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## 2. Information in this document

### Original operating instructions

- Copyright.
- No part of these instructions may be reproduced without our prior approval.
- Subject to alterations in the interest of technical progress.
- All dimensions given in mm.
- The diagrams in this manual are not to scale.

### Key to symbols

#### **DANGER!**

Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

#### **WARNING!**

Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

#### **CAUTION!**

Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

#### **ATTENTION!**

Indicates an imminent danger of damage or destruction.

#### **CHECK**

Indicates a check to be performed.

#### **REFERENCE**

Reference to separate documents which must be complied with.

 Action request

- List, itemisation


→ Reference to other sections of this document

### 3. General safety instructions

GB

#### **DANGER!**

**Failure to comply with the documentation could result in life-threatening danger!**

 Be sure to follow all the safety instructions in this document.

#### **Warranty**

The function and safety of the equipment is only guaranteed if the warning and safety instructions included in these operating instructions are adhered to.

MFZ Antriebe GmbH + Co. KG is not liable for personal injury or damage to property if these occur as a result of the failure to observe the warnings and safety notices.

MFZ does not accept any liability or warranty for damage due to the use of non-approved spare parts and accessories.

#### **Use for the intended purpose**

The CS 300 control is only intended for controlling door systems with the use of operators with an electronic end position system (AWG absolute value encoder).

#### **Target group**

Only qualified and trained electricians may connect, programme and service the control.

Qualified and trained electricians must meet the following requirements:

- knowledge of the general and specific safety and accident prevention regulations,
- knowledge of the relevant electrical regulations,
- training in the use and care of appropriate safety equipment,
- capable of recognising the dangers associated with electricity.

#### **Instructions regarding installation and connection**

- The control is designed with X type terminals.
- The system must be disconnected from the electricity supply before carrying out any electrical work. It must be ensured that the electricity supply remains disconnected for the duration of the work.
- Local protective regulations must be complied with.
- Consult the manufacturer before carrying out modifications or replacing the mains connection cable.

#### **Information concerning operation**

- Unauthorised persons (particularly children) should not be allowed to play with permanently installed adjusting or control devices.
- Keep remote controls beyond the reach of children.

#### **Regulations and bases for testing**

For connecting, programming and servicing, the following regulations must be observed (the list is not exhaustive).

##### Construction product standards

- EN 13241-1 (Products without fire resistance or smoke control characteristics)
- EN 12445 (Safety in use of power operated doors - Test methods)
- EN 12453 (Safety in use of power operated doors - Requirements)
- EN 12978 (Safety devices for power operated doors and gates - Requirements and test methods)

##### EMC

- EN 55014-1 (Radio disturbance, household appliances)
- EN 61000-3-2 (Disturbances in supply systems - harmonic currents)
- EN 61000-3-3 (Disturbances in supply systems - voltage fluctuations)
- DIN EN 61000-6-2 (Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environments)
- DIN EN 61000-6-3 (Electromagnetic compatibility (EMC) - Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments)

##### Machinery Directive

- EN 60204-1 (Safety of machinery, electrical equipment of machines; Part 1: General requirements)
- EN ISO 12100 (Safety of machinery – general principles for design - risk assessment and risk reduction)

## General safety instructions

Low voltage

- DIN EN 60335-1 (Household and similar electrical appliances - Safety - Part 1: General requirements)
- DIN EN 60335-2-103 (Household and similar electrical appliances - Safety - Part 2-103: Particular requirements for drives for gates, doors and windows)

Committee for Workplaces (Ausschuss für Arbeitsstätten - ASTA)

- ASR A1.7 (Technical Regulations for workplaces - Doors and gates)

## 4. Product overview

### 4.1 Versions

The following package options are available for the CS 300 control:

- CS 300 control with LCD monitor
- CS 300 control with LCD monitor in housing
- CS 300 control with LED module for setting the OPEN end position and the CLOSED end position (no other settings are possible)
- CS 300 control without LED module and without LCD monitor (module or monitor is needed for settings)

All the above versions can be fitted with a plug-in weekly timer and a plug-in radio receiver.

The following options are available for the housing:

- Housing unit with 3-button input unit CS
- Housing unit with 3-button input unit KDT
- Housing with ON/OFF key switch
- Housing with main switch
- Housing with emergency stop switch

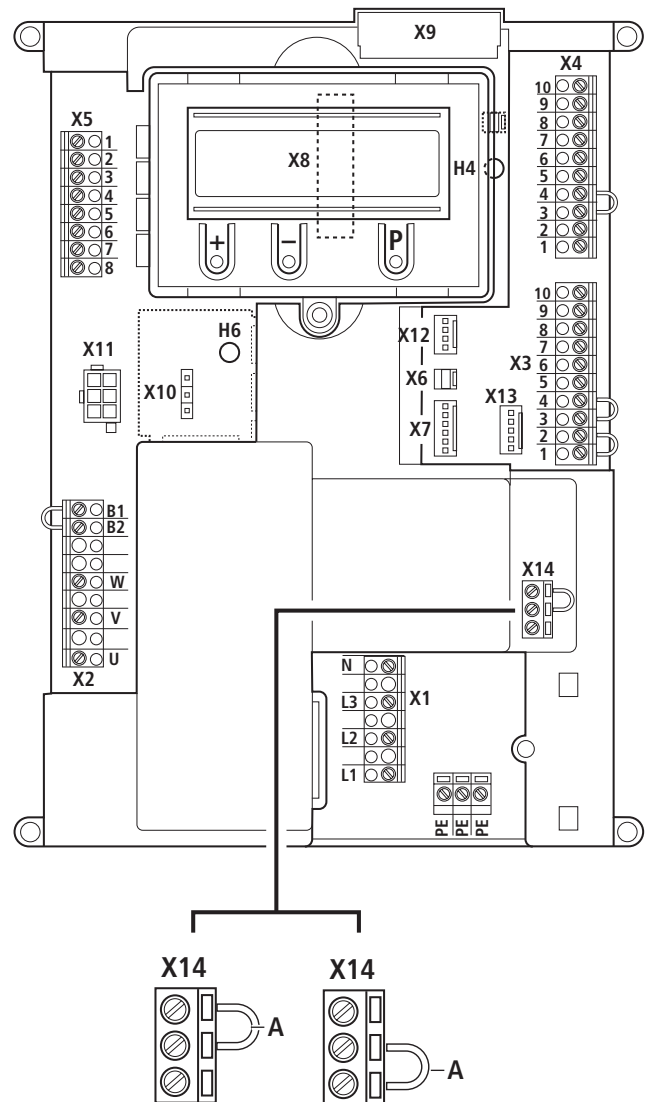
These operating instructions describe the different connection options and the programming of variants:

- CS 300 control with LED module
- CS 300 control with LCD monitor
- Software version 5.6 B

## 4.2 Motherboard CS 300 (with plugged-in LCD monitor)

### Key:

- X1: Terminal block for mains connection
- X2: Terminal block for motor
- X3: Terminal block for command devices
- X4: Terminal block for safety elements
- X5: Terminal block for relay
- X6: Sockets for internal ON-OFF switch
- X7: Sockets for internal 3-button input unit
- X8: Sockets for LCD monitor  
(under the LCD monitor)
- X9: Sockets for radio receiver
- X10: Sockets for weekly timer
- X11: Sockets for digital end position system
- X12: Sockets for external radio receiver
- X13: Sockets for CS three-button input unit
- H4: Closing edge safety device status indicator (green)  
ON if closing edge safety device operational
- H6: Safety circuit status indicator (amber)  
ON if safety circuit closed
  
- S1: Programming button (+)  
(on the LCD monitor)
- S2: Programming button (-)  
(on the LCD monitor)
- S3: Programming button (P)  
(on the LCD monitor)



- A The position of the jumper must take into account the power supply voltage and the motor voltage.

## 5. Initial operation

### 5.1 General

To guarantee that the equipment functions properly, it must be ensured that:

- The door is installed and operational.
- The MFZ operator motor is installed and ready for operation.
- The command and safety devices are installed and ready for operation.
- The control housing with the CS 300 control is installed.

#### REFERENCE

The relevant manufacturers' instructions must be adhered to for the installation of the door, the MFZ motor, and the command and safety devices.

### 5.2 Mains connection

#### Preconditions

To guarantee that the control unit functions properly, the following points must be ensured:

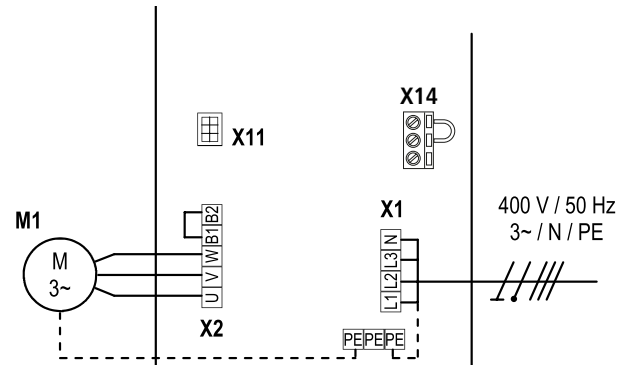
- The mains voltage must correspond to the voltage stated on the type plate.
- The mains voltage must be the same as the voltage of the operator.
- For three-phase current, a clockwise rotating field is required.
- For a permanent connection, an all-pole main switch must be used.
- For a three-phase connection, only 3-way automatic circuit breakers (10 A) may be used.

