ABB i-bus® EIB

Shutter Control Unit




Shutter Control Unit, MDRC JSB/S 1.1

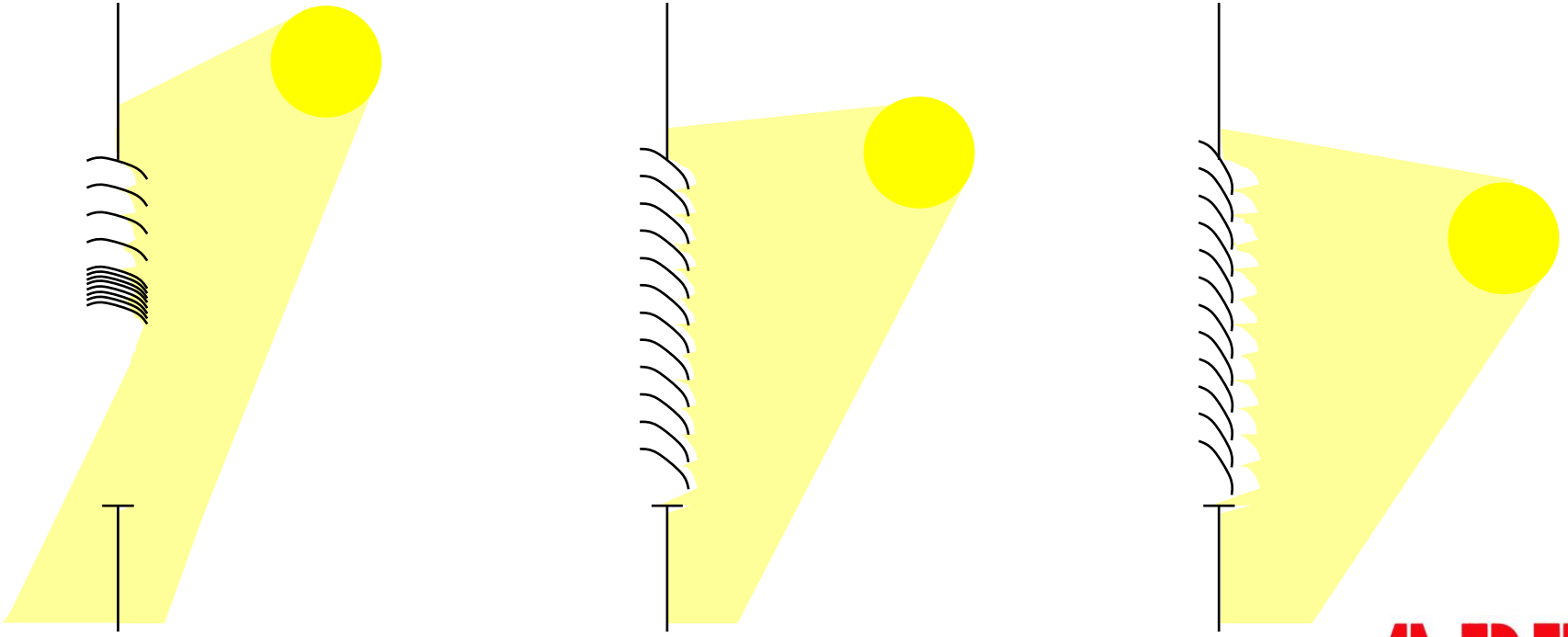
- **Introduction, application, planning**
- Parameters
- Communication objects

Shutter Control Unit, MDRC JSB/S 1.1

- Tracking the position of the sun
- Applications:
  - anti-glare protection
  - daylight redirection
- Installation on DIN rail
- 2 modules width
- Bus connection terminal

