elobau

462 M21 H31
462 M21 H31 01

(D) **Betriebsanleitung**
MSS-Zentraleinheit

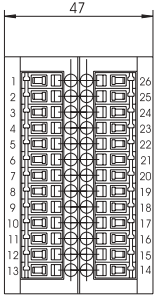
(GB) **Operating instructions**
MSS central control unit

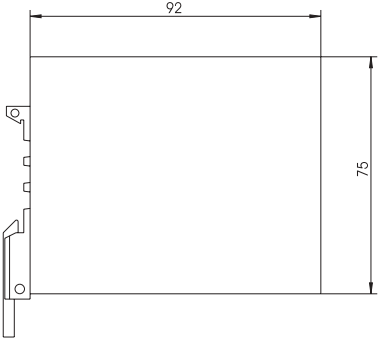
(F) **Notice d'utilisation**
Unité centrale MSS

(I) **Istruzioni d'impiego**
Unità centrale MSS

CE 0123

Datum: 23.09.2004





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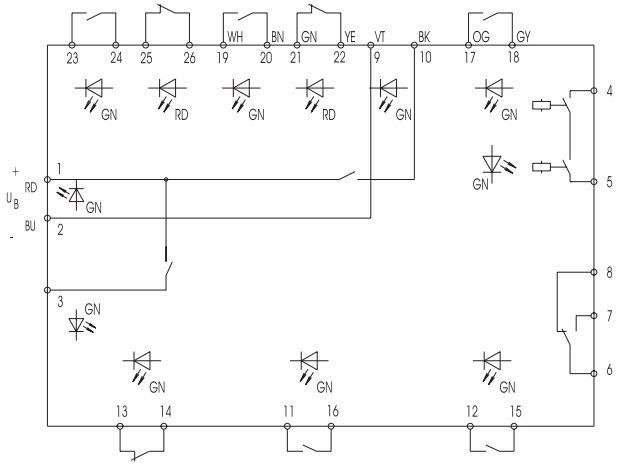

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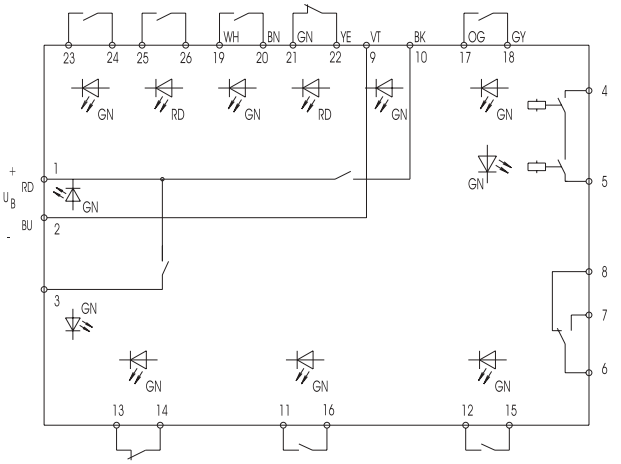

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1 Technical Specification

1.1 Terminal assignment

General

Terminal	*Assignment*
1, 2	Supply voltage
3	output Ready (no faults detected)
4, 5	Safety output 1
6, 8	Control output
9, 10	Solenoid
11, 16	Machine stopped signal
12, 15	Unlock switch
13, 14	External contactor (link out if not requiered)
17, 18	Bolt signal
19, 20	Bolt sensor: Normally Open contact
21, 22	Bolt sensor: Normally Closed contact

Models

Model 462 M21 H31

Terminal	*Assignment*
23, 24	Door sensor: Normally Open contact
25, 26	Door sensor: Normally Closed contact

When using with shot bolt unit 118 HV..D0:

➲ bridge terminals 17, 18.

When using with shot bolt unit 118 HVE 01:

➲ bridge terminals 23, 24 or connect additional sensors.

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Terminal	*Assignment*
23, 24	Door sensor: 1. Normally Open contact
25, 26	Door sensor: 2. Normally Open contact

When neither an external sensor nor an EMERGENCY-STOP button are connected:

➲ bridge terminals 23, 24 and 25, 26.

1.2 Model Numbering System

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

➔ Example:
➔ 462 M21 H31 01
➔ 4ab cde fgh ij

Nota-tion	***Reference***		***Meaning***
4ab	Housing type and width	462	Housing width 47 mm
		463	Housing width 25 mm
c	Model	M	Multi-controller model
d	Number of inputs	2	two inputs
e	Supply voltage	1	24 V AC/DC ±10 % FELF (one side must be earthed)
f	Others	H	Cat. 4 acc. to EN 954-1
g	Safety output	3	Relay output
h	Switching voltage	1	24 V
ij	Special model	01	Additional input for NO/NC contact sensor

1.3 Electrical and mechanical specifications

In the circuit diagram shown on the foldout page, the Control unit is shown without power applied.

