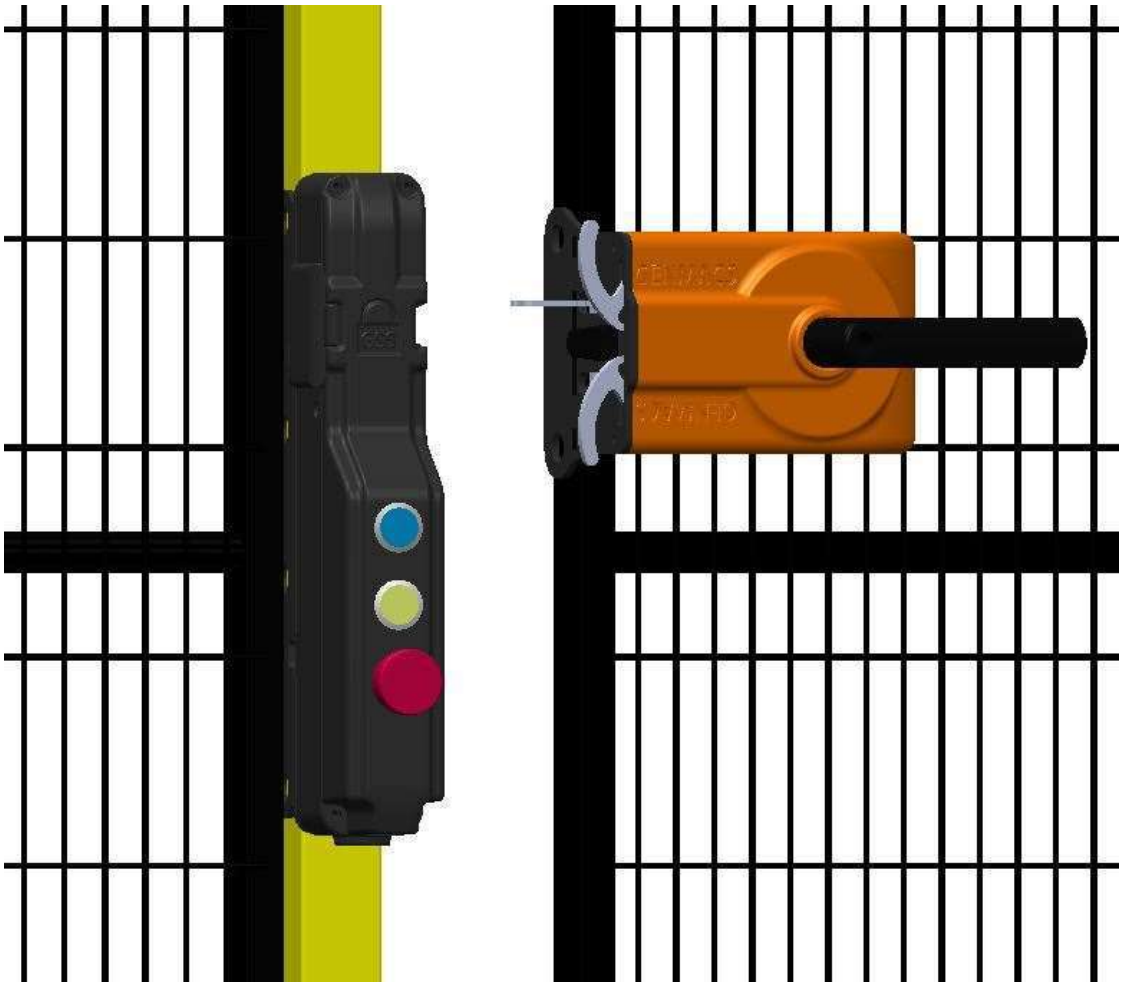
GENMACS
SAFETY SYSTEMS



Safety Door Handle Mechanism
User Manual

GSS-DLH-L-.../GSS-DLH-S...

EN

Described Product

GSS-DLH-L-…/GSS-DLH-S-…

Manufacturer

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Original Document

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CE

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1 About This Document

1.1 Purpose of the Document

This user manual contains necessary information for the safety door handle mechanism of Genmacs Security Systems throughout its service life.

This user manual should be accessible to anyone working with the secure locking door handle mechanism.

1.2 Scope of the Document

This user manual is applicable to the GSS-DLH-... series of products and, together with the Euchner STP3A/STP4A secure locking sensor operating manual, provides complete user information for the device.

1.3 Other Information

www.genmacs.com.tr

The following information is accessible through the website:

- This manual is also available in different languages (English-Italian)
- Product images and application videos.

1.4 Description of Used Symbols and Abbreviations

The following symbols and abbreviations have been used within this document:

SYMBOL	EXPLANATION
 **DANGER CAUTION NOTICE**	Safety Instructions Danger of death or serious injury Warning of possible injury Minor injuries may occur.
 **INFO ADVISE**	Indicates useful tips, information and advice.
SEE.	SEE
e.g.	Example

2 Safety Information

2.1 General Safety Information

The secure locking door handle mechanism of Genmacs Safety Systems should be correctly designed and operated by authorized personnel in accordance with the requirements and protection level of the machine or system. System security should be checked after each maintenance, commissioning, replacement of mechanism parts, occurrence of any errors, and long idle time.

ATTENTION

Life threatening danger due to improper installation or use
Safety components serve a personal protection function.

- Safety components should not be bypassed, replaced, removed, or otherwise rendered ineffective. In this regard, manipulation reduction measures specified in section 7 of EN ISO 14119:2013 should be considered.
- The control operation should only be activated by the designated actuators.
- Installation, electrical connection, and commissioning should only be performed by authorized expert personnel with detailed knowledge of using machine safety components.

INFO

Read the user manual after unpacking. Keep the user manual carefully and have it readily available when needed. The manufacturer does not provide any guarantee regarding the availability of the user manual throughout the specified storage period in this document. Therefore, we recommend archiving a printed copy of the user manual. You can access the user manual and other technical details at www.genmacs.com.tr.

2.2 Appropriate purpose of use

Together with a movable circuit breaker protection and machine control system, the secure locking door handle mechanism ensures that the safety fences around a hazardous and moving machine's active work area are not opened as long as the machine contains a hazardous condition. As long as the protective device is active, it prevents access to the area, thus preventing hazards and risks arising from dangerous machine functions.

The secure locking door handle mechanism is responsible for the safety of the machine for which it has been properly installed, designed, and commissioned by trained expert personnel in accordance with the user manual. **Genmacs** does not assume responsibility for the functionality in case of replacement of system components.

