
Portland, OR
(503) 688-1231 / (503) 688-1234(FAX)

# HDR

# Heavy Duty Residential Fire Pump Package

# O&M Start-Up Manual

# TALCO FIRE SYSTEMS

HDR Start-Up Instructions

1) IMPORTANT!: Inspect the unit for damage. Report any damage to the freight carrier immediately. START UP TESTING MUST BE PERFORMED BY QUALIFIED PERSONNEL.

2) PRE-START-UP: Be sure there is water in the pump. Bleed air from the top plug on the pump casing. Open the ball valves on the sensing line gauge assembly until air is bled. If possible, allow water to flow through the pump and system drain.

3) INITIAL START-UP: After completing step #2, close the discharge valve and turn the pump on by closing the 'Circuit Breaker Disconnecting Means' breaker on the front of the controller. An alarm will sound and the red "pump run" light should be lit. Observe the discharge pressure gauge. If the pump fails to rapidly build pressure, makes excessive noise, or vibrates turn it off immediately and see the O&M "Troubleshooting" section for help. If the pump operates smoothly allow it to run until the 10 minute minimum-run timer cycles the system off.
ADJUST THE CASING RELIEF VALVE UNTIL A MINIMUM FLOW OF 3 GPM IS DISCHARGED TO A SAFE DRAIN LOCATION. FAILURE TO DO THIS WILL CAUSE MAJOR DAMAGE TO THE PUMP.
Note the system pressure indicated on the discharge pressure gauge. Now slowly open the discharge ball valve, allowing the pump to restart and slowly fill the system. Once the system is charged to the pressure noted earlier and the pump cycles off, fully open the discharge ball valve. The system is now ready for normal operation.

4) COMMISSIONING TEST: The pump must now be started 6 times via the manual start push button. Allow a minimum of 10 minutes run time after each start and then stop the pump using the namual stop push button. The pump must also be started 6 times by opening the system drain until the pump starts automatically. The pump must be allowed to run a minimum of three minutes after each start. During this test record discharge pressure, motor amps, and flow at zero, 100%, and 150% of design flow. Maintain a dated record of the start up report. If any deficiencies are discovered during this test correct them and re-test the system.

5) PRESSURE TRANSDUCER ADJUSTMENT: The cut-in cut-out settings for the transducer may need to be adjusted in order to work with the system's specific design conditions. In the event this is required see controller manufacturer's O&M.

6) PERIODIC TESTING: The system can be tested at any time by slowly opening the system drain until the pump starts. After the pump starts slowly close the system drain and observe the maximum pressure and verify that the system stops automatically after the 10 minute minimum-run timer expires.

# TALCO FIRE SYSTEMS

HDR Troubleshooting

1) PUMP WON'T START:

A) Check incoming power. Check the circuit breakers feeding the pump and reset as necessary.

B) Check for motor overload. Compare running motor amps to the values noted on the shop test report. If the overload condition is present check for low input voltage or foreign material binding the pump. Motor overloads may have tripped and will need to cool in order to reset. Determine and correct cause of overload.

C) Push in emergency start button. If pump runs in emergency start but does not run automatically then either; (1) The transducer cut-in pressure is set too low and needs to be raised. (2) There is a problem with the transducer. Take corrective action as necessary.

2) MOTOR RUNS BUT MAKES NOISE:

A) Check for debris in the pump.

B) Check to make sure there is adequate water from the supply.

C) The motor bearings may be worn. This needs to be remedied by a qualified technician.

3) PUMP CONTINUES TO RUN:

A) The transducer cut-out is set too high.

B) Suction pressure has dropped.

4) PUMP CYCLES RAPIDLY:

A) Check valve is fouled.

B) There is a leak in the system.

C) Minimum-run timer is inoperative.

# TALCO 13R-C AND ULV FIRE PUMP SYSTEM START UP REPORT AND WARRANTY REGISTRATION

| | | | |
|---|---|---|---|
| **Date:** | | **Installing Contractor** | |
| **Project Name** | | | |
| **Project Address** | | **Contractor Address** | |
| **Contact & Phone#** | | **Phone#** | |
| | | **Tested By** | |

| | PUMP DATA: | CONTROLLER | JOCKEY PUMP: |
|---|---|---|---|
| **Model #** | | | |
| **Serial #** | | | |

