CONTROL BOX
1.2

OPERATOR MANUAL



PLEASE READ CAREFULLY BEFORE COMMISSIONING!

Original operating manual

Version: 1.4 EN; item number: 00601-3-135

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1 IDENTIFICATION OF THE IMPLEMENT

The control box can be clearly identified based on the serial number. The serial number can be found on the rear side of the control box.

NOTE!
In cases of inquiries or warranty claims, please always tell us the serial number of your implement.

1.1 INTENDED USE

Control Box 1.2 may only be used to control Pneumatic Seeders (PS 120-1600 incl. Fertiliser Editions), Universal Dispensers (UDW) or Multi-Metering Systems (MDG/MDC, MDP, MDD). Please also observe the operating manual for your Pneumatic Seeder / Universal Dispenser / Multi-Metering System.

Do not use Control Box 1.2 to control other implements.

2 SERVICE

Please contact our service address in the following cases:

- If you still have questions regarding the handling of this implement despite the information provided in this operating manual
- For questions regarding spare parts
- To order maintenance and servicing work

Service address:

APV Technische Produkte GmbH
Zentrale: Dallein 62
A-3753 Hötzelsdorf
AUSTRIA

Telephone: +43 2913 8001-5500
Fax: +43 2913 8002
Email: service@apv.at
Web: www.apv.at

3 WARRANTY

Please check the implement for any transport damage immediately upon receipt. Later claims regarding transport damage can no longer be considered.
We provide a **one-year factory warranty** as of the date of delivery (your invoice or the delivery slip serve as a warranty certificate).
This warranty is applicable for cases of material or construction faults and does not include parts that are damaged by normal or excessive wear.

The warranty expires

- if damage is caused by external forces,
- if the control box is opened,
- in cases of operating errors,
- if the prescribed requirements are not met,
- if the implement is modified, expanded or equipped with third-party spare parts without our permission,
- in cases of water ingress.

3.1 WARRANTY ACTIVATION

To be able to offer the best possible service, warranty activation must be performed for your implement after acquisition.
To activate the warranty for your implement, simply scan the QR code with your smartphone – you will then be taken directly to the warranty activation page.

You can also call up the warranty activation page through our website www.apv.at in the Service area.

4 INITIAL OPERATION

4.1 SCOPE OF DELIVERY AND ATTACHMENT

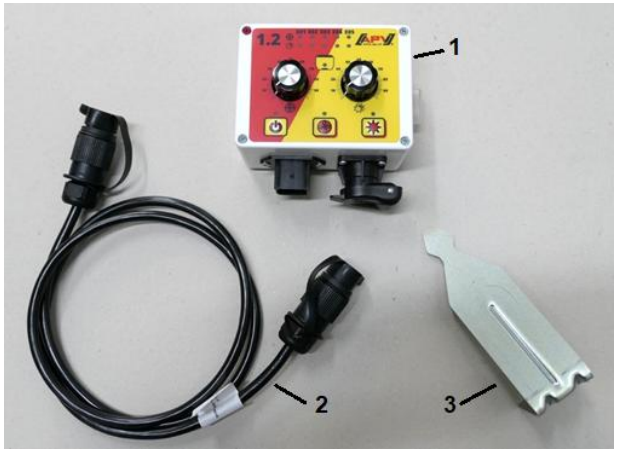


Figure 1

1	Control box
2	Power cable
3	Controller bracket

Fasten the standard supplied bracket with two bolts in the tractor cab.

Pay attention to the angle at which you look at the control box to be able to read the display optimally. If necessary, bend the bracket slightly to adjust the angle as required.

CAUTION!
If possible, do not roll up the cable into a coil!

4.2 ELECTRICAL CONNECTION



Figure 2

Connect the standard supplied cable directly to the 3-pin standard socket on the tractor. The other end is connected to the control box.

The fuse (25 A) is located on the right side of the control box.

Stow the excess cable in the driver's cab to avoid pinching.

The connection diagram can be found in the operating manual for your seeder / Universal Dispenser / Multi-Metering System.

CAUTION!
The 12 volt power supply must NOT be connected to the socket for the cigarette lighter!

After use of the implement and for road transport, the control box must be disconnected again (for various safety-related reasons).

