EN

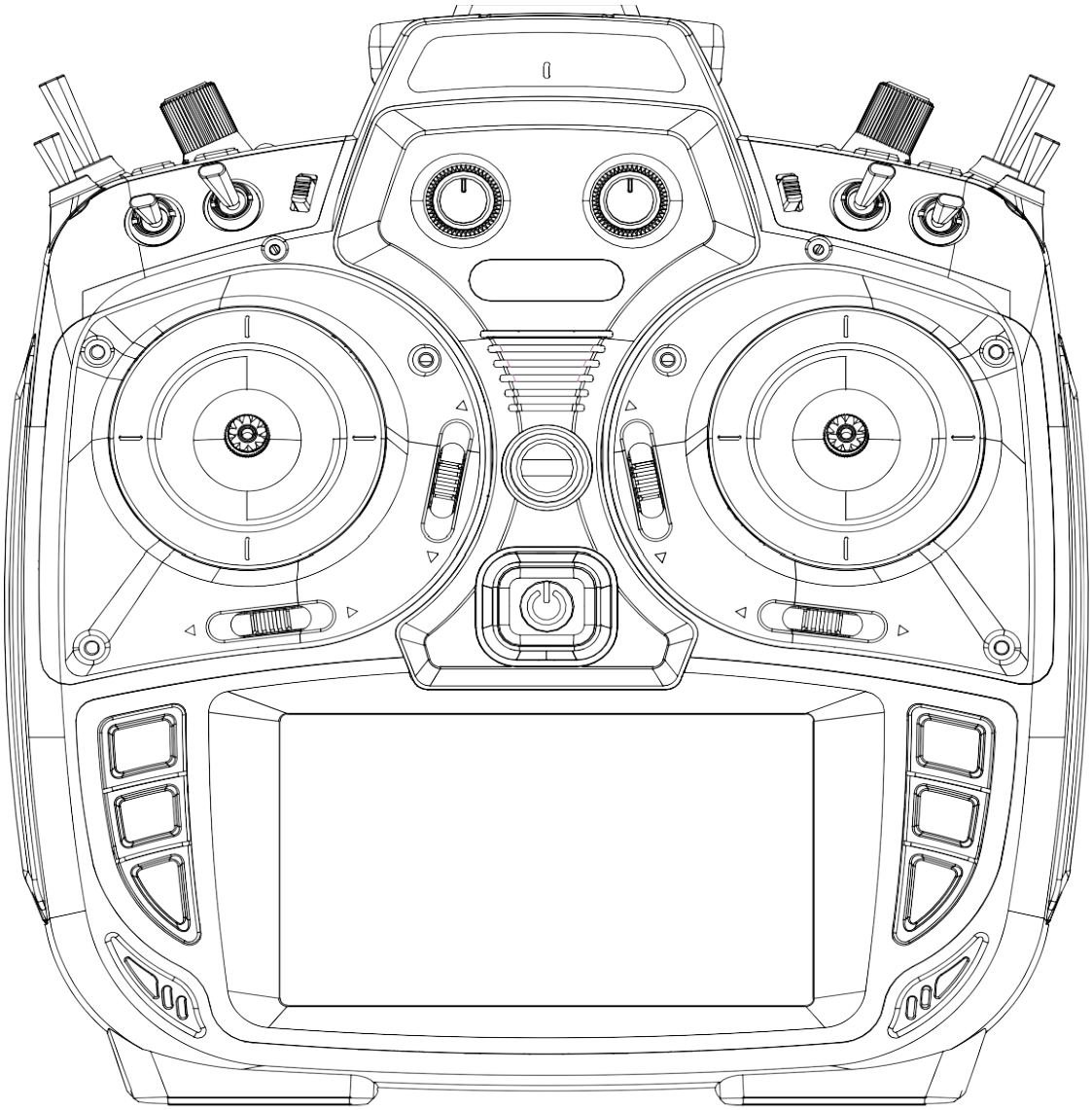
Manual

mz-32 HoTT

70 channel 2.4 GHz Radio Controller

P/N. S1024, S1024.77

FCC ID: SNL-16008200



Graupner

Table of Contents

Introduction 5
Service Centers 5
Intended Use 6
Target Group 6
Package Content 6
Technical Data 7
Symbol Description 8
Safety Notes 8
For Safety! Handling the Transmitter 8
For Safety! Handling the battery 9
Description of the Transmitter 11
Control Elements on the Transmitter 11
Transmitter Front 12
Transmitter Backside 13
Keys to the left of the display 14
Keys to the right of the display 14
Connections and Attachments 14
Neck Strap Attachment 14
AUDIO Connection 14
DATA Connection 15
COM Connection 15
DSC Connection 15
Micro USB Connection 15
Charging the Transmitter 15
Control Stick 17
Transmitter Preparation 17
Transmitter Power 18
Starting the Transmitter 19
Initial Setup 19
Transmitter Switch Off 22
Menu Functions 22
Changing Stick Mode 22
Stick Mode Change 22
Renaming a Model 23

Creating a Model 23
Stick Mode Preset Change 23
Deleting a Model 24
Main Display Symbols 25
Receiver Binding 26
Bind Group 26
Binding a Model 27
Removing Existing Bind 27
Multi Receiver Binding 27
Range Test 29
Digital Switches 30
Assigning Digital Switches in RF Set 30
Assign Digital Switches to Widgets 31
Assigning Digital Switches on RX 32
Setting Controls and Mixers 33
Selecting a Curve 33
Setting a Curve 34
Adding a Curve Point 34
Deleting a Curve Point 34
Stick Calibration 35
Servo Display 36
Telemetry 37
RX Selection 37
Telemetry Cycle 38
RF Status 38
Setting & Data View 40
RF Communication 41
WLAN Operation 41
Bluetooth ® Operation 42
Firmware Update 43
Software Update Using Computer 43
Transmitter Update 44
Forced Update 44
Forced USB Update 45
SIMLIFIED DECLARATION OF CONFORMITY 46

FCC INFORMATION 46
IC INFORMATION 47
Notes on environmental protection 48
Care and Maintenance 48
Warrant Conditions 48

Introduction

Thank you for purchasing a *Graupner mz-32 HoTT* transmitter.

To get the most out of your mz-32, read the manual carefully before use and operation. If you experience any trouble during operation, consult this manual first or ask assistance from your dealer or *Graupner* Service Center.

Due to technical changes, the content of this manual may change without prior notice. You can stay up to date by checking periodically our website at *www.graupner.com* or *www.graupnerusa.com*.

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 all the safety notes before using the product!

Note

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

Service Centers

Graupner Main Service Graupner/SJ GmbH Henriettenstraße 96 D-73230 Kirchheim/Teck	Service Hotlines (+49) (0)7021/722-130 Monday- Thursday: 9:15 am- 4:00 pm Friday: 9:15 am- 1:00 pm service@graupner.de
Graupner Americas Service Graupner USA 3941 Park Dr Suite 20-571 El Dorado Hills, CA 95762	Monday – Friday 9:15 am – 4:00 pm PST (+1) 855-572-4746 service@graupnerusa.com www.graupnerusa.com

Graupner on the Internet

For service centers outside Germany and USA please refer to our web site at ***www.graupner.com***

Intended Use

This transmitter system must only be used for the purpose specified by the manufacturer for operation of unmanned remote-control models such as model airplanes, cars, boats, helicopters, multirotor or any UAV. Any other type of use is prohibited and may result in significant property damage and/or personal injury. No warranty or liability is therefore offered for any improper use not covered by the provisions of use by Graupner/SJ or other equipment manufacturers.

In addition, it is explicitly pointed out that you must inform yourself about the laws and regulations applicable at your respective location and country before starting the remote-control operation. Such conditions may differ from state to state, but this must be followed in every case.

Note

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

Target Group

The item is not a toy. It is not suitable for children under 14 without adult supervision. The operation of the 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-32 HoTT
- Receiver GR-24L (S1024)
- Transmitter display and programming stand
- USB cable
- USB adapter for receiver and sensor updates
- 1s3p LiHV transmitter battery with 9000mAh
- Transmitter neck strap
- Aluminum case
- Transmitter manual

Note

Graupner/SJ works continuously to the further development of the products. We must therefore reserve the right to change the scope of delivery in terms of form, technology and equipment.

Technical Data

Transmitter mz-32 HoTT

Frequency band	2404.056 ~ 2474.025 GHz
Modulation	MSK
Transmitting power	100 mW EIRP / Dual Alternating Output
Channels	70
Control functions	32 functions of which 8 can be trimmed 64 digital switch functions
Temperature range	-10 - 55 °C / 14 – 130 °F
Antenna	1 linear and 1 circular polarized, with adjustable angle, integrated antenna with 1.58 dbi gain.
Operating voltage	3.6 … 4.35V
Power consumption	480 to 1100mA
Dimensions	Approx. 210 x 195 x 105mm 8.27 x 7.68 x 4.13in
Weight	approx. 1120g/39oz with battery

Note

The technical information of Graupner receivers can be found in the related receiver system manual or online.

