



BAUER

FOR A GREEN WORLD

OPERATING INSTRUCTIONS

for

CENTERLINER SELECT PRO



Introduction

Thank you very much for purchasing a BAUER – microcomputer control unit

The present manual is a detailed description of our new **CENTERLINER SELECT PRO**. If you need further information please contact our local dealer or **BAUER company** in Voitsberg.

All information contained in the present manual is based on the latest product details available at the time of printing.

BAUER company reserves the right to make changes without notice, without assuming any liability!



Non-observance of this manual may cause personal injury or damage the equipment!

Please make this manual available to your staff. You are kindly requested to state type and number of the software version of the **CENTERLINER SELECT PRO** in all inquiries, correspondence, warranty problems or parts orders.

We wish you success with your BAUER CENTERLINER SELECT PRO!

Product details

Type designation: **BAUER – SELECT PRO**

Type version: Front panel location

Serial number:

Dealer:

Name:

Address:

Phone / Fax:

Date of shipment:

Manufacturer of the control unit:

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Owner or operator:

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1. SWITCHING THE CONTROL UNIT ON

1.1 Booting

When switching on the main switch, PROZENTTIMER will be on display and the software version installed with the date of set-up.



Fig. 1.1: Display after start

After successful booting and initialization of the hardware, status window 1 will be displayed (see chapter 3.1).

2. STATUS WINDOW

The status window provides important information about the operating status of the CENTERLINER. After booting has been completed, the status window opens automatically. The parameters shown in the status window are updated all the time.

2.1 Status Window

The information about the current operating status is shown in the two columns of the status window (see Fig. 3.1) Below, the individual elements of the status window are described, from the top left to the bottom right corner of the window:



Fig. 2.1: Status window

Operating status

The following operating statuses are displayed:

- OFF CENTERLINER not operating
- FORWARD CENTERLINER moving in the indicated direction
- WAITING CENTERLINER waiting for the programmed start time to begin
- PAUSE CENTERLINER is in the programmed irrigation pause
- REVERSE CENTERLINER moving in the indicated direction
- I2C-ERR I2C communication error
- START CENTERLINER waiting till waiting period is up; pump is already active when starting
- SETUP To manually align the CENTERLINER
- INTERMED CENTERLINER has reached the intermediate stop
- SAFET.LE Safety circuit left has been exceeded
- SAFET.RI Safety circuit right has been exceeded
- CAN-ERR CAN-BUS communication error
- SAFETY CENTERLINER has been switched off due to an error
- SAF.GUID Subsoil control safety circuit has been exceeded
- G.SIGNAL Subsoil control does not receive any signal from subsoil cable
- GPS ERR. GPS communication error
- PARKPOS. CENTERLINER moving to or is already in preset parking position.

Span position

The actual span position is on display. This value indicates the position (in degree) of the spans to the main cart is currently.

Depth of irrigation

The actual depth of irrigation for the current driving direction is indicated while the CENTERLINER is moving. When the CENTERLINER stands still, the last active depth of irrigation is displayed.

Operating mode

This parameter changes the actual operating mode

AUTO STOP turned ON

- LINEAR *CENTERLINER* is operating in linear mode until end of field
- PIVOTING *CENTERLINER* is operating in pivot mode
- INSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in opposite direction (*inside of field*)
- OUTSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in same direction (*outside of field*)

AUTO STOP turned OFF

- INSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in opposite direction (*inside of field*), automatic continuation in LINEAR mode.
- OUTSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in same direction (*outside of field*), automatic continuation in LINEAR mode.

3. PARAMETER MENU

By pressing the MENU key the parameter menu is displayed. It consists of several windows that can be scrolled through with the keys **+** and **-**. One window consists of one block with 2 parameters.

You can enter the programming mode by pressing the ENTER (Menu) key. The cursor blinks at the first parameter and it can be changed with the keys **+ and **-**. You get to the second parameter by pressing the key RIGHT ARROW KEY (F). You get back to the first parameter by pressing the key LEFT ARROW KEY (R).**

Press ENTER for saving or leave with ESC without saving.

Below, the functions of the individual menu items are described:

3.1 DESCRIPTION OF INDIVIDUAL PARAMETERS

3.1.1 Operating mode / running length

Operating mode:

This parameter changes the actual operating mode

AUTO STOP turned ON

- LINEAR *CENTERLINER* is operating in linear mode until end of field
- PIVOTING *CENTERLINER* is operating in pivot mode
- INSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in opposite direction (*inside of field*)
- OUTSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in same direction (*outside of field*)

AUTO STOP turned OFF

- INSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in opposite direction (*inside of field*), automatic continuation in LINEAR mode.
- OUTSWING *CENTERLINER* is operating in linear mode until end of field and starts automatically in pivot mode in same direction (*outside of field*), automatic continuation in LINEAR mode.



Fig. 3.1 Parameter for setting of operating mode

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY  .

3.1.2 Depth1 FWD / Depth1 RVW

Depth1 FWD:

This value is the set amount of irrigation in *linear mode* in **mm** for the first segment for the driving direction FORWARD.

0 mm means that the machine is running with maximum speed. However the pump (depending on option) is switched off: DRY run.

Setting range: Changes from 0 mm to max. mm according to the set machine parameters.

Depth1 RVW:

This value is the set amount of irrigation in *linear mode* for the first segment for the driving direction REVERSE
 0 mm means that the machine is running at max. speed. However the pump (depending on option) is switched off: DRY run.

Setting range: Changes from 0 mm to max. mm according to the set machine parameters.

Note: 6 Precipitation rates are only available with GPS. Without GPS use *Depth1*.

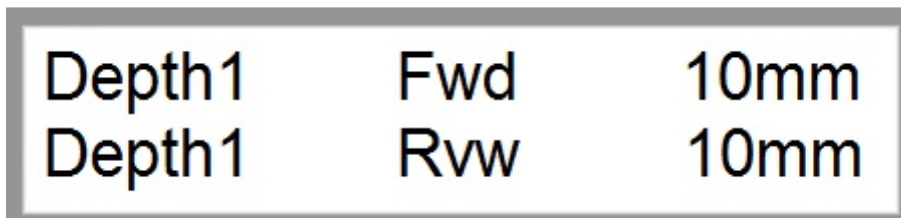


Fig. 3.2 Settings for precipitation rate in linear mode

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY  .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY  .

The depth of precipitation can be set for all six segments as described above.