#### ATTENTION!

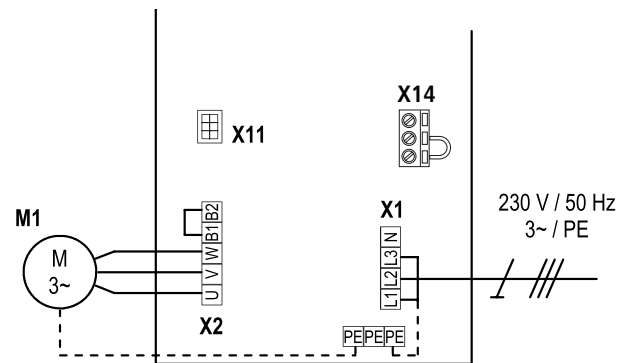
#### Malfunctions can occur as a result of incorrect installation of the control!

Before switching on the control for the first time, a check must be carried out after completing the wiring to ensure that all the motor connections at the motor and at the control is securely fixed. All control voltage inputs are galvanically isolated from the supply.

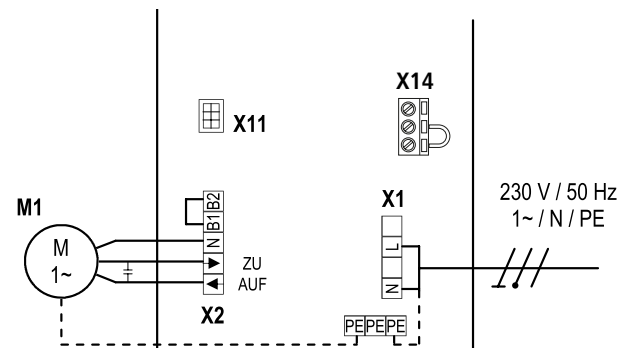
Detailed circuit diagram for mains connection and motor connection (400 V / three phase)



Detailed circuit diagram for mains connection and motor connection (230 V / three phase)



Detailed circuit diagram for mains connection and motor connection (230 V / single phase)



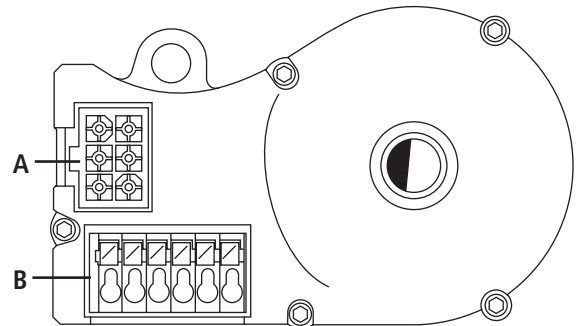
**Key:**

- M1: Motor
- X1: Terminal block for mains connection
- X2: Terminal block for motor
- X11: Sockets for digital end position system with safety circuit (SAFETY CIRCUIT)
- X14: Terminal block for voltage selection

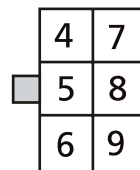
**Connection:**

- ☞ Connect the digital end position system to the control.
- ☞ Connect the control to the motor.
- ☞ Connect the control to the mains power supply.
- ☞ Cable groups must be secured directly before their relevant terminals using a cable tie.

→ "11. Technical data" on page 28

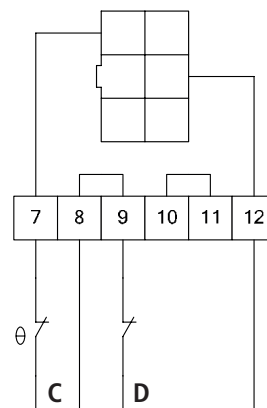
**5.3 Allocation of connections for absolute value encoder (sockets X11)**


- A: AWG plugs
- B: AWG plug terminal

**X11 sockets (at connection A)**


The numbers on the plug are also the wire numbers:

- 4: Safety circuit input
- 5: RS 485 B
- 6: GROUND
- 7: RS485 A
- 8: Safety chain output
- 9: 12V<sub>DC</sub>

**Sockets B (absolute value encoder only)**


- C: Thermal element in door operator
- D: Emergency manual operation (emergency hand crank or emergency hand chain)

## Initial operation

### 5.4 Connection of command devices

#### CAUTION!

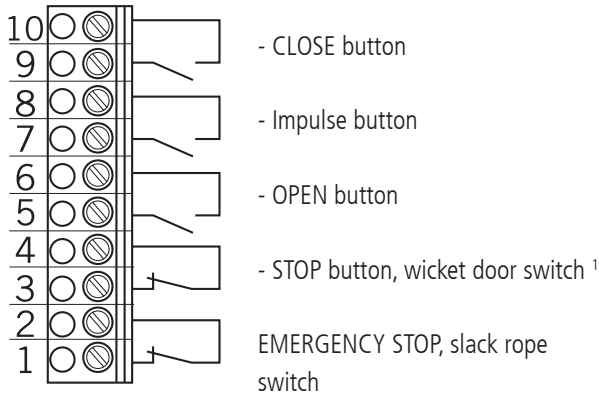
##### **Danger of injury due to uncontrolled movement of the door!**

☞ Install command devices for deadman operation in direct sight of the gate, but outside the danger area for the user.

If the command device is not a key switch:

- ☞ Install it at a height of at least 1.5 m off the ground.
- ☞ Install it so as to make it inaccessible to the general public.

#### Terminal block X3

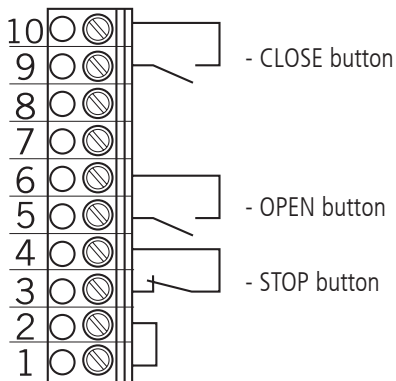


<sup>1</sup> Wicket door switch only possible as a contact with positive separation.

### 5.5 Connection examples for command devices (terminal block X3)

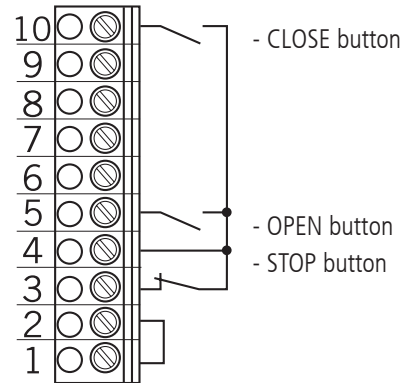
#### OPEN / STOP / CLOSE buttons

6-lead solution

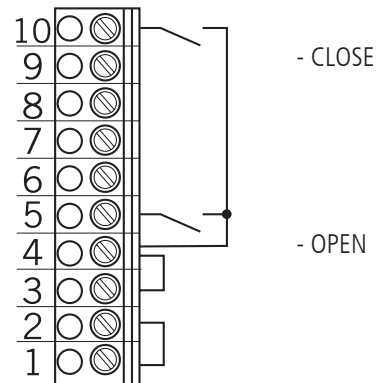


#### OPEN / STOP / CLOSE buttons

4-lead solution

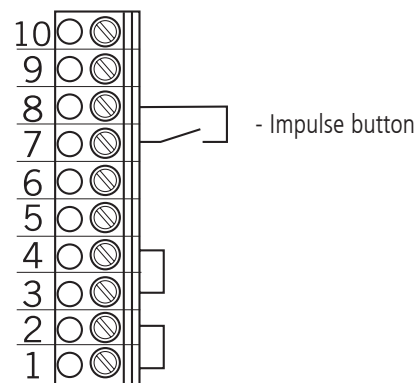


#### Key switch OPEN / CLOSE



#### Impulse button

sequence control

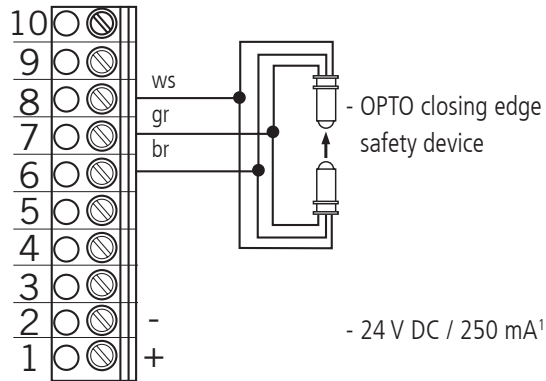




## 5.6 Connection of closing edge safety device

### Terminal block X4

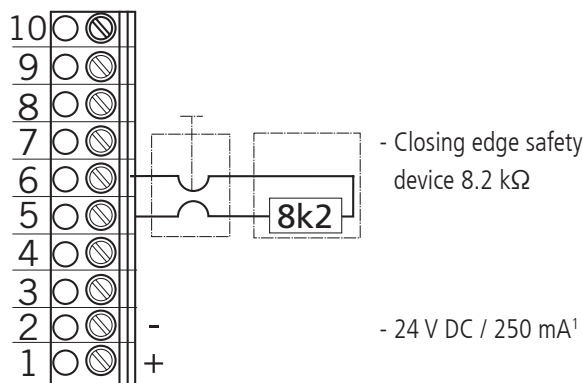
Opto-electronic closing edge safety device



ws: white  
gr: green  
br: brown

### Terminal block X4

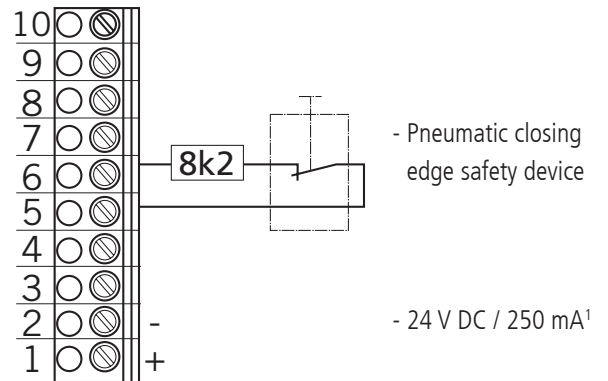
Electrical closing edge safety device (8.2 k $\Omega$ )



