USER MANUAL

Combination seed drill

UTS DRILL control for:

FENIX 3000/3; 3000/4; 3000/6; 4000/6

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Read the User Manual and follow the safety instructions contained in it before operating the machine.

To access the Parts Catalogue and Guarantee Card, scan the QR code on the machine type plate. Remember to register the guarantee or contact your dealer to do so.

VERSION 01/2020

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Read the User Manual carefully, and then familiarise yourself with the construction and operation of the control system and its assemblies. Accurate adherence to the instructions contained in this Manual will ensure long-term, efficient, trouble-free and safe operation. In case of any problems and doubts with the operation and use, please contact an authorized dealer or the manufacturer's Sales Department.

The technical safety requirements are only met if only original spare parts are used in the event of repair.

ATTENTION: The User Manual for the UTS DRILL control is part of the User Manual for Machines from the FENIX Group. Please read both manuals carefully before proceeding to any further work.

I. GENERAL INFORMATION

The UTS DRILL control system is used for manual and automatic control of sowing functions and hydraulic functions of the machine.

1. For your safety

1.1. Operation.

Observe the following guidelines when working:

- Read the user manual for the agricultural machine that you will be operating.
- Before leaving the vehicle cabin, make sure that you turn off all automatic functions or turn on manual mode.
- Keep children away from the computer and the agricultural machine.

1.2. Maintaining in proper condition.

Keep the system in good working order. To do this, follow the instructions below:

- Do not modify the product in an improper way. Unauthorised modifications or use inconsistent with the manufacturer's recommendations may have a negative impact on the operation of the machine, safety and its life. Any modifications that are not described in the technical documentation of the product are not allowed.
- Do not remove any safety mechanisms or markings from the product.
- Before charging the battery, disconnect it from the terminal.
- The product does not contain any parts that can be repaired. Do not open the housing. Opening the housing may affect its tightness.

1.3. Use of the product only in accordance with the intended use.

The product is only suitable for agricultural use during field work. Any other installation or use of the product shall exclude any liability of the manufacturer.

The manufacturer is not responsible for any damage to property or people resulting from non-compliance with the recommendations. All responsibility and risk associated with it rests with the user.

The rules of use consistent with the intended use of the product also include compliance with all the conditions of use described by the manufacturer.

Observe the recognized health and safety rules and other rules of safe work in industry, agriculture and the road code. Any modifications to the machine carried out by the user exclude the liability of the manufacturer.

1.4. Safety stickers on the product.

Sticker on the job computer.

	Do not clean with a pressure washer.

1.5. Disposal.

Please dispose of this product after using it as electronic waste in accordance with the regulations of your country.

2. EU Declaration of Conformity

We hereby declare that the machine marked below meets the basic safety and health requirements of Directive 2014/30/EU in terms of its design and construction as well as the version approved by us. A change to the machine not agreed with us shall invalidate this declaration.

MIDI 3.0 job computer

Applied harmonised standards:	EN ISO 14982:2009 (Electromagnetic Compatibility Directive 2014/30/UE)
Compliance with other EU directives:	Directive 2011/65/EU (RoHS 2)

3. Information on the job computer.

3.1. Job computer functions.

The ECU-MIDI seed drill job computer is an ISOBUS job computer that controls the operation of seed drills and precision seed drills.

The ISOBUS job computer is the control centre of the seed drill or precision seed drill. Several sensors are connected to the job computer, which monitor important machine parts. Based on these signals and on the user's instructions, the job computer controls the machine. An ISOBUS terminal is used for operation. All machine-specific data is saved in the job computer and is therefore also retained when changing the terminal.

The job computer can perform, among other things, the following tasks:

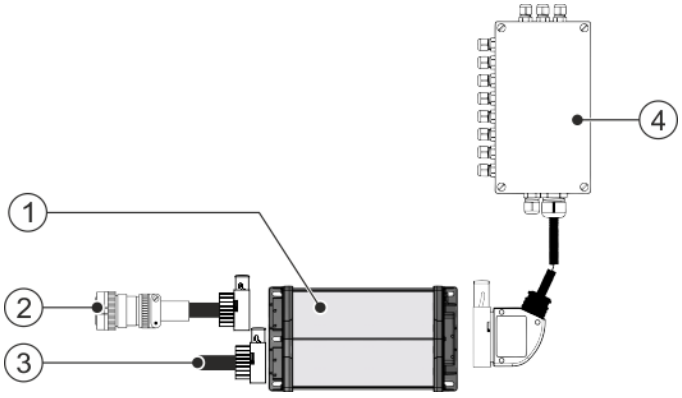
- Monitoring of the metering shaft (sowing unit).

- Track marker control.
- Control of all hydraulic functions (lifting, folding, adjustments, fan).
- Control of process path valves.
- Pre-emergence path control.
- Start the calibration test via the test switch.
- Registering the speed and correct operation of machine elements.
- Blower speed monitoring.
- Monitoring of sowing, and the possibility of changing the dose during operation.

3.2. Control assembly.

The system comprises the following components:

- A job computer that is mounted on the seed drill and controls its operation.

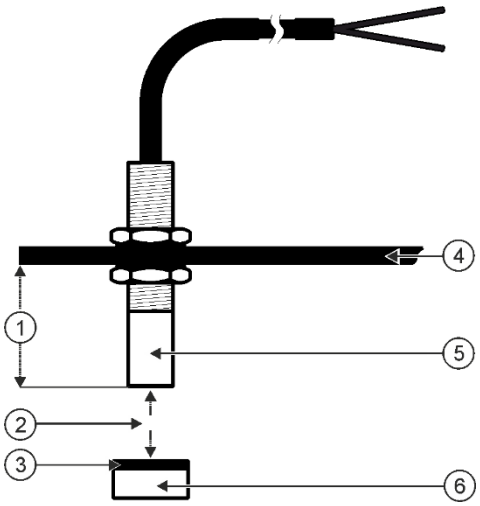


1	ECU-MIDI job computer	4	Signal splitter
2	ISOBUS cable		
3	CAN connection		

- Sensors .