3.1.3 PivotD.FWD / PivotD.RVW

PivotD.FWD:

This value is the set amount of irrigation in *pivot mode* in **mm** for the driving direction FORWARD (clockwise). 0 mm means that the machine is running with maximum speed. However the pump (depending on option) is switched off: DRY run.

Setting range: Changes from 0 mm to max. mm according to the set machine parameters.

PivotD. RVW:

This value is the set amount of irrigation in *pivot mode* for the driving direction REVERSE. 0 mm means that the machine is running at max. speed. However the pump (depending on option) is switched off: DRY run.

Setting range: Changes from 0 mm to max. mm according to the set machine parameters.



Fig. 3.3 Settings for precipitation rate in pivot mode

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY \rightarrow .

3.1.4 Endgun ON 1 / Endgun OFF 1

This serves to set the limits of irrigation by means of an endgun. Again it can be divided into six segments. This parameter only works with a set depth of precipitation of more than 0 mm.

Note: 6 segments for Endgun are only available with GPS. Without GPS use *Endgun1*.



Fig. 3.4 Parameters for setting of ON and OFF range of endgun

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY \rightarrow .

The size of segment can be set for all six segments as described above.

3.1.5 Left Limit / Right limit

This parameter specifies the field sector boundaries in meters.

Note: This window is not used without GPS.



Fig. 3.5 Parameter input for sector operation

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

3.1.6 Error log

In this menu the last 20 errors recorded including date and time of error are indicated.

If no errors are recorded, the display indicates **NO ERROR**.
 Otherwise you can identify the error by reading the text.

If errors are recorded, the log can be browsed by pressing the RIGHT and LEFT arrow keys. The keys appear in the right and left corner of the display.

When entering the error log, the last error will be displayed first.

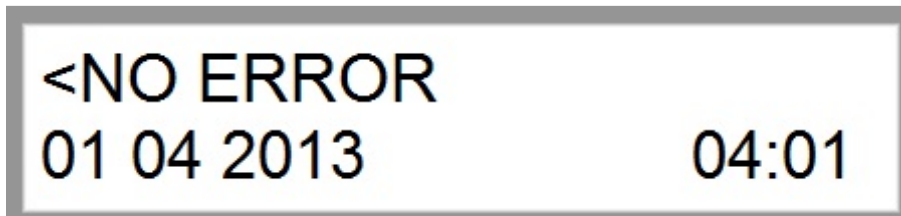


Fig. 3.6 Error log

All error texts are explained below:

- **NO ERRORS**
 No errors occurred so far; the error buffer is empty. Pressing the LEFT and RIGHT arrow key has no effect.
- **LAST TOWER**
 A failure appeared at the end tower.
 This may be caused by malfunctions, for example, a safety circuit is interrupted.
- **SAFETY CIRCUIT**
 The safety circuit was interrupted: By pressing the EMERGENCY STOP switch in the control cabinet, by activation of a limit switch on the tower, by off-track running or by an additionally mounted sector limit switch.
- **PRESSURE SWITCH**
 The water pressure is too low for the pre-set monitoring time.

- **I2C Error**
A communication error has occurred on the I2C bus. If the error appears more than once, it could be a hardware error.
- **RTC Error**
Real Time Clock error or I²C Bus error (repeated error warnings signal a hardware problem)
- **Low Voltage**
The operation was interrupted due to low voltage.
- **CAN ERROR**
Error in can communication
- **ANT. NO SIGNAL**
BELOW GROUND GUIDANCE not receiving a signal from UNDERGROUND CABLE or signal too weak.
- 1. **GPS Rec.ERROR**
No GPS signal or GPS communication error.

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **- .**

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+ .**

3.1.7 Operatingh. WET

The operating hours in hours and minutes are indicated only for the operating time with the pump switched on. A reset is only possible by reloading the preset parameters.

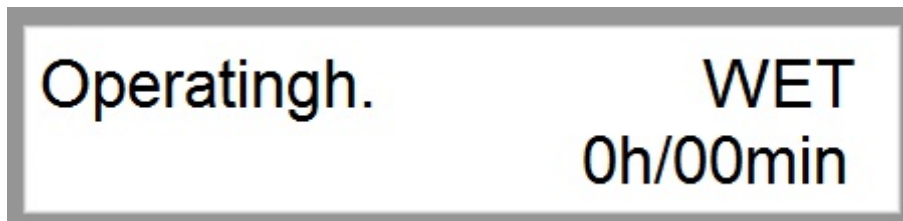


Fig. 3.7 Operating hours wet

3.1.8 Operatingh. SUM

The operating hours in hours and minutes are indicated for the total operating time. A reset is only possible by reloading the preset parameters.

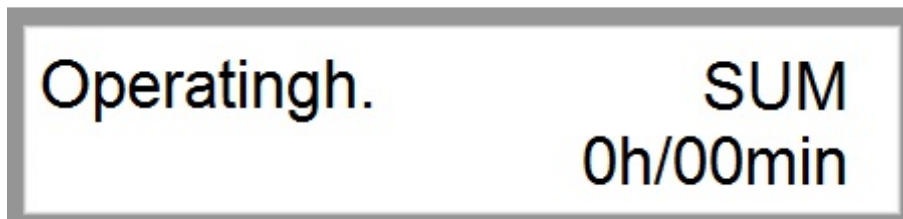


Fig. 3.8 Operating hours total

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.9 Counter end (end tower) / counts

The item counter shows the actual timer reading of the end tower.

The first number displayed under the item counts indicates the calculated running time of the end tower whereas the second number shows the idle period of the end tower (*in PIVOTING MODE*).

counter	end	3s
counts	20s	40s

Fig. 3.9 Counter End Tower

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.10 Car counter (main cart) / counts

The item “counter” shows the actual timer reading of the central tower.

The first number displayed under the item counts indicates the calculated running time of the system whereas the second number shows the idle period of the system (*in LINEAR MODE, applies to both end and central tower*).

car counter		0s
counts	20s	40s

Fig. 3.10 Car counter

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.11 On-delay

Displays the actual timer.

The **On-delay** is a delay in seconds for the motors after turning on the pumps to allow for irrigation under full pressure from the beginning.



Fig. 3.11 On-delay

Note: This window is not used for Below Ground Guidance.

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY \rightarrow .

3.1.12 Status Below Ground Guidance

Display window only with type "CLS Unde" present in the Machine Parameter Menu.

The first line displays the values of the antennas, the left and the right one. It is to their own ratios, which reflect the deviation from the antenna cable. The smaller the value, the smaller the deviation.

