

# MEZON

ELECTRONIC SPEED  
CONTROLLER  
FOR BRUSHLESS MOTOR



*Compatible with the  
DUPLEX EX telemetry system*

**EN**

**JETI** model<sup>®</sup>

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## English

### 1. Introduction

You have purchased one of our new and innovative MEZON brushless model motor controllers. This new line of controllers is based on the successful line of SPIN Pro controllers. The MEZON controller offers progressive control combined with high efficiency to optimize your brushless motor's operation. The compact design which incorporates a rugged body with integrated cooling fins helps to ensure effective heat dissipation for cooler operation. They are equipped with overload protections for both current and temperature. The MEZON controllers are all equipped with the EX- Telemetry System to ensure maximum supervision and diagnostics for your model. This system, in cooperation with the DUPLEX system, gives the modeler much greater confidence and "peace-of-mind". Now you can easily monitor battery capacity consumption, real-time battery current consumption, controller temperature and other measurement data. The MEZON controllers with integrated BEC circuits give you a powerful voltage controller which can drive your servos directly from the flight battery, eliminating the need for a second on-board battery. The firmware on all MEZON controllers can be easily updated by the modeler. This means that with your PC and the USB adapter, in just a few clicks, you can take advantage of all of the very latest updates and cool, new features. You can easily configure all MEZON controllers with the JETIBOX universal programming tool.

## 2. Overview

Both **OPTO** and **BEC** versions of the **MEZON** controller are available. The MEZON controllers are offered in a wide spectrum from the MEZON 90 to the MEZON 165 Opto.

### 2.1. MEZON Controllers with BEC

The BEC version of the MEZON Controller contains a constant voltage, switching regulator for providing current to your servos and receiver from your flight battery. The switching regulator, also known as a switching BEC, can supply considerably higher currents than linear BECs. The stabilized voltage level can be adjusted from 5-8V.

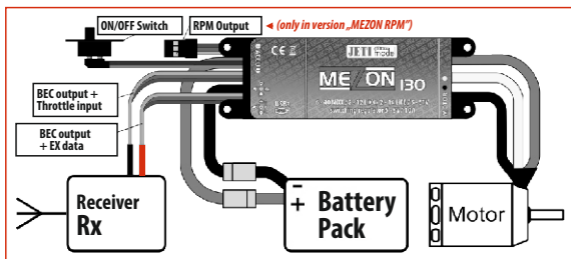


Fig. 1: Circuit of the MEZON Controller with BEC

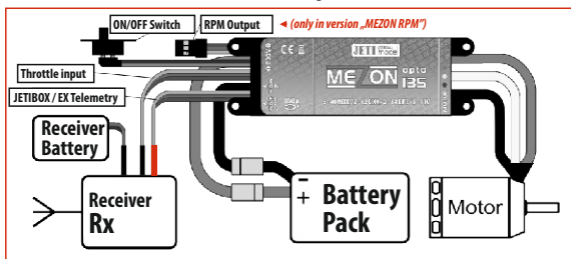
### Basic Data

Type	Sustained Current [A]	Voltage [V]	BEC [A]	BEC [V]	Dimensions [mm]	Weight [g]
MEZON 90	90	6 - 51	15	5 - 8	35x13x93	120
MEZON 120	120	6 - 35	15	5 - 8	35x13x93	150
MEZON 130	130	6 - 51	15	5 - 8	35x13x93	150
MEZON 160	160	6 - 35	15	5 - 8	35x13x93	156

## 2.2. OPTO-Version of the Controller MEZON

The OPTO version of the MEZON Controller contains no voltage regulator (BEC) which would provide the current for your servos and receiver from the main flight battery. This means that a separate receiver and servo current source must be provided. With a correctly connected OPTO controller any potential interference caused by controller operation can not be transferred to or interfere with the receiver and servos. The incoming and outgoing signals of OPTO controllers have no electric connection to the drive battery. Connecting power to the RPM-output is not necessary; this output receives its power from the throttle channel current source.

Fig. 2: Circuit of the MEZON OPTO Controller



### Basic Data

Type	Sustained Current [A]	Voltage [V]	BEC [A]	BEC [V]	Dimensions [mm]	Weight [g]
MEZON 75 opto	75	6 - 59	-	-	35x13x93	110
MEZON 95 opto	95	6 - 51	-	-	35x13x93	110
MEZON 115 opto	115	6 - 59	-	-	35x13x93	135
MEZON 135 opto	135	6 - 51	-	-	35x13x93	135
MEZON 165 opto	165	6 - 35	-	-	35x13x93	135

### 3. Connecting the Controller

The controller should be connected to the flight battery and motor using high quality connectors. Please see the guidelines below for proper connector installation and cable lengths.

When you switch-on the MEZON controller, you will hear signal tones from the motor.

