*Note- Instead of using CV3 and CV4, the decoder uses CV120 and CV121 as acceleration and deceleration rates. So you can change its acceleration and deceleration rates without changing CV3 or CV4 in your power decoder, if you already have these rates tailored for your locomotives optimum performance.

ADDRESS PROGRAMMING

The "MRC Sounder" comes with a factory default address of #3, and 28 speed steps. If your locomotive has a different address, and speed step already programmed into it, place the locomotive, with decoder and MRC Sounder installed, on your program track and **re-program** it to the address you had originally programmed it to. While it is on the program track, also **re-program** the locomotive to the speed step of your choice, (14-28/128). Since the decoder does not have a motor driver, you can't read back its CV.

ADDITIONAL INFORMATION

The MRC Sounder synchronized diesel sound only decoder should perform well when used with other brand command systems, and decoders. See your DCC command stations manual to learn how to program and operate any decoder. For more information about register/CVs and their functions, please refer to the NMRA DCC Standard & Recommended practices, RP-9.2.2 available directly from the NMRA or their website at www.nmra.org.

FCC COMPLIANCE

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

RETURN PROCEDURE

This decoder carries a 6 month warranty against factory defects. This warranty **does not** include abuse, misuse, neglect, improper installation, or any modifications made to this decoder, including but not limited to the removal of the NMRA plug if applicable. If it should become necessary to return the decoder for warranty repair/replacement, **please include a copy of the original sales receipt**. Please include a letter (printed clearly) with your name, address, daytime phone number, and a detailed description of the problem you are experiencing. Please also include a check or a money order for $8.00 to cover return shipping and handling. If the decoder is no longer considered under warranty, then please include a check or a money order for $12.00 to cover the cost of repair or replacement and return shipping and handling. **Be certain to return the decoder only.**

Any questions regarding Warranty Policy can be directed to our Customer Service Department by calling 732-225-6360 between the hours of 8:30am and 6:00pm EST, or by emailing: rrtech@modelrectifier.com

Send the decoder to:

Model Rectifier Corporation
Attn: Parts & Service
80 Newfield Avenue
Edison, NJ 08837-3817 U.S.A

Printed in USA

MRC™
TECHNOLOGY. PERFECTED.
MODEL RECTIFIER CORPORATION

MRC SOUNDER™ Steam Sound Decoder with 28 Accessory Functions

Item 0001908

Thank you for purchasing our highly advanced DCC Steam sound only decoder. Combined with any non-sound power decoder installed in your locomotive, and used with your favorite DCC System, our new 16 bit sound only decoder with "Carnegie Hall" sound quality will make your model locomotive come to life.

- Easy installation - two wire only
- 20 types of synchronized chuff (10 single and 10 double) with random associated locomotive sounds
- 28 functions (F1 - F28)
- 2 or 4-digit (1-9999) addressing
- Programmable 14, 28, 128 speed steps
- Programmable acceleration rate, deceleration rate
- Programmable user selectable 17 whistles and 7 bells
- Programmable individual sound volumes (64-levels)
- Programmable master sound volumes (64-levels)
- Supports advanced consisting (CV19)
- Supports programming on the main(OPS mode)
- Compatible with NMRA DCC standards
- Complies with the part 15 of FCC
- 28mm speaker included
- Dimensions: 17.4mm x 17.4mm x 4.0mm

