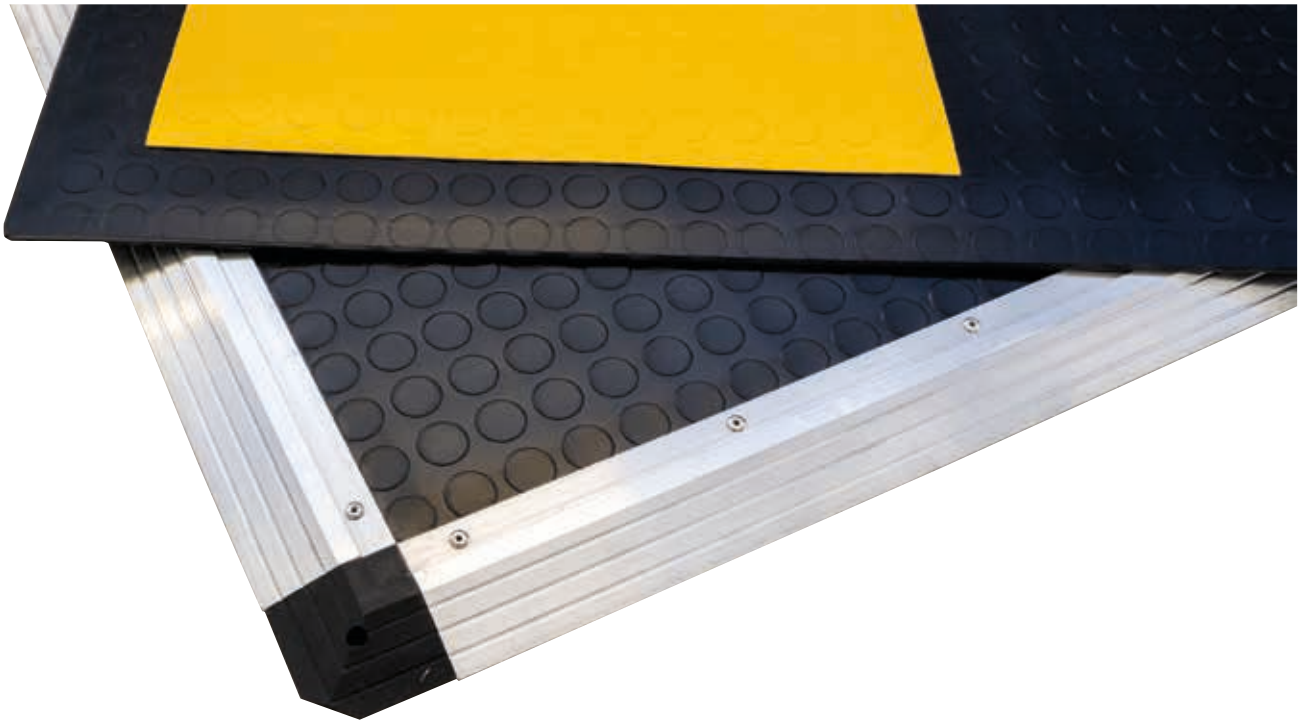
RIELLO ELETTRONICA

gamma system

SAFETY DEVICES

INDEX



SAFETY MATS

The pressure-sensitive mat is a “safety device” which features an electro-pressure sensible element to detect the presence of persons.
The presence of one or more persons over 35 kg closes a contact inside the sensor.
The change in state of the internal sensor (NO to NC) is processed by the control unit which emits a machine stop signal and removes the hazardous situation.

HOW TO DIMENSION A SAFETY MAT

The minimum distance from the hazardous area shall be calculated with the general formula:

S = Minimum distance (in mm) from the hazardous area to the point, the axis, the surface or the detection zone

T = Global response time in seconds

$$S = (K \times T) + C$$

K = Constant expressed in millimetres/seconds, resulting from data on the approach speed of the human body or parts of the body

C = Additional distance in millimetres based on the intrusion into the hazardous area before the activation of the safety device

CALCULATION OF MINIMUM DISTANCE FOR SAFETY DEVICES INSTALLED ON THE FLOOR

GENERAL METHOD

The choice and use of safety devices installed on the floor, activated by foot, depend upon the appropriate type-"C" Safety Standard or upon the evaluation of risks in conformity with the EN ISO 12100 Standard if a type-"C" Safety Standard does not exist.

Examples of sensible devices installed on the floor include pressure-sensitive safety mats, pressure-sensitive platforms and optoelectronic protection devices.

The minimum distances derived in this point for sensitive floor-mounted devices require that the approaching speed to the hazardous area is the walking speed. As for the risk of bypassing the detection area, please refer to the Appendix B (EN ISO 13855 Standard). The minimum distance is to be calculated with the following formula:

S = Minimum distance (in mm) of the hazardous area from the point, the axis, the surface or the detection zone

T = Global response time in seconds

$$S = (1600\ \text{mm/s} \times T) + (1200\ \text{mm} - 0.4\ H)$$

H = distance in millimetres over the reference plan, e.g. the floor.

FLOOR-MOUNTED INSTALLATION

In most cases, the sensitive device is installed directly on the floor, that is H = 0. Therefore, the minimum distance for pressure sensitive devices installed on the floor shall be calculated with the following formula:

S = Minimum distance (in mm) of the hazardous area to the point, the axis, the surface or the detection zone

$$S = (1600 \text{ mm/s} \times T) + 1200 \text{ mm}$$

T = Global response time in seconds

Example

Approach direction to the detection zone.

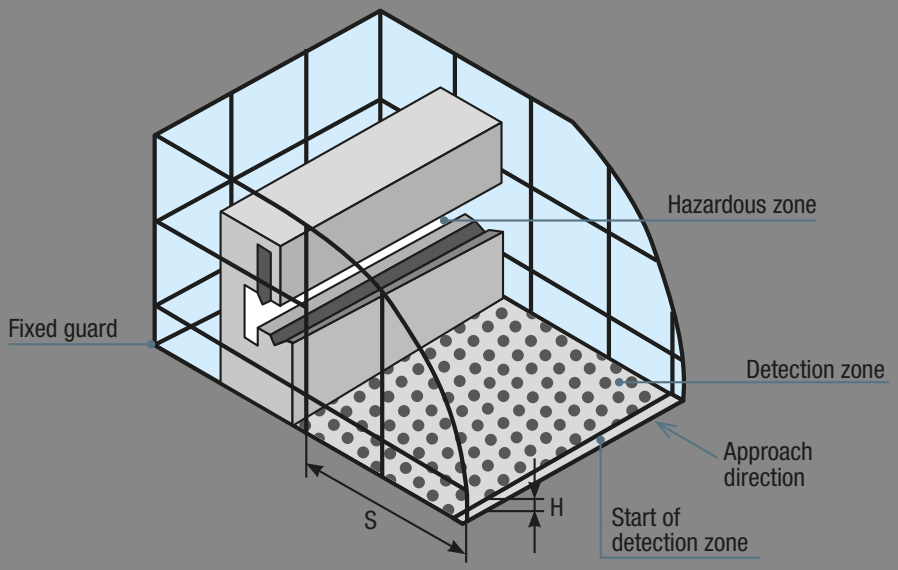
This minimum distance shall be calculated with the following formula:

$$S = (KxT) + C$$

Where: **K** = 1600 mm/s

C = 1200 mm - 0.4 H,but not less than 850 mm, where H is the height of the detection area over the reference plan, e.g. the floor (in mm).

Namely: **S= (1600 mm/s x T) + (1200 mm - 0.4 H)**



H Height of the detection area on the reference plan

S Minimum distance

STANDARD SAFETY MAT
EMBOSSED PVC, BLACK

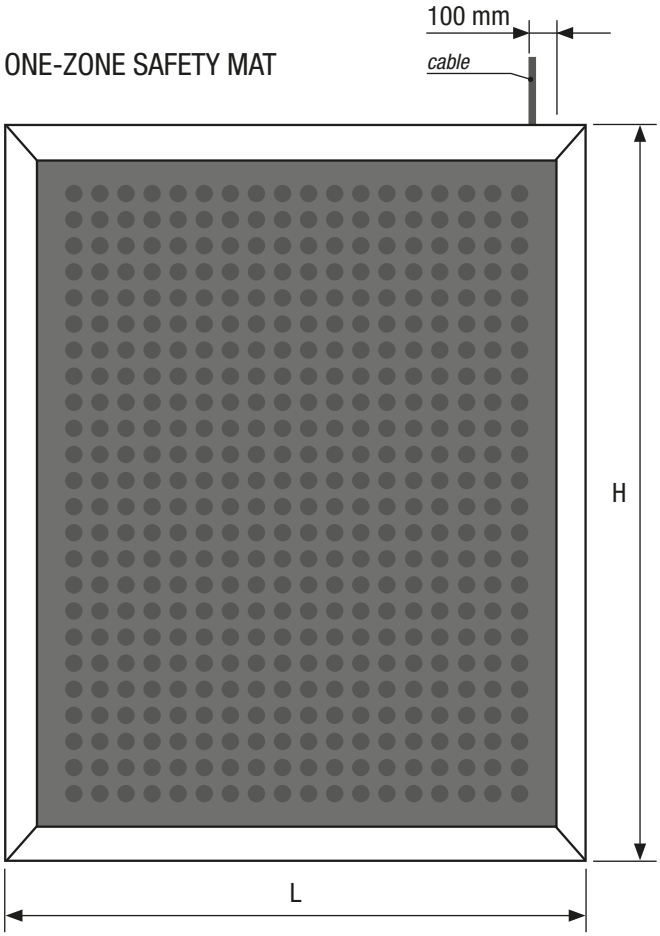
The safety mat is supplied with an embossed, **black PVC coating** (other colours available upon request).

The safety mat can be divided in **two sensitive zones** controlled by two separate circuits (e.g.: door opening in the presence of a person or in front of an ATM machine). In this case, if both zones are simultaneously activated, the two signals cause the installation to shut-down.

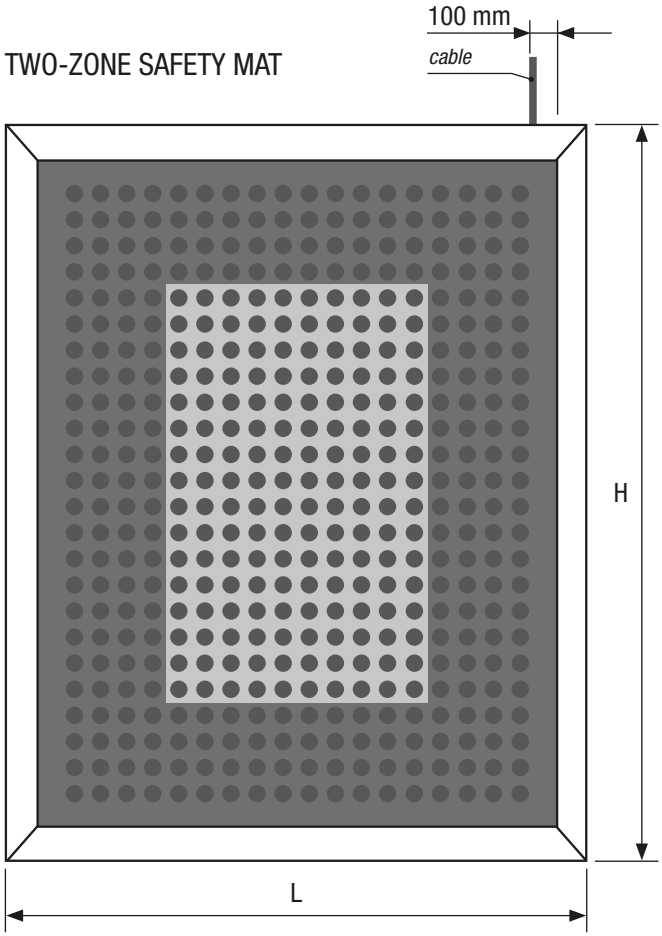
The safety mat can be supplied **mounted on a plate** in order to allow it to be positioned on a non-perfectly flat floor or on a grating support. Maximum dimensions of the single mat: 2000x1500 mm. Zones with larger dimensions can be formed by placing several mats side by side. The safety mat can be supplied with already mounted Aluminium profiles or with loose profiles cut to measure.

WITH ALREADY MOUNTED ALUMINIUM PROFILES

ONE-ZONE SAFETY MAT



TWO-ZONE SAFETY MAT

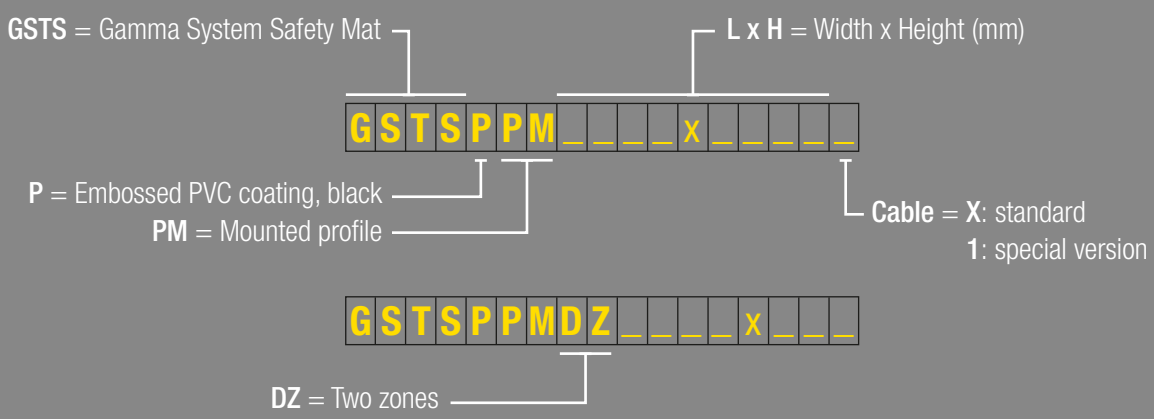


The safety mat is equipped with a 4-pole, FROR 300/500, outlet cable (4x0.35mm2) – standard length 3 m - placed at a distance of 100 mm from the right edge.

HOW TO ORDER A SAFETY MAT WITH MOUNTED PROFILES

The overall dimensions of the safety mat with mounted profiles **always include the contouring profiles**.
Always attach a drawing of the safety mat, indicating the dimensions **(L=width x H=Height)**, type of profiles and cable outlet position, if other than the standard one.

Code

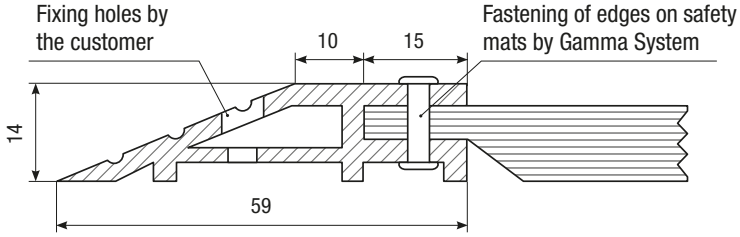


INFORMATION REQUIRED FOR COMPLETING THE SAFETY MAT

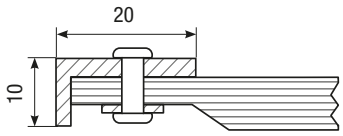
- **Type of A or B profiles**, the aluminium profiles are fastened to the perimeter area of the mat (dead zone) by means of rivets. If both the slope type and 90° type profiles are used, please attach a drawing indicating the position.
- **Length and position of cable if other than the standard one (3 m)**.

PROFILES

Type "A" | Slope profile | *45 mm footprint*



Type "B" | 90° profile | *No footprint*



CABLE

X: *CS _ Standard Cable, 4x0.35mm² – 3 m in length, without connector*
1: *Special version:*
CSM8M: *standard cable with male connector, 4 poles M8*
CSCKM03V: *standard cable with connector type ILME .*
CKM03VG: *standard cable with connector type ILME .*
In case of length other than the standard one, please indicate the cable length, e.g. 10 m = **C10**.

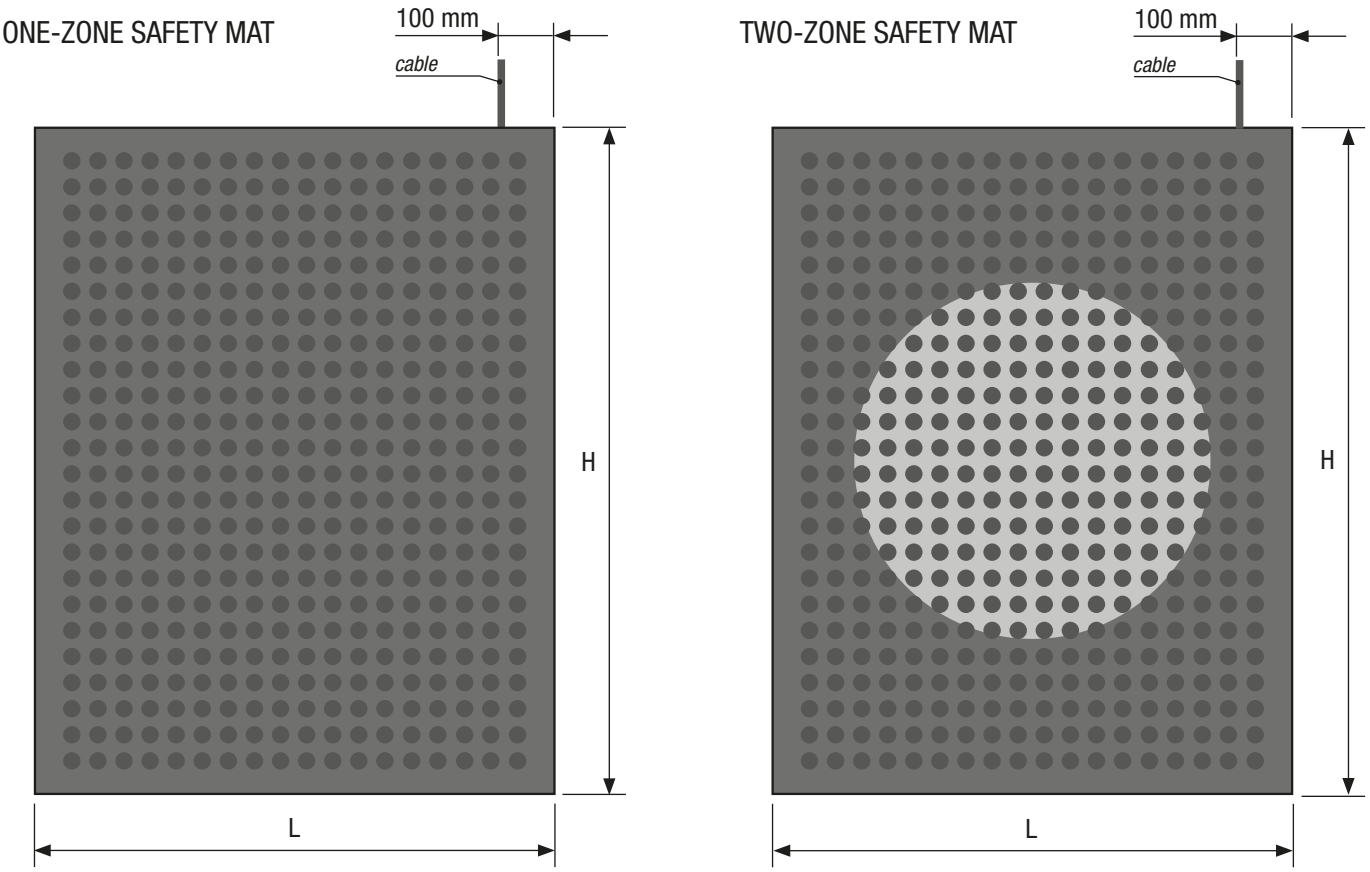
Example 1: **Code terminating with an X** Safety mat with mounted profiles and with the following dimensions: 1000x1000 mm with slope profile on the 4 sides and standard cable outlet.