The tones below indicate for following conditions:



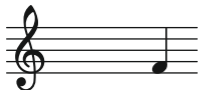
*The controller has recognized a correct control pulse which complies with the STOP (low throttle) position and is prepared to start the motor.*

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*The controller has recognized an incorrect throttle control pulse. Check the transmitter throttle setup to make sure that the throttle output is actually zero at the low stick position. If necessary, reverse the throttle in your transmitter or check your throttle throw setups.*

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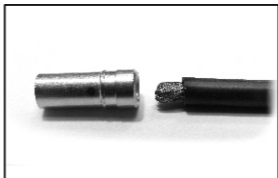
*The controller has recognized a low supply voltage. Check your battery condition or change the controller set-up (menu "LIMITS").*

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### 3.1 Soldering the Connectors

*Use only new and high quality connectors and properly solder them to the cables. We recommend bullet style connectors G4 (max. 75 A) and G5 (max. 150 A).*

**1)** In order to ensure that after soldering no bare cable is exposed out of the connector soldering cavity, remove the cable insulation in the exact length corresponding to the cavity depth.



**2)** Heat up the bare end of the cable with the soldering iron and apply solder around the cable circumference ("tin" the wires). Take care to supply adequate heat.



**3)** Fix the connector in vertical position (for instance, in a vice) for easier soldering of the cable.





**4)** Insert the soldering iron tip into the cavity of the connector to be soldered and slowly add solder. Let it flow into the cavity. Only fill the cavity so far (not all the way full) so that when you insert of the tinned cable end, no solder overflows. If you are going to solder the special “Jeti AntiSpark” connectors, insert a male half into the female half of the “Jeti AntiSpark” connector when you solder a cable to the female connector. In this case, the male plug will dissipate heat during soldering and ensure that the parts already soldered to the female will not melt.



**5)** Keep holding the soldering iron tip in the connector cavity and at the same time insert the tinned cable end. The cable is heated by the molten solder in the connector. The soldering iron tip can now slowly be removed from the cavity as the cable end is inserted.



**6)** The soldered connectors should be insulated with shrink tubing.



Check to make sure that you do not accidentally have any solder or flux in any of the connector's moving parts. Excess flux may cause your connector to have a poor or intermittent connection. This can be removed by washing the connector with a stiff brush in alcohol.

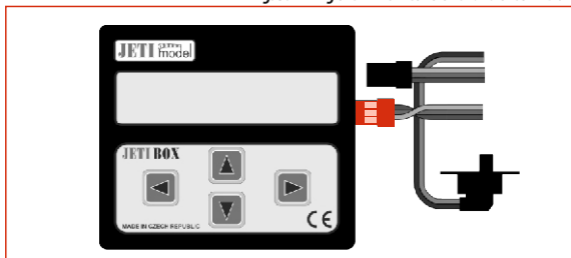
### 3.2 Cable Lengths and Connector Care

- Periodically you should inspect your connectors for cleanliness and proper connecting force. If this force becomes too weak, replace the connector immediately. We recommend replacing your connectors every 1-2 years of flight service time.
- The distance between the motor and the controller should not exceed 10-15 cm (4-6"). The cable lengths to the flight battery may be lengthened up to an additional 20-25 cm (8-10"). You can lengthen the battery cables further, if you solder, in parallel to the cables, electrolytic capacitors (so called ESR low internal resistance capacitors with corresponding voltage values and capacities of several hundred microfarads). Add one capacitor for every 25 cm (10") of additional battery cable length.

### 3.3 Connecting the MEZON to the JETIBOX

MEZON controllers are equipped with two, three wire cables with JR-type servo plugs. The cable with a black plug (marked with an "RX" sticker) is NOT used for JETIBOX communication. Only the cable with a red plug (marked with an "EXT" sticker) can be safely connected to the JETIBOX. Power for the controller and the JETIBOX are supplied by the flight battery when using a BEC equipped MEZON. When connecting a BEC-version, do not forget to turn on the switch! When connecting an OPTO-version MEZON, the JETIBOX must be powered separately.

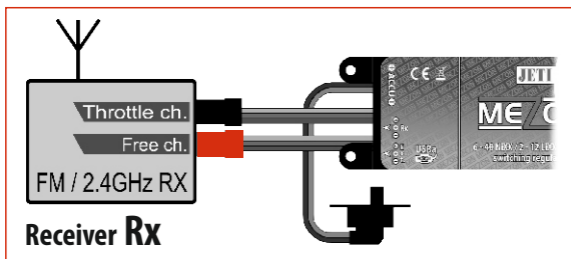
*Fig. 3: Wiring the MEZON Controller and the JETIBOX*



### 3.4 Connecting the MEZON to the receiver

- The red, "EXT" connector can be connected to a free receiver channel to share the BEC •• output of your MEZON. Because you are now using two cables and two plugs the voltage loss at high currents between BEC and receiver will be decreased.
- You can connect the red "EXT" plug to the "EXT" port in a DUPLEX EX receiver to transmit the MEZON controller telemetry data as well as for the wireless controller setup. When connecting a BEC equipped version do not forget to turn on the switch!