<sup>1</sup> for external switching devices  
(connection to terminals 1 and 2)

### Terminal block X4

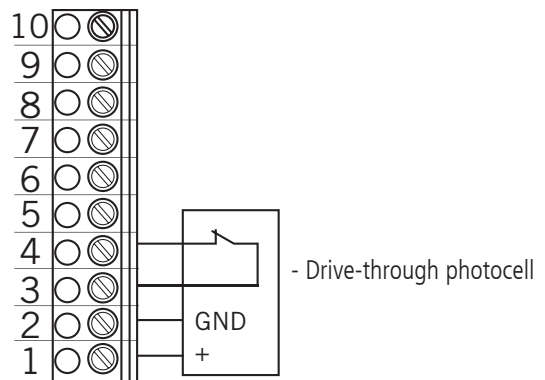
Pneumatic closing edge safety device (pressure sensor test)



## 5.7 Photocell connection (effective in down direction)

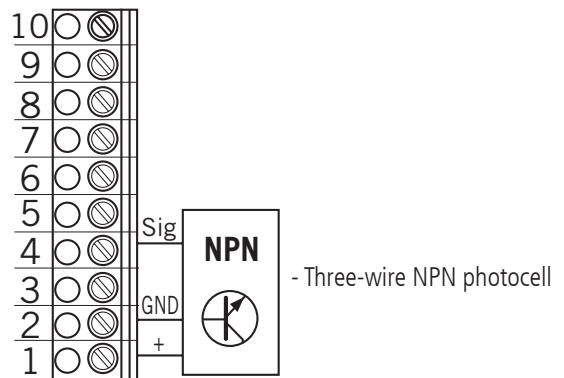
### Terminal block X4

Photocell NC



### Terminal block X4

Three-wire NPN photocell



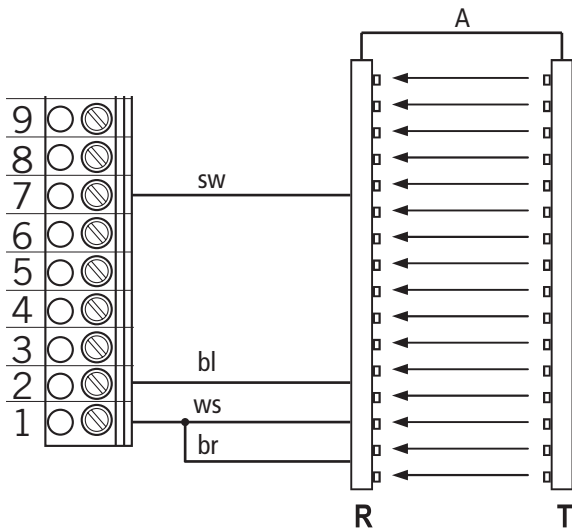
## Initial operation

### 5.8 Light curtain connection

#### Terminal block X4

**Light curtain OSE** (optosensor) (parameter PRESS/REL = MOD4)

The connecting cable (A) can be plugged in.



br: brown  
bl: blue  
sw: black  
ws: white

R: Receiver  
T: Transmitter

#### NOTICE:

The light curtain shown as an example in these instructions is the RAY-LG, manufactured by FRABA/CEDES.

RAY-LG 25xx OSE

No testing is required for the RAY-LG 25xx OSE light curtain.

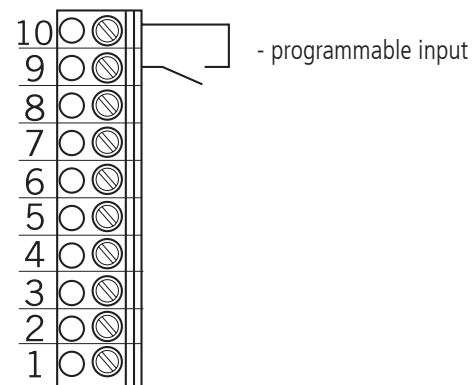
Drawings from other manufacturers are available on request.

### 5.9 Connection of programmable inputs

The CS 300 control has one programmable input for which various functions can be selected.

→ "9.2 Input operating mode"

#### Terminal block X4

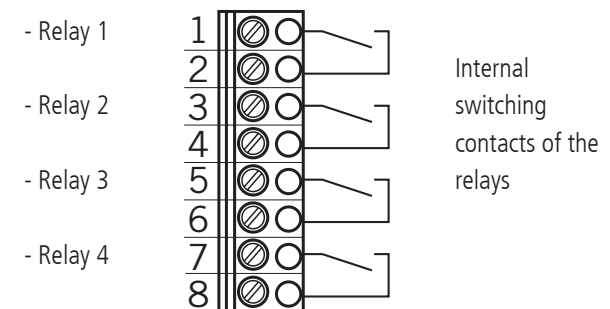


### 5.10 Connection arrangement for relay outputs

There are four potential-free relay outputs available that can be programmed with various types of functions.

→ "9.2 Input operating mode"

#### Terminal block X5

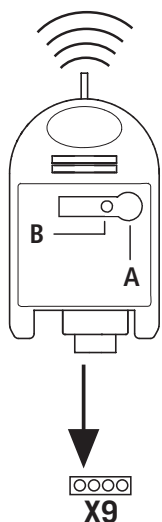


These four relay outputs are potential-free and have a maximum capacity of 4A at 230V/1~.

The type of function depends on the parameter setting for the corresponding relay output in INPUT mode.

## 5.11 Connection for CS radio

### Terminal block X9



#### Connection

✎ Insert the plug-in receiver into plug-in socket X9.

#### Teaching-in the transmitter codes

✎ Press the programming button (A) and hold for more than 1.6 seconds. The programming mode is activated. The LED (B) flashes.

✎ Press the channel button on your transmitter.

Once the remote control has saved the transmitter code, the LED lights up for approximately 4 seconds.

It is possible to teach-in up to 15 transmitter codes. If all memory spaces are full, the LED flashes rapidly.

#### Selectively deleting a transmitter code

✎ Press the programming button (A) and hold for more than 1.6 seconds. The programming mode is activated. The LED (B) flashes.

✎ Keep pressing the programming button. The delete mode is activated. The LED flashes very fast.

✎ Press the required channel button on your transmitter. When the LED lights up for approximately 4 seconds, the transmitter code in question has been deleted.

The deletion procedure can be cancelled by briefly pressing the programming button.

#### RESET (DELETE ENTIRE MEMORY)

✎ Press the programming button (A) and hold for more than 1.6 seconds. The programming mode is activated. The LED (B) flashes.

✎ Keep pressing the programming button. The delete mode is activated. The LED flashes very fast.

✎ Press the programming button again for more than 1.6 seconds. When the LED lights up for approximately 4 seconds, all of the memory spaces have been deleted.

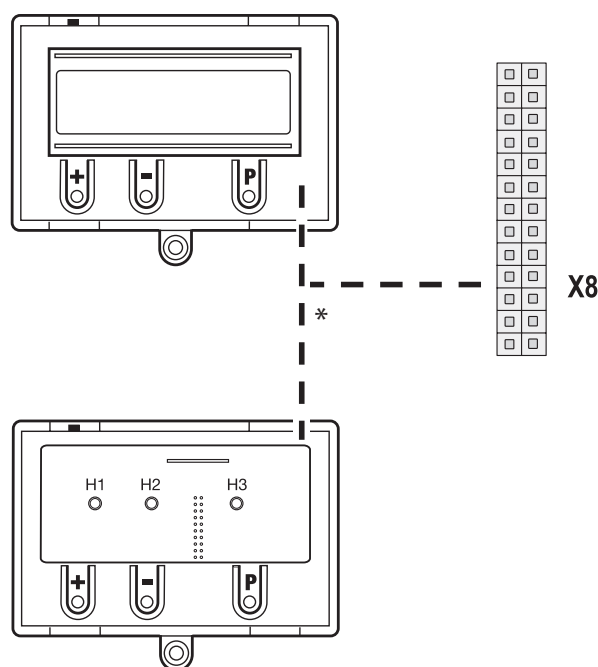
The deletion procedure can be cancelled by briefly pressing the programming button.

## 5.12 Connection for LCD monitor / LED module

With the LCD monitor, you have complete access to all of the menu settings and parameters of the control unit.  
→ "7. Programming"

The LED module can only be used to set the two end positions.  
→ "7. Programming"

### Plug-in socket X8



\* either/or

#### **ATTENTION!**

#### **Damage can occur through improper installation!**

The mains power supply must be switched off before connecting the display unit. Only an LCD monitor (art. no. 206023) or LED module (art. no. 590045) made by MFZ can be used.

## 6. Setting the end positions


### 6.1 Setting the electronic end position system using the LED module

#### **ATTENTION!**



##### **Damage to property or irreparable damage due to incorrect installation!**

The power supply must be switched off before connecting the monitor. Only an MFZ LED module (article number 590045) may be used.




