Z21 10797 multi LOOP Reverse Loop Module User Manual

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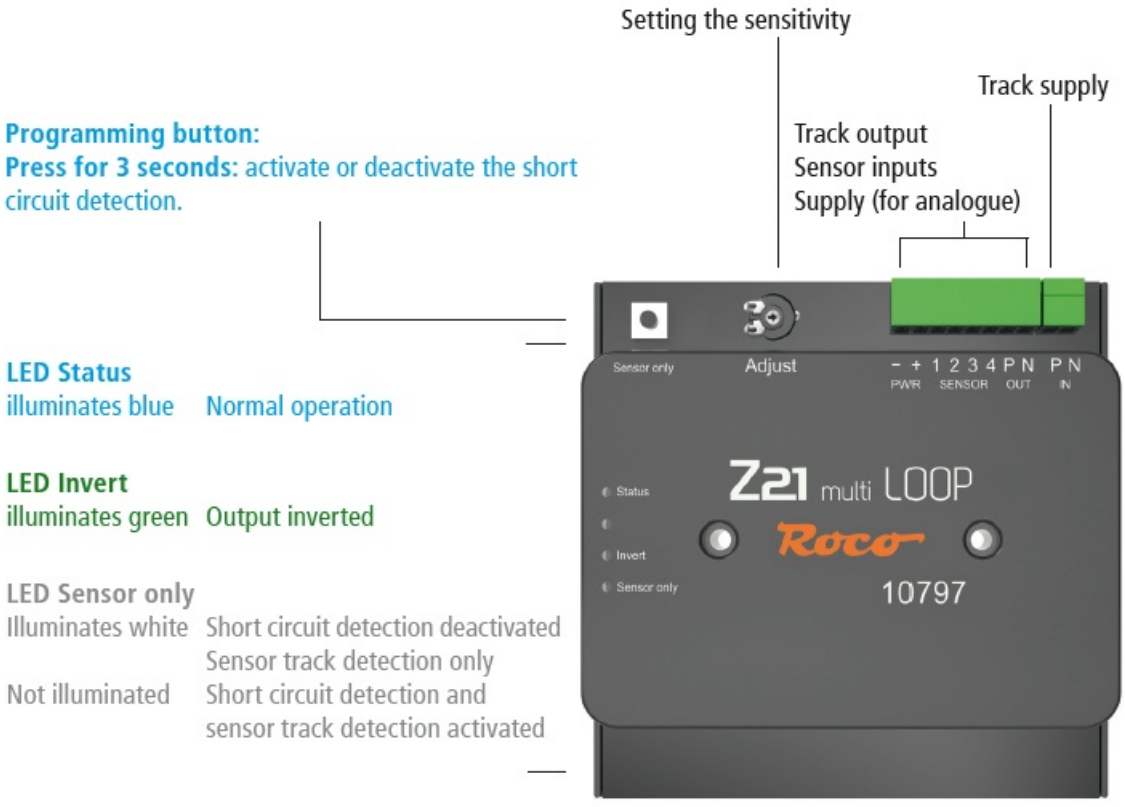
Z21 10797 multi LOOP Reverse Loop Module

Overview



Intended Use and Function

Reversing loops and wye junctions inescapably produce a short circuit at the entry or exit points. There-fore these arrangements require to be electrically isolated at the entry and exit points. To facilitate a reversing loop operation a module is required to take care of the polarization of the loop section.

It is also RailCom® compatible and enables the RailCom® signal to be “passed on“ to the track system from the terminal loop.

The terminal loop module provides numerous operation modes:

- The use of additional “sensors“ enables the Z21® multi LOOP to be used short circuit-free. The Z21® multi LOOP detects the polarization of the entering train and adjusts the polarity of the reversing loop section accordingly before the train enters the loop.
- As an alternative, the module can also be used via the short circuit detection. This has the advantage that fewer separating points and less cabling is necessary but this also results in the wheels and tracks being subjected to increased material wear.
- A mixed operation with sensor tracks and short circuit detection is available. In case a sensor track does not work properly due to contaminated or corroded tracks, the short circuit detection will pro-vide a correct operation at all times. The short circuit detection may be turned on/off with a button inside the module.
- A reliable operation of the module is guaranteed at all times as two separate switching relays are utilized. Even if a train bridges a disconnecting point when the system is switched on, the module will adjust to the correct polarization. In this case the loop section will be powered up with a slight delay to the main layout.
- The module may be operated in analog layouts as well, utilizing an additional separate power supply.

