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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

EN



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 warnings and safety advice being disregarded.

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 CS255 AC control is only intended for controlling industrial door systems with the use of operators without holding brakes and with mechanical limit switches or 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)
- EN 13849-1 (Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design)

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 255 AC control:

- CS 255 AC control integrated in the operator
- CS 255 AC control in Mini housing
- CS 255 AC control in Standard housing

All versions can be fitted with a plug-in module antenna for remote control.

- CS module antenna 868 MHz (article number 1700021228)
- CS module antenna 433 MHz (article number 1700021242)

The following housing options are available:

- Housing with CS-15 3-button input unit
- Housing with ON/OFF key switch
- Housing with main switch
- Housing with Emergency Stop switch

The operating instructions describe the connection and programming options for the version:

- CS 255 AC control with LCD monitor connected and software version 1.06

4.2 Programming

Programming the control using the internal 3-button keyboard or the external 3-button input unit of type CSI-15 (article number 120858) only allows a limited number of parameters to be programmed.

→ "7. Programming with the CSI-15 3-button input unit"

Programming the control using the LCD monitor RS485 (article number 121246) allows access to all parameters.

NOTICE:

No other display units or input units are compatible with CS 255 AC and these cannot therefore be used.

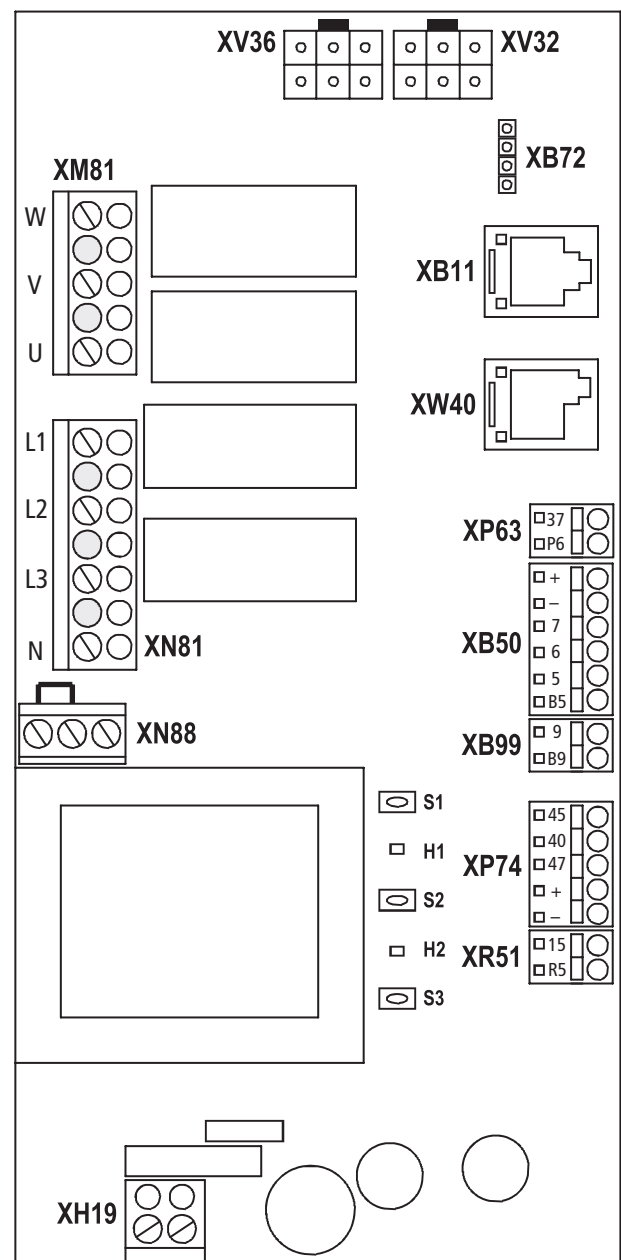
4.3 Main circuit board CS 255 AC

Key:

XN81: Terminal block for mains connection
 XM81: Terminal block for motor
 XN88: Terminal block for voltage selection
 XB50: Socket for command devices
 XR51: Socket for Emergency Stop
 XP63: Socket for photocell
 XP74: Socket for closing edge safety device and programmable input 2
 XB99: Socket for programmable input 1
 XH19: Terminal block for relay output
 XV32: Socket for electronic end position system
 XV36: Socket for mechanical limit switches
 XB72: Socket for CS module antenna
 XB11: Connection for CS-15 / CSI-15 3-button input unit
 XW40: Connection of LCD monitor or BUS modules

H1: Operational readiness (green)
 Lights up when power supply available.
 H2: Status message (red)
 Lights up in the case of errors or when the safety devices are activated

S1: Programming button (+)
 S2: Programming button (P)
 S3: Programming button (–)



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 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 255 AC control is installed.

REFERENCE

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

5.2 Mains connection

Preconditions

To guarantee that the controls function 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.

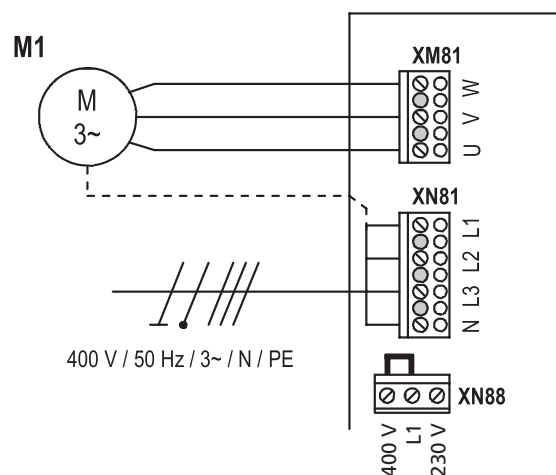
ATTENTION!

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

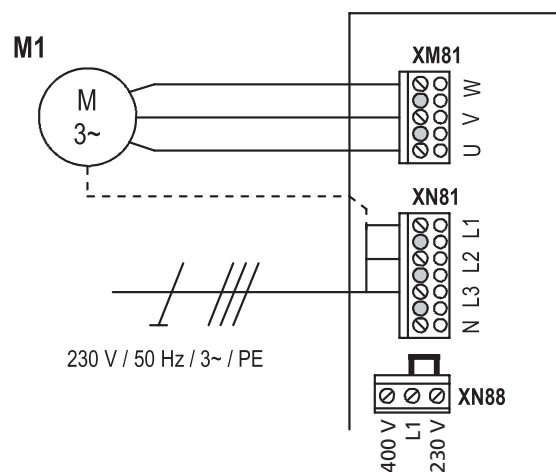
Before switching on the control for the first time, a check must be carried out after completing the wiring to ensure that all the motor connections on the motor and the control are securely fixed. All control voltage inputs are galvanically isolated from the supply.

The control and load cables of the operators connected must be double insulated along the entire route.

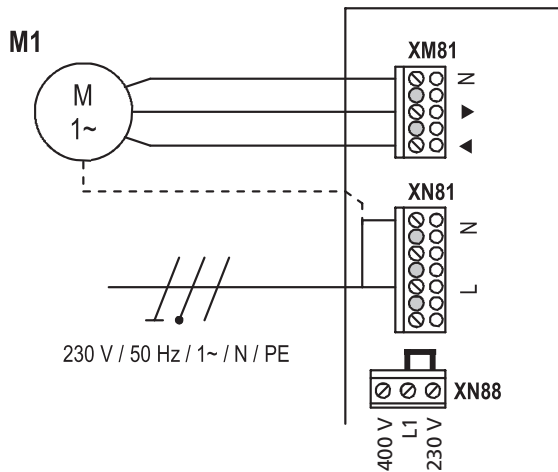
Detailed circuit diagram for mains connection and motor connection (400 V / three phase)



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

XN81: Terminal block for mains connection

XM81: Terminal block for motor

NOTICE:

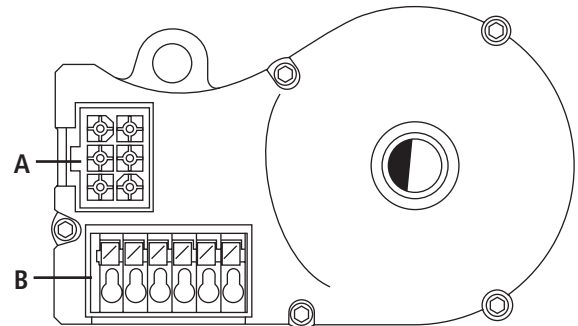
Maximum power input: **1.5 kW**

Connection:

- Connect the digital end position system or mechanical limit switches to the control.
- Connect the control to the motor.
- Connect the control to the mains power supply.
- Cable groups must be secured close to their relevant terminals using a cable tie.

→ "12. Technical data" on page 46

5.3 Allocation of connections for absolute value encoder (socket XV32)



A: AWG plugs

B: AWG plug terminal

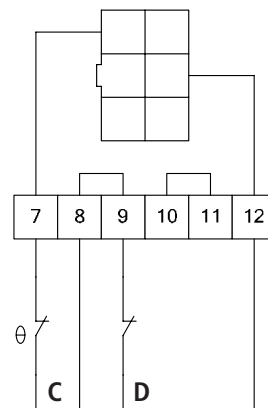
XV32 socket (at connection A)

4 grey	7 yellow
5 green	8 pink
6 white	9 brown

Depending on the operator, cables with either numbered or coloured wires are used for the AWG:

- 4 (grey): 12V_{DC}
- 5 (green): Limit switch OPEN
- 6 (white): Additional limit switch OPEN
- 7 (yellow): Limit switch CLOSE
- 8 (pink): Safety circuit output
- 9 (brown): Additional limit switch CLOSE

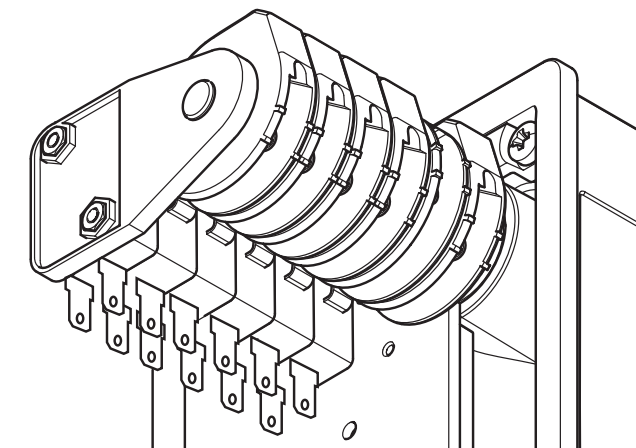
Sockets B (absolute value encoder only)



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

Initial operation

5.4 Allocation of connections for mechanical limit switches (socket XV36)



4 grey	7 yellow
5 pink	8 green
6 white	9 brown

Depending on the operator, cables with either numbered or coloured wires are used for the MEC:

- 4 (grey): 12V_{DC}
- 5 (pink): Limit switch OPEN
- 6 (white): Additional limit switch OPEN
- 7 (yellow): Limit switch CLOSE
- 8 (green): Safety circuit output
- 9 (brown): Additional limit switch CLOSE

NOTICE:

The free socket (XV32 or XV36) must be fitted with a jumper (part of supply package) since otherwise the internal safety circuit is interrupted.

The end position system will be recognised automatically by the control during initial use. If a change is made at a later date, the relevant end position system must be selected via a parameter setting in input mode.

5.5 Connection of command devices

⚠ CAUTION!

Danger of injury due to uncontrolled movement of the door!

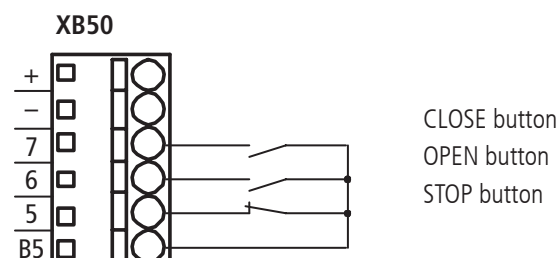
A CLOSE command for deadman mode without the door being in sight may be enabled only via input 1 / MOD32 (XB99 / B9-9).

- ✎ Install command devices for deadman operation in direct sight of the door/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.

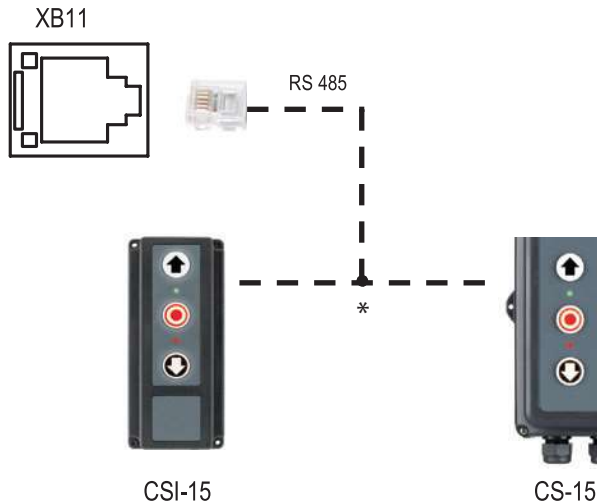
External 3-button input unit



NOTICE:

If a STOP button is not connected, the input must be bridged.