#### **Changing to adjustment mode**

-  Press button (P) for approx. 2 seconds.  
At least one of the red LEDs is flashing.

#### **Set the OPEN end position**

-  Press the (+/–) buttons to move the door/gate to the desired OPEN end position.  
During the opening run, both red LEDs flash.
-  Save the end position setting by pressing button (P) and by additionally pressing the (+) button.  
The red LED H1 remains on all the time, while the red LED H2 continues to flash.

#### **Set the CLOSED end position**

-  Press the (+/–) buttons to move the door/gate to the desired CLOSED end position.  
During the closing run, both red LEDs flash.
-  Save the end position setting by pressing button (P) and by additionally pressing the (–) button.  
The red LED H2 remains on all the time, while the red LED H1 continues to flash.
-  Exit ADJUSTMENT mode by pressing button (P) again.  
Neither of the red LEDs flashes.

#### **Please note**

- ADJUSTMENT mode is not exited automatically. To return to normal operating mode, ADJUSTMENT mode must be exited by pressing button (P).
- When carrying out adjustments for the first time, it is necessary to teach-in both end positions. Otherwise, normal operation will not be possible.
- If an end position is corrected, the ADJUSTMENT mode can be exited by pressing button (P) once the teaching-in of the special end position has been completed.

### 6.2 Setting the electronic end position system using the LCD monitor

#### **ATTENTION!**



##### **Damage to property or irreparable damage due to incorrect installation!**

The power supply must be switched off before connecting the monitor. Only an MFZ LCD display unit (article number 206023) may be used.




#### **Changing to adjustment mode**

-  Press button (P) until ADJUSTMENT appears.

#### **Set the OPEN end position**

-  Press the (+/–) buttons to move the door/gate to the desired OPEN end position.  
During the opening run, “MAIN UP” appears in the display.
-  Save the end position setting by pressing button (P) and by additionally pressing the (+) button.  
“SAVE UP” appears in the display.

#### **Set the CLOSED end position**

-  Press the (+/–) buttons to move the door/gate to the desired CLOSED end position.  
During the closing run, “MAIN DOWN” appears in the display.
-  Save the end position setting by pressing button (P) and by additionally pressing the (–) button.  
“SAVE DOWN” appears in the display.
-  Exit ADJUSTMENT mode by pressing button (P) again.

#### **Please note**

- ADJUSTMENT mode is not exited automatically. To return to normal operating mode, ADJUSTMENT mode must be exited by pressing button (P).
- When carrying out adjustments for the first time, it is necessary to teach-in both end positions. Otherwise, normal operation will not be possible.
- If an end position is corrected, the ADJUSTMENT mode can be exited by pressing button (P) once the teaching-in of the special end position has been completed.

### 6.3 Setting the intermediate positions of the electronic end position system using the LCD monitor

#### In AUTOMATIC mode, move the door/gate to the desired position

- ☞ Press the (+/-) button to move the door to the desired intermediate position (S-POINT1 or S-POINT2).

#### Changing to ADJUSTMENT mode

- ☞ Press button (P) until ADJUSTMENT appears.
- ☞ Reading out the current AWG value (shown in the top right hand of the display)

#### Changing to INPUT mode

- ☞ Press button (P) until INPUT appears.
- ☞ Press buttons (+) and (-) at the same time for longer than 2 seconds. The first parameter appears in the second line of the display.

#### Saving the intermediate OPEN (S-POINT1) or CLOSE (S-POINT2) positions

- ☞ Press the (+/-) buttons until the parameter S-POINT1 or S-POINT2 appears.
- ☞ Press button (P) until a flashing cursor appears in the display.
- ☞ Entering the current AWG value.
- ☞ Save the intermediate position by pressing button (P) again.

#### Exiting INPUT mode

- ☞ Press buttons (+) and (-) at the same time for more than 1 second.  
Input mode is exited.

#### Changing to automatic mode

- ☞ Press button (P) until AUTOMATIC appears.

#### Please note

- Both intermediate positions can be read out via the relay outputs and further processed.
- Only the S-POINT1 position can be reached as a part opening run.
- "9.2 Input operating mode"

### 6.4 Checking the direction of rotation/ direction of travel

#### Changing to adjustment mode

- ☞ Press button (P) until ADJUSTMENT appears in the display (LCD monitor) or at least one of the red LEDs flashes (LED module).

#### Checking the direction of travel

- ☞ Press the (+) button. The door should open.
  - ☞ Press the (-) button. The door should close.
- If correct, continue with setting the end positions.  
If not, change the direction of travel.

#### Changing the direction of travel

If the direction of rotation needs to be changed, proceed as follows.

- ☞ Disconnect the power supply.
- ☞ Change over the two phases of the supply cable.
- ☞ Switch the power supply back on.  
Any end positions that have been saved will be deleted.
- ☞ Continue with setting the end positions.

### 6.5 RESET

The RESET function allows you to return the control parameters to the original factory settings.

- ☞ Disconnect the power supply.
- ☞ Press buttons (+) and (-) at the same time.
- ☞ Switch the power supply back on.
- ☞ Continue to press buttons (+) and (-) at the same time for about 5 seconds.  
ADJUSTMENT appears in the LCD monitor display, and in the LED module, the two red LEDs flash.  
→ The system is currently in adjustment mode.
- ☞ Let go of buttons (+) and (-).

After carrying out the RESET, the end positions have been deleted and must be set again.

All parameters are reset to the original factory settings.

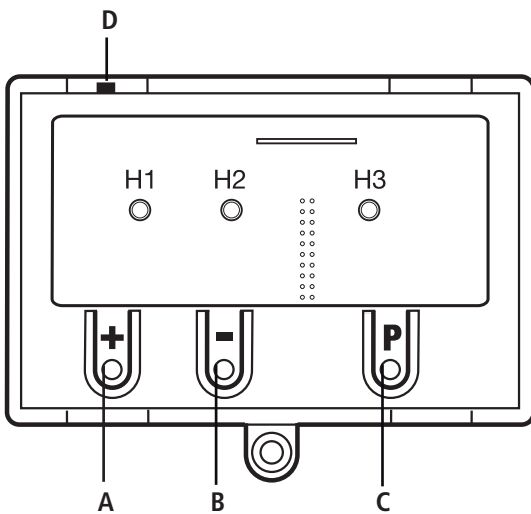
## 7. Programming

### 7.1 Overview of LED module




#### **⚠ ATTENTION!**

#### **Damage can occur through improper installation!**

The mains power supply must be switched off before connecting the display unit. Only an MFZ LED module (article number 590054) may be used.



#### **Key:**

A: Button (+)		LED off
B: Button (-)		LED lit up
C: Button (P)		LED flashing
D: Jumper		
H1: LED red		
H2: LED red		
H3: LED green		

If jumper H is removed, the (+) button, the (-) button and the (P) button have no function.  
The LED indicator still functions.

### 7.2 LED module operating modes

The control has four modes of operation with the LED module:

1. AUTOMATIC
2. ADJUSTMENT

The operating mode that the control is operating in is shown by the LEDs.









- In AUTOMATIC mode there is no LED flashing.
- In ADJUSTMENT mode at least one LED is flashing.

By pressing button (P), it is possible to change between operating modes.

#### **Operating mode 1: AUTOMATIC**

The door/gate system is operated in AUTOMATIC operating mode.

LED indicators:

H1	H2	Status
		The door/gate is open. The programmed OPEN end position has been reached.
		The door/gate is closed. The programmed CLOSED end position has been reached.
		The door/gate is in the intermediate position. No end position reached.
		The door has been moved beyond the CLOSED/ OPEN end position.

#### **Operating mode 2: ADJUSTMENT**







ADJUSTMENT mode is used for setting the OPEN/CLOSED end positions.

#### **⚠ ATTENTION!**

#### **Malfunctions can occur as a result of incorrect operation of the control!**

In ADJUSTMENT mode, the door will not stop automatically when it reaches the end position if an electronic end position system (AWG) is used. The door can be damaged if it is moved beyond the end position.

LED indicators:

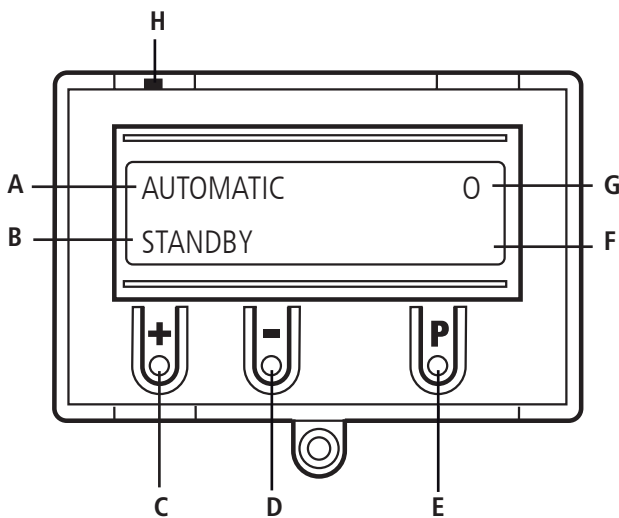
H1	H2	Status
		The OPEN end position has been programmed in this door position.
		The CLOSED end position has been programmed in this door position.
		The OPEN and CLOSED end position has not been programmed in this door position.

### 7.3 Overview of the LCD monitor

#### **ATTENTION!**

##### **Damage can occur through improper installation!**

The mains power supply must be switched off before connecting the display unit. Only an MFZ display unit (article number 206023) may be used.