GSTSPPM1000x1000X (Type "A" profile) sensitive area 910x910 mm.

Example 2: **Code terminating with an X1** Special version of the safety mat with mounted profiles and with the following dimensions: 1400x750 mm with 90° profile on the 4 sides and standard cable outlet with Connector type ILME

GSTSPPM1400x750X1 (Type "B" profile, cable CSCKM03V), sensitive area 1310x660 mm.

WITH ALUMINIUM PROFILES SUPPLIED LOOSE



The safety mat is equipped with a 4-pole, FROR 300/500, outlet cable (4x0.35mm2) – standard length 3 m - placed at a distance of 100 mm from the right edge.

HOW TO ORDER A SAFETY MAT WITH PROFILES SUPPLIED LOOSE

By dimension of the safety mat with loose profiles, one always intends the dimension of the sensitive part, **profile dimensions excluded**. Please attach a drawing of the safety mat indicating the dimensions **(L = Width x H = Height)**, type of profiles as well as the position of the cable outlet if other than the standard one.

Code

GSTS = Gamma System Safety Mat

L x H = Length x Height (mm)

G S T S P P S _ _ _ _ X _ _ _ _ _

P = Embossed PVC coating, black

PS = Loose profile

Cable = **X**: Standard

1: Special version

G S T S P P S D Z _ _ _ _ X _ _ _

DZ = Two zones

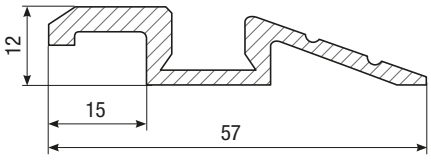
INFORMATION REQUIRED FOR COMPLETING THE SAFETY MAT

The aluminium profiles required for fastening the safety mat to the floor are supplied loose and cut to measure.

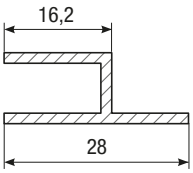
- **Aluminium profiles** shall be placed along the perimeter area of the safety mat (dead zone) and fastened to the floor by means of rivets. If different profiles are used, please attach a drawing indicating their position.
- **Length and position of cable if other than the standard ones.**

PROFILES

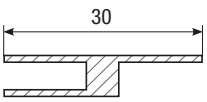
GSPS02 | Slope profile | *Footprint 45 mm*

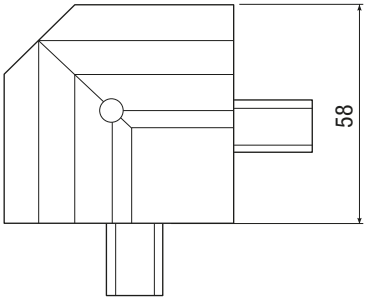


GSP90 | 90° profile | *Footprint 15 mm*

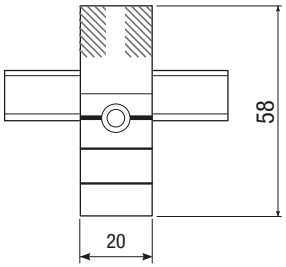


GSPAN [black] - **GSPAG** [yellow] | Coupling profile
Footprint 2 mm





GSAN | Corners | *Footprint 45 mm*



GSPANGSCRP | Cable duct cross junction

CABLE

X: *CS - Standard Cable,* **4x0.35 mm²** – 3 m in length – without connector
1: *Special version:*
CSM8M: standard with male connector, 4 poles M8;
CSCKM03V: standard with connector type ILME;
CKM03VG: standard with connector type ILME with hook;
In case of length other than the standard one, please indicate the cable length, e.g. 10 m = **C10**.

Example: safety mat with loose profiles, double area, dimension 900x750 mm with standard cable outlet.

G	S	T	S	P	P	S	D	Z	0	9	0	0	x	7	5	0

(specify the type of profile)

HOW TO ORDER A SAFETY MAT WITHOUT PROFILES

By dimension of the safety mat, one always intends the dimension of the sensitive part.
Please attach a drawing of the safety mat indicating the dimensions **(L = Width x H = Height)** and the position of the cable outlet if other than the standard one.

GSTS = Gamma System Safety Mat

L x H =Width x Height (mm)

G	S	T	S	P	S	P	_	_	_	_	x	_	_	_	_	_

P = Embossed PVC coating, black
SP = Without profile

Cable = **X**: standard
1: special version

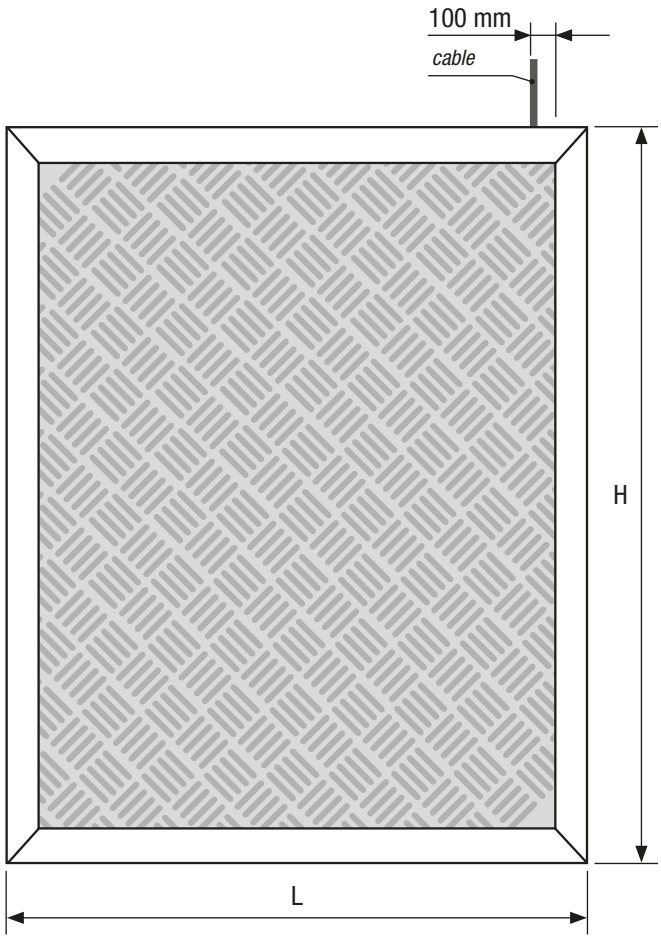
SAFETY MAT WITH
ALMOND-SHAPED ALUMINIUM PROFILES

The safety mat can be supplied with aluminium profiles already mounted or supplied loose and cut to measure.

Maximum dimensions of the single safety mat: 2000x1500 mm.

WITH ALUMINIUM PROFILES ALREADY MOUNTED

The safety mat with aluminium profiles already mounted is always supplied installed on a galvanized steel sheet.

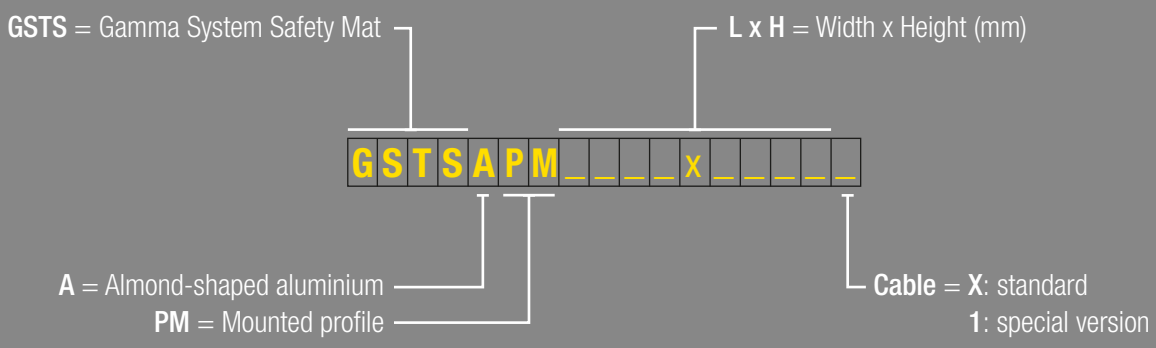


The safety mat is equipped with a 4-pole, FROR 300/500, outlet cable (4x0.35mm2) – standard length 3 m - placed at a distance of 100 mm from the right edge.

HOW TO ORDER A SAFETY MAT WITH ALREADY MOUNTED PROFILES

By dimension of the safety mat, **one always intends the overall dimensions**.
Please attach a drawing of the safety mat indicating the dimensions **(L = Width x H = Height)**, the type of profiles and the position of the outlet cable if other than the standard one.

Code

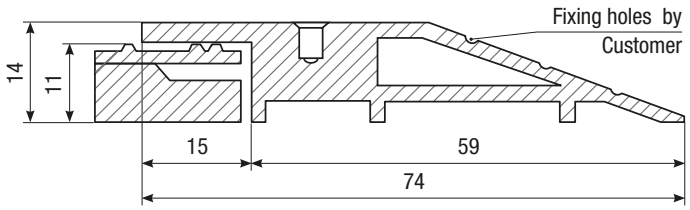


INFORMATION REQUIRED FOR COMPLETING THE SAFETY MAT

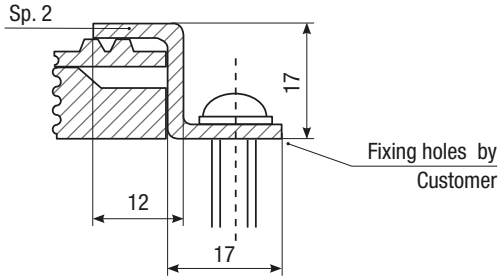
- The aluminium profiles are fastened along the perimeter area of the mat (dead zone) by means of rivets. If both the slope type and 90° type profiles are used, please attach a drawing indicating their position.
- **Length and position of cable if other than the standard one.**

PROFILES

Code "GSPSA" | Slope profile | *Footprint 59 mm*



Code "GSP90A" | 90° profile | *Footprint 17 mm*



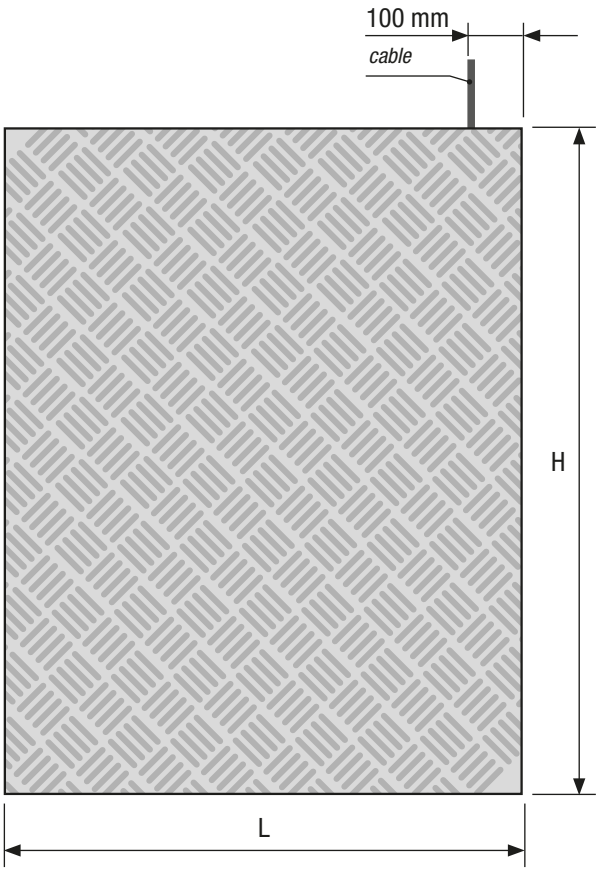
CABLE

X: *CS – Standard Cable,* **4x0.35 mm²** - 3 m long, without connector
1: *Special version:*
CSM8M: standard with Male connector, 4 poles M8;
CSCKM03V: standard with connector type ILME;
CKM03VG: standard with connector type ILME, with hook;
In case of length other than the standard one, please indicate the cable length, e.g. 10 m = **C10**.

Example: safety mats with mounted profiles, dimensions 1000x1000, with slope profile on 4 sides and with standard cable outlet.

GSTSAPM1000x1000X (profile type "GSPSA") *sensitive area 800x800 mm*

WITH ALUMINIUM PROFILES SUPPLIED LOOSE



The safety mat is equipped with a 4-pole, FROR 300/500, outlet cable (4x0.35mm2) – standard length 3 m - placed at a distance of 100 mm from the right edge.

HOW TO ORDER A SAFETY MAT WITH LOOSE PROFILES

By dimension of the safety mat with loose profiles, one always intends the **dimension of the sensitive part, profile dimensions excluded**. Please attach a drawing of the safety mat indicating the dimensions (**L = width x H = Height**), type of profiles as well as the position of the cable outlet if other than the standard one.

Code

GSTS = Gamma System Safety Mat

L x H = Width x Height (mm)

G	S	T	S	A	P	S	_	_	_	_	X	_	_	_	_	_

A = Almond-shaped aluminium

PS = Loose profile

Cable = **X**: standard

1: special version

INFORMATION REQUIRED FOR COMPLETING THE SAFETY MAT

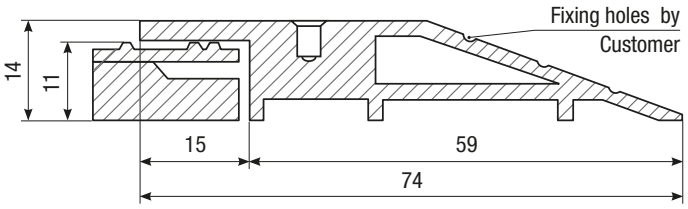
The aluminium profiles required to fasten the safety mat are supplied loose and cut to measure.

- **Aluminium profiles** shall be positioned along the perimeter area of the safety mat (dead zone) and fastened to the floor by means of rivets. If both the slope type and 90° type profiles are used, please attach a drawing indicating their position.
- **Length and position of cable if other than the standard one**.

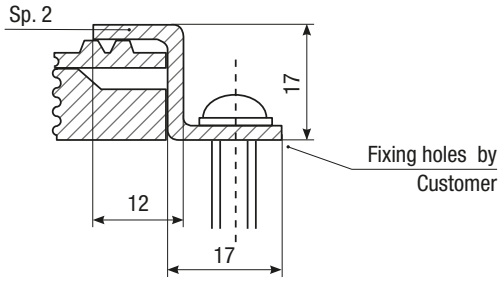
PROFILES

Profiles are fastened along the perimeter area of the steel plate by means of rivets.
If both the slope type and 90° type profiles are used, please indicate the profile and the position.

Code "GSPSA" | Slope profile | *Footprint 59 mm*



Code "GSP90A" | 90° profile | *Footprint 17 mm*



CABLE

X: *CS - Standard cable*, **4x0.35** mm² 3 m long, without connector
1: *Special version:*
CSM8M: standard with Male connector, 4 poles M8;
CSCKM03V: standard with connector type ILME;
CKM03VG: standard with connector type ILME with hook;
In case of length other than standard one, please indicate the cable length, e.g. 10 m = **C10**.

Example: safety mat with loose profiles and dimensions 1000x1000 with slope profile on 4 sides with standard cable outlet.

GSTSAPS1000x1000X (profile type "GSPSA") *max. footprint of the area 1120 x1120 mm*

HOW TO ORDER THE SENSITIVE PART ONLY

Code

GSTS = Gamma System Safety Mat

GSTSASPS____x____

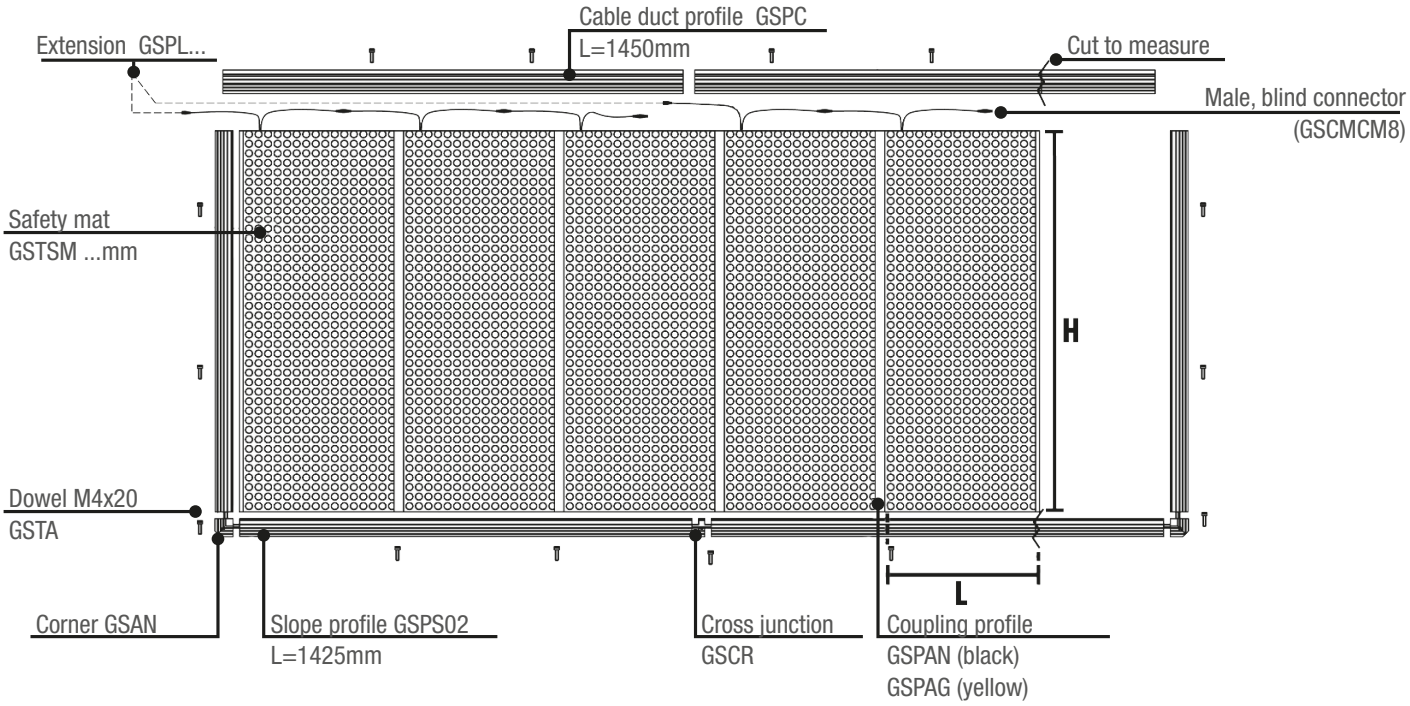
A = Almond-shaped aluminium
SPS = Sensitive part only

MODULAR SAFETY MAT
EMBOSSED PVC

Safety mat supplied with **PVC** coating only.