Further information is available at the www.z21.eu homepage under 10797 – Z21® multi LOOP.

Z21® multi LOOP assembly

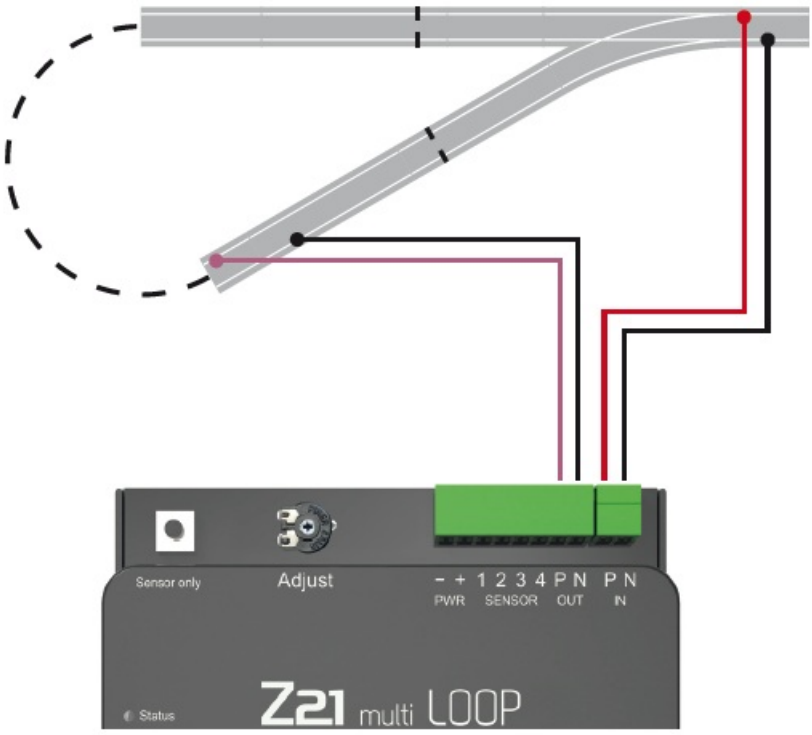
Assemble the Z21® multi LOOP in a location that is easy to view and has sufficient ventilation in order to be able to dissipate the waste heat. Do not position the Z21® multi LOOP close to strong heat sources such as radiators or in positions exposed to direct sunlight under any circumstances. This Z21® multi LOOP has been exclusively developed for dry indoor areas. Therefore, do not operate the Z21® multi LOOP in environments with high temperature and humidity fluctuations.

Tip: When assembling the Z21® multi LOOP, use round head screws such as 3×30 mm screws.

It is essential, that the isolated track section is longer than the longest train on the layout with cars that are equipped with power pick-ups or metal wheels. In case only cars with plastic wheels are used, the maximum length of the loop section may be reduced to the length of the longest locomotive on the lay-out. In case cars with metal wheels or wheels with a power pick-up are used, the length of the loop must accommodate the whole train. Each metal wheel bridges the disconnecting points when passing. Bridging both the disconnecting points at the entry point and the exit point at the same time will result in a short circuit condition that even the reverse loop module is unable to handle.