#### **Key:**

- A: Mode of operation / Diagnostics info
- B: Parameters / Diagnostics info
- C: Button (+)
- D: Button (-)
- E: Button (P)
- F: Value / Status
- G: Value / Status
- H: Jumper

If jumper H is removed, the (+) button, the (-) button and the (P) button have no function.

The display still functions.

### 7.4 LCD monitor, modes of operation

The control has four modes of operation with the LCD monitor:

1. AUTOMATIC
2. ADJUSTMENT
3. INPUT
4. DIAGNOSIS

#### **Operating mode 1: AUTOMATIC**

The door system is operated in the AUTOMATIC operating mode.

Display:

- Displays the action being carried out
- Displays any error messages

If the "PRESS/REL" parameter is set to MOD2 or MOD3 in the input menu, the display changes from AUTOMATIC to MANUAL.

#### **Operating mode 2: ADJUSTMENT**

ADJUSTMENT mode is used for setting the OPEN/CLOSED end positions.

#### **ATTENTION!**

##### **Malfunctions can occur as a result of incorrect operation of the control!**

In ADJUSTMENT mode, the door will not stop automatically when it reaches the end position if an electronic end position system (AWG) is used. The door can be damaged if it is moved beyond the end position.

Fine adjustments can be made in the INPUT operating mode.

Display:

- The current end position value is shown

#### **Operating mode 3: INPUT**

In the INPUT operating mode, the values of various parameters can be altered.

Display:

- Displays the selected parameter
- Displays the programmed value / current status

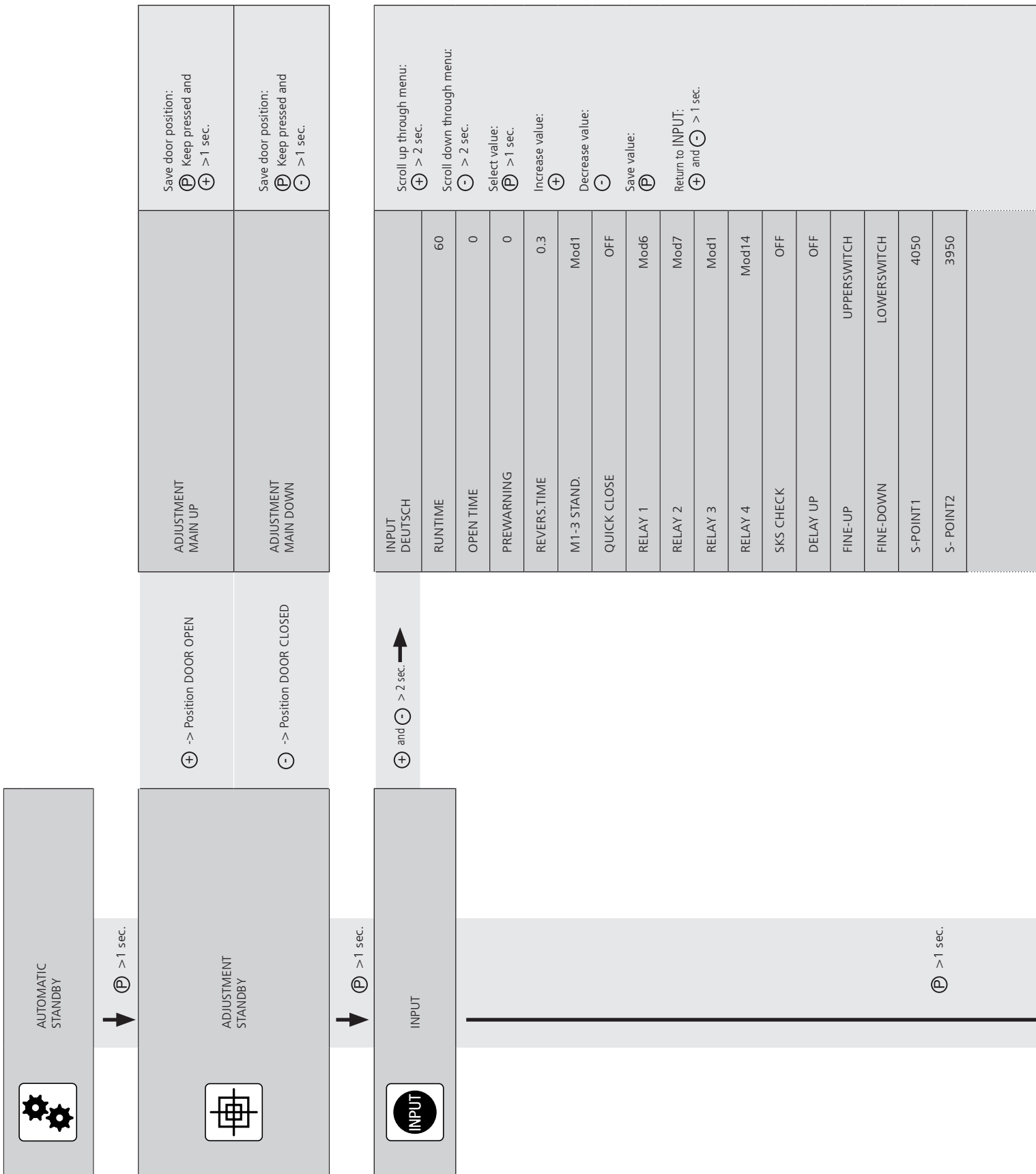
#### **Operating mode 4: DIAGNOSIS**

In the DIAGNOSIS operating mode, door-specific checks can be queried.

Display:

- Displays the checks
- Displays the status of the checks


## 8. Navigator (LCD monitor only)







DIRECTION	R
REVERSPPOINT	50
POWER	10
AUTO LEVEL	OFF
P/E BARR POINT	300
PRESS/REL	MOD1
PR.INPUT	MOD1
P/E BAR CLOSE	MOD1
P/E BAR OPEN	MOD2
SKS LEADING	MOD1


**DIAGNOSIS**

Scroll up through menu:  
 > 2 sec.

Scroll down through menu:  
 > 2 sec.

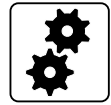
Return to AUTOMATIC:  


Only queries are possible

UPPERSWITCH	ON
LOWERSWITCH	ON
UP SWITCH	OFF
PR.INPUT	OFF
DOWN SWITCH	OFF
SKS	ON
IMP. INPUT	OFF
SWITCH CLK	OFF
LIGHT BARR.	ON
STOP CIRCUIT	ON
CYCLE	000000
AWG	0000

## 9. Overview of functions

### 9.1 Automatic operating mode



Display		Description
AUTOMATIC OPENING PHASE		The door is in the opening phase. <sup>1</sup>
AUTOMATIC CLOSING PHASE		The door is in the closing phase.
AUTOMATIC STANDBY		The door is at an intermediate position.
AUTOMATIC STANDBY	O	The door is at the OPEN end position.
AUTOMATIC STANDBY	o	The door is at the PART UP position ("S-POINT1" parameter).
AUTOMATIC STANDBY	U	The door is at the CLOSED end position.
AUTOMATIC STANDBY	u	The door is at the partially CLOSED position ("S-POINT2" parameter).
AUTOMATIC STANDBY	r	The door is in the reversing switch-off position.

If the "PRESS/REL" parameter is set to MOD2 or MOD3 in the input menu, the display changes from AUTOMATIC to MANUAL.

Display		Description
MANUAL MAIN UP		The door is in the opening phase.
MANUAL MAIN DOWN		The door is in the closing phase.
MANUAL STANDBY		The door is at an intermediate position.

<sup>1</sup> During the opening phase, a 3-digit numerical value is shown in the lower right corner of the display.

This numerical value is an indicator for the current torque and serves as a basis for setting the power monitoring.

→ "9.2 Input operating mode"

## 9.2 Input operating mode



Function	Description	Setting options	Factory settings
DEUTSCH	Select the menu language	DEUTSCH ENGLISH FRANCAIS ESPANOL NEDERLANDS POLSKI CESKY ITALIANO	DEUTSCH
RUNTIME	Monitoring the maximum running time for an OPEN or CLOSE movement. The running time must be set to be slightly higher than the effective running time of the door.	1 - 250 seconds	60
OPEN TIME	After the door has opened, it runs back automatically in the CLOSING direction after the set time has elapsed. If the setting = 0, this function is not active. If the setting > 0 the impulse input (X3 / 7+8) generates only OPEN commands.  <b>Please note:</b> If you press the CLOSE button during the open time, the closing run starts immediately. If you press the OPEN or STOP button during the open time, the time starts counting from the beginning again. If an automatic closing run is interrupted by the SKS, the door opens and the open run starts counting again from the beginning. If this happens 3 times in a row, automatic closing is interrupted.	0 - 600 seconds	0
PREWARNING	The prewarning is activated before an automatic closing run starts and before closing in impulse mode. If the setting = 0, this function is not active.  <b>Please note:</b> The relay outputs can be used to visualise the prewarning time, e.g. with a red traffic light.	0 - 120 seconds	0 = Off
REVERS.TIME	Motor stoppage time each time the door changes direction. When the closing edge safety device is triggered during the closing movement, the turnaround time amounts to a quarter of the programmed time.	0.1 - 2.0 seconds (in 1/10 seconds)	0.3
M1-3 STAND.	Red traffic light function (if available and programmed) in standby MOD1 - MOD2, MOD1 if door is closed. Acts on relay settings MOD1-3 and MOD18. MOD1: Relay switched off in standby (door closed). MOD2: Relay switched on in standby (door closed).	MOD1 – MOD2	MOD1
QUICK CLOSE	Earlier closing after the photocell has been driven past.  <b>Requirements:</b> A photocell must be installed at passage height.  OFF: The open time (if programmed) continues as usual.  ON: The open time is cut short after the photocell (X4 / 1-4) has been passed. The door closes immediately. This function is also active when the open time = 0.	ON OFF	OFF

