

DROID.FARM

Precision Agriculture

AgroPilot SC10 — universal programming regulator for process control, appointments for automatic control by sections of supply of reeds and the norm of their volute, zgidno with otrimanimi commands via Bluetooth or TTL/RS-232 interface. The AgroPilot SC10 regulator is selected individually according to the required technical characteristics by the buyer's statements, the application form on the site <https://Droid.Farm>.

Danish document of assignments for coristuvachiv regulators to the flow ridini, vengeance of the connection scheme, the external appearance of the regulator AgroPilot SC10 is pointed at the little 1.





Pic. 1. Appearance of AgroPilot SC10 (not on a 1:1 scale)

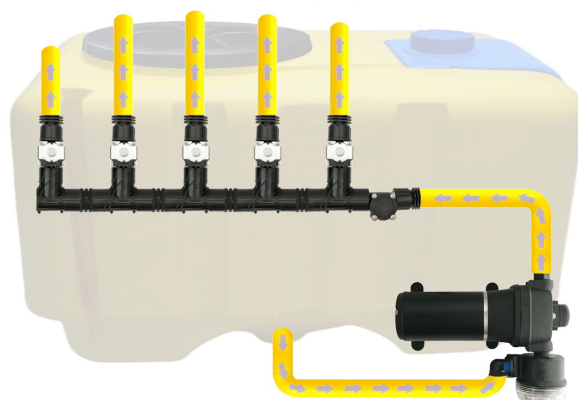
- 1 — Power button with indicator**, after installing the system, turn on the device, the LED indicator will be activated if the flow meter detects any movement of liquid.
- 2 — "POWER" LED indicator**, activated if the device is powered and the power button is on. **"CONNECT" LED indicator**, informs about the connection status of AgroPilot SC10 via Bluetooth with another device.
- 3 — Connector 4 Pin Jack 3.5mm** for NMEA data from external receivers.
- 4 — Automation control cable**, marked contacts of sections, dispenser tap and main valve.
- 5 — PWM** output for connecting the electric pump driver.
- 6 — Connector G16 MIC 336 M** to connect the flow meter.
- 7 — Buzzer**, sound messages to inform the operator about abnormal deviations in the flow rate. If the flow is below normal (the system cannot physically increase it), the SC10 generates several sound pulses in 1 second. While driving, such a sound means that the speed should be reduced. If the SC10 generates only one sound pulse in 1 second, the system pours more liquid than normal (the dispenser faucet is faulty or its power circuit is broken).
- 8 — LED indicators of sections**, if the section is on, the LED is on.

AgroPilot SC10 — universal regulators with automatic control of liquid injection sections, include two dosing technologies:

Regulation by "dispensing tap" in systems with mechanical piston-diaphragm pumps.



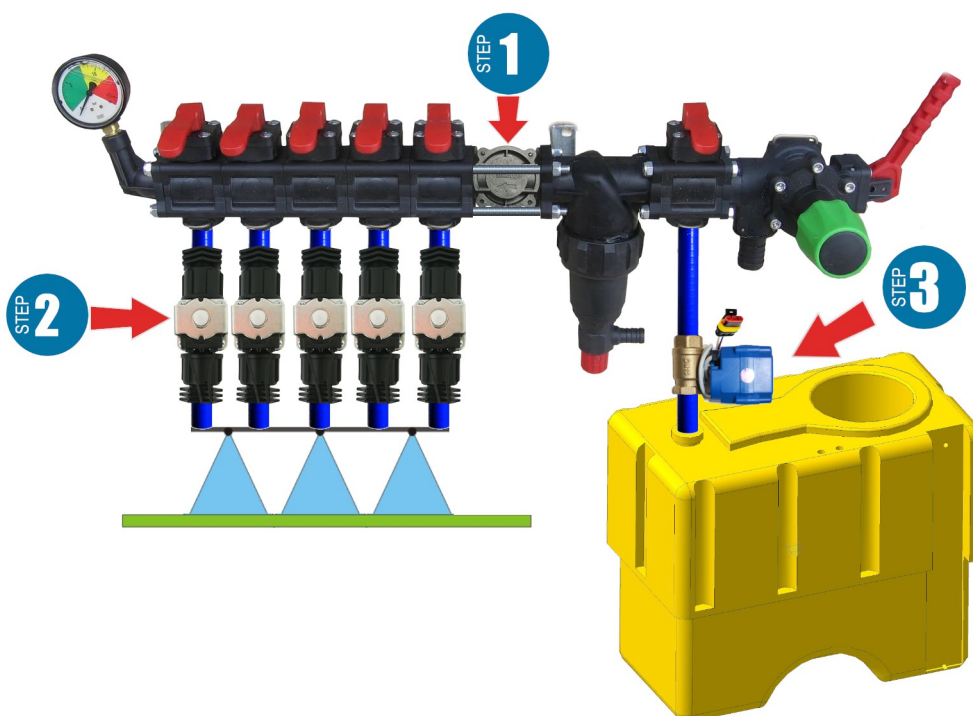
Electric regulation by pulse-width modulation (speed of the electric pump).



