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SAFETY & SECURITY SYSTEMS

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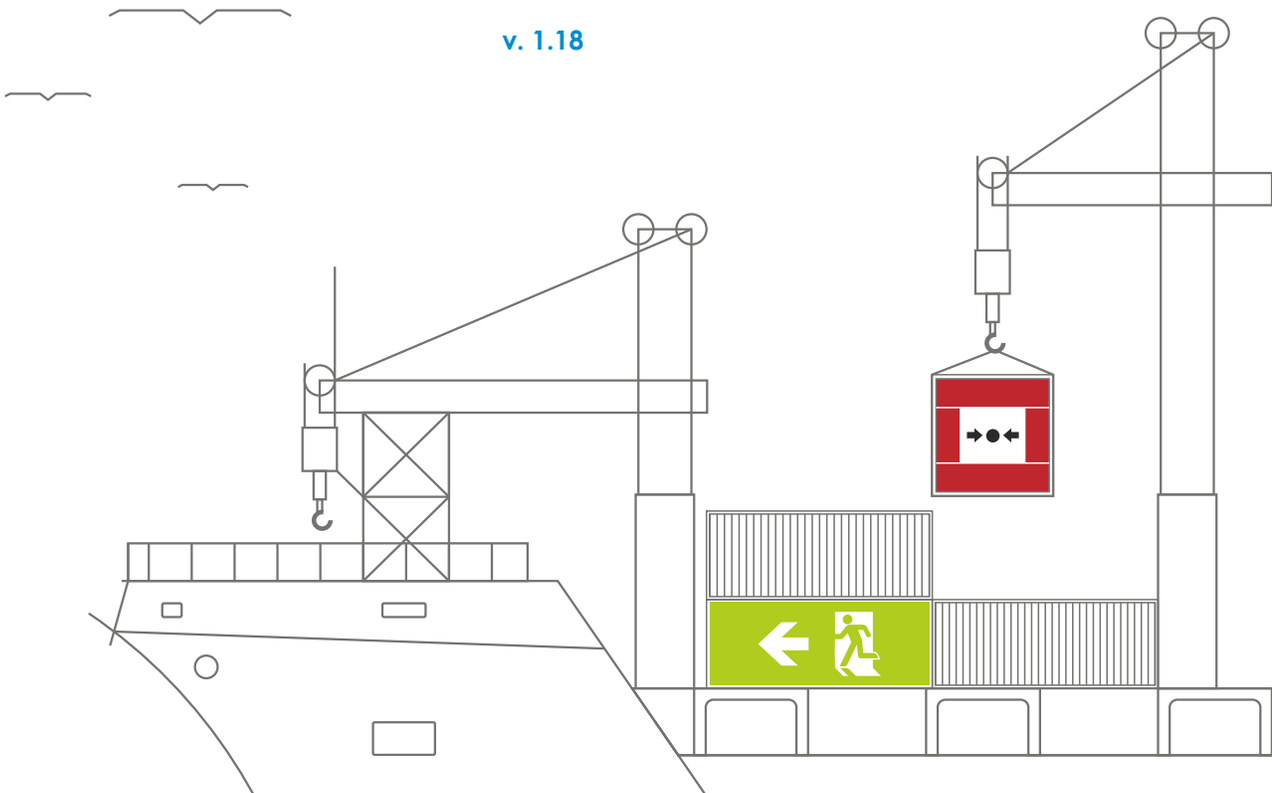
EMERGENCY LIGHTING & FIRE DETECTION SYSTEMS FOR MARINE APPLICATIONS

CATALOGUE **2018**

v. 1.18



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Document No.

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H.E.E.Q.A.C Report N
504005 - 1 - E

H.E.E.Q.A.C Report N
504010 - 1 - E

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Type Approval Certificate

This is to certify that the undernoted product have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER	Olympia Electronics - N.D.LAKASAS – P.N.ARVANITIDIS S.A 72nd km Thessaloniki – Katerini National Road 60061 Kolindros- Greece
PLACE OF PRODUCTION	72nd km Thessaloniki – Katerini National Road 60061 Kolindros- Greece
DESCRIPTION	Addressable fire detection and alarm system, Conventional fire detection and alarm system
TYPE	See table A and B below
APPLICATION	Marine and offshore applications for use in environmental category ENV2 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1- February 2015.
STANDARDS	Manufactured and Tested in accordance with the following Standards: IEC 60092-504, IEC 60533, EN 54-2, EN 54-4, EN 54-5, EN 54-7, EN 54-11, EN 54-17, EN 54-18
Certificate No.	15/00085
Issue Date	02 October 2015
Expiry Date	01 October 2020
Sheet	1 of 3

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1979

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Certified products according to the European standards

Our PRODUCTS

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Fire detection systems
Gas detection systems
Burglar alarm and security systems
Nurse call systems
Access control systems (Card Switches)
Motion detectors
Electronic room thermostats
Electronic sirens
Electronic insect traps (HACCP standards)
Electronic elevator systems (customised)

Emergency lighting & fire detection systems for marine applications

Dedicated to

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OLYMPIA ELECTRONICS S.A. aiming in the quality, has adopted in the last years, production and inspection procedures that have supplied the market with products that are totally in accordance with European construction prototypes (EN).

For the production, the company applies advanced systems "world class manufacturing" such as lean systems ,TPM, 5S which give it competitive advantages.

Its products allocate certificates from various laboratories such as: LPCB, VdS, LLOYD'S, H.E.E.Q.A.C, EVPU, ANCO, EMV, PHOENIX TEST LAB, LS, MIKES BABT, BUREAU VERITAS or countries as UAE, GOST, EURO CERT e.t.c. and CE marking.

The company applies a complete management system IQMS "oly q" which include quality management systems, as well as environmental, hygiene and personnel safety management systems.

Olympia Electronics S.A. has been certified according to ISO9001, OHSAS 18001, ISO 140001 and for the second time (first time in 2005) has been accredited the European enterprise distinction in the scope of EFQM Levels of Excellence.

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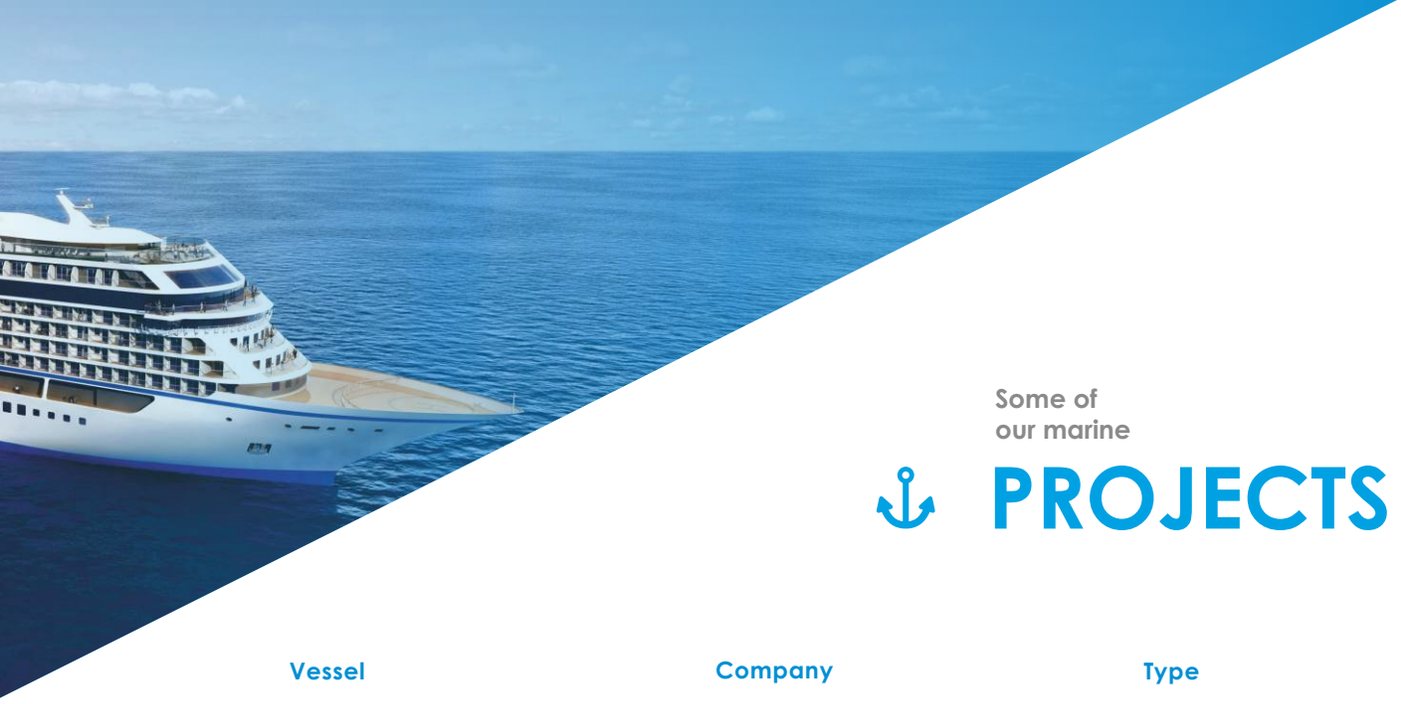

Some of
our marine

PROJECTS

Vessel	Company	Type
Aegean Paradise	Hainan Cruises/Etstur	Cruise Ship
African Juniper	Sea Vision	Bulk Carrier
Ariadne	Hellenic Seaways	Passenger / Vehicle
Blue Galaxy	Blue Star	RO-RO/Passenger ship
Blue Horizon	Blue Star	RO-RO/Passenger ship
Blue Star 2	Blue Star	RO-RO/Passenger ship
Blue Star 2 Naxos	Blue Star	RO-RO/Passenger ship
Blue Star Delos	Blue Star	RO-RO/Passenger ship
Blue Star Naxos	Blue Star	RO-RO/Passenger ship
Blue Star Paros	Blue Star	RO-RO/Passenger ship
Blue Star Patmos	Blue Star	RO-RO/Passenger ship
Blue Star1	Blue Star	RO-RO/Passenger ship
Crete I	Anek Lines	RO-RO/Passenger ship
Crete II	Anek Lines	RO-RO/Passenger ship
Decameron	-	Oil / Chemical tanker
Diagoras	Blue Star	RO-RO/Passenger ship
Eleni K	Kaiafas shipping	General Cargo
Eleytherios Venizelos	Anek Lines	RO-RO/Passenger ship
Elyros	Anek Lines	Passenger / Vehicle
Galaxy	Blue Star	RO-RO/Passenger ship
Glikofilousa	Theodoropoulos	RO-RO/Passenger ship
Golden Iris	Mano Maritime LTD.	Cruise Ship
Hellenic Spirit	Anek Lines	RO-RO/Passenger ship
Horizon	Blue Star	RO-RO/Passenger ship
Kiveli	Monford management LTD.	Bulk Carrrier
KK Perintis	-	Dredger
Kydon	Anek Lines	RO-RO/Passenger ship
Leo	Technomar	RO-RO/Passenger ship
Morocco Star	Superfast	RO-RO/Passenger ship
New Hellas	-	Crude oil tanker
Olympic Champion	Anek Lines	RO-RO/Passenger ship
Prevelis	Anek Lines	RO-RO/Passenger ship
Superfast II	Superfast	RO-RO/Passenger ship
Superfast XI	Superfast	RO-RO/Passenger ship
Superfast XII	Superfast	RO-RO/Passenger ship
Talos	Creta Cargo	Ro-Ro Cargo
V.Kornaros	Lane Lines	RO-RO/Passenger ship

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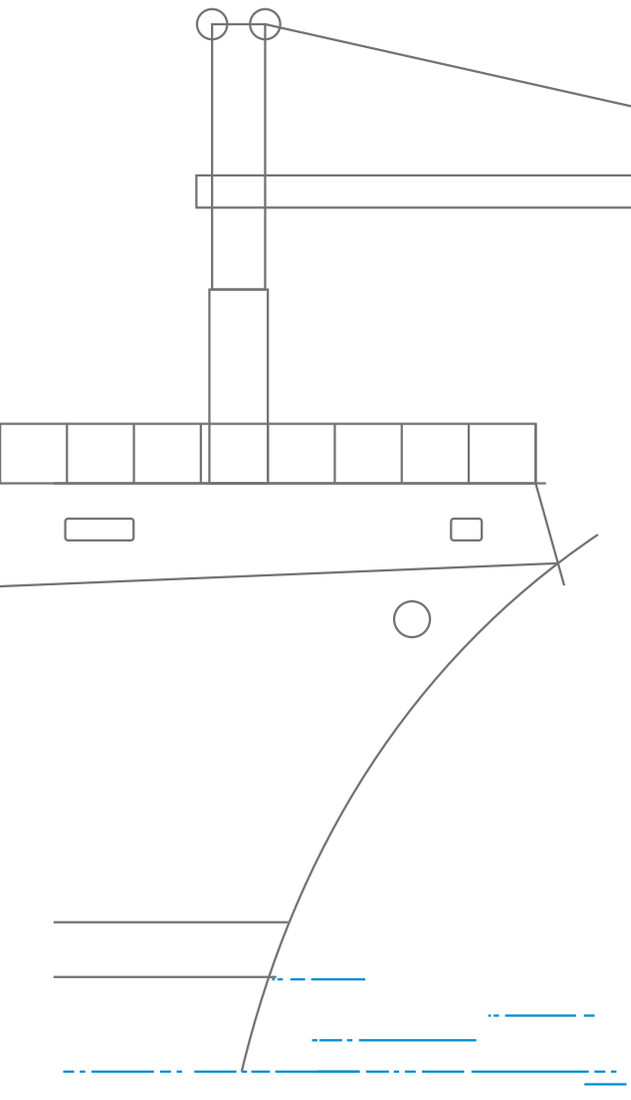
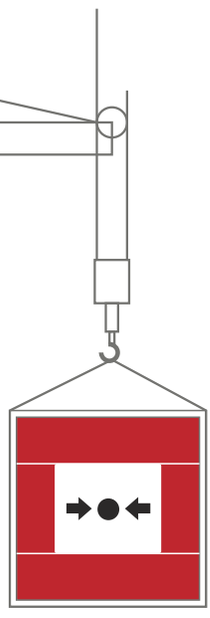




ADDRESSABLE

FIRE DETECTION SYSTEMS FOR MARINE APPLICATIONS

CATALOGUE

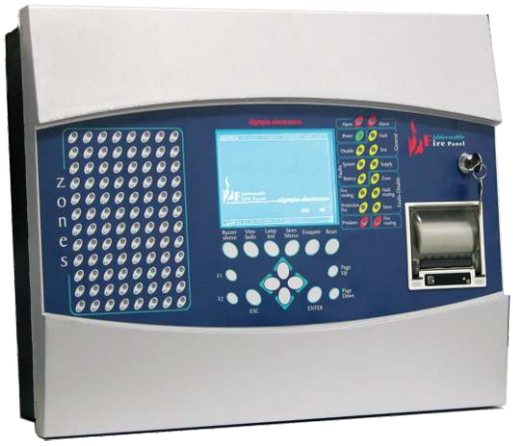
v. 1.18

ADDRESSABLE

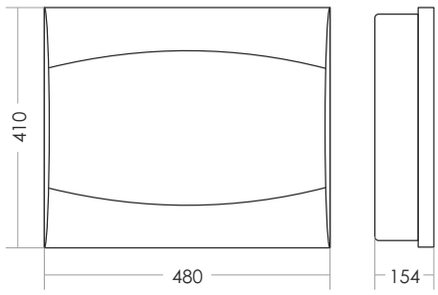
FIRE DETECTION PANEL

IP30

BSR-2104/MAR & BSR-2114/MAR



Dimmensions in mm



Technical description

Fire detection addressable panels **BSR-2104/MAR** & **BSR-2114/MAR** are designed with 2 and 4 loops and can be expanded to 8 loops. These panels are constructed in accordance with EN 54-2, EN 54-4 regulations.

Each loop has a maximum density of 150 devices/points. These devices/points can be input devices (detectors, manual call points), output devices and isolators. According to regulation EN 54-2 the maximum number of connected devices in an addressable fire detection panel cannot exceed the 512 devices. Each point/device can have a unique address in each loop with a number from 1 to 150. These fire detection panels have up to 96 zones and are suitable for vessels such as cruise ships, tankers, balk carries etc. It offers an extensive selection of settings and options in order to control the devices and sirens that can be easily modified through software in regular PCs. Also it is easily controlled from the 16 button keypad onto the panel.

These fire detection panels work with 220-240V AC power supply and 50-60Hz frequency and are rated in 1 class devices (it is obligatory for each panel to have its own resettable fuse in order to be protected from the main power supply panel and also, it is required to have the same ground connection with the main power supply installation). Each panel has also 2 batteries Sunlight SP-12 12V (7Ah or 12Ah) Lead Acid with output voltage 24V and autonomous duration (when a power failure exists) 30 minutes in alarm situation.

BSR-2104/MAR & BSR-2114/MAR have a 320x240 pixel LCD screen which displays messages whereas the indication LEDs are used to show basic warnings (alarm, fault, isolated sections). These LEDs are divided into groups and colors in order to indicate different situations.

Operating principles

Addressable fire detection panels enable us to connect addressable sirens among the loops or conventional sirens in the outputs of the panel. Each alarm output can carry up to 500mA and is checked for open and short circuit conditions.

It is obligatory according to legislation no more than 32 devices can stop working in a short circuit situation among the fire detection loop. To achieve this requirement we install short circuit isolators every 32 devices or less.

Important notes

Each loop has a maximum density of 150 devices/points. These devices/points can be input devices (detectors, manual call points), output devices and isolators.

Technical data

Type	BSR-2104/MAR	BSR-2114/MAR
Loops	2	4
Zones	96 addressable zones	
Power supply	220-240V AC / 50-60Hz	
Fuse rating	2A-250V AC (slow blow) 5x20mm	
Consumption	100VA	
Battery Type	2x Sunlight SP-12 12V (7Ah or 12Ah) Lead Acid	
Max. current consumption from battery	2.4 A	
Max. Battery Resistance	1 Ohm	
Charge circuit	Stabilized power supply 27.6V / 600mA	
Loop circuit	24V, up to 200mA (quiescent state) Each loop is protected with a self-resettable fuse.	
Loop Protocol	Olympia Electronics fire detection system is based on the communication protocol Olympia Bus.	
Siren circuit	4 circuits 24V/500mA, monitored for open and short circuits. Each output is protected with a self-resettable fuse.	
Output Vout	24V DC (+- 4VDC +- ripple 1V to peak) continuous output with max current 0,5A. Each output is protected with a self-resettable fuse.	
Relay4, Relay5, Relay6	General purpose relay (250V AC, 5A)	
Relay1, Relay2, Relay3	Monitored relay output for open or short circuit. Each output is protected with a self-resettable fuse.	
Output Fault	Open collector output(max 30V DC/6mA)	
Output Alarm	Open collector output(max 30V DC/6mA)	
Output A1,A2 and A3	3 general purpose inputs (max input voltage 30V DC)	
Total loads (Imax)	Total load on loops, sirens, outputs VOUT, relay must not exceed 2A.	
Safe state	The safe state for the main CPU of BSR-2104/MAR & BSR-2114/MAR: · The indicator LEDs remain at the state that they were before the safe state. Besides the System Fault that lights continuously, the General Fault lights continuously or blinks · Relay outputs remain at the state they were before the safe state. Only the Fault relay output is deactivated · There is no communication with the loops · The Buzzer sounds The safe state of CPU for each loop of BSR-2104/MAR & BSR-2114/MAR: · Shuts down the power of the loop · Shuts down the power of the alarm devices (sirens) · There is no communication with main CPU · Fault relay output is deactivated · General Fault that lights continuously or blinks · The Buzzer sounds	
Connection cables	The connection cables must be certified for fire detection installation such as FIP200, MICC, PYROFIL.	
Cover protection	IP30	
Operating temperature	-5˚C to 40˚C	
Humidity	Up to 95% relative humidity	
Construction materials	Electrostatically painted steel	
Dimensions	480 x 410 x 154 mm	
Weight	7Kgr (2 loop)	7,2Kgr(4 loop)
In accordance with	EN 54-2, EN 54-4, IEC 60092-504, IEC 60533	
Guarantee	2 years	

BSR-2104/MAR & BSR-2114/MAR

Outputs/Inputs

Each panel has the following input and output terminals that enables us to connect other devices in fire detection systems and allows us to achieve different functions.

1. Each panel has Fire Alarm routing (alarm signal) and Fire Protection routing (signal for fire extinguishing) (output type A). Fire Alarm Routing terminal is the terminal Relay 1 +- while Fire Protection Routing terminal is terminal Relay3+-. Both outputs are monitored for open and short circuit fault condition.

2. The panel also has Fault Routing with terminal Relay 2+-. Also monitored for open and short circuit fault situations.

3. Extension +A, -A terminals are used for the connection of external devices such as external relays, repeaters.

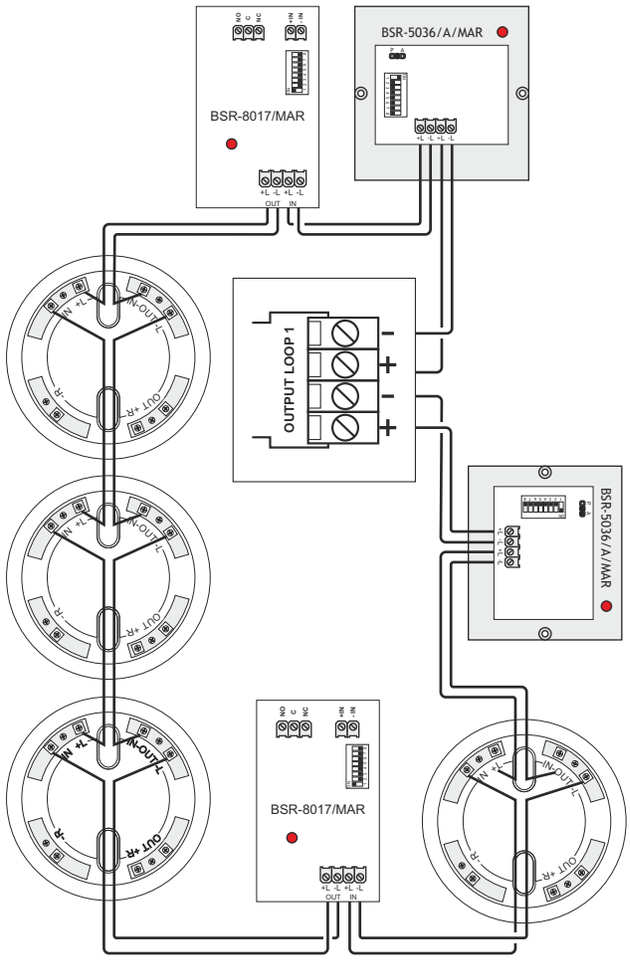
4. V_OUT terminal: 24VDC output voltage (up to 600mA) can be used to supply devices that cannot be connected and supplied by the loop.

