Specifications

SUPPLY VOLTAGE:
- 10 to 30 VDC
- Polarity Protected
  Note: For use in Class 2 circuits

CURRENT REQUIREMENTS:
- 35 milliamps max. at 24VDC

OUTPUT TRANSISTORS:
- (1) NPN and (1) PNP sensor output transistors
- Outputs sink or source up to 150 milliamps (current limit)
- All outputs are continuously short circuit protected

REMOTE AUTOSET INPUT:
Selectable: Advanced Options
- NPN Input, Connect to 0VDC
- PNP Input, Connect to 10-30VDC

RESPONSE TIME:
- Light state response = 240 microseconds
- Dark state response = 240 microseconds

LASER LIGHT EXPECTANCY:
- 50,000 hours @ 25ºC

LIGHT SOURCE:
- Red Laser: Class 1 or II
- EN 60825-1 (2003)

SPOT SIZE:
- Short Range: .05" X .03" @ 6"
- Long Range: .07" X .05" @ 18"
- Retroreflective: .1" X .1" @ 5'

PUSHBUTTON CONTROL:
- Two push buttons

AMBIENT TEMPERATURE:
- -40ºC to 70ºC (-40ºF to 158ºF)

RUGGED CONSTRUCTION:
- Chemical resistant high impact ABS plastic housing
- Waterproof rating: IP68
- Conforms to heavy industry grade CE requirements
- RoHS Compliant

DIMENSIONS:
- Width: 2.037in (51.73mm)
- Height: 2.005in (50.9mm)
- Depth: .812in (20.6mm)

SMARTEYE® SMARTDOT® LASER SENSOR

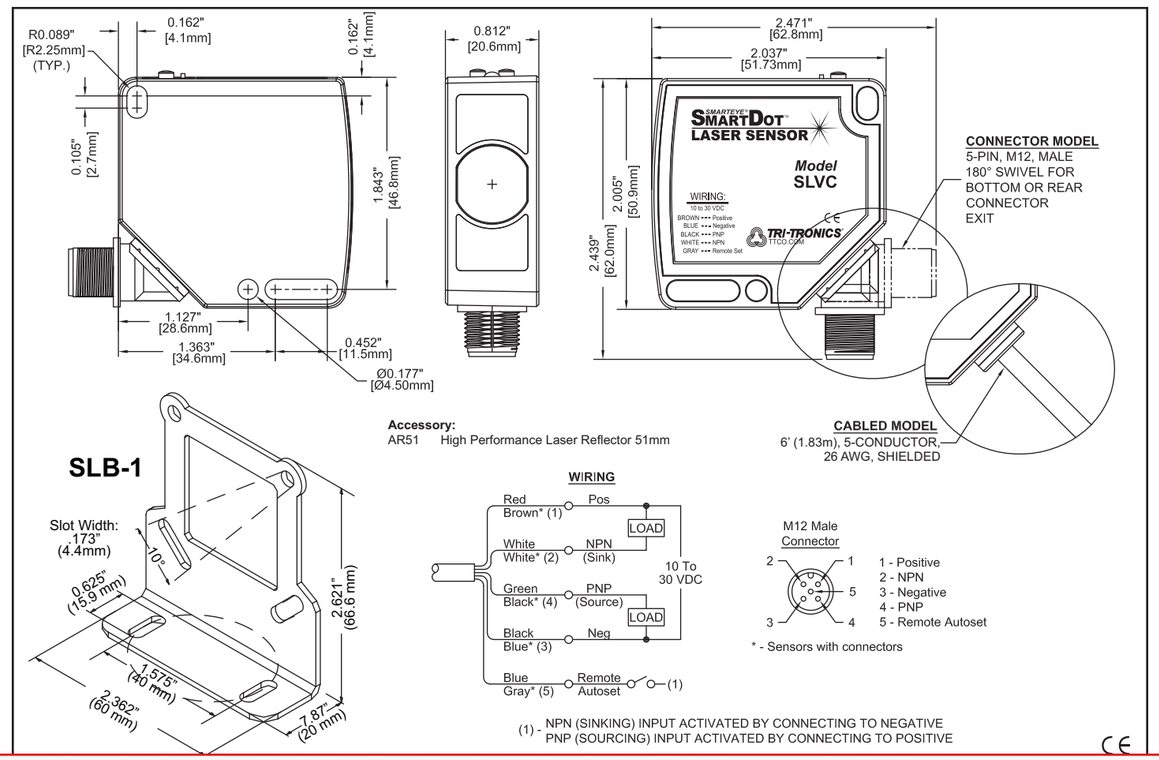
FOCAL DISTANCE:
- Short Range Proximity: 6" (152mm)
- Long Range Proximity: 18"(456mm)
- Retroreflective: 5' (1.520m)