## Overview of functions

Function	Description	Setting options	Factory settings
RELAY 1	A relay module from 1 - 29 can be assigned to all four relays. Parameter M1-3 STAND. acts on the red traffic light (MOD1-3, MOD18). Further explanations: "Explanation of the relay modes:" on page 23 20	MOD1 - MOD29	MOD6
RELAY 2	MOD1: (Red traffic light 1) flashes during prewarning and is ON during door run MOD2: (Red traffic light 2) flashes during prewarning and during door run MOD3: (Red traffic light 3) is ON during prewarning and ON during door run MOD4: Impulse signal when OPEN command is given from inside MOD5: Error message MOD6: OPEN end position MOD7: CLOSED end position MOD8: OPEN end position negated MOD9: CLOSED end position negated MOD10: Before-end position OPEN MOD11: Before-end position CLOSE	MOD1 - MOD29	MOD7
RELAY 3	MOD12: Before-end position CLOSE to CLOSED end position MOD13: Magnetic lock function MOD14: Brake (normally energised mode) MOD15: Brake (normally de-energised mode) MOD16: Brake (normally energised mode) switched on in OPEN end position MOD17: SKS activated or test error	MOD1 - MOD29	MOD1
RELAY 4	MOD18: (Red traffic light 4) flashes during prewarning and is OFF during door run MOD19: Before-end position OPEN to OPEN end position MOD20: Activation of infrared transmission system MOD21: Test of draw-in protection before opening run (additional module required) MOD22: Activation of radio transmission systems 1 and 3 MOD23: (Green traffic light) ON at OPEN end position, OFF during prewarning, and OFF during door run MOD24: Capacitor switching for 230 V/1~ sectional-door operators MOD25: Yard light function, light stays on for 2 minutes after OPEN impulse - command MOD26: Activation of radio 2 transmission system MOD27: Impulse signal when OPEN end position is reached MOD28: Relay generally ON (1 second time lag after switching on) MOD29: Relay generally OFF	MOD1 - MOD29	MOD14
SKS CHECK	Activation and deactivation of testing function for the attached DW airwave bar.	ON – OFF	OFF
DELAY UP	OFF: Immediate opening after command given. ON: Delayed opening. Prewarning time (PREWARNING parameter) count-down begins after command given. Following this, the door is opened.	ON – OFF	OFF
FINE-UP	Fine adjustment of the OPEN end position in relation to the saved OPEN end position (UPPERSWITCH).	0 – 8190	UPPERSWITCH
FINE-DOWN	Fine adjustment of the CLOSED end position in relation to the saved CLOSED end position (LOWERSWITCH).  <b>Please note:</b> In the case of fine adjustment, the relevant end position value is shown. This value can be adjusted upwards or downwards in steps of discrete increments.	0 – 8190	UPPERSWITCH
S-POINT1	Setting intermediate OPEN switching point (PART UP)	0 – 8190	4050
S-POINT2	Setting intermediate CLOSE switching point (PART DOWN) → "6.3 Setting the intermediate positions of the electronic end position system using the LCD monitor"	0 – 8190	3950

Function	Description	Setting options	Factory settings
DIRECTION	<p>Adjustment of absolute value encoder (AWG) only with special assembly of the operator</p> <p>R: Standard assembly (Clockwise rotational direction / increasing AWG values during opening run)</p> <p>L: Special assembly (Anti-clockwise rotational direction / increasing AWG values during opening run)</p>	R – L	R
REVERS-POINT	<p>Reversing switch-off point before the CLOSED end position is reached. After travelling beyond this point, the door is stopped if the closing edge safety device or the photocell is triggered, but no reversing takes place. The reversing point must not lie more than 5 cm over the lower end position.</p>	10 – 250 inc.	50
POWER	<p><b>Automatic power monitoring</b> (rotational speed monitoring) Error message if the door is unable to move freely or is obstructed. Setting the sensitivity for the OPEN direction of travel. A reading giving the power value (rotational speed) is shown during opening runs. If the power monitoring facility is activated, a value must be set that is lower than the lowest value displayed during door opening. The larger the difference compared to the lowest value displayed, the less sensitively the power monitoring reacts. The power monitoring facility is only activated if a value &gt; 0 has been set.</p>	0 – 999 inc.	10
AUTO LEVEL	<p>Automatic adjustment of lower end switch-off point to a change in the ground conditions (setting the steel cables on the sectional door). ON: Function active OFF: Function not active</p> <p><b>Please note:</b> If the closing edge is triggered four times in a row when it is near the CLOSED end position, the control recognises a change in the ground conditions. The lower end switch-off point is then set four impulses further upwards.</p>	ON – OFF	OFF
P/E BARR POINT	<p>The signal from the photocell (X4 / 1-4) is not evaluated between the CLOSED end position and the P/E BARR POINT. Setting is done in increments, starting from the CLOSED end position.</p> <p><b>Please note:</b> This function serves to suppress the signal from the photocell in the lower range, in order to prevent faults, such as in the spiral cable.</p>	0 – 999 inc.	300
PRESS/REL	<p>Choose between impulse and manual operation, with or without evaluation of closing edge safety device (CESD) and photocell system (LB).</p> <p>MOD1: Impulse operation for OPEN + CLOSE with SKS and LB MOD2: Manual operation for OPEN + CLOSE with SKS and LB MOD3: Manual operation for CLOSE with SKS and LB MOD4: Impulse operation for OPEN + CLOSE with light curtain If the light curtain is interrupted in the OPEN end position, the open time (if programmed) will restart. MOD5: Impulse operation for OPEN + CLOSE with light curtain If the light curtain is interrupted in the OPEN end position, the open time (if programmed) will not restart but will continue to elapse.</p>	MOD1 – MOD5	MOD1

## Overview of functions

Function	Description	Setting options	Factory settings
PR.INPUT	<p>Programmable input. Connection to terminal block X4 (9 + 10)</p> <p>MOD1: PART UP button 1 When the button is pressed, the door opens as far as the intermediate OPEN position (PART UP). The door does not close automatically from the PART UP position.</p> <p>MOD2: PART UP 1 switch Closed: All OPEN commands lead to the PART UP position. Open: All OPEN commands lead to the OPEN position. The door closes automatically from both positions.</p> <p>MOD3: PART UP 2 switch Closed: All OPEN commands lead to the PART UP position. Open: All OPEN commands lead to the OPEN position. The door closes automatically from the PART UP position only.</p> <p>MOD4: PART UP 3 switch Closed: All OPEN commands lead to the PART UP position. Open: All OPEN commands lead to the OPEN position. The door closes automatically from the PART UP position only.</p> <p>MOD5: PART UP 2 button When the button is pressed, the door opens as far as the intermediate OPEN (PART UP) position. The door closes automatically from the PART UP position only.</p> <p>MOD6: "Automatic closing" activation Closed: Automatic closing deactivated Open: Automatic closing activated</p> <p>MOD7: External clock input The door opens once the contact closes and remains in the OPEN position until the contact opens. The door then closes automatically. This function can be aborted by pressing the CLOSE button. The door CLOSES.</p> <p>MOD8: Selector switch: Keeping the door open / alarm Closed: The door moves to the PART UP position and remains there as long as the contact is closed. Open: Normal operation</p> <p>MOD9: Continuously CLOSED signal 1 Closed: Door CLOSES with active safety devices and remains in the CLOSED position until the contact opens. OPEN commands are ignored. If the closing edge safety edge (SKS) is triggered 3 times during the closing run, the door remains in the OPEN position. Open: Normal operation</p> <p>MOD10: Continuously CLOSED signal 2 As MOD9, but after the closing edge safety device has triggered 3 times and after a reversing movement of 750 ms, the door remains in the position it was in.</p> <p>MOD11: Selector switch: Keeping the door open / alarm Closed: The door moves to the OPEN position and remains there as long as the contact is closed. Open: Normal operation</p>	MOD1 – MOD11	MOD1
P/E BAR CLOSE	<p>Function of the photocell (X4 / 1-4) during the closing run.</p> <p>MOD1: Stops the system when actuated</p> <p>MOD2: Stop and reversal of the door system when triggered</p>	MOD 1 – MOD 2	MOD 2
P/E BAR OPEN	<p>Function of the photocell (X4 / 1-4) during the opening run.</p> <p>MOD1: Photocell not activated</p> <p>MOD2: When the photocell is activated during the CLOSED end position and the S-POINT2 position, the door system stops. The red traffic light is ON. The S-POINT2 is automatically set to CLOSED end position + 600 inc.</p>	MOD 1 – MOD 2	MOD 1

Function	Description	Setting options	Factory settings
SKS LEADING	Activation and connection of a leading photocell. The system replaces the conventional closing edge safety device and is classed as an E device according to DIN EN 12453. MOD1: No function MOD2: MFZ-type leading photocell  <b>Please note:</b> Only compatible with the leading photocell from MFZ. Detailed information in the operating instructions for the leading photocell.	MOD 1 – MOD 2	MOD 1

