Specifications

SUPPLY VOLTAGE
- 10 to 30 VDC on 4-20mA and 0-5 VDC models
- 15 to 30 VDC for 0-10 VDC models
- Polarity Protected

CURRENT REQUIREMENTS
- LU-1A through 4A; 50 mA max
- LU-5A & 6A; 65 mA max (exclusive of load)

DIGITAL OUTPUT
- (1) NPN and (1) PNP output transistor:
  NPN: Sink up to 150 mA
  PNP: Source up to 150 mA
- Continuous short circuit protected
- Outputs protected from pulsing during power up

ANALOG OUTPUT
- 4 – 20 mA; 0-5 VDC; or 0-10 VDC

RESPONSE TIME
- 200us for LU-1A through 4A
- 750µs for LU-5A
- 300µs for LU-6A

AMBIENT TEMPERATURE
- -15°C to +70°C (5°F to 158°F)

LIGHT IMMUNITY
- Responds to sensor's pulse modulated light source, resulting in high immunity to most ambient light, including indirect sunlight

CONNECTION TYPE
- Built in 6" pigtail cable with 5-Pin Male, M12 Mini Micro connector

PUSHBUTTON CONTROL
- AUTOSET pushbutton setup
- Tweak adjustments with "UP" or "DWN" buttons
- Selection of Light/Dark operation
- Enable/Disable pulse stretcher
- "Select" button scrolls thru four AUTOSET modes

DIAGNOSTIC INDICATORS
- Contrast Indicator – Display scaled reading of sensor's response to contrasting UV light levels (light vs. dark) on an 8 bar LED display
  Note: All 8 LEDs will flash three times if contrast insufficient or too low in Two-Point AUTOSET mode
- Red LED Output Indicator – Illuminates when the sensor's output transistors are "ON"
  NOTE: If Output LED flashes, a short circuit condition exists
- Green LED Timer Indicator – Illuminates when the 15 ms pulse stretcher timer is enabled

LIGHT SOURCE
- UV LED, 375 nm Wavelength

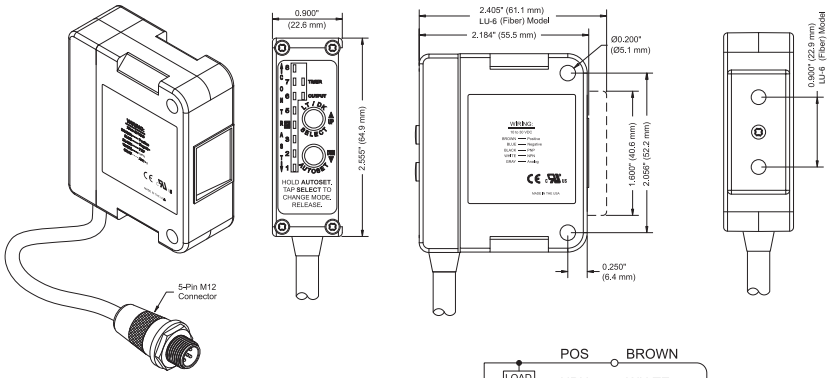
RUGGED CONSTRUCTION
- Chemical resistant high impact polycarbonate housing, acrylic or glass lens cover
- Industry Ratings: NEMA 4, IP67

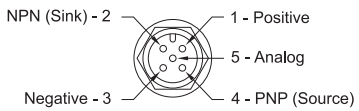
CERTIFICATIONS
- UL, CE, RoHS

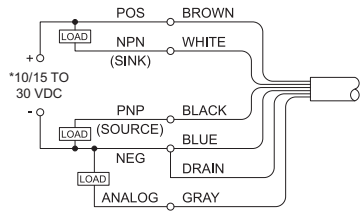
RoHS Compliant
Product subject to change without notice.

