

## Specialty Safety Relays

## CU2 Stop Motion Monitors



## 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 guard locking 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 normally open safety on contacts close, which may be used to energize electrically operated solenoid locking guard switches. In addition the normally closed 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 0.1 s...40 min
- Two N.O. safety outputs
- One N.C. auxiliary output

## LED Indicators

Red	Power on
Red/Green	Timing/Output On

## Specifications

Safety Ratings		
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-5-1, ANSI B11.19, AS4024.1	
Safety Classification	Cat. 1 per EN 954-1 (ISO 13849-1), SIL CL1 per EN IEC 62061, PL c per ISO 13849-1	
Certifications	CE Marked for all applicable directives, cULus, c-Tick, and TÜV	
Power Supply		
Input Power Entry	24V AC/DC or 110/230V AC	
Power Consumption	<4 VA	
Inputs		
Safety Inputs	1 NPN and 1 PNP, Normally Open	
Input Resistance, Max.	500 Ω	
Reset	Automatic/Manual	
Outputs		
Safety Contacts	2 N.O.	
Auxiliary Contacts	1 N.C.	
Rated Impulse withstand Voltage	2500V	
Switching Current @ Voltage, Min.	10 mA @ 10V	
Fuses, Output	5 A quick acting (external)	
Electrical Life (Operations)	220V AC/4 A/880VA $\cos\phi = 0.35...0.1$ M 220V AC/1.7 A375VA $\cos\phi = 0.6...0.5$ M 30V DC/2 A/60 W = 1 M 10V DC/0.01 A/0.1 W = 2 M	
Mechanical Life	2,000,000 operations	
Utilization Category		
Inductive: B300: AC-15	5 A @ 250V AC	5 A @ 120V AC
Inductive: DC-13	3 A/24V DC	
Environmental and Physical Characteristics		
Enclosure Type Rating/ Terminal Protection	IP40 (NEMA 1), DIN 0470/ IP20, DIN 0470	
Operating Temperature [C (F)]	-10...+55 ° (14...131 °)	
Vibration	0.75 mm (0.30 in) peak, 10...55 Hz	
Shock	30 g, 11 ms half-sine	
Mounting	35 mm DIN Rail	
Weight [g (lbs)]	360 (0.79)	
Conductor Size, Max.	1 x 2.5 mm <sup>2</sup> (14 AWG) stranded, 1 x 4 mm <sup>2</sup> (12 AWG) solid	

\* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the following assumptions:

- Mission time/Proof test interval of 20 years
- Functional test at least once within six-month period

**Product Selection**

Description	Sensor Voltage	Sensor Size (mm)	Sensing Distance (mm)	Terminals	Reset Type	Control Unit Voltage	Cat. No.
Controller and Sensors	24V DC supplied by Control Unit	12	3	Fixed	Automatic/Manual	24V AC/DC	440R-S07279
						110/230V AC	440R-S07280
		18	5			24V AC/DC	440R-S07281
						110/230V AC	440R-S07282
		30	10			24V AC/DC	440R-S07283
					110/230V AC	440R-S07284	

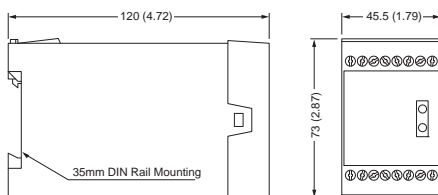
When you order a combination Cat. No.	You will receive a control unit, an NPN sensor and a PNP sensor.
440R-S07279	440R-S07139, 872C-D3NN12-E2, and 872C-D3NP12-E2
440R-S07280	440R-S07140, 872C-D3NN12-E2, and 872C-D3NP12-E2
440R-S07281	440R-S07139, 872C-D5NN18-E2, and 872C-D5NP18-E2
440R-S07282	440R-S07140, 872C-D5NN18-E2, and 872C-D5NP18-E2
440R-S07283	440R-S07139, 872C-D10NN30-E2, and 872C-D10NP30-E2
440R-S07284	440R-S07140, 872C-D10NN30-E2, and 872C-D10NP30-E2

**Accessories**

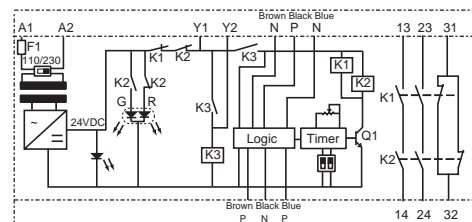
Description	Power Supply	Size (mm)	Output Type	Cat. No.
Control Unit Only	24V AC/DC	45	2 N.O. & 1 N.C.	440R-S07139
	110/230V AC		2 N.O. & 1 N.C.	440R-S07140
Sensor Only	24V DC supplied by Control Unit	12	NPN	872C-D3NN12-E2
			PNP	872C-D3NP12-E2
		18	NPN	872C-D5NN18-E2
			PNP	872C-D5NP18-E2
		30	NPN	872C-D10NN30-E2
	PNP	872C-D10NP30-E2		
500 mA fuse—Bussmann Cat. No. ETF-500 mA				440R-A31562

**Approximate Dimensions**

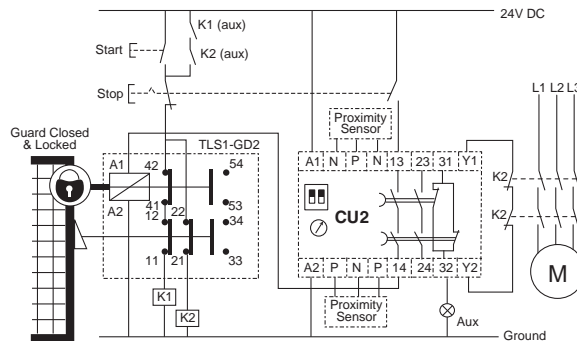
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Block Diagram**



**Typical Wiring Diagrams**



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

**5-Safety Relays**