WiFi

Frequency Range	2412 MHz ~ 2462 MHz
Frequency Band	IEEE 802.11 b/g/n HT20
Channels	11
Modulation Type	IEEE 802.11b: DSSS (CCK, DQPSK, DBSK); IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK); IEEE 802.11n HT20: OFDM(64QAM, 16QAM, QPSK, BPSK)
Antenna	Omni with 3.0 dBi gain

Bluetooth® 3.0

Frequency Range	2402 MHz ~ 2480 MHz
Modulation Type	GFSK
Channels	79
Antenna	PCB with 0 dBi gain

Symbol Description

Always observe the information indicated by this warning sign. In Particularly those which are additionally marked with the words CAUTION or WARNING. The 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

These safety instructions are intended not only to protect the product, but also for your own and other people's safety. Therefore, please read this section very carefully before using the product!

- Do not leave the packaging material lying around, this could be 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 use safely the transmitter must not use the transmitter without supervision or instruction by a responsible person or adult.
- Operation and use of radio-controlled models needs to be learnt! 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 always responsibly and cautiously.
- Protect all equipment from dust, dirt, moisture. All equipment 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 - 55°C / 14 – 130 °F.
- Always perform a range and function test on the ground before you start using your model. Only so you can grant a safe use!
- Always use all your HoTT components only with the latest firmware version.
- If you have questions which cannot be answered by the operating manual, please contact us or another expert in the field.

For Safety! Handling the Transmitter

WARNING

- Also, while programming the transmitter, make sure that a motor connected in the model cannot accidentally start. Dis- connect the fuel supply or drive battery beforehand.

- Never program your transmitter while normally using the model. This can result in both inattention when controlling and incorrect programming.

CAUTION

Avoid any kind of short-circuit in all sockets of the transmitter and of the receiver! Risk of fire! Use only suitable connectors. In no case the electronic component of the transmitter or of the receiver may be changed or modified. Any interference will void the warranty.

Note

During transport, protect the model and the transmitter from damages.

For Safety! Handling the battery

CAUTION

- Protect all equipment from dust, dirt, moisture. Only use in dry locations.
- Do not use any damaged battery.
- Any alterations to the battery can cause serious injury or burns.
- Batteries may not be heated, burned, short-circuited or charged with excessive current or with reversed polarity.
- Combustible or highly flammable objects are to be kept away from the charging area.
- Never leave the charger unattended when it is connected to the power supply.
- Please charge your batteries only in rooms fitted with a smoke detector.
- Always charge the battery with a suitable charger.
- The maximum quick charging current specified for the respective cell type may not be exceeded.
- If the battery heats up above 60°C / 140°F while it is being charged, stop charging and let the battery cool down to approximately 30 - 40°C / 86 – 104 °F
- Never charge batteries that have already been charged or hot ones. If a cell in a battery pack has become particularly hot following a quick-

charge, this may indicate a defect in that cell. Do not use the battery pack any longer!

- The batteries may not be modified. Do not directly solder or weld the cells.
- If handled improperly, there is a danger of fire, explosion, irritation and burns.

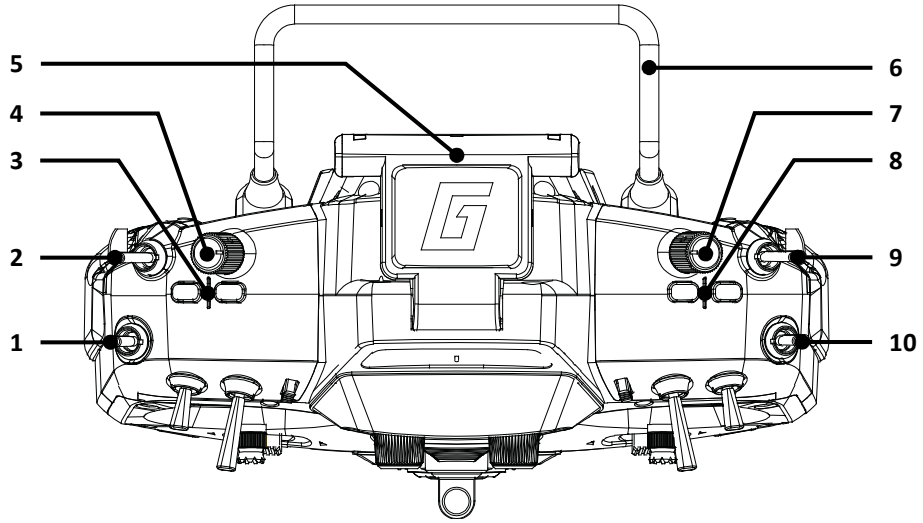
Special instructions

- To charge and discharge batteries, only use specifically designed chargers/dischargers with balancer connectors.

Safety notes for storing batteries

- Batteries may only be stored in dry rooms with an ambient temperature of +5°C to +25°C / 41 – 77 °F.
- If the LiPo battery must be stored for a longer period, the voltage per cell should be about 3.8V. If the cell voltage drops below 3 V, they must be recharged immediately. Deep discharge will negatively influence the performance and lifespan of the battery and rendering it defective after a short amount of time.

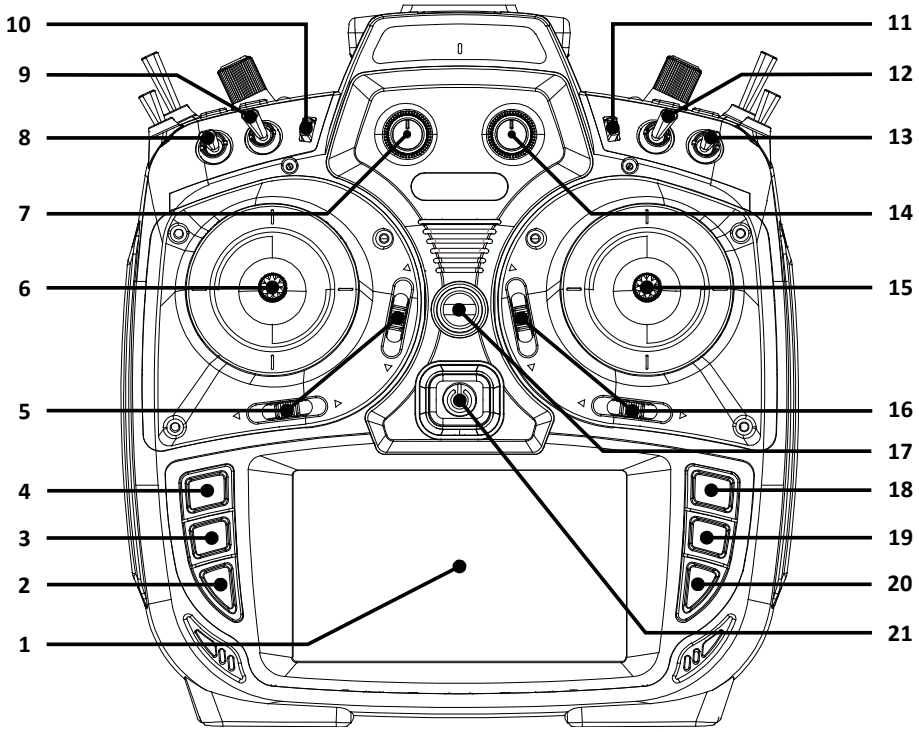
Description of the Transmitter



Control Elements on the Transmitter

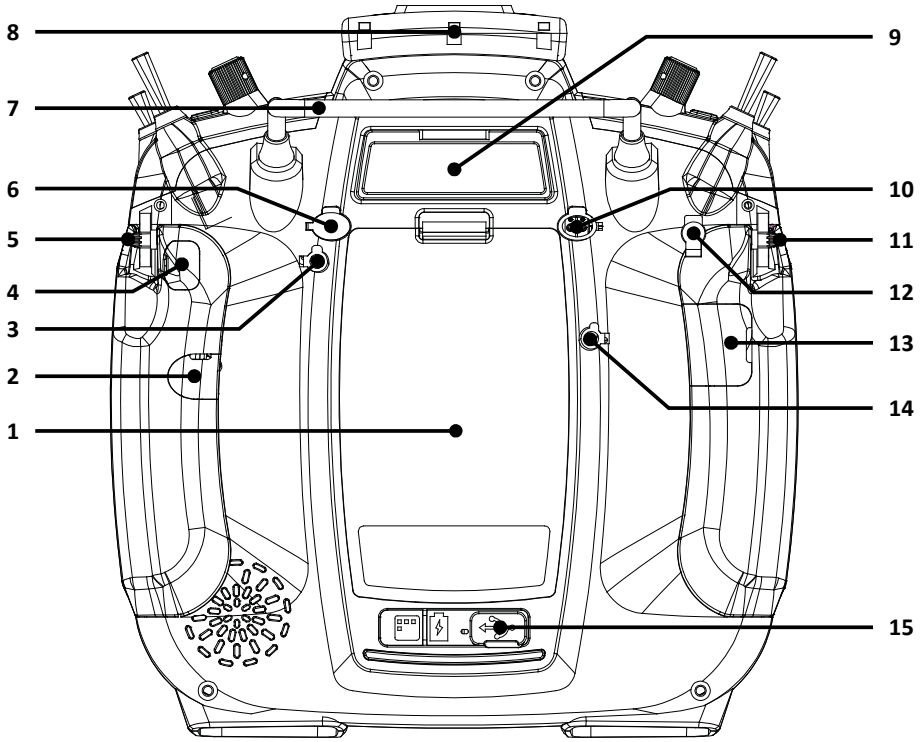
1	3-way position switch SW5
2	2-way position switch SW6
3	Digital button DT7
4	Proportional dial DV3
5	Foldable transmitter antenna
6	Transmitter handle
7	Proportional dial DV4
8	Digital button DT8
9	3-way switch SW8, top push-switch, bottom latching switch
10	3-way switch SW7

