Programming manual

Automated operated ALU-Slide ECO
Automated operated ALU-Slide Avant

The new Generation of **Aluminium sliding gates**

ALUCONNECT

Instructions for the installer

Dear customer,

Thank you for the trust you have placed in us by purchasing this sliding gate with drive. This manual contains all the information you need to quickly familiarise yourself with this product.

This manual is intended for the installer and enables him to install/programme the sliding gate correctly. The table of contents indicates where the required information can be found in the manual.

The sliding gate must be installed/programmed by a qualified and competent installer using a programming plan and in accordance with the applicable laws and regulations.

Please read the information in this manual carefully before working with the product.
When installing the sliding gate, always follow this manual

A technical installation manual and a programming manual are available for this sliding gate. Detailed information can be found in these manuals.

These manuals can be requested from the installer of your sliding gate.

For more informaton or to order manuals, contact:

Disclaimer

The sliding gate may only be used for dynamic closing of passageways. Aluconnect cannot be held responsible for damage caused by improper, incorrect or unwise use.
Read this manual completely and make sure you understand it.
Deviations from the procedures described in the user manual will invalidate any form of warranty and liability on the part of the manufacturer.
The manufacturer accepts no liability for consequential damage.

Aluconnect issues a CE mark for the manufacture of the column. A technical construction file, installation instructions and operating instructions are also available. The column complies with the NEN-EN 13241-1 + A1 standard. There are also requirements for programming the gate.
The sliding gate must be installed/programmed by a qualified and skilled installer using a programming plan and in accordance with the applicable laws and regulations.
Safety must be guaranteed at all times so that users and third parties can use the sliding gate safely.
The installer of the fence is responsible for correct installation.
The installer can contact Aluconnect if there are any questions or uncertainties regarding installation.

Table of Content

1. Introduction

1.1. Manufacturer

Aluconnect B.V.
Kokerbijl 9
5443 PV Haps
Phone: +31 (0)88 33 43 000
E-mail: info@aluconnect.nl
Website: www.aluconnect.nl

2. Safety aspects

2.1. Symbols

Warning

Instructions that include this symbol warn in relation to the risk of damage to the machine or breakdowns if the instructions are not closely followed.

Entrapment hazard

Instructions that include this symbol warn in relation to physical injury if the instructions are not closely followed.

Electrocution danger

Instructions that include this symbol warn in relation to the danger due to electricity if the instructions are not closely followed.

2.2. General safety

IMPORTANT

- All installation work must be carried out by qualified and trained personnel.
  The installation company itself is responsible for the deployment of qualified specialist personnel.
- The sliding gate may only be put into operation after it has been fully installed and tested for safety devices.
- Installation of the sliding gate is very simple. Read the installation instructions carefully before starting installation. This will help to avoid installation errors. The manufacturer cannot be held liable for damage resulting from incorrect installation.
- The sliding gate must always be levelled and may only be used for dynamic closing of passages.
- The sliding gate must not be operated by children or people with disabilities. Adults should supervise this to ensure that children do not play with or near the sliding gate.
  Parents/carers are responsible for their children.
- Ensure that the regulations listed in the installation instructions are followed and complied with. Any other form of use can cause unforeseeable hazards and is therefore prohibited.
- Wear suitable personal protective equipment such as work gloves, safety shoes (at least class S3), safety goggles, hearing protection, dust mask and protective overalls.
- Only use authorised lifting aids to move heavy loads. Even if you use lifting aids, always carry out lifting work with more than one person.
  The maximum permissible weight to be lifted is 25 kg per person.
- Cordon off the work area for unauthorised persons before and during assembly. Depending on the situation, ensure public safety. For example, pay particular attention to the safety of children in the vicinity of schools.
- While the gate is moving, a distance from the gate must be maintained; this is indicated by the “Danger” warning symbol attached to portals. These warning pictograms must be checked by the operator at regular intervals. If one or more pictograms are not (or no longer) present on the gate, they must be reattached for safety reasons. These are available from Aluconnect.
- Only pass through the passageway when the sliding gate is fully open.
- It is forbidden to increase the weight of the gate leaves or to increase the surface area. If necessary, you should contact your gate supplier.
- It is necessary to install an overrun protection on sliding gates. For this purpose, a safety bolt is used on both sides of the guide rail on sliding gates.
- It is necessary to be able to lock a sliding gate at any time to prevent it from moving unintentionally. With a manually operated gate, a gate retainer is used for this purpose. With an unlocked automated sliding gate, there are various options available for this, which you can obtain from your gate supplier.
- TRAVELLING/RIDING ON THE SLIDING GATE IS NOT PERMITTED.
- Only operate an unlocked and manually operated sliding gate with the handle.
  Use the full handle to avoid the risk of entrapment
- It is not permitted to use the operator on other gates or for purposes other than those listed in this manual for this sliding gate.
- Ensure that the sliding path is clear of obstructions at all times.
- Instruct the user, provide them with the user manual and test the correct operation of the sliding gate on delivery.
- Keep the waste separate. Find out about the options for safe and correct disposal in the region.

ASSEMBLY

- When installing outdoors, protect from direct sunlight and rain.
- Only install on a flat surface! The housing must not be deformed in such a way that water can penetrate.
- The ambient temperature may not be lower than -20 °C and may not be higher than + 50 °C.
- Air humidity must be between 30 - 90% RH.
- Local electromagnetic fi elds must be screened off reliably.
- The internal temperature measurement has been designed for vertical installation where the cables are provided towards the bottom and that must be sealed using the supplied fastening to prevent moisture from penetrating.
- Before installing the operator, make sure that the door runs smoothly in the guide and the guide wheels run smoothly on the guide rail.
  The sensitive safety devices react to an uneven door loop by stopping on the guide track and running back. If the door does not run smoothly, please contact your supplier.
- The gate must have an end stop in the opened and closed positions so that it cannot be slid out of the guide.
- The motor is self-breaking and therefore the gate does not require a lock. In the unlocked position, the gate is not self-breaking and a wind security handle must be installed on the sliding gate.
- 230 V cables and signal cables must be placed in separate cable sleeves to prevent faults and failures.
- Never connect the 230 V mains voltage to the control input (terminals 9-36.). Failure to do so will result in immediate destruction of the control system and is excluded from the warranty!
- Signal cables may not be longer than 30 meters.
- In the case of two sliding gates that can be moved against each other, the ramp must be mounted on the floor where the two sliding gates meet when closed.

2.3. Warning on Entrapment Hazerd

ENTRAPMENT HAZERD

- The sliding gate may only be opened and closed under supervision and by persons with sufficient experience and knowledge of the sliding gate.
- Only operate an unlocked and manually operated sliding gate using the handle. Use the full handle to avoid the risk of entrapment.
- An uncontrolled movement of the gate wing (for example, caused by wind) must be prevented both in an open and a closed condition.
  Manual operated sliding gates are standard supplied with a wind security handle and for unlocked automated sliding gates, there are wind security handles available. When the gate wing opens or closes in an uncontrolled manner, structural deformation of the gate can occur, which may represent a hazard for people and the surrounding area.
  An unlocked and manually operated sliding gate may never be opened or closed unsupervised!
- The vertical head bar on the gate wing has a safety edge that does not cover the entire height of the wing. Becoming trapped cannot be excluded here.
- In hold-to-run's mode, the sliding gate may only be operated if the entire sliding gate can be seen.

2.4. Wind load regulations

WIND LOAD

The sliding and swing gates from Aluconnect are manufactured in accordance with the EN 13241-1 standard.
The EN 12424 standard is observed with regard to the wind load.

- Wind class 2 is applied as wind load either 450 Pa.
  This means that the gate can withstand wind speeds of up to 102 km/h in the closed position.

- For Industrial sliding gates up to and including 8000mm width, a wind load is answered to wind class 3 either 700 Pa.
  This means that the gate can withstand wind speeds of up to 133 km/h in the closed position.

Wind strength	Classification EN 12424	Dynamic pressure Pa = N/M²	Wind force Beaufort	Wind speed in m/s	Wind speed in km/h
Calm	Class 0	0	0	0 - 0,2	0
Strong gale	Class 1	300	9	20,8 - 24,4	75 - 88
Violent storm	Class 2	450	10	24,4 - 28,4	89 - 102
Hurricane	Class 3	700	12	32,7 - 36,9	118 - 133
Heavy hurricane	Class 4	1.000	13	37,0 - 41,4	134 - 149

NOTE:

The gate may only be set in motion at a maximum of 50% of the wind speed in the respective class.
This applies to both manual and electric gates.

- For class 2, the gate may not move if the wind speed exceeds 51 km/h.
  A wind speed of 51 km/h matches wind force 6 - 7 accordance with the Beaufort wind scale.

- For class 3, the gate may not move if the wind speed exceeds 66 km/h.
  A wind speed of 66 km/h matches wind force 8 accordance with the Beaufort wind scale.

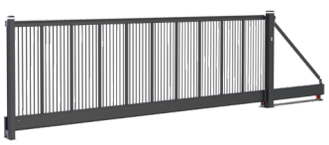
(see table below).

Wind strength	Dynamic pressure Pa= N/M²	Wind force Beaufort	Wind speed in m/s	Wind speed in km/h
Strong breeze	71,6 - 116,7	6	10,8 - 13,8	39 - 49
High wind	117,7 - 179,5	7	13,9 - 17,1	50 - 61
Stormy	181,3 - 262,4	8	17,2 - 20,7	62 - 74

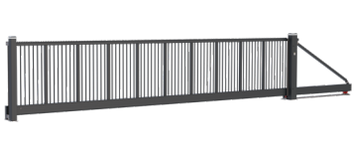
3. General

3.1. Models

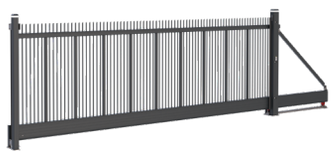
Below you can see the versions used in the manual sliding gates, all sliding gates can be made in a single or in a sliding gate sliding towards each other:



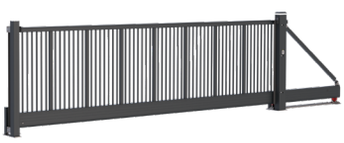
Industrial Vira
(30x30mm)



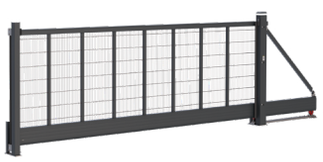
Industrial Punta
(ø30mm with sharp edge)



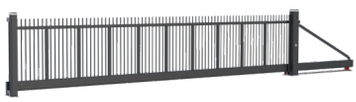
Industrial Rosa
(ø30mm extended)



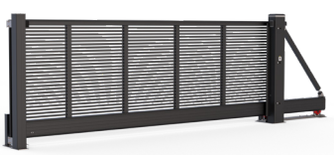
Industrial Nika
(ø30mm smooth upper beam)



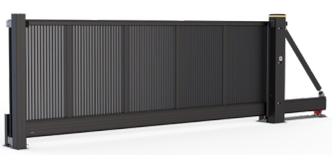
Industrial Dura
(DSM 868)



Industrial Kyra
(23x23mm 90° turned)



Design Levi 30H
(Horizontal infill 30x25)

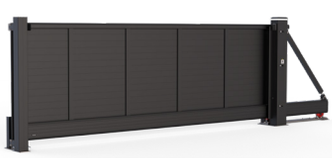


Design Levi 30V
(Vertical infill 30x25)

Design Levi 80H
(Horizontal infill 80x25)

Design Levi 80V
(Vertical infill 80x25)

Design Lara 1xC
(3mm aluminium plate)



Design Luna 100H
(Horizontal infill 100x25)

Design Luna 100V
(Vertical infill 100x25)

Design Luna 200H
(Horizontal infill 200x25)

Design Luna 200V
(Vertical infill 200x25)

Design Luka 100S
(Rounded shutters 100x35)

Design Lucy 70S
(Angular shutters 70x20)

3.2. Dimensions

3.2.1 Standard heights ALU-Slide ECO

Design: 955, 1155, 1355, 1555, 1755, 1955mm.
Industrial: 1000, 1250, 1500, 1800, 2000, 2500mm.
Industrial Dura: 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400mm.

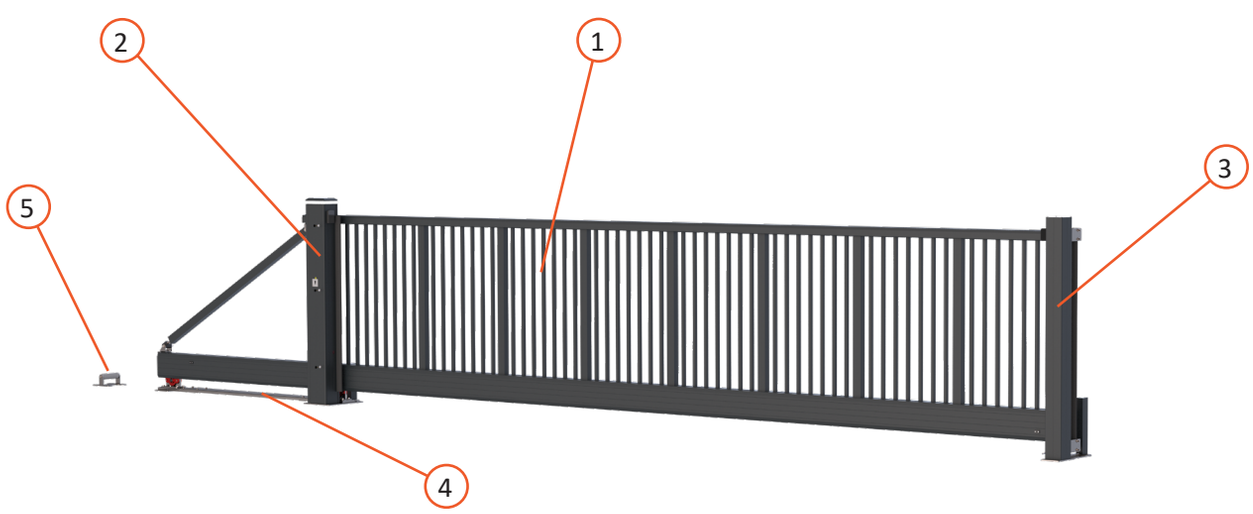
3.2.2 Standard heights ALU-Slide Avant

Industrial: 1000, 1250, 1500, 1800, 2000, 2500mm.
Industrial Dura: 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400mm.

