Train Tech overview - *ask for free catalogue*

Signal kits - OO/HO low cost easy to make signals for DC

Sensor Signals - easy automatic block signalling - DCC or DC

Smart Lights - small effects built in - DC/DCC - just 2 wires:
Arc welding • Emergency vehicle • TV • Fire effect • Party disco

Automatic Coach Lights - motion - no pickups or wiring:
Older Warm White • Modern Cool White • Tail Light • Spark Arc

Automatic Tail Lights - motion - easy, no wires - lantern LED:
Flickering flame oil lamp • Modern Flashing • Constant light

Track Tester - quickly tests DC polarity or DCC - N-TT-HO-OO

SFX+ Sound capsules - no wires! - real trains - DC or DCC
Steam • Diesel • DMU • Passenger coach • Shunted stock

Buffer Light - clip in lights for buffer stops - N,TT,OO,O - DC/DCC

LFX Lighting effects - DC/DCC - screw terminals - with LEDs:
Home & Shop lighting • Welding • Flashing Effects • Fire

Level Crossings - assembled - N & OO versions - DC / DCC

LEDs, connectors, battery holders

DCC Signal & Point Controllers

Test Equipment, Tools etc

SV2 Servo Controller+

5 060325 134045

COMPREHENSIVE CATALOGUE FREE ON REQUEST

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Train-Tech

Model Technology Made Easy

SV2 Servo Controller+

- Fast and easy setup - no controller needed!
- Controls one standard analogue servo
- Ideal for Crossing Barriers, Signals, Points
- Control by DC, DCC or Track sensor
- Records up to 16 seconds of movement
- Powered from 9-16v smooth DC or DCC

www.Train-Tech.com

See our website, your local model shop or contact us for a free colour brochure
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Telephone 01903 884321 • email train-tech@gaugemaster.co.uk

SV2 Servo Controller+

Please handle carefully & read these instructions fully before using!!

SV2 Basic overview
A generic servo controller usually only has a start and an end position. The servo then moves between these two positions when it gets a control signal from something like a DCC command or a switch input.

This newly redesigned servo controller now allows you to record your own movements for up to 16 seconds using nothing but a flathead screwdriver. You can adjust the position, speed and movements by simply varying your actions when setting up the animation on the potentiometer. Once the servo controller has recorded the movements from the user it will then repeat those movements anytime a command or input is sent.

Servos
Most regular analogue 5 volt, three wire servos can be used and will usually just plug directly into the standard 3 pin plug on the servo controller board. Note that one controller will only safely power a single servo, so if you wish to control more than one servo simultaneously you need to use a separate controller for each and link them so that they work together as shown in these instructions.

The controller can supply a continuous power of 100mA (0.1A) at a peak of 400mA (0.4A). Servos like the one in the Train-Tech range TTSVS1 (Tower SG90) and the Futaba micro range are ideal, though check they are genuine as some on auction sites are not and can be sub-standard and have rough mechanisms or take excessive power.

Please note that we cannot accept any responsibility for compatibility of servos.

Troubleshooting

This product has been designed to be easy to install and use but here are a few tips which may help should you have problems following installation.

- If the Servo does not move at all, check that it is plugged the correct way round on the connector; the control wire usually orange on the plug should be to linked with 'S' on the SV2 connector.
- It is normal for the Regulator on the PCB to get quite warm and note that only one servo must be connected and powered from one controller.
- Factory reset - If all else fails press and hold the Learn/set button for 20 seconds until the LED goes out. Now release the Learn/set button and this will reset the Servo Controller.

CAUTION: Do not mount on a conductive surface and only ever connect with all power turned off, failure to do this may result in permanent damage to the unit.

• Setup

How to setup the SV2 for use on DC/DCC

Train-Tech Top Tip:

Press and hold the Learn/set button then turn on the power to move the Servo to its centre position

1. Ensure that the servo is connected to the Servo Controller *(Orange or Yellow wire on the servo goes to pin 'S' on the PCB).*
2. Press the Learn/set button twice (LED will start double flashing).
3. Using a flathead screwdriver turn the potentiometer clockwise or anticlockwise to move the servo to your starting position.
4. Press the Learn/set button once (LED will start flashing three times).
5. You now have 16 seconds to move the position of your servo taking into consideration the speed, smoothness and the stopping point. Your actions will be reflected in the final animation.
6. Once you have recorded your movements simply press the Learn/set button again to save (LED will now stop flashing).

Extra: If you wish to add the realistic bounce for kit-built signals simply press and hold the Learn button for 5 seconds until the LED stops flashing.

