X4-ILC DC Series

X4-ILC DC Control

Long Distance Motion Control for Energy Saving and Safety.
Underground Car Park Circuit Management

VABOSS

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1. Concept

The Vaboss X4-ILC DC system comprises a site specific network group of detection units connected via a coaxial cable arrangement that terminates at a control center located adjacent a zonal switchboard

2. Product Components

Vaboss offers for three standard components that are essential for a fully integrated multi level system:

2.1. Microwave detection unit

Microwave detection unit suitable for mounting on the underside surface of a carpark concrete ceiling, a structural plain or ranged surface.

The unit features an LED presence detection indicator lamp

Two F Connector (female) surface mounts. One each mounted on each cover end / vertical short face

The units do not require an auxiliary power feed as they derive power from the signally lead.

In favourable environmental conditions, detection ranges can be extended, however reliable maximum detection of pedestrian and vehicular traffic range is 8 meters centre to centre.

2.2. Vaboss Control Centre

The control centre designed to be mounted adjacent (outside and visible) the switch box or room that takes a channeled DC network feed of detection signal from the network and provides switching signal to a / set of contactors on the circuit board.

This Control Centre is based on DIN rail form factor to allow for a certain amount of customisation of circuit breakers, relays, etc, in adapting to existing lighting power supply. The standard unit provides two normally closed contact pairs that are able to engage one or two phase lighting circuit contactors

2.3. Vaboss BAC Net

Vaboss Control Centres at each car park zone, have the optional ability to be connected to a building BAC. Either a dedicated or shared twin core DALI control cable is run between all Zone control units and this network terminates in a BACnet gateway. Through the gateway interface, various services of the lighting control system can be managed remotely -including:

- Zone fault status
- Zone activity levels and light usage statistics
- Direct On and Off control of Zone lighting

2.4. Lighting Control System Components

Model	Description	Specification	Environment	Mount Height	Detection Area	Light Harvest	Traffic
X4C-BAC Net Control	Control Management Bundle	Circuit mount Unit	Office with Cat-5 interface to internet Router	Any	N/A	N/A	N/A
X4C-DC Control	Control Management Bundle	Circuit mount Unit	Accessible location near Zone Switchboard	Eye Height	Switchboard light circuit coverage area	N/A	N/A
X4M-ILC DC R Standard	7 meter radial module sensor	Microwave	Vehicular & Pedestrian	2M - 4M	6M - 8M	Zero	Medium
X4M-ILC DC P Standard	7 meter radial module sensor	PIR	Vehicular & Pedestrian	2M - 4M	6M - 8M	Zero	Medium

For daylight-exposed locations, there is an option capability on both the R & P components to provide a Light Harvesting override to a Sensor's detection signalling

3. Car Park Network Planning Basics

3.1. Zone Determination

Most carparks comprise multiple levels. In such cases the access ramps should be switched with each level. Level 1 to level 2 ramp must be switched on by presence in either level 1 or level 2 and level 2 will also switch the level 2 to 3 ramp.
Where parks are large enough to feature transit lanes and zone park access lanes, transit lane traffic can be programmed for short switch off dwell
Vaboss microwave detection units will identify pedestrian traffic through walls and glass, so a detection unit should be positioned so the detection field radiuses beyond the car park into the path of expected pedestrian traffic.
Detection units are placed in any network that the planners develop, provided they are placed not more than 8 meters apart.

3.2. Control Centre Location and Network Topography

Networks must terminate at a site near the the Zone mains switchboard.

A system is generally laid out on the underside surface of a carpark slab, above services and conforming to the surface profile. Plans that provide for unit suspension under the services, are acceptable provided that passing vehicles can be prevented from interference.
Unlike PIR and video, Microwave sensors will penetrate and deflect; so there are few shadows is a well laid out Vaboss network.
With an 8 meter centre to centre layout the dwell time can be quite short, since a pedestrian moving through a car park will migrate from one detection unit range to the next. So it will be the unit nearest to the traveller that is detecting presence. When the pedestrian leaves the range of the last unit, switch off can be almost immediate and is only delayed by a central control protocol.

4. Network Build Components

4.1. RG6 Cable

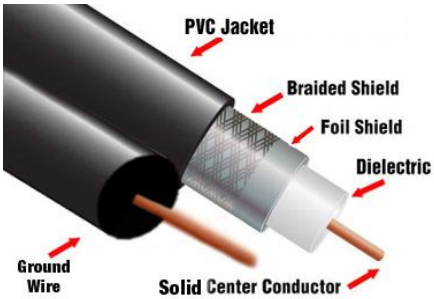
The particular cable choice for the network is the contractor's choice as long as it is of the coaxial RG6 type -that is an 18 AWG center conductor and 75 ohm characteristic impedance. The level of shielding is not importants as the sensor system communicates at frequencies well below RF.

Cable can be trunked inside the slab during construction or suspended on an external catenary or encapsulated messenger wire.

The cable should be cut adjacent prepositioned detection units. An F-type connector fitted to each cable end. The sockets can be plugged into the sockets on the detection unit.

4.2. RG6 with Messenger

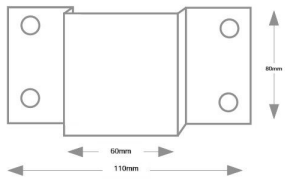
Where RG6 with messenger is used, 80mm of cable will be removed to allow for a comfortable fit of two F connectors and their connection to the detection unit, whilst keeping the tensile messenger wire intact.



4.3. Top Hat / Mounting Bracket

Vaboss detection units can be supplied with a 100mm x 80mm top hat / mounting bracket, that provides >8mm clear passageway under for both or either a messenger wire and any junctioned cable.

The mounting bracket will be <1 mm thick ready for screw or gun fixing.



4.4. Suitable F Connectors

The image above illustrates a wide range of F connectors ranging from screw-on to crimp and compression types. Only the professional Compression and Crimp types are authorised for use with the Vaboss sensors and the Crimp type can only be used in conjunction with professional grade crimping tools.

5. System Component Options

5.1. Large Area Detection

Environmentally adaptive microwave sensor for broad scale detection of vehicle and human movement. Allows early detection of movement through walls/ doors.

5.2. Security gate / Access

Optional specific detection of entry at all access points.

5.3. Lamp Types

Supports the circuit switching of purpose designed LED low bay, spotlight or linear LED fixtures. If LED lamps have replaced Fluorescent tubes, it is important that the power factor capacitors and series ballasts are removed in order to minimise electrical interference on switch-on and therefore minimise false triggering of the sensors. T5 fluorescents may also be supported if their specifications allow for relatively frequent On-Off cycling

5.4. Zone Specific Light Control

The ability to limit the lighting time for transit lane activity compared to parking bay sensing.

5.5. Optional PIR

Presence sensing for specific localised detection (e.g. plant room).

5.6. Lighting Control of Confined Spaces

Application for directional sensing e.g. doorways, stairwells, outdoor situations high sensitivity. Zone Application Option – e.g. partitioned car parks.

5.7. Other Sensor Interfaces

General sensor interface for 3rd party existing sensors and building management systems.

5.8. Wireless Configuration Option

An additional option to control the key Zone operational parameters via a Bluetooth wireless interface to Control Centres

Certified to FCC (T7VPAN17), IC (216Q-PAN17) and CE (Directive 1999/5/EC) Bluetooth specifications (QDID: B016552) and (QDID: B017183) compliant