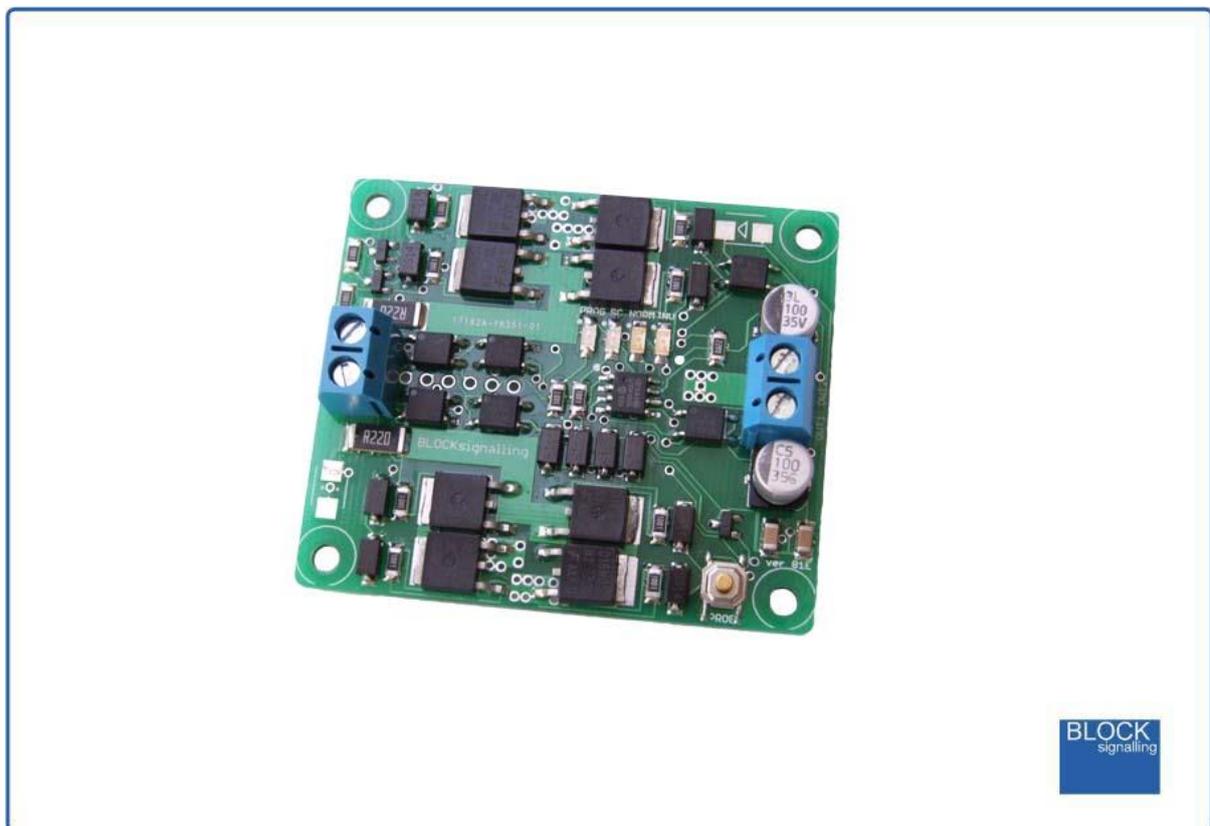


DCC AUTOREVERSER REV1 FOR LOOPS, WYES and TURNTABLES



Autoreversers are used on DCC layouts to automatically switch the polarity of track feeds in layout features such as loops, wyes and to provide feeds for turntables.

Whenever a train crosses a section of track where there is a polarity mismatch and a short would result, the autoreverser automatically switches the polarity to prevent a short circuit and so avoid subsequent shutdown of the layout.

A short is detected in less than five microseconds, and the polarity is corrected within 10- 20 milliseconds. Detection level is approximately 1.75A. For DCC layouts only.