INFO

After the product is installed and commissioned, it is the responsibility of the operator to ensure the system remains secure.

2.3 Inappropriate purpose of use

The secure locking door handle mechanism should not be used or should be used with caution under the following environmental conditions:

- Ambient temperatures exceeding 40 °C (high body temperature),
- Prolonged use in highly humid environments.

The device should be installed in accordance with the technical specifications and the user manual. The operating voltage range of electronic cards should be observed, appropriate mounting position for the application of protection classes, and proper tightening of cable entries and screws are required for the validity of the protection ratings. (For detailed information, refer to the Euchner STP..., operating manual)

2.4 Target Audience: Specifications Required of the Personnel

All operations described in the user manual should only be performed by authorized trained expert personnel designated by the operator. Before installation and commissioning, this manual must be read, understood, and complied with all existing regulations regarding occupational safety and accident prevention.

The operator should carefully select device components, installation, and comply with the required standards and other technical specifications.

2.5 Disclaimer of Liability and Warranty Service

Failure to comply with safety warnings, improper use contrary to its specified purpose, or failure to perform timely and desired control operations can result in a disclaimer of liability and termination of warranty service.

3 Product Description

3.1 Structure and Function

The Genmacs secure door handle mechanism ensures the closure of movable circuit breaker protection devices in conjunction with a secure locking sensor.
The device enables the electrical and mechanical locking of an actuator mounted in the door handle mechanism with a secure locking sensor placed inside the enclosure.

By means of the mounting feet located at the bottom of the enclosure, it can be connected to profiles used for the installation of safety fences and to both door panels of double-wing doors through holes on the door. The Door Handle Mechanism can be connected to holes on the safety fence panel.

After the necessary assembly on the safety fence system, the actuator mounted on the door handle mechanism can be mechanically and electrically locked with the secure locking sensor located inside the enclosure. In this process, the centering arms inside the door handle mechanism wrap around the socket inside the enclosure, eliminating any potential damage caused by misalignment on the door panel.

The Emergency Exit Mechanism mounted behind the door handle mechanism allows personnel in the hazardous area to escape without needing permission from any buttons or switches, but it does not allow personnel to lock themselves in the safe area. The direction change can be made if the door panel opens to the right or left thanks to the direction changer located at the back of the door handle mechanism.

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When attempting to enter the safe area while the mechanism is locked, pressing the permission button on the enclosure ensures the stoppage of the machinery and robot systems located in the safe area, and the secure locking sensor subsequently releases the lock. At this point, the personnel entering the safe area prevents the lock from being engaged with their lock by placing their lock on the holes provided in the lock application on the lock.

After completing their work in the safe area, the personnel remove their lock from the hole, allow the actuator to settle into the slot inside the solenoid, and lock the solenoid using the reset button on the enclosure.

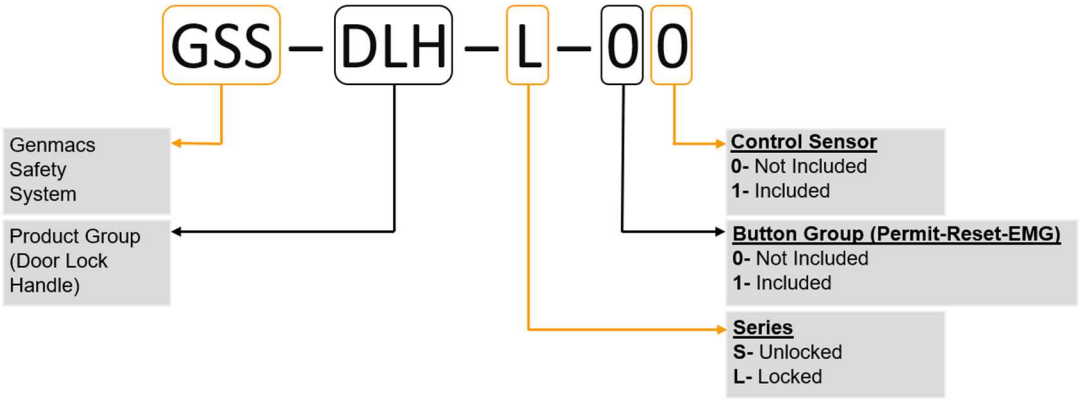
To prevent the operation of the robots and machinery in the safe area, the actuator should be removed from the slot in the door lock mechanism and placed inside the solenoid without engaging the mechanical lock. In addition to the solenoid engagement, the turtle arms must also engage to achieve the lock. This process is monitored by a non-contact inductive proximity control sensor located inside the enclosure.

3.2 Product Selection

The GSS door handle mechanism offers 2 different series and 3 different model options for each series. The manufacturer provides a total of 6 different product variations. The product selection guide and the active product table are indicated below.

INFO

In the GSS-DLH-S... product group, the "Euchner STP3A" secure locking sensor is not included with the product. However, it can be included upon user request. (See Annex 8 Documents, Euchner STP Operating Manual)



ACTIVE ITEM CODE	DESCRIPTION
GSS-DLH-L-00	Solenoid Lock, w\o Button Group, w\o Control Sensor
GSS-DLH-L-10	Solenoid Lock, with Button Group, w\o Control Sensor
GSS-DLH-L-11	Solenoid Lock, with Button Group and Control Sensor
GSS-DLH-S-00	w\o Solenoid Lock, w\o Button Group, w\o Control Sensor
GSS-DLH-S-10	w\o Solenoid Lock, with Button Group, w\o Control Sensor
GSS-DLH-S-11	w\o Solenoid Lock, with Button Group and Control Sensor

3.3 Technical Information

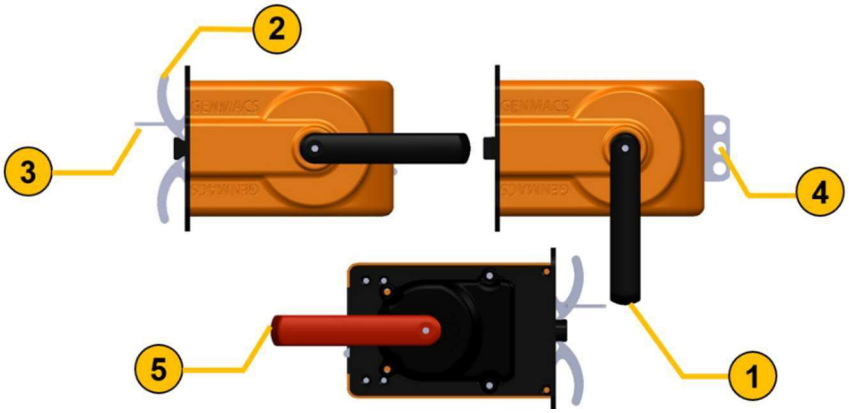
Detailed technical documents for the Euchner STP3A-4A series models are provided in Section 8.

