

Specifications

SUPPLY VOLTAGE

- 10 to 30 VDC
- Polarity Protected
- Intended for use in Class 2 circuits

CURRENT REQUIREMENTS

- 30mA (exclusive of load; standard model)
- 50mA (exclusive of load; H & V models)

OUTPUT TRANSISTORS

- (1) NPN and/or (1) PNP output transistor. *Note: Dependent on Model; see "How to Specify, #3".*
- Outputs sink or source up to 150mA (current limit)
- All outputs are continuously short circuit protected

REMOTE AUTOSET INPUT

- XM/XMC-1 & 2 Models – Momentary sinking input (1mA)
- XM/XMC-3 Models – Momentary sourcing input (1mA)
- Note: Remote programming available in XM/XMC-1 Models only.*

REMOTE LT/DK INPUT

- XM/XMC-2 Model – Connect to Negative/0VDC
- XM/XMC-3 Model – Connect to Positive/10-30VDC

RESPONSE TIME

- 10µs (standard model)
- 12µs (H & V models)

REPEATABILITY

- 5µs (standard model)
- 6µs (H & V models)

LED LIGHT SOURCE

- White = Broadband Color Spectrum (standard model)
- Tri-Color LED = Red (635nm), Green (520nm) Blue (470nm) - (H & V models)

DIAGNOSTIC INDICATORS

- Contrast Indicator – Display scaled reading of sensor's response to contrasting 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 10ms pulse stretch timer is enabled
- Red LED INVERT Indicator – Illuminates when INVERT is enabled

PUSHBUTTON CONTROL

- AUTOSET
- INVERT outputs
- Manual Adjustments
- Timer – 10ms Pulse Stretcher

HYSTERESIS

- Dynamic – adjusted by AUTOSET

LIGHT IMMUNITY

- Responds to sensor's pulsed modulated light source – immune to most ambient light including indirect sunlight

AMBIENT TEMPERATURE

- 10°C to 60°C (50°F to 140°F)

