Cable glands

The RW-SD motor gearbox has (installed) cable glands M20x1.5 mm and/or M16x1.5 mm to put through the motor connections (EM) and other cables.

The conditions and starting points that follow are applicable:

- Always put only **one cable** through **one cable gland**.
- Use a cable with a conductor-diameter of:
  - **Ø6.0–12.0 mm** and a tightening torque of **5.0 Nm** for cable glands **M20x1.5 mm**
  - **Ø5.0–10.0 mm** and a tightening torque of **2.5 Nm** for cable glands **M16x1.5 mm**.
- Make sure that water **flows away** from the cable glands (cable routing: make loops if necessary).

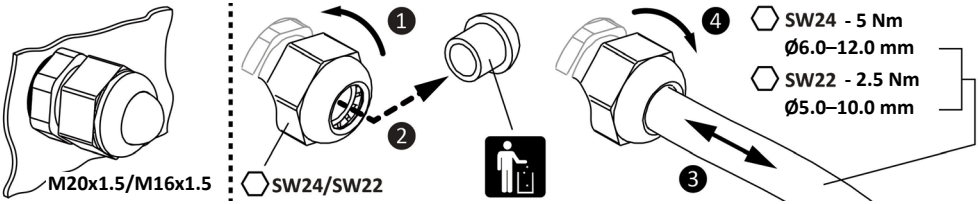
ATTENTION

Make sure that all openings are correctly sealed with cable glands or with initially installed blind plugs. This prevents problems with moisture and/or the IP protection rating.

Obey the procedure that follows:

1. Loosen the cable gland.
2. Remove the sealing plug*.
3. Put the cable through the cable gland.
4. Tighten the cable glands with the correct tool and tightening torque.

* If your decision is not to use this cable gland, make sure to put the sealing plug back. Tighten the cable gland with the correct tool and tightening torque!



The conditions that follow are applicable to the wiring diagrams.

- The installer makes sure that necessary and not shown protections are used and included in the wiring diagrams.
- Make sure that you can see the operated system from all control units and control systems. Put control units and control systems at a height that agrees with applicable standards and guidelines.
- Protect the electric connections from moist conditions.
- Obey the applicable standards, guidelines and/or wiring guidelines for electrical connections.

⚠ WARNING	**Electrical connections are only permitted to an electrical installer or an electrician.**
⚠ WARNING	**A fully and correctly connected wiring diagram is necessary. It is mandatory to connect all safety contacts and duty contacts.**
⚠ WARNING	**ELECTRIC SHOCK There can be dangerous voltages, also when the drive unit is not in operation.**
⚠ CAUTION	**For installation work, connection work and maintenance work the system must be de-energized.**
⚠ CAUTION	**Make sure that each electric motor (EM) is stopped (only) with its own end position system. This prevents the risk of incorrect control, an incorrect direction-of-rotation or incorrect operation of end position systems of different electric motors.**
⚠ ATTENTION	**The installer sets the Motor-Protection Circuit-Breaker (MPCB[Q41]) to the value of the nominal current of the electric motor.**
⚠ ATTENTION	**Always make sure that the protections comply with the, local or national, laws and regulations of the country.**

Induction

Problems with induction must be prevented. Induction can cause an interference with the electronics.

Induction can have many causes such as:

- Cable lengths
- External sources
- Too many cables together.

ATTENTION	**Separation of cables is necessary. This prevents problems with induction.**

EMC Interference

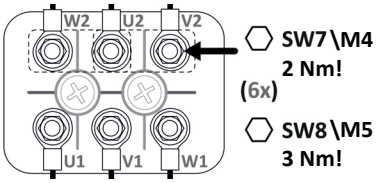
Problems with electromagnetic interference must be prevented. For a correct functional operation possibly precautions, such as an EMC mains-filter, are necessary.

ATTENTION	**It is necessary to obey EMC-conformity. This prevents problems with electromagnetic interference.**

To prevent electromagnetic interference and for a correct functional operation of the components:

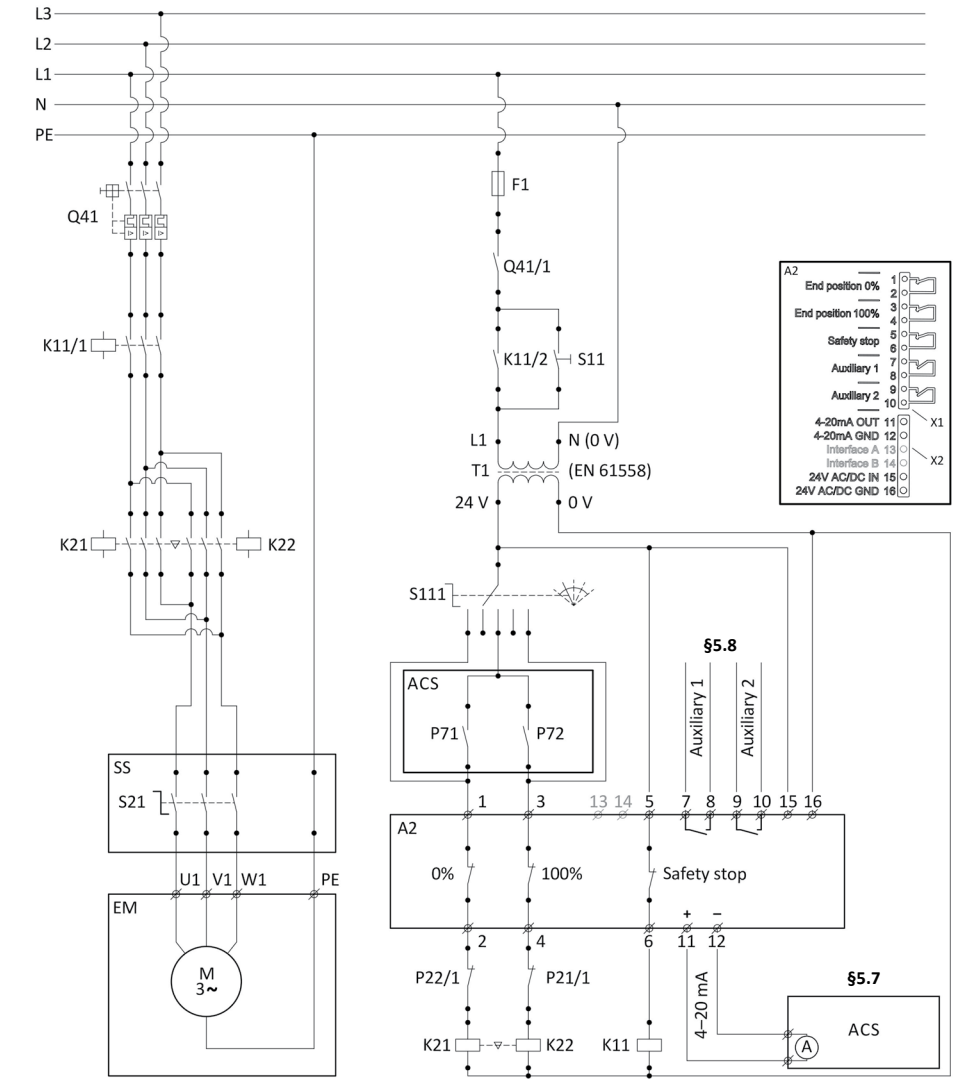
- Use a metal control cabinet. Make sure that the control cabinet and the doors have a good ground connection.
- Use cables that have the correct dimensions for the load.
- Use shielded twisted-pair cables for control signals. Do not use the shields for common connections (CM).
- Do the routing of each cable for control signals together with the related common cable.
- Connect each ground connection to the system ground (metal control cabinet is recommended). Use the shortest and thickest cables as possible.
- Connect the ground connections of the cable shields as follows:
  - Connect the cable shields to the system ground (metal control cabinet is recommended). Make sure that the shields only go to ground at one end of the cable. This end of the cable must go to the components.
  - Make sure that shield connections are as short as possible.
  - Make sure that the shields do not divide when the length of shielded cables is increased.