5. Fault Terminal: Open collector output. When there is a general fault this output is permanently activated (0V), whereas when there is a fault in main CPU, the output is switched on and off.

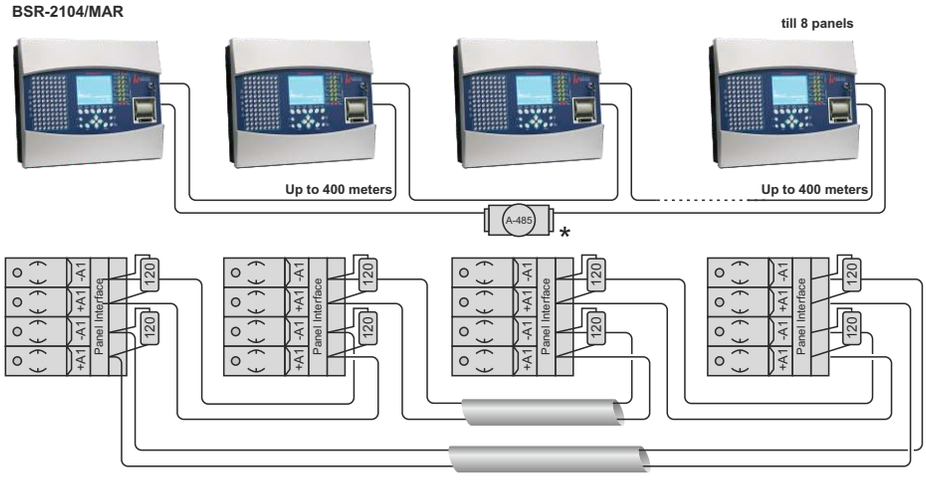
6. Alarm terminals: Open collector outputs. In quiescent state is permanently activated (0V), whereas when there is an alarm state in main CPU function, the output is switched on and off.

7. NO, C, NC terminals of the relays 4, 5, 6: There are voltage free relay contacts with 230V/5A. By default they are programmed to work as alarm relays.

8. A1, A2, A3 terminals: These are inputs of the panels with voltage up to 24V.

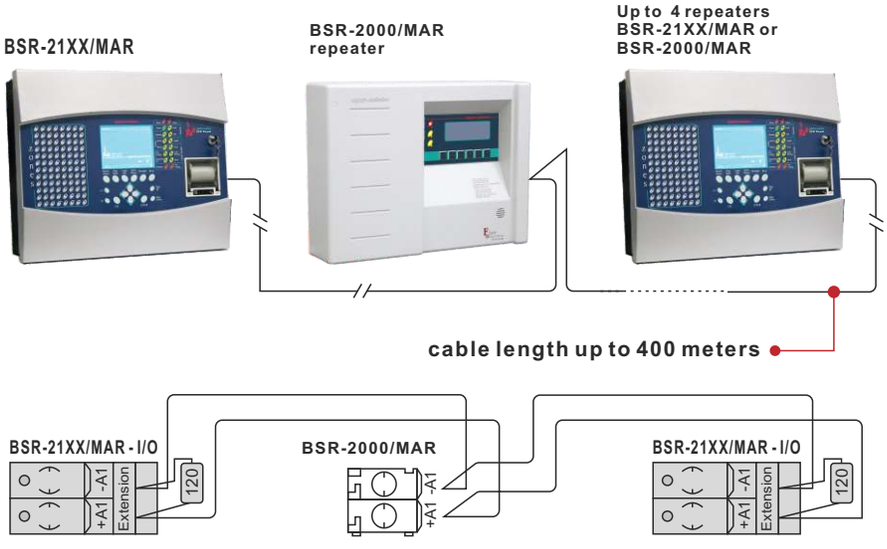


The scheme shows a typical device connection in a loop of an addressable fire detection panel.



Connection to a network & repeaters

The input and output terminals of the addressable fire detection panels enables us to connect up to 8 panels in a network to cover a big facility. If the distance between panels exceeds 400 meters, it is obligatory to install an A-485 which is a RS-485 protocol line amplifier.



Panel reapeters connection diagramm

Also, is possible to connect up to 4 panel repeaters (BSR-2000/MAR) in each fire detection panel. The below scheme shows the connection.

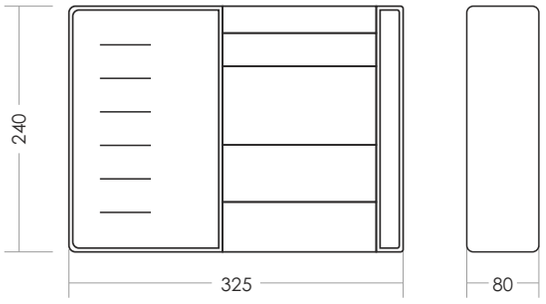
REPEATER PANEL

FOR BSR-2104/MAR & BSR-2114/MAR PANELS

IP30

BSR-2000/MAR

Dimmensions in mm

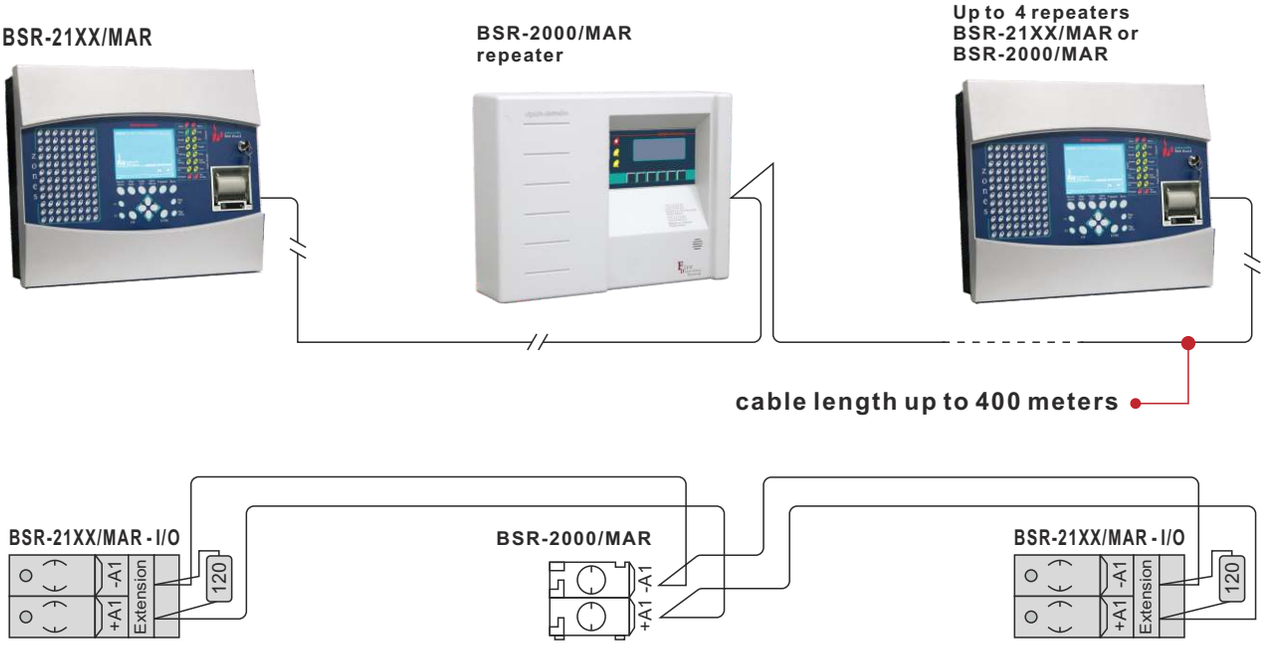


Technical description

BSR-2000/MAR panel is a repeater panel for addressable fire detection panels BSR-21XX/MAR. This panel has all the major indications and a large LCD display to indicate the state of the master panel. The repeater panel is power supplied by mains and in a power failure by batteries.

Panel reapeters connection diagramm

The scheme below shows the connection between master panel and repeater panel. All the cables should be shielded and must be properly connected to the earth terminal block provided.



Technical data

Type	BSR-2000/A/MAR
Mains power supply	P220-240VAC 50/60Hz | 16-30V DC
Consumption	12VA | 1.2W (24V DC 50mA)
Battery type	One 12V Lead Acid sealed 7Ah maximum
Charging circuit	Stabilized power supply 13.8V / max.400mA
Autonomous duration	36 hours
Output F_OUT	Open collector output signal as specified in 8.8 of EN 54.2 (max.30V DC/6mA)
IP	IP 30
Cables	Cables for fire rated cables systems such as FIP2000, MICC, PYROFIL
Fuse ratings	The panel has only one resettable fuse to protect incoming mains supply. This fuse is a T2A250HRC 20mm (630mA) and should be replaced with a fuse of the same type and rate.
Operation temperature	0˚C to 50˚C
Humidity	Up to 95% relative humidity
Construction material	ABS-polycarbonate
Dimensions	325 x 240 x 80 mm
Weight	2 Kgr
Produced in accordance with	EN 54-2, EN 54-4, IEC 60092-504, IEC 60533
Guarantee	2 years

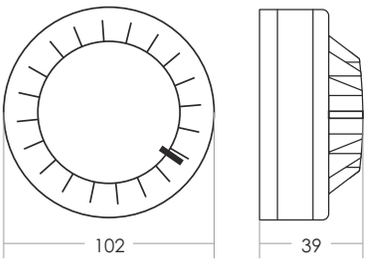
ADDRESSABLE OPTICAL

SMOKE DETECTOR

IP44

BSR-6055/A/MAR

Dimmensions in mm



Technical description

BSR-6055/A/MAR is an analogue addressable optical smoke detector and co-operates exclusively with BSR-2104/MAR and BSR-2114/MAR panels. It is produced in accordance with EN 54-5, IEC 60092-504, IEC 60533.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main body/part of detector. The base is mounted on the ceiling and the main part adjusts on the base with a simple rotation as it looks on pictures

The detector has also an indication LED which is visible from 360˚ view and flashes every 8sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED lights even when we silence the sirens, in order to show us the detector that issued the alarm.

Operating principles

The function of BSR-6055/A/MAR is based on an IR emitter and receiver inside the chamber of detector. In resting state the receiver doesn't receive the IR signal because the collimator of emitter is arranged at an obtuse angle to the receiver. When an amount of smoke enters in the detector's chambers the IR signal is reflected on the smoke particles and the receiver receives an amount of IR radiation. If this amount of radiation exceeds a preset value the optical smoke detector is activated.

BSR-6055/A/MAR transmits an analogue value to the panel which depends on the amount of the smoke that there is in the area. The analogue value is 100 with obscuration rate 0.120dB/m (small amount of smoke). The factory setting of the panel is to issue an alarm when the analogue value is greater than 110. The user can change from the panel this analogue value from 100 (high sensitivity) up to 120 (low sensitivity).

Important notes

The detectors must be placed in the ceiling on visible areas with no side obstacles and away from sides with no air circulation or strong air currents and vapors.

Each detector covers almost 50m2 and the distance between two detectors must not exceed 15m.

The detectors must be placed away from fluorescent tubes at least 50cm.

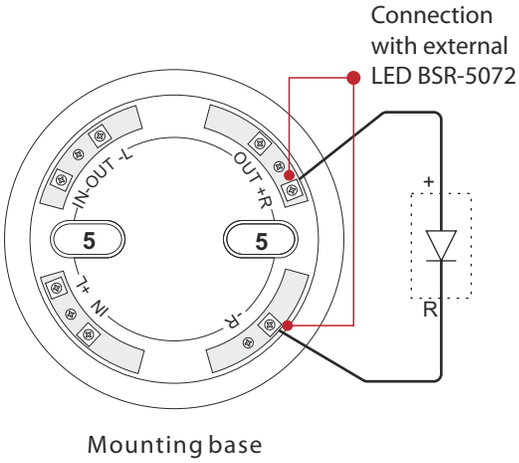
After the installation of the device, care must be taken in order to avoid the dust, paint etc to block the detector vents. This action will enable the proper function of optical smoke detector.

The detectors must be placed at least 50cm away from fluorescent tubes.

Technical data

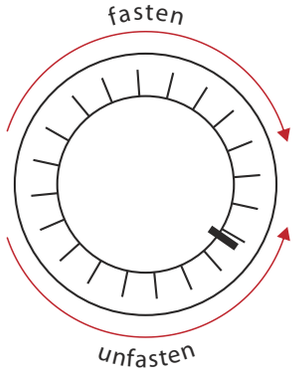
Type	BSR-6055/A/MAR
Detection principle	Photoelectric detection of light scattered in a forward direction by smoke particles
Sampling Frequency	1 per 8 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	21-28V DC
Power-up surge current	1mA
Alarm current, LED illuminated	1,5mA
Sensitivity	0.120dB/m
Alarm Indicator	Lighting Emitting Diode (LED)
Output	To external LED driver
IP rating	IP44
Produced in accordance with	EN 54-7, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	102 (diameter) mm x 48 (height) mm
Typical weight	160gr
Guarantee	2 years

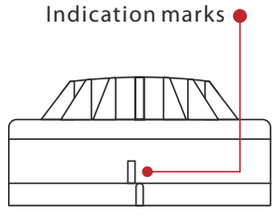
Connection drawing



Mounting base

Installation drawing



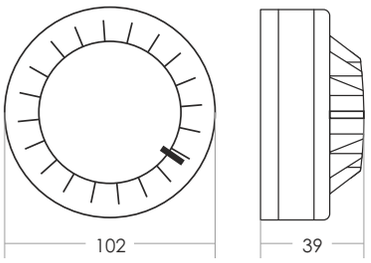


DETECTOR

IP44

BSR-6057/A/MAR

Dimmensions in mm



Technical description

BSR-6057/A/MAR is an analogue addressable detector that has two sensors, one for smoke and one for heat and the alarm decision is derived from either sensor. It co-operates with BSR-2104 and BSR-2114 panels and is produced in accordance with EN 54-5, EN 54-7, IEC 60092-504, IEC 60533. The combined function of BSR-6057 makes this detector very affective and reliable in fire detection.

The detector has also an indication LED which is visible from 360˚ view and flashes every 8sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED lights even when we silence the sirens, in order to show us the detector that issued the alarm.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main body/part of detector.

Operating principles

The device transmits an analogue value to the panel which depends on the amount of smoke that circulates in the area. The analogue value is 100 with obscuration rate 0.120dB/m (small amount of smoke). The factory setting of the panel is to issue an alarm when the analogue value is greater than 110. The user can change from the panel this analogue value from 100 (high sensitivity) up to 120 (low sensitivity). At the temperature of 60˚C the thermal detector is activated and gives an 120 value.

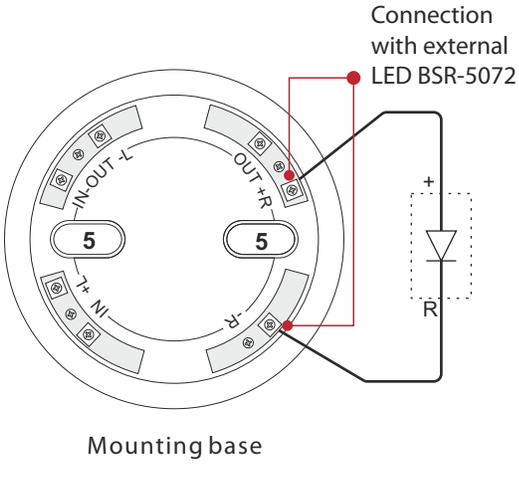
Important notes

It is installed in rooms/areas where the fire risk is likely to include heat at an early stage in the development of the fire (oil refinery, oil rigs/platforms etc). Its heat sensor makes the detector more responsive to fast burning, flaming fires.

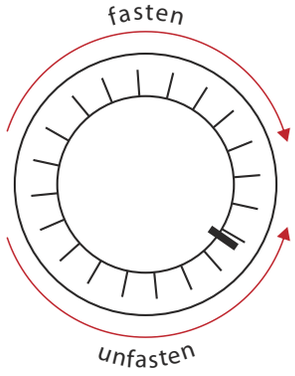
Technical data

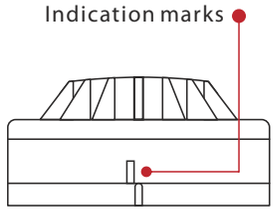
Type	BSR-6057/A/MAR
Detection principle	Photoelectric detection of light scattered by smoke particles and heat detection with thermal sensor
Sampling Frequency	1 per 8 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	21-28V DC
Power-up surge current	1mA
Alarm current, LED illuminated	1,5mA
Sensitivity	0.120dB/m and 60˚C
Alarm Indicator	Lighting Emitting Diode (LED)
Output	To external LED driver
IP rating	IP44
Produced in accordance with	EN 54-5, EN 54-7, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	103 (diameter) mm x 48 (height) mm
Typical weight	160gr
Guarantee	2 years

Connection drawing



Installation drawing

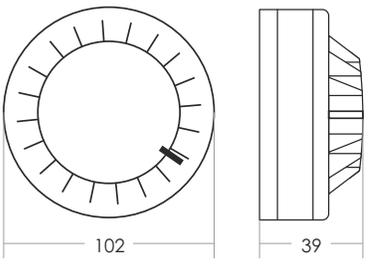




IP22

BSR-6060/A/MAR

Dimmensions in mm



Technical description

BSR-6060/A/MAR is an analogue addressable detector that combines two heat functions. Inside it's chamber there are two sensors, one rate of rise and one thermal sensor. It co-operates exclusively with analogue addressable panels BSR-2104, BSR-2114 and it is constructed according to EN 54-5, IEC 60092-504, IEC 60533.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main part of detector. The base is mounted on the ceiling and the main part adjusts on the base with a simple rotation.

The detector has also an indication LED which is visible from 360˚ view and flashes every 8sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. It lights even when we silence the sirens to show us the detector that issued the alarm.

The heat sensor is analogue to the room temperature. When the room temperature exceeds the preset temperature, the detector is activated and gives alarm state on central panel. Rate of rise sensor detects the rate of temperature-rise in a room. When the temperature of the covered room rises more than 5˚C/min the detector is activated and gives alarm state on central panel.

Operating principles

BSR-6060/A/MAR sends a value on central panel that depends on the temperature of the room and the rate of temperature rise. This value is 100 for 56˚ C and increases one unit per degree of the temperature increase. If the temperature rises rapidly, with rate of temperature rise bigger than 5˚ C/min, then the analogue value (alarm value) that sends the detector to the panel is 128. The factory settings for BSR-6060/A/MAR is value 104 which is corresponding to 60˚ C room temperature. Any temperature above 60˚ C will give an alarm state to central panel. We have the potentiality to change this value in order to diversify the sensitivity of the detector. The range of values is from 100 (56˚C) up to 120 (76˚C). This opportunity enables the set of low sensitiveness in detectors in places that have increased temperature, in order to avoid false alarms. Vice versa, when we need high sensitiveness in the detectors of a room we decrease the activation value.

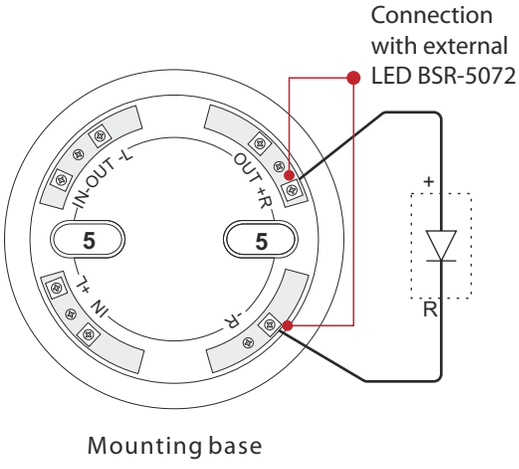
Important notes

The double function of heat detector BSR-6060/A/MAR has a lot of benefits compare to a simple heat detector. In case of a slow burning fire, there is the possibility the rate of temperature rise won't exceed the value of 5˚C/min resulted on the rate of rise sensor which won't sense the fire. In this occasion, thermal sensor will be activated. In contrary, in a rapidly extended fire, rate of temperature rise sensor will be activated faster than thermal sensor. This double heat function provides bigger coverage and protects us sufficiently in a big range of dangerous occasions.

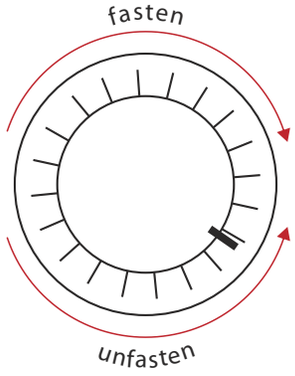
Technical data

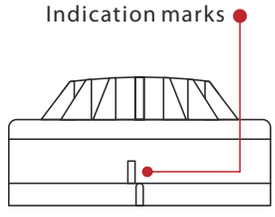
Type	BSR-6060/A/MAR
Detection principle	Double function: Thermal sensor and rate of temperature rise sensor in the chamber of detectors
Sampling Frequency	1 per 8 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	18-30V DC
Power-up surge current	1mA
Alarm current, LED illuminated	1,5mA
Sensitivity	5˚C/min
Alarm Indicator	Lighting Emitting Diode (LED)
Class	A2R
IP rating	IP22
Produced in accordance with	EN 54-5, IC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	103 (diameter) mm x 48 (height) mm
Typical weight	145gr
Guarantee	2 years

Connection drawing



Installation drawing

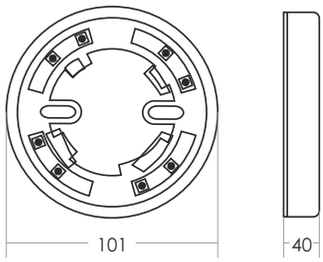




IP20

BSR-7071/A/MAR

Dimmensions in mm



Technical description

BSR-7071/A/MAR is a bidirectional, non addressable loop monitoring device for addressable fire detection systems. It is power supplied by the loop and detects continuously the voltage levels and the signal's integrity. It is produced in accordance with EN 54-17, IEC 60092-504, IEC 60533.

The main supported function is to isolate a part of the loop (among the two closest isolators) when a short circuit occurs. In case of two short circuits, the detectors before the first and after the second short circuit are powered. Repair of the short circuit condition brings the loop condition back to normal automatically (closed loop). The location of the short circuit position is achieved by reading the lost address detectors attached on the top of each isolator. We can have up to 3 additional detectors - devices connected and controlled on a single isolator output (connection drawing).

It is recommended to apply up to 3 additional devices on the output of each isolator (3 detectors or 3 manual call points or 2 sirens). The energy consumption of the isolator must be considered in modification of existing loops, to reduce by one the number of the detectors in full load loops. The loop is possible to carry up to 50 paired units (50 isolators + 50 detectors). In fire detection system, when a loop has more than 80 paired units (detectors + isolators), for every three isolators connected to the loop, one detector must be removed.

The device is case sensitive between two terminals (+, -).

Important notes

Situations that activate isolated operation

1. Short circuit situation
2. Wrong polarity connection on input/output terminals
3. More than 3 devices connected on isolator output
4. Increased energy losses on the loop wiring
5. Protocol integrity faults

Installation & Operating principles

1. There is always electrical continuity on negative terminals (-), regardless the isolator's condition.

2. The attached detector on the isolator base is power supplied from the output terminal of isolator and is connected with a simple rotation of the detector. It is recommended the preservation of input/output wiring in each isolator in order to remove only one detector when a short circuit occurs.

