

## Control Units

# CU Series

### Features

- Compact power supply units
- Built-in logic control function
- Designed for photoelectric and proximity sensors
- Built-in multi-mode timer (CU-21TA)



## Description

### Compact

Although extremely small, these units supply a large electrical current (200 mA) and are suitable for DIN-rail mounting.

### CU-21TA equipped with multi-mode timer function

There are three modes to choose from: ON-delay, OFF-delay, and One-shot. A selector (DIP switch) allows easy signal inversion.

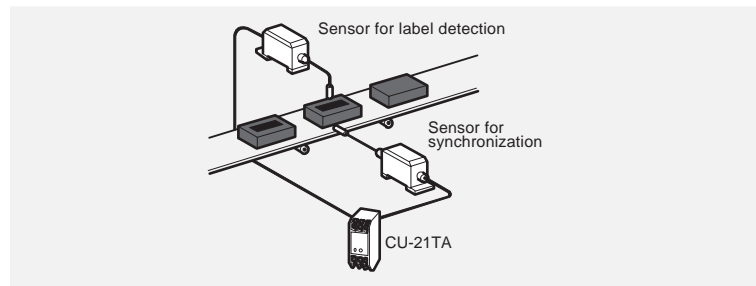
### Edge-synchronous function

KEYENCE's original circuitry enables the rising or falling edge of the sensor's input signal to be identified and used as a synchronous input.



### Application of edge-synchronous function

Detection of labels



The CU-21TA (synchronous mode) allows synchronization with only one edge-detecting sensor rather than the two sensors previously required.

## Specifications

Type	Multi-functional	Standard
Model	CU-21TA	CU-21A
DC output	12 VDC $\pm$ 10%, 200 mA max.	12 VDC $\pm$ 10%, 200 mA max.
Input	No. of inputs	2
	Input system	Transistor (via NPN output device), contact (via limit switch/microswitch, etc.)
	Minimum input time	0.5 ms <sup>1</sup>
Control output	Relay contact	250 VAC 2A SPDT (1c) (resistive load)
	Transistor <sup>3</sup>	NPN: 100 mA (40 VDC) max. <sup>4</sup>
Timer	Timer mode	ON-delay, OFF-delay, One-shot, timer OFF (selectable)
	Timer period	0.05 to 1 s/0.5 to 10 s (selectable)
Other functions	Input signal inversion, edge sync./level sync. selectable, AND logic	AND logic
Operation mode	Timer, standard, synchronous	Standard, synchronous
Power supply	90 to 264 VAC, 50/60 Hz	90 to 264 VAC, 50/60 Hz
Power consumption	7 VA max.	7 VA max.
Ambient temperature	-10 to +50°C	-10 to +50°C
Weight	Approx. 120 g	Approx. 105 g

1. Required off time: 1.5 ms minimum.

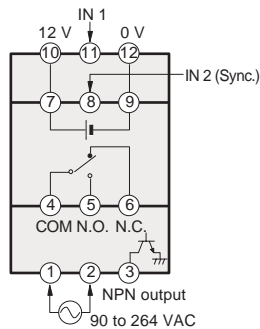
2. Required off time: 15 ms minimum.

3. NPN output can easily be converted to PNP output by connecting the optional OP-5148 PNP output converter.

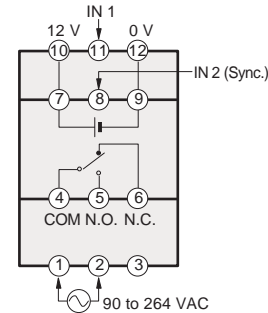
4. With overcurrent protective circuit.

## Connections

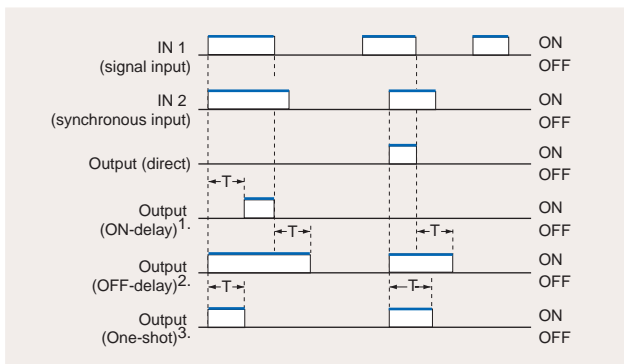
CU-21TA



CU-21A



## Timing Chart



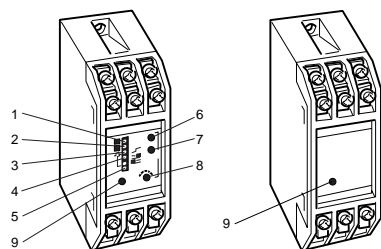
1. Outputs for T seconds after the rising edge of the AND (IN1 and IN2) output, and turns off at the falling edge of the AND output.

