

Installation

S19-324D2

**Class I, Division 2, Groups B, C and D
(Class I, Division 2, Groups C and D
with Selector Switch)**

Explosion Proof

Emergency Signaling System

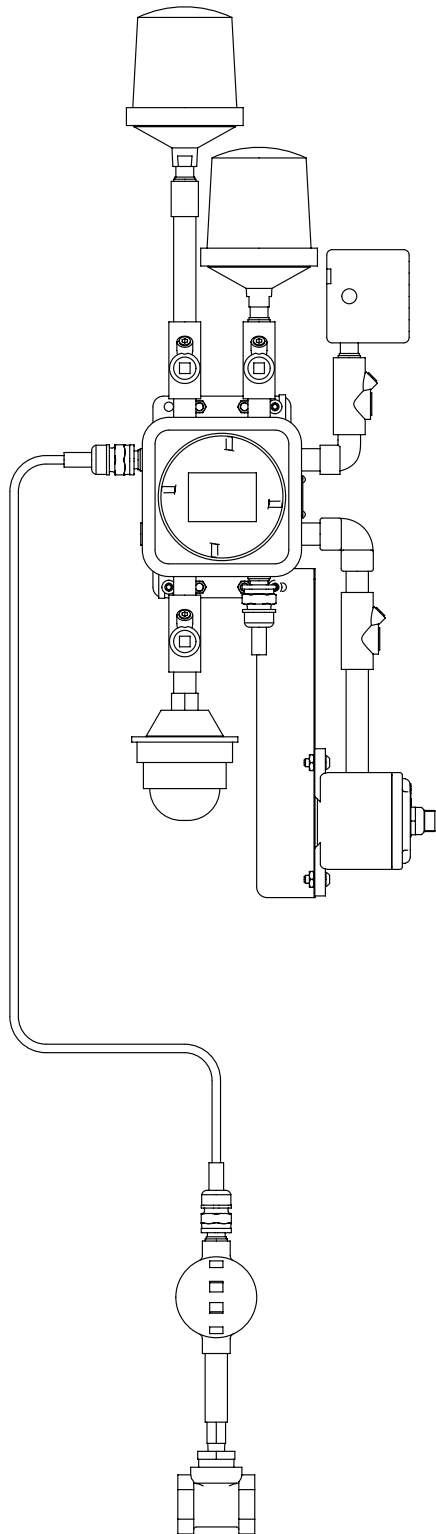


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WARNING

Power supplied to the unit should be between 90-264VAC, 50-60 Hz, 15 amp branch circuit with a dedicated circuit breaker or fuse and should not supply power to any other device. Compliance and conformity to local codes and ordinances is the responsibility of the installer.

Do not use this safety equipment in a location that does not match its hazardous location rating. Verify the appropriate ratings prior to installation.

When making electrical connections be sure to follow all lockout–tagout safety procedures.

Flush the water supply lines before beginning installation and after installation is complete. Test the unit for leaks and adequate water flow. Main water supply should be “ON” at all times unless system is being serviced. Provisions shall be made to prevent unauthorized shutoff.

CAUTION

Supply the unit with clean, potable water.

NOTICE

Before installing this product, ensure that there are adequate clearances around the product and activation of the product does not interfere with other products or obstructions.

It is recommended that all water supply and electrical connections be made at temperatures above freezing. Failure to do so may result in major product and/or property damage.

Constant power supply to safety equipment is necessary for it to function.

Avoid cleaners containing organic solvents, alcohols and hydrocarbons. Rinse with potable water after cleaning.

IMPORTANT

The installation and location of all safety drench showers, eye and eye/face washes must comply with the requirements of ANSI/ISEA Z358.1.

Read this installation manual completely to ensure proper installation, then file it with the owner or maintenance department. Compliance and conformity to local codes and ordinances is the responsibility of the installer.

Separate parts from packaging and make sure all parts are accounted for before discarding any packaging material. If any parts are missing, do not begin installation until you obtain the missing parts.

Installation and maintenance of this system must be completed by a qualified plumber and electrician according to the information contained in this installation manual and in compliance with all national and local codes.

The ANSI/ISEA Z358.1 standard requires an uninterrupted supply of flushing fluid. Bradley plumbed emergency fixtures require a minimum of 30 PSI (0.21MPa) flowing pressure.

Weekly activation must be conducted on all plumbed emergency equipment to ensure a suitable flushing fluid supply is present and any sediment build up in the supply line is cleared. Inspect safety equipment monthly to address any maintenance issues ensuring the equipment is in good operating condition and that there are no signs of wear.

Perform functional test upon relocation of safety equipment.

Workers who may come in contact with potentially hazardous materials should be trained regarding the placement and proper operation of emergency equipment per ANSI/ISEA Z358.1.