3. A consequence of non compliance to input/output sequence appears when all detectors are working in short circuit situation. The short circuit can't be located and the electrical installer has to search all the wiring for the fault part.

4. Power loss of a loop leads to isolated condition of all isolators.

5. There is a time delay in all isolators in loops before they isolate a part of the loop (time delay: 0.5sec x number of isolators) in order to register the situation of devices.

6. It should be avoided the connection of more than three devices among two isolators.

7. The overcoming of case 6 due to output overload can be achieved with a RESET command from the main panel. This enables the installer to modify loop structure and the loop is power supplied temporarily.

8. The control panel RESETs the isolators after a fault situation.

9. It is possible during the restore of a short circuit condition, the main panel to read more than one addressable devices with the same address. Since the restore condition is a transient condition of loop extension and repair process, it is recommended to execute a RESET command to identify automatically all addressable devices before an inspection check.

10. In the output terminal of the isolator there are AC voltage measurements:

a. If the voltage level falls below the limit of 2Volts it's an indication that a short circuit occurs.

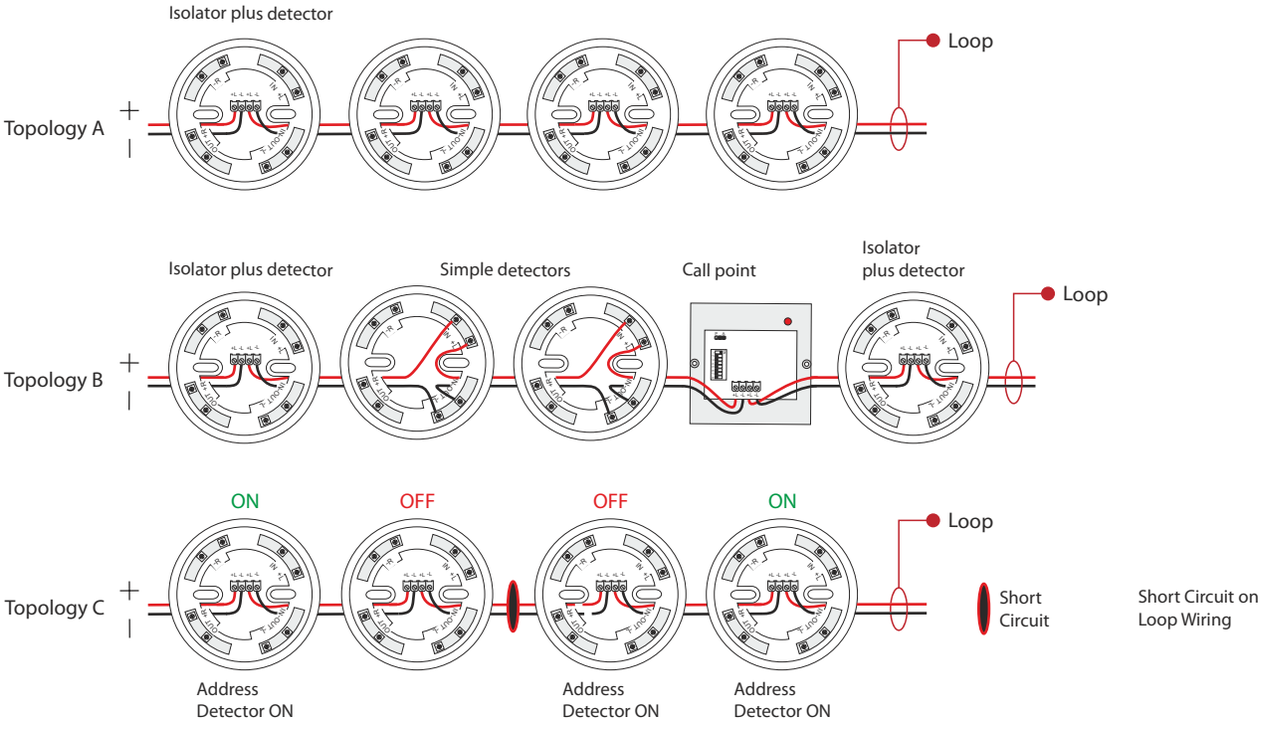
b. If the voltage level is equal to the voltage level of input terminal it's an indication for good operation of the device.

c. If the voltage level is lower than the voltage level of input terminal it's an indication for open circuit (there isn't a connection of a detector or a device in the output terminal of isolator).

Technical data

Type	BSR-7071/A/MAR
Line isolator principle	Detects and isolates a short circuit in the base of the detector
Supply wiring	Two-wire supply, respect polarity
Operating voltage	14 - 30V DC
Current load	0 – 500 mA
Standby current	200 μA
Activation current	3mA
IP rating	IP20
Produced in accordance with	EN 54-17, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	101mm x 40mm
Typical weight	130 gr
Guarantee	2 years

Connection drawing



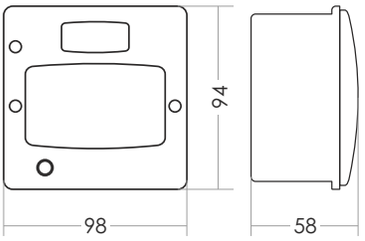
Electrically, the attached detectors are connected to the output of each isolator. This is why regardless the isolator state it is possible the attached detectors to be operational.

ADDRESSABLE MANUAL
CALL POINT

IP44

BSR-5036/A/MAR

Dimmensions in mm



Technical description

BSR-5036/A/MAR is an analogue addressable manual call point which cooperates exclusively with fire detection panels BSR-2114/MAR and BSR-2104/MAR. It is constructed in accordance with EN 54-11, IEC 60092-504, IEC 60533.

Manual call points are installed near exits, stairwells, in escape routes and it is essential to install one manual call point near fire detection panel. The manual call point near control panel is placed there so the person who is responsible for the inspection of the building will give an immediate alarm signal and activate the alarm system as soon as he detects a problem in the panel. Manual call points should be mounted at a height of 1.5 m above the floor and the maximum distance to reach a manual call point in an escape route shouldn't exceed 30m.

The activation of manual call point is done by pressing the clear plastic cover. It doesn't break and can be reset to its standard position with a plastic key after alarm activation. This function enables the testing of a specific button and the maintenance of fire detection panel.

BSR-5036/A/MAR has a red indication LED that flashes periodically in standby detection mode to indicate the good operation of the system. When the manual call point is activated the indication LED is illuminated continuously until there is a reset signal from the control panel.

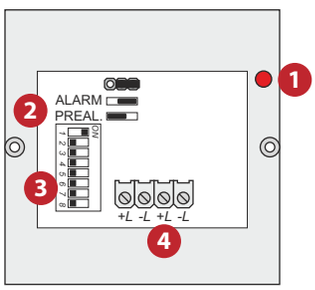
Each button has an address recognized from the main panel and we can give this address in manual call points with a dipswitch. It is produced in two different versions for indoor and outdoor use.

1. Indicator LED. Blinks periodically in standby detection mode. The LED lights when a button issue an alarm. The LED goes off when we RESET the panel.

2. Select the signal that the button sends to the panel. In position (ALARM) the button sends an alarm signal. In position (PREALARM) the button sends a prealarm signal.

3. Address selection dipswitches. Each device has its own address.

4. Terminal block for wiring connection to the loop.



Important notes

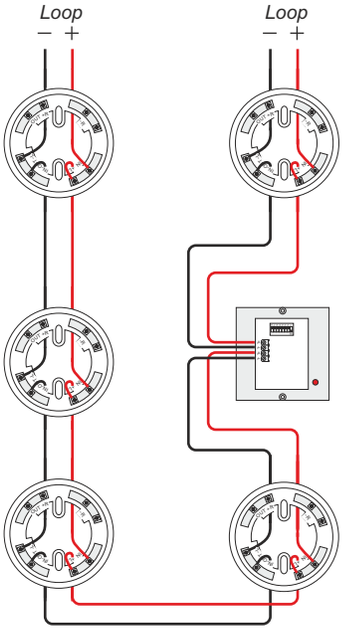
Manual call points should be mounted at a height of 1.5 m above the floor.

Maximum distance to reach a manual call point in an escape route shouldn't exceed 30m.

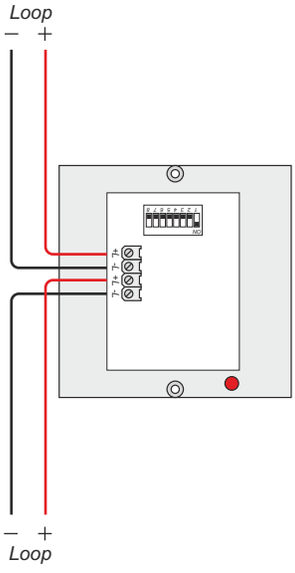
Technical data

Type	BSR-5036/A/MAR
Call point principle	Operation of a switch
Alarm indicator	Red Light Emitting Diode (LED)
Supply wiring	Two-wire supply, respect polarity
Operating voltage	21-28V DC
Standby consumption	1mA
Average consumption	1,5mA (with activation LED)
Use	Indoor & outdoor
Type of application environment	Type A
Construction material	Bayblend FR3010, transparent polycarbonate
IP rating	IP44
Produced in accordance with	EN 54-11, IEC 60092-504, IEC 60533
Operation temperature range	0˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	98mm x 94mm x 58mm
Typical weight	190gr
Guarantee	2 years

Connection drawing



Connection of a manual call point in a detection loop with other detectors and the scheme



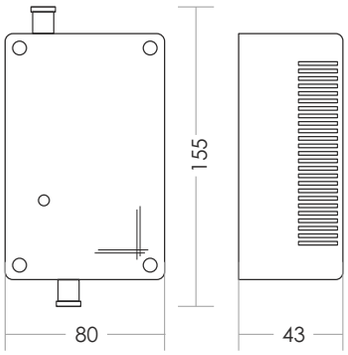
Wire connection on manual call point's inputs and outputs.

INPUT - OUTPUT UNIT

IP65

BSR-8020/WP/MAR

Dimmensions in mm



Technical description

BSR-8020/WP/MAR is an addressable input – output unit which cooperates and is exclusively programmable from fire control panels BSR-2104/MAR and BSR-2114/MAR. The use of this device is to connect conventional devices which have a free relay contact in addressable systems such as conventional fire detection & extinguishing panels, gas detection panels, conventional detectors, flow switches, electromagnetic door latches etc. This device is also used as a driving input unit for conventional detectors to the addressable panel with maximum capacity 10 conventional devices (detectors, manual call point) or as a driving input unit with external power supply and maximum capacity 32 conventional devices as per EN54 regulations.

BSR-8020/WP/MAR input unit can indicate to the panel three different situations, quiescent, fault and alarm. The output unit has a fully programmable relay contact (30V/1A).

BSR-8020/WP/MAR has also an indication LED which flashes periodically to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED is illuminated even when we silence the sirens, in order to show us the device that activated the alarm.

1. Input connection terminals. The input is fully monitored and by default has a (56kΩ) resistor. On the 24VIN terminal you can connect an external power supply if the function conventional detector driving unit with external power supply is selected.

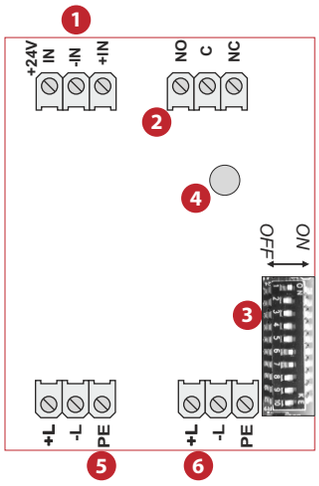
2. Relay connection terminals (NO, C, NC)

3. Address select micro switch (1-7) Subfunction select micro switch (8) Function select microswitch (9-10)

4. Indication LED. Blinks periodically in quiescent state. Is ON when a specific device issues an alarm. Goes OFF after a panel reset

5. Connection terminal with ground

6. Loop connection terminal



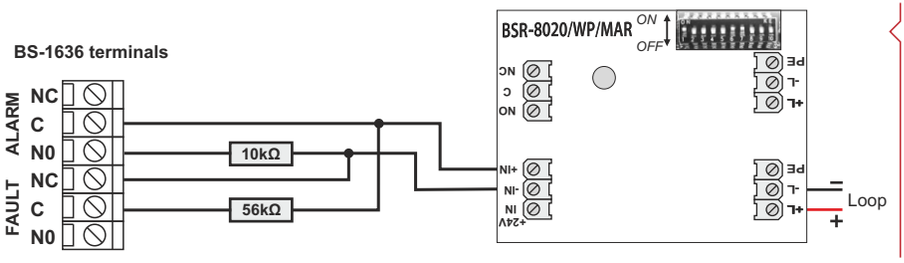
Important notes

The input is fully monitored for open and short circuit.

Technical data

Type	BSR-8017/MAR
Operating voltage	21-28V DC
Standby consumption	0,7mA
Alarm Consumption	1,3mA (with activated LED)
Quiescent consumption when used as conventional device driver	5.6mA
Alarm consumption when used as a conventional device driver	30mA
External power supply	21-28V
Installation	For internal use only
Construction material	Bayblend FR3010, transparent polycarbonate
IP rating	IP65
Produced in accordance with	EN 54-18, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	155mm x 80mm x 43mm
Typical weight	170gr
Guarantee	2 years

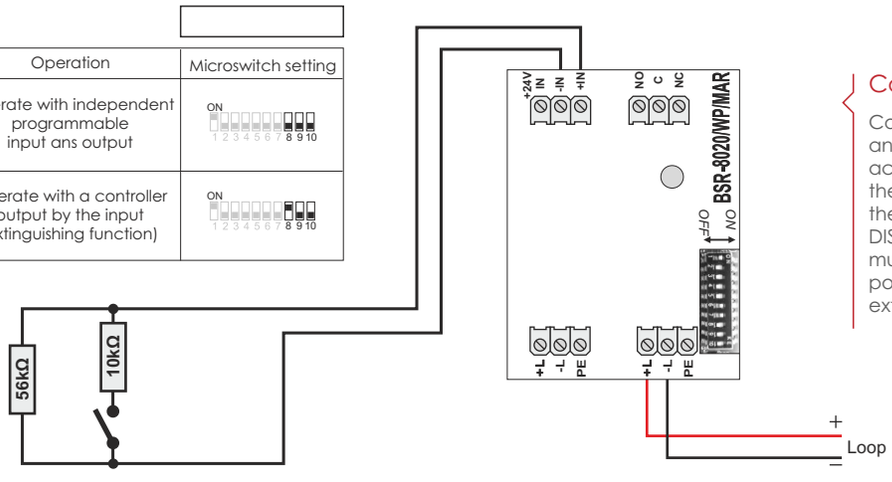
Operation as an Input/Output unit



Connection with a conventional panel

Connecting a BSR-8020/WP/MAR to a BS-1636 panel. The ALARM and FAULT RELAYS are used . If we follow this connection, when the panel detects a fault, the BSR-8020/WP/MAR will send a fault signal to the central panel and when the BS-1636 detects an alarm on a zone , the BSR-8020/WP/MAR will send an alarm signal.

Operation	Microswitch setting
Operate with independent programmable input ans output	
Operate with a controller output by the input (Extinguishing function)	



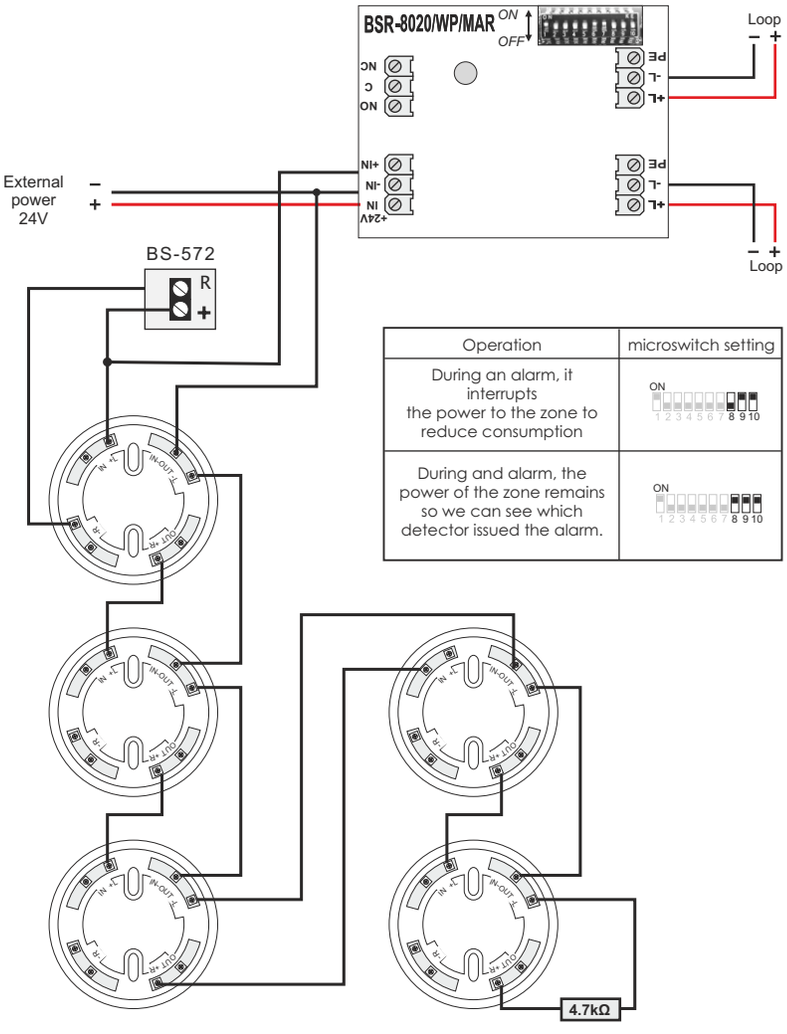
Connecting with a flow switch

Connecting a BSR-8020/WP/MAR with an isolation lock. When the lock is activated (short circuit), the output of the device does not operate and on the panel we can see the message " DISABLEMENT ". The BSR-8020/WP/MAR must have the microswitch 8 to the ON position. It can be used in a fire extinguishing system.

IP65

BSR-8020/WP/MAR

Conventional detector driving unit with external power supply.

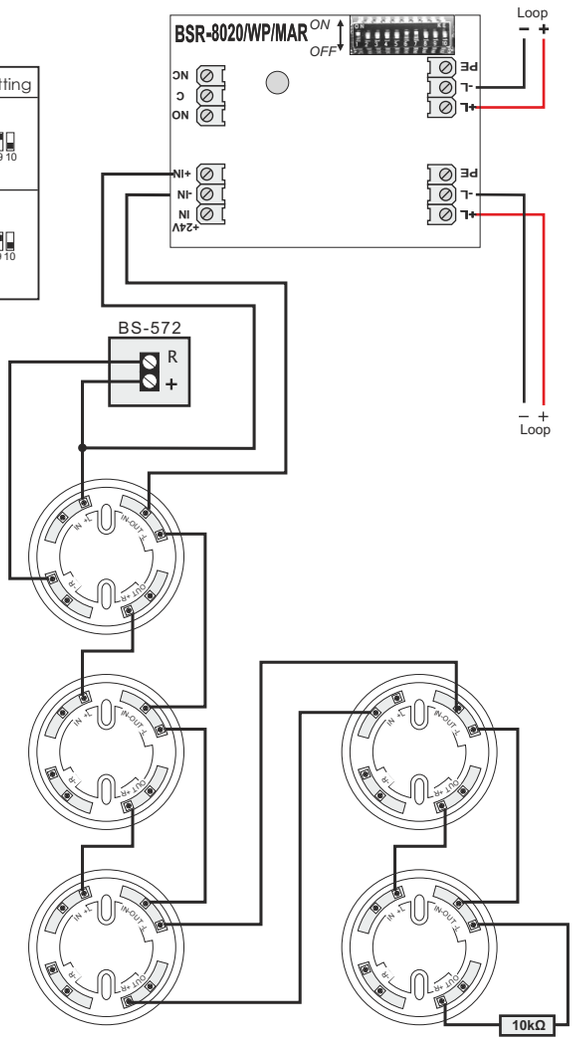


Operation	microswitch setting
During an alarm, it interrupts the power to the zone to reduce consumption	
During and alarm, the power of the zone remains so we can see which detector issued the alarm.	

Connecting a BSR-8020/WP/MAR to conventional detectors. The resistor found on the terminals of the device must be installed on the last detector. The maximum number of detectors per device is 40 conventional detectors of olympia electronics. According to EN 54 the maximum number of detectors per zone is 32 devices. The maximum consumption of the detectors in idle state, must not exceed the 2.5mA.
The power is supplied by an external power supply and thus does burden the loop. The power consumption is that of an input/output unit. The external power supply must have an output range 21-28V and must not be interrupted during a power failure.
Additionally, the external power supply must be isolated from the main power grid and its power must be calculated depending on the maximum load. If for example we have 10 such devices and each device consumes 30mA during an alarm then the power supply must be capable of providing at least 300mA.

Convetional detector driving unit

Operation	microswitch setting
During an alarm, it interrupts the power to the zone to reduce consumption	
During and alarm, the power of the zone remains so we can see which detector issued the alarm.	

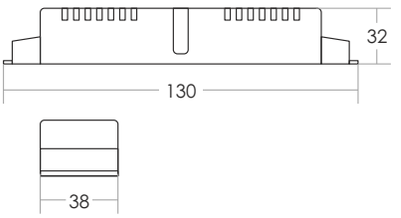


Connecting a BSR-8020/WP/MAR with conventional detectors. A 10kΩ terminal resistor must be connected on the last detector. The maximum number of detectors per unit is 10. An external LED BS-572 can be connected on one of the detectors.
With the microswitch 8 we can set if during an alarm the zones power will be interrupted or not. (according to the table above).
If the microswitch 8 is in the ON position, the maximum number of devices is 7, whereas if the microswitch 8 is in the OFF position, the maximum number of devices is 30.
The total consumption must also include the consumption of the other devices

IP20

BSR-7070/A/MAR

Dimmensions in mm



Technical description

BSR-7070/A/MAR is a bidirectional (two way), non – addressable device which is used in addressable systems to sense and isolate short circuits on loops. It is power - supplied by the loop and detects continuously the voltage level and current flow. Its function is to isolate a part of the loop, remove the short circuit that is detected among two isolators.

Operating principles

BSR-7070/A/MAR is activated when it senses a voltage level lower than 14V or a current flow higher than 500mA. A maximum of 32 detectors may be installed between isolators so in case of a short circuit the maximum number of 32 detectors will stop working. The installation of short circuit isolator is required in the beginning of each floor in a building with flats and also in the beginning and in the end of each loop if the number of devices in the loop exceeds the 32 devices. You can connect up to 32 line isolators BSR-7070/A/MAR in each loop.

