

BS EN 62034:2006

Automatic test systems for battery powered
emergency lighting

Alan Daniels – ICEL/LIF

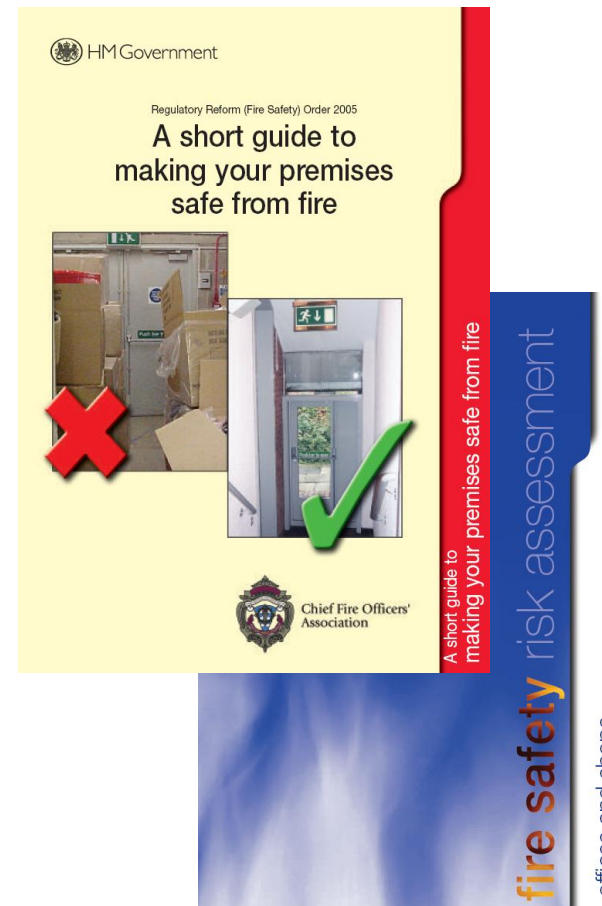
Legislative requirements for testing & maintenance of emergency lighting



Regulatory Reform (Fire Safety) Order - SI No.1541

FSO requires ... that a responsible person ensures any safety related equipment is maintained in efficient working order and good repair ...

- The emergency lighting system should undergo periodic inspection, maintenance and repair and results recorded.



Testing of emergency lighting

Regardless of testing system type, requirements of BS 5266-8 (EN50172) and BS EN 62034 (if appropriate) must be met :

- Testing system must be appropriate for the application and include records of testing
- Conducted at time of least risk, without disturbing other electrical services
- Re-charging must be checked after the test

Tests must consist of :

- Functional test – at least monthly to check luminaires operate
- A duration test – at least annually for full duration

Safety Precautions during Test periods

Possibility exists of failure of the normal lighting supply during or shortly after a full duration test. Therefore tests should either :

- Take place at times of low risk to allow the batteries to recharge. *or*
- Suitable arrangements shall be made such as testing alternate self contained luminaires, provided the un-discharged luminaires will provide adequate illumination into each compartment

Central battery systems need to be tested under full load, specific procedures for the safety of occupants during testing are given in BS EN 50171:2001

New BS5266 Part 10 : 2008



Testing, maintenance and record keeping

Regular servicing and testing to be carried out in accordance with BS5266-8.

....consider installing an automatic EL testing system to BS EN 62034.

BS 5266-10:2008

BRITISH STANDARD

Guide to the design and provision of emergency lighting to reduce the risks from hazards in the event of failure of the normal lighting supply

ICS 13.200

BSi
British Standards

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Automatic Testing System - type Stand-alone self-contained c/w test facilities



