



智慧化綠建築

電器照明節能自動化控制元件

□ Content of the speech

- ▶ 為何需要綠建築
- ▶ Theben 德國 泰邦簡介
- ▶ Theben 產品介紹與應用
- ▶ Q & A

■■■ Climate changes

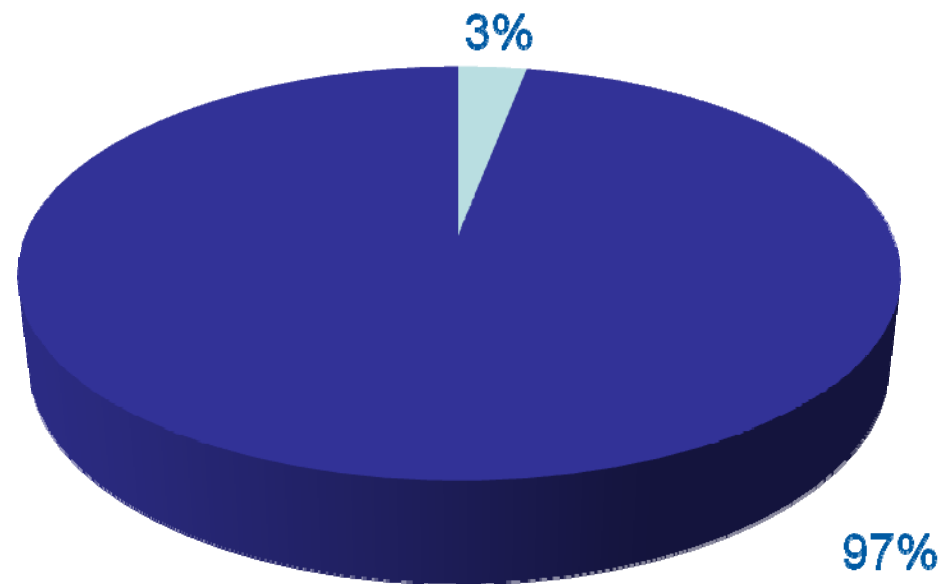


■■■ Energy costs are increasing



總建築量

■ 新建築 ■ 舊建築



-建築研究所

□傳統建築變綠建築

美國 2020年 完成500萬座建築物綠色改造計畫

德國 2001年起至今完成34萬座改造。

台灣 今年3月底 綠建築政策出爐

【打造低碳家園_由低碳社區邁向低碳城市】

預計未來四年斥資300億打造低碳示範城市。

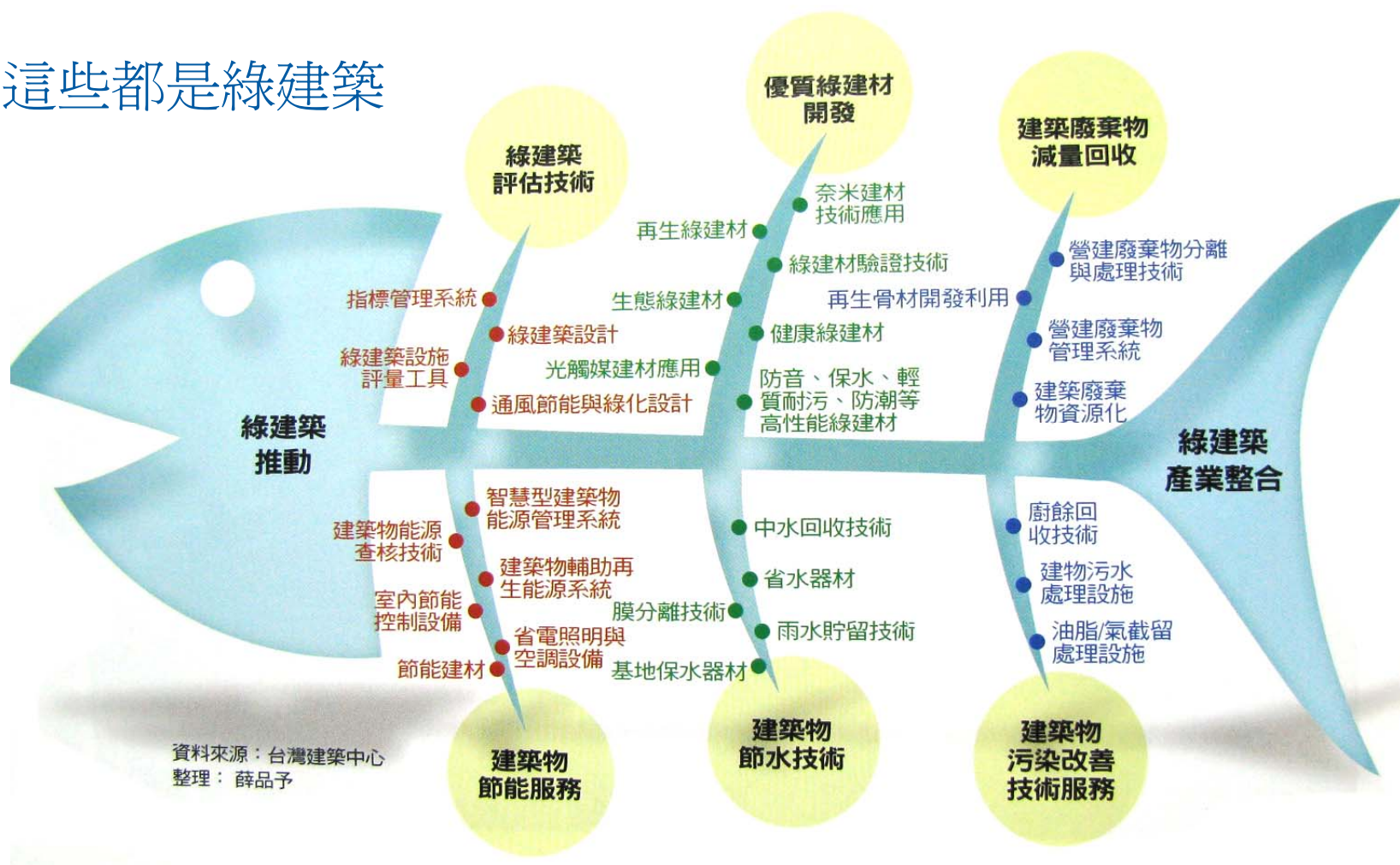
智慧綠建築計畫---帶動投資約50億元。

整體綠建材每年逾30億元。

政府已開始既有建築體的更新與改造計畫，從綠屋頂、水資源
基地保水、戶外遮棚、戶外照明、室內照明等6項生態手法進行
改善。

■商周 綠經濟

這些都是綠建築



□德國 泰邦

為時間、照明與空調的控制專家，無論是人員自動感知、照度感應控制、天文定時控制等，皆以人性化的介面與高品質著稱。

無論是居家、商辦、學校、戶外景觀、招牌等照明及電器自動控制都能提供您方便、可靠又省電的節能方案。

行銷全球超過53個國家，高精度的品質及精美的設計更獲2010年德國IF設計大獎。



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□ Theben system

Time-

Analogue / digital / Astronomical

Light-

Motion detectors/ Presence detectors / Twilight

Daily timeswitch with power reserve



SUL 181 d

With power reserve

Functions

- Mechanical timeswitch (1 channel)
- Day program
- 100 hours power reserve (110V)
- Segment ring with 15-minutes-segments
- 3-position manual switch: **ON-AUTO-OFF** and additional switching pre-selection
- Clock hands (with 12h / 24h indication)
- Switching capacity: $\cos \theta = 1(16A)$ / $\cos \theta = 0.6(4A)$
- Ambient temperature - 20°C ... + 55°C
- Switching accuracy $\leq \pm 1$ s/day
- fast connection clamps



