

Manual

mz-4

2 channel HoTT 2,4 GHz transmitter

No. S1031



Index

Introduction	4
Service Centre	4
Intended use	5
Package content	5
Technical Data	5
Symbols explication	6
Safety notes	6
Description of the transmitter	8
Control elements on the transmitter.....	8
Transmitter power supply	9
Preparation before use	9
Binding the receiver	9
Binding the Vector Unit GRS 331	9
Range test	10
Motor CUT OFF/Motor ON	10
Change model	10
Trigger switch	11
Gimbal stick switch	11
Setting channel 2 trim	11
Setting channel 2 servo travel	11
Setting channel 1 throttle travel	11
Servo reverse channel 2	12
Factory reset	12
Fail safe	13
LED status display	14
Declaration of conformity	14
Notes on environmental protection	15
Care and maintenance	15
Warranty	15

Introduction

Thank you very much for purchasing the **Graupner mz-4 HoTT transmitter**.

Read this manual carefully to achieve the best results with your transmitter and first of all to safely control your models. If you experience any trouble during operation, take the instructions to help or ask your dealer or **Graupner** Service Centre.

Due to technical changes, the information may be changed in this manual without prior notice. Keep updated by regularly checking our own website, **www.graupner.de** to be always updated with the products and firmware.

This product complies with national and European legal requirements.

To maintain this condition and to ensure safe operation, you must read and follow this user manual and the safety notes before using the product!



NOTE

This manual is part of that product. It contains important information concerning operation and handling. Keep these instructions for future reference and give it to third person in case you gave the product.

Service Centre

Graupner Central Service

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D-73230 Kirchheim/Teck

Servicehotline

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9:15 am - 1:00 pm
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Graupner in Internet

For the service centers outside Germany please refer to our web site **www.graupner.de**

Intended use

This remote-control system may only be used for the purpose specified by the manufacturer for operation of remote control models without passengers. Any other type of use is impermissible and may damage the system and cause significant property damage and/or personal injury. No warranty or liability is therefore offered for any improper use not covered by these provisions.

Read through this entire manual before you attempt to install or use the transmitter.

Graupner/SJ constantly works on the development of all products; we reserve the right to change the item, its technology and equipment.

Target group

The product is not a toy. It is not suitable for children under 14 years. The operation of the **mz-4 HoTT transmitter** must be performed by experienced modelers. If you do not have sufficient knowledge about dealing with radio-controlled models, please contact an experienced modeler or a model club.

Package content

- ◆ Transmitter **mz-4 HoTT**
- ◆ 3x AAA batteries
- ◆ Manual

Technical Data

Frequency band	2,4 ... 2,4835 GHz
Modulation	FHSS
Transmitting power	1 mW EIRP
Control functions	4 functions of which 2 can be trimmed
Temperature range	-10 ... +55 °C
Antenna	Integrated
Operating voltage	3.6V ~ 4.8V
Power consumption	approx. 110 mA
Dimensions	approx. 173 x 50 x 59 mm
Weight	ca. 75,7 g without batteries



NOTE

The technical data of the optional receiver are available in the manual included with the receiver.

Symbols explication



Always observe the information indicated by this warning sign. Particularly those which are additionally marked with the **CAUTION** or **WARNING**. The signal word **WARNING** indicates the potential for serious injury, the signal word **CAUTION** indicates possibility of lighter injuries.



The signal word **Note** indicates potential malfunctions. **Attention** indicates potential damages to objects.

Safety notes

This safety notes are intended to protect you and other people. They are also used for safe handling the product. Therefore please read this section very carefully before using the product!

Do not carelessly leave the packaging material lying around, since it might become a dangerous toy for children.

Persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, or not capable to assemble and use safely the **mz-4 HoTT** must not use the **mz-4 HoTT** without supervision or instruction by a responsible person.

Operation and use of radio-controlled models needs to be learned! If you have never operated a model of this type before, start carefully and make yourself familiar with the model's reactions to the remote control commands. Proceed responsibly.

First, always perform a range and function test on the ground (to do so, hold your model tight), before you use your model. Repeat the test with running motor and with short throttle bursts.

Inform yourself before flying your model on which maximum altitude you can fly in the uncontrolled airspace over the starting position and do not exceed it.

Before you start using the remote control model, you have to check the further relevant laws and regulations. These laws you must obey in every case. Pay attention to the possibly different laws of the countries.

