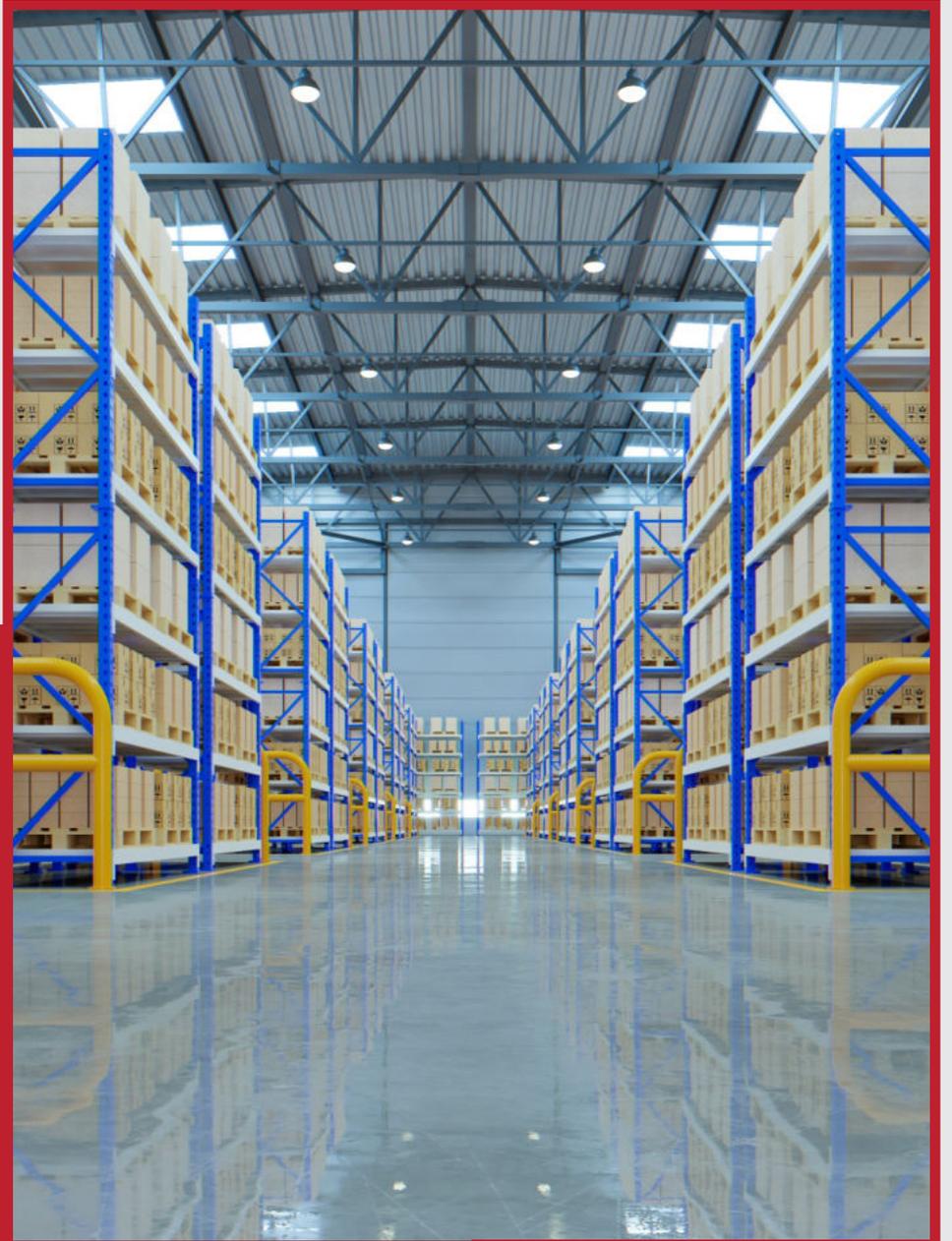


# Smart Warehouse

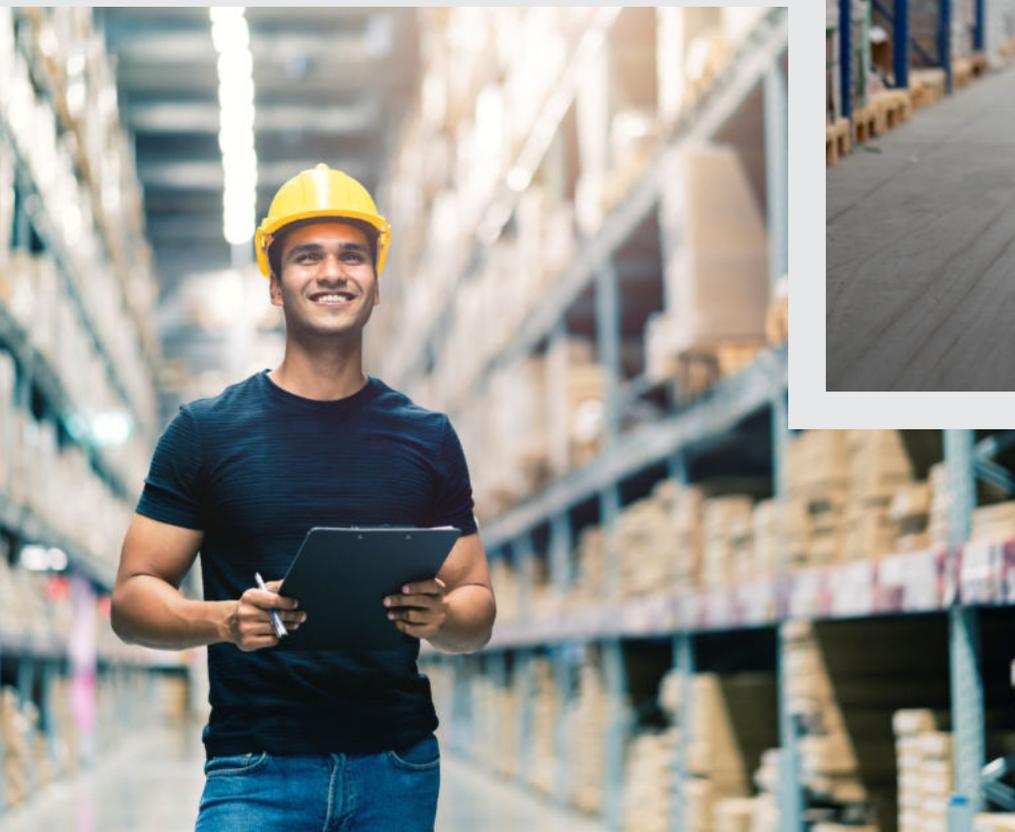
—  
Lighting &  
Automation





**RENO  
VATION**

**UPGRADE**



**DIGITAL  
IZATION**

## Luminaires with Inbuilt Sensors

- Highbays
- Indoor Luminaires
- Industrial Battens
- Outdoor Luminaires
- Eco Battens



## Sensors For Warehouse Applications

- Light ON-OFF
- Light + HVAC or Fan ON-OFF
- Dimming and Daylight Harvesting Sensors
- Highbay Sensors
- 2 Channel Meeting Room Sensors
- DALI-2 LMS Sensors



## Special Application Warehouse Luminaires

- Highbays
- Indoor Luminaires
- Industrial Battens
- Outdoor Luminaires
- Eco Battens
- Fire Escape Luminaires





### Heighted aisle Area

**Lighting:** Switch to High efficacy LED Lights (Preferably Linear Modular).

**Upgrade:** (1) Use High bay Sensors for Occupancy based switching, Orientation Dimming & Daylight Harvesting OR  
(2) Use Daylight harvesting High bays with Inbuilt Sensor.

### Low Height aisle

**Lighting:** LED batterns design for industrial applications.

**Upgrade:** (1) Use Core Sensor (with detection control mask)/Surface PIR / HF Sensor for Automatic ON-OFF of lights based on movements at the isles.



### Heighted Open Area

**Lighting:** Switch to High efficacy LED Lights (Modular or UFO).

**Upgrade:** (1) Use High bay Sensors for Occupancy based switching, Orientation Dimming & Daylight Harvesting OR  
(2) Use Daylight harvesting High bays with Inbuilt Sensor.

### Loading Area

**Lighting:** Switch to High efficacy LED Flood Lights.

**Upgrade:** Use All in one "Defensor" (Dusk to Dawn Switching, Timer. Motion Sensor) OR Use HF Sensor for Occupancy based Switching, Orientation & Daylight harvesting.