The second line displays the filtered values. The value for filtering the can be set at the Machine Parameter Menu. The left bottom shows the coded status of Track Unit of the Below Ground Guidance.

Note: This window is not used for Furrow or Cable Guidance.

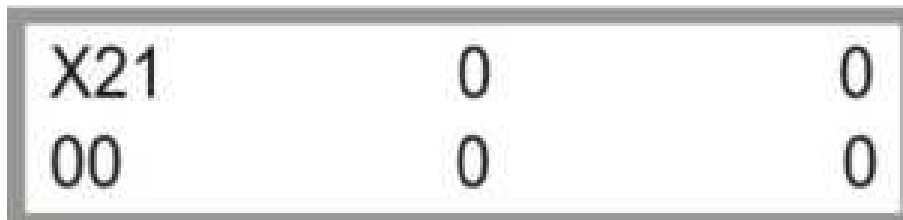


Fig. 3.12 Status below ground guidance

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY \rightarrow .

3.1.13 Antenna values (Below Ground Guidance) SD1 / SD2

- S1: cumulative value antenna 1
- D1: difference value antenna 1
- S2: cumulative value antenna 2
- D2: difference value antenna 2

The cumulative values shows the field strength.
The difference values shows the deviation from the cable

Note: This window is not used for Furrow or Cable Guidance.

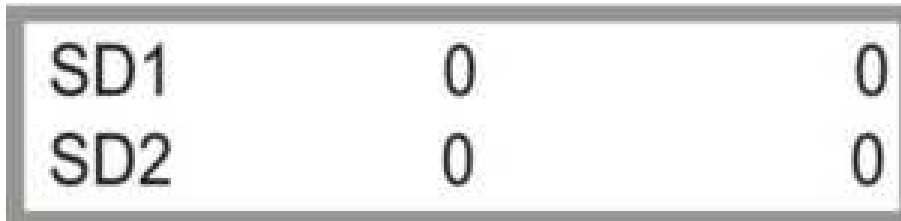


Fig. 3.13 Antenna values (Below Ground Guidance)

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.14 Status inputs / outputs

Displays all actual input and output signals
 0 = no voltage at input 1 = voltage at input
 0 = output off 1 = output on

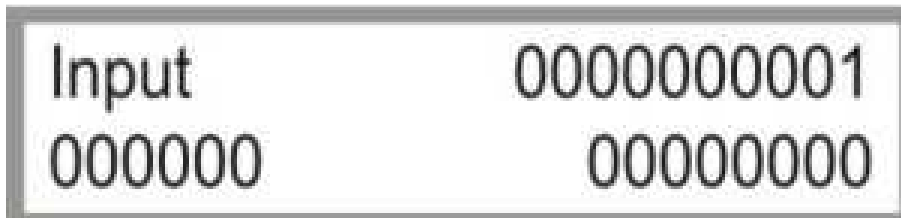


Fig. 3.14 On-delay

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.15 Status modem

This function concerns the signal level of the GSM Modems. Press the ENTER key to capture signal strength of modem and to read it on the display. If the displayed value is higher than 15, machine control by SMS should be possible.

Note: This window is not used without GSM or GPRS modem.

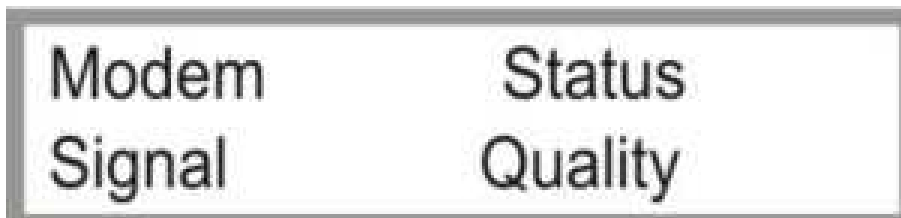


Fig. 3.15 Status modem

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.16 ComReadIn

Menu item concerning fault diagnosis of RS 232.



Fig. 3.16 Fault diagnosis RS232

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.17 Runtime.ET / korrekt.ET

Shows current counter value of the correction control of end tower.



Fig. 3.17 Runtime.ET / korrekt.ET

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

3.1.18 Machine Position

Shows the actual distance of the machine from the as before defined zero position.

Values are in "m".

Note: This window is not used without GPS.



Fig. 3.18 Machine position

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

3.1.19 NOT connected / ping time

1st line shows the connection status of the GPRS modem.

NOT CONNECTED Modem is NOT connected / no connection to server.
CONNECTED Modem is connected / connection to server.

pingtime shows the counter / remaining time to next ping.

Note: This window is not used without GPRS modem (visualisation).



Fig. 3.19 Parameter GPRS-modem / ping time

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

3.1.20 ReconnT. / Modem, Par

Shows current values of GPRS-modem for visualisation.

Note: This window is not used without GPRS modem (visualisation).



Fig. 3.20 Parameter GPRS-modem / ping time

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4. MACHINE PARAMETER MENU

4.1 Description of the individual parameters

For entering the machine parameter menu, press the key STOP. Then the code display appears. By using the UP and DOWN keys, you can set the code and confirm it by pressing the key ENTER. If you use the correct code *Machine Parameter Menu* is displayed.

CODE=12 only for repair technicians



Fig. 4.1 Parameter for code input



Fig. 4.2 Entering code 12

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY $-$.

You can enter the programming mode by pressing the ENTER (Menu) key. The cursor blinks at the first parameter and it can be changed with the keys $+$ and $-$. You get to the second parameter by pressing the key RIGHT ARROW KEY (F). You get back to the first parameter by pressing the key LEFT ARROW KEY (R).

Press ENTER for saving or leave with ESC without saving.

4.1.1 Date and time

Setting the system date and the time.

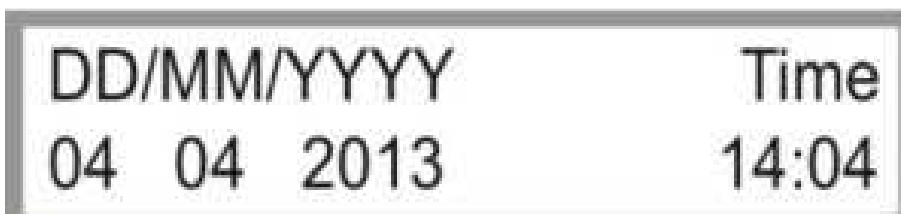


Fig. 4.3 Setting of date and time

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY $-$.

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY $+$.

