❖TELEMETRIC BEESCALE ………………….MZ-2630 (GPS)…V.3.0………..

MELISSO**ZIGARIA**

USER MANUAL

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We place the SIM card (Mini type) with its "PIN" disabled on the device.

We set the device to the desired mode SLEEP OFF or SLEEP ON. When the sleep mode is activated (SLEEP ON) the device sends messages according to the "sms hours".

* The preset mode is SLEEP OFF.

Upon finishing setting up the scales set them on sleeping mode by texting:

1234 SET SLEEP ON   **1234 SET SLEEP OFF**

DETAILED EXPLANATION AND BREAKDOWN OF THE SMS PARAMETERS

Z1: 0-120KG   (+100gr)   **(Weight of Weight 1) (Difference)**

Z2: 0-120KG   (+100gr)   **(Weight of Weight 2) (Difference)**

Z3: 0-120KG   (+100gr)   **(Weight of Weight 3) (Difference)**

TEMP_IN -55°C +125°C   **(INTERNAL BEEHIVE TEMPERATURE)**

TEMP: -40°C +80°C   **(ENVIRONMENTAL TEMPERATURE)**

HUM: 0-100%   **(HUMIDITY OF THE ENVIRONMENT)**

FENCE: 0-15KV   **(ELECTRIC FENCE VOLTAGE)**

BAT: 3.7-4.3 V   **(BATTERY 3.70V=0% - 4.21V=100%)**

GSM: 0-100%   **(GSM SIGNAL QUALITY)**

LOW BATT   **(BATTERY VOLTAGE BELOW 3.60V)**

SMS PARAMETERES

PHONE1:69111111111   *(THE FIRST AUTHORIZED PHONE NUMBER)*

PHONE2: 6912341234   *(THE SECOND AUTHORIZED PHONE NUMBER)*

PHONE2STATE:OFF-ON   *(SECOND AUTHORIZED NR " OFF"DISABLED "ON" ENABLED)*

LL: 0-5.000   *("LOW LIMIT VOLTAGE OF THE ELECTRIC FENCE)*

TAMPER1: OFF - ON   *(OFF=DISABLED ON=ENABLED)* ***ZONE*** 1

TAMPER2: OFF - ON   *(OFF=DISABLED ON=ENABLED)* ***ZONE 2***

FENCE: OFF - ON   *(OFF=DISABLED ON=ENABLED)*

GEOFENCE OFF-ON   *(GEOFENCE MONITORING)*

PRIVATE: OFF - ON   *(OFF=DISABLED=PUPLIC ON=ENABLED= NON PUPLIC)*

PCB_TMP   *(DEVICE TEMPERATURE)*

TELEMETRIC BEESCALE (GPS) MZ-2630

PARAMETERIZATION

SMS COMPOSE
<PASS><SPACE><COMMAND><SPACE><VALUE>(1234 SET PHONE1 699000000)

DEFAULT PASSWORD
1234

SMS COMMAND	VALUE	DESCRIPTION
1234 SET PHONE1	69********	We define the first phone number to send messages
1234 SET PHONE2	69********	We define the second phone number to send messages
1234 SET PHONE2STATE	**ON**	Activate the second number to send a message
1234 SET PHONE2STATE	**OFF**	Disable the second number to send a message
1234 SET FENCE	**ON**	Enable monitoring of the electric fence
1234 SET FENCE	**OFF**	Disable monitoring of the electric fence

1234 SET LOWLIMIT	**0-5000**	We set the minimum limit in volts to send a message and call.
1234 SET TAMPER1	**ON**	Enable the zone1 monitoring
1234 SET TAMPER1	**OFF**	Disable the zone1 monitoring
1234 SET TAMPER2	**ON**	Enable the zone2 monitoring
1234 SET TAMPER2	**OFF**	Disable the zone1 monitoring
1234 SET TAMPERS	**ON**	Enable zone1 and zone2 monitoring
1234 SET TAMPERS	**OFF**	Disable zone1 and zone2 monitoring
1234 SET ALARMS	**ON**	Enable zone1 and zone2 and fence monitoring
1234 SET ALARMS	**OFF**	Disable zone1 and zone2 and fence monitoring
1234 SET PASS	**0-9999**	Password change Max 4 numerical characters example **1234 SET PASS 4321**
1234 SET PRIVATE **1234 SET PRIVATE**	**ON** **OFF**	(ON)=The device is not public. It sends sms to PHONE1 & PHONE2 only
1234 PARAMS		Sends the all saved device settings.
1234 RESET		Device restart.

