Arag ISOBUS Software

MULTI-PLATFORM SOFTWARE FOR VIRTUAL TERMINAL

Software rel. 2.0.x

USE AND MAINTENANCE

	= **Generic danger**
	= **Warning**
ECU	= **ISOBUS remote control unit**
OP	= **Object Pool**
UT	= **Universal Terminal / Virtual Terminal**
TC	= **Task Controller**

This manual is an integral part of the equipment to which it refers and must accompany the equipment in case of sale or change of ownership. Keep it for any future reference; ARAG reserves the right to modify product specifications and instructions at any moment and without notice.

THIS MANUAL CONTAINS INDICATIONS ON HOW TO PROGRAM AND USE THE ARAG SOFTWARE INSTALLED ON DISPLAYS TO MANAGE THE ISOBUS CONTROL UNITS:
DELTA80T
DELTA70T

PLEASE REFER TO THE ARAG DISPLAY MANUALS FOR ALL RECOMMENDATIONS REGARDING RISKS AND INTENDED USE.

Depending on the activated licenses, Arag ISOBUS Software is able to manage three functions (par. 7.5):
- UT (Universal Terminal)
it displays the OP of the connected ECU compatible with the ISOBUS system according to ISO11783.

- Nav (Navigator)
The display features a satellite navigator that – through the external GPS receiver – can be used for agricultural applications and navigation.

- TC (Task Controller)
• TC-BAS: It provides information on the overall values, received from the equipment, regarding the performed job.
• TC-SC: Automatic management of sections according to GPS position and desired overlapping degree.
• TC-GEO: Additional ability to acquire position-based data or job planning based on GPS position and desired overlapping degree.

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1 SETUP

1.1 Setup preparation

Before monitor setting, check:
• that all components are correctly installed;
• the correct connection to the power source;
• the component connection.
Failure to correctly connect system components or to use specified components might damage the device or its components.

1.2 Switching on

THE TYPE OF CONNECTION AFFECTS THE DEVICE SWITCHING ON MODE (ref. VT installation manual in your possession).

❶ SWITCHING ON WITH KEY (BACK OF THE DEVICE)
Press and hold the ON/OFF key, release the key as soon as the display responds (beep or LED flashing, depending on the device).

❷ SWITCHING ON USING A KEY
Turn the ignition key on the vehicle, the LED on the display flashes and the display turns on.

In case of connection using a key, if the VT remains on for a long time with machine off, the tractor battery could run flat: in case of prolonged breaks of the machine with engine off, make sure the display is off, too.

FIRST DEVICE SWITCHING ON

Fig. 1

Upon first start-up, after system checks, the monitor directly accesses the use language setting (Fig. 1) and the basic settings of the device (chapter 2).

ORDINARY SWITCHING ON

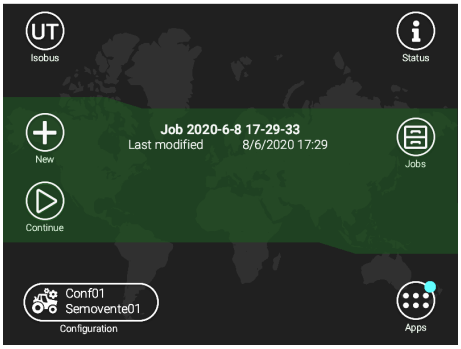


Fig. 2

After system checks, the monitor directly accesses **HOME** screen (Fig. 2).

1.3 Switching off

The switching off mode depends on the type of device connection (ref. VT installation manual in your possession):

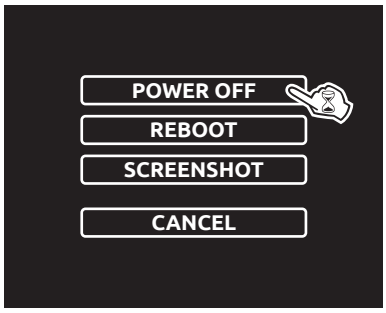


Fig. 3

❶ **SWITCHING OFF WITH KEY (BACK OF THE DEVICE)**
Press and hold the key until the switching off selection screen is displayed, then release the key and press **POWER OFF** (or press **CANCEL** to return to the previous screen).

❷ **SWITCHING OFF USING A KEY (FOR DELTA 70T ONLY)**
When the device is connected using a key, THE POWER OFF OPTION ON THE SCREEN IS NOT AVAILABLE. The **REBOOT**, **SCREENSHOT** and **CANCEL** keys remain unchanged.

⚠ **During the switch-off procedure, the display automatically saves the job in progress: Do NOT press any other key until the display turns off.**
OTHERWISE ALL DATA ON SPRAYING AND PROGRAMMING WILL BE LOST.

In case of sudden supply voltage blackout, the display is turned off and the system continues the switching off procedure and saves data; the VT turns off within 10 seconds.
Restore correct supply voltage conditions asap: check connection and integrity of the power cable (ref. VT installation manual).

1.4 Reboot

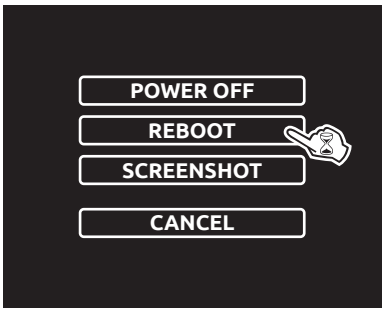


Fig. 4

- Press and hold the switching off key until Fig. 4 is displayed and then release it and press **REBOOT** (or press **CANCEL** to return to the previous screen).
- The device reboots:

⚠ **During reboot, the display automatically saves the current job: Do NOT press any other key and do NOT disconnect the power supply until monitor turns off.**
OTHERWISE ALL DATA ON SPRAYING AND PROGRAMMING WILL BE LOST.

1.5 Screenshot

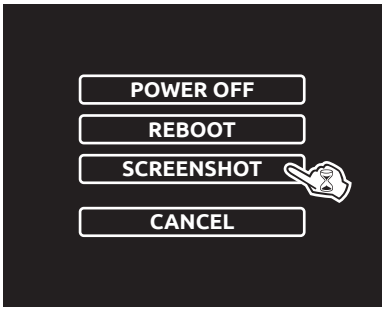


Fig. 5

- Insert a USB pendrive in the relevant slot.
- Press and hold the switching off key until Fig. 5 is displayed.
- Press **SCREENSHOT** and wait that the display flashes: an image of the current screen is automatically saved to the USB pendrive.

Otherwise, press **CANCEL** to return to the previous screen (without saving the image).

2 BASIC SETTINGS

FIRST START-UP - GUIDED SETUP

IT WILL ALWAYS BE POSSIBLE TO MODIFY THE SETTINGS MADE IN THIS PHASE AT A LATER TIME USING THE MENU IN PAR. 7.5.

Fig. 6

Select the monitor language.

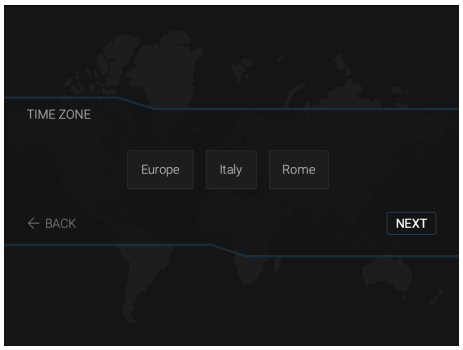


Fig. 7

Select: Continent / State / City.
Press **NEXT** to confirm and move to the next page or **BACK** to return to the previous page.

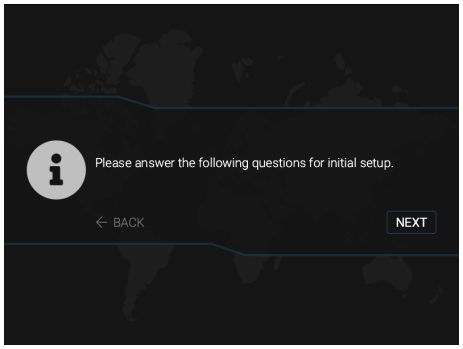


Fig. 8

Press **NEXT** to start basic settings configuration or **BACK** to return to the previous page.

CONTINUES > > >

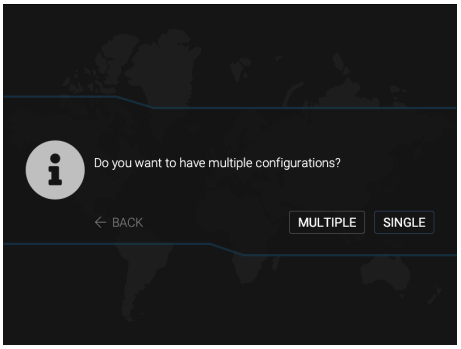


Fig. 9

MULTIPLE (Multiple configuration):
This configuration is recommended for situations where you plan to move the display to another machine (par. 5.2).

SINGLE (Single configuration):
This configuration is recommended for applications where the display is intended to be used with one tractor and one implement (e.g. self-propelled sprayer) This selection simplifies the settings and use (par. 5.1).

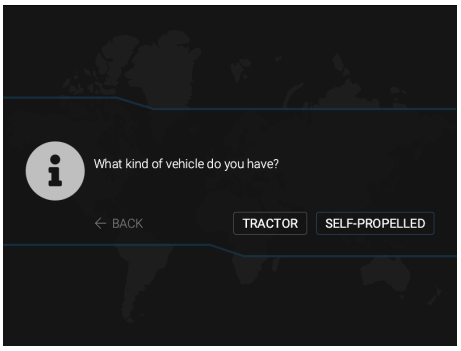


Fig. 10

Select the type of vehicle used to facilitate entry of the machine geometry data

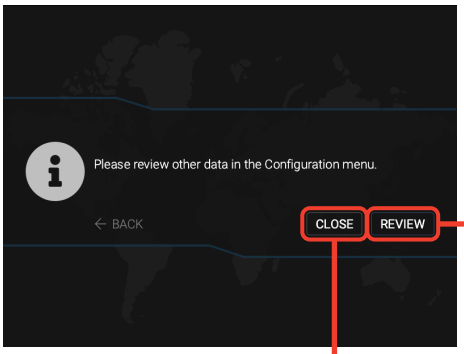


Fig. 11

CLOSE
It allows switching to the **HOME** screen (Fig. 12).

REVIEW
It gives direct access to the menu
HOME > CONFIGURATION (Fig. 12).

To complete the setup it is necessary to enter all the data of the **CONFIGURATION** page (Fig. 13)

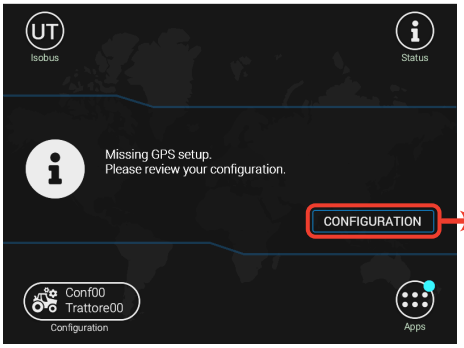


Fig. 12

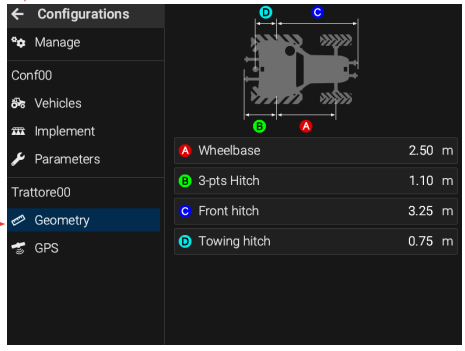


Fig. 13

CONFIGURATION
Accesses the **CONFIGURATION** menu from the **HOME** screen.

NOW IT IS POSSIBLE TO CARRY OUT THE DEVICE CONFIGURATION, DESCRIBED IN CHAPTER 5.
The system assigns to the monitor ONLY the suitable setup menus.

3 ENTERING AND EDITING NUMERICAL VALUES AND TEXTS

The device is a touch screen display. To enter the menus and set them just press on the area you wish to configure (icons or text).

3.1 Entering text

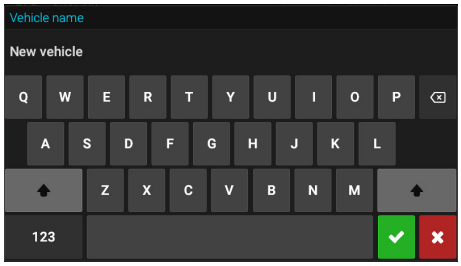


Fig. 14

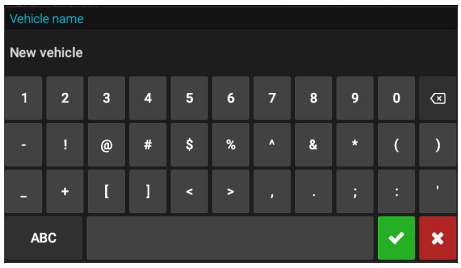


Fig. 15

Confirm

Quits without confirming

Deletes one character at a time (from right to left)

Allows entering capital letters

123 Allows entering numbers and symbols (Fig. 15)

ABC Allows entering letters (Fig. 14)

3.2 Entering a number

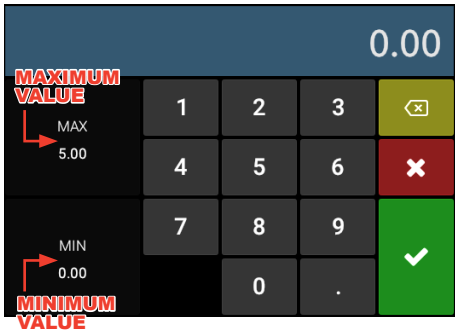


Fig. 16

Deletes one number at a time (from right to left)

Quits without confirming

Confirm

3.3 Canceling the selection

Here are some examples of selection and deselection areas:

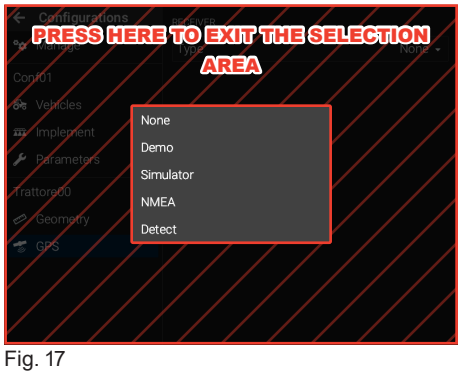


Fig. 17

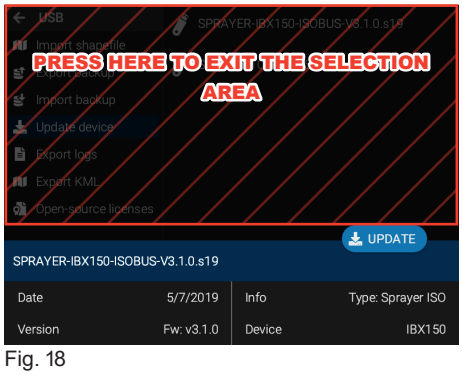


Fig. 18

Active area: area with higher brightness than the deselection area.

Not active area: area with lower brightness than the selection area.

- Press outside the active area to cancel your selection.

4 MENU STRUCTURE

Menu "Home"

Universal Terminal - chap.10

Job management - chap.12

Status - chap.11
Alarms
Events
GPS
Polaris
Device

Manage - configuration management - par. 5.1 / 5.2 / 5.3

Configuration name

Vehicles - vehicle management - par. 5.4
Implement - par. 5.5
Parameters - par. 5.6

Tractor name

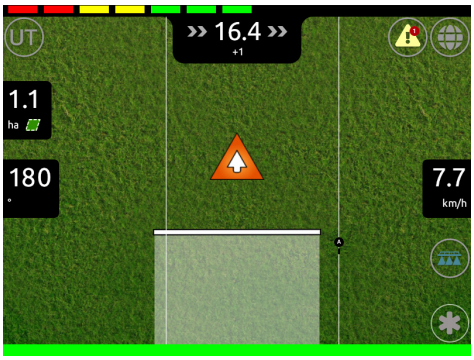
Geometry - par. 5.7
GPS - par. 5.8
Polaris - par. 5.9

Apps - chap.6
Preferences - chap.7
- Zone
- Display
- Advanced

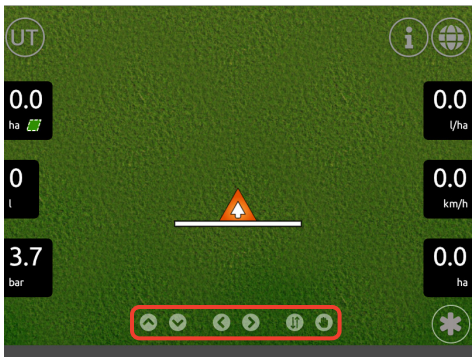
Data - chap.8
- Import shapefile
- Export backup
- Import backup
- Update device
- Export logs
- Export KML
- Open-source licenses

Maps - chap.9

Job screen - chap.13



Simulation commands - chap.14

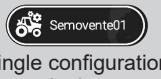


Function keys - chap.15

5 MULTIPLE OR SINGLE CONFIGURATION

The display can be installed on different systems. Depending on the system in use, it is possible to set several configurations so that you can directly select the one to be used without having to set it upon each system change.

5.1 SINGLE CONFIGURATION



Single configuration shown in the screen **Home**

This mode allows setting and managing a single configuration, thus simplifying its use.
The display, in the basic settings, gives the possibility to enable this mode by selecting **SINGLE** (Fig. 9).
Alternatively, later in the **Home** > **Apps** > **Preferences** > **Advanced** menu, by enabling the **Single configuration** item you can directly access the configuration setting menu.

5.2 MULTIPLE CONFIGURATION

Multiple configuration shown in the screen **Home**

This mode allows setting and managing more than one configuration.
The display, in the basic settings, gives the possibility to enable this mode by selecting **MULTIPLE** (Fig. 9).
Alternatively, later in the **Home** > **Apps** > **Preferences** > **Advanced** menu by disabling the **Single configuration** item, you can access the multiple configuration menu.

5.2.1 Creating a new configuration

- Press **Configuration** > **Manage**.
- Press ⊕ (Fig. 20) and edit the new configuration name (par. 3.1).

This operation creates a configuration that activates at the same time: it will be used when spraying and visible in **Home** 

screen.
IN CASE OF SINGLE CONFIGURATION ONLY THE VEHICLE NAME CAN BE READ.

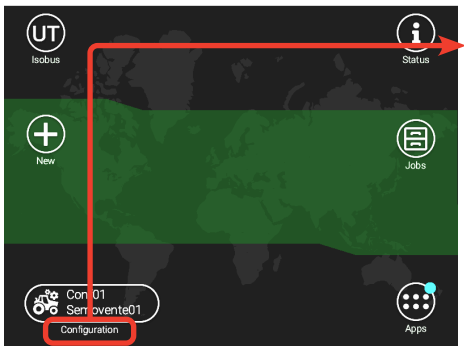


Fig. 19

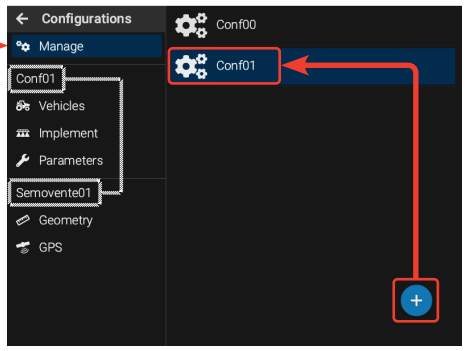


Fig. 20

Each configuration must always pair a vehicle, both visible in the **Configurations** column on the left side of the display (Fig. 20).

Example: Self-propelled00 is the vehicle used in Conf01 configuration.

The association between configuration and vehicle can be changed in par. 5.4.3.

5.2.2 Deleting a configuration

WARNING: the configuration in use (example Conf01) CANNOT be deleted.

