

Safety & Security
Systems

CATALOGUE
2016 / 17



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MEDICAL GAS SOLUTIONS



G. Samaras
MEDICAL GAS SOLUTIONS



EMERGENCY LIGHTING

EMERGENCY LIGHTING WITH LEDS

EMERGENCY LIGHTING WITH FLUORESCENT LAMPS

SPECIAL CATEGORIES

■ GENERAL EMERGENCY LUMINAIRE CATEGORIES

NON- MAINTAINED EMERGENCY LUMINAIRES.

These luminaires operate only during an interruption of the mains power supply.

They consist of a charging circuit, rechargeable batteries(usually Ni-Cd), a control circuit and a lamp ignition circuit, if the luminaire contains a fluorescent tube.

MAINTAINED EMERGENCY LUMINAIRES.

Luminaires of this type operate either from the mains power supply and during the interruption of the mains power supply. The same lamp is used for both instances.

They consist of a lamp operation circuit from the mains power supply (usually and electronic ballast), a charging circuit, rechargeable batteries (usually Ni-Cd), a control circuit and an inverter for the lamp, if the luminaire contains a fluorescent tube.

SUSTAINED EMERGENCY LUMINAIRES.

This type of emergency luminaires is identical in operation with the maintained type with the only difference that two lamps are used, one for emergency operation and the other for operation with the mains power supply.

SLAVE EMERGENCY LUMINAIRES.

These luminaires do not contain battery for their operation but depend on external power sources (central battery systems). The slave luminaires are categorized according to their operation voltage. There are models for 12, 24 V AC/DC and 230V AC/DC.

■ NEW TECHNOLOGY EMERGENCY LUMINAIRES

SELF-TESTING «INTELLIGENT» EMERGENCY LUMINAIRES.

This special category incorporates high technology microprocessors monitor basic operation parameters. The intelligent luminaires of olympia electronics monitor and test for:

- Correct charging, internal circuitry operation and the correct battery installation on a continuous basis.
- Correct lamp operation every 15 days.
- Autonomous duration by fully discharging every 6 months

They have three LEDs by which they show their operational state. This permits maintenance personnel with a glance, to know exactly which luminaires require maintenance and what type of maintenance is required. The intelligent luminaires are also available in non-maintained, maintained and sustained types.

ADDRESSABLE EMERGENCY LUMINAIRES.

These types of luminaires operate with the same philosophy as the intelligent type with the main difference that the tests are conducted by commands that are issued by a central control panel, which is programmed by the user as to the type of test and when it will be conducted. The results of every test is stored into the panel's memory and can be seen on the panel's screen or can be printed. The installation and commissioning of such a system is surely more

difficult but offers many advantages and capabilities compared to a system with common emergency luminaires.

CENTRALLY SUPPLIED ADDRESSABLE EMERGENCY LUMINAIRES.

They operate with the same philosophy as the addressable emergency luminaires with the difference that they do not have batteries but are powered and simultaneously monitored by a central control panel. The installations of this type, apart from other things, have very few maintenance requirements because the batteries and all control circuitry are located in the central control panel.

■ INSTALLATION OF EMERGENCY LUMINAIRES

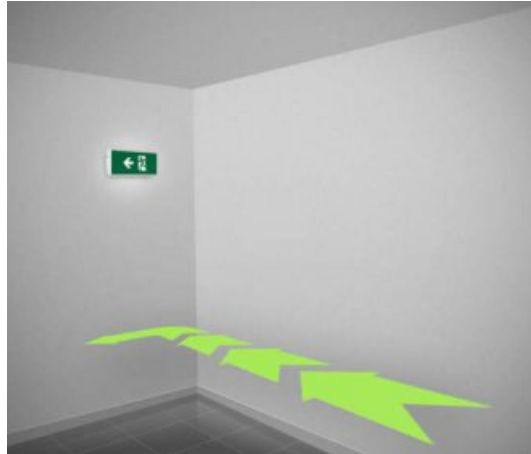
The guidelines below will attempt to give simple and understandable instruction and guides to installers that design, install and commission emergency luminaire systems. These guidelines were based on European requirements.



Emergency luminaires must be mounted in crucial points such as:



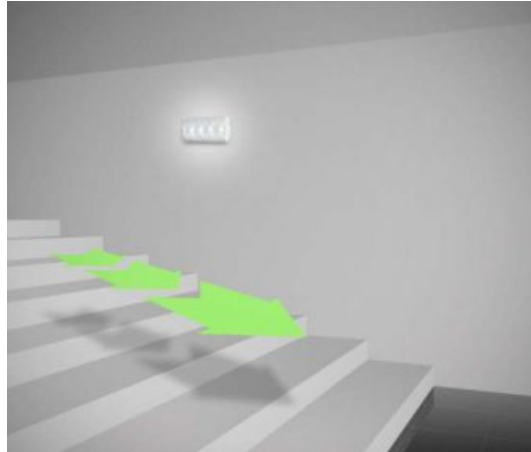
Near corridor crossings.



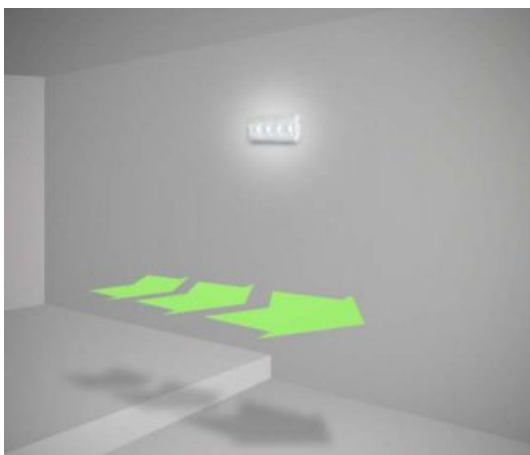
Close to corridor ending where a change of direction is required.



Near Hazard exits.



In stairwells to supply sufficient illumination to each step.



Near each floor level variation.



Near every call point.



Externally or near every final exit.



Near fire-extinguishing gear (e. i. Fire hoses).



Near first aid stations.

On pre-determined escape routes.

Escape routes must be illuminated with a minimum of 1 lux along the central line of the corridor and 0,5 lux after the central line with a width of 1 meter. The spots between the common luminaires must be filled with emergency luminaires in order for the maximum installation distances that are proposed by the manufacturer are not exceeded.

In open or anti-panic areas.

In these areas, the illumination must be 0,5 lux in any point as suggested by European regulations.

Other areas that are not considered escape routes but are required to have emergency luminaires are the following:

- Elevators.
- Rest rooms for the public and people with special needs.
- Control rooms

DURATION OF AUTONOMOUS OPERATION.

The autonomous duration of the emergency luminaires should be such as to permit the safe evacuation of the building in the event of an emergency. The minimum requirement set by Greek regulations is 90 minutes. Health and social welfare buildings (hospitals, clinics, health centers e.t.c) require a minimum of 3 hours.

(The duration of autonomous operation, according to Greek regulations is 90 minutes. In other European countries such as Germany, England and Arabic countries the minimum autonomous duration is 3 hours.)



■ DESIGNING

When designing an emergency luminaire system, the following must be accounted for:

Goal

It is for escape routing or for standby illumination (emergency lighting)

In the case of escape routing illumination we can simply follow the regulations rules, whereas in the case of emergency lighting we must take into account the real illumination requirement needed by a specific area (e.i The security office of a building)

Regulations

The regulations that must be adhered to are specific for each country. In many instances it is seen that regulations regarding even basic emergency luminaires systems are not adhered to. In these cases an installer must think of the probability the he may have to redesign and reinstall the whole system upon demand from local or European fire safety committees.

Design requirements

In order for escape routes to become obvious, indication signs are used where required. Up-to know, signs had words written on then, for example "EXIT". In modern days the signs must contain pictograms according to Euro norm 92/58/. Pictograms are used so that they are understandable by people that do not know the local language.

The signs must comply to Euro Norms EN 1838 where color, size and maximum legible distance are specified signs that are illuminated from an external light source, the legible distance must be 100 times the height of the sign.

Signs that are self-illuminated or are part of an emergency luminaire must have a legible distance that is 200 time the height of the sign.

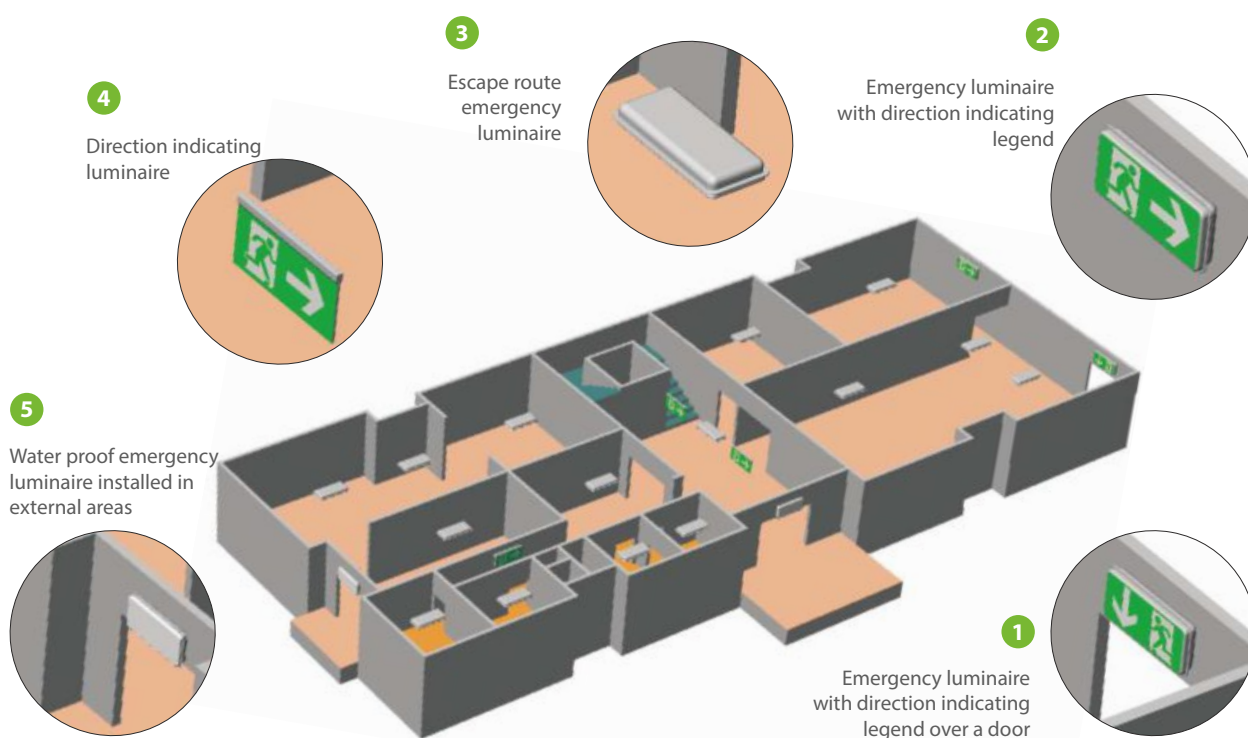


Types of signs according to 105/1995 standards



For example: In a corridor with a length of 20 meters we must install an indication sign with a height of at least 10cm at one end in order for it to be clearly visible in the other end.

■ EXAMPLE OF INSTALLATION OF EMERGENCY AND INDICATION LUMINAIRES



■ LIGHT OUTPUT OF EMERGENCY LUMINAIRES

On the following pages, there are many emergency luminaires that use LEDs as light source. In order to become comprehensible the equivalence between them and the ordinary luminaires that use lamps,

below is a list with the light output of emergency luminaires with fluorescent lamps. The stated light output is the light output produced during emergency operation.

TYPE	LIGHT OUTPUT	POWER FROM BATTERY
Emergency luminaire with lamp 1x6W (T5)	50 lumen	1,9W
Emergency luminaire with 9 LEDs	75 lumen	0,65W
Emergency luminaire with lamp 1x8W (T5)	85 lumen	1,7W
Emergency luminaire with 12 LEDs	100 lumen	0,9W
Emergency luminaire with lamp 2x8W (T5)	170 lumen	3,5W
Emergency luminaire with 24 LEDs	200 lumen	2W
Emergency luminaire with lamp 1x11W (CFL)	150 lumen	3,9W
Emergency luminaire with 21 LEDs	175 lumen	1,75W
Emergency luminaire with lamp 2x20W (Iodine)	580 lumen	28W
Emergency luminaire with 2x42 LEDs	790 lumen	7,5W
Emergency luminaire with lamp 2x55W (Iodine)	2050 lumen	74W
Emergency luminaire with 2x6 Power Leds	3200 lumen	28W





Slim LEDs light



The packaging contains: 12 pcs.
Packaging dimensions (LxWxH): 315x265x205

After order the set of right/left
screw hiding cups for GR-2000
at white: 927200000
at bronze: 927200001

SELF-TESTING MAINTAINED / NON-MAINTAINED LED EMERGENCY LUMINAIRE 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-2000	A	923200000	3,6V/1Ah Ni-Cd	2-7 h	3,8W/8,2VA	125/125 lm	420 gr.

ACCESSORIES

TYPE	CODE	COLOUR	DESCRIPTION
A-2000/W	927200000	White	Set of right / left screw hiding cup for GR-2000, white colour
A-2000/B	927200001	Gold	Set of right / left screw hiding cup for GR-2000, bronze colour

Legends

Self-adhesive legends below can be provided after order



S-2000/
S65L

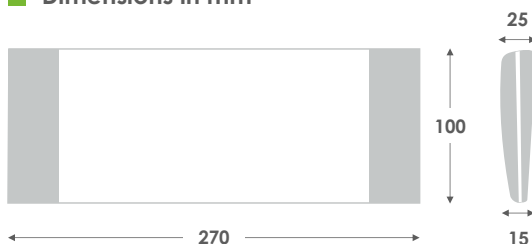


S-2000/
S65R



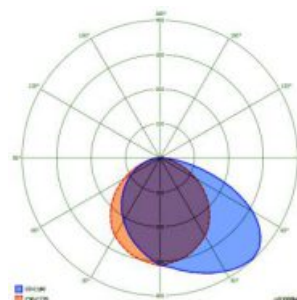
S-2000/
S65D

Dimensions in mm



Photometric data

GR-2000, GR-2000/CBS





Slim LEDs light



The packaging contains: 12 pcs.
Packaging dimensions (LxWxH): 355x300x235



MAINTAINED (OR NON-MAINTAINED) LED EMERGENCY LUMINAIRE 220-240V AC

TYPE	PICTURE	DIFFUSER	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-2100	A	clear	923210000	3,6V/600mAh Ni-Cd	1,5 h	3W / 2,7VA	40/100 lm	
GR-2100/OPAL	B	opal	923210001	3,6V/600mAh Ni-Cd	1,5 h	3W / 2,7VA	38/100 lm	
GR-2110	A	clear	923211002	3,6V/1Ah Ni-Cd	3 h	3,5W / 3VA	40/100 lm	
GR-2110/OPAL	B	opal	923211003	3,6V/1Ah Ni-Cd	3 h	3,5W / 3VA	38/100 lm	

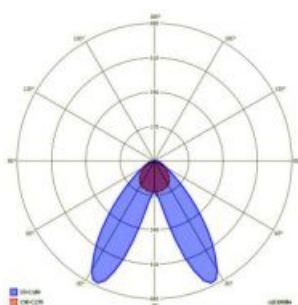
WOODEN BASE

TYPE	CODE	COLOUR
WB-2100/CH	927210000	Cherry
WB-2100/NC	927210001	Natural cherry
WB-2100/WN	927210002	Walnut

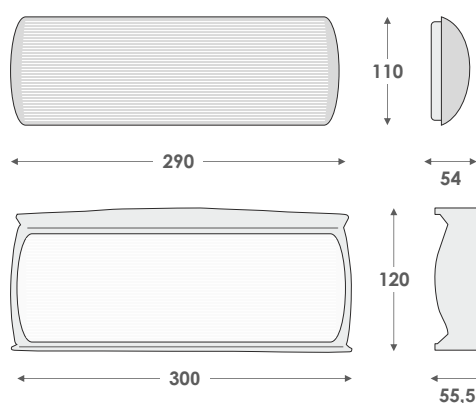


Photometric data

GR-2100



Dimensions in mm



Legends

Self-adhesive legends below can be provided after order



S-21000/S65L S-21000/S65R



S-21000/S65D

For accessories turn to page 146-151

Slim & Classic Light



The packaging contains: 20pcs.(A) 16 pcs.(B) 16 pcs.(C)
Packaging dimensions (LxWxH): 375x270x255mm (A & C) 315x265x205mm (B)

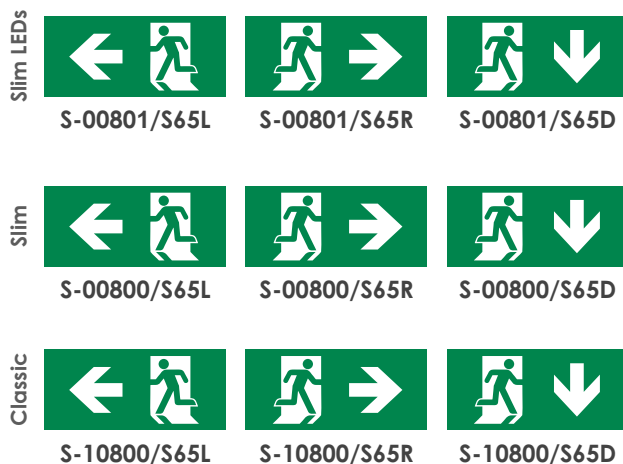


Accessories



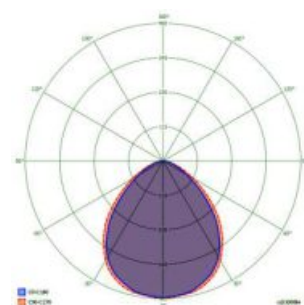
Legends

Self-adhesive legends below can be provided after order



Photometric data

GR-8/leds, GR-9/leds





MAINTAINED / NON-MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-8/leds	A	923378005	3,6V/600mAh Ni-Cd	1,5 h	3VA/2,7W	40/100 lm	390 gr.
GR-9/leds	A	923009007	3,6V/1Ah Ni-Cd	3 h	3,5VA/3W	38/100 lm	410 gr.

MAINTAINED / NON-MAINTAINED LED EMERGENCY LUMINAIRE 220-240V AC WITH REMOTE CONTROL

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-8/leds/R	A	923378006	3,6V/600mAh Ni-Cd	1,5 h	3VA/2,7W	40/100 lm	390 gr.

MAINTAINED LED EMERGENCY LUMINAIRE 42V AC FOR ELEVATORS

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-119/6L/42V	B	923119004	3,6V/1,5Ah Ni-Cd	1,5 h	4,5VA	150/300 lm	680 gr.

MAINTAINED & NON MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-151-3/L*	B	923151004	3,6V/1Ah Ni-Cd	3 h	3W/4 VA	30/75 lm	670 gr.
GR-108/12L/90	B	923108013	3,6V/600mAh Ni-Cd	1,5 h	2,5W/3VA	40/100 lm	630 gr.
GR-109/12L/180	B	923109004	3,6V/1Ah Ni-Cd	3 h	3W/3,5VA	38/100 lm	635 gr.

*Suitable for installation on ships

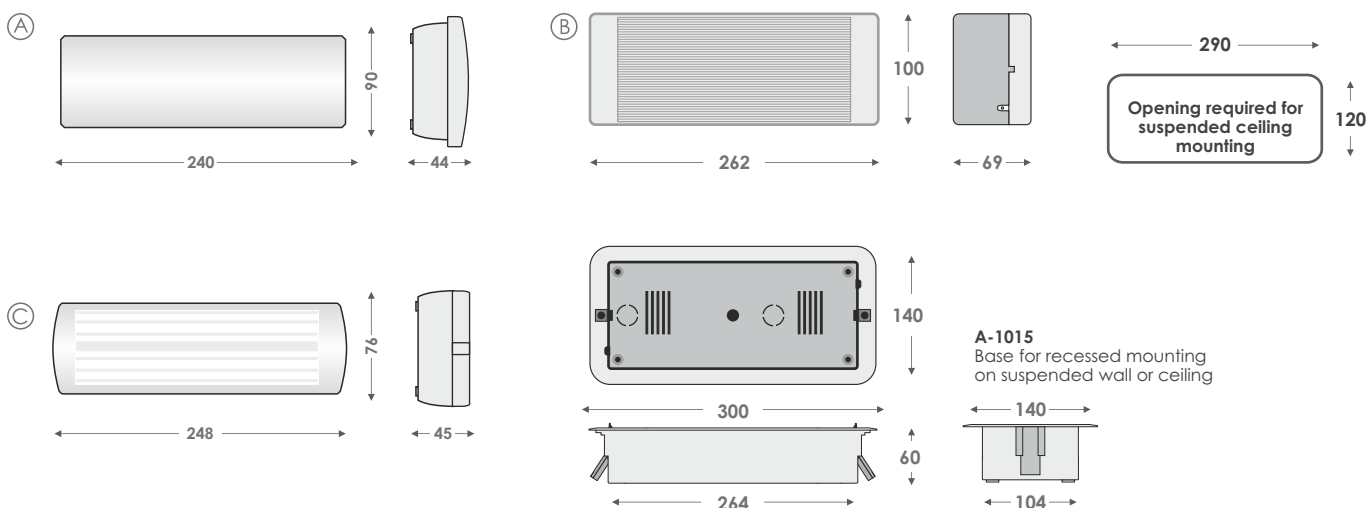
NON-MAINTAINED EMERGENCY LUMINAIRE 220-240V AC WITH FLUORESCENT LAMP

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	WATT	LIGHT OUTPUT	GROSS WEIGHT
GR-8	C	923008000	2,4V/1,5Ah Ni-Cd	1,5 h	3VA	6W	50 lm	465 gr.

ACCESSORIES

TYPE	PICTURE	CODE	DESCRIPTION
A-3008	B	927300800	Base for recessed mounting on suspended ceiling (Slim Light)
A-1015	B	927101500	Base for recessed mounting on suspended wall or ceiling (Classic Light)

Dimensions in mm



(A)



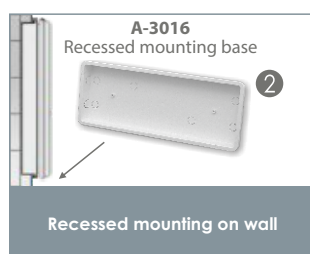
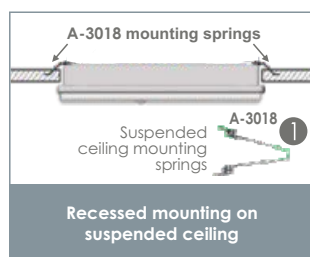
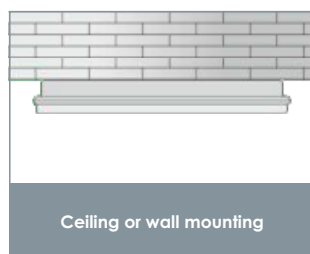
(B)



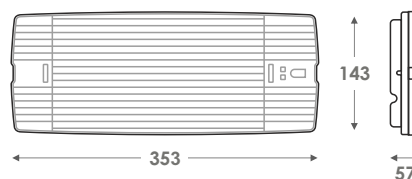
The packaging contains: 16 pcs. (A), 15 pcs. (B),
Packaging dimensions (LxWxH): 430x375x275mm



■ Mounting methods



■ Dimensions in mm



■ Legends

Self-adhesive legends below can be provided after order



S-31101/
S65L



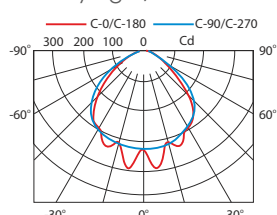
S-31101/
S65R



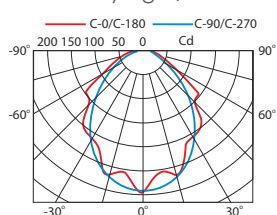
S-31101/
S65D

■ Photometric data

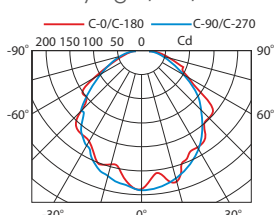
Easy Light/6P



Easy Light/4P



Easy Light/15L/30L




**MAINTAINED / NON MAINTAINED (internal selection - without L1)
 LED EMERGENCY LUMINAIRES 220-240V AC- 50/60 Hz**

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-310/12L/180/A	A	923310048	3,6V/1Ah Ni-Cd	3 h	2,9W/3,2VA	38/100lm	780 gr.
GR-310/12L/90/A	A	923310049	3,6V/600mAh Ni-Cd	1,5 h	2,9W/3,2VA	40/100lm	765 gr.
GR-310/15L/A*	A	923310047	3,6V/600mAh Ni-Cd	1,5 h	2,9W/3,2VA	40/100lm	765 gr.
GR-312/15L/A*	A	923312026	3,6V/1,5Ah Ni-Cd	3 h	3,3VA	30/105 lm	700 gr.
GR-310/30L/A*	A	923310046	3,6V/1,5Ah Ni-Cd	1,5 h	3,6VA	30/105 lm	780 gr.
GR-312/30L/A*	A	923312025	3,6V/3Ah Ni-Cd	3 h	3,5VA	30/210 lm	780 gr.
GR-309/15L/A	A	923309002	3,6V/3Ah Ni-Cd	8 h	4,8VA	30/210 lm	880 gr.

SELF-TESTING MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC- 50/60 Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-315/15L/A*	A	923315024	3,6V/600mAh Ni-Cd	1,5 h	7VA	105/105 lm	740 gr.
GR-316/15L/A*	A	923316020	3,6V/1,5Ah Ni-Cd	3 h	7VA	105/105 lm	810 gr.
GR-315/30L/A*	A	923315025	3,6V/1,5Ah Ni-Cd	1,5 h	7,5VA	210/210 lm	810 gr.
GR-316/30L/A*	A	923316021	3,6V/3Ah Ni-Cd	3 h	8VA	210/210 lm	890 gr.
GR-308/15L/A	A	923308003	3,6V/3Ah Ni-Cd	8 h	7VA	125/125lm	870 gr.
GR-315/4P/A	A	923315026	4,8V/1,5Ah Ni-Cd	1,5 h	11,5VA	150/300 lm	825 gr.
GR-315/6P/A	A	923315027	4,8V/3Ah Ni-Cd	1,5 h	14,5VA	225/450 lm	955 gr.
GR-316/4P/A	A	923316022	4,8V/3Ah Ni-Cd	3 h	13,5VA	150/300 lm	950 gr.
GR-316/6P/A	A	923316023	4,8V/4Ah Ni-MH	3 h	15VA	225/415 lm	995 gr.

NON-MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC- 50/60 Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-310/4P/A	A	923310050	4,8V/1,5Ah Ni-Cd	1,5 h	4VA	300 lm	840 gr.
GR-310/6P/A	A	923310051	4,8V/3Ah Ni-Cd	1,5 h	5VA	450 lm	925 gr.
GR-312/4P/A	A	923312027	4,8V/3Ah Ni-Cd	3 h	5VA	300 lm	925 gr.
GR-312/6P/A	A	923312028	4,8V/4Ah Ni-MH	3 h	6VA	415 lm	975 gr.