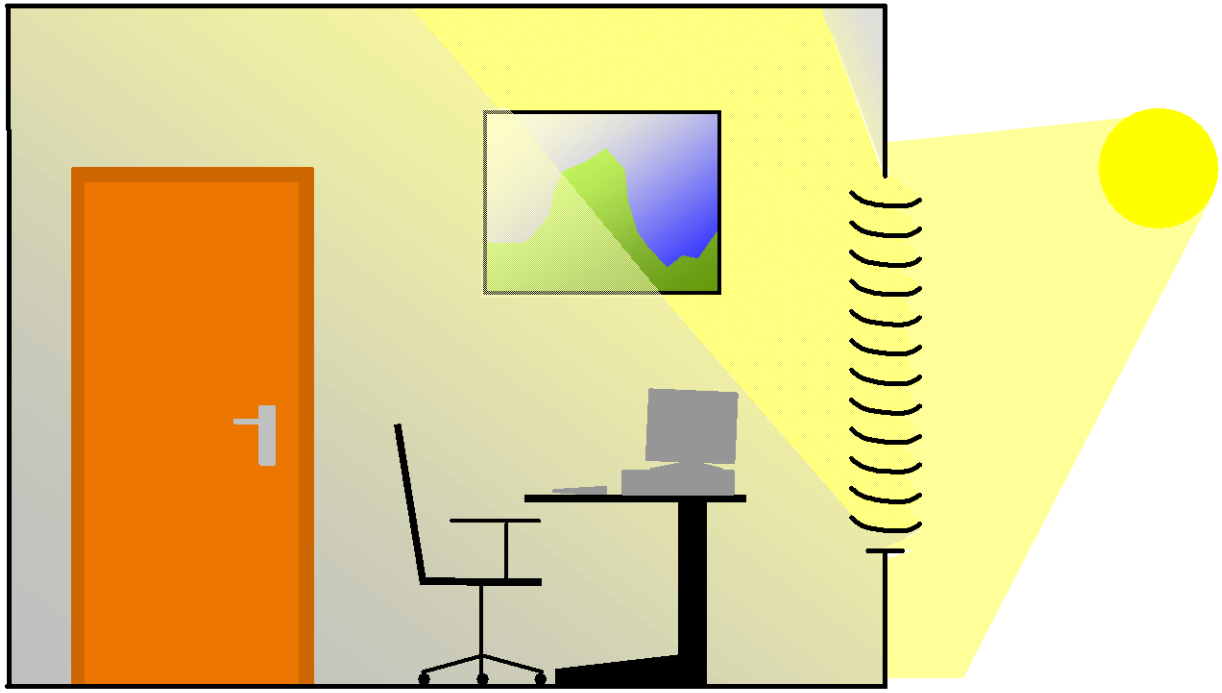
Anti-glare protection

- Protection against direct, dazzling daylight
- Maximum use of diffuse daylight