### Outdoor Areas

**Lighting:** Switch to High efficacy LED Street Lights or Flood Lights.

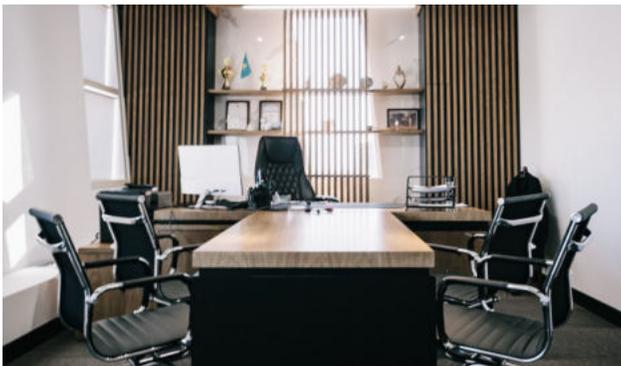
**Upgrade:** Use Dusk to Dawn Sensors (With or without timer) for Day Night Auto Switching.

### Open Offices

**Lighting:** Switch to high efficacy LED lights with low UGR (Unified Glare Ratio), and Zero flicker drivers.

**Upgrade:**

- (1) Use ON-OFF Sensor for Occupancy based switching, OR
- (2) Use DALI Dimmable Sensors for Daylight Harvesting (In case of glass façade / window)



### Executive Cabins

**Lighting:** Switch to High efficacy LED Luminaires with low UGR

- Upgrade:** (1) PLUS Sensor for Lights + A/C, OR  
(2) DALI Dimming Sensors for daylight harvesting & Dimming, OR  
(3) Human Centric Lighting for productivity.

### Conference Rooms

**Lighting:** Switch to High efficacy LED Lights

- Upgrade:** (1) DALI-DUO Sensor for Device management, OR  
(2) DALI Touch panels for presentation scenes, OR  
(3) Human Centric Lighting for Video Conferences.





## Passages, Staircases & Lobbies

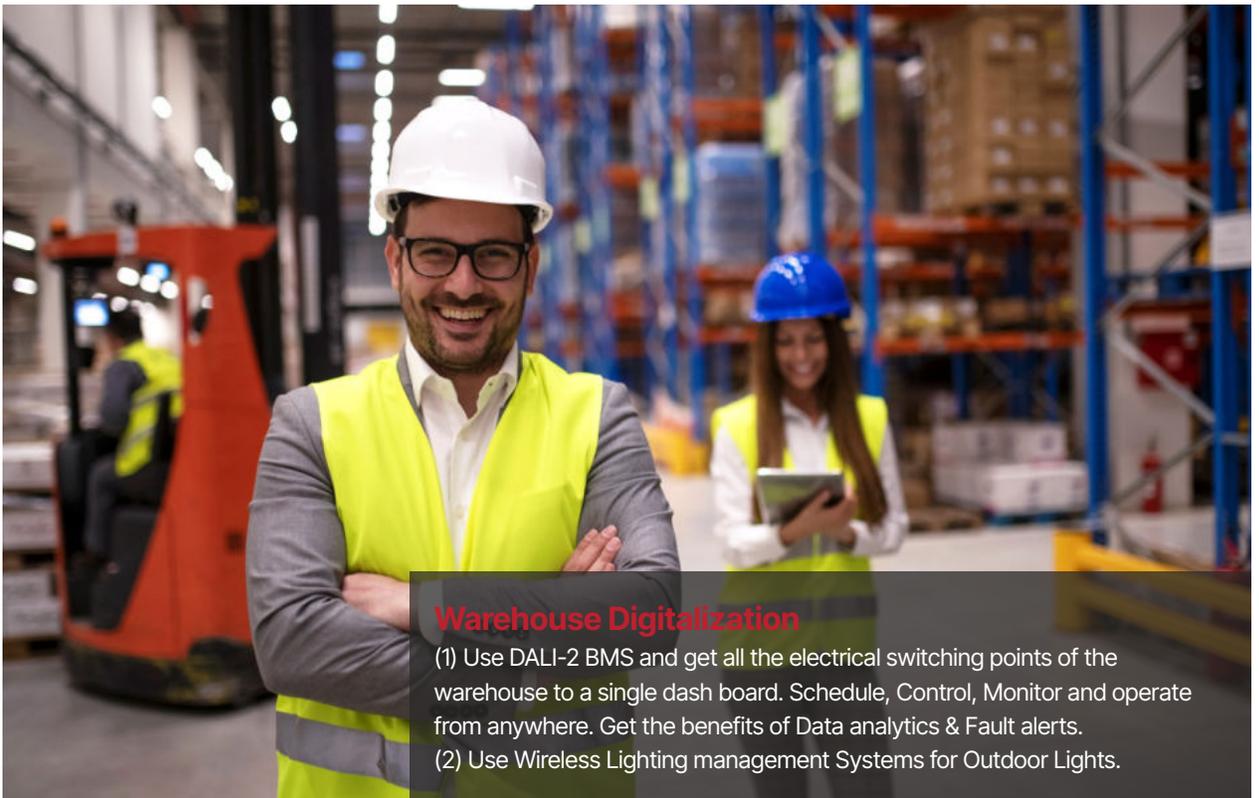
**Lighting:** Switch to High efficacy LED Lights

