Beacon Installation

techNOTE

At all times installation and maintenance of **deegee** beaconlamps should only be carried out by qualified personnel who are well proven in the safe application and usage of electrical equipment and installation work.

Choosing type of beacon suitable for your application

You need to consider the following points before decided which beacon is most suitable for your application:

- Is it bright enough?
- Colour/If there is a specifying standard which requires a specific colour?
- Is it different to other beacons in the area?
- What IP rating is required?
- Power consumption – is there enough available from the power supply?
- Do you require it to be Static/Flash/Rotate?
- Do you require lamp type Xenon/Filament/LED?

Siting of the Beacon

The beacon should be installed for maximum effect and minimum for interference e.g. from sunlight, other light sources, obstructions. If necessary add extra beacons to overcome any of these problems.

Orientation of a Beacon

Beacons normally recommend to be installed vertically, especially when used continuously i.e. dome on top. (Although with Sounders, horn is not placed upwards). When beacons are not mounted vertically, it can affect its IP rating.

Beacon Mounting

Beacons to be mounted on a flat surface can be mounting directly or raised on a pole. If mounting on a vertical wall then use an L bracket so as the beacon can still be mounted vertically in its desired position.

Environmental Protection

Ensure that all appropriate gaskets and O Rings are fitted correctly, in the correct place on the beacon e.g. in the groove/lip and not trapped.

Ensure all cable entries are adequately sealed.

Maintenance

Ensure the beacon is installed in such a way that the equipment can be accessed and opened for maintenance. If possible, choose beacons which are of a low maintenance variety e.g. LED beacons. In some instances, preventative maintenance should be carried out, for example replacing a Xenon flash tube in a strobe before it fails, as this can cause damage to the circuit.

D.G. Controls Limited, Cadley Hill Road, Swadlincote, Derbyshire, UK, DE11 9TB
Tel: +44 1283 550850   Fax: +44 1283 550776   e-mail: mail@beaconlamps.com

Electrical Considerations (Voltage Drop)

The installation should take into account the potential for voltage drop and the effect this can have on the operation of the beacon. All cables will drop voltage especially when carrying high currents. When connecting the beacons keep the cable run from the power supply to the beacon as short as possible to minimise this voltage drop.

The voltage drop can be calculated using OHMS law in order that there is still sufficient voltage at the beacon.

OHMS Law

V = R x I

(Voltage = Resistance (OHMS) x Current (Amps))

Using our RFE/DC/24/B15D beacon as an example, this beacon draws 2.15 Amps.
On each beacon, power supply can be used up to + or – 15% of the original voltage.
So 24vdc, with + or – 15%, makes the allowable voltage run between 20.4v-27.6v.
We are using a 50meter run of cable.
We want to know what thickness of cable is needed.

Voltage drop = 2 x L x R x I

Where: L = Length of cable in metres
R =resistance of cable per meter (OHMS per meter found from cable manufacturer data)
I = Current draw of the beacon in Amps

Using a 0.5mm2 (thickness) cable, which is typically 0.040/OHMS per meter:

2 x 50 x 0.040 x 2.15 = 8.62 Volts.

We therefore will lose 8.62V through the cable.

As we know that the voltage at the start of the cable is 24V, we can calculate the volatage at the beacon:

24v - 8.62v = 15.38v, so only 15.38v would reach the beacon.

So this beacon / cable combination is not suitable as the beacon draws too much current for the cable.

Shoule we use a thicker cable, for example 2.5mm2, which is the maximum cable size most of our terminals will take, and is typically 0.0082/OHMS per meter:

2 x 50m x 0.0082 x 2.15 = 1.76V

Therefore only losing 1.76V through the cable and we learn that by thickening up the cable, the voltage drop is far less.

Again, as we know that the voltage at the start of the cable is 24V, we calculate:

24v – 1.76v = 22.24v, so 22.24v would reach the beacon.

So this beacon would be fine to use with this cable thickness.

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