  Position sensors (working position, markers)

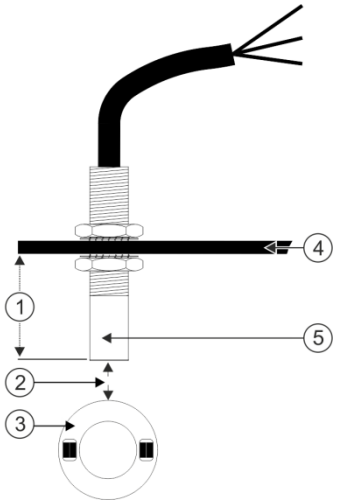
Schematic view



1	Min. 25 mm	4	Mounting angle
2	Distance 5-10 mm	5	Reed sensor (red cap, markers) or inductive sensor (working position).
3	South pole of the magnet (red side for the magnetic sensor)	6	Magnet (marker) or metal element (working position)

Rotation sensors. (Hall generator)

Schematic view

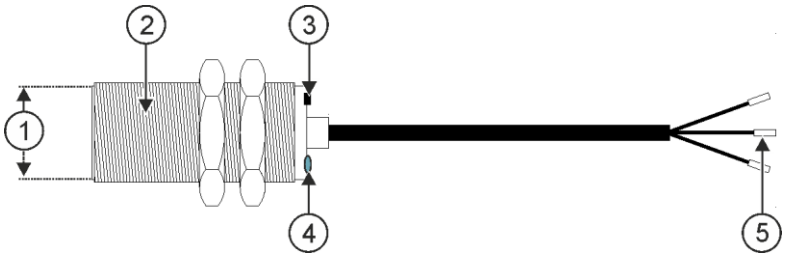


1	Min. 20 mm	4	Mounting angle
2	Distance 5-10 mm	5	Sensor (blue cap)
3	Ring with magnets		

Capacitive sensors.

The signal is sent when the flat top side of the sensor is covered, e.g. by seeds.

Schematic view



1	Flat top side of the sensor	4	LED; indicates if the sensor is connected
2	Capacitive sensor	5	Wire clips
3	Set screw for changing the switching distance		

II. INSTRUCTIONS FOR THE CONTROL OF THE SEEDING FUNCTIONS

1. Connecting the computer.

To connect the job computer to the power supply and to the ISOBUS terminal, you must connect the ISOBUS cable to the ISOBUS connection on the tractor.

1. Take the ISOBUS cable for the job computer.
2. Unscrew the dust cap.

3. Insert the ISOBUS plug into the ISOBUS connection on the tractor.
4. Lock the plug. For Müller-Elektronik basic equipment, in order to do this, turn the plug clockwise. Depending on the design version, you must proceed differently with other ISOBUS basic equipment.
5. Connect the dust cap of the plug and the socket.

6. After work, disconnect the connection and unscrew the dust cap again.

2. Controller operation.

2.1. Switch on the job computer.

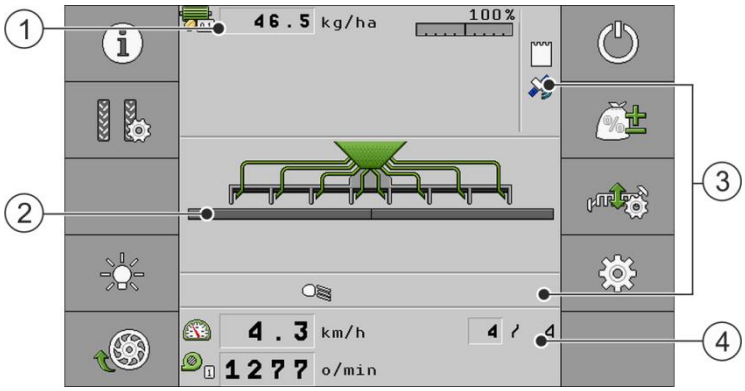
1. Connect the ISOBUS cable for the job computer to the ISOBUS connection of the tractor.
2. Switch on the ISOBUS terminal. As soon as all the job computer's application data has been transferred, the following symbol appears on the terminal  .
3. Open the job computer application. Follow the instructions for the ISOBUS terminal.

2.2. Layout of work screens.

The work screen is the part of the screen where you can check the machine's condition using displayed symbols. Depending on the equipment of the machine, not all symbols are always displayed.

The layout of the operating screen may differ depending on the version of the drill.

If the preset lower or upper limit values are exceeded during operation, the respective status display is highlighted in red on the work screen.

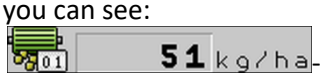


Structure of the seed drill work screen

1	Information on metering drives	3	Active additional functions
2	Information on the rows	4	Information about the condition of the drill

Information on metering drives.

In this area you can see:

- 

- dose applied to each connected metering drive. The number indicates the relevant metering drive. The current value appears here.
- 

- entered percentage change of the desired value.

Information on the rows.

In this area you can see:

- Rows where the seed and fertiliser application is performed.
- Arrangement of process paths 

Information on additional functions.

This area shows when certain functions are active.

-  - the metering grooves are filled with seed.
-  - both track markers are used.
-  - the left track marker is used.
-  - the right track marker is used.
-  - no track markers are used.
-  - the left track marker is used and track marker change mode is active.
-  - the right track marker is used and track marker change mode is active.
-  - obstruction mode is active.