VARIABLE	PARAMETER
Dimensions	See. Page 14 Technical Drawings
Weight	6,2kg
Protection Type	IP64
Mechanical Service Life	1x10^6 control loop
Ambient Operating Temperature	-20…+55
Degree of Contamination (Exterior, EN 60947-1)	3 (industrial)
Mounting Position	Optional
Starting Speed max.	20m/dk
Pull Out Force (not closed)	30N
Retention Force	20N
Trigger Force max.	35N
Trigger Frequency	1200/s
Control Principle	Slow control element
Contact Agent	Fine gold-plated silver plated
Connection Type	STP… Cable Input M20x1.5
Cable cross section	0.34…1.5mm^2
Measurement Insulation Voltage	STP… U_i=250V
Measuring Withstand Voltage Endurance	STP… U_{imp}=2,5kV
Conditional Short Circuit	100A
Minimum Circuit Voltage at 10mA	12V
Usage category according to EN 60947-5-1	STP… AC-15 4 A 230 V/DC-13 4 A 24 V
Control Current min. When 24V	1 mA
Short Circuit Protection According to IEC 60269-1	4 A gG
Conv. Thermal Current Ith	4 A
Magnet Operating Voltage/Magnet Power	STP…024 AC/DC 24 V (+%10/-%15) 8 W
Working Time ED	%100
Reliability values in accordance with EN ISO 13849-1	B10D 5x10^6 DC-13 100 mA / 24 V

4 Overview of the Product

4.1.1 Door Handle Mechanism

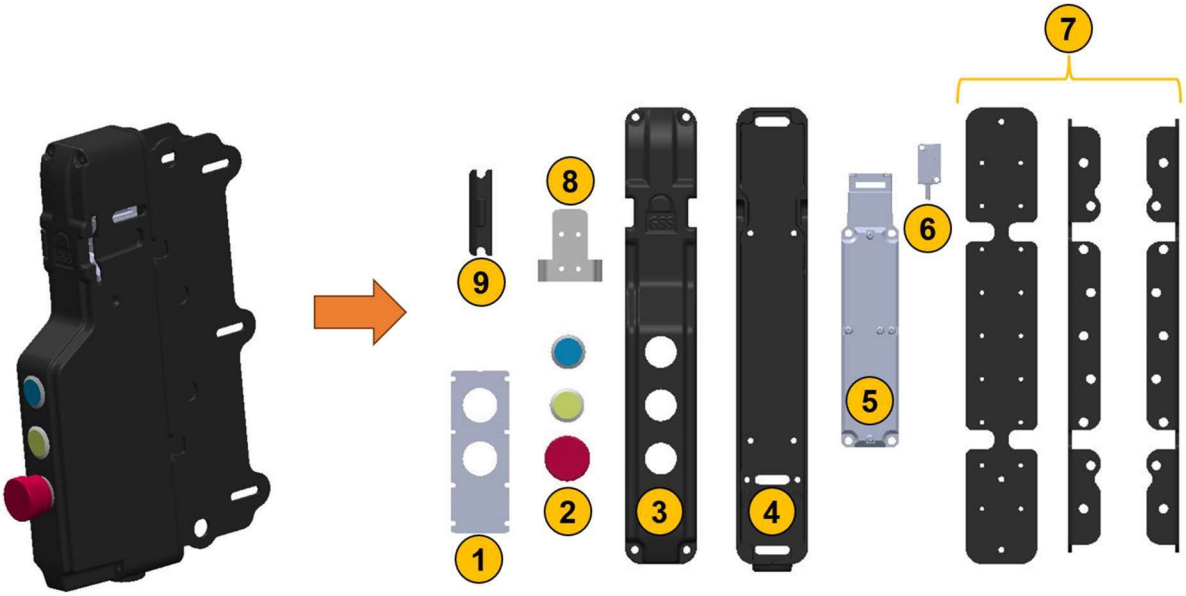
The door handle mechanism is a component within a secure door handle that ensures the system's safety by allowing the user to perform the usual door-opening action. It consists of two integral parts: the emergency escape module and the main module.



1. Entry Door Handle
2. Centering Arms
3. Actuator
4. LOTO Function
5. Emergency Escape Handle

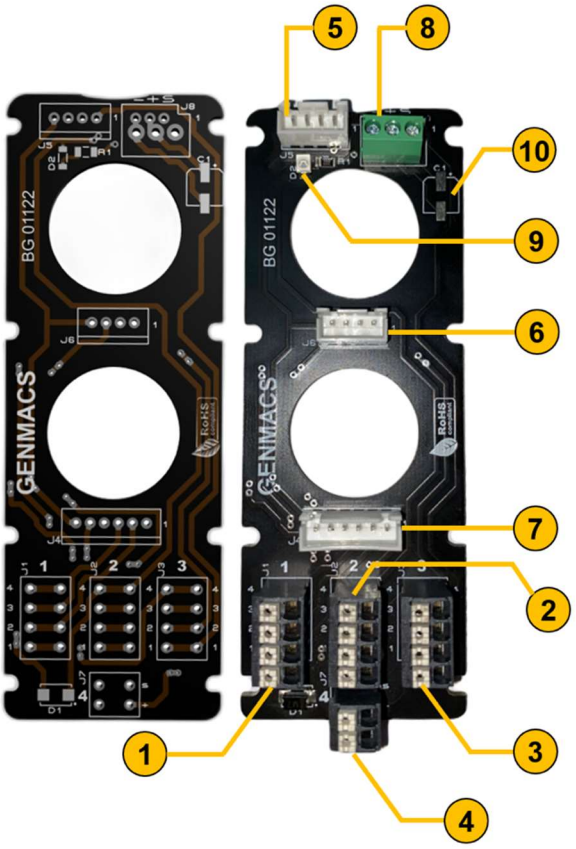
4.1.2 Secure Locking Sensor Module

The secure locking sensor module consists of 9 main components. These are indicated on the visual provided below.