1234 LOCATION		It sends the device location with Google Map link.
1234 SET GEOFENCE	**ON-OFF**	Enable or disable the monitoring radius. The locking of the point is done by the starting of the device.
1234 SET GEORADIUS	**1000**	We define the device radius in meters. Recommended radius is 1000m
1234 SET SLEEP	**ON-OFF**	Put the device to sleep or not. In sleep-on mode it is only accessible during the corresponding "smshours" time for 3 minutes. In sleep-off mode it is accessible 24 hours a day
1234 SET SMSHOURS	**ALL** **00#01#02#20#22 etc**	ALL for all hours.To send a message at 22:00 eg. 1234 SET SMSHOURS 22 (Preset is every day 22:00)
1234 SET SMSDAYS	**ALL** **All days**	We set the days of sending a message. 1234 SET SMSDAYS ALL 1234 SET SMSDAYS MO#TU#WE#TH#FR#SA#SU Preset is every day at 22:00
1234 SET DATE	**01/05/17#09:05**	We set the date and time (the gps scales have automatic satellite radio time adjustment.) In synchronization it sends sms that TIME IS SYNCHRONIZED. If the time is not set due to poor reception of the Gps, the device does not return to Sleep mode if it has been selected (sleep on) then manual synchronization has to be

		done. 1234 SET DATE 01/05/17 # 09: 05
1234 SET TIMEZONE	**+2.0**	Preset for Greece (+2.0)
1234 SET DST	**ON-OFF**	Automatic summer-winter time Preset ON
1234 SET DIFF	**ON-OFF**	Weight difference mode compared to the previous report (preset messages only) Default ON
1234 REPORT		It sends the report sms
1234 GET	Command	etc **1234 GET DATE** valid for all commands
1234 SET AUTOSLEEP	**ON-OFF**	Deep sleep function. Enable it if there is solar panel connected to the device to avoid the device shutdown.

Detailed Steps

The device in your hand is preseted by us and you do not need to make any changes to the settings unless you want something different than the preset settings.

1. You need to get a Mini - SIM card from any mobile service provider you prefer
2. Make sure that the pin code from the SIM card is disable
3. Optional: Some SIM cards need to be activated via phone call so, just to be safe make a test call
4. It is best to activate a message bundle from your mobile service provider

*It's a good idea to make an online account on the phone number you are going to be using so you can check and manage it remotely.

5. Insert the SIM card into the motherboard by lifting the special position with the copper contacts of the card facing downward. Then slide the SIM into the case.
6. Before using the scale, make sure it's fully charged and that the charging lamp (CHG) is switched off.
7. Connect the sensor to the central unit. You need to be **extra careful** with this step so that you won't damage the connector. Rotate it **gently** until it plugs in.
8. Keep in mind that the device is usually preset by the manufacturer with your own number, as the primary number to send messages and you do not need to do anything at all.
9. For alterations, all the settings can be changed with your mobile phone just by sending a message to the device's phone number.

The Default Password is: 1234

For any modification in the setting of the scale use the preset code 1234. If you wish to change the Preset code to someone of your liking, send the following message: *Preset code-space-command-space-new code*

That is: ***1234 SET PASS 5678***

The scale will send you a reply that the new code is now 5678, so all the commands are done with the new code.
IMPORTANT: The password must have a <u>maximum of 4 numeric characters</u>!