Transmitter Front



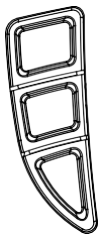
1	Display
2	Scroll through menu pages
3	Scroll through menu pages
4	Scroll through menu pages
5	Trim button for the left control stick
6	Left control stick
7	Proportional dial DV1
8	3-way switch SW1
9	3-way switch SW8, 1x push-switch, 2x latching-switch
10	Digital button DT5
11	Digital button DT6
12	3-way switch SW3
13	3-way switch SW4
14	Proportional dial DV2
15	Right control stick
16	Trim button for the right control stick
17	Eyelet for transmitter strap
18	Direct recall of the servo display
19	Direct recall of the "SETTING & DATA VIEW"
20	Menu button
21	ON/OFF switch

Transmitter Backside



1	Battery case cover
2	Gimbal tension screw for horizontal control function
3	no function
4	Gimbal tension screw for vertical control. Lower screw is for tension of the control stick
5	Proportional rotary control LV2
6	Inner screw adjusts brake force Outer screw adjusts ratchet's strength
7	Transmitter handle
8	Foldable transmitter antenna
9	Cover flap for audio, COMM, DATA and DSC connection
10	Inner screw adjusts brake force Outer screw adjusts ratchet's strength
11	Proportional rotary control LV1
12	Gimbal tension screw for horizontal control function
13	Gimbal tension screw for vertical control. Lower screw is for tension of the control stick
14	no function
15	Cover of the USB connection

Keys to the left of the display

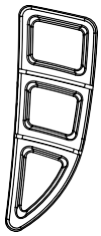


Also referred to as upper, center and lower selection keys. These keys are used to scroll through lists, columns, etc., in the same way as their arrow directions.

- Data Log function

  Pressing the lower left button for about one second switches the data logging function of the transmitter ON or OFF. You can also assign your own key combination to switch data logging ON or OFF.

Keys to the right of the display



- Upper Key

  Switches between "Servo display" and last active menu position

- Center Key

  Switches between the "ASCII" screen of the telemetry menu and last active menu position

- Lower Key

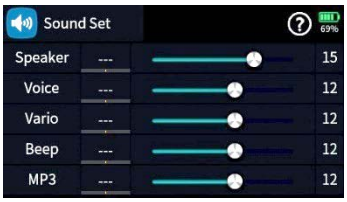
  Switches between active widgets deck and last active menu

Connections and Attachments

Neck Strap Attachment

On top of the transmitter there is an eyelet for attaching a neck strap that is attached to a neck strap hole for optimal balance.

AUDIO Connection



The port for a 3.5 mm jack is located on the back of the transmitter under the upper cover flap.

As soon as a headphone is connected, the built-in loudspeaker is muted, and the transmitter's sound and voice announcements are output through the headphones.

The volume can be adjusted in the submenu "Volume" of the "System" menu.

DATA Connection

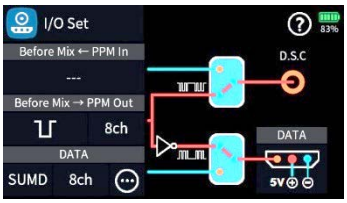
The DATA connection is suitable for connection of a smart box or an external module. If necessary, this port can also be switched to out- put a digital SUMD digital signal.

The corresponding settings are made in the submenu "I/O config." of the system menu, see below under DSC connection.

COM Connection

Serial interface for future use

DSC Connection



Through a DSC cable this port can be used for a simulator or for wired Teacher/Student mode.

If necessary, switch to the required DSC operating mode in the "I/O Config." submenu of the system menu.

To ensure a correct DSC connection, observe the following

1. Perform any necessary settings in the menu.
2. Connect one end of the DSC cable in the DSC port of the switched off transmitter and the other end to the device to be connected.
3. Turn the transmitter on.

Micro USB Connection

The USB cable supplied with the transmitter is plugged into this socket.

Charging the Transmitter

Note

Once connected to a PC or other USB power source, a yellow LED should be lit solidly to the left of the *mz-32 HoTT*'s micro-USB port. If this LED flashes yellow or is even dark, the power source is too weak to charge the transmitter.

Transmitter switched off

Once the transmitter is connected to a suitable USB power source the charging process begins.

Depending on the current charge status of the transmitter battery, the bezel of the ON / OFF switch will flash approximately every 2 seconds in different colors and with varying frequency. As soon as the bezel glows solid green, the battery is fully charged. The charging process is complete.

Transmitter switched on

After connecting the transmitter to a USB power source, the display switches to the display shown on the left.

Tapping the left “Charge” field starts the charging process on a suitable charger and tapping this field again or disconnecting the USB cable stops the charging.

Tapping the "USB" symbol in the upper left corner returns to the original display, which means that the mz-32 HoTT transmitter can also be used "normally" during the charging process. Only the red flash in the battery symbol in the upper right corner of the display indicates that charging is still running

WARNING

The charger should always be supervised during charge and it should be used only in rooms fitted with a smoke detector.

Mass storage memory

If the mz-32 HoTT transmitter is connected to a compatible PC and the "Mass storage" field is activated by tapping, the memory of the transmitter can be accessed from the PC. For example, to copy screenshots or model data from the transmitter to the PC or MP3 or software updates to the transmitter.

Note

Even if the transmitter can no longer be switched on, the mass memory can still be accessed in special cases, see under "Forced starting in the USB mode Mass storage step-by-step" in the section "Firmware update".

Joystick

As soon as the transmitter is connected to a PC via the micro USB port of the transmitter and "JOYSTICK" is selected by tapping, the connected PC recognizes the transmitter as a joystick.

The standard setting suitable for the most flight simulators is 0% to 100%.

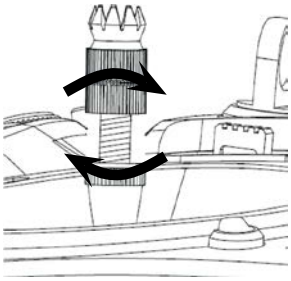
COM Port

Serial interface for future use

Transmitter Preparation

Control Stick

Length Adjustment



Both sticks can be adjusted in length: By holding the lower half and turning the upper part of the knurled handle, the screw is loosened. The control stick is extended or shortened by turning it up or down

and then fixed by screwing each against each other of the upper and lower part of the handle.

Neutralizing the Sticks

Both control sticks can be set from neutralizing to non-neutralizing and vice versa. Consult the transmitter backside diagram to locate the corresponding set screws.

The respective screw must be turned clockwise until the control stick is free to move from stop to stop or counterclockwise until the control stick is again self-neutralizing.

Note

Which of the two control sticks is to be switched to non-neutralizing also depends on the choice of the control mode, see under "Commissioning the transmitter".

Brake and Ratchet

On both control sticks, the braking force and strength of the ratchet can be adjusted independently. Consult the transmitter backside diagram to locate the corresponding set screws.

The inner set screw sets the braking force and the outer set screw sets the strength of the ratchet of the vertical control direction of the respective control stick.

Stick Centering Force

The control sticks restoring force can also be adjusted. Consult the transmitter backside diagram to locate the corresponding set screws. By turning the respective set screw, the spring force can be adjusted:

Right turn = return harder Left turn = return softer

Transmitter Power

The mz-32 HoTT transmitter is normally delivered with a 9000 mAh 1s3p LiHV battery.

Installing the Battery

Note

Pay attention when inserting the battery to the correct position and make sure the contacts are solid. Interruptions of the power supply to the transmitter during the use of the models can lead to serious danger to yourself and to other people!

Insert the two connection plugs of the transmitter battery into the battery connection sockets with the correct polarity. The corresponding symbols are engraved above the two connection sockets: **Red = + Black/Brown = -**

Charge the Battery

The transmitter battery is charged by means of the micro-USB socket on the back of the transmitter. Further details can be found in the section "Charging" under "micro USB socket".

Battery Removal

Open the battery case cover. Lift the battery and then carefully remove the plugs of the power cable.

You can charge the battery outside the transmitter. Consult your charger instructions for proper charging

Low Voltage Warning

The supply voltage of the transmitter must be monitored during operation. If it drops below an adjustable capacity limit which by default is 20%, an appropriate warning message will continuously sound.