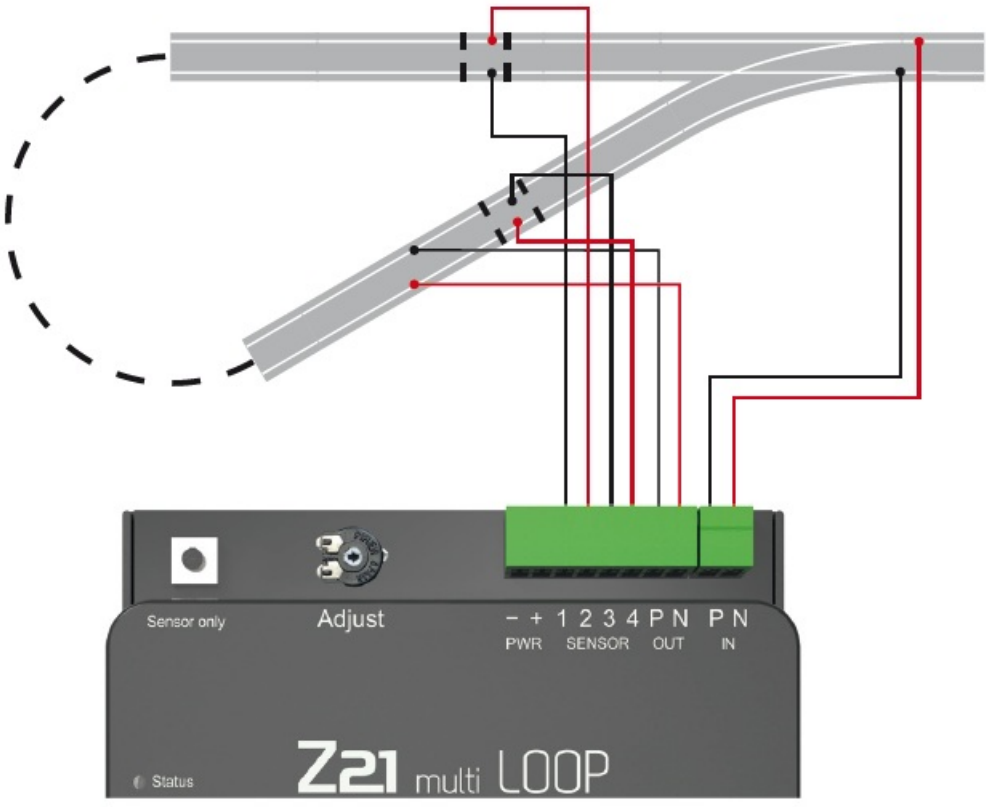
Digital terminal loops by means of a short circuit detection
This mode requires the reverse loop section to be completely isolated from the main layout at the entry and exit points. Hook up the module according to the wiring diagram. Please note that this operation results in a higher burn off at the wheels and the tracks. If numerous terminal loops are used in a single power circuit, all of the modules are able to detect a short circuit and reverse the poles at the same time. This means that only one train is to drive into a terminal loop. The remaining terminal loops are not to be used at the same time.

Caution: the short circuit detection is to be activated. The correct setting can be detected if the “Sensor only” LED is not illuminated. Should this not be the case, press the button for 3 seconds until the “Sensor only” LED goes out.

