Installation Manual

LooLoop Wastewater Treatment System

An SOSystems Technologies Product

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Installation Manual: LooLoop Treatment System

Before You Begin

The LooLoop wastewater treatment system has been designed to make your installation as easy and straightforward as possible. We have developed, field tested, and manufactured this system to written specifications and a quality system prior to shipping. Inspect the system provided for completeness and inspect components for shipping damage. If you find any component of this system has flaws that would impact proper installation and operation, please contact your LooLoop representative by contacting SOSystems at (703)609-6715. The LooLoop representative can provide technical support, repair and replacement instructions and replacement components as needed.

Overview

As an enhancement to an existing septic system, the LooLoop system (see Figure1) requires one additional standard 1500 gallon underground two chamber septic tank placed adjacent to the existing septic tank, plus the installation of the LooLoop BioFilter Cabinet. The BioFilter Cabinet is a 4' X 4' x 6' tall pre-assembled cabinet that can be placed at any location on the property that allows the drain connecting the BioFilter Cabinet to the septic tank to drain by gravity back to the septic tank.

The existing septic tank (Tank 1) continues to be where solids are settled and anaerobically digested. In the preferred installation arrangement, the LooLoop BioFilter Cabinet outlet flow is connected to the second compartment of Tank 1 (or second compartment of a new Tank 1). Effluent from the first compartment of Tank 1 flows into the second chamber where it mixes with the return flow from the LooLoop BioFilter Cabinet. The mixed flows pass into the LooLoop tank (Tank 2) through the outlet tee (or baffle) of Tank 1 and inlet tee of Tank 2.

The LooLoop process is essentially a loop in the normal flow path of a conventional septic system. The loop has a highly aerated segment and a segment that has very little oxygen. The oxygenated portion of the loop is the section containing the BioFilter Cabinet. The low oxygen (anoxic) segment is the section containing the LooLoop tank. In the aerated portion of the loop, effluent is sprayed onto high porosity plastic filter media. Bacteria attach themselves to the media and use the trickling wastewater for food. The bacteria also convert almost all nitrogen compounds into the nitrate (NO_3) form. Some bacteria are constantly being sloughed off the media. The dislodged bacteria get carried by the trickling liquid, along with the dissolved nitrate, out the bottom of the BioFilter Cabinet back to septic Tank 1, then flow into the LooLoop tank (Tank 2). The dislodged bacteria

sink or float in the tanks. The mass of floating or settled bacteria becomes what is called sludge. The number of oxygen breathing bacteria accumulated in the LooLoop tank is large. The oxygen needs of the bacteria deplete the oxygen dissolved in the water during its pass through the BioFilter. The bacteria then turn to nitrate for their oxygen thereby releasing nitrogen gas to the atmosphere. The anoxic LooLoop tank serves as the receptacle for wastewater sludge and the reaction tank for the removal of nitrogen.

The operation of the recirculating pump, located in the second compartment in the LooLoop tank (Tank 2), is controlled by an on/off cycle timer in the control panel. The purpose of the pump is to deliver wastewater to the BioFilter Cabinet. The purpose of cycling is to slow the flow through the LooLoop system to allow time for oxygen depletion and nitrogen removal.

The wastewater continues to recirculate to the BioFilter Cabinet and back to the septic tanks at the rate of about 7,000 gallons per day. The LooLoop tank pump chamber's final feature is an overflow pipe that allows the clean recirculating effluent water to flow to the drain field.

The LooLoop system meets the requirements of NSF/ANSI 40 Class 1 treatment systems and NSF/ANSI 245 for nutrient removal systems.

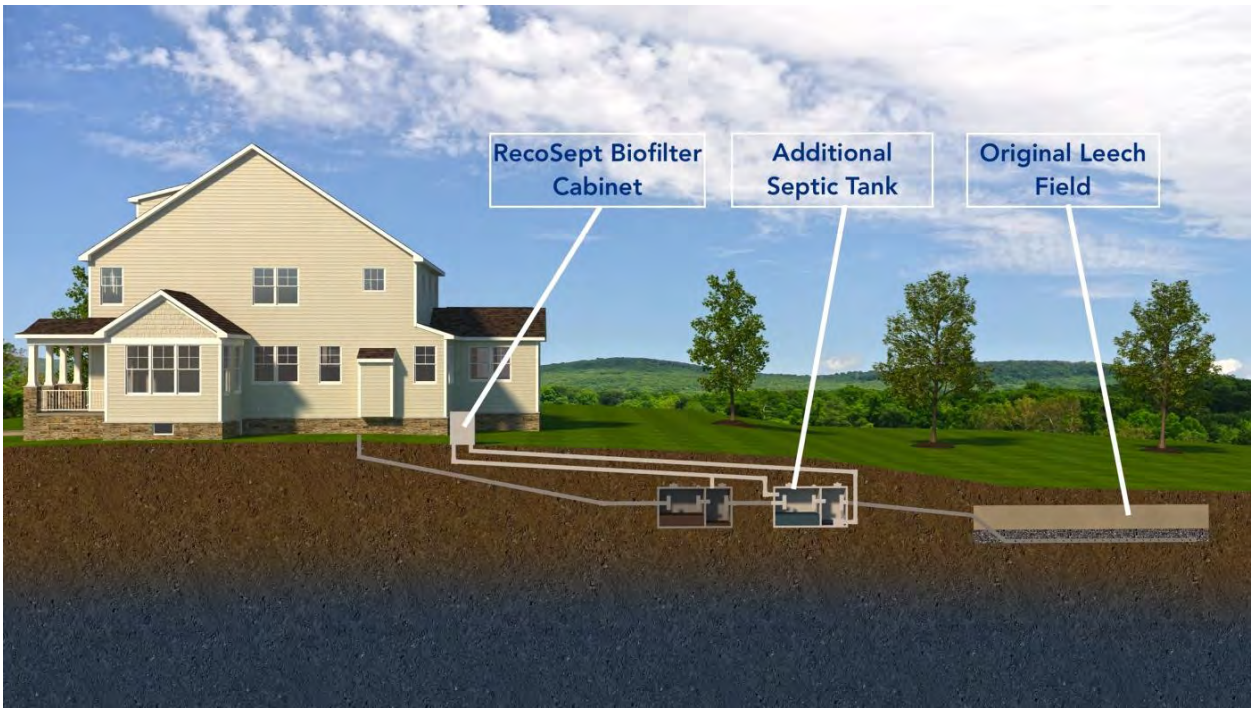
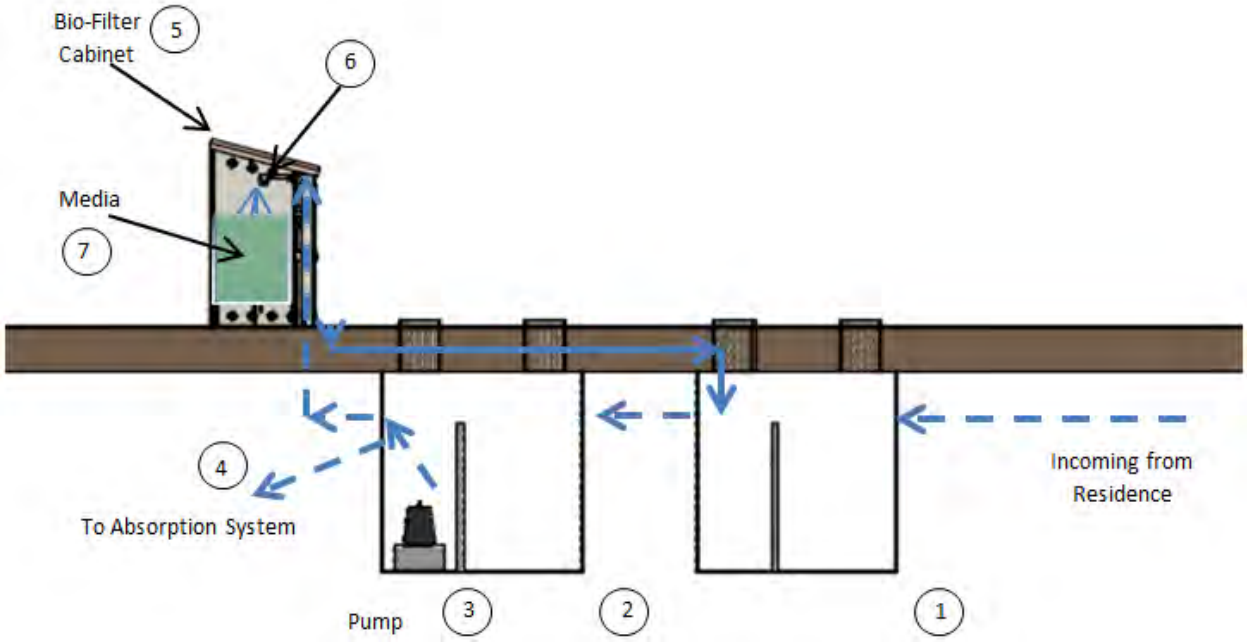


Figure 1. LooLoop System

Prior to installation, it's important to read through the Installation Manual and make sure you have the correct training, materials, tools, and equipment. Note that you must perform the installation according to the current manual to keep the warranty valid.

