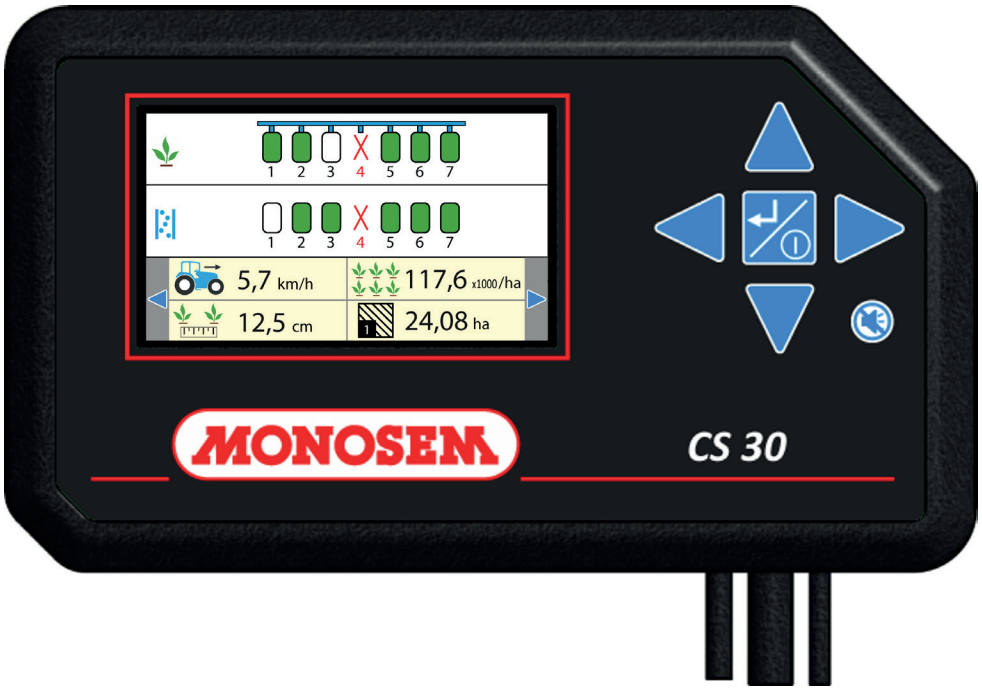
SEED MONITOR CS 30-18 MANUAL



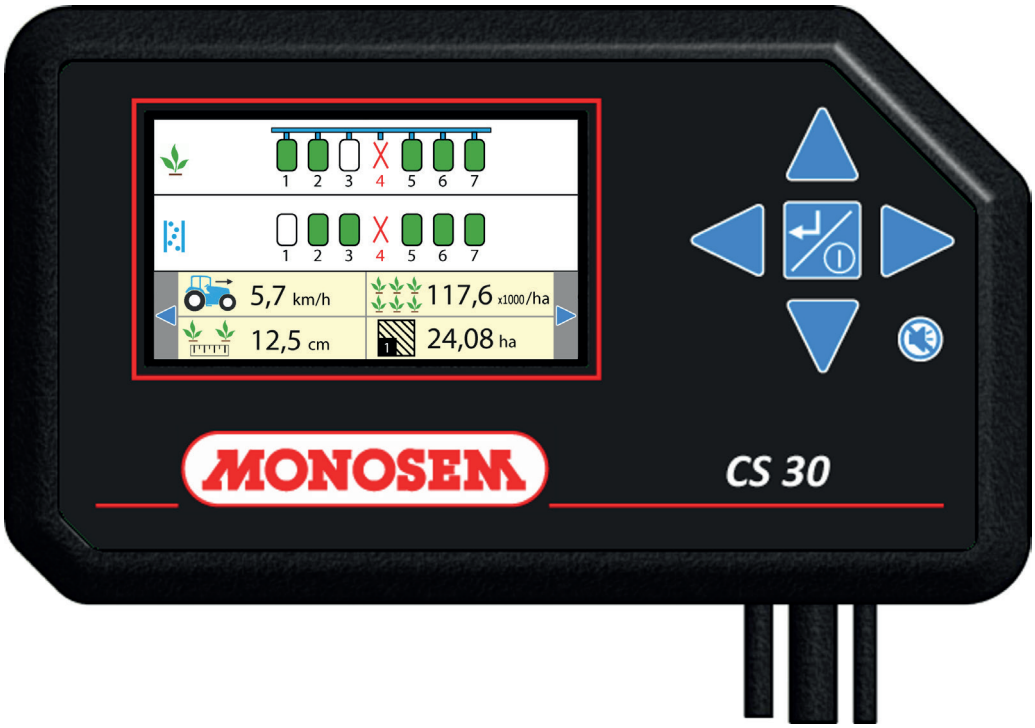
2021
OMM900004A

USER MANUAL

This manual should be read carefully before assembly and operation. It should be kept in a safe place. For further information or in the event of claims, please call MONOSEM. You will find the telephone number on the back page of this manual.
The identification and year of manufacture of your planter are on the central frame.

With the aim of continuously improving our products, we reserve the right to modify our equipment without notice. As a result, some elements may differ from those described in these instructions.

ORIGINAL INSTRUCTIONS



1. INTRODUCTION

MONOSEM **CS30** controllers are devices designed to help the user to eliminate any approximation and uncertainty during planting.
The controller is a console with a color screen to be installed in the tractor cab.
Photoelectric cells are installed on each row unit and are connected to the console by means of a wire harness.
The controller is supplied by the tractor's battery (12 volts).
During operation, the console receive and controls permanently information from each cell. The user can hence be warned in real time in case of a planting problem on a row: insufficient seed flow (skips), excess seed flow (doubles), lack of seeds (empty hopper)… A sound alarm and a visual error message provides instant knowledge of the problem and row concerned.

The MONOSEM CS30 controller features the following functions:
①- Seed flow control
②- Driving speed display
③- Worked surfaces management
④- Control of the average seed population
⑤- Seed spacing control