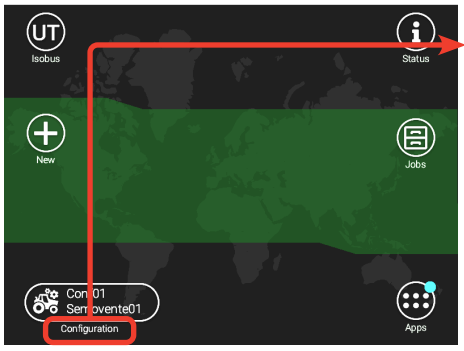


Fig. 21

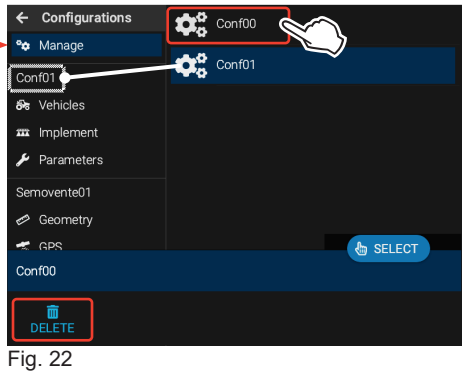


Fig. 22

- Press **Configuration** > **Manage**.
- Press the configuration to be deleted (Fig. 22).
- Press **DELETE**.

5.2.3 Selecting a configuration

This operation activates an existing configuration: it will be used when spraying and visible in **Home** 

screen.
The configuration in use is highlighted, example Conf01 in Fig. 24.

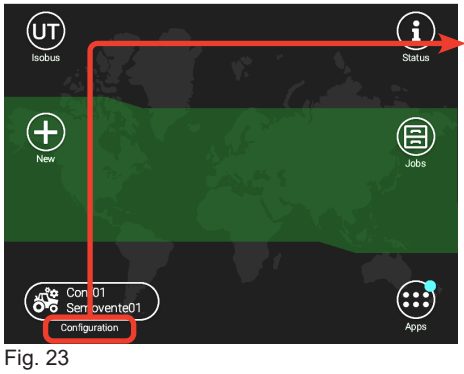


Fig. 23

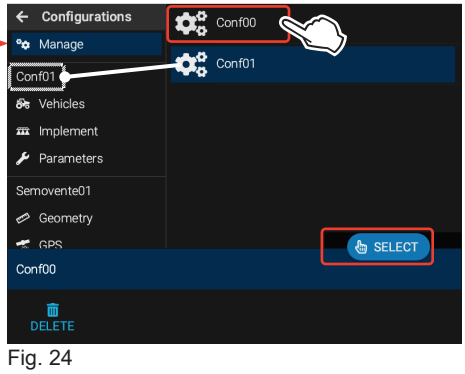


Fig. 24

- Press **Configuration** > **Manage**.
- Press the configuration to be selected (**Fig. 24**).
- Press **SELECT**.

5.3 Setting a configuration

5.3.1 SINGLE CONFIGURATION

The display opens directly the configuration setting menu.

- Press **Configuration**: the left column displays the relevant setting menus.
- Select each item to set the requested data (example: **Semovente01** > **Geometry** in Fig. 26).
- Enter all measurements as described in the following paragraphs.

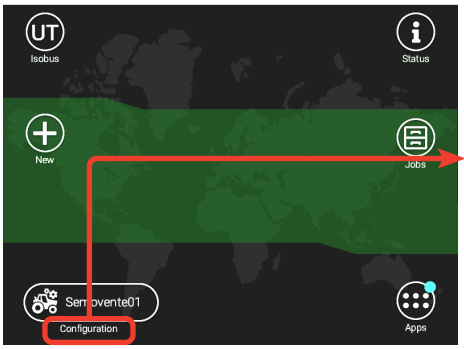


Fig. 25

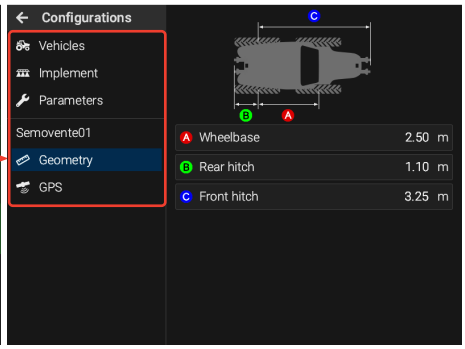


Fig. 26

5.3.2 MULTIPLE CONFIGURATION

To set a configuration, it is necessary to activate it first: only the configuration in use can be edited (example Conf01 in Fig. 28).

- Press **Configuration** > **Manage**.
- Select the desired configuration: the left column displays the relevant setting menus.
- Select each item to set the requested data (example: **Semovente01** > **Geometry** in Fig. 29).
- Enter all measurements as described in the following paragraphs.

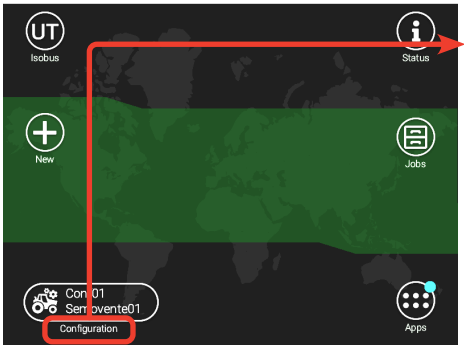


Fig. 27

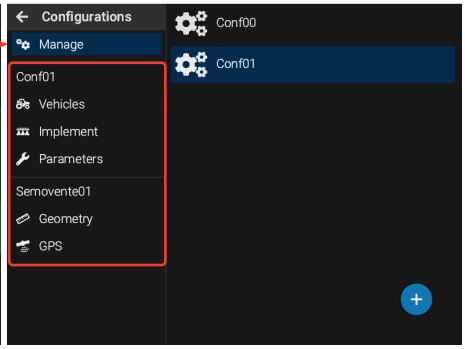


Fig. 28

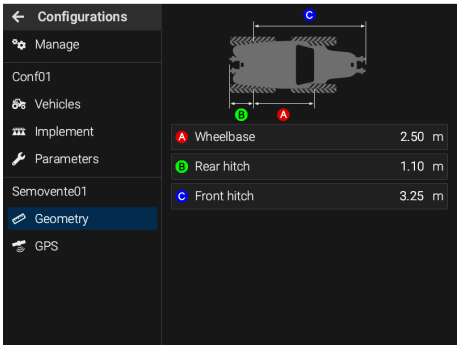


Fig. 29

5.4 Configurations > Vehicles

Vehicles saved are used by linking them to the configurations: the pairing is performed in **Configurations** > **Vehicles** menu and is displayed in the left column (Example in Fig. 31: **Self-propelled00** is the vehicle used in **Conf01** configuration).

To pair a vehicle, first select the configuration: they will both be used when spraying and visible in Home 

screen. In case of single configuration only the vehicle name can be read.

5.4.1 Creating a new vehicle

This operation allows creating a vehicle; at the same time it pairs to the active configuration.
The vehicle in use is highlighted, example Self-propelled00 in Fig. 31.

- Select the desired configuration (par. 5.2.3).
- In **Configuration** > **Vehicles** menu, press ⊕ (Fig. 31) and select the type of vehicle you want to create: **Tractor** or **Self-propelled**.
- Edit the name of the new vehicle (par. 3.1).

The association between vehicle and configuration can be changed in par. 5.4.3.

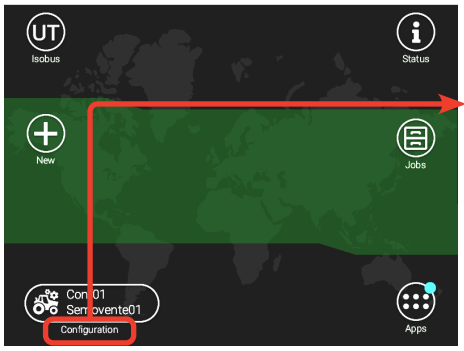


Fig. 30

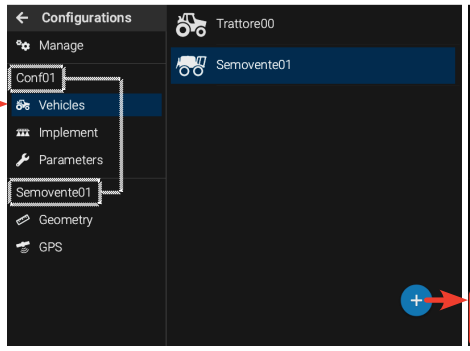


Fig. 31

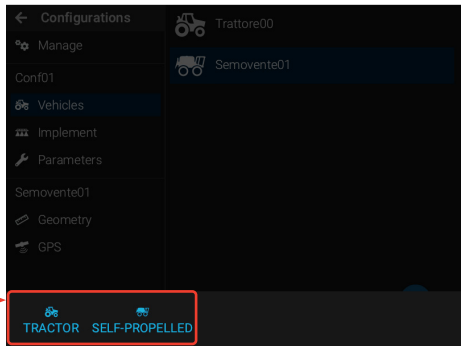


Fig. 32

5.4.2 Deleting a vehicle

WARNING: the vehicles in use CANNOT be deleted.
The vehicle in use is highlighted, example Self-propelled00 in Fig. 34.

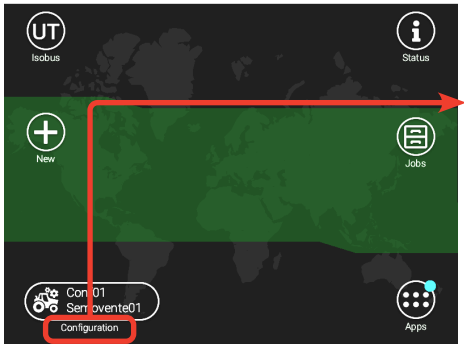


Fig. 33

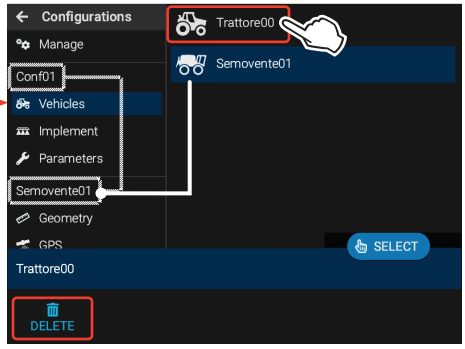


Fig. 34

- Select the desired configuration (par. 5.2.3).
- Press **Configuration** > **Vehicles**.
- Press the vehicle to be deleted (Fig. 34).
- Press **DELETE**.

5.4.3 Selecting a vehicle

This operation allows associating an existing vehicle to the active configuration.

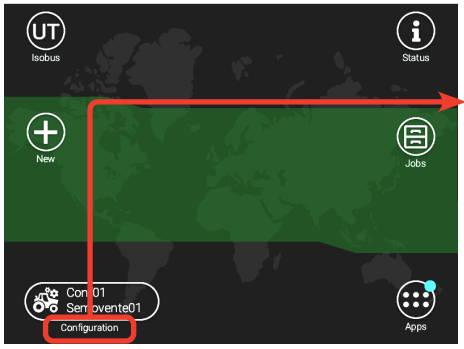


Fig. 35

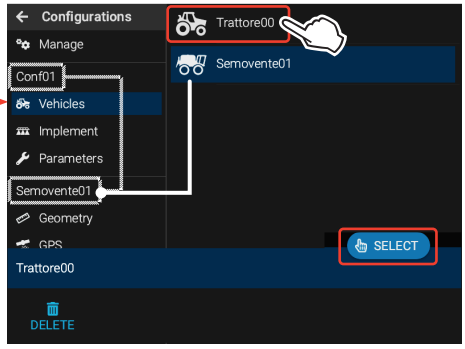


Fig. 36

- Select the desired configuration (par. 5.2.3).
- Press **Configuration** > **Vehicles**.
- Press the vehicle to be paired (Fig. 36).
- Press **SELECT**.

5.5 Configurations > IMPLEMENT

It allows selecting how you want to enter implement geometry measurements.

5.5.1 Configurations > IMPLEMENT > Type > ISOBUS

The monitor retrieves implement geometry information directly from the control unit.

5.5.2 UNPAIR CONTROL UNIT (Type > ISOBUS)

UT stores the connected ECU during the first configuration and considers it as the main ECU; if it is replaced with another one it is necessary to unpair it.
The monitor will consider the new ECU as the main ECU.

By pressing this key the display unpairs the tractor from the ECU and is ready to accept and store a new ECU.
- Fig. 37: press **UNPAIR CONTROL UNIT**, then press ← to go to **Home** screen.
- Follow the instructions displayed (Fig. 38 - Fig. 39). The pairing will link the current configuration to the new control unit.

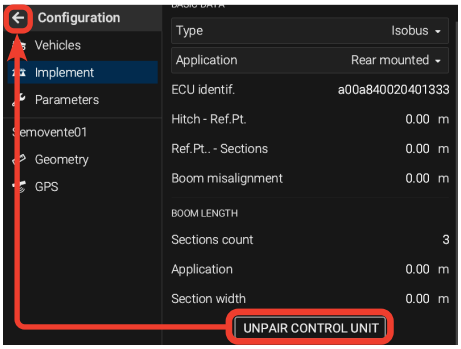


Fig. 37

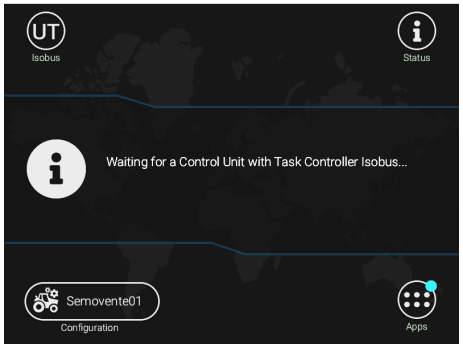


Fig. 38

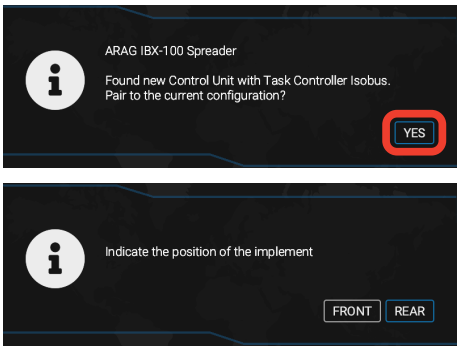


Fig. 39

5.5.3 Configurations > IMPLEMENT > Type > NONE

Select this option if you do not want to use the Navigation and TC functions.
To use the two functions it is essential to enter the implement geometry.

5.5.4 Configurations > IMPLEMENT > Type > CUSTOM

Select this mode if the attached implement is not operated by an ISOBUS ECU.
The TC function will not be available in this case.
Configure the implement geometry according to the selected implement **Type** as shown in the figures (Fig. 40 - Fig. 41 - Fig. 45 - Fig. 50):

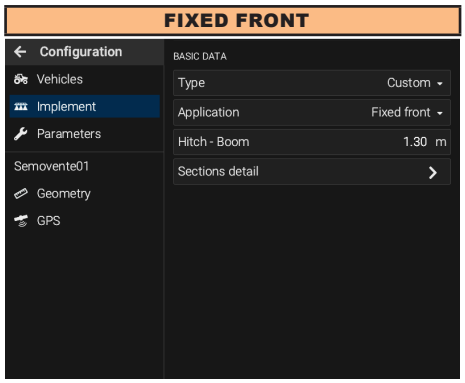


Fig. 40

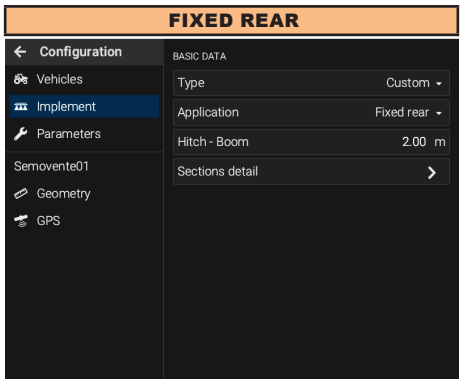


Fig. 41

Enter the required measurements according to the selected implement **Type**.

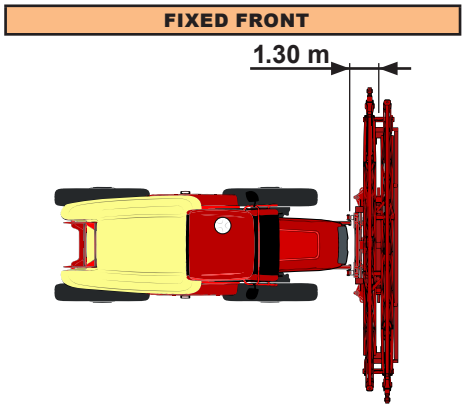


Fig. 42

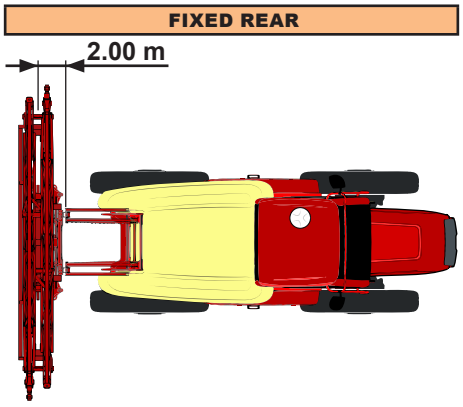


Fig. 43

HITCH - BOOM

- Enter the measurement between the connection point of the boom and the point of application (Fig. 42) (Fig. 43).

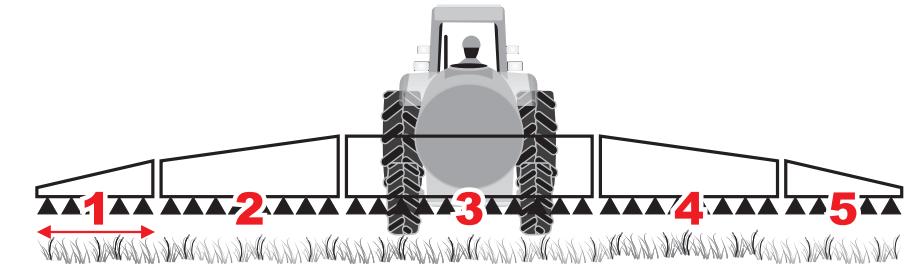


Fig. 44

SECTIONS DETAIL

- Enter the measurements of the implement sections (Fig. 44).
- Press the ✚ symbol to increase the number of sections or the ━ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

CONTINUES > > >

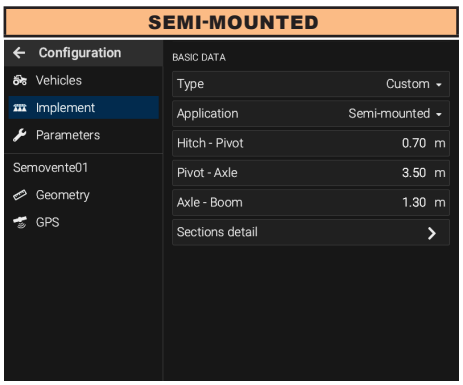


Fig. 45

Enter the required measurements according to the selected implement **Type**.

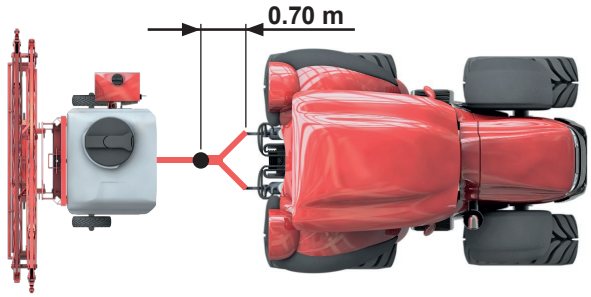


Fig. 46

HITCH - PIVOT

Enter the measurement between the connection point and the joint (Fig. 46).

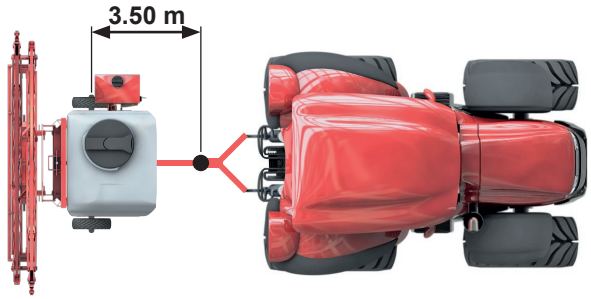


Fig. 47

PIVOT - AXLE

Enter the measurement between the joint and the rear axle (Fig. 47).

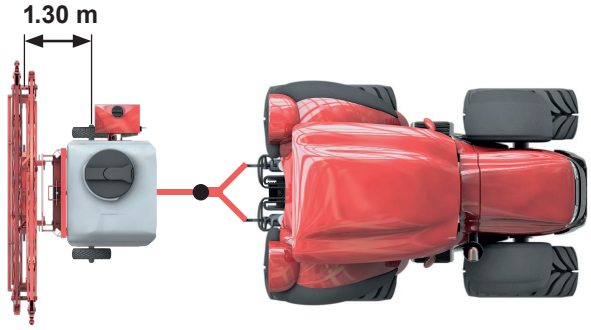


Fig. 48

AXLE - BOOM

Enter the measurement between the rear axle and the point of application Fig. 48).

