

# Timing Control Units

## 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 closed during the complete timing cycle. Opening 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 safety output. The safety outputs have independent and redundant internal contacts to help ensure 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 and 27/28) close immediately.
2. Open the B11/B12 or B21/B22 circuits.
  - a. The timing process starts.
  - b. The safety outputs (17/18 and 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 0.15s to 30s
- 2 Safety contacts
- 1 Auxiliary contact
- 1 Monitoring contact

### Specifications

Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-5-1, ANSI B11.19, AS4024.1
Category	Cat. 3 per EN 954-1 (ISO13849-1)
Approvals	C-Tick, CE marked for all applicable directives, cULus and BG
Power Supply	24V AC/DC, 50/60 Hz 0.85 to 1.1 x rated voltage
Power Consumption	2.5W
Safety Inputs	1 N.C. or 2 N.C.
Input Simultaneity	Infinite
Outputs	2 N.O. Safety; 1 N.C. Auxiliary
① Output Utilization per IEC 60947-5-1 (Inductive)	B300 AC-15 5A/250V AC, 5A/125V AC N300 DC-13 3A/24V DC
Timed Off-Delay	0.15 to 30s
Fuses Output External	6A Slow Blow or 10A Quick Blow
Min. Switched Current/Voltage	10mA/10V
Contact Material	Ag Sn O <sub>2</sub> /0.5μ Au
Response Time	30msec
Indication LEDs	Green = Power Green = CH t1 Active Green = CH t2 active
Impulse Withstand Voltage	2500V
Pollution Degree	2
Operating Temperature	-5°C to +55°C (+23°F to 131°F)
Humidity	90% RH
Enclosure Protection	IP40 (NEMA 1)
Terminal Protection	IP20
Maximum Conductor Size	0.2–4mm <sup>2</sup> (24-12AWG)
Torque Settings—terminal screws	0.4Nm (3.54lb <sup>2</sup> in)
Mounting	35mm DIN rail
Weight	165g (0.36lbs)
Electrical Life	220V AC/4A/880VA cosφ=0.35 220V AC/1.7A/375VA cosφ=0.6 30V DC/2A/60W 10V DC/0.01A/0.1W
Mechanical Life	2,000,000 operations
Vibration	10-55 Hz, 0.35mm
Shock	10g, 16ms, 100 shocks

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

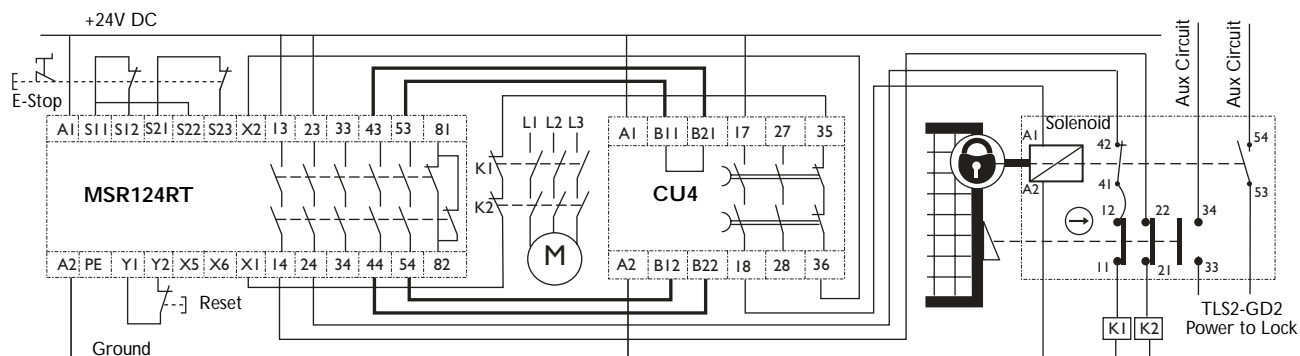
**Product Selection**

Inputs	Safety Outputs	Auxiliary Outputs	Timing Range	Catalogue Number
1 N.C. or 2 N.C.	2 N.O.	1 N.C.	0.15 – 3s	440R-S23173
			0.5 – 10s	440R-S23174
			1.5 – 30s	440R-S23175

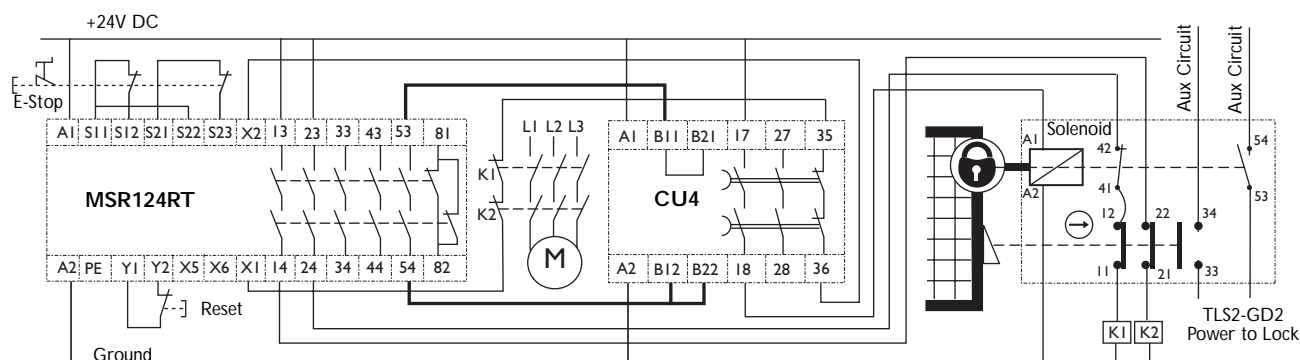
**Dimensions—mm (inches) Block Diagram**



**Typical Wiring Diagrams**



*Dual Channel Wiring to CU4 Inputs*



*Single Channel Wiring to CU4 Inputs*