

Manual

EasySound maxi

Item no. 43-09217



Sound module for stationary use

tams elektronik

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Subject to technical modification.

1. Getting started

How to use this manual

This manual gives step-by-step instructions for safe and correct connecting of the device, and operation. Before you start, we advise you to read the whole manual, particularly the chapter on safety instructions and the checklist for trouble shooting. You will then know where to take care and how to prevent mistakes which take a lot of effort to correct.

Keep this manual safely so that you can solve problems in the future. If you pass the device on to another person, please pass on the manual with it.

Intended use

The EasySound maxi is designed to be operated according to the instructions in this manual in model building, especially with model railways. Any other use is inappropriate and invalidates any guarantees. The EasySound maxi should not be mounted by children under the age of 14.

Reading, understanding and following the instructions in this manual are mandatory for the user.

Checking the package contents

Please make sure that your package contains:

- one sound module,
- one SD-card or one microSD-card with adapter,
- a CD (containing the manual and further information).

Note: There are no loudspeakers included in the package.

Required materials

In order to connect the device you need:

- wire, recommend diameters:
 - ≥ 0,25 mm² for connecting power supply and loudspeakers
 - ≥ 0,14 mm² for all other connections.

For broadcasting you need:

- one or two loudspeakers with an impedance of minimum 8 ohm and a rated load-carrying capacity of minimum 8 watt.

If you intend to play the sound files manually:

- switches 1xUm (e.g. item no. 84-51510-10) and / or
- switch-keys with one normally-open contact (e.g. item no. 84-52110-10) and / or
- reed contacts with one normally-open contact (e.g. item no. 84-53110-10) and permanent magnets and / or
- Hall-sensors (e.g. item no. 84-53210-01) and permanent magnets and / or
- other upstream circuits.

Note: switches and switch-keys (and accordingly components or circuits with similar modes of operation) in combination with the different reproduction modes have different effects on the way the sound files are played (see section 8. paragraph "manual operation").

2. Safety instructions

Mechanical hazards

Cut wires can have sharp ends and can cause serious injuries. Watch out for sharp edges when you pick up the PCB.

Visibly damaged parts can cause unpredictable danger. Do not use damaged parts: recycle and replace them with new ones.

Electrical hazards

- Touching powered, live components,
- touching conducting components which are live due to malfunction,
- short circuits and connecting the circuit to another voltage than specified,
- impermissibly high humidity and condensation build up

can cause serious injury due to electrical shock. Take the following precautions to prevent this danger:

- Never perform wiring on a powered module.
- Mounting the device should only be done in closed, clean, dry rooms. Beware of humidity.
- Only use low power for this module as described in this manual and only use certified transformers.
- Connect transformers only in approved mains sockets installed by an authorised electrician.
- Observe cable diameter requirements.
- After condensation build up, allow a minimum of 2 hours for dispersion.
- Use only original spare parts if you have to repair the kit or the ready-built module.

3. Operation overview

The sound module EasySound maxi is designed for stationary use in analogue or digital controlled model railroad layouts. The reproduction of the saved sound files can be released via accessory decoder commands or manually. e.g. via switches or switch-keys.

Data storage

In order to save the sounds to be reproduced by the EasySound maxi an integrated SD-card is used. Cards with any memory space can be applied.

Sound recordings available as audio-file in waveform audio file format (file extension "wav"), have to be copied from a PC to the SD-card (e.g. from a sound CD, an internet sound archive or a self-made recording). By means of sound processing programs the audio-files can be adapted to special requirements or individual soundscapes can be made.

Releasing the sound-files via accessory decoder commands

It is possible to release the reproduction of the audio-files saved on the SD-card via digital accessory decoder commands. Up to 253 sound-files can be assigned to the accessory decoder addresses by using corresponding filenames and setting a basis address.

Using corresponding accessory decoder addresses allows you to release the sounds combined with servo decoder controlled motion-sequences, for example.