Fig. 49

SECTIONS DETAIL

- Enter the measurements of the implement sections (Fig. 49).
- Press the ✚ symbol to increase the number of sections or the ▬ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

CONTINUES > > >

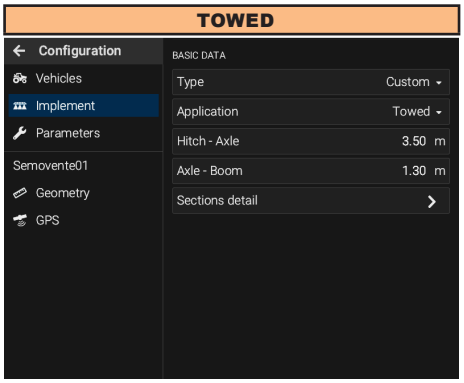


Fig. 50

Enter the required measurements according to the selected implement **Type**.

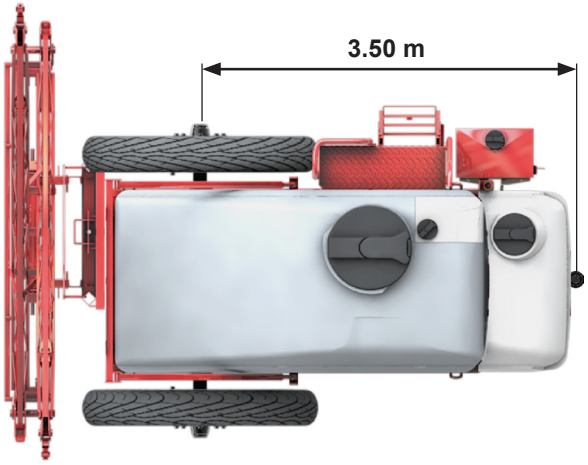


Fig. 51

HITCH - AXLE

Enter the measurement between the connection point and the rear axle (Fig. 51).

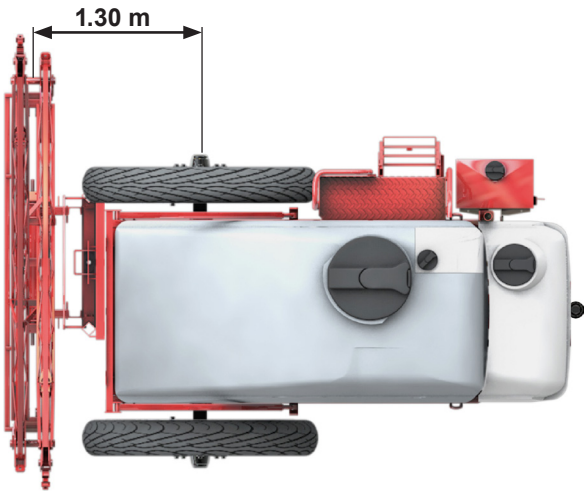


Fig. 52

AXLE - BOOM

Enter the measurement between the rear axle and the point of application Fig. 52).

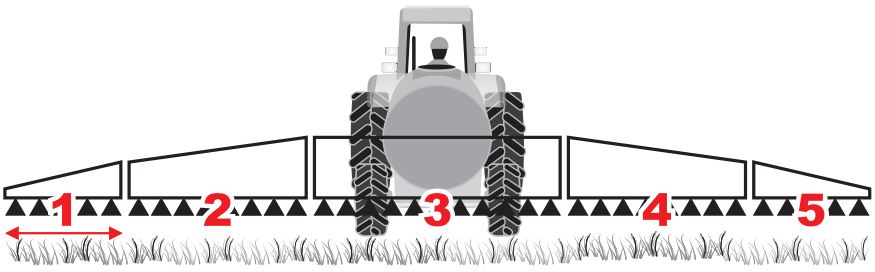


Fig. 53

SECTIONS DETAIL

- Enter the measurements of the implement sections (Fig. 53).
- Press the ✚ symbol to increase the number of sections or the ▬ symbol to decrease the number of sections.
- Select and enter, one by one, all sections.

5.6 Configurations > PARAMETERS

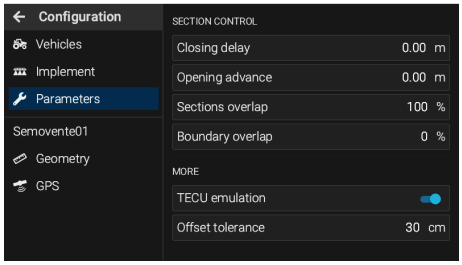


Fig. 54

It allows setting advanced monitor parameters.

5.6.1 Configurations > PARAMETERS > Closing delay

Indicate the distance corresponding to the delayed closing of sections during spraying, to ensure correct spraying range.

NOTE: Negative values indicate that sections are closed in advance with respect to the calculated point.

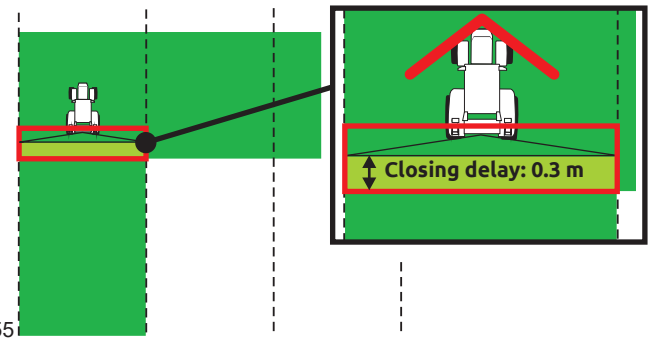


Fig. 55

5.6.2 Configurations > PARAMETERS > Opening advance

Indicate the distance corresponding to the advanced opening of sections during spraying, to ensure correct spraying range.

NOTE: Negative values indicate that section opening is delayed with respect to the calculated point.

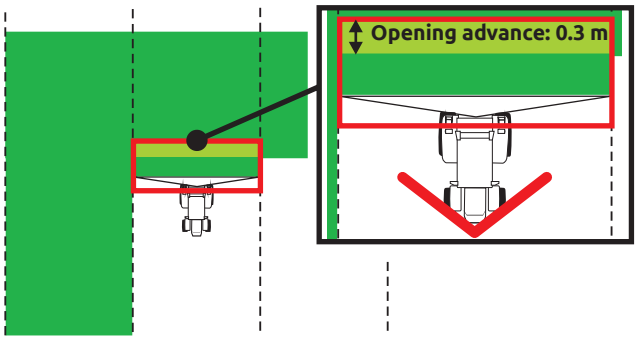


Fig. 56

5.6.3 Configurations > PARAMETERS > Sections overlap

Set the acceptable threshold for overlapping of already-sprayed areas. When this value is exceeded, the display restores the correct spraying: depending on the section management mode enabled (par. 15.2.3), the display will indicate to set to OFF the sections concerned or it will act on the sections automatically.

Sections overlap 0%	Sections overlap 100%

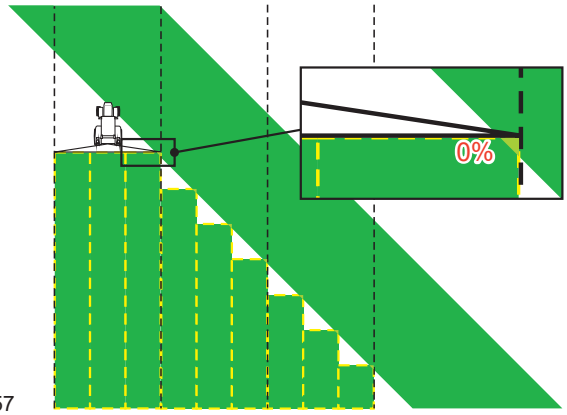
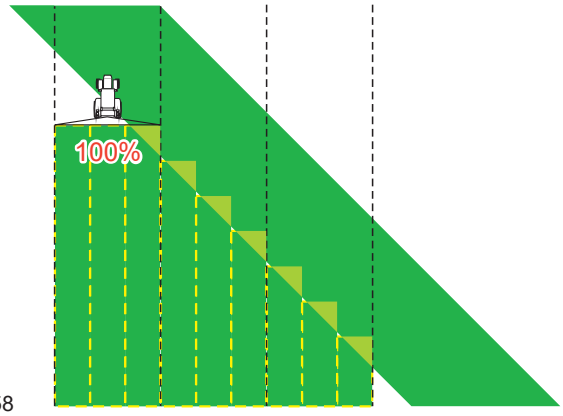

	

Fig. 57	Fig. 58

5.6.4 Configurations > PARAMETERS > Boundary overlap

Set the acceptable threshold for overlapping of spraying with respect to field perimeter.
When this value is exceeded, the monitor restores the correct spraying:
depending on the section management mode enabled (par. 15.2.3), the display will notify the operator that the sections spraying outside the field boundaries must be ON / OFF or it will act on the sections in automatic mode.

The following conditions are required in order to use this setup:
- Drawing the field perimeter (red line in the figures) using the Area (par. 15.2.3) function.
- Enabling automatic section management: the icon on the guidance screen indicates that automatic management is enabled.

Boundary overlap limit 0%	Boundary overlap limit 100%
The section ON/OFF alert will be displayed following a minimum overlapping (0%) across the field perimeter.	*The section ON/OFF alert will be displayed ONLY when the machine is spraying across the entire field perimeter (100%).*

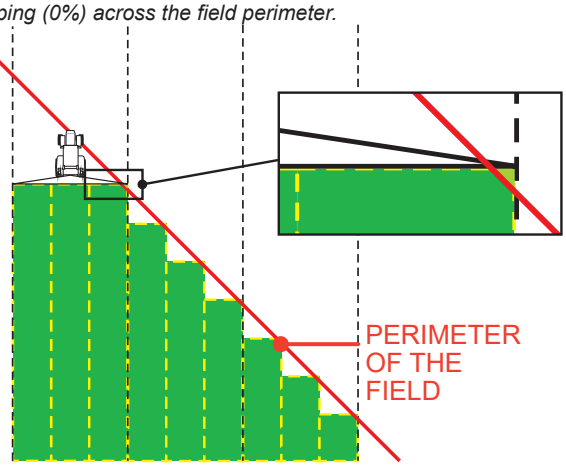


Fig. 59

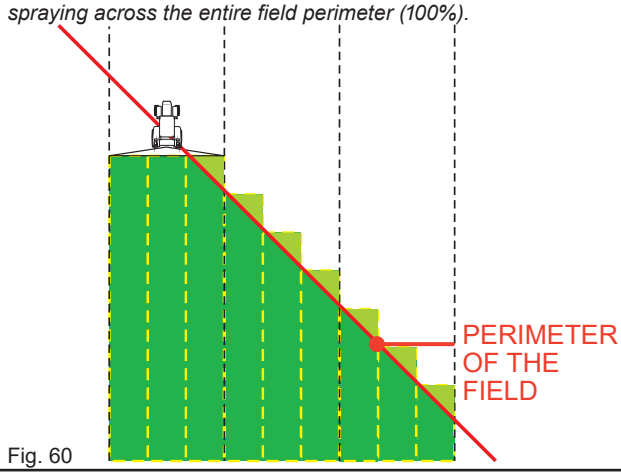


Fig. 60

5.6.5 Configurations > PARAMETERS > TECU emulation

☑ **TECU emulation**
Activated option: The monitor reproduces the operation of a Tractor ECU.
Some features of a Tractor ECU:
- correct management of the connected ECU power supply; the monitor will wait for the ECU to save the data correctly before cutting off the power to the implement;
- the monitor detects the status of the auxiliary function “spraying enabling input” and sends it to the connected ECU;
- the monitor sends the forward speed data, calculated by the GPS receiver, to the connected ECU.

☐ **TECU emulation**
Disabled option.

5.6.6 Configurations > PARAMETERS > Offset tolerance

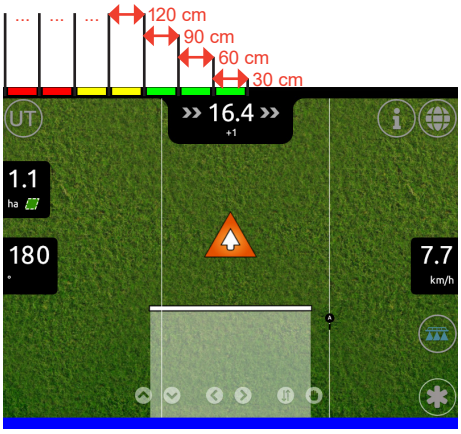


Fig. 61

The deviation of the machine compared to the reference line is represented by the LED bar at the side (guidance screen).
Each LED ON indicates an offset value corresponding to the one set in item **Offset tolerance** (for ex.: 30 cm).

By following the example, the LEDs come on progressively whenever the deviation reaches a multiple of 30 cm

5.7 Configurations > Geometry

The vehicle in use IS THE ONLY ONE THAT CAN BE EDITED (Tractor00 or Self-propelled00).
Enter farming machine measures (Fig. 62 - Fig. 63).

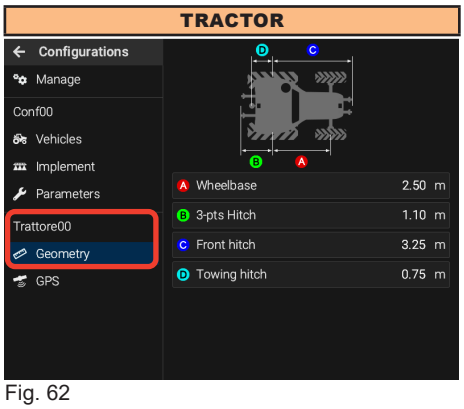


Fig. 62

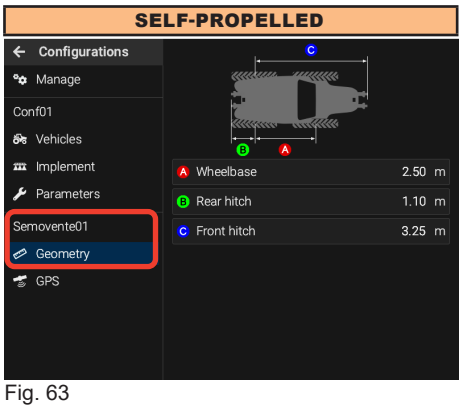


Fig. 63

Select and enter, one by one, all values.

5.8 Configurations > GPS

Press **Type** to select the GPS data source:
None: There is no receiver in the system. If you select this option, the TC and Navigator functions are NOT available.
Demo: a preset route is played back for demonstration purposes (par. 5.8.1).
Simulator: the display allows you to simulate a GPS route using the on-screen controls (par. 5.8.2).
NMEA: all GPS receivers with NMEA183 protocol and with the following features (par. 5.8.3):
- 10 Hz GGA message; latitude and longitude coordinates with at least 6 decimal digits.
- 10 Hz VTG message.
- 0.1 Hz ZDA message.
- Serial port 57600 / 19200 / 115200 bps, n, 8, 1.

Detect: the display recognizes the connected GPS receiver among those available in the ARAG catalog, configures it and shows the relevant menus (par. 5.8.4).

ARAG SHALL NOT ACCEPT ANY LIABILITY DUE TO ANY FAILURE OR MALFUNCTION CAUSED BY THE CONNECTION OF RECEIVERS NOT SUPPLIED BY ARAG.

5.8.1 Configurations > GPS > Demo

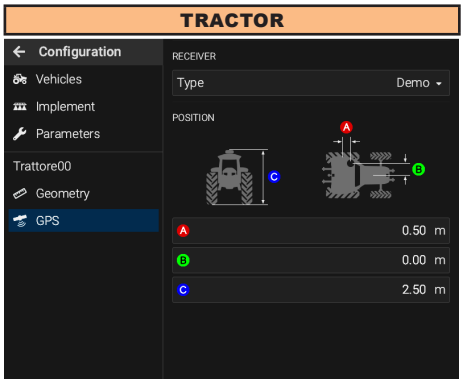


Fig. 64

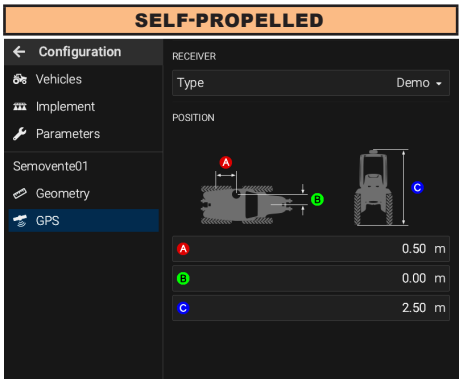


Fig. 65

POSITION

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 64 - Fig. 65).
Select and enter, one by one, all values.

5.8.2 Configurations > GPS > Simulator

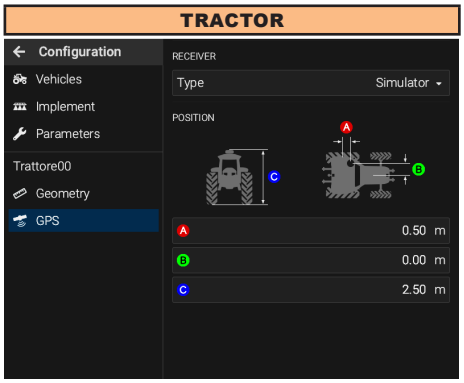


Fig. 66

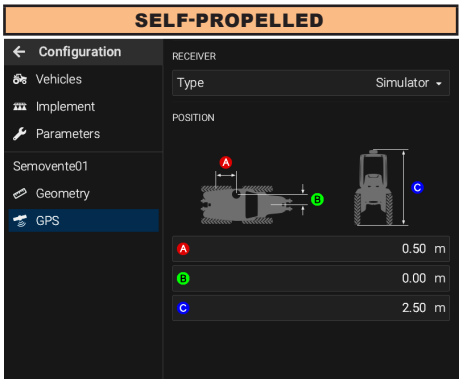


Fig. 67

POSITION

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 66 - Fig. 67).
Select and enter, one by one, all values.

CONTINUES > > >

5.8.3 Configurations > GPS > NMEA

TRACTOR

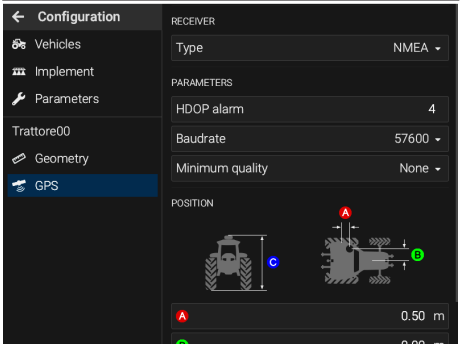


Fig. 68

SELF-PROPELLED

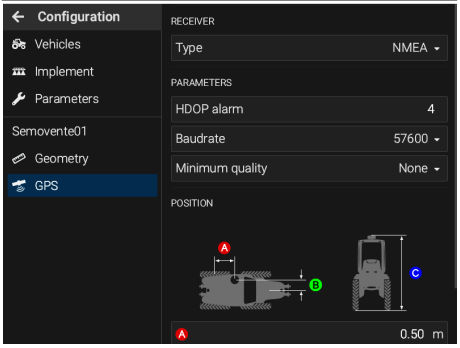


Fig. 69

POSITION

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 68 - Fig. 69).
Select and enter, one by one, all values.

PARAMETERS

HDOP alarm
"HDOP" is the parameter with which the position and number of satellites in space affect the positional precision of the system (longitude and latitude); the lower the value, the higher is the guidance precision. The precision alarm is triggered when the value of HDOP measured by the GPS receiver is above the set limit. **We recommend NOT to set values above 4.0.**

Baudrate
Available options:
57600
19200
115200

Minimum quality
Allows selecting the minimum accuracy level requested for the GPS signal.

- None: no check is made on the signal accuracy level.

- SBAS: the accuracy level is checked by displaying an alarm if it is below the SBAS differential correction.
The SBAS differential correction signal is free of charge and available only in some areas of the world. This signal allows to obtain a more accurate spraying.

WARNING: this function may be used only in Europe (EGNOS), USA (WAAS) and Japan (MSAS).

CONTINUES > > >

5.8.4 Configurations > GPS > Detect

The items displayed in this menu depend on the basic settings (chap. 5) and on the features of the connected receiver. The connection of ARAG receivers, models Smart Ag - Ag Star - Smart 6 - Atlas, entails a pairing procedure assigning to the monitor ONLY the suitable setup menus.

