

ELKHART BRASS

Fire Fighting Equipment

24359000 Electric Operator Control Panel

For use with Model 8394053 SPIT-FIRE® Monitor
Installation, Operation, and Maintenance Instructions

Also Applicable to 24359001 and Similar Panels



98345000 REV. D

PRODUCT SAFETY



Important:

Before installing and operating this equipment, read & study this manual thoroughly. Proper installation is essential to safe operation. In addition, the following points should be adhered to in order to ensure the safety of equipment and personnel:

- All personnel who may be expected to operate this equipment must be thoroughly trained in its safe and proper use.
- Before flowing water from this device, check that all personnel (fire service and civilian) are clear of the stream path. Also confirm stream direction will not cause avoidable property damage.
- Become thoroughly familiar with the hydraulic characteristics of this equipment, and the pumping system used to supply it. To produce effective fire streams, operating personnel must be properly trained.
- Whenever possible, this equipment should be operated from a remote location to avoid exposing personnel to dangerous fire conditions.
- Always open and close valves supplying this equipment slowly, so that the piping fills with water slowly, thus preventing the possible occurrence of water hammer.
- After each use, and on a scheduled basis, inspect equipment per instructions in the maintenance section.
- Disconnect power prior to servicing controls.
- Any modifications to the electrical enclosure will destroy the NEMA 4 rating and void warranty coverage of the enclosure and all components within.
- All equipment must be installed in accordance with local codes (NFPA 70 or EN/IEC 60079-14) as appropriate and in areas where equipment classification is suitable.



WARNING: Do not attempt to disconnect or work on any electrical equipment in this system unless power is removed or the area is known to be non-hazardous.

SYSTEM INFORMATION:

SERIAL NUMBER: _____

DETAILS:

TABLE OF CONTENTS

I. OVERVIEW.....	4
II. INSTALLATION INSTRUCTIONS.....	5
A. Component Mounting	
B. Interconnecting and Wiring Control System	
C. OCP Fuse and Wiring	
III. SYSTEM CONFIGURATION INSTRUCTIONS.....	7
IV. SPECIFICATIONS.....	11
V. OPERATING INSTRUCTIONS.....	11
VI. MAINTENANCE.....	12
VII. TROUBLESHOOTING.....	12
VIII. MOUNTING DIMENSIONS.....	13
IX. SPARE PARTS DIAGRAM/LIST.....	14
X. ENGINEERING CHANGE REVISION EXPLANATIONS.....	14

*For our most up-to-date documentation and specifications, please visit our website at www.elkhartbrass.com

I OVERVIEW

The purpose of the Operator Control Panel (OCP) is to operate and control an Industrial Fire Monitor. The panel can be purchased in a variety of ways; Dual or Single operator control panel, the most common, or a Networked panel. A networked control panel is rarely recommended as it has no manual controls on it and requires another control device for operation. The panel set-up/programming procedure can be found in the Industrial Operator Control Panel Setup manual as all styles are programmed in the same manner. All panels have a selector switch for “Power On” along with a Red Indicator Light. Dual and single OCP’s will also have pushbuttons for “Park”, “Oscillate On/Off”, “Water Valve Open/Close”, and “Foam Valve Open/Close”, or “Aux. Device On/Off” on new panel designs. It includes a two position joystick to change the Nozzle from “Fog” (90° spray pattern) to “Straight” Stream (0° spray pattern), and a four position joystick to move the monitor “UP/DOWN/LEFT/RIGHT”. Only one directional movement can be achieved at a time. Indicator lights include “Power On”, “Oscillation On”, “Water Valve Opened”, “Foam Valve Opened”, “Aux. Device On”, and “Parked”.

OCP as Local Operator Control Panel (LOCP):

This box will be hardwired directly to one or more MMCP’s.

OCP as Remote Operator Control Panel (ROCP):

This panel is an Operator Control Panel with the exception that it is not connected directly to the MMCP. It will communicate to the LOCP through a network connection of either fiber optic or an Ethernet cable. Additional panels can be added to control specific monitors if desired through this same method. Joysticks and controls can operate any monitor on the system network.

OCP as Network Control Panel (NCP)

This box is different from the other two boxes in that it will have no manual pushbuttons, joysticks, or monitor function lights. It only contains the Power On/Off switch and the Power On indicator light much like that of the MMCP. This means that the monitors in the system are controlled from another external device.

Electrically Operated Master/Local/Network Control Panel (OCP) Features:

- **Construction** – Stainless Steel enclosure rated for Hazardous Location (Class 1, Division 2)
- **Compliance** – (NFPA 70) NEC: 2008, Article 501 – Class I, Groups “B, C, & D,” Division 2 & Article 505 – Class I, Zone 2, T3C requirements; UL Labeled.
- **Control Power** – On/Off 2-Position selector switch.
- **Pilot Lights** – “Power On”, “Parked”, “Oscillation On”, “Water Valve Open”, and “Aux. Device On” or “Foam Valve Open”.
- **Internal Power** – 24 VDC Power Supply for controls.
- **Controls** – NEMA 4 (IP-66) controls. Joystick controls for Monitor and Nozzle movement (UP, DOWN, LEFT, RIGHT, STRAIGHT STREAM, and FOG) and pushbutton controls for “Park”, “Oscillation ON/OFF”, “Water Valve OPEN/CLOSE”, and “Foam Valve OPEN/CLOSE or Aux. Device ON/OFF”.
- **Conduit Knockouts and Hubs** – Supplied by customer.