CAUTION!
If these instructions are not observed, damage may be caused to the control box!

If your tractor does not have a standard socket, it can be retrofitted with a cable set (see chapter 8 Accessories).

CAUTION!
If your battery is charged by a charger that is in "Start" operating mode, there can be voltage peaks! These can cause damage to the electrical system of the control box if it is also connected when the battery is being charged!



1	**6-pin plug** • Connection to the seed drill (implement cable)
2	**3-pin plug** • Connection to the battery (power cable)
3	**25 A fuse**

Figure 3

4.3 USER INTERFACE OF THE CONTROL BOX



1	Display LEDs: display error messages, software version and settings
2	Lights up when there is no more seed in front of the fill level sensor.
3	Adjust the speed of the fan or spreading plate
4	Adjust the speed of the seeding shaft

Figure 4

Button	Designation	Function
	On/Off button	Switches the implement on and off. The control lamp lights up when the implement is switched on.
	Fan button	Switches the fan or the spreading plate on or off. • With electric fan/spreading plate: the control lamp flashes when the fan/spreading plate starts up. When the motor is running, the control lamp is continuously lit. • With hydraulic fan (with pressure sensor): the control lamp lights up as soon as the fan has built up pressure.
	Seeding shaft button	Switches the seeding shaft on/off. When button is pressed, the seeding shaft starts rotating and the control lamp lights up.

4.4 COMMISSIONING THE IMPLEMENT

- After switching on the implement with the on/off button, the control lamp above the button lights up. This shows that the supply voltage is available.
- As long as the on/off button is held, the software version is displayed: E01 = software 1.1; E02 = software 1.2. This may be necessary in case of customer service.
- You can now use the rotary knob on the left to adjust the speed of the fan / spreading plate. The rotary knob on the right is used to adjust the speed of the seeding shaft.
- When you press the fan button, the fan motor (or the spreading plate on the MDD) will start running.
- As soon as you press the seeding shaft button, the seeding shaft starts rotating at the set speed and you can start seeding.

4.5 OPERATION ON THE FIELD

- To begin seeding, press the seeding shaft button.
  Stage 1: the LED control lamp beside the fan button flashes (the fan motor or spreading plate is starting up).
  Stage 2: after a few seconds, the LED control lamp beside the fan button lights up (fan motor is running).
  Stage 3: when the green LED control lamp beside the seeding shaft button lights up, the gear motor that turns the seeding shaft and conveys the seed is switched on.
- When you are turning at the headlands, you only have to press the seeding shaft button so that the green LED control lamp is turned off. This stops the seeding shaft and only the fan motor is still running.
- When finishing work, press the on/off button on the Control Box to switch off the fan motor and the seeding shaft. The LEDs are turned off and the control box is switched off.

4.6 CALIBRATION TEST

NOTE!
Always ensure that the fan is switched off before starting the calibration test.

- First determine the required speed for the seeding shaft based on the calibration table (this can be found in the operating manual for the spreader).
- The calibration test is started by pressing and holding the seeding shaft button for 3 seconds. The implement beeps once.
- After starting, the seeding shaft begins rotating without the fan motor for exactly one minute.
- The calibration test can be terminated at any time by pressing the seeding shaft button or the on/off button on the control box.
- If necessary, correct the seeding shaft speed and repeat the procedure.

Refer to the respective operating manual of the seed drill to find out how to prepare the seed drill for the calibration test.

4.7 EMPTYING THE HOPPER

- You can begin draining the hopper by pressing and holding the seeding shaft button for 6 seconds when the seeding shaft is powered off. After 3 seconds, the calibration test begins (1 short beep).
- By pressing and holding the button for an additional 3 seconds, the module switches to emptying mode – the seeding shaft turns at full speed (short beep 2 times).

You can stop a running function at any time by pressing the fan button or on/off button.

4.8 SPREADING DISC SPEED CHART

This table shows you the spreading disc speed depending on your control box's setting:

Setting 1.2	"MDD" motor speed	"UDW" motor speed
2	100	50
10	300	150
20	600	300
30	900	450
40	1300	650
50	1600	800
60	1900	950
70	2250	1100
80	2600	1300
90	2800	1400
max.	3000	1500

4.9 AUTOMATIC IMPLEMENT SHUT-OFF

When the control box is switched on and no button is pressed and the seeding shaft is not switched on within 1.5 hours, the control box is switched off automatically.