TRACTOR

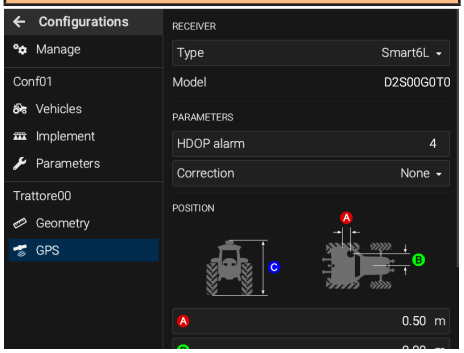


Fig. 70

SELF-PROPELLED

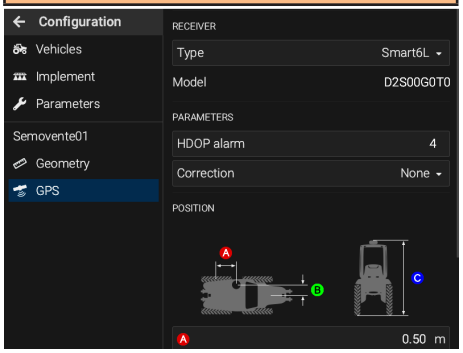


Fig. 71

POSITION

Enter the position measurements of the GPS receiver in relation to the farming machine (Fig. 70 - Fig. 71).
Select and enter, one by one, all values.

PARAMETERS

HDOP alarm
"HDOP" is the parameter with which the position and number of satellites in space affect the positional precision of the system (longitude and latitude); the lower the value, the higher is the guidance precision. The precision alarm is triggered when the value of HDOP measured by the GPS receiver is above the set limit. **We recommend NOT to set values above 4.0.**

Correction
Allows selecting the differential correction function:
- None
Corrections disabled

- SBAS
DGPS correction enabled:
The SBAS differential correction signal is free of charge and available only in some areas of the world. This signal allows to obtain a more accurate spraying.

WARNING: this function may be used only in Europe (EGNOS), USA (WAAS) and Japan (MSAS).

- Terrastar-L / Terrastar-C (ONLY for the preset receiver):
Terrastar is a privately-owned company supplying differential correction signals all over the world via satellite.
The GPS receiver must be preset to receive this type of signal. Service is available at a fee which depends on the type of accuracy required and time of use.

- Terrastar-L - SBAS / Terrastar-C - SBAS :
This option allows enabling the SBAS correction in case the Terrastar (L or C) correction is temporarily unavailable.

ROLL COMPENSATION (Only available for 6t smart receivers)

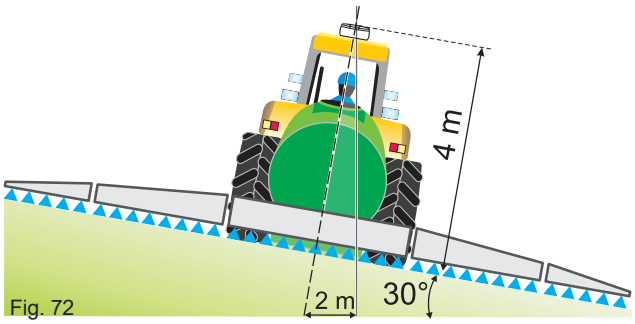


Fig. 72

Allows to enable/disable the tilt compensation function of the vehicle (*with antenna only. See ARAG catalog*).

The monitor can set off any measurement errors due to ground inclination. On steep slopes the error can reach 2 m / 6.5 ft.

5.8.5 GPS FIRMWARE UPDATE (SMART receivers only)

Allows updating the GPS receiver if the used receiver (Smart series) is not updated to the version compatible with the guidance monitor.

Select **GPS FW UPDATE** and confirm to update the detected GPS receiver.
Once the update is completed, the monitor will restart.

5.9 Configurations > Polaris

Allows enabling the control screen of Polaris driving assistance system.
A system with Polaris is necessary: refer to the relevant manuals, enclosed with the product.

STRICTLY FOLLOW THE WARNINGS. BEFORE CARRYING OUT ANY WORK MAKE SURE THAT THE EMERGENCY SWITCH IS PRESSED AND THE ELECTROMECHANICAL ACTUATOR IS OFF.

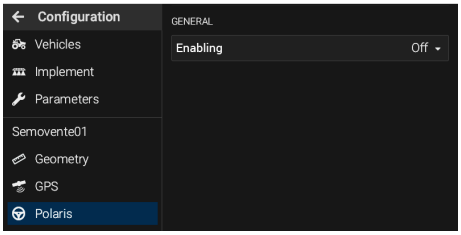


Fig. 73

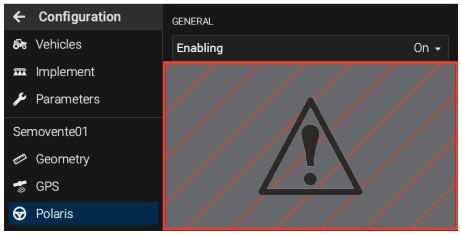
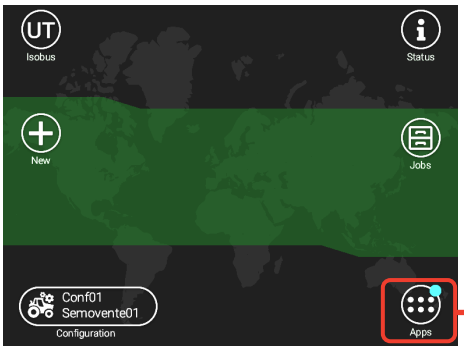


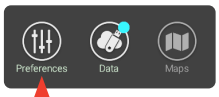
Fig. 74

6 APPS

This menu groups applications related to preferences, data and maps, described in the following chapters.

7 APPS > PREFERENCES





This menu allows defining the system preferences of the monitor.

Fig. 75

7.1 Apps > Preferences > Zone

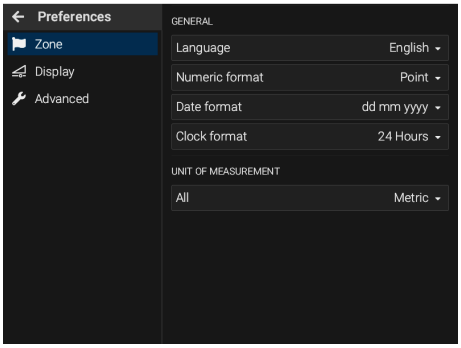


Fig. 76

Language
The language is selected during the first start-up (chapter 2) but can be changed from the available options:
Italiano, **English**, **Español**, **Português**, **Français**, **Deutsch**.

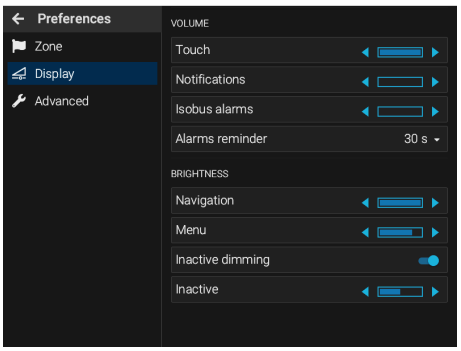
Numeric format
Select the decimal separator character: **Comma**, **Point**.

Date format
Select the date format:
dd indicates the day
mm indicates the month
yyyy indicates the year

Clock format
Select the monitor time display format: **24 Hours**, **AM/PM**.

Units of measurem.
All: select the system unit of measurement: **Metric** (km/h, l/ha, l/min, bar, etc.), **Imperial** (MPH, GPK, GPM, PSI, etc.), **US** (MPH, GPA, GPM, PSI, etc.).

7.2 Apps > Preferences > Display



◀ It reduces intensity.
▶ It increases intensity.

Fig. 77

7.2.1 Apps > Preferences > Display > VOLUME

It allows adjusting the intensity of the sounds emitted by the monitor for the available options:

Touch
It adjusts the volume of the tone emitted each time the touch screen is touched.

Notifications
It adjusts the volume of acoustic notification alerts.

Isobus alarms
It adjusts the volume of alarms from connected ISOBUS ECUs.

Alarms reminder
It selects the time interval between the first sound alarm and subsequent reminders.

7.2.2 Apps > Preferences > Display > BRIGHTNESS

It allows adjusting the brightness intensity for the available options:

Navigation
It adjusts the brightness during GPS navigation.

Menu
It adjusts the brightness of menus.

Inactive dimming
Activated option: the device reduces brightness after 4 minutes of inactivity.

Inactive
It adjusts the monitor brightness when it remains inactive for more than 4 minutes (ONLY if the ☑ **Inactive dimming** option is enabled).

7.3 Preferences > Advanced > USER ACCESS

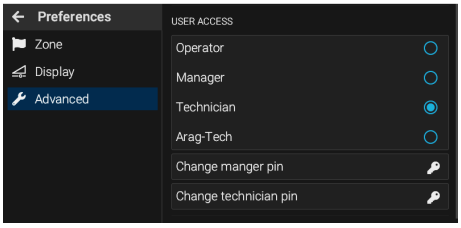


Fig. 78

It allows setting the user access level and password.

Operator
It inhibits any type of setting except display preferences (par. 7.2).

Manager
It inhibits the setting of some advanced preferences options: you can set an access PIN.

Technician
It allows configuring all monitor parameters: you can set an access PIN.

ARAG-Tech
Reserved to ARAG personnel.

7.3.1 Apps > Preferences > Advanced > USER ACCESS > Change manger pin (Manager users) / Change technician pin (Technician users)

- Press  , located beside the user level for which you want to enter the PIN.

The monitor displays the PIN entry page:

New PIN
- Enter the PIN (5 digits).

Repeat PIN
- Enter it again to confirm.

- Press **CONFIRM** to activate the entered PIN or **CANCEL** to interrupt the operation.

7.4 Apps > Preferences > Advanced > PREFERENCES

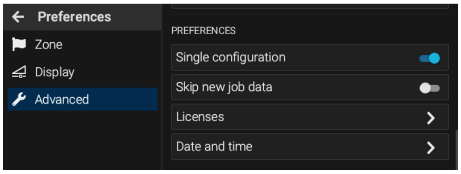


Fig. 79

Single configuration
Activated option: in the **Configuration** menu the display directly shows the configuration setting screen (par. 5.1).
ONLY one tractor-implement combination can be configured.
When this option is deactivated several tractor-implement combinations can be configured.

Skip new job data
Activated option: On the **Home > New** screen the monitor goes directly to the spraying screen (Fig. 130).
The function that allows importing **Job name**, **Boundary map**, **Guidance patterns**, **Pause point** and **Applied area map** from other jobs is disabled.

7.4.1 Apps > Preferences > Advanced > PREFERENCES > Licenses

It allows viewing or entering the license numbers of:
Universal Terminal
Navigation
Task Controller Isobus

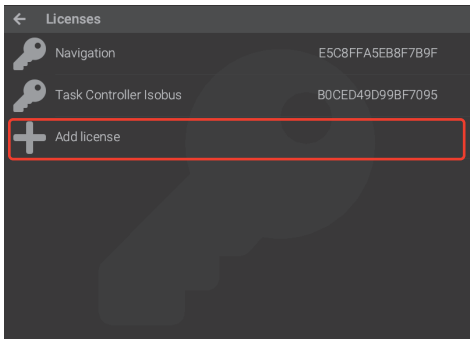


Fig. 80

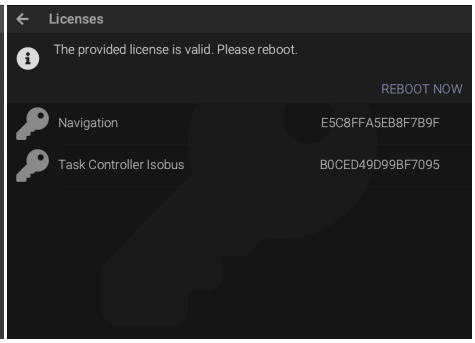


Fig. 81

ADD LICENSE

- Press **Add license**.
- Enter the license code and confirm ✔.

If the license is valid, the following message will be displayed: **The entered license is valid. Reboot the device.**
- Press **REBOOT NOW**: The monitor will restart.

IF THE MONITOR DOES NOT DISPLAY THE MESSAGE: The entered license is valid. Reboot the device. MAKE SURE THE ENTERED CODE IS CORRECT.

7.4.2 Apps > Preferences > Advanced > PREFERENCES > Date and time

It allows setting the date and time of the monitor.

Fig. 82

The items displayed in this menu depend on the preferences set in the menus: PREFERENCES > Zone > Date format / Clock format (par. 7.1).

Time zone
It allows changing the time zone set upon the first start-up (Fig. 7).

Date and Time
Indicate day / month / year
Indicate hours / minutes

At the end of the configuration press SAVE otherwise the settings will be lost when exiting the menu.

White items with a black background are editable.
Black items with a gray background are read-only.

7.5 Apps > Preferences > Advanced > ISOBUS

These parameters allow setting the address to which the UT and TC respond on the ISOBUS channel.
This option is useful in case there are two VT on the same system and therefore it is necessary to uniquely identify UT and TC for the ISOBUS ECUs they interface with.

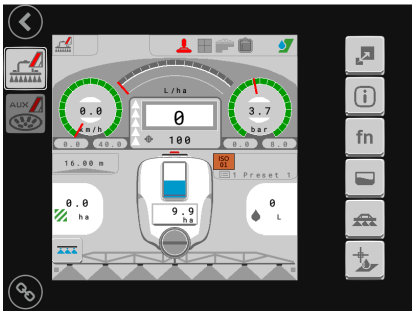
UT number It allows defining the instance with which UT is presented on the ISOBUS (Editable Number).

TC number It allows defining the instance with which TC is presented on the ISOBUS (Editable Number).

To avoid interferences with the ISOBUS programming of the entire system, WE RECOMMEND ALWAYS SETTING THE NATIVE TRACTOR VIRTUAL TERMINAL WITH INSTANCE 1.

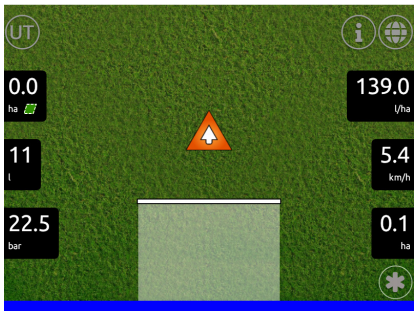
EXAMPLE OF SETTING USING ARAG VT

VT1 delta80t

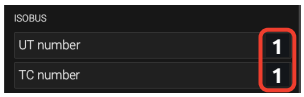
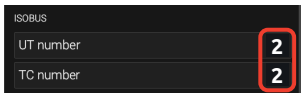
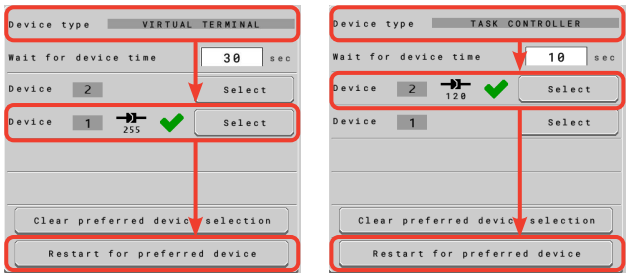
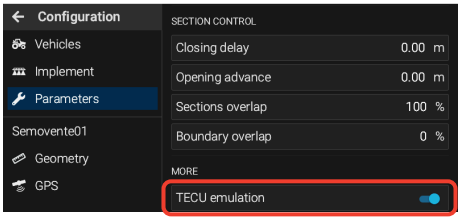
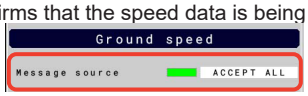


NATIVE VT ON TRACTOR
DISPLAYS THE APPLICATION (EXAMPLE)

VT2 delta70t



ADDITIONAL VT
DISPLAYS THE NAVIGATION

1	**VT1 menu Apps > Preferences > Advanced > ISOBUS** - Set **UT number** and **TC number** items with number **1**. 	➔	**VT2 menu Apps > Preferences > Advanced > ISOBUS:** - Set **UT number** and **TC number** items with number **2**. 
2	**Object Pool Application on VT1** - Enter the application (Arag menu, for example: **ISOBUS device management**) and define **ID1** and **ID2** as follows. - Assign **ID1** to Virtual Terminal: indicates that **VT1 Delta 80t** uploads Object Pool application. - Assign **ID2** to Task Controller: indicates that Task Controller of **VT2 Delta 70t** is used. 	➔	**VT2 menu Configurations > Parameters > TECU emulation (par. 5.6.5):** - Activate the (default) option to send the speed data (ISOBUS message) to the application of **VT1 Delta 80t**. 	
3	**Object Pool Application on VT1** - Enter the application (Arag menu, for example: **Tractor TECU messages > Ground base speed**) and check that the indicator is green, which confirms that the speed data is being received correctly. 		

7.5.1 Apps > Preferences > Advanced > ISOBUS > DELETE ALL OP

It allows deleting all the Object Pools on the monitor.
In case of inconsistencies in the display of the OPs it is advisable to delete them from the VT memory thereby forcing their reloading.

After confirming the deletion of the OPs with DELETE the monitor will restart.

If there is an ISOBUS ECU connected, the monitor will automatically load the detected OP when it is turned on.

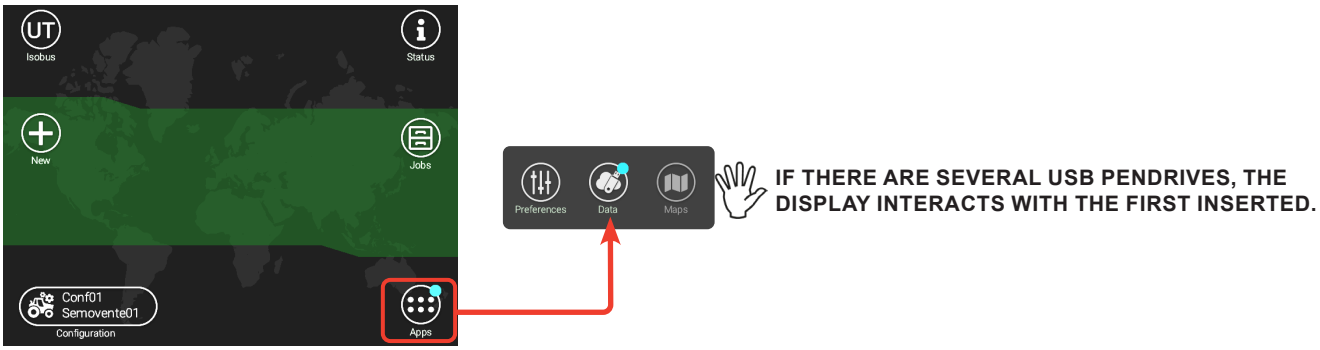
7.5.2 Apps > Preferences > Advanced > ISOBUS > RESET TO FACTORY DEFAULTS

Restores factory default settings of the system.

After confirming the reset with CONFIRM the monitor will restart.
WARNING, ALL SETTINGS WILL BE LOST

8 APPS > DATA

This menu allows performing updates, when a USB pendrive is inserted, or loading / exporting data and configurations.



IF THERE ARE SEVERAL USB PENDRIVES, THE DISPLAY INTERACTS WITH THE FIRST INSERTED.

Fig. 83

8.1 Apps > Data > Import shapefile

This menu allows you to load from the USB pendrive one or more prescription maps: create a "maps" folder on the USB pendrive and insert the prescription map files (*.shp) inside it.

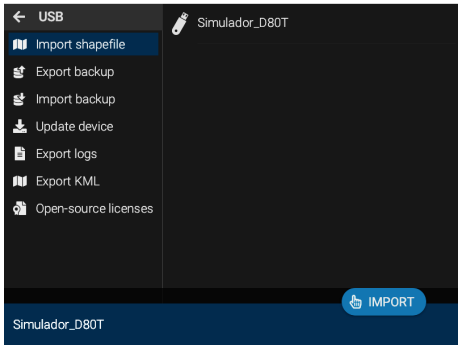


Fig. 84

- Insert a USB pendrive in the relevant slots.
- Press the **Data** icon (Fig. 83).
- Select the map (Fig. 84) and press **IMPORT**. The monitor requires to confirm the import.
- A confirmation message appears once the process is completed. Press **OK**.

WARNING: THE FILES HAVING THE SAME NAME WILL BE REPLACED.