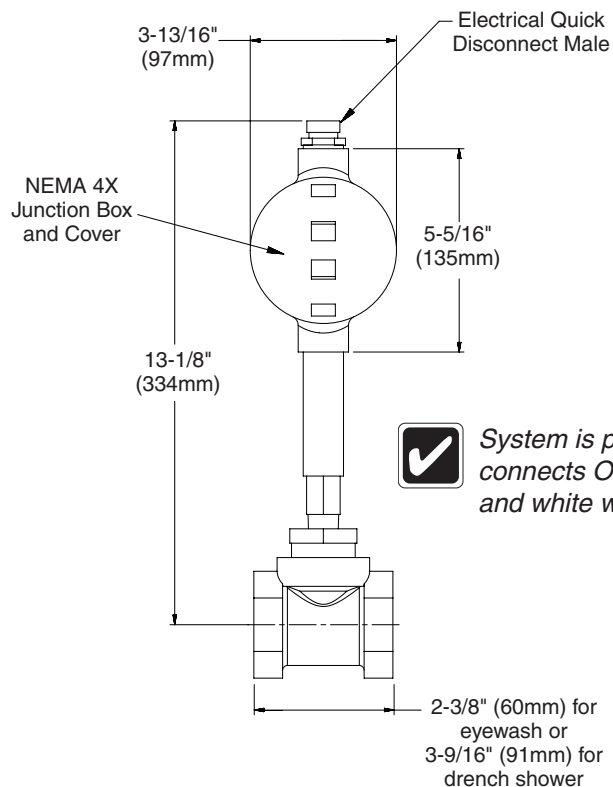
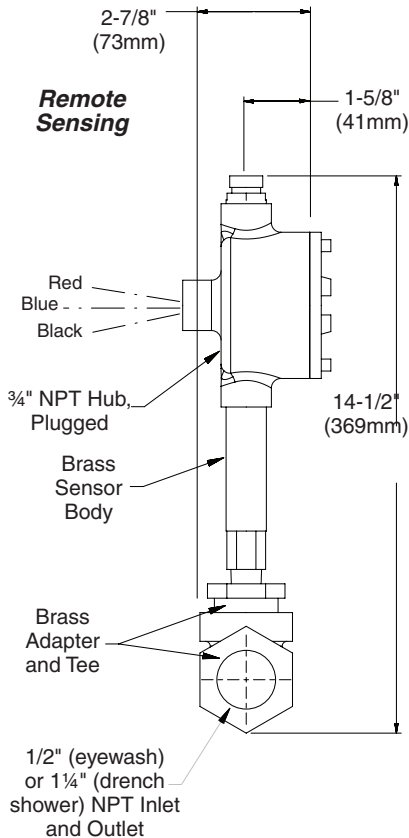
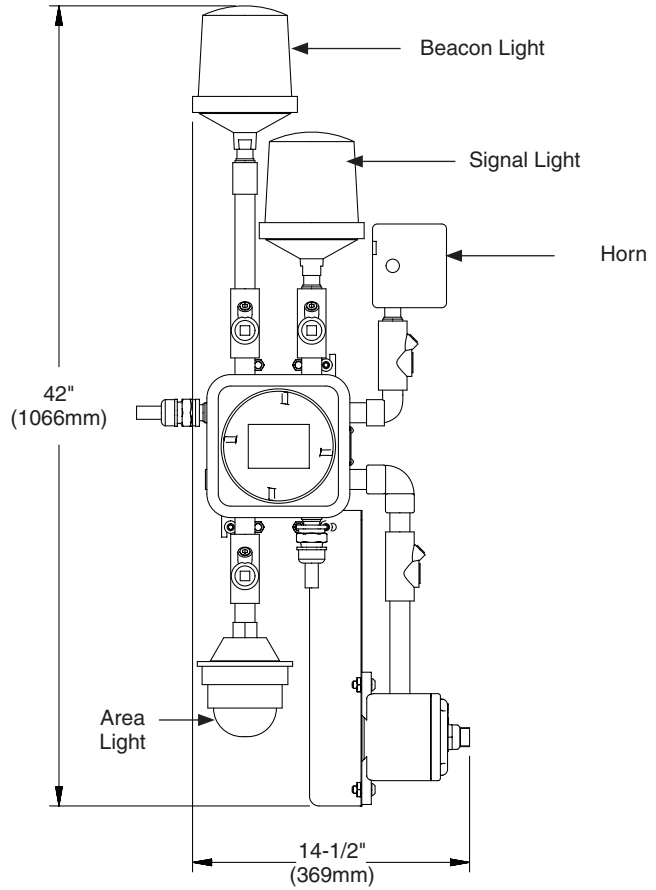
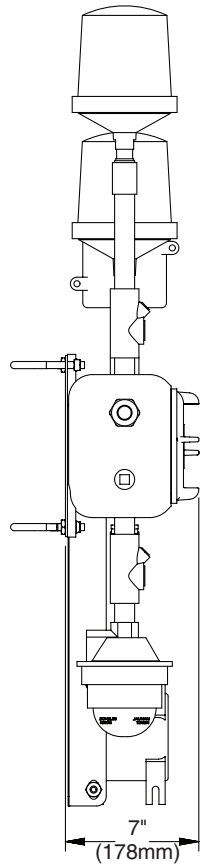
For questions regarding the operation or installation of this product, visit www.bradleycorp.com or call 800-BRADLEY (272.3539).