1. Button Grouping Electronic Board
2. Permit-Reset and Emergency Buttons
3. Module Front Enclosure
4. Module Rear Fixing Wall
5. Secure Locking Sensor
6. Inductive Sensor
7. Assembly Parts
8. Sensor Cable Protection Plate
9. Dust Containment

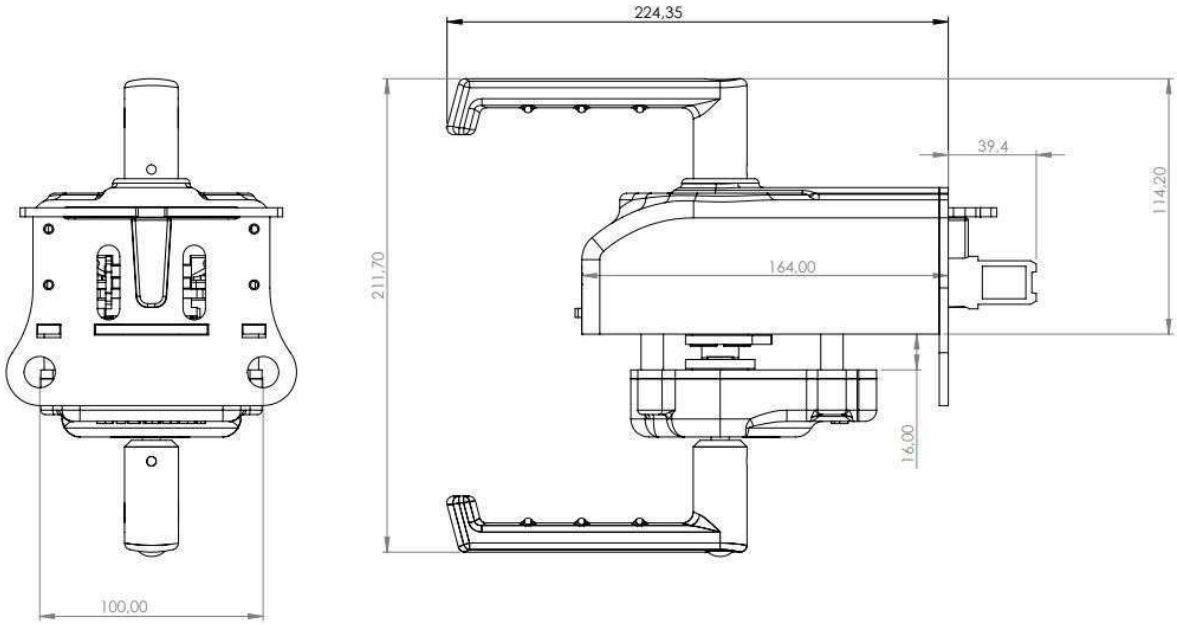
4.2 Electronic Button Grouping Board

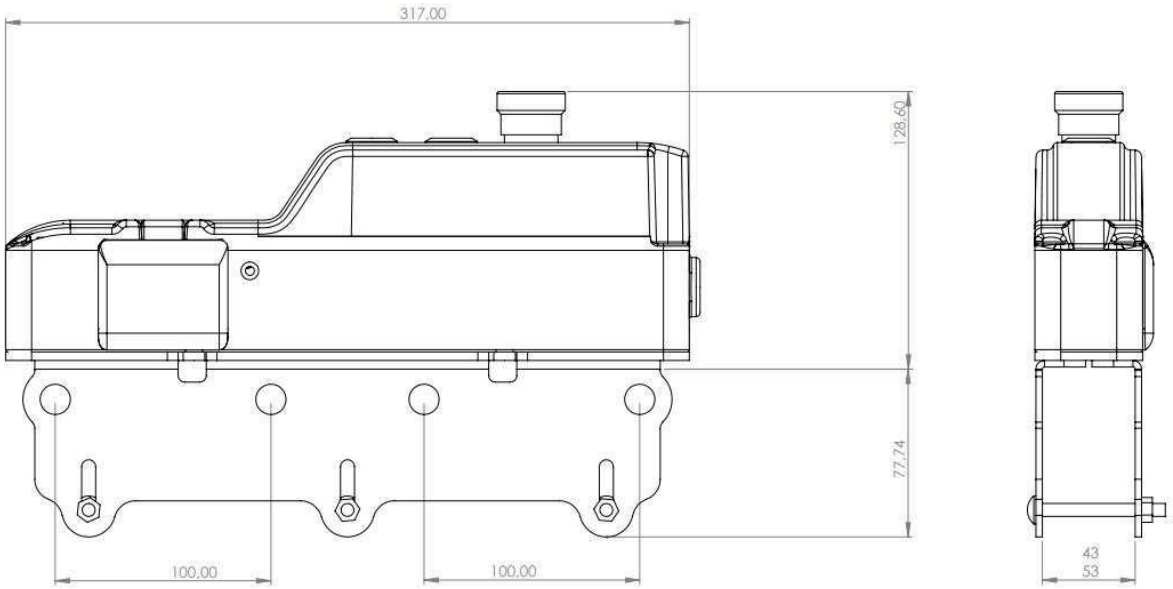


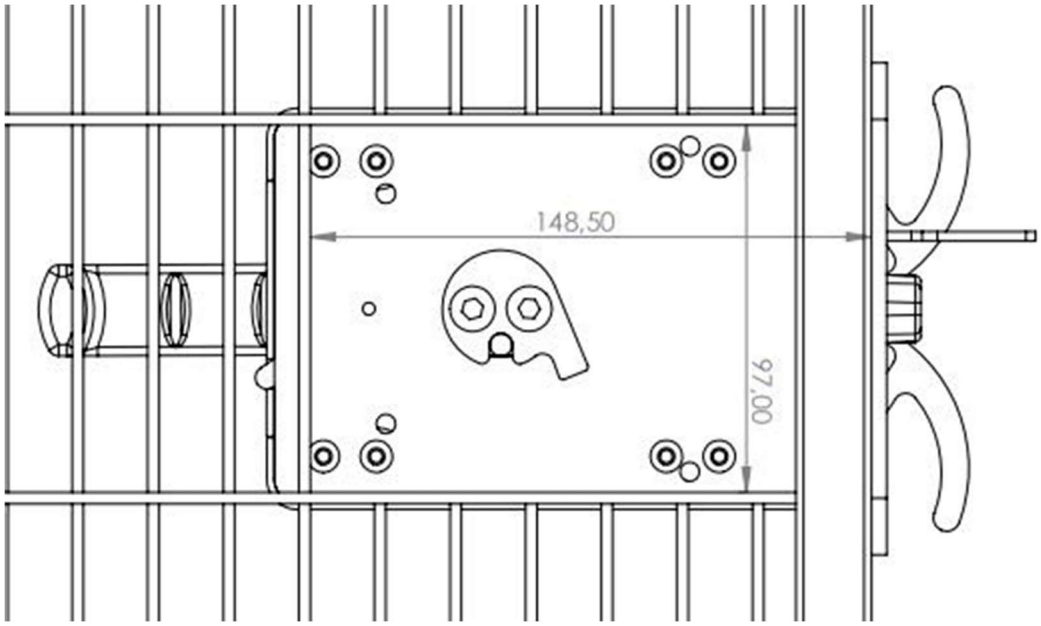
1. EMG Button Connection Terminal
2. Button Led Connection Terminal
3. Button Connection Terminal
4. Control Sensor Connection Terminal
5. Blue Button Connection Socket
6. Yellow Button Connection Socket
7. EMG Button Connection Socket
8. Control Sensor Connection Terminal
9. Sensor Supply Led
10. Sensor Supply Capacitor