TR 610 top2

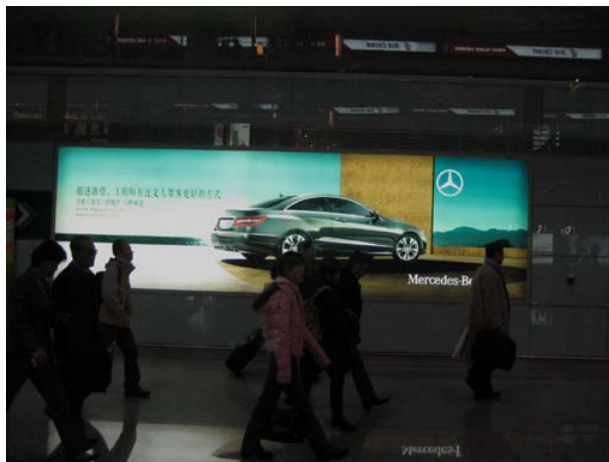
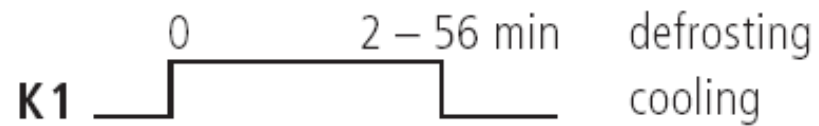
With power reserve

Functions

- Digital time switch with weekly program
- Mechanical timeswitch (1 channel)
- Button for releasing plug-in connection
- 56 memory locations
- Interface for OBELISK top2 memory card (PC programming)
- 10 year power reserve (lithium battery)
- Zero-cross switching for relay-saving switching and high lamp loads
- Integrated operating hour counter
- Service function for monitoring maintenance intervals
- Incandescent/halogen lamps: 2600W
- Switching capacity: $\cos \theta = 1(16A)$ / $\cos \theta = 0.6(10A)$
- Holiday program
- PIN coding
- Ambient temperature - 20°C ... + 55°C

e.g.

- Defrosting of industrial fridges



e.g.

- Pump controls
- Irrigation controls
- Fountain controls



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SELEKTA top2

Astronomical time switch (Solar time switch)



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Astronomical time switch / Solar time switch

What is a solar time switch?

An solar time switch, like SELEKTA 170 top2

- calculates the sunrise and sunset times
- for each day of the year

Sunrise and sunset times

- vary from location to location around the world
- depend upon the time zone

Switching times are therefore calculated from:

- longitude
- latitude
- date and time zone



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SELEKTA 170 top2

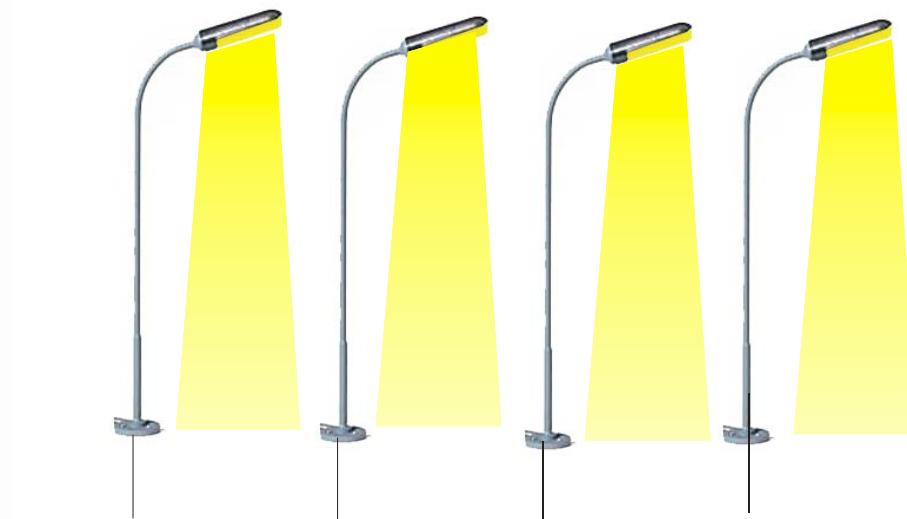
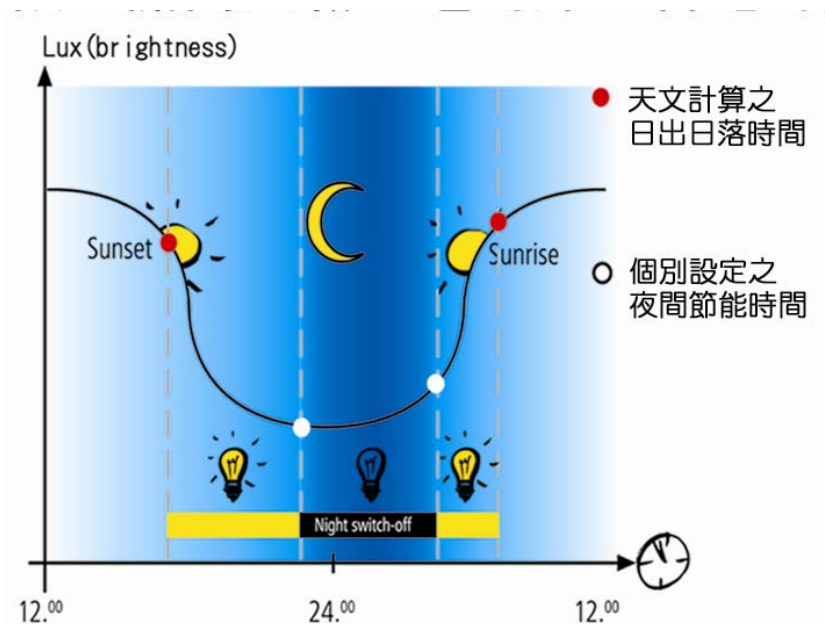


