OPERATING MANUAL

Seeding Technology

VENTRON V1

Operating terminal for VENTRA seed drills
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## DECLARATION OF CONFORMITY

Subject to technical modifications; no responsibility is accepted for the accuracy of this information. This manual can describe features that may not have been available in older software versions.
GENERAL INFORMATION

FOREWORD

We are pleased that you have chosen a quality product from Regent. Regent products offer you best quality and proven technology. In order to be able to take full advantage of the performance of your device and to enjoy your device for many years, please read this user manual carefully before the first use of your machine. Operate the device according to the instructions on the following pages. These operating instructions contain basic information on how to operate, maintain and transport your Regent product correctly. Operational safety and technical function of the device can only be guaranteed if the regulations of general security and accident prevention of the legislator of your country and in addition also the the regulations of general security and accident prevention of this operating manual are observed and followed. We accept no liability for damage caused by improper use or incorrect operation. Misuse can lead to damage to the machine, loss of any guarantee or warranty claims and life-threatening situations.

Make sure that all persons operating the device have read and understood the operating instructions. The operator must be qualified for operation, maintenance and safety requirements of the device.

Keep the user manual safe and accessible so that they can be accessed quickly if necessary. If you decide to sell the machine, hand over the operating instructions to the new owner.

If you have any questions about the device and when ordering spare parts, please state the model name, the year of production and the serial number of your machine. You can find this information on the type plate of the machine, further information can be found in the chapter CE MARKING & IDENTIFICATION.

Together with these operating instructions, you will be given a handling over declaration. Please fill out this document completely and return it to Regent within 10 days. If you have not received the document, please contact your specialist dealer. The handover declaration is directly related to the processing of any guarantee or warranty claims.

The information, illustrations and data in these operating instructions must correspond to the construction status of the machine delivered, subject to errors and changes.

DESCRIPTION, FUNCTIONAL PRINCIPLE AND COMMUNICATION

The VENTRON system is a control system for the „Ventra“ pneumatic seed drill series from Regent Pflugfabrik GmbH. The system consists of an electronic control and display unit (also called a control terminal), a device-side ECU (also called a job computer), a device-side sensor system, and a device-side actuator system.

Communication between the display and the controller runs via a CANopen protocol. The connection with the data cable is made via a 7-pin connector. The machine requires a stable supply voltage of at least 12V and 25 amps.

➢ Sensors
Various sensors on the seed drill constantly monitor various conditions (e.g. fan speed or coulter pressure). The information is received by the ECU, processed and finally passed on to the operator terminal to appear on the display.

➢ Actuators
The device-side ECU receives control commands from the operator terminal and transmits the commands as an electrical control signal to an electro-hydraulic valve block which controls hydraulic cylinders.

➢ Control and display unit
The operator terminal acts as a virtual user interface for the connected seed drill. Information is clearly displayed and functions are controlled using a user-friendly operating concept.

➢ ECU
The job computer is the intelligent link between the operator terminal, the sensors and the actuators of your seed drill.
GUARANTEE AND WARRANTY

Unless otherwise agreed in writing, the guarantee & warranty is limited to one year from the delivery date and includes the repair or free replacement of the defective part, according to the manufacturer’s instructions. The scope of coverage does not include damage or injuries to persons or objects, as well as costs for labor and freight forwarding. Before taking over your new machine, please check that the device has not been damaged in transit and that the accessories are undamaged and complete. If you find any defects, please note this on your delivery document and report the damage within 8 working days by registered mail. If parts are replaced or repaired by the manufacturer or his authorized representative during the guarantee period, this does not mean that the guarantee period for the replaced part or the device starts again or is extended. The buyer can only assert guarantee and warranty claims if he adheres to the conditions stated under the point of guarantee in our general terms and conditions.

EXPIRY OF GUARANTEE AND WARRANTY

The guarantee is void if the device is damaged due to an accident, moisture damage, lack of care, insufficient maintenance, incorrect use, improper handling, the installation of spare parts or accessories that are not officially approved by regent, misuse or negligence (e.g. oversized tractors).

CONTROLLABLE FUNCTIONS

The following functions can be called up, monitored or controlled using the operator terminal:

- Tramline control
- Hectare - counter with single and total area measurement
- speedometer
- Fan monitoring including display rpm
- Integrated sowing table
- tank level control
- Coulter pressure adjustment
- dosing unit speed
- seeding bar
- Fan
- Monitoring the dosing unit

CONTROLS AND COMPONENTS

ECU / JOB CALCULATOR

CASING

The VENTRON ECU (electronic control unit) is an electronic control module and consists of an aluminum die-cast housing, plug connections and internal electronics.