NON-MAINTAINED EMERGENCY LUMINAIRE 220-240V AC - 50/60Hz WITH FLUORESCENT LAMP

TYPE	PICTURE	CODE	BATTERY	DURATION	WATT	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-310	B	923310000	2,4V/1,5Ah Ni-Cd	1,5 h	8W	2,5W/3VA	85 lm	845 gr.

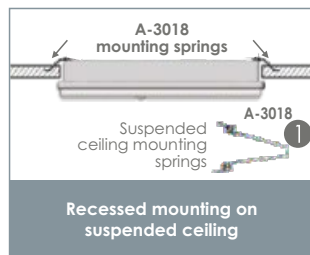
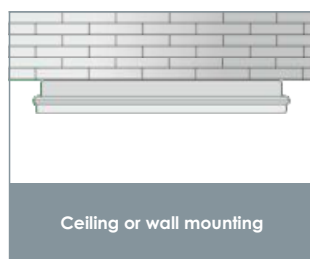
ACCESSORIES

TYPE	PICTURE	CODE	DESCRIPTION	GROSS WEIGHT
A-3016	2	927301600	Recess mounting base	200 gr.
A-3018	1	980330180	Suspended ceiling mounting springs	10 gr.



The packaging contains: 15 pcs.
Packaging dimensions (LxWxH): 385x285x295mm

Mounting methods



Legends

Self-adhesive legends below can be provided after order



S-10800/
S65L

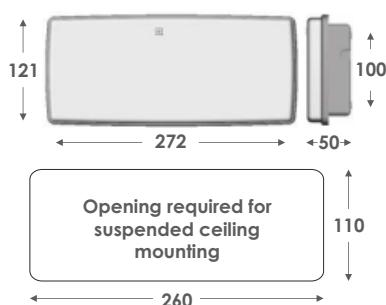


S-10800/
S65R



S-10800/
S65D

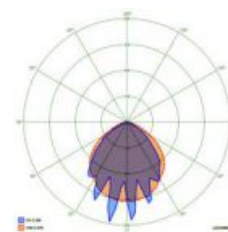
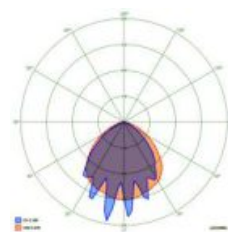
Dimensions in mm



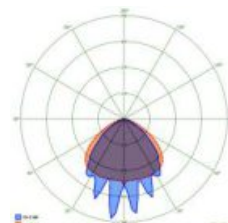
Photometric data

GR-421/3L, GR-423/3L, GR-408/3L,
GR-409/3L, GR-414/3L, GR-414/3L/24V

GR-421/6L, GR-423/6L, GR-408/6L,
GR-409/6L, GR-414/6L, GR-414/6L/24V



GR-421/12L, GR-423/12L, GR-427/12L,
GR-408/12L, GR-409/12L, GR-440/12L,
GR-414/12L, GR-414/12L/24V




SELF-TESTING MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-421/3L	A	923421003	3,6V/1Ah Ni-Cd	1,5 h	7VA	150/150 lm	565 gr.
GR-421/6L	A	923421002	3,6V/1,5Ah Ni-Cd	1,5 h	7VA	150/300 lm	640 gr.
GR-423/3L	A	923423003	3,6V/1,5Ah Ni-Cd	3 h	7,5VA	150/150 lm	635 gr.
GR-423/6L	A	923423005	3,6V/3Ah Ni-Cd	3 h	7,5VA	150/300 lm	705 gr.
GR-421/12L	A	923421007	3,6V/600mAh Ni-Cd	1,5 h	6,5VA	100/100 lm	560 gr.
GR-421/24L	A	923421008	3,6V/1Ah Ni-Cd	1,5 h	7VA	200/200 lm	570 gr.
GR-423/12L	A	923423007	3,6V/1Ah Ni-Cd	3 h	6,5VA	100/100 lm	570 gr.
GR-423/24L	A	923423008	3,6V/2Ah Ni-MH	3 h	7VA	200/200 lm	650 gr.
GR-427/12L	A	923427000	3,6V/3Ah Ni-Cd	8 h	7VA	100/100 lm	690 gr.

NON-MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-408/3L	A	923408004	3,6V/1Ah Ni-Cd	1,5 h	3VA	150 lm	615 gr.
GR-408/6L	A	923408005	3,6V/1,5Ah Ni-Cd	1,5 h	4VA	300 lm	690 gr.
GR-409/3L	A	923409003	3,6V/1,5Ah Ni-Cd	3 h	4VA	150 lm	690 gr.
GR-409/6L	A	923409006	3,6V/3Ah Ni-Cd	3 h	4,5VA	300 lm	755 gr.
GR-408/12L**	A	923408010	3,6V/600mAh Ni-Cd	1,5 h	3VA	100 lm	590 gr.
GR-409/12L**	A	923409007	3,6V/1Ah Ni-Cd	3 h	3,5VA	100 lm	600 gr.
GR-440/12L	A	923440000	3,6V/3Ah Ni-Cd	8 h	4,3VA	100 lm	770 gr.

** Maintained / Non maintained operation (internal selection without L1)

ACCESSORIES

TYPE	PICTURE	CODE	DESCRIPTION	GROSS WEIGHT
A-3018	1	980330180	Suspended ceiling mounting springs	10 gr.

Weather Light

Waterproof emergency luminaires



Ⓐ



The packaging contains: 12 pcs.
Packaging dimensions (LxWxH): 500x375x315mm



■ Mounting methods



■ Legends

Self-adhesive legends below can be provided on request



S-93593/
S65L (705690016)



S-93593/
S65R (705690017)



S-93593/
S65D (705690018)

■ Dimensions in mm



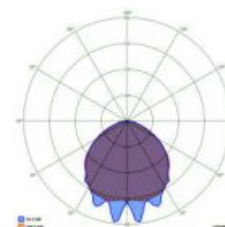
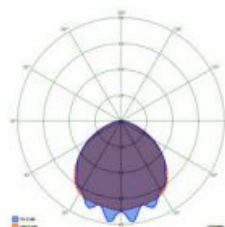
A-1017

All GR-9xx series codes are also produced with aluminum profile with order code: GR-9xx/AL
All GR-9xx series codes can also be provided with plastic double sided diffuser with order code: GR-9xx/A-1017.

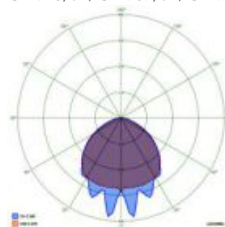
■ Photometric data

GR-938/30L, GR-939/30L, GR-935/30L, GR-936/30L, GR-926/30L, GR-926/30L/24V, GR-938/30L, GR-935/30L, GR-939/30L, GR-926/30L, GR-936/30L, GR-926/30L/24V

GR-938/4P, GR-939/4P, GR-935/4P, GR-936/4P, GR-938/4P/60, GR-938/4P, GR-939/4P, GR-945/4P, GR-936/4P



GR-938/6P, GR-939/6P, GR-935/6P, GR-936/6P, GR-938/6P, GR-312/6P, GR-945/6P, GR-939/6P, GR-936/6P,




WATERPROOF IP65, SELF-TESTING MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-938/15L	A	923938006	3,6V/600mAh Ni-Cd	1,5 h	7,5VA	125/125 lm	980 gr.
GR-938/30L	A	923938007	3,6V/1,5Ah Ni-Cd	1,5 h	8,5VA	250/250 lm	1050 gr.
GR-939/15L	A	923939009	3,6V/1,5Ah Ni-Cd	3 h	6,8VA	125/125 lm	1050 gr.
GR-939/30L	A	923939100	3,6V/3Ah Ni-Cd	3 h	8,2VA	250/250 lm	1130 gr.
GR-938/4P	A	923938003	4,8V/1,5Ah Ni-Cd	1,5 h	8,10VA	150/300 lm	1075 gr.
GR-938/6P	A	923938004	4,8V/3Ah Ni-Cd	1,5 h	8,4VA	225/450 lm	1170 gr.
GR-939/4P	A	923939007	4,8V/3Ah Ni-Cd	3 h	7,7VA	150/300 lm	1170 gr.
GR-939/6P	A	923939008	4,8V/4Ah Ni-Mh	3 h	8,5VA	225/415 lm	1210 gr.
GR-940/15L	A	923940000	3,6V/3Ah Ni-Cd	8 h	7VA	125/125 lm	1135 gr.

WATERPROOF IP65, NON-MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-935/15L	A	923935013	3,6V/600mAh Ni-Cd	1,5 h	3VA	125 lm	1010 gr.
GR-935/30L	A	923935014	3,6V/1,5Ah Ni-Cd	1,5 h	3VA	250 lm	1080 gr.
GR-936/15L	A	923936009	3,6V/1,5Ah Ni-Cd	3 h	3VA	125 lm	1080 gr.
GR-936/30L	A	923936010	3,6V/3Ah Ni-Cd	3 h	4,3VA	250 lm	1175 gr.
GR-935/4P	A	923935010	4,8V/1,5Ah Ni-Cd	1,5 h	4VA	300 lm	1140 gr.
GR-935/6P	A	923935011	4,8V/3Ah Ni-Cd	1,5 h	4,8VA	450 lm	1230 gr.
GR-936/4P	A	923936005	4,8V/3Ah Ni-Cd	3 h	4,8VA	300 lm	1230 gr.
GR-936/6P	A	923936006	4,8V/4Ah Ni-Mh	3 h	5,5VA	415 lm	1270 gr.
GR-941/15L	A	923941000	3,6V/3Ah Ni-Cd	8 h	4VA	125 lm	1175 gr.

WATERPROOF IP65, NON-MAINTAINED EMERGENCY LUMINAIRE 220-240V AC - 50/60Hz WITH FLUORESCENT LAMP

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	ΙΣΧΥΣ ΛΑΜΠΑΣ	LIGHT OUTPUT	GROSS WEIGHT
GR-935	A	923935000	2,4V/1,5Ah Ni-Cd	1,5 h	3VA	8W	85 lm	1060 gr.

**WATERPROOF IP65, SELF-TESTING, LOW TEMPERATURE OPERATING (-20 °C)
MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC (IDEAL FOR REFRIGERATORS & COLD ROOMS)**

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-938/30L/LT	A	923938016	3,6V/2Ah Ni-MH	1,5 h	33VA/31W	250/250 lm	1110 gr.
GR-939/30L/LT	A	923939016	3,6V/4Ah Ni-MH	3 h	35VA/32W	250/240 lm	1220 gr.

PLASTIC DOUBLE SIDED DIFFUSER

TYPE	PICTURE	CODE	DESCRIPTION	GROSS WEIGHT
A-1017	B	927101700	Plastic double sided diffuser	

CEILING BRACKET

TYPE	PICTURE	CODE	DESCRIPTION	GROSS WEIGHT
A-9000	C	927900001	Ceiling Bracket for GR-9xx/xxL	

Weather Light

Supercapacitor waterproof emergency luminaire



Ⓐ



innovation

no use
of batteries

10
years
guarantee



The packaging contains: 12 pcs.
Packaging dimensions (LxWxH): 500x375x315mm



■ Specifications for the new supercapacitor self-testing luminaire

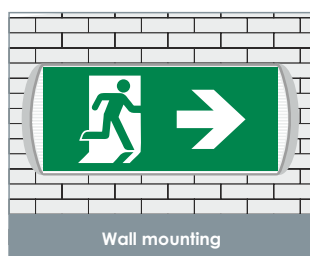
The GR-900/30L/SC has a power pack consisting of super capacitors and not conventional batteries.

It has a total guarantee of 10 years.

It is self-testing with advanced circuits for charging and discharging the capacitors.

It has low consumption and a high Power Factor 0.93.

■ Mounting methods



■ Legends

Self-adhesive legends below can be provided on request



S-93593/
S65L (705690016)



S-93593/
S65R (705690017)



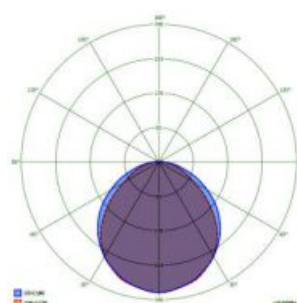
S-93593/
S65D (705690018)

■ Dimensions in mm



■ Photometric data

GR-900/30L/SC



SUPERCAPACITOR, WATERPROOF IP65, SELF-TESTING, MAINTAINED LED EMERGENCY LUMINAIRE 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-900/30L/SC	A	923900000	Supercapacitor	1 h	7W/7,5VA	250 / 95 lm	1250 gr.

Using supercapacitors as energy storage media in place of conventional batteries is the most modern and sophisticated solution in emergency luminaires. Designed for, at least, 10 years of reliable function with much higher number of charging / discharging cycles. It can stand much extreme temperature like -40 °C and 65 °C without serious degradation of its specifications.



Comparing table

	Supercapacitor	Ni-Cd battery	Ni-MH battery
Designed for	>10 years	4 years	4 years
Number of charging / discharging cycles	>500.000	500 - 2000	300 - 1500
Working temperature range	-40 °C to 65°C	0 - 55°C	5 - 55°C

GR-900/30L/SC has advanced microprocessor based circuits for all functioning blocks and sophisticated charging/discharging method that's targeting supercapacitor's longer life.



A-1017

*All GR-9xx series codes are also produced with aluminum profile with order code: GR-9xx/AL
All GR-9xx series codes can also be provided with plastic double sided diffuser with order code: GR-9xx/A-1017.*

Double Easy & Rect light

15-22m

IP20

IP40



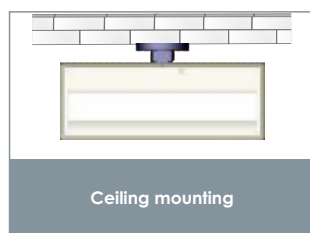
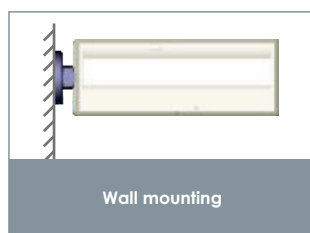
(B)



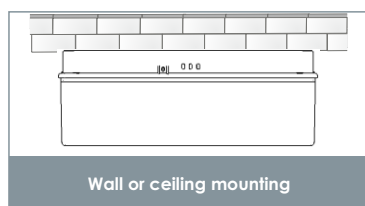
The packaging contains: 9 pcs. (A) 13 pcs. (B)

Packaging dimensions (LxWxH): 500x375x315mm (A) 545x395x345mm (B)

Mounting methods

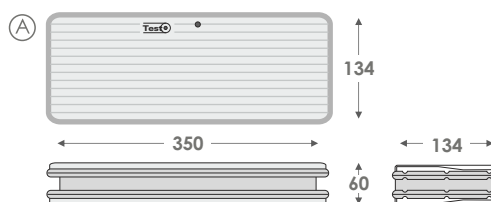


Special accessory used for mounting and installation purposes. This accessory is included in the package. It is fastened on the suitable notches and has space for the connection terminal and cable.



Rect Light luminaires can be mounted on wall or ceiling surface. Special mounting accessories are included in packaging.

Dimensions in mm



Legends

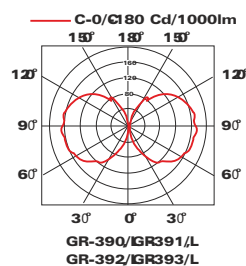
Self-adhesive legends below can be provided after order



Included in packaging (x2)



Photometric data



**NON-MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC**

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-391/L	A	923391000	3,6V/1,5Ah Ni-Cd	1,5 h	3VA	270 lm	1160 gr.
GR-393/L	A	923393000	3,6V/3Ah Ni-Cd	3 h	4,3VA	270 lm	1300 gr.

SELF-TESTING, MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-390/L	A	923390000	3,6V/1,5Ah Ni-Cd	1,5 h	7,5VA	270/270 lm	1165 gr.
GR-392/L	A	923392000	3,6V/3Ah Ni-Cd	3 h	8VA	270/270 lm	1235 gr.
GR-736/21L	B	923736021	3,6V/1,5Ah Ni-Cd	3 h	7VA	175/175 lm	870 gr.
GR-736/6L	B	923736001	3,6V/3Ah Ni-Cd	3 h	7,5VA	150/300 lm	920 gr.

Eco Light



15m



29m



37m

MLD/ZLD-28 MLD/ZLD-34 MLD/ZLD-44

(A)



IP40

Accessory for wall mounting
(included in packaging)

(B)

IP40 - IP42



(C)

IP40



The packaging contains:
20 pcs. (MLD-28, DLD-28) 15 pcs. (MLD-34, DLD-34)
Single package (ZLD-xx)

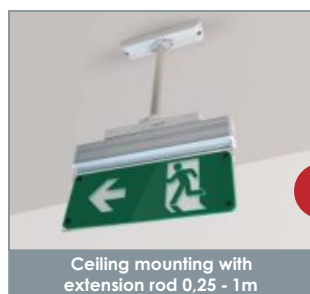
CE



Mounting methods



Ceiling mounting



Ceiling mounting with
extension rod 0,25 - 1m

**Easy mounting with
special base
for ZLD types**



A-1130
(1m)
A-1131
(0,5m)
A-1132
(0,25m)

A-1133
After order

Legends

left or right

down



SW28/R (SLD, MLD & ZLD-28) SW28/D
SW34/R (SLD, MLD & ZLD-34) SW34/D
SW44/R (SLD, MLD & ZLD-44) W44/D

Accessories for MLD luminaires

A-1018/PL Recess mounting
base for MLD/ZLD-28

A-1020/PL Recess mounting
base for MLD/ZLD-34

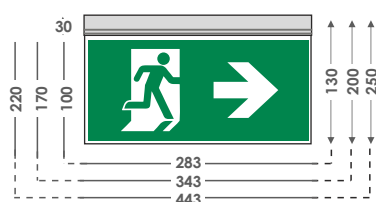
A-1018/PL/ST Recess mounting
base for self-testing MLD/ZLD-28

A-1020/PL/ST Recess mounting
base for self-testing MLD/ZLD-34

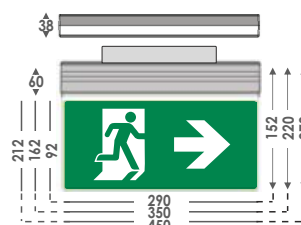
Accessories contained
in the package.
Suitable for wall or ceiling
mounting.



Dimensions in mm



Eco
MLD-28, DLD-28:
283x130x25
MLD-34, DLD-34:
343x200x25
MLD-44, DLD-44:
443x250x25



Eco
ZLD-28, ZLD-28/CBS:
290 x 152 x 38
ZLD-34, ZLD-34/CBS:
350 x 220 x 38
ZLD-44, ZLD-44/CBS:
450 x 272 x 38



MAINTAINED LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
MLD-28D/w*	B	922502811	3,6V/1Ah Ni-Cd	3 h	3W/7,5VA	85/85 lm	710 gr.
MLD-34D/w*	B	922503426	3,6V/1Ah Ni-Cd	3 h	3W/8VA	105/85 lm	1070 gr.
MLD-44D/w*	B	922504417	3,6V/1Ah Ni-Cd	3 h	3W/8VA	105/85lm	1680 gr.

LED SIGNS FOR GENERAL USE 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
MLD-28S/g	C	922502800	3,6V/1Ah Ni-Cd	3 h	3W/7,5VA	18/18 lm	670 gr.
MLD-34S/g	C	922503400	3,6V/1Ah Ni-Cd	3 h	3W/8VA	22/18 lm	1000 gr.
MLD-44S/g	C	922504400	3,6V/1Ah Ni-Cd	3 h	3W/8VA	22/18 lm	1500 gr.

SELF-TESTING, MAINTAINED, LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
ZLD-28/EM*	A	922502858	3,6V/1,5Ah Ni-Mh	3 h	3,8W/6,5VA	125/125 lm	1075 gr.
ZLD-34/EM*	A	922503462	3,6V/1,5Ah Ni-Mh	3 h	4W/6,7VA	145/125 lm	1475 gr.
ZLD-44/EM	A	922504456	3,6V/1,5Ah Ni-Mh	3 h	4,3W/6,9VA	200/150 lm	2045 gr.

ACCESSORIES

TYPE	CODE	DESCRIPTION	GROSS WEIGHT
A-1018/PL	927101801	Recess mounting base for MLD/ZLD-28	159 gr.
A-1020/PL	927102001	Recess mounting base for MLD/ZLD-34	180 gr.
A-1018/PL/ST	927101802	Recess mounting base for self-testingMLD/ZLD-28	159 gr.
A-1020/PL/ST	927102002	Recess mounting base for self-testingMLD/ZLD-34	180 gr.



In June of 2012, CEN adopted the international standard ISO 7010 regarding graphical symbols and safety signs. Since all safety signs are to be designed based on this standard, we will be able to recognize a safety exit in any European country.

In our catalog you can find a wide variety of luminaires with safety signage based on the EN ISO 7010 standard.

The signage used on products MLD-28S/g, MLD-34S/g and MLD-44S/g does not comply with the latest European legislation and so can only be used as General Purpose Luminaires and not Emergency Escape Luminaires.



All MLD, SLD and MLD types (except CBS) can be converted in non-maintained luminaires after pressing the TEST button.

Lounge Light



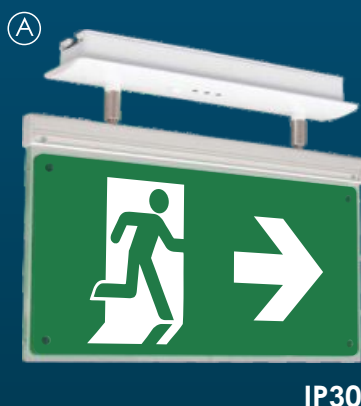
SLD-28



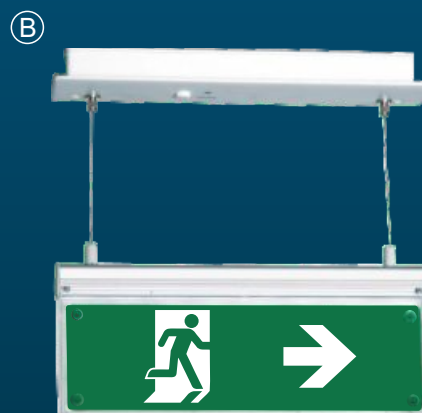
SLD-34



SLD-44



IP30



IP30



Single package

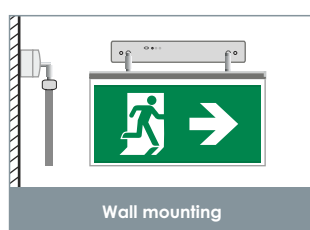
Mounting methods



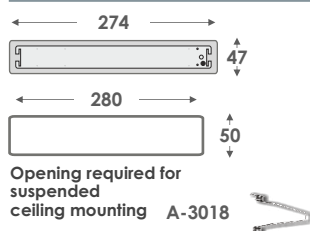
Ceiling mounting



Recessed mounting
on suspended ceiling



Wall mounting

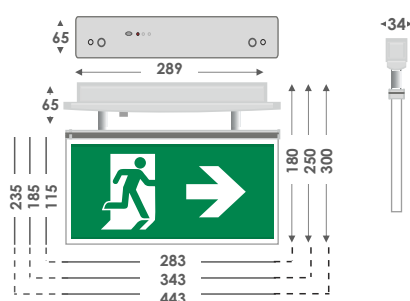


Legends



SW28/R (SLD-28) SW28/D
SW34/R (SLD-34) SW34/D
SW44/R (SLD-44) W44/D

Dimensions in mm



Lounge

SLD-28/SP, SLD-28/CBS/SP:
289 x 180 x 34
SLD-34/SP, SLD-34/CBS/SP:
343 x 250 x 34
SLD-44/SP, SLD-44/CBS/SP:
443 x 300 x 34



SELF-TESTING, MAINTAINED, LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
SLD-28/SP	A	922028008	3,6V/1,5Ah Ni-Mh	3 h	9VA	100/100 lm	1050 gr.
SLD-34/SP	A	922034009	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	1370 gr.
SLD-44/SP	A	922044006	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	2060 gr.
SLD-28/DZ	B	922028000	3,6V/1,5Ah Ni-Mh	3 h	9VA	100/100 lm	980 gr.
SLD-34/DZ	B	922034000	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	1340 gr.
SLD-44/DZ	B	922044000	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	2030 gr.



In June of 2012, CEN adopted the international standard ISO 7010 regarding graphical symbols and safety signs. Since all safety signs are to be designed based on this standard, we will be able to recognize a safety exit in any European country.

In our catalog you can find a wide variety of luminaires with safety signage based on the EN ISO 7010 standard.

The signage used on products MLD-28S/g, MLD-34S/g and MLD-44S/g does not comply with the latest European legislation and so can only be used as General Purpose Luminaires and not Emergency Escape Luminaires.

Professional & Double Light

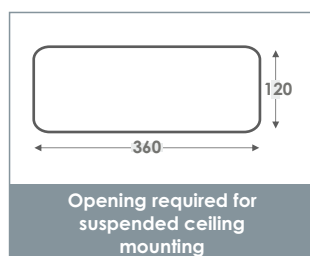
16 - 28m

IP20

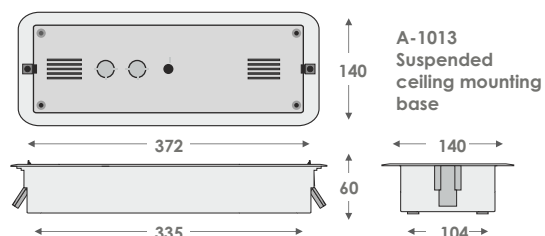
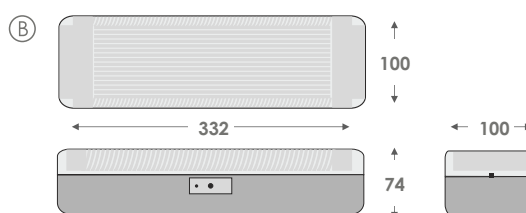
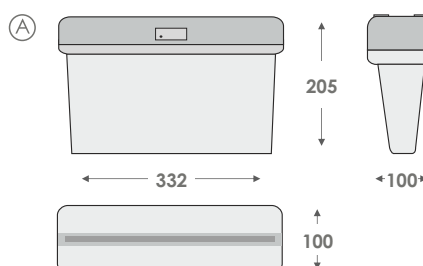


The packaging contains: 7 pcs. (A) 12 pcs. (B)
Packaging dimensions (LxWxH): 545x395x345mm (A) 445x350x295mm (B)

Accessories



Dimensions in mm



Legends

Self-adhesive legends below can be provided after order



S-11100/
S65L



S-11100/
S65R



S-11100/
S65D



■ SELF-TESTING, MAINTAINED, LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-515/15L	A	923515006	3,6V/600mAh Ni-Cd	1,5 h	7VA	125 lm/125 lm	1030 gr.
GR-516/15L	A	923516003	3,6V/1,5Ah Ni-Cd	3 h	7VA	125 lm/125 lm	1100 gr.
GR-115/15L	B	923115009	3,6V/600mAh Ni-Cd	1,5 h	7VA	125 lm/125 lm	770 gr.
GR-116/15L	B	923116006	3,6V/1,5Ah Ni-Cd	3 h	7VA	125 lm/125 lm	850 gr.

