

AM PLUS System



AM PLUS controller
in software version 1.1

Instruction manual

Last update 02.01.2020

WARNING!!!

Turning on the controller to the power supply only after connecting the control panel correctly.
Connecting or disconnecting the control panel with the power connected may lead to permanent damage to the controller and void the warranty.

Description and purpose of the controller.

The AM - PLUS controller is an automatic tramline controller, for seed drills using electrically controlled mechanisms for creating tramlines, also pre-emergence. The tramlines are made for future work with a sprayer or fertiliser spreader. The calculation of the passages is carried out automatically using a sensor.

The tramline mode is selectable from a number of available combinations, allowing the seed drill to be adapted to typical field sprayer widths.

The clear, large display with automatic brightness control and the backlighted keypad make it possible to work comfortably in all lighting conditions.

Information and operating instructions.

1. Use the original wiring provided by the manufacturer.
2. It is forbidden to connect the controller to a faulty electrical installation. A faulty installation is understood as an installation containing a damaged battery, causing overvoltage, voltage drops or fades.

WARNING!!!

Connecting the controller to a power source other than the electrical installation containing the battery may cause permanent damage to the controller and loss of warranty!!!

3. The controller is designed to work inside the tractor cab and it's not sealed. It is forbidden to pour it with water and any other liquids. In particular, the use of organic solvents may lead to destruction of the controller housing or keyboard.
4. The controller can be kept clean by wiping it with a damp, soft cloth. It is forbidden to use products containing any corrosive substances. Dirty housing may reduce the brightness of the display.
5. The cleanliness of sockets and plugs must be taken care of, especially it is forbidden to connect sockets and plugs previously soiled. Insufficient electrical contact may cause incorrect operation.

6. The cables should be routed in such a way that the insulation cannot be cut, frayed or crushed and shorted to the weight of the machine or tractor.
7. Any damaged cable must be replaced immediately.
8. The use of any other plugs and sockets wiring than that from the factory is not allowed.
9. Do not touch the control panel with sharp or angular objects that could damage the keyboard coating.
10. The controller has no internal fuse. The controller's power supply system should be protected with a 16A fuse.
11. The manufacturer reserves the right to carry out design and software changes.



Switching the controller on and off:

Blinking red LED indicates that the controller is ready for activation.

To turn the controller **ON**, press and hold the power key (**PAUSE**) for about 3 seconds. During operation of the device the signalling diode lights up green.

Press and hold the power key (**PAUSE**) for about 3 seconds to turn the controller **OFF**.

When started, the controller automatically switches to the pathway work screen.

The counting cycle is set automatically by the controller as the working width of the seed drill and the field sprayer changes.

The following control adjustments are possible during nominal machine operation:

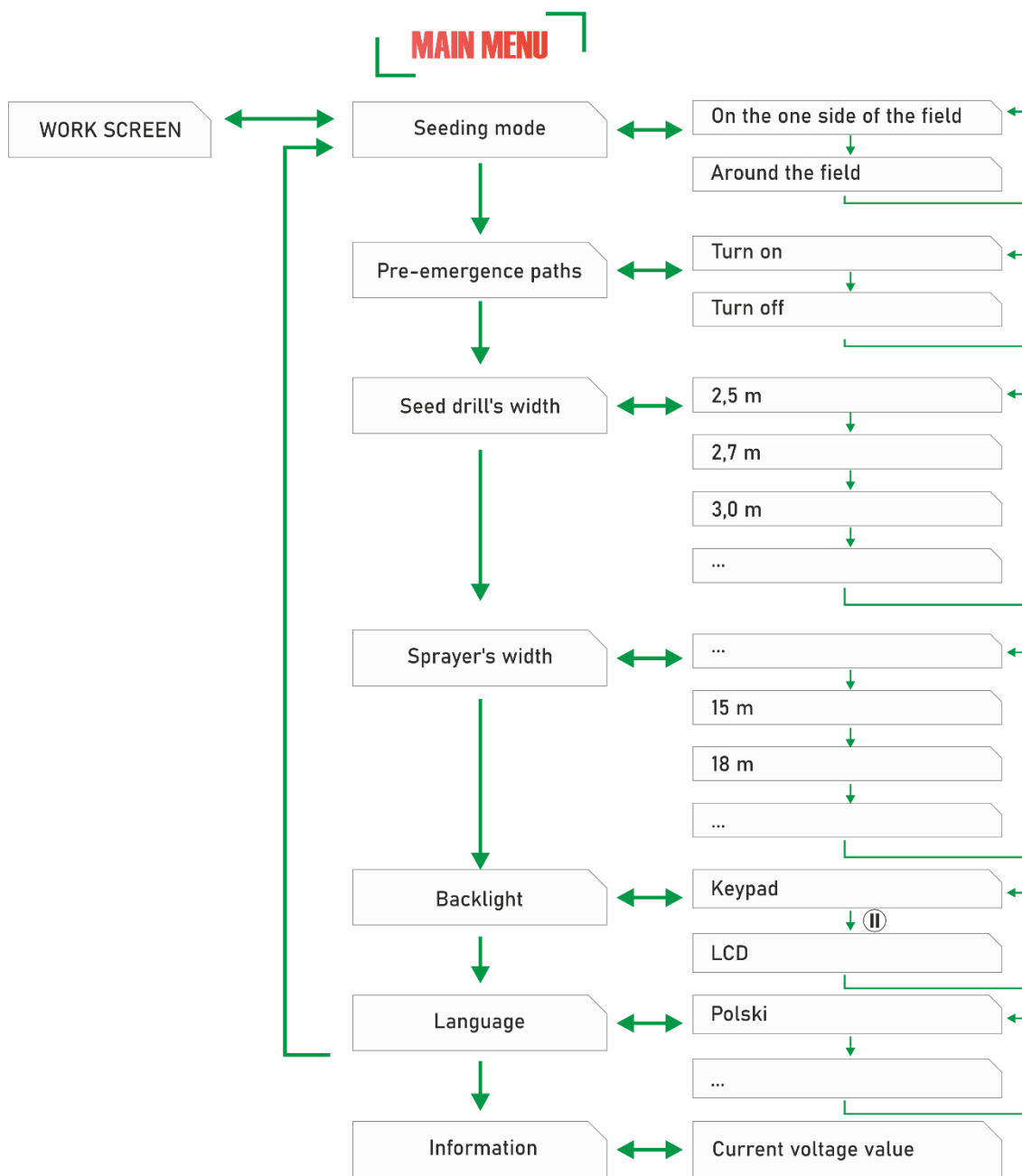
- Pressing the **PAUSE** key allows you to block unwanted passage counting when manually lifting the machine, for example when bypassing an obstacle.

This mode of operation is indicated by the blinking of the control LED in red at intervals of several seconds and the display of the word "*Pause*" on the main screen.

- Manual correction of the passage number, visible on the tramline work screen, by pressing the + key.

The presented below main menu diagram leads to selected control and measurement functions of the controller.

Diagram of the controller's main menu:



To enter the desired operating parameters, enter the controller's **MAIN MENU** where a list of options is available.

Enter the Main Menu by pressing the **MENU/OK** key.

In the **main menu** there is a list of six options to choose from:

1. *Seeding mode.*
2. *Pre-emergence paths.*
3. *The seeder's width.*
4. *The sprayer's width.*
5. *Backlighting.*
6. *Information.*

You can view the list of options in the **main menu** using the + button.

To edit the selected parameter, press the **MENU/OK** key.

The parameter is edited by using the + key.

In case of a parameter where you can edit several subitems, for example *Backlighting*, use the **PAUSE** key to move to the next subitems.

Use the **ESC** key to approve your changes. At the same time you will return to the menu one level up (to the **main menu** list).