Product warranties and parts information may also be found under "Products" on our web site at bradleycorp.com.

Supplies Required

- Teflon tape or pipe sealant
- Black, white and green AWG 18 minimum (14 AWG maximum) wire to connect signaling system to electric power supply
- 3/4" hubs and fittings for electrical wiring (all customer supplied hubs and fittings must match the electrical rating of the enclosures)

S19-324D2 Components



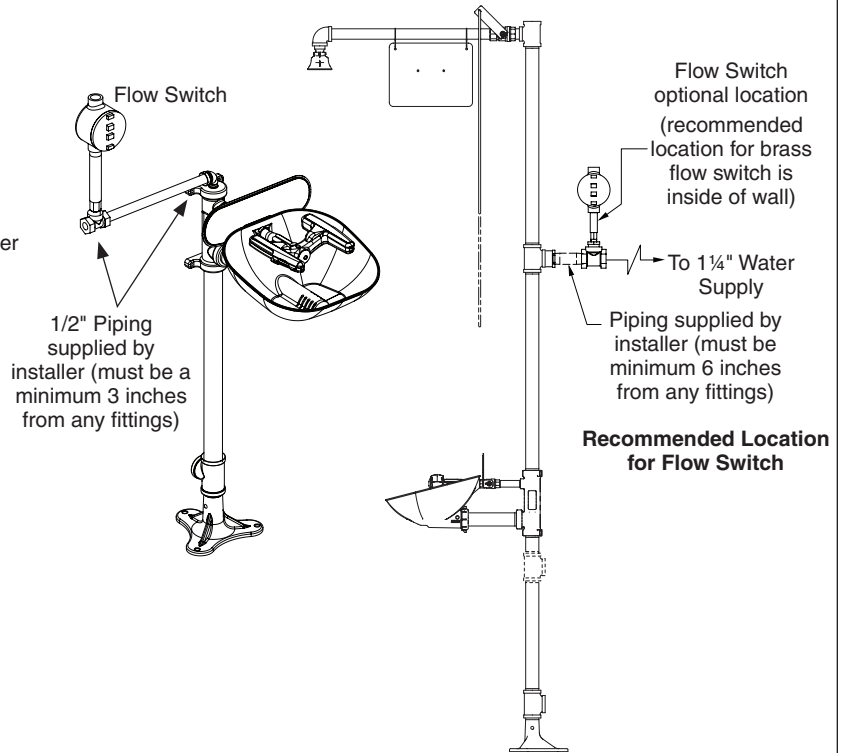
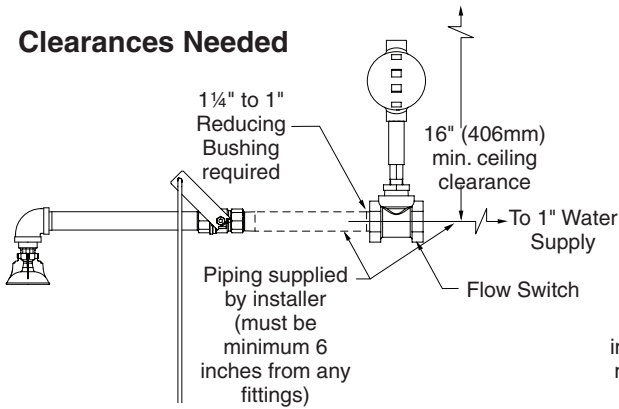
System is prewired. Installer connects ONLY ground black and white wires.

1 Install the Flow Switch and Mount Signaling Assembly



The flow switch will attach to the mounted alarm via a 6, 12 or 50 foot waterproof cable. Keep the location for mounting the alarm in mind when choosing the flow switch location.

Clearances Needed



A Choose a location for mounting the flow switch in a horizontal run of the water supply line.

Mount the flow switch assembly in the water supply line.

- The switch body must be in the vertical position with the water pipe horizontal.

