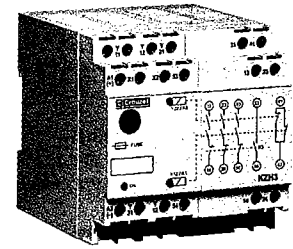


# Safety relay "KZH3" (90mm)

- "Two-hand Control," "Emergency Stop," "Safety Mats" and "Safety Gate" monitoring functions.
- "CE" conforming product, UL and cUL recognized.
- Self-checking redundancy concept (including wiring integrity check)
- 3 "N/O" safety contacts and 2 signaling contacts 6 A / 250 V
- Synchronized control of 2 Normally Closed and 2 Normally Open contacts.
- Return loop via connection of external contactors.



**UL - E 87133**  
**cUL - E 87133**

Technical characteristics	
<b>Power supply</b>	
Power supply voltage	AC: 24, 48, 110, 230 V 50/60 Hz DC: 24 V max. ripple: 10 %
Range of Use	85 to 110 % for AC supply voltage 85 to 120 % for DC supply voltage
<b>Accuracy</b>	
Response time for ES	50 ms
Synchronization drift	<500 ms
<b>Output specification</b>	
No. of safety circuits	3 N/O material AgCdo
No. of data circuits	2 (1 N/O + 1 N/C) material AgCdo
Breaking capacity	1500 VA resistive at 600 operations/hr
Max. current breaking capacity	6 A resistive at 20°C (derating 60 mA/ °C)
Max. voltage breaking capacity	250 V~
Output protection requirement	10A quick-blow fuses
<b>Operation and use</b>	
Max. absorbed power	7 W in DC 13 VA in AC
Fuse	rating marked on equipment
Operating signalling	1 power supply LED 2 input LEDs
Electrical life	10 <sup>5</sup> operations at 1500 VA resistive
Mechanical life	10 <sup>6</sup> operations
Operating temperature	- 10 °C to + 55 °C
Internal control voltage	24 V DC
Immunity to interference and noise (CEM)	IEC 1000-4-4 Fast transients: Level 3 (2 kV) IEC 1000-4-2 Electrostatic discharge:
Level 3	
Insulation coordination	Installation category III, degree of pollution 2
Dielectric strength ; impulse voltage	2,5 KV
Thermoplastic case	Self-quenching (UL 94)
Degree of protection	Casing IP 40, Terminals IP 20
Connection	2 x 1,5 mm <sup>2</sup> multicore with ferrule 2 x 2,5 mm <sup>2</sup> single strand, no sleeve
Weight	715 g (25 oz.)

**Types**

KZH3

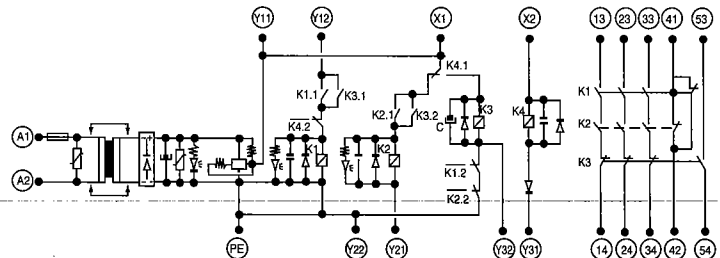
**Part numbers (and voltages):**

24 VDC	85 100 231
24 VAC	85 100 232
48 VAC	85 100 233
110 VAC	85 100 234
230 VAC	85 100 235

**Conformity**

European "Machines" Directive 89/392/EEC	•
European standard EN 574 (Machine safety - Two-hand Control devices)	Type III C
European standard EN 60204-1 (Machine safety - Electrical equipment)	•
European standards EN 292-1 and 2 (Machine safety - Basic concepts)	•
European standard pr EN 954-1 (Safety-related control system elements)	(Level 4)
Norme Européenne EN 418 (Machine safety - Emergency stop devices)	•
European standard pr EN 1088 (provisional) (Machine safety - Locking and interlocking devices)	•

**Operating principle diagram**



**Key**

- A1 - A2 : DC supply voltage A2 is the negative pole.
- PE : Earth connection terminal (AC only).
- Y11 - Y12 and Y21 - Y22 : Redundant inputs with differing voltage.
- Y31 - Y32 : Push-button: Start or Validation.
- X1 - X2 : Emergency stop, safety guard and pressure-sensitive mat applications only.
- 13 - 14, 23 - 24, 33 - 34 : Return loop for emergency stop, safety guard and pressure-sensitive mat applications only.
- 53 - 54, 41 - 42 : Safety contacts.
- 25 - 26, 35 - 36, 45 - 46 : Data contacts.

