# SmartWinch

## *USER GUIDE*

***S*** Series

*The S-Winch is manufactured by*:

**Mx components**
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## Summary

# 1. Introduction

Thank you for purchasing a S- Winch. Please take the time to read this booklet.

There are a few do's and don'ts, some very important points and some helpful hints.

Please do not hesitate to call or email for assistance.

# 2. Warranty

Warranty period is 12 months from the original end user purchase date, resale to another end user in the warranty period does not void warranty.

The evaluation of any claim can only be made by MX Components

Where no obvious cause of a fault is found then warranty will be assumed

The benefit of the doubt will always go to the end user

Where there is user damage that is not determined by us to have caused the fault warranty will not be voided

We make reasonable efforts to seal critical components of the SmartWinch however we can not guarantee that no moisture ingress will occur.

Any fault caused by water voids warranty for the purposes of that fault only

# 3. Summary of Features

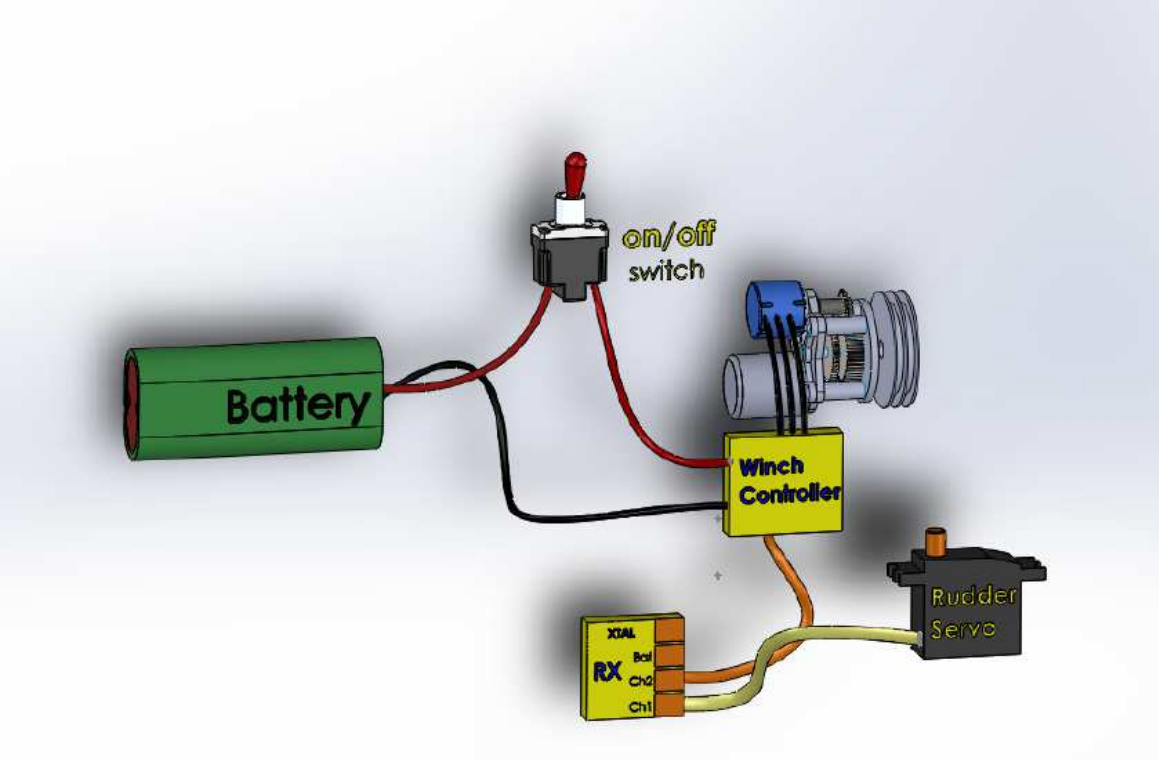
- 3.8 to 7.5 volt operating range
- Integra 5 Volt 3 Amp BEC for Rx supply
- Adjustable Tx end point limits
- Adjustable travel
- Ball bearing output

# 4. Special SmartWinch Features

Travel Adjustment

Travel can be adjusted between 100 % of maximum down to as low as 20%.

# 5. Power Supply




Absolute voltage range is 3.8 to 8 volts. The table below shows various battery types, numbers of cells and capacity recommendations. Power supply connection must be made via the red and black power supply leads and not from the Rx.

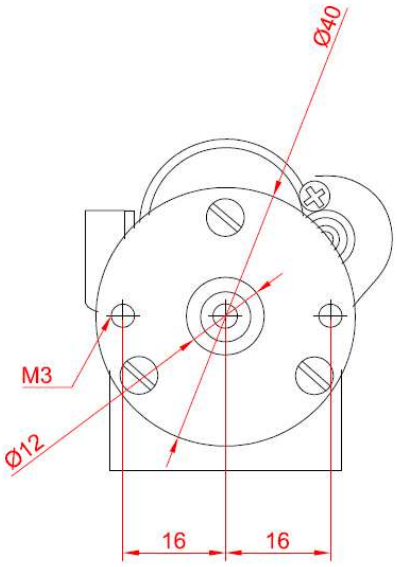
**Battery Performance**

| Type | Performance | Number of cells | Min capacity |
|---|---|---|---|
| LiPo/LiFe | # # # | 2 | 1000 mAh |
| NiCad | # # | 4 to 6 | 1000 mAh |
| NimH | # | 4 to 6 | 2000 mAh |
| SLA | # # | 6V | 1000 mAh |

**Snap In Battery Holders**

Snap in battery holders must not be used. Their weak electrical connections can result in severe voltage drop which causes erratic system behaviour. Battery packs should be fully welded/soldered.

