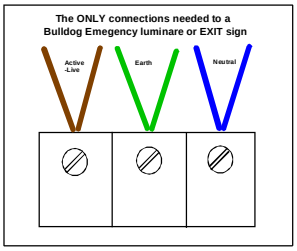
‘Bulldog’ Emergency Lighting Testing & Monitoring System

Overview and user manual

1. Introduction:



The Bulldog monitoring and testing system using power line communications is the latest innovative emergency lighting system from White Lite Industries. It has been designed to be easy to install and commission and yet simple to operate, using a rugged proven signalling protocol with no special data cable to each EXIT or emergency luminaire.

It also allows the Bulldog system to be remotely monitored and controlled easily via LAN/WAN or Internet. Test and Fault reports can be emailed in EXCEL format for action.

The Bulldog system incorporates the Echelon® LON powerline distribution network as well as high-speed data cabling topology. This is an open architecture system, which complies with CENELEC EN500065-1 requirements

This White Lite Industries system is the first emergency lighting monitoring and testing system in the world to use the Echelon® LON powerline distribution network which will allow the system to integrate with other Echelon® systems.

POWER LINE COMMUNICATIONS

The Bulldog system sends commands to and receives information from EXIT & emergency luminaries in the form of packets, which are 'carried' on the unswitched active 240v AC supply cables providing power to the EXIT and Emergency lighting fixtures. These packets are switched between the high-speed data cable and the 3-phase AC supply cables by strategically positioned Router modules normally mounted alongside some distribution switchboards.

Overcoming powerline interference

The Bulldog system utilizes the revolutionary dual carrier frequency signalling technology (frequency hopping) to provide superior communication reliability in the face of interfering noise sources.
In the case of acknowledged messaging, packets are initially transmitted on the primary frequency and if an acknowledgement is not received the packet is retransmitted on the secondary frequency (as shown in Fig 1 .2 Non-utility Applications). In the case of unacknowledged repeat messaging, packets are alternately transmitted on the primary and secondary frequencies. This approach increases signal resilience against noise sources existing in the field and allows signal propagation to further distances.

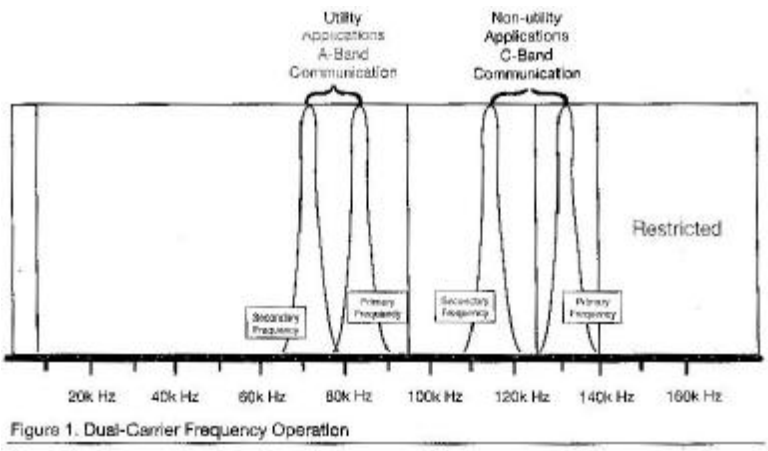


Figure 1. Dual-Carrier Frequency Operation

This dual carrier mode, which is only available from White Lite Industries, pushes communication reliability to a higher level.