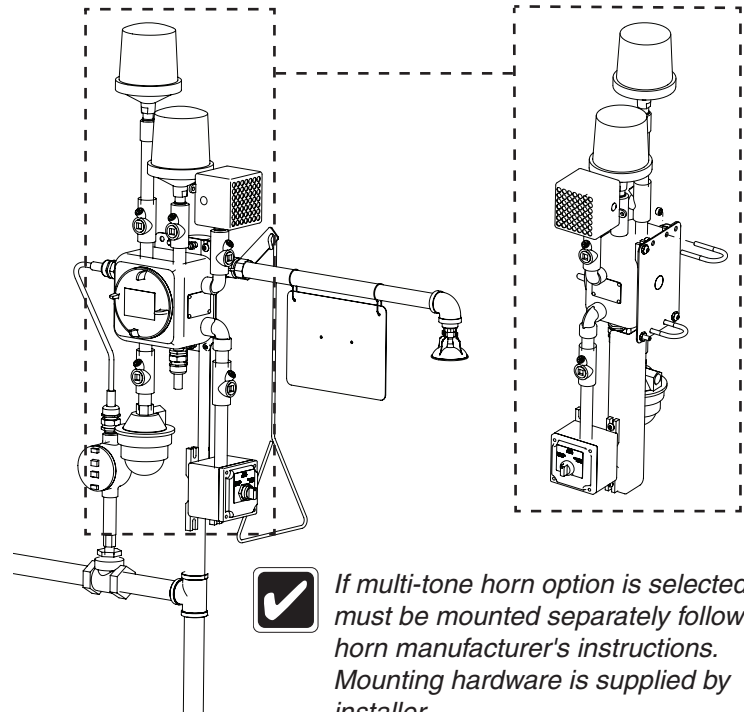
B

- The water flow must be in the direction marked by the arrow on the flow switch body.
- Use teflon tape or pipe sealant (supplied by installer) on all water pipe connections.

Choose a location for mounting the alarm. For best visibility, the signaling system should be mounted at least 7' above ground level.

C

- The signaling system may be mounted directly to the drench shower piping using the supplied U-bolts and nuts.
- The signaling system can also be bolted to a flat surface such as a wall (hardware for this type of installation is NOT supplied).



NOTICE! If the water supply line will be exposed to temperatures at or below freezing, the inlet supply must be freeze-protected 6 inches above the flow switch tee (freeze protection by others).

2 Connect Signaling Assembly to Flow Switch

A Wire the flow switch to the control box with one of the provided cables and conduit hubs supplied per the wiring schematic. Refer to the instruction manual supplied with the conduit hubs for proper installation.



The cable may be cut to any length required.



To prevent water condensation from dripping onto the flow switch, make sure the cable is not taut.

3 Complete electrical supply connections

⚠ WARNING To prevent personal injury and damage to the components, follow all manufacturer's warnings and instructions when performing any maintenance or installation of components used in this emergency signaling system.

A Remove the access cover by rotating the cover counter-clock wise.

B With the remaining conduit cable, run provided electric power conduit and hubs into an unused 3/4" conduit port of the control box. Connect the provided wires in the conduit to the floating terminal block per the wiring schematic.

See wiring diagram and schematic on page 11.

C Plug any remaining holes with plugs provided.

D Once the connections are made, close the access cover by rotating clock-wise and sealing the control box.



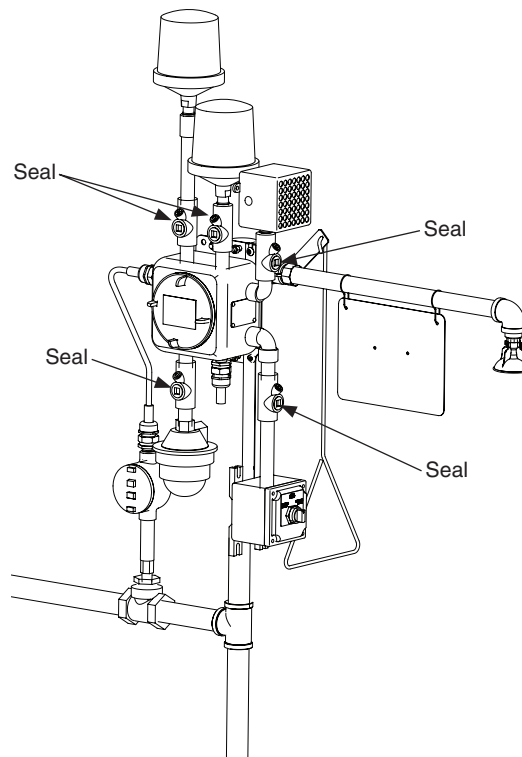
Compliance and conformity to local codes and ordinances is the responsibility of the installer.



Do not exceed 14 AWG wire.

4 Conduit Seals

A Unit is provided with sealing compound and conduit seals. Seals must be filled by installer prior to powering the unit per seal manufacturer's instructions.



5 Test the Signaling System



Testing the signaling assembly for the first time using the drench shower may expose the flow switch to an unnecessary water hammer since the downstream piping may be empty of water. The flow switch is designed to withstand such a water hammer, but using the smaller eyewash flow is recommended.

A

Apply power to the alarm branch circuit. The alarm should remain in the OFF position and the beacon and area light illuminate (if applicable). The signal light will not illuminate.

B

Open the eyewash valve. The horn should sound and the signal light flash shortly after water flows from the system. If there is the optional beacon light, this beacon light will turn off once the fixture is activated (the signal light will stay on, flashing). The area light will always stay on.