Initiation

Automatic Timed

Can be set to test
alternate
luminaires

Indication

Local only

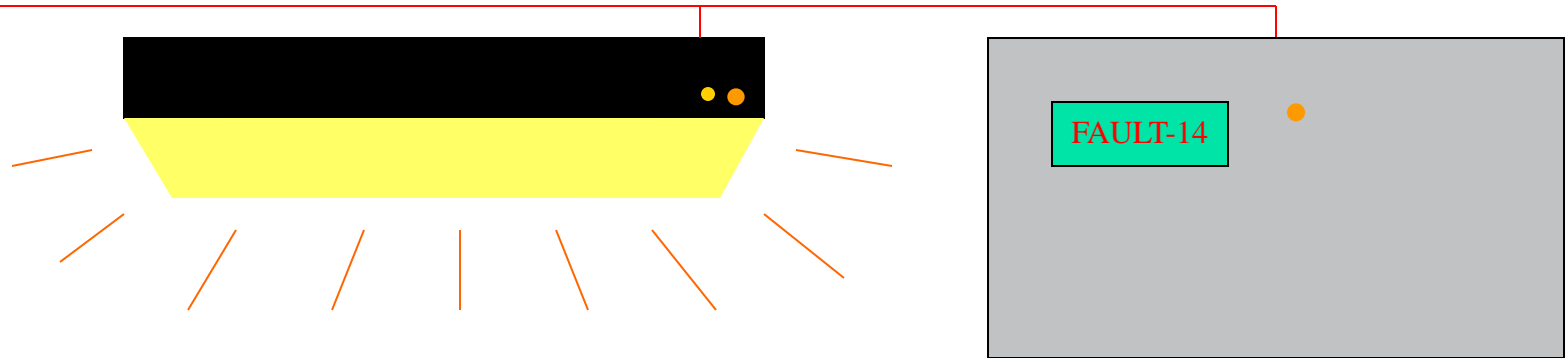
Requires
manual
inspection

Recording

Local only

Requires
manual
recording

Automatic Testing System - type Self-contained & Remote control panel



Initiation

Automatic Timed
or manually set

Can be set to test
alternate
luminaires

Indication

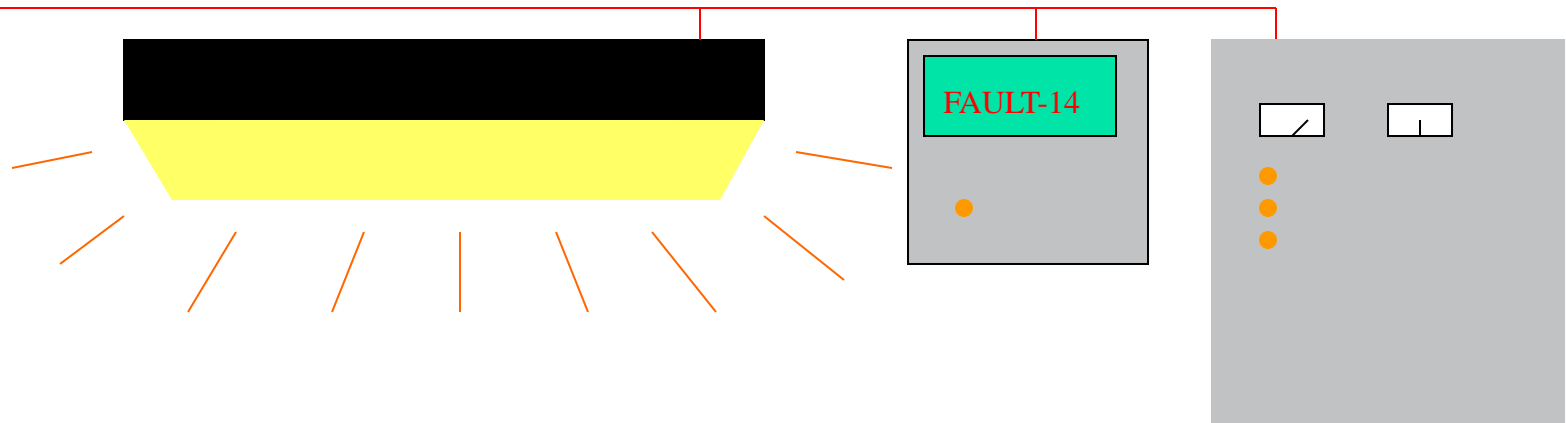
Remote and
local

Collated fault
indication :

