

# SELECTION & APPLICATION

## Selection & Application

The environment in which the beacon is to be installed will determine the product type and light intensity that is required for any application. Thus a beacon designed for Industrial use incorporating a very high light output would not be suitable for local signalling at a control panel. Alternatively a low light output beacon would be ineffective for large factory environment.

Generally Moflash can supply beacons for all types of applications. Listed below are some of the main market areas.

### Automotive

Warning beacons for use on automobiles (commercial & private) agricultural / off road vehicles and forklift trucks etc.

For further information see our Automotive section on pages 23 - 26.

### Industrial

Warning beacons for heavy duty, high light output applications such as foundries, factory shopfloors, large warehouses etc...

For further information see our Industrial section pages 8 - 18.

### Commercial

Warning beacons for light duty, low to medium light output to give local indication such as offices, hospitals and schools. Also suitable for Fire and Security applications.

For further information see our Commercial section pages 8 - 18.

### Explosion Proof

Warning beacons for use in potentially explosive environments such as oil rigs, refineries and mines etc..

For further information see our Hazardous Areas section pages 20 - 21.

## Environmental Factors determining Selection

- Safe atmosphere or potentially explosive atmosphere
- The ambient level of existing light
- The light output required from the beacon
- The duration the beacon has to operate
- The IP rating of the beacon
- The electrical supply available

## Types of Visual Warning Beacons Available

Moflash manufactures four different types of Visual Warning beacons.

### Rotating Beacons R

A parabolic reflector, driven by an electric motor, revolves around a continuously illuminated bulb on the vertical axis of the beacon creating a powerful beam of light travelling through 360 degrees. These units are available with either a filament or a tungsten halogen bulb. In general this type of beacon has a greater degree of light output than other models but this is reduced as the parabolic reflector only illuminates one given point at a time.

For further information see pages 10, 11, 23 and 24.

### Flashing Filament Beacons FF

Operating through an internal circuit, which simply cycles the bulb On, and Off. These type of beacons generally give a much lower light output as it takes longer for the bulb to fully illuminate itself. These units are available with either a filament or tungsten halogen bulb. The light output can be improved by the use of a Dioptic (Fresnal) lens which is placed over the bulb capturing the light emitted, magnifying and directing it to increase the brightness of the visual signal. In terms of light coverage this type of beacon is more efficient as it illuminates the whole surface of the beacon constantly through 360 degrees.

For further information see pages 8, 9 and 23.

### Static Filament (Continuous) Beacons SF

These units are identical to Flashing Filament beacons with the exception that they do not operate through an On, and Off cycle. When the unit is energised the light source stays permanently 'On'. The main advantage of this type of beacon is that the light can be controlled by a separate source i.e. a control panel, giving the unit more flexibility. These units are available with either a filament of tungsten halogen bulb.

For further information see pages 12, 13 and 20.

### Xenon (Strobe) Beacons X

A discharge capacitor operating through a converter circuit ignites xenon gas inside a tube creating a brilliant flash of light. Xenon gas ignites virtually instantaneously so maximum brightness is obtained immediately. This signal can be improved further by the use of a Dioptic (Fresnal) lens as described earlier. In some Moflash models a 'Double Flash' option is also available which extends the signal duration making it more noticeable to the human eye, see X88, X201/200, X301/300 & X401/400. Xenons have an added advantage of low current consumption combined with long life. The tube life of a xenon beacon is approximately 5 million flashes. These units are the most efficient available incorporating a 360-degree light output with the brightest and most effective visual signal.

For further information see pages 14 - 17, 20 - 21 and 25.

# SELECTION & APPLICATION

**Visual warning beacons** communicate their message through two (sometimes three) variables:

- **Level of brightness**
- **The colour of the beacon dome**
- **Audibility if fitted with an audible signal**

## Level of Brightness

Brightness depends upon the type of beacon chosen the rated power output of the unit i.e.: Watts and Joules, the distance that the signal is observed from and the dome colour of the beacon used. In general if the viewing distance is doubled the light intensity observed is reduced by a quarter and if the distance is quadrupled the light intensity is reduced by a sixteenth.

## Beacon Dome Colours

The intensity of the light can be greatly reduced as it passes through the dome of the beacon. The extent of this reduction is dependent upon:

- The type of light source used i.e. conventional filament (Incandescent) bulb, tungsten halogen bulb or a xenon tube
- The colour of the beacon dome that is used.

The table below gives an indication of the percentage of light that will pass through the beacon dome for different light sources and dome colours.

COLOUR	FILAMENT	HALOGEN	XENON
Clear	100%	100%	100%
Amber	70%	70%	70%
Red	30%	27%	23%
Green	12%	15%	25%
Blue	8%	10%	15%

Different dome colours are used to convey different messages to the observer,

**RED** = Serious danger act now!

**AMBER** = warning proceed with care

**GREEN** = ok proceed as normal

**BLUE** = specific process notice/warning

Alternatively Green colour beacons are used by Doctors and Veterinarians and Blue beacons for the police and Fire departments.

