

**Stormceptor[®] Oil Alarm
Product Manual**

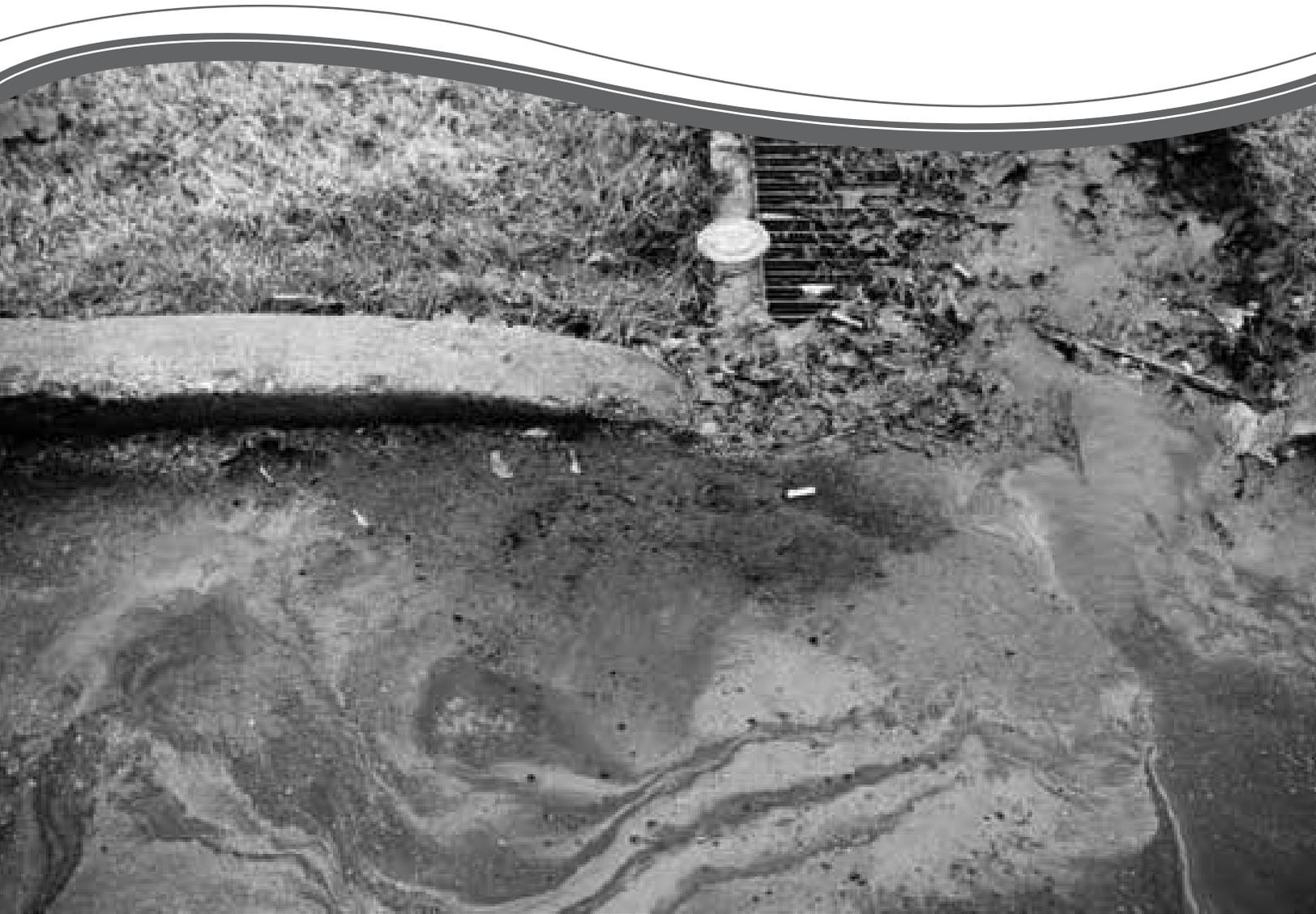


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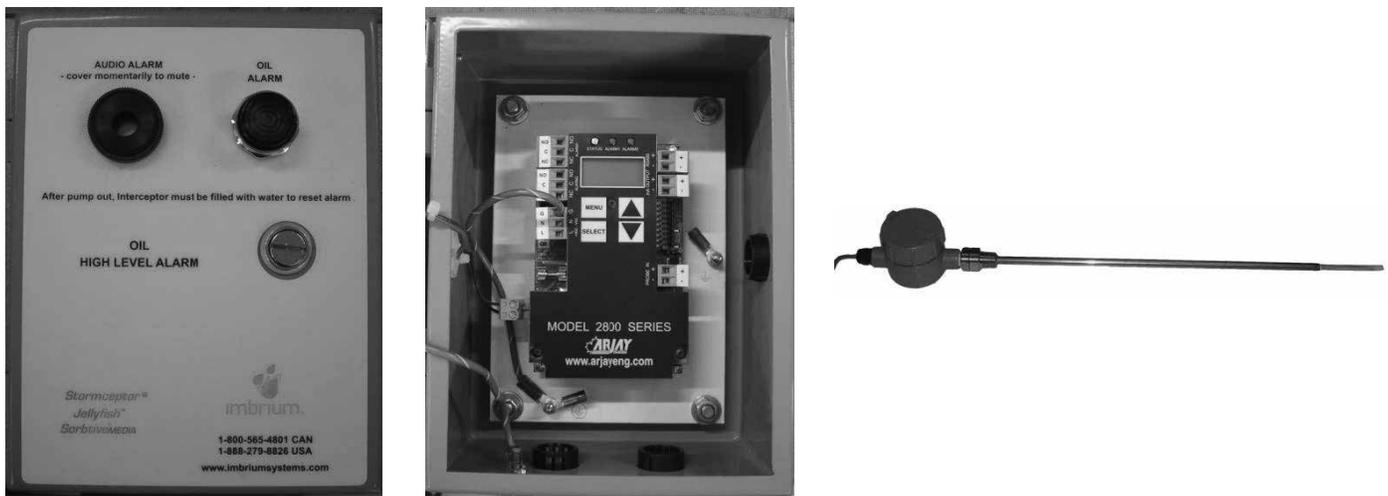
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1. Description

The Stormceptor Oil Alarm is designed for use in a stormwater treatment system, such as a Stormceptor or Jellyfish Filter. The unit contains no moving parts, eliminating maintenance due to mechanical malfunction.

