

System Controller Exploded Parts View and Wiring for V3030 and V3030-01

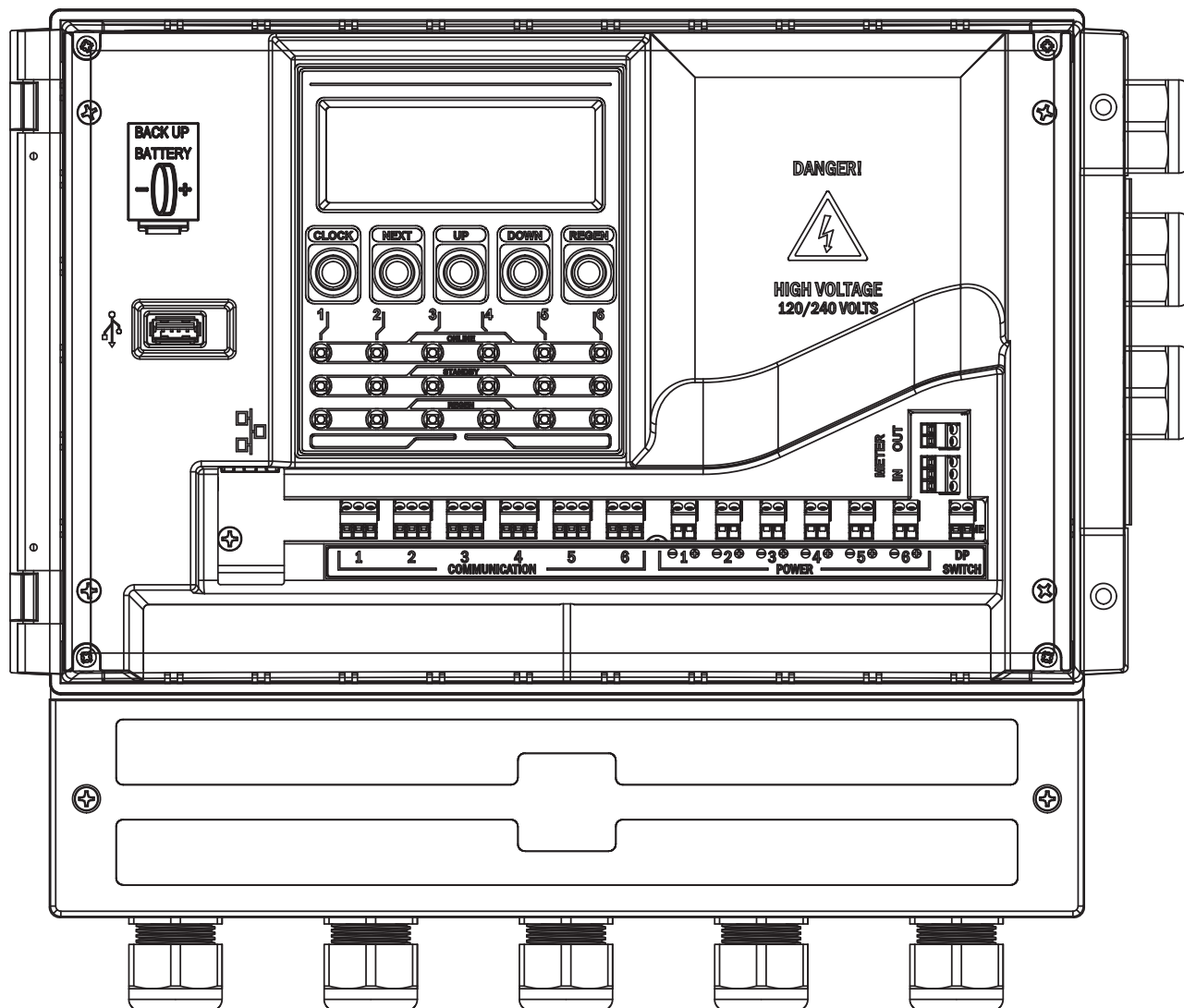


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V3030 SYSTEM CONTROLLER ASY W/CORD AND V3030-01 SYSTEM CONTROLLER ASY WO/CORD