-  - the hopper reports an alarm (grain/fertiliser level).
-  - the machine is in the working position.

Information on additional functions.

In this area you can see:

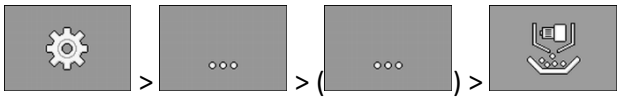
-  - the current speed of the machine.
-  - the current rotational speed of the blower. The number indicates which blower it applies to.
-  - creation of a process path.
-  - deactivation of the control of the process path creation system.
-  - currently performed run.

3. Operation of the machine in the field.

3.1. Hopper discharge.

If there are still residues in the hopper after work, the hopper can be emptied. Make sure that the sowing process is stopped:

1. On the work screen, press:



2. Select the dispenser to be discharged.
3.  - Start discharging.
4. Wait until the hopper is discharged.
5. Complete discharging.

3.2. Carrying out the calibration test.

If you are performing a calibration test, read the user manual for the machine. A calibration test can only be carried out when the machine is ready for operation. Check if:

- The machine and its metering drives have been prepared for the calibration test as described in the machine manufacturer's user manual.
- The hopper is filled with a sufficient amount of seed or fertiliser. Do not completely fill the hopper so that the metering rotor can be easily adjusted, if necessary.
- The machine is stopped.
- If the blower is running, you must stop it.

1. On the work screen, press:

2. Select the product for which you want to perform a calibration test.
3.  – press. The "**Calibration test**" screen appears.
4. Select the dispenser for which the calibration test is to be carried out (if the seed drill does not have the option to spread fertiliser, the selection will not be active).
5. In the input field below the text "**Working speed**" enter the speed at which the sowing run is to be carried out later.
6. Enter the calibration factor, if is known to you. For new products, the optimal calibration factor is calculated automatically. It is then advisable to carry out several tests to obtain an accurate calibration.
7.  - fill the metering grooves with seed or fertiliser. You can also use the calibration button on the machine for this purpose.
8.  - start the calibration test.
9.  - run the calibration test.
10. Wait until the desired amount is applied. The job computer calculates the weight from the available data and shows it in the "**Calculated value**" field.
11. Weigh the seed applied during the calibration test.
12. Enter the weight in the "**Weighted value**" field.
    ⇨The job computer calculates the percentage difference between the calculated and the weighted value.
    ⇨The job computer calculates the minimum and maximum speed at which the sowing rate is possible with the metering rotor used.
    ⇨By pressing the calibration start button again, the weighted value will continue to be counted with the calibration test.
13.  – confirm.
14. To confirm the accuracy of the test, it is recommended to repeat it until the tests are repeatable.

3.3. Filling the metering units.

In order to be able to sow from the beginning and to avoid seedless spots at the beginning of the field, fill the metering grooves on the drill and the metering wheel on the precision seed drill before starting work. Additionally, the pre-dosing function can be used.

1. In the work screen, press:
    >  , As long as the metering grooves or the metering wheel are/is being filled, the work screen shows the symbol: 
2. Do not start a run until the symbol goes off.

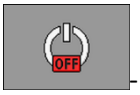
3.4. Initiating sowing.

Make sure that:

- The machine is lowered.
- The metering grooves or metering wheel are/is being filled with seed.
- The blower has reached its minimum rotational speed.

1.  - start sowing.

3.5. Stop sowing.

1.  - finish sowing. The work screen shows the message: “Work interrupted.” All metering drives are stopped.

3.6. Turning the blower on and off.

The blower can be turned on or off during operation. A different function symbol appears on the work screen, depending on the current status.

1.  - turn on the blower or
 - turn off the blower.
Note: The value of the blower revolutions is entered in the product menu.

3.7. Adaptation of the desired value during operation.

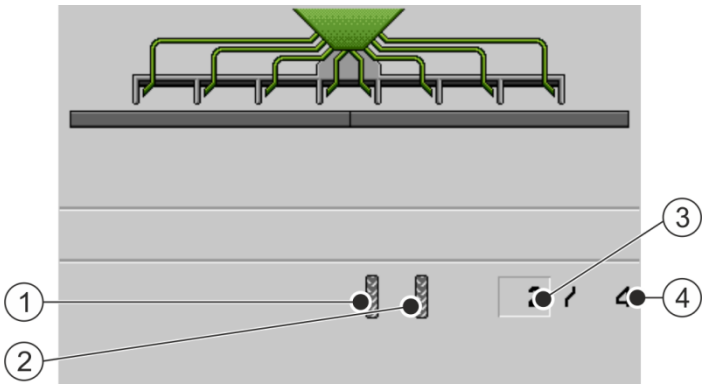
The desired value can be adjusted during operation. If you are working with several products, you can individually adjust the value requested for each product. A number for each product then appears on the screen and next to the function symbols.

Function symbol	Meaning
	Increases the desired value. The desired value is changed by the value defined in the “Control” parameter.
	Decreases the desired value.
	Restoration of the desired value amounting to 100%.

1. On the work screen, press 
2.  ,  or  - change the desired value.
The desired value is visible 

4. Creation of process paths.

The job computer supports the creation of process paths for tyres of other vehicles, for example a sprayer. The creation of a process path is performed by disconnecting the sowing hoses to the seed drill coulters. This creates an area behind the machine in which no seed has been sown. If the control of the process path creation system is active, the number of runs is counted in order to create the process paths for the defined runs.



Areas of the drill work screen that are important for creating process paths.

1	A process path is created on the left side of the machine.	3	Current run number
2	A process path is created on the right side of the machine.	4	Process path rhythm length Number of runs until the process path rhythm is repeated.