## SYSTEM INFORMATION AND START UP CHECK LIST

| | | | | | |
|---|---|---|---|---|---|
| **Static Supply Pressure** | | **# Manual Starts: (Minimum 6)** | | **Alarms connected and attended?** | |
| **Suction Pipe Size** | | **# Auto Starts: (Minimum 6)** | | **Verify pump run alarm** | |
| **Length of suction piping** | | **System run minimum of 1 hour?** | | **Verify power available alarm** | |
| **# of elbows in suction piping** | | **Pump operates on emergency start handle?** | | **Verify suction valve tamper alarm** | |
| **Electrical supply voltage** | | **Owner instructed in operation and weekly testing in accordance with NFPA-25?** | | **Verify discharge valve tamper alarm** | |

| | | | | | |
|---|---|---|---|---|---|
| **Static Suction Pressure:** | Psi | **Jockey Start Pressure:** | Psi | **Min Run Time:** | Min. |
| **System Start Pressure:** | Psi | **Jockey Stop Pressure:** | Psi | **Verify MRT operation** | |
| **System Stop Pressure:** | Psi | | | | |

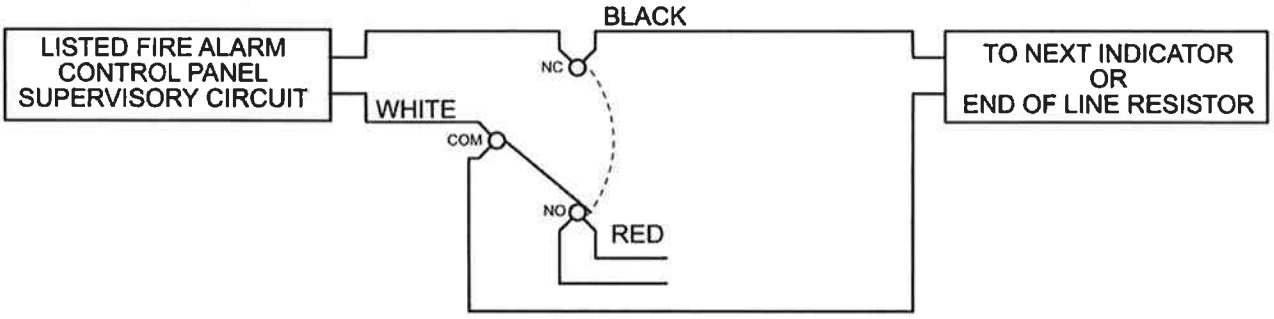
**FIELD TEST RESULTS: (See Below)** **NOZZLE SIZE:**

| Flow | GPM | Suction Pressure | Discharge Pressure | Net. psi | Pitot Readings | Amps | Volts |
|---|---|---|---|---|---|---|---|
| 0 | 0 | | | | | | |
| 100% | | | | | | | |
| 150% | | | | | | | |

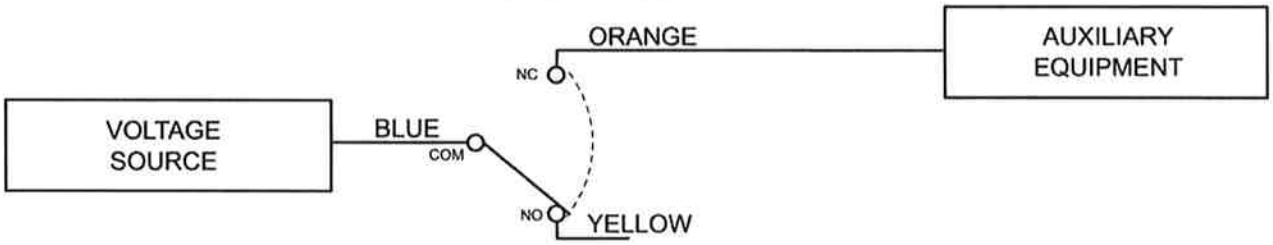
**FIELD TESTING MUST BE CONDUCTION IN ACCORDANCE WITH NFPA-20 GUIDELINES. TO VALIDATE WARRANTY COMPLETED FORM MUST BE FAXED TO TALCO FIRE SYSTEMS (503) 688-1234**