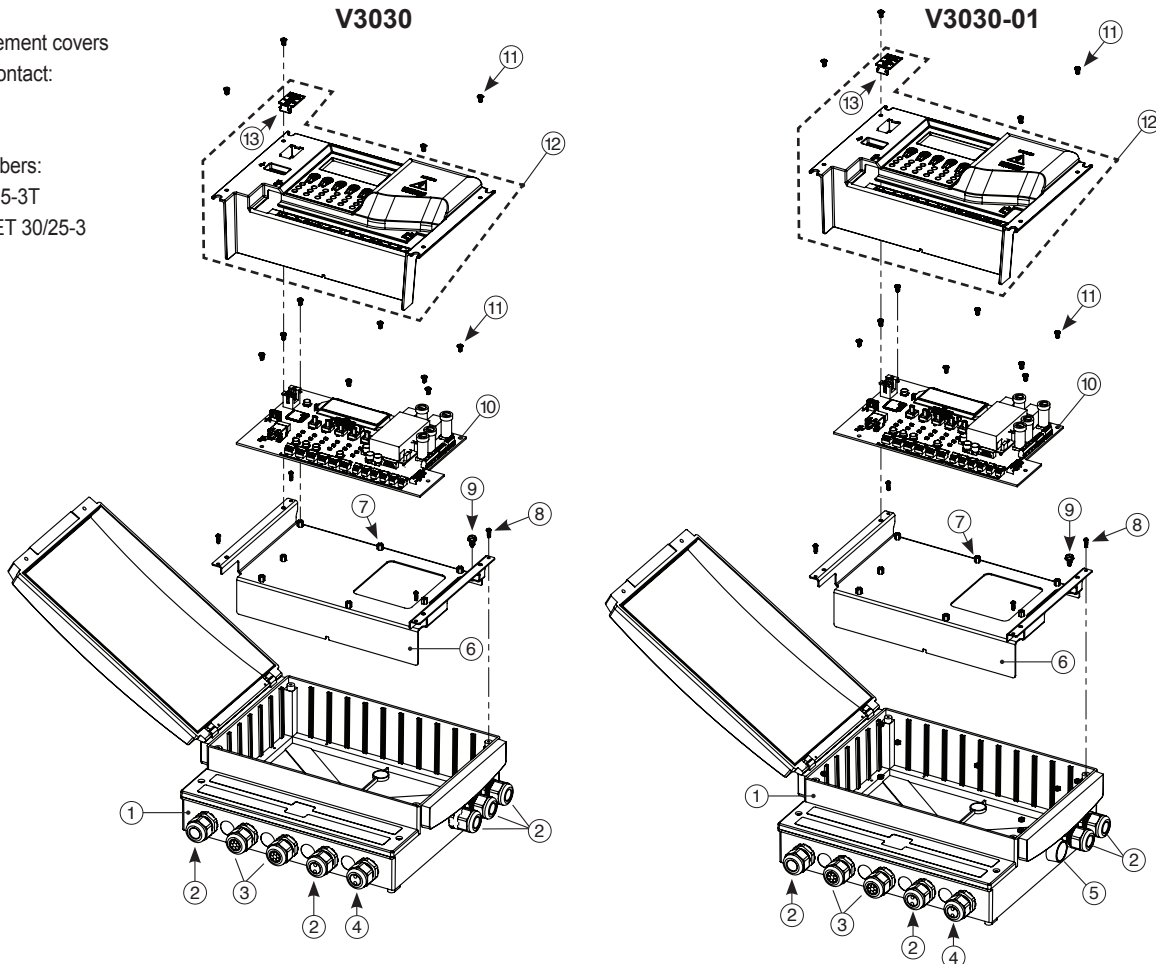
Drawing No.	Order No.	Description	Quantity	
			V3030	V3030-01
1	V3858-01	SC FIBOX PC 30/25-3 MACHINED (does not include strain reliefs)	1	1
2	V3866	STRAINRELIEF 1HOLE ASY	5	4
3	V3865	STRAINRELIEF 6HOLE ASY	2	2
4	V3867	STRAINRELIEF 2HOLE ASY	1	1
5	V4026	PUSHBUTTON ACTUATOR		1
	V4027	CONTACT BLOCK DPST-NO, SCREW TERMINAL		1
6	V3827	SC BRACKET SHEET METAL (does not include standoffs)	1	1
7	V3860	STANDOFF #6-32X1/4 MXF SS	8	8
8	V3859	SCREW #4-24X1/2 TYPE 25 SS TC	4	4
9	V3861	SCREW #10-32X3/8 GREEN ZINC	1	1
10	V3870-02BOARD	SC PCB REPLACE	1	1
11	V3917	SCREW PANHD 6-32X1/4-BR STGR	12	12
12	V4068-01	SC BEZEL HSYELLOW ASY	1	1
13	V4069	DC BATTERY COVER FOR BEZEL	1	1
Not Shown	V3864-01	SC POWER CORD 7FT ASY	1	
Not Shown	V3868-01*	SC JUMPER WIRE BROWN, 2IN		1
Not Shown	V3869-01*	SC JUMPER WIRE BLUE, 2IN		1
Not Shown	V3868-02	SC SWITCH POWER WIRE BROWN, 5IN		1
Not Shown	V3869-02	SC SWITCH POWER WIRE BLUE, 5IN		1
Not Shown	V3186-01	WS1 AC ADAPTER CORD ONLY 15FT		Separate Purchase
Not Shown	V3186-36	WS1 AC ADAPTER CORD ONLY 36FT		Separate Purchase
Not Shown	V3474	WS ALT CONNECT CORD 8 FT BLK		Separate Purchase
Not Shown	V3475-12	WS2H/3 SYSCONNECTCORD 12FT RED		Separate Purchase
Not Shown	V3475-24	WS2H/3 SYSCONNECT CORD 24FT BL		Separate Purchase
Not Shown	V3475-36	WS2H/3 SYSCONNECTCORD 36FT YEL		Separate Purchase
Not Shown	V3819**	POWER SWITCH RETROFIT KIT		Separate Purchase