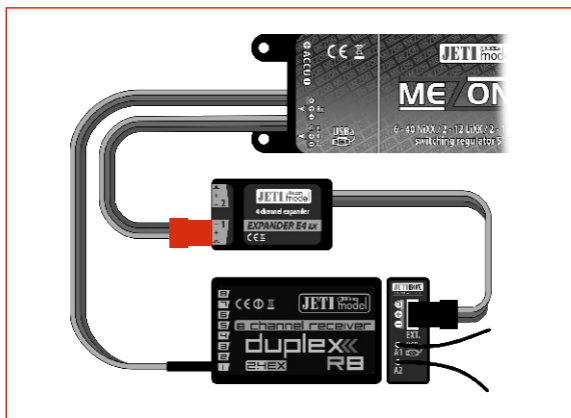
If the controller does not receive the correct control signal during its operation, it will stop the motor.



*Fig. 4: If you are expecting to have a high current draw from the BEC, split the power supply going to the receiver by connecting both three wire cables.*



*Fig. 5: Connection for the MEZON telemetry.*



*Fig. 6: Connection for the MEZON telemetry via an Expander*

### 3.5 Battery connection/disconnection procedure

For the battery and controller connections we recommend the use of the JETIMODEL Anti Spark G5,5 connectors. We recommend soldering the AntiSpark connector to the positive wire of the controller/battery and the customary connectors to the negative wire of the controller/battery.

**Battery Connection Method:**

1. Connect the controller's negative terminal (normal, plain connector) to the battery's negative terminal.
2. Next, connect the controller's positive terminal (Jeti "AntiSpark" connector) to the battery's positive terminal.

**Battery Disconnection Method:**

1. Disconnect the controller's positive terminal (Jeti "AntiSpark" connector) from the battery's positive terminal.
2. Disconnect the controller's negative terminal (normal, plain connector) from the battery's negative terminal.

***Safety hint: When the flight battery is connected, handle the plane with maximum care, always keep in mind that the propeller might start spinning.***

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**3.6 Connecting the RPM output**

The "RPM" version controller has an additional three wire lead with a connector labeled RPM. This lead delivers an electric signal which is proportional to motor speed. This lead can be connected to an external helicopter governor, as for example, to the Mikado Vbar.

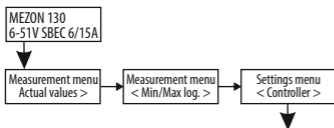
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**4. Controller Set-Up**

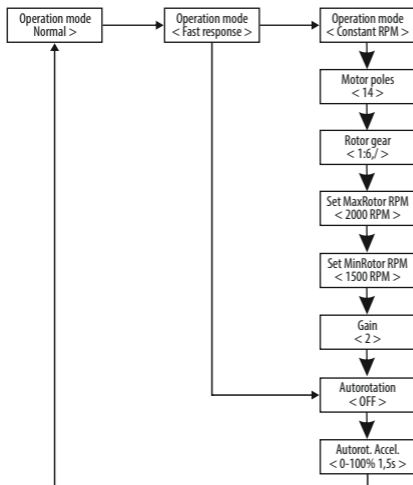
Set-up of the MEZON Controller is carried out using the JETIBOX, which serves as a universal programming terminal with display and pushbuttons. After connecting a device the display will show a corresponding menu. Through the use of the push-buttons you may browse through the menus and set up the controller parameters. The changes are carried out immediately. (You are not required to "Save" any changes.) The set-up is stored automatically. You may connect the JETIBOX to your controller directly (see chapter 3.3) or you may do it by wirelessly when connected to a DUPLEX receiver system (see chapter 3.4. Any set-up change to the controller can not be made if the motor is running. In the following chapters, set-ups of particular functions are explained. Each chapter starts with a navigation schematic which shows how to get the JETIBOX to the menu mentioned in the chapter. It is assumed that we always start from the controller introduction display. This is the first display shown in the JETIBOX display when you turn on the controller.

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## 4.1 Controller Set-Up Menu



### Description of modes:



**NORMAL** - Basic controller setup, mostly for model airplanes

**FAST RESPONSE** - A very short response time when a change in the throttle input occurs. The startup speed of the motor is set in the Acceleration menu. This setup is suited for aerobatic competition models, for helicopters with a mix for collective blade attack control and engine power (throttle curves), for an external governor or different flybarless systems and multi-rotor systems. In this mode the autorotation mode can also be used. This means that different motor startup speeds may be set in the global acceleration menu and in the autorotation acceleration menu. The "decision point" for the motor start-up speed is determined by the throttle signal input coming from the receiver, see: Autorotation Setup.

**CONSTANT RPM** - active speed control (Governor) for helicopters. This set-up allows you to manually set all the desired parameters. For this selection see extended set-ups.

