

VIEWPOINT

ELECTRONICS

SQUARE D
by Schneider Electric

Motion Controls for Industrial Lighting

**Lower Warehouse Operating Costs
Through Energy Conservation**



The Technology Leader

Viewpoint's products incorporate the latest motion sensing technology to provide the most advanced and reliable energy-saving controls in the lighting industry. We've been a technology leader for fifteen years.

Plug 'n' Go Fixture Compatibility

The true cost of a motion sensor includes the cost of installation on the fixture. Viewpoint's sensors are supplied with all the hardware necessary to make installation go quickly and smoothly. We keep abreast of new fixture styles so that we can offer mounting brackets and wire harnesses to keep your installation costs low.

Several lighting manufacturers can supply fixtures equipped with a Viewpoint-compatible Plug 'n' Go port that permits sensor installation immediately or later by the warehouse tenant.

One Piece Construction

Viewpoint's state-of-the-art controls combine the sensor, power supply, and switching device into the same UL-approved enclosure--just one part to stock, install and maintain.

Universal Multi-volt Compatibility

Viewpoint sensors feature a proprietary self-adjusting power supply design that eliminates installation errors. All sensors are compatible with line voltages 240-480VAC without transformer taps or jumper wires. Our HID sensors offer even wider operating range: 120-480VAC.

Full Connectorization for Easy Maintenance

Viewpoint's connectorized sensors can be replaced in 60 seconds or less using only a screwdriver. Beware of one-size-fits-all sensors permanently wired to fixtures. Maintenance personnel shouldn't have to de-power a warehouse aisle and disassemble a light fixture just to replace a sensor.

Self-Diagnostic and Manual Test Features

Self-testing diagnostics are vital when a sensor is mounted 40 feet above the floor. All Viewpoint's sensors are microprocessor-based and offer built-in testing features designed to save you installation and maintenance costs. A bright blinking LED lamp on each sensor informs you of its operating mode. A simple manual override switch enables the installer to run a fixture through its paces to confirm proper operation of the sensor and lighting ballast.

Interchangeable Fresnel Lenses

All Viewpoint sensors feature snap-in interchangeable Fresnel lenses tailored to your specific application. Open work areas and loading docks are best served by area-sensing lenses. Warehouse aisles require a narrow angle lens that keeps the sensor from false-triggering on motion in adjacent aisles. Pick modules in distribution centers require a narrow cone lens for sensors that are mounted horizontally.



PIP-210



PIP-212



PIP-311

Fiber Optic Zone Control

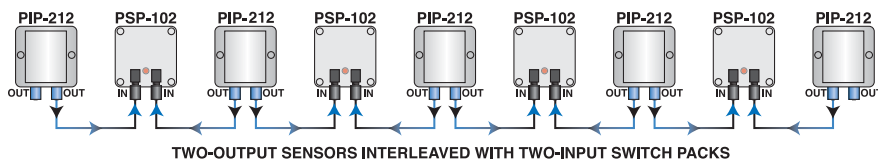
Most warehouse lighting control projects are “sensor per fixture” architectures. Each sensor controls its fixture independently of other fixtures and sensors. However, many jobsites require zone control: ganged and coordinated response of fixtures within the same aisle or work area.

With the advent of low-cost network signaling between fixtures, lighting levels can be directed by wall switches, photocells, fire alarms, or utility-directed demand side management (DSM) devices.

Viewpoint accomplishes fixture-to-fixture networking and zone control using industry-standard plastic optical fiber. Fiber optic networking is an optional feature available on all Viewpoint sensors.

Benefits of Plastic Fiber Networking

- Zoned response within warehouse aisles. Control zones can be as small as two fixtures or as large as an entire aisle. Motion under any one fixture can force all fixtures in a zone to go high.
- Fixtures can be equipped with fiber optic switch packs. A switch pack has fiber optic ports but no motion sensing capability. Switch packs get their commands from adjacent sensors or wall switches. Compared to full motion sensors, switch packs are cheaper to purchase, easier to install, and require no downward aiming.
- Local building codes occasionally require all wiring to be conduited --even low-voltage signaling conductors. Copper-less plastic optical fiber never needs conduiting. It can be attached to ceiling supporting steel or to the outside of conduit with ordinary tie-wraps.
- No need to worry about fiber signal degradation in long aisles. Viewpoint’s fiber optic controls regenerate the fiber signal at full strength and clarity at each node. Advanced versions of our sensors and switch packs offer digital addressability.
- Unlike cumbersome glass optical fiber used in the computer industry, plastic optical fiber can be cut with just a sharp knife. It installs without expensive tools, specialized connectors or installer training.