5 STATUS MESSAGES AND SOLUTIONS

5.1 CONTROLLER MESSAGES

Error messages must be acknowledged with the on/off button and the spreader is then switched off.

The following error messages can be displayed:

Display	Cause	Solutions
E01 	The gear motor for the seeding shaft is not connected.	Check the cables and plugs for faults or damage.
E02 	The seeding shaft cannot rotate or the motor is strained for too long at its limits.	Switch off the implement and check if there are solid objects or similar that prevent the seeding shaft or agitator from rotating properly.
E03 	The motor (seeding shaft) is connected and not overloaded, but is still blocked.	Check if there is something blocking the seeding shaft. If this is not the cause of the problem, please contact Customer Service.
E01 	The fan motor / spreading plate motor is not connected.	Check the programming (see Chapter 9) and the cabling or plug.
E02 	The fan motor / spreading plate motor cannot rotate or the fan motor / spreading plate motor is being strained for too long at its limits.	Switch off the implement and check if there are objects blocking the fan / spreading plate or preventing it from rotating properly.

E03 	The motor (fan or spreading plate) is connected and not overloaded, but still does not rotate. For hydraulic fan with pressure switch or pressure sensor: the fan is not running or is not sending a signal to the pressure switch / speed sensor.	For hydraulic fan: switch on the fan. Please contact customer service.
E04	Is displayed when the operating voltage is too low.	Check the battery, wiring and alternator. Minimise the consumers.
E05 	The motor (fan) is not connected. The fan motor cannot rotate or the fan motor is strained for too long at its limits.	Check the cables and plugs for faults or damage. Switch off the implement and check if there are objects blocking the fan or preventing it from rotating properly.

CAUTION!
If your battery is charged by a charger that is in "Start" operating mode, there can be voltage peaks! These can cause damage to the electrical system of the control box if it is also connected when the battery is being charged!

5.2 ASSISTANCE IN THE EVENT OF PROBLEMS

Problem	Solutions
Hydraulic fan is running, E03 is still lit.	Is there no pressure switch installed? Programming, see Chapter 9 Programming menu.
No display after pressing the on/off button.	Check whether the power cable is properly inserted into the control box and is also connected to the correct terminals on the battery.

CAUTION!
Faulty connection or removal of the flying fuse on the positive terminal of the power cable can result in damage to the control box!

6 CLEANING

Use a dry cloth to clean the control box.
Do not use aggressive solvents! This may damage the implement.

7 DECOMMISSIONING, STORAGE AND DISPOSAL

7.1 DECOMMISSIONING THE IMPLEMENT

Switch off the control box with the on/off button and disconnect it from the power supply.

7.2 STORAGE

The control box must be stored in a dry location protected from weather conditions.

7.3 DISPOSAL

Disposal of the implement must be performed according to the local disposal regulations for machines.

8 ACCESSORIES

8.1 TRACTOR CABLE SET

For the power supply to the control box without a standard 3-pin standard socket on the tractor, a retrofit kit is available as an accessory. On the battery side, this 8 m cable is bolted directly on the battery terminals. On the other side, a 3-pin standard socket is installed.



Figure 5

Order number: 00410-2-022
Cable length: 8 m

Connection diagram:
Red (6 mm² cable) = 12 volt
Red (1.5 mm² cable) = Ignition plus
Black (6 mm² cable) = Earth

9 PROGRAMMING MENU

9.1 FAN / SPREADING PLATE

In this menu, you can configure if a hydraulic or PTO shaft-powered fan is set up instead of an electric fan or if a spreader of type MDG or MDD is being operated.

Perform the following actions to open the programming menu for the fan / spreading plate:

- Press and hold the on/off button and briefly press the fan button at the same time (see Figure 6).
- When pressing the fan button repeatedly, the menu points switch from E01 through E05.
- By pressing the on/off button or the seeding shaft button, the selection is confirmed.



