

CONTROL UNITS

The control unit is used to continually control the functionality of pressure sensitive mats, pressure sensitive edges and pressure sensitive bumpers.

Two safety relays with forced open contacts detect voltage at the leads of sensor terminals (safety mats, edges and bumpers). These relays, which are always energized, drop out when the following circumstances take place:

- Power failure
- Safety mat activation
- Faults inside the control unit
- Breaking of inner circuit or connection cables between the unit and sensors

The control unit is fundamental to continually check the good operation of safety devices. This means being sure that when such devices are activated, the desired electrical signal is generated. The control unit is capable of controlling several safety devices.

GS01 CONTROL PLUS

multifunction, programmable safety control unit



Designed by Gamma System, the GS01 Control Plus unit allows controlling a number of safety devices which are typically found on wood working machines (e.g.: pressure sensitive mats, limit switches and emergency push buttons). The "intelligent", microprocessor-operated system makes it possible to manage input signals and output contacts in the best possible way. It also allows setting the desired trip times for push buttons, limit switches, emergency conditions, etc...

TECHNICAL CHARACTERISTICS

- Power supply 24 Vcc ±10%
- Power consumption 90 mA
- Inputs 7 (dual channel)
- Outputs 2 (dual channel)
- Breaking current (outputs) 6A
- Indications 16 leds + 16 outputs

Models



Mod. GS01 - CONTROL PLUS



Mod. GP03/S2



Mod. GP02/S2



Mod. GP02/E



Mod. GP02/E-S2

Safety level 3 or 4 depending on the model

STANDARDS AND APPROVALS

Machine Directive 089/392 & EN 954-1 "EC" Certificates issued by I.C.E.P.I.

ACS 001/01 for pressure sensitive mats and control units **Cat. 3** EN 1760-1

ACS 011/96 for pressure sensitive edges and control units **Cat. 2** EN 1760-2

ACS 012/96 for pressure sensitive bumpers and control units **Cat. 2** pr EN 1760-1

TECHNICAL SPECIFICATIONS	GP02/E and GP02/E-S2	GP03 and GP03/S2
Power supply	24 Vcc ± 10%	24 Vcc • 24 Vac • 110 Vac ± 10%
Power consumption	90 mA	100 mA
Inputs	1 dual channel	
Outputs	1NC • 2NC	1NC • 2 NC + 1 NO
Breaking current (outputs)	4 A	6 A
Indicators	3 leds	4 leds



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For further information, please ask for our technical catalogue - Technical characteristics may be changed without prior notice at any time

SURROUND YOURSELF WITH SAFETY

SAFETY MATS

SAFETY EDGES

SENSITIVE

SAFETY BUMPERS



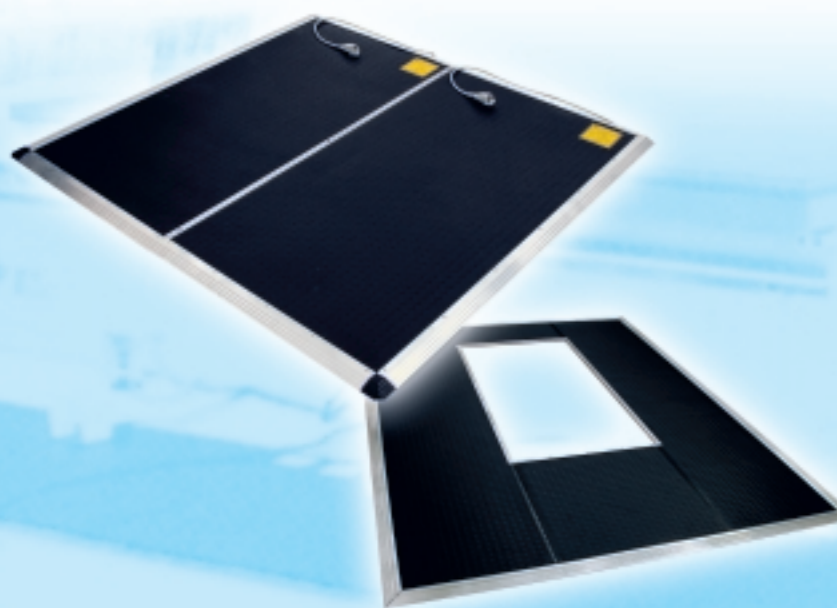
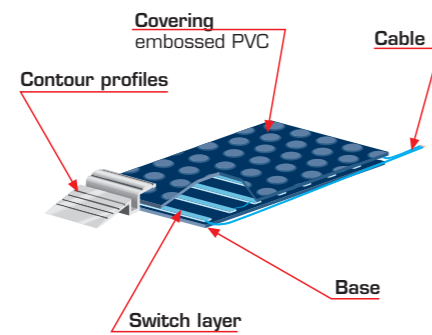
SAFETY MATS

The safety has been designed and manufactured in accordance with the basic safety and human health requirements. In particular, it is in conformity with the design and construction provisions of the "Machinery Directive" (Directive 89/392/EEC) issued by the European Community Council on June 14, 1989 as amended, and with national implementing legislation, concerning the machines and safety components, and with the "Low Voltage Directive (Directive 73/23/EEC). Furthermore, the following harmonized standards for risk prevention - EN 292-1 and EN 292-2, EN 60 204-1 and EN 1760-1 and EN 954-1.

