elobau

462 121 G1
462 121 G1 U
462 121 H1
462 121 H1 0D
462 121 H1 U
462 121 H1 U2
462 121 H3 01
462 121 H5
462 121 H5 0D
462 121 H5 U
462 123 G1
462 123 G1 U
462 124 G1
462 124 G1 U
462 124 G1 UC

(D) Betriebsanleitung Auswerteeinheit

(GB) Operating instructions Control unit

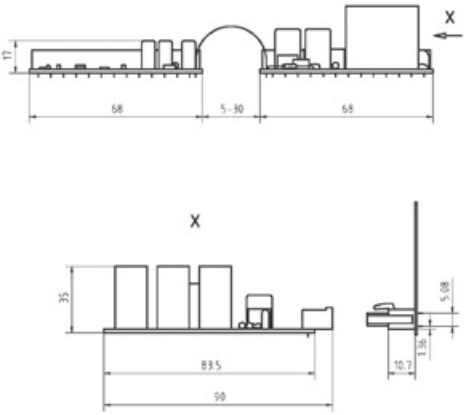
(F) Notice d'utilisation Unité de contrôle

(I) Istruzioni d'impiego Unità di controllo

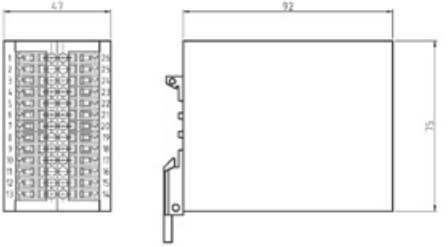
07.09.2006

CE

462 121 H1 0D, 462 121 H5 0D



462 121 G1, 462 121 G1 U, 462 121 H1, 462 121 H1 U, 462 121 H1 U2, 462 121 H3 01, 462 121 H5, 462 121 H5 U, 462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U, 462 124 G1 UC, 462 121 E1, 462 121 E1 01, 462 121 E1 U, 462 121 E1 U1, 462 124 E1, 462 124 E1 U, 462 124 E1 01, 462 124 10, 462 124 E1 U1



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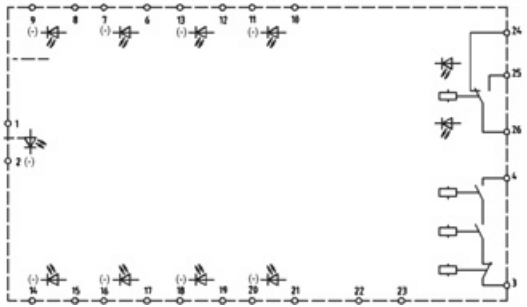
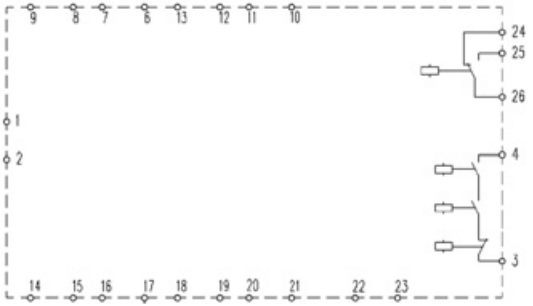
462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U,
462 124 G1 UC**



462 121 H1 0D, 462 121 H5 0D



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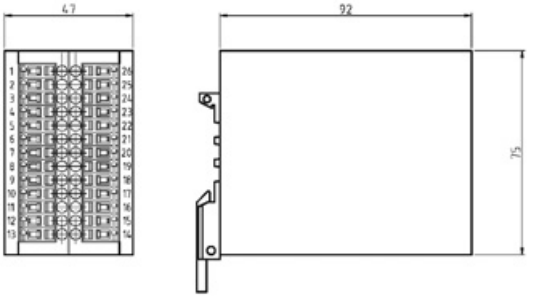
462 121 H1 U2, 462 121 H3 01, 462 121 H5, 462 121 H5 U,
462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U,
462 124 G1 UC**



1 Technical data

1.1 Terminal assignment

General

Up to 4 sensors can be connected directly to the control unit.
If more sensors are to be connected, elobau recommends using interface 363 098 R.

Models 462 121 H1 0D, 462 121 H5 0D

The control unit comes as a plug-in card with pins.

Terminal or pin	Assignment
1, 2	Operating voltage
3, 4	Safety output contact maker, floating
5	Not assigned
6, 7	Input sensor 1, contact breaker
8, 9	Input sensor 1, contact maker (to be bridged, if not needed)
10, 11	Input sensor 2, contact breaker
12, 13	Input sensor 2, contact maker (to be bridged, if not needed)
14, 15	Input sensor 3, contact maker (to be bridged, if not needed)
16, 17	Input sensor 3, contact breaker
18, 19	Input sensor 4, contact maker (to be bridged, if not needed)
20, 21	Input sensor 4, contact breaker
22, 23	External contactor (to be bridged, if not needed)
24	Control output contact breaker, floating
25	Control output contact maker, floating
26	Control output, common ground for 24 and 25

1.2 Type denomination/Variants

The following example and table are given to explain the type denomination of the control units.