Important Notes

- The backwash discharge from water softener must not be plumbed into the septic tank. Failure to follow this instruction will void the system's warranty. Contact your LooLoop representative if you have any questions about household plumbing arrangements that may affect the proper functioning of the system.
- All pipe diameters are given in US nominal IPS pipe sizes.
- If you are not a trained LooLoop treatment system installer, contact the LooLoop representative for training prior to installing the system.



System Components

1. Existing Septic Tank (Tank 1)
2. LooLoop Septic Tank
3. Recirculation Pump
4. LooLoop Septic Tank Overflow Pipe
5. BioFilter Cabinet
6. Spray Piping and Nozzle
7. Trickling Filter Media

The standard LooLoop treatment system consists of the following components:

- The BioFilter Cabinet is the key component of the LooLoop system and has no moving or mechanical components other than three valves and operable vents at the top and bottom of the cabinet. Thus the BioFilter Cabinet is designed for long term performance, ease of operation, and minimal maintenance. The BioFilter Cabinet is designed to resemble a small garden or pool equipment shed that can easily be placed adjacent to the house, similar to other mechanical systems, or on any other part of the property that allows the BioFilter Cabinet to drain by gravity to the septic and LooLoop tanks. The BioFilter Cabinet is constructed with water-resistant PVC board, polystyrene foam insulation, and stainless steel vent louvers. All components of the system that contact wastewater are of stainless steel, PVC, or rubber construction for durability. The recirculating trickling filter media is a self-supporting PVC sheet media.
- The LooLoop tank is a 1,500-gallon, two compartment concrete or plastic septic tank. The standard tank is sized with 3/4 capacity stored in the first compartment and 1/4 for the second compartment. Compartment capacities may vary but in no instance shall the capacity of the first compartment be less than 2/3 total capacity and the second compartment more than 1/3 of tank capacity. These criteria are flexible to accommodate local tank suppliers. The LooLoop system was designed to use, wherever possible, locally available equipment in order to facilitate purchase and installation by local contractors. The tank may be made of concrete, high density polyethylene, fiber reinforced plastic or other material approved by local authorities. A LooLoop sales agent will determine site-specific tank selection.
- The LooLoop tank submersible pump is a 115V, 60 hertz, single phase, fractional horsepower motor made from stainless steel and composite resin materials. The pump is expected to operate for at least 60,000 hours or about 9 years. The pump and controller are the only electrically powered components of the LooLoop system.
- The LooLoop system is supplied with a prewired repeat cycle flow controller contained in a NEMA rated enclosure and is accessible through the door on the cabinet. The controller controls the recirculating pump cycle time from 5 minutes per hour of operation to 55 minutes per hour of operation. A LooLoop representative will determine the pump cycle time for the specific installation. The weatherproof controller is equipped with a fail to start detector, a visible alarm, an audible alarm, and silencer switch. The controller

contains a power switch and time clock that control the recirculating pump operation. The local dealer's name, address, and telephone number on a placard on the wall adjacent to the controller. A high level switch connected to the alarm circuit is provided to alert the user of blockages in the disposal system piping between the LooLoop and the leaching system components. The backup alarm is provided for the convenience of the owner and is not integral to the LooLoop system.

- The LooLoop treatment system is capable of treating 500 gallons per day of domestic wastewater from a single-family residence or 250 gallons per day from two single-family residences.

The performance of all biological systems can be affected by water quality factors beyond the presence and type of contaminants in water. One of these factors is alkalinity. Alkalinity is a measure of the ability of water to neutralize acid. This is important because biological activity generates acid and too much acid will depress biological activity and treatment effectiveness. The alkalinity of wastewater is highly dependent on the alkalinity of the potable water supplied to the residence. Therefore, before selling a LooLoop system, the LooLoop representative will test the drinking water at the home and, if necessary, recommend a simple, inexpensive method to increase alkalinity by modifying laundry cleaning agents, with the added effect of improving laundry performance.

INSTALLATION

STEP 1: Review Site Plans

If detailed site plans are provided, review the site plans and details of the installation. If differences between the site plans and actual site, contact the LooLoop representative before scheduling the installation.

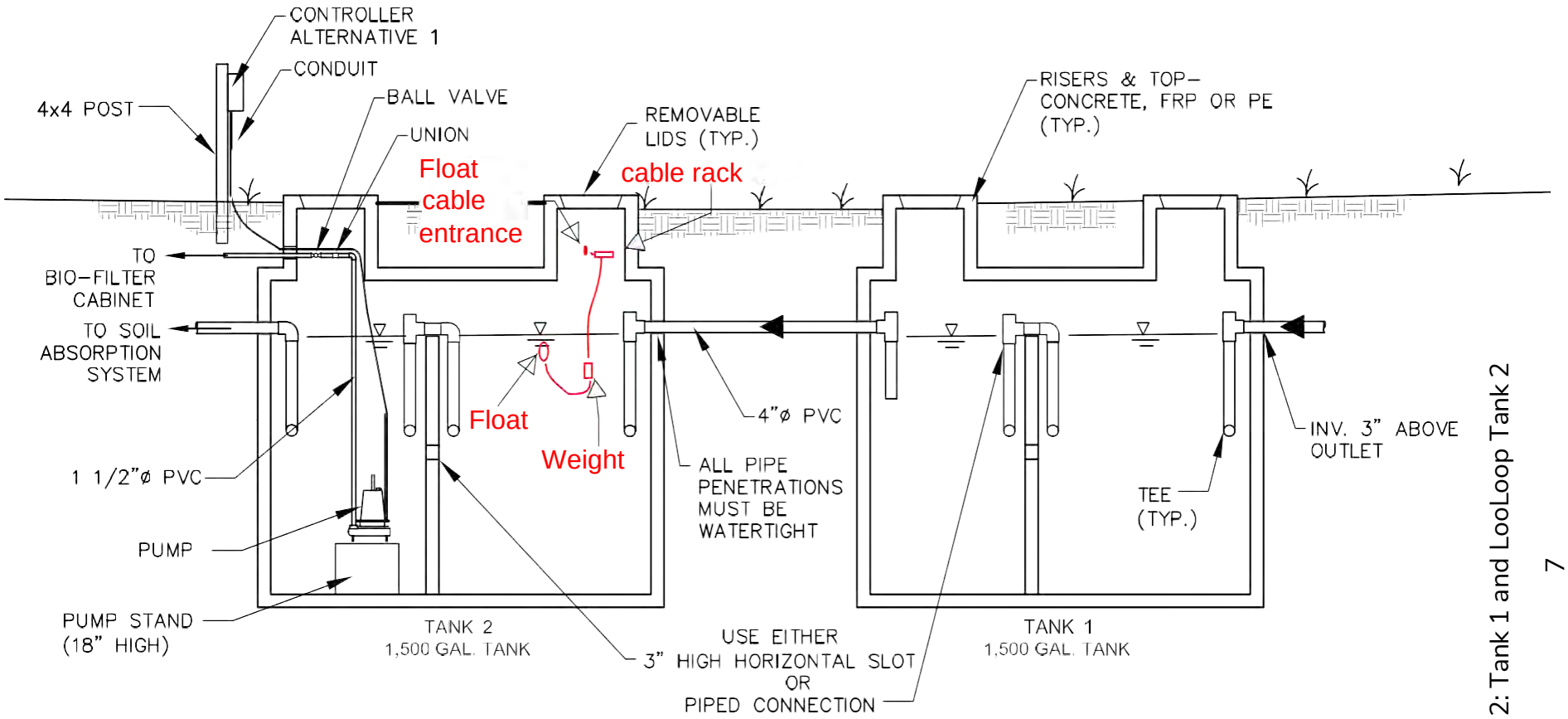
If limited detailed plans or no site plans are provided, contact the LooLoop representative for design assistance.