Figure 6

Menu point	Selection
E01	Electric fan (standard configuration)
E02	Hydraulic fan with pressure switch
E03	Spreading plate (MDD/UD)
E04	Hydraulic fan with fan speed sensor (monitoring function – no display / control)
E05	Hydraulic fan without pressure switch (OFF) or no fan (MDG)
E01&E05	Electric fan PLUS
E02&E05	Electric fan with linkage signal

9.2 SEEDING SHAFT MOTOR

In this menu, you can specify the type of motor that is installed in the spreader.

To open the programming menu for the motor type, proceed as follows:

- Press and hold the on/off button and briefly press the seeding shaft button at the same time (see Figure 7Figure 6).
- Repeatedly pressing the seeding shaft button switches between settings E01 (P8 gear motor) or E02 (P17 gear motor).
- By pressing the on/off button or the fan button, the selection is confirmed.



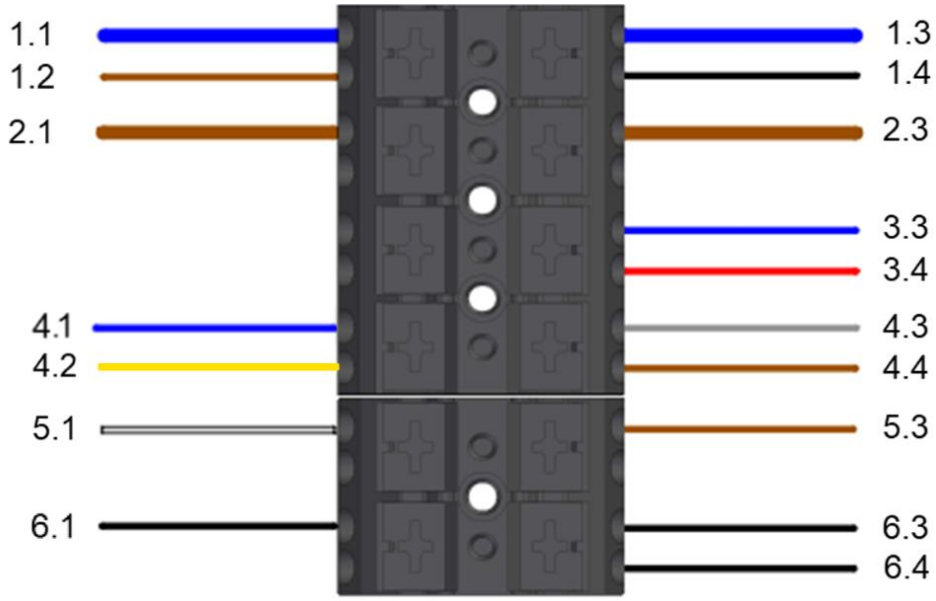
Figure 7

Menu point	Selection
E01	P8 gear motor (standard setting) for Pneumatic Seeders PS 120-500 for Multi-Metering System series (MDG, MDP, MDD, MDC)
E02	P17 gear motor: for Pneumatic Seeders PS800, PS1200 and PS1600 for Universal Dispenser series (UD)

10 CONNECTION DIAGRAM

This connection diagram shows only the specific layout of Control Box 1.2 in conjunction with the SuSe linkage connection cable (00410-2-304) on the operating implement. The general connection diagrams can be found in the operating manual for your implement (PS, MDD, …).

Electric fan with linkage switch:



Pin	Number	Description	Colour	Cross-section (mm^2)
1	1.1	Fan	Blue	4
	1.2	Fill level sensor	Brown	0.34
	1.3	Implement cable	Blue	4
	1.4	Seeding shaft motor	Black	1.5
2	2.1	Fan	Brown	4
	2.3	Implement cable	Brown	4
3	3.3	Implement cable	Blue	2.5
	3.4	Seeding shaft motor	Red	1.5
4	4.1	Fill level sensor	Blue	0.34
	4.2	Linkage switch	Yellow	0.75
	4.3	Implement cable	Grey	0.75
	4.4	Calibration switch	Brown	0.75
5	5.1	Fill level sensor	White	0.34
	5.3	Implement cable	Brown	0.75
6	6.1	Linkage switch	Black	0.75
	6.3	Implement cable	Black	0.75
	6.4	Calibration switch	Black	0.75

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