During installation, BSR-7070/A/MAR applies continuity on the negative terminals (-). At boot time, a short circuit check takes place and after the proper function is secured the device applies continuity to the positive terminals (+) too.

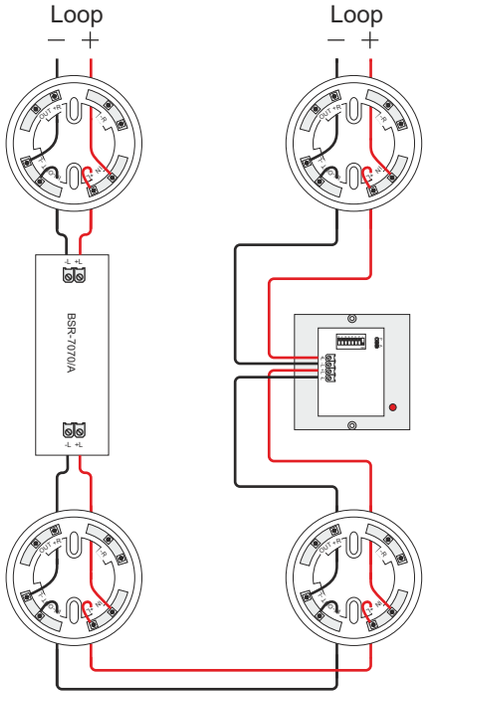
Important notes

A maximum of 32 devices may be installed between isolators , so in case of a short circuit the maximum number of 32 (detectors, sirens, manual call points) devices will stop working.

Technical data

Type	BSR-7070/A/MAR
Line isolator principle	Detects and isolates a short circuit
Supply wiring	Two-wire supply, respect polarity
Operating voltage	14 -30V DC
Current load	0 - 500mA
Short circuit detection current	1mA
Standby current	1,2mA
Activation current	1,2mA
IP rating	IP20
Produced in accordance with	EN 54-17, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	130mm x 38mm x 32mm
Typical weight	70gr
Guarantee	2 years

Connection drawing

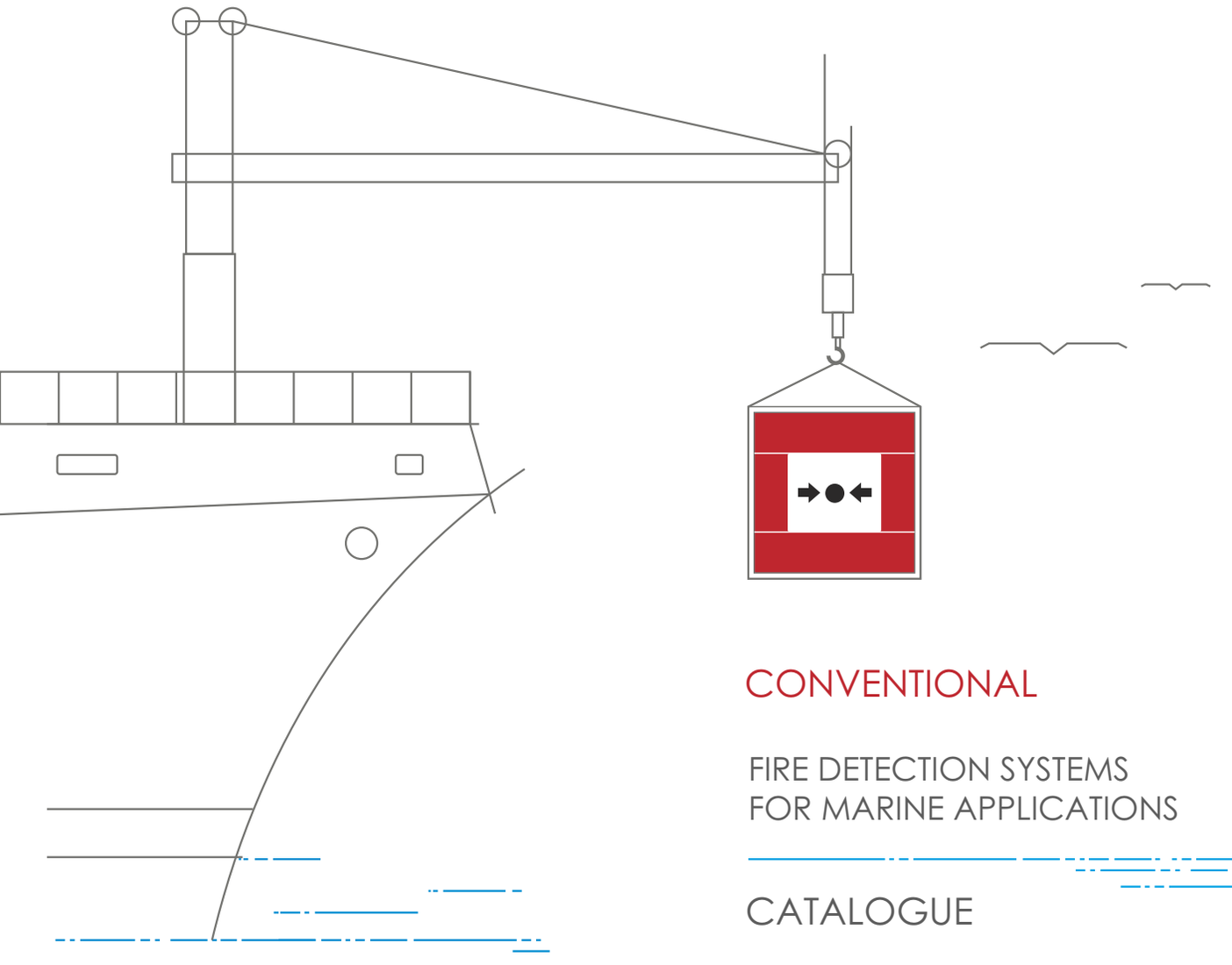


The scheme above shows the connection of BSR-7070/A/MAR line isolator among detectors and manual call points.

The scheme above shows the wiring connection in the terminals of BSR-7070/A/MAR.

olympia electronics
SAFETY & SECURITY SYSTEMS

for a safer world!



CONVENTIONAL

FIRE DETECTION SYSTEMS FOR MARINE APPLICATIONS

CATALOGUE

v. 1.18

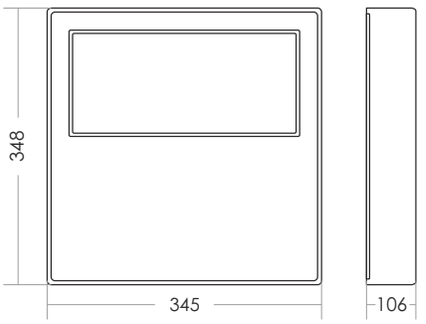
CONVENTIONAL

FIRE DETECTION PANEL

IP30

BS-1638/MAR, BS-1642/MAR, BS-1646/MAR

Dimmensions in mm



Technical description

Fire detection conventional panels **BS-1638/MAR, BS-1642/MAR** and **BS-1646/MAR** are designed with 8, 12 and 16 zones accordingly. These panels are constructed in accordance with EN 54-2 and EN 54-4 regulations.

Each zone has a maximum capacity of 20 conventional devices, such as conventional detectors and manual call points. The conventional fire detection panels have two 24V siren outputs, fully monitored for open and short circuit conditions. They also have 24V DC outputs to supply magnetic door holders, flow switches, fire curtains and gas detectors. These conventional panels can be connected with the building management system (BMS connection) with three programmable relays that indicate three different situations, normal operation, fault and alarm. The battery backup of these panels is two sealed lead acid batteries 12V with 7Ah or 9Ah and achieve autonomous duration of 72 hours.

The conventional fire detection panels can be programmed from the display and keypad in the front of the panel and also from a common web browser such as Chrome, Mozilla Firefox when they are connected through Ethernet with a PC.

Operating principles

Each zone gives the appropriate indication in the panel, when any of the devices in the zone is activated. Besides the indication in the LCD display, there is a second indication in the respective LED in the front of the panel, where the LED is blinking when there is a fault on the zone.

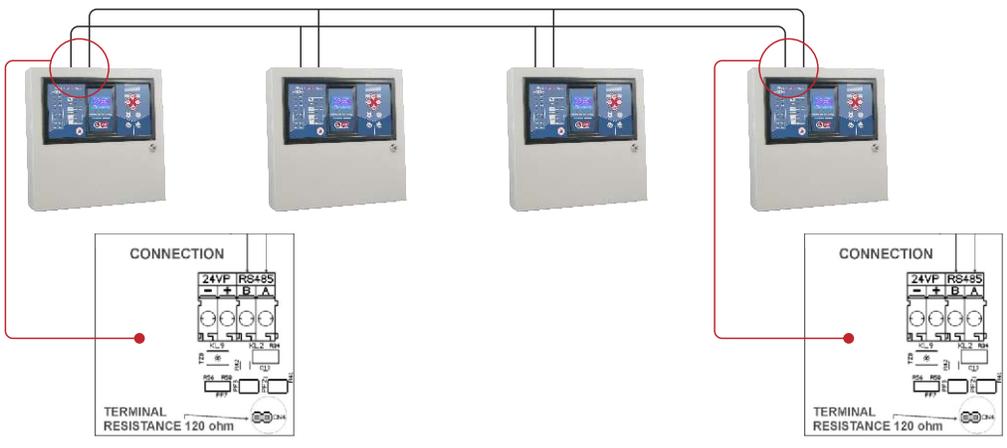
Important notes

There is the capability to connect conventional fire detection panels into a network and cover bigger installations.

Technical data

Type	BS-1638/MAR	BS-1642/MAR	BS-1646/MAR
Zones	8	12	16
Power supply	220-240V AC / 50-60Hz		
Charger	Stabilized power supply 27,6V/350mA		
Consumption	100VA		
Battery Type	2 x Sunlight SP-12 12V (7Ah or 9Ah) Lead Acid		
Max. current battery discharge	1 A		
Max. Battery Internal Resistance	1 Ohm		
Battery cut off voltage	21V		
Alarm Circuits	Two 24V circuits that are monitored for open and short circuit conditions, 0,3A maximum current. Output is protected by a self-resettable electronic fuse.		
Output 24P	24VDC (±3VDC) permanent output with a maximum current 0.3A. The output is protected by a resettable electronic fuse.		
Output 24M	24VDC (±3VDC) output which is interrupted during a reset. The output has maximum current 0.3A. The output is protected with a self-resettable electronic fuse.		
Output Relays	Three relay contacts that can handle up to 30V DC and 5A maximum.		
Total Load	The total output power (zone circuits, siren circuits, outputs 24P and 24M) must not exceed 1A. Imax a=Imax b=1A, Imin=60mA		
Autonomy	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.		
Degrees of cover protection	IP 30		
Cables	Cables suitable for fire detection systems such as FIP200, MICC, PYROFIL		
Fuse Type	The panel has only one fuse that is replaceable and which protects the main power supply connection. This fuse has a rating of F 4A 250V TR5 and must be replaced with a fuse of the same type and rating.		
Operating temperature range	0 to 50˚C		
Humidity	Up to 95% relative humidity		
Construction material	ABS – polycarbonate, Electrostatically painted steel		
Dimensions (LxWxH)	345 x 106 x 348 mm		
Weight (without batteries)	3740gr	3780gr	3820gr
Produced in accordance with	EN 54-2, EN 54-4, IEC 60092-504, IEC 60533		
Guarantee	2 years		

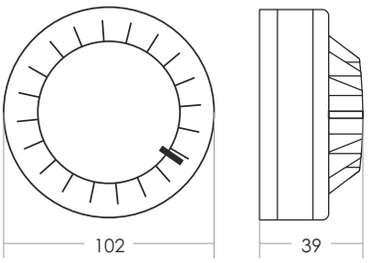
Connection drawing



IP44

BS-655/MAR

Dimmensions in mm



Technical description

BS-655/MAR is a conventional optical smoke detector which is produced in accordance with EN 54-7, IEC 60092-504, IEC 60533 and co-operates with conventional fire alarm panels.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main body/part of detector. The base is mounted on the ceiling and the main part adjusts on the base with a simple rotation.

The detector has also an indication LED which is visible from 360˚ view and flashes every 4sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED lights even when we silence the sirens, in order to show us the detector that issued the alarm.

Operating principles

The function of BS-655/MAR is based on an IR emitter and receiver inside the chamber of detector. In resting state the receiver doesn't receive the IR signal because the collimator of emitter is arranged at an obtuse angle to the receiver. When an amount of smoke enters in the detector's chambers the IR signal is reflected on the smoke particles and the receiver receives an amount of IR radiation. If this amount of radiation exceeds a preset value the optical smoke detector is activated.

Important notes

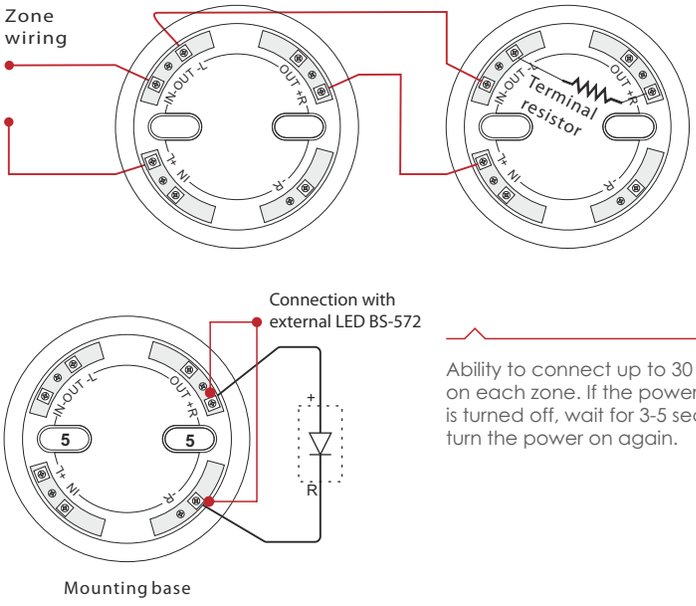
1. It is essential to have good air circulation inside the detector. Therefore care must be taken so that the vents of the detectors are not covered.

2. It is required to conduct a good operation test every 6 months and every time the detector position is changed.

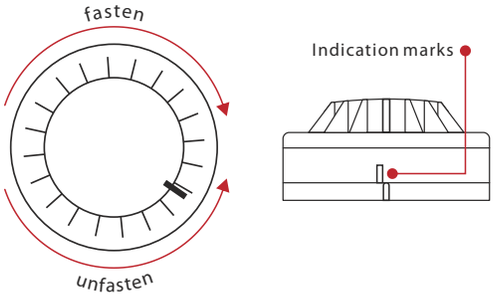
Technical data

Type	BS-655/MAR
Detection principle	Photoelectric detection of light scattered in a forward direction by smoke particles
Sampling Frequency	1 per 4 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	18-30V DC
Start up power consumption	150μA for 50sec
Stand by power consumption	50 μA
Alarm power consumption	20-30 mA
Sensitivity	0.120dB/m
Alarm Indicator	Lighting Emitting Diode (LED)
Output	To panel / external LED driver
IP rating	IP44
Produced in accordance with	EN 54-7, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	103 (diameter) mm x 48 (height) mm
Typical weight	160gr
Guarantee	2 years

Connection drawing



Installation drawing



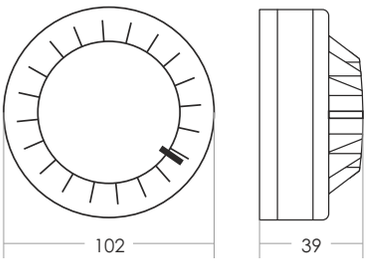
Ability to connect up to 30 detectors BS-655 on each zone. If the power of the detectors is turned off, wait for 3-5 seconds before you turn the power on again.

DETECTOR

IP44

BS-657/MAR

Dimmensions in mm



Technical description

BS-657/MAR is a conventional detector that has two sensors, one for smoke and one for heat and the alarm decision is derived from either sensor. It cooperates with conventional panels and is produced in accordance with EN 54-5, EN 54-7, IEC 60092504, IEC 60533. These combined detectors are used in areas where the possibility of a rapid extension of fire is possible. These detectors are proved to be quicker in the fire detection in hazardous areas such as oil rigs/platforms etc.

The detector has also an indication LED which is visible from 360˚ view and flashes every 4sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED lights even when we silence the sirens, in order to show us the detector that issued the alarm.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main body/part of detector.

Important notes

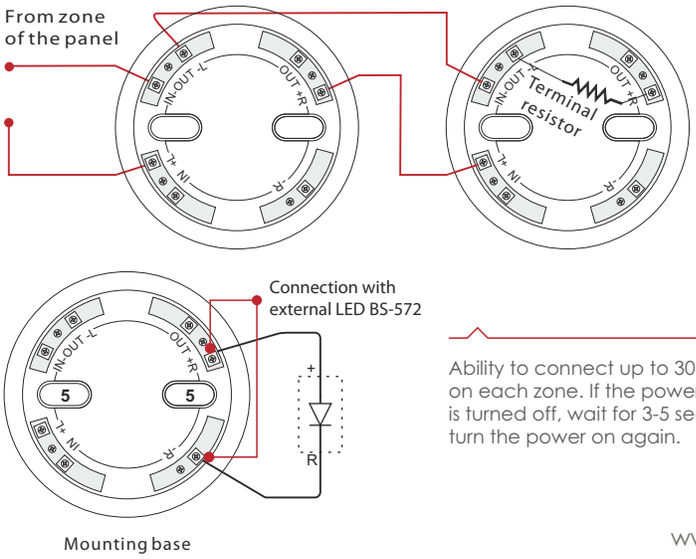
1. It is essential to have good air circulation inside the detector. Therefore care must be taken so that the vents of the detectors are not covered.

2. It is required to conduct a good operation test every 6 months and every time the detector position is changed.

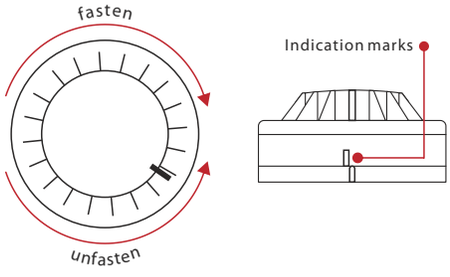
Technical data

Type	BS-657/MAR
Detection principle	Photoelectric detection of light scattered by smoke particles and heat detection with thermal sensor
Sampling Frequency	1 per 4 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	18-30V DC
Start up power consumption	150μA for 50sec
Stand by power consumption	50 μA
Alarm power consumption	20-30mA
Sensitivity	0.120dB/m and 58˚C - 62˚C
Alarm Indicator	Lighting Emitting Diode (LED)
Class	A2R
Output	To panel / To external LED driver
IP rating	IP44
Produced in accordance with	EN 54-5, EN 54-7, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	103 (diameter) mm x 48 (height) mm
Typical weight	160gr
Guarantee	2 years

Connection drawing



Installation drawing



Ability to connect up to 30 detectors BS-655 on each zone. If the power of the detectors is turned off, wait for 3-5 seconds before you turn the power on again.

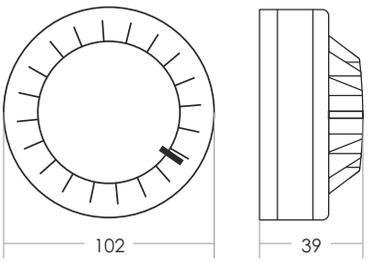
RATE OF RISE HEAT

DETECTOR

IP44

BS-660/MAR

Dimmensions in mm



Technical description

BS-660/MAR is a conventional detector that has two sensors, one for smoke and one for heat and the alarm decision is derived from either sensor. It cooperates with conventional panels and is produced in accordance with EN 54-5, EN 54-7, IEC 60092504, IEC 60533. These combined detectors are used in areas where the possibility of a rapid extension of fire is possible. These detectors are proved to be quicker in the fire detection in hazardous areas such as oil rigs/platforms etc.

The detector has also an indication LED which is visible from 360˚ view and flashes every 4sec to indicate good operation (resting state). In case of fire detection the indication LED lights continuously until there is a reset signal from the panel. The indication LED lights even when we silence the sirens, in order to show us the detector that issued the alarm.

The detector has two parts, one plastic base which is similar to all Olympia Electronics detectors and the main body/part of detector.

Important notes

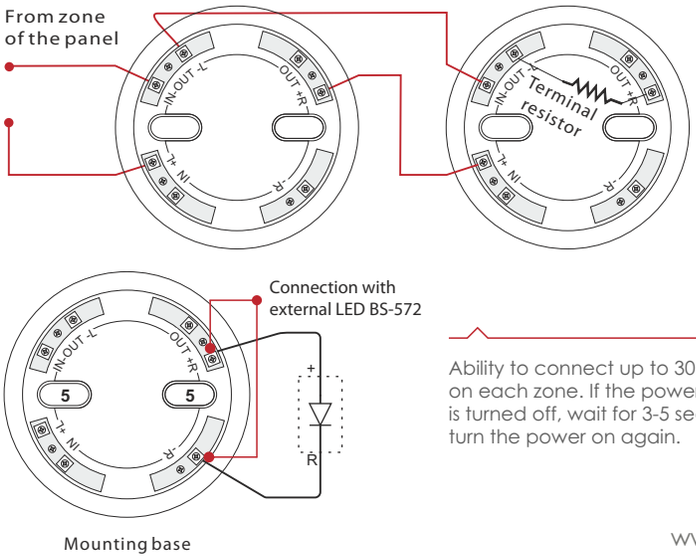
1. It is essential to have good air circulation inside the detector. Therefore care must be taken so that the vents of the detectors are not covered.

2. It is required to conduct a good operation test every 6 months and every time the detector position is changed.

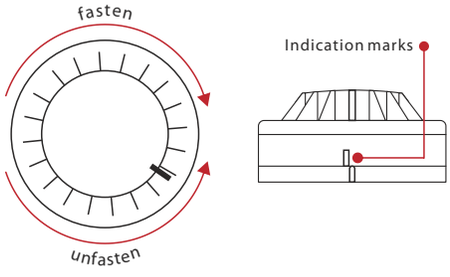
Technical data

Type	BS-660/MAR
Detection principle	Photoelectric detection of light scattered by smoke particles and heat detection with thermal sensor
Sampling Frequency	1 per 4 seconds
Supply wiring	Two wire supply, respect the polarity
Terminal Functions	+L & -L : Supply in and out connections +R : Remote indicator positive connection -R : Remote indicator negative connection
Operating voltage	18-30V DC
Start up power consumption	150μA for 50sec
Stand by power consumption	50 μA
Alarm power consumption	20-30mA
Sensitivity	0.120dB/m and 58˚C - 62˚C
Alarm Indicator	Lighting Emitting Diode (LED)
Class	A2R
Output	To panel / To external LED driver
IP rating	IP22
Produced in accordance with	EN 54-5, EN 54-7, IEC 60092-504, IEC 60533
Operation temperature range	-10˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	103 (diameter) mm x 48 (height) mm
Typical weight	160gr
Guarantee	2 years

Connection drawing



Installation drawing



Ability to connect up to 30 detectors BS-655 on each zone. If the power of the detectors is turned off, wait for 3-5 seconds before you turn the power on again.