- Determine the exact location of the existing septic tank, the LooLoop tank, and BioFilter Cabinet. Account for "as is" landscaping and likely future landscaping or other additions in the sketch.
- The LooLoop septic tank should have 2 compartments with the capacity of the first compartment preferably being 3/4 the full tank capacity, but no less than 2/3 the capacity of the entire tank. Define and sketch the layout of all piping, electrical conduit, and other below ground items.

STEP 2: Excavate and Set LooLoop Septic Tank

- The LooLoop tank needs to be installed level with a positive slope between the outlet of septic Tank 1 and the inlet to the LooLoop tank. The interconnection between the compartments should be at mid-depth by a transverse slot in the wall, a line of several holes through the wall across the tank, and/or a Tee saddle over the partition wall. All Tee inlets and outlets must be terminated with a Tee. The sidearm of the Tee should be connected to the vertical leg of the Tee saddle and the two through holes oriented perpendicular to the long axis of the tank. The tank installation details are provided in Figure 2.

The LooLoop tank must be set such that there is gravity flow from the first septic tank (Tank 1) to the LooLoop tank. IMPORTANT: THE LOOLOOP TANK MUST BE SET AT AN ELEVATION THAT ALLOWS GRAVITY FLOW FROM THE SEPTIC TANK 1 TO THE LOOLOOP TANK (TANK 2) AND FROM THE LOOLOOP TANK TO THE DRAIN FIELD OR OTHER SYSTEM COMPONENTS. Of particular importance is the method whereby the pipes are connected to the tank. Improper connections can lead to groundwater or surface water infiltration. All pipe to tank connections shall be through resilient rubber or plastic connectors that are imbedded in the tank wall or attached to the tank wall in a watertight manner. Linkseal and Kor-n-seal are two approved manufacturers of new or retrofit pipe connection seals.



SEPTIC TANK INSTALLATION

NOT TO SCALE

Figure 2: Tank 1 and LooLoop Tank 2

Step 2a: Layout the excavation area for the tank

Step 2b: Excavate the hole for the tank per the tank manufacturer's recommendations.

Step 2c: Set the tank per the manufacturer's instructions, including watertight testing, antiflotation measures, and backfilling to the level of the top of the tank.

Step 2d: Install 4-inch (100mm) Schedule 40 PVC pipe between septic tank 1 and the LooLoop tank.

STEP 3: Install the recirculating pump

The LooLoop supplied pump is normally installed in the second compartment of the LooLoop tank. The standard pump supplied by LooLoop is rated to provide 10 gpm at 38 ft. total head. The pump must be installed on the platform provided at least 12 inches above the chamber floor. Sixteen to eighteen inches above the tank bottom is preferred.

Based on the design sketch, the LooLoop pump will be supplied with a power cord long enough to permit a direct connection to the controller located behind the door to the BioFilter Cabinet. LooLoop will provide a circuit breaker disconnect and located behind the BioFilter Cabinet door or on the outside of the BioFilter Cabinet depending on local code requirements. The electrical connection from the pump to the controller, the controller to the disconnect and the disconnect to the house wiring will be installed by the LooLoop or owner's electrician.

All LooLoop installed buried wire will be installed in conduit.

STEP 4: Install the float level switch

Unpack the float level switch and counterweight located in the box with the process controller. To ensure the proper function of the float switch, it is necessary to secure the electric cable inside the tank as illustrated in Figure 2. The length of the cable measured between the fixture point and the body of the float switch assembly determines the total extension of the float. It is essential to ensure the there are no obstructions in the float switch operational area before operation. During operation, adjustments to the float switch cable must not be made under any circumstances, due to the fact that any unwanted cable connections made while the float switch is immersed in liquid can lead to electric shock.

Step 4b. Slip the counterweight onto the float cable before feeding the cable through the conduit to the BioFilter Cabinet. Insert the cable into the counterweight, turning it. This will result in the detachment of the plastic ring inserted in the mouth (if necessary, insert a screwdriver to aid in the detachment of the ring.) Place the ring at the point on the cable where the counterweight is to be attached. Attach the counter weight on the ring by turning it and using moderate pressure. Leave enough slack in the cable to allow adjustment of the float and counterweight depth. Set the float/ counterweight length. Set the length of the incoming cable to the counterweight by gathering the slack in a loop. Attach the cable loop to the cable hanger mounted to the inside of the riser. Connect with a nylon wire tie. Note: the length of cable between the float and fixed point can be freely adjusted.

Step 4c. Attach the float switch to a cord and raise and lower the float switch. Adjust the ON level by changing the position of the weight provided with the switch.

STEP 5: Install the BioFilter Cabinet

The heart of the LooLoop system is the BioFilter Cabinet. See drawings, Figure 3, Figure 4, and Figure 5 for schematics of the BioFilter Cabinet and plumbing. The BioFilter Cabinet is shipped on a pallet configured for forklift handling. The BioFilter Cabinet is to be installed on the provided fiber cement equipment pad and it is important to emphasize that the cabinet must be level on the provided platform. The platform shall be set level on a 4 inch deep compacted bed of pea stone or coarse, washed, screened sand.

Note that in unprotected and/or windy locations, the equipment pad should be 6 inch wire reinforced poured concrete pads with LooLoop supplied anchor brackets.

STEP 5a: Prepare a 5’ X 5’ area for the BioFilter Cabinet. Installation of the BioFilter Cabinet requires that the location of the unit be cleared and grubbed to the subsoil.

STEP 5b: The excavated area should then be compacted and covered with 4 inches of uniform pea stone or clean coarse sand.

STEP 5c: The fiber cement equipment pad is notched in the front to allow for the passage of the effluent and influent pipes yet allowing support for the unit on all sides. Orient the pad appropriately. Care must be exercised when excavating the pipe trench up to the equipment pad to prevent cave in and loss of equipment support.

STEP 5d: The 90-degree connection to the base of the BioFilter Cabinet should be installed after setting the cabinet on the pad to prevent damage to the fitting.

STEP 5e: Unpack the cross flow filter media. The cross flow filter media should then be installed - the first layer of three bales must be oriented front to back. The 2 subsequent layers should be installed at 90 degrees to the one below. The cross flow media requires no special handling, fastening or restraint.

STEP 5f: Unpack the spray nozzle and piping and install the spray nozzle piping into the PVC elbow at the front partition wall to the center of the turn down for the spray nozzle. These pieces are cut to fit and included with the LooLoop supplied equipment. The piping from the turn down to, and including, the nozzle is also supplied by LooLoop. This piping is all NPT. Several pieces are provided to allow the elevation of the nozzle above the media to be adjusted as necessary to assure full coverage. The typical distance from the bottom of the spray nozzle to the top of the filter media is detailed in Figure 4.

