EN Installation and operating instructions

Last updated: 05.2023

Control CS320 ATEX dead man

1. Contents

2. Information in this document

Original assembly 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

⚠ 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 assembly instructions are adhered to.
Marantec Legden GmbH + Co is not liable for personal injury or damage to property resulting from the warnings and safety advice being disregarded.
Marantec Legden does not accept any liability or warranty for damage due to the use of non-approved spare parts and accessories.

Intended use

The CS 320 ATEX controller is designed exclusively for controlling door systems through drives with mechanical limit switches (MEC). The controller is suitable for operation in explosion-prone areas and can be used in Zones 1, 2, 21 and 22.

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.

Observe the valid standards and regulations!

4. Product overview

4.1 Product description

The CS 320 ATEX door control is designed for industrial application, specifically with sectional and roller doors in explosion-prone areas. The controls can be used in ATEX zones 1, 2, 21 and 22. It is possible to connect and operate motors with mechanical limit switches (MEC).
The CS 320 Atex dead man is based on the automatic control CS 320 ATEX Automatic. During the CLOSE movement, dead-man operation is fixed. During the OPEN movement, pulsed operation or dead-man operation can be selected. The connections for the safety equipment have no function and cannot be activated.
All the necessary command devices and safety elements can be connected and evaluated.
Programming takes place via a pluggable LCD monitor.

⚠ WARNING!

Death hazard due to improper installation of the controller!
Damage to the housing or contamination of the seal surfaces can disable the explosion protection. In this case, commissioning is forbidden. Changes that interfere with explosion protection are generally prohibited.
☞ Be sure that the controls are operated only in technically perfect condition.

The following supplier variants of the CS 320 ATEX controller are possible:

4.2 Variants

Control variants:
- CS 320 ATEX dead man 1.1 … 1.6 A
- CS 320 ATEX dead man 2.2 … 3.2 A
- CS 320 ATEX dead man 3.5 … 5.0 A
- CS 320 ATEX automatic 1.1 … 1.6 A
- CS 320 ATEX automatic 2.2 … 3.2 A
- CS 320 ATEX automatic 3.5 … 5.0 A

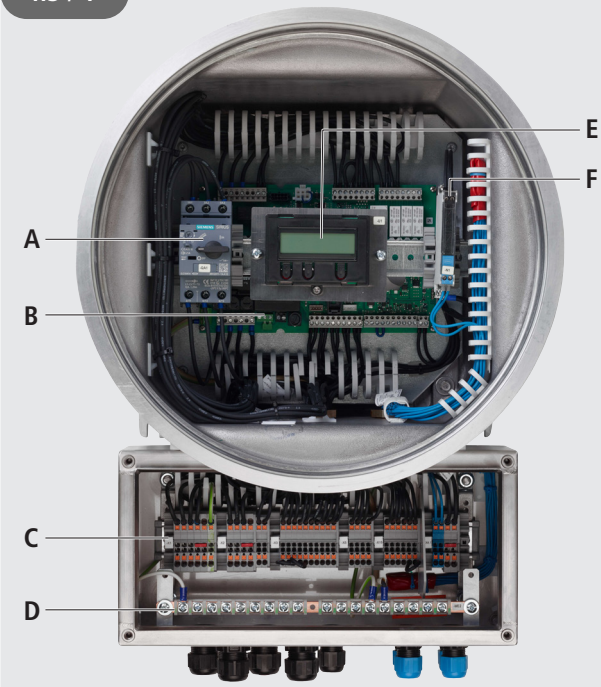
The various performance levels require use of the motor circuit breaker. This is individually adapted to the controls and cannot be replaced with that of another model.
The operating manual describes the connection and programming options and variants of the CS 320 ATEX Dead man controller with connected LCD monitor starting with software version V1.01a.

Note:
The included documents from Stahl absolutely must be observed and stored for future use. The documents are uniquely assigned to the door control by production number and are not transferable to other door controls or even to door controls of the same type.

4.3 Design

CS 320 ATEX Dead man

4.3 / 1



Explanation:
A: Motor circuit breaker QA1
B: Motherboard CS 320
C: Connection terminals
D: PE rail
E: LCD monitor with programming keys
F: Safety barrier N1 (safety input)

4.4 Overview of connections

Explanation:

A: Upper level with motor circuit breaker, LCD monitor and safety barriers
B: Lower level with motherboard CS 320
X1: Mains connection terminal strip
X2: Motor terminal strip
X3: Terminal strip for command devices
X4.1: Terminal strip for safety elements
X5: Terminal strip for relays
X15: Terminal strip for mechanical limit switches (MEC)
PA: Potential equalization for building
⏚ Terminal strip for protective conductor (PE)

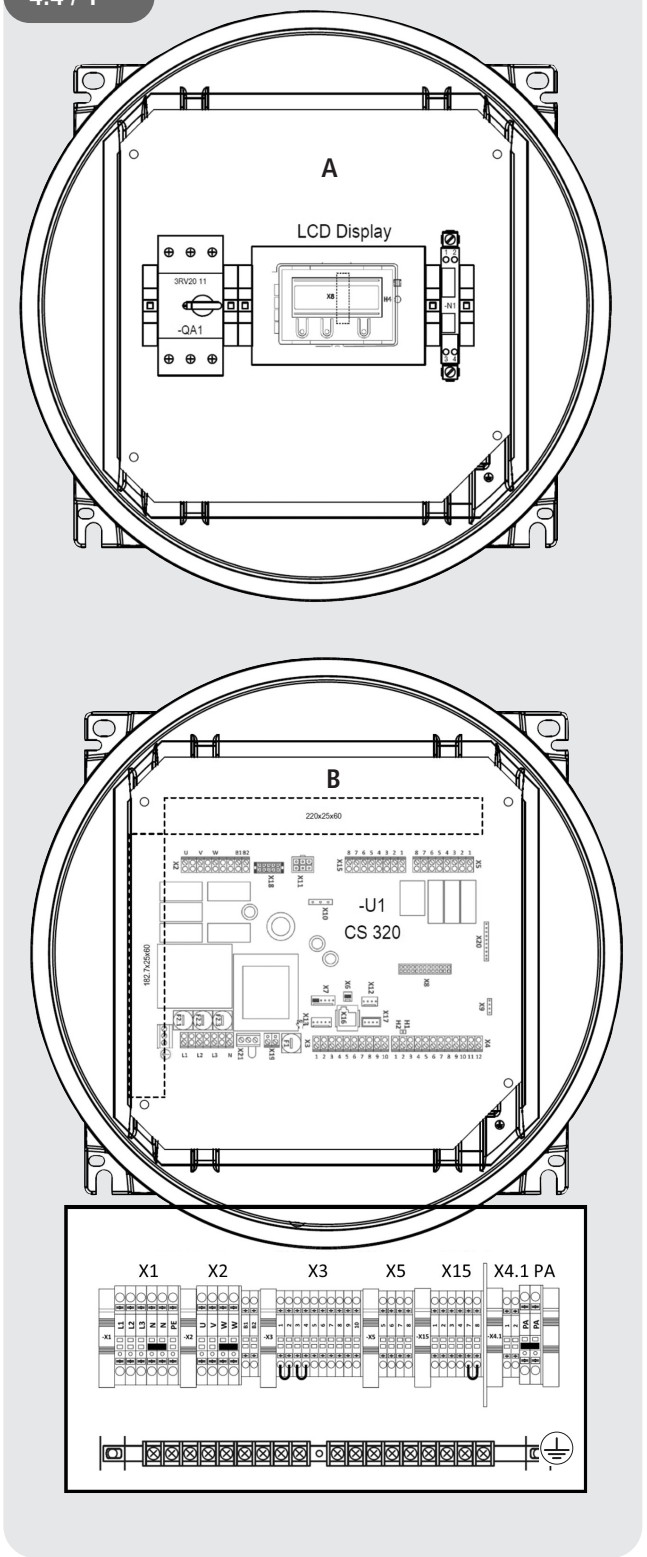
⚠ DANGER!

Explosion hazard due to lack of potential equalization!

Because safety barriers N1 and N2 have no galvanic isolation, for safe operation with potential equalization of the door, they must be connected.

This is done through X 4.1 / PA terminals.

4.4 / 1



5. Installation

5.1 Safety instructions for installation

⚠ DANGER!

Life-threatening danger due to electric shock!

☞ Before performing wiring work, always disconnect the system from the power supply. Make sure that the power supply remains disconnected during wiring work.

⚠ DANGER!

Death hazard from explosion!

☞ Make sure that the lid of the pressure-resistant housing is opened only under one of the following conditions:
- The controller has shown zero voltage.
- It has been ensured, such as through a gas warning device, that no explosion-prone atmosphere is present.

⚠ ATTENTION!

Property damage due to improper installation of the controller!

In order to avoid damage to the controller, observe the following points:
- Only qualified and trained electricians may work on electrical systems.
- Switch off the power supply to the system, check that it is de-energised and safeguard against reconnection.
- Mains cables and control cables must be routed separately.
- The line types and cross-sections must be selected in accordance with the valid specifications.
- The door control must be easily accessible and mounted at least 1.1 m above the floor.
- Only vertical installation is permissible.
- It is essential to observe the local protective regulations.
- Observe the specifications of the door manufacturer for installation.

The following points must be correct to ensure trouble-free operation:
- The door is installed, fully functional and designed for power-driven operation.
- The gear motor is installed and ready for operation.
- The command and safety devices are installed and ready for operation.
- The control housing with the CS 320 ATEX controller is installed.
- All applicable standards and regulations are observed.

REFERENCE

The instructions from the respective manufacturer must be observed for the installation of the door, the gear motor and the command and safety devices.

Intrinsic safety

The intrinsically safe electrical circuits contain:
- Personnel door and slack rope switch with connection cables.

Certification of the intrinsic safety of this electrical circuit is in the technical description of the safety barriers (N1). They can be found in the manufacturer's technical data.

➔ "16.1 Safety barriers N1"

5.2 Mains connection

Prerequisites

The following points must be correct to guarantee the function of the controller:

- The mains voltage must correspond with the information on the type plate.
- The mains voltage must correspond with the voltage of the drive.
- In the case of three-phase power, this must have a clockwise rotating field.
- With a fixed connection, an all-pole main switch must be used.
- With three-phase power, only triple block circuit breakers of type C (max. 16 A) shall be used.
- The cross-section of the mains connection cable must be adapted to the fuse protection and cable length.
- The external diameter of the mains connection cable must be adapted to the inner diameter of the cable gland.

⚠ ATTENTION!