Passage Sliding gate Width dimension (mm) between the posts	Length Wing Width dimension (mm) Wing	ALU-Slide ECO Industrial	ALU-Slide ECO Design	ALU-Slide Avant Industrial
3000	4600	✓	✓	✓
4000	5700	✓	✓	✓
5000	6700	✓	✓	✓
6000	8200	✓	✓	✓
7000	9200	✓	✓	✓
8000	10700	✓		✓
9000	11700			✓
10000	13200			✓
11000	14200*			✓
12000	15900*			✓

** The wing is being delivered in 2 pieces and needs to be screwed together on site.*

3.3. Explanation gate components



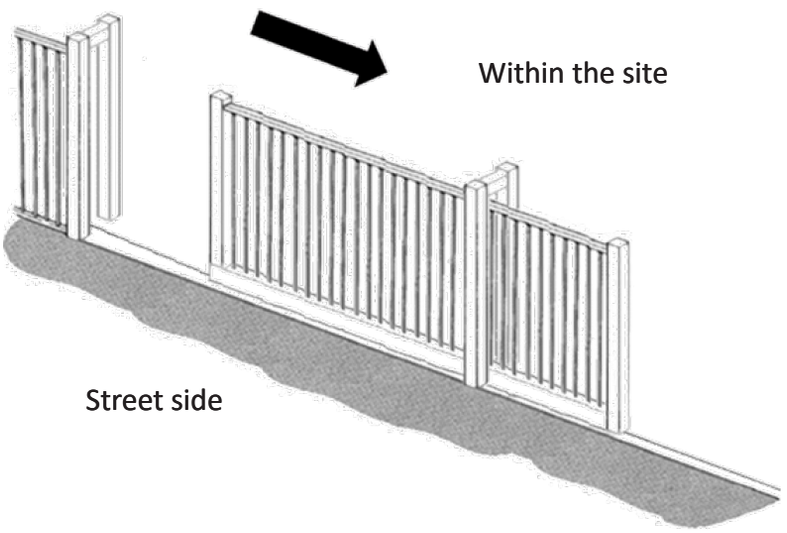
1	**Gate wing**	**4**	**Tandem set**
2	**Guide post**	**5**	**Rear support roller**
3	**Slam post**		

3.4. Sliding direction

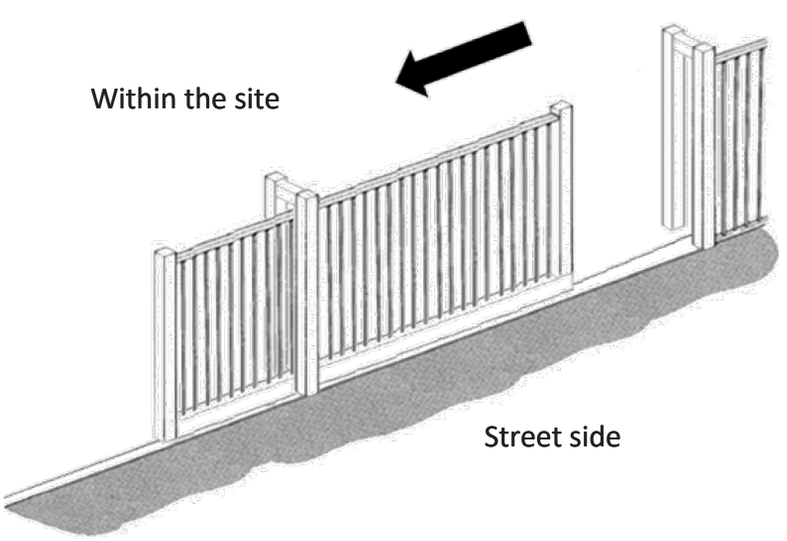
In practice, we refer to the sliding direction when opening when you are standing on the road side and looking at the sliding gate.
For example:

- DIN Right when viewed from the outside and opening to the right
- DIN Left when viewed from the outside and opening to the left

3.4.1. DIN Right



3.4.2. DIN Left



3.5. Locking

You must always be able to lock a manual sliding gate or an automatic sliding gate that is unlocked.
For this, a wind security handle must be installed on the sliding gate.
Manual operated sliding gates are standard supplied with a wind security handle.
For automated sliding gates, the installer must inform the user that an unlocked sliding gate must be secured against unintentional movement. The user or the installer can provide the sliding gate with a locking system. This can be ordered optionally from the sliding gate supplier.

4. Gate description

4.1. Technical data gate

Sliding gate Width dimension (mm) between posts	Sliding gate Length (mm) gate wing	Type	C-profile lower beam	Upper beam profile	Guide post	Slam post 150x150	Head beam profile 100x80	Vertical beam profile 80x60
3000	4600	ALU-Slide ECO Design ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
4000	5700	ALU-Slide ECO Design ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
5000	6700	ALU-Slide ECO Design ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
6000	8200	ALU-Slide ECO Design ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
7000	9200	ALU-Slide ECO Design ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
8000	10700	ALU-Slide ECO Industrial	180x160	140x65	1-legged	✓	✓	✓
		ALU-Slide Avant Industrial	250x160	140x75				
9000	11700	ALU-Slide Avant Industrial	250x160	140x75	1-legged	✓	✓	✓
10000	13200	ALU-Slide Avant Industrial	250x160	140x75	1-legged	✓	✓	✓
11000	14200	ALU-Slide Avant Industrial	250x160 Connected	140x75 Connected	2-legged	✓	✓	✓
12000	15900	ALU-Slide Avant Industrial	250x160 Connected	140x75 Connected	2-legged	✓	✓	✓

- *For manually operated sliding gates ≤10000mm wide, the dimensions of a 1-legged guide post is 150x150 and for a width >10000mm, the size of a 2-legged guide post is 150x150/150x150.*
- *For automated sliding gates ≤10000mm wide, the dimensions of a 1-legged guide post is 250x180 and for a width >10000mm, the size of a 2-legged guide post is 250x180/150x150.*

4.2. Technical data drive

The sliding gate can have different types of drives.

Available motors for ALU-Slide ECO:

- 180T
- 320T
- 500T SPEED

Available motors for ALU-Slide Avant:

- 180T
- 250T
- 500T SPEED (≤ 10000mm)

Check your order confirmation or logbook to see which type of operator applies to you.
The drives have the following characteristics:

	180T	250T	320T	500T SPEED
Brand	Aluconnect	Aluconnect	Aluconnect	Aluconnect
Connection voltage	230V / 50Hz	230V / 50HZ	230V / 50Hz	230V / 50Hz
Motor power supply	24V DC	24V DC	24V DC	24V DC
Turn-on time (ED)	80%	90%	80%	80%
Gate speed	max. 18 cm per second	max. 25 cm per second	max. 32 cm per second	max. 50 cm per second
Pressure force	1100 N	1300 N	800 N	800 N
Maximum gate weight	800 kg	1000 kg	500 kg	500 kg
Safety edge, gate wing	Passive	Active	Active	Active
Safety edge, guide post	Active	Active	Active	Active
Set of photocells inside & outside	✓	✓	✓	✓
Toothed rack	Modul 4 plastic	Modul 4 plastic	Modul 4 plastic	Modul 4 plastic
Flashing light incl. LED lighting	✓	✓	✓	✓
Key switch	✓	✓	✓	✓
Hand held transmitter	✓	✓	✓	✓
Temperature minimum/maximum	-20°C / +50°C	-20°C / +50°	-20°C / +50°	-20°C / +50°

5. Motor control unit 47-21-T

5.1. General

These instructions, together with the installation instructions for the door operator you have selected, constitute original operating instructions within the meaning of EC Directive 2006/42/EC.
It is intended for qualified persons for the installation, maintenance, repair and dismantling of door systems in accordance with EN 12635, as well as operators and users of door systems with a BELFOX door operator.

These instructions contain important information about your product.

- ! Read the entire manual carefully. This will help to avoid installation errors and hazards.
- ! Observe and follow the instructions, especially the safety instructions and warnings.
- ! Keep these instructions and all other product-relevant instructions in a safe place and within easy reach.
- ! Ensure that these instructions and all other product-relevant instructions are available at all times and can be viewed by the user of the product.
- ! Follow the instructions in this manual step by step.

5.1.1. Definitions used

Stopping time
Waiting time before automatic closing before the door closes from the open or partially open end position.

Automatic closing
The door closes automatically after the set hold-open time has elapsed.

Release
Short door travel in the opposite direction if a safety device or force limiter responds.

Learning journey
Door travel in the OPEN or CLOSE direction, during which the operator learns the following:
- Length of the distance travelled
- Force required for the distance to be travelled

Normal operation
Describes a gate travel with taught-in distances and forces.

Reversing (to the end position)
Gate travel in the opposite direction if a safety device or force limiter responds.

Partial opening
Refers to a partial opening of the gate, e.g. to allow people to pass through, but not to drive through.

Gate system
Designates the gate and the drive unit.

Prewarning time
Time between the move command and the start of door movement.
A warning time of 1 second is required for the 50 cm/sec motor

5.2. General safety instructions and warnings

5.2.1. Warnings used

 The general warning symbol in accordance with EN ISO 7010 indicates a hazard that can lead to injury or death. In these instructions, the general warning symbol is used in conjunction with the following signal words and colors (in accordance with ANSI Z535) to indicate the severity of the hazard.

DANGER

The signal word indicates a hazard with a high degree of risk which, if not avoided, will result in death or serious injury.

WARNING

The signal word indicates a hazard with a medium degree of risk which, if not avoided, can result in death or serious injury.

CAUTION

The signal word indicates a hazard with a low level of risk which, if not avoided, may result in a minor or moderate injury.

NOTE

The signal word indicates a potentially harmful situation. If it is not avoided, the system or something in its vicinity may be damaged.

SAFETY INSTRUCTIONS

This signal word indicates instructions that describe how hazards can be avoided as far as possible and risks minimized.

5.2.2. Safety instructions

 ATTENTION IMPORTANT SAFETY INSTRUCTIONS!

These instructions must be read carefully as they contain important information for safety during installation, use, maintenance and dismantling of the system

To minimise residual risks and ensure the safety of persons, it is important to follow these instructions.

These instructions must be handed over to the operator as an integral part of the product.
These instructions must be kept in a safe place and be accessible to all users of the door system at all times.

5.2.3. Intended use

This motor control unit is designed for use with a BELFOX door operator.

Reliable operation is only guaranteed if the device is installed carefully in accordance with these instructions.

Observe the manufacturer's instructions regarding the door system, consisting of door and operator. You can avoid potential hazards as defined in EN 13241-1 if the installation follows the instructions in this manual.

Doors that are operated with an operator must comply with the applicable standards.

The door must run evenly so that the safety cut-out can react optimally.

The door must have a mechanical end stop in the open and closed position, otherwise it can be pushed out of the guide when it is in the "emergency unlocked state".
If the door is "emergency unlocked", it must be de-energised at all times by switching off the power supply using the main switch on the terminal strip.

Gate systems that are located in the public area and only have a safety device, e.g. force limitation, may only be operated under supervision

5.2.4. Non-intended use

The product may only be used for the purpose intended by the manufacturer. Any other use is to be considered improper and therefore dangerous. We cannot provide any guarantee or warranty for damage caused by other uses or incorrect installation, nor are we liable for such damage.

Unauthorized modifications, attachments and/or conversions to the drive or the control unit can lead to unforeseeable hazards.

5.2.5. Safety instructions for competent / knowledgeable persons who are authorized to carry out assembly, operation, maintenance, repair and disassembly.