WARNING: Do not take cover off the Nozzle Motors. If cover is/has been removed, the warranty is void and the service life of the motor is significantly reduced.

II INSTALLATION INSTRUCTIONS

Component Mounting

Operator Control Panel (OCP) Installation

1. If used for a local control the single monitor panel should be mounted on a rigid stand approximately 3 to 4 feet (.91 to 1.22 m) above grade, so the operator can visually see the monitor and nozzle when operating controls.
2. The enclosure has four (4) mounting pads with .44" (11.18mm) diameter holes. Mounting hole centers are 18" (457.20mm) horizontal by 31 1/4" (793.75mm) vertical. Please refer to figure 5 on page 12 for dimensional drawing.
3. Use hubs and glands appropriate for the area classification they will be used in. Also, adhere to local code requirements for all electrical connections.

Interconnecting and Wiring Control System

Main Power to any style Operator Control Panel (OCP) or Networked Control Panel (NCP)

1. Install conduit from the main power distribution breaker box to Remote/Local/Network Control Panel.
2. Pull three (3) conductor cables for 1-phase supply (four (4) conductor cables for 3-phase supply), wire sized to supply a minimum of 600 VA. (For wiring information and sizing see OPC Fuse and Wiring section)

Local/Network Control Panel (OCP) to Monitor Motor Control Panel (MMCP)

1. Install conduit between OCP and MMCP.
2. A minimum of fourteen (14) conductors are required for the OCP. (For wiring information and sizing see OPC Fuse and Wiring section Figure 3)

Remote Operator Control Panel (ROCP) to Local/Network Control Panel

1. Install conduit from Remote Operator Control Panel to Local Operator Control Panel or Network Control Panel.
2. Install Multi-Mode Fiber Optic cable with SC connectors or Ethernet Cat5e or Cat6e cable. (See OPC Fuse and Wiring section Figure 4)



WARNING: Make sure panels are grounded according to area classification and company policy to assure panel code compliance.

OCP Fuse and Wiring Information

MAIN POWER FUSE CHART		
Main Power	F1	F2
110/120 VAC, 50/60 Hz.	FNQ-R-5	FNQ-R-5
240 VAC, 60 Hz.	FNQ-R-5	FNQ-R-5
220 VAC, 50 Hz.	FNQ-R-5	FNQ-R-5

Figure 1: OCP 1-Phase Fuse Chart

MAIN POWER FUSE CHART			
Main Power	F1	F2	F3
380 VAC, 50 Hz.	LP-CC-1 1/4	LP-CC-1 1/4	LP-CC-1 1/4
440/480 VAC, 50/60 Hz.	LP-CC-1	LP-CC-1	LP-CC-1

Figure 2: OCP 3-Phase Fuse Chart (Special Order Panel)

WIRE SIZE FOR CONDUCTORS BETWEEN OPERATOR CONTROL PANEL AND MONITOR MOTOR CONTROL PANEL	
CONDUCTOR LENGTH	WIRE SIZE
UP TO 750 FEET (228 m)	18 AWG (0.75 mm ²)
750 TO 1500 FEET (457 m)	16 AWG (1.00 mm ²)
1500 TO 2500 FEET (762 m)	14 AWG (2.50 mm ²)
2500 TO 3500 FEET (1066 m)	12 AWG (4.00 mm ²)