Setting Up Phones to Sent Report Messages

The maximum number of phones that the device can text is two. (Phone1 &Phone2)

To set up the first/primary phone text the scale:

1234 SET PHONE1 6911111111

If you want to receive the report SMS to a secondary number too you need to text the scale:

1234 SET PHONE2 6922222222

You also need to activate the secondary number by texting the scale again the following message:

1234 SET PHONE2STATE ON

In the same context if you want to disable it text:

1234 SET PHONE2STATE OFF

Set the Days for the Report Message (SMSDAYS)

You can set the days that you want to receive a report message. The device is predefined to send a report message every day.

For example if you wish to receive messages every day of the week text:

1234 SET SMSDAYS ALL

Or

1234 SET SMSDAYS MO#TU#WE#TH#FR#SA#SU

Example for receiving messages 2days/week(Monday and Friday):

1234 SET SMSDAYS MO#FR

The same concept applies for any number of days you want to select.

Defining The Sms Report Hours (SMSHOURS)

You can choose what time of the day you want to receive the report messages from the scale. The default time is at 22:00 o' clock.

Example for receiving text for all hours of the day:

1234 SET SMSHOURS ALL

Or

1234 SET SMSHOURS 00#01#02#03#04#05#06#07#08#09#10…. Etc (always hashtag between)

Example to sent text at 8:00 and 20:00:

1234 SET SMSHOURS 08#20

(Always 2 digits for time and in between)

The same concept applies for any hour of the day.

Time & Date – Synchronization (IMPORTANT)

Pay close attention to this step because it is of vital importance

Gps scales sync the time automatically via satellites.

If you want to experiment with this before putting the device out in the field, be sure to do it outside (*indoor testing does not have sufficient satellite signal)*

The sync time may vary depending on the receiving quality and it can take from 5 minutes up to 120 minutes or more.

If the device for any reason <u>does not synchronize</u>, the scale <u>will not work</u> properly with the times!

If the synchronization does not occur, manual synchronization is required.

To do that text:

1234 SET DATE 01/02/18 #02:05 (always write the full time 2 digits)

You should receive an informational message confirming that the time change was successful as it will also show you the new time (NEW DATE ……)

You can also change the setting (DST) for automatic summer-winter time change (-+ 1 hour). The default setting is ON and you do not have to change it.

If you wish to change it text:

1234 SET DST ON-OFF

The time zone does not need to be changed as it is preseted by us to +2hours.

If for any reason the device shuts down then the time is lost. In case of a reset the time remains.

Command Report and Call

By texting :   **1234 REPORT**

The scale will send you an informative message with the current weight and temperature etc.

You can also call the device instead of texting it. This way the scale will reject your call, to avoid any unnecessary charges and it will send you an informative text with the same stats. The response time is about 1-3 minutes.

Private Mode

When private mode is OFF, anyone who calls the device will receive a report text with the weight information etc.

On the other hand, when private mode is ON the device ignores all callers except from the two owners (Phone 1&2)

Check the Device's Saved Settings (Command PARAMS)

In order to receive a message with all the device's saved setting text:

1234 PARAMS

Command Get

If you want to see the status of an individual setting(e.g date, tamper1, tamper2 etc) text:

1234 GET DATE , 1234 GET TAMPER1, 1234 GET TAMPER2

This applies to all commands.

Sleep Mode

There are two main modes in which this device can operate: sleep mode and non-sleep mode.

You can choose with which one of the two you want your device to operate.

The default is: **OFF**

To activate the sleep mode, text:

1234 SET SLEEP ON

When sleep mode is activated the device wakes up only at the designated days and hours we have set (smsdays & smshours) to sent the usual report message. The device will only be available for 3 minutes on the days and hours we have set, so any adjustments you might want to do must be within this time frame. All the other hours the scale will be unavailable as it is on sleep mode.

An easy way to make changes when the scale is on sleep mode is to wait for the predefined message to come and immediately afterwards to give the desired command.