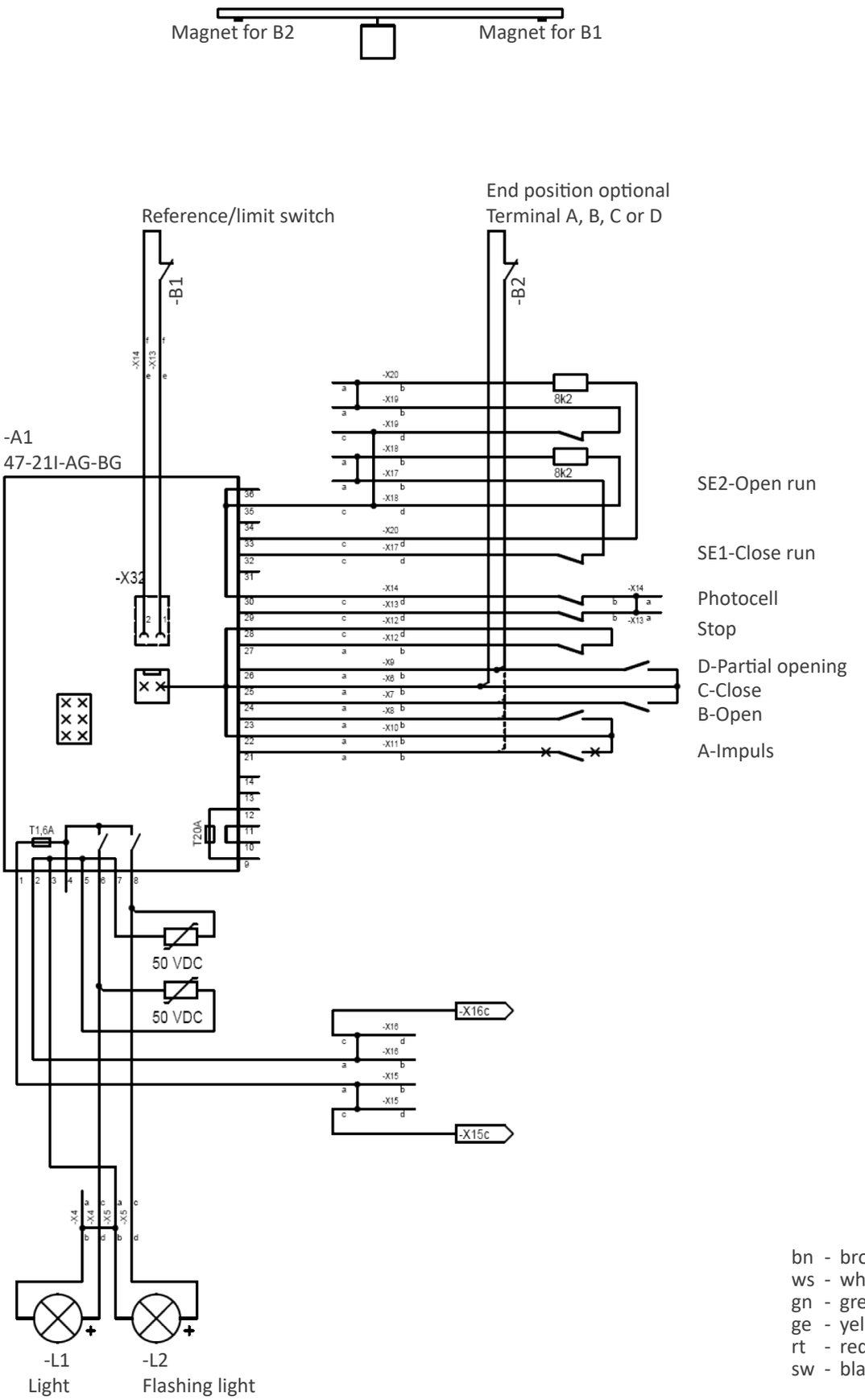
Installation, adjustment and maintenance of the drive must be carried out by a qualified person.

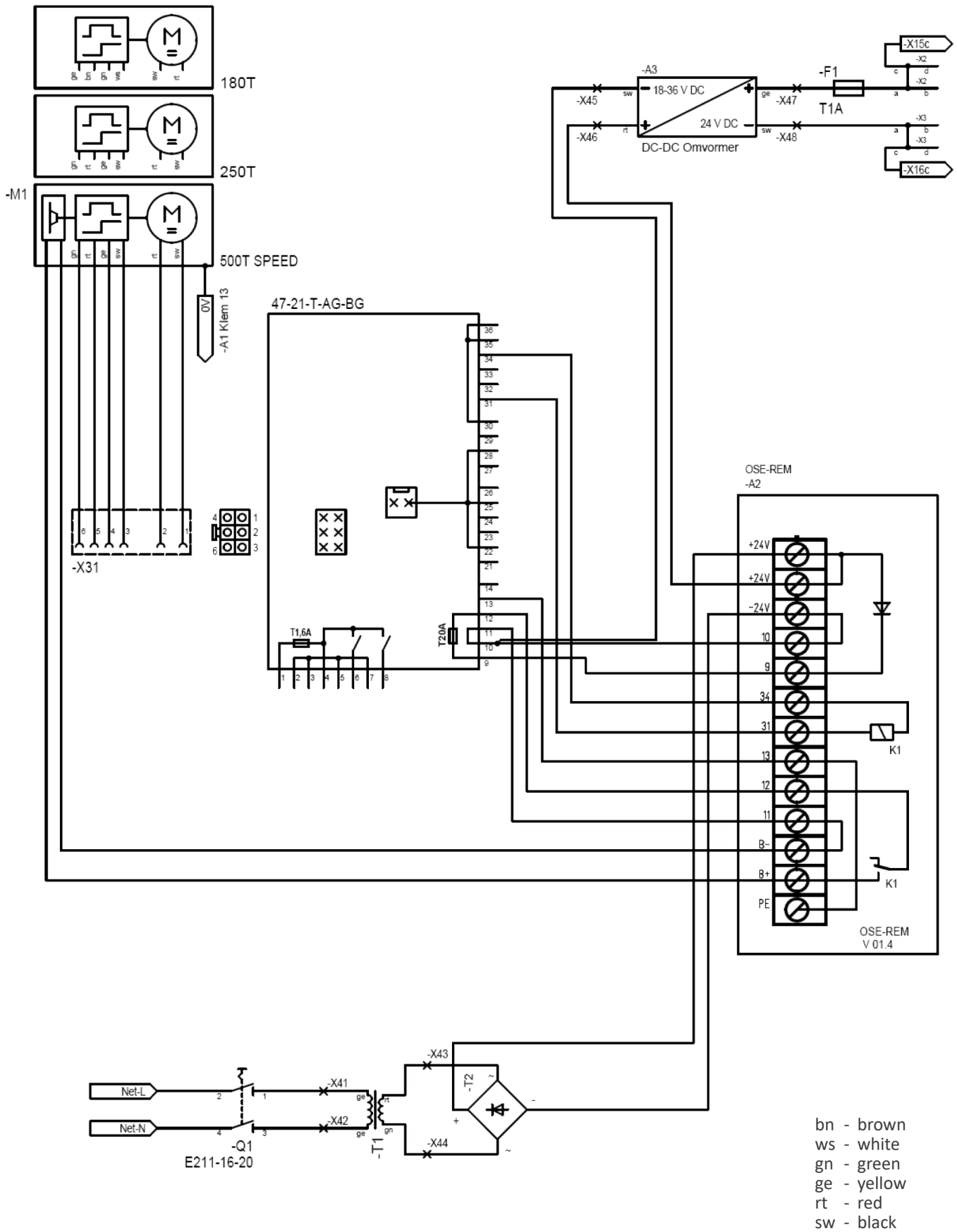
In the event of failure or malfunction of the drive, an expert must be immediately commissioned with the inspection/repair.

According to EN 12635, a competent person is a person who has the appropriate training, qualified knowledge and practical experience to correctly and safely install, inspect, maintain and repair a door system. This person must also ensure that the applicable national occupational safety regulations and regulations for the operation of electrical equipment are followed.
Packaging material should be stored out of the reach of children and disposed of in accordance with applicable national regulations.
You will find the relevant safety information and instructions in the respective chapters of these instructions. Please observe and follow these instructions in order to avoid any residual risks.

Note! **Inform yourself on the basis of the EU directives on the safety in use of power-operated doors via prescribed safety devices.**

5.3. Circuit diagram





bn - brown
ws - white
gn - green
ge - yellow
rt - red
sw - black

ALUCONNECT

5.4. General safety instructions for installation

NOTE: Please observe the following notes and instructions for safe installation.

INCORRECT INSTALLATION CAN LEAD TO SERIOUS INJURIES!

The safe and intended operation of the door system can only be ensured by correct installation by a competent person in accordance with the instructions supplied with the product.

According to EN 12635, a competent person is a person who has the appropriate training, qualified knowledge and practical experience to correctly and safely install, inspect, maintain and repair a door system.

These installation and operating instructions must be read, understood and observed by the person who installs, operates or maintains the drive.

When carrying out the installation work, the qualified person must comply with all relevant and applicable occupational safety regulations and the regulations for the operation of electrical devices. National occupational safety regulations, accident prevention regulations and applicable standards of the respective country must be observed and complied with! Possible hazards as defined in EN 13241-1 and EN 12453 must be observed during drive installation.

The guideline “Technical Rules for Workplaces ASR A1.7” of the Committee for Workplaces (ASTA) is valid for the operator in Germany and must be observed and complied with.

5.5. Installing the control unit

DANGER

Fatal electric shock due to mains voltage!

There is a risk of life-threatening/fatal electric shock on contact with the mains voltage.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Electrical connections must only be carried out by a qualified electrician.
- The applicable regulations must be observed and complied with when laying the power cable (IEC 364-4-41).
- De-energise the system before carrying out any work. Secure the system against unauthorised restarting.
- Ensure that the on-site electrical installation complies with the relevant safety regulations.
- To avoid hazards, a damaged mains connection cable must be replaced with an undamaged mains connection cable by a qualified electrician.
- Use protective equipment during installation.
- Reliable operation is only guaranteed if the appliance is installed carefully in accordance with these instructions. Only switch on the mains voltage after checking it again.

NOTE

The control unit may be destroyed if this is not observed!

Penetrating moisture or dirt can permanently damage or destroy the control unit. Incorrectly connected cables can lead to malfunctions or destruction of the control unit.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- 230 V lines (terminals 1 to 8 of the terminal strip) and control lines (terminals 9 to 36) must be laid in separate cable ducts to avoid interference
- **Never** connect 230 V mains voltage to the control inputs (terminals 9 to 36). In case of non-compliance resulting in immediate irreparable damage, no warranty!
- Signal cables must not exceed a maximum length of 30 m.
- For outdoor installation, protect from direct sunlight and driving rain..
- Only install on a level surface! The housing must not be braced, otherwise water may penetrate.
- The **ambient temperature** must not be lower than -20°C and not higher than +50°C be.
- The **air humidity** must be within 30 - 90 % RH.
- **Electromagnetic fields** at the installation site must be reliably shielded.

The internal temperature measurement is designed for vertical installation, whereby the cables must be led out at the bottom and sealed with the enclosed screw connections to prevent moisture from penetrating.

On completion of installation, the qualified / competent person must issue an EC declaration of conformity for the door system (complete machine comprising door and operator) in accordance with the area of application and affix the CE mark and a type plate.

5.6. Operating elements of the control unit

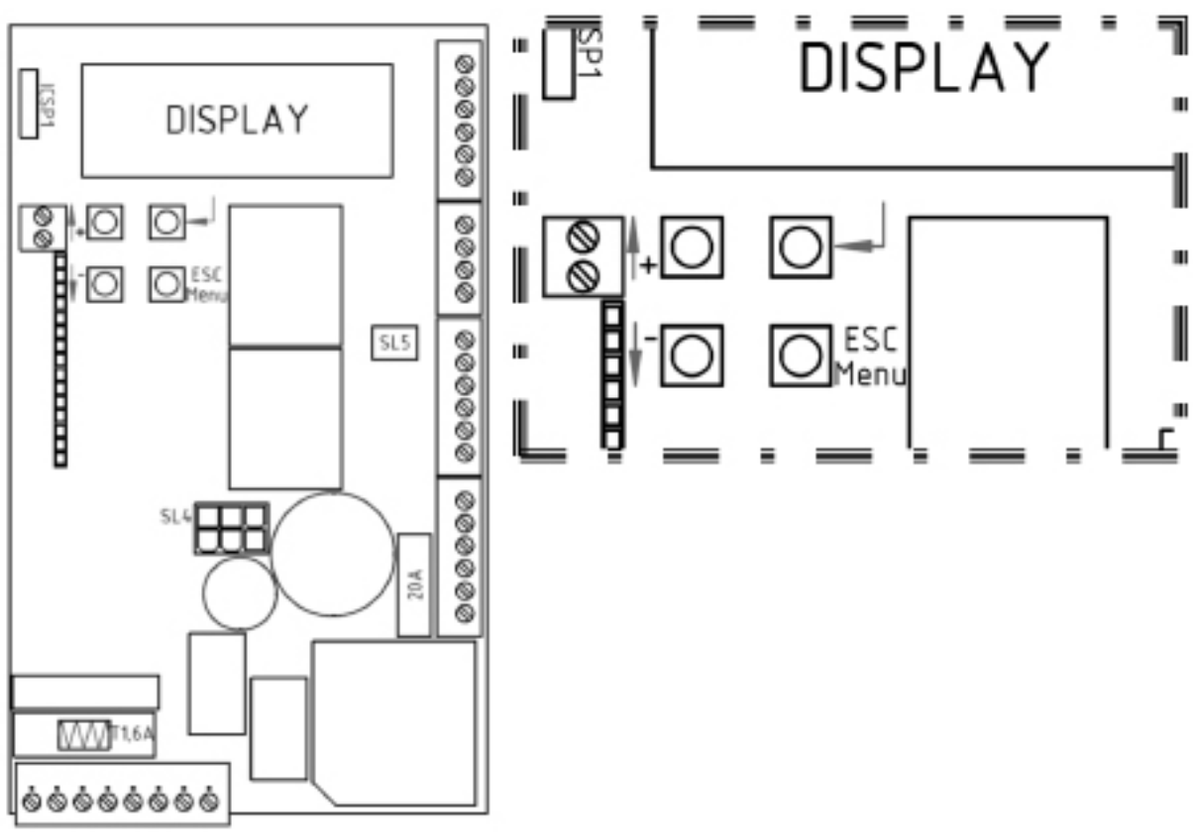
5.6.1. Display

For easier programming and faster troubleshooting, an illuminated graphic display (LCD) is fitted as standard in the 47-21-T motor control unit.