## Audibility

Simply producing an audible sound when the beacon is illuminated. This is of particular use in low level noisy environments if the warning light is obscured from direct viewing or as a back-up warning should the bulb fail.

## Siting and Maintenance of Visual Warning Beacons

- The siting and maintenance of visual warning beacons is as important as it's selection and application. When installing a light care should be taken to position it in the most effective place, if possible, to allow for all round light dispersion. However the following parameters should be noted.
- Always ensure that there is free air movement around the beacon enclosure as in normal operation this will warm up due to heat emitted from the light source. High power models can become quite hot over an extended period of time, therefore avoid siting the light under gantries, overhangs or in tight enclosed spaces with restricted air movement.
- Regularly clean the dome of the beacon, as this will maintain optimum light output and reduce heat build up. All domes produced by Moflash are manufactured from 'UV' stable polycarbonate plastic. Therefore do not clean with petroleum based cleaners.
- Areas of vibration should be avoided. If this is not possible then our Anti-Vibration mount 50080 should be used.
- In general it is not recommended that beacons be mounted directly onto conduit tubing without the use of a conduit box or bracket.
- To maintain the IP rating of the units the beacon must be mounted with the dome upwards and fully locked onto the base assembly. The beacon should also be suitably sealed at the point of connection using the correct cable glands.
- Xenon tube failures, unlike filament lamps, which fail immediately, deteriorate very slowly. Irregular or erratic flashing will indicate the pending failure of the tube. Once this is recognised the tube should be replaced as soon as possible. Failure to do so will result in electronic damage to the printed circuit board.

# PRODUCT SPECIFICATIONS & CONFORMITIES

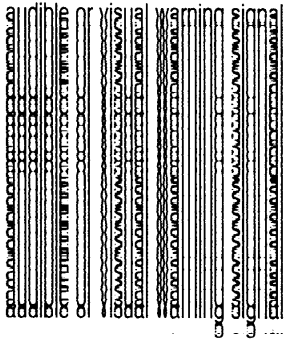
## The CE Mark



The Moflash products that show the CE mark, are deemed to comply, where applicable, with the European Directive No: 89/336 regarding Electromagnetic Compatibility which states that 'An electrical product must not be susceptible to, or generate certain levels of, electromagnetic interference liable to interfere with other electronic equipment', and the European Directive No: 73/73 regarding low voltage electrical material which states that 'Electrical equipment within the voltage ranges of 50 to 1000v Ac and 75 to 1500v Dc are constructed within the principles of good engineering practice and provide adequate levels of protection against an electric shock'.

## The Machinery Directive 89/392

The European machine directive 89/392 and its later amendments (91/368, 93/44 & 93/68) came into effect on the 1st January 1995. These directives are designed to harmonise wide ranging health and safety requirements in machinery design and daily use by indicating a potential hazard by the use of an immediately recognisable



## prEN 842 Safety of machinery : Visual Warning Signals

Classifies the type of warning light and specifies the characteristics the warning light must achieve to conform to the machine directive.

### Warning Signals

Visual warning signals must be at least five times brighter than the area where they are used.

### Danger Signals

Clearly visible even in strong light, distinguishable from other lights and Visual warning signals and be understood immediately.

### Emergency Signals

These have the highest priority and must be at least ten times brighter than the area that they are to be used in and understood immediately.

## UL and CSA Approvals



Moflash offer a range of warning beacons that conform to the North American UL 'Underwriters

## IEC 73 - Colours of Luminous Indicators & Push Buttons

Establishes the various meanings of coloured luminous indicators and push buttons to conform to the machine directive.

### Colour: RED

DANGER ACT NOW

Danger of live or unguarded  
Moving machinery or essential  
Equipment in protected zone

### Colour: AMBER

WARNING: PROCEED WITH CARE

Temperature of pressure different  
from normal level

### Colour: GREEN

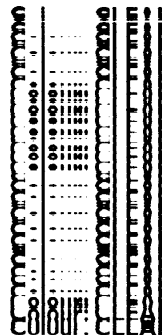
SAFETY PRECAUTION: GO AHEAD

Checks complete the machine  
is about to start

### Colour: BLUE

SPECIFIC MEANING GIVEN DEPENDING ON  
SITUATION

Pre-set ready or remote control



NO SPECIFIC MEANING

Could confirm an earlier message

All Moflash coloured domes are manufactured from 'UV' stable polycarbonate plastic that will not tarnish, fade or become brittle over a period of time unlike many domes available that are produced from Acrylic plastic.

## Hazardous Areas BS 5501 - EN 50 018 to EN 50 020

The risk of an explosive atmosphere being formed is obviously a variable factor being dependent upon the conditions in a given environment. Thus in order to achieve a consistent level of safety, hazardous areas are classified into three zones as defined in BS 5345 part 1:

### Zone 0

A zone in which an explosive atmosphere is constantly present, or present for long periods.