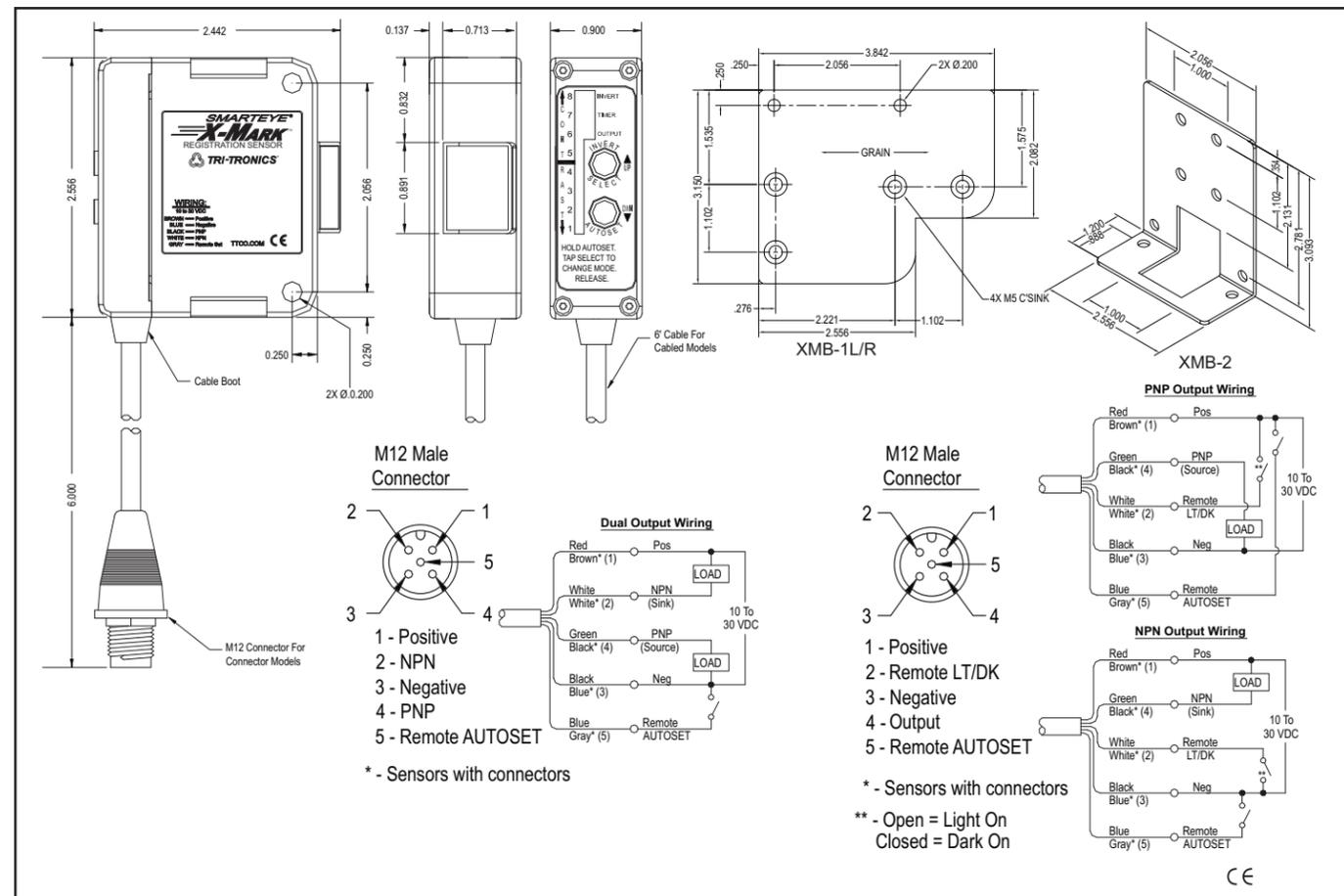
RUGGED CONSTRUCTION

- Chemical resistant, high impact polycarbonate housing
- Waterproof ratings: NEMA 4X, 6P and IP67
- Conforms to heavy industry grade CE requirements
- Standard Light Projection Models are UL Listed. Horizontal and Vertical Beam Models are UL Pending"

CE
RoHS Compliant
Product subject to change without notice.