Manually releasing the sound-files

Alternatively to the release via digital accessory decoder commands, 8 sound-files can be released via switches, switch-keys, reed contacts, Hall sensors or upstream circuits. This allows you for example to start a station announcement matching the incoming train via a corresponding RailCom detector (e.g. RCD-2).

Reproduction of the sound-files

The EasySound maxi has two outputs applicable for the connection of loudspeakers with an impedance of minimum 8 ohm and a rated load-carrying capacity of minimum 8 watt. The reproduction is made in stereo. The sound level can be set via a trim-pot.

There is a range of four different modes available, to be assigned to the single sound-files:

- playing once with the option of stopping.
- playing once without the option of stopping.
- infinite reproduction with the option of stopping. When switched off the reproduction will be stopped immediately.
- infinite reproduction with the option of stopping. When switched off the reproduction will continue till the end of the file and will stop then.

Extra switching output

The sound module has an extra switching output, e.g. to switch lighting. The output is controlled by digital accessory decoder commands. By means of controllers for sets of points different scenarios from sounds and downstream circuits connected to the extra output can be realised.

4. Technical specifications

Supply voltage	12 bis 18 V Wechselspannung oder 15 bis 24 V Gleichspannung
Digital formats	DCC, Motorola
Max. number of sound-files in digital operation in manual operation	253 8
Number of loudspeaker outputs	2
Reproduction	Stereo
Loudspeaker impedance	≥ 8 Ohm
Loudspeaker rated load-carrying capacity	≥ 8 Watt
Number of switching inputs	8
Number of extra switching outputs	1
Max. current at the extra output	500 mA
Current consumption approx.	50-150 mA
Protected to	IP 00
Ambient temperature in use	0 ... +60 °C
Ambient temperature in storage	-10 ... +80 °C
Comparative humidity allowed	max. 85 %
Dimensions (approx.)	100 x 100 x 42 mm
Weight (approx.)	116 g

5. Control elements

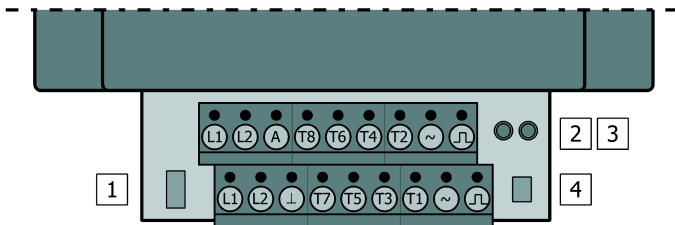


Fig. 1: Control elements

1	Trim-pot for setting the sound level
2	Red LED: Display of the operation mode and error display
3	Green LED: Status display while programming the basis-address
4	Programming switch-key

6. Connections

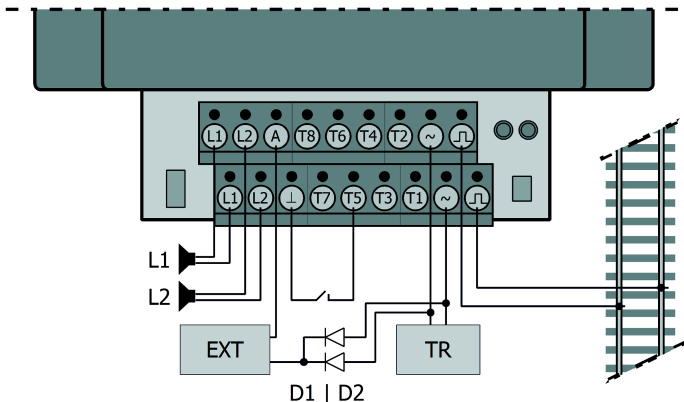


Fig. 2 : Connections

Connecting point	Remark	Connection mandatory
L1 L2	Loudspeaker. Impedance ≥ 8 Ohm / rated load-carrying capacity ≥ 8 Watt	yes no
~ / TR	Power supply for EasySound maxi (and extra switching connected to A) 12 to 18 V a.c. voltage or 15 to 24 V d.c. voltage Advice: Do not supply the sound module via the digital voltage. In this case disturbances occur which considerably interfere with the reproduction's quality of the sounds.	yes