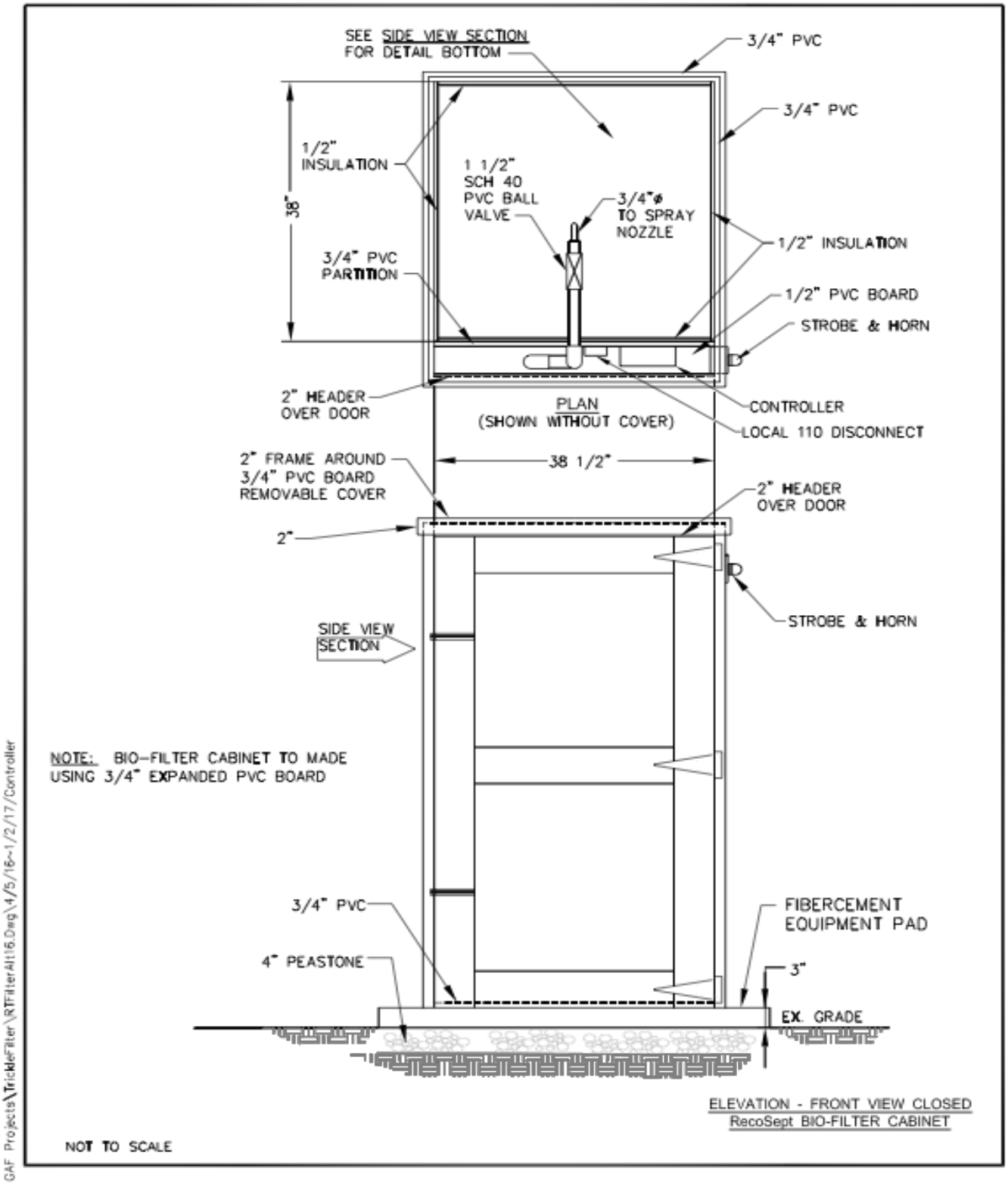


Figure 3: LooLoop BioFilter Cabinet Front View Enclosed

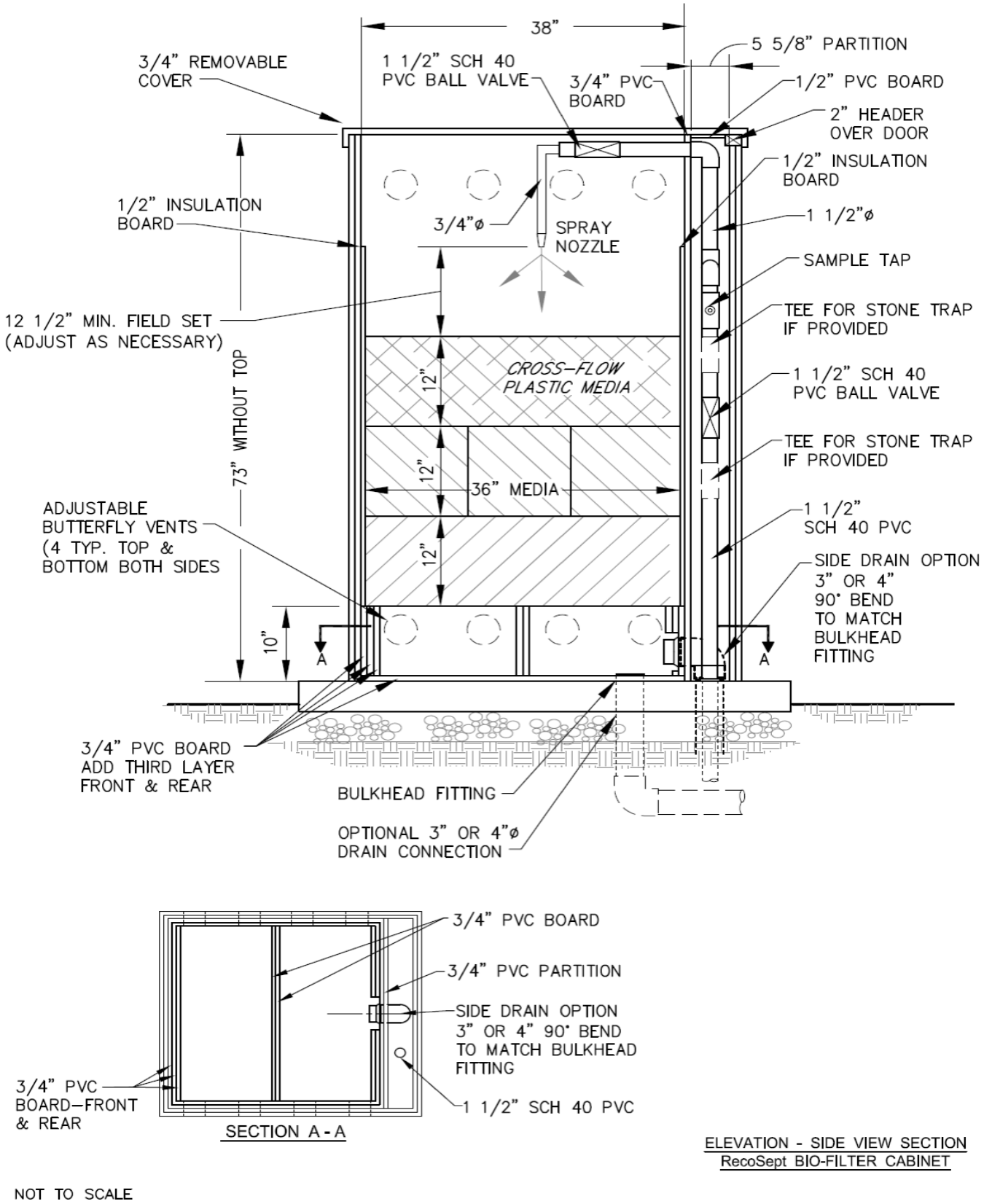


Figure 4: LooLoop Biofilter Cabinet Side View Section

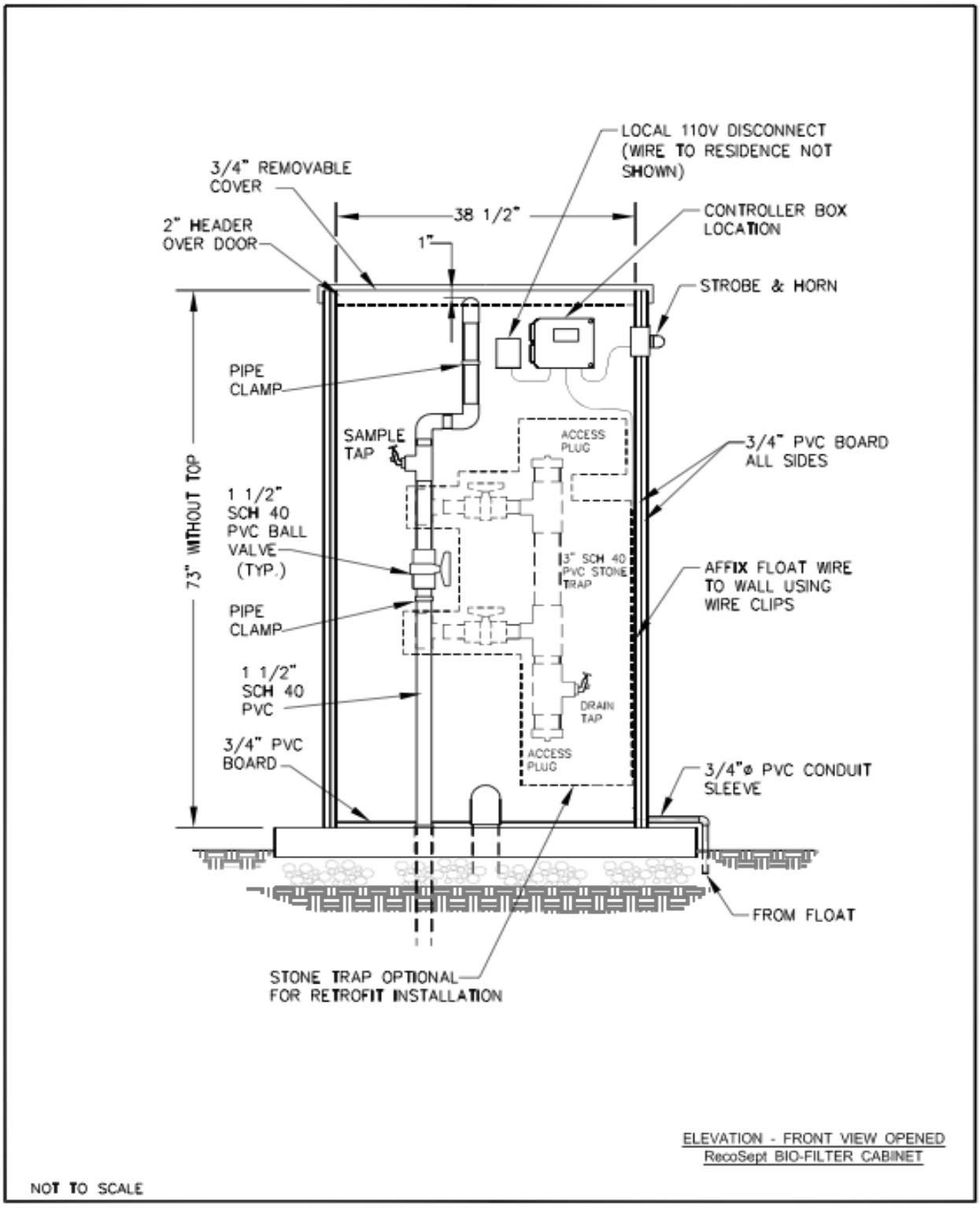


Figure 5: Biofilter Cabinet Front View Opened

STEP 6: Install the 1.5 inch (40mm) Schedule 40 PVC pipe from the submersible recirculating pump to the inlet piping of the BioFilter Cabinet

The pressure pipe between the recirculating pump and the base of the BioFilter Cabinet must be laid at a uniform or flat grade sloping from the BioFilter Cabinet to the pump to allow the contents of the pipe to drain back to the pump chamber when the pump cycles off. Dry fit the pipe and any fittings between the recirculating pump and the inlet of the BioFilter Cabinet. Glue all of the line pieces in place.

STEP 7: Install the outlet piping from the BioFilter Cabinet to the first septic tank

STEP 7a: Install the 3-inch Schedule 40 PVC 90 Adaptor to the 3-inch bulkhead adaptor drain fitting. Glue the adaptor in place. The outlet piping should be at a uniform grade.

STEP 7b: The drain may be maintained at 3-inch or reduced to 2-inch Schedule 40 PVC at a convenient point along the route. Dry fit the piping and any fittings between the bulkhead adaptor and Tank 1. Glue all of the line pieces in place.

STEP 8: Install the piping from the LooLoop tank overflow to the drain field. Match the existing pipe size.

Dry fit the piping and any fittings between the bulkhead adaptor and Tank 1. Glue all of the line pieces in place.

STEP 9: Connect the LooLoop Controller

