

# **Black Magic Standard and VR Model Pin Out**

**Includes 1, 2 and 3 servo models.**

**Version 3.4**  
**April 2016**

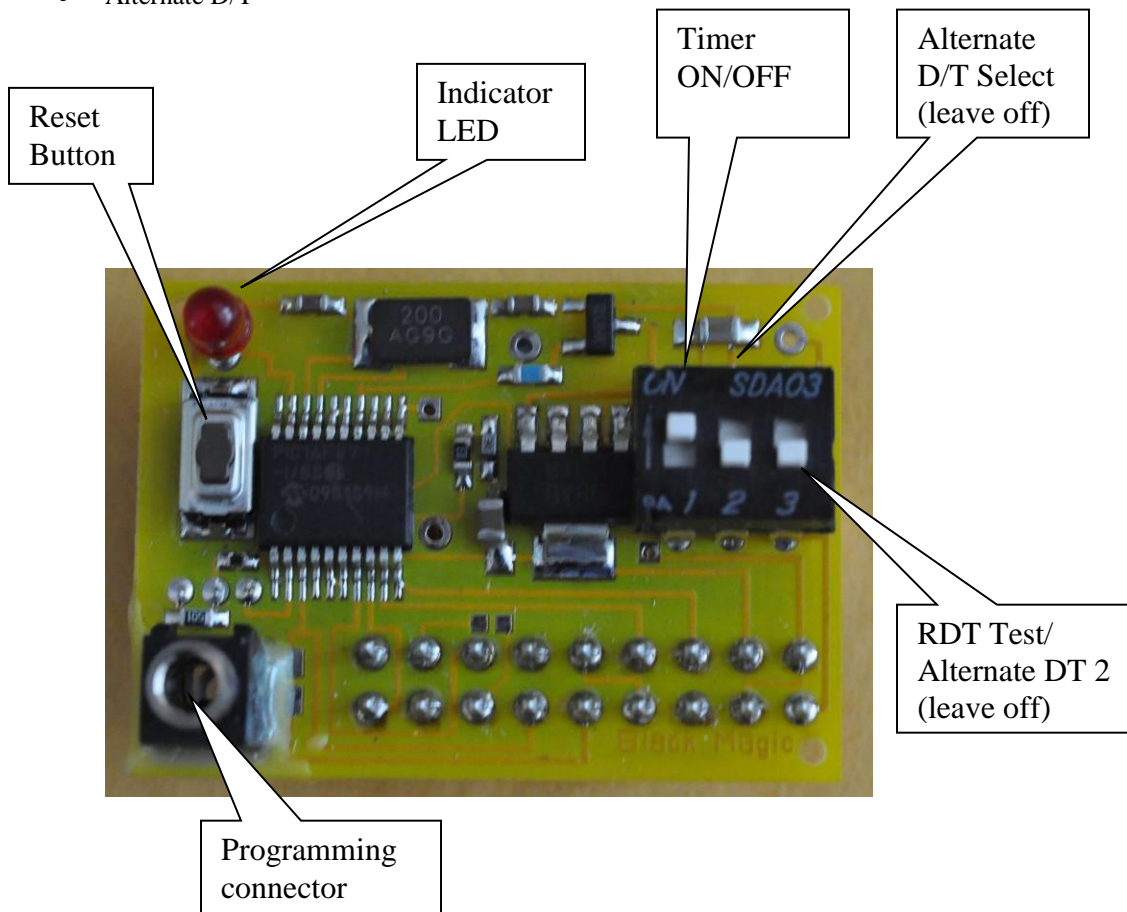
*This document shows controls on the face of the timer and the allocation of the connecting pins on the back of the timer. And what to do to familiarize yourself with the timer when you get it for the first.*

# Black Magic Standard Timer

2004 or later Model with .1" or 2.54mm spaces

## Features

- 1 and 2 servo Universal timers support F1A and F1B
- 3 servo F1A , F1B and F1Q Timers
- 2 servo plus relatch hook F1A timer \* from timer version 5.51 this is included in the 3 servo F1A timer
- 2 servo plus M&K style impulse hook\* from timer version 5.51 this is included in the 3 servo F1A timer
- Standard [blue green] or VR [yellow] version of timer. VR will regulate voltage to servos
- Radio D/T enabled
- Optional Beep during tow, flight and D/T
- Beeps Out flight time at power up.
- Sleep on D/T
- Adjust D/T time from Tow Hook/Start Button
- Optional Timer Mounting Box
- Optional start Button for F1B/Q
- F1Q Start Kill and Long arming period
- F1Q power from BEC
- F1Q Energy Limiter input
- 10 timer steps
- Alternate D/T



1, 2 or 3 Servos. For the F1Q timer using a motor controller with BEC it must be plugged in the servo 2 position.