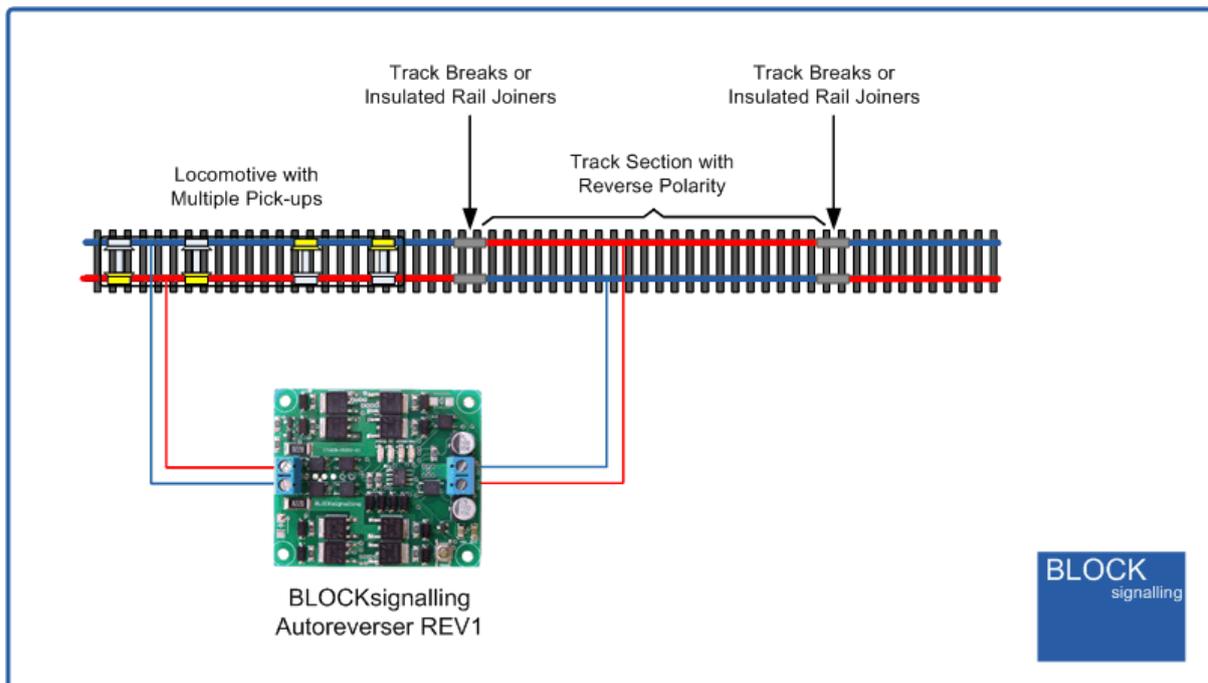
Works with all DCC command stations which can provide 2.5A output or greater.

Operation

The autoreverser is used to feed the section of track which requires its polarity to be correct to prevent a short circuit.

