



LUMISPHERE™ TH12 AND X24 LOW VOLTAGE FESTOON SYSTEMS

ADVANTAGAGES

The Lumisphere™ patented Low Voltage Festoon lighting system has been designed to provide a safe multipurpose energy saving

system. It offers an attractive alternative to standard mains voltage festoon lighting which normally has inherently high maintenance and power costs.

QUALITY

The Lumisphere™ system is pressure watertight conforming to IP68 and may be used in adverse conditions and in areas of high humidity including complete saturation in saline water, subject to the installation being installed in accordance with the appropriate code and regulations. The components are manufactured from high quality, non-corrosive and impact resistance materials suitable for long term atmospheric exposure.

CHOICE OF SYSTEM

Two types of Lumisphere™ festoon are available. The **TH12** is a 12 volt system utilising 12 volt tungsten halogen lamps which are extremely tough multi-positional lamps, with a very high colour temperature and are particularly suitable for very rough service in exposed conditions such as foreshore applications, Christmas decorations, use in trees etc. The average approximate life of the tungsten halogen lamps is 6000 hours at system average design voltage of 11.4 volts.

The **X24 system** utilises 24volt Xenon gas filled lamps which are extremely efficient and have an exceptionally long life expectancy. The lamps are multi-positional and resistant to vibrations. The X24 system is eminently suitable for permanent installation, bridges, structures and buildings where low power consumption coupled with extremely long life is required. An average lamp life expectancy of 20,000 hours can be achieved with the appropriate circuit design voltage.

MAINTENANCE

When compared with a 240 volt lamp festoon, especially when situated in an exposed marine environment the Lumisphere™ system can be expected to show a dramatic reduction in maintenance costs. Other than lamp replacement at long intervals virtually no maintenance is required.

ENERGY

Energy costs are also greatly reduced. As an example one kilometre length of festoon with 240 volt 25 watt lamps at one metre spacing would consume 50,000 kilowatts over 2,000 hours use (approx. one year at five and a half hours per day). By comparison the Lumisphere™ festoon with the same number of 5w 12v lamps would consume only 10,000 kilowatts, a saving of 40,000 kilowatts or 80% of power costs.

SAFETY

The Lumisphere™ festoon system running at extra low voltage is ideally suited for permanent and temporary use in all environments particularly where accessible to the public. All materials used have high electrical and insulating qualities coupled with excellent flame retardant and flammability specifications. Lumisphere™ systems may be used where mains voltage festoons would not comply with electrical safety regulations.

APPLICATIONS

Coastal promenades – Street and Building Decorations – Theme Parks – Pub and Restaurant Gardens – Barbecues – Ornamental Gardens and Lakes – Swimming Pool Areas – Car Parks – Piers – Bridges and Structures.

FUNCTIONAL LIGHTING

Shops and Shopping Malls – Pedestrian Precincts – Hotels – Concert Halls and Parks – Building Sites – Tunnels – Road Works – Camp Sites – Emergency Lighting – Rescues etc.

COLOURS

The Lumisphere™ polycarbonate globes are available in six standard colours and clear. In addition globes can be produced to match any required colour (minimum quantity requirement).



SPECIFICATION AND RELEVANT STANDARDS

TH12

The Lumisphere™ TH12 Low Voltage System incorporates as standard a special 12v 5w Tungsten Halogen Light Capsule having a light output of 50 Lumens with a life expectancy in excess of 6,000 hours at a design voltage of 11.2v. The Tungsten Halogen Light Capsule is extremely robust and has a universal burning position. Not being affected by vibration, it can be used in the roughest

conditions such as on trees, swinging festoons, bridges etc. Having a colour temperature of 3000K gives an extremely bright luminance with very low power consumption.

X24

The Lumisphere™ X24 Low Voltage Lighting System incorporates 24volt Xenon Gas Filled lamps of wattage's of 5, 8.5 and 10w. These lamps have an exceptionally long life expectancy of approximately 20,000 hours at appropriate circuit design voltage and are also extremely efficient with a colour temperature in the order of 2700K. The X24 system is particularly suitable for permanent installation on buildings and structures where access for lamp changing is difficult. The lamps are multi-position burning and resistant to vibration.

GENERAL

The Lumisphere™ festoon system comprises a special twin core cable sheathed in H.O.F.R (heat, oil, flame, resistant) rubber with 3.0mm² tinned copper multi-strand conductors.

The cable is compressed into uniquely engineered nylon lamp holders into which 60mm dia. Shatterproof polycarbonate globes are retained by high pressure O-rings and are removable for lamp replacement but where the system is installed



within reach of the public i.e. low branches of Christmas trees, anti-vandal type lampholders may be specified to prevent unauthorised removal.