### Control devices: (connection of inputs)

Depending on the application of the degree of safety required, KZH3 can accept the following control devices as inputs:

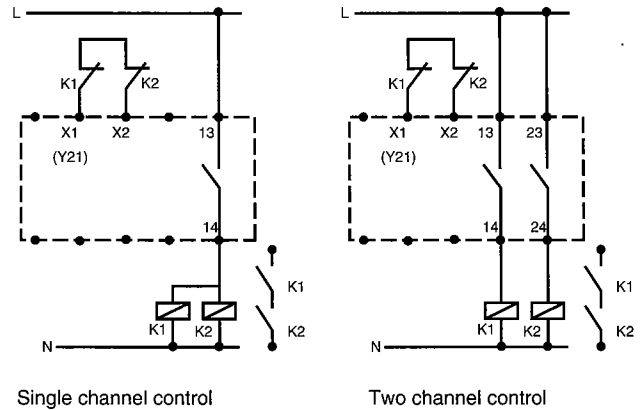
- 2 hand control switches,
- Emergency stop push-buttons with 1 or 2 channels,
- Push-button for start or validation,
- Position sensors (switches) with 1 or 2 contacts,
- Pressure-sensitive mats and strips.

### Return loop: (intermediate relay)

A return loop Y21-X2 (two-hand control application) or X1-X2 (other applications) is provided or the auto control of the destination external contactors:

- for an extension of number of contacts,
- to increase the breaking capacity.

Note: These intermediate external relays must have associated contacts (See diagrams opposite).

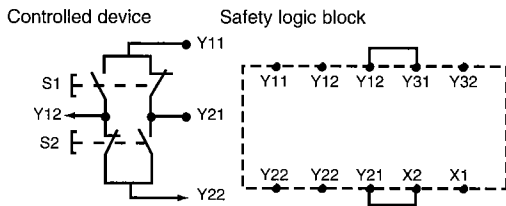


### Examples of use:

#### Two-hand control:

for two-hand control station with 2 push-buttons "0" and "F"

- Redundant input circuit,
- Integrity of the two inputs assured,
- Short-circuits between the two inputs are detected,
- Line faults detected.

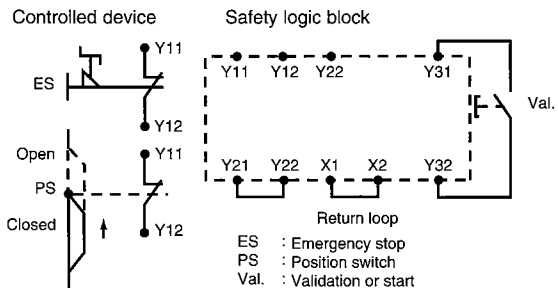


Synchronism: the control devices S1 and S2 will be actuated within a time interval of less than 0.5 seconds.

#### Single channel control

for "emergency stop" and "guard monitoring"

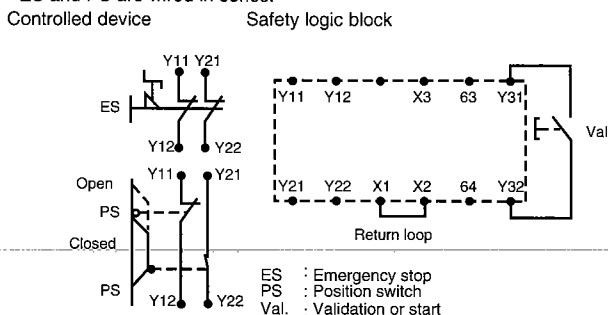
- No redundancy of the input circuit,
- Integrity of the two inputs not assured,
- Detection of earth faults at the input circuit,
- ES and PS are wired in series.



#### Control by two disassociated channels:

for "emergency stop" and "guard monitoring"

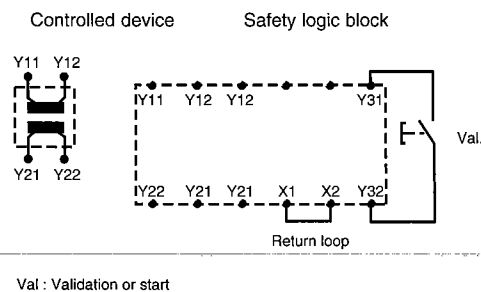
- Redundant input circuit,
- Integrity of two channels are guaranteed,
- Short-circuits between the two inputs are detected,
- Line faults detected,
- ES and PS are wired in series.



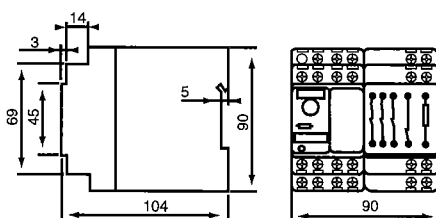
#### Control by two disassociated channels:

for pressure-sensitive mats and strips

- Redundant input circuit,
- Short-circuits between the two inputs are detected,
- Line faults detected.



### Dimensions



### Mounting - Removing