5.4 Tightening-torque motor-connections



Tighten the motor connections with the correct tightening torque!

- **M4** connections: **2 Nm**
- **M5** connections: **3 Nm**.



WARNING

Connect all safety contacts (Safety stop) and duty contacts (0%/100%). This is necessary for safety and correct functional operation. Connections: 1–6

5.6 Change direction-of-rotation

If necessary, it is possible to change the direction-of-rotation.

TIP

Change direction-of-rotation (diagram §5.5):
Interchange U1 and V1 on the terminal block (EM).

5.7 Automatic Control (ACS) (24 V AC/DC)

You can connect the SD unit (SDU) to an automatic control-system (ACS). Refer to the general diagram (§5.5) and connect the ACS. Also refer to the product manual of the ACS that is used.

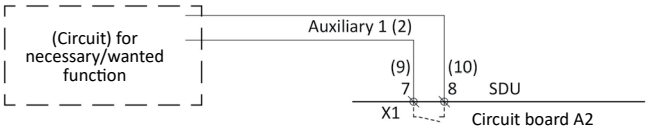
For the enabled 4–20 mA feedback:

- An own power supply is **not** necessary. The power supply is received from the SD unit (SDU)
- Is the feedback signal **prepared** and **available** to measure.

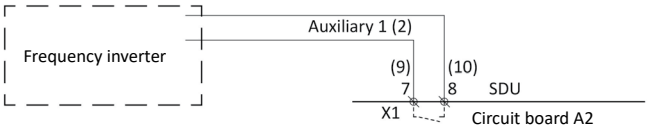
5.8 Auxiliary 1/2 (SDU)

You can connect and set (§12.2) the auxiliary contacts (Auxiliary 1 and 2) for the **three functions** that follow.

1. Setpoint: enabled auxiliary contact
If necessary, connect and set (refer to §12.2.1) the auxiliary contact (Auxiliary 1 or 2), to use (in a circuit) for a necessary or wanted function.



2. Frequency limiter
If necessary, connect and set (refer to §12.2.2) the auxiliary contact (Auxiliary 1 or 2), to enable the input for high speed of a frequency inverter.



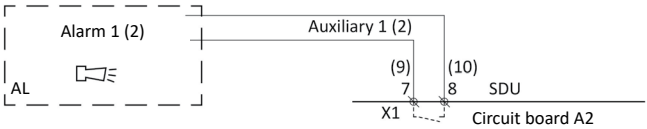
3. Fault contact

As a **minimum** it is **recommended** to connect and set (refer to §12.2.3) Auxiliary 1 or 2 to use the **fault contact** function.

Connect the fault contact (Auxiliary 1 or 2) to an alarm circuit, alarm unit or alarm input of a control system. The fault contact is opened during normal operation and closes when a random fault occurs. You can connect one or more SD units.

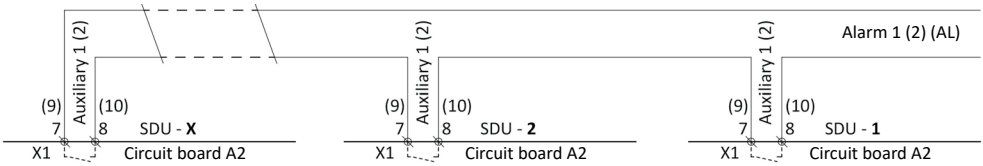
Connecting - One SD unit

Obey the diagram that follows to connect one SD unit (SDU).



Connecting - Two or more SD units

Obey the diagram that follows to connect the fault contacts to two or more SD units (SDU).



If work becomes necessary when you use the drive unit (normal operation), **approved personnel** usually must do the work.

6.1 Usage - Conditions and starting points

The conditions and starting points that follow are applicable when you use the RW-SD motor gearbox.

Automatic Control

DANGER	**The motor can start and stop automatically without a warning. Persons can be in danger of life if they touch a system that is in operation.**

Temperature

CAUTION	**A drive unit can get high temperatures. If necessary take protective precautions to prevent injuries.**

SAFETY STOP

CAUTION	**When a "safety stop" (safety contact) occurs:** • **Do a check of the condition of the operated system. Make sure that the system can be safely operated.** • **If necessary: Set the end positions again.** **This prevents damage or injury.**

6.2 Operation RW-SD motor gearbox

The RW-SD motor gearboxes are usually used in automated systems.