Figure 3: OCP Wiring Chart

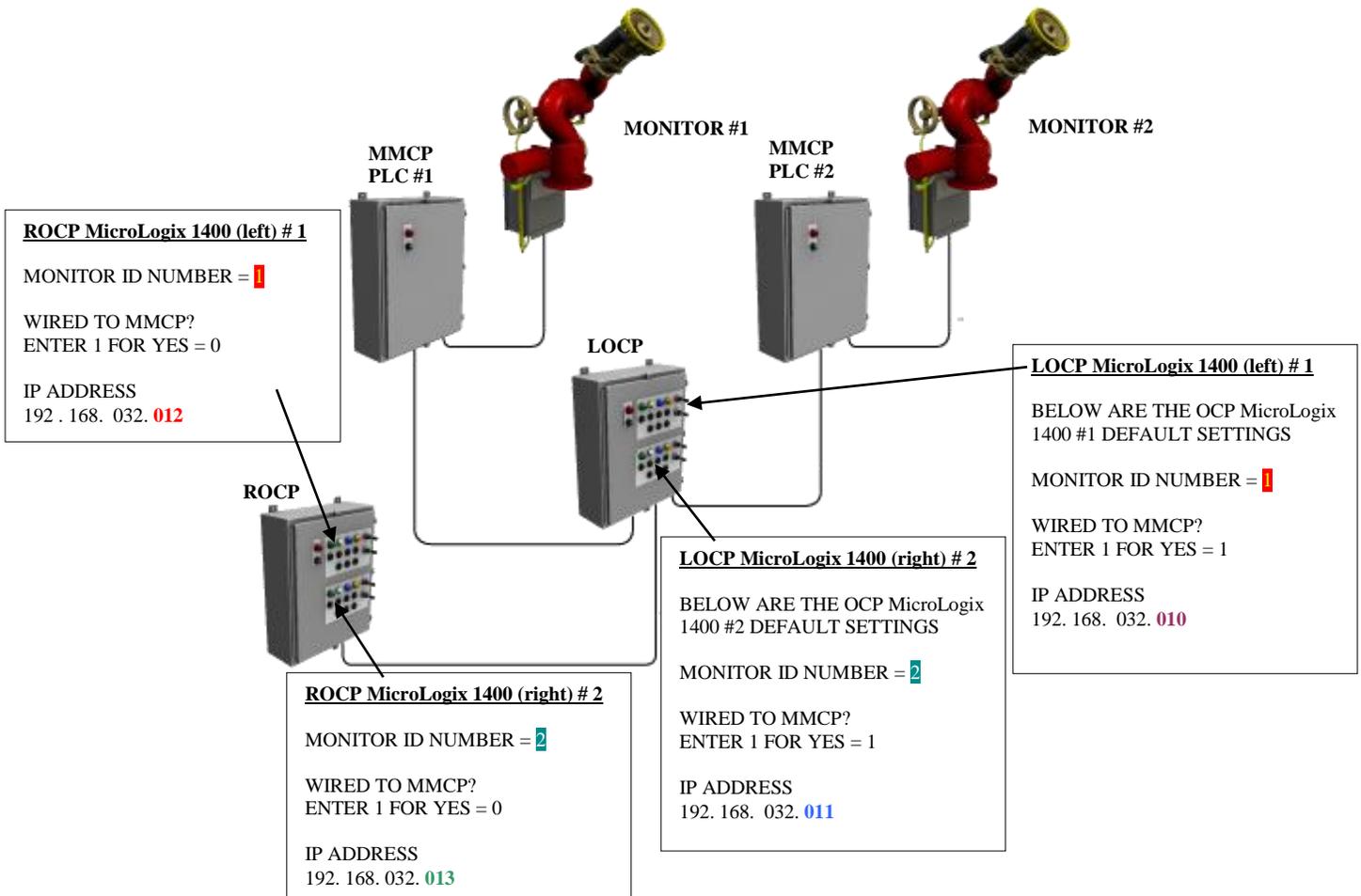
CABLE LENGTH INFORMATION (OPTIONS):	
Multi-Mode Fiber Optic Cable with SC connectors (SC 62.5/125)	For Distances up to 6200 feet (2 km)
Ethernet Cat5e or Cat6e Cable	For Distances up to 300 feet (91 m)

Figure 4: OCP Cable Length Chart

III SYSTEM CONFIGURATION INSTRUCTIONS

- Each OCP below (Local or Remote) controls 2 monitors, one MicroLogix 1400 for each.
- One OCP is wired to the MMCPs. This becomes the Local OCP (LOCP) and the other panel, connected by the network, becomes the Remote OCP (ROCP). It is advised to have only one local OCP wired to each MMCP.
- To control the monitor from the Remote OCP the Monitor ID Number must match the Local OCP Monitor ID Number. If more monitors are to be added to the system increment the Monitor ID Number accordingly.
- Each OCP MicroLogix 1400 needs a unique IP Address throughout the network. If different addresses are required consult the Operator Control Panel Setup Instructions manual

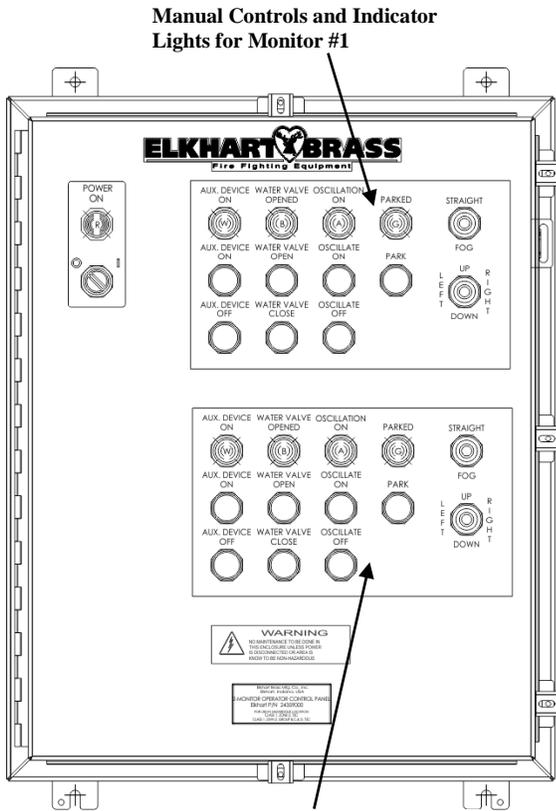
Example system layout and how a PLC network can be configured for a two monitor system:



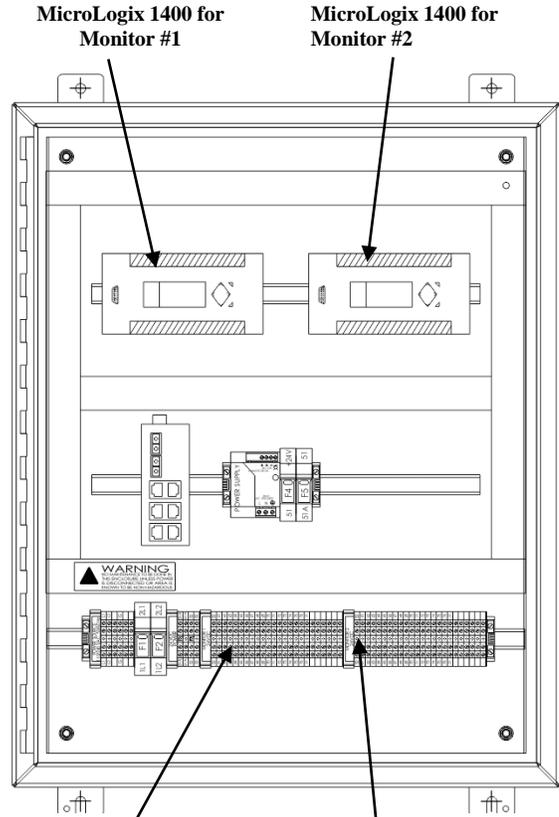
Network Parameter Worksheet (fill in for your system)