PWM technology has a number of advantages compared to electromechanical dosing: saving from 500 g of fuel per 1 ha (does not load the engine), longer pump service life, ease of installation, automatic control and calibration.

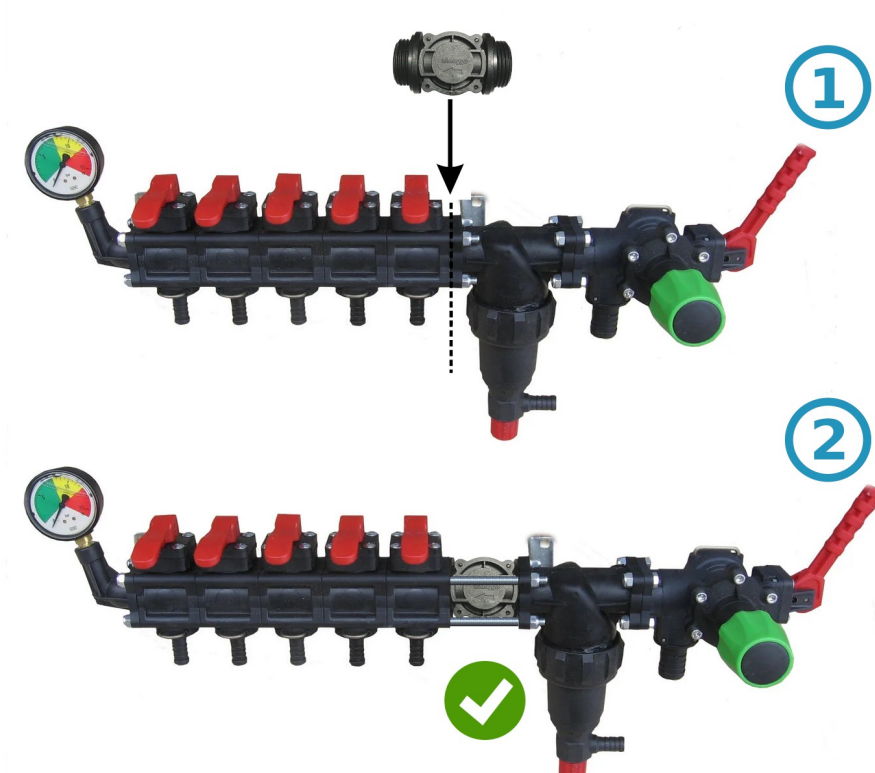
To convert a sprayer with a mechanical pump, it is necessary to perform only 3 simple steps:

- 1) — Mount the flow meter in front of the distributor sections.
- 2) — Electric valves of the sections should be installed immediately after the sectional exits or take them to the sprayer rod, dividing it into equal sections.
- 3) — Dosing tap in the outlet of the section in front of the filter, bring the hose from the dosing tap to the top of the barrel, for free pressure release.