### Explanation of the relay modes:

#### A. Traffic light functions

MOD	Description	CLOSED end position	OPEN end position	Prewarning	Door run
MOD 1	Red traffic light 1	ON / OFF *	OFF	Flashing	Lit up
MOD 2	Red traffic light 2	ON / OFF *	OFF	Flashing	Flashing
MOD 3	Red traffic light 3	ON / OFF *	OFF	Lit up	Lit up
MOD 18	Red traffic light 4	OFF	OFF	Flashing	OFF
MOD 23	Green traffic light	OFF	Lit up	OFF	OFF

\* dependent on parameter MOD1-3 STAND

#### B. Position messages

MOD	Description	Remarks
MOD 6	OPEN end position	The relay closes the contact when the door is at the OPEN end position.
MOD 7	CLOSED end position	The relay closes the contact when the door is at the CLOSED end position.
MOD 8	Not OPEN end position	The relay closes the contact when the door is not at the OPEN end position.
MOD 9	Not CLOSED end position	The relay closes the contact when the door is not at the CLOSED end position.
MOD 10	Intermediate OPEN position (PART UP)	The relay closes the contact when the door is at the intermediate OPEN position (PART UP).
MOD 11	Intermediate CLOSE position (PART DOWN)	The relay closes the contact when the door is at the intermediate CLOSE position (PART DOWN).
MOD 12	Intermediate CLOSE position to CLOSED end position	The relay closes the contact when the door is in the area between the CLOSED end position and the intermediate CLOSE position (PART DOWN).
MOD 19	Intermediate OPEN position to OPEN end position	The relay closes the contact when the door is in the area between the OPEN end position and the intermediate OPEN position (PART UP).

## Overview of functions

### C. Impulse signals

MOD	Description	Remarks
MOD 4	Impulse when there is an OPEN command	The relay closes the contact for 1 second when the door receives an OPEN command. This impulse can be used to control lights, for instance.
MOD 27	Impulse when OPEN end position is reached	The relay closes the contact for 2 seconds when the door reaches the OPEN end position. This impulse can be used, for instance, to open a following photocell.

### D. Brake functions

MOD	Description	Remarks
MOD 14	Brake (normally energised mode)	The switching contact of the brake rectifier is activated via the relay to achieve a faster brake function. As soon as the door starts to move, the contact closes and the brake is released (normally energised mode).
MOD 15	Brake (normally de-energised mode)	The switching contact of the brake rectifier is activated via the relay to achieve a faster brake function. As soon as the door starts to move, the contact opens and the brake is released (normally de-energised mode).
MOD 16	Brake (normally energised mode) switched on in OPEN end position	The switching contact of the brake rectifier is activated via the relay to achieve a faster brake function. As soon as the door starts to move, the contact closes and the brake is released (normally energised mode). IN ORDER TO STOP THE DOOR MORE SMOOTHLY AT THE UPPER END POSITION, THE SWITCHING CONTACT IS NOT SWITCHED AT THE OPEN END POSITION (OPEN TIME).

### E. Error messages

MOD	Description	Remarks
MOD 5	Error message	The relay opens the contact when a STOP command is given or an error occurs. All errors described in Section 10 result in actuation of the relay.
MOD 17	Closing edge safety device actuated	The relay opens the contact when the closing edge safety device is actuated. An error in the closing edge safety device or an unsuccessful test is shown via MOD5.



**F. Functions for external accessories**

<b>MOD</b>	<b>Description</b>	<b>Remarks</b>
MOD 13	Magnetic lock function	Activation of an electromechanical locking system. The relay closes the contact before every OPENING run and remains active until the door is closed again. In standby, with the door closed, the relay contact is opened. A delay in starting the door operator can be set with the parameters "DELAY UP" and "PREWARNING".
MOD 20	Activation of infrared transmission system	Before every DOWN command, the infrared transmission system is activated for the duration of the closing run. This activation results in a 0.5 second delay in starting.
MOD 21	Test of draw-in protection	The relay generates a test signal when the CLOSED end position is reached and expects, as a reaction to the test signal, that the stop circuit is actuated.
MOD 22	Activation of radio transmission systems 1 and 4	The relay generates a test signal when the OPEN end position is reached and expects, as a reaction to the test signal, that the closing edge safety device input is actuated.
MOD 24	Capacitor switching	Whenever a door movement command is given, the relay closes for approximately 1 second. With the aid of this relay, an additional starting capacitor that is required for AC applications is switched on, to ensure safe starting of the motor. For operators of the STAW range with increased duty cycle.
MOD 25	Yard light function	At every OPEN command, the relay is closed for 2 minutes and can therefore be used to control a light.
MOD 26	Activation of radio transmission systems 2 and 4	Before every CLOSE command, the radio transmission system is activated by an impulse. The duration of the activation must be set on the transmission system. This activation results in a 0.5 second delay in starting.
MOD 28	Relay ON	The relay is switched on with a 1 second time lag once the mains voltage is switched on and remains on continuously provided that the mains power supply is not interrupted.
MOD 29	Relay OFF	The relay is generally switched off; the contact is always open.

## Overview of functions

### 9.3 Diagnostic operating mode



Display	Meaning	Status
UPPERSWITCH	OPEN end position	OFF: End position reached ON: End position not reached
LOWERSWITCH	CLOSED end position	OFF: End position reached ON: End position not reached
OPEN BUTTON	Command button / OPEN input	ON: Button activated / input is active OFF: Button not activated / input not active
PR.INPUT	Programmable input 1 (X4 / 9 + 10)	ON: Input active OFF: Input not active
CLOSE BUTTON	Command button / CLOSE input	ON: Button activated / input is active OFF: Button not activated / input not active
SKS	Closing edge safety device (PS switch, 8.2kΩ or optosensor) or light curtain (optosensor) (X4 / 5-8) CLOSING direction	ON: System closed OFF: System interrupted (fault)
IMPULS	Command button / IMP. INPUT input (X3 / 7+8)	ON: Button activated / input is active OFF: Button not activated / input not active
SWITCH CLK	Weekly timer (pluggable)	ON: Timer activated OFF: Timer not activated
LIGHT BARR.	Drive through photocell (X4 / 1-4)	ON: Photocell signal is OK OFF: Light beam interrupted or fault in photocell
STOP CIRCUIT	Safety circuit Emergency stop systems of the door system	ON: Safety circuit closed OFF: Safety circuit interrupted
CYCLE	Door cycle counter	Displays number of door cycles counted so far 1 x OPEN + 1 x CLOSE = 1 cycle Counts only if the travel cut-out points are reached.
AWG	Shows position information of absolute value encoder	Displays the current transmitted value

## 10. Error messages and rectification

### Error message on LCD display / status LEDs H4 and H6

Fault / error message	Cause	Rectification
System does not respond	<ul style="list-style-type: none"> <li>No voltage supply.</li> </ul>	<ul style="list-style-type: none"> <li>Check the voltage supply to the door operator and the control.</li> </ul>
Door travels to the CLOSED end position when the OPEN button is pressed Door travels to the OPEN end position when the CLOSE button is pressed	<ul style="list-style-type: none"> <li>Rotating field is connected wrongly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the rotating field and set direction to clockwise, if necessary.</li> </ul>
STOP CIRCUIT / H6 (amber) off	<ul style="list-style-type: none"> <li>The safety circuit is interrupted. <ul style="list-style-type: none"> <li>X3 / 1+2 Control safety circuit EMERGENCY STOP, slack rope switch</li> <li>X6 / 1+2 ON / OFF internal</li> <li>X11 / 4+8 Safety circuit of door operator AWG</li> <li>X14 / 8+4 Interface RS485</li> <li>X2 / B1+B2 Safety circuit of door operator MEC</li> <li>X3 / 3+4 External stop button</li> <li>X7 / 1+2 Internal stop button</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Check safety circuit, localise interruption and rectify problem.</li> </ul>
ERROR END POS.	<ul style="list-style-type: none"> <li>The door has travelled beyond the programmed end position area.</li> <li>The end positions have not yet been programmed.</li> </ul>	<ul style="list-style-type: none"> <li>Move the door back into the programmed area.</li> <li>First, programme the end positions.</li> </ul>
ERROR RUNTIME	<ul style="list-style-type: none"> <li>The programmed running time has been exceeded.</li> </ul>	<ul style="list-style-type: none"> <li>Check the path of the door and the running time.</li> <li>Re-programme the running time, if necessary.</li> </ul>
ERROR SKS / H4 (green) off	<ul style="list-style-type: none"> <li>Closing edge safety device faulty (X4 / 5-8).</li> <li>Closing edge safety device activated.</li> </ul>	<ul style="list-style-type: none"> <li>Check the closing edge safety device and the spiral cable.</li> <li>If necessary, remove obstruction from door area.</li> </ul>
ERROR SKS CHECK	<ul style="list-style-type: none"> <li>Testing of attached airwave bar was unsuccessful.</li> <li>Test of radio transmission systems 1 – 4 failed.</li> </ul>	<ul style="list-style-type: none"> <li>Check the PS pressure switch, spiral cable and rubber profile.</li> <li>Check the PS POINT setting.</li> <li>Check the radio transmission system.</li> <li>Check whether the right relay MOD was selected for the transmission system.</li> <li>→ "E. Functions for external accessories" on page 25</li> </ul>
ERROR DIRECTION	<ul style="list-style-type: none"> <li>The rotating field present is not a clockwise rotating field.</li> </ul>	<ul style="list-style-type: none"> <li>Check the rotating field and change the direction, if necessary.</li> <li>→ "6.4 Checking the direction of rotation/direction of travel"</li> </ul>
ERROR RS485-AWG	<ul style="list-style-type: none"> <li>Signal transmission between absolute value encoder and control interrupted and/or broken down.</li> </ul>	<ul style="list-style-type: none"> <li>Check the cable and socket connections and replace, if necessary.</li> </ul>
AWG -- STATUS	<ul style="list-style-type: none"> <li>The absolute value encoder is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check absolute value encoder and replace, if necessary.</li> </ul>
ERROR POWER	<ul style="list-style-type: none"> <li>The power monitoring has been triggered.</li> </ul>	<ul style="list-style-type: none"> <li>Check the door for any mechanical impairment or damage.</li> </ul>