**Upgrade:** (1) ON-OFF Sensor for Occupancy Switching, OR  
(2) DALI Dimmable Sensor for Orientation Lighting, OR  
(3) Dimming Driver Cum Sensor for orientation lighting.

## Wash Rooms

**Lighting:** Switch to High efficacy LED Luminaires

**Upgrade:** (1) Use HF Sensors for Occupancy based ON-OFF, OR  
(2) Use Sensor for Light + Exhaust fan (1 Channel or 2 Channel)



## Warehouse Digitalization

(1) Use DALI-2 BMS and get all the electrical switching points of the warehouse to a single dash board. Schedule, Control, Monitor and operate from anywhere. Get the benefits of Data analytics & Fault alerts.  
(2) Use Wireless Lighting management Systems for Outdoor Lights.



### Auto Switching of Lights

- Handsfree automated switching of lights by using standalone PIR / HF Sensors.
- One Sensor can connect up to 600W LED Lights for occupancy based ON-OFF.
- 6/8/12/20/24/32/40 meter detection range models available (360 degree).
- Option of detection control mask .



### Light + HVAC/Fan Automation

- Automated ON-OFF Switching of Light + A/C or Fan by using 2 Channel PLUS Sensor.
- One Channel for Lights up to 600W and the other channel for HVAC or Fan up to 2300W load.
- Option of push button and or remote control for manual override. 8/24/32 meter detection.



### Light + Exhaust Fan Control

- Sensors specially designed for Washroom Applications.
- High capacity relay to control both Lights & Exhaust fan together.
- Connect Load up to 1000W.
- Options of 8Mtr / 16mtr Available.



### Highbay Sensor Automation

- 1-10V Analogue dimming standalone sensors for Highbay/High mounted Light control.
- Occupancy based Switching, Daylight Harvesting, Auto Dimming & Orientation Lighting.
- One Sensor to control up to 400W Highbay Load.
- Mounting height up to 15 Mtr.



### Daylight Harvesting - DALI

- Daylight harvesting & dimming for office lighting by DALI broadcast sensors.
- One sensor can connect up to 25/64 DALI fixtures.
- Occupancy based switching, daylight based dimming, orientation light etc. features.
- Push button and remote options for manual override.



### Meeting Room Automation

- All in one DALI-DUO sensor for meeting room Automation.
- This standalone sensor can connect up to 50 DALI devices.(Channel 1:25, Channel 2:25)
- Any non DALI device like A/C, projector etc.
- Can also be connected by using suitable DALI relays as accessory.
- Scene control by remote / push button.



### Lighting Scene Control

- DALI Lighting Controllers for Dimming, CCT Tuning and scene controls.
- Best for creating different intensity and CCT of Lights for Office area, VC Rooms, Conference Rooms etc.
- Connect up to 50 DALI Devices / DALI Lights per Controller



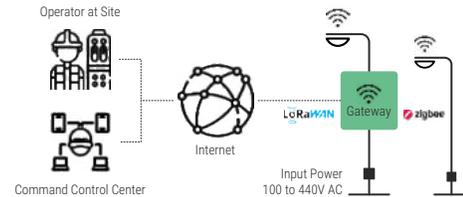
### Dusk To Dawn Switching

- Fixture inbuilt or panel inbuilt Twilight switches for Dusk to Dawn automated switching of Outdoor Lights.
- Wall mounted Twilight switches for area lighting (with or without timer option).



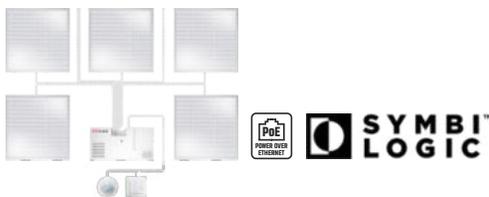
### LMS & BMS

- DALI-2 Lighting management Systems & Building Management systems for Indoor Lighting control.
- For Open Offices, Conference Rooms & Entire warehouse. Dash board / app control.