An integrated pulse card (PMC) is mounted directly onto the probe in an explosion proof epoxy coated housing. This allows the alarm panel electronics to be mounted up to 1 km (0.7 mile) away using inexpensive 2-conductor shielded wire. Wetted parts are 316SS and Teflon, and the alarm panel housing is Type 4 metal, providing a tough, yet economical, solution for switch point elevation alarm.

The probe is typically installed in a factory mounted bracket located on the insert of deck of the stormwater treatment system. Relays are included on the panel for user-supplied remote devices such as pump controls, connection to building automation systems, etc.



1.1. Operation

The probe length is determined by the distance from the desired alarm point up to the process connection of the probe head. The bottom 100mm of the probe is a Teflon-coated active capacitance probe, which is calibrated with clean water by the installer or operator. The remainder of the probe is sealed within a stainless tube so that any level changes of the upper air surface are discounted.

During stormwater flows, water is gradually displaced through the system as the oil/grease rises to the surface and accumulates.

When the tip of the probe, which is normally submerged in water, senses a decrease in capacitance from contact with the oil/grease, the alarm switch closes a relay contact and triggers an alarm light and buzzer at the panel. This is the signal for the maintenance operator to have the stormwater treatment system pumped out. Once the unit is refilled with clean water the alarm light will go out.

1.2. Components Supplied

<p>Main Control Unit</p> <ul style="list-style-type: none"> • Hinged N4 metal housing • Red alarm light • Buzzer with Touch to Silence • 100-240 VAC power input 	 <p>The image shows the Main Control Unit, a hinged metal enclosure. The left door is open, revealing internal components including a terminal block, a red alarm light, and a buzzer. A label on the door reads 'INDUSTRIAL CONTROL PANEL METER ENCLOSURE No. BT-539716'. Another label inside the enclosure reads 'MODEL 2800 SERIES' and 'www.appryng.com'.</p>
<p>Probe</p> <ul style="list-style-type: none"> • 3/4" NPT entrance fitting • 25' shielded cable • Potted pulse card • Explosion proof Class 1, Div.1 Group C & D • 316SS and Teflon wetted parts • Length pre-determined by unit size 	 <p>The image shows a long, thin, shielded cable with a black, cylindrical probe head at one end and a connector at the other.</p>
<p>Fiberglass Mounting Bracket</p> <ul style="list-style-type: none"> • Includes 3/4" NPT thread to mount bracket • Installed at the plant in new applications • Field install version available 	 <p>The image shows a fiberglass mounting bracket, which is a circular, flange-like component with a central hole and several mounting holes around the perimeter. It is shown mounted on a metal surface.</p>

1.3. Specifications (Typical)

Power Input:	100 - 240 VAC, 50/60 Hz, 150mA or 24 VDC, 250mA (Must be specified at time of order)	
Relay:	2 X SPDT, N.O. dry, Contact 5 A @ 250 VAC and N.C. Contact 3 A @ 250 VAC (relays trigger at same setpoint)	
Sensitivity:	.0018 pf	
Accuracy:	+/- 2 mm	
Time Delay:	Field Selectable 0 to 600 seconds	
Relay:	High or Low Selectable	
Temperature:	Controller Electronics:	- 4°F to +140°F (-20°C to +55°C)
	Probe Junction Box with PMC Electronics:	- 75°F to +140°F (-60°C to +55°C)
	Probe (wetted parts):	- 75°F to +480°F (-60°C to +260°C)
Wetted Parts:	316SS and Teflon	
Process Connection:	¾" NPT standard (options available)	
Pressure Rating:	max 1500 psi	
Housing:	Controller:	Type 4 Metal Enclosure
	Probe with PMC Electronics:	Epoxy Coated Cast Aluminum
Electrical Rating:	Controller:	CSA 22.2; UL61010-1
	Probe:	Explosion Proof Class 1, Div. 1, Group C & D (File #; 56812)

2. Installation

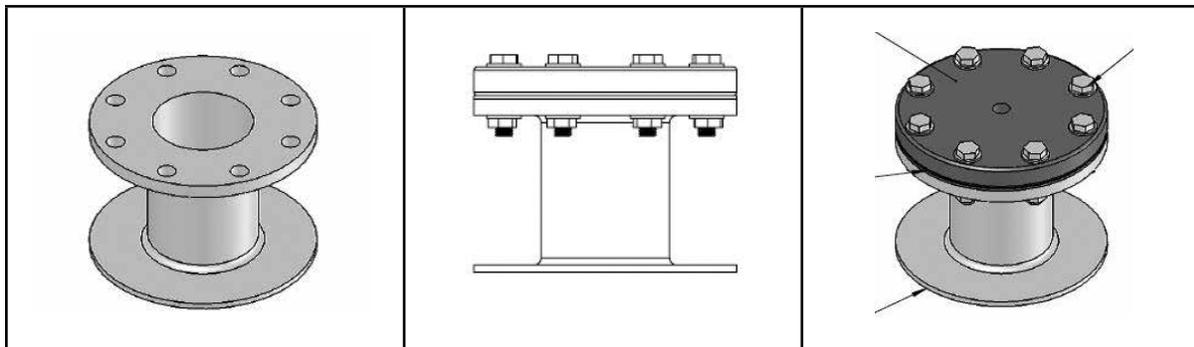
Installation of the Stormceptor Oil Alarm system is accomplished by securing the mounting bracket to the system, mounting the probe, connecting all wiring to the control panel, and calibrating the probe.

2.1. Installation and Assembly of the Fiberglass Mounting Bracket

Note: If pre-ordered with the Stormceptor, the Oil Alarm Fibreglass Mounting Bracket may come pre-installed as a component with the Stormceptor from the factory. If this is not the case, the following steps need to be followed in the field.

1. Locate a suitable, horizontal flat position to mount the Oil Alarm on the Stormceptor insert. The position selected on top of the Stormceptor's fiberglass insert should facilitate access to the alarm for future maintenance and up keep.
2. Cut no more than a 4-inch (100 mm) diameter hole into the Stormceptor's fiberglass insert in the location previously selected. Take respiratory pre-cautions when cutting the hole through the fiberglass insert.
3. Rough the fiberglass surface around the hole just cut using sand paper to generate a good bonding surface between the alarm bracket and the Stormceptor insert. Clean the surface from any dust and debris, and allow the surface to dry.
4. Prepare your methyl-acrylate adhesive (common forms are API MP-55420 or a Plexus) per the instructions provided, commonly requiring mixing of two adhesive components.
5. Taking the flat end of the fiberglass mounting bracket flange, apply adequate adhesive all around circumference of the hole on the Stormceptor insert, and on the flat end of the flange creating a water tight, secure bond. Place the flat end of the fiberglass mounting bracket flange over the hole so the hole in the bracket is centered over the hole cut into the Stormceptor insert, and allow a minimum of 4-hours for the adhesive to cure.