Do not send many messages at once because we can't know for sure if those messages will be delivered (this depends on the mobile service provider). The mobile service provider can save the messages in order to sent them up to 7 days.

If you send many messages you won't know for sure which message will arrive first so it's possible to mess up the device's settings.

If you want to send multiple commands at once, it's recommended to deactivate the sleep mode first and the do all the changes. After that you can reactivate the sleep mode.

To deactivate the sleep mode, text:

1234 SET SLEEP OFF

When the devices is on sleep mode, is also on maximum energy – saving mode.

*Surveillance of geofence is not available in sleep mode.

* If any violation occurs in the alarm zone the notification won't come immediately but at the next designated " smshour"

*If you want the scale to be fully operation and reachable at all times, you should deactivate the sleep mode. By doing that you also need to have a constant supply of energy to the scale

Auto-Sleep Mode

If you purchased your device after 15/6/18 then your scale is supported with this feature. If not, then your device needs to be upgraded with the latest software version.

When this command is activated, your device monitors the battery voltage level and when it falls below the set safety limit (3.45V), the scale will automatically switch to deep sleep.

In deep sleep, all of the devices features are turned off for maximum power saving. All of the features will automatically turn back on when the battery voltage is above the safe limit (3,75V).

In this way, the device is not in danger of shutting down, whereas if it did then a manual start will be required.

This function is ideal when the scale is used with a solar panel.

To activate this feature, text:

1234 SET AUTOSLEEP ON

Reset Command

This command restarts the scale.

To reset the scale just text:

1234 RESET

In the event of a malfunction of the device or the need to redefine the location of the geofence system, a reboot is being advised.

Location Command

By texting: **1234 LOCATION**

You can get the current position of your scales.

*Device location is not available when the scale is in sleep mode.

DIFF Command

When the DIIF Command is activated the device will also text you the weight difference between the current and previous scheduled weight measurement.

This command is as a default: **ON**

If you want to activate or deactivate this command, text:

1234 SET ON OR 1234 SET OFF

In the case of calling the scale, instead of texting, the informational message will be containing the weight difference between the current and previous scheduled weight measurement.

The nullification of the weight difference occurs on the scheduled messages only. (smshour)

Weighing

The scales run with a build in weight-balancing algorithm to correct any deviations from environmental factors (such as wind, incline etc.). So if you place an object for weighting it will send you the weight with a delay of 5 minutes.

The timing of sending a message from the start/reboot is 3 minutes.

When the scale is on sleep mode, expect a +7 minute delay from the scheduled time (if you wait a message at 22:00 it will arrive to you at 22:07)

When the weight on the scale is zero, the message you will receive will display "N/A" (Not Available)

Internal Battery Voltage (BAT)

Here you can check the battery level of the scale. When the battery is fully charged it's about 4.1V-4.3V and when the battery is almost drained is about 3.6V (safety level).

If the battery level falls lower than 3.6V then the scale will be malfunctioning and there is an increased chance of the device shutting off. If that happens, then a manual reboot is required (either from the device's switch or from the key)

In this case, the command **1234 RESET** does not work.

When the battery level is below the "safety level" at the end of the usual informative message there will be the indication "LOW BAT"

Solar Panel

If you have a constant supply of electricity in your apiary, it would be advised to get a supply from there to power your device.

If not, a solar panel is a great solution just because it covers the power needs of the scales. In the summer months (March to September) due to high levels of sun exposure the scales that are equipped with a solar panel are fully operational. (Sleep Off)

In the winter months it's best to put the scales into SLEEP ON mode.

The sleep autonomy with SLEEP ON mode is for life.

To enable SLEEP ON mode text:

1234 SET AUTOSLEEP ON

Alarm – Tamper1, Tamper 2

This device offers a 2 - zone alarm, Tamper1 (Red contacts) and Tamper2 (Black contacts)

To activate/deactivate the Tamper1/ Tamper2 just text:

1234 SET TAMPER1 ON-OFF

1234 SET TAMPER2 ON-OFF

How to connect the alarms:

Start a single cable from the red contact (Tamper1) and surround the beekeeping area through the keys of the cells. Then return and connect the cable to the second red contact. The order of the cables is insignificant.