SMARTEYE® X-MARK™

Connections and Dimensions



CE

070-0188 Rev.5

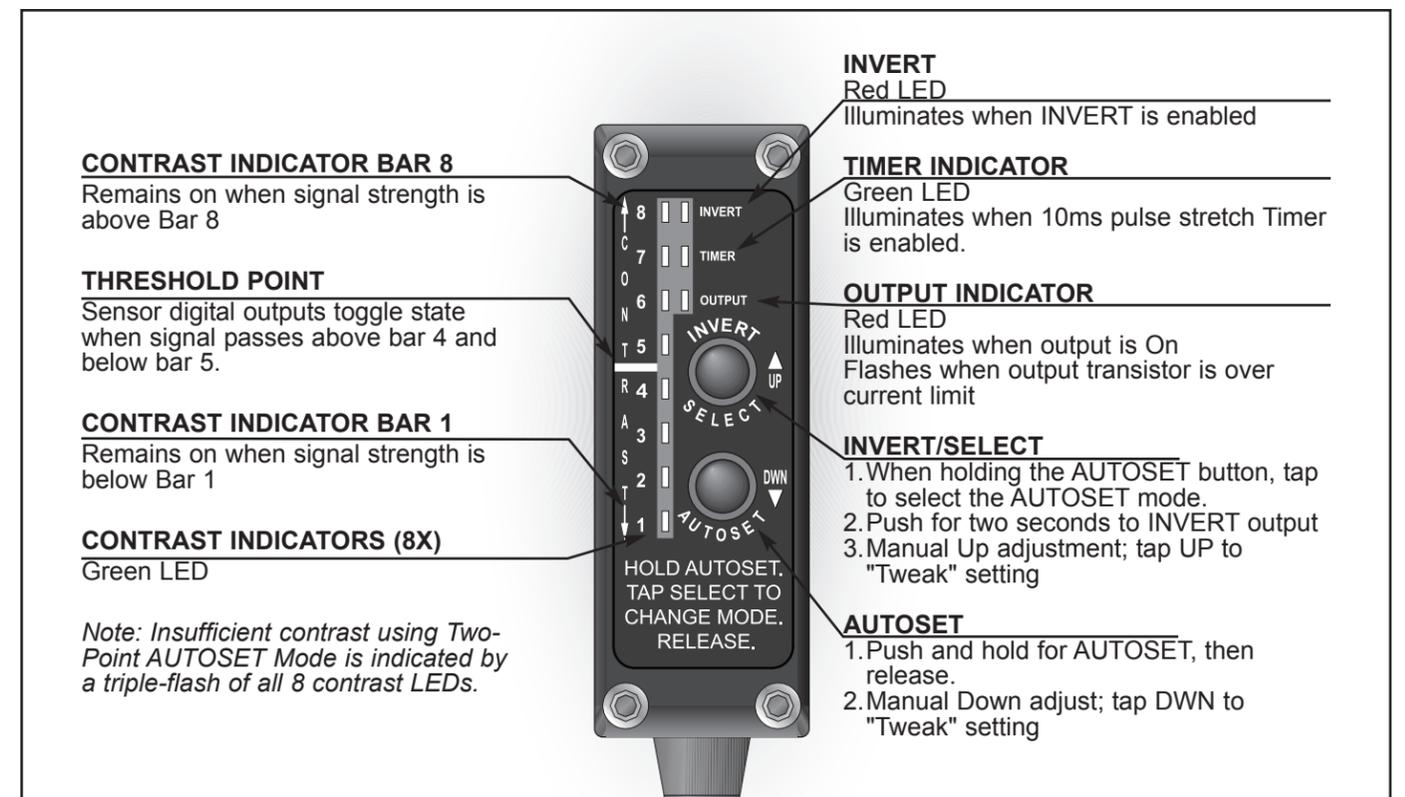
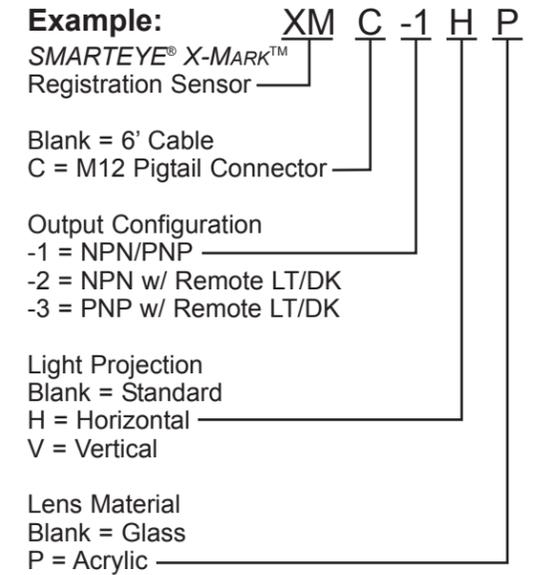
SMARTEYE® X-MARK™

Installation Manual

How To Specify

- Select Sensor:**
SMARTEYE® X-MARK™
Registration Sensor
- Select Cable:**
Blank = 6' Cable
C = M12 Pigtail Connector
- Select Output Configuration:**
-1 = NPN/PNP
-2 = NPN w/ Remote LT/DK
-3 = PNP w/ Remote LT/DK
- Select Light Projection:**
Blank = Standard Round Spot
V = Vertical
H = Horizontal
NOTE: H & V models are tri-color LED only, and they only have Two-Point and Dynamic AUTOSET mode options.
- Select Lens Material:**
Blank = Glass
P = Acrylic

