User manual for

SafetyMOB

Wireless Kill Cord - Emergency Stop

SafetyMOB

Wireless kill cord - emergency stop

Every year there is several serious boating accidents where the driver falls overboard and the kill cord has not been used.
If you fall overboard there is a great risk that the boat automatically turns and you get run over, or it continues straight ahead while maintaining speed.

The SafetyMOB system consists of a helm unit attached to the life jacket or the driver and a boat unit that is mounted in the boat and connected to the boat's existing emergency stop. The helm unit communicates constantly with the boat unit, if you fall overboard the communication is interrupted and the engine stops.

It is possible to set the system in low speed (fishermans) mode, this will increase the time until the engine is stopped if the communication is interrupted, so you have time to move closer to the boat unit to regain communication. The internal buzzer will ‘chirp’ to indicate loss of radio communication.

After the system is triggered for man overboard, the engine can be restarted by switching off the SafetyMOB system and after that start the engine as usual. If you have forgotten to bring the helm unit you can run the boat as usual, the system is not activated until a helm unit are in close proximity to the boat unit on startup.

The SafetyMOB system works on both outboard and inboard engines, gasoline and diesels with electronic stop.

Radio communication

The units is communicating several times per second via the free 2.4 GHz ISM band. The communication is unaffected by radio signals from mobile phones and VHF.
When the radio communication is interrupted the emergency stop is activated in about 4 seconds in normal mode and about 20 seconds in low speed mode.

Power consumption

The boat unit has a power consumption of about 10mA. The helm unit has a battery life of at least one year. When the boat trip is over the helm unit will automatically go into low power mode.

Ease of installation

Installing a SafetyMOB boat unit is relatively easy and can be performed by "DIY".
The boat units cabling for emergency stop is connected in parallel or in series with the existing emergency stop. The boats existing emergency stop will continue to function as normal. If low speed mode is going to be used a switch must be connected to designated wires. It is also possible to connect an external relay, this can be used for instance to stop an electric motor (trolling motor).

The boat unit is preferably mounted close to the steering wheel so that the distance to the driver is minimized, this makes the system less sensitive to radio interference.

Electrical connections

Emergency stop - kill cord

The boat units cabling for emergency stop is connected in parallel or in series with the existing emergency stop depending on whether it is a short-circuit or breaking-up emergency stop.

How do I know witch emergency stop my boat is equipped with?
One can easily find out witch type of emergency stop the boat is fitted with.

1. Start the engine as usual, to verify that everything works as it should.
2. Stop the engine. Locate the cables to the kill switch - emergency stop.
3. Cut off one cable. NOTE ensure that cable stub is long enough that it is possible to connect it to the SafetyMOB boat unit.
4. Try to start the engine, if it is possible, you probably have a short-circuit emergency stop, ie shorting the wires together will stop the engine. Try to activate your existing emergency stop, the engine should continue to run.

If you are unable to start the engine, you probably have a breaking-up emergency stop, ie the emergency stop breaks up the connection to the engine when activated.

If you have a short-circuit emergency stop, connect both cables to the boat unit. Cut the second cable to the existing emergency stop (NOTE ensure that cable stub is long enough that it is possible to connect it to the SafetyMOB boat unit) and connect the two cables to the boat unit cables marked NO and C (the boat unit is now connected in parallel with the existing emergency stop).

If you have a breaking-up emergency stop, connect the boat unit cable marked NC to one end of the cut cord and C to the other end (the boat unit is now connected in series with the existing

