nxt® Lighting Control System

Smart Controls for Smart Buildings
Bajaj Electrical offers a complete portfolio of sensors & scene selection systems that are efficient, smart, dynamic & agile.

**Efficiency with Smartness**

In addition to switches and scheduling, you can further increase efficiency and be smart with saving money on energy with nxt™ Occupancy and Photo Sensors. A recent study has shown that utilizing occupancy and photo sensors saves an average of 30-40% on energy costs.* nxt™ is a comprehensive line of Bajaj sensors that offers solutions for almost any application. Whether you need a sensor that is commercial or industrial, indoor or outdoor, ultrasonic or passive infrared – or both – you’re sure to find it with nxt™ range.

**Dynamic & Agile**

The most efficient lighting control systems use a combination of time-based automation, astronomical features, daylight harvesting and occupancy interaction. Integrating nxt™ Occupancy and Photo Sensors into a complete control unit – like An-10 wireless lighting control system or Rapid fully addressable Modular Lighting Control System – will help you maximize efficiency and energy savings.

*These highly efficient devices optimize & control energy usages delivering you a higher return on investment as well as savings.*
Occupancy SENSORS

Occupancy sensors go a step beyond scheduling by detecting motion within a space and switching the lights on and off as needed. Occupancy sensors are ideal for spaces that are intermittently occupied. Because of their easy installation, user convenience and maintenance-free operation, occupancy sensors are one of the most preferred lighting control solutions.

Our line of nxt™ Occupancy Sensors allows you to conserve energy and helps you to be smart by saving money when illumination isn’t necessary, while minimizing occupant annoyance caused by false activations or scheduling.

Choosing a Sensor

When selecting a sensor for a space, there are a few considerations that will impact your decision. Knowing the type of space and its function, the size and ceiling height, and the activity going on in the space are all factors that will help you choose the right sensor for each application.

One consideration in choosing a sensor is the size and ceiling height of the area. In general, you can choose from our nxt™ range as below:
- Wall switch sensors are used for smaller rooms
- Ceiling sensors include options for areas up to 2,000 square feet
- Corner/wall sensors are often chosen for long hallways or corridors.
- For warehouses or other environments with high ceilings, fixture-mounted sensors may be the best solution.

Your Bajaj sales representative can help you assess your situation and choose the right sensors for each area.

Technology

The design of the room and the amount of activity happening within the space will determine the level of sensitivity you need in your sensor. nxt™ Occupancy Sensors are available in three distinct technologies, so that you can be sure to find the appropriate solution for your space.

Passive Infrared (PIR)

Designed to detect motion from a heat-emitting source, PIR sensors switch lights on and off when a person enters or exits their field of view.

Ultrasonic

Ultrasonic sensors detect occupancy by emitting a high-frequency signal and interpreting changes in frequency as motion. Ultrasonic sensors do not require a direct line of sight, meaning they can “see” around corners and objects. They are also highly sensitive to motion – even minor hand movement.

Dual Tech

Dual Tech sensors combine PIR and ultrasonic technology. Lights are only activated when both sensors detect occupancy – eliminating false activation – and require one of the technologies to keep the lights on, significantly reducing the possibility of a false deactivation.
A key component of lighting control is maintaining a light level consistent with daylight. As natural light enters a space, nxt™ Photo Sensors reduce artificial light levels. When the sun goes down, or on a cloudy day, light levels increase.

Including nxt™ Photo Sensors as part of a complete control unit – like Rapid™ fully addressable Modular Lighting Control System – will yield the maximum flexibility and energy savings. Need a retrofit option? The nxt™ Stand-Alone Photo Sensor wires directly to a 0-10V dimming ballast/driver with no need to connect to a centralized relay panel.

Applications: Offices with windows or skylight, large atrium, retail or manufacturing spaces with skylights and outdoor site lighting.

