



RR-Concepts

StationMaster Reverser

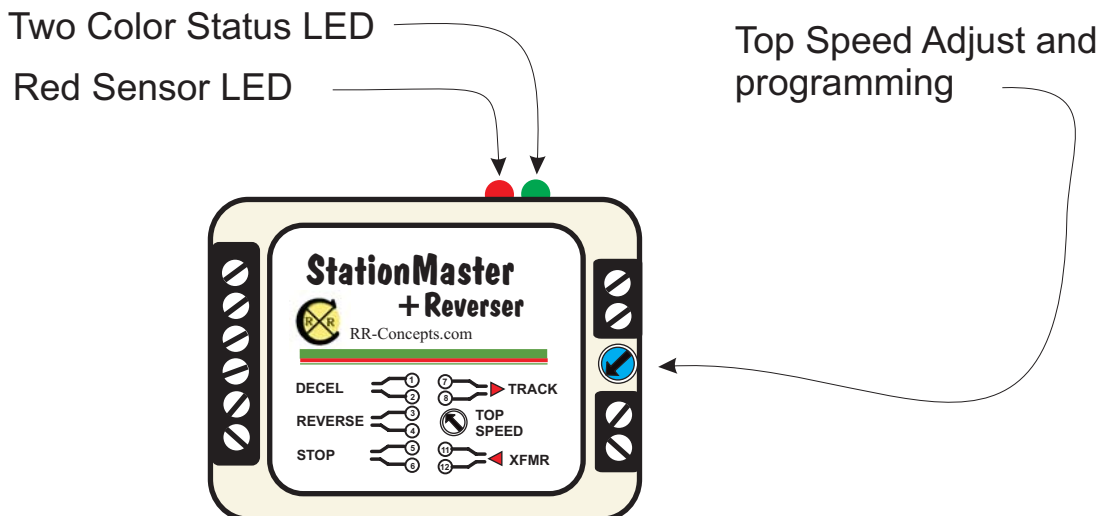


This manual contains detailed hookup and programming instructions for the StationMaster / Reverser.

Please download the most recent "wire-to-wire" hookup diagrams at <http://www.RR-Concepts.com>.

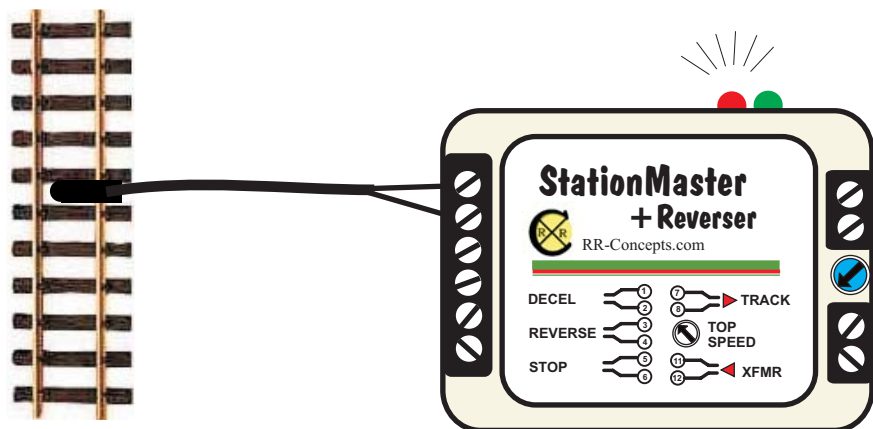
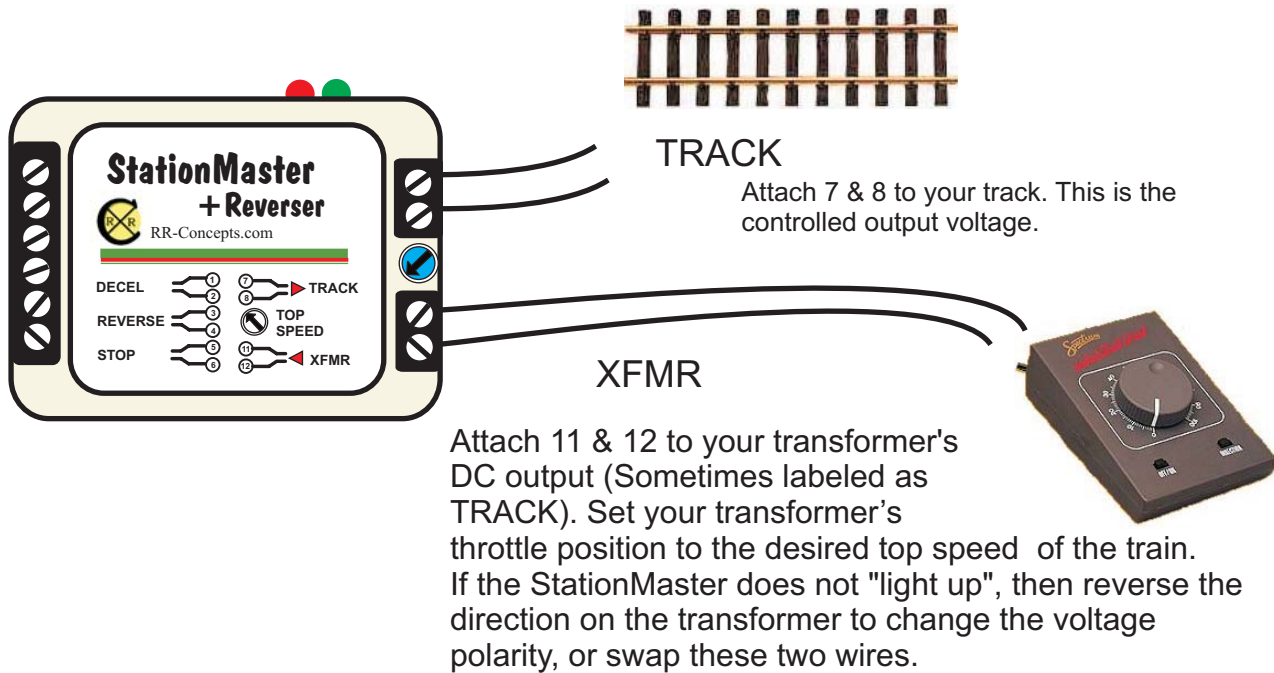
Before we Start- Please do not attach XFMR wires (from your power pack) to any other terminals except the designated transformer inputs. (XFMR) Your StationMaster will be damaged if power is put on any of the sensor terminals!!

