



## Description

The CU2 control unit is a compact timing and stop motion detector interface module. By utilizing two independent inductive proximity inputs which monitor the movement of two metal parts of the machine (e.g., sprockets, cams or linkages), the control unit detects when hazardous motion has ceased. When the hazardous motion has stopped the unit will send a signal to unlock guard locking devices. It has been developed to integrate guardlocking interlock switches on machines which have variable or unpredictable run down cycles.

A removable cover allows access to the DIP switches and potentiometer which control the timing. The on-delay may be adjusted between 0.1 seconds to 40 minutes, through a series of 4 broad time ranges. The final adjustment is made by a potentiometer.

The Y1/Y2 terminals provide a check of contactors at machine power up. This is only relevant to certain special applications. For normal use these terminals should be linked. After all motion has ceased, the N.O. safety on contacts close, which may be used to energize electrically operated solenoid locking guard switches. In addition the N.C. contacts open to indicate the unit's status.

LED indication in the unit displays power, timer on, and outputs.

## Features

- Category 1 per EN 954-1
- Stop category 1
- NPN and PNP Inputs
- Timed off-delay 0.1s to 40 min.
- 2 N.O. Safety Outputs
- 1 N.C. Auxiliary Output

## Specifications

Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-5-1, ANSI B11.19, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO13849-1)
Approvals	C-Tick, CE marked for all applicable directives, cULus & TÜV
Power Supply	24V AC/DC or 110/230V AC
Power Consumption	< 4VA
Inputs	1 NPN and 1 PNP, normally open
Maximum Input Resistance	500 Ω
Reset	Automatic/Manual
Outputs	2 N.O. Safety; 1 N.C. Auxiliary
<ul style="list-style-type: none"> <li>• Output Utilization per IEC 60947-5-1 (Inductive)</li> </ul>	B300 AC-15 5A/250V AC, 5A/125V AC N300 DC-13 3A/24V DC
Timed Off-Delay	0.1s to 40min.
Fuses Input (external) Output (external)	500mA time lag 5A quick acting
Max. Switched Current/Voltage	10mA/10V
Maximum Dropout Time	90ms
Indication LEDs	Red = Power on Red/Green = Timing/Output on
Impulse Withstand Voltage	2500V
Operating Temperature	-10°C to +55°C (+14°F to +131°F)
Humidity	90% RH
Enclosure Protection	IP40 (NEMA 1), DIN 0470
Terminal Protection	IP20, DIN 0470
Conductor Size	1 x 2.5mm <sup>2</sup> (14AWG) stranded 1 x 4mm <sup>2</sup> (12AWG) solid
Installation Group	C in accordance with VDE 0110
Pollution Degree	3
Torque Settings—terminal screws	1N·m (8lb-in)
Case Material	Red Polycarbonate
Mounting	35mm DIN rail
Weight	360g (0.79lbs)
Electrical Life	220V AC/4A/880VA/cosφ=3.5 220V AC/1.7A/375VA/cosφ=0.6 30V DC/2A/60W 10V DC/0.01/0.1W
Mechanical Life	2,000,000 operations
Vibration	0.75mm (0.30in) peak, 10-55Hz
Shock	30g, 11ms half-sine

• See Output Ratings on page 1-29 for details. Consult factory for ratings not shown.

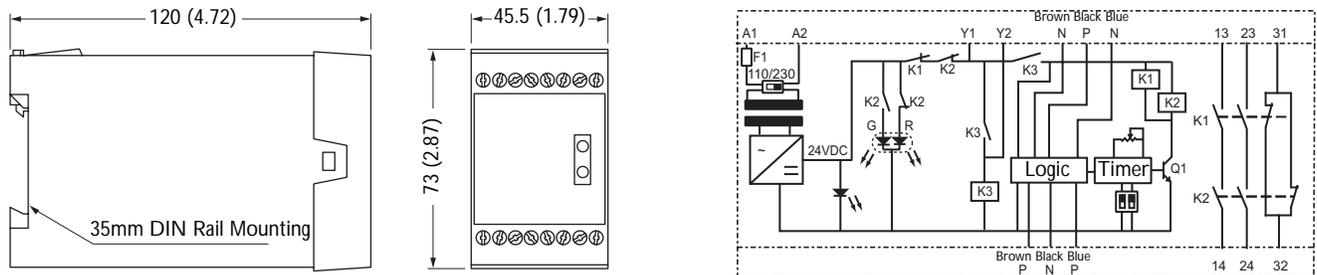
**Product Selection**

Description	Sensor Voltage	Sensor Size	Sensing Distance	Control Unit Voltage	Catalogue Number
Controller and Sensors	24V DC Supplied by Control Unit	12mm	3mm	24V AC/DC	440R-S07279
				110/230V AC	440R-S07280
		18mm	5mm	24V AC/DC	440R-S07281
				110/230V AC	440R-S07282
		30mm	10mm	24V AC/DC	440R-S07283
				110/230V AC	440R-S07284