Daylight redirection

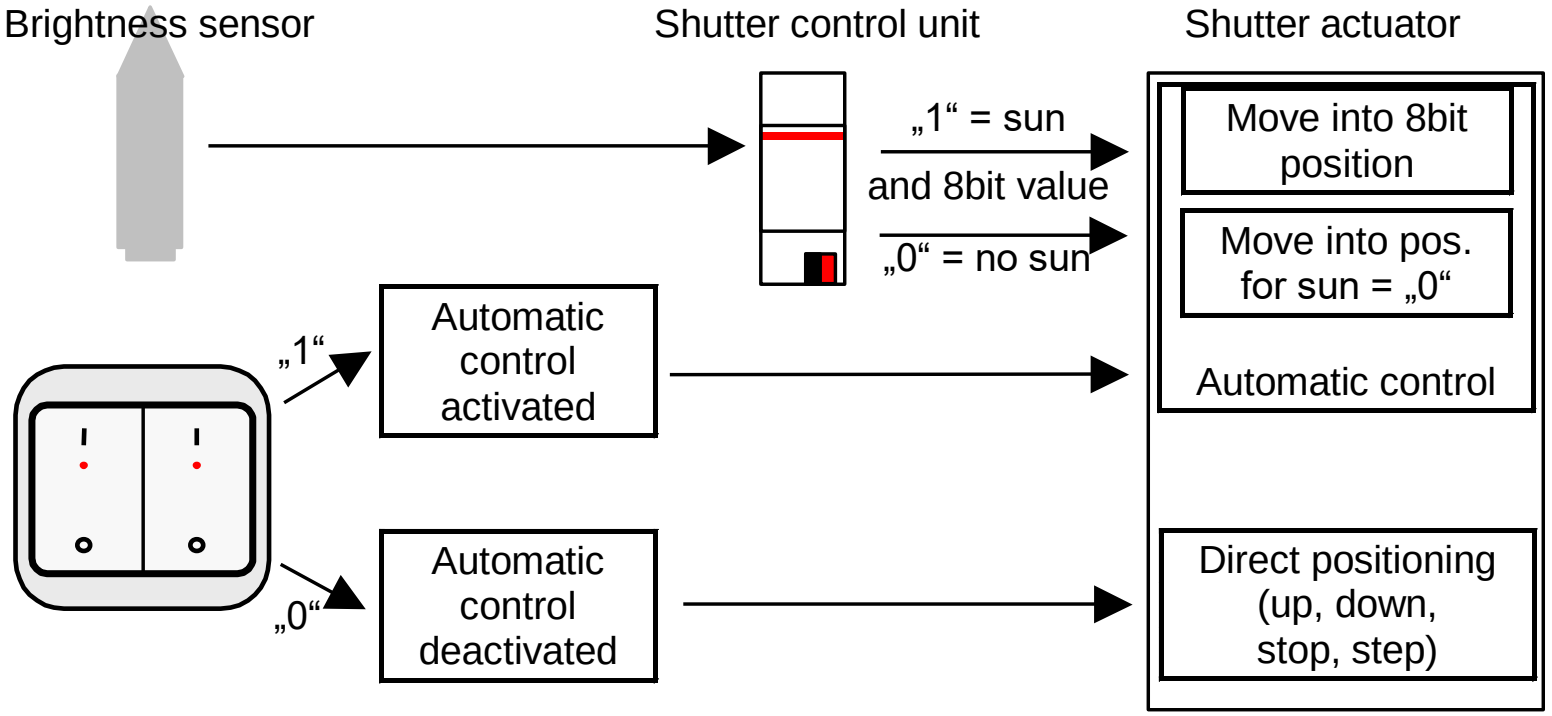
- Protection against direct, dazzling daylight
- Defined direction of daylight into the room