HEAT DETECTOR

IP23

ORB-HT-41001-MAR A1R standard
ORB-HT-41013-MAR A1R with flashing LED
ORB-HT-41002-MAR A2S standard
ORB-HT-41014-MAR A2S with flashing LED
ORB-HT-41003-MAR BR standard
ORB-HT-41015-MAR BR with flashing LED
ORB-HT-41004-MAR BS standard
ORB-HT-41016-MAR BS with flashing LED
ORB-HT-41005-MAR CR standard
ORB-HT-41017-MAR CR with flashing LED
ORB-HT-41006-MAR CS standard
ORB-HT-41018-MAR CS with flashing LED

Technical description

The **Orbis** range incorporates seven heat detector classes to suit a wide variety of operating conditions in which smoke detectors are unsuitable.
The European standard EN54-5:2001 classifies heat detectors according to the highest ambient temperature in which they can safely be used without risk of false alarm.

Heat detectors have a wide range of response characteristics and the choice of the right type for a particular application may not always seem straightforward. It is helpful to understand the way that heat detectors are classified as explained earlier and to memorise a simple rule: use the most sensitive heat detector available consistent with avoiding false alarms.

If the fire detection system is being designed to comply with BS 5839–1: 2002 heat detectors should be installed at heights of less than 12 metres with the exception of class A1 detectors, which can be installed at heights up to 13.5 metres.

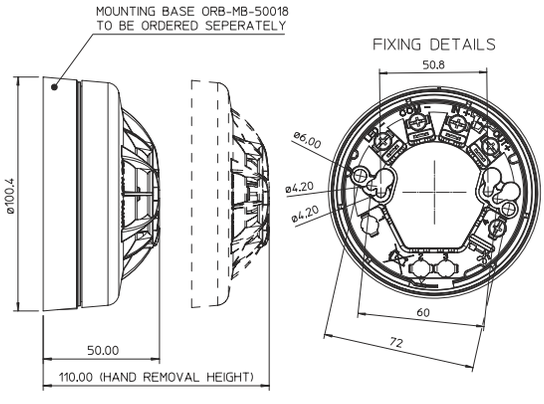
Response Modes

Class (EN54–5:2001)	Application Temperature		Static Response Temperature °C		
	Typical	Max	Min	Typ	Max
A1R	25	50	54	57	65
A1S	25	50	54	57	65
A2S	25	50	54	61	70
BR	40	65	69	73	85
BS	40	65	69	73	85
CR	55	80	84	90	100
CS	55	80	84	90	100

Operating principles

Orbis heat detectors have an open-web casing which allows air to flow freely across a thermistor which measures the air temperature every 2 seconds. A microprocessor stores the temperatures and compares them with pre-set values to determine whether a fixed upper limit – the alarm level – has been reached.
In the case of rate-of-rise detectors the microprocessor uses algorithms to determine how fast the temperature is increasing. Static heat detectors respond only when a fixed temperature has been reached. Rate-of-rise detectors also have a fixed upper limit but they also measure the rate of increase in temperature. A fire might thus be detected at an earlier stage than with a static detector so that a rate-of-rise detector is to be preferred to a static heat detector unless sharp increases of heat are part of the normal environment in the area protected by the heat detector.

Dimmensions in mm



Technical data

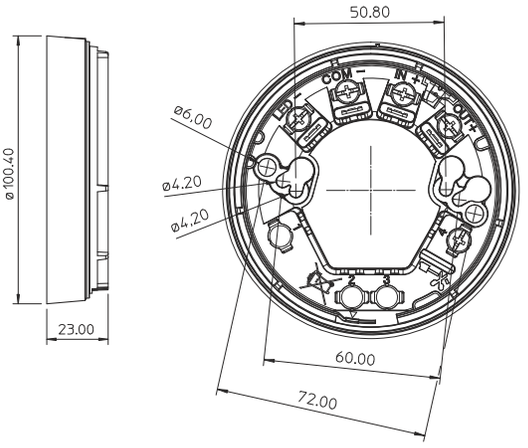
Specifications are typical at 24V, 23°C and 50% relative humidity unless otherwise stated.

Principle of detection:	Measurement of heat by means of a thermistor
Sampling frequency:	Once every 4 seconds
Supply voltage:	8.5-33V DC
Supply wiring:	2 wires, polarity sensitive
Maximum polarity reversal:	200ms
Power-up time:	<20 seconds
Minimum detector active voltage:	6V
Switch-on surge current at 24V:	95μA
Average quiescentcurrent at 24V:	95μA
Alarm current:	At 12V 20mA At 24V 40mA
Alarm load:	600Ω
Minimum holding voltage:	5–33V
Minimum voltage to light alarm LED:	5V
Alarm reset voltage:	<1V
Alarm reset time:	1 second
Remote output LED (–) characteristic:	1.2kΩ connected to negative supply
Material:	Detector and base moulded in white polycarbonate
Alarm indicator:	Integral indicator with 360° visibility
Dimensions and weight of detector:	97mm diameter x 36mm, Weight 70g,100mm diameter x 51mm (in base), Weight130g
Temperature:	Operating and storage –40°C to +70°C (no condensation or icing)
Humidity:	0% to 98% relative humidity (no condensation)
Wind speed:	Unaffected by wind
Atmospheric pressure:	Insensitive to pressure
IP rating to EN 60529: 1992*:	23D
Electromagnetic compatibility:	The detector meets the requirements of BS EN 61000-6-3 for emissions and BS EN50 130-4 for susceptibility

**The IP rating is not a requirement of EN54-5:2001 since smoke detectors have to be open in order to function. An IP rating is therefore not as significant as with other electrical products.*

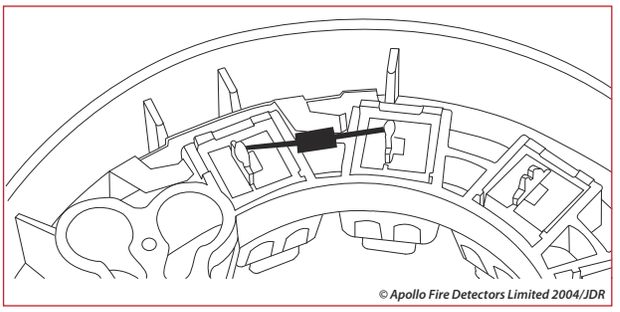
ORB-MB-00001-MAR Orbis Marine TimeSaver® Base

Dimmensions in mm



Installation

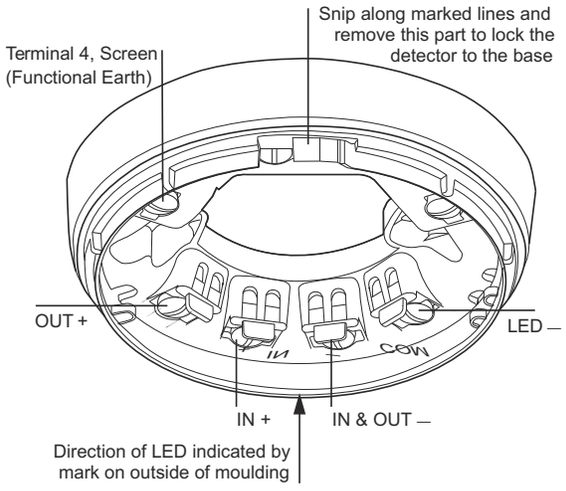
Orbis has been designed to make installation fast and simple. Fig 2 shows the TimeSaver mounting base as it is seen from the installer's point of view.
The E-Z fit fixing holes are shaped to allow a simple three-step mounting procedure: • Fit two screws to the mounting box or surface • Place the Orbis base over the screws and slide home • Tighten the screws
The base offers two fixing centres at 51 and 60mm.
A guide on the base interior indicates the length of cable to be stripped. Five terminals are provided for the cables, four being grouped together for ease of termination.
The terminals are: • positive IN • positive OUT • negative IN and OUT (common terminal) • remote LED negative connection • functional earth (screen)
The terminal screws are captive screws and will not fall out of the terminals. The base is supplied with the screws unscrewed in order to avoid unnecessary work for the installer.
The end-of-line resistor or active device should be connected between the OUT+ and COM– terminals.
If it is required that all detectors be fitted with their LEDs facing the same direction the bases must be fitted to the ceiling observing the marking on the exterior which indicates the position of the LED.
The bases may be connected as shown in Fig 1 where remote LEDs, if required, are connected to the associated base.
Fig 3 shows how to connect one remote LED to more than one base so that an alarm in any of the detectors connected will switch the remote LED.
In many installations bases with diodes are specified in order that an active end-of-line device may be fitted. Diode bases are marked 'OD'. Loop continuity testing is facilitated as there is a continuity device in the base. The continuity device enables power to pass through every base in a loop to ensure that each is connected correctly.
Once a detector is fitted to the base the continuity device is automatically locked permanently open so that the power flows through the detectors.



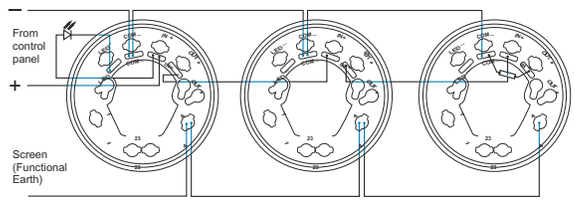
Fitting Orbis Detector Heads

When the bases have been installed and the system wiring tested, the detector circuits can be populated. Two methods are suggested:
1. Apply power and fit the detectors one by one, starting at the base nearest the panel and working towards the end of the circuit. As each detector is powered up it will enter 'StartUp' and flash red (see next page for a full description of this feature). If the LED does not flash, check the wiring polarity on the base and ensure there is power across IN+ and COM–. If the LED is flashing yellow the detector is not operating correctly and may require maintenance or replacing (see DirtAlert and SensAlert® and the section 'Maintenance and servicing' in the Orbis product guide)
2. Fit all detectors to the circuit, apply power and check detectors by observing the LED status of each device. The StartUp feature lasts for 4 minutes so it may be necessary to reset or de-power the circuit to allow all detectors to be observed. The LED status is the same as method 1.

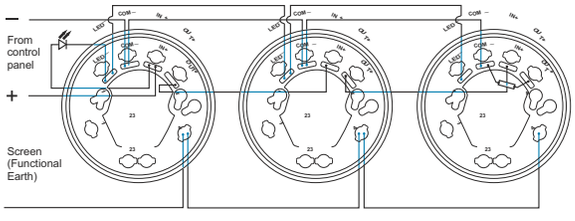
TimeSaver® Base (Fig 1)



Base Wiring Diagram (Fig 2)



3 Bases Wired with a Common LED (Fig 3)

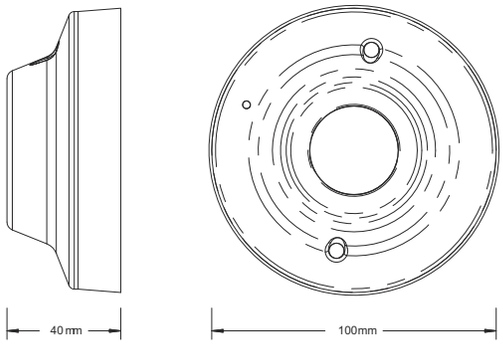


CONVENTIONAL

UV FLAME DETECTOR

55000-026MAR Base mounted UV flame detector

Dimmensions in mm



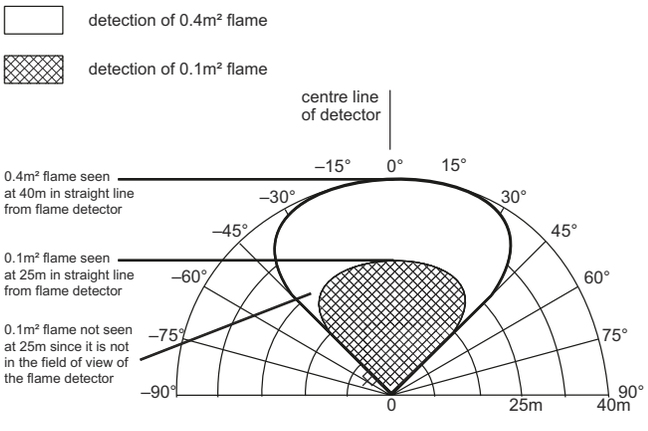
Technical description

The Marine Series 65 Base Mounted UV Flame Detector is designed to protect enclosed indoor areas where open flaming fires may be expected. The detector has a fast acting response to flames up to 25m away and is equipped with a single UV sensor with a narrow spectral response in order to discriminate between flames and most spurious sources of radiation.

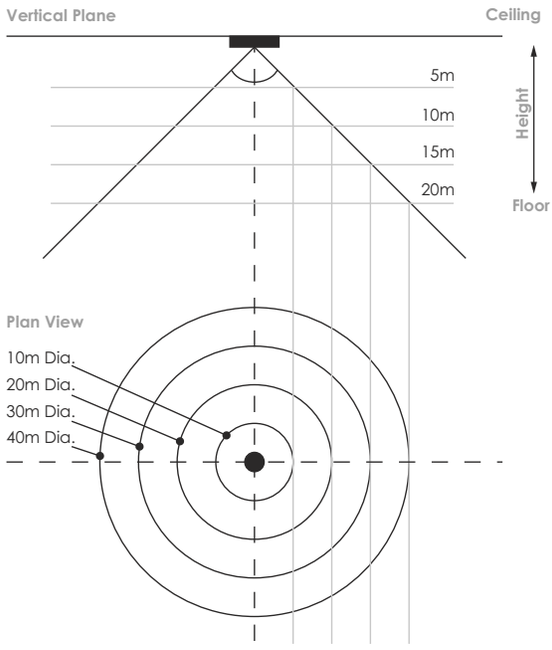
- Responds to stationary flames with no flicker
- Sensitive to UV radiation emitted by flames during combustion
- Compact flame detector which fits into 45681-200MAR base (Fig 2)
- Zone-powered

The field of view of the flame detector is shown in Fig. 1. This also provides information on the size of fire detectable at various distances. The Flame Detectors can also be ceiling mounted, positioned above the anticipated flame source or at the centre of the area to be protected, perpendicular to the floor below. If the detector cannot see the whole of the area to be protected, one or more additional detectors may be required. Refer to the angle of view diagram Fig. 2 to establish the detector performance. The area of detection is dependent on the detectors height above the likely source of flame. The detector has a 90° conical field of view or 45° either side of the viewing axis centre line. The maximum ceiling height is 20m.If the detector is perpendicular to floor and at a height of 10m then the detector will view a circular floor area below with a 10m radius (20m diameter circle).

Field of view (Fig 1)



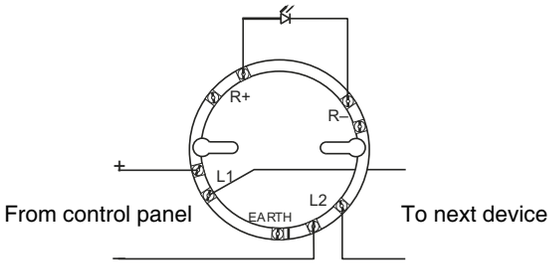
Ceiling mounting example (Fig 2)



Technical data

Supply voltage	12-33V DC
Quiescent current	550μA
Terminal functions	
L1 IN and OUT	supply positive
L2	supply negative
–R	remote indicator negative connection
Alarm Voltage	6 to 33V
Alarm Current	61mA at 28V
	54mA at 24V
	20mA at 10V
Remote output characteristics	Remote is a current sink to the negative line limited to 17mA
Alarm Indicator	Red Light Emitting Diode (LED)
Design Alarm Load	420Ω in series with a 2V drop
Holding Voltage	6V (min)
Holding Current	10mA (min)
Minimum Voltage Required to Illuminate Indicators	12V
Alarm Reset Voltage	<1V
Alarm Reset Time	1 second
Range of view	0.1m² n-heptane at 25m
Sensitivity	Class 1 (EN54-10)
Field of view	90° cone
Spectral response	UV 185 to 260nm
Operating temperature	- 40° C to + 70° C (no condensation or icing)
Storage temperature	- 40° C to + 85° C
Relative humidity	0-95%, non-condensing
IP rating	66
Materials Housing	White polycarbonate V-0 rated to UI94
Terminals	Nickel plated stainless steel

Marine UV Flame Detector Base Connections (Fig 2)



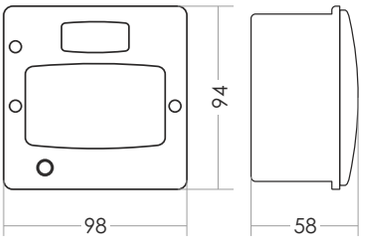
Marine Series 65 Standard Base, 45681-200MAR

CALL POINT

IP44

BS-536/MAR

Dimmensions in mm



Technical description

BS-536/MAR is a conventional manual call point which cooperates with every conventional fire detection system and all fire detection panels. It is constructed in accordance with EN 54-11, IEC 60092-504, IEC 60533. The installation of manual call points enables a person to activate manually the fire alarm during his departure of the building.

The activation of manual call point is done by pressing the clear plastic cover. It doesn't break and can be reset to its standard position with a plastic key after alarm activation. This function enables the testing of a specific button and the maintenance of fire detection panel.

Manual call points are installed near exits, stairwells, in escape routes and it is essential to install one manual call point near fire detection panel. The manual call point near control panel is placed there so the person who is responsible for the inspection of the building will give an immediate alarm signal and activate the alarm system as soon as he detects a problem in the panel.

The manual call points are connected in parallel with other manual call points or detectors and we can connect the minimum quantity - one manual call point per zone.

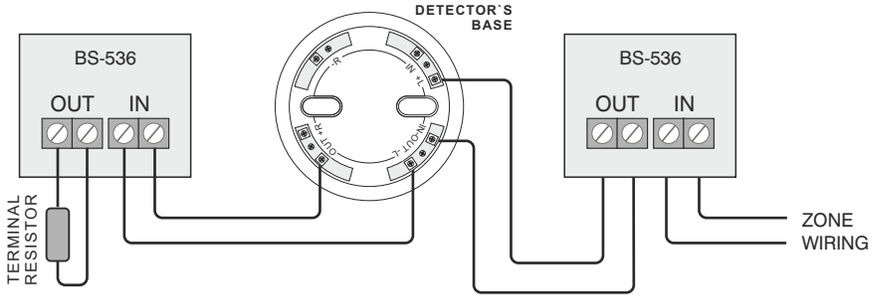
Important notes

BS-536/MAR is produced also with weatherproof case (IP65) BSR/WP/MAR.

Technical data

Type	BS-536/MAR
Call point operation	Operation of a switch
Supply wiring	Two –wire supply, respect polarity
Connections	Is connected in parallel with other buttons or detectors
Operating voltage	10-30V DC
Alarm current	8-30mA
Alarm resistor	470 Ohms
Use	Indoor & outdoor
Type of application environment	Type A
Construction material	Bayblend FR3010, transparent polycarbonate
IP rating	IP44
Produced in accordance with	EN 54-11, IEC 60092-504, IEC 60533
Operation temperature range	0˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	98mm x 94mm x 58mm
Typical weight	180gr
Guarantee	2 years

Connection drawing



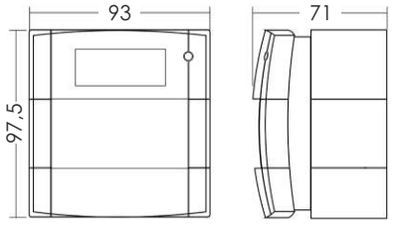
The scheme above shows the cable connection of two manual call points and one detector. Terminal blocks with indications IN and OUT are used to fasten the cables. Every zone in a conventional fire panel has a terminal resistor. If the last device on the zone is a manual call point you must connect the terminal resistor on manual call point's terminals.

CALL POINT

IP67

WCP1A-R470SG-K013-01

Dimmensions in mm



Technical description

WCP1A-R470SG-K013-01 is a conventional weatherproof manual call point which cooperates with every conventional fire detection system and all fire detection panels. It is constructed in accordance with EN 54-11, IEC 60092-504, IEC 60533. The installation of manual call points enables a person to activate manually the fire alarm during his departure of the building.

The outdoor conventional manual call point is an IP67 sealed manual call point product. The enhanced environmental protection allows the unit to be installed in many external environments where water and dirt are likely to be present, making it a true waterproof and outdoor product.

The activation of manual call point is done by breaking the glass and pressing the surface of manual call point. This conventional weatherproof manual call point utilizes a special terminal block, where all initial installation cabling is terminated. This terminal block is then simply connected to the back of the WCP. Simple, but effective with no re-termination required and no time wasted. In addition, all WCP products are supplied with three standard 20mm threaded cable entries, accommodating all types of surface wiring installations.

Manual call points are installed near exits, stairwells, in escape routes and it is essential to install one manual call point near fire detection panel. The manual call point near control panel is placed there so the person who is responsible for the inspection of the building will give an immediate alarm signal and activate the alarm system as soon as he detects a problem in the panel.

The manual call points are connected in parallel with other manual call points or detectors and we can connect the minimum quantity - one manual call point per zone.

Technical data

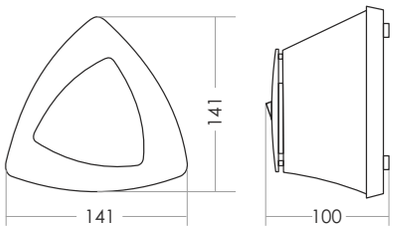
Type	WCP1A-R470SG-K013-01
Call point operation	Operation of a switch
Supply wiring	Two –wire supply, respect polarity
Connections	Is connected in parallel with other buttons or detectors
Operating voltage	10-30V DC
Switch Rating	2A
Alarm resistor	470 Ohms Resistor & N/O 30V DC
Use	Outdoor
Construction material	Bayblend FR3010, transparent polycarbonate (PC/ABS)
IP rating	IP67
Produced in accordance with	EN 54-11, IEC 60092-504, IEC 60533
Operation temperature range	-25˚C to 70˚C
Storage temperature	-25˚C to 70˚C
Relative humidity	0-93% ± 3% non-condensing
External dimensions	97,5mm x 93mm x 71mm
Typical weight	350gr
Guarantee	2 years

SIREN WITH BEACON

IP42 IP65

BS-531/1/MAR, BS-531/1/WP/MAR

Dimmensions in mm

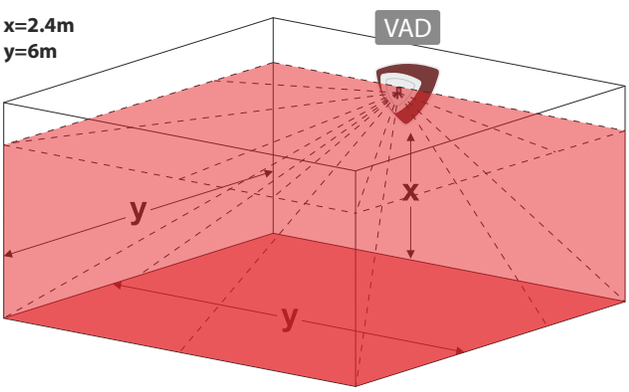


Technical description

BS-531/1/MAR is a conventional siren unit, that has a sound indicator and a beacon. It cooperates with all conventional fire detection panels and it can be connected in the output of all addressable fire detection panels. The conventional siren has the capability to choose from 8 different tones and two frequency rates. The maximum sound level is 94 dB at 1m. The appropriate place for mounting is about 2-3 meters above the floor.