5.6.1. Control buttons

There are 4 buttons on the circuit board for operating the control unit.

Buttons	Status display (operation)	Menu
↑+	Start / Stop Open-run	Menu-item / value + 1
↓ -	Start / Stop Close-run	Menu-item / value - 1
↵ / Return	Open menu	Confirm menu-item / menu value
Escape / Menu	No function	Jump back one menu level or exit menu



5.7. Connections

DANGER

Fatal electric shock due to mains voltage!

There is a risk of life-threatening / fatal electric shock on contact with the mains voltage.

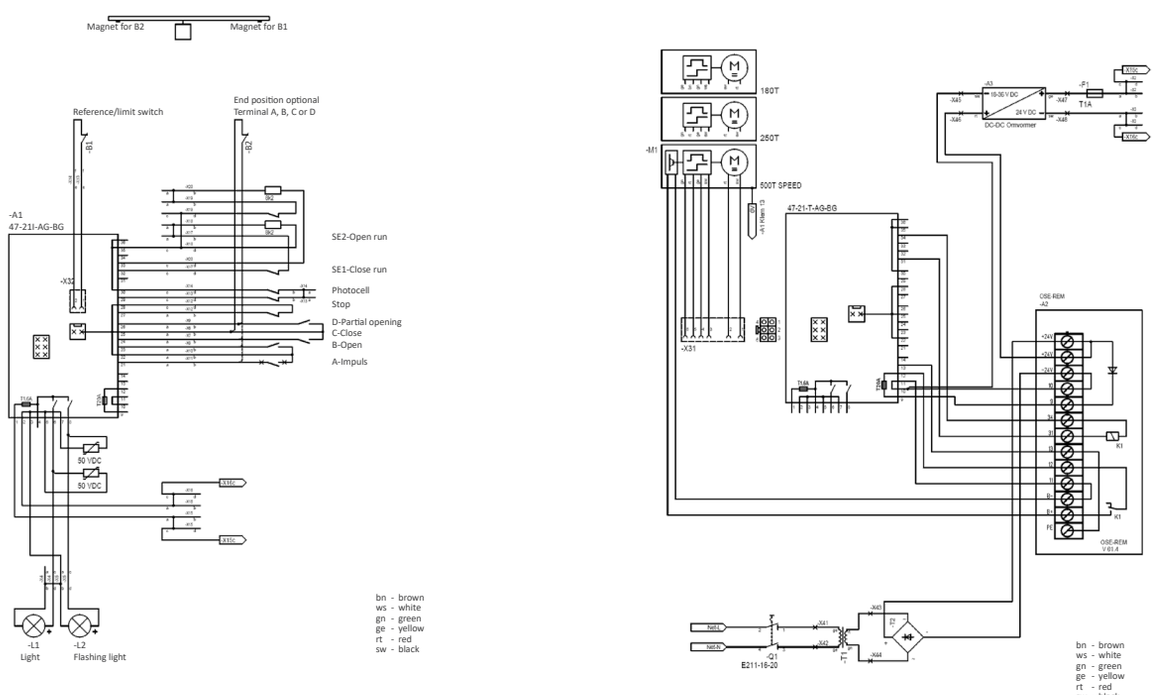
SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Clamping work on the control unit may only be carried out when it is de-energised! Secure the system against accidental restarting by unauthorised persons!
- 230 V mains voltage may be present at terminals 1-8!
- **DANGER TO LIFE!**
- **Never** apply mains voltage to terminals 9 to 36! Failure to do so will destroy the control unit and invalidate the warranty!

5.7.1. Version of the connections

For simple wiring, all external connections have been routed to plug-in terminal strips (SL1 - SL8). This makes it very easy to change the circuit board if necessary.

5.7.2. Circuit diagram



An enlarged version of the circuit diagram can be found on pages 17 and 18.

5.7.3. Power strips (connections detailed)

Socket strip 1 (SL1) - High-voltage socket strip

Clamps 1 & 2: Connection of the 24 volt PCB power supply connected at the factory.
Clamps 3 & 4: Connection of the 230 Volt / 50 Hz primary side of the transformer (3-N / 4-L) connected at the factory.
Clamps 5 & 6: Connection of 230 Volt / 50 Hz “light” lighting (5-N / 6-L)
Clamps 7 & 8: Connection of 230 Volt / 50 Hz “warning light” lighting (7-N / 8-L)

Power strip 3 (SL3) – Low-voltage power supply for external devices

Clamps 9 & 10: (Input)	Connection of the 24 V / 50 Hz secondary side of the transformer (Connected at the factory). Optional connection of 24 V DC voltage
Clamps 11 & 12: (Output)	Direct tapping of 9 & 10 via 20A slow-blow fuse Power supply output 24 V DC alternating voltage (with standard power supply to the control unit via terminals 9 & 10, max. 4 A unstabilized, to the terminal strip on the control board, it is stabilised with a max of 1A (Clamp 2-3).
Clamps 13 & 14:	Power supply output of 24 Volt DC direct voltage (for battery operation [DC UPS supply] of the control unit via terminals 9 & 10) Power supply output 24 Volt DC - direct voltage (output) max. 500mA stabilized (13 = ground, 14 = +24 Volt).

Power strip 5 (SL5) – Reference switch (for potential-free NC contact)

The reference switch (reed switch) is pre-assembled and plugged onto the SL5 plug contacts. Alternatively, a limit switch can be connected here (see description of inputs A-D).

Power strip 6 (SL6) – Push-button inputs (for potential-free NO contacts)

Clamp 21: Push-button input A - pulse function - sensing from clamp 22
Clamp 22: Common of push-button input A & B
Clamp 23: Push-button input B - specific open function - momentary action from clamp 22
Clamp 24: Push-button input C - specific close function - momentary action from clamp 25
Clamp 25: Common of push-button input C & D
Clamp 26: Push-button input D - partial opening function - momentary action from clamp 25

Power strip 7 (SL7) – Stop & light barrier safety inputs (for potential-free NC contacts, see 7.5 and 7.6

Clamp 27 & 28: Stop entrance wicket door safety device
Clamp 29 & 30 Light barrier input (for potential-free NC contact of the Photocels)

Power strip 8 (SL8) – Safety inputs for 8.2kOhm safety contact strips or OSE strips (see 7.7 & 7.8)

<u>When using 8.2kOhm safety contact strips</u>

Clamp 31: free
Clamp 32 & 35: SE1 – Security input 1
Connection of 8.2kOhm safety contact strips - active in the Closerun)
Clamp 33 & 36: SE2 – Security input 2
(Connection of 8.2kOhm safety contact strips - active in the Openrun)
Clamp 34: free

<u>When using OSE safety contact strips (optical safety contact strips)</u>

Clamp 31: OSE + 12 Volt max. 150mA
Clamp 32: OSE 1 Optical safety contact strip 1
Clamp 33: OSE 2 Optical safety contact strip 2
Clamp 34: OSE – 0 Volt Ground
Clamp 35 & 36: free

5.7.4. Antenna connection / remote controle board

A antenna is connected to the lower clamp of SK1 (clamp 2). Depending on the length of the antenna (frequency-dependent), it must be braced to the side.
Alternatively, the core of a rod antenna can also be connected to clamp 2. The rod antenna should be installed in the highest possible position; installation in the radio shadow of the door should be avoided.
The reception frequency is determined by the frequency of the plugged-in 15-pin HF module. The current standard frequency is 868.3 MHz. The frequencies 433.92 MHz, 40.685 MHz and 27.015 MHz are also available as options.

5.7.5. Push-button inputs A-D

Command devices with potential-free NO contacts can be connected to the SL6 connector strip for the pulse, open, close and partial opening functions.
As soon as a running direction is blocked by a safety input LS, SE1 or SE2 and the emergency function has been activated in the menu, the input for this direction of movement switches to the emergency function operating mode. By activating the command transmitter three times, you can move the motor in the desired direction of rotation without latching, despite the safety being triggered. You can activate this emergency function in the menu, menu item 27.
You can use the menus for inputs A-D to set an input for the connection of the OPEN limit switch for door type DIN left (CLOSE limit switch for door type DIN right). The connection for the reference switch, SL5, is then automatically the CLOSED limit switch for door type DIN-left (OPEN limit switch for door type DIN-right)

5.7.6. Photocells

⚠ CAUTION

External safety devices must be approved for personal protection and are not tested by the control system!
A check of the correct must be carried out every 6 months at the latest.

Supply voltage:
The supply voltage can be tapped from the terminal strip:

Clamp 1 + 2:	Connection of the 24 V PCB power supply connected at the factory.
Clamp 3 + 4:	230V AC (Mains voltage protected by 1.6 A fuse).
Clamp 11 + 12:	24V DC (DC voltage - for power supply with transformer, protected by 20 A fuse) max. 4 A unstabilized, to the terminal strip on the control board, it is stabilised with a max of 1A (Clamp 2-3).
Clamp 13 + 14:	24 DC, DC voltage (output) max.500mA stabilized (13=ground, 14=+24Volt).

The potential-free normally closed contact (closed in idle state) of a light barrier can be connected to terminals 29 & 30. Several photocells can also be connected, whose potential-free NC contacts must then be connected in series.
If the “AUTOMATIC CLOSING” operating mode is activated, closing takes place either immediately after deactivation of the input after the set “Auto closing after LS” time has elapsed or after the set “Auto closing” time in the “Auto closing” menu.

5.7.7. Stop entrance / wicket gate safety device

The potential-free NC contact (closed in idle state) of a wicket door safety device and / or emergency stop button can be connected to clamps 27 & 28. Several safety devices can also be connected, whose potential-free NC contacts must then be connected in series.
This safety input acts in all directions of travel of the door. If this input is activated, the door operator can no longer be moved or stops immediately when travelling.
Caution: no reversing and no release take place.

5.7.8. 8,2k Ohm-Safety contact strips

⚠ CAUTION

External safety devices must be approved for personal protection and are not tested by the control system!
A check of the correct must be carried out every 6 months at the latest.

Safety contact strips with a terminating resistor of 8,2k Ohm can be connected between clamps 32 & 35 and between clamps 33 & 36.

SE1 (Closerun) (Security input 1 – Clamp 32 & 35)
SE2 (Openrun) (Security input 2 – Clamp 33 & 36)

5.7.9. Optical safety contact strips (OSE)

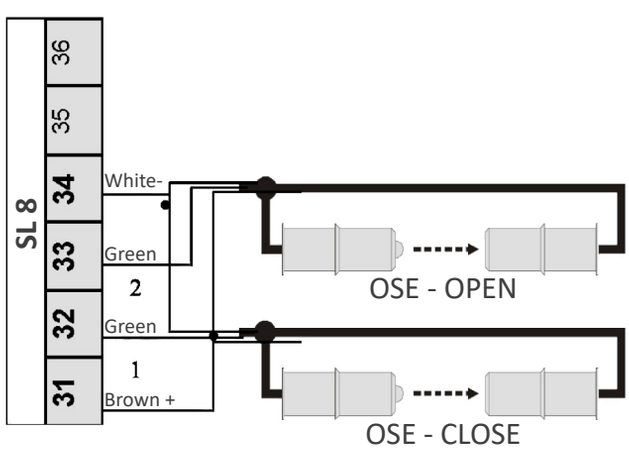
⚠ CAUTION

External safety devices must be approved for personal protection and are not tested by the control system!
A check of the correct must be carried out every 6 months at the latest.

Optical safety contact strips can be connected between clamps 31 to 34. The power supply for the OSE of DC 12 volts must be connected to clamps 34=ground and 31= +12 volts max. 150mA.

The OSE1 is connected to clamp 32 and the OSE2 to clamp 33.

<u>Connection of two OSE safety contact strip:</u>



5.7.10. Battery operation

NOTE

If a battery is connected to terminals 9 & 10, a transformer must not be connected here!!!

It is also possible to operate this control unit with a 24 V battery. The supply voltage from this must be connected to terminals 9 & 10, plus 24 volts to terminal 9 and minus 24 volts to terminal 10.

5.8. Programming

NOTE

Damage to the control unit due to moisture
Moisture ingress can permanently damage the control unit.
Protect the control unit from moisture when opening the control unit housing.

5.8.1. General programming

To operate the control unit, use the 4 buttons on the circuit board (see 5.6).

You need the “top left” and “bottom left” buttons labelled “↑ +” and “↓ -” to select and deselect the menu items or the menu values in the menu items.

You need the “bottom right” button labelled **“Escape/Menu”** to return from a menu level or to exit the menu.