Operation elements

Meaning of symbols

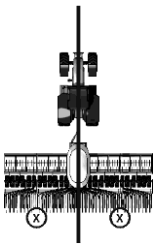
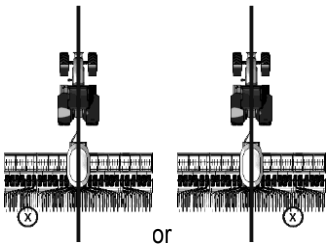
Function symbol	Meaning
	Increases the run number. For example, to be able to continue working on the same run after leaving the field. This function symbol is only displayed when metering is stopped or the operating conditions are met.
	Reduces the run number. For example, if the machine was lifted during one run and the job computer automatically activated the next run. This function symbol is only displayed when metering is stopped or the operating conditions are met.
	Deactivating further engagement of the process path creation system control. If the further engagement of the process path creation system control is deactivated, the runs are no longer counted. In this way, work can be carried out on the headland. It does not matter which process path rhythm has been selected. If the further engagement of the process path creation system control is deactivated, the following symbol appears in the work screen:  If this symbol appears, the track markers are no longer switched on in automatic mode. This function symbol is hidden if the machine does not have a process path system.
	Opens the seed drill process path rhythm selection screen.

Function symbol	Meaning
	Opens a screen for configuring the process path creation system control for a precision seed drill.

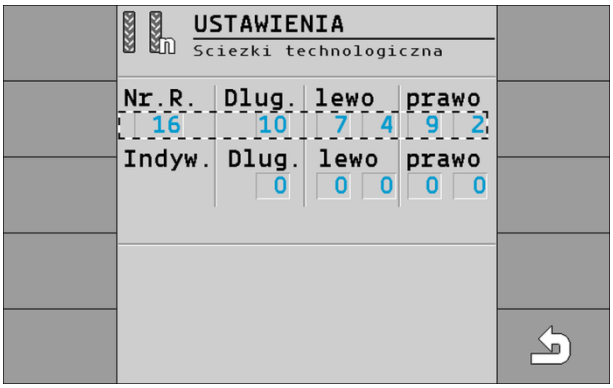
1. On the work screen, press  . You can change the number of run, configure the process path creation system control.

4.1. Identification of the type of machine.

If you are working with a seed drill with the process path creation system control, you need to know where and how many process path mechanisms are located on your machine. The following overview shows how many process path mechanisms can be fitted on your seed drill. Both variants can be supported.

	▪ One process path mechanism on each side of the seed drill.
 or	▪ One process path mechanism on one side of the seed drill.

4.2. Selection of the path rhythm.



The "**Settings / Process paths"** screen on the seed drill

Rhythm number	Path rhythm number
Length	Number of runs until the path rhythm is repeated.
Left, right	Here you can see for which runs the seed hoses are closed "on the left" or "on the right" in order to create a process path. Up to two runs numbers can be entered for each direction.
Individual.	Here you can define the path rhythm yourself.

Choosing the right path rhythm:

1. Decide if you want to start working on the left or right edge of the field.
2. Make the following calculation

   sprayer working width/seed drill working width
   e.g. 12:3=4; 15:3=5 or 20:3=6.67
   The possible results are: even numbers (2; 4; 6; etc.), odd numbers (3; 5; 7; etc.) and decimal numbers (1.5; 4.5; 5.33; etc.)

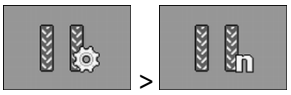
Depending on the result, you must select a different path rhythm. The results are listed in the "Calculation Result" column in the chapters below.

	Our seed drills have two path mechanisms, one on each side of the drill. This solution enables path creation when the calculation result is an integer. We recommend adjusting the width of the sprayer to a multiple of the width of the seed drill.

3. Search in which chapter you can find the appropriate path rhythm.

- Even numbers - Even path rhythms.
- Odd numbers - Odd path rhythms.

4. Select a table with matching rhythm numbers in the chapters listed in step 3. The tables may differ with regard to the seed drill side where process paths are created, the number of seed drill process path mechanisms and the start of work.
5. On the work screen, press:



6. Select the appropriate rhythm number, or enter an individual path rhythm if "999" is specified as the rhythm number in the table.

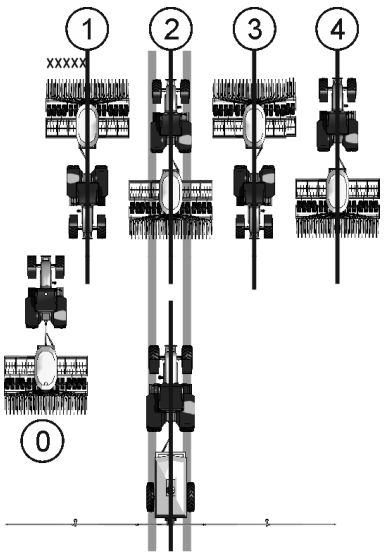
Creation of even path rhythms

Even path rhythms can be set up during one or two runs.

- During one run, if the process paths are created on both sides of the drill.
- During two runs, if the process paths are created on one side of the drill and the process path mechanism is on the other side.

Simultaneous creation of process paths on both sides of the seed drill

Example.

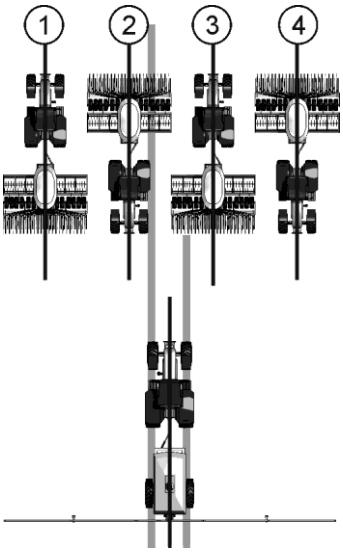


- The illustration shows the path rhythm 4.
- The creation of process paths takes place during run 2. (e.g. sprayer working width = 12 m, seed drill working width = 3 m)
- Run 0 must be carried out separately. In order to avoid overlaps, one apparatus should be left closed (6 m seed drill).
- For run 0, the process path creation system control must be deactivated.