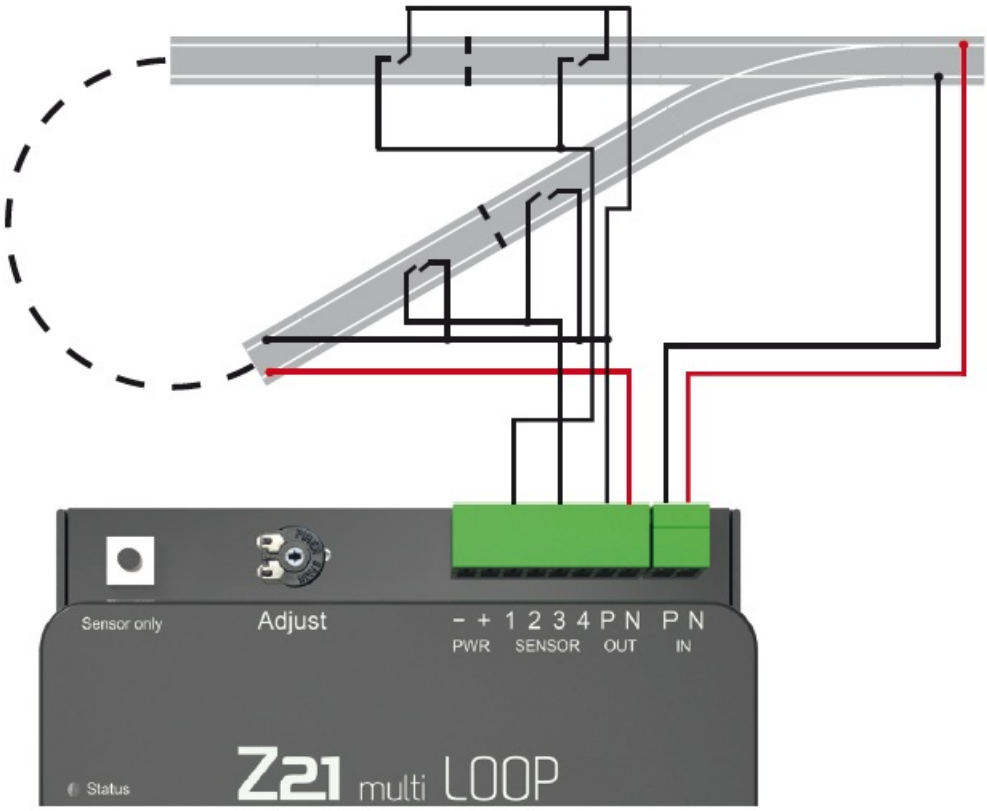


Short circuit free digital reverse loop with sensor tracks
Install the sensor track components according to the wiring and installation diagram. Make sure the hook-up is done correctly to ensure a proper operation.

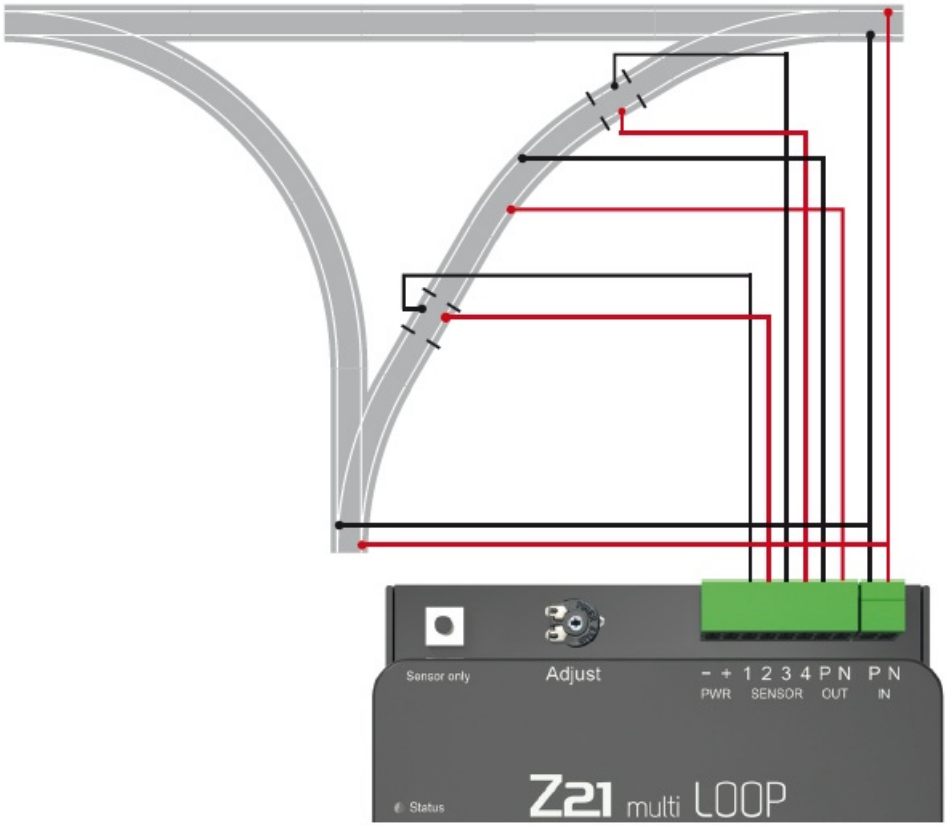
Tip: If the short circuit detection is activated (the “Sensor only“ LED is not illuminated), then the internal short circuit detection can be used. If you wish to use more than one terminal loop at the same time, you have to deactivate the short circuit detection (the “Sensor only“ lamp is illuminated white). Switching over is possible by pressing the button for 3 seconds.