## WIRING DIAGRAM

(SWITCH POSITION VALVE FULL OPEN)
SWITCH 1: DUAL LEADS

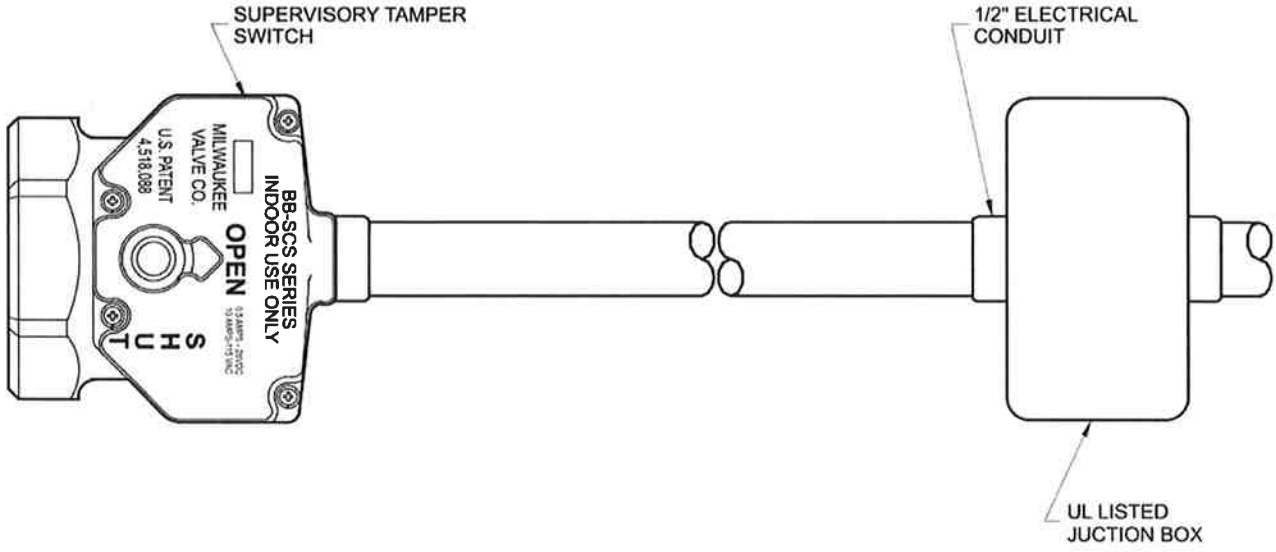



SWITCH 2: SINGLE LEADS




Green Lead provided is ground for switch housing
Switch Rating: 10AMP/ 115 VAC
.5 AMP/28 VDC

Cap unused leads with wire nuts and tuck inside junction box (not provided)
NOTE: Valves incorporating supervisory tamper switches are for **indoor use only.**




**Milwaukee Valve Company**
2375 South Burrell Street
Milwaukee, Wisconsin 53207-1592
Telephone 414/744-5240
FAX 414/744-5840

**MILWAUKEE VALVE**

# TALCO FIRE SYSTEMS

## Limited Warranty

All goods are warranted to be free of defects in material and workmanship for a period of one year from start-up or (18) months from the date of shipment, whichever comes first. Except as specifically indicated, TALCO makes no warranties, expressed or implied, oral or written, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

**THIS WARRANTY IS SPECIFICALLY SUBJECT TO THE FOLLOWING:**

1. The limited warranty is limited to replacement or repair of defective materials and workmanship at the discretion of TALCO.
2. Equipment sold, but not manufactured by TALCO, is subject to the manufacturer's warranty only. TALCO makes no warranties, either expressed or implied, for goods manufactured by others.
3. The limited warranty is conditioned on the purchaser giving TALCO notice within five days of discovery of any alleged defect. Notice should be directed to TALCO FIRE SYSTEMS, by mail: 6040 NE 112th Ave, Portland OR, 97220; by fax: (503) 688-1234; or via E-mail: admin@talcofire.com.
4. The limited warranty shall be considered null and void if any product or part of the packaged system has been repaired or altered in any way by others without prior authorization from TALCO. Fitting leaks and electrical damage are considered the responsibility of the installing contractor.
5. TALCO shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of any goods subject to this limited warranty, nor shall TALCO be liable for any damages or charges for labor or expense in making repairs or adjustments to the goods. TALCO shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data or services.
6. This warranty shall not apply to any goods subject to misuse due to common negligence or accident, nor to any goods manufactured by TALCO which are not operated in accordance with TALCO printed instructions.
7. The liability of TALCO is limited to material replacements FOB Portland, Oregon.
8. All shipments are FOB TALCO dock and it will be the responsibility of the purchaser to check the goods when they are received and report to the Freight Company any damage that might have occurred.

TORNA TECH

ISO 9001

NEMA Member

# RPA
## MODEL


# Residential Fire Pump Controller
## Micro Processor Based

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**RPA**
**MODEL**

# Residential Fire Pump Controller
# Micro Processor Based

The Tornatech Model RPA Micro Processor Based Residential Fire Pump Controller is designed to control one fire pump supplying water to a residential sprinkler system. The controller is available in 115V, 120V, 208V, 220V or 240V single phase 60 hertz incoming power and horsepower's up to and including 15 horsepower. It is approved by UL 218 and meets CSA 22.2 No.263-09.