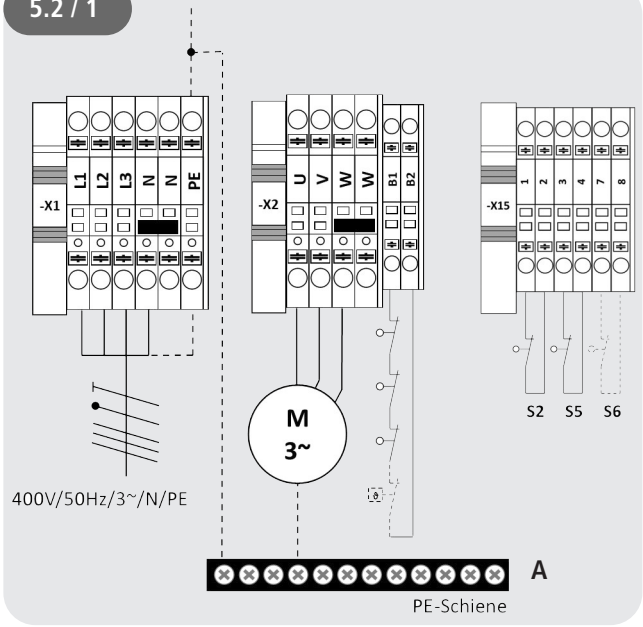
Malfunctions due to improper installation of the controller!

Before switching on the controller for the first time but after all of the wiring has been completed, it is necessary to check all motor connections on the motor and controller sides. All control voltage inputs are galvanically separated from the supply.

The control and load lines of the connected drives must be double-insulated along their entire route.

Detailed wiring diagram of mains connection and motor connection

5.2 / 1



Explanation:

A: PE rail
M1: Motor
X1: Mains connection terminal strip
X2: Motor terminal strip
X15: Terminal strip for mechanical limit switches (MEC) (safety circuit to X2 / B1-B2)

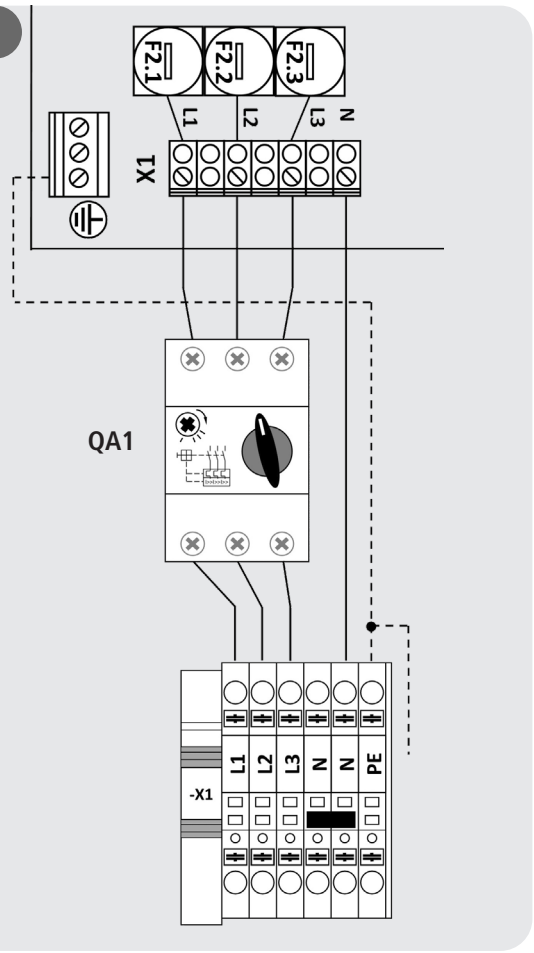
Connection:

☞ Connect mechanical limit switch (MEC) to the controller.
➔ "5.4 Mechanical limit switch (MEC) connection"
☞ Connect controls to the motor.
☞ Connect controller to the mains network.
Secure cable groups with a cable tie directly before the respective terminal.
☞ Check and compare technical data.
➔ "12. Technical data"

Installation

5.3 Motor circuit breaker / Internal fuse protection

5.3 / 1



Motor circuit breaker

During use in an explosion-prone area, motors must be protected from overload. The CS 320 ATEX controls have a built-in motor circuit breaker (QA1). It is a current-dependent safety device. The setting on the motor circuit breaker must match the specific motor's nominal current.
Restart is done manually after it is triggered.
➔ "16.2 Motor circuit breaker QA1"

Internal fuse protection

The controller CS 320 ATEX is equipped with internal fuse protection (F2) at the mains input. The fuse elements are equipped with fine fuses 8A / T (5.2 x 20 mm) in the factory.

⚠ ATTENTION!

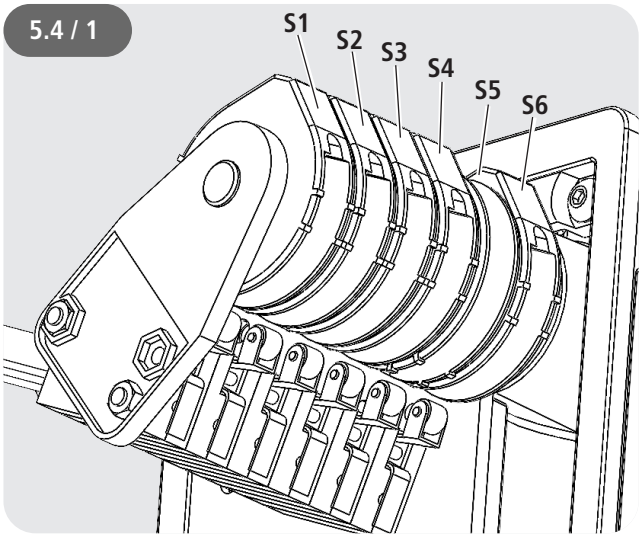
Risk of property damage due to improper fuse protection of the controls!
Internal fuse maximum 10 A / T!
The internal fuses do not replace fuse protection of the supply cable. This shall be realised with max. 16 A and must be configured as triple block circuit breakers of type C.
➔ "5.2 Mains connection"

5.4 Mechanical limit switch (MEC) connection

With first commissioning and after a RESET, the connected limit position system is automatically detected.

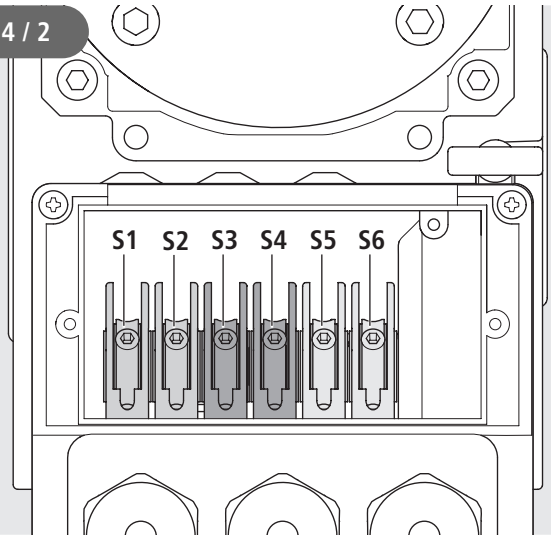
STA series

5.4 / 1



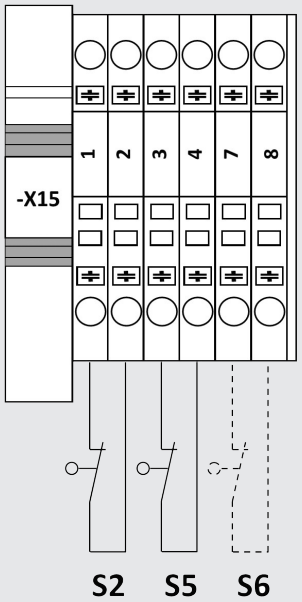
MDF 30 / MDF 50 series

5.4 / 2



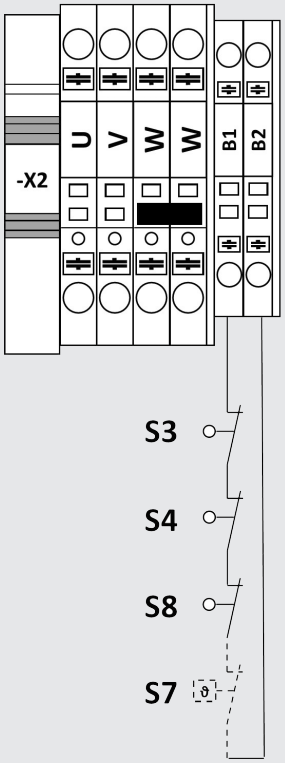
Mechanical limit switches

5.4 / 3



Safety circuit

5.4 / 4



Legend:

S1	Supplementary limit switch OPEN (optional)	Green
S2	Limit switch OPEN	Green
S3	Safety limit switch OPEN	Red
S4	Safety limit switch CLOSED	Red
S5	Limit switch CLOSED	White
S6	Supplementary limit switch CLOSED (optional)	White
S7	Thermal protection motor (optional)	
S8	Emergency operation (NC contact)	

NOTE:
To satisfy the requirements of EN 12453:2017 the mechanical limit switches must have been approved as a "reliable component" in accordance with EN ISO 13849-1.

Installation

5.5 Connection of command devices

DANGER!

Death hazard from explosion!

☞ Make sure that the command devices used are suitable for use in explosion-prone areas and approved for the specific Ex zone.

CAUTION!

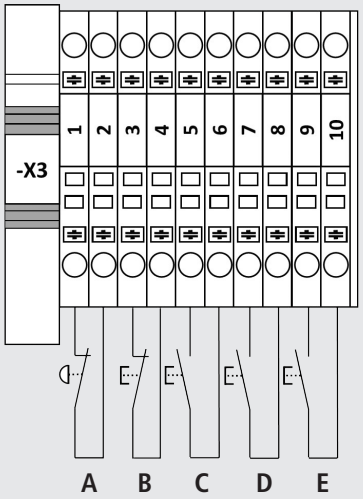
Risk of injury due to uncontrolled door movement!

A CLOSE command in dead-man operation without a view of the door is not permitted.

☞ Install the command devices for the dead-man operation in direct visual contact with the door, although outside the danger zone for the operator.