The insurance is mandatory for all kinds of model operation. If you already have one, so please inform yourself if the operation of the respective model is covered by your insurance. If this is not the case, conclude a special liability insurance policy for models. We recommend to provide the model with a label, where are indicated the name, address, tel. n., E-mail and Insurance N. So that the model can be clearly assigned in the event of a crash.

Due to safety and licensing reasons (CE), any unauthorized reconstruction and/or modification of the product is prohibited.

Only use the components and spare parts that we recommend. Always use matching, original **Graupner** plug-in connections of the same design and material.

Make sure that all of the plug-in connections are tight. When disconnecting the plug-in connections, do not pull the cables.

Protect the **mz-4 HoTT** from dust, dirt, moisture and other foreign parts. It must be protected from vibration as well as excessive heat or cold. The models may only be operated remotely in normal outside temperatures such as from -10°C to +55°C.

Only operate all your **HoTT** components using the current software version.

If you have questions which cannot be answered by the operating manual, please contact us (contact information see page 3) or another expert in the field.

WARNING



Safety notes during the use

Also while programming, make sure that a connected electric motor cannot accidentally start. Injury risk by the turning propellers! Always remove the propellers when programming.

Avoid shock and pressure. Check the **mz-4 HoTT** regularly for damages to the housings and cables, specially after a crash of the model. Damaged or wet electronic components, even if re-dried, should no longer be used!

Never touch the turning propellers, this can cause serious injury.

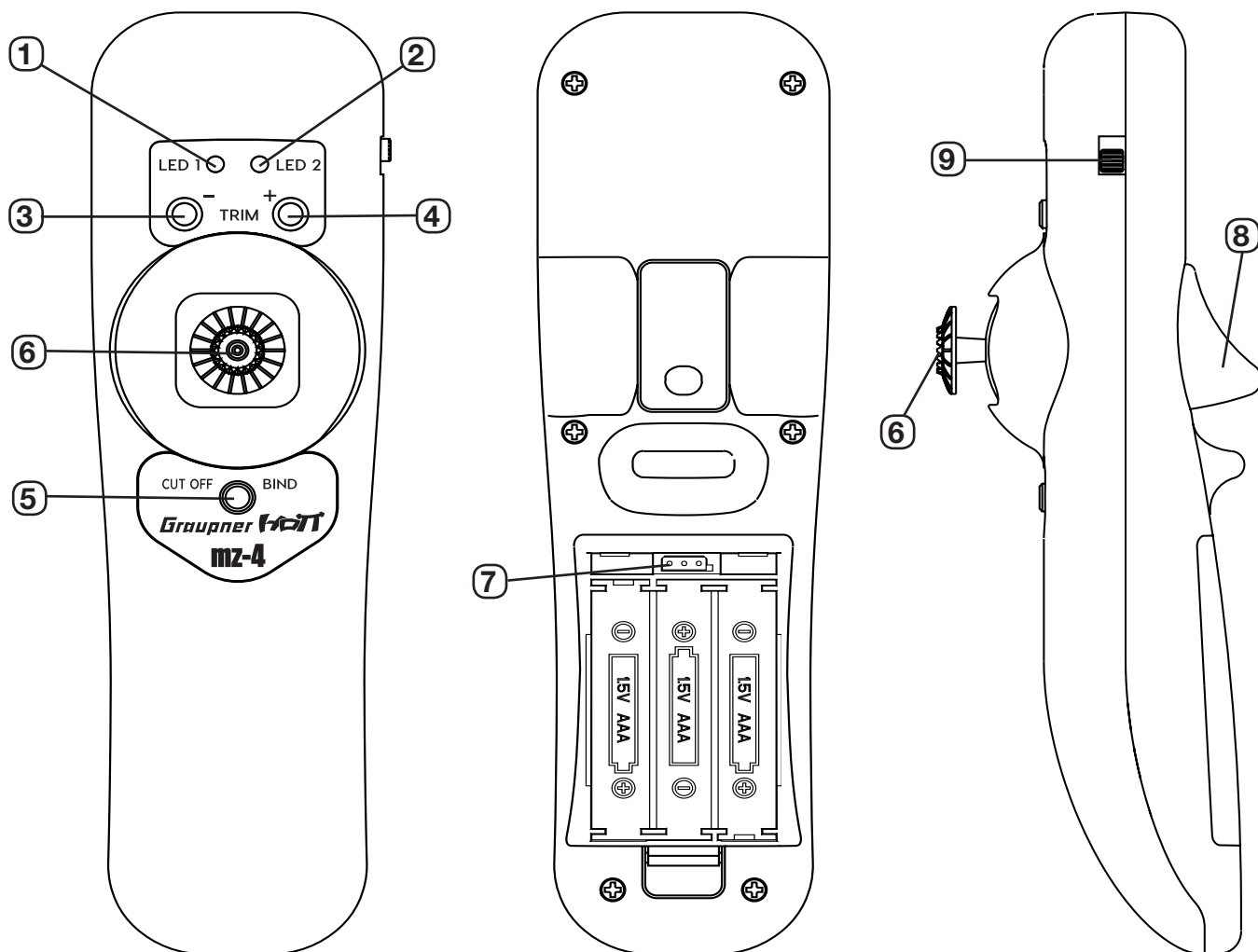
The propellers must be mounted securely, thrown parts can cause serious injury.