Products:
Indoor Photo Sensor: For interior spaces with windows
Atrium Photo Sensor: For atrium spaces with higher natural light levels
Skylight Photo Sensor: For areas with direct sunlight exposure
Outdoor Photo Sensor: For outdoor applications
Stand-Alone Photo Sensor: For retrofit applications (indoor use only)
Sensor Mounting

nxt™ Occupancy Sensors come in four mounting options. The kind of sensor you choose depends on the type, size and function of the space. No matter your application, nxt Occupancy Sensors can increase your efficiency and save on energy costs.

Ceiling

Ceiling Sensors attach directly to the ceiling in the center of a room. They work best in large, open spaces, spaces with obstacles such as partitions, and narrow spaces. Generally, ceiling sensors are used in rooms with a maximum height of 12 feet (3.65 meters).

Applications: Open office areas, conference rooms, hallways and corridors

Corner / Wall

Corner/Wall Sensors attach either directly to the wall or to a corner between two walls. Corner/Wall Sensors are used for similar applications to ceiling sensors, but sometimes offer a more convenient mounting location. Ceiling sensors may look out into a hallway from a door or window and be triggered by foot traffic, whereas a corner/wall sensor can be placed strategically to look away from unintended traffic areas. For areas up to 1,200 square feet.

Applications: Open office areas, conference rooms, hallways and corridors

Wall Switch

Ideally suited for On and Off control of small and medium spaces, nxt™ Wall Switch Sensors are designed to replace a standard wall switch to provide enhanced automatic switching based on occupant motion. Wall switches are best for spaces free from obstructions of the line of sight from switch location, room orientation or furniture placement. For areas up to 1,000 square feet.

Applications: Individual offices, restrooms and break rooms

High-Bay Fixture Mount

High-Bay Series of Occupancy Sensors is specifically designed for high ceiling applications including warehouses, distribution centers and much more.

With well-developed PIR sensor technology and circuit design, these sensors are the perfect combination of high sensitivity and low false-trip occurrence. Options include 360-degree high-bay (up to 40 ft) and low-bay (up to 25 ft) lenses, and shields for end-of-aisle use. Installation is easy — just mount it directly on to any fluorescent or LED fixture.

With our range of Sensors from movement and dimming sensors, light level controls and retrofit sensors we can help you leverage the technology leap in saving energy and cost to lessen our environmental impact.

Applications: Commercial and industrial high-bay fixtures
Occupancy Sensors

PIR Occupancy Sensor

Detects movement within the unit’s detection range, allowing load control in response to changes in occupancy.

Code:
- 112516  Flush mounted PIR movement sensor with push button
- 112517  Surface mounted PIR movement sensor
- 112528  High sensitivity PIR presence/absence detector

Applications
- Open plan office areas
- Corridors
- Individual cabins
- Reception/lobby
- Huddle/waiting rooms

Features
- PIR technology for advanced presence detection
- Light switches off automatically in bright ambience
- Provision to adjust off delay timing
- 7 m detection pattern under normal circumstances
- Sensitivity level can be adjusted
- Maximum height for installation
- Enabled with remote control for ‘on & off’ function
- Enabled for easy recommissioning when building use changes, with 2 way programming
- Customized for special applications with IP 55 Protection

* Detection diagrams and dimensions mentioned are indicative as they belong to the range and not to individual products whose codes are given.
Photo Sensors

**PIR Occupancy Sensors with Daylight Dimming**

High performance, compact presence detector provides automatic control for lighting loads. It can be used for CFL/FTL with 1-10 V analogue dimmable ballast. Along with presence detection, this sensor has built-in adjustable photocell which regulates the lighting level as per availability of natural daylight in an area, thus maintaining uniform illumination.

**Code:**
112518  Surface mounted PIR presence/absence detector with lux level sensing

**Applications**
- Open plan office areas
- Glazed areas
- Individual cabins
- Reception areas
- Meeting rooms

**Features**
- PIR technology for advanced presence detection
- 7 m detection pattern under normal circumstances
- Light lux level measure and maintain by regulating photocell to adjust luminaire output
- Sensitivity level can be adjusted
- Provision to adjust off delay timing
- Maximum height for installation
- Enabled with remote control for 'on' & 'off' function
- Enabled for easy recommissioning when building use changes, with 2 way programming

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Occupancy Sensors

PIR Dual Circuit Occupancy Sensors

High performance, compact presence detectors with dual circuit control. The dimming channel can be used to control light output of luminaires. The photocell measures available natural daylight and maintains uniform lux level. The switching channel can be used to switch On/Off separate channel of standard non dimming luminaires.

