User Manual

HMDNG230 for sliding gates

Please read this original user manual before using this gate for the first time! Act in accordance with the manual and keep it in a safe place for later use or for the following owner.

CONTENTS

FOREWORD

This manual enables you to operate and maintain the gate correctly. It also describes which drive variants are possible and for which gates. Possible options are briefly described. The Operation chapter explains the control unit. Chapter Programming and settings describes how you can change various settings. The Maintenance chapter is extremely important to ensure that you can continue to operate your gate problem free in the long term.

The document is the description for the use of the electric gate control HMDNG230.

Please read this user manual carefully before using the sliding gate.

Store the manual in a safe place to be able to refer to it later if required. This description is intended for the operator of the gate. The installer uses a separate manual to assemble and install the gate.

The installer uses an installation scheme for the drive concerned and works according to the applicable standards. In the event of a fault, you should contact a Heras certified technician. A connection diagram can be found at the end of this document.

Version	Date	Description
1.0	01-11-2023	Creation of document

1 PREFACE

1.1 MANUFACTURER / SUPPLIER

Delta and uGate:

Manufacturer:	Heras B.V. Hekdam 1, 5688 JE Oirschot Netherlands Tel.: +31(0)499-551255 www.heras.com
Technical Construction File:	Heras B.V. manager, PD Department

Atlas 1 and Atlas 2:

Manufacturer:	Heras France Rue de Genêts CS 80308 67110 Gundershoffen Tel.: +33(0)3 88 06 70 00 www.heras.fr
Technical Construction File:	Heras B.V. manager, PD Department

1.2 SERVICE / MAINTENANCE

In the event of problems, failures or questions you can contact:

Heras Netherlands	Telephone	+31(0) 882 740 274
Heras Germany	Telephone	+49 (0) 2872 94980
Heras UK	Telephone	+44(0) 808 164 2250
Heras France	Telephone	+33(0) 3 88 067 000
Heras Norway	Telephone	+47(-) 22 900 555
Heras Denmark	Telephone	+45(0) 7586 8296
Heras Sweden	Telephone	+46(0) 77 1506050
Heras Export	Telephone	+31(0) 499 551 523

1.3 DEFINITIONS: USER / OPERATOR / ENGINEER

User: Anyone using the gate.

Operator: A user who is familiar with all safety aspects dealt with in this manual. Operators are not allowed to carry out any installation work on the gate unless explicitly specified.

Engineer: The engineer is a Heras fitter (or an engineer employed by the customer who has been given explicit permission in writing from Heras) who is qualified to perform technical interventions on the gate.

1.4 PRESCRIBED USE / APPLICATION

Only the correct installation and maintenance by an authorised/qualified company or person in agreement with the user manual, logbook, checklists and maintenance lists can ensure the safe operation of the system.

A qualified person is, according to EN 12635, a person who has the required training, qualified knowledge and practical experience required to install, test and maintain a sliding gate system correctly and safely.

1.5 CONFORMITY WITH EUROPEAN DIRECTIVES

The installation complies with the following EU Directives/ regulations:

EU	2006/42/	EC	Machine Directive
EU	2014/30	EU	EMC Directive (electromagnetic compatibility)
EU	305/2011	EC	Construction Product Regulation

UK	Supply of Machinery (Safety) Regulations 2008
UK	Electromagnetic Compatibility Regulations 2016
UK	Construction Products Regulations 2013

The design and production has been executed compliant with the applicable product standard EN 13241 and EN 12453.

A Declaration of Performance (DoP) and Declaration of Conformity (DoC) are obligatory for this product. The DoP and DoC are included in Appendix A.

The CE or UKCA mark is located on the rear of the bottom rail of the gate.

1.6 DELIVERY

The gate and the gate drive and control unit must be installed, connected, set up and tuned by a fitter or an engineer who also connects and programs any accessories. The gate control unit is adjusted to the options/accessories agreed with the user. The relevant options are laid down during hand-over.

Of course, you can add optional/accessories afterwards. Contact your supplier for this. Gates are always delivered fully tested.

1.7 GENERAL INFORMATION REGARDING THE ELECTRICAL CONNECTIONS

Electrical connections must be made compliant with the supplied wiring diagram.

It is important that the system is correctly earthed (Protective grounding in accordance with DIN VDE).

Because EMC-related suppression components can leak current to the earth cable, it is advisable that you do not protect the control unit with a Residual Current Device. When switching on the system, a high starting current can be generated due to the charging of the intermediate circuit.

If after measurement during commissioning it appears that the leakage current exceeds the permitted 3.5 mA, an additional grounding, in accordance with EN 60335-1 and IEC 30364-5-54, must be provided. Measurement is made according to EN 60335-2-103. Consult your installer for this.

Take into account good shielding, for example an automatic circuit breaker 16A B characteristic.

⚠️ Ensure that the feeder cables are not carrying power during commissioning.

1.8 DELIVERY OF DRIVE UNIT

⚠️ Due to the weight of the drive unit (approximately 26 kg), a forklift or pallet truck must be used for its installation and replacement.

After installation and commissioning, by a Heras technician or a technician trained by Heras, the cover of the drive unit must be locked with a key. This key is then handed over to the customer. This is done to prevent unauthorised access.

1.9 HMDNGLP230 / HGDNG230

The HMDNGLP230 / HGDNG230 are delivered as a complete drive and control unit, including gear wheel module 6.
By default, the half profile cylinder (according to DIN 18252) is not included.

Illustration 1: HMDNGLP230 cover, cabinet and gear wheel
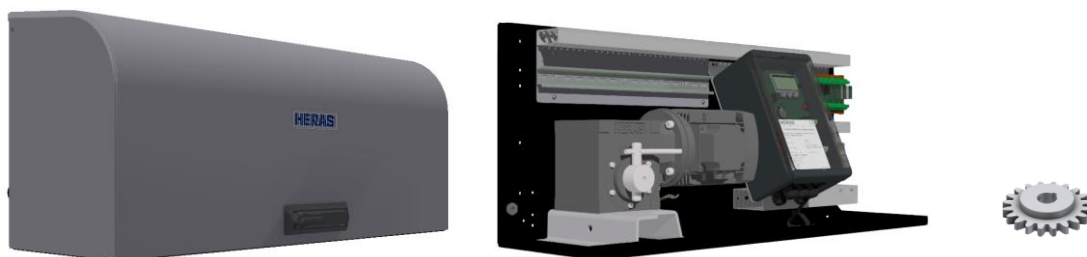
Illustration 2: HGDNG230 cover, cabinet and gear wheel

![HERAS logo]

2 SAFETY

2.1 EXPLANATION OF THE SYMBOLS

🛑	Caution:	To prevent personal injury, you must observe the safety instructions below.
⚠️	Note:	To prevent material damage, you must observe the safety instructions below.
➡️ℹ️	Information:	This is followed by further information or by a reference to other documents.
⚠️	Warning:	Risk of limbs getting crushed
⚠️	Warning:	Risk of injury to hands by gear wheels

2.2 SAFETY DISTANCES

Safety distances apply for the area into which the gate slides in accordance with EN 12453 for electrically driven gates.

2.3 GENERAL SAFETY INSTRUCTIONS

🛑

- The operator must read the entire user manual before the gate is used for the first time. The instructions stated in the user manual must be observed and complied with. All other forms of use can cause unexpected hazards and are forbidden.
- It is forbidden to apply the drive unit to gates other than those stated in this manual, without Heras' permission.
- Applying a third-party drive unit and/or safety edge will affect safety and will invalidate the CE mark and UKCA mark.
- The gate must only be put into use if all safety facilities are in place and connected, and work properly.
- All faults which might present a source of danger to the user or to third persons must be eliminated immediately.
- All warnings and safety notices on the equipment must be in place and clearly legible at all times.

- Closing the gate infill openings in any way, such as by means of banners, advertising signs etc, is not allowed as this may negatively affect the safe operation of the gate.
- All alterations or extensions to the gate must be carried out by qualified personnel using parts which the manufacturer has defined as suitable for such alterations or extensions. Any failure to comply with these instructions will be considered as non-compliant behavior and will invalidate the manufacturer's guarantee, as a result of which the risk entirely transfers to the user.
- For a double sliding gate, it is strictly forbidden to remove the central slam support (mounted on the floor in the opening). This is important for the stability of the gate when closed.
- Improper usage or servicing or ignoring the operating instructions can be a source of danger for persons, and/or result in material damage.
- If the meaning of any part of these installation and operating instructions is not clear, then please contact your supplier before you use the equipment.
- This manual must always be available at the operating location of the control /gate. This manual must be read thoroughly and applied by all persons who are in charge of the operation, maintenance and restoration of the controls.

The HMDNG230 is a frequency converter. Since dangerous live voltage may still be present after switching off the HMDNG230, you must observe a 3 to 5 minute waiting time to make sure that all power has discharged. Working on a live frequency converter PCB involves a risk of fatal injury!

2.4 SAFETY PROVISIONS EMPLOYED

- To protect people and goods from injury or damage, the gate is fitted with safety provisions including safety edges and/or photocells.
  These serve as emergency provisions that immediately stop and reverse the movement of the gate. It is forbidden to use these provisions to stop the gate normally.
- For a gate with hold-to-run control, the above-mentioned safety provisions are not necessary and will therefore not be standard provisions.
  With this type of operation, the gate stops immediately as soon as the switch is released.

2.5   INTENDED USE

Giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial or residential premises.

2.6   SAFETY DURING USE

Children or people with a disability must not operate the gate. Parents must supervise their children to prevent them playing with the gate.

➔ PARENTS ARE RESPONSIBLE FOR THEIR CHILDREN ⬅

- Keep a safe distance from the moving gate. Warning icons to this effect have been installed in various locations.
- Only pass through the gate when it is completely open.
- The gate must not be operated in windy conditions, wind force ≥9 Beaufort. The gate leaf can swing in a way that can result in damage to the construction.
- The safety edges serve as emergency facilities to immediately stop and reverse the gate movement. Using them as a regular gate stop feature is not allowed. Since the head stiles of the gate have safety edges that cannot cover their full height, there is still some risk of people getting trapped by the gate here.
- When hold-to-run-control is employed, the gate must only be operated if it can be seen completely, directly and in real-time. Operation must be via a permanently installed operating device, for instance a key switch or push button. This operating device must be located in such a way that the operator's position is safe. The gate must stop immediately when the button or key is released. Other operating devices are not allowed.
- The gate must be able to move freely without there being obstacles in the gate opening passage or anywhere else on the moving trajectory of the gate. Do not stick any objects through, over or under the gate which might block the gate.
- The gate running surface must always be free from snow, ice or dirt that might affect its sliding behaviour. In the event of frost, check this before commissioning the gate. If the running surface is blocked, the gate will not move at all or will not complete its movement. An irregular running surface may cause damage to the drive and/or road wheels.
- In certain circumstances, the sun can temporarily distort the gate. When closing the gate, the leaf is guided to its neutral position. When opening the gate, the leaf will move around somewhat. This has no adverse consequences for the construction.

- Climbing the gate is strictly forbidden as people climbing the gate could be hurt if the gate is started unexpectedly.
- Do not stick any objects through, over or under the gate which might block the gate.
- Do not place any obstacles in the opening.
- Always lock the drive unit cabinet during use.

2.7 SAFETY DURING INSTALLATION, MAINTENANCE AND DISASSEMBLY

- When work is carried out or while cleaning the gate, the power supply to the system must be switched off and it must be ensured that it cannot be switched on unexpectedly.
- Use the necessary personal safety equipment.
- The gate is driven by means of a gear wheel. This is located under the beam and it is partly screened off by the drive unit cabinet. Beware of moving parts when carrying out maintenance under the gate at the drive unit cabinet.
- To move the gate manually, first switch the automatic fuse in the drive unit cabinet to "off" and make sure it cannot be switched on again (e.g. by locking the cabinet).
- The EN 13241 and EN 12453 standards must be taken into consideration during installation. To achieve a good safety level, both the above standards and the national regulations must be taken into account in non-EC countries.

The Delta and uGate have highly tensioned cables fitted in the bottom rail. If these cables are damaged, they can snap with great force. This can lead to serious injury. Therefore, it is prohibited to drill into or grind these rails.

!! Only people trained by Heras are allowed to disassemble the bottom rail.

If the gate is damaged, always contact the supplier for an inspection.
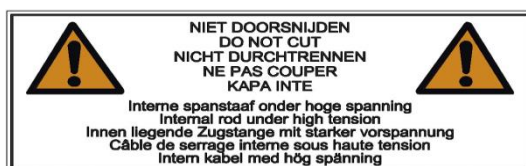
Illustration 3: Warning sticker bottom rail

3 OPERATION

3.1   OPENING/CLOSING SLIDING GATE - NORMAL USE

The gate can be operated using pulse operation, for instance via a button or key switch. The location of the operating device depends on the customer's choice or the operating mode.

- OPEN:

  Press the "Open" button.   The gate slides open to the next end position. This can be completely or partially open (if the "Partially open" function has been connected).

- CLOSE:

  Press the "Close" button.   The gate closes completely.

- STOP:

  Press the "Stop" button.   The gate will stop immediately, irrespective of its direction of travel. To restart the gate press "Open" or "Close".

3.2   OPEN /CLOSE SLIDING GATE MANUAL OPERATION DELTA/UGATE

The gate can be opened by hand in emergency situations. To do this the cover of the motor unit must be opened.

3.2.1 Opening the cover HMDNGLP230 and HGDNG230

- Open the lock.
- Turn the lever through a quarter rotation in a clockwise direction.
- Now rotate the cover through approx. 90º so that it can serve as a rain cover.
- Lift the cover away in a vertical movement.
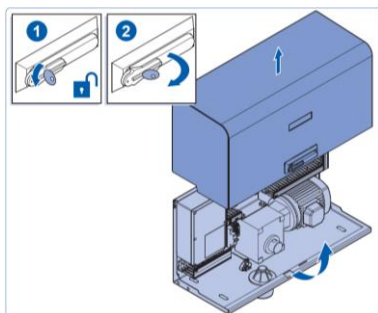
Illustration 4:   Opening the cover

3.2.2 Closing the cover HMDNGLP230 and HGDNG230
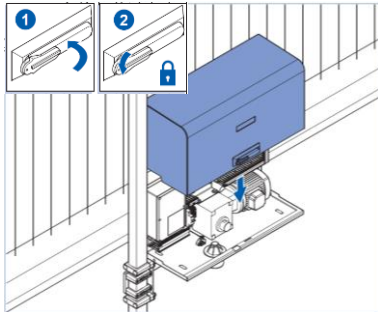
Illustration 5: Closing the cover

- Lower the tabs of the cover into the slot in the drive unit cabinet.
- Screw the cover into place to close it. Make sure that the sides of the cover properly fit over the drive unit cabinet.
- Close the lever and the lock.

3.2.3 Disengaging the motor HMDNGLP230 and HGDNG230
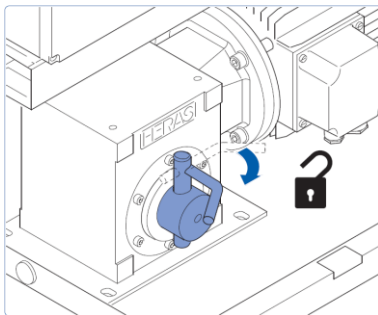
Illustration 6: Disengaging the motor

- Open the drive unit cabinet (key)
- Set the automatic fuse to "OFF".
- Pull the disengagement lever forwards after which the gate can be opened and closed manually.

3.2.4 Engaging the motor HMDNGLP230 and HGDNG230

NOTE: ONLY engage the gate when it is in the CORRECT POSITION. Only then will the software recognise the correct end positions. Engaging the gate in the wrong position will lead to damage and the gate will operate incorrectly. See Menu 7.4 end positions and section 7.4.1 Reset closed position for more information. If an optional reference switch is fitted, this is not applicable.
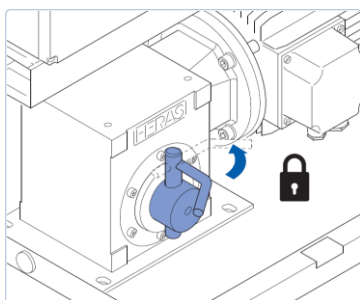
Illustration 7: Engaging the motor

- When locking the system again, close the gate as far as the mark on the bottom rail.
- Now move the gate back and forward a bit to engage the gear wheel with the rack and push the lever back.
- Set the automatic fuse to "ON".
- Lock the drive unit cabinet after use.

3.2.5 Automatic disengagement HMDNGLP230 and HGDNG230

Versions with automatic disengagement if there is a power failure can be recognized by a coil; this will automatically disengage the drive if a power failure occurs.
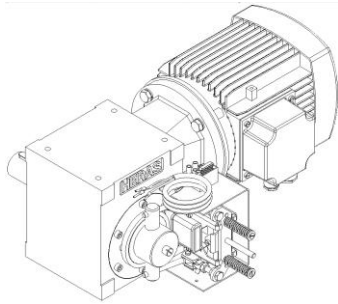
Illustration 8: Automatic disengagement

> **→i** Attention! To be able to use the electrical system again to operate the gate after operating it manually, follow the procedure as described in chapter 7.4 and 7.4.1,

3.3   OPEN /CLOSE SLIDING GATE MANUAL OPERATION ATLAS 1 - 2

The gate can be opened by hand in emergency situations. To do this the cover of the motor unit must be opened.

3.3.1 Disengaging the motor Atlas gates up to 14 meters
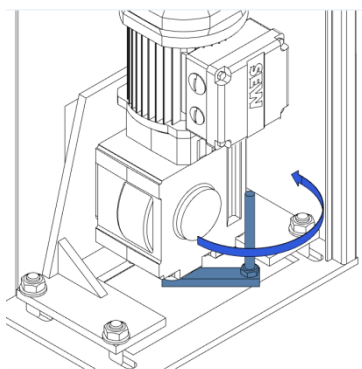
- Open the door of the column
- Switch off the power supply
- The motor is located at the bottom
- Turn the lever through a quarter rotation in a counterclockwise direction
- Close the column again
- Gate can be moved by hand now

Illustration 9: Disengaging motor type SEW

3.3.2 Engaging the motor Atlas gates up to 14 meters

- Turn the lever through a quarter rotation in a clockwise direction
- Switch on the power supply
- Close the column again
- The gate can now be used in automatic mode
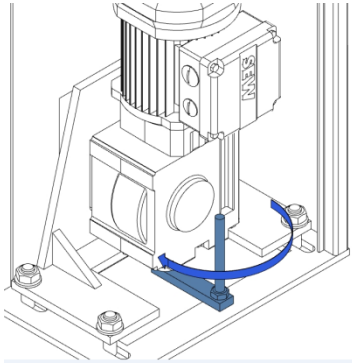
Illustration 10: Engaging motor type SEW

3.3.3 Disengaging the motor Atlas gates from 14 meters

- Open the door of the column
- Switch off the power supply
- The motor is located at the bottom
- Turn the knob counterclockwise until the gate moves by hand
- Close the column again
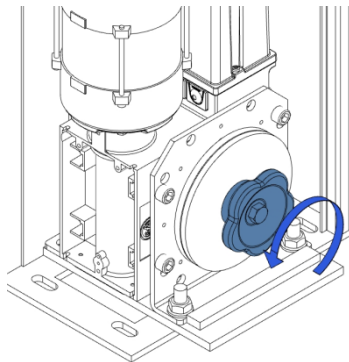
Illustration 11: Disengaging motor type GFA

3.3.4 Engaging the motor Atlas gates from 14 meters

- Open the door of the column
- Switch off the power supply
- The motor is located at the bottom
- Turn the knob counterclockwise until the gate moves by hand
- Close the column again
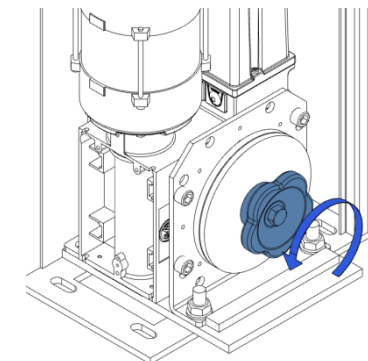
Illustration 12: Engaging motor type GFA

4 DESCRIPTION

4.1 DELTA

The Delta is a cantilever sliding gate with a modular construction for openings up to 9.5 meters in a single version and up to 19 meters in a double version.

Applications include port areas, company buildings, office buildings, storage sites, garden and landscape areas, high-risk sites, airports, transport and distribution sites, and parking garages.
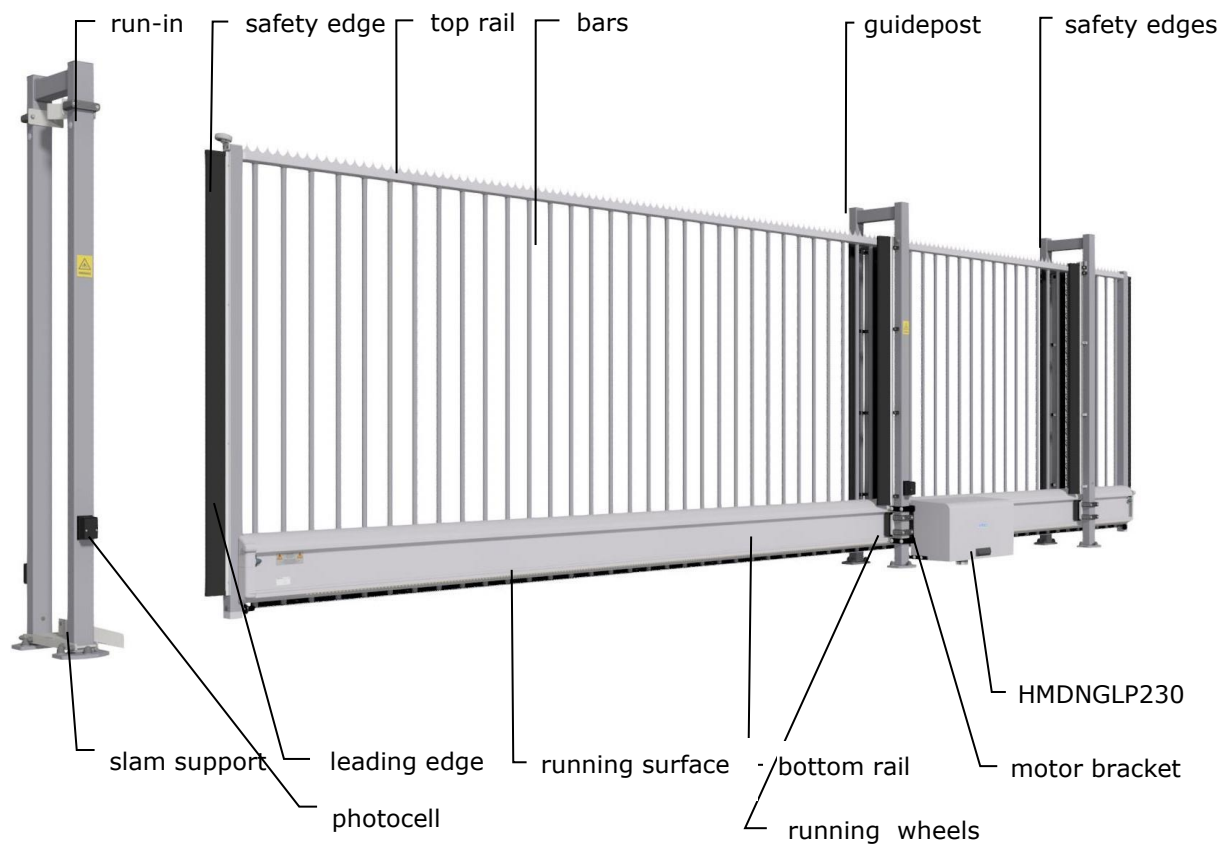
Illustration 13: Delta sliding gate terms

4.2   UGATE

The uGate is a cantilever sliding gate with a modular structure for openings up to 12 meters in a single version and up to 24 meters in a double version.