Keep long hair, loose clothing such as scarves, loose shirts or similar well away from the danger zone of the revolving propeller, they may be withdrawn by the propeller, flying debris can cause serious injury.

Observe the safety notes of the required components.

Description of the transmitter

Control elements on the transmitter



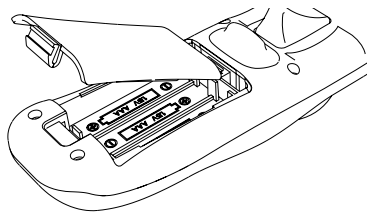
1	LED 1, yellow (Motor cut-off display, model memory) LED ON: Motor OFF Model memory 1, LED 1 blinks 1x each 2 seconds.
2	LED 2, red (status and binding display, warnings) ON: bound*
3	Trim - (trim and servo travel setting)
4	Trim + (trim and servo travel setting)
5	CUT OFF/BIND (binding / motor cut-off)
6	Control stick gimbal (with control stick switch for model change/throttle limiter)
7	Data-port for updates
8	Trigger-switch (throttle travel and functions setting)
9	On/off switch

* Acoustic warning:

LED 2 blinking and 2x higher signal tones - Model battery under voltage

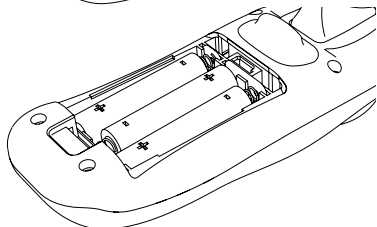
LED 2 blinking and 4x higher signal tones - transmitter battery under voltage

Transmitter power supply



Installing transmitter batteries

Remove the battery case cover on the back side of the transmitter. Insert the battery according to the correct polarity. (See figure in the battery case)



Removing transmitter batteries

If the transmitter is not going to be used for a long time, the batteries or accumulators must be removed from the device. Therefore you can avoid damages to the transmitter due to electrolyte leaks.

Preparation before use

The **mz-4 HoTT** transmitter is normally delivered with three AAA type alkaline batteries.

The transmitter battery voltage is monitored by the red status LED (2) during operation.

If the voltage drops below 3,5 V, an acoustic alarm (4x higher signal tones) will sound and the red status LED (2) starts to blink quickly. Stop immediately the use of the transmitter, batteries must be changed.

Binding the receiver

If you want to bind a receiver with the **mz-4 HoTT** transmitter, bring the receiver in the bind mode (follow receiver's manual), then push the "CUT OFF/ BIND" (5) on the transmitter.

If a receiver is already bound to a model memory and you however want to bind a new receiver to the model memory, then you will need to repeat the binding process twice.

The first process erases the previous receiver, the second process stores the new receiver.

Binding the Vector Unit GRS 331

1. Switch the **Vector Unit** on
2. Push on the "CUT OFF/ BIND" (5) button on the transmitter

Successful binding process

If the binding process was successful the status LED (2) will light red on the transmitter.

Unsuccessful binding process

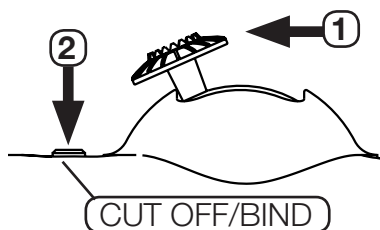
If the binding process was not successful the status LED (2) will blink slowly red on the transmitter. In this case repeat the binding process with at least 1 meter distance between transmitter and receiver.