Normal/low-speed mode switching

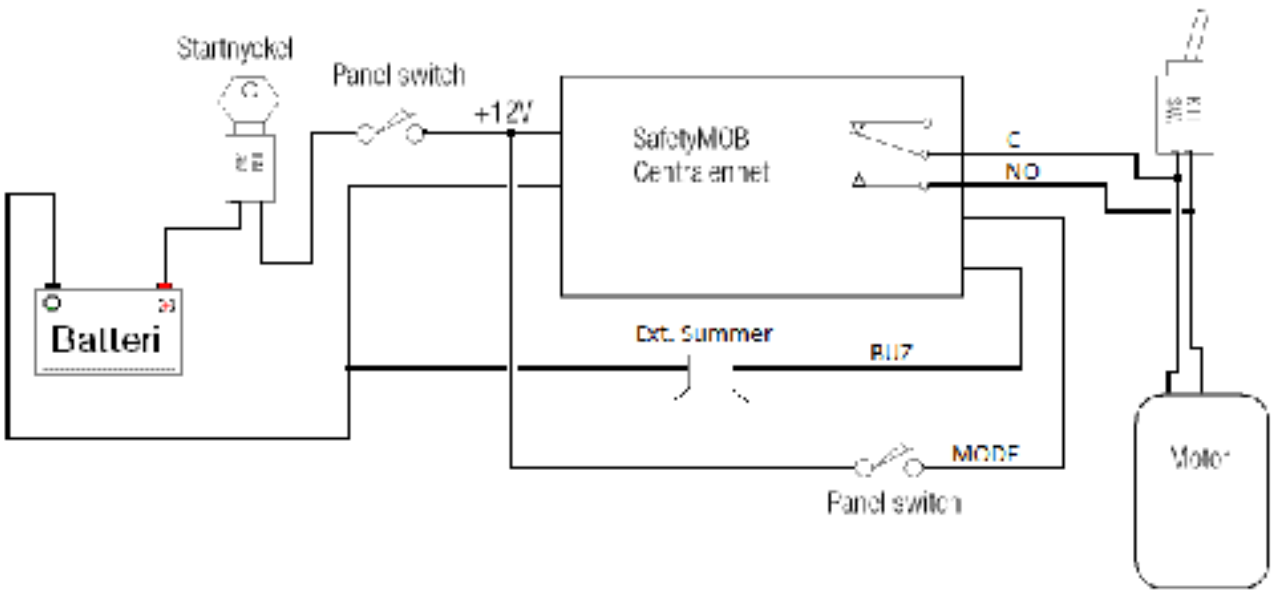
It is possible to connect a switch to the BLUE (MODE) wire and +12V to select between normal and low speed mode. When the circuit is closed the system is in low speed mode, when open in normal mode. Leave the BLUE wire unconnected if this function is not used.

External buzzer

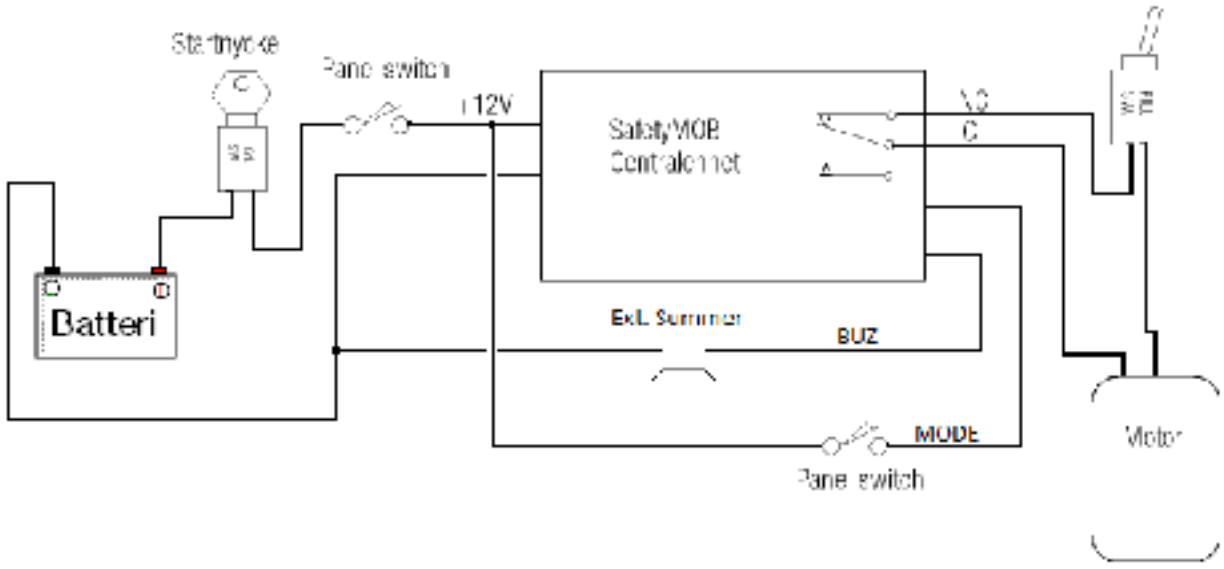
It is possible to connect an external buzzer to the ORANGE (BUZ) wire and ground. Max 100mA/ 12V. This buzzer will mirror the internal buzzer.