Operation is possible with:

- An external **manual control** (MC)
  Note: Only when **no** SD panel unit (PU) is connected.
- The **control screen** (CS) on the SDU cover (A1)
  Note: Motor control only when SD panel unit (PU) is connected.
- The SD **panel unit** (PU):
  - INTERNAL - **Manual control** (knob S8)
  - EXTERNAL - **Automatic** control (ACS) or **Modbus** control (PLC)

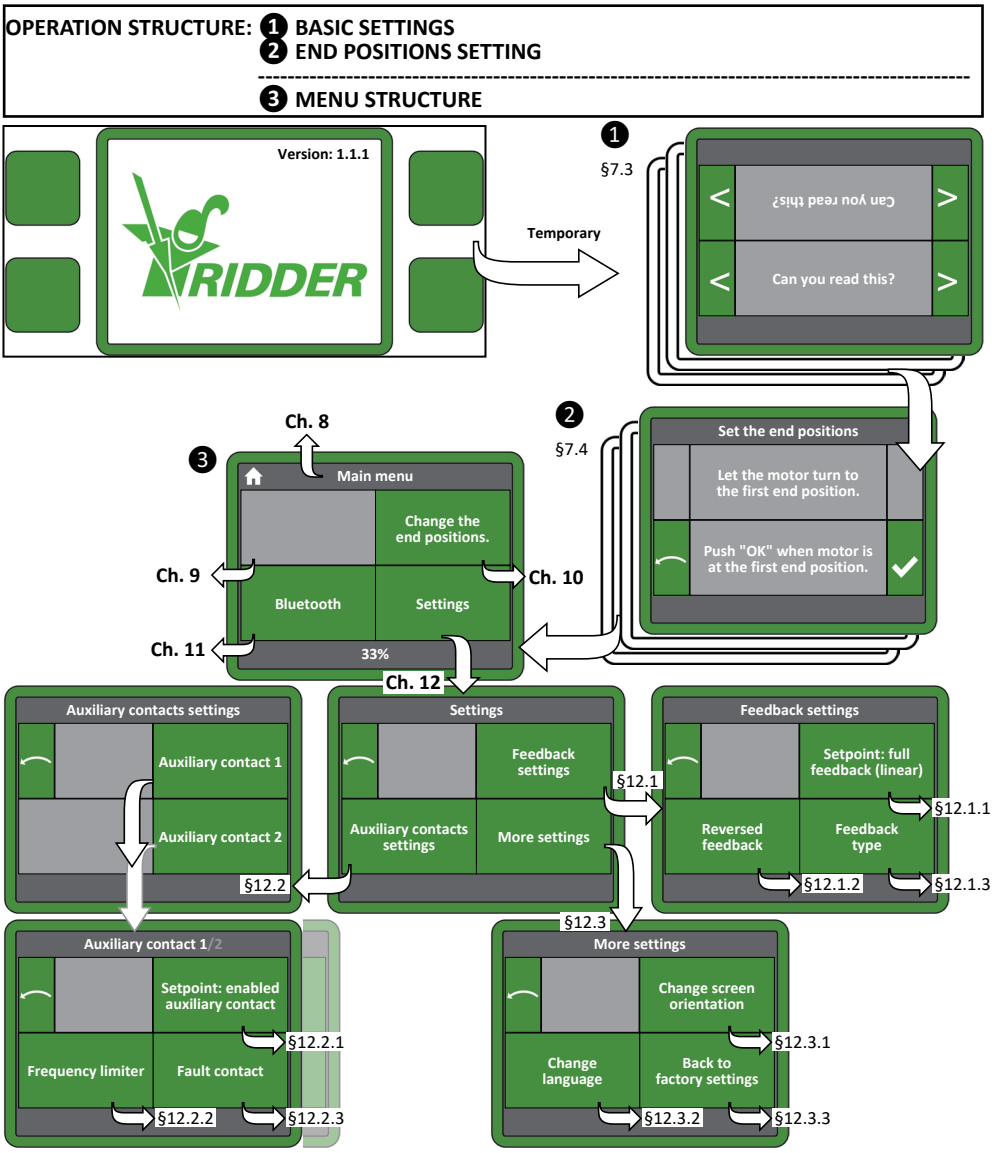
Note: SD-PU is only enabled after commissioning ("in operation"). Make sure that the SD panel unit (PU) has the correct DIP-switch configuration (for Modbus control). Refer to the PU product manual.

- The SD **app** on a Smartphone
  Note: Motor control and copy function only enabled after commissioning ("in operation") **and** when SD panel unit (PU) is connected. Refer to the PU product manual.

Refer to the Ridder catalog or website **ridder.com** for more information. Always refer to the related information and manuals (ACS and control components).

The diagram that follows shows the three parts of the Operation Structure and related sections in this manual (**no** SD panel unit connected).

- **Basic Settings** ❶ and **End Positions Setting** ❷ are part of "**Commissioning**".
- After commissioning, or "**in operation**" (normal operation), the "Main Menu" of the **Menu Structure** ❸ becomes enabled. Refer to Chapter 8.



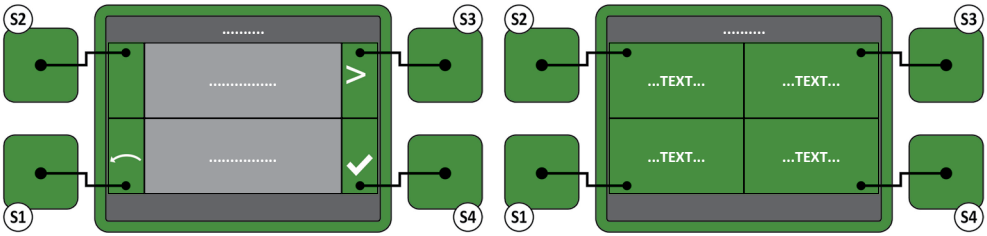
6.4 Operating options: Commissioning - Normal Operation

This section tells about the operating options during commissioning or “normal operation”.

The SDU cover has **four pushbuttons** (S1–S4). The buttons are related to the nearest green field* (empty, with symbol or text) on the control screen.

The pushbuttons can become enabled for:

- Motor control (only if an SD panel unit is connected)
- Selection of operating functions (refer to §6.5)
- Menu selections.



* 1. When nearest fields are **green**, the related buttons are **enabled**.
* 2. When nearest fields are **not** green, the related buttons are **not** enabled.

6.5 Operating functions: Commissioning - Normal Operation

This section tells about the operating functions during commissioning or “normal operation”.

