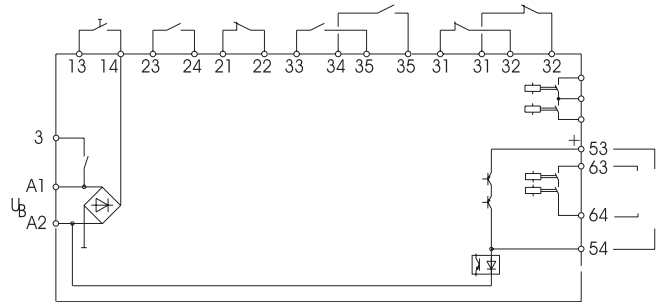
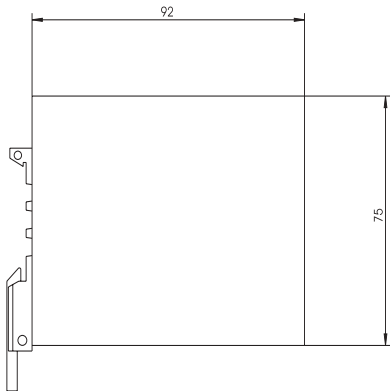
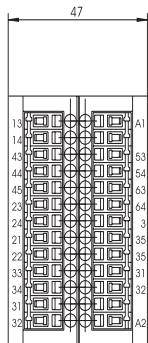




**462 M31 F41 B**

- (D)** Betriebsanleitung  
MSS-Zentraleinheit
- (GB)** Operating instructions  
MSS central control unit
- (F)** Notice d'utilisation  
Unité centrale MSS
- (I)** Istruzioni d'impiego  
Unità centrale MSS





# 1 Technical Specification

## 1.1 Terminal assignment

Up to three sensors can be connected to the machine safety switch (MSS) Central Control unit.

<i><b>Terminal</b></i>	<i><b>Assignment</b></i>
A1, A2	Supply voltage
3	Output "Ready" (no faults detected)
13, 14	Start button (Stop button)
21, 22	Normally Closed contact, sensor 1
23, 24	Normally Open contact, sensor 1
31, 32	Normally Closed contact, sensor 2
33, 34, (35)	Normally Open contact, sensor 2
31, 32	Normally Closed contact, sensor 3
34, 35	Normally Open contact, sensor 3
43	Control output, common
44	Control output, sensor 1
45	Control output, sensor 2 and 3
53, 54	Safety output 1
63, 64	Safety output 2

## 1.2 Model Numbering System

The following example and table demonstrates the numbering system used for the elobau machine safety central control units:

- Example:
- 462 M31 F41 B
- 4ab cde fgh i

<b>Notation</b>	<b>Reference</b>		<b>Meaning</b>
4ab	Housing type and width	462	Housing width 47 mm
		463	Housing width 25 mm
c	Model	M	Multi-controller based
d	Inputs	3	3 inputs
e	Supply voltage	1	24 V AC/DC $\pm 10\%$ FELF (one side must be earthed)
f	Others	F	Clat. 2 acc. to EN 954-1
g	Output	4	Relay output and PNP output
h	Switching voltage	1	24 V AC/DC
i	Others	B	Handtmann

### 1.3 Electrical and mechanical specifications

In the contact configurations shown on the foldout page, the MSS Central Control unit is shown without voltage applied.

Supply voltage	22 ... 32 V DC FELF (one side must be earthed)
Current input	200 mA
max. switching voltage Safety output 1	32 V DC
max. switching voltage Safety output 2	30 V AC/DC
max. switching current Safety output 1	3 A
max. switching current Safety output 2	5 A
max. breaking capacity Safety output 1	70 W
max. breaking capacity Safety output 2	150 VA or 100 W
max. switching voltage Control output	30 V AC/DC
max. switching current Control output	0.5 A
max. switching voltage Ready output	30 V DC
max. switching current Ready output	0,5 A
Fuse Supply voltage	1 A

Fuse Safety outputs	both 3 A
Operating temperature	0 °C ... +55 °C
Storage and transport temperature	-25 °C ... +85 °C
Vibration and shock resistance	Oscillations: 10 ... 55 Hz, 1 mm Shocking: 30g / 10 ms Bumping: 10g / 16 ms
Protection class	IP 20

## LED display

<b>LED at terminal</b>	<b>Colour</b>	<b>Meaning</b>
A1	green	Supply voltage ON
3	green	Ready (no faults detected)
22	green	Sensor 1, Normally Closed contact
24	green	Sensor 1, Normally Open contact
32	green	Sensor 2 and 3, Normally Closed contact
34	green	Sensor 2 and 3, Normally Open contact
44	green	Control output, sensor 1
45	green	Control output, sensor 2 and 3
54	green	Safety outputs, first contact
64	green	Safety outputs, second contact

## 2 Intended use

- The intended use of the MSS Central Control unit is to monitor sensors having one Normally Open and one Normally Closed contact.