Gamma System SAFETY MAT is a "safety component" which acts as an "electrical, pressure-sensitive device designed to detect the presence of a human body".

It represents a "safety device equipped with one or more sensors, capable of detecting when a pressure is being applied, and it is combined with a control device with a check function, according to the specific category, and with an output interface

The working principle of the equipment essentially consists in the capacity to cause a change of state of an electric signal when a force, greater than a given intensity, is applied onto the surface of the "safety mat" sensor. The presence of one or more persons or part of a human body causes a contact located inside the sensor, to make; the making of the circuit to which the contact is connected is worked out by the control device which, in turn, generates the stop command. This command is such to clear the hazardous conditions which have arisen.



TECHNICAL SPECIFICATIONS	Upper layer made from black, embossed PVC	Upper covering made from black, embossed PVC with a Lexan plate	Upper covering made from Aluminium
Thickness	14 mm Max	16 mm Max	17 mm Max
Weight/m ²	12 Kg/m ² (approx.)	15 Kg/m ² (approx.)	17 Kg/m ² (approx.)
Activating force	< 300N with 80 mm fl test piece		
Max. allowable load	60 Kg/cm ²		
Output contact	No		
Operating temperature	-10° +60°		
Degree of protection	IP65		
Mechanical life of inner contact	5.000.000 operations		
Activation time	38 ms		

PRESSURE-SENSITIVE EDGES

"Gamma System" pressure-sensitive edges are used to eliminate the risk of crashing or shearing associated with the operation of sliding doors, movable bulkheads, automated movable guards, electric doors, etc... Pressure-sensitive edges consist of an aluminium support channel section (C-shape) and a PVC section into which the safety sensor is housed. The safety sensor consists of two conductive reeds which are kept separate one from another by means of a non conductive part; reeds come into contact when the PVC section undergoes deformation.

The pressure-sensitive edges are fitted with an auto-check module which verifies the continuity of connections and transforms the NO contact of the edge into an NC safety contact.

"Gamma System" pressure-sensitive edges consist of the following parts:

- Aluminium support channel ("C" shape)
The C-shaped section may also be arranged with angle section ("L" shape) for vertical mounting orientation and with "I" iron for horizontal mounting orientation, sideways the edge.

- The PVC section can be supplied in 3 different configurations:

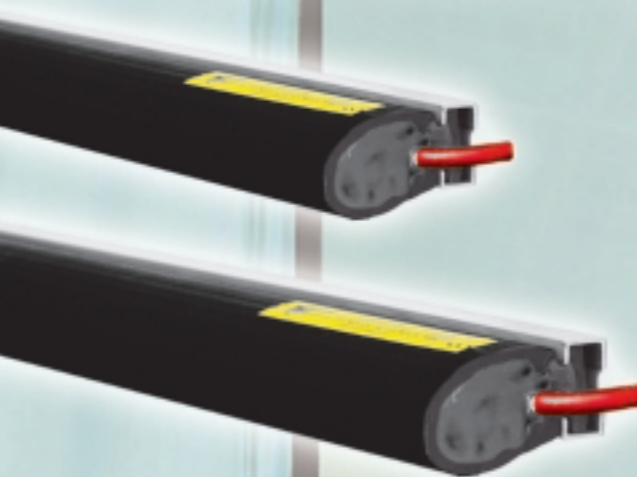
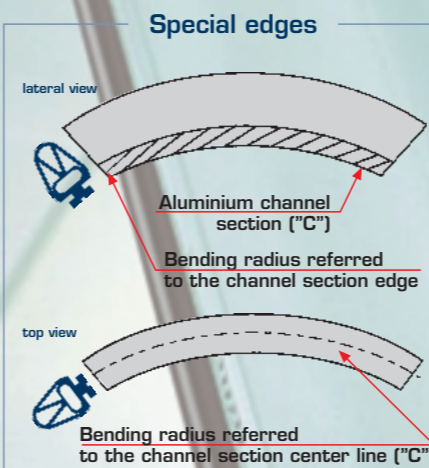
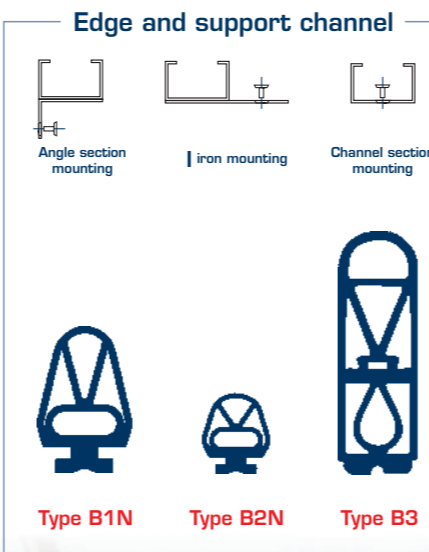
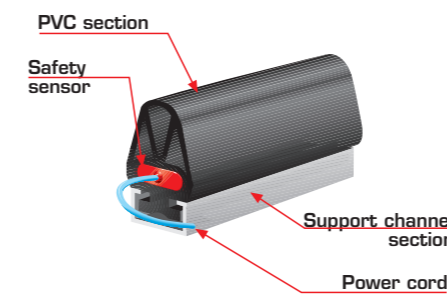
Type B1N Type B2N