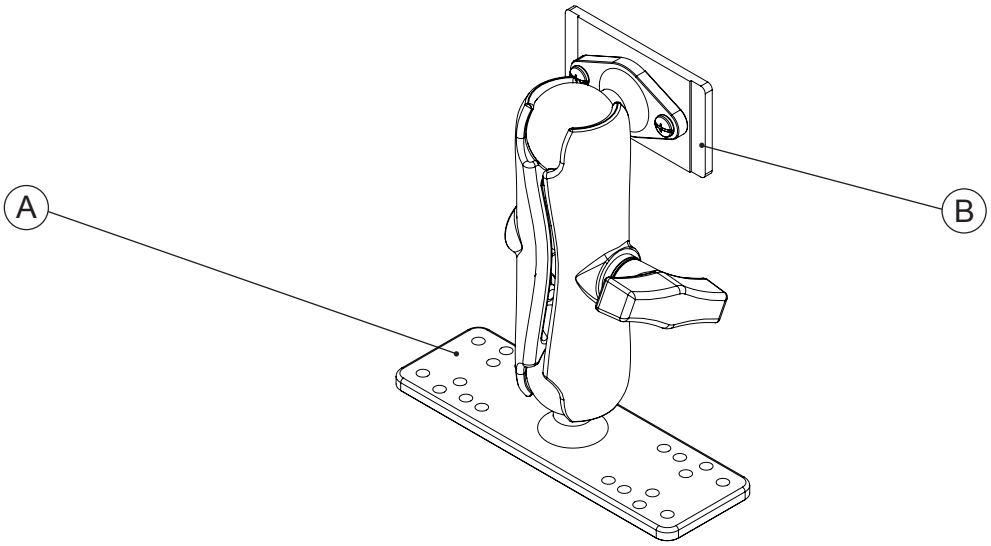


Fig.1

Fig.2

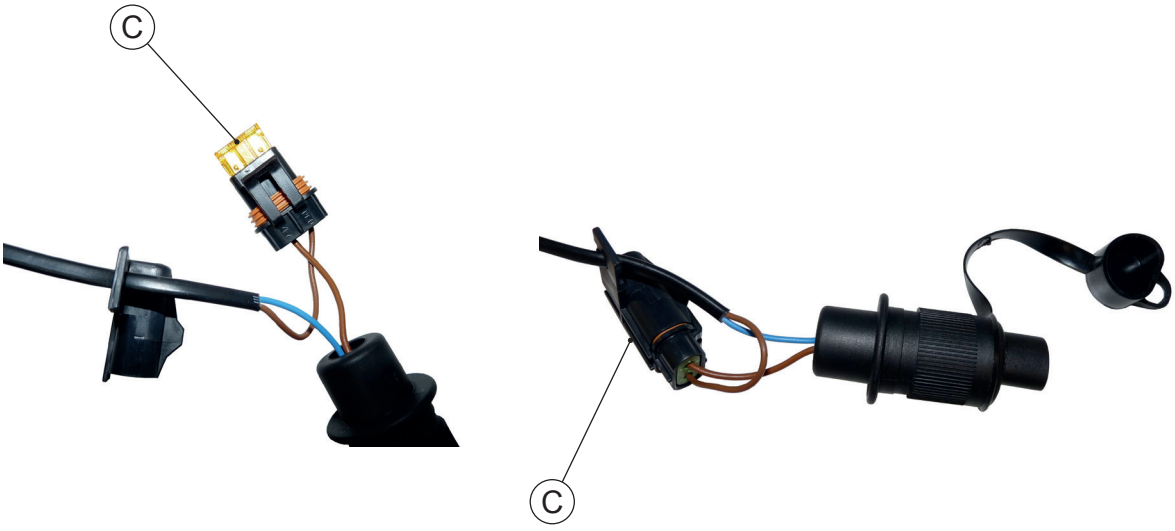


Fig.3

2. INSTALLATION

2.1 - Fastening the console

The console must be installed in the tractor cab, in a location ensuring it is visible and accessible. To do this, secure the bracket supplied with the console [A] (fig. 1). Clip the plate [B] (fig. 1) to the back of the console.

2.2 - Console cables

a) Power supply cable C

The MONOSEM CS30 controller runs only with a 12 Volt power supply. The console's power supply cable is composed of two wires. If you do not use the 3-pin connector supplied, check that the brown wire with a fuse holder [C] (Fig. 2) is wired to the (+) terminal, the blue wire to the battery's (-) terminal on the battery.
When using two series-connected 12 Volt batteries, check that the blue wire is wired to the terminal connected to the tractor chassis (- terminal) and the brown wire to the + terminal on the same battery.

The electric circuit is protected by a fuse in its fuse holder [C] (fig. 2 & 3).

Fig.1

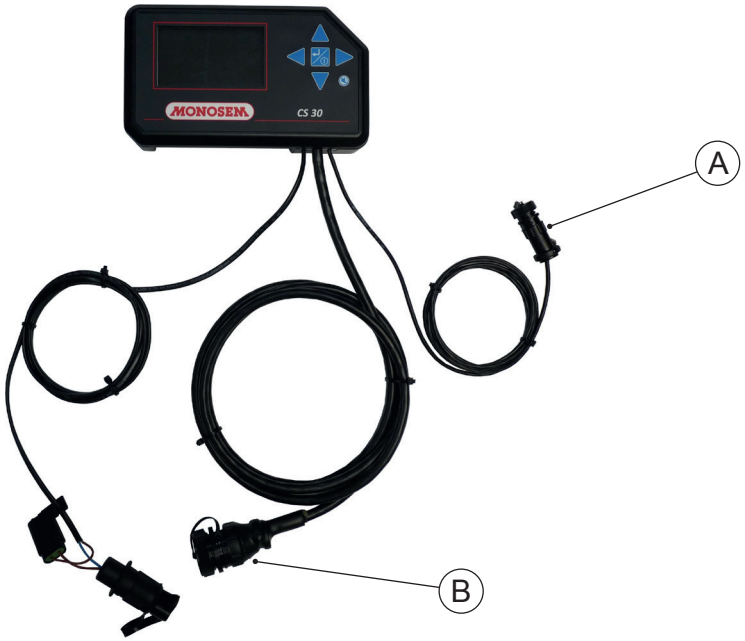


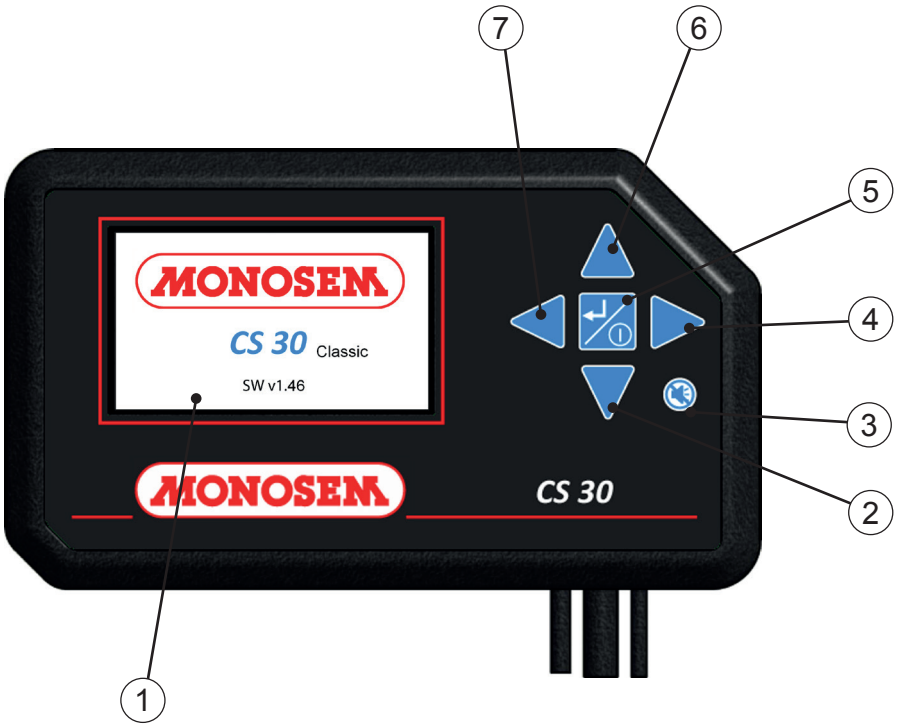
Fig.2

Fig.3

2.3 - Monitor Harness Connections

[A] 4-Pin planter speed input. Connects to ground speed sensor on planter.

[B] 37-Pin seed sensor input. Connects to seed sensor harness on planter.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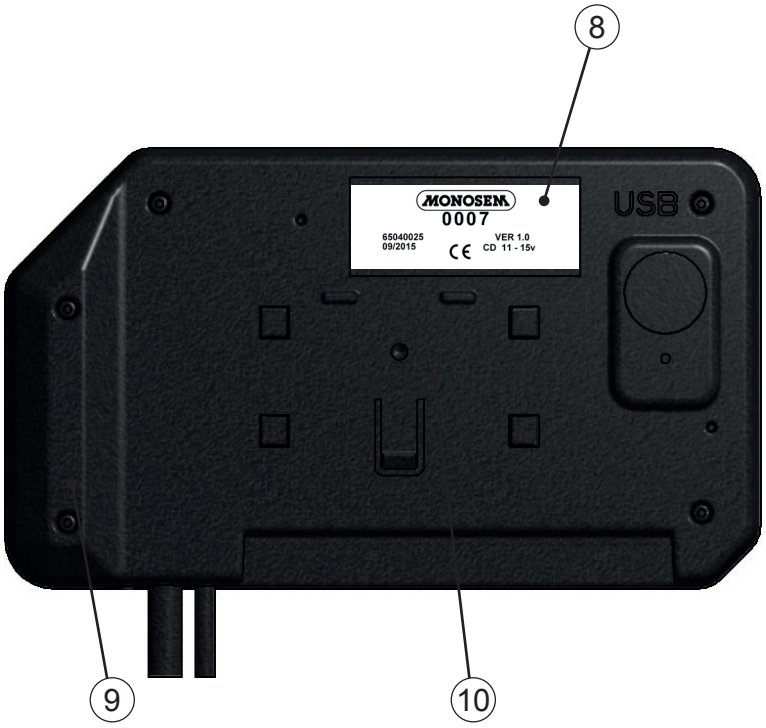
MONOSEM
CS 30 Classic
SW v1.46
MONOSEM
CS 30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VER 1.0
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3. DESCRIPTION AND USE OF THE CONSOLE

Description:
① - Color screen.
② - “Down arrow” key.
③ - Key muting an alarm.
④ - "Right arrow" key.
⑤ - Power on key.
⑥ - “Up arrow” key.
⑦ - "Left arrow" key
⑧ - Product label.
⑨ - Ergonomic grip.
⑩ - Console holder area.