Command devices (standard)

5.5 / 1

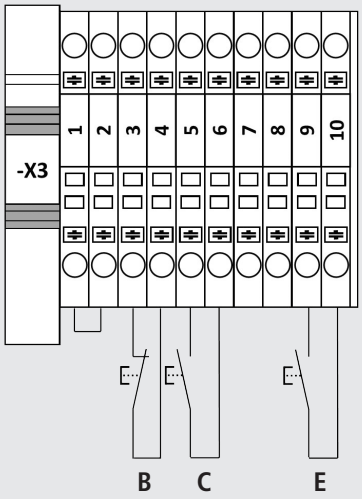


Legend:

A	Emergency stop command device
B	STOP button
C	Button / input OPEN
D	Button / pulse input
E	Button / input CLOSED

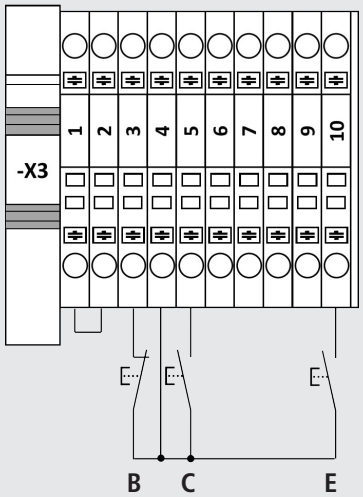
OPEN / STOP / CLOSED button (6-wire solution)

5.5 / 2



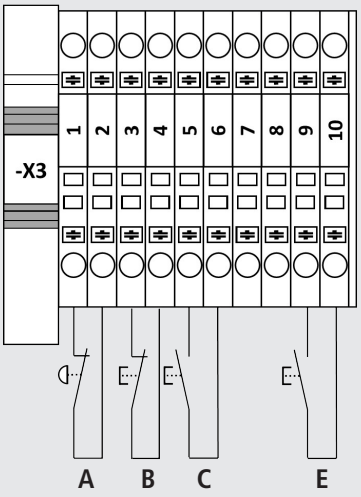
OPEN / STOP / CLOSED button (4-wire solution)

5.5 / 3



OPEN / STOP / CLOSED button with emergency stop

5.5 / 4



Impulse button

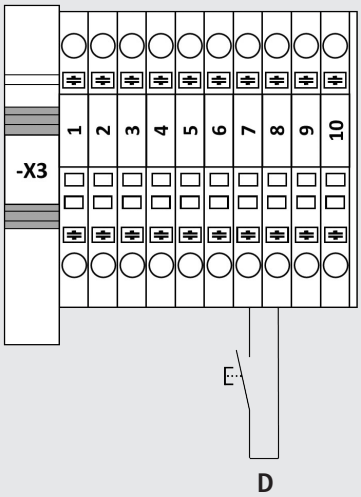
Function:

OPEN when door is stationary / STOP with door movement

Selection of the function through IMPULSE parameter

➔ "10.2 Input operating mode" on page 23

5.5 / 5

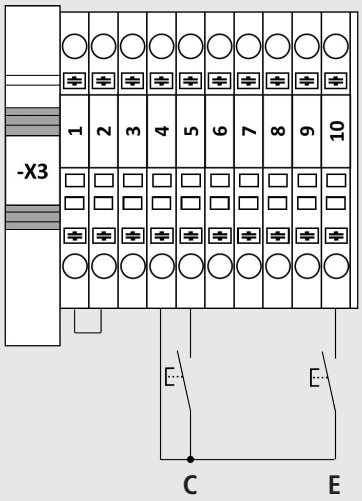


Legend :

D Button / input IMPULS

Key switch

5.5 / 6



Legend :

C Switch command OPEN

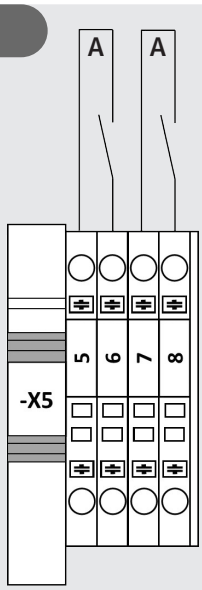
E Switch command CLOSED

Installation

5.6 Connection of relay outputs

Two potential-free relay outputs (relays 3 and 4) are available, which can be programmed with a variety of function types. These are potential-free relay outputs able to take a max. load of 4A at 230 V/1~.
The type of function depends on the parameter setting for the respective relay output in the INPUT operating mode.
Relay outputs 1 and 2 are not available in ATEX versions.
➔ "10.2 Input operating mode" / Parameter Relays 3–4

5.6 / 1



A = Internal relay switch contacts

7+8 = Relay 4

5+6 = Relay 3

5.7 Connection of programmable inputs

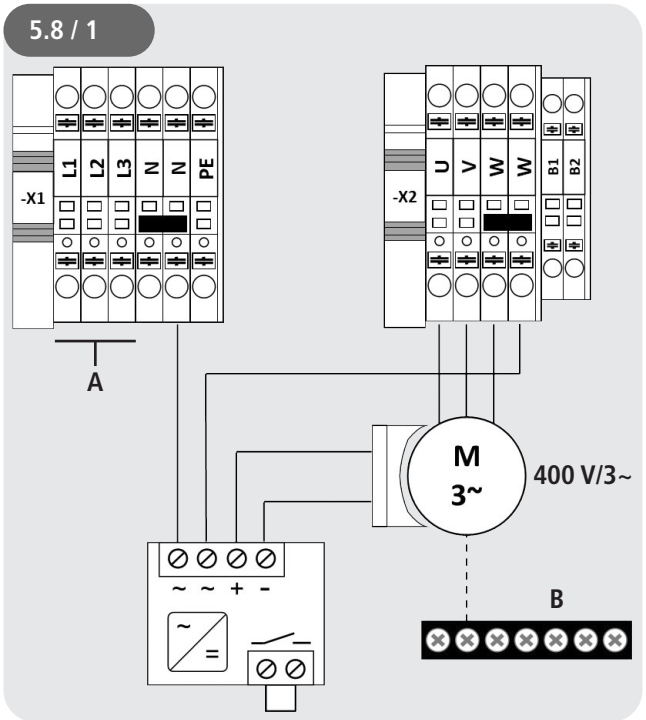
Programmable inputs 1 and 3 are not available for the ATEX version of CS 320.
Programmable input 2 can be used as a safety input for evaluation of safety components on an 8.2 kOhm basis.
➔ "5.9 Safety input per EN 12453"

5.8 Brake connection (optional)

Note:
Only with 400 V/3~ power supply!

Direct activation by 230 V~

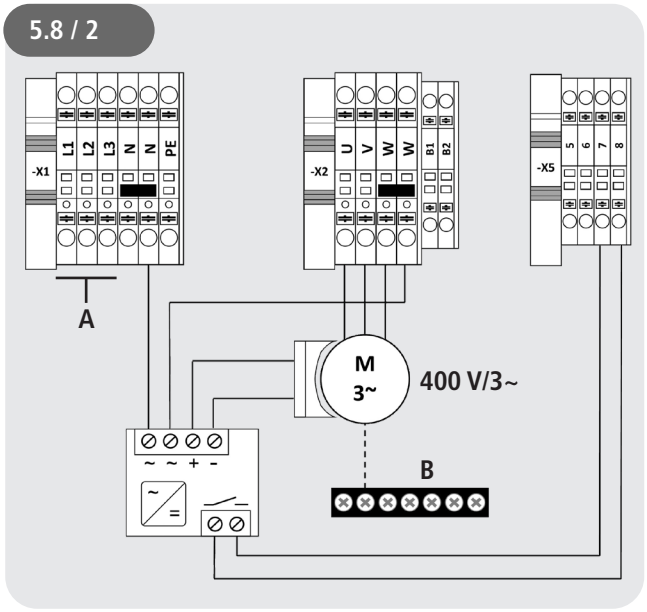
5.8 / 1



Legend:
A: Power supply 400 V/3~
B: PE rail

Activation through the switch contact of the rectifier
Parameter RELAY 4 = MOD 43 (pre-set)

5.8 / 2



Legend:

A: Power supply 400 V/3~
B: PE rail

5.9 Safety input per EN 12453

All safety-related parts that perform the door's safety function must conform to PL"c" with at least Category 2 according to EN ISO 13849-1.
Among other things, this also results in higher requirements for fail safety for slack rope switches and personnel door sensors.
Programmable INPUT 2 can also be operated as a safety input. This allows evaluation of safety components that all work with an internal resistance value of 8.2 kO. With first commissioning and after a reset, input 2 is set to A (self-teaching) once.
If a resistance value is detected, MOD2 (safety input) is automatically set and the measured value is stored and monitored as a reference for the connected safety-related components. Deviation of the measured value causes an error message:

– ERROR STOP appears in the display.
– The system can no longer be operated.

If a safety element is subsequently added or removed, the resistance measurement must be performed again. For this purpose, the parameter INPUT 2 must be manually reset to A (self-teaching) and the supply voltage must be switched off and on again once. Renewed measurement then takes place.
According to EN ISO 13849-1, the components used must either conform to PLc/Cat.2 or be approved as a reliable component in order to satisfy the requirements of EN 12453:2017. Moreover, they must be suitable for use in Ex zones. Safety barrier N1 allows intrinsically safe operation of the safety components.

1–4 components on an 8.2 kOhm basis can be linked according to the following wiring diagrams. It does not matter which of the respective switches represents the components 1–4 here.

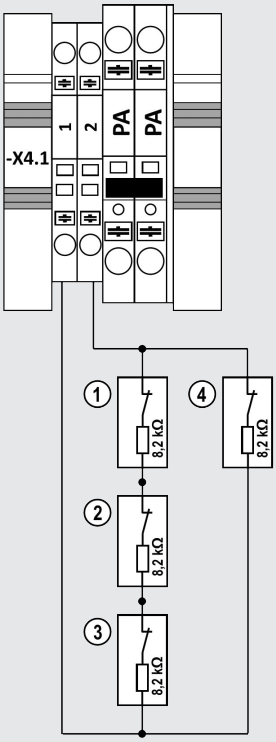
CHECK

The tolerance of the individual resistance values must not exceed max. 1%.