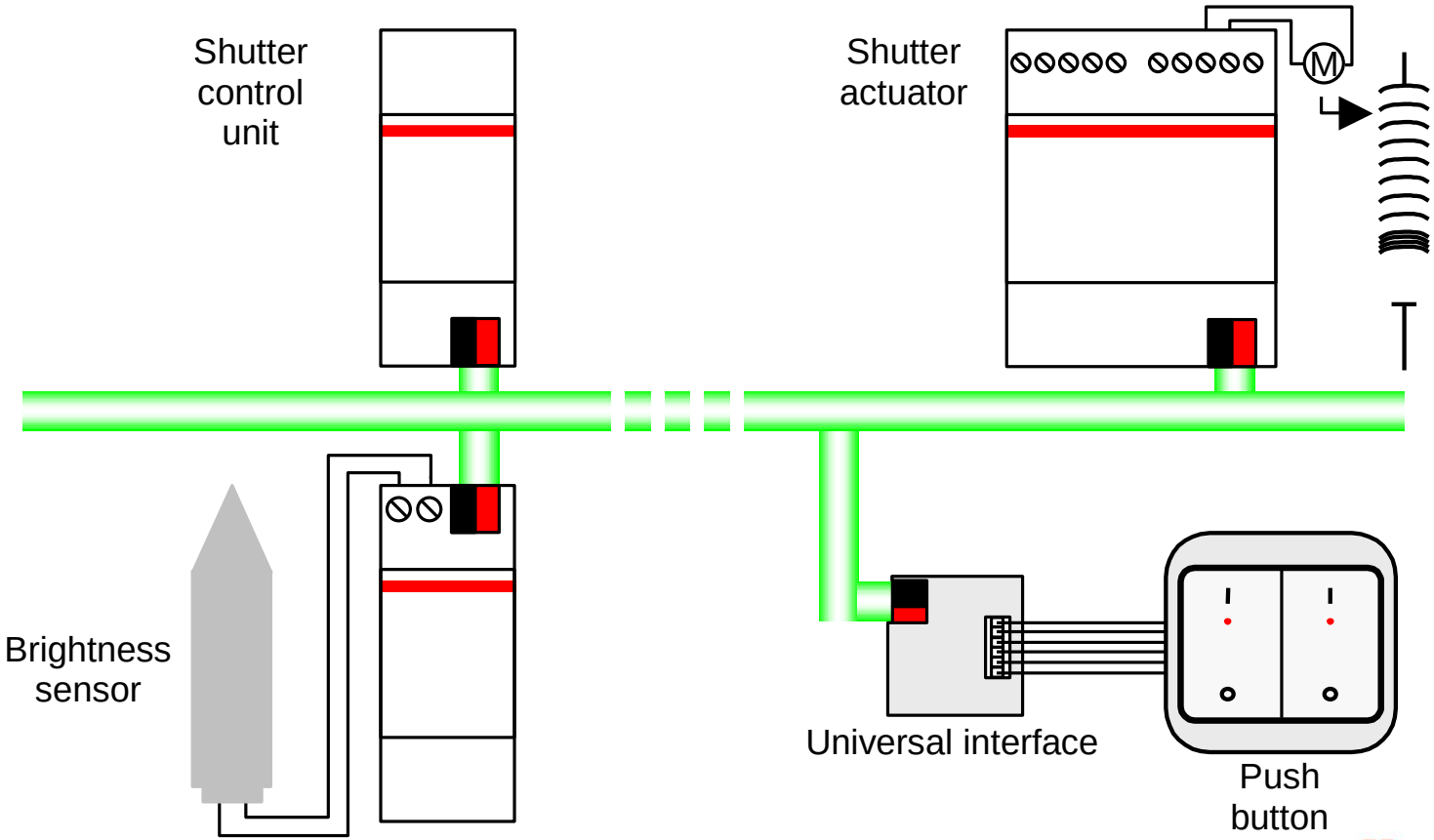
Functions

- 4 façades per shutter control unit
- Per façade adjustable operation mode:
  - horizontal louvres
  - horizontal louvres with light redirection
  - vertical louvres
- 20 shadow objects (e.g. buildings, trees) per unit
- Structuring of the façade:
  - without shadow objects: all windows equal
  - with shadow objects: up to 200 windows individually (4 façade with 50 windows each)
  - shutter control units can be operated in parallel