Images of the fiberglass mounting bracket flange:



6. Ensure there is adequate adhesive around the full circumference of the flange where it is secured to the Stormceptor insert surface to ensure a full water tight bond. If this is not the case, apply more adhesive, and allow adequate curing time.

7. Thread the Oil Level probe and housing into the NPT threaded coupling on the top side of the fiberglass mounting bracket.
8. Secure the blind flange and Oil Level probe to the mounting flange with the supplied 304SS hex bolt hardware.

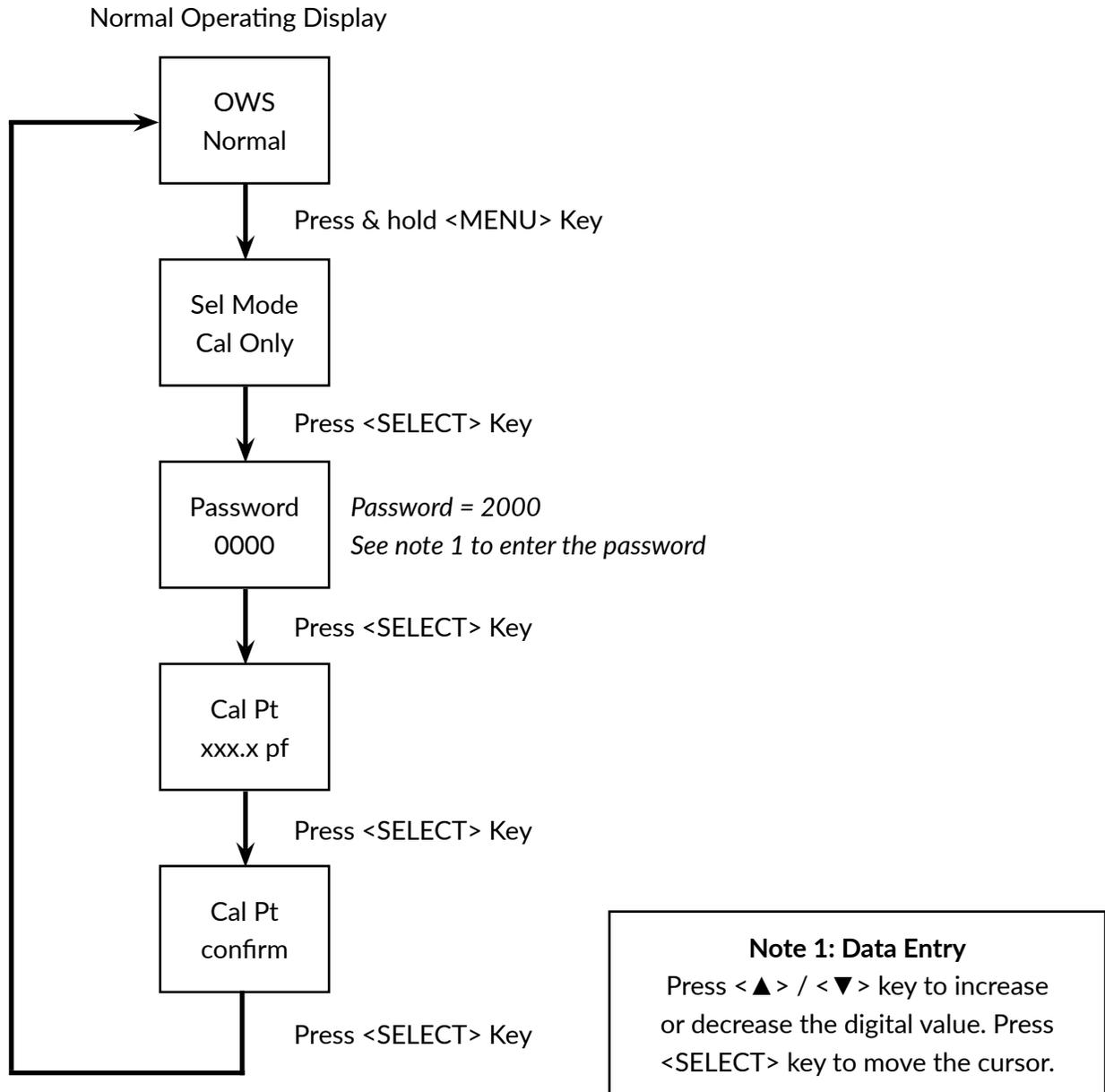
2.2. Installation of Oil Level Probe

Note: Alarms are sensitive instruments and all care is taken to ensure they are shipped without damage. Please examine the instrument for possible shipping damage. **IMPORTANT:** If for any reason it is determined that parts need to be returned to the factory, please notify a Stormceptor System Representative prior to shipment for a Return Authorization Number. The installation should be done by a qualified electrician with experience in wiring control systems.