Note: Ranges are determined by optimal beam spot focus. Increased ranges are possible, but are application specific and can not be adequately specified herein.

CE
RoHS Compliant
Product subject to change without notice.

SMARTEYE® SMARTDOT™

Connections and Dimensions



Accessory:
AR51 High Performance Laser Reflector 51mm

* - Sensors with connectors

(1) - NPN (SINKING) INPUT ACTIVATED BY CONNECTING TO NEGATIVE
PNP (SOURCING) INPUT ACTIVATED BY CONNECTING TO POSITIVE

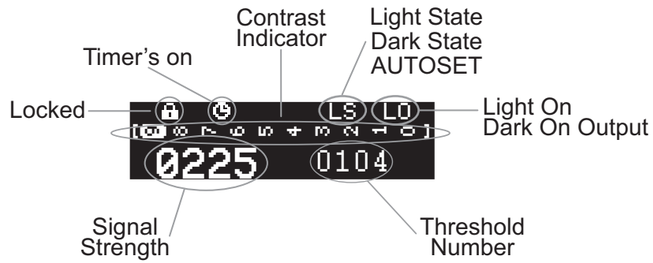
CE

iSweek www.isweek.com
Add: 16/F, Bldg. #3, Zhongke Mansion, No.1 Hi-Tech S. Rd, Hi-Tech Park South, Shenzhen, Guangdong, 518067 P.R.China
Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com

iSweek.com

SMARTEYE® SMARTDOT® LASER SENSOR

Installation Manual

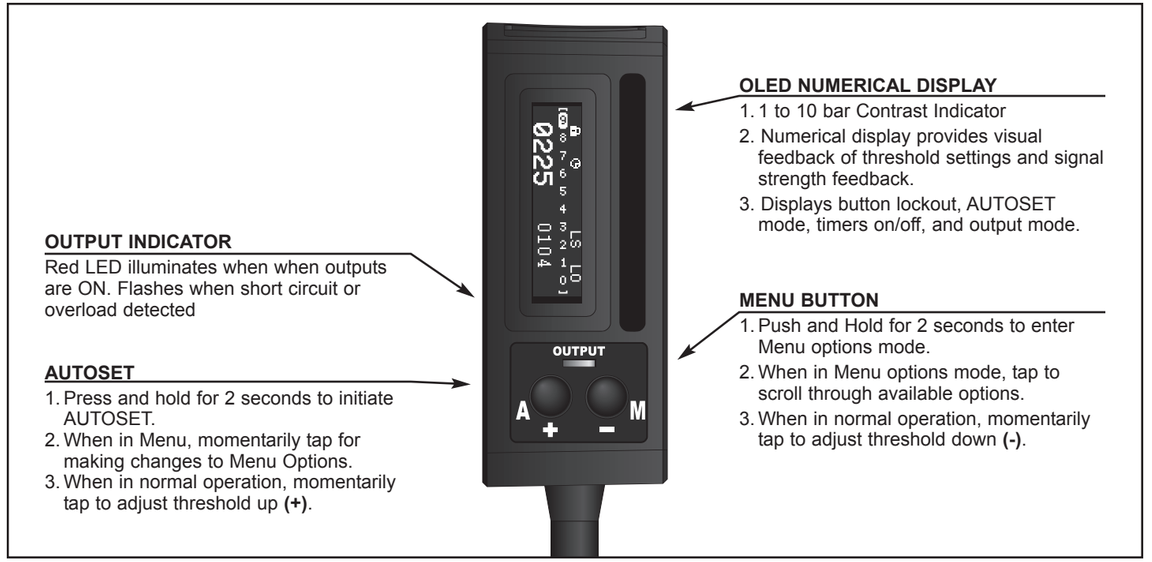


AUTOSET: (A)