Setting of a shutter control system using sun position tracking



Planning of a shutter control system using sun position tracking



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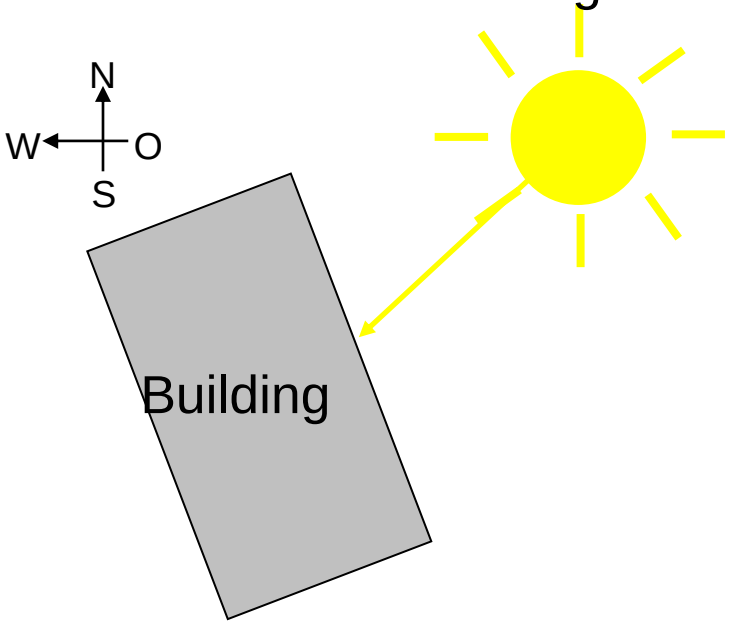
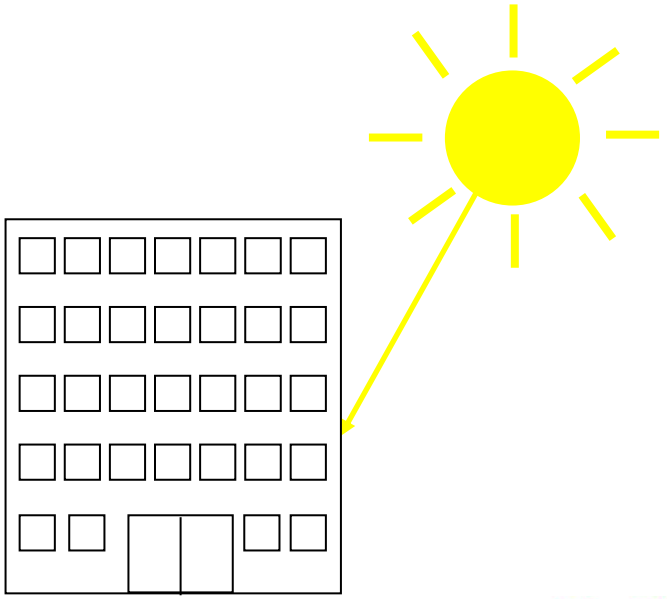
Calculation of the sun position

- Building position: latitude, longitude
- Date, time

Plan view of building



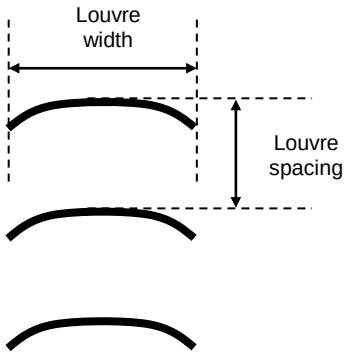
Side view of building



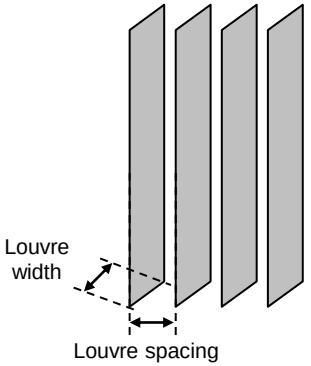
Louvre dimensions

- Louvre width, louvre spacing

Horizontal louvres



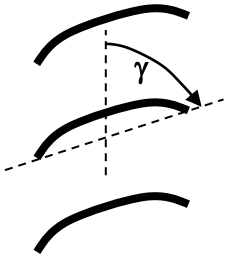
Vertical louvres



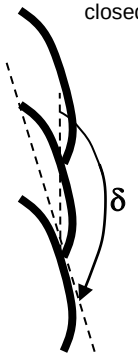
- Angle for louvres fully opened and fully closed