The housing protects the electronic components from vibrations and moisture, for additional protection a protective cover made of sheet metal is installed above the ECU. When cleaning with the high-pressure cleaner, make sure that the water jet is not directed at the ECU unit.

The ECU unit is mounted on the right side of the seed box (in the direction of travel).

CONNECTIONS

- X10 connection (detail A)
  Serves for power supply and data transmission from the tractor to the seed drill

- Z12 connection (detail B)
  There is a USB port behind the rubber cap for data exchange (e.g. for an update of the firmware)

- X61 connection (detail C)
  Serves for machine operation, sensor connection, operator terminal etc.
**OPERATOR TERMINAL**

**A NAVIGATION KEYS**
Use the up / down arrow keys to navigate to another page or settings.

**B ROTARY BUTTON**
You can use the rotary button to navigate in the menu and change the settings. Press to activate or confirm the settings.

**C ON / OFF BUTTON**
With the green button you can start and stop the automatic functions.

**D DISPLAY**
The VENTRON operator terminal has a 320 x 240 pixel color display with touch functionality.

**E POWER BUTTON**
On the right side of the display is the button for switching the VENTRON operator terminal and the ECU control on and off.

**F FIXATION**
There is a VESA standard 50 x 50 connector on the back of the control terminal, which is equipped with a RAM B1 ball.

**G AUX CONNECTOR**
For the inputs and outputs of the display

**H CAN- CONNECTOR**
Plug for supply and data connection
Menu navigation

1: Active window
2: Other windows
3: Information screen of the active window
4: Information / alarm bar

Use the arrow keys to switch between the possible windows. The window is also called up or activated by pressing the respective symbol (touch). Resetting an alarm is done by pressing the alarm-bar (4).

Settings

1: Active setting
2: Other settings
3: Information bar

A change between the settings (1/2/...) takes place either by selection and activation via the rotary button, or by pressing the respective symbol (touch). The setting is described in the information bar (3).

SETTINGS OF THE TERMINAL

Brightness, language and units of measurement can be adjusted in the settings of the computer display

Brightness

After activating the window, the display brightness can be individually adjusted using the rotary button.

If the rotary button is turned clockwise more than 100%, the automatic mode is activated.

In the automatic mode, the brightness is regulated automatically via the light sensor in the display.

Language

After activating the window, the desired language can be selected using the rotary button.
Units

After activating the window, the desired unit of measurement can be activated using the rotary button.

Back and save

After selecting the arrow symbol, you return by pressing the rotary button or by pressing the symbol (touch) and save the selected settings.

SIGNAL SETTINGS

The way in which the Ventron system should decrease the speed and the hitch signal can be determined in the Tecu settings.

Signal extraction

With the rotary-button you can choose the way of speed and hitch measurement.

- **Tractor Radar**: Radar or GPS speed and hitch sensor come via the “7p ISO signal cable”
- **Tractor Wheel/GPS**: Wheel speed and hitch signal come via the “7p ISO signal cable” or the “open signal cable”.
- **Machine sensor**: speed and hitch signal are measured on the machine.
- **Fixed speed**: When you press the green button the machine is activated and uses a fixed speed, you deactivate the machine by pressing the green button again.

Tractor memory

The display has a memory for 3 tractors, with the rotary-button you can make your choice.

Here the radar/GPS and wheel pulses of the respective tractor are used to create a fast switch.
Pulses per meter

- **Manual input**: With the rotary-button you can insert the amount of pulses/meter manually.
- **Measuring pulses with the drive test**: Press start, drive exactly 100m at working speed and press stop the amount of pulses/100m is measured and saved automatically.

Back and save

After selecting the arrow symbol, you return by pressing the rotary button or by pressing the symbol (touch) and save the selected settings.

MACHINE SETTINGS

In the machine settings, the seed drill can be adjusted to a different seed width, fan speed or a different coulter pressure.

Seeder settings

- **Working width**: The width of the sowing rail can be set here. For a 3 meter wide machine, you have to set „3.00 m“ here.
- **Fan speed**: Enter the required fan speed.
- **Coulter pressure**: If applicable, enter the desired coulter pressure. This coulter pressure is later permanently monitored and regulated by the machine.

