

System Overview

⚠ WARNING
The WARNING symbol refers to possible injury to the user or significant damage to the meter if the user does not follow the procedures.

⚠ CAUTION
The CAUTION symbol refers to restrictions and rules with regard to preventing damage.

⚠ WARNING ⚠

✔ If you are not knowledgeable about electrical systems, have an electrical professional install this unit. The diagrams in these instructions pertain to the installation of the VSM 422 and not to the overall wiring of the vessel.

✔ Verify that all AC sources are disconnected before connecting or disconnecting the Current Transformer (CT). Failure to do so will generate lethal voltages on the CT.

✔ If an inverter is installed on the vessel, its power leads must be disconnected at the battery before the unit is installed. Many inverters have a “sleep mode” in which their voltage potential may not be detectable with measuring equipment.

✔ If an AC generator is installed on the vessel, it must be stopped and rendered inoperable before the unit is installed.

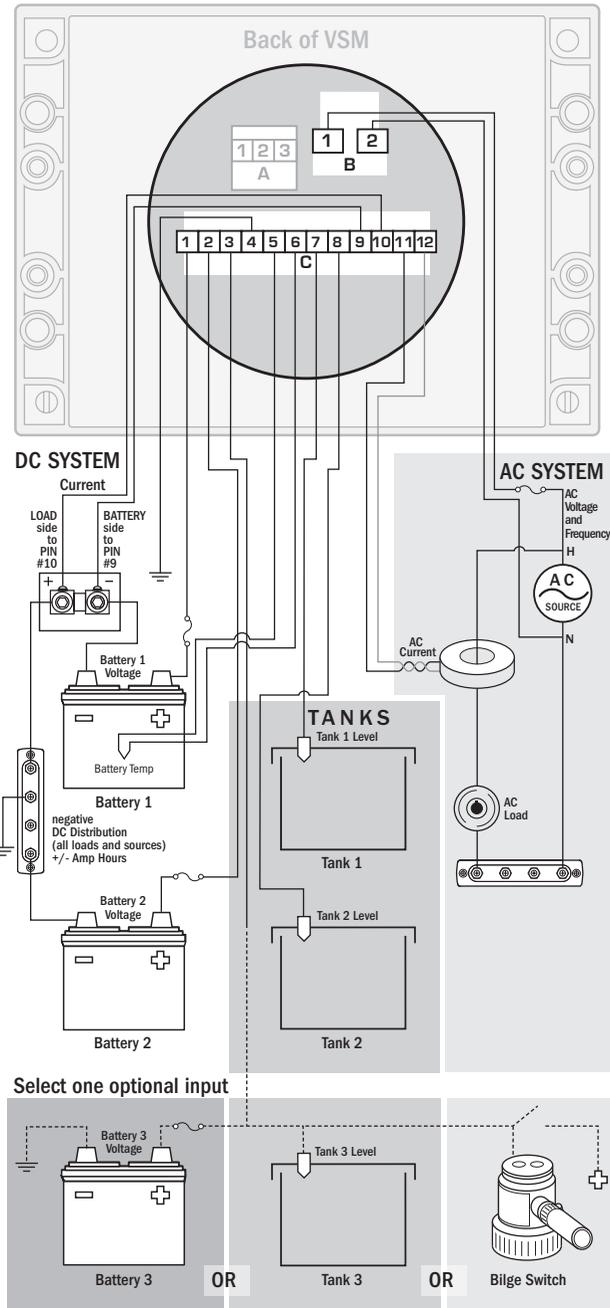
✔ Verify that no other DC or AC sources are connected to the vessel’s wiring before installing the unit.

✔ If the meter must be removed, connect the CT leads together before restoring power to the AC system.

⚠ CAUTION ⚠

✔ The back of the unit is not waterproof. Do not install where the back of the meter is exposed to water.

This information is also available in the VSM 422 Installation and Configuration Manual.