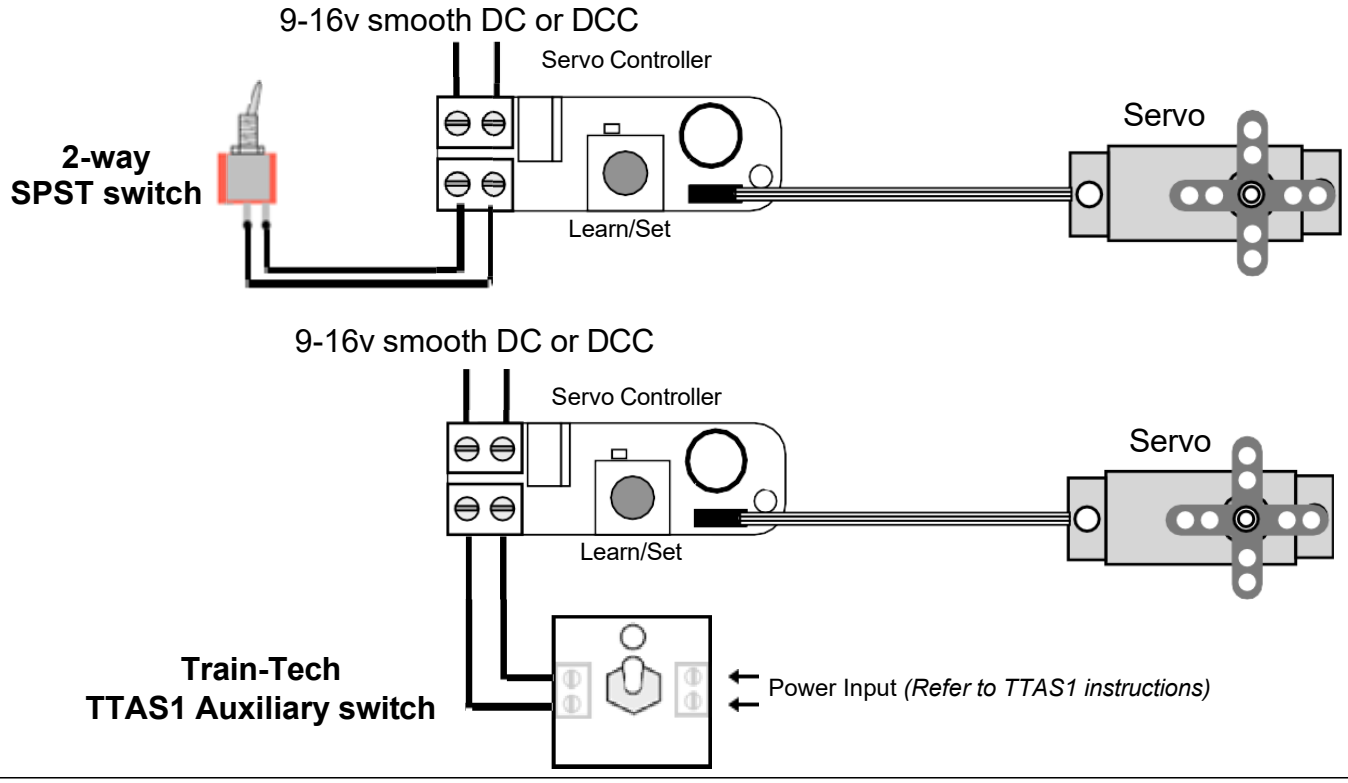
• Control with switches on DC or DCC

The Servo controller incorporates a power regulator and circuitry to enable a Servo to be powered by DC/DCC and controlled by either a Toggle Switch/push Button/reed Switch or our TTAS1 Auxiliary switch. You will need a smooth DC power supply with a voltage output of 9-16 volts DC at 0.5A or the output from your digital controller.

How to change from Toggle Switch input to push button/reed switch
(NOTE: Every servo controller comes defaulted to a toggle switch input)