8" length of wire for plugging unused 6 hole or 2 hole strain relief openings. 4 red plugs for plugging unused 1 hole strain relief openings.

*NOTE: Two jumper wires are needed if hard wiring 120VAC, one jumper wire is needed for hard wiring 240VAC.

** V3819 POWER SWITCH RETROFIT KIT includes (1) V4026 PUSHBUTTON ACTUATOR, (1) V4027 CONTACT BLOCK DPST-NO, SCREW TERMINAL, (1) V3868-02 SC SWITCH POWER WIRE BROWN, 5IN and (1) V3868-02 SC SWITCH POWER WIRE BLUE, 5IN

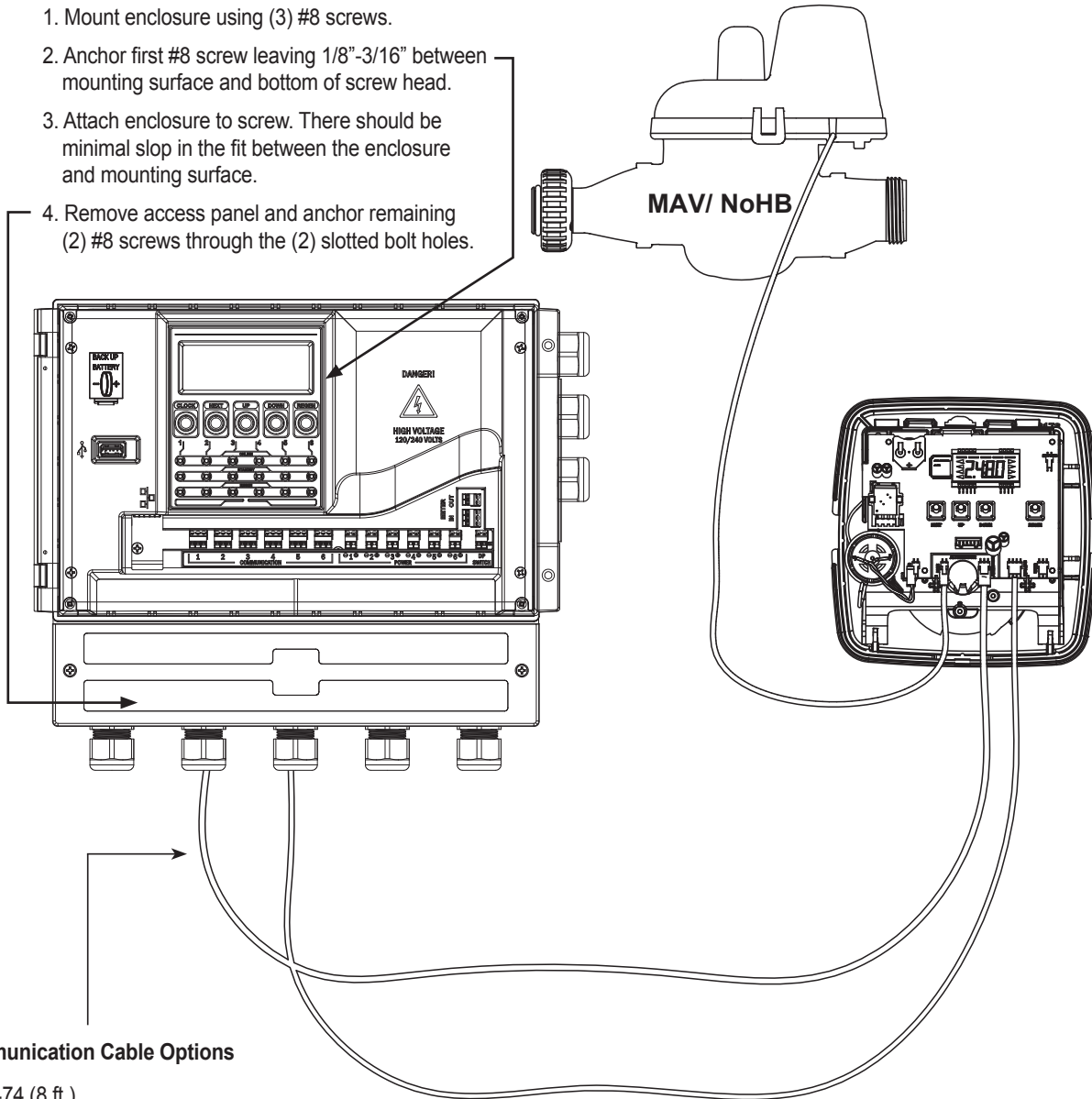
To order replacement covers or hinge/latch contact:
 Fibox Inc
 (888) 342-6987
 Fibox Part Numbers:
 Cover: CM 30/25-3T
 Hinge/Latch: SET 30/25-3



Typical Wiring Diagram (only one valve shown)

Enclosure Mounting

1. Mount enclosure using (3) #8 screws.
2. Anchor first #8 screw leaving 1/8"-3/16" between mounting surface and bottom of screw head.
3. Attach enclosure to screw. There should be minimal slop in the fit between the enclosure and mounting surface.
4. Remove access panel and anchor remaining (2) #8 screws through the (2) slotted bolt holes.



Communication Cable Options

1. V3474 (8 ft.)
2. V3475-12 (12 ft.)
3. V3475-24 (24 ft.)
4. V3475-36 (36 ft.)

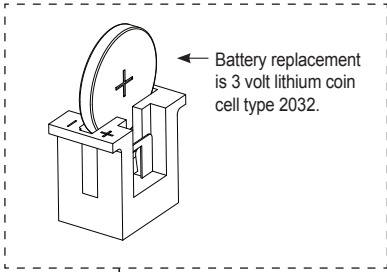
Cut off one end. Strip outer casing. Strip wires to 1/4".

Power Cord Options

1. Cut off AC Adapter. Strip outer casing (about 1"). Strip wires to 1/4".
2. Purchase V3186-01 (15 ft. length). Trim wire ends to 1/4".
3. Purchase V3186-36 (36 ft. length). Trim to desired length. Strip outer casing (about 1"). Strip wires to 1/4". To provide strain relief this cord must be knotted inside the back plate and the system controller box.