- **Proximity Sensing** - Push and hold **"A"** button for 2 seconds with product in view for Light State AUTOSET. Push and hold **"A"** button for 2 seconds with product NOT in view for Dark State AUTOSET.
  (Note: Choose Light On Output for leading edge triggering, Dark On Output for trailing edge triggering.
- **Retroreflective Sensing** - Push and hold **"A"** button for 2 seconds with reflector in view for Light State AUTOSET. Push and hold **"A"** button for 2 seconds with product blocking the reflector for Dark State AUTOSET.
  (Note: Choose Dark On Output for leading edge triggering, Light On Output for trailing edge triggering.)

MENU: (M)

Press and hold "M" button for Menu access. Tap **"M"** button for scrolling through selection options. Tap **"A"** button to change selection.



iSweek www.isweek.com
Add: 16/F, Bldg. #3, Zhongke Mansion, No.1 Hi-Tech S. Rd, Hi-Tech Park South, Shenzhen, Guangdong, 518067 P.R.China
Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com

Press Menu for Detailed Setup

1 AUTOSET
Tap **A** to move through screens, Tap **M** for next option

`Autoset Mode: Light State (LS)` **Light State (LS): Push and hold "A" button for Light State AUTOSET.** Light State is most useful for Leading Edge Triggering. And fastest "On" time in Proximity sensing.

`Autoset Mode: Dark State (DS)` **Dark State (DS): Push and hold "A" button for Dark State AUTOSET.** Dark State is most useful for Trailing Edge triggering, and Maximum range settings in Proximity sensing modes.

`Autoset Mode: Two Point (2P)` **Two-Point (2P): Push and hold "A" button for Two-Point AUTOSET. Release "A" button for first point AUTOSET. Push and release "A" button for second point AUTOSET.** Two-Point is most useful for spanning between two contrast levels that may not have a great amount of difference. Low contrast applications work best using this AUTOSET mode.

`Autoset Mode: Dynamic (DN)` **Dynamic (DN): Push and hold "A" button while passing target in and out of beam then release "A" button.** Dynamic is most useful when automatic set up is necessary due to mechanical constraints.

2 Output
Tap **A** to toggle, Tap **M** for next option

`Oupput Mode: Light On(Lo)` **LIght On** - Output turns on when received light level exceeds threshold.

`Oupput Mode: Dark On(DO)` **Dark On** - Output turns on when received light level drops below threshold

3 Timer Mode
Tap **A** to move through screens, Tap **M** for next option

`Timer Mode: Enabled` To set Timer Duration, tap **"A"** button to scroll through 1-9, tap **"M"** button to move through 1000, 100, 10, 1 place holders. Then tap **"M"** button to complete selection.

Note: Timer must be enabled to have available options displayed

`Timer Mode: Off Delay(o)` **Off Delay**: Outputs stay on for set time after duration of input.

`Timer Mode: On Delay` **On Delay**: Outputs turn on when input exceeds set time

`Timer Mode: One Shot` **One Shot**: Outputs turn on for set time when triggered by input

`Timer Mode: Debounce` **Debounce**: Outputs are stabilized and held in current state for duration of time setting

4 Display Orientation
Tap **A** to toggle, Tap **M** for next option

`Toggle Display Orientation` Tap **"A"** button to Toggle Orientation. Useful for left or right hand visibility.

`Toggle Display Orientation` (upside down)

5 Advanced Options:
`Advanced Options...` Tap **"A"** button to select Advanced Options. Provides for NPN or PNP Remote AUTOSET input.

6 Input Mode:
`Input Mode NPN / Sink` Tap **"A"** button to change from NPN to PNP Input. Choose NPN if output device in Sinking (0VDC); Choose PNP if output device is Sourcing (10-30VDC).

`Input Mode PNP / Source`

7 Button Lockout
`Button Lockout: Off` Tap **"A"** button to select Button Lockout. The Button Lockout prevents tampering with AUTOSET and displays Sensor Locked should AUTOSET be attempted.