- 1 channel
- DuoFix fast connection clamps
- 16 A relay with zero-point switching
- Extended list of countries and cities
- Own cities programmable (favorites)
- Offset function to adjust the sunrise or sunset time up to 120min
- Programmable via OBELISK top2 memory card (not included) via the OBELISK top2 programming software
- Incandescent/halogen lamps: 2600W
- Switching capacity: $\cos \theta = 1(16A)$ / $\cos \theta = 0.6(10A)$
- LCD backlight
- 10 years power reserve
- 54 memory spaces

What are the benefits of an solar time switch?



- Precisely calculated switching times
- Accurate knowledge of daylight hours
- No external sensor required
(less cabling work, no dirty sensor)
- No constraints concerning place of installation
- Possible to shift switching point (Offset)
- Depending on type solar and time switch function



Function:

Channel 1 of the solar timer



Follows the calculated sun set/ sun rise times



Option: night break for energysafing

What are the applications for a solar time switch?

- Street lighting
- Display window lighting
- Billboard lighting
- Courtyard entrance lighting
- Car parking
- etc.



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□ LUNA series

LUNA 109



LUNA 112 top2



- **LUNA 109**



- Analogue light control device (1 channel)
- 35 mm width (2 modules)
- DuoFix fast connection clamps
- 16 A relay
- Brightness-range: 2 – 2000 lux
- Switch-on / switch off delay: 60 sec.
- Incandescent/halogen lamps: 2300W
- Switching capacity: $\cos \theta = 1(16A)$ / fluorescent lamp(10AX)
- Red LED for undelayed indication of the switching status
- Green LED for indication of the relay status
- Test-button to test the installation independently from the outside brightness