Connecting point	Remark	Connection mandatory
A	<p>Extra switching output for connection of external circuits</p> <p>The output internally switches against ground, an extra ground connection is not necessary for that reason.</p> <p>As a power supply you can use the transformer already used for the power supply of the EasySound maxi. The connection to power supply has to be conducted via two diodes according to fig. 2.</p> <p>To be switched via accessory decoder commands.</p>	no
EXT	Extra switching to be switched via A	no
D1 D2	Diodes, e.g. 1N4002	yes (when A is occupied)
T1 to T8	Switching inputs for the connection of switches, switch-keys, reed contacts, Hall sensors or external circuits for (manual) releasing the sounds	no
⊥	Ground connection for T1 and T8	yes
	<p>Rail connection</p> <ul style="list-style-type: none"> ▪ for digital operation ▪ for manual operation 	<p>yes</p> <p>no</p>

7. Saving the sound files

In digital operation you can release up to 253 different sound-files via accessory decoder commands, in manual operation (via switches, switch-keys or similar) eight different sound-files.

File names

The file names consist of three numbers and two characters and further optional signs used to comment the sound-file data content, if necessary.

In combination with the basis accessory decoder address and basis switch state, the file name defines which file has to be played with a certain accessory decoder address and switch state. Also the file name defines the reproduction mode.

Example for a file name: 010gE_Rockband.wav

(file number 010 | switch state for sound-file: straight | reproduction mode "E" | comment | file format)

File number	You always have to specify the file number as three-digit: 001, 002, 003, ... 127 Hint: The file number is not the actual accessory decoder address releasing the reproduction of the sound-file. (see „basis accessory decoder address“).
Switch stand for sound-file	r: branch g: straight
reproduction mode	E: singular. Possible immediate stop. I: singular. No stop possible. R: endless. Possible immediate stop. L: endless. Stop after playing the file till the end.
Further signs	For commenting the the sound-file data content.
File format	.wav (other file formats are not allowed)

Basis accessory decoder address

The accessory decoder address and switch state to release a sound-file results from the basis accessory decoder address and the basis switch state and the number and switch stand state defined in the file name. This enables you to assign new accessory decoder addresses without renaming all sound-files.

You should always define "branch" as a basis switch state. When defining "straight" as basis switch state, determining the accessory decoder address releasing a sound-file is unnecessarily complicated.

Examples:

basis accessory decoder address	basis switch state	Number of the sound file	switch state of the sound file	accessory decoder address and switch state to release the file
1	branch	001	r	2 branch
1	branch	001	g	2 straight
25	branch	010	g	35 straight
49	branch	020	r	69 branch

Please note the lowest accessory decoder address you can use to release a sound file is address 2 "branch", as the basis address is used to switch the extra output.

Programming the basis accessory decoder address

In order to program the basis address proceed as follows:

<p>Push the programming key-switch.</p>	<p>The green LED blinks. → The module has switched over into the programming mode.</p>
<p>Set the basis accessory decoder address at the digital control unit. Set the basis switch state by entering the according swithing command (recommended: "branch") for the address in question.</p>	<p>The green LED blinks quicker for a short time and then extinguishes. → The module has received the basis accessory decoder address and afterwards finished the programming mode.</p>

Restricting the directory

You can determine the highest accessory decoder address releasing a sound file. This allows you to use the accessory decoder addresses defined for sound files currently not in use for other purposes, without deleting the files in questions from the SD-card.

In order to do this create a text file (which can be empty) and assign to this file the highest file number and the corresponding switch state, the EasySound maxi should respond to.

Example: 012r.txt → All accessory decoder addresses higher than the basis address and the basis switch state
 + file number 012, switch state "branch",

will be ignored by the EasySound maxi. While the file "012r" will be played after a accessory decoder command, the file "012g" (and all files with higher numbers) will not be played.