Possible flap position	Calculation result	Rhythm number	Length	left		right	
	2	2 s	2		1		1
	4	4 s	4		2		2
	6	6 s	6		3		3
	8	8 s	8		4		4
	10	10 s	10		5		5
	12	12 s	12		6		6
	14	999	14		7		7

Creation of process paths on one side of the seed drill and with one single path mechanism.

Example.



- The illustration shows an individual path rhythm.
- The creation of process paths takes place during runs 2 and 3. (example: sprayer working width = 12 m, seed drill working width = 3 m)

Start of work at the left edge of the field.

Possible flap position	Calculation result	Rhythm number	Length	left		right	
	2	2L	2			2	1
	4	4L	4	3	2		
	6	6L	6			4	3
	8	8L	8	5	4		
	10	10L	10			6	5
	12	12L	12	7	6		
	14	14L	14			8	7

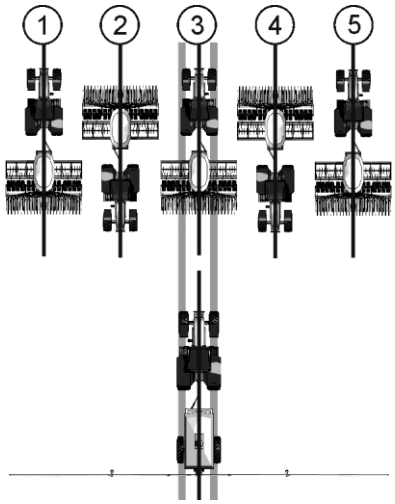
Start of work at the right edge of the field

Possible flap position	Calculation result	Rhythm number	Length	left		right	
	2	2P	2	2	1		
	4	4P	4			3	2
	6	6P	6	4	3		
	8	8P	8			5	4
	10	10P	10	6	5		
	12	12P	12			7	6
	14	14P	14	8	7		

Creation of odd path rhythms.

Odd path rhythms are always created during one run. Odd path rhythms can only be created if process paths are created on both sides of the seed drill.

Example.

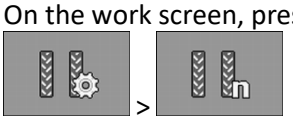


- The illustration shows the path rhythm 5.
- The creation of process paths takes place during run 3. (e.g. sprayer working width = 15 m, seed drill working width = 3 m).

Possible flap position	Calculation result	Rhythm number	Length	left		right	
	3	3	3		2		2
	5	5	5		3		3
	7	7	7		4		4
	9	9	9		5		5
	11	11	11		6		6

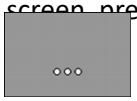
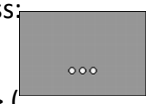
Programming of an individual path rhythm.

If you find that the stored path rhythms do not suit your work method, you can program individual path rhythms.

1. On the work screen, press:
   
2. In the "**Rhythm Number**" field, select the rhythm number "**999**".
3. Configure the "**Length**", "**Left**" and "**Right**" parameters for the individual path rhythm.
4. The entered values remain on the screen, also if you select a different path rhythm. To use an individual path rhythm, always select "**Rhythm number**" "**999**".

5. Configuration of products.

In the product database, you can configure all products for which work is performed.

1. On the work screen, press:  >  > () >  “Product database”
2. Select the product to configure.
3. Configure the parameters.

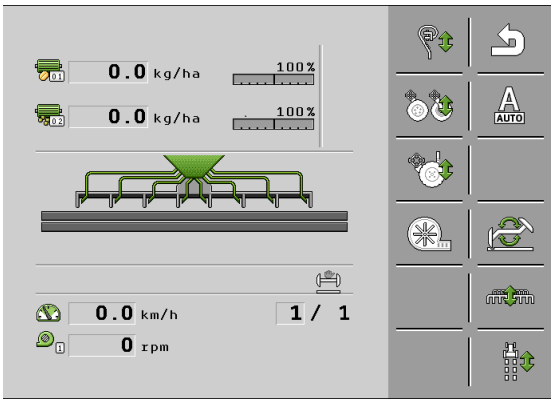
   In the “Product database” menu, you can configure the following parameters:

- Select the desired product. “Product”
- Enter the type of product. Which symbols are displayed on the work screen depends on the selected product type. “Product type”
- Enter by how many percent the desired value should change, if it is manually changed during the application. “Control”.
- Enter the gear ratio between the dispenser and the product. The gear ratio is 1/1. When you reduce the revolutions by removing the gear wheel (red), you change the gear ratio to 1/2. “Gear ratio”.
- Enter the desired value for the blower rotational speed that is necessary to apply the given product. “Blower rotational speed”.

  The rotational speed is only taken into account if a blower has been assigned to the hopper with the product.
- Enter for each product how high and low the tolerance should be for the blower speed at which the product will continue to be applied. If the upper or lower tolerance limits are exceeded, an alarm message appears. “Blower speed tolerance”.
- Select from which point the alarms for the hopper level should be displayed. “Capacity alarm threshold”.