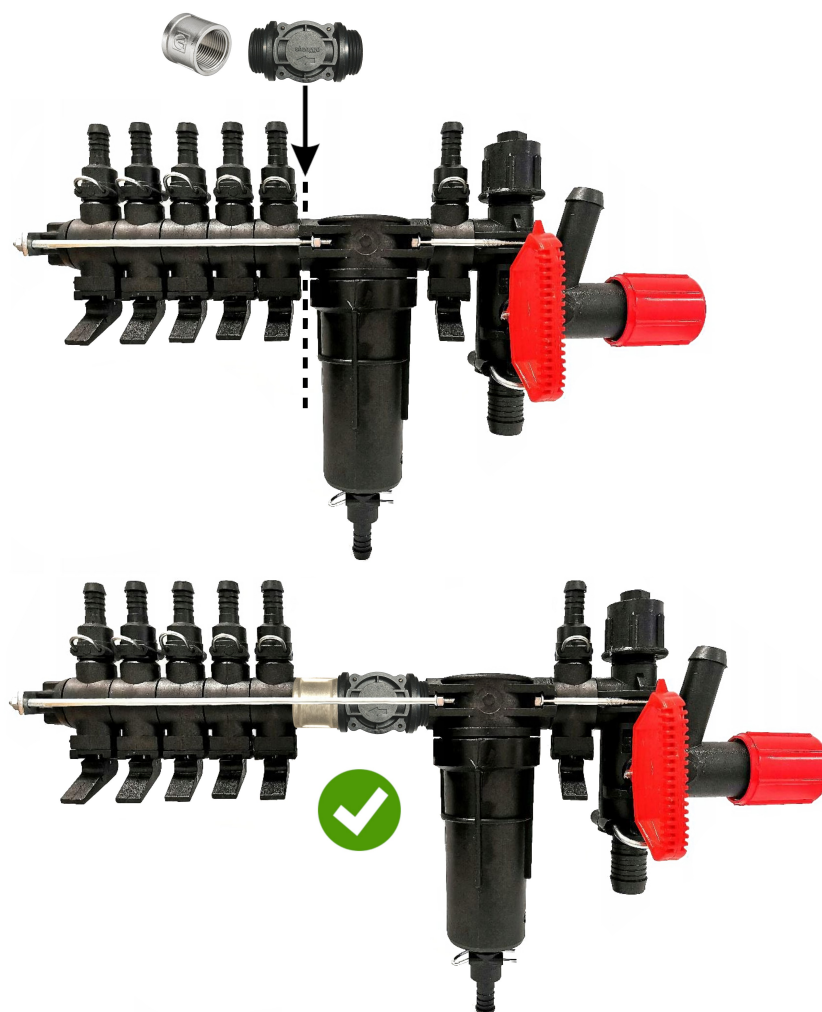


Installation of the flow meter

The flow meter is mounted in the distributor of the ARAG type, in front of the sections.

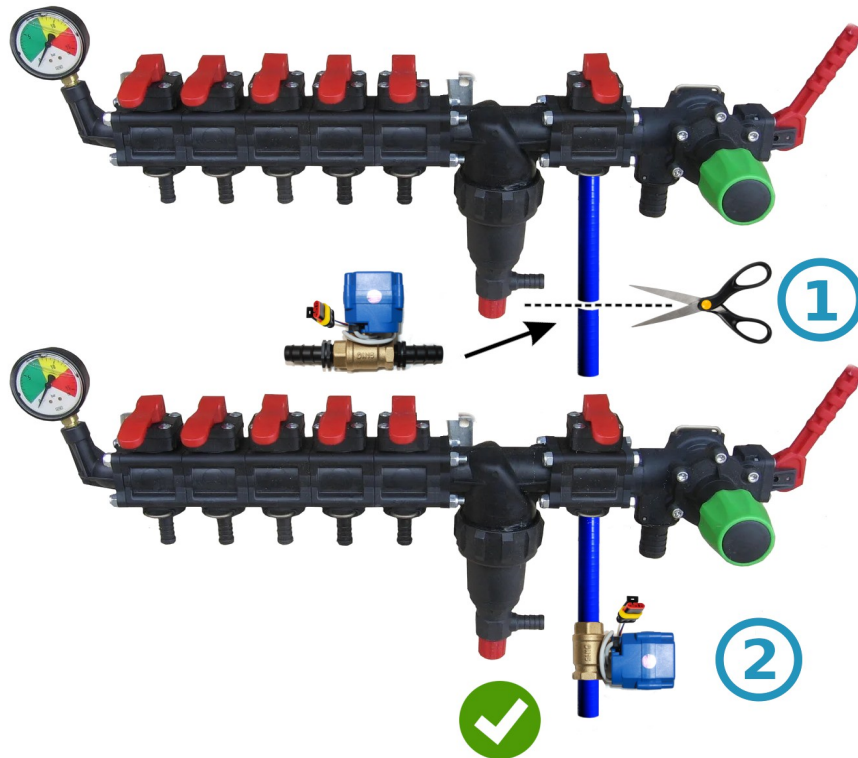


If the distributor is of a different type, then a 1" coupling is installed before the flow meter