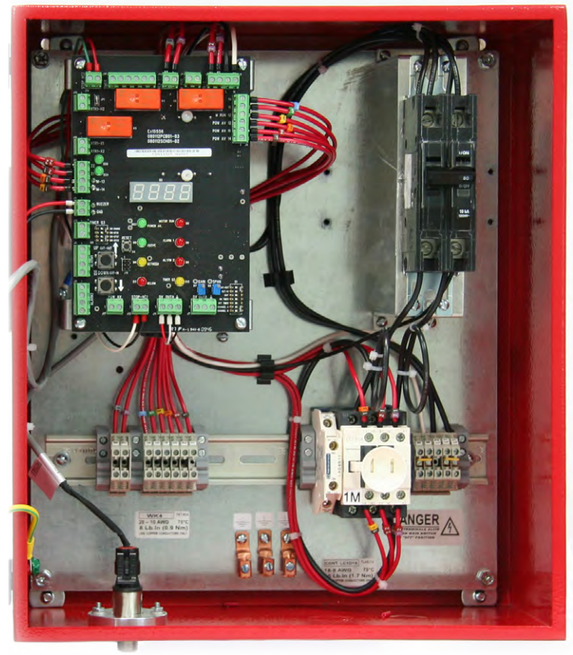
• Toggle operated circuit breaker main disconnect with drip cover



• START and EMERGENCY START pushbutton

• Single phase surge arrestor

• Wall mounting lugs for ease of installation




• 4" alarm bell

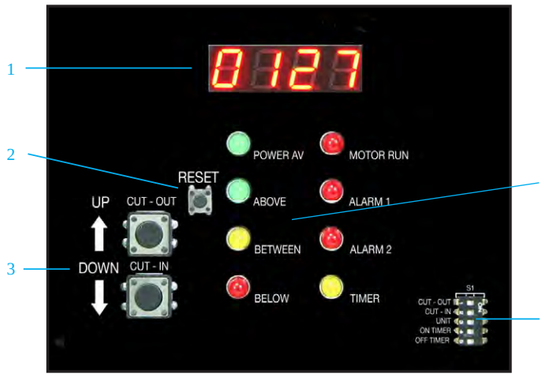
The standard power circuit consists of a circuit breaker main disconnect switch with thru-the–door toggle operation and a motor contactor for across the line starting of the residential fire pump motor. A provision for the remote starting of the residential fire pump is also provided.

The automatic operation of the residential fire pump is achieved through the electronic pressure monitoring module which uses a pressure transducer as a pressure sensing device. It allows the user to accurately set the start and stop pressure values and on or off delay timers. The module continuously displays the system pressure and, when required, the start and stop pressure settings on a four (4) digit digital display. Eight (8) high luminosity LED's indicate any alarm or system conditions. An audible alarm is also provided that sounds when the residential fire pump is in operation (motor running).

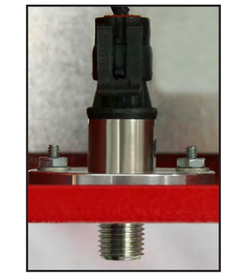
All this provides for precise settings, quick start-up and practical operation and maintenance which are major requirements for a residential fire pump system.

## MAIN FEATURES

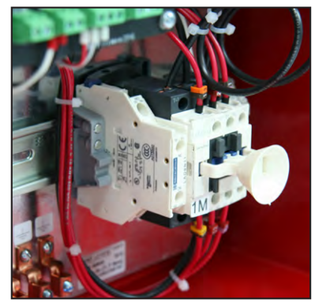
- Easy and quick start-up and operation
- NEMA 2 enclosure
- Micro-processor logic based
- Electronic pressure monitoring
- Eight (8) LED's for alarms and system conditions
- System pressure indication
- Pressure transducer
- Minimum run period timer
- Delay start timer
- Provision for remote start




1 - High luminosity digital display
2 - RESET pushbutton
3 - Pushbuttons for setting and display of field adjustable parameters
4 - System status LED's
  - Power Available
  - System pressure above cut-out
  - System pressure between cut-out and cut-in
  - System pressure below cut-in
  - Motor run
  - Alarm 1 and 2
  - Timer counting
5 - Easy to use dip-switches for field adjustable parameters



