mecotron®
Safety relay 2HAND-2
For electrical monitoring of two-hand control units

- Two-hand control unit in accordance with EN 574 Typ III C
- 2 safety circuits NO
- 1 auxiliary output NC
- Cross circuit protection
- 3 LED displays
- 3 supply voltage versions

Description

Two-hand control units are used to provide protection from hand injuries. They force operators to keep their hands out of the zone in which there are dangerous movements. The use of a two-hand control unit is an individual protective measure and can only provide sure protection for one operator. Where there are several operators, a separate two-hand control unit must be provided for each operator. The safety module 2HAND-2 for use with two-hand control units described below comply with the requirements of the European standard for two-hand control devices prEN 574.
The pushbutton operators must be designed and positioned so that they cannot be actuated accidentally or easily rendered ineffective. Depending on the application, the requirements of type C standards specific to the machines involved must be met.

To initiate the dangerous movement, both operators (two-hand pushbuttons) must be actuated within a time period of ≤ 0.5 s (synchronous action). If only one of the pushbuttons is released during the dangerous movement, the control signal is cancelled. The dangerous movement can only be continued if both pushbuttons are released and then actuated again within the specified time period. The feedback loop allows autochecking of any relay used to increase the number of output contacts and/or to increase the breaking capacity. Any relay used for this purpose must be provided with mechanically linked contacts.

No control signal is given if:
- the two pushbuttons are actuated with a time difference of more than 0.5 s,
- there is a short-circuit in one of the pushbutton contacts,
- the feedback loop is not closed at the moment of initiation.

The safe distance between the operators and the danger zone must be great enough to ensure that, when only one operator is released, the danger zone cannot be reached before the dangerous movement has ended or stopped.

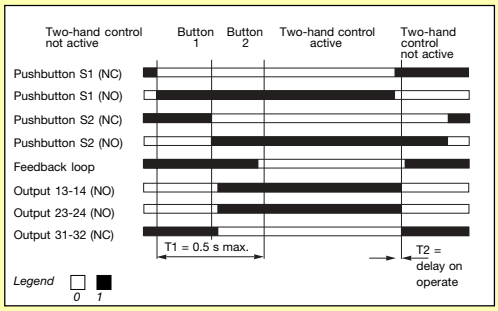
Conforming to standards

- Product : EN 954-1 - category 4
  EN 574 Typ III C
- Machine assemblies : EU-machine-guidelines 89/392 EWG
  IEC 204-1, EN 2928, EN 60204-1,
  BS 2771-1, DIN VDE 0113-1, NF C 79-130
- Approvals : INRS

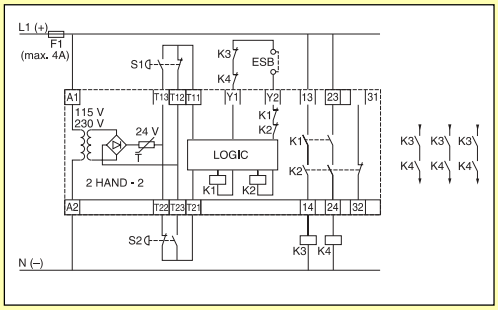
	Supply voltage	P/N
	24 V DC	2 450 811 00
	115 V AC (50/60 Hz)	2 450 811 10
	230 V AC (50/ 60 Hz)	2 450 811 20

Technical data

Input circuit				
Supply voltage - Power consumption	A1-A2	24 V DC	- < 4 VA	
	A1-A2	115 V AC	- < 7 VA	
	A1-A2	230 V AC	- < 7 VA	
Supply voltage tolerance	24 V AC	-20 % ... +10 %		
	115 V AC	-15 % ... +15 %		
	230 V AC	-15 % ... +10 %		
Rated frequency AC variance	115 V AC	50...60 Hz		
	230 V AC	50...60 Hz		
Limit switch circuit	**T11-T12/T13, T21-T22/T23**	2 timer combinations NO - NC contacts		
Voltage potential $V_{T11/T21}$	24 V AC/DC	VA1-A2-3 V		
	115 V AC	> 42 V		
	230 V AC	> 42 V		
Synchronous time between	T11-T12/T13,T21-T22/T23	max. 0.5 s		
Cross circuit protection		through internal electronic fuse		
Max. line resistance RL		50 Ω		
Feedback circuit	**Y1-Y2**			
Feedback method		Relay / contactors, force guided		
Voltage potential in feedback loop		24 V DC		
Display of operating status				
Supply voltage/The wiring of the push-buttons is ok		LED, green		
Status of the feedback circuit Y1-Y2		LED, green		
Status of the output relay		LED, green		
Output circuit	**13-14, 23-24, 41-42**	Relay, volt-free, force guided, internal monitored		
Safety outputs / Auxiliary circuit		2 NO contacts	/	1 NC contact
Rated operational voltage		max. 300 V	/	max. 300 V
Rated operational current	AC 12 (resistive)	2.5 A (at 240 V)	/	2.5 A (at 240 V)
Rated operational current	AC 15 (inductive)	0.75 A (at 240 V)	/	0.75 A (at 240 V)
Rated operational current	DC 12 (resistive)	2.5 A (at 24 V)	/	2.5 A (at 24 V)
Rated operational current	DC 13 (inductive)	2 A (at 24 V)	L/R= 50 ms	2 A (at 24 V)
Short circuit protection, max. fuse rating		4 A fast / type gL	/	4 A fast / type gL
Other details				
Limit of accum. currents at simultaneous load on several output circuits		Σ current Ith < 8 A		
Impulse withstand voltage V_{imp}		4 kV		
Response time of the output relay		< 30 ms		
Mechanical life (max.)		10×10^6 operations		
Electrical life (max.)	(on AC 12 / 230 V / 2.5 A)	6×10^5 operations		
Operating temperature range		-10°C ... +55°C		
Storage temperature range		-40°C ... +85°C		
Mounting position		any		
Mounting on DIN rail (EN 50022)		snap-on fastening/screw mounting using adapter		
Terminal capacity		2 x 14 AWG (2 x 2.5 mm²)		
Weight 24 V AC/DC / 115 V AC and 230 V AC		approx. 0.77 (350 g) / approx. 1.32 (600 g)		



Connections for two-hand control



Note:
Dimensions (W x H x D), 45 x 78 x 120 mm

Accessories	P/N
Adapter for screw mounting	3 430 029 01