Horizontal louvres

Louvres fully opened

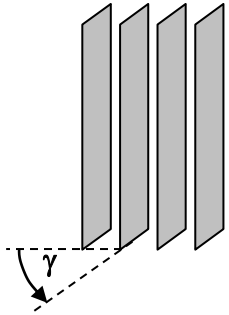


Louvres fully closed

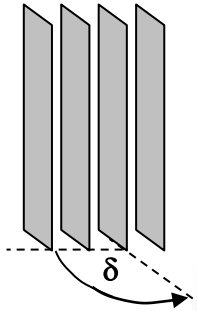


Vertical louvres

Louvres fully opened

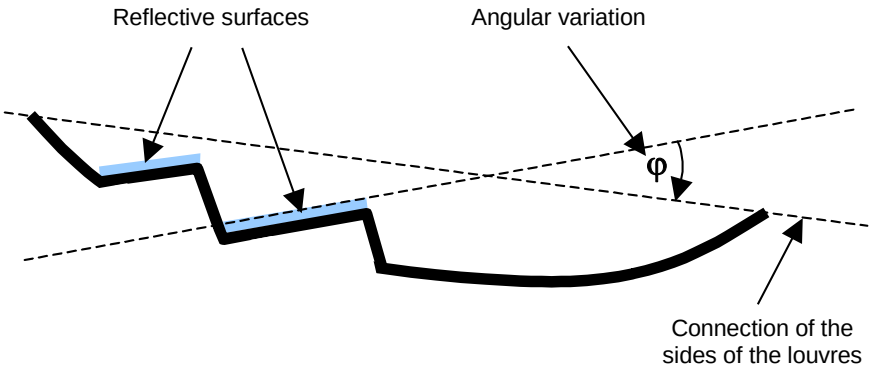


Louvres fully closed

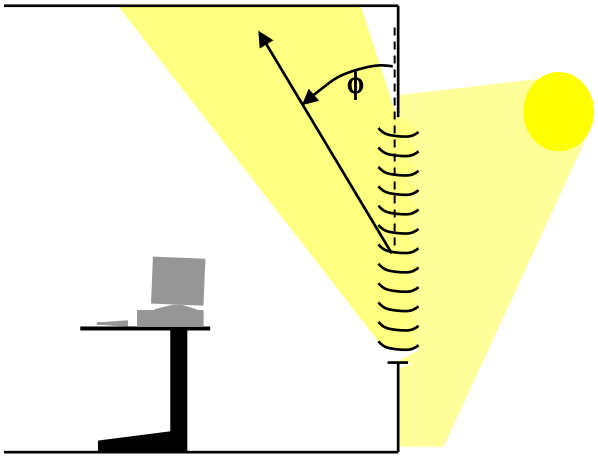


Horizontal louvres with light redirection

- Angular deviation of the reflective surface

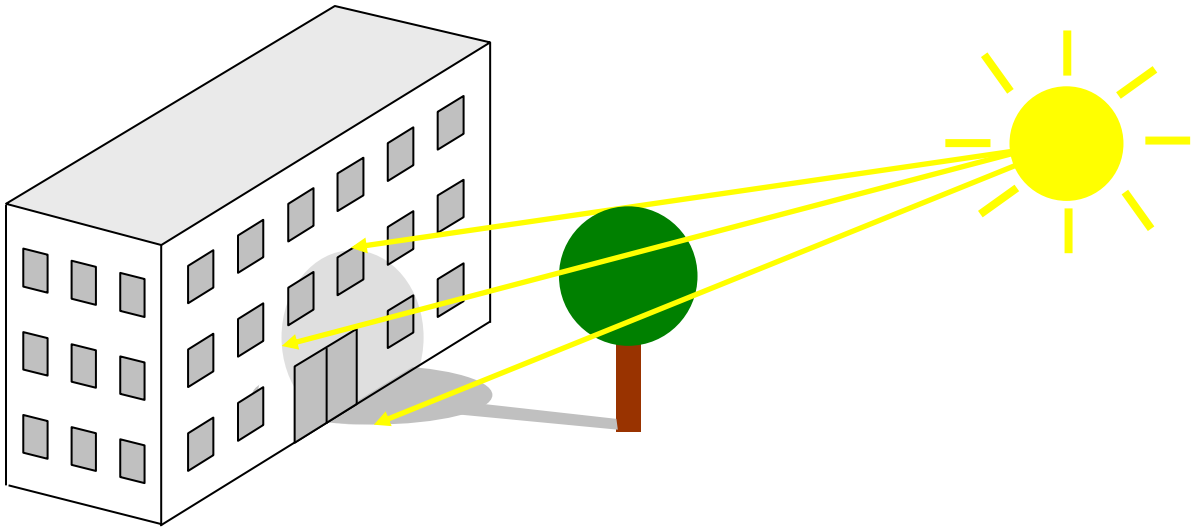


- Light emission angle



Effect of shadow objects (e.g. buildings, trees)

