

Main Features of this Decoder

- **Back EMF Load Compensation** for superior slow speed control even with heavy loads.
- **Quiet Drive** creates SUPER QUIET engine performance.
- **Autodetect** for realistic throttle response when using DC power.
- **Dimmed Brightness** of bulbs or LEDs is adjustable.
- **Variable Momentum** lets you make custom acceleration curves.
- **Ditch Lights:** control alternating ditch lights with realistic pulsing.
- **Mars, Gyra, and Rotary Beacon** are adjustable.
- **Decoder Lock** for programming same address decoders independently.
- **Function Remapping:** 13 buttons for most lights, 7 buttons for operations.

Other Features of This Decoder: This decoder includes many more features than we have space in this document to print. If you wish to discover and use all of the features of this decoder visit the TCS website at www.tcsdcc.com, go to the Literature section, and print the **Additional Programming Guide** or get a copy at your Dealer.

WARRANTY PROCEDURE: All decoders are covered by a one year goof proof, no questions asked warranty. **Please return in a padded envelope or small box. NOTE: A4X, A6X, DP2X, and all drop in N and Z-scale decoders must be returned in a small box.**

1. Register the decoder(s) on our website at www.tcsdcc.com.
2. Print out a copy of the Warranty Registration and include in the padded envelope with the decoder(s).
3. Return decoder(s) directly to TCS. Train Control Systems
PO Box 341
Blooming Glen, PA 18911

Compatible with NMRA DCC standards.

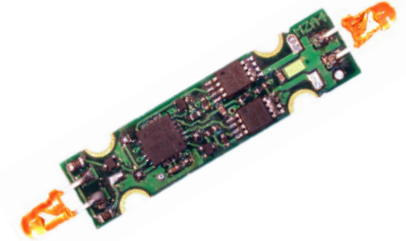
Made by **TCS** in the USA.

Train Control Systems
P.O. Box 341
845 Blooming Glen Rd.
Blooming Glen, PA 18911



Phone **215-453-9145**
Fax **215-257-0735**
Email tcs@tcsdcc.com
Web www.tcsdcc.com

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Full Featured BEMF Decoder!

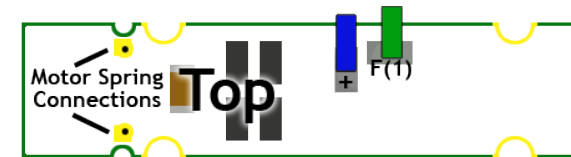
MZA4

Scale	Functions	Func. Rating	Continuous/Peak
Z	4	60 mA	Motor 1.0/2.0 Amp

Dimensions: 1.294"x.32"x.116" or 32.86mm x 8.12mm x 2.94mm

Installation Instructions- (READ THOROUGHLY before installing)

- Track power connection to the decoder is achieved by a pressure fit between the frame posts. Do not attempt to slide the decoder into the slots the way the original lighting board was.
- Loosen the screws on the frame by one turn. DO NOT REMOVE THE SCREWS.
- Fit the decoder between the posts and level with the original slots.
- Re-Tighten the screws, and Re-Install springs for motor power connections.
- Attach the half-circle end of the spring to the decoder, and the semi-circle side to the motor tab.
- For full installation instructions see www.tcsdcc.com



-Wiring Diagram-



Extra Functions: To use the extra two functions solder the negative lead of the LED to the green or purple pad, and solder the positive side of the LED to the blue function pad on the top of the decoder.

NOTE: This decoder has onboard current limit resistors for F(1) and F(2) LED's. This means that you do not need to use external current limit resistors, and that you can only use LED's for these functions.



**Our Famous GOOF PROOF NO
Questions Asked Warranty**

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