Function	Description
	“**BACK**” selection with related button (S1–S4)
	“**OK**” selection with related button (S1–S4)
< >	**Selection/Control** with related button (S1–S4)
...TEXT...	**Menu/Text field** selection with related button (S1–S4)

Other symbols (no selection)

	“Home”: Main Menu		Locked screen		Canceled
			Unlocked screen		Confirmed (OK)

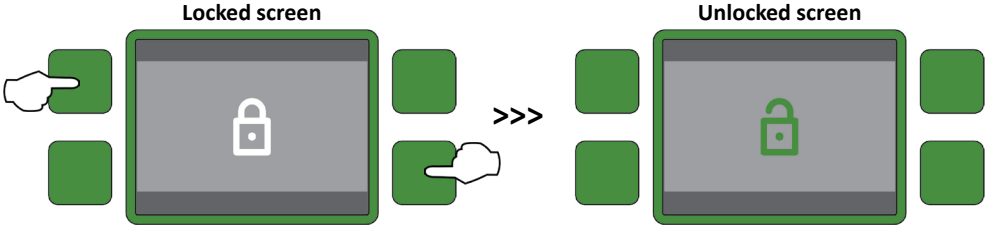
Screen lock

The control screen locks automatically:

- When SD unit is energized
- After a period when there is no operation of the control screen.

Unlock screen

To unlock, push crosswise and at the same time two pushbuttons (S1–S4) for a number of seconds.



6.6 Safety functions and stop functions

The RW-SD motor gearbox has the safety functions and stop functions that follow:

1. Stop at a set end position when a duty contact (0% or 100%) is opened.
2. Stop when the safety contact is opened if a duty contact (0% or 100%) not opens.
3. Stop when not operated and then lock the output shaft because of a self-braking worm-gear transmission.
4. Give App information for predictive maintenance and better safety and reliability.

7. COMMISSIONING INSTRUCTIONS

The commissioning is only permitted to approved personnel.

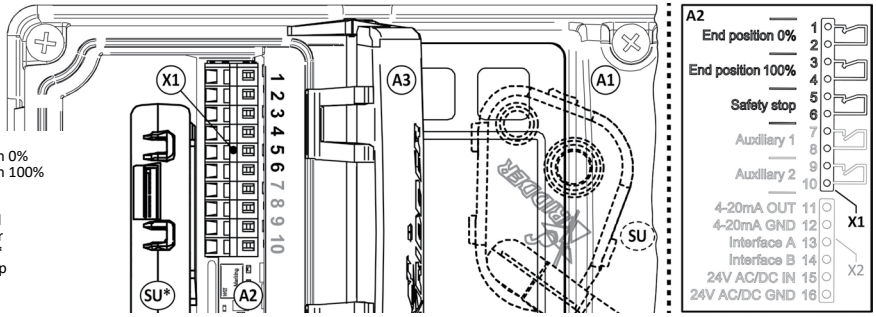
7.1 Commissioning - Conditions and starting points

- It is important to fully know the working principle of the end position system in §7.2.
- After that obey the procedure in §7.3.

⚠ WARNING	**Make sure that there is no blockage of the system before the end position system is set. This prevents damage or injury.**
⚠ CAUTION	**Do not go across the limits of the system. This prevents damage or injury.**
⚠ ATTENTION	**Before the system is put into operation, the installer must always make sure that the end position system is correctly set.**

This section tells about the end position system without connected SD panel unit (PU). Refer to the PU product manual if an SD panel unit is connected.

The SDU circuit board (A2) has two duty contacts (0%/100%) and one safety contact (Safety stop). A built-in sensor unit (SU) gives position feedback to the SD system.



1–2: End position 0%
3–4: End position 100%
5–6: Safety stop
A1: SDU cover
A2: Circuit board
A3: Closing cover
SU: Sensor unit *
X1: Terminal strip

***** The illustration shows two sensor units (SU), but SD motor gearboxes have only one sensor unit. Only the RW45-SD and RW240–600-SD series have the mounting location SU*.

The switching range is 55, 88, 100, 110, 155 or 1100 revolutions of the drive shaft. The range is related to different models of motor gearboxes.

The drive unit can turn freely, before it is electrically connected **or** until the end positions are set, in the two directions. This can **cause damage** to the operated system when the motor is manually operated or is operated with electric tools!

⚠ CAUTION	**Do not go across the limits of the operated system when the motor is operated manually or is operated with electric tools (with the hexagon socket in the electric-motor shaft). This prevents damage or injury.**

CURRENT (I) IN THE CONTROL CIRCUIT

The end position system (circuit board A2) is applicable for the currents that follow:

- **50 mA–500 mA** at 24 V AC/DC
- A **maximum** of **100 mA** at 115–240 V.

CONNECTIONS AND FUNCTIONAL OPERATION

The end position system has six connections (1–6) on the terminal strip X1.

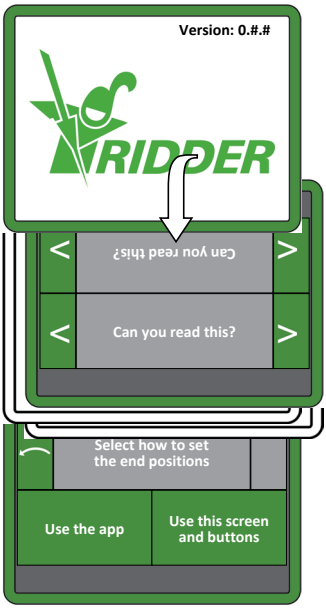
- Starting point for a correct connection and functional operation is the wiring diagram in §5.5, §5.6 or §5.7. **NOTE: The switching contacts in these diagrams show an energized system, within the range-of-travel.**
- Connection of the safety contact and duty contacts is **mandatory**.

WORKING PRINCIPLE

- The gearbox operates the shaft with installed sensor unit (SU), this gives position feedback to the SD system.
- The digitally set (refer to §7.4) end position (0% or 100%) is sensed when the operated system is at an end position.
- Then the end position system **opens** the **duty contact** (0% or 100%). The motor gearbox **stops**.
- If because of a **malfunction** a duty contact **not** opens, then the **safety contact opens**. This makes sure the motor gearbox stops (**safety stop**). It prevents consequential damage to the system.

7.3 Commissioning - Basic Settings [❶]

- Before you can set the system (End Positions Setting), a number of basic settings are necessary.
- After the SD unit is connected and energized, the system always starts with the temporary screen that follows.
- Obey the steps on the control screen (CS).



Procedure

1. **Set screen orientation**
   - **"Can you read this**?" ("Can you read this?") is shown **two** times.
   - Select the best screen orientation for easy readout.
2. **Select your language**
   Select your language < > and push "OK" when language is selected.