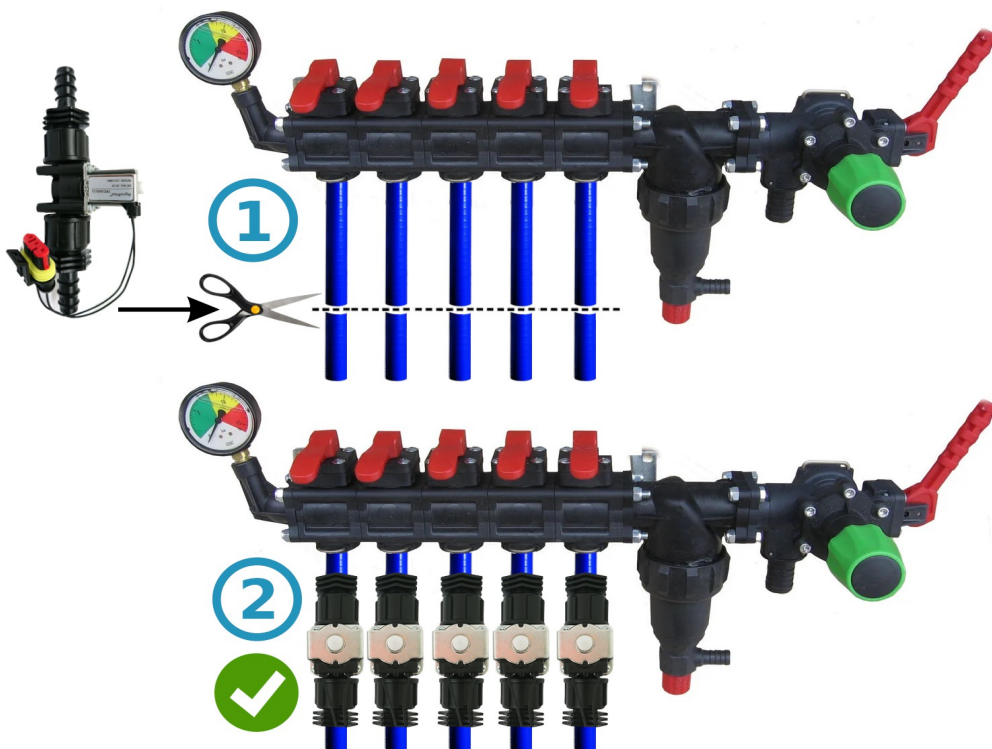
Installation of a dispenser faucet

The dosing tap is mounted in the outlet of the additional section in front of the filter, and if it is missing, then immediately before the flow meter in the pressure distributor, the hose from the dosing tap should be brought to the top of the barrel. After turning on the AgroPilot SC10, check that the dispenser valve has fully opened, if the valve closes, swap its contacts

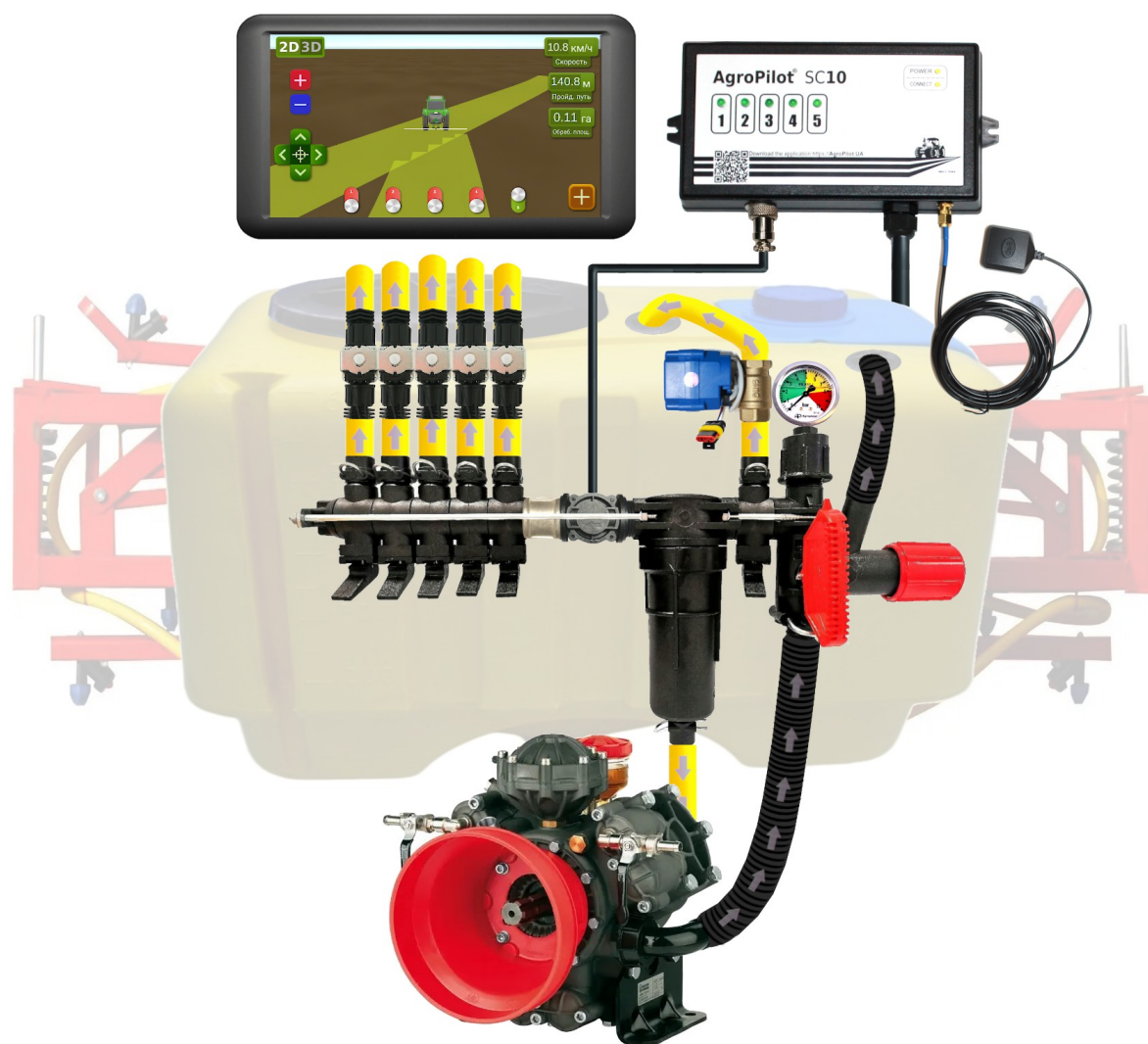


Installation of cranes or section valves

Electric faucets and section valves can be installed immediately behind the pressure distributor or carried out on the sprayer boom, dividing it into equal sections.



