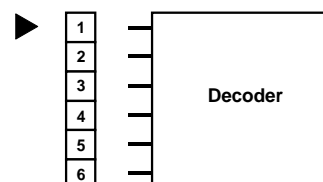


Based on the principles in NEM 650, the following 6-pin interface is defined.

Pin, Function, and Wire Color Assignment

| | | |
|-------|--|--------|
| Pin 1 | Motor connection 1, positive ¹⁾ | orange |
| Pin 2 | Motor connection 2, negative ¹⁾ | gray |
| Pin 3 | Power pick-up, right | red |
| Pin 4 | Power pick-up, left / GND | black |
| Pin 5 | Lighting, front | white |
| Pin 6 | Lighting, rear | yellow |



Mechanical and Electrical Dimensions

The socket is installed on the vehicle. The pin pitch is 1.27 mm.

The pins are round ²⁾ with a diameter of 0.43 mm and a length of 5 mm.

The normal load current ³⁾ is 0.5 A and a brief peak load current of 0.75 A is acceptable.

The small dimensions of these decoders generally necessitate a factory installed interface and a directly attachable version of the decoders.

The space reserved to install a decoder should be minimally sized as follows:

Standard Decoder: 20 x 10 x 4 mm

Sound Decoder: 29 x 11 x 6 mm

Insofar as the installation space is not placed at the interface, sufficient room should be allotted for the plug at the interface and the wires to the decoder.

Pictogram

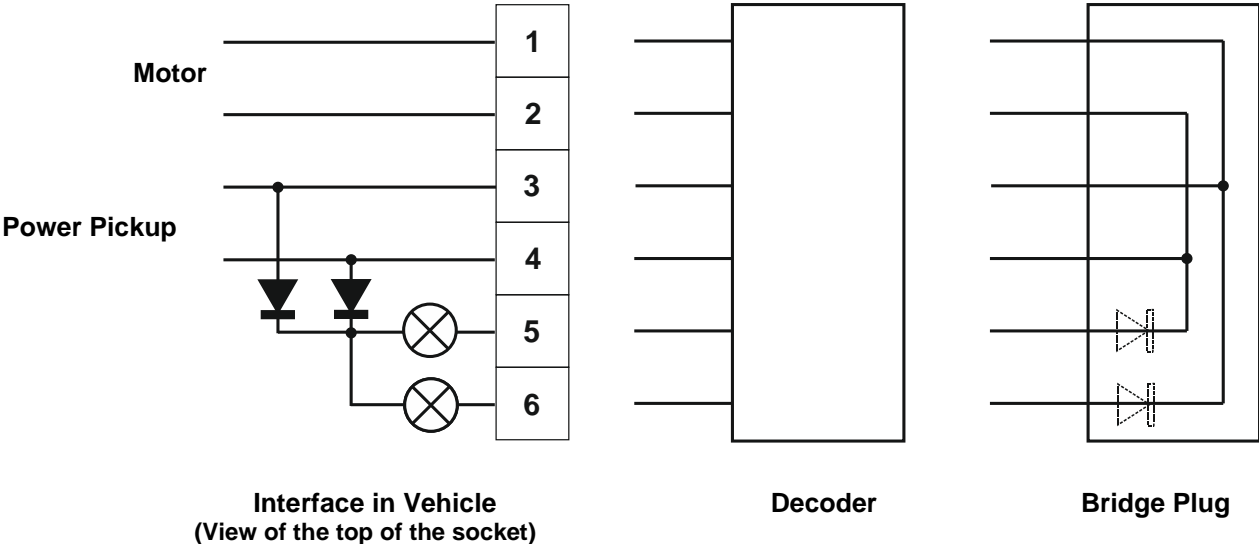
Packaging of vehicles with factory installed interfaces should clearly indicate this with the following pictogram.



- ¹⁾ The specified polarity is based on the motor connections for travel direction 1 (forwards) with respect to NEM 631.
- ²⁾ Rectangular cross section pins are an alternative so far as they meet the same load capacity and physical contact quality as round versions.
- ³⁾ The specified load applies to each individual pin; it is not tied to decoder, motor, lighting nor additional component load capacity. Because many decoder manufacturers provide lower capacity light and function connections, it is recommended that vehicle manufacturers document how much current headlights and additional functions draw.

Notes

- 1. Interfaces following this standard correspond to the design size small (S) per NMRA RP 9.1.1 (revision: May 2015)
- 2. In order to facilitate conventional DC operation with full lighting when decoders are installed on this interface, the common lighting conductor should be connected according to the following method. The return connection of the lights may not be directly connected to any rail.



Annotation:
For similar function, the diodes can be placed elsewhere, for example in the bridge plug.