W-x-y

x=2.4m
y=6m



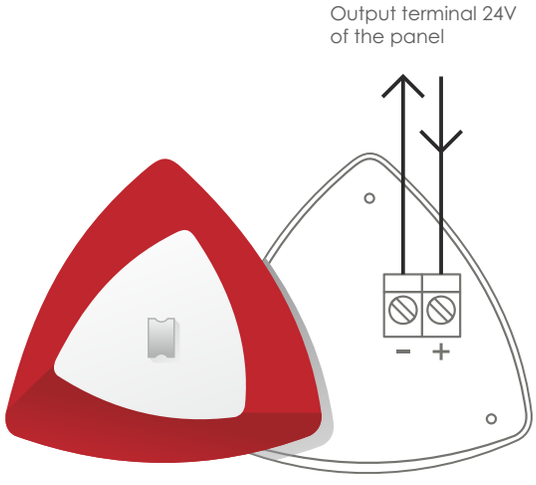
Important notes

Conventional siren BS-531/1/MAR cooperates with all conventional systems and fire panels. BS-531/1/MAR siren is produced in weatherproof edition BS-531/1/WP/MAR with IP rating IP65.

Technical data

Type	BS-531/1/MAR & BS-531/1/WP/MAR
Description	With Beacon
Operating voltage	21-28V DC
Beacon	1 Power LED
Average consumption	40mA
Sound output in 1m	94dB (sound effect 1)
Type of application environment	Type B
Construction material	Bayblend FR3010, transparent polycarbonate
IP rating	IP42 & IP65
Produced in accordance with	EN 54-3, IEC 60092-504, IEC 60533, EN 54-23
Operation temperature range	0˚C to 60˚C
Relative humidity	Up to 95%
External dimensions	141mm x 141mm x 100mm
Typical weight	220gr
Guarantee	2 years

Connection drawing



CONVENTIONAL ANTIEXPLOSIVE

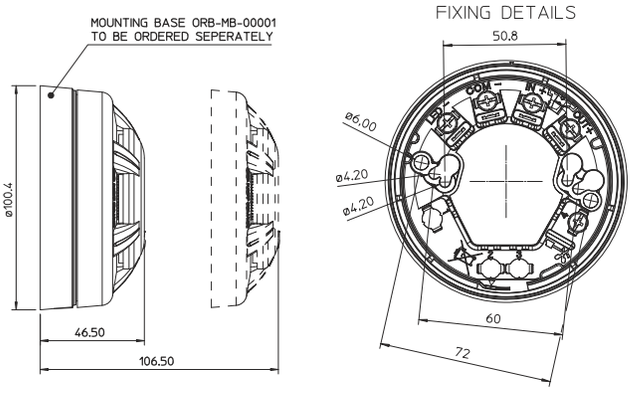
OPTICAL SMOKE DETECTOR

IP23

ORB-OP-52027-APO Orbis IS Optical Smoke Detector
ORB-OP-52028-APO Orbis IS Optical Smoke Detector with flashing LED

CE
0832
1180

Dimmensions in mm



Technical description

Optical smoke detectors have always been recognised as good detectors for general use. They are regarded as particularly suitable for smouldering fires and escape routes.
The performance of Orbis IS optical detectors is good in black as well as in white smoke. In this respect Orbis IS is different from traditional optical smoke detectors which perform far better in white smoke than in black.
Orbis IS optical detectors are also designed to reduce significantly the incidence of false alarms through over-sensitivity to transient phenomena.
Orbis IS optical detectors are recommended for use as general purpose smoke detectors for early warning of fire in most areas.

The advantages of this system and its associated algorithms are:
• Improved sensitivity to black smoke
• Compensation for slow changes in sensitivity
• Extra confirmation of smoke before alarm signal given
The algorithms are used to verify signals from the sensing chamber, to filter out transients and to decide when the detector should change to the alarm state.
All this combines to increase detection reliability and reduce false alarms.

Operating principles

The Orbis IS Optical smoke detector operates on the well established light scatter principle. The remarkable optical design of the Orbis IS optical smoke detector allows it to respond to a wide spectrum of fires.
The sensing chamber of the Orbis IS optical smoke detector contains an optical sensor which measures back-scattered light as well as the more usual forward-scattered light. Sensitivity to black smoke is greatly improved.
The detector is calibrated so that it is highly reliable in detecting fires but is much less likely to generate false alarms than ionisation smoke detectors.
The stability of the detector – high reliability, low false alarm rate – is further increased by the use of algorithms to decide when the detector should change to the alarm state. This removes the likelihood of a detector producing an alarm as a result of smoke from smoking materials or from another non-fire source.
The sensing chamber has been designed to keep out dust and other airborne contaminants.

Environmental performance

The operating temperature for instrinsically safe detectors is restricted by the gas temperature class. See technical data for full details.

Classification

Ex ia IIC T5 –40°C< Ta <+45°C
(T4<60°C)Ga

BASEEFA Certificate Number

ATEX – BASEEFA 06 ATEX 0007X
IECEx – IECEx BAS 06.0002X

Technical data

Specifications are typical at 24V, 23°C and 50% relative humidity unless otherwise stated.

Principle of detection:	Photoelectric detection of light scattered by smoke particles over a wide range of angles. The optical arrangement comprises an infra-red emitter with a prism and a photo-diode at 90° to the light beam with a wide field of view. The detector's microprocessor uses algorithms to process the sensor readings.
Sampling frequency:	Once every 4 seconds
Supply voltage:	14—28V DC
Supply wiring:	2 wires, polarity sensitive
Polarity reversal:	Not allowed
Power-up time:	<20 seconds
Minimum detector active voltage:	12V
Switch-on surge current at 24V:	105μA
Average quiescentcurrent at 24V:	85μA
Alarm load:	325Ω in series with a 1.0V drop
Minimum holding voltage:	5V
Minimum voltage to light alarm LED:	6V
Alarm reset voltage:	<1V
Alarm reset time:	1 second
Remote output LED (–) characteristic:	4.7kΩ connected to negative supply
Material:	Detector and base moulded in white polycarbonate
Alarm indicator:	Integral indicator with 360° visibility
Dimensions and weight of detector:	100mm diameter x 42mm, Weight 75g, (in base) 100mm diameter x 50mm Weight 135g
Temperature:	–40°C to +70°C Operating temperature is restricted by the intrinsic safety gas classification. Class T5: –40°C to +45°C Class T4: –40°C to +60°C The detector must be protected from conditions of condensation or icing.
Humidity:	0% to 98% relative humidity (no condensation)
Wind speed:	Unaffected by wind
Atmospheric pressure:	Insensitive to pressure
IP rating to EN 60529: 1992*:	23D
Electromagnetic compatibility:	The detector meets the requirements of BS EN 61000-6-3 for emissions and BS EN50 130-4 for susceptibility

**The IP rating is not a requirement of EN 54–7: 2001 since smoke detectors have to be open in order to function. An IP rating is therefore not as significant as with other electrical products.*

HEAT DETECTOR

CE
0832
1180

	With flashing LED:
ORB-HT-51145-APO A1R	ORB-HT-51146-APO A1R
ORB HT 51157 APO A1S	ORB HT 51158 APO A1S
ORB-HT-51147-APO A2S	ORB-HT-51148-APO A2S
ORB-HT-51149-APO BR	ORB-HT-51150-APO BR
ORB-HT-51151-APO BS	ORB-HT-51152-APO BS
ORB-HT-51153-APO CR	ORB-HT-51154-APO CR
ORB-HT-51155-APO CS	ORB-HT-51156-APO CS

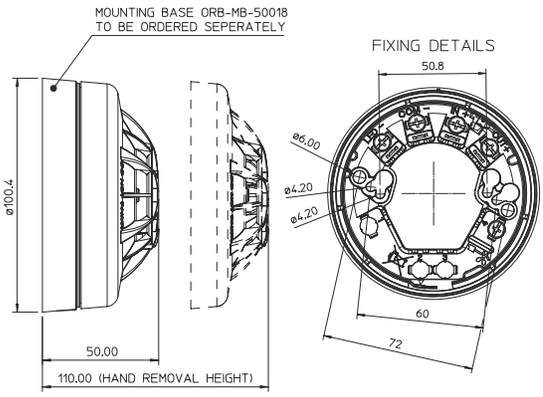
BASEEFA Certificate Number

ATEX – BASEEFA 06 ATEX 0007X
IECEx – IECEx BAS 06.0002X

Technical description

Heat detectors are used in applications where smoke detectors are unsuitable.
The Orbis IS range incorporates seven heat detector classes to suit a wide variety of operating conditions in which smoke detectors are unsuitable.
The European standard EN54-5:2001 classifies heat detectors according to the highest ambient temperature in which they can safely be used without risk of false alarm. The classes are identified by the letters A to G. (Class A is subdivided into A1 and A2.) In addition to the basic classification, detectors may be identified by a suffix to show that they are rate-of-rise (suffix R) or fixed temperature (suffix S) types.
All heat detectors in the Orbis IS range are tested as static or rate-of-rise detectors and are classified as A1R, A1S, A2S, BR, BS, CR and CS.
If the fire detection system is being designed to comply with BS5839-1:2002 + A2:2008 heat detectors should be installed at heights of less than 12 metres with the exception of class A1 detectors, which can be installed at heights up to 13.5 metres.

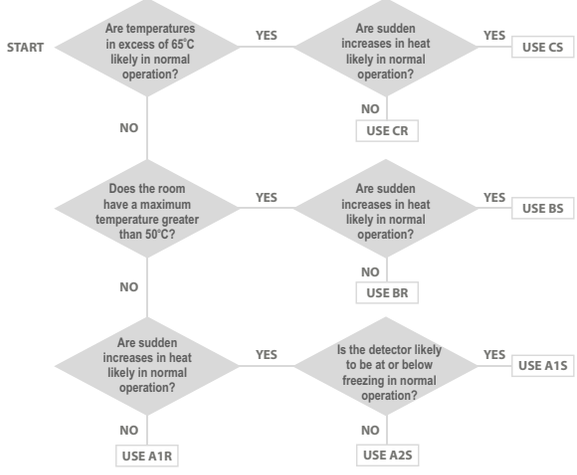
Dimmensions in mm



Operating principles

Orbis IS heat detectors have an open-web casing which allows air to flow freely across a thermistor which measures the air temperature every 2 seconds. A microprocessor stores the temperatures and compares them with pre-set values to determine whether a fixed upper limit – the alarm level – has been reached.
In the case of rate-of-rise detectors the microprocessor uses algorithms to determine how fast the temperature is increasing.
Static heat detectors respond only when a fixed temperature has been reached. Rate-of-rise detectors have a fixed upper limit but they also measure the rate of increase in temperature. A fire might thus be detected at an earlier stage than with a static detector so that a rate-of-rise detector is to be preferred to a static heat detector unless sharp increases of heat are part of the normal environment in the area protected by the heat detector.

Choosing a Heat Detector



MAXIMUM APPLICATION TEMPERATURE	
A1R, A1S, A2S	50°C
BR, BS	65°C
CR, CS	80°C

Technical data

Specifications are typical at 24V, 23°C and 50% relative humidity unless otherwise stated.

Principle of detection:	Measurement of heat by means of a thermistor.
Sampling frequency:	Once every 4 seconds
Supply voltage:	14—28V DC
Supply wiring:	2 wires, polarity sensitive
Polarity reversal:	Not allowed
Power-up time:	<20 seconds
Minimum detector active voltage:	12V
Switch-on surge current at 24V:	105μA
Average quiescentcurrent at 24V:	80μA
Alarm load:	325Ω in series with a 1.0V drop
Minimum holding voltage:	5V
Minimum voltage to light alarm LED:	6V
Alarm reset voltage:	<1V
Alarm reset time:	1 second
Remote output LED (–) characteristic:	4.7kΩ connected to negative supply
Material:	Detector and base moulded in white polycarbonate
Alarm indicator:	Integral indicator with 360° visibility
Dimensions and weight of detector:	100mm diameter x 42mm, Weight 70g (in base) 100mm diameter x 50mm Weight 130g
Temperature:	–40°C to +70°C Operating temperature is restricted by the intrinsic safety gas classification. Class T5: –40°C to +45°C Class T4: –40°C to +60°C The detector must be protected from conditions of condensation or icing.
Humidity:	0% to 98% relative humidity (no condensation)
Wind speed:	Unaffected by wind
Atmospheric pressure:	Insensitive to pressure
IP rating to EN 60529: 1992*:	23D
Electromagnetic compatibility:	The detector meets the requirements of BS EN 61000-6-3 for emissions and BS EN50 130-4 for susceptibility

**The IP rating is not a requirement of EN 54–7: 2001 since smoke detectors have to be open in order to function. An IP rating is therefore not as significant as with other electrical products.*

CONVENTIONAL ANTIEXPLOSIVE

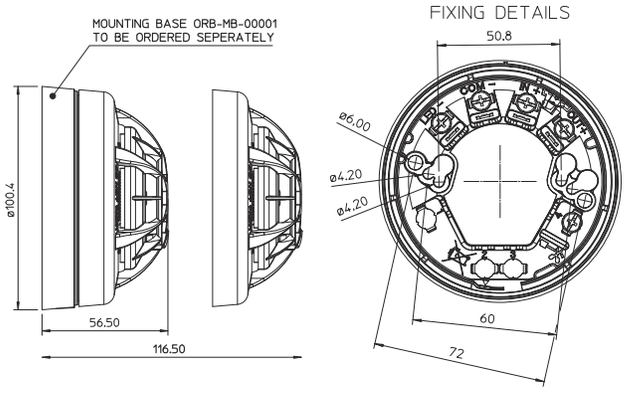
MULTISENSOR SMOKE DETECTOR

IP23

ORB-OH-53027-APO Orbis IS Multisensor Detector
ORB-OH-53028-APO Orbis IS Multisensor Detector with flashing LED

0832
1180

Dimmensions in mm



Technical description

The multisensor smoke detector is a thermally enhanced smoke detector and as such will not give an alarm from heat alone.
The optical sensor is identical to the one in the Orbis IS optical detector. Its sensitivity is, however, influenced by a heat sensing element which makes the detector more responsive to fast-burning, flaming fires.

Operating principles

Orbis IS Multisensor Smoke Detectors are recognised as good detectors for general use but are additionally more sensitive to fast-burning, flaming fires – including liquid fires – than optical detectors.
They can be readily used instead of optical smoke detectors but should be used as the detector of choice for areas where the fire risk is likely to include heat at an early stage in the development of the fire.
As with Orbis IS optical smoke detectors the increased reliability of detection is combined with high immunity to false alarms.

Classification

Ex ia IIC T5 –40°C< Ta <+45°C
(T4<60°C)Ga

BASEEFA Certificate Number

ATEX – BASEEFA 06 ATEX 0007X
IECEx – IECEx BAS 06.0002X

Technical data

Specifications are typical at 24V, 23°C and 50% relative humidity unless otherwise stated.

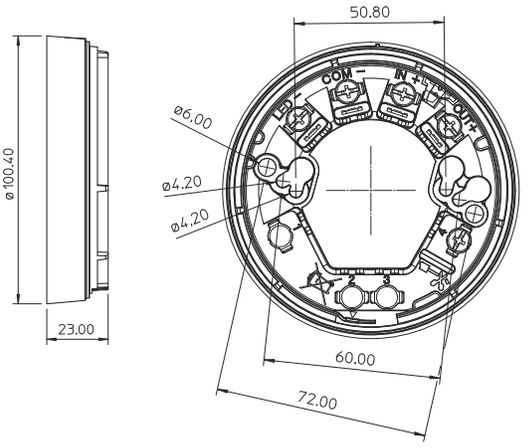
Principle of detection:	Photoelectric detection of light scattered by smoke particles over a wide range of angles. The optical arrangement comprises an infra-red emitter with a prism and a photo-diode at 90° to the light beam with a wide field of view. The detector's microprocessor uses algorithms to process the sensor readings. The heat sensing element increases the sensitivity of the detector as the temperature rises.
Sampling frequency:	Once every 4 seconds
Supply voltage:	14—28V DC
Supply wiring:	2 wires, polarity sensitive
Polarity reversal:	Not allowed
Power-up time:	<20 seconds
Minimum detector active voltage:	12V
Switch-on surge current at 24V:	105μA
Average quiescentcurrent at 24V:	85μA
Alarm load:	325Ω in series with a 1.0V drop
Minimum holding voltage:	5V
Minimum voltage to light alarm LED:	6V
Alarm reset voltage:	<1V
Alarm reset time:	1 second
Remote output LED (–) characteristic:	4.7kΩ connected to negative supply
Material:	Detector and base moulded in white polycarbonate
Alarm indicator:	Integral indicator with 360° visibility
Dimensions and weight of detector:	100mm diameter x 50mm, Weight 80g (in base) 100mm diameter x 60mm Weight 140g
Temperature:	–40°C to +70°C Operating temperature is restricted by the intrinsic safety gas classification. Class T5: –40°C to +45°C Class T4: –40°C to +60°C The detector must be protected from conditions of condensation or icing.
Humidity:	0% to 98% relative humidity (no condensation)
Wind speed:	Unaffected by wind
Atmospheric pressure:	Insensitive to pressure
IP rating to EN 60529: 1992*:	23D
Electromagnetic compatibility:	The detector meets the requirements of BS EN 61000-6-3 for emissions and BS EN50 130-4 for susceptibility

**The IP rating is not a requirement of EN 54–7: 2000 since smoke detectors have to be open in order to function. An IP rating is therefore not as significant as with other electrical products.*

BASE

ORB-MB-50018-APO Orbis IS Marine TimeSaver® Base

Dimmensions in mm



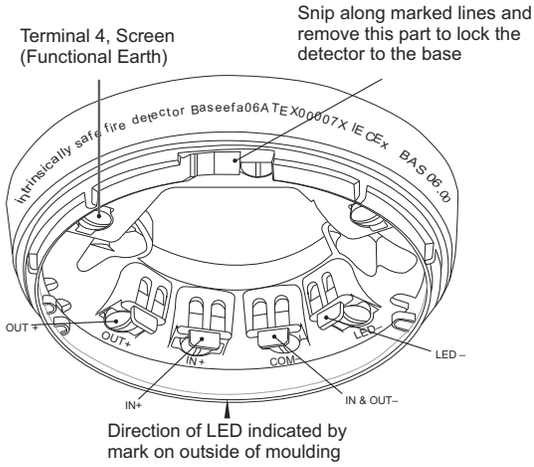
Installation

Orbis IS has been designed to make installation fast and simple. Fig 1 shows the TimeSaver® Base as it is seen from the installer's point of view.
The E-Z fit fixing holes are shaped to allow a simple three-step mounting procedure:
• Fit two screws to the mounting box or surface • Place the Orbis IS base over the screws and slide home • Tighten the screws
The base offers three fixing centres at 51, 60 and 72mm.
A guide on the base interior indicates the length of cable to be stripped. Five terminals are provided for the cables, four being grouped together for ease of termination.
The terminals are:
• Positive IN • Positive OUT • Negative IN and OUT (common terminal) • Remote LED negative connection • Functional earth (screen)
The terminal screws are captive screws and will not fall out of the terminals. The base is supplied with the screws unscrewed in order to avoid unnecessary work for the installer.
The end-of-line resistor should be connected between the OUT+ and COM– terminals.
If it is required that all detectors be fitted with their LEDs facing the same direction the bases must be fitted to the ceiling observing the marking on the exterior which indicates the position of the LED.
The bases may be connected as shown in Fig 2 where remote LEDs, if required, are connected to the associated base.
Fig 3 shows how to connect one remote LED to more than one base so that an alarm in any of the detectors connected will switch the remote LED.

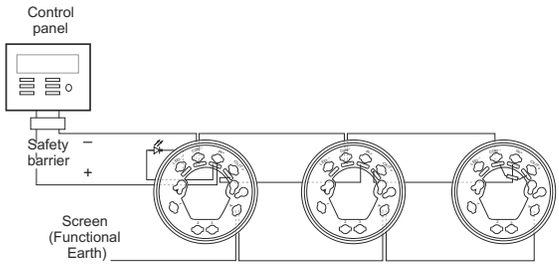
Fitting Orbis Detector Heads

When the bases have been installed and the system wiring tested, the detector circuits can be populated.
Two methods are suggested:
1. Apply power and fit the detectors one by one, starting at the base nearest the panel and working towards the end of the circuit. As each detector is powered up it will enter 'StartUp' and flash red (see Table 1 on page 85). If the LED does not flash, check the wiring polarity on the base and ensure there is power across IN+ and COM–. If the LED is flashing yellow the detector is not operating correctly and may require maintenance or replacing (see DirtAlert and SensAlert® and the section 'Servicing' in the Orbis product guide)
2. Fit all detectors to the circuit, apply power and check detectors by observing the LED status of each device. The StartUp feature lasts for 4 minutes so it may be necessary to reset or de-power the circuit to allow all detectors to be observed. The LED status is the same as method 1.

Wiring diagram (Fig 1)



Base Wiring Diagram (Fig 2)



3 Bases Wired with a Common LED (Fig 3)

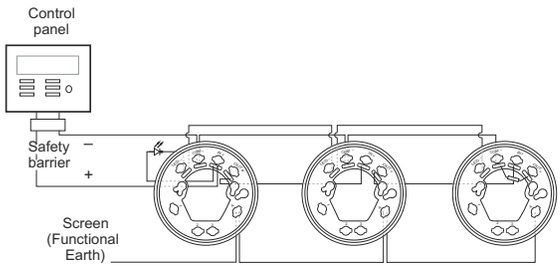


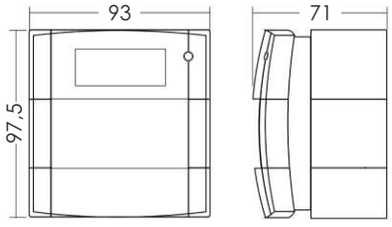
Table 1: Limits for Energy Stored in Cables

Feature	Description of Feature	Red LED Status	Yellow LED Status
StartUp™	Confirms that the detectors are wired in the correct polarity	Flashes once per second	No flash
FasTest®	Maintenance procedure, takes just 4 seconds to functionally test and confirm detectors are functioning correctly	Flashes once per second	No flash
DirtAlert™	Shows that the drift compensation limit has been reached	No flash	Flashes once per second in StartUp (stops flashing when StartUp finishes)
SensAlert®	Indicates that the sensor is not operating correctly	No flash	Flashes every 4 seconds (flashes once per second in StartUp)
Normal Operation	At the end of StartUp and FasTest (without flashing LED as standard)	No flash	No flash
Flashing LED Version	Detector's red LED flashes in normal operation (at the end of FasTest)	Flashes every 4 seconds	No flash

CALL POINT

WCP1A-R470SG-K013-01IS

Dimmensions in mm



Technical description

WCP1A-R470SG-K013-01IS is an intrinsically safe version of the conventional weatherproof manual call point which cooperates with every conventional fire detection system and all fire detection panels and is appropriate for installation in hazardous areas. It is constructed in accordance with EN 54-11, IEC 60092-504, IEC 60533.