External "intelligent" CSI-15 3-button input unit or CS-15 internal 3-button input unit



NOTICE:

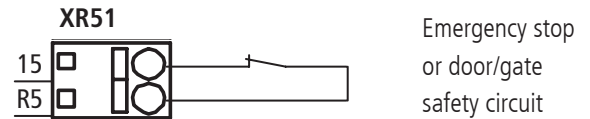
If there is no 3-button-input unit connected, then connection XB11 must be fitted with a jumper. Otherwise, the control will remain without any function.

Detailed information for programming with the CSI-15 "intelligent" 3-button input unit:

→ "7. Programming with the CSI-15 3-button input unit"

5.6 Connection for safety elements

Emergency Stop



NOTICE:

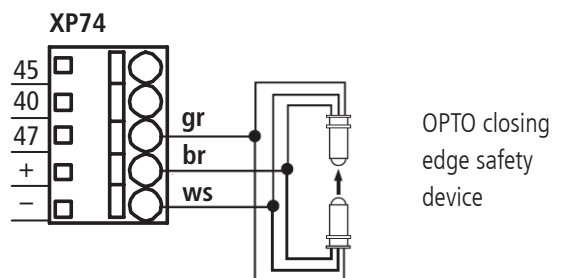
If an emergency stop is not connected, the input must be bridged.

5.7 Connection for closing edge safety devices

The closing edge safety device will be recognised and programmed automatically during initial use and following a RESET. If a closing edge safety device is not connected, the input will be queried every time the power supply is switched on again, until a closing edge safety device is recognised. If a change is made at a later date, the relevant system must be selected via a parameter setting in INPUT MODE.

→ "10.2 Input operating mode"

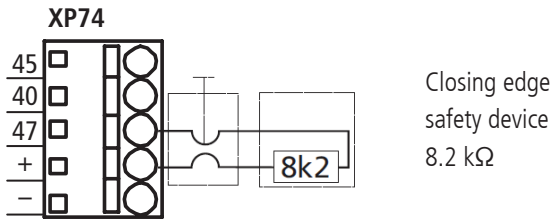
Opto-electronic closing edge safety device



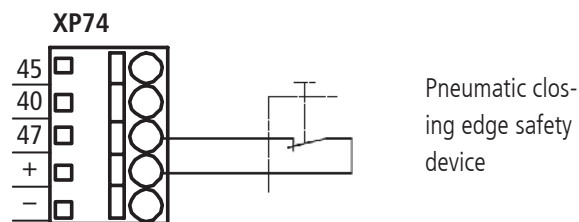
gr: green Signal output
br: brown 12 V-DC
ws: white GND

Initial operation

Electrical closing edge safety device (8.2 kΩ)



Pneumatic closing edge safety device (pressure sensor test)

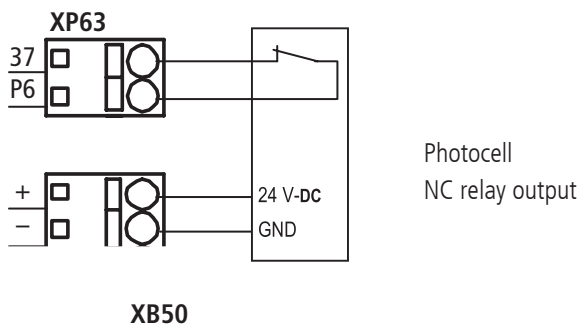


5.8 Connection for photocells

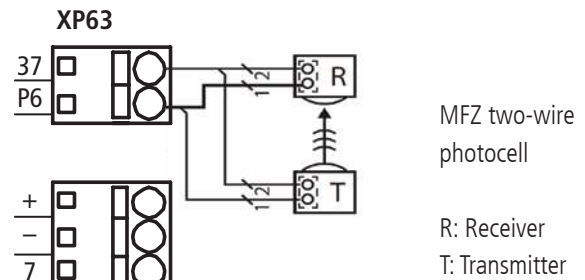
The photocell system will be recognised and programmed automatically during initial operation and following a RESET. If a photocell system is not connected, the input will be queried every time the power supply is switched on again, until a closing edge safety device is recognised. If a change is made at a later date, the relevant system must be selected via a parameter setting in INPUT MODE.

→ "10.2 Input operating mode"

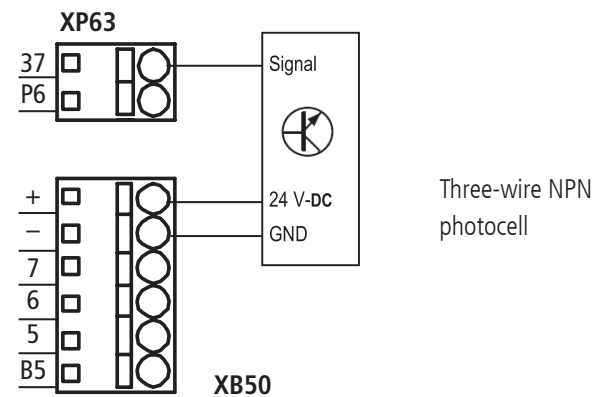
Photocell NC



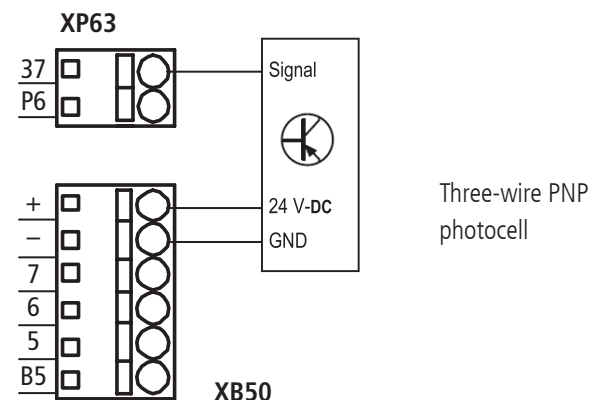
MFZ two-wire photocell



Three-wire NPN photocell



Three-wire PNP photocell



5.9 Light curtain connection

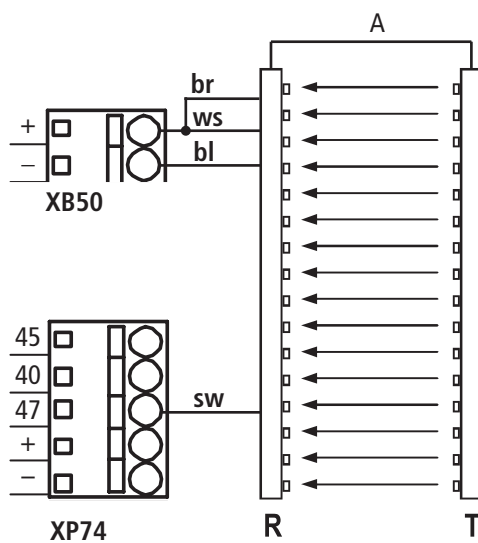
Up to two light curtains can be connected to the CS 255 AC. Light curtain 1 is connected to the input of the closing edge safety device and can be either an OSE or PNP system.

Terminal block X4

Light curtain 1

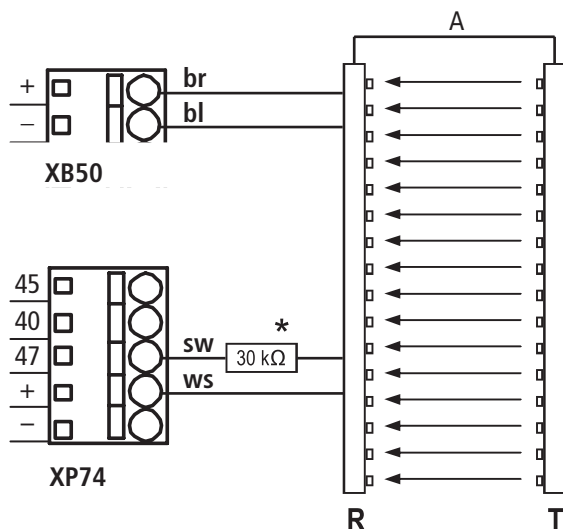
Version A: OSE (parameter SKS = MOD4)

The connecting cable (A) can be plugged in.



Version B: PNP (parameter SKS = MOD5)

The connecting cable (A) can be plugged in.

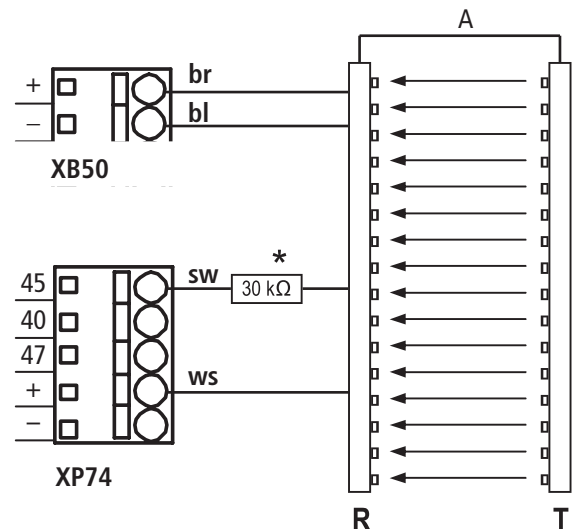


* The resistor (30kΩ) is included in the supply package.

Light curtain 2 (parameter INPUT2 = MOD7)

Light curtain 2 is connected to the programmable INPUT 2 and must be a PNP system.

The connecting cable (A) can be plugged in.



* The resistor (30kΩ) is included in the supply package.

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

NOTICE:

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

RAY-LG 25xx OSE

RAY-LG 15xx PNP

In the case of the PNP system, the resistor (30kΩ) is included in the supply package and must be wired into the system without fail.

Testing of the FRABA/CEDES RAY-LG 15xx PNP light curtain takes place cyclically at the upper end position and before every hazardous movement. No relay output is necessary in this case.

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

Drawings from other manufacturers are available on enquiry.

Initial operation

5.10 Connection of programmable inputs

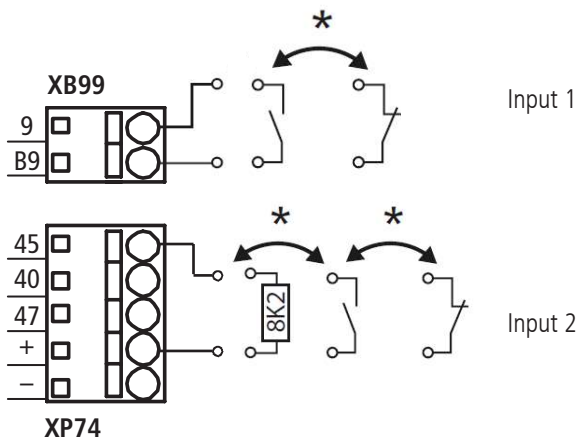
The CS 255 AC control has two programmable inputs, for which various functions can be selected.

→ "10.2 Input operating mode"

ATTENTION!

Danger of damage to the circuit board due to incorrect connection!

Inputs 1 and 2 have a different reference potential and they must NOT be operated from the same potential!



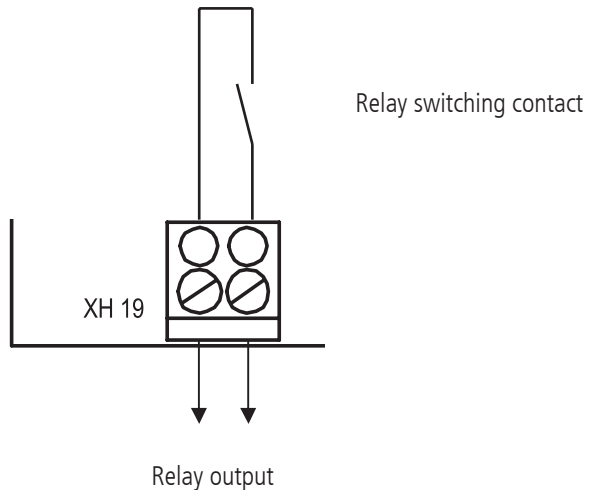
either/or

The type of wiring depends on the parameter settings for both inputs in INPUT mode.

5.11 Connection arrangement for relay outputs

There is a potential-free relay output available which can be programmed with various types of function.

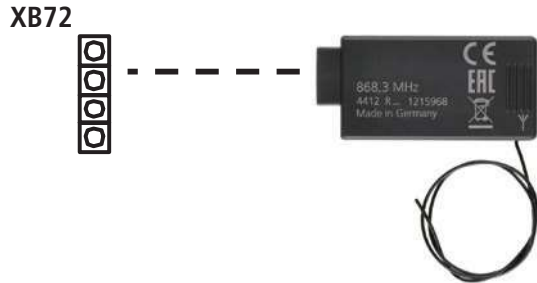
→ "10.2 Input operating mode"



This is a relay output that is potential-free and has 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.

5.12 Connection of CS module antenna



Programming of CS module antenna MB (Multibit)

- Plug CS module antenna MB into XB72.
- In INPUT mode, select the parameter RADIO.
- Select desired MOD and acknowledge with button (P).
The display shows " >>>> ".
- Press the function button to be programmed on the hand transmitter.
The chosen mode appears in the display as MOD.