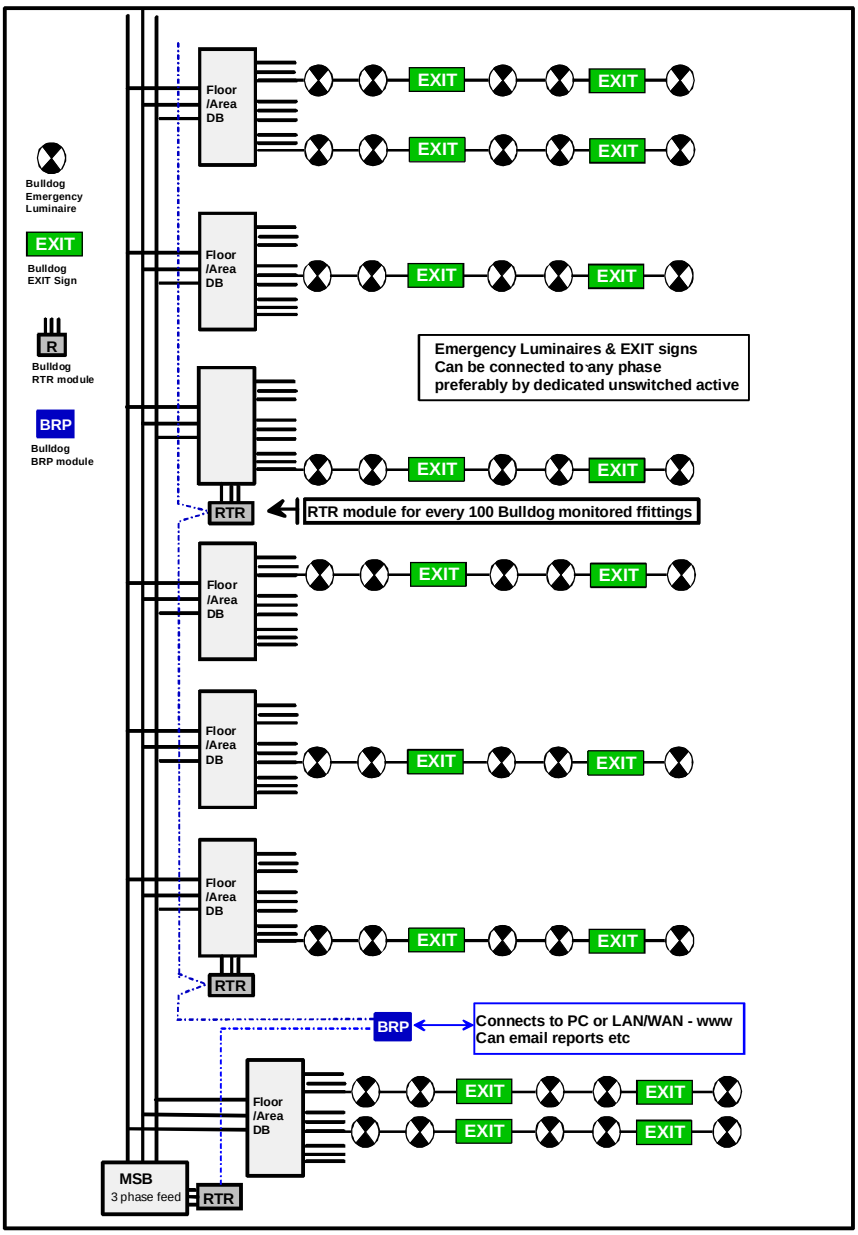
2. System Components

The comprehensive range of Bulldog EXIT and Emergency luminaries are available preferably connected to a dedicated unswitched active power supply. This range includes:

EXIT signs Maintained & Non-maintained emergency fittings including IP65 fittings

Each Bulldog fitting is monitored for light output, battery voltage and correct operation.

Other manufacturer's lighting fixtures can also be fitted with Bulldog monitored power packs. *Please ask White Lite for technical advice.*



