

# MagSwitch

Digital Magnetic Switch





YACHT SAILING HI TECH PARTS

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## 2 Warranty

AA-Parts guarantees the winch against defects in accordance with the law.

## 3 Environmental safety



If you find this symbol on the product, the instructions, or on its packaging it is not possible to dispose of some components in the home garbage. A proper disposal is by using the appropriate recycling bins for each component. Anyone may contribute to the protection of our environment with such simple operations. If you do not know the location, ask the relevant territorial authority.

## 4 Technical features

Below is the summary of the technical features of the winch.

- Power supply: 5,5-13V - Microprocessor controlled.
- Constant output current: 10A to 40 ° C.
- Peak Current: 100A for 30 seconds - microprocessor controlled.
- Voltage dropout: 50mV at 40 ° C.
- Absorption at 12 mA load (MagSwitch on).
- No-load current 15uA (MagSwitch off).
- Cables: High quality 1.5 mm<sup>2</sup> (15AWG).
- Cable length: 300mm.
- Weight: 12 g including cables (only Mag-Switch) without actuating magnets.
- Dimensions: 18x25mm.
- Temperature range: -20 + 85 ° C.
- Protection against overheating of micro-processors (logic and power).
- Over-current protection.
- Load short-circuit protection.
- Input voltage (too high or too low) protection.
- Protection against reverse polarity of the battery power.
- Protection against electrostatic charges.

## 5 Safety prescriptions

The MagSwitch® operating magnet is Neodymium made, nickel-copper-nickel corrosion proof. During use you must comply with the following requirements:



### Ingestion

Children could swallow small magnets that can come to rest in the intestines and cause life-threatening injuries. The magnet is not a toy! Make sure not to fall into the hands of the children's.



### Pacemaker

The magnet can affect the operation of pacemakers and implanted defibrillators. A pacemaker could switch into test mode and

cause illness.

A heart defibrillator may stop working. If you are a carrier of one of these devices keep a safe distance from the operating magnet. Warn others who wear these devices from getting too close to the operating magnet.



### Magnetic field

The operating magnet generates a magnetic field extended and powerful. It can damage TVs and laptops, credit cards and ATMs, computer media, mechanical watches, hearing aids, speakers and other devices.

Keep the magnet drive away from all devices and objects that could be damaged by strong magnetic fields.



### Nickel allergy

The magnet drive has a nickel-copper-nickel coating.

Some people develop an allergic reaction to contact with nickel.

Nickel allergies can develop as a result of prolonged contact with nickel-plated objects.

If you already have an allergy to nickel avoided with the touch-prolonged skin contact with the operating magnet.



Note: This is the copy of the specifications label applied on digital magnetic switch MagSwitch®



## 5.1 Electrical connections

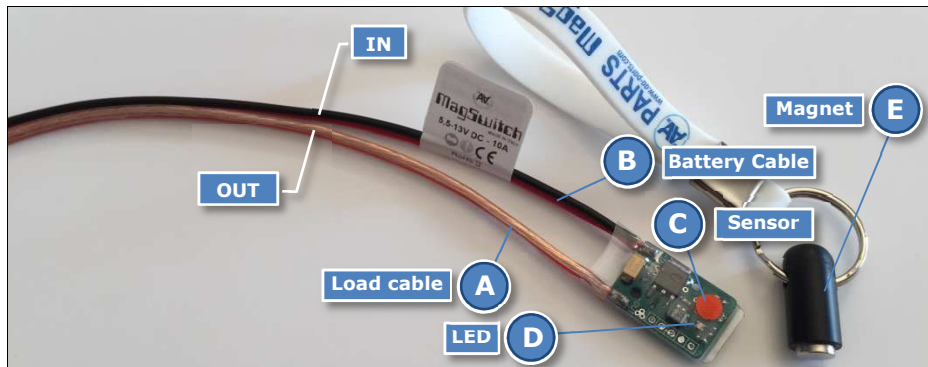


Fig. 01

# MagSwitch®

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### 5.1.1 Introduction

The digital magnetic switch MagSwitch® is designed for easy installation inside the hull. The electrical connections must be made with care and attention.

**!** The operation of the magnetic digital switch MagSwitch® is based on a Hall effect sensor. The Hall effect sensors can be affected by magnetic fields. It is possible that the magnetic digital switch MagSwitch® turns off or turns on if exposed to a strong magnetic field produced for example by a DC motor or its power supply cables with absorption >30A. To wire at a distance of at least 30mm from cables or electric motors.