**After rectifying the cause of the error, the power supply to the control must be turned off once!**

## 11. Technical data

### Mechanical and electrical data

Housing dimensions:	215 x 275 x 190 mm
Installation:	Fix vertically to the wall at a minimum height of 1,100 mm
Power supply via L1, L2, L3, N, PE:	400V/3~ , 50/60 Hz 230V/3~ , 50/60 Hz
L1, N, PE:	230V/3~ , 50/60 Hz, Power input max. 2200 W, for power supply 400V/3~
Fuse protection:	10 A K type
Internal consumption of the control:	max. 250 mA
Control voltage:	24 V DC, max. 250 mA; protected by self- resetting fuse for external sensor systems
Control inputs:	24 V DC, all inputs must be connected so that they are potential-free. Minimum signal durati- on for input control command > 100 ms
Control outputs:	24 V DC, max. 250 mA
RS485 A and B:	Only for electronic limit switches RS485 level, terminated with 120 Ω
Safety circuit / Emergency stop:	All input connections MUST be potential-free; if the safety circuit is interrupted, no further electrically powered movement of the operator is possible, not even in deadman mode.
Closing edge safety device input (performance level C):	Performance level C for electrical closing edge safety devices with 8.2 kΩ terminating resistor and for dynamic optical systems.
Photocell (performance level D):	If the photocell is used as a D performance level protection system, it must be checked at regular intervals – at least every 6 months – to ensure that the system is working properly.
Relay outputs:	If inductive loads are connected (e.g. further relays or brakes), these must be equipped with suitable interference suppression (such as recovery diode, varistors or RC circuits). Potential-free normally open contact; min. 10 mA; max. 230 V AC / 4A. <i>Once contacts have been used for power circuits, they can no longer be used for extra- low current circuits.</i>
Temperature range:	Operation: -10°C ... +45°C Storage: -25°C ... +70°C
Air humidity:	Up to 80% with no condensation
Vibrations:	Low-vibration mounting, e.g. on a masonry wall

Type of protection: IP 65

Weight: approx. 1.8 kg

## 12. Maintenance

The CS 300 control is maintenance-free.

### **DANGER!**

#### **Life-threatening danger due to electric shock!**

- ☞ The control unit or door system **MUST** be disconnected from the electricity supply before carrying out any electrical work! Take measures to ensure that the power supply remains disconnected for the duration of the work.

The following points must be taken into account when carrying out maintenance on the door system:

- Maintenance must only be carried out by authorised persons.
- Directive ASR A1.7 must be complied with.
- Worn or faulty parts must be replaced.
- Only approved parts may be installed.
- All maintenance work must be documented.
- Replaced faulty parts must be disposed of properly in accordance with the materials they contain and local regulations.

## 13. EC Declaration of conformity

We hereby declare that the product described below:

### **CS 300 Door Control**

is in conformity with all essential requirements of the Machinery Directive 2006/42/EC.

In addition, the logic unit is in conformity with all the provisions of the

- EC Construction Products Regulation (305/2011/EC),
- Electromagnetic Compatibility Directive (2014/30/EC),
- Low Voltage Directive (2014/35/EC).

The following standards were applied:

EN 60204-1: 2006

Safety of machinery, electrical equipment of machines; Part 1: General requirements

EN ISO 12100: 2010

Safety of machinery – general principles for design - risk assessment and risk reduction

DIN EN 12453: 2000

Safety in use of power operated doors - Requirements

prEN 12453: 2014

Safety in use of power operated doors  
(exclusively for items 1.3.7 and 1.4.3 of Annex I of the Machinery Directive)

DIN EN 61000-6-2

Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

DIN EN 61000-6-3

Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission - standard for residential, commercial and light-industrial environments

DIN EN 60335-1: 2012

Household and similar electrical appliances - Safety - Part 1: General requirements

DIN EN 60335-2-103: 2003

Household and similar electrical appliances - Safety - Part 2-103: Particular requirements for drives for gates, doors and windows

The relevant technical documentation is compiled in accordance with Annex VII (B) of the EC Machinery Directive 2006/42/EC. We undertake to transmit, in response to a reasoned request by the market surveillance authorities, this information in electronic form within a reasonable term.

Person authorised to compile the relevant technical documentation:

MFZ Antriebe GmbH & Co. KG, Neue Mühle 4  
D-48739 Legden, Germany

The logic unit must not be put into service until the machinery into which the logic unit is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

### **Place / Date:**

Legden, 20.04.2016

### **Manufacturer's signature**



Dirk Wesseling

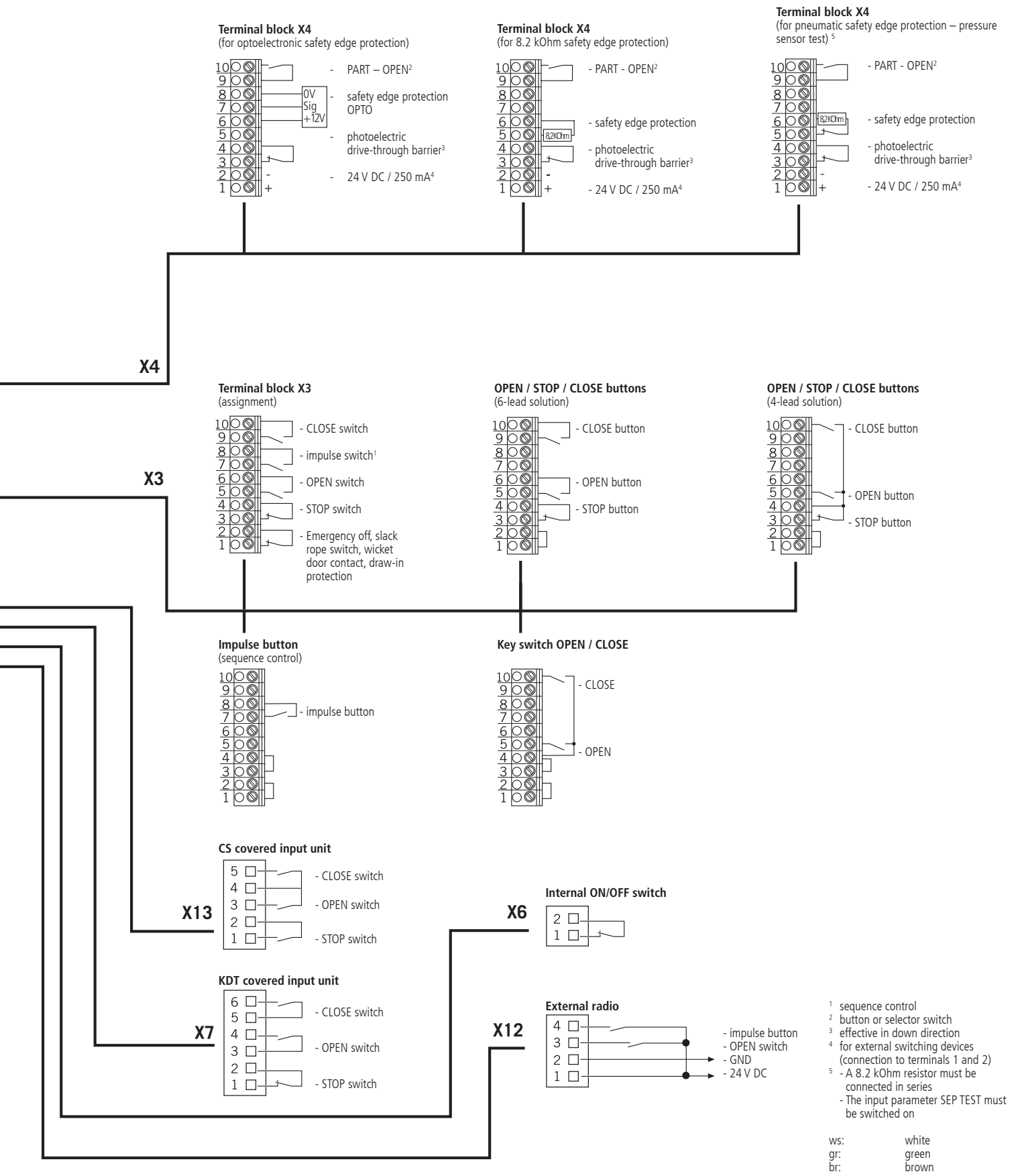
### **Position of signatory**

Management









<sup>1</sup> sequence control  
<sup>2</sup> button or selector switch  
<sup>3</sup> effective in down direction  
<sup>4</sup> for external switching devices (connection to terminals 1 and 2)  
<sup>5</sup> - A 8.2 kOhm resistor must be connected in series  
 - The input parameter SEP TEST must be switched on

ws: white  
 gr: green  
 br: brown