Stop operation of your transmitter and charge the battery!

Attention

As soon as the supply voltage of the transmitter falls below 3.6 V, the transmitter switches off automatically without further warning.

Battery use Timer

The battery used time is added each time the transmitter is switched on. After each charge or battery exchange the timer is reset to "00:00". However, this only happens if the battery voltage is noticeably higher than before. By default, the battery service timer as well as the model operating

These two clocks can also be installed as widgets on one of your user widget decks.

Starting the Transmitter

Switch Transmitter ON

Pressing the front ON / OFF switch for about 1 second switches the mz-32 HoTT transmitter on.

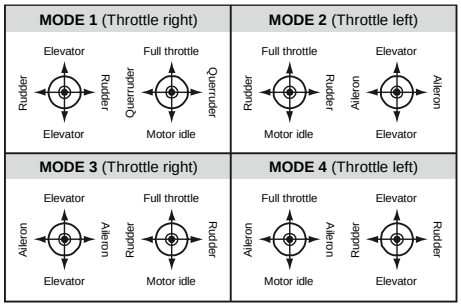
Initial Setup

If the transmitter is still in the delivery status or the transmitter was previously reset to factory settings in the "Info & Update" menu, an almost self-explanatory wizard starts immediately after the transmitter is switched on to obtain user settings preferences.

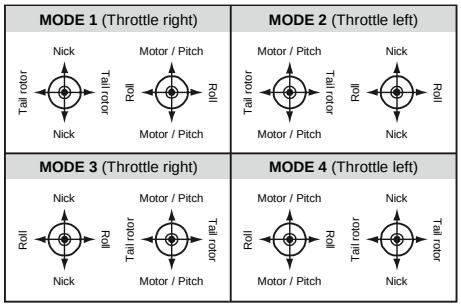
The questions of the first four displays should be selected based on your personal preferences. Please note that all these settings can be later changed in the system menu

Tapping the symbol "**>**" at the right side of the display switches to the next display and tapping the symbol "**<**" at the left side switches backward to the last display.

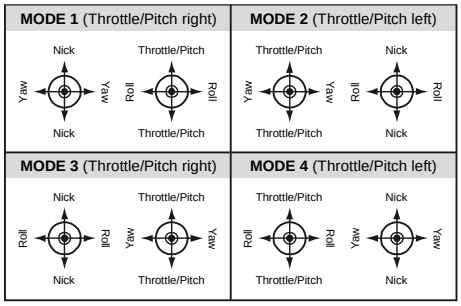
(Fixed Wing Models



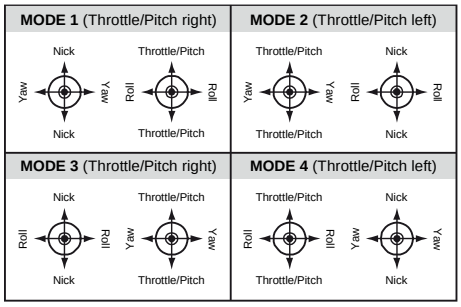
(Helicopter Models)



(Multirotor)



(Surface and Water)



Notes

- The control mode selected during setup of the transmitter is stored as a default for models to be set up in the future. Changing the default mode setting can be done in the "Control Mode Preset" option of the "System Config." Submenu of the system menu.
- Within a model memory, the control mode can be also changed at any time in the last value field of the sub-menu "Model Type" of the basic menu.
- Depending on the choice of a control mode, one of the two control sticks may also need to be switched to non-neutralizing, see above under "Neutralizing the control stick".
- Not only the presetting of the control mode but also the language setting can be adapted to the current needs in the sub- menu "System Config." of the system menu as well as date and time in the submenu "Clock Info" of the basic menu.

Date & Time

In this display, the current date and time is entered or corrected as part of the initial setup of the transmitter.

Setting date and time

1. Tap on the desired value field. This is displayed in white and selection fields are displayed at the bottom of the display.
2. Use the up "↑" or down " ↓" buttons to select the desired value.
3. If necessary, proceed similarly with the other value fields.
4. Touching the check button closes the current display and switches to the last one.

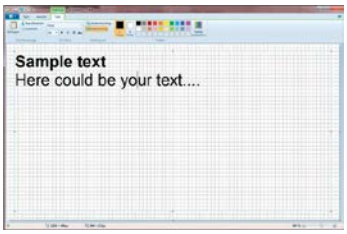
Touching "Ok" restarts the transmitter and after startup the factory preconfigured first home page appears.

Main Menu

The main display is designed around user editable display widgets that can be changed and adapted to your own personal needs. There are in total six editable decks that can be accessed with the left/right arrow keys on the radio.

Instructions for creating and modifying decks can be found in the help menu or by following our online video tutorials.

System Help



Accessing the context sensitive help is done in each menu by tapping the top right **?** of the display. If required, such help pages can also be created and stored by the user in the appropriate directory:

To create your own help page, you can use any paint program such as “Paint” or that comes standard with Windows 10 or Publisher which is part of the Office product suite. There is also a free downloadable version from the Microsoft Store called Paint 3D.

Pages should be in landscape format sized at 440 x 232 pixels. After creating any type of content, save it in "BMP image" format under "Save as" with the file type "24-bit bitmap (* .bmp; *. Dib)". In Paint 3D, under "Save as file" select "Others" and then as storage format "2D-Bitmap (* . bmp)". The storage location is the corresponding subdirectory of the "Help" directory of the transmitter and the file name is the next free three-digit number.

Transmitter Switch Off

Press the front ON / OFF switch and hold it until the "Switch off" message display appears. Tapping "back" stops the process. Touching "OK" switches off the transmitter. Alternatively, press and hold the ON / OFF switch until the transmitter shuts off

---

Menu Functions

The operation of the display is analogous to the operation of other touch-sensitive displays, by tapping the desired option with the fingertip or with a pen suitable for capacitive displays. The only exceptions are the status indicators of the six freely configurable main displays, which are outlined in red on the top left.

Note

When the transmitter is on an insulating surface, e.g. on a wooden table, do not tap too strong on the display. The resulting larger fin ger surface on the screen can result in un-responsive behavior of the screen.

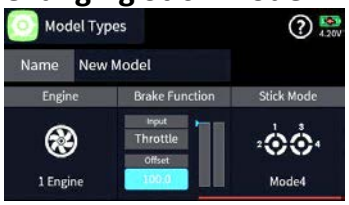
Touching the "Menu" field at the bottom right of the main display changes to the last tab of the four tabs or menu lists labeled "Basic", "Function", "Special" and "System".

Tapping a tab changes to the corresponding menu list.

Tapping a menu opens the corresponding menu, for example the submenu "Model Type".

The same principle is used to setup the desired model type. In case of doubt, context-sensitive help can be called via the symbol **?** for further assistance.

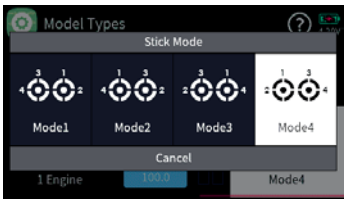
Changing Stick Mode



The stick mode entered as part of the initial setup of the transmitter is saved as a default in the "System Config." menu and will be automatically used with all models when newly created.

You can still change the mode (MODE1, MODE2 …) independently from the system settings. This can be done in the model types menu by swiping to the end of the model properties bar and tapping on the “Stick Mode” icon.

Stick Mode Change



1. *Tap the green "Basic" menu tab.*
2. *Tap on the "Model Types" icon.*
3. *Swipe the model properties bar to the left or use the lower left key to go to the end of the selection list.*
4. *Tap on the "Stick Mode" icon.*
5. *The selection window "Stick Mode" will show.*

6. Select the desired stick mode or tap cancel to return to the previous display without changing the stick mode.

Stick Mode Preset Change

1. *Tap the blue “System” menu tab.*
2. *Tap the icon "System Set" in the top left corner.*
3. *Tap the "Stick Mode Preset" field and select the new default stick mode for your transmitter. New models will be created with this new stick mode preset.*

Renaming a Model

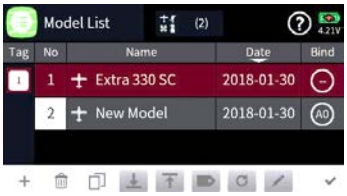
1. *Tap the green “Basic” menu tab. 2. Tap the "Model Types" icon.*
2. *Touch the field to the right of "Name". A small keypad will show*
3. *Change the model name with the keypad keys. Upper and lower case as well as numbers and special characters can be used.*
4. *Confirm the model name by tapping the ENTER symbol at the bottom right or cancel the by tapping the "x" in the upper right corner.*

Creating a Model

Create new model

1. *Tap the green "Basic" menu tab.*
2. *Tap the "Model List" icon.*
3. *Tap the model number in the "No." column. At the bottom of the display a bar with symbols is displayed.*
4. *Touch the plus sign and follow the next steps.*

Deleting a Model



Deleting a model

1. *Tap the green "Basic" menu tab.*
2. *Tap the "Model List" menu tab.*
3. *In the "No." column, touch the model number of the model to be deleted.*
4. *Touch the "Basket" icon.*

A safety dialog will be displayed.