This call point is manufactured to protect against other hazards, as defined in paragraph 1.2.7 of annex II of the ATEX Directive 94/9/EC. It is intended for outdoor use within Intrinsically Safe (I.S.) systems using suitable I.S. barriers. The installation of manual call points enables a person to activate manually the fire alarm during his departure of the building.

The outdoor conventional manual call point is an IP67 sealed manual call point product. The enhanced environmental protection allows the unit to be installed in many external environments where water and dirt are likely to be present, making it a true waterproof and outdoor product.

The activation of manual call point is done by breaking the glass and pressing the surface of manual call point. This conventional weatherproof manual call point utilizes a special terminal block, where all initial installation cabling is terminated. This terminal block is then simply connected to the back of the WCP. Simple, but effective with no re-termination required and no time wasted. In addition, all WCP products are supplied with three standard 20mm threaded holes for cable entries, accommodating all types of surface wiring installations.

Manual call points are installed near exits, stairwells, in escape routes and it is essential to install one manual call point near fire detection panel. The manual call point near control panel is placed there so the person who is responsible for the inspection of the building will give an immediate alarm signal and activate the alarm system as soon as he detects a problem in the panel.

The manual call points are connected in parallel with other manual call points or detectors and we can connect the minimum quantity - one manual call point in a zone.

166b

KAC Alarm Co. Ltd.
Redditch B98 9ND
WCP XX
Sira 06ATEX2131X
Ex SIR 08.0105X

II 1GD
Ex ia IIC T4 Ga
Ui = 30 V, Ii = 500mA, Pi = 1W
-20°C≤Ta≤70°C

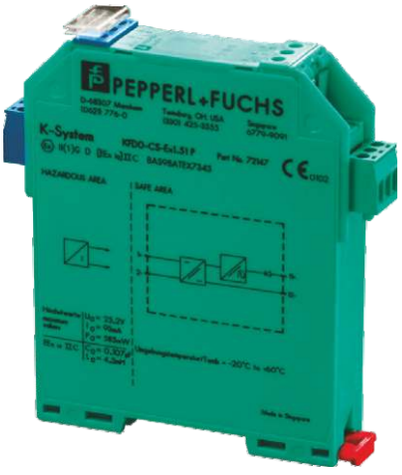
CE 0518
Ex ia IIIC T135°C Da
-20°C≤Ta≤40°C, Pi = 0.75W, Ii = 0.25A
-20°C≤Ta≤70°C, Pi = 0.65W, Ii = 0.25A

Technical data

Type	WCP1A-R470SG-K013-01IS
Call point operation	Operation of a switch
Supply wiring	Two –wire supply, respect polarity
Connections	Is connected in parallel with other buttons or detectors
Operating voltage	10-30V DC
Switch Rating	2A
Alarm resistor	470 Ohms Resistor & N/O 30V DC
Use	Outdoor
Construction material	Bayblend FR3010, transparent polycarbonate (PC/ABS)
IP rating	IP67
Produced in accordance with	EN 54-11, IEC 60092-504, IEC 60533
Operation temperature range	-25˚C to 70˚C
Storage temperature	-25˚C to 70˚C
Relative humidity	0-93% ± 3% non-condensing
External dimensions	97,5mm x 93mm x 71mm
Typical weight	350gr
Guarantee	2 years

GALVANIC BARRIER

CNP-399 CONVENTIONAL GALVANIC BARRIER

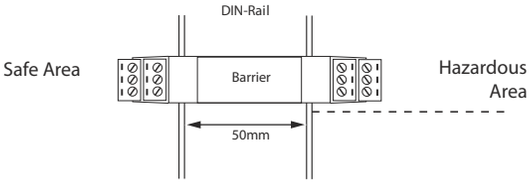


Technical description

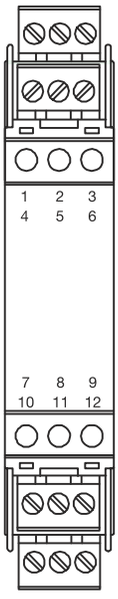
The Conventional Galvanic Barrier is installed in the safe area and ensures system integrity.

• Enables compliance with the ATEX directive

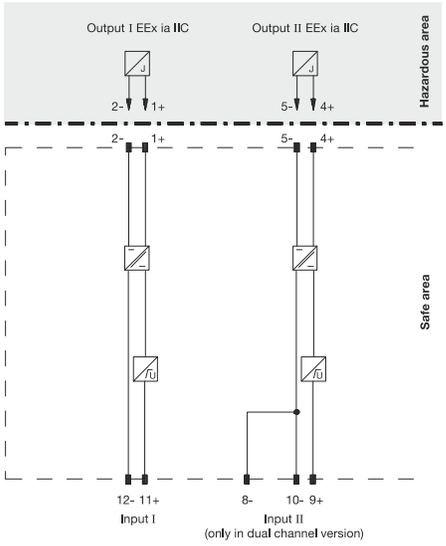
Conventional IS Configuration



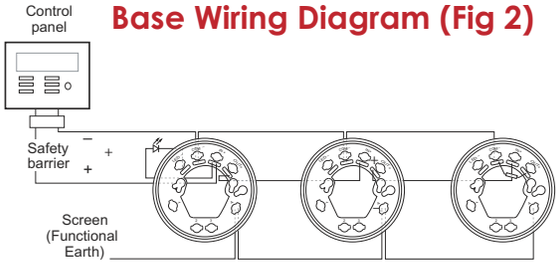
Housing Type A4 (Front view)



Internal Systematic Diagram

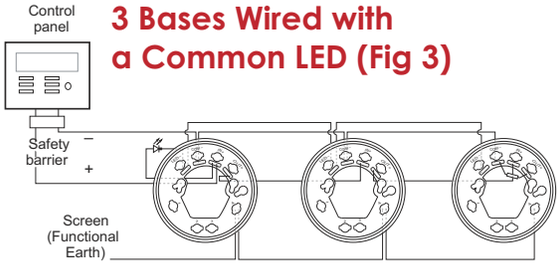


Base Wiring Diagram (Fig 2)



Note: the earth terminal in the base is provided for convenience where continuity of a cable sheath or similar is required. It is not necessary for the correct operation of the detector nor is it provided as a termination point for a safety earth. If screened cable is used screen continuity should be maintained and the screen should be earthed only at one point. The earthing point should preferably be close to the safety barrier. The system complies with the requirements of the CPD only if wired using screened cable. For details of cable connections see BS EN 60079-14, section 12.2.2.

3 Bases Wired with a Common LED (Fig 3)



Note: the earth terminal in the base is provided for convenience where continuity of a cable sheath or similar is required. It is not necessary for the correct operation of the detector nor is it provided as a termination point for a safety earth. If screened cable is used screen continuity should be maintained and the screen should be earthed only at one point. The earthing point should preferably be close to the safety barrier. The system complies with the requirements of the CPD only if wired using screened cable. For details of cable connections see BS EN 60079-14, section 12.2.2.

Technical data

Nominal voltage	DC 4 V ... 35 V		
Max. current consumption	0 mA ... 40 mA		
Max. power dissipation at 40 mA and UE < 23.7 V at 40 mA and UE > 23.7 V	 < 700 mW per channel < 1.2 W per channel		
Fail-safe maximum voltage	Um 250 V		
Field circuit (Intrinsically safe)	Terminals 1+, 2-; 4+, 5-		
Min. output voltage for 3 V < U_E < 23.7 V for U_E > 23.7 V	U_E - (0.4 x current in mA) - 0.7 23 V - (0.4 x current in mA)		
Max. short-circuit current at U_E > 23.7 V	⩽ 65 mA		
Max. transfer current	⩽ 40 mA		
Details of Certificate of Conformity	**BASEEFA No. Ex-88.B.2331** Other international approvals		
Voltage U_0	28 V		
Current I_0	93 mA		
Power P_0	0.65 W		
Permissible circuit values ignition protection class, category	**[EEx ia]**		
Explosion group	IIA IIB IIC		
Max. external capacitance	1.04 µF	0.39 µF	0.13 µF
Max. external inductance	33.6 mH	12.6 mH	4.2 mH
Fail-safe maximum voltage U_m Power supply	 250 V		
Entity parameters	**FM No. 1Z2A1.AX** Terminals 1+, 2-; 4+, 5-		
Voltage V_{OC}	26.71 V		
Current I_S	88.8 mA		
Voltage V_t	- V		
Explosion group	A&B	C&E	D, F&G
Max. external capacitance	0.16 µF	0.48 µF	1.28 µF
Max. external inductance	4.60 mH	18.32 mH	37.55 mH
	CSA No. LR65756-13		
Safety parameters KFD0-CS-Ex1.51	Terminals 1+, 2-; 4+, 5-		
Voltage V_{OC}	28.0 V		
Current I_{SC}	93.3 mA		
Explosion group	A&B	C&E	D, F&G
Max. external capacitance (C_a)	0.14 µF	0.42 µF	0.42 µF
Max. external inductance (L_a)	3.1 mH	16.8 mH	16.8 mH
Transfer characteristics Calibrated accuracy at 20 °C (68 °F)	 ⩽ + 200 µA inclusive calibration, linearity, hysteresis and load fluctuations at the output up to 1 kOhm load		
Temperature drift	⩽ 2 µA / K (273 K ... 323 K) ⩽ 5 µA / K (253 K ... 333 K)		
Rise time	⩽ 20 ms at 20 ms and 250 Ohm load		
Conformity to standard Isolation co-ordination / Galvanic isolation	 to EN 50 178		
Weight	≈ 100 g (≈ 3.5 oz)		
Ambient temperature	-20 °C ... +60 °C (-4 °F ... 140 °F)		
Max. wire size	2.5 mm2 (14 AWG)		

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SAFETY & SECURITY SYSTEMS

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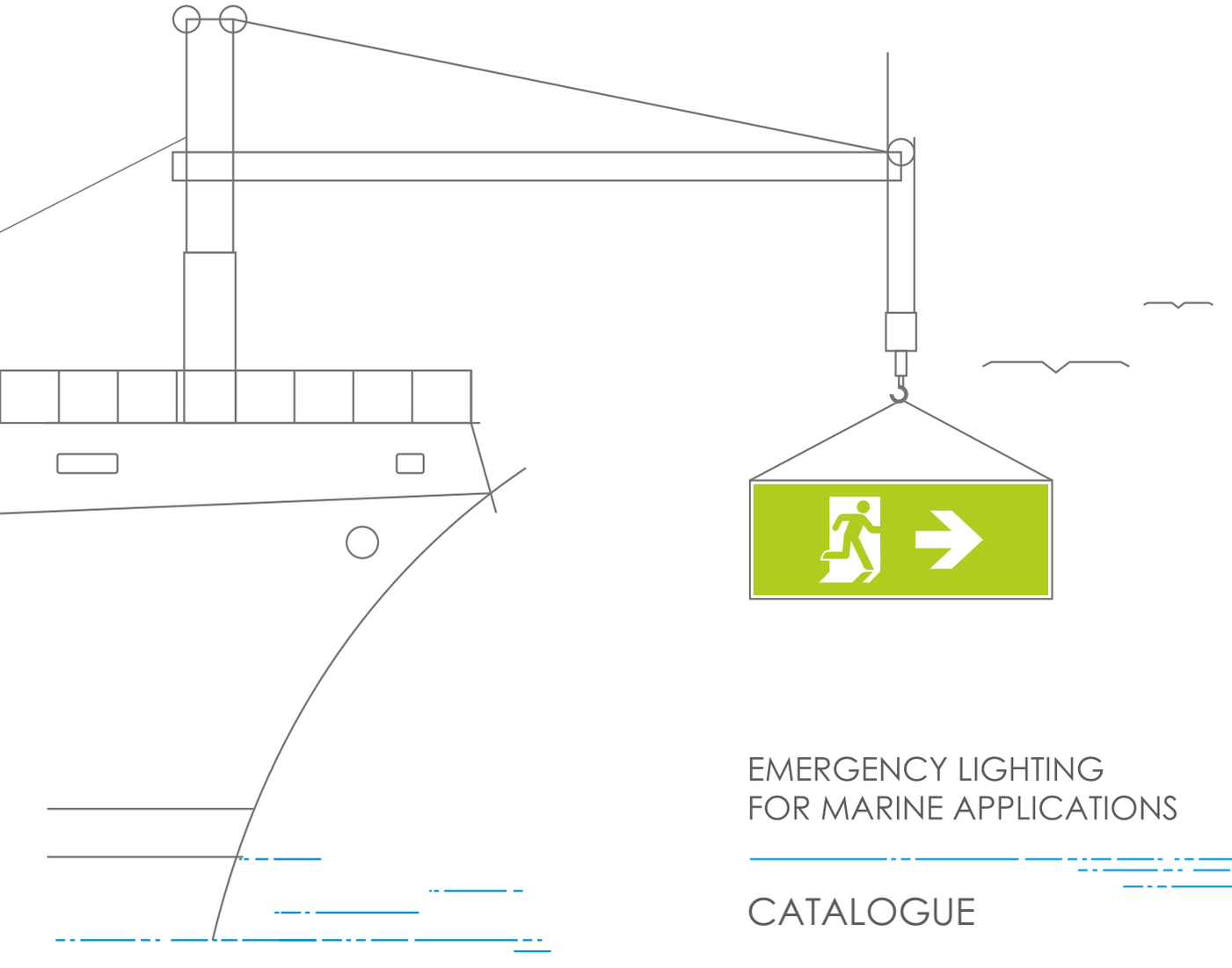


EMERGENCY LIGHTING FOR MARINE APPLICATIONS

CATALOGUE

v. 1.18

APPROVED LR TYPE APPROVAL SCHEME

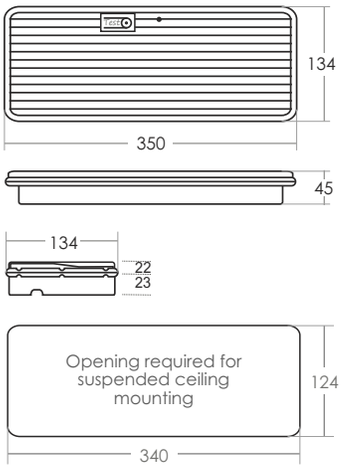
EASY
LIGHT

22m IP40

GR-316/15L/MAR & GR-316/30L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-316/15L/MAR and **GR-316/30L/MAR** are self testing emergency luminaries with white LEDs which are used in ships. These luminaries are permanently connected to the mains power supply and while the power is on, the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously.

The minimum autonomous duration of the integrated battery is 3 hours and the viewing distance of the luminaries is 22m.

These luminaries, according to Lloyd's Register Type Approval System, are suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

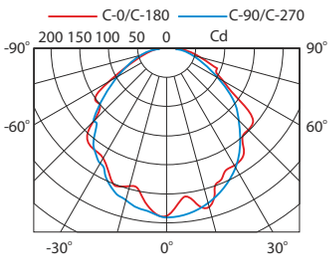
Wall or ceiling installation

Suspended ceiling installation with A-3018 special mounting springs

Recess mounting on wall with A-3016 base

Can be fitted to order with emergency exit signs

Photometric polar diagrams



GR-316/15L/MAR

Important notes

These two luminaries have different luminous intensities which enables flexibility in different installation areas.

Technical data

Type	GR-316/15L/MAR	GR-316/30L/MAR
Operation Voltage	220-240V AC/ 50-60Hz	
Maximum Power consumption	3,5W/7VA	5W/8VA
Battery (Ni-Cd)	3,6V/1,5Ah	3,6V/3Ah
Battery protection	From overcharge and full discharge	
Indications - Controls	Charge, Lamp Fault, Indication Led, TEST button	
Charging Time	24h	
Minimum autonomous duration	180min	
Illumination Source	15 white LEDs	30 white LEDs
Illumination (230V/ Emergency)	105/105 lm	210/210 lm
Degrees of cover protection	IP40	
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533	
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4	
Operation temperature range	5°C to 40°C	
Relative humidity	Up to 95%	
Construction materials	Bayblend FR3010, transparent polycarbonate	
External dimensions	350 x 134 x 45 mm	
Typical weight	700 gr.	770 gr.
Guarantee	3 years (1 year for the battery)	

Installation methods

Ceiling mounting with
SP-114 marking sign

Ceiling or wall mounting

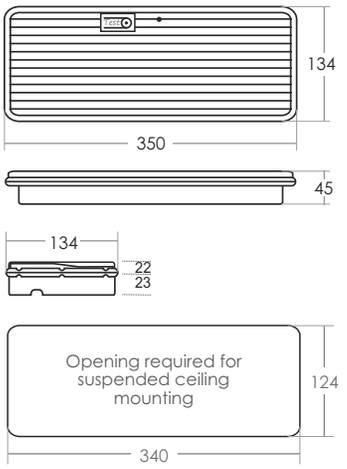
Wall mounting with SP-114
marking sign

22m IP40

GR-308/15L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-308/15L/MAR is a self testing, maintained emergency luminary with white LEDs which is used in ships. This luminary is permanently connected to the mains power supply and while the power is on the battery is charging and the led strip will light continuously. In case of a mains power supply failure the LED strip will be supplied by battery and lights continuously. The minimum autonomous duration of the integrated battery is 8 hours and the viewing distance is 22 meters.

This luminary, according to Lloyd's Register Type Approval System, is suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

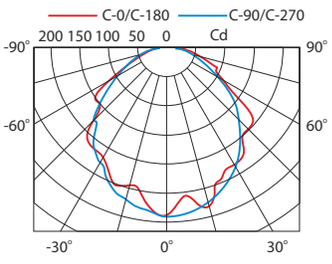
Wall or ceiling installation

Suspended ceiling installation with A-3018 special mounting springs

Recess mounting on wall with A-3016 base

Can be fitted to order with emergency exit signs

Photometric polar diagrams



GR-308/15L/MAR

Important notes

This luminary is installed in areas where big autonomy is required.

Technical data

Type	GR-308/15L/MAR
Operation Voltage	220-240V AC/ 50-60Hz
Maximum Power consumption	4W/7VA
Battery (Ni-Cd)	3,6V/3Ah
Battery protection	From overcharge and full discharge
Indications - Controls	Charge, Lamp Fault, Indication Led, TEST button
Charging Time	24h
Minimum autonomous duration	8h
Illumination Source	15 white LED
Illumination (230V/ Emergency)	105/105 lm
Degrees of cover protection	IP40
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4
Operation temperature range	5°C to 40°C
Relative humidity	Up to 95%
Construction materials	Bayblend FR3010, transparent polycarbonate
External dimensions	350 x 134 x 45 mm
Typical weight	760 gr
Guarantee	3 years (1 year for the battery)

Installation methods

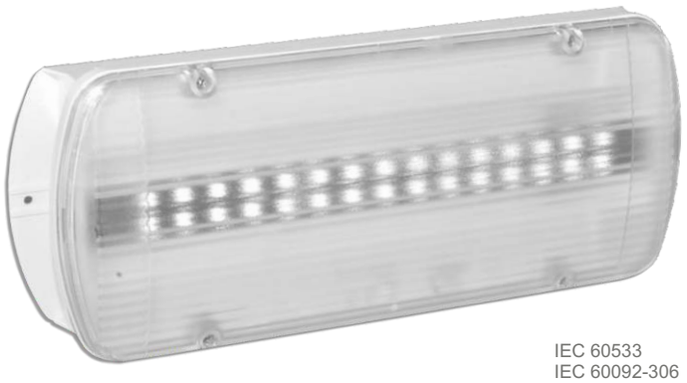
Ceiling mounting with
SP-114 marking sign

Ceiling or wall mounting

Wall mounting with SP-114
marking sign

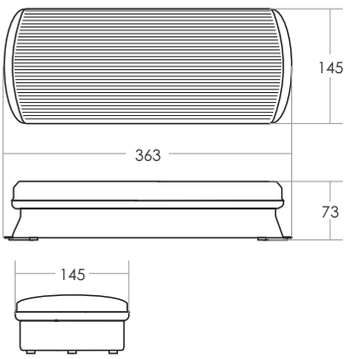
24m IP65

GR-939/15L/MAR & GR-939/30L/MAR



IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-939/15L/MAR & **GR-939/30L/MAR** are self testing, maintained, waterproof emergency luminaries with white LEDs which are used in ships. These luminaries are permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of these emergency luminaries is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off. The RESET button erases all the indicated LED errors with a 5 seconds pressing on the button.

The minimum autonomous duration of the integrated battery is 3 hours. The viewing distance for these luminaries is 24 meters.

These luminaries, according to Lloyd's Register Type Approval System, are suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

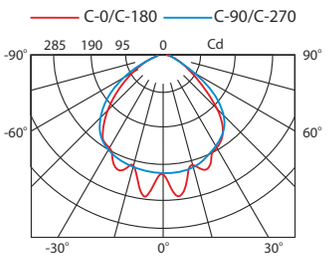
Manual testing also

Wall or ceiling installation

Can be fitted to order with emergency exit signs

Waterproof case (IP65)

Photometric polar diagrams



GR-939/30L/MAR

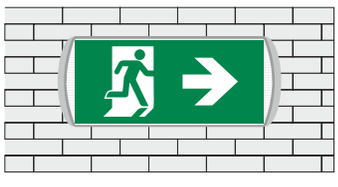
Important notes

These two luminaries have different luminous intensities which provides flexibility in different installation areas.