Sound-files for manual release

You can manually release 8 sounds via switches, key-switches or similar connected to the switching inputs T1 to T8. The file names of the sounds are definitely attached to the switching inputs:

Switching input	Sound file
T1	001r
T2	001g
T3	002g
T4	004g

Switching input	Sound file
T5	008g
T6	016g
T7	064g
T8	032g

8. Releasing sound files

You can release the reproduction of sound files via accessory decoder commands in DCC or Motorola format or manually via switches, key-switches, reed contacts, Hall sensors or upstream circuits. In digital mode you can release up to 253 sounds, in manual mode maximum 8.

Digital operation

In digital operation select an accessory decoder address and a switch state to release the sound file. Please note, that the file name only defines a number and an attached switch state. The accessory decoder address and switch state you use to release the sound at the digital control unit, include the basis accessory decoder address und basis switch state, as well. (More see section 7 "Saving the sound files").

Before it is possible to repeat the reproduction of a sound file, you have to release another sound-file or an empty sound-file via accessory decoder commands.

In order to stop the reproduction of sound files attached to the operation modes E, L or R you can

- release another sound-file or an empty sound-file via accessory decoder commands or
- enter the basis accessory decoder address and -switch state + **127g** as an accessory decoder command at the control unit.

Examples:

Basis accessory decoder address	Basis switch state	+	accessory decoder command to stop the reproduction
1	branch	127 g	128 straight
24	branch	127 g	151 straight
49	branch	127 g	176 straight

Please note, that the command for stopping the reproduction has different effects in the different operation modes. The operation mode I can not be interrupted.

Mixed operation digital - manual

If you intend to release sound-files as well via accessory decoder commands as manually, you should finish the reproduction of the sound-files by entering the appropriate accessory decoder command (+ 127 g) when changing from digital to manual operation. In case the reproduction of a sound file is not finished in digital mode, the file attached to one of the eight switching inputs will not be played after activating a switch or a key switch. In this case the sound file will be played which code corresponds to the sum of the codes of the digitally released sound-file and the sound-file attached to the switch or the key-switch.

Manual operation

You can use switches and key-switches, but as well reed contacts, Hall sensors and other upstream circuits. It is recommended to release sound files with the different operation modes as follows:

Mode	Release via	Mode of operation
E	switch (or component with similar mode of action)	Singular reproduction after activating the switch. The reproduction is stopped as soon as another sound file is released.
I	key-switch (or component with similar mode of action)	Singular reproduction after activating the key-switch. Stopping is not possible.
R	switch (or component with similar mode of action)	The sound file will be repeated as long as the switch is closed ("on"). After opening the switch ("off") the reproduction is stopped immediately.
L	switch (or component with similar mode of action)	The sound file will be repeated as long as the switch is closed ("on"). After opening the switch ("off") the sound-file will be played till the end and then the reproduction will be stopped.

Simultaneously closing of several switching inputs

In manual operation it is possible to close several of the eight switching inputs at once. This happens e.g. if:

- Sound-files defined for the operation modes E or I (singular reproduction) are released via switches and the switches are not opened (set to "on") after playing the sound-file;
- to stop the reproduction of a sound-file in operation mode E another switch or key-switch is used.

In this case not the sound-file attached to the eight inputs is played but the sound file with the code corresponding to the sum of the codes of all closed inputs.

Setting the sound level

The sound level can be set via the trim-pot (see fig. 1). Use a small screw-driver to put into the slot. By turning to the left, the sound level is increased, by turning to the right decreased.

Controlling the extra switching output

The extra switching output can be controlled via the basis address: With switch state "straight" the output will be switched on, with switch state "branch" switched off.

LED display

The red LED shows the operation mode and possibly occurring faults.

Red LED	Meaning
off	no reproduction
on	reproduction of a sound-file
blinking 2-times (repeated constantly)	fault when reading the SD-card
blinking 3-times (repeated constantly)	no file with the chosen accessory decoder address available

Remark: The green LED shows the status while programming the basis accessory decoder address (see section 7.)

