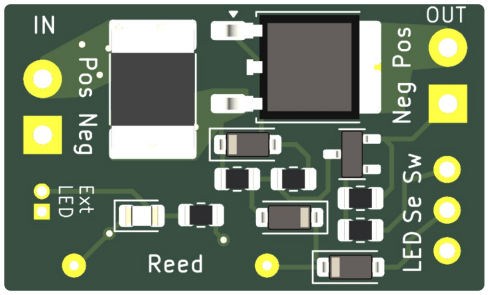
micron radio control

Uplands House, Castle Howard Road, Malton YO17 6NJ
www.micronrc.co.uk
+44 (0)1653 696008

Micron MSW13a Electronic Switch

MSW13a is versatile unit which can be used to:

- boost the current handling of a micro switch
- convert a receiver P output into a high current switch
- implement an electronic power switch using 2 x P outputs



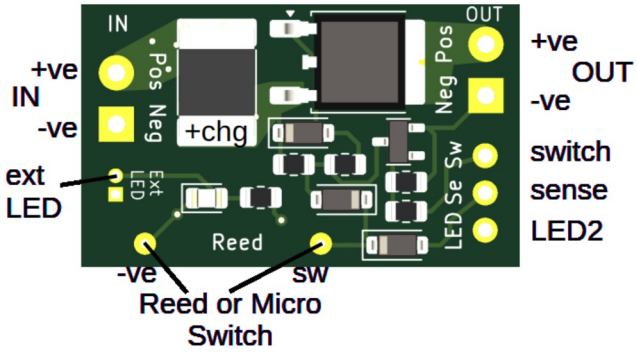
The MSW13a PCB measures 18mm x 30mm and comprises a resettable fuse, a P-FET to control the output, a LED and an optional reed switch. The P-FET is capable of switching up to 10A without a heatsink at a max of 30V. When off, MSW13a draws no current so may be permanently connected to the battery. The on-board LED can be used to provide an 'on' indication or can be connected to a Micron receiver LED2 output.

The on-board resettable fuse is inline with the input positive and is there to protect the battery and downstream wiring in the event of a wiring fault or failure of any of the powered components. The fuse value can be selected from the web page when MSW13a is ordered.

Connections

Connection pads on the MSW13a PCB are provided for:

- battery input
- switch output
- on-board reed or activation switch
- an optional external LED connected in parallel with the on-board LED
- reed switch output (Se), connected to negative when active
- activation input (Sw), >= 3V to switch on
- LED2 input (3.3V to 12V), or 'on' indicator



MSW13a is available as: a bare board with or without reed switch mounted; and with optional input, output and charge connector wires. Although there is no solder pad on the board, a positive charge lead may be soldered to the bottom of the fuse so that this is in circuit for charging.

Connections may be made the solder pads either on the top or bottom of the PCB. Covering MSW13a with heatshrink tube is recommended to avoid contact with any metal parts of the model.

Use as E-Switch with Micron MR603

MR603c provides switching control via connections to the sense (Se) and switch (Sw) pads. Two spare MR603c P outputs are used which must be configured (via programming) as Sense input and Power output - program table section 7.

The diagram shows MSW13a used with MR603c using the on-board reed switch and with LED2 connection to P1 on the MR603c. If P1 is already connected to the model's front lights then it is not necessary to connect MSW13a's LED input as the front light will be used for switching action feedback.

Any of the spare P pads can be used for Sense and Power, P3 and P4 are used in the example. P3 is connected to Se and P4 is connected to Sw; these are configured using:

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7-4-2-0          -- P4 as power switch output, no remote off
7-3-1-2          -- P3 as sense input
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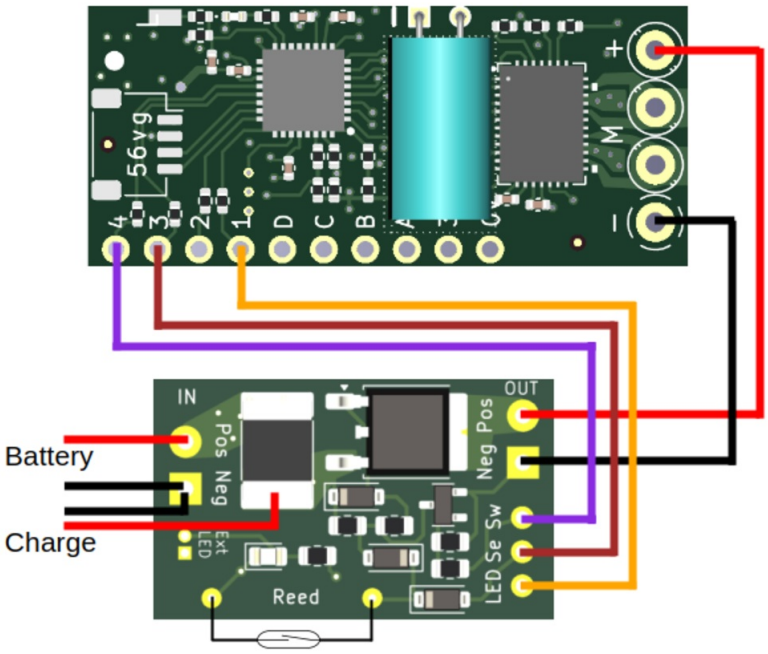
Once these are entered, the MR603c will require a low input on P3 (connect to negative) for startup to continue. If Sense (7-p-1-2) is entered first, the reed or push button must be kept activated while entering the Power (7-p-2-0) program. When the switch operation has been tested (see below), a backup should be made to save the changes (prog 4-12).



Operation

Either a magnetically operated reed switch or a push button can be used to activate MSW13a; the MR603c LED and MSW13a LED will give feedback on the status of the switch. MSW13a should be mounted so that the LED is visible - e.g. behind a grille or below the chimney on a steam loco.

The following notes assume a reed switch is used.

To switch on:

- hold the magnet near the reed
- the output will immedately switch on
- the LED will light and then start flashing after 3s
- remove the magnet

If the magnet is removed before the LED starts flashing, the output will switch off causing MR603c to switch off.

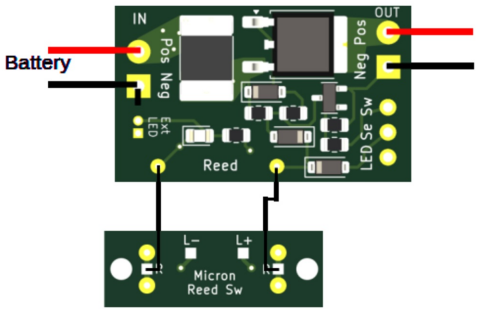
To switch off:

- hold the magnet near the reed
- the LED will slow flash for 2-3s then rapid flash for 3s
- remove the magnet while the LED is rapid flashing
- the output will switch off

The output will remain on if the magnet is removed before the LED starts rapid flashing or held in place until the 3s rapid flash finishes.

Use with MSW01

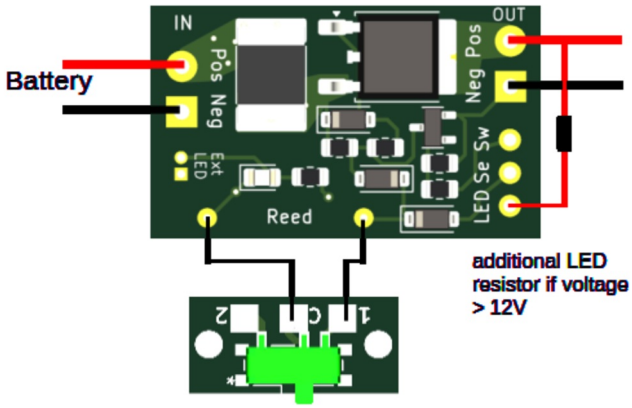
A remote reed board MSW01 is available for use when MSW13a cannot be placed in an accessible location. The MSW01 'R' pads are wired to the MSW13a pads where the reed switch would normally be mounted. The remote reed board also has an LED in between the 2 reeds - this may be connected to the receiver's LED2 output (P1)



Use to boost current rating of a micro switch

This usage allows a micro slide switch to be used where the max motor current would overload the switch - e.g. most micro switches have a 300mA max rating.

The LED input may be connected to the positive output to provide an 'on' indication. If the battery voltage is much higher than 12V an additional series resistor will be required - e.g 1k ohms for 20V.



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Convert P output to high current switch

MSW13a used in this way takes a 3V to 5V input signal on the Sw pad to switch on. This may be used to control a high current load from a receiver's P output and is somewhat like a F switch - the difference is that a receiver's F pad switches the load to negative whereas MSW13a switches in the positive lead.

The example below shows MSW13a connected to P3 on a MR601. The same or different batteries may be used for MSW13a and MR601 - e.g. the MSW13a battery can be a higher voltage than allowed for MR601; in this case the negative leads from both batteries must be connected.