Programming of CS module antenna AES (rolling code)

- Plug CS module antenna AES into XB72.
- In INPUT mode, select the parameter RADIO.
- Select the desired MOD and acknowledge with button (P).
The display shows " >>>> ".
- Briefly press the programming button on the underside of the hand transmitter.
- Press the function button to be programmed on the hand transmitter.
- The chosen mode appears in the display as MOD.



5.13 Connection of LCD monitor RS485 (Article number 121246)

With the LCD monitor, you have complete access to all of the menu settings and parameters of the control.

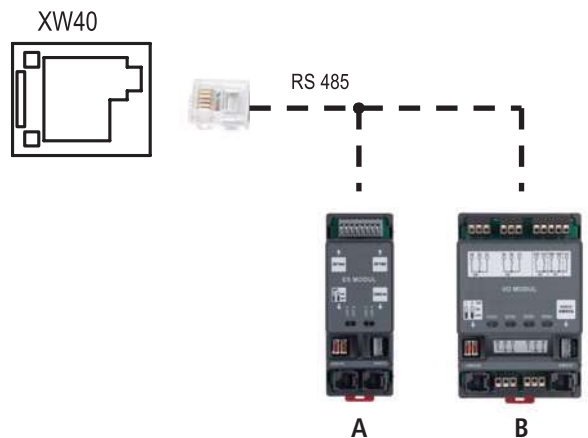
➔ "8. Programming with the LCD monitor"



5.14 Connection of MS BUS modules

The MS BUS function modules allow you to expand the existing functions or add further functions.

- ES module: Evaluation of draw in protection systems
- I/O Module: Input/Output expansion
- GV module: Two-way traffic control



- A ES Module
- B I/O Module / GV Module

REFERENCE

For a detailed description of the function and connection of the modules, see the separate documentation for the BUS modules.

NOTICE:

Connection port XW40 can only be used once. Taking the power consumption into account, however, it is possible to connect several BUS modules and the LCD monitor by using special jumper cables.

6. Setting the end positions

6.1 Checking the direction of rotation/ direction of travel

A. Using the setting buttons on the circuit board

Changing to adjustment mode

- ✎ Keep button (P) pressed for approx. 2 seconds.
The red LED flashes rapidly.
- ✎ Let go of button (P).
The red LED lights up for approx. 2 seconds.
- ✎ Meanwhile, keep button (P) pressed for approx. 4 seconds.
The green LED flashes slowly. The red LED is OFF.

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

- ✎ Press buttons (+) and (–) at the same time for approximately 5 seconds. The red LED lights up for 2 seconds.
Any end positions that have been saved will be deleted.
Continue with setting the end positions.
- "6.2 Setting the electronic end position system using the setting buttons on the circuit board"

B. Using the CSI-15 3-button input unit

- "7. Programming with the CSI-15 3-button input unit"

C. Using the LCD monitor

Changing to adjustment mode

- ✎ Press button (P) until ADJUSTMENT appears.

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

- ✎ Press buttons (+) and (–) at the same time and hold for longer than 5 seconds. The display shows "ROT FIELD LEFT".
Any end positions that have been saved will be deleted.
Continue with setting the end positions.

6.2 Setting the electronic end position system using the setting buttons on the circuit board

✎ Carry out the steps in chapter 6.1 A first, then ...

The green LED flashes slowly. The red LED is OFF.

Setting the OPEN end position

- ✎ Press the (+/–) buttons to move the door/gate to the desired OPEN end position.
- ✎ Save the end position setting by pressing button (P) and by additionally pressing the (+) button.
The green LED lights up for 2 seconds.

Set the CLOSED end position

- ✎ Press the (+/–) buttons to move the door/gate to the desired CLOSED end position.
- ✎ Save the end position setting by pressing button (P) and by additionally pressing the (–) button.
The green LED lights up for 2 seconds.

After setting the end positions:

- ✎ Keep button (P) pressed for > 4 seconds.
Change to AUTOMATIC mode.

Further settings are also possible using the circuit board buttons (similar to CSI 15 3-button input unit).

- „Chapter 7.4 to chapter 7.9"

N.B.

- Adjustment mode will end automatically after approximately 7 seconds if no key is pressed.
- 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, ADJUSTMENT mode can be exited by pressing button (P) once the teaching-in of the special end position has been completed.
- After programming the end positions, the teach-in of the system running time is carried out automatically. The functions of the control are the same as in automatic mode.

6.3 Setting the electronic end position system using the CSI-15 3-button input unit

→ "7. Programming with the CSI-15 3-button input unit"

6.4 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 monitor may be used (#121246).




Changing to adjustment mode

 Press button (P) until ADJUSTMENT appears.

Setting the OPEN end position

-  Press the (+/–) buttons to move the door/gate to the desired OPEN end position.
-  Save the end position setting by pressing button (P) and by additionally pressing the (+) button.
"STORAGE UP" appears in the display.

Set the CLOSED end position

-  Press the (+/–) buttons to move the door/gate to the desired CLOSED end position.
-  Save the end position setting by pressing button (P) and by additionally pressing the (–) button.
"STORAGE DOWN" appears in the display.
-  Exit adjustment mode by pressing button (P).


N.B.

- Adjustment mode will end automatically after approximately 7 seconds if no key is pressed.
- 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, ADJUSTMENT mode can be exited by pressing button (P) once the teaching-in of the special end position has been completed.



- After programming the end positions, the teach-in of the system running time is carried out automatically. The display shows TEACH IN RUN. The functions of the control are the same as in automatic mode.

6.5 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 drive the door to the desired intermediate position (INC.P.OP or INC.P.CL).


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 (INC.P.OP) or CLOSE (INC.P.CL) position

-  Press the (+/–) buttons until the parameter INC.P.OP or INC.P.CL appears.
The current value is A.
-  Press button (P) to adopt the current door/gate position as an intermediate position.
-  Save the intermediate position by pressing button (P) again.

Exiting input mode

-  Press buttons (+) and (–) at the same time for approx. 1 seconds.
Input mode is exited.

Changing to automatic mode

 Press button (P) until AUTOMATIC appears.

N.B.

- If an intermediate position requires to be corrected, the teach-in value can be altered in the INPUT menu or set to A again to allow a new teach-in procedure to be carried out.

Setting the end positions

6.6 Setting the mechanical limit switches

Changing to adjustment mode

☞ Press button (P) until ADJUSTMENT appears.

Setting the OPEN and CLOSED end positions

REFERENCE

The procedure for setting the end positions is described in separate documentation for the mechanical limit switches.

☞ Exit adjustment mode by pressing button (P).

N.B.

Adjustment mode is not exited automatically. To return to normal operating mode, adjustment mode must be exited by pressing button (P).

7. Programming with the CSI-15 3-button input unit

EN

7.1 Overview of CSI-15 3-button input unit with programming function

The programming of the CS 255 AC control can optionally be carried out on the RS485 LCD monitor with clear text display.

→ "8.1 Overview of the LCD monitor"

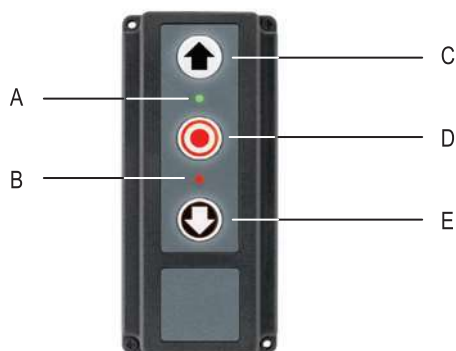
In addition, the following functions can also be programmed using the CSI-15 "intelligent" 3-button input unit.

- OPEN/CLOSED end position
- Teaching-in of radio hand transmitter
- Open time / Forewarning time / Automatic closing
- Earlier closing after the photocell beam has been interrupted
- Relay function (MOD1, MOD2, MOD6)
- Resetting the control
- Reading out the number of cycles

ATTENTION!

Damage to property or irreparable damage due to incorrect installation!

The CSI-15 3-button input unit must be in a de-energised state before it is connected. Only a 3-button input unit from MFZ (article number 120858) may be used.



- A: LED 1 green
- B: LED 2 red
- C: Button (↑) / (OPEN)
- D: Button (O) / (STOP)
- E: Button (↓) / (CLOSE)

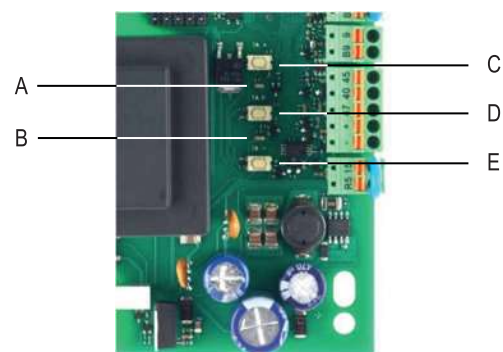
After the control has been switched on, it will be in the initialisation phase. The green LED flashes rapidly.

The control system is not ready for use. After switching on for the first time, the initialisation phase takes approximately 60 seconds.

NOTICE:

The same selection of parameters can be programmed using the integrated circuit board buttons.

The programming method is identical.

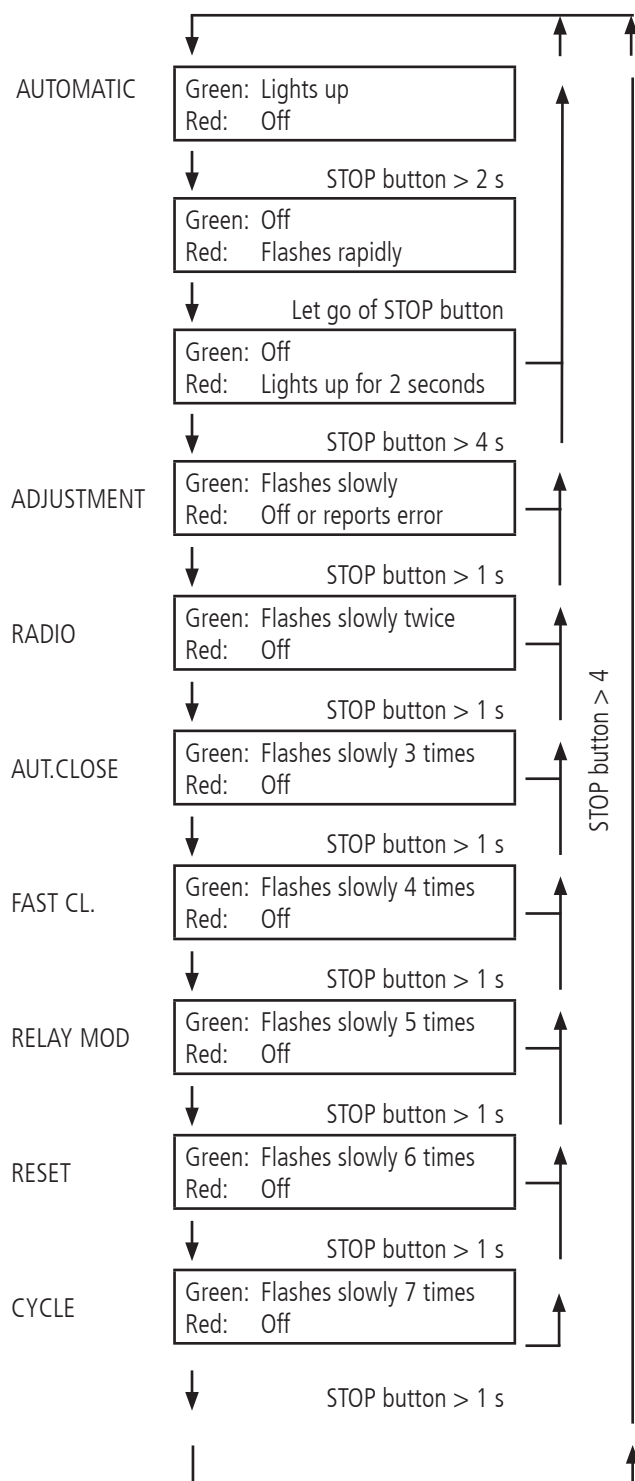


- A: LED 1 green
- B: LED 2 red
- C: Button (+) / (OPEN)
- D: Button (P) / (STOP)
- E: Button (−) / (CLOSE)

Programming with the CSI-15 3-button input unit

7.2 Menu structure

The following diagram shows the internal menu structure of the CSI-15 input unit, as well as the required button commands and the ensuing messages, in order to run through the menu.



NOTICE:

Once the user is inside the menu structure, all parameters need to be run through in turn. It is possible to revert to automatic mode at any time by pressing button (O) for approximately 4 seconds.

After switching on the control for the first time, or after a RESET, the control enters the initialisation phase. The green LED flashes rapidly. The control system is not ready for use. After switching on for the first time, the initialisation phase takes approximately 60 seconds. It then automatically selects ADJUSTMENT mode. The green LED flashes slowly.

7.3 Checking the direction of rotation

Changing to adjustment mode

- ☞ Keep button (O) pressed for approx. 2 seconds. The red LED flashes rapidly.
- ☞ Let go of button (O). The red LED lights up for approx. 2 seconds.
- ☞ Meanwhile, keep button (O) pressed for approximately 4 seconds.
- ☞ The green LED flashes slowly. The red LED is OFF.