Dimensions and standard arrangement (as per drawing) and profiles supplied loose.

Modular version conceived to solve problems of transport, handling and installation.



HOW TO ORDER A MODULAR SAFETY MAT

As for the modular version of the safety mat, the **dimension is the sensitive part of the mat, profile dimensions excluded.** Please attach a drawing of the safety mat indicating the dimensions (**L = Width x H = Height**), type of profiles and their position. The mat is supplied with 2 outlet cables L=600 mm 4 poles, 4x0.25mm2 CEI IP65. One is equipped with an M8 MALE connector and the other with an M8 FEMALE connector for connecting the mats in series.

Code

GSTS = Gamma System Safety Mat

L x H = Width x Height (mm)

G	S	T	S	P	M	_	_	_	_	x	_	_	_	_	X	X

P = PVC

M = Modular type

INFORMATION REQUIRED FOR COMPLETING THE SAFETY MAT

The **aluminium profiles** required to fasten the mat are supplied loose and must be ordered separately.

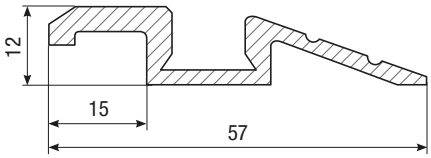
- The aluminium profiles shall be placed along the perimeter area of the safety mat (dead zone) and fastened to the floor by means of rivets. If both the slope type and 90° type profiles are used, please attach a drawing indicating their position.

- **Electrical connection between the mat and the control device**

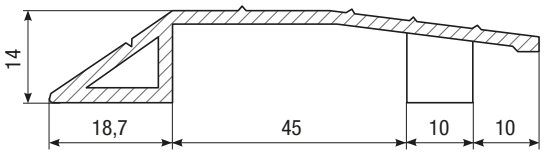
An extension with an M8 FEMALE connector (code GSPL – standard length 1000-3000-5000-7000-10000 mm) is to be purchased for connecting the mat to the control device. For closing the electric circuit of the last mat, an M8 Male connector (code GSCMCM8) is to be purchased.
(*Example:* mat area to be divided in two separate zones = **n. 02 GSCMCM8 + n. 02 GSPL3500**)

PROFILES AND ACCESSORIES

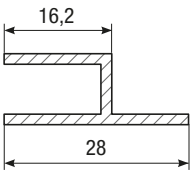
Code "GSPS02" | Slope profile | *Footprint 45 mm*
Standard length L = 1425 mm



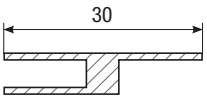
Code "GSPC" | Cable duct profile | *Footprint 74 mm*
Standard length L = 1450 mm



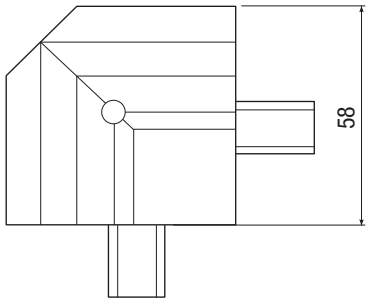
GSP90 | 90° profile | *Footprint 15 mm*



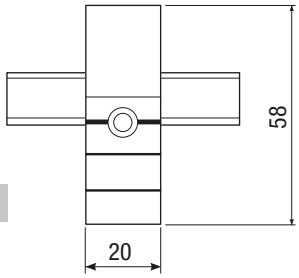
GSPAN [black] - **GSPAG** [yellow] | Coupling profile
Footprint 2 mm



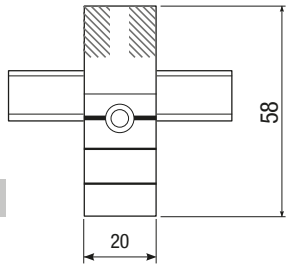
GSAN | Corners | *Footprint 45 mm*



GSCR | Cross junction | Pack of 5 pcs.

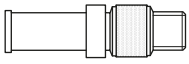


GSCRP | Cross junction with cable duct

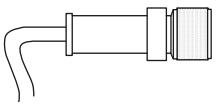


GSTA | Anchoring dowels | Pack of 10 pcs.

Code "GSCMCM8" | Connector for circuit closing (Male)



Extensions for mat connection to the control device



Code "GSTSPL 3000" | *Cable length 3 m*
Code "GSTSPL 5000" | *Cable length 5 m*
Code "GSTSPL 7000" | *Cable length 7 m*
Code "GSTSPL 10000" | *Cable length 10 m*

Example: Modular safety mat with dimensions 1000x1500 mm (profile type "GSPS02") maximum footprint 1090x1590 mm.

G	S	T	S	P	M	1	0	0	0	x	1	5	0	0	X	X

TECHNICAL FEATURES OF THE **GSTS SENSOR**

Sensor	Mat with PVC coating		Coating with PVC+ALUMINUM
Max thickness [mm]	10		14
Weight/m² [kg]	15 (approx.)		22 (approx.)
Operating pressure	< 300 N Ø mm 80 / < 600 N Ø mm 200		
Max admissible load	2000 N / 80 Ø mm (avoid manoeuvres with heavy means such as lift trucks, motor vehicles and like)		
Response time with Gamma System control units	Single sensor: ≤ 60 ms Combination of sensors: ≤124 ms		
Mechanical life of internal contact	2.000.000 operations		
PFH (mat)	$4.29*10^{-8}$		
Max operating voltage	24 Vdc/ac		
Max operating current	60 mA / 24 V		
Electric resistance of sensor m² [Ω/m²]	1.7		
Linear resistance of cable [Ω/m]	0.056		
Max connection length [m]	100		
Connection cable section	min. 0.35 mm² For cables with L>20 m min. 1 mm²		
Outlet contact	NO		
Operating temperature	+5°C to +60°C		
Storage temperature	+5°C to +60°C		
Degree of protection	IP65		
Chemical resistance	Oils, hydrocarbons		
B_{10D}	2.000.000		
Max dimensions of each safety mat [mm]	1500 x 2000		
Dead zone	Welding peripheral zone 15 mm		
Reference Standards	EN ISO 13856-1:2013, EN ISO 13849-1		
Safety Parameters: Sensor + Control Unit	**GSTS01 + GP02/E**	**GSTS01 + GP02R.T**	**GSTS01 + GP04T**
Category	3	3	3
PL	d	d	d
PFH_D [1/h]	$9.23*10^{-8}$	$8.58*10^{-8}$	$9.29*10^{-8}$
No. of operations/year max.	80000		100000
Usage categories	DC13 – 1,5A	AC15 – 1,2A	-
T_{10D} [years] control unit *	9.25	12.5	-
Max controllable surface [m²]	5	10	
CE Declaration	21CMAC0015		
Other European Directives			
2012/19/UE	RAEE		
2011/65/UE	ROHS		
Regulation (CE) n°1907/2006	REACH		

** Considered with max number of operations. Once the time indicated on data sheet above has elapsed, contact Gamma System After-Sale Service.*

ATEX SAFETY MATS

CODE SERIES **GSTSPATEXxxxxxxxx**

Our GSTSPATEX safety mats are "simple apparatuses" intended for use in intrinsically safe systems, according to what set by the EN 60079-11:2012, art. 5.7 a standard.
The electrical circuits of such apparatuses are incapable of causing an explosion in the surrounding explosive atmospheres, therefore they do not fall into the application field of the European Directive 2014/34/EU (ATEX) (EN 60079-11:2012, Art. 5.7).
The temperature class T6 [IEC-EN 60079-11 – Simple Apparatus Form] has been assigned to the internal contacts of these mats. They can be introduced into intrinsically safe systems with "ia" protection level, for substances of groups IIA, IIB and IIC (gas or flammable vapours) and/or of groups IIIA, IIB and IIC (combustible dusts).

Depending on the types of expected Associated Apparatuses, these systems can feature the characteristics indicated below, in conformity with the EN 60079-0, 60079-11 and 60079-25 Standards and with the essential requests of the European Directive 2014/34/EU (ATEX).

II 2GD Ex ia IIC T6 Gb / Ex ia IIIC T85°C Db

Here below is a short legend / description of the code and peculiarities of the system into which our product can be incorporated.

TYPE OF USE

II = Apparatus / system groups for use in surface industries (no mines).
2 = ATEX category corresponding to "high" protection level.

ZONES OF USE/POSITIONING

Zone 1 - 21 zones with possible risk of explosive atmosphere during the normal operation of the installation / process.
Zone 2 - 22 zones with possible risk of explosive atmosphere ONLY in case of malfunctions or faults of the installation / process.

SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE SUBSTANCES / COMBUSTIBLES

GD: G = Gas/Flammable vapours and D = Combustible dusts.
E.g.: Product protected against potentially explosive atmospheres.

PROTECTION LEVEL OF INTRISIC SAFETY

ia: The electric circuit assures safety when power fed within the defined voltage, current and power limits, under normal working conditions, in the presence of ONE single FAULT and in the presence of TWO simultaneous and independent FAULTS.

SUBSTANCES WHICH CAN BE PRESENT WHERE THE PRODUCT IS USED / POSITIONED

Gas or flammable vapours of **IIA**, **IIB** and/or **IIC** Groups.
Combustible dusts of **IIIA**, IIIB and/or **IIIC**.

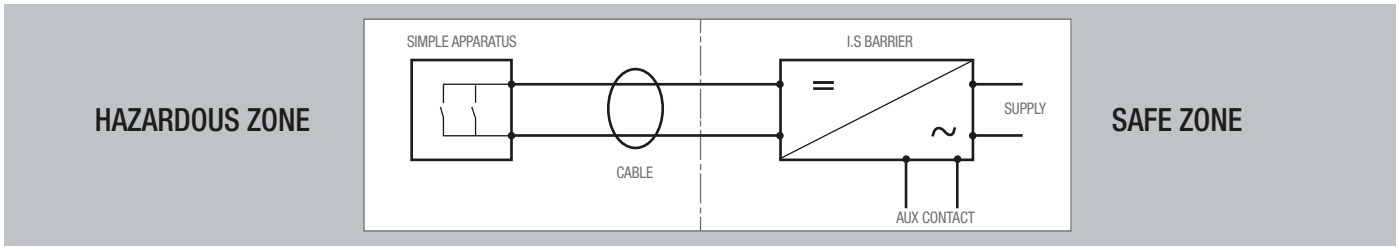
TEMPERATURE CLASS / MAXIMUM SURFACE TEMPERATURE

T6 / 85°C

PROTECTION LEVEL OF THE APPARATUS (EPL) / ZONE OF POSSIBLE USE

Gb = high protection level (for gas and/or vapours) – can be used in Zone 1 (and 2)
Db = high protection level (for dusts) – can be used in zone 21 (and 22).

The product is to be incorporated in an "intrinsically safe" circuit / system, interfaced to an adequately "Associated Apparatus" (Safety Barrier) for managing the electric contacts (such as, for example, our product type D5030S – D5030D) built in a "safe zone" / or internally to an "explosion proof Ex d" enclosure, adequately certified.
WARNING: In order to avoid the accumulation of electrostatic charges, the 4 parts which form the aluminium frame **must** be equipotentially bonded and grounded at a point, highlighted by the symbol ⏚.
In case of use of metal plate covering / protecting the safety mat, the plate **must** be grounded at a point, highlighted by the symbol ⏚.



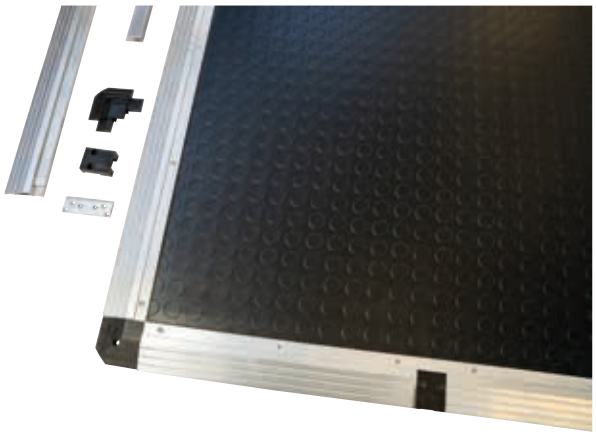
Simple Apparatus (1)		Cable	Barrier (1 – 2 channels)	
Manufacturer: Gamma System S.r.l.		Manufacturer: Lapp Group	Manufacturer: G.M. International S.r.l.	
Type: **GSTSPATEX**		Type: ÖLFLEX® EB CY 300/500 V	Type: **D5030S** (1 channel) or **D5030D** (2 channels)	
Rated electric characteristics Un: 24 Vdc - In: up to 30 mA		Formation: 4 x 0.75 mm²	Protection mode: **[Ex ia Ga] IIC**	
SAFETY PARAMETERS		Capacity : 160 pF/m(2) Capacity : 250 pF/m(3)	Certified: **BVS 10 ATEX E 113 X**	
Ui: 24 V		Inductance: 0.52 µH/m	Um: 253 V	Uo: 10.5 V
Ii: 30 mA	Pi: N.A.(4)	Length: ≤ 20 m	Io: 22 mA	Po: 56 mW
Ci: negligible	Li: negligible	Total capacity (Cc) = 13.2 nF(5) Total inductance (Lc) = 10.4 µH	Co: 2.4 µF	Lo: 78.3 mH

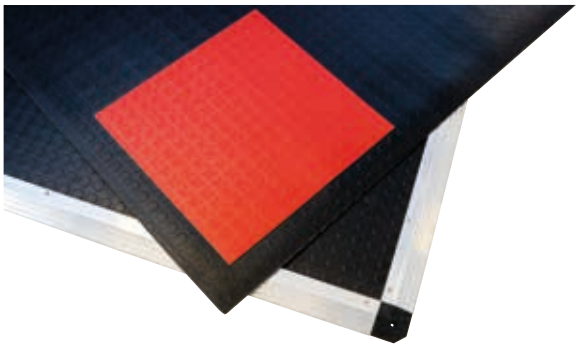
(1) Pressure-sensitive contacts inside the safety mats | (2) Conductor / conductor | (3) Conductor / shielding.
*(4) Current, obviously with Intrinsic Safety; **Not applicable to simple contacts.***
(5) Considered as "parallel" of 3 capacities: conductor / conductor + 2 x conductor / shielding.

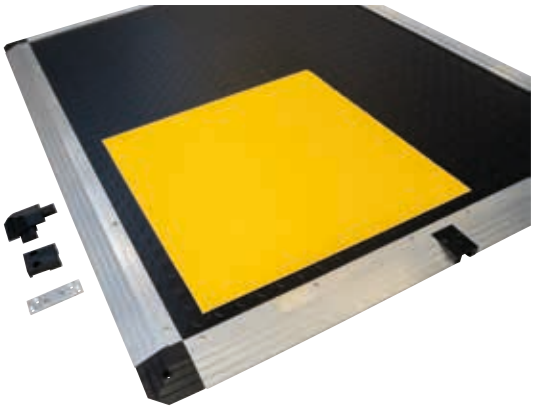
VERIFICATION OF THE SYSTEM SAFETY

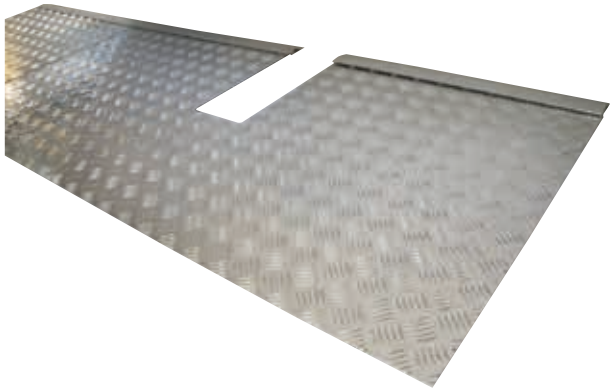
$U_i > U_o$: OK **$I_i > I_o$**: OK **$C_i + C_c << C_o$**: OK **$L_i + L_c << L_o$**: OK

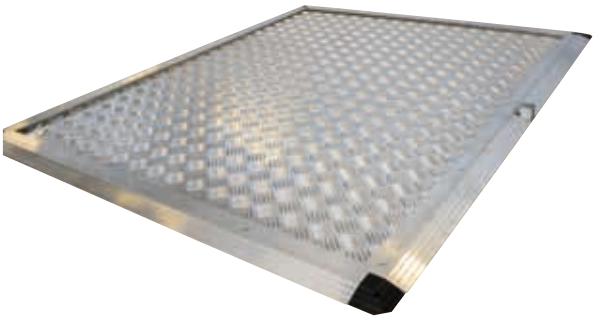
Minimum requirement	Requirement satisfied
Ex ib IIC T5 / Ex ib IIIC T100°C	**Ex ia IIC T6 / Ex ia IIIC T85°C**











SENSITIVE EDGES

The sensitive edge is a safety component used to avoid crashing or cutting risks by sliding doors, automatic moving guards, automated moving guards, electrical gates, etc.
The edges feature a PVC coating with an internal sensor, consisting of 2 conductive blades, separated by a non-conductive part. When the edge is pressed, the blades come into contact and make the circuit.
The change in state of the internal sensor (NO to NC) is processed by the “control unit” that emits a stop signal to the machine thereby removing the hazardous situation.

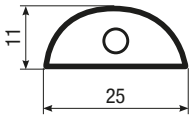
PRE-ASSEMBLED
EDGES

Standard version; length upon customer's request with **pre-assembled sensor and aluminium support.**

Models available: Type BO, Type B1N, Type B2N.

EDGE TYPE "BO"

Profile made of black EPDM. It ensures maximum sensitivity to activation.
Particularly suitable as an emergency button or as an alternative to emergency wire micro switching.
Supplied with both side adhesive tape for wall fixing.
The edges of the profile are sealed with polyurethane resin to ensure better watertight property.
For the edge type "BO", the outlet cable can only be on the head side.



Different lengths of the cable available upon request (please indicate when ordering).

N.B. The product cannot be used as safety function

HOW TO ORDER AN EDGE TYPE "BO"

Code

GSBO = Gamma System Edge "BO"

Cavo = **S**: standard, 3 m long
1: special version

G	S	B	O	L	_	_	_	_	C	_	U	T	X	X	X	X

L = Length (mm)

UT = Head outlet cable

XX = standard version
X1 = special version

CABLE

S: *CS - Standard cable* **4x0.35 mm²** FROR 300/500, 3 m in length
1: For lengths other than the standard one, please indicate the cable length, e.g. 10 m = **C10**.