Range test

Switch the **mz-4 HoTT** transmitter and your receiver on. Hold the "CUT OFF/ BIND" (5) button pushed for about 5 sec. The range test is active for 90 seconds. At the begin the LED 2 will light up twice red with two signal tones. Walk about 10 m away from the model and move the control stick to the left and to the right. A second person, which remains by the model, should verify the control movements on the model. If the control movements are not received by the model within 10 m, check the power supply in the model and in the transmitter.

Interruption of the range test is always possible by pushing on the CUT OFF/BIND button (5). Confirm through a signal tone, LED 2 lights on red again.

Motor CUT OFF/Motor ON



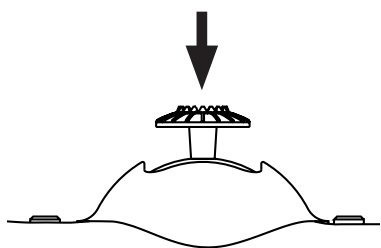
This function switches the motor on and off. Thus avoids an accidental start of the motor.

1. Move the throttle stick to the lowest position
2. Push on the CUT OFF/BIND button (5) for about 2 s. The yellow LED (1) light off
3. The motor is now activated.

Pushing the control stick forward the motor will start.

Push on the CUT OFF/BIND button again, the yellow LED (1) lights on again and the motor is deactivated.

Change model



The **mz-4 HoTT** has 10 model memories. These model memories are pre-set for the Vector Planes.

The last number of the Vector Planes order number indicates the model memory number.

For example: No. 13301 LEO indicates the model memory 1

The model change works only if the motor is deactivated (motor CUT OFF), which means the yellow LED (1) must be lighting.

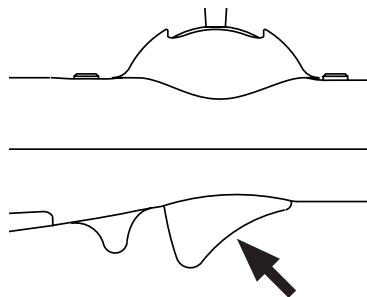
1. Push the control stick switch for about 5 sec.
2. A 2x single signal tone follows.
3. Release the control stick switch.

The LED (1) indicates the actual model memory, e.g. for model memory 4 the LED will blink 4 times before having a 3 sec. pause

The model memory can be changed through the trim buttons (3) - or (4) +

Push the control stick switch for about 2 sec. a 2 single signal tone is emitted to confirm the model change.

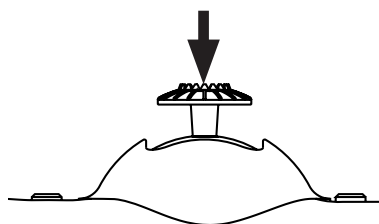
Trigger switch



In the model memory are stored the optimal settings for the related model. Thus makes controlling the model easier. The trigger-switch (8) activates one optional setting while pushed. Also this setting is preprogrammed. For example the throttle limit is removed and the servo travel is increased. The settings are however free settable.

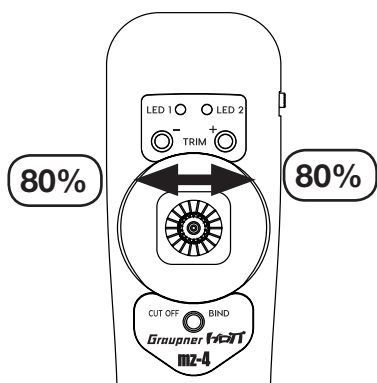
With these settings, by pushed trigger-switch, also aerobatic figures as e.g. loopings and rolls are possible.

Gimbal stick switch



The gimbal control stick has a switch which is activated through pushing the stick, this switch is used to set up the transmitter.

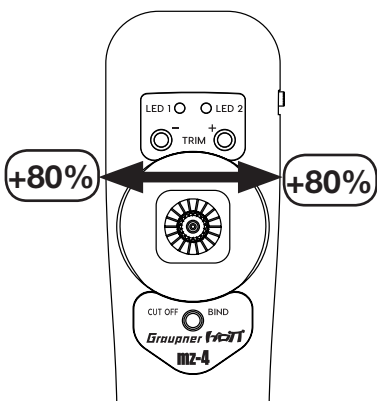
Setting channel 2 trim



The trim can only be set if the control stick is in neutral position or within the 80% of the left or right travel from the center of the control course.

Through the trim buttons (3) - left or (4) + right you can change the trimming in the desired direction.