3.1 - Browsing

- Select.
- Validate.
- Activate the console (long press).
- Deactivate the console (long press).

- Move to the left, right, up and down.
- Modify the value of a field selected beforehand.
- Access the setting menu (long press on up arrow)
- Return to the work menu (long press on down arrow)

- Acknowledge an alarm message
- Mute the alarm.

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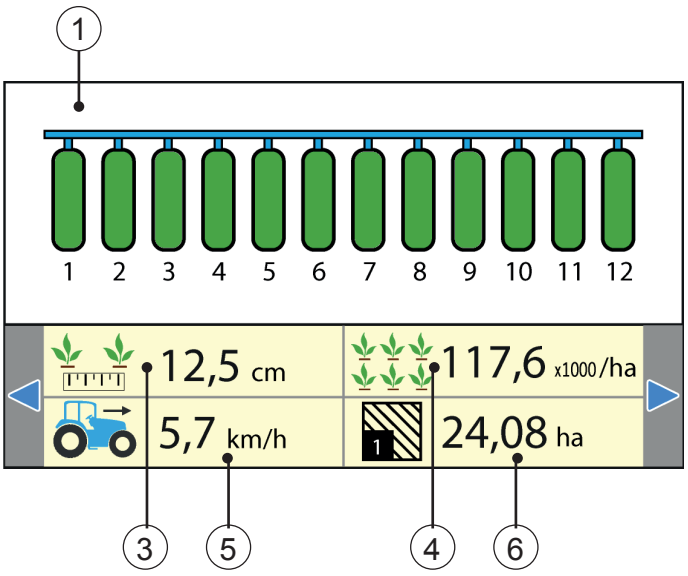
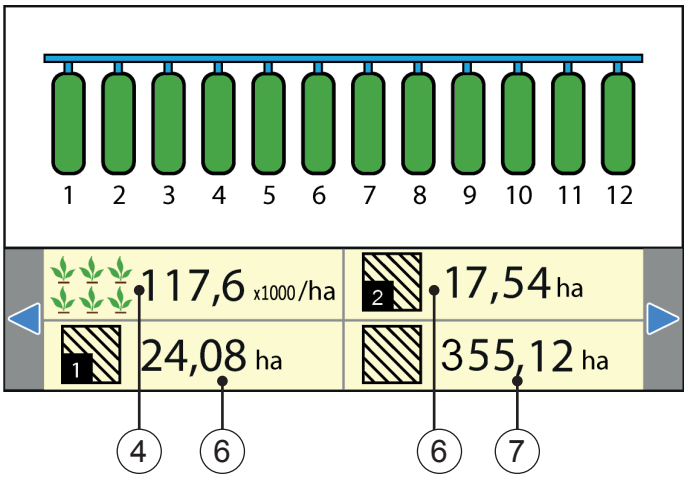
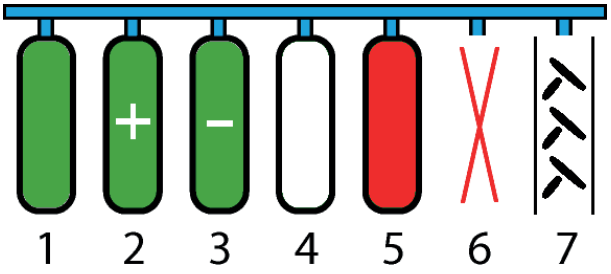
CS 30 Comfort

SW v1.46







MONOSEM

3.1 - Work mode
(Comfort and Premium version)

The work mode is the mode in which the controller displays all the information necessary to the user to ensure proper monitoring of the ongoing planting.
If the planter only features seed detection cells, the control screen displays a schematic representation of the seeder over a single line.

Upper section of the screen:
① - Displays the grain detection cell representation.

Information banner :
③ - Mean distance between grains.
④ - Average population.
⑤ - Working speed.
⑥ - Partial worked surfaces 1 & 2.
⑦ - Total worked surface.

NOTE: Display shows "," (comma) that should be read as "." (point). Please read 12,5 as 12.5 and 5,7 as 5.7 and etc.

All the information is accessible using the ◀ and ▶ keys.

Different possible statuses of the rows :
Row 1: Grains detected, density compliant.
Row 2: Row in overdose. Alarm threshold exceeded.
Row 3: Row in sub dose. Alarm threshold exceeded.
Row 4: No grains detected. Zero speed and/or end of field
Row 5: No grains during sowing.
Row 6: Row not programmed or ignored by the user.
Row 7: Rows cut by tramline mode.

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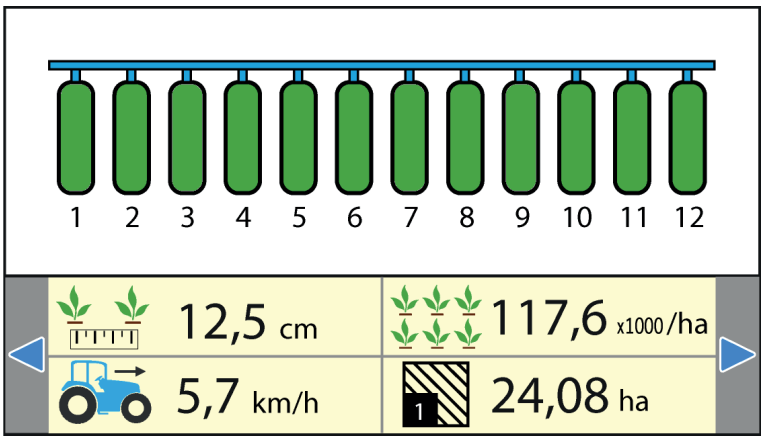
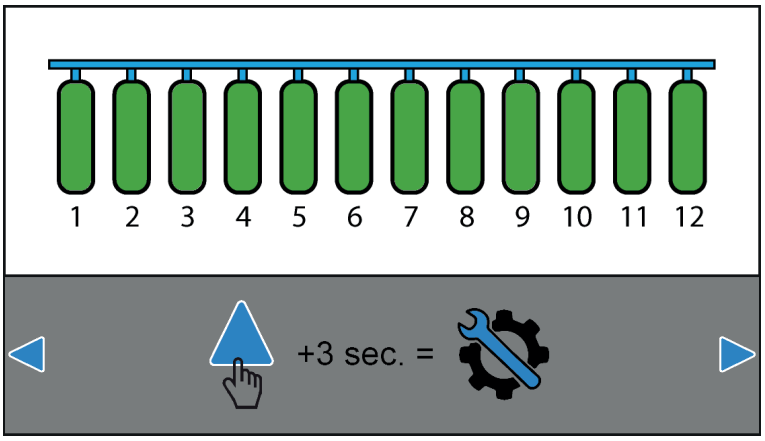
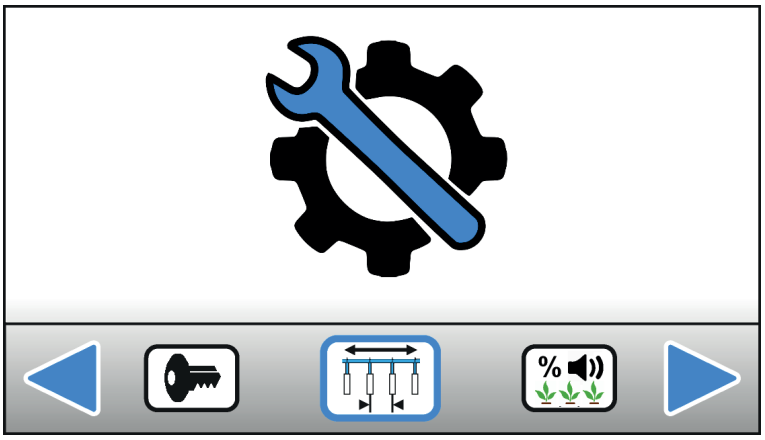
CS 30 Comfort

SW v1.46







3.2 - PROGRAMMING MODE
(Comfort and Premium version)

The programming mode is the mode used to configure the console (Fig. 1).

Accuracy of the information given by the console in the WORK mode depends mostly on the programming accuracy. Therefore programming must be performed properly, checked regularly and modified when necessary.

Access the programming mode (long press on ▲).