The lamps are located centrally in the globes to enhance the luminance. Standard spacings are 20cm 25cm 33.3cm, 50cm and 100cm. Non-standard spacing may be specified. The system can also be supplied in component form for on-site assembly where lamp centres are irregular. A special hand assembly press can be supplied for this purpose. The maximum number of light units per string is dependent on spacing and lamp wattage (refer to 'selection and installation guide').

The Lumisphere™ festoon system has been tested by B.S.I. and certified to BS EN 60598-20:192, IEC 598-2-20:1982 and BS EN 60598-1:1993 for classification of IP68 Dust-tight/protected against submersion and is UL and ULC listed No E173173(M).

LUMISPHERE™ TRANSFORMERS

The Lumisphere™ type WP12 and WP24 range of safety isolating transformers have been specifically designed for exterior mounting and provide a precise power source to enable accurate circuit design voltage for Lumisphere™ Festoon systems. Tested by Namas accredited laboratories and certified to BS3535 1.0 1990/IEC 742/EN 60-742 Clauses 7-26 IP55 (refer to Lumisphere™ transformer brochure).

ELECTRICAL, SAFETY & FLAMMABILITY SPECIFICATIONS

Lampholders

Material Nylon 66 Self Extinguished Grade UV stabilised
Flammability Flammability rating to ASTN D 635 U.L V2

Globe

Material Polycarbonate UV stabilised
Flammability Flame retardant grade U.L. V2 Tensile Strength 700KKG/CM²
Impact Resistance 80KG CM/CM

Lamps

TH12 12v 5w specially modified Tungsten Halogen Light Capsules
X24 Lumisphere™ Special Xenon Gas Filled Lamps 24v; 5w, 8.5w and 10w

Cable

Material Twin conductor stranded tinned copper 60/0.25 3.00mm²
Sheath – heat, oil and flame retardant rubber UV stabilised
Flammability Conformed to BS4066 Part 1. EIC 332-1. U.L. listed No E168888(M)

Transformers

Type WP Range Lumisphere™ Safety Isolating Transformer
Comply with BS3535 1.0 1990/EC 742/EN60-742 Clauses 7-26 IP55
Flammability Case material – Glass filled bylon flame retardant ULV2
Windings – Encapsulated in self-extinguishing grade rigid urethane.

Selection and Installation Guide

Lumisphere low voltage lighting systems are designed to operate at extra low voltage. The TH12 system operates at a nominal 12 volts and the X24 system operated at a nominal 24 volts. Due to the characteristics of a low voltage system a voltage drop occurs in the system which imposes some limitation on the number of lamps that can be used on one string to achieve the optimum lamp performance and life. The variables that affect the system voltage are the – number of lights and rating – spacing of lights – transformer rating – mains voltage – and the choice of supply tapping on the transformer. These variables must be taken into account in circuit designs. The following general rules may be applied with regard to the number and spacing of lamps.

TH12 - 12v system, 5w lamps With lead to the first light approximately 1metre

SPACING	5w
100cm	25
50cm	36
33cm	43
25cm	50

Maximum number of lights per transformer is achieved by

using two or more strings per transformer. Long runs may be achieved by mounting transformer centrally and spanning in both directions. Note: Individual transformer circuits must not be inter-connected.

X24 – 24v system

SPACING	5W	8.5W	10W
100cm	50	35	25
50CM	72	51	36
33CM	86	60	43
25CM	100	70	50

Note: total load on cable fed from one end should not exceed 300watts for the 12v system and 600 watts for the 24v system (25 amperes max.)

Select transformer required by multiplying lamp wattage by the number of lamps used i.e. 100 x 5w lamps = 500VA transformer.

For further information on the above contact Lumisphere Products Ltd Technical Department who can provide full circuit designs and advice for given projects.

General Notes on Installation

Where it is required that the transformers and mains supply are to be some distance from the festoons i.e. transformers located in pit adjacent to large Christmas tree, 6mm² csa. Low voltage supply cables and distribution boxes are available.

The Lumisphere system may be used as a freely suspended festoon between fixed points at not more than 5 metre centres to form loops not exceeding 30cm in depth. If spans of greater distance are required a catenary wire should be used and the Lumisphere cable firmly strapped to it either to form shallow loops not longer than 5 metres using strap and buckle fixing SB90, or strapped tightly to the straining wire at approximately 50cm centres using nylon tie NT100; see figures A,B. Care should be taken to ensure chaffing does not occur.

The end of the Lumisphere cable should be sealed with end cap EC1 and silicone rubber sealant.

The Lumisphere system may also be used for illuminated trees and other structures. Methods of fixing will be dependant upon conditions and expected duration of installation.

It is recommended that the Lumisphere cable be firmly attached to building and structures by means of backplate BP60 or cable clips or ties on either side of the lampholder at not more than 50cm spacings. For fixings to fascias and boards see diagram figures C, D, E. in the Lumisphere Fixings brochure

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