Remember that your StationMaster contains a micro controller and can be reset by cycling the power. To do this, turn your transformer off for a few seconds, and then turn it back on.



StationMaster Basic Hookup Description

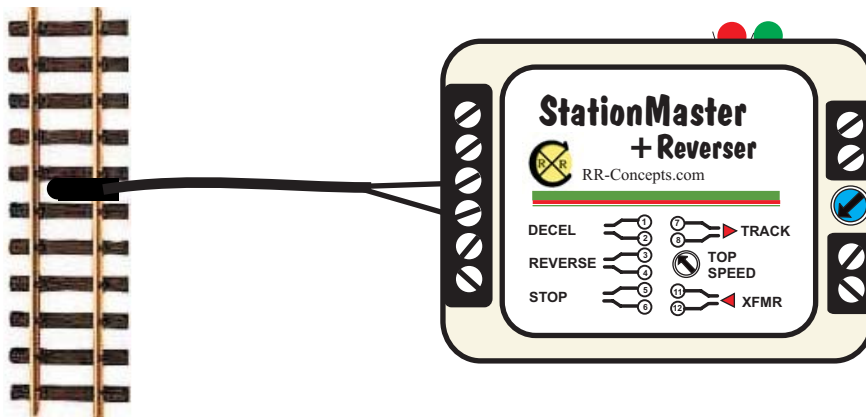
The StationMaster is designed to be installed between the train transformer and the track.



DECEL Sensor

Terminals 1 & 2 are the start DECEL sensor. When this sensor detects a magnet, the StationMaster will decelerate your train, pause, and then accelerate in the same direction. The RED led will light up when this sensor is detected. By placing multiple DECEL sensors wired in parallel, you can stop at multiple stations on your railroad.

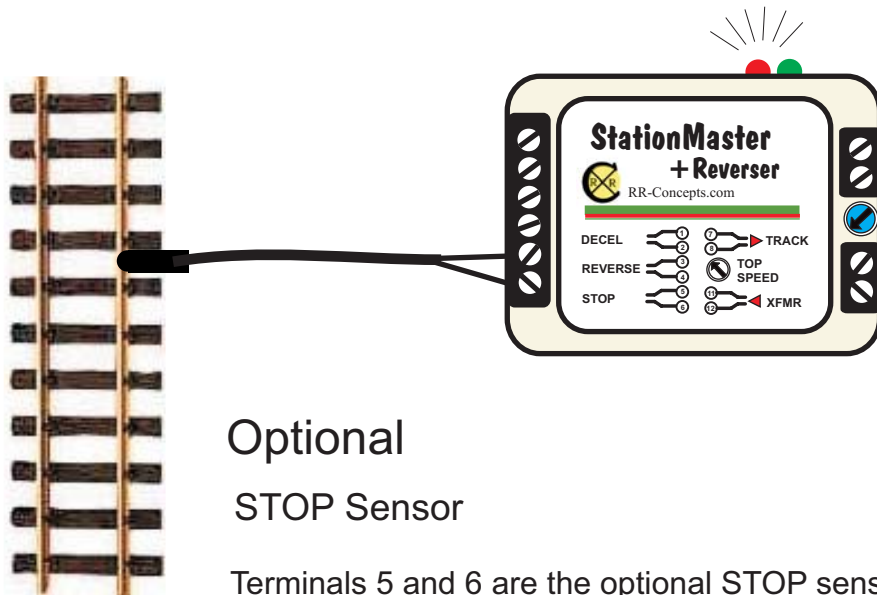
REVERSE Sensor



Terminals 3 & 4 are the REVERSE sensor.

When this sensor detects a magnet, the StationMaster will decelerate your train, pause, reverse direction, and then accelerate. The RED led will light up when this sensor is detected. By placing two DECEL sensors at extreme ends wired in parallel, the train will do a simple back and forth operation. See the hookup diagram for more details.

When the StationMaster/Reverser is programmed for non-reversing mode this sensor does the ACCEL function similar to a standard StationMaster. This allows non-reversing block control hookups.

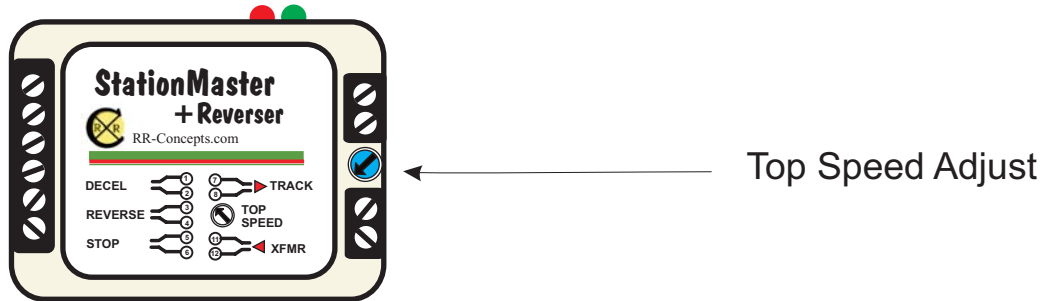


Optional STOP Sensor

Terminals 5 and 6 are the optional STOP sensor.