III. INSTRUCTIONS FOR CONTROL OF THE HYDRAULIC FUNCTIONS

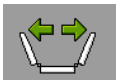
1. Manual hydraulic control mode (Manual)

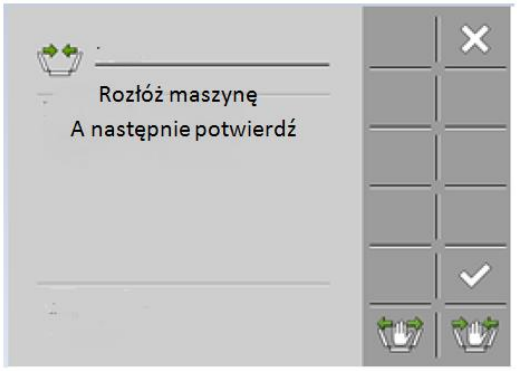


Work screen layout with hydraulic functions

	The functions displayed on the work screen may vary depending on the version, settings or equipment of the unit.
	All functions in manual mode only work while the button is pressed. Releasing the button causes immediate interruption of work.

Explanation of the hydraulic functions:

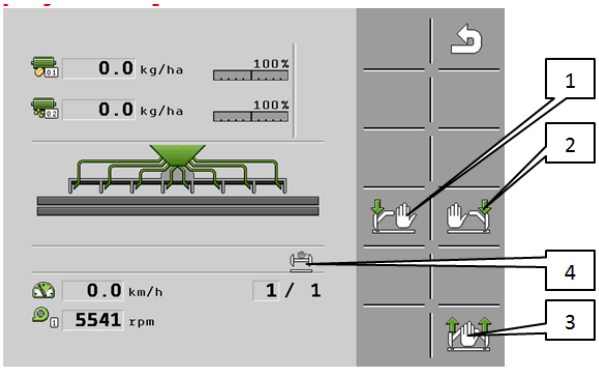
-  or  - Used to unfold and fold the arms of the machine for transport. On a 3 m machine, the function is not active. The function only works when the machine is lifted.
  After calling the folding/unfolding function, the following screen appears



Layout of the "Folding/unfolding" work screen.

After unfolding the machine, it is necessary to confirm the unfolding with the button  . If not confirmed, all machine functions (except lifting) will remain inactive.

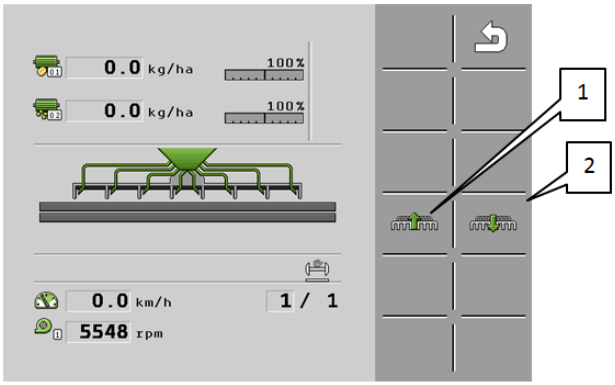
-  is used to call the folding and unfolding function of the track markers. After pressing the key, the following screen appears:



Layout of the "Marker folding/unfolding" work screen.

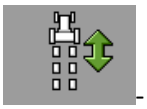
1. Lower the left marker.
2. Lower the right marker.
3. Lift the currently lowered marker.
4. Symbol showing the current state of the marker during machine operation.

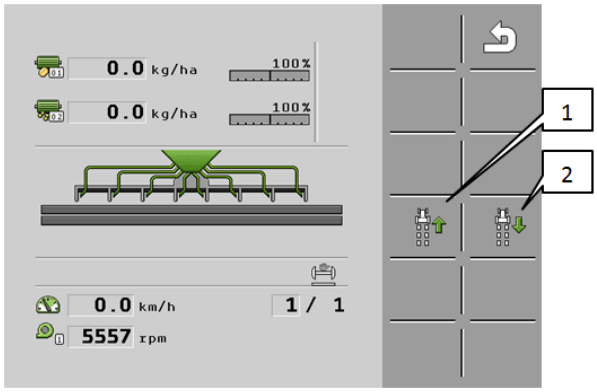
-  - Machine lift/lower function. When the function is called, the following screen appears:



Layout of the work screen “Lifting/lowering the machine”.

1. Lifting the machine to the transport position.
2. Lowering the machine for work or standstill.

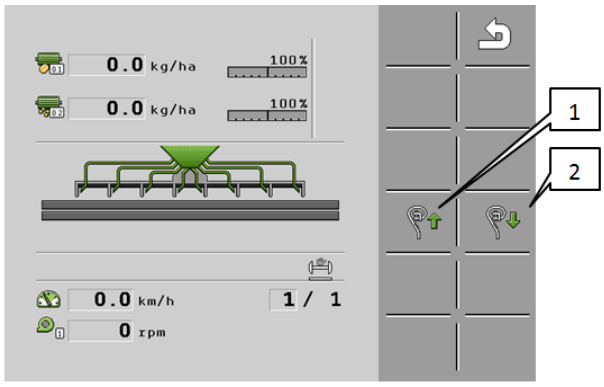
-  - The function of lifting/lowering pre-emergence markers. When the function is called, the following screen appears:



Layout of the work screen “Lifting/lowering pre-emergence markers”.

1. Lifting pre-emergence markers (the track is not set out).
2. Lowering pre-emergence markers (the track is being set out).

-  - The function of lifting/lowering the front-mounted drag. If the machine is not equipped with a drag, the function is not displayed. When the function is called, the following screen appears:

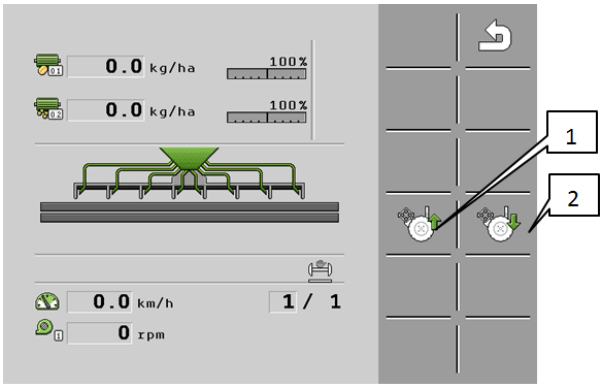


Layout of the work screen “Lifting/lowering the front-mounted drag”.