Setting channel 2 servo travel

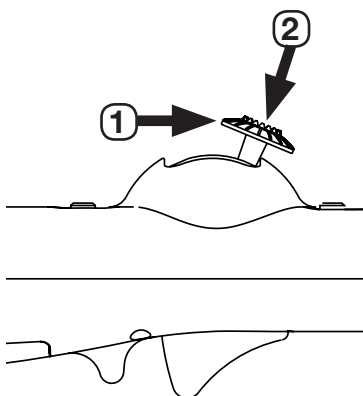


The servo travel of channel 2 can be set separately for right and left.

For the trigger-switch (8) setting proceed as follows, push the gimbal control stick switch

1. Move the control stick more than 80% from the neutral position in the desired direction (left or right)
2. Now reduce with the trim button (3) - or increase with the trim button (4) + the servo travel.

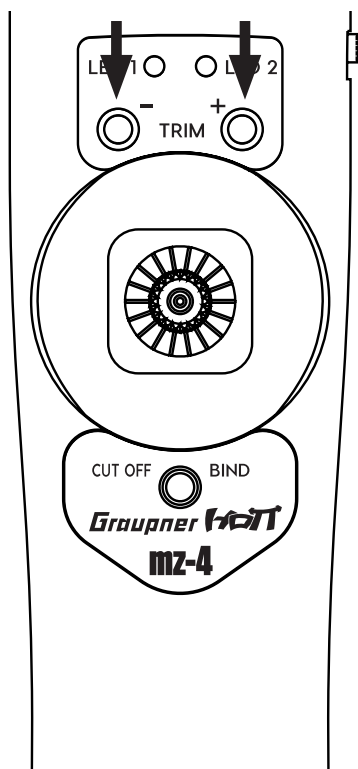
Setting channel 1 throttle travel



1. Move the control stick (6) completely forward.
2. In this position push and hold the control stick switch (6).
3. Now reduce with the trim button (3) - or increase with the trim button (4) + the throttle travel.

For the trigger-switch (8) setting proceed as follows, push the gimbal trigger switch (8)

Servo reverse channel 2



With this function you can reverse the control direction of channel 2. The servo reverse works only if the motor is deactivated (motor CUT OFF), which means the yellow LED (1) must be lighting.

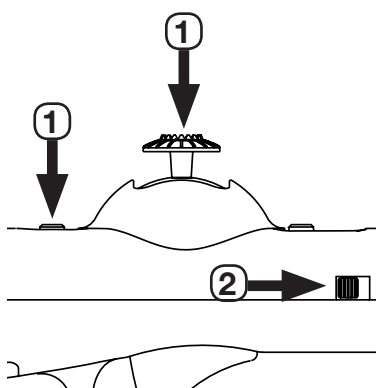
Push the trim buttons (3) - and (4) + at the same time for about 5 s.

Channel 2 will be reversed, 2 signal tones

Push the trim buttons (3) - and (4) + at the same time for about 5 s.

Channel 2 will be normal, 1 signal tone.

Factory reset



This process will set all the settings stored in the transmitter back to the factory values and all the bound receivers will be deleted.

Performing a factory reset:

1. Push and hold the control stick (6) and the bind button (5) at the same time.
2. Then switch the transmitter on.
3. You will then hear a signal tone (3x), red LED (2) blinks 5x quickly, the factory reset is performed.

Fail safe

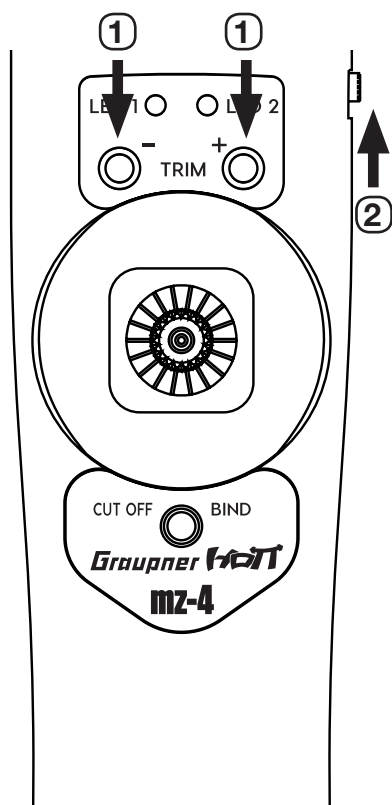
Through this function you can store in the receiver for each channel the settings which will be recalled in case of connection interruptions between transmitter and receiver.

The - (3) trim button is for channel 1

The + (4) trim button is for channel 2

The LED 1 indicates by pushing the trim buttons (3) and (4) the related status. By pushing again you will change between "Hold" and "Position".