<u>LOCP MicroLogix 1400 (left) #1</u>		<u>ROCP MicroLogix 1400 (left) #1</u>
Monitor ID Number ____ (1-99)	← - - - - →	Monitor ID Number ____ (1-99)
Wired to MMCP? ____ (1 = YES)		Wired to MMCP? ____ (1 = Yes)
IP Address 192.168.032.____ (10-25)		IP Address 192.168.032.____ (10-25)
<u>LOCP MicroLogix 1400 (right) #2</u>		<u>ROCP MicroLogix 1400 (right) #2</u>
Monitor ID Number ____ (1-99)	← - - - - →	Monitor ID Number ____ (1-99)
Wired to MMCP? ____ (1 = Yes)		Wired to MMCP? ____ (1=Yes)
IP Address 192.168.032.____ (10-25)		IP Address 192.168.032.____ (10-25)

DUAL OCP (LOCAL OR REMOTE) LAYOUT WITH ALL COMPONENTS



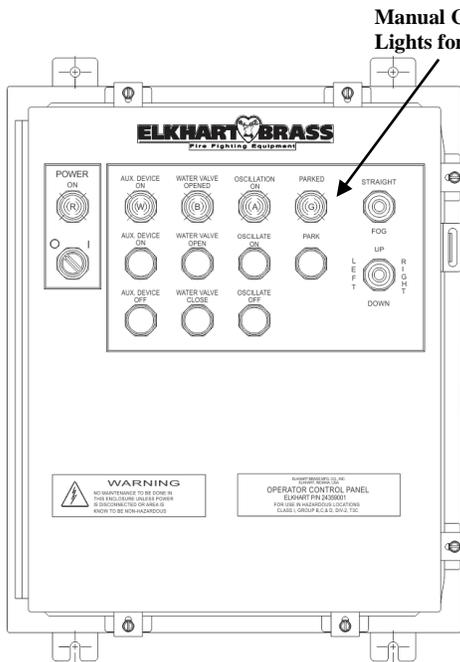
Manual Controls and Indicator Lights for Monitor #2



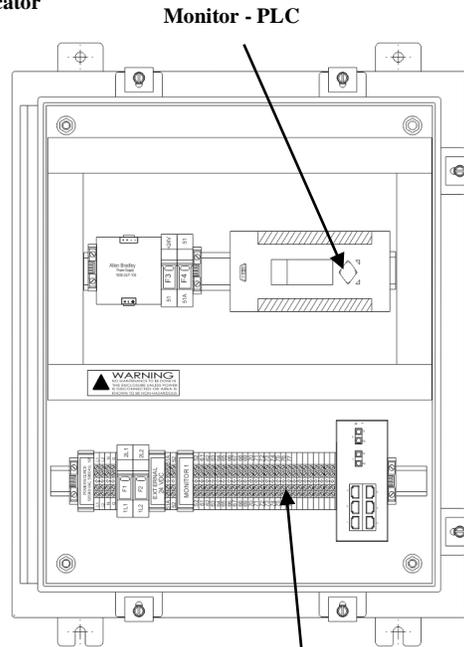
Terminal Blocks for Monitor #1

Terminal Blocks for Monitor #2

SINGLE OCP (LOCAL OR REMOTE) LAYOUT WITH ALL COMPONENTS



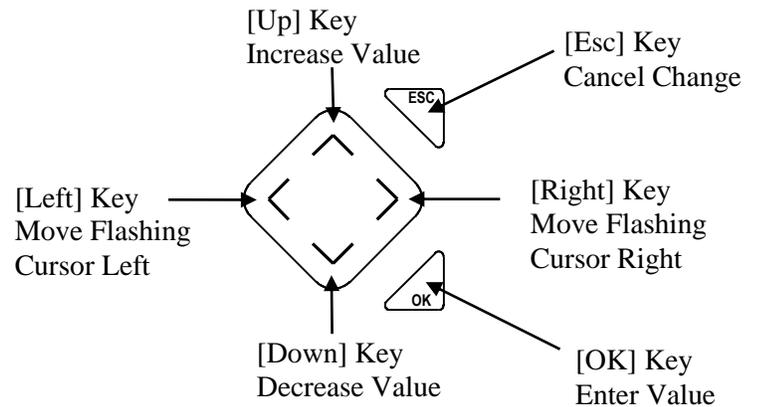
Manual Controls and Indicator Lights for Monitor