- Division of the windows of the façade
  - window grid
    (same sizes and intervals of windows)
  - user-defined (each window individually)



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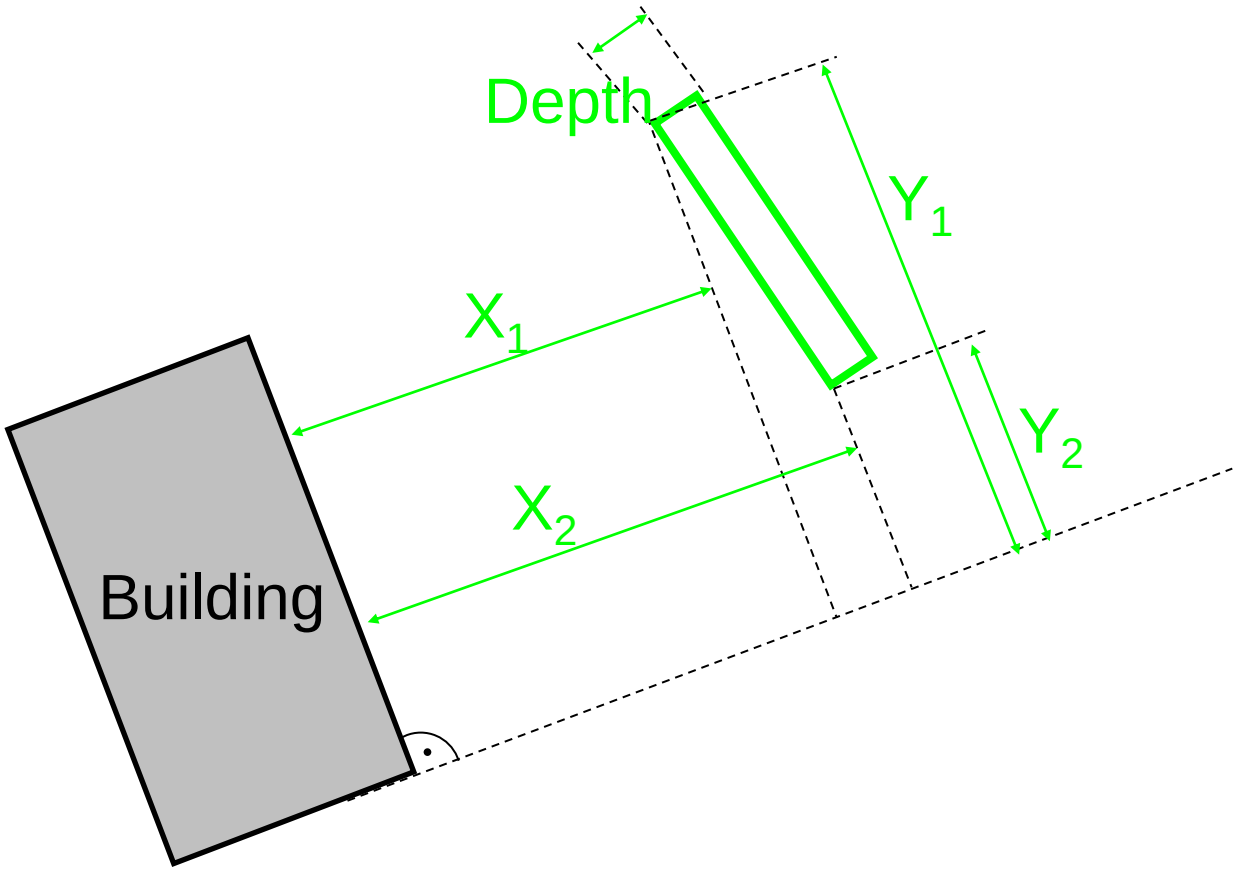
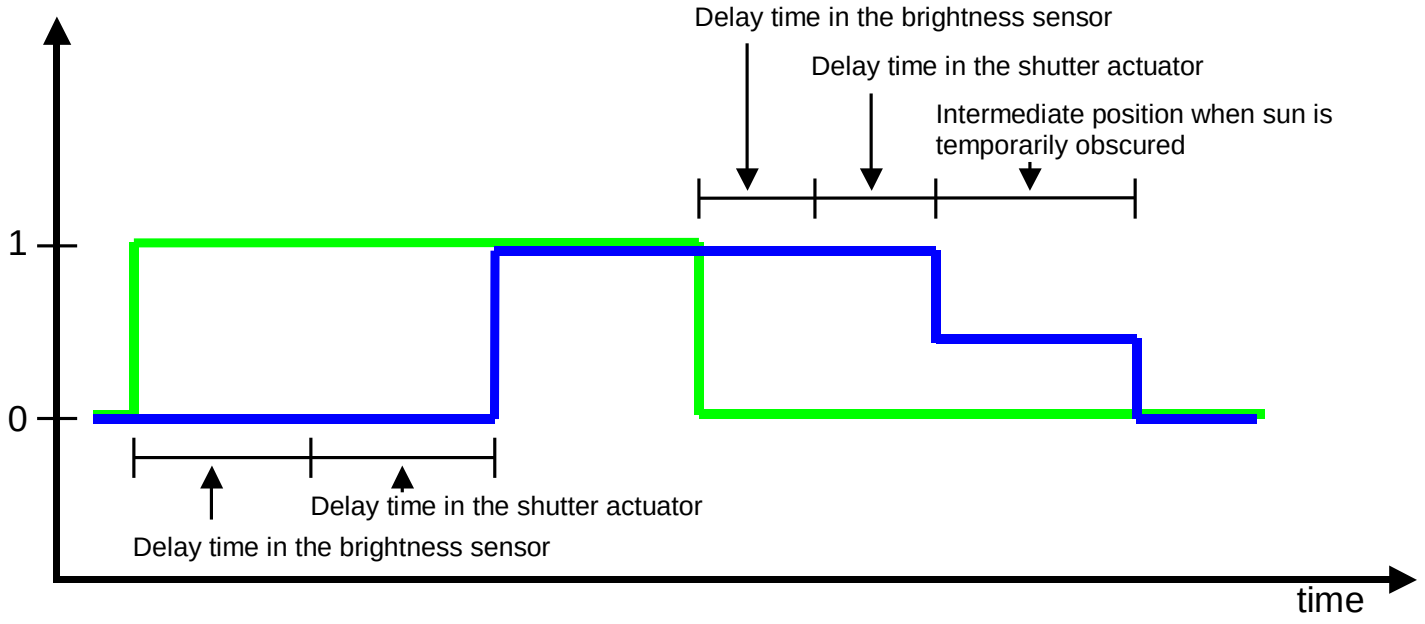
- Parameterization of shadow objects



Delay periods

- Delay periods (shutter actuator, brightness sensor)
- Intermediate position when sun is temporarily obscured



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- **Communication objects**

Communication objects „Brightness“

- Number:
  up the 4 brightness sensors
  (typically: 3 -> east, south, west)
- Brightness levels:
  Up to 2 (normal / dazzling)
  -> Overriding dependent on actual brightness level
- Type of brightness sensor:
  minimum: 0 bis 20.000 Lux
  better: 0 bis 100.000 Lux or pyranometer
- Delay periods and intermediate position

Communication objects „Date“ and „Time“

- 2 communication objects for each „Date“ and „Time“ (input and output)
- Shutter control unit as slave, master or seperate

Communication objects „Sun“, „Sun position“ and „Sun louvres“

- Sun = „1“: the sun is shining
  -> „move to sun position 0..255“ and
  „move to sun louvres 0..255“
- Sun = „0“: the sun is not shining
  -> position for sun = „0“
  (corresponding to the parameter setting in the shutter actuator)
- Up to 200 communication objects „Sun“ possible
  (4 façades with 50 windows each)


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