# Introducing IntelliView

The IntelliView Series from Eaton is a family of specialty photoelectric sensors adding new technologies and capabilities to solve the most unique, challenging non-contact sensing applications. The IntelliView family includes: adjustable background suppression sensors; distance sensors with analog outputs; color sensors; contrast sensors and UV sensors.

### Finally — Adjustable Background Suppression

Eaton is well-known for Perfect Prox®, its world-class background suppression technology found in the Comet, SM and E58 Series photoelectric families. Those models feature high optical performance with fixed cutoff points. IntelliView sensors deliver similar performance, only now the range of the sensor is adjustable in the field. Additionally, IntelliView background suppression sensors are available with extended detection ranges, out to a maximum of nearly 4 feet!

### Distance Sensing with Analog Outputs

Photoelectric distance sensors transmit a 0 to 10 V signal proportional to the target's distance from the sensor face. Rather than just providing a simple "on" or "off" signal, IntelliView distance sensors can output the target's location within the sensor's range — often with incredible accuracy.

For short range distance sensing applications out to 3.9 inches, the IntelliView family includes an 18 mm flat tubular sensor very similar in shape to the popular Comet Series. Applications calling for longer range sensing or high measurement accuracy can be solved with a new Class II laser sensor utilizing internal time-of-flight technology. This device achieves incredible measurement precision out to a maximum range of 13.1 feet!

### Color Sensing

Color sensors in the IntelliView family can be programmed to recognize three different colors independently using a unique "chromaticity plus intensity" algorithm. This technology provides a higher sensitivity to tone variations and is recommended for detection of different colors or grayscale tones on the same type of material.

IntelliView color sensors are capable of sensing from 5 to 45 mm. A special model with an RS-485 serial connection allows for remote access of the sensor's configuration.

### Contrast Sensing

Contrast sensors (also known as color mark readers) go beyond simple presence/absence detection to distinguish two surfaces according to the contrast produced by their difference in reflection. For example, a dark reference mark (low reflection) can be detected by comparing it against the contrast of the lighter surface (high reflection). A white LED light source is used for general purpose contrast sensing, enabling detection of very slight contrast variations — even those that share the same general material and color.

IntelliView contrast sensors feature a simple three-step setup routine for quick installation, or an optional "fine setup routine" for more complicated applications. These sensors are capable of sensing targets out to 10 mm, and are especially ideal for detecting different colored or grayscale contrasts such as registration marks.

### Luminescence Sensing

Luminescence sensors emit ultraviolet light, which is then reflected at a higher wavelength from the target surface. Luminescence sensors are used in various industrial fields: pharmaceutical and cosmetics, to detect labels on glass or mirrors; ceramic, to select tiles marked with fluorescent signs; automatic packaging machines, to detect fluorescent glues on paper; textile, to distinguish cutting and sewing guides; and to check fluorescent paints or lubricants.

IntelliView luminescence sensors have a range of 8 to 20 mm and are perfect for the detection of any luminescent target, even on reflective materials such as ceramics, metal or mirrored glass. These sensors share the same three-step setup process for quick installation and calibration as the contrast sensors.

### Your Toughest Applications, Solved

IntelliView is more than just a new family of sensing technologies. It's a complete offering of specialized photoelectric sensors designed to solve your most unique, challenging applications.

Adjustable Background Suppression Models

Distance Sensors with 0 to 10 V Analog Outputs

Color, Contrast and Luminescence Sensors

Powering Business Worldwide

## Key Features

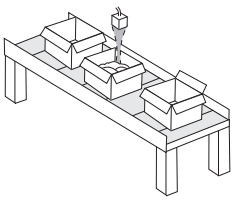
- **New, Cutting-Edge Sensing Technologies** — Eaton has a solution for sensing contrast, color, luminescence and distance with incredible accuracy
- **Small Size, Advanced Solutions** — IntelliView sensors come in either a compact rectangular or flat-tubular package size, both with rugged plastic enclosures rated IP66 or better
- **Simple "Teach In" Setup** — Most models include a simple one- or two-button teach mode process, allowing for quick and simple installation and calibration in the field
- **Adjustable Background Suppression** — For the first time, Eaton offers a fully field-adjustable background suppression photoelectric sensor capable of detecting targets as far as 3.9 ft. (47 in.)
- **LED Indicators and Pushbuttons** — Multiple LEDs communicate output and power status while built-in pushbuttons simplify the teaching of sensor settings
- **UL®, cUL® Listed and CE Approved**