Applications include port areas, company buildings, office buildings, storage sites, garden and landscape areas, high-risk sites, airports, transport and distribution sites, and parking garages.
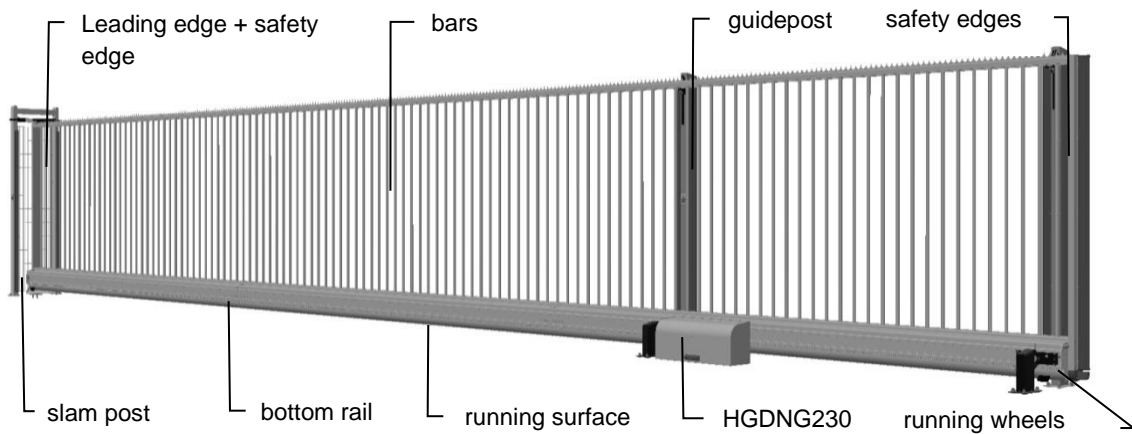
Illustration 14: uGate sliding gate terms

4.3   ATLAS 1

The Atlas 1 is a fully pre-assembled cantilever sliding gate for openings up to 10 meters in a single version and up to 20 meters in a double version.

Applications include port areas, company buildings, office buildings, storage sites, garden and landscape areas, high-risk sites, airports, transport and distribution sites, and parking garages.
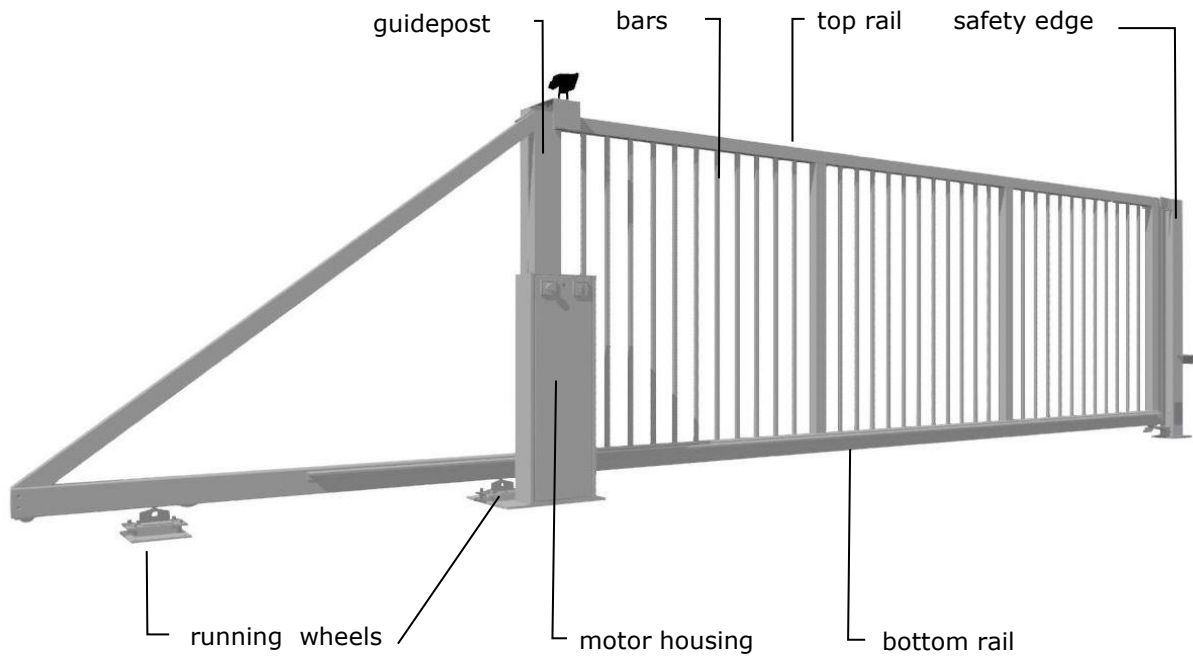
Illustration 15: Atlas 1 sliding gate terms

4.4   ATLAS 2

The Atlas 2 is a fully pre-assembled cantilever sliding gate for openings up to 18 meters in a single version, double version on request only.

Applications include port areas, company buildings, office buildings, storage sites, garden and landscape areas, high-risk sites, airports, transport and distribution sites, and parking garages.
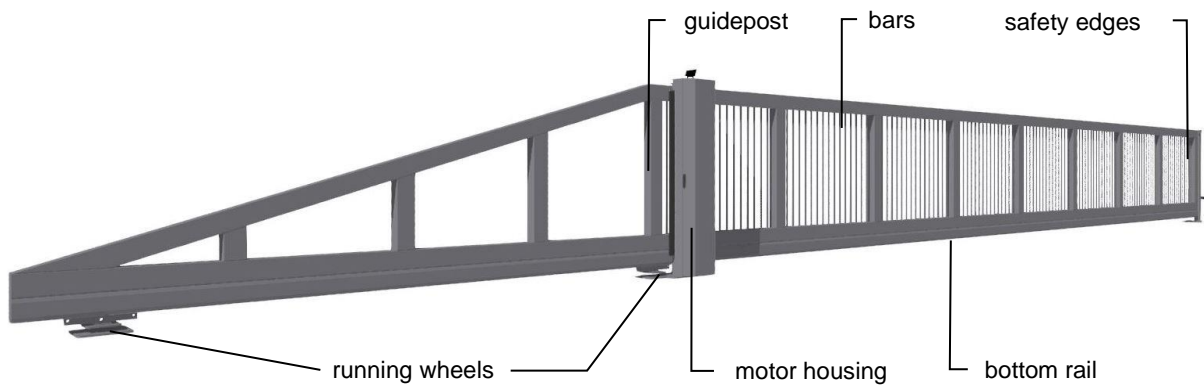
Illustration 16: Atlas 2 sliding gate terms

4.5   DRIVE UNIT

4.5.1 Drive unit variants

The following sliding gate/drive unit combinations are possible:

Drive unit type / Sliding gate type	HMDNGLP230**S**	HMDNGLP230**A**	HGDNG230**S**	HGDNG230**A**	HMDNG230**S5FR**
DELTA	■	■			
uGATE			■	■	
ATLAS 1 - 2					■
Encoder	■	■	■	■	
End switches					■

S = Standard approx. 0,25 m/s,   **A** = Advanced, approx. 0,5 m/s

The following sliding gate/drive unit combinations are possible for service purposes:

Drive unit type / Sliding gate type	HMDNG230**S**	HMDNG230**A**	HMDNG230**SREP**	HMDNG230**AREP**
DELTA	▪	▪	▪	▪
uGATE				
ATLAS 1 - 2				
Encoder	▪	▪		
End switches			▪	▪

S = Standard approx. 0,25 m/s,   **A** = Advanced, approx. 0,5 m/s

[→i] See the chapter "TECHNICAL DATA" for further information.

4.6   SAFETY EDGES

Electrically driven Heras gates are protected by safety edges. The type of device and the speed of movement depend on the motor control unit used. If the safety device touches an obstacle, the gate will immediately stop and reverse. Dependent on the settings, the gate will restart. The safety edges have been fitted to the stationary and/or moving part or parts of the gate. They are not required for hold-to-run-control. These strips serve as safety components. The number of safety edges depends on the situation.

Before the gate is moved, the control system checks the status of the safety edges. If one of the safety edges is faulty, the gate can only be opened and closed in hold-to-run-mode. In that case, consult a qualified engineer.

[→i] See the chapter "SERVICE /MAINTENANCE"

4.7   PHOTOCELLS

Photocells detect whether there are obstacles in the path taken by the gate. If an obstacle is detected, the gate will stop immediately and slide open to its original starting point (OPEN or PARTIALLY OPEN) or reverse a bit if set. Dependent on the

settings, the gate will restart. The photocell is only active when the gate is being closed. Gates can be fitted with multiple photocells.

4.8 ACCESSOIRES

4.8.1 Loop detection (optional)

A detection loop is an induction loop embedded in the road surface that, with the assistance of electronics, can detect a vehicle. When the loop detects a vehicle, the gate will open and/or stay open. Detection loops do not detect people.

4.8.2 Traffic light (optional)

Red/green signal lights that indicate the open/closed position statuses. People are only allowed to pass through the gate opening when the green light is on.

4.8.3 Flash light (optional*)

A flashing beacon to ensure extra attention before and while the gate is opening/closing.

A technician can program the switching time.
* In some countries, a flashing light is obligatory.

4.8.4 Remote control (optional)

Remote control to open, stop and close the gate.

See the chapter "REMOTE CONTROL"

Ensure that the remote control cannot come within reach of children and that it can only be accessed by authorised people. Only use the remote control in the vicinity of the gate, so that you can see the entire gate.

Note that the button of the remote control can be pressed accidentally, for instance, when it is in a pocket and this can lead to undesired gate movements.

4.8.5 Lighting (optional*)

Two kinds of lighting can be connected to all variants.

- Passage lighting to enhance the visibility of the passage opening. It can be lit before and/or while the gate is opening/closing.
- Outdoor lighting to illuminate the grounds. This is activated as soon as the gate is operated and it is switched off automatically after a certain pre-set time.

→i * In some countries, lighting is obligatory.

4.9   OPERATING MODES

The control software is divided into separate function modules and is available to users in three possible operating modes:
- hold-to-run-mode
- automatic mode
- emergency operation

4.9.1 Hold-to-run-control

The gate motor drive can be operated in hold-to-run operating mode with limited comfort. In hold-to-run operating mode, the gate does not require safety edges. The gate will move as long as an OPEN or CLOSE key is pressed.

STOP it shall only be possible to operate the manual actuators in such a position that allows full, direct and permanent real-time view of the door during the leaf movement and ensures that the person controlling the door is not in a hazardous position. No controls other than manual actuators are to be installed. The door leaf shall stop when the manual actuators is released.

4.9.2 Automatic mode

If the safety facilities have been installed completely, the motor drive will usually work in this automatic mode. The user can only use all motor drive functions in automatic mode. Total safety of the gate is guaranteed here by the activated safety facilities.

Opening or closing the gate can be initiated in automatic mode by means of:

- one impulse input with toggle function OPEN, STOP, CLOSE, STOP
- 3x3 impulse inputs for OPEN, STOP and CLOSE commands
- 1 impulse input with PARTIALLY OPEN function
- via the menu and the buttons on the control
- via the service module for technicians
- remote control or built-in clock

Every movement command causes the full action that has been selected to be performed (open gate, close gate etc.). Every action is stopped immediately by a stop command or a signal from the safety facilities.
Activating the safety edge causes the gate to immediately move in the opposite direction. If a photocell is interrupted while the gate is closing, this will cause the gate to be opened as far as the point where the closing movement started (OPEN or PARTIALLY OPEN).
A movement command for the opposite direction will gradually decelerate the gate and then cause it to move in opposite direction.

Automatic mode if the gate has not been installed fully yet:

If the gate has not been fully installed yet, or if motor drive programming has not been completed yet, the motor drive will work in a special safety mode (e.g.: the end positions of the gate have not been defined yet). The gate will then only run at dead man's mode speed. Only after the OPEN and CLOSED end positions have been set and after a measuring run at dead man's mode speed has been performed, will the system switch over to the automatic mode speed (depending on the type, this will be 0.25 m/s or 0.5 m/s). If the power supply to the drive has been interrupted, the gate will also only run at dead man's mode speed until the first time when an end position has been reached.

4.9.3 Emergency operation

The gate motor drive can switch over automatically from automatic mode to emergency operation. This automatic switch-over can only take place after an input signal which is generated by a fire emergency room. Only the one movement (OPEN or CLOSED, depending on programming) that is requested will be performed at dead man's mode speed in this operating mode. The safety facilities are also activated during this movement. The movement can be interrupted by pressing and holding the STOP key or by a safety device being triggered. When this interruption no longer applies, the gate will immediately continue to move. At the end of the emergency movement and after the signal has been reset, the software of the motor drive will initiate a restart to enable

safe switch-over to automatic mode.

Any static active OPEN or PARTIALLY OPEN signals are ignored by the motor drive in this operating mode.
Just as the command triggered by an OPEN or CLOSE command key being pressed cannot be performed when a program is started, a static active "Emergency si" input signal will also not be carried out when switching on the motor drive.

4.10   AUTOMATICALLY CHANGING OPERATING MODES

The gate motor drive can switch over from automatic mode to emergency operation if it has been programmed to allow this and the control unit recognizes a corresponding "emergency situation" signal from a fire emergency room. This operating mode will then be performed until the motor drive is restarted.
If electronic safety facilities on the gate are out of operation (e.g. faulty photocell), the motor drive can automatically switch over from automatic mode to hold-to-run-control. This automatic switch-over will take place only for the individual motor movement that has been started and only if the key provided for hold-to-run-control is pressed. After this, the motor drive will switch over to automatic mode again, but if a new fault occurs or if the fault is not remedied, the system can switch over to hold-to-run-control again for the next movement.

Changing between operating modes is possible in the following directions:

- Automatic mode   ->   Hold-to-run-control mode
- Hold-to-run-control mode   ->   Automatic mode (if safety has been restored)
- Automatic mode   ->   Emergency operation
- Emergency operation   ->   Automatic mode (if no emergency situation signal is active anymore and after restarting the control software)

5   CONTROL UNIT AND DISPLAY READINGS

5.1   TOTAL VIEW OF HMDNGLP230 DRIVE UNIT

control unit   backplane   space for extra components

automatic fuse   cable strain relief   motor
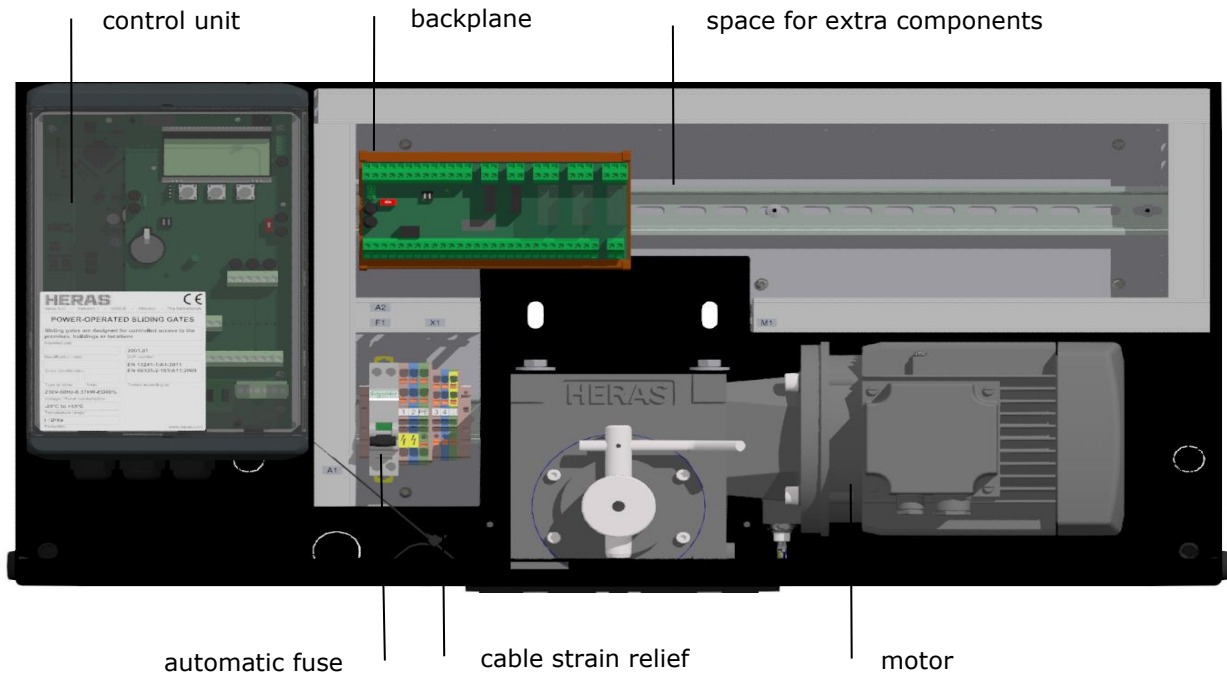
Illustration 17: view of HMDNGLP230 drive unit

5.2   TOTAL VIEW OF HGDNG230 DRIVE UNIT

space for extra components   control unit   backplane

motor   automatic fuse   cable entry
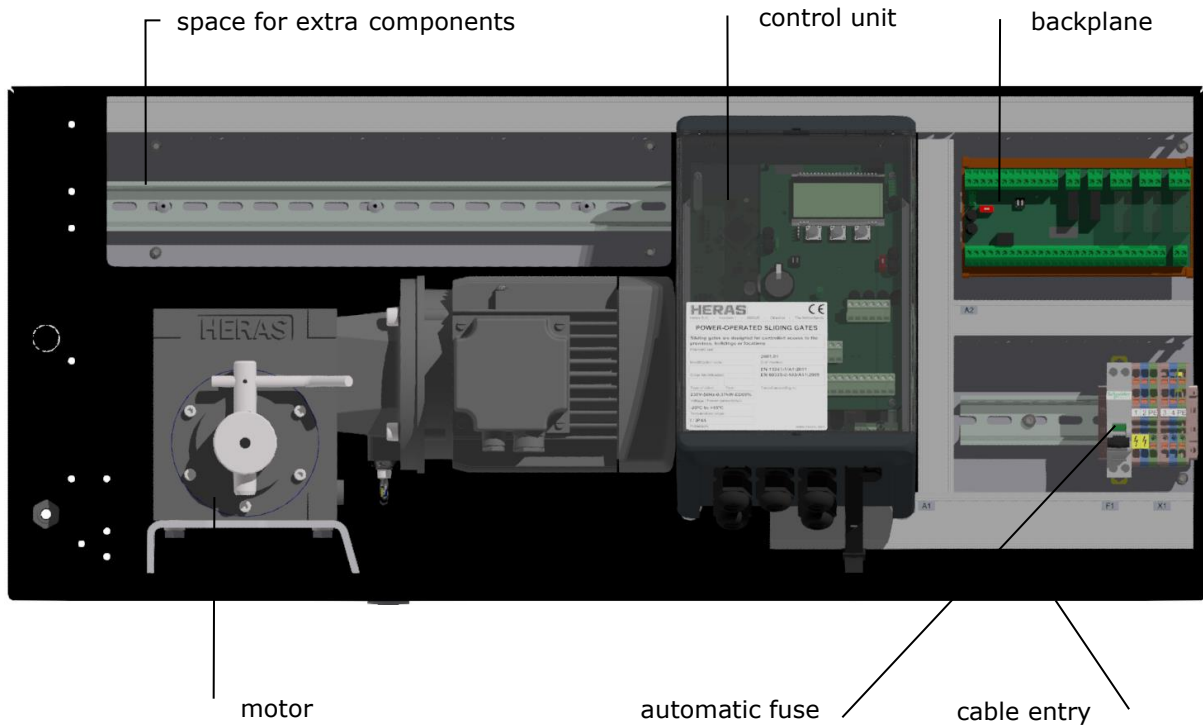
Illustration 18: view of HGDNG230 drive unit

5.3 TOTAL VIEW OF ATLAS 1 DRIVE

control unit

backplane   space for extra components

motor
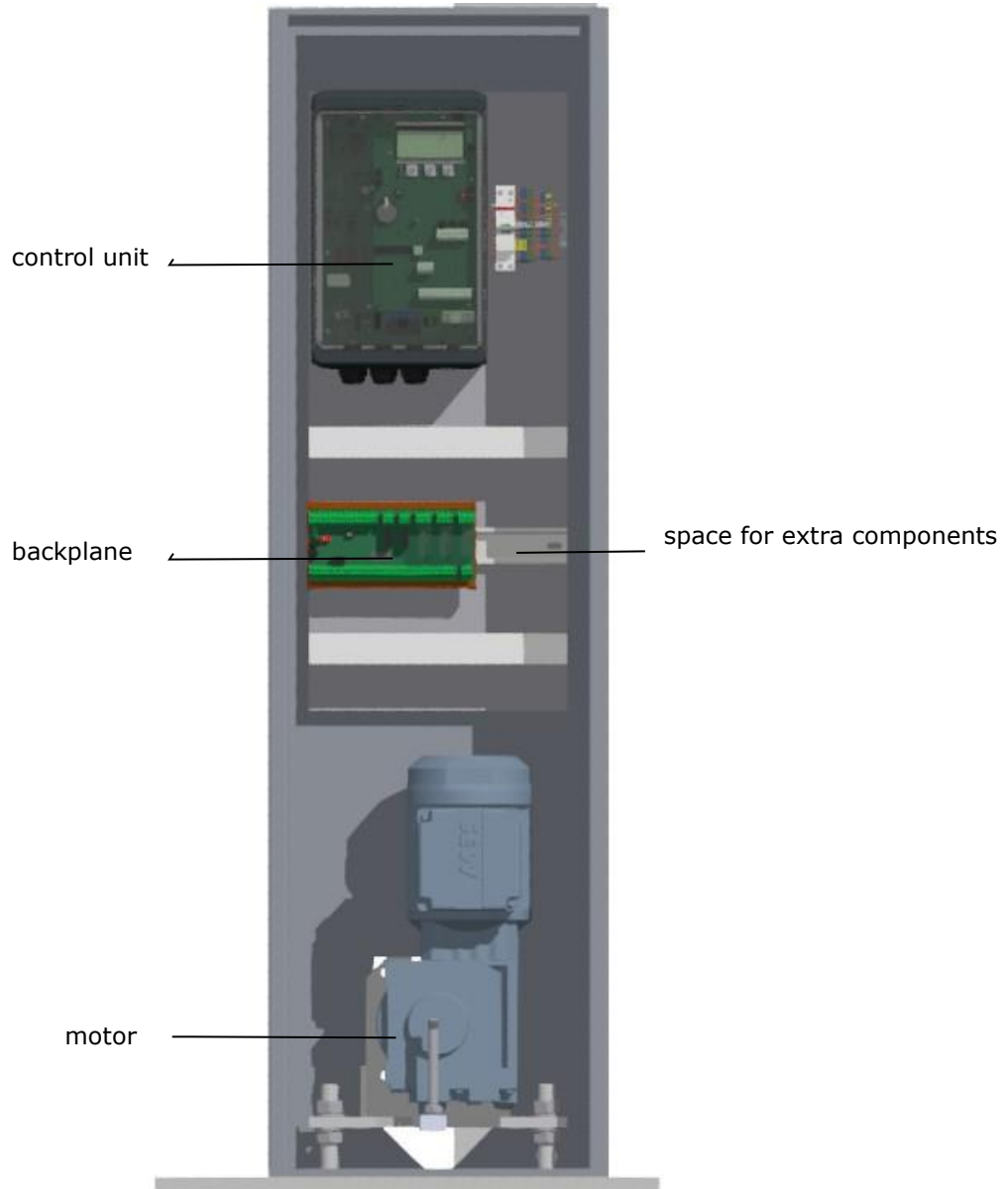
Illustration 19: view of Atlas 1 drive unit

