The **SMARTEYE® EZ-PRO™** is a high performance, automatic photoelectric sensor that can be adjusted by a single push of a button. As a result, there is no guess work on the part of the operator.

The EZ-PRO™ AUTOSET ADJUSTMENT PROCEDURE is as simple as it gets...

1. Establish one of the following conditions:
   - Proximity . . . . . . . . . Reflect light off object.
   - Beam Break . . . . . . . . Remove object from light beam path.
2. Depress either Yellow or Blue button for three (3) seconds.

**NOTE:** Yellow button AUTOSET provides light “ON” output.

Blue button AUTOSET provides dark “ON” output.

That’s all there is to it! The EZ-PRO AUTOSET routine can also be implemented from a momentary remote switch (i.e. pushbutton or touch screen). The EZ-PRO is equipped with a Contrast Indicator as that allows the operator to visually substantiate performance. When the lock feature is enabled (see advanced features), the EZ-PRO sensor is tamperproof. Now, the sensor will provide you with the hassle-free performance that expect from a **SMARTEYE®**.
MANUAL-ADJUST
Please note that the Yellow “up” button or the Blue “down” button are functional at all times, as long as the lock feature is disabled. Tap the Yellow button to move the adjustment (as indicated on the Contrast Indicator) toward the light state. Tap the Blue button to move the adjustment toward the dark state. Tapping the manual buttons advances the adjustment in small incremental steps of about 0.5 bar per step as displayed on the Contrast Indicator. Manual adjustments are particularly useful when finite adjustments are required for very low contrast applications or when detecting highly reflective irregularly shaped objects.

DIAGNOSTICS
The SMARTeye® EZ-PRO™ sensor is equipped with an important and useful diagnostic feature. A 5-LED Contrast Indicator provides “at-a-glance” analysis of the sensor’s response to the light state vs. the dark state sensing conditions. This device is not only useful in static conditions for alignment purposes, but is also functional during dynamic conditions when input events are ongoing.

OUTPUT INDICATOR
Red LED illuminates when output transistor is in the “ON” state.

Note: • If the red Output Indicator flashes while the output transistor is in the “ON” state, one of the output leads is shortened (NPN to positive or PNP to negative/ shield).

AUTOSET ADJUSTMENT
The AUTOSET adjustment routine only requires one finger to push a single button once. Even in a dynamic operating condition, with ongoing input events, all you have to do is push a button for a perfect setting.

REMOTE AUTOSET
Remotely adjust the sensor from a push button momentary switch or a touch screen to PLC instantaneously. The AUTOSET routine can occur during static or dynamic operating conditions.

Note: • If the grey wire is shorted to ground, the Contrast Indicator cycles repeatedly.

Accessories
Micro Cable Selection Guide, 5-wire M12

5-Wire Shielded MicroCable, M-12

<table>
<thead>
<tr>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSEC-6</td>
<td>6’ (1.8m) cable</td>
</tr>
<tr>
<td>GSEC-15</td>
<td>15’ (4.6m) cable</td>
</tr>
<tr>
<td>GSEC-25</td>
<td>25’ (7.62m) cable</td>
</tr>
<tr>
<td>GRSEC-6</td>
<td>6’ (1.8m) cable/right angle</td>
</tr>
<tr>
<td>GRSEC-15</td>
<td>15’ (4.6m) cable/right angle</td>
</tr>
<tr>
<td>GRSEC-25</td>
<td>25’ (7.6m) cable/right angle</td>
</tr>
</tbody>
</table>

5-Wire Unshielded Cable, M-12

<table>
<thead>
<tr>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSEC-2MU</td>
<td>6.5’ (2.0m) cable</td>
</tr>
<tr>
<td>GSEC-5MU</td>
<td>16.4’ (5.0m) cable</td>
</tr>
</tbody>
</table>

Mounting Brackets

<table>
<thead>
<tr>
<th>Brackets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMB-1</td>
<td>(8.4mm diam.) Standard Fiberoptic Mounting Bracket</td>
</tr>
<tr>
<td>SEB-3</td>
<td>Stainless “L” Bracket</td>
</tr>
<tr>
<td>FMB-2</td>
<td>(5.1mm diam.) Fiber Optic Mounting Bracket</td>
</tr>
</tbody>
</table>

Visit our website for fiber optic light guide selections.
ADVANCED OPTIONS

The SMARTEYE® EZ-PRO™ is equipped with the following two optional features that can help to adapt the sensor to specific application requirements:

**Lock** When this feature is enabled the sensor becomes tamper proof.

**Timer** When this “off” delay timer is enabled, the output duration is extended by 10, 25, or 50 milliseconds. This timing function helps to prevent erratic triggering of the printer.

**DISPLAY STATUS OF SELECTABLE OPTIONS**

Press and hold both Blue and Yellow buttons simultaneously for 3 seconds. The 5-LED contrast indicator will go into a flashing routine. When completed, the 5-LED contrast indicator will switch from functioning as a contrast indicator to a status indicator. Now the status of the selectable options will be displayed and the amber LED option status indicator will be lit.

**SELECT OPTION TO BE ALTERED**

Select to the desired function to be toggled to the opposite state by “tapping” the Blue button. The first tap will step to the lock select function. To indicate the lock function has been selected, the #5 LED will blink. The next tap will step the blinking of the indicator to the #4 LED. Another tap of the Blue button will step the blinking of the indicator to the #3 LED. Another "tap" to the #2 LED and, finally, the fifth tap will select the #1 LED. Once the blinking LED is next to the option to be changed, depress the Yellow button to enter your choice into memory. The sensor will then display the choice briefly before returning to normal operation. This sequence must be repeated for each function to be altered. If there is no change in the status of any of the control functions, tap the Blue button a sixth time or wait 5 seconds and allow the sensor to automatically return to normal operation.