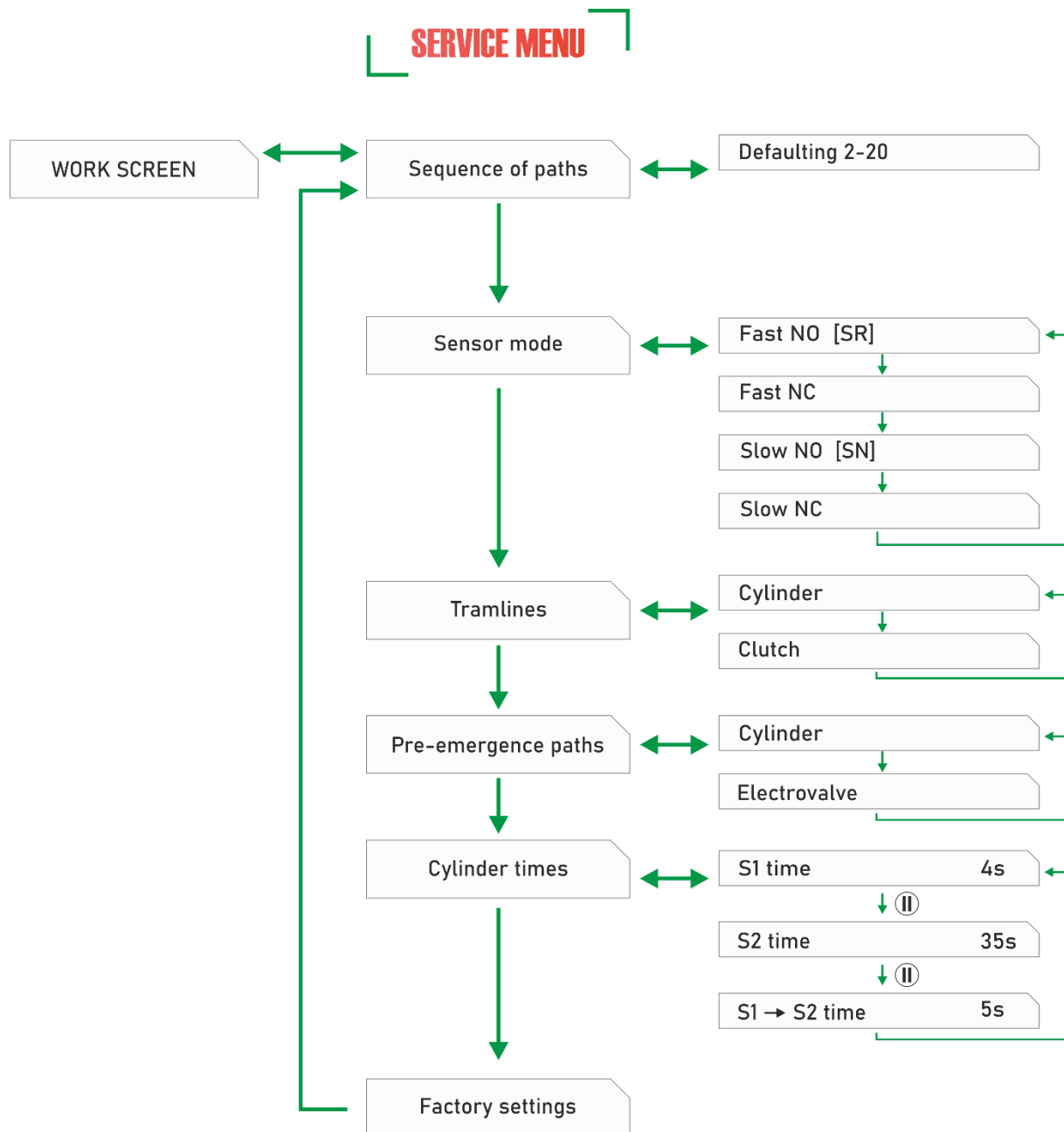
To return to the work screen, press **ESC** again.