The feature of this configuration is that the sensor is located at the upper part of the section and it is ideally suited for direct activation applications.

Type B3

The feature of this configuration is that the sensor is located in the middle of the section and it is ideally suited for high speed doors.

- Safety electrical sensor
Highly versatile and flexible, the safety sensor consists of two conductive reeds separated one from another. When the edge is deformed, the two reeds come into contact and generate an electric signal.
- Power cord
5x0.5 oil resistant power cord. Standard length 3 m. Other length sizes available upon request.



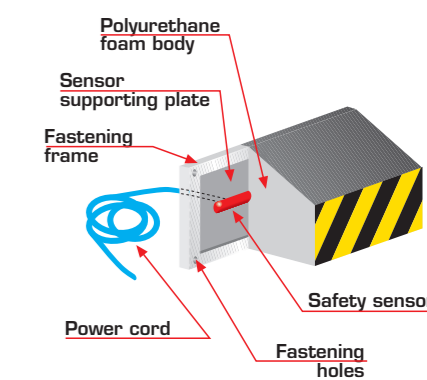
TECHNICAL SPECIFICATIONS	Mod. B1N	Mod. B2N	Mod. B3
Activating point distance	5 mm		
Overtravel	30 mm	15 mm	70 mm
PVC section	PVC black		
Material of fastening channel	Aluminium		
Degree of protection	IP 65		
Working temperature	-10° +50°		
Max length	6 m		
Activating force	3 Kg/cm ²		

SENSITIVE BUMPER

Gamma System pressure sensitive bumpers are used to provide protection of persons against impacts with vehicles or parts of machines in motion such as AGVs, travelling lifts, wire-guided vehicles, automated warehouses, etc... A sensor, securely fixed to a supporting plate, is fitted inside the bumper. The whole assembly is then embedded in polyurethane foam and protected with a waterproof covering material. Careful construction and optimum materials used ensure maximum reliability of bumpers and quick generation of signals which are used to stop hazardous motion. Gamma System bumpers are available in standard shapes or in special shapes to customer's design. The pressure sensitive device is controlled via adequate electronic, safety devices.

OPERATION

When a slight pressure is applied to the bumper, its inner sensors come into contact thereby generating an electric signal which, in turn, stops the motion of the component. With the bumper is in the idle state, its safety contact is open. If a pressure is applied on the contact, after a pre-travel of approximately 10 - 30 cm, depending on the size, the inner contact of the sensor makes and the safety module Series GP02/S2 instantly generates a stop signal to the circuit (the NC safety contact of the module breaks). Besides the pre-travel, the bumper still allows for further compression, which is called "overtravel" and which depends on the depth of the bumper. Overtravel permits deadening further on the possible collision against any obstacle. In the event that impact takes place, the bumper will immediately stop all hazardous motion thanks to its extremely short tripping time.



SPECIAL SHAPES AND SIZE NORMALLY AVAILABLE TO CUSTOMER'S DESIGN



TECHNICAL SPECIFICATIONS	Standard	Sparkproof	Waterproof
Outer covering	Fabric	Flameproof	PVC
Degree of protection	IP 64	-	IP 65
Colours of covering	Yellow / Black	Gray	Yellow / Black
Inner material	Polyurethane foam		
Operating temperature	-10° +50°	-10° +50° resistant to molten metal drips	-10° +50°
Dimension	To design		
Pre-travel	10%	10%	10%
Overtravel	60%	60%	60%