Installation

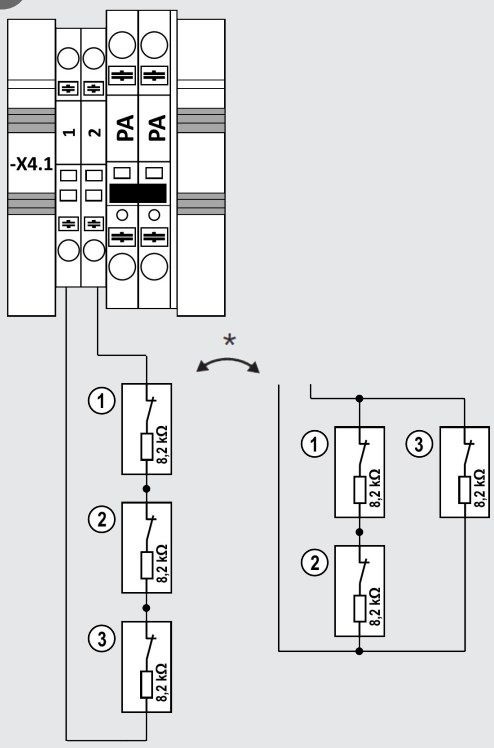
Connection 4 components

5.9 / 1



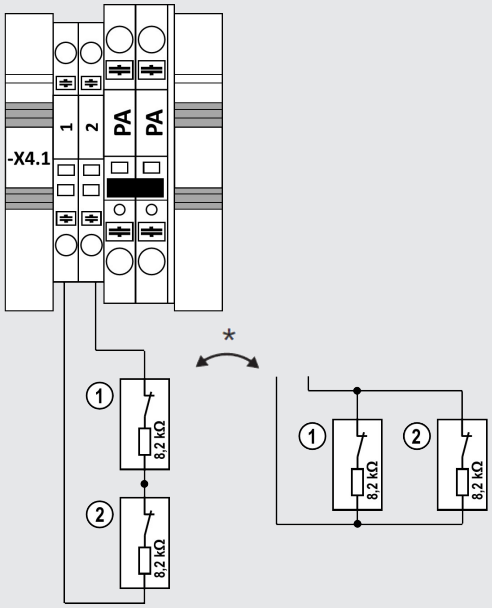
Connection 3 components

5.9 / 2



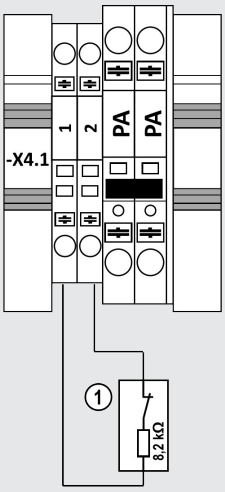
Connection 2 components

5.9 / 3



Connection 1 component

5.9 / 4



* optionally

6. Initialisation

With first commissioning and after a RESET the following components are automatically detected and programmed:
– End position system
– Input 2 (safety input)

During this process (approx. 60 seconds), the green LED flashes and the display shows "PLEASE WAIT…" in the top line.
Operation of the system is not possible at this time.
The end position system must be installed before first commissioning.

Components can be retrospectively changed or added through the LCD monitor or renewed initialisation.

Input 2 remains inactive (OFF), if a resistance value is not detected with first initialisation.
If a resistor is detected at input 2 with first commissioning, this is evaluated as a safety element and put into operation as a safety input.
➔ "10.2 Input operating mode" / Parameter INPUT 2

NOTE:
Initialisation serves not only to teach the different system components, but also offers the option of changing the menu language directly.
The pre-set menu language (ENGLISH) appears for 60 seconds as flashing text in the display. With the [+] and [–] buttons it is possible to select the desired language and save this with the [P] button. All texts / messages are subsequently displayed in the selected language.

7. Setting the limit positions

7.1 Setting the mechanical limit switches

Change to adjustment mode
☞ Press the (P) button until ADJUSTMENT appears.

Setting the OPEN and CLOSED limit positions

REFERENCE

Setting the limit positions is described in the separate documentation for the mechanical limit switches.

☞ Exit adjustment mode by pressing the (P) button.

Note
The system does not exit adjustment mode automatically. Exit adjustment mode by pressing the (P) button in order to change to normal mode.

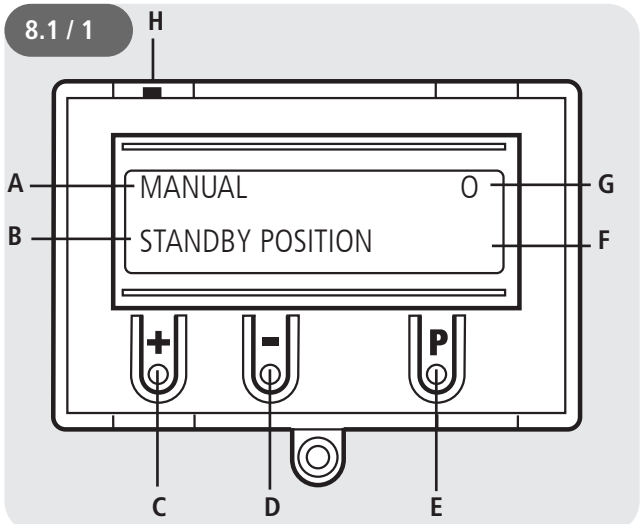
8. Programming

8.1 Overview of the LCD monitor

⚠ ATTENTION!

Property damage due to improper installation!
The monitor must be plugged in while de-energised. Only a standard LCD monitor (#91447) from Marantec Legden may be used.

8.1 / 1



Explanation:

A: Operating mode / diagnostics info
B: Parameters / diagnostics info
C: (+) button
D: (–) button
E: (P) button
F: Value/status
G: Value/status
H: Jumper

If the jumper H is removed, the (+), (–) and (P) buttons no longer function.
The display continues to function.

After the controller has been switched on, it is in the initialisation phase. The display shows "PLEASE WAIT …". The controller is not ready for operation. The initialisation phase takes approx. 60 seconds after switching on for the first time.

8.2 LCD monitor operating modes

With the LCD monitor, the controller has four operating modes:

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

The operating modes ADJUSTMENT, INPUT and DIAGNOSIS are automatically exited 7 minutes after the last button was pressed.
The controller changes to MANUAL mode.

Operating mode 1: MANUAL
The door system is driven in MANUAL mode.

Display:
– Display of the function being performed
– Display of possible faults

Operating mode 2: ADJUSTMENT
The OPEN and CLOSED limit positions are set in ADJUSTMENT mode.

Operating mode 3: INPUT
The values of various parameters can be changed in INPUT mode.

Display:
– Displays the selected parameter
– Displays the status/value set

Operating mode 4: DIAGNOSIS
Door-specific checks can be interrogated in DIAGNOSIS mode.

Display:
– Display of the check
– Display of the check status

8.3 Expert menu

Under factory settings (standard), only a few parameters appear in the INPUT operating mode, which can be adjusted by the operator. These setting parameters reflect the most frequently applied requirements for an industrial door system and are sufficient for commissioning in a standard situation. The last item in this list is the "EXPERT MENU" parameter. This is always set to OFF.

OFF: Limited number of parameter settings:
- Menu language
- INPUT 1 *(not usable)*
- SELF LOCK
- EXPERT MENU

Setting the EXPERT MENU parameter to ON activates the expert mode. It is now possible to call up and set all input menu parameters.
➔ "10.2 Input operating mode"

Note
- Expert mode is automatically exited after about 7 minutes, if no button is pressed. Now, only the limited selection of parameters is once again available until the EXPERT MENU parameter is set to ON again.
- The same applies to switching off the power. This once again sets the EXPERT MENU parameter to OFF.

8.4 RESET

The RESET function can be used to reset the control parameters to the pre-selected factory settings.
➔ "10.2 Input operating mode"

FACTORY SETTING parameter
Selection of the parameter set that should be reset with a RESET.

It is possible to implement different types of reset whereby more or fewer settings are reset.
➔ "10.2 Input operating mode"

RESET parameter
Part reset 1:
Not available in ATEX version.

Part reset 2:
All parameter settings are reset, except for the settings for the limit positions and the detected limit position system.

Full reset:
Everything is reset to factory settings.
➔ "8.5 RESETTING the controller with LCD monitor"
➔ "8.6 RESETTING the controller without LCD monitor"

Programming

8.5 RESETTING the controller with LCD monitor

Changing to the INPUT operating mode

☞ Press the (P) button until INPUT appears.
☞ Press and hold the buttons (+) and (–) simultaneously for more than 2 seconds to activate the input.

Resetting the controller

☞ Press the buttons (+/–) until the RESET parameter appears. The value stands at "OFF".
☞ Press the button (+) until MOD3 appears.
☞ Press (P) button to start the RESET.

The system runs through the initialisation phase and all connected safety components and the limit position system are automatically taught.

Change to adjustment mode

➔ "7.1 Setting the mechanical limit switches"

Change to manual mode

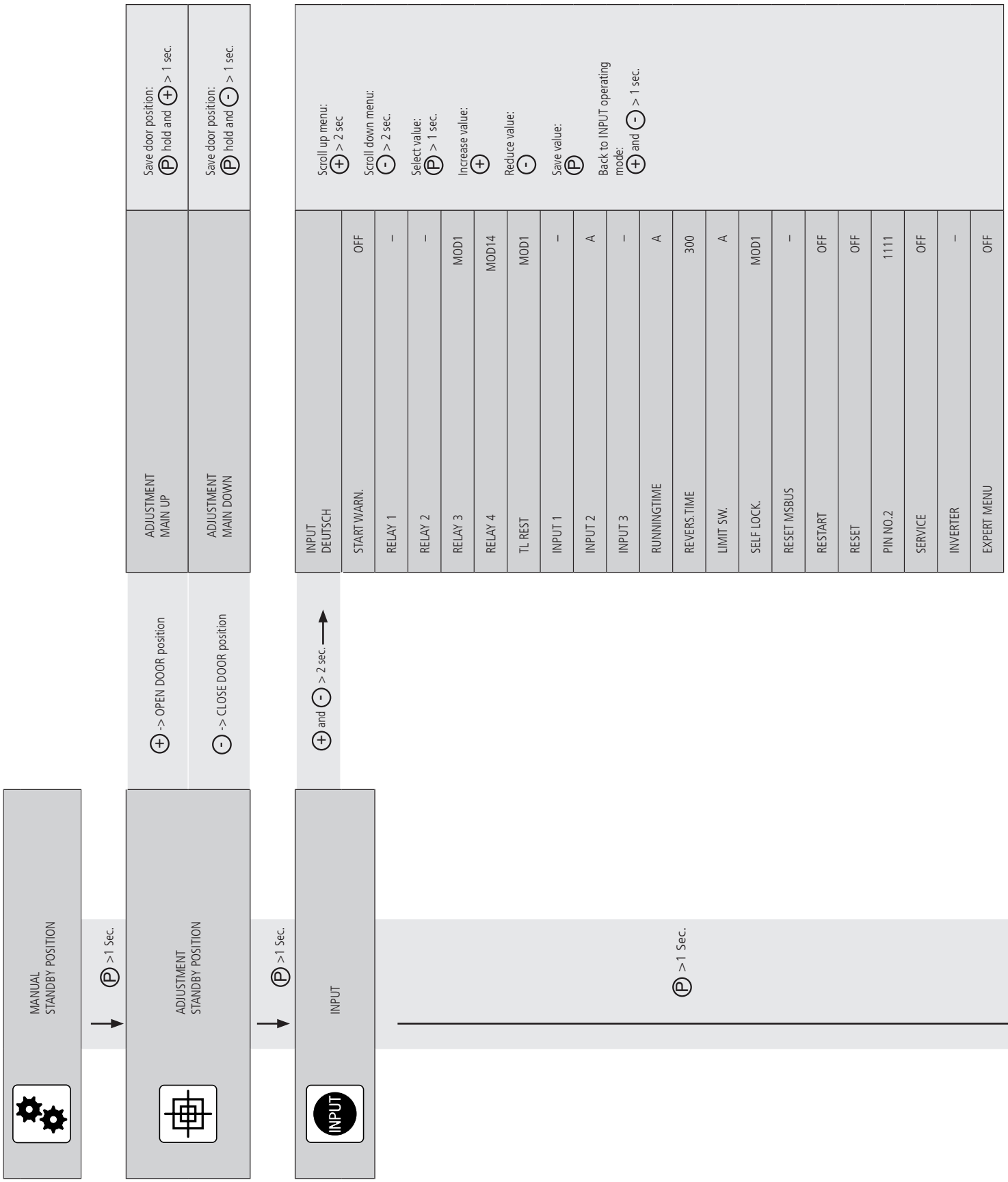
☞ Press the (P) button until MANUAL appears.