5.4 TOTAL VIEW OF ATLAS 2 DRIVE

control unit

backplane   space for extra components

motor
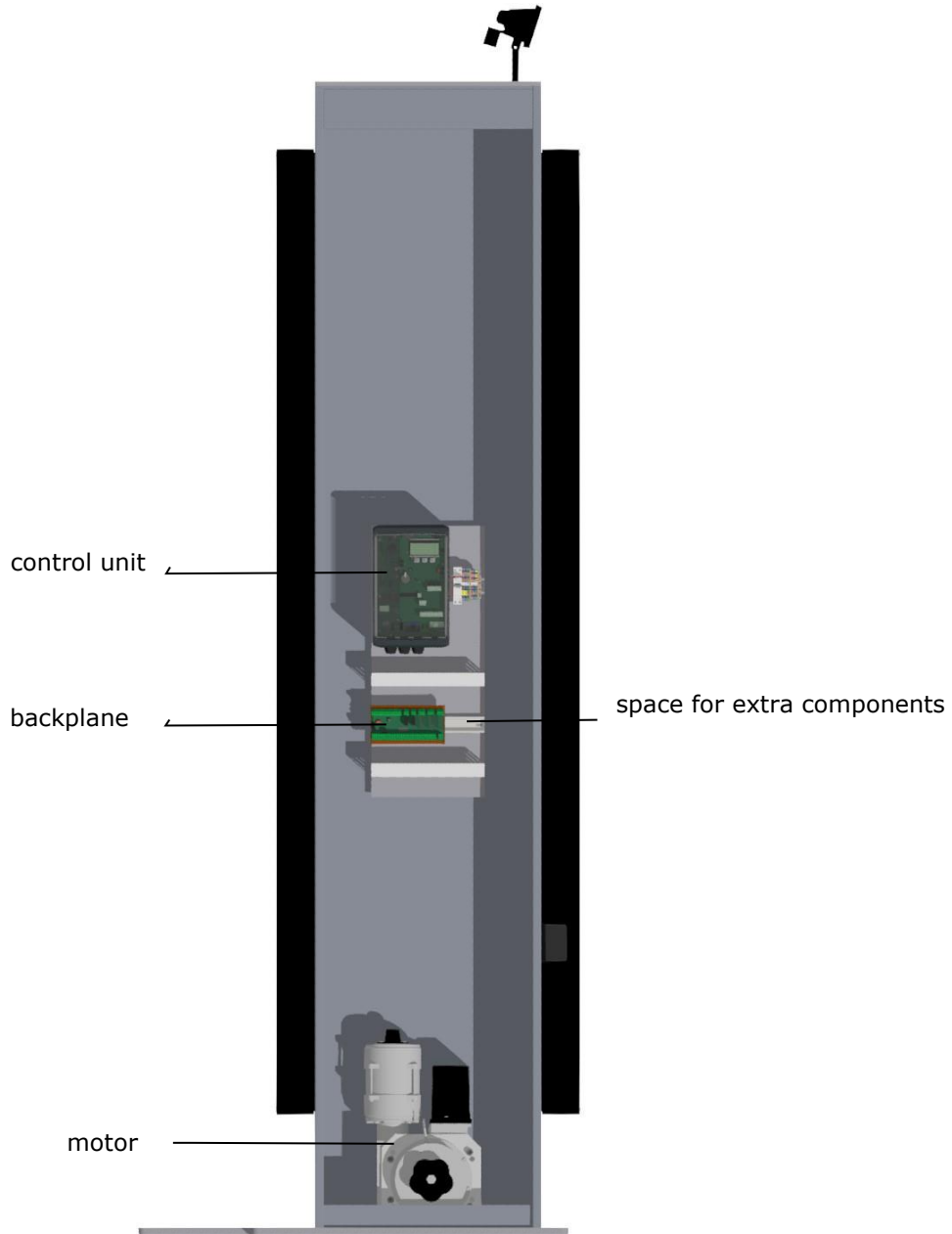
Illustration 20: view of Atlas 1 drive unit

5.5 VIEW OF CONTROL UNIT
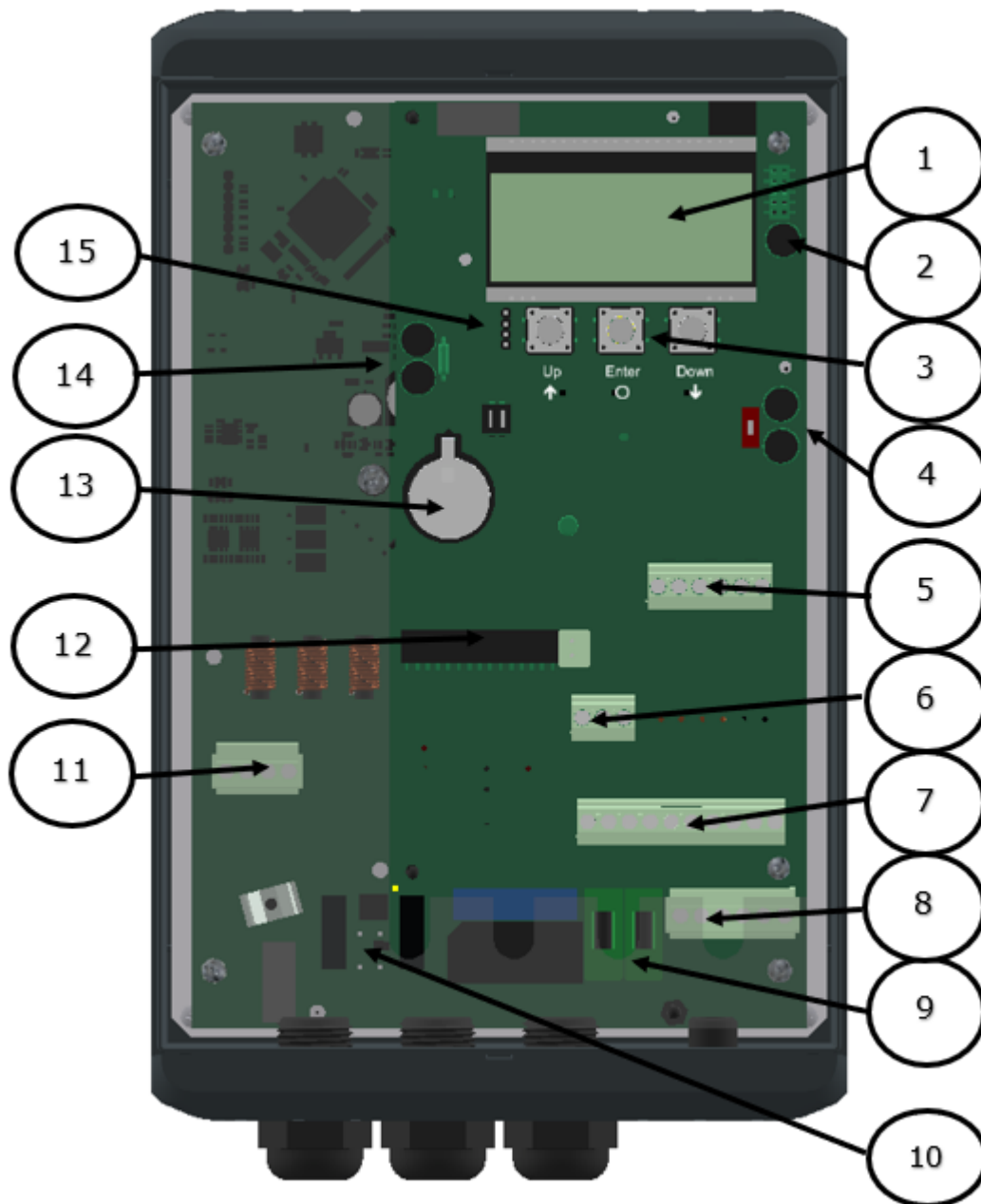
Illustration 21: view of control unit

Names of the numbered parts:

1. 4-line LCD screen
2. Connections for encoder
3. Selection and menu control buttons

4 CAN 1 connections, for example for backplane
5 Connections for the fixed and travelling safety edges
6 Connections for sounders and photocells (number of inputs depending on variant)
7 Connections for 24 VDC for external components
8 Connections for 230VAC L/N/PE
9 Fuses for the external 230VAC L'/N'/PE
10 Connection for an external brake chopper
11 Motor connection PE/W/V/U
12 Antenna connection and base for the receiver hand-held transmitters (optional)
13 CR2032 3V lithium battery for real time clock
14 CAN 2 connections
15 Connection cable of the foil buttons

5.6 MENU OPERATION

The menu operation is displayed on the 4-line LCD screen. The menu is operated with the three buttons below the LCD screen (UP, ENTER, DOWN).
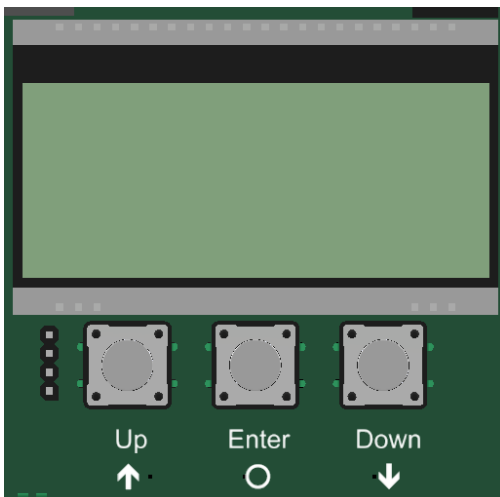
The function of the controls is displayed on the LCD screen.

Buttons meaning	UP	ENTER	DOWN
Start commissioning	MENU	ENTER	
Setting more/less	(+)	SAVE	(-)
Settings yes/no	YES		NO
Control movement (direction of rotation)	OPEN	ENTER	CLOSE
Confirm		ENTER	

Referencerun (learn all positions)	OPEN	SAVE	CLOSE
Confirm closed position again	OPEN	SAVE	CLOSE

Status indication LED_CPU, LED_PER, LED_PWR, LED_BKP

LED off	No mains power or broken component
Blue flashes	Microcontroller initialization and internal functions
Green flashes	Ready-to-use component (CPU or PER or PWR)
Green flashes in sync	System Ready (CPU and PER and PWR and BKP)
Red flashes	Internal software error occurred

Backlight of the display.

Red flashes	Error occurred, error is displayed
Red on	Not operable (e.g. emergency stop)
Green on	Operable
Green flashes	Limited operability (safety active)

5.6.1 Display of operating modes

As an example, the following options are available in terms of displaying operating modes on the LCD screen:

```
        A  U  T  O  M  A  T  I  C
           C  L  O  S  E  D

        H  M  D  N  G  2  3  0  S
```

```
        A  U  T  O  M  A  T  I  C
           O  P  E  N  I  N  G

        H  M  D  N  G  2  3  0  S
```

```
        A  U  T  O  M  A  T  I  C           5  s
           O  P  E  N

        H  M  D  N  G  2  3  0  S
```

```
        A  U  T  O  M  A  T  I  C           5  s
           O  P  E  N
S  K  L  C  l  o  s  e     a  c  t  i  v  e
        H  M  D  N  G  2  3  0  S
```

5.6.2 Date and time display

You can permanently display the current time on the screen from the operating mode display by briefly pressing the down button once. The clock date is shown using the "*day. month.year*" format. Beside shows the time in the 24-hour "*hours: minutes*" format.
60 seconds after a button was last pressed, the selected operating mode is displayed again.

```
        D  A  T  E        &        T  I  M  E

 D  D  .  M  M  .  Y  Y  Y  Y          H  H  :  M  M
```
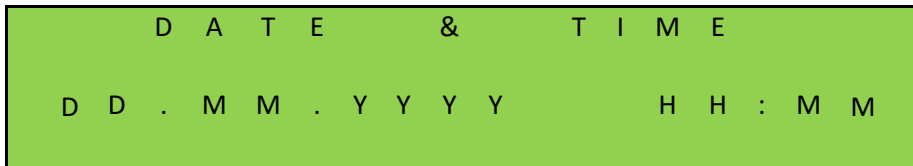
5.6.3 Status display

The display also provides detailed information on the sensors and inputs and outputs that have been configured. By pressing the DOWN button several times, the current status of the set sensors, inputs and outputs and counter positions is displayed. In the first, second and third line the input or output from the parameter list is mentioned. The fourth line shows the current state of the sensor. Here a "1" stands for an active status and a "0" for an inactive status. This information is constantly updated to facilitate trouble-shooting. Again, the operating mode is shown again 60 seconds after operating any button. It is also possible to operate the gate.
Sensors that are not installed (specified by parameters in the program) are also not displayed.

```
        C  y  c  l  e     c  o  u  n  t  e  r  s

 T  o  t  a  L:                                4  5
 T  o     S  e  r  v:                    3  0  0  0  0
```

```
 I  :  v  w  x  y  z     O  :  F  F     R  R  R  R  R
        |  |  |  |  |           1  2     1  2  3  4  5
        |  |  |  |  |           |  |     |  |  |  |  |
        0  0  0  0  0           0  0     0  0  0  0  0
```
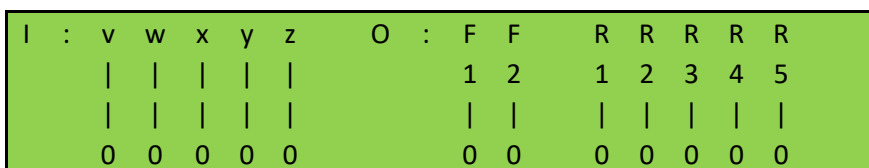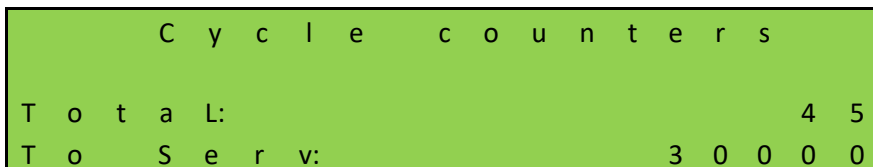
```
I  :      I  R        4  4  4  4  4  4  5  5  5  5  5
      1  2  3  4      2  3  4  6  7  8  0  1  2  4  5
      |  |  |  |      |  |  |  |  |  |  |  |  |  |  |
      0  0  0  0      0  0  0  0  0  0  0  0  0  0  0
```

```
M  o  v  e      g  a  t  e      w  i  t  h
b  u  t  t  o  n  s  ?


              S  t  a  r  t
```

5.6.4 Display errors/events

The display proactively displays information about some of the error messages and special events of the controller or gate, without the operator having to scroll through the diagnostics menu or the sensor display.

How does the proactive view work?

This proactive display of the events in the display only takes place during the display of the operating mode. During the sensor display or in the menu display, the event and error display is not active.

If several events are active at the same time, they are displayed in sequence for 2 seconds each.

The displayed messages refer to the section "Parameter reference or fault numbers" (chapter8.2) of this document.

   Examples for the proactive view

- if a safety edge is activated, this information is shown on the display
- if an error occurs that prevents the motor from being controlled, the control switches to error status and shows the last error that occurred on the display

5.6.5 Selecting the menu system

The HMDNG230 menu system is accessed by pressing the ENTER button for approx. 2 seconds while the operating mode is displayed. The display then shows the text "Menu 00".

```
M  e  n  u        0  0
➜  I  n  f  o  r  m  a  t  i  o  n
   I  n  s  t  a  l  l  a  t  i  o  n
   P  a  s  s  w  o  r  d
```
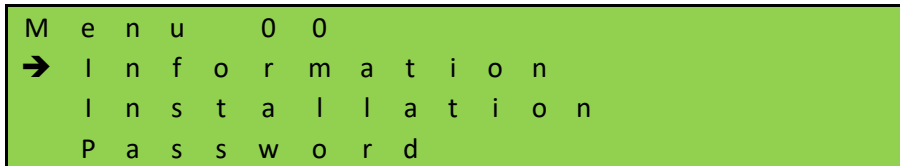
The menu cursor is navigated up and down using the UP and DOWN buttons. The individual menu items can be selected with the ENTER button. Pressing the UP and DOWN buttons simultaneously for a long time (2s) exits the menu operation. If there are any changes, a notification appears. The changes can then be accepted or deleted.

5.6.6 Entering the password

NOTE: No password will be provided to customers and/or third parties.

To gain higher rights and access certain settings, a password must be entered in menu item "02".

```
M  e  n  u        0  2
   I  n  f  o  r  m  a  t  i  o  n
   I  n  s  t  a  l  l  a  t  i  o  n
➜  P  a  s  s  w  o  r  d
```
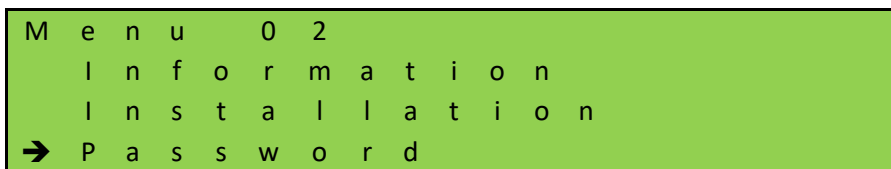
When the function is called up, a 4-digit code is displayed with which an authorized person can generate a temporary password. The communicated password must then be entered into the controller to unlock access.

```
H  M  D  N  G     c  o  d  e:     8  3  7  0
P  a  s  s  w  o  r  d:     0  0  0  0  0
                              ↑
   (  +  )           N  E  X  T        (  --  )
```
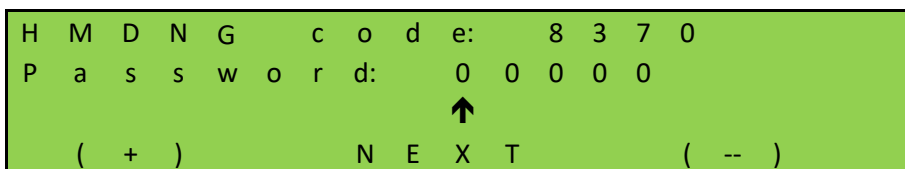
Since the current date is also included in the password generation, it must be ensured that a current date is set.

5.7   MENU DISPLAY INSTRUCTIONS

The menu system of the HMDNG230 offers the following possibilities:

1. Information
- ❏ PER status — Status of the inputs on the control itself
- ❏ BKP status — Status of the inputs on the backplane
- ❏ SKL status — Status of the ISK and SKL
- ❏ Sensor status — Status of various sensors in the control
- ❏ System log — Log with saved messages and errors (partly closed menu)
- ❏ Maintenance — Information and settings for maintenance (partly closed menu)
- ❏ Firmware versions — All software versions in the control

2. Installation
- ❏ Gate config — Specific settings such as operation mode and so on
- ❏ Motor config — Motor settings (closed menu)
- ❏ Timer config — Setting the various timers
- ❏ Controller M — Setting the controller itself (closed menu)
- ❏ Backplane M — Setting inputs and outputs on the backplane (partly closed menu)
- ❏ Radio config — Configuring the remote controls
- ❏ Calendar config — Configuring the calendar
- ❏ Date & time config — Set date and time
- ❏ Reset close pos. — Reset the closed position
- ❏ Learning limits — Learning the limits
- ❏ Backup parameter — Save the parameters (closed menu)
- ❏ Restore parameter — Restoring the parameters (closed menu)
- ❏ Factory settings — Reset to factory settings

3. Password
- ❏ Password — Enter a password using a code from the control to gain further access

4. Language
- ❏ Language — Selecting on of the 7 languages

5. Quick select		
❑ Quick select	Directly enter a menu number for quick access

6. Reboot		
❑ Reboot	Rebooting the controller

5.7.1 Setting the language

The language of the control can be changed in menu item 3. Only the words are changed. The numbering, as well as the internal parameters, functions and settings remain unchanged. In addition to the default language "English", 6 more languages can be selected.

```
Menu      03
    Installation
    Password
➜  Language
```

```
Menu      3.0
➜  Return
    1. English
    2. German
```

5.8   BACKPLANE

The backplane is an external expansion board that is connected to the control unit to expand the number of inputs and outputs, for example for photocells and operation. It is connected to the controller via a CAN connection cable and is also supplied with 24VDC.
Without a backplane, the controller cannot be used.
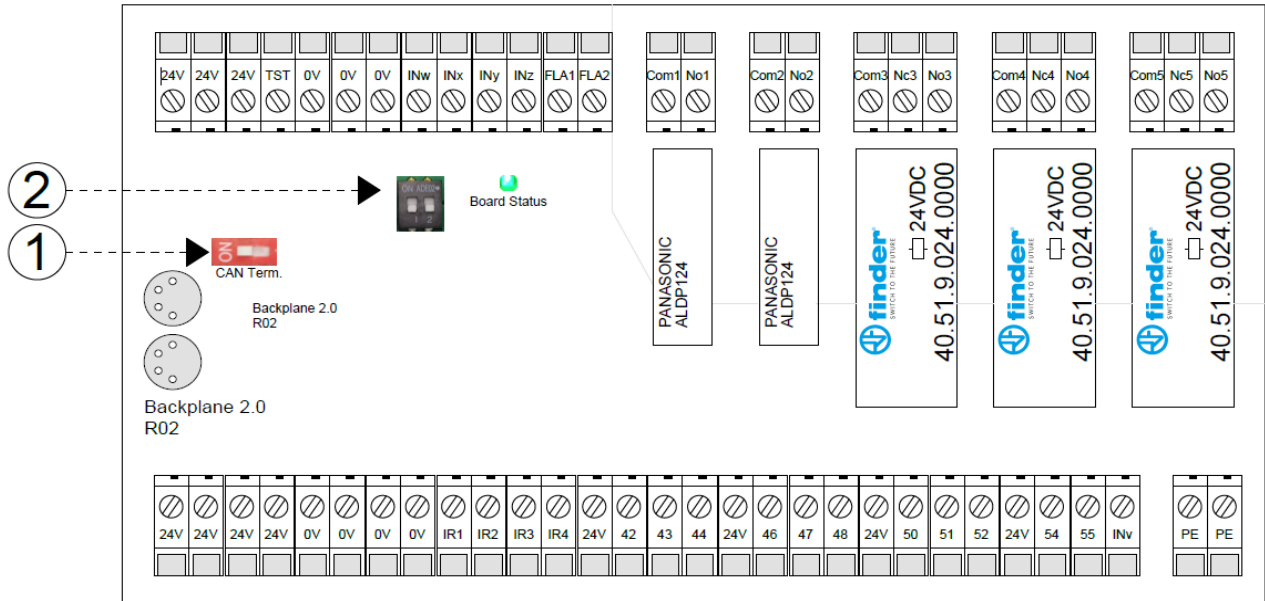
The following statements belong to the numbers:

1. CAN terminating resistor
2. ID settings for multiple backplanes

Various inputs and outputs are already defined with functions when the HMDNG230 is delivered. Some can be parameterized via the menu or with a service module. Consult your installing partner for this.

The backplane includes the following connections:

Top row:

Description	Functions HMDNG230S and A	Functions HMDNG230SREP, AREP, S5FR
3 x **24V**	Power supply for external components (+24V)	Power supply for external components (+24V)
1 x **TST**	Tested 24 volts for external components (+24V)	Tested 24 volts for external components (+24V)
3 x **0V**	Power supply for external components (0V)	Power supply for external components (0V)
INw **INx** **INy** **INz**	Emergency stop (optional) Reference limit switch (optional) No function No function	Emergency stop (optional) Limit switch opened Limit switch closed No function
FLA1	Switched 24V output for strobe	Switched 24V output for strobe

	lights	lights
FLA2	No function	No function
Com1, NO1,	Relay 1, closing contact: Gate open	Relay 1, closing contact: Gate open
Com2, NO2	Relay 2, closing contact: Gate closed	Relay 2, closing contact: Gate closed
Com3, NO-NC3	Relay 3, changeover contact: No function	Relay 3, changeover contact: No function
Com4, NO-NC4	Relay 4, changeover contact: No function	Relay 4, changeover contact: No function
Com5, NO-NC5	Relay 5, changeover contact: No function	Relay 5, changeover contact: No function

Bottom row:

Description	Functions HMDNG230S and A	Functions HMDNG230SREP, AREP, S5FR
4 x **24V**	Power supply for external components (+24V)	Power supply for external components (+24V)
4 x **0V**	Power supply for external components (0V)	Power supply for external components (0V)
IR1	Input for photocell	Input for photocell
IR2	Input for photocell	Input for photocell
IR3	Input for photocell	Input for photocell
IR4	Input for photocell	Input for photocell
41	+24V	+24V
42	Open	Open
43	Stop	Stop
44	Close	Close
45	+24V	+24V
46	Open	Open
47	Stop	Stop
48	Close	Close
49	+24V	+24V
50	Open	Open
51	Stop	Stop
52	Close	Close
53	+24V	+24V
54	Toggle	Toggle
55	Partly open	Partly open

INv	No function	No function
2 x **PE**	Ground	Ground

The 5 relays may switch a maximum of 30VDC and 230VAC. Relays 1 and 2 may switch a maximum of 5A, relays 3, 4 and 5 a maximum of 12A.

The outputs FLA1 and FLA2 send out a switched 24VDC, which may be loaded with a maximum of 500 mA in total.

6 INSTALLATION

This chapter is about commissioning the HMDNG230.

6.1 ELECTRICAL CONNECTION

In principle, and for safety reasons, the electrical system must be connected by a qualified electrical engineer. Work on the motor drive is only permitted if the power supply is fully interrupted. To fully interrupt the power supply, an isolator switch or mains plug must be installed and used. The isolator switch or mains plug must be within easy reach.

Observe the instructions in the chapter Safety. Avoid parallel signal and energy leads and cables where possible. The dimensions of all leads and cables must be adjusted to the power consumption.

The cable glands must be treated this way that the protection against water and foreign objects penetrating is still compliant with the IP classification after introducing the leads and cables.