Terminal Blocks for Monitor

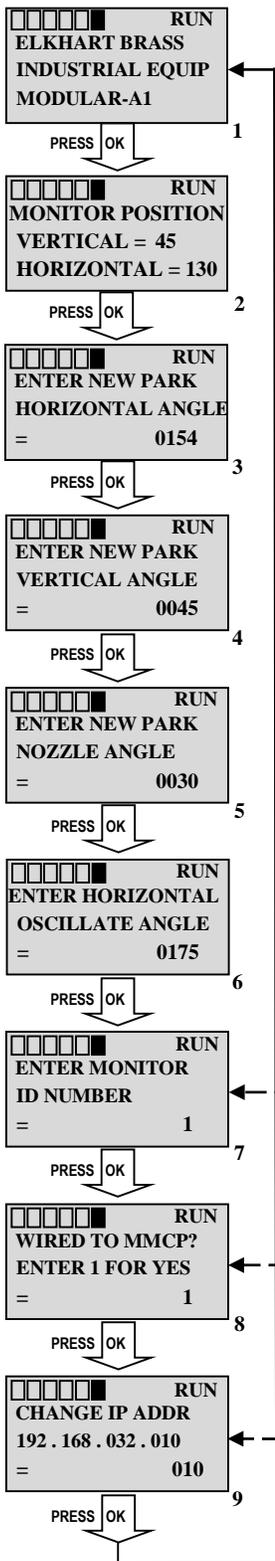
- Before going through the setup instructions check that the connections between all boxes have been completed.
- No data can be changed in display 1 and 2.
- Displays 3 thru 6 are for setting Monitor Park position and oscillation.
- Data can be changed at the cursor location by using the [UP] key to increase the value or [DOWN] key to decrease the value.
- To enter the data and move to the next screen press the [OK] key. The data that is displayed will be entered.
- To cancel any data changes press the [ESC] key. Press [ESC] key again and go back to the first screen.
- Refer to the Operator Control Panel (OCP) Setup Instructions for more detailed information on all displays.

Keypad for MicroLogix 1400



WARNING: While working inside the panel be aware of the terminals located at the bottom, they contain live electricity and caution should be exercised at all times.

MicroLogix 1400 Screens With Power ON



Steps to complete setup:

1. Turn the Power On Switch for all Panels to the 0 position.
2. Locate the OCP that will be the Remote (ROCP). This one will not be wired to a Monitor Motor Control Panel (MMCP).
3. On the ROCP turn the Power On Switch to the 1 position and open the panel door. The MicroLogix 1400 and Park light may be clicking and flashing. This is ok.
4. Using the [OK] key press and release until display 7 appears.
5. Using the Data from page 7 make the following changes for:
 - a. Monitor ID Number
 - b. Wired to MMCP
 - c. Change IP address
6. Repeat steps 4 thru 5 for the other controller.
7. Turn the Power On Switch, on the ROCP, to the 0 position
8. On the ROCP secure the door and place the Power On switch to the 1 position.
9. On the Local OCP (LOCP), the one wired to the MMCP, turn the Power On Switch to the 1 position.
10. If they are not already on turn the MMCPs to the 1 position.
11. The system should now be ready to operate.
12. The park lights will continue to flash. This is an indication that the monitors need to be parked. This will happen anytime the OCP power is cycled on a LOCP. Press the park button on the OCPs that are associated with the correct monitor. Once the monitors are parked the light will stay on until the monitor is moved from that location.
13. If system does not function correctly, check the settings in the ROCP and the LOCP per the Data from the previous sheet, repeating steps 4 thru 6. For more detailed information, consult the OCP Setup instructions.

IV SPECIFICATIONS

General Specs

- | | | |
|-------------------------------|--|--|
| • Input Power | 120/240 VAC (50/60Hz.) 1 Phase
240 VA Max. Power | } Power converts to 24
VDC in control panel |
| • Electrical Load | 2 AMPS Max. | |
| • Panel Dimensions | 24" x 36" (610mm x 914mm) – 2 Monitor OCP
20" x 24" (508mm x 610mm) – 1 Monitor OCP | |
| • Panel Weights | Approx. 100 lbs. (45 kg) – 2 Monitor OCP
Approx. 80 lbs. (36 kg) – 1 Monitor OCP | |
| • Operating Temperature Range | +14°F to +140°F (-10°C to +60°C) | |
| • Fiber Optic Cable | 62.5/125 multi-mode with SC connectors | |
| • Ethernet Cable | Cat5e minimum | |

UL Product Marking

- UL Listed and Labeled (Class 1, Division 2), per NEC

V OPERATING INSTRUCTIONS

The OPC has a set of joysticks, push buttons and pilot lights to operate each monitor and nozzle.

1. Monitor Functions – “UP, DOWN, LEFT, and RIGHT” are operated with spring return joysticks. This is accomplished by using the proper joystick to move the monitor the desired direction. When the joystick is released, the joystick will return to the original (off) position and monitor movement will stop.
2. Nozzle Functions – “STRAIGHT STREAM and FOG” are operated with a spring return joystick. This is accomplished by using the proper joystick for the STRAIGHT STREAM or FOG position. When the joystick is released, the lever will return to the original (off) position and nozzle tip movement will stop.
3. Water Valve Function – Are operated with a pushbutton switch that controls relays that will open or close the water valve.
4. Pilot Light (BLUE) – To indicate that Water Valve is open.
5. Auxiliary Device or Foam Valve Function – Are operated with a pushbutton switch that controls relays that will turn on and off the Aux. Device or open and close the Foam Valve.
6. Pilot Light (WHITE) – To indicate that Aux. Device is on or the Foam Valve is open.
7. Park Function – Press this button to run the calibration sequence and to Park the monitor in its’ ready/home position.
8. Pilot Light (Green) – To indicate that the monitor is in the Parked position.
9. Oscillate Function – Press this button to start the monitor oscillating between the preprogrammed angles.
10. Pilot Light (Amber) – To indicate that the monitor is Oscillating.
11. Pilot Light (RED) – To indicate that local control power is on. When this light is ON, controls can be operated from this Remote/Local Operator Control Panel.
12. Control Power Switch – A 2-position (ON/OFF) selector switch that turns control power “ON” or “OFF” to monitor control panel.