When the train is decelerating and this sensor detects a magnet, the train will immediately STOP. This sensor is not necessary unless a critical stop position is required.

Note that this sensor will have no effect unless the train is decelerating.



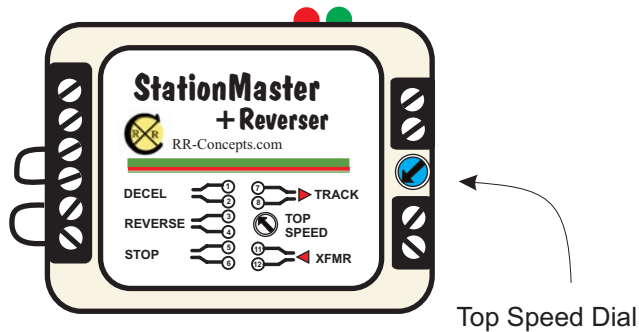
The top "cruising" speed of the train can be adjusted by turning the "top speed" dial.

Fully clockwise is "full speed". Turn this dial down as necessary to obtain the desired speed.

Typically, this dial is set fully clockwise and the transformer is used to set the speed of the train.

If you have a fixed DC power supply, then use this dial to set the top speed of your trains.

To program your StationMaster, turn this dial fully counter-clockwise to enter "programming mode".
(See below)

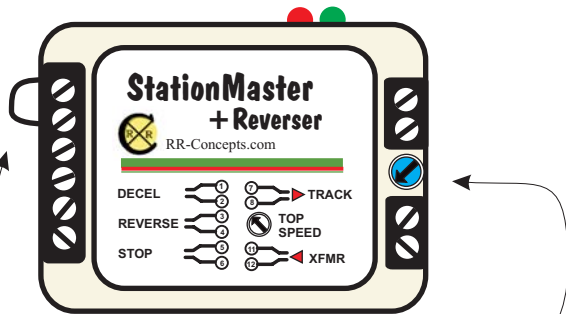


Programming: Reversing or Normal Mode

The StationMaster/Reverser can be programmed to behave similar to a standard non-reversing StationMaster. When this happens the REVERSE sensor becomes the ACCEL sensor. This allows running block control and alternating trains hookups. **The factory default setting for this is REVERSING.**

1. Power down the StationMaster/Reverser and attach jumpers to pins 3,4 and 5,6. (Close both the REVERSE and STOP sensors) Turn the top speed dial fully counter-clockwise.
2. Power up the StationMaster/Reverser. The RED LED should blink once or twice. One blink indicates reversing mode and two blinks indicate non-reversing mode.
3. Power down the StationMaster/Reverser and remove the jumpers. Also turn the top speed dial fully clockwise for normal operations. Each time step 3 is done the reversing mode will change state.

This configuration will be saved in flash memory and will be retained until re-programmed.

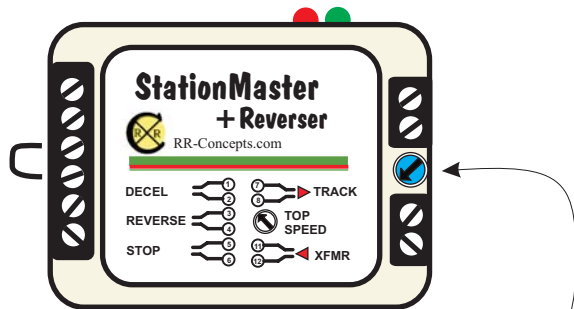


Programming: Deceleration Rate

1. Make sure all three sensor inputs are open. (Red "Sensor" LED is off)
2. If the top speed dial is not already at zero, then turn the top speed dial to zero. (fully counter-clockwise.) All LED'S will turn off.
3. Close terminals 1 and 2. (Either place a magnet over the **DECEL** sensor, or touch terminals 1 and 2 together with a piece of wire or a paperclip) Keep these terminals closed.
4. Watch the TWO COLOR led. Each RED flash will increase the deceleration distance. The shortest deceleration Distance will be with one flash.
(TRAIN Stops fastest) Open the terminals when the desired number of flashes have occurred. A typical number is 5. Repeat this procedure if you want a different value. The LED will turn orange when the longest Deceleration rate is set (10 counts).

**When orange, the "SELF adjusting deceleration" mode will be set.
(See RR-Concepts.com for detailed info.)**

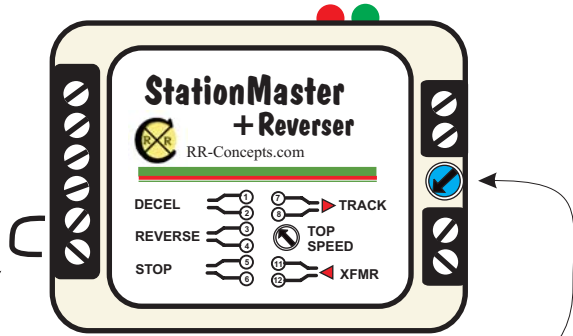
When finished with all programming, increase the top speed dial clockwise to MAX, or to a desired top speed. All programming values are stored in flash memory. This means that once you program your StationMaster, it will never forget!