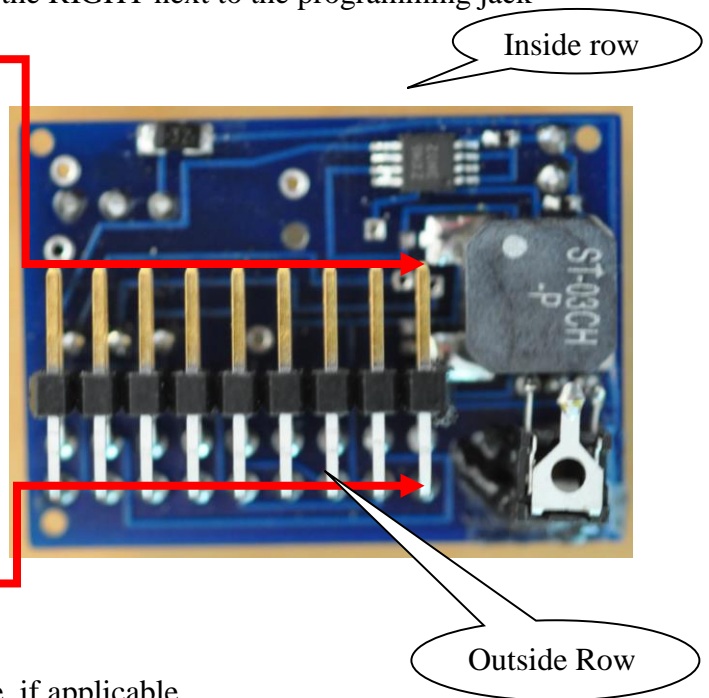
**WARNING.** While most Black Magic timers are protected by a diode against connecting a battery the wrong way around, it is very important not to connect a battery to any other set of pins. Doing this can damage the timer and cause the function associated with those pins to no longer work. In particular do not connect a battery across the servo 2 signal and positive pins or any of the hook or start pins.

On the **back** the inner row of pins starting on the RIGHT next to the programming jack

+ 5 Volts in  
Ground in  
Servo 1 signal  
Servo 1 positive  
Servo1 Ground  
Unlatch Switch/Energy Limiter Input  
Hook Forward Switch/start switch F1B or F1Q  
Switch common ground  
+5 volts unregulated for Hall Effect Switch  
– only used when switch is Hall Effect

On the second and outer Row from the right

Servo 2 signal  
Servo 2 positive  
Servo 2 Ground  
Servo 3 signal-Connect the impulse hook here, if applicable  
Servo 3 positive  
Servo 3 Ground  
Ground for Radio DT  
Positive unregulated Supply for Radio DT  
Signal for Radio DT