PSP-302



PSP-101



HID Lighting

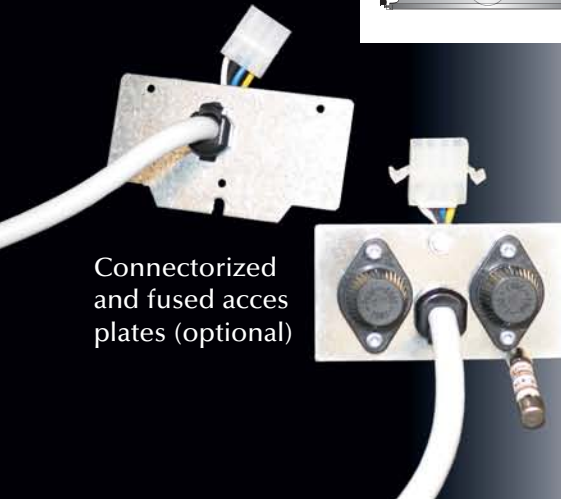
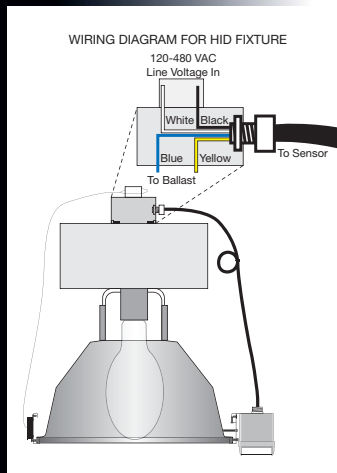
- Works with HID fixtures rated 175-1000 watts regardless of brand
- Compatible with fixtures equipped with dual-section capacitor
- Plug 'n' Go installation with just a screwdriver in 60 seconds
- PIR sensor, power supply and switching relay in same enclosure
- User-adjustable 1-15 minute activity timer
- Self-adjusting universal multi-volt operation: 120-480VAC
- Guaranteed Start-On-High feature assures rated lamp life
- Interchangeable Fresnel lenses matched to the application
- Manual override switch and blinking diagnostic LED lamp
- Available with fiber optic ports for networked zone control



PIP-212



PSP-101



Connectorized and fused access plates (optional)

Viewpoint's PIP-200 series infrared motion sensor step-dims an HID fixture to 50% of full power based on aisle occupancy. The sensor switches a dual-section capacitor in the ballast housing of the fixture. This dual-section capacitor can be supplied by the fixture manufacturer or Viewpoint Electronics.

Wide Fixture Compatibility

Viewpoint HID sensors are compatible with constant wattage auto-transformer (CWA) fixtures regardless of manufacturer, line voltage or lamp wattage. Pay-back periods can be as low as two years for HID fixtures rated 320-1000 watts.

Plug 'n' Go Fixtures

Fixture manufacturers can provide HID fixtures with a Viewpoint-compatible Plug 'n' Go sensor port already installed. These fixtures operate at full rated wattage until you install a sensor. Adding a motion sensor to a Plug 'n' Go fixture takes just a screwdriver and 60 seconds of labor.

All-in-One Construction

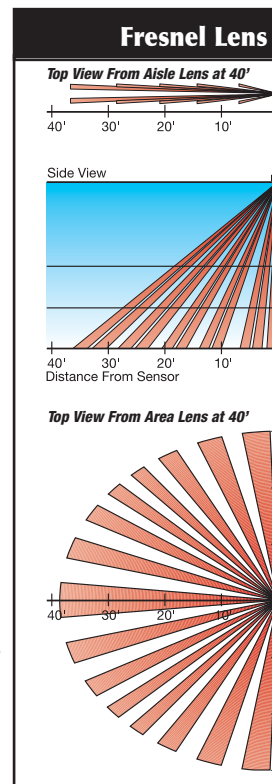
Viewpoint's HID motion sensors feature a unitized injection-molded enclosure housing the PIR sensing element, power supply and dimming relay. Unlike competing products, there's no need for separate switch packs and associated wiring to the sensor. Viewpoint sensors attach to the fixture's reflector with an adjustable pinch bracket. Alternatively, the sensor may be mounted off-fixture on nearby ceiling supports using 4-conductor STOW cable.

Universal Multi-Volt Operation

Forget the stocking problems and field installation headaches associated with line voltage compatibility! Viewpoint HID sensors work with fixtures rated 120-480VAC (including all Canadian and US voltages in between) without transformer taps or jumpers

Guaranteed Lamp Start-On-High

Viewpoint's microprocessor-based architecture fosters full rated HID lamp life by assuring that the lamp always starts on high and remains there for 15 minutes, even after AC power bumps. Many competing lighting controls do not provide this important feature outlined in EIA guidelines.