General connection diagram of AgroPilot SC10 into the sprayer pressure distributor:



When using the AgroPilot SC10 for metered pouring of liquid together with regulators in which there are section pressure compensators (marked under number #1 in the picture), they must be closed so that the liquid does not go back into the barrel through outlet #2. AgroPilot SC10 calculates the actually poured liquid through the sections, after disconnecting the sections it automatically adjusts the pressure in the system without the need to use pressure compensators.



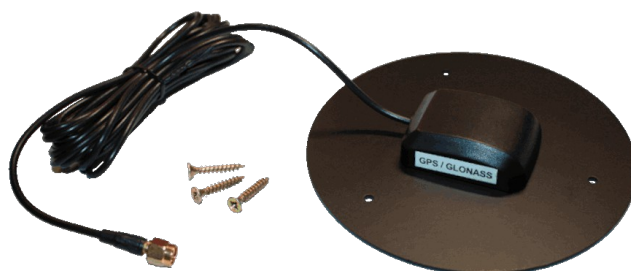
1

Fix AgroPilot SC10 in the salon of agricultural machinery, connect the power directly to the 12V battery terminals. Before starting the operation of the system, turn on the regulator by pressing the power supply button.



2

Install the GNSS antenna/receiver outside in the center of the roof of the agricultural machinery, you need to install only horizontally (no slopes).



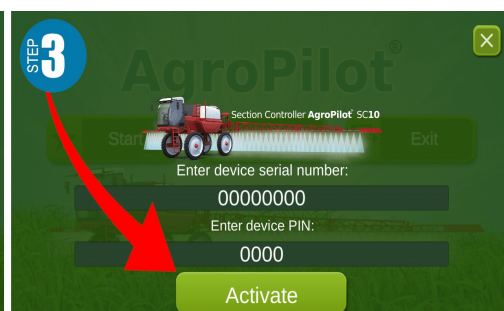
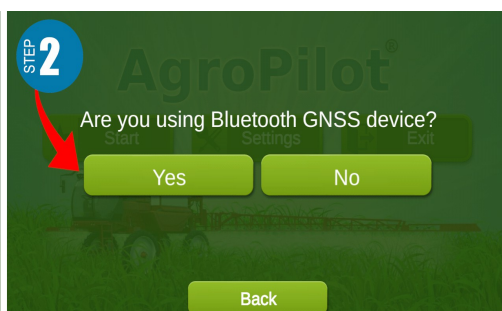
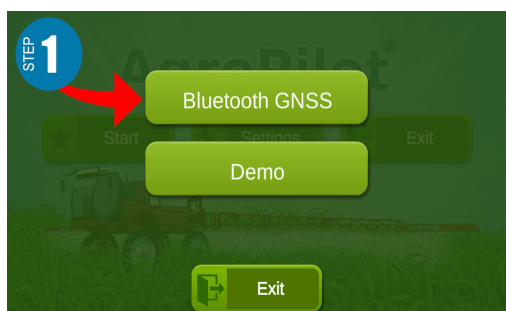
Google Play

Download the professional AgroPilot software on your phone/tablet from the Google Play Store and get started.

3



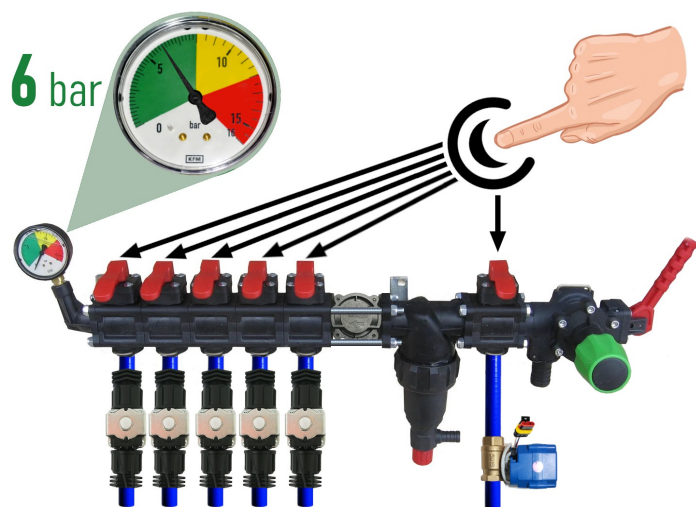
AgroPilot Application



Use the AgroPilot software from the Google Play store or by downloading its optimized version from this link <https://Droid.Farm>. Install and run the app, activation is simple, enter the 8 digits of the AgroPilot SC10 serial number and PIN.