### Zone 1

A zone in which an explosive atmosphere is likely to occur in normal operation.

# STATIC FILAMENT BEACONS

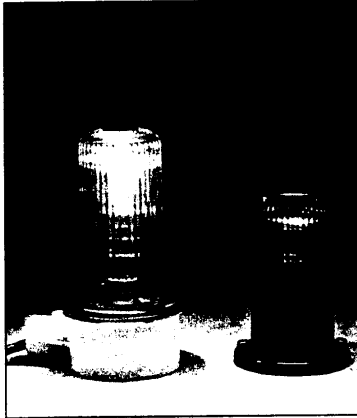
Luci Fisse

Feux a Lumiere Fixe

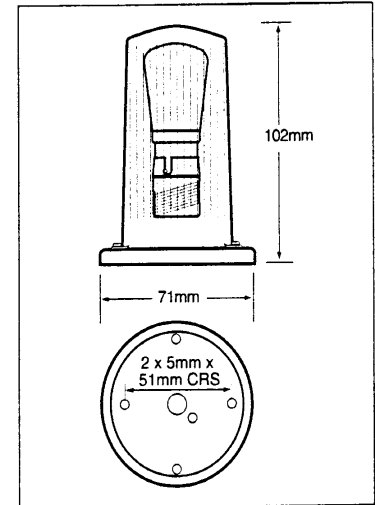
Dauerleuchten

Luces Fijas

## STATIC FILAMENT BEACONS



Code No:	Voltage:	Light Source:	Current:
SF125-40	12v Ac/Dc ~	Ba15d x 21w	1.75 A
SF125-41	24v Ac/Dc ~	Ba15d x 21w	0.88 A
SF125-42	115v Ac~	Ba15d x 15w	0.12 A
SF125-43	230v Ac~	Ba15d x 15w	0.05 A



01

02

04

05

°C -35+66

IP 65

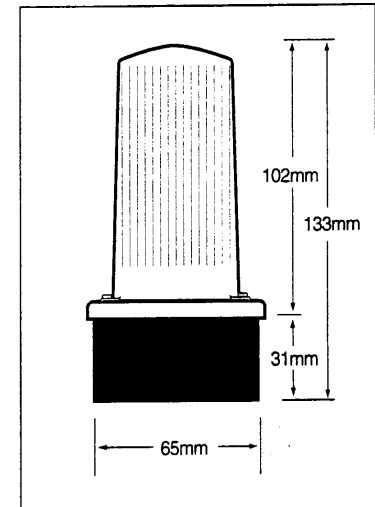
50/60 Hz

Kg 0.17

## STATIC FILAMENT BEACONS



Code No:	Voltage:	Light Source:	Current:
SF125-80	12v Ac/Dc ~	Ba15d x 21w	1.75 A
SF125-81	24v Ac/Dc ~	Ba15d x 21w	0.88 A
SF125-82	115v Ac ~	Ba15d x 15w	0.12 A
SF125-83	230v Ac~	Ba15d x 15w	0.05 A



01

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04

05

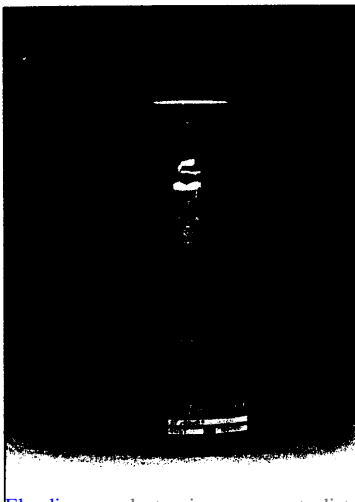
°C -35+66

IP 65

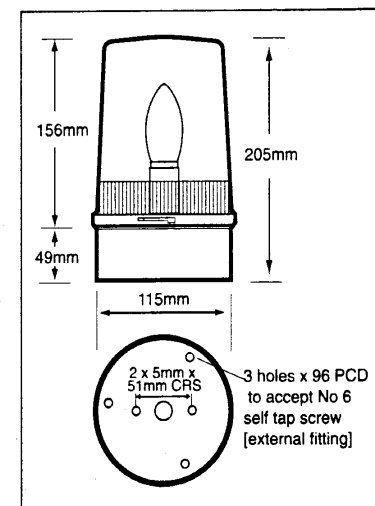
50/60 Hz

Kg 0.17

## STATIC FILAMENT BEACONS



Code No:	Voltage:	Light Source:	Current:
SF201-62	12v Ac/Dc ~	H1 x 55w	4.60 A
SF201-63	24v Ac/Dc ~	H1 x 70w	2.90 A
SF201-05	12v Ac/Dc ~	Ba15d x 48w	4.00 A
SF201-06	24v Ac/Dc ~	Ba15d x 48w	2.00 A
SF201-07	48v Dc ---	Ba15d x 48w	1.00 A
SF200-08	115v Ac ~	Ba15d x 60w	0.47 A
SF200-09	230v Ac ~	Ba15d x 60w	0.22 A



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