- ◆ 1 signal tone and four blinks with 1 s. pause "Hold"
- ◆ 2 signal tones and two blinks "Position"
- ◆ Through the bind button (5) you can stop and store the fail safe settings, two signal tones and the LED blinks 2 times.



Fail safe settings

1. Switch the transmitter and the model on.
 2. Switch off the transmitter.
 3. Push the trim buttons (3) - and (4) + at the same time
 4. Now switch the transmitter on again
 5. The LED 1 blinks once, LED 2 blinks twice with 1 s pause
- You are now in the fail safe settings.

"Hold" settings

With the "Hold" setting the channels hold the last position recognized as valid.

1. Recalling fail safe settings
2. Push the trim buttons (3) - and/or (4) + alternatively for the channel that you want to set on "Hold".
3. 1 signal tone and four blinks with 1 s. pause "Hold"
4. You can stop and store the settings by pushing the bind button (5).

"Position" setting

In the "Position" setting the channels will move to the position previously programmed by you.

1. Recalling fail safe settings
2. Move the throttle stick to the desired fail safe position
3. Push the trim buttons (3) - and/or (4) + alternatively for the channel that you want to set on "Position".
4. 2 signal tones and two blinks "Position"
5. You can stop and store the settings by pushing the bind button (5).

LED status display

Status	Description	Red LED	Yellow LED	Signal tone
Bind range	Bind status (small image)	blinks (1 s)		lower tone (1)
	Binding successful	ON		lower tone (2)
	RX reception OK	ON		
	Range test	blinks quickly		lower tone (2)/2 s
Error	Under voltage	blinks quickly		higher tone (4)/2 s
	Sensor warning			higher tone (3)/2 s
	Rx voltage, temp. error	blinks quickly		higher tone (2)/2 s
	Bad reception, no RX	blinks slowly		higher tone (1)/2 s
	Factory Error			lower tone (1)/2 s
Normal mode	Trim inc/dec			lower tone (1)/click
	Trim 0%			higher tone (1)/click
	Fail Safe mode start	blinks 2x		lower tone (2)
	Fail safe (trim dn, hold)		blinks 1x (5 times)	lower tone (1)
	Fail safe (trim up, fail)		blinks 2x (5 times)	higher tone (1)
Stick calibration	Calibration mode start	blinks 3x		
	Stick calibration successful	blinks 3x (3 times)	blinks 3x (3 times)	lower tone (2)
cut-off	"CUT-OFF" Motor on		ON	
	"CUT-OFF" Motor off		Off	
Channel 2 reverse	Channel 2 Normal			lower tone (1)
	Channel 2 reverse			lower tone (2)

Declaration of conformity

S1031 mz-4 HoTT



Graupner/SJ declares that the product is conform to EU norms.

EN 300 440-1 V1.6.1; EN 300 440-2 V1.4.1 3.2; EN 301 489-1 V1.9.2; EN 301 489-3 V1.6.1 3.1

EN 62479: 2010 3.1

EN 60950-1:2006 +A11:2009+ A1:2010+A12:2011+A2:2013

Notes on environmental protection



Disposal notes

This symbol on the product, user manual or packaging indicates that this product must not be disposed of with other household waste at the end of its life. It must be handed over to the applicable collection point for the recycling of electrical and electronic equipment.

The materials are recyclable as marked. By recycling, material reusing or other forms of scrap usage you are making an important contribution to environmental protection.

Batteries and accumulators must be removed from the device and disposed of at an appropriate collection point. Please inquire if necessary from the local authority for the appropriate disposal site.

Care and maintenance



Notes on care

The product does not need any maintenance, it works so as it is without any special care. In your own interests protect it from dust, dirt and moisture.

Warranty

The Graupner, Henriettenstrasse 96, 73230 Kirchheim/Teck grants from the date of purchase of this product for a period of 24 months. The warranty applies only to the material or operational defects already existing when you purchased the item. Damage due to misuse, wear, overloading, incorrect accessories or improper handling are excluded from the guarantee. The legal rights and claims are not affected by this guarantee. Please check exactly defects before a claim or send the product, because we have to ask you to pay shipping costs if the item is free from defects.

The present construction or user manual is for informational purposes only and may be changed without prior notice. The current version can be found on the Internet at www.graupner.de on the relevant product page. In addition, the company **Graupner** has no responsibility or liability for any errors or inaccuracies that may appear in construction or operation manuals.

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