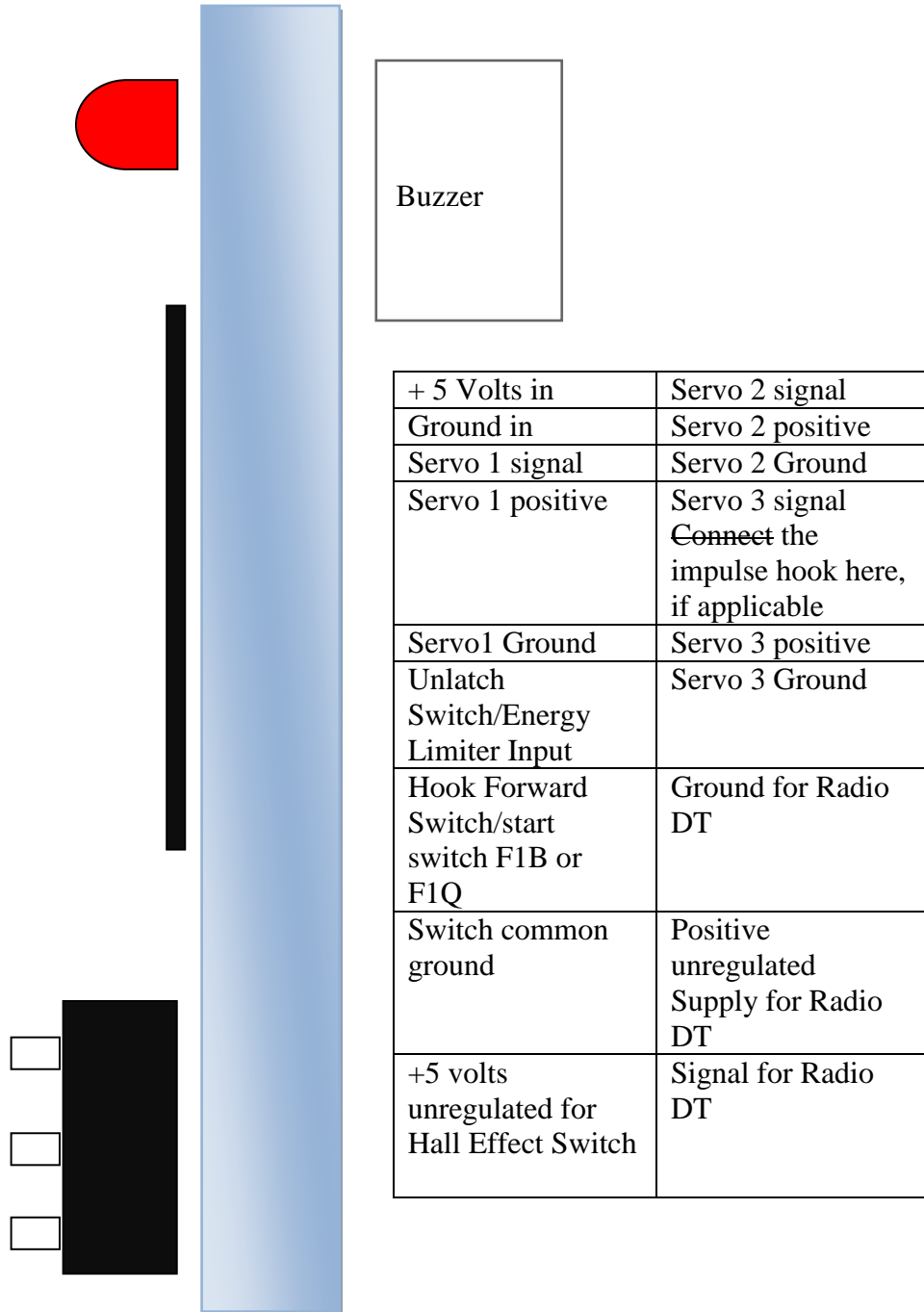


For timers with a hook servo it is servo 3.

For F1A timers with a version number of 5.51 or greater checking the Hook Servo box on the Hook screen of Super Magic will make this a 2 servo plus hook servo rather than a 3 servo timer.

## Additional view of pin layout from the top.

We present these views to add additional clarification.



Set the Active hook from the More screen. Start [i.e. closed] and Open position. The bunt timeout is the time in seconds the hook remains open after the unlatch tension threshold had been crossed back to latch. The hook will then relatch. Be sure to allow enough time for the line to come off on the regular launch. The unlatch switch is closed when the line tension threshold is passed i.e. when it increases.

## **F1Q**

All F1Q timers have the F1Q jumper bridged. See the diagram below for the position of the jumper.

Typically F1Q timers are powered by the BEC from the motor controller. This must be in the servo 2 position.

F1Q timers with a version number greater than 5.11 can accept input from an Energy Limiter the input from the EL is to the Unlatch Pin. The EL also has a ground connection. It can be to either the Ground for Radio D/T or to Switch common ground.

## Checking a timer out for the first time

Some people buy a model where the timer has been installed by a professional model builder or the model has already been used by another flyer. Under these circumstances the timer is probably wired up correctly. There is a separate Magic document to tell what to do in these cases.

If you have not used a Magic timer before what you need to do is connect up the battery, servos, tow hook, start button and Radio DT on the bench and to make sure that you understand how to connect the timer. There are instructions below on how to do this. If you do not understand the instructions do NOT connect timer. Get help from Magic timers or a friend who already uses these timers.

If you connect the timer up incorrectly you can damage the timer and it can cost 5 to \$50 to fix it depending on what is damaged.