NOTE: If the monitor has been moved manually or by the joysticks, press the “PARK” button to recalibrate and park the monitor in its’ ready/home position. Software A4 and later includes an “Auto Daily Exercise” function that operates 24 hrs. after last “Park” or joystick operation.

VI MAINTENANCE

Monthly Inspection & Maintenance

1. Check all terminal blocks and connections for being properly taut to 4.5 – 7.1 in-lbs. (0.508 – 0.802 Nm).
2. Check all contact blocks and operators for functionality. If there are loose connections tighten them. If a contact block is not functioning properly, replace it.
3. Check all light bulbs on outside of the panel. If any are burnt out, replace the bulb.
4. Check for proper operation of system overall. Please refer to the Troubleshooting section if you are experiencing problems.

VII TROUBLESHOOTING

- A. If Panel will not power up:
 1. Check the incoming supply power, and if it's the proper power requirement for the system.
 2. Check fuses in panel to affirm they are good. If fuses are blown, replace them with same or equivalent fuse.
 - a. Check for causes in the interconnect wiring and connections.
 - b. Verify that the OCP/NCP is not trying to activate the monitor motor functions.
 - c. If nothing is found consult with your Elkhart Brass representative.
 3. Check panel power switch to make sure it is in the "Power On" position.
- B. Pushbutton/Joystick not working properly:
 1. Check screws that tighten contact block to actuator, they may need an adjustment.
 2. Check screw terminations on contact block for being tight.
 3. Check that the contact block itself is good, if not, replace it.
- C. If Pilot Light is not on when panel has power:
 1. Check the light bulb, if it is burnt out, replace it.
- D. Function not working correctly:
 1. Check to see if there is a loose connection, at the terminal blocks or contact blocks. Make sure all screw terminations are properly tightened to 4.5 – 7.1 in-lbs. (0.508-0.802 Nm).
 2. Check relay for actuation. If bad, replace relay with new working relay.
 3. If two locals are connected to one MMCP, Park and Oscillate may function differently. Refer to setup guide for detailed description.
- E. Water valve or Foam valve will open but will not close when operated.
 1. Verify that jumpers between terminals (10 and 14) or (15 and 19) are removed.

Please refer to our website at www.elkhartbrass.com for any further information. Refer to OCP setup guide for detailed descriptions and troubleshooting guide. Any problems that cannot be fixed/solved should be taken to your Elkhart Brass Representative.



WARNING: Do not attempt to disconnect or work on any electrical equipment in this system unless power is removed or the area is known to be non-hazardous.