Tip: track contacts can be used instead of the sensor tracks. This could possibly improve the interference resistance but necessitates the mounting of a magnet under each of the locomotives so that it can be triggered or you can also use fully configured circuit tracks.

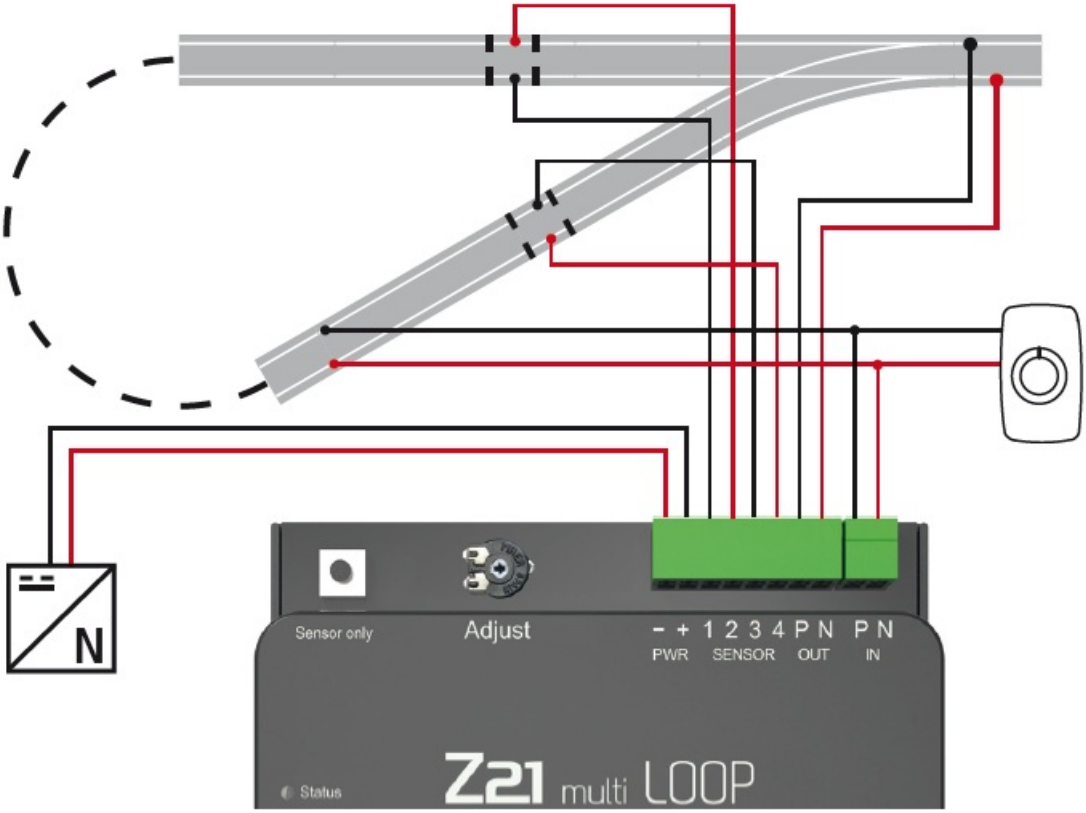


Digital short-circuit free triangular junction with sensor tracks
A triangular junction is also a track form that makes it necessary to use a Z21® multi LOOP. Therefore one side of the triangle must provide an electrically isolated section. The choice of operation is with sensor tracks or short circuit detection. Please observe the instructions for the fi rst two switching examples.