8.2 Apps > Data > Export backup

This function allows exporting a backup file to the USB pendrive that contains all the data of the jobs performed and the system configuration.

Press **Export backup** (Fig. 84) and **CONFIRM** (Fig. 85):

THE MONITOR WILL RESTART.
TO ALLOW A CORRECT EXPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.

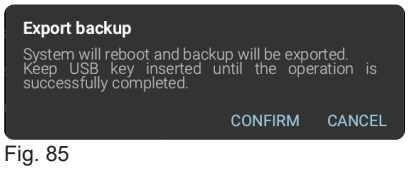


Fig. 85

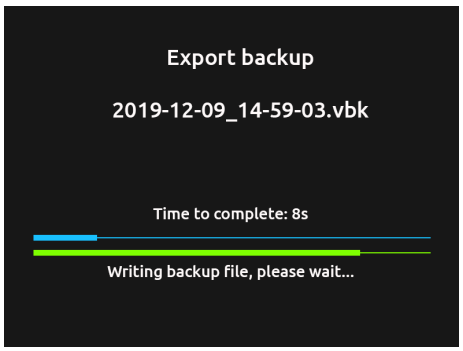


Fig. 86

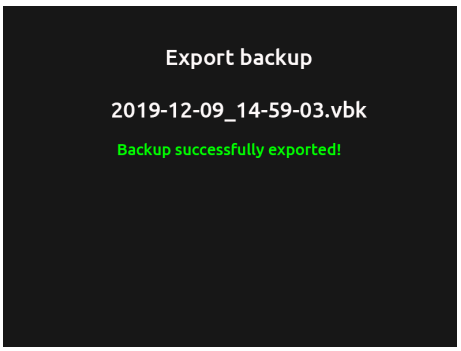


Fig. 87

CONTINUES > > >

8.3 Apps > Data > Import backup

This function allows importing a backup file to the monitor that contains all the data of the jobs performed and the system configuration.

ALL DATA STORED IN THE DEVICE WILL BE DELETED

The monitor displays the list of backups on the pendrive (Fig. 88)
- Select the file: the monitor displays the name of the selected file (Fig. 89).
- Press IMPORT (Fig. 89) and then **CONFIRM** (Fig. 90).

THE MONITOR WILL RESTART.
TO ALLOW A CORRECT IMPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE IMPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.

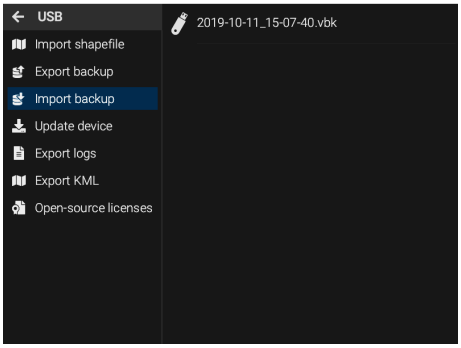


Fig. 88

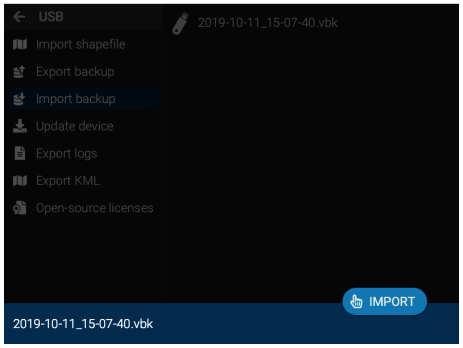


Fig. 89

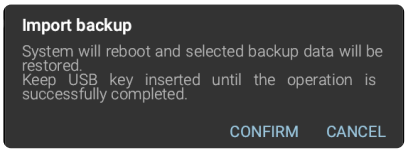


Fig. 90

CONTINUES > > >

8.4 Apps > Data > Update device

This function allows updating all ARAG ISOBUS devices connected to the device (ECU, switch box, joystick, etc.).

- Insert the pendrive in a computer.
- Create a new folder in the USB pendrive and name it **s19** (Fig. 91).
- Download the update file from *www.aragnet.com* in the section related to the product to update (download menu > software) and save it in the **s19** folder.

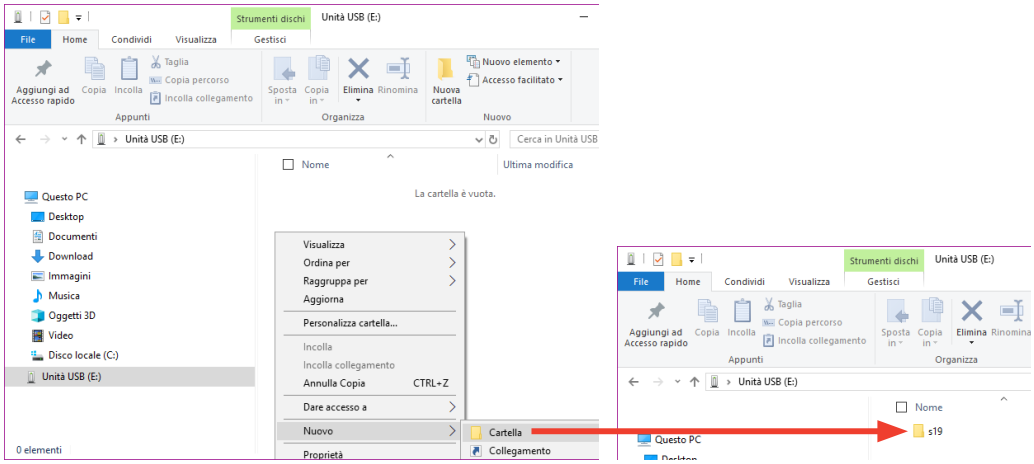


Fig. 91

- Insert a USB pendrive in the relevant slot.
- Press the **Data** icon (Fig. 83).
- Select the file you want to use for the update (Fig. 92).
- Check that the type of update file (Fig. 93 Info) corresponds to the product to be updated and press UPDATE (Fig. 93).
- Press **Confirm** (Fig. 94). The monitor will scan the file and, if compatible, the update will start.

ONCE THE UPDATE IS COMPLETED, THE MONITOR WILL RESTART.
TO ALLOW A CORRECT UPDATE, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.

WARNING: IF THE FILE TYPE IS NOT COMPATIBLE, THE MONITOR WILL NOT PERFORM THE UPDATE.

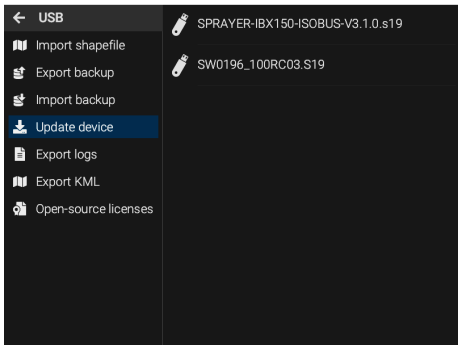


Fig. 92

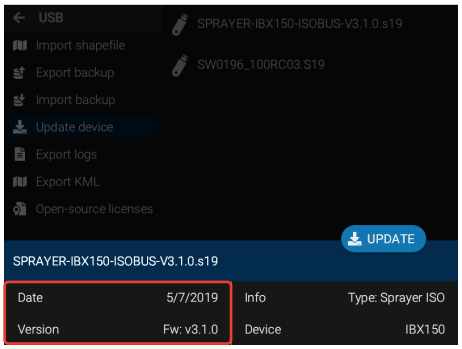


Fig. 93

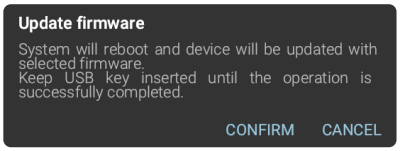


Fig. 94

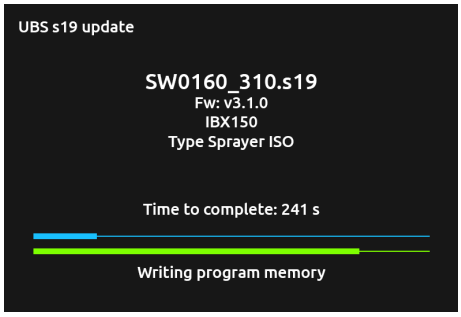


Fig. 95

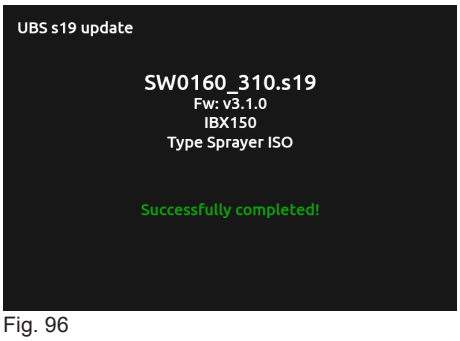


Fig. 96

CONTINUES > > >

8.5 Apps > Data > Export logs

This function allows exporting recorded data from the system (events, spraying data, GPS and diagnostic data) in the selected time period:
Today

Last 2 days

Last week

Everything

By run Id: it is the identification number of each switching on.
Edit the Run Id number you intend to export.
To view the current Run Id number, hold the switching off key until Fig. 97 is displayed.

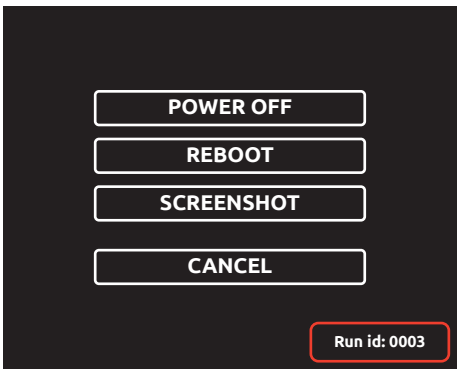


Fig. 97

Depending on the settings set in the **LOG TIME SPAN** menu, press **EXPORT LOG**: the monitor will export the selected time span on the USB pendrive.

8.6 Apps > Data > Export KML

Allows exporting in KML format all the jobs currently saved inside the internal memory and saving them on the USB Pendrive.
Data in the file can be displayed on a Personal Computer with Google Earth®.

Press **Export KML** (Fig. 98) and **CONFIRM** (Fig. 99): a confirmation message appears once the export is completed. Press **OK**.
The map is saved on the USB pendrive, inside a folder named "kml".

TO ALLOW A CORRECT EXPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.

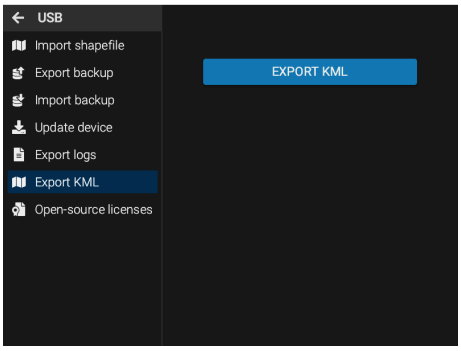


Fig. 98

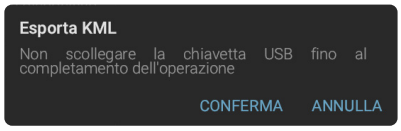


Fig. 99

8.7 Apps > Data > Open-source licenses

Allows exporting in zip format all the open-source licenses currently saved inside the internal memory and saving them on the USB pendrive.
Data in the file can be displayed on a Personal Computer.

Press **EXPORT OPEN-SOURCE LICENSES** (Fig. 100): a confirmation message appears once the export is completed. Press **OK**.

TO ALLOW A CORRECT EXPORT, IT IS ESSENTIAL THAT THE PENDRIVE REMAINS INSERTED FOR THE DURATION OF THE EXPORT PROCESS AND THE MONITOR REMAINS POWERED AND ON.

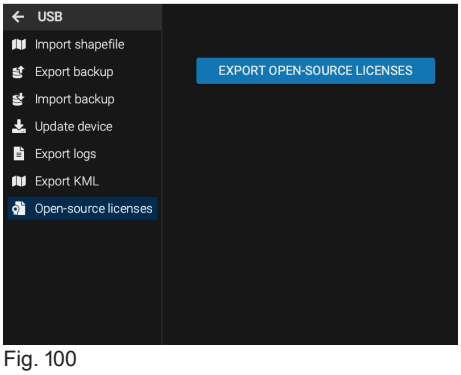


Fig. 100

Fig. 101

9 APPS > MAPS

This menu allows previewing the loaded prescription maps (par. 8.1). It is also possible to delete one or more maps.

Fig. 102

9.1 Displaying maps preview

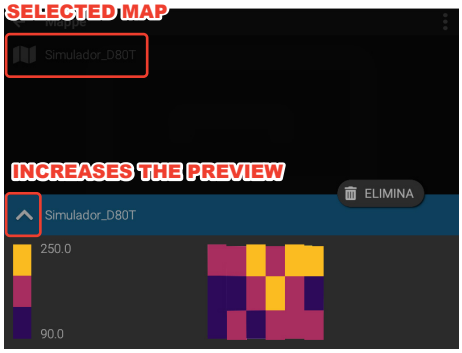


Fig. 103

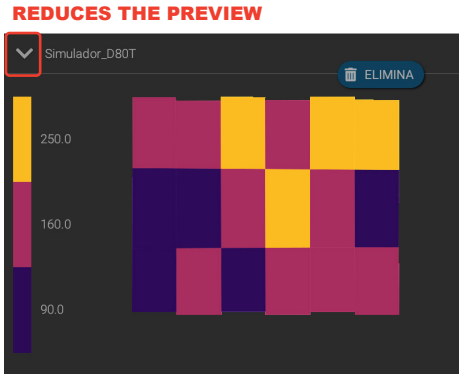


Fig. 104

9.2 Deleting the maps

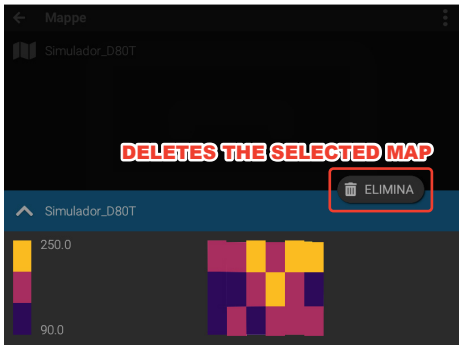


Fig. 105

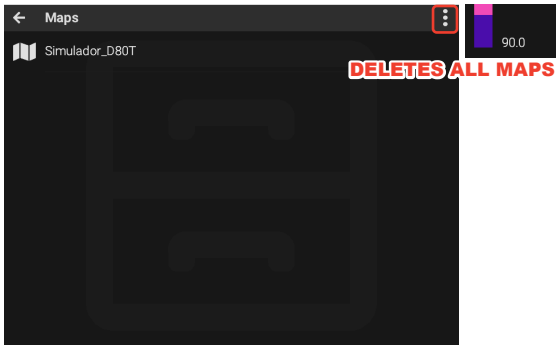


Fig. 106

10 UNIVERSAL TERMINAL (UT)

This key allows you to access the UT area where the OPs of the connected ISOBUS ECUs are displayed and to pair the auxiliary inputs with the related functions.
TO CORRECTLY CONFIGURE THE APPLICATION OF THE OP, REFER TO THE MANUAL OF THE CONNECTED ECU.

THE IMAGES VARY ACCORDING TO THE OP OF THE CONNECTED ECU.

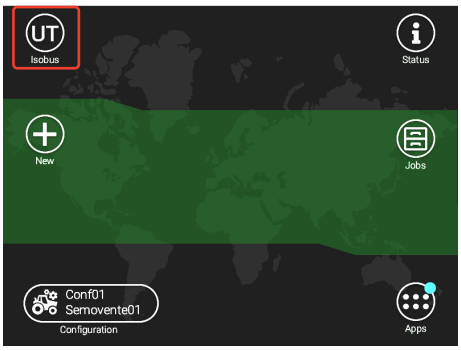


Fig. 107

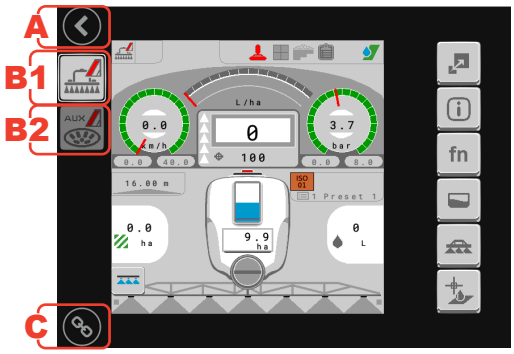


Fig. 108

A Allows going back to the **HOME** screen (Fig. 107)
B1 / **B2** Shows the icons of the OP applications loaded from the ECUs: **B1** displayed OP.
C Allows managing the assignment of the auxiliary functions to the auxiliary device inputs (e.g. Joystick, Switch box, etc.).
FOR SPECIFICATIONS ON AUXILIARY DEVICES PLEASE REFER TO THE RELEVANT MANUALS.

10.1 Associating an OP function to an auxiliary input

- Press icon **C** of the Fig. 108 (the icon background turns from dark to light).
- Press and then the auxiliary input key you want to configure.
- Press **CONTINUE**: the display shows the functions that can be assigned (example Fig. 109). Select the desired one. The auxiliary input is now associated with the function.

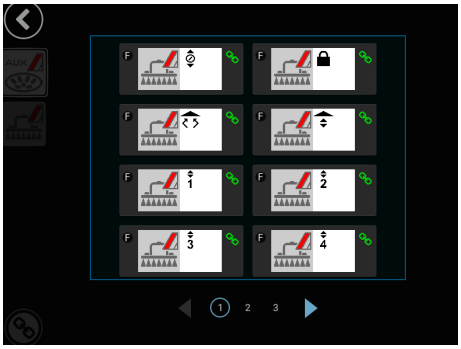


Fig. 109

10.2 Deleting the association of an OP function to an auxiliary input

- Press icon **C** of the Fig. 108 (the icon background turns from dark to light).
- Press .
- Press the icon of the association you wish to delete (the icon turns red).
- Press to confirm the deletion.

For specifications on configuring the auxiliary control, refer to its manual.

11 STATUS

This menu displays the alarms, the status of the GPS receiver and of the device.

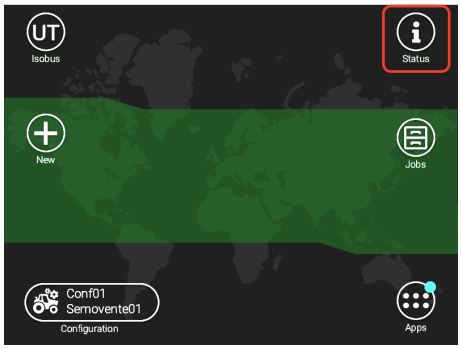


Fig. 110

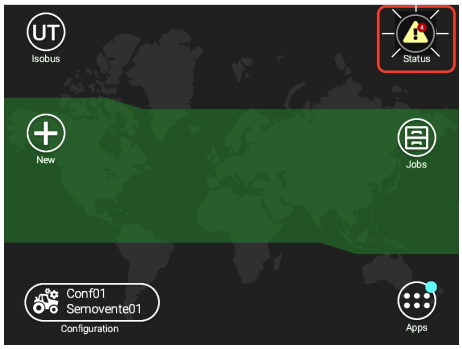


Fig. 111

The icon changes according to whether or not there are notifications (Fig. 110) **or alarms** (Fig. 111**)**.

The value in the red circle indicates the number of active notifications (e.g.: ❹ Fig. 111)

11.1 Status > Alarms

Fig. 112

During spraying, alarms are signaled in real time on the job page (Fig. 112): the most serious warning is notified, which can be closed by pressing **X**.

The **Status** > **Alarms** menu summarizes active notifications for the operator, divided and sorted by importance.

Press **Status** to display the **Alarms** menu (Fig. 114).

Types of alarms:

- **Error** (critical alarm, red code): depends on a problem / configuration that impairs the spraying quality or blocks it.
- **Warning** (low-priority alarm, yellow code): unlike error, it does not impair the spraying quality; it can anticipate a possible problem.
- **Info** (light blue code): related to a temporary status that does not cause problems.