6.1.1 Instructions for EMC installation

Attention: If the installation does not comply with EMC requirements, other equipment in the direct vicinity of the motor drive may be disturbed.

The HMDNG230 is a motor drive which includes a frequency converter. The switching technology inherent in frequency converters may lead to disturbances in their direct vicinity.
A shielded cable must always be used for the motor cable. Connect the shield to

the motor using an EMC screw connection and connect it in the motor drive using the PE terminal provided for this purpose.

If the system has to comply with the requirements of EN 61000-6-3, the power supply lead and all control leads must have ferrite cores.

6.1.2 Connecting the supply voltage and the drive motor

The HMDNG230 is designed for a single phase input voltage of 230VAC and generates a rotating field of 3 x 230VAC. Connect the mains voltage to terminals "L", "N" and "PE".

The output voltage for the gate drive motor is generated by the pulse-width modulated controller from the supply voltage of the power electronics. For this purpose, the motor is connected to terminals "U", "V", "W" and "PE". The shield must be neatly secured in the shield clamp.

It is essential to ensure the correct connection of the earth conductor and the shielding of the motor connection cable.
The motor must be connected in delta connection to obtain an effective mechanical torque.

When commissioning the gate system for the first time, the direction of rotation of the motor must be taken into account so that the gate moves in the desired direction even when the OPEN button is pressed. During this process the control will ask you to check this. If necessary, swap the motor connections "V" and "W" afterwards or change the direction of rotation of the motor using the software.

6.1.3 Brake chopper

With heavy gates that are reversed very quickly, it can happen that the motor gets a mechanical pushing torque. This in turn can generate additional energy in the intermediate circuit, significantly exceeding the rated voltage. To prevent this unwanted increase in the intermediate circuit voltage, a brake chopper is used, which independently converts the extra energy into heat.

The two connecting wires from the brake chopper are connected to designated terminals on the controller. See point 10 in figure 18. The red wire is connected to "+" and the black wire is connected to "-".

6.1.4 Electric brake connection

If an additional electromechanical brake is to be used, an optional relay can be connected to the frequency converter. This is activated with every movement and is used explicitly for this. To ensure that the brake is switched every time an inductive load is applied, this relay can gradually wear out, which is why it is planned as a plug-in version. Consult the installer for this.

6.1.5 Supply of external consumers with 230 V$_{AC}$

External consumers of the controller, which operate with a 230 VAC supply, can be connected via the fused voltage output with the terminal designations "L'", "N'" and "PE" on the power supply board of the controller. The maximum load indicated by the fuse used must be observed.

6.1.6 Power supply for external devices with 24Vdc

A regulated 24VDC power supply is present on the controller to power the external devices, controls and sensors, which can supply a maximum current of 2000mA. This 24VDC is protected on the printed circuit board with an automatic reset fuse.

A separate power output "test" is available for safety functions such as emergency stop and emergency (fire alarm). During the idle phases of the control, the supply voltage (+24VDC) is switched on and off on this output in a controlled manner. The controller can thus detect an open or closed connection on its input(s).

6.2 CONNECTING THE CONTROLS

The controls (keys) for the open, close, toggle and partially open functions are connected through a make contact. Switches with a static make contact (e.g. timer) are also allowed for the open and partially open functions. Contacts must be connected to the backplane; see the connection diagram at the back of this document.
Only controls with a break contact are used for the stop, emergency stop and emergency situation functions.

> ⚠️ **ATTENTION:** The power supply to the controls <u>must</u> go through the synchronised "TST" output for the **emergency stop** and **emergency situation** functions.

Several break contacts can be switched in series in the form of a stop chain for

the stop and emergency stop inputs.

6.2.1 Hold-to-run function

The gate can be put into operation with the buttons below the display or with the service module. During commissioning, they are temporarily used as a dead man's switch. The operator must have a permanent and full view of the gate system and all danger zones. These buttons are used to teach in the end positions during commissioning. They then only serve as menu buttons or normal operation when the gate is in operation.

Other control elements can also be connected with a hold-to-run function. Only manual control devices such as buttons or a key switch may be used for this function (i.e. no loop detectors or clocks and the like). In automatic mode, these buttons also act as pulse buttons, but the gate can also move at reduced speed if the safety components fail if they are pressed continuously. This button or key switch must then be connected to terminals "42" for opening and "44" for closing on the backplane.

- the gate leaf shall stop when the manual actuator is released
- the leaf movement shall not be initiated by any controls other than manual actuator of the hold-to run device
- unintended operation of manual actuators shall be prevented

6.2.2 Stop function

To stop a running motor or prevent the motor from starting, a STOP button or switch must be connected between the backplane terminals "41 and 43", "45 and 47", or "49 and 51". This element must be designed as a normally closed contact. It is also possible to connect several NC circuits in series in the form of a STOP chain (e.g. motor temperature switch, access switch, STOP button).

6.2.3 Emergency stop function

Any gate movement is immediately stopped when the emergency stop function is activated. Motor restarts are prevented until function is restored. The control switches to emergency stop operating mode.

An emergency stop must be connected between terminals "TST" and "INw" of the backplane. The wire bridge on "INw" must be removed.

See chapter 9 for more information and regulations about the emergency stop.

6.2.4 Open and close function

OPEN and CLOSE keys can be connected to drive the gate by hand. Contacts must be connected to the backplane; see the connection diagram at the back of this document.

Proceed as follows to connect the keys:

Open must be connected between "41 and 42", "45 and 46" or "49 and 50" of the backplane.

Close must be connected between "41 and 44", "45 and 48" or "49 and 52" of the backplane.

⚠️ **ATTENTION**: the inputs "42" and "44" can switch over to the hold-to-run function in case of faulty safety devices and therefore no continuous signals may be connected here. Only use the higher numbered connections for this.

6.2.5 Toggle function

With the "Toggle" function, a button can be connected that generates OPEN, STOP, CLOSE, STOP travel commands with a switching pulse. Each time a button is pressed, motor operation is started or ongoing operation is interrupted by a stop command. The next direction of movement is always opposite to the previous one. This function is only supported in automatic mode.

A button must be connected between terminals "53" and "54" of the backplane.

6.2.6 Installing/Setting a partially open function

To set a partially open function, a button or switch contact is connected between the input terminals "53" and "55" of the backplane. A partially open position is already set at the factory.

Activating this "partially open function" input leads to the following gate actions:

- If the gate is in the open or partially open position, no action will be taken.
- If the gate is in a different position, the control will try to move to the partially open position if not prevented by other controls or sensors.
- If the gate is already moving to the OPEN position, it will not stop at the partially open position and will not go back.
- When the gate moves to the closed position, the control will try to move to the partially open position instead, if this is not prevented by other controls or sensors.

This position can be adjusted via the menu or the service module. Menu; "Installation"; "Gate config"; "Part-Open pos". After choosing that function you can set the position in which the gate is then as new partially open.

```
S e t      c u r r e n t      p o s      a s
p a r t – o p e n      p o s

   Y e s                                    N o
```

6.2.7 Relay output connections

The HMDNG230 can provide different gate states or function via a relay. The output relay "Com1 and NO1" is factory-set such that it is closed when the gate has reached its OPEN position. The output relay "Com2 and NO2" has been set such that it is closed when the "gate CLOSED" position has been reached. No further settings are required. Contacts must be connected to the backplane; see the connection diagram at the back of this document.

One of the following statuses or functions can be programmed on all 5 relays by means of a service module:

Status:

- No function
- Gate partially open
- Position unknown
- Gate opens
- Gate closes
- Gate is moving

Functions:

- Service notification when time or cycles are reached
- Passage light
- Error message
- Open impuls 1 second, switches when the gate is open
- Close impuls 1 second, switches when the gate is closed
- Traffic light
- Disable traffic light in closed position
- Safety edge activated

6.3   SAFETY DEVICES

Various safety devices can be connected to the control to ensure the safety of man and machine. This includes, for example, safety edges and photocells. The connection of these components is described below.

6.3.1 Stationary safety edges

The stationary safety edges can be connected directly to the terminals marked "Open" and "Close" on the PCB. These safety edges are never connected to the backplane, always directly to the controller itself.
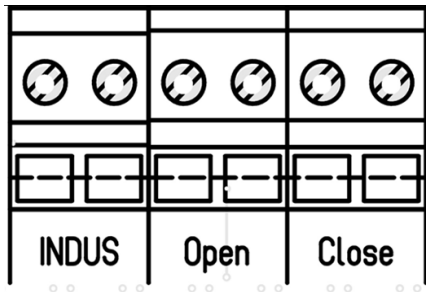
NOTE: ALWAYS test the functionality!

6.3.2 Connecting the ISK system (INDUS)

The ISK system has already been integrated with the HMDNG230. This system is intended for the moving safety edges. The SPK55 coil is connected directly to the terminals marked "Indus". These safeties are never connected to the backplane, always directly on the control itself. By default, the evaluation of a connected ISK system is activated.

NOTE: ALWAYS test the functionality!

6.3.3 Connecting a photocell

Both one-way and reflective photocells of a 24V operating voltage can be connected to the HMDNG230. Photocells must be connected to the backplane; see the connection diagram at the back of this document.

6.4   INCREMENTAL ENCODER

An incremental encoder is connected to the HMDNG230 to determine the gate's movement direction, speed and end positions. This incremental encoder has been installed in the motor and supplies two square-wave signals in opposite directions which the program uses to derive the necessary information. The incremental encoder is connected to the 4-pole M8 bus to the right of the display (Illustration 21:). The encoder is already connected to the control unit at the factory.

Speed

⚠️ If the power supply is interrupted, the control saves the last position and assumes it as the last known position on restart. After a restart, the gate continues to move as in the last selected operating mode (provided that all safety devices are available and free). If the gate has been moved manually, there is a good chance that it will collide with the mechanical stop in one of the end positions. An error message is then generated and a new reference position must be taught in manually in order for the system to operate normally again. See chapter 7.4.1 for this.

6.5   LIMIT SWITCHES

In addition to an encoder, it is also possible for a gate to function with limit switches, because the motor then does not have an encoder. Inputs are pre-configured for this and belong to the chosen profile of the type of gate. These limit switches are intended to determine the end positions of the movement.

- At the start of a movement with the limit switch activated, it must be released within 10% of the travel distance to be covered, otherwise the gate will stop immediately with an error message and the operator must be restarted in order to operate it again.
- If it has not yet been reached at the end of a movement with the limit switch activated, we try to reach it in a slow search movement. As with departure, the limit switch must be reached within 10% of the travel distance.
- If a limit switch is activated during travel, the gate stops immediately and moves to the corresponding open or closed position.

Where they are connected can be found in the connection diagram at the back of this document.

6.6 REFERENCE SWITCH

Optionally, it is possible to install a reference switch, provided that the drive housing is prepared for this. This switch can only be used when it concerns a drive with an encoder.

This switch helps to independently find its open position after the gate has been disconnected and moved, thereby restoring the entire path. The necessary set includes all materials to apply this. The reference switch must be connected to 24VDC and 0V and the switch wire to input "Inx" on the backplane. The wire bridge on "Inx" must be removed.

User instruction reference switch:

- Switch off the power using the switch in the drive
- Place the unlocked gate somewhere in the middle, so not open or closed
- Lock the motor again and switch the power back on
- Give the gate an **open command** with an available control element
- The gate will open again at slow speed and stop at the reference switch
- After 2 to 3 cycles the gate is completely back in its original position

6.7 CONNECTING THE RADIO-FREQUENCY RECEIVER

The HMDNG230 can optionally be fitted with a radio-frequency receiver for hand transmitters. The radio-frequency receiver works with 868 MHz and FM modulation. The radio-frequency receiver is factory-fitted on the bus terminal strip.
The receiver can also be retrofitted or replaced. This receiver has to be combined with an external antenna to be connected to the plug-in terminal directly next to the module. See Illustration 21:.

The internal core of the coax cable of the antenna is connected to the upper (1) terminal. The antenna shield is connected to the lower (2) terminal.
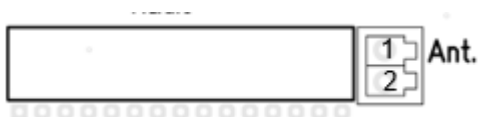
7 PROGRAMMING AND SETTINGS

Before the HMDNG230 is commissioned and the gate is installed, the following installations and parameter adjustments are useful or necessary. In principle, all necessary parameters are available without a password. Specific settings are available and/or adjustable through the service module or a password. In a number of fields you can adjust a value to the desired value by means of "+" and "-".

7.1 PRIO LEVELS

The priority level determines in which operation mode a controlled input is processed. At different settings you will be asked to make a choice here. Our advice is always written there.

Example: A connected switch with priority level 1 can start an open movement, but not start a hold-to-run movement.

The levels build on each other, a higher level always has all the rights of the lower levels.

Level 0: Automatic
Level 1: Level 0 + Reset close pos.
Level 2: Level 1 + Hold-to-run + Commissioning
Level 3: Level 2 + Emergency function
Level 4: Level 3 + Emergency stop
Level 5: Level 4 + Error

7.2 FIRST COMMISSIONING

Place the unlocked gate leaf approximately in the middle, so not open or closed. Then lock the motor. After switching on the power, and everything is connected correctly, the control will guide you through a number of mandatory steps. During this process, the controller will occasionally reboot; this is normal to save settings. You can also determine which configuration is desired here. The following steps are followed during the guided commissioning:

Language, if necessary, another language can be selected.

```
L  a  n  g  u  a  g  e
O  l  d:                       E  n  g  l  i  s  h
N  e  w:                       D  u  t  c  h
   (  +  )        S  A  V  E        (  --  )
```

Date, if necessary, the date can be adjusted. If it is correct, select "No".

```
C  u  r  r  e  n  t     d  a  t  e:
   2  4.  0  7.  2  0  2  3
C  h  a  n  g  e     d  a  t  e?
   Y  e  s                              N  o
```

Time, if necessary, the time can be adjusted. If it is correct, select "No".

```
C  u  r  r  e  n  t     t  i  m  e:
   0  9:  2  8
C  h  a  n  g  e     t  i  m  e?
   Y  e  s                              N  o
```

Gate type, here you can only select "Yes".

```
S  l  i  d  i  n  g     g  a  t  e?


   Y  e  s
```

Number of leaves, here you can only select "No".

```
D  u  a  l     l  e  a  f?


                                    N  o
```

Encoder present, if necessary this can be adjusted. If correct, select "No". Here it is determined which settings should be loaded.

If you choose encoder, the settings for HMDNG230S will be loaded. If you choose "No" here, you will be asked whether it should be an HMDNG230S5FR. If you choose "Yes", the settings for this will be loaded. If you choose "No", settings will be loaded for an HMDNG230SREP.

```
I s   a n   i n c r e m e n t a l
e n c o d e r   p r e s e n t?


  Y e s                               N o
```

⚠ **NOTE**: It is determined in the factory whether it concerns a Standard or Advanced control. If you choose no encoder, the HMDNG230AREP will be loaded automatically in case of an Advanced.

Operating mode, if necessary this can be changed to hold-to-run mode. In that case, no safeties are needed on the gate.

```
H o l d   t o   r u n   m o d e?


  Y e s                               N o
```

Check direction of rotation, check a direction for 5 seconds to see if it is correct. If you press "Close", the gate must also close. If this is not correct, it will be adjusted automatically.

```
C h e c k       t h e       g a t e
m o v i n g   d i r e c t i o n
D r i v e   m i n.   5s
  O p e n       E N T E R     C l o s e
```

```
H a s     t h e     g a t e     b e e n
d r i v e n   c o r r e c t l y
i n   O P / C L   d i r e c t i o n?
  Y e s                               N o
```

Selecting "No" will automatically adjust the direction of rotation.

Learning limits, open the gate to the desired end positions by pressing and holding the "OPEN" button. When this is reached, release the button. You can correct the position by briefly pressing the "OPEN" or CLOSE button. When the correct end position has been reached, press "OPEN" and "SAVE" simultaneously until "SAVING" is displayed. Then release the buttons immediately. The OPEN position is now saved.

Now close the gate to the desired end positions by pressing and holding the "CLOSED" button. When this is reached, release the button. You can correct the

position by briefly pressing the "OPEN" or CLOSE button. When the correct end position has been reached, press "CLOSE" and "SAVE" simultaneously until "SAVING" is displayed. Then release the buttons immediately. The CLOSED position is now saved.

```
        C  O  M  M  I  S  S  I  O  N  I  N  G
                 U  n  k  n  o  w  n


   O  P  E  N     S  A  V  I  N  G      C  L  O  S  E
```

After all steps have been completed, the gate is ready for use. Other adjustable parameters are described later in this chapter.

7.3   CONNECTING A WIRELESS SYSTEM FOR MOVING SAFETY EDGES

The moving safety edges, connected via the ISK, are connected as standard via the ISK (INDUS) system. This is the factory default setting. Adjustments can only be made through the service module.

However, it is possible to connect it via a wireless system. How this should be connected can be found in the diagram at the back of this document. The desired setting can be selected via the following menu items:

Go to "Installation" in the menu; "Gate config"; "ISK/WRLSS selection", after which the following screen appears:

Wireless, relay tested in both directions:

```
I  S  K  /  W  R  L  S  S     s  e  l  e  c  t  i  o  n
O  l  d:                  I  S  K     w  i  t  h     S  K  L
N  w:      W  i  r  e  l  e  s  s     w  i  t  h     S  K  L
   ( + )              S  A  V  E              ( -- )
```
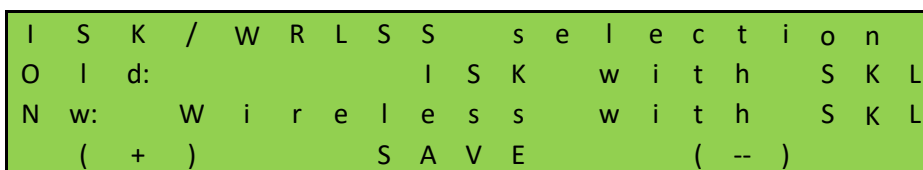
You choose this option when you use a receiver of which both contacts can be tested.

Wireless, relay only tested for the closing direction:

```
I  S  K  /  W  R  L  S  S      s  e  l  e  c  t  i  o  n
O  l  d:                   I  S  K     m  e  t     S  K  L
N  e  w:          W  i  r  e  l  e  s  s     c  l  o  s  e
   ( + )               S  A  V  E              ( -- )
```
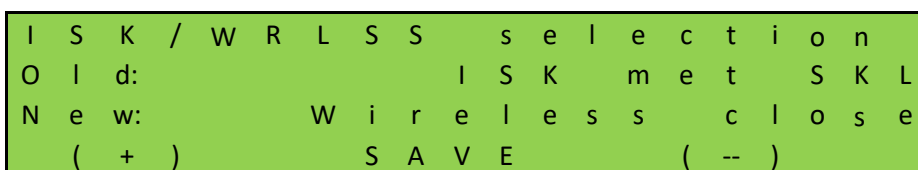
You choose this option when you use a receiver of which only one contact can be tested.

The stationary safety edges present on the gate are connected to the connections intended for this purpose; (SKL) Open and (SKL) Close. The ISK (INDUS) is turned off. After selection, two inputs on the backplane then get a function to which the contacts of the receiver can be connected. For the HMDNG230x these are "INy" (Open) and "INz" (Close). For the HMDNG230xREP and HMDNG230S5FR, these are "INv (Open)" and "INz (Close)".

> ⚠️ **NOTE:** Choosing the "Wireless + xxx" function will give the relevant inputs the correct function. Previously selected functions will be overwritten. ALWAYS test functionality!

7.4 RELEARN THE LIMITS OF THE GATE

During initial commissioning, the door end positions are saved. If necessary, this process can be repeated. This procedure is the same whether there is an encoder or limit switches.

Go to "Installation" in the menu; "Learning limits", after which the following screen follows:

```
Do you want to start
learning the limits?

  Yes                    No
```

After this, the system will reboot and, just like during the first commissioning, a number of questions will be asked:

Check direction of rotation, check a direction for 5 seconds to see if it is correct. If you press "Close", the gate must also close. If this is not correct, it will be adjusted automatically.

```
Check the gate
moving direction
Drive min. 5s
  Open    ENTER    Close
```

```
Has the gate been
driven correctly
in OP / CL direction?
  Yes                    No
```

Learning limits, open the gate to the desired end positions by pressing and holding the "OPEN" button. When this is reached, release the button. You can correct the position by briefly pressing the "OPEN" or CLOSE button. When the correct end position has been reached, press "OPEN" and "SAVE" simultaneously until "SAVING" is displayed. Then release the buttons immediately. The OPEN position is now saved.

Now close the gate to the desired end positions by pressing and holding the "CLOSED" button. When this is reached, release the button. You can correct the position by briefly pressing the "OPEN" or CLOSE button. When the correct end position has been reached, press "CLOSE" and "SAVE" simultaneously until "SAVING" is displayed. Then release the buttons immediately. The CLOSED position is now saved.

```
        C  O  M  M  I  S  S  I  O  N  I  N  G
              U  n  k  n  o  w  n


  O  P  E  N        S  A  V  I  N  G        C  L  O  S  E
```

After all steps have been completed, the gate is ready for use again.

Check that both end positions are reached and that the motor stops when these end positions have been reached.

If values have been learned incorrectly, the total learning procedure has to be repeated then.

⚠ **Attention:** If the gate has been disconnected from the motor drive control system and has been moved by hand, the gate position will no longer be defined in the software. You must then manually move the gate to its CLOSED position and set the position again. See the next chapter for this.

⚠ **Attention:** If there is a power failure while the gate is being moved, it may no longer be possible to save the gate position. This is indicated by the fact that the gate can no longer be moved in automatic mode. You must then also manually move the gate to its CLOSED position and set the position again. See the next chapter for this.

⚠ **NOTE:** If an optional reference switch is used, this procedure is not necessary.

7.4.1 Reset closed position

In CLOSED position (gate closed) the slot of the marker plate must be aligned to the side of the drive unit. If this is not the case, then manually move the gate to its CLOSED position.

Marker plate Delta

Marker plate uGate

When the gate is in the correct position, make sure the motor is locked again before continuing.

Go to "Installation" in the menu; "Reset close pos.", after which the following screen follows:

```
I  s     t  h  e     g  a  t  e     i  n     t  h  e
c  l  o  s  e  d     p  o  s  i  t  i  o  n?

   Y  e  s                              N  o
```

If you choose "No" you go back in the menu; if you select "Yes", the closed position will be saved immediately.

7.5   CHANGING THE OPERATION MODE

The technician can deliberately switch the motor drive, which usually works in automatic mode, to hold-to-run operation so that the gate can only be driven at a low speed, using the connected hold-to-run buttons. All safety facilities are deactivated then.

Go to "Installation" in the menu; "Gate config"; "Operation mode", after which the following screen appears:

```
O  p  e  r  a  t  i  o  n     m  o  d  e
O  l  d:                   A  U  T  O  M  A  T  I  C
N  e  w:              H  O  L  D  --  T  O  --  R  U  N
   Y  e  s        S  A  V  E                  N  o
```

7.6   SETTING A PHOTOCELL

The 4 photocell inputs are only active when the gate is moving in its CLOSING direction. If the photocell is interrupted, the gate will move to its OPEN or PARTIALLY OPEN end position. Photocells must be connected to the backplane; see the connection diagram at the back of this document.

Photocell with normally open contact

If only a photocell with a normally open contact is available, it can be used with the following parameters. Adjustments can only be made through the service module.

Go to "Installation" in the menu; "Backplane M"; "IR1, IR2, IR3 or IR4", followed by the following screen. You can also determine the reaction of the photocell here. The default setting is that the gate slows down gently and returns to the OPEN or PARTIALLY OPEN position. As an option you can choose that the gate reverses a little bit. That setting is at "New".

```
F u n c t i o n   r e q u e s t
O l d:       R e f     f l l     c l     s o f t
N e w:       R e f     s h t     c l     s o f t
   ( + )       S A V E           ( -- )
```

If you click on "SAVE" you will enter the next field where you can change "NC" to "NO":

```
P o l a r i t y:
O l d:                                 N C
N e w:                                 N O
   ( + )       S A V E           ( -- )
```

In addition, you can determine whether the photocell should work with a tested signal. This does not apply to Heras:

```
T e s t e d
O l d:                   N o t   t e s t e d
N e w:                         T e s t e d
   ( + )       S A V E           ( -- )
```

When you click SAVE, the settings are ready.

> ⚠ **ATTENTION**: The above steps must be carried out on all photocell connections if necessary. Also test the functionality!