9. Check list for troubleshooting

- Parts are getting too hot and/or start to smoke.



Disconnect the system from the mains immediately!

Possible cause: The device is defective. → Return the device for check.

- After selecting an accessory decoder address there is no sound to be heard.

Possible cause: The loudspeaker has not been connected properly. → Check the connections.

Possible cause: The corresponding sound file is empty. In this case the red LED lights.

Possible cause: The corresponding sound file is not available. The red LED shows this by constantly blinking 3-times. → Check the file names and the basis accessory decoder address.

- After selecting an accessory decoder address the wrong sound-file is played.

Possible cause: The file name is faulty (e.g. the switch stand is wrong). → Check the file names.

Possible cause: The basis accessory decoder address or basis switch stand differs from the intended. → Check the basis accessory decoder address or basis switch state and redetermine the accessory decoder address for releasing a certain sound file.

- In manual operation the wrong sound-file is played.

Possible cause: The file name does not correspond to the name which definitely is attached to the switching input. → Check the file names.

Possible cause: Several switching inputs are closed. → Check the position of the switches (or of the similar components).

Hotline: If problems with your module occur, our hotline is pleased to help you (mail address on the last page).

Repairs: You can send in a defective module for repair (address on the last page). In case of guarantee the repair is free of charge for you. With damages not covered by guarantee, the maximum fee for the repair is 50 % of the sales price according to our valid price list. We reserve the right to reject the repairing of a module when the repair is impossible for technical or economic reasons.

Please do not send in modules for repair charged to us. In case of warranty we will reimburse the forwarding expenses up to the flat rate we charge according to our valid price list for the delivery of the product. With repairs not covered by guarantee you have to bear the expenses for sending back and forth.

10. Guarantee bond

For this product we issue voluntarily a guarantee of 2 years from the date of purchase by the first customer, but in maximum 3 years after the end of series production. The first customer is the consumer first purchasing the product from us, a dealer or another natural or juristic person reselling or mounting the product on the basis of self-employment. The guarantee exists supplementary to the legal warranty of merchantability due to the consumer by the seller.

The warranty includes the free correction of faults which can be proved to be due to material failure or factory flaw. With kits we guarantee the completeness and quality of the components as well as the function of the parts according to the parameters in not mounted state. We guarantee the adherence to the technical specifications when the kit has been assembled and the ready-built circuit connected according to the manual and when start and mode of operation follow the instructions.

We retain the right to repair, make improvements, to deliver spares or to return the purchase price. Other claims are excluded. Claims for secondary damages or product liability consist only according to legal requirements.

Condition for this guarantee to be valid, is the adherence to the manual. In addition, the guarantee claim is excluded in the following cases:

- if arbitrary changes in the circuit are made,
- if repair attempts have failed with a ready-built module or device,
- if damaged by other persons,
- if damaged by faulty operation or by careless use or abuse.

11. EU declaration of conformity



This product conforms with the EC-directive 2004/108/EG on electromagnetic compatibility and is therefore CE certified.

It is developed and tested in accordance with the harmonised European standards EN 55014-1 and EN 61000-6-3.

To guarantee the electromagnetic tolerance in operation you must take the following precautions:

- Connect the transformer only to an approved mains socket installed by an authorised electrician.
- Make no changes to the original parts and accurately follow the instructions, connection diagrams and PCB layout included with this manual.
- Use only original spare parts for repairs.

12. Declarations conforming to RoHs and WEEE directives



This product conforms with the EC-directives 2002/96/EG on waste electrical and electronic equipment (WEEE) and 2002/95/EG on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).



DE 37847206

The Tams Elektronik GmbH is registered with the WEEE-no. DE 37847206, according to. § 6 sect. 2 of the German electro regulations from the responsible authority for the disposal of used electro equipment.

Don't dispose of this product in the house refuse, bring it to the next recycling bay.

Information and tips:

<http://www.tams-online.de>

Warranty and service:

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