**Motor poles** - Number of motor poles

**Rotor gear** - Main rotor gear ratio

**Set MaxRotor RPM** - Desired maximum rotor speed

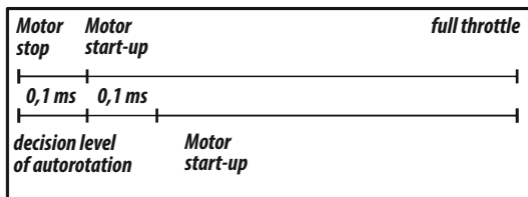
**Set MinRotor RPM** - Desired minimum rotor speed

**Gain** - Governor gain setting. The higher this number, the faster the throttle corrections. A lower number is displayed. If this setting is too high the throttle control becomes unstable (similar to a high tail gyro sensitivity in helicopters).

**Autorotation** – activates or blocks the fast startup mode of the motor for autorotation bail-out recovery.

**Autorotation, Acceleration** - activates or blocks the fast startup mode of the motor for autorotation bail-out recovery. If the autorotation mode is activated, the motor will have two possible startup speeds. The motor start for autorotation bail-out is a fast spool-up (controlled by the autorotation acceleration setup), or the initial motor spool-up controlled by the global acceleration (initial spool-up) setup. If the throttle input setting (for throttle hold) is higher than the autorotation start point, the controller will follow the motor spool-up settings in the autorotation acceleration setup menu when the motor re-starts. If the throttle input setting (low throttle stick) is lower than the autorotation start point then the motor spool-up will follow the settings in the global acceleration (initial spool-up) setup menu when the motor re-starts.

**Example of a Helicopter Autorotation Set-Up.** The global acceleration is set to an acceleration time of 10s (from 0 to 100%). The autorotation acceleration is set to an acceleration time of 2s (from 0 to 100%). Now we switch off the motor with a throttle input value corresponding to motor stop (lowest throttle position). Then, when we increase the throttle, the motor will spool back up slowly according to the global acceleration setup since the motor was stopped with a throttle input setting that was **below** the autorotation start point. If we start an autorotation (apply throttle hold) and switch off the motor with a throttle input value which stops the motor but is still **above** the autorotation start point, the motor will spool-up up quickly when the throttle is restored (release throttle hold). This effectively creates a “window” just above the initialization point which allows the autorotation acceleration to “arm”.



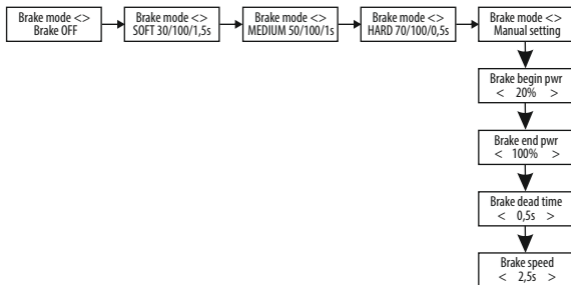
## Acceleration

This is the (global) acceleration rate for the motor. A good basic rule is: the larger the propeller or rotor diameter, the longer the acceleration value must be. For large outrunners, apply an acceleration time of 2 or more seconds. For model helicopters we recommend acceleration times of 5 seconds or more.

## Brake

Here you can select from several predefined brake setups or you may define your own brake. The first value is the brake effect starting strength in %, the second value represents the brake effect final strength in %, the third value shows the braking time between the first and second intensity.





### **Brake OFF**

- With this selection the brake is off, i.e.: no motor brake is applied.

### **SOFT30/100/1,5s**

- the brake starts with a strength of 30% and during 1.5s the brake strength will increase, step by step, to 100%

### **MEDIUM 50/100/1s**

- the brake starts with a strength of 50% and during 1s the brake strength will increase, step by step, to 100%

### **HARD 70/100/0,5s**

- the brake starts with a strength of 70% and during 0.5s the brake strength will increase, step by step, to 100%

### **MANUAL setting**

- values set by user

**Brake begin pwr** - starting brake strength in percent

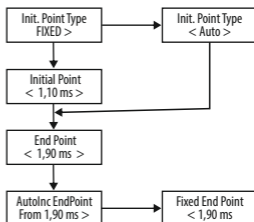
**Brake end pwr** - final brake strength in percent

**Brake dead time** - time between motor switch-off and brake activation

**Brake speed** - the brake speed (time between braking start and the transition to the adjusted final brake strength)

### **Throttle channel**

Set up of the throttle channel range.



**Init Point Type - AUTO:** In this mode the Mezon will automatically set the initial point based upon what it detects as the low throttle position when the ESC/receiver are switched on. This happens within the first half second once the ESC is powered. (Recommended)

**Init Point Type - FIXED:** In this mode you can set the Initial(arming) and End Points as fixed values in ms. The Initial Point and End Point positions are displayed only when the FIXED Init Point Type is selected.

**Initial Point** – This is the user defined value of the initial point. If the selected value is lower than the actual throttle value, the controller/motor will sound an error tone.

**End Point** – This is the defined full throttle position value.

**Note** - For safety reasons, the "Init Point" and "End Point" can be only changed if the controller does not receive any signal from the receiver. If a control signal is detected no changes can be made.

**Autolnc EndPoint** – The automatic extension of the range when the End Point position pulse width exceeds the defined value.