■ NON-MAINTAINED / MAINTAINED LED EMERGENCY LUMINAIRES (Internal selection - Without L1) 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-110/15L	B	923110014	3,6V/600mAh Ni-Cd	1,5 h	3VA	40/125 lm	690 gr.
GR-112/15L	B	923112007	3,6V/1,5Ah Ni-Cd	3 h	3VA	38/125 lm	770 gr.
GR-511/15L	A	923511005	3,6V/1Ah Ni-Cd	1,5 h	3,5VA	40/125 lm	105 gr.
GR-512/15L	A	923512003	3,6V/1,5Ah Ni-Cd	3 h	3,5VA	38/125 lm	1125 gr.

Project Light

18-64m

IP42



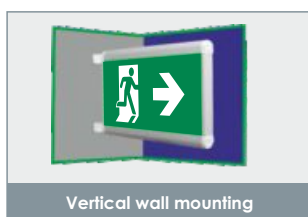
NEW

Special base
for easy mounting



Single
package

■ Mounting methods



■ Special base for easy mounting



■ Accessories



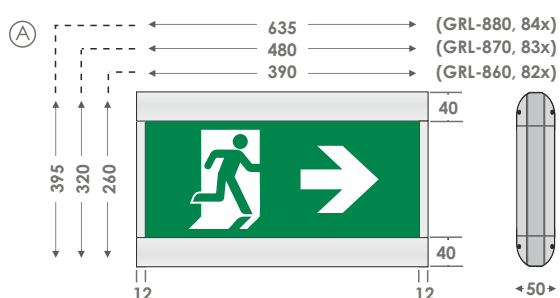


■ SELF-TESTING, MAINTAINED, LED EMERGENCY INDICATION LUMINAIRES 220-240V AC/50-60Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GRL-822/EM	A	923822102	3,6V/1,5Ah Ni-Cd	1,5 h	9,5VA	510/255 lm	1680 gr.
GRL-824/EM	A	923824102	4,8V/1,5Ah Ni-Cd	3 h	10VA	510/255 lm	1800 gr.
GRL-832/EM	A	923832102	4,8V/1,5Ah Ni-Cd	1,5 h	11VA	680/340 lm	2180 gr.
GRL-834/EM	A	923834102	4,8V/3Ah Ni-Cd	3 h	12,5VA	680/340 lm	2270 gr.
GRL-842/EM	A	923842102	4,8V/1,5Ah Ni-Cd	1,5 h	13,5VA	850/425 lm	3000 gr.
GRL-844/EM	A	923844102	4,8V/3Ah Ni-Cd	3 h	14VA	850/425 lm	3100 gr.

! GR-XXX/O All the above models can be manufactured as one sided luminaires with sheet metal at the back of the luminaire

■ Dimensions in mm



■ Legends



Light Box

18-64m

IP42

NEW

Special base
for easy mounting

A



1



Ceiling mounting

2



3



4



Single
package

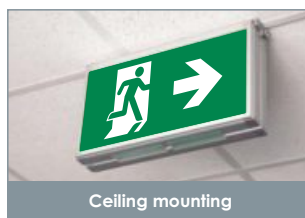
■ Mounting methods



Vertical wall mounting

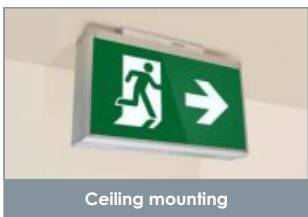


Parallel wall mounting



Ceiling mounting

■ Special base for easy mounting



Ceiling mounting



Parallel wall mounting

■ Accessories



Accessory for
wall mounting
(included in
packaging)



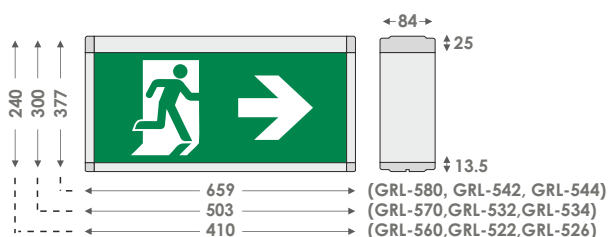
■ SELF-TESTING, MAINTAINED, LED EMERGENCY INDICATION LUMINAIRES 220-240V AC/50-60Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GRL-514/EM	A	923514103	3,6V/1,5Ah Ni-Cd	3 h	8,5VA	250/125 lm	1420 gr.
GRL-522/EM	A	923522102	3,6V/1,5Ah Ni-Cd	1,5 h	9,5VA	510/255 lm	2200 gr.
GRL-526/EM	A	923526103	4,8V/1,5Ah Ni-Cd	3 h	10VA	510/255 lm	2320 gr.
GRL-532/EM	A	923532102	4,8V/1,5Ah Ni-Cd	1,5 h	11VA	680/340 lm	2960 gr.
GRL-534/EM	A	923534102	4,8V/3Ah Ni-Cd	3 h	12,5VA	680/340 lm	3040 gr.
GRL-542/EM	A	923542102	4,8V/1,5Ah Ni-Cd	1,5 h	13,5VA	850/425 lm	3820 gr.
GRL-544/EM	A	923544102	4,8V/3Ah Ni-Cd	3 h	14VA	850/425 lm	3920 gr.



GR-XXX/O All the above models can be manufactured as one sided luminaires with sheet metal at the back of the luminaire

■ Dimensions in mm



■ Legends



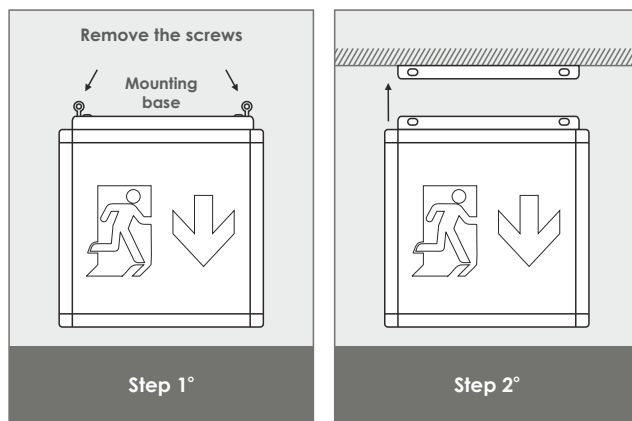
3D & Tunnel Light



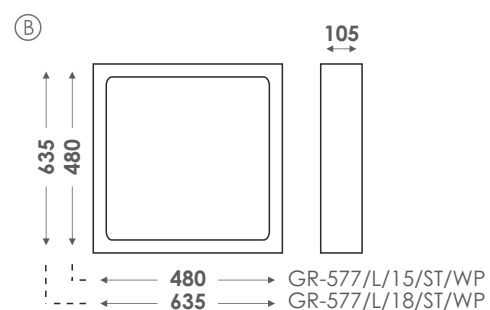
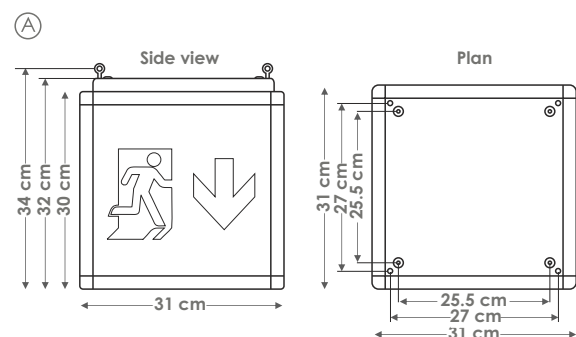
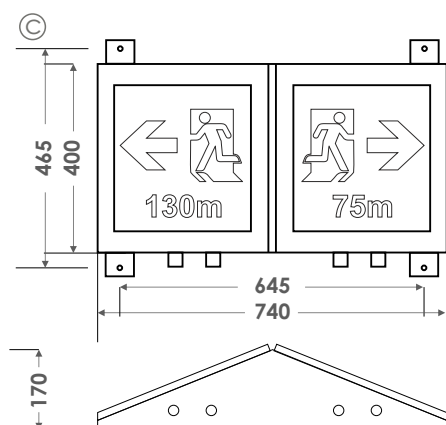
Single package
GR-415/4P, GR-416/4P



■ Mounting methods on ceiling for 3D Light



■ Dimensions in mm





WATERPROOF IP65, SELFTESTING, MAINTAINED LED EMERGENCY INDICATION LUMINAIRES 220-240V AC (FOR TUNNELS)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-577/L/15/ST/WP	B	923577005	4,8V/1,5Ah Ni-Cd	1,5 h	11VA	680lm/340lm	7590 gr.
GR-577/L/15/ST/WP/O	B	923577007	4,8V/1,5Ah Ni-Cd	1,5 h	11VA	680lm/340lm	
GR-577/L/18/ST/WP	B	923577006	4,8V/1,5Ah Ni-Cd	1,5 h	13,5VA	850lm/425lm	
GR-577/L/18/ST/WP/O	B	923577008	4,8V/1,5Ah Ni-Cd	1,5 h	13,5VA	850lm/425lm	
GR-578/L/15/ST/WP	B	923578006	4,8V/3Ah Ni-Cd	3 h	12,5VA	680lm/390lm	
GR-578/L/15/ST/WP/O	B	923578008	4,8V/3Ah Ni-Cd	3 h	12,5VA	680lm/390lm	
GR-578/L/18/ST/WP	B	923578007	4,8V/3Ah Ni-Cd	3 h	14,5VA	700lm/350lm	
GR-578/L/18/ST/WP/O	B	923578009	4,8V/3Ah Ni-Cd	3 h	14,5VA	700lm/350lm	

MAINTAINED, SELF-TESTING, LED EMERGENCY INDICATION LUMINAIRES 220-240V AC/50-60Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-415/4P	A	923415001	4,8V/1,5Ah Ni-Cd	1,5 h	11VA	460/460lm	3370 gr.
GR-416/4P	A	923416001	4,8V/3Ah Ni-Cd	3 h	14VA	460/460lm	3465 gr.

WATERPROOF IP65, SELFTESTING, MAINTAINED LED EMERGENCY INDICATION LUMINAIRES (FOR TUNNELS) 220-240V AC & 60° INDICATION ANGLE

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-579/L/90/WP	C	923579000	2x4,8V/1,5Ah Ni-Cd	1,5 h	22 VA	1360/680 lm	-
GR-579/L/180/WP	C	923579001	2x4,8V/3Ah Ni-Cd	3 h	25VA	1360/680 lm	-

TYPE	DESCRIPTION
GR-57X/XW/WP/B	All the above models can be manufactured with xenon beacon on top



All the above luminaires are also manufactured as Maintained with fluorescent lamp and in a variety of dimensions according to the customer needs.



Single sided luminaires are marked with /O at the end of product type.

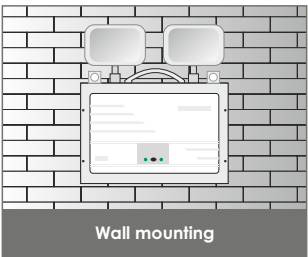
Power Light

IP65

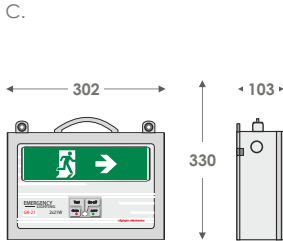
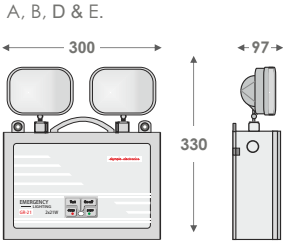
IP42



Mounting methods



Dimensions



Legends

Self-adhesive legends below can be provided after order (only for GRL-22)



S-10800/
S65L



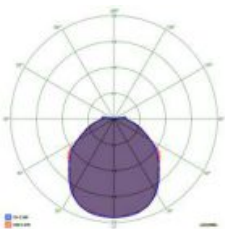
S-10800/
S65R



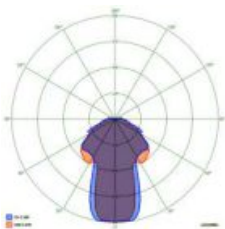
S-10800/
S65D

Photometric data

GRL-29, GRL-29/WP, GRL-39,
GRL-39/WP



GRL-21/H/90, GRL-21/H/180, GRL-21/H/90/WP,
GRL-21/H/180/WP, GRL-37/90, GRL-37/180,
GRL-37/90/WP, GRL-37/180/WP





■ NON-MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-21	A	923021031	6V/4Ah Pb	1,5 h	10VA	2x42 Leds	790 lm	2205 gr.
GRL-29	A	923029009	12V/7Ah Pb	3 h	16VA	2x84 Leds	1620 lm	3880 gr.
GRL-22	C	923022100	12V/7Ah Pb	10 h	16VA	84 Leds	710 lm	3555 gr.
GRL-21/H/90	B	923021040	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4360 gr.
GRL-21/H/180	B	923021042	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6560 gr.

■ WATERPROOF IP65, NON-MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-21/H/90/WP	D	923021041	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4510 gr.
GRL-21/H/180/WP	D	923021043	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6700 gr.
GRL-29/WP	E	923029010	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	4020 gr.

■ SELF-TESTING, NON-MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-37/90	B	923037002	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4360 gr.
GRL-37/180	B	923037005	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6560 gr.
GRL-39	A	923039002	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	3880 gr.

■ WATERPROOF IP65, SELF-TESTING, NON-MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-37/90/WP	D	923037004	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4520 gr.
GRL-37/180/WP	D	923037006	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6700 gr.
GRL-39/WP	E	923039004	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	4020 gr.

Power Light

IP65

IP42

A



B



C



D



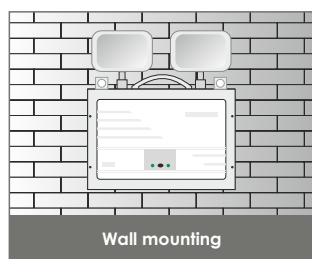
E



Single package

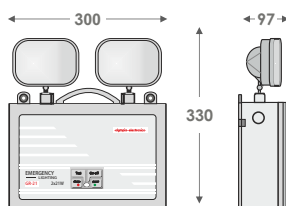


Mounting methods

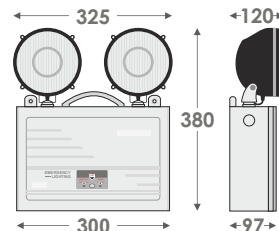


Dimensions in mm

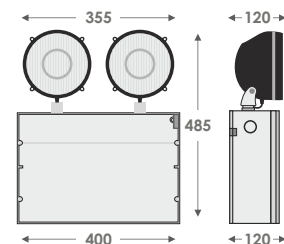
B & C.



A & D.

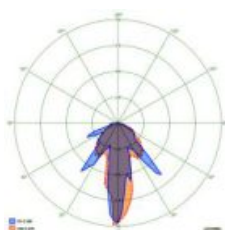


E.

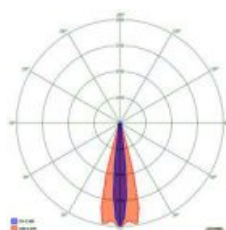


Photometric data

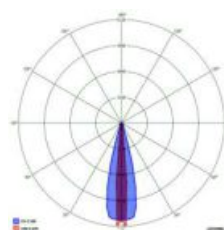
GR-21, GR-29, GR-30, GR-31,
GR-36, GR-36/WP



GR-32, GR-37, GR-37/WP



GR-21/H




NON-MAINTAINED EMERGENCY LUMINAIRES WITH INCANDESCENT LAMPS

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	LAMPS	GROSS WEIGHT
GR-21	C	923021000	12V/7Ah Pb	1,5 h	14VA	580 lm	2x20W	3870 gr.
GR-21/H	A	923021001	2x12V/7Ah Pb	1 h	24VA	1620 lm	2x55W	6835 gr.
GR-29	C	923029000	2x12V/7Ah Pb	3 h	24VA	580 lm	2x20W	5915 gr.


WATERPROOF IP65, NON-MAINTAINED EMERGENCY LUMINAIRES WITH INCANDESCENT LAMPS

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	LAMPS	GROSS WEIGHT
GR-30	C	923030000	12V/7Ah Pb	1,5 h	14VA	580 lm	2x20W	3300 gr.
GR-31	C	923031000	2x12V/7Ah Pb	3 h	13VA	580 lm	2x20W	6260 gr.
GR-32	A	923032000	2x12V/9Ah Pb	1 h	24VA	2050 lm	2x55W	7655 gr.
GR-21/H3*	E	923021011	4x12V/7Ah Pb	3 h	47VA	1380 lm	2x55W	16430 gr.



*The GR-21/H3 has a test button & a charge indication LED.

SELF-TESTING, NON-MAINTAINED EMERGENCY LUMINAIRES WITH INCANDESCENT LAMPS

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	LAMPS	GROSS WEIGHT
GR-36	C	923036000	12V/7Ah Pb	1,5 h	14VA	580 lm	2x20W	3905 gr.
GR-37	A	923037000	2x12V/9Ah Pb	1 h	24VA	2050 lm	2x55W	7050 gr.
GR-39	C	923039000	2x12V/9Ah Pb	3 h	24VA	730 lm	2x20W	6140 gr.


WATERPROOF IP65, SELF-TESTING, NON-MAINTAINED EMERGENCY LUMINAIRES WITH INCANDESCENT LAMPS

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	LAMPS	GROSS WEIGHT
GR-36WP	B	923036002	12V/7Ah Pb	1,5 h	14VA	580 lm	2x20W	4050 gr.
GR-37/WP	D	923037003	2x12V/9Ah Pb	1 h	24VA	2050 lm	2x55W	7200 gr.
GR-39/WP	B	923039001	2x12V/9Ah Pb	3 h	24VA	730 lm	2x20W	6290 gr.





Single packaging



Description

- Designed for installation in explosive atmospheres
- Certified according to the norms EN 60079-0, EN 60079-1, EN 60079-31
- The main body is constructed of aluminum (painted yellow, RAL-1003) and the diffuser from polycarbonate with UV protection or with special durable glass.
- The luminaires that contain batteries have a charge indicator and connector for installing a remote test button.

General characteristics

- Ni-Cd batteries
- High power illumination
- Suitable for explosive gas atmospheres and explosive dust atmospheres
- IP67 / IK 05 degrees of cover protection
- Charge indication LED
- Produced in accordance with EN 60598-1, EN 60598-2-22, EN 55015, EN 61547, EN 61000-3-2
- Construction material: Aluminum and Polycarbonate or Aluminum and glass (IFA-3236).
- Operation temperature range: 0 °C up to 40°C the emergency luminaires, -20°C up to 40°C for the CBS luminaires
- Complying with the ATEX 94/9/EC
- Humidity: up-to 95% relative humidity


NON-MAINTAINED EMERGENCY LUMINAIRES WITH FLUORESCENT LAMPS 220-240V AC *

TYPE	PICTURE	CODE	BATTERY	DURATION	LAMP	DIFFUSER	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
*FSA-8202CB	A	980820203	3,6V/1,5Ah	1 h	8 W	5mm glass	4,5VA	150 lm	
*FSA-8352CB	A	980835201	3,6V/4Ah	1 h	8 W	5mm glass	8,05VA	280 lm	
*FSA-8203CB	A	980820303	4,8V/4Ah	3 h	8 W	5mm glass	8,05VA	150 lm	

SUSTAINED EMERGENCY LUMINAIRES WITH FLUORESCENT LAMPS 220-240V AC *

TYPE	PICTURE	CODE	BATTERY	DURATION	LAMP	DIFFUSER	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
*FSP-2218CC	B	980221803	4,8V/4Ah	1 h	18 W	9mm glass	8,05VA	500 lm	
*FSP-3236CCP	A	980323601	4,8V/4Ah	1 h	36 W	polycarbonate	53VA	1000 lm	

EMERGENCY LUMINAIRES FOR CBS 230V WITH FLUORESCENT LAMPS *

TYPE	PICTURE	CODE	BATTERY	DURATION	LAMP	DIFFUSER	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
*IFA-3236P	A	980323605	-	-	2x36W	polycarbonate	41,5VA	1215 lm	
*IFA-3236	A	980323602	-	-	2x36 W	9mm glass	74VA	3015 lm	12,900 gr.
*IFA-2218	B	980221800	-	-	2x18 W	9mm glass	41,5VA	1215 lm	
*IFA-2218P	B	980221801	-	-	2x18 W	polycarbonate	41,5VA	1215 lm	

LED EMERGENCY LUMINAIRES FOR CBS 230V *

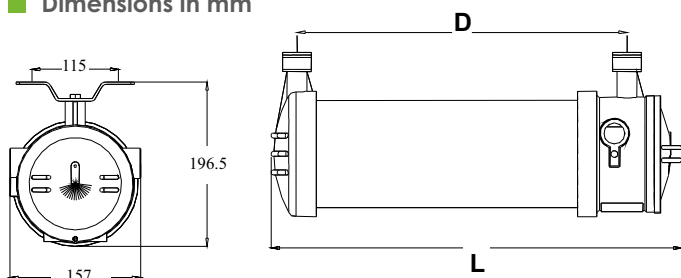
TYPE	PICTURE	CODE	BATTERY	DURATION	LAMP	DIFFUSER	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
*IFA-2218LB	B	980221802	-	-	2x11W	5mm glass	20,25VA	1476 lm	
*IFA-2118L	B	980211801	-	-	1x11W	9mm glass	10,12VA	882 lm	

SEALING GROMMET

TYPE	CODE	DESCRIPTION	GROSS WEIGHT
*NPT34	751500102	Sealing grommet	


MOUNTING BASE

TYPE	CODE	DESCRIPTION	GROSS WEIGHT
*A-FSA	808700069	Mounting base	


Dimensions in mm


IFA-2218, IFA-2218P, IFA-2218LB, IFA-2118L,
 FSP-2118CB: D=640, L=750.
 IFA-3236, IFA-3236P, FSP-3236CCP: D=1250, L=1360.
 FSA-8202CB, FSA-8352CB, FSA-8203CB: D=375, L=485

Legends

Self-adhesive legends below can be provided on request



S-93593/
S65L (705690016)



S-93593/
S65R (705690017)



S-93593/
S65D (705690018)



Spot Light

(A)



Suitable for
installation in
open areas

IP42

(B)



Suitable for
installation in
escape routes

IP42

(C)



(D)



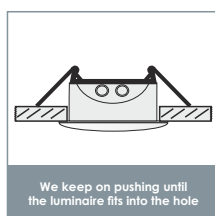
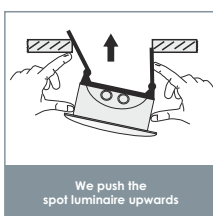
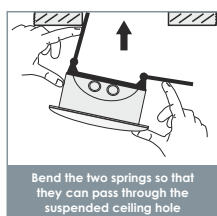
IP20



The packaging contains: 26 pcs. (A, B, C), 16 pcs. (D)
Packaging dimensions (LxWxH): 430x375x275mm



Mounting methods GR-298



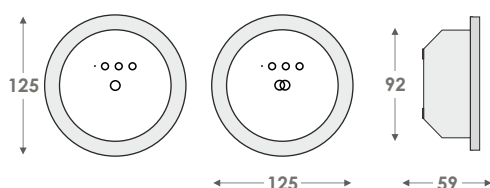
The specific luminaire has 2 rim options with perimeter dimensions.

The packaging contains:
16 pcs. for the: KIT-77/84

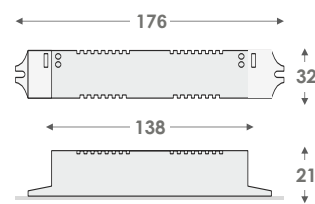
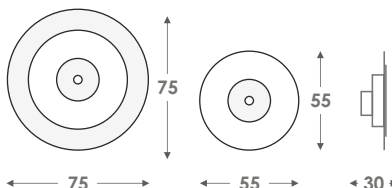
Packaging dimensions (LxWxH):
315x265x205 for the: KIT-77/84

Dimensions in mm

A, B & C.

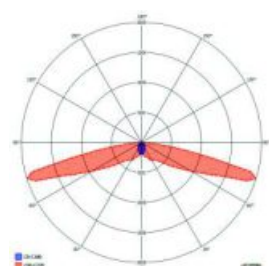


D.

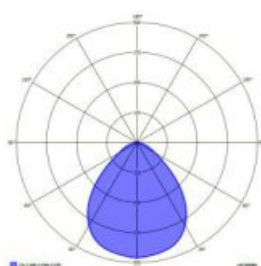


Photometric data

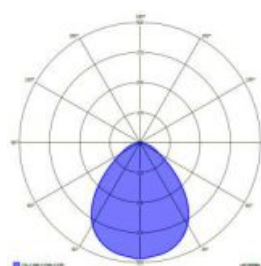
GR-280, GR-280/24V, GR-290



GR-298/30L/180



GR-298/60L/90




SELF-TESTING, NON MAINTAINED, CEILING MOUNTED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	INSTALLATION	GROSS WEIGHT
GR-290	B	923290000	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Escape routes	450 gr.
GR-291	A	923291000	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Open areas	450 gr.
GR-292	B	923292000	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	160 lm	Escape routes	450 gr.
GR-293	A	923293000	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	160 lm	Open areas	450 gr.

SET ELECTRONIC BALLAST GR-77 WITH GR-84 NON-MAINTAINED WITH LED 1WATT

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
KIT-77/84	D	923084001	4,8V/1,2Ah Ni-Mh	up to 3 h	6VA	150 lm	310 gr.

MAINTAINED , CEILING MOUNTED LED EMERGENCY LUMINAIRE

When powered with 230VAC the 60 LEDs/250 lm are illuminated whereas during emergency mode the 11LEDs/80lm are illuminated.

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT MAINS/EMERG	GROSS WEIGHT
GR-297/60L/180	C	923297000	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	350/110 lm	533 gr.

SELF-TESTING, NON MAINTAINED, CEILING MOUNTED LED EMERGENCY LUMINAIRES

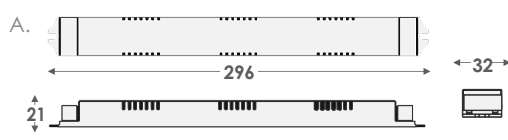
TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-298/30L/180	C	923298000	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	170 lm	530 gr.
GR-298/60L/90	C	923298001	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	340 lm	530 gr.

