Digital Decoder for AZL Alco RS Series Diesel Locomotives

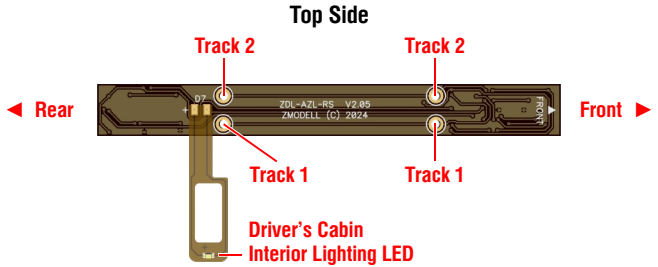
User's Manual

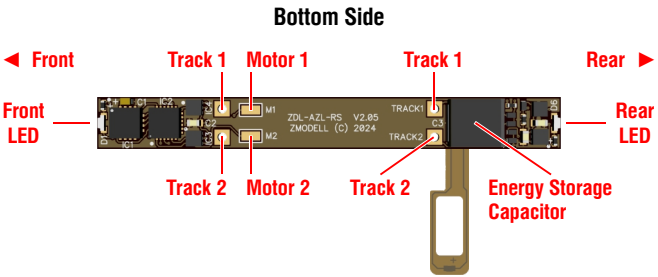
Art. No: ZDL-AZL-RS

Suitable for:
AZL 633xx Series
● RS-2 ● RS-3 ● RSD-4 ● RSD-5

Ver 2.05

Overview





Package contents

- **1x** ZDL-AZL-RS digital decoder
- **1x** User's Manual

Technical data

Operating mode: DCC, MM, SelecTRIX 1, SelecTRIX 2, DC Analog
Max. voltage: 14 V in digital mode, 12 V in analog mode
Power buffer: Integrated highly efficient energy storage module with thermal and overvoltage protection (470 µF)

Functions

F0 – Directionally controlled headlights
F1 – Interior lighting in the driver's cabin
F2 – Dimming function (brightness of headlights reduced by 50%)
F3 – Shunting mode (maximal speed reduced by 50%, short acceleration and deceleration time)
Default address: 3 (DCC), 01 (SelecTRIX)

Installation

1. Prior to installing the digital decoder, make sure your locomotive runs perfectly in analog mode without jerks and stalls.

2. Separate the locomotive housing and the chassis by pulling the body upwards. Perform this step carefully in order not to damage separately attached parts on the housing like handrails, whistles etc.

3. Unscrew 4 screws retaining the stock circuit board and remove it from the chassis. Keep the screws in the safe place.

4. Install the digital decoder onto the chassis and fix it with screws. Prior to installing the circuit board, make sure that the spring-loaded outputs of the motor are clean, not oxidized and come into the good contact with pads on the bottom side of the decoder circuit board. Do not overtighten the screws in order not to damage the circuit board of the digital decoder. Make sure there is no short circuit between the motor and chassis outputs.

<u>Important</u>: Please check correct position of the circuit board before installation! Decoder should be installed with triangle front end mark on the top side of the circuit board pointing towards the front end of the locomotive.

Digital decoder correctly installed onto the chassis should look like this:

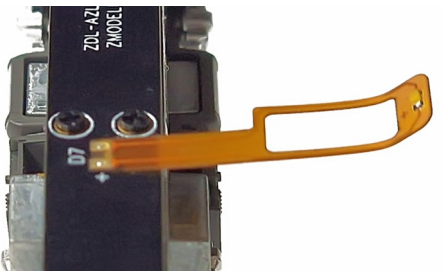
Top View

◄ **Rear** **Front** ►

Side View

5. It is recommended to put the locomotive onto the programming track at this step and check if all functions work correctly (reading address, lights and motor).

6. If the previous step was successful, the locomotive now needs to be re-assembled completely. For this, slightly bend the end of the flexible circuit board with LED upwards as shown on the following picture. Please do it carefully in order not to damage the flexible board:



After this, carefully insert the end of the flexible board with LED into the gap between the main locomotive body and the driver's cabin box and slowly install the housing back onto the chassis, gently pressing on it until it sits completely.

During this procedure, make sure that the flexible board with the LED fits correctly and completely into the gap between the housing and the driver's cabin box. If everything is done correctly, the LED should be positioned right in the center of driver's cabin ceiling, the opening in the flexible board should be perfectly aligned with the side window and the flexible board should not be visible through the window at all.

7. Put the locomotive onto the track. It is recommended to perform a break-in run at the full speed during 5-15 minutes in both directions.

Important: To achieve best driving performance, please always keep the wheelsets of the locomotive and tracks clean from dust, fiber and grease.

Programming

This digital decoder is based on Doehler & Haass® hardware and software technology. For detailed information about all available features and programming in all available modes (DCC, MM, SelecTRIX 1 and 2), please refer to the complete programming manual available on Doehler & Haass® official website: https://doehler-haass.de

1. DCC Address: Default DCC address is 3. To change default address, desired value (1-127) should be written to CV1. Long addresses (0001-9999) available; they are defined by CV17 and CV18; also, CV29 bit 5 should be enabled. Please refer to the complete programming manual available on Doehler & Haass® official website.

2. Acceleration time: The value of CV3 corresponds to the time in seconds from start to maximum speed (available range 0-255). Default value is 3.

3. Deceleration time: The value of CV4 corresponds to the time in seconds from the maximum speed to stop (available range 0-255). Default value is 3.

4. Maximal speed: To adjust maximal speed, change CV5 to desired value (range 0-127). Default value is 92.

5. Shunting speed: To adjust shunting speed, change CV61 to desired value (range 0-127). Default value is 63.

6. LED Brightness: The brightness of headlights and interior lighting in driver's cabin can be adjusted. To change it, see the following table of decoder settings:

CV	Function	Range	Default
52	Brightness of headlights	0-31	31
53	Brightness of headlights in dimming mode	0-31	10
54	Brightness of interior lighting in driver's cab	0-31	31

7. Decoder reset: To reset decoder to the factory defaults, write 8 to CV8.

ATTENTION: This product is intended only to experienced users! Please perform all operations with all precautions that apply to work with ESD sensitive devices. This product is not suitable for children under 15 years. The functioning of every decoder is fully tested before delivery. Should nevertheless a failure occur, please contact the supplier where you purchased the decoder or directly the manufacturer. The warranty period is one year from the date of purchase. The manufacturer is not responsible for any damage to the train model and/or digital decoder caused by improper installation, assembly or disassembly of the model, as well as by exceeding the maximum allowed operating parameters.

IMPORTANT: Small cross screwdriver (Phillips PH0 or PH00) is required for installation of this digital decoder.

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