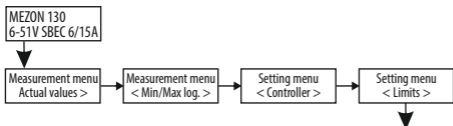
**Fixed End Point** – User defined, fixed END POINT position value for 100% throttle. Overstepping this value has no effect as the throttle output is already at 100% (regardless of stick position).

**Default setting** – By pressing and holding either the left/right key in this screen resets the controller to its default settings.

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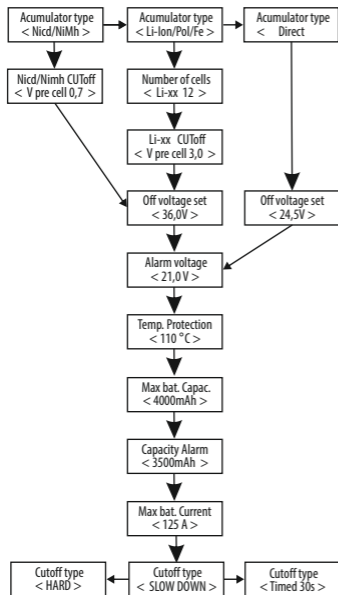
## 4.2 Limits Set-Up Menu

In the Limits menu, you can change the ESC settings for battery type, cell count, low voltage cut-off, current protection and temperature protection.



### Low Voltage Cut-off

In this menu you can Set low voltage, motor cut-off point for the flight battery. You can set both the cut-off point and the type of motor cut-off.



**Accumulatortype** – Here is where you select your flight battery type:

**NiCd/NiMh** – the cut-off voltage can be set according to your desired minimum single cell voltage.

**Lilon/LiPol** – Here you can either allow your Mezon to automatically detect the number of cells (this is useful if you are using packs with different cell counts), or you can specify the number of cells. For LiFe packs we do not recommend the automatic cell selection, instead, you should specify the number of cells. The last setup choice within this cell type is the setting for the minimum voltage per cell.

**Direct** – Here you can simply enter a cut-off voltage directly without selecting any battery type.

**Alarm voltage** – Here is where you set the alarm level where the low voltage alarm is activated.

**Temp. Protection** – This is for the set-up of any temperature protection. If the ESC temperature exceeds the selected temperature protection value, the selected motor cut-off starts and the high temperature alarm is activated. The temperature alarm starts signaling when the ESC temperature is 10 degrees below the selected temperature protection value.

**Max. bat. Capac.** – Setting for the maximum flight battery capacity usage. If the capacity used exceeds the selected value, the selected motor cut-off starts. It is possible to select NO LIMIT in this menu.

**Capacity alarm** - Setting for the alarm activation level if battery capacity usage is exceeded.

**Max. batt Current** – Setting for the current protection. If the actual current draw exceeds the selected current value, the Mezon actively limits the current draw and the high current alarm is activated.

**Cutofftype** – Motor power limiting mode.

**TIMED 30s** – after exceeding any of the selected limits the power gradually decreases in a period of 30 seconds. If the conditions during this time change, i. e. the event which triggered the cut-off falls back below the limit, then the power starts to increase.

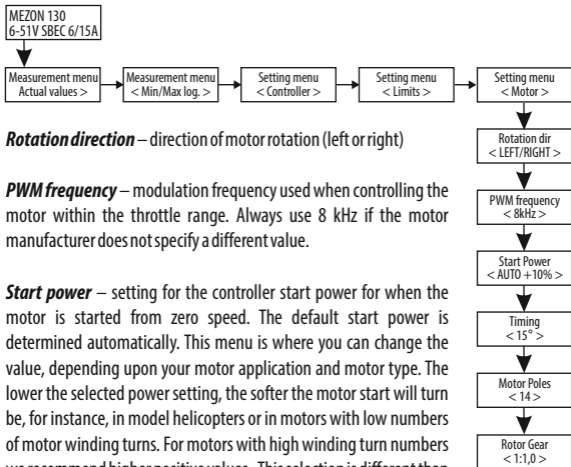
**Slow down** – The motor power decreases. If either the Max. bat. capac. or Temp. Protection are exceeded, motor power is decreased to 50%.

**Hard** – the motor is stopped if the temperature, capacity usage or low voltage settings are exceeded. The motor stops within 2 seconds when limits are reached.

If you are using the Mezon with a DUPLEX system, the alarm activation notification appears in the second row of the main display a limit violation message, while simultaneously an audible alarm is sounded. (if telemetry is active)

## 4.3 Motor Set-up Menu

Setting your motor parameters.



**Rotation direction** – direction of motor rotation (left or right)

**PWM frequency** – modulation frequency used when controlling the motor within the throttle range. Always use 8 kHz if the motor manufacturer does not specify a different value.

**Start power** – setting for the controller start power for when the motor is started from zero speed. The default start power is determined automatically. This menu is where you can change the value, depending upon your motor application and motor type. The lower the selected power setting, the softer the motor start will turn be, for instance, in model helicopters or in motors with low numbers of motor winding turns. For motors with high winding turn numbers we recommend higher positive values. This selection is different than

acceleration time. This menu controls the force with which the motor starts.