Converters

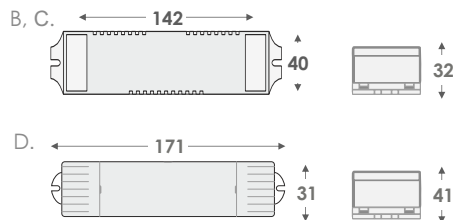
IP20



Dimensions in mm



GR-61: 200 x 27 x 26mm | GR-64: 275 x 37 x 36mm
GR-65: 163 x 27 x 26mm | GR-67: 215 x 37 x 36mm
GR-62: 205 x 27 x 49mm | GR-66: 160 x 27 x 49mm



TYPE	GR-4/UN/A-966	GR-4/UN/65	GR-4/UN/66	GR-4/UN/67	GR-6/UN/61	GR-6/UN/62	GR-6/UN/64
18W (T8)	-----	90 min.	180 min.	240 min.	80 min.	160 min.	220 min.
36W (T8)	-----	70 min.	140 min.	180 min.	60 min.	120 min.	160 min.
58W (T8)	-----	60 min.	120 min.	160 min.	50 min.	100 min.	140 min.
18W (COMPACT)	-----	90 min.	180 min.	240 min.	80 min.	160 min.	220 min.
38W (2D/4PIN)	-----	70 min.	140 min.	180 min.	60 min.	130 min.	170 min.
36W (COMPACT)	-----	70 min.	140 min.	180 min.	70 min.	130 min.	180 min.
7-9W CFL	60 min.	-----	-----	-----	-----	-----	-----

LAMPS																						
TYPE	BATTERY	6W (T5)	8W (T5)	11W (CFL)	13W (CFL)	14W (T5)	18W (CFL)	21W (T5)	24W (T5)	24W (CFL)	28W (T5)	32W(CIRC)	32W (CFL)	35W(T5)	36W(T8)	36W (CFL)	49W(T5)	54W(T5)	55W(CFL)	58W(T8)	80W(T5)	DURATION
GR-1004-A/61	4,8V - 1,5Ah	●	●	●	●	●	●	●	●	●												90´
GR-1004-B/62	4,8V - 3Ah	●	●	●	●	●	●	●	●	●												3 h
GR-1004-C/71	8,4V - 1,5Ah	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	90´
GR-1004-D/72	8,4V - 3Ah	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	3 h
GR-1004-E/81	6V - 1,5Ah	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					90´
GR-1004-F/82	6V - 3Ah	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					3 h


CONVERTERS - COMMON TO EMERGENCY LUMINAIRES 220-240V AC / 50-60Hz (T5, T8, PL)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-4/UN/65	B	960004028	3,6V/1,5Ah Ni-Cd	see table	4VA	395 gr.
GR-4/UN/66	B	960004029	3,6V/3Ah Ni-Cd	see table	4VA	525 gr.
GR-4/UN/67	B	960004030	3,6V/4Ah Ni-Cd	see table	4VA	605 gr.
GR-6/UN/61	B	960006018	4,8V/1,5Ah Ni-Cd	see table	4VA	445 gr.
GR-6/UN/62	B	960006019	4,8V/3Ah Ni-Cd	see table	4VA	540 gr.
GR-6/UN/64	B	960006020	4,8V/4Ah Ni-Cd	see table	4VA	580 gr.
GR-4/UN/127/230/67	B	960004046	3,6V/4Ah Ni-Cd	see table	4VA	605 gr.

Packaging contains: **16 pcs.** Paper box dimensions (LxWxH): **315x265x205mm**

PROGRAMMABLE COMMON TO EMERGENCY LED LUMINAIRE CONVERTER 220-240V AC/ 50-60Hz

(LED volt output 2,5-35V with capability to connect 4,8V/1,5Ah or 3Ah battery)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-1104/40V/B-941/HT	C	960110410	4,8V / 3Ah	1,5 or 3 h	3,5W/7VA	365 gr.
GR-1104/40V/B-973/HT	C	960110408	4,8V / 1,5Ah	1,5 or 3 h	3,5W/7VA	365 gr.

PROGRAMMABLE COMMON LED LUMINAIRE TO EMERGENCY LED LUMINAIRE CONVERTER 4,8V 1,5Ah/3Ah

(LED volt output 12-58V DC)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-1107/60V	D	960110700	4,8V / 1,5 / 3Ah	1,5 or 3 h	4,75W/5VA	

PROGRAMMABLE COMMON TO EMERGENCY LED LUMINAIRE CONVERTER 220-240V AC/ 50-60Hz

(LED volt output with capability to connect 4,8V/1,5Ah or 3Ah battery)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-1107/60V/B-973/HT	D	960110701	4,8V / 1,5Ah	1,5 or 3 h	4,75W/5VA	400 gr.
GR-1107/60V/B-941/HT	D	960110702	4,8V / 3Ah	1,5 or 3 h	4,75W/5VA	480 gr.

**PROGRAMMABLE COMMON TO EMERGENCY LUMINAIRE CONVERTER FOR FLUORESCENT LAMPS
T5/T8 6-80W 220-240V AC / 50-60Hz (without battery)**

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-1004	A	960100400	4,8 - 8,4 V / 1,5 - 4 Ah	1 - 3 h	13VA	180 gr.

Packaging contains: **56 pcs.** Paper box dimensions (LxWxH): **430x280x335mm**

NON PROGRAMMABLE CONVERTERS FOR FLUORESCENT LAMPS T5/T8 6-80W 220-240V AC / 50-60Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-1004-A/61	A	960100461	4,8V/1,5Ah	1,5 h	13VA	425 gr.
GR-1004-B/62	A	960100462	4,8V/3Ah	3 h	13VA	510 gr.
GR-1004-C/71	A	960100471	8,4V/1,5Ah	1,5 h	13VA	520 gr.
GR-1004-D/72	A	960100472	8,4V/3Ah	3 h	13VA	695 gr.
GR-1004-E/81	A	960100481	6V/1,5Ah	1,5 h	13VA	240 gr.
GR-1004-F/82	A	960100482	6V/3Ah	3 h	13VA	360 gr.

Weather Spot Light



RECHARGEABLE, NON MAINTAINED LED LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-83	A	923083001	3,6V/120mAh Ni-Mh	3 h	2VA	21 lm	100 gr.

RECHARGEABLE, MAINTAINED LED LUMINAIRES

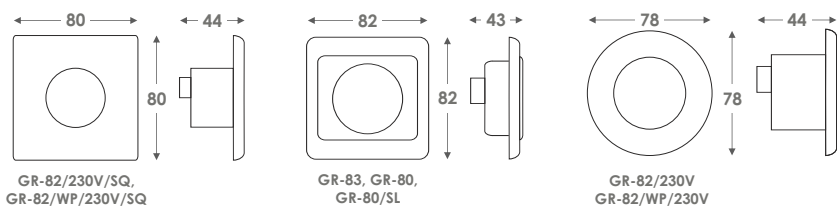
TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-82/230V	C	923082001	3,6V/120mAh Ni-Mh	3 h	4VA	1 lm / 22 lm	100 gr.
GR-82/230V/SQ	B	923082006	3,6V/120mAh Ni-Mh	3 h	4VA	1 lm / 22 lm	100 gr.
GR-82/WP/230V	D	923082002	3,6V/120mAh Ni-Mh	3 h	4VA	1 lm / 22 lm	100 gr.
GR-82/WP/230V/SQ	B	923082009	3,6V/120mAh Ni-Mh	3 h	4VA	1 lm / 22 lm	100 gr.

RECHARGEABLE, WATERPROOF, WALL MOUNTED LED LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-80/W	A	923080001	-	-	6VA	30 lm	100 gr.
GR-80/W/SL**	A	923080002	-	-	6VA	30 lm	100 gr.

** GR-80/W/SL - Silver case

Dimensions in mm





The packaging contains: 20 pcs. (A), 10 pcs. (B)
Packaging dimensions (LxWxH): 430x280x335 (A), 495x190x90 (B)



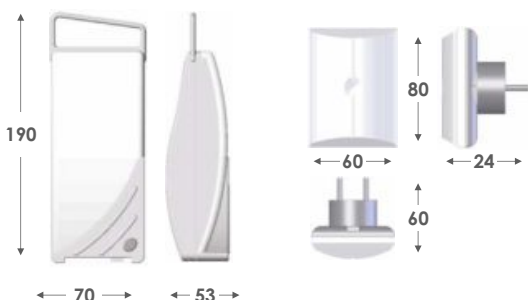
RECHARGEABLE, MAINTAINED LED LUMINAIRE 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-11	B	923011000	3,6V/120mAh Ni-MH	3 h	3VA	28 lm	85 gr.

PORTABLE, RECHARGEABLE, MAINTAINED LED LUMINAIRE (BACKUP LIGHTING)

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-60	A	923060000	3,6V/1Ah Ni-Cd	4 - 14 h	2,5W/3VA	up to 95 lm	565 gr.

Dimensions in mm



Addressable Light

Addressable panel,
addressable emergency
luminaires & peripherals

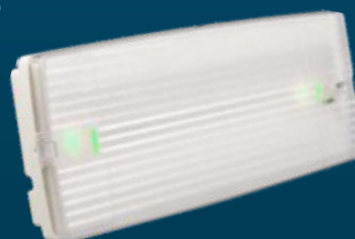
IP40

IP20

A



D



B



C

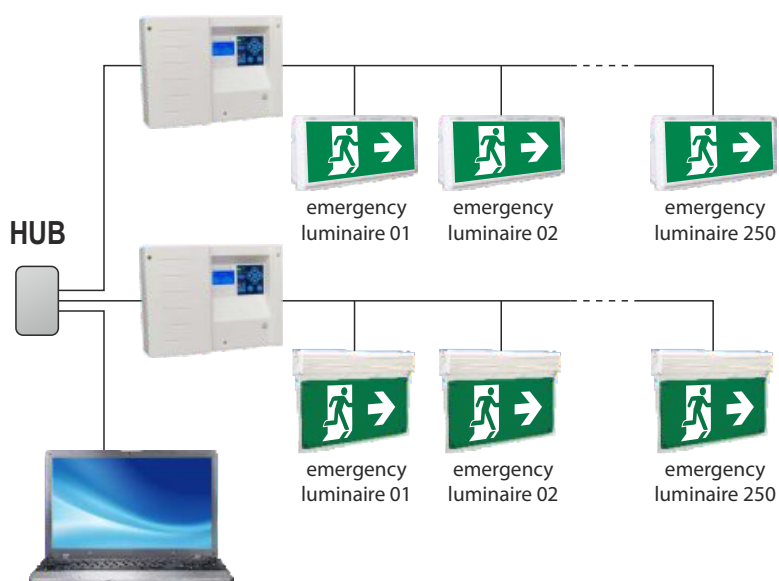


Single packaging

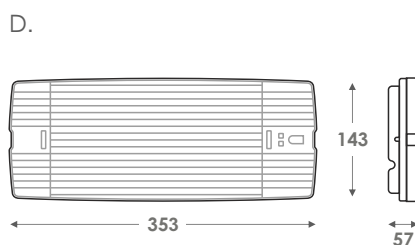
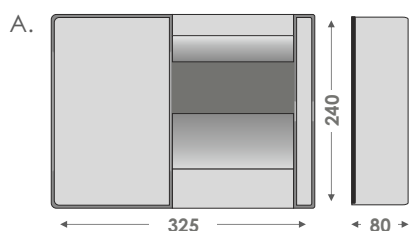


Description of GR-6500 addressable panel

- ▶ Up to 250 addressable emergency luminaires
- ▶ Inhibit function for all luminaires
- ▶ 16 zones
- ▶ Capability for connecting several panels on an ethernet network
- ▶ The programming, control and testing of the system can be done using a web browser (Internet Explorer, Mozilla Firefox, Chrome)



Dimensions in mm





ADDRESSABLE LUMINAIRES CONTROL PANEL 220-240V / 50-60Hz

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	GROSS WEIGHT
GR-6500**	A	923650001	12V/7Ah	>3h	25W/35VA	2000 gr.

ACCESSORY FOR THE GR-6500 PANEL

TYPE	PICTURE	CODE	DESCRIPTION
GR-8530	B	923853000	Network card through ETHERNET

ACCESSORY FOR THE GR-6500 PANEL

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION
GR-6059	C	923605900	Addressable device for GR-1004	<1mA

ADDRESSABLE, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES 220-240V / 50-60Hz, EASY LIGHT

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-315/15L/ADR/A*	D	923315022	3,6V/600mAh Ni-Cd	1,5 h	7VA	105/105 lm	740 gr.
GR-316/15L/ADR/A*	D	923316018	3,6V/1,5Ah Ni-Cd	3 h	7VA	105/105 lm	810 gr.
GR-315/30L/ADR/A*	D	923315023	3,6V/1,5Ah Ni-Cd	1,5 h	7,5VA	210/210 lm	810 gr.
GR-316/30L/ADR/A*	D	923316019	3,6V/3Ah Ni-Cd	3 h	8VA	210/210 lm	890 gr.
GR-308/15L/ADR/A	D	923308004	3,6V/3Ah Ni-Cd	8 h	7VA	125/125lm	870 gr.
GR-315/4P/ADR/A	D	923315028	4,8V/1,5Ah Ni-Cd	1,5 h	11,5VA	150/300 lm	825 gr.
GR-315/6P/ADR/A	D	923315029	4,8V/3Ah Ni-Cd	1,5 h	14,5VA	225/450 lm	955 gr.
GR-316/4P/ADR/A	D	923316024	4,8V/3Ah Ni-Cd	3 h	13,5VA	150/300 lm	950 gr.
GR-316/6P/ADR/A	D	923316025	4,8V/4Ah Ni-Cd	3 h	15VA	225/415 lm	995 gr.

ADDRESSABLE, NON MAINTAINED LED EMERGENCY LUMINAIRES 220-240V / 50-60Hz, EASY LIGHT

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-310/30L/ADR/A	D	923310054	3,6V/1,5Ah Ni-Cd	1,5 h	3VA	250 lm	855 gr.
GR-312/30L/ADR/A	D	923312031	3,6V/3Ah Ni-Cd	3 h	4VA	250 lm	945 gr.
GR-310/4P/ADR/A	D	923310052	4,8V/1,5Ah Ni-Cd	1,5 h	4VA	300 lm	840 gr.
GR-310/6P/ADR/A	D	923310053	4,8V/3Ah Ni-Cd	1,5 h	5VA	450 lm	925 gr.
GR-312/4P/ADR/A	D	923312029	4,8V/3Ah Ni-Cd	3 h	5VA	300 lm	925 gr.
GR-312/6P/ADR/A	D	923312030	4,8V/4Ah Ni-Cd	3 h	6VA	415 lm	975 gr.
GR-309/15L/ADR/A	D	923309003	3,6V/3Ah Ni-Cd	8 h	4,5VA	125 lm	950 gr.

Addressable Light

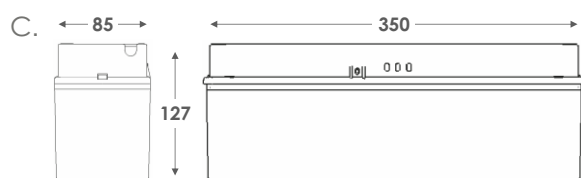
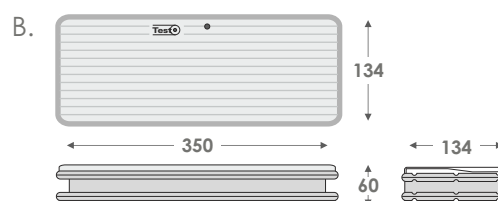
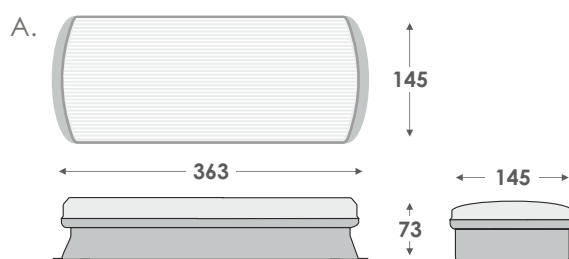
Addressable
emergency luminaires

IP65



CE

■ Dimensions in mm




ADDRESSABLE, WATERPROOF IP65, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES, WEATHER LIGHT

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-938/15L/ADR	A	923938014	3,6V/600mAh Ni-Cd	1,5 h	7,5VA	105/105 lm	980 gr.
GR-938/30L/ADR	A	923938015	3,6V/1,5Ah Ni-Cd	1,5 h	8,5VA	210/210 lm	1050 gr.
GR-939/15L/ADR	A	923939014	3,6V/1,5Ah Ni-Cd	3 h	6,8VA	105/105 lm	1050 gr.
GR-939/30L/ADR	A	923939015	3,6V/3Ah Ni-Cd	3 h	8,2VA	210/210 lm	1130 gr.
GR-938/4P/ADR	A	923938012	4,8V/1,5Ah Ni-Cd	1,5 h	8,10VA	150/300 lm	1075 gr.
GR-938/6P/ADR	A	923938013	4,8V/3Ah Ni-Cd	1,5 h	8,4VA	225/450 lm	1170 gr.
GR-939/4P/ADR	A	923939012	4,8V/3Ah Ni-Cd	3 h	7,7VA	150/300 lm	1170 gr.
GR-939/6P/ADR	A	923939013	4,8V/4Ah Ni-Mh	3 h	8,5VA	225/415 lm	1210 gr.
GR-940/15L/ADR	A	923940003	3,6V/3Ah Ni-Cd	8 h	7VA	125/125 lm	1135 gr.

ADDRESSABLE, WATERPROOF IP65, NON MAINTAINED LED EMERGENCY LUMINAIRES, WEATHER LIGHT

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-935/15L/ADR	A	923935018	3,6V/600mAh Ni-Cd	1,5 h	3VA	125 lm	1010 gr.
GR-935/30L/ADR	A	923935019	3,6V/1,5Ah Ni-Cd	1,5 h	3VA	250 lm	1080 gr.
GR-936/15L/ADR	A	923936017	3,6V/1,5Ah Ni-Cd	3 h	3VA	125 lm	1080 gr.
GR-936/30L/ADR	A	923936018	3,6V/3Ah Ni-Cd	3 h	4,3VA	250 lm	1175 gr.
GR-935/4P/ADR	A	923935020	4,8V/1,5Ah Ni-Cd	1,5 h	4VA	300 lm	1140 gr.
GR-935/6P/ADR	A	923935021	4,8V/3Ah Ni-Cd	1,5 h	4,8VA	450 lm	1230 gr.
GR-936/4P/ADR	A	923936019	4,8V/3Ah Ni-Cd	3 h	4,8VA	300 lm	1230 gr.
GR-936/6P/ADR	A	923936020	4,8V/4Ah Ni-Mh	3 h	5,5VA	415 lm	1270 gr.
GR-941/15L/ADR	A	923941002	3,6V/3Ah Ni-Cd	8 h	4VA	125 lm	1175 gr.

ADDRESSABLE, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-390/L/ADR	B	923390004	3,6V/1,5Ah Ni-Cd	1,5 h	7,5VA	270/270 lm	1165 gr.
GR-392/L/ADR	B	923392004	3,6V/3Ah Ni-Cd	3 h	8VA	270/270 lm	1235 gr.
GR-736/21L/ADR	C	923736022	3,6V/1,5Ah Ni-Cd	3 h	7VA	175/175 lm	870 gr.
GR-736/6L/ADR	C	923736006	3,6V/3Ah Ni-Cd	3 h	7,5VA	150/300 lm	920 gr.

Addressable Light

Addressable
emergency luminaires

IP65

IP42

IP30

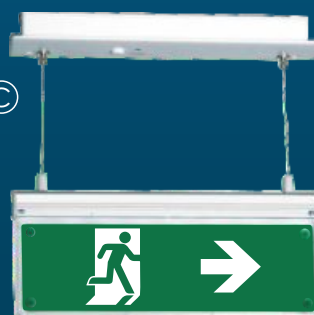
A



B



C



D



E



Single packaging

F



G

H

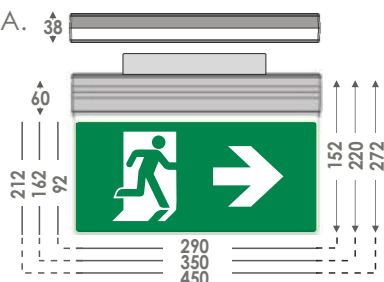


I



■ Dimensions in mm

A.



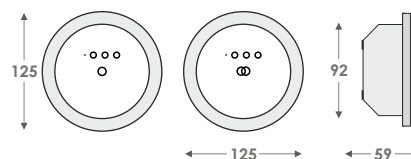
38



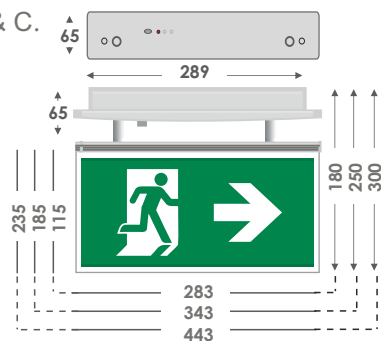
Eco

ZLD-28, ZLD-28/CBS
290 x 152 x 38
ZLD-34, ZLD-34/CBS:
350 x 220 x 38
ZLD-44, ZLD-44/CBS:
450 x 272 x 38

D & E.



B & C.



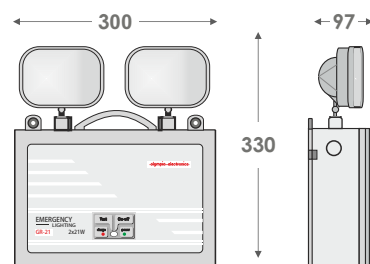
34



Lounge

SLD-28/SP, SLD-28/CBS/SP:
289 x 180 x 34
SLD-34/SP, SLD-34/CBS/SP:
343 x 250 x 34
SLD-44/SP, SLD-44/CBS/SP:
443 x 300 x 34

F, G, H & I.





ADDRESSABLE, SELF TESTING, MAINTAINED LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
ZLD-28/EM/ADR*	A	922502862	3,6V/1,5Ah Ni-Mh	3 h	6,5VA	125/125 lm	1075 gr.
ZLD-34/EM/ADR*	A	922503467	3,6V/1,5Ah Ni-Mh	3 h	6,7VA	145/125 lm	1475 gr.
ZLD-44/EM/ADR	A	922504458	3,6V/1,5Ah Ni-Mh	3 h	6,9VA	200/150 lm	2045 gr.

ADDRESSABLE, SELF TESTING, MAINTAINED LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
SLD-28/SP/ADR	B	922028019	3,6V/1,5Ah Ni-Mh	3 h	9VA	100/100 lm	1050 gr.
SLD-34/SP/ADR	B	922034018	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	1370 gr.
SLD-44/SP/ADR	B	922044011	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	2060 gr.
SLD-28/DZ/ADR	C	922028020	3,6V/1,5Ah Ni-Mh	3 h	9VA	100/100 lm	980 gr.
SLD-34/DZ/ADR	C	922034019	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	1340 gr.
SLD-44/DZ/ADR	C	922044012	3,6V/1,5Ah Ni-Mh	3 h	9,5VA	125/125 lm	2030 gr.

ADDRESSABLE, SELF TESTING, NON MAINTAINED HIGH POWER LIGHT OUTPUT LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-37/90/ADR	I	923037007	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4360 gr.
GRL-37/180/ADR	I	923037008	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6560 gr.
GRL-39/ADR	H	923039005	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	3880 gr.

ADDRESSABLE, WATERPROOF IP65, SELF TESTING, NON MAINTAINED HIGH POWER LIGHT OUTPUT LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-37/90/WP/ADR	G	923037009	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4520 gr.
GRL-37/180/WP/ADR	G	923037010	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6700 gr.
GRL-39/WP/ADR	F	923039006	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	4020 gr.

ADDRESSABLE, SELF TESTING, NON MAINTAINED, CEILING MOUNTED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	INSTALLATION	GROSS WEIGHT
GR-290/ADR	E	923290003	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Escape routes	450 gr.
GR-291/ADR	D	923291003	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Open areas	450 gr.
GR-292/ADR	E	923292001	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	150 lm	Escape routes	450 gr.
GR-293/ADR	D	923293001	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	150 lm	Open areas	450 gr.

DALI Light

Addressable DALI
self testing emergency
luminaires



Single package



Description

Dali (Digital Addressable Lighting Interface) is a luminaire communication protocol that can be used to monitor and control a luminaire network. It can monitor or control single or multiple luminaires and can be used to adjust various parameters such as light intensity, maximum light intensity as well as monitor the good operation of the luminaires. Via other Dali products, tests can be conducted by using Android cell phones, via Ethernet or via buttons.

Advantages:

Monitor and control luminaire networks via computer through USB or Ethernet.

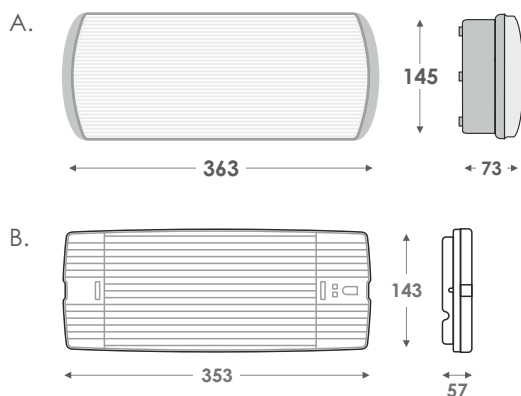
Monitor and control luminaires via Android cell phones.

Control luminaires via a button.

Capability to convert common luminaires to Dali luminaires via programmable relays.

Capability to expand the DALI network via an already installed 230V mains grid.

Dimensions in mm




DALI LED EMERGENCY LUMINAIRES CONTROL UNITS

TYPE	PICTURE	CODE	DESCRIPTION
Dali input unit	C	980662100	Dali module with programmable inputs
Dali / USB Bridge	D	980662101	Dali to USB converter
DeeBridge	J	980662102	Ethernet to Dali converter
BlueBridge	E	980662103	Bluetooth to Dali converter
Dali PLC -In	F	980662104	Dali power line communication input module
Dali 4 x Relay	G	980662105	Dali module with 4 programmable relays
Dali PLC	H	980662106	Power line communication module
Dali power supply	I	980662107	Dali power supply

DALI ADDRESSABLE, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-315/15L/DALI/A	B	923315032	3,6V/600mAh Ni-Cd	1,5 h	7VA	125/125 lm	740 gr.
GR-316/15L/DALI/A	B	923316028	3,6V/1,5Ah Ni-Cd	3 h	7,4VA	125/125 lm	810 gr.
GR-315/30L/DALI/A	B	923315033	3,6V/1,5Ah Ni-Cd	1,5 h	7,8VA	250/250 lm	810 gr.
GR-316/30L/DALI/A	B	923316029	3,6V/3Ah Ni-Cd	3 h	8,2VA	250/250 lm	890 gr.
GR-315/4P/DALI/A	B	923315030	4,8V/1,5Ah Ni-Cd	1,5 h	8,10VA	150/300 lm	825 gr.
GR-315/6P/DALI/A	B	923315031	4,8V/3Ah Ni-Cd	1,5 h	8,4VA	225/450 lm	955 gr.
GR-316/4P/DALI/A	B	923316026	4,8V/3Ah Ni-Cd	3 h	7,5VA	150/300 lm	950 gr.
GR-316/6P/DALI/A	B	923316027	4,8V/4Ah Ni-Cd	3 h	8,5VA	225/415 lm	995 gr.