IMPORTANT! The Sensing Description section of this manual gives important details to the location of sensors in the AC and DC electrical systems of the boat. Improper location and configuration of sensors can result in erroneous readings and possible damage to components.

Connector Pin Assignment

Connector Pin Assignment Table

Connector	Function
Header A	Communication*
Pin 1	Communication
Pin 2	Communication
Pin 3	Communication
Header B	AC
Pin 1	AC Line
Pin 2	AC Neutral
Header C	Sensors and Power
Pin 1	DC Voltage Battery 1 (Unit Power)†
Pin 2	DC Voltage Battery 2
Pin 3†	DC Voltage Battery 3, Tank Level 3, or Bilge Function
Pin 4	DC Negative
Pin 5	Battery Temperature (Positive)
Pin 6	Battery Temperature (Negative)
Pin 7	Tank Level 1
Pin 8	Tank Level 2
Pin 9	DC Shunt (BATTERY side)
Pin 10	DC Shunt (LOAD side)
Pin 11	AC Current Coil (Positive)
Pin 12	AC Current Coil (Negative)

Pin 3 of Header C is configured during initial system setup for either DC Voltage Battery 3, Tank Level 3, or Bilge Functions.

Insert and tighten wires in terminal blocks in accordance with System Overview and Connector Pin Assignment Table. Carefully snap keyed terminal blocks into place on head unit.

* Communication port is for use with future modules

† Ampere hours are measured for Battery 1 ONLY

‡ Three input options available

Functions:

DC

Voltage (up to three batteries)
Current
State of charge
Charge cycles

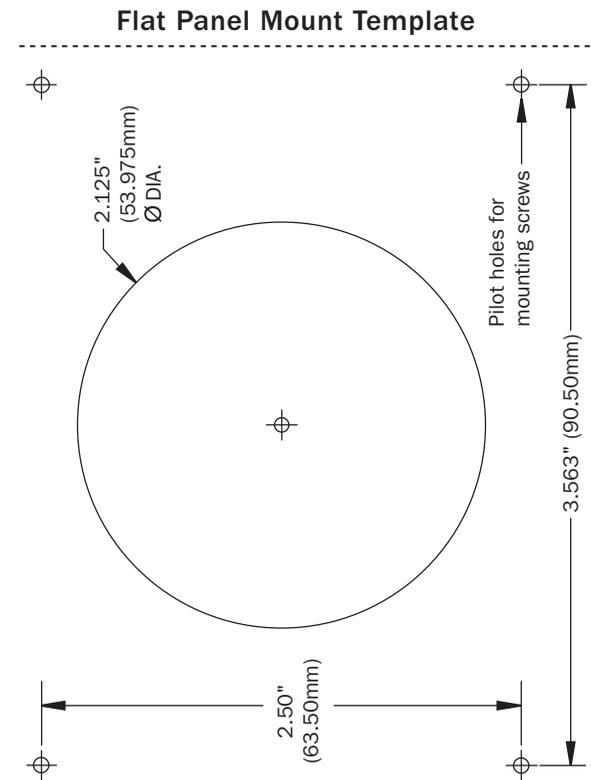
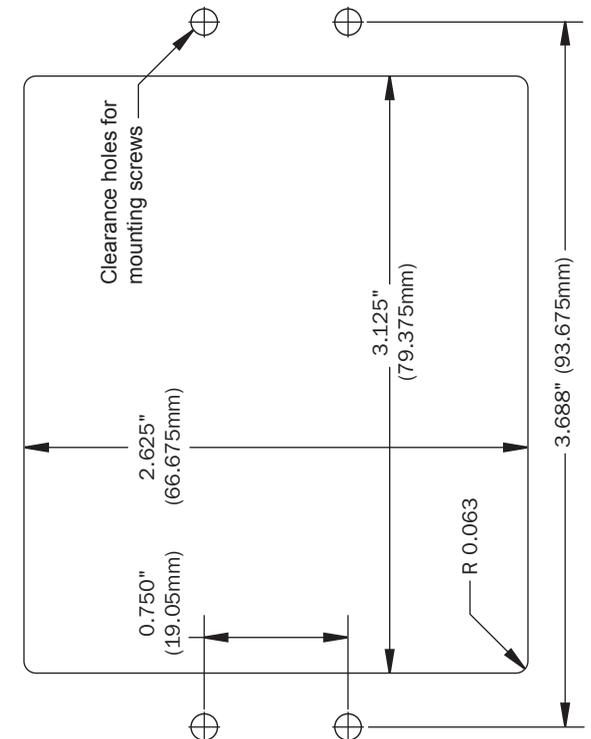
AC