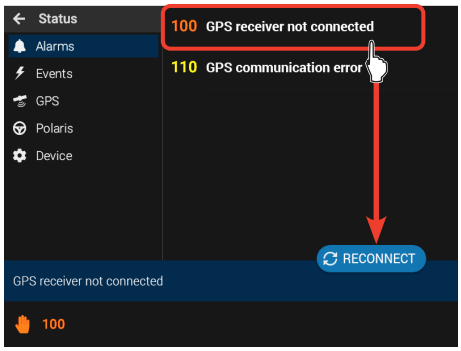


Fig. 113

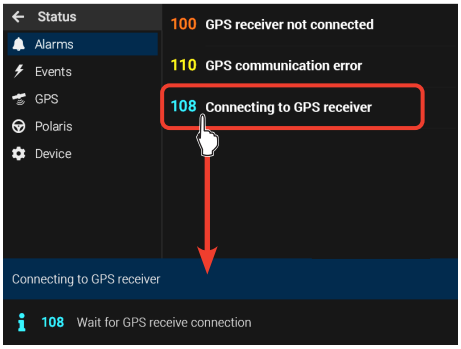


Fig. 114

- By selecting the notification, an indication (Fig. 113) is activated: for the relevant procedure, refer to par. 18.1.1 on page 51.
- Follow the instructions displayed (examples in Fig. 113 and Fig. 114)

Fig. 115

- Any deactivated notifications are gray (Fig. 115): when selected, VT indicates that the alarm is solved.

11.2 Status > Events

Press **Status** to display the **Events** menu (Fig. 116): the screen summarizes events in time order and indicates how long they occurred. Up to 64 notifications are displayed.
One event can be displayed several times: a notification is sent every time it occurs.
Details about notifications are described in par. 18.1.1 on page 51.

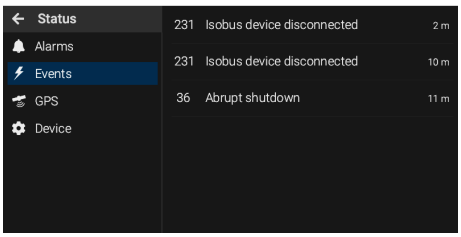


Fig. 116

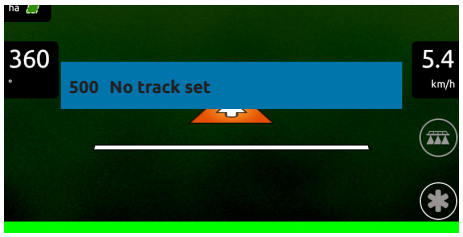


Fig. 117

During spraying, events are also signaled in real time on the job page (Fig. 117): the warning window lasts for 5 seconds.

11.2.1 Events MCP (MCP: main control panel)

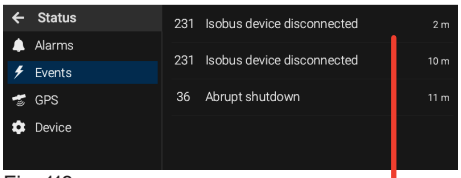


Fig. 118

MCP with yellow edge (Fig. 119): some notifications from **Status** > **Events** menu are also displayed on the main control panel; to close the notification, press **OK**.

MCP with light blue edge (Fig. 120)
These notifications are ONLY displayed on the main control panel: they indicate the lack of essential conditions for VT operation.
They may prevent starting / continuing a job until the problem is solved.

Details about notifications are described in par. 18.1.1 on page 51.

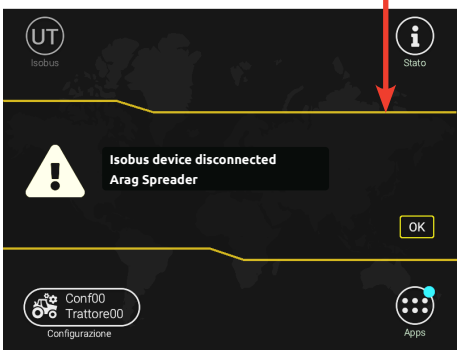


Fig. 119

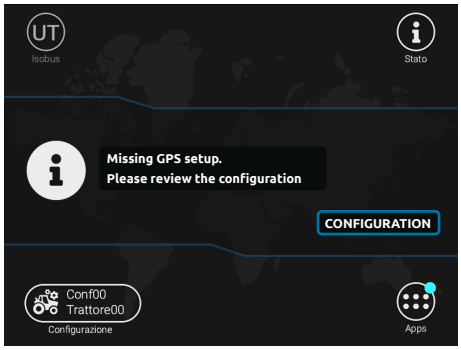


Fig. 120

11.3 Status > GPS

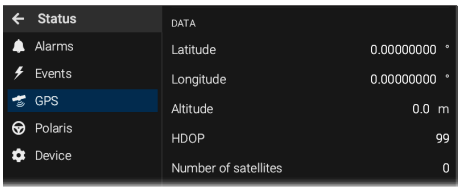


Fig. 121

Fig. 122

This menu shows the data sent to the GPS receiver.

11.4 Status > Polaris

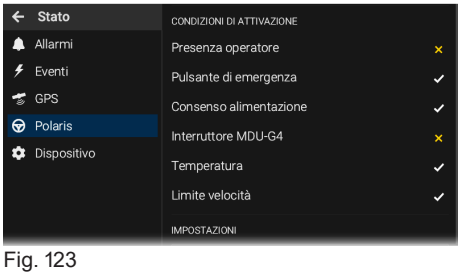


Fig. 123

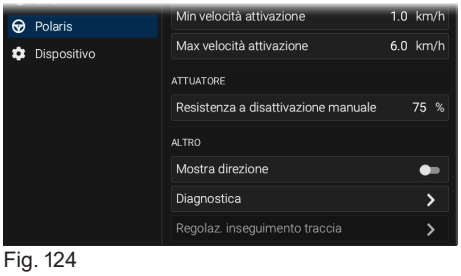


Fig. 124

This menu displays the data related to Polaris system.

For more details, refer to the manual supplied with the product.

11.5 Status > Device

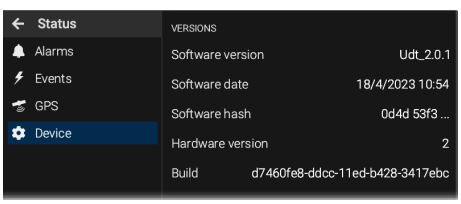


Fig. 125

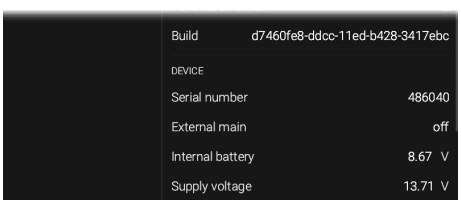


Fig. 126

This menu displays the data related to:
- the supply voltage
- the memory
- the versions of the software components of the device
- the VT usage

12 JOB MANAGEMENT

12.1 New job

Press this icon to access the job page (chap. 13 on page 37).

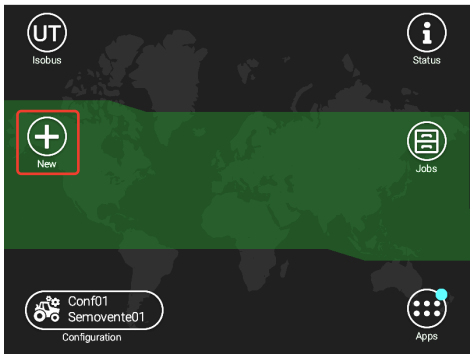


Fig. 127

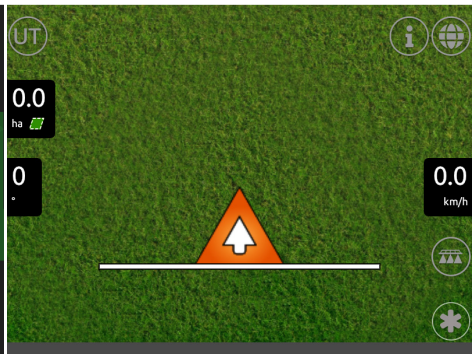


Fig. 128

When **Skip new job data** is enabled, in the **Home** > **Apps** > **Preferences** > **Advanced** menu, by pressing the icon the display will access directly the job page.

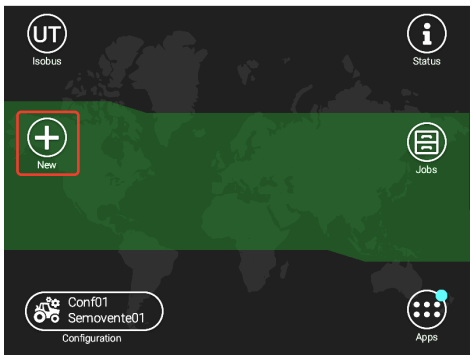


Fig. 129

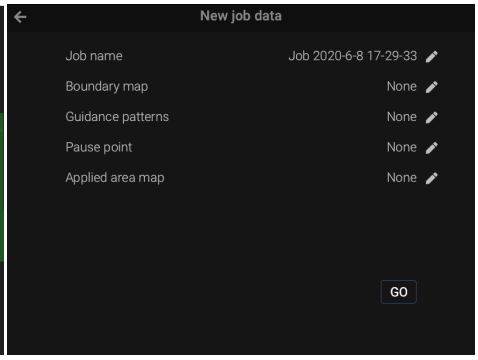


Fig. 130

When **Skip new job data** is not enabled, the system allows entering or importing some data (Fig. 130) before accessing the job page.

By pressing the symbol  next to each item it is possible to:
- edit the job name **Job name** (par. 3.1)
- select, for each item, the job or the map from which to import the following data

Boundary map

Guidance patterns

Pause point

Applied area map

Prescription map

- When the settings are complete, press **Start** to start the new job (Fig. 128).

12.2 Continue job

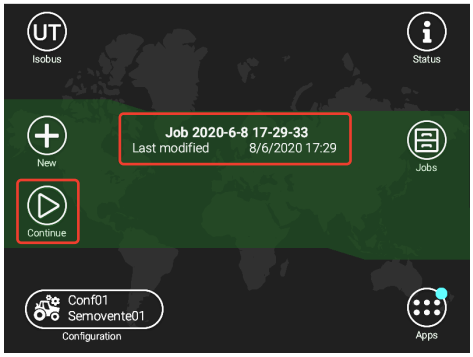


Fig. 131

- Press this icon to continue the last job performed (e.g. Job 2019-12... Fig. 131).

12.3 Jobs

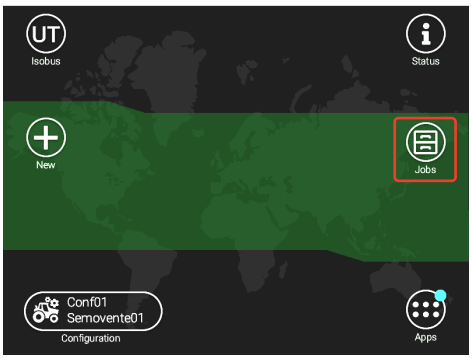


Fig. 132

- Press this icon to manage the jobs that have been performed so far.

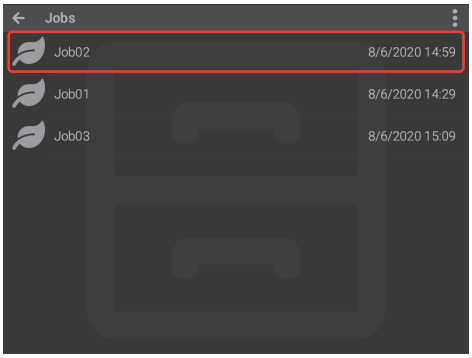


Fig. 133

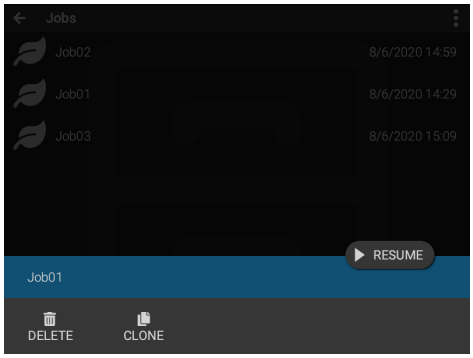


Fig. 134

Press the line of the job you want to act on (Fig. 133) and select the command you want to execute.

DELETE: press this item to delete the selected job.

WARNING: THE JOB WILL BE PERMANENTLY DELETED AND YOU WILL NOT BE ABLE TO RETRIEVE IT.

CLONE: press this item to duplicate the selected job. The source job remains available in the list of displayed jobs.
RESUME: press this item to continue with the selected job.

- Press this symbol to access the management menu for **ALL** jobs in the list:

Fig. 135

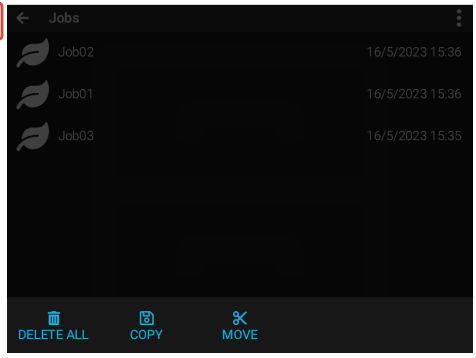


Fig. 136

DELETE ALL: press this item to delete all jobs in the list.

WARNING: THE JOBS WILL BE PERMANENTLY DELETED AND YOU WILL NOT BE ABLE TO RETRIEVE THEM.

Options available ONLY if there is a USB pendrive:
COPY: press this item to copy all jobs on a USB pendrive.

MOVE: press this item to copy all jobs on a USB pendrive.
All jobs will be deleted from the memory of the device.

13 JOB SCREEN

Below is an example of a job screen with indications of the main functions.

THE SCREENS CHANGE BASED ON THE ARAG ISOBUS CONTROL UNIT CONNECTED AND ON THE SETTINGS SELECTED IN THE Configuration MENU.

LED bar: graphic representation of the deviation
Each LED corresponds to the value set in par. 5.6.6

Deviation: distance between the position of the tractor and track to follow

This symbol ⊥ next to the numbers indicates that the direction of the vehicle forms an angle greater than 85° to the track to be driven (straight line driving mode).

Spray number: the reference line is 0, tracks to its left are negative while tracks to its right are positive.

It gives access to the menus:
DISPLAY 7.2
JOB 13.3
ALARMS 11.1
GPS 11.3

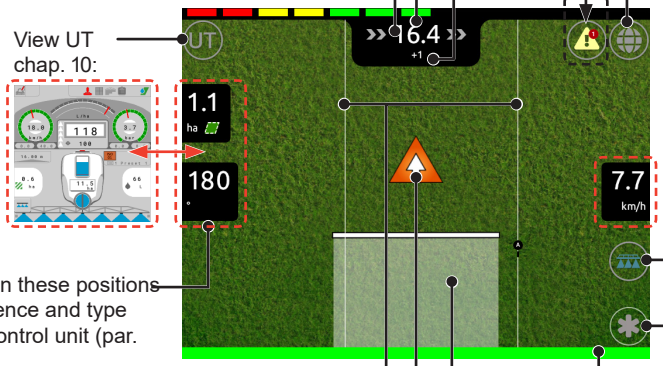
GPS signal strength:

The receiver is working correctly: the required minimum accuracy has been reached.

The accuracy has not reached the minimum set level (differential and/or HDOP correction).

The receiver does not communicate with the monitor.

View UT chap. 10:



Spraying ON / OFF

Function keys / Home

The data displayed in these positions depend on the presence and type of ARAG ISOBUS control unit (par. 13.2)

Section spraying status (par. 13.1 on page 37)

Covered area

Machine position

Reference tracks

Fig. 137

13.1 Spraying and section status

The color of the border at the bottom of the screen determines the spraying status.

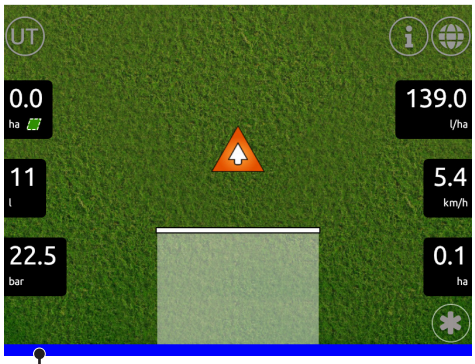


Fig. 138

Section **ON**

Section **OFF**

Zone to be sprayed.
OPEN SECTION

Zone already sprayed.
CLOSE SECTION

13.2 Job data

Data displayed in the job screen according to the type of ARAG ISOBUS ECU:

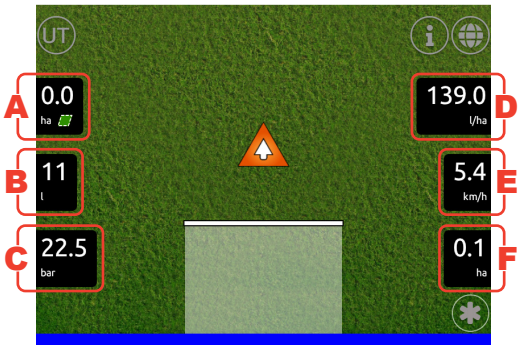


Fig. 139

UT SPRAYER

A Calculated area
B Applied quantity
C Pressure
D Spray rate
E Speed
F Applied area

UT MULTIROW

A Tank level
B Applied quantity
C Pressure
D Applied area
E Speed
F Working width

UT MULTIFLOW

A Calculated area
B Applied quantity
C Pressure
D Spray rate
E Speed
F Applied area

UT SPREADER

A Hopper level
B Applied quantity
C Calculated area
D Spray rate
E Speed
F Applied area

UT PLANTER

A Granular rate 1
B Granular rate 2
C Calculated area
D Seeding rate
E Speed
F Applied area

When no ARAG ISOBUS ECU is associated, the monitor displays only these details:

A Calculated area
B Direction of travel
C - - -
D - - -
E Speed
F - - -

13.3 JOB

Displays job data:

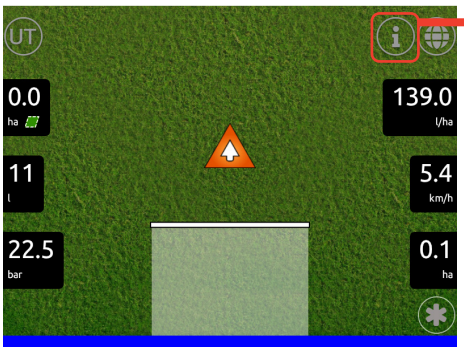


Fig. 140

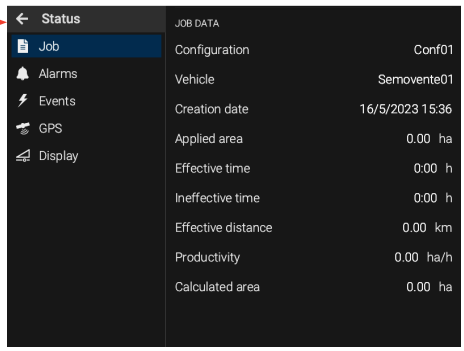


Fig. 141

14 SIMULATION COMMANDS

This function only serves to simulate a spraying for demonstration purposes.

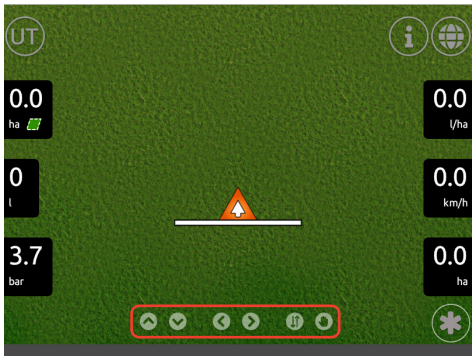


Fig. 142

These commands are present only if simulation mode is active:
Home > **Configuration** > **GPS** > **RECEIVER** > **Simulator**

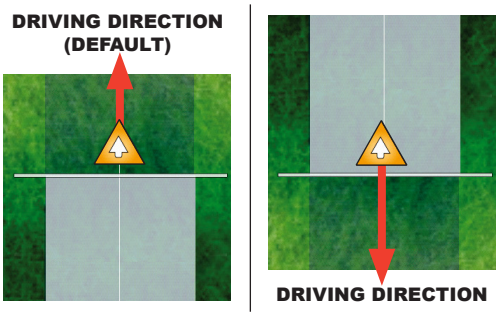
Press this icon to increase the simulated speed.

Press this icon to decrease the simulated speed.

Press this icon to steer to the left during the simulation.

Press this icon to steer to the right during the simulation.

Press this icon to reverse the driving direction during the simulation:



Press this icon to reduce the simulated speed to zero.

15 FUNCTION KEYS

FUNCTION KEYS

Fig. 143

FUNCTION BUTTONS WITH ACTIVE PRESCRIPTION MAP

Fig. 144

THE BUTTONS CHANGE BASED ON THE SETTINGS SELECTED IN THE ConfigurationMENU.