In the *Information* field you will find basic information about the controller, hardware and software version and the current power supply voltage value at that time.

All changes to the parameter settings are saved in the internal memory of the controller and will be applied even after the device is switched off and restarted.

In addition to the **main menu**, the controller has a **service menu**, which is intended for the user to set operating parameters for the machine's mechanical systems.

Diagram of the controller's service menu:



To access the **service menu**, press and hold the **MENU** and **+** keys simultaneously for approx. 3 seconds.

The **service menu** main screen appears. There are 6 options to choose from:

1. *Pathways sequence.*
2. *Sensor operating mode.*

3. *Technological Paths.*
4. *Pre-emergence paths.*
5. *The cylinders times.*
6. *Factory settings.*

The list of options in the **service menu** can be viewed by pressing the + key.

To edit selected parameter, press the **MENU/OK** key.

The parameter is edited by pressing the + key.

In case of a parameter where you can edit several subitems, for example *Cylinders Times*, use the **PAUSE** key to move to the next subitems.

Use the **ESC** key to approve your changes. At the same time you will return to the menu one level up (to the **service menu** list).

To return to the work screen, press **ESC** again.

Technical data of AM - PLUS controller:

PARAMETR	VALUE	UNIT
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Display's length	140	mm
Display's width	77	mm
Display's thickness	36	mm
Minimal supply voltage	10	V =
The highest permitted supply voltage	16	V =
Controller's current consumption (Display's) While working	75	mA =
Pobór Prądu Sterownika (Pulpitu) In stand-by mode	28	mA =
Load capacity of technological paths cylinder exit	4	A =
Load capacity of pre-emergence paths cylinder exit	7	A =
Maximal total load capacity of exits	11	A =

Table of widths of seed drills and sprayers/spreaders:

Seeder's width	Field sprayer's width	Sowing path no. on the one side of the field /nr of the initial passage	Sowing path no. on both sides of the field/initial passage no.	We start with half the sowing
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2,5 m	10 m	4 / 2	7 i 8 / 3	YES
	12,5 m	5 / 3	9 i 10 / 5	NO
	15 m	6 / 3	11 i 12 / 5	YES
	20 m	8 / 4	15 i 16 / 7	YES
	30 m	12 / 6	23 i 24 / 11	YES
2,7 m	13,5 m	5 / 2	9 i 10 / 3	YES
	27 m	10 / 5	19 i 20 / 9	YES
3,0 m	6 m	2 / 1	3 i 4 / 1	YES
	9 m	3 / 2	5 i 6 / 3	NO
	12 m	4 / 2	7 i 8 / 3	YES
	15 m	5 / 3	9 i 10 / 5	NO
	18 m	6 / 3	11 i 12 / 5	YES
	21 m	7 / 4	13 i 14 / 7	NO
	24 m	8 / 4	15 i 16 / 7	YES
	27 m	9 / 5	17 i 18 / 9	NO
	30 m	10 / 5	19 i 20 / 9	YES
	33 m	11 / 6	21 i 22 / 11	NO
	36 m	12 / 6	23 i 24 / 11	YES
	39 m	13 / 7	25 i 26 / 13	NO
42 m	14 / 7	27 i 28 / 13	YES	
3,5 m	7 m	2 / 1	3 i 4 / 1	YES
	14 m	4 / 2	7 i 8 / 3	YES
	21 m	6 / 3	11 i 12 / 5	YES
	28 m	8 / 4	15 i 16 / 7	YES
	42 m	12 / 6	23 i 24 / 11	YES
4,0 m	12 m	3 / 2	5 i 6 / 3	NO
	16 m	4 / 2	7 i 8 / 3	YES
	20 m	5 / 3	9 i 10 / 5	NO
	24 m	6 / 3	11 i 12 / 5	YES
	28 m	7 / 4	13 i 14 / 7	NO
	32 m	8 / 4	15 i 16 / 7	YES
	36 m	9 / 5	17 i 18 / 9	NO