NO SD PANEL UNIT CONNECTED:

3. **Go to the next screen "Set the end positions" (automatically enabled). Refer to §7.4.**

SD PANEL UNIT CONNECTED:

3. **Select how to set the end positions ("Use the app" or "Use this screen and buttons").**

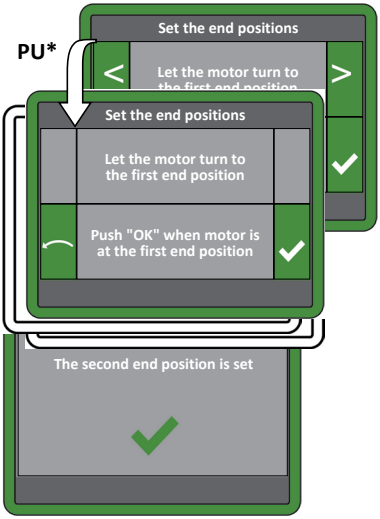
Use the app:

4. **Use the SD app on a Smartphone to connect.**
   Refer to the app for instructions.

Use this screen and buttons:

4. **Go to the next screen "Set the end positions" (automatically enabled). Refer to §7.4.**

- The first screen is automatically enabled after “Basic Settings”.
- Obey the steps on the control screen (CS).



Procedure

1. **Control to the first end position.**
2. **Selection of the percentage (0% or 100%) and first end position setting.**
3. **Control to the second end position.**
   Note: The button “**OK**” only becomes **enabled** when the **displacement** is **sufficient**.
4. **Second end position setting (100% or 0%).**
   The Main Menu is enabled. Refer to Ch. 8.

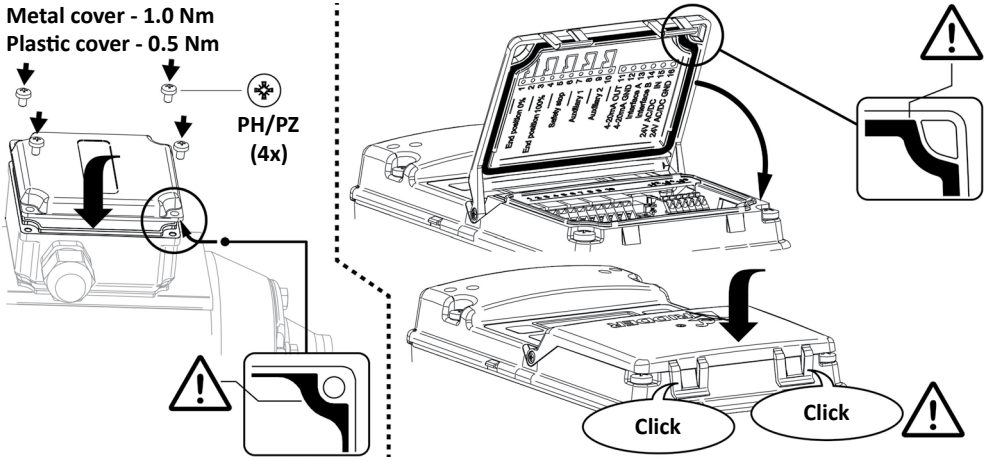
***** Applicable screen when an **SD panel unit** (PU) is **connected**.

WARNING **Do a functional check of the end position system (SDU circuit board [A2] or PU circuit board [A5]) after the two end positions are set.**

CAUTION **Do not go across set end positions when the motor gearbox is operated manually or with electric tools (externally with the hexagon socket in the electric-motor shaft). This prevents damage to the operated system.**

Always put the covers (2x) and the bolts (4x) back after the work. **Problems** with **moisture** and/or the **IP** protection rating (if applicable) must be **prevented!**

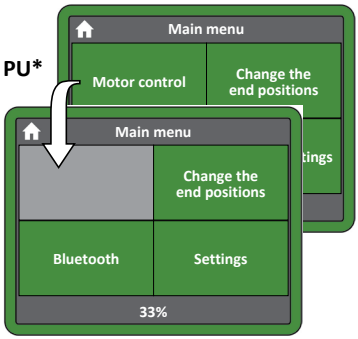
- Do a check of the gaskets (2x) for dirt and damages.
- Put gaskets (if removed) back carefully and make sure that no damage is caused.
- Make sure that **cables** do **not touch** mating **surfaces** and do not become **caught** during installation. This prevents damage to the cables and is specially important for the closing cover and the **SDU** cover!
- Tighten the bolts crosswise and gradually with the correct tightening torque (4x).
- Push the closing cover and make sure that it closes with a **click** (2x).



In this product manual shown illustrations can be different than the components and/or systems.

8. MAIN MENU

- The Main Menu is automatically enabled after “Commissioning”.
- When an SD panel unit is connected (PU*), “Motor control” becomes enabled.
- Make a selection (if necessary) and obey the steps on the control screen (CS).



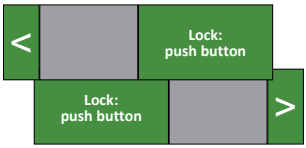
Motor control *
Refer to Ch. 9.
Change the end positions
Refer to Ch. 10 (only approved personnel).
Bluetooth
Refer to Ch. 11.
Settings
Refer to Ch. 12.

***** Applicable screen when an **SD panel unit** (PU) is **connected**.

9. MOTOR CONTROL

Main menu: **Motor control**

- Motor control of the SD unit with the **control screen** (CS).



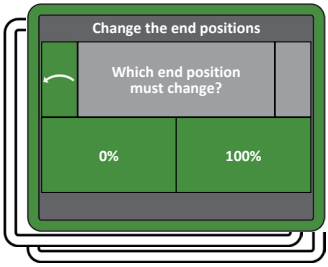
Hold-to-run operation:
Push and hold the button < or >.
Start–Stop operation:
Push the buttons < or > and “**Lock: ...**”, at the same time, then release the two buttons. Push **one** button (S1–S4) to **stop** control.

- Motor control is also possible with the SD panel unit (PU). Refer to the PU product manual.
- When an SD panel unit is connected, motor control is possible with the SD app on a Smartphone. Refer to the app for instructions.
- When no SD panel unit is connected an external manual control (MC) is necessary.

10. CHANGE THE END POSITIONS

Main menu: **Change the end positions**

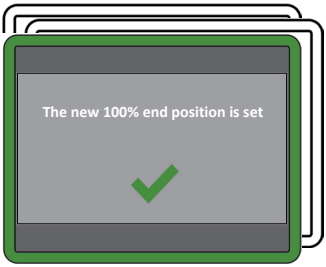
To change the end positions is only permitted to approved personnel. Obey the steps (if necessary) on the control screen (CS).