5. *Tapping the OK button will delete the model. Tap Cancel to abort the delete operation.*

Note

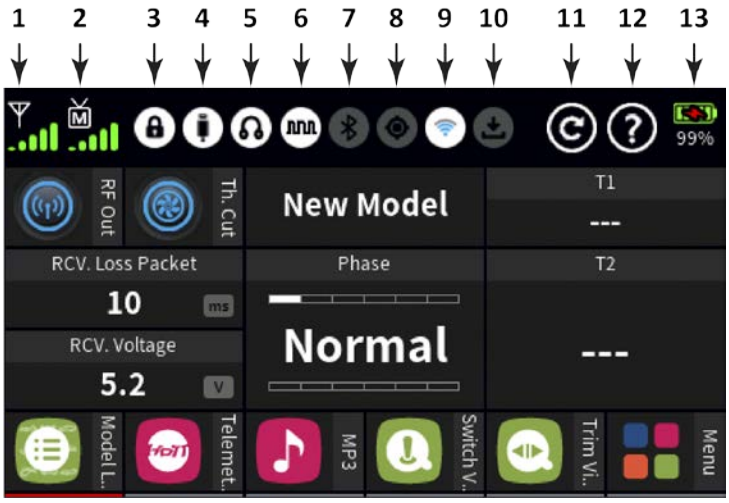
The currently active model cannot be deleted. To delete the active model change to a different model first.

Screen Lock

In the basic display of the transmitter, the input lock of the screen is activated by pressing the two lower selection keys simultaneously for approx. 1 second.

- The key lock function is displayed by a lock symbol. The controls remain operational.
- Pushing the two lower selection buttons again for approx. 1 second releases the lock again.

Main Display Symbols

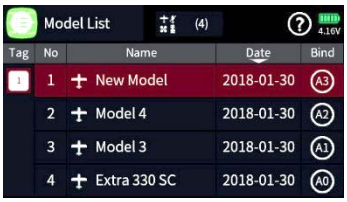


1	RF status of the transmitter
2	RF status of the receiver
3	Screen lock on/off
4	USB connection connected/not connected
5	Headphones connected/not connected
6	DSC cable connected/not connected
7	Bluetooth on/off
8	GPS signal available/not available
9	WLAN connected/not connected
10	Data logging on/off
11	Widget and data clear icon
12	Help icon
13	Battery status, tapping switches between % and Volt

Note

All other indications on the display are freely interchangeable and are stored model-specific.

Receiver Binding



To establish a connection with the transmitter, a Graupner HoTT receiver must first be "bound" to at least one model memory. This process is generally called "binding" and it needs to be repeated each time a new receiver is installed in a model.

By default, the "binding" of a receiver is always carried out as part of a so-called bind group. When binding an unbound model memory, the next free bind group is automatically suggested. Each time the suggested bind group is accepted the model will have an exclusive bind with that group therefore, a model-specific binding takes place.

The corresponding bind ID is shown in the "Bind" column at the right edge of the model list. Alternatively, a model memory may also be bound "globally" or within a bind group.

Bind Group

For an unbound model memory, the default is the next free binding group. However, if the model memory is unbound the suggested bind group can be changed by tapping the icon on the “Bind Group” field.

You can select from the following options:

- "Global" enables the receiver to respond to the transmitter signal on a non-exclusive basis. What this means is that any other receiver that is bound as global will respond to the transmitter signal of another model memory that was also bound as global. This can be used in situations where for example you have multiple models that are all the same and do not need different model memory settings.
- "Group" enables the receiver to respond exclusively to the group ID assigned during binding. For example, if you bound a receiver to bind group A0 that receiver will not respond to a signal from the transmitter of a model memory that was bound global or for example as group C2.

  You can bind another model memory also under bind group C2 which will result in one model memory sharing two receivers under a single bind. What it will do is when both receivers are turned on they will respond simultaneously to the same control inputs of the transmitter.

  The use case for this is for example during competition when one airplane becomes inoperative and you would like to continue the contest using an identical airplane without switching model memories on your transmitter to avoid losing time. All you need to

do is power the other airplane and wait for the receiver to establish the bind

Note

You can view the associated bind group belonging to a memory model in the "Bind" column on the right-hand edge of the "Model List" submenu.

Attention

If you tap on the bind group bind number ID in the “RF Set” menu the transmitter will release the bind from the active model memory if RF is switched off.

Binding a Model

1. *Move the transmitter and receiver at a moderate distance from each other (30cm or 1ft).*
2. *Switch on the mz-32 HoTT transmitter without switching on the RF or set the RF Transmission to "OFF" in the "RF Set" field of the "RF Set" menu.*
3. *Switch the receiver power system on.*
4. *Put the receiver in bind mode according to its manual.*
5. *In the transmitter display, touch the desired value field "RX1 ... RX4" in the "Bind" column to enable the transmitter-side binding process.*

If the bind was successful you will notice in the Rx column of the transmitter the number of receiver channels for example R6, R12 with a highlighted blue background and the LED on the receiver will change its color or state.

In case of an unsuccessful bind change the positions of the devices and repeat the entire procedure.

Removing Existing Bind

1. *Switch on the mz-32 HoTT transmitter without switching on the RF or set the RF Transmission to “OFF” in the “RF Set” field of the “RF Set” menu.*
2. *In the transmitter display, touch the desired value field "RX1 ... RX4" in the "Bind" column to trigger a transmitter-side binding process. The existing binding is deleted during the binding attempt (receiver must be switched off for removing the bind)*

Multi Receiver Binding

The mz-32 supports multi receiver binding. You can bind up to four Graupner HoTT receivers. Each bound receiver can add to the total available channels of all receivers bound to a single model.

For example, if the first bound receiver is a 12-channel receiver and the second bound receiver is a 6-channel receiver the total channel count is 18 channels.

The transmitter does not automatically enable each bound receiver as part of the channel count. This must be done manually in the RF Set menu. For example, if RX1 is an 8-channel receiver it will serve only channels 1 to 8 on that receiver. When a second 8-channel receiver is bound on RX2 it will serve the exact same channels 1 to 8 on its receiver outputs providing you with two receivers that mirror each other's channel outputs.

To designate a receiver as a continuation of the channel count of the previous bound receiver you will need to reset the channel mapping in the RF Set menu.

Note

You must verify that you are using the latest firmware on your receiver to enable channel mapping or digital switches.

Channel Mapping

1. *Go the RF Set menu and bind two receivers to bind positions Rx1 and Rx2.*
2. *Verify in the Rx column the channel count of the receiver and its firmware version. For example, an 8-channel receiver will show as R8 and below it will show in small print the firmware version for example 7.04.0.*
3. *Tap on the Rx column of the second receiver to highlight it. The background will turn to blue and tap again to bring the receiver channel map dialog.*
4. *Tap on reset to renumber the channels for that receiver. The servo map dialog will now show that the first channel output on the receiver is mapped to channel 9 and when scrolling the channel list down you will notice that receiver output 8 is mapped to channel 16.*

   You can undo this operation by tapping again on reset which restores the channel numbering.

5. *Tapping Ok will activate the new channel mapping. It can be tested by assigning a control in the Control Set menu for example to channel 16 and plugging in a servo on channel 8 of Rx2 to verify channel operation.*

Range Test

When the range test starts, the output of the transmitter is significantly decreased. A practical functional test can therefore be performed at less than 100 m or 300 ft. After the end of the range test, the transmitter switches back to full output power and the range test signal tone stops.

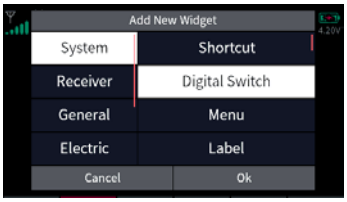
If necessary, ask someone for help.

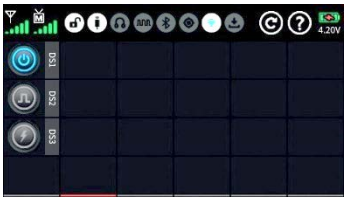
1. *Verify that the receiver and transmitter are communicating properly and that all control surfaces are functional.*
2. *Place the model on a flat surface (cement, mowed lawn or ground) with the receiver antenna at least 15 cm or 6 in above ground.*
3. *Hold the transmitter at hip level at a slight distance from your body.*
4. *Start the range test in the "RF Set" menu by tapping the icon in the "Range Test" field.*
5. *The time display begins to count down and a beep will sound throughout the entire range test.*
6. *Move away from the model within the given 99 seconds range test and move the control sticks while maintaining visual contact.*
7. *If you notice an interruption in the connection at any time within a distance of about 50 m or 160 ft, try to reproduce it. Try to re-position the receiver antenna and repeat the range test.*
8. *If possible, switch on an existing motor, to additionally check the interference resistance.*
9. *Carry out the extended range test before starting up your model, simulating all the control movements occurring in practice. To guarantee a safe model operation, the range must always be at least 50 m or 160 ft on the ground.*

CAUTION

Never start a range test on the transmitter during normal model operation!

