

# **ETESIA**

**GB**

**Original user  
manual**

**Please read carefully before using your machine**



**ET MOWER  
ETM65 (WITH GPS)  
ETM65S (WITHOUT GPS)**

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## THANK YOU !

You are now the proud owner of an Etesia automatic robot mower! This extremely reliable and tough machine has been specially designed to give many years of service.

- In order to prolong the life of your mower and keep it in excellent working order, read this manual carefully and always follow the safety recommendations and maintenance instructions.
- As part of our commitment to excellence, we are constantly seeking new ways of improving our products. For this reason, your model may differ slightly from the description in this manual.
- Up-to-date technical information can be obtained from your dealer.
- He will be happy to resolve any queries you may have.

- In accordance with article L.111-3 of the consumer code, ETESIA undertakes to supply your dealership with spare parts, original or compatible, indispensable for the use of your product over a period of 10 years, as from the date of the invoice issued by our company.

### MOWER IDENTIFICATION

- The identification number of your mower is located on the descriptive plate next to the control keypad.
- Always quote this number when seeking advice from your dealer.

## YOUR SAFETY AND THAT OF OTHERS

The Robot mower ETM65 has been designed to be safe for the user. It is the subject, amongst other things, of a specific patent concerning the cutting blades. In short, when they are in contact with objects, the blades retract automatically, which is one of its great advantages.

Furthermore, its sonar system enables it to perceive the presence of people or objects nearby, which instantly makes it slow down. When coming into slight contact with an obstacle, it stops and automatically changes direction.

Unlike traditional garden maintenance machines, the Robot mower ETM65 offers tranquillity and safety on the lawn. However, it is still important to take certain precautions when handling the machine.

### 1. BEFORE USING YOUR ROBOT

- Familiarise yourself with the controls. Make sure you are fully aware of the function which stops the machine safely.
- Ensure that there are no objects on the lawn (toys, branches, clothes, etc.).
- If there is an automatic sprinkler system on your lawn, programme your robot to return to the charging station at least 1 hour before the sprinkler system starts.
- Check the gradient of the ground and ensure that it does not exceed the maximum acceptable value, so that using the robot does not present a hazard.
- Ensure that there are no other risks, in particular to children, pets and belongings.

### 2. USE

- Even after reading the instructions for use thoroughly, it is recommended to carry out a few test runs the first time you use the robot in order to locate the controls and the key functions.
- **WARNING!** Never put your hand or foot underneath the robot whilst it is turned on, particularly near the wheels.
- Turn off the robot safely and wait until the cutting blades have stopped completely before lifting up, moving, or before any other operation.

These precautions are essential for your safety. This advice is not, however, exhaustive; always use your robot with caution.

### 3. MAINTENANCE AND STORAGE

- Carry out the recommended maintenance operations for your robot: good maintenance will keep your robot in its best working order and will get the best performance and a longer life.
- Disconnect the electricity supply before all operations on the recharging station.
- Always turn the main switch to the OFF position before carrying out any operation on the robot.
- Regularly check that the screws which attach the main parts are tightly screwed.
- Your robot is an electrical appliance: never clean it with running water.
- Wear protective gloves when handling the cutting blades.
- Always replace worn out parts with ETESIA spare parts to guarantee the function and safety level intended.

Not following these recommendations could cause serious damage to your robot or even expose you to serious bodily harm.

### 4. RESPONSIBILITY

- If the mower is not used in conformity with the instructions manual and the regulation in force, ETESIA cannot accept any responsibility.
- You must not make any modifications to your mower without the prior agreement of ETESIA. Any modification not authorised by ETESIA can render the machine dangerous and result in severe injury during use.
- The use of any part "not of origin", in addition to the risks incurred by the user, would involve the cancellation of the guarantee for any damage which results from it.

In the event of failure to abide by these instructions, ETESIA cannot accept any responsibility.

# SET-UP INSTRUCTIONS FOR THE ETM65 ETESIA

The installation of the boundary wire and the charging station are essential to ensuring your robot can work effectively. Furthermore, the electrical installation (connecting the charging station to the electricity supply) must be carried out by a professional. **It is therefore highly recommended that an authorised professional carry out the installation process from start to finish.**

## 1 • KEY TO DIAGRAMS



Read the instruction manual carefully in order to understand the contents before starting to use your robot mower.



This automatic mowing device may prove dangerous when used incorrectly. The recommendations for use and safety must be respected absolutely for optimal, completely safe use.



Transport the machine when turned off (master switch on OFF, take the machine to places suitable for transport).



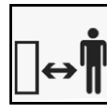
Activate the inoperative mode before carrying out any work on the machine or before lifting it up.



Never place your feet and hands near the rotating blades or below the cover while the robot mower is in operation.



Risk of objects projection.



Never use your robot mower when children, animals or people who are unaware are in the mowing area. Always leave your robot mower to operate alone.



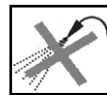
Always use suitable protective gloves while working on the robot mower.



DO NOT climb onto or sit on the machine. Do not put anything on top of the robot mower.



Please note that waste from electric and electronic appliances are subject to special collections. Please note the lithium content.



Never clean the robot with running water.



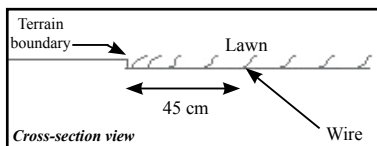
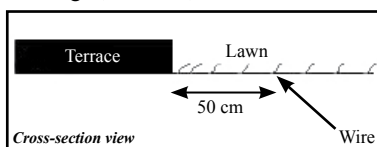
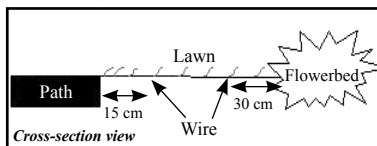


## 1 • KEY TO DIAGRAMS



## 2• USUAL DISTANCES

These distances are used in several cases. Every terrain is different and it must be kept in mind that different constraints are found in each case. During set up, the installer must work as follows:

ETM65
<p>Reminder:</p> <ul style="list-style-type: none"> <li>- length of mowing: 65 cm;</li> <li>- length of machine: 100 cm.</li> </ul> <p>Charging station: distance of 55 cm</p>
<ol style="list-style-type: none"> <li>1. Begin setting up the wire from the charging station.</li> <li>2. Position the wire in a clockwise direction.</li> <li>3. Position the peripheral wire of an island in an anti-clockwise direction.</li> <li>4. The cable is positioned between 2 and 5 cm deep.</li> </ol>
<p>Generally: 45 cm from the boundary</p>  <p>Cross-section view</p>
<p>Edges, terraces, hollows: 50 cm</p>  <p>Cross-section view</p>
<p>Paths, flowerbeds, at lawn level : between 15 and 30 cm</p>  <p>Cross-section view</p>

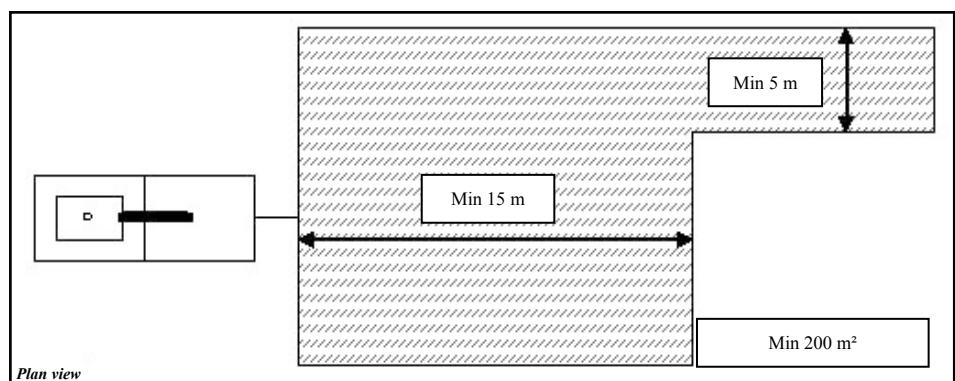
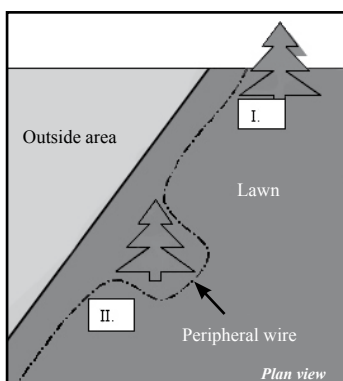
→ OBSTACLES:

### 2•1 LOCATED MORE THAN 1 M FROM THE EDGE OF THE TERRAIN: 2 SOLUTIONS

- Either the wire passes normally: see distances above.
- Or the wire passes in front of the obstacle (the small plot behind the obstacle will not be mowed).

### 2•2 LOCATED LESS THAN 1 M FROM THE EDGE OF THE TERRAIN: THE WIRE PASSES IN FRONT

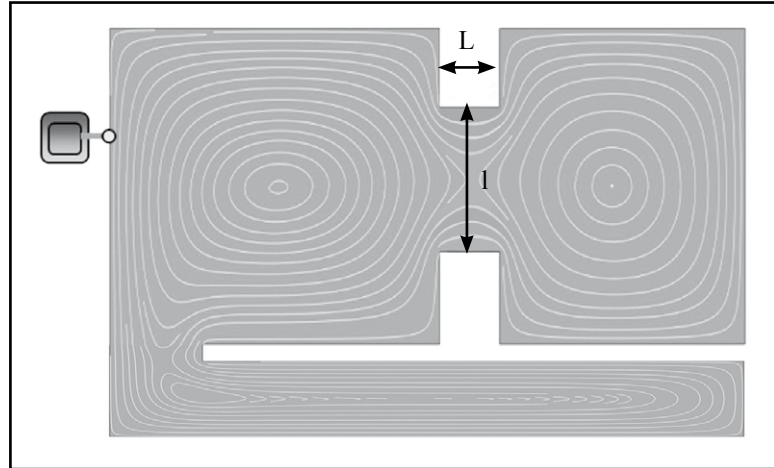
- Minimal mowing area (for demonstration): 15 m x 15 m ( $\approx$  2 hundred metres squared).
- Passage: minimum distance of 5 m between the wires.
- It is worth ensuring a minimum distance of 15 m. between the peripheral wires when they are opposite each other (//) in front of the station.



## 2• USUAL DISTANCES

### 2•3 NARROW PATHWAYS

If the area being mown has narrow passageways or areas certain minimum dimensions must be complied with to ensure the mower operates correctly and to ensure it can get back to the base unit.

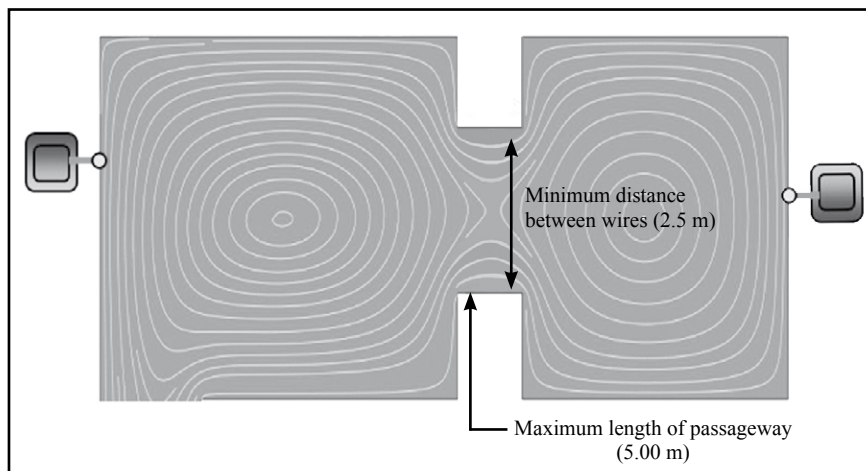


Length of narrow passageway (L)	Minimum distance between wires (l)			
	< 1 m	$1 < x < 5$ m	$5 < x < 15$ m	> 15 m
ETM65	3.0 m	3.5 m	4.0 m	8.0 m



If these minimum distances are not available a second charger base unit will have to be set-up in the second mowing area.

The robot will be able to travel from one mowing area to the other during its random mowing travel but when the robot looks for the base unit again it will stay in the area where it has finished working, i.e. at the end of allowed cutting time, its battery is discharged etc...



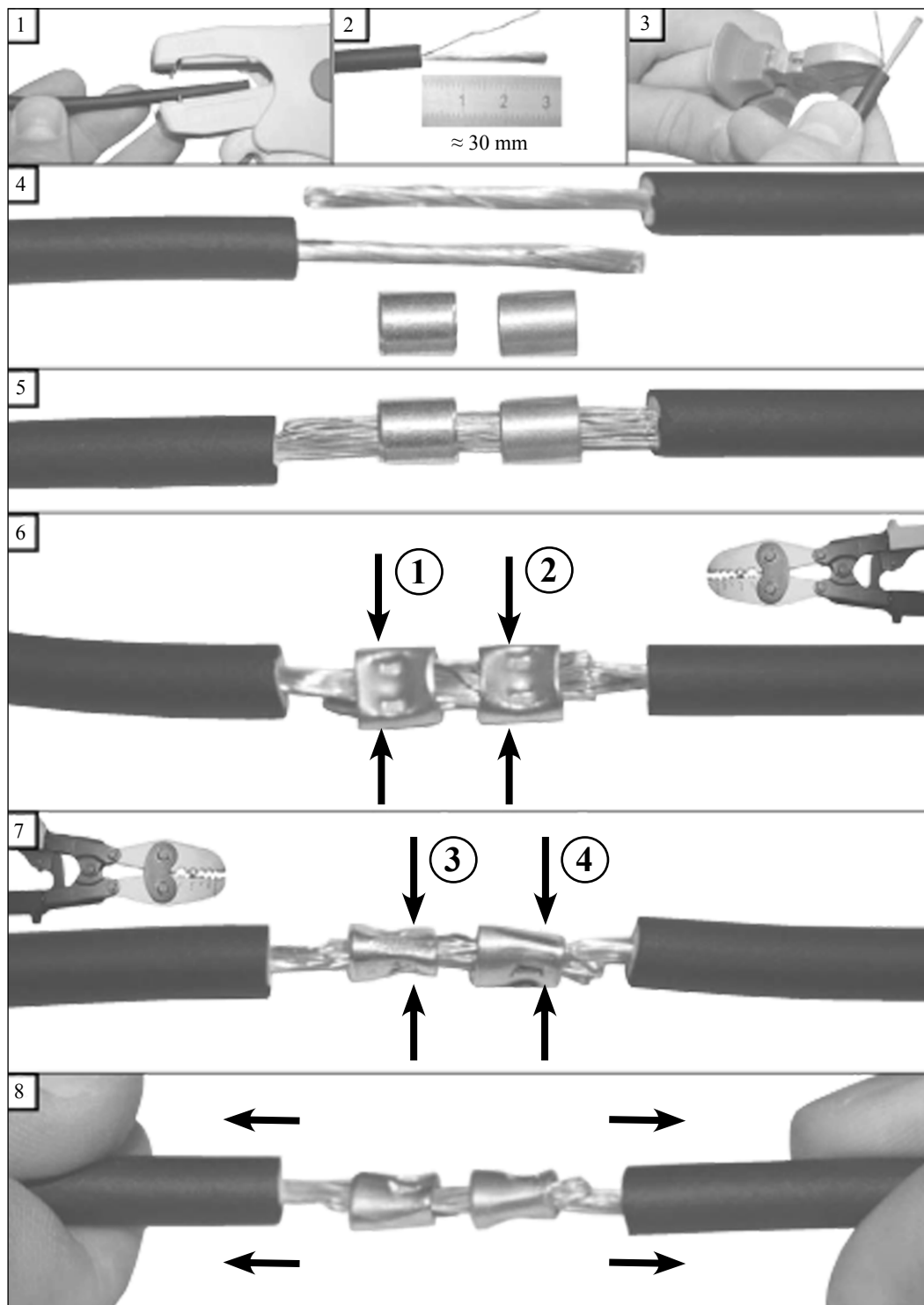
### 2•4 LENGTH OF PERIMETER WIRE

Minimum length to ensure correct robot operation: 200 m.

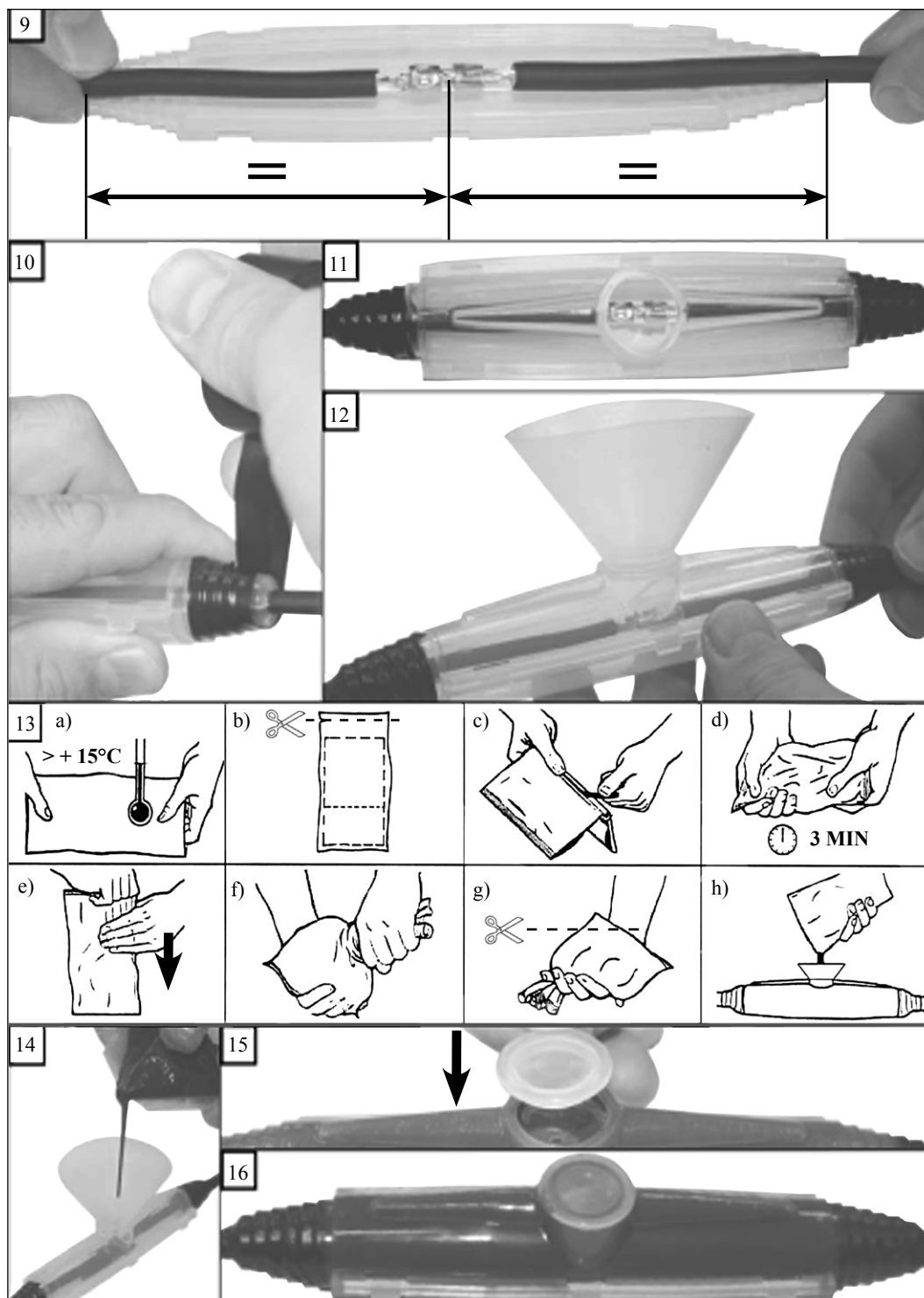
Maximum length beyond which the transmitted signal is too weak to enable correct operation: 1200 m.

## 2• USUAL DISTANCES

If the length of the perimeter wire exceeds the length of a spool of ETESIA ETC or ETC1 wire (500 m), a connection will have to be made using an ETK connector according to the procedure described below.



## 2• USUAL DISTANCES



If the perimeter wire is modified or repaired after the robot is installed, due to the wire being cut, adding a plot, increasing the size of the mowing area and so forth, it is imperative to use Etesia ETK connectors to connect the cables to ensure the join is completely watertight.

## 3• SETTING UP THE PERIPHERAL WIRE: ISLANDS



**ALWAYS LIMIT THE CREATION OF ISLANDS.**

### 3.1 WHEN TO CREATE AN ISLAND?

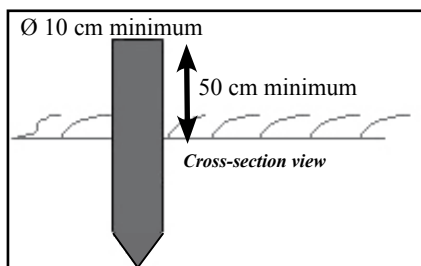
- When the part to isolate is found near a flowerbed or a boundary and there is no physical barrier (e.g. a flowerbed in the middle of the garden).



- When tree roots flush with the surface.

### 3.2 ALTERNATIVE SOLUTION TO CREATING AN ISLAND?

Create a physical boundary (edge, pickets) in such a way that the ETM65 sonar detects them (minimum 50 cm high).



Certain boundaries do not need protection (trees ...).

### FOR SWIMMING POOLS, LAKES, PONDS, ETC. (CRITICAL AREAS)

You must set up a boundary wire AND protect the water feature by a physical boundary. When the station power is cut, the machine continues 1 meter (1 second) before stopping and therefore you must set up a physical boundary near a critical area.

Stay at least 2 m from any water points. Ideally a physical barrier should be erected. If the water point is on a downward slope, you must provide physical obstacles.

ETESIA decline all responsibility if the robot falls into the water.

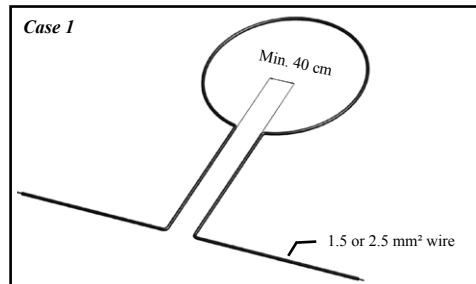
### 3.3 DISTANCES REGARDING THE PERIPHERAL WIRE

Case 1: distance less than 5 metres from wire to wire.

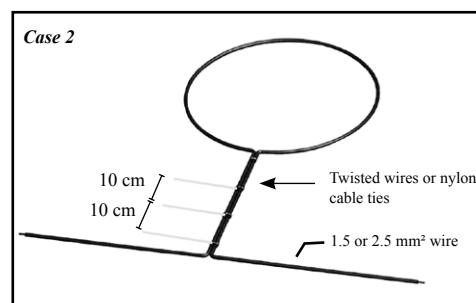
Case 2: distance from 5 metres from wire to wire.