Procedure

End position 1:

1. **Select which end position must change (0% or 100%).**
2. **Erase the selected end position.**
3. **Control to the new end position.**
   Note: The button “**OK**” only becomes **enabled** when the **displacement** is **sufficient**.
4. **New end position setting**



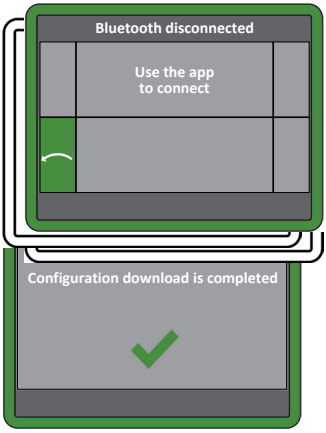
End position 2:

5. **Select which end position must change (100% or 0%).**
6. **Erase the selected end position.**
7. **Control to the new end position.**
   Note: The button "**OK**" only becomes **enabled** when the **displacement** is **sufficient**.
8. **New end position setting**

11. BLUETOOTH

Main menu: **Bluetooth**

Obey the steps (if necessary) on the control screen (CS).



Procedure

1. **Use the SD app on a Smartphone to connect.**
   Refer to the app for instructions.

NO SD PANEL UNIT CONNECTED:

2. **App:** Read out SmartDrive information (Data/Statistics).

SD PANEL UNIT CONNECTED:

2. **App:** Control the motor with the manual control screen.
3. **App:** Read out SmartDrive information (Data/Statistics).
4. **App:** Copy range-of-travel configurations of the first set SD unit to other units.

   To **copy** range-of-travel configurations is only permitted to **approved personnel**.

12. SETTINGS

If necessary (§12.2), remove or open covers to do the work. Refer to chapter 5. Always put removed or opened covers back after the work! Refer to the end of chapter 7.

Also put covers back when work or procedures are not completed temporarily (a known or unknown period).

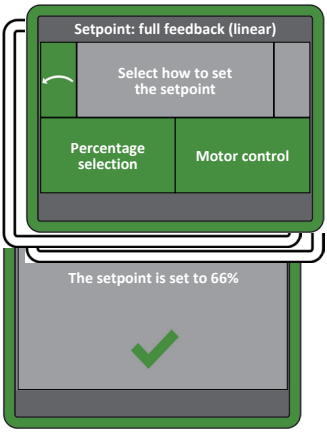
12.1 Feedback settings

Main menu: **Settings\ Feedback settings**

Changes to feedback settings are only permitted to approved personnel.

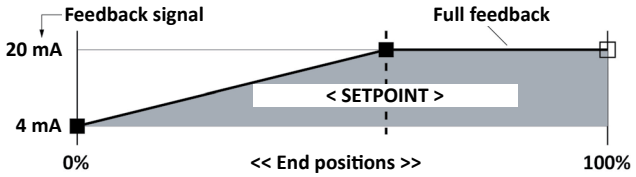
12.1.1 Setpoint: full feedback (linear)

Main menu: Settings\ Feedback settings\ Setpoint: full feedback (linear)



Setpoint

If necessary, set a position (setpoint) where to get to the full feedback signal.



Obey the steps (if necessary) on the control screen (CS).

Procedure

1. **Select how to set the setpoint (percentage selection or motor control).**

Percentage selection:

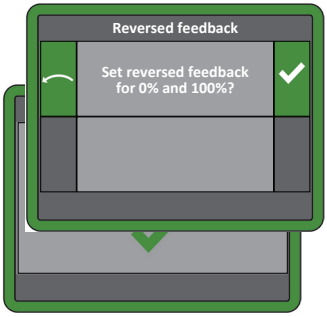
2. **Select the wanted percentage of the setpoint.**
3. **Wanted position setting**

Motor control:

2. **Control to the wanted position.**
3. **Wanted position setting**

12.1.2 Reversed feedback

Main menu: Settings\ Feedback settings\ Reversed feedback



Reversed feedback

If necessary, change the feedback signal of the 0% end positon and 100% end positon to opposite values (4mA or 20mA).

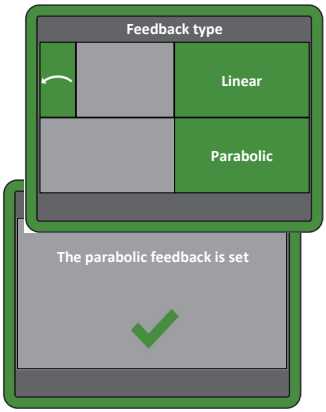
Obey the steps on the control screen (CS).

Procedure

1. **Set the reversed feedback.**

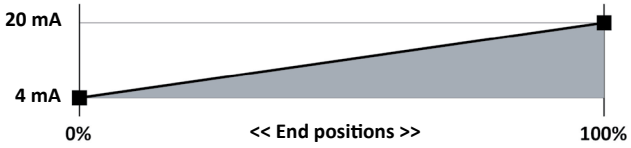
12.1.3 Feedback type

Main menu: Settings\ Feedback settings\ Feedback type



Linear

If necessary, set the linear feedback signal which gets to the full feedback signal at an end position.



Parabolic

If necessary, set the parabolic feedback signal to use for a necessary or wanted function.

Note: This function is **not** enabled at this time. **Select "Linear"**.

Obey the steps on the control screen (CS).

Procedure

1. **Select the wanted feedback type (linear** or parabolic**)**

12.2 Auxiliary contacts settings

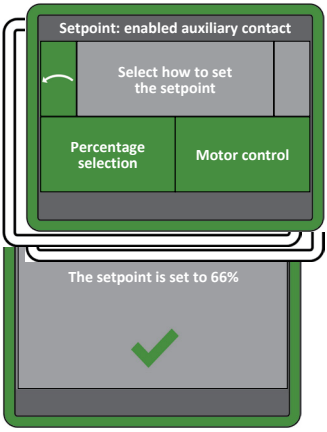
Main menu: Settings\ Auxiliary contacts settings

Changes to auxiliary contacts settings are only permitted to approved personnel.

Note: The "Auxiliary contacts settings" are set for "Auxiliary 1/2" of the SD unit (SDU) **and** "Auxiliary contact 1/2" of the SD panel unit (SD-PU).
It is possible that, for better cable routing (shorter cable lengths), "Auxiliary 1/2" of the SDU or "Auxiliary contact 1/2" of the SD-PU is connected. Refer to the PU product manual.