The frequency of the alarm is reseted every 24 hours.

If the scale is in sleep mode, the alarm is not readily available. In case of a violation, the device will notify you in the next "smshour".

Geofence

Geofence offers surveillance over your scales. If your scales move from the preset radius, the device will call you and send you a Google Earth Coordinate Alarm message.

The default for this is: **OFF**

To activate or deactivate this feature, text:

1234 SET GEOFENCE ON (for activation)

OR

1234 SET GEOFENCE OFF (for deactivation)

To set the radius for surveillance, send the following command with your preferred radius (in meters). For this example we will be using 1000m as the preferred radius.

1234 SET GEORADIUS 1000

Attention: If you change your location you need to restart the device so that new location will be locked for surveillance.

*Supervision is not available when the scales are in sleep mode

Siren

The device offers the feature to connect it with an external siren.

Once you purchase a siren you need to connect a power line in series with the output contact. This output acts like a switch.

Unless the manufacturer provides your device with the siren, then connect it to the output socket accordingly, *(-) negative= black & (+) positive = red*

The siren's ring - time last for 60 seconds.

Every time you reboot the device, there is a test alarm that will ring for 10 seconds.

*When the device is on sleep mode the siren is not readily available. If a violation occurs at any time, the siren will be activated in the next "smshours".

Fence

To activate the fence, text:

1234 SET FENCE ON

It is important to define the minimum voltage guarding the fence.

To do that, send the following command in volts (i.e 5000volts):

1234 LOWLIMT 5000

*Fence surveillance is not available when the scale is in sleep mode

Gsm Signal & External Antenna (Extra)

The GSM signal of the scale should be over 30% in order to send messages successfully.

If you own the device with the external antenna, for best reception position the antenna as high as possible. The external antenna gains +7dbi reception compared to the internal antenna which is only +3dbi.

The gain in the signal strength might not be all that great, but the main advantage that the external antenna offers, is the versatility of moving it around your apiary and positioning it higher in the ground for best GSM reception.

In the event of failing sending the text (due to bad signal quality), the device can uphold up to 4 messages. These messages will be sent at the next scheduled time if the signal quality is better.

If connection issues still occur, even with the external antenna, try to change your mobile service provider.

A good tip to find the location with best reception is to walk around your apiary with your phone and check where the signal is the strongest. There you should place you scale.

In case that a programmed message does not arrive on time, please be patient and wait for the next scheduled message. Sometimes, due to harsh weather conditions or other temporary external factors, signal quality might be impaired.

Battery Charging

You can charge the battery with the supplied power supplies.

For scales purchased after 15/7/2018 there is a Charge Light (CHG) on the outside of the box, right next to the key. The charge is complete when the light is turned off.

LEDS

The device has 3 LED lights, one in the mother-board and two on the outside of the box.

The light on the motherboard indicates the status of the GSM signal. (Green Light)

When the light blinks 2 times per second it means that the device is searching for network.

When the light blinks once every two seconds, it means that the device is locked on a network.

The red light on the outside of the box, close to the power input, indicates the presence of external voltage on the device.

The "CHG" light shows the charging status. When lit, it means it's charging and when it goes off, it means that the charge is complete.