Main menu	Submenu	Explanation
Learning journeys	Learning journeys	Teaching the paths and forces
Radio	Learn radio?	Teaching in radio transmitters
	Info	Display of the learnt radio transmitters
	Delete radio	Deleting all or individual hand transmitters
System	Language	Language selection
	Display rotation	Setting the display output
	Gate type	Preselection of gate type
	Motor direction	Selection of motor direction of rotation
	Sensor	Selection of reference switch
	Partial opening	Partial opening setting
	Motor parameters	Setting Motor Parameters
	Logo	Logo Selection

Main menu	Submenu	Explanation
Info	Version	
	Trip counter	
	Last commands	Reading out the last commands
	Faults	Reading out the last faults
Inputs	Input A Impuls	
	Input B Open	
	Input C Close	
	Input D Partial opening	
	Emergency function	
Safety	Photocells	
	SE1 (Closerun)	
	SE1-Type	
	SE2 (Openrun)	
	SE2-Type	
	SE-Standby	
Light/warning light	Light	
	Warning Light	
	Prewarning Open	
	Prewarning Close	
Auto Closerun	Auto Closerun	
	Auto Closerun after LB	
	Restart	
Power	Power stop Open	
	Power stop Close	
Speed	Speed Open	
	Speed Close	
	Gentle run-out Open	
	Gentle run-out Close	
	Softstart	
Reset	Forces	
	Path+Forces	
	Settings	

You need the “top right” button labelled “↵ / Return” to confirm the menu items and menu values.

5.8.2. Making settings in the control menu

ATTENTION

Each time after parameters have been set or changed, new, learning trips must be carried out!!!

WARNING

Risk of injury during door movement!

In the area of the door system, damage or injuries can occur during door movements. The gate wing can collide with persons who are in the movement area of the gate and (seriously) injure them. Limbs can be caught by the gate and taken along. There is a risk that limbs that get between the sliding gate and fixed parts of the system could be cut off..

SAFETY INSTRUCTION FOR HAZARD AVOIDANCE

- Children and animals must be kept away from the gate system when the gate is moving. Children are **not** allowed to play at the gate system.
- Make sure that neither persons nor objects are in the path of the gate.
- The free space between the gate wing and the floor must be selected in such a way that there is no danger of the feet being carried along.
- If possible, the door should only be operated when there is visual contact with the movement range of the door.
- Monitor the door movement until the door has reached its end position.
- During opening and closing of the gate, the working area of the gate system must **not** be entered or passed through!
- Do **not** stand still in the opened door system!
- If possible, install an emergency stop command device in order to be able to trigger an immediate stop in an emergency.

WARNING

Risk of injury at the closing edges!

During gate run, limbs and fingers can be squeezed or crushed at the main closing edge as well as the secondary closing edges! The gate wing can collide with persons who are in the movement range of the gate and injure them (seriously).

SAFETY INSTRUCTION FOR HAZARD AVOIDANCE

- While the door is moving, do not touch the main or secondary closing edges.
- Make sure that children do not touch the main or secondary closing edges while the door is moving.
- Make sure that neither persons nor objects are in the path of the door.
- If possible, the door should only be operated when there is visual contact with the movement range of the door.
- Monitor the door movement until the door has reached its end position.
- During opening and closing of the gate, the working area of the gate system must not be entered or passed through!
- Do not stand still in the opened door system!
- If possible, install an emergency stop command device in order to be able to trigger an immediate stop in an emergency.

Press the "↵ / Return" button. You are now in the motor control menu.

Now use the "↑ +" or "↓ -" buttons to select the menu item / menu described in the following point and confirm this by pressing the "↵ / Return" button..

To change the displayed menu value, press the "↑ +" or "↓ -" buttons. If the desired menu value is displayed and you want to save this menu value, confirm this with the "↵ / Return" button.
If you do not want to accept the menu value, exit the menu item without pressing the "↵ / Return" button by pressing the "Escape/Menu" button.

To exit the menu, press the "Escape/Menu" button several times until you are back in the previously selected menu item or have exited the menu.

5.9. Overview / information on the menu items

5.9.1. Learning journey

In this menu item you can:

Learning journey Carry out learning journeys. (see chapter 5.10).

5.9.2. Radio

In this menu item you can:

Learn radio Programming new hand transmitters (see chapter 5.11)

Info -Number of radio transmitters already learnt Number of JCM transmitters already learnt
-Display of the radio system (the radio system of the first radio transmitter is adopted)

Delete radio Delete all or individual radio transmitters

5.9.3. System

In this menu item you can:

5.9.3.1. Language

The following languages are available:

- **GERMAN**
- **ENGLISH**
- **FRENCH**
- **DUTCH**
- **POLISH**

5.9.3.2. Display rotation

Depending on the installation position of the motor control unit, you can set the display output in four directions:

- **0°**
- **90°**
- **180°**
- **270°**

5.9.3.3. Gate type

Default settings are available for the following door types:

Sliding gate left	Sliding door with DIN left
Sliding gate left 8k2	Sliding door with DIN left en 8.2kOhm safety contact strips
Sch-prt L 8k2 a. Sl	Sliding door with DIN left en 8.2kOhm safety contact strips and automatic closing
Sliding gate right	Sliding door with DIN right
Sch-prt right 8k2	Sliding door with DIN right en 8.2kOhm safety contact strips
Sch-prt R 8k2 a. Sl	Sliding door with DIN right en 8.2kOhm safety contact strips and automatic closing
Garage	Garage door
Garage Auto Closerun	Garage door with automatic closing mechanism
Garage Swing gate	Garage door with swing door fitting
Gar2del FGate AutoClose	Garage door with swing door fitting and automatic closing mechanism

To decide whether your door system is DIN left or DIN right, please refer to section 3.4 DIN left & DIN right to find out which DIN your door system has.

NOTE: Changing the gate type resets all menu items to the factory setting.

5.9.3.4. Motor direction
Here you can set the direction of rotation of the motor according to your door system:
-DIN Right CAUTION this affects the connection of limit switches !
-DIN Left CAUTION this affects the connection of limit switches !

5.9.3.5. Sensor
In this menu item, you can select which position detection means are used::
- **Sensor**
- **Sensor with reference switch**

5.9.3.6. Partial opening
Here, the partial opening position is set as a percentage of the learnt total door travel..

5.9.3.7. Motor parameters
This menu item is a display menu for the motor parameter (can be changed by the manufacturer).

	ALU-Slide ECO			ALU-Slide Avant		
Engine	180T	320T	500T	180T	250T	500T
Speed	18 cm/sec	32 cm/sec	50 cm/sec	18 cm/sec	25 cm/sec	50 cm/sec
Motor parameters	316	400	205	395	205	300

IMPORTANT

The factory-set motor parameters must NOT be adjusted by third parties in the controller.
This is strictly PROHIBITED!

5.9.3.8. Logo
This menu item is a display menu for the selected logo.
(May ONLY be changed by manufacturer)

5.9.4. Info

5.9.4.1. Version
This menu item is purely a display menu; here you can see which software version is programmed in the control unit.

5.9.4.2. Trip counter
This menu item is purely a display menu; here you can read the number of cycles performed so far. This value cannot be deleted or reset.

5.9.4.3. Last commands
You can read out the last 50 commands that have affected the control unit using the "↑ +" or "↓ -" buttons. The time before which the command was given is also displayed.

5.9.4.4. Faults
You can read out the last 50 commands that have affected the control unit using the "↑ +" or "↓ -" buttons. The time before which the command was given is also displayed.

5.9.5. Inputs

5.9.5.1. Input A Impuls

In this menu item, you can determine the mode of action of input A:

- **Impulse (Open – Stop – Close – Stop …)**
- **End switch (End switch OPEN for DIN-Left or end switch CLOSED for DIN-Right)**

5.9.5.2. Input B Open

In this menu item, you can determine the mode of action of input B:

- **With Stop (Open-Stop-…)**
- **Without Stop (Open-Open-…)**
- **Deadman (Gate travel OPEN only during activation of input B OPEN)**
- **End switch (End switch OPEN for DIN-Left or End switch CLOSED for DIN-Right)**

5.9.5.3. Input C Close

In this menu item, you can determine the mode of action of input C:

- **With Stop (Close-Stop-…)**
- **Without Stop (Close-Close-…)**
- **Deadman (Gate travel CLOSED only during activation of input C CLOSED)**
- **End switch (End switch CLOSED for DIN-Left or End switch CLOSED for DIN-Right)**

5.9.5.4. Input D Partial opening

In this menu item, you can determine the mode of action of input D:

- **With Stop (PO-Stop-CLOSE-Stop…)**
- **Without Stop (PO-CLOSE…)**
- **AutoClose out (Automatic closing switched off)**
- **End switch (End switch OPEN for DIN-Left or End switch CLOSED for DIN-Right)**

If input D is permanently activated and the gate is closed from end position OPEN with automatic closing and no limit switch is set, the system only closes to the partially open position (personnel interlock)

5.9.5.5. Emergency function

In this menu item, you can activate or deactivate the emergency function (see section 7.5.: Button inputs A-D). The emergency function is inactive after a RESET of the control unit.

5.9.6. Safety

5.9.6.1. Photocells

In this menu item, you can set the effect of activating the light barrier:

- **Without effect**
- **OPEN: Stop**
- **OPEN: Disengage**
- **OPEN: Reverse**
- **DICHT: Stop**
- **DICHT: Disengage**
- **DICHT: Reverse**

5.9.6.2. SE1 (Closerun)

The effect of activating the safety input must be selected here (only effective for supply!):

- **Without effect**
- **Stop**
- **Disengage**
- **Reverse**

5.9.6.3. SE1-Type

In this menu item, you can set whether the control unit should monitor the safety input SE1 (terminal 32) on an **8.2kOhm** resistor (safety contact strip) or on an **OSE** strip (optical safety contact strip).

- **8k2**
- **OSE**

5.9.6.4. SE2 (Openrun)

The effect of activating the safety input must be selected here (only effective for overrun!):

- **Without effect**
- **Stop**
- **Disengage**
- **Reverse**

5.9.6.5. SE2-Type

In this menu item, you can set whether the control unit should monitor the safety input SE2 (terminal 33) on an **8.2kOhm** resistor (safety contact strip) or on an **OSE** strip (optical safety contact strip).

- **8k2**
- **OSE**

5.9.6.6. SE-Standby

In this menu item, you can set whether the control unit switches off the 12-volt power supply to the OSE strips (terminals 31 & 34) when the door is stationary to save energy (only required for operation with a battery):

- **No Standby**
- **Standby**

5.9.7. Light/warning light

5.9.7.1. Light

In this menu item, you can set whether and for how long the light (terminals 5 & 6) remains on after the motor is running. The afterglow time can be set from 0-99 seconds in increments of seconds, then from 2-10 minutes in increments of minutes.

Afterglow	0 sek-99 sec./2 min-10 min (The following settings can be accessed by pressing the "↑ +" button again.)
End position	Output switches as soon as an end position is reached.
End position OPEN	Output switches as soon as the open end position is reached.
End position CLOSE	Output switches as soon as the end position Closed is reached.

The light is always on while the motor is running, except when the end position indicator is set.

5.9.7.2. Warning light

Flashing	Output "flashes".
Permanent	Continuous signal output.
End position	Output switches as soon as an end position is reached.
End position OPEN	Output switches as soon as the open end position is reached.
End position CLOSE	Output switches as soon as the end position Closed is reached.

5.9.7.3. Pre-warning OPEN

In this menu item, you can set whether and for how long the warning light (terminals 7 & 8) lights up before the Openrun (0-10 seconds), except when set as an end position indicator in the previous menu item.

5.9.7.4. Pre-warning CLOSE

In this menu item, you can set whether and for how long the warning light (terminals 7 & 8) lights up before the Closerun (0-10 seconds), except when set as an end position indicator in the previous menu item.

5.9.8. Auto Closerun

NOTE

If the automatic inlet is activated, a light barrier must be connected!!!

5.9.8.1. Auto Closerun

In this menu item, you can set whether and after what time an automatic closing starts. The duration until automatic closing (AZ) can be set from 0-99 seconds in increments of seconds, then from 2-10 minutes in increments of minutes.

Note: The automatic Closerun can be switched on and off via input D (input D: AutoClose OFF).

5.9.8.2. Auto Closerun after Photocells

The time until automatic closing after the photcells is released is set here from 0 to 20 seconds. If a time greater than zero is entered here, the control unit always attempts to close the gate after this time has elapsed if the light barrier has been left again.

5.9.8.3. Restart

You can activate or deactivate the restart in this menu item.
If an active command is detected at inputs A-D after switching on the voltage, the control unit starts the motor in order to reach the desired state / end position. If a safety input is also recognized as active, the motor will not start in the end position.

Input A	Starts the driveway when automatic closing is set and keeps the gate open..
Input B	Starts the Openrun in the “Open without stop” function.
Input C	Starts the Closerun in the “Close without stop” function.

After a RESET of the control unit, the restart is inactive.

5.9.9. Power

5.9.9.1. Power stop OPEN:

CAUTION

Forces must be observed!

Force adjustment may only be carried out by qualified personnel.

SAFETY INSTRUCTION FOR HAZARD AVOIDANCE

- Ensure that you comply with the applicable standards and forces.
- Use additional safety devices if necessary.

In this menu item, you can set the power stop in the Open direction (power cut-off, which is used for obstacle detection). You can:

Power stop OPEN	switch this <active> or <inactive>.
Encore value	set an addition value which is applied to the taught-in values.
Run-up time	Set the start-up time during which the power stop OPEN is switched off.

5.9.9.2. Power stop Close:

CAUTION

Forces must be observed!

Force adjustment may only be carried out by qualified personnel

SAFETY INSTRUCTION FOR HAZARD AVOIDANCE

- Ensure that you comply with the applicable standards and forces.
- Use additional safety devices if necessary.