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.

Changing the direction of travel

- ☞ Press button (↑) and (↓) at the same time for longer than 5 seconds. The green LED lights up and remains ON. The red LED is OFF. Any end positions that have been saved will be deleted. Continue with setting the end positions.

7.4 Set the CLOSED end position (ADJUSTMENT)

The green LED flashes slowly.
The red LED is OFF.

Setting the OPEN end position

- ✎ Press buttons (↑/ ↓) to move the door/gate into the desired OPEN end position.
- ✎ Save the end position setting by pressing button (O) and by additionally pressing button (↑).
After letting go of both buttons, the green LED lights up for 2 seconds.

Setting the CLOSED end position

- ✎ Press buttons (↑/ ↓) to move the door/gate to the desired CLOSED end position.
- ✎ Save the end position setting by pressing button (O) and by additionally pressing button (↓).
The green LED lights up for 2 seconds.

The RADIO parameter is selected automatically once the end positions have been set.

- The green LED flashes twice slowly.
- The red LED is OFF.
- The RADIO parameter is selected.

N.B.

- Adjustment mode will end automatically after approx. 7 seconds if no key is pressed.
- 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 menu can be exited by pressing button (O) once the teaching-in of the special end position has been completed.
- After programming the limit switches, the teach-in of the system running time is carried out automatically. The functions of the control are the same as in automatic mode.

Immediate change to next parameter RADIO without correcting a position:

- ✎ Pressing button (O) > 1 second

The parameter then changes automatically to the RADIO parameter.

The green LED flashes twice slowly. The red LED is OFF.
The RADIO parameter is selected.

7.5 Teaching-in the radio hand transmitter (RADIO)

The green LED flashes twice slowly.
The red LED is OFF.

- ✎ Press button (O).
The green LED flashes rapidly (ready for teaching-in procedure).
The red LED is OFF.
- ✎ Press the button on the handset which is to subsequently carry out the command.
The green LED lights up for 2 seconds.
The red LED is OFF.
The teaching-in procedure for the hand transmitter has successfully been completed.

Followed by automatic change to AUT.CLOSE parameter.

- The green LED flashes slowly three times.
- The red LED is OFF.
- The AUT.CLOSE parameter is automatically selected.

Immediate change to next parameter AUT. CLOSE without teaching-in a radio hand transmitter.

- ✎ Press the (O) button.
The green LED flashes rapidly (ready for teaching-in procedure).
The red LED is OFF.
- ✎ Press the (O) button.
The red LED flickers for 2 seconds.
The green LED is OFF.


Automatic change to AUT.CLOSE parameter.

- The green LED flashes slowly three times.
- The red LED is OFF.
- The AUT.CLOSE parameter is automatically selected.

Programming with the CSI-15 3-button input unit

7.6 Automatic closing after elapse of time (AUT. CLOSE)

The green LED flashes slowly three times.
The red LED is OFF.

 Press button (O).
The first setting (MOD1) is displayed.

Buttons (↑) and (↓) can be used to scroll through the list of modes.

MOD1:

The green LED is OFF, the red LED flashes rapidly.
No automatic closing.

MOD2:

The green LED is OFF, the red LED flashes rapidly twice.
Automatic closing is active.
Open time 15 s + forewarning time 5 s.

MOD3:

The green LED is OFF, the red LED flashes rapidly 3 times.
Automatic closing is active.
Open time 30 s + forewarning time 5 s.

MOD4:


The green LED is OFF, the red LED flashes rapidly 4 times.
Automatic closing is active.
Open time 60 s + forewarning time 5 s.

Button (O) is used to save the selected MOD.

- The green LED lights up for 2 seconds.
- Followed by automatic change to FAST CL. parameter.
- The green LED flashes slowly 4 times.
- The red LED is OFF.
- The parameter FAST CL. is selected.

7.7 Earlier closing after the photocell beam has been interrupted (FAST CL.)

The green LED flashes slowly 4 times.
The red LED is OFF.

 Press button (O).
The first setting (MOD1) is displayed.

Buttons (↑) and (↓) can be used to scroll through the list of modes.

MOD1:

The green LED is OFF, the red LED flashes rapidly.
The open time elapses in the normal way.

MOD2:

The green LED is OFF, the red LED flashes rapidly twice.
The open time is aborted after the photocell beam has been interrupted; automatic closing starts.

MOD3:

The green LED is OFF, the red LED flashes rapidly 3 times.
The open time is aborted after the photocell beam has been interrupted; automatic closing starts.
The interruption must last at least 2 seconds


Button (O) is used to save the selected MOD.

- The green LED lights up for 2 seconds.
- Followed by automatic change to RELAY parameter.
- The green LED flashes slowly 5 times.
- The red LED is OFF.
- The RELAY parameter is selected.

7.8 Relay output function

The green LED flashes slowly five times
The red LED is OFF

The CSI-15 input unit can only be used to select and programme 3 of the 44 functions.

 Pressing button (O).

The factory setting (MOD2) is displayed.

Buttons (↑) and (↓) can be used to scroll through the list of modes.

MOD1:

The green LED is OFF, the red LED flashes rapidly.
Red traffic light function
Flashing during forewarning,
lit up during door run

MOD2:

The green LED is OFF, the red LED flashes rapidly twice.
Red traffic light function
Flashing during forewarning,
flashing during door run

MOD6:


The green LED is OFF, the red LED flashes rapidly three times.
OPEN end position query
The relay is active when the OPEN end position is reached

Button (O) is used to save the selected MOD.

- The green LED lights up for 2 seconds.
- The parameter then changes automatically to the RESET parameter
- The green LED flashes slowly six times
- The red LED is OFF
- The parameter RESET is selected

7.9 Resetting all settings to factory default settings (RESET)

The green LED flashes slowly 6 times.
The red LED is OFF.

 Press button (O).

The first setting (OFF) is displayed.

OFF: The red LED flashes briefly (0.1 second).
No reset to factory default settings.

ON: The red LED flashes slowly.
Complete reset of the control

Button (O) is used to save the selected MOD.

Selection OFF:

The red LED flickers for 2 seconds and no control reset is carried out.

Followed by automatic change to CYCLE parameter

- The green LED flashes slowly 7 times.
- The red LED is OFF.
- The CYCLE parameter is selected.

Selection ON:

All settings are reset to the factory default settings.

Followed by automatic change to ADJUSTMENT parameter

The end positions must be set again initially.

Programming with the CSI-15 3-button input unit

7.10 Reading out the cycle counter (CYCLE)

The green LED flashes slowly 7 times.

The red LED is OFF.

 Press button (O).

The current number of cycles is displayed as a separate flashing signal for each single digit place.

Order of display:

O_T_H_O Th_T Th_H Th

Display:

0 - RED flashes briefly (0.1 second)

1 - RED flashes slowly 1 x


2 - RED flashes slowly 2 x

...


The change from one digit place to another is shown by a single flash of the green LED.

After all places have been run through, the display starts again with the units digit. This change is displayed by the green LED lighting up for 3 seconds.

Change back to AUTOMATIC:

 Press button (O).

Direct change to the next parameter AUTOMATIC without reading out the cycle counter.

 Press button (O) for longer than 4 seconds:

The green LED lights up.

The red LED is OFF.

The system has now reverted to automatic operating mode.

8. Programming with the LCD monitor

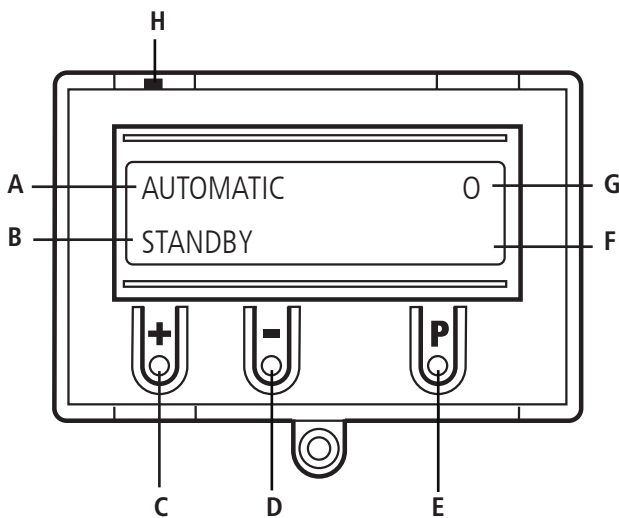
EN

8.1 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 121246) 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.

After the control has been switched on, it will be in the initialisation phase. The display will indicate "PLEASE WAIT". The control system is not ready for use. After switching on for the first time, the initialisation phase takes approximately 60 seconds.

8.2 LCD monitor, modes of operation

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

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

ADJUSTMENT, INPUT and DIAGNOSIS modes are exited automatically 7 seconds after the last button was pressed. The control then goes into AUTOMATIC mode.

Operating mode 1: AUTOMATIC

The door/gate 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 MOD2-6 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 driven beyond the end position.

Fine adjustments can be made in the INPUT operating mode.

Display:

- The current end position value is shown

Programming with the LCD monitor

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

8.3 Initialisation / Reset

The following components will be recognised and taught-in automatically during initial operation and following a RESET:

- End position system
- Closing edge safety device
- Photocell system
- Input 2 (wicket door sensor)

During this process (approximately 60 seconds) the green LED flashes rapidly and the top line of the display shows the message "PLEASE WAIT".

It is not possible to operate the system during this process. Components can be changed or added at a later date using the LCD display or by reinitialising the system.

If one of the components has not yet been connected, this will be indicated by "A" in the display.

This component will be searched for if any further initialisation procedure is carried out. If this component is recognised, the system automatically switches to the appropriate adjustment mode.

Exception:

Input 2 remains inactive (MOD1) if no 8.2 k Ω resistance was recognised the first time that initialisation was carried out.

8.4 RESETTING the control using the LCD monitor

Switching to INPUT mode.

- ☞ Press button (P) until "INPUT" appears in the display.
- ☞ Press buttons (+) and (–) for longer than 2 seconds to activate the Input.

Resetting the control

- ☞ Press the (+/–) buttons until the "RESET" parameter appears in the display.
The value is set to "OFF".
- ☞ Press the (P) button until the display flashes.
- ☞ Press the (+) button until MOD3 appears in the display.
- ☞ Press button (P) to begin the RESET.

The initialisation phase takes place, and all of the safety components that are connected and the end position system are automatically taught in.

Changing to adjustment mode

- ➔ "6.4 Setting the electronic end position system using the LCD monitor"

Changing to automatic mode

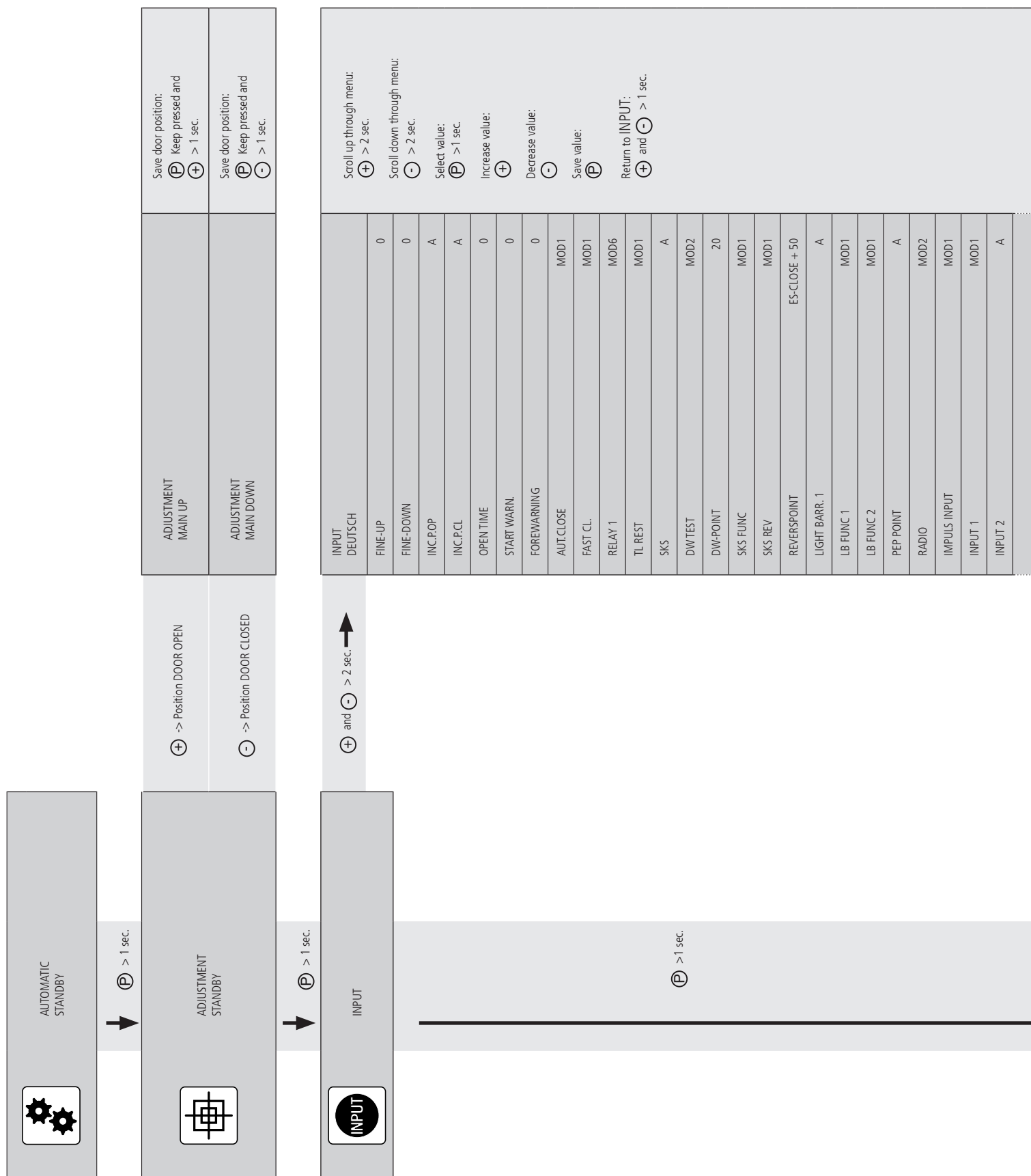
- ☞ Press button (P) until "AUTOMATIC" appears in the display.