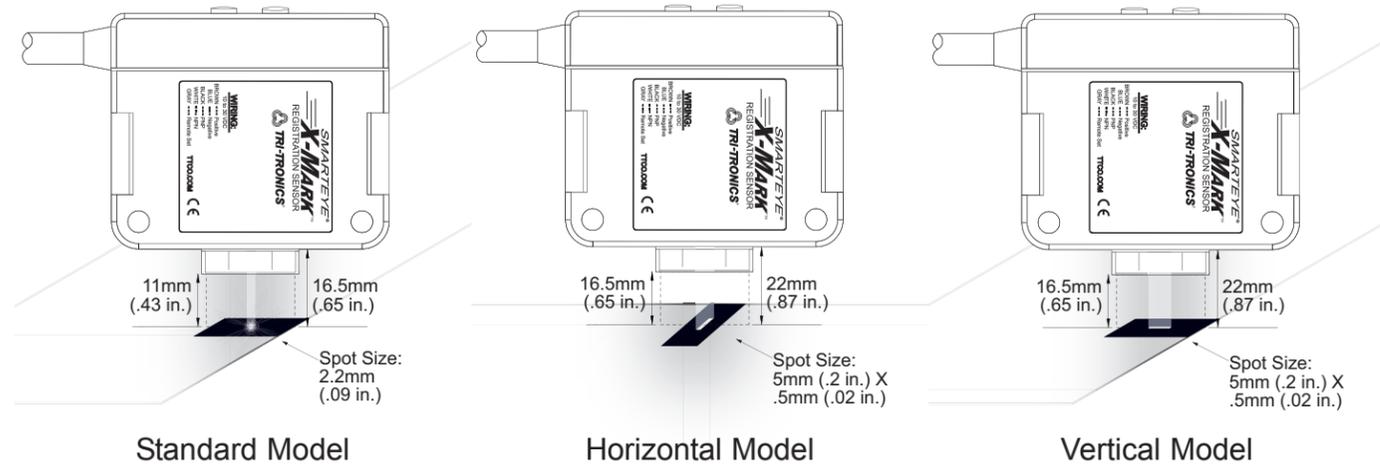
NOTE: H & V models are tri-color LED only, and they only have Two-Point and Dynamic AUTOSET mode options.



TRI-TRONICS®

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Range

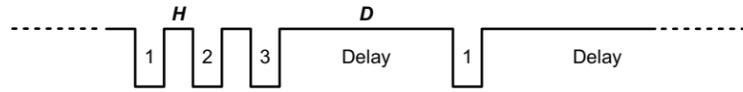


****NOTE:** H & V models are tri-color LED only, and they only have Two-Point and Dynamic AUTOSET mode options.

Remote Programming

(XM/XMC-1 Models only)

The X-MARK™ sensor can be configured and adjusted from the Remote AUTOSET line. This is accomplished by sending a simple sequence of 0VDC pulses. For Example: Invert Mode - Normal



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.

As pulses are received by the sensor, they are displayed on the Contrast Indicator. When a delay is detected, the Contrast Indicator clears.

*Standard AUTOSET

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

Options / Commands

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 (above)*
	Dark State	2-2	
	Two-Point**	2-3	
	Dynamic**	2-4	
Invert Mode	Normal	3-1	Inverts the Output
	Invert	3-2	
Timer	0ms	4-1	Adds 10ms to Output
	10ms	4-2	