Example 1: edge type "BO" 1000 mm in length with standard cable, e.g. 10 m = C10.

G	S	B	O	L	1	0	0	0	C	S	U	T	X	X	X	X

(profile Type "A") *sensitive area 910x910 mm*

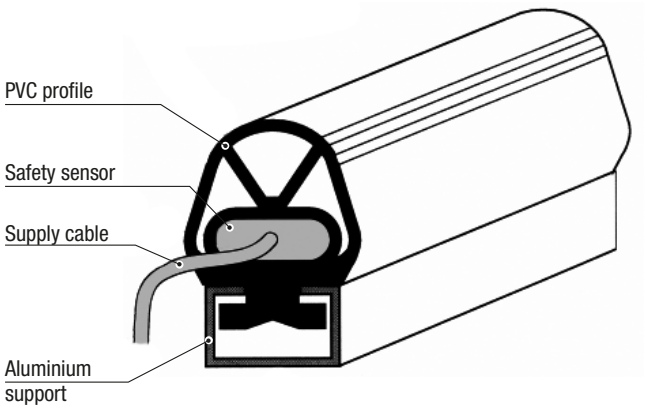
Example 2: edge type "BO" 1000 mm in length with cable 10 m in length and with 4-pole, M8 male connector.

G	S	B	O	L	1	0	0	0	C	1	0	U	T	X	X	1

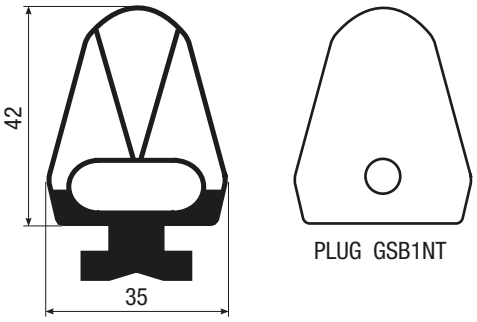
EDGE TYPE “B1N” AND “B2N”

Profile made of black PVC for edges type B1N and B2N. The edges feature a sensor on the bottom part of the profile so to ensure sensitivity with front side operations, as well as with a max. angle of ±45°.
The ends of the profile are sealed with polyurethane resin to ensure better watertight property.

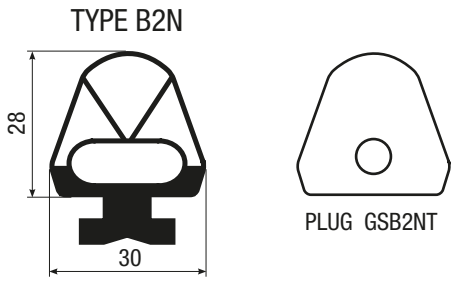
Different lengths of the outlet cable available upon request (please indicate when ordering).



TYPE B1N

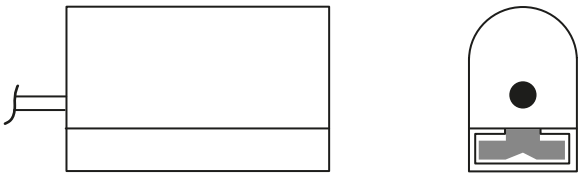


TYPE B2N

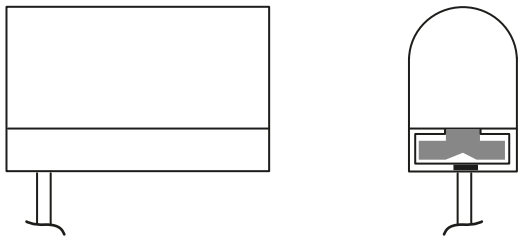


SUPPLY CABLE OUTLET

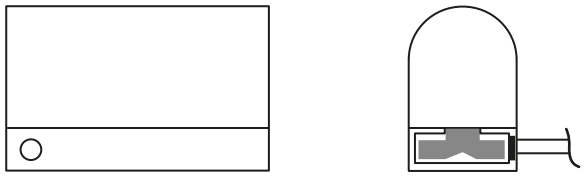
“UT” | Head outlet (standard)



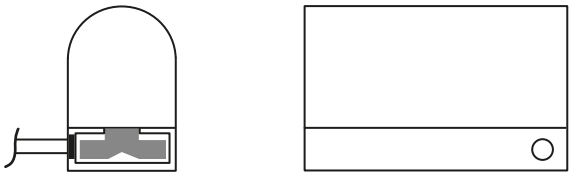
“UI” | Bottom outlet



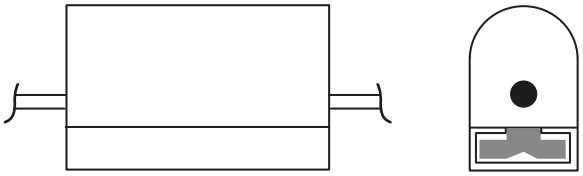
“ULDX” | Right side outlet



“ULSX” | Left side outlet



“CSCS” | Double outlet of cable

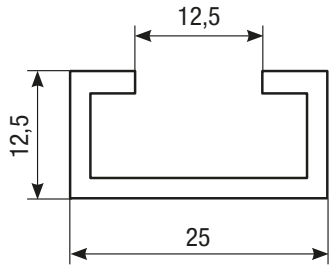


INFORMATION REQUIRED FOR COMPLETING THE SENSITIVE EDGE

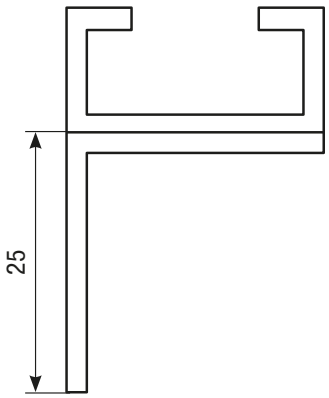
The edges are supplied complete with an aluminium profile required for fastening.
Three types of supports are available.

FASTENING SUPPORT

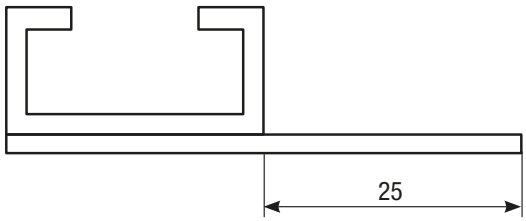
Type "SAC25" | "C"-shaped profile | for edges type B1N – B2N



Type "SAL" | "L"-shaped profile | for edges type B1N – B2N

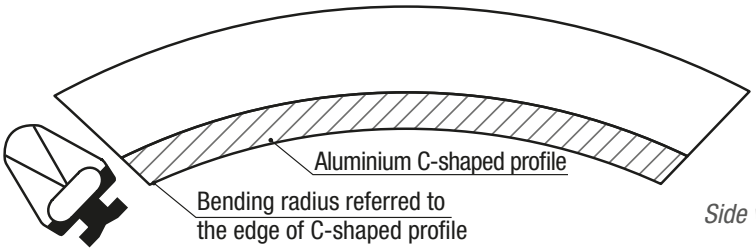


Type "SAI" | "I"-shaped profile | for edges type B1N – B2N



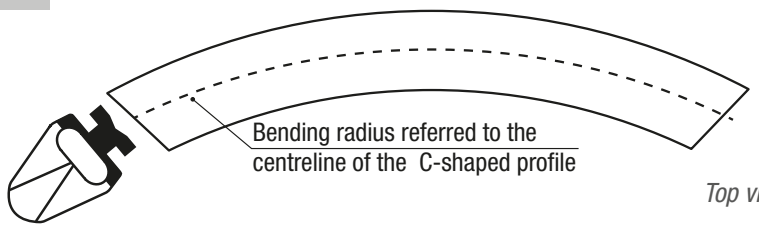
All edges listed can be supplied in curved version with the following bending radiuses:

Figure "A" | for edges type "B1N and B2N"
Minimum bending radius 800 mm



Side view

Figure "B" | for edge type "B2N"

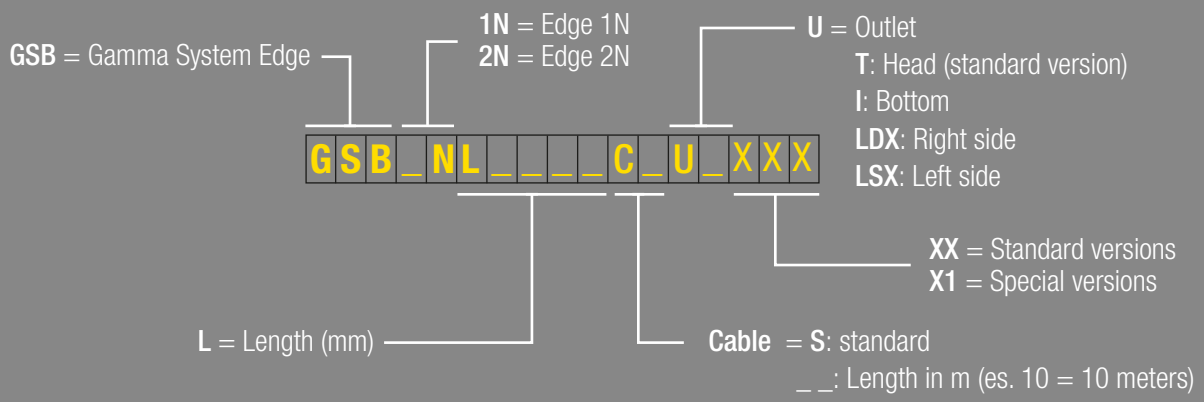


Top view

Attention: Figure "A" AND Figure "B" not executable together on the same profile.

HOW TO ORDER AN EDGE TYPE “B1N” OR “B2N”

Code



CABLE

S: *CS - Standard Cable*, **4x0.35** mm², 3 meters FROR 300/500
_ _: For lengths other than the standard one, please indicate the cable length, e.g. 10 m = **C10**.

Example 1: edge type “B1N” 1000 mm in length with standard cable 3 m in length, head outlet, aluminium profile type SAC25.

GSB1NL1000CSUTXXX

Example 2: edge type “B1N” 1000 mm in length with standard cable 3 m in length, with M8 connector, aluminium profile SAI or SAL 25 or head outlet.

GSB1NL1000CSUTXX1

Example 3: edge type “B1N” 1000 mm in length with standard cable 3 m in length, standard side outlet (right), aluminium profile type SAC25.

GSB1NL1000CSULDXX

Example 4: edge type “B1N” 1000 mm in length with standard cable 3 m in length, with M8 connector, aluminium profile SAI or SAL 25 or side outlet (left).

GSB1NL1000CSULSX1

Example 5: edge “B1N” 1000 mm in length with standard cable 3 m in length, bottom outlet, aluminium profile type SAC25.

GSB1NL1000CSUIXXX

Example 6: edge “B1N” 1000 mm in length with cable 0.6 meters in length, head outlet, aluminium profile type SAC25

GSB1NL1000C06UTXX

Example 7: edge “B1N” 1000 mm in length, double outlet, standard cable 3 m in length, aluminium profile type SAC25.

GSB1NL1000CSCSUTX

Example 8: edge “B1N” 1000 mm in length, double outlet, cable with connector type M8M – M8F.

GSB1NL1000CSCSUT1

TECHNICAL FEATURES – **SENSITIVE EDGES**

Sensor	Type B0	Type B1N	Type B2N	
Max operating angle α	90°	90°	80°	
Pre-run (test piece Ø 80, at 100 mm/s) [mm]	3	6.6	7	
Overrun (test pieces Ø 80, a 100 mm/s)	-	17.3 mm at 250 N 19.3 mm at 400 N 21.3 mm at 600 N	9.1 mm at 250 N 10.1 mm at 400 N 13.1 mm at 600 N	
Max operating force (test pieces Ø 80, a 100 mm/s) [N]	-	137	141	
Operating distance [mm]	3	5		
Overrun operation [mm]	2	20	10	
Material	EPDM	PVC		
Length * (upon request) [m]	max 15	max 6		
Weight [kg/m]	-	0.9	0.8	
Mounting orientation	-	All		
Fastening material	Double-sided adhesive tape	Aluminium profile		
Chemical resistance	Acids, atmospheric agents	Oil, hydrocarbons		
Degree of protection	IP 54	IP 65		
Operating temperature	+5°C to +60°C			
Storage Temperature	+5°C to +60°C			
Max applicable thrust [N]	500			
Power cord**	4x0.35 mm^2			
Output contact	N.O.			
Rated supply voltage	24 Vdc			
B_{10D} sensor	-	113000	80000	
T_{10D} [years] control unit	-	20	14	
Dead surface	25 mm from each side			
Part of human body which can be detected***	Hand, limb, body			
Reference Standard	-	EN 13856-2:2013; EN ISO 13849-1		
Safety Parameters: Sensor + Control Unit		**Sensor + GP02/E**	**Sensor + GP02R.T**	**Sensor + GP04T**
Category	-	3		
PL	-	d		
PFH_D [1/h]	-	$8.58*10^{-8}$	$9.29*10^{-8}$	
No. of operations/year	-	5600		
Usage categories	-	DC13 - 1.5 A AC1 - 1.5 A	AC15 (230) 1.2 A	DC13 0.4 A
Response time with control unit (test piece ø80 at 100 mm/sec T20°C) [ms]	-	59	66	70
Max controllable length [m]	-	12	20	
EC Declaration	-	20CMAC0013	20CMAC0014	
Other European Directives				
2012/19/UE	RAEE			
2011/65/UE	ROHS			
Regulation (CE) n. 1907/2006	REACH			

** The max length for the edge assembled is 6000 mm*
*** For length over 20 m, use wires with section of 1 mm^2*
**** Not suitable to detect fingers.*

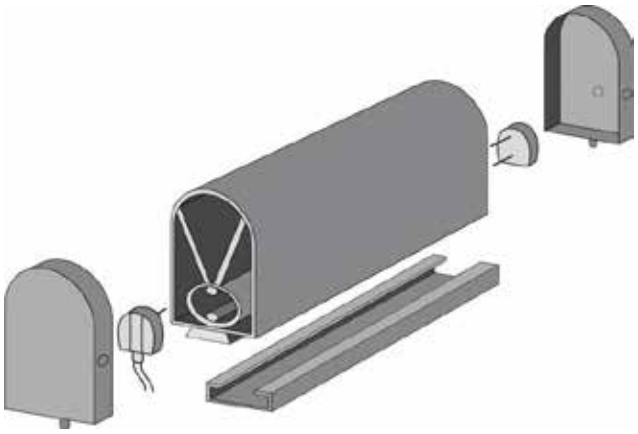
CONDUCTIVE EDGES
PRE-ASSEMBLED OR “DO-IT-YOURSELF” VERSION

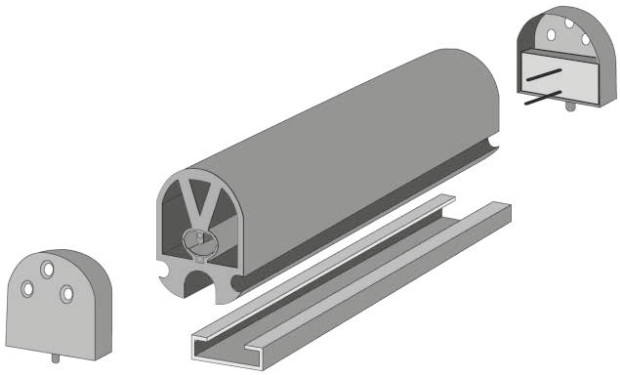
Pre-assembled or “do-it-yourself” version (cut and mounting of accessories by the customer/installer)

The following types are available:
Conductive edge type B1NC 8.2 kΩ
Conductive edge type B1NC-AG with universal foot 8.2 kΩ
Conductive edge type B1NC-AGB with lips and universal foot 8.2 kΩ
Conductive edge type B2C 8.2 kΩ
Conductive edge type B2C-AG with universal foot 8.2 kΩ
Conductive edge type B2C-AGB with lips and universal foot 8.2 kΩ
Conductive sensor type B0C 8.2 kΩ
Conductive edge type B0C-AG with universal foot 8.2 kΩ

CONDUCTIVE EDGE 8.2 KΩ

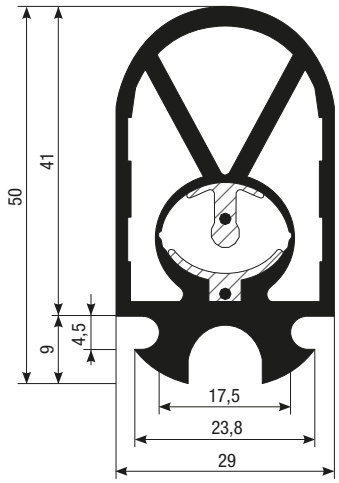
It consists of a TPE thermoplastic profile with two internal co-extruded parts made of conductive plastic material (sensor) and two copper wires, to stabilize the resistive value of the contact over the entire length of the edge.
Particularly suitable for outdoor use, in any type of environment and at any temperature (-15°C to +55°C).
It can be supplied as a “**do-it-yourself**” version, with a series of accessories allowing the customer/installer to implement the edge directly on the machine/system.
Upon request, the edge can be supplied assembled, tailor-cut to measure and complete with all accessories.
The supply of the system is made by means of a 2-wire electric cable, 2x0.35 mm2 CEI 20-22 with die-cast needle connector to allow easy fitting into the two chambers containing the copper cable. Standard length of cable: 3 m.
The electric circuit is closed by a needle connector containing an electric resistance, 8.2kOhm.
The ends of the edge are sealed by means of special end caps which, sealed with a special sealant, ensure better watertight property.
The standard outlet of the supply cable is at the end of the profile. If side or bottom part outlet is needed, please indicate when ordering. For the “do-it-yourself” version, the cable outlet will be implemented by drilling the cable hole into the terminal end cap.