Programming: Acceleration Rate

1. Make sure all three sensor inputs are open. (Red "Sensor" LED is off)
2. If the top speed dial is not already at zero, then turn the top speed dial to zero. (fully counter-clockwise.) All LED'S will turn off.
3. Close terminals 3 and 4. (Either place a magnet over the REVERSE sensor, or touch terminals 3 and 4 together with a piece of wire or a paperclip)
Keep these terminals closed.
4. Watch the TWO COLOR led. Each GREEN flash will decrease the acceleration rate. **The fastest acceleration will be with one flash.**
Open the terminals when the desired number of flashes have occurred. A typical number is 5. Repeat this procedure if you want a different value.
The LED will turn orange when the longest **acceleration** rate is set (about 10 counts).

When finished with all programming, increase the top speed dial clockwise to MAX, or to a desired top speed. All programming values are stored in flash memory. This means that once you program your StationMaster, it will never forget!



Programming: Pause Time

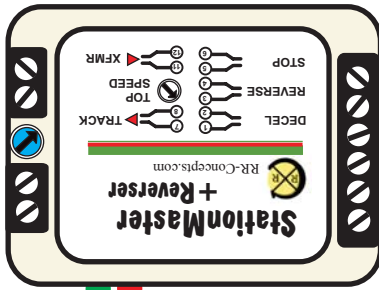
1. Make sure all three sensor inputs are open. (red "Sensor" Led is off)
2. If the top speed dial is not already at zero, then turn the top speed dial to zero. (fully counter-clockwise.) All LED'S will turn off.
3. Close terminals 5 and 6. (Either place a magnet over the **STOP** sensor, or touch terminals 5 and 6 together with a piece of wire or a paperclip) Keep these terminals closed.
4. Watch the TWO COLOR led. Each ORANGE flash will increase the waiting time. **A wait time of zero will be with one flash.** Open the terminals when the desired number of flashes have occurred. A typical number is 5. Repeat this procedure if you want a different value.

The LED will turn orange when an infinite delay is set (after 10 counts).
When infinite delay is set, then the ACCEL sensor is required to start up the train after a station stop. A fun thing to do would be to connect the ACCEL terminals to a doorbell switch. Your train would patiently wait until someone pushed the button!

When finished with all programming, increase the top speed dial clockwise to MAX, or to a desired top speed. All programming values are stored in flash memory. This means that once you program your StationMaster, it will never forget!

The number of orange FLASHES will correspond to the following time delays:

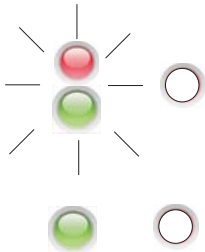
- 1: 0 seconds, no wait.
- 2: 10 seconds,
- 3: 20 seconds,
- 4: 30 seconds,
- 5: 1 minute,
- 6: 2 minutes,
- 7: 5 minutes,
- 8: 10 minutes,
- 9: 30 minutes,
- 10: Infinite, wait for GO sensor.



LED indicators

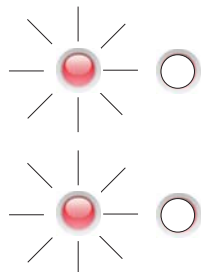
STATUS LED

SENSOR LED

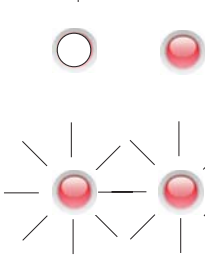


Alternate Red/Green Flashing: train is **ACCELERATING**.

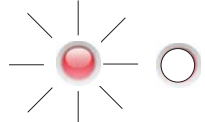
Green NOT flashing: Train is **AT TOP CRUISING SPEED**.



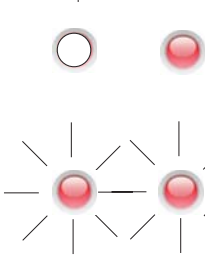
Red flashing: Train is **DECELERATING**.



Red flashing at 1 second period: **PAUSED, WAITING FOR TIME DELAY**.