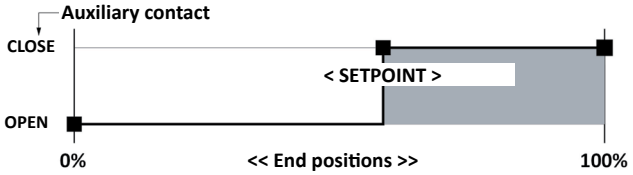
12.2.1 Setpoint: enabled auxiliary contact

Main menu: Settings\ Auxiliary contacts settings\ Auxiliary contact 1/2\ Setpoint: enabled auxiliary contact



Setpoint

If necessary set a position (setpoint), where the auxiliary contact must close, to use (in a circuit) for a necessary or wanted function.



Obey the steps (if necessary) on the control screen (CS).

Procedure

1. **Select how to set the setpoint (percentage selection or motor control).**

Percentage selection:

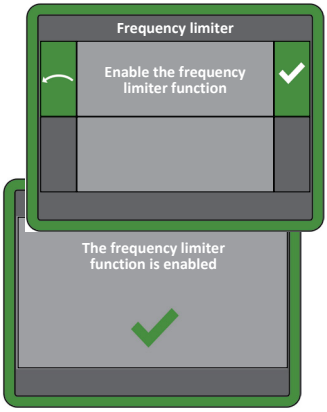
2. **Select the wanted percentage of the setpoint.**
3. **Wanted position setting**

Motor control:

2. **Control to the wanted position.**
3. **Wanted position setting**

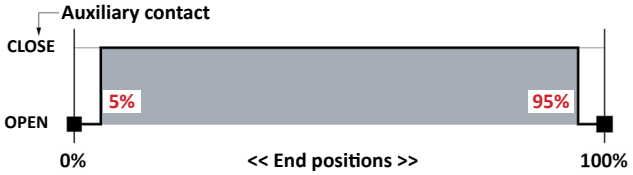
12.2.2 Frequency limiter

Main menu: Settings\ Auxiliary contacts settings\ Auxiliary contact 1/2\ Frequency limiter



Frequency limiter

If necessary, enable the frequency limiter function to enable the input for high speed of a frequency inverter.



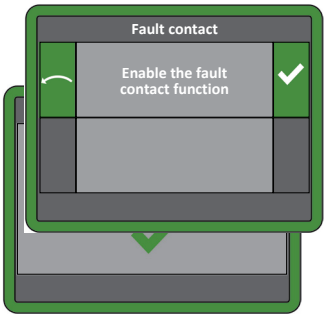
Obey the steps on the control screen (CS).

Procedure

1. **Enable the frequency limiter function.**

12.2.3 Fault contact

Main menu: Settings\ Auxiliary contacts settings\ Auxiliary contact 1/2\ Fault contact



Fault contact
If necessary, enable the fault contact function to connect to an alarm circuit, alarm unit or alarm input of a control system.

The fault contact is opened during normal operation and closes when a random fault occurs.

Obey the steps on the control screen (CS).

Procedure

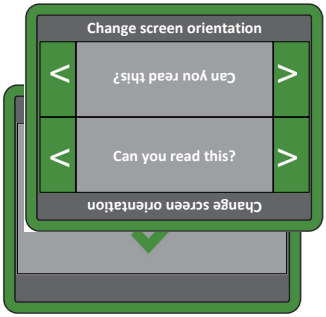
1. **Enable the fault contact function.**

12.3 More settings

**Main menu: Settings \ More settings **

12.3.1 Change screen orientation

Main menu: Settings\ More settings\ Change screen orientation



Change screen orientation
If necessary, select the best screen orientation for easy readout.

"**Can you read this?**" is shown two times.

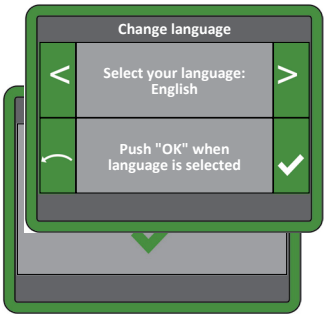
Obey the steps on the control screen (CS).

Procedure

1. **Select the wanted screen orientation.**

12.3.2 Change language

Main menu: Settings\ More settings\ Change language



Change language
If necessary, make a selection from a number of available languages.

Obey the steps on the control screen (CS).

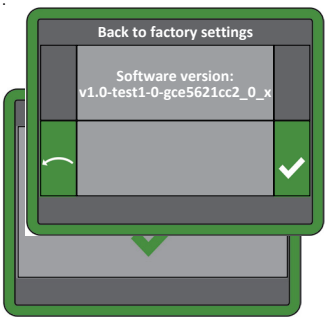
Procedure

1. **Select your wanted language.**
2. **Push "OK" when language is selected.**

12.3.3 Back to factory settings

Main menu: Settings\ More settings\ Back to factory settings

To set factory settings is only permitted to approved personnel.



Back to factory settings
If necessary, go back to factory settings. The software version is shown on the screen.

Obey the steps on the control screen (CS).

Procedure

1. **Push “OK” to set the factory settings again.**

13. MAINTENANCE INSTRUCTIONS

Inspection and maintenance work is only permitted to approved personnel. If necessary remove or open covers to do the work. Refer to chapter 5.

For safe and correct maintenance, read (if necessary) the (applicable) sections of:

- Chapter 2, chapter 6, chapter 7, chapter 14 and chapter 15.

Always **put** removed or opened **covers back** after the work! Refer to the end of chapter 7.

13.1 Maintenance

Maintenance on the RW-SD motor gearbox is usually not necessary (“maintenance-free”).

Maintenance RW45-SD

It is recommended to do the checks that follow every 6 months:

- Of the correct operation of the drive unit and the system
- For a satisfactory view of possible malfunctions and easy access to the display
- For error message screens
- For **grease** leakage. Tell your installer if there is a leakage
- Of the mechanical condition (wear and tear, output-shaft connections to the operated system, connectors, connection terminals, fasteners, correctly attached and such)
- Of the set end positions (are they still correct for the system?)
- Of the **app** information for **predictive maintenance** of the operated system.

Maintenance RW240/400/600-SD \ RW800-SD \ RW1000/1200/1400/1600/2000-SD \ RW70/100/140/200-SD

Installation: After installation interchange the plug in the highest position with the vent plug!

It is recommended to do the checks that follow every 6 months:

- Of the correct operation of the drive unit and the system
- For a satisfactory view of possible malfunctions and easy access to the display
- For error message screens
- For **oil** leakage (or **grease** leakage*). Tell your installer if there is a leakage

- Of the mechanical condition (wear and tear, output-shaft connections to the operated system, connectors, connection terminals, fasteners, correctly attached and such)
- Of the set end positions (are they still correct for the system?)
- Of the **app** information for **predictive maintenance** of the operated system.