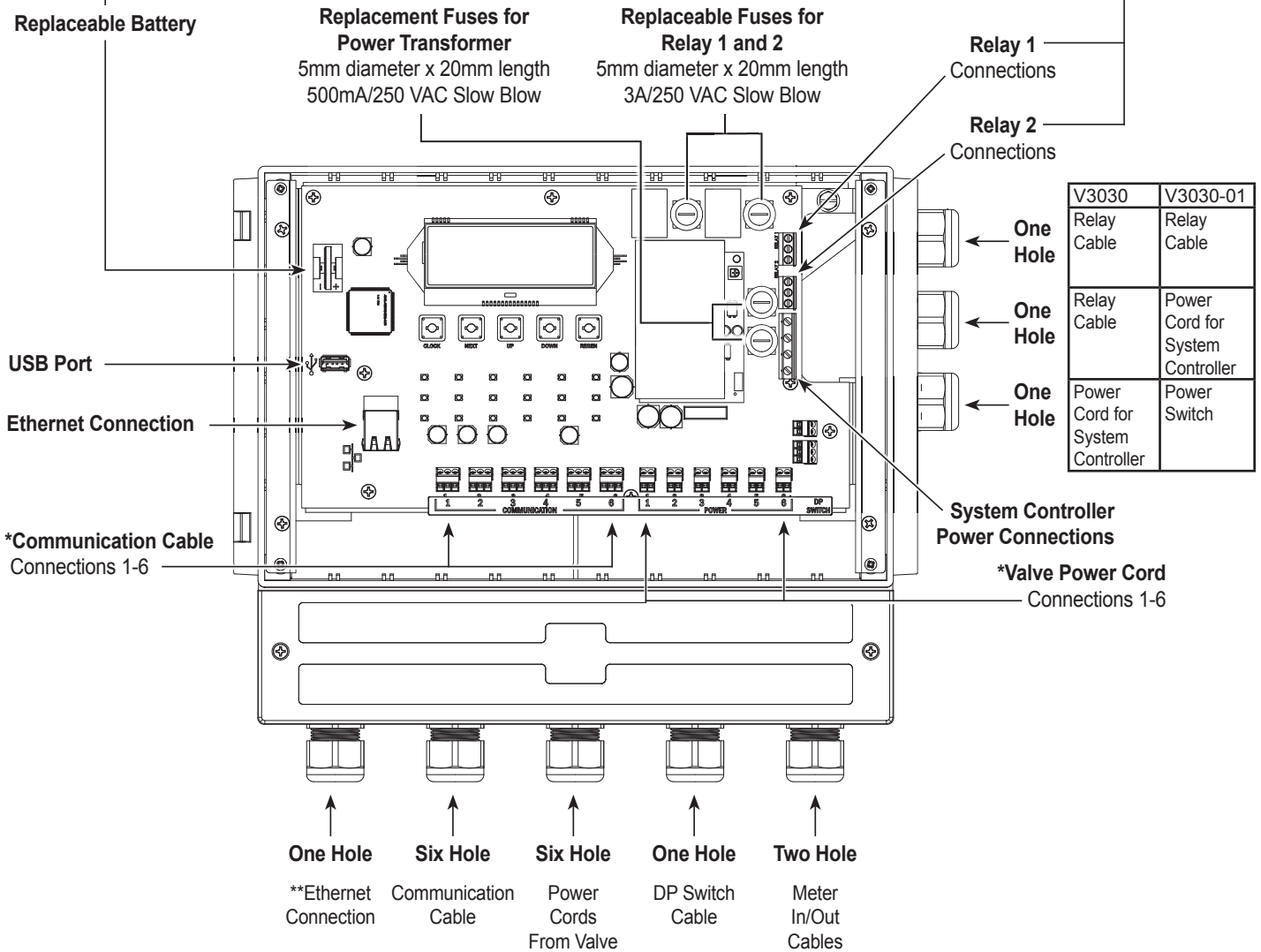
For clarity of showing the connections to the circuit board, the cords have not been routed through the back plate. MAV's contain two and no hardwater bypasses contain one V3805 STRAIN RELIEF COVER KIT for back plates that have a knockout to route additional cords.

Electrical Layout



Typical Relay Output Wiring		
	Relay Energized Load Energized	Relay Not Energized Load Energized
N.C.		AC Load
COM	AC Line (Hot)	AC Line (Hot)
N.O.	AC Load	

Equipment connected to Relay Terminals must not exceed a maximum AC load of 1.5A at 250VAC. Relay's are non-latching (i.e. if power is lost, returns to non-energized position).