In this menu item, you can set the power stop in the Closed direction (power cut-off, which is used for obstacle detection). You can:

Power stop lose	switch this <active> or <inactive>.
Encore value	set an addition value which is applied to the taught-in values.
Run-up time	Set the start-up time during which the current stop OPEN is switched off.

5.9.10. Speed

5.9.10.1. Speed OPEN:
In this menu item, you can set the speed at which the door runs “OPEN”. This is a percentage voltage setting, so the setting is not completely linear.

5.9.10.2. Speed CLOSE:
In this menu item, you can set the speed at which the door runs “CLOSED”. This is a percentage voltage setting, so the setting is not completely linear

5.9.10.3. Gentle-stop OPEN

CAUTION

For safety reasons, a run-out distance of at least 60 cm must be programmed! This corresponds to the percentage values in the table “Outlet distance”.

In this menu you can set:

Run-out speed OPEN	the speed at which the operator runs out in the OPEN direction in soft stop mode
Run-out distance	the percentage length of the soft stop from the learnt travel distance of the door.

5.9.10.4. Gentle-stop Close

CAUTION

For safety reasons, a run-out distance of at least 60 cm must be programmed! This corresponds to the percentages in the table below.

In this menu you can set:

Run-out speed CLOSE	the speed at which the operator runs out in the CLOSE direction in the soft run-out
Run-out distance	the percentage length of the soft stop from the learnt travel of the door.

5.9.10.5. Gentlestart

In this menu you can set:
Start with at whatever speed the drive always starts.
Run-up time the duration of the soft start.

5.9.10.6. Table of run-out paths

Clear opening in mtr	1	2	3	4	5	6	7	8	9
Minimum run-out distance	60%	30%	20%	15%	12%	10%	9%	8%	7%
Clear opening in mtr.	10	11	12	13	14	15	16	17	>17
Minimum run-out distance	6%	5%	5%	5%	4%	4%	4%	4%	4%

5.9.11. Reset

In this menu item you have the option of deleting the following values:
Forces Only trained forces delete. Learning journeys are required.
Path+Forces Delete learnt paths and forces. Learning journeys are required.
Settings Delete all menu settings and set to default (RESET the control unit).

5.10. Learning journeys

WARNING

Risk of injury when moving the door!

Damage or injuries can occur in the area of the door system when the door is moving. The door leaf can collide with people who are within the movement range of the door and (seriously) injure them. Limbs can be caught and carried away by the door. There is a risk that limbs that get between the sliding gate and fixed components of the system could be severed.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Children and animals must be kept away from the gate system when the gate is moving.
- Children must not play near the door system.
- Ensure that there are no people or objects in the door's path of travel.
- The clearance between the door leaf and the ground must be selected in such a way that feet are prevented from being carried along.
- If possible, the door should only be operated when there is visual contact with the door's movement area.
- Monitor the door movement until the door has reached its end position.
- Do not enter or drive through the working area of the door system while the door is opening and closing!
- Do not remain standing in the open door system!
- If possible, install an emergency stop command transmitter to be able to trigger an immediate stop in an emergency.

⚠ WARNING

Risk of injury at the closing edges!

During door travel, body parts and fingers can be crushed or crushed on the main closing edge and the side closing edges! The door leaf can collide with people who are within the movement range of the door and (seriously) injure them.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Do not touch the main or secondary closing edges while the door is moving.
- Ensure that children do not touch the main or secondary closing edges while the door is moving.
- Ensure that there are no people or objects in the path of the door.
- If possible, the door should only be operated when there is visual contact with the door's movement area.
- Monitor the door movement until the door has reached its end position.
- Do not enter or drive through the working area of the door system while the door is opening and closing!
- Do not remain standing in the open door system!
- If possible, install an emergency stop command transmitter to be able to trigger an immediate stop in an emergency

⚠ WARNING

Risk of injury on the gear rack!

During door travel, limbs and fingers can be crushed, crushed or severed between the cogwheel and the rack!

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Do not touch the gearwheel or gear rack while the door is moving.
- Ensure that children do not touch the cogwheel or the gear rack while the door is moving.
- If possible, the door should only be operated when there is visual contact with the movement area of the door.
- If possible, install an emergency stop command device so that an immediate stop can be triggered in an emergency.

⚠ CAUTION

During all learning movements, the door must not be stopped by light barriers, safety contact strips or other devices or prevented from running normally.

5.10.1. Perform learning runs for systems with motor-integrated sensor AND reference switch.

Press the “↵ / Return“ button to access the menu. Use the buttons “↑ +” or “↓ -” buttons to select the “Learn drive” menu item and confirm this with the “↵ / Return“ button. Press the “↵ / Return“ button again to confirm the “Teach drive” submenu item.

Learning journey: End position OPEN
Press and hold the “↑ +” (open) button or the “↓ -” (close) button to move the door to the OPEN position. You can also interrupt the movement several times by releasing the respective button. Make sure that the door is not in the mechanical stop position. When you have reached the OPEN end position, confirm this by pressing the “↵ / Return“ button.

A movement in the CLOSE direction now takes place automatically. This movement ends automatically at the stop in the CLOSED end position or can be ended by pressing the “↑ +”, “↓ -” or “↵ / Return“ buttons before the end position.

Learning journey: End position CLOSE
Press and hold the “↓ -” button (approach) or the “↑ +” button (drive-up) to move the door to the CLOSED position. You can also interrupt the movement several times by releasing the respective button. Make sure that the door is not in the mechanical stop position.
When you have reached the CLOSED end position, confirm this by pressing the “↵ / Return“ button.

The following is now done automatically:

Learning journey: Learning journey OPEN
The drive moves to the OPEN end position.

Learning journey: Learning journey PLOSE
The drive moves to the CLOSE end position.

The learning journeys are rounded off with an Openrun.

5.10.2. Perform learning runs for systems with motor-integrated sensor WITHOUT reference switch

Press the “↵ / Return“ button to access the menu. Use the buttons “↑ +” or “↓ -” buttons to select the “Learn drive” menu item and confirm this with the “↵ / Return“ button. Press the “↵ / Return“ button again to confirm the “Teach drive” submenu item.

Learning journey: End position OPEN
Press and hold the “↑ +” (open) button or the “↓ -” (close) button to move the door to the OPEN position. You can also interrupt the movement several times by releasing the respective button. Make sure that the door is not in the mechanical stop position. When you have reached the OPEN end position, confirm this by pressing the “↵ / Return“ button.

A movement in the CLOSE direction now takes place automatically. This movement ends automatically at the stop in the CLOSED end position or can be ended by pressing the “↑ +”, “↓ -” or “↵ / Return“ buttons before the end position.

Learning journey: End position CLOSE
Press and hold the “↓ -” button (approach) or the “↑ +” button (drive-up) to move the door to the CLOSED position. You can also interrupt the movement several times by releasing the respective button. Make sure that the door is not in the mechanical stop position. When you have reached the CLOSED end position, confirm this by pressing the “↵ / Return“ button.

The following is now done automatically:

Learning journey: Learning journey OPEN
The drive moves to the OPEN end position.

Learning journey: Learning journey PLOSE
The drive moves to the CLOSE end position.

The learning journeys are rounded off with an Openrun.

5.10.3. Perform learning runs for systems with motor-integrated sensor and limit switches

Press the “↵ / Return“ button to access the menu. Use the buttons “↑ +” or “↓ -” buttons to select the “Learn drive” menu item and confirm this with the “↵ / Return“ button. Press the “↵ / Return“ button again to confirm the “Teach drive” submenu item.

Learning journey: End position OPEN
Press and hold the “↑ +” (open) button or the “↓ -” (close) button to move the door to the OPEN position. You can also interrupt the movement several times by releasing the respective button. An automatic stop occurs at the OPEN limit switch. Ensure that the door is not in the mechanical stop position. When you have reached the OPEN limit switch, confirm this by pressing the “↵ / Return“ button.

A movement in the CLOSE direction now takes place automatically. This movement ends automatically when the CLOSE limit switch is reached or can be ended by pressing the “↑ +”, “↓ -” or “↵ / Return“ buttons before the end position.

Learning journey: End position CLOSE
Press and hold the “↓ -” button (closing) or the “↑ +” button (opening) to move the door to the CLOSED position. You can also interrupt the movement several times by releasing the respective button. Make sure that the door is not in the mechanical stop position. When you have reached the CLOSE limit switch, confirm this by pressing the “↵ / Return“ button.

The following is now done automatically:

Learning journey: Learning journey OPEN
The drive moves to the OPEN end position.

Learning journey: Learning journey CLOSE
The drive moves to the CLOSE end position.

The learning journeys are rounded off with an Openrun.

5.11. Teaching in the radio coding

NOTE: If one of the two systems (12-bit or 18-bit) is memorized in a system, only radio transmitters with the same bit system can be memorized. To change the system, you must delete all memorized radio transmitters. The range of the hand transmitter is heavily dependent on the environment in which it is used.

5.11.1. Teaching in

Press the "↵ / Return" button to access the menu. Use the buttons "↑ +" or "↓ -" buttons to select the "Radio" menu item and confirm this with the "↵ / Return" button.
Confirm the submenu item "Learn radio?" again with the "↵ / Return" button.

Now use the "↑ +" or "↓ -" buttons to select the desired radio function (see list below) and confirm with "↵ / Return".

Radio functions:
- Impuls (Open-Stop-Close-Stop-…)
- Open with stop (Open-Stop-…)
- Close with stop (CLose-Stop-…)
- STOP
- Partial opening
- Open without stop (Open-Open-…)
- Close without stop (Close-Close-…)
- Light (switches on the light relay)

Now, while the remaining time is counting down, press the desired hand-held transmitter button continuously until the display shows "Radio transmitter" and the memory location, e.g. 0. The hand transmitter button is now programmed.

If only the "Cancel" display appears, the hand transmitter button has not been programmed.

5.11.2. Delete

You can delete all or just individual hand transmitters.

Press the "↵ / Return" button to access the menu. Use the buttons "↑ +" or "↓ -" buttons to select the "Radio" menu item and confirm this with the "↵ / Return" button.
Confirm the "Delete radio" submenu item again with the "↵ / Return" button.

Now use the "↑ +" or "↓ -" buttons to select whether you want to delete "All" (all radio transmitters) or "Radio transmitters" (only individual radio transmitters). For individual radio transmitters, you can use the "↑ +" or "↓ -" buttons to select the radio transmitter to be deleted.
Confirm your selection with "↵ / Return".

5.12. Faults and Errors

WARNING

Tampering with a defective door system by unqualified persons can lead to serious injuries!

In the event of malfunctions or incorrect operation, disconnect the mains plug.
Repairs may only be carried out by qualified personnel!

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Any faults and/or defects must be rectified immediately and completely!
- An attempt by an unqualified person to repair or otherwise intervene in a defective door system can lead to serious injury!

Disconnect the gate system from the power supply before carrying out any work and secure the gate system against unintentional restarting.

5.12.1. Reading out faults

Press the "↵ / Return" button to access the menu. Use the buttons
"↑ +" or "↓ -" buttons to select the "Info" menu item and confirm this with the "↵ / Return" button.
Select and confirm the "Faults" submenu item again.

You can now read out the last 10 control unit errors using the "↑ +" or "↓ -" buttons. The time before which the error occurred is also displayed.

Fault Report	Fault	Fault Rectfication
------	No errror	OK
ROM	Data content (µC has to be programmed anew)	Replace the board
RAM	Geheugentoegang (µC)	Replace the board
EEPROM	EEProm-toegang	Replace the board
EEPROMx	EEProm-Data	Errase data / Replace the board

W-DOG	Watchdogfout (Hardware)	Replace the board
Faul HW	Current measurement (Hardware)	Replace the board
Relfaul	Relay for motor controller (Hardware)	Replace the board
FETfaul	Transistors for motor controller (Hardware)	Replace the board
SE1-HW	Safety input 1- Self test(Hardware)	Check the connection / Replace the board
SE2-HW	Safety input 2- Self test(Hardware)	Check the connection / Replace the board
CEL-HW	Photocell-Self test (Hardware)	Check the connection / Replace the board
Monoimp	No motor impulse or no motor current	Check the connection / Replace the board
RUNTIME	Safety input 2: active during engine opera-tion	Check the End switch / Check the mechanism
HiVfaul	Overvoltage	Check mains supply / replace the board
LoVfaul	Low voltage	Check mains supply / Check the mechanism / Replace the board
DirMfaul	The motor turns in the wrong direction	Check mains supply / Replace the board

5.12.2. Motor running status display

To operate the door using the buttons on the control unit, press the “Escape/Menu” button repeatedly until the menu has been exited.
The current status of the motor / motor control unit is now shown on the display. Activated inputs light up brightly, non-activated inputs light up darkly.
Deactivated inputs are shown crossed out.

A	Input A-Impuls closed (actuated)	SL6 Kl. 21 & 22
B	Input B-Open closed (actuated)	SL6 Kl. 22 & 23
C	Input C-Close closed (actuated)	SL6 Kl. 24 & 25
D	Input D- Partial opening closed (actuated)	SL6 Kl. 25 & 26
REF	Reference switch actuated	SL5
E-A	Limit switch Open detected	
E-Z	Limit switch Close detected	
SE1	Safety input 1 - no 8.2kΩ detected / OSE error	SL8 Kl. 32 & 35
SE2	Safety input 2 - no 8.2kΩ detected / OSE error	SL8 Kl. 33 & 36
STP	Stop input open (actuated)	SL7 Kl. 27 & 28
LS	Photocells input open (actuated)	SL7 Kl. 29 & 30
#	No learning trips carried out yet	
?	End positions/reference positions are searched for voltage switching.	
*	Hold-open time expires	

5.12.3. Troubleshooting guide

The 47-21-T control unit makes troubleshooting much easier for the installer. Not only are the currently actuated inputs shown on the display, but the control unit also has a memory that stores the last 10 faults (software) - instruction point 5.12.1. and the last 50 actuations (safety inputs etc.) - instruction point 5.12.2. including time display.

