

# CU4

## Description

The CU4 is an off-delay timing unit which can be operated standalone or as an extension of a host relay. The timed outputs are used in applications where power must be maintained for a fixed duration after an input signal is received. For example, driving a power to lock TLS2-GD2 to maintain a guard door in the locked position for a fixed duration after a stop button is pressed. Another example would be maintaining the connection of a drive to a motor until the braking function is achieved, and then dropping out a contactor to remove power to the motor.



The inputs can be connected in either a single channel or dual channel configuration. The inputs must remain open during the complete timing cycle. Closing the contacts before the timing cycle completes causes the timer to be reset to zero.

The CU4 has a redundant structure with two independent safe timer circuits. The outputs include two normally open safety delayed outputs as well as one normally closed auxiliary output. The safety outputs have independent and redundant internal contacts to support the safety function. When used as an extension of a host relay, the normally closed contacts should be used in the feedback loop of the host relay. If used in standalone application, the normally closed contacts can be used to signal an auxiliary device or PLC.

A typical operation starts with power applied to A1/A2 and the input circuits open.

1. Close the B11/B12 and B21/B22 circuits.
  - a. The safety outputs (17/18 & 27/28) close immediately.
2. Open the B11/B12 or B21/B22 circuits.
  - a. The timing process starts.
  - b. The safety outputs (17/18 & 27/28) open after the time expires.
3. Go to Step 1.

## Features

- Category 3 per EN 954-1
- Stop category 1
- Timed off-delay 0.15...30 s
- Two safety contacts
- One auxiliary contact

## LED Indicators

Green	Power
Green	CH1 t1 Active
Green	CH2 t2 Active

## 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. 3 per EN 954-1 (ISO 13849-1), SIL CL2 per EN IEC 62061, PLe per ISO 13849-1
Functional Safety Data * Note: For up-to-date information, visit <a href="http://www.ab.com/safety/">http://www.ab.com/safety/</a>	PFH <sub>D</sub> : < 2.16 x 10 <sup>-9</sup> MTTF <sub>D</sub> : > 345 years Suitable for performance levels PLe (according to ISO 13849-1:2006) and for use in SIL3 systems (according to IEC 62061) depending on the architecture and application characteristics
Certifications	CE Marked for all applicable directives, cULus, c-Tick, and BG
Power Supply	
Input Power Entry	24V AC/DC, 50/60 Hz; 0.85...1.1 x rated voltage
Power Consumption	2.5 W
Inputs	
Safety Inputs	1 N.C. or 2 N.C.
Input Simultaneity	Infinite
Reset	Automatic
Response Time	30 ms
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	External 6 A slow blow or 10 A fast acting
Electrical Life (Operations)	220V AC/4 A/880VA cosφ = 0.35...0.1 M 220V AC/1.7 A/375VA cosφ = 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	
AC-15	5 A @ 250V AC
DC-13	3 A/24V DC
UL:	B300, 5 A/250V AC, 24V DC
Environmental and Physical Characteristics	
Enclosure Type Rating/ Terminal Protection	IP40, DIN 0470/ IP20
Operating Temperature [C (F)]	-5...+55 ° (23...131 °)
Vibration	10...55 Hz, 0.35 mm
Shock	10 g, 16 ms, 100 shocks
Mounting	35 mm DIN Rail
Weight [g (lb)]	165 (0.36)
Conductor Size, Max.	0.2...4 mm <sup>2</sup> (24...12 AWG)

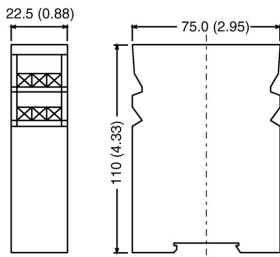
\* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the following assumptions:  
- Mission time/Proof test interval of 20 years  
- Functional test at least once within six-month period

## Product Selection

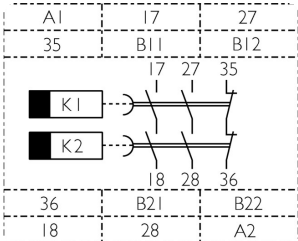
Inputs	Safety Outputs	Auxiliary Outputs	Time Range	Reset Type	Power Supply	Cat. No.
1 N.C. or 2 N.C.	2 N.O.	1 N.C.	0.15...3s	Automatic	24V AC/DC, 50/60 Hz 0.85...1.1 x rated voltage	440R-S23173
			0.5...10s			440R-S23174
			1.5...30s			440R-S23175

## Approximate Dimensions

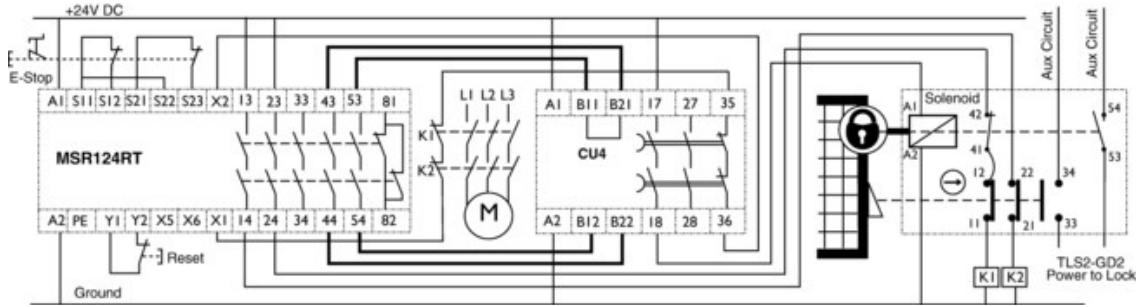
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



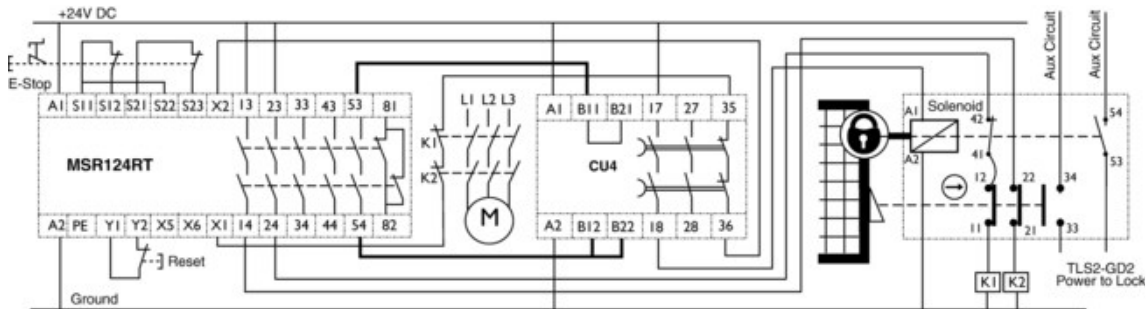
### Block Diagram



### Typical Wiring Diagrams



Dual Channel Wiring to CU4 Inputs



Single Channel Wiring to CU4 Inputs