1. Lifting the front-mounted drag.

2. Lowering the front-mounted drag

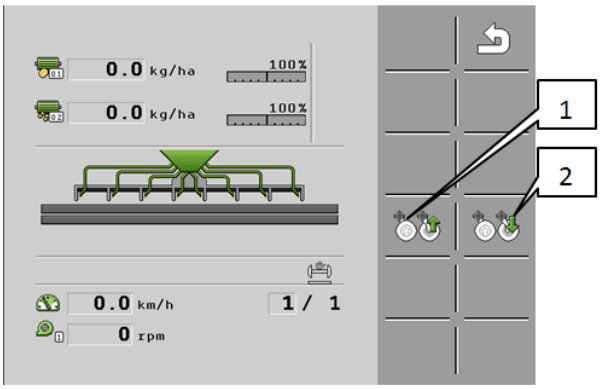
-  - The function of lifting/lowering the fertiliser spreading beam. If the machine is not equipped with a fertiliser beam, the function is not displayed. When the function is called, the following screen appears:



Layout of the work screen “Lifting/lowering the fertiliser beam”.

3. Lifting the fertiliser beam.
4. Lowering the fertiliser beam.

-  - The function of lifting/lowering the cultivation section. When the function is called, the following screen appears:



Layout of the work screen “Lifting/lowering the cultivation section”.

5. Lifting the cultivation section.
6. Lowering the cultivation section.

-  - The function is used to turn on/off the blower. After starting, the following options appear:

1.  - Turn on the blower.
2.  - Turn off the blower.

	Remember that the fan will not start if the value of the blower revolutions and the operating ranges have not been set in the “PRODUCT DATABASE” menu.

2. Automatic hydraulic control mode “Auto”

- The Auto button is used to switch the control over to automatic operation mode. This mode only works when the machine is unfolded and ready for operation.

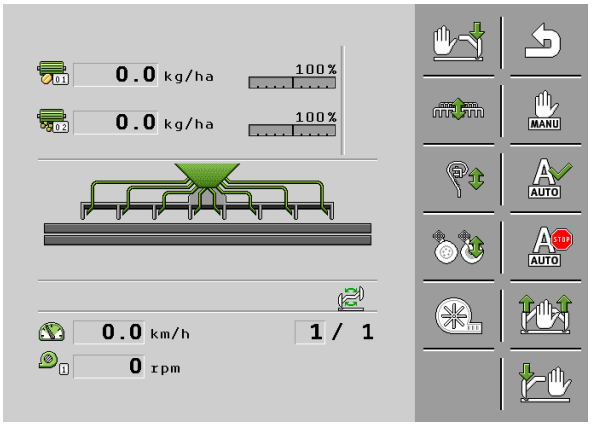
“Automatic mode” must be activated by the user each time the machine is started.
It stops automatically if the application is stopped or disabled by the user.

In order to start the Automatic functions, the user has to press the key 

in manual mode. Then the screen is displayed on which the user must confirm with the button  , whether automatic mode should be started and the machine is ready to start the run (work).

Layout of the work screen - confirmation of readiness to work
Before starting “Auto” mode.

After confirmation, the display screen switches to automatic operation.



Layout of the work screen - automatic mode.

- 

- Starting the automatic function at the beginning of the run.
- 

- Disabling the automatic function at the end of the field
-  - The automatic function lifts both markers and switches obstacle mode.

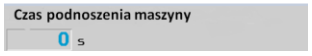
-  - Automatic function selection and the lower left track marker. It unfolds the marker and ends obstacle avoidance mode.
-  - Automatic function selection and the lower right track marker. It unfolds the right marker and ends obstacle avoidance mode.
-  "Lift" manual mode allows the machine to be lifted/lowered without interrupting the automatic function.
-  -Manual mode on the front-mounted drag allows the front-mounted drag to be lifted and lowered to the initial setting without interrupting the automatic function.
-  - Manual cultivation mode allows you to reduce the working depth and return to the initial settings of the cultivation section.
-  The button switches to the fan control.

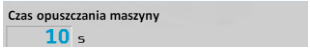
2.1. Time settings.

For the correct operation of the automatic functions, it is necessary to set the operation times for individual functions, as the machine works with various tractors with different hydraulic pump capacities. Thanks to the precise timing, work is more efficient.

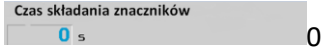
These settings are usually made once when starting the machine with a specific tractor.

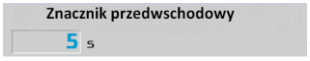
The following needs to be set up:

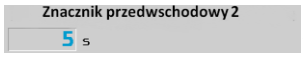
- Machine lifting time. 

How long the machine should be lifted before it starts folding the marker. Setting 0- to the sensor. Setting 1-20 s, you do not use the sensor and the machine rises for the indicated time in the range of 1-20 s, before closing the marker.
- Machine lowering time. 

1-20 s. How long the machine is lowered before it starts to unfold the marker.
- Markers unfolding time. 

1-20 s. How long the marker unfolding function lasts.
- Markers folding time. 

0 seconds - The marker folds until the signal from the marker sensor. 1-20 s the sensor is not taken into account and the marker folds for the set time in the range of 1-20 s.
- Pre-emergence marker lowering time. 

1-5 s How long the paths are lifted
- Pre-emergence marker lifting time. 

