

CONTROL UNIT/DEVICE TO CONTROL MATS EDGES AND SHOCK ABSORBERS

The control unit is a device to control the function of a sensor (mat, edge or shock absorber) by blade contacts.

The blade contact is a NO contact that closes, causing the opening of the outlet contact of the control unit.

The control unit controls the operation of the sensor and the connection circuit, and allows to

transform the NO signal of the blade contact into a NC safety signal.

A control device can control several sensors, but cannot perform the auto-diagnose indicating which sensor is faulty. If more sensors are used, use a control unit every 3-4 sensors.

MODELS AVAILABLE:

GP02E

GP02/E-S2

GP03

GP03/S2

GP02R *only edges with electrical resistance 8,2kΩ*

CONTROL UNIT

Description

Emergency stop circuit, used to manage and control a sensor, having two safety relays terminals with forced opening contacts.

The two relays, normally excited, are deenergized in the following conditions:

- No supply
- Operation of mat, edge, shock absorber.
- Internal faults
- Interruption of the internal circuit of mat, edge, shock absorber or connection cables between control unit and sensor (mat, edge, shock absorber).

The devices are supplied with **automatic reset** but they can be transformed into **manual reset**.

If a control unit is used **without rearming** the function must be supplied by the control system of the machine (see std. EN 954-1 1996).

Operation

Two separate channels detect the voltage at the end of the safety terminals of the mat, and each channel commutes a safety relay with forced opening contacts.

Models GP02/E and GP02/E-S2

The supply voltage is limited by a specific group and the pilot circuit, to avoid short circuit currents whole closing the sensor (mat, edge, shock absorber). The control unit controls itself, as well as any other operation.

Inlet terminals are foreseen for:

- Test signal activating/deactivating the circuit of the control device simulating the operation of the sensor and checking the system efficiency.

- Signal of manual reset/ feedback-action.

The two modules are differentiated by the number of outlet contacts: model GP02/E has a NO safety contact, whereas model GP02/E-S2 has two NO safety contacts.

Models GP03 and GP03/S2

The electronic circuit can detect the trespassing of a resistance threshold and stop the system.

This feature is very important, as it assures the control of a possible damage of the sensors, by internal or external causes. As safety category, both are equal: the difference is that the type GP03/S2 has more outlet contacts. At each upstroke/downstroke cycle of a mat, the device controls itself at each operation.

Terminals are foreseen for:

- Signal of "TEST" activating/deactivating the circuits of the control device, simulating the operation of the sensor and checking the system efficiency;
- inlet of back-action contacts for the check of the operation of relays of remote controls used as interface for emergency stops;
- inlet of manual reset.

Model GP02R only for edges with electrical resistance 8,2kΩ

Two symmetric circuits detect the current in the edge, adjusted for a resistance of 8,2 kΩ. When the circuits detect a variation of ± 4 kΩ, caused by a fault or operation of the edge, they desexcite the outlet relays, that open the safety contacts.

Technical features:

Description	GP02/E	GP02/E-S2	GP03	GP03/S2	GP02R (8,2 KΩ)
					
Safety category	3 (three) according to EN 954				
operative mode	With/without re-arming				
Supply voltage	24 Vcc ± 10%		24 Vcc / 24 Vac / 110 Vac		24 Vac/cc
Current absorbed	15 mA		30 mA		12 mA
Current absorbed with reset module 24Vdc	90 mA		100 mA		110 mA
Operating temperature	0°C +55° C				
Storage temperature	-20°C + 70° C				
Response time	< 8 msec	< 15 msec	< 14 msec	< 22 msec	< 30 msec
Outlets for safety	Max. 4A 250 Vac	Max. 6A 250 Vac	Max. 4° 250 Vac	Max. 6A 250 Vac	Max 6A 250 Vac
Protection of outlet contacts	4A fast 2A delay	6A fast 4A delay	4A fast 2A delay	6A fest 4A delay	6A fast 4A delay
Safety outlets ⁽¹⁾	1NA	2NA	1NA	2NA+1NC	2NA
Auxiliary outlets of signals ⁽¹⁾	1NA				
Outlets of signals	Max 0,5 A 125 Vac		-	-	
Mechanical lifetime	10.000.000 operations				
Voltage applied	24 Vdc				
Max. length of connections	100 m (cable 1 mm ²)				
Max. resistance of sensor and threshold	20 ohm		100 ohm		8,2 kΩ 4-12 kΩ
Max. controllable surface	5 m ² (mats) 12m (edges)		10 m ² (mats) 20m (edges)		20 m (edges)
Section of connection cables	4x0,35 mm ² (for L>20m use cable section 1 mm ²)				
Protection of container	IP30				
Terminal protection	IP20				
Assembly	Guide omega 35 mm (EN50022)				
Dimension of container	35x90xh70 mm	72x90xh70 mm	75x90xh105 mm		99x22xh114 mm
Weight	150 g	230 g	255 g	295 g	135 g
Material of container	PPO auto-extinguishing				PA 66 -FR
Sensors to be used and safety category	SENSITIVE MATS, EDGES, SHOCK ABSORBERS cat. 3		SENSITIVE MATS, EDGES, SHOCK ABSORBERS cat. 3		RESISTIVE EDGE Cat. 2

(1) Contact closed with sensor supplied, not operated