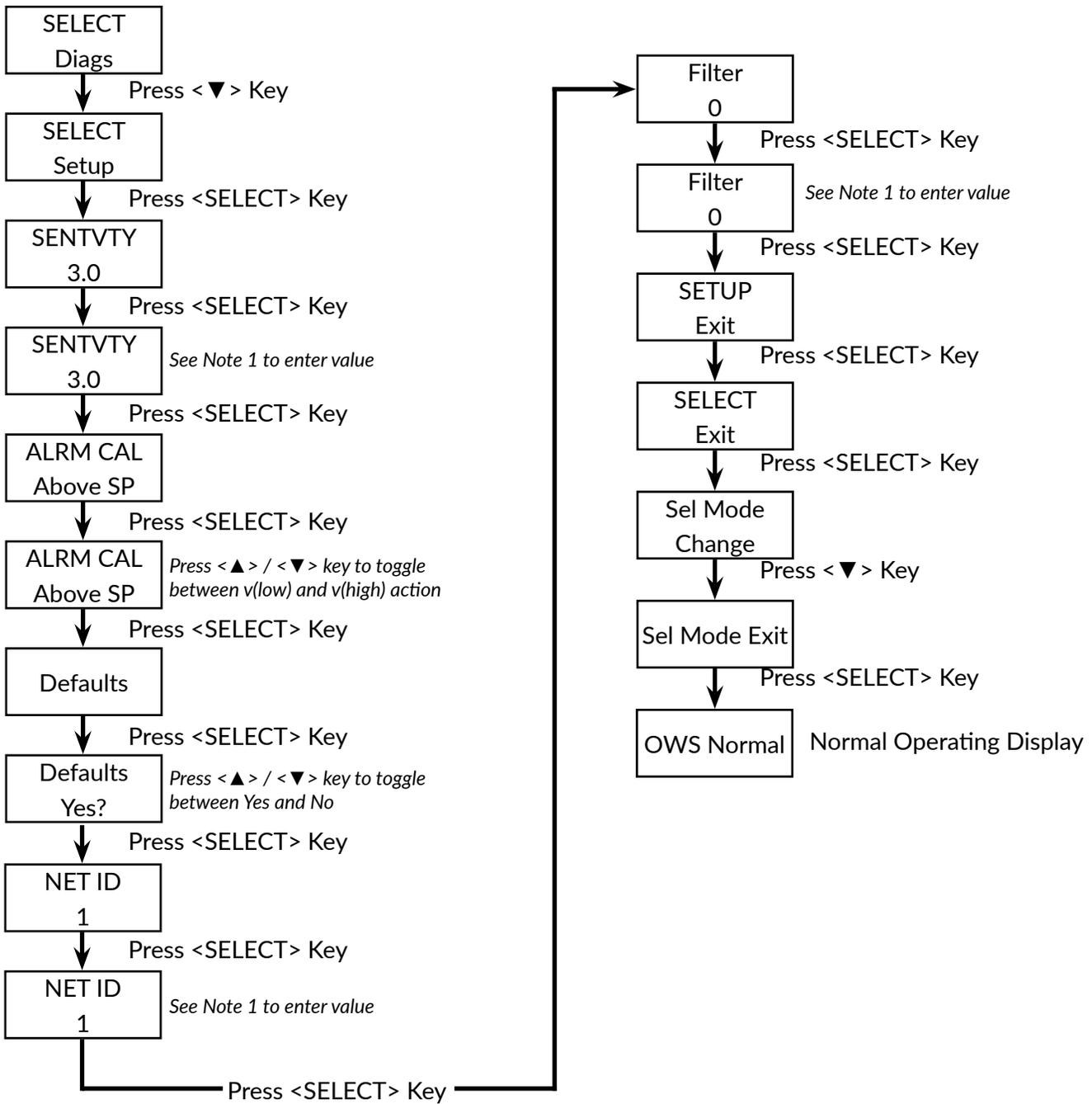
1. If the probe is not inserted, thread the sensing probe into the flanged mounting bracket. The elevation of the probe tip will determine the alarm point of the system. The standard probe lengths for the Stormceptor Oil Alarm are set to trigger when 85% of the total oil storage depth is reached.
2. The probe is rated for Class I, Div. 1, Group C & D. If the probe is mounted in one of these designated areas, the contractor must use approved explosion proof installation techniques. If the location is non-classified, then local regulations should be followed in installing proper electrical conduit.
3. Wire the probe to the main control unit using the two-wire shielded instrument cable supplied (25 feet) plus 25 feet of 14 gauge wire. Ensure vapours cannot travel up the wiring conduit from the stormwater treatment system into the alarm panel. If the main controller is mounted further than 25 feet up the line from the top of the probe, the contractor must supply an electrically approved junction box or splitter box. The contractor then must supply 2 conductor shielded cable (ie., Belden 8760 or equivalent) with a separate ground wire. **DO NOT** run these wires along side of high voltage wires. Connect the clear, black to the +/- terminals respectively at the controller. Connect the shield and green/yellow ground wire to a secondary ground connection. See the electrical connection drawing in the back of the manual for further instruction. Make sure that the probe is electrically grounded to the controller box by connecting the green/yellow wire supplied to the ground stud on the sub-plate.
4. Connect 100 - 240VAC power to the main control unit. After powering on the unit, the STATUS LED on the 2800 circuit board should be green, indicating that power is on with no fault conditions. If the Status LED is red, the unit is showing fault. Check to make sure that the probe wires are correctly wired to the controller for continuity and proper polarity.
5. Fill the Stormceptor with water up to the level of the outlet pipe. Ensure the bottom tip of the alarm probe is submerged in the water.
6. Calibrate the alarm. See the following Calibration Procedure.

3. Calibration Procedure

1. The controller has a factory default setting (see Controller Features in the next page) and is ready for field calibration.
2. Check to ensure the entire 4" Teflon probe tip is submerged in relatively clean water.
3. Follow the flow chart to perform the calibration:



4. The unit is now calibrated and will alarm when the 4" sensing section of the probe tip is exposed to oil or grease. The alarm will also be activated if the probe is exposed to air, such as when a vacuum truck removes the liquid from the tank.