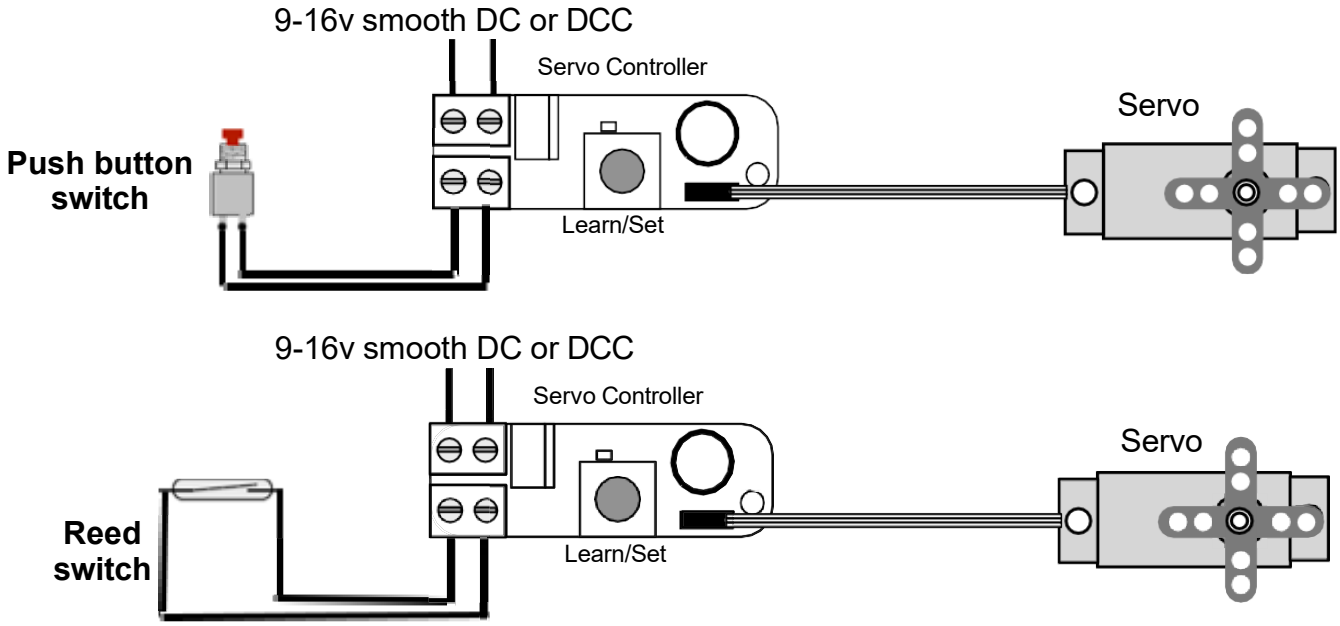
Setting up for a toggle switch:

1. Press the Learn button once (LED will start flashing)
2. Now change the toggle switch position (The LED should now stop flashing and the toggle switch saved and ready for use)



Setting up for a push button / reed switch:

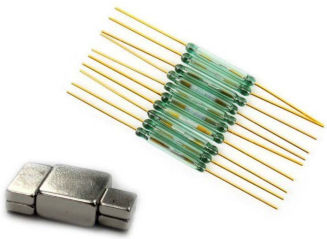
1. Press the Learn button once (LED will start flashing)
2. Now press the push button or wave a magnet over the reed switch 5 times. The LED should now stop flashing and the button input saved and ready to use.



Available in the Gaugemaster range:

GM99 - Reed Switches (10) & Magnets (5)
GM507 - SPST Mini Toggle Switch
GM513 - Black Push to Make Switches (pack of 5)
GM514 - Blue Push to Make Switches (pack of 5)
GM515 - Green Push to Make Switches (pack of 5)
GM516 - Red Push to Make Switches (pack of 5)
GM517 - White Push to Make Switches (pack of 5)
GM518 - Yellow Push to Make Switches (pack of 5)







Also available in the Train-Tech range:

TTAS1 - Auxiliary Switch
TTAS1-3 - Auxiliary Switch (pack of 3)
TTCON12 - 6 X Pre-wired toggle switch terminal pack
TTSVS1 – Basic 9g Micro Servo



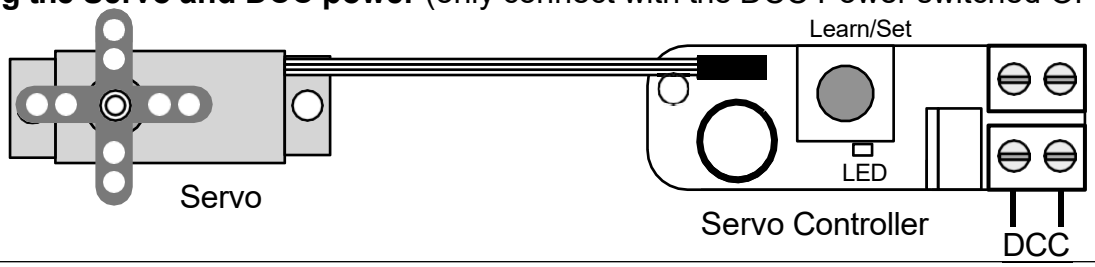




• Control using a DCC address

The Servo controller incorporates a power regulator and DCC decoder to enable the Servo to be controlled by DCC commands.