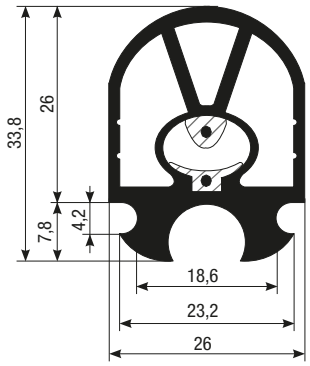


EDGES AVAILABLE

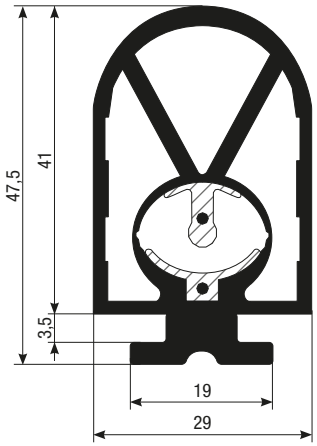
Type B1NC
(roll of 25 m)
Fastening supports:
-SAC29
-SAL29
-SAI29



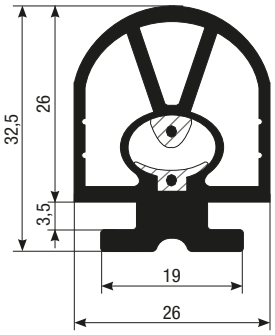
Type B2C
(roll of 25 m)
Fastening supports:
-SAC29
-SAL29
-SAI29



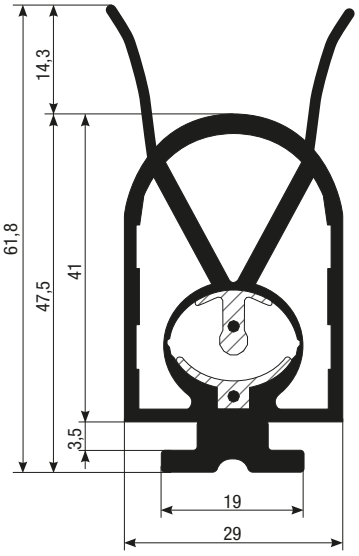
Type B1NC-AG
(roll of 25 m)
Universal foot
Fastening supports:
-SAC25
-SAL25
-SAI25



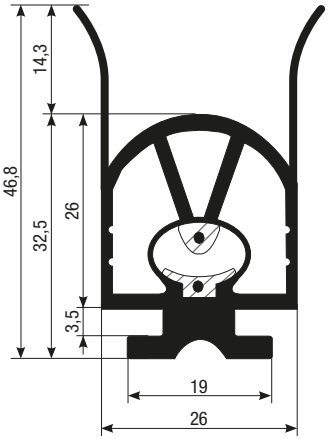
Type B2C-AG
(roll of 25 m)
Universal foot
Fastening supports:
-SAC25
-SAL25
-SAI25



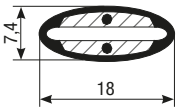
Type B1NC-AGB
With lips
(roll of 25 m)
Fastening supports:
-SAC25
-SAL25
-SAI25



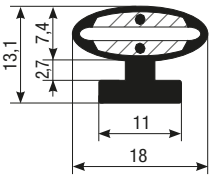
Type B2C-AGB
With lips
(roll of 25 m)
Universal foot
Fastening supports:
-SAC25
-SAL25
-SAI25



Type B0C
(roll of 100 m)



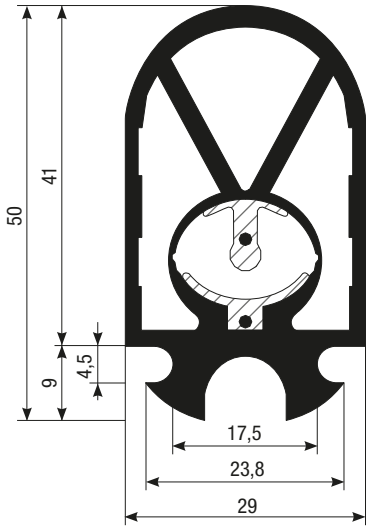
Type B0C-AG
(roll of 100 m)
Universal foot
Fastening supports:
-SAC15



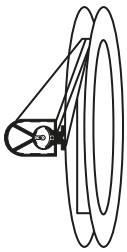
All edges are supplied in rolls, diameter 120x20 cm

Upon request the sensitive edges can be supplied in conformity with the EN 45545-2:2013+A1:2015.Standard.

SENSITIVE EDGE TYPE “B1NC”



Roll of 25 m

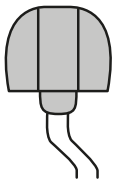


“DO-IT-YOURSELF” VERSION

Please order the single components according to the following pattern:
- 1 Pack of profile type **B1NC profile** (standard roll of 25 m)
- 1 **Connector with electric cable type KCC**
- 1 **Needle connector type KCR** (with resistance)
- 1 **Kit** containing 2 off closing end cap type **TC1**
- 1 **Primer** bottle (10ml) code PR
- 1 **Sealant** bottle (10ml) code CY

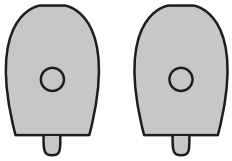
CONNECTORS

KCC | Connector with cable | *Cable length 3 m*



KCR | Connector with resistance 8,2 kΩ

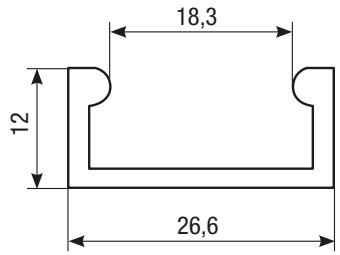
TC1 | Closing end caps | *Pack of 2 pcs.*



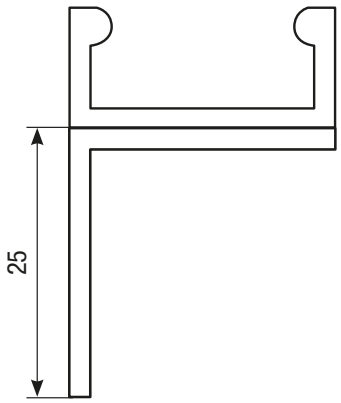
ALUMINIUM SUPPORT FOR EDGE FASTENING

The edge fastening is carried out by installing the edge on a suitable aluminium support. Three types of supports are available.

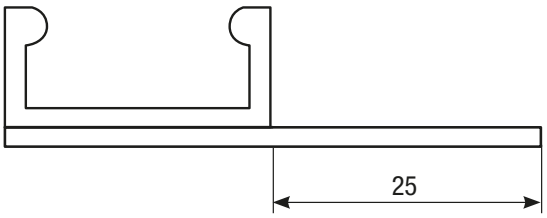
Type "SAC29" | "C"-shaped profile | for edges type B1NC - B2C



Type "SAL29" | "L"-shaped profile | for edges type B1NC - B2C

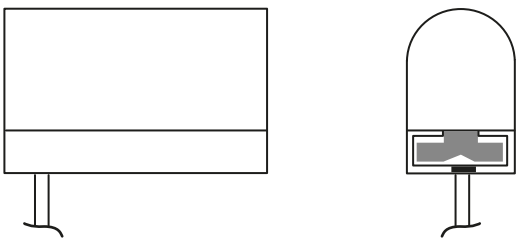


Tipo "SAI29" | "I"-shaped profile | for edges type B1NC - B2C

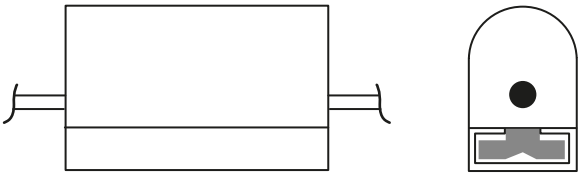


SUPPLY CABLE OUTLET

"UI" | Bottom part outlet

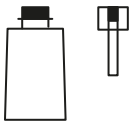


"CCCC" | Double outlet of cable

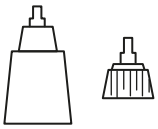


SEALANTS FOR "DO-IT-YOURSELF" EDGES

"GSBPR" | Primer bottle 10 ml type PR

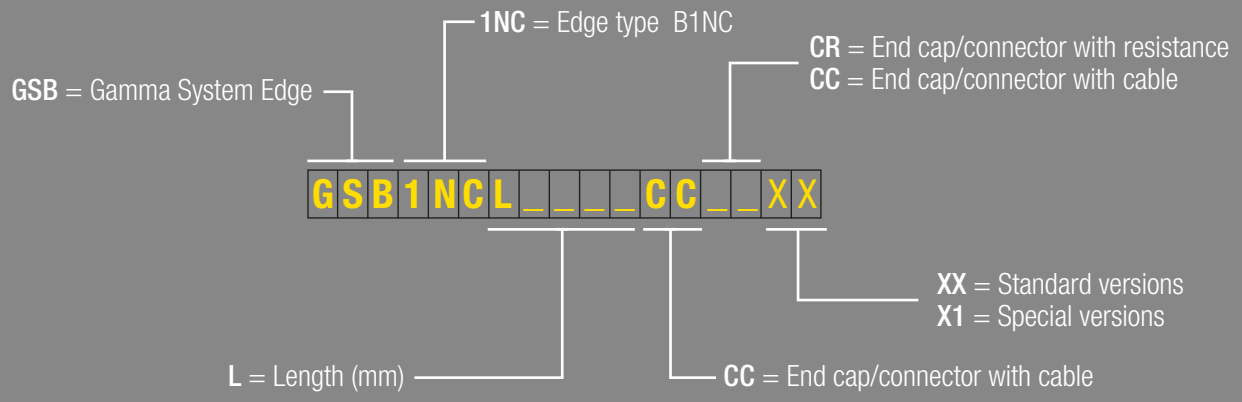


"GSBCY" | Sealant bottle 10 ml type CY



HOW TO ORDER AN EDGE TYPE “B1NC” (ASSEMBLED)

Code



X: *Standard Version with:*

- End cap/connector with cable (2x0.35 mm^2, 3 m in length, FROR 300/500)
- End cap/connector with resistance
- Aluminium support type SAC29

1: *Special Version, e.g.:*

- Cable length other than the standard one (standard 3 m). Please indicate the cable length, e.g. 10 = **C10**.
- Aluminium support Type SAL29 or SAI29

Example 1: edge type “B1NC” 1000 mm in length, with end cap/connector with standard cable 3 m in length and end cap/connector with resistance, aluminium profile type SAC29

GSB1NCL1000CCCRXX

Example 2: edge “B1NC” 1000 mm in length with end cap/connector with standard cable, 3 m in length and end cap/connector with resistance, aluminium profile type SAL29

GSB1NCL1000CCCRX1

Example 3: edge “B1NC” 1000 mm in length with end cap/connector with standard cable and end cap/ connector with resistance, aluminium profile type SAI29

GSB1NCL1000CCCRX2

Example 4: edge “B1NC” 1000 mm in length with double standard cable outlet, 3 m in length, aluminium profile type SAC29

GSB1NCL1000CCCCXX

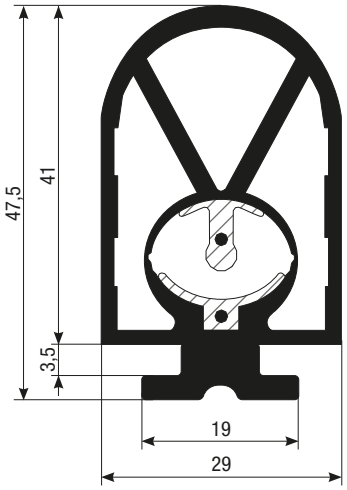
Example 5: edge “B1NC” 1300 mm in length with double standard cable outlet, 3 m in length, aluminium profile SAL29

GSB1NCL1300CCCCX1

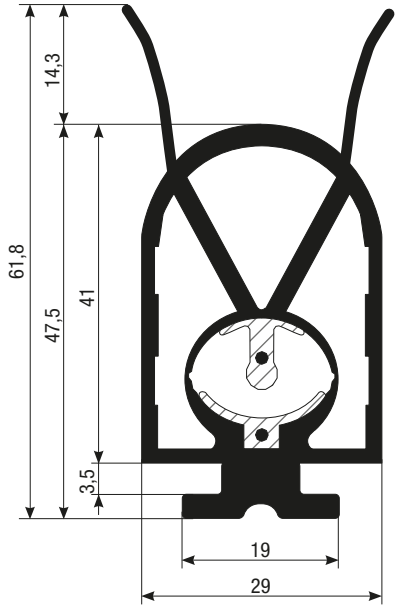
SENSITIVE EDGE TYPE “B1NC-AG” AND “B1NC-AGB”

The edge type B1NC-AG differs from type B1NC in the anchoring foot, which has been studied to make it interchangeable with most of profiles on the market, and for its completion accessories.

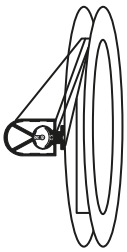
B1NC-AG
Universal foot



B1NC-AGB
with lips and
universal foot



Roll of 25 m



“DO-IT-YOURSELF” VERSION

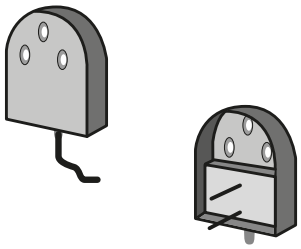
Please order the single components according to the following pattern:
- 1 Pack of **profile type B1NC-AG or B1NC-AGB** (standard roll of 25 m)
- 1 **Kit of end cap/needle connectors type KC1** (1 end cap/connector with electric cable type KC1AGC + 1 end cap / connector with resistance type KC1AGR)
- 1 **aluminium support**, unit of measure expressed in linear meters (type SAC25 – SAL25 – SAI25 for edge fastening)
- 1 **Primer** bottle (10ml) code PR
- 1 **Sealant** bottle (10ml) code CY

CONNECTORS

Kit of end caps/connectors type GSB1NCAGKC1AG containing:

KC1AGC | End cap/connector with cable | *Length 3 m*

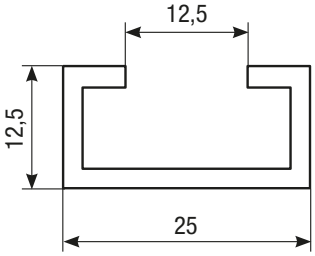
KC1AGR | End cap/connector with resistance



ALUMINIUM SUPPORT FOR EDGE FASTENING

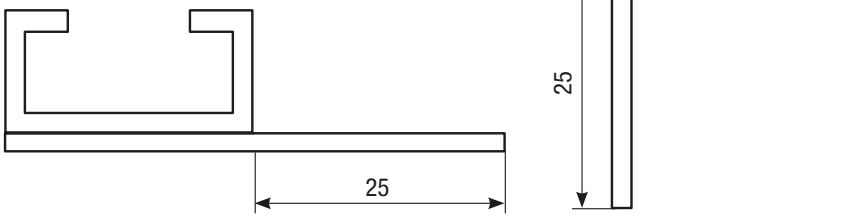
The edge fastening is realised by installing the edge on a suitable aluminium support. Three types of supports are available.

Type “SAC25” | “C”-shaped profile | for edge type B1NC-AG - B1NC-AGB



Type "SAL25" | "L"-shaped profile | for edges type B1NC-AG - B1NC-AGB

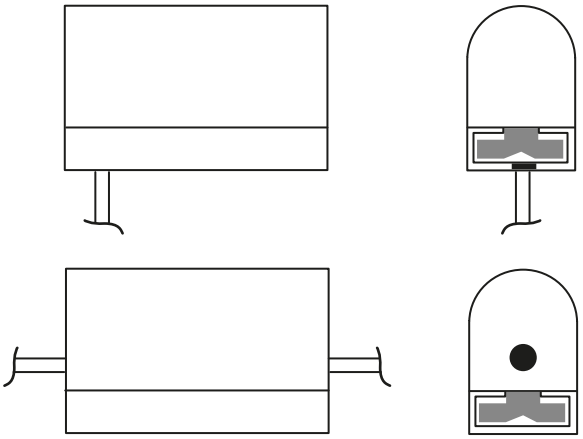
Type "SAI25" | "I"-shaped profile for edges B1NC-AG - B1NC-AGB



SUPPLY CABLE OUTLET

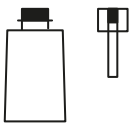
"UI" | Bottom part outlet

"CCCC" | Double outlet

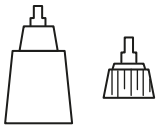


SEALANTS FOR "DO-IT-YOURSELF" EDGES

"GSBPR" | Primer bottle (10ml) type PR



"GSBCY" | Sealant bottle (10ml) type CY



HOW TO ORDER AN EDGE TYPE "B1NC-AG" AND "B1NC-AGB" (ASSEMBLED)

Code

1NCAG = Edge type B1NC-AG

GSB = Gamma System Edge

R = End cap/connector with resistance
C = End cap/connector with cable

G S B 1 N C A G L _ _ _ _ C _ X X

XX = Standard versions
X1 = Special versions

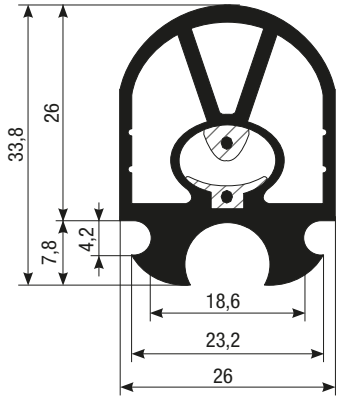
L = Length (mm)

C = End cap/connector with cable

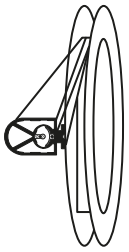
1NCAGB = edge type B1NC-AG

G S B 1 N C A G B L _ _ _ _ C _ X

SENSITIVE EDGE TYPE “B2C”



Roll of 25 m



“DO-IT-YOURSELF” VERSION

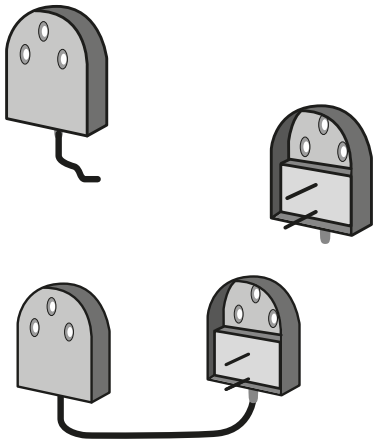
Please order the single components according to the following this pattern:
- 1 Pack of **profile B2C** (standard roll of 25 m)
- 1 **kit end cap/needle connectors** type KC2 (1 end cap/connector with electric cable type KC2C + 1 end cap/connector with resistance type KC2R)
- 1 **aluminium support** with unit of measure expressed in linear meters (type SAC29 – SAL29 – SAI29 for edge fastening)
- 1 **Primer** bottle (10ml) code PRR
- 1 **Sealant** bottle (10ml) code CY

CONNECTORS

KC2C | End cap/connector with cable | *Length 3 m*

KC2R | End cap/connector with resistance | *Pack of 2 pcs.*

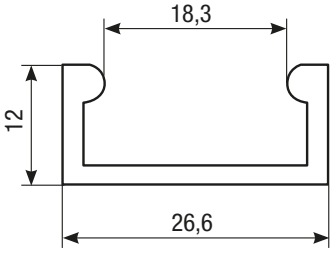
Double end cap/connector with cable | *Length 0.4 meters*



ALUMINIUM SUPPORT FOR EDGE FASTENING

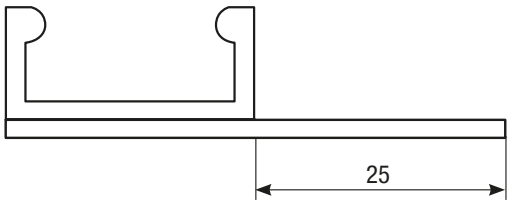
The edge fastening is realised by installing the edge on a suitable aluminium support. Three types of supports are available.