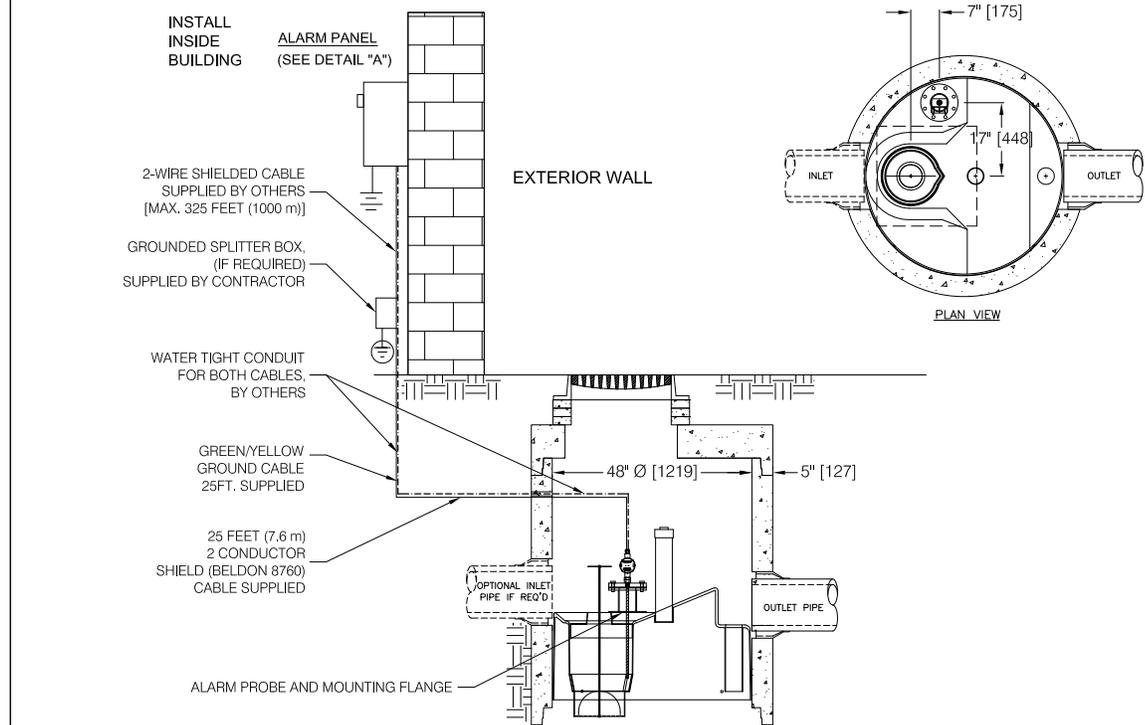
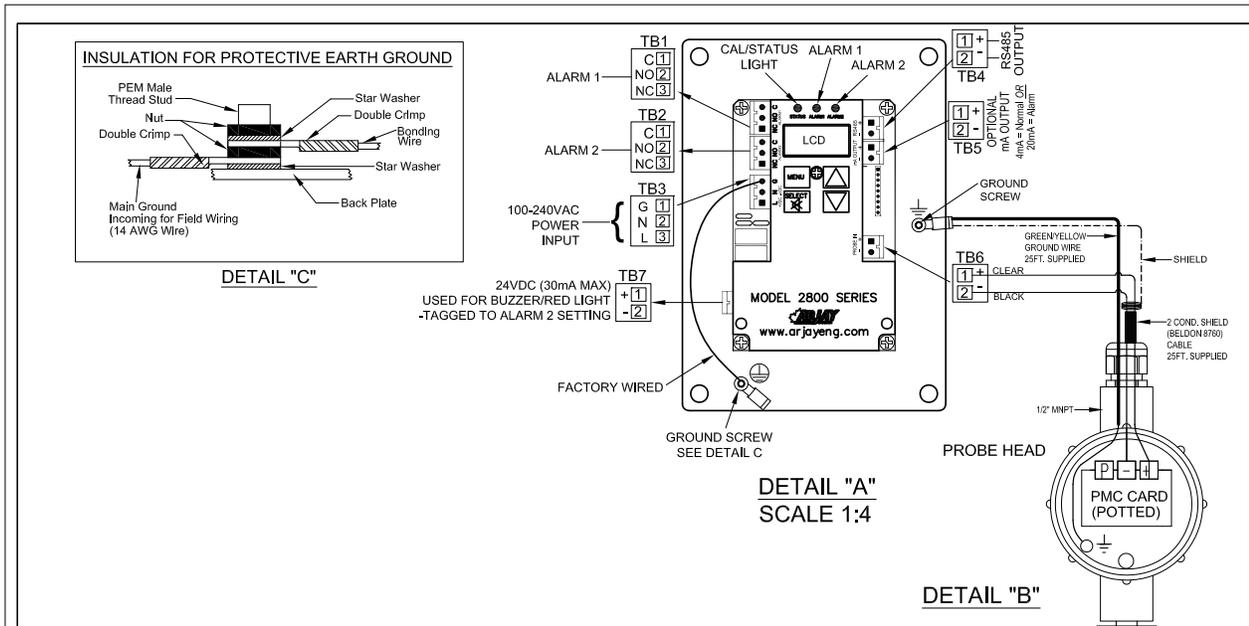


TROUBLESHOOTING:

***Under normal conditions the status light on 2800 electronics (inside enclosure) should be Green. ***

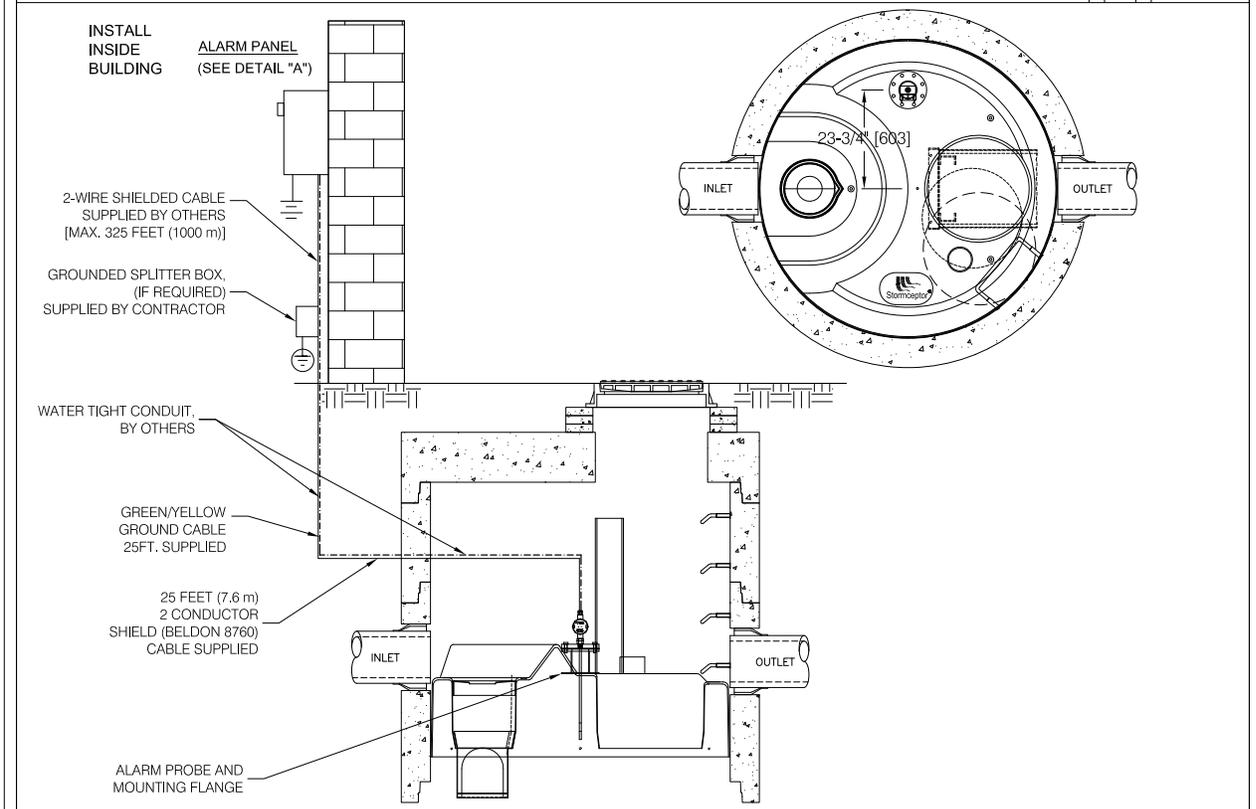
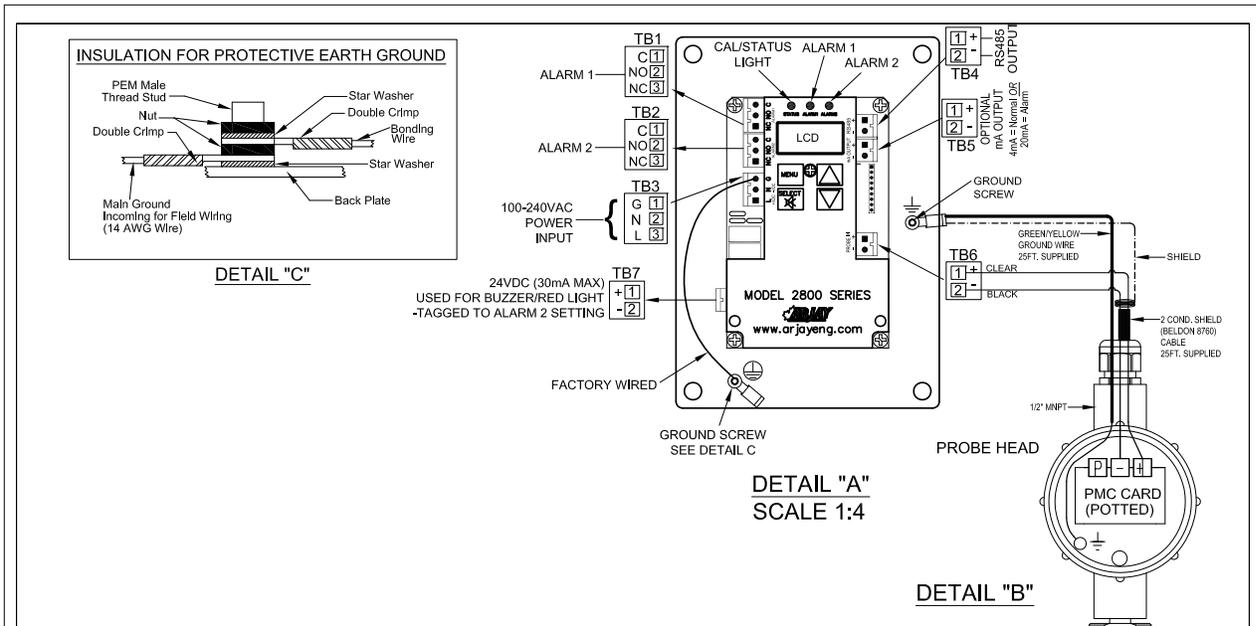
CONDITION	DO THIS
<p>1. No display & status indicators on at power up</p>	<ul style="list-style-type: none"> • Check power to unit • Make sure power applied is as specified for the unit (e.g. 120VAC).
<p>2. Status indicator is RED (Fault Condition)</p>	<ul style="list-style-type: none"> • This indicates that the controller is not receiving a signal from the probe. • Verify that the polarity of probe wires is correct as per electrical drawing. Clear wire to "+", Black wire to "-". Measure 9-10 Volts DC across +/- terminals. • Make sure there is no break in the wiring between controller and probe. • If using a splitter box ensure that proper connections have been made. • Replace the probe with a spare if available.
<p>3. False alarms</p>	<ul style="list-style-type: none"> • Add some time delay to unit. • If coax cable is used from sensors to probe, make sure it is not coiled (may cause an increase in inductance). • Make sure there is no outside interference that may be causing false alarms such as an agitator, high voltage interference, or input flow to the tank affecting the probe. • Make sure the stormwater unit is filled up with water above the white Teflon (sensing area) of probe.