Unpack the LooLoop controller. The LooLoop controller must be wired as described herein to a dedicated 115 VAC, single phase, 15 amp circuit with a lockable disconnect switch mounted in the immediate vicinity of the BioFilter Cabinet. All electrical work must be completed in accordance with the National Electrical Code and all applicable local codes. A qualified electrician should make all electrical connections, using proper procedures and safety guidelines. A view of the controller is provided in Figure 6 and electrical line diagram in Figure 7.

The basic function of the controller is to turn the recirculating pump feeding the LooLoop BioFilter cabinet on/off on a regular and repeatable basis. The preset cycle time is 27 minutes on and 3 minutes off. The cycle time can be adjusted by your LooLoop representative.

The controller also includes a horn and strobe alarm box located on the exterior of the BioFilter Cabinet to indicate when the controller has turned on the pump, but no current flow is measured (i.e., the pump is not working). The horn/strobe will disengage when current is restored. The manual silence button located on the horn/strobe alarm box disables the horn. The strobe will remain on until the fault is corrected.

A float switch located in the LooLoop tank is provided to alarm if the water level in the tank reaches a high level.

The controller comes with three relay outputs and two digital inputs. The controller manual is provided in a separate manual provided with the system. The controller component specification sheets are provided in the Appendix.

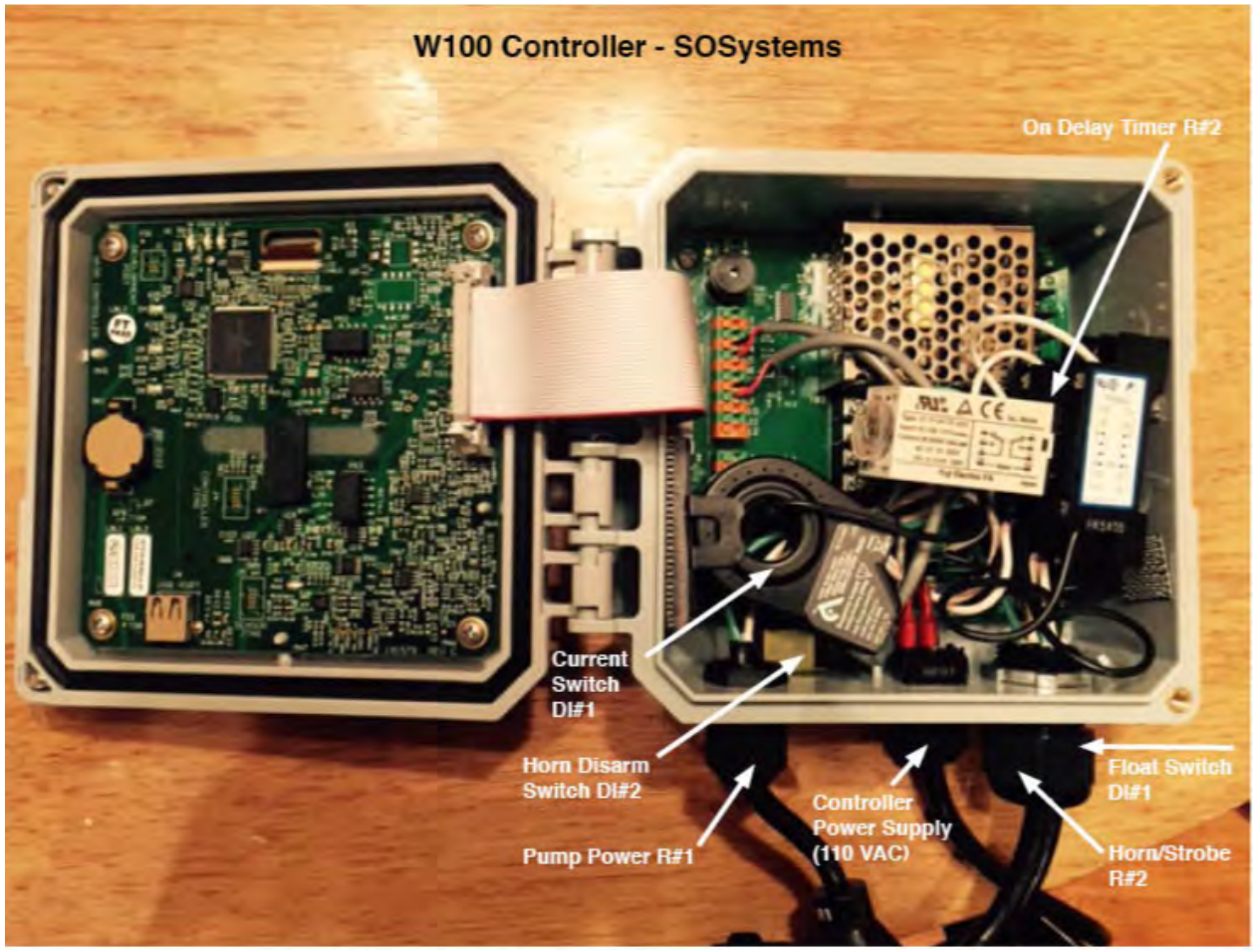


Figure 6. LooLoop Controller

STEP 9a. Install the controller on the wall behind the door of the BioFilter Cabinet using the pre-drilled holes (see Figure 5).