• Pressure transducer with 0-300psi range and 304 stainless steel construction



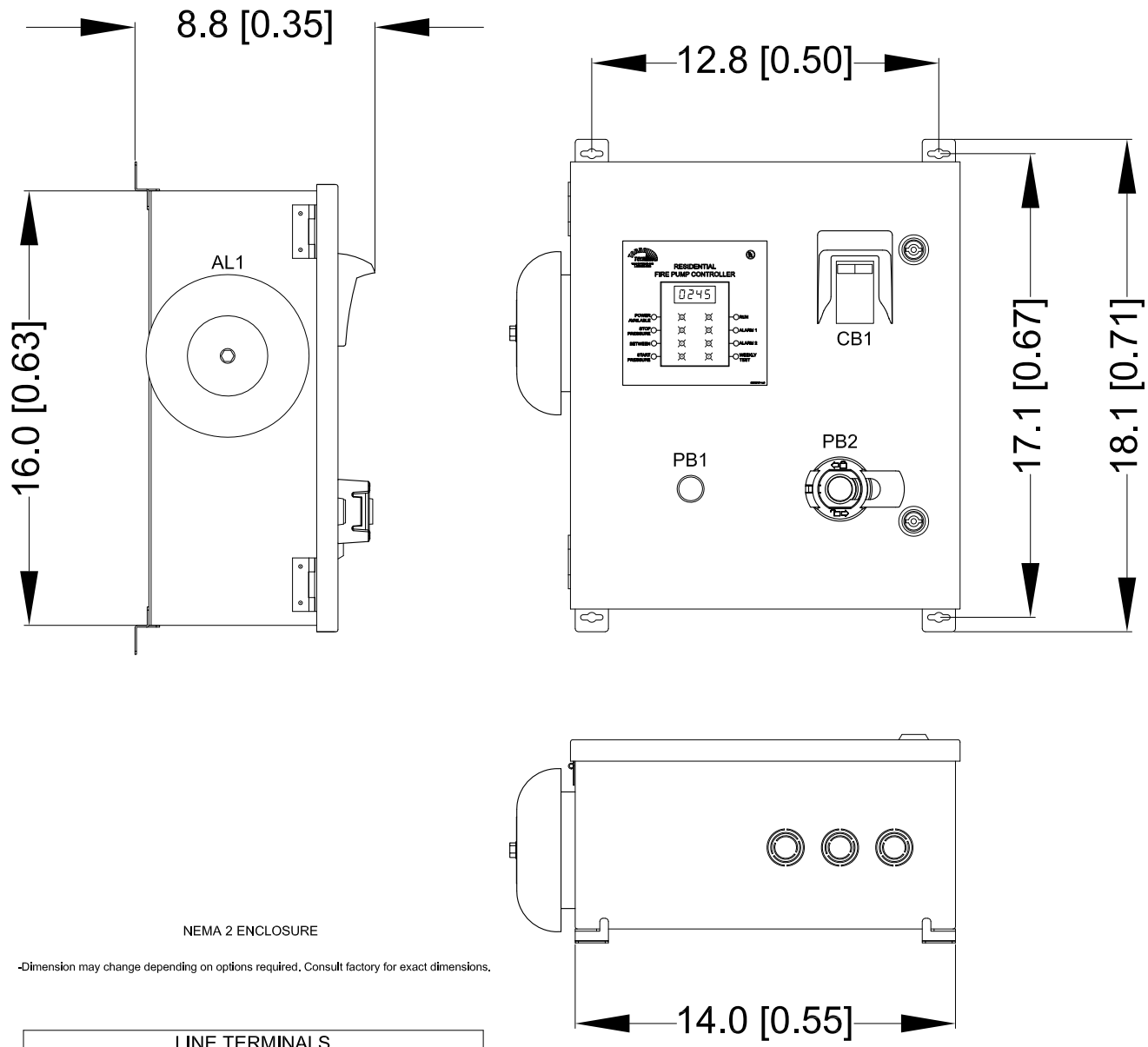

• HP rated motor contactor

• Incoming power connection

# RESIDENTIAL FIRE PUMP CONTROLLER MODEL : RPA-1

## Dimensions

BUILT TO UL 218 STANDARD.