Recording

From remote Panel

Automatic Testing System - type Central Battery & Remote control panel



Initiation

Automatic Timed
or manually set

Special provisions
for cover in case of
mains failure after
test

Indication

Remote and
local

Collated fault
indication

Recording

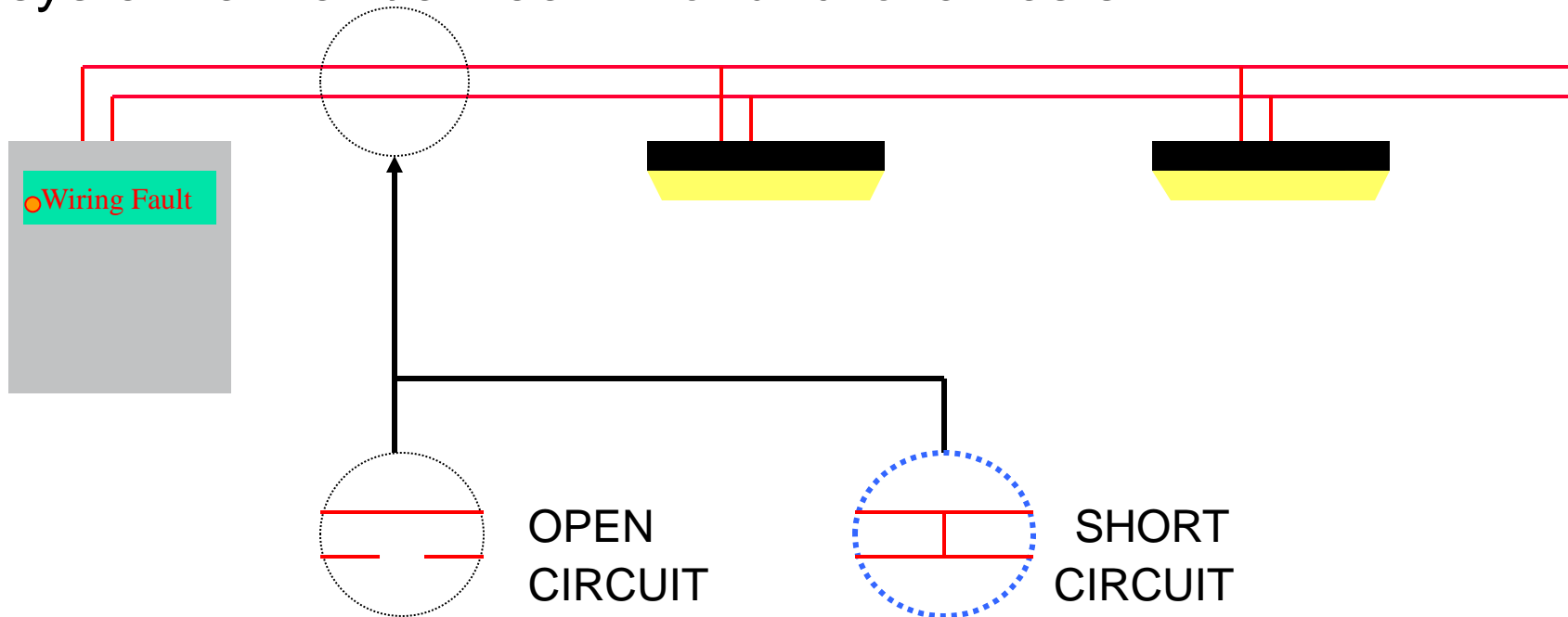
From remote Panel

BS EN 62034 System Requirements – Protection of operation if wiring fails



Wiring faults shall not inhibit emergency luminaire operation or initiate an unwanted test.

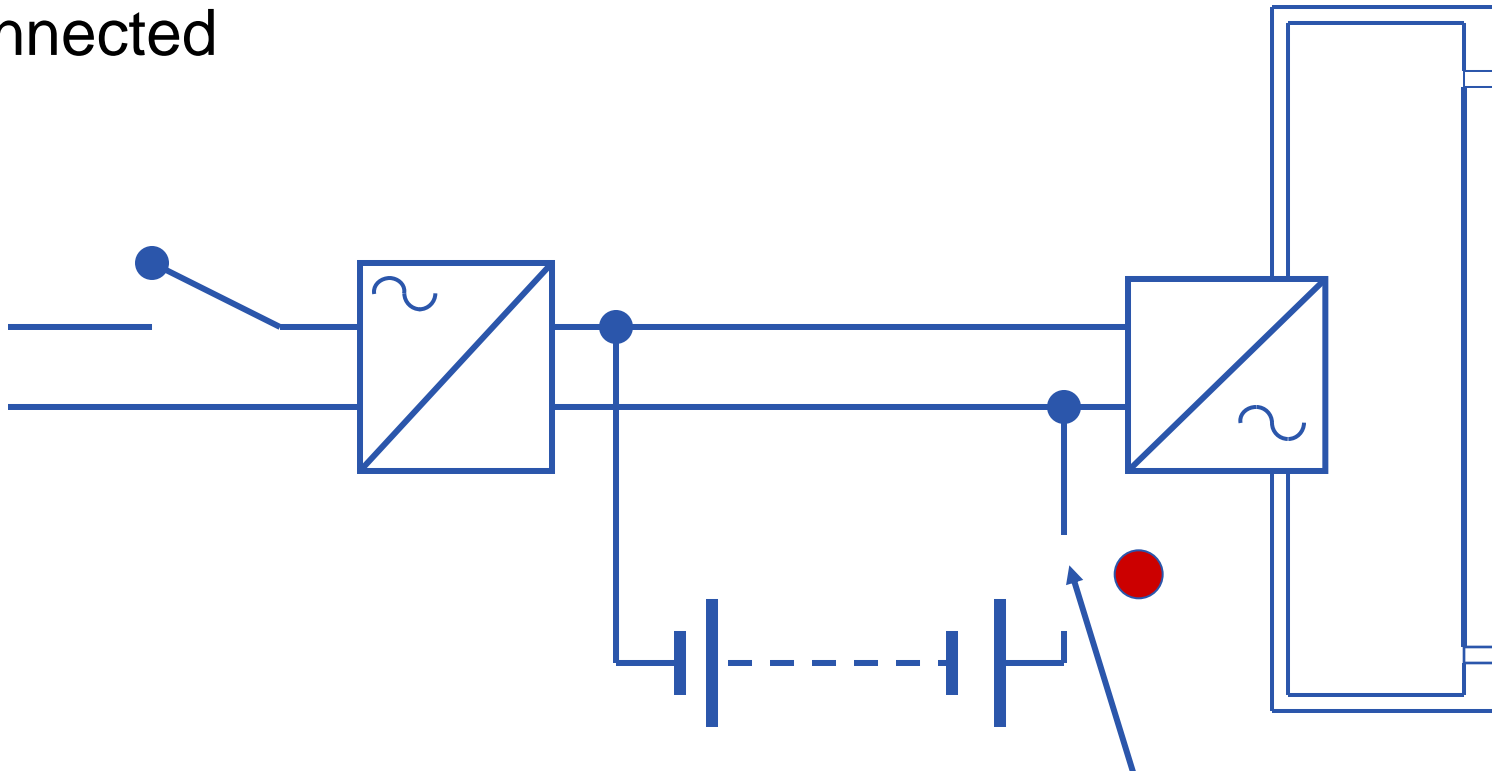
Indication of a communication fault must be given by the system either between two functional tests.



