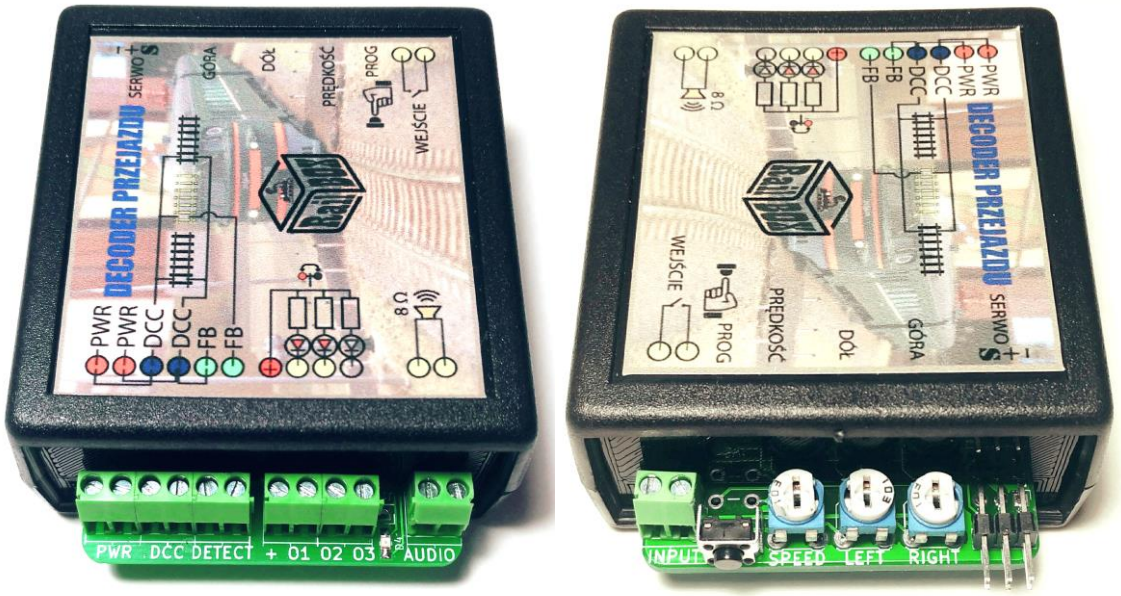
Railroad Crossing Decoder



Introduction

This Accessory Decoder is a complete solution for controlling the railroad crossing on the Model Railroad.

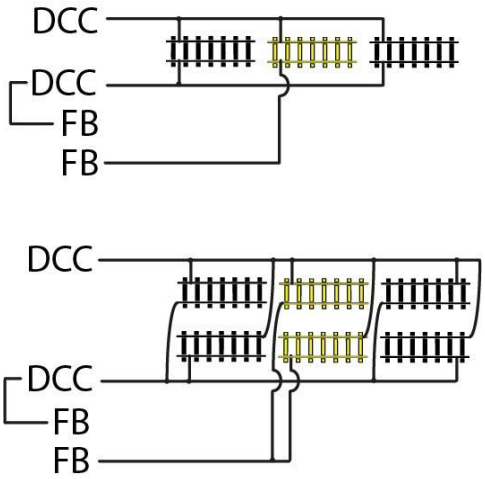
Features:

- **3 PWM outputs**. O1 and O2 by default are configured to perform periodical blinking as railroad crossing light does.
- **1 output for the speaker**. When decoder activates the railroad crossing it will play the alarm sound.
- **1 track occupancy sensor** which allows activating decoder on a specific railroad track when it is occupied by the train.
- **2 servomotor outputs** which are working parallelly.
- **1 manual input**. The external button could be connected to it for the manual control of the railroad crossing decoder.
- **3 potentiometers**. Allows configuring of the upper and lower position on the servomotor as well as speeding of barrier's opening or closing.
- **DCC input**. Allows configuring of the internal CV values and controlling a decoder from the command station.
- **Power input**. Allows decreasing of 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**
- **DCC Input: AC/DC 0-20V**
- **FB sensor: max 0.8A**
- **O1-O3 outputs: High voltage: PWR In – 0,7V, max 0.15A**
- **Audio speaker: 8 Ohm**
- **Servo outputs: 5V, max 1A**

Connection



Programming

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

Main configuration table:

CV	Value	Default value	Description
1	1..99	1	Decoder Address (Short)
7	1	1	Software Revision (Read Only)
8	13	13	Manufacturer ID: 13 = DIY decoder (domestic decoder, read-only)
17	192..231	192	Long address (high byte)
18	0..255	100	Long address (low byte)
33	0..120	0	Effect Selection, output 1: 0: Incandescent light 1: Blink with blinking period 1 (period is CV 49) 2. Blink with blinking period 1 (inverse) 8. Incandescent light (inversed) In modes 0..9 there is a possibility to add 16 to CV value to enable smooth switching with CV 40 duration
34	0..120	0	Effect Selection, output 2
35	0..120	0	Effect Selection, output 3
36	0..255	255	Maximum brightness output 1
37	0..255	255	Maximum brightness output 2
38	0..255	255	Maximum brightness output 3
39	0..255	45	Blink 1 period (* 10ms)
40	0..255	10	Lamp mode switching time 1 (* 10ms)
41	0..255	10	Time when decoder deactivated after occupancy detector released (* 100ms)
42	0..255	10	Time when servos starts lowering after decoder is activated
43	0..255	10	Time when sound is switched off after servos reached the lower position
44	0..30	30	Sound volume
45	0..1	1	1 – Sound is switched off after time in CV43. 0 – sound is on till decoder deactivated