

# Kato Digitrax DCC Decoder.

## 29-351 Decoder For Control Car With Motor.

Please read this instruction sheet carefully prior to the use.

- How to install the Decoder
  1. Please slide the under-cover over chassis in direction of the arrow and take it off.
  2. Please insert such a tool as flat headed screwdriver between car body and truck and remove the truck.
  3. Please insert carefully the decoder in the direction indicated in the picture.
  4. Please make sure that the decoder is inserted firmly to the very end.
  5. Please fit the truck to the original position and put the under-cover on again before running the car. When the under-cover is not put over, the power might not come to the decoder, causing the non function of the decoder.
  
- Rating and function of EM13 decoder for Motor Car

Default (initial) address value: 03 (Range it can be changed in: 01-9983)

Maximum Current: 1.0A (Peak Current Value: 1.5A)

Function Circuits: No (Only with circuit for Motor)

Complete with BEMF (Run with stable speed using Back Electric Magnetic Field),  
Reset (Initialization), Transponding (Detection of position of the motor car)

The decoder can be customized in the function by changing the following program values.

Program items and their values			
CV	Default value	Function	Value range or Value Setting Example
CV01	03	2 digit address	01 ~ 127
CV02	00	Start Voltage	00 ~ 255 (Voltage 0 ~ 100%)
CV03	00	Acceleration rate	00 ~ 31 (Rapid ~ Slow Change)
CV04	00	Slowdown rate	00 ~ 31 (Rapid ~ Slow Change)

CV05	00	Maximum Voltage	00 ~ 255 (Voltage 0 ~ 100%)
CV06	00	Voltage at mid point	00 ~ 255 (Voltage 0 ~ 100%)
CV08	129	For Reset*	Enter 08 for reset
CV29	06	To set speed steps	06, 07, 38, 39, etc.
CV57	06	Grade of BEMF effects	00 ~ 15 (Single Motor-Car traction)

\* “129”, the default value under CV08 is a maker ID No. Regardless of the figure, please enter “08” for Reset (the value will return to the default value.)

- Compliance, Warnings & Handling.

Please use this decoder in combination with devices complying with NMRA DCC rules. With controlling devices employing another digital system, it will not work.

This product is an electronic device. So rough handling, water or static electricity may break the chip.

As it is a p.c.board, it has tiny and pointed parts. Please store the product where small children cannot reach their hands to.

Train car installed with the DCC decoder can be run on analog-operated track as well, but may not run when the power pack controller does not match with it.

The specifications and price of the product is subject to change without preannouncement.