BS EN 62034 Functional Test – Emergency supply healthy



The test must check that the battery is available and connected

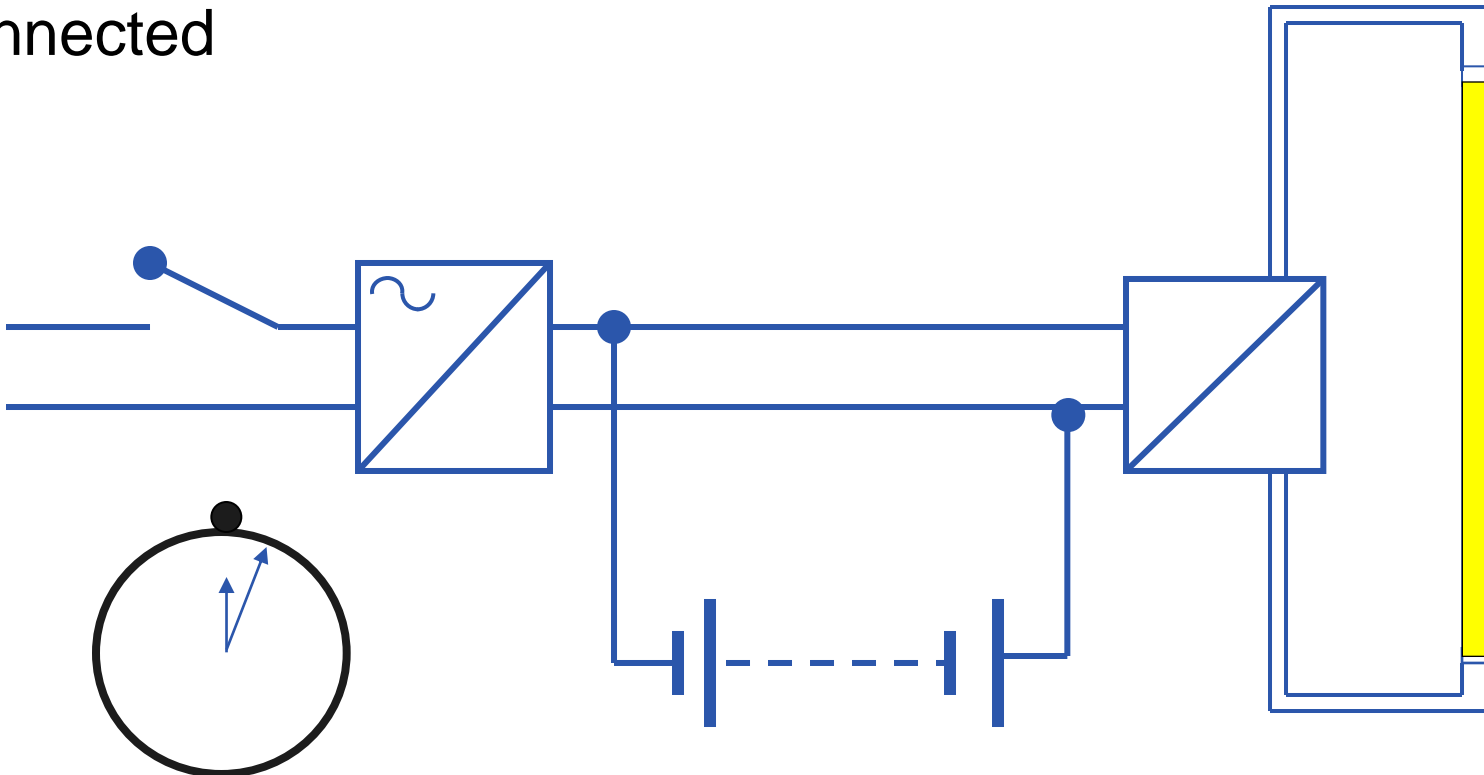


COMPLIANCE TEST Disconnection of the battery must give fault indication

BS EN 62034 Functional Test – Checks that circuit operates



