- Elapsed Time Meter
- Weekly Test Timer
- Additional Output Relay

Approvals: cULus, SP, N. Y. C. APPROVED

Pump Controllers

BPC – BOOSTER PUMP CONTROLLERS

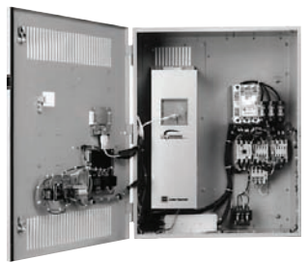
Eaton's Cutler-Hammer custom Pump Controllers are designed for use in a variety of Industrial, Commercial and Municipal pumping applications from simplex and duplex sequencing operations, to waste water and sewage treatment installations. All models are designed in-house by our technical support specialists who will design from your existing specifications or work with you to deliver a custom engineered solution for your application.

BPC Standard Features

NEMA Rated Starters and Pilot Devices
Enclosures – NEMA 1,2,3R,4,4X,12
Eaton Cutler-Hammer Breakers
Approvals: cULus CSA

Several options are available – consult factory.

BPV – VARIABLE SPEED BOOSTER



Eaton's Cutler-Hammer Variable Speed Booster Pump controllers are designed for use in Industrial, Commercial and Municipal booster pumping applications where a specific and accurate pressure is desired, but is difficult to achieve due to fluctuations in the supplied water pressure.

The BPV controller incorporates the Eaton SV9000 variable frequency drive, which comes with a selectable application program that has been designed specifically for pump applications.

The Pump application can be used to control single or multiple pumps. Controlling the speed of one pump while automatically starting and/or stopping up to three other pumps is possible. The PI control application is used to regulate the speed of the controlled pump.

BPV Standard Features

NEMA Rated Starters and Pilot Devices
Enclosures – NEMA 12 standard
Eaton Cutler-Hammer Breakers

SV9000

Flux Vector Control
Expansion I/O Cards
Network Communications – RS232
Remote Mount Control Panel
Approvals: cULus CSA

Eaton's Electrical Sector is a global leader in power distribution, power quality, control and automation, and monitoring products. When combined with Eaton's full-scale engineering services, these products provide customer-driven PowerChain Management® solutions to serve the power system needs of the data center, industrial, institutional, public sector, utility, commercial, residential, IT, mission critical, alternative energy and OEM markets worldwide.

PowerChain Management solutions help enterprises achieve sustainable and competitive advantages through proactive management of the power system as a strategic, integrated asset throughout its life cycle, resulting in enhanced safety, greater reliability and energy efficiency. For more information on Eaton's Fire Pump Controllers, visit www.chfire.com.

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Eaton
10725 - 25th Street NE #124
Calgary, Alberta, Canada
T3N 0A4
Phone: +1-403-717-2000
Fax: +1-403-717-0567
email: chcfirepump@eaton.com
www.chfire.com

FSC