C

If present, use the auto reset on/off switch to silence the horn during a flow event. Toggling the switch to silence mode will shut off the horn but allow the signal light to keep flashing. All units can be silenced by deactivating the flow.

D

Shut off the eyewash flow valve. The signal light should stop flashing and the beacon light (if applicable) will turn back on at a steady state.



Discontinuing the flow will automatically reset the silence feature.

E

Repeat steps A through D, this time using the drench shower only.



The signaling system is designed to work properly even if both the eyewash and drench shower are used simultaneously. The signaling system will continue to operate so long as either the eyewash or drench shower is still in use.

Signaling System Maintenance

The Bradley Emergency Signaling System is designed to be virtually maintenance free. An occasional damp cloth wiping of the clear dust cover is all that is needed to ensure maximum visual attention-getting ability.

Remote Sensing Option

Flow Switch Capability (see supplied wiring diagram)

If remote sensing is wanted, remove the pipe plug from the back of the junction box. Connect the extra black wire (common to both switch arrangements) and the blue wire (normally open switch arrangement) or red wire (normally closed switch arrangement) to your application per local electrical codes. The switch is rated at 5 amps at 125/250VAC and is isolated from the contacts used by the signaling station. The customer supplied connections should be of a type equal to or greater than the junction box's rating to maintain the integrity of the system.

Control Box Capability (see supplied wiring diagram)

The control box is supplied with 2 sets of double pole double throw relay contacts which change state with flow. These contacts can be externally powered or powered by the 24VDC un-switched outputs; combined load cannot exceed 770mA when internal DC power is used. If contacts are externally powered, the contacts are rated for a maximum 160 volts at 5 amps.

Servicing of Lights

S19-324D2 LED Arrays (Type 4X)

A De-power the control box by observing standard lock-out tag-out practices.

B To disconnect the wire leads of the light requiring the bulb to be replaced, use a small blade screwdriver to depress the orange terminal release tab adjacent to the wire's location. With the tab fully depressed, the wire can be easily removed from the terminal location.

C Remove the nut on the stem of the light which attaches it to the enclosure. Remove the entire light.

D Remove the gasket (if present) to expose the four screws which retain the dome.

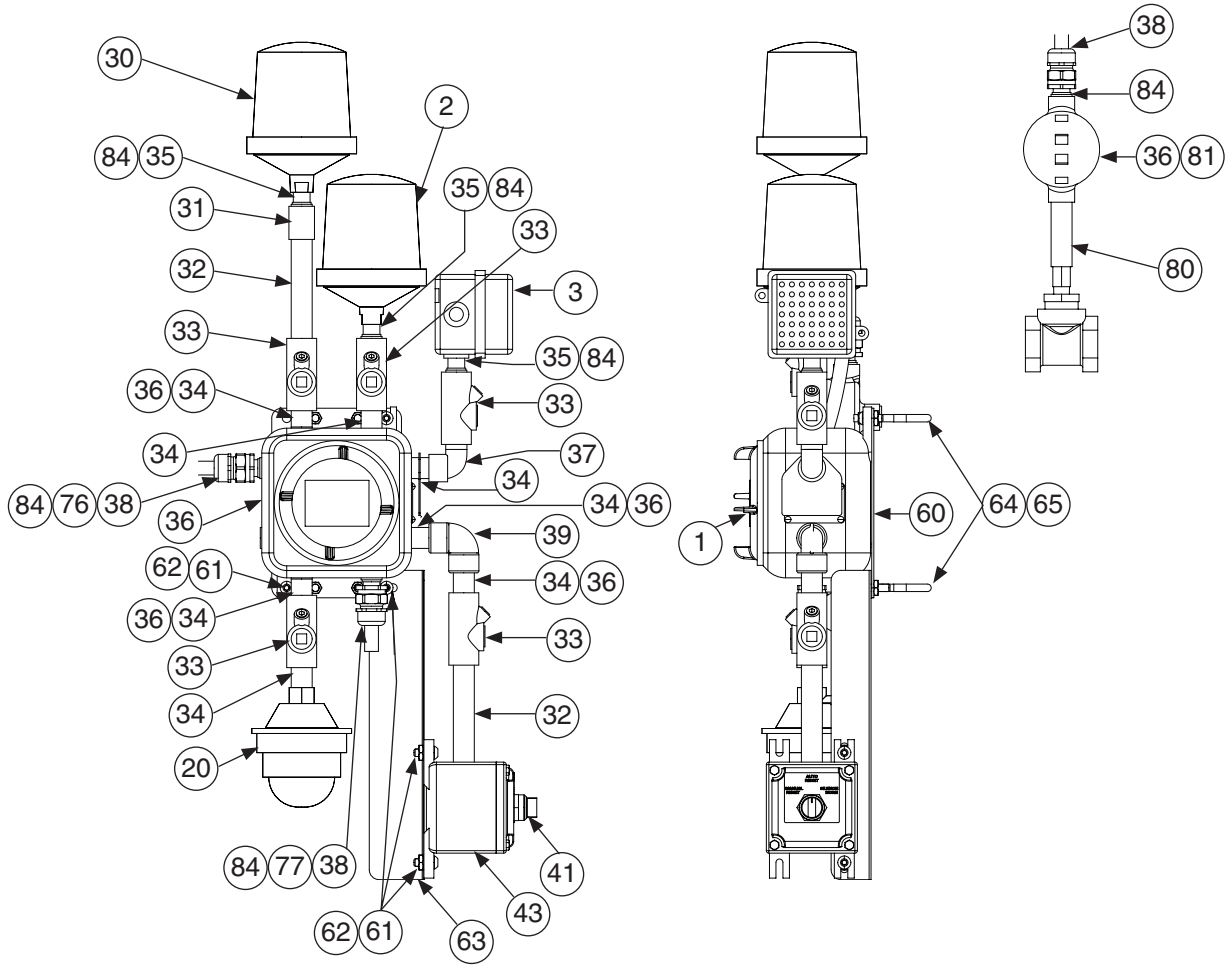
E Remove the screws, take off the dome and the LED array is now visible. Press and turn the LED array to remove. Replace as needed with the same size LED array and color.