Fluorescent Lighting

- Unique ballast rotation feature equalizes accumulated lamp hours
- Compatible with T-5 and T-8 fluorescent fixtures with multiple ballasts
- Relays switch ballast input voltage to achieve bi-level power control
- Three 5 ampere relays support operation with 4- or 6-lamp fixtures
- Plug 'n' Go installation with just a screwdriver in just 60 seconds
- Interchangeable Fresnel lenses matched to the application
- Self-adjusting universal multi-volt operation (240-480VAC)
- User-adjustable 1-15 minute activity timer
- All-in-one construction: PIR sensor and switching relay in the same enclosure. Only one part to install and maintain
- Manual override switch and blinking diagnostic LED lamp
- Available with fiber optic network ports for zone control



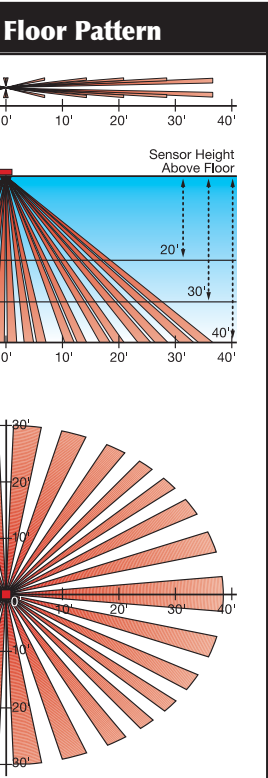
PIP-311

Compatible with T-5 and T-8 High-Bay Fixtures

Viewpoint offers a family of infrared motion sensors designed for fluorescent high bay fixtures employing one, two or three electronic ballasts. To maintain rated lamp life, fixtures should be equipped with programmed rapid start (PRS) ballasts.

When aisles are empty the fixture's power output is reduced by removing AC line voltage from selected ballasts. The number of ballasts that remain powered in the absence of motion (usually one ballast or none) can be configured on a fixture-by-fixture basis and stored in the sensor's non-volatile memory. No programming tools are required.

Viewpoint can also supply sensors that are optimized for use with continuously-dimmable fluorescent electronic ballasts. These sensors control a ballast dimming pin rather than removing AC line voltage to the ballast.



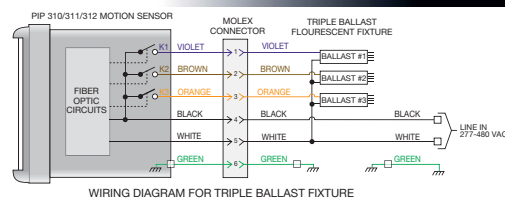
Ballast Rotation Extends Lamp Life

Competing sensors for fluorescent fixtures offer only one switching relay, so you're forced to turn the fixture completely off or leave one ballast powered in the absence of motion. One continuously-powered ballast means re-lamping the fixture frequently and uneven lamp wear.

Viewpoint's fluorescent sensors can be ordered with three built-in relays that rotate the choice of powered ballast in the "night-light mode". Ballast rotation equalizes lamp life and eliminates premature re-lamping.

Plug 'n' Go Installation on Compatible Fixtures

Fixture manufacturers can provide Plug 'n' Go fluorescent fixtures with a Viewpoint-compatible sensor port already installed. These fixtures operate at full rated wattage until you install a sensor. Adding a motion sensor to a Plug 'n' Go fixture takes just a screwdriver and 60 seconds of labor.



PIP-311

Retro-Fit HID Sensor

- Installs on existing HID fixtures rated 175-400 watts
- Turns any HID fixture into a dimming fixture
- All-in-one construction: PIR sensor, switching relay and dimming capacitor in the same UL-approved enclosure
- Self-adjusting universal multi-volt design: 120-480VAC
- User-adjustable 1-15 minute activity timer
- Guaranteed Start-on-High feature assures rated lamp life
- Interchangeable Fresnel lenses matched to the application
- Available with optical fiber ports for zone control
- Intended for off-fixture mounting via STOW cord

Bi-level dimming can be added to HID fixtures that are already installed—even fixtures not equipped with bi-level ballasts! Viewpoint offers retrofit motion sensors for 175-400 watt HID fixtures regardless of line voltage or manufacturer. Our retrofit sensors don't require swapping out capacitors in the ballast to achieve bi-level control.

Built-in Dimming Capacitor

Viewpoint's HID retrofit sensor contains its own built-in dimming capacitor that works in conjunction with the capacitor supplied originally with your fixture. Our internal capacitor is tailored to your fixture's specifications and reduces lamp wattage by 50% when aisles are unoccupied.

Easy Two-Wire Installation

Viewpoint's retrofit sensors are two-wire devices that connect in series with the fixture's existing capacitor. The line voltage of the fixture doesn't matter because the sensor derives its operating power from the secondary side of the ballast.

All-in-One Construction

HID retrofit motion sensors feature a unitized injection-molded enclosure housing the PIR sensing element, power supply, dimming relay and oil-filled capacitor. Unlike Viewpoint's PIP-200 series HID sensors that work in conjunction with dual dimming capacitors inside the fixture, the HID retrofit sensor is too bulky to hang from the reflector.