8.6 RESETTING the controller without LCD monitor

☞ Interrupt the supply voltage.
☞ Press and hold the circuit board buttons (P) and (–) at the same time.
☞ Switch the supply voltage back on.
☞ Press and hold the circuit board buttons (P) and (–) at the same time until the red LED (H6) flashes rapidly.
☞ Release the circuit board buttons (P) and (–).

The system then runs through the initialisation phase (approx. 60 seconds).
During initialisation, it is not possible to program or operate the system.
After initialisation is complete, the limit positions are deleted and all parameters are reset to factory settings.

9. Navigator (only LCD monitor)



DIAGNOSIS

UPPER SWITCH	ON
LOWER SWITCH	ON
UP-SWITCH	OFF
DOWN-SWITCH	OFF
SAFETY 2	– / ON / OFF
IMPULS	OFF
SAFETY CIRC.	ON
CYCLE	000000
SERVICE	OFF
C.STOP	0000
C.OPENED	0000
C.O.BTN	0000
Error memory	Error …

Scroll up menu:
⊕ > 2 sec

Scroll down menu:
⊖ > 2 sec.

Back to MANUAL operating mode:
Ⓟ

Only interrogation possible

10. Functional overviews

10.1 Manual mode

Display		Description
MANUAL TEACH IN RUN		The run-time is taught automatically.
MANUAL OPENING		The door is currently in the opening phase.
MANUAL CLOSING		The door is currently in the closing phase.
MANUAL STANDBY POSITION		The door is currently in an intermediate position.
MANUAL STANDBY POSITION	O	The door is in the OPEN limit position.
MANUAL STANDBY POSITION	U	The door is in the CLOSED limit position.
MANUAL STANDBY POSITION	u	The door is in the Sect. CLOSE position ("intermediate position CLOSE" parameter).
MANUAL STANDBY POSITION	r	The door is in the reverse shut-off position. No function with CS320 ATEX dead mann.
MANUAL PERMANENT INPUT		When the voltage is turned on, an active signal (NO) is detected at the OPEN, CLOSED or Impulse input. This always constitutes an impermissible state. The cause is probably a defective component that must be replaced.

10.2 Input operating mode

INPUT

Function	Description	Adjustment options	Factory setting
DEUTSCH	Selection of the menu language. **Only with LCD monitor:** The menu language can also be selected during the initialisation phase (during first commissioning or after a reset). The factory pre-set menu language (ENGLISH) appears here for approx. 60 seconds as flashing text in the display. At this time it is possible to change the menu language during the initialisation phase. You can scroll through the language choices by pressing the [+] or [–] buttons. Save the desired language with the [P] button. All texts / messages are subsequently displayed in the selected language.	DEUTSCH ENGLISH FRANCAIS NEDERLANDS DANSK ESPANOL POLSKI CESKY ITALIANO SUOMI SVENSKA TÜRKÇE NORSK MAGYARUL	DEUTSCH
START WARN.	The start-up warning is implemented before **every** run.	OFF, 1 – 10 seconds	OFF
RELAY 1	The connections for relays 1 and 2 are not available. This makes assignment of a relay mode to these two relays ineffective.	–	–
RELAY 2		–	–
RELAY 3	Relays 3 and 4 can be assigned a relay mode 1–62 according to the list below. Modes 14–16 can be set only on relay 4. Further explanations: ➔ "10.3 Explanations of the relay modes:" on page 26	MOD1 – MOD62	MOD1
RELAY 4	MOD1: (Red traffic light inside 1) forewarning - flashing, door running - illuminated MOD2: (Red traffic light inside 2) forewarning - flashing, door running - flashing MOD3: (Red traffic light inside 3) forewarning - illuminated, door running - illuminated MOD4: Pulse signal with OPEN command from inside MOD5: Fault message MOD6: OPEN limit position MOD7: CLOSED limit position MOD8: OPEN limit position negated MOD9: CLOSED limit position negated *MOD10: not usable* MOD11: Intermediate position CLOSE MOD12: Intermediate position CLOSE to end position CLOSE *MOD13: not usable* MOD14: Brake (closed-circuit current principle) -> only through relay 4 *MOD15: not usable* *MOD16: not usable* *MOD17: not usable* MOD17: SKS actuated or test error MOD18: (Red traffic light 4) forewarning – flashing, door running – off *MOD19: not usable* *MOD21: not usable* *MOD22: not usable* MOD23: (Green traffic light) limit position OPEN – illuminated, forewarning – OFF, door running – OFF* *MOD24: not usable* MOD25: Courtyard light function, 2 minutes illuminated after OPEN/pulse - command MOD26: *not usable* MOD27: Pulse signal after reaching OPEN end position MOD28: Relay general OFF MOD29: Door drives open MOD30: Door drives closed MOD31: Service, continuous signal after reaching the set service interval		MOD43

Functional overviews

Function	Description	Adjustment options	Factory setting
	MOD32: *not usable* *MOD33:* *not usable* *MOD34:* *not usable* *MOD35:* *not usable* *MOD36:* *not usable* *MOD37:* *not usable* *MOD38:* *not usable* MOD39: Error LED *MOD40:* *not usable* *MOD41:* *not usable* MOD43: Drive moving MOD44: (Red traffic light inside + outside) . . . . . CLOSE door movement from intermediate position CLOSE - flashing . . . . . .OPEN door movement - off *MOD45:* *not usable* MOD46: Controller in operating mode ADJUSTMENT *MOD49:* *not usable* *MOD60:* *not usable* *MOD61:* *not usable* *MOD62:* *not usable*		
TL REST	Switch traffic lights MOD1: off in standby position MOD2: on in standby position MOD3: off after 5 minutes when in standby position	MOD1 – MOD3	MOD1
INPUT 1	*The connection for Input 1 is not available. This makes assignment of a function to this input ineffective.*	–	–
INPUT 2	Selection of a function that should be assigned to input 2 (X4.1 / 1-2). OFF: NOT active MOD2: Safety switching with resistance evaluation . . . . . **xx Ω** MOD3: *not usable* MOD4: *not usable* MOD5: *not usable* MOD6: *not usable* MOD7: *not usable* MOD9: *not usable* MOD10: *not usable* MOD11: *not usable* MOD12: *not usable* With first commissioning and after a reset, input 2 is set to A – self-teaching once. If a resistance value is detected, MOD2 (safety input 5.13) is automatically set and the measured value is stored and monitored as a reference for the connected safety-related components. If no connected component is detected during initial commissioning or after a reset, the input is automatically deactivated. OFF appears in the display and the input must be manually activated.	A (teaching) OFF MOD2 – MOD12	A
INPUT 3	*The connection for Input 3 is not available. This makes assignment of a function to this input ineffective.*	–	–
RUNNING-TIME	Monitoring the maximum running time of an OPEN or CLOSE movement. During the teach-in run, the runtime of the door is learned automatically. If the deviation is 20% (in both directions), a runtime error appears. After automatic teach-in, the runtime can be changed manually.	A (teaching) OFF 1 – 300 seconds	A
REVERS.TIME	Motor standstill time with each direct change of direction. The reversal time when the safety edge is activated during the closing movement is one quarter of the set time.	100 – 5000 milliseconds	300

Function	Description	Adjustment options	Factory setting
LIMIT SW.	Selection of the limit position system to be evaluated. Only mechanical limit switches possible. MOD1: *not usable* MOD2: Mechanical limit switches (MEC) MOD4: *not usable* MOD5: *not usable* MOD6: *not usable*	A (teaching) MOD1 – MOD6	A
SELF LOCK	Selection between pulse operation and manual operation (dead man) with or without evaluation of closing edge safety device (SKS) and light barrier system (LB). MOD1: *Function is not available* MOD2: *Function is not available* MOD3: *Function is not available* MOD4: *Function is not available* MOD5: Manual operation for OPEN + CLOSE without SKS and LB MOD6: Manual operation for CLOSE, pulse operation for OPEN, without SKS and LB MOD7: *Function is not available* MOD8: *Function is not available* MOD9: *Function is not available*	MOD1 – MOD9	MOD1
RESET MSBUS	*Not usable*	–	–
RESTART	With activation of the function, the controller is restarted.	ON OFF	OFF
RESET	Reset control parameters to the pre-selected factory settings. MOD1: *not usable* MOD2: Part reset 2 (everything apart from limit positions / known limit position system) MOD3: Complete reset (everything is reset to factory settings)	OFF, MOD1 – MOD3	OFF
PIN no. 2	Input and selection of a PIN code for programming a service interval. After inputting the PIN code, the second programming level opens. Afterwards, a service interval can be entered via the SERVICE parameter. Input level 2 disappears again after the voltage is switched off, or automatically after 10 minutes. A change to the PIN code can only take place in the second programming level.	0 – 9999	1111
SERVICE	OFF: Service display not active Setting a service interval. After the set load cycles are complete, a service message is issued (LED / LCD). If a relay output is programmed with MOD31, the respective relay (continuous signal) switches. Only appears after activation of input level 2 via parameter PIN no. 2.	OFF 0 – 99950	OFF
INVERTER	*Not usable*	–	–
EXPERT MENU	Activation and deactivation of the expert setting. With the factory setting OFF, only a limited selection of parameters appears in the INPUT. If this parameter is set to ON, it is possible to call up and set all input menu parameters. OFF: Limited number of parameter settings: – Menu language – *INPUT 1 (not usable)* – SELF LOCK – EXPERT MENU ON: Access to all parameters as listed in chapter 10.2.	ON – OFF	OFF

Functional overviews

10.3 Explanations of the relay modes:

A. Traffic light functions

MOD	Description	CLOSED limit position	OPEN limit position	Forewarning	Door movement
MOD1	Red traffic light inside 1	ON / OFF [1]	OFF [2]	Flashing	Illuminated
MOD2	Red traffic light inside 2	ON / OFF [1]	OFF [2]	Flashing	Flashing
MOD3	Red traffic light inside 3	ON / OFF [1]	OFF [2]	Illuminated	Illuminated
MOD18	Red traffic light inside 4	OFF	OFF	Flashing	OFF
MOD23	Green traffic light inside	OFF	Illuminated [2]	OFF	OFF
MOD44	Red traffic light inside + outside	OFF	OFF	OFF	Flashing [3]

[1] depending on the parameter TL REST

[2] *With active two-way control: Depending on the OPEN command inside or outside – not usable*

[3] from intermediate position CLOSED to limit position CLOSED, also after stop command. Only in CLOSE direction.