F Reverse the disassemble process to reinstall the light. Inspect all gaskets and seals to ensure the integrity of the unit.

G Check that the signaling station is functioning properly once the power is restored by activating the fixture attached to the signaling station.

Troubleshooting		
Problem	Cause	Solution
The signal light and horn (if applicable) does not operate when water flows.	No power to the signal station.	Check that the circuit breaker or fuse is supplying power to the signal station
	Component failure.	Check the two 3 Amp 24VDC fuses on the print circuit board in the signal station enclosure.
	No input power.	Check that there is 24VDC being supplied from the power supply mounted on the print circuit board in the signal station enclosure.
	Water flowing in wrong direction for flow switch body.	Verify that the direction of the water flow corresponds to the arrow on the flow switch body.
	Insufficient water flow.	Check that water flow is sufficient (2.4 gallons per minute is required).
	Installation error.	Check all electrical connections, including power supply at the quick-connect cable, from the signal station to the flow switch.
Horn sounds and signal light does not light.	Component failure.	Check light connections and filament in the light.
Area light does not operate.	No power to the signal station.	Check that the circuit breaker or fuse is supplying power to the signal station
	Component failure.	Check the two 3 Amp 24VDC fuses on the print circuit board in the signal station enclosure.
	No input power.	Check that there is 24VDC being supplied from the power supply mounted on the print circuit board in the signal station enclosure.
	Component failure.	Check light connections and filament in the light.
Beacon light does not operate. (This light should turn off when the signal light turns on and back on when the signal light turns off.)	Fixture in use.	Make sure that the flow switch contacts are open (horn and/or signal light are not ON).
	Power disconnected in error.	Check that the circuit breaker or fuse is supplying power to the signal station.
	Component failure.	Check the 3 Amp 24VDC fuses on the print circuit board in the signal station enclosure.
	No input power.	Check that there is 24VDC being supplied from the power supply mounted on the print circuit board in the signal station enclosure.
	Component failure.	Check light connections and filament in the light.

S19-324D2 Service Parts



S19-324D2 Service Parts

Item	Part No.	Qty.	Description
1	S90-568	1	Sub-Assy, Signaling Station
2	269-1305A24	1	Signal Light, Expl. Proof, 24VDC, Amber
2	269-1305R24	1	Signal Light, Expl. Proof, 24VDC, Red
3	269-2462	1	Horn, Exp, C1D2, 24VDC
20	257-014	1	Area Light, C1D2, Pendant, White
20	257-015	1	Area Light, C1D2, Pendant, Red
30	269-1305G24	1	Beacon Light, Expl. Proof, 24VDC, Green**
30	269-1305B24	1	Beacon Light, Expl. Proof, 24VDC, Blue**
31	269-1780	1	Conduit Coupling, 3/4 NPT
32	269-1316	1	Conduit Nipple, 3/4 x 6
33	269-1596	1-5	Fitting, Seal*
34	269-1582	7	Conduit Nipple, 3/4 x 2
35	269-1315	3	Conduit Nipple, 1/2"
36	269-1294	4	Plug, Conduit, 3/4
37	269-1549	1	Elbow-Street 3/4"
38	269-1308	4	Conduit Connector
39	269-2142	1	Elbow, 90, 3/4, Conduit
41	261-144	1	Selector Switch, Class 1 Division 1 & 2
42	114-310	1	Nameplate
43	255-070	1	Enclosure, Class 1 Div 1 & 2
60	S70-176	1	Exp Alarm Enclosure MN (heat traced units only)
60	140-1157	1	Bracket-Alarm Box Exp, Pipe Mount (non-heat traced units)