Supply voltage	24 V DC ± 10%
Current input	200 mA
max. switching voltage Safety output	250 V AC; 30 V DC
max. switching current Safety output	5 A / 3 A
max. breaking capacity Safety output	750 VA or 90 W
max. switching voltage Control output	30 V AC/DC
max. switching current Control output	1 A
max. breaking capacity Control output	30 VA or 30 W
max. switching voltage Ready output	30 V DC
max. switching current Ready output	1 A
max. breaking capacity Ready output	30 W
max. switching voltage solenoid	30 V DC
max. switching current solenoid	1 A

max. switching voltage solenoid	30 W
Fuse Supply voltage	1 A
Fuse Safety output	3 A
Fuse Control output	1 A
Operating temperature	0°C ... +55°C
Storage and transport temperature	-25°C ... +85°C
Vibration and shock resistance	Oscillation: 10 ...55 Hz, 1 mm Shock: 30g / 10 ms Permanent shock: 10g / 16 ms
Protection class	IP 20
Delay time	Factory pre-set, 10 s ... 1 h

Delay time

The delay time is the maximum time during which the sensor contacts can be in an incorrect switching state before the Control unit locks out.

Type	***Delay time***
462 M21 H31 462 M21 H31 01	3 s

LED display

General

LED at terminal	*Colour*	*Meaning*
1	green	Supply voltage ON
3	green	Ready (no faults detected)
4	green	1. safety output closed
5	green	2. safety output closed
7	green	control output closed
10	green	solenoid energised
14	green	External contactor circuit has continuity
15	green	Unlocking switch activated
16	green	Machine stopped signal
18	green	Bolt contact closed
20	green	Bolt sensor Normally Open contact closed
22	red	Bolt sensor Normally Closed contact closed

Models

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LED at terminal	*Colour*	*Meaning*
24	green	Door sensor Normally Open contact closed
26	red	Door sensor Normally Closed contact closed

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LED at terminal	*Colour*	*Meaning*
24	green	1. Door sensor Normally Open contact closed
26	green	2. Door sensor Normally Open contact closed

2 Intended use

➲ The intended use MSS Central Control unit is to exclusively protect against safety hazards.

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 was subjected to EU prototype testing at TÜV/IQSE in Munich, Germany.

The MSS Central Control unit complies with the following standards:

General

Standard	*Subject*
EN 954-1/ Category 4	Safety of machines
EN 60 204	Electrical equipment of industrial machinery
EN 1088	Interlocking devices
DIN V19 250	Principal safety considerations for protection devices, requirement class 5
DIN V19 251	Protective devices, requirements and measures ensuring safe functioning
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-ordinates in low-voltage systems
DIN EN 60 068	Basic environmental test procedures
EN 50 081-2	EMC emission (interference) in industrial environments
EN 50 082-2	EMC immunity in industrial environments
EN 55 011	Interference suppression of electrical 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

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The MSS Central Control unit monitors sensors having 1 x Normally Open and 1 x Normally Closed contact. The shot bolt type 118 HV.. D0 engages with latch type351 V70 U0. Lock monitor unit 118 HVE 01 engages with shot bolt unit118 HVB 01.

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The MSS Central Control unit monitors EMERGENCY STOP button having 2 x Normally Open contacts. The lock monitor unit 118 HVE 01 engages with shot bolt unit 118 HVB 01.

General

The MSS Central Control unit opens the safety output as soon as:

- ➔ a sensor Normally Open contact is opened or a Normally Closed contact is closed

The MSS Central Control unit opens all outputs and the ready output when:

➔ the 2 contacts of any sensor are in different switching states for a period exceeding three seconds,
➔ fault occurs in the MSS Central control unit or one of the sensors becomes defective.

The MSS Central Control unit switches off the safety output and the control output, when:

➔ the unlock switch is operated.

After a delay of 2 minutes or with receipt of a signal from the zero

speed monitor, the solenoid will be energised, thus releasing the guard. After a further three minutes, the solenoid is automatically de-energised again. When using a zero speed monitor, the delay time must be long enough to ensure that the signal from the zero speed monitor always occurs first.

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

5 Commissioning

Danger

Danger of electric shock

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

➲ Apply the supply voltage.

The supply voltage LED will illuminate.

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

The test will be completed successfully if:

➔ All sensors are energised,
➔ The external contactor input is present (LED on terminal 14 will illuminate).
➔ The unlock switch is not operated (LED on terminal 15 not lit).

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.

Operation of the unlock switch.

After operating the unlocking switch:

➲ Release the unlock switch

LED at terminal 15 will switch off.

➲ Close and lock machine guard.

The safety and the control outputs will close again.

The safety and the control outputs will close again.

Where the MSS Central Control unit has detected a fault:

➲ Switch off the supply voltage.
➲ Check system and remedy the fault.
➲ Restart MSS Central Control unit.

5.2 Safety output remains off

➲ Check connections at input and output terminals:
  ➝ supply voltage,
  ➝ all sensors, shot bolts and magnets.
➲ Connections at input and output terminals OK:
  Replace MSS Central Control unit.

6 Maintenance

6.1 Measures

Output relay check

In order to remind the operator to check the output relay, the ready LED starts to flash every other second after 13 days.

For check the output relay:

➲ completely open one sensor every fortnight.

If the output relay functions correctly:

➔ the safety output will open.
➔ the ready LED will stop flashing.

To restart the MSS Central Control unit:

➲ close sensor again.
➔ The safety output woll close.
➔ The MSS Central Control unit is operational.

Automatic test of MSS central unit

In order to ensure operational reliability, the MSS Central Control unit self test cycle should be initiated every three months.

➲ Switch operating voltage off and on again.

The MSS Central Control unit will perform the self test cycle (duration: <10 sec).

After successful completion of the self test cycle:

➔ The MSS Central Control unit will enable the safety and the control output.
➔ The ready LED will illuminate.
➔ The MSS Central Control unit is operational.

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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