STEP 9b: Connect Electrical - the owner shall provide an electrical disconnect and 110 volt plug receptacle located on the wall behind the BioFilter Cabinet door. Connect the power from the electrical disconnect to the building power supply. The power cable should be placed in PVC conduit from the residence to the electrical disconnect. Plug the power cord for the controller into the plug receptacle. Extra power cord should be gathered in a loop and tied using a wire tie. The loop and chord should be neatly arranged and fastened to the inside wall.

STEP 9c: Connect pump - The pump power cord should be enclosed in conduit from the point where it exits the BioFilter Cabinet to the septic tank. The pump power cord should be terminated in a conventional three prong plug and plugged into the plug marked R1 extending from the bottom of the controller.

STEP 9d: Connect float switch - The float switch cord should be enclosed in conduit from the LooLoop tank to the BioFilter Cabinet. The float switch is terminated in a four prong connector. Inside the cabinet behind the BioFilter Cabinet door the connector on the float switch wire should be connected to the four prong connector extending from the controller. The connections should be screwed together. Note, match the key with the key slot when connecting the two halves of the connection. Loop extra wire and tie with wire tie. Fasten loose wires neatly to the inside wall of the compartment.

APPENDIX

LooLoop Start-Up Instructions

STEP 1. Upon completion of the installation of the system components the LooLoop tank and the septic tank are filled with clean water to their normal operating levels. Normal level is when both tanks are at the overflow level.

STEP 2: Turn on the controller

The controller is already pre-programed to operate the pump on a 27 minutes on and 3 minutes off cycle. The cycle timing is adjustable by the LooLoop representative.

STEP 3: Test Installation

STEP 3a: With the controller on, check to confirm that the circuit breaker will provide or deny power to the system.

STEP 3b: Unplug the pump from its connection to the controller while the pump is running. This should start the sound and light alarms.

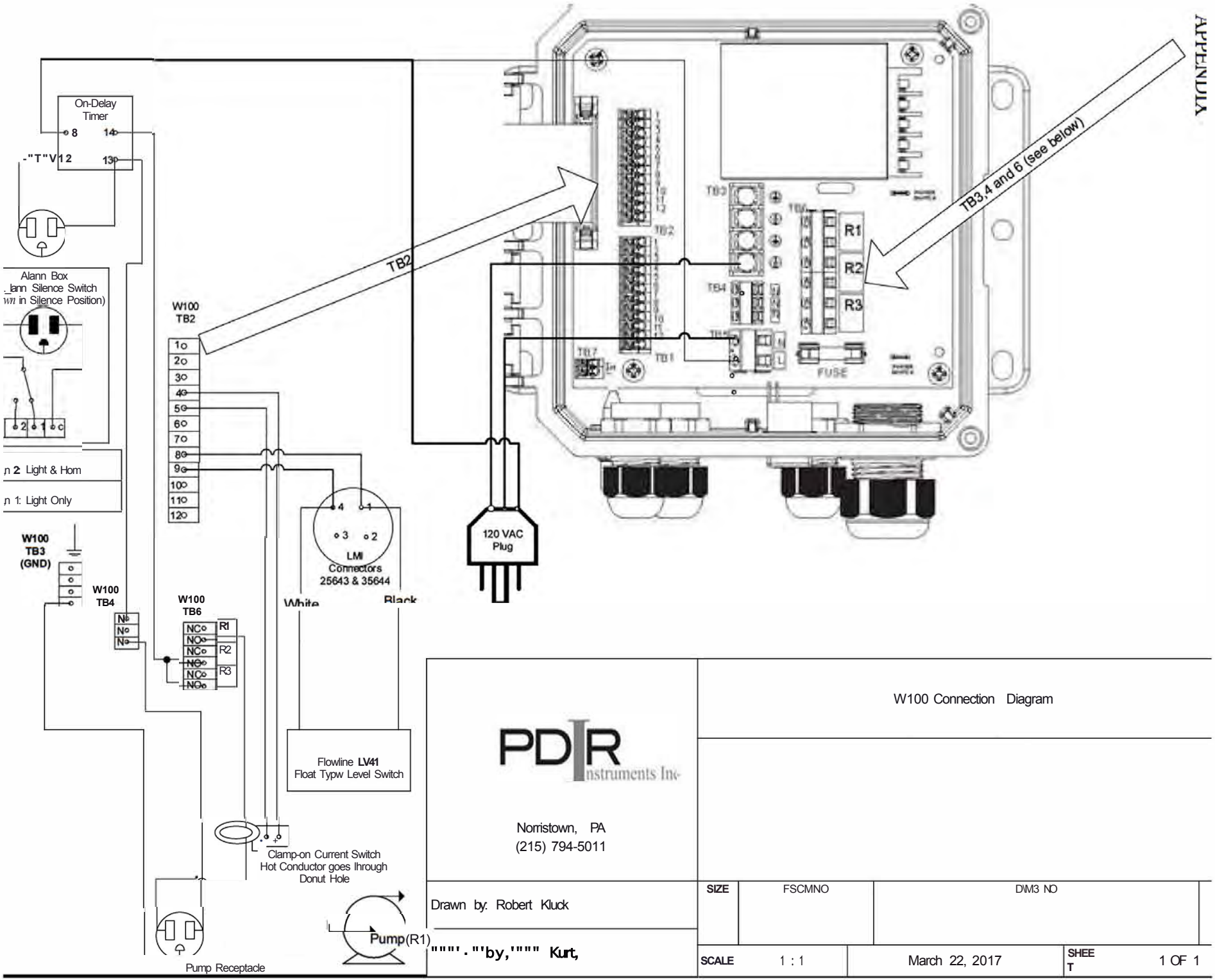
STEP 3c: Test the alarm silence switch at the bottom of the horn/strobe alarm box located on the exterior of the BioFilter Cabinet. This switch will turn off the sound alarm. The light alarm will remain on until the fault (pump fails to start or high water level in LooLoop tank) is corrected, or the alarm reset switch is thrown.

STEP 3d: Attach the float switch to a cord and raise and lower the float switch. Adjust the ON level by changing the position of the weight provided with the switch.

Once all tests are passed, the system is ready for use.

Operating Start Up

This procedure will minimize the potential for any odors to be present. The startup and maturation of the biological processes can take from 3 weeks to 2 months, depending on the time of the year. Initially, odors, if any, should be confined to a 10 foot radius around the BioFilter Cabinet during start up. Once the biological processes have matured, no noticeable odors should be present. Contact a LooLoop representative if a strong septic system odor is present in the vicinity of the BioFilter Cabinet.



PDR Instruments Inc

Norristown, PA
(215) 794-5011

W100 Connection Diagram

Drawn by: Robert Kluck

"""'."'by,'""" Kurt,

SIZE	FSCMNO	DM3 NO
SCALE 1 : 1	March 22, 2017	SHEET 1 OF 1

APPENDIX

FEDERAL SIGNAL

▶ Model PMC LED

A B C G R

Panel Mount Multifunctional LED Combination Audible/Visual Signal

Piezoelectric sounder with LED light engineered for panel mounting.