### 5.1.2 Battery connection

Connect the battery to the **B** cables colored in red-black, matching the polarities.

**!** The magnetic switch MagSwitch® has inversion polarity protection of the supply voltage: advise you to pay attention to the polarity of the battery and the MagSwitch®.

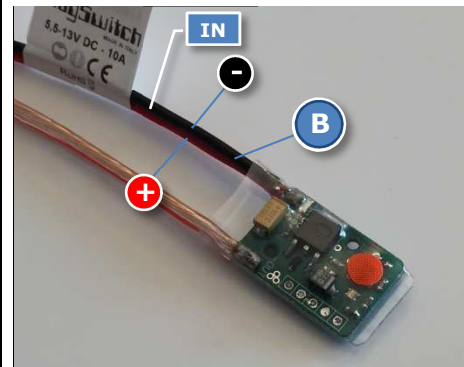


Fig. 02

**!** Caution: Reverse polarity does not allow working of the digital magnetic switch MagSwitch®.

### 5.1.3 Load connection

Connect the transparent load cables **A** (positive pole with a red stripe) observing polarity.

**!** The digital magnetic switch MagSwitch® is not equipped with protection against the polarity inversion of the load voltage: recommend to pay attention to the polarity of the load and of the magnetic MagSwitch®.

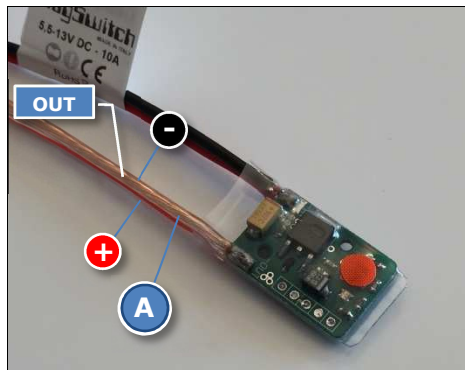


Fig. 03

## 5.1.4 Signal Led

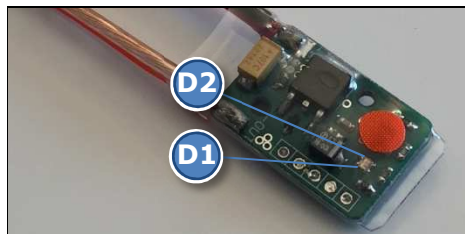


Fig. 04

The digital magnetic switch MagSwitch® has two LEDs indicating function and alarms: the red LED **D1**: indicate the switch OFF mode and the anomalies, the green LED **D2** report normal operation.

Both LEDs are used for the measurement of the battery voltage.

Normal activity	Green Led – D2	Red Led – D1
Switching on	ON	OFF
Switching off	OFF	ON
MagSwitch® OFF	OFF	ON

Anomaly	Green Led – D2	Red Led – D1
Alarm	OFF	ON

Using the battery control voltage function the two LEDs perform the function of signaling of the voltage (see the paragraph 5.1.6.3 for complete operating informations).

Battery voltage measurement	Green Led – D2	Red Led – D1
Start sequence	ON	ON
Volt measurement	ON	OFF
Comma	OFF	ON
Tenths of Volts measurement	ON	OFF
End sequence	ON	ON

**i** Note: The symbols shown have the following meanings:

ON	the green LED is ON.
ON	the red LED is ON.
OFF	the green LED is OFF.
OFF	the red LED is OFF.
ON (long pulses)	the red LED flashes with long pulses.
ON (short pulses)	the green LED flashes with long pulses.
ON (short pulses)	the red LED flashes with short pulses.
ON (short pulses)	the green LED performs a defined number of pulses
ON (short pulses)	the red LED performs a defined number of pulses

## 5.1.5 Anomaly signal

The anomalies marked by red flashing LED with fast pulses are as follows:

- Over temperature of microprocessors (logic and power).
- Over-current.
- Load short circuit.
- Input voltage (too high or too low).

## 5.1.6 Hull positioning

**i** Position the digital magnetic switch MagSwitch® in a free area under the deck, not subject to moisture or direct immersion in water, away from metal parts, DC current motors and their power supply cables, devices in general that have an operating current >30A.

Use clear silicone adhesive or double sided foam tape **G** for bonding the digital magnetic MagSwitch® in the desired area.