### 2.1 Standards and Directives

The MSS Central Control unit complies with the following European directives:

- ➔ 73/23/EEC (low-voltage directive)
- ➔ 89/336/EEC (electromagnetic-compatibility directive)
- ➔ 89/392/EEC (Machine directive)

The MSS Central Control unit complies with the following standards:

<b>Standard</b>	<b>Subject</b>
EN 954-1/ Category 2	Safety of machines
EN 60 204	Electrical equipment of industrial machinery
Draft IEC 61 508	Functional safety, safety-relevant systems SIL 3 (use at test intervals)
EN 50 178	Electronic equipment for use in power installations
IEC 664-1	Insulation co-ordination in low voltage installations
DIN EN 60 068	Basic environmental test procedures
EN 50 081-2	EMC emission (interference) in industrial environments

<i>Standard</i>	<i>Subject</i>
EN 50 082-2	EMC immunity in industrial environments
EN 55 011	Interference suppression of electrical operating equipment and systems

## 2.2 Safety/hazards

### General

- Ensure that the MSS Central Control unit is only installed and commissioned by qualified and authorised personnel.
- Ensure that correct fuses are used (see Technical Specification).
- Operate the MSS Central Control unit only if it is completely undamaged.
- Ensure that the MSS Central Control unit is only used for protection against safety hazards.
- Ensure that all relevant safety instructions and regulations for the machine concerned are always followed.
- Ensure that all applicable European directives and national statutory requirements/directives are followed.

## 3 Function

The MSS Central Control unit monitors sensors having one Normally Open and one Normally Closed contact.

The MSS Central Control unit switches off the respective control output when:

- ➔ a sensor Normally Open contact is opened or a Normally Closed contact is closed.
- ➔ The safety outputs are switched off after a delay of approx. 40 msec.

The MSS Central Control unit switches off both safety outputs and the Ready output when:

- ➔ both sensor contacts are in the same switched state for a period of three seconds or more.

## 4 Mounting



### **Danger of electric shock!**

- ➔ Ensure that the MSS Central Control unit is only installed and commissioned by qualified and authorised personnel.

Install the MSS Central Control unit into the control cabinet by snapping it onto a DIN rail (DIN 50 022).

The MSS Central Control unit is fixed now.

- ➔ Make all the necessary connections to the MSS Central Control unit (see Technical Specification).
- ➔ Ensure that the correct fuses are used (see Technical Specification).

## 5 Commissioning



### **Danger of electric shock!**

- Ensure that the MSS Central Control unit is only installed and commissioned by qualified and authorised personnel.

- Ensure that all sensors are energised.
- Apply the supply voltage.

The LED Supply voltage will illuminate.

The MSS Central Control unit carries out an internal test cycle (duration: < 10 sec).

Once the self test cycle is complete:

- ➔ The MSS Central Control unit will close both the safety and the control outputs.
- ➔ The Ready LED will illuminate.
- ➔ The MSS Central Control unit is operational.

### 5.1 System reset

#### **Sensor contact changes state**

If the safety output opens as a result of a sensor Normally Open contact opening or a Normally closed contact closing:

- Operate the sensor again.

The safety output will close.

## Contacts in different switched states

Should the contacts of one sensor not be in the correct switched state for a period exceeding 3 seconds:

- Completely open the sensor.

The system resets.

- Close the sensor.

The safety and the control outputs will close.

## 5.2 Safety output remains off

- Check connections at input and output terminals:
  - Supply voltage,
  - all sensors.
- Connections at input and output terminals OK:  
Replace MSS Central Control unit.

## 6 Maintenance

### 6.1 Measures

#### Automatic test of MSS central unit

In order to ensure operational reliability the automatic test of the MSS Central Control unit should be started every three months.

- ↻ Switch off operating voltage.
- ↻ Switch on operating voltage.

The MSS Central Control unit starts the automatic test (duration: > 10 sec).

After successful operation of the automatic test:

- ➔ The MSS Central Control unit activates the safety and the control output.
- ➔ The ready-for-operation LED lights up.
- ➔ The MSS Central Control unit is operational now.

### 6.2 Disposal

- ↻ Dispose of packaging and used parts according to the regulations of the country in which the device is installed.



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