Connecting the Servo and DCC power (only connect with the DCC Power switched OFF)



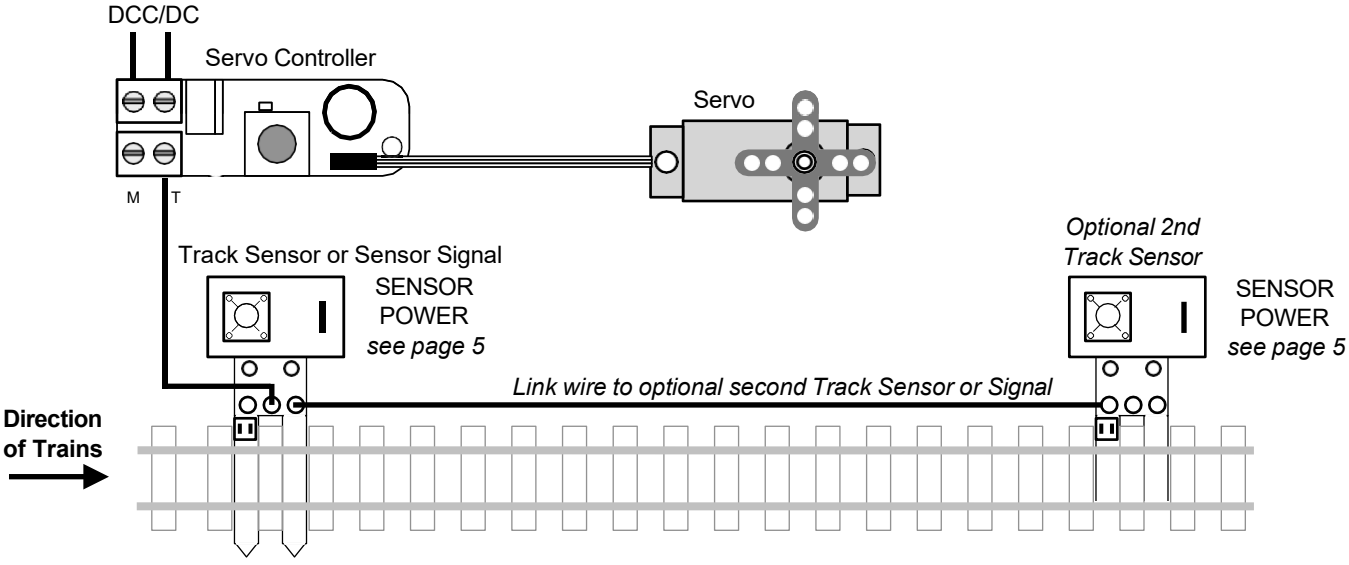
How to set a DCC address

(The default DCC address from factory is 1)

1. Press the Learn button once (LED will do single flashes)
2. On your controller select the accessory number you wish to use and activate it (always refer to your controller manufacturers guidebook on how to control accessories)
3. LED will now stop flashing which indicates it has saved and can now be operated

• Servo control using Track Sensors / Sensor Signals (DC/DCC)

A Track Sensor or Sensor Signal can be connected to the Servo controller to enable the servo to move between two positions when a train goes past the sensor, ideal for Level Crossings, Semaphores, Turnout movements etc.



First, you need to setup the Servo Controller with the two positions (Refer to page 2). Once the setup is complete the sensor wiring is easy with just one link wire between the Track Sensor/ Sensor Signal and the Servo Controller, they both need to be powered from the same power supply either DC/DCC. When using one Track Sensor/Sensor Signal, the Servo will move as soon as the train passes the sensor and then will return to its other position around 7 seconds after the train has passed. If you use an optional second Track Sensor/Sensor Signal as shown, then the Servo will not return to the other position until the train passes the 2nd sensor.

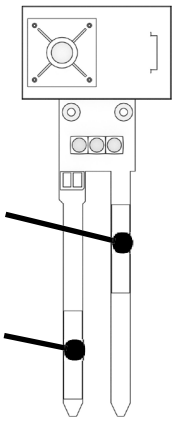
• Automatic Level Crossing: Single Track - one direction

As shown on the previous page, it is relatively easy to control a servo from a Track Sensor/ Sensor Signal and use it to activate level crossing barriers etc, so these pages show how you can link Track Sensors/Sensor Signal with Servos and the Train-Tech Level Crossings to make complete automatic working level crossings with lights, sounds and moving barriers!

The Level Crossing, Track Sensor/Sensor Signal and Servo controller must all be powered by the same power supply which can either be DCC or 9-16 Volts smooth DC, and just one wire links all three parts together as shown below. Always switch the power off before making any connections!