8.5 RESETTING the control without an LCD monitor (only using internal circuit board buttons)

- ✎ Disconnect the system from the power supply.
- ✎ Press the circuit board buttons (P) and (–) at the same time and keep them pressed.
- ✎ Switch the power supply back on again.
- ✎ Press the circuit board buttons (P) and (–) at the same time and keep them pressed until the red LED (H2) flashes quickly.
- ✎ Release the circuit board buttons (P) and (–).
 - The green LED (H1) flashes slowly.
 - The initialisation phase takes place (approximately 60 s).
 - While initialisation is being carried out, it is not possible to programme or operate the system.
 - The rapid flashing of the green LED changes to slow flashing.
 - The system is in ADJUSTMENT mode.

Once initialisation has been successfully completed, the end positions have then been deleted and all parameters have been reset to their factory default settings.


9. Navigator (LCD monitor only)





RUNNINGTIME	A
REVERS.TIME	300
LIMIT SW.	A
SELF LOCK	MOD1
POWER	10
RESET MSBUS	OFF
RESTART	OFF
FACTORY SET.	99
RESET	OFF
PIN NO.2	1111
SERVICE	OFF



DIAGNOSIS

Scroll up through menu:
 > 2 sec.

Scroll down through menu:
 > 2 sec.

Return to AUTOMATIC:


Only queries are possible.

UPPER SWITCH	ON
LOWER SWITCH	ON
UP-SWITCH	OFF
DOWN-SWITCH	OFF
INPUT 1	OFF
INPUT 2	- / OFF
SKS	ON
SKS 2	- / ON
STOP 2	- / ON
IMPULS INPUT	OFF
SWITCH CLOCK	OFF
LIGHT BARR.	ON
LIGHT BARR2	ON
SAFETY CIRC.	ON
STOP	ON
ROT FIELD	RIGHT
CYCLE	000000
SERVICE	OFF
AWG	0000
Error Memory	ERROR ...

10. Overview of functions

10.1 Automatic operating mode



Display		Description
AUTOMATIC TEACH IN RUN		Automatic teach-in of the running time.
AUTOMATIC OPENING		The door is in the opening phase.
AUTOMATIC CLOSING		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 OPEN position ("INC.P.OP" or "Intermediate OPEN position" parameter).
AUTOMATIC STANDBY	U	The door is at the CLOSED end position.
AUTOMATIC STANDBY	u	The door is at the part CLOSED position ("INC.P.CL." or "Intermediate CLOSED position" parameter).
AUTOMATIC STANDBY	r	The door is in the reversing switch-off position.
AUTOMATIC PERMANENT INPUT		<p>A signal is permanently displayed. This can be a command device or a programmable input. This constitutes an invalid state under any circumstances. This state is probably caused by a faulty component which needs to be replaced.</p> <p>Exception: An exception to this is if the signal comes from the pluggable timer or the programmed input 1 when this is set to a timer function (MOD4) or fire alarm function (MOD5-9, 13).</p>

If the "SELF LOCK" parameter is set to MOD2, 3, 4, 5 or MOD6 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.

10.2 Input operating mode



Function	Description	Setting options	Factory settings
DEUTSCH	<p>Select the menu language.</p> <p>Only possible using the LCD monitor: Alternatively, the menu language can also be selected during the initialisation phase (during initial operation or after a reset). The menu language pre-set in the factory (DEUTSCH) appears here for approximately 60 seconds as flashing text in the display. At this point, the menu language can still be changed during the initialisation procedure. Pressing buttons [+] or [-] will allow you to scroll through and select a language. Save the language you have selected by pressing button [P]. After this, all texts or messages displayed are shown in the language that you have selected.</p>	DEUTSCH ENGLISH FRANCAIS NEDERLANDS DANSK ESPANOL POLSKI CESKY ITALIANO SUOMI SVENSKA TÜRKÇE NORSK MAGYARUL	DEUTSCH
FINE-UP	<p>Fine adjustment of the OPEN end position in relation to the saved OPEN end position (ES-OPEN). Only visible if an electronic end position system is used.</p>	-250 – 250	0
FINE-DOWN	<p>Fine adjustment of the CLOSED end position in relation to the saved CLOSED end position (ES-CLOSE). Only visible if an electronic end position system is used.</p>	-250 – 250	0
INC.P.OP	<p>Setting the switching point for the intermediate OPEN position (Part OPEN) in relation to the saved OPEN end position. Displayed as a negative value. Only visible if an electronic end position system is used.</p> <p>Automatic teach-in of position: → "6.5 Setting the intermediate positions of the electronic end position system using the LCD monitor"</p>	A (teach-in) -1 - ES-CLOSE	A
INC.P.CL	<p>Setting the switching point for the intermediate CLOSE position (Part CLOSED) in relation to the saved CLOSED end position. Displayed as a positive value. Only visible if an electronic end position system is used.</p> <p>Automatic teach-in of position: → "6.5 Setting the intermediate positions of the electronic end position system using the LCD monitor"</p>	A (teach-in) 1 - ES-OPEN	A
OPEN TIME	<p>After the door/gate has opened, it runs back automatically in the CLOSE direction after the set time has elapsed.</p> <p>N.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 movement is interrupted by the SKS, the open time is added on with each new attempt. After 3 attempts, the automatic closing process will be aborted automatically.</p>	OFF, 1 – 3600 s	OFF :
START WARN.	<p>The start warning is carried out before each run.</p>	OFF, 1 – 10 s	OFF
FORE-WARNING	<p>The forewarning is activated before an automatic closing run starts and before closing in impulse mode.</p> <p>N.B.: This time is added to the start warning.</p>	OFF, 1 – 300 s	OFF

Overview of functions

Function	Description	Setting options	Factory settings
AUT.CLOSE	Automatic closing after the open time has elapsed. MOD1: AUT.CLOSE from OPEN end position MOD2: AUT.CLOSE from part OPEN end position MOD3: AUT.CLOSE from OPEN end position and part OPEN end position MOD4: AUT.CLOSE from all door/gate positions	MOD1 – MOD4	MOD1
FAST CL.	Earlier closing after the photocell beam has been interrupted. Requirements: A photocell must be installed at passage height and an open time greater than 0 must have been programmed. MOD2: The open time is cut short after the photocell (door closes immediately). If the photocell is driven through during an opening run, the programmed open time is ignored and the door closes immediately. MOD3: The open time is cut short after the photocell beam has been interrupted for a minimum of 2 seconds (in order to discount pedestrian traffic). If the photocell is driven through during an opening run, the programmed open time is ignored and the door closes immediately. MOD4: As for MOD2, except that the photocell has no function during the opening run.	OFF, MOD2 – MOD4	OFF
RELAY 1	Select a function to be assigned to the relay output. Further explanations: → "Explanation of the relay modes:" on page 35 MOD1: (Red traffic light 1) flashes during forewarning and is ON during door run MOD2: (Red traffic light 2) flashes during forewarning and during door run MOD3: (Red traffic light 3) is ON during forewarning and 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: Intermediate OPEN position MOD11: Intermediate CLOSE position MOD12: Intermediate CLOSE position to CLOSED end position MOD13: Magnetic lock function MOD17: SKS activated or test error MOD18: (Red traffic light 4) flashes during forewarning and is OFF during door run MOD19: Intermediate OPEN position to OPEN end position MOD21: Test of draw-in protection before opening run (additional module required) MOD22: Activation of radio transmission systems 1 and 3 and/or light curtain testing MOD23: (Green traffic light) is ON at OPEN end position, OFF during forewarning 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 OFF MOD29: Door opens MOD30: Door closes MOD31: Service, continuous signal once the pre-set maintenance interval is reached MOD34: Fire alarm signal (fire detection and alarm system (BMA) active) MOD35: Photocell operative MOD36: Wicket door locking cylinder MOD37: Testing of stop signal through radio transmission systems 1 and 3 MOD38: Testing of light curtain 2 (input 2) MOD39: LED error MOD40: Impulse signal when OPEN command is given from outside MOD41: Test of radio transmission system 4 in OPEN direction MOD43: Drive runs in OPENING or CLOSING direction	MOD1 - MOD62	MOD2

Function	Description	Setting options	Factory settings
	MOD60: (Red traffic light, outside) flashes during forewarning and is ON during door run MOD61: (Red traffic light outside) flashes during forewarning and during door run MOD62: (Green traffic light outside) ON at OPEN end position, OFF during forewarning, and OFF during door run)		
T-LI. REST	Switches traffic lights MOD1: OFF in standby mode MOD2: ON in standby mode MOD3: In standby OFF after 5 minutes	MOD1 – MOD3	MOD1
SKS	MOD1: OSE (optosensor) MOD2: 8.2 kΩ (electrical contact strip) MOD3: DW pressure sensor (airwave bar) as NC with testing MOD4: Optosensor (OSE) light curtain without testing MOD5: PNP light curtain with testing MOD6: PNP light curtain without testing NOTICE: MOD4, MOD5 and MOD6 must be set manually if a light curtain is used. – Without any addition to the open time (if programmed) after the light curtain has been interrupted during automatic closing. – Without switching off "Automatic closing" after 3 interruptions in a row.	A – (teach-in) MOD1 – MOD6	A
DW TEST	Activation and deactivation of testing function for the attached DW airwave bar. Only appears if parameter setting SKS = MOD3. MOD1: Test OFF MOD2: Test ON	MOD1 – MOD2	MOD2
DW-POINT	Point at which the DW airwave bar attached is tested (XP74 / 2+3). Only appears if parameter setting SKS = MOD3. Setting is done in increments (only AWG), starting from the lower travel cut-out point. In systems with mechanical limit switches, the additional CLOSE limit switch serves as the DW-POINT.	0 – 1000	20
SKS FUNC	MOD1: Stop + reverse MOD2: Stop + 2-second reversing movement	MOD1 – MOD2	MOD1
SKS REV	MOD1: Stop + reverse between OPEN end position and reversing point Stop between reversing point and CLOSED end position → for vertically closing doors MOD2: Stop + reverse between OPEN end position and reversing point No action between reversing point and CLOSED end position → for vertically closing doors with leading photocell MOD3: Stop + reverse between OPEN end position and CLOSED end position → for horizontally closing doors NOTICE: In systems with mechanical limit switches, the additional CLOSE limit switch serves as the reversing point.	MOD1 – MOD3	MOD1
REVERS-POINT	Reversing point. Point at which the reversing movement of the door is switched off. Appears only for systems with an electronic end position system (AWG). Setting is done in increments, starting from the lower travel cut-out point. In systems with mechanical limit switches, the additional CLOSE limit switch serves as the reversing point.	A – (teach-in) 1 – 1000	50
LIGHT BARR. 1	Photocell 1, installed in the drive-through area of the door. Connection to XP63 / 1+2 MOD1: MFZ 2-wire system MOD2: NC contact / NPN MOD3: PNP	A – (teach-in) MOD1 – MOD3	A

