

SHUTTLE TRAIN CONTROLLER

INSTALLATION:

- install sensors and connect them to the board (photo 1)
- connect the power supply and test sensors (if you cover them, the LEDs must be light)
- connect rails to OUT terminal (photo 1)
- install 1N4007 diodes to the end of the track (diode stops the train if the sensor failed) – (photo 2) - optional
- set potentiometers to the middle position
- connect the power supply (choose the voltage depends on the used motor/ locomotive). Analog locomotive needs 12V max. The minimum voltage is 8V! Do not exceed 30V!
- check connection once again and switch the power supply on
- train goes Forward, LED5 (red) lit

IMPORTANT: the train has to move toward to Sensor 3! If moves to the opposite direction, turn the train or change voltage polarity to the track (OUT terminal)

USING:

- if you change the values with potentiometer the new values will be accepted after the station delay is ended
- press microswitch for a few seconds to decrease or a bit longer to cancel the station delay
- if you wish to install the Middle station, connect another sensor (Sensor2 terminal). You can add how many you need, just connect all station sensors to the same terminal. If the train covers Sensor2, starts to decelerate to zero. After the delay is ended, goes in the sam direction.

POTENTIOMETERS:

Speed - speed of the train, Acc - acceleration, Dcc - deceleration, Time - station delay (1-10 min), pushbutton - cancel station delay

ATTENTION: Sensor 1 activates the deceleration of the train in the Backward direction (Green - LED4) and Sensor 3 activates the deceleration of the train in the Forward direction (Red LED5) only!

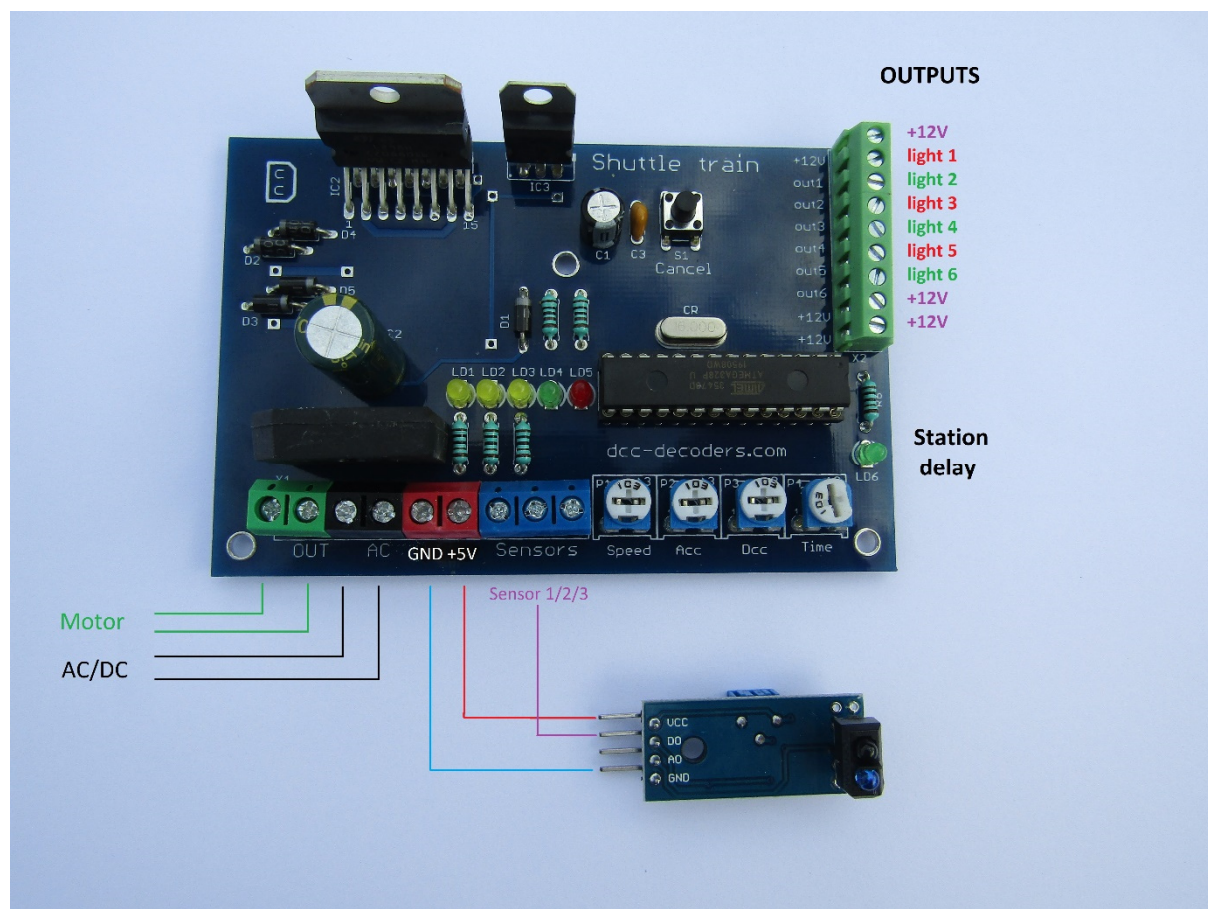
PARAMETERS:

- power supply: 8-12V AC/ 12-15V DC
- output current: 3 ampers
- station delay between 1 - 10 minutes
- signal light output: 12V DC - 100mA / output
- recommend using an aluminum heatsink in case if power output modules are very hot (over 50 degrees Celsius). Both power modules can be connected to the same heatsink.

TRAIN DIRECTION AFTER POWER ON:

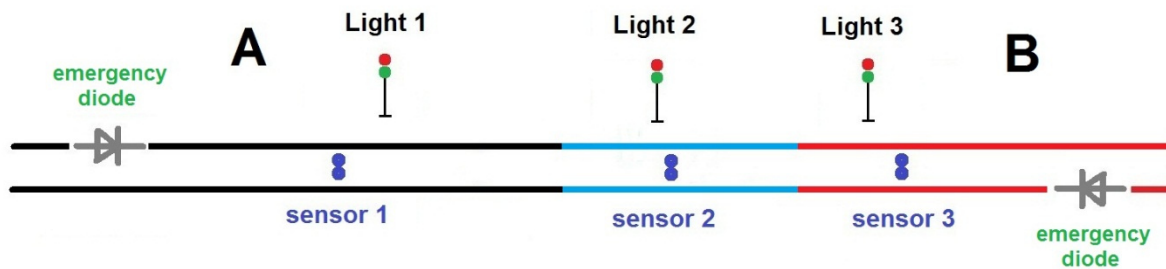
Sensor 1	Sensor 2	Sensor 3	Direction
1	0	0	Forward - red LED
0	1	0	Forward - red LED
0	0	1	Backward - green LED
0	0	0	Forward - red LED

0 - uncovered sensor / 1 - covered sensor

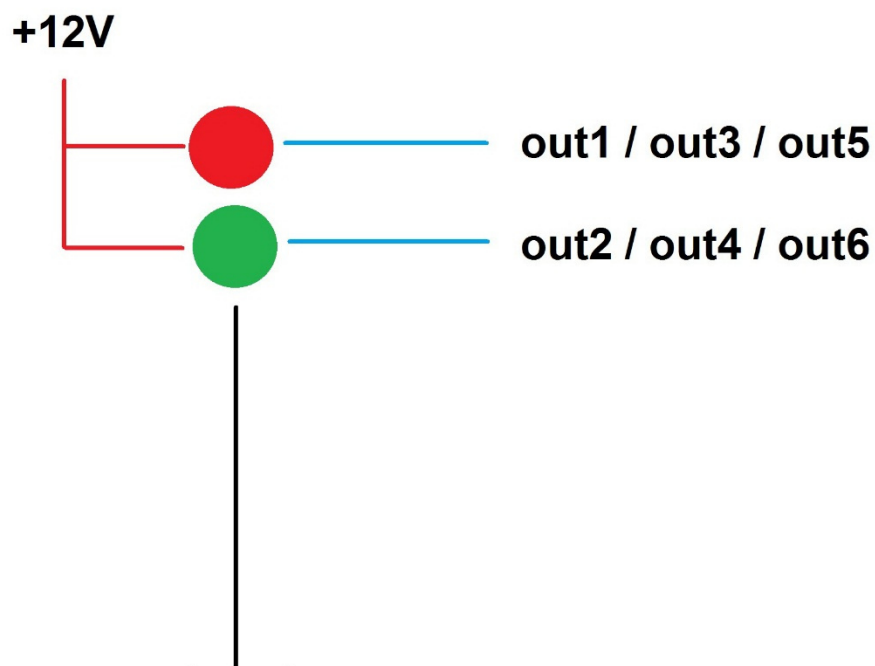


TCRT5000 SENSORS CONNECTION:

- VCC to +5V
- GND to GND
- D0 to Sensors input (each sensor to different input)
- A0 not connected



SIGNAL LIGHT CONNECTION:



ATTENTION:

If you connect LEDs to the output, use adequate serial resistors to reduce voltage! Output voltage (signed as +12V) depends on the input voltage!