On the back of the timer there are 2 rows of connectors. Firstly you connect to the inner row of connectors and make sure that this is working properly.

See the photo below of the back of the timer. From the right hand side the battery, then the servo and then the tow hook or start button are connected,

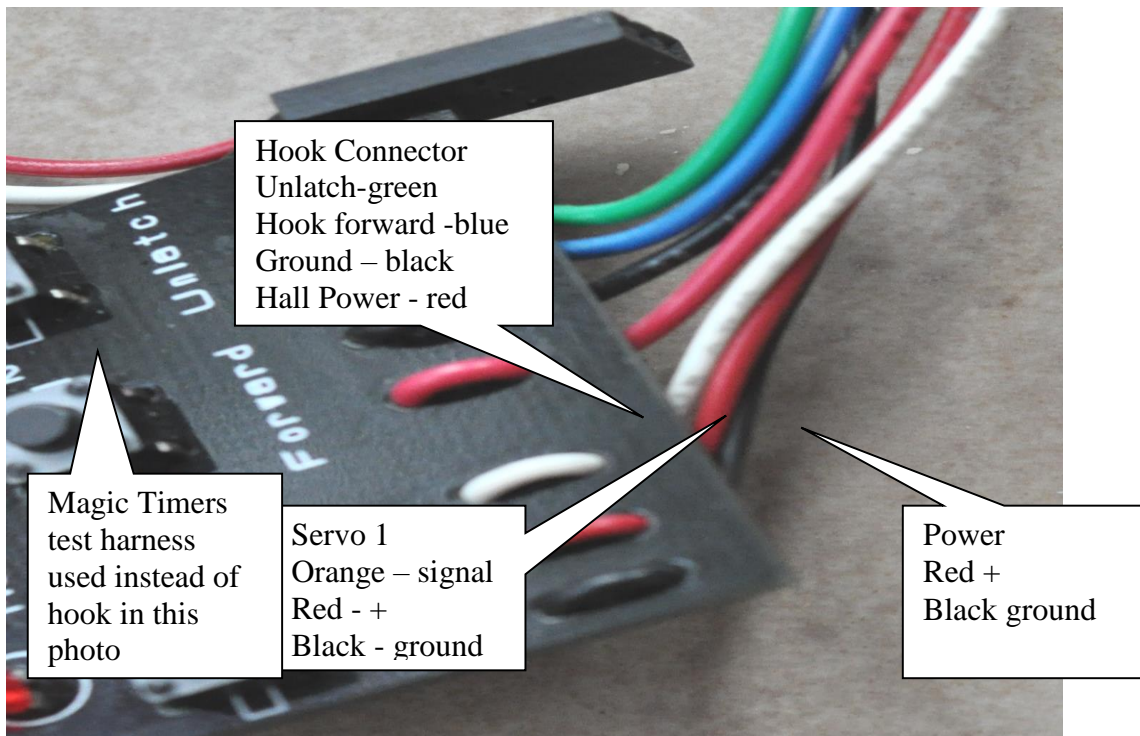
For the battery there is a 3 wire connector on the battery but only two wires are used. I cut a notch out of my battery connector to help me get it in the right way around. The notch goes around the buzzer in the back of the timer.

On the servo connector you can see the black or negative wire on the left and the metal flutes in the connector are visible.

The connector at the left hand end has 4 wires. From the right, the hook unlatch sensor, then the hook forward sensor or start button, then the common ground and finally positive power for Hall Effect sensors. This latter is not used often and can be ignored for the initial set up and testing.

Turn off the timer power switch on the front of the timer, switch number one down, and if you understand how things should be connected plug them into the inner row of connectors on the back of the timer. These are the connectors that are the closest to the circuit board. If you do NOT understand do NOT plug anything in but ask for help.

Your timer should look like the one in the picture. It is very important that nothing is connected to the outer row of connectors at this stage.