VIII MOUNTING DIMENSIONS – Do Not Scale

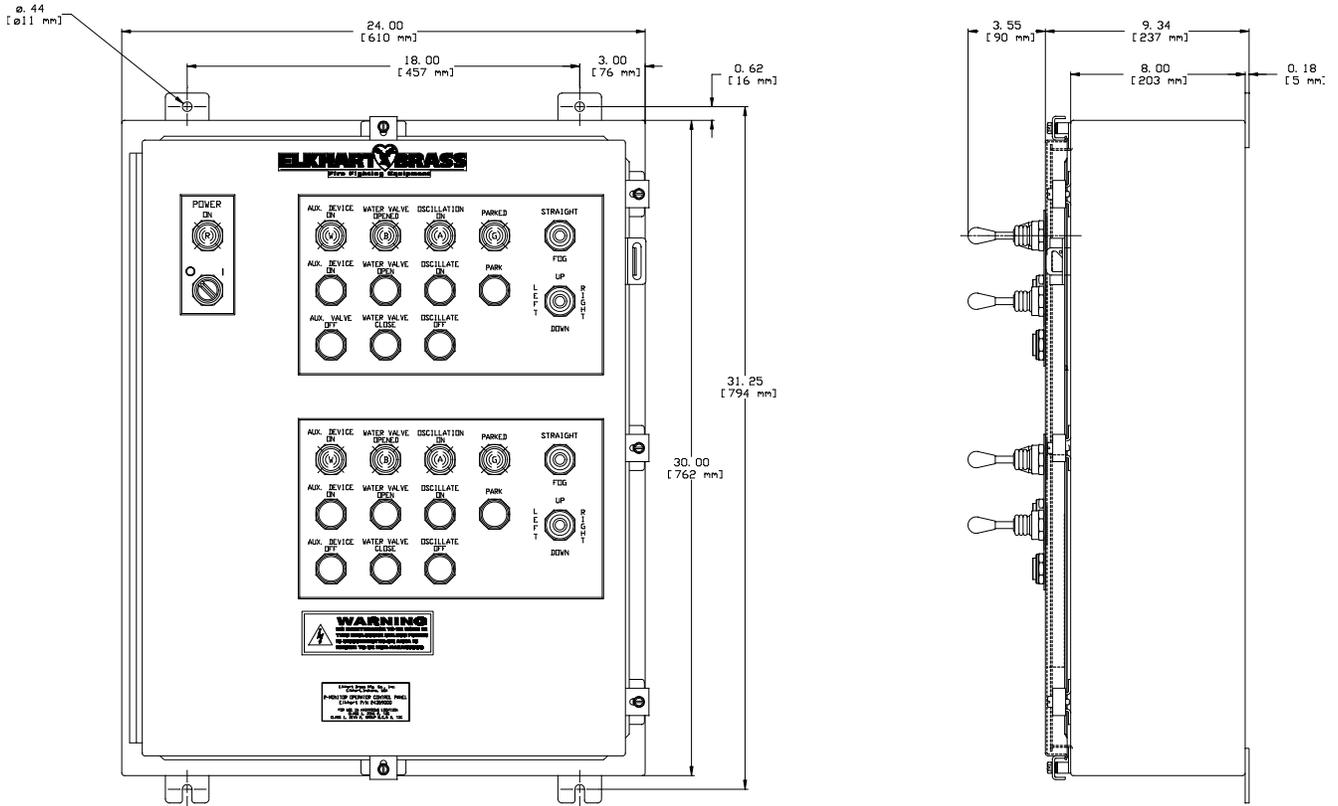


Figure 5: Dual - OCP Mounting Dimensions

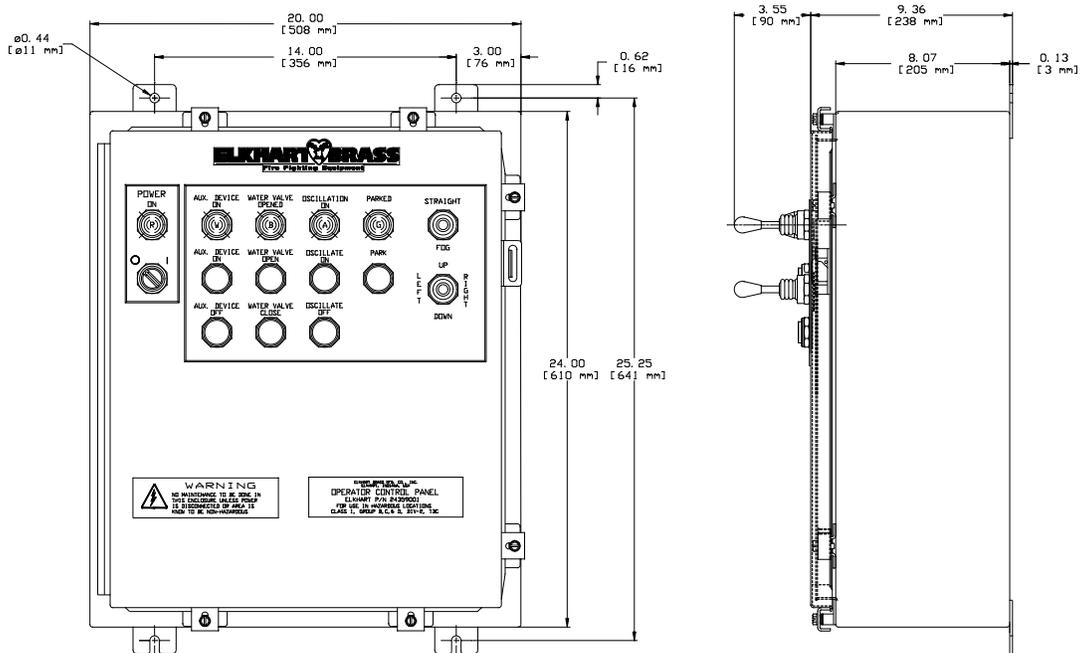
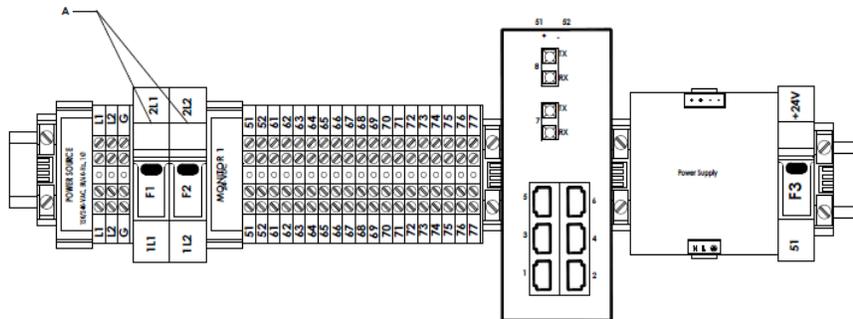
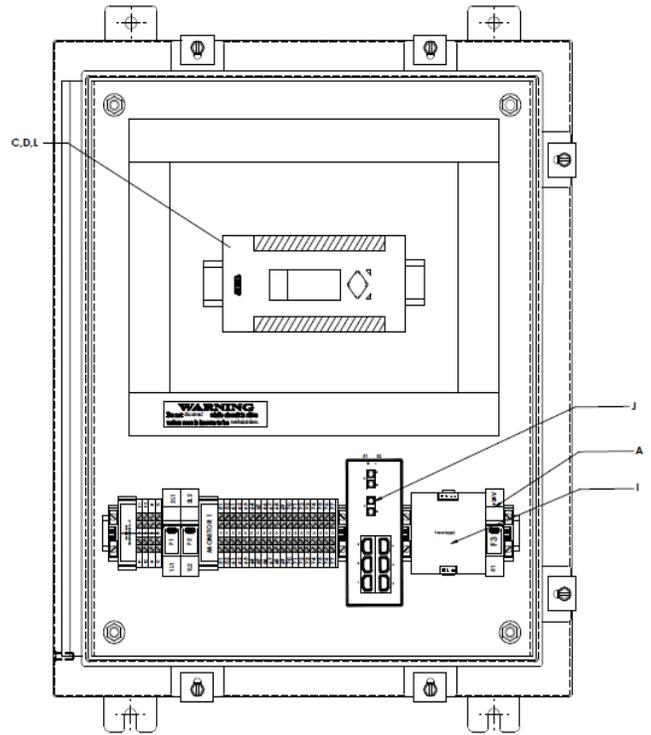
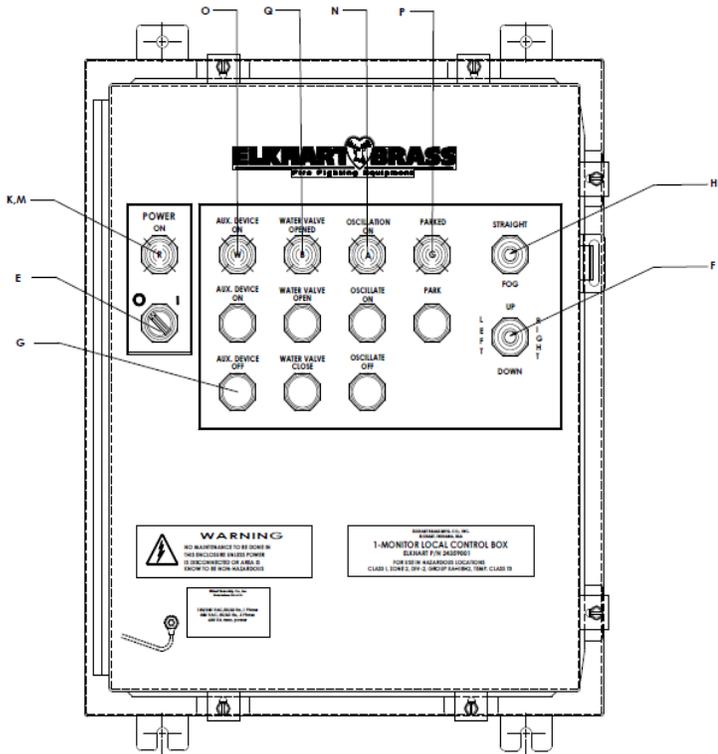