# 6. Deck Mounting




It is recommended to fix the winch to the underside of the deck with drum mounted above deck. Maximum deck thickness is 2.5mm when using the supplied screws. Use csk screws for deck thicknesses above 2.5mm up to a maximum of 4.5mm. Do not use screws longer than those supplied.

Before fixing the winch to the underside of the deck, the mounting face, spigot and "V" ring seal on the shaft immediately below the hexagonal section of the output shaft should be given a liberal coating of Vaseline petroleum jelly or Silicone grease to form a seal. Coat the two M3 mounting screws as well.

In most cases the best circuit for system power is as shown in figure 1. In this system there must be no Rx battery connection.

Power for Rx is supplied by the winch BEC (5V). The use of switches in either system is optional.

# 7. Wiring

### Voltage Regulator (BEC)

The Smart Winch contains a 5 volt, 3 amp BEC to supply to winch controller, radio receiver (Rx) and a standard power rudder servo. The winch motor runs on the full battery voltage via the MOSFET output circuit. Please note that using high power servos for rudder can cause Rx problems.

### Supply Leads

Wire size from winch supply leads to battery pack must be at least 0.5mm2 (20AWG) cross section.

Switches and connectors used should be rated at least 3 Amps. Standard servo size wiring is not adequate. It can cause severe voltage drop between battery and winch and should not be used.

### Supply Polarity

Power supply / battery lead connectors must be polarised so that it is impossible to accidentally reverse the supply polarity. The control circuit and radio gear is protected by the BEC and will not be damaged by reverse polarity but the MOSFET output circuit is likely to be seriously damaged.

### Servo Connector (Rx Lead)

The connector supplied is compatible with most radio brands such as JR, Futaba, Hitec etc. Take care when inserting connector into receivers other than JR or Hitec. It is possible to insert the connector the wrong way around in some brands receivers. However this will not do any harm except that the Rx will not operate.

## 8. Setup

Connect the winch to the RX device in the target channel.

Place setting of your transmitter EPA to 50% of stroke and turn on the transmitter.

Verify that the winch rotates free in both directions of rotation.

Adjust the amount of travel required to open all the sails.

If necessary increase the run up to the maximum allowed by your transmitter.

## 9. Maintenance

For the motor, a regular drop or two of light machine oil to the shaft bushings or a spray with water repellant lubricating sprays will keep the motor going for years. If spray is used, apply directly into the motor. Avoid getting spray on electrical wires or feedback potentiometer and controller enclosure grommet. Note: These sprays may contain flammable propellants. Allow some time for the flammable components to evaporate before running the winch.

Maintain a coating of white petroleum jelly (Vaseline) or Silicone grease on all electrical connectors inside the yacht to protect against 'black wire' corrosion.

Regularly re-pack the white petroleum jelly or Silicone grease under the drum of deck mounted winches to protect the ball bearing. Regularly remove the drum and re-coat the area around the shaft and spigot.

Drain the boat of water as often as required to keep the level of water in the boat to an absolute minimum. After each days sailing drain boat and leave hatch off to allow the boat to breathe and dry out. This is important for all of the boat's electrics.

Do not attempt to seal the motor in any way. It must be able to breathe for cooling purposes and also to dry out should moisture get in. It is not possible to seal the motor so any attempt will only make corrosion worse.

# 10. Mechanical Specifications

| Specification | S300 | S 330 | S 400 | Unit |
|---|---|---|---|---|
| Max Power | 10 | 12 | 16 | Watts |
| No Load Speed | 4 | 4.5 | 5 | revs/sec |
| No Load Speed | 0.47 | 0.55 | 0.95 | sec/300mm |
| Stall Torque | 20 | 20 | 30 | kg.cm |
| Standard Drum | 38 | 38 | 32 | mm |
| Maximum Turns | 3 | 4.5 | 4 | revs |
| Travel Range | 50-360 | 50 - 600 | 40 - 500 | mm |
| Dimensions | 74x56x54 | 74x56x54 | 84x65x45 | mm |
| Weight | 134 | 134 | 150 | gm |

# 10. Electrical Specifications

| Specification | S300 | S330 | S400 | Unit |
|---|---|---|---|---|
| Idle (Stationary) Current | 22 | 22 | 22 | mAmps |
| No Load Running Current | 570 | 570 | 680 | mAmps |
| Stall Current | 12 | 12 | 18 | Amps |
| Maximum Supply voltage | 8 | 9 | 8 | Volts |
| Minimum Supply voltage | 4 | 4 | 4 | Volts |

Performance specifications based on a constant voltage supply of 6V and standard drum size. Actual performance specifications will vary depending on supply battery voltage and drum size etc. Specifications may change.