NEMA 2 ENCLOSURE

-Dimension may change depending on options required. Consult factory for exact dimensions.

| LINE TERMINALS | | | |
|---|---|---|---|
| MAXIMUM MOTOR HORSEPOWER | | | WIRE SIZE COPPER ONLY |
| 115-120V | 208V | 240V | |
| 0.5 to 1.5HP | 0.5 to 3HP | 0.5 to 3HP | #14 AWG - #10 AWG |
| 2 to 3HP | 5HP | 5 to 7.5HP | #8 AWG - #6 AWG |
| 5HP | 7.5 to 10HP | 10HP | #4 AWG - #1/0 AWG |
| 7.5HP | N/A | 15HP | #1 AWG - #2/0 AWG |

| MOTOR TERMINALS | | | |
|---|---|---|---|
| MAXIMUM MOTOR HORSEPOWER | | | WIRE SIZE COPPER ONLY |
| 115-120V | 208V | 240V | |
| 0.5 to 1HP | 0.5 to 2HP | 0.5 to 3HP | #14 AWG - #10 AWG |
| 1.5 to 2HP | 3HP | 5HP | #8 AWG - #6 AWG |
| 3 to 5HP | 5 to 10HP | 7.5 to 10HP | #6 AWG - #3 AWG |
| 7.5HP | N/A | 15HP | #1 AWG - #2/0 AWG |

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
For drawing for approval or installation, please contact manufacturer.

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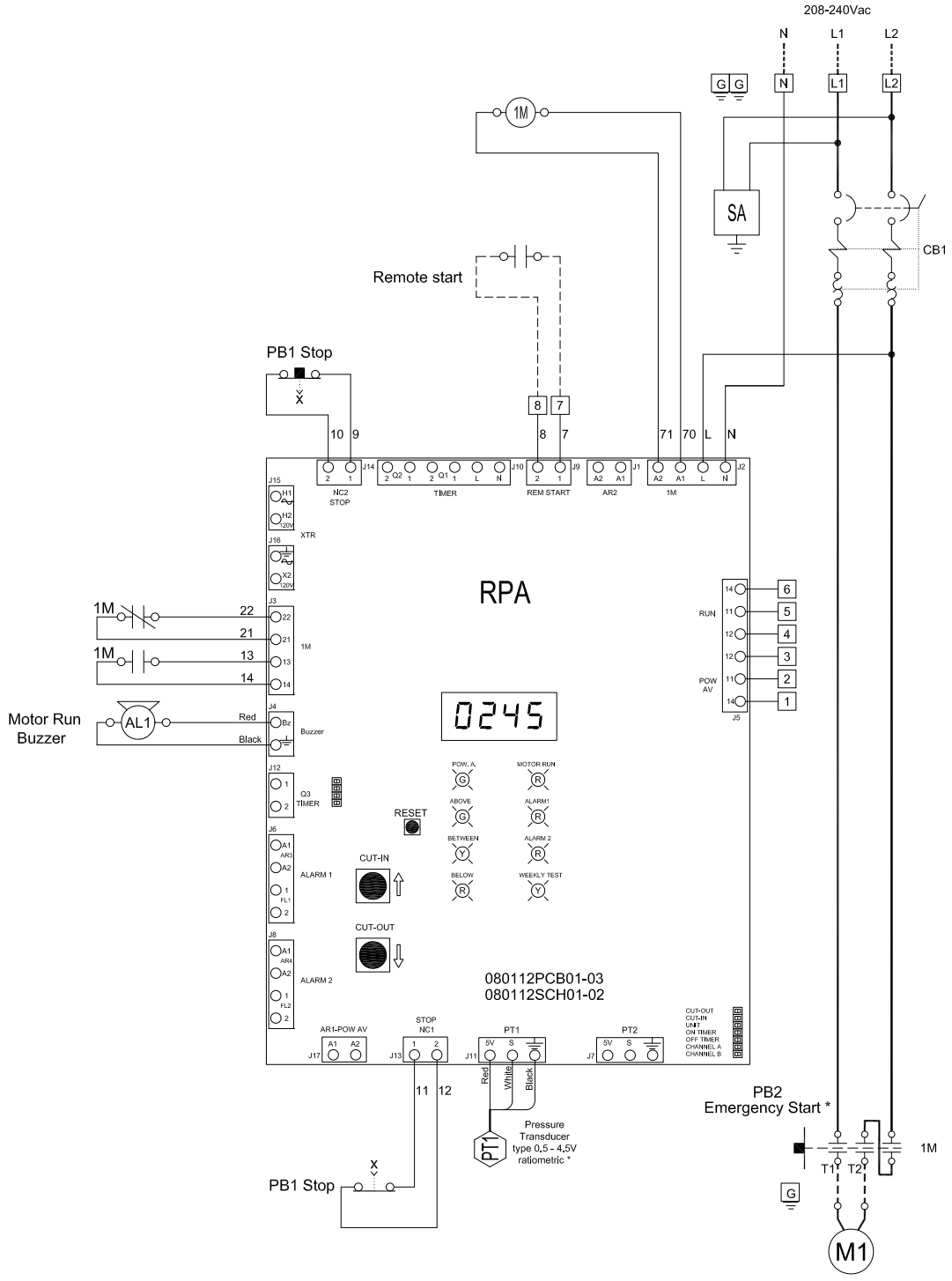
| REV. | DATE | DESCRIPTION | APP. |
|---|---|---|---|
| 1. | 12/05/09 | APPROBATION CHANGE | DES. |
| 0. | 10/03/19 | FIRST ISSUE | VER. |