Digital Switches





The mz-32 HoTT transmitter features 64 digital switches. These can be found in the “Special” menu and can be defined, activated and switched in the submenu “Digital Switch”. In addition, each of these 64 Digital Switches can be arbitrarily placed as a widget on one of the widget pages and operated from there.

Available switching functions are:

- ON/OFF switching function
- Pulsating switching function
- Momentary switching function (0- 10 seconds)

On the receiver side, these digital switches can be assigned to the respectively desired switching channel. Mapping a digital switch to a receiver channel can be done in the “RF Set” menu or directly on the receiver using the “Telemetry” Setting & Data View ASCII menu.

Note

This function is only available with receivers that have been updated with the current firmware release.

When setting digital switches verify that only the intended receiver where such assignment is to be made is active. No other receiver should be active.

Assigning Digital Switches in RF Set

1. *Bind the receiver you wish to assign to a digital switch and verify no other receiver is active.*
2. *Switch to the submenu “RF Set” of the basic menu.*
3. *Select the receiver you would like to use by tapping on the blue field which is the active receiver.*
4. *By tapping the blue field with the receiver type a selection window appears.*
5. *Tap the channel number for which you would like to assign a digital switch.*

   The tapped field is displayed inverted and a control panel is displayed at the bottom (see left figure).

6. *Use the “”- or “” buttons to assign the desired Digital Switch to the selected receiver channel.*

   In the illustration on the left, for example, the digital switch “D1” is selected at the receiver connection 14 of the receiver (the bound receiver is a GR-32, 16 channel receiver but you can use any HoTT

receiver). Touching the check mark in the bottom right confirms the selection.

7. *If necessary, proceed identically with other receiver connections.*
8. *By tapping on the symbol pulse ⏚, you can change to level ⏚ and back to pulse again.*

   When the symbol pulse ⏚ is selected, servo pulses are output to the corresponding channel output.

   When the symbol level ⏚ is selected, the output of the corresponding channel is switched to high or low.

Notes

- Switching to level allows the direct connection of transistors or LEDs to the receiver output via a series resistor.

- For Graupner receivers GR-12 (#33506), GR-16 (#33508), GR-24 (#33512), GR-32 (#33516) and GR-24 PRO (#33583) as well as GR-16L (#S1021), GR-24L (#S1022) and GR-32L (#S1023) series resistors are already installed and LEDs can be connected directly between the orange servo pulse wire and the brown or black "-" wire.

9. *Touching "OK" completes the process. Touching "Reset" resets the receiver to the default settings.*

In both cases, the display will close, and you will return to the "RF Set" menu.

Assign Digital Switches to Widgets

1. *Switch to the submenu "Digital Switch".*
2. *Tap on the first "Act" icon to activate the Digital Switch and select the desired mode (On/Off, Pulse or Flash).*
3. *Connect for example a servo to the channel you designated as Digital Switch.*
4. *Go to the Home page and select an empty deck or available block and bring up the Widget Editor.*
5. *Select the "Digital Switch" widget and tap on DS1 which is the digital channel we assigned in the previous step.*
6. *Test the operation by tapping on the button. You can change its behavior in the "Digital Switch" submenu.*

Assigning Digital Switches on RX

You can also assign a digital output switches over the Telemetry connection directly in the receiver.

To avoid malfunctioning when assigning digital switches, only the affected receiver may be in operation during their switch assignment.

1. *Bind to the desired receiver and, if needed, switch off any other receivers*
2. *Switch to the "Setting & Data View" submenu of the telemetry menu.*
3. *Use the right selection key to switch to the "RX FAIL SAVE" page. 4. In the "OUTPUT CH" line, if necessary, select the receiver output to be switched as described under "Function of the cross-shaped keypad".*

   In the figure on the left, this is, for example, the receiver connection 10 of the receiver.

4. *Change to the "INPUT CH" line.*
5. *Tap the middle ENTER key to activate the value field.*

   The value field is displayed inverted:

6. *Select the desired digital switch.*

   In the picture on the left this is for example "D01".

7. *Tap the middle ENTER key to complete the process.*

   The value field is not inverted anymore.

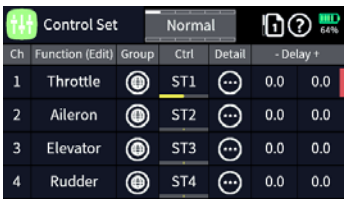
8. *Eventually use the same procedure with the assignment of other switches.*

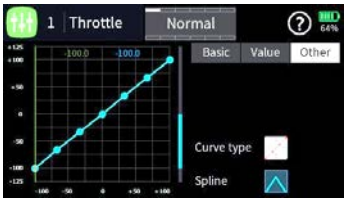
Setting Controls and Mixers

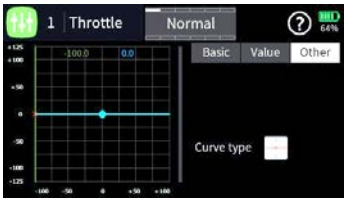
Both the control characteristics in the submenu Control Set in the basic menu as well as virtually all mixer programming is essentially done in the same way. The corresponding procedure is shown below with reference to the throttle curve.

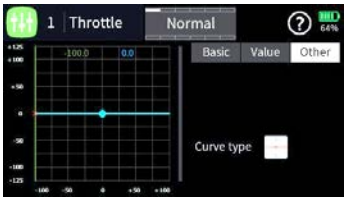
However, the settings shown have a purely demonstrative purposes only and do not represent real throttle behavior!

Selecting a Curve









1. *Enter the desired submenu.*

   Here is an example of the submenu "Control Set".

2. *On the desired channel touch the detail icon in the "Detail" column for example, throttle.*

   The display shown on the left will show which is the Basic menu.

3. *Tap on the "Other" field in the upper right corner.*

   The display shown on the left will show which is the Other menu

4. *Tap on the "Curve type" icon to select a curve.*

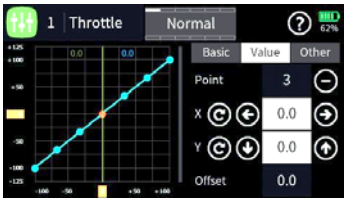
   Each tap will show a different curve type

   The choices are:

   - *A linear characteristic without points between the endpoints. This characteristic corresponds to the standard setting.*
   - *A linear characteristic with 5 points evenly distributed between the endpoints. This characteristic is to be selected as the basis of non-linear characteristics.*
   - *A horizontal curve with a single point in the middle of the control. The horizontal characteristic curve can only be moved vertically and used, for example as a control offset for a channel for throttle curves or flight controller settings.*

5. *If needed you can tap on the "Spline" icon which determines if the curve should be "square" or "curved".*

Setting a Curve



1. *Tap on the "Value" menu tab.*
2. *Move the vertical green line with the control stick to the to the desired point.*

   The selected point is displayed in red and on the right the number of the point as well as its coordinates are shown in orange rectangles at the lower and left display edge.

3. *The selected point can now be moved either horizontally or vertically...*

   ... either by tapping the symbols ⊖ ⊕ ⊓ ⊔ in increments of 0.1%.

   ... or by moving the respective yellow rectangle horizontally or vertically with a fingertip or a stylus suitable for touch screens.

   Touching the © icon resets the value of the selected line back to the default value.

Adding a Curve Point

1. *Use the relevant control to move the vertical green line between two points.*

   As soon as the plus ⊕ symbol is visible on the right edge of the display, another point can be set by tapping the ⊕ symbol. You can add three more points to the existing curve.

2. *If necessary, adjust the position of the added point as described above.*
3. *If necessary, proceed identically with further points.*

Deleting a Curve Point

1. *Use the relevant control to move the vertical green line to the point to be deleted.*

   The selected point is displayed in red and the top right shows the number of the point and the minus ⊖ symbol to the right.

2. *Tapping the ⊖ icon deletes the selected point.*
3. *If necessary, proceed identically with further points*

Stick Calibration

If the center position of the self-neutralizing control stick does not correspond exactly to 0% control travel you will need to calibrate your control sticks.

This can be best accomplished with a new model.

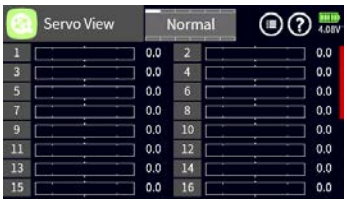
1. Change to the “Model list” submenu and create a new model. Any model type will do.

   Do not make any further adjustments and do not adjust trims.

2. Bring up the “Servo View” menu by pressing the shortcut key.
3. If all self-control sticks are in their respective neutral/center position the servo view menu will show all channels at 0.0 as shown in the left image.