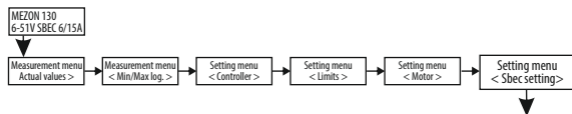
**Timing** – Motor timing (ignition advance) settings within the range of  $0^{\circ}$  to  $25^{\circ}$ . You may also select automatic timing. These settings will vary with the motor type.

**Recommended values:** 2 pole motors...  $0-5^{\circ}$ , 4 pole motors...  $0-10^{\circ}$ , 6 pole motors...  $0-20^{\circ}$ , 8 and more pole motors...  $20-25^{\circ}$  - for instance outrunners.

**Motor poles** – enter the number of motor poles. This parameter is important for the correct RPM speed detection.

**Rotor gear** – enter the correct gear ratio. For direct drives (no gearbox) select 1,0:1.

#### 4.4 BEC\* Set-up Menu

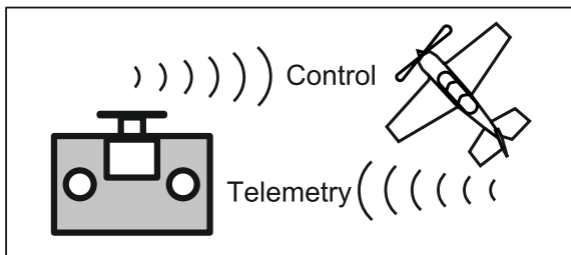


**SBEC Voltage** – The stabilized BEC voltage can be set to your desired output from 5V to 8V in steps of 0,1V. (This applies only to MEZON controllers equipped with a BEC.)

\* Not available in the MEZON OPTO controllers menu.

## 5. Telemetry

The MEZON controller measures your flight battery voltage, current, consumed battery capacity, power, temperature, RPM, BEC current and voltage and transmits the data with aid of the 2,4 GHz DUPLEX-system to the DC/DS-16 transmitters, displays them there on the LCD- display and also stores the data if your telemetry data recording is activated. This way you get all information about the condition of the power system of your model in real time. At the same time telemetry data can be recorded and can be used for flight analysis and drive optimizing purposes at a later time.

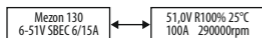


**Picture: Shows the Transmission of telemetry from airplane to transmitter.**

Each MEZON controller contains a full range EX telemetry system. When you combine the Mezon controller and wireless DUPLEX transmission you get a complex power control system with comprehensive data supervision.

### 5.1 Telemetry 1st Generation

The actual measured values are displayed in the introductory display of the JETIBOX monitor (this is the display appears when you switch on the controller). After a short timeout, the controller automatically switches to the telemetry display. The following values are shown:



*Actual power in percent :*

**R 80%**- the motor is running, the value represents the motor voltage in percent

**B 100%**- the motor is braking, the value represents the braking effect in percent

**B 0%**- the motor stopped, no brake

**Actual motor speed:**

The value is shown in RPM and corresponds to the controller set-up (proportional to number of poles and gear ratio of the gear box).

**Actual voltage of the flight battery,****Actual current flowing from the flight battery into the controller,****Actual temperature of the controller**

Other measurement data is available in the "Actual values" menu.

MEZON 130  
6-51V SBEC 6/15A

Measurement menu  
Actual values >

Capacity/RunTime  
0mAh 00:00s

**Capacity/Runtime** – this menu shows the consumed battery capacity and the motor runtime

BEC Volt./Current  
5.6V 1.5A

**BEC Volt/Current\*** – this menu shows the BEC voltage and the current being consumed by the BEC

InpPulse/PwmDuty  
1000us R 100%

**Impulse/PWM Duty** – displays the actual pulse width of the throttle channel and the voltage being consumed by the motor as percent of the total battery voltage

*\*this value is not available in the MEZON OPTO controller menu.*

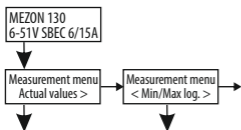
**5.2 EXTelemetry**

MEZON controllers completely support EX-Telemetry and transmit the complete telemetry via a new communication protocol. Due to this fact, telemetry data can be simply displayed, processed or stored with aid of the JETIBOX profi or the JETI DC/DS-16 transmitters.



### 5.3 Statistics

During operation, MEZON controllers carry out a statistical analysis and also log the data into its internal memory. After switching-on the controller, the data logs of the preceding controller operation (flight) are displayed. This data is no longer available once the motor is started. After 10 seconds of a new motor run the stored data logs are deleted and a new data log starts – containing, of course, the data from the first 10 seconds of operation.



