

MASTER

Pride in Workmanship Worldwide — Made in America

G4 Innovation



MC Series ELECTRIC FIRE PUMP CONTROLLER

Reliable Property Protection



G4 Interface that improves performance



HMI Special Features Included

- Simultaneous display of 3 phase voltages and currents, System Pressure, Start/Reset, Manual/Auto, and Weekly/Monthly testing
- Starting sequence displayed
- Setup assistant
- Setup summary screen
- Start setting with auto 10 PSI increment for Reset setting
- Automatic weekly or monthly testing
- Transducer testing during weekly or monthly testing
- Remote alarm contact testing
- Alarm silence with auto re-sound
- Instant conversion from PSI to BAR for pressure settings
- Multiple passwords levels

Standards and Approvals

Controllers are designed to the requirements of NFPA 20, Underwriters Laboratories, and Factory Mutual Approvals.

Controller Special Features Included

- 4.3 inch color touch screen HMI display
- Data Recorder tracks 48 digital and 11 analog signals and outputs CSV file to USB adapter
- Waterproof USB adapter on outside



- PhaseSmart single phase protection in accordance with NFPA 20
- 3 second restart time delay
- HMI not needed for controller operation
- No water connections inside enclosure
- Protective bracket for external transducer
- Y-strainer to protect test valve solenoid
- 50 C ambient temperature rating



Standard Features

- Sequence start
- Remote/Deluge Start – normally closed
- Automatic stop
- Auto test valve solenoid
- Manual pressure drop test button
- High Zone delayed start
- Manual, Non-automatic operation
- Lockout when authorized by the AHJ
- 22mm mechanical Start/Stop pushbuttons
- Motherboard in steel chassis with latched connectors
- DC circuit breaker shunt trip
- Mechanical and electrical interlocks on MCO, MCY, and MCT models
- NEMA type 2 red enclosure with external wet parts. Eliminates any chance of water spray on electrical parts.



100,000 Short Circuit Current rating

Controllers are short circuit current rated for 100,000 amps @ 200–480 vac and 22,000 @ 600 vac. If a transfer switch is provided, these ratings also apply to the Emergency side.

Visual and Audible Alarms

- AC Failure
 - CB Trip (requires SP1 or SP2)
 - Failure to Start
 - Load Shed
 - Lockout
 - Low Discharge Pressure
 - Low Suction Pressure (83LT)
 - Low Zone Start (On Demand)
 - Phase Reversal
 - PhaseSmart
 - Pump House Trouble Alarms 1-8 (POC)
 - Pump Running
 - Single Phase Running
 - Transducer Failure
- On transfer switch controllers:
- Normal Position
 - Normal Power Available
 - Emergency Position
 - Emergency Power Available
 - Emergency CB Open

Voltage Free Remote Contacts

- Pump Running (2 sets)
 - AC Failure
 - Phase Reversal
 - System Trouble
 - Low Zone start (On Demand)
- On transfer switch controllers:
- Normal Position
 - Emergency Position
 - Emergency CB Open
 - Generator Start

Highlighted Modification Codes

POC — Programmable Option Chassis – Provides 8 programmable inputs and 8 programmable relay outputs. Contacts rated 6 amps at 30 vdc, 6 amps at 250 vac. UL pilot duty ratings R300 and B300.

SIS — Separate Isolating Switch - Provides the Isolating Switch in a separate bolted compartment attached to the controller. Reduces arc flash to only 0.5 calories/cm² measured with the door open.

Motor Starting for Every Application

Whether it's across-the-line for best economy, primary reactor for best value, soft start for smooth ramp starting, or other types, Master offers the motor starting type that's just right for your application.

Combination Transfer Switch Controllers

Transfer switch controllers are built in accordance with NFPA 20 as a combination fire pump controller and transfer switch. To select, just add a "T" to the basic model number. For example, a Primary Reactor transfer switch controllers is a model MCRT.