4.1.2 Language and irrigation radius

Setting the **language** and **irrigation width** of the machine.

The **irrigation width** is the length from the main cart to the final point of the machine (*end tower incl. overhang*).

Language	English
Irriga.width	108m

Fig. 4.4 Setting of language and irrigation width

4.1.3 Running length / flow

The **running length** is twice the length of the supply hose in meters.

The **flow** is the calculated or measured system throughput in m³/h.

These values approve an exact calculation of machine runtime cycles.

Running lgt	120m
Flow	80m/h

Fig. 4.5 Parameters running length and flow

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY \rightarrow .

4.1.4 Period of time and on-delay

The **time period** is the total of running time and idle period of the *end tower*.

Running time and idle period are calculated according to the set application rate. The total of running time and idle period is always the time period.

The **On Delay** is a delay in minutes for the motors after turning on the pumps to allow for irrigation under full pressure from the beginning.

TimePeriod	60s
On Delay	2m

Fig. 4.6 Setting of period of time and on-delay

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY \leftarrow .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.5 Pressure switch and pressure delay

Enter **PRESSURE SWITCH ON** to activate system pressure monitoring by the means of a pressure switch. The **PRESSURE Delay** is the time in minutes the system is waiting, when pressure gets too low, before a pressure FAILURE is displayed and the CENTERLINER is stopped.

Note: This window is not used without *pressure switch*.

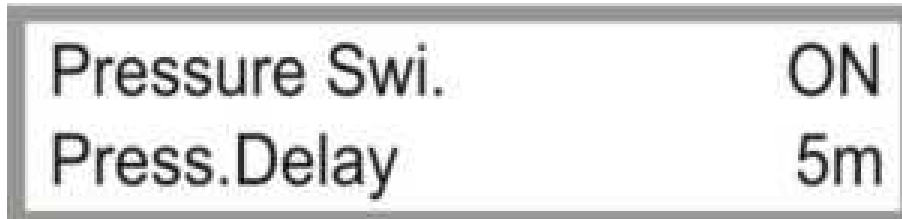


Fig. 4.7 Parameters for pressure switch and pressure delay

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.6 Maximum speed / display light

The **MAXIMUM SPEED** is a calculating factor in order to calculate the cycle times with the aid of the set precipitation. This parameter depends on the mounted gears, the engine speed, the diameter of the wheels and the condition of the surface.

DISPLAY LIGHT is the time for switching off the background lighting (if you do not press any key for the set time, the background lighting will be switched off).



Fig. 4.8 Setting of max. speed and display light

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.7 Telephone number 1

You can set the **phone number** to which *all SMS will be sent*.

Note: This window is not used without *GSM* or *GPRS modem*.

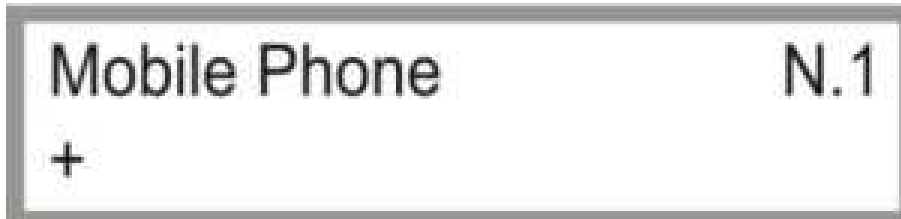


Fig. 4.9 Entering the phone number 1

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.8 Telephone number 2

Here you may set an optional **phone number 2** to which all text-messages will be sent.

Note: This window is not used without *GSM* or *GPRS* modem.

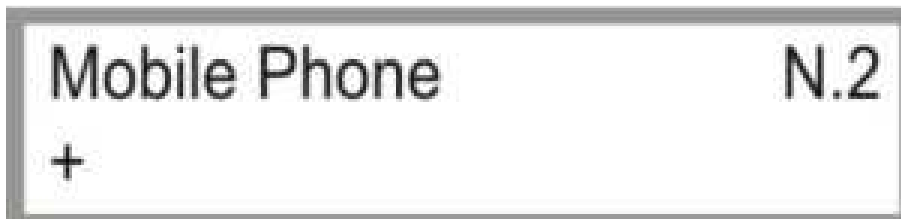


Fig. 4.10 Entering the phone number 2

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.9 PIN Code

The **PIN** is the PIN CODE of the SIM card put into the GSM modem

IMPORTANT: Be sure to set the PIN CODE before you put the SIM card into the modem. Otherwise you would have to set the PUK CODE by the means of a cell phone.

Note: This window is not used without *GSM* or *GPRS* modem.



Fig. 4.11 Entering PIN Code

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.10 Motoroffdelay / machine type

Motoroffdelay: Prevents too rapid response of the linear control (*switch debouncing*)

Type: Select among machine type CLS Furr, CLS Unde, CLX Furr, CLX Unde, PRO EXT1, PRO EXT2.

CLS Furr: Furrow / cable guidance - *CENTERLINER CLS / CLE*

CLS Unde: Below ground guidance - *CENTERLINER CLS / CLE*

CLX Furr: Furrow / cable guidance - *CENTERLINER CLX*

CLX Unde: Below ground guidance - *CENTERLINER CLX*

PRO EXT1: Set this value for second PRO module inside the main control unit

PRO EXT2: Set this value for an additional PRO module inside the main control unit



Fig. 4.12 Entering Motor-off-delay & machine type

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.11 M (motor) running time / M (motor) correction

The **MOTOR RUN TIME** concerns only system adjustment by means of the furrow guidance and here it means the time one motor (of the central tower or of the end tower) must run before the second motor must be turned on manually in order to eliminate mechanical stress in the system.

The **MOTOR CORRECTION** is the time for which the manually turned on motor will run after end of the set **MOTOR RUN TIME**.



Fig. 4.13 Entering motor runtime & motor correction time

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.12 SektorP.L / SektorP.R

SektorP.L and **SektorP.R** concerning the limits when the machine runs in pivot mode.

These settings also take effect when using *inswing* or *outswing* mode.



Fig. 4.14 Setting SektorP.L & SektorP.R

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.13 LCD Intensity / Motordelay

LCD Intensity is the backlight intensity.

Motordelay is the delay after which the second wheel of the central tower gets started.

Set both parameters at the same value for using the *CENTERLINER* in *pivot mode* continuously, e.g. *SEKTORP.L = 0°* & *SEKTORP.R = 0°*.