*Use Communication Cable and Power Cord Connections in consecutive ascending order, starting with 1.
 **If using Ethernet Cable remove strain relief. V4096 SC ETHERNET ADAPTER may be used to provide strain relief.

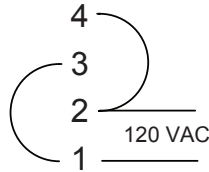
Use 8" length of wire for plugging unused 6 hole or 2 hole strain relief openings. Use red plugs for plugging unused 1 hole strain relief openings.

Power Wiring 50/60HZ

Power transformer primary winding is isolated. No polarity required on A/C input power wires.

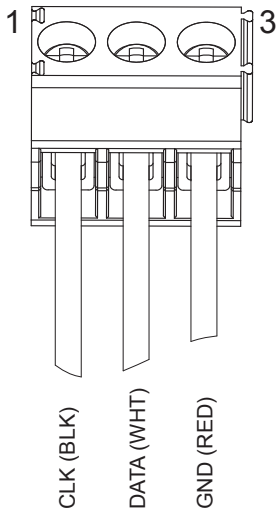
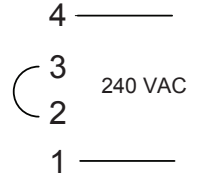
120VAC

Apply power to pins 1 & 2.
Install jumper between pins 1 & 3.
Install jumper between pins 2 & 4.
Attach grounding wire to metal bracket.

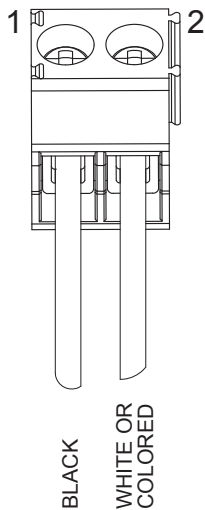


240VAC

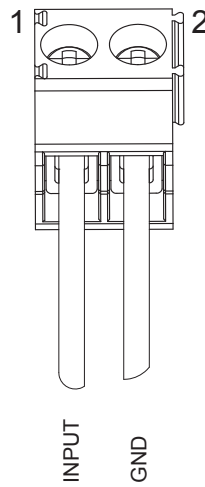
Apply power to pins 1 & 4.
Install jumper between pins 2 & 3.
Attach grounding wire to metal bracket.



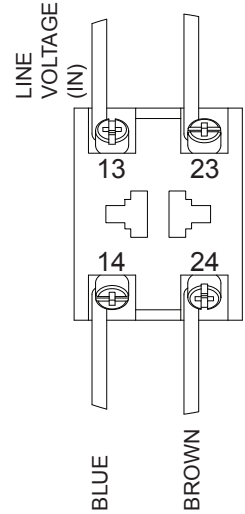
Communication Wiring



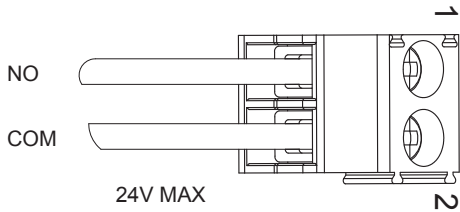
Valve Power Wiring



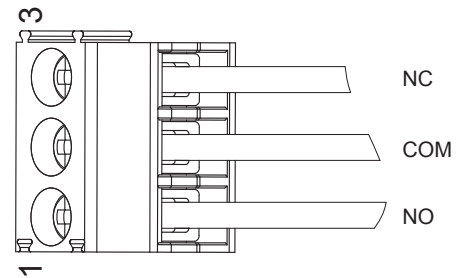
DP Switch



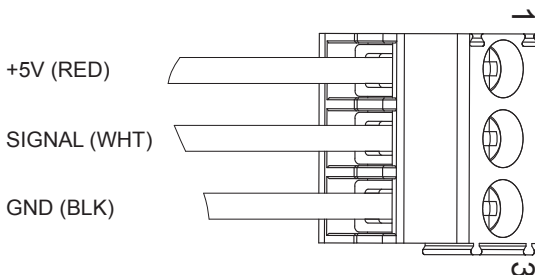
(V3819/V3030-01) Power Switch Wiring



Meter Out



Relay Out



Meter In

Typical Relay Output Wiring		
	Relay Energized Load Energized	Relay Not Energized Load Energized
N.C.		AC Load
COM	AC Line (Hot)	AC Line (Hot)
N.O.	AC Load	

Equipment not to exceed a maximum AC load of 1.5A at 250VAC.