Functionality of a twilight switch

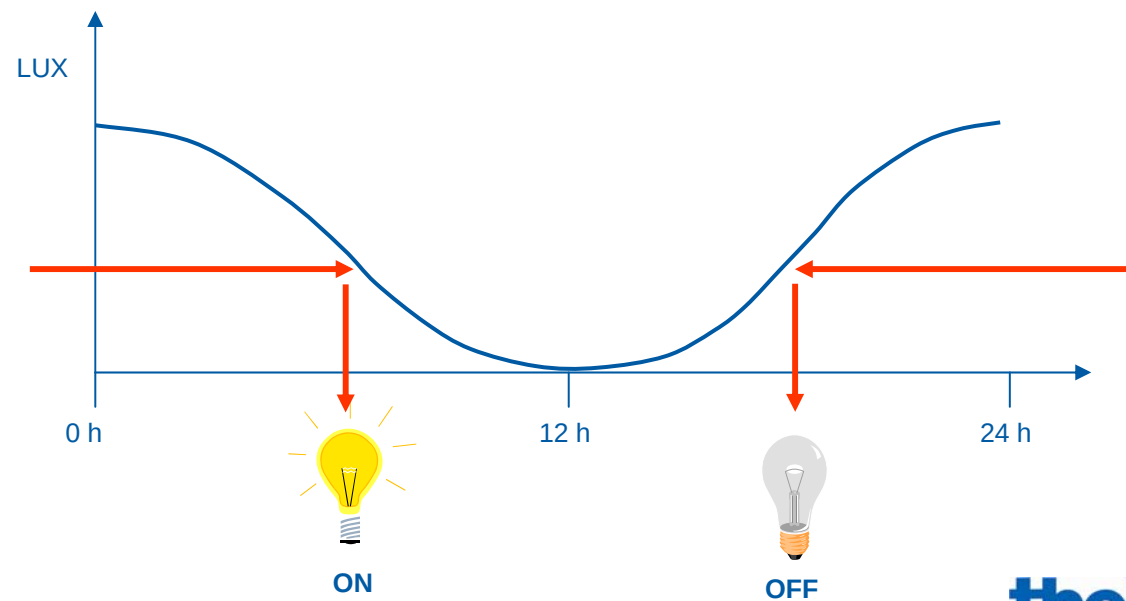


Twilight switches

- A light sensor (photo-resistor) measures the ambient brightness.
- The twilight switch switches the electric circuit on or off, depending on the set brightness of the twilight switch



Functionality of a twilight switch



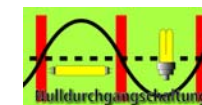
Below defined
brightness
e.g. 20 Lux

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□ LUNA 112 top2



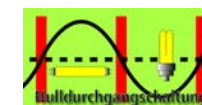
- Digital light control device (2 channels)
- 54mm width (but 35mm LCD)
- Duo Fix fast connection clamps
- 2 x 16 A relays with zero-point switching
- Switching capacity: $\cos \theta = 1 (16A)$ / $\cos \theta = 0.6 (10A)$
fluorescent lamp(10AX)
- Digital brightness-range: 2 – 99.000 lux
- Switch-on / Switch off delay: 0 – 59 min. (digital)
- Different settings for On and Off switching
(different lux values, different delay times)



