

MASTER

SERIES EC

FIRE PUMP CONTROLLERS

TRANSFER SWITCH CONTROLLERS

MASTER CONTROL SYSTEMS, INC

ENHANCED

G4 Innovation



Made in America

EC Series enhances G4 performance

- NEMA, type 12, dusttight enclosure
- 5.7 inch color touch screen HMI display
- Modbus TCP/IP over Ethernet
- Waterproof adapter for Ethernet connection
- 8 programmable remote alarm relays
- 8 programmable Pump House Trouble inputs
- Conformal coating on all printed circuit boards
- Lightning guarantee
- 5 year warranty on the entire controller



HMI Special Features

- 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
- Annual testing reminder
- Service contact information displayed
- Alarm silence with auto re-sound
- Instant conversion from PSI to BAR for pressure settings
- Multiple passwords levels

Controller Special Features

- 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
- 30mm mechanical Start/Stop pushbuttons
- Motherboard in steel chassis with latched connectors
- DC circuit breaker shunt trip
- Mechanical and electrical interlocks on ECO, ECY, and ECT models
- Vertically mounted Isolating Switch and Circuit Breaker for safe separation

Standards and Approvals

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

NEMA type 12 dusttight enclosure with external wet parts

Externally mounted transducer, test valve solenoid, and pressurized wet parts eliminate 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
- AC Volts Low
- CB Trip (requires SP1 or SP2)
- Failure to Start
- Load Shed
- Lockout
- Low Discharge Pressure
- Low Suction Pressure (83LT)
- Low Zone Start (On Demand)
- Motor Overload
- Overpressure
- Phase Reversal
- PhaseSmart
- Pump House Trouble Alarms 1–8
- 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

SIS—Separate Isolation Switch - The controller's Isolating Switch is mounted in a separate enclosure attached directly to the side of the fire pump controller. The incident energy calorie rating is less than 0.5 cal/cm2

48E—Email notifications through ethernet. Monitors 8 alarms and notifies 8 different email addresses.

48J—External Remote Alarm connection box

Additional Voltage Free Remote Contacts

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 inputs, Pump Run, Single Phase Running, Transducer Failure, Tsw Normal, Tsw Normal Available, Tsw Emergency, Tsw Emergency Available, Emergency CB 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 ECRT.

Model Number Construction – Fire Pump Controllers and Transfer Switch Controllers

ECR or ECRT		60	46	XG4, 48J
Basic Model		Horsepower	Voltage*	Modifications
ECA or ECAT:	Across-the-Line	15,20,25,30	20 = 200v, 60 hz	See List of Modification Codes
ECP or ECPT:	Part Winding	40,50,60,75	21 = 208v, 60 hz	
ECR or ECRT:	Primary Reactor	100,125,150	23 = 230-240v, 60 hz	
ECO or ECOT:	Wye-Delta Open	200,250,300	38 = 380-400v, 50 hz	
ECY or ECYT:	Wye-Delta Closed	350, 400	39 = 380-400v, 60 hz	
ECS or ECST:	Soft Start		41 = 415v, 50 hz	
ECT or ECTT:	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
- SIS** – Separate Isolating Switch
- 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).
- 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
- 8C** – Bottom feed terminals
- 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
- 33** – Auxiliary power output – (1 amp at 120 vac)
- 48E** – Email notifications through ethernet. Monitors 8 alarms and notifies 8 different email addresses.
- 48J** – External alarm junction box (not with SIS)
- 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
ECA, ECP, ECO	270 lbs - 395 lbs (123 kg - 180 kg)	Single Door
ECR, ECT	430 lbs - 900 lbs (195 kg - 409 kg)	Double Door
ECY, ECO	440 lbs - 660 lbs (200 kg - 300 kg)	Double Door
ECS	480 lbs - 675 lbs (218 kg - 307 kg)	Double Door
EC*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

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