#### EXPLANATION:

- In case 1, during the return to the station, the machine will go around the island considering the force fields connected to the island as the terrain boundary.

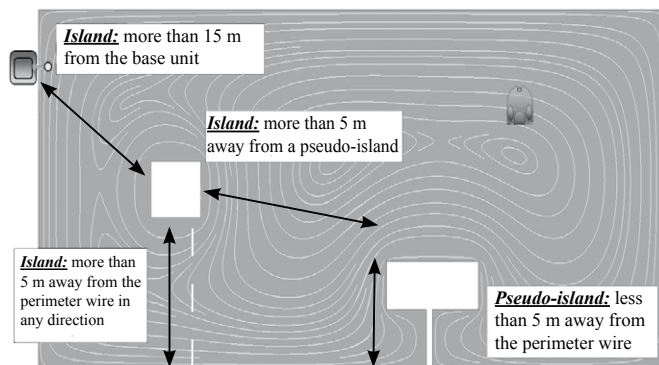


- In case 2, during return to the station, the machine will follow its exterior peripheral wire without taking the island into account. In this case the two wires connecting the island at the edge of the mowing area must be twisted to cancel out the signal.



1. Put the wire in the ground with the MPFE wire installing machine (pictures 17 and 18).
2. Install the wire all around the island (**NEVER CROSS OVER THE WIRES**).
3. Manually install the cable with the first wire to go back towards the edge of the perimeter.
4. Install the wire on the perimeter with the MPFE machine over a run of several metres.
5. Twist the 2 wires connecting the island and the edge of the perimeter with a screwdriver or use cable ties and then fill in the trench to bury the cable.

As a general rule the distances shown in the diagram below between different islands and pseudo-islands, the perimeter wire and the base unit must be complied with.





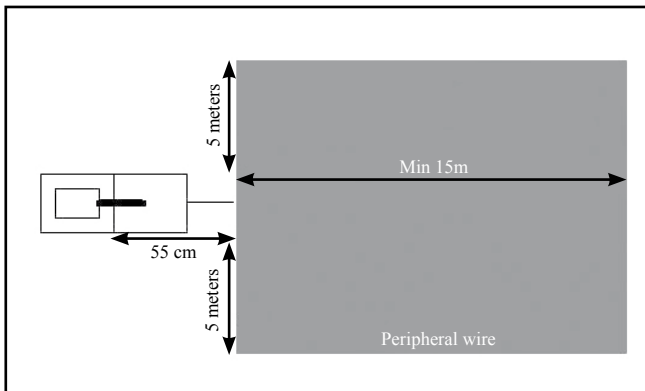
## 4• SETTING UP THE CHARGING STATION

For optimal operation, the charging station must be placed in the main area of the terrain, offering the greatest clearance possible.

For best results install the base unit on a paved or concrete area.

### 4•1 DISTANCE TO KEEP

- Minimum 15 m between the station and the peripheral wire opposite the station.
- A distance of 55 cm between the peripheral wire and the station.
- Set up the cable in a straight line at a distance of minimum 5 metres on either side of the station.
- The station must be set up on a flat terrain.

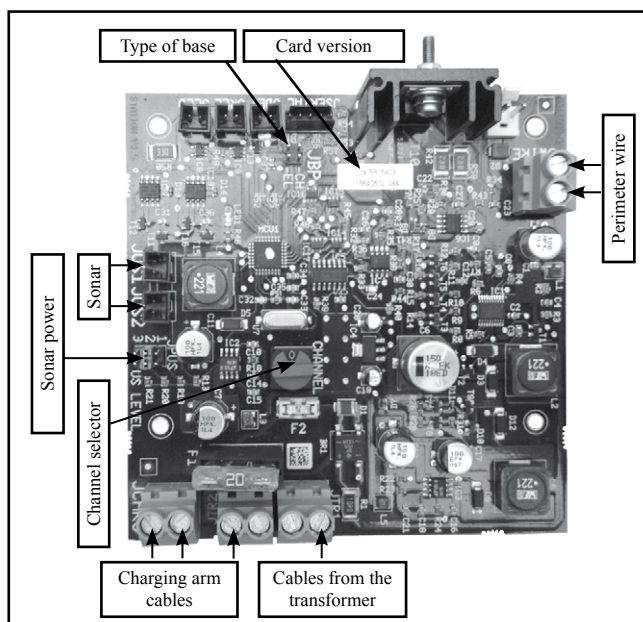


### 4•2 CABLING

- Feed the cables into the rear of the base unit through the cable glands.
- Connect the two ends of the perimeter wire to the JWIRE terminal connector on the base unit card.

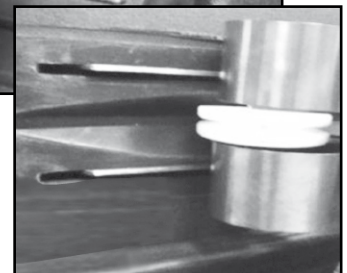
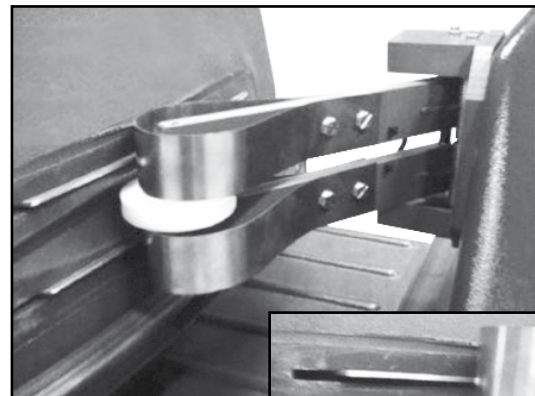
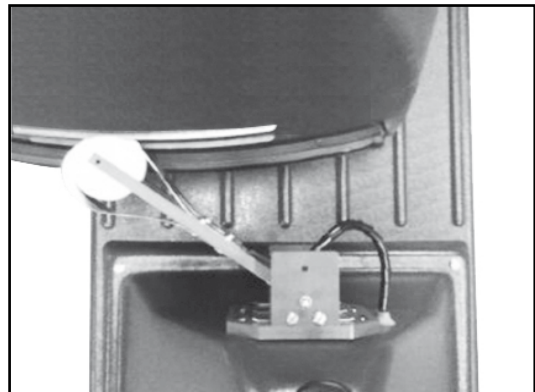
#### CONSTITUTIVE COMPONENTS:

Unit card (ref. 33492)



### 4•3 ADJUSTING THE CHARGING ARM

Set the height and angle of the charging arm depending on the position of the robot, the base unit and the slope of the ground to obtain the best contact possible between the two contacts on the charge arm and the charge terminals on the robot.



## 5• SAFETY ALERT: ERROR MESSAGE

Etesia robots indicate their status with beeps or with messages on the display.  
The ETB charge unit also indicates its status with a two coloured LED.

ROBOT	STATION
Beeps	LED
<ul style="list-style-type: none"> <li>- <b>1 long beep:</b> stop machine, or mistake on the keypad</li> <li>- <b>1 short beep:</b> action on a key</li> <li>- <b>2 long beeps / 10 sec:</b> charge robot</li> <li>- <b>2 short beeps / 1sec:</b> cutter head starting</li> <li>- <b>1 short beep / 2sec:</b> alarm</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Green blink:</b> OK, normal mode</li> <li>- <b>Red blink:</b> cut perimeter wire or wire too long (normally &gt; 1200m)</li> <li>- <b>Continuous red LED:</b> faulty electronic base unit card or wire too short (normally &lt; 200m)</li> <li>- <b>Not lit:</b> base unit switched off</li> </ul>
Charge	
<ul style="list-style-type: none"> <li>- <b>FC:</b> Fast Charge, normal mode</li> <li>- <b>SC:</b> Slow Charge, rest</li> <li>- <b>WU:</b> Wait User</li> <li>- <b>WT:</b> Wait programmed Timers</li> <li>- <b>W.BH:</b> Wait Battery too Hot</li> <li>- <b>W.FT:</b> Wait Freezing ambient Temperature</li> </ul>	

CODE	MEANINGS	REMARKS
<b>A101→→A131</b>	Blocked head(s) (1, 2, 3, 4, 5)	Indication on the screen → Check the cutting components
<b>A132→→A135</b>	Left and/or right wheel blocked	Indication on the screen
<b>A136→→A139</b>	Body in left and/or right collision	Impact sensors → Check the body impact components
<b>A140→→A143</b>	Tactile sensor (touch flange) in left and/or right collision	Touch tyre flange → Check the red pressure gauge connected in the box
<b>A144</b>	Code expired	Follow the code entering procedure
<b>A145</b>	Battery too discharged	→ Put the machine on the station manually, and start it again manually 2 hours later
<b>A146</b>	No peripheral signal	Check at the charging station
<b>A147</b>	Station not found	The machine has not found its station after a tour of the terrain (function of the P01) → Check P01, verify sonar machine (if it slowed down), check the sonar station (if the machine slowed down on approaching the station)
<b>A148</b>	Outside wire boundary	→ Check O03: demo mode; O08: inversion phase; P00: intensity at 30
<b>A149</b>	Wire lost	The machine stops when seeking its wire after 6 m.
<b>A150</b>	No way out path	Blocked at this location after several close manoeuvres
<b>A151</b>	Slipping	Distance travelled greater than P01 → Check the state of the terrain, check P01
<b>A152</b>	Blocked on wire	→ Check O08: investment phase
<b>A153</b>	Fuse. Power surge	Battery fuse broken OR main switch on OFF when charging
<b>A155</b>	Loss of Charging?	Loss of charging on the station
<b>A156</b>	Charge contact?	The machine has detected the station but has not been in contact with the station
<b>A157</b>	Bat Temp Sensor	Problem with the temperature sensor



## 6• IMPORTANT POINTS TO VERIFY

### 6•1 DURING SET-UP

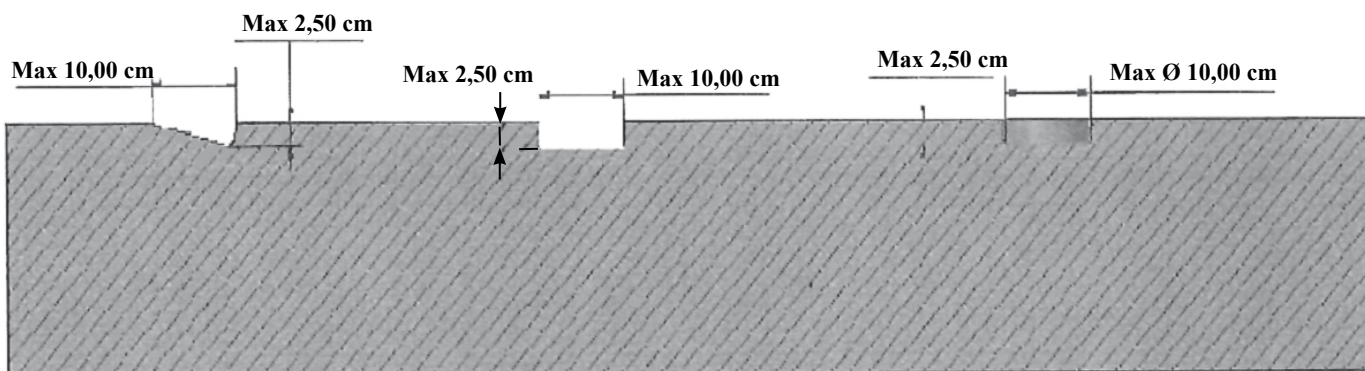
1. Use multi-strand ETC (1.5 mm<sup>2</sup>) or ETC1 (2.5 mm<sup>2</sup>) wire if the wire length is more than 700 m. Use ETK connectors to connect wires together. The cable is buried 2 to 5 cm deep in the ground using the MPFE machine (pictures 17 and 18).
2. Maximum 1200 metres of peripheral wire.
3. Avoid the creation of bottlenecks in the area where the machine moves around.
4. Avoid including an additional area in the work area by a very narrow passage (width of passage: see section 2•3).
5. Do not leave major irregularities in the terrain (hollows or bumps). Spread sand on the irregular area.
6. The edges of the terrain, delimited by trees or hedgerows must be mowed.
7. Shrubs do not stop the machine, protect them with a 'rigid physical' protection (allow obstacles of a minimum 40 cm high areas of a maximum 50 cm); remove or protect obstacles of less than 15 cm in height on the terrain.
8. Limit yourself to 5 islands in the working area.
9. Do not place a peripheral wire perpendicular to a steep slope line of more than 15%. At the bottom of a slope, leave a minimum of 1 metre of flat ground.
10. Terrains that are too marshy, not drained, with an accumulation of water at certain periods and/or certain locations must be adapted by effective drainage.
11. Collect the grass before using machine on a terrain for the first time.
12. Do not place an obstacle at less than 2 metres from the layout of the wire when it bypasses an island (to avoid obstacles on the return to the station).
13. Place the station in an area where there are no obstacles near the wire, leave the wire accesses open (on 10 metres before and after the station). The station must be set up in the largest space in the mowing area, and do not set it up in a secluded location or in a secondary area. Feed the perimeter wires and power cable into the rear of the base unit through the cable glands.

14. The station must be positioned on a flat surface of min. 2 metres in front of the station arm. In addition it must have the straightest line possible for 3 metres on both sides of the station (a slight curve without a break is acceptable) BUT a completely straight line for 1 metre on both sides of the station is mandatory.
15. Connect the station in accordance with the current guidelines (terminal protected by differential for the exterior, buried cable...).
16. Protect water features or areas at risk.
17. Keep 15 metres around the station without obstacle.
18. Two stations must be at least 30 metres apart (2\*15 m).
19. Protect areas at risk (pond, lake, swimming pool, path...) by a physical obstacle.

### 6•2 DURING USE

1. Remove from the terrain any object that might block the cutting heads, e.g. tree branches, tools, planks of wood, bars...
2. Do not restart (several times!) the machine when there is a safety alert.
3. Do not carry the machine on a wheelbarrow, pallet truck...
4. When the grass has not been cut for several days, lower the cutting heads from 1 to 2 notches maximum per day to have a perfect lawn after 8 to 10 days.
5. Leave the machine on when it is connected to its charging station.
6. Tow the machine manually (in order not to have motor resistance, leave the machine on). Do not tow the machine with a tractor, quad or other engine going at a speed faster than human pace.
7. Don't switch off the machine on charge.

## CHECK OF THE STATE OF A TERRAIN BEFORE USE THE ROBOT



These machines have been made to operate on lawns.

Their use on "off road" annuls all guarantees.

Terrains where there is not a difference in level of more than 2.5 cm depth in a maximum of 10 cm in width, tested with a lathe, will still be considered as lawns.



# OPERATING AND MAINTENANCE MANUAL FOR THE ETM65 ETESIA

## 1• DESCRIPTION

The robot mower ETM65 is a completely automatic lawnmower. It is used to maintain areas of up to 9000 m<sup>2</sup>. Enabling its owner to maintain his/her lawn constantly and autonomously, it moves around an area delimited by a buried electric peripheral wire.

The robot mower ETM65 operates randomly. It adapts to its environment and avoids all obstacles thanks to a sonar system and to various sensors. When its batteries have run down, the robot mower ETM65 automatically goes to recharge itself.

The robot has several sensors which optimise safety in case of user error.

The Robot mower ETM65 uses leading technologies.

Its electronics and computer system manage all the information supplied by its many sensors in real time.

The robot mower ETM65 is equipped with a display giving a lot of useful information for its use.

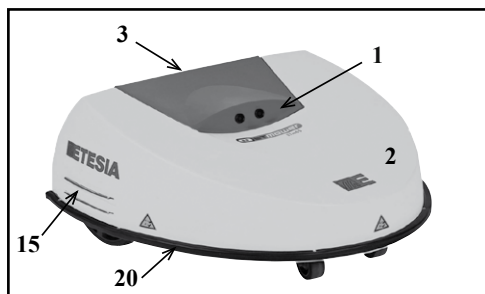
The use of the keypad enables:

- the modification of certain options to optimise the operation (e.g. regulating mowing times, choice of language, display of information, etc.).
- entry of the anti-theft safety code, essential for the operation of the robot mower ETM65.

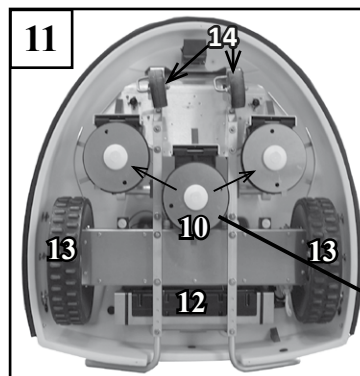
A sound indication is also used to give various information to the user (safety alert, keypad use, battery charge status, etc.).

1. Sonar
2. Body
3. Cover
4. Cutting height setting lever
5. Command keypad with display screen
6. Robot mower ETM65 overside view
7. Box containing the computer (or the electronics)
8. Contact sensor
9. On/Off switch
10. Cutting head

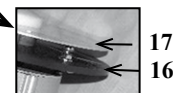
11. Robot mower ETM65 underside view
12. Battery location
13. Motor wheels
14. Front wheels
15. Supply connector on the robot mower ETM65
16. Cutting blades
17. Protection disc (deflector)
18. Charging station
19. Supply connector on the station
20. Tactile bumper sector



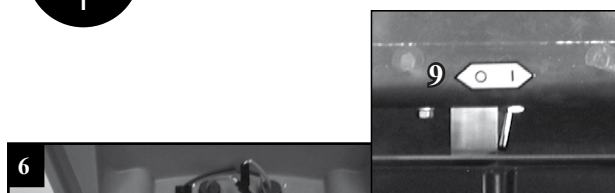
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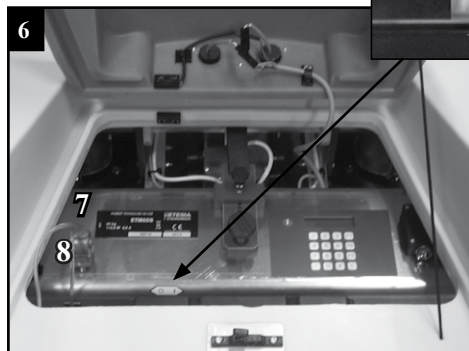
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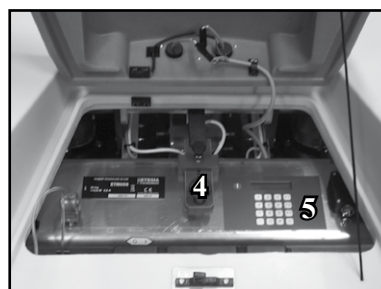
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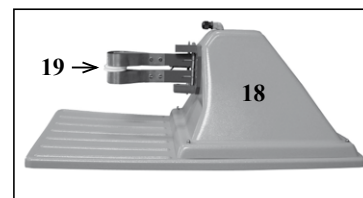
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3

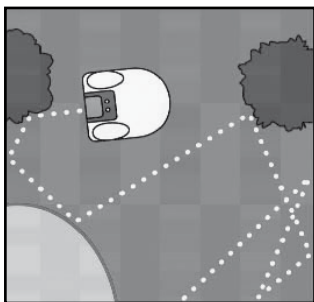


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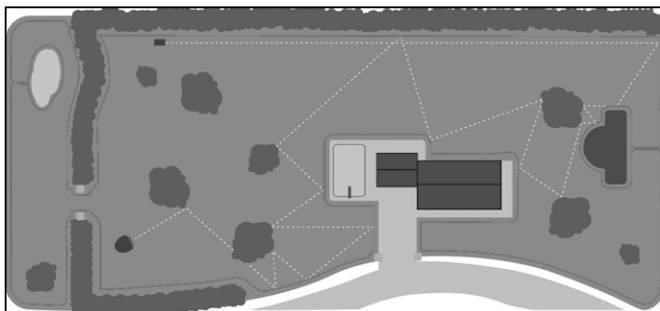


4

## 2• PICTURES



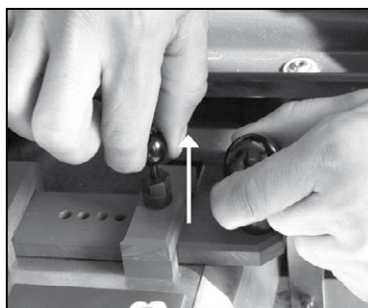
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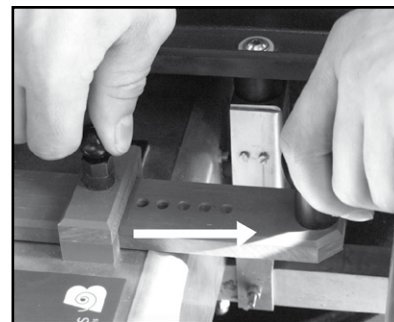
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7a



7b



7c



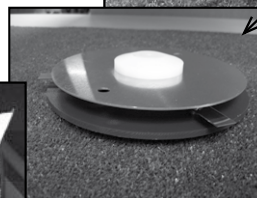
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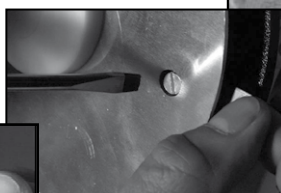
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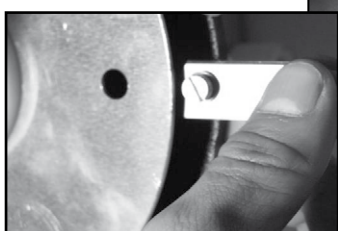
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10b



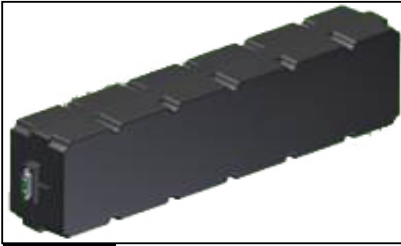
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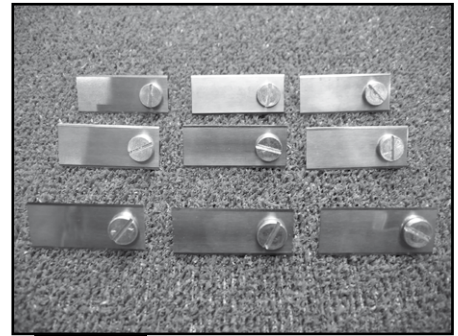
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## 2• PICTURES



