



NMRA Standard	
JST-9 Pin Decoder Interface	
Nov 13, 2020	S-9.1.1.2

1 General

1.1 Introduction and Intended Use (Informative)

5 This Standard defines a multi-pole interface for locomotives and cars. It is suitable for non-sound decoders in most scales. This interface is also used on sound decoders with more than four lighting outputs, supplemented by additional connector interfaces. The decoder circuit boards may contain a socket for the wiring harness.

The mechanical characteristics are specified in section 2, Figure 2.1 JST interface socket, and the numbering of the pins. The assignment of the connections is given in Table 3.1.

1.2 References

10 This standard should be interpreted in the context of the following NMRA Standards, Technical Notes, and Technical Information.

1.2.1 Normative

- S-9.1.1 DCC Interfaces, which specifies general DCC interface requirements.

1.2.2 Informative

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- TI-9.1.1 Sources for Connectors for DCC, which provides a list of manufacturer part numbers for DCC interface connectors.

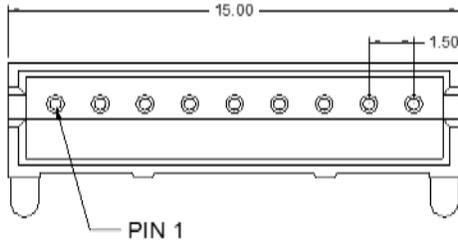
1.3 Terminology

Term	Definition
Vehicle	Mobile model railroad device. This includes locomotives and other rolling stock.
Decoder	DCC receiver for controlling vehicle animation.

1.4 Requirements

20 To meet this Standard all mechanical and electrical values mentioned must be met and respected, unless otherwise noted. It is not necessary to implement all connections of the interface. The pins with unimplemented features must remain unconnected. This applies to vehicles as well as for other devices that use this interface.

2 Mechanical Properties



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Figure 2.1 View looking into end of Decoder

3 Electrical Properties

3.1 Pin Assignment

Table 3.1: Interface Connection

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Pin	Use	Color
1	Output 3 (Aux 1)	Green
2	Track – Right Rail	Red
3	Motor (+)	Orange
4	Common (+V)	Blue
5	Output 1 (Front Headlight)	White
6	Output 2 (Rear Headlight)	Yellow
7	Motor (-)	Gray
8	Track – Left Rail	Black
9	Output 4 (Aux 2)	Violet or Brown ¹

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The connector is rated at 50 VDC and 1.0 amp max on each pin.

¹ Previously some manufacturers used brown, some violet prior to a defined Standard color. Pin 9 can be violet or brown, manufacturer must document in their installation instructions.

3.2 Color Code of Wiring

Because field installation by the end user is the most frequent application of this interface connector the wire harness must use the color code defined in for wiring in S-9.1.1 and above.

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4 Document History

Date	Description
Nov 13, 2020	Initial Release

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