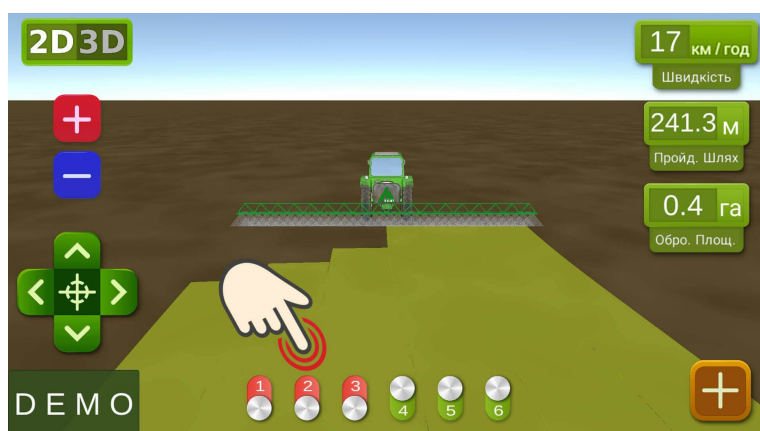
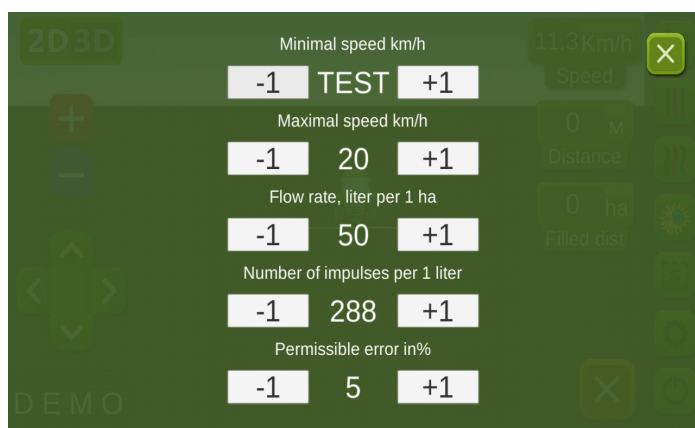
Detailed instructions for working with the program are available on the official website <https://Droid.Farm>

Setting the maximum pressure in the regulator, testing the system before starting work



Before starting the system, pour clean water into the barrel, adjust the maximum pressure in the regulator. Close all section keys, turn on the pump and specify the maximum allowable pressure for sprayers based on the manometer (standard 6 bar). After adjusting the pressure, open the sectional keys. Depending on the speed of the equipment, while observing the required rate of liquid introduction, the system will adjust the pressure from 0 to the specified value, releasing excess pressure into the barrel through the dosing valve.

While standing still, turn on the pump, select the type of work in the AgroPilot program "**Spraying**", wait until the system sees the satellites, press the "Play" button (start work). Go to settings "**Plant protection**", specify the required application rate per 1 hectare, and the minimal speed is less than 2 km/h, the "TEST" mode is activated. Change the maximum speed parameter km/h (for example from 1 to 20), the force of the liquid flow from the nozzles will also change from minimum to maximum, and the discharge through the dispensing valve is inversely proportional, from maximum to minimum (at high speeds).



liquid, because in the working mode it limits the application rate for speeds above the maximum, and activates the outline of the treated area in blue.

On the work screen, manually check the automation of sections by turning them on or off with virtual switches. After testing the system, return to the settings menu "Liquid pouring rate" and specify the minimum speed of 2 km/h, the system will enter the working mode, the sections will be activated as soon as the speed of movement is higher than 2 km/h. Set the maximum speed to the one above which you will not apply

