BE9003(B) / BE9006(B)

Automatic Switch with Electric Field Sensor Technology

Model Number	Description
BE9003(B)	Automatic Switch with Electric Field Sensor Technology
BE9006(B)	Automatic Switch with Electric Field Sensor Technology - 30 second delay

Note: B suffix refers to bulk items. Minimum order quantities may apply.

INSTRUCTION AND INSTALLATION MANUAL

Thank you for purchasing this Whale® product. For over 60 years Whale® has led the way in the design and manufacture of freshwater and waste systems including - plumbing, faucets, showers and pumps for low voltage applications. The company and its products have built a reputation for quality, reliability and innovation backed up by excellent customer service.

1. SPECIFICATION

Model Number	BE9003(B)	BE9006(B) (with 30 second time delay)
Voltage	12 V d.c. or 24 V d.c.	
Current	Suitable for up to 20 Amps	
Residual Current	0.008 Amp	
Recommended Circuit Breaker	Maximum - 20 Amps (Exact circuit breaker rating should be rated in line with the installed pump - see pump installation manual)	

2. LIST OF CONTENTS

3. TO THE FITTER

Check that the product is suitable for the intended application, follow installation instructions and ensure all relevant personnel read the points listed below. Also ensure these instructions are passed on to the end user.

4. TO THE USER

Read the following instructions carefully.
WARNING: Please note that incorrect installation may invalidate the warranty.

5. APPLICATION

This Whale® Electric Field Sensor senses water level and automatically controls a 12 or 24 volt bilge pump. The switch turns on when it senses 51mm (2") water level and turns off when water is below 13mm (1/2"). This product is designed for use in pleasure boat applications, and is not intended to be used in commercial boating applications or for any other use.

6. WARNINGS

With all applications, it is important that a system of safe working practice is applied to installation, use and maintenance. Ensure the electric supply is turned off and waste water system is drained before installation

1. Not suitable for use with flammable liquids, diesel, chemicals etc.
2. Suitable for only freshwater or bilge water. If it is intended for any other purpose or with any other liquid, it is the users responsibility to ensure that the switch is suitable for the intended use and, in particular, that the materials are fully compatible with the liquids to be used.
3. Failure to fuse and connect wires according to these instructions will void product warranty and may cause damage or serious injury.
4. Connect in-line fuse (Note: Fit the appropriate amperage specified for your pump model).
5. Correct voltage range is 10.5 V d.c. to 28.8 V d.c. **DO NOT** use with other voltage, or with A.C., or A.C.to D.C. converted power sources.
6. The Electric Field Sensor may draw up to a maximum of 20 amps.
7. **NOTE** - Maximum operating temperature ~ 60°. Maximum flash temperature ~ 90°.

7. INSTALLATION

7.1 Location

1. Mount the switch vertically as shown in fig. 1 (wires located uppermost). Locate the switch as close to the pump as possible to ensure the same water level.
2. Prepare a mounting block. **Do not** fasten switch directly to the hull. Mounting block should be minimum 10mm (3/8") thick marine plywood epoxied to the hull.
3. Switch base may be located up to 6mm (1/4") higher, but **NEVER** located lower than base of the pump.

7.2 Mounting

1. Use switch base (Fig. 1) or mounting ears (Fig. 2) as a template to mark pilot holes in mounting block.
2. Set drill depth gauge to avoid drilling through hull. Drill two 3mm (1/8") diameter pilot holes.
3. Fasten switch onto mounting block with #8 x 1/2" (3.5mm diameter x 13mm) stainless steel screws (not supplied).

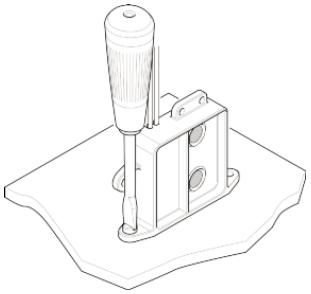

Fig 1 Using Switch Base

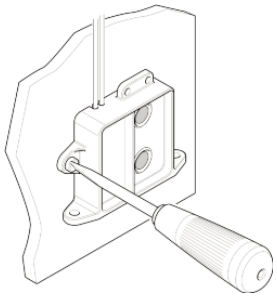

Fig 2 Using Mounting Ears

7.3 Wiring

WARNING: Fire hazard. Wiring must comply with applicable electrical standards and include a properly rated circuit breaker (Fuse rating **must be** rated for the pump used in the system. Check the pump installation manual for the specific fuse size).

WARNING: Improper wiring can cause a fire resulting in injury or death.

NOTE: Switch off the power prior to making connections. Suggested wiring information is given as a guide only. For full information, refer to the USCG, ABYC and ISO regulations for marine applications and wiring gauges, connectors and fuse protection.

1. Follow the wiring diagram (Fig 3). All fuses and the circuit breaker **must be** properly rated for the bilge pump within the circuit (see pump instruction manual for guidance). The maximum circuit breaker must be is 20 Amps.