System Controller Trouble Shooting Guide

Problem	Possible Cause	Solution
1. No display on System Controller and/or on system valves	<ul style="list-style-type: none"> a. No power at electric outlet b. System Controller power cord not plugged into outlet or power cord end not connected to System Controller PC board power terminal block c. Improper power supply wiring to system valves d. Improper power supply voltage e. Defective system controller circuit board f. Power Switch off (V3030-01 only) 	<ul style="list-style-type: none"> a. Repair outlet or use another outlet that is working properly b. Plug power cord into outlet and verify proper power cord wiring to the circuit board c. Verify proper voltage is being delivered to System Controller d. Verify proper voltage is being delivered to system valves e. Replace circuit board f. Turn on Power Switch
2. System Controller display does not indicate that water is flowing (Refer to System Controller Programming Manual for system controller water flow display)	<ul style="list-style-type: none"> a. Bypass/isolation valve in bypass position b. If the system type is set for "Series", a flow meter is not wired into the meter input located on the System Controller c. System valves are not properly programmed and/or their meters are not properly connected d. Restricted/stalled meter turbine e. Defective flow meter f. Defective system controller circuit board 	<ul style="list-style-type: none"> a. Turn bypass/ isolation handles to service position b. Wire the flow meter into the meter input located on the System Controller c. Verify that all system valves are properly programmed and all required meter cables are installed securely into the proper 3-pin connectors located on each board d. Remove meter and check for rotation and foreign material e. Replace flow meter f. Replace system controller circuit board
3. System Controller not displaying proper flow rate	<ul style="list-style-type: none"> a. System Controller meter size not set properly 	<ul style="list-style-type: none"> a. Verify actual meter size and reprogram System Controller to match
4. System valve regenerates at the wrong time of day	<ul style="list-style-type: none"> a. Time of Day is not set correctly b. Regeneration Time is not set correctly c. Control valve set to Immediate Regeneration (or equivalent) 	<ul style="list-style-type: none"> a. Reset Time of Day b. Reset Regeneration Time c. Reset control valve programming to Delayed Regeneration (or equivalent)
5. System valves do not automatically regenerate when a manual regeneration is initiated	<ul style="list-style-type: none"> a. The System Controller will not allow more than one valve to be regenerating at the same time b. In some cases, the System Controller will not allow regen when a Valve Error has been detected by the System Controller c. In some cases, the System Controller will not allow a regen when a communication error (Error 412) has been detected d. Defective System Controller circuit board 	<ul style="list-style-type: none"> a. Wait for the system valve in regeneration to finish b. Reset valve error on system valve c. Verify communication wiring to system valves d. Replace system controller circuit board
6. Connected control valves do not regenerate automatically, but do when a manual regeneration is initiated	<ul style="list-style-type: none"> a. Bypass/isolation valves in bypass position b. Meter(s) is(are) not connected to the proper system valve(s) c. Restricted/stalled meter turbine(s) d. Incorrect programming of system valve(s) e. Meter wire not installed securely into system valve 3-pin connector f. Defective flow meter(s) g. Defective system valve board(s) 	<ul style="list-style-type: none"> a. Turn bypass/isolation valves handles to service position b. Connect meter(s) to the proper 3-pin connections on system valves c. Remove meter(s) and check for rotation and foreign material d. Verify system valve programming e. Verify that all required meter cables are installed securely into the proper 3-pin connector located on each system valve board f. Replace malfunctioning meter(s) g. Replace malfunctioning system valve board(s)
7. 402 Error (Water Usage Memory)	<ul style="list-style-type: none"> a. Corrupt water usage information is stored in the memory of the System Controller 	<ul style="list-style-type: none"> a. Contact your OEM