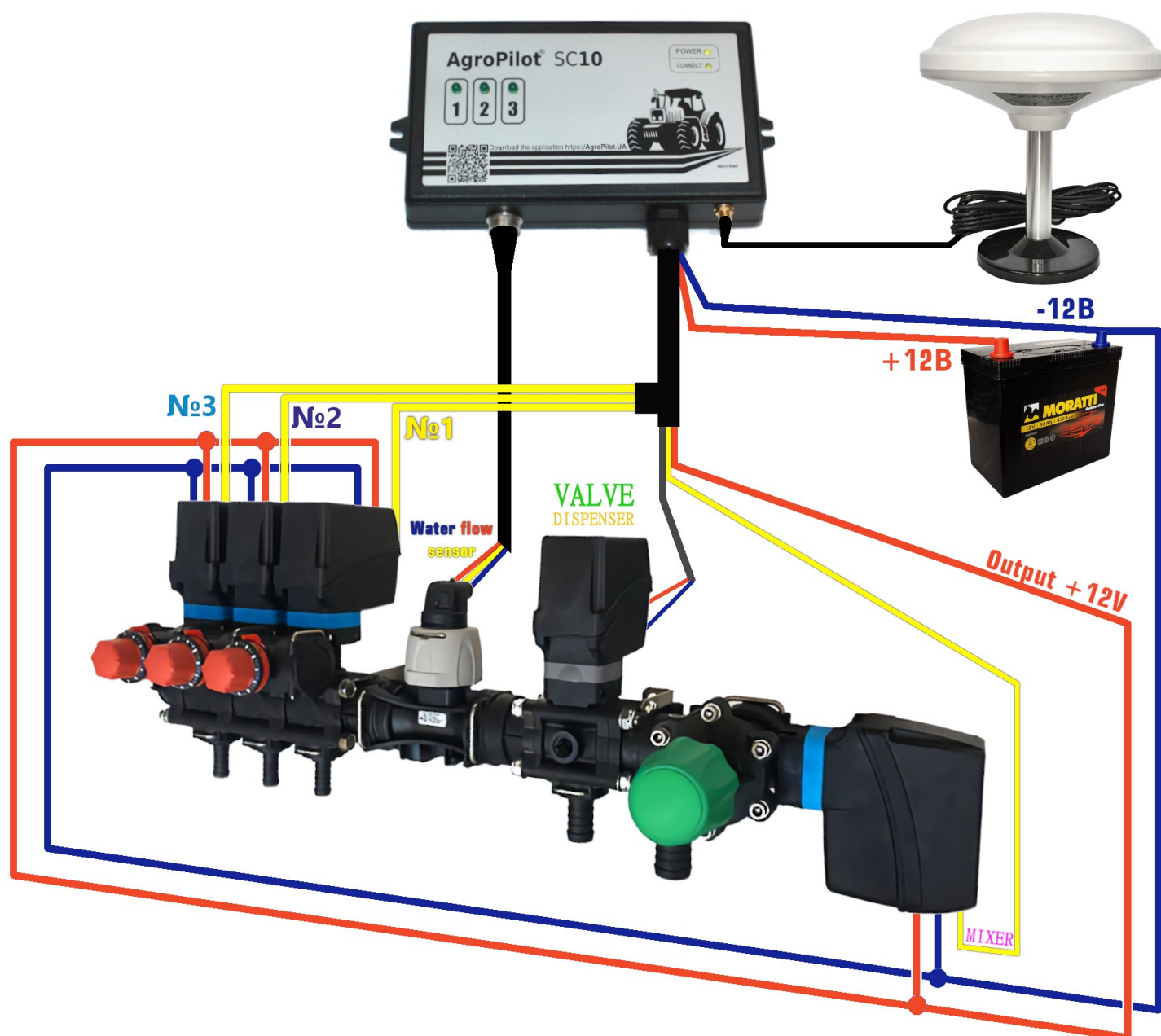
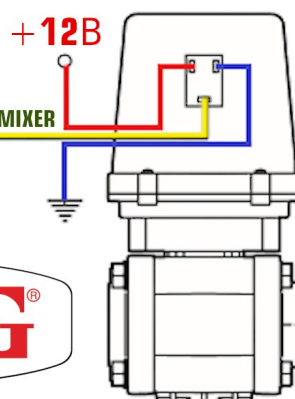
Connecting ARAG automation

AgroPilot SC10 regulators are designed with universality in mind, any specialized equipment can be connected to the contacts of the regulator. For connection to the SC10 block of original ARAG equipment (official website of the manufacturer aragnet.com), use the following diagram.

When using the AgroPilot SC10 for metered pouring of PPE together with ARAG regulators in which there are section pressure compensators, they must be closed so that the PPE does not go back into the barrel. AgroPilot SC10 calculates the actually poured liquid, after disconnecting the sections it automatically adjusts the pressure in the system without the need to use pressure compensators.

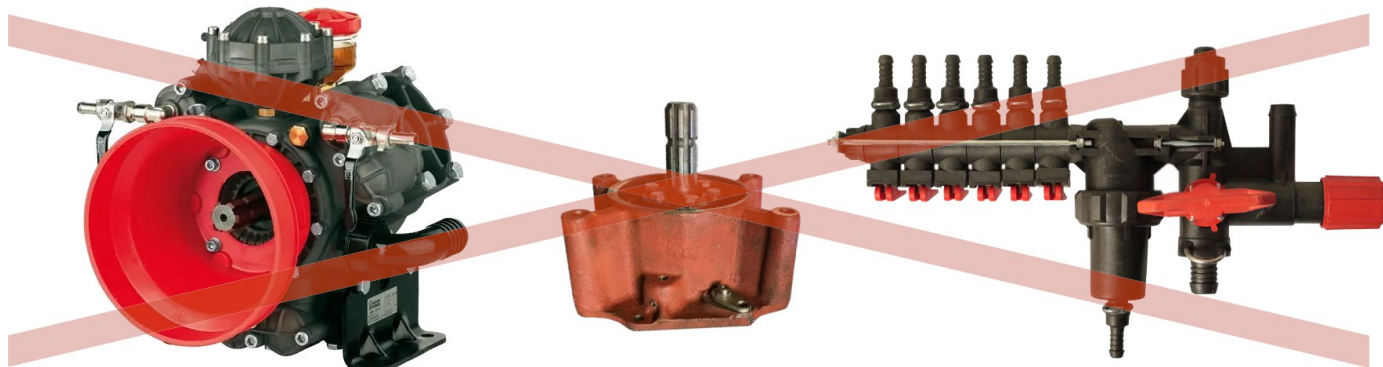
Схема підключення 3-х контактних електричних приводів ARAG до контактів регулятора AgroPilot SC10.