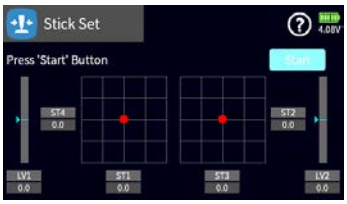
   … If the display looks like the one shown, everything is fine, and the previously saved model memory can be deleted.

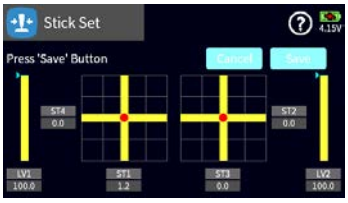
   … If the display deviates from the desired values, a stick calibration is required.



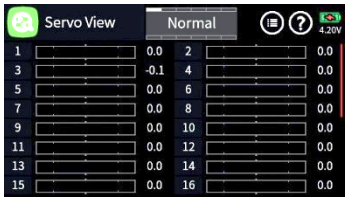
Stick Calibration

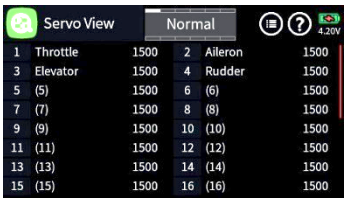
1. Switch to the System Menu and tap on the Stick Set Menu.
2. Tap on the start button and follow the instructions for stick calibration. Please note that you also need to calibrate the two lever controls LV1 and LV2.
3. When successfully completed you will have the option to save or cancel the operation.





Servo Display





The Servo View monitor can be called upon at any time by pressing the servo monitor key on the right side of the radio.

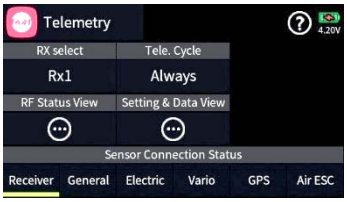
The view represents the active positions of any control or switch including mixers. The default screen shows channel 1 … 16. A swipe from the bottom to the top will reveal the additional channels.

The default bar chart view shows the channel position between-150% and +150% and when a control is moved it will show the maximum deflection set for that channel.

When tapping on the Servo View screen the presented view will show a numerical representation of the channels in milliseconds. A value of 1500 ms represents 0% which is the controls middle position.

This view also shows the channel names as assigned by the system or as named by the user.

Telemetry



The telemetry connection between the transmitter and receiver takes place via the return channel of the HoTT receiver defined as the main receiver. If more than one receiver is bound to a model memory, the return channel will be by default the last bound receiver. This assignment can be changed in the submenu “RF Set” in the base menu or at the special “Telemetry” menu.

Depending on the setting of the value field at the “Tele. Cycle” the transmission of telemetry data takes place after each fourth data packet. This also influences the reaction time to control inputs when making setting changes at the ASCII menu when setting up for example a flight controller using the wireless interface. The corresponding delay does not constitute an error.

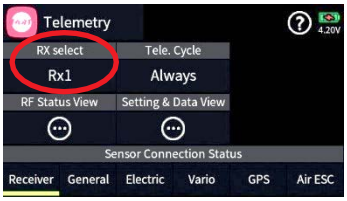
Note

Sensors must always be connected to the main receiver, since only the return channel of this receiver is evaluated by the transmitter.

Attention

Programming on the model or on sensors must not be carried out during ongoing model operation and only when the engine/motor is switched off!

RX Selection



Up to four receivers can be bound to each model memory in the submenu “RF Set”. However, a telemetry connection can only be established to one of these four receivers. The standard telemetry receiver is always the last one bound.

All sensors are to be connected to the receiver that is designated as the receiver from which we expect to receive telemetry information. This is important in a multi receiver configuration and therefore will require proper planning as to the location of the receiver which should be close to where the telemetry sensors are installed.

In the “RF Set” menu the receiver that has the “T.Sel” field checked is the receiver that provides telemetric information to the transmitter

Viewing telemetric information or settings from additional receivers bound to the model can be done by tapping on the “RX Select” field which will show a list with all active receivers to pick from.

Attention

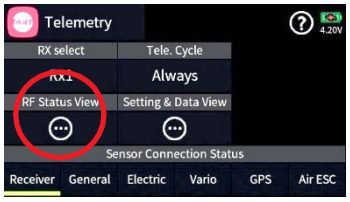
This also changes the assignment in the column "T. sel." of the submenu "RF Set". After completing the adjustments, it may be necessary to restore the original assignment!

Telemetry Cycle

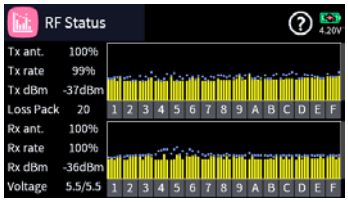
In those situations where for example two airplane models are about to be operated at close proximity to another controlled by two separate transmitters you may choose to reduce or eliminate the telemetry back channel of one of the models to avoid potential interference. Situations that may need to be evaluated such as with drones that have a separate transmitter for control and camera operations or airplanes that tow or carry other airplanes can be all pickup interference from the telemetry downlink transmission. Experiment with the proper telemetry period value for your situation.

Value	Description
Always	The transmitter reacts normal to the back-channel of the selected receiver.
4x / 8x	The transmitter reacts to the back-channel of the selected receiver with the chosen delay.
OFF	The transmitter telemetry functions are switched off.

RF Status



This display visualizes the quality of the connection between transmitter and receiver. If there is no connection to a receiver, the sub- menu can be opened, but the display remains empty. If necessary, switch on your receiver or switch to the right receiver.



Upper row

Level of channels 1 … 75 coming from the receiver of the 2.4 GHz band in dBm at the transmitter.

Lower row

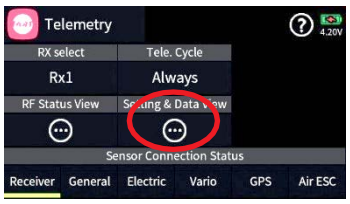
Level of channels 1 … 75 coming from the transmitter of the 2.4 GHz band in dBm at the receiver.

Note

- The height of the bar is a measure of the reception level expressed as logarithmic values with the unit dBm (1mW = 0dBm).
- 0 dBm corresponds to the two baselines in the above graph. Consequently, the level is poorer the higher the bar and vice versa.
- The dots above the bar mark the worst reception levels from the opening of the "RF Status" display. A reset of these points is therefore possible by exiting and recalling this display.
- In addition to the graphic display of the reception level, additional numeric information is provided to the left. This means:

Value	Description
Tx ant.	Quality expressed as a percentage of the signal packages from the receiver arriving at the transmitter
Tx strength	Quality expressed as a percentage of the signal packages from the transmitter arriving at the receiver
Tx dBm	Level in dBm expressed as the percentage of the receiver signal arriving at the transmitter
Lost pack.	Indicates the number of lost data packets
Rx ant.	Quality expressed as a percentage of the signal packages from the transmitter arriving at the receiver
Rx strength	Quality expressed as a percentage of the signal packages from the receiver arriving at the transmitter
Rx dBm	Level in dBm expressed as the percentage of the transmitter signal arriving at the receiver
Voltage	actual operating voltage of the power supply of the receiving system

Setting & Data View



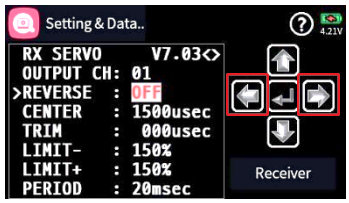
This display visualizes the settings and menus of the connected receiver. If there is no connection to a receiver, the submenu can be opened, but the display window remains empty.

A detailed description of the submenus of standard receivers such as the GR-12 or GR-16 can be found in the manual of the receiver model. The appearances may differ depending on the transmitter model, but functionality remains the same. Please note that receivers like the GR-12L, GR-16L, GR24L and GR-32L are functionally the same and therefore there are no functional differences between the receiver models.

Specialty receivers, such as the receivers GR-18 HoTT (No. 33579 or S1019), are equipped with separate versions of the "SETTING & DATA VIEW" menu. The descriptions of these special submenus are contained in the respective receiver manual.

Cross Keypad Function

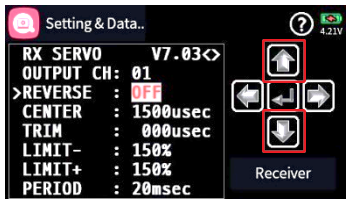
- Left and Right Selection Keys



Tapping on the left/right keypad screen will bring up the next page available for the selected receiver or module

If there is only one angled bracket shown at the upper screen next to the content window it will indicate that the last page of the available menus has been reached.

- Upper and Lower Selection Keys



Menu lines in which parameters can be changed are indicated by a preceding angle bracket (>). Tapping on the lower or upper selection button moves this ">" pointer one line down or up.

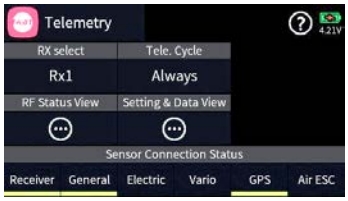
Lines which cannot be navigated to cannot be changed.