Technical data

Type	GR-939/15L/MAR	GR-939/30L/MAR
Operation Voltage	220-240V AC/ 50-60Hz	
Maximum Power consumption	3,5W/7,5VA	5W/8,5VA
Battery (Ni-Cd)	3,6V/1,5Ah	3,6V/3Ah
Battery protection	From overcharge and full discharge	
Indications - Controls	Charge, Lamp Fault, Indication Led, TEST/RESET button	
Charging Time	24h	
Minimum autonomous duration	180min	
Illumination Source	15 white LEDs	30 white LEDs
Illumination (230V/ Emergency)	105/105 lm	210lm/210lm
Degrees of cover protection	IP65	
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533	
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4	
Operation temperature range	5°C to 40°C	
Relative humidity	Up to 95%	
Construction materials	Bayblend FR3010, transparent polycarbonate	
External dimensions	363 x 145 x 73 mm	
Typical weight	870 gr.	940 gr.
Guarantee	3 years (1 year for the battery)	

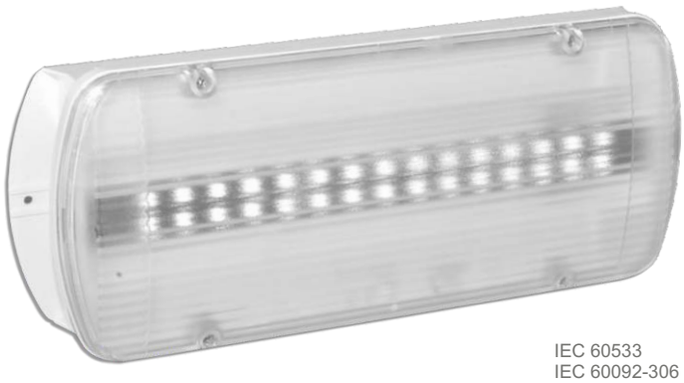
Installation methods



Wall mounting

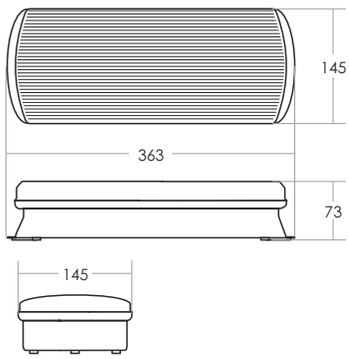
24m IP65

GR-940/15L/MAR



IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-940/15L/MAR is self testing, waterproof, maintained emergency luminary with white LEDs which is used in ships. This luminary is permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of this emergency luminary is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off. The RESET button erases all the indicated LED errors with a 5 seconds pressing on the button.

The minimum autonomous duration of the integrated battery is 8 hours. The viewing distance for this luminary is 24 meters.

This luminary, according to Lloyd's Register Type Approval System, is suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

Wall or ceiling installation

Can be fitted to order with emergency exit signs

Waterproof case (IP65)

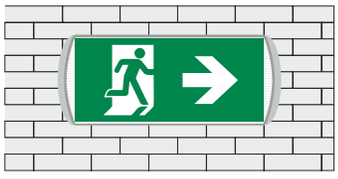
Important notes

This luminary is installed in places where big autonomy is required.

Technical data

Type	GR-940/15L/MAR
Operation Voltage	220-240V AC/ 50-60Hz
Maximum Power consumption	4W/7VA
Battery (Ni-Cd)	3,6V/3Ah
Battery protection	From overcharge and full discharge
Indications - Controls	Charge, Lamp Fault, Fault Indication Led, TEST/RESET button
Charging Time	24h
Minimum autonomous duration	480 min (8 h)
Illumination Source	15 white LEDs
Illumination (230V/ Emergency)	105/105 lm
Degrees of cover protection	IP65
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4
Operation temperature range	5˚C to 40˚C
Relative humidity	Up to 95%
Construction materials	Bayblend FR3010, transparent polycarbonate
External dimensions	363 x 145 x 73 mm
Typical weight	945 gr.
Guarantee	3 years (1 year for the battery)

Installation methods



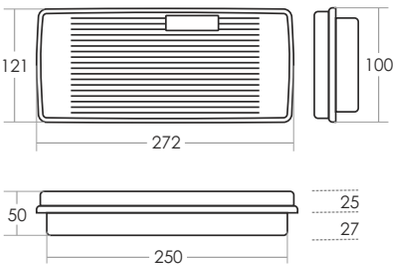
Wall mounting

20m IP42

GR-427/12L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-427/12L/MAR is self testing, maintained, emergency luminary with white LEDs which is used in ships. This luminary is permanently connected to the mains power supply and while the power is on the battery is charging and the LED strip lights continuously. In case of a mains power supply failure the LED strip will be supplied by battery and will light continuously. The advantage of this emergency luminary is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off.

The minimum autonomous duration of the integrated battery is 8 hours. The viewing distance for these luminaries is 20 meters.

This luminary, according to Lloyd's Register Type Approval System, is suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

Wall or ceiling installation

Suspended ceiling installation with A-3018 special mounting springs

Recess mounting on wall with A-3018 special mounting springs

Can be fitted to order with emergency exit signs

Important notes

This luminary is installed in places where big autonomy is required.

Technical data

Type	GR-427/12L/MAR
Operation Voltage	220-240V AC/ 50-60Hz
Maximum Power consumption	3.5 W/ 7VA
Battery (Ni-Cd)	3.6V/3Ah
Battery protection	From overcharge and full discharge
Indications - Controls	Charge, Lamp Fault, Fault Indication Led, TEST button
Charging Time	24h
Minimum autonomous duration	480 min (8 h)
Illumination Source	12 white LEDs
Illumination (230V/ Emergency)	85/85 lm
Degrees of cover protection	IP42
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-503, IEC 60533
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4
Operation temperature range	5°C to 40°C
Relative humidity	Up to 95%
Construction materials	Bayblend FR3010, transparent polycarbonate
External dimensions	272 x 121 x 50 mm
Typical weight	600 gr.
Guarantee	3 years (1 year for the battery)

Installation methods

Ceiling mounting with SP-114 marking sign

Wall mounting with SP-114 marking sign

Ceiling or wall mounting

SP-115 marking sign

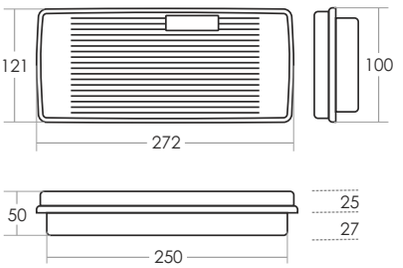
Define the direction during the order of the sign: left, right or down

20m IP42

GR-423/12L/MAR & GR-423/24L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-423/12L/MAR and **GR-423/24L/MAR** are self testing, maintained, emergency luminaries with white LEDs which are used in ships. These luminaries are permanently connected to the mains power supply and while the power is on, the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of these emergency luminaries is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off.

The minimum autonomous duration of the integrated battery is 3 hours and the viewing distance of the luminaries is 22m.

These luminaries, according to Lloyd's Register Type Approval System, are suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

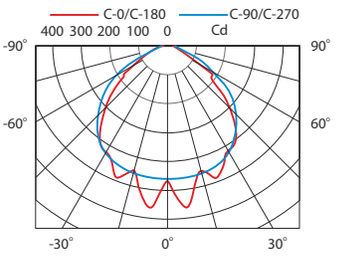
Wall or ceiling installation

Suspended ceiling installation with A-3018 special mounting springs

Recess mounting on wall with A-3018 base

Can be fitted to order with emergency exit signs

Photometric polar diagrams



GR-423/12L/MAR, GR-423/24L/MAR

Important notes

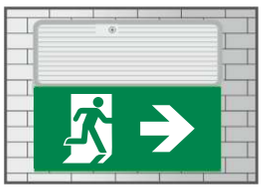
These two luminaries have different luminous intensities which provides flexibility in different installation areas.

Technical data

Type	GR-423/12L/MAR	GR-423/24L/MAR
Operation Voltage	220-240V AC/ 50-60Hz	
Maximum Power consumption	3W / 6,5VA	4W/7VA
Battery (Ni-Cd)	3,6V/1Ah	3,6V/2Ah (Ni-MH)
Battery protection	From overcharge and full discharge	
Indications - Controls	Charge indication LED, Lamp Fault, Fault Indication Led, TEST button	
Charging Time	24h	
Minimum autonomous duration	180min	
Illumination Source	12 white LEDs	24 white LEDs
Illumination (230V/ Emergency)	85/85 lm	170lm/170lm
Degrees of cover protection	IP42	
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 55015, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533	
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4	
Operation temperature range	5°C to 40°C	
Relative humidity	Up to 95%	
Construction materials	Bayblend FR3010, transparent polycarbonate	
External dimensions	272 x 121 x 50 mm	
Typical weight	480 gr.	560 gr.
Guarantee	3 years (1 year for the battery)	

Installation methods

Ceiling mounting with SP-114 marking sign



Wall mounting with SP-114 marking sign

Ceiling or wall mounting

SP-115 marking sign

Define the direction during the order of the sign: left, right or down

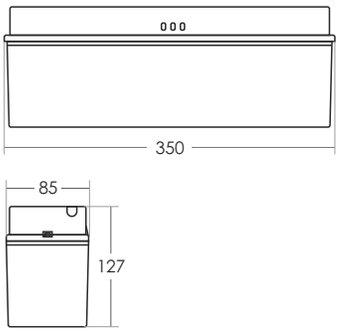
RECT
LIGHT

17m IP20

GR-736/21L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-736/21L/MAR is a self- testing, maintained emergency luminary with white LEDs which is used in ships. This luminary is permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of this emergency luminary is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off. The RESET button erases all the indicated LED errors with a 5 seconds pressing on the button.

This luminary, according to Lloyd's Register Type Approval System, is suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

Wall or ceiling installation (surface installation with special mounting accessories)

Can be fitted to order with emergency exit signs

Important notes

The minimum autonomous duration of the integrated battery is 3 hours.

Technical data

Type	GR-736/21L/MAR
Operation Voltage	220-240V AC/ 50-60Hz
Maximum Power consumption	3.5W / 7VA
Battery (Ni-Cd)	3.6V / 1.5Ah
Battery protection	From overcharge and full discharge
Indications - Controls	Charge indication Led, Lamp Fault, Fault Indication Led, TEST button
Charging Time	24h
Minimum autonomous duration	180 min (3 h)
Illumination Source	white LEDs
Illumination (230V/ Emergency)	150lm / 150lm
Degrees of cover protection	IP20
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 55015, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4
Operation temperature range	5°C to 40°C
Relative humidity	Up to 95%
Construction materials	Bayblend FR3010, transparent polycarbonate
External dimensions	350 x 127 x 85 mm
Typical weight	720 gr.
Guarantee	3 years (1 year for the battery)

Installation methods

Wall & Ceiling mounting

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

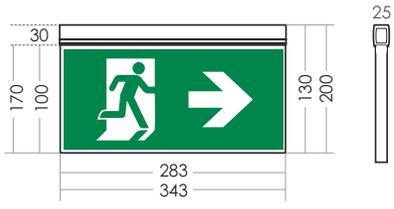
ECO
LIGHT

16m 30m IP40

MLD-28D-34D/w/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



MLD-28, DLD-28:
283x130x25
MLD-34, DLD-34:
343x200x25

Technical description

MLD-28D/w/MAR & **MLD-34D/w/MAR** are LED EXIT signs/luminaries that are used in ships. These LED exit luminaries have elegant and modern design and are usually installed at internal spaces. The LED technology is environmentally friendly and has low energy consumption. These luminaries can be used as 1 or 2 sided in surface mounting. The PVC surface of the luminary hosts a pictogram that is illuminated from a led strip on the top of the luminary. The pictogram is easily replaceable as easily replaceable is the battery which is hosted on the top of the luminary. These advantages concur to a low maintenance cost in these luminaries.

These luminaries are permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously.

These luminaries have an indication charge LED and a TEST button to check manually the functionality of the luminary. While we operate a manual testing the luminary must be connected to the mains power supply and the test checks the good operation of the LED strip and the power circuit.

These luminaries, according to Lloyd's Register Type Approval System, are suitable for marine and offshore applications for use in environmental categories ENV1 & ENV2, where ENV1 are controlled environments and ENV2 are enclosed spaces subject to temperature, humidity and vibration.

Operating principles

Maintained operation

Manual testing

Easy wall or ceiling installation

Modern design for internal spaces

Low energy consumption

Low maintenance cost

Technical data

Type	MLD-28D/w/MAR	MLD-34D/w/MAR
Operation Voltage	220-240V AC/ 50-60Hz	
Maximum Power consumption	3W / 7.5VA	3W / 8VA
Battery (Ni-Cd)	3.6V/1Ah	
Battery protection	From overcharge and full discharge	
Charging Time	24h	
Minimum autonomous duration	180min	
Illumination (230V/ Emergency)	85lm / 85lm	105lm / 85lm
Degrees of cover protection	IP40	
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 55015, EN61547, EN 61000-3-3, EN 1838 + IEC60092-306, IEC 60533	
Suitable for environmental categories	ENV1, ENV2	
Operation temperature range	0°C to 40°C	
Relative humidity	Up to 95%	
Construction materials	Bayblend FR3010, transparent polycarbonate	
External dimensions	305 x 155 x 55 mm	365 x 225 x 25 mm
Typical weight	520 gr.	850 gr.
Guarantee	3 years (1 year for the battery)	

Installation methods

Ceiling mounting

Wall mounting

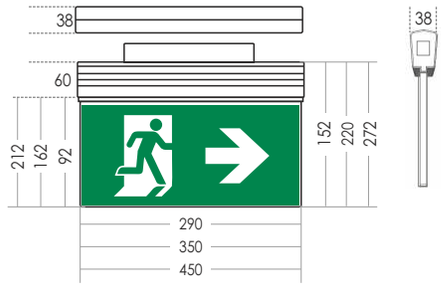
ECO
LIGHT

16m 30m 38m IP40

ZLD-28/34/44/EM/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



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

Technical description

ZLD-28/EM/MAR & **ZLD-34/EM/MAR** & **ZLD-44/EM/MAR** are self testing, maintained LED EXIT signs/luminaries that are used in ships. These LED exit luminaries have elegant and modern design and are usually installed at internal spaces. The LED technology is environmentally friendly and has low energy consumption. These luminaries can be used as 1 or 2 sided in surface mounting. The PVC surface of the luminary hosts a pictogram that is illuminated from a led strip on the top of the luminary. The pictogram is easily replaceable as easily replaceable is the battery which is placed on the top of the luminary. These advantages concur to a low maintenance cost.

The housing of these luminaries is from aluminum and PVC. An easy installation at walls and ceilings is accomplished with a range of different bases.

Exit luminaries are permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of these emergency luminaries is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off. The RESET button erases all the indicated LED errors with a 5 seconds pressing on the button.

These luminaries, according to Lloyd's Register Type Approval System, are suitable for marine and offshore applications for use in environmental categories ENV1 & ENV2, where ENV1 are controlled environments and ENV2 are enclosed spaces subject to temperature, humidity and vibration.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

Manual testing also

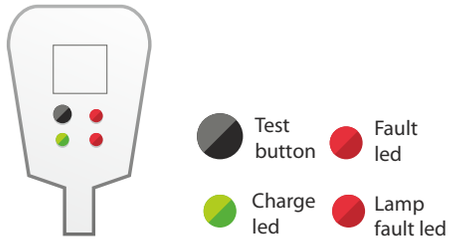
Easy wall or ceiling installation

Modern design for internal spaces

Low energy consumption

Low maintenance cost

Indication leds



Technical data

Type	ZLD-28/EM/MAR	ZLD-34/EM/MAR	ZLD-44/EM/MAR
Operation Voltage		220-240V AC/ 50-60Hz	
Maximum Power consumption	3.8W / 6.5VA	4W / 6.7VA	4.3W / 6.9VA
Battery (Ni-Cd)		3.6V / 1.5Ah	
Battery protection		From overcharge and full discharge	
Indications - Controls		Charge Indication LED, Lamp Fault LED, Fault Indication Led, TEST button	
Charging Time		24h	
Minimum autonomous duration		180min	
Illumination (230V/ Emergency)	125/125 lm	145lm/125lm	170lm/125lm
Degrees of cover protection		IP40	
Produced in accordance with		EN 60598-1, EN 60598-2-22, EN 550 15, EN61547, EN 61000-3-2, EN 61000-3-3 IEC 60092-306, IEC 60533	
Suitable for environmental categories		ENV1, ENV2	
Operation temperature range		0°C to 40°C	
Relative humidity		Up to 95%	
Construction materials		Aluminum, Plexiglas	
External dimensions	290 x 172 x 38 mm	350 x 242 x 38 mm	450 x 275 x 38 mm
Typical weight	760 gr.	1125 gr.	1565 gr.
Guarantee		3 years (1 year for the battery)	

Easy mounting

Step 01


Step 02


Step 03

Step 04

Installation methods


Ceiling mounting

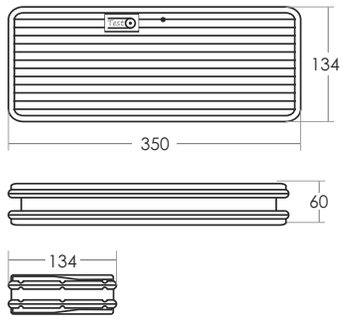

Wall mounting

22m IP40

GR-392/L/MAR

IEC 60533
IEC 60092-306
IEC 60598-1
IEC 60598-2-22

Dimmensions in mm



Technical description

GR-392/L/MAR is self testing, maintained, emergency luminaries with white LEDs which is used in ships. This luminary is permanently connected to the mains power supply and while the power is on the battery is charging and the led strip lights continuously. In case of a mains power supply failure the led strip will be supplied by battery and will light continuously. The advantage of these emergency luminaries is the self-testing function that measures battery's back up power and checks the functionality of Led strip and the supplying circuit. This check can be held manually too. During manual test all indication LEDs are off. The RESET button erases all the indicated LED errors with a 5 seconds pressing on the button.

The minimum autonomous duration of the integrated battery is 3 hours. This luminary can be used as 1 or 2 sided in surface mounting.

This luminary, according to Lloyd's Register Type Approval System, is suitable for marine and offshore applications for use in environmental categories ENV1, ENV2, ENV3 & ENV4, where ENV1 are controlled environments, ENV2 are enclosed spaces subject to temperature, humidity and vibration, ENV3 are enclosed spaces subject to generated heat from other equipment and ENV4 are mounted on reciprocating machinery.

Operating principles

Maintained operation

With continuous operating test (only if it is power supplied by mains and the battery is connected)

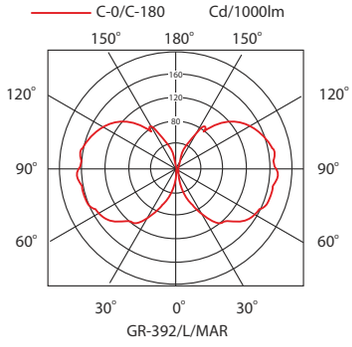
Manual testing also

Wall or ceiling installation

Can be fitted to order with emergency exit signs

This luminary can be used as 1 or 2 sided in surface mounting.

Photometric polar diagrams



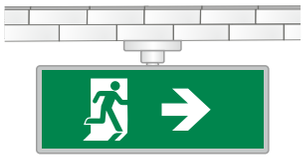
GR-392/L/MAR

Technical data

Type	GR-392/L/MAR
Operation Voltage	220-240V AC/ 50-60Hz
Maximum Power consumption	5W/8VA
Battery (Ni-Cd)	3.6V/3Ah
Battery protection	From overcharge and full discharge
Indications - Controls	Charge indication Led, Lamp Fault, Fault Indication Led, TEST button
Charging Time	24h
Minimum autonomous duration	180 min (3 h)
Illumination Source	2 x 16 white LEDs
Illumination (230V/ Emergency)	220lm / 220 lm
Degrees of cover protection	IP40
Produced in accordance with	EN 60598-1, EN 60598-2-22, EN 55015, EN61547, EN 61000-3-2, EN 61000-3-3, IEC 60092-306, IEC 60533
Suitable for environmental categories	ENV1, ENV2, ENV3, ENV4
Operation temperature range	5°C to 40°C
Relative humidity	Up to 95%
Construction materials	Bayblend FR3010, transparent polycarbonate
External dimensions	350 x 134 x 60 mm
Typical weight	970 gr.
Guarantee	3 years (1 year for the battery)

Installation methods

Wall mounting



Ceiling mounting

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.

MARINE PHOTOLUMINESCENT

SAFETY SIGNS

SELF-ADHESIVE

LEGENDS

Self-adhesive legends below can be provided after order

EASY LIGHT

S-31100/ S65L | **S-31100/ S65R** | **S-31100/ S65D**

COMFORT LIGHT

S-31100/ S65L | **S-31100/ S65R** | **S-31100/ S65D**

DOUBLE EASY LIGHT

S-31100/ S65L | **S-31100/ S65R** | **S-31100/ S65D (x2)**

RECT LIGHT

Included in packaging (x2)

ECO LIGHT

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

WEATHER LIGHT

S-93593/ S65L (705693503) | **S-93593/ S65R (705693505)** | **S-93593/ S65D (705693504)**

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SAFETY & SECURITY SYSTEMS
for a safer world!

Notes:

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SAFETY & SECURITY SYSTEMS

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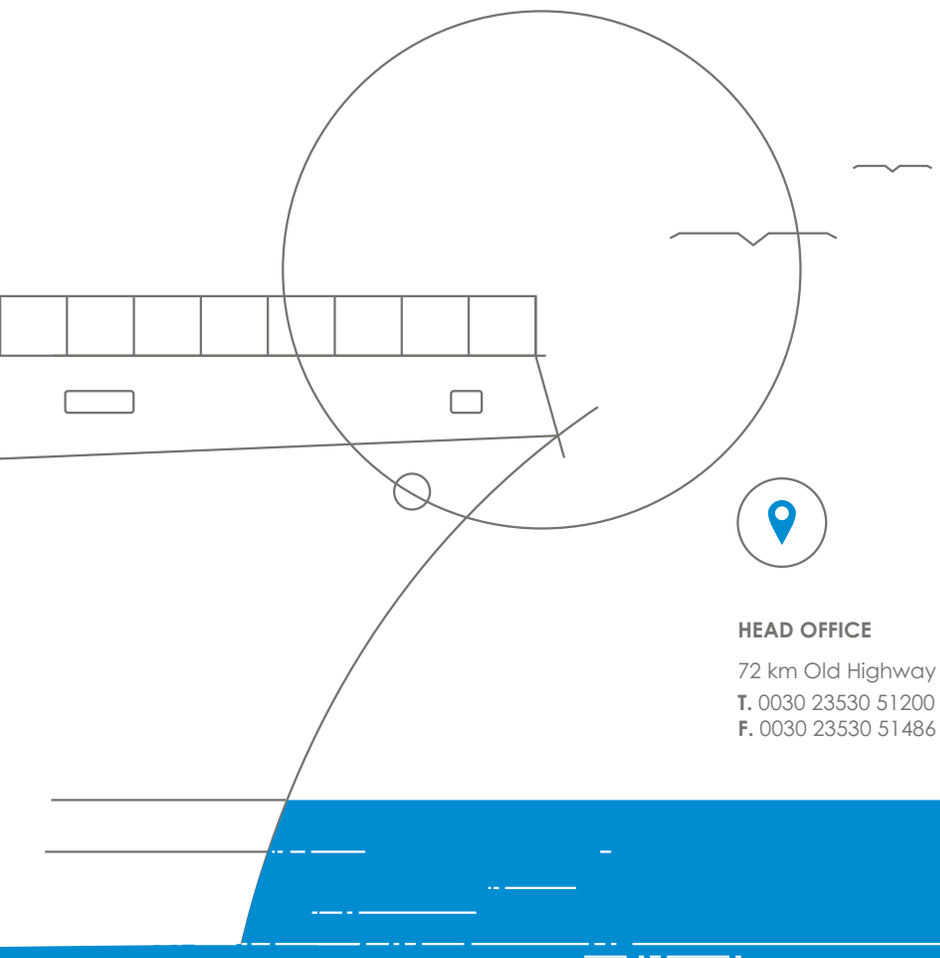

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