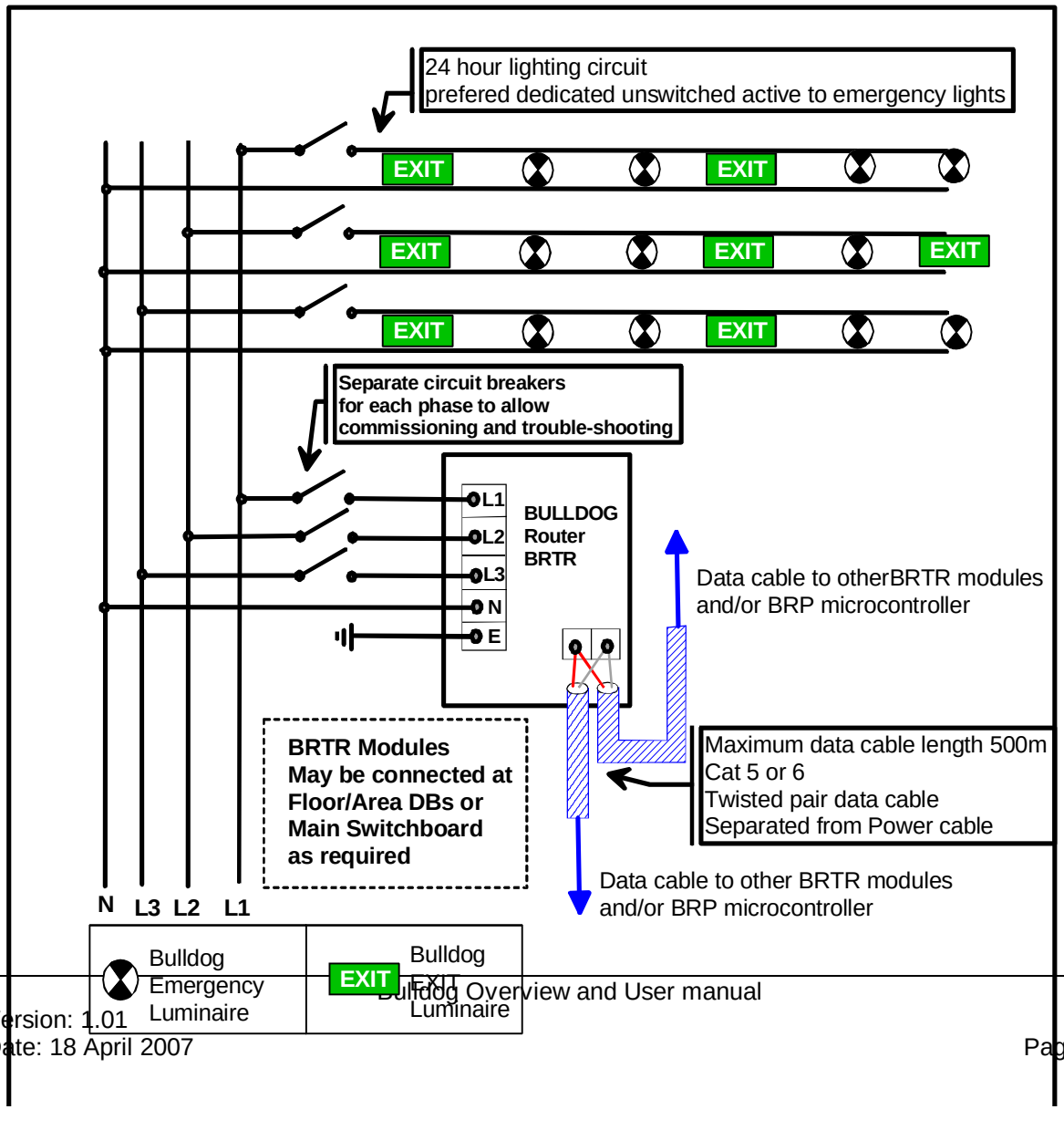
Each Bulldog monitored fixture has 2 LED indicators and a test switch, One red LED shows that the battery is charging correctly and the second red/yellow LED shows fixture status or fault. The test switch can either be used momentarily or if pressed for 5 secs will start a 1 minute 'quick test'.

3. Router

Each RTR router module is connected to all 3 phases via a dedicated circuit breakers (one per phase). It is also connected to the data cabling. This module can route packets of information between the high-speed data cables and the unswitched active/neutral supply cabling providing power to the EXIT & emergency luminaries. Each RTR module can monitor up to 100 Bulldog monitored EXIT & emergency luminaires

The number of RTR routers required depends on a number of factors including the size of the area fed by each distribution switchboard, the distance between emergency luminaries and the overall mix & type of devices connected. RTR Routers may be connected at the Main Switchboard and/or Floor-Area distribution boards.