11



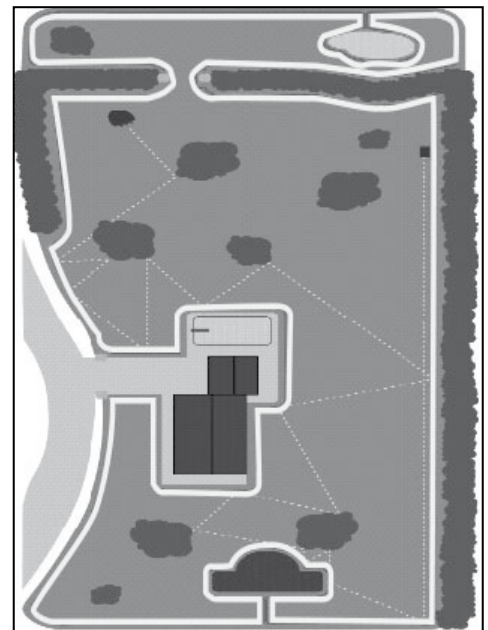
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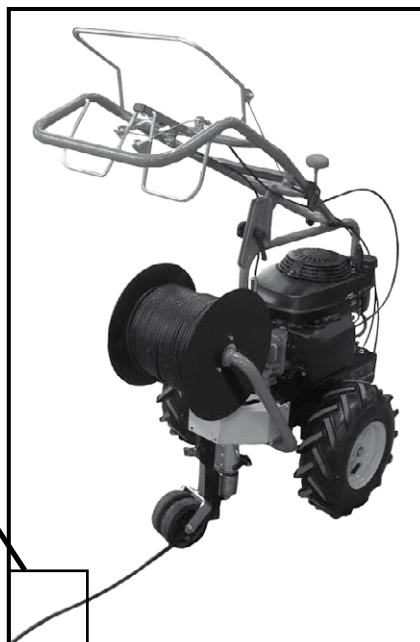
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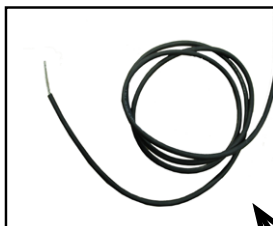
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17

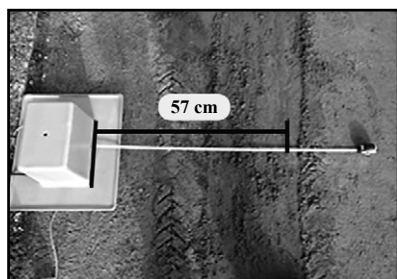


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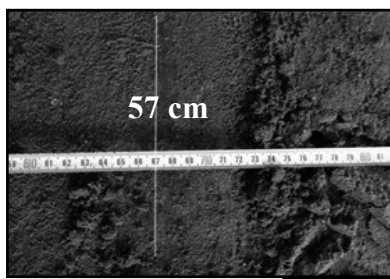


16

## 2• PICTURES (ETBA)



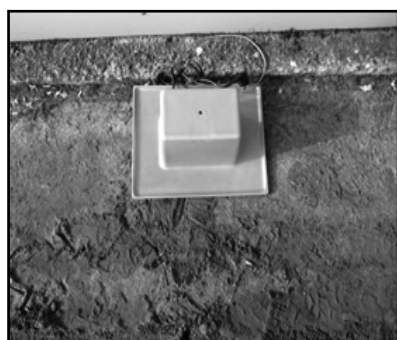
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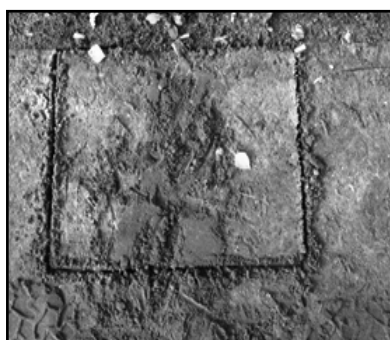
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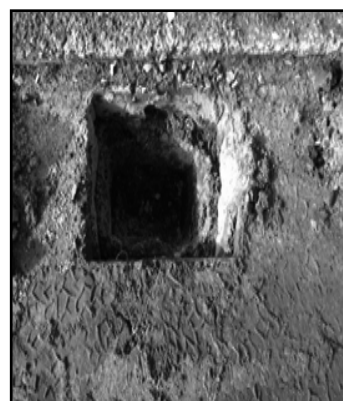
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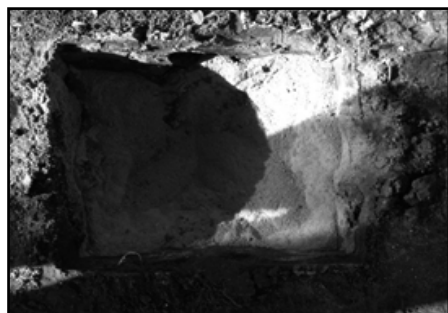
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28



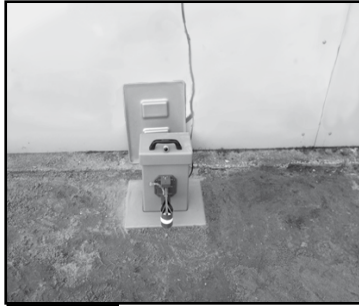
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30



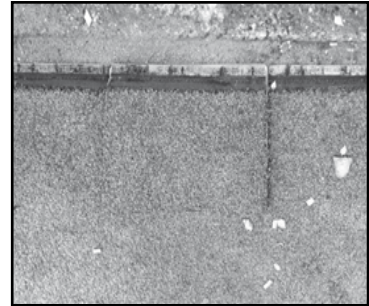
## 2• PICTURES (ETBA)



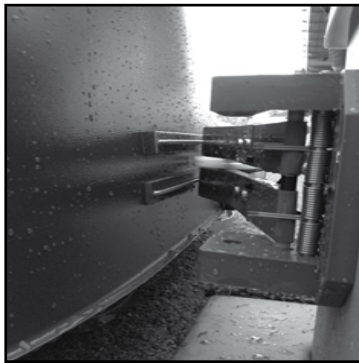
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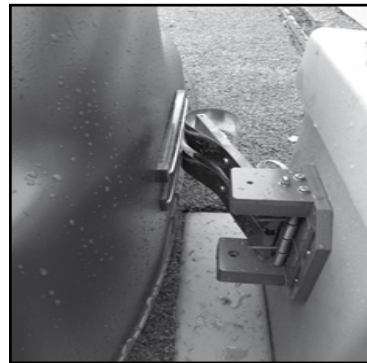
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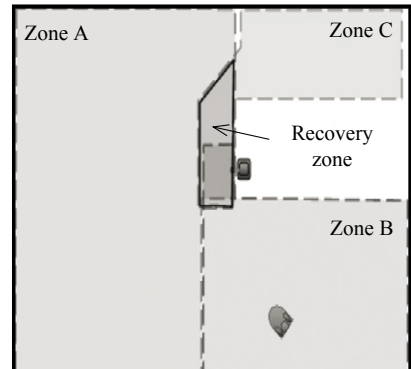
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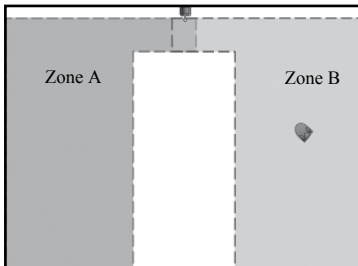
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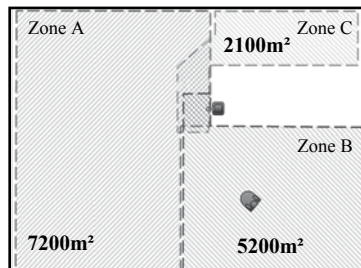
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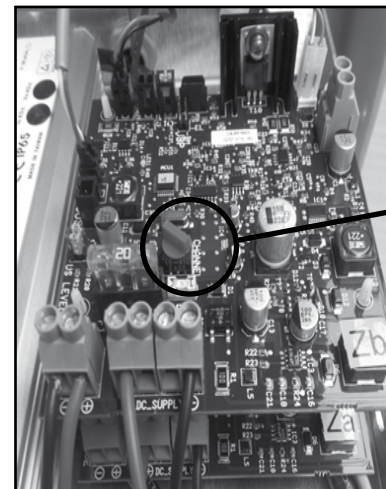
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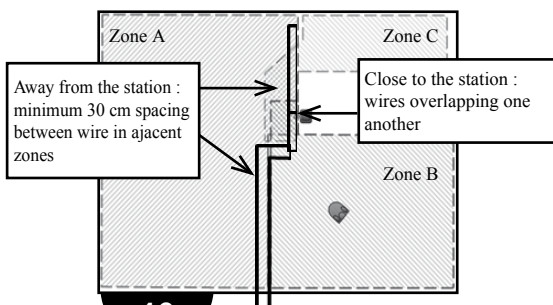


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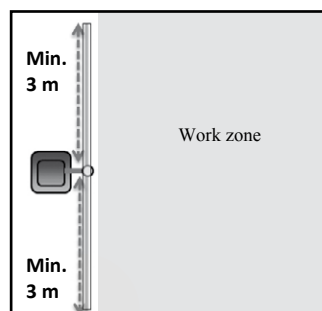


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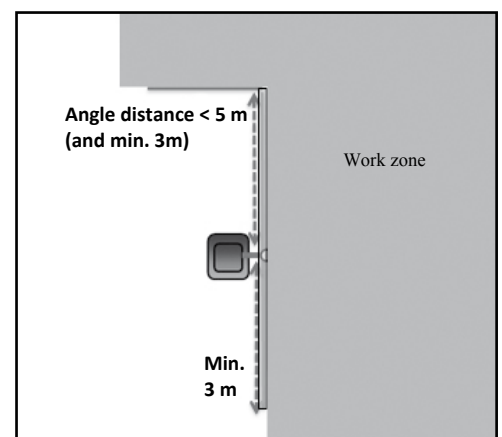
Channel selector



40



41



42

## 3• TECHNICAL CHARACTERISTICS

DESIGNATION	CHARACTERISTICS
Thrust	92 W / 2 wheels, $\Phi 36$ cm
Cutting height	From 22 to 65 mm in 8 positions
Cutting width	65 cm / 3 heads
Cutting disc motor	24 Volts brushless
Working speed	2.9 km/h
Maximum rotation speed	3500 rotations/min
Motor wheel engine	24 Volts brushless
Mowing capacity	Up to 9000 m <sup>2</sup>
Theoretic mowing speed	1900 m <sup>2</sup> /h
Maximum incline	30%
Weight	36 kg
Dimensions l x b x h	102 x 100 x 45 cm
Charging station	30 Volts DC
Peripheral wire	120 mA ac
Continuous feed	32 Volts / 10 A
Max. energy consumption	555 kwh/year
Acoustic pressure level	< 70 dB (A)



**NON-CONTRACTUAL INFORMATION CAN BE CHANGED BY THE MANUFACTURER WITHOUT WARNING**

## 4• OPERATING INSTRUCTIONS

### 4•1 GENERAL OPERATION

The robot mower ETM65 operates according to the random mowing mode. For the densest areas of the grass, the robot mower ETM65 automatically adapts its mowing. Following its mowing mode and programming, the robot mower ETM65 begins to mow the grass.

When it is faced with an obstacle of a minimum height of 50 cm and a diameter of 10 cm, the sonar gives the robot mower ETM65 the instruction to slow down. When it comes into contact with the obstacle, its various sensors request it to stop, reverse and change direction while continuing to mow the grass.

When its batteries drop below the minimal charge threshold, the robot mower ETM65 immediately goes to charge. It moves towards the peripheral wire and follows it in the programmed direction to find its charging station. After a full recharge, the robot mower ETM65 automatically begins mowing the lawn again.

When the lawn does not need mowing, the robot mower ETM65 detects it and so it waits at its station, indicating SC (slow charge) on its display. It starts mowing again later on. The robot mower ETM65 only works when necessary.

### 4•2 ROBOT MOWER ETM65 MOWING MODES

#### 4•2•1 RANDOM MODE

The “random” mode is the mode used the most often.

It consists of choosing the path to take at random. When the robot mower ETM65 encounters an obstacle or the peripheral wire, the computer tells it a new direction to take. In this way, the path followed is never the same and the machine’s passage is always different. In the end, each and every square metre of the surface area is mowed (see pictures 6a and 6b).

### 4•3 ROBOT MOWER ETM65 CUTTING HEIGHT

#### 4•3•1 SETTING THE CUTTING HEIGHT

The cutting height can be adjusted between 22 mm and 65 mm. There are 8 different positions. This selection is made via a sliding bar, which is found under the cover. To change the height, lift the hand lever (vertical knob) and slide the selection bar (handle).

During activation or after a few days of not working, the lawn will be too dense or too high. It is therefore recommended that you increase the cutting height for a few days and reduce it little by little. (Advice: one notch every 2 days).

When the height of the grass is uneven, the robot mower ETM65 slowly mows the parts of the grass that are too high (for a better result). If the resistance becomes too strong, the robot mower ETM65 carries out a blunt cut. Progressive adjustment of the cutting height gives the optimal result with regard to consumption and wear. (Advice: one notch every 2 days).



## 4• OPERATING INSTRUCTIONS

### 4•3•2 MODIFICATION OF THE CUTTING HEIGHT

PROCESS	MEANINGS
1.	Open the cover (picture 7a)
2.	Lift the selection needle (picture 7b)
3.	Slide the selection bar to the desired height (picture 7c)
4.	Drop the needle
5.	Close the cover

### 4•4 USE OF THE ROBOT MOWER ETM65: CHARGING

The robot mower ETM65 is configured in the factory with the standard parameters. When the terrain presents some peculiarities, it is advised that you ask your dealer to configure the robot mower ETM65 for your application.

When the peripheral wire (see "setting up the peripheral wire") and the charging station (see "setting up the charging station") are connected correctly, you can start operating your robot mower ETM65.

#### 4•4•1 CHARGE OF THE BATTERY

For safety reasons, the robot mower ETM65 is supplied with an uncharged (or slightly charged) battery. During its first use, the robot mower ETM65 must therefore be placed on its station for a first battery charge (manual charge) (see picture 8). This may take approximately 1 hour. Afterwards, it will need approximately 50 minutes of charging for 1:40 hour of operation. But be careful, this may vary depending on the temperature or workload on the cutting motors.

In continuous operation mode, when its charge level is too low, the robot mower ETM65 automatically goes to recharge itself. When the battery is charged, it starts a cycle again (one mowing cycle + one charge). If during a cycle, the resistance of the grass is low, this means that the grass has not grown much. The robot mower ETM65 therefore waits a few hours before starting its work again. The robot mower ETM65 only works when necessary.

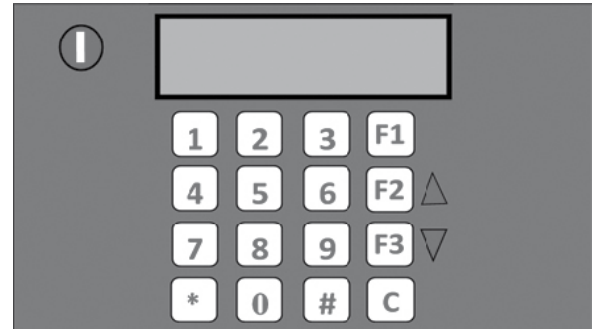
#### 4•4•2 CHARGING

PROCESS	MEANINGS
1.	Put the switch to 1 (picture 3a)
2.	Press ① of the keypad (picture 9)
3.	Place the robot mower ETM65 on the charging station
4.	Type your code "*_ _ _ _" followed by "#"
5.	Let reload (manual charge)
6.	Once charged take the machine out manually
7.	Press ① of the keypad to start up the machine and close the cover

### 4•5 CONFIGURATION OF THE ROBOT MOWER ETM65: KEYPAD

#### 4•5•1 USE OF THE KEYPAD

The keypad includes 17 keys (10 numbers and 7 action keys) :



Keys	Actions
①	Switch on and start the robot.
F1	Bring the robot back to the charging station. When the battery is charged, the robot will automatically continue its mowing programme.
F2	Navigate through the menu and sub-menus. Bring the robot back to the charging station. The robot will remain at the station even after the battery has been charged. The user will need to press the key ① for the robot to continue its mowing programme.
F3	Navigate through the menu and sub-menus. Show the "magnetic distance" of the robot from the boundary wire (instead of the time). This function is for after-sales services.
#	- Access menu and sub-menus. - (De)select an option.
C	Go back in menu and sub-menus. Delete the robot's alarm messages which are displayed on the screen.
*	- Enter a pin number or access code to change settings. - (De)select rest days.

To start up the machine, you have to press ① (the screen (see picture 9) blinks), then close the cover again within 8 seconds. The robot mower ETM65 will start up its cutting heads then start to work.

#### FUNCTIONS

2 submenus are found in the "MENU":

- The "Settings" menu to access the user settings.
- The "Infos" menu (which is addressed to your technician) for all information about the operation of your robot mower ETM65.

The selection of \* enables the user code to be entered and the machine to be activated for a chosen period. After this period, the machine stops and the code has to be re-entered. Before a delayed start, it is therefore advised that you re-enter the code. Without this code, the machine will not operate.

## 4• OPERATING INSTRUCTIONS

### STRUCTURE OF THE MENUS (ACCORDING TO SOFTWARE)

Menu

Settings

Options  
Clock  
New code  
Language  
Suppress Rests  
Rests settings

Infos

Statistics  
History  
Version  
Serial

"\*" + " \_ \_ \_ \_ " user code

### 4•6 USING THE MENU

#### 4•6•1 "SETTINGS" MENU

- The "**Options**" menu (See §4•9 "Using options").
- The "**Clock**" menu enables the modification of the time and the date.

PROCESS	MEANINGS
1.	When " <b>CLOCK</b> " is displayed, press # once.
2.	Enter the time in hours and minutes using the 0 to 9 numeric keys.
3.	Once the time in hours and minutes has been programmed, the cursor will automatically move on to the day. Use the 1 to 7 numeric keys to choose the day of the week, from Monday to Sunday.
4.	Press <b>F3</b> to move on from the day of the week to the date, then use the 0 to 9 numeric keys to enter the current day, month and year. Confirm by pressing #.
5.	After programming the date, press C several times to return to the "MENU" screen.

- The "**New code**" menu enables the modification of the user code.

PROCESS	MEANINGS
1.	When " <b>NEW CODE</b> " is displayed, press # once.
2.	The screen will display " # - - - - ". You can now enter your new 4-digit code, followed by # to confirm.
3.	The screen will now be showing "# DAYS: 030 ". The robot will ask you to enter the code once every 30 days. To reduce or increase this frequency, use the 0 to 9 keys and confirm by pressing #.
4.	To change your code, press # once when " " is displayed.
5.	The screen will display " * - - - - ". Enter your old code and press # to confirm.

PROCESS	MEANINGS
6.	The screen will now be showing " # - - - - ". Enter your new code, confirm by pressing #, enter the number of days and confirm by pressing #.
7.	To delete the PIN code, enter '0000' as a new code.



**WARNING**, when the machine protection is activated, you must re-enter its code at the end of the validity, or the machine stops and requests its code.



**WARNING**, if you select 0 day, you must re-enter the code for each operation on the machine.

- The "**Language**" menu enables the modification of the language.

PROCESS	MEANINGS
1.	When " <b>LANGUAGE</b> " is displayed, press # once.
2.	Use the <b>F2</b> and/or <b>F3</b> keys to choose the language and confirm by pressing #.
3.	Press <b>C</b> several times to return to the "MENU" screen.

- The "**Suppress Rests**" menu allows to cancel all the rest ranges.
- The "**Rests settings**" menu allows you to programme up to 5 rest periods during which your robot will not work. It will remain at the charging station instead.

PROCESS	MEANINGS
1.	Enter the time (in hours and minutes) at which you want the rest period to begin, then the time at which you want the rest period to end using the 0 to 9 numeric keys. Confirm by pressing #.
2.	Use the <b>F2</b> and <b>F3</b> keys to move on to the days of the week and * to select the days when you don't want your robot to work. Confirm by pressing #.
3.	When " <b>REST RANGE 2</b> " is displayed, repeat the steps described above as necessary.
4.	Once all of the rest periods have been programmed, press <b>C</b> several times to return to the "MENU" page.

Rest range 1# : \_\_ : \_\_ → \_\_ : \_\_  
☐Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

Rest range 2# : \_\_ : \_\_ → \_\_ : \_\_  
☐Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

Rest range 3# : \_\_ : \_\_ → \_\_ : \_\_  
☐Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

Rest range 4# : \_\_ : \_\_ → \_\_ : \_\_  
☐Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

Rest range 5# : \_\_ : \_\_ → \_\_ : \_\_  
☐Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

#### Note: Rests settings during the night

In order to programme a rest period which spans across midnight (00:00) you must programme two rest periods, as the rest range covers two separate days.

## 4• OPERATING INSTRUCTIONS

**Example 1 :** The robot rests from 9pm on Monday and starts working again the following day at 6am.

Rest range 1# : 21 : 00 → 24 : 00  
☒Mon ☐Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

Rest range 2# : 00 : 00 → 06 : 00  
☐Mon ☒Tue ☐Wed ☐Thu ☐Fri ☐Sat ☐Sun

**Example 2 :** A two-hour rest period every night during the week starting at 11pm because an automatic sprinkler system is in use.

Rest range 1# : 23 : 00 → 24 : 00  
☒Mon ☒Tue ☒Wed ☒Thu ☒Fri ☐Sat ☐Sun

Rest range 2# : 00 : 00 → 01 : 00  
☐Mon ☒Tue ☒Wed ☒Thu ☒Fri ☒Sat ☐Sun

- The "**Debug-info**" menu displays the time, phase information or position of the robot with respect to the perimeter wire.

PROCESS	MEANINGS
1.	Indication Menu (C to return to the Menu)
2.	Press the <b>F3</b> key

Indication of the phase in the middle of the screen and technical information instead of the time (see the Options menu "O08-PhiInv" to set phase parameters).

PHASE
Φ + : Machine within its mowing area
Φ - : Machine outside its mowing area

### 4•6•2 MENU "INFOS"

This menu is addressed to your technician. It includes 4 submenus:

- The "**Statistics**" menu enables general information about the operation of your robot mower ETM65 to be displayed.

CODES	MEANINGS
S0	Mowing time (minutes)
S1	Charging time (minutes)
S2	Total number of cycles
S3	Left wheel distance (metres)
S4	Right wheel distance (metres)
S5	Battery status
S6	Battery status
S7	Rest time (minutes)

- The "**History**" menu enables the events recorded by the robot mower ETM65 to be displayed.

CODES	MEANINGS
S	Begin seeking station
Wc	Begin working
Cw	Begin charge
Rc	Begin rest on charge
→U	Panel opened by user

CODES	MEANINGS
→Go	Start to work
ON	Switched on
— —	Switched off
AL	Alarm
NP	New program (upgrade)

- The "**Version**" menu enables the robot mower ETM65 software version to be obtained.