4. Detail Electrical and Dimensional Drawings – Drawings are included in this section for your reference.



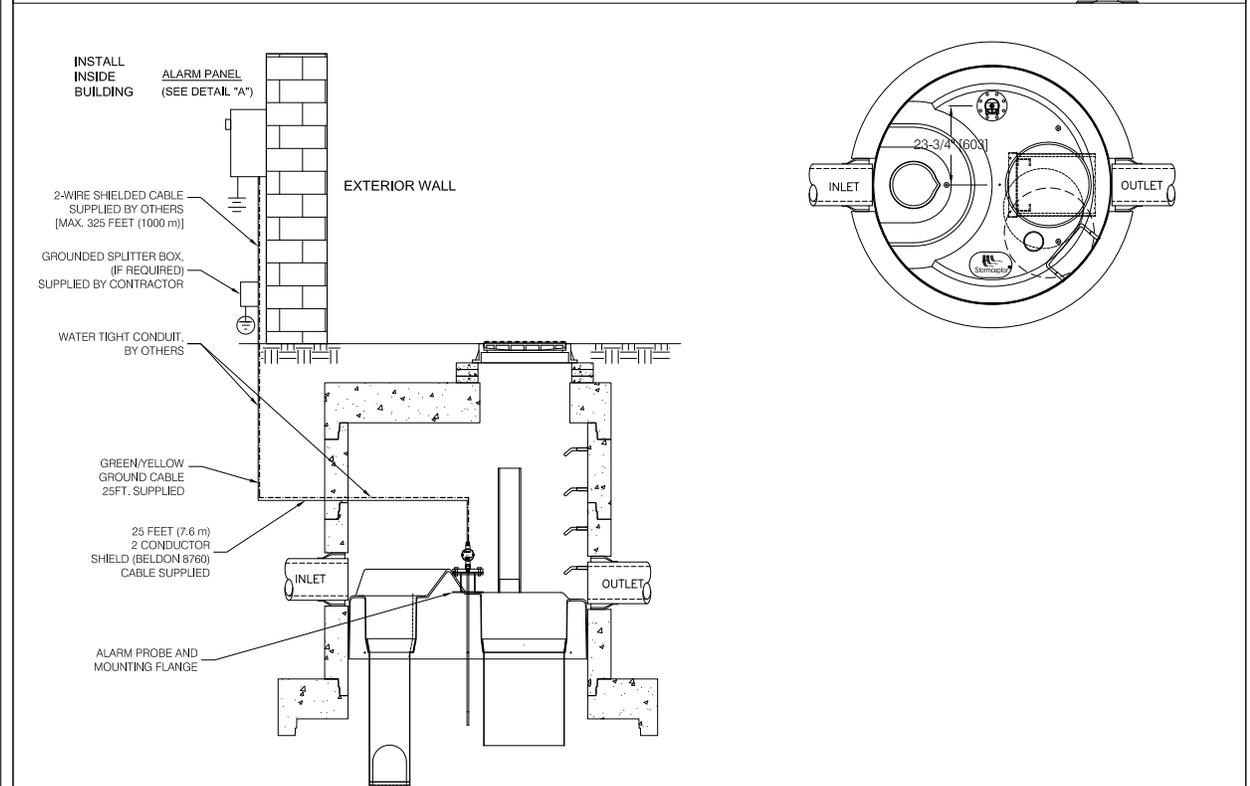
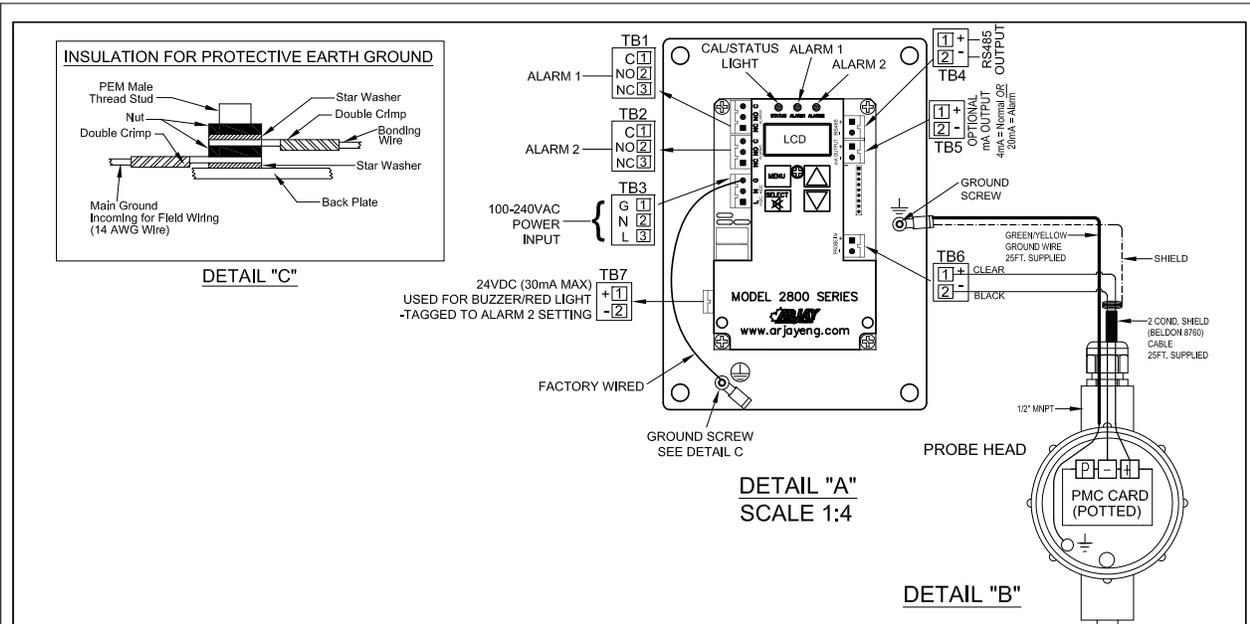
THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING PATENTS
 Australia Patent No. 693,164; 707,133; 729,096 | Canadian Patent No. 2,009,208; 2,137,942; 2,175,277; 2,180,305; 2,180,383; 2,206,338 |
 China Patent No. ZL 97 1 13074.4 | European Patent Treaty No. 95 307 996.9 | Japan Patent No. 9-11476 (Pending) |
 Korea Patent No. 10-2000-002601 (Pending) | Malaysia Patent No. P19701737 (Pending) | New Zealand Patent No. 314646 |
 United States Patent No. 4,985,148; 5,498,331; 5,725,760; 5,753,115; 5,849,181; 6,068,765

Stormceptor STC + EOS Oil Level Alarm STC 300/450 Typical Mounting Details		SCALE 1:40				FILE: stc2000.dwg		
		2	15			03	31	F.H.
1	13	01	08	F.H.	S.R.	UPDATED ARJAY CONTROLLER BOARD	DATE: 8 Aug 07	1 OF 1
REV	Y	M	D	DRN	CHK	DESCRIPTION	REV.: 1	