## Packaging and Material Handling Focus Applications

- Roll diameter sensing
- Presence or height of products in boxes, totes or cartons
- Label presence and position sensing
- Product packaging color verification
- Registration mark or crop mark detection
- Detection of plastic materials with UV additives
- Detection of marks on glass, mirrors or extremely reflective surfaces
- Box or carton edge detection
- Box or bottle height detection
- Hopper fill level control
- Palletizing machines
- Closing, capping or sealing machines
- Box or product spacing and sortation
- Conveyor jam prevention and detection

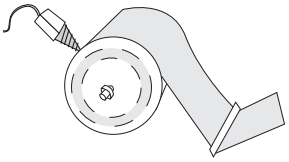
| | Foreground/Background Suppression | Distance Sensing (Long-Range) | Distance Sensing (Short-Range) | Color Sensing | Contrast Sensing | Luminescence Sensing |
|---|---|---|---|---|---|---|
| Sensing Distance | 47.2 in. (120 cm) | 1.0 to 13.1 ft. (0.3 to 4.0 m) | 2.0 to 3.9 in. (5 to 10 cm) | 0.20 to 1.77 in. (5 to 45 mm) | 0.39 in. (10 mm) | 0.79 in. (10 mm) |
| Input Voltage | 10 to 30 V DC | 16 to 28 V DC | 18 to 30 V DC | 10 to 30 V DC | 10 to 30 V DC | 10 to 30 V DC |
| Beam Type | Infrared LED (880 nm) or red LED | Red laser (665 nm), Class 2 | Red LED (630 nm) | White LED (400 to 700 nm) | White LED (400 to 700 nm) | White LED (400 to 700 nm) |
| Outputs | PNP, light operate or dark operate | Analog, 0 to 10 V 2 PNP outputs | Analog, 0 to 10 V | 3 PNP outputs, teachable | PNP or NPN by model, light operate or dark operate | PNP or NPN by model, light operate or dark operate |
| Output Current | 100 mA max. | 100 mA max. | 100 mA max. | 100 mA max. | 100 mA max. | 100 mA max. |
| Response Time | 1 ms max. | 12 ms max. | 7.3 ms max. | 650 µs max. | 185 µs max. | 1.1 ms max. |
| Switching Frequency | 500 Hz | 42 Hz | 68 Hz | 770 Hz | 2.7 kHz | 445 Hz |
| Gain Adjustment | Adjustment screw or potentiometer | Dual buttons | — | Dual buttons | — | — |
| Operating Temperature | -25 to +55°C (-13 to +131°F) | -0 to +50°C (+32 to +122°F) | -10 to +55°C (+14 to +131°F) | -10 to +55°C (+14 to +131°F) | -10 to +55°C (+14 to +131°F) | -10 to +55°C (+14 to +131°F) |
| Housing Material | ABS | ABS | PBT | ABS | PBT | PBT |
| Enclosure Ratings | For E75-PPA: IP65 For E75-PP1: IP67 | IP67 | IP67 | IP67 | IP67 | IP67 |
| Connections | M12 4-pin micro connector | M12 5-pin micro connector | M12 4-pin micro connector | M12 8-pin micro connector | M12 4-pin micro connector | M12 4-pin micro connector |
| Approvals | UL, cUL, CE | UL, cUL, CE | UL, cUL, CE | UL, cUL, CE | UL, cUL, CE | UL, cUL, CE |

## Application Diagrams



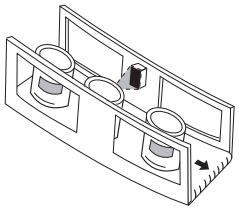
**Background Suppression**

Sensing Contents in Boxes, Totes or Cartons



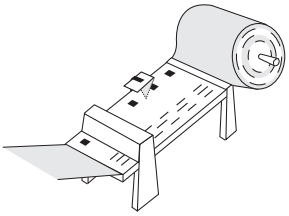
**Distance Sensing**

Detecting Thickness of Rolled Materials



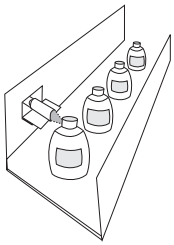
**Color Sensing**

Quality Inspection of Label Colors



**Contrast/Mark Sensing**

Registration Mark Detection



**Luminescence Sensing**

Detecting Plastic Safety Seals on Pharmaceutical Pill Bottles

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