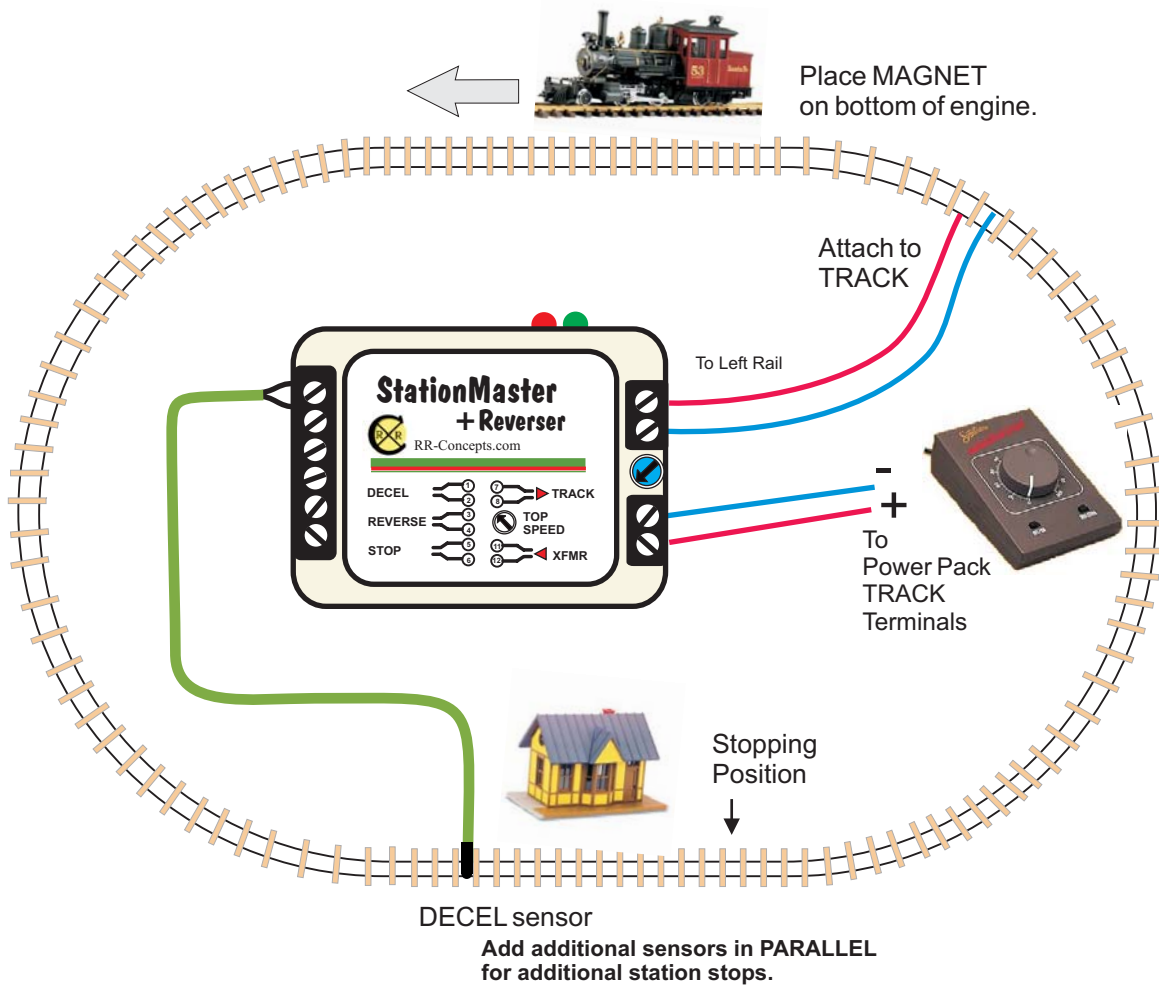


RED led ON: One or more of the three sensors is detected.



Two Red Blinking LED's indicate a **SHORT CIRCUIT** or **DERAIL**. The StationMaster will resume after the condition is fixed. The StationMaster will measure the voltage on the track when TOP SPEED is reached and shut down when a voltage drop is detected. Cycle power if the input voltage was reduced and this is a false error.

Hookup Diagram for Automatic Station Stops with Deceleration/Acceleration



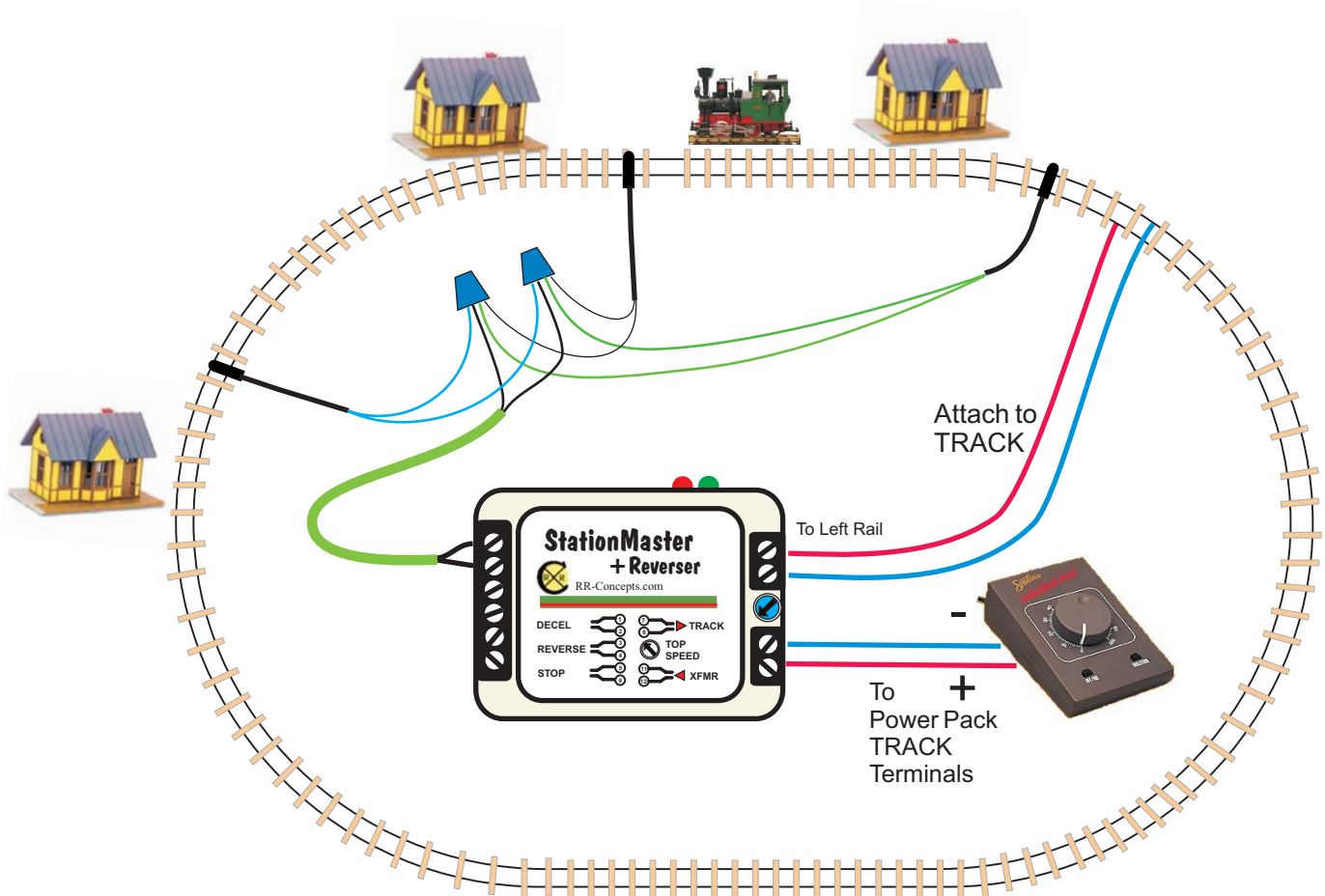
For a simple station stop, this is all you need to do!