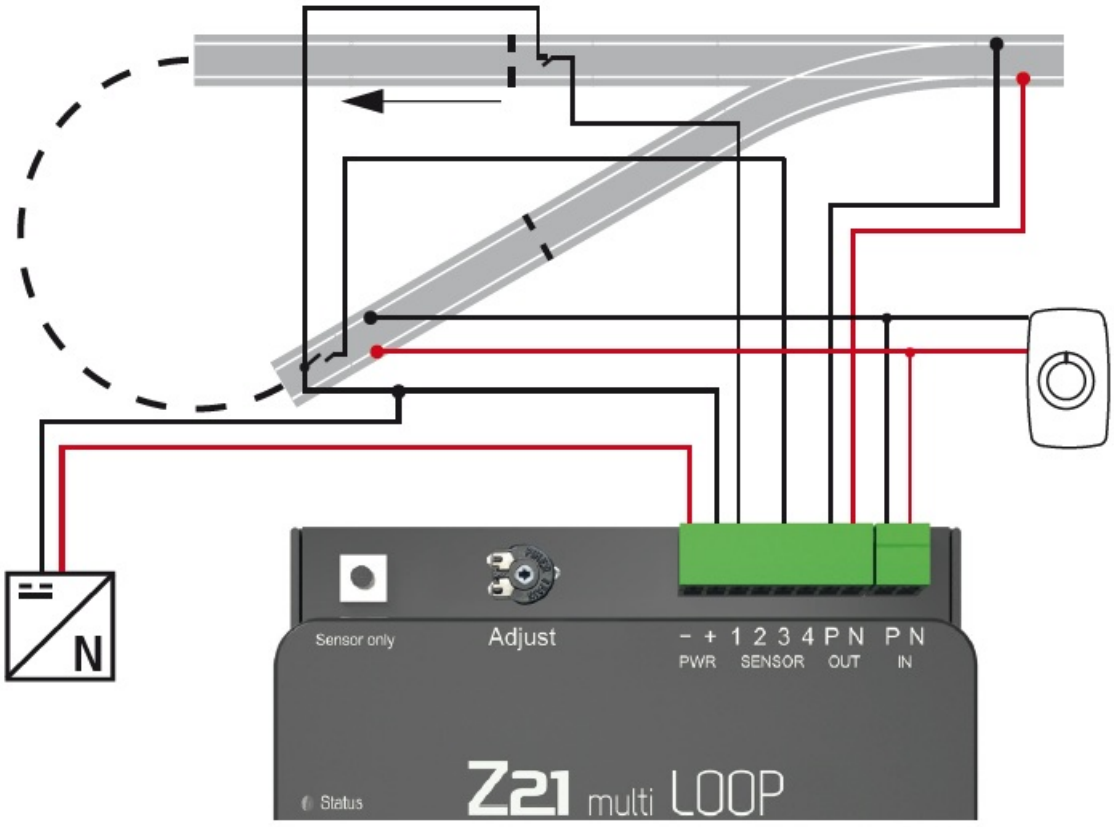


Analog reverse loop
The analog reverse loop reverses the main track polarity instead of the loop polarity. For an automatic operation however a few details have to be observed. A separate power supply is required to power the module (14 – 24 V DC). A minimum driving voltage of 5 Volts is required to ensure a safe sensor operation. Additional diodes must not be used. The reverse loop must always be operated in the same direction.

Caution: If you use the Z21® multi LOOP in analogue mode, the short circuit detection is to be deactivated.



Tip: Alternatively the use of track contacts instead of sensor tracks is possible.



Configuration

The short circuit detection of the Z21® multi Loop can be activated or deactivated using the button. You can switch between the modi by pressing the button for longer than 3 seconds. The “Sensor only“ LED shows whether the short circuit detection is activated or not.

The “Sensor only“ LED is illuminated white = the short circuit detection is deactivated.
The “Sensor only“ LED is not illuminated = the short circuit detection is activated.

The sensitivity of the short circuit detection can be finely adjusted using a potentiometer.

Modelleisenbahn GmbH
Plainbachstraße 4
A – 5101 Bergheim
Tel.: 00800 5762 6000 AT/D/CH
(kostenlos / free of charge / gratuit)
International: +43 820 200 668
(max. 0,42€ pro Minute inkl. MwSt. / local tariff for landline, mobile phone max. 0,42€/min. incl. VAT / mobile maximum 0,42€ par minute TTC)

Documents / Resources

	Z21 10797 multi LOOP Reverse Loop Module [pdf] User Manual 10797, multi LOOP, Reverse Loop Module, multi LOOP Reverse Loop Module, 10797 multi LOOP Reverse Loop Module, Loop Module, Module

References

- Roco z21