To read out the currently activated inputs, proceed as follows:
Press the “Escape/Menu” button repeatedly until the menu is exited and the status of the motor and the motor control unit is shown on the display.
Inputs displayed in light color are active at this moment.

Display	Explanation of the display	Possible malfunction	Possible cause
REF	Reed contact which serves as a reference point. This should light up briefly each time the door moves	When this no longer lights up	▶ Magnet on gear rack missing ⇨ Attach new magnet ▶ Reed contact is defective ⇨ Replace reed contact ▶ Cable to reed contact is crushed ⇨ Repair cable or replace reed contact
		if this lights up permanently	▶ No reed contact connected ⇨ Attach reed contact ▶ Reed contact defective ⇨ Replace reed contact
A **B** **C** **D**	Inputs which are to be controlled with potential-free push-buttons. When a button is pressed these light up	Despite pressing an external button, these no longer light up	▶ Cable to the button interrupted ⇨ Repair / replace cable ▶ Push-button defective ⇨ Replace push-button
		Permanent lighting up	▶ Cable crushed ⇨ Repair / replace cable ▶ Push-button defective ⇨ Replace push-button ▶ Switch installed instead of a push-button installed ⇨ install push-button

Display	Explanation of the display	Possible malfunction	Possible cause
STP	Stop input lights up if contacts 27 & 28 are not connected to each other (emergency stop actuated)	Despite the emergency stop switch being pressed, they do not light up	▶ Cable crushed ⇨ Repair / replace cable ▶ Several emergency stop buttons/switches incorrectly connected in parallel ⇨ Connect emergency stop switch in series
		Despit not actuated emergency stop switch lights up permanently	▶ Cabel to emergency stop button sheared off ⇨ Repair / replace cable ▶ NC contact an NO contact on emergency stop button/switch reversed ⇨ Use normally closed contact as break contact
LS	Light barrier input: Lights up if contacts 29 & 30 are not connected to each other (light barrier activated)	Despite the interrupted light beam, these do not light up	▶ Cable crushed ⇨ Repair / replace cable ▶ Several light barriers incorrectly connected in parallel ⇨ Connect several light barriers in series
		Permanent illumination despite uninterrupted light beam	▶ Cable to light barrier sheared off ⇨ Repair / replace cable ▶ Closed contact and open contact on light barrier reversed ⇨ Use normally closed contact as break contact
SE1 **SE2**	Safety inputs: Light up when safety input 1 (SE1) or safety input 2 (SE2) is activated	SE1 lights up	▶ Safety contact strip actuated ⇨ Remove actuation ▶ Safety contact strip defective ⇨ Replace ▶ Incorrect menu settings (menu-item 10) ⇨ Standard 8K2 ▶ Cable to safety contact strip sheared or crushed ⇨ Repair / replace cable

Display	Explanation of the display	Possible malfunction	Possible cause
		SE2 lights up	▶ Safety contact strip actuate ⇨ Remove actuation ▶ Safety contact strip defective ⇨ Replace ▶ Incorrect menu settings (menu-item 11) ⇨ Standard 8K2 ▶ Cable to safety contact strip sheared or crushed ⇨ Repair / replace cable
Radio trans-mitter 0-49	Radio commands received via radio transmitter	Lights up even though no hand transmitter of the system has been actuated	▶ Hand-held transmitter from the immediate vicinity has the same coding (12-bit system) ⇨ Switch to 18-bit system or change coding ▶ Wrongly programmed hand transmitter from neighbouring properties ⇨ Delete individual hand transmitter (18-bit system)
E-A E-Z	Limit switch open/closed: Lights up when the limit switch open/closed is actuated	Lights up even though the door is not in an end position	⇨ Check limit switch ⇨ Set input A-D menu correct
?	End positions not synchronised after power failure		⇨ Move the drive with the magnet via the reference switch or into the end positions
#	Learning journeys not yet carried out		⇨ Carry out learning journeys
*	Hold-open time expires		⇨ Delete times in the Auto closing menu

5.13. Inspection and maintenance

The operator is maintenance-free.
However, for your own safety and that of others, we recommend that you have the door system regularly checked and maintained by a competent person in accordance with the manufacturer's instructions.

5.13.1 Safety instructions for repairs

WARNING

Unintentional door movements can lead to serious injury or death!

Unintentional door movements can be triggered if the door system is inadvertently switched on again by third parties during inspection or maintenance work
Unintentional door movements can lead to (serious) personal injury and damage to property.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

- Disconnect the door system from the power supply before carrying out any work and secure the door system against unauthorized restarting.
- If possible, have the emergency stop command transmitter ready to be able to trigger an immediate stop in the event of an unexpected door movement.
- Install operating elements at a sufficient height and/or keep them out of the reach of unauthorized persons.

All cleaning, maintenance and repair work must be carried out by qualified personnel. To ensure the performance and operational reliability of the system, the necessary maintenance work must be carried out by qualified personnel at regular intervals in accordance with the applicable regulations.

In particular, the safety devices must be checked regularly. We recommend that operators of the door system carry out a monthly visual inspection of all safety functions.

All installation, maintenance and repair work must be documented in writing in an inspection log.

WARNING

Tampering with a defective door system by unqualified persons can lead to serious injuries

Using a defective door system can lead to serious personal injury and damage to property.

SAFETY INSTRUCTIONS FOR HAZARD AVOIDANCE

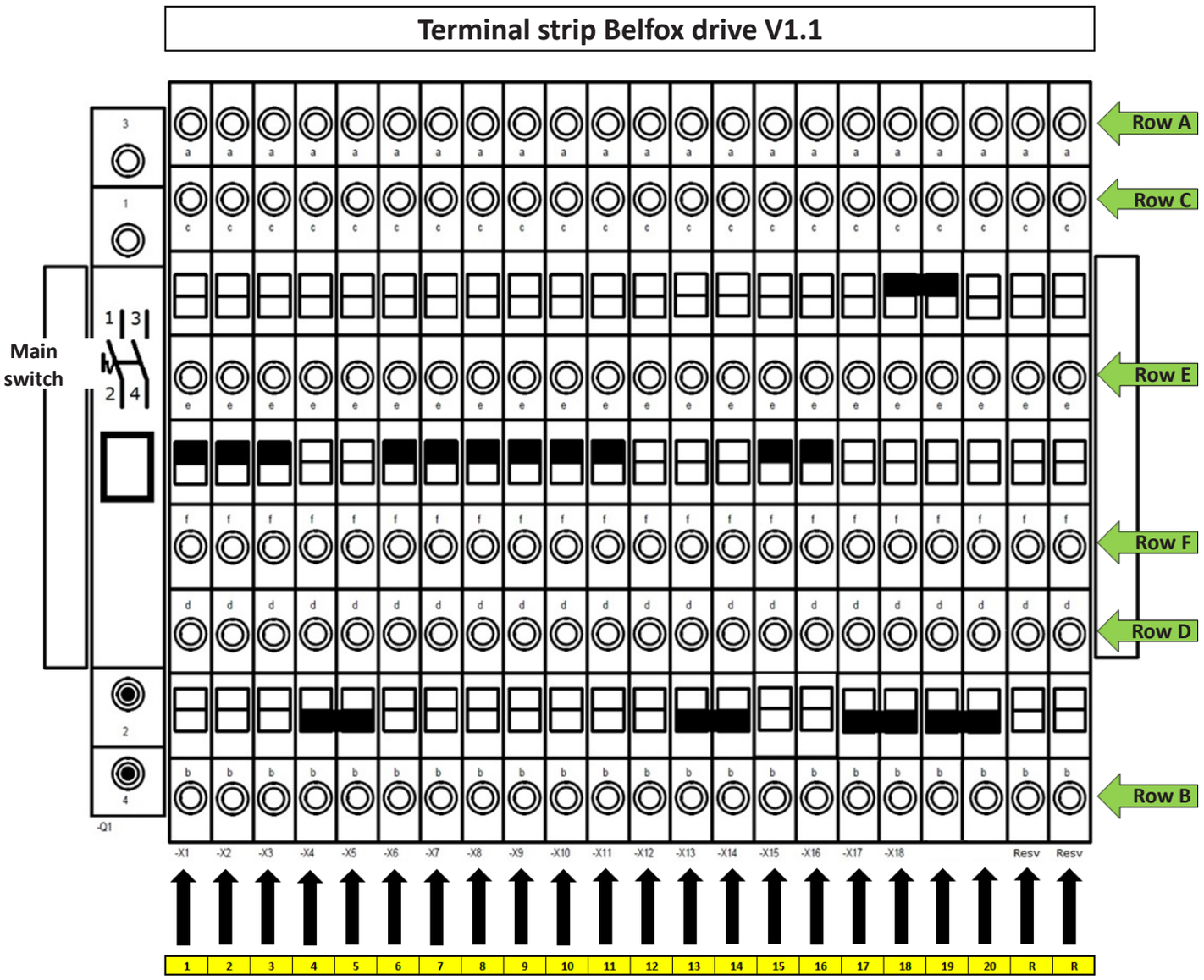
- In the event of malfunctions or incorrect operation, the mains plug must be disconnected immediately.
- Repairs may only be carried out by authorized persons!
- Any faults and/or defects must be rectified immediately and completely!
- An attempt by an unqualified person to repair or otherwise intervene in a defective door system can result in serious injury!
- Disconnect the door system from the power supply before carrying out any work and secure the door system against unauthorized restarting

To arrange for the door system to be checked or maintenance work to be carried out, contact your specialist dealer (see chapter 5 of the user manual).

5.14. Technical data

Operating voltage:	230V AC 50Hz / 24V AC 50 Hz / 24V DC +10% / - 15%
Power consumption:	Quiescent operation 24V 60mA with HF-module
Output: Engine 180T ALU-Slide ECO Engine 180T ALU-Slide Avant Engine 250T ALU-Slide Avant Engine 320T ALU-Slide ECO Engine 500T Speed ALU-Slide ECO Engine 500T Speed ALU-Slide Avant	Engine 24V DC Primary transformer 230V AC Light output 230V max. 100W Warning light output 230V AC max. 100W Light + Warning light + Power consumption of the motor (depending of gate weight) = max. 150Watt 24V DC max. 4A unstabilised, via terminal strip on connection board max. 1A stabilised (Clamps 2-3) 24V DC max. 500mA stabilised 24V DC 18cm/sec 75W 1100N Duty cycle 80% [316] 24V DC 18cm/sec 75W 1100N Duty cycle 80% [395] 24V DC 25cm/sec 130W 1300N Duty cycle 90% [205] 24V DC 32cm/sec 150W 800N Duty cycle 80% [400] 24V DC 50cm/sec 150W 800N Duty cycle 80% [205] 24V DC 50cm/sec 150W 800N Duty cycle 80% [300]
Inputs:	230V AC Trafo secundary 24V AC or battery 24V DC Impuls (pot.-free closer) Open (pot.-free closer) Close (pot.-free closer) Partial opening (pot.-free closer) Light barrier (pot.-free opener) Stop (pot.-free opener) Safety input 1 (8,2kΩ / OSE) Safety input 2 (8,2kΩ / OSE) Reference switch / reed contact (pot.-free opener) Antenna connection
Radio:	15-pin socket strip for plugging in a radio module
Operating temperature:	Ambient temperature electronics -20°C to +50°C at max. 5,5A motor current with 80sec. running time. The running time is reduced at higher currents

