

comet

Emergency: Central automatic testing

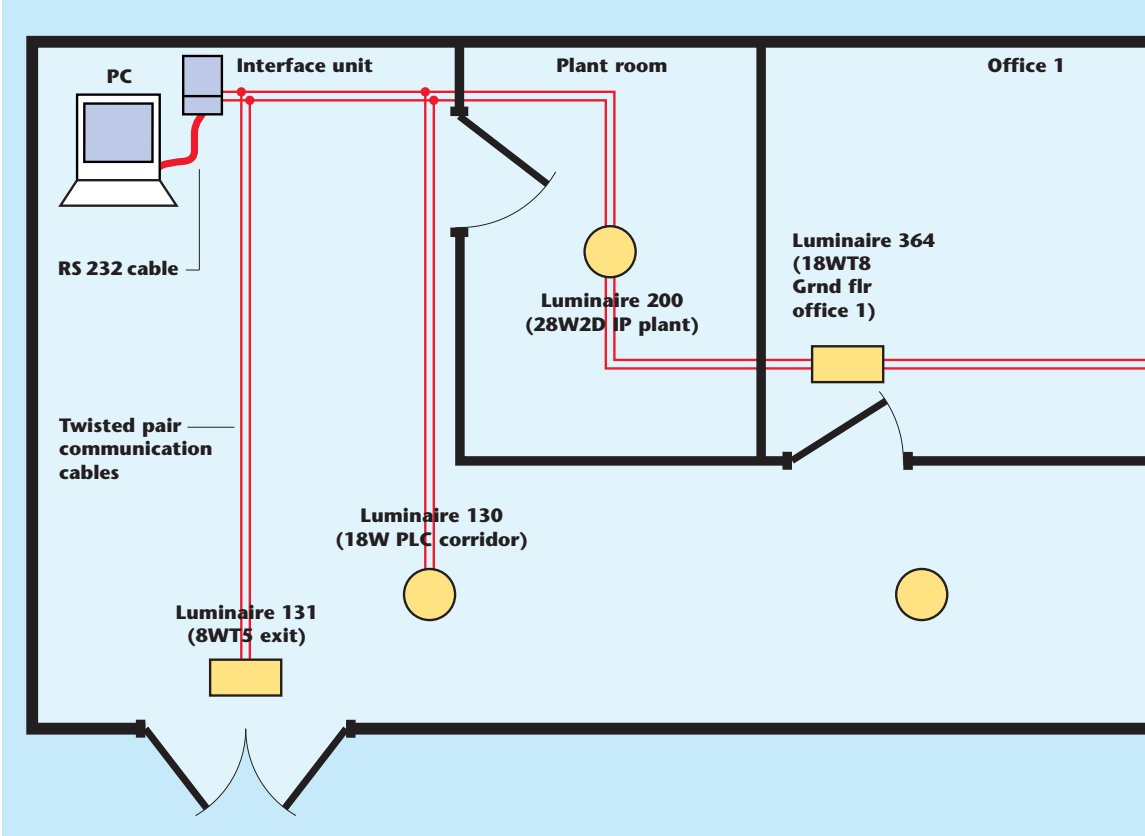
APPLICATION

COMMAND EMERGENCY TEST or **COMET** is designed for organisations seeking an automated, efficient, cost effective and reliable means of meeting the mandatory requirement to conduct and record fully diagnostic tests on emergency lighting installations. Its unique robust communication protocol allows it to monitor up to 16,000 luminaires making it particularly cost effective in larger buildings:

- Commercial offices
- Hospitals
- Education
- Retail stores

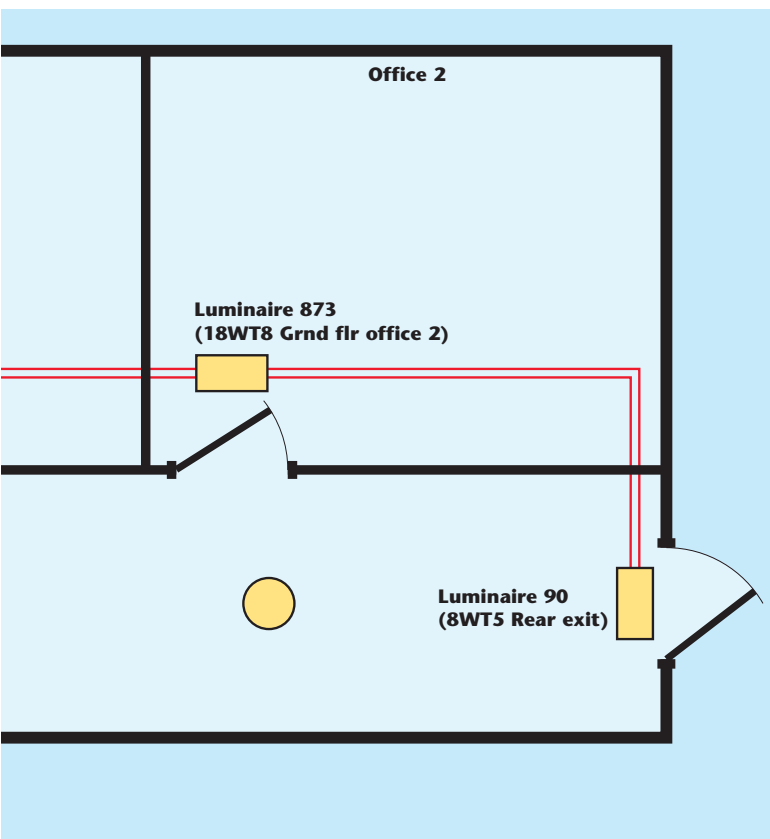
SPECIFICATION

- Designed for all projects using Whitecroft fluorescent emergency luminaires
- Wall mounted control panel or standard PC running windows (ideal for small to medium sized projects)
- Single system can monitor up to 16,000 luminaires and different zones can be networked via a modem to a single central control position (recommended for larger projects)
- Simple twisted pair bus cable keeps installation cost low
- Test schedules can be programmed to suit the use and occupancy of any building type
- Each luminaire has unique address and descriptive text file
- Times and dates of tests easily programmed
- Luminaires may be tested individually or in groups
- Failures indicated locally at the luminaire and on the central controller
- All test details are automatically held in a text file



COMET CABLE SIZING SELECTOR

Cable Type	Reference	Specification	Maximum Number of Fittings
22 AWG 1 pair twisted un-screened (0.5mm ² to 0.75mm ²)	Belden 9407 or equivalent	Resistance = 5Ω per 100m Capacitance @ 1KHz = 95μF/m	Up to 1000 fittings for 1000m maximum total cable length
18 AWG 1 pair twisted un-screened (1.0mm ² to 1.5mm ²)	Belden 9409 or equivalent	Resistance = 2Ω per 100m Capacitance @ 1KHz = 80μF/m	Up to 1000 fittings for 2000m maximum total cable length
14 AWG 1 pair twisted un-screened (1.5mm ² to 2.0mm ²)	Belden 9411 or equivalent	Resistance = 1Ω per 100m Capacitance @ 1KHz = 85μF/m	Up to 1000 fittings for 2500m maximum total cable length
12 AWG 1 pair twisted un-screened (2.0mm ² to 2.5mm ²)	Belden 9412 or equivalent	Resistance = 0.5Ω per 100m Capacitance @ 1KHz = 90μF/m	Up to 1000 fittings for 4000m maximum total cable length



OPERATION

The COMET system will be commissioned at the end of installation so that brief details (22 characters) of every luminaire are recorded against each address. Test schedules will be pre-programmed so that the required tests will automatically take place on dates and times best suited to the occupier. Comet has three levels of test;

Status

A brief check of mains supply, battery charge presence and general electrical conditions

Functional

An operational test putting the luminaire into emergency lighting mode for a few minutes to assess discharge conditions, light output, battery capacity etc

Duration

The same tests as 'Functional' but operating the luminaires for the full rated duration to ensure lamp condition at the end of duration

Any of these tests can be utilised at any time but a typical schedule would be to conduct Status checks every week, Functional checks every month and Duration checks every year

The COMET software allows tests to be carried out on groups of luminaires to avoid all luminaires being discharged at the same time. For example it may be decided to conduct Functional checks on all even numbered addresses at 10.00pm on the 22nd day of every month and on all odd numbered addresses at the same time on the 26th day of every month, then conduct a full Duration test on all luminaires at 1.00am on 31st December every year

Every test is recorded in a text file for examination by any duly authorised person and the COMET software can be programmed to notify failures in various ways

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SYSTEM COMPONENTS

Central controller – wall panel or computer:

COMET wall panel (CWP); the CWP is basically an Industrial PC with a touch screen and a built-in interface unit for connection to 1000 luminaires. The COMET software operates within the installed windows platform and results can be transferred to any external printer

Computer; virtually any existing PC running windows can be utilised to operate the COMET testing system. The COMET software works in the background of the windows operating system and does not restrict the prime functions of the PC. A CIU interface unit is required for communication to the intelligent COMET luminaires and an additional interface unit is required per 1000 extra luminaires. Each interface unit must be connected to the computers I/O ports by an RS232 cable