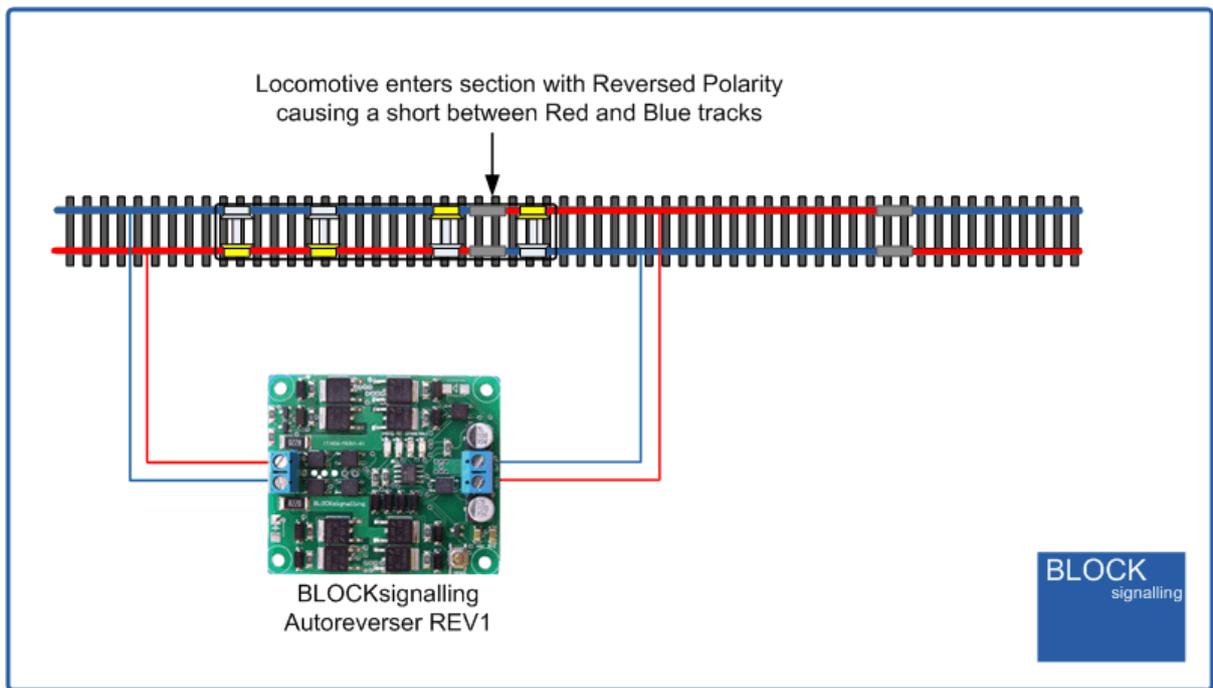
In the diagram below, there is a train on the left with multiple power pick-ups, represented by the yellow wheels.

There is a central section of isolated track, which is fed via the autoreverser and is currently the opposite polarity its adjacent sections of track.