See below for programming the deceleration, pause, and acceleration times

Note that this hookup can be done with the StationMaster/Reverser in either reversing or non-reversing modes.

Multiple Station Stops

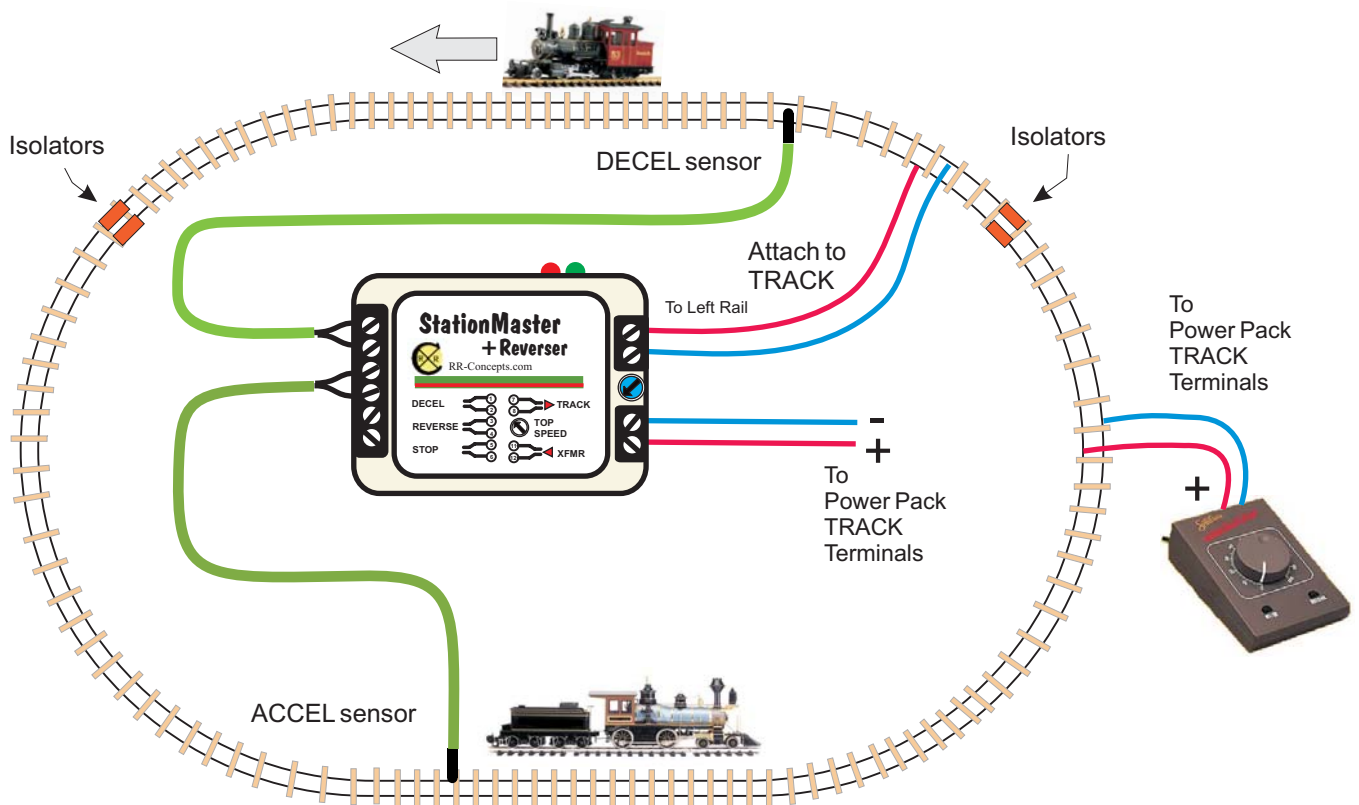
Your train can stop at many stations on the loop by adding DECEL sensors in parallel.



Every sensor that the train passes over will cause a decelerate/pause/accelerate sequence.

