



**ESC Series
(Engine Shutdown Control)
Installation & Owners Manual
For Fireboy Automatic Extinguishing Systems**



Warning!

This engine shutdown/override system is intended for use with Fireboy Fire Extinguisher systems only and must be installed by a qualified marine technician familiar with ABYC. This unit is not to be installed in engine, bilge or fuel storage compartments. Read this manual thoroughly before installing system, and comply with all installation instructions.

Note: the display unit in these systems replaces the lamp and escutcheon plate provided with each Fireboy system.

1.0 Operation

In the event of a fire on board a vessel while underway, which is equipped with an automatic fire extinguisher system, it is important that engine, generator, and blower systems be shut down immediately upon discharge of the system so that:

- A. The fire cannot be fueled by the continued operation of engine systems. For example: fuel and injection pumps and engine operated generators and alternators;
- B. The agent concentration is allowed to remain in compartment and is not exhausted or depleted by the engine air intakes or ventilation blowers.

1.1

The Fireboy engine shutdown system provides this function by means of a pressure switch at the extinguisher (Fireboy CG, MA and GA models only), a relay-terminal box installed at the helm station, and an instrument display unit. The display unit provides system status (charged/discharged both visual and audible) and an override to allow restarting of the engine after a discharge or to prevent engine shutdown in a crowded water-way.

The operator should be aware that even though the display is in the “override” position, the discharge from the Fireboy extinguisher system may cause gasoline engines to stall because of the effect of agent on the combustion process.

A second display unit (optional) must be installed at a fly-bridge helm or other remote location as per the US Coast Guard.

1.2

In the event of a fire, the Fireboy extinguisher system will discharge, activating the shutdown/override system to interrupt the primary ignition circuit (gasoline engines), or the fuel solenoids of diesel engines.

Immediately after the Fireboy system discharges in response to a fire, and the shutdown/override system stops the engines, all engine/generator electrical and mechanical controls shall be turned to their “off” positions until determination of the cause of the fire has been made and corrected.

1.3

Two points must be noted with regard to the use of the engine shutdown system with Fireboy extinguisher system.

- A. The engine shutdown system will in no way effect the discharge operation of Fireboy extinguisher systems.
- B. Disconnecting the display unit from the relay terminal board does not affect the shutdown function of the system, even though the override and indication functions of the instrument display are lost.

1.4

The voltage required to operate the control circuit of the engine shutdown system can be 12/24/32 Vdc (see schematic at end of manual for further details). Each input contains a diode to prevent reverse feedback between ignition circuits.

1.5

The ground connection (marked as GND), is made to the return buss, (battery, generator return). **DO NOT CONNECT TO ENGINE BLOCK!**

2.0 Mechanical Installation

The engine shutdown is intended to be installed at the helm station where convenient access to the ignition wiring is available. It should be installed with four #8 screws of appropriate length (not supplied) on a firm support within 24 inches of the display unit. A 2-1/16 inch hole is required for the display unit and it is mounted with the supplied bracket.

3.0 Wiring System

The wiring connection shall be made with #16 stranded copper wire conforming to ABYC Standards for Marine use, as a minimum. (SAE J378B & J1128). Use the schematics at the end of this manual for reference.

3.1

Connection to the terminal box shall be made with bare wire. Route the wire through the loosened strain reliefs on the side of the box closest to the terminal. To help make installation easier the terminal strips unplug to allow wiring outside of the box. (***Make sure to run through the strain relief first!***) Strip back 1/4" of sheathing and secure inside of terminal. When all wires are connected tighten the strain relief down until the wires are secure.

3.2

Connections to the display unit are made with the plug-together insulated connectors. Optional 10' and 30' harnesses are available for connecting remote display unit. If the optional harness has connectors on the wire ends simply cut them off and strip the sheathing back 1/4" to install in the terminal block.

3.3

Gasoline engines should be shutdown by interrupting the primary ignition wire from the key switch to the ignition coil (Ref. Sec. 1.3). This is the standard configuration for all circuits.