Item	Part No.	Qty.	Description
61	160-514	5	Screw, 3/8-16x1.0 BTN
62	161-157	5	Nut, 3/8-16x1.0 BTN
63	140-1158	1	Bracket, Alarm, J-Box EXP
64	269-594	2	U-Bolt SST
65	161-065	4	Nut, 3/8-16 Hex
76	269-1588	1	Conduit, Flexible, 3 ft
77	S90-643	1	Conduit, Flexible, 6 ft.
77	S90-644	1	Conduit, Flexible, 12 ft.
77	S90-645	1	Conduit, Flexible, 50 ft.
80	269-1421	1	Flowswitch, 1-1/4" T-DPDT, Brass Tee and Body
80	269-1421SS	1	Flowswitch, 1-1/4" T-DPDT SS Tee and Body, CSA Listed
80	269-1522	1	Flowswitch, 1/2"-T-DPDT
80	269-1522SS	1	Flowswitch, 1/2" T-DPDT, SS Tee and Body, CSA Listed
81	269-1312	1	NEMA 4X Box, Conduit Outlet
81	255-078	1	NEMA 4X Stainless Steel, Conduit Outlet
84	269-518	6	Reducing Bushing
97	269-1935	1	Sealing Compound, A 3-3

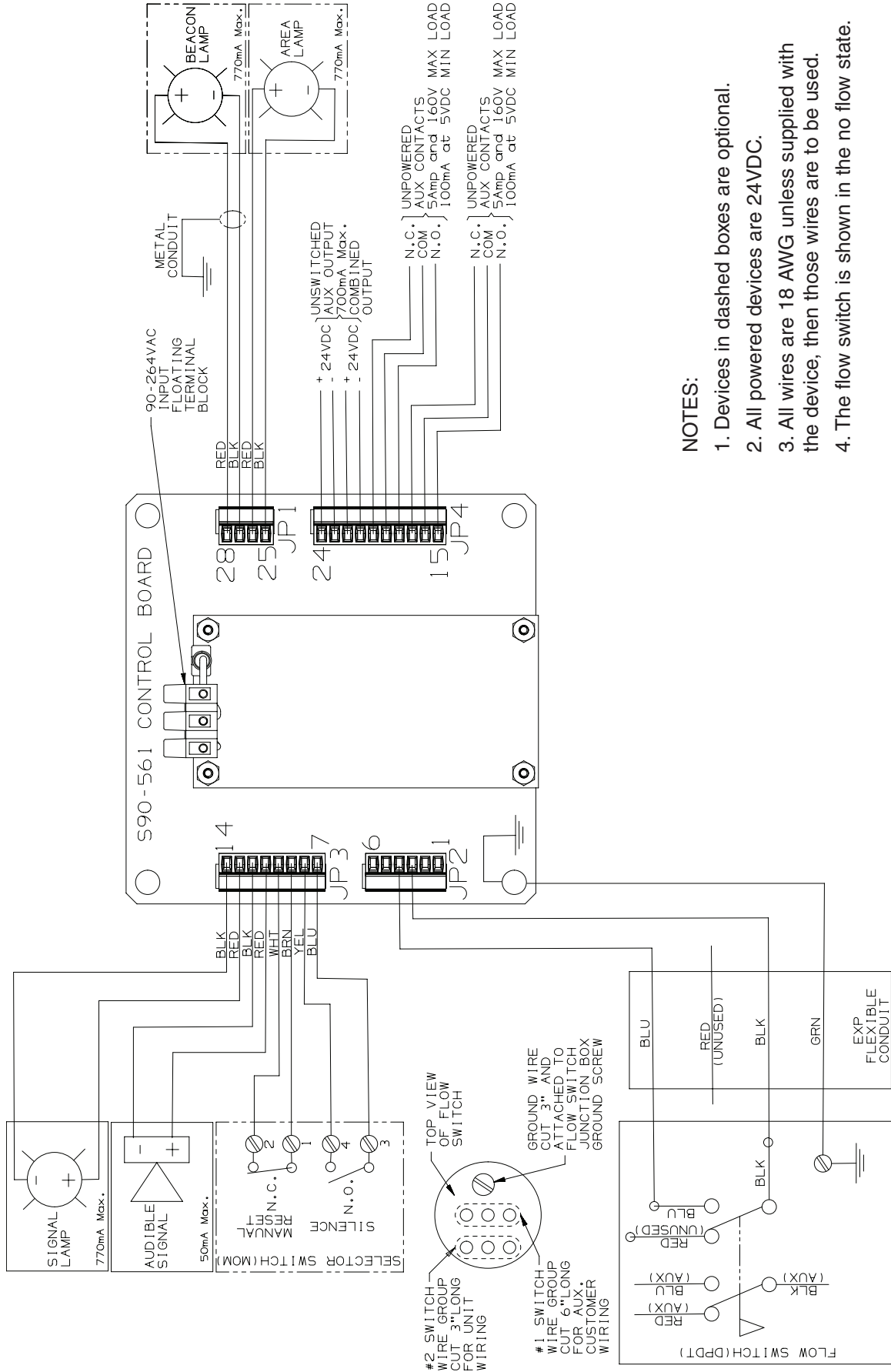
*Requires sealing compound if replaced. One sealing compound will fill two seal fittings.