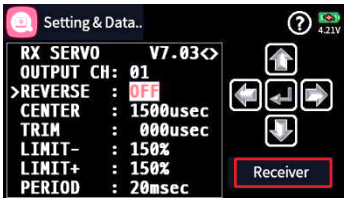
- Middle "ENTER" button

Tapping the cenetr button activates or deactivates the value field of a modifiable parameter.

When a parameter is displayed inverted, the selected value can be changed with the upper or lower key within the possible setting range.

- Receiver Button





Connected telemetry sensors to the active receiver will show on the bottom of the Telemetry menu display provided they were connected prior to powering the receiver.

To access the telemetry displays of a Telemetry device, open the "Setting & Data View" display, then tap the value field labelled "Receiver" in the lower right corner and select the desired device in the selection window that appears.

The operation of these displays is the same as described above under "function of the cross-shaped keypad".

Note

All settings made via the “Telemetry” menu in the receiver, such as, fail-safe, servo reverse, end points adjustment, mixer and curve settings, etc. are stored exclusively in the receiver’s settings.

Most of these settings can be made directly on the transmitter which is the proper way for setting up your model memories. In case you chose to do this on the receiver you must reinitialize the receiver when installing into another model to avoid taking over settings that may not work with another model

RF Communication

WLAN Operation

In the WLAN and GPS menu you can establish a Wi-Fi connection to your local network or activate a GPS receiver if installed.

To activate the Wi-Fi connection first tap on the switch icon (right in the WLAN tab), then tap on the WLAN icon (cloud with arrow). A list of available networks will be displayed. Select your network and enter your login credentials if needed.

Note

The mz-32 WLAN MAC address can be found in System – Info & Update under ID Information. THIS IS ONLY NEEDED when you use WLAN security settings including the MAC address.

If there is an active connection the WLAN symbol will be lit on the main display.

Note

The mz-32 can operate simultaneously with WLAN however both use the same operating frequencies and therefore could interfere with each other.

Bluetooth ® Operation

You can connect a Bluetooth™ device such as headset or Smartphones to your mz-32 for audio or data view on Android Smartphones. The serial COM Port provides the option to connect the mz-32 to external serial devices such as HoTT Viewer App, Smart Box or HoTT OSD.

Tapping on the checkbox field selects the Bluetooth™ module.

Tapping on the icon (circle with plugs) will turn on Bluetooth™.

Tapping on the magnifying glass icon searches for nearby Bluetooth™ devices.

Found Bluetooth™ devices are displayed and the corresponding device can be selected for connection.

Depending on the device, the password 0000 must be confirmed.

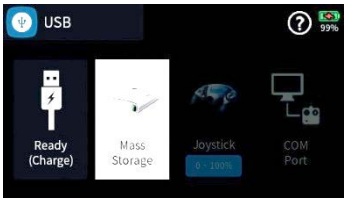
The search can be aborted by tapping on stop (red circle with line).

If there is an active connection, the Bluetooth™ symbol is lit on the main display.

Note

The mz-32 can operate simultaneously with Bluetooth® however both use the same operating frequencies and therefore could interfere with each other.

Firmware Update



Firmware updates for the transmitter can be done wireless over a WiFI network or via the back of the radio using the micro USB port. When the transmitter is connected to a PC the USB menu is automatically shown.

For firmware update select the "Mass Storage" option by tapping on the Mass Storage icon.

When the “Mass Storage” option is selected your PC will recognize the transmitter as a disk drive.

All required programs and files needed to update your Graupner products can be found both in the directory "Util" on the mass memory of the transmitter.

Copy the software package labeled grstudio_x.x.x.x+setup.exe from the transmitter's mass storage drive to your computer. When using Windows file explorer look for the “MZ-32 (X:) drive.

You can also download the latest software from our website at www.graupner.com or www.graupnerusa.com. Please note that the software only works on Windows computers.

Follow the installation procedures for the grstudio software which will also install new Virtual COM Port drivers to access the radio.

After successful completion of the software installation follow the nest steps to update your software:

Software Update Using Computer

1. *Connect the mz-32 HoTT transmitter to a Windows PC or laptop via the rear micro-USB port.*
2. *Switch on the transmitter.*
3. *Select "Mass storage" in the automatically displayed selection display.*
4. *Start the program "grstudio_x.x.x.x_exe" on your computer.*
5. *In the section "Transmitter" of the grstudio select the mz-32 Radio Downloader option.*
6. *You will have the option to only download the firmware or also resources such as voice files, help files and other software updates.*

   In case important resources file update are available you should check the select download incl. resource option. At one point you will have the option to select the languages available. Select your preferred languages only as this will decrease the download time.

Do not disconnect the link to the computer during the download! Make sure that the link between the transmitter and computer is operational.

7. *Start the firmware download by clicking on the download button.*
8. *Follow the instructions of the program.*
9. *As soon as the message "complete" appears, the download is finished.*
10. *Tap on the "Mass Storage" icon to finish "Mass Storage" mode and tap "USB" in the upper left corner to exit the menu.*

Transmitter Update

1. *Switch to the "Info & Update" submenu of the system menu.*
2. *Tap on the "SD card Update" button.*
3. *Tap on the desired firmware version.*
4. *Tap on the check icon to select and highlight the file. To unselect the file tap on the X icon.*
5. *Tap on the door icon in the upper right corner of the display*
6. *Follow the on-screen instruction.*

Note

Wireless updates will only contain the latest firmware updates and not resource files which can only be obtained using the computer update as described above.

Forced Update

If a firmware update of the transmitter fails or the transmitter software "hangs" during the update and the transmitter can no longer be switched off through the main ON / OFF switch, unplug the transmitter battery. Wait a few seconds, then reconnect the battery and do the following:

1. Press and hold the top two buttons on the left and right of the display while turning on the transmitter.
2. As soon as the ON / OFF switch border lights up orange, press and hold the two middle buttons on the left and right of the display.
3. When the border of the ON / OFF switch turns green, the keys can be released.
4. Shortly thereafter, the forced update starts with the latest available firmware version found in the "Update" directory of the transmitter.

5. As soon as the update is successfully completed, the transmitter restarts.

If the forced update fails due to a missing update file, then proceed as follows:

Forced USB Update

1. *Press and hold the lower two buttons on the left and right of the display while turning on the transmitter.*
2. *As soon as the ON / OFF switch border lights up orange, press and hold the two middle buttons on the left and right of the display.*
3. *When the border of the ON / OFF switch turns red, release the keys*
4. *Following the instructions in the transmitter display, connect the transmitter to the PC or laptop via USB cable.*

   As soon as the connection is established, the message "USB Mass Storage Connected" appears in white text on the transmitter's display.

   In the file explorer of the PC or laptop appears a drive "MZ-32 (X :).

5. *As described above in previous points "Updating the Transmitter" load a file suitable for updating the mz-32 HoTT transmitter onto the transmitter.*
6. *Switch off the transmitter and disconnect the USB cable from your computer.*
7. *Do a forced update as described above.*

SIMLIFIED DECLARATION OF CONFORMITY

Graupner/SJ hereby declares that the radio system S1024 mz-32 HoTT complies with the Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following Internet address: www.graupner.com

FCC INFORMATION

FCC: SNL-16008200

KC: MSIP-CMM-sjr-16008200

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

Antenna Separation Distance

When operating your Graupner transmitter, please be sure to maintain a separation distance of at least 20 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.

IC: 20961-16008200
IC warning

This device complies with Industry Canada licence-exempt RSS standard(s).
Operation is subject to the following two conditions:
(1) This device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a
type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful
communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Notes on environmental protection

If this symbol is on the product, instructions for use or packaging, it indicates that the product may not be disposed with normal house- hold waste once it has reached the end of its service life. It must be turned over to a recycling collection point for electric and electronic apparatus.

Individual markings indicate which materials can be recycled. You make an important contribution to protection of the environment by utilizing facilities for reuse, material recycling or other means of exploiting obsolete equipment.

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

Care and Maintenance

The product does not need any maintenance. Always protect it against dust, dirt and moisture.

Clean the product only with a dry cloth (do not use detergent!) lightly rub.

Warrant Conditions

Graupner/SJ GmbH, Henriettenstrassee 96, 73230 Kirchheim/Teck grants a warranty 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.

These operating instructions are exclusively for information purposes and are subject to change without prior notification. The current version can be found on the Internet at www.graupner.com on the relevant product page. In addition, the company Graupner/SJ has no responsibility or liability for any errors or inaccuracies that may appear in construction or operation manuals.

Graupner cannot be held liable for printing errors.

- **FCC Information**

- Graupner /SJ mz-32 Transmitter

FCC 47 CFR PART 15C

- **FCC Statement**

1.This device complies with Part 15 of the 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

2.hanges or modifications not expressly approved by the party responsible for compliance could void the user ‘s authority to operate the equipment.

- **NOTE**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

- **FCC radiation exposure statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 25 mm between the radiator and your body.