Inside the secure locking sensor module, there is a button grouping electronic board located at the bottom of the enclosure. This board is designed to provide connection convenience to the user by consolidating the connections of the existing 2 buttons and 1 emergency stop button on the enclosure, as well as the connections of the control sensor, at a single point. The circuit elements and connection points on the board are shown in the image above.

4.3 Technical Drawings


224,35
39,4
114,20
211,70
164,00
16,00
100,00


317,00
128,60
77,74
100,00
100,00
43
53



5 Assembly

5.1 Safety

DANGER

Danger due to sudden machine operation
Risk of death and serious injury

- Ensure that the machine's hazardous condition is eliminated, and its continuity is ensured.

ATTENTION

Manipulation of the safety device
Danger when the protective device is not effective

- Pay attention to not bypassing the safety device during checks of the device after every error and maintenance.

INFO

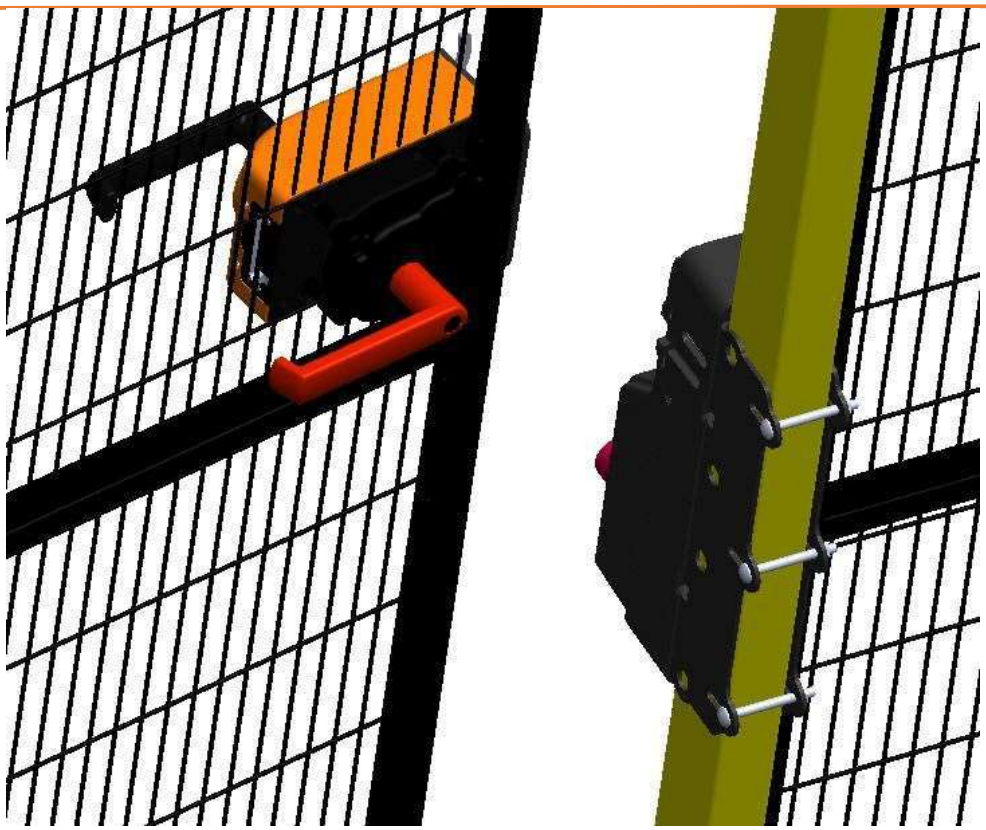
Improper environmental conditions and device damage due to incorrect installation.

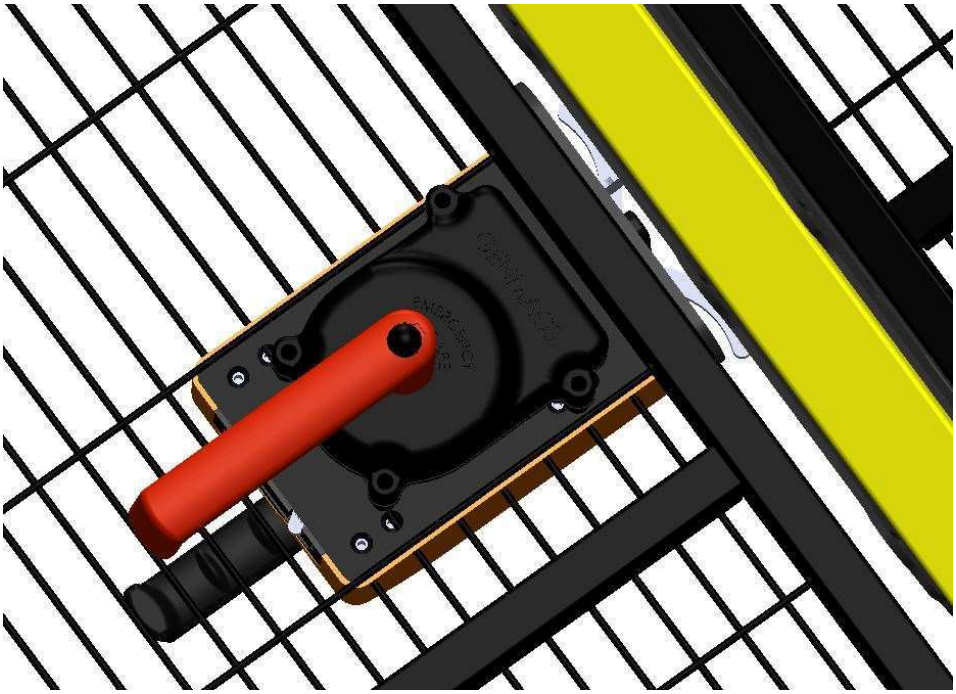
- Protect the door handle mechanism and locking module from foreseeable external influences.
- Do not use the device as a support.
- Ensure that the device is properly mounted on safety fences.
- Pay attention to the door and post opening gap being at least **13 mm and no more than 20 mm.**
- The installation process should only be carried out by authorized and expert personnel.