Example:
462 121 H3 01
4ab cde fg hi

Placeholder	Characteristic		Meaning
4ab	Housing type and housing width	462	Housing width 47 mm
		463	Housing width 25 mm
cd	Specification safety input	12	Control unit for contact breakers/makers for sensors
e	Operating voltage	1	24 V
		2	48 V
		3	110 V
		4	230 V
f	Other	G	Class 1 acc. to EN 954-1
		H	Class 4 acc. to EN 954-1
g	Other	1	Insignificant
		3	Customer-specific
		5	Reduced switching power of the safety output
h	Other	0	Insignificant
		U	No cooling-off period
i	Other	1	Customer-specific
		2	No autostart; control unit must be activated by the user
		C	Customer-specific, on switch-off pulses < 1 ms, the safety output remains switched through
		D	Control unit comes as a plug-in card

To cover all models in this user manual, the placeholders will be used in the text as well.

1.3 Electrical and mechanical data

The control unit in a deenergized state is depicted on the circuit diagram of the fold-out page.

General

Back-up fuse for operating voltage	1.0 A
Safety output, max. switching voltage	250 V AC or 30 V DC
Operating temperature	0 ... +55 °C
Transport and storage temperature	-25 ... +80 °C
Vibration and shock resistance	Oscillation: 10 ... 55 Hz, 1 mm Shock: 30 g / 11 ms Continuous shock: 10 g / 16 ms
International protection - housing	IP 20
International protection - terminals	IP 20

Models

Operating voltage

Type	Operating voltage
462 121 H1 462 121 H1 0D 462 121 H1 U 462 121 H1 U2 462 121 H3 01	24 V AC/DC; 0 % ... + 10 %
462 121 fg hi	24 V AC/DC; ± 10 %
462 122 fg hi	48 V DC; ± 10 %
462 123 fg hi	110 V AC; ± 10 %
462 124 fg hi	230 V AC; - 10 % ... + 6 %

Power consumption

Type	Power consumption
462 121 G1 462 121 G1 U	100 mA
462 121 fg hi	250 mA
462 123 fg hi	30 mA
462 124 fg hi	15 mA

Safety output

Typ	Fuse	Max. switching current	Max. switching capacity
462 121 G1 462 121 G1 U 462 123 G1 462 123 G1 U 462 124 G1 462 124 G1 U 462 124 G1 UC	3.0 A	3.0 A AC/DC	750 VA or 90 W
462 121 H1 462 121 H1 U 462 121 H1 U2 462 121 H1 0D 462 121 H3 01	4.0 A	4.0 A AC/DC	1000 VA or 120 W
462 121 H5 462 121 H5 U 462 121 H5 0D	3.0 A	3.0 A AC/DC	750 VA or 90 W

Control output

Type	Fuse	Max. switching voltage	Max. switching current	Max. switching capacity
462 121 G1 462 121 G1 U 462 123 G1 462 123 G1 U 462 124 G1 462 124 G1 U 462 124 G1 UC	1.0 A	30 V AC/DC	1.0 A	30 VA or 30 W
462 121 H1 462 121 H1 U 462 121 H1 U2 462 121 H1 0D 462 121 H3 01 462 121 H5 462 121 H5 U 462 121 H5 0D	3.0 A	250 V AC or 30 V DC	3.0 A AC/DC	750 VA or 90 W

Cooling-off period

The cooling-off period is the maximum time interval to elapse at a sensor between:

- the contact maker closing and
- the contact breaker opening.

Type	Cooling-off period
462 121 H3 01	800 ms
462 121 G1 462 121 H1 462 121 H1 0D 462 121 H5 462 121 H5 0D 462 123 G1 462 124 G1	300 ms
462 121 H1 U 462 121 H1 U2 462 121 H5 U 462 121 G1 U 462 123 G1 U 462 124 G1 U 462 124 G1 UC	None

LED displays

LED at terminal	Color	Meaning
2	Green	Operating voltage ON
7	Red	Input sensor 1: Sensor not actuated
8	Green	Input sensor 1: Sensor actuated
11	Red	Input sensor 2: Sensor not actuated
12	Green	Input sensor 2: Sensor actuated
15	Green	Input sensor 3: Sensor actuated
16	Red	Input sensor 3: Sensor not actuated
19	Green	Input sensor 4: Sensor actuated
20	Red	Input sensor 4: Sensor not actuated
24	Red	Safety output switched off
25	Green	Safety output switched through

2 Appropriate use

The control unit is intended for use exclusively to protect against hazards.

2.1 Norms and guidelines

The control unit is approved to the following according european guidelines:

- 73/23/EEC (low voltage guideline)
- 89/336/EEC (EMC guideline)
- 98/37/EC (machinery guideline)

The construction of the control unit conforms to the norms listed below.