Typical installations for the retrofit sensor suspend it from ceiling supporting steel using a Viewpoint-supplied bracket. The motion sensor is equipped with STOW cord sufficient to allow remote mounting up to four feet away from the fixture.

Guaranteed Lamp Start-On-High

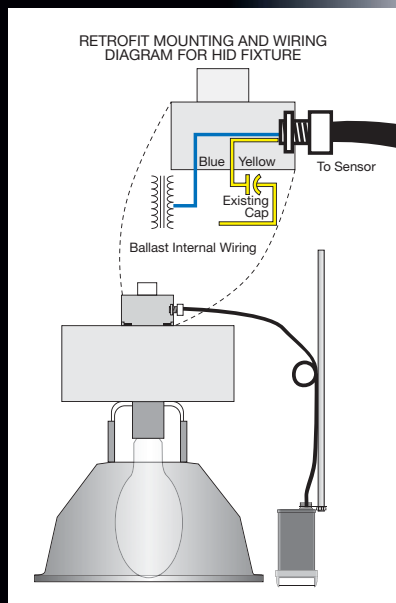
Viewpoint's microprocessor-based architecture fosters full rated HID lamp life by assuring that the lamp always starts on high, even after AC power bumps or loss of fiber optic signals.

Available in Fiber Optic Switch Pack Format

Viewpoint offers a PSP-900 series HID retrofit switch pack that has no motion sensing capability. The switch pack gets its commands from nearby motion sensors, wall switches, or photocells using plastic optical fiber. Retrofit switch packs are cheaper than full-featured motion sensors and do not require downward pointing.

An important plus of retrofit switch packs is that they can be mounted to the HID ballast housing without causing excessive fixture tilting.

PIP-912



Savings Calculator

Use the following formula to calculate your dollar savings from an occupancy-sensing lighting control system:

$$\begin{array}{ccccccccc}
 \mathbf{A} & \mathbf{x} & \mathbf{B} & \mathbf{x} & \mathbf{E} & \mathbf{x} & \mathbf{D} & \mathbf{x} & \mathbf{E} & = & \mathbf{Savings} \\
 \% \text{ Power} & & \text{Fixture} & & \text{Idle Hours} & & \text{Fixture} & & \text{Electricity} & & \text{Dollars per} \\
 \text{Reduction} & & \text{Load (kW)} & & \text{per Year} & & \text{Quantity} & & \text{Cost} & & \text{Year Saved} \\
 \square & \mathbf{x} & \square & \mathbf{x} & \square & \mathbf{x} & \square & \mathbf{x} & \square & = & \square
 \end{array}$$



A. Power Reduction in Unoccupied Periods

This number ranges from 0.50 to 0.84 and depends on fixture type and control strategy. HID lamps cannot be turned completely off owing to warm-up limitations. EIA standards and lamp warranties limit the reduction of HID fixture wattage to 50% during dimmed operation.

Fluorescent lamps have no warm-up limitations. The effective reduction in wattage for line-voltage switched fluorescent fixtures can be as high as 84% while maintaining "night-lighting" in aisles. This figure corresponds to triple-ballasted fixtures that "idle" to a single powered ballast interleaved 1:1 with fixtures that idle to full dark.

B. Fixture Load in Kilowatts

Choose a fixture type and wattage from this table:

Fixture Size & Type	Load in kW
400W HID	0.46 kW
1000W HID	1.10 kW
6 lamp F54T5HO	0.36 kW
6 lamp F32T8	0.22 kW

C. Annual Operating Hours in Idle Mode

Estimate the number of hours per day that your fixtures operate in idle mode multiplied by the number of workdays per year. (Viewpoint offers a motion-sensing traffic meter that helps you measure this.)

Half-Day Loading Dock Example:

12 hour workday on weekdays only with dimmed lighting 80% of the time. 12 hours per day x 0.8 idle x 260 days per year= 2500 hours per year in idle mode.

Full-time Distribution Center Example:

24/7 workday with dimmed lighting 75% of the time. 24 hours per day x 0.75 idle x 365 days per year= 6570 hours per year in idle mode.

D. Total Controlled Fixtures

This is the number of fixtures in your facility that will be equipped with motion sensing.

E. Cost Per Kilowatt Hour

This number is expressed as a fraction of one dollar and ranges from \$.06 to \$.14 for most areas.

Example: Full-time distribution center with qty=500 HID fixtures rated 400 watts and local electricity costs at 10 cents/kWh:

$$\mathbf{A} (.50) \times \mathbf{B} (.46\text{kW}) \times \mathbf{C} (6570 \text{ hrs}) \times \mathbf{D} (500) \times \mathbf{E} (\$.10) = \$75,500 \text{ annual savings}$$





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