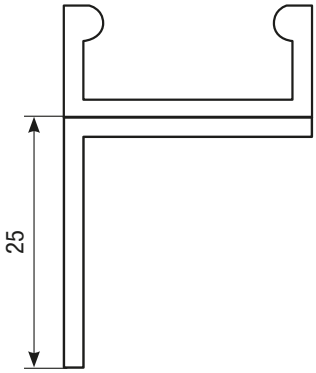
Type “SAC29” | “C”-shaped profile | for edges type B2C



Type "SAL29" | "L"-shaped profile | for edges type B2C

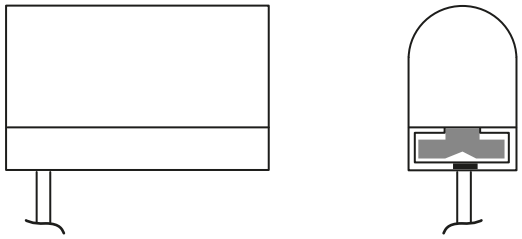
Type "SAI29" | "I"-shaped profile for edges type B2C



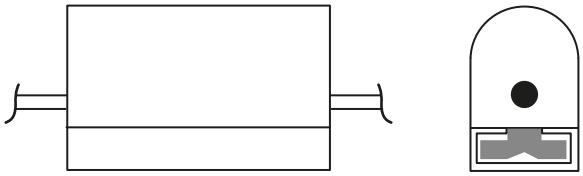


SUPPLY CABLE OUTLET

"UI" | Bottom side outlet

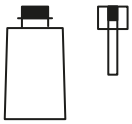


"CCCC" | Double outlet

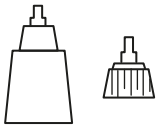


SEALANTS FOR "DO-IT-YOURSELF" EDGES

"GSBPR" | Primer bottle (10ml) type PR

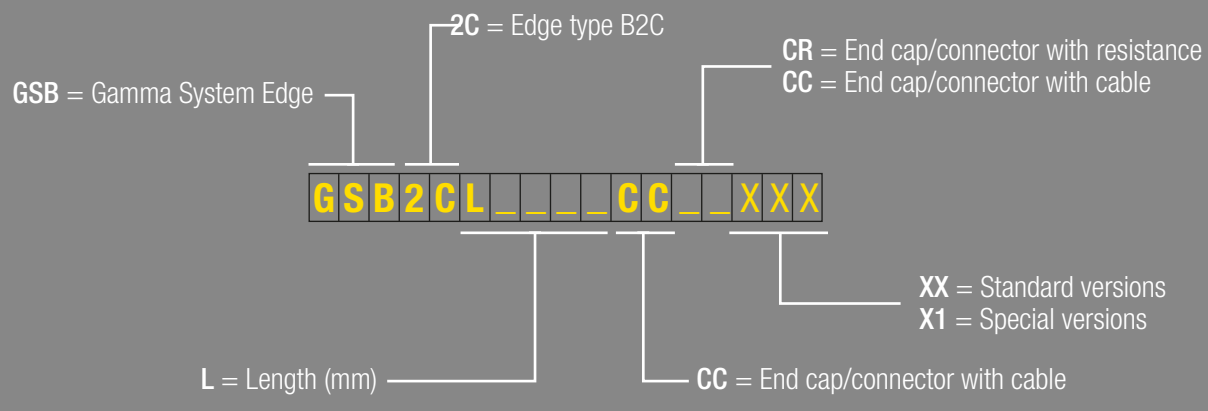


"GSBCY" | Sealant bottle (10ml) type CY



HOW TO ORDER AN EDGE TYPE "B2C" (ASSEMBLED)

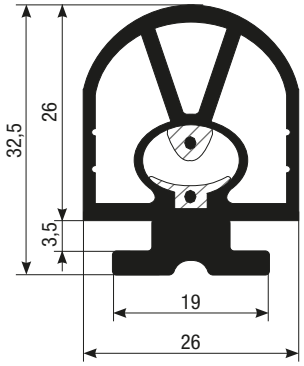
Code



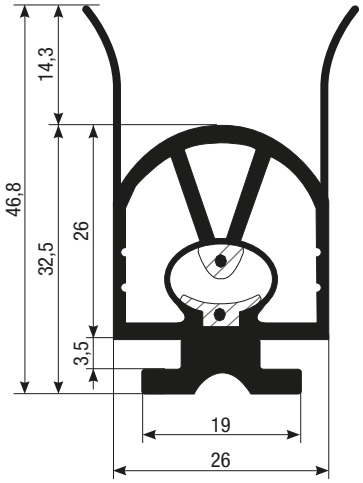
SENSITIVE EDGE TYPE “B2C-AG” AND B2C-AGB”

The edge type B2C-AG differs from type B2C in the anchoring foot, which has been studied to make it interchangeable with most of profiles on the market, and for its completion accessories.

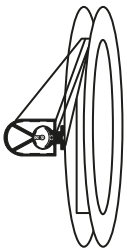
TYPE B2C-AG
Universal foot



TYPE B2C-AGB
with lips and
universal foot



Roll of 25 m



ROLL OF 25 M

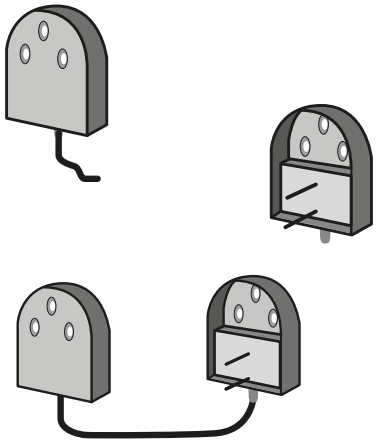
Please order the single components according to the following this pattern:
- 1 Pack of **profile type B2C-AG or B2C-AGB** (standard roll 25 meters)
- 1 **Kit end cap/needle connectors** type KC2 (1 end cap/connector with electric cable type KC2C + 1 end cap/connector with resistance type KC2R).
- 1 **aluminium support** with unit of measure in linear meters (type SAC25 – CAL25 – SAI25 for edge fastening)
- 1 **Primer** bottle (10ml) code PR
- 1 **Sealant** bottle (10ml) code CY

CONNECTORS

KC2C | End cap/connector with cable | *Length 3 meters*

KC2R | End cap/connector with resistance | *Pack of 2 pcs.*

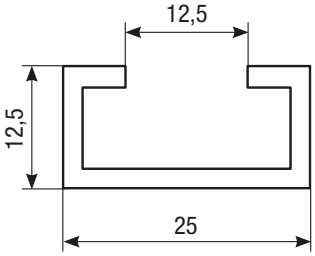
Double end cap/connector with cable | *Length 0.4 meters*



ALUMINIUM SUPPORT FOR EDGE FASTENING

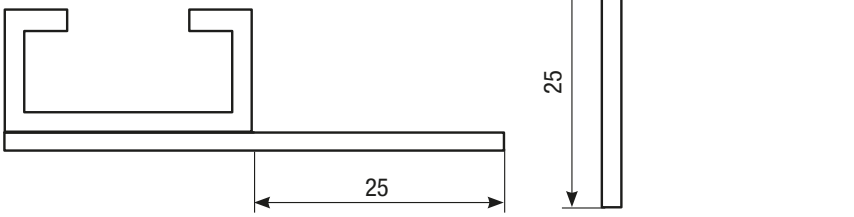
The fastening is carried out by installing the edge on a suitable aluminium support.
Three types of support are available.

Type “SAC25” | “C”-shaped profile | for edges type B2C-AG - B2C-AGB



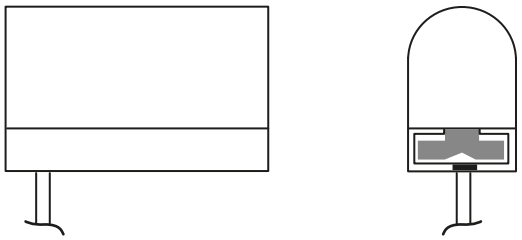
Type "SAL25" | "L"-shaped profile | for edges type B2C-AG - B2C-AGB

Type "SAI25" | "I"-shaped profile for edges type B2C-AG - B2C-AGB

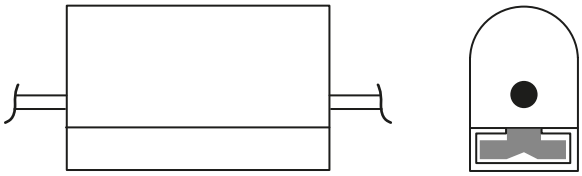


SUPPLY CABLE OUTLET

"UI" | Bottom side outlet

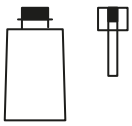


"CCCC" | Double outlet

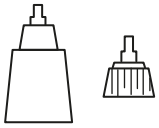


SEALANTS FOR "DO-IT-YOURSELF" EDGES

"GSBPR" | **Primer** bottle (10ml) type PR



"GSBCY" | **Sealant** bottle (10ml) type CY



HOW TO ORDER AN EDGE TYPE "B2C-AG" AND "B2C-AGB" (ASSEMBLED)

Code

2CAG = Edge type B2C-AG

GSB = Gamma System Edge

R = End cap/connector with resistance
C = End cap/connector with cable

G S B 2 C A G L _ _ _ _ C _ X X X

XX = Standard versions
X1 = Special versions

L = Length (mm)

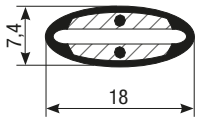
C = End cap/connector with cable

2CAGB = Edge type B2C-AGB

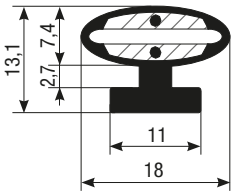
G S B 2 C A G B L _ _ _ _ C _ X X

SENSITIVE EDGE TYPE “BOC” AND “BOC-AG”

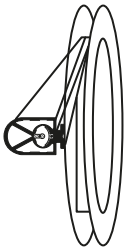
TYPE BOC



TYPE BOC-AG
Universal foot



Roll of 100 m



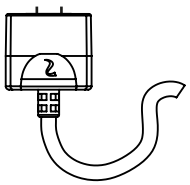
N.B. Upon request the sensitive edge can be supplied in conformity with the EN 45545-2-2013+A1:2015 Standard.

“DO-IT-YOURSELF” VERSION

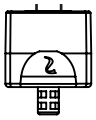
Please order the single components according to the following pattern:
- 1 Pack of **profile BOC** (standard roll of 100 meters)
- 1 **kit end cap/needle connectors** type KCDAG (1 end cap/connector with resistance type KCOAGR + 1 end cap/connector with electric cable type KCOAGC)
- 1 **aluminium support** with unit of measure expressed in linear meters (type SAC15 for edge fastening type BOC-AG)
- 1 **Primer** bottle (10ml) code PR
- 1 **Sealant** bottle (10ml) code CY

CONNECTORS

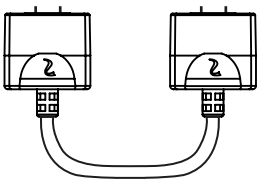
KCOC | End cap/connector with cable | *Length 3 m*



KCOR | End cap/connector with resistance | *Pack of 2 pcs.*



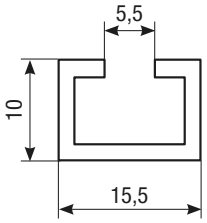
Double end cap/connector with cable | *Length 0.17 m or 0.5 m*



ALUMINIUM SUPPORT FOR EDGE FASTENING

The fastening of the edge type BOC-AG is carried out by installing the edge on a suitable aluminium support.

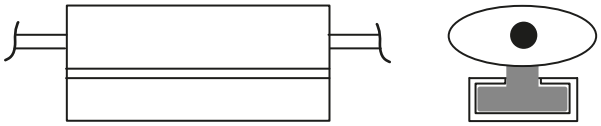
Tipo “SAC15” | “C”-shaped profile | for edge type BOC-AG



SUPPLY CABLE OUTLET

"UT" | Head outlet

"CCCC" | Double cable outlet

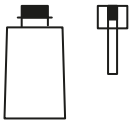


CABLE

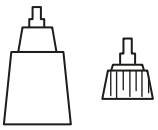
S: *CS - Standard Cable*, **2x0.35 mm²** 3 m in length, FROR 300/500
_ _: For lengths other than the standard one, please indicate the cable length e.g.10 m = **C10**.

SEALANTS FOR "DO-IT-YOURSELF" EDGES

"GSBPR" | **Primer** bottle (10 ml) type PR



"GSBCY" | **Sealant** bottle (10 ml) type CY



HOW TO ORDER AN EDGE TYPE "BOC" AND "BOC-AG" (ASSEMBLED)

Code

OC = Edge type BOC
GSB = Gamma System Edge
CR = End cap/connector with resistance
CC = End cap/connector with cable

G S B O C L _ _ _ _ C C _ _ X X X

XX = Standard versions
X1 = Special versions
L = Length (mm)
CC = End cap/connector with cable

OCAG = Edge type BOC-AG

G S B O C A G L _ _ _ _ C C _ _ X

TECHNICAL FEATURES - **SENSITIVE EDGES**

Sensor	Type B1NC - Type B1NC-AG			Type B2C - Type B2C-AG		
Max operating angle α	90°					
Pre-run (test piece Ø 80 - 100 mm/sec) [mm]	5.05			5.40		
Overrun (test pieces Ø 80 - 10 mm/sec)	15.64 mm at 250N 17.94 mm at 400N 20.24 mm at 600 N			3.28 mm at 250N 4.18 mm at 400N 6.88 mm at 600N		
Max operating force (test piece Ø 80 - 100 mm/sec)	146 N (-15°C)			84 N (-15°C)		
Max response time with Gamma System control units [ms]	50			54		
Material	TPE (black colour)					
Length*	Mounted version, max 6 m or 25 m-long roll					
Max length of sensor [m]	25 (can be controlled via control unit)					
Weight [kg/m]	0.6			0.4		
Mounting orientation	All					
Fastening material	Aluminium profile standard Length = 6 m					
Dimensions of non-sensitive surface	40 mm from each end					
Operating temperature	+5°C to +55°C					
Storage temperature	+5°C to +55°C					
Chemical resistance	*See User Manual*					
Max applicable thrust [N]	500					
Degree of protection (EN 60529)	IP65					
Power cord**	2x0.35 mm^2					
Output contact	N.O.					
Max. length of connection cables [m]	100					
Rated supply voltage	24 Vdc					
Max contact voltage [V]	30					
Max contact current [mA]	30					
B_{10D} sensor	192000					
T_{10D} [years] Control unit	> 20					
Part of human body which can be detected***	Hand, limb, body					
Reference standard	EN ISO 13856-2:2013; EN ISO 13849-1; EN 12978:2009					
Safety Parameters: Sensor + Control Unit	**Sensor + GP02R**	**Sensor + GP02R-C**	**Sensor + GP04R**	**Sensor + GP02R**	**Sensor + GP02R-C**	**Sensor + GP04R**
Category	3					
PL	d					
PFH_D [1/h]	$8.58*10^{-8}$		$9.29*10^{-8}$	$8.58*10^{-8}$		$9.29*10^{-8}$
No. of operations/year****	9000					
Usage categories	AC15 (230) 4A	AC15 (230) / DC13 (24) 3A	DC13 0.4A	AC15 (230) 4A	AC15 (230) / DC13 (24) 3A	DC13 0.4A
EC Declaration	16CMAC0044			16CMAC0045		
Other European Directives						
2012/19/UE	RAEE					
2011/65/UE	ROHS					
Regulation (EC) n°1907/2006	REACH					

** The maximum length for the edge assembled is 6000 mm. For longer lengths they can be split into more parts and then connecting the sensors in series between them.*

*** For length over 20 meters, use wires with section of 1 mm^2*

**** Not suitable to detect fingers.*

***** Considered the maximum number of operations.*

TECHNICAL FEATURES - **SENSITIVE EDGES**

Sensor	Type BOC		Type BOC-AG
Max operating angle α	90°		
Pre-run (test piece Ø 80 - 100 mm/sec) [mm]	1.9		
Overrun (test piece Ø 80, 10 mm/sec)	3 mm at 250 N 3.3 mm at 400 N 4.3 mm at 600 N		
Max operating force (test piece Ø 80, 10 mm/sec) [N]	140		
Response time with Gamma System control units [ms]	< 54		
Material	TPE (black colour)		
Length*	Roll of 100 m		Mounted version, max 6 m or roll of 100 m
Max length of sensor [m]	25 (can be controlled via control unit)		
Weight [kg/m]	0.08		0.12
Fastening Material	NA		Aluminium profile - standard L = 6 m
Dimensions of non-sensitive surface	2 mm from each end		
Operating temperature	+5°C to +55°C		
Storage temperature	+5°C to +55°C		
Chemical resistance	*See User Manual*		
Max applicable thrust [N]	500		
Degree of protection (EN 60529)	IP65		
B_{10D} sensor	200000		
T_{10D} [years] Control unit	20		
Power cord**	2x0.25 mm^2		
Output contact	N.O.		
Max length of connection cables [m]	100		
Rated supply voltage	24 Vdc		
Part of human body which can be detected ***	Hand, limb, body		
Reference standard	EN ISO 13856-2:2013; EN ISO 13849-1; EN ISO 12978:2003+A1:2009		
Safety Parameters: Sensor + Control Unit	**Sensor + GP02R**	**Sensor + GP02R-C**	**Sensor + GP04R**
Category	3		
PL	d		
PFH_D [1/h]	$8.58*10^{-8}$		$9.29*10^{-8}$
No. of operations/year ****	10000		
Usage categories	DC13 1 A	AC15 (230)/DC13 (24) 3A	DC13 0,4A
Response time with control unit (test piece Ø 80, a 100 mm/s, T20°C) [ms]	23		
EC Declaration	20CMAC0015		
Other European Directives			
2012/19/UE	RAEE		
2011/65/UE	ROHS		
Regulation (CE) n°1907/2006	REACH		

** The maximum length for the sensor assembled is 6000 mm. For longer lengths they can be split into more parts by connecting in series the sensors between them.*

*** For length over 20 meters, use wires with section of 1 mm^2*

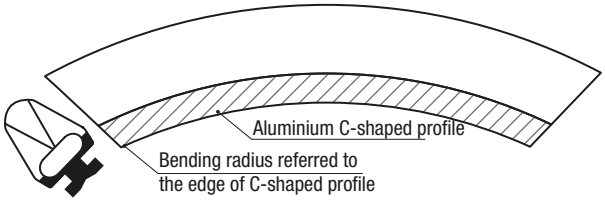
**** Not suitable to detect fingers.*

***** Considered the maximum number of operations.*

SPECIAL WORKS

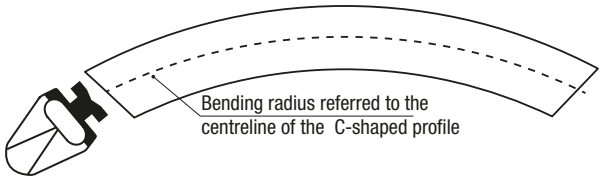
All edges listed can be supplied in curved version with minimum bend radius of 500 mm.