Note: PC must be left running at all times



COMET CWP panel

Interface Units

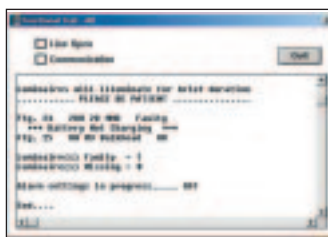
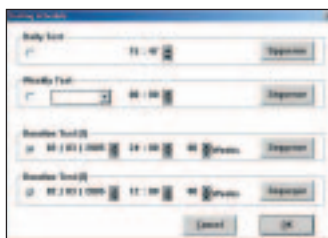


COMET Interface Units (CIU) are required to allow a computer to communicate with up to 1000 Whitecroft intelligent emergency lighting luminaires

The CIU's are connected to the computer I/O ports by RS232 cables and the communication path to the luminaires is made via simple twisted pair cables. Each luminaire has a unique address and the system 'polls' each address in turn. However, the twisted pair communication cables can be connected to luminaires in any order and using any parallel connection (multi spur, loop in/loop out, ring etc)

Software

COMET software (installed on CWP's or provided free with the first CIU) is a TSR (terminate/stay ready) program operating in the background of windows. It provides a simple menu driven method of detailing luminaires, scheduling tests and indicating failures



Intelligent luminaires

Whitecroft can offer most of their wide range of emergency lighting luminaires with COMET intelligent inverters

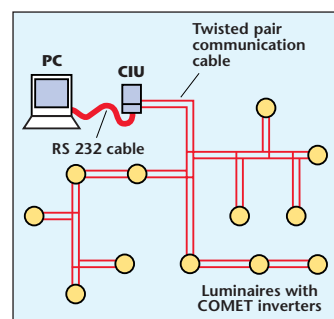
Each luminaire will be provided clearly marked with it's unique address number so that details of where it is positioned within a lighting scheme can be noted ready for commissioning



Communication cables

The COMET system uses a very robust low baud communication protocol. There is no requirement for screened communication cables and any twisted pair, sized to minimise volt drop, will be acceptable. Whitecroft recommend 0.75mm² twisted pair (Belden 9407 or equivalent) for installations of up to 1000 luminaires (1000 metres of cable) and 2.5mm² twisted pair (Belden 9412 or equivalent) for larger installations involving long cable runs

It is also recommended that for large installations COMET ISO data isolators are introduced in the communication cabling to break the installation into zones. This simplifies commissioning and the future addition of further COMET luminaires



Communication cabling

FINANCIAL JUSTIFICATION

COMET unit capital costs

Typical cost over and above the standard emergency luminaire cost £55

COMET additional initial system capital cost

based on 100 off emergency lighting points:-

- £55 x 100 – emergency conversion cost £5,500
- £5 x 100 – 2 wire bus installation cost £500
- £1,000 – commissioning, software, training £1,000

Total additional capital cost COMET £7,000

COMET Operating Costs

Auto test system:-

- Review log book monthly
12 times pa x2 hours at £18/hr labour cost £432

Total annual operating cost COMET £432

Manual Key Switch Capital Costs

Conventional system manual testing equipment

- A manual key switch for every 5 emergency luminaires (£75 each x 20)

Total additional capital cost key switch system £1,500

Manual Key Switch Operating Costs

Conventional emergency testing using a key switch each controlling 5 luminaires:-

- Functional test once a month at £1.80
(6 min at £18/hour to check each of
100 emergency luminaires) x11 monthly tests £1,980
- Full discharge test once a year at £3.60
(12min at £18/hour to check each of
100 emergency luminaires) x1 annual test £360
- Review log book monthly 12 times pa
x4 hours at £18/hr labour cost £864

Total annual operating cost key switch system £3,204

CONCLUSIONS

- This system is far more robust than any manual system and gives a payback in two years. (£7,000 less £1,500) / (£3204 less £432)
- Once payback is achieved the annual saving is £2,772 per 100 emergency luminaires (£3,204 less £432)

ORDER CODES – COMET

CENTRAL AUTOMATIC TESTING

Most Whitecroft Lighting luminaires can be supplied to be suitable for the use with COMET emergency test systems. Please confirm compatibility with the Whitecroft technical department before placing your order

COMET SYSTEM COMPONENTS

COMET/CWP	COMET wall panel with integral software and interface unit
COMET/PCP	Standard personal computer available through Whitecroft if required
COMET/CIU	COMET interface unit required with PC installations and supplied with Command software
COMET/ISO	COMET isolator for introduction into the communication wiring breaking the installation into 'zones'

Note: It is essential that the position and address of every COMET luminaire is recorded during installation. Whitecroft can then arrange a fast and effective commissioning of the system prior to hand over

To specify state:

Intelligent centralised automated emergency testing system using a simple twisted pair communication bus for conducting and recording fully diagnostic checks on up to 16,000 emergency luminaires. Control via wall panel or central PC, individual or group testing, programmable to suit the usage and occupation of any type of building – as Whitecroft Lighting COMET