Return to the working mode (long press on ▼).

The different menus of the PROGRAMMING mode are:

NUMBER OF ROWS SETTING

ALARM THRESHOLDS ADJUSTMENT

COUNTER MANAGEMENT

BRIGHTNESS / SOUND

TROUBLESHOOTING

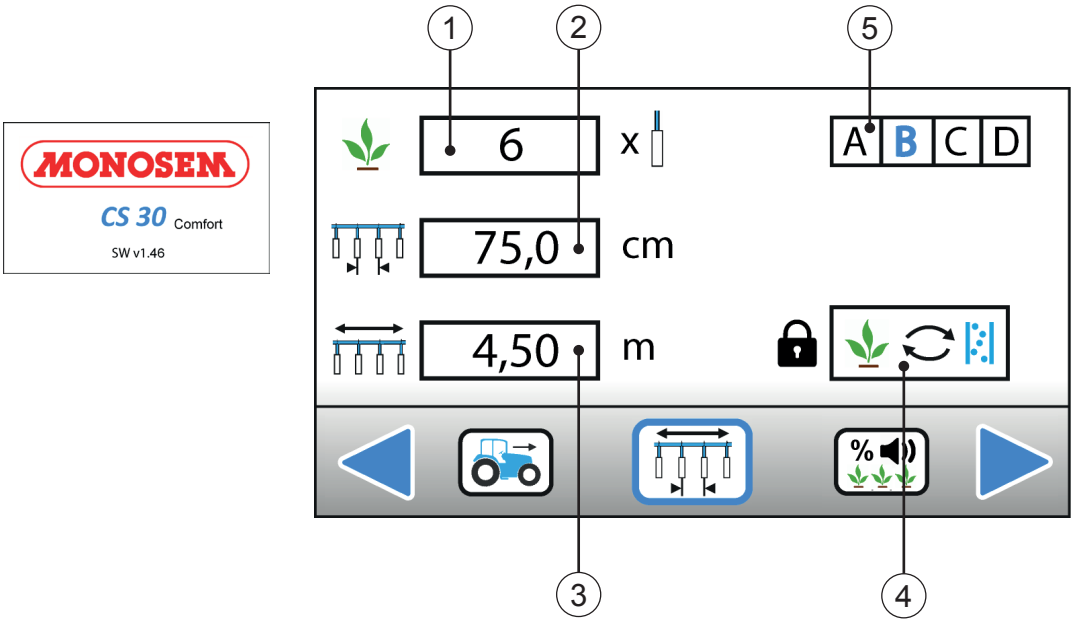
ACCESSORIES

ADVANCED SETTINGS (ACCESS VIA CODE)

INFO / SERVICE

FORWARD SENSOR CALIBRATION

BANNER DISPLAY SETTING


MONOSEM
CS 30 Comfort
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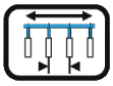
1
2
5
6
x
A B C D
75,0
cm
4,50
m
%
3
4

3.3 - NUMBER OF ROWS SETTING



This mode is used to select and save the planter configuration used.

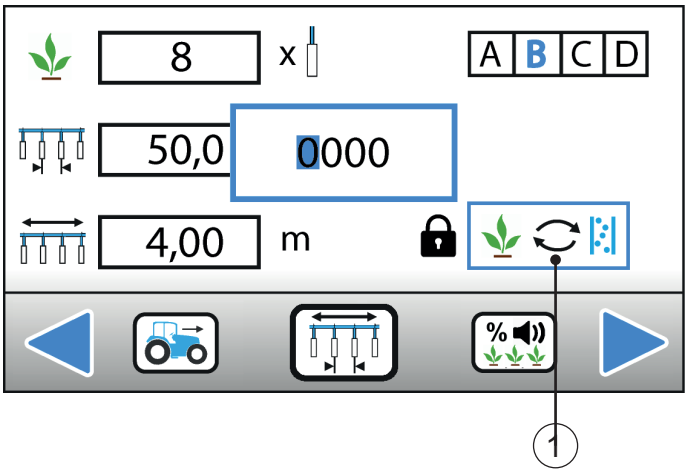
Description:
① - Number of planter rows.
② - Row spacing
③ - Total planter width.
④ - Advanced menu (access via code).
⑤ - Configuration choice. Useful when the same planter is used to plant in different configurations (different number of rows and/or row spacings). Provides access to 4 favorite settings.

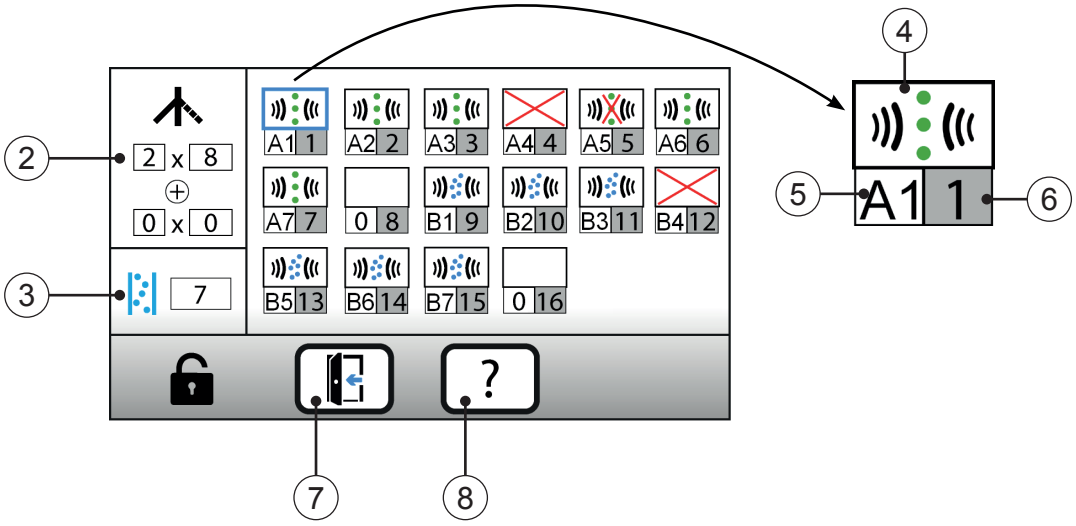
Example:

Highlight the Configuration in blue and validate ,

Planter with 6 rows separated by 75 cm with a working width of 4.50m.

Data is saved automatically.