7.7   CONNECTING A FLASHING LIGHT

The output 'FLA1' is factory-set for flashing light operation. The function can be adjusted, but the specific function for the flashing light will then no longer apply. "FLA2" has no function as standard and can only be activated and adjusted via the service module. Lights must be connected to the backplane; see the connection diagram at the back of this document.

The flashing light is switched on by the HMDNG230 as soon as a movement command is detected. Three seconds before the gate is automatically closed, the indicator 'FLA1' is also switched on and remains active as long as the gate is closed.

It is also possible to flash for 3 seconds before each movement. This warn function can be activated or deactivated as follows. This setting can only be adjusted via the service module.

Go to "Installation" in the menu; "Timer config"; "Always pre warning?", after which the following screen appears:

```
Pre  warning  before
all   movements?

  Yes              No
```

If you choose "Yes", the gate will first activate the flashing light for 3 seconds before each movement.

7.8 SETTING A FLOOR LIGHT (YARD LIGHTING)

The HMDNG230 can drive a lamp, e.g. to automatically light the zone around the gate when the gate is moving. The function can be programmed on relay 3, relay 4 or relay 5. In this example we describe the setting procedure for relay 4. Lights must be connected to the backplane; see the connection diagram at the back of this document.

Adjustments can only be made through the service module. Go to "Installation" in the menu; "Backplane M"; "Relay 4 function", after which the following screen follows:

```
Relay  4    function
Old:              None
New:        Floor  light
  ( + )    SAVE      ( -- )
```

The lamp connected to "Relay 4" is now switched on by the motor drive as soon as a movement command is detected. After the motor is switched off, the lamp will continue to be lit for the time as set (1 to 1800 seconds).

This parameter "Floor light time" can be changed by the customer without the need to enter a password. Go to "Installation" in the menu; "Timer config"; "Floor light time", after which the following screen appears:

```
Floor  light  time
Old (s):                0
New: (s):              5 0
  ( + )    SAVE      ( -- )
```

7.9 SERVICE INTERVALS

To ensure regular maintenance of the gate, there are some customization options for a maintenance message in the control software. It is possible to select one or more of the events listed below for a maintenance notification. The first event that occurs triggers the controller's maintenance request.

7.9.1 Cycle counter

A maintenance message can be displayed after a certain number of gate movements. When the defined number of door movements is reached or exceeded, the "Service required" event is activated in the control system. The message appears on the display during an active maintenance message.

```
            A  U  T  O  M  A  T  I  C
               C  L  O  S  E  D
S  e  r  v  i  c  e        r  e  q  u  i  r  e  d
               H  M  D  N  G  2  3  0  S
```

Upon delivery, the value for the number of gate movements is set to 30,000 for Delta and uGate and 10.000 for Atlas 1 and 2. Adjustments can only be made through the service module. Go to "Information" in the menu; "Maintenance", "Set cycl. to maint" after which the following screen appears:

```
S  e  t        c  y  c  l.     t  o     m  a  i  n  t
O  l  d  (s):                                        0
N  e  w:  (s):                              3  0  0  0  0
   (  +  )           S  A  V  E           (  --  )
```

Increase or decrease the value in steps of 500.

Each time the end position "CLOSED" is reached, the counter is incremented. When the counter reaches the preset value, the control activates the maintenance message.

7.9.2 Maintenance interval

For regular maintenance of the gate, it is the intention to define a maintenance message after a certain period of time (number of months). When the defined time is reached or exceeded, the "Service required" event is activated in the control system. Adjustments can only be made through the service module. Go to

"Information" in the menu; "Maintenance", "Set time to maint" after which the following screen appears:

```
S  e  t      t  i  m  e      t  o      m  a  i  n  t
O  l  d      d  a  y  s:                              0
N  e  w:     d  a  y  s:                        3  6  5
   (  +  )         S  A  V  E              (  --  )
```

The input value defines the number of days until the maintenance message. The value 0 means: no maintenance message after time. The maximum value that can be set is 1.000 days.

7.9.3 Maintenance message on a relay output

The HMDNG230 can be set so that an active maintenance message also activates a relay for signaling. This function can be set to relay 3, relay 4 or relay 5. By way of example, the setting for relay 5 is described here. Contacts must be connected to the backplane; see the connection diagram at the back of this document. Adjustments can only be made through the service module. Go to "Installation" in the menu; "Backplane M"; "Relay 5 function", after which the following screen follows:

```
R  e  l  a  y      5      f  u  n  c  t  i  o  n
O  l  d:                                  N  o  n  e
N  e  w:                            S  e  r  v  i  c  e
   (  +  )         S  A  V  E              (  --  )
```

Relay 5 is now switched on by the controller as soon as one of the set maintenance messages becomes active.

7.9.4 Reset service

As long as maintenance has not been completed and is confirmed by the service technician in the menu, the text "Service required" is displayed periodically in the LC display. In addition, a relay output can be set, which is then switched to active. After the technical maintenance of the gate and checking the safety functions by qualified personnel, this can be confirmed in the operating system in the following way and the maintenance request can be reset. Adjustments can only be made through the service module. Go to "Information" in the menu; "Maintenance", "Reset maintenance" after which the following screen follows:

```
Maintenance     as
planned   completed?
End    maintenance     mode
  Yes                  No
```

The time counter for the number of days past and also the cycle counter for the number of gate movements are reset to 0.

7.9.5 Remaining time/cycles until service

It is possible to see how often maintenance has been performed and how many days and cycles are left until the next maintenance. The number of maintenance times performed is only visible via the service module.

Go to "Information" in the menu; "Maintenance", "Maintenance count" after which the following screen follows:

```
Maintenance    count
since    installation.
Actual    count:       3
         Return
```

Go to "Information" in the menu; "Maintenance", "Cycles to maintenance" or "Time to maintenance" after which the following screen appears:

```
Next   cyclical
maintenance
Cycles   left:      16945
         Return
```

```
Next   cyclical
maintenance
Time   left:      116   days
         Return
```

7.10   SETTING THE EMERGENCY FUNCTION

The emergency function enables the gate to be opened or closed (depending on the parameters) remotely by a fire alarm system without jeopardising safety. For this, it is necessary that the loop from the fire alarm system works like a break contact. This loop is always closed when idle; it is controlled by the HMDNG230.

Contacts can must be connected to the backplane; see the connection diagram at the back of this document.

Set this function on one of the available inputs. As an example we take "INv". Adjustments can only be made via the service module. Go to "Installation" in the menu; "Backplane M; "INv", after which the following screen appears:

```
F u n c t i o n r e q u e s t
O l d            N o    f u n c t i o n
N e w:           F i r e    c l o s e
    ( + )      S A V E        ( -- )
```

If you click on SAVE you will be taken to the next field where you have to change "NO" to "NC":

```
P o l a r i t y:
O l d:                          N  O
N e w:                          N  C
    ( + )      S A V E        ( -- )
```

In addition, you must set here that emergency operation should work with a tested signal:

```
T e s t e d
O l d:            N o t    t e t e s d
N e w:                    T e t e s d
    ( + )      S A V E        ( -- )
```

When you click SAVE, the settings are ready. Also test the functionality!

Fire open:

If the loop is opened by the fire alarm system and provided that permission for opening in emergency function has been set, the gate will open at low speed. This opening movement can be interrupted by the stop key or the safety facilities; however after the interruption action has ended the gate will continue to open. The gate then stops in its OPEN position and no longer responds to any commands. If the loop to the fire alarm system is closed again, the gate is back in normal operation.

Fire close:

If the loop is opened by the fire alarm system and the emergency function has been set, the gate will close at low speed. This closing movement can be

interrupted by the stop key or the safety facilities; however after the interruption action has ended the gate will continue to close. The gate then stops in CLOSED position and no longer responds to any commands. If the loop to the fire alarm system is closed again, the gate is back in normal operation.

7.11   SETTING THE TRAFFIC LIGHT

A simple traffic light circuit can be programmed using the make-and-break relays 3, 4 or 5. The red and green lights are connected to one of the two operating contacts of the make-and-break relay. Always pay attention to the maximum load capacity of the relay. Lights must be connected to the backplane; see the connection diagram at the back of this document.

The traffic light switches to "GREEN" when the gate has reached its OPEN position, the motor has been switched off and the flashing light is not active. The traffic light switches to "RED" when the flashing light is activated (e.g. warning for automatic closing), the motor is switched on, or the gate is not in OPEN position.

As an example, the setting for relay 3 is described here. Adjustments can only be made through the service module. Go to "Installation" in the menu; "Backplane M"; "Relay 3 function", after which the following screen follows:

```
Relay    3    function
Old              No  function
New:        Traffic    light
  ( + )      SAVE          ( -- )
```

It is possible by means of another relay to switch off the red lamp after the gate is closed. For this, an additional relay must be assigned a function and a time must be set. The contact should then cut the wire for the red light. As an example, the setting for relay 4 is described here. Adjustments can only be made using the service module. Go to "Installation" in the menu; "Backplane M"; "Relay 4 function", after which the following screen follows:

```
Relay    4    function
Old              No   function
New:      Tr.  light    ON / OFF
  ( + )      SAVE          ( -- )
```

The time it takes to switch off the traffic light must also be set. Go to "Installation" in the menu; "Timer config"; "Tr. light time", after which the following screen follows:

```
T  r.      l  i  g  h  t      t  i  m  e
O  l  d  (s):                                              0
N  e  w:  (s):                                        6  0
     (  +  )             S  A  V  E                 (  --  )
```

After this timer has elapsed, the red lamp will be switched off. When the gate opens again, the red lamp lights up again.

7.12   TIMER CONFIGURATION

Certain gate movements can be started automatically by pre-defined timer settings. These timer settings per menu must be displayed here. In all cases, value "0" disables the timer. The settings of these times are displayed in the "Timer config" menu. The timers "Warn function", "Floor light time" and "Tr. light time" have already been described earlier in this manual.

7.12.1   Timer Auto-Close open

The motor drive can close the gate automatically after a time as set (1 to 900 seconds) has elapsed after the OPEN end position was reached. This function is active only in automatic mode and after the OPEN end position has been reached. Go to "Installation" in the menu; "Timer config"; "Auto-Close open", after which the following screen follows:

```
A  u  t  o  --  C  l  o  s  e      o  p  e  n
O  l  d  (s):                                              5
N  e  w:  (s):                                        6  0
     (  +  )             S  A  V  E                 (  --  )
```

Example: If the "Auto-Close open" parameter is set at value 5, a 5-second timer is started when the gate reaches its OPEN end position in automatic mode. This timer causes the gate to be closed automatically again after 5 seconds. If another OPEN command is given or an installed photocell is activated during this time, the timer will start to count down again.

The timer "Auto-Close timer" is not activated when the maximum number of reversions for the CLOSE movement has been reached:
If the gate moves in the CLOSE direction but does not reach the CLOSED position because a safety edge is approached in the same direction (no photocell), the gate will return to the OPEN position. The timer "Auto-Close timer" will be activated again. A similar action can happen at most 5 times in succession. The

gate then remains open and the timer does not start again. Only after a new CLOSE command is given and after reaching the CLOSED position will the reversing counter be set to 0 and automatically close again after the next opening. When this happens, a message "Max rev close" will be displayed on the LCD screen.

7.12.2 Timer Auto-Close partopen

The motor drive can close the gate automatically after a set time (1 to 900 seconds) has elapsed after the PARTIALLY OPEN position was reached. This function is active only in automatic mode and after the PARTIALLY OPEN position has been reached. Go to "Installation" in the menu; "Timer config"; "Auto-Close partopen", after which the following screen follows:

```
A  u  t   o  --  C   l  o  s  e    p  a  r  t  o  p  e  n
O  l   d  (s):                                      5
N  e  w:  (s):                                   1  0
   (   +  )        S  A  V  E            (  --  )
```

Example: If the "Auto-Close partopen" parameter is set at value 5, a 5-second timer is started when the gate reaches its PARTIALLY OPEN position in automatic mode. This timer causes the gate to be closed automatically again after 5 seconds. If another PARTIALLY OPEN command is given or there is a static PARTIALLY OPEN command during this time, the timer will start to count down again.

7.12.3 Timer Auto-Close between

If the gate always has to close again automatically by itself (automatic closing movement) after a set time (1 - 300 seconds), this must be set via the "Auto-Close between" parameter. This function is only active in automatic mode and concerns all gate positions except the OPEN end position and the PARTIALLY OPEN position. Go to "Installation" in the menu; "Timer config"; "Auto-Close between", after which the following screen follows:

```
A  u  t   o  --  C   l  o  s  e    b  e  t  w  e  e  n
O  l   d  (s):                                   2  0
N  e  w:  (s):                                   1  0
   (   +  )        S  A  V  E            (  --  )
```

Example: If the time is pre-set at 20, a 20-second timer is started as soon as the motor stops in automatic mode (other than by the STOP button being pressed)

and the gate is not in the CLOSED end position. This timer causes the gate to be closed automatically again after 20 seconds.

7.12.4   Timer Auto-Close short

If a photocell is used you can set a shorter open (1 – 300 seconds) dwell time after the photocell has been interrupted. Go to "Installation" in the menu; "Timer config"; "Auto-Close short", after which the following screen follows:

```
A  u  t  o  --  C  l  o  s  e     s  h  o  r  t
O  l  d  (s):                                    0
N  e  w:  (s):                                   5
   (  +  )        S  A  V  E          (  --  )
```

Example: If the time is pre-set at 5, a 5-second timer is started as soon as the photocell is interrupted (signal active and inactive again) in automatic mode. This timer causes the gate to be closed automatically again after 5 seconds.

This shortened auto closing timer of the gate is also activated even if the photocell is activated during OPEN travel of the gate. The original hold-open time of the gate is only set again when the gate closes again and the entrance of the photocell remains inactive.

7.13   DISABLE CALENDAR FUNCTION

The programmed and active port functions in the controller's calendar can be temporarily deactivated by hardware (switch). For this purpose, one of the available inputs can be configured to deactivate the calendar functions. Contacts must be connected to the backplane; see the connection diagram at the back of this document. As an example we take "INv". Adjustments can only be made via the service module. Go to "Installation" in the menu; "Backplane M"; "INv", after which the following screen appears:

```
F  u  n  c  t  i  o  n  r  e  q  u  e  s  t
O  l  d                 N  o     f  u  n  c  t  i  o  n
N  e  w:                C  a  l.     d  i  s  a  b  l  e
   (  +  )        S  A  V  E          (  --  )
```

In addition, the prio level is requested, which determines in which operation mode the function may be processed; advice is to leave it at the set value.

```
P  r  i  o  l  e  v  e  l
O  l  d            P  r  i  o     l  e  v  e  l          2
N  e  w:           P  r  i  o     l  e  v  e  l          2
   (  +  )         S  A  V  E              (  --  )
```

The status of the input must be determined; advice is "NO" to apply:

```
P  o  l  a  r  i  t y:
O  l  d:                                          N   C
N  e  w:                                          N   O
   (  +  )         S  A  V  E              (  --  )
```

Finally, it must be determined whether the signal should be tested; advice is not to apply this:

```
T  e  s  t  e  d
O  l  d:                   N  o  t     t  e  s  t  e  d
N  e  w:                   N  o  t     t  e  s  t  e  d
   (  +  )         S  A  V  E              (  --  )
```

7.14   DISABLE AUTOMATIC CLOSING TIMERS

To temporarily stop automatic closing from the OPEN or PARTIALLY OPEN position gate, one of the available inputs can be configured to deactivate the closing timers. Contacts must be connected to the backplane; see the connection diagram at the back of this document. As an example we take "INz". Adjustments can only be made via the service module. Go to "Installation" in the menu; "Backplane M"; "INz", after which the following screen appears:

```
F  u  n  c  t  i  o  n  r  e  q  u  e  s  t
O  l  d                   N  o     f  u  n  c  t  i  o  n
N  e  w:           T  i  m  e  r     d  i  s  a  b  l  e
   (  +  )         S  A  V  E              (  --  )
```

In addition, the prio level is requested, which determines in which operation mode the function may be processed; advice is to leave it at the set value.

```
P  r  i  o  l  e  v  e  l
O  l  d            P  r  i  o     l  e  v  e  l          2
N  e  w:           P  r  i  o     l  e  v  e  l          2
   (  +  )         S  A  V  E              (  --  )
```

The status of the input must be determined; advice is "NO" to apply:

```
P  o  l    a    r    i  t  y:
O  l  d:                                        N   C
N  e  w:                                        N   O
   (   +   )          S   A   V   E          (  --  )
```

Finally, it must be determined whether the signal should be tested; advice is not to apply this:

```
T  e  s  t  e  d
O  l  d:              N  o  t    t  e  s  t  e  d
N  e  w:              N  o  t    t  e  s  t  e  d
   (   +   )      S   A   V   E          (  --  )
```

7.15   OVERVIEW INPUT FUNCTIONS

The inputs can be assigned functions from the following table. Contacts must be connected to the backplane; see the connection diagram at the back of this document. Adjustments can only be made through the service module.

Function	Priolevel	Contact selec.	Testing
No function	Level 0	NO	Not tested
Stop	Level 3	Selectable	Selectable
Open	Level 0-2	Selectable	Selectable
Closed	Level 0-2	Selectable	Selectable
Partially open	Level 0-1	Selectable	Selectable
Toggle	Level 0-1	Selectable	Selectable
Lock open	Level 0-2	Selectable	Selectable
Lock	Level 0-2	Selectable	Selectable
Emergency stop	Level 5	NC	Tested
Fire open	Level 3	NC	Tested
Fire dicht	Level 3	NC	Tested
Timer disable	Level 0	Selectable	Selectable
Cal. disable	Level 0	Selectable	Selectable
Radio disable	Level 0	Selectable	Selectable
Reverse full when opening *	Level 1	NC	Tested
Reverse full when closing *	Level 1	NC	Tested
Reverse short when opening *	Level 1	NC	Tested
Reverse short when closing *	Level 1	NC	Tested
Reverse full when opening * (soft)**	Level 1	NC	Tested
Reverse full when closing * (soft)**	Level 1	NC	Tested
Reverse short when opening * (soft)**	Level 1	NC	Tested
Reverse short when closing * (soft)**	Level 1	NC	Tested

Limit open	Level 2	Selectable	Selectable
Limit close	Level 2	Selectable	Selectable
Loop inside	Level 0	Selectable	Selectable
Loop outside	Level 0	Selectable	Selectable
Open ingoing	Level 0	Selectable	Selectable
Open outgoing	Level 0	Selectable	Selectable

*: These settings determine how the gate behaves if it has to change direction due to the activation of a safety device.

**: These settings cause the gate to slow down and reverse slowly, in contrast to the other settings. This is only allowed with a photocell or loop function.

> ⚠ ATTENTION: Make sure that changes to settings marked with an "*" are properly tested after adjustment!

7.16 OVERVIEW OUTPUT FUNCTIONS

The 5 relays can be assigned functions from the following table. Contacts must be connected to the backplane; see the connection diagram at the back of this document. Adjustments can only be made through the service module.

- No function
- Gate open
- Gate partially open
- Gate closed
- Gate undefined
- Gate opens
- Gate closes
- Gate moves
- Warn function
- Service
- Floor light
- Error
- Open impuls (1 sec.)
- Close impuls (1 Sek.)
- Traffic light
- Tr. light In
- Tr. light Out
- Tr. light ON/OFF
- SKL active

7.17 SAVING PARAMETERS TO THE MEMORY

The operating parameters can also be saved in a special section of the memory. A copy of the current parameter settings is then made and these settings as saved can be restored later, overwriting the, then, current parameters.

7.17.1 Saving the parameter settings

You can make a backup copy of the current operating parameter settings of the motor drive and save this to a separate part of the memory. If the parameter settings are changed later and found not to be OK, you can restore the previously saved parameter settings so that the parameters are correct again. Adjustments can only be made through the service module. Go to "Installation" in the menu; "Backup parameter"; followed by the following screen:

```
Do    you    want    to
backup    the    current
parameter?
 Yes                         No
```

7.17.2 Restoring parameter settings

You can reactivate the backup copy of the motor drive operating parameter settings that has been saved in a separate part of the memory to use these settings again as the current operating parameters. This enables the saved (operational) parameters to be restored after a faulty configuration of the HMDNG230. Adjustments can only be made through the service module. Go to "Installation" in the menu; "Restore parameter"; followed by the following screen:

```
Do    you    want    to
restore    the    last
parameter    backup?
 Yes                         No
```

7.18 SUPPORT DURING DIAGNOSIS

The HMDNG230 contains information that makes troubleshooting easier.

7.18.1 Firmware and serial number display

The motor drive firmware version can be displayed as follows. Go to "Information" in the menu; "Firmware Versions"; followed by the following screen:

```
C   u   r   r   e   n   t       f   i   r   m   w   a   r   e
C   P   U:  0.  5.  2
P   E   R:  0.  5.  1                                          ⋎
P   W   R:  0.  5.  2                                          ⋎
```

```
C   u   r   r   e   n   t       f   i   r   m   w   a   r   e   ⋏
B   K   P   0.  5.  1                                          ⋏
P   E   R       S   L:  --  .  --  .  --
P   W   R       S   L:  --  .  --  .  --
```

The serial number of the controller can be displayed as follows. Go to "Information" in the menu; "Serial Number"; followed by the following screen:

```
S   e   r   i   a   l       n   u   m   b   e   r
f   r   o   m       y   o   u   r       d   e   v   i   c   e
S   N:      2   1   0   8   1   2   3   4   5
                    R   e   t   u   r   n
```

7.18.2 Sensor status and information

In the menu item "Sensor status" you can find information about the current or saved status of the control. To find this information go to the menu to "Information"; "Sensor status"; followed by the following screen:

```
I   Z   K:                                  0.  3   9   A
U   Z   K:                                  3   2   9   V

<   --                  r   e   t   u   r   n              --   >
```

IZK: The current in the intermediate circuit of the power supply unit.
UZK: The voltage in the intermediate circuit of the power supply part.

```
B  o  o  s  t:                                    0    %


<  --              r  e  t  u  r  n          --    >
```

Boost: The currently output boost value.

```
E  x  t  e  r  n:                          2  5  C
O  u  t  p  u  t  s  t  a  g  e:            6  3  C
B  o  a  r  d:                             4  5  C
<  --              r  e  t  u  r  n             --  >
```

External: The externally measured temperature by means of a separate temperature sensor (not available for Heras).
Output stage part: The temperature of this part.
Print: The temperature of the power supply, measured close to the processor.

7.18.3   Log system

The log system is a ring buffer with up to 256 items. Here, relevant events of the control software with their reference number and the time stamp are permanently stored in the memory and are still available after the restart or power failure. This log can be used to track the last actions of the gate and any errors that have occurred.

The log can be displayed as follows. Go to "Information" in the menu; "System Log"; "Show log", followed by the following screen:

```
E  R  R:      P  W  R      0:      5  1  0
M  o  t  o  r      t  h  e  r  m  a  l
E  N  V:                            0
0  1.  0  8.  2  0  2  3          0  8:  4  6:  2  8
```

ERR/LOG: Error (ERR) or information (LOG) entry, reporting controller, error number
Description of the input (here motor overtemperature)
ENV: Additional data of the entry (e.g. overcurrent in mA)
Date and time of the notification

You can scroll through the list with the UP and DOWN buttons.

7.19   REMOTE CONTROL

The motor drive features a slot for a radio-frequency receiver module. An 868 MHz receiver module with FM modulation is used and the constant share of the "Rolling Code" of the HERAS transmitter used is analysed. A corresponding hand transmitter enables the following functions of the motor drive to be remotely controlled:

- "OPEN function"   left-hand top key
- "CLOSE function"   right-hand top key
- "STOP function"   large bottom key
- "PARTIALLY OPEN" function   left and right simultaneously

The keys can also be programmed individually, see "Teaching hand transmitters". Editing options (like teaching the hand transmitter and deleting) are available via the menu structure of the motor drive. A maximum of 150 hand transmitters (or single button functions can be taught.

> **→i** **Information:** Gate movements can only be activated by means of the remote control if the motor drive is working in automatic mode.

An external antenna must be connected to the corresponding connector of the motor drive PCB (Illustration 21: pos. 12 in the illustration).