- The "**Serial**" menu enables the serial number of the main electronic card to be displayed.

## 4•7 SUMMARY

### 4•7•1 TO START UP THE MACHINE

Use the following procedure to switch on the robot:

- Lift the access hood of the robot.
- Move the main switch to ①.
- Press the ① key on the control panel. The screen will light up.
- Press the ① key on the control panel a second time. The screen will flash.
- Close the access hood in the next 8 seconds. The robot will start.

### 4•7•2 TO STOP THE MACHINE

To switch the robot off, simply raise its hood.

It will start working again only when you implement the procedure described above.

### 4•7•3 TO SEND THE MACHINE TO ITS STATION

If you want the robot to continue mowing after it has recharged:

- Stop the machine by raising the hood.
- Press **F1**. The screen will display: "O01 GoToChge: √"
- Press ① to start the robot again.
- Close the hood in the next 8 seconds.

### 4•7•4 TO SEND THE MACHINE TO ITS STATION AND STAY THERE

If you want the robot to remain at the charging station until further notice:

- Stop the machine by raising the hood.
- Press **F2**. The screen will display: "O02 Stay@Chge: √"
- Press ① to start the robot again.
- Close the hood in the next 8 seconds.



To cancel the option on the terrain, repeat the operation and when you reach point b press **#** to cancel the option, indication O02 Stay@Chge: -

## 4•8 USE OF THE ROBOT MOWER ETM65: VARIOUS

### 4•8•1 SOUND AND VISUAL INDICATIONS

During the various operations, your robot mower ETM65 indicates its status to you by small "beeps" and/or by information on the display screen.

## 4• OPERATING INSTRUCTIONS

ROBOT	CHARGING STATION
Beeps	LED
<ul style="list-style-type: none"> <li>- <b>1 long beep:</b> Stop robot or incorrect key has been pressed</li> <li>- <b>1 short beep:</b> Key has been pressed</li> <li>- <b>2 long beeps / 10 sec:</b> Charge robot</li> <li>- <b>2 short beeps / 1 sec:</b> Cutting heads starting up</li> <li>- <b>1 short beep / 2 sec:</b> Alarm</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Blinking green light:</b> OK, normal mode</li> <li>- <b>Blinking red light:</b> boundary wire has been cut or is too long (usually &gt; 1200 m)</li> <li>- <b>Continuous red light:</b> failure of the station's electronic card or wire is too short (usually &lt; 200m)</li> <li>- <b>No colour:</b> the station is not connected to an electricity supply.</li> </ul>
Charge	
<ul style="list-style-type: none"> <li>- <b>FC:</b> Fast Charge, normal mode</li> <li>- <b>SC:</b> Slow Charge, rest mode</li> <li>- <b>WU:</b> Wait User</li> <li>- <b>WT:</b> Wait programmed Timers</li> <li>- <b>W.BH:</b> Wait Battery too Hot</li> <li>- <b>W.FT:</b> Wait Freezing ambient Temperature</li> </ul>	

An error message is displayed on the screen when the robot mower ETM65 comes across something unexpected. To return the ETM65 robot mower to operation, see the "Troubleshooting" section and press key C to delete it.

### 4•8•2 INFORMATION MESSAGES

It is possible to choose between displaying the time and the technical information in the "Debug-info" menu by pressing the **F3** key on the keypad.

### 4•8•3 MANUAL CHARGE

If you return the machine to the base station manually, press **①** before closing the hood once "W.U" is displayed.

## 4•9 USING OPTIONS

This sub-menu contains 16 options, accessible according to the configuration of the area to be mown and the robot's firmware. Options can be selected '✓' or deselected '-' with the # key by your dealer to suit your mowing area.

Caution is advised when using this sub-menu as modifications can significantly alter the effectiveness of the robot.

OPTIONS	DEFAULT
Option 00 : Multiple robots	-
Option 01 : Go charging	-
Option 02 : Stay on charge	-
Option 03 : Demo mode	-
Option 04 : No beep in charge	-
Option 08 : Signal Phase Inversion	-
Option 09 : Heads rotation alternated	✓
Option 10 : Counter-clockwise dock seek	-
Option 11 : Both sides docking	✓
Option 13 : Docking manoeuvre in U	✓
Option 14 : Back along wire	-
Option 15 : No rests	-
Option 16 : Multizone	-
Option 17 : Active zone	✓
Option 18 : Keyboard lock	-

### 4•9•1 OPTION «O00 - MULTIROBOT»

The "MultiRobot" option must be selected if several robots are working in the same area.

From the "OPTIONS" screen, press # - **F2** and use the # again to select or deselect the option.

O00 MultiRobot: " - ", the robot will charge at any charging station.

O00 MultiRobot: " ✓ ", the robot will only connect to one specific available station.

In practice, this option must only be selected for specific cases (e.g. Golf courses).

### 4•9•2 OPTION "O01 - GOTOCHGE"

This option requires the robot to return immediately to its charging station. Once the robot's batteries have been recharged, it automatically starts working again.

From the "MENU" screen, press **F1**.

O01 GoToChge: " - ", the robot continues working normally.

O01 GoToChge: " ✓ ", the robot returns to its charging station immediately.

### 4•9•3 OPTION "O02 - STAY@CHGE"

This option forces the robot to return to its charging station and stay there until further instruction from the user.

From the "MENU" screen, press **F2**.

O02 Stay@Chge: " - ", the robot continues working normally.

O02 Stay@Chge: " ✓ ", the robot returns to its station immediately and stays there.

To restart the recharged robot, open the access hood, press **F2 - # - ON** and close the hood again within 8 seconds.

### 4•9•4 OPTION "O03 - DEMOMODE"

The demo mode allows the user to start up the robot, with or without a boundary signal. The cutting heads will not be activated in this mode: the robot will move around without mowing.

From the "OPTIONS" screen, press # - **3** and use the # key to select or deselect the option.

O03 DemoMode: " - ", the robot works as normal, with a boundary signal.

O03 DemoMode: " ✓ ", the robot moves without mowing, with or without a boundary signal.

### 4•9•5 OPTION "O04 - NOCHGEBIP"

When the robot is charging, it beeps twice every 10 seconds to show that it is still connected to its station. However, it can be set to silent mode if the station is located near a dwelling, patio etc.

From the "OPTIONS" screen, press # - **4** and use the # key to select or deselect the option.

O04 NoChgeBip: " - ", the robot beeps twice every 10 seconds while its batteries are charging.

O04 NoChgeBip: " ✓ ", the robot stays silent while its batteries are charging.

## 4• OPERATING INSTRUCTIONS

### 4•9•6 OPTION "O08 - PHIINV"

This option should only be used by your authorised dealer.

This option is used only the first time you switch on your robot, to choose the correct phase in accordance with the installation of the boundary wire.

From the "OPTIONS" screen, press # - 8 and use the # key to select or deselect the option.

O08 PhiInv : " - ", in accordance with the installation.

O08 PhiInv : " ✓ ", in accordance with the installation.

### 4•9•7 OPTION "O09 - HEADROTINV"

This option alternates the direction in which the cutting heads rotate after each mowing cycle.

From the "OPTIONS" screen, press # - 9 and use the # key to select or deselect the option.

O09 HeadRotInv: " - ", no alternation of direction in which cutting heads rotate.

O09 HeadRotInv: " ✓ ", cyclical alternation of direction in which cutting heads rotate.

### 4•9•8 OPTION "O10 - CCWSEEK"

This option causes the robot to return to the charging station in a clockwise direction.

From the "OPTIONS" screen, press # - 9 - F3 and use the # key to select or deselect the option.

O10 CCWSeek: " - ", return to the charging station in a clockwise direction.

O10 CCWSeek: " ✓ ", return to the charging station in an anticlockwise direction.

If option O11 is selected, option O10 will display the current choice being used by the robot first, but can be overridden by the user.

### 4•9•9 OPTION "O11 - CHGE2SIDES"

This option allows the robot to return to the charging station in either direction.

From the "OPTIONS" screen, press # - 9 - F3 - F3 and use the # key to select or deselect the option.

O11 Chge2Sides: " - ", return to charging station in one direction only, as defined by option O010.

O11 Chge2Sides: " ✓ ", return to charging station in either direction.

### 4•9•10 OPTION "O13 - UDOCKING"

This option defines the manoeuvre for returning to the station.

In a "U" return, the robot passes in front of the station before performing a U-turn to connect to the station.

In an "S" return, the robot returns to the station directly without passing in front of it first.

From the "OPTIONS" screen, press # - 9 - F3 - F3 - F3 and use the # key to select or deselect the option.

O13 Udocking: " - ", "S" return manoeuvre.

O13 Udocking: " ✓ ", "U" return manoeuvre.

### 4•9•11 OPTION "O14 - BACK ALONG WIRE"

This option defines the station return path.

With Back Along Wire enabled, the robot follows its wire back to the station.

With Back Along Wire disabled, the robot follows its trackborder defined at the time of station installation.

From the "OPTIONS" display, press # - 9 - F3 - F3 - F3 - F3 and use the # key to select or deselect the option.

O14 Back Along Wire: " - ", back along trackborder.

O14 Back Along Wire: " ✓ ", back along wire.

### 4•9•12 OPTION "O15 - NO RESTS"

This option disables the machine rest times.

From the "OPTIONS" display, press # - 9 - F3 - F3 - F3 - F3 - F3 and use the # key to select or deselect the option.

O15 No Rests: " - ", rest times observed.

O15 No Rests: " ✓ ", rest times ignored.

### 4•9•13 OPTION "O16 - MULTIZONE"

This option enables Multizone operation. **Option available depending on the machine software.**

From the "OPTIONS" display, press # - 9 - F3 - F3 - F3 - F3 - F3 - F3 and use the # key to select or deselect the option.

O16 Multizone: " - ", no multizone.

O16 Multizone: " ✓ ", multizone enabled.

### 4•9•14 OPTION "O17 - ENABLE ZONE"

Accessible in Multizone mode only. This option enables the zones to be mown. **Option available depending on the machine software.**

From the "OPTIONS" display, press # - 9 - F3 - F3 - F3 - F3 - F3 - F3 - F3 and use the # key to select or deselect the option.

O17 Enable zone: " - ", zone disabled.

O17 Enable zone: " ✓ ", zone enabled.

### 4•9•15 OPTION "O18 - KEYBOARD LOCK"

This option allows you to lock the keyboard.

From the "OPTIONS" display, press # - 9 - F3 - F3 - F3 - F3 - F3 - F3 - F3 and use the # key to select or deselect the option.

O18 Keyboard Lock: " - ", keyboard enabled.

O18 Keyboard Lock: " ✓ ", keyboard locked.

If this option is activated, to use the keyboard you must press key 0 for 5 seconds.



### 5.1 SETTING UP THE PERIPHERAL WIRE: TERRAIN BOUNDARIES (PICTURE 14)

It is recommended that you leave a professional to set up the peripheral wire of your robot mower ETM65. He has the necessary tools, as well as good knowledge of how to set up the equipment. If, having positioned the wire, you wish to make your mowing area larger, contact your dealer or installer to make the modification(s). They alone are authorised to make these changes. The guarantee does not cover problems that occur with the machine after personal modifications.

### 5.2 SETTING UP THE PERIPHERAL WIRE: LIMITS

During the placement of the peripheral wire, it is necessary to take account of the limits external of the surface of shearing.

If a fragile obstacle (flowers, for example) is just outside the mowing boundary, the peripheral wire may be positioned at a distance of 45 cm to avoid the robot mower ETM65 damaging it.

When the mowing limit is along a wall, it is recommended that you position the peripheral wire at a distance greater than 55 cm, in order to avoid useless chafing of the machine against the wall.

Near flowerbeds or vegetable patches, it is possible to set up the peripheral wire 35 cm from the edge. In this way, the edges will be perfectly maintained.

If the peripheral wire has to be placed on a slope, the distance from it will be increased to 50 cm depending on the incline (therefore 1.1 m). It is strongly recommended that you do not set up the peripheral wire perpendicular to the slope (maximum 10 to 15 % depending on the quality of the soil and the grass).

For paths or patios located at the same level as the lawn, the wire may be placed 15 cm from the edge.

### 5.3 SETTING UP THE PERIPHERAL WIRE: BOUNDARIES AND SLOPE

#### 5.3.1 BOUNDARIES FOR A LONG PASSAGE OR A PATH (PICTURE 13)

When the robot mower ETM65 has to move through a long passage (maximum 10 m), a corridor or a bottleneck, this passage absolutely must be at least 5 metres wide. If this width is not respected, a part of the lawn risks not being maintained. The machine will stop and will display an error message. For a passage longer than 10 metres another solution such as setting up an additional station must be considered (see "Troubleshooting" chapter).

#### 5.3.2 MAXIMUM DEGREE OF SLOPE OF THE TERRAIN (PICTURES 15 AND 16)

The slope limit is 30% (approximately 15°). Beyond this limit, the robot mower ETM65 risks slipping in difficult conditions (humidity, rain, uneven density of the terrain etc.).

When the robot mower ETM65 comes to an ascent that is too steep, it carries out, as when it meets an obstacle, a manoeuvre.

When the robot mower ETM65 comes to an angled slope, the effort being less, it goes up more easily.

The robot mower ETM65 is however capable of going down steeper slopes.

### 5.4 SETTING UP THE PERIPHERAL WIRE: DELIMITATION

#### 5.4.1 DELIMITATION IN THE MOWING AREA

##### 5.4.1.1 TREES AND COTTAGES

When large trees or a cottage is found in the mowing area, it is not particularly necessary to delimit them. Following certain conditions, the robot mower ETM65 is, in short, able to identify them with the help of its sonar. When it touches them, it changes direction.

With regard to trees, no roots should be visible. In addition, the tree must be rigid and have a diameter of at least 10 cm.

For cottages, it must be ensured that the structure is solid, and that there is no obstacle less than 15 cm high at the base.

##### 5.4.1.2 TWO DELIMITATION METHODS

For all other delimitations in the mowing area, there are two different methods: either by delimiting the area with the peripheral wire (island or pseudo-island), or by planting obstacles such as small stakes or edges at least 50 cm high. Sloped obstacles (stones, roots...) or too low to be detected are also to be protected or removed. It is recommended that you protect areas at risk (a pond, for example) to avoid any problems.

For the creation of islands, the twisted wire has to make a return journey in the same line, with just a separation at the level of the area to be protected. For the creation of pseudo-islands, the wire must make a return journey in a line separated by a minimum of 40 to 60 cm.

##### 5.4.1.3 METAL OBJECTS

During determination of the mowing area, it is important to know that disturbances may be caused by metallic objects (metal fence, metal plate, scraps, concrete bar, concealed ducts, etc.).

The peripheral wire must be set up at a distance of at least 30 cm from these objects. If this distance is not respected, the robot mower ETM65 risks always stopping in the same place. If this is the case, the machine display must be checked. If a "loss of signal" alarm is indicated and if, when the machine moves away, it begins mowing again, it is that the problem is effectively due to a problem caused by a metal object. In this case, get in touch with your dealer for a possible setting of the "installation parameters".

### 5•4•1•4 DEPTH OF THE PATH

The peripheral wire must be buried between 2 and 5 cm deep. Warning, the current legislation prohibits the placement of any other cable (an electric power cable, for example) in the path of the peripheral wire. In addition, in order not to disturb the signal, the cable must not, preferably, run alongside an electric installation or a sanitation facility.



IT IS ESSENTIAL TO USE THE CABLE ETESIA ETC OR ETC1.



ETESIA does not guarantee the operation of the machine with another. Any problem that occurs because of incorrect set-up cancels the warranty.

## 5•5 SETTING UP THE CHARGING STATION

### 5•5•1 PLACEMENT OF THE CHARGING STATION

When setting up the station, it is important to find a suitable place. The station must, in short, be set up not far from a power source (230 V~), and on an even, horizontal terrain.

At least 5 metres of peripheral wire must be able to be placed in a straight line on either side of the charging station.

The connection to the network must be made via a differential circuit breaker for an outside power supply (in accordance with the current guidelines in the country of installation).

The charging station must be positioned behind the peripheral wire (55 cm from the edge of the station cover). Thus, when your robot mower ETM65 goes to recharge, the connection is made in the optimal way.

### 5•5•2 RECOMMENDATION FOR THE CHARGING STATION

PROGRESS	MEANINGS
1.	Near 230 V~ sector
2.	Plug connected to a suitable differential circuit breaker (outside)
3.	Flat area, without obstacles in a 15 m radius
4.	5 metres in a straight line on both sides of the station
5.	The station must be behind the peripheral wire (55 cm)

### 5•5•3 INSTALLATION REMOVABLE LOADING STATION (ETBA)

- Place the base of the loading station upside down and mark on the ground the location of the peripheral wire.

It's important to respect a distance of 57 cm for an ETM65 against the base (pictures 19 and 20).

- Install the peripheral wire (picture 21) (see chapter 5•1 to 5•4).
- Place the loading station base on the ground and mark its location (pictures 22 and 23).
- Dig 25 cm deep and add 5 cm gravel (pictures 24 and 25).
- Place the base of the loading station in the hole and fill the sides with gravel. Be sure that the base is straight compared with the ground. Place the loading station in the base and be sure that you can always insert the loading station after filling from the side (picture 26).
- Twist the peripheral wire and bury it in direction to the base in order to protect it. After that the wire must arrive in the rear left corner of the base (pictures 27 and 28).
- Use the junction box to connect the peripheral wire to the station. After that place the box under the base to protect it (pictures 29 and 30).
- Fill the edges with gravel and sand and/or earth to have a flat area around the station (picture 31).
- In our case, a synthetic coating is placed on the top of the cover to close the hole of the base (to use when the station is absent) (pictures 32 and 33).
- Connect the station under power, test the return to station and adjust the loading arm (pictures 34 and 35).

## 6• MULTIZONE OPTION

This chapter describes the use of the Multizone option.

Your installation must contain the following elements if you wish to use the multizone option:

- A multizone station including multiple blue cards (2 or 3) to generate a multi-zone signal across multiple magnetic loops.
- Multiple (2 or 3) peripheral wire loops corresponding to the different work zones set up during the installation process.
- A robot with multizone software based on the hardware configuration of your robot which you can ask or made install by you dealer. (Please contact your Etesia dealer if you cannot find the software for your robot hardware).

### 6•1 DESCRIPTION OF THE MULTIZONE OPTION

The multizone option allows you to define multiple zones (maximum of three zones) corresponding to multiple peripheral wire loops in which the robot will work. The different zones possible are identified in the software as Zone A, Zone B and Zone C.

The station must be placed on the 2 or 3 peripheral loops such that the robot can return to the station from each of the work zones. This means there must be an area of ground which is inside all 2 or 3 peripheral loops. This is called the recovery zone (see picture 36).

Thanks to the Multizone option, it is possible to improve the overall cutting quality across the area by:

Considering complex installations where the use of multiple peripheral loops of wire makes the installation simpler or even possible at all.

Example: a case where there are 2 distinct zones as illustrated picture 37.

Using the Multizone option :

- allows controlled distribution of work between the two zones and also reduces the time taken to return to the station by reducing the distance to travel for each return to the station.
- guarantee the distribution of work you want between zones A, B and C by means of parameters and options (see later in the document) and allow the robot to work more efficiently overall.
- allows consideration of the restrictions on occupying the area and not necessarily having to put the robot in the rest station (backhome) if part of the area (one zone) is occupied, instead the robot can work in the other zones.

Zone A = main football pitch occupied for competitions during the weekend

Zones B and C = training areas (see picture 38)

With the multizone option, it is possible to set the system up so that the robot can continue to work on Zones B and C during the competitions at the weekends. Or vice versa, it can work on Zone A during mid-week training sessions.

Considering different cutting objectives for the different sub-zones and guarantee the presence of a robot in the different sub-zones in order to achieve these objectives.

For a lawn-mower robot, the grass grows at different rates in the two zones because of the nature of the soil or exposure to sunlight. It is possible to arrange for the robot to spend more time in the zone where the grass grows more quickly.

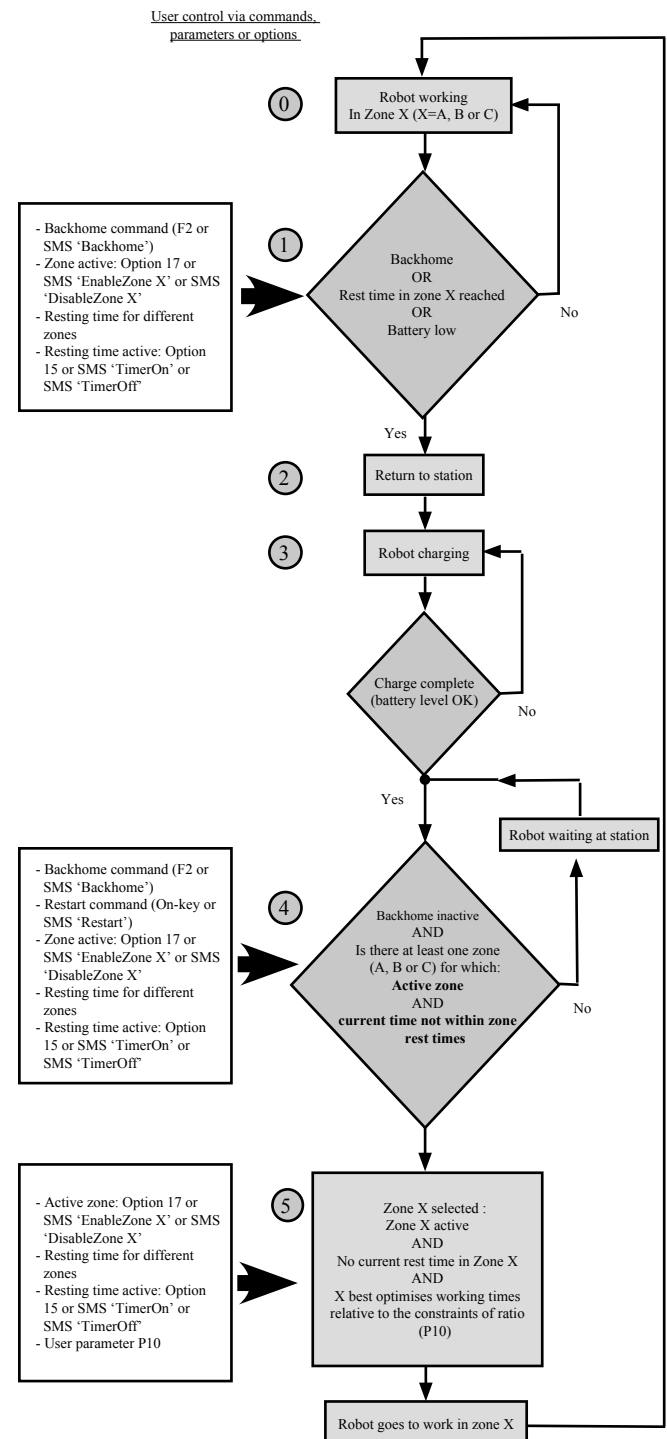
### 6•2 CHOICE OF WORK ZONE

#### 6•2•1 AUTOMATIC ALGORITHM

The figure 1 illustrates the global algorithm for choosing the zone and the way in which the user can influence the algorithm by means of commands, parameters and options which can be given to / programmed on the robot.