Code:
112520  Compact ceiling mounted PIR presence/absence detector 2-channel

Applications
- Open plan office areas
- Small & Medium offices
- Conference rooms
- Manager cabins
- Meeting rooms

Features
- PIR technology for advanced presence detection
- 7 m detection pattern under normal circumstances
- Enabled with remote control for on & off function
- Light lux level measure and maintain by regulating photocell to adjust luminaire output
- Sensitivity level can be adjusted
- Enabled for easy recommissioning when building use changes, with 2 way programming
- Provision to adjust off delay timing
- Maximum height for installation
- Switching and dimming in 2 separate channels

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Photo Sensors

PIR Dual Circuit Occupancy with Daylight Dimming

High performance, compact presence detectors with dual circuit control. The dimming channel can be used to control light output of luminaires. The photocell measures available natural daylight and maintains uniform lux level. The switching channel can be used to switch On/Off separate channel of standard non dimming luminaires.

Code:
112622 Compact ceiling mounted PIR presence / absence detector with Direct Dim DALI/DSI

Applications
- Open plan office areas
- Glazed areas
- Individual cabins
- Reception areas
- Meeting rooms

Features
- PIR technology for advanced presence detection
- 7 m detection pattern under normal circumstances
- Light lux level measure and maintain by regulating photocell to adjust luminaire output
- Sensitivity level can be adjusted
- Provision to adjust off delay timing
- Maximum height for installation
- Enabled with remote control for ‘on’ & ‘off’ function
- Enabled for easy recommissioning when building use changes, with 2 way programming
- Switching and dimming in 2 separate channels

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Microwave Occupancy Sensors with Lux Level Sensing

Highly sensitive Microwave presence detectors provide automatic control of lighting. It works by emitting low power microwave signals and measuring the reflections as the signal bounce off moving objects.

Code:
112630 Surface mounted microwave presence / absence detector with lux level sensing

Applications
Open plan office areas
Lobbies / waiting rooms
Classroom areas
Cafeteria areas
Meeting rooms
Gymnasium areas

Features
PIR technology for advanced presence detection
16 m detection pattern under normal circumstances
Light switches off automatically in bright ambience
Light lux level measure and maintain by regulating photocell to adjust luminaire output
Sensitivity level can be adjusted
Enabled for easy recommissioning when building use changes, with 2 way programming
Provision to adjust off delay timing
Maximum height for installation
Switching and dimming in 2 separate channels

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Occupancy Sensors

PIR Sensors with Analogue Dimming Output

PIR Sensors with analogue dimming provides automatic control of lighting loads with optional manual control. Output Channel 1 comprises a mains voltage relay capable of simple on/off switching, while Output Channel 2 provides dimmable control of 1-10V ballasts.

Functioning as a presence detector, the unit can turn lights on when a room is occupied and off when the room is empty. Optional settings allow lights to be turned off in response to ambient daylight, or to implement a maintained illuminance (daylight harvesting) system.

Code:
- 112523 Compact ceiling mounted PIR presence / absence detector with 1–10V analogue dimming output
- 112525 High sensitivity PIR presence / absence detector with 1–10V analogue dimming output

Applications
- Open plan office areas
- Glazed areas
- Individual cabins
- Reception areas
- Meeting rooms

Features
- PIR technology for advanced presence detection
- 7 m detection pattern under normal circumstances
- Enable with remote control for ‘on’ & ‘off’ function
- Sensitivity level can be adjusted
- Enabled for easy recommissioning when building use changes, with 2 way programming
- Provision to adjust off delay timing
- Maximum height for installation
- Switching and dimming in 2 separate channels

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Ultrasonic Sensors

Microwave Occupancy Sensors

Microwave occupancy sensors provide automatic control of lighting loads with optional manual control. It detects movement using a highly sensitive microwave detector. This works by emitting low power microwave signals and measuring the reflections as the signals bounce off moving objects. The output channel comprises a mains voltage relay capable of simple on/off switching.