DALI ADDRESSABLE, WATERPROOF IP65, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-938/15L/DALI	A	923938019	3,6V/600mAh Ni-Cd	1,5 h	7,5VA	125/125 lm	980 gr.
GR-938/30L/DALI	A	923938020	3,6V/1,5Ah Ni-Cd	1,5 h	8,5VA	250/250 lm	1050 gr.
GR-939/15L/DALI	A	923939022	3,6V/1,5Ah Ni-Cd	3 h	6,8VA	125/125 lm	1050 gr.
GR-939/30L/DALI	A	923939023	3,6V/3Ah Ni-Cd	3 h	8,2VA	250/250 lm	1130 gr.
GR-938/4P/DALI	A	923938017	4,8V/1,5Ah Ni-Cd	1,5 h	8,10VA	150/300 lm	1075 gr.
GR-938/6P/DALI	A	923938018	4,8V/3Ah Ni-Cd	1,5 h	8,4VA	225/450 lm	1170 gr.
GR-939/4P/DALI	A	923939020	4,8V/3Ah Ni-Cd	3 h	7,7VA	150/300 lm	1170 gr.
GR-939/6P/DALI	A	923939021	4,8V/4Ah Ni-Mh	3 h	8,5VA	225/415 lm	1210 gr.
GR-940/15L/DALI	A	923940004	3,6V/3Ah Ni-Cd	8 h	7VA	125/125 lm	1135 gr.

DALI Light

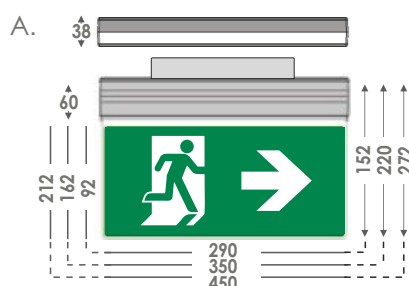
Addressable DALI
self testing emergency
luminaires



Single packaging



■ Dimensions in mm



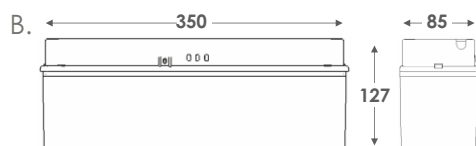
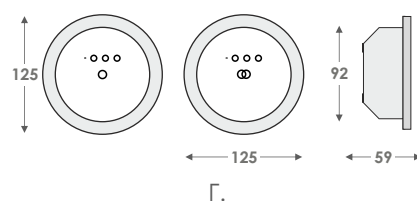
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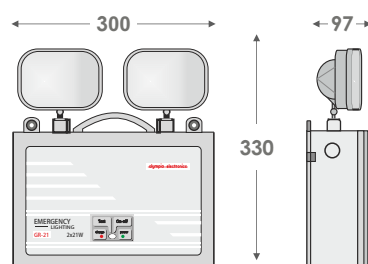
Eco

ZLD-28, ZLD-28/CBS
290 x 152 x 38
ZLD-34, ZLD-34/CBS:
350 x 220 x 38
ZLD-44, ZLD-44/CBS:
450 x 272 x 38

D & E.



F & G.





DALI ADDRESSABLE, SELF TESTING, MAINTAINED LED EDGE ILLUMINATION SIGNS 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
ZLD-28/EM/DALI	A	922502868	3,6V/1,5Ah Ni-Mh	3 h	6,5VA	150/150 lm	1075 gr.
ZLD-34/EM/DALI	A	922503472	3,6V/1,5Ah Ni-Mh	3 h	6,7VA	175/150 lm	1475 gr.
ZLD-44/EM/DALI	A	922504463	3,6V/1,5Ah Ni-Mh	3 h	6,9VA	200/150 lm	2045 gr.

DALI ADDRESSABLE, SELF TESTING, MAINTAINED LED EMERGENCY LUMINAIRES 220-240V AC

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-390/L/DALI	C	923390005	3,6V/1,5Ah Ni-Cd	1,5 h	7,5VA	270/270 lm	1165 gr.
GR-392/L/DALI	C	923392005	3,6V/3Ah Ni-Cd	3 h	8VA	270/270 lm	1235 gr.
GR-736/21L/DALI	B	923736024	3,6V/1,5Ah Ni-Cd	3 h	7VA	175/175 lm	870 gr.
GR-736/6L/DALI	B	923736025	3,6V/3Ah Ni-Cd	3 h	7,5VA	150/300 lm	920 gr.

DALI ADDRESSABLE, SELF TESTING, NON MAINTAINED CEILING MOUNTED LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT OUTPUT	INSTALLATION	GROSS WEIGHT
GR-290/DALI	E	923290004	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Escape routes	450 gr.
GR-291/DALI	D	923291004	4,8V/1,2Ah Ni-Mh	1,5 h	3,5VA	270 lm	Open areas	450 gr.
GR-292/DALI	E	923292002	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	150 lm	Escape routes	450 gr.
GR-293/DALI	D	923293002	4,8V/1,2Ah Ni-Mh	3 h	3,5VA	150 lm	Open areas	450 gr.

DALI ADDRESSABLE, WATERPROOF IP65, SELF TESTING, NON MAINTAINED, HIGH POWER LIGHT OUTPUT LED EMERGENCY LUMINAIRES

TYPE	PICTURE	CODE	BATTERY	DURATION	CONSUMPTION	LIGHT SOURCE	LIGHT OUTPUT	GROSS WEIGHT
GRL-37/90/WP/DALI	G	923037012	12V/7Ah Pb	1,5 h	16VA	2x6P Leds	3200 lm	4520 gr.
GRL-37/180/WP/DALI	G	923037013	2x12V/7Ah Pb	3 h	16VA	2x6P Leds	3200 lm	6700 gr.
GRL-39/WP/DALI	F	923039007	12V/7Ah Pb	3 h	16VA	2X84 Leds	1620 lm	4020 gr.

24V DC Addressable central battery system

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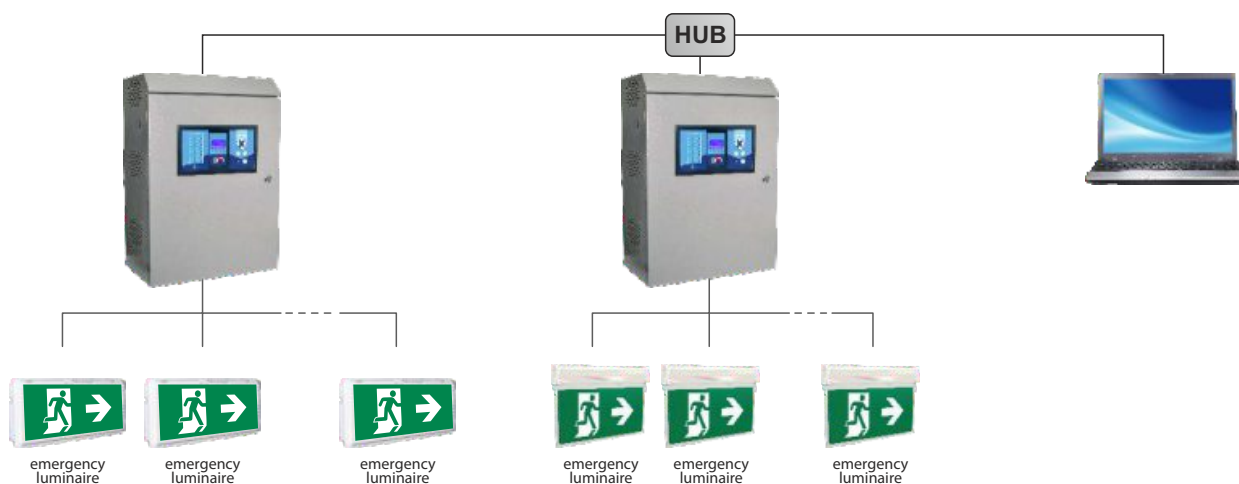


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- Output: 24V DC
- 300W - 600W panels
- 4 - 8 zones
- Capability for connecting several panels on an ethernet network
- The programming, control and testing of the system can be done using a web browser (Internet Explorer, Mozilla Firefox, Chrome)
- Independent program for each zone for maintained or non-maintained operation.

CE



300W / 24V DC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8600/300/4	A	923860004	300 Watt panel with 4 lighting circuits. Requires 2 bateries 12V/33Ah
GR-8600/300/8	A	923860005	300 Watt panel with 8 lighting circuits. Requires 2 bateries 12V/33Ah

600W / 24V DC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8600/600/8	A	923860006	600 Watt panel with 8 lighting circuits. Requires 2 bateries 12V/55Ah

PERIPHERALS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8610	C	923861000	4 zone lighting circuit extension card for addressable luminaires CBS 24V / 300 Watt
GR-8530	B	923853000	Network card through ETHERNET



ADDRESSABLE LED EMERGENCY LUMINAIRES 24V DC EASY LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-325/6P/24V/ADR/A	A	923325009	Emergency	5,5W	580lm	
GR-324/15L/24V/ADR/A	A	923324021	Emergency	1,1W	125lm	
GR-324/30L/24V/ADR/A	A	923324022	Emergency	2,1W	250lm	

ADDRESSABLE LED EMERGENCY LUMINAIRES 24V DC ECO LIGHT

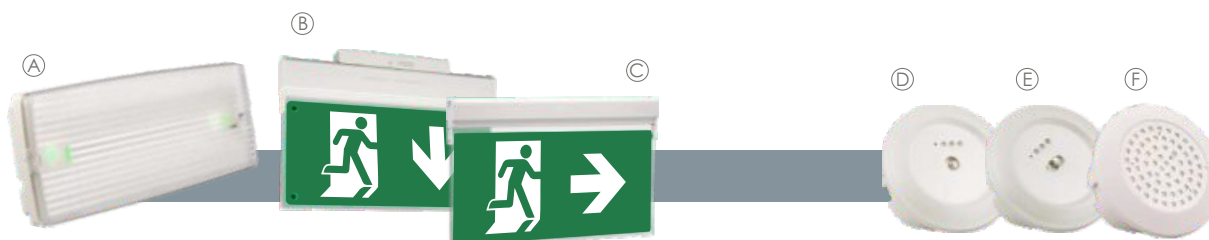
TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
DLD-28/w/24V/ADR	C	922202810	Emergency, indication	0,85W	100lm	
DLD-34/w/24V/ADR	C	922203414	Emergency, indication	1,1W	125lm	
DLD-44/w/24V/ADR	C	922204407	Emergency, indication	1,1W	125lm	

ADDRESSABLE LED EMERGENCY LUMINAIRES 24V DC ECO LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
ZLD-28/24V/ADR/EM	B	922502869	Emergency, indication	1,3W	150lm	
ZLD-34/24V/ADR/EM	B	922503473	Emergency, indication	1,5W	175lm	
ZLD-44/24V/ADR/EM	B	922504464	Emergency, indication	1,6W	200lm	

ADDRESSABLE LED EMERGENCY LUMINAIRES 24V DC SPOT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-280/24V/ADR	E	923280004	Emergency, ceiling mounted	2,2W	270lm	
GR-281/24V/ADR	D	923281004	Emergency, ceiling mounted	2,2W	270lm	
GR-296/30L/CBS/24V/ADR	F	923296006	Emergency, ceiling mounted	2,7W	250lm	
GR-296/60L/CBS/24V/ADR	F	923296007	Emergency, ceiling mounted	4,6W	500lm	



CBS 24V DC Central battery system

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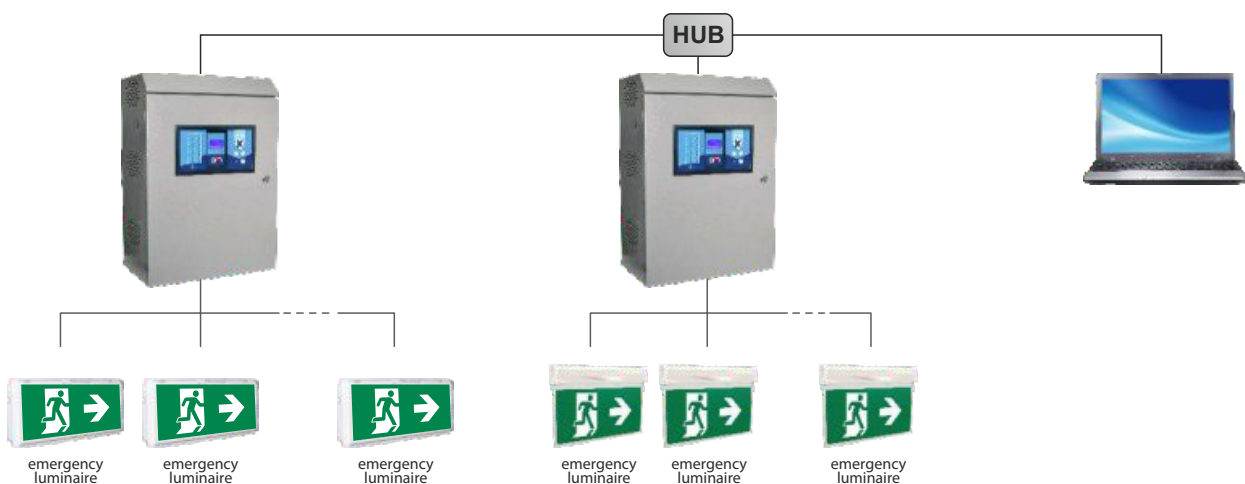
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- Output: 24V DC In the mains and in emergency
- 300 - 600W zones
- 4-16 zones
- Capability for connecting several panels on an ethernet network
- The programming, control and testing of the system can be done using a web browser (Internet Explorer, Mozilla Firefox, Chrome)
- Independent program for each zone for maintained or non-maintained operation.



300W / 24V DC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8500/300/4	A	923850000	300W panel with 4 lighting circuits. Requires 2 bateries 12V/33Ah
GR-8500/300/8	A	923850001	300W panel with 8 lighting circuits. Requires 2 bateries 12V/33Ah
GR-8500/300/12	A	923850002	300W panel with 12 lighting circuits. Requires 2 bateries 12V/33Ah
GR-8500/300/16	A	923850003	300W panel with 16 lighting circuits. Requires 2 bateries 12V/33Ah

600W / 24V DC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8500/600/8	A	923850004	600W panel with 8 lighting circuits. Requires 2 bateries 12V/55Ah
GR-8500/600/16	A	923850005	600W panel with 16 lighting circuits. Requires 2 bateries 12V/55Ah

PERIPHERALS

TYPE	PICTURE	CODE	DESCRIPTION
GR-8510	C	923851000	4 zone lighting circuit extension card 24V / 300 Watt
GR-8530	B	923853000	Network card through ETHERNET


LED EMERGENCY LUMINAIRES 24V DC EASY LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-325/6P/24V DC/A	A	923325008	Emergency	5,4W	580 lm	
GR-324/15L/24V DC/A	A	923324018	Emergency	1,05W	125 lm	700 gr.
GR-324/30L/24V DC/A	A	923324019	Emergency	2,05W	250 lm	700 gr.

WATERPROOF IP65 LED EMERGENCY LUMINAIRES 24V DC WEATHER LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-926/15L/24V DC	B	923926014	Emergency, IP65	1,05W	125 lm	830 gr.
GR-926/30L/24V DC	B	923926015	Emergency, IP65	2,05W	250 lm	830 gr.

LED EMERGENCY LUMINAIRES 24V DC RECT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-736/21L/24V DC	C	923736007	Emergency	1,5W	175 lm	680 gr.

LED EDGE ILLUMINATION SIGNS 24V DC ECO LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
DLD-28/CBS/w/24V DC	D	922202809	Emergency, indication	0,8W	100 lm	610 gr.
DLD-34/CBS/w/24V DC	D	922203413	Emergency, indication	1,05W	125 lm	960 gr.
DLD-44/CBS/w/24V DC	D	922204406	Emergency, indication	1,05W		
ZLD-28/CBS/24V DC/EM	E	922502867	Emergency, indication	1,25W	150 lm	945 gr.
ZLD-34/CBS/24V DC/EM	E	922503471	Emergency, indication	1,45W	175 lm	1340 gr.
ZLD-44/CBS/24V DC/EM	E	922504462	Emergency, indication	1,55W	200 lm	1870 gr.

LED EDGE ILLUMINATION SIGNS 24V DC LOUNGE LIGHT

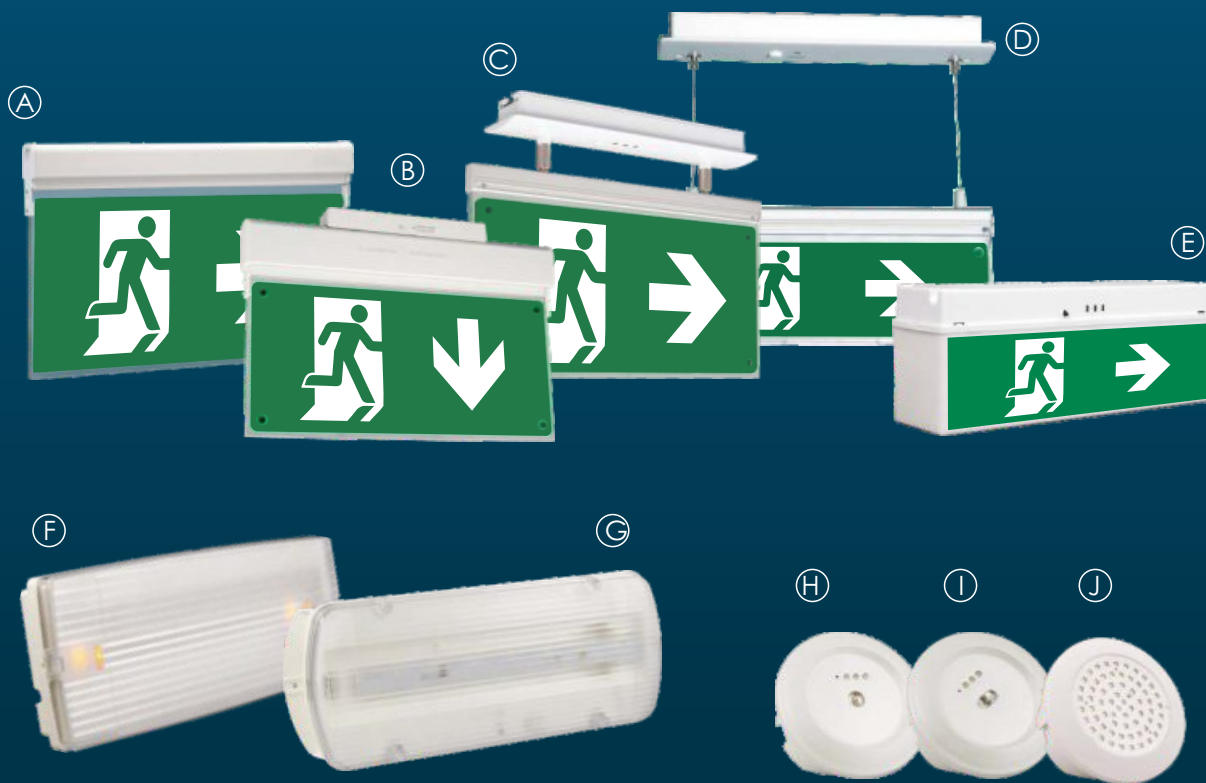
TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
SLD-28/CBS/SP/24V DC	F	922028021	Emergency, indication	0,8W	100 lm	910 gr.
SLD-34/CBS/SP/24V DC	F	922034020	Emergency, indication	1,05W	125 lm	1310 gr.
SLD-44/CBS/SP/24V DC	F	922044013	Emergency, indication	1,05W	125 lm	2015 gr.
SLD-28/CBS/DZ/24V DC	G	922028022	Emergency, indication	0,8W	100 lm	880 gr.
SLD-34/CBS/DZ/24V DC	G	922034021	Emergency, indication	1,05W	125 lm	1315 gr.
SLD-44/CBS/DZ/24V DC	G	922044014	Emergency, indication	1,05W	125 lm	1755 gr.

CEILING MOUNTED LED EMERGENCY LUMINAIRES 24V DC SPOT LIGHT

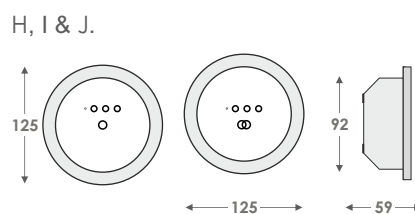
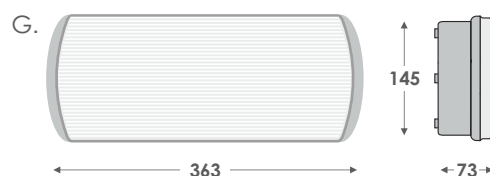
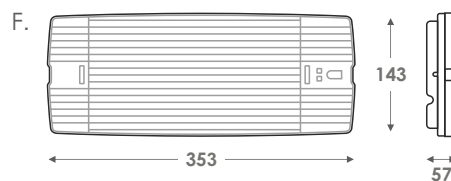
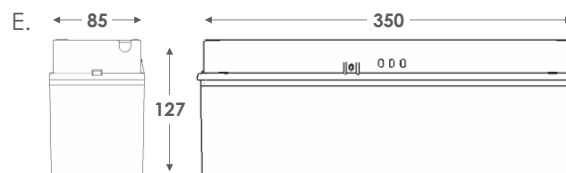
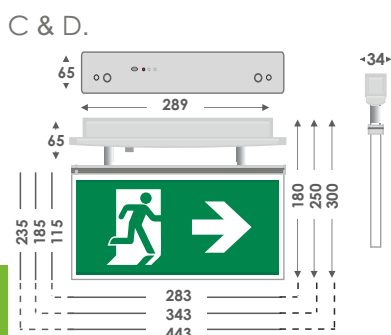
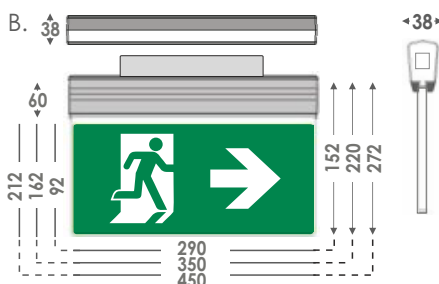
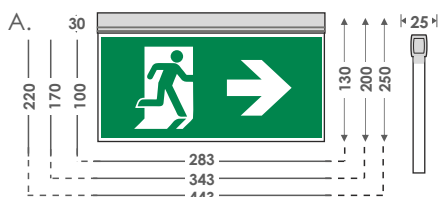
TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-296/30L/CBS/24V DC	J	923296004	Emergency, ceiling mounted	2,7W	250 lm	320 gr.
GR-296/60L/CBS/24V DC	J	923296005	Emergency, ceiling mounted	4,6W	500 lm	320 gr.
GR-280/24V DC	I	923280003	Emergency, ceiling mounted	2,1W	270 lm	320 gr.
GR-281/24V DC	H	923281003	Emergency, ceiling mounted	2,1W	270 lm	320 gr.



CBS 24V ACDC LUMINAIRES



■ Dimensions in mm




LED EMERGENCY LUMINAIRES 24V ACDC EASY LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-325/6P/24V ACDC/A	F	923325007	Emergency	5,9W/6,3VA	580 lm	
GR-324/15L/24V ACDC/A	F	923324016	Emergency	1,25W/1,4VA	125 lm	700 gr.
GR-324/30L/24V ACDC/A	F	923324017	Emergency	2,6W/2,8VA	250 lm	700 gr.

WATERPROOF IP65 LED EMERGENCY LUMINAIRES 24V ACDC WEATHER LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-926/15L/24V ACDC	G	923926011	Emergency IP65	1,5W/1,8VA	125 lm	830 gr.
GR-926/30L/24V ACDC	G	923926012	Emergency IP65	2,5W/2,8VA	250 lm	830 gr.

LED EMERGENCY LUMINAIRES 24V ACDC RECT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-736/21L/24V ACDC	E	923736005	Emergency	2,2W/2,5VA	175 lm	680 gr.

LED EDGE ILLUMINATION SIGNS 24V ACDC ECO LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
DLD-28/CBS/w/24V ACDC	A	922202808	Emergency, indication	1,2W/1,5VA	100 lm	610 gr.
DLD-34/CBS/w/24V ACDC	A	922203412	Emergency, indication	1,5W/1,8VA	125 lm	960 gr.
DLD-44/CBS/w/24V ACDC	A	922204405	Emergency, indication	1,5W/1,8VA	125 lm	
ZLD-28/CBS/24V ACDC/EM	B	922502864	Emergency, indication	1,4W/1,55VA	150 lm	945 gr.
ZLD-34/CBS/24V ACDC/EM	B	922503469	Emergency, indication	1,6W/1,75VA	175 lm	1340 gr.
ZLD-44/CBS/24V ACDC/EM	B	922504460	Emergency, indication	1,85W/2,05VA	200 lm	1870 gr.

LED EDGE ILLUMINATION SIGNS 24V ACDC LOUNGE LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
SLD-28/CBS/SP/24V ACDC	C	922028017	Emergency, indication	1,2W/1,5VA	100 lm	910 gr.
SLD-34/CBS/SP/24V ACDC	C	922034016	Emergency, indication	1,5W/1,8VA	125 lm	1310 gr.
SLD-44/CBS/SP/24V ACDC	C	922044010	Emergency, indication	1,5W/1,8VA	125 lm	
SLD-28/CBS/DZ/24V ACDC	D	922028016	Emergency, indication	1,2W/1,5VA	100 lm	880 gr.
SLD-34/CBS/DZ/24V ACDC	D	922034015	Emergency, indication	1,5W/1,8VA	125 lm	
SLD-44/CBS/DZ/24V ACDC	D	922044009	Emergency, indication	1,5W/1,8VA	125 lm	

CEILING MOUNTED LED EMERGENCY LUMINAIRES 24V ACDC SPOT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-296/30L/CBS/24V ACDC	J	923296002	Emergency, ceiling mounted	2,7W/3VA	250 lm	320 gr.
GR-296/60L/CBS/24V ACDC	J	923296003	Emergency, ceiling mounted	4,6W/5,1VA	500 lm	320 gr.
GR-280/24V ACDC	I	923280001	Emergency, ceiling mounted	2,1W/2,3VA	270 lm	320 gr.
GR-281/24V ACDC	H	923281001	Emergency, ceiling mounted	2,1W/2,3VA	270 lm	320 gr.