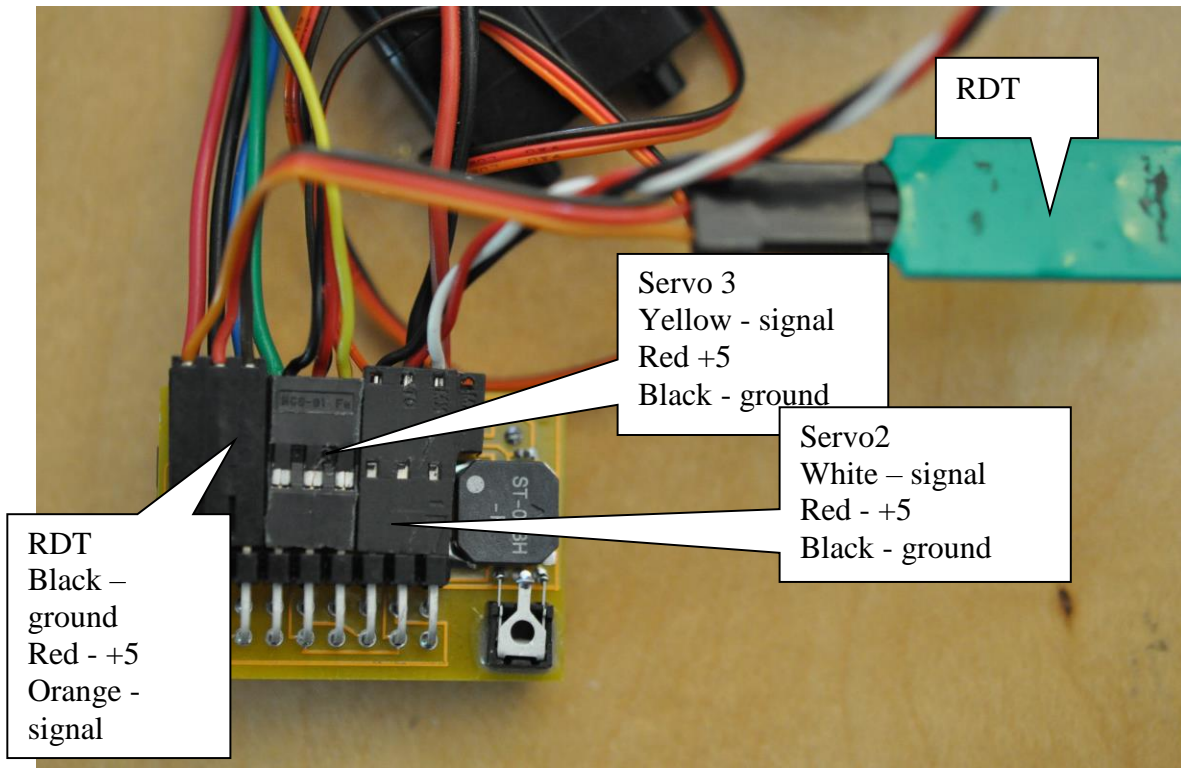
In this picture we refer to the color of the wires that were on our test equipment. That is to make it easier for you to understand the picture. The wire do not have to be these colors,

When timers are shipped from Magic Timers they have a flight program loaded. This is used to check out the timer and make sure that all function are working before shipping, it is not a program that would be put in an operational airplane. You can use the program to make sure that you have wired the timer properly and understand how all the functions work,

Turn the timer on and it will beep out the length of the D/T. Verify that the beeper is working. Now latch the hook. Move the hook backwards and forwards, the servo should move. Now pull the hook forwards and unlatch the hook. The buzzer will sound. Move the hook back and the “flight” will start.

Now that you have verified that you have connected the battery, servo one and the tow hook correctly, turn the timer off. Now you are going to connect the remaining servos and Radio DT. These are on the second row of connectors. Leave the battery, servo 1 and hook on the first row.

Looking at the picture below now connect servo 2 to the right most 3 pins, servo 3 to the center 3 and the RDT to the left most 3 pins. Note that the RDT pins are in a different sequence than the servos. Verify your work against the photo. If you are not sure which way to connect things stop and ask, do NOT turn on the power.



Now that the other servos and RDT are connected turn on the power repeat the test done with servo 1 above. As part of this test verify that all the servos move. Check that the RDT works and is connected properly. The RDT will probably be an Airtek or Aeris unit. This is connected to the timer with a female to female cable like in the picture above. When activating the RDT it necessary that the transmitter be a little distance from the receiver as not to swamp it. 6 feet may work or it might be necessary to go to 12 feet. – 4 meters away.

In the above example we showed a 3 servo F1A timer. With a 1 or 2 servo timer only one to two respectively servos will work. Similarly a push start button would be used for a F1B or F1Q model.

Once you have done this you need to save the flight program that came in the timer and then move on to installing the timer in your model.



# Board Layout

Top View

Board Size 34mm X 24.25mm