In automatic mode (normal operating mode), the robot chooses a work zone for each cycle, i.e. each time it leaves the station to go and work (steps 4 and 5 of the figure 1). During a cutting cycle (steps 0, 1, 2 of the figure 1), the robot never changes zone but still sometimes passes through the recovery zone included in the selected work zone.

**FIGURE 1: ROBOT OPERATING ALGORITHM IN MULTIZONE MODE**





## 6• MULTIZONE OPTION

### 6•2•2 DESCRIPTION OF THE PARAMETERS / OPTIONS

They allow the user to control the algorithm used by the robot to define its work zone. The other parameters / options and the menu navigation method are described in chapters 4•5, 6•4 and 6•5.

### 6•2•3 REST AT STATION FOR SEVERAL CYCLES (BACKHOME OPTION 2, F2 BUTTON)

Station rest (backhome = on charge) has priority over all other options and a robot for which option O2 has been enabled will rest at the station permanently until a new order is received from the user. So this option applies globally across all zones (A, B and C).

Sending a 'Backhome' SMS (Track&Trace manual) enables the O2 option and forces the robot to stay at the station. Sending a 'Restart' SMS disables the O2 option and allows the robot to work. It is the other parameters / options described below which affect how the multizone robot behaves.

### 6•2•4 "ACTIVE ZONE" OPTION (OPTION 17)

A machine never works in a zone if the zone has been disabled. This option O17 is considered as a 2nd priority (after option O2 backhome) in the algorithm which decides which zones the robot will work on.

If the machine is working in a zone and a user disables it, the machine returns directly to the station. This amounts to a return to station (step 1 of the figure 1).

If the machine is in the station and decides to leave, it will never select a zone which has been disabled by the user (step 5 of the figure 1).

The possible values for option 17 are:

#### Option 17 (Zone X) = 0: Zone X (X=A, B or C) is disabled.

The machine does not work in zone X. Even if a zone is disabled, all the parameters, options and resting times relative to this zone are stored in the robot's memory. So when the zone is re-enabled (Option 17 = 1), there is no reprogramming to do.

Sending a 'Disablezone X' SMS (X = A, B or C) is equivalent to setting option 17 to a value of 0.

#### Option 17 (Zone X) = 1: Zone X (X=A, B or C) is enabled.

Sending an 'Enablezone X' SMS (X = A, B or C) is equivalent to setting option 17 to a value of 1.

### 6•2•5 REST TIME AND "NO RESTS" OPTION (OPTION 15)

A machine never works in zone X (X= A, B or C) if:

The current time is part of a rest time programmed for zone X. It should be noted that the rest times can be programmed for each zone and verified via DTS (DTS5.X or DTS6.X) that the rest times are those required for each of the zones

**AND** the rest times for zone X are enabled (Option 15 (ZoneX)=0).

The active periods of time are considered as a 3rd priority (after option O2 backhome and option O17 zone active) in the algorithm which decides which zones the robot will work on.

If the machine is working in a zone and an active period for this zone is about to start, the machine returns to the station.

If the machine is due to leave the station and an active period for the zone is under way (or due to start within 10 minutes), the machine will not select this zone for the next mowing cycle.

The possible values for option 15 are:

**Option 15 (Zone X) = 0: The rest times programmed for zone Z are active, i.e. the robot takes them into consideration and cannot work in zone X during these periods.** Sending a 'TimerOn' text is equivalent to setting option 15 to 0 for all the zones (A, B and C). Sending a 'TimerOn X' SMS (X = A, B or C) is equivalent to setting option 15 to 0 for Zone X alone.

**Option 15 (Zone X) = 1: The rest times programmed for zone X are disabled, i.e. the robot does not take into consideration the rest times for zone X and can work in this area at any time.** Even if the periods are disabled, the programming is stored in the robot's memory and all that is required to reactivate them is to set option 15 to 0. The periods do not need to be programmed again. Sending a 'TimerOff' text is equivalent to setting option 15 to 1 for all the zones (A, B and C). Sending a 'TimerOff X' SMS (X = A, B or C) is equivalent to setting option 15 to 1 for Zone X alone.

#### Example use of rest time in multizone mode:

Let's consider a multizone installation with 2 zones: zone A and zone B.

Using the keyboard, the user has programmed options 15 and 17 as follows (DTS6.X screen capture):

	A	B	C
O10 - CCWSeek	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
O11 - Chge2Sides	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
O13 - Udocking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
O14 - Back Along Wire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O15 - No Rests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O17 - Enable Zone	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The two zones A and B are active (Option 17 = 1) and the rest times for the two zones A and B are active (Option 15 = 0). The time periods for the two zones in question have been programmed using the keyboard based on the system below (DTS6.X screen capture):

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h
Monday																								
Tuesday																								
Wednesday																								
Thursday																								
Friday																								
Saturday																								
Sunday																								

Every day, between 14:00 and 20:00, a rest period has been defined for zone A (black bars above). Given that the periods are activated for this zone (Option 15 (zoneA)=0), the robot will not go into zone A between 14:00 and 20:00. During this period, it will work continuously in zone B which does not have an active period between 14:00 and 20:00.

In the same way, between 20:00 and 14:00, the robot will only work in zone A because it cannot work in zone B (rest time and option 15 (ZoneB) = 0).

In the example above, the time periods are mutually exclusive. So at any time, the robot can only choose one of the two zones to work in and applying P10 parameters (the value of P10 parameters) has no influence on where the robot works.

## 6• MULTIZONE OPTION

### 6•2•6 P10 PARAMETERS: WORKING TIME RATIO

The P10 parameter is a multi-zone parameter, i.e. each zone (A, B and C) has its own P10 value. This parameter is used as the lowest priority (after Option 02, O17, O15 and rest time) to select a zone for the robot to work in.

The values for P10 for the active zones determine the distribution of working time across these zones. P10 (Zone X) corresponds to a “weighting” which influences the algorithm for selecting the work zone: the higher P10(Zone X) is, the greater the probability that the robot will go to Zone X (providing the zone is active).

Nevertheless, the P10 parameters for Zones A, B and C must be considered on a relative and global basis, we could say that P10(Zone X) divided by Total(P10 active zones) is the percentage of time that the robot will spend in Zone X.

Authorised P10 values are between 1 (min) and 10 (max).

There are three active zones with no rest period constraints on these zones. Choose the P10 parameters for each of the zones as indicated in the table below:

Identification (screen)	Significance	Zone A	Zone B	Zone C
P10	Working time ratio	2	1	1
O017	Active zone	(√)	(√)	(√)

Total (P10(Zone A) + P10(Zone B) + P10(Zone C)) = 2+1+1 = 4 (Active zones only)

Overall, the robot will therefore select work zones as follows:

Working time ratio for Zone A = P10(ZoneA)/Total = 2/4 = 50%  
 Working time ratio for Zone B = P10(ZoneB)/Total = 1/4 = 25%  
 Working time ratio for Zone C = P10(ZoneC)/Total = 1/4 = 25%

At the beginning of each cycle, the robot looks at the zones in which it is authorised to work (O17, O15, resting time) and for these zones it compares the percentage time spent in these areas (historically over the last 3 to 4 days) and selects the zone in which the working time ratio is lowest relative to the P10 command.

Example: over the last 3 to 4 days, the robot has spent 55% of its time in zone A, 30% in zone B and 15% in zone C. Based on the example P10 values in the table above, the robot will then go to zone C for the next cycle.

The same example, BUT zone C is deactivated.

Identification (screen)	Significance	Zone A	Zone B	Zone C
P10	Working time ratio	2	1	1
O017	Active zone	(√)	(√)	(-)

In this case, total P10 for active zones:

P10(zoneA) + P10(zoneB) = 2+1 = 3.

Overall, the robot will therefore select work zones as follows:

Working time ratio for Zone A = P10(ZoneA)/Total = 2/3 = 67%  
 Working time ratio for Zone B = P10(ZoneB)/Total = 1/3 = 33%  
 Working time ratio for Zone C = P10(ZoneC)/Total = 0 = 0% (zone disabled)

#### How do you define the P10 values for the different zones?

A good rule of thumb is to define the values of P10 as a function of the relative areas of zones A, B and C because the time that a robot needs to spend in each zone to obtain an even cut is proportional to the area of the zone.

However, this rule is only correct if the user does not bias the robot's behaviour by assigning different rest times for the zones.

Example: An installation with 3 zones, the areas of which are shown in the picture 38.

In order to determine the P10 for an zone, we take the area of the zone, divide it by 1000m<sup>2</sup> and round the result:

P10(ZoneA) = rounded (7200m<sup>2</sup>/1000m<sup>2</sup>) = rounded (7.2) = 7

P10(ZoneB) = rounded (5200m<sup>2</sup>/1000m<sup>2</sup>) = rounded (5.2) = 5

P10(ZoneC) = rounded (2100m<sup>2</sup>/1000m<sup>2</sup>) = rounded (2.1) = 2

This would give a relative working time in each zone as follows:

Zone A: 7 / total (P10) = 7/(7+5+2) = 50%

Zone B: 5 / total (P10) = 5/(7+5+2) = 36%

Zone C: 2 / total (P10) = 2/(7+5+2) = 14%

If the formula above give P10 values which are outside the authorised limits (1 to 10) the values for the 3 zones must be divided or multiplied by a common factor.

**!!! Remember that the P10 parameter is the last priority in the algorithm for selecting a zone and the robot takes the history of the last 3 to 4 days into consideration.**

In certain cases, the P10 values may have no influence if the rest behaviour is entirely determined by the active zones and rest periods. See example in chapter 6•2•5.

If the user modifies the active zones, the active rest periods or the P10 values, there will be a period of transition (which can be up to 3 to 4 days) before the way the robot works reflects the programmed P10 ratio. During this transition period, the robot may not work in one zone or another. Once the ratio of time passed in the different zones corresponds to the new user configuration, the transition period ends and the robot starts working in the authorised zones again with the working time ratio corresponding to the P10 values.

### 6•3 MANUAL CHOICE OF WORK ZONE

When the robot is working in one zone, the robot can be forced manually to change zone and go and work in another given active zone. This method is particularly useful on installation in order to check the installation is correct (wires, station, etc.) and properly programmed (options, parameters) for each of the zones.

The manual choice of the work zone is valid for one cycle, i.e. the robot completes the cutting cycle in the selected zone and at the start of the next cycle, the automatic selection algorithm takes over again.

The procedure for changing the work zone manually is as follows:

Stop the robot and remove the hood (user mode).

Move the robot to the desired zone. If you attempt to restart the robot when it is outside its zone (negative phase), the robot will first carry out a few manoeuvres to attempt to find a positive phase and then trigger a “Stuck on wire” alarm.

Press **[F3]** on the keyboard several times until you see the zone on which you wish the robot to work - Example below: Zone B selected and positive phase.

Menu tu 19/02  
27,2 BΦ+ 003:210

## 6• MULTIZONE OPTION

Once the correct zone is displayed, press **F1** on the keyboard in order to activate a return to the station. This operation records the new work zone for the robot.

Press ON and close the hood. The robot will go to charge and will start in this zone once the battery is fully charged.

### 6•4 USER PARAMETERS

For the multizone option, all the user parameters (table below) are defined for each zone. **Each zone (A, B and C) has its own user parameters (except parameter P005 (robot speed) which is a global parameter which is identical for all zones).**

When the robot chooses a zone to work in, it uses the parameters linked to this work zone. This means you can configure the installation really flexibly if you consider that **the multizone robot works in each individual zone in exactly the same way as a single zone robot using the parameter settings for the zone.**

Identification (screen)	Significance	Default value
P000	Signal sensitivity	30
P001	Length of peripheral wire (x10m)	ETM65
P002	Maximum distance to follow trackborder on leaving the station (x10m)	10
P003	Trackborder: minimum segment	0
P004	Trackborder: line	120
P005	Nominal speed	ETM65
P006	Minimum distance to follow trackborder on leaving the station (x10m)	1
P007	Sensitivity to signal phase	30
P008	Signal frequency channel	0
P009	Distance to follow wire on leaving station (x1m)	3
P010	Multizone working time ratio	1

Refer to chapter 4•5 to find out how to change the parameter settings using the keyboard.

**Only user parameters P008 and P010 have specific details which are linked to the multi-zone functionality** and are described in more detail below. The other user parameters are the same as for a single zone robot and are not detailed further in this document.

#### 6•4•1 P008 : FREQUENCY CHANNEL

The robot can synchronise itself on the correct peripheral signal channel sent via the cable from the station using parameter P008.

For a multizone installation, each zone has its own loop of wire connected to a specific board in the station, and for each board, the channel is selected using the red channel selector switch (picture 39).

In order for the multizone installation to work, you need to select different values (0, 1, 2, 3, 4, 5) for each zone, A, B and C.

Parameter P008 allows you to synchronise the robot relative to the values programmed in the station.

P008 (Zone A) = you have to program the same setting (0, 1, 2, 3, 4 or 5) as the channel selector in the station board which is connected to the loop around Zone A.

P008 (Zone B) as above with the board connected to loop B.

P008 (Zone C) as above with the board connected to loop C.

#### 6•4•2 P010 : WORKING TIME RATIO

See chapter 6•2•6.

### 6•5 OPTIONS

Using the user parameters (see chapter 6•4), there are options which allow the behaviour of the robot to be configured. For a robot with multizone software, there are two major categories of options:

**Global options:** these apply to all the zones (A, B and C) and have a unique value which is valid for each zone and each cycle of work. They are listed in the table below with their default values: (–) option not activated, (✓) option activated.

Identification (screen)	Significance	Zone A	Zone B	Zone C
O000	Multi-robots	Global: (–)		
O001	Return to station (button F1)	Global: (–)		
O002	Rest at station (button F2)	Global: (–)		
O003	Demo mode	Global: (–)		
O004	Silent charge	Global: (✓)		
O008	Phase inversion	Global: (–)		
O009	Change of direction of cutting heads	Global: (✓)		
O016	Multizone	Global: (–)		
O018	Keyboard block (SW 2014)	Global: (–)		

**Zone-specific options:** for each zone (A, B and C), you can configure a different setting for a specific option and the robot's behaviour during a work cycle in the given zone depends on the settings for the options in this specific zone.

Identification (screen)	Significance	Zone A	Zone B	Zone C
O010	Anti-clockwise return	(–)	(–)	(–)
O011	Return in both directions	(✓)	(✓)	(✓)
O013	Return in 'U' shape	(✓)	(✓)	(✓)
O014	Return following the wire (SW2014)	(–)	(–)	(–)
O015	Rest time disabled	(–)	(–)	(–)
O017	Active zone	(✓)	(✓)	(✓)

Refer to chapter 4•5 to find out how to change the parameter settings using the keyboard.

**Only user parameters O8, O15, O16 and O17 have specific details which are linked to the multi-zone functionality** and are described in more detail below. The other options are the same as for a single zone robot and are not detailed further in this document. Options O005, O006, O007 and O012 no longer exist in the latest version of the software and are not described.

## 6• MULTIZONE OPTION

### 6•5•1 OPTION 0008: PHASE INVERSION

Inside the peripheral wire loop, i.e. in the zone where the robot is to work, the robot always has to “see” a positive signal phase (via the coil). When the robot “sees” a negative phase, it stops working and triggers a “Stuck on wire” alarm. On installation, it should be checked that this is the case.

To do this, the robot indicates the phase of the signal it can see on the screen. We will start by considering a single zone robot or a multizone robot in zone A.

Put the robot inside its work zone and make sure that the P008 parameter for this zone is correctly programmed.

Starting from the topmenu, press **F3** (possibly several times) until the display on the screen is similar to one of the 2 screens below:

```
Menu    tu 19/02
27,2    AΦ- 001:139
```

Negative phase: NOT OK

```
Menu    tu 19/02
27,2    AΦ+ 001:139
```

Positive phase: OK

**Solution 1:** Reverse the connections for the loop on the station board for the zone.

**Solution 2:** Change the setting for option 0008.

For a multizone installation, the robot can only work in each of the zones/loops if the phase is positive inside each loop. Place the robot in the recovery zone (inside all the loops installed), for example one metre opposite the station and check that the P008 parameters (zone A, zone B, zone C) have been programmed correctly.

Press **F3** a number of times to check the value of the phase in each of the zones. This must be positive for all the zones.

Let us consider a multizone example where the 3 zones A, B and C are activated.

```
Menu    tu 19/02
27,2    AΦ+ 001:139
```

```
Menu    tu 19/02
27,2    BΦ+ 003:210
```

```
Menu    tu 19/02
27,2    CΦ+ 001:047
```

Positive phase in zones A, B and C: OK

```
Menu    tu 19/02
27,2    AΦ- 001:139
```

```
Menu    tu 19/02
27,2    BΦ- 003:210
```

```
Menu    tu 19/02
27,2    CΦ- 001:047
```

Negative phase in zones A, B and C: NOT OK

**Solution:** Change the setting for option 0008.

```
Menu    tu 19/02
27,2    AΦ+ 001:139
```

```
Menu    tu 19/02
27,2    BΦ- 003:210
```

```
Menu    tu 19/02
27,2    CΦ+ 001:047
```

Positive phase in zones A and C but negative phase in zone C:  
NOT OK

**Solution :** Reverse the connections for the loop B on the station board connected to it (changing option 0008 is not a solution as the phase of zone B would go positive but the phases of zones A and C would turn negative).

### 6•5•2 OPTION 0016: MULTIZONE

This option activates or deactivates multizone mode.

If it is deactivated (-) (default setting), the robot can only work in a single zone. It reverts to being a single zone robot. Even if the installation contains multiple wire loops, the robot will always go to zone A. So it is the user parameters, options and rest times for zone A which are taken into consideration.

If the option is deactivated (-), the screen and the keyboard navigation only give access to the global parameters/options and those for zone A.

Pressing **F3** will not allow you to see/modify the settings for zones B and C.

If it is activated (✓), the robot can work in multiple zones. The robot's behaviour is determined by the automatic station selection algorithm (see chapter 6•2•1) (and the associated options/parameters).

### 6•5•3 OPTION 0015: REST TIME DISABLED

This option is specific for each of zones A, B and C. See chapter 6•2•5 for a description of this option.

### 6•5•4 OPTION 0017: ACTIVE ZONE

This option is specific for each of zones A, B and C. See chapter 6•2•4 for a description of this option.

## 6•6 PERIODS OF REST TIME

For a multizone robot, the rest times are specified/defined for each of the possible work zones and the rest times are taken into consideration by the automatic algorithm selecting the work zone (see chapter 6•2•5).

Up to 5 rest times can be defined for each of the zones (A, B and C). Access to the menu for defining rest periods via the screen/keyboard is described in the chapter 6•7.

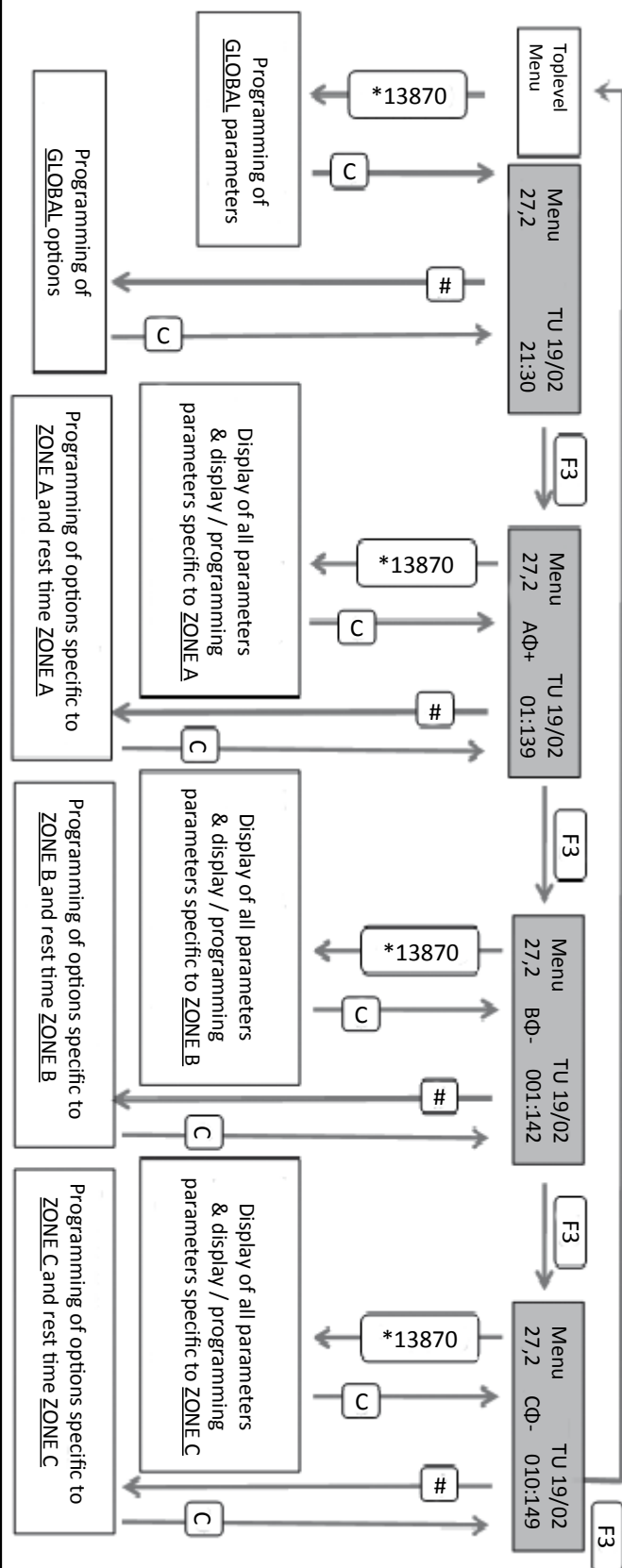
## 6•7 MULTIZONE SOFTWARE

For software with a multizone option, the meaning of the buttons described in chapter 4•5 is valid, but navigation through the menus is more complex than for single zone software as there are more parameters and options to define. The navigation system using the menus from the keyboard for a multizone system is described in figure 2.



## 6• MULTIZONE OPTION

FIG 2 :



### 6•7•1 TOPMENU

The topmenu is the menu displayed when you switch on the robot. You can also return to the top level menu by pressing the **C** button several times (as many times as necessary).

The topmenu is identified by the message "Menu" and the date programmed in the robot.