Fig. 4.15 Setting LCD Intensity & Motordelay

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **-** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.14 Fwd OFFSET / Fwd Window

Line1: "Fwd Offset XXXX"

Line2: "Fwd Window XXXX"

Here you can determine the deviation XXXX of the antenna to the tracking to start a movement of steering in the direction *FORWARD*.

In the first line, the **offset** of the actual position of the antenna to the underground cable can be set.

In the second line, the value of the deviation where no correction control will be effected by the Below Ground Guidance can be set.

Note: This window is not used with *Furrow* or *Cable Guidance*.



Fig. 4.16 Setting Fwd OFFSET & Fwd Window

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.15 Rvw OFFSET / Rvw Window

Line1: "Rvw Offset XXXX"
 Line2: "Rvw Window XXXX"

Here you can determine the deviation XXXX of the antenna to the tracking to start a movement of steering in the direction *REVERSE*.

In the first line, the **offset** of the actual position of the antenna to the underground cable can be set. In the second line, the value of the deviation where no correction control will be effected by the Below Ground Guidance can be set.

Note: This window is not used with *Furrow* or *Cable Guidance*.



Fig. 4.17 Setting Rvw OFFSET & Rvw Window

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.16 Dis.SafFwd / Dis.SafRvw

Line1: „Dist.SafFwd_XXXX“
 Line2: „Dist.SafRvw_XXXX“

Here you can determine the deviation XXXX of the antenna to the tracking to activate the safety circuit and stop the CENTERLINER.

The first line sets the value of the deviation to the left / right in forward drive, the second line represents the value of the deviation to the left / right while reversing. These values are not associated with a unit.

Note: This window is not used with *Furrow* or *Cable Guidance*.

Dist.SafFwd	60
Dist.SafRvw	60

Fig. 4.18 Setting Dist.SafFwd & Dist.SafRvw

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.17 Filter X1 / Filter X2

Line1: „Filter_X1_XXXX“

Line2: „Filter_X2_XXXX“

Erratic values of the steering antennas (caused by bad signal, noise, faulty cabling, etc.) can be compensated by turning on a digital filter. "Filter X1" stands for filter settings of antenna 1, "Filter X2" stands for filter settings of antenna 2.

Permitted settings for "XXXX" is between "0" and "100", where "0" means no filtering, and "100" for maximum filtration.

Note: This window is not used with *Furrow* or *Cable Guidance*.

Filter X1	60
Filter X2	60

Fig. 4.19 Setting Filter X1 & Filter X2

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.18 Pos.Fwd. 90 / Pos.Rvw. 90

Settings for enabling a *positive bow* in driving direction *Forward* and *Reverse* in 90° position.

These settings will change the angle between *Main Cart* and 1st *Span*.

Note: Increasing the values will change the angle clockwise; decreasing the values will change the angle counter-clockwise.

Pos.Fwd.90	90.0
Pos.Rvw.90	90.0

Fig. 4.20 Setting Pos.Fwd.90 & Pos.Rvw.90

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.19 Pos.Fwd. 270 / Pos.Rvw. 270

Settings for enabling a *positive bow* in driving direction *Forward* and *Reverse* in 270° position.

These settings will change the angle between *Main Cart* and 1st *Span*.

Note: Increasing the values will change the angle clockwise; decreasing the values will change the angle counter-clockwise.

Pos.Fwd.270	270.0
Pos.Rvw.270	270.0

Fig. 4.21 Setting Pos.Fwd.270 & Pos.Rvw.270

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.20 Linearpos. hysteresis

Setting the value of the angle deviation between *Main Cart* and 1st *Span* where no correction control will be effected by the linear correction control.

Setting of "0.6" means that an angle deviation of +/- 0.3° is allowed.

LinearPos.	0.6
Hysterese	

Fig. 4.22 Setting Linearpos. hysteresis

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .
 IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.21 Autoreverse / GPS

AUTOREVERSE

Here the function *AUTOREVERSE* can be switched ON or OFF. If Autoreverse is switched OFF the CENTERLINER will stop at the end of the field. If this function is switched ON the CENTERLINER will automatically turn and will drive back to the other end until the maximum rounds are reached, then the CENTERLINER will end the program and stop.

Note: Use this parameter only in PIVOT MODE. *AUTOREVERSE* in LINEAR MODE with a Centerliner CLS 9000 (rigid feeding line) will cause damage to the machine.

At the second line the function GPS can be switched ON or OFF. If GPS is OFF the error message "GPS Error" is deactivated.

Note: GPS must be turned **OFF** when the GPS option was not ordered.



Fig. 4.23 Setting Autoreverse & GPS

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.22 Zeropos.

Setting will change the angle between Main Cart and 1st Span. When the machine is not 100% aligned after installation or hardware replacements.

Note: Increasing the values will change the angle clockwise; decreasing the values will change the angle counter-clockwise.



Fig. 4.24 Setting Zeropos.

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.23 LenkTakt / LenkPause

With **SteerPulse** (LenkTakt) and **SteerPause** (LenkPause), you can configure the maximum allowed number of steering pulses that may be processed without interruption (*SteerPause*). The steering pulse depends on the guidance (furrow, cable, wire) deviation and is automatically selected by the control.

LenkTakt is the maximum allowed number of steering pulses.

LenkPause is the delay time between 2 consecutive steering pulses.

Note: This window is not used with *Furrow* or *Cable Guidance*.

LenkTakt	50
LenkPause	20

Fig. 4.25 Setting LenkTakt & LenkPause

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.24 Remote Control / GPS Error Time

Remote con.: Configuration of communication: OFF, SMS or DATA

OFF: no data transmission

SMS: data transmission via SMS to the number entered

DATA: visualization on PC

GPS Error Time in minutes: After this time without a GPS receiver a GPS Error will appear and stop the program.

Note: This window is not used without *GSM* or *GPRS* modem and without *GPS*.

Remote Con.	OFF
GpsErrorTime	5m

Fig. 4.26 Setting Remote Con. & GpsErrorTime

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **←** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **→** .

4.1.25 Comm.Timeout / PingTime

Settings for GPRS-modem when using visualisation.

Comm.Timeout: Maximum time period after what a communication error is registered.

Ping Time: Time period wherein a server ping is executed.

Note: This window is not used without *GSM* or *GPRS* modem.

Comm.Timeout	8m
PingTime	200s

Fig. 4.27 Setting Comm.Timeout & PingTime

IN ORDER TO GET TO THE NEXT PARAMETER BLOCK PRESS THE KEY **—** .

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+** .