Block Control

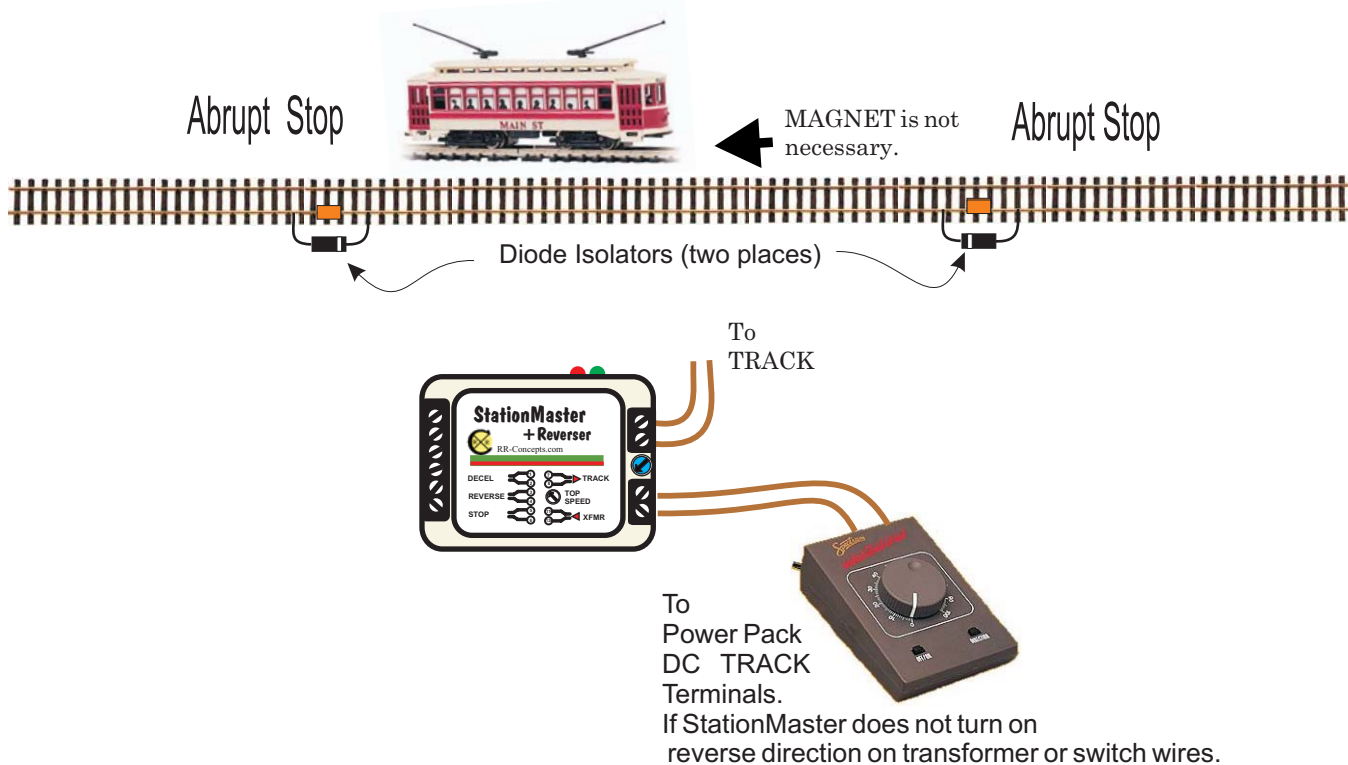
For 2 Trains on 1 track with gradual Decelerations and Accelerations.



Hookup Notes:

1. Your train may not stop if the second train is too close.
2. When the train decelerates it must stop before reaching the isolators.
3. If the train is slowing or stopped, then the second train will tell it to "go" when it hits the ACCEL sensor.
4. The TIME DELAY must be programmed for MAXIMUM
5. The Reversing mode must be set for NON-Reversing to enable the ACCEL sensor.

Point to Point Reversing using Diodes



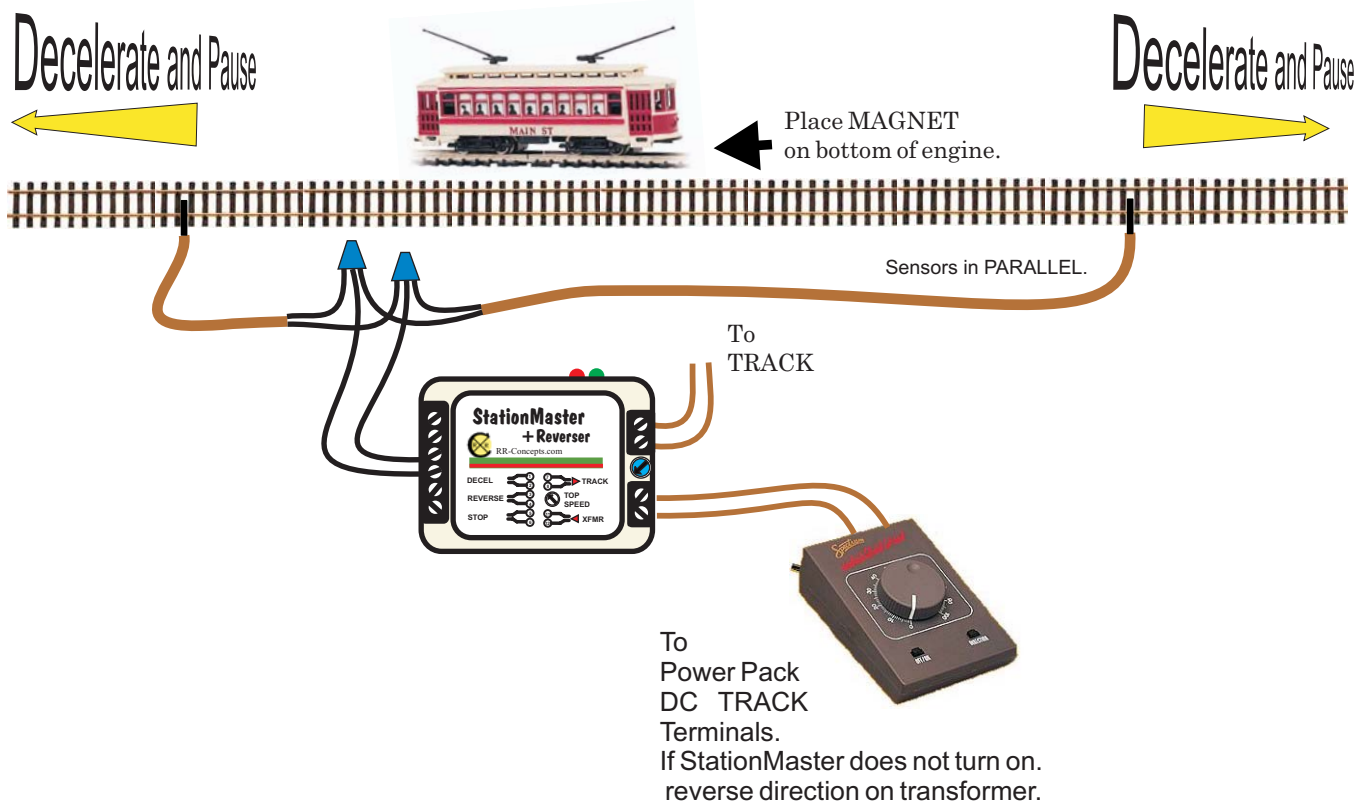
For most trains the StationMaster can detect when the engine has reached the end of the track and has entered the diode isolator section. This will start the delay cycle. After reversing the train will accelerate in the opposite direction.