	From the job screen, press this icon to open and close the function key menu.

15.1 HOME

	Press this icon to go back to the Home screen (Fig. 2).

15.2 TC FUNCTIONS (SUBMENU)

	Press this icon to display the TC functions of the submenu, which is active when a prescription map is selected at the start of the job (Fig. 144).

15.2.1 Displaying the prescription map

This button is displayed only if an ISOBUS control unit with the variable application function is connected and correctly configured.

	Press this icon to turn the prescription map display on or off.

15.2.2 Variable application

This button is displayed only if an ISOBUS control unit with the variable application function is connected and correctly configured.

		Press this icon to turn the variable application on or off.
ON	**OFF**	

15.2.3 Section automatic control (TC-SC)

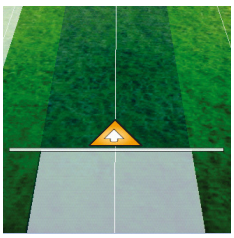
This key is displayed only when an ISOBUS control unit with TC-SC function is connected and correctly configured.

		Press this icon to turn automatic section control on or off.

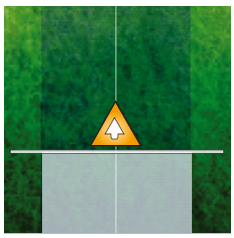
AUTOMATIC CONTROL ON	AUTOMATIC CONTROL OFF (MANUAL)
 The spraying of the single section is interrupted or resumes automatically.	 It is necessary to intervene manually to interrupt or resume spraying of the individual section.

15.3 3D - 2D display mode

Press this icon to switch between 3D (default) and 2D display mode and vice versa.



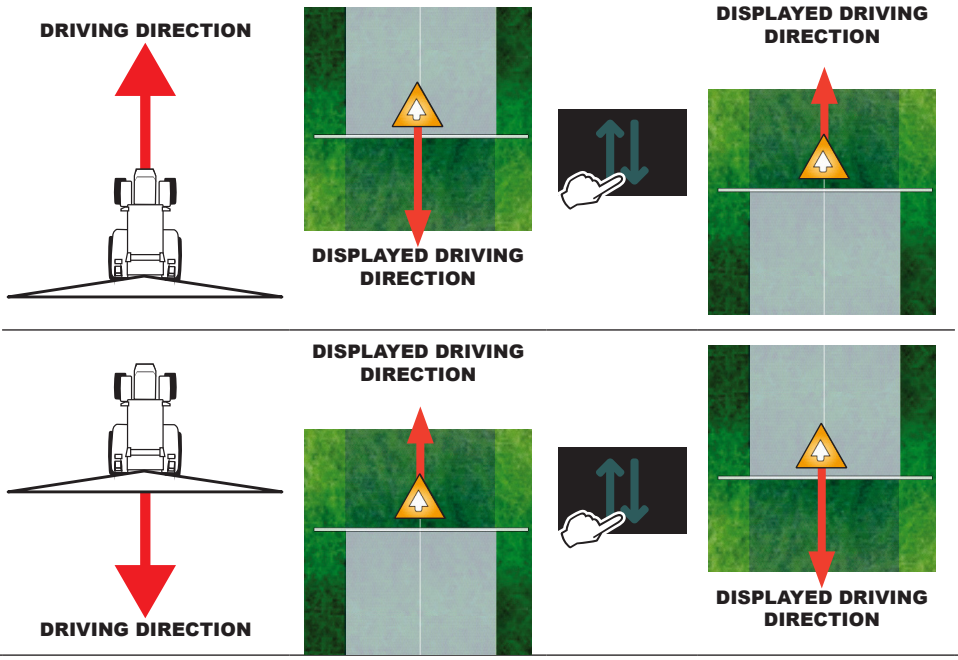
3D DISPLAY MODE (DEFAULT)



2D DISPLAY MODE

15.4 Displaying the driving direction

The monitor determines the driving direction using the data provided by the GPS receiver.
If the driving direction is not determined correctly, you can press this key to reverse the displayed direction.



15.5 Marking the pause point and return to point

The function allows marking a point where you want to stop the spraying and then return to it later.

When you are close to the spraying breaking point, press this key to memorize its position:
The marked point will be indicated by the symbol .

Press this key to return to the pause point.
The monitor will show the direction to follow to approach the previously marked point.
The display shows in fuchsia the distance between the vehicle's position and the breaking point (fuchsia line and numbers Fig. 145).

Press this key to remove the pause point marked before.

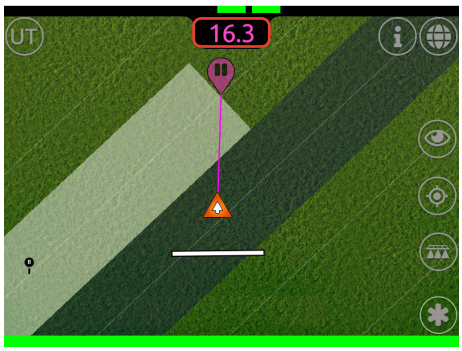


Fig. 145

The monitor can mark ONLY ONE pause POINT:
every time a point is marked, the previous one will be deleted.

CONTINUES > > >

15.6 Area

Press this icon to enable the procedure to calculate field surface area by driving along its perimeter.

- Press the corresponding icon to the side of the machine to use as a reference to define the field perimeter.
- The display will show a white line that marks the field perimeter (Fig. 146 / Fig. 147 / Fig. 148 / Fig. 149).
- Drive along the perimeter of the field whose area you want to calculate.

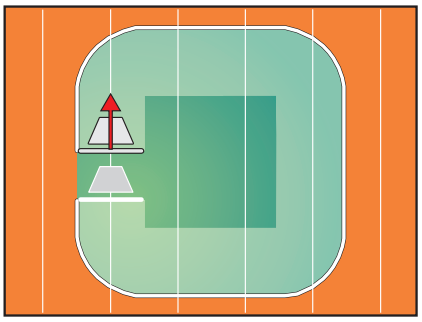


Fig. 146

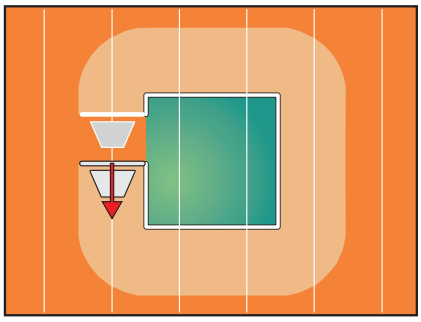
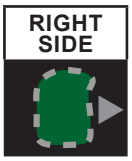


Fig. 147



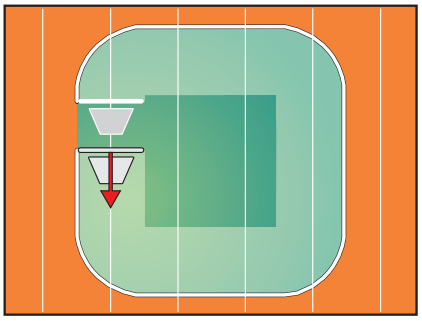


Fig. 148

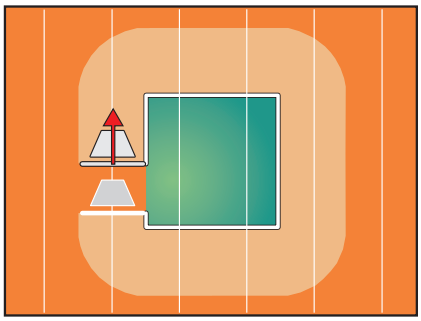


Fig. 149

WARNING: TO CORRECTLY SELECT THE SIDE (LEFT OR RIGHT) THAT WILL BE USED AS THE FIELD PERIMETER it is necessary TO ACTIVATE THE SPRAYING.
OTHERWISE THE monitor WILL USE THE MACHINE CENTER AS REFERENCE.

While driving around the perimeter, you can perform these operations using the keys below:

Pause: you can use this function when you need to make detours or maneuvers while the perimeter marking is in progress, but you do not want them to be included (e.g. at an obstacle or at the end of the field). With this function activated, the edge of the field will no longer be drawn.

After pressing pause, press this icon to resume drawing the edge of the field.

Cancel: use this function to delete the perimeter drawn so far.

Approaching the starting point of the perimeter marking you can press the key below to finish the operation:

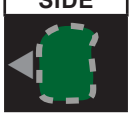
Confirm and complete the perimeter drawn so far: the monitor will connect the start and end points and calculate the internal area.

15.6.1 Adding or removing areas

This function allows adding or removing areas to a field whose perimeter had been previously defined.

Press this icon to start the procedure that allows adding or removing areas to those previously defined.
The following icons will be displayed:

Press the corresponding icon to the side of the machine to use as a reference to add other areas to the job field.



MACHINE OUTSIDE THE ADDED AREA

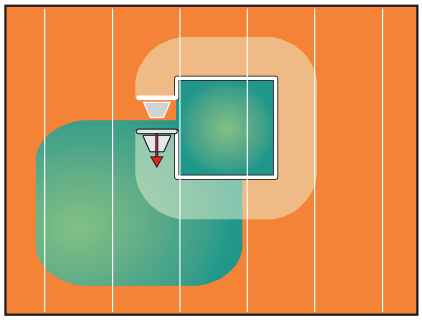


Fig. 150

MACHINE INSIDE THE ADDED AREA

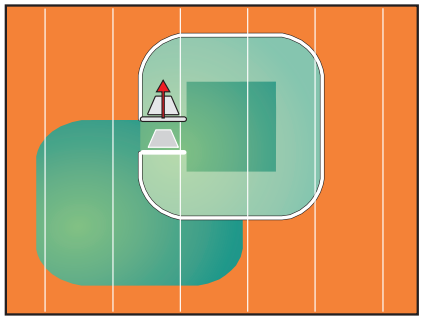
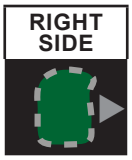


Fig. 151



MACHINE OUTSIDE THE ADDED AREA

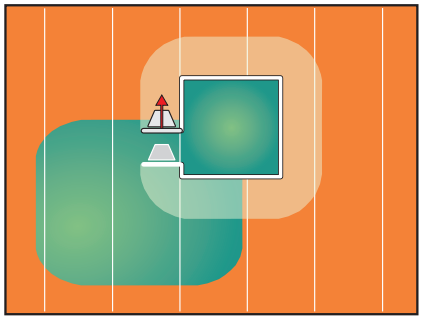


Fig. 152

MACHINE INSIDE THE ADDED AREA

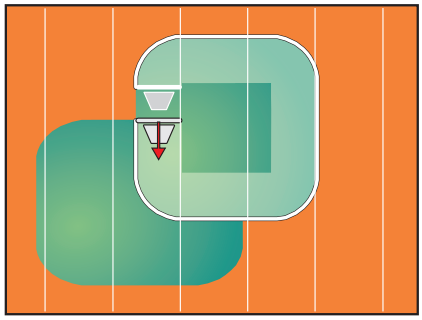


Fig. 153

Press the corresponding icon to the side of the machine to use as a reference to remove other areas from the job field.

MACHINE OUTSIDE THE REMOVED AREA

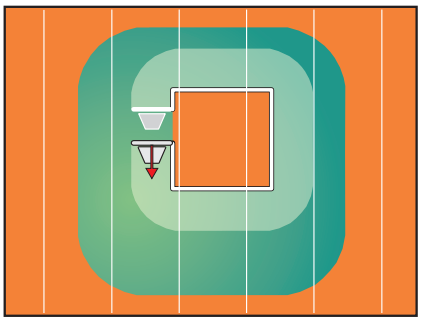


Fig. 154

MACHINE INSIDE THE REMOVED AREA

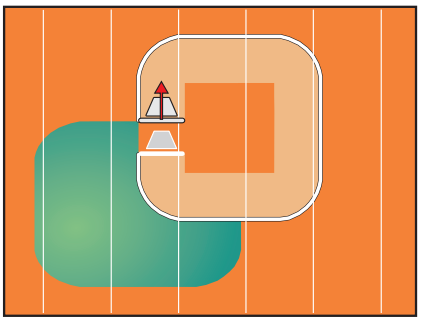
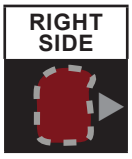


Fig. 155



MACHINE OUTSIDE THE REMOVED AREA

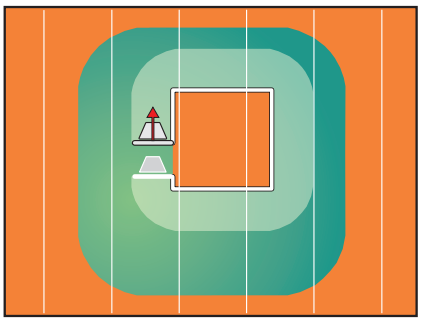


Fig. 156

MACHINE INSIDE THE REMOVED AREA

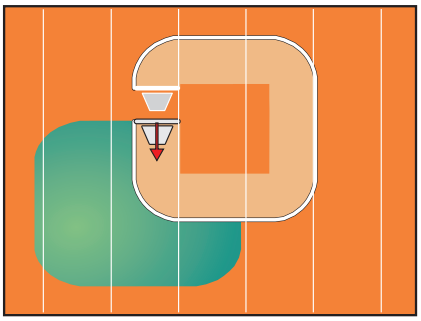


Fig. 157

15.6.2 Delete areas

Press this icon to delete all areas defined so far.

15.7 Guidance mode

By using this key, you can select the type of reference line you want to follow to spray the field

Press this icon to enter the driving mode selection menu.

Press this icon to select the **STRAIGHT DRIVING MODE**

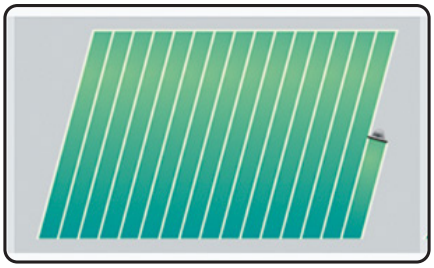


Fig. 158

The tracks appearing on the display, which will act as a guidance reference, are perfectly straight and parallel to the reference line joining points **A** and **B** as previously marked (par. 15.7.1).
Upon creation of the reference track, any bends in the trajectory between **A** and **B** will be ignored.

Press this icon to select the **CURVED DRIVING MODE**

Fig. 159

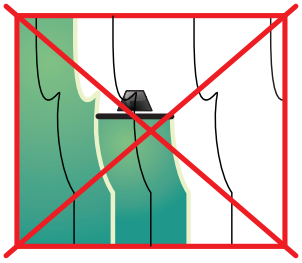


Fig. 160

The tracks appearing on the display, which will act as a guidance reference, include portions that are not straight, but do not include sharp bends (Fig. 160).
The trajectory between **A** and **B** (par. 15.7.1) will be saved and the display will create evenly distributed tracks.

Press this icon to select the **PIVOT DRIVING MODE**

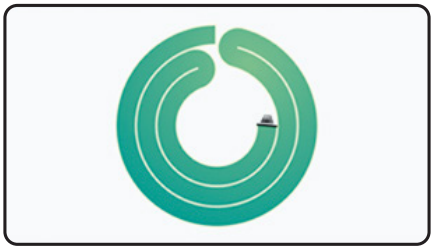


Fig. 161

Specific mode for spraying of field with movable pivots.
The circular trajectory between **A** and **B** (par. 15.7.1) will be saved and the display will create evenly distributed and concentric tracks.

CONTINUES > > >

15.7.1 Marking points A and B

After selecting the driving mode it is necessary to drive through the section of the field you want to use as a reference.
Save the points A and B that define the beginning and end of this section. The monitor uses these points to create a T0 (Fig. 167) line that will serve as a reference track for the current spraying.
This operation is essential for the monitor to guide you, during the spraying, on tracks parallel and equidistant to the reference track obtained by marking the points A and B.

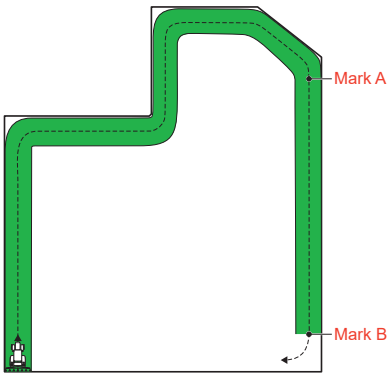


Fig. 162

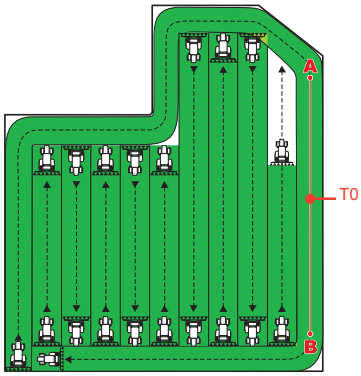


Fig. 163

We recommend marking points A and B while the machine is moving, at both ends of a straight line that is as long as possible: the longer the line marked by points A and B, the lower the error caused by any deviations of the machine itself.

WARNING:
POINTS A AND B CAN BE MARKED ONLY WHEN THE VEHICLE IS MOVING.

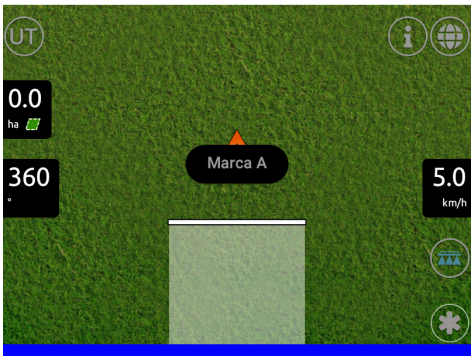


Fig. 164

Get to the point A which defines the beginning of the reference section, and press **Mark A**.

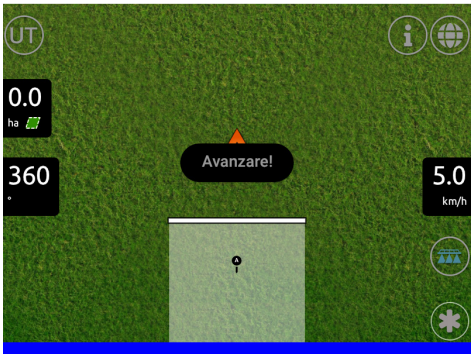


Fig. 165

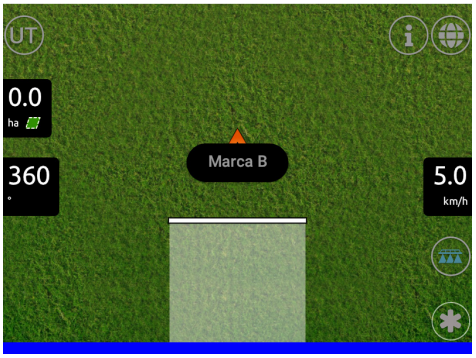


Fig. 166

- The display shows the message **Drive!**.
- Drive through the previously set reference section and press **Mark B**:
you must travel a minimum distance of (30 m / 95.5 ft) to mark the point B.

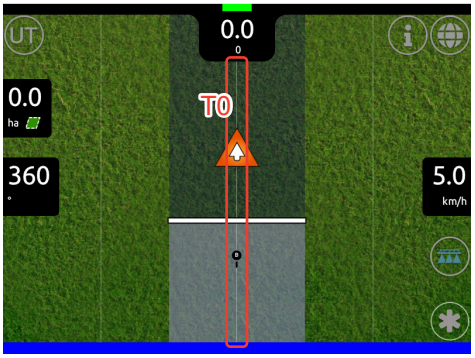


Fig. 167

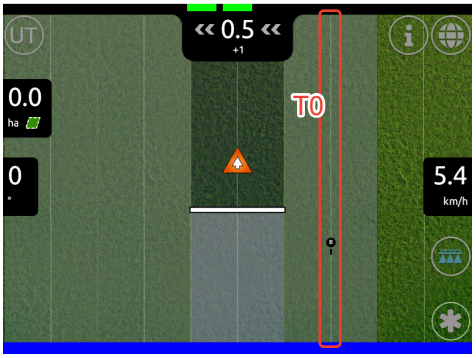


Fig. 168

- The reference track T0 and the tracks to be followed during the job will appear on the display.

Once the straight line A / B (T0) has been marked, it will be possible to spray the entire field along lines equidistant from this one (Fig. 168) by following the reference tracks shown on the display.

CONTINUES > > >

15.7.2 Adding, deleting and selecting the reference tracks

UT allows managing multiple guidance patterns.
This menu allows storing, selecting or deleting reference tracks.