`Button Lockout: On (🔒)` To UNLOCK, press and hold “M” for two seconds to enter new options mode. Tap “M” to scroll through to Button Lockout and tap “A” to unlock.

iSweek www.isweek.com
Add: 16/F, Bldg. #3, Zhongke Mansion, No.1 Hi-Tech S. Rd, Hi-Tech Park South, Shenzhen, Guangdong, 518067 P.R.China
Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com

iSweek.com

How To Specify

1. Select Sensor:
SMARTEYE® SMARTDOT™
Laser Sensor

2. Select Output Configuration:
V = Short Range
P = Long Range
R = Retroreflective

3. Select Cable:
Blank = 6 foot Cable (1.8m)
C = 6 inch (152mm)
M12 5-Pin Connector

Example: SL P C
SMARTEYE® SMARTDOT™
Laser Sensor

V = Short Range
P = Long Range
R = Retroreflective

Blank = 6 foot Cable (1.8m)
C = M12 Connector

8 Quick Reference
Tap **A** to move through screens, Tap **M** for next option

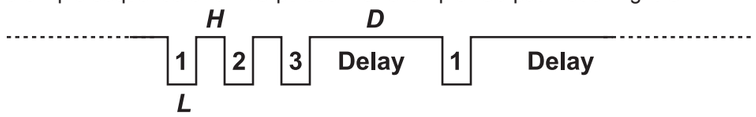
`Quick Reference Tap A: Scroll Text` Tap **A** to scroll through Quick Reference.

- `AUTOSET: Light State Push & Hold A button`
  - `for 2 secs w/target in view for Prox Sens`
  - `with reflector in view for Retro Sens`
- `AUTOSET: Dark State Push & Hold A button`
  - `for 2 secs w/NO target in view for Prox Sens`
  - `w/ reflector BLOCKED for Retro Sens`
- `AUTOSET:Two Point Prox-Push & Hold A`
  - `Button for 2 secs w/ Target in view`
  - `Release for point 1 Push & Release with`
  - `No target in view For point 2`
- `AUTOSET:Two Point Retro-Push & Hold A`
  - `Button for 2 secs w/ reflector in view`
  - `Release for point 1 Push & release with`
  - `Target in view For point 2`
- `AUTOSET:Dynamic Push & Hold A button`
  - `While passing target In & out of view`
  - `Then release A button`
  - `Contact: Tr-Tronics 1-800-237-0946`
  - `www.ttco.com`

9 Sensor Scope
This option allows the operator to visually inspect the current setup for repeatability. The sensor scope will also reveal any nominal setup issues or sensitivities to label or gap thickness changes. Momentarily press the **minus (–)** button to shorten the time between signals. Momentarily press the **plus (+)** button to lengthen the time between signals.

Remote Programming

The SmartDot sensor can be configured and adjusted from the Remote AUTOSET line. This is accomplished by sending a simple sequence of 0VDC pulses. For example: Output Mode: Light On



Each pulse (L) is low for 40ms to 400ms. The idle time (H) between pulses is 40ms to 400ms. The delay (D) between sets of pulses is .75 seconds to 5 seconds.
NOTE: Default remote input is NPN. See Advanced Options for change to PNP input.

Standard AUTOSET
Hold the Remote AUTOSET line low for at least .75 seconds.

Option/Command	Setting	Pulse Sequence	Notes
Threshold Adjust	Tap “Up”	1 - 1 - #	# is the number of adjustments from 1 to 8
	Tap “Down”	1 - 2 - #	
AUTOSET Mode	Light State	2 - 1	*Note:* Changes the AUTOSET mode used by the next AUTOSET
	Dark State	2 - 2	
	Two-Point	2 - 3	
	Dynamic	2 - 4	
Output Mode	Light On	3 - 1	(auto mimics xm-1)
	Dark On	3 - 2	

iSweek www.isweek.com
Add: 16/F, Bldg. #3, Zhongke Mansion, No.1 Hi-Tech S. Rd, Hi-Tech Park South, Shenzhen, Guangdong, 518067 P.R.China
Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com