5.15. Terminal strip



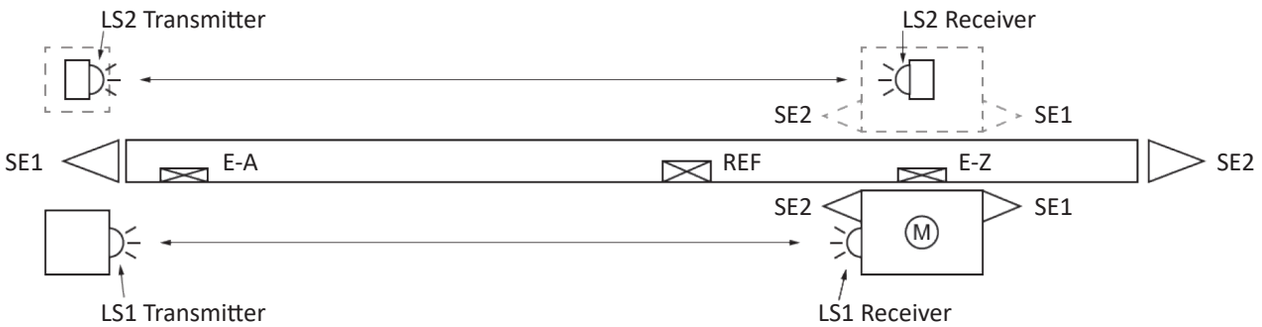
ALUCONNECT

5.16. Description of the terminal strip

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	R	R

Term.	Row			Description	Display	Wire color	
1	B	D	F	Earth PE			
2	B			24V DC + max 1A to terminal 2-3 Stabilized			
2		D		24V DC + max 1A to terminal 2-3 Stabilized			
2			F	24V DC + max 1A to terminal 2-3 Stabilized			
3	B			24V DC - max 1A to terminal 2-3 Stabilized			
3		D		24V DC - max 1A to terminal 2-3 Stabilized			
3			F	24V DC - max 1A to terminal 2-3 Stabilized			
4	B			COM lighting -	X	Brown	
4		D		LED White +	X	White	
4			F	***FREE***			
5	B			COM lighting -			
5		D		LED Red +	X	Green	
5			F	***FREE***			
6	B	D	F	COM (Impulse) Din Left = EA / Din Right = EZ	EA / EZ	White	
7	B	D	F	Control system Close (NO)	C	Brown	
8	B	D	F	Control system Open (NO)	B	Green	
9	B	D	F	Contr. partial opening (NO) Din Left = EA / Din Right = EZ	D EA / EZ		
10	B	D	F	COM (1 Button control)			
11	B	D	F	1 Button control Open / Stop / Close (NO)	A		
12	B			COM Stop			
12		D		Stop (NC)	STP		
12			F	Reference switch Din Left = EZ / Din Right = EA	EZ / EA	Brown	
13	B			COM IR 1	LS1	Yellow	R
13		D		IR 1 (NC)	LS1	Grey	R
13			F	Reference switch Din Left = EZ / Din Right = EA	EZ / EA	Black	
14	B			COM IR 2	LS2	Yellow	R
14		D		IR 2 (NC)	LS2	Grey	R
14			F	***FREE***			
15	B			24 V DC + Only for IR max 0,5A to terminal 15-16	LS1	Brown	R
15		D		24 V DC + Only for IR max 0,5A to terminal 15-16	LS2	Brown/Pink	R
15			F	24 V DC + Only for IR max 0,5A to terminal 15-16	LS1 + LS2		T
16	B			24 V DC - Only for IR max 0,5A to terminal 15-16	LS1	Blue	R
16		D		24 V DC - Only for IR max 0,5A to terminal 15-16	LS2	Blue	R
16			F	24 V DC - Only for IR max 0,5A to terminal 15-16	LS1 + LS2		T
17	B			COM Transmission system personprotection - Close direction	SE1	White	
17		D		Transmission system person-protection - Close direction (NC)	SE1	Pink	
17			F	***FREE***			
18	B			COM Person-protection - Close direction	SE1	Blue	
18		D		Person-protection - Close direction (NC)	SE1	Brown	
18			F	***FREE***			
19	B			COM Transmission system personprotection - Open direction	SE2	Yellow	
19		D		Transmission system person-protection - Open direction (NC)	SE2	Green	
19			F	***FREE***			
20	B			COM Person-protection - Open direction	SE2	Blue	
20		D		Person-protection - Open direction (NC)	SE2	Brown	
20			F	***FREE***			
21	B	D	F	Potentially free contact			
21	B	D	F	Potentially free contact			

5.17. Overview of safety device positions and display message

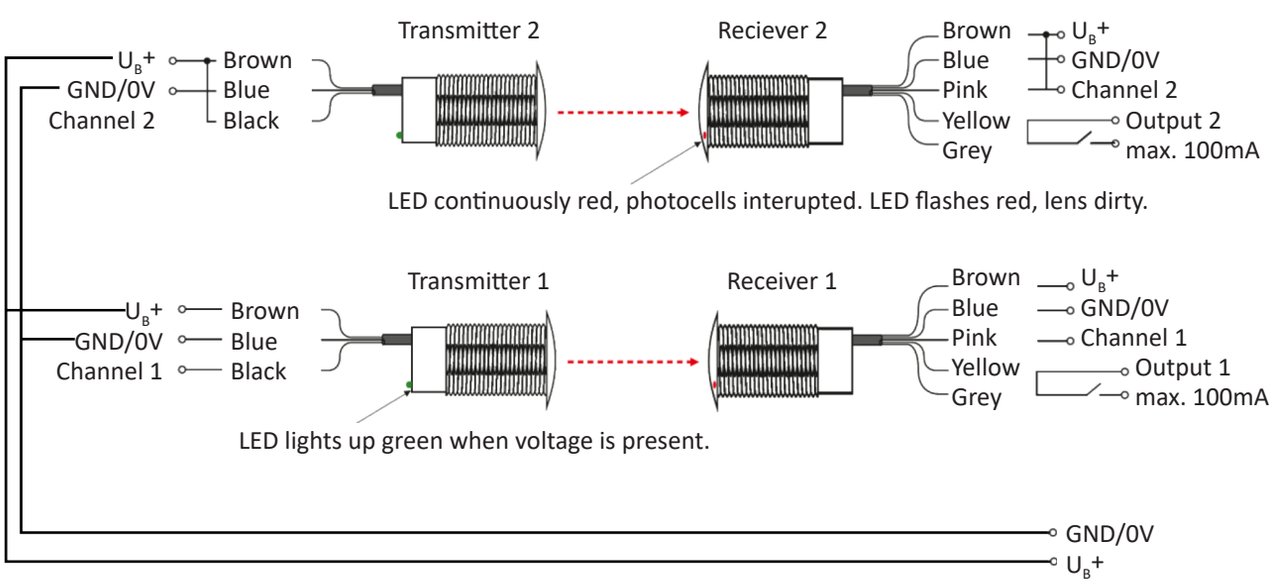


Display messages

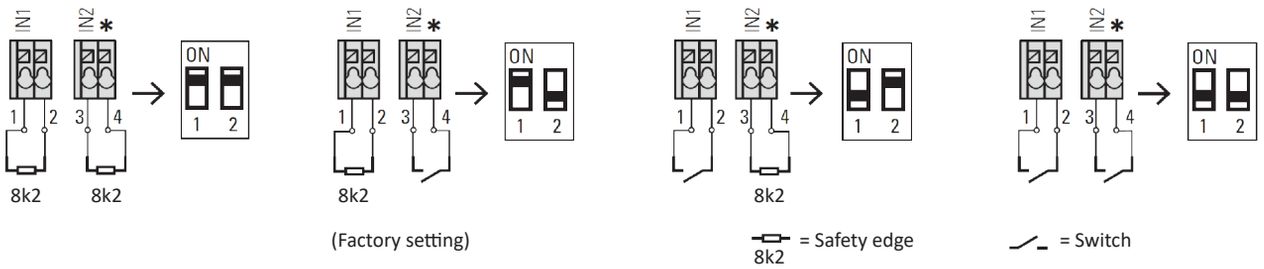
LS1	Light barrier Motor side	A	1-button operation	SE1	Personal protection Close
LS2	Light barrier Outside	B	Control system Open	SE2	Personal protection Open
		C	Control system Close		
E-A	Endcontact Open	D	Partial opening	REF	Reference switch
E-Z	Endcontact Close	STP	Stop		

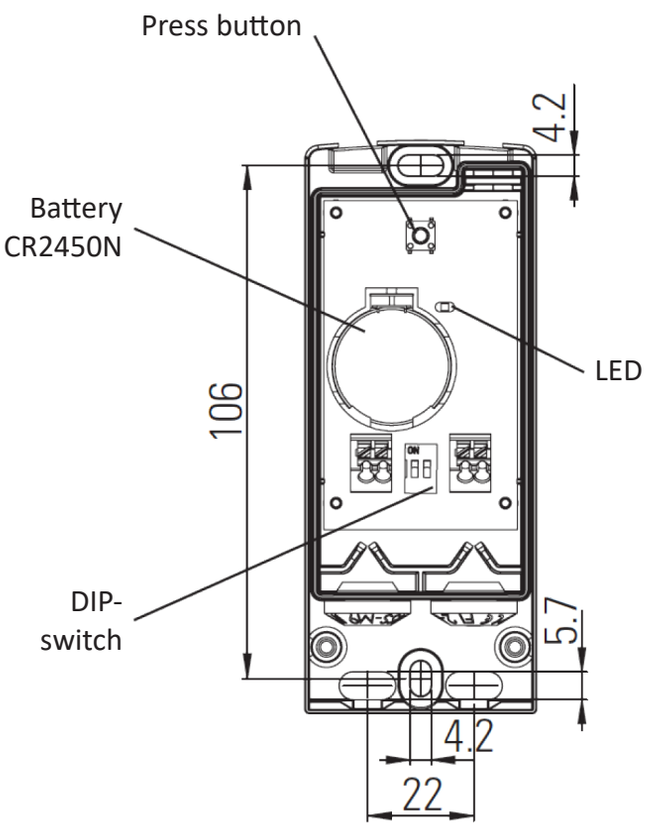
5.18. Connection of the Photocells

Connection and definition of channels IR 6013-E

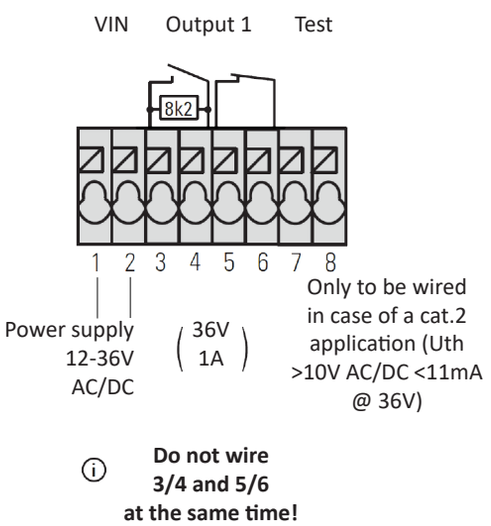


5.19. Bircher transmitter

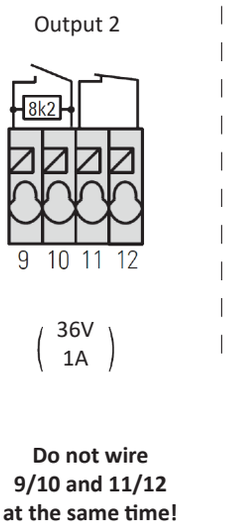




5.20. Bircher receiver



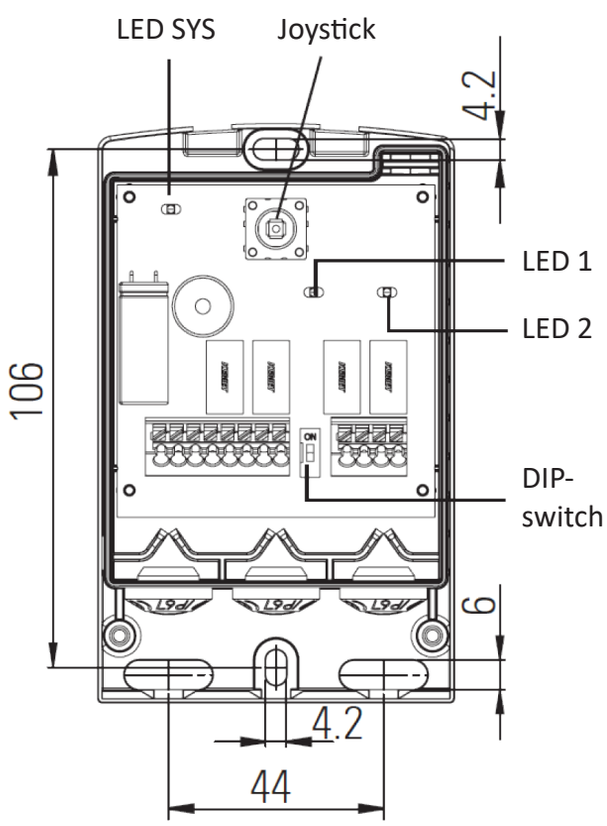
ⓘ **Do not wire 3/4 and 5/6 at the same time!**



ⓘ **Do not wire 9/10 and 11/12 at the same time!**

DIP switch test input		
ON 1		Low active
ON 1	*	High active

* = Factory settings



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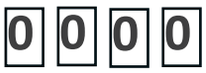
6. Pin-code

6.1. Pin



A four-digit PIN can be used to lock the control unit menu against unauthorized changes by third parties. Entering four times zero as the PIN deactivates the PIN lock.

After a RESET of the control unit or after restarting after a power failure or after 20 minutes after unlocking the control unit menu, if no other key has been pressed, the menu will be locked if a PIN other than four times zero has been entered.

6.2. Unlock

To unlock the control unit menu, the current PIN must be entered.

Use the “+” key or the “-” key to change the digit between 0 and 9 for the four digits of the PIN. Press the “RET” key to accept the set digit and enter the next digit of the PIN. If the four digits of the PIN are entered correctly, the menu is unlocked and changes can be made.

Press the ESC key to correct the previous PIN digit or to exit the menu.

6.3. Locking

Confirm the “lock” menu item with the RET key. The menus are now locked against modification. Only the set values can be read out.

6.4. Input

To enter a PIN, the control unit menu must be unlocked. If the control unit menu is locked with a PIN, the menu must first be unlocked.

To lock the control unit menu, a PIN other than four times zero must be entered. If four times zero is entered as a PIN, the PIN lock is deactivated and the control unit menu cannot be locked.

The “+” key or the “-” key can be used to change the digit between 0 and 9 for the four digits of the PIN. With the RET key, the set digit is accepted and the next digit of the PIN can be entered. If the four digits of the PIN were entered correctly, this four-digit PIN is valid and the control unit menu can be locked via the previous menu item.

The ESC key can be used to correct the previous PIN digit or to exit the menu without changing the PIN.

7. Notes

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V25.03

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