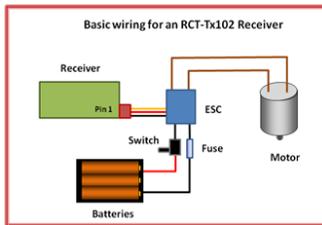


RCT Rx102 receiver

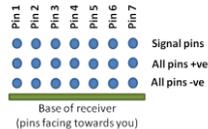
Thank you for buying a **RCT-Rx102** receiver. This guide is intended as a beginners' guide. There is more detailed information on the **RC Trains** and **Deltang** websites.

The RCT-Rx102 operates as a normal DSM2 receiver but includes some additional features making it well suited to controlling battery powered locomotives and for operating live steam locomotives. It can be powered with a supply from 3.2v to 10v DC (though 5v is recommended).

The six servo outputs (Channels 1-6) can be used with an Electronic Speed Controller (ESC) such as the *Brian Jones Mac5* or the *MTroniks Viper Loco 10*, or can be linked to servos to operate the regulator, whistle and reverser on a live steam loco. If used with an RC Trains transmitter such as the RCT-Tx10 or the RCT-Tx22, the output from Channel 1 is used for speed control. The wiring for using an RCT-Rx102 with a third party ESC is very straightforward. If using rechargeable batteries, you may want to include a charge socket.



The anatomy of the Rx102



Features of the RCT-Rx102

Cruise control

If the receiver loses the signal from the transmitter, for example when going through a tunnel, then the outputs hold their settings until the signal is restored. This means that the loco will continue doing what it was instructed to do before the signal was lost. You could switch off the transmitter if, for example, you are running the loco round a continuous circuit and it will continue running. This feature can be disabled and 'failsafe' enabled instead (see below). When running in failsafe mode, the receiver will bring the loco to a halt on the loss of the transmitter signal.

Binding

Binding the receiver to a transmitter is very straightforward:

1. Connect the large black bind plug (supplied) between signal pin 5 and pin 7 (the signal pins are the uppermost row on the receiver)
2. Switch on the receiver. The LED will flash rapidly.
3. Remove the bind plug.
4. If using an RCT-Tx22 of Tx24 transmitter, move the Selecta switch to the required position.
5. Hold down the bind button on the transmitter and turn it on.
6. Release the bind button on the transmitter. The LEDs on both the transmitter and the receiver should flash more slowly for several seconds.
7. Binding is complete when the LEDs stop flashing and stay on.

If the LED does not come on within ten seconds or if it flashes every two seconds, then the binding process has failed (this happens occasionally). Switch off both the transmitter and receiver, move them closer or further apart and retry. Binding is most reliable when no other 2.4GHz transmitters are on nearby.

Selecta (if used with RCT-Tx22/Tx24)

The Selecta switch has twelve positions, enabling the RCT-Tx22/Tx24 to independently control up to twelve locos. By turning the Selecta switch, locos can be brought in and out of service via the transmitter without touching them. On the RCT-Rx102, when the Selecta switch is changed to a different position from the one controlling a particular receiver, the receiver outputs 'hold' their settings.

It is possible to disable or enable whether an RCT-Rx102 responds to the Selecta switch on RCT and Deltang Tx22 and Tx24 transmitters. To toggle between Selecta-enabled and disabled:

1. Turn off the receiver
2. Connect the large black bind plug to Signal pins 4 and 6 (the signal pins are the uppermost ones on the receiver)
3. Turn on the receiver
4. Remove the plug

Although mainly intended for use with Tx22 or Tx24, Selecta can be used with a standard DSM2 joystick transmitter using the Channel 2 trim control to select different Selecta enabled receivers. Each loco becomes 'active' when the trim is within a seven click range (3 clicks left and right) of the position memorised during binding.