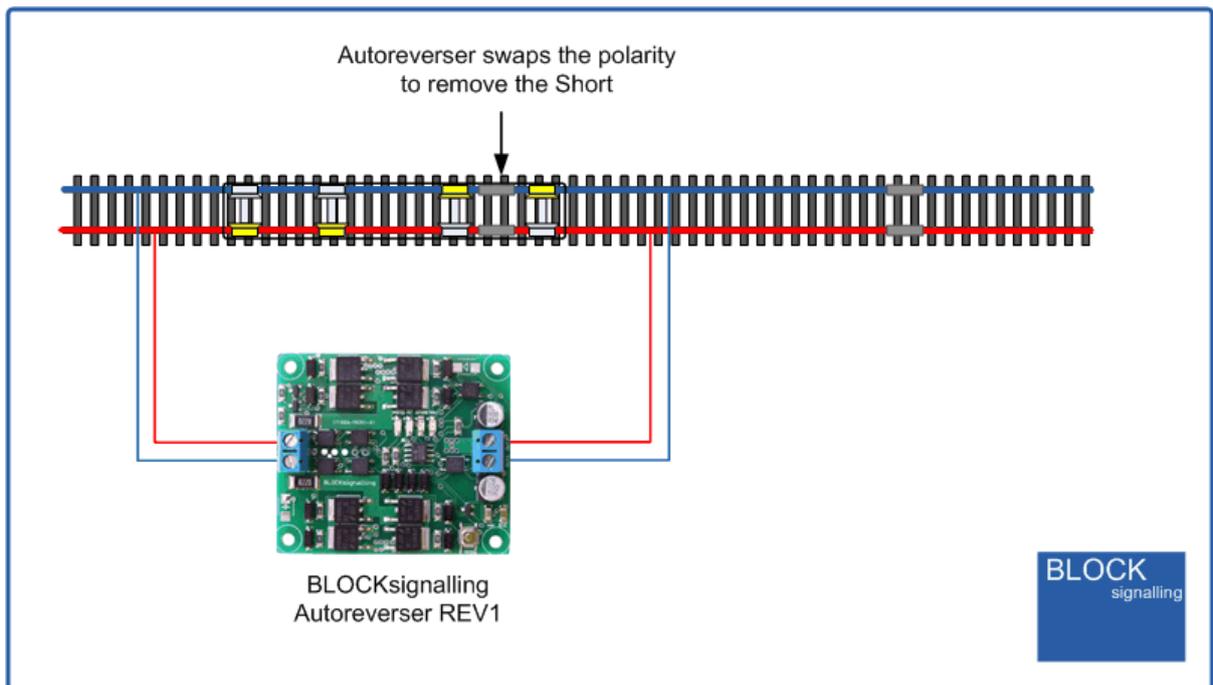


As the train moves to the right, it crosses the rail breaks and enters the central section of track.

At this point, one of its power pick-ups is touching the blue rail and the other is touching the red rail causing a short circuit.



The autoreverser detects the short and within a few thousandths of a second switches the polarity of the central section removing the short.



Wiring Information

When first connecting up, turn off the DCC track feed and connect the IN1 and IN2 terminals to the command station output, DCC track bus, or the track itself. They can be connected either way around.

Turn on the DCC track feed and the red led on the module should light to indicate that it is operating correctly.

One of the two yellow leds should also be lit.

The NORM led indicates that the OUT1 and OUT2 terminals are connected directly to the IN1 and IN2 terminals.

If the INV led is lit it indicates that IN1 is connected to OUT2 and IN2 is connected to OUT1 (ie the output is swapped).

Switch off the DCC track power and connect the OUT1 and OUT2 terminals according to the diagrams below.

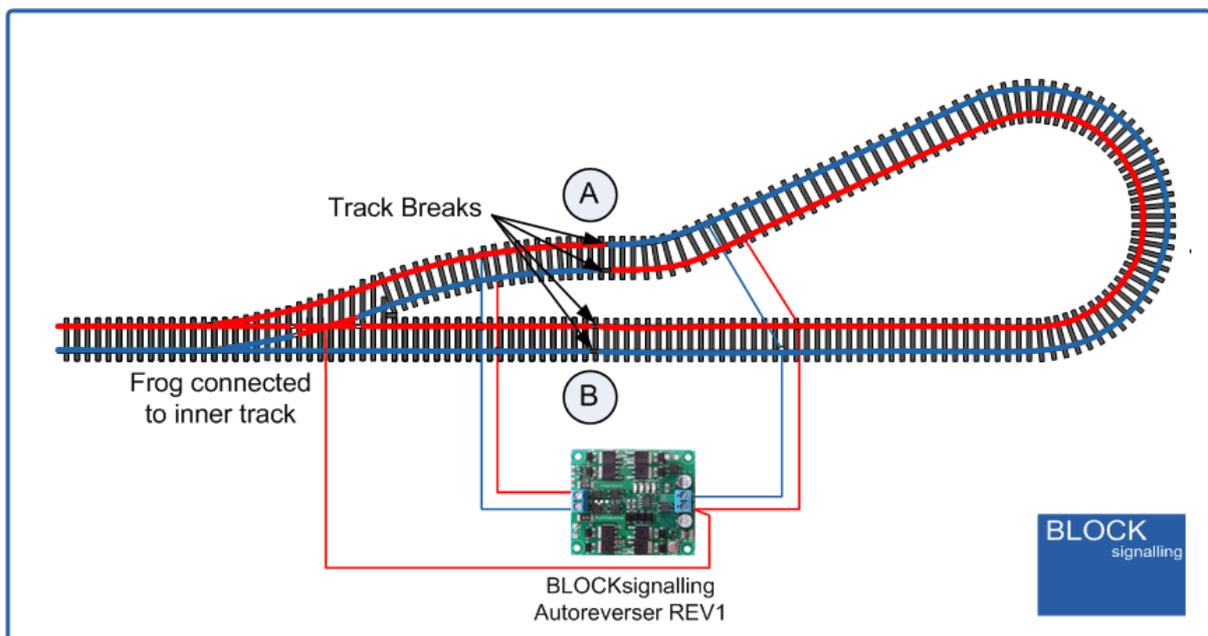
Wiring - Loops

The diagram below shows the wiring of the Autoreverser for a loop.