4.1.26 Address / port number

Use the address entered on the PC configuration for the relevant machine (see Fig. 5.19 marked red)
 These numbers are available only once and they are clearly defined.

Note: This window is not used without *GPRS modem* (visualisation).

Address	0
Portnbr.	4801

Fig. 4.28 Setting Adress & port number

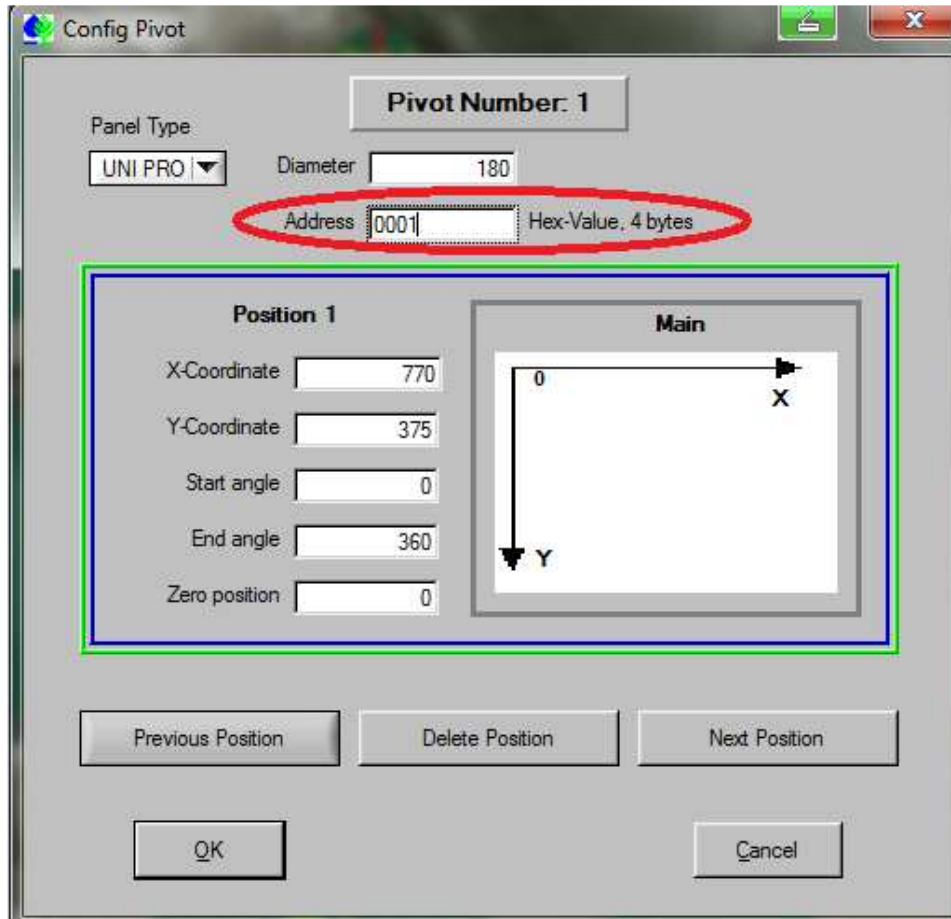


Fig. 4.29 Address in PC configuration

Under parameter "port number", the internet connection number used is set. The control unit tries to establish a TCP connection to the PC control centre on the port set. The same port number must be entered on all machines and on the PC configuration (please mind port forwarding).

IN ORDER TO GET TO THE PREVIOUS PARAMETER BLOCK PRESS THE KEY **+ .**

5. OPERATING VIA SMS

5.1 Receiving SMS messages with the PRO Controller

You can receive various SMS messages with a standard GSM mobile phone when connecting a GSM modem to the PRO Controller. These can be STATUS messages after a STOP or a START of the machine or error reports, e.g. after a pressure loss or off-track running.

Procedure:

- 1) Start the PRO Controller.
- 2) Set the telephone number and the PIN Code in the machine parameter menu.
- 3) Shut off the PRO Controller and connect the GSM modem to the PRO Controller.
- 4) Turn on the PRO Controller and observe the initialization; GSM MODEM OK should be indicated on the display.
- 5) After successful boot procedure, an SMS is sent to the set telephone number. Then all functions of the PRO Controller with SMS function are active (sending error reports, status messages, acknowledgements per control SMS).

5.2 Controlling the PRO Controllers by means of SMS messages

You may confirm the functions START, STOP or change the precipitation depth by SMS.

Starting the PRO Controllers by SMS

In order to start the PRO Controller, you need to send a SMS to the telephone number of the PRO GSM module, saying

FWD-CMDxx or **FWD-CMD** (old version: **FWDxx** / **FWD** or **FWD_CMDxx** / **FWD_CMD**)
RVW-CMDxx **RVW-CMD** (old version: **RVWxx** / **RVW** or **RVW_CMDxx** / **RVW_CMD**)

NOTE: ALL LETTERS MUST TO BE CAPITAL LETTERS!

xx stands for the chosen precipitation in mm.

xx always must have two digits. With a chosen precipitation of less than 10, you must enter, e.g., **FWD_CMD05** into the SMS in order to start forward operation of the machine with a precipitation of 5 mm (longer texts will not be accepted).

Stopping the PRO Controller via SMS

In order to stop the PRO Controller, you need to send an SMS to the telephone number of the PRO GSM module, saying

STOP-CMD (old version: **STOP** or **STOP_CMD**)

STATUS monitoring via SMS

In order to get the current STATUS of the PRO Controller, you need to send an SMS to the telephone number of the PRO GSM module, saying

STATUS

Replies of the PRO Controller

To each SMS sent, the PRO Controller returns a check-back SMS, reading:

- Machine status (e.g.: forward)
- Precipitation forward and reverse in mm
- System time
- Current cycle
- Maximum cycles
- Remaining irrigation time

6. ALIGNMENT OF CENTERLINER

Control Panel SELECT PRO:

- Turn main switch to position “1”
- Turn safety circuit switch to “OFF”.
- PRO Modul is displaying “SETUP”.
- Press “FORWARD” or “REVERSE” key to select travel direction.
- Press “+” key – As long as the “+” key is hold the main cart is moving.
- Press “-“ key – As long as the “-“ key is hold the end tower is moving.

Note: Depending on the deviation between the spans, they will also start moving.

7. INSTRUCTIONS FOR ASSEMBLING

The *CENTERLINER 9000* is provided with an absolute encoder. Follow the schemata above for proper functioning.