5.2 Mechanical Assembly

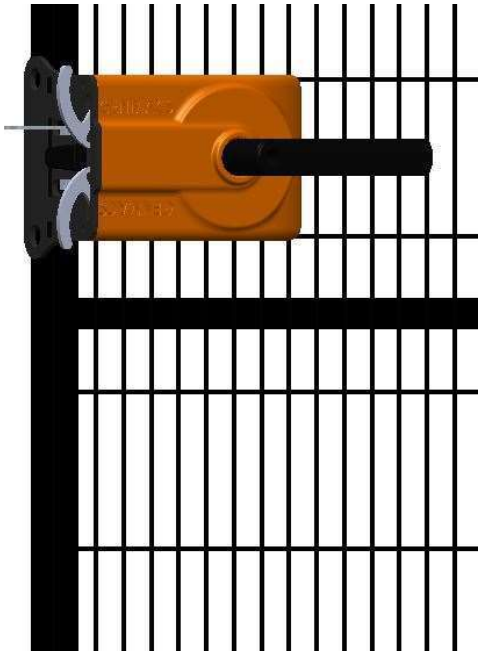
During the ordering process, it is essential to inform the sales representative about the type of door that will require installation.

5.2.1 Single Door Assembly Example

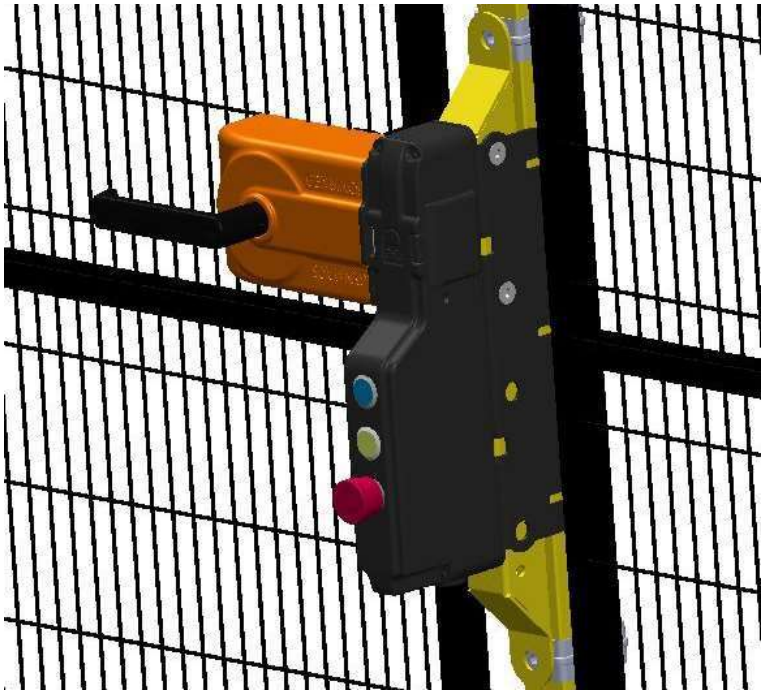


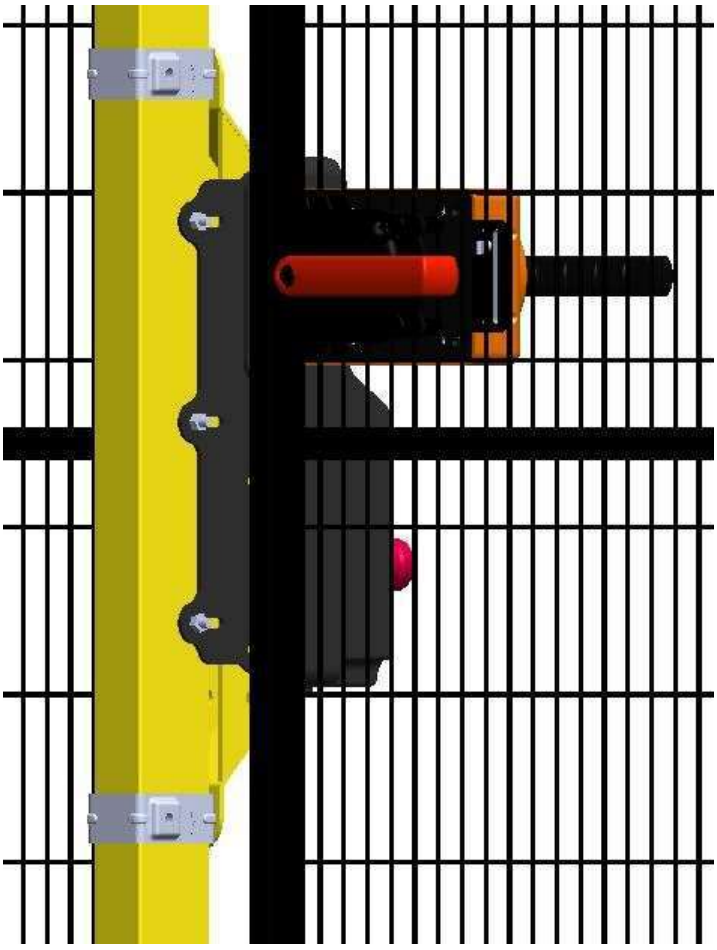


5.2.2 Double Door Assembly Example

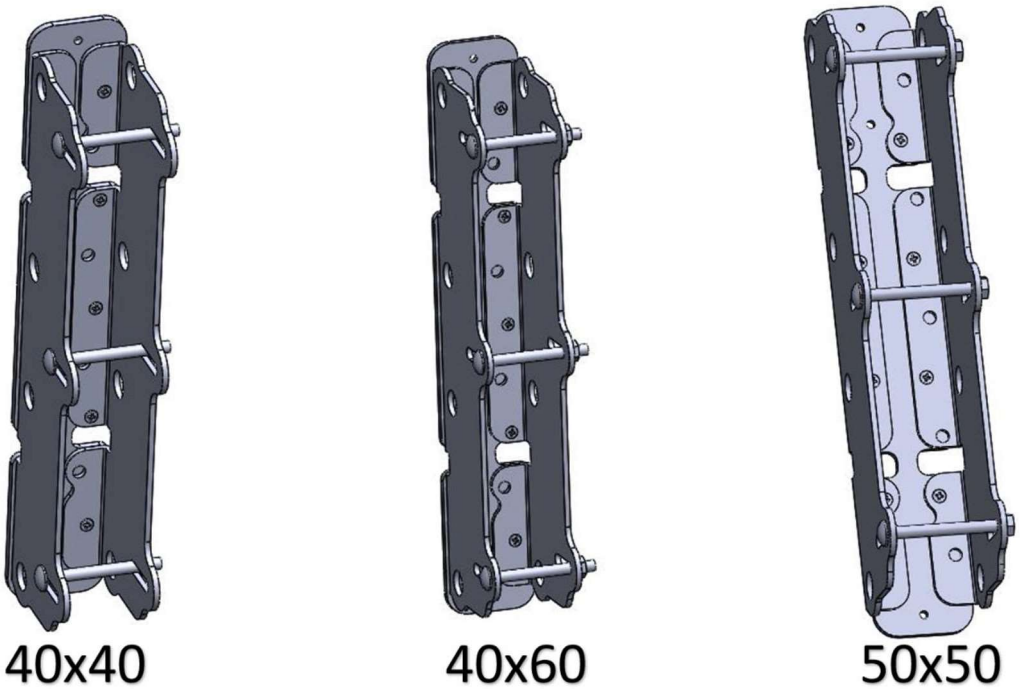


5.2.3 Sliding Door Assembly Example

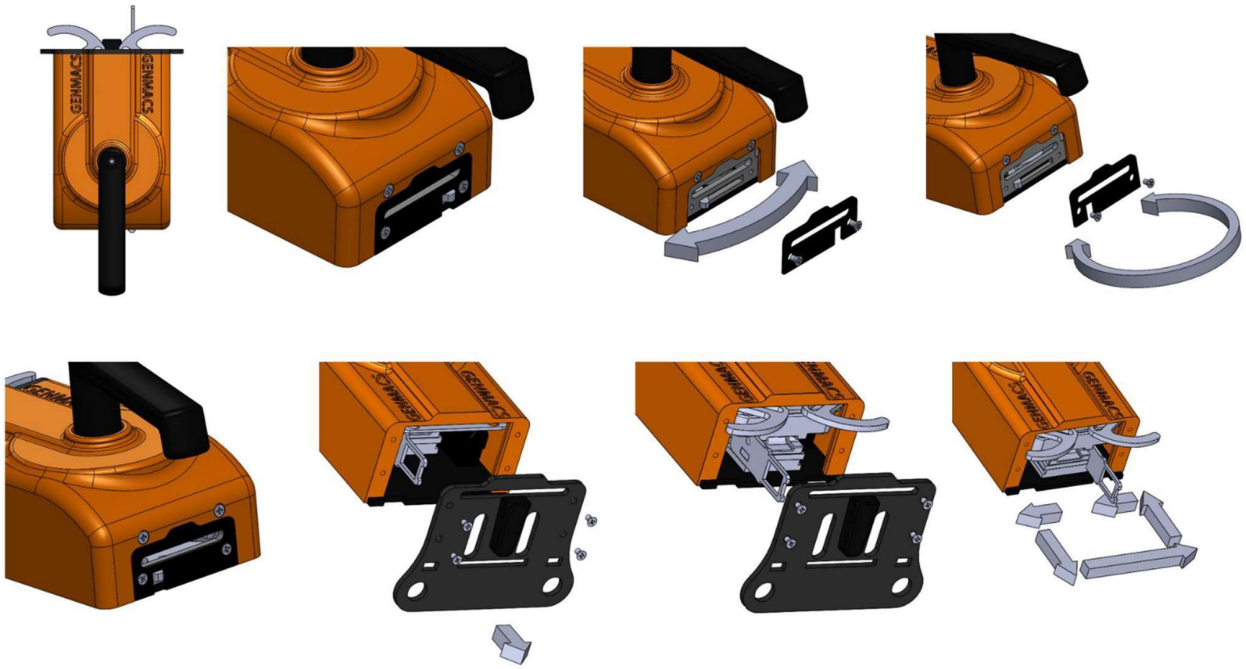


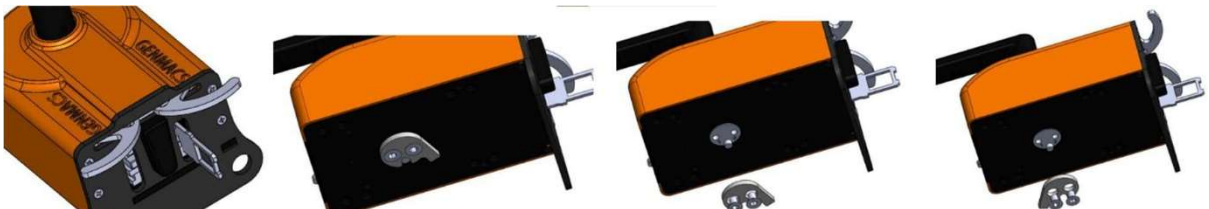


5.2.4 Assembly Example with Different Post Dimensions



5.3 Change of Operating Direction





6 Electrical Connections

6.1 Safety

DANGER

Danger due to electrical voltage
Danger due to sudden operation of the system

- Ensure that the cable to be connected during electrical connection is in a de-energized state.
- Ensure that the hazardous condition of the machine is eliminated and its continuity is ensured.

DANGER

Device damage or loss of safety functions due to incorrect connection of the safety device.

- Since the outputs of the locking module operate at 24VDC levels when in the open position, the inputs of the connected control devices should be positively triggered.