B. Position messages

MOD	Description	Remarks
MOD6	OPEN limit position	The relay closes the contact when the door is in the OPEN limit position.
MOD7	CLOSED limit position	The relay closes the contact when the door is in the CLOSED limit position.
MOD8	Not OPEN limit position	The relay closes the contact when the door is not in the OPEN limit position.
MOD9	Not CLOSED limit position	The relay closes the contact when the door is not in the CLOSED limit position.
MOD11	Intermediate CLOSED position (Sect. CLOSED)	The relay closes the contact when the door is in the intermediate CLOSED position (Sect. CLOSED).
MOD12	Intermediate CLOSED position to CLOSED limit position	The relay closes the contact when the door is in the range between the CLOSED limit position and the intermediate CLOSED position (Sect. CLOSED).

C. Pulse signals

MOD	Description	Remarks
MOD4	Pulse with OPEN command from inside	The relay closes the contact for 1 second if the door receives an OPEN command from inside. It is possible to realise light actuation with this pulse for example.
MOD27	Pulse after reaching the OPEN limit position	The relay closes the contact for 2 seconds if the door reaches the OPEN limit position. It is possible to open a downstream cabinet with this pulse for example.
MOD 40	Pulse with OPEN command from outside	The relay closes the contact for 1 second if the door receives an OPEN command from outside. It is possible to realise light actuation with this pulse for example.

D. Brake functions (can only be set at relay 4)

MOD	Description	Remarks
MOD14	Brake (closed-circuit current principle)	The switching contact of the brake rectifier is controlled via the relay in order to implement a faster braking function. As soon as the door moves, the contact is closed and the brake is vented (closed-circuit current principle).

E. Error messages

MOD	Description	Remarks
MOD5	Fault message	The relay opens the contact if a STOP command or an error is present. All errors of chapter 11 lead to relay actuation.
MOD39	Error LED	The relay always closes the contact if the internal error LED 2 (red) lights up.

F. Movement signal

MOD	Description	Remarks
MOD29	Door drives open.	Active with movement in the OPEN direction.
MOD30	Door drives closed.	Active with movement in the CLOSE direction.
MOD43	Door drives open or closed.	Active with all movement.

Functional overviews

G. Functions for external accessories

MOD	Description	Remarks
MOD25	Courtyard light function	With each OPEN command, the relay is closed for 2 minutes and can therefore be used to control a lighting system.
MOD28	Relay OFF	The relay is switched off as a general rule, the contact is always open.

H. *Input-dependent messages – not usable*

I. System messages

MOD	Description	Remarks
MOD31	Service	The relay is active after reaching the programmed service interval. Only after the service interval is reset or redefined does the relay drop out again. ➔ "10.2 Input operating mode" on page 23
MOD46	ADJUSTMENT operating mode	The relay is active if the control is in the ADJUSTMENT operating mode.

10.4 Explanations of the inputs:

A. *Functions input 1 – not available*

B. Functions input 2

MOD	Description	Remarks
OFF		Not active.
MOD2	Safety switching with resistance evaluation	With first commissioning and after a reset, input 2 is set to A (self-teaching) once. If a resistance value is detected, MOD2 is automatically set and the measured value is stored and monitored as a reference for the connected safety-related components. ➔ "5.9 Safety input per EN 12453" on page 13 Deviation of the measured value leads to an error message. If a safety element is subsequently added or removed, the resistance measurement must be performed again. For this purpose the parameter INPUT 2 must be manually reset to A (self-teaching) and the supply voltage must be switched off and on again. Renewed measurement then takes place. If no connected component is detected during initial commissioning or after a reset, the input is automatically deactivated. OFF appears in the display and the input must be manually activated.

10.5 Diagnosis operating mode / error memory

Display	Meaning	Condition
UPPER SWITCH	OPEN limit position	OFF: Limit position reached. ON: Limit position not reached.
LOWER SWITCH	CLOSED limit position	OFF: Limit position reached. ON: Limit position not reached.
UP-SWITCH	Command button / input OPEN (X3 / 5 + 6)	ON: Button is actuated / input is active. OFF: Button not actuated / input not active.
DOWN-SWITCH	Command button / input CLOSE (X3 / 9 + 10)	ON: Button is actuated / input is active. OFF: Button not actuated / input not active.
SAFE. 2	Programmable INPUT 2 (X4.1 / 1 + 2) Safety input at MOD2	ON: Input 2 is active. OFF: Input 2 is not active. —: Not activated.
IMPULS	Command button / input IMPULS (X3 / 7+8)	ON: Button is actuated / input is active. OFF: Button is not actuated / input is not active.
SAFETY CIRC.	Safety circuit 1 Emergency stop systems of door system (X3 / 1+2) (X3 / 3+4) (X3 / B1-B2)	ON: Safety circuit is closed. OFF: Safety circuit is interrupted.
CYCLE	Door cycle counter	Display of the door cycles that have run through: 1 x open + 1 x CLOSE = 1 cycle Counting only takes place when the end switch-off points have each been reached.
SERVICE	Service alarm function Setting via parameter SERVICE and PIN no. 2	OFF: Service display not active. 0 – 99999: Service display is active. Display of the remaining door cycles up to the service message.
C.STOP	HALT/STOP counter	Shows how often the door was stopped. Either through activation of a safety device, in case of direct direction reversal by a run command or by a direct STOP/HALT command.
C.OPENED	Counter for top limit position	Shows how often the top limit position was approached.
C.O.BTN	Counter for OPEN commands	Number of all incoming OPEN commands through command devices, sensors and safety devices (e. g. light barrier).

Functional overviews

Display	Meaning	Condition
ERROR … COUNT CYCLE	Controller error memory. The error messages of the controller can be read out here with information about frequency and cycle. Use the [+] and [-] keys on the LCD monitor to scroll through the list of various error messages. ➔ "11.1 Fault display on the LCD monitor" Deletion of the error memory: Press the buttons [+] and [–] simultaneously for approx. 2 seconds. Each error message must be individually deleted.	The display changes in 2-second intervals between – the fault description, – the frequency of occurrence, and – the information on which cycle the fault arose most recently. Only errors that have already occurred appear in the list.

The following messages can be read from the error memory, but are not displayed in the MANUAL operating mode:

Display	Meaning	Condition
POWER ON	Counter for switching the supply voltage off and back on again.	Counts up by actively switching the supply on and off, or with power failures.
ERROR SUPP.VOLT.	Counter for the occurrence of deviations in the supply voltage.	Overvoltage and undervoltage are detected and counted.
RESTART	Restart counter	Display of the restarts executed. Caused by detection of undervoltage, change of the limit position system or after a RESET of the controller.

11. Fault display and remedial measures

11.1 Fault display on the LCD monitor

Fault / message	Cause	Rectification
System does not react.	– No voltage present.	– Check power supply for the drive and controller.
Door drives to the CLOSED limit position upon actuation of the OPEN button. Door drives to the OPEN limit position upon actuation of the CLOSE button.	– Rotating field has been incorrectly connected.	– Check rotating field and establish right rotating field if necessary.
FAULT – X	– internal software or hardware error.	– RESET with circuit board button: ➔ "8.6 RESETTING the controller without LCD monitor"
SAFETY CIRC.	– The safety circuit is interrupted. X3 / 1+2 Safety circuit controller (EMERGENCY STOP) X3 / 3+4 Stop button external X2 / B1+B2 Safety circuit drive MEC	– Check safety circuit, locate interruption and eliminate problem.
ERROR STOP	– A fault has occurred at safety input (X4.1/1-2 – MOD2).	– Check all components at the safety input and replace if necessary.
ERROR RUNTIME	– The programmed running time has been exceeded.	– Check the path of the door and running time. – Re-program the running time if necessary.
TERM SWITCH FAIL	– The door is located outside the programmed limit position range.	– Reset the door in the programmed range through the emergency operation.
ERROR POWERSEGM.	– The load contactor or a relay is defective.	– The circuit board must be replaced.

After rectifying the cause of the fault, with the following faults the controller must be disconnected from the power supply once or restarted (> menu INPUT > parameter RESTART > ON):

– ERROR RUNTIME
– TERM SWITCH FAIL

Fault display and remedial measures

11.2 Fault display via LED

LED H1 (green)

Fault / message	LED display	Remarks
Operating voltage missing.	Off	No supply voltage available.

LED H2 (red)

Fault / message	LED display	Remarks
SAFETY CIRC.	1x flashing	Safety circuit is interrupted. – Check safety circuit, locate interruption and eliminate problem.
TERM SWITCH FAIL	3x flashing	The system is located outside the programmed limit position range. – Reset door in the programmed range through the emergency operation.
ERROR RUNTIME	6x flashing	The programmed running time has been exceeded. – Check the path of the door and running time. – Re-program the running time if necessary.
SERVICE	10 x flashing	The programmed service interval has been reached. – Reset or redefine service interval. ➔ "10.2 Input operating mode" / SERVICE parameter
ERROR POWERSEGM.	11 x flashing	The load contactor or a relay is defective. – The circuit board must be replaced.
ERROR STOP	Continuous illumination, travel no longer possible.	– A fault has occurred at safety input (X4.1/1-2 – MOD2). – Check all components at the safety input and replace if necessary.