7.1 Machine position 90°



Fig. 6.1 Status window 90°

Maschinenposition / machine position 90°

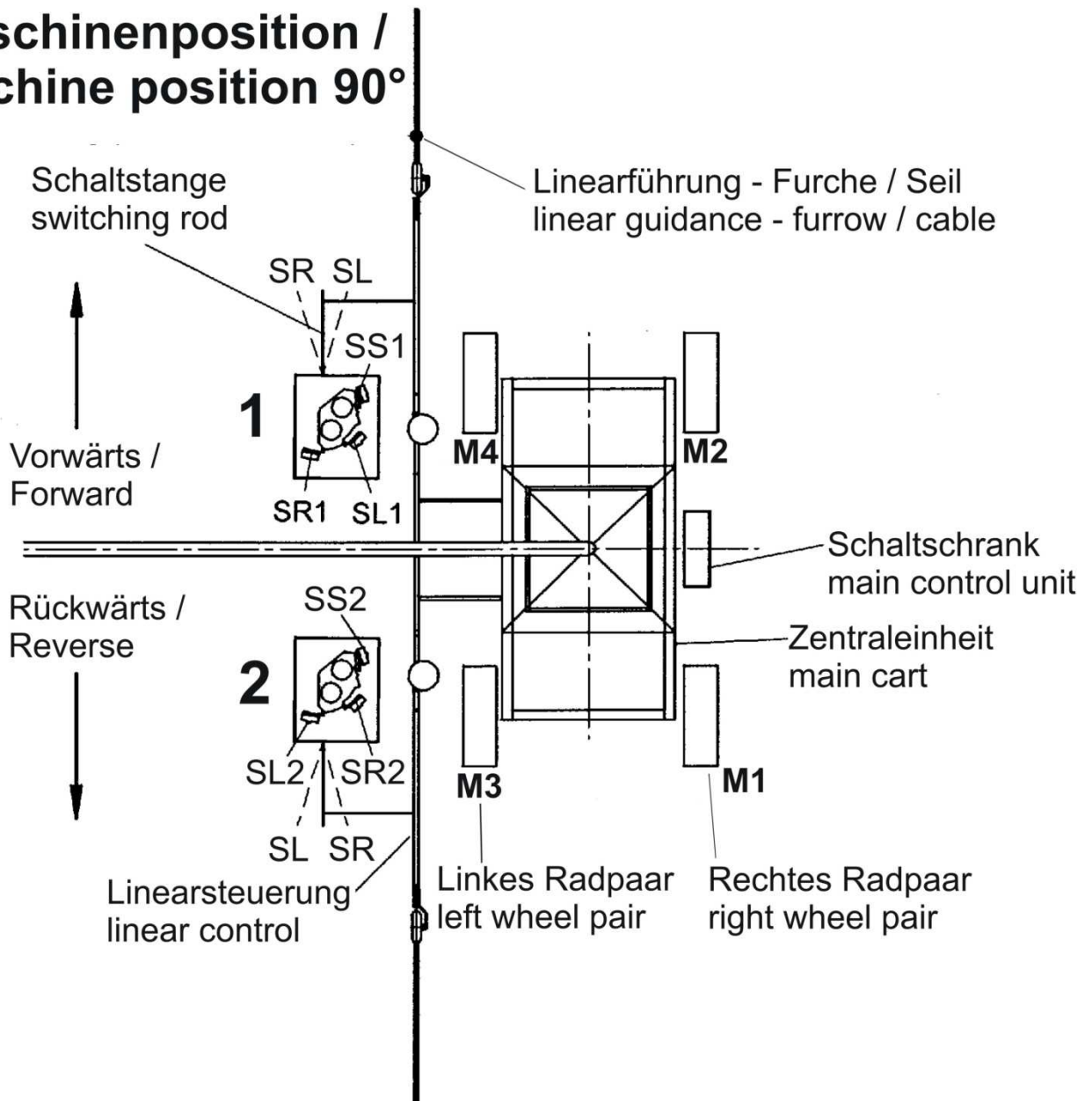


Fig. 6.2 Machine position 90°

7.2 Machine position 270°



Fig. 6.3 Status window 270°

**Maschinenposition /
machine position 270°**

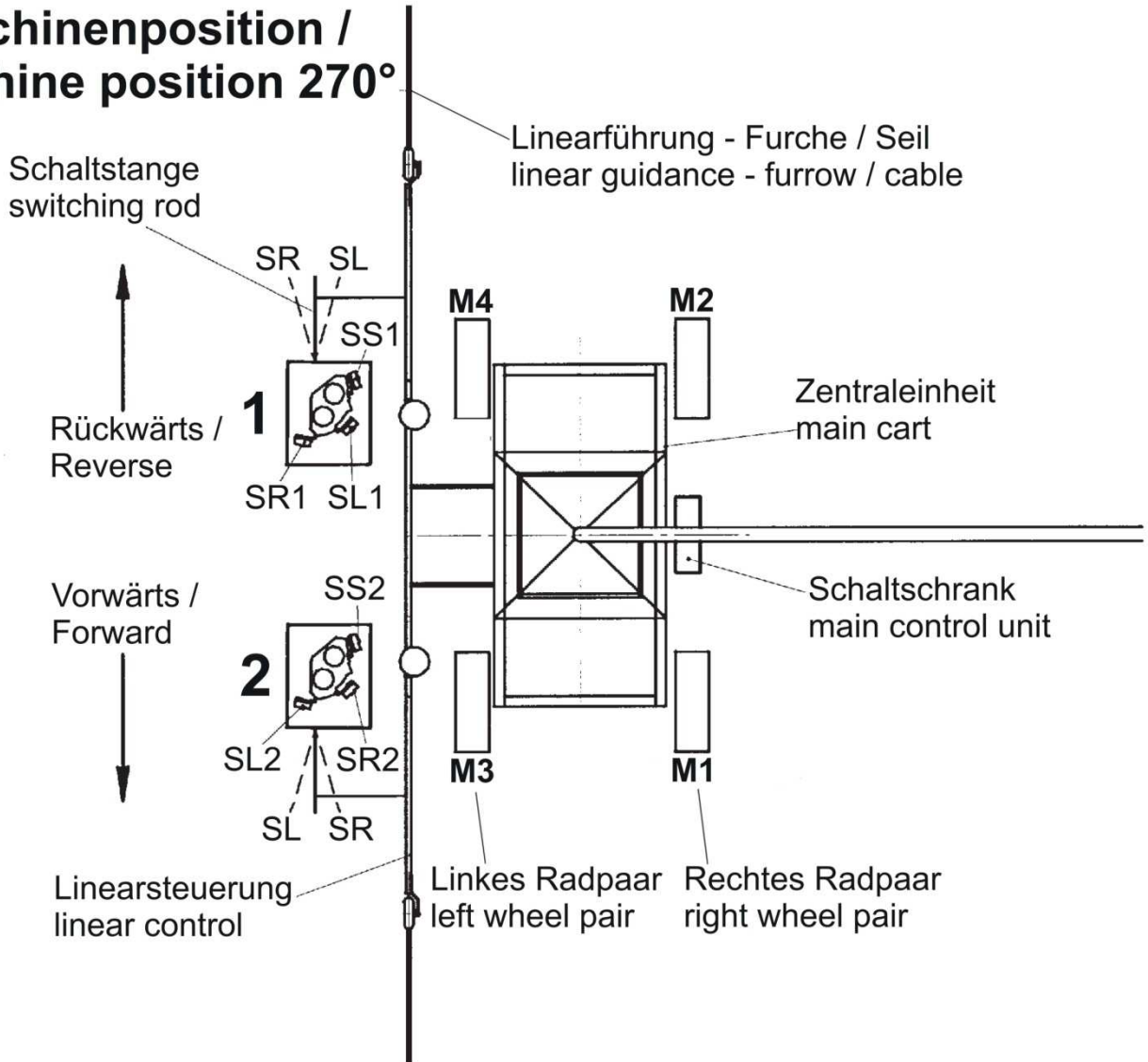


Fig. 6.4 Machine position 270°

8. Firmware update

8.1 With PDA / Laptop

- 1.) Put the main switch of the control panel in position „OFF“
- 2.) Open the inner door and connect the PRO-module via a serial cable to the laptop (PC or PDA)
- 3.) Turn the main switch in position „ON“ while pushing the MENU key (display shows: FLASH BOOTLOADER)
- 4.) Start the programme „**DownloadTool**“
- 5.) Choose the correct COM interface (error message **comerror** if wrongly chosen)
- 6.) Load the latest file valid with the browser (e.g. procenttimerV3_3.hex)