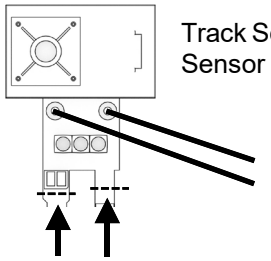
Power by sliding sensor into track - for DCC

If using DCC you can power the sensor from the track by sliding these two 'fingers' under the rails into the slots in some types of track, like a power clip. ***ensure good connections!***



Track Sensor or Sensor Signal

Power by wiring to sensor - for DC or DCC

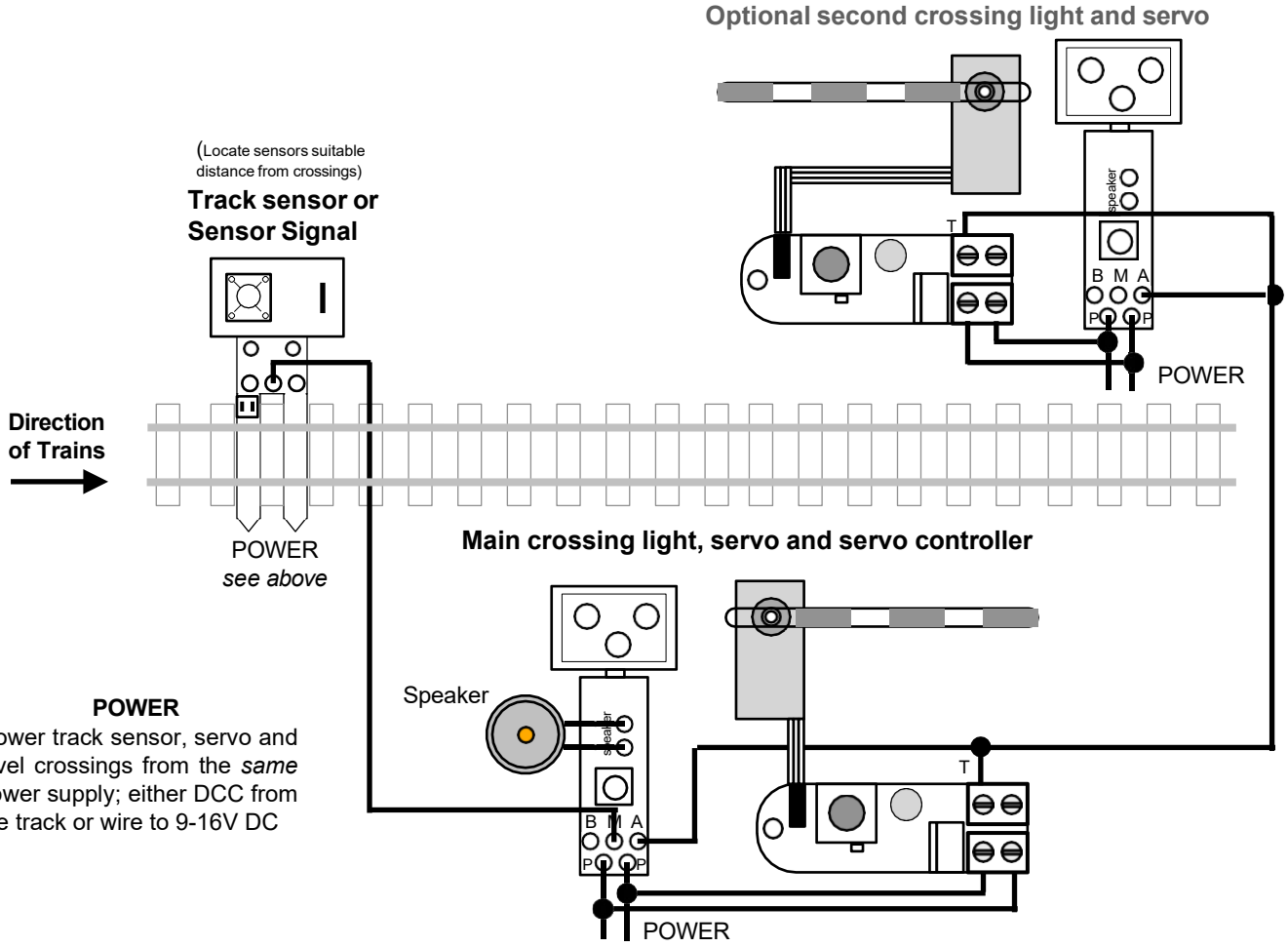


Track Sensor or Sensor Signal

To power using DC or DCC solder 2 wires into the holes shown