**Max. Current** – the maximum current drawn from the battery with motor run time listed. (Calculated from the controller start point)

**Max. Temperature** - the maximum temperature of the controller with motor run time listed. (Calculated from the controller start point)

**Max. BEC current\*** - the maximum current drawn from the BEC with motor run time listed. (Calculated from the controller start point)

*\*this item is not available in the MEZON OPTO controller menu.*

**Max. Speed** – maximum RPM with motor run time listed.  
(Calculated from the controller start point)

**Min. voltage** – Minimum battery voltage with motor run time listed.  
(Calculated from the controller start point)

**Capacity/Run time** – the consumed battery capacity and motor run time

**Status** –any error code status is displayed. If any limits are exceeded the following messages appear:

**F** – Huge over-current condition. This error causes the motor to stop immediately. You should check for any ESC or motor damage and also check for any wiring defects.

**IM** - the controller maximum factory current limit has been exceeded

**PB** - throttle control pulse error – one of the pulses had erratic shape

**PL** - throttle control pulse loss error - during a min. 200ms timeframe there were no pulses sent from the receiver

**M** - commutation error – a commutation error occurred, the controller has recorded an error when reading the motor position

If no error codes have been triggered during the flight, the display will show: 0.

**Remark:** - protection against commutation errors – Sometimes a problem of too many commutation errors due to the motor's design may be resolved by increasing the motor timing.

If errors F, IM, M or PB and PL appear for a time longer than 1 sec, the motor will be switched off.

**Alarm** – display of all alarms. If the measured data exceeds the limit defined for an alarm, the following will be indicated:

**ACCU** – battery voltage too low

**BEC** –BEC voltage too low

**T**- the ESC temperature was measured to be 10° or less lower than the temperature protection setting

**CAP**- battery capacity setting exceeded

**I**- user defined maximum battery current value setting exceeded

**TB** – during controller operation, overheating of the BEC circuitry has been detected

## 6. MEZON Controller Firmware Update

MEZON Controllers allow firmware updates via a PC. The update is performed using the JETI USB-Adapter. The procedure is as shown below.

On the manufacturer internet pages, under "Downloads", you will find an update program with the most recent firmware. Download to your PC. Connect the USB Adapter to the PC. The USB-adapter driver installation instructions are contained in the USB-adapter instruction booklet.

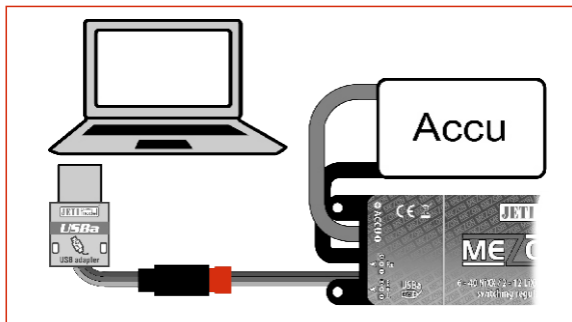
Start the firmware update program on your PC.

Connect the three wire cable with the red connector from the MEZON controller to the USB-adapter. As long as the controller is connected to the USB-adapter, obey the following rules:

Never connect the three wire cable with the black connector.

For the BEC equipped controllers do not connect any batteries. The BEC equipped MEZON controllers get their power through the USB-adapter.

However, when updating the firmware of the OPTO controllers, the controller must be connected to a separate power supply with a voltage of at least 5,6V, (2 cells LiXX or 4 x NiXX).



## 7. Troubleshooting

**Problem:** There is no "armed" signal tone audible when the battery is connected to the controller. The motor is connected correctly to the controller. The controller input is also correctly connected to the receiver, the receiver is switched-on and servos work normally.

**Solution:** Check the throttle control pulse, which should have a voltage level of at least 2,5V and a width of 0,9-1,4 ms. These values can be measured by connecting a JETIBOX to the controller and viewed in the menu: "**Actual value -> InpPulse**".

**Problem:** The motor starts running, but stops after a while or does not achieve full power.

**Solution:** One of the controller protection circuits has likely limited power or stopped the motor. Check the following:

- battery voltage is lower than the controller cut-off level as set in the menu: "**Limits->Ucutoff**".
- connecting cables might be damaged or too small, power connectors might be worn. The controller also decreases power or switches the motor off if the voltage shows an increased residual ripple.
- the controller might be overloaded and therefore limiting power, or the motor is possibly stopped due to intervention of the heat protection circuit.
- exceeding the maximum allowed battery capacity consumption might also be a reason
- exceeding the maximum allowed current, for instance, due to a wrong propeller size or motor choice
- a distorted throttle pulse due to interference might be an error source, make sure power cables are not routed too close to the signal cables
- a faulty servo connected to the BEC might be an interference source

**Problem:** The motor starts erratically.

**Solution:** A smooth motor start can be set with aid of the JETIBOX. Change the parameters in the "**MOTOR-> Start Power**" menu or the acceleration value in "**Controller->Acceleration**" menu.