The topmenu contains four possible different screens (see figure 2) and you press the **F3** button to move from one screen to another.

The four possible screens are:

"Global menu" identified by the presence of the time.

**Menu tu 19/02  
27,2 13:24**

"Menu Zone A" identified by the characters "AΦ"

"Menu Zone B" identified by the characters "BΦ"

"Menu Zone C" identified by the characters "CΦ"

**Menu tu 19/02  
27,2 CΦ+ 003:210**

!!! If option "0016 Multizone" is not activated, only "Global Menu" and "Menu Zone A" are visible. Option 0016 can be activated from the "Global Menu".

### 6•7•2 GLOBAL SUB-MENU

When the "Global menu" is displayed, you can:

Display and modify the global user parameters (in fact, only P005 is global) by pressing the keyboard sequence **\*13870** and the **#** character if you wish to change the parameter display and modify global options (1<sup>st</sup> table § 6•5) by pressing the keyboard sequence **###** then selecting the option with buttons **F2** or **F3** and then pressing the **#** character to change the setting for the option.

Display the robot's operating data:

- "Data" sub-menu: **#F3**

- Use **F2** and **F3** to access the "Statistics", "History", "Version" or "Serial no." sub-menus and enter the sub menu by pressing **#**.

Display and modify the robot settings:

- "Settings" sub-menu: **#**

- Use **F2** and **F3** to access the "Options", "Clock", "New code", "Language", "Suppress Rests" and "Rests settings" sub-menus and enter the sub menu by pressing **#**.

Note: as the programmed rests are specific to each zone, it is not possible to modify them from the Global sub-menu. You need to access them from the specific sub-menu for the zone for which you wish to program the rest time.

### 6•7•3 MENU ZONE X (X=A, B OR C)

From the zone X menu (identified by "AΦ", "BΦ" and "CΦ" respectively for zones A, B and C), you can:

Display and modify the user parameters specific to this zone by pressing the keyboard sequence **\*13870**, then selecting the parameter to be modified using buttons **F2** or **F3** and pressing the **#** character to modify the setting for a parameter.

## 6• MULTIZONE OPTION

Display and modify the options specific to this zone (2<sup>nd</sup> table § 6•5) by pressing the keyboard sequence **###**, then selecting the option with buttons **F2** or **F3** and then pressing the character **#** to change the setting for the option.

Display and modify the rest time periods specific to this zone by pressing the keyboard sequence **##F2** which gives access to the “Rests settings” sub-menus.

### 6•8 GROUND INSTALLATION RULES

**The traditional installation rules must be strictly adhered to for each of the zones individually.**

The additional rules linked to the multizone option are:

- Aim to minimise the recovery area (see chapter 6•1). This zone is where there is significant overlap between the different signals, and minimising the area is recommended in order to reduce magnetic interference.
- If you notice ‘No wire signal’ alarm problems near the recovery zone, especially in line (above) one of the wires forming a magnetic loop, please contact ETESIA. Installing an additional supply in the station may resolve the problem.
- **In the station, the connections between the different loops of wire and their respective boards must be as short as possible and couplings between wires should be avoided**, making sure that each pair of wires are “twisted wire”.
- **In the station, the connection of the different loops of wire must be made such that the phase is positive inside each of the loops** (see chapter 6•5 and table “Global options”). It may be necessary to swap over the two wires connecting the loop.
- **The distance between wires in adjacent zones must be at least 30 cm** (except near the station as described in picture 40).

**Near the station** (distances indicated in pictures 41 and 42, depending on configuration), **the wires for adjacent zones must overlap** i.e. they must be in the same duct.

Case #1: in all cases, the section of straight wire on one side and the other of the station must be at least 3m (on each side) and in this area, the wires from the different zones must overlap (see dotted lines picture 41).

Case #2 (see dotted lines picture 42) : the wire in one of the loops takes an angle outside a distance of less than 5m from the station. In this case, there are areas where the robot could see the station (via the sonar) too early which would trigger incorrect station return manoeuvres if the configuration (wires, sonar station, options, robots) is not adjusted correctly.

In this case, there are two acceptable configurations for the area where the wire turns:

- Return in ‘S’ shape: Option O013 = (–)  
Return anticlockwise: Option 0010 = (–) and in one direction: Option 011=(–)  
Sonar for station pointing south.
- Return in ‘U’ shape: Option O013 = (✓)  
Return anticlockwise: Option 0010 = (–) and in one direction: Option 011=(–)  
Sonar for station pointing north.

Near the station (see dotted lines pictures 41 or 42 extending over a minimum distance of 3m to the left and as far as the turn (at 3 to 5m) to the north), the wires for the different zones must be overlapping.

## 7• MAINTENANCE

### 7•1 BATTERIES

The batteries have a certain operation capacity. In automatic mowing, your robot mower ETM65 goes back to the charging station as soon as the batteries reach an average charge level. In this way, your robot mower ETM65 keeps a margin to get to the station and increase the battery yield.

To check whether your batteries need changing, contact your dealer.

### 7•2 CLEANING

A well-cleaned and well-maintained machine will always have a longer life. Weekly cleaning is highly recommended. It is enough to brush the underside of the robot mower ETM65 and, if necessary, remove the possible clumps of grass (around the front wheels, on the tyres and from the cutting discs).



Using a jet of water or high pressure cleaner is forbidden.

### 7•3 CHARGING PORTS

The charging ports, both on the robot and on the station, are important parts as they ensure that the batteries can be charged.

It is therefore highly advisable to clean the charging ports on the robot and the station with sandpaper with a grit size of at least P180:

- during the mid-year check-up
- during the maintenance check-up at the start of the year
- if any problems with charging are observed.

Users are not at risk when carrying out this maintenance work as the robot and station operate on safety extra low voltage level.

### 7•4 DURING THE WINTER

At the end of the mowing season, recharge your robot mower ETM65 and place it in a dry, protected place. Turn the machine switch to OFF. The station must stay plugged in, it consumes very little but it generates a heat that leaves the electronic components dry.

## 7• MAINTENANCE

It is recommended that you give it a service during the winter so that your dealer can analyse the history of your robot mower ETM65 via a connection to a laptop. If the maintenance contract stipulates it, please get in touch with your dealer in order to arrange an annual maintenance check.

### 7•5 CUTTING BLADES

The blades are the main components that ensure optimal cutting. It is recommended that they are checked at least once a month and replaced when they are too used or broken.

For one season, you will need two sets of blades (ref. 33346). It is recommended that they are changed at the beginning of the season and during June (the grass is thicker at that time).

To change a blade (machine off, equipped with protective gloves), bring the hole of the protection disc to face the fixing screw of the blade to change (see picture 10b). Unscrew the screw with a FLATHEAD screwdriver (see picture 10c). When the screw has been removed, take the blade, incline it and remove the blade carefully (see picture 10d). Take your new blade and carry out the opposite operation screwing it in properly.

If you have doubts about how to do it or about the fixing of one of your blades, do not hesitate to contact your dealer.

#### 7•5•1 CHANGING THE CUTTING BLADES

PROGRESS	MEANINGS
1.	Machine OFF, protective gloves
2.	Straighten the machine
3.	Put the hole of the disc opposite the screw head of the blade
4.	Unscrew the blade
5.	Remove the component from its support
6.	Insert the new component and screw it in

### 7•6 SPARE PARTS OF THE ROBOT MOWER ETM65

#### 7•6•1 THE CUTTING BLADES KIT

Around two sets of cutting blades are necessary during the season. It is therefore important to change the blades once at the beginning of the season and a second time in around June. When the cutting blades are subjected to harder work (such as branches, gravel, etc.), it is strongly recommended that the blades are checked and changed more frequently.

(33346: set of 15 cutting blades) (see picture 13).

#### 7•6•2 THE BATTERY KIT

The normal duration of a set of batteries is 4 to 5 years. A battery management system regularly checks their status.

Ask your dealer to check the status of the batteries during each maintenance check. The manufacturer guarantees the batteries for two years.

During replacement, the full set of batteries must be changed (33477: battery kit) (see picture 11).

**PLEASE GO TO YOUR LOCAL DEALER FOR ALL SPARE PARTS ORDERS.**

Ref	Pieces	Recommendation of the cycle of the spare parts
33346	Cutting blades	2x per year
33477	Battery pack ETM65	5 years
33403	Silent rear block kit ETM65	1x per year
33404	Silent front block ETM65	1x per year
	Wheel check	1x per year
	Maintenance	1x to 2x per year

## 8• TROUBLESHOOTING

PROBLEMS	SITUATION	SOLUTION
Operates in reverse	Body position connector in permanent contact.	Check whether the body moves freely and check that the contacts are properly in the body inserts.
	The phase of the peripheral wire is reversed. The robot spins round and shows stuck on wire.	Reverse the phase: see 4•9•6 or reverse the wires going into the station.
	If necessary consult your dealer.	
The machine constantly moves slowly	The sonar is contaminated (or moistened due to abnormal water projections).	GENTLY clean the inside of the 2 “eyes” of the sonar with a soft cloth.
	Interference noise.	There is something on the cover or nearby which reflects the sonar wave.
	The sonar has come out of its position.	Check that the sonar is well positioned in its place, reposition it if necessary.
	The sonar is faulty.	Have it changed by a technician.
	Resistance on one or several cutting heads.	Check whether the cutting discs turn freely.
	If necessary consult your dealer.	
The machine carries out squares systematically	The grass is too high in one area of the lawn and the machine deals with this area systematically.	You simply need to check that grass of the mowing area is not too high. If this is the case, you need to begin by mowing at a greater height and gradually lower the cutting heads to the desired position (this may take several days).
	If necessary consult your dealer.	
Machine Alarm Indication: "Head"	The grass cut is too high and has clogged a cutting head.	Clean the cutting head in question.
	Faulty cutting motor.	Consult the dealer who will change the faulty piece.
	Fuse (5A) of one of the cutting heads is burnt out.	Turn the machine switch to OFF, survey it, open the metal case and check the 5A fuse, replace if necessary.
	If necessary consult your dealer.	
Machine Alarm Indication: "Wheel"	The wheel is blocked by an object.	Remove the object in question.
	Faulty motor.	Consult the dealer who will change the faulty piece.
	Fuse (10A) of one of the wheel motors burnt out.	Turn the machine switch to OFF, survey it, open the metal case and check the 10A fuse, replace if necessary.
	If necessary consult your dealer.	



## 8• TROUBLESHOOTING

PROBLEMS	SITUATION	SOLUTION
Machine Alarm Indication: "No wire signal"	The LED at the back of the station is not switched on. The station is unplugged.	Plug it in.
		Wait for the network power to go back on.
	The LED at the back of the station is flashing red. There is a break in the wire.	Call the dealer to come and repair it.
	The LED at the back of the station is flashing green. The problem could be coming from the robot or from the ground.	Contact your dealer.
	If necessary consult your dealer.	
Machine Alarm Indication: "Stuck on wire"	The machine is stuck between several constraints.	Remove the objects obstructing the passage and the operations.
		The machine has several force field actions, check that there are no metal objects in or on the ground.
	If necessary consult your dealer.	
Machine Alarm Indication: "No wayout path"	The machine is stuck in a narrow passage and detects all the sides of the field of its peripheral wire.	Remove the objects obstructing the passage and the manœuvres.
		The machine has several force field actions, check that there are no metal objects in or on the ground.
	If necessary consult your dealer.	
Machine Alarm Indication: "Supply outage"	The machine was plugged into its station and has been disconnected from it.	Check that the charging contacts of the station and the machine have not been oxidized.
		Check that the station has not been set up on a slope.
	Warning: if you have placed the machine to charge manually, it will not go ahead. To solve the problem, see point § "The machine stays at its station for a long time and does not leave it again".	
	If necessary consult your dealer.	
Machine Alarm Indication: "No station found"	The machine carries out its manœuvres to enter the station but stops before or after its station.	The sonar machine or station is faulty: contact your dealer.
		The option Multi Robot has been chosen: see 4•9•1 to untick it.
		The number of metres of peripheral wire encoded in the machine is less than the reality: contact your dealer.
		The set up of the charging station was not done in a suitable place: contact your dealer.
	If necessary consult your dealer.	
Machine Alarm Indication: "Charge contact ?"	The machine enters the station normally but the contact is not made properly with the latter so it continues and stops a little further along.	Check that the charging contacts of the station and the machine have not been oxidized.
		Check that the distance between the peripheral wire and the station is at least 55 cm.
		Check the height of the contacts of the charging station in comparison with those on the side of the machine.
	If necessary consult your dealer.	

## 8• TROUBLESHOOTING

PROBLEMS	SITUATION	SOLUTION
Machine Alarm Indication: "Wheel slipping"	The machine travels an abnormal distance in comparison with the terrain without finding its peripheral wire.	Check that there are no muddy areas in the machine's path.
		The number of metres of peripheral wire encoded in the machine is fewer than the reality: contact your dealer.
	If necessary consult your dealer.	
Machine Alarm Indication: "Wire lost"	When returning to the charging station, the machine has not found the field of its peripheral wire.	Contact your dealer.
Machine Alarm Indication: "Lifted"	Someone has lifted the robot while it was working.	This alarm has been activated for safety reasons. Simply restart the robot.
	The robot has sensed a difference in height because of an anomaly on the ground.	Fix the problem on the ground so that the robot no longer detects an anomaly.
	If necessary consult your dealer.	
The machine stays at its station for a long time and does not leave it again	The machine has nothing left to mow and stays at the station.	Check whether the machine display mentions SC (Slow Charge) the machine starts its cycle when necessary.
	The machine has been put back in its charging station manually and cannot start itself up on its own.	Send the machine back to the station via the menu option (F1). The machine return to its station and start its cycles again.
	The robot is resting during a programmed rest period.	This situation is normal. The robot will continue its work cycle again when necessary.
	The robot is not working as its battery temperature is too high or too low. This helps to avoid damage to the batteries or the land being maintained.	This situation is normal. The robot will continue its work cycle again when necessary.
	Option O02: "Stay@Chge" has been selected.	To restart the robot, press <b>ⓘ</b> .
	If necessary consult your dealer.	
Keyboard disabled	The keyboard was disabled by option 18.	Press the 0 key for 5 seconds.
	The keyboard is defective.	Contact your dealer.
	If necessary consult your dealer.	



# INSTALLATION AND OPERATING INSTRUCTIONS FOR THE GPS/GPRS MODULE AND THE TRACK&TRACE INTERNET APPLICATION

## 1• INTRODUCTION

This document supplements the instruction manuals for the ETESIA ETM65 robot mowers fitted with a GPS/GPRS module.

The GPS/GPRS module is an optional functionality of your ETESIA lawnmower. It is a performance tool offering the following features:

- remote monitoring of the machine
- remote control of the machine
- GPS localization of the machine
- enhanced security (anti-theft)

A robot fitted with the option includes a module embedding :

- a GPS receiver, allowing localization of the robot.
- a GSM/GPRS unit, allowing communications, through SMS/data sent over the GSM/GPRS network, to:
  - the ETESIA 'Track&Trace' server storing information about the robot (status, position, alarms,...). The ETESIA 'Track&Trace' server is accessible through a secured web interface.
  - mobile phones with predefined configurable phone numbers 'ALARM\_PHONE', 'CONTROL\_PHONE' and 'ALARM\_PHONE2'. Those mobile phones will be able to send some commands to the robot and receive some alarms.

## 2• INSTALLING THE GPS/GPRS MODULE

The hardware GPS/GPRS module including the SIM card (robot phone number) is installed and preconfigured.

Before having access to the GPS/GPRS functionality, you have to contact your dealer to activate the system, receive the robot phone number and receive your account username and password to be able to access the server.

The robot phone number can also be found on the GPS/GPRS module itself.

To finalize the installation, configure the numbers of the 'ALARM\_PHONE', 'CONTROL\_PHONE' and 'ALARM\_PHONE2' as described in section 3•2.

## 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE

This section describes the syntax and functionality of the commands which can be sent through SMS to the robot. This manual applies to the robots and modules programmed with the firmware version of Release 2013 or later.

### 3•1 OVERVIEW SMS COMMANDS AND ALARMS

#### LIST OF SMS COMMANDS

Functionality	Commands
Configuring phone numbers for sending and receiving text messages	<i>AlarmPhone, ClearAlarmPhone, CtrlPhone, ClearCtrlPhone, AlarmPhone2, ClearAlarmPhone2</i>
Getting robot status information	<i>Status, Position, MowerData</i>
Controlling robot (all versions)	<i>BackHome, Restart, TimerOff, TimerOn</i>
Controlling robot 'Multizone'	<i>EnableZone X, DisableZone X, TimerOff X, TimerOn X (X=A, B or C: zone identifier)</i>
Security aspects (anti-theft)	<i>SetFence, NoFence</i>

The table lists all the commands which can be sent by SMS. These are grouped in 4 categories. The command syntax is case insensitive. When a command is received by the GPS/GPRS module, a confirmation message with the result of the command is always sent to the caller. The confirmation message of the control commands is also sent to the ALARM\_PHONE if different than the CONTROL\_PHONE.

Next to the commands functionality, the GPS/GPRS module is also providing an 'Alarm\_SMS' service: each time an alarm is occurring on the robot, an SMS message is sent to the 'ALARM\_PHONE' and the history of recent alarms and events of the robot is also sent to the 'Track&Trace' server. See section 3•7 for more details about the alarms.

#### FEATURES GRANTED IN FUNCTION OF CALLING PHONE NUMBER

	ALARM_PHONE	CONTROL_PHONE	ALARM_PHONE2	Other phone
Configuring phone number commands	<i>See section 3•2</i>			
Getting robot information commands	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Controlling robot commands	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
Security commands	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>
Receiving ALARM_SMS	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>

The table shows the features granted depending on the calling phone number.

## 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE

### 3•2 CONFIGURING GPS/GPRS MODULE PHONE NUMBERS

The first operation to perform before using 'Track&Trace' SMS functionality is to program the 'ALARM\_PHONE' and 'CONTROL\_PHONE' numbers which are undefined after installation. This operation is necessary before first use and in some cases after GPS/GPRS module firmware upgrade (your dealer will inform you when this would occur).

This operation is strongly recommended as leaving the 'ALARM\_PHONE' and 'CONTROL\_PHONE' undefined will give the possibility to any phone to take the control on your robot. This is less critical to keep 'ALARM\_PHONE2' undefined as this phone has no control authority on the robot.

Programming the phone numbers is achieved using the commands:

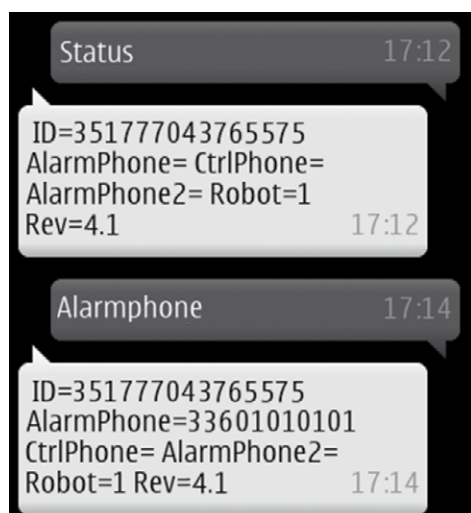
- **AlarmPhone:** the number of the mobile phone calling the GPS/GPRS module becomes the 'ALARM\_PHONE' unless it is already defined. When the 'ALARM\_PHONE' is already defined, the command has no effect.
- **ClearAlarmPhone:** will clear the 'ALARM\_PHONE' number so it can be assigned to a new number. The command is only executed successfully if it sent from the 'ALARM\_PHONE' number itself.
- **CtrlPhone:** the number of the mobile phone calling the GPS/GPRS module becomes the 'CONTROL\_PHONE' unless it is already defined. Otherwise it has no effect.

If this command is used when neither the 'ALARM\_PHONE' nor 'CONTROL\_PHONE' numbers are defined, they are both set with the number of the phone which sent this command.

- **ClearCtrlPhone:** will clear the 'CONTROL\_PHONE' number so it can be assigned to a new number. The command is only executed successfully if :
  - it sent from the 'ALARM\_PHONE' number
  - or from a phone whose number corresponds to the 'CONTROL\_PHONE' setting, provided the 'ALARM\_PHONE' number is not already defined
  - otherwise it has no effect.
- **AlarmPhone2:** the number of the mobile phone calling the GPS/GPRS module becomes the 'ALARM\_PHONE2' unless it is already defined. When the 'ALARM\_PHONE2' is already defined, the command has no effect.
- **ClearAlarmPhone2:** will clear the 'ALARM\_PHONE2' number so it can be assigned to a new number. The command is only executed successfully if it sent from the 'ALARM\_PHONE2' number itself.

The calling mobile phone will always get a confirmation SMS informing that :

- a) the command has been received by the module
- b) and the values of the 'ALARM\_PHONE', 'CONTROL\_PHONE' and 'ALARM\_PHONE2' resulting from the execution of the command.



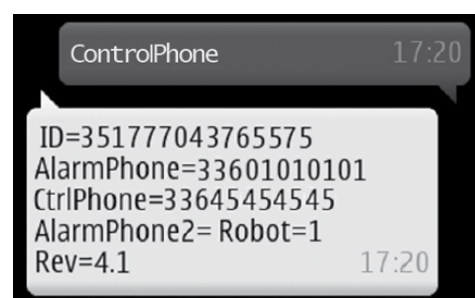
'Status' command sent from any phone.

Robot answering

- **ID** = Unique IMEI robot identification number
- **AlarmPhone** empty: ALARM\_PHONE has not yet been configured
- **CtrlPhone** empty: CONTROL\_PHONE has not yet been configured
- **AlarmPhone2** empty: ALARM\_PHONE2 has not yet been configured
- **Robot = 1**: Robot is switched on
- **Rev = 4.1** : GPS/GPRS module firmware revision number

'AlarmPhone' command sent from SIM card +33 601010101.

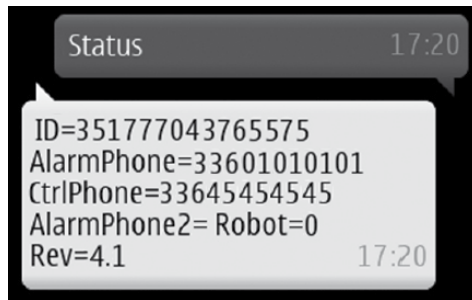
Robot answering confirmation that ALARM\_PHONE has been set.



'ControlPhone' command sent from SIM card +33 645454545.



### 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE



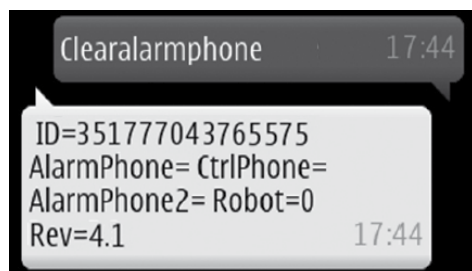
*'Status'* command sent from 'ALARM\_PHONE'

Robot answering confirmation that CONTROL\_PHONE has been set. In the mean time, the robot has also switched off (Robot=0).