<table>
<thead>
<tr>
<th>LED</th>
<th>FEATURE</th>
<th>On/Off</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#5 LED</td>
<td>Lock</td>
<td>On</td>
<td>The manual up/down and AUTOSET adjustments are disabled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>Manual adjustments are enabled.</td>
</tr>
<tr>
<td>#4 LED</td>
<td>Not used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3 LED</td>
<td>10ms Timer</td>
<td>On</td>
<td>10ms Timer/Pulse Stretcher is enabled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>10ms Timer/Pulse Stretcher is disabled.</td>
</tr>
<tr>
<td>#2 LED</td>
<td>25ms Timer</td>
<td>On</td>
<td>25ms Timer/Pulse Stretcher is enabled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>25ms Timer/Pulse Stretcher is disabled.</td>
</tr>
<tr>
<td>#1 LED</td>
<td>50ms Timer</td>
<td>On</td>
<td>50ms Timer/Pulse Stretcher is enabled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>50ms Timer/Pulse Stretcher is disabled.</td>
</tr>
</tbody>
</table>

**FACTORY PRESET OPTION MENU**

<table>
<thead>
<tr>
<th>LED</th>
<th>FEATURE</th>
<th>On/Off</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#5 LED</td>
<td>Lock</td>
<td>Off</td>
<td>Lock disabled, Manual and AUTOSET adjustments are enabled.</td>
</tr>
<tr>
<td>#4 LED</td>
<td>Not Assigned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3 LED</td>
<td>10ms Timer</td>
<td>Off</td>
<td>10ms Timer/Pulse Stretcher is disabled.</td>
</tr>
<tr>
<td>#2 LED</td>
<td>25ms Timer</td>
<td>Off</td>
<td>25ms Timer/Pulse Stretcher is disabled.</td>
</tr>
<tr>
<td>#1 LED</td>
<td>50ms Timer</td>
<td>Off</td>
<td>50ms Timer/Pulse Stretcher is disabled.</td>
</tr>
</tbody>
</table>

**LOCK FUNCTION**

When enabled (#5 LED lit), the Blue (down) and Yellow (up), manual and AUTOSET commands will be disabled. This will provide tamper-proof operation. To toggle the lock function to the opposite state, hold in the both buttons for 3 seconds. Then, tap the Blue button once. The #5 LED should be blinking. Now, push and hold the Yellow button for one second.

**TIMER FUNCTION**

The optional “Pulse Stretcher” timer can be activated to help prevent false triggering of the printer in difficult sensing applications. The timer will extend the sensors output duration by either 10, 25, or 50 milliseconds (not additive). Therefore the time duration of the gap between objects must be less than the timers duration. There are 3 selectable time durations which can be enabled only one at a time. They can be activated by toggling LED #3, #4, or #5 (note selectable options as listed above).

Note: Important: When triggering off the trailing edge of an object, the timer must be disabled.
Specifications

SENSING RANGE
- Opposed Mode: 66” (1676.4mm) with F-A-36T.
- Proximity Mode: 9” (228.6mm) with BF-A-36T.

SUPPLY VOLTAGE
- 10 to 30 VDC.
- Polarity Protected.

CURRENT REQUIREMENTS
- 45mA (exclusive of load).

OUTPUT TRANSISTORS
- (1) NPN and (1) PNP sensor output transistor.
- Sensor outputs can sink or source up to 150mA (current limited).
- All outputs are continuously short circuit protected.

REMOTE AUTOSET INPUT
- Opto isolated sinking input (10mA).

RESPONSE TIME
- Light/Dark state response = 1.5 ms.

LED LIGHT SOURCE
- Infrared.
- Pulse modulated.

PUSHBUTTON CONTROL
- Yellow/Blue – AUTOSET.
- Set status of two options: a) Lock;
  b) Timers: 10ms, 25ms, 50ms.

HYSTERESIS
- “Factory-set” for high resolution – less than one bar on the Contrast Indicator.

LIGHT IMMUNITY
- Responds to sensor’s pulsed modulated light source, resulting in high immunity to most ambient light, including indirect sunlight or strobos.

DIAGNOSTIC INDICATORS
1. Dual mode 5-LED bar graph:
   - Contrast Indicator Mode: displays scaled reading of sensor's response to contrasting light levels (light to dark).
   - Option Status Indicator Mode: displays status of timer and lock options.

2. Sensor Status Indicators:
   - Amber LED = Illuminates when in the options select mode.
   - Red LED = Illuminates when the sensor’s output transistors are “on.”
   - Yellow LED = Illuminates when power is applied.

NOTE: If Output LED flashes, a short circuit condition exists.

AMBIENT TEMPERATURE
- -20°C to 70°C (-4°F to 158°F).

RUGGED CONSTRUCTION
- Chemical resistant, high impact polycarbonate housing.
- Conforms to heavy industry grade CE requirements.

Connections and Dimensions

**SMARTEYE® EZ-PRO® LONG RANGE FIBER SENSOR**

P/N SEB-3
Optional Mounting Bracket With Hardware

**Notes:**
- RoHS Compliant
- Product subject to change without notice