□ LUNA 112 top2

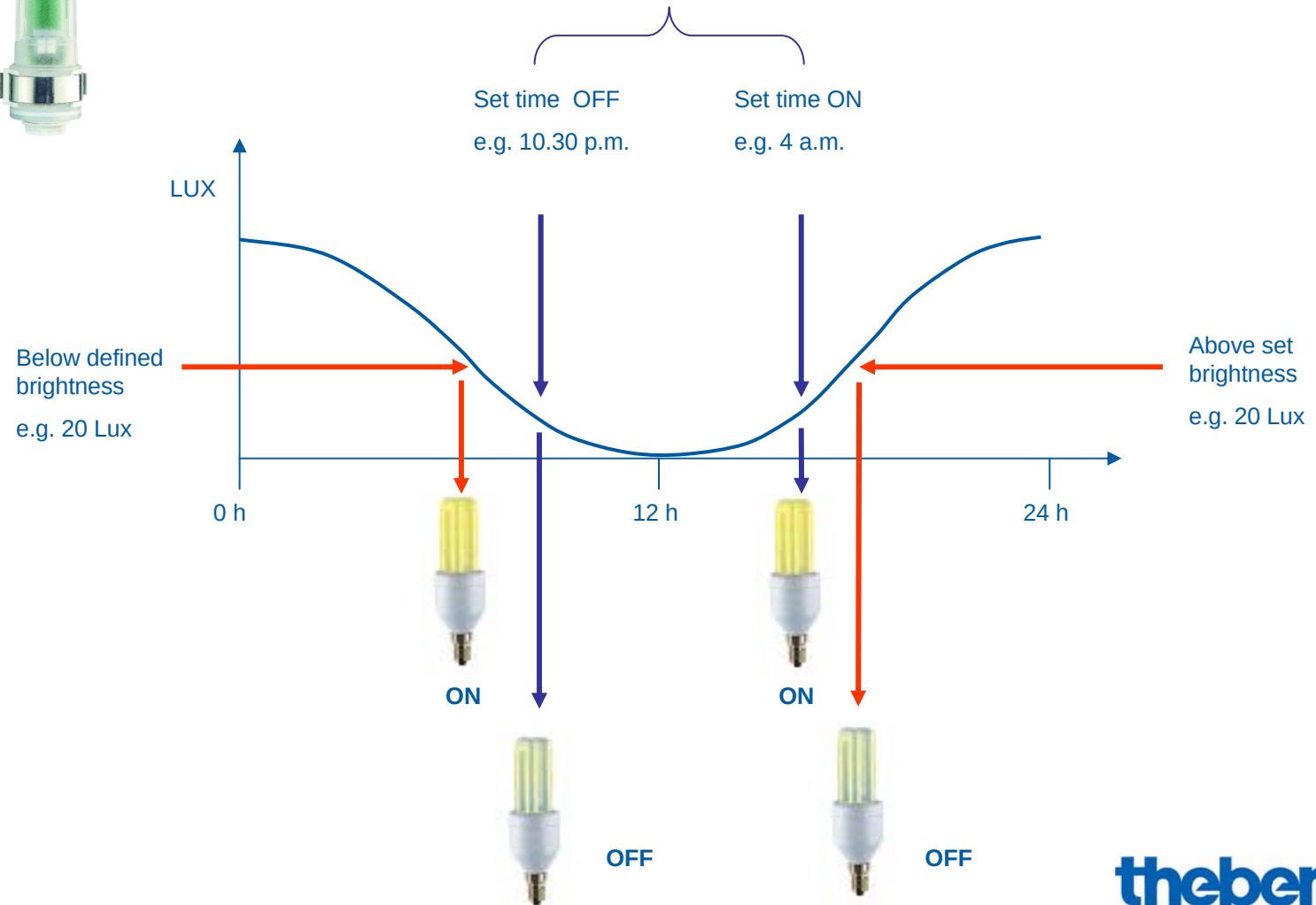


- **2 external inputs** with multiple functions (perm on, perm off,...)
- **Up to 4 digital sensors** suitable for connection to one LUNA 112 top2
- **Up to 10 LUNA 112 top2** devices suitable for connection to one digital sensor
- Programmable via OBELISK top2 memory card (not included), OBELISK top2 programming software
- LCD backlight
- 10 years power reserve





Night break, to save energy



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Light control depending from the outside brightness

- Lighting to suit the brightness
 - Lighting **courtyards** and **paths**
 - Lighting shop windows and **shops**
 - Lighting rooms and **stairwells**
 - Illuminated **advertising**
 - Lighting car **parks**
 - Etc.