6.2 Pin Assignment

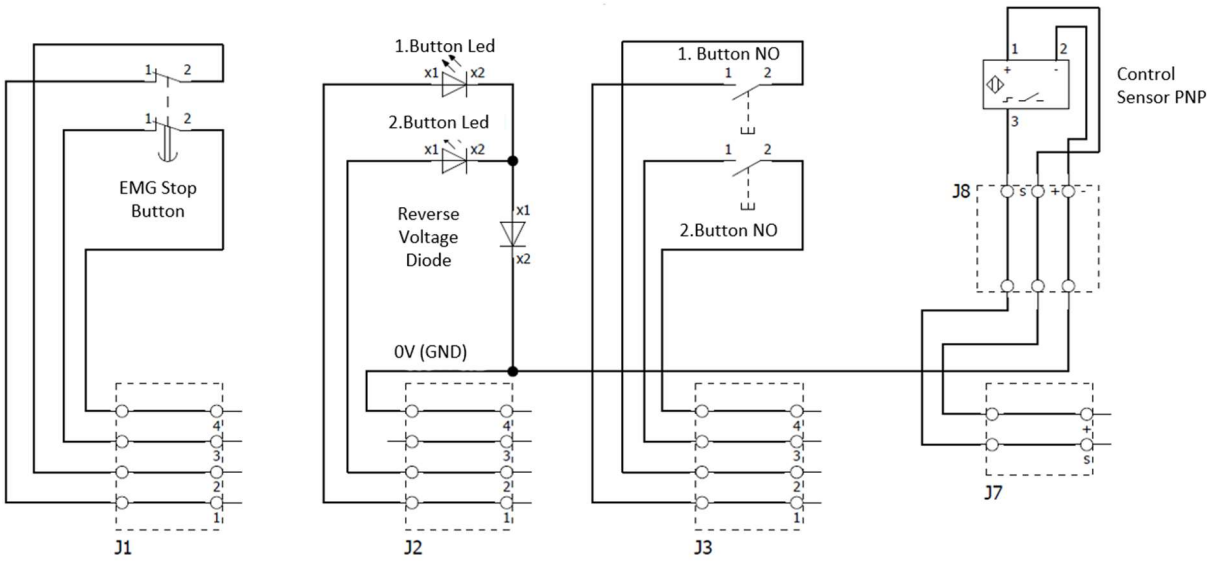
INFO

For the secure locking sensor included in GSS-DLH-L-... models, refer to Annex 8 Documents for connection diagrams and data sheets of suitable Euchner STP 3A/4A models.

ADVISE

A 14G0.34mm2 control cable is recommended for the terminal connections of the electronic button grouping board, and a 7G0.50mm2 cable is recommended for Euchner STP... sensor connections.

In addition to the recommended control cable, attaching insulated cable sleeves to the cable connection ends when making the connections will ensure a more secure and robust connection.

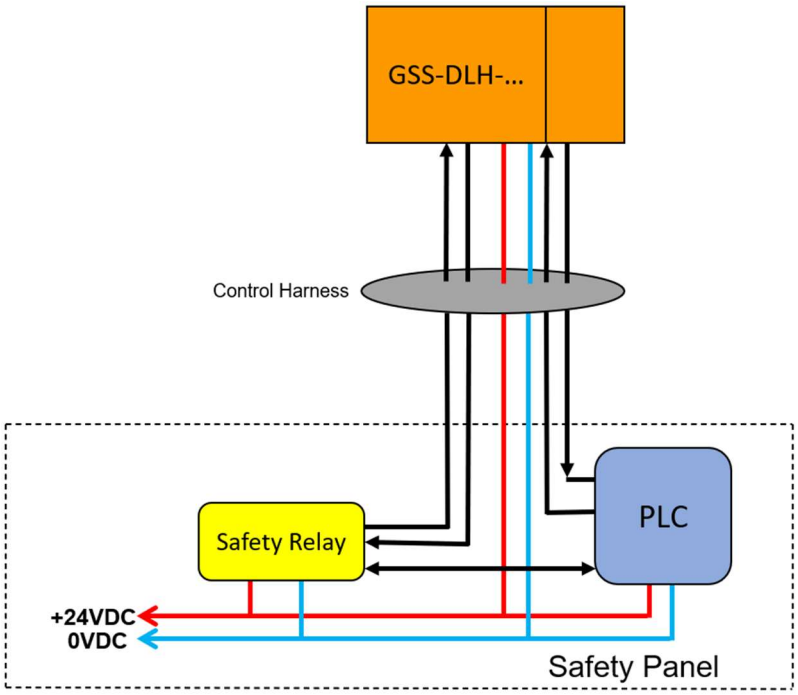


The pin assignment of the circuit grouping board is shown on the diagram above. In button group and inductive sensor-equipped product models *(e.g., GSS-DLH-L-11),* the connections are pre-wired for the sockets labelled J4, J5, and J6, as well as the terminal J8 on the board.

In addition to the button grouping board, within the emergency escape mechanism, when the emergency exit handle is used, a three-legged mechanical switch generates a signal with one leg open and the other leg closed.

6.3 System Application

For an example circuit diagram, please refer to Annex 8 Documents.



The above drawing shows the fundamentals of a sample system application. In factory automation, there are two main standards regarding functional safety requirements and implementation: (IEC) 61508 and (ISO) 13849. According to these standards, the safety relays used in the safety panel should comply with SIL3, PLD, or CAT4 categories.

7 Starting The Operation

7.1 Startup

In the locking module, the available products are Euchner STP3A, which unlocks when power is supplied, and Euchner STP4A, which remains locked when power is applied and unlocks when power is cut off.

Once proper connections are made and programming processes, such as integrating the product into the safety system in the safe area, are completed, it can be operated.

7.2 Control

DANGER

Danger due to sudden operation of the machine in the safe area
Risk of death or serious injury

- Ensure that no one is present in the safe area before initial operation and testing.
- Make sure the machine is not running.

After every maintenance, error, and prolonged operating periods, check if the mechanism is functioning properly.

During the checks, follow these steps:

• Open and close the door handle mechanism. Pay attention to the required door gap and, if applicable, the locking of the safety interlock switch.
• Ensure that the components of the mechanism fit properly into the locking module.
• For some products, ensure the activation of the emergency stop button located on the locking module enclosure.

Electrical control:

• Turn on the power supply.
• Check the lock. The safety device should not be opened.
• Start the operation of the system, ensuring that the lock cannot be unlocked.
• Stop the machine operation and unlock the lock. Ensure that the mechanism is performing its function.

7.3 Maintenance

DANGER

Danger of the protective device not being effective.

- Secure the system against unintended activations.

DANGER

Danger due to sudden operation of the machine in the safe area
Risk of death or serious injury

- Ensure the safety device or system is secured against unintended openings in all operations.

DANGER

Danger of the protective device not being effective.

- Do not perform repairs on device components.
- Do not make changes or manipulations to device components.
- The mechanism should not be opened using methods other than those described in this document.

INFO

If the malfunction in the mechanism cannot be resolved with the provided information, please contact the manufacturer.