* If a selection from more mounting positions is necessary, RW240-SD motor gearboxes are also available filled with grease. Refer to §4.1.

Contact your supplier if:
- Replacement of parts is necessary
- A problem is found with no solution. Refer to chapter 14 first.

Refer to the Ridder catalog or the website at **ridder.com** for more information about spare parts (or accessories) that are available. Also refer to available documentation (maintenance instructions) at **ridder.com** of the Ridder products in the operated system.

14. SERVICE

If necessary remove or open covers to do the work. Refer to chapter 5.

For safe and correct servicing, read the (applicable) sections of:
- Chapter 2, chapter 6, chapter 7 and chapter 15.

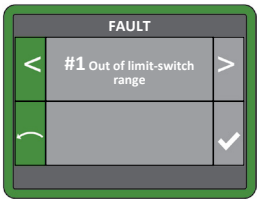
Always **put** removed or opened **covers back** after the work! Refer to the end of chapter 7.

14.1 Troubleshooting

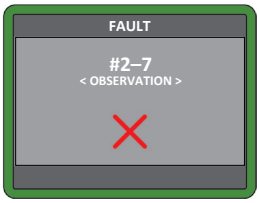
Troubleshooting is only permitted to approved personnel. This section tells about possible malfunctions and their solutions. If a malfunction is not in the list that follows, contact your supplier.

ERROR-MESSAGE SCREENS

Error message 1



Error message 2–7



ERROR-MESSAGE SCREEN 1

Fault 1	**Fault during end positions setting.**
Observation 1	**#1** Out of limit-switch range*
Cause 1	Motor control, manual operation (with [electric] tools and hexagon socket in the shaft of the electric motor) or control with bridged circuit (**discouraged** use**!**) goes across the maximum position of the range-of-travel.
Solution 1	Control back until motor is within range.

*** = switching range**

ERROR-MESSAGE SCREEN 2–7 [malfunction 2–7]

Malfunction 2	**Malfunction after Fault 1 during end positions setting.**
Observation 2	**#2** Out of limit-switch range* plus safety margin
Cause 1	Manual operation (with [electric] tools and hexagon socket in the shaft of the electric motor) or control with bridged circuit (**discouraged** use**!**) goes across the maximum position of the range-of-travel plus the safety margin.
Solution 1	Operate back manually or control back until motor is within range.

*** = switching range**

Malfunction 3	**It is not possibe to complete the copy function.**
Malfunction **4**	It is not possibe to complete the copy function.
Observation 3	**#3** Incorrect range-of-travel configuration
Observation 4	**#4** Incorrect range-of-travel configuration
Cause 1	Bluetooth transmits range-of-travel configuration incorrectly.
Solution 1	Do the download and upload procedures again.
Malfunction 5	**It is not possibe to complete end positions setting.**
Malfunction **6**	It is not possibe to complete end positions setting.
Observation 5	**#5** Internal fault
Observation 6	**#6** Unknown internal fault
Cause 1	There is an internal fault in the system.
Solution 1	Contact your supplier.
Malfunction 7	**The setting procedure stopped**
Observation 7	**#7** Time limit: The setting procedure stopped
Cause 1	Procedure step not completed in the time limit.
Solution 1	Push one button (S1–S4) to start the procedure again.

MALFUNCTION 8–9 [no error-message screen]

Malfunction 8	**The motor gearbox does not turn while the electric motor (EM) is in operation.**
Observation 8	The electric motor (EM) turns, while the output shafts of the gearbox do not turn.
Cause 1	The motor gearbox is mechanically defective.
Solution 1	Remove the electric motor (EM). Do a check of the shaft key and replace it if defective. If the shaft key is not defective, then replace the gearbox.
Malfunction 9	**The direction-of-rotation of the motor gearbox is not correct.**
Observation 9	The output shafts turn in the incorrect direction.
Cause 1	The connections on the terminal block of the electric motor are not correct.
Solution 1	Interchange the connections U1 and W1 on the terminal block.

14.2 Technical support

For technical support contact your local After Sales contact person. You can find your local After Sales contact person on our website at **ridder.com**.

15. ENVIRONMENT

15.1 Decommissioning and removal

Decommissioning and removal is only permitted to approved personnel.
The starting points that follow are possible:

❶ During the work it is necessary to de-energize.
❷ Storage is necessary because of temporary removal.
❸ The product is at the end of the lifespan.

❶ Temporary decommissioning: Work

1. Refer to §2.2 “Precautions and safety instructions”.
2. De-energize the product.
3. Do the work (maintenance, service or such).
4. Energize the product.
5. The temporary decommissioning is completed.

❷ Temporary decommissioning: Product storage

1. Refer to §2.2 “Precautions and safety instructions”.
2. Disconnect the product from the electric circuit.
3. Disconnect the product mechanically from the system and remove the product (usually in opposite sequence of the installation).

⚠ WARNING	**Make sure that the system is in a stable and mechanically tension-free condition and loosened parts (or the system) cannot hit persons! This prevents damage or injury.**

4. Refer to §2.2 “Transport, storage and packaging” and obey the (applicable) instructions and conditions.
5. The temporary decommissioning is completed.

Note: Obey the product manual for a subsequent installation!

❸ Permanent decommissioning: End of lifespan

1. Refer to §2.2 “Precautions and safety instructions”.
2. Disconnect the product from the electric circuit.
3. Disconnect the product mechanically from the system and remove the product (usually in opposite sequence of the installation).

⚠ WARNING	**Make sure that the system is in a stable and mechanically tension-free condition and loosened parts (or the system) cannot hit persons! This prevents damage or injury.**

4. Make the product unserviceable and make a mark on the product. This prevents that the product is (accidentally) used again.
5. The permanent decommissioning is completed. Refer to **§10.2** “**Waste disposal**”.

Discard products of **Ridder** after their lifespan and obey the applicable national and/or local regulations.

This product has built-in semiconductor circuits (PCBs, different electronic components, capacitors and such). Incorrect waste disposal can increase the **risk** that poisonous gases have an effect on the **environment** or cause **injury** (burn chemically or such).

Make sure that after disassembly there is a separation of:
- The collected operating materials (if applicable) such as oil, grease and such
- The different materials (if applicable) such as metals, non-ferrous metals, plastics and such.

It is recommended that approved personnel and/or a company that is specialized in “Waste disposal” do the work.

Solutions for
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