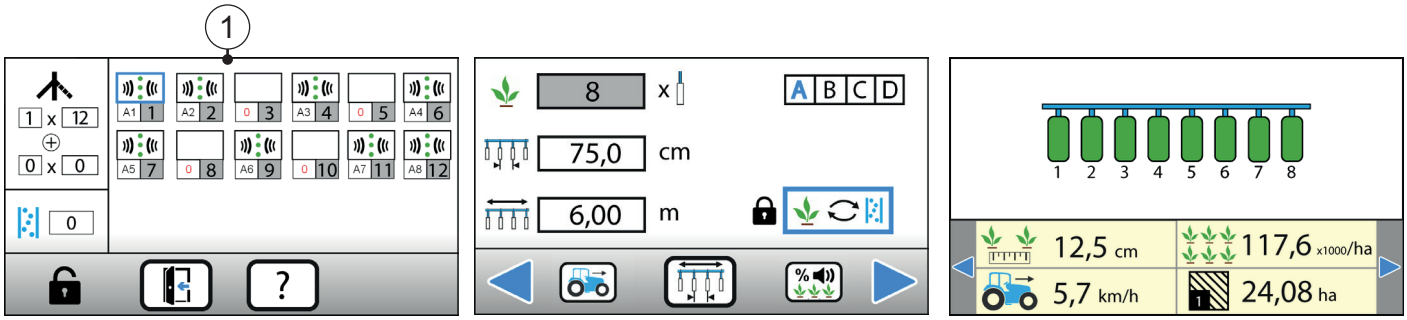

8
x
A B C D
50,0
0000
4,00
m
%
1

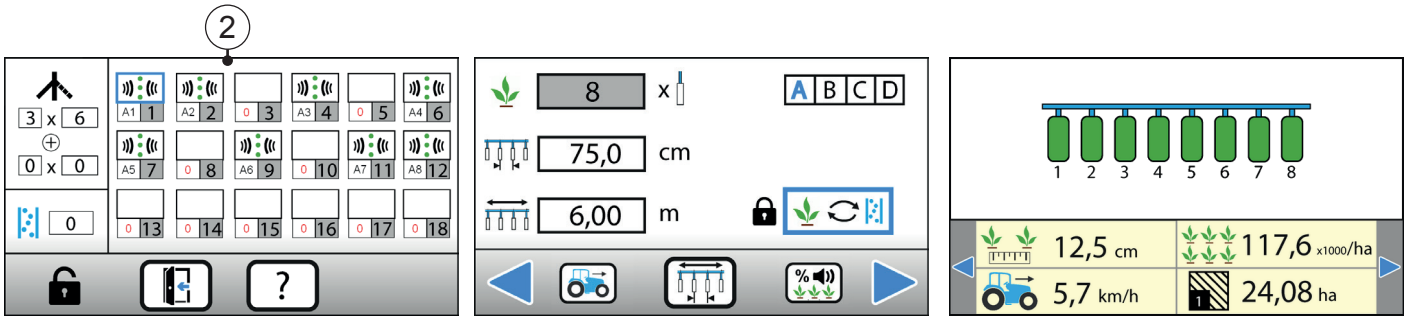

2
2 x 8
0 x 0
3
7
A1 1
A2 2
A3 3
A4 4
A5 5
A6 6
A7 7
0 8
B1 9
B2 10
B3 11
B4 12
B5 13
B6 14
B7 15
0 16
?
4
5
A1 1
6
7
8

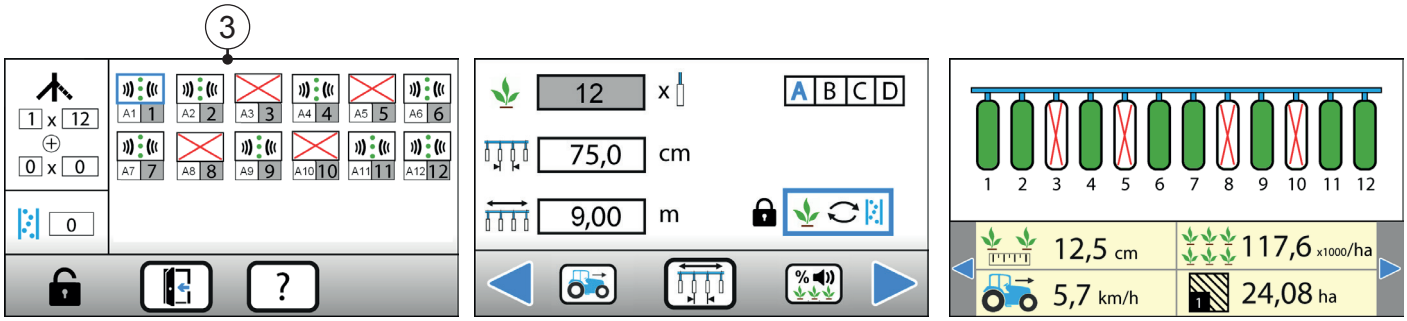
① - Access to the advanced cell management menu.
Access code:2468.

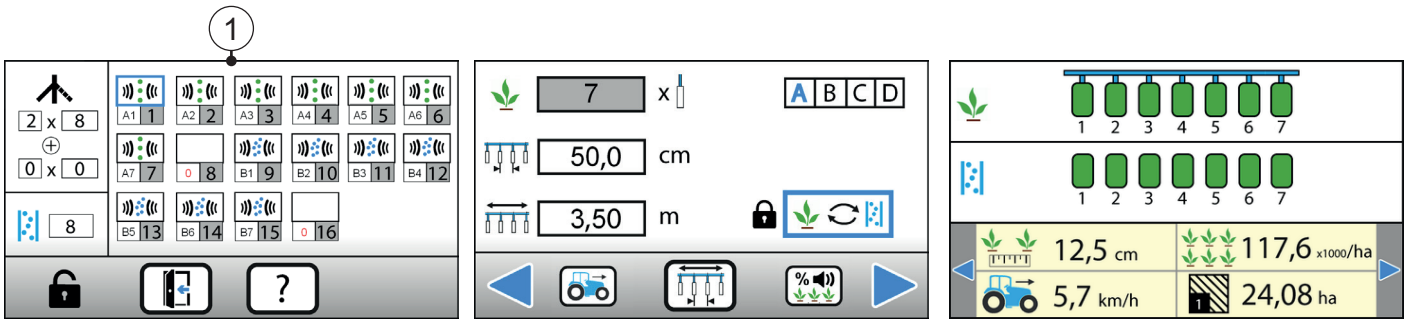
Description:
② - Number of beams connected on the seed planter and number of branches to these beams. Showing 2 bundles 8 rows.
③ - Number of connected fertiliser cells (²Comfort and Premium version).
The assignment of fertiliser cells is not available for the Classic version.
④ - Cell configuration (seeds or fertiliser).
⑤ - The number of the wire of the seed planter beam:
Beam A - for the wiring of the row 1 cell.
Beam B - for the wiring of the row 1 cell.
A «0» means that the cable is not connected.
⑥ - The number of the controller side harness wire to which the cell wire is connected.
⑦ - Output. Return to the «row number setting» menu.
⑧ - Reinitialise the configuration.

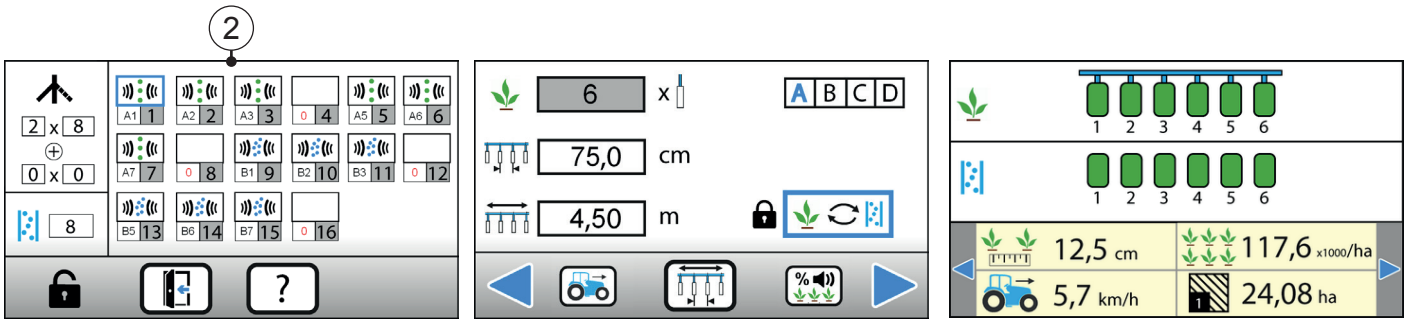
Cell configuration:
Seed cell (seed counting).
Fertiliser cell (checking whether there is a fertiliser flow for the Comfort and Premium versions).
Cell (seed or fertiliser) physically connected but deliberately ignored.
(e.g.: row «raised» by the user who does not want to sow on this row).
A seed cell where the user has deliberately degraded the signal analysis. On this row, no counting is done, but we simply check that there is the passage of seeds.
(Cell whose sensitivity does not allow for a correct count of e.g., too small seeds).
No cell connected. This option is only available if the wire number is set to zero. Also, if the wire number is set to zero, this option is the only one available.


1
1 x 12
0 x 0
0
8
x
75,0
cm
6,00
m
A B C D
1 2 3 4 5 6 7 8
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha


2
3 x 6
0 x 0
0
8
x
75,0
cm
6,00
m
A B C D
1 2 3 4 5 6 7 8
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha


3
1 x 12
0 x 0
0
12
x
75,0
cm
9,00
m
A B C D
1 2 3 4 5 6 7 8 9 10 11 12
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha


1
2 x 8
0 x 0
8
7
x
50,0
cm
3,50
m
A B C D
1 2 3 4 5 6 7
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha


2
2 x 8
0 x 0
8
6
x
75,0
cm
4,50
m
A B C D
1 2 3 4 5 6
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha

► Example of settings for an 8/12 row combination seed planter:

① - In this example, a 12-channel beam is used, but only the 8 channels of the active sowing elements (1-2-4-6-7-9-11-12) are connected.

② - In this example, three 6-channel beams are used, but only the 8 channels of the active sowing elements (1-2-4-6-7-9-11-12) are connected.