Model Number Construction – Fire Pump Controllers and Transfer Switch Controllers

MCR or MCRT		60	46	XG4, POC, 12
Basic Model		Horsepower	Voltage*	Modifications
MCA or MCAT:	Across-the-Line	15,20,25,30	20 = 200v, 60 hz	See List of Modification Codes
MCP or MCPT:	Part Winding	40,50,60,75	21 = 208v, 60 hz	
MCR or MCRT:	Primary Reactor	100,125,150	23 = 230-240v, 60 hz	
MCO or MCOT:	Wye-Delta Open	200,250,300	38 = 380-400v, 50 hz	
MCY or MCYT:	Wye-Delta Closed	350, 400	39 = 380-400v, 60 hz	
MCS or MCST:	Soft Start		41 = 415v, 50 hz	
MCT or MCTT:	Autotransformer		46 = 460-480v, 60 hz 57 = 575-600v, 60 hz	

*Horsepowers are not available at all voltages

G4 Innovation – Modification Codes

- FC** – Foam Controller
- LPM** – Leading Phase Monitor
- POC** – Programmable Option Chassis – Provides 8 programmable inputs and 8 programmable relay outputs. Contacts rated 6 amps at 30 vdc, 6 amps at 250 vac. UL pilot duty ratings R300 and B300.
Relays can be programmed for any of the following:
AC Failure, AC Volts Low, CB Trip, Fail to Start, Load Shed, Lockout, Low Discharge Pressure, Low Suction Pressure, Low Zone Start (On Demand), Motor Overload, Over Pressure, Phase Reversal, PhaseSmart Pump House Trouble Alarms 1-8, Pump Run, Single Phase Running, Transducer Failure, Tsw Normal, Tsw Normal Available, Tsw Emergency, Tsw Emergency Available, Emergency CB Open.
- SIS** – Separate Isolating Switch attached to controller
- SP1** – Supervisory Power input – Provides 120 vac, 50/60 hz transformer to completely power control circuits even if the Circuit Breaker is Off. Includes Supervisory Power Fail start (when enabled).
- SP2** – Supervisory Power input – Provides 240 vac, 50/60 hz transformer to completely power control circuits even if the Circuit Breaker is Off. Includes Supervisory Power Fail start (when enabled).
- 12** – NEMA Type 12 dusttight enclosure
- 3R** – NEMA Type 3R raintight enclosure
- 4** – NEMA type 4 watertight enclosure
- 4XB** – NEMA type 4X, 304 ss watertight enclosure
- 4XC** – NEMA type 4X, 316 ss watertight enclosure
- 8E** – CE declaration for European Community
- 15** – 300 PSI, 316 ss pressure transducer, test valve solenoid, and wet parts
- 15A** – 300 PSI, 300 series ss pressure transducer, test valve solenoid, and wet parts.
- 16A** – 500 PSI, pressure transducer, test valve solenoid, and wet parts.
- 19** – Space heater
- 20** – Space heater with thermostat
- 20A** – Space heater with humidistat
- 27** – 200,000 amp emergency short circuit current rating
- 32** – Low pump room temperature switch (requires option POC)
- 33** – Auxiliary power output – (1 amp at 120 vac)
- 48F** – Modbus TCP/IP ethernet port on HMI
- 82H** – 5.7 inch, 64k color, HMI
- 83LT** – Low suction transducer and wet parts externally mounted under protective bracket.
- 200** – 200,000 amp normal short circuit current rating

Shipping Information

Model	Weight Range	Enclosure
MCA, MCP, MCO	270 lbs - 395 lbs (123 kg - 180 kg)	Single Door
MCR, MCT	430 lbs - 900 lbs (195 kg - 409 kg)	Double Door
MCY, MCO	440 lbs - 660 lbs (200 kg - 300 kg)	Double Door
MCS	480 lbs - 675 lbs (218 kg - 307 kg)	Double Door
MC*T	640 lbs - 1300 lbs (291 kg - 591 kg)	Transfer Switch

Note: Weight varies depending on the units horsepower and voltage ratings.

Ordering Information

When ordering a MASTER electric fire pump controller, be sure to specify the following to ensure prompt order entry and delivery:

- Complete MASTER model number
- Motor horsepower
- Motor rated voltage and frequency
- Withstand rating
- Optional equipment
- Special modifications



MASTER CONTROL SYSTEMS

910 North Shore Drive
 Lake Bluff, IL 60044-2295
 847-295-1010 FAX: 847-295-0704
www.mastercontrols.com