*'Clearctrlphone'* command sent from 'ALARM\_PHONE'.

Robot answering confirmation that CONTROL\_PHONE has been cleared.



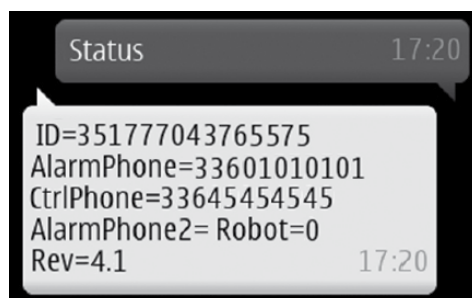
*'Clearalarmphone'* command sent from 'ALARM\_PHONE'.

Robot answering confirmation that ALARM\_PHONE has been cleared.

#### 3•3 GETTING INFORMATION FROM THE ROBOT THROUGH SMS

The 3 commands *'Status'*, *'Position'* and *'MowerData'* can be sent from any phone number.

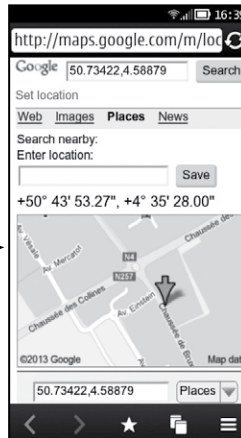
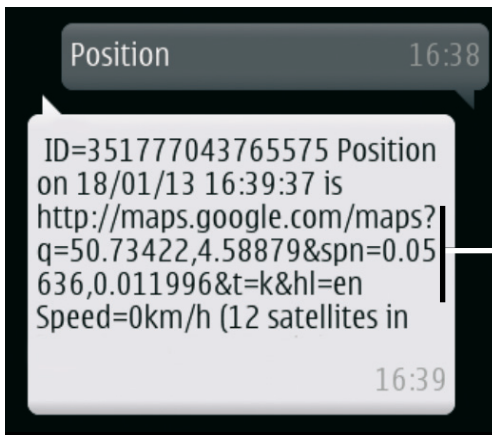
The sender is receiving a confirmation SMS.



The *'Status'* command is sending back:

- **ID** = unique identification number of the GPS/GPRS module embedded in the robot
- **AlarmPhone** = phone number of the ALARM\_PHONE
- **CtrlPhone** = phone number of the CONTROL\_PHONE
- **AlarmPhone2** = phone number of the ALARM\_PHONE2
- **Robot** = 0 (robot switched-off) or 1 (robot switched on)
- **Rev** = revision number of the GPS/GPRS module firmware

### 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE

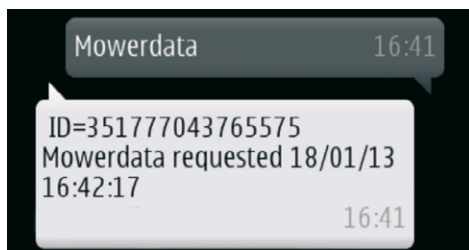


The '**Position**' command is sending back:

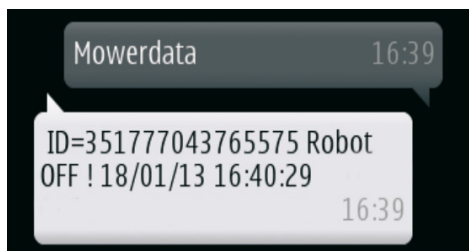
- **ID** = unique identification number of the GPS/GPRS module embedded in the robot
- **Position** : Last valid position acquired by the GPS receiver as well as the corresponding time Position.
- A Google map link on which you can click to see the corresponding position.
- **Speed** : approximate speed of the robot – the speed is computed from the GPS module – so there can be some inaccuracy.
- The number of Satellites in view.

The '**Mowerdata**' command is causing the robot to send it's recent history log of events and alarms to the 'Track&Trace' server so it can be read from the web.

The mobile phone sending the **MowerData** command is informed that the command has been received and processed by the robot via SMS.



When the robot is switched on, the GPS/GPRS module can send the history log to the server and informs the sender of the SMS with 'Mowerdata requested' message.

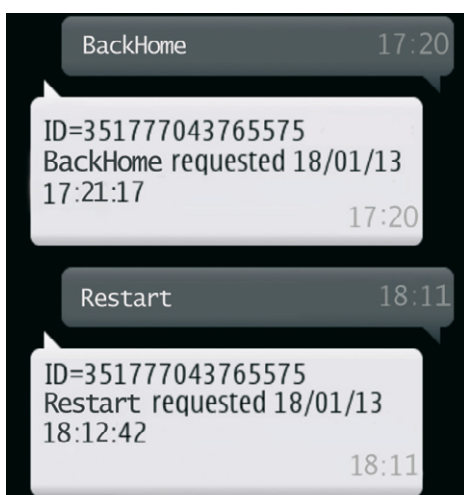


When the robot is switched off, the GPS/GPRS module can not get the history log and can not send it to the server. It informs the sender of the SMS with 'Robot OFF' message.

#### 3•4 CONTROLLING THE ROBOT THROUGH SMS

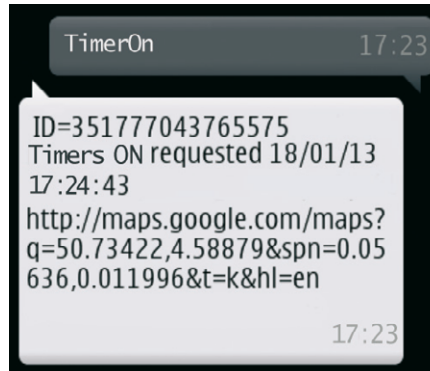
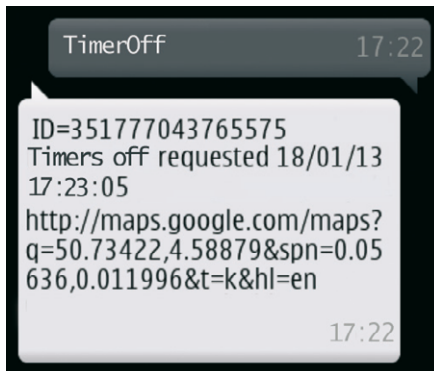
The 4 commands '**BackHome**', '**Restart**', '**TimerOff**' and '**TimerOn**' can be sent from the ALARM\_PHONE or from the

CONTROL\_PHONE (or from another phone if ALARM\_PHONE or CONTROL\_PHONE are not defined) and the sender is receiving a confirmation SMS with some informations.



The command '**BackHome**' is sending back the robot to its charge station and the robot will stay there until the command '**Restart**' is given. This gives through SMS the same functionality as can be achieved through the keyboard using buttons 'F2' (BackHome) and 'ON' (Restart). This allows freeing the field where the robot is operating for any other usage.

### 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE



The command '**TimerOff**' is temporarily disabling the timers defining the periods during which the robot may not operate.

So, '**TimerOff**' will force the robot to work continuously unless the command '**BackHome**' has been given which has priority over '**TimerOff**'.

The timers must be re-enabled using the command '**TimerOn**'.

#### 3.5 CONTROLLING MULTI-ZONES ROBOTS THROUGH SMS

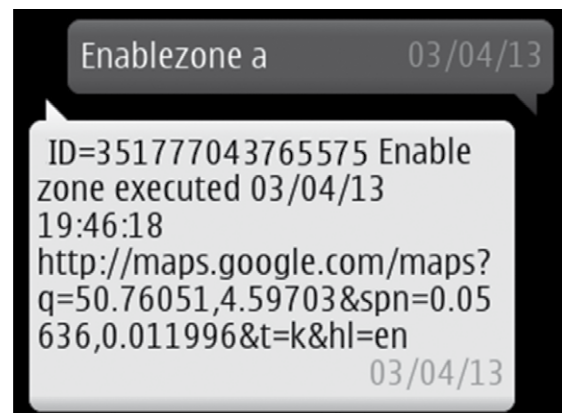
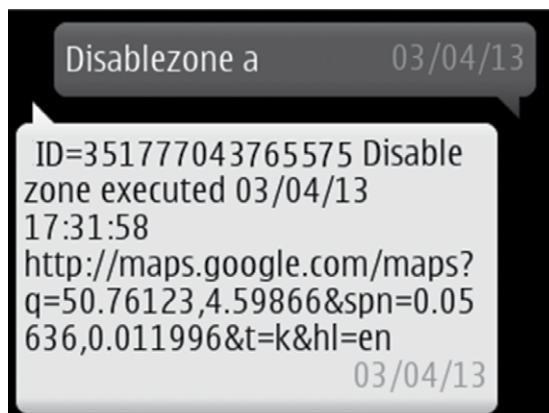
When the robot is operating in multi-zones configuration, the following SMS commands are supported : EnableZone X, DisableZone X, TimerOff X, TimerOn X where 'X' is a parameter identifying the zone (X = A, B or C) for which the command will be effective.

Those commands can only be sent from the ALARM\_PHONE or from the CONTROL\_PHONE (or from any phone if CONTROL\_PHONE is not defined). A confirmation SMS is sent to the calling phone and the 'ALARM\_PHONE'.

##### 3.5.1 ENABLEZONE X AND DISABLEZONE X COMMANDS

The commands EnableZone X or DisableZone X are used to respectively set or unset the option #17 of the zone X (X = A, B or C). When DisableZone X is sent, the robot will no longer work in the zone X. If the robot is currently working in zone X when it is receiving this command, the robot is going back to its station (as if it is receiving the BackHome command).

The zone X is kept disabled until the robot is receiving the EnableZone X command (or the user is changing option #17 for zone X through the keyboard). Below snapshots show SMS messages of those commands when executed for Zone A.

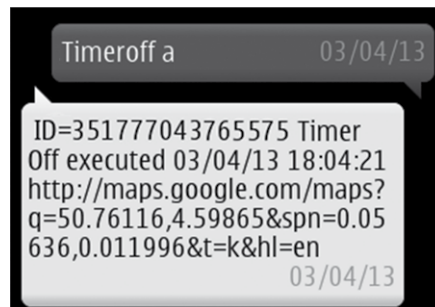


## 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE

### 3•5•2 TIMEROFF X AND TIMERON X COMMANDS

The commands TimerOff X and TimerOn X have the same functionality as the global commands TimerOff and TimerOn described in chapter 3•4 but for the sole specified zone X (X = A, B or C).

Below snapshots show SMS messages of TimerOff X command applied to Zone A.



### 3•6 SECURITY COMMAND: VIRTUAL FENCE

The virtual fence commands allow to define a virtual zone identified by the robot using its GPS position. The goal of these commands is to enhance the security of the robot with respect to theft.

As soon as the robot will self identify to be out of the virtual zone, it will send an Alarm\_SMS '*out of zone*' to the 'ALARM\_PHONE'.

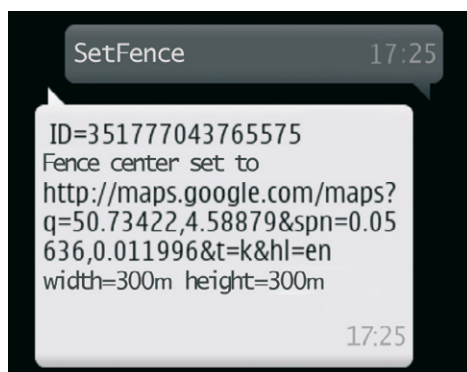
The user must define the virtual zone large enough so that it completely encloses the normal operating zone defined by the wire.

The virtual fence is defined as a square (or rectangular) zone centred at the position where the robot is located when it is receiving the command. It is thus recommended to go with the robot in the middle of its working zone and send the command.

As the GPS accuracy can be affected by external factors (trees, buildings,...), it is also recommended to take some margin in the distance defining the fence so to avoid receiving false alarms. When receiving the command, the GPS/GPRS module is already taking some margin by adding 15 m to the parameter passed in the command.

The virtual fence commands can only be sent by the 'ALARM\_PHONE'. If the ALARM\_PHONE is not yet defined, it is set to the number that issued the '*Setfence*' command.

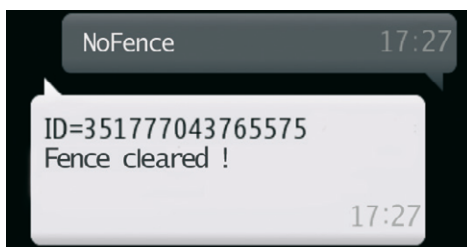
A confirmation SMS is sent to the caller.



The virtual fence is defined using the command '*SetFence*'. The syntax of the command is: *SetFence [width in meters] [height in meters]*

- When no arguments are given explicitly, the default width and height are 300 m.
- When only 1 argument is given, the zone is defined as a square. 15 m in both directions are automatically added by the system.

In order to ensure a maximum accuracy, when receiving the '*SetFence*' command, the GPS/GPRS module checks that the current GPS position is accurate enough. If not the case, the confirmation SMS suggests '*Retry within 2 minutes*'.



The virtual fence mechanism can be disabled by sending the command '*NoFence*'.



### 3• USING TEXT MESSAGES TO CONTROL THE GPS/GPRS MODULE

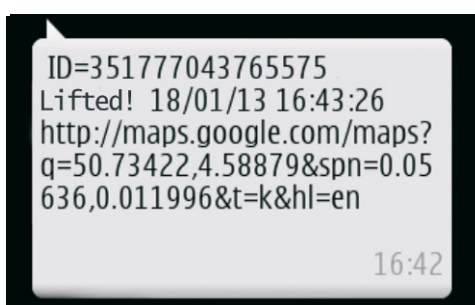
#### 3•7 ALARM\_SMS

The GPS/GPRS module is sending Alarm\_SMS to the 'ALARM\_PHONE' and the 'ALARM\_PHONE2' only. The events causing an Alarm\_SMS are:

- All the same alarms as the ones reported on the robot display (examples : Battery Discharge, No Wire Signal, Blocked Head, No Station Found,...). The complete list of those alarms can be found in the manual of your mower.
- Robot switching off after manual operation or after a 15' period of keyboard inactivity.

- Security threat detection: robot leaving the zone defined by the virtual fence (see section 3•6) or GPS/GPRS module detecting abnormal move (speed >10km/hr or distance between initial position (module start) and current position > 1000m).

The system is filtering the 'Alarm\_SMS' in order to avoid useless SMS to be sent and reduce the cost of communications: when the same alarm type is repeated successively (no other kind of alarm in between) and the robot has not been switched off/switched on, no new SMS is sent.



Text message alarms give information about the reason for the alarm and the robot's current GPS position, as shown on the example above.

### 4• USING 'TRACK&TRACE' SERVER ON THE WEB

#### 4•1 ACCESSING THE 'TRACK&TRACE' SERVER

Go on following address: <https://www.positionviewer.com> and enter your account user name and password.

These are identical to those of the old portal.





## 4• USING 'TRACK&TRACE' SERVER ON THE WEB

### 4•2 PAGE 'MANAGE'

**Search Bar :** To rapidly search a robot in a long list.

**Free Text Zone :** To add a text to facilitate the recognition of the robot (Field A, Foot2,...). Pay attention, don't clear the original text. You can add text.

**Phone N° of the robot :** To always have the phone number at hand to communicate with the robot.

**DATA, history of the robot :** To download the data to be inserted in the Dealer Tool Suite Software (DTS).

The screenshot shows the ETESIA Manage page with a table of robot data. Annotations point to specific features:

- Search bar:** Points to the search input field at the top of the table.
- The robot SIM card phone number:** Points to the 'Phone' column in the table.
- Free Text Zone:** Points to the 'Map description' column, with a note: "Don't clear the original text".
- DATA access (history):** Points to the 'Actions' column, specifically the download icon.

Type	IMEI	Employee	Location	Map description	Odometer	Group	Last data date	Phone	Downloaded	Actions
<input type="checkbox"/>	863071010616313	Debs	Debs	ET-16313-265130		Etesia France	2015-03-27 09:00:01	327700050139580	2015-03-27 08:59:14	⚠ 📄 ☰
<input type="checkbox"/>	351777047895311	Debs	Debs	ET-5311-260045		Etesia France	2015-04-20 10:50:40	32490280971	2015-04-20 08:03:36	📄 ☰
<input type="checkbox"/>	351777043773959	Debs	Debs	ET-73959-260106		Etesia France	2015-04-20 11:17:57	32490546480	2015-03-20 13:48:03	⚠ 📄 ☰

Record 1 - 3 of 3

The screenshot shows the ETESIA Manage page with a 'Download' dialog box open. A callout box provides instructions:

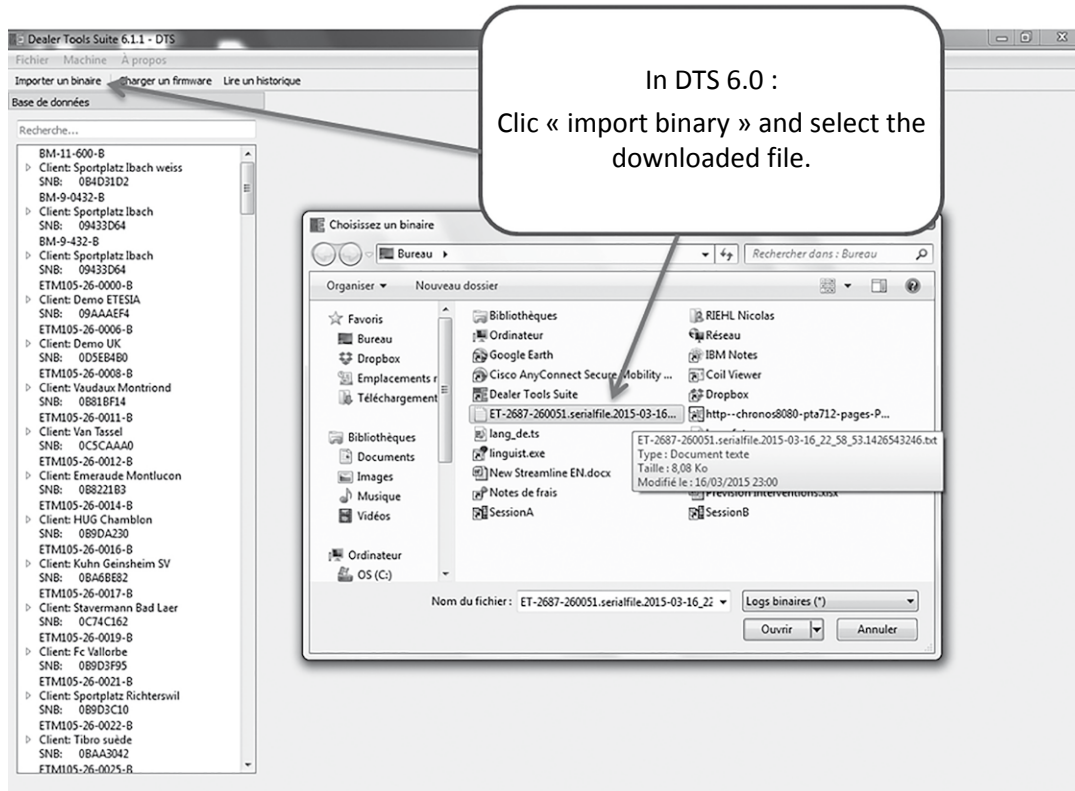
Select the file and download it. Save it and unzip it before introducing in DTS.

The dialog box shows a list of files for download:

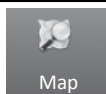
File Name	Size
2015-04-21 11:38:51	6200
2015-04-21 11:26:52	770
<input checked="" type="checkbox"/> 2015-04-21 11:06:36	8286
2015-04-21 10:26:29	770
2015-04-21 09:26:05	770
2015-04-20 21:27:23	770
2015-04-20 20:26:58	770
2015-04-20 19:26:34	770
2015-04-20 18:26:10	770
2015-04-20 17:25:47	770
2015-04-20 16:25:24	770

Selected: [Download] [E-mail]

## 4• USING 'TRACK&TRACE' SERVER ON THE WEB



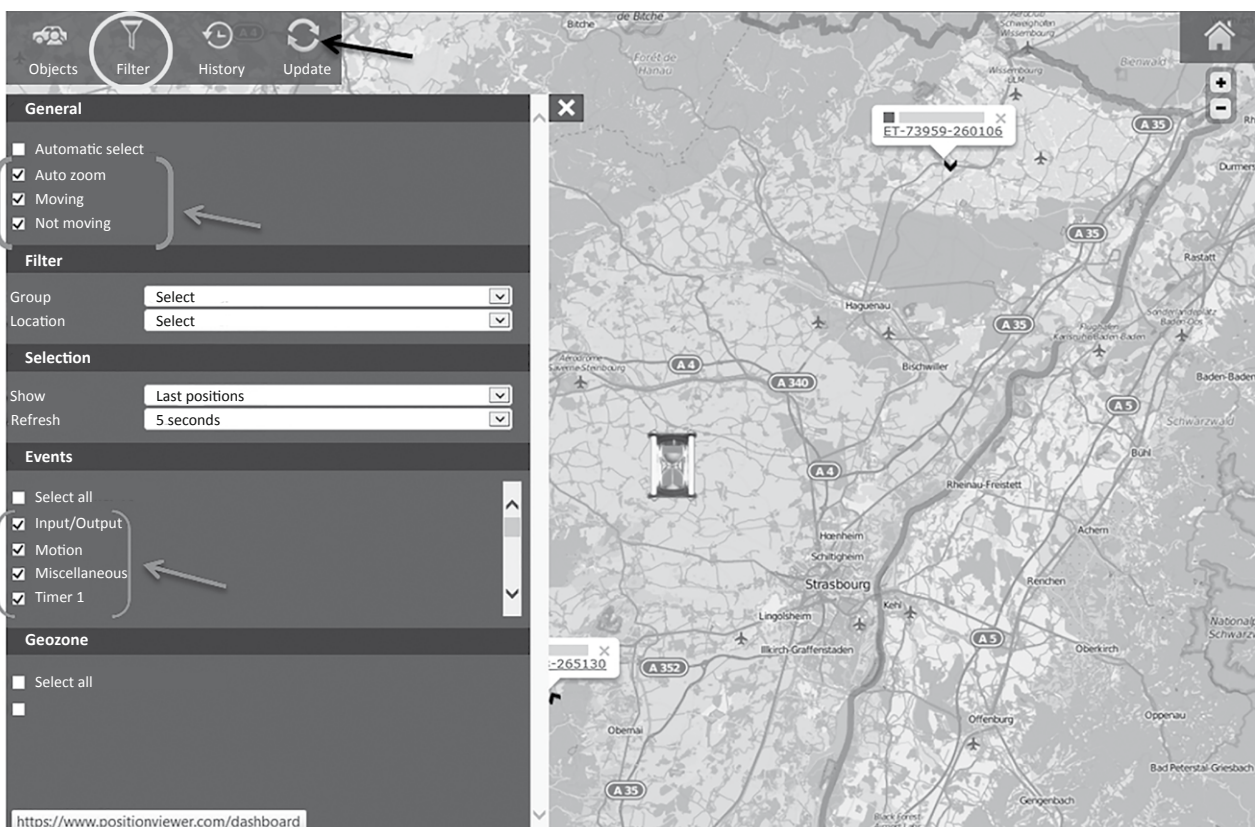
### 4•3 PAGE 'MAP'



#### 4•3•1 'FILTER' ICON

To choose a position, several positions, a date or a range of specific dates to determine what you want to see on the map (see picture below).