	Press this icon again to manage the tracks. Some of the following icons are only available if you have already stored a reference track:
	**THIS ICON DELETES THE REFERENCE TRACK CURRENTLY DISPLAYED.** **WARNING: IT IS NOT POSSIBLE TO RECOVER THE TRACK AFTER DELETION.**
	Press this icon to add a job reference track to the one previously marked in straight driving mode.
	Press this icon to add a job reference track to the one previously marked in curved driving mode.
	Press this icon to add a job reference track to the one previously marked in pivot driving mode.
	Press this icon to select the desired reference track (scrolls in descending order of storage).
	Press this icon to select the desired reference track (scrolls in descending order of storage).
	Moves the nearest reference track (A in Fig. 169), realigning it to the position where the machine is, at the center of the tractor: all other reference tracks move accordingly. After the alignment, the deviation value becomes zero (Fig. 163 / Fig. 169). This function is useful when you need to re-align the machine, whilst continuing to drive in the same direction (for example, for corn, sugar cane).

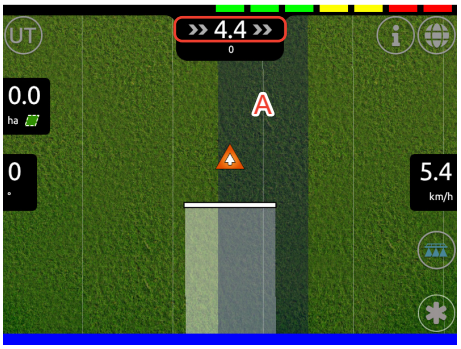


Fig. 169

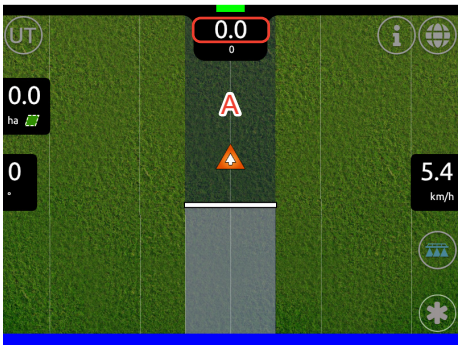


Fig. 170

Once this function has been used, it is not possible to restore the original reference track position.

16 ZOOM FUNCTIONS

UT is a touch screen device that allows enlarging or reducing the job screen zoom by finger movements:

Do this with your fingertips to get a more detailed view of the job area (zoom in).

Do this with your fingertips to get a wider view of the job area (zoom out).

If you zoom out the job area beyond a certain level, the displayed screen will look like this:

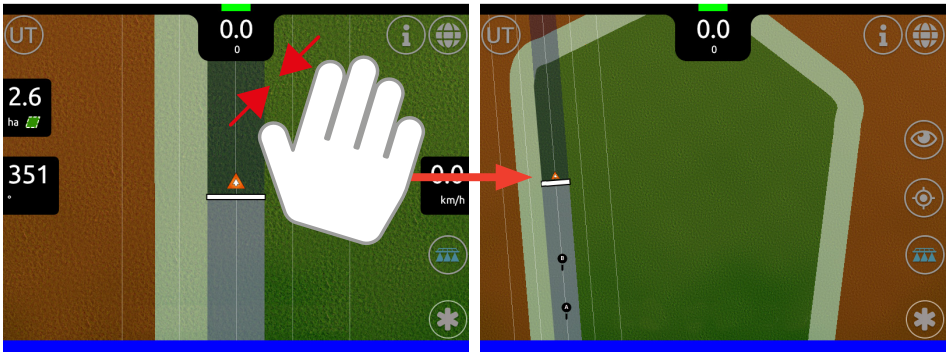


Fig. 171

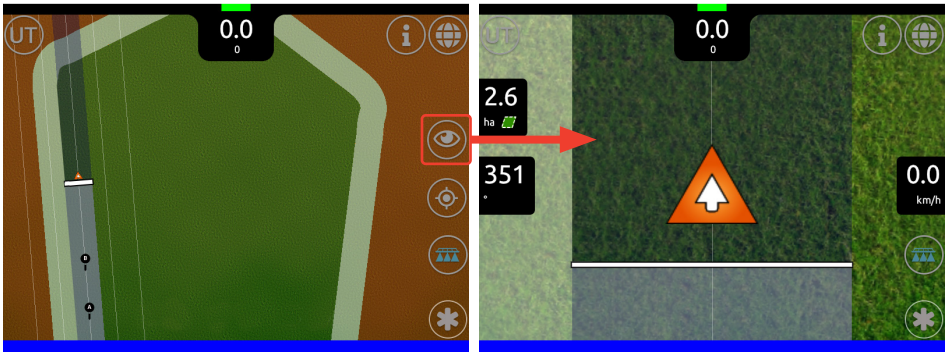


Fig. 172

It brings the position indicator of the machine to the center of the screen, setting the zoom level back to the base level.

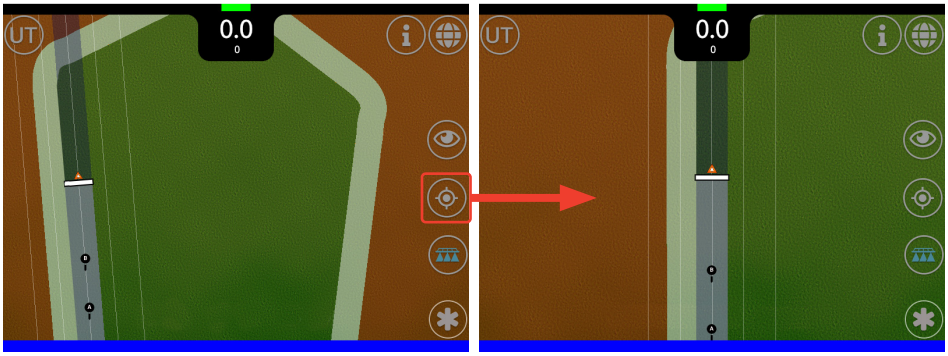


Fig. 173

It brings the position indicator of the machine to the center of the screen, by keeping the current zoom level.

17 DEVICE UPDATE

The following operations allow updating software of the display used.

- Download the update file from the website: www.aragnet.com (Download section).

- Insert a USB pendrive in the computer.

- Copy the file previously downloaded from the site to the USB pendrive.
WARNING: save files in the main directory of the USB pendrive. The update file is of ".zip" type, must be copied as it is WITHOUT EXTRACTING ITS CONTENT. Otherwise the system will not be able to read it.

- Turn off the device.

- Insert the pendrive into one of the two slots.

- Upon switching on (❶ or ❷), the VT will check data and start installation.

WARNING: DO NOT TURN OFF THE DEVICE OR DISCONNECT THE POWER SUPPLY DURING SUBSEQUENT OPERATIONS!

delta30t delta70t

- Press and hold the switching on key **for about 7 seconds and release it when the LED on the display turns VIOLET (ALSO IN CASE OF CONNECTION USING A KEY)**.

WARNING: to start the update procedure it is essential to wait for the LED to turn VIOLET and release the key

After this procedure and before the update is complete (i.e. before the colored progress bars reach the right end Fig. 174) choose the update mode using the Erase all key:

-  par. 17.1 Updating the device while keeping the set configurations unchanged.

-  par. 17.2 Updating the device and restoring it to factory defaults.

FULL DELETION of all settings and saved files.
ALL THE CONFIGURATIONS SET ON THE DEVICE WILL BE LOST AND CANNOT BE RECOVERED.

In case you want to CANCEL THE FULL DELETION it is necessary to press again the Erase all key before the update is completed: in this way the message Full erase option disabled will be displayed and the system will be updated without deleting all the data.

CONTINUES > > >

17.1 Updating the device while keeping the set configurations unchanged

This procedure updates the VT but the configurations set on the device remain unchanged.

THE SYSTEM IS PRESET TO KEEP ANY PREVIOUSLY SET CONFIGURATION.
THERE ARE CIRCUMSTANCES, BASED ON THE UPDATE CRITICALITY, WHERE ITS INSTALLATION COULD COMPLETELY DELETE ALL THE SETTINGS AND SAVED FILES. PLEASE REFER TO THE "README" FILE FOUND IN THE PACKAGE FOR ANY FURTHER DETAIL ON THIS MATTER.

- The system has the **Erase all** key disabled by default (Fig. 174) then wait for the device to complete the update.
- If the update is successful the display shows **Completed! Please wait**. Otherwise, follow the instructions on the display.
- Remove the USB pendrive (Fig. 175): the device will automatically restart and show the Home page (Fig. 176).

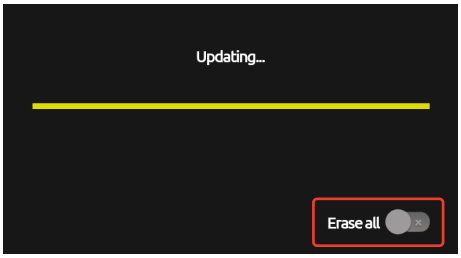


Fig. 174

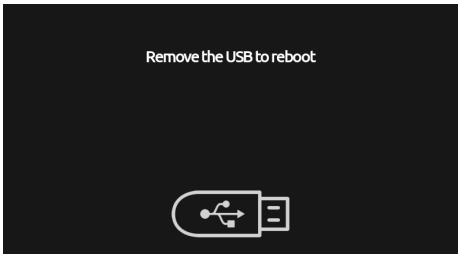


Fig. 175

Fig. 176

17.2 Updating the device and restoring it to factory defaults

This procedure updates the VT and resets it to zero: **ALL THE CONFIGURATIONS SET ON THE DEVICE WILL BE LOST AND CANNOT BE RECOVERED.**
- Press **Erase all** (Fig. 177).
- Wait for the device to finish updating.
- If the update is successful the display shows **Completed! Please wait**. Otherwise, follow the instructions on the display.
- Remove the USB pendrive (Fig. 180): the device will automatically restart and allow configuring the basic settings (Fig. 181).

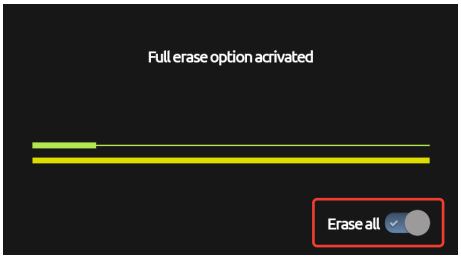


Fig. 177

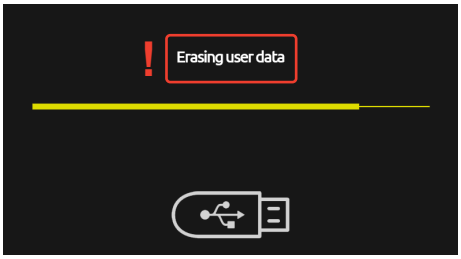


Fig. 178

Fig. 179

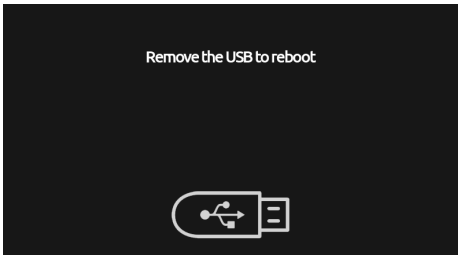


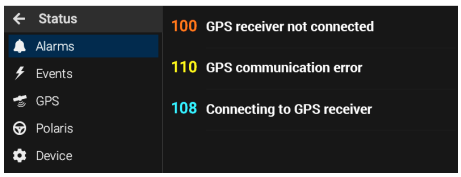
Fig. 180

Fig. 181

18 MAINTENANCE / DIAGNOSTICS / REPAIRS

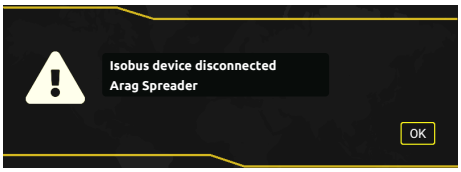
18.1 System notifications

18.1.1 Status > Alarms (par. 11.1 on page 33)



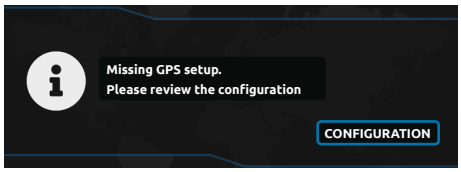
CODE	TYPE	MESSAGE ON DISPLAY	REMEDY / NOTES	ACTION ON DISPLAY
3	ERROR	Battery temperature too high	Shutdown the device as soon as possible (par. 1.3)	--
11	ERROR	Audio initialization error	Reboot the device (par. 1.4)	--
9	ERROR	Video resources full	Start new job (par. 12.1)	--
400	ERROR	Polaris not detected!	Check harnesses and reboot the system (ref. to relevant installation manual + par. 1.4)	--
401	ERROR	Communication with Polaris lost	Make a reconnection attempt	RECONNECT
470	ERROR	Communication error with Polaris	Make a reconnection attempt	RECONNECT
471	ERROR	Polaris firmware vers. not supported!	Polaris firmware update (ref. to relevant manual)	--
100	ERROR	GPS receiver not connected	Check receiver connection and make a reconnection attempt (ref. to VT installation manual)	RECONNECT
1	ERROR	Job origin too far away	Start new job (par. 12.1)	--
101	ERROR	GPS rec. gives invalid data	Make a reconnection attempt	RECONNECT
102	ERROR	Unexpected GPS rec. model	Check that the GPS receiver model is the expected one Check the selected vehicle (par. 5.4)	RECONNECT
103	ERROR	Receiver version not supported	Update the GPS receiver	RECONNECT
104	ERROR	GPS receiver works unproperly	Wait automatic recovery or replug the receiver	RECONNECT
105	ERROR	Waiting for GPS data	The GPS receiver is computing position and speed	--
106	ERROR	GPS low data quality	The quality of GPS data is below the minimum level	--
442	ERROR	GPS data frequency problem	Check the configuration of the GPS receiver (par. 5.8)	--
438	ERROR	MDU-G4 supply voltage problem	Check harnesses and reboot the system (ref. to relevant installation manual + par. 1.4)	--
410	ERROR	Operator not detected	Check operator presence sensor (ref. to relevant installation manual)	--
403	ERROR	Missing mounting pos. calib.	Make calibration procedure (ref. to Polaris programming, relevant manual)	--
404	ERROR	Missing compass calibration	Make calibration procedure (ref. to Polaris programming, relevant manual)	--
405	ERROR	Invalid compass calibration	Calibration is not valid; repeat the procedure (ref. to Polaris programming, relevant manual)	--
407	ERROR	Compass calibration expired	Make calibration procedure	--
10	WARNING	Video resources almost full	Start new job as soon as possible (par. 12.1)	--
467	WARNING	Compass calibration will expire soon	Repeat calibration procedure (ref. to Polaris programming, relevant manual) **Restore compass calibration as soon as possible: a 30-day period is provided from the first warning after which the alarm becomes blocking**	--
110	WARNING	GPS communication error	--	--
4	WARNING	Too far away from the job origin point	Start new job (par. 12.1)	--
7	WARNING	Memory reserved for jobs 80% full	Please free some memory moving the jobs on USB (par. 12.3)	--
35	WARNING	Licenses lost	Contact the assistance	--
41	WARNING	Iotbox connection lost	Check Iotbox connection cable and retry (ref. to relevant installation manual)	--
108	INFO	Connecting to GPS receiver	Wait for GPS receive connection	--

18.1.2 Events on main control panel - MCP with yellow edge (11.2.1 on page 34)



CODE	MESSAGE ON DISPLAY	REMEDY / NOTES	ACTION ON DISPLAY
231	Isobus device disconnected	Isobus device disconnected	OK
249	Removed auxiliary inputs	Removed auxiliary inputs	OK
250	Auxiliary inputs lost	Auxiliary inputs lost	OK
251	Removed auxiliary functions	Removed auxiliary functions	OK
252	Auxiliary inputs assignment failed	Auxiliary inputs assignment failed	OK
253	Auxiliary unassigment failed	Auxiliary inputs unassigment failed	OK
254	Auxiliary inputs enable failed	Auxiliary inputs enable failed	OK
255	Auxiliary inputs enable failed	Auxiliary inputs enable failed	OK
256	Auxiliary inputs assignment failed	Auxiliary inputs assignment failed	OK
257	Auxiliary preferred assignment failed	Auxiliary inputs preferred assignment failed	OK
258	Auxiliary assignment failed	Error during assignment of auxiliary inputs	OK
259	Error loading Object-pool	Loading interrupted due to an error in the object-pool	OK
714	Error opening prescription map	Error opening prescription map	ABORT
715	Prescription map too far from origin	Prescription map too far from origin	ABORT
719	Conversion to boundary map failed	Error converting prescription map into boundary map	ABORT
706	Error loading boundary map	Error loading boundary map	ABORT
707	Error loading boundary map	Error loading boundary map	ABORT
708	Boundary map too far from origin	Boundary map too far from origin	ABORT
709	Applied area map not found	Applied area map not found	ABORT
710	Error creating applied area map	Error creating applied area map	ABORT
711	Error opening applied area map	Error opening applied area map	ABORT
713	Applied area map too far from origin	Applied area map too far from origin	ABORT
718	Implement geometry not supported	Implement geometry not supported	OK
12	Error loading guidance patterns map	Error loading guidance patterns map	ABORT
13	Error loading pause point	Error loading pause point	ABORT
14	Maximum number of jobs reached	Maximum number of supported jobs reached	JOBS

18.1.3 Notifications ONLY on main control panel - MCP with light blue edge (11.2.1 on page 34)



MESSAGE ON DISPLAY	REMEDY / NOTES	ACTION ON DISPLAY
When using the vehicle on public roads, do NOT USE the Polaris assisted driving system. Make sure that the emergency switch is pressed and the electromechanical actuator is off.	Strictly follow the warnings. For any detail on assisted driving system, refer to the relevant instruction manual.	**ACCEPT**
Audio not initialized. Reboot the device	Ref. par. 1.4.	**ACCEPT**
A Control Unit provided preferred auxiliary inputs	Ref. to relevant instruction manual.	**ACCEPT**
Missing vehicle setup. Please review the configuration	Ref. par. 5.7.	**CONFIG_ GEOMETRY**
Missing GPS setup. Please review the configuration	Ref. par. 5.8.	**CONFIG_GNSS**
Polaris not detected!	The device has never responded to VT start-up. Ref. to relevant instruction manual.	**CONFIG_ POLARIS**
Polaris detected but selected GPS is incompatible	Polaris accepts dual-frequency GPS only.	**CONFIG_GNSS**
Missing UT and TC licenses for the selected implement type Add licenses or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing TC license for the selected implement type Add license or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing UT license for the selected implement type Add license or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing NAV, UT and TC licenses Add licenses	Ref. par. 7.4.1.	**LICENSES**
Missing NAV and TC licenses for the selected implement type Add licenses or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing NAV and UT licenses for the selected implement type Add licenses or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing NAV license for the selected implement type Add license or edit implement type	Ref. par. 7.4.1 - 5.5.	**LICENSES**
Missing UT license Add license	Ref. par. 7.4.1.	**LICENSES**
Loading Object-pool...	Wait for the OP complete loading.	--
Waiting for a Control Unit with Task Controller Isobus...	Check that the connected implement is equipped with Task Controller. Check that the configuration type (par. 7.4) is the expected one; follow the instructions below: - in case of single configuration, unpair the control unit (par. 5.5.2). - in case of multiple configuration, save and pair a new implement (par. 5.4).	--
Found new Control Unit with Task Controller Isobus. Pair to the current configuration?	Press **YES** key to pair the current configuration (par. 5.5.2).	**YES**
Indicate the position of the implement	Select the position of the implement. Check that the settings on these menus are the expected ones: - implement configuration, VT side (ref. par. 5.5). - implement geometry, OP side (ref. to relevant instruction manual). - selected vehicle (par. 5.4).	**FRONT|REAR**
Waiting for the Control Unit paired with the current configuration...	Wait for data uploading.	--
Waiting for Task Controller Isobus initialization...	Wait for data uploading.	--
Taskdata wrongly closed	Reboot the device. Ref. par. 1.4.	--
Waiting for navigation origin...	The current position is too far away from the job origin. Redefine the job origin.	--

Only use genuine ARAG accessories or spare parts to make sure manufacturer guaranteed safety conditions are maintained in time. Always refer to the Internet address www.aragnet.com.

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