- 7.) START DOWNLOAD – files should be downloaded without interruption until message: **Software Download successfully finished**
- 8.) Separate the serial connection
- 9.) Wait until display shows **load eprom**. The standard parameters are loaded and the PRO is booted.

8.2 With BAUER firmware update device

The firmware can be updated with the separately available *firmware update device*.

9. Technical data

Control unit	
Voltage	230 V/50 Hz (+/- 10 %) or 12V -
Input	4 VA
Ambient temperature	0 to 65 °C
Dimensions (HxWxD)	85x90x75
Breaking capacity of the relays	230V~ 5A
Entries	230 V/50 Hz (+/- 10 %)

10. CONNECTION AND WIRING DIAGRAM

All inputs and outputs need to be connected at the rear with three plugs.

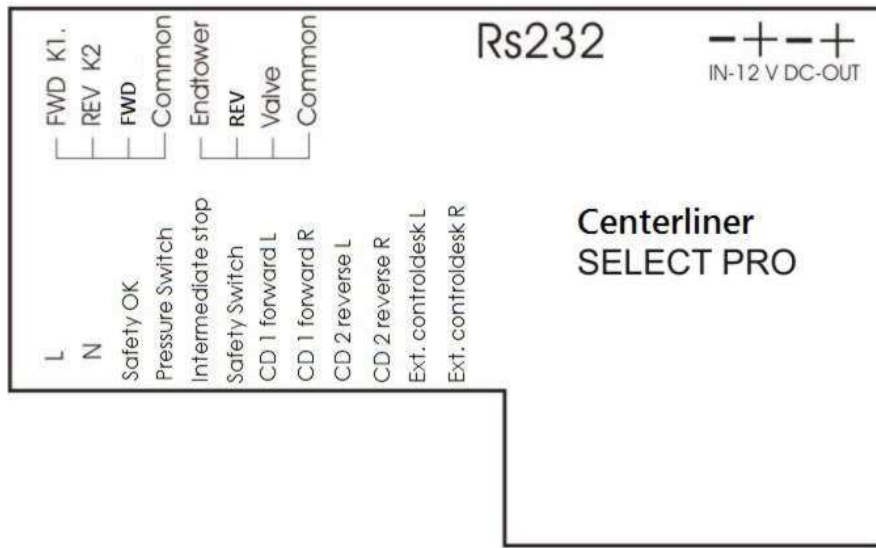


Fig. 10.1 Label PRO - front

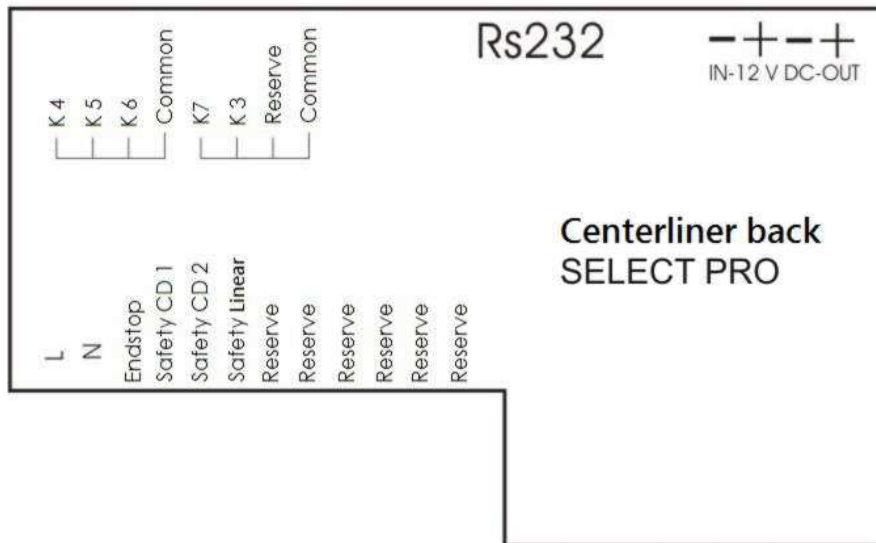


Fig. 10.2 Label PRO - back

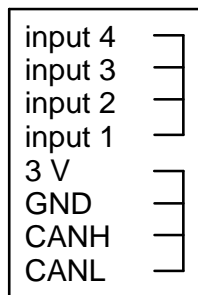


Fig. 10.3 Label PRO - side