- For the sub-menu 'General', 'Events' and 'Geozone', check the box as listed below.
- Do not use the sub-menu 'Filter'.
- In the sub-menu 'Selection', choose the type of selection, last position, date or a range of dates.
- Click on the Update icon.



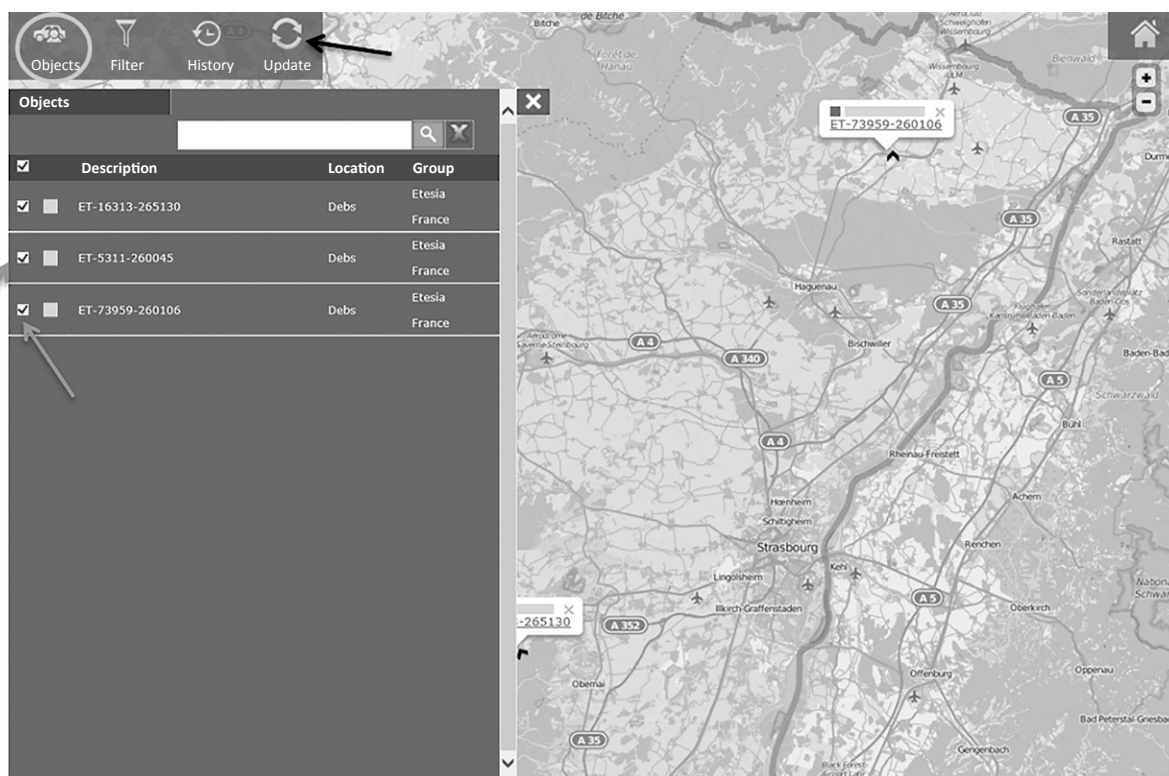


## 4• USING 'TRACK&TRACE' SERVER ON THE WEB

### 4.3-2 'OBJECTS' ICON

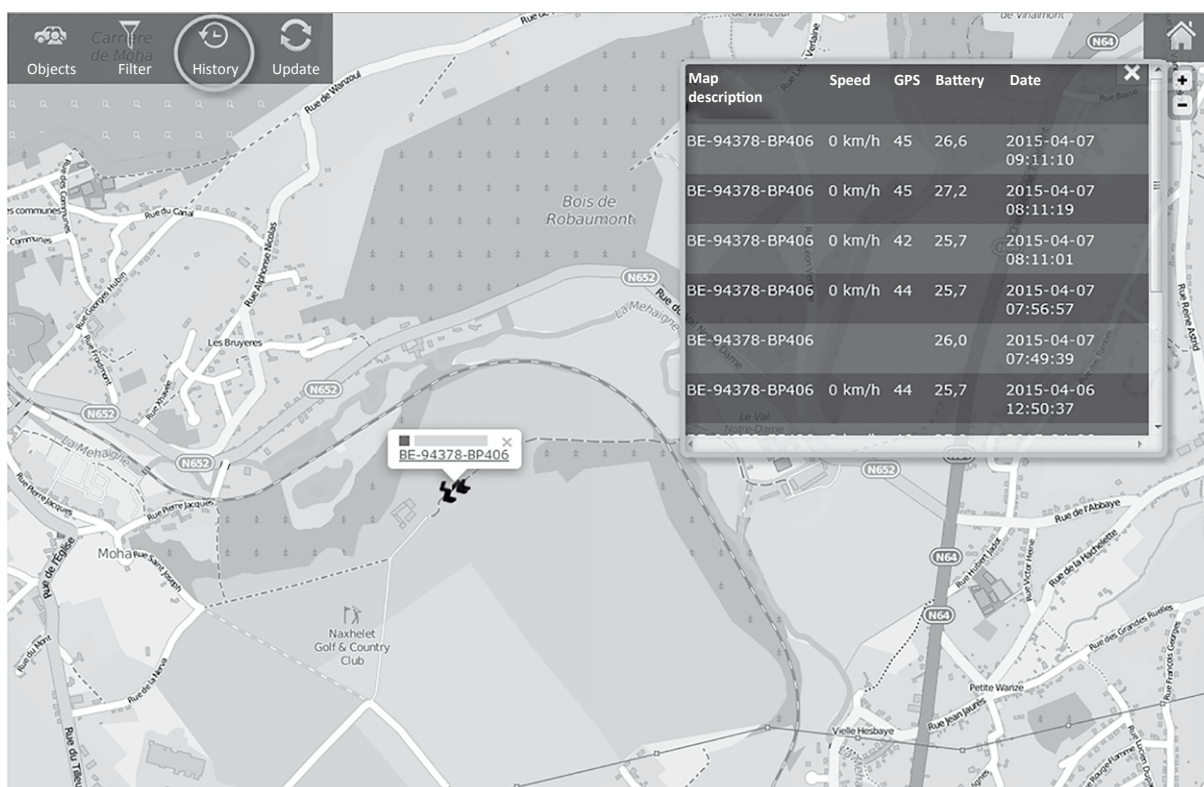
To select the robot you want to see based on the selected filters (see picture below).

- Search the related robot using the search tool.
- Check the box.
- Click on the Update icon.



### 4.3-3 'HISTORY' ICON

To display the last events of the selected robot (see picture below).



### 4.3-4 'UPDATE' ICON

To update the data.



### 4.3-5 'HOME' ICON

To bring you back to the home page.



## 4• USING 'TRACK&TRACE' SERVER ON THE WEB

### 4•4 PAGE 'REPORTS'

To get more details (location of the error) analysing the informations with the reading of the history in DTS.

- Select the robot in the 'Map description'.
- Select the range of date for which you want to see the information.
- Click on 'Show'.

ETESIA

Version: v6.7.8.6

User Map Manage **Reports** Logout

Full Data Downloads

**Filter** Show

Type: Week  
Week: Week 15-2015 (2015-4-6 / ...)  
Map description: ET-9675-265071  
Event: ...  
Employee: ...  
Trip type: Privé / Professionnel

Full Data (35) Full Data

Search Search Export

Date	Time	Event	Employee	Latitude	Longitude	Map	Address	Trip type	Distance	Odometer	Speed	Battery	GPS	Switch	Geozone	I/O	LCD Data
<input type="checkbox"/> 2015/04/12	23:41:11	Timer 5	GDM	49.62735	2.55783	Map	D329 F-80500 Ayencourt le Monchel	Business	0,0 km	0,0 km	0 km/h	26,5	51	0			
<input type="checkbox"/> 2015/04/12	22:41:09	Timer 5	GDM	49.62741	2.55786	Map	D329 F-80500 Ayencourt le Monchel	Business	0,0 km	0,0 km	0 km/h	26,5	52	0			
<input type="checkbox"/> 2015/04/12	21:41:06	Timer 5	GDM	49.62735	2.55785	Map	D329 F-80500 Ayencourt le Monchel	Business	0,0 km	0,0 km	0 km/h	26,5	51	0			

## 5• FREQUENT ISSUES AND QUESTIONS

PROBLEMS	SOLUTIONS
Commands sent to obtain information about the robot (status, position, Mowerdata), but no confirmation message received	<p>The SMS communication between your mobile phone and the robot is not working. Following possibilities can explain the problem:</p> <ul style="list-style-type: none"> <li>- you have mistyped the robot SIM card phone number.</li> <li>- the GSM network of the operator is temporally not working in your area or in the area of the robot.</li> <li>- the GPS/GPRS module of the robot is not able to receive or send SMS. A possible root cause can be that the module has a low power battery. As long as the robot is working normally, this can not happen. However, when the robot is switched off, the autonomy of the GPS/GPRS module battery allows SMS communication to continue for a few days. After that period, the robot is no longer able to communicate. You have to switch on the robot again. Check then that the SMS communication has been properly re-established.</li> <li>- your yearly subscription to the 'Track&amp;Trace' option has not been renewed and the service has been disabled. Contact your dealer to reenale the service.</li> </ul>
Text message alarms not received and / or no control of the robot with text message commands	<ul style="list-style-type: none"> <li>- Text message communications are not working (see above).</li> <li>- You must have the 'ALARM_PHONE' or 'CONTROL_PHONE' rights to have this functionality (see section 3•1). Check via <b>Status</b> command which phone numbers are registered in the GPS/GPRS module.</li> <li>- The same alarm is occurring continuously. Only one Alarm_SMS is sent in those conditions (see section 3•7).</li> </ul>
The robot is switched off (I can see it through Status command) but I did not receive the corresponding SMS message 'Robot OFF'	<p>Following possibilities can explain the problem :</p> <ul style="list-style-type: none"> <li>- SMS communication not working : see here above.</li> <li>- After an alarm has occurred (you should have received an Alarm_SMS for it), the robot is switching off automatically 2 minutes after, unless the alarm condition has disappeared (example : short signal interruption). In this case, the robot does not send a 'Robot OFF' SMS.</li> </ul>
Loss of the mobile phone or SIM card corresponding to the number set in the ALARM_PHONE setting	Take contact with your dealer so the 'ALARM_PHONE' can be cleared and you will be able to define a new phone number to receive alarms and send control or security commands.
Loss of the mobile phone or SIM card corresponding to the number set in the CONTROL_PHONE setting	The 'ALARM_PHONE' phone can be used to clear the 'CONTROL_PHONE' and allow to define a new phone number.
Configuration of the language used by Track&Trace services	<p>The language can only be configured in certain cases.</p> <p>The language of the 'Alarms' sent by the robot over SMS are in the same language as you have configured your robot for use through display/keyboard.</p> <p>The language of the 'Track&amp;trace' server accessible via the web is also configurable.</p> <p>However, the 'Track&amp;Trace' commands SMS must be in English in the same syntax as described in this manual (but the commands are case insensitive). The acknowledgments confirmation SMS are also in English only.</p>



## 5• FREQUENT ISSUES AND QUESTIONS

PROBLEMS	SOLUTIONS
The GPS position visualizing through the 'Track&Trace' server is not corresponding to the exact position of the robot	<p>Make sure you have selected the correct robot to visualize and the correct time stamp.</p> <p>The accuracy/inaccuracy of the localization is inherent to the GPS system and can be affected by following factors :</p> <ul style="list-style-type: none"> <li>- trees or buildings reducing the sky visibility</li> <li>- time and exact location on Earth affecting the number of satellites which can be seen</li> </ul> <p>When the GPS receiving conditions are very bad, the GPS receiver module embedded on the robot might detect itself poor conditions and not send any GPS information. This is also the case just after the module has been restarted.</p>
Unable to open the history log file downloaded from the Track&Trace server using the Dealer Tool Suite software	Take contact with your dealer to check the versions compatibility between the firmware embedded in the robot and the Dealer Tool Suite version you should use.
Time mismatch between the SMS messages and the information which can be visualize on the 'Track&Trace' server or in Dealer Tool Suite	<p>There are five different 'clock' references involved in the system:</p> <ul style="list-style-type: none"> <li>- The clock of the robot that you can define through the keyboard (refer to ETESIA robot user manual).</li> <li>- The clock that the 'Track&amp;Trace' module is capturing directly from the GPS satellites.</li> <li>- The clock that the 'Track&amp;Trace' module keeps updated without the GPS reference.</li> <li>- The clock of the server.</li> <li>- The clock of the GSM/GPRS network.</li> </ul> <p>Depending on the information you look at, you will see the different clock references. Normally, the various clocks should correspond but there might be some differences explaining the mismatch you are observing. (Example : no automatic summer time change, wrong time zone, no GPS fix, ...).</p> <p>In particular, the timing information that you get included in the SMS responses is the GPS clock acquired by the 'Track&amp;Trace' module. When the 'Track&amp;Trace' module has been switched off and there is not yet GPS fix, the 'Track&amp;Trace' module clock is starting with the time of the last GPS fix before the module was switched off. If the module has been kept off for several days, the time included in the SMS messages might then be very old. This will become correct as soon as the module has acquired the GPS fix.</p>
Is there some subscription fee to the 'Track&Trace' service?	There is a yearly renewal of the subscription to be done so you can continue with the service. The subscription for the first year is included in the installation price. For following years, your dealer will contact you upfront to make sure you are renewing the subscription and you do not get a service interruption.

# WARRANTY

## DEFINITIONS

- Dealer, importer = Distributor linked to ETESIA by an agreement (dealership or importer contract). The dealer and the importer are in charge of selling and servicing ETESIA machines.
- User, buyer = physical or moral person, company, collectivity or association having bought legally a machine new or second hand from a dealer.
- Domestic use = use of a machine on a private ground. Machine is owned by the user and just use to clear its private piece of ground (main or secondary residence).
- Professional use = use of an ETESIA machine, in exchange of money or not, on public areas to maintain companies or institutions like : hospitals, associations,....or on private fields being owned by a third person.
- The user completes the warranty card indicating the type of use for every machine. This declaration engages its responsibility and defines the legal warranty period.
- Should ETESIA discover that the machine is not used in the use initially declared, ETESIA allows itself to cancel the warranty.
- Wear parts/consumable parts : parts needing to be changed inevitably to enable an optimal normal use of the machine.
- Normal use = use of the machine according to all instructions mentioned in the instruction book (including safety and maintenance).

## GENERAL WARRANTY CONDITIONS

- In addition to the legal warranty, ETESIA offers a contractual warranty. The ETESIA warranty concerns the exchange of parts free of charge in case of material, production or conception fault. This warranty applies on the product as he leave ETESIA production line.
- The delivery company is the only responsible in case of transport damage. It is however the addressee responsibility when damages occurs during transport to mention reserves on the delivery note when receiving the goods and to inform ETESIA within 48H by registered letter.
- The instruction book delivered with every machine contents all information regarding machines use. Any different use from the one described in the instruction book can be dangerous for the user and reduce machine life. In such cases, ETESIA can not be held responsible.

## CONTRACTUAL WARRANTY

- The ETESIA contractual warranty is allowed for 2 years (warranty period starting the first day when the machine is purchased by the user). This warranty is just valid if :
  - 1) Instructions from the instructions book have been respected.
  - 2) The warranty card has been returned to ETESIA immediately after the machine purchase or completed on the extranet site.
  - 3) A revision is recommended after periods indicated in the instruction book.
  - 4) To require a repair under warranty claim, the buyer will contact first the ETESIA dealer. Should it not be possible, he could contact ETESIA who would propose an alternative solution.
  - 5) Just repairs done in ETESIA dealers workshops can be taken under warranty.
  - 6) Any material, production or conception fault recognized by ETESIA as such will be eligible to warranty (parts and labour). It will therefore be paid back to the dealer according to charge scale mentioned in the agreement.

It is dealer responsibility to make sure that the end user does receive the complete warranty allowed by ETESIA. Should ETESIA not recognize any fault, the dealer will be held responsible. ETESIA reserves the right to cancel the decision with no compensation or warning.

Transportation cost for machines and parts are at user cost.

- 7) Any intervention done within warranty time, in particular in case of parts exchange, will not give right to any new warranty period.
- 8) In case of parts exchange under warranty, ETESIA reserves the right to use either new or second hand parts. Parts given free of charge by ETESIA can required at any time by ETESIA. They need to be sent back on simple request. Should ETESIA not receive these parts, warranty claim would automatically be cancelled.
- 9) This warranty however does not cover : parts damaged during a repair action ; machines not having been serviced according to the repair schedule mentioned in the instruction book ; parts with normal wear.  
Please find a list (not complete) of wearing parts: Silent block, blades, bearings, cutting discs, wheels, tactile bumper, contact sensor...
- 10) Warranty right is cancelled in the following cases:
  - Damages due to non respect of safety, maintenance use and storage instructions. ETESIA will not be held responsible, legally in particular, for damages resulting from other uses than the ones described in the instruction book.
  - Damages due to accident or collision.
  - Damages due to a modification of the original machine or use of non original spare parts.
  - Damages on machines not having been maintained by the ETESIA dealer network.
- 11) In case of owner change, the outstanding warranty period can be transferred to the new owner. However to enable this transfer a written request need to be sent to ETESIA after sales department. This request needs to attest as well that the new end user has received the instruction book for the machine as well as the warranty terms.
- 12) ETESIA keeps the right to check that preliminary conditions for warranty have been respected by the buyer.
- 13) When warranty application is requested, ETESIA does deliver the parts as soon as possible. However an immediate delivery can not be requested. A delay in delivery would in no case give right to compensation or to warranty extension.
- 14) Any additional claims to ETESIA is excluded.
- 15) Any breakdown suspected as being a fault subject to warranty has to be brought to attention to an ETESIA dealer. The ETESIA dealer is in fact the only contact able to submit a warranty claim to ETESIA.  
Should a dispute occur the competent tribunal is the one mentioned in the ETESIA dealership.

## IMPORTANT NOTE :

As soon as a machine purchase takes place, the warranty cards needs to be :

- completed, signed and sent back to

**ETESIA – WARRANTY SERVICE**  
**67165 WISSEMBOURG CEDEX**  
**FRANCE**

- or completed by your dealer on line on the extranet.

# EC DECLARATION OF CONFORMITY

As per Directive 2006/42/EC

We,



13, Rue de l'Industrie, 67165 WISSEMBOURG CEDEX

declare under our responsibility, that the robot mowers, type ETM65/ETM65S to which this declaration refers, fulfil all the relevant terms of directive 2006/42/EC applicable to them as well as to the provisions of all other directives European applicable to them :

- 2014/30/UE (from 26/02/14)
- 2006/66/EC (from 06/09/06)
- 2014/35/UE (from 26/02/14)

Electromagnetic compatibility

Concerning batteries and accumulators containing certain dangerous substances

Electrical material intended to be employed in certain limits of tension

M. TREGER Claude

13, rue de l'industrie 67165 Wissembourg CEDEX

is the person authorized to constitute the technical file.

Assessment of conformity by in-house inspection of machine manufacture according to Annex VIII of directive 2006/42/EC.

Model:

Serial number:



Année de fabrication

Done in Wissembourg, the 01/09/2016

Mr. Patrick VIVES

A handwritten signature in black ink, appearing to read 'Patrick Vives'.

The President

Due to their permanent improvement policy, ETESIA reserves the right to modify specifications, text and pictures without prior notice.

ETESIA SAS - 13, Rue de l'Industrie - F-  
67165 WISSEMBOURG CEDEX

Strasbourg Trade & Commerce Register B343 510 996

Stamp  
here  
please

**ETESIA**

SERVICE GARANTIE

13 rue de l'Industrie  
67165 WISSEMBOURG CEDEX  
France



This card has to be returned completed to ETESIA upon the first setting up.

<b>MODELL:</b> _____	<b>SERIAL NUMBER:</b> _____
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## WARRANTY CERTIFICATE

<b>USER</b>	NAME _____	Forename _____	
	Street _____	Zip code _____	
	Town _____	Country _____	
	Tel _____	Date of purchas _____	20____ Day      Month      Year
@ Email : _____			

Automatic lawnmower ETMower - Track and Trace : User code query

Contact : _____	Cell phone number for SMS information : _____
- Dealer : _____	- Installer : _____
- End user _____	- Importer : _____
Installation provided by : _____	

I already own a ETESIA product <input type="checkbox"/> yes <input type="checkbox"/> no	If so, what product : _____
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<b>Area to be mown:</b>  <input type="checkbox"/> Less than 1000 m <sup>2</sup> <input type="checkbox"/> 1000 to 2000 m <sup>2</sup> <input type="checkbox"/> 2000 to 5000 m <sup>2</sup> <input type="checkbox"/> 5000 to 10 000 m <sup>2</sup> <input type="checkbox"/> 10 000 to 20 000 m <sup>2</sup> <input type="checkbox"/> More than 20 000 m <sup>2</sup>	<b>Mowing / usage frequency:</b>  <input type="checkbox"/> More than once the week <input type="checkbox"/> Once the week <input type="checkbox"/> Twice the month <input type="checkbox"/> Once the month <input type="checkbox"/> Less than once the month	<b>I am, I represent:</b>  <input type="checkbox"/> A privat <input type="checkbox"/> An association, a company <input type="checkbox"/> A council, a collectivity <input type="checkbox"/> A landscaper (green areas professionnall) <input type="checkbox"/> Other, specify _____
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<b>Signature and confirmation of the user :</b> - that he has taken possession of a machine in perfect working order ; - that the user has been handed over and that he thoroughly read the use instructions, safety and maintenance suggestions figuring in it ; - that he has been informed of the warranty terms and that he accepts said terms without reserve or restriction ; - that he has been informed by the "Contract of breakdown service per alarm « GPS »" (automatic lawnmower ETMowers)	Date _____   Signature _____
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Dealer's stamp and signature

Date : \_\_\_\_\_