③ - In this example, one 12-way beam is used, but the unused sowing elements (3-5-8-10) are made inactive.
Case study: 12-row seed planter, fixed spacing, rows 3-5-8-10 not used.
Surface counting on 12 spacings.
(Sowing «male» seed corn on these rows, and «female» at another time on rows 3-5-8-10)

► Example of settings for a 6/7 row combination seed planter:

① - In this example, two 8-way beams are used.
The 7 channels of the first beam for the seed detection cells.
The 7 channels of the second beam for the fertiliser detection cells.

② - In this example, two 8-way beams are used.
The 6 channels of the first beam for the seed detection cells.
The 6 channels of the second beam for the fertiliser detection cells.

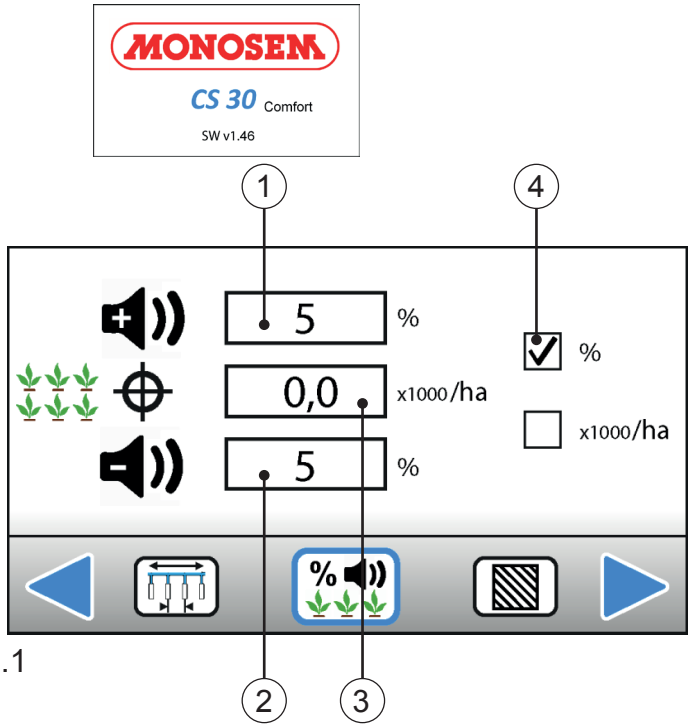


Fig.1

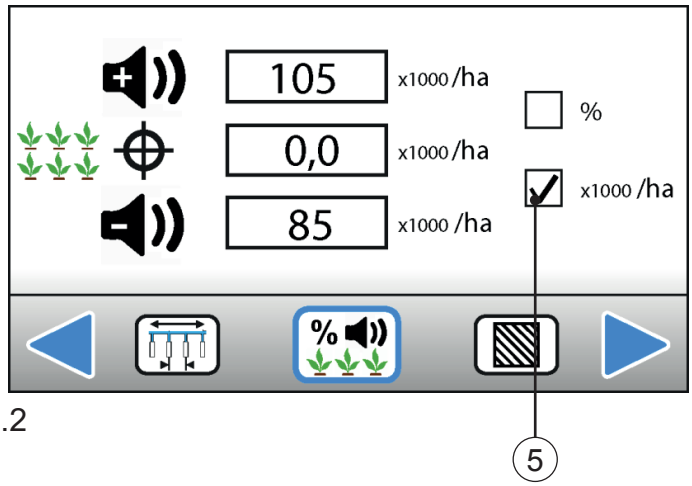


Fig.2

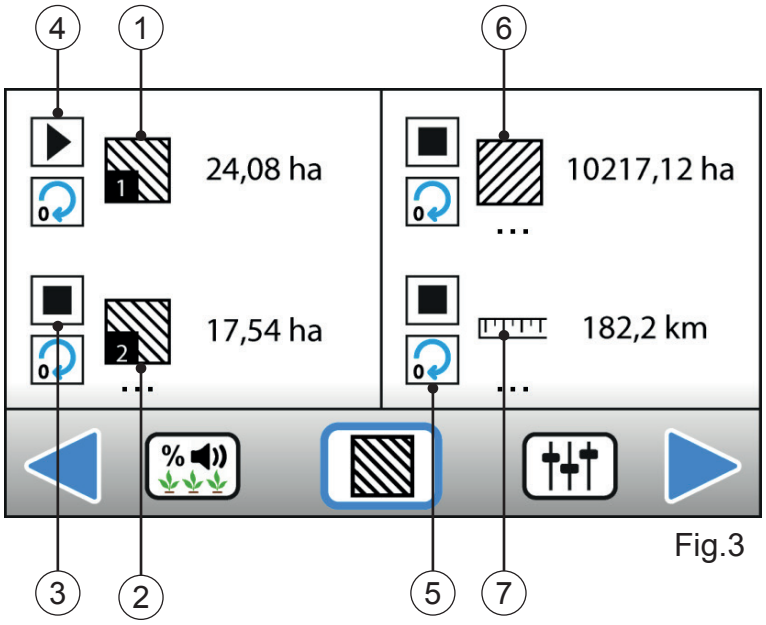


Fig.3

3.4 - ALARM THRESHOLDS ADJUSTMENT (Fig. 1 & 2)

The alarm thresholds allow warning the user in case of over- or under -population on a row. If the target value is 0, the controller uses a reference the average population measured over all rows of the planter.

Description:
① - High alarm threshold.
② - Low alarm threshold.
③ - Target value in thousands of seeds / acre.
④ - Choice of alarm method (%).
⑤ - Choice of alarm method (thousands of seeds/ac).

3.5 - COUNTER MANAGEMENT (Fig. 3)

This menu allows managing 4 counters, 3 of which are acres counters and the last a travelled distance counter. Each counter can be stopped, started and/or reset at all times.

Description:
① - Partial acres counter No. 1.
② - Partial acres counter No.2.
③ - Counter enabled (••• means the counter is turning).
④ - Counter stopped.
⑤ - Counter reset.
⑥ - Total acres counter.
⑦ - Traveled distance counter.