**Re-program per manufacturer's instructions to be steady state light if ordered for service.



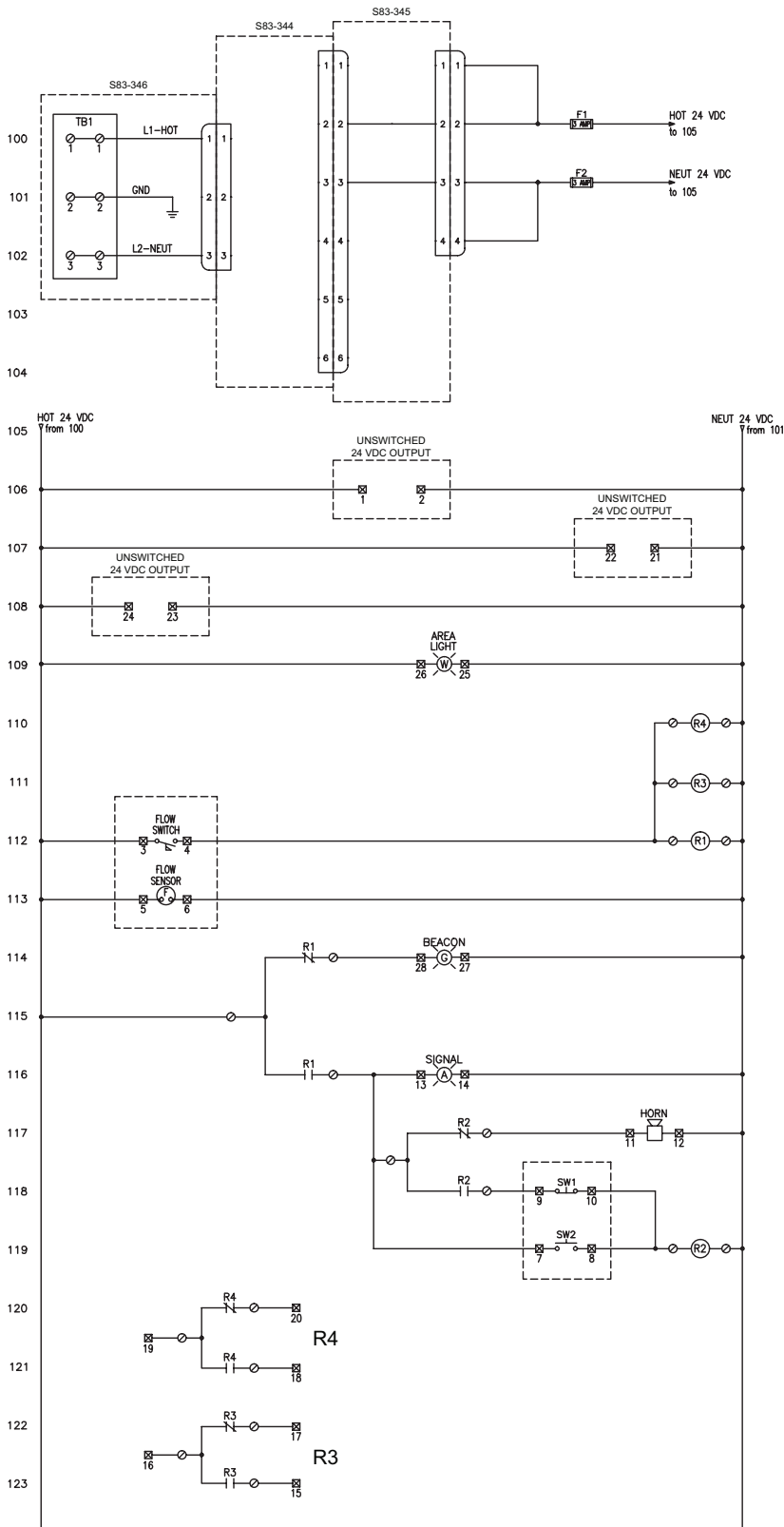
Item 97 ships loose.

Wiring Diagram



- NOTES:**
1. Devices in dashed boxes are optional.
 2. All powered devices are 24VDC.
 3. All wires are 18 AWG unless supplied with the device, then those wires are to be used.
 4. The flow switch is shown in the no flow state.

Schematic



LEGEND

	WIRE		LIGHT
	INTERNAL JUMPER		HORN
	TERMINAL BLOCK CONNECTION		FLOW SWITCH
	COMPONENT SOLDERED CONNECTION		FLOW SENSOR
	FUSE		NORMALLY OPEN CONTACT
	NORMALLY OPEN SWITCH		NORMALLY CLOSED CONTACT
	NORMALLY CLOSED SWITCH		RELAY COIL
	RELAY COIL		