The test must check that the battery is available and connected

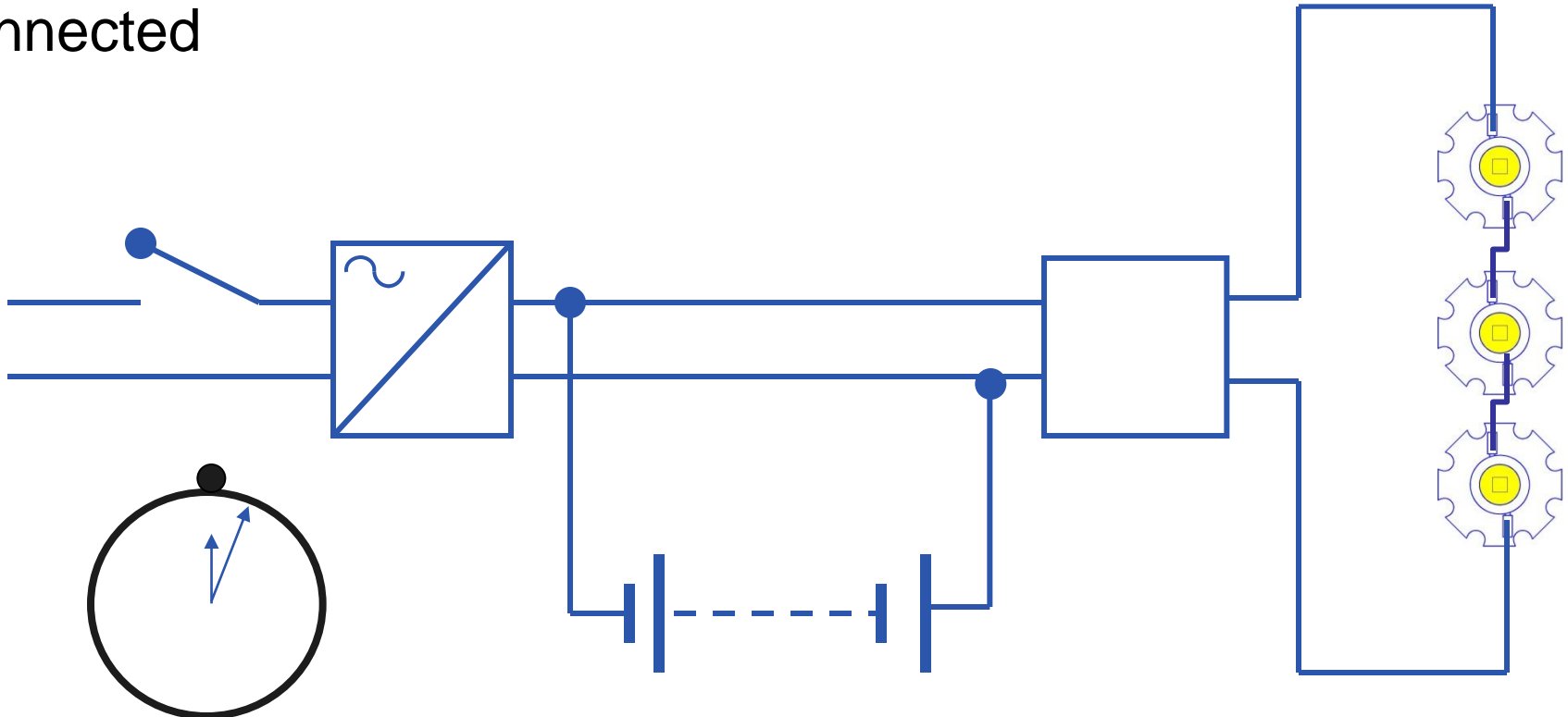


COMPLIANCE TEST - Function test must correctly operate the lamp from the battery – Typically monitor voltage/current for fluorescent lamp