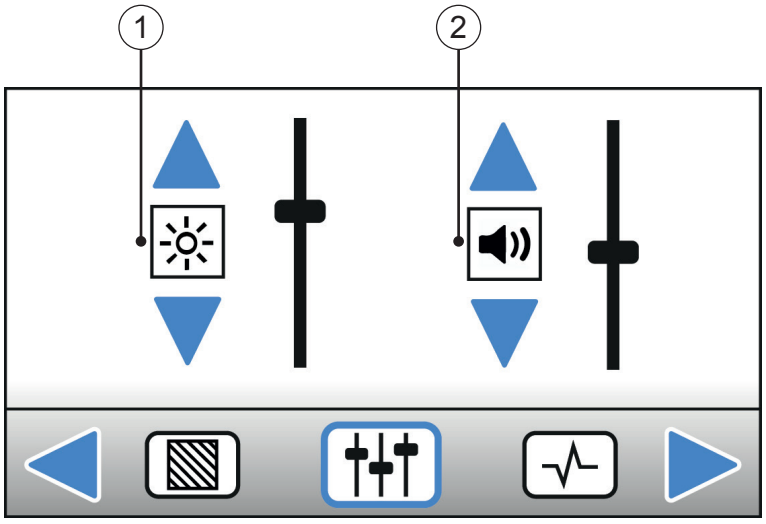


Fig.1

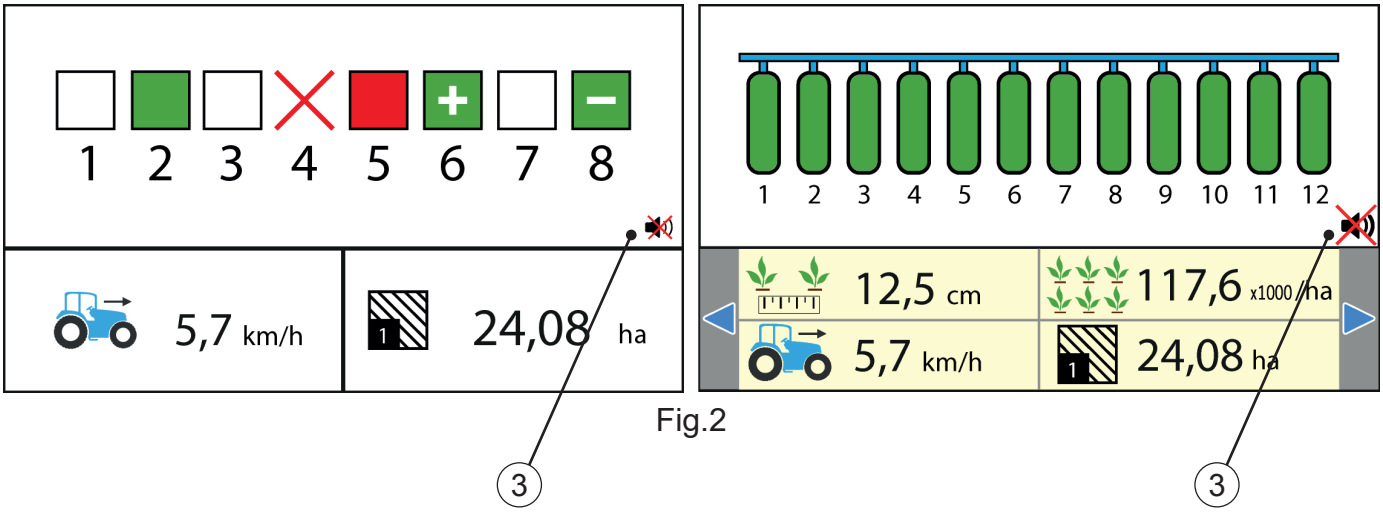


Fig.2

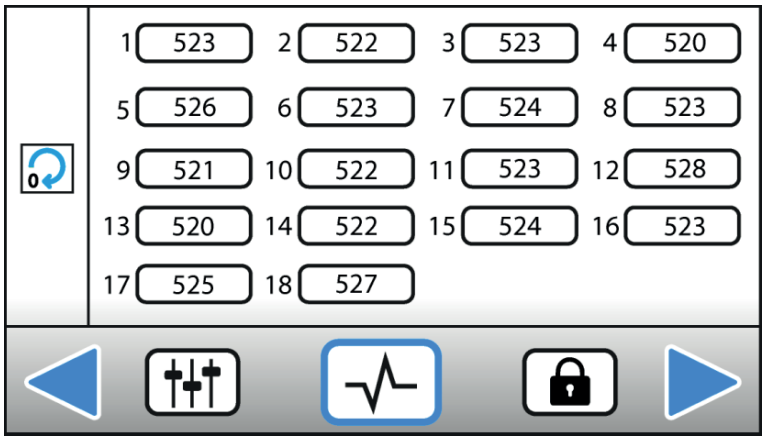


Fig.3

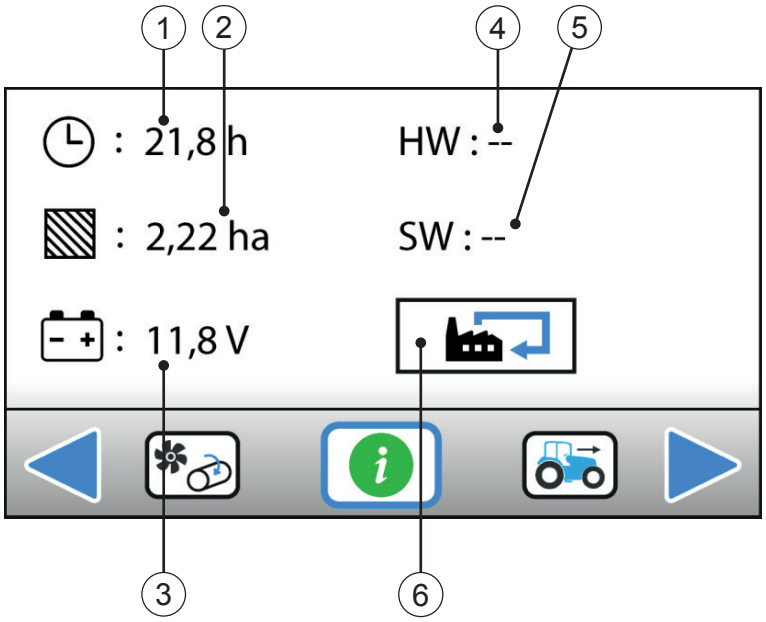
3.6 - BRIGHTNESS / SOUND (Fig. 1 and 2)

Description:
① - Adjustment of screen brightness.
② - Adjustment of the buzzer volume in case of alarm.
③ - Stops the buzzer visible on the working screen.

3.7 - TROUBLESHOOTING (Fig. 3)

This menu allows checking proper operation of the cells in a very simple manner: once in this menu, each cell counts in real time the number of seeds passing the sensor (not in seeds/ac but in seeds). The counters can be reset by pressing the key on the left of the screen.

Reset counters..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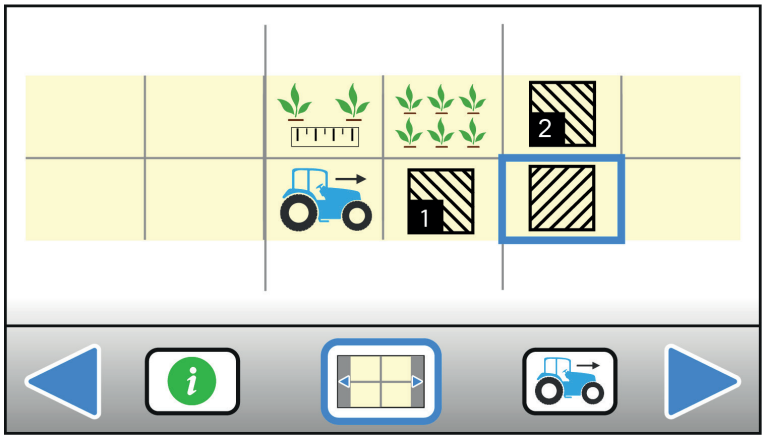
5
: 21,8 h
HW : --
: 2,22 ha
SW : --
: 11,8 V
3
6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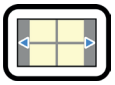
3.9 - INFO / SERVICE

The Info/service menu reflects a system status. It gives general information on the life of the unit, the version of the software and electronics, and current battery voltage (controller power supply voltage).

Description:
① - Total power on time counter of the console (cannot be reset).
② - Total acres worked counter (cannot be reset).
③ - Current battery voltage.
④ - Electronics version.
⑤ - Software version.
⑥ - Restore factory setting.

3.10 - BANNER DISPLAY SETTING



This menu allows to set the display of the information banner at the bottom of the screen.
To make a modification, select the display to be moved (it will disappear), then move the cursor to an empty space and validate.