7.19.1   Displaying the number of stored transmitters

A separate storage location is reserved in the memory of the motor drive for each hand transmitter. The total number of transmitters stored can be displayed by means of the menu option "Num of stored". Go to "Installation" in the menu; "Radio config"; "Num of stored", after which the following screen appears:

```
Number   of   stored
remotes:
5
```

7.19.2   Teaching hand transmitters

Every hand transmitter which is used must be taught the commands to operate the master drive once. Go to "Installation" in the menu; "Radio config"; "Learn default", after which the following screen appears:

```
                        *   *   *
                            *
                        *   *   *
    [  --  --  --  --  --  --  --                              ]
```
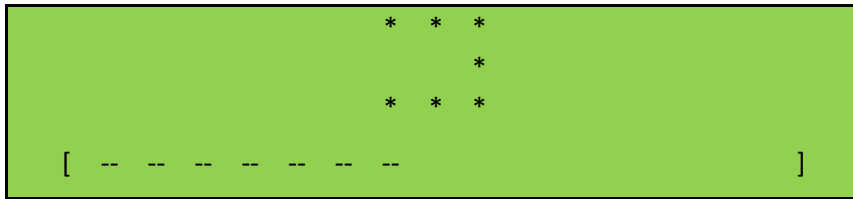
The bottom line shows the time remaining to teach in a transmitter.

 Now press a button on the hand transmitter. You have 20 seconds to do this.
When the transmitter is recognized, a memory location in the control is used and
the three button functions are automatically saved. A "Success" message will also
be displayed. If nothing is received, "Failure" is displayed.

7.19.3   Teaching hand transmitter buttons

If the functions that are programmed as standard for the hand transmitter OPEN,
CLOSE, STOP are inadequate, another four functions can be programmed. The
individual buttons can be programmed using the menu below.

- Learn open   learn the OPEN function
- Learn close   learn the CLOSE function
- Learn stop   learn the STOP function
- Learn part. open   learn the PARTIALLY OPEN function

Go to "Installation" in the menu; "Radio config"; "Learn open" or "Learn close" or
"Learn stop" or "Learn part open", after which the following screen appears:

```
                        *   *   *
                            *
                        *   *   *
    [  --  --  --  --  --  --  --                              ]
```
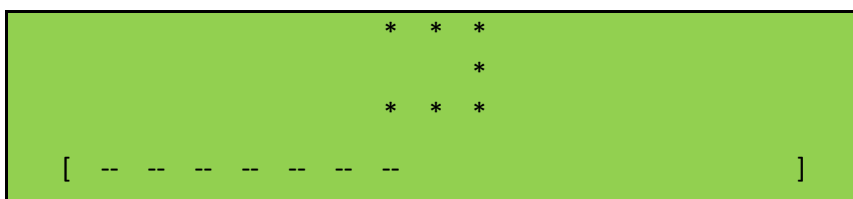

The bottom line shows the time remaining to teach in a transmitter.

Now the operator has 20 seconds to press the desired button on the remote
control. A separate storage location is used for each individual key function. A
"Success" message will also be displayed. If nothing is received, "Failure" is
displayed.

7.19.4 Deleting transmitters from the memory

You can delete specific individual hand transmitters from the HMDNG230 memory. The menu option "Delete default" puts the motor drive in a mode where the next correctly received hand transmitter is deleted from the memory again. Go to "Installation" in the menu; "Radio config"; "Delete default" if it was learned default or "Delete button" if a single button was learned, after which the following screen appears:

```
              *   *   *
                  *
              *   *   *

 [   --  --  --  --  --  --  --                        ]
```
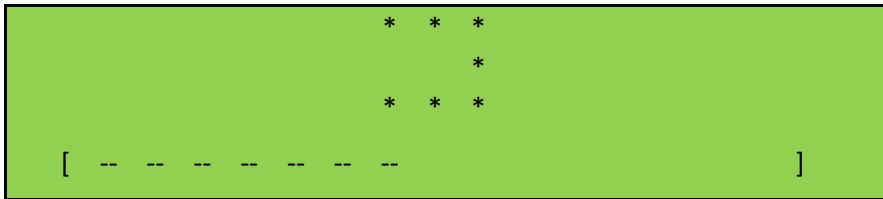
A "Success" message will also be displayed. If nothing is received, "Failure" is displayed.

7.19.5 Deleting all transmitters from the memory

All transmitters stored in the memory of the HMDNG230 can be deleted using the menu option "Delete all". Go to "Installation" in the menu; "Radio config"; "Delete all", after which the following screen appears:

```
              *   *   *
                  *
              *   *   *

 [   --  --  --  --  --  --  --                    ]
```
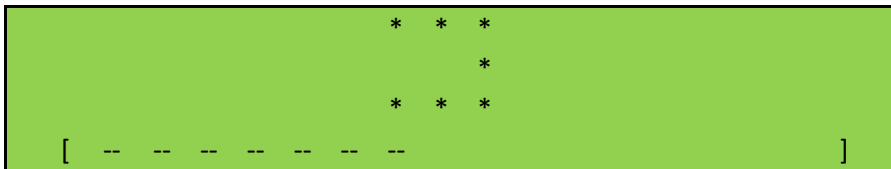
A "Success" message will also be displayed.

7.20 DISABLE TRANSMITTER SYSTEM

It is also possible to (temporarily) disable the use of handheld transmitters. This can be done by adjusting this in the menu or by means of an input with a function for it. It is freely accessible via the menu, via an input only by means of the service module. Go to "Installation" in the menu; "Radio config"; "Activated?" after which the following screen follows:

```
A  c  t  i  v  a  t  e  d?
O  l  d                                                Y  e  s
N  e  w:                                                N  o
   (  +  )          S  A  V  E              (  --  )
```

If you choose "No", the transmitters will still remain in memory, but will not respond. By setting it back to "Yes" later, it works again.

Via the service module with "INv" as an example: go to "Installation" in the menu; "Backplane M"; "INv", after which the following screen appears:

```
F  u  n  c  t  i  o  n  r  e  q  u  e  s  t
O  l  d                    N  o     f  u  n  c  t  i  o  n
N  e  w:                   C  a  l.    d  i  s  a  b  l  e
   (  +  )          S  A  V  E              (  --  )
```

In addition, the priolevel is requested, which determines in which operation mode the function may operate; advice is to leave it at the set value.

```
P  r  i  o  l  e  v  e  l
O  l  d              P  r  i  o     l  e  v  e  l        0
N  e  w:             P  r  i  o     l  e  v  e  l        0
   (  +  )          S  A  V  E              (  --  )
```

The status of the input must be determined; advice is "NO" to apply:

```
P  o  l  a  r  i  t  y:
O  l  d:                                              N     C
N  e  w:                                              N     O
   (  +  )           S  A  V  E                (  --  )
```

Finally, it must be determined whether the signal should be tested; advice is not to apply this:

```
T  e  s  t  e  d
O  l  d:                        N  o  t     t  e  s  t  e  d
N  e  w:                        N  o  t     t  e  s  t  e  d
   (  +  )          S  A  V  E              (  --  )
```

The contact for this must be connected to the backplane, so that the transmitter system can be switched off or on remotely.

7.21   INTEGRATED REAL-TIME CLOCK

The clock module integrated in the HMDNG230 can be used to move the gate automatically, on the basis of an exact time schedule.

If the power supply to the motor drive is switched off, the date and time are kept up to date for a couple of weeks. Automatic switch-over to summer or winter time take place, according to EU rules. As a result, the clock is put forward one hour at 2 a.m. CET on the last Sunday of March and it is put back one hour at 3 a.m. CET on the last Sunday of October.

7.21.1   Display date/time

Press the DOWN-button once to display the current date and time for 60 seconds.

```
        D  A  T  E        &        T  I  M  E


   D  D  .  M  M  .  Y  Y  Y  Y          H  H  :  M  M
```

7.21.2   Setting the clock

The internal clock of the HMDNG230 has been factory-set. If this time ever differs from the actual current time, the clock can be set. Go to "Installation" in the menu; "Date & time config"; "Change date" or "change time", after which the following screen appears:

```
C  u  r  r  e  n  t     d  a  t  e:
   2  4.  0  7.  2  0  2  3
C  h  a  n  g  e     d  a  t  e?
   Y  e  s                                    N  o
```

```
C  u  r  r  e  n  t     t  i  m  e:
   0  9:  2  8
C  h  a  n  g  e     t  i  m  e?
   Y  e  s                                    N  o
```
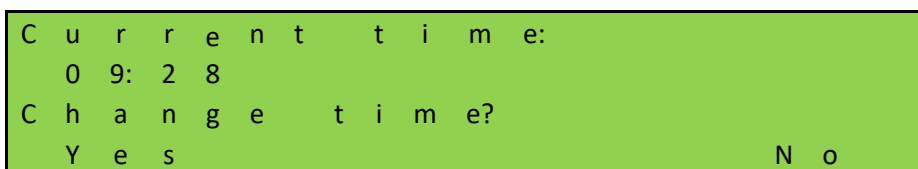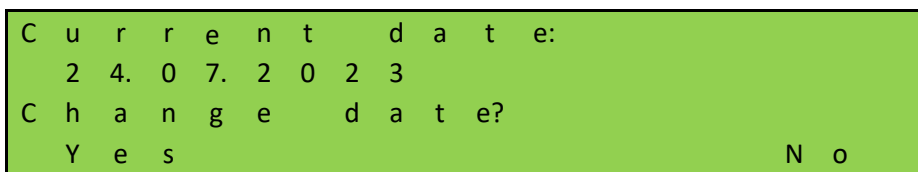
If "Yes" is chosen here, the date and/or time can be adjusted.

You can choose not to use the automatic summer and winter time settings. This option can be disabled. You can also set whether it is "now" summer time or not.

Go to "Installation" in the menu; "Date & time config"; "Auto time change" or "Daylight Saving", followed by the following screen:

```
A  u  t  o     t  i  m  e     c  h  a  n  g  e
O  l  d                                Y  e  s
N  e  w:                                  N  o
   Y  e  s                        N  o
```

```
D  a  y  l  i  g  h  t     s  a  v  i  n  g
O  l  d                                Y  e  s
N  e  w:                                  N  o
   Y  e  s                        N  o
```

7.22   CALENDAR FUNCTIONS OF THE MOTOR DRIVE

In automatic mode, the calendar functions of the master drive can be used to influence the gate behaviour in different ways at specific times.

Some commands are available for gate actions. They can be called up at carefully defined times. The times and commands can be repeated for the seven week days, with a weekly cycle.

However, other combinations of times and commands of a higher priority (e.g. for holidays) can be planned in a yearly calendar to suppress this weekly recurring time process. This enables the automatic gate behaviour to be defined individually in advance by making the relevant calendar entries.

Possible calendar functions (commands that the motor drive can perform via a calendar) All commands are available in both the weekly and annual program with the exception of "None". It is only available in the annual program.

Command	Description
No action	No gate action (only with the annual calendar)
HoldOPen_S	Keep the gate in OPEN position (The gate cannot be closed)
HoldOPen_E	Leave the hold OPEN position of the gate (The gate can close again)

TimerDisable_S	Deactivate the automatic closing function (The hold open time is ignored)
TimerDisable_E	Activate the automatic closing function (Activate the hold open time again)
HoldPartOpen_S	Activate the hold open function for the PARTIALLY OPEN position (The gate only moves between the PARTIALLY OPEN and the OPEN position)
HoldPartOpen_E	Deactivate the hold open function for the PARTIALLY OPEN function
HoldClose_S	The gate remains closed, opening is not possible
HoldClose_E	The gate can be opened again
Lock_S	Gate is locked when closed and can only be opened by an input with the function "Lock open"
Lock_E	Gate is unlocked and can be used again
Open	The gate moves to the OPEN position.
Close	The gate moves to the CLOSE position
PartOpen	The gate moves to the PARTIALLY OPEN position
RadioDisable_S	Not possible to operate with hand transmitters
RadioDisable_E	Possible to operate with hand transmitters

7.22.1 Calendar active

When a calendar program is active, the following text appears with the clock display. Pressing the DOWN button once will look like this:

```
        D  A  T  E        &        T  I  M  E

D  D  .  M  M  .  Y  Y  Y  Y        H  H  :  M  M
     C  A  L  E  N  D  E  R     A  C  T  I  V  E
```
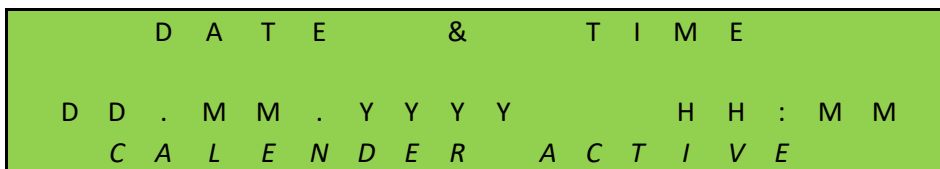
The message "CALENDAR ACTIVE" appears.

7.22.2   Displaying the weekly calendar

A maximum of 20 different switching times and the corresponding commands (gate actions) can be entered in the weekly calendar for every individual week day (Sunday through Saturday). The times, days and commands entered are shown in the display mode for the weekly calendar. Go to "Installation" in the menu; "Calendar config"; "Week list", followed by the following screen:

```
S e l e c t    1 s t    w e e k d a y
   S u                            U: 0 0
C h a n g e    s e l e c t?
   Y e s                            N o
```

If you choose "Yes", you can choose the day you want to view by pressing "+" or "–". If you want to view this day, choose "No".

"U" stands for used and shows whether anything has been programmed on the selected day.

A time and command is programmed on Tuesday:

```
S e l e c t    1 s t    w e e k d a y
   T u                            U: 0 1
   ^ ^
   ( + )         S A V E          ( -- )
```

Here you see that 1 command has been programmed; "U:01". The following information is then displayed:

```
T u                   U: 0 1    F: 1 9
0 1      0 8: 0 0      0 1

T O G G L E    L E A V E     N E X T
```

"U" stands for used memory space, "F" stands for free memory spaces on this day.
"01" on the left of the second line is the first entry for this day.
"08:00" is the time programmed.
"01" to the right of the time is the chosen command number.
Selecting "TOGGLE" displays the selected command.
If more than 2 times have been programmed, you can call up more times with "NEXT".

```
Tu                    U: 0 1    F: 1 9
0 1    C: O p e n

T O G G L E    L E A V E
```

With "LEAVE" you return to the menu.

7.22.3   Adding or changing entries in the weekly calendar

You can insert a new entry or change an existing entry in the weekly calendar. The table below explains all the options that you can choose from as a user, depending on what you want to program or delete. For each action, it is always explained which steps must be chosen to fully implement the action. The fields are shown in the example below.

Function	Description
None	
Add	Adding a new entry consisting of: • Select day • Select time • Select command
Delete	Delete an entry consisting of: • Select day • Select time • Select command
Delete time	Clear a specific time consisting of: • Select day • Select time
Delete untill	Clear all times in a day up to a specific time consisting of: • Select day • Select time
Delete day	Clear all times on a given day consisting of: • Select day
Delete all	Deletes the entire weekly program
Copy day	Copy from one day (1st) to another (2nd) day consisting of: • Select 1st day • Select 2nd day

As an example, it is described below how to add a time.

Go to "Installation" in the menu; "Calendar config"; "Week Configuration", after which the following screen appears:

```
Select      action
  0 0:    None
Change    select?
  Yes                          No
```

Select "Yes" here to select the "Add" function as shown in the image below and confirm with "Save":

```
Select      action
  0 1:    Add
^ ^
  ( + )         SAVE         ( -- )
```

Then it must be determined which day you want to select. If the day is correct, continue with "No", if the day is different from "Yes":

```
Select    1st    weekday
  Su                      G: 0 0
Change    select?
  Yes                          No
```

Here we adjust to Monday, "Mo":

```
Select    1st    weekday
  Mo                      G: 0 0
^ ^
  ( + )         SAVE         ( -- )
```

Now you adjust the time,. If the time is right, choose "No", if not, choose "Yes":

```
Select    time
  0 0: 0 0
Change    select?
  Yes                          No
```

As an example, we adjust to 08:00 and then save:

```
S  e  l  e  c  t      t  i  m  e
   0  8:  0  0
   ^   ^


   (  +  )          S  A  V  E          (  --  )
```

The last step is to determine the command, here "Open" becomes the command and so do not adjust the choice by selecting "No". Of course you can choose from the list of possibilities in chapter 7.21.

```
S  e  l  e  c  t      c  o  m  m  a  n  d
   0  1      O  p  e  n
C  h  a  n  g  e      s  e  l  e  c  t?
   Y  e  s                              N   o
```

To confirm your entry, you will be asked another question:

```
C  o  n  f  i  r  m      a  c  t  i  o  n
   0  1      A  d  d
S  u  r  e      o  f      a  c  t  i  o  n?
   Y  e  s                              N   o
```

The day is now saved and completed with the message "Success" and then select "Leave".

> **NOTE:** all changes will only be fully visible and processed after the menu is exited and all changes are saved.

7.22.4 Displaying the annual calendar

The annual calendar is located over the weekly calendar on the control system. The annual calendar can store different switching time and corresponding gate actions per day for a total of 40 days. If switching times have been entered in the annual calendar for a certain date, only the relevant entry will be applied with priority on the day in question and the weekly calendar will be ignored for this day.

The dates and commands entered are shown in the display mode for the annual calendar. Go to "Installation" in the menu; "Calendar config"; "Year list", followed by the following screen:

```
0  1  --  0  2           U:  0  3      F:  3  7
2  4.  0  8.  2  0  2  3       0  8:  0  0        0  1
2  4.  0  8.  2  0  2  3       1  0:  0  0        0  2
T  O  G  G  L  E        L  E  A  V  E        N  E  X  T
```

"U" stands for a used memory location, "F" stands for free memory locations.
"01 -- 02" on the first line represent the first 2 entries.
"24.08.2023 08:00" is the date and time programmed.
"01 and 02" to the right of the time are the selected command numbers.
Selecting "TOGGLE" displays the selected command.
If more than 2 days are programmed, you can call up several days with "NEXT".

By choosing "LEAVE" you return to the menu.

7.22.5   Adding or changing entries in the annual calendar

You can insert a new entry or change an existing entry in the annual calendar. The table below explains all options from which you can choose as a user, depending on what you want to program or delete. For each action, it is always explained which steps must be chosen to fully implement the action. In the example below, these fields are displayed.

Function	Description
None	
Add	Adding a new entry consisting of: • Select date • Select time • Select command
Delete	Delete an entry consisting of: • Select date • Select time • Select command
Delete time	Clear a specific time consisting of: • Select date • Select time
Delete day	Clear all times on a given day consisting of: • Select date
Delete untill	Clear all times in a day up to a specific time consisting of: • Select date • Select time
Delete all	Deletes the entire weekly program

Copy day	Copy from one date (1st) to another (2nd) date consisting of: - Select 1st date - Select 2nd date
Move day	Moving all entries from one date to another date consisting of: - Select 1st date - Select 2nd date

As an example, it is described below how to add a date.

Go to "Installation" in the menu; "Calendar config"; "Year configuration", followed by the following screen:

```
Select     action
  0 0:    None
Change   select?
  Yes                        No
```

Select "Yes" here to select the "Add" function as shown in the image below and confirm with "Save":

```
Select     action
  0 1:    Add
  ^  ^
  ( + )          SAVE          ( -- )
```

Then it must be determined which date you want to select. If the date is correct, continue with "No", if the date is different from "Yes":

```
Select     1st    date
  2 4. 0 8. 2 0 2 3
Change   select?
  Yes                        No
```

Here we adjust to "25.08.2023":

```
Select     1st    date
  2 5. 0 8. 2 0 2 3
  ^  ^
  Yes          SAVE          No
```

Now you adjust the time,. If the time is right, choose "No", if not, choose "Yes":

```
S  e  l  e  c  t        t  i  m  e
   0  0:  0  0
C  h  a  n  g  e     s  e  l  e  c  t?
   Y  e  s                                    N    o
```

As an example, we adjust to 08:00 and then save:

```
S  e  l  e  c  t        t  i  m  e
   0  8:  0  0
   ^   ^
   (  +  )              S  A  V  E              (  --  )
```

The last step is to determine the command, here "Open" becomes the command and so do not adjust the choice by selecting "No". Of course you can choose from the list of possibilities in chapter 7.21.

```
S  e  l  e  c  t        c  o  m  m  a  n  d
   0  1       O  p  e  n
C  h  a  n  g  e     s  e  l  e  c  t?
   Y  e  s                                    N    o
```

To confirm your entry, you will be asked another question:

```
C  o  n  f  i  r  m        a  c  t  i  o  n
   0  1       A  d  d
S  u  r  e       o  f     a  c  t  i  o  n?
   Y  e  s                                    N    o
```

The day is now saved and completed with the message "Success" and then select "Leave".

NOTE: all changes will only be fully visible and processed after the menu is exited and all changes are saved.

7.23   FAULT SIGNALING ON A RELAY OUTPUT

The controller can activate a relay in the case of some detectable faults of the gate, power failure or also of the control itself, for example to send a signal lamp to indicate that the fault or the wrong operating status is easily recognizable. More detailed information can then be obtained via the display of the controller.

Setting such an error indication is possible on relay 3, relay 4 or relay 5 and will be described here as an example for relay 5. Contacts must be connected to the backplane; see the connection diagram at the back of this document.

Adjustments can only be made through the service module. Go to "Installation" in the menu; "Backplane M"; "Relay 5 function", after which the following screen follows:

```
Relay   5   function
Old         No  function
New:                Fault
  ( + )     SAVE        ( -- )
```

Then connect the "COM" and "NO" contacts of the relay. When an error occurs or there is a power failure, the relay will switch.

7.24   FACTORY SETTINGS

It is possible to reset the control to factory settings. All specific settings that have been made, both by a user and settings via the service module, will then be undone. Go to "Installation" in the menu; "Factory settings", after which the following screen appears:

```
Do   you   want   to
reset   the   system
to   factory   settings?
  Yes                No
```

If you choose "No", you will return to the menu; if you choose "Yes", the system will start up and return to the start of the menu for a first commissioning.

8   FAULTS

8.1   DEFECTIVE PHOTOCELL OR SAFETY EDGE

If a photocell or safety device is defective, the gate can only be opened and closed using the dead man's switch. In this case, consult a qualified technician.

  See chapter "SERVICE / MAINTENANCE"

8.2 ERROR MESSAGES

A summary of the events or the errors or faults that are possible in the log systems described above is provided here:

General:

Text display	Meaning/solution
Internal error	Error in internal processing/control. Reboot. If this happens again, contact the manufacturer.
Runtime-error	Program run time exceeded. (fatal exception error)
B.I.S.T.error	Controller self-test error (fatal exception error)
Parameter error	Save or load parameters failed. Restart the controller and if repeated, contact the manufacturer.
Communication error	Communication errors: Check component connections. Restart the controls. If this occurs repeatedly, contact the manufacturer.
Overtemperature	Overtemperature in the controller. Switch off the control and let it cool down.

CPU:

Text display	Meaning/solution
SKL error	SKL-edge error, message is displayed
PWR Master error	PWR Master reports an error, message is displayed
PWR Slave error	PWR Slave reports an error, message is displayed
PER Master error	PER Master reports an error, message is displayed
PER Slave error	PER Slave reports an error, message is displayed
BKP 1 error	BKP 1 reports an error, message is displayed
BKP 2 error	BKP 2 reports an error, message is displayed
Servicemodule error	Service module reports an error, see the service module display
Pos limit reached	Position value range exceeded
Frequency too high	Target frequency parameterized limit exceeded. Check set frequency
Unknown device	CAN component could not be recognized. Use only approved devices

Pole pairs are illogical	Polar pairs set to 0. Set the number of pole pairs correctly
Frequency parameter error	The parameterized frequency exceeds the permitted limits. Check the parameterization
Force parameter error	The parameterized force exceeds the permitted limits. Check the parameterization
Position parameter error	The parameterized position exceeds the permitted limits. Check the parameterization
Open position exceeded	Open position was exceeded
Close position exceeded	Close position was exceeded
Motor not stopped	Engine did not stop within a certain time. Check forces, check mechanical installation
Movement error	Unexpected or no motion detected
End not reached	Limit switch was not recognized in the expected range (Range +10% of the opening width) Check limit switch, check parameter setting
End not left	Limit switch was not recognized in the expected range (Range +10% of the opening width) Check limit switch, check parameter setting

PER:

Text display	Meaning/solution
SKL error	General SKL error. Check connection and parameterization
SKL open error	Error in the fixed SKL in open direction. SKL, check connection
SKL close error	Error in the fixed SKL in close direction. SKL, check connection
ISK error	General ISK error. Check connection and parameterization
ISK open error	Error in the moving SKL in open direction. SKL, check the connection
ISK close error	Error in the moving SKL in the close direction. SKL, check the connection
Input error	An input reports errors (e.g. testing failed). Check the cabling and parameterization

PWR:

Text display	Meaning/solution
Input overcurrent	Overcurrent at control input. Control force parameters
DC link fault	DC link voltage incorrect (e.g. in the event of a mains failure or insufficient mains voltage). Check mains connection
DC link max	DC link voltage too high (e.g. regeneration through motor braking). Reduce set curves or install brake shopper
Motor temp	Motor thermal switch has tripped. Allow the engine to cool, check the wiring if necessary
Output stage temp	Allow the output stage/controller to cool down due to excessive temperature, then restart and check whether the controller is overloaded
Power print temp	Allow the overtemperature of the power board/control to cool down, check for overload of the control
Encoder error	Too many or incorrect signals from the encoder. Check encoder
Encoder deleted	Connection to the plug-in encoder module is lost during operation. Encoder Module is defective, if necessary have it replaced by qualified personnel
Errror in output stage	Error in the output stage (e.g. short circuit at the output). Check wiring, check motor
Output overcurrent	Overcurrent at the output. Check force settings, check gate mechanically (e.g. difficulty in gate movement)

BKP:

Text display	Meaning/solution
Input error	An input reports errors (e.g. testing failed). Check the cabling and parameterization

9   EMERGENCY STOP

The HMDNGLP230 and HGDNG230 do not have an emergency stop system.
According to the Machine Directive 2006/42/EC, annex 1, article 1.2.4.3., this is
not necessary if the emergency stop system would not lower the risk.
However, an emergency stop system can be connected.