12. Technical data

12.1 Mechanical and electrical data

Application:	Zones 1 and 2 (gas) Zones 21 and 22 (dust)
Designation	
– Gas	Ex II 2 (1) G Ex db eb [ia Ga] IIC T6 Gb
– Dust	Ex II 2 (1) D Ex tb [iaGa] IIIC T80°C Db
Approval	
– Gas	PTB 06 ATEX 1077
– Dust	PTB 06 ATEX 1077
Supply via	
L1, L2, L3, N, PE:	400 V/3~, 50/60Hz ± 10% 230 V/3~, 50/60Hz ± 10%
	Power input max. 2,200W with supply 400V/3~
Fuse protection:	3rd block circuit breaker Type C / 16A
Motor circuit breaker:	Performance level 1 = 1.1 … 1.6 A Performance level 2 = 2.2 … 3.2 A Performance level 3 = 3.5 … 5.0 A
Controller internal consumption:	max. 750 mA
Control voltage:	24 V DC, max. 500 mA; protected by automatically resetting fuse for external sensors
Controller inputs:	24 V DC, all inputs are to be connected potential-free. Minimum signal duration for input controller command >100 ms.
Safety circuit / emergency stop:	All inputs must be connected potential-free; with an interruption of the safety chain, no further electrical movement of the drive is possible, even with dead man's switching.
Safety input with resistance evaluation	Performance Level C, cat.2 for safety-related components with 8.2 kΩ terminal resistance
Display (LCD):	Only an original LCD monitor from Marantec Legden may be used. #91447 Standard
Relay outputs:	If inductive loads are to be switched (e.g. additional relays or brakes), these must be equipped with corresponding interference suppression measures (e. g. Free-wheeling diodes, varistors, RC elements). Work contact potential-free; min. 10 mA; max. 230 V AC / 4A. *Contacts that have been used for power switching can no longer be used for switching low currents.*
Safety barrier N1:	– Steel 9002/77-150-300-001 – Ex II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc – Ex II (1) D [Ex ia Da] IIIC
Installation:	Vertically, on the wall; Min. height of 1,100 mm.
Temperature range:	Operation: -10°C … +40°C
Humidity:	Up to 80% non-condensing.
Vibrations:	Low-vibration mounting, e. g. on a masonry wall.
Protection grade	IP 66
Dimensions (H x W x D):	556 x 410/360 x 281 mm
Weight	41 kg

12.2 Category and performance level of the safety function per EN ISO 13849-1

Function	Realisation	$MTTF_D$ Electronics	$MTTF_D$ Total with output contactor	DC_{avg}	Category	Performance Level
Emergency stop	Input terminal X3, X6, X7, X11 Interrupts the power supply to the output relay and main contactor, independent of the CPU. Feedback to the CPU available.	1175 years	191 years	84.7%	3	d
Stop circuit	Input terminal X3, X7 Interrupts the supply to the main contactor. Message to CPU.	1175 years	191 years	-	B	b
End position detection through absolute value encoder	Input terminal X11 For position determination and end position detection. Testing through plausibility check of expected position values to received position values.	1062 years	188 years	83.7%	2	c
End position detection through end position switch	Input terminal X15 Protection through runtime limiting. Inputs are evaluated by the CPU.	1248 years	193 years	63.1%	2	c

DC_{avg} average diagnostic coverage
$MTTF_D$ mean time to hazardous failure

13. Service

⚠ DANGER!

Life-threatening danger due to electric shock!

Before any cabling work:

☞ Shut off the voltage to the system.

☞ Check that there is no voltage.

☞ Secure the system against being turned back on.

⚠ DANGER!

Death hazard from explosion!

☞ Make sure that the lid of the pressure-resistant housing is opened only under at least one of the following conditions:

– The controller has shown zero voltage.

– It has been ensured, such as through a gas warning device, that no explosion-prone atmosphere is present.

The CS 320 ATEX controller is maintenance-free.
The CS 320 ATEX controller must be checked at least once yearly.

⚠ ATTENTION!

Property damage due to improper checking of the controller!

To prevent damage to the controller, drive, safety-relevant components and the door, observe the following points:

– Testing must only be done by trained, qualified, authorised people.

– Worn or faulty parts must be replaced or disposed of correctly.

– Only approved original parts may be installed.

– The test results must be documented in the log book for the door system.

☞ Check all safety-relevant components of the door system for damage, firm seating and corrosion.

☞ Check all electrical lines for damage.

☞ Check all seals and seal surfaces for damage.

14. Repair

⚠ DANGER!

Life-threatening danger due to electric shock!

Before any cabling work:

☞ Shut off the voltage to the system.

☞ Check that there is no voltage.

☞ Secure the system against being turned back on.

⚠ DANGER!

Death hazard from explosion!

☞ Make sure that the lid of the pressure-resistant housing is opened only under at least one of the following conditions:

– The controller has shown zero voltage.

– It has been ensured, such as through a gas warning device, that no explosion-prone atmosphere is present.

⚠ WARNING!

Death hazard due to improper repair of the controller!

The following points must be correct to ensure correct repair:

– Repairs must only be done by trained, qualified, authorised people.

– On-site repair can be done if no explosion protection parts must be replaced.

– Worn or faulty parts must be replaced or disposed of correctly.

– Only approved original parts are to be replaced and installed.

– Marantec Legden does not accept any liability or warranty for damage due to the use of non-approved service parts and accessories.

15. Declaration of incorporation (EU)

in accordance with Directive 2006/42/EC (Machinery) for the incorporation of an incomplete machine per Annex II, Part 1B

Declaration of conformity

in accordance with Directive 2014/30/EU (EMC)
in accordance with Directive 2011/65/EU (RoHS)

Marantec Legden GmbH & Co.KG,
Neue Mühle 4,
D - 48739 Legden

We hereby declare that the product cited below

Product designation: **Controls for industrial doors in explosion hazardous areas**
Type designation: **CS 320 ATEX dead mann**

is intended exclusively for incorporation in a door system and has been developed, designed and produced in accordance with the following directives:

Machinery Directive 2006/42/EC
Annex 1: 1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.4.2, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.9, 1.5.1, 1.5.2, 1.5.4, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.9, 1.5.10, 1.5.11, 1.5.13, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1.1, 1.7.1.2, 1.7.2, 1.7.3, 1.7.4.3.

EMC Directive 2014/30/EU - Electromagnetic Compatibility
RoHS Directive 2011/65/EU - Hazardous substances in electrical appliances
LV Directive 2014/35/EU - Low voltage, per Annex I part 1.5.1 of 2006/42/EC
ATEX Directive 2014/34/EU - Declaration in the attached documents of the company STAHL

Applied standards:

EN 12453:2017	Doors – Safety in use of power-operated doors: Requirements and test methods
EN ISO 13849-1:2015	Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
EN ISO 13849-2:2012	Safety of machinery - Safety-related parts of control systems - Part 2: Validation
EN 60335-1:2012	Safety of household and similar electrical appliances - Part 1: General requirements
EN 60335-2-103:2015	Safety of household and similar electrical appliances - Part 2-103: Particular requirements for drives for gates, doors and windows
EN IEC 61000-6-2:2019	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-3:2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments
EN 55014-1:2017	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
EN 55014-2:2015	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard

The relevant technical documentation has been compiled in accordance with Annex VII, part B of the Machinery Directive (2006/42/EC).
We shall transmit this information in electronic form, in response to a justified request by the market surveillance authorities, in a timely manner.

Person authorised to compile the technical documentation is the undersigned.

Incomplete machines in accordance with Directive 2006/42/EC are only intended for incorporation in other machines or incomplete machines or systems or for combination with them, in order to form a machine with them in accordance with the aforementioned directive. This product must therefore not be put into service until the complete machine/system into which it is incorporated is compliant with the provisions of the aforementioned directives. Any change to this product that we have not approved will void this regulation.

Legden, 01.08.2022

Michael Hörmann, General Manager

CE

16. Annex

16.1 Safety barriers N1

The two-channel safety barrier is an electrical device used in explosion protection.
Its task is to prevent combustibility of electrical circuits that are laid in an explosion-prone atmosphere and thus to enable intrinsically safe operation of lines and equipment that are installed in the explosion-prone area.
To prevent combustion in the explosion-prone area, all equipment, including cables have a safety barrier upstream that creates an intrinsically safe electrical circuit. This intrinsically safe electrical circuit can now be guided out of the safe area into the explosion-prone area. Because safety barriers also do not contain intrinsically safe electrical circuits, they are generally installed outside the explosion-prone area.

Technical data	
Manufacturer:	R. Stahl Schaltgeräte GmbH, Waldenburg
Type:	9002/77-150-300-001
Application area (zones):	2, 22
Ex interface zone:	0, 1, 2, 20, 21, 22
ATEX certificate:	PTB 01 ATEX 2053 X
Gas explosion protection:	Ex II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc
Dust explosion protection:	Ex II (1) D [Ex ia Da] IIIC
Max. Voltage U_0:	15 V
Max. Current I_0:	150 mA
Max. Power P_0:	560 mW
Maximum permissible external capacity C_0:	0,58 µF (IIC) / 3,55 µF (IIB)
Maximum permissible external inductivity L_0:	1.3 mH (IIC) / 7 mH (IIB)
Ambient temperature:	-20°C … +60°C
www.stahl.de	

Annex

16.2 Motor circuit breaker QA1

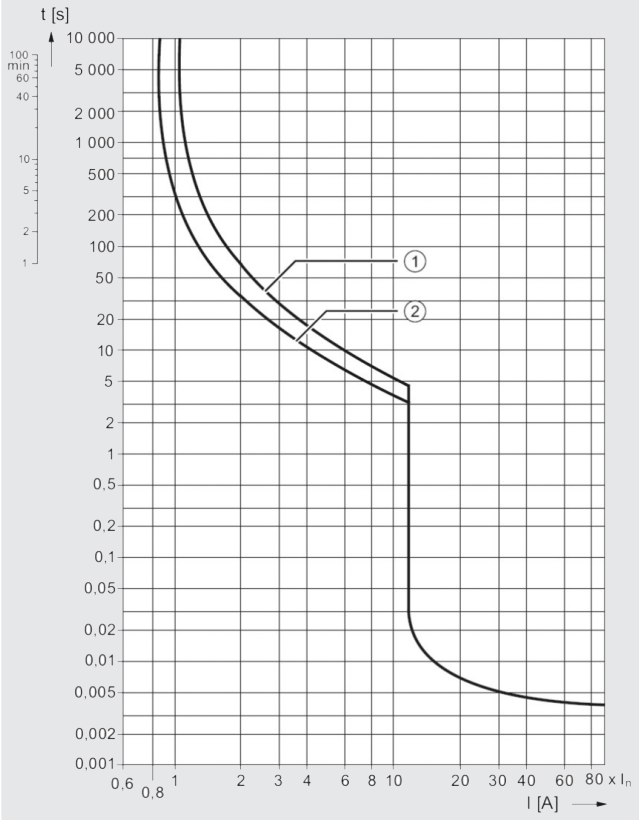
Motors in explosion-prone areas must be specially protected against overload and short circuits. For this, the CS 320 ATEX controller has a built-in motor circuit breaker (QA1) that is suitable for use with Ex-d, Ex-de and Ex-e motors. This is current-dependent, time-delayed safety equipment that is available in three performance levels. The setting on the motor circuit breaker must match the specific motor's nominal current. Restart is done manually after it is triggered.
For motors with the increased safety "e" type protection, the motor protection must also cover the "braked rotor", because this causes the windings to heat up quickly. Within the heat-up time t_E the motor must be disconnected from the mains. Here the actual tripping time t_A must be shorter than the heat-up time t_E and is specified with the locked rotor current ratio I_A/I_N through the tripping characteristic of the motor circuit breaker.