Контакт SC10, секція № 1...10 та MIXER



The general scheme of conversion of the sprayer for applying plant protection products with electric pumps

AgroPilot SC10 regulators are equipped with PWM technology for high accuracy of liquid application (up to 3% error), there is no need to use expensive sprayers, the most affordable slot or injector type are suitable. PWM technology does not require a diaphragm-piston pump, the regulator is equipped with an electric one, nor does it need to use a specialized distributor with a pressure regulator.

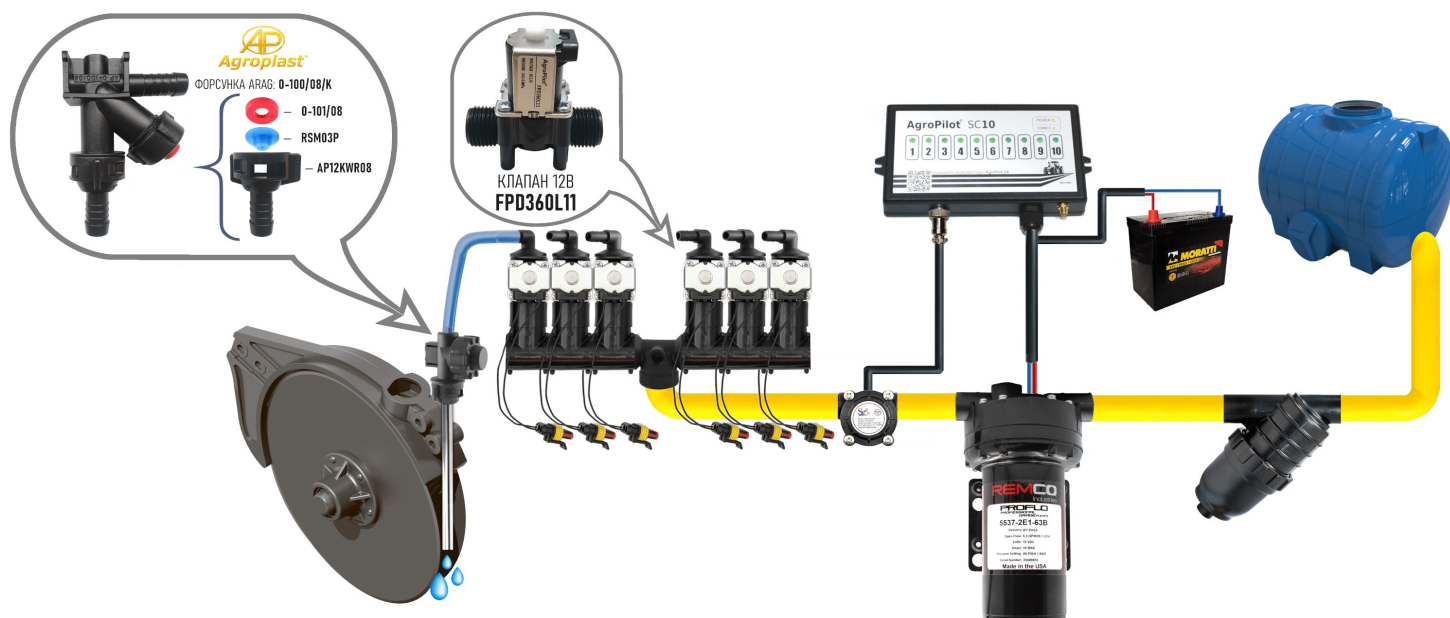


AgroPilot SC10 doses the introduction of liquid by rotations of an electric pump, the kit includes an electric distributor with valves for automatic control of sections. Simple installation, the liquid supply from the barrel is connected to the inlet of the self-priming pump, and the outlet of the pump to the section of the sprayer rod.



The general scheme of conversion of a seeder or a cultivator for the application of liquid complex fertilizers

Automatic introduction of liquid fertilizers by planters or cultivators, AgroPilot SC10 is supported by various electric pumps. The connection scheme is simple, the pump is connected to the controller, a flow meter is mounted behind the pump, the controller receives data on the amount of flow, pouring out the calculated rate for the actual speed of movement.



Visual ball indicators (rotameters) are used to detect clogged channels. In a budget liquid fertilizer application system, you can use the AgroPilot SC10 regulator with any number of sections, selecting only one section in the settings, and using the WILGER distributor to divide the flow into the required amount.