2. Continues output for T seconds after the AND (IN1 and IN2) output turns off.

3. Outputs for T seconds after the rising edge of the AND (IN1 and IN2) output.

# CU Control Units

## Part Names and Functions



- 1 Signal input selector**  
(NOR.: Inputs when ON; INV.: Inputs when OFF)
- 2 Synchronous input selector**  
(NOR.: Inputs when ON; INV.: Inputs when OFF)
- 3 Synchronous edge detection selector**

3 Synchronous edge detection selector	2 Synchronous input selector	
	NOR. <input type="checkbox"/> <input type="checkbox"/> INV. <input type="checkbox"/>	NOR. <input type="checkbox"/> <input type="checkbox"/> INV. <input type="checkbox"/>

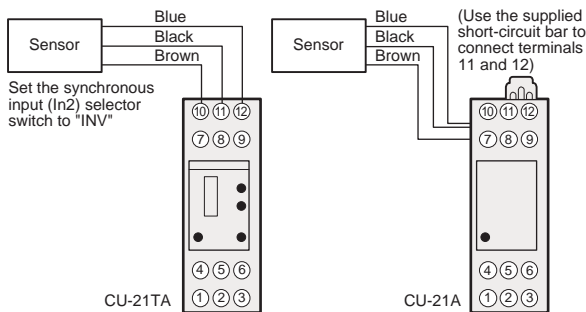
(Thick line indicates synchronous input periods.)

- 4 Mode selector**
  - a: ON-delay mode  
DIR.   Outputs after a fixed period.
  - b: OFF-delay mode  
DIR.   Continues output for a fixed period after the detection signal goes off.
  - c: One-shot mode  
DIR.   Outputs for a fixed period after the rising edge of the detection signal.
- 5 Timer period selector**  
1s: variable between 0.05 and 1 second  
10s: variable between 0.5 and 10 seconds
- 6 Timer setting trimmer**
- 7 Signal input indicator**
- 8 Synchronous input indicator**
- 9 Output indicator**

## Connections

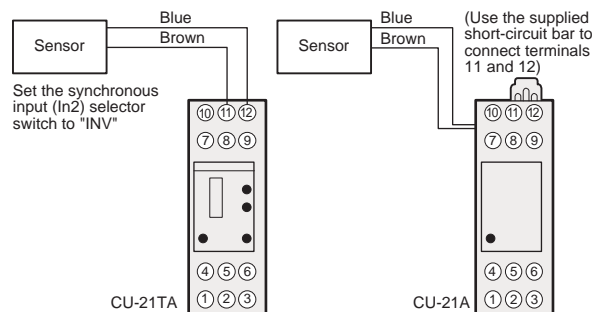
### Connecting 3-wire sensor(s)

Connecting one sensor to the CU

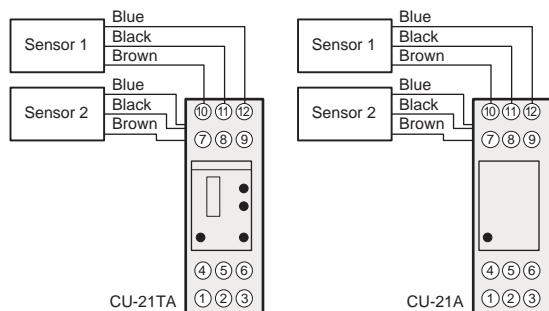


### Connecting 2-wire sensor(s)

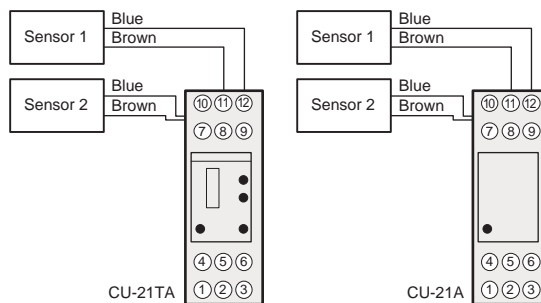
Connecting one sensor to the CU



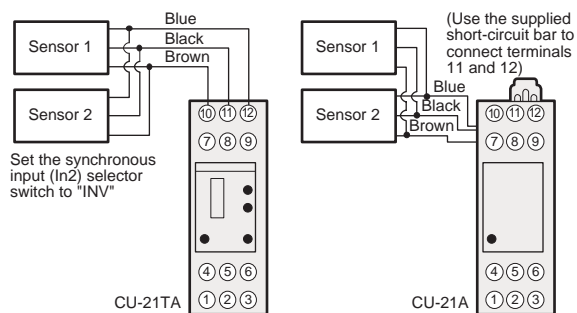
Connecting two sensors to the CU in an AND logic



Connecting two sensors to the CU in an AND logic



Connecting two or more sensors to the CU in an OR logic



**Dimensions**

**CAD data**

CU-21TA/CU-21A

Unit: mm Inch