Voltage
Current
Frequency

Tank

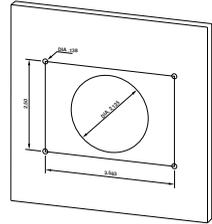
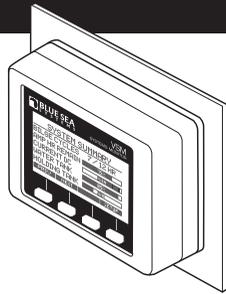
Levels (up to three tanks)
Bilge
Bilge pump cycles
High and Low Alarms

DC/AC voltage
DC/AC current
AC frequency
Tank level
State of charge

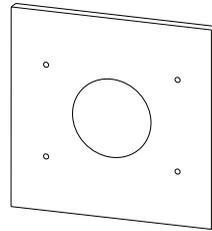


Surface Mount Template

Surface Mount



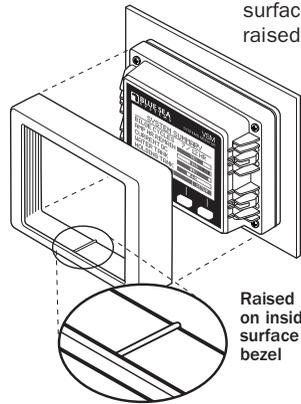
1 Cut out Surface Mount Template and copy to surface.



2 Drill pilot holes for 4 (#6 x 1") Pan Head Tapping Screws. Drill a 2.125" (53.975mm) Ø DIA. Head Unit hole.

3 Place gasket on Head Unit and attach unit with 4 (#6 x 1") Pan Head Tapping Screws.

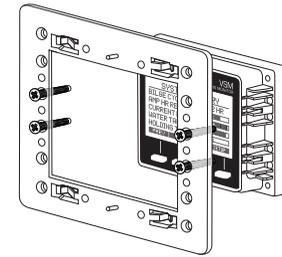
4 Carefully snap on notched surface mount bezel using raised notch for positioning.



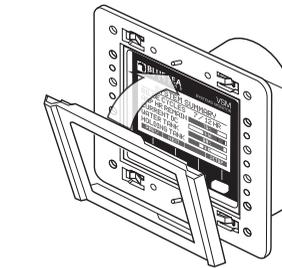
Raised notch on inside lower surface mount bezel

360 Panel Mount

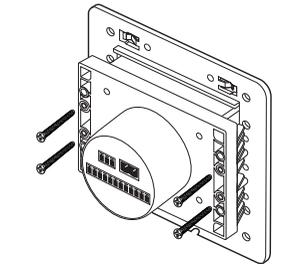
NOTE: 360 Panel mounting requires 360 Panel Mounting Kit PN 1325 (sold separately)



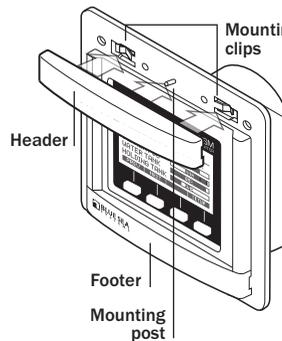
1 Place Head Unit behind panel, aligning mounting holes on panel with inner 4 holes (2 on each side of the unit). Attach with 4 (#6-32 x 1") Flat Head Machine Screws, threading into Head Unit brass inserts.