BS EN 62034 Functional Test – Checks that circuit operates



The test must check that the battery is available and connected

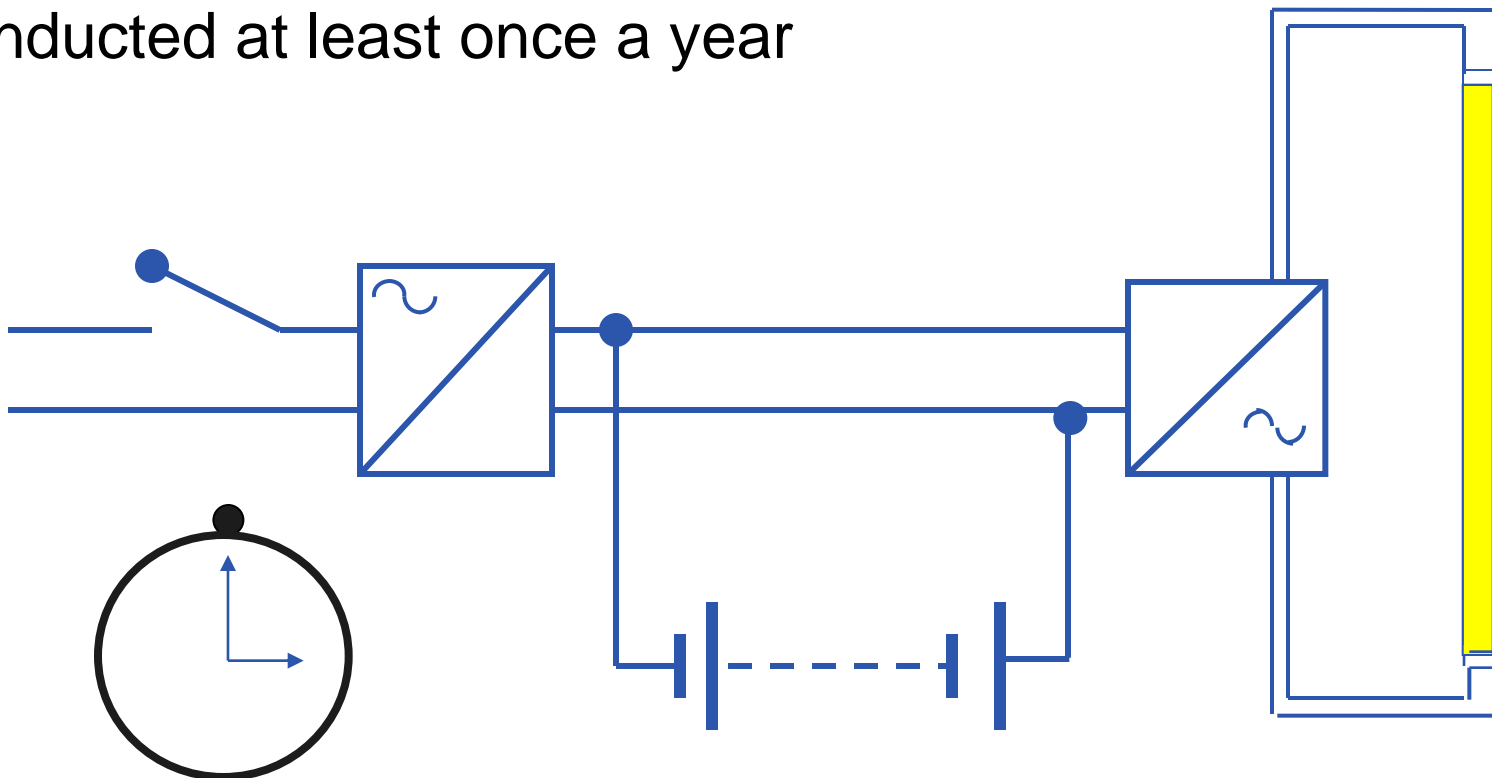


COMPLIANCE TEST - Function test must correctly operate the lamp from the battery – May need to monitor light output for LEDs

BS EN 62034 Duration Test – Checks operation for rated duration

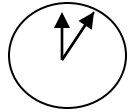


5.2 The duration test of circuit operation must be automatically conducted at least once a year



COMPLIANCE TEST - Circuit must operate the lamp for the rated duration

BS EN 62034 - System Requirements - Timing Accuracy, test intervals and duration



Where systems rely upon timing to perform the tests at correct times, the operation and accuracy of the timing device has to be checked.

Test data must be retained during extended power supply failures.