NOTE: Do not use thermal circuit breakers with the BE9003(B)/BE9006(B). Magnetic breakers **must be** used.

2. The wiring is as follows:

- **Manual** terminal directly to **brown** (+) pump wire.
- **Automatic** terminal to switch **brown/white stripe** (+)
- Switch **brown** (-) to pump **brown** (+).
- **Black** (-) pump wire to negative battery terminal

Switch Wire	Colour
Positive	Brown/White Stripes
Signal Out	Brown

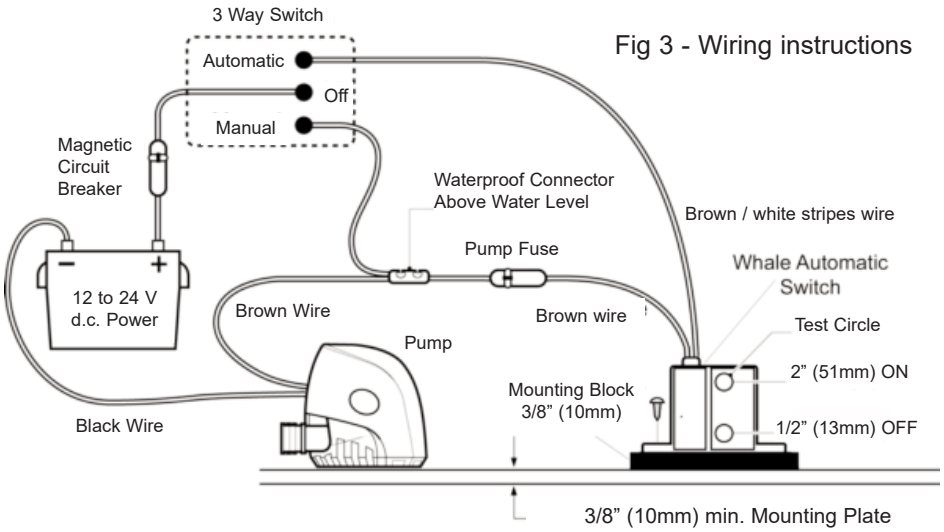

Fig 3 - Wiring instructions

3. Make all wiring connections above highest water level, using permanent waterproof terminals. Coat terminals with liquid electrical tape.

7.4 Testing

1. After installation, hold fingers for 10 seconds on two raised circles on switch face.
    - If wiring is correct, pump activates.
    - Remove top finger, pump stays on.
    - Remove bottom finger, pump should turn off after a short delay.

NOTE: BE9006(B) has a longer override delay of 30 seconds past the 1/2" (13mm) OFF point.

2. Test with water in bilge to confirm that pump turns on and off properly. If not, reposition the switch to allow for activation.

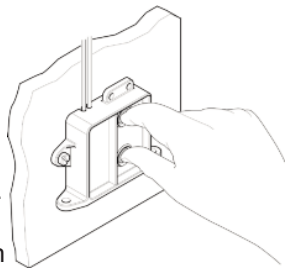

Fig 4 - Testing Switch

8. MAINTENANCE

This Whale® Electric Field sensor is designed to only require minimal maintenance.

WARNING: Ensure that the switch is disconnected from electrics and thats the system is fully drained prior to maintenance.

For Optimal Performance

- Ensure the switch is clear of debris.
- Keep fuse and wiring connections high and dry.

Annual Checks

- Whale® advises that the vessel plumbing system is checked annually for leaks and obstructions. A full boat electrics check by a marine electrician is also recommended.
- Whale® advises testing your switch as per section 7.4 on an annual basis.

Winterizing

Fully drain system for winterising. Failure to winterise your system may invalidate the product warranty.

10. PATENTS AND TRADEMARKS

Whale® is a registered trademark of Munster Simms Engineering Ltd, Bangor, Northern Ireland.

This product and the technology it uses are protected by US patent numbers - 5594222 / 6310611 / 6320282

12. DECLARATION OF CONFORMITY AND STANDARDS

This product complies with all relevant European directives and standards. Please contact Whale® if further details are required.

Manufacturer's Declaration - We hereby declare, under our sole responsibility, that the enclosed equipment complies with the provisions of the following EC Directives.

94/25/EC amending 2003/44/EC - Recreational Craft Directive
2004/108/EC - EMC Directive

Based on the following harmonized standards

EN55022: 2006 + A1:2007	EMC Radiated Emissions
EN55014: 2006 + A1:2009	EMC Conducted Disturbance Power
EN55014: 1997 + A2:2008	EMC Immunity

CE mark affixed: 28/09/11

Basis on which conformity is declared
The above equipment complies with the protection requirements of the EMC Directive and the principal elements of the safety objectives of the EC Directives.

Standards applied

EN 28846:1993	Ignition Protected
ISO 15083:2003	Bilge Pumping Systems
ISO 10133:2000	Extra Low Voltage d.c. Installations