There are four track breaks, and in this example the polarity is the same at either side of the breaks at B, and opposite polarity either side of the breaks at A. The points frog is the same polarity as the inside rail of the loop.

If a train enters the loop through the points with them set straight through, it will travel over the gaps at B and then around the loop anticlockwise.

When it reaches the gaps at A, the autoreverser will swap the loop polarity to match the diverging route into the points. The frog polarity will also swap and the train can smoothly pass through the points and back to the main layout.



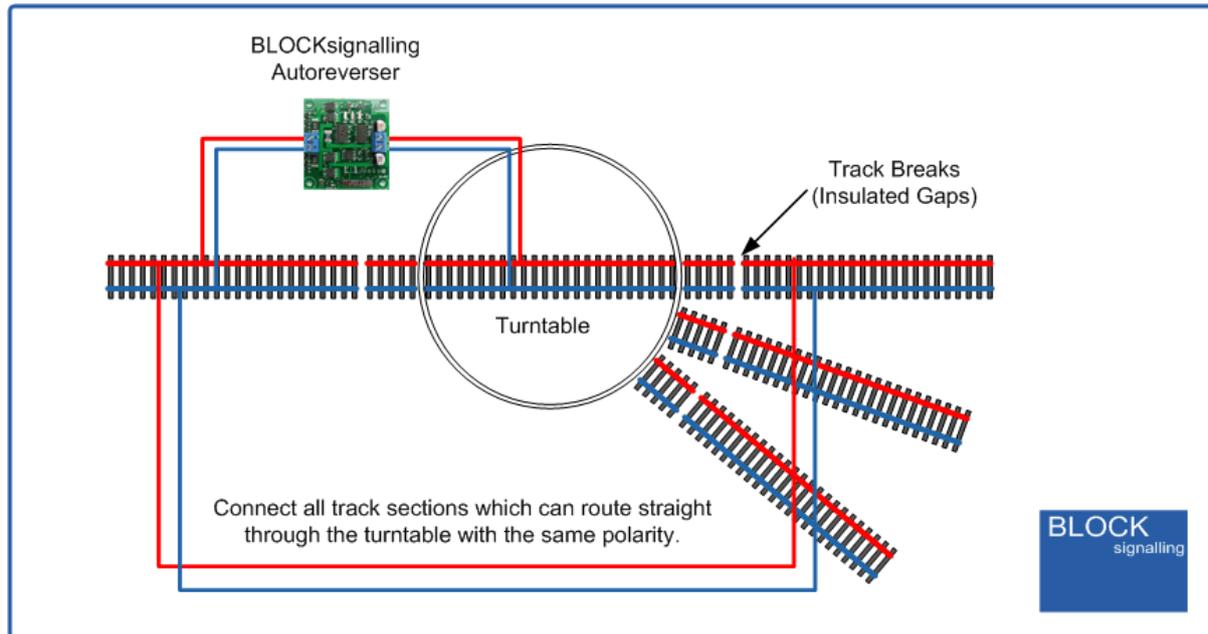
For best performance of the autoreverser it is a good idea to make the connections to the loop in the vicinity of each of the track breaks. The input to the autoreverser should be from the DCC bus or direct from the DCC booster output.

Wiring - Turntables

Connect the DCC track power to each of the tracks arriving at the turntable. Ideally connect tracks which run straight through with the same polarity.

The polarity of the turntable section of track must be isolated from the tracks arriving at the turntable either with track gaps or insulated track joiners. This will allow the autoreverser to swap the polarity of the turntable track without causing short circuits.

Connect the OUT1 and OUT2 terminals of the autoreverser to the turntable.