Model PMC was developed with a multichannel technology. The device allows three levels of alarm (alert, pre-alarm and alarm) controllable via independent electric contacts.

PMC offers three independent electrical channels. Channel 1 includes a flashing light only. Channel 2 adds an intermittent sound to the flashing light. Channel 3 includes a steady light combined with a continuous sound.

PMC has a self-extinguishing PC body that protects against vibrations, dust and atmospheric elements. The device can be panel mounted through a 1.18" hole and secured with the provided locking ring.

FEATURES

- Available in 12-24VAC/DC or 48-240VAC
- 3 channels included:
  1: flashing light
  2: flashing light & intermittent sound
  3: steady light & continuous sound
- 100,000 hour LED
- Transparent polycarbonate dome
- Type 3R, IP65
- CE Compliant
- UL and cUL listed

MODEL	VOLTAGE	FLASH RATE/MINUTE (FLASH MODE)	DECIBELS @ 1M MAXIMUM
PMC-012-024 *	12-24VAC/DC	150 (+/-10)	85
PMC-048-240 *	48-240VAC	150 (+/-10)	85

* Indicates color: (A) Amber, (B) Blue, (C) Clear, (G) Green or (R) Red

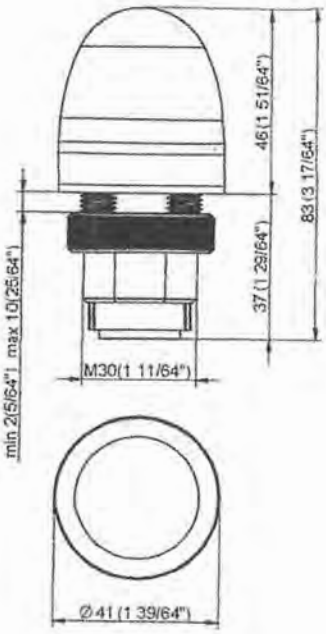
MAXIMUM OPERATING CURRENT (mA)					
12 VDC	24 VDC	12 VAC	24 VAC	48 VAC	240 VAC
25	30	80	110	30	20

APPENDIX

INSTALLATION AND APPLICATION INSTRUCTIONS
INSTRUCCIONES DE INSTALACIÓN Y EMPLEO - INSTRUCTIONS D' INSTALLATION ET D' UTILISATION

IP 66

PMLMP / PMM / PMLST



PMLMP

V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	60	45	110	130

PMLMP

V ∿	48÷240	
mA	40	25

PMM

V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	50	40	110	115

PMM

V ∿	48÷240	
mA	40	20

PMLST

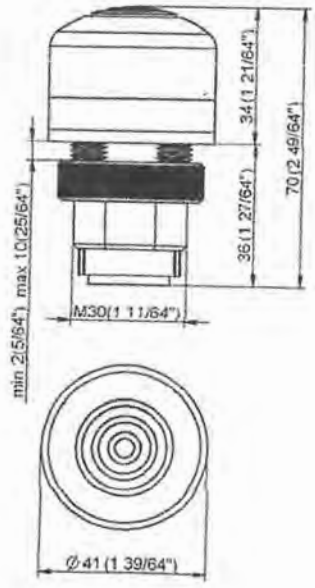
V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	25	25	30	45

PMLST

V ∿	90÷240	
mA	20	35

IP 65

PMAMT / PMC / PMA



PMAMT

V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	10	15	50	60
dB(A)1m	85	85	85	85

PMAMT

V ∿	48÷240	
mA	20	15
dB(A)1m	85	85

PMC

V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	25	30	80	110
dB(A)1m	85	85	85	85

PMC

V ∿	48÷240	
mA	30	20
dB(A)1m	85	85

PMA

V ⎓	12	24	-	-
V ∿	-	-	12	24
mA	10	10	20	25
dB(A)1m	70	70	70	70

PMA

V ∿	90÷240	
mA	10	20
dB(A)1m	70	70

UL LISTED TO U.S. AND CANADIAN SAFETY STANDARDS

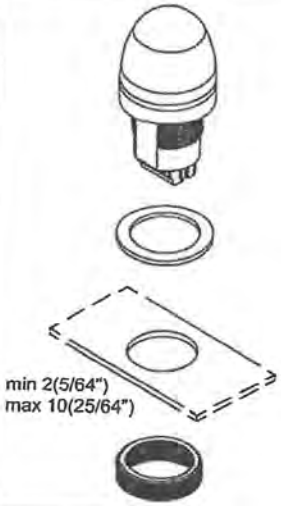
c UL US

AMBIENT TEMPERATURE RANGE

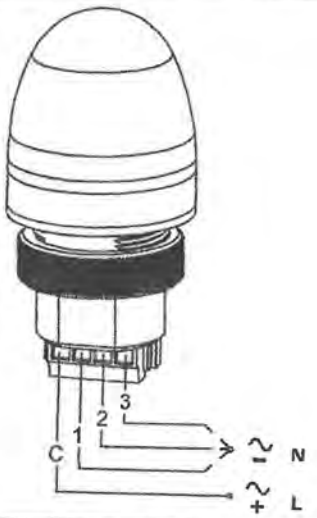
APPENDIX

FUSIBLE DE PROTECTION	Sur la ligne d'alimentation utiliser des fusibles retardés dimensionnés selon la tension

MOUNTING
FIJACIÓN - MONTAGE



ELECTRICAL WIRING
CONEXIÓN ELÉCTRICA - RACCORDEMENT ELECTRIQUE

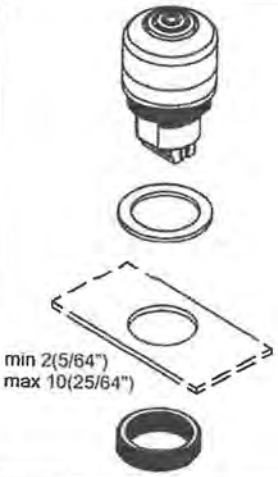


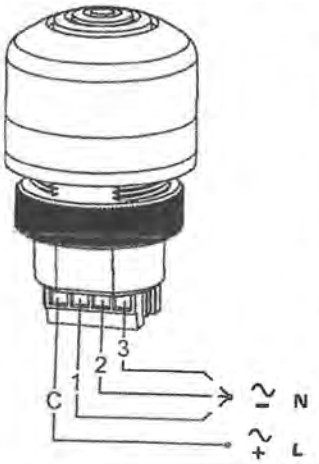
PMLMP
C ÷ 1: Steady light Luz fija Lumière fixe
C ÷ 2: Intermittent light (1F) Luz intermitente (1F) Lumière clignotante (1F)
C ÷ 3: Flashing light (5F) Luz de destellos (5F) Lumière à éclats (5F)

PMM
C ÷ 1: Green light Lumière vert Luz verde
C ÷ 2: Amber light Lumière orange Luz ambar
C ÷ 3: Red light Lumière rouge Luz rojo

⚠ C ÷ 3 has priority over C ÷ 2 and C ÷ 1
C ÷ 3 tiene prioridad en C ÷ 2 y C ÷ 1
C ÷ 3 est prioritaire sur C ÷ 2 et C ÷ 1

C ÷ 2 has priority over C ÷ 1
C ÷ 2 tiene prioridad en C ÷ 1
C ÷ 2 est prioritaire sur C ÷ 1



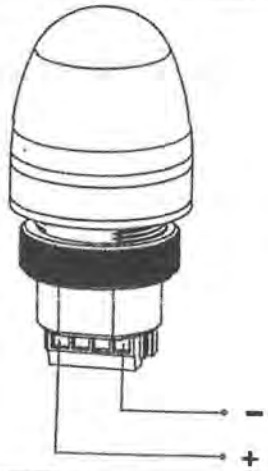


PMAMT
C ÷ 1: /
C ÷ 2: Intermittent sound Sonido intermitente Son intermittent
C ÷ 3: Continuous sound Sonido fijo Son continu