The maximum installation thickness is 3-5mm of fiber glass, carbon, wood. The signal led **D1** and **D2** [Fig. 04] you can be seen through the hull, from the outside of the same.

**i** Note: Not all hulls are translucent allowing full view of the indicator lamps.

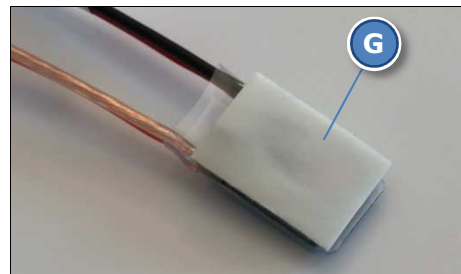


Fig. 05

After bonding of the digital magnetic MagSwitch® is necessary to position the recognition sticker **F** on the deck of the boat in correspondence with the magnetic sensor.

**i** Note: In Fig. 06, 07 and 08 digital magnetic switch MagSwitch® is represented, for clarity, without the double-sided foam tape [G Fig. 05].

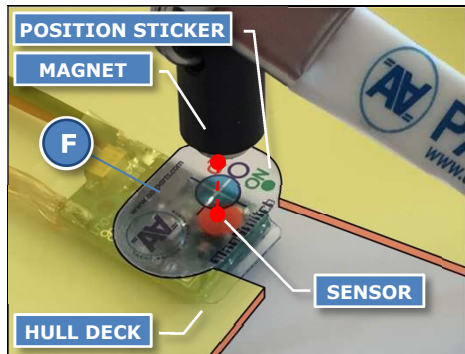


Fig. 06

## 5.1.7 Operation

### 5.1.7.1 Switch ON

Move the operating magnet **E** – Fig. 07 – to the center of the recognition sticker on the deck about **one second**. The digital magnetic switch MagSwitch® turn OFF the red LED and turn ON the green LED on fixed light.

**Now the load is ON.**

### 5.1.7.2 Switch OFF

Move the operating magnet **E** – Fig. 07 – to the center of the recognition sticker on the deck about **one second**.

The digital magnetic switch MagSwitch® turn OFF the green LED and turn ON the red light flashing with slow pulse.

**Now the load is OFF.**

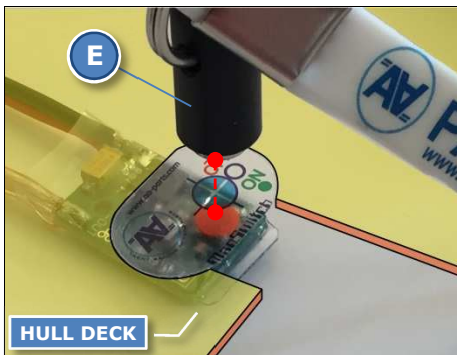


Fig. 07

### 5.1.7.3 Battery voltage measurement

**i** Note: When you start the measuring battery voltage procedure before the load is switched off, the digital magnetic switch MagSwitch® proceed to measure the voltage of the battery and, at the end of the procedure, the load will remain off.

Move the operating magnet **E** – Fig. 08 – to the center of the recognition sticker on the deck three times in succession. **If the load was turned ON it will be switched OFF.**

The digital magnetic switch MagSwitch® turn ON simultaneously the red LED and the green LED to notify the start of the measurement.

The green LED will begin a series of flashes to communicate the voltage in Volts, the red LED will flash once to communicate the comma, the green led will start a series of flashes to communicate the voltage in tenths of a volt.

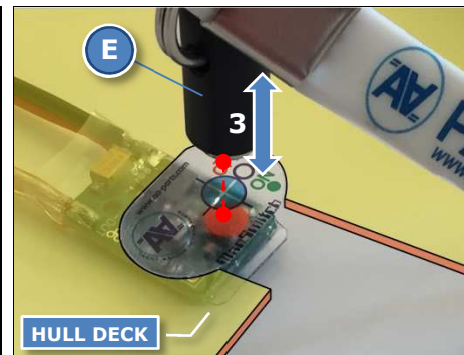


Fig. 08

**i** Example:  
Battery voltage 7.4V  
LED flashes green: 7  
LED flashes red: 1 (comma)  
LED flashes green: 4

After measuring the digital magnetic switch MagSwitch® turn ON simultaneously the red LED and the green LED to notify the end of the measurement sequence.

**The load will remain switched OFF.**



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