Overview of functions

Function	Description	Setting options	Factory settings																														
LB FUNC 1	<p>Function of photocell 1 in the drive-through area of the door.</p> <table><tr><th></th><th>CLOSING door movement</th><th>OPENING door movement</th></tr><tr><td>MOD1:</td><td>Stop + reverse</td><td>No action</td></tr><tr><td>MOD2:</td><td>Stop + short reversal</td><td>No action</td></tr><tr><td>MOD3:</td><td>STOP</td><td>No action</td></tr><tr><td>MOD4:</td><td>STOP</td><td>STOP</td></tr><tr><td>MOD5:</td><td>Stop + reverse</td><td>Dragging up suppression OPENING</td></tr><tr><td>MOD6:</td><td>No action</td><td>Stop + reverse</td></tr><tr><td>MOD7:</td><td>No action</td><td>Stop + short reversal</td></tr><tr><td>MOD8:</td><td>No action</td><td>Stop</td></tr><tr><td>MOD9:</td><td>Travel suppression CLOSE</td><td>Stop + reverse</td></tr></table> <p>Travel suppression OPEN (MOD5): The intermediate CLOSE position is set to the value of the CLOSED end position + 600. If the system is situated between the CLOSE end position and the intermediate CLOSE position, the door/gate cannot be opened as long as the photocell beam is interrupted.</p> <p>Travel suppression CLOSE (MOD9): The intermediate OPEN position is set to the value of the OPEN end position - 600. If the system is situated between the OPEN end position and the intermediate OPEN position, the door/gate cannot be closed as long as the photocell beam is interrupted.</p>		CLOSING door movement	OPENING door movement	MOD1:	Stop + reverse	No action	MOD2:	Stop + short reversal	No action	MOD3:	STOP	No action	MOD4:	STOP	STOP	MOD5:	Stop + reverse	Dragging up suppression OPENING	MOD6:	No action	Stop + reverse	MOD7:	No action	Stop + short reversal	MOD8:	No action	Stop	MOD9:	Travel suppression CLOSE	Stop + reverse	MOD1 – MOD9	MOD1
	CLOSING door movement	OPENING door movement																															
MOD1:	Stop + reverse	No action																															
MOD2:	Stop + short reversal	No action																															
MOD3:	STOP	No action																															
MOD4:	STOP	STOP																															
MOD5:	Stop + reverse	Dragging up suppression OPENING																															
MOD6:	No action	Stop + reverse																															
MOD7:	No action	Stop + short reversal																															
MOD8:	No action	Stop																															
MOD9:	Travel suppression CLOSE	Stop + reverse																															
LB FUNC 2	<p>Function of photocell 2 in the drive-through area of the door. Only appears if parameter setting INPUT 1 = MOD15. Connection only possible as an NC contact at programmable Input 1 (XB99 / 1+2). Selection mode similar to the settings under LB FUNC. 1</p>	MOD1 - MOD9	MOD1																														
PEP POINT	<p>Photocell 1 (XP63 / 1+2) is not evaluated between the CLOSED end position and the PEB POINT. Setting is done in increments, starting from the lower travel cut-out point. Only visible in systems with electronic limit switch.</p> <p>N.B.: When adjusting, this point will be automatically recognised during the first closing run, provided that Photocell 1 is installed in the door frame and the photocell remains interrupted during the closing operation from this point through to the CLOSED end position.</p>	A – (teach-in) 1 - ES-OPEN	A																														
RADIO	<p>Configuration of the internal radio system in conjunction with the plug-in CS module antenna 868 MHz.</p> <p>MOD1: OPEN - STOP - CLOSE - STOP - OPEN - ... (sequence control) MOD2: Part OPEN MOD3: OPEN MOD4: CLOSE MOD5: Delete an individual radio transmitter Set MOD5 and then activate the hand transmitter to be deleted. MOD6: Delete entire memory</p>	MOD1 - MOD6	MOD1																														
IMPULSE	<p>Select a function to be assigned to impuls button (Input 1 - MOD17 - XB99 / 1+2).</p> <p>MOD1: OPEN - STOP - CLOSE - STOP - OPEN - ... (sequence control) MOD2: OPEN if door is stationary / No action if door is opening Stop and OPEN if door is closing MOD3: OPEN if door is stationary / STOP if door is moving MOD4: OPEN if door is stationary / No action if door is moving MOD5: OPEN if door is stationary / CLOSE if door is at the OPEN end position</p>	MOD1 – MOD5	MOD1																														

Function	Description	Setting options	Factory settings
INPUT 1	<p>Select a function to be assigned to Input 1 (XB99 / 1+2).</p> <p>MOD1: Part OPEN button MOD2: Part OPEN switch MOD3: AUTO CLOSE switch MOD4: External CLOCK (continuously OPEN) MOD5: Fire alarm (BMA) switch 3 (partial opening) NO MOD6: Fire alarm (BMA) switch 1 (emergency closing) NO MOD7: Fire alarm (BMA) switch 1 (emergency closing) NC MOD8: Fire alarm (BMA) switch 2 (emergency opening) NO MOD9: Fire alarm (BMA) switch 2 (emergency opening) NC MOD10: Ventilation button (partial opening) NO MOD11: Automatic closing button MOD12: Laser scanner (special solution) MOD13: Fire alarm (BMA) switch 3 (partial opening) NC MOD14: Wicket door lock MOD15: Photocell 2 NC MOD16: Forewarning switch MOD17: Impulse button MOD30: OPEN button inside MOD31: OPEN button outside MOD32: CLOSE button (Only active with operational closing edge safety device and operational Photocell 1. No function in deadman mode)</p>	MOD1 – MOD32	MOD1
INPUT 2	<p>Select a function to be assigned to Input 2 (XP74 / 2+5).</p> <p>OFF: NOT active MOD2: Wicket door sensor 8.2 kΩ Stop if there is deviation MOD3: Closing edge safety device OPEN 8.2 kΩ, active in the OPEN direction Stop and reverse when triggered MOD4: Closing edge safety device 8.2 kΩ, active in the OPEN direction Stop and short reversal when triggered MOD5: Battery mode MOD6: Radar motion detectors (special solution) MOD7: Light curtain 2 (PNP)</p> <p>During initial operation and after a reset, Input 2 will be set once to A – (teach-in). If no connected components are recognised, the input will be automatically deactivated. OFF appears in the display and the input must be manually activated.</p>	A – (teach-in) OFF MOD2 - MOD7	A
RUNNING-TIME	<p>Monitoring the maximum running time for an OPEN or CLOSE movement. The running time is determined automatically during the teach-in run. In the event of a 20% deviation (in both directions) an ERROR RUNTIME appears. After the automatic teach-in, the running time can be manually changed.</p>	A – (teach-in) OFF 1 – 300 s	A
REVERS.TIME	<p>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.</p>	100 - 5000 ms	300
LIMIT SW.	<p>Select the end position system to be evaluated.</p> <p>MOD1: Absolute value encoder (AWG) MOD2: Mechanical limit switch (MEC)</p>	A – (teach-in) MOD1 – MOD2	A
SELF LOCK	<p>Choose between impulse and manual operation, with or without evaluation of closing edge safety device (CESD) and photocell system (LB).</p> <p>MOD1: Automatic operation MOD2: Manual operation for OPEN + CLOSE with SKS and LB evaluation MOD3: Manual operation for CLOSE with SKS and LB evaluation MOD4: Manual operation for OPEN with SKS and LB evaluation MOD5: Manual operation for OPEN + CLOSE without SKS and LB evaluation MOD6: Manual operation for CLOSE without SKS and LB evaluation</p>	MOD1 – MOD6	MOD1

Overview of functions

Function	Description	Setting options	Factory settings
POWER	Automatic power monitoring (monitoring the rotational speed) Error message if the door/gate 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 and closing runs. If the power monitoring facility is activated, a value must be set that is lower than the lowest value displayed during door/gate travel. 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 numerical value is set.	OFF 1 – 999	10
RESET MSBUS	All MSBUS addresses assigned will be reset. After restarting the control, all MSBUS devices connected will be re-addressed. → Refer to the instruction manual for the MSBUS device for detailed information.	ON OFF	OFF
RESTART	Control is restarted if function is activated.	ON OFF	OFF
FACTORY SET.	Selecting the set of parameters that you want to reset to. MOD10 - MOD 98: Customer-specific MOD99: MFZ standard	OFF MOD10 - MOD99	MOD99
RESET	Reset the control parameters to the pre-set factory default settings MOD2: Partial reset 2 (everything except the end positions / end position system) MOD3: Total reset (everything is returned to factory default setting)	OFF, MOD2 - MOD3	OFF
PIN NO. 2	Input and selection of a PIN code for programming a maintenance interval. After entering the PIN code, the second programming level is opened. A maintenance interval can now be input at the parameter SERVICE. Input level 2 goes off again after the power has been switched off, or goes off automatically after 10 minutes. The PIN code can only be changed at the second programming level.	0 – 9999	1111
SERVICE	OFF: Maintenance indicator not activated Setting a maintenance interval. After the pre-set number of door cycles has been carried out, a maintenance message (LED / LCD) is given. If a relay output is programmed to MOD31, the relay concerned is triggered (continuous signal). Only appears after input level 2 has been activated via parameter PIN NO. 2.	OFF 0 – 99999	OFF

Explanation of the relay modes:
A. Traffic light functions

MOD	Description	CLOSED end position	OPEN end position	Forewarning	Door run
MOD1	Red traffic light 1 ³	ON / OFF ¹	OFF ²	Flashing	Lit up
MOD2	Red traffic light 2 ³	ON / OFF ¹	OFF ²	Flashing	Flashing
MOD3	Red traffic light 3 ³	ON / OFF ¹	OFF ²	Lit up	Lit up
MOD18	Red traffic light 4 ³	OFF	OFF	Flashing	OFF
MOD23	Green traffic light ³	OFF	ON ²	OFF	OFF
MOD60	Red traffic light 1 ⁴	ON / OFF ¹	OFF ²	Flashing	Lit up
MOD61	Red traffic light 2 ⁴	ON / OFF ¹	OFF ²	Flashing	Flashing
MOD62	Green traffic light ⁴	OFF	ON ²	OFF	OFF

¹ Dependent on parameter TL REST

² If two-way traffic control is activated: dependent on inside or outside OPEN command

³ If two-way traffic control is activated: traffic light inside

⁴ If two-way traffic control is activated: traffic light outside

B. Position messages

MOD	Description	Remarks
MOD6	OPEN end position	The relay closes the contact when the door is at the OPEN end position.
MOD7	CLOSED end position	The relay closes the contact when the door is at the CLOSED end position.
MOD8	Not OPEN end position	The relay closes the contact when the door is not at the OPEN end position.
MOD9	Not CLOSED end position	The relay closes the contact when the door is not at the CLOSED end position.
MOD10	Intermediate OPEN position (Part OPEN)	The relay closes the contact when the door is at the intermediate OPEN position (part OPEN).
MOD11	Intermediate CLOSE position (Part CLOSED)	The relay closes the contact when the door is at the intermediate CLOSE position (Part CLOSED).
MOD12	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 CLOSED).
MOD19	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 OPEN).

Overview of functions

C. Impulse signals

MOD	Description	Remarks
MOD4	Impulse when OPEN command is given from inside	The relay closes the contact for 1 second when the door receives an OPEN command from inside. This impulse can be used to control lights, for instance.
MOD27	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.
MOD 40	Impulse when OPEN command is given from outside	The relay closes the contact for 1 second when the door receives an OPEN command from outside. This impulse can be used to control lights, for instance.

D. Error messages

MOD	Description	Remarks
MOD5	Error message	The relay opens the contact when a STOP command is given or an error occurs. All errors described in Section 11 result in actuation of the relay.
MOD17	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.
MOD35	Photocell	As with photocell input XP63 (1/2), the signal received is passed on in the form of a message. Relay ON: Photocell signal is OK Relay OFF: Light beam interrupted or fault in photocell
MOD39	LED error	The relay always closes the contact when the internal error LED 2 (red) lights up.

E. Movement signal

MOD	Description	Remarks
MOD29	Door OPENS.	Active during movement.
MOD30	Door CLOSES.	Active during movement.
MOD43	Door OPENS or CLOSES.	Active during every movement (triggering of a motor brake)

F. Functions for external accessories

MOD	Description	Remarks
MOD13	Magnetic lock function	The relay closes before each door movement. The relay is normally open. A delay of 0.5 seconds is programmed to elapse before each door movement takes place.
MOD21	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.
MOD22	Activation of radio transmission systems 1 and 4, testing of light curtain 1	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.
MOD24	Capacitor	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.
MOD25	Yard light function	At every OPEN command, the relay is closed for 2 minutes and can therefore be used to control a light.
MOD26	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.
MOD28	Relay OFF	The relay is generally switched off; the contact is always open.
MOD36	Pneumatic cylinder for locking the wicket door (threshold-less door system).	Every time an OPEN command is given, the relay is activated and controls a pneumatic cylinder which mechanically locks the wicket door that is incorporated in the door. The locking position of the cylinder is queried through a limit switch. The door starts moving only after this limit switch has been released. The relay remains activated until the lower end position has been reached again.
MOD37	Testing of the stop signal via radio transmission systems 1 and 3	The relay generates a test signal when the OPEN end position is reached and expects, as a reaction to the test signal, that the stop circuit is interrupted.
MOD38	Testing light curtain 2 (8.2 kΩ) Connection to input 2 (XP74 / 2+5)	The relay generates a test signal when the OPEN end position is reached and expects, as a reaction to the test signal, that there is an interruption to Input 2.
MOD 41	Activation of radio transmission system 4 in the OPEN direction	The relay generates a test signal when the CLOSED end position is reached and expects, as a reaction to the test signal, that there is an interruption to Input 2.

G. Input-dependent messages

MOD	Description	Remarks
MOD34	BMA signal	Triggered if fire alarm system active. Follows the signal at Input 1 if set to MOD5-9 / 13. In this case, Input 1 is supplied with a control signal from the fire alarm system, and depending on the setting, opens or closes the door to an end position or an intermediate position.