Figure "A" | For edges type "B1NC" - "B1NC-AG" - "B2C" - "B2C-AG"



Side view

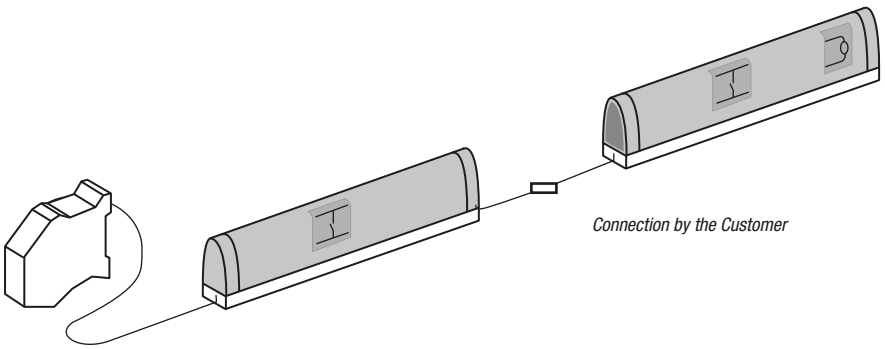
Figure "B" | For edges "B1NC" - "B1NC-AG" - "B2C" - "B2C-AG" - "B0C" - "B0C-AG"



Top view

Attention: Figure "A" and Figure "B" not executable together on the same profile

CONNECTION IN SERIES OF 2 OR MORE RESISTIVE EDGES 8.2Ω



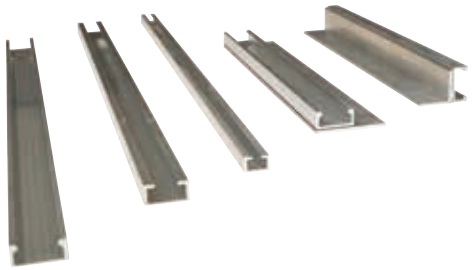
In case of two or more resistive sensors connected "IN SERIES", in order to ensure correct connection, the first sensor shall be provided with the input and output cable and the last sensor of the series with the input cable and final resistance (see figure).

In case of "DO-IT-YOURSELF" version, the following accessories shall have to be provided for connecting in series more resistive sensors.
Example of order for connecting two sensors:

- For type **B1NC**:
  3 needle connectors with cable type KCC (code GSB1NKCC)
  1 needle connector with resistance type KCR (code GSB1NKCR)
  2 packs of closing end caps type TC1 (code GSB1NCTC1)

- For type **B2C**:
  3 needle connectors with cable type KC2C (code GSB2CKC2C)
  1 needle connector with resistance type KC2R (code GSB2KC2R)

- For type **B0C**:
  3 needle connectors with cable type KC0C (code GSB0CKCC)
  1 needle connector with resistance type KC0R (code (code GSB0CKCR)

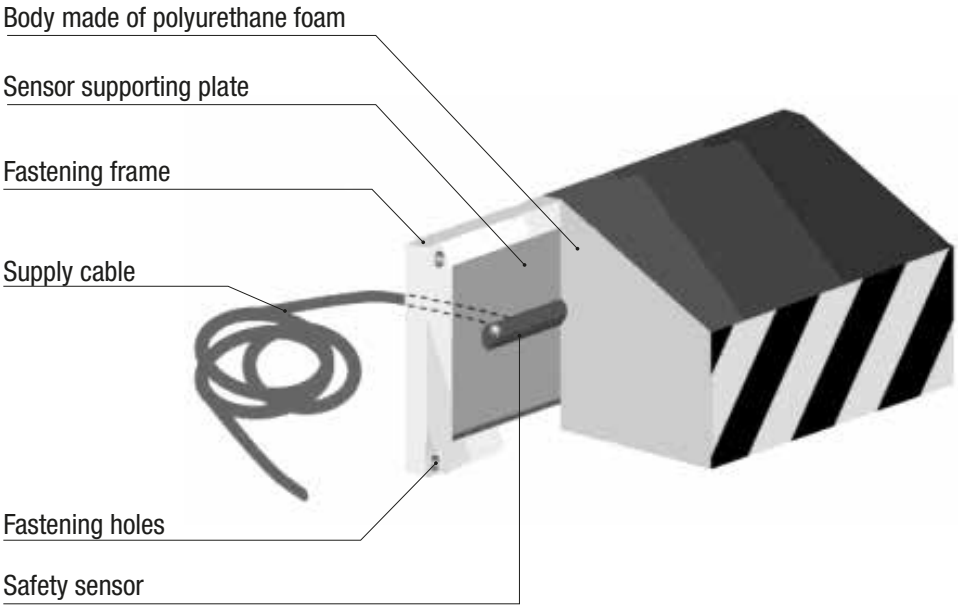


SAFETY BUMPERS

The pressure-sensitive safety bumper is used to protect personnel from collision against vehicles or moving parts of an industrial machine such as AGV, stacker cranes, wire-guided vehicles, automatic warehouses, etc…
When minimum compression is applied to the bumper, after a pre-run, the internal contact of the sensor closes and changes its state (from NO to NC). The “control unit” immediately emits a stop signal indicating that a change in the sensor state has occurred and removes the hazardous situation.
After the pre-run, the bumper still allows for a compression called “overrun”, which varies according to the bumper depth, and such to further soften the impact.

Bumpers are made of polyurethane foam glued to a fastening frame and covered with protective fabric. A pressure-sensitive sensor, called “sensor”, is housed inside the bumper.

Bumpers are available with standard maximum length of 3 m. For other lengths, they can be split into several parts (request to be indicated when ordering). *Other shapes and dimensions available upon request.*

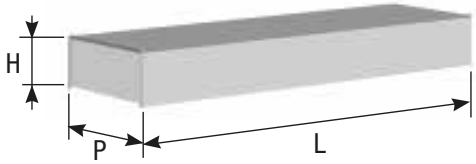


The bumper is equipped with a 4-pole outlet cable, 4x0.35mm2 FROR 300/500 – standard length 3 m.

STANDARD SHAPES

GSBPS 01 | Rectangular bumper

Standard section
H = 100 mm P = 200 mm

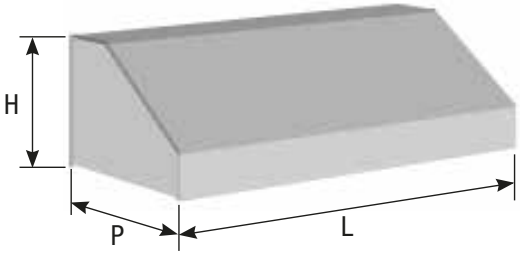


GSBPS 02 | Tapered bumper

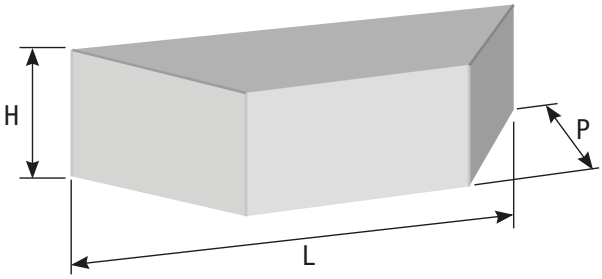
Standard section
H = 200 mm P = 300 mm

GSBPS 03 | Tapered bumper

Standard section
H = 250 mm P = 500 mm



GSBPS 04 | Trapezoidal bumper



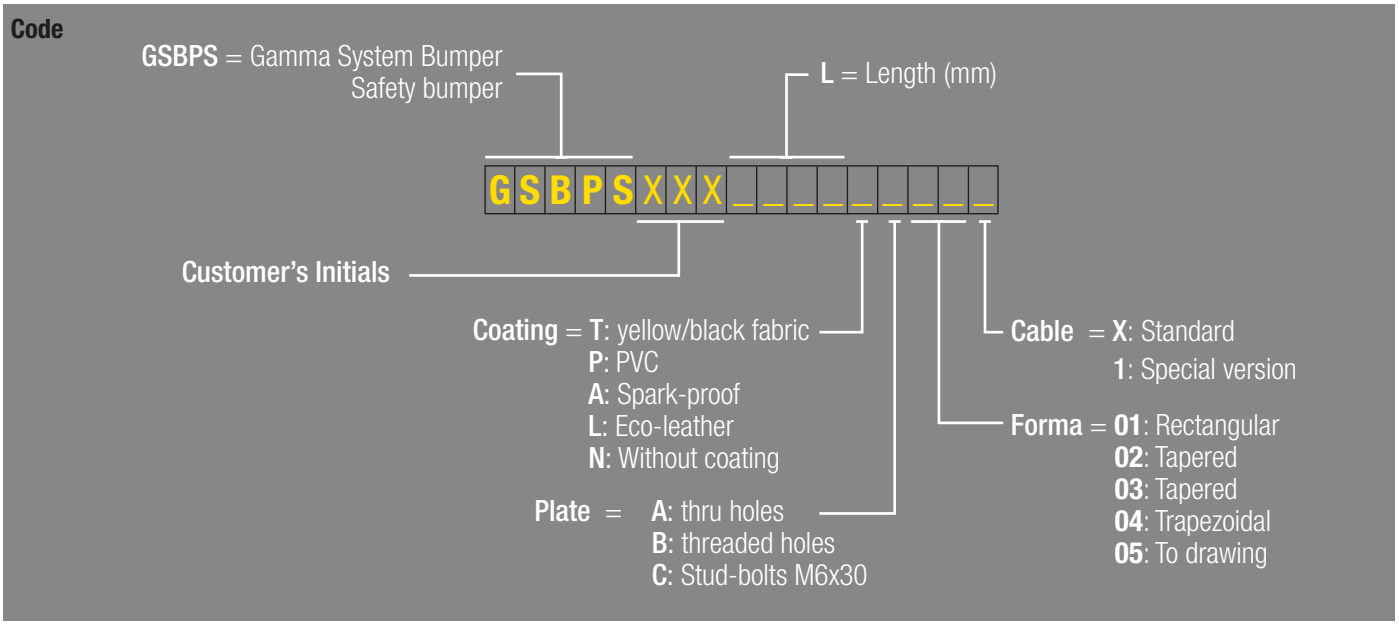
DIMENSIONING OF THE SAFETY BUMPER

To find out the correct depth of the bumper, see the following data:

- **Pre-run** (up to switching point);
  SB = 20% of bumper depth;
- **Overrun** (max. deformation);
  SV = 50% of bumper depth;
- **Non-deformable part: 30% of bumper depth.**

The choice of bumper depth shall be made taking into consideration the stop space and the required **SV** overrun.

HOW TO ORDER THE SAFETY BUMPER



INFORMATION REQUIRED FOR COMPLETING THE BUMPER

When ordering, please always consider the following:

- Supply a **drawing** of the bumper and specify **length, height and depth** in mm.
- Specify the **type** of **coating** material;
- Specify the **type of plate** for fastening to the machine;
- Specify the **cable length** if other than the standard one.

COATING

Four types are available:
T - Black fabric with yellow stripes (standard coating)
P - PVC
A - Spark-proof (fireproof coating or coating resistant to aggressive products)
L - Eco-leather.

The standard version of the bumper is supplied with black fabric cover and front part with slanted yellow-black stripes. Other colours or cover types indicated above available upon request.

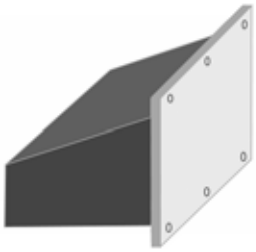
CABLE

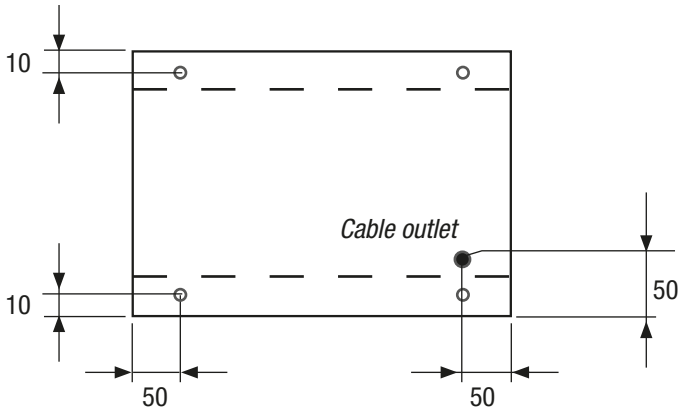
S: *CS - Standard cable*, **4x0.35 mm²** length 3 m - FROR 300/500
_ _: For lengths other than the standard one, please indicate the cable length e.g.10 m = **C10**.

BUMPER FASTENING

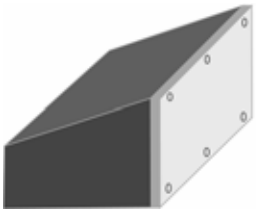
The bumper is mounted to the “machine” by means of a frame-plate which may come in three different configurations:

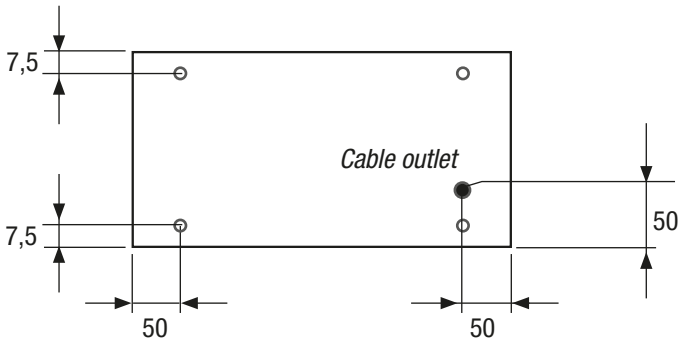
Type “A” Frame-plate which protrudes from the bumper and has Ø 8.5 mm holes for fastening to the machine via screws and bolts.



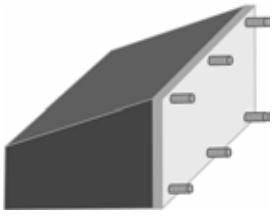


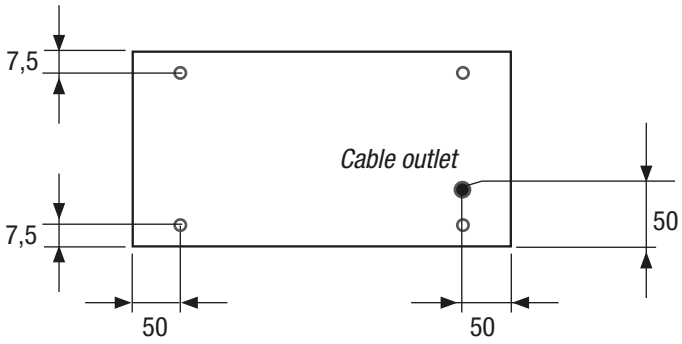
Type "B” Frame-plate flush with the bumper and with threaded holes (specify when ordering) for fastening to the inside of the machine via screws.
Version B not recommended for bumpers with PVC coating for outdoor applications.





Type “C” Frame-plate flush with the bumper and with M6 stud bolts, 30 mm long, for fastening to the inside of the machine via bolts.





N.B. For bumpers longer than 500 mm, other additional fastening holes will be drilled (centre distance from one hole and another ≤ 500 mm.

TECHNICAL FEATURES **BUMPER**

	GSBPS01	GSBPS02	GSBPS03
Max activation angle	±45°		
Pre-run (test piece Ø 80, at 100 mm/s)	< 20% of sensor depth		
Overrun (test piece Ø 80, at 100 mm/s)	50% of sensor depth		
Non-deformable part	30% of sensor depth		
Max activation force (test piece Ø 80, at 10 mm/s) [N]	32	56	24
Max activation force (test piece Ø 80, at 100 mm/s) [N]	48	56	32
Max admissible load [N]	500		
Max length of sensor* [mm]	3000		
Weight [kg/m]	5,5	8	11
Max operating voltage	24 Vdc		
Power cord**	4x0.35 mm^2 standard length 3 m 4x1 mm^2 length >20 m (max 100 m)		
Output contact	N.O.		
Operating temperature of sensor	-10°C to + 50°C		
Type of coating	Yellow/black fabric, PVC, spark-proof and eco-leather		
Degree of protection (according to EN 60529) of sensor	IP 54***		
B_{10D}	260000		
Part of human body which can be detected****	Hand, limb, body		
Reference standard	EN ISO 13856-3:2013 ; EN ISO 13849-1		
Safety Parameter - Sensor + control unit	**GSBPS0x + GP02/E**	**GSBPS0x + GP02R.T**	**GSBPS0x + GP04T**
Category	3		
PL	d		
PFH_D [1/h]	$8.58*10^{-8}$	$8.58*10^{-8}$	$9.29*10^{-8}$
No. of operations/year*****	12000		
Usage category	AC1 – 3 A DC13 – 1.5 A	AC15 (230) – 1.2 A	DC13 – 0.4 A
T10D [years] control unit	20	20	-
EC Declaration	21CMAC0014		
Other European Directives			
2012/19/UE	RAEE		
2011/65/UE	ROHS		
Regulation (CE) n. 1907/2006	REACH		

** Max length of sensor 3000 mm. For longer lengths, sensors can be divided into several parts and connected in series.*
*** For lengths over 20 m, use wires with section of 1 mm^2.*
**** With welded PVC coating; degree of protection IP65.*
***** Bumpers are not suitable to detect fingers.*
****** Considering the max number of operations. Once the time indicated on the data sheet above has elapsed, contact the Gamma System After-Sales Service.*

Recupero dopo la deformazione:
For a deformation equal to the running stroke equivalent to 250 N applied throughout the 24-hour period, the depth variation is less than 20% after 30s, less than 10% after 5 min and less than 5% after 30 min.

ATEX SOLUTION

ATEX BUMPER

CODE SERIES **GSBPSATEXxxxxxxxx**

Our bumpers type GSTSPATEXxx are “simple apparatuses” intended for use in intrinsically safe systems, according to what specified by the EN 60079-11:2012, art. 5.7 Standard.
The electrical circuits of such apparatuses are incapable of causing an explosion in the surrounding explosive atmospheres and therefore they do not fall into the application field of the European Directive 2014/34/EU (ATEX) (EN 60079-11:2012, Art. 5.7).
The temperature class T6 [IEC-EN 60079-11 – Simple Apparatus Form] has been assigned to the internal contacts of these bumpers. They can be incorporated into intrinsically safe systems with “ia” protection level, for substances belonging to groups IIA, IIB and IIC (gas or flammable vapours) and/or of groups IIIA, IIB and IIC (combustible dusts).

Depending on the types of expected Associated Apparatuses, these systems can feature the characteristics indicated below, in conformity with the EN 60079-0, 60079-11 and 60079-25 Standards and with the essential requests of the European Directive 2014/34/EU (ATEX).