10   MAINTENANCE INSTRUCTIONS

- When working on the gate or cleaning it, the power supply to the system must be switched off and protected from unauthorized switching on.
- If the gate must be moved manually, first turn the system circuit breaker in the motor cabinet to the "off" position and protect it from being switched on (e.g. by locking the cabinet).

10.1   GATE MAINTENANCE

Under normal conditions and with regular maintenance, sliding gates have a life of at least 200,000 cycles. To ensure that your gate operates safely, reliably and in compliance with all relevant legislation and laws, for Delta and uGate we recommend a MINIMUM of one maintenance check every 12 months or after 30,000 operating cycles and for Atlas 1 or 2 every 12 months or 10.000 cycles, whichever is the sooner. However, to ensure safety and proper operation of the gate, more frequent maintenance checks are recommended during the lifetime of the gate.

Any maintenance work, including repair, replacement, modification and upgrade MUST be conducted by a Heras trained, qualified, competent and certified technician using Heras approved tools and spare parts.

Failure to ensure that the gate is used in accordance with User manual provided, or any faults or damage caused by wilful misuse, will result in any warranty becoming void.

During maintenance, essential points of the sliding gate must be periodically checked using an inspection protocol.

- Correct operation and adjustment.
- Check all anchor and bolted connections.
- Check wear of running wheels, guide wheels and the surface on which they run
- Check welded joints, damage to coating and zinc
- Check for damage and the operation of safety edges and infrared.

10.2   DRIVE UNIT MAINTENANCE

Only the battery [type CR 2032] for the integrated clock module must be replaced after 5 years. The battery can be found in a vertical holder over the twist and

selector switch.

⚠️ Beware of causing a short circuit when using a metal implement to remove the battery.

The entire gate system must be checked regularly, in accordance with DIN EN 12453.

10.3 CLEANING

The gate and the outside of the drive unit cabinet can be cleaned using a non-aggressive detergent and a soft cloth, brush or sponge. Avoid using a pressure cleaner as this might damage the gate and the drive unit.

Lubricating the running surface of the gate is not allowed.

11 DECOMMISSIONING AND REMOVAL

🛑 **Ensure that the gate is dismantled by a qualified technician. Disconnect the electricity supply in a safe way from the drive unit.** Use the installation manual.

At the end of their service lives the products must be disposed of in accordance with all local, regional and national rules and instructions. The sliding part is mainly made of aluminum and/or steel parts. The guideposts are made of steel. Heras is also happy to take the products back and then dispose of them in an appropriate manner.

🛑 The Delta and uGate gates have highly tensioned cables fitted in the bottom rail. If these cables are cut, they can snap with great force. This can lead to serious injury. Therefore, **it is prohibited to disassemble the bottom rail yourself**.

> **!! Only people trained by Heras are allowed to disassemble the bottom rail.**

There is no hidden danger associated with dismantling the bars, top rail and stiles.

⚠️ The points that are fitted to some sliding gates are sharp. There is a danger

of being cut when disassembling such a gate. Wear suitable gloves.

The master drive is fitted with a battery of the type CR 2032.

Disposing of batteries as domestic waste is not allowed. Spent batteries can be handed in for free at the public municipal collection facilities and at all points of sale where batteries are sold. You can also return any batteries bought from us to us after use. In this way you will be making an important contribution to conserving the environment!

12   SPARE PARTS

Use a CR 2032 button battery to replace the battery (Illustration 21:) of the integrated clock.

13   TECHNICAL DATA

13.1   SLIDING GATE DESCRIPTION DELTA AND UGATE

Gate leaf	Delta	uGate
Length [m]	5.15 … 12.5	9.74 … 16.3
Height [m]	1.00 … 2.5	1.5 … 2.5
Max. weight [kg]	340	450
Construction	Cantilever	Cantilever

13.2   DRIVE DESCRIPTION

Type of drive	HMDNGLP230S, HMDNG230S HGDNG230S, HMDNG230SREP (Delta only)	HMDNGLP230A, HMDNG230A, HGDNG230A, HMDNG230AREP (Delta only)
Motor	MOTHR80P (standard motor) MOTHR80PAO (with automatic disengagement)	
Supply voltage [VAC]	1 phase 230V_{AC}/N/PE ±10% 50/60Hz	
External power supply 230V	230VAC ±10% 50/60Hz, fused with 2 x 6.3A slow-acting fuse on the PCB (L and N)	
Internal power supply 24V	24V_{DC} stabilized (±10%) max. 2000mA (fused with a semiconductor fuse that resets automatically) for optional accessories	

Motor power [kW]	0.37
Control inputs	24V$_{DC}$ / typ. 1mA < 8 V: inactive -> logical 0 > 18 V: active> logical 1 (galvanically isolated internally)
Local fuse	max. 16A
Max. torque [Nm]	80
Duty cycle [%]	60
Safety edges	35.55CT	35.85CT
Dead man's speed [m/s]	0.25	0.25
Max. speed [m/s]	0.25	0.50
IP category of control cabinet	IPx4
Temperature range	-16 °C to +40 °C
Relative humidity range	max. 99% non-condensing
Weight [kg]	22-26

13.3 SLIDING GATE DESCRIPTION ATLAS 1 AND ATLAS 2

Gate leaf	Atlas 1	Atlas 2	Atlas 2	Atlas 2
Length [m]	3…10	3…14	14,1…16	16,1…18
Height [m]	1 - 2,5	1 - 2,5	1,25 - 2,5	1,25 - 2,5
Max. weight [kg]	1200	1800	2000	2800
Construction	Cantilever	Cantilever	Cantilever	Cantilever

13.4 DRIVE DESCRIPTION

Type of drive	SEW HMDNG230S5FR, 0.75 Kw	GFA HMDNG230S5FR, 2,7 Kw	
Motor	HW30DR63L2-BR03-TH	ST16-24	ST30-24
Supply voltage [VAC]	1 phase 230V$_{AC}$/N/PE ±10% 50/60Hz		
External power supply 230V	230VAC ±10% 50/60Hz, fused with 2 x 6.3A slow-acting fuse on the PCB (L and N)		
Internal power supply 24V	24V$_{DC}$ stabilized (±10%) max. 2000mA (fused with a semiconductor fuse that resets automatically)		

	for optional accessories		
Motor power [kW]	0.37	0,4	0,85
Control inputs	24V$_{DC}$ / typ. 1mA < 8 V: inactive -> logical 0 > 18 V: active> logical 1 (galvanically isolated internally)		
Local fuse	max. 16A		
Max. torque [Nm]	70	160	300
Safety edges	GE F85 ST 2M		
Max. speed [m/s]	0,2	0,22	
IP category of control cabinet	IPx4		
Temperature range	-20 °C to +40 °C		
Relative humidity range	max. 99% non-condensing		
Weight [kg]	16	30	34

The functions described in this manual are designed for the prevailing climatic conditions in Europe.

Appendix A: Declarations Dop / DoC

HERAS

Declaration of Performance

$C\epsilon^{21}$

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration – Ytelseserklæring - Ydeevnedeklaration

DoP No: CE-DOP-2021.02-01

Product type - Producttype - Produkttyp - Type de produit - Produkttyp - Produkttype - Produkttype
Power operated sliding gates - Elektrisch aangedreven schuifpoorten - Kraftbetätigten Schiebetoren - Portails coulissants à commande électrique - Eldrivna skjutgrindar - Elektrisk drevne skyveporter - El-betjente skydeporte

Identification code - Identificatiecode - Kenncode - Code d'identification - Identifikationskod - Identifikasjonskode -Identifikationskode
Delta21

Serial number - Serienummer - Seriennummer - Numéro de type - Serienummer - Serienummer - Serienummer
n/a

Intended use - Beoogd gebruik - Vorgesehener Verwendungszweck - Usage prévu - Avsedd användning - Tiltenkt bruk - Tilsigtet brug
Giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial or residential premises. Het bieden van een veilige toegang voor goederen en voertuigen begeleid of bestuurd door personen in industriële, commerciële of residentiële ruimten. Eine sichere Zufahrt für Waren und Fahrzeuge, begleitet oder geführt (gesteuert) von Personen, in industriellen, gewerblichen oder Wohnbereichen zu ermöglichen. Permettre l'accès des marchandises et des véhicules accompagnés ou conduits par des personnes, en toute sécurité, dans des locaux industriels et commerciaux ou des garages dans les zones d'habitation. För vilka avsedd användning är att ge säkert tillträde för gods och fordon åtföljda av eller körda av personer på industriområden, kommersiella områden eller bostadsområden. Gir sikker tilgang for varer og kjøretøy ledsaget eller kjørt av personer i industrielle, kommersielle eller boliglokaler. Give sikker adgang til varer og køretøjer, der ledsages eller køres af personer i industrielle, kommercielle eller boliglokaler.

Contact address manufacturer - Contactgegevens fabrikant - Kontaktanschrift des Herstellers - Adresse de contact du fabricant - Tillverkarens kontaktadress - Tillverkarens kontaktadress - Kontaktadresse fabrikant
Heras B.V. - Hekdam 1 - 5688JE Oirschot - Netherlands

System of assessment and verification of constancy of performance Systeem voor beoordeling en verificatie van de prestatiebestendigheid System zur Bewertung und Überprüfung der Leistungsbeständigkeit Système d'évaluation et de vérification de la constance des performances System för bedömning och fortlöpande kontroll av byggprodukternas prestanda System for vurdering og verifisering av prestasjonsbestandighet System til vurdering og kontrol af ydeevnens konstans
System 3 - Systeem 3 - System 3 - Système 3 - System 3 - System 3 - System 3

Declaration of Performance

CE 21

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration – Ytelseserklæring - Ydeevnedeklaration

DoP No: CE-DOP-2021.02-01

Report number - Rapportnummer – Reportnummer - Numéro de rapport - Rapportnummer - Rapportnummer - Rapportnummer
23H0561, vdL15005

Identification number notified body - Nummer van de controle instantie - Kennnummer der notifizierten Stelle - Numéro d'identification de l'organisme notifié - Det anmälda organets identifikationsnummer Kontrollinstansens nummer - Identifikationsnummer bemyndiget organ
0063 Kiwa

Harmonised standard - Geharmoniseerde norm - Harmonisierte Norm - Norme harmonisée - Harmoniserad standard - Harmonisert standard - Harmoniseret standard
EN 13241:2003+A2:2016

Declared performance Aangegeven prestaties Erklärte Leistung Performances déclarées Prestanda som intygas Angitte prestasjoner Deklareret ydeevne	**Essential characteristics** Essentiële kenmerken Wesentliche Merkmale Caractéristiques essentielles Väsentliga egenskaper Grunnleggende kjennetegn Væsentlige egenskaber	**Performance** Prestaties Leistung Performances Prestanda Prestasjoner Ydeevne	**Requirements** Eisen Anforderungen Exigences Krav Krav Krav
	Watertightness	NPD	4.4.1
	Release of dangerous substances	NPD	4.2.9
	Resistance to wind load	class 3	4.4.3
	Thermal resistance (where relevant)	NPD	4.4.5
	Air permeability	NPD	4.4.6
	Safe opening (for vertically moving doors)	NPD	4.2.8
	Definition of geometry of glass	NPD	4.2.5
	Mechanical resistance and stability	PASS	4.2.3
	Operating forces (for power operated doors)	PASS	4.3.3
	Durability of watertightness, thermal resistance and air permeability against degradation	NPD	4.4.7

Signed by Ondertekend door Unterzeichnet von Signé par Undertecknad av Undertegnet av Underskrevet af	Emmanuel Rigaux Chief Executive Officer Oirschot 01-11-2023	

Declaration of Performance

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration - Ytelseserklæring - Ydeevnedeklaration

DoP No: CE-DOP-2021.02-01

Assessed products - Beoordeelde producten - Bewertete Produkte - Produits évalués - Produkter som bedömts - Vurderes produkter - Vurderede produkter

Delta21		
Description	Type: Style: Opening x Height: (single version)	Single, double Heracles, Atlas, Grence, Olympus, Pegasus ≤9,5m x ≤2,3m (Heracles / Atlas / Olympus) ≤8,5m x ≤2,5m (Heracles / Atlas / Olympus) ≤9,5m x ≤1,8m (Pegasus) ≤8,5m x ≤2m (Pegasus) ≤7m x ≤2,5m (Pegasus)
Drive and Safety Device	Version: Speed [m/s]: Drive + Control unit: Safety edges:	UT 0,16 100/SLX1524SB (Heras version) ASO 35.55CT
	Version: Speed [m/s]: Control unit: Drive: Safety edges:	Basic 0,2 HMD24 HMD Basic ASO 35.55CT
	Version: Speed [m/s]: Control unit: Drive: Safety edges:	Standard 0,25 HMDNG230, HMD230 HMDNGLP230S, HMDLP230S ASO 35.55CT
	Version: Speed [m/s]: Control unit: Drive: Safety edges:	Advanced 0,5 HMDNG230, HMD230 HMDNGLP230A, HMDLP230A ASO 35.85CT

Declaration of Performance

CE 23

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration - Ytelseserklæring - Ydeevnedeklaration

DoP No: CE-DOP-2023.02-01

Product type - Producttype - Produkttyp - Type de produit - Produkttyp - Produkttype - Produkttype
Power operated sliding gates - Elektrisch aangedreven schuifpoorten - Kraftbetätigten Schiebetoren - Portails coulissants à commande électrique - Eldrivna skjutgrindar - Elektrisk drevne skyveporter - El-betjente skydeporte

Identification code - Identificatiecode - Kenncode - Code d'identification - Identifikationskod - Identifikasjonskode -Identifikationskode
uGate23

Serial number - Serienummer - Seriennummer - Numéro de type - Serienummer - Serienummer - Serienummer
n/a

Intended use - Beoogd gebruik - Vorgesehener Verwendungszweck - Usage prévu - Avsedd användning - Tiltenkt bruk - Tilsigtet brug
Giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial or residential premises. Het bieden van een veilige toegang voor goederen en voertuigen begeleid of bestuurd door personen in industriële, commerciële of residentiële ruimten. Eine sichere Zufahrt für Waren und Fahrzeuge, begleitet oder geführt (gesteuert) von Personen, in industriellen, gewerblichen oder Wohnbereichen zu ermöglichen. Permettre l'accès des marchandises et des véhicules accompagnés ou conduits par des personnes, en toute sécurité, dans des locaux industriels et commerciaux ou des garages dans les zones d'habitation. För vilka avsedd användning är att ge säkert tillträde för gods och fordon åtföljda av eller körda av personer på industriområden, kommersiella områden eller bostadsområden. Gir sikker tilgang for varer og kjøretøy ledsaget eller kjørt av personer i industrielle, kommersielle eller boliglokaler. Give sikker adgang til varer og køretøjer, der ledsages eller køres af personer i industrielle, kommercielle eller boliglokaler.

Contact address manufacturer - Contactgegevens fabrikant - Kontaktanschrift des Herstellers - Adresse de contact du fabricant - Tillverkarens kontaktadress - Tillverkarens kontaktadress - Kontaktadresse fabrikant
Heras B.V. - Hekdam 1 - 5688JE Oirschot - Netherlands

System of assessment and verification of constancy of performance Systeem voor beoordeling en verificatie van de prestatiebestendigheid System zur Bewertung und Überprüfung der Leistungsbeständigkeit Système d'évaluation et de vérification de la constance des performances System för bedömning och fortlöpande kontroll av byggprodukternas prestanda System for vurdering og verifisering av prestasjonsbestandighet System til vurdering og kontrol af ydeevnens konstans
System 3 - Systeem 3 - System 3 - Système 3 - System 3 - System 3 - System 3

Declaration of Performance

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration - Ytelseserklæring - Ydeevnedeklaration

CE^{23}

DoP No: CE-DOP-2023.02-01

Report number - Rapportnummer – Reportnummer - Numéro de rapport - Rapportnummer - Rapportnummer - Rapportnummer
23H0561, 144-15

Identification number notified body - Nummer van de controle instantie - Kennnummer der notifizierten Stelle - Numéro d'identification de l'organisme notifié - Det anmälda organets identifikationsnummer Kontrollinstansens nummer - Identifikationsnummer bemyndiget organ
0063 Kiwa

Harmonised standard - Geharmoniseerde norm - Harmonisierte Norm - Norme harmonisée - Harmoniserad standard - Harmonisert standard - Harmoniseret standard
EN 13241:2003+A2:2016

Declared performance Aangegeven prestaties Erklärte Leistung Performances déclarées Prestanda som intygas Angitte prestasjoner Deklareret ydeevne	**Essential characteristics** Essentiële kenmerken Wesentliche Merkmale Caractéristiques essentielles Väsentliga egenskaper Grunnleggende kjennetegn Væsentlige egenskaber	**Performance** Prestaties Leistung Performances Prestanda Prestasjoner Ydeevne	**Requirements** Eisen Anforderungen Exigences Krav Krav Krav
	Watertightness	NPD	4.4.1
	Release of dangerous substances	NPD	4.2.9
	Resistance to wind load	class 3	4.4.3
	Thermal resistance (where relevant)	NPD	4.4.5
	Air permeability	NPD	4.4.6
	Safe opening (for vertically moving doors)	NPD	4.2.8
	Definition of geometry of glass	NPD	4.2.5
	Mechanical resistance and stability	PASS	4.2.3
	Operating forces (for power operated doors)	PASS	4.3.3
	Durability of watertightness, thermal resistance and air permeability against degradation	NPD	4.4.7

Signed by Ondertekend door Unterzeichnet von Signé par Undertecknad av Undertegnet av Underskrevet af	Emmanuel Rigaux Chief Executive Officer Oirschot 01-11-2023	

Declaration of Performance

Prestatieverklaring - Leistungserklärung - Déclaration des performances Prestandadeklaration - Ytelseserklæring - Ydeevnedeklaration

CE 23

DoP No: CE-DOP-2023.02-01

Assessed products - Beoordeelde producten - Bewertete Produkte - Produits évalués - Produkter som bedömts - Vurderes produkter - Vurderede produkter

uGate23

Description	Type: Style: Opening x Height: (single version)	Single, double Heracles, Atlas ≤12m x ≤2,5m
Drive and Safety Device	Version: Speed [m/s]: Control unit: Drive: Safety edges:	Standard 0,25 HMDNG230, HMD230 HGDNG230S, HGD230S ASO 35.55CT
	Version: Speed [m/s]: Control unit: Drive: Safety edges:	Advanced 0,5 HMDNG230, HMD230 HGDNG230A, HGD230A ASO 35.85CT

HERAS

HERAS

Declaration of Conformity

$C\epsilon$

Verklaring van overeenstemming - Konformitätserklärung - Déclaration de conformité - Deklaration om överensstämmelse - Konformitetserklæring - Overensstemmelseserklæringen

DoC No: CE-DOC-2021.02-03

EN	We herewith declare that the product complies with the following directives and standards.
NL	Hiermee verklaren wij dat het product in overeenstemming is met de volgende richtlijnen en normen.
DE	Hiermit erklären wir, dass die Produkte der nachfolgenden Richtlinien und Normen entspricht.
FR	Par la présente nous déclarons que le produit est conforme aux directives et normes suivantes.
SV	Vi deklarerar härmed att produkten överensstämmer med följande riktlinjer och normer.
NO	Vi erklærer med dette at dette produktet er konformt med følgende direktiv og normer.
DA	Vi erklærer hermed, at produktet er i overensstemmelse med følgende direktiver og standarder.

Product type - Producttype - Produkttyp - Type de produit - Produkttyp - Produkttype - Produkttype

Power operated sliding gates - Elektrisch aangedreven schuifpoorten - Kraftbetätigten Schiebetoren - Portails coulissants à commande électrique - Eldrivna skjutgrindar - Elektrisk drevne skyveporter - El-betjente skydeporte

Identification code - Identificatiecode - Kenncode - Code d'identification - Identifikationskod - Identifikasjonskode -Identifikationskode

Condor - Delta21 - uGate23 - SHB PI Light

Contact address manufacturer - Contactgegevens fabrikant - Kontaktanschrift des Herstellers - Adresse de contact du fabricant - Tillverkarens kontaktadress - Tillverkarens kontaktadress - Kontaktadresse fabrikant

Heras B.V. - Hekdam 1 - 5688JE Oirschot - Netherlands

Directives - Richtlijnen - Richtlinien - Directives - Direktiven - Direktiver - Direktiver

2006/42/EC	Machine Directive
305/2011	Construction Products Regulation
2014/30/EU	EMC Directive

Standards - Normen - Normen - Normes - Standarder - Standarder - Standarder

EN 13241:2003+A2:2016 - EN 12604:2017+A1:2020
EN 12453:2017+A1:2021 - EN-IEC 60335-2-103:2015

Signed by Ondertekend door Unterzeichnet von Signé par Undertecknad av Undertegnet av Underskrevet af	Emmanuel Rigaux Chief Executive Officer Oirschot 02-05-2023	

HERAS

Local supplier stamp

Type: **HMDNG230**

Group: HMDNG230   Heras Motor Drive

Version no: 1.0

Language: en_EN

Rev. date:	17-10-2023	Group:	HMDNG230	Heras Motor Drive	Eplan:	dr-unit Next Gen	Page title:	
Version no:	1.0	Installation:	HMDNG230		Project:	dr-unit diverse	Title Sheet / Front Sheet	
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr					

Index

Rev. date:	17-10-2023	Group:	HMDNG230 Heras Motor Drive	Eplan:	dr-unit Next Gen	Page title:	
Version no:	1.0	Installation:	HMDNG230	Project:	dr-unit diverse	Index	
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr				

Eplan version: 2.9.4

L1 / 4.4
1 mm²
Brown

N / 4.4
1 mm²
Light Blue

PE1 / 4.4
1 mm²
GL/GN

PE2 / 6.11
1 mm²
GL/GN

PE

GL/GN

4

BL

3

BN

X1

Mot_AO
3x2,5 mm²

AO / 4.3

F1
Acti9 IC40
1P+N 4,5KA
C6A
2011469

1

N

2

N'

PE

2

BL

1

BN

X1

2,5 mm²   2,5 mm²
Brown   Light Blue

C101
2x2,5 mm²

SH

BL

BN

_C101

PE

N

L

V1
Distribution box

Groep: F….

Voltage in

Rev. date:	17-10-2023	Group:		Eplan:	dr-unit Next Gen	Page title:	
Version no:	1.0	Installation:	HMDNG230	Project:	dr-unit diverse	Voltage	
Drawn by:	WWI	Erp:	SAPnr	Sofon:	Qnr		

HMDNG230   Heras Motor Drive
HMDNG230

Page
3 / 8

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Important:
Do not connect the encoder to the "CAN1" connection below!
This will damage the controller and the encoder!

