Series 42CRC

Color Registration Control

Description

The 42CRC Series 4000 LED Color Registration Control is a specialized photoelectric sensor designed to detect registration marks by sensing the difference in gray-scale response between the mark and background.

The sensor features Automatic Gain Control which provides stable, adjustment-free sensing for many applications. The 42CRC automatically adjusts the sensitivity, compensating for variations in background colors and lens contamination.

Switch selectable red or green light sources provide capability to sense a wide range of marks and background colors, including difficult pastels. A response time of 250 microseconds permits the detection of small registration marks at high web speeds.

The diagnostic alarm output provides an early warning of changes in contrast or problems due to misalignment or dust prior to loss of output signal, therefore helping to avoid unexpected process disruptions.

Features

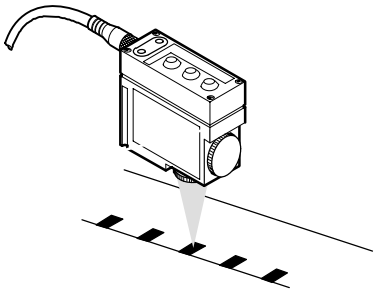
- Automatic or manual sensitivity adjustment
- Selectable red or green light source
- Selectable lens position
- Fast 250µs response time
- Separate diagnostic output
- Adjustable pulse-stretcher
- Selectable latching output with reset
- Selectable gated input operation
- Selectable NPN or PNP output
- 5-pin micro QD connection

General Information

Accessories

Series 42CRC

Color Registration Control



The Photoswitch Type 42CRC Series 4000 LED Color Registration Mark Control with Automatic Gain Control (AGC) is a fixed focus diffuse-reflective scanning device designed to detect preprinted registration marks against contrasting backgrounds. Detection of the marks is achieved by sensing the difference in the gray-scale response to the mark and background.

This device has two sources of emitted light, a red and a green LED that are selected by an operating-mode switch. The choice of a red or green LED broadens the control's capability of detecting a wide range of mark and background colors.

A small light spot is projected on the material being scanned. The reflectivity of the material at the spot defines the level of the received signal. Changes in the reflectivity, due to the contrast between the printed mark and the background is recognized by the control, which provides an output.

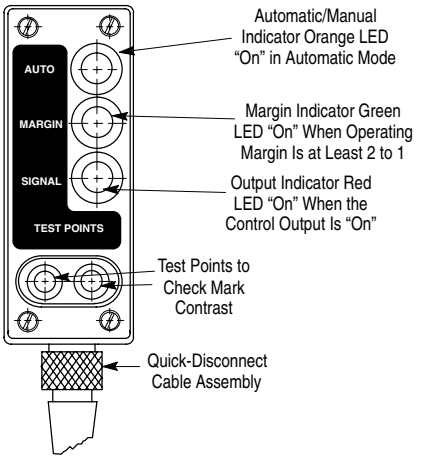
This output can then be used by the packaging machine to properly cut, seal, crimp, or fold packages or tubes.

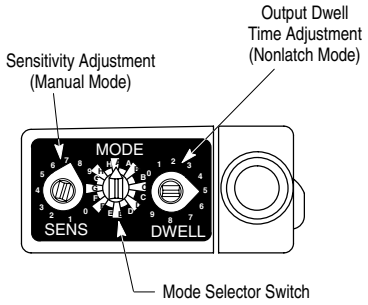
General Specifications

Light Source	Both red and green
Unit Protection	Overload, short circuit, reverse polarity, false pulse
Supply voltage	10–30V DC
Current Consumption	70mA maximum
Output Type	NPN or PNP by model
Output Mode	Light/dark operate selectable
Output Rating	100mA @ 30V DC
Response Time	250µs
Housing Material	Anodized and epoxy coated aluminum
Lens Material	Glass
LED Indicators	See User Interface below
Connection Types	5-pin DC micro QD
Supplied Accessories	Not applicable
Optional Accessories	AB#60–2292 cordset (3m), mounting brackets—see Section 5
Operating Environment	NEMA 3, 4, 12, 13; IP66 (IEC 529)
Vibration	10–55Hz, 1mm amplitude, Meets or exceeds IEC 60947–5–2
Shock	30g with 1ms pulse duration, Meets or exceeds IEC 60947–5–2
Operating Temperature	0°C to +70°C (32°F to +158°F)
Relative Humidity	5…95%
Approvals	UL listed, CSA certified, CE marked for all applicable directives