2 Place the 360 bezel onto the 360 panel with flat wedge up.



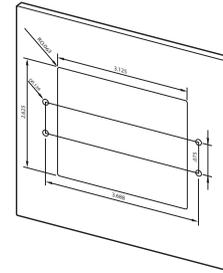
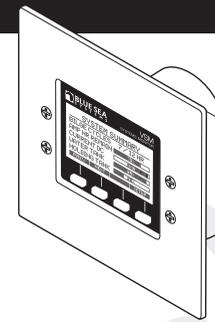
3 Fasten the bezel with 4 (#6-32 x 1.125") Flat Head Machine Screws through the back of the Head Unit and threading into the brass inserts in the back of the bezel.



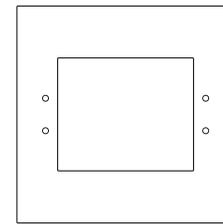
4 Snap header and footer into mounting clips and post.

Flat Panel Mount

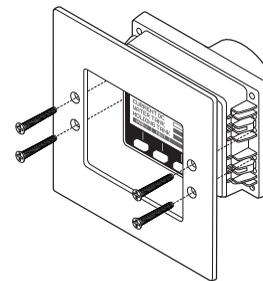
NOTE: The VSM 422 is designed for flat panel mounting in panels 1/16" (1.5mm)–1/8" (3mm) thick. Flat panel mounting requires precision cutting. CNC routing highly recommended.



1 Cut out Flat Panel Mount Template and copy to surface.



2 Drill clearance holes for 4 (#6-32 x 1") Flat Head Machine Screws.



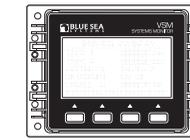
3 Place Head Unit flush through the back of the panel. Attach with 4 (#6-32 x 1") Flat Head Machine Screws through the panel, threading into the brass inserts in the Head Unit.



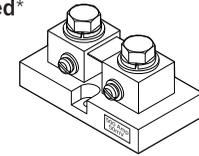
VSM 422

QuickStart Installation Guide

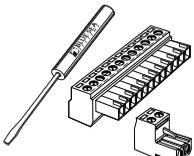
Components Included*



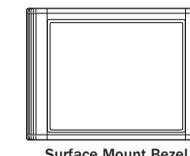
Head Unit



PN 8255 Shunt



Connectors



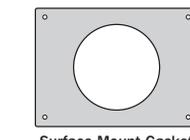
Surface Mount Bezel



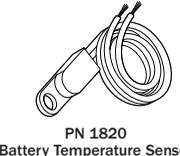
PN 8256 AC Current Transformer



#6 x 1" Pan Head Tapping Screws for Surface Mount



Surface Mount Gasket



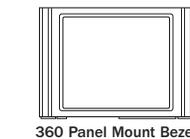
PN 1820 Battery Temperature Sensor



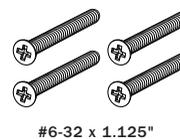
#6-32 x 1" Flat Head Machine Screws for Flat Panel Mount

* Installation and Configuration Manual also included

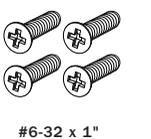
360 Panel Mounting Kit (PN 1325 sold separately)



360 Panel Mount Bezel

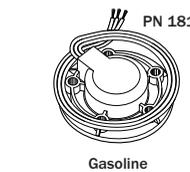


#6-32 x 1.125" Flat Head Screws

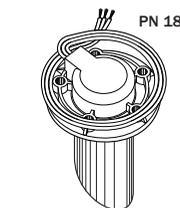


#6-32 x 1" Flat Head Machine Screws

Ultrasonic Tank Sensors (sold separately)



Gasoline



Diesel, Water, and Waste



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