

## In-Pavement Delineation Lights



ETG has designed and provided in-pavement LED light systems which have remote control and monitoring facilities. Each in-pavement light has an allocated unique address which includes designation as a specific module within a higher order link. Links may be allocated according to the project design with a maximum number of 64 fittings in any one link and a maximum link allocation of 64.

Control cards are either standalone modules with dual network capability or multiple TRI- Network cards may be installed in card files. The in-pavement light control card enables an 18V DC power supply connection to the network and provides safety isolation. The card also converts RS232 data messages into a 400Khz modulated signal which is 'superimposed' on the 18Volt DC level to enable maximum use of a two wire system.



The in-pavement light fittings are of two types:  
RESPONSIVE/Intelligent in-pavement lights incorporate a microprocessor based circuit module which allows an individual circuit module which is part of a multi-dropped network to be switched ON or OFF and reply to specific interrogatory commands. These fittings report their display status, current consumption, voltage level, internal temperature and the presence of water within the fitting.

UN-RESPONSIVE Pavement lights are simply a LED module connected to a specific DC source which is switched ON or OFF or pulsed to enable dimming.



Both RESPONSIVE and NON-RESPONSIVE pavement light circuit modules are installed in similar housings. The Housings are supplied by ADB (Siemens) based in Belgium. The housings are a type FRC 02 (dual display) and FRC01 (single display) aircraft runway centre line display fittings. A manufacturers manual describing the components and assembly of the fitting has been enclosed for further reference on the housings. These housings are FAA approved for airport operation and their shape facilitates both easy road cleaning and snow clearing.

### Applications

- Contra-flow and reverse lane traffic flow road demarcation
- Toll Plaza traffic direction management.
- Peak hour restricted bus lane delineation
- School safety crossing illumination
- Railway crossings stop bar illumination
- Hazardous area delineation management
- Aircraft taxiway guidance systems



## General Design Specification Parameters

The RESPONSIVE fitting accepts a 400kHz modulated signal superimposed on the DC supply line to each pavement light. The NON-Responsive fitting has no communication facility and the DC supply is controlled by a roadside control module..

The console serial ports is RS232C electrical signal level compatible.

The PLCC provides one accessible serial interface port designated CONSOLE on the front panel. This port is configured for 115kbits, N, 8,1 and provides the TX connection via pin 3, the RX connection via pin 2 and chassis common pin 5.

An additional serial channel facilitates remote access.

The 400Khz signal is provided by an RJ Series Connector Current Rating 1.5amp,

Contact Resistance 20Mohmsmax

DC Voltage supply control is facilitated by SCHRACK RTB 74024 Contact 10A @ 250VAC relay

### Power Supply Options:

Operational line voltage: Nominal 18-20VDC

Current Consumption per dual fitting – Typical 180milliamps

## Environmental Design Specification Parameters

Circuitry implemented on the PLCC is rated to 50degrees Centigrade operation with a relative humidity of 90%. Circuit cards are conformal coated and will operate within ISO Standard Guidelines for Traffic Control Devices as TSC/3 and TSC/4

The CONFORMAL coating material used to protect the circuit cards SCC3 CC from Electrolube. The material is sprayed onto the circuit cards in accordance with the manufacturers recommendations and required OH&S practices. The conformal coating material has a dielectric strength of 90KV/mm and an operational temperature range of – 70degC to +200degC and is self extinguishing when exposed to a flame.

## LED Design Specification Parameters

5mm Precision Optical Performance AllnGap II LED HLMPE16-TW000 series

Red wavelength 630 A

Orange wavelength 592 A

15degree viewing Angle

‘Binned ‘ LIGHT OUTPUT Typical 9000mcd Intensity per LED

Refer to Agilant Specification for further details

Refer to Application Brief I-018 Long term Performance specification

Refer to Application Brief I-021 Long Term Reliability specification

AllnGapII, output luminous intensity 3.2 CD/LED (daylight operation)

Typical minimum output per LED 9000 mcd (30LEDs per display)

LED Module 40mm x 30 mms - density 7mm centre spacing

### Display Intensity:

Daylight mode = LEDs can be brightened to increase visibility.

Night time mode = LEDs can be dimmed to eliminate “flaring” (overly bright) and reduce current consumption

Dimming Facility – 1 to 99 levels (Typical daylight operation – 95)