CBS 230V AC Central battery system

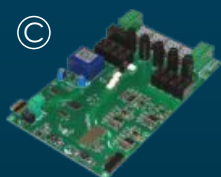
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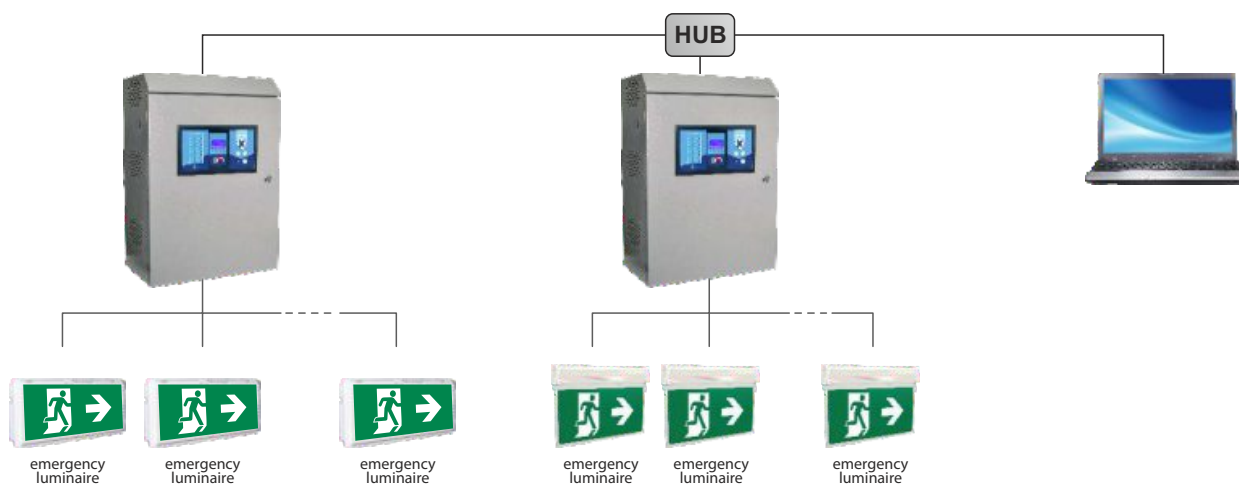


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- Output: 230V AC In the mains and in emergency
- 300 - 600VA panels
- 4-8 zones
- Capability for connecting several panels on an ethernet network
- The programming, control and testing of the system can be done using a web browser (Internet Explorer, Mozilla Firefox, Chrome)
- Independent program for each zone for maintained or non-maintained operation.

CE



300VA/1h or 100VA/3h / 230V AC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-9500/300/4	A	923950002	4 lighting circuits panel. Requires 2 bateries 12V/33Ah
GR-9500/300/8	A	923950004	8 lighting circuits panel. Requires 2 bateries 12V/33Ah

600VA/1h or 200VA/3h / 230V AC PANELS

TYPE	PICTURE	CODE	DESCRIPTION
GR-9500/600/8	A	923950003	8 lighting circuits panel. Requires 2 bateries 12V/55Ah

PERIPHERALS

TYPE	PICTURE	CODE	DESCRIPTION
GR-9510	C	923951000	4 zone lighting circuit extension card 230V / 300 Watt
GR-8530	B	923853000	Network card through ETHERNET



LED EMERGENCY LUMINAIRES 230V ACDC SLIM LEDs LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-2000/CBS	C	923200004	Emergency	1,55W/1,78VA	125 lm	350 gr.

LED EMERGENCY LUMINAIRES 230V ACDC EASY LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-324/4P/A	A	923324013	Emergency	5,8W/6,9VA	460 lm	660 gr.
GR-325/6P/A	A	923325006	Emergency	6,5W/6,9VA	580 lm	660 gr.
GR-324/15L/A	A	923324014	Emergency	1,75W/2VA	125 lm	660 gr.
GR-324/30L/A	A	923324015	Emergency	2,9W/3,2VA	250 lm	660 gr.

WATERPROOF IP65 LED EMERGENCY LUMINAIRES 230V ACDC WEATHER LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-926/15L	B	923926007	Emergency IP65	1,75W/2VA	125 lm	880 gr.
GR-926/30L	B	923926008	Emergency IP65	2,9W/3,2VA	250 lm	880 gr.

LED EDGE ILLUMINATION SIGNS 230V ACDC ECO LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
ZLD-28/CBS/EM	E	922502863	Emergency, indication	1,9W/2,1VA	150 lm	985 gr.
ZLD-34/CBS/EM	E	922503468	Emergency, indication	2,2W/2,42VA	175 lm	1380 gr.
ZLD-44/CBS/EM	E	922504459	Emergency, indication	2,6W/2,86VA	200 lm	1910 gr.
DLD-28/CBS/w	D	922202870	Emergency, indication	1,5W/4,5VA	100 lm	650 gr.
DLD-34/CBS/w	D	922603401	Emergency, indication	1,5W/4,5VA	125 lm	1000 gr.
DLD-44/CBS/w	D	922604410	Emergency, indication	1,5W/4,5VA	125 lm	1620gr.

LED EDGE ILLUMINATION SIGNS 230V ACDC LOUNGE LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
SLD-28/CBS/SP	F	922028009	Emergency, indication	1,35W/1,65VA	100 lm	930 gr.
SLD-34/CBS/SP	F	922034010	Emergency, indication	1,60W/1,9VA	125 lm	1260 gr.
SLD-44/CBS/SP	F	922044007	Emergency, indication	1,60W/1,9VA	125 lm	1970 gr.
SLD-28/CBS/DZ	G	922028003	Emergency, indication	1,35W/1,65VA	100 lm	930 gr.
SLD-34/CBS/DZ	G	922034004	Emergency, indication	1,60W/1,9VA	125 lm	1290 gr.
SLD-44/CBS/DZ	G	922044003	Emergency, indication	1,60W/1,9VA	125 lm	1960 gr.

CBS SYSTEM, WITH EXTERNAL LUMINAIRE

TYPE	CODE	DESCRIPTION
KIT-75/84	923084003	Mains electronic converter GR-75 with GR-84 1W spot LED

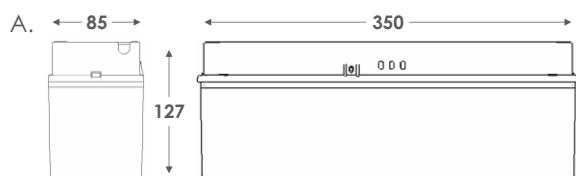


CBS 230V AC LUMINAIRES

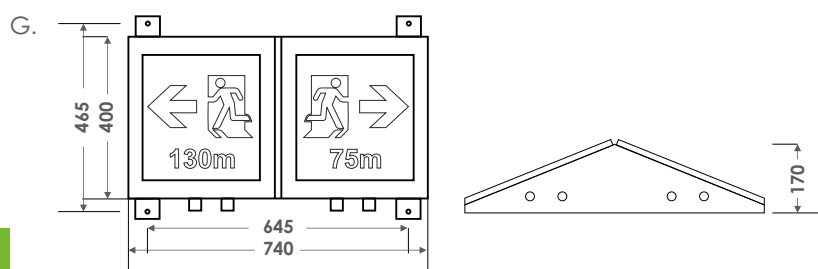
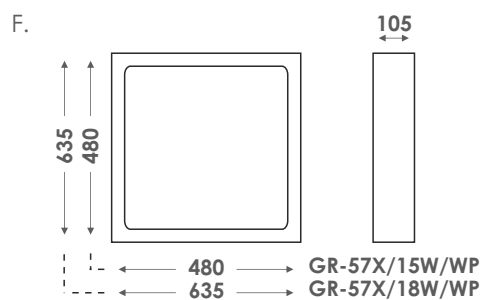
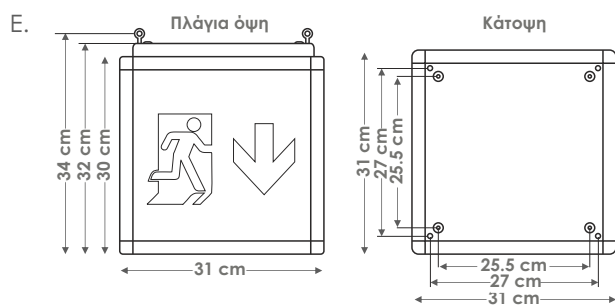
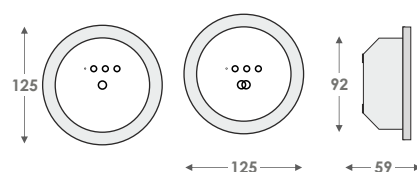


CE

■ Dimensions in mm



B, C & D.





LED EMERGENCY INDICATION LUMINAIRES 230V ACDC 3D & TUNNEL LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-424/4P	E	923424001	Emergency, indication	5,8W/6,1VA	460lm	3170 gr.
GR-576/L/15/WP	F	923576100	Emergency, indication	7,2W/7,6VA	680lm	
GR-576/L/15/WP/O	F	923576102	Emergency, indication	7,2W/7,6VA	680lm	7445 gr.
GR-576/L/18/WP	F	923576101	Emergency, indication	8,8W/9,3VA	850lm	
GR-576/L/18/WP/O	F	923576103	Emergency, indication	8,8W/9,3VA	850lm	
GR-575/L/WP	G	923575100	Emergency, indication	14,4W/15,2VA	1360lm	

CEILING MOUNTED LED EMERGENCY LUMINAIRES 230V ACDC SPOT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-296/30L/CBS	D	923296000	Emergency, ceiling mounted	2,9W/3,15VA	255lm	250 gr.
GR-296/60L/CBS	D	923296001	Emergency, ceiling mounted	4,9W/5,3VA	510 lm	250 gr.
GR-280	C	923280000	Emergency, ceiling mounted	2,6W/3VA	270 lm	250 gr.
GR-281	B	923281000	Emergency, ceiling mounted	2,6W/3VA	270 lm	250 gr.

LED EMERGENCY LUMINAIRES 230V ACDC RECT LIGHT

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	LIGHT OUTPUT	GROSS WEIGHT
GR-736/6L/CBS	A	923736002	Emergency	4,75W/5,05VA	340 lm	715 gr.
GR-736/21L/CBS	A	923736004	Emergency	4,6W/4,9VA	175 lm	715 gr.



**WOULD YOU
GUMBLE WITH
YOUR LIFE?**

PLAY IT SAFE

**CERTIFIED
EMERGENCY LIGHTING**

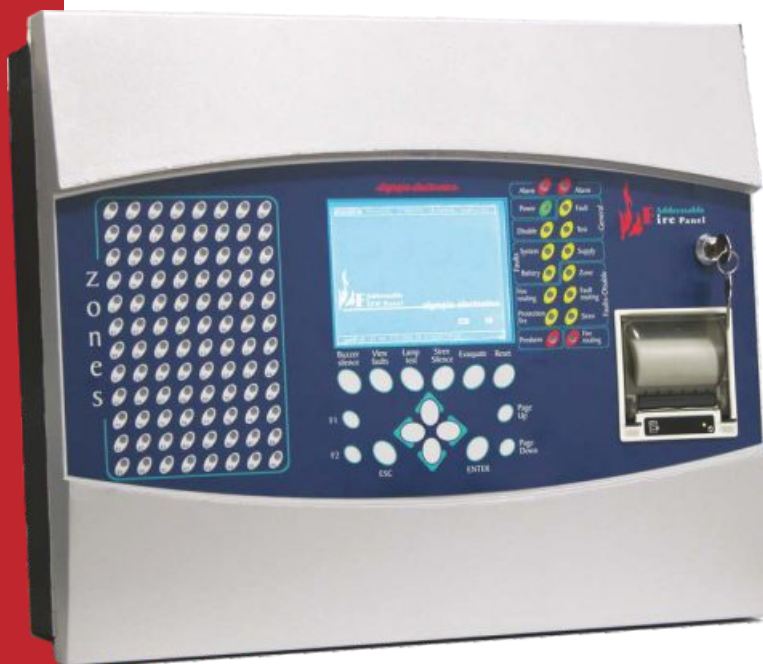


G. Samaras
MEDICAL GAS SOLUTIONS





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FIRE DETECTION

CONVENTIONAL SYSTEMS
ADDRESSABLE SYSTEMS
PERIPHERALS

DEFINITIONS

Fire detection system. Is a group of devices that are used to detect fire hot spots and to give an alarm signal by audible, visual or other means.

Conventional fire detection systems. Are fire detection systems where the detectors and call points are divided into detection zones. The indications on the control panels, refer to detections zones and not individual devices.

Analog addressable fire detection systems. Are fire detection systems where the sensors give analog signals for the phenomenon that they detect. The panel recognizes the exact point (address) of every device.

Optical smoke sensor. Is a device that senses smoke using an optical method. (With an IR transmitter and receiver). This optical method does not use radioactive elements.

Ionization detector. Is a device that detects smoke by current variations which run through the ionization smoke chamber. The detector's operation depends on the radioactive element (Am241).

Beam detectors. These smoke detectors emit an Infrared beam inside the protected area. They consist of at least two parts which are placed at different locations and are used to cover large areas.

Heat of rise detectors. Are devices that sense rapid temperature fluctuation

Thermal detectors. Are devices that are activated when the temperature exceeds a pre-determined level.

Explosive gas detectors. Are devices that have a special sensor that is capable of detecting a specific category of explosive or toxic gases. There are several types of explosive gas detectors according to the type of gas that they detect

Manual fire detection call points. Are devices that activate manually the central control panel.

Siren/beacon. Is a device that is activated by the control panel and is used to warn with a strong audible and visual signal for the presence of a fire.

Public address system. Is a device that is activated by the control panel and has the capability to transmit the siren's sound as well as verbal commands which can be heard in the covered areas.

Electromagnetic door latches. Are devices that retain the fire doors open but release them in the event of a fire condition

Remote sensor LED. Is a device that can be connected to one or more sensors and lights when one of them is activated in order to indicate the signal externally from the covered area.

SYSTEM SELECTION

The selection of a suitable fire detection system essentially begins from the selection of the panel.

Without any general rules to adhere to, the total size of the area, its usage, the construction material and certain special requirements are factors that influence the size and the type of the panel.

If we select a conventional system we begin by dividing the area into zones and taking care that:

- Each zone does not have an area greater than 2000 sqm.
- Each zone contains a clearly defined area (e.g. A floor level).
- The total electrical capability of the zone is not exceeded.
- The point of the fire can be easily located by someone that is in the vicinity of the zone.

If the required zones do not exceed 6 and there is no need for future expansion of the system then we can select on the BS-1632, BS-1634 or BS-636 panels.

In very large areas, where it is required that the panel shows information of the exact location of the sensors that are activated, we must select an addressable system with one or more loops depending on the total covered area. Each loop has specific capacity (191 or 240 devices, depending on the system) and can theoretically cover approximately 5000 sqm. All the devices of the loop are connected on a 2-wire hook up arrangement by which they are powered and communicate with the panel. In order to prevent a fault from disrupting the operation of the whole loop, line isolators are placed periodically between the detectors and the call points.



■ INSTALLATION OF DEVICES

Manual call points

The selection of suitable installation points in general can be done by following these guides:

- No point in the covered area must be at a greater distance of 30m from a manual call point.
- They must be installed on the escape routes, in points that lead to stairs and near every exit that leads to external areas.
- The call points can be connected on the same zone as the sensors but care must be taken to avoid mis-operation if a sensor is removed.

If this is not possible due to the configuration of the zones, then they must be installed in a separate zone.

They are installed at a height of about 1,2 to 1,5 meters and in clearly visible areas. Each call point must be adequately illuminated by the emergency illumination system.

Selecting sensors

Start by selecting the suitable type of sensor for each area. Care must be taken to select the type of detector that will issue an alarm in the shortest time period from the time that the fire starts while simultaneously avoiding false alarms in normal operation. It is significant to find the golden mean between these two requirements in order to design a successful and reliable system.

In most cases we can use as a guide the table found on page 52.

Installing smoke, heat of rise and thermal detectors.

The greatest quantity of smoke heat during a fire, will be concentrated in the highest points of the closed area. It is in these points that we must install the smoke and heat detectors.

When the ceiling of the area is level without interruptions from constructional beams then the mounting positions of the detectors can be calculated from the guides mentioned below:

- The area covered by a sensor must not be greater than 50 sqm.
- The distance from an adjacent wall must not be more than 3.5 meters.
- The distance between two consecutive detectors must not exceed 12.5 meters.

If the ceiling is interrupted by construction beams then each divided area must be designed separately from the others by adhering to the pre-mentioned rules.

If the ceiling is inclined then we must surely install one line of detectors on the highest point.

Installing gas detectors

The concentration area of a particular explosive or toxic gas depends on its molecular weight. The "heavy" gases, those that have a molecular weight greater than 29, are concentrated near the ground. The "lighter" gases, those that have a molecular weight less than 29, concentrate near the ceiling.

Gas detectors can be connected to the same zone with other types of detectors and manual call points. Due to the nature of the electrical installation (requires two more wires) and the different coping probably required by an alarm caused by gases, it is advisable from the beginning to install these detectors on zones that are independent from detectors and sensors of other types.

The table below shows the most common explosives gases, their chemical formula and their molecular weight.

■ Certain areas & suitable detectors

Area	Detector				
	Smoke	Beam	Heat of rise	Thermal	Explosive gas
Corridors - Stair wells	**				
Elevators	**				
Offices - general purpose areas	**				
Convention areas	**				
Reception areas	**				
Lobbies - Halls	**				
Malls	**				
Theaters - cinemas	**				
Storage areas	*	**			
Schools	**				
Clinics - Surgeries - Laboratories	**				
Machine shops	**				
Factories - Repair shops	**	**			
Churches	**				
Telephone booths	**				
Kitchens - electric ovens			**		
Boiler rooms			*	**	
Garages			**	*	
Gas kitchens			**		**
Beverage preparation areas					**

** The most suitable * Acceptable

■ Explosive & toxic gases

Name	Chemical formula	Molecular weight
Butane	C_4H_{10}	58
Propane	C_3H_8	44
Methane	CH_4	16
Hydrogen	H_2	2
Carbon monoxide	CO	28
Benzol	C_6H_6	78
Ethyl Alcohol	$\text{C}_2\text{H}_5\text{OH}$	46
Ammonia	NH_3	17
Hydrochloride	HCl	36
Carbon dioxide	CO_2	44
Chloride dioxide	ClO_2	68
Sulphur dioxide	SO_2	64
Hydro sulphur	H_2S	34

If we are called upon to sense "heavy" gases then the detectors must be placed approximately 30 centimeters from the ground and at a distance of no more than 4 meter in a horizontal direction from the probable leakage point. No obstacles, that interfere with the movement of the air, must be placed between the detector and the probable leakage point.

To detect "light" gases, the detectors must be placed approximately 30 centimeters below the ceiling. No construction beams must exist between the detector and the probable leak point.

Also care must be taken so the detector is not mounted:

- In areas with excessive humidity.
- In areas where it can come in contact with water.

Fire alarm indication and warning equipment.

With this general title we mean all those devices which have a purpose of warning and indicating a fire alarm condition to the public. Such devices are sirens, beacons, bells, automatic telephone dialers and other special devices. Special care must be taken for the selection and the installation of the sirens. This device, equal in value with the detectors of the system, is the peripheral that will warn the people responsible in order to intervene and the public to evacuate the premises.

The number of sirens and the mounting positions can be calculated if we take into account the following:

- In a multi-storey building at least one siren must be installed in each floor.
 - The sound pressure level of the alarm system must be higher than the normal sound pressure usually found in each area.
 - The sirens must be divided into two independent circuits. In this way, if one circuit fails there will always be a backup circuit to warn the public.
 - The sirens must have a similar sound that must be different from other audible devices that operate in the building.
 - If the alarm must wake sleeping people the sound pressure level must be 75dB at the height of the bed.
- In all siren installations it is advisable to install beacons as well.

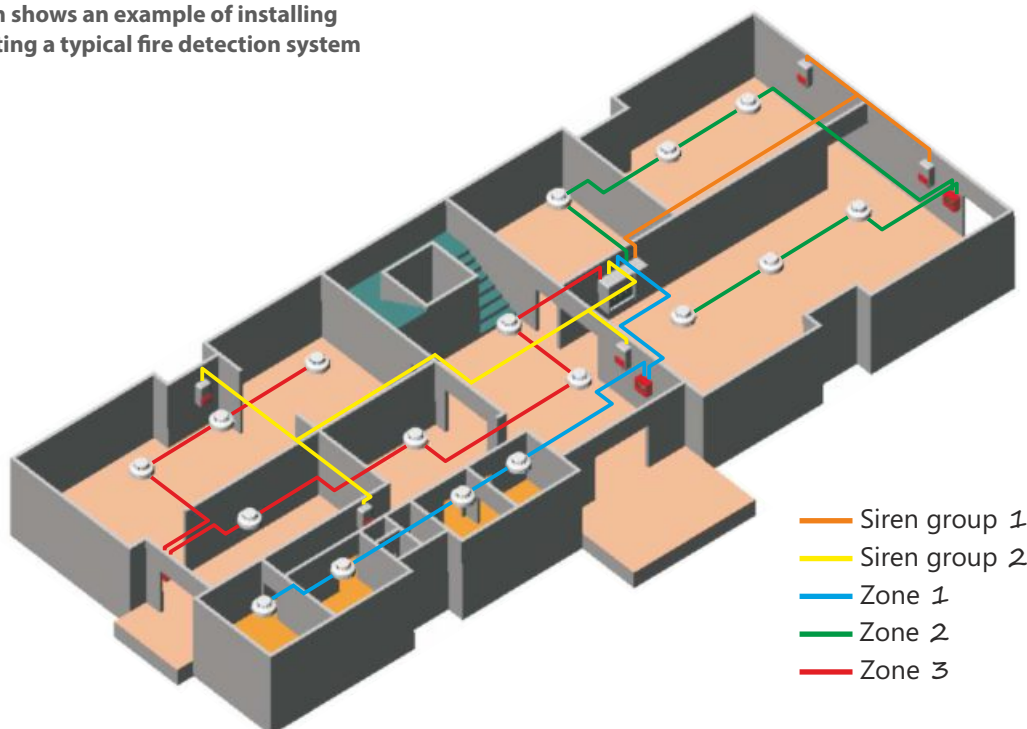
OTHER GUIDES**Special attention should be given to the battery of the system.**

The battery type normally used is sealed lead acid (Pb). It's maximum life span is about 4 years, but depends on the discharge cycle. Normally after this time period it must be replaced. The panel has a special circuit that warns us about the battery condition. The battery should have a suitable capacity in order to permit the system to operate for 36 hours during a power failure and 30 minutes during an alarm condition.

Cables.

Conventional fire detection system do not have any special requirements concerning the types of cables that they use for connecting their devices. In general, a flexible cable with a cross section of 0,75mm² is suitable for connecting the zones. For connecting the sirens where the power requirements are greater, it is required that the cable's cross section is 1,5mm².

In analog addressable systems, where loops are used, the cable must contain an external shield (e.g. LiYCY) that is connected to the mains power supply ground terminal.

The diagram shows an example of installing and connecting a typical fire detection system



■ INSPECTION AND SYSTEM MAINTENANCE

By the proper installation of all devices on a fire detection system we ensure it's proper first time operation. In order for the system to be reliable it must be inspected and maintained regularly.

The central panel has indications of all faults in the system that can degrade it's effectiveness. When a fault indication is observed, certain precautionary measures should be taken to restore the good operation of the system.

The most common faults and their consequences in a conventional fire detection system are:

- Zone fault indication. This means a short or open circuit of the cables that belong to the zone. It can also mean that a detector was removed from it's base. The area that is covered by this specific zone in reality is not monitored or in the best cases it is not fully monitored.
- Siren fault indication. This means an open or short circuit of the cables that power the sirens. All or some of the sirens may not be able to operate when there is an alarm condition. In this case the alarm may not be heard in some areas.

- Battery fault indication. This means that the battery is either disconnected or does not charge correctly. In this fault condition, the system will not operate or will have a very limited duration.

Every alarm signal that is not caused by a fire condition must be investigated and the causes that produced the alarm must be found in order to prevent false alarms.

The correct operation of the system must be verified once a week by activating the system using a different manual call point each time.

Each time the area is rearranged, the system's devices must be checked for good operation.

Finally, once a year the system must be inspected by activating it from each sensor or call point position.

■ FIRE DETECTION SYSTEM MAINTENANCE ROUTINE

Generally

Initially there must be an agreement between the user and/or owner and the manufacturer, supplier or other competent body for supervision, maintenance and repair of the system. The agreement must provide access to the installations and specify the length of time allowed for the restoration of the equipment function after fault. The name and the telephone number of the maintenance organization must be fixed next to the central panel.

A sufficient maintenance procedure includes daily, monthly, quarterly and yearly checks performed by the user or the special maintenance person as described below.

Daily checks

The user and/or owner must ensure that the following daily checks are performed:

- a. That the panel indicates that it is in idle mode or that every change of the idle mode has been registered in the event table and a report was made where necessary to the competent body.
- b. That the necessary attention was paid to every alarm registered until the previous working day.
- c. That, where necessary, every flawed operation of the system was repaired.

Every fault must be registered in the event table and the necessary corrective actions must be taken the soonest possible.

Monthly checks

At least once a month the user and/or owner must ensure that:

- a. Every stand-by generator, required according to the regulation, works and the fuel levels have been checked, and where necessary, have been refilled.
- b. Stationery and supplies in ink or band for each printer are sufficient.
- c. The indications (LEDs, Display) of all the indicators work properly or that every deficient/defective function was registered.

Any deficiency/fault noticed must be registered in the event table and the necessary corrective action must be taken the soonest possible.

Quarterly checks

At least once every three months the user and/or owner must ensure that someone trained:

- a. Checks all the entries in the event table and takes the necessary actions so that the system works properly.
- b. Activates at least one detector or one button in every zone and checks whether the control and indication system receives and produces the right signal, the alarm sounds and every other warning or assisting device works.

NOTE. A procedure must be adopted to secure that harmful functions (like the automatic extinguishment) are not performed when there is a quarterly check.

c. Looks for connection faults with all the control and indication devices (e.g. repetitive and mimic panels, answering machines).

d. Checks the correct function and indication of the fire security door retaining and releasing devices.

e. If permitted, operates every fire brigade or other signal receiving centre calling system.

f. Also performs all the extra checks, if they are foreseen by the system's installer, supplier or manufacturer.

g. Is informed if there have been building changes or installations that affect the requirements of the place in button, detectors or sirens. If there have been such changes, a visual inspection is performed.

Any lack, fault, requirement for position changes or equipment addition observed must be registered in the event table and the necessary corrective action must be taken the soonest possible.

Yearly checks

At least once a year, the user and/or owner must ensure that someone trained:

- a. Checks if the required daily, monthly and quarterly checks have taken place.
- b. Checks one by one all the detectors to see if they work properly (using smoke spray, hot air or other means the manufacturer proposes).

NOTE. Alternatively, a 25% of the detectors (different every time) may be checked in every quarterly check, so that all detectors have been checked at least once a year.

c. Checks if the control and indication devices can perform any assisting function. **NOTE.** A procedure must be adopted to guarantee that harmful functions (like the automatic extinguishment) are not performed when there is a yearly check.

d. Performs a visual check of all the cables and the rest of the equipment to ensure they are in good condition and adequately protected.

e. Checks, by site inspection, for building changes or installations that affect the function of the button, the detectors and the sirens. The site inspection must certify that there is clear space of at least 0.5 metres towards every direction for each detector and that the buttons are in good condition, visible and easily accessible.

f. Checks all the batteries. Any lack, fault, requirement for position changes or equipment addition noticed must be registered in the event table and the necessary corrective actions must be taken the soonest possible.