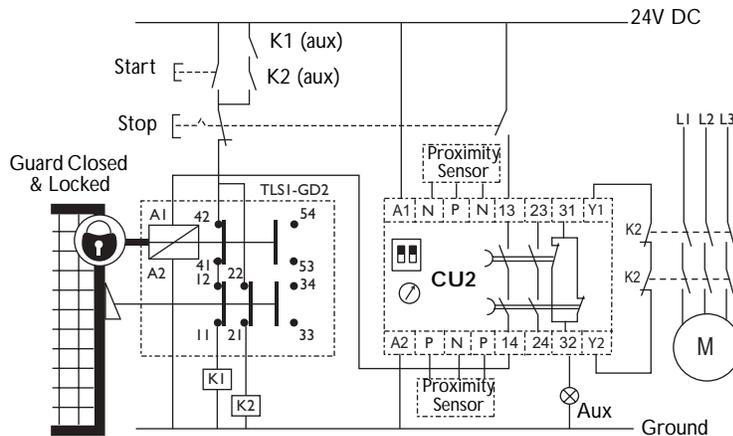
**Accessories**

Description	Voltage	Size	Output Type	Catalogue Number
Control Unit only	24V DC	45mm	2 N.O. & 1 N.C.	440R-S07139
	110/230V AC			440R-S07140
Sensor only	24V DC Supplied by Control Unit	12mm	NPN	872C-D3NN12-E2
			PNP	872C-D3NP12-E2
		18mm	NPN	872C-D5NN18-E2
			PNP	872C-D5NP18-E2
		30mm	NPN	872C-D10NN30-E2
			PNP	872C-D10NP30-E2
Replacement Fuse		page 14-6		440R-A31562

**Dimensions—mm (inches) Block Diagram**



**Typical Wiring Diagrams**



*Guardlocking Safety Gates, Motion Sensors, Delayed Gate Release, Automatic Reset, Monitored Output*



**Description**

Bulletin 872C WorldProx inductive proximity sensors are self-contained, general purpose, solid-state devices designed to sense the presence of ferrous and nonferrous metal objects without touching them.

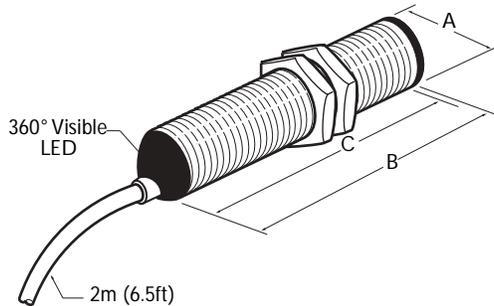
The switch body consists of a plastic face and a nickel-plated brass barrel. It meets NEMA 1, 2, 3, 4, 6P, 12, 13 and IP67 (IEC529) enclosure standards. The electronic circuitry is fully potted for protection against shock, vibration, and contamination.

The CU2 is designed to operate with one normally-open NPN and one normally-open PNP inductive proximity sensor.

The sensors translucent end caps which glow when the LED indicator is on, and is visible from almost every angle.

The sensors contained in this section are some of the more popular size inductive proximity sensors. See the Rockwell Automation/Allen-Bradley *Sensors* catalogue for an extensive range of proximity sensors.

**Dimensions—mm (inches)**



**Specifications**

Standards	IEC60947-5-2
Approvals	CE marked for all applicable directives and cULus
Operating Voltage	10-30 DC
Sensing Distance	2mm, 5mm or 10mm
Correction Factors	Mild Steel 1.0 Stainless Steel 0.7 – 0.8 Brass 0.4 – 0.5 Aluminium 0.3 – 0.4 Copper C – 0.3
Load Current	200mA
Outputs	NPN or PNP normally open
Leakage Current	£10mA
Voltage Drop	≤1.64V
Repeatability	≤2%
Hysteresis	≤10% typical
Indication LED	Red = Output energized
Operating Temperature	-25°C to +70°C (-13°F to +158°F)
Humidity	95% RH
Enclosure Protection	NEMA 1, 2, 3, 4, 6P, 12, 13, IP67
Electrical Protections	False pulse on power, transient noise, reverse polarity short circuit, overload.
Cable Size	3 x 1mm <sup>2</sup> (18AWG) stranded
Cable Length	2mm <sup>2</sup> (14AWG)
Case Material	Plastic faced, nickel plated brass barrel
Mounting	M12, M18 or M30 Flush fitting (shielded sensing)
Shock	30g, 11ms half sine
Vibration	1mm peak, 10 – 55Hz

● See Output Ratings on page 1-29 for details. Consult factory for ratings not shown.

Thread Size	Shielded	mm (inches)		
		A	B (max)	C (min)
M12 x 1	Yes	12 (0.47)	50.8 (2.00)	46.7 (1.84)
M18 x1		18 (0.71)		
M30 x 1		30 (1.18)		

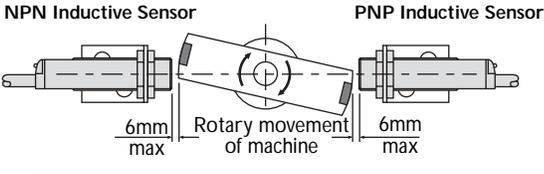
**Application Details**

**Application Accessories**



**PNP and NPN Inductive Sensors for use with CU2**

Sensors detect when motion has ceased by monitoring two targets on moving metal parts. When motion has ceased the CU2 begins timing down. Once preset time limit has been passed the CU2 sends a signal allowing locked guard to be opened.



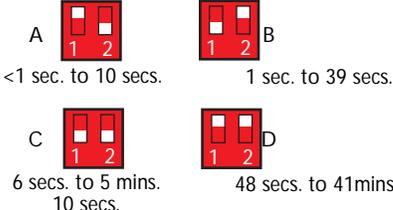
**CU1 remote indication unit:**  
 A remote indication unit to indicate the status of the circuit can be connected to the CU 1s R1, R2 and R3 connections.

**Adjustable Time Delay**

DIP switches general time setting and the potentiometer fine tunes the time settings. Easy access 500mA replaceable fuse.



**General time settings via DIP switches**



**Fine adjustment time setting via potentiometer**



**Typical Wiring Diagrams**