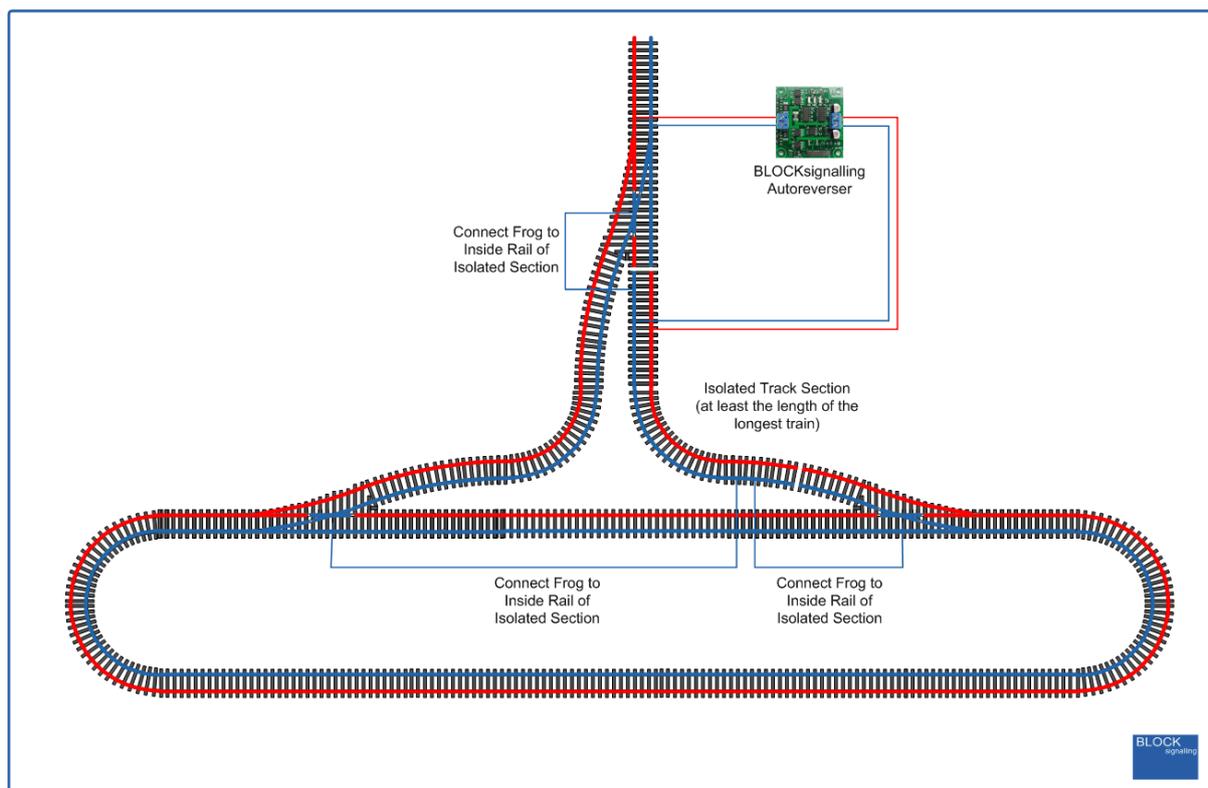
Wiring - Wyes

When wiring a wye layout, there comes a point where rails connected to either side of the DCC bus would need to connect together, causing a permanent short circuit.

If an isolated section of track is provided, the autoreverser can automatically switch the polarity as the train enters and leaves the track section.

Make sure the section connected to the autoreverser OUT1 and OUT2 terminals is at least as long as your longest train.

Points frogs can be connected to the inner rail of the points, and will be automatically switched by the autoreverser as required.



Long Term Shorts

The autoreverser is designed to detect short circuits on one or both of its outputs, and to swap the output polarity in response. Normally, all that you will see is that the yellow leds swap over.

If the swapping of the output does not remove the short circuit, then there is probably a short between the OUT1 and OUT2 terminals, such as resulting from a derailed train.

In this case, the autoreverser cannot remove the short circuit, so to protect itself, it shuts down the output.

The red led extinguishes briefly (for half a second) and the two yellow leds extinguish.

After 5 seconds, the power is reapplied. If the short circuit remains, the power is switched off again for another 5 seconds. This is repeated until the short circuit is removed.