Technical data			
Manufacturer:	Siemens		
Type:	Sirius 3RV2011-1AA10	Sirius 3RV2011-1DA10	Sirius 3RV2011-1FA10
Size:	S00	S00	S00
Tripping class:	Class 10	Class 10	Class 10
Overload release:	thermal	thermal	thermal
Short circuit release:	magnetic	magnetic	magnetic
Phase failure detection:	yes	yes	yes
Number of poles:	3	3	3
ATEX certificate:	DMT 02 ATEX F 001	DMT 02 ATEX F 001	DMT 02 ATEX F 001
Explosion protection:	Ex II (2) GD	Ex II (2) GD	Ex II (2) GD
Rated voltage:	690 V	690 V	690 V
Rated current:	1.6 A	3.2 A	5.0 A
Rated frequency:	50 … 60 Hz	50 … 60 Hz	50 … 60 Hz
Adjustable response value:	1.0 … 1.6 A	2.2 … 3.2 A	3.5 … 5.0 A
Protection grade:	IP 20	IP 20	IP 20
Ambient temperature:	-20°C … +60°C	-20°C … +60°C	-20°C … +60°C
www.siemens.de			

16.3 Tripping characteristic

Time-current characteristic for Siemens Sirius 3RV20xx

16.3 / 1

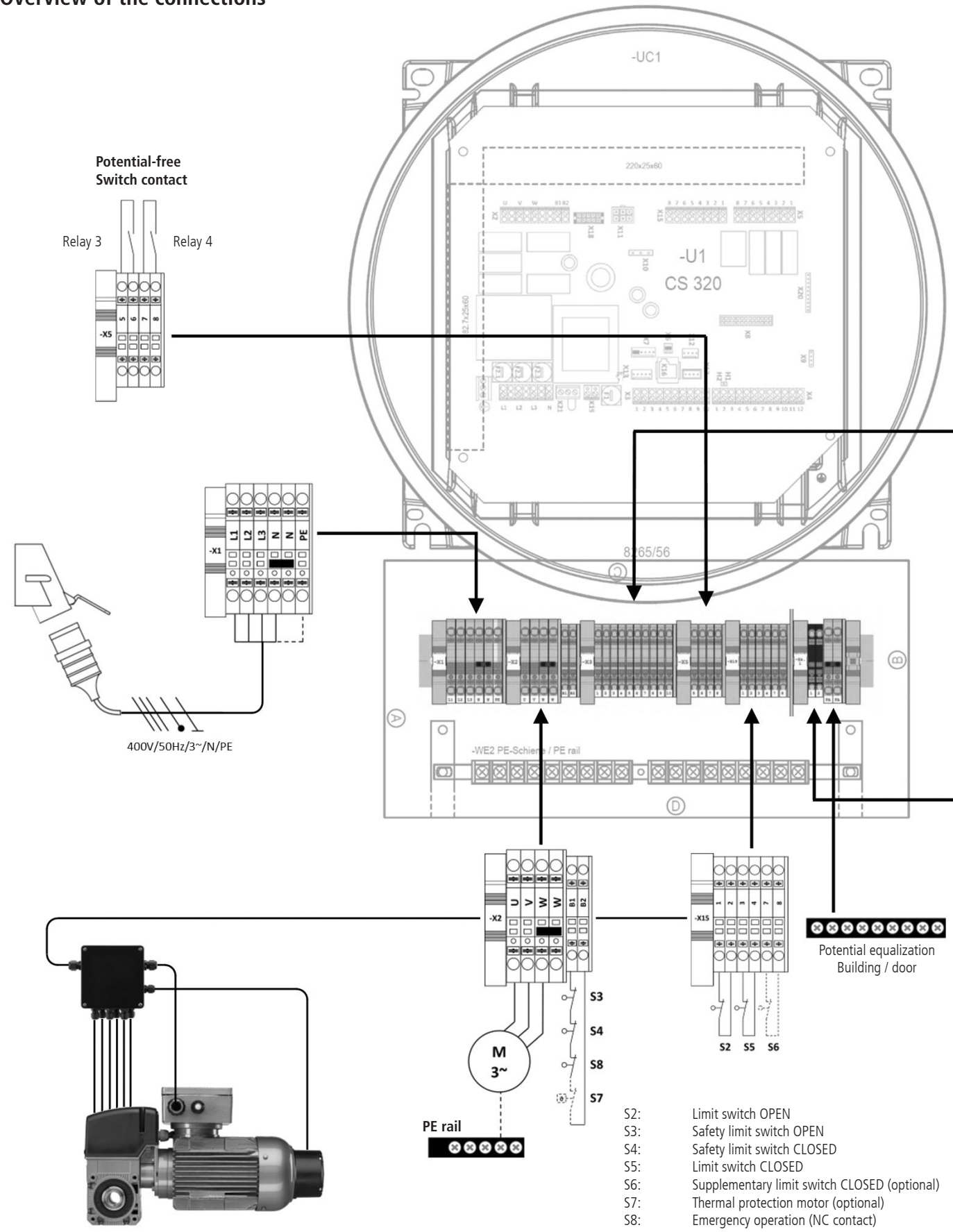


t Tripping time
I Multiple of the setting current
① 3-pole load CLASS 10
② 2-pole load CLASS 10

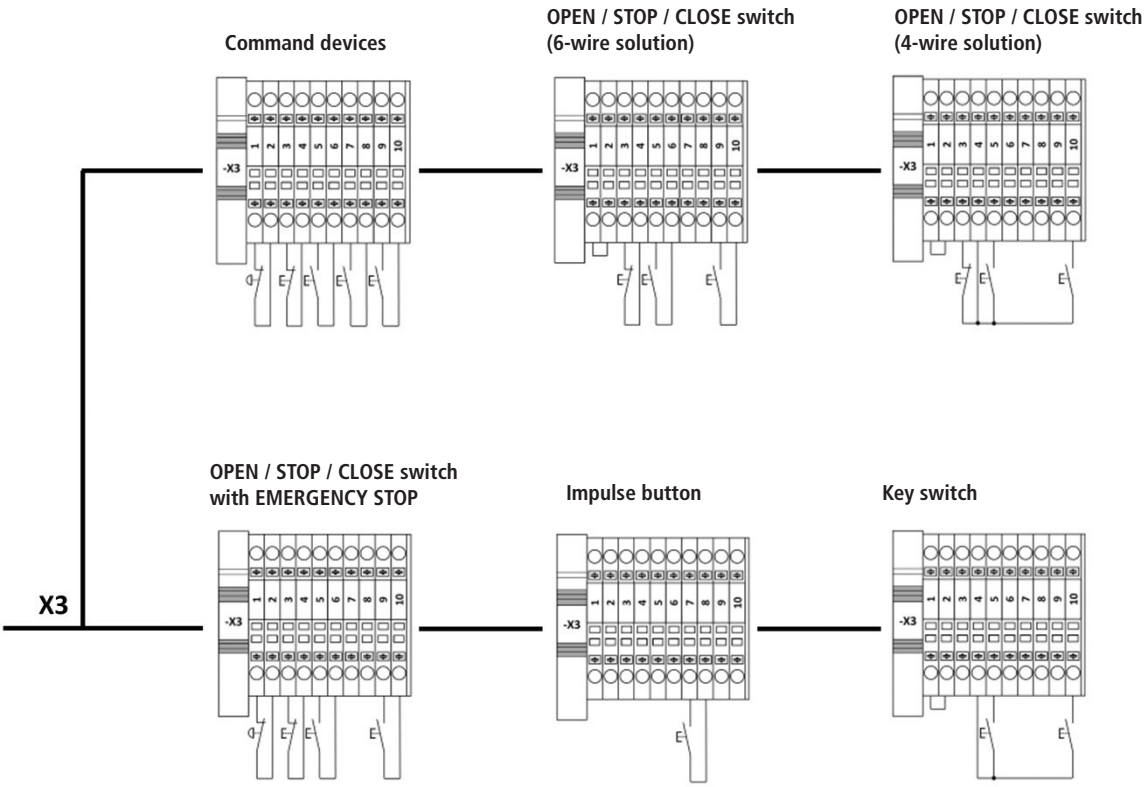
www.siemens.de

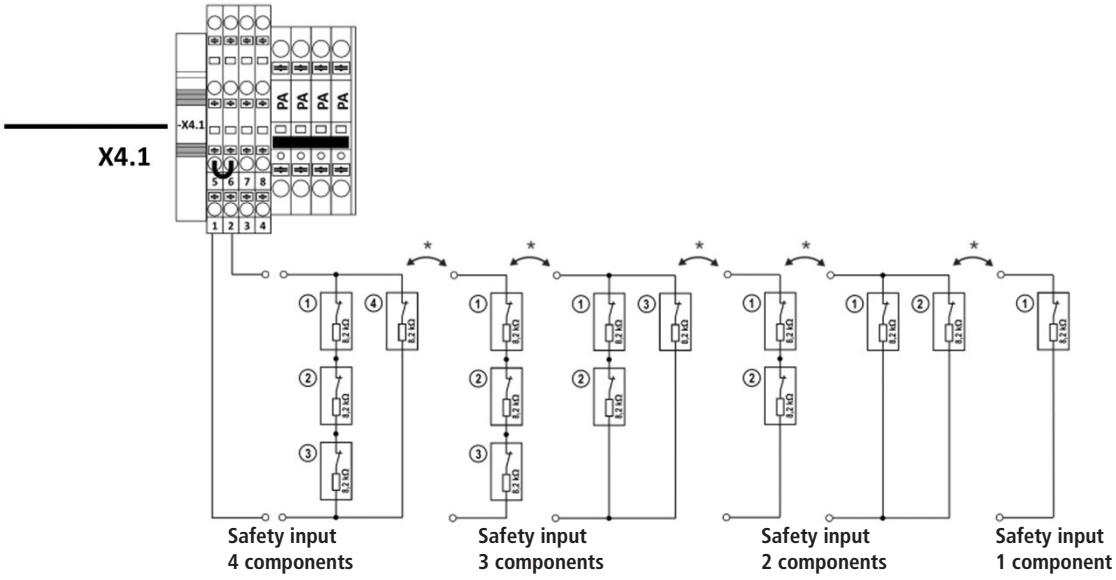
Annex

16.4 Overview of the connections



S2: Limit switch OPEN
S3: Safety limit switch OPEN
S4: Safety limit switch CLOSED
S5: Limit switch CLOSED
S6: Supplementary limit switch CLOSED (optional)
S7: Thermal protection motor (optional)
S8: Emergency operation (NC contact)


Command devices
OPEN / STOP / CLOSE switch
(6-wire solution)
OPEN / STOP / CLOSE switch
(4-wire solution)
OPEN / STOP / CLOSE switch
with EMERGENCY STOP
Impulse button
Key switch
X3
-X3


X4.1
-X4.1
PA
Safety input
4 components
Safety input
3 components
Safety input
2 components
Safety input
1 component