User Interface Panel

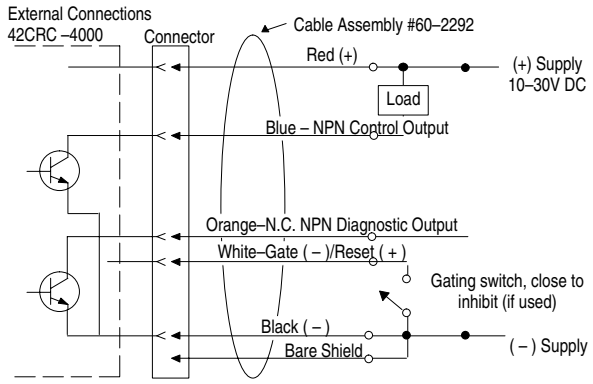
Label	Color	State	Status
Margin	Green	OFF	Margin < 2X
		ON	Margin > 2X
Auto	Orange	OFF	Sensor in manual configuration mode
		ON	Sensor in automatic configuration mode
Signal	Red	OFF	Sensor output activated
		ON	Sensor output de-activated



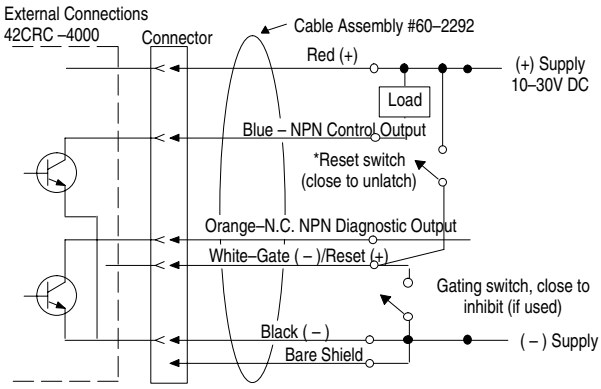


Wiring Diagrams

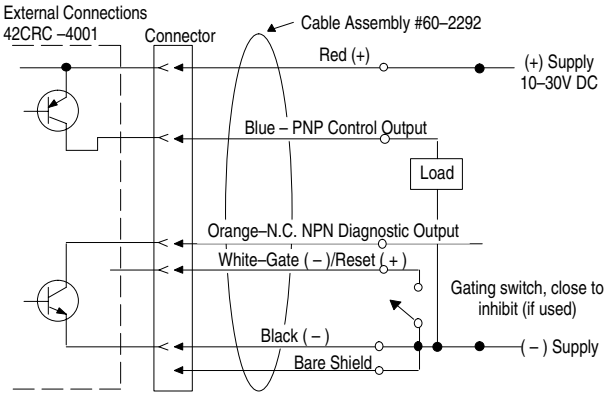
NPN Output 42CRC–4000
Non-Latched Output —Function Switch Positions
"E" Through "H" with or without External Gating



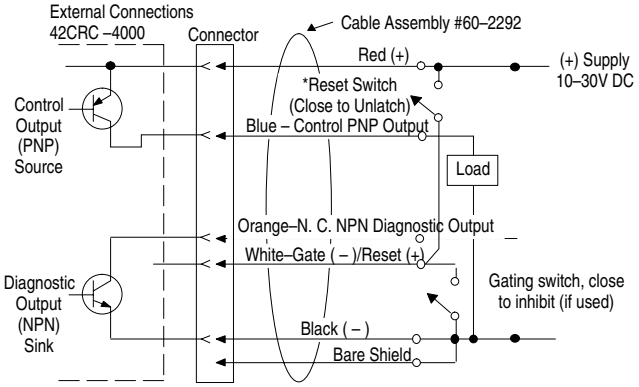
NPN Output 42CRC–4000
Latched Output—Function Switch Positions
"A" Through "D" with or without External Gating



PNP Output 42CRC–4001
Non-Latched Output—Function Switch Positions
"E" Through "H" with or without External Gating