Note: Special attention should be given if the Bulldog emergency lighting monitoring system is being retro-fitted into existing buildings where lighting fixtures have older system inefficient magnetic control gear. *Please ask White Lite for technical advice.*

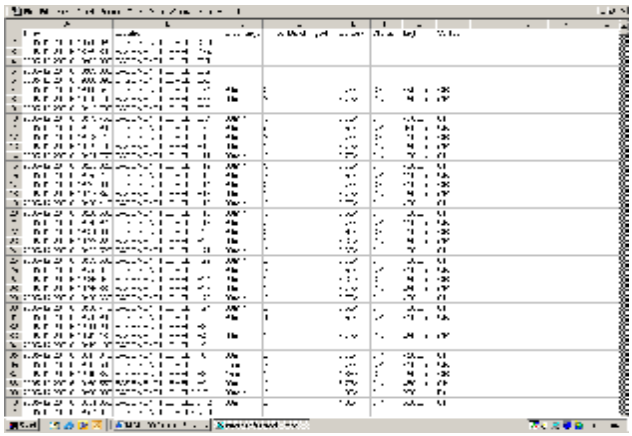


4. BRP (Building Remote Point)

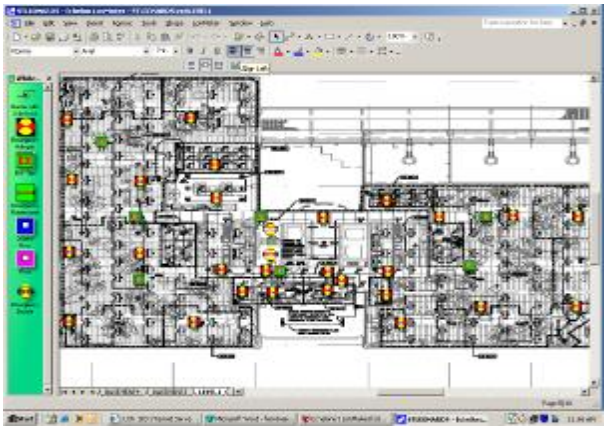
Only one BRP module is required for each building and/or complex allowing the Bulldog system to complete routine tests and reports in Excel without the need for a dedicated PC. It is connected to the Bulldog high-speed data cable network. Each BRP can monitor, control and report on up to 800 Bulldog EXIT & Emergency luminaries. It can even be accessed via dial-up modem or using its integral 10/100 Base T Ethernet connection via LAN/WAN or the web as it can be allocated its own IP address.

Test results and fault reports can even be sent automatically to predetermined email addresses.

The BRP module incorporates the clock-calendar and test/reporting scheduler. It also has a 22MB memory, which stores the database including tests/faults, email addresses and IP-web data. The BRP has multiple connection capability including RJ11 Telephone line to in-built modem and RJ45 10/100 Base T port.



Excel Format report



Interactive floor plan

5. Windows compatible graphical software

The Bulldog system utilises the Echelon LONmaker operating system for open communication protocol and is interfaced to Microsoft Visio, making it a very powerful graphical and control solution. Graphical tools allow the Bulldog system configuration to be easily imposed on building layout images imported from AutoCAD or just pdf format. Each EXIT or Emergency lighting fixture has an icon which also gives its own specific information including type, ID number etc.

Once the Bulldog system network data and lighting fixture configurations have been completed and the test/report schedules set, the BRP module takes over and the PC does not need to remain connected.

Minimum PC requirements:
Windows XP (Professional, Home or Tablet PC editions) or Windows 2000;

Minimum hardware: Pentium III; 512MB RAM; CD-ROM drive; Super VGA (800x600) or higher resolution; mouse or other Windows-compatible pointing device; 350MB available hard-disc space; PC network interface card compatible with Windows TCP/IP networking.
Recommended configuration: Pentium 4 - 2GHz or faster, 1GB RAM and 1024/768 256-colour display (min)