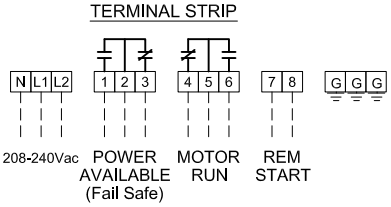
Drawing No.
RPA-1-DI001 /E

# RESIDENTIAL FIRE PUMP CONTROLLER MODEL : RPA-1

## Wiring schematic

BUILT TO UL 218 STANDARD.




* PB2 Start button activates 1M mechanically

Drawing for information only.
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| REV. | DATE | DESCRIPTION | APP. |
|---|---|---|---|
| 1. | 12/05/09 | APPROBATION CHANGE | DES. |
| 0. | 10/03/19 | FIRST ISSUE | VER. |

Drawing No. RPA-1-WS002/E

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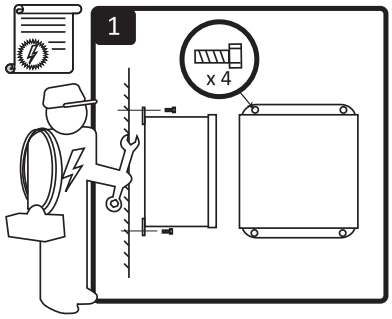
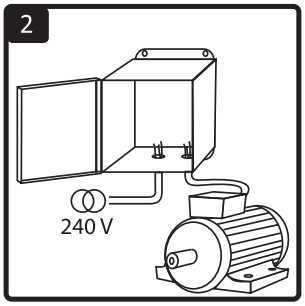
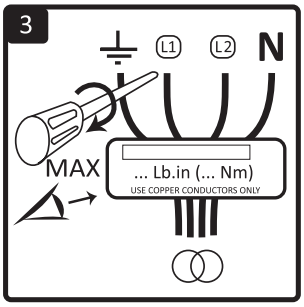
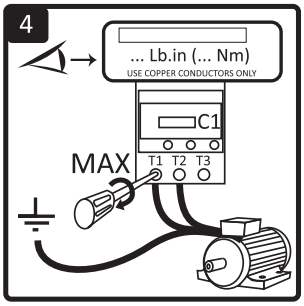
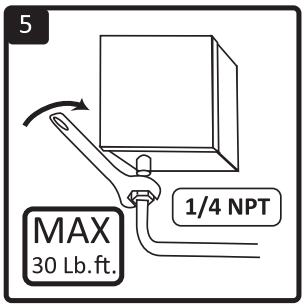
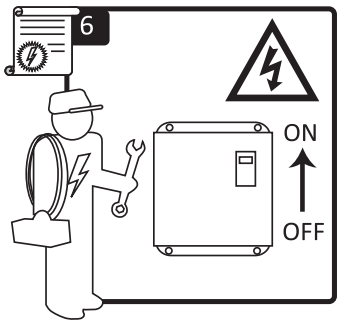