Overview of functions

Key to inputs:

A. Input 1 functions

MOD	Description	Remarks
MOD1	PART OPEN button	When the button is pressed (Input 1), the door opens as far as the intermediate OPEN position (PART OPEN).
MOD2	PART OPEN switch	Closed: All OPEN commands lead to the intermediate OPEN position (PART OPEN). Open: All OPEN commands lead to the OPEN end position.
MOD3	AUTO CLOSE switch	Closed: No automatic closing (open time continues, if open time > 0) Open: Automatic closing run is activated (if open time > 0)
MOD4	External CLOCK (continuously OPEN)	The door opens once the contact closes and remains in the OPEN position (open time continues) until the contact opens. The door then closes automatically (only if open time > 0) This function can be aborted by pressing the CLOSE button. The gate CLOSES.
MOD5	Fire alarm (BMA) switch 3 (partial opening) NO	Control function if fire alarm system is active. Open: Normal operation Closed: Partial opening of the door. The intermediate OPEN position (Part OPEN) is approached from either direction, irrespective of the current door position. BUTTON: No function LIGHT BARR / SKS: Door stops and briefly reverses (only in CLOSING direction), and closes again after 5 seconds STOP: Emergency closing interrupted as long as this is activated
MOD6	Fire alarm (BMA) switch 1 (emergency closing) NO	Control function if fire alarm system is active. Open: Normal operation Closed: Emergency closing of door BUTTON: No function LIGHT BARR / SKS: Door stops and briefly reverses; emergency closing again after 5 seconds STOP: Emergency closing interrupted as long as this is activated
MOD7	Fire alarm (BMA) switch 1 (emergency closing) NC	Control function if fire alarm system is active. Closed: Normal operation Open: Emergency closing of door BUTTON: No function LIGHT BARR / SKS: Door stops and briefly reverses; emergency closing again after 5 seconds STOP: Emergency closing interrupted as long as this is activated
MOD8	Fire alarm (BMA) switch 2 (emergency opening) NO	Control function if fire alarm system is active. Open: Normal operation Closed: Emergency opening of door BUTTON: No function LIGHT BARR / SKS: No function STOP: Emergency closing interrupted as long as this is activated. No automatic closing after deactivation of fire alarm signal.

MOD	Description	Remarks
MOD9	Fire alarm (BMA) switch 2 (emergency opening) NC	Control function if fire alarm system is active. Closed: Normal operation Open: Emergency opening of door BUTTON: No function LIGHT BARR / SKS: No function STOP: Emergency closing interrupted as long as this is activated. No automatic closing after deactivation of fire alarm signal.
MOD10	Ventilation button NO	Partial opening of the door. When an additional button at Input 1 is pressed, the intermediate CLOSE position (Part CLOSED) is approached from either direction, irrespective of the current door position.
MOD11	"Automatic closing" button	1. Operation: No automatic closing; the open time continues. 2. Operation: Automatic closing of the door is active again, if the open time is > 0. 3. Operation: No automatic closing; the open time continues. ...
MOD12	Laser scanner (height detection)	Only in conjunction with Input 2 (MOD 6). → See explanation regarding Input 2.
MOD13	Fire alarm (BMA) switch 3 (partial opening) NC	Control function if fire alarm system is active. Closed: Normal operation Open: Partial opening of the door. The intermediate OPEN position (PART OPEN) is approached from either direction, irrespective of the current door position. BUTTON: No function LIGHT BARR / SKS: Door stops and briefly reverses (only in CLOSING direction), and closes again after 5 seconds STOP: Emergency closing interrupted as long as this is activated.
MOD14	Wicket door lock	Monitoring limit switch for the pneumatic lock system for wicket doors. The limit switch must confirm correct locking within 10 seconds of an OPEN command being given, otherwise the door remains stationary and an error message is given. This function affects relay mode 36.
MOD15	Photocell 2 NC	If a second photocell is installed in the drive-through area of the door, this system can be programmed via the LB FUNC 2 parameter in INPUT mode. Only photocells with a potential-free NC contact may be connected.
MOD16	Forewarning switch	Closed: Start-up warning and forewarning are inactive (even if both times are > 0). Open: Start-up warning and forewarning are active (only when both times are > 0). → "10.2 Input operating mode" on page 29
MOD17	Impulse button outside	Pressing the button moves or stops the door. – The function and direction of the movement depend on the IMPULS parameter setting in the Input menu. → "10.2 Input operating mode" on page 29 – If two-way traffic control is activated, this impulse command is treated as a signal from outside.
MOD30	OPEN button inside	When the button is pressed, the door opens as far as the OPEN end position. The traffic light inside changes to green.
MOD31	OPEN button outside	When the button is pressed, the door opens as far as the OPEN end position. The traffic light outside changes to green.
MOD32	CLOSE button	When the button is pressed, the door closes as far as the CLOSED end position. Only active with operational closing edge safety device and operational photocell 1. No function in deadman mode.

Overview of functions

B. Input 2 functions

MOD	Description	Remarks
OFF		Not active
MOD2	Wicket door sensor (8.2 kΩ)	Generally active Stops the system when actuated.
MOD3	Closing edge safety device OPEN (8.2 kΩ)	Closing edge safety device active in the OPEN direction Door stops and reverses to the CLOSED end position when the closing edge safety device is triggered.
MOD4	Closing edge safety device OPEN (8.2 kΩ)	Closing edge safety device active in the OPEN direction Door stops and moves in the CLOSE direction for 2 seconds (short reverse) when the closing edge safety device is triggered.
MOD6	Radar motion detector (height detection) NO	<p>The function is coupled to Input 1 (MOD12 – laser scanner). The preceding laser scanner detects the height of the vehicle. The installed radar motion detector generates an OPEN command when actuated.</p> <ul style="list-style-type: none"> – A tall vehicle (lorry) will be detected by the laser scanner. The laser scanner switches Input 1 (MOD12) to ON. The radar motion detector records the vehicle and triggers the door movement. The door is moved to the OPEN end position. – A lower vehicle (car) is recognised by the laser scanner. The laser scanner switches Input 1 (MOD12) to OFF. The radar motion detector records the vehicle and triggers the door movement. The door is moved to the intermediate OPEN position (Part OPEN). <p>All other OPEN commands (via XB50, XB11, XB72) always move the door to the OPEN end position. The Input 1 function (MOD12) then has no effect.</p>
MOD7	Light curtain 2 (PNP)	<p>Acts in same way as light curtain 1 (SKS MOD 4–6)</p> <ul style="list-style-type: none"> – Light curtain active in the CLOSE direction. – Stop and reverse when the light curtain is triggered. <p>The type of reversing (reverse / short reversal) is also adopted.</p>

10.3 Diagnosis / error memory operating mode



Display	Meaning	Status
UPPER SWITCH	OPEN end position	OFF: End position reached ON: End position not reached
LOWER SWITCH	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
CLOSE BUTTON	Command button / CLOSE input	ON: Button activated / input is active OFF: Button not activated / input not active
INPUT 1	INPUT 1 (XB99 / 1+2)	ON: Input 1 active OFF: Input 1 not active
INPUT 2	INPUT 2 (XP74 / 2+5)	ON: Input 2 active OFF: Input 2 not active Display ON / OFF only if set to MOD5 / MOD6 in parameter INPUT 2.
SKS	Closing edge safety device 1 (PS switch, 8.2kΩ or optosensor) or light curtain 1 (PNP or optosensor) (XP74 / 1-3) CLOSING direction	ON: System closed OFF: System interrupted (fault)
SKS 2	Closing edge safety device 2 (8.2 kΩ) or light curtain 2 (PNP) Connection to Input 2 (XP74 / 2+5) OPEN direction	ON: System closed OFF: System interrupted (fault) Display ON / OFF only if set to MOD3 / MOD4 / MOD7 in parameter INPUT 2.
STOP 2	Safety circuit 2 Wicket door sensor (8.2 kΩ) Connection to INPUT 2 (XP74 / 2+5)	ON: Safety circuit closed OFF: Safety circuit interrupted (fault) Display ON / OFF only if set to MOD2 in parameter INPUT 2.
IMPULS	Command button / IMPULSE input (INPUT 1 - MOD17 - XB99 / 1+2)	ON: Button activated / input is active OFF: Button not activated / input not active
SWITCH CLOCK	Weekly timer (Input 1 - MOD4 - XB99 / 1+2)	ON: Timer activated OFF: Timer not activated
LIGHT BARR.	Drive-through photocell 1 (XP63 / 1+2)	ON: Photocell signal is OK OFF: Light beam interrupted or fault in photocell
LIGHT BARR. 2	Drive-through photocell 2 Connection to Input 1 (XB99 / 1+2)	ON: Photocell signal is OK OFF: Light beam interrupted or fault in photocell
SAFETY CIRC.	Safety circuit 1 Emergency stop systems of door system	ON: Safety circuit closed OFF: Safety circuit interrupted
STOP	STOP command button (keypad on cover)	ON: Button not activated OFF: Button activated
ROT FIELD	Shows currently set rotational direction of door operator	RIGHT: Setting for clockwise rotating field LEFT: Setting for anticlockwise rotating field

Overview of functions

Display	Meaning	Status
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.
SERVICE	Service alarm function Service alarm function parameters SERVICE and PIN NO. 2	OFF: Maintenance indicator not activated 0 - 99999: Maintenance indicator activated Displays the number of door cycles left until a maintenance message is sent.
AWG	Shows position information of absolute value encoder	Displays the current transmitted value.
ERROR ... COUNT CYCLE	Control unit error memory Error messages from the control unit can be read out here with information on the frequency and cycle. The list of error messages can be scrolled through using buttons [+] and [-] on the LCD monitor. → "11.1 Error message shown on LCD monitor" Deleting the error log: Press buttons [+] and [-] at the same time for approximately 2 seconds. Every error message must be individually deleted.	The display changes every 2 seconds to show the following in turn: – the error description, – the frequency of occurrence and – the cycle in which the error last occurred. The list contains only errors which have already occurred before.

11. Error messages and rectification

EN

11.1 Error message shown on LCD monitor

Fault / error message	Cause	Rectification
System does not respond	<ul style="list-style-type: none"> No voltage supply. 	<ul style="list-style-type: none"> Check the voltage supply to the door operator and the control.
<p>Door travels to the CLOSED end position when the OPEN button is pressed</p> <p>Door travels to the OPEN end position when the CLOSE button is pressed</p>	<ul style="list-style-type: none"> Rotating field is connected wrongly. 	<ul style="list-style-type: none"> Check the rotating field and set direction to clockwise, if necessary.
FAULT – X	<ul style="list-style-type: none"> internal software or hardware fault. 	<ul style="list-style-type: none"> RESET using the circuit board buttons: → "8.5 RESETTING the control without an LCD monitor (only using internal circuit board buttons)"
SAFETY CIRC.	<ul style="list-style-type: none"> The safety circuit is interrupted. XR51 / 1+2 Control safety circuit EMERGENCY OFF, slack rope switch XV32 / 4+8 Safety circuit of door operator AWG XV36 / 4+8 Safety circuit of door operator MEC XB50 / 1+2 External stop button 	<ul style="list-style-type: none"> Check safety circuit, localise interruption and rectify problem.
ERROR RUNTIME	<ul style="list-style-type: none"> The programmed running time has been exceeded. 	<ul style="list-style-type: none"> Check the path of the door and the running time. Re-programme the running time, if necessary.
ERROR AWG	<ul style="list-style-type: none"> Signal transmission between absolute value encoder and control interrupted and/or broken down. 	<ul style="list-style-type: none"> Check the cable and socket connections and replace, if necessary.
TERM SWITCH FAIL	<ul style="list-style-type: none"> The door has travelled beyond the programmed end position area. The end positions have not yet been programmed. 	<ul style="list-style-type: none"> Move the door/gate back into the programmed area using the emergency operation facility. First, programme the end positions.
ERROR REVOLUTION	<ul style="list-style-type: none"> The power monitoring has been triggered. 	<ul style="list-style-type: none"> Check the door for any mechanical impairment or damage.
ERROR DIRECTION	<ul style="list-style-type: none"> The rotating field present is not a clockwise rotating field. 	<ul style="list-style-type: none"> Check the rotating field and change the direction, if necessary. → "6.1 Checking the direction of rotation/direction of travel"
ERROR SKS CLS.	<ul style="list-style-type: none"> Closing edge safety device 1 is faulty in the CLOSING direction → (XP74 / 1-3). 	<ul style="list-style-type: none"> Check the closing edge safety device and the spiral cable.
ERROR SKS OPEN 2	<ul style="list-style-type: none"> Closing edge safety device 2 is faulty in the OPEN direction → (XP74 / 2+5) input 2 	<ul style="list-style-type: none"> Check the closing edge safety device and the spiral cable.
ERROR STOP 2	<ul style="list-style-type: none"> Safety circuit 2 is interrupted. Wicket door sensor 8.2 kΩ → (XP74 / 2+5) input 2 	<ul style="list-style-type: none"> Check wicket door sensor.