Work lights

If the machine has work lights, these can be activated in the settings. Select the work light symbol to switch the lights on or off.
WORKING SCREENS

Basic information

Contains following info:

- Working speed
- Fan speed: between 2000 & 3000 rpm
- Hectare counter 1
- Tramline rhythm & tramline setup
- Visualization of machine

Status information

- Start / stop button does not light up:
The seed rail is not in operation / the machine has been lifted

- Start / stop button flashes green:
The seed bar is lowered and ready to sow (check the fan speed). As soon as you pick up speed, the machine starts sowing

- Start / stop button lights up green continuously:
The seed bar is lowered and the machine registers forward speed, the metering unit is active and seeding is in progress (make sure that the tramline is passed correctly and pay attention to the level alarm)

Tramline information

The current tramline passage is number 4 of 7 (Tramline is active)

Each time the machine is lifted, the tramline passage is added by 1. When passage no.7 is reached, passage no.1 starts again.

In order to change the passage number, the seeder must be lifted and lowered as often as the desired passage has been reached.

HECTARE COUNTER

Two independent hectare and distance counters are available.

By pressing the reset symbol of one of the both hectare counters, it can be reset to zero.

After resetting, the respective counter begins to count automatically until it is reset again.
TRAMLINE SETTINGS

The decisive factor for the distance between the tramlines is the working width of the field sprayer or the fertilizer spreader. Conventionally, when creating the tramlines, you start with the half boom width of the sprayer from the edge of the field. A tramline is also created on the headlands. Then, parallel to the longer field side, tramlines are continuously created at a distance of the full sprayer boom width from each other.

Tramline menu

Use the rotary button to adjust the width of the sprayer boom. The current width is shown in meters in the lower field.

When you have set the desired width, press the rotary knob. A small window appears at the bottom right, which simulates the passage (you can set which passage you want to start with here). By pressing the Start / Stop button several times, you can switch through the passages and see how the seeder will switch the tramlines.

Set the lower value to 0.0m to deactivate the tramline switching.

Symmetrical tramline

The current tramline rhythm is symmetrical 7

In this setting, a tramline is created every 21 meters on a 3m machine.

Symmetrical means, that the tramline is active on both sides and the complete tramline is created in one passage.

Asymmetrical tramline

The current tramline rhythm is asymmetrical 6

In this setting, a tramline is created every 18 meters for a 3m machine.

Asymmetrical means, that the tramline is only active on one side of the machine and the complete tramline is created in two passages.

With this setting, you must adapt the tramline setting on the distributor head before starting work (one side of the FG control must be disconnected)
CALIBRATION TEST

Since the amount of seed changes as soon as the thousand grain weight and/or seed size deviate from the type of seed used last, it is advisable to do a calibration test when processing a new batch of seeds. Run the test as described below.

Before starting the calibration test, the dosing device must be adapted to the calibration process. The air hose is removed and instead the calibration bucket is swung in under the dosing unit. The exact procedure is described in the operating instructions for the seed drill.

Seed selection

It starts with the selection of the seed variety. If the variety that you want to sow is not in the list, choose the variety that most closely matches the desired variety.

Application rate

In the next window, you can set the desired seed rate. To do this, select the KG/ha symbol and enter the desired amount. The seed rate can be changed later in the main display, e.g., to be able to react quickly to changing soil conditions.

Desired driving speed

Now the expected driving speed is set. With the double disc and hydraulic coulter pressure monitoring, this speed will be between 8 and 15 km/h.

Setting the dosing unit

The dosing unit must be adapted for the calibration test before you start with the sample. The display shows the value to which you must set the seed wheel. In this case the value 15 should be set. The fan flap must be in position N.

Make sure that the calibration bucket is swiveled in on the metering unit, that the seed box is filled, and that the seed wheel of the metering unit can move freely and is pre-rotated (filled) with seed. To the left of the symbol of the start/stop button (on the screen), the rotations that are carried out for the calibration test are shown.

When the settings are done, press the start stop button. It then lights up green and indicates that the calibration test can be started.
Now leave the tractor and, when everything is ready, press the green flashing button on the seed drill, the turning process begins!

During the rehearsal, the remaining rotations can be followed on the display (to the left of the start / stop button symbol). The machine starts with the calculated rotations and counts down to zero. The setting is ended at zero.

Once the weight has been entered, you can switch to the test screen. The test screen shows the Fx-value and the possible speed range. Fx is the calculation factor with which the VENTRON terminal will continuously calculate the seed wheel rotation speed, taking into account the driving speed.