### CCMS – Outdoor

- Wireless CCMS (Centralized Control & Monitoring Systems) for outdoor and area lights.
- IOT based Controllers, Gateway, & Software for wireless CCMS.
- Remote Control, Monitoring & Scheduling



### Human Centric Lighting

- POE + DALI Controller & Tunable Luminaires with Patented German technology for Human centric Lighting.
- Biological effective lighting & Emotional effective lighting together.
- For Board rooms / Conference Room



### Linear Highbay

- Linear Modular Highbay with optics, Specially designed for heightened isles.
- More coverage & better illumination.
- Aluminum extrusion body for best thermal management.
- Available in 50/80/100/150/200W variants.



### UFO Round Highbay

- Round UFO High bay with 60 degree/90 degree optics.
- High efficacy LED with special optics.
- Uniform light distribution.
- Available in 80/100/120/150/180W.
- Fully Encapsulated Isolated LED Driver



### Warehouse Battens

- Industrial grade Linear fixture suitable for 24 Hrs. warehouse application.
- Isolated encapsulated LED Driver.
- Low UGR Diffuser.
- Available in 28/30/36/42W.
- Dimmable & Non Dimmable options.
- Compatible for Sensor Control.



### Modular Highbay

- Modular High bay with multiple module provisions.
- Designed for shaded area coverage.
- Available in 80 to 180W
- Optics designed for uniform light distribution.
- Dimmable & Non Dimmable options.
- Compatible for Sensor Control.



### Street Lights & Flood Lights

- Lights specially designed for Loading/Unloading area for higher illumination.
- Option of wide beam angle / narrow beam angle.
- With or without optics available.
- Professional model and economic model available.



### Fire Escape Lighting

- Say "NO" to Inverters and DG set for emergency lighting.
- Specially designed Fire escape lighting fixtures with inbuilt battery.
- Maintained or non maintained Fire escape lights.
- Recess / Surface mounted models available.
- Customized models also available.



### Daylight Harvesting Highbay

- A specially designed Auto Dimming Highbay for warehouse applications.
- Modular design with Optics, High Power LED.
- Inbuilt Dimming Sensor for Occupancy Based ON-OFF and Daylight based Auto Dimming.
- Available in 80 to 180W.



### Auto Switching Battens

- Industrial/Eco LED battens with inbuilt sensors
- Occupancy based ON-OFF
- Dimming and Orientation
- Available in 18/20/36W variants.



### Auto Switching Street Light

- Street light with inbuilt motion sensor
- Auto ON-OFF & Auto dimming
- Available in 36 to 150W



### Auto Switching Flood Light

- Flood light with inbuilt sensor 50 to 200W
- Motion based ON-OFF
- Dusk to dawn switching



### Auto Switching Troffers

- 2x2/1x1/4x1 troffers with inbuilt sensor
- Auto ON-OFF
- Orientation dimming
- Available in 20/28/36/42W



### Auto Switching Down Lights

- Surface/Recess mounted down lights with inbuilt sensors
- Auto ON-OFF
- Orientation dimming
- Available in 12/15/18W

# Benefits of Warehouse Lighting Automation



## Better Productivity

- Enhanced Productivity by Illumination Management
- Meeting Room scenarios for effective presentations



## Sustainability

Carbon Foot Print Statistics:

- 0.95kg Carbon emission / 1KWhr electricity
- 1 Tree required for 160kg carbon neutral
- High efficacy LEDs, Demand Driven Switching &
- Daylight Harvesting save huge amount of energy, thus reduce carbon emission drastically !



## Cost Saving

- Conventional Lights to LED – 55% energy saving
- Change over to High efficacy LED – 30% energy saving
- Occupancy based ON-OFF (Sensors) – 35% energy saving
- Daylight Harvesting (Auto Dimming) – 20-25% energy saving
- Savings from Auto Switching of A/Cs & Fan – 30-35%



## Health & Safety

- Many Intangible benefits from Human Centric Lighting
- Reduced errors and enhanced creativity
- UVC Germicidal Irradiation help healthy work space
- Fire escape lighting for emergency evacuation



## Industry 4.0 Benefits

- Remote Control & Monitoring from LMS & BMS
- Data analytics & Control
- Dash board control
- Fault alerts
- All electrical devices on single dash board control



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