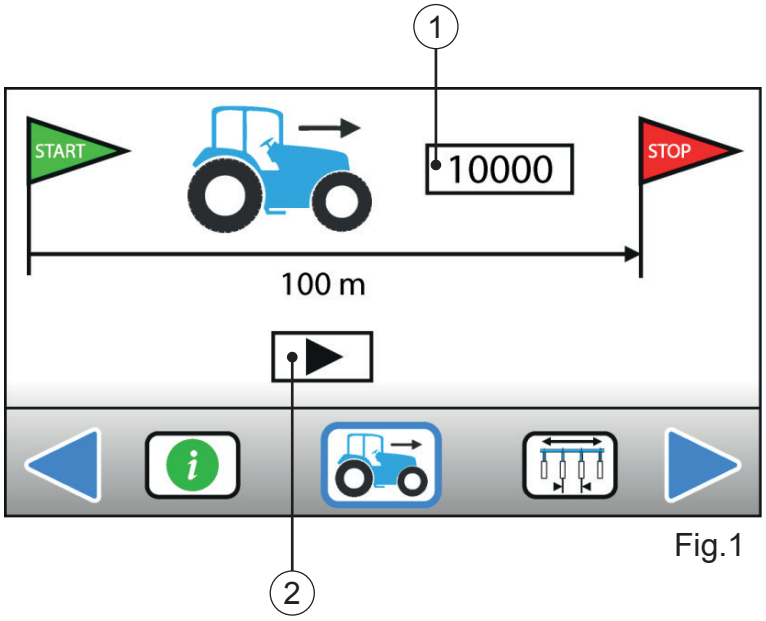


Fig.1

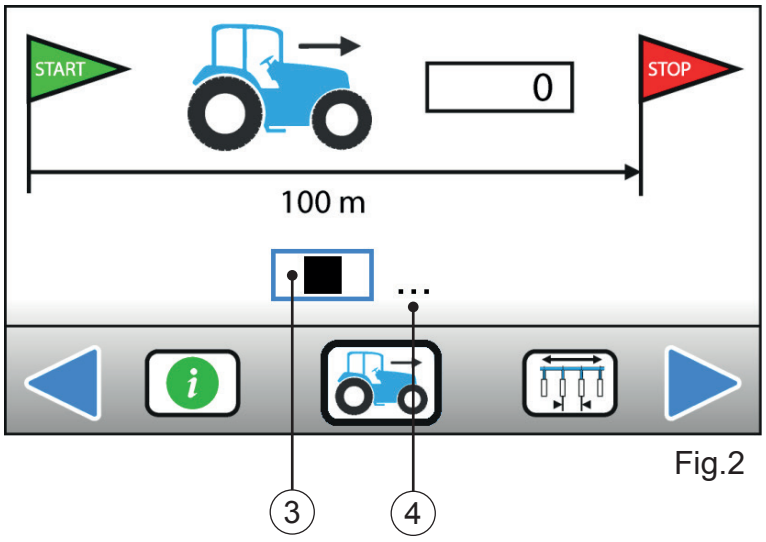


Fig.2

3.11 - FORWARD SENSOR CALIBRATION (Fig. 1 & 2)

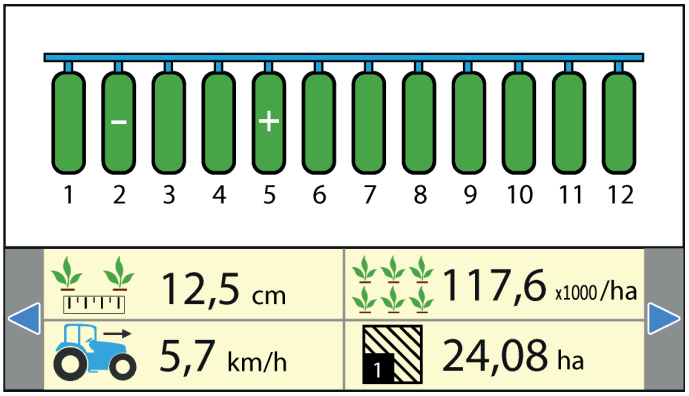
This menu is used to calibrate the forward sensor (or radar) to obtain a travelled distance and forward speed as reliable as possible. To do this, the user must:

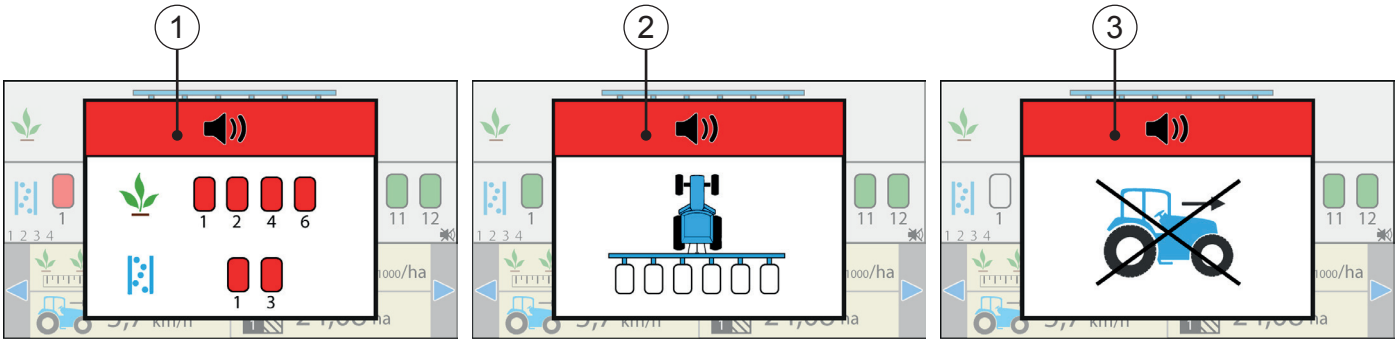
1. Measure a 100m straight distance at a location representative of normal working conditions and place delineators visible to the tractor driver.

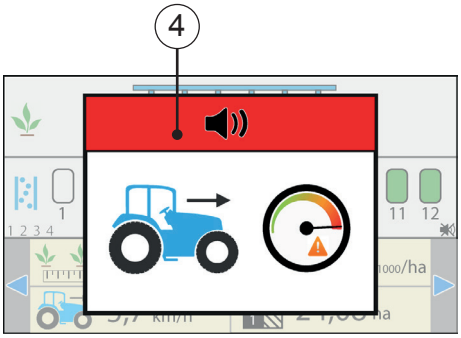
2. Highlight (without validating) the start calibration button ▶.
3. Advance to the first delineator at a speed similar to the working speed.
4. When passing the first delineator, start calibration by validating the start calibration button (the numeric constant must then be set to 0 automatically).
5. Maintain constant speed up to the second delineator.
6. When passing the second delineator, stop calibration by validating the stop calibration button ■ (the numeric constant is then frozen and saved automatically).

Although not recommended by MONOSEM, the user can also enter a forward constant directly. In this case, 9993 can be used as a default value in the case of a radar.

Description:
① - Forward constant (number of pulses of the sensor /radar for 100m).
② - Start calibration button.
③ - Stop calibration button.
④ - Calibration in progress indication.


1 2 3 4 5 6 7 8 9 10 11 12
12,5 cm
117,6 x1000/ha
5,7 km/h
24,08 ha


1
2
3


4

3.12 WARNINGS AND ALARMS
(Comfort and Premium Version)

3.12.1 - "Over-population and under-population" WARNINGS

An over- population or under -population is materialized on the display by the « + » or « - » symbol appearing on the faulty row(s).
A 2-second beep notifies the user on the change of status of one of these rows and draws his attention to the controller screen.
The « + » or « - » symbols remain displayed on the row as long as the population averaged over 5 seconds on the row has not returned to an appropriate value.

3.12.2 - ALARMS

Alarm ①: No seeds on one or several rows
Numbers of the cells concerned displayed and continuous beep

Alarm ②: Planting stopped (Speed = 0 or end of field)
3 short beeps

Alarm ③: Seeds detected and work speed = 0
Continuous beep

Alarm ④: Work speed exceeds the speed programmed by the user in the « Advanced parameters » menu
Continuous beep

allows:
- Acknowledging an alarm message.
- Muting the alarm.

4 . MAINTENANCE AND TROUBLESHOOTING

Your seed monitor console is above all an electronic device, which needs to be treated with care. When planting is completed, it must be stored in a dry place.
If the seed sensors are dirty, they should be cleaned with a soft brush.

Symptoms	Probable cause	Solution
The console does not switch on.	-The fuse on the console supply harness has blown.	-Check the fuse. If blown, replace it by a new 5A (five Ampere) fuse. If it blows again, check that the harness is neither cut nor damaged, otherwise call our after-sales department.
	-Bad battery connection.	-Check that the lugs are clean and crimped properly.
	-Battery voltage too low.	-Check that the battery voltage is at least 10 volts. Otherwise, recharge or replace the battery.
	-Battery polarity reversed.	-Connect the wires to the battery properly.
	-Faulty console.	-Contact our after-sales department.
Lack of seeds alarm on one row.	-The number of rows programmed exceeds the number of rows on the seeder.	-Program a number of rows equal to the number of rows of the seeder on the CS30.
	-The seed hopper is empty.	-Fill the hopper of the seeder element concerned with seeds.
	-The seeder element sensor is dirty.	-Clean the sensor with a flexible brush.
	-Faulty sensor or harness.	-Swap the connection of the faulty sensor with a neighbouring functional sensor and check whether the problem is displaced or not. If the problem has been displaced, the sensor is faulty. Otherwise, check that the harness is not damaged.
No forward speed alarm.	-Faulty speed sensor	- No speed signal arrives at the console although at least one sensor detects grains passing. Check the speed sensor and its wiring
	-Faulty console	- Contact our after-sales department.
Working speed too high alarm.	- A limit speed not to be exceeded has been programmed in the advanced menu (padlock) and the current working speed exceeds this limit speed.	- Contact our after-sales department to modify or remove the limit speed programmed.

CAUTION

Disconnect the console power supply before performing any welding operation on the tractor or the seeder to prevent the system from being damaged.

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