Error messages and rectification

Fault / error message	Cause	Rectification
ERROR SKS-TEST	<ul style="list-style-type: none"> – Testing of attached airwave bar was unsuccessful. – Test of radio transmission systems 1 – 4 failed. 	<ul style="list-style-type: none"> – Check the PS pressure switch, spiral cable and rubber profile. – Check the PS POINT setting. – Check the radio transmission system. – Check whether the right relay MOD was selected for the transmission system. → "F. Functions for external accessories" on page 37
ERROR LIGHT BAR	<ul style="list-style-type: none"> – The installed photocell indicates a permanent fault. → (X4 / 1-4) 	<ul style="list-style-type: none"> – Check photocell (function and alignment). – Check cabling.
ERROR LIGHT BAR 2	<ul style="list-style-type: none"> – The installed photocell indicates a permanent fault. → (XB99 / 1+2) input 1 	<ul style="list-style-type: none"> – Check photocell (function and alignment). – Check cabling.
ERROR LB TEST	<ul style="list-style-type: none"> – Test of two-wire photocell failed. 	<ul style="list-style-type: none"> – Check photocell (function and alignment). – Check cabling.
ERROR STOP-TEST	<ul style="list-style-type: none"> – Test of wicket door sensor (8.2 kΩ) failed. → Input 2 	<ul style="list-style-type: none"> – Check wicket door sensor.
ERROR TRAPIN	<ul style="list-style-type: none"> – Draw-in protection test (additional module) failed. → Relay MOD21 	<ul style="list-style-type: none"> – Check photocell (function and alignment). – Check cabling.
ERROR CYLINDER	<ul style="list-style-type: none"> – The monitoring limit switch for the lock system for threshold-less wicket doors has failed to trigger within 10 seconds of an OPEN command being given. 	<ul style="list-style-type: none"> – Check limit switch of cylinder.
ERROR MSBUS	<ul style="list-style-type: none"> – Communication between the control and the MS BUS module attached is interrupted. 	<ul style="list-style-type: none"> – Check the cable and socket connections and replace, if necessary.
ERROR POWERSEGM.	<ul style="list-style-type: none"> – One of the relays that controls the motor is faulty. 	<ul style="list-style-type: none"> – Change the PCB.

After rectifying the cause of the error, the power supply to the control must be turned off once and/or the control must be restarted (> INPUT menu > parameter RESTART > ON) in the event of the following errors

- ERROR DIRECTION
- ERROR RUNTIME
- TERM SWITCH FAIL

11.2 Error message via LED indicator

LED H1 – Green

Fault / error message	LED indicator	Remarks
No operating voltage	Off	No power supply present.

LED H2 – Red

Fault / error message	LED indicator	Remarks
SAFETY CIRC.	Flashes 1 x	Safety circuit is interrupted. – Check safety circuit, localise interruption and rectify problem.
ERROR AWG	Flashes 2 x	Signal transmission between absolute value encoder and control interrupted and/or broken down. – Check the cable and socket connections and replace, if necessary.
TERM SWITCH FAIL	Flashes 3 x	The door/gate system has travelled beyond the programmed end position area or the end positions have not yet been programmed. – First, programme the end positions. – Move the door/gate back into the programmed area using the emergency operation facility.
ERROR DIRECTION	Flashes 4x	The rotating field present is not a clockwise rotating field. – Check the rotating field and change the direction, if necessary. → "6.1 Checking the direction of rotation/direction of travel"
ERROR REVOLUTION	Flashes 5x	The power monitoring has been triggered. – Check the door for any mechanical impairment or damage.
ERROR RUNTIME	Flashes 6 x	The programmed running time has been exceeded. – Check the path of the door and the running time. – Re-programme the running time, if necessary.
ERROR MSBUS	Flashes 9x	Communication error between the control and the installed MS BUS end device. – Check the cable and socket connections and replace, if necessary.
ERROR SKS	Continuous light Travel only possible in deadman mode	Closing edge safety device faulty in OPENING or CLOSING direction. – Check the closing edge safety device and the spiral cable and, if necessary, Check the RADIO transmission system.
ERROR LIGHT BAR	Continuous light Travel in CLOSING direction only possible in deadman mode	The installed photocell indicates a permanent fault. – Check photocell (function and alignment). – Check cabling.

12. Technical data

12.1 Mechanical and electrical data

Housing dimensions:	165 x 220 x 105 mm
Power supply via L1, L2, L3, N, PE:	400V/3~ , 50/60Hz 230V/3~ , 50/60Hz
L1, N, PE:	230V/1~ , 50/60Hz
Fuse protection:	10 A K type
Motor rating:	max. 1.5 kW or 5A power consumption for power supply 400V/3~
Internal consumption of the control:	max. 200 mA (only PCB)
Control voltage:	24 V DC, max. 200 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 duration for input control command > 100 ms
Control outputs:	24 V DC, max. 200 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 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. MFZ two-wire photocell barriers have a self teach- in facility, and so this requirement does not apply in this case.
Display (LCD):	Only an original MFZ LCD monitor may be used (article number 121246).
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
Protection grade:	IP 65
Weight:	approx. 1.5 kg

12.2 Functional safety category and performance level according to EN ISO 13849-1

The safety-related inputs correspond to performance level "c" and category 2.


13. Maintenance

EN

The CS 255 AC 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.

14. Declaration of Incorporation

We hereby declare that the product described below:

CS 255 AC Gate Control

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

In addition, the incomplete machine is in conformity with all regulations of the

- Electromagnetic Compatibility Directive (2014/30/EU)
- Low Voltage Directive (2014/35/EU)

The following standards were applied:

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

DIN EN 12453

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

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

EN 12978

Industrial, commercial and garage doors and gates - Safety
devices for power operated doors and gates - Requirements
and test methods

EN ISO 13849-1

Safety of machinery – Safety-related parts of control systems –
Part 1: General principles for design

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.

EC type examination certificate No. 44 205 15039003

TÜV NORD CERT GmbH (NB 0044)

Langemarckstrasse 20

D - 45141 Essen, Germany

Person authorised to compile the relevant technical
documentation:

MFZ Antriebe GmbH & Co. KG, Neue Mühle 4

D-48739 Legden, Germany

The machine 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, 02/01/2017

Manufacturer's signature



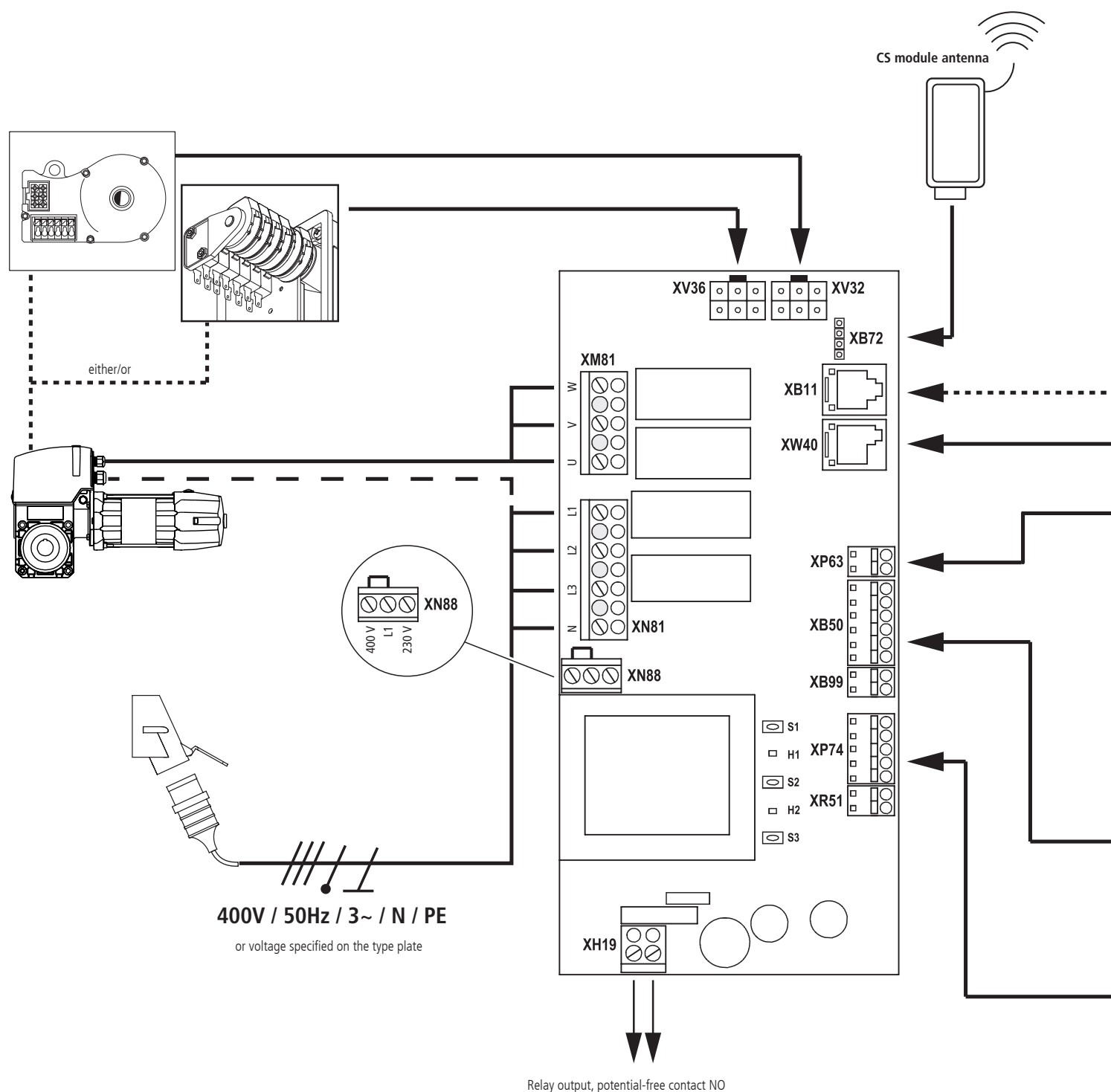
Dirk Wesseling

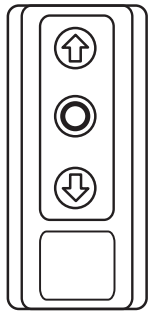
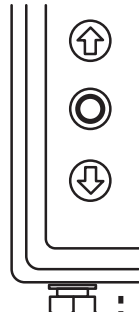
Position of signatory

Management

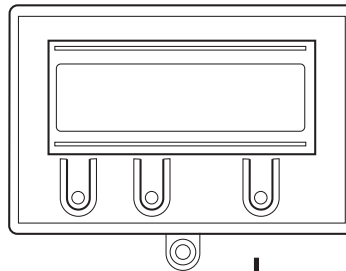
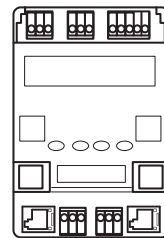
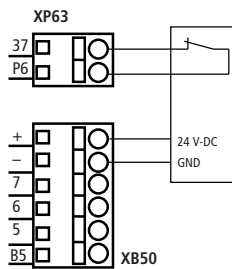
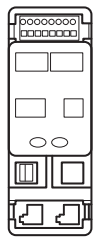
15. Appendix

15.1 Overview of connections

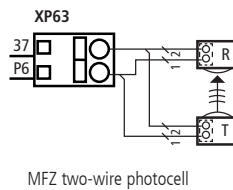


CSI-15 external input unit

CS-15 input unit on CS housing


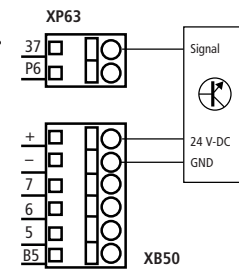
either/or

LCD monitor RS 485

I/O BUS module

ES BUS module


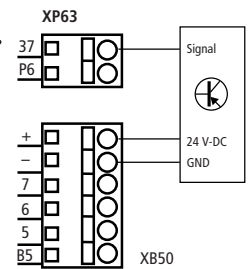
Photocell relay output



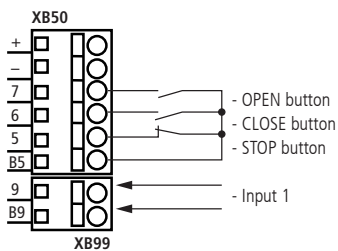
MFZ two-wire photocell



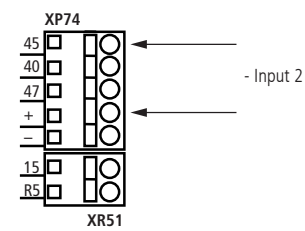
Three-wire NPN photocell



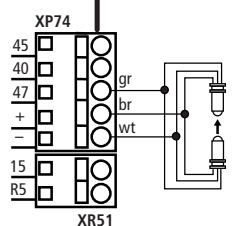
Three-wire PNP photocell



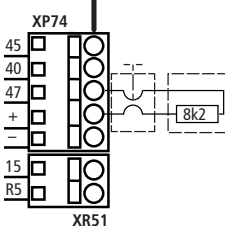
XB99



XR51

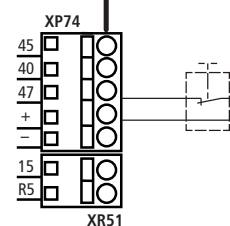


OPTO closing edge safety device



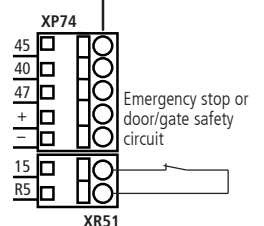
XR51

Closing edge safety device 8.2kΩ



XR51

Pneumatic closing edge safety device



XR51