For in-between stops:

Place 2 TRAIN SENSORS at each station. (One foot apart) Wire these sensors together in parallel, and attach to the DECEL terminals.

LGB 10151 units can be used in place of diode isolators if available.

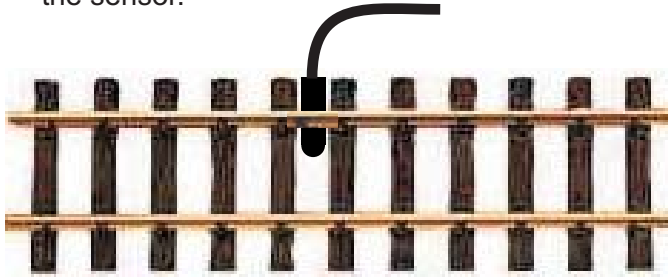
Point to Point Reversing using Sensors



For in-between stops:
Place 2 TRAIN SENSORS at each station. (One foot apart) Wire these sensors together in parallel, and attach to the DECEL terminals.

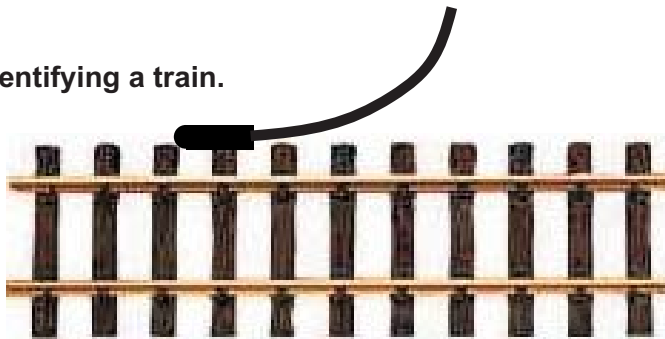
Sensor Placements on Track

The suggested sensor placement on track is shown below with the train magnet installed in the center of the train. Best sensing is done with the magnet passing over the tip of the sensor.



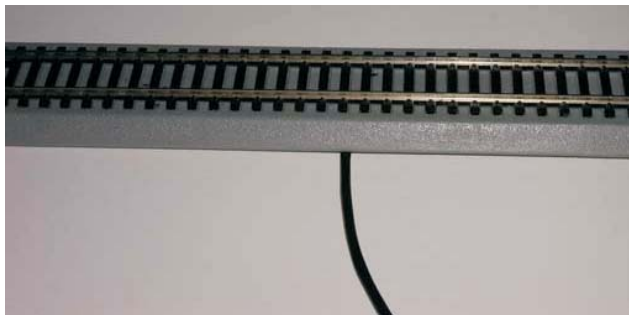
Sensor Placement for identifying a train.

Offset the train's magnet to the same side as the sensor as shown.



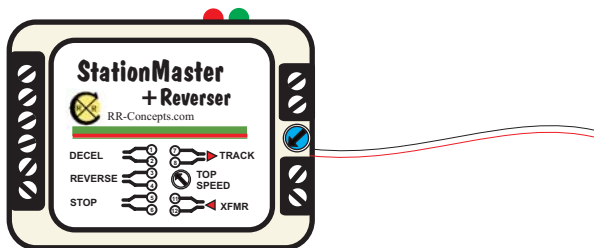
For example, passenger trains have the magnet offset to the right and freight trains have the magnet offset to the left side.

Sensor placement for HO EZ track is under the roadbed.



Other scale trains can place the sensors where appropriate. Very small sensors are available which do not have the waterproof housing. These smaller sensors can be used for N, HO, etc. Contact RR Concepts for these sensors.

Trigger Output Pigtail



A trigger output pigtail wire is present inside the StationMaster/Reverser. This signal can be used to trigger a YardMaster or another StationMaster. To use this wire, open the plastic case of the StationMaster/Reverser and feed the wires through the opening on either end. Note that polarity is important. The RED and BLACK wires must be attached as shown in the hookup diagram. Never put voltage on these wires or irreparable damage will occur.

When programmed for Reversing mode the trigger signal will occur EVERY OTHER TIME after switching the relay.

When programmed for Non-Reversing mode, the trigger signal will occur EVERY TIME before an acceleration starts.