The tractor symbol shows the recommended speed. The speeds indicated in the red box are the maximum and lowest speeds. If the speed at which you want to work falls outside the green field, the correct amount may not be applied. Carry out another calibration test and select another target speed as before.

If the speed range meets your requirements, the setting was successful. Return by pressing the start / stop button. Empty the calibration bucket and swivel the air hose under the dosing unit.

Before you can start sowing, you must first read the instructions for use of the machine carefully. Make sure that the fan revs up before you start sowing. The fan speed must be in the optimal range in order to avoid clogging of the hoses and inaccuracies in the application rate. If the fan speed is higher than 3000 rpm, the fan may be damaged.

Do not reduce the fan speed immediately at the end of the operation. Once the fan has started up, sowing can begin.

Press the green button to start sowing. The green button lights up and shows that sowing is active. If a hitch sensor is available, sowing ends as soon as the machine is lifted off from the ground. You only have to press the green button if you want to switch off sowing completely.

Return by pressing the green button. The green lamp is no longer lit and sowing is not active.
ERROR MESSAGES

**Fan sensor error**

The sensor that measures the fan speed is not connected or is defective!

**Fan speed too high**

In order to prevent damage to the blower, the speed must be reduced as quickly as possible. The maximum speed is 3000 rpm.

**Fan speed too low**

Seed tank level too low

**Seed tank level too low**

The reservoir is empty. If sowing is continued, the desired dosage may differ from the actual dosage.

**Motor is blocked**

Check whether the dosing unit can rotate freely. Remove blocking objects if necessary. Check gears and the dosing housing.
DECLARATION OF CONFORMITY

The manufacturers hereby declare that the new machine named below complies with machine safety regulations - Machine Safety Regulations (MSV), Federal Law Gazette 2006/42/EG, and, therefore, with the machine guideline RL2013/167/EG, applied by you, in the valid edition, which means it has been manufactured in accordance with the following basic safety requirements relating to:

- accessories for the load absorption device
- coherent and safe retaining parts
- sufficient stability
- no danger as a result of the breakage of fluid leads
- a safe control system

The following standards were applied when designing and constructing the machine:
- EN ISO 12100 (safety of machines)

PROHLÁSENÍ O KONFORMITĚ

Výrobce tímto prohlašuje, že níže popsaný nový stroj se shoduje s ustanoveními strojového bezpečnostního nařízení - 2006/42/EG, a tímto také s nimi realizovanou strojovou směrnicí RL2013/167/EG v platném znění, a byl vyroben s následujícími základními bezpečnostními požadavky jako na příklad:

- výstojné součásti pro vybavení na zachycení zatížení
- koherentní, bezpečné regulační díly
- dostatečná stabilita
- žádné nebezpečí prasknutí fluidních vedení
- bezpečné ovládání

Při konstrukci a stavbě tohoto stroje byly použité následující normy:
- EN ISO 12100 (Bezpečnost strojů)

DECLARACION DE CONFORMIDAD

El fabricante DECLARA por la presente que la nueva máquina descritta a continuación cumple con las disposiciones de las reglamentaciones de seguridad para máquinas 2006/42/EG, y de ese modo con la norma para máquinas RL2013/167/EG por ellos insta rada en su formulación vigente, habiendo sido fabricada cumpliendo con las siguientes exigencias básicas de seguridad:

- Accesorios para dispositivos de elevación de carga
- Dispositivos de maniobra seguros y coherentes
- Estabilidad suficiente
- Ausencia de peligro por rotura de los conductos de fluidos
- Control seguro

En el dimensionamiento de la construcción de la máquina se han aplicado las siguientes normas:
- EN ISO 12100 (seguridad de máquinas)

DECLARATIE OE CONFORMITATE

Producătorul declară prin prezenta că utilajul descris mai jos a fost fabricat în conformitate cu dispozițiile Ordonanței referitoare la siguranța utliajelor 2006/42/EG, precum și cu Dispozițiile de aplicare RL2013/167/EG prevăzute în aceasta, și anume cu respectarea celor de siguranță cum sunt:

- părții accesori pentru dispozitivul de prelucrare greutății
- părții de ajustare sigure și care se unesc
- stabilitate suficientă
- lipsa pericolului la spălarea conductelor cu fluid
- mecanism de comandă sigur

La proiectarea și construcția utliajului au fost aplicate următoarele norme:
- EN ISO 12100 (Siguranța utliajelor)