Cut off the two fingers with sharp cutters where marked - - -

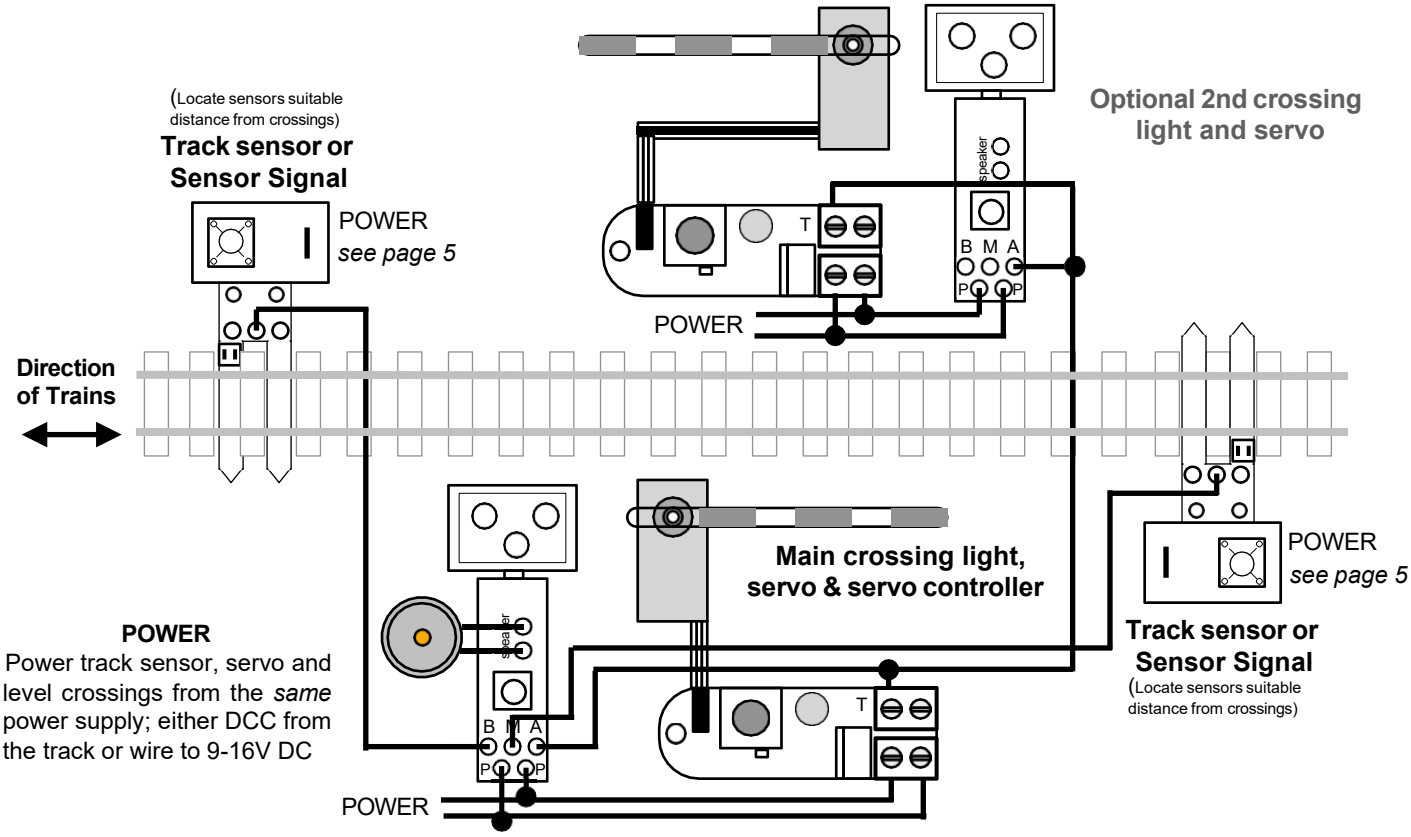
Using Track Sensors with N Gauge: The Track sensor is designed primarily for OO gauge track, however we have found that it can be used with N gauge if the fingers are removed, some parts of sleepers trimmed and the sensor is placed close to (but not touching) the rail.



POWER
Power track sensor, servo and level crossings from the *same* power supply; either DCC from the track or wire to 9-16V DC