COMPLIANCE TEST

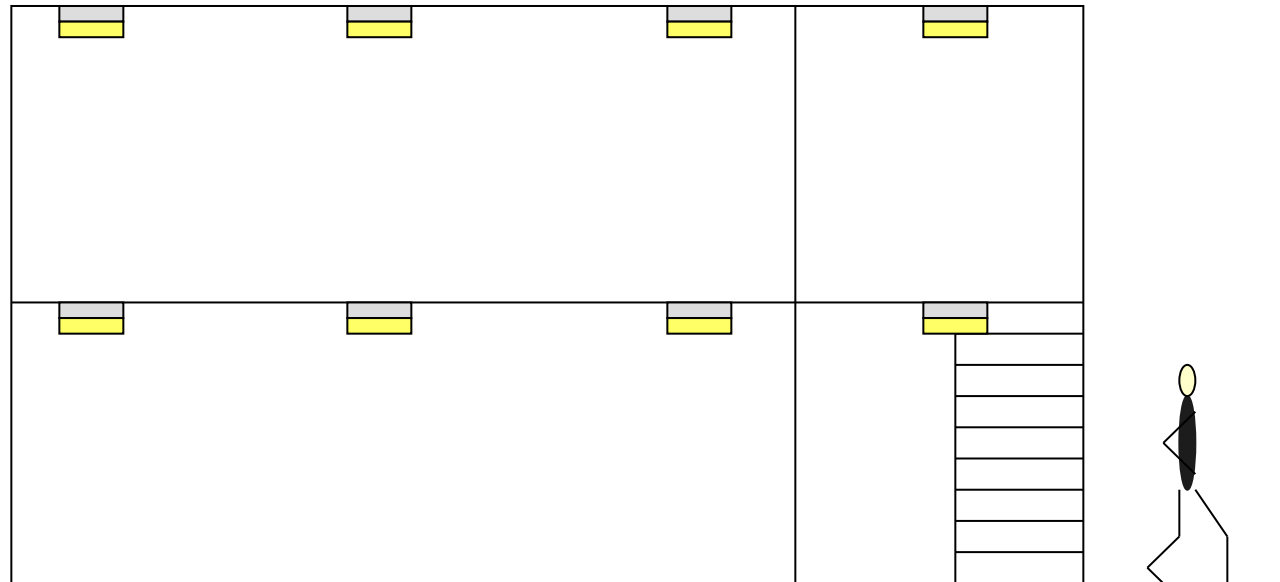
- Any failure of the timing circuit shall be indicated by the system
- The timer shall have an accuracy of better than 75 seconds per week
- The timing function shall be maintained through periods of supply failure of up to 7 days

Protection of occupants – Premises unoccupied during annual duration test.



The duration test cycle timing must perform the test when set to minimise the risks to occupants.


Emergency
luminaires
under test





Compliance test : Accurate timing for the initiation of the test and protection from extended supply failures of up to 7 days

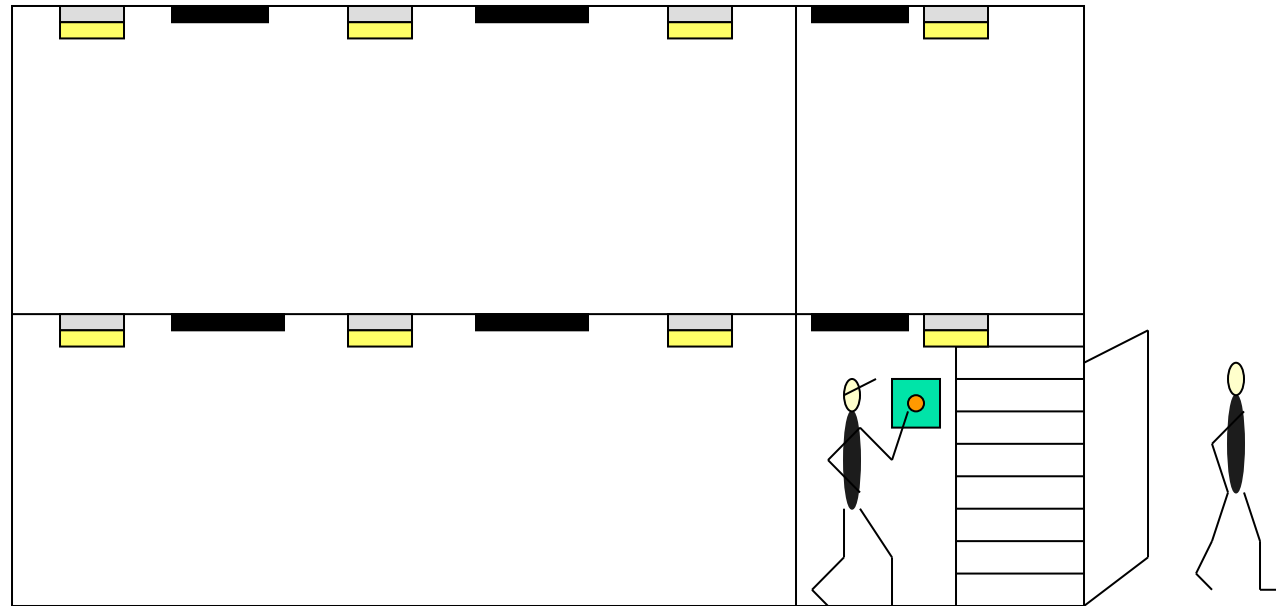
Protection of occupants – State of occupation unknown in advance