√

✕

A1
230VAC
HMDNG230

HERAS

Maximum speed	0,25/0,5 m/s
Power supply	230 Vac
Power drive	0,37 kW
Max. current consumption 24V	2000 mA
Torque	80 Nm
Operating temperature	-20÷55 °C

Connector Bus — Speed

Connector Can1 — Can1

Can2

Up ↑
Enter O
Down →

BKP
5.0

Safety Edges

INDUS Open Close

AC IN
L1 15
N 16
PE 17

AC OUT
L' 18
N' 19
PE 20

3.6 / L1   1mm² Brown
3.6 / N   1mm² Light Blue
3.6 / PE1   1mm² GL/GN

SE_CL
BL
BN BL

SE_OP
BL
BN BL

SE_ISK
BL
BN BL

Safety edges

M1.1
GL/GN
BL
BN
x1 x2
3 2 1

3.4 / AO

Mot_AO
3x2,5 mm²
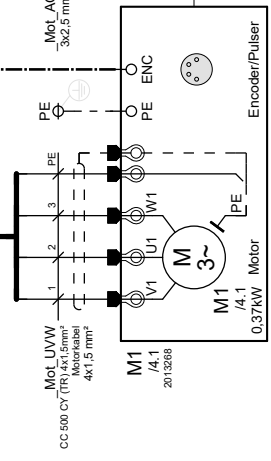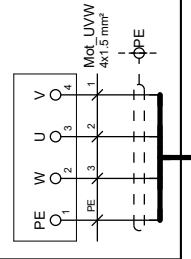
Automatic
disengagement

*Optional

PE
ENC
PE
Encoder/Pulser

Mot_UVW
4x1,5 mm²
PE

PE W U V
1   2 3 4
PE 1 2 3

Motor control

Mot_UVW
CC 500 CY (TR) 4x1,5mm²
Motorkabel
4x1,5 mm²

M1
/4.1
2013268

M1
/4.1
0,37kW Motor

V1
U1
W1
PE

M
3~

Rev. date:	17-10-2023	Group:		Eplan:	dr-unit Next Gen	Page title:
Version no:	1.0	Installation:	HMDNG230	Project:	dr-unit diverse	Besturing	HMDNG230 S+A
Drawn by:	WWI	Erp: SAPnr		Sofon: Qnr		

HMDNG230 Heras Motor Drive
HMDNG230

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Eplan version: 2.9.4

HMDNG230 S+A

Heras B.V.

A2
HMDNG backplane
/6.1

Connector Can1
Can1
Can

BKP
4.3

| 1 +24V | 2 +24V | 3 +24V | 4 Test +24V | 5 | 6 | 7 0V | 8 | 9 | 10 | 11 | 12 | 13 |
| + | + | + | TST | - | - | 0V | INw | INx | INy | INz | FLA1 | FLA2 |

Tested power supply for external components

0,5 mm² Red +24V
0,5 mm² Black Test +24V
0,5 mm² Grey 0V

S1 Emergency stop

F101 Y±Z Installatiekabel 3x0,75 mm

H1

Default: No function

Board Status

NO CAN Term.

| 1 +24V | 2 +24V | 3 +24V | 4 +24V | 5 0V | 6 0V | 7 0V | 8 0V |
| + | + | + | + | 0V | 0V | 0V | 0V |

5	6	7	8
IR1	IR2	IR3	IR4
N.C.	N.C.	N.C.	N.C.

FC1.2
Photocells Transmitter
CDRB16/MX (TX)
K102 vÖ—JY(st)Y Signaalgrondkabel 3x2x0,8 mm

Multiplex system:		
Set/Dip	1	2
TX+RX P1	ON	OFF
TX+RX P2	OFF	ON
TX+RX P3	ON	ON

FC2.2
Photocells Transmitter
CDRB16/MX (TX)
K104 vÖ—JY(st)Y Signaalgrondkabel 3x2x0,8 mm

Multiplex system:		
Set/Dip	1	2
TX+RX P1	ON	OFF
TX+RX P2	OFF	ON
TX+RX P3	ON	ON

FC1.1
Photocells Receiver
CDRB16/MX (RX)
K101 vÖ—JY(st)Y Signaalgrondkabel 3x2x0,8 mm

Multiplex system:		
Set/Dip	1	2
TX+RX P1	ON	OFF
TX+RX P2	OFF	ON
TX+RX P3	ON	ON

FC2.1
Photocells Receiver
CDRB16/MX (RX)
K103 vÖ—JY(st)Y Signaalgrondkabel 3x2x0,8 mm

Multiplex system:		
Set/Dip	1	2
TX+RX P1	ON	OFF
TX+RX P2	OFF	ON
TX+RX P3	ON	ON

Multiplex systeem:

Set/Dip	1	2
TX+RX P1	ON	OFF
TX+RX P2	OFF	ON
TX+RX P3	ON	ON

HERAS

Rev. date:	17-10-2023	Group:	HMDNG230	Heras Motor Drive	Eplan:	dr-unit Next Gen	Page title:
Version no:	1.0	Installation:	HMDNG230		Project:	dr-unit diverse	Backplane NG	HMDNG230 S+A
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr				

Page 5 / 8

Eplan version: 2.9.4

HMDNG230 S+A

Information:

The 5 relays may switch a maximum of 30VDC and 230VAC.
Relays 1 and 2 may switch a maximum of 5A,
Relay 3, 4 and 5 a maximum of 12A.

Default:
No function

| 24 COM5 | 25 NC5 | 26 NO5 |

Default:
No function

40.51.9.024.0000
24VDC finder

| 21 COM4 | 22 NC4 | 23 NO4 |

Default:
No function

40.51.9.024.0000
24VDC finder

| 18 COM3 | 19 NC3 | 20 NO3 |

Notification:
gate closed

40.51.9.024.0000
24VDC finder

| 16 COM2 | 17 NO2 |

PANASONIC ALDP124

Notification:
gate opened

| 14 COM1 | 15 NO1 |

PANASONIC ALDP124

Heras B.V.

A2

HMDNG backplane
/5.1

| 41 Common C | 42 Open N.O. | 43 Stop N.C. | 44 Close N.O. |

S1.1 COM N.O.
S1.2 COM N.C.
S1.3 COM N.O.

Open   Stop   Close

Pulse contacts only
(hold to run function)

| 45 Common C | 46 Open N.O. | 47 Stop N.C. | 48 Close N.O. |

S2.1 COM N.O.
S2.2 COM N.C.
S2.3 COM N.O.

Open   Stop   Close

pulse & static contacts

| 49 Common C | 50 Open N.O. | 51 Stop N.C. | 52 Close N.O. |

S3.1 COM N.O.
S3.2 COM N.C.
S3.3 COM N.O.

Open   Stop   Close

pulse & static contacts

| 53 Common C | 54 Toggle N.O. | 55 Partly open N.O. |

S4.1 COM N.O.
S4.2 COM N.O.

Toggle   Partly open

| 56 INv |

PE Earth
PE Earth

1mm²
GL/GN

3.6/PE2

M1

M1

HERAS

HMDNG230

A1

A2

F1

X1

-X1

Rev. date:	17-10-2023	Group:	HMDNG230 Heras Motor Drive	Eplan:	dr-unit Next Gen	Page title:
Version no:	1.0	Installation:	HMDNG230	Project:	dr-unit diverse	View
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr			

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Eplan version: 2.9.4

Terminals connection list

From	Connection code	Function text	Cable No.	Type.	Wire	Bridge	Level			Bridge	Page

X1

From	Connection code	Function text	Cable No.	Type.	Wire	Bridge				Bridge	Page
Voltage in	-V1:L	Voltage in	_C101	2x2,5 mm²	BN	-		1	-	=HMDNG230+HMDNG230/3
=	-V1:N	Distribution box	_C101	2x2,5 mm²	BL	-		2	-	=HMDNG230+HMDNG230/3
=	-V1:PE	=	_C101	2x2,5 mm²	SH	-		PE	-	=HMDNG230+HMDNG230/3
=						-		3	-	=HMDNG230+HMDNG230/3
=						-		4	-	=HMDNG230+HMDNG230/3
=	-A2:PE	Earth			GL/GN	-		PE	-	=HMDNG230+HMDNG230/3

Rev. date:	17-10-2023	Group:	HMDNG230	Heras Motor Drive	Eplan:	dr-unit Next Gen	Page title:	Page	8 / 8
Version no:	1.0	Installation:	HMDNG230		Project:	dr-unit diverse	"+HMDNG230-X1" Terminals Connection frame		
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr						

Wireless | JCM | HMDNG230 S+A

ISK/WRLSS Selection
1. ISK with SKL
2. Wireless with SKL
3. Wireless close

A3
Receiver
RB3 R868

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technology & imagination

CS1 R1 | CS1 C1 R1 | CS2 R2 | C2 R2 | BS2 R2 | NO3 R3 | C3 R3 | COM A | Test
1 2 3 4 5 6 7 8 9 10 11 12

8K2 8K2

A2
Backplane

HERAS

Can 1
Can 1

| + | + | + | + | + | + | | | | | | | | | | | | | | | | | |
1 +24V Common | 2 +24V Open | 3 +24V Stop | 4 Test +24V TST | 5 0V - | 6 0V - | 7 0V - | 8 INw - | 9 INx - | 10 INy - | 11 INz - | 12 FLA1 | 13 FLA2

RD 0.5 mm²
ZW 0.5 mm²
D.BL 0.5 mm²
GS 0.5 mm²
GS 0.5 mm²
GS 0.5 mm²

Tested power supply for external components

NO CAN Term.

Board Status

| + | + | | | | | | | | | | | | |
1 Common | 2 Open | 3 Stop | 4 Stop | 5 0V | 6 0V | 7 0V | 8 0V | IR1 5 N.C. | IR2 6 N.C. | IR3 7 N.C. | IR4 8 N.C.

finder
24VDC
40.51.9.024.0000

24 COM5 | 25 NC5 | 26 NO5

N.C. 55 Partly open | INv | PE PE | Earth Earth | PE Earth

Information:

Go to "Installation" in the menu; "Gate config"; "ISK/WRLSS selection."
"Wireless with SKL" or "Wireless close".

This will disable the ISK.
The SKL Open and SKL Close retain their function, so the portal safety devices must be connected to the control.

At JCM only closing is tested: Wireless close, at Bircher both are tested: Wireless with SKL.

Two inputs are automatically activated on the backplane,
to which the outputs of the JCM or Bircher receiver relay should be connected.
NB! Existing programmed inputs are overwritten.

HMDNG230S and A: Inputs INy (open) and INz (close)
xREP and S5FR: Inputs INv (open) and INz (close).

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DIP switch transmitter
Default: „Off, On, Off".

IN 1	SW 1	SW 2
Optical safety edge always activated	OFF	OFF
Standard optical safety edge	ON	OFF
8k2 resistive safety edge	OFF	ON
Safety contact NC	ON	ON

IN 2	SW 3
Safety contact NC	ON
8k2 resistive safety edge	OFF

DIP switch receiver
Default: „Off, Off, Off, On".

SW	Function	On	Off
SW 1	Auto check Period	7 sec.	30 sec.
SW 2	Operating mode	ON	WORK
SW 3	R3	Low Battery	R3=R1/R2
SW 4	ATEST Polarity	12/24V 0V	12/24V 0V

HERAS

Rev. date:	17-10-2023	Group:	Wireless	Page title:
Version no:	1.0	Installation:	HMDNG230	Wireless	JCM	HMDNG230 S+A
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr	

=HMDNG230/8
Previous page

| Eplan: | dr-unit Next Gen |
| Project: | dr-unit diverse |

Next page
2

Page
1 / 4

Eplan version: 2.9.4

Wireless | JCM | HMDNG230 SREP-AREP-S5FR

ISK/WRLSS Selection
1. ISK with SKL
2. Wireless with SKL
3. Wireless close

A3
Receiver
RB3 R868

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technology & imagination

	CS1 R1	-	+			

CS1 R1 | C1 R1 | BS1 R1 | CS2 R2 | C2 R2 | BS2 R2 | NO3 R3 | C3 R3 | COM A | Test
1 2 3 4 5 6 7 8 9 10 11 12
8K2 8K2

A2
Backplane

HERAS

Can 1
Can 1

+24V | +24V | +24V | Test +24V | 0V
1 Common | 2 Open | 3 Stop | 4 TST | 5
RD 0.5 mm² | ZW 0.5 mm²

Tested power supply for external components

NO CAN Term.

Board Status

- | - | - | 0V | 0V | 0V | 0V | 0V
6 | 7 | 8 INw | 9 INx | 10 INy | 11 INz | 12 FLA1 | 13 FLA2
D.BL 0.5 mm² | GS 0.5 mm²

+ | + | + | 0V | 0V | 0V | 0V
1 Common | 2 Open | 3 Stop | 4 Stop | 5 | 6 | 7 | 8
IR1 | IR2 | IR3 | IR4
5 N.C. | 6 N.C. | 7 N.C. | 8 N.C.

24 COM5 | 25 NC5 | 26 NO5
□ 24VDC
40.51.9.024.0000
finder
N.C. | Partly open
55
INv
GS 0.5 mm²
PE | PE
PE Earth | Earth

Information:

Go to "Installation" in the menu; "Gate config"; "ISK/WRLSS selection."
"Wireless with SKL" or "Wireless close".

This will disable the ISK.
The SKL Open and SKL Close retain their function, so the portal safety devices must be connected to the control.

At JCM only closing is tested: Wireless close, at Bircher both are tested: Wireless with SKL.

Two inputs are automatically activated on the backplane,
to which the outputs of the JCM or Bircher receiver relay should be connected.
NB! Existing programmed inputs are overwritten.

HMDNG230S and A: Inputs INy (open) and INz (close)
xREP and S5FR: Inputs INv (open) and INz (close).

DIP switch transmitter
Default: „Off, On, Off".

IN 1	SW 1	SW 2
Optical safety edge always activated	OFF	OFF
Standard optical safety edge	ON	OFF
8k2 resistive safety edge	OFF	ON
Safety contact NC	ON	ON

IN 2	SW 3
Safety contact NC	ON
8k2 resistive safety edge	OFF

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technology & imagination

DIP switch receiver
Default: „Off, Off, Off, On".

SW	Function	On	Off
SW 1	Auto check Period	7 sec.	30 sec.
SW 2	Operating mode	ON	WORK
SW 3	R3	Low Battery	R3=R1/R2
SW 4	ATEST Polarity	12/24V 0V	12/24V 0V

HERAS

Previous page
Next page

Wireless | Bircher | HMDNG230 S+A

ISK/WRLSS Selection
1. ISK with SKL
2. Wireless with SKL
3. Wireless close

A3
Receiver
XRF-R.2

BBC BIRCHER

Do not connect 3/4 and 5/6 at the same time!

Do not connect 9/10 and 11/12 at the same time!

Output 1 — Output 2 — Test

8K2

A2
Backplane

Can 1
Can 1

HERAS

Tested power supply for external components

CAN Term. NO

Board Status

Can 1 Can 1

finder 40.51.9.024.0000 □ 24VDC

Information:

Go to "Installation" in the menu; "Gate config"; "ISK/WRLSS selection."
"Wireless with SKL" or "Wireless close".

This will disable the ISK.
The SKL Open and SKL Close retain their function: Wireless with SKL.

At JCM only closing is tested: Wireless close, at Bircher both are tested: Wireless with SKL.

Two inputs are automatically activated on the backplane, to which the outputs of the JCM or Bircher receiver relay should be connected.
NB! Existing programmed inputs are overwritten.

HMDNG230S and A: Inputs INy (open) and INz (close)
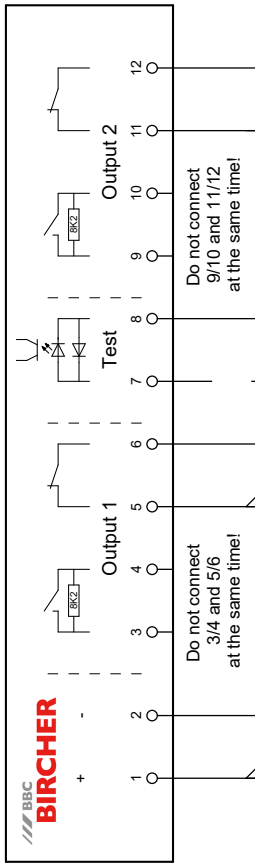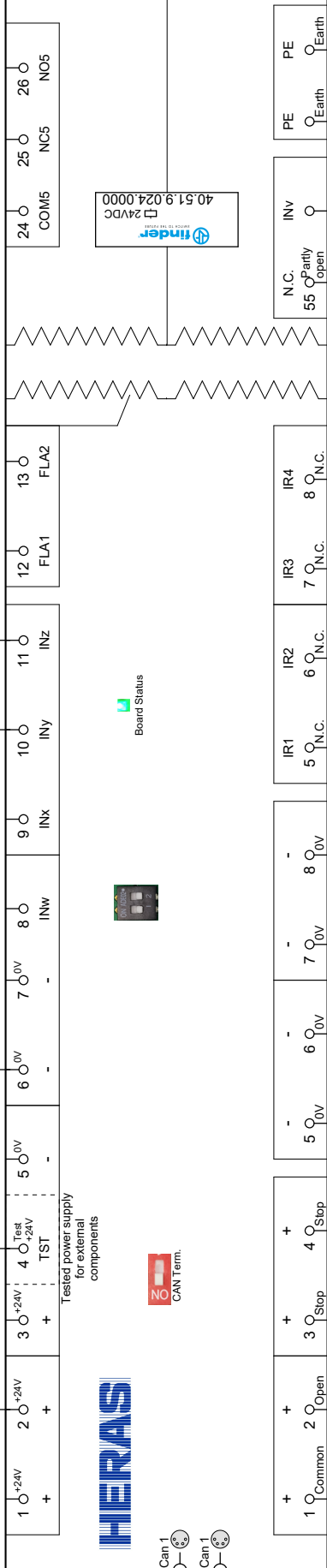xREP and S5FR: Inputs INv (open) and INz (close).

BIRCHER BBC

DIP switch transmitter
Default: „On, On".

	IN 1	IN 2
	8k2 safety edge	8k2 safety edge
	8k2 safety edge	Switch NO/NC*
	Switch NO/NC*	8k2 safety edge
	Switch NO/NC*	Switch NO/NC*

*Change inputs from NC to NO (factory setting = NC) / not for 8k2 applications

DIP switch receiver
Default: „On".

SW	On	Off
SW 1	Low Active	

At Bircher both are tested... so the portal safety devices must be connected to the control.

Rev. date:	17-10-2023	Group:	Wireless	Eplan:	dr-unit Next Gen	Page title:
Version no:	1.0	Installation:	HMDNG230	Project:	dr-unit diverse	Wireless | BBC Bircher | HMDNG230 S+A
Drawn by:	WWI	Erp: SAPnr	Sofon: Qnr			

Eplan version: 2.9.4

Page 3 / 4

Wireless | Bircher | HMDNG230 SREP-AREP-S5FR

ISK/WRLSS Selection
1. ISK with SKL
2. Wireless with SKL
3. Wireless close

A3
Receiver
XRF-R.2

/// BBC
BIRCHER

Output 2
Do not connect 9/10 and 11/12 at the same time!

Test

Output 1
Do not connect 3/4 and 5/6 at the same time!

A2
Backplane

HERAS

Can 1
Can 1

RD 0,5 mm²
2 +24V
3 +24V
4 Test +24V — TST
5 0V
6 0V — D.BL 0,5 mm²
7 0V
8 INw
9 INx
10 INy
11 INz — GS 0,5 mm²
12 FLA1
13 FLA2

ZW 0,5 mm²
NO CAN Term.

Board Status

1 +24V
2 Open
3 Stop
4 Stop
5 0V
6 0V
7 0V
8 0V

1 Common
2 Open
3 Stop
4 Stop
5 0V
6 0V
7 0V
8 0V

IR1 5 N.C.
IR2 6 N.C.
IR3 7 N.C.
IR4 8 N.C.

24 COM5
25 NC5
26 NO5
55 Partly open
N.C.
INv
GS 0,5 mm²

finder
□ 24VDC
40.51.9.024.0000

PE Earth
PE Earth

Tested power supply for external components

Information:

Go to "Installation" in the menu; "Gate config"; "ISK/WRLSS selection.
"Wireless with SKL" or "Wireless close".

This will disable the ISK.
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NB! Existing programmed inputs are overwritten.

HMDNG230S and A: Inputs INy (open) and INz (close)
xREP and S5FR: Inputs INv (open) and INz (close).

At JCM only closing is tested: Wireless close, at Bircher both are tested: Wireless with SKL.

NB! Existing programmed inputs are overwritten, so the portal safety devices must be connected to the control.

/// BBC
BIRCHER

DIP switch transmitter
Default: „On, On".

	IN 1	IN 2	SW 1	SW 2
	8k2 safety edge	8k2 safety edge	ON	ON
	8k2 safety edge	Switch NO/NC*	ON	OFF
	Switch NO/NC*	8k2 safety edge	OFF	ON
	Switch NO/NC*	Switch NO/NC*	OFF	OFF

*Change inputs from NC to NO (factory setting = NC) / not for 8k2 applications
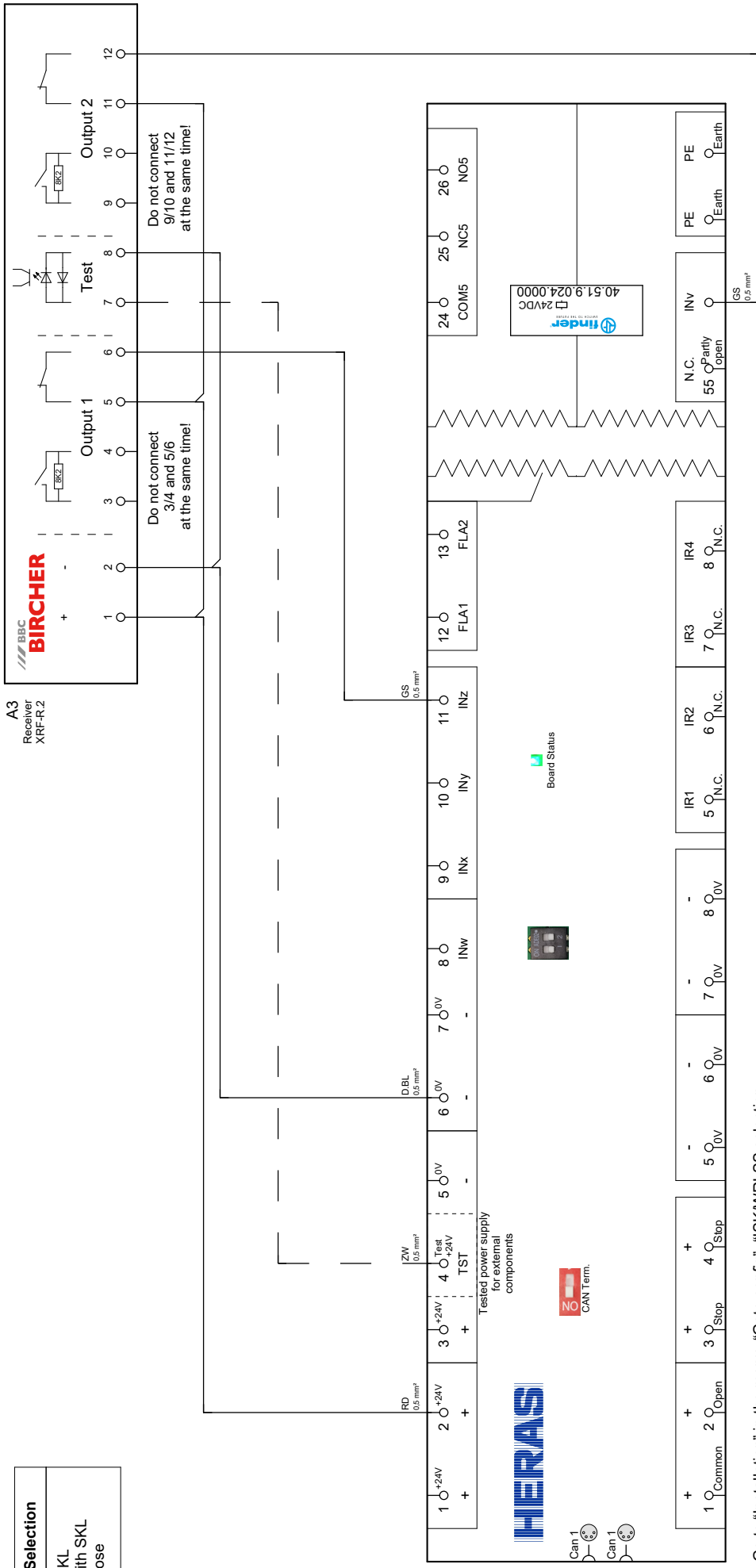
DIP switch receiver
Default: „On".

SW	On	Off
SW 1	Low Active ↓	

HERAS

Previous page / Next page