Connections and Dimensions

LU **Analog/Digital**







*Supply Voltage = 10-30 VDC for "A" & "A5" models
15-30 VDC for "A10" models

Luminescence Sensor

Installation Manual

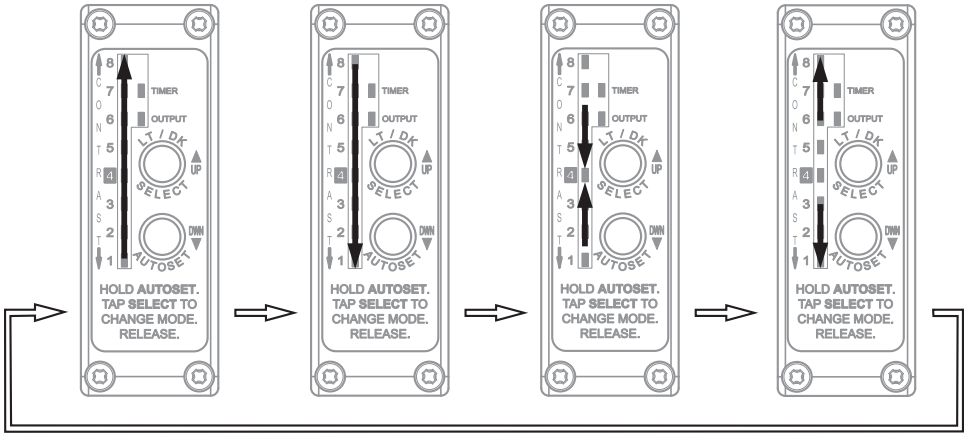
LU Analog/Digital Sensor

AUTOSET Procedure for LU Anolag Sensors

AUTOSET sets up Analog and Digital outputs.

SELECT AUTOSET MODE:
While holding down the AUTOSET button, tap the "Select" button to advance through the four modes. The direction of the LEDs indicates the current AUTOSET mode illustrated below. When desired AUTOSET mode is selected, release AUTOSET button (see below INITIATE AUTOSET for details).

A. LIGHT STATE **B. DARK STATE** **C. MID-POINT** **D. TWO-POINT**



INITIATE AUTOSET:

A. LIGHT STATE AUTOSET MODE – Place the brightest UV material or target in view of the sensor and release the AUTOSET button.

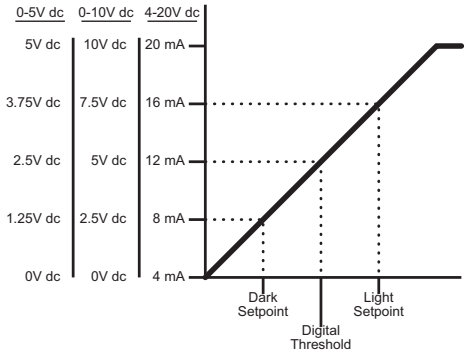
B. DARK STATE AUTOSET MODE – Place the lowest level UV material or target in view of the sensor and release the AUTOSET button.

C. MID-POINT STATE AUTOSET MODE (Auto Referencing) – Place the UV material or target in view of the sensor and release the AUTOSET button. This will center the analog output.

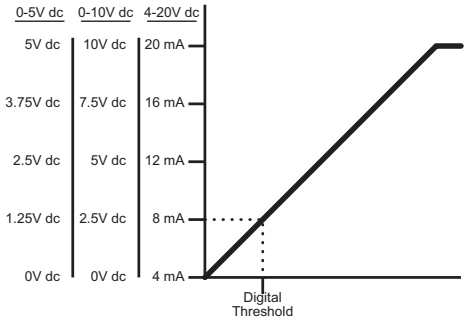
D. LIGHT STATE AUTOSET MODE (Span Adjustment) – Place the target in view of the sensor that you require the digital output to respond to (the "ON" state); press and release the AUTOSET button. Next, place the target in view of the sensor that you require the digital output ***not*** to respond to (the "OFF" state); press and release the AUTOSET button.

NOTE: All 8 LEDs will flash three times if contrast insufficient or too low in Two-Point AUTOSET mode.

Two-Point AUTOSET Mode



Light State, Dark Sate & Mid-Point AUTOSET Modes



Light State AUTOSET Mode

The sensor's threshold is set approximately 10% below sampled point upon completion of the AUTOSET procedure. The Contrast Indicator will display the level of returned light relative to the threshold.

Dark State AUTOSET Mode

The sensor's threshold is set approximately 10% above sampled point upon completion of the AUTOSET procedure. The Contrast Indicator will display the level of returned light relative to the threshold.

Mid-Point AUTOSET Mode

The sensor's threshold is set at the sampled point (middle of hysteresis zone or band) upon completion of the AUTOSET procedure. The Contrast Indicator will display the level of returned light relative to the threshold.

Two-Point AUTOSET Mode

The sensor's threshold is set midway between the two sampled points upon completion of the AUTOSET procedure. The Contrast Indicator will display level of returned light relative to the threshold. The Contrast Indicator is scaled to the application from bar 0 to bar 8 based on the two set points.

Two-Point AUTOSET Applications: The two-Point mode is recommended when you need to compare or reference two different levels of UV luminescence in process control or assembly applications. As example, the analog output is excellent for monitoring the presence or quantity or adhesives, lubricants/grease, labels, and clear coatings on printed materials or products. The Two-Point spanning mode has the highest resolution and is the most sensitive setting for distinguishing slight UV contrast differences.

AUTOSET

1. Hold the AUTOSET button. The sensor's LED bar graph displays the current AUTOSET mode as illustrated above. If necessary, tap the SELECT button to advance to the Two-Point AUTOSET mode.
2. With the first target in view. Release the AUTOSET button.
3. Place the second target in view. Tap the AUTOSET button.