External relay

An external relay can be connected to the WHITE (EXT) wire and +12V, max load 1A /12V. This signal (EXT) is grounded when the emergency stop is activated. This can be used for instance to stop an electric motor (trolling motor). This function is latching, even if the communication is restored the EXT signal will be activated.



Installation in a boat with a short-circuit kill switch system.



Installation in a boat with a breaking-up kill switch system.

System Startup

When SafetyMOB is started you hear 2 ‘chirps’ from the boat unit to indicate that the system is active and has synchronized with a registered helm unit. If no ‘chirps’ is heard during the first 10 seconds you should give the helm unit a little shake to ensure that it is transmitting. If this does not help, but you hear a single ‘chirp’ about 30s after startup the system has not found any registered helm unit, you can now choose to register a helm unit or continue to run the boat without an active system.

System configuration - register helm unit

When deploying a new system, the helm unit must be recognized by the boat unit. Pushing the button on the boat unit will start the search for helm units. To ensure that the helm unit is transmitting you should give it a shake. When the boat unit ‘chirps’ 2 times a helm unit has been registered and the system is ready for use. The registered helm unit is stored in non volatile memory. This procedure is only necessary when you must register a new helm unit to the system.

If an indicator light is connected it will be lit to indicate that the system is active.

New helm unit

If you lost the helm unit you can register a new one by re-configure the system as above.

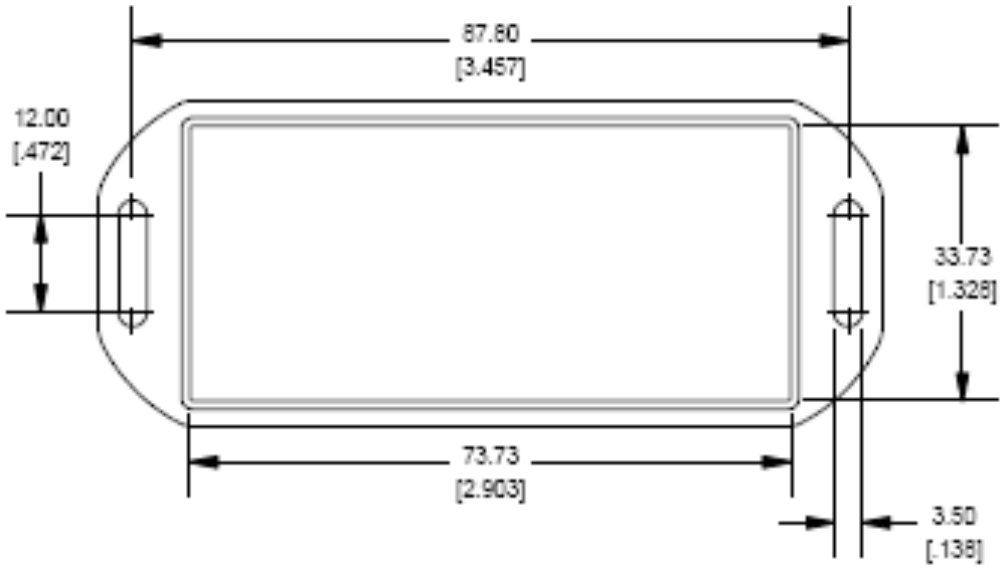
Low battery warning for helm unit

When the battery level of the helm unit is low, the system indicates this by after startup ‘chirp’ 10 times with 6 seconds between each ‘chirp’. When the first battery warning is heard there is about 4 weeks of power left in the battery but it should be changed as soon as possible.

If the batteries run down during operating of the boat the motor will be stopped once. After that stop just start the engine again and continue. One can now use the boat as usual but the SafetyMOB system will not be active. The system is not activated until a helm unit with a working battery is nearby at startup.

Battery replacement in the helm unit

Unscrew the top part of the helm unit and replace the battery with a new one. The battery type is CR2032.



drilling template boat unit

Technical specification

Boat unit

Operating voltage: 10-16V DC
Current consumption: 130 mA
Connections: 1.25mm2 cables
External relay: 12V/1A
Indicator light: 80mA/12V
Environmental resistance: IP66
Dimensions: 96x40x20 mm

Helm unit

Battery: CR2032 3V Lithium
Operating time: exceeding 1 year
Range: 10-15m
Operating temp.: -20 to +50 deg C
Weight: 25g
Environmental resistance: IPX7
Dimensions: 60x30x11 mm

Made in Sweden