Automatic directional lighting

Signal Pin 6 can power a forward facing LED and signal Pin 7 a backward facing LED on a loco. By default they respond to Channel 1 (the throttle control) or can be reprogrammed to respond to Channel 3 (Direction switch)

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if you want the receiver be programmed for 'low off' control.

To toggle whether Directional Lights operate as 'low off' or 'centre off':

1. Turn off the receiver
2. Put the large black bind plug across Signal pins 3 and 5 (the signal pins are the uppermost row on the receiver)
3. Turn on the receiver
4. Remove the plug

Pins 6 and 7 provide 3.1v when on and 0v when off. The receiver has built-in 180ohm resistors to limit the current through LEDs to around 12mA and so there is no need for additional resistors when connecting LEDs. The anode (+ve) lead on the LED is connected to the signal pin and the cathode of the LED is connected to 0v (the negative lead from the battery). The anode on an LED is usually slightly longer or sometimes there might be a dot or a flattened edge beside the cathode on the case of the LED.

Outputs from the signal pins

The default output settings for signal pins (ie the uppermost row) of the RCT-Tx102 are:

- Pin1: Channel 1 Servo [Throttle]
- Pin2: Channel 4 Servo
- Pin3: Channel 3 Servo [Direction]
- Pin4: Channel 2 Servo
- Pin5: Channel 5 Servo
- Pin6: Auto directional lights (forwards)
- Pin7: Auto directional lights (reverse)
- Pin8 (side): Channel 6 Servo

The servo output settings for pins 1-3 can be adjusted if, for example, you need to reverse the direction the servo operates or reduce the length of the servo arm travels (ie the 'throw'). This is useful when using the receiver with live steam locos.

To change servo output settings for Pins 1 - 3

Only one pin output can be changed at a time.

1. Turn off the receiver and then:
 - a. To change Pin 1 (Channel 1 - throttle) put the small (red) bind plug on Signal pins 4 and 5.
 - b. To change Pin 2 (Channel 4) put the small (red) bind plug on Signal pins 5 and 6.
 - c. To change Pin 3 (Channel 3 - direction) put the small (red) bind plug on Signal pins 6 and 7.
2. Turn on the receiver. The LED will flash every half second.
3. Remove bind plug.
4. Turn on the transmitter (and Selecta position) to which the receiver is bound. The LED will flash once every 2 seconds until it locks on to the transmitter signal and then stay off.

1. Connect a servo to the chosen output pin
2. The servo can now be controlled by the relevant knob or stick on the transmitter
 - Low and High side throws can be changed by up to 16 steps each way.
 - The middle Neutral position can be changed by up to 32 steps each way.
 - The LED will flash and throws will change one step per second while a plug is installed.
 - The LED stays on for 3 seconds when throws are returned to their 'mid' position.
 - The LED stays on steady when you reach the end of the adjustment range.

High side Throws

To increase high side throws, use the large (black) bind plug to connect the signal pin of Pin 7 to negative. To decrease high side throws, use the small (red) bind plug to connect the signal pin of Pin 7 to positive.

Neutral

To move the centre position 'up', use the large (black) bind plug to connect the signal pin of Pin 6 to negative. To move the centre position 'down', use the small (red) bind plug to connect the signal pin of Pin 6 to positive.

Low side Throws

To increase low side throws, use the large (black) bind plug to connect the signal pin of Pin 5 to negative. To decrease low side throws, use the small (red) bind plug to connect the signal pin of Pin 5 to positive.

Reverse

To reverse the direction the servo moves, use the large (black) bind plug to connect the signal pin of Pin 4 to negative.

To return the servo travel to the normal direction, use the small (red) bind plug to connect the signal pin of Pin 4 to positive. Changes are saved whenever you remove a plug.

Remove all plugs and turn off the receiver and back on again to use all outputs normally

Further information and support

There is additional information on the RC Trains website (www.rctrains.co.uk). If you have any further questions or queries, then please contact me via the website or by email - rik@rctrains.co.uk