1-5 s How long the pre-emergence paths are lowered.

	If the hydraulically controlled element has a sensor in the extreme position (folded marker, lifted machine), the sensor works only when time 0 is entered. When you enter the time of folding the marker or lifting the machine >0, the signals from the sensors are ignored.

2.2. Workflow in automatic mode.

1. Place the machine unfolded and set for work at the beginning of the field.
2. Press the automatic mode button  . The message “Is the machine ready for operation?” Is displayed. YES or NO options.  - enter automatic mode  -Back.
3. Use the button  or  to choose which marker should unfold first. Left or right. On the main screen, you can see what choice you have made  -right,  -left
4. Press the button  once. While the auto sequence is in progress, the red pause symbol  is displayed.
5. The machine is lowered for the set time “lowering time”, and then the indicated marker is unfolded during the “marker unfolding time”, and the blower starts (if it has not been started yet). The blower turns on permanently for the duration of work, until the work is finished or until it is turned off in “manual” mode.
6. Start the run.
7. After reaching the end of the field, press the button  once.
8. The machine is lifted until it receives a signal from the lift sensor or for the set “lifting time”. After the lifting operation is completed, the markers automatically fold until receiving a signal from the marker sensor or a set “marker folding time”. The completion of folding requires a signal from both marker sensors or the end of the preset time.
9. If a process path will be made during the next run, the pre-emergence marker is automatically lowered after folding the marker for the “track lowering time”.
   The process paths' solenoid valves are also closed.
10. Go back and press the button  once. The machine is lowered by the indicated “lowering time” and unfolds the opposite marker in the “marker unfolding time”.
11. After completing the run, press the button  once. The machine is lifted to the signal from the lifting sensor, the marker folds, and the pre-emergence paths (if any were made during this run) are lifted. The process paths' solenoid valves are opened.

If an element does not reach the sensor position for 20 s, each function in automatic mode is automatically interrupted and a message is displayed. If the marker has not folded, it is “Marker folding error”, if the machine has not been lifted, “Lifting error” appears and automatic mode is interrupted. The confirmation of the message causes the exit from automatic mode. You should then check what is the reason for the failure to perform the function, set the machine in manual mode and restart automatic operation.

2.3. Avoiding obstacles.

If during automatic operation it is necessary to fold a marker (avoid an obstacle: a tree, pole, fence, etc., you can use the automatic obstacle avoidance function.

Example 1:

1. You drive the seed drill with the right marker unfolded.

2. After reaching the obstacle, press the button  once.

3. The marker folds over the set time or to the sensor. The screen displays the symbol  that indicates that obstacle avoidance mode is activated.

4. After passing the obstacle, press the select button  - the right marker is lowered and avoidance mode is turned off.

Example 2:

1. You are working using the right marker, and you want to change the marker to the left one (e.g. a mistake when unfolding).
2. Press the left marker symbol  once.
3. The right marker folds to the sensor or for the set time.
4. After folding the right marker, the left marker automatically unfolds.

IV. FINAL INFORMATION

1. Disassembly and decommissioning.

The user of the machine, in accordance with the provisions on environmental protection, is obliged to conduct proper waste management agreed with the relevant local self-government authorities.

As part of these activities, at the time of replacement and scrapping of parts and assemblies or liquidation of the entire device, the user should:

- preserve parts that are still suitable for further use and store them in the warehouse,
- hand over the scrap metal parts to the scrap collection point,
- transfer components made of cardboard, paper, plastics, rubber, etc. to points dealing with the purchase of recyclable materials,

2. Manufacturer's Liability.

The manufacturer shall not be liable, if the machine is operated contrary to the law, safety regulations or recommendations of this manual. Because, during the operation of the machine, situations not provided for in this manual may occur, the user should always follow the general safety rules.

The manufacturer's liability shall be excluded in the event of arbitrary use on the machine spare parts or parts other than genuine or approved by the manufacturer.

The manufacturer shall not be liable for indirect damages, including damage to other machines or devices.

The manufacturer shall not be responsible for the wrong selection of seeds, their type or quantity. If your own experience in this area proves to be insufficient, you should ask a specialist for help.

The manufacturer's liability shall not cover improper (or departing from expected) work results. In any case, the user must control and supervise the cultivation and sowing to ensure that the sown dose is correct under all operating conditions. The user should also constantly check the correctness of sowing.

The owner is responsible for the operation and maintenance of the machine.

The owner of the machine is responsible for the appropriate qualifications of the operators and their knowledge of the operation and maintenance of the machine.

It should be remembered that improper operation of the machine poses a risk to people, animals, water reservoirs and arable fields. Always follow the instructions of manufacturers of machines and devices, seeds as well as plant protection products and fertilisers, contained in specialist instructions.

DESIGN SOLUTIONS OTHER THAN SHOWN HERE AND THAT DO NOT REQUIRE CHANGE OF THE MANUAL ARE ALSO ALLOWED.

3. **Warranty Terms and Conditions.**

The warranty covers defects and damages resulting from the fault of the manufacturer due to material defects, production defects.

NOTE

The manufacturer / vendor / shall not accept the warranty claim if:

1. **THE CONTENT OF THIS MANUAL IS NOT FOLLOWED,**
2. **ANY TECHNICAL MODIFICATIONS AND REPAIRS HAVE BEEN MADE WITHOUT THE CONSENT OF THE MANUFACTURER**
3. **THE MACHINE OR ITS ACCESSORIES HAVE BEEN IMPROPERLY STORED, MAINTAINED AND USED**
4. **THE WARRANTY CARD IS NOT FILLED BY THE VENDOR OR IT IS INCOMPLETE**

Rubber and plastic components are only covered by the warranty in the case of obvious material defects.

COMMENTS / NOTES

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