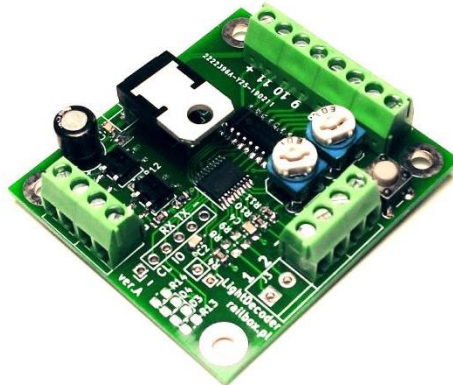# Traffic Light Decoder

Introduction

This Accessory Decoder is designed to control the traffic lights on the cross with ability to adjust its brightness and speed (interval).

Features:

- **2 manual inputs.** The external buttons could be connected to it to change modes of traffic lights (on/off – №3, day/night - №4)
- **2 potentiometers**. Allows configuring brightness of the LEDs (№2) and changing its speed (interval) (№1)
- **DCC input**. Allows configuring of the internal CV values and controlling decoder from the command station.
- **Power input**. Allows decreasing a current supply via DCC input from the command station. (Useful for the bigger scale Model Railroad). Should be connected to DCC inputs if the external power is not used.

Electrical specification

- **PWR Input: AC/DC 7-18V, min 1A**
- **DCC Input: AC/DC 0-20V**
- **O5-O11 outputs: High voltage: PWR In – 0,7V, max 0.15A**

Configuring module DCC address

To configure module DCC address User should repeat the following steps:

- Press and hold the programming button
- Send from the command station accessory command with required address three times: on/off/on. After that module should start performing the base address action.
- Release the programming button.

List of available actions:

- Base address: traffic light on/off
- Base address +1: traffic light night mode on/off
- Base address +2: output 6 on/off.

Connection
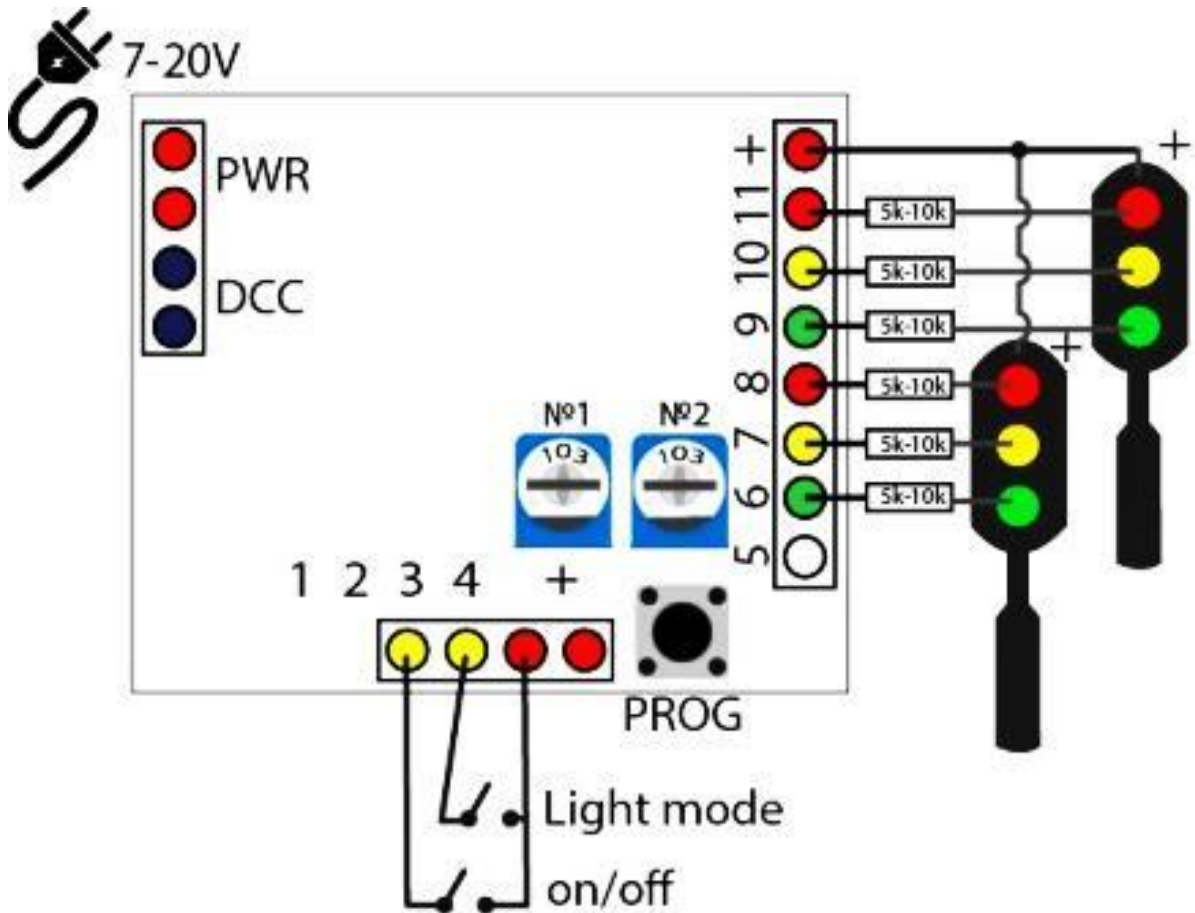
Manual configuration (changing modes of traffic lights)

2 potentiometers allow configuring brightness of the LEDs (potentiometer №2) and changing its speed (interval) (potentiometer №1)

Note: To save all changes into microcontroller memory you need to wait at least 2sec before the module could be powered off.

Programming

CV can be updated using Paged Mode, Direct Mode or on the main track (PoM).
Main configuration table:

CV	Value	Default value	Description
44	0..255	255	Maximum brightness output 11
45	0..255	255	Maximum brightness output 10
46	0..255	255	Maximum brightness output 9
47	0..255	255	Maximum brightness output 8
48	0..255	255	Maximum brightness output 7
49	0..255	255	Maximum brightness output 6
68	0..255	10	Lamp mode switching time 1 (* 10ms)
98	0..255	1	TrafficLight period (* 2s)