**Problem:** It is impossible to achieve the required speed in Governor Mode.

**Solution:** Connect the JETIBOX to the controller and check the speed setting in the "**Controller-> Constant RPM**" menu, check the transmission ratio in the "**Ratio Gear**" menu, re-count and recalculate the actual gear ratio, check the number of motor poles in the "**Motor poles**" menu, check the minimum speed setting in the "**Set MinRotor RPM**"

menu and lastly, check the maximum speed in the **“Set MaxRotor RPM”** menu which controls the speed which the rotor is allowed to achieve with the given battery, gear ratio, motor and rotor blades.

## 8. **Safety Information, Warranty Conditions, Warranty and Service**

Safety and warranty conditions

- When the flight battery is connected handle the craft with maximum care, always having in mind that the propeller or rotor might start revolving.
- Take care to operate the MEZON controllers in dry environment only. Humidity may cause corrosion of electronic parts. If liquid/humidity enters the product, switch it off immediately and dry it thoroughly. Products damaged by liquids are most likely not repairable and warranty claims will not be accepted.
- Do not open MEZON controllers and do not try to implement any changes or modifications. This can lead to a total destruction and to the denial of any warranty claims.
- When soldering connectors make sure that the solder has flowed properly and that the joints are clean. Bad soldering joints (especially at the motor) can destroy the controller. Such a controller can not be repaired and warranty claims will not be accepted.
- The controller must be always operated at the specified voltage and recommended current. If not, non-repairable damages may occur and warranty claims will not be accepted.
- Watch the polarity when connecting the controller. In case of wrong polarity non-repairable damages will occur and warranty claims will not be accepted!
- Before sending a defective controller to the service department, first check the possibility of a wrong set-up and try going back to default settings.

- Make sure your controller has sufficient cooling. Otherwise, the temperature protection may be activated or total destruction of the controller may occur.
- Repair of MEZON controllers can be carried out by qualified, authorized service centers only. Otherwise, claims will not be accepted.

### **Warranty and Service**

This product is covered by warranty for 24 months after the date of purchase if it has been operated according to the conditions as described in the manual, i.e. at the specified voltage and without any apparent mechanical damages. When claiming warranty repairs for a product, always send along your purchase receipt. Warranty claims are handled through your dealer and post warranty repairs are carried out by the manufacturer.

### **Technical Support**

If you are having trouble with the setup or some functions of the product, do not hesitate to contact our technical support. You should first contact your dealer for technical support. Support is also available from the manufacturer: JETI model s.r.o. More information is available on our internet pages [www.jetimodel.com](http://www.jetimodel.com).

## 9. Disposal of Used Electronic Equipment

### ENGLISH

#### Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

#### For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

#### Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.



## Declaration of Conformity

Declaration of conformity in accordance with the Statutory rules n. 426/2000 sb.  
and Directive 1999/5/EC

### Issues name & address:

JETI model s.r.o.  
Lomena 1530, 742 58 Pribor

### Object of the declaration:

Products: **Electronic speed controller for Brushless Motor**  
Trade name: **MEZON, MASTER MEZON,**

Model: **MASTER/MEZON - 075 opto, 090, 095 opto, 115 opto, 120, 130,  
135 opto, 160, 165 opto,**

Country of origin: **Czech republic**

**The object of declaration described above is in conformity with the  
requirements of the following EU legislations and harmonized standards:**

Electromagnetic compatibility: ČSN EN 61000-6-3 (2007), A1 (2011),  
ČSN EN 61000-4-3 (2006)  
ČSN EN 61000-6-1 (2007)  
ČSN EN 61000-4-2 (2007)  
ČSN EN 61000-6-3 (2002)

Signed for and on behalf of:

A handwritten signature in black ink, appearing to read "Tomáš Klesnil".

**Tomáš Klesnil**  
*production Manager*  
2012.08.07





## Konformitätserklärung

Declaration of conformity in accordance with the Statutory rules n. 426/2000 sb.  
and Directive 1999/5/EC

### Im Namen von:

JETI model s.r.o.

Lomena 1530, 742 58 Pribor

### Gegenstand der Erklärung:

Produkt: **Electronic speed controller für Brushlessmotor**

Handelsname: **MEZON, MASTER MEZON,**

Modell: **MASTER/MEZON - 075 opto, 090, 095 opto, 115 opto, 120, 130,  
135 opto, 160, 165 opto,**

Herstellungsland: **Czech republic**

**Für die oben erwähnten Produkte aus unserem**

**Hause gelten die einschlägigen und zwingenden EU Richtlinien:**

Folgende Fachgrundnormen wurden herangezogen:

EN 61000-6-3 (2007), A1 (2011),

EN 61000-4-3 (2006)

EN 61000-6-1 (2007)

EN 61000-4-2 (2007)

EN 61000-6-3 (2002)

Unterzeichnet für und im Auftrag von:

A handwritten signature in black ink, appearing to read "Tomáš Klesnil".

**Tomáš Klesnil**

Produktmanager

2012.08.07



**JETI model s.r.o.**

Lomená 1530, 742 58 Příbor

[www.jetimodel.com](http://www.jetimodel.com)

Czech Republic - EU