System Controller Trouble Shooting Guide

Problem	Possible Cause	Solution
8. 403 Error (Program Memory)	<ul style="list-style-type: none"> a. Corrupt program settings are stored in the memory of the System Controller b. Can occur when flash programming new software 	<ul style="list-style-type: none"> a. Contact your OEM b. If this error occurs due to programming new software, unplug the System Controller from electrical outlet and plug the power cord back into the outlet to clear the error
9. 404 Error (Diagnostic Memory)	<ul style="list-style-type: none"> a. Corrupt diagnostic display information is stored in the memory of the System Controller 	<ul style="list-style-type: none"> a. Contact your OEM
10. 406 Error (Network Memory)	<ul style="list-style-type: none"> a. Corrupt network settings are stored in the memory of the System Controller 	<ul style="list-style-type: none"> a. Contact your OEM
11. 410 Error (Version Mismatch of Configuration File)	<ul style="list-style-type: none"> a. Occurs when downloading a invalid configuration file b. Can occur when flash programming new software 	<ul style="list-style-type: none"> a. Contact your OEM b. If this error occurs due to programming new software, unplug the System Controller from electrical outlet and plug the power cord back into the outlet to clear the error
12. 411 Error (No External Memory)	<ul style="list-style-type: none"> a. Occurs if external memory can not be found by the System Controller microprocessor, or the flash or SD card is not installed. 	<ul style="list-style-type: none"> a. Contact your OEM
13. 412 Error (Communication Error) or (Valve Error)	<ul style="list-style-type: none"> a. Loss of communication between the System Controller and connected control valves b. One of the connected control valves is in error c. Pressing the “NEXT” and “REGEN” buttons simultaneously on the System Controller can cause this error to flash quickly and then go away 	<ul style="list-style-type: none"> a. Look for which units corresponding LED on the System Controller is flashing to know which unit you need to look at for wiring conditions make sure that the wiring is proper and has good connections and that no wires are broken. Also make sure programming is properly set on the connected valves as well as the System Controllers number of units setting b. The display on the System Controller will alert you to which unit is in error. Locate corresponding unit’s control valve to see which valve error is being displayed then look to trouble shooting that specific error from the control valve manual c. This error due to a “NEXT” & “REGEN” reset should clear
14. 413 Error (MAC Undefined)	<ul style="list-style-type: none"> a. MAC address for network operation is not defined 	<ul style="list-style-type: none"> a. Contact your OEM
15. 414 Error (Valve X No flow)	<ul style="list-style-type: none"> a. The System Controller has detected a possible meter problem. 	<ul style="list-style-type: none"> a. Check flow meter wiring and check for any obstructions that may be preventing the meter from working properly. To clear the error, manually start a regeneration on the unit at fault.

Revision History:

4/16/2012

PAGE 4:

Not Shown	V3868-01*	SC JUMPER WIRE BROWN, 2IN		1
Not Shown	V3869-01*	SC JUMPER WIRE BLUE, 2IN		1
Not Shown	V3868-02	SC SWITCH POWER WIRE BROWN, 5IN		1
Not Shown	V3869-02	SC SWITCH POWER WIRE BLUE, 5IN		1

Added ** Note

PAGE 7:

(V3819/V3030-01) Power Switch Wiring

added numbers to terminals

Removed note

7/15/2014

PAGE 3:

System Controller Troubleshooting Guide

PAGE 9:

Changes to 6-15

CLACK CORPORATION
FIVE-YEAR SYSTEM CONTROLLER CIRCUIT BOARD
LIMITED WARRANTY

Clack Corporation (“Clack”) warrants to OEM that its System Controller circuit board when all holes are plugged in the box, and the box and cover are not damaged, will be free from defects in material and workmanship under normal use and service for a period of five years from the date of shipment of such System Controllers from Clack’s plant in Windsor, Wisconsin when installed and operated within recommended parameters. Fuses on circuit boards are not under warranty. No warranty is made with respect to defects not reported to Clack within the warranty period and/or defects or damages due to neglect, misuse, alterations, accident, misapplication, physical damage, or damage caused by fire, acts of God, freezing or hot water or similar causes. No warranty is offered for outdoor installations where the System Controller is not under cover.

Clack’s obligation to OEM under this Limited Warranty shall be limited, at its option, to replacement or repair of any System Controller board covered by this Limited Warranty. Prior to returning a System Controller board, OEM must obtain a return goods authorization number from Clack and return the System Controller board freight prepaid. If any System Controller board is covered under this Limited Warranty, Clack shall return the board repaired, or its replacement, prepaid to the original point of shipment.

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