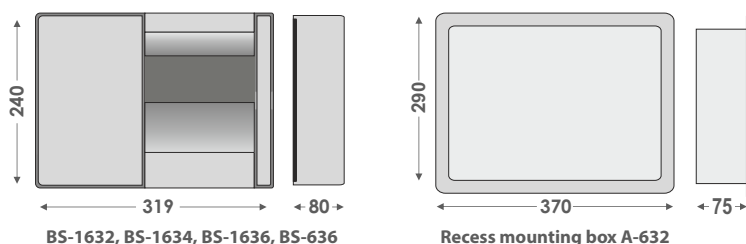
Special care must be taken so that all devices are re-installed properly after every check.



Description

- **BS-1632, BS-1634, BS-1636, BS-636.** Fire detection panels with 2, 4 and 6 zones respectively. They have uniform operations, controls and indications. They all have 2 siren outputs, alarm relay, programmable telephone dialer output. BS-636 panel is certified by

Dimensions in mm





■ FIRE DETECTION PANELS WITH 2, 4 & 6 ZONES

TYPE	PICTURE	CODE	DESCRIPTION
BS-1632	B	921163200	2 zone fire detection panel
BS-1634	B	921163400	4 zone fire detection panel
BS-1636	B	921163600	6 zone fire detection panel

■ TECHNICAL SPECIFICATIONS FOR 2, 4 & 6 ZONES FIRE DETECTION PANELS

TYPE	BS-1632	BS-1634	BS-1636
CODE	921163200	921163400	921163600
DESCRIPTION	2 zone fire detection panel	4 zone fire detection panel	6 zone fire detection panel
OPERATION VOLTAGE	220-240VAC/50Hz		
CONSUMPTION	50 VA		
BATTERY	Two 12V Lead acid sealed 2.6Ah		
CHARGING CIRCUIT	Stabilized power supply 27.6V / max. 400mA		
DURATION	72 hours (Maximum connected detectors 72 and no load at output 24VM and 24VP)		
ZONE CIRCUITS	2 circuits monitored for short and open circuit conditions (max. current 35mA)	4 circuits monitored for short and open circuit conditions (max. current 35mA)	6 circuits monitored for short and open circuit conditions (max. current 35mA)
ALARM CIRCUITS	Two 24V circuits that are monitored for open and short circuit conditions (maximum current 300mA each). Each output is protected with a self-resetting electronic fuse.		
OUTPUTS RELAYS	Three relays contacts are rated at 30VDC and 5A maximum each. Under no circumstances should voltages or currents outside limits be connected. All relays output must be protected with a fuse of the same rating.		
OPERATION TEMPERATURE	0 up to 50 °C		
HUMIDITY	Up to 95% relative humidity		
WEIGHT (without battery)	2040gr (4030gr with battery)		
PROD. IN ACCORDANCE WITH	EN 54-2, EN 54-4		

■ CONVENTIONAL FIRE DETECTION PANEL WITH 6 ZONES

TYPE	PICTURE	CODE	DESCRIPTION
BS-636	A	921636000	6 zone fire detection panel

■ TECHNICAL SPECIFICATIONS FOR FIRE DETECTION PANEL WITH 6 ZONES

TYPE	BS-636 VdS
CODE	921636000
DESCRIPTION	6 zones fire detection panel
OPERATION VOLTAGE	220-240VAC/50Hz
CONSUMPTION	48 VA
BATTERY	12V/7Ah
CHARGING CIRCUIT	13.8V / 400mA
DURATION	36 hours (without using the outputs 24V_M and 24V_P)
ZONE CIRCUITS	6 zones
ALARM CIRCUITS	Two 24V circuits that are monitored for open and short circuit conditions
OUTPUTS RELAYS	1 Alarm relay, 1 relay per zone, 24V permanent 24V reset interrupted
OPERATION TEMPERATURE	0 up to 50 °C
HUMIDITY	Up to 95% relative humidity
WEIGHT (without battery)	2040gr (4030gr with battery)
PROD. IN ACCORDANCE WITH	EN 54-2, EN 54-4

■ PERIPHERAL DEVICES

TYPE	CODE	DESCRIPTION
A-632*	980163200	Recess wall mounting base for BS-1632/1634/1636/636

* Trade products



CE

Description

- Fire Detection Panels 8, 12, and 16 Zones
- 8, 12 and 16 zone fire detection panels with identical operation and indications.
- Programming and monitoring is done using a graphical display.
- Fully programmable depending on the requirements of each installation, providing detailed event information.
- They also have an events history memory.
- All panels incorporate 2 outputs for sirens, an alarm relay, a fault relay and an auxiliary relay.
- Ethernet control and programming capability (card GR-8530).

BS-1619 FIRE DETECTION SET



- This set contains all the devices required for installing a small fire detection system in limited areas (small shops, houses). The BS-1619 set contains:
- BS-1632 conventional fire detection control panel
- x2 A-920 batteries 12V/2.6Ah for the panel
- BS-655 smoke detector
- BS-660 heat of rise detector
- BS-536 manual call point
- BS-531 siren with beacon.


FIRE DETECTION PANELS WITH 8,12 & 16 ZONES
EVPU™

TYPE	PICTURE	CODE	DESCRIPTION
BS-1638	A	921163800	8 zone fire detection panel with display
BS-1642	A	921164200	12 zone fire detection panel with display
BS-1646	A	921164600	16 zone fire detection panel with display

TECHNICAL SPECIFICATIONS FOR FIRE DETECTION PANELS WITH 8, 12 & 16 ZONES
EVPU™

TYPE	BS-1638	BS-1642	BS-1646
CODE	921163800	921164200	921164600
DESCRIPTION	fire detection panel		
OPERATION VOLTAGE	220-240VAC/50Hz		
CONSUMPTION	100 VA		
BATTERY	2 sealed lead acid batteries 12V / 7Ah		
CHARGING CIRCUIT	Stabilized power supply 27,6V / 350mA		
DURATION	72 hours (Maximum number of connected detectors 220 and 16 zones, no loads connected to the 24V M and 24VP outputs) with two 12V/7Ah batteries.		
ZONE CIRCUITS	8 circuits that monitor open and short-circuit conditions (maximum current 35mA)	12 circuits that monitor open and short-circuit conditions (maximum current 35mA)	16 circuits that monitor open and short-circuit conditions (maximum current 35mA)
ALARM CIRCUITS	Two 24V circuits that are monitored for open and short-circuit conditions (The maximum current for each circuit is 300mA). Each output is protected by a resetable electronic fuse.		
TOTAL POWER	The total output power (zone circuits, siren circuits, outputs 24P and 24M) must not exceed 1A.		
OPERATION TEMPERATURE	0 up to 50 °C		
HUMIDITY	Up to 95% relative humidity		
WEIGHT (without battery)	3740 gr.	3780 gr.	3820 gr.
PROD. IN ACCORDANCE WITH	EN 54-2, EN 54-4		

EXTENSION CARDS

TYPE	PICTURE	CODE	DESCRIPTION
BS-1640		921164001	4 zones extension card for BS-1638
BS-1641		921164100	4 zones extension card for BS-1642

PERIPHERAL DEVICES

TYPE	PICTURE	CODE	DESCRIPTION
GR-8530	B	923853000	Network card through ETHERNET

CARD WITH 4ZONE RELAYS

TYPE	PICTURE	CODE	DESCRIPTION
BS-613	C	921613000	Card with 4zone relays for BS-1638, BS-1642, BS-1646

BS-1619 FIRE DETECTION SET
FIRE DETECTION SET

TYPE	PICTURE	CODE	DESCRIPTION
BS-1619	D	921161900	Fire detection accessories set

Fire extinguishing panels & accessories



■ Description

- ▶ **BS-627.** Fire extinguishing panel, 1 command with 4 zones
 - ▶ The panel has:
 - ▶ One fire extinguish output monitored for open and short circuit. The output can operate with actuators or electro valves
 - ▶ Two cross zones for fire detectors
 - ▶ One zone for a manual call point to start the extinguish procedure
 - ▶ One zone for a manual call point to cancel the extinguish procedure
 - ▶ Three modes of operation
 - ▶ The panel has two independent siren outputs
 - ▶ One contact relay for fault status
 - ▶ Two fully programable relay contacts
 - ▶ Terminals to communicate with conventional fire detection panels
 - ▶ The battery A-986 (12V/7Ah) is required for the operation of the panel.
- ▶ Devices that can be used by a person to signify a fire alarm. They are required in every fire alarm system. In every fire alarm system a call point is located beside the main fire alarm panel and the rest near stair and exits in well distinct points that are easily accessible by people abandoning the area.
- ▶ **BS-533.** A call point used for activating fire extinguishing units and is suitable for interior use.
- ▶ **BS-534.** A call point used for activating fire extinguishing units and is suitable for interior use. It has an isolation lock. If the lock's key is placed in the OFF position, the call point event if it is activated, does not activate the fire extinguishing unit.



FIRE EXTINGUISHING PANEL

TYPE	PICTURE	CODE	DESCRIPTION
BS-627	A	921627000	Fire extinguish panel, 1 commandwith 4 zones

TECHNICAL SPECIFICATIONS FOR BS-627 FIRE EXTINGUISHING PANEL

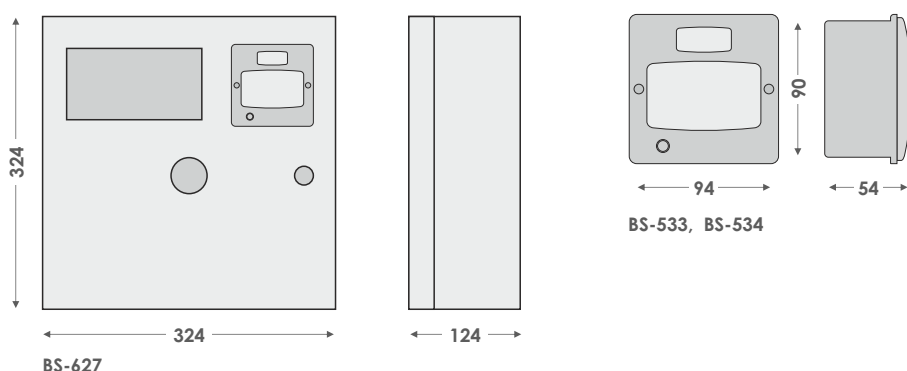
TYPE	BS-627
CODE	921627000
DESCRIPTION	Fire extinguish panel, 1 commandwith 4 zones
OPERATION VOLTAGE	220-240V AC 50/60Hz
CONSUMPTION	30VA
BATTERY	One or two 12V Lead acid sealed 7Ah maximum
CHARGING CIRCUIT	Stabilized power supply 13,8V/400mA
DURATION	48 hours with 1 battery / 72 hours with 1 batteries
ZONE CIRCUITS	4 zones
ALARM CIRCUITS	Two 24V circuits that are monitored for open and short circuit conditions
OPERATION TEMPERATURE	0 up to 50 °C
HUMIDITY	up to 95%
WEIGHT	4680 gr.
PROD. IN ACCORDANCE WITH	EN 12094-1

FIRE EXTINGUISHING ACCESSORIES

TYPE	PICTURE	CODE	DESCRIPTION
BS-533	D	921533000	Extinguishing call point
BS-533/WP	E	921533001	Waterproof IP65 extinguishing call point
BS-534	C	921534000	Extinguishing call point with isolation lock
BOX-534	B	927534000	Panic button waterproofing case

 Packaging contains: **54 pcs.** (BS-533, BS-534) Paper box dimensions (LxWxH): **430x280x335mm** (BS-533, BS-534)

Dimensions in mm

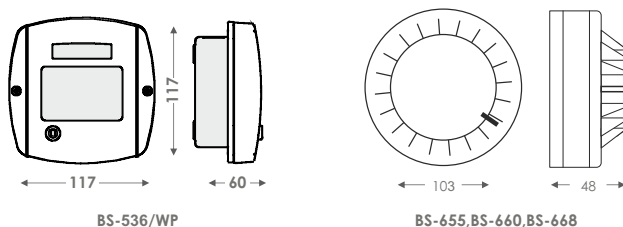




■ Description


- ▶ **BS-536.** This call point is used to activate the system manually. When it is pressed, the clear protective cover gives way and the fire detection system is triggered. A special key can be used to reset the cover to its original position. The device contains all symbols that are required by the European norm EN-54 and is suitable for interior use and is certificated by EVPU.
- ▶ **BS-536/WP.** Waterproof IP 65. It has the same operation as BS-536.
- ▶ **BS-655.** The optical smoke sensor (or smoke particle detector) is activated when the obscuration rate caused by the smoke exceeds 3% per meter.
- ▶ **BS-657.** Double technology sensor. It can be used to monitor an area of about 25-30 sqm.
- ▶ **BS-668.** The heat detector is activated when the temperature of the monitored area exceeds 60 °C. It can be used to monitor an area of about 50 sqm.
- ▶ **Base-6024.** This special base has an incorporated relay which is activated when the detector issues an alarm. It can be used to control devices (i.e. Sirens, Beacons) which must be activated in the event of an alarm condition.


■ Dimensions in mm






CONVENTIONAL CALL POINTS

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION
BS-536 	F	921536000	Manual call point with TEST-RESET key	-
BS-536/WP	E	921536007	Waterproof IP 65, fire extinguishing call point	-

 Packaging contains: **54 pcs.** Paper box dimensions (LxWxH): **430x280x335mm**

CONVENTIONAL DETECTORS

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION
BS-655 	A	921655000	Optical smoke detector	50µA
BS-657	A	921657000	Smoke and heat detector	50µA
BS-660	A	921660000	Heat of rise detector with base	50µA
BS-661	D	921661000	Heat of rise detector, IP 65	28mA with LED 18mA without


18V-30V DC


ACCESSORY

TYPE	PICTURE	CODE	DESCRIPTION
BASE-6024**	C	927600001	Base with relay 24V for BS-655 etc.

 Packaging contains: **54 pcs.** Paper box dimensions (LxWxH): **430x280x335mm**

SIRENS AND SIRENS WITH BEACONS FOR FIRE ALARM PANELS

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION	GROSS WEIGHT
BS-530/1	H	921530004	Siren, 88dB, IP 42	21-28V DC	40mA	300 gr.
BS-531 	G	921531000	Siren, 88dB, IP 42	21-28V DC	40mA	310 gr.
BS-530/1/WP	H	921530005	Waterproof IP65 siren, 88dB	21-28V DC	40mA	300 gr.
BS-531/1	H	921531007	Siren with beacon, IP42	21-28V DC	40mA	300 gr.
BS-531/1/WP	H	921531008	Waterproof IP65 siren	21-28V DC	40mA	310 gr.

 Packaging contains: **16 pcs.** Paper box dimensions (LxWxH): **430x280x335**

AUTONOMOUS FIRE DETECTION DEVICE *

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION
GS-506	B	980093000	Autonomous optical smoke detector with 9V battery	-	-

WALL SOUNDER & VISUAL ALARM ACCORDING TO EN 54-23 *

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION
*CWS 100-AV	I	980153100	Wall sounder & visual alarm device 24V, 100dB	-	-

WATERPROOFING BOX FOR FIRE ALARM SENSOR BASE

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION
BASE-196*	J	980181960	Waterproofing box for fire alarm sensor base	-	-

ACCESSORIES

TYPE	CODE	DESCRIPTION
A-536	927536000	Recess wall mounting base
A-533	927533000	Protective diffuser for BS-536



Description

- **BS-230, BS-232, BS-240, BS-242.** New remote-adjusted beam detectors 8-50m and 8-100m
- Up to 4 detections devices per control unit
- Alignment and focus of the detection heads from the control unit (manual or automatic)
- The BS-230, BS-240 are state of the art in the field of beam detectors. They consist of the controller, the detector and the mirror (1 or 4). The controller can manage up to 4 detectors thus making the installation more economical
- The detectors (detection heads) have a motor for the movement on the horizontal and vertical axis and a laser transceiver. With these parts they can be adjusted manually or automatically from a distance during the installation phase.
- In case of a fire, the smoke absorbs part of the I.R emission. When the quantity of the IR beam drops below a pre-determined level for more than 8 to 10 seconds the detector issues an alarm signal
- **BS-250.** 5-50 meter beam smoke detector. Consists of 2 pieces. One piece contains an IR transmitter, receiver and a connection-control unit. The second piece is a special mirror which is mounted directly opposite from the main detector.

**REMOTE-ADJUSTED BEAM DETECTORS ***

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	SENSIBILITY
BS-230	A	980123000	50m beam detector with controller, detection head and 1 mirror	10mA	25, 35, 50% Obscuration
BS-232	A	980123200	Detection head and 1 mirror	2mA	25, 35, 50% Obscuration
BS-240	A	980124000	100m beam detector with controller, detection head and 1 mirror	10mA	25, 35, 50% Obscuration
BS-242	A	980124200	Detection head and 4 mirrors	2mA	25, 35, 50% Obscuration

BEAM SMOKE DETECTORS *

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	SENSIBILITY
BS-211	B	980121100	10 - 100m Beam smoke detector (with mirror)	8,5mA	25, 35, 50% Obscuration
BS-250	B	980125000	5 - 50m Beam smoke detector (with mirror)	8,5mA	25, 35, 50% Obscuration

IR BEAM SMOKE DETECTORS *

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION	SENSIBILITY
FIRERAY 3000	C	980130004	5 - 120m Beam smoke detector	13mA	25, 35, 50% Obscuration



Modern addressable fire alarm panel with 32, 64 or 96 zones

Suitable for large installation such as malls, hotels, factories.

2 or 4 loops (150 points per loop).

- Produced in accordance with EN54-2, EN54-4.
- 32, 64 or 96 zone capability.
- 220-240V AC mains power supply.
- It offers 2 or 4 fully monitored siren outputs with a rating of 24V / 0,5A and 6 programmable relays as well as a built in network circuit.
- Incorporated power supply with a rating of 24V/100W and built-in battery charger for 24V batteries with a capacity of up-to 12Ah.
- The panels offer an extensive list of adjustments and characteristics for the control of the installed devices and sirens. These parameters can easily be adjusted using a PC based program.
- The programming of the panel can also be done using a PC.
- Messages can be viewed on the big LCD (320x240 pixels) whereas LEDs are used to show basic operations such as alarms, faults and isolated sections
- The operation is done using the built-in 16 key keypad.
- There is also an incorporated safety lock and a thermal printer mounting position
- The maximum delay for the sirens is 4 minutes.



EXPANSION UNITS

- Capabilities of connecting unit per panel, thus configuring panels with up-to 8 loops.
- Each expansion unit contains 2 or 4 loops with 150 points per loop.
- 2 or 4 siren outputs.
- Incorporated battery charger for 24V batteries with a capacity of up-to 12Ah.
- 220-240V AC/50-60Hz mains power supply.


ANALOG ADDRESSABLE FIRE DETECTION CONTROL PANELS 1 TO 8 LOOP

TYPE	PICTURE	CODE	DESCRIPTION
BSR-2104	A	921210400	Addressable fire detection panel 2 loops/ 96 zones
BSR-2114	A	921211400	Addressable fire detection panel 4 loops/ 96 zones

TECHNICAL SPECIFICATIONS FOR ANALOG ADDRESSABLE FIRE DETECTION CONTROL PANELS 1 TO 8 LOOP

TYPE	BSR-2104	BSR-2114
CODE	921210400	921211400
DESCRIPTION	Addressable fire detection panel 2 loops/ 96 zones	Addressable fire detection panel 4 loops/ 96 zones
OPERATION VOLTAGE	220-240V AC/50-60Hz	
CONSUMPTION	100 VA	
BATTERY	2x12V/7Ah to 2x12V/12Ah μολύβδου	
CHARGING CIRCUIT	Stabilized power supply 27.6V / 600mA	
LOOP CIRCUIT	24V/200mA(quiscent). Each loop can accept up-to 150 points. Each loop is protected by a self-resettable fuse. The total number of points that can be installed on one panel is 512 according to EN54-2 paragraph 13.7	
SIRENS CIRCUITS	4 circuits 24V/500mA, monitored for opens and short circuits. Each output is protected by a self-resettable fuse.	
V OUT OUTPUTS	24VDC (+- 3VDC) continious outputs with a max. current of 0,5A. Each output is protected by a self-resettable fuse.	
RELAY4, RELAY5, RELAY6	General purpose Relay (250VAC 5A).	
RELAY1, RELAY2, RELAY3	Relay outputs monitored for open and short circuits. Each output is protected by a self-resettable fuse.	
FAULT OUTPUT	Open collector output (maximum rating 30VDC/6mA)	
ALARM OUTPUT	Open collector output (maximum rating 30VDC/6mA)	
A1, A2 & A3 INPUTS	3 General purpose inputs (maximum input voltage 30VDC)	
MAX. CURRENT LOAD	The maximum current drawn by the loops, sirens, outputs VOUT and relays must not exceed 2A.	
CONNECTION CABLES	The connection cables must be approved for fire detection installation such as FIP200, MICC, PYROFIL. The cables use for data transfers must be of the twisted pair types and must be insulated	
DEGR. OF COVER PROT.	IP 30	
OPER. TEMPERATURE	0 up to 40 °C	
RELATIVE HUMIDITY	Up to 95%	
CONSTR. MATERIAL	Electrostatically painted steel	
DIMENSIONS	480 x 410 x 154 mm	
WEIGHT	7 Kgr (2 loops)	7.2 Kgr (4 loops)
PROD. ACCORD. WITH	EN 54-2, EN-54-4	

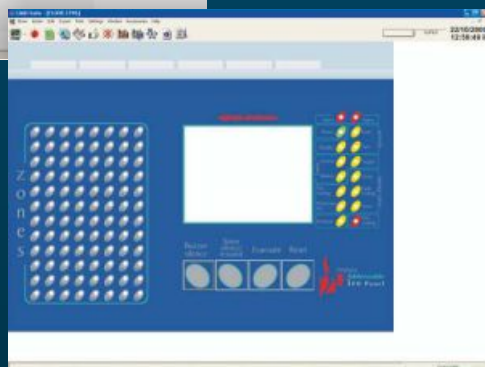
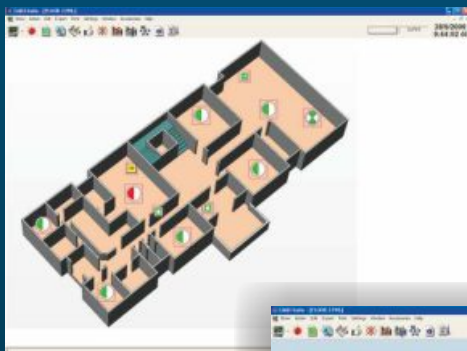
ADDRESSABLE FIRE DETECTION PERIPHERAL DEVICES FOR PANELS BSR-21xx

TYPE	PICTURE	CODE	DESCRIPTION
BSR-2142	B	921214200	Thermal printer for BSR-2xxx
BSR-2000	C	921200001	Repeat panel for BSR-2xxx
A-2100 **		980210000	Software for BSR-21xx & USB cable
BOX-2100/WP * D		980210001	Waterproof metal box for BSR-2xxx panels

** Download for free the A-2100 software for BSR-21xx panel at www.olympia-electronics.gr

Address Fire

Fire Detection management software



- ▶ Can use all standard graphic formats(bmp, jpg, e.t.c.)
- ▶ Easy and fast programming of the main application (without the need to write special scripts).
- ▶ Flexible Client/Server architecture (using the widespread TCP/IP socket),
- ▶ Wide variety of event and history logs,
- ▶ Use of standardized data bases.
- ▶ Multi event screens, calculations with spreadsheets, filters
- ▶ Open logic code that permits access to its libraries via other windows based programs (including VB and java script).
- ▶ Web operation capability with no workstation restrictions.
- ▶ Hot-Standby optional capability operation with the use of 2 computers,
- ▶ NO RESTRICTION TO THE NUMBER OF PANELS! Exhibitions, e.t.c.



CM&I SUITE INSTALLATION EXAMPLE



- ▶ The CM&I Suite is a powerful graphical environment that can simultaneously communicate with open or private networks.
- ▶ The CM&I Suite permits the management and the control of the fire detection equipment from one computer and offers great capabilities.
- ▶ The CM&I Suite permits a bi-directional communication of the fire detection equipment with other equipment via certified protocols (BACnet, Modbus, OPC).

TYPICAL CONNECTION OF A BSR-21XX PANEL TO A BMS



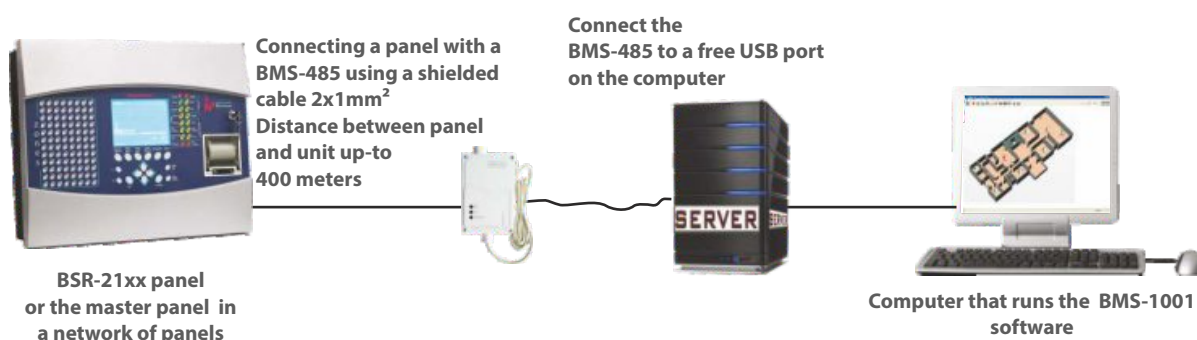
- ▶ The BMS-1001 is a powerful multi-protocol converter and communications processor which is used for the communication between of one or more fire detections installations and one or more terminals of other applications.
- ▶ The BMS-1001 can translate data from all supported protocols.
- ▶ Supports all certified industrial protocols. (BACnet, Modbus, OPC)
- ▶ Without restrictions as too the number of work stations!



SOFTWARE FOR CONNECTING FIRE DETECTION PANELS TO B.M.S.

TYPE	CODE	DESCRIPTION
BMS-1001	921100101	Basic software for connection BSR-2xxx with Gateway
BMS-1204	921120401	Software for connection BSR-21xx with BACnet protocol
BMS-1202	921120201	Software for connection BSR-21xx with Modbus protocol
BMS-1203	921120301	Software for connection BSR-21xx with OPC protocol

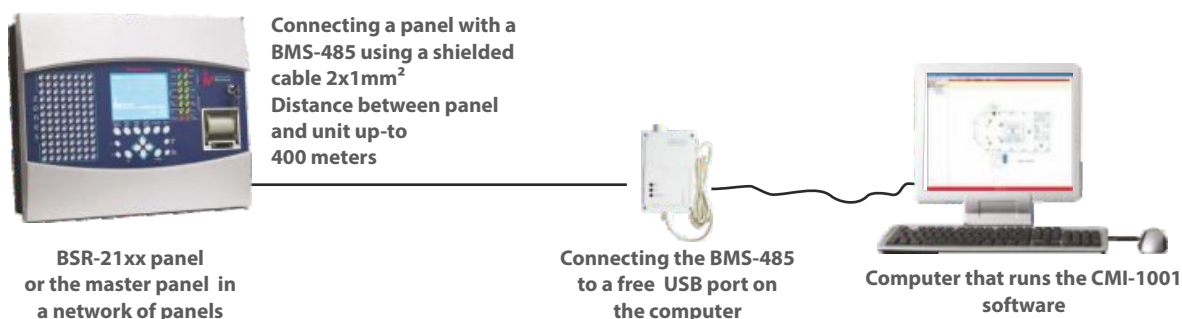
- ▶ The BMS series consists of the required programs for the system to function via a building management system (B.M.S).
- ▶ The BMS-1001 is a basic translation software that permits the communication between the panels and a computer.
- ▶ Depending on the requirements, one or more protocols must be added to communicate with the respective devices.