If it can not be predicted when the building will be empty for a full discharge test - Manual initiation can be used


Emergency
luminaires
under test


Mains
luminaire





Compliance test : Initiation can be manual providing a fault indicator or records of previous tests which indicates duration test not performed + **automatically return to normal**

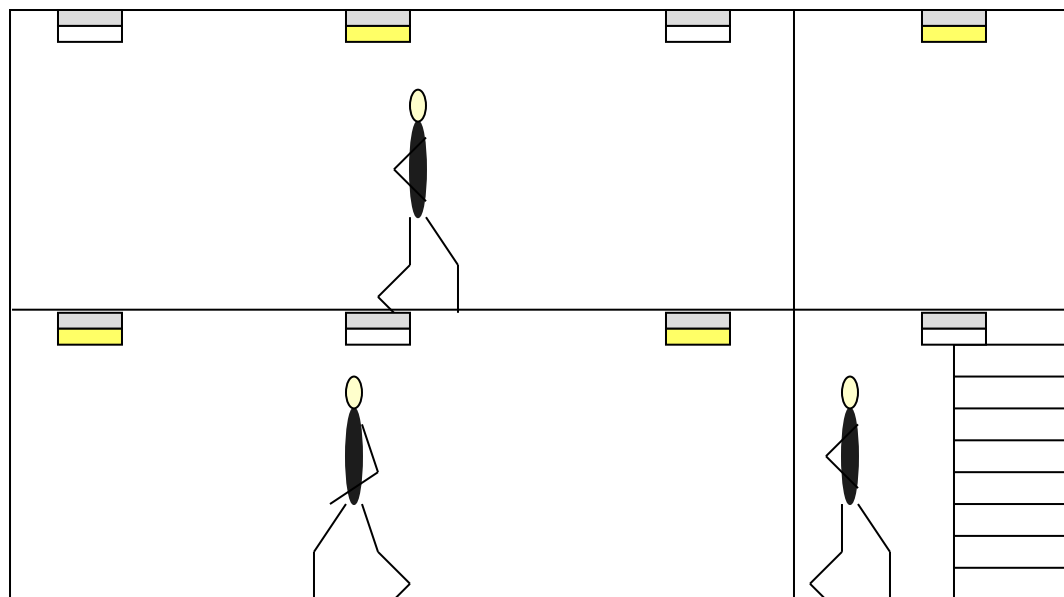
Protection of occupants – Premises that may be occupied at time of the duration test



If it is uncertain the building will be empty or occupied 24/7 for the full discharge test, self contained emergency lights can be tested alternately

 Emergency
luminaires
under test

 Charged
ready for use



Compliance test : Manufacturer to provide sufficient information relating to the timing intervals to ensures the timing is sufficiently long to prevent testing in same period

Automatic Testing - Central Battery Systems - Protection of occupants.



To ensure centrally powered systems perform the tests at periods of minimum risk, acceptable procedures are the use of :

- Manual Initiation of duration test (as with self- contained systems) & return to normal operation automatically
- Dual batteries and outputs to enable either alternate luminaires to be tested or the full system from each section of the battery.
- A limited discharge test – this can only be used when the batteries have a characteristic which enables their condition to be accurately assessed by a 2/3 discharge



Indication and recording of the results

- Automatic test system shall indicate results of all tests
- Result of test must be reliably indicated
- Indication of failure of a duration test shall not be cancelled by a functional test
- Test failure result shall be retained for 7 days with mains supply failure & be indicated when the supply is resumed. ATS will repeat the test
- Function indicators should comply with IEC 60073 & shall not contradict indicators defined in BS EN 60598-2-22

Guidance on use of ATS systems

Suitability of ATS for occupancy of premises



Suitable system type (Commissioning set up / test initiation type)	Premises type		
	Known to be unoccupied one year in advance	May be occupied at any time	Only known to be unoccupied 24 hours in advance
Self contained			
Luminaires set to operate full duration test at set time	✓		
Luminaires set to operate functional test at set times	✓	✓	✓
Alternate luminaires set to operate functional and/or full duration test at least 24 hours different from next luminaire	✓	✓	✓
Manual initiation of full duration test			✓

Guidance on use of ATS systems

Suitability of ATS for occupancy of premises



Suitable system type (Commissioning set up / test initiation type)	Premises type		
	Known to be unoccupied one year in advance	May be occupied at any time	Only known to be unoccupied 24 hours in advance
Central Systems			
All Luminaires set to operate full duration test	✓		
Manual initiation of all luminaires for functional test	✓	✓	✓
Dual Battery systems functional and full duration test	✓	✓	✓
Limited duration test to maintain one third capacity at end of test	✓	✓	✓