CV	Description	Range	Default
CV1	Short address	1-127	3
CV29	Basic configuration	---	2
CV7	Manufacturer version number	---	19
CV8	Manufacturer ID	---	143
CV17	Long address upper byte	192-231	192
CV18	Long address lower byte	0-255	3
CV19	Advanced consist address	0-127	0
CV21	CV21=0, all accessory function will follow its own address. CV21=1, all functions will follow the consist address	0-1	0
CV49	Master sound volume	0-63	63
CV50	Whistle type	0-17	5
CV51	Whistle volume	0-63	60
CV52	Bell type	0-7	0
CV53	Bell volume	0-63	3
CV54	Bell ring rate	0-50	10
CV55	Chuff type (10 types)	0-9	0
CV56	Chuff volume	0-63	60
CV57	Brake squeal volume	0-63	40
CV58	Air release volume	0-63	60
CV59	Blower hiss volume	0-63	60
CV60	Fire box door volume	0-63	60
CV61	Water injector volume	0-63	60
CV62	Coupling volume	0-63	60
CV63	Water filling volume	0-63	60
CV64	Rail clack volume	0-63	60
CV112	Metal crank volume	0-63	60
CV115	Auto brake squeal enable/disable	0-1	1(enable)
CV116	Sand drop volume	0-63	60
CV117	Chuff rate	0-460	30
CV118	Shoveling volume	0-63	60
CV119	coal volume	0-63	60
CV120	Acceleration	0-32	0
CV121	Deceleration	0-32	0
CV122	Double chuff enable	0-1	1(enable)
CV123	Safety valve type	0-2	0
CV124	Chuff start point	0-7	2
CV125	Set it to1 to restore some factory default CV settnings	0-1	0

*Note- If you activate the bell sound, **F1**, while either the Rail-Wheel Clack sounds are activated, the Bell sound will override the other two sounds.

TROUBLE SHOOTING

This decoder should perform well with all DCC systems. The maximum DCC output should be less than 15 V. If the locomotive does not respond to commands, it may have lost its address. Please re-program the address and program CV19 to 0 (disable consist). If it responds slowly, you should clear its momentum by reprogramming CV120 and CV121 to zero. You should also clean the track to improve electrical pickup. Read your DCC system manual to learn how to program and operate the decoder. For more information about registers/CVs and their functions, please refer to the NMRA DCC Standard & Recommended Practices, RP-9.2.2. This is available directly from the NMRA or their website at **www.nmra.org**. **Whenever the decoder doesn't work please use the program track to program CV# 125 with value 1 to restore the decoder to factory settings. This should bring the decoder to life with address #3.**

INSTALLATION

Since there is no motor output in this sound decoder, it can be used in any locomotive, regardless of scale that already has a working power decoder installed. If used in large scales where track voltage exceeds 16 volts, (O/G scales), a special voltage reducer is required to be used in-line to the Sounder. Contact Model Rectifier Corp. for details and price.

To install the Sounder into a locomotive, simply solder the red and black wires to any power pick up points, left and right side wheel pick ups, along with the red and black wires of your power decoder. If using with higher voltage DCC applications for larger scales, solder the MRC voltage reducer to either the red or black wire between the Sounder, and the power pick up point. You should have some basic electrical knowledge and soldering skills. If you do not have the above requirements, please ask the dealer for help with the installation.

SPEAKER SELECTION

The "MRC Sounder" steam sound only decoder comes with a 28mm round 8-ohm speaker. If it is too large for your application, smaller speakers, 20mm, or 16 X 35mm rectangular, can be purchased from MRC, or other manufacturers. Reducing speaker size will affect the overall sound quality of this decoder. Placement of the speaker inside the locomotive is up to you. Use hot glue or double-sided sticky tape to affix the speaker inside the locomotive shell.

OPERATION

There are 17 whistles sounds and 7 bell sounds, along with an "off" setting for each built into this decoder for you to choose from. See programming chart for selecting the type you want. The "off" setting is useful for trailing locomotives in a consist so only the lead unit sounds its whistle and bell.

You can use F18 functions to change the type of bell sound, and use F19 to select horn sound,

Function	Idle/Moving
F1	Bell on/off
F2	Whistle
F3	Long air release
F4	Coupling 1
F5	Brake squeal (moving) and brake release (idle)
F6	Chuff sound on/off -all other sounds on
F7	Fire box open/close
F8	Water injector
F9	Metal crank sound on/off (moving), steam associated sound (idle)
F10	Water filling
F11	Blower hiss
F12	All sounds on/off
F13	Master volume reduce by 2
F14	Master volume increase by 2
F15	Flange noise
F16	Shoveling
F17	Coal auger
F18	Bell type select (total 7 different ones)
F19	Whistle type select (total 17 different ones)
F20	Air hose firing/uncoupling lever
F21	Flange noise
F22	Associated loco sound
F23	Flange noise
F24	Chuff type select
F25	Long air release
F26	Sand dropping
F27	Associated loco sound
F28	Associated loco sound