GRAPHICAL ENVIRONMENT SOFTWARE FOR FIRE DETECTION SYSTEM MANAGEMENT

TYPE	CODE	DESCRIPTION
CMI-1001	921100100	Visual software monitor BSR-21xx
CMI-1202	921120200	Modbus protocol for CMI-1001
CMI-1203	921120300	OPC protocol for CMI-1001
CMI-1204	921120400	BACnet protocol for CMI-1001
BMS-485	921485100	Device for connection BSR-21xx with a PC

- ▶ The CMI contains programs for the autonomous operation of the system and can support individual panels or panels in a network.
- ▶ The CMI-1001 is the basic software which can be used to manage the fire detection system. It runs in a Windows environment on any personal computer.
- ▶ To the basic software you can add any of the protocol packages thus giving the capability to the system to exchange data with other systems that use one of the protocols. The CMI contains programs for the autonomous operation of the system and can support individual panels or panels in a network.





■ Description

- **BSR-6055/A.** Addressable optical smoke sensor. It has an internal «smart» chamber with a special transmitter and receiver. The sensor continuously sends digital information to the panel regarding quantity of the smoke. The panel, using special algorithms, decides when to issue the alarm. The sensor has a special connection base and micro-switches that are used to set the address.
- **BSR-6057/A.** Addressable optical smoke / heat of rise detector. (The same base as BSR-6055/A)
- **BSR-6060/A.** Addressable heat of rise sensor. It has a special temperature sensor that gives an output depending on the temperature of the monitored area. The built-in microprocessor calculates the rise rate of the temperature and sends the digital information to the panel. The sensor has a special connection base and micro-switches that are used to set the address.
- **BSR-8019/A.** Addressable input unit with auxiliary relay. It is used for connected gas detectors (e.g. BS-685 and BS-686) on the loop. It has an input which is monitored for open and short circuit conditions and a relay (1A/30V) activated after a panel reset.
- **BSR-7070/A.** Line isolator. It is placed between other addressable units and isolates any short circuits that might happen on the loop cables. Up-to 32 such devices can be connected on the loop.


PERIPHERAL DEVICES for fire detection panels BSR-2104 & BSR-2114

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION	GROSS WEIGHT
BSR-8017	D	921801700	Addressable I/O unit	14-28V DC	1mA	165 gr.
BSR-8019/A	D	921801901	Addressable unit input with relay	14-28V DC	1mA	165 gr.
BSR-8020	D	921802001	Addressable unit input with relay	21-28V DC	0,7mA	165 gr.
BSR-8020/WP	A	921802002	Addressable unit input with relay (IP65)	21-28V DC	0,7mA	
A-485*	H	980148500	Signal amplifier for RS-485	-	-	230 gr.

SIREN WITH BEACON for fire detection panels BSR-2104 & BSR-2114

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION	GROSS WEIGHT
BSR-5032	EVPU	J 921503200	Siren, 88dB, IP 42	14-30V DC	20mA	300 gr.

Packaging contains: **16 pcs.** Paper box dimensions (LxWxH): **430x280x335mm**

FIRE DETECTION CALL POINT

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION	GROSS WEIGHT
BSR-5036/A	EVPU	B 921503602	Fire detection call point	14-28V DC	1mA	225 gr.
BSR-5036/A/WP	C	921503603	Waterproof IP64, fire detection call point	14-28V DC	1mA	225 gr.

Packaging contains: **54 pcs.** Paper box dimensions (LxWxH): **430x280x335mm**

PERIPHERAL DEVICES

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION	GROSS WEIGHT
BSR-6055/A		E 921605502	Optical smoke detector	14-28V DC	1mA	200 gr.
BSR-6057/A	E	921605700	Optical smoke/heat of rise detector	14-28V DC	1mA	190 gr.
BSR-6060/A	E	921606002	Heat of rise detector	14-28V DC	1mA	180 gr.
BSR-5072	G	921507200	Remote detector LED	14-28V DC	1mA	70 gr.
BSR-2143	K	921214300	Programming & testing unit	2x9V Battery	60mA	600 gr.
BSR-7070/A	I	921707001	Line isolator	14-30V DC	1,2mA	80 gr.
BSR-7071/A	F	921707100	Line isolator with base	14-30V DC	400μA	

Packaging contains: **54 pcs.** (BSR-6055/A, BSR-6057/A, BSR-6060/A, BSR-6024/SB)
 Paper box (LxWxH): **430x280x335mm** (BSR-6055/A, BSR-6057/A, BSR-6060/A, BSR-6024/SB)

WATERPROOFING BOX FOR FIRE ALARM SENSOR BASE

TYPE	PICTURE	CODE	DESCRIPTION	OPERATION VOLTAGE	CONSUMPTION
BASE-196*	J	980181960	Waterproofing box for fire alarm sensor base	-	-

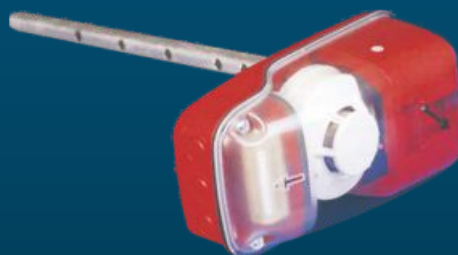
Fire detection peripheral devices

Ⓐ



IP65

Ⓑ



Ⓒ



IP42

■ Description

- **BS-510/24.** An electromagnetic door latch with a latching capability of 50 Kg. It is used in cooperation with fire safety doors, in order to prevent the expansion of the fire when required. The package contains the electromagnet that is placed on the wall and is powered, and the magnet placed on the door along with all the required mounting accessories. The magnet can either be permanently or swivel mounted.
- **BS-680.** 24 Vdc, 6bar, 1/2" manually reset electro-valve .
- **BS-682.** 230 Vac, 6bar, 1/2" manually reset electro-valve
- **BS-684.** 12 Vdc, 6bar, 1/2" manually reset electro-valve .
- The electro-valves are placed in the exterior of the protected area, and with the arrow engraved on the body, towards the direction of the gas.




FIRE DETECTION DEVICES FOR SPECIAL USE*

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	CONSUMPTION	GROSS WEIGHT
BS-510/24*	C	980151000	Electromagnetic door latch (24V)	24V DC	80mA	430 gr.

FIRE DETECTION DEVICES FOR SPECIAL USE*

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	CONSUMPTION	GROSS WEIGHT
BS-680*	A	980168000	Electro-valve 24VDC	24V DC	4VA	610 gr.
BS-682*	A	980168200	Electro-valve 230VAC	230V AC	4VA	610 gr.
BS-684*	A	980168400	Electro-valve 12VDC	12V DC	6VA	610 gr.

 Packaging contains: **20 pcs.**

ACCESSORIES FOR SMOKE, HEAT & GAS DETECTORS

TYPE	PICTURE	CODE	DESCRIPTION
BOX-3016*	B	980130160	Base for installing detectors in air-ducts
A-752*		752000008	Spray for testing smoke detectors (150ml)
RSC-TESTKIT*		980600111	Smoke capsule for TESTKIT



ACCESSORIES FOR TESTING SMOKE & HEAT DETECTORS*

TYPE	CODE	DESCRIPTION
TESTKIT	980600110	Accessories set for testing smoke & heat detectors



TESTKIT



TESTKIT



TESTKIT





G. Samaras
MEDICAL GAS SOLUTIONS



GAS DETECTION

GAS DETECTION SYSTEMS

The more and more extensive gas use (liquid gas or natural gas) for domestic purposes as well as the industrial use of flammable or toxic gases demand the detection of possible leaks. In this short guide, we will describe the behaviour and basic characteristics of the main gases so that someone can design a proper installation to detect them.

Gas properties

In the science of physics, gases are substances with no particular volume and without a defined shape. Gases are one of the three states of matter.

The particles (atoms, molecules, ions) that compose gases are thinly distributed in space in relation to those of the liquids, let alone those of the solids. The tractive forces between them are too weak to hold them in fixed positions and as a result they move towards all directions. This is the reason gases have no defined shape and volume but tend to cover all the available space.

Molecular weight or relative molecular mass is the mass of a molecule compared to the mass of the atom of the isotope anthrax 12 (C_{12}), and in particular the number that shows how many times bigger than 1/12 of the mass of C_{12} the molecule mass is. To find the molecular weight, we add the atomic weights of the atoms that take part in the chemical formula of a compound or element.

For example, the chemical formula of methane is CH_4 . The molecular weight of anthrax is 12 and hydrogen 1, therefore the molecular weight of methane is $12 + (1 \times 4) = 16$. The molecular weight of air (which is a mixture of different gases in specific contents) is considered to be 29. A chart follows with different gases and their molecular weight.

We need molecular weight to see if the gas is lighter or heavier than air. Generally, lighter gases (molecular weight less than 29) tend to concentrate high, while heavier gases (molecular weight more than 29) tend to concentrate low, meaning of course the initial concentration, because with the passing of a certain amount of time, all leaking gases end up with uniform density throughout the available space.

Chemical type and molecular weight of gases

Name	Chemical type	Molecular weight
Butane	CH_{10}	58
Propane	CH_8	44
Methane	CH_4	16
Hydrogen	H_2	2
Carbon monoxide	CO	28
Benzol	CH_6	78
Ethyl alcohol	CH_5OH	46
Ammonia	NH_3	17
Hydrochloride	HCL	36
Carbon dioxide	CO_2	44
Chloride dioxide	ClO_2	68
Sulphur dioxide	SO_2	64
Hydro sulphur	H_2S	34

The quantity of gas in the air is measured in percentage per volume and the unit percent (%vol) is used for big concentrations or the parts per million (ppm) for small concentrations.

Gas categories

We separate the gases we are usually called to detect in two general categories, explosive and toxic.

Explosive gases are the gases that, beyond a certain concentration point, create an explosive mixture with air.

Toxic gases are the gases that, when leaked, can cause damage to living organisms.

Generally, toxic gases are more dangerous and must be detected in much smaller concentrations than explosive gases.

Explosive gases

When the gas we want to detect is explosive, the main characteristic we are interested in is the Lower Explosion Limit (L.E.L.). It is the concentration of the gas in the gas-air mixture above which the mixture becomes flammable-explosive. If the gas reaches and overcomes this limit, any flame, spark, electrostatic discharge or even thermal body can cause ignition-explosion. Each gas has a different L.E.L. The following chart shows the most usual explosive gases and their Lower Explosion Limit.

For security reasons, as proposed in EN 50194, the gas must be detected in the part between 3% and 20% of the L.E.L. (the usual figure is 10%). 20% of the L.E.L.

Low limit of explosiveness of gases

Name	Chemical type	L.E.L.
Butane	CH_{10}	1.5
Propane	CH_8	2.2
Methane	CH_4	5
Hydrogen	H_2	4
Ethylene	CH_4	2.7
Benzol	CH_6	1.2
Ethyl alcohol	CH_5OH	3.3



For safety reasons, as suggested by EN50194 the detection of gas must be done in the range from 3% to 20% of the L.E.L. (the most common value is 10% of the L.E.L.)



Toxic gases

When the gas we want to detect is toxic, we need to take into account various parameters that have to do with the toxicity and hazard of the gases to be detected. These have to do with the gas itself as well as with the period of time people can be exposed to it (depending on the use of space and the permanent or occasional presence of people there).

The main characteristics of toxic gases are:

T.W.A. It is the maximum average gas content during eight hours (48 hours per week).

S.T.E.L. It is the maximum gas content in the air a person can be exposed to for a small period of time (maximum 15 minutes) without serious and permanent health damage. The two notions above are expressed in ppm or mg/L (micrograms per air litre) or mg/m³ (micrograms per cubic air metre).

The chart below shows the main toxic gases and the T.W.A and S.T.E.L. numbers for each.

Toxic Gases

Name	Chemical formula	T.W.A	S.T.E.L.
Carbon monoxide	CO	50	300
Carbon dioxide	CO ₂	5000	15000
Ammonia	NH ₃	25	35
Hydro sulphur	H ₂ S	10	15
Sulphur dioxide	SO ₂	2	5
Chloride dioxide	ClO ₂	0.1	0.3
Hydrocyanic	HCN	-	10
Hydrochloride	HCL	-	5
Monoxide of nitrogen	NO	25	35
Dioxide of nitrogen	NO ₂	3	5

Apart from these general limits, each toxic gas causes different side-effects to the human organism, which always depend on its concentration and the time of exposure to it. Next, we are going to examine the side-effects of carbon monoxide, a toxic gas that can be emitted in places where most people can find themselves.

Carbon Monoxide (CO) is created when the combustion is imperfect. It is a very dangerous gas as it is invisible and odourless, therefore, undetectable through the physical senses of the human organism. It is nearly as light as air, with almost the same density (0.97), so it spreads in space homogeneously. CO belongs to the category of chemical gases that cause asphyxia. When CO is inhaled, it is absorbed by blood and progressively reduces the ability of blood to transfer oxygen to the tissues. A prolonged stay in a polluted environment with high concentrations can be fatal.

More specifically, some of its side-effects in conjunction with the time of exposure are:

-50ppm concentration for 8 hours: Maximum allowable limit of exposure, no serious side-effect.

-200ppm concentration for 3 hours: Feeling of mild sickness accompanied with a light headache.

-600ppm concentration for 1 hour: Severe headache.

-1500ppm concentration for 1 hour: Severe headache, feeling of nausea, discomfort.

-2000ppm concentration for more than 30 minutes: Severe headache, feeling of nausea, discomfort, loss of balance.

-2500ppm concentration for more than 30 minutes: Loss of the senses.

-4000ppm concentration for more than an hour: Death.

Anthrax monoxide detection systems are enforced by order in many European countries, in medium and big size underground parking spaces (over 350 square metres) intended for public use.

DETECTOR TYPES

We divide detectors into categories depending on the type of their output, the type of the sensor and the environment where they were intended to work. Autonomous detectors and those that work with conventional fire detection panels have a relay contact as output, which is activated in a preset gas concentration. Those used in industrial installations have analogue output (4-20mA) and only work with special panels that have equivalent inputs.

The types of sensors used by gas detectors are:

Catalytic

This type of sensor is mainly used to detect explosive gases (in concentrations measured in L.E.L.). Their life span is usually 5 years. They gradually lose in sensitivity (with a rate of about 5% per year) and this is why they need periodic recalibration 1 to 2 times per year.

Electrochemical

This type of sensors is usually used to detect toxic gases in small concentrations (concentrations measured in ppm). Their life span is 2 to 3 years. Their sensitivity is affected by humidity and low temperature and this is the reason they need periodic recalibration 1 to 2 times per year.

Infrared

This type of sensors is usually used to detect gases other detectors cannot detect (carbon dioxide). They are more expensive but have many advantages compared to the other two types. The main ones are:

-They are not affected by humidity and environmental temperature.

-They can be used to measure a very small or big concentration of the same gas.

-Their sensitivity is not affected if they are suddenly found in a very big concentration of the gas.

-They cannot be 'poisoned' by gases that cause permanent damage to the other two types.

-They can be used to measure more than one gas at the same time.

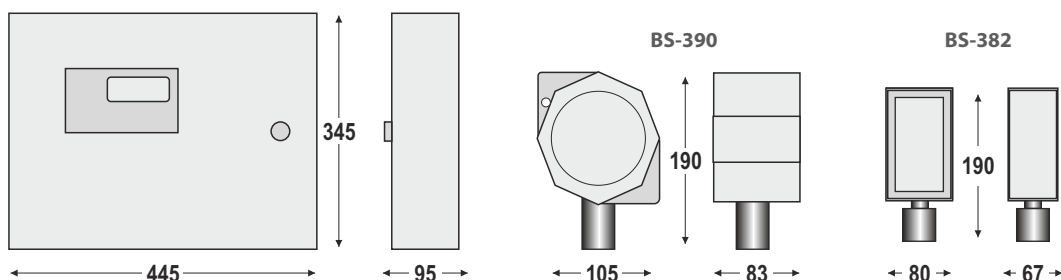


General characteristics

- **BS-380, BS-381, BS-382, BS-383.** Gas detectors which are suitable for laboratories, industries, car parking stations e.t.c. They have a 4-20mA analog output and are suitable for panels and peripherals (pg. 55). These gas detectors are mounted in a vertical position with the detection nozzle pointing downwards. If the detected gas is considered "light" (its molecular weight is smaller than 29) then the detectors are placed above the probable leakage points. If the detected gas is considered "heavy" (its molecular weight is above 29) then the detectors are placed below the probable leakage points.
- **BS-390, BS-391, BS-393.** The anti-explosive type gas detectors are detectors that are suitable for hazardous environments. They are certified for environments: II 2G Eex d IIC T6. They have a 4-20mA analog output and are suitable for panels and peripherals (pg. 55).
- These gas detectors are mounted in a vertical position with the detection nozzle pointing downwards. If the detected gas is considered "light" (its molecular weight is smaller than 29) then the detectors are placed above the probable leakage points. If the detected gas is considered "heavy" (its molecular weight is above 29) then the detectors are placed below the probable leakage points. The connection with the panel is done using 3 cables. A shielded cable with a rating of 3 x 1.5mm² is required for a distance up-to 300 meters and 3 x 2.5mm² for distances up-to 300 - 600 meters.
- **BS-316.** Expandable gas detection panel with a microprocessor, 16 inputs for connection with gas detectors 4-20 mA, programmable outputs (opened relay contacts). Cooperates with detectors 4-20 mA that are connected with 2 or 3 cables to the panel.

Dimensions in mm

BS-304, BS-308, BS-312, BS-316




ANALOG GAS DETECTION PANELS

TYPE	PICTURE	CODE	DESCRIPTION
BS-304	A	921304000	4 inputs 4-20mA
BS-308	A	921308000	8 inputs 4-20mA
BS-312	A	921312000	12 inputs 4-20mA
BS-316	A	921316000	16 inputs 4-20mA

TECHNICAL SPECIFICATIONS FOR ANALOG GAS DETECTION PANELS

TYPE	BS-304	BS-308	BS-312	BS-316
CODE	921304000	921308000	921312000	921316000
DESCRIPTION	4 inputs 4-20mA	4 inputs 4-20mA	12 inputs 4-20mA	16 inputs 4-20mA
OPERATION VOLTAGE	220-240V AC / 50-60Hz			
WATTAGE	60VA			
BATTERY	12V-7Ah Pb			
OUTPUTS	4	8	12	16
OPERATION TEMPERATURE	0-40 °C			
WEIGHT	6160 gr.			
PROD. IN ACCORDANCE WITH	EN 50057, EN 60335, EN 6100-3-2, EN 61000-3-3			

EXPANSION UNIT

TYPE	CODE	DESCRIPTION
A-304	927304000	Expansion card for BS-304,BS-308,BS-312 panels

WATERPROOF IP65 ANALOG GAS DETECTORS 4-20mA*

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	SENSOR TYPE
BS-380	B	980380000	LPG gas detector	12-24V DC	Catalytic
BS-381	B	980381000	Natural gas detector	12-24V DC	Catalytic
BS-382	B	980382000	Carbon monoxide detector	12-24V DC	Electrochemical
BS-383	B	980383000	Ammonia detector	12-24V DC	Electrochemical

ANALOG, ANTI - EXPLOSIVE TYPE GAS SENSORS 4-20mA*

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	SENSOR TYPE
BS-390	C	980390000	LPG gas sensor	12-24V DC	Catalytic
BS-391	C	980391000	Natural gas sensor	12-24V DC	Catalytic
BS-393	C	980393000	Ammonia sensor	12-24V DC	Electrochemical
TC100N/LPG	D	980110004	Exd Analogue Gas Detector		Catalytic
TC100N/CNG	D	980110006	Exd Analogue Natural Gas Detector		Catalytic
TS293PX	C	980129304	Anti explosive gas sensor for various gases		Catalytic
TS293PX-H	C	980293002	Anti explosive gas sensor for various gases		Catalytic
TS293EO	C	980129300	Anti explosive oxygen gas sensor		Electrochemical
TS293ES	C	980129305	Anti explosive sulfur dioxide gas sensor		Electrochemical
TS293KI	C	980129306	Anti explosive hydrogen gas sensor		Catalytic

* (Hexane, ethyl acetone, ethyl alcohol, xylene, toluene, sulfur dioxide, acetylene, methanol).

* Trade products

PERIPHERAL DEVICES

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	CONSUMPTION
BS-527	E	921527000	Indication slave luminaire with buzzer	12-24V DC	85mA
BS-527/WP	F	921527001	Waterproof IP 65 indic. slave luminaire with buzzer	12-24V DC	85mA

Autonomous gas detection devices



Description

- ▶ **BS-690.** Autonomous LPG detector with fire detection zone. It is activated when the gas contents in the monitored area exceed 5-15% of the L.E.L. (Lower Explosive Level) Conventional fire detection sensors, remote gas sensors and different kinds of electro-valves, can be installed on the special input. It has a built-in sounder, a 5A/230V relay and a good operation test button.
- ▶ **BS-691.** Autonomous natural gas detector with fire detection zone. This detector has the same characteristics as the BS-690 but is suitable for sensing natural gas leaks or alcohol vapors.
- ▶ **BS-687.** Waterproof autonomous LPG detector (IP 42). It is activated when the gas (propane, butane) concentration level reach 5-15% of the L.E.L. (Lower explosive level. It has a 220V/5A relay and can monitor an area of 25-30 sq.m.
- ▶ **BS-688.** Waterproof autonomous natural gas detector (IP 42). It has the same characteristics as the BS-687 but is suitable for detecting natural gas and alcohol vapors.
- ▶ **BS-673.** Autonomous natural gas detector with battery back-up. This detector has a suitable output capable of driving an electro-valve. The built-in battery enables the electro-valve activation even when the mains power supply fails. It can monitor an area of 25-30 sq.m.
- ▶ **BS-674.** Autonomous LPG detector with battery back-up. It has the same characteristics as the BS-673 but is suitable for detecting propane-butane gases.
- ▶ **BS-685.** Waterproof (IP 65) LPG detector with relay. It is activated when the gas content (propane or butane) in the monitored area exceeds 5-15% of the lower explosive level (L.E.L). The incorporated LED lights when the detector is activated. The command towards that panel is given with a voltage free relay contact.
- ▶ **BS-686.** Waterproof (IP 65) natural gas detector with relay. It is activated when the methane or alcohol content in the monitored area exceeds 5-15% of the lower explosive level (L.E.L) The incorporated LED lights when the detector is activated. The command towards that panel is given with a voltage free relay contact.
- ▶ **BS-658.** With a high-quality electrochemical gas sensor and excellent craft work, it has the advantages of good repeatability, Resistant against temperature and humidity, long life-span and easy operation. It can convert the gas concentration in the air to a digital signal output with a range of 4-20mA. It is suitable for gas detection in car parkings or industrial environment where toxic gas leaks.



AUTONOMOUS GAS DETECTION DEVICES (230V)

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	CONSUMPTION
BS-690	D	921690000	LPG detector with beacon & fire detection zone with output relay	220-240V AC	32VA
BS-691	D	921691000	Natural gas detector with beacon & fire detection zone	220-240V AC	32VA
BS-692	E	921692000	External LPG sensor for connecting with BS-690, BS-691	5V DC	0,5W
BS-693	E	921693000	External natural gas sensor for connecting with BS-690, BS-691	5V DC	0,5W
BS-694	C	921694000	LPG detector with output relay	220-240V AC	4VA
BS-695	C	921695000	Natural gas detector with output relay	220-240V AC	4VA
BS-696	D	921696000	LPG detector with beacon & output for electro-valve 12V / 19W NO	230VAC / 24VDC	4VA
BS-697	D	921697000	Natural gas detector with beacon & output for electro-valve 12V / 19W NO	230VAC / 24VDC	4VA



Packaging contains: **54 pcs. (BS-692 & BS-693 132pcs.)** Paper box dimensions (LxWxH): **430x280x335mm**

AUTONOMOUS GAS DETECTION DEVICES (230V)

TYPE	PICTURE	CODE	DESCRIPTION	VOLTAGE	CONSUMPTION
BS-687	B	921687000	Autonomous LPG detector with relay & buzzer, IP42	220-240V AC	3VA
BS-688	B	921688000	Autonomous natural gas detector with relay & buzzer, IP42	220-240V AC	3VA
BS-673	A	921673000	Autonomous natural gas detector with battery for 12V electro-valve	220-240V AC	3VA
BS-674	A	921674000	Autonomous LPG detector with battery	220-240V AC	3VA
BS-672-1*	F	980672001	Autonomous carbon monoxide detector with relay 230V	220-240V AC	5VA



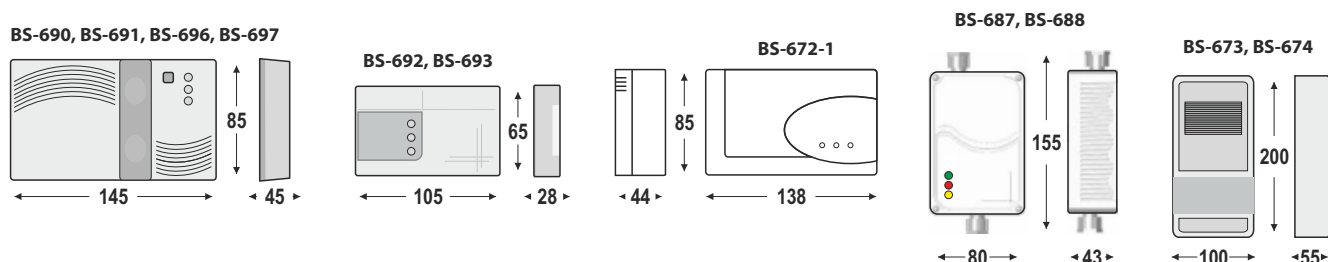
Packaging contains: **54 pcs. (BS-687, BS-688), 24 pcs. (BS-673, BS-674)** Paper box dimensions (LxWxH): **430x280x335mm**

WATERPROOF GAS DETECTION DEVICES (IP65) 10-30V DC

TYPE	PICTURE	CODE	DESCRIPTION	CONSUMPTION
BS-685	H	921685000	LPG detector with relay, 10V-30DC, IP 65	0,5W
BS-686	H	921686000	Natural gas detector with relay, 10V-30DC, IP 65	0,5W
BS-658*	G	980165800	Carbon monoxide detector (IP 66)	2W/channel

* Trade product

Dimensions in mm



* Trade product



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