General

Norm	Content
EN 60 204	Electrical equipment of industrial machines
VDE 0110, IEC 1010	Electrical safety
EN 55011	Radio interference suppression of industrial electrical equipment
IEC 1000, EN 61000-6-2	Electromagnetic compatibility, interference immunity for the industrial sector

Models 462 121 H1, 462 121 H1 U, 462 121 H1 U2

The control unit underwent an EU prototype test at TÜV/IQSE in Munich, Germany.

Norm	Content
EN 954-1/category 4	Safety of machines
IEC 68, part 2	Effects of ambient influences

Models 462 121 H1 0D, 462 121 H5 0D, 462 121 H3 01

Norm	Content
EN 954-1/category 4	Safety of machines
IEC 68, part 2	Effects of ambient influences

Models 462 121 G1, 462 121 G1 U, 462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U, 462 124 G1 UC

Norm	Content
EN 954-1/category 1	Safety of machines
VDE 0660, part 209	Non-contact switching devices

Models 462 121 H5, 462 121 H5 U

The control unit underwent an EU prototype test at TÜV/IQSE in Munich, Germany.

Norm	Content
EN 954-1/category 4	Safety of machines
IEC 68, part 2	Effects of ambient influences
EN 292	Safety of machines, basic concepts

2.2 Safety/hazards

- Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.
- Ensure that the appropriate corresponding fuses (see Technical data) are used. Never bridge or repair fuses.
- Only operate the control unit when it's in an undamaged condition.
- Ensure that the control unit is only used for protection against dangers.
- Ensure that all safety requirements applying for the machine in question are observed.
- Ensure that all European guidelines and national laws/guidelines applying are observed.

- Ensure that the control output is only used for displaying the operational status of the control unit.

3 Function

The control unit monitors sensors connected to it, which are equipped with a contact maker and a contact breaker each. The control unit switches its safety output according to the status of the sensors connected and external contactor, if connected.

The control unit switches off the safety output in the following situations:

- The contact maker of a connected sensor is opened.
- The contact breaker of a connected sensor is closed.
- A fault has been detected (control unit or connected sensor is defective).

4 Installation

Models 462 121 G1, 462 121 G1 U, 462 121 H1, 462 121 H1 U, 462 121 H1 U2, 462 121 H3 01, 462 121 H5, 462 121 H5 U, 462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U, 462 124 G1 UC

Danger

▶ **Danger of electrocution!**
Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.

- Snap the control unit onto a mounting rail (DIN 50 022) in the switch cabinet. The control unit is attached.
- Connect control unit, see Technical data.
- Ensure that the prescribed fuses are used, see Technical data.

Models 462 121 H1 0D, 462 121 H5 0D

Danger

▶ **Danger of electrocution!**
Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.

- Plug in the control unit on the base of the carrier card.
  The control unit is attached.
- Connect control unit, see Technical data.
- Ensure that the prescribed fuses are used, see Technical data.

5 Putting into operation

Danger

▶ **Danger of electrocution!**
Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.

Models 462 121 G1, 462 121 G1 U, 462 121 H1, 462 121 H1 0D, 462 121 H1 U, 462 121 H1 U2, 462 121 H3 01, 462 121 H5, 462 121 H5 0D, 462 121 H5 U, 462 123 G1, 462 123 G1 U, 462 124 G1, 462 124 G1 U

- If an external contactor is connected:
  Ensure that the external contactor connected has powered off.
- Ensure that
  - all contacts at the sensor contact maker terminals are closed and
  - all contacts at the sensor contact breaker terminals are open.
- Apply the operating voltage.

The control unit will perform an internal test.
The control unit checks if the external contactor connected has powered off.
As soon as the test has been finished successfully, the control unit switches through the safety output.

The control unit is operational now.

Models 462 121 H1 U2

- If an external contactor is connected:
  Ensure that the external contactor connected has powered off.
- Ensure that
  - all contacts at the sensor contact maker terminals are closed and
  - all contacts at the sensor contact breaker terminals are open.
- Apply the operating voltage.
- Open the contact at any sensor-contact maker input.
- Close the contact at the same sensor's contact braker input.
- Close the contact at this sensor's contact maker input.
- Within the cooling-off period, open the contact at this sensor's contact breaker input.

The control unit will perform an internal test.
The control unit checks if the external contactor connected has powered off.
As soon as the test has been finished successfully, the control unit switches through the safety output.

The control unit is operational now.

6 Troubleshooting

6.1 Restoring device to a state of readiness for operation

If the safety output was switched off by a sensor contact firing:

- Ensure that the external contactor connected has powered off.
- Ensure that the contact maker is open, and the contact breaker closed, at the sensor concerned.
- Close the contact at the corresponding contact maker input.
- Open contact at the respective sensor contact breaker within the cooling-off period.

The control unit will perform an internal test.
The control unit checks if the external contactor connected has powered off.
As soon as the test has been finished successfully, the control unit switches through the safety output.

The control unit is operational now.

6.2 Safety output remains switched off

- Check connections at input and output terminals:
  - Operating voltage
  - Sensors connected
  - Contactor connected
- Connections at inputs and outputs are OK:
  - Replace control unit.

7 Maintenance

The control unit is maintenance-free.

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