Device Storage

For storage make sure you have the device fully charged and the key switched to the off position (red dot) so it will be ready for next use.
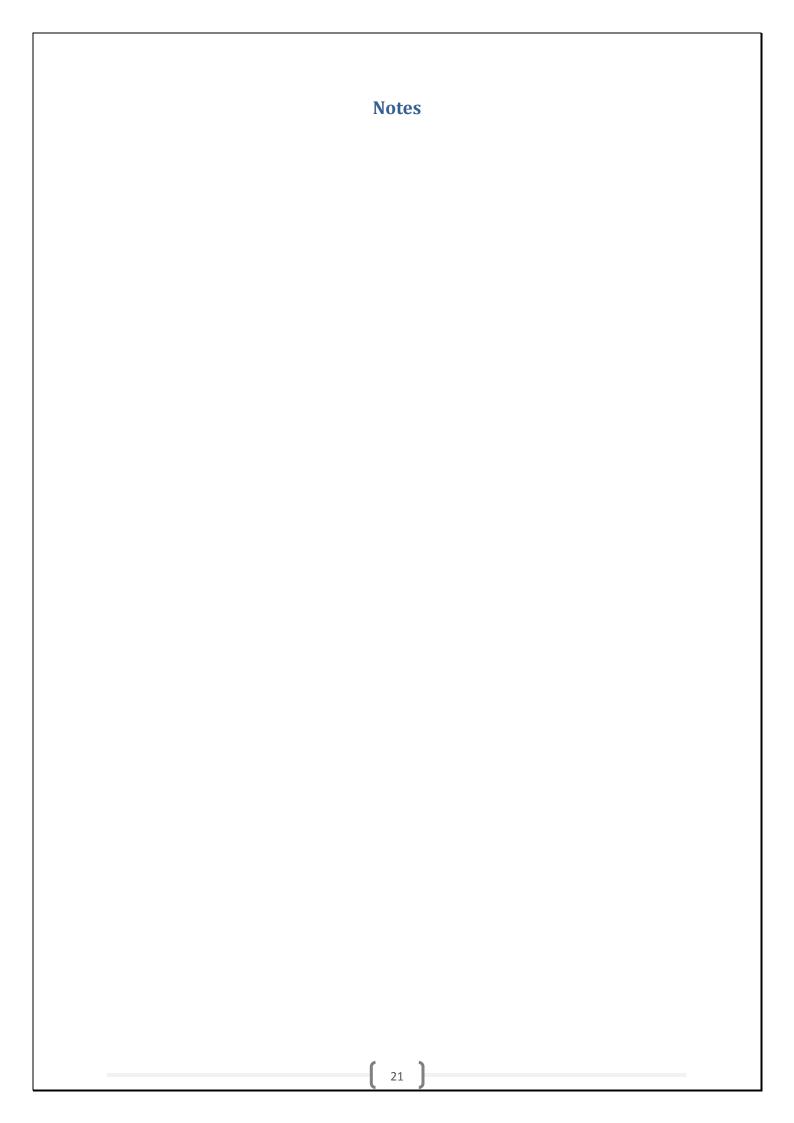
Final Check List –Notes

1. Make sure that the device is fully charged if it is the Charge Led (CHG) will be switched off
2. Check if the power feeds are properly connected
3. The key is on the ON position (green dot)
4. The voltage of the internal battery is over 3.9Volts
5. Be sure that the GSM signal is >30% and that you have purchased some kind of sms bundle from your mobile service provider
6. Make sure that you receive at least one report sms from the device with weight, temperature etc. before you leave the apiary
7. Check if the weights are correct (approximately)

8. Check to see if you have received a message that confirms that the time synchronization was successful, if not (in case of bad GPS reception) you have to do it <u>manually</u>
To do that, text: *1234 SET DATE 01/01/17#01:05*

9. In the event of a malfunction, it is recommended to restart the scale using the key (if you are in the apiary) or to reset it via text (1234 RESET)

10. The solar panel needs to be facing the North and to be at an angle of 35° degrees. Make sure that the solar panel is in direct contact with sunlight and not under any shades.

11. When using the device with a solar panel, it is recommended that you set the device with the AutoSleep activated (ON).

Explanation of sounds from the device speaker:

-	*Short Beep*
__	*Long Beep*
- -	*Startup*
-	*Gsm Network Lock*
-	*Compose of report sms*
__ __ __ __ __ __	*Time - Date Synch*
__ -	Geofence Lock (Location)
- - -	Sms Successfully Send
- - - - - - - -	Failure to sent sms (no card credit)
____	Gets In to Sleep/ Autosleep Mode

Notes

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