Functioning as a presence detector, the unit can turn lights on when a room is occupied and off when the room is empty. Optional settings allow lights to be turned off in response to ambient daylight.

Code:
112629  Ceiling microwave presence/absence detector
112630  Surface microwave presence/absence detector

Applications
- Open plan office areas
- Long corridors
- Classroom areas
- Large offices
- Aisle application

Features

- Microwave sensor: Detects movement within the unit’s detection range, allowing load control in response to changes in occupancy.
- IR Receiver: Receives control and programming commands from an IR (infrared) handset.
- Power Input & Switched Output Connector: Used to connect mains power to the unit and to connect a switched load.
- Switch Input Connector: Two input terminals can be used to manually override the lights on or off.
- Status LEDs: The LED flashes Red to indicate Walk test LED active & when Valid setting received.
- Maximum height for installation:

16 m detection pattern under normal circumstances

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High bay PIR Occupancy sensor with daylight dimming provides automatic control of lighting loads with optional manual control. It is a high sensitivity PIR detector suitable for high bay applications, such as warehouses and factories, and where high detection sensitivity is needed. It is specifically designed for mounting onto a batten style luminaire.

**Code:**
112627 Luminaire mount high bay PIR presence detector with lux level sensing, time delay and infrared override

**Applications**
- High bay applications
- Warehouses
- Factories

**Features**
- **PIR Sensor**
  Detects movement within the unit’s detection range, allowing load control in response to changes in occupancy.
- **Light Level Sensor**
  Measures the overall light level in the detection area
- **40 m detection pattern under normal circumstances**
- **IR Receiver**
  Receives control and programming commands from an IR (infrared) handset.
- **Switch Level On/Off**
  Occupancy detection can be made dependant on the ambient light level using the Lux On Level and Lux Off Level parameters.
  Maximum height for installation
- **Status LEDs**
  The LED flashes Red to indicate Walk test; LED active & when valid setting received
- **Maintained Illuminance (daylight harvesting)** - DD and AD variants only
  The detector measures the overall light level in the detection area and calculates the correct output for the luminaires, to achieve a preset lux level (maintained illuminance or daylight harvesting).

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Ultrasonic Sensors

Microwave Occupancy Sensors with Adjustable Head

Microwave occupancy sensors with adjustable head provides automatic control of lighting loads with optional manual control. It detects movement using a highly sensitive microwave detector. This works by emitting low power microwave signals and measuring the reflections as the signals bounce off moving objects. It has a unique adjustable sensor head that allows the area of detection to be optimized for the application.

Code:
112631 Adjustable head ceiling mounted microwave presence/absence detector

Applications
- Open plan office areas
- Long corridors
- Classroom areas
- Large offices
- Aisle application

Features
- **Microwave sensor**: Detects movement within the unit’s detection range, allowing load control in response to changes in occupancy.
- **IR Receiver**: Receives control and programming commands from an IR (infrared) handset.
- **Status LEDs**: The LED flashes Red to indicate Walk test LED active & when Valid setting received.
- **Light Level Sensor**: Measures the overall light level in the detection area.
- **Power Input & Switched Output Connector**: Used to connect mains power to the unit and to connect a switched load.
- **Switch Input Connector**: Two input terminals can be used to manually override the lights on or off.
- **Dimmable Control Output Connector**: 30 m detection pattern under normal circumstances.
- **Maximum height for installation**:

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Programming Handsets
A range of handsets that are designed to allow the user to intuitively program a single device or system. They range from the UHS5 that allows for quick programming of the essential detector settings, to the UNLCDHS that offers programming of all available parameters.

**UHS4**
An-10 infrared programming handset

**UNLCDHS**
Professional commissioning LCD programming handset

**UHS5**
Infrared programming commissioning handset
The UHS5 is a compact infrared handset used for the basic programming of IR enabled products.

**UHS7**
Infrared (IR) User handset

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