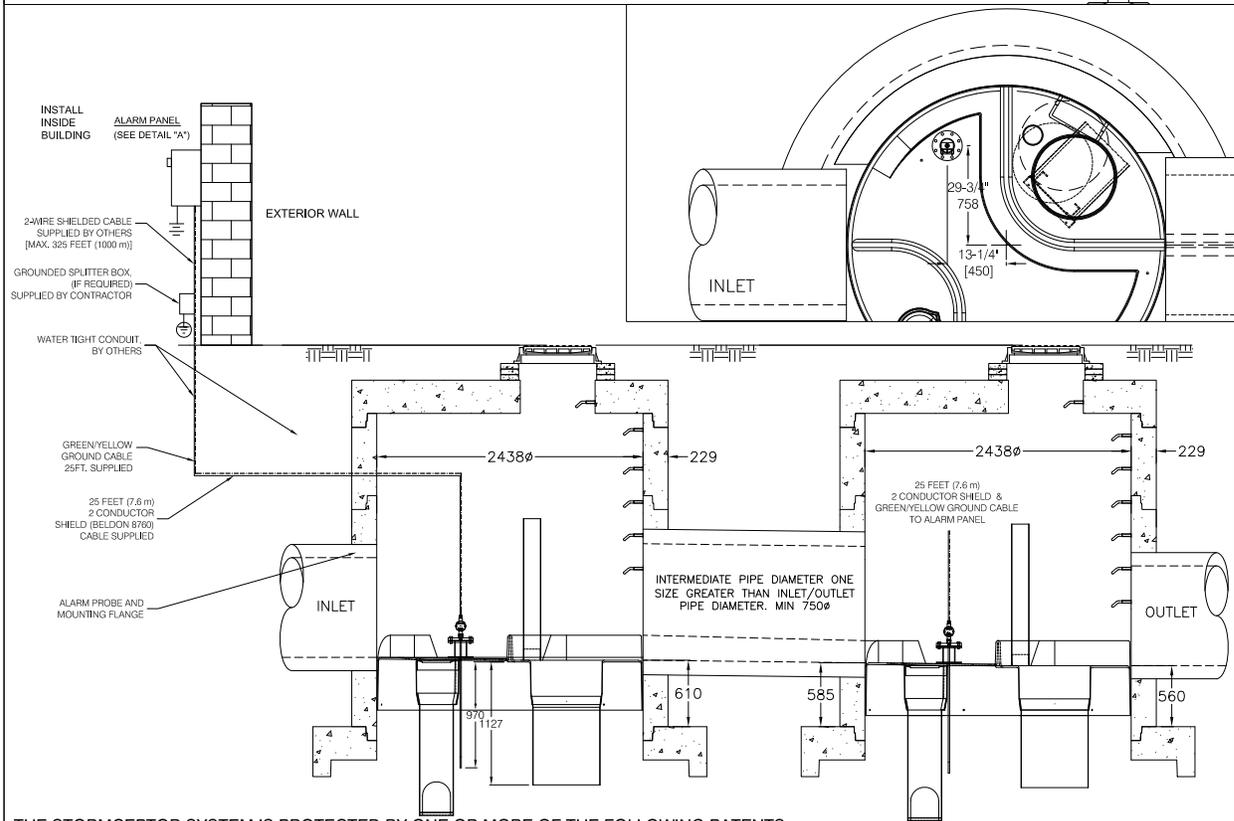
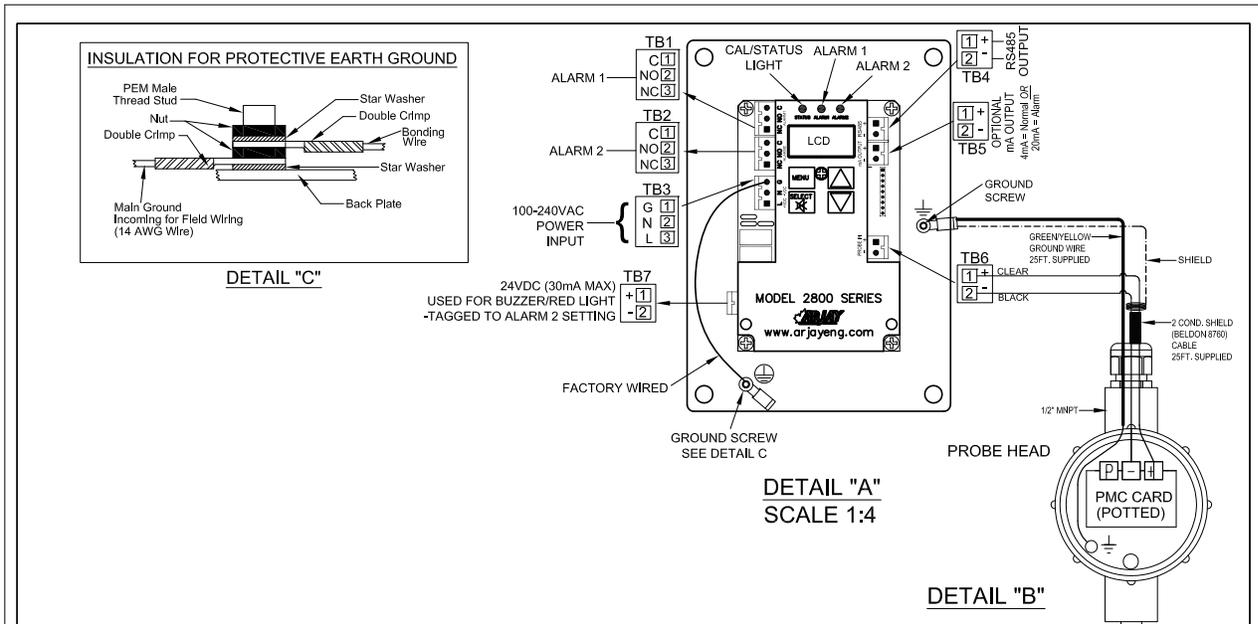
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Stormceptor STC + EOS Oil Level Alarm STC 750/900 to STC 1500/1800 Typical Mounting Details		SCALE 1:40					FILE: stc2000.dwg
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1	13	01	08	F.H. S.R.	UPDATED ARJAY CONTROLLER BOARD	DATE: 8 Aug 07	1 OF 1
REV	Y	M	D	DRN	CHK	DESCRIPTION	



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 Korea Patent No. 10-2000-002601 (Pending) | Malaysia Patent No. P19701737 (Pending) | New Zealand Patent No. 314646 |
 United States Patent No. 4,985,148; 5,498,331; 5,725,760; 5,753,115; 5,849,181; 6,068,765

Stormceptor STC + EOS Oil Level Alarm STC2000/2400 to STC 6000/7200 Typical Mounting Details		SCALE 1:50				Stormceptor® -----STO	
						FILE: stc2000.dwg	
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1	13	01	08	F.H.	S.R.	UPDATED ARJAY CONTROLLER BOARD	DATE: 8 Aug 07
REV	Y	M	D	DRN	CHK	DESCRIPTION	REV.: 1
							1 OF 1



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Stormceptor STC + EOS STC 9000/10000 TO STC 14000/16000 Typical Mounting Details	SCALE 1:60						FILE: stc2000.dwg
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	1	13	01	08	F.H. S.R.	UPDATED ARJAY CONTROLLER BOARD	DATE: 8 Aug 07
	REV	Y	M	D	DRN	CHK	DESCRIPTION

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

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