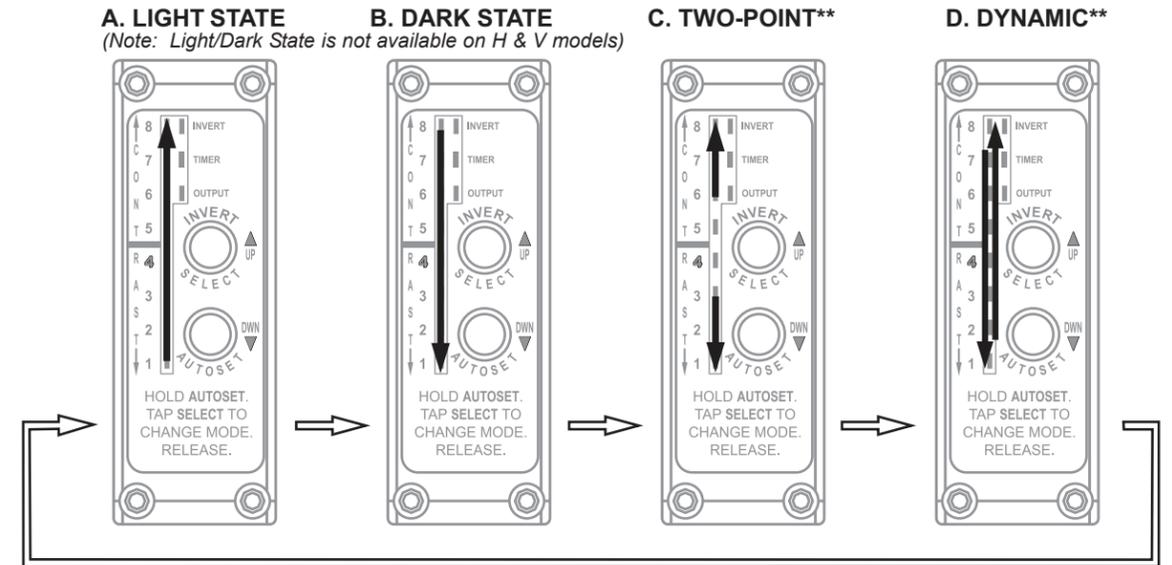
Note: After AUTOSET Mode modification, follow standard AUTOSET procedure.

AUTOSET Procedure



SELECT AUTOSET MODE:

While holding down the AUTOSET button, tap the "SELECT" button to advance through the four AUTOSET Modes. The direction of the LED's indicates the current AUTOSET mode illustrated below. When desired AUTOSET mode is selected, release the AUTOSET button (see below for details).



INITIATE AUTOSET: After Selecting the required AUTOSET Mode...

A. LIGHT STATE AUTOSET MODE - Place the light background in view, press and release the AUTOSET button.
 (Note: Not available on H & V models)

B. DARK STATE AUTOSET MODE - Place the dark background in view, press and release the AUTOSET button.
 (Note: Not available on H & V models)

C. TWO-POINT (Span Adjustment) - Place the background in view, press and release the AUTOSET button. Then place the mark in view, press and release the AUTOSET button.

D. DYNAMIC - With the background in view, press and hold the AUTOSET button, move the mark in view, or past the sensor, then release the AUTOSET button.

INVERT: To invert the output, press and hold the INVERT button for 2 seconds.

TIMER: To select the 10ms pulse stretcher, press and hold both buttons for 2 seconds.

REMOTE AUTOSET:

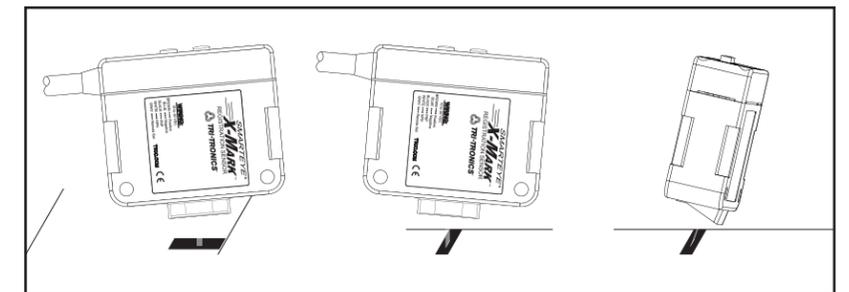
1. When using the Remote AUTOSET line, the AUTOSET mode must first be selected manually via the pushbuttons, see Select AUTOSET Mode.

2. To initiate a Remote AUTOSET, pulse the AUTOSET line using the same sequence as specified in the pushbutton instructions for that AUTOSET mode. The pulse must have a minimum duration of .75 seconds and is active low for XM/XMC-1 and -2 models and active high for XM/XMC-3 models. See Connections and Dimensions.

NOTE: AUTOSET automatically selects Output "ON" for mark. LT/DK line on XM/XMC-2 and -3 models will override automatic output selection.

Sensing Tips

If there is a considerable amount of glare, tilt the sensor 15 to 30 degrees as shown. This method will prevent glare from diminishing the contrast between the background web material and the registration mark. It is best to tilt the sensor as shown in order to keep the registration consistent.



Angle for Glare