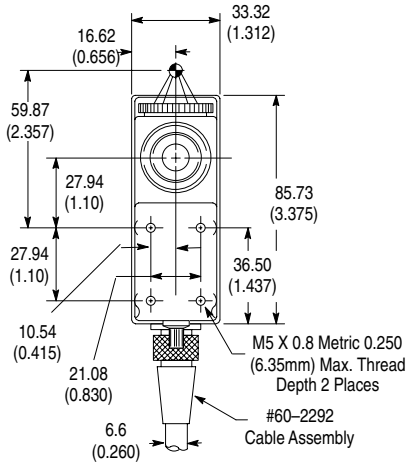


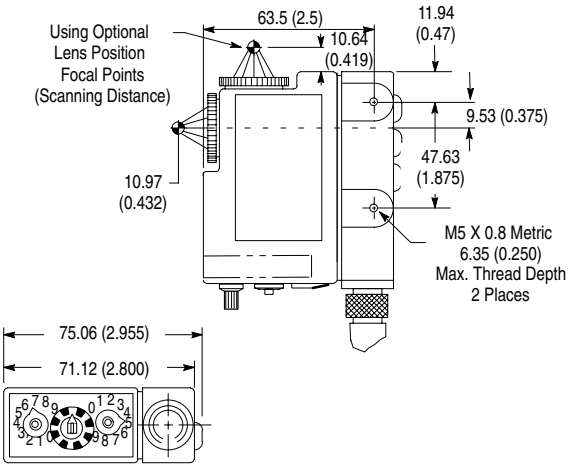
PNP Output 42CRC–4001
Latched Output—Function Switch Positions
"A" Through "D" with or without External Gating



WARNING: Do not close the reset and gating switches simultaneously.

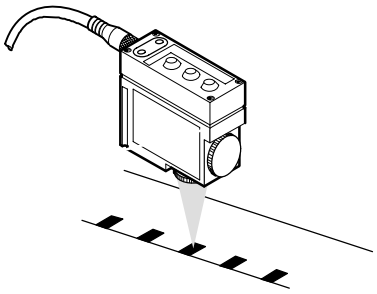
Dimensions—mm (inches)





Series 42CRC

Color Registration Control



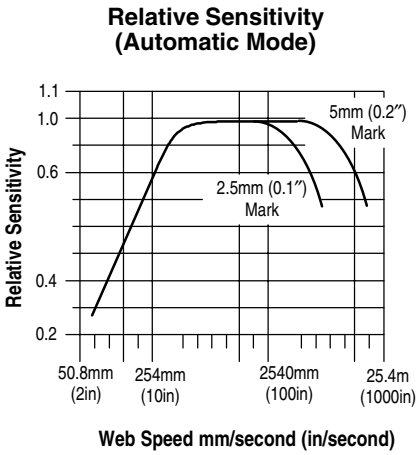
Specifications

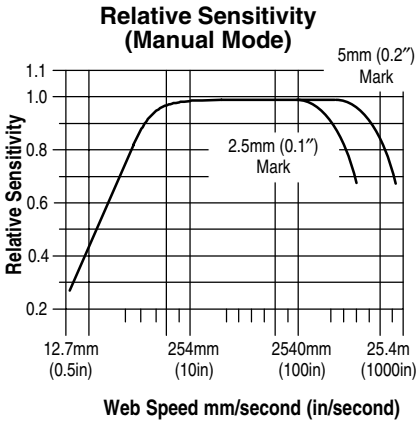
Emitter LED	Visible red 630nm or visible green 570nm (selectable)

QD Cordsets and Accessories

Description	Catalog Number
3m (10ft) 5-pin AC Micro QD Cordset with shield	**60–2292**

Typical Response Curve





Selection Guide

Operating Voltage Supply Current	Output Energized	Output Type Capacity Response Time	Max Leakage Current	Diagnostic Output	Focal Point	Depth of Field	Min Web Velocity	Catalog Number
10–30V DC 70mA max	Leading Edge or Trailing Edge of a Light or Dark Mark	NPN 100mA at 30V DC 250µs	1µA	NPN 30mA at 30V DC	12.7mm (0.5in)	±2mm (0.08in)	51mm/sec (2in/sec)	**42CRC–4000**
		PNP 100mA at 30V DC 250µs						**42CRC–4001**