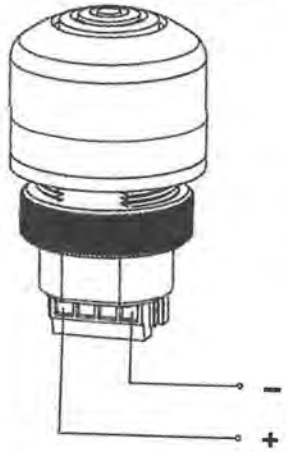
PMC
C ÷ 1: Flashing light Luz intermitente Lumière clignotante
C ÷ 2: Flashing light and intermittent sound Luz intermitente y sonido intermitente Lumière clignotante et son intermittent
C ÷ 3: Continuous light and continuous soun Luz fija y sonido fijo Lumière fixe et son continu

⚠ C ÷ 3 has priority over C ÷ 2 and C ÷ 1
C ÷ 3 tiene prioridad en C ÷ 2 y C ÷ 1
C ÷ 3 est prioritaire sur C ÷ 2 et C ÷ 1

C ÷ 2 has priority over C ÷ 1
C ÷ 2 tiene prioridad en C ÷ 1
C ÷ 2 est prioritaire sur C ÷ 1



PMLST	Steady light Luz fija Lumière fixe



PMA	Continuous sound Sonido fijo Son continu

TO BE INSTALLED BY QUALIFIED PERSONNEL ONLY
LA INSTALACIÓN SÓLO DEBE SER REALIZADA POR PERSONAL CUALIFICADO - L'INSTALLATION DOIT ETRE EFFECTUEE PAR PERSONNEL QUALIFIE

Hawkeye™ 800

Solid-Core On/Off Current Switch, Fixed Trip Point

RoHS Compliant

LISTED

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.
  DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION
- *Only install this product on insulated conductors.*

Failure to follow these instructions will result in death or serious injury.

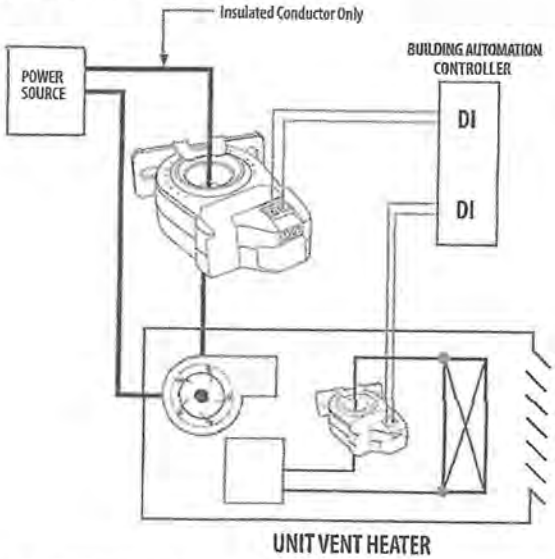
A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and the installation, and has received safety training to recognize and avoid the hazards involved. NEC2009 Article 100

No responsibility is assumed by Veris Industries for any consequences arising out of the use of this material.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- The installer is responsible for conformance to all applicable codes.
- Mount this product inside a suitable fire and electrical enclosure.

WIRING EXAMPLE



SPECIFICATIONS

Sensor Power	Induced from monitored conductor
Amperage Range	0.25 to 200 A Continuous
Status Output Ratings	N.O. 1.0 A@30 VAC/DC, not polarity sensitive
Insulation Class	600 VAC RMS (UL); 300 VAC (CE), insulated conductors only
Setpoint	Fixed at 0.25 A max.
Frequency	50/60 Hz
Temperature Range	-15° to 60°C (5° to 140°F)
Humidity Range	10-90% RH non-condensing
Off State Resistance	Open switch represents 1+ MΩ
On State Resistance	Closed switch represents <200 mΩ
Terminal Block Wire Size	0.2 to 2.1 mm2(24 to14 AWG)
Terminal Block Torque	0.4 to 0.5 N-m(3.5 to 4.4 in-lb)
Agency Approvals	UL508 E150462, CE:EN61010-1:2001
Installation Category	Cat. III, pollution degree 2

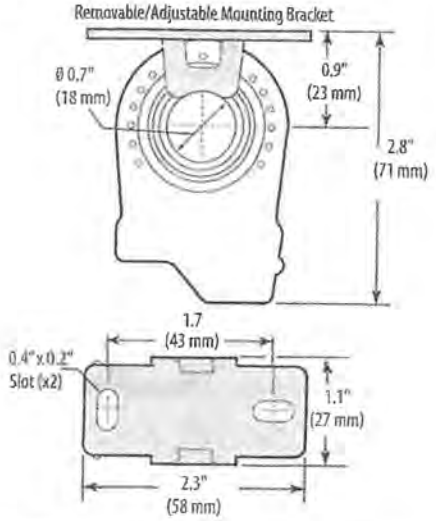
For CE compliance, conductor shall be insulated according to IEC 61010-1:2010. The product design provides for basic insulation only.

INSTALLATION

Disconnect and lock out power to the enclosure containing the conductor to be monitored.

1. Locate a mounting surface for the removable mounting bracket that will allow the monitored conductor to pass through the center window when it is installed and that will keep the device at least ½" (13 mm) from any uninsulated conductors. Determine cable routing for the controller connection, allowing wiring to reach the mounting location.
2. Drill holes to mount the bracket to the chosen surface using the included screws.
3. Wire the output connections and relay between the sensor and the controller (solid-state contact).
4. Route the conductor through the sensor's center window and slip the assembly *into the mounting bracket.*
5. Secure enclosure and reconnect power.

DIMENSIONS



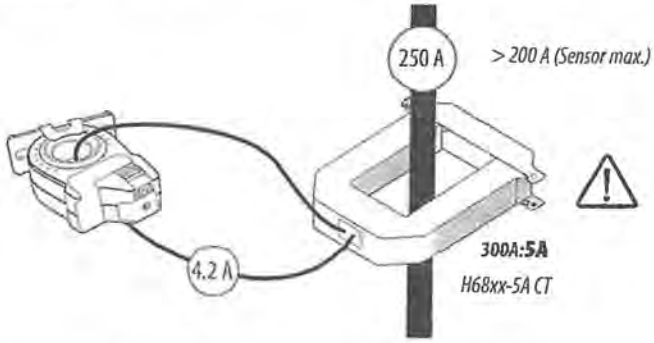
APPENDIX

PRODUCT OVERVIEW

The H800 is a current-sensitive switching device that monitors current (amperage) in the conductor passing through it. A change in amperage in the monitored conducter that crosses the switch threshold will cause the resistance of the status output to change state, similar to the action of a mechanical switch. The threshold is fixed at 0.2 A or less. The status output is suitable for connection to building controllers or other appropriate data acquisition equipment operating at up to 30 volts. The H800 requires no external power supply to generate its output.

NOTES

For load currents greater than sensor maximum rating:
Use a 5 Amp (H68xx series) Current Transformer (CT) as shown. This technique can be combined with wrapping (see below) to add range for a low current load on a high current source.



DANGER: 5A CTs can present hazardous voltages. Install CTs in accordance with manufacturer's instructions. Terminate the CT secondary before applying current.

CAUTION

RISK OF EQUIPMENT DAMAGE

- **Derate the product's maximum current for the number of turns through the sensing window using the following formula.**

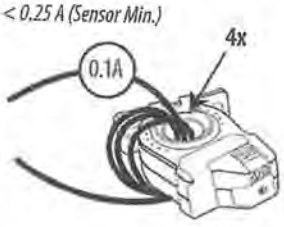
  Rated Max. Amps ÷ Number of Turns = Max. monitored Amps

  e.g.: 100A ÷ 4 Turns = 25 Amps max. in monitored conductor

- **Failure to follow these instructions can result in overheating and permanent equipment damage.**

For load currents less than sensor minimum rating:
Wrap the monitored conductor through the center window and around the sensor body to produce multiple turns. This increases the current measured by the transducer.

Program the controller to account for the extra turns, e.g., if four turns pass through the sensor (as shown), then divide the normal controller reading by 4.



TROUBLESHOOTING

Problem	Solution
No Reading at Controller	• *Check for control voltage at sensor (<30 V)* • Check for amperage in monitored conductor (>0.25 A)