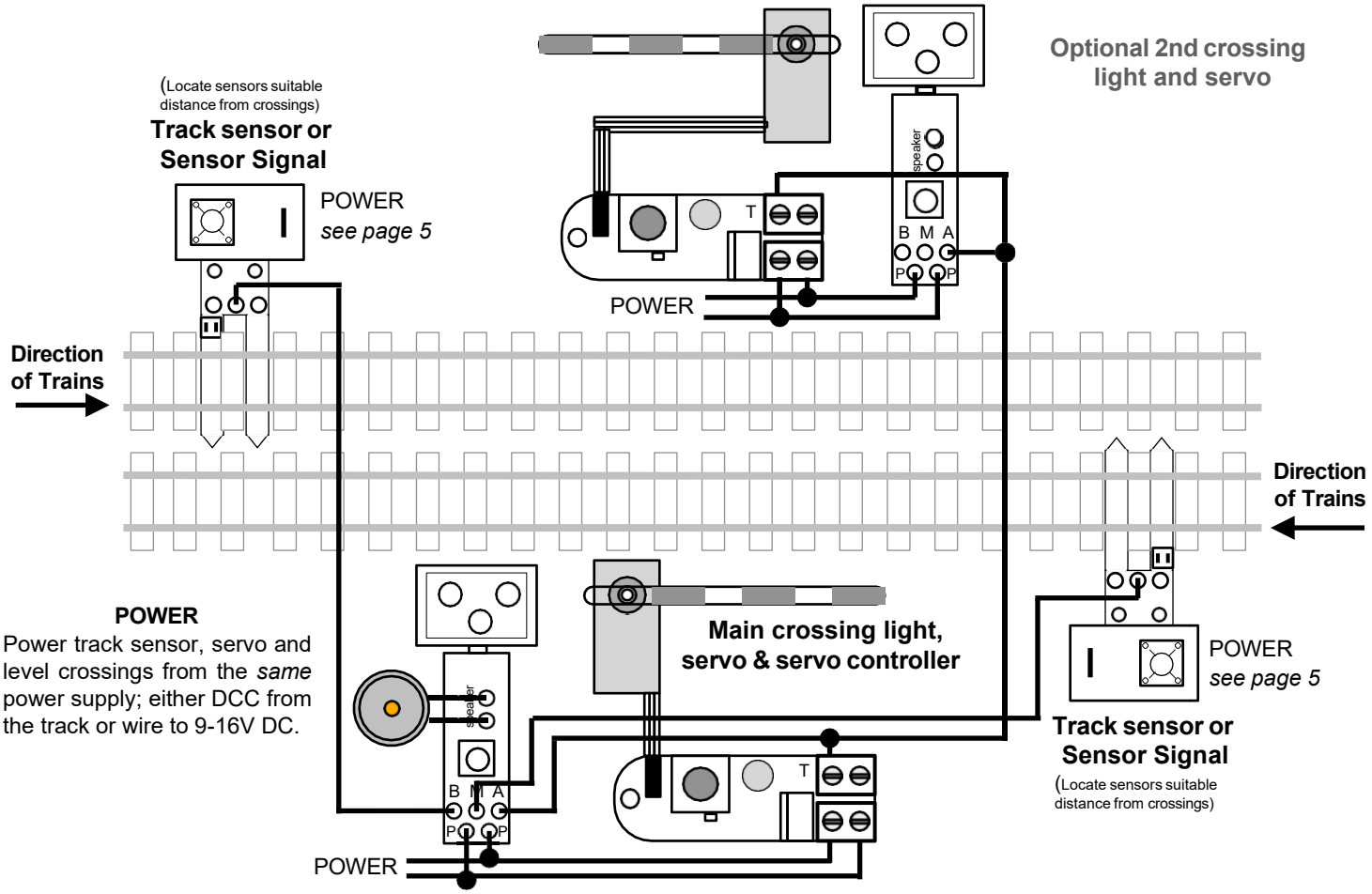
• Automatic Control: Single Track crossing - both directions

If you have a single track level crossing which has trains going in either direction (single line working) you will need 2 sensors so that you can trigger the crossing lights from either direction. Below shows how to wire 1 or 2 crossing lights and servos to 2 Track Sensors or Sensor Signals:



• Automatic Control: Double track crossing - up & down lines

Most double track crossings comprise one Up and one Down Line, so you need to trigger the level crossing from opposite sides on each track with a Track Sensor or Sensor Signal as follows:

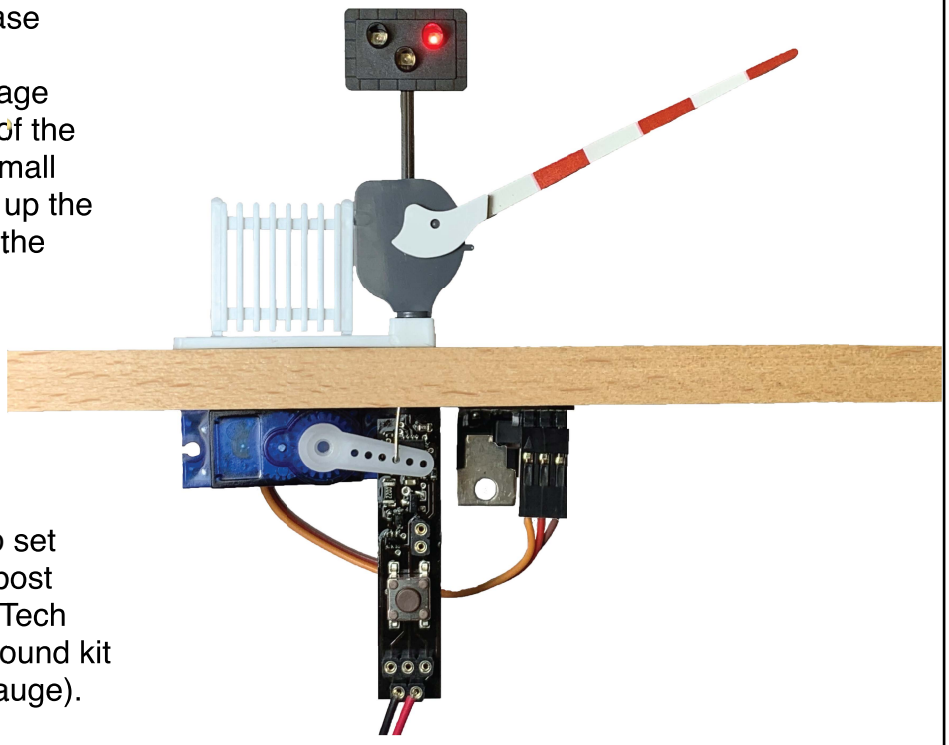


• Using a Servo to activate Level Crossing Barriers

One of the most popular applications for servos in model railways is to operate level crossings. Whilst of course it is up to the modeller how they operate their models, we thought the following showing how we fitted servos to our LC Level Crossing light and sound barrier sets may be useful.

• Servo underneath the baseboard

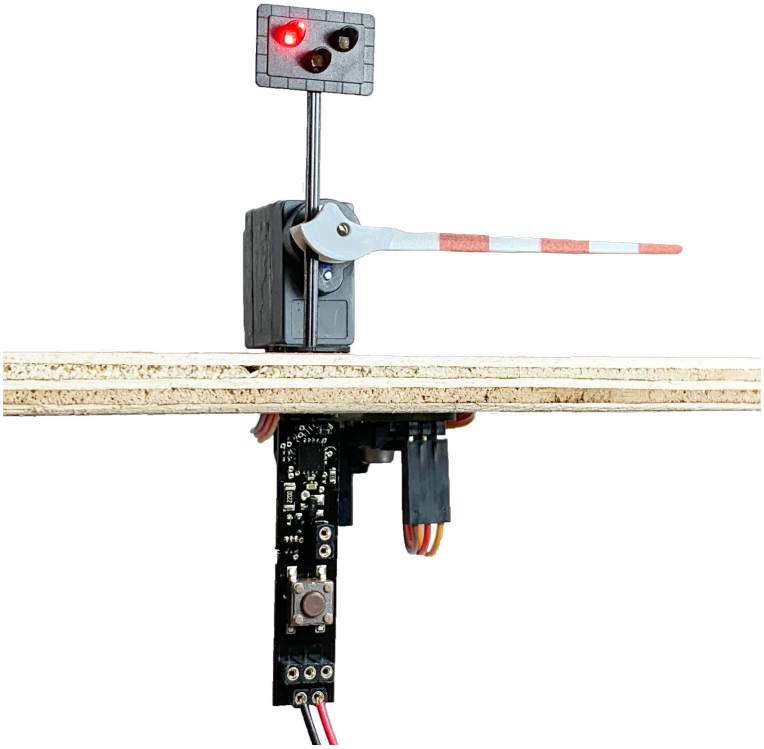
This shows how we mounted the servo controller and servo under the base board and, using a straightened paperclip, made a short wire linkage from the servo head to the back of the barrier and passed it through a small hole in the base board. Then set up the two positions of the servo to suit the barrier (Refer to Page 2).



The photograph shows the servo set with the barrier, light and sound post which is all included in the Train-Tech Level crossing barrier light and sound kit LC10 (OO/HO) and LCN10 (N gauge).

• Disguising the servo on the surface

It is not always possible to have easy access underneath a baseboard, so we came up with this idea of mounting the barrier directly onto the servo spindle and then camouflaging the servo to look like a control box or lineside hut on top of the board. The small SG90 type servo is ideal for this project because after cutting off the mounting ears the height is just right to mount the barrier on for OO, or horizontally mounting for N.
We fixed the barrier by slightly enlarging the small hole already there and fastening it to the servo spindle using one of the small screws supplied with the servo. Finally we glued the cable to the back of the servo and disguised it all by painting it dark grey and touching in a handle and frame like a door!



The photo shows a Train-Tech Level crossing barrier light and sound kit LC10 (OO/HO). The N gauge model is LCN10.