1
x 4

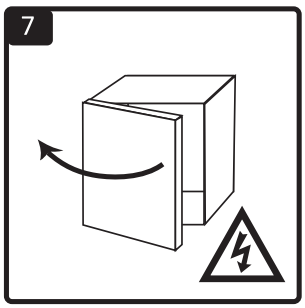

2
240 V


3
L1
L2
N
MAX
... Lb.in (... Nm)
USE COPPER CONDUCTORS ONLY


4
... Lb.in (... Nm)
USE COPPER CONDUCTORS ONLY
C1
MAX
T1 T2 T3


5
MAX
30 Lb.ft.
1/4 NPT


6
ON
OFF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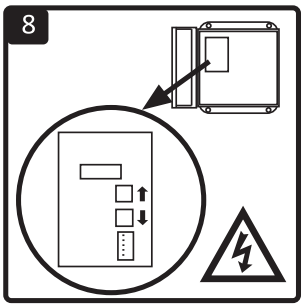
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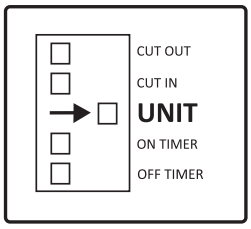
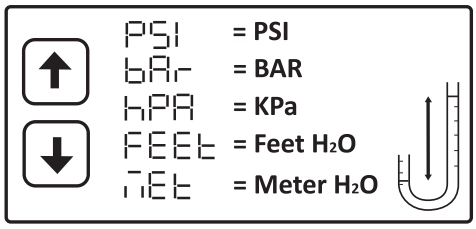
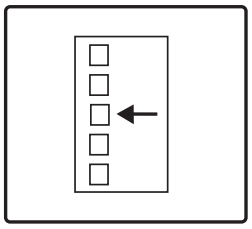
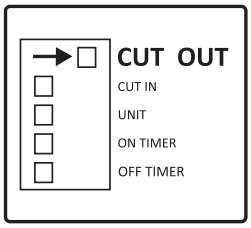
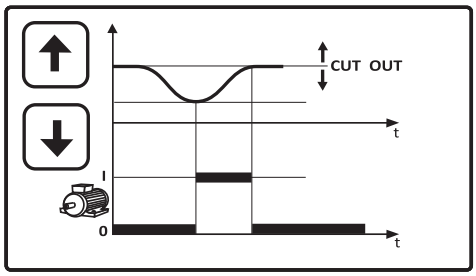
9

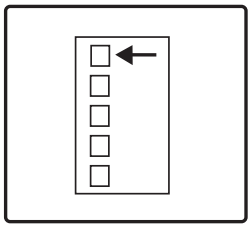


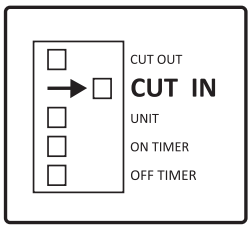



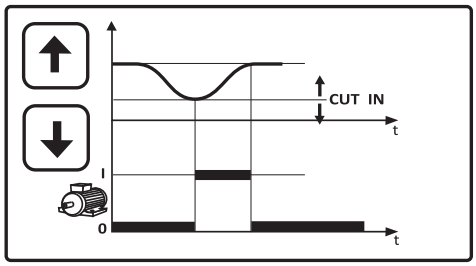



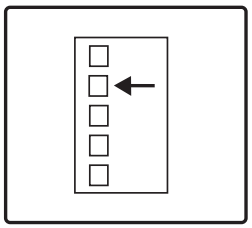


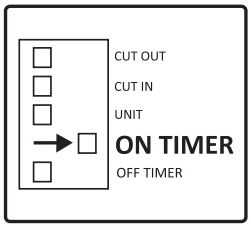



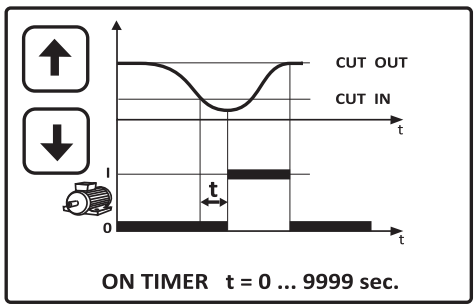





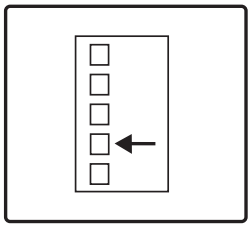



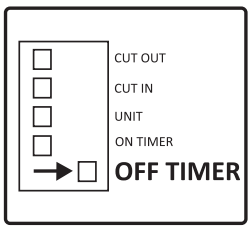



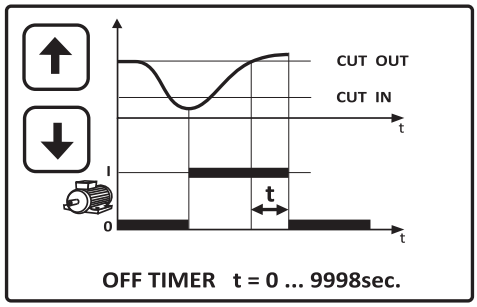


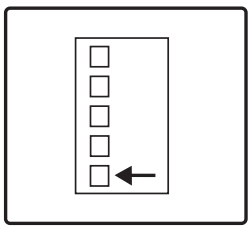

ON TIMER t = 0 ... 9999 sec.






OFF TIMER t = 0 ... 9998sec.



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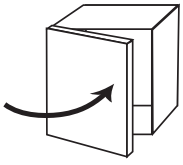

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