II 2GD Ex ia IIC T6 Gb / Ex ia IIIC T85°C Db

Here below is a short legend / description of the code and peculiarities of the system into which our product may be incorporated.

TYPE OF USE

II = Apparatus / system groups for use in surface industries (no mines).
2 = ATEX category corresponding to "high" protection level.

ZONES OF USE/POSITIONING

Zone 1 - 21 zones with possible risk of explosive atmosphere during the normal operation of the installation / process.
Zone 2 - 22 zones with possible risk of explosive atmosphere ONLY in case of malfunctions or faults of the installation / process.

SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE SUBSTANCES / COMBUSTIBLES

GD: G = Gas/Flammable vapours and D = Combustible dusts.
E.g.: Product protected against the risk of potentially explosive atmospheres.

PROTECTION LEVEL OF INTRINSIC SAFETY

ia: The electric circuit ensures safety when power fed within the defined voltage, current and power limits, under normal working conditions, in the presence of ONE single FAULT and in the presence of TWO simultaneous and independent FAULTS

SUBSTANCES WHICH CAN BE PRESENT WHERE THE PRODUCT IS USED / POSITIONED

Gas or flammable vapors of **IIA**, **IIB** and/or **IIC** Groups.
Combustible dusts of **IIIA**, **IIIB** and/or **IIIC**.

TEMPERATURE CLASS / MAXIMUM SURFACE TEMPERATURE

T6 / 85°C

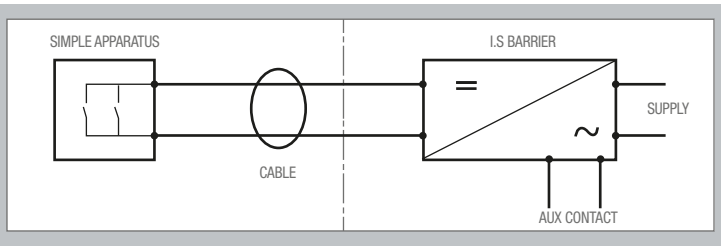
PROTECTION LEVEL OF THE APPARATUS (EPL) / AREAS OF POSSIBLE USE

Gb = high protection level (for gas and/or vapours) – can be used in Zone 1 (and 2)
Db = high protection level (for dusts) – can be used in zone 21 (and 22)

The product is to be incorporated in an "intrinsically safe" circuit / system, interfaced to an adequately "Associated Apparatus" (Safety Barrier) for managing the electric contacts (such as for example our product type D5030S – D5030D) built in a "safe zone" / or internally to an "explosion proof Ex d" enclosure, adequately certified.

WARNING: In order to avoid the accumulation of electrostatic charges, the 4 parts which form the aluminium frame **must** have equipotential bonding and grounded at a point, highlighted by the symbol ⏚.
In case of use of metal plate covering / protecting the safety mat, the plate **must** be grounded at point, highlighted by the symbol ⏚.

HAZARDOUS AREA



SAFE AREA

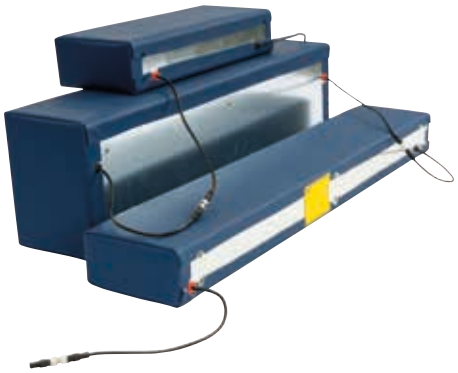
Simple Apparatus (1)		Cable	Barrier (1 – 2 channels)	
Manufacturer: Gamma System S.r.l.		Manufacturer: Lapp Group	Manufacturer: G.M. International S.r.l.	
Type: **GSBPSATEX**		Type: ÖLFLEX® EB CY 300/500 V	Type: **D5030S** (1 channel) or **D5030D** (2 channels)	
Rated electric characteristics Un: 24Vdc – In: up to 30mA		Formation: 4 x 0.75 mm²	Protection mode: **[Ex ia Ga] IIC**	
SAFETY PARAMETERS		Capacity: 160 pF/m(2) Capacity: 250 pF/m(3)	Certified: **BVS 10 ATEX E 113 X**	
Ui: 24 V		Inductance: 0.52 µH/m	Um: 253 V	Uo: 10.5 V
Ii: 30 mA	Pi: N.A.(4)	Length: ≤ 20 m	Io: 22 mA	Po: 56 mW
Ci: negligible	Li: negligible	Total capacity (Cc) = 13.2 nF(5) Total inductance (Lc) = 10.4 µH	Co: 2.4 µF	Lo: 78.3 mH

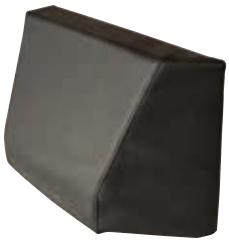
(1) Pressure-sensitive contacts inside the safety mats | (2) Conductor / conductor | (3) Conductor / shielding.
*(4) Coherent with Intrinsic Safety; **Not applicable to simple contacts.***
(5) Considered as "parallel" of 3 capacities: conductor / conductor + 2 x conductor / shielding.

VERIFICATION OF THE SYSTEM SAFETY

$U_i > U_o$: OK **$I_i > I_o$**: OK **$C_i + C_c << C_o$**: OK **$L_i + L_c << L_o$**: OK

Minimum requirement	Requirement satisfied
Ex ib IIC T5 / Ex ib IIIC T100°C	**Ex ia IIC T6 / Ex ia IIIC T85°C**





CONTROL UNIT OR CONTROL DEVICE FOR SAFETY MATS, SAFETY EDGES AND SAFETY BUMPERS

The control unit is an apparatus conceived and used to constantly check proper operation of a sensor (safety mat, safety edge or safety bumper).
Pressure exerted on the sensor causes the output contact of the control device to break.
The control unit constantly verifies good operation of both the sensor and the connecting circuit.
A control device is capable of supervising and controlling several sensors but it cannot perform the self-diagnosis to detect which of the sensors is faulty.
If several sensors are installed, it is a good practice to use one control unit every 3 or 4 sensors.

Models available:
GP02/E
GP02R.T - GP02R.T1
GP04T - GP04R
GP02R and GP02R-C only for edges with electric resistance, 8.2 kΩ

DESCRIPTION

Emergency stop circuit of the sensor used to manage and control the sensor and equipped with two safety relays with forced opening contacts.

The relays, which are usually activated, deactivate if the following conditions arise:

- Power failure
- Activation of the safety mat, edge and bumper.
- Internal faults to the control unit;
- Breaking of the circuit inside the safety mat, safety edge and safety bumpers or interruption of connecting cables between the control unit and the sensor (safety mat, edge and bumper).

The devices are supplied with automatic reset function. Manual reset function also available.
In case the control unit is used without reset function, this option may be supplied through the control system of the machine (please refer to EN 13849-1 Standard).

OPERATION

Two separate channels detect voltage at the ends of sensor terminals (safety mat, edges, bumper) and each channel switches a safety relay with forced opening contacts.

MODELS:

GP02/E GP02R.T (automatic reset) - **G02R.T1** (manual reset)

Supply voltage is limited by a current limiting switch and relevant piloting circuit in order to prevent short-circuit currents to arise during the closing phase of the sensor (safety mat, edge and bumper). The control unit performs a self-control cycle each time a cycle or a putting into operation is executed. Input terminals are provided for:

- Test signal which activates/deactivates the circuit of the control device by stimulating the activation of the sensor and verifying the system efficiency;
- Manual/Feedback reset signal.

The two modules differ in the number of output contacts: model GP02/E has one NO safety contact whereas model GP02/E-S2 and GP02R have two safety NO contacts.

GP04T

Safety unit for 4-wire sensor with 2 static outputs type OSSD (PNP).

GP02R AND GP02R FOR SAFETY EDGES WITH ELECTRIC RESISTANCE 8.2 KΩ

Two symmetrical circuits detect the current circulating in the edge set for the 8.2 KΩ resistance.

When a variation resulting from a fault or an edge activation is detected, the output relays are de-energized. They break the safety contacts.

GP04R

Safety control units for 2-wire resistive sensor, 8.2 KΩ, with 2 static outputs OSSD (PNP).

TECHNICAL FEATURES

	GP02/E	GP02R.T	GP02R 8,2kΩ	GP02R-C 8,2kΩ
PL	e			
Category	3			
PFH_D (1/h)	$4.94*10^{-8}$	$4.94*10^{-8}$	$4.29*10^{-8}$	
No. of operations/year	80000	40000	40000	18000
T_{10D} [years]	9.25*	>20	>20	>20
Usage categories	DC13 – 1.5 A AC1 – 3A	DC13 – 1A	DC13 – 1A	AC15 – 3A DC13 – 3A
Electrical data				
Supply voltage	24 Vdc ± 10%			
Current consumption with sensor activated (24Vdc) [mA]	15			
Current consumption with reset module (24Vdc) [mA]	90	≤ 120	≤ 120	15
Internal protection of power supply	YES (1 A)	YES (280 mA)	YES (280 mA)	
Inputs				
Connectable sensor	4 wires		Resistive 8.2kΩ 2 wires	
Input short-circuit detection	YES			
Input connection interruption detection	YES			
Max length of connection cables [m]	100			
Min section of connection cables	0.35 mm^2 ($1mm^2$ L>20m)			
Max resistance of sensor/s, activated [Ω]	40	100	40	
Voltage applied to inputs	24 Vdc			
Max current (peak value) [mA]	200			
Safety outputs				
Number of safety outputs	1	2	2	
Rated voltage/Max switchable voltage [Vac/Vdc]	250/400	230/300	230/300	
Rated current in AC15 230 Vac/DC13 24 Vdc [A]	64 in DC	1.5 A / 1.2 A	1.5 A / 1.2 A	
Material of standard contacts	AgNi	$AgSnO_2$	$AgSnO_2$	
Rated current in Vdc	24			
Rated power AC/DC VA (50 Hz)/W	-/0.7	-/0.25	-/0.25	
Delay to energizing (reset)	25 ms (typical)	12 ms	12 ms	
Delay to de-energizing (trip)	10 ms (typical)	< 25 ms	17 ms	
Protection against over-current	6 A quick-action / 4 A delayed	4 A quick-action / 2 A delayed		
Mechanical life	10^7			
Signal outputs				
Number of signal outputs	1			
Max operating voltage – Vac	125			
Max operating voltage – Vdc	30			
Max current 110 Vac [A]	0.2			
Max current 24 Vdc [A]	0.5			
Environmental characteristics				
Operating temperature [°C]	0 / +50	-25 / +50	-25 / +50	-25 / +55
Storage temperature [°C]	-20 / +70	-25 / +70		
Max relative humidity	85%			
Degree of protection of terminals	IP20			
Degree of protection of casing	IP30			IP65
Dimensions				
Width [mm]	35	22,5		120
Height [mm]	90	114		75
Depth [mm]	70	99		155
Weight [g]	150	140		410
Material of the casing	ABS	PA66-FR		GW PLAST 75
Installation	On 35 mm Omega rail			By screws
EC Declaration	16CMAC0048	16CMAC0050	16CMAC0049	
Other European Directives				
2012/19/UE	RAEE			
2011/65/UE	ROHS			

TECHNICAL FEATURES

		Type GP04 R	Type GP04 T
PL		e	
Category		3	
Diagnostic covering [%]		86.2	
PFH_D (1/h)		$5*10^{-8}$	
Usage categories		DC13	
Electrical data			
Supply voltage		24 Vdc ± 10%	
Current consumption with sensor activated (24VDC) [mA]		15	
Current consumption with reset module (24VDC) [mA]		15	
Inputs			
Connectable sensor		4 wires	2 wires (resistive)
Input short-circuit detection		Yes	
Input connection interruption detection		Yes	
Max length of connecting cables (m)		100	
Min section of connecting cables		0.35 mm^2 (1mm^2 L>20m)	
Max resistance of sensor/s, activated [Ω]		100	
Voltage applied to inputs		24 Vdc	
Max current (peak value) [mA]		2	
Safety outputs			
Number of safety outputs		2	
Type of outputs mode		Static	
Type of output control		PNP Source	
Rated supply voltage/ Max switchable voltage [Vac/Vdc]		24/30	
Rated current in AC15 230 Vac/DC13 24 Vdc [A]		0.4 DC	
Rated power supply voltage Vdc		24	
Rated power AC/DC VA (50 Hz)/W		-/0.25	
Delay to energizing (reset)		< 10 ms	
Delay to de-energizing (activation)		< 10 ms	
Protection against over-currents		1 A quick-action	
Mechanical life		10^7	
Signalisation outputs			
Number of signalisation outputs		1	
Max operating voltage	Vac	125	
	Vdc	30	
Max current 110Vac [A]		0.2	
Max current 24Vdc [A]		0.5	
Environmental characteristics			
Operating temperature [°C]		-10 / +55	
Storage temperature [°C]		-20 / +70	
Max relative humidity		85%	
Degree of protection of terminals		IP20	
Degree of protection of casing		IP30	
Dimensions			
Width [mm]		22.5	
Height [mm]		98	
Depth [mm]		56,4	
Weight [g]		60	
Material of the casing		PA - UL94V0	
Installation		On Omega rail, 35 mm	
EC Declaration		20CMAC0023	
Other European Directives			
2012/19/UE		RAEE	
2011/65/UE		ROHS	

WIRELESS SAFETY SYSTEM FOR CONDUCTIVE EDGES

TRANSCEIVER INTERFACE

Model SAFESRCT 868 MHz "FM" - INPUT OF SAFETY EDGE SIGNAL 8.2k0

Model SAFEPRC4 - 433 MHz "FM" - INPUT OF SAFETY EDGE SIGNAL NC/8.2k0
Model SAFEPRC8 - 868 MHz "FM" - INPUT OF SAFETY EDGE SIGNAL NC/8.2k0

STATIONARY WIRELESS "TRANSCEIVER" RADIO SAFETY

Model SAFESRCRX 868 MHz "FM" - SAFETY OUTPUTS 2 NC/8.2k0

Model SAFEDECX4 - 433 MHz "FM" - SAFETY OUTPUTS 3 NC/8.2k0
Model SAFEDECX8 - 868 MHz "FM" - SAFETY OUTPUTS 3 NC/8.2k0

CONTROLLABLE SAFETY DEVICES 8
MAXIMUM RANGE 30 m
DEGREE OF PROTECTION IP65
OPERATING TEMPERATURE -20 ... +55°C

RADIOSAFE is made up of high technology appliances, protected by sturdy and easy-to-install enclosures ensuring a high degree of protection against environmental conditions.
The transmission via radio between the "transceiver" interface (safety edge interface) and the stationary "transceiver" eliminates the need that one or more safety edges to be connected to the control unit by wires. This ensures a more manageable and safe application of the safety edge directly onto the gate in movement.
Radiosafeis a highly professional safety device which, in combination with 8.2kΩ safety edges, meets the safety provisions required by ENI ISO 12978:2003+A1:2009 Standard.
The stationary "transceiver" directly connects to the safety edge and is installed on the moving part of the installation.
The transceiver unit is able to manage up to 8 security device via radio and is fitted with 3 safety outputs NC/8.2kΩ settable by jumpers. The interface is protected by a semi-transparent cover which allows verifying the status of the safety devices and the level of battery charge (via LEDs).
Each radio controlled safety device can be associated with one of the three safety outputs by a dip-switch.
The 3V lithium battery (for SAFEPR model) is highly reliable under all weather conditions and ensures a high level of safety and top performance in all environments.
Alkaline battery (for model SAFESFRCT).

Note: The choice of operating frequency for the safety edge should be made after taking into consideration the operating frequency of the other units in the installation.

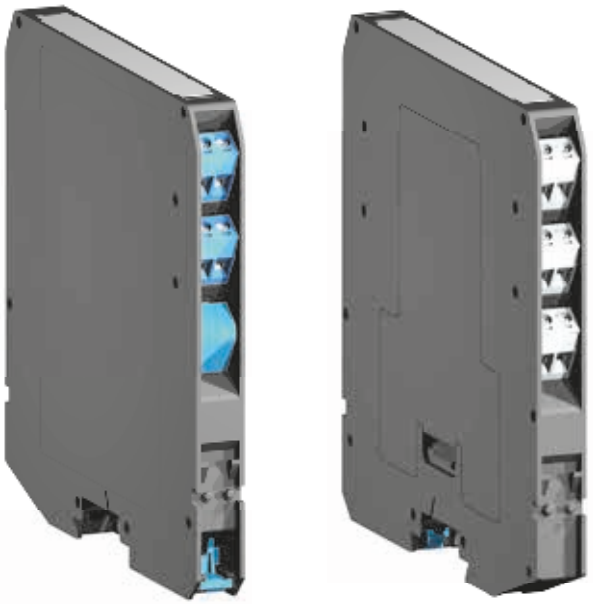
E.g. If the control units are working at 433 MHz, it is good practice to use a safety radio edge that works at 868 MHz and vice-versa.

ATEX
SAFETY BARRIER

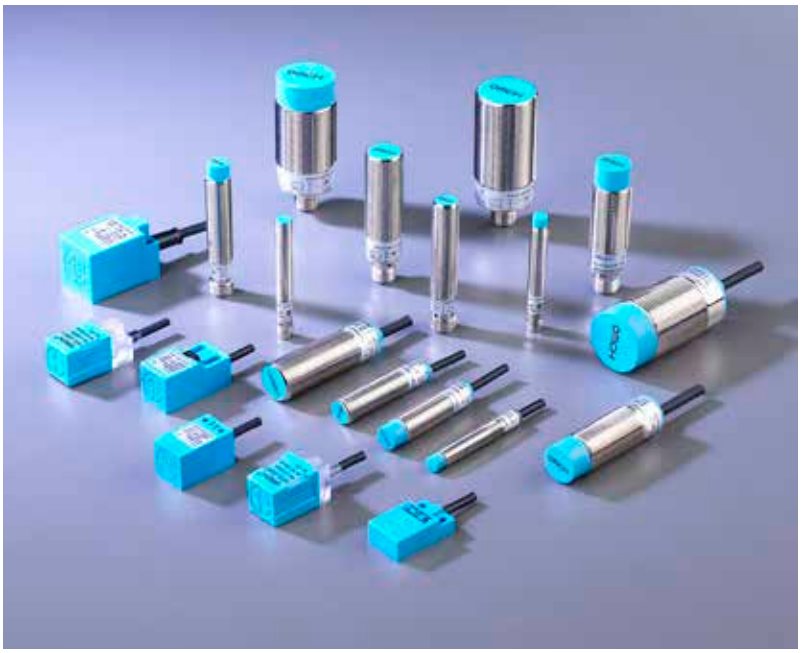
TYPE **D5030 S** (single channel)
TYPE **D5030 D** (double channel)

ATEX SOLUTION

SIL 3 IEC 6/508:2010 ed.2



PROXIMITY SWITCHES AND PHOTOELECTRIC SENSORS



PHOTOELECTRIC BARRIER

NOTES

N. 886

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