3.4

Diesel Engines commonly have two methods for shutdown:

A. Fuel solenoid valves that are energized to open on start-up, and de-energized to close on shutdown (fuel starvation). The normally closed (NC) jumper would be used to implement this method.

B. Fuel solenoid valves that are normally open when de-energized and closed when energized for shutdown, (fuel starvation). The normally open (NO) jumper would be used to implement this method.

3.5

Two other less common methods of shutdown are used in diesel installations. These are mechanical air and mechanical fuel starvation. Contact the engine, and/or the boat manufacturer for advice in converting these to an electrical shutdown system.

3.6

Two separate wires from the engine shutdown (GND and PS1) are to be connected the extinguisher pressure switch or switches.

3.7

In applications requiring multiple extinguisher systems (i.e. separate engine and generator compartments) the pressure switch must be wired in series. This allows either extinguisher to operate the shutdown/override system in the event of a fire in either compartment.

4.0 System Test

With all connections as noted in Section 3, and the normal/override switch on the display unit in the normal position and power applied to the engine shutdown the green “charged” lamp on the instrument display unit will glow. The engines will start and operate normally.

4.1

Disconnect one of the two wires at the switch on the Fireboy extinguisher. With the normal/override switch in the “normal” position, the red “discharged” lamp will glow and the audible alarm will sound. The engines will not operate at this time.

4.2

Switch the display into the “override” position. The green lamp will remain off and the yellow “override” LED will come on and the engines will again operate normally.

4.3

In multiple extinguisher systems the section 4.2 test should be repeated for each extinguisher.

4.4

Dual Display units

A dual display unit is also available DU-1005-02D-RH. This unit has an additional connection (yellow wire) to tie to an additional extinguisher pressure switch. To operate properly connect one side of the additional extinguishers pressure switch to GND. Connect the other side of the pressure switch to PS2/AUX on the ESC. Connect a wire from the yellow wire on the display to YLW/Aux on the ESC. When the extinguisher is charged the Auxiliary System green LED will be on. When the cylinder is discharged the green LED will switch off and the red LED will come on.

5.0 Status Indicators

There are three LED indicators on the board. The first is power (green). This will illuminate if the unit is receiving power 10.5 to 36 Vdc. The other two LED's are for status of the pressure switch. When the green LED is illuminated the pressure switch is closed (ground is detected at PS1). When the red LED is illuminated the pressure switch is open (PS1 is floating).

6.0 NO/NC Circuit Configuration

Jumper configuration is used to configure each circuit as NO or NC. Use pliers to remove and insert the jumpers.

7.0 ESC selection

To determine the ESC required determine the number of items that need to be shutdown in the event of a fire. Determine the current requirements for the items and use the chart below to select a p/n.

XXX = Display type

- NHD – No helm display
- 03D - Round 2” display single station
- 04D - Square 2” display single station
- 05D - Square 2” display dual station

8.0 Applicable Specifications

ABYC (American Boat and Yacht Council)
190 Ketcham Avenue
Amityville, NY 11701

9.0 Application Assistance

Technical advice in the use, application, and installation of this device is available by contacting:

Fireboy-Xintex, Inc.
(616) 735-9380
1-866-350-9500 toll free
www.fireboy-xintex.com

Mailing:
P.O. Box 152
Grand Rapids, MI 49501

Shipping
O-379 Lake Michigan Dr. NW,
Grand Rapids, MI 49534

Returning Fireboy-Xintex Equipment

No product may be returned for credit or repair without a written "Returned Material Authorization" (RMA) form. Purchaser must call or email Fireboy-Xintex 616-735-9380 or fireboy@fireboy-xintex.com for a RMA.

1 Year Limited Warranty

The Fireboy engine shutdown system is warranted, to the original purchaser, for a period of one (1) year against defects in materials and/or workmanship. Any system found to be defective within the warranty period will be replaced or repaired free of charge upon the prepaid return of the defective system. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

Fireboy Xintex ESC Preliminary Wiring Diagram 10-15-08