Figure 6: Single - OCP Mounting Dimensions

1-MONITOR OCP- P/N 24359001 SPARE PARTS DIAGRAM



Operator Control Panel - P/N 243590000		
	Part No.	Description
A	59079130	Fuse - Class CC (5-Amp Time-Delay) Rejection Type
B	32233150	Fuse - Class CC (3-Amp Time-Delay) Rejection Type
C	28249000	AB Micro-Logix 1400 PLC (w/o program)
D	59079093	AB Micro-Logix 1400 PLC (w/ program)
E	59079211	Switch Contact Block AB #800TC-XAF (Explosion Protected) (Power)
F	59079090	Switch Contact Block AB #800T-XAR (Logic Reed) (Monitor JS)
G	59079100	Switch Contact Block AB #800T-XD1R (Logic Reed) (PB)
H	59079170	Switch Contact Block AB #800T-XD2R (Logic Reed) (Nozzle JS)
I	52955000	Power Supply 24VDC - 4.2 Amps (Single Phase Input)
J	65761000	N-Tron - Multimode Managed Switch
K	18455000	Bulb - Indicator Universal (LED) White
L	18503000	PLC Battery
M	44435000	Pilot light lens in Red
N	44435010	Pilot light lens in Amber
O	44435020	Pilot light lens in White

IX ENGINEERING CHANGE REVISION EXPLANATIONS

Revision REL – ECN 110616

- Table of Contents
 - Added Engineering Revision Explanations section
- Section II
 - Added detail explanation for panel definitions.
 - Added more detail pertaining to the fiber and Ethernet cable types.
 - Corrected the fuse designations in Figure 1.
 - Added detail about Ethernet connections in Figure 4.
- Section V
 - Added explanations for the following functions:
 - Foam valve and pilot light
 - Park and pilot light
 - Oscillate and pilot light
 - Note to Park the monitor.
- Section VI
 - Added additional troubleshooting information for blown input fuses.
 - Added troubleshooting for Water or Foam Valve not closing.

Revision A – ECN 111017

- Title Page
 - Added Part Number to Title
- Table of Contents
 - Added Refer to Website line
- Section II
 - Changed info in Figure 4
- Section IV
 - Removed ATEX information
- Section VII
 - Added note to refer to Website before contacting Elkhart Representative

Revision B – ECN 150211

- Title Page
 - Updated Picture with current button arrangement
- Section I
 - Modified Overview to include the single OCP and Aux. Device On
- Section III
 - Added Single OCP Components picture
- Section VIII
 - Added Single OCP Dimension picture

Revision D – ECN 160806

08/22/2016

- Section VIII
 - Added Spare Parts Diagram/List