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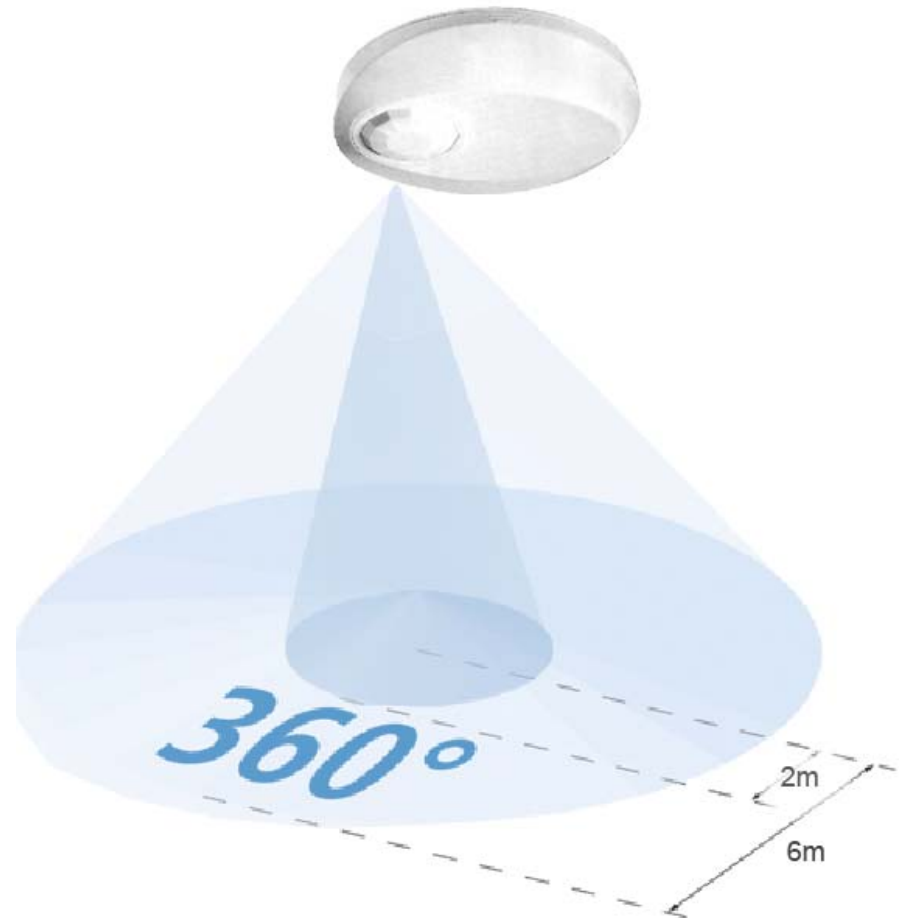
e.g.

- Streetlights
- Billboards
- Building lights



LUNA 360 P

- ✓ 1- channel
- ✓ Ideal for installation on ceilings
- ✓ Quick and easy plug-in installation
- ✓ Ideal for retrofitting



- Walking diagonally to the detector
- Walking head on to the detector

Applications

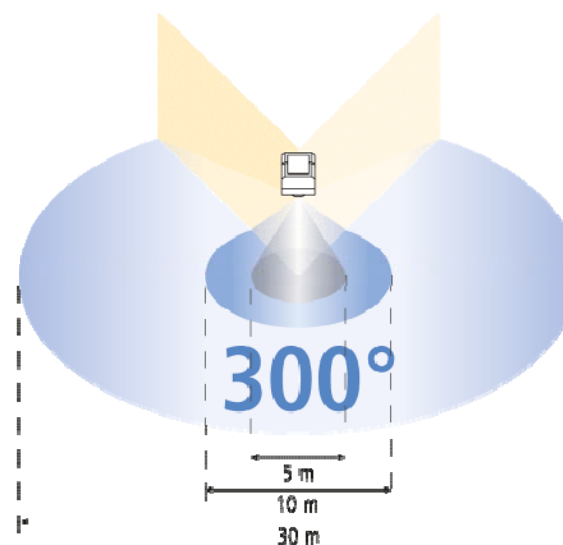
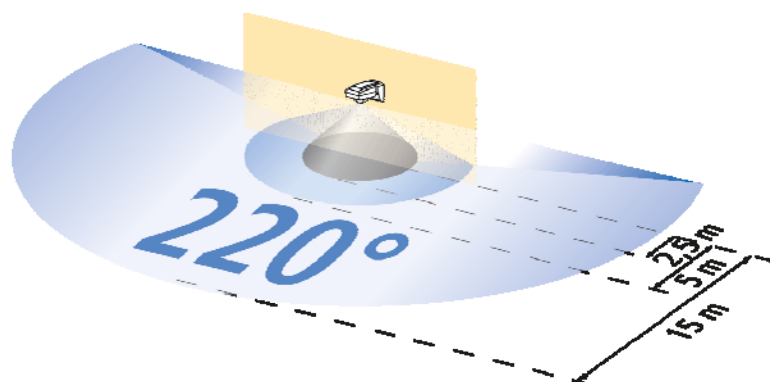