NOTE: All 8 LEDs will flash three times if contrast insufficient or too low in Two-Point AUTOSET mode.

ANALOG SIGNAL:
The analog output is scaled by the AUTOSET procedure as illustrated in the graph above.

DIGITAL OUTPUT:
The first target presented during the AUTOSET procedure determines "ON" state of the digital output. The digital threshold is centered between setpoints as illustrated in the graph above. To invert the "ON" state condition, push the LT/DK SELECT button for one second.

TIMER SELECTION:
To enable or disable the 15 ms pulse stretcher; press both buttons for one second, the Green Timer LED will illuminate when the pulse stretcher is enabled.

MANUAL ADJUST:
Tap the "UP" or "DWN" button for minor offset adjustments.

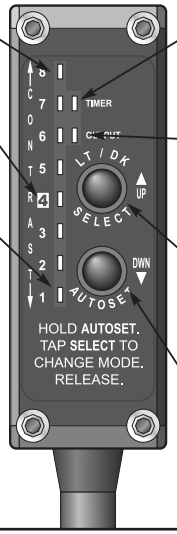
CONTRAST INDICATOR BAR 8
Remains illuminated when Light State signal strength is 8 or above

CONTRAST INDICATOR BAR 4
Switching Threshold - sensor digital outputs toggle state when signal passes through Bar 4...above or below

CONTRAST INDICATOR LEDs (X8)
Green - provides visible, "at-a-glance" performance data

All 8 LEDs will flash three times if contrast insufficient or too low in Two-Point AUTOSET mode

Responds to invisible luminescent materials



TIMER INDICATOR
Green - illuminates when 15 ms pulse stretcher timer is enabled
Hold both buttons for two seconds to enable/disable timer

OUTPUT INDICATOR
Red - illuminates when output transistors are on
Flashes when output transistor is over current limit

LIGHT/DARK AND MANUAL UP ADJUST
1. Push for two seconds to select "Light On" or "Dark On" operation
2. Tap UP to "Tweak" setting if needed
3. When holding AUTOSET button tap to select next AUTOSET mode

AUTOSET/MANUAL DOWN ADJUST
1. Push and hold to view current AUTOSET mode; release for AUTOSET
2. Tap DWN to "Tweak" setting if needed

How to Specify

Model/Range Guidelines

Optimal range is dependent upon fluorescent concentration, size, and surface reflectivity.

***Note:** Sensor selection should not be determined solely by range. It may be advisable to test multiple sensors or fiberoptic light guide tip configurations to ensure optimum performance.

Example:

LU X A X X

- LU — Luminescence Sensor
- X — Model Selection LU-1 THRU 6
- A — ANALOG OUTPUT
- X — BLANK = 4-20 mA; 5 = 0-5 VDC; 10 = 0-10 VDC
- X — WINDOW: BLANK = ACRYLIC; G = GLASS

Note:
For chemical resistant glass window, add "**G**" to model numbers.
Example: **LU-1AG**

Sensing Range Guidelines

Model Listing	Digital Output	Analog Output	Supply Voltage	Min. Load Voltage Out	Max. Impedance Out	Scanning Distance	Usable Range	Spot Size
LU-1A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	0.5 Inches (13mm)	5 Inches (130mm)	.067 Inches (1.7mm)
LU-1A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-1A10		0 to 10 VDC	15 to 30 VDC					
LU-2A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	1.0 Inches (25.4mm)	7.5 Inches (11mm)	.086 Inches (2.2mm)
LU-2A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-2A10		0 to 10 VDC	15 to 30 VDC					
LU-3A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	2.0 Inches (51mm)	10 Inches (254mm)	.128 Inches (3.25mm)
LU-3A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-3A10		0 to 10 VDC	15 to 30 VDC					
LU-4A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	4.0 Inches (102mm)	13 Inches (330mm)	.160 Inches (4.1mm)
LU-4A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-4A10		0 to 10 VDC	15 to 30 VDC					
LU-5A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	8.0 Inches (203mm)	2 Inches To 2 Feet (51-510mm)	1.0 Inch (25.4mm)
LU-5A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-5A10		0 to 10 VDC	15 to 30 VDC					
LU-6A	NPN/PNP	4-20 mA	10 to 30 VDC	N/A	500 Ohms @ 12 VDC In	Dependent upon fiber optic selection	Up To 2.5 Inches (Up to 635mm)	Dependent upon fiber optic selection
LU-6A5		0 to 5 VDC	10 to 30 VDC	1k Ohm	N/A			
LU-6A10		0 to 10 VDC	15 to 30 VDC					