Carridors
Staircases
Toilets
Hospitals



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SPHINX 105-220 detection field



- Walking diagonally to the detector
- Walking head on to the detector
- Creep under protection

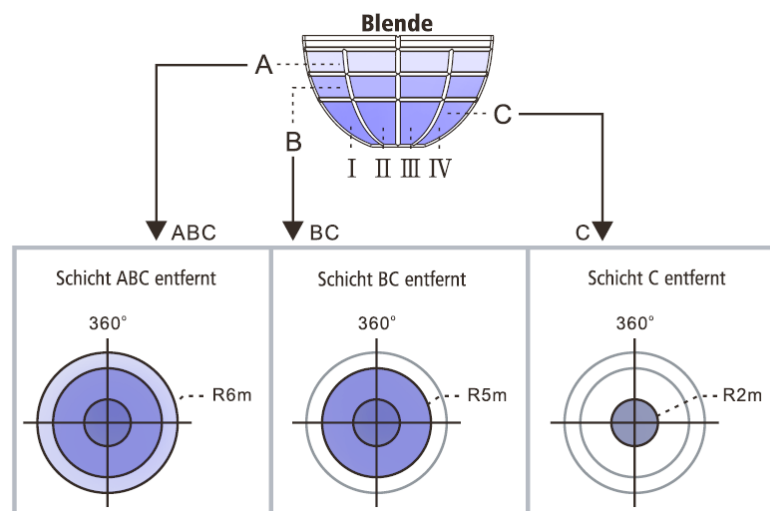
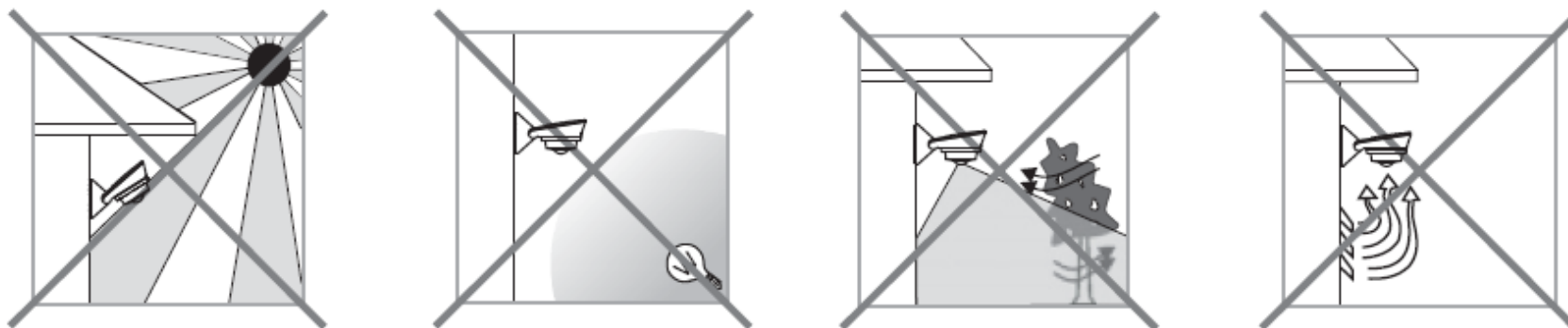


SPHINX 105-xxx

- ☑ Detection fields 110°, 220°, 300° (max. 15 m)
- ☑ Sensor head adjustable
 - up / downadjusted horizontally by $\pm 90^\circ$, vertically by 90°
 - lense turnable clockwise and anticlockwise
- ☑ Under creep protection (option: deactivable)
- ☑ Corner wall installation with optional corner installation bracket for internal and external corners



As the detector responds to changes in temperature, avoid the following situations:



Applications

Parking areas

corridor

Loading ramps

Entrances



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Applications

Main Entrances

Gardens

Carports



- Light controller by presence



Light controllers



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- **Lightscontroller light depending**



- **Light controller light depending for outdoor use**



Sensors



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Global warming – time to change

