

**Instruction Manual**

# JSL-74A General Purpose Timer

Version 1.2 (Dec, 2021)

## 1. Overview

This JSL-74A timer can count from 0.01 second to 9999 hours. Operating function modes include single delay, double delay, and cycle delay. It can count-down or count-up. This timer can be activated automatically when powering up, by front key pad, or via remote switch.

## 2. Specification

- Timer range: 0.01 seconds to 9999 hours.
- Timer mode: single delay, double delay, cycle delay.
- Timer trigger: power on, front key pad, or remote switch.
- Timer accuracy: < 1 s/day.
- Power supply: 90 - 260 V AC or DC.
- Power consumption: < 2 W.
- Relay output: 7 A @ 240 VAC, 10 A @ 120 VAC and 24 VDC.
- Average relay life: 100,000 times at rated current.
- Operating temperature: 0 - 60°C.
- Humidity: 0-95% RH.
- Panel cutout: 44.5 x 44.5 mm.
- Outer dimension: 48 x 48 x 85 mm.

## 3. Front Panel

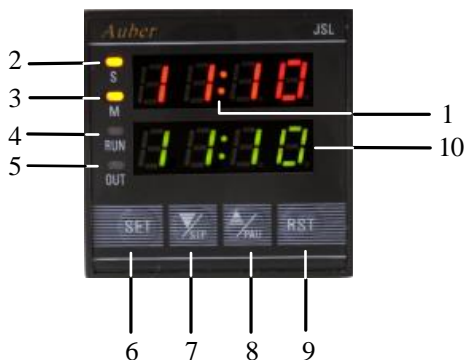


Figure1. Front panel of JSL-74A timer.

1. Time unit indicator: by default, the screen turns on when time format is MM:SS (Minutes: Seconds) or HH:MM (Hours: Minutes) and flashes when the timer is running; The screen turns off when time unit is M (Minutes) or S (Seconds).
2. Timer indicator for seconds: turns on when the time format is MM:SS or S; turns off when the time format is HH:MM or M.
3. Timer indicator for minutes: turns on when the time base is HH:MM or M; turns off when the time base is MM:SS or S.
4. RUN indicator: turns on when timer is running; blinks when timer is paused; turns off when timer is stopped.
5. OUT indicator: turns on when relay is on; turns off when relay is off.
6. SET key: press it momentarily to set T1 and T2; press and hold it for 3 second will enter the programming mode. In programming mode, press it momentarily will go to next parameter setting. This key is disabled when timer is running.

7. Down key / STP key: This key reduces the value in the programming mode; when the timer is running, press it to stop the timer. (For a special stop function in single delayed on mode, please see note 1 on page 2 for details).
8. Up key / PAU key: This key increases the value in the programming mode; when timer is running, pressing & holding this key will pause the timer. Once you release the Up key/ PAU key, the timer will resume.
9. RST key: reset key. When the timer is running, the reset button will reset the timer. If "RUN" parameter is set to RST, pressing the button will start the timer after it has powered up.
10. LED digital display: during normal operation as a timer, the top displays the actual time; the bottom displays the preset value; in programming mode, the top displays the parameter, and the bottom displays the parameter value.

## 4. Terminal Assignment

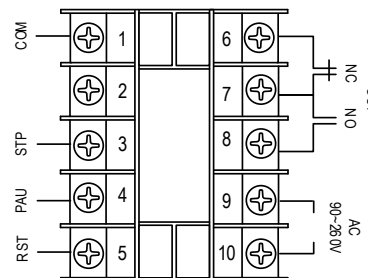


Figure 2. Terminal assignment of JSL-74A.

### Details:

1. Power for the timer needs to be connected to terminal 9 and 10. The voltage should be in the 90 to 260VAC range, like 110V AC or 240V AC.
2. Terminal 6, 7, and 8 are for relay output. Terminal 6 is normally-closed (NC) contact. Terminal 8 is normally-open (NO) contact. Terminal 7 is common contact of the terminal 6 and 8. When the relay is energized (or when the OUT LED is on), terminal 8 connects to terminal 7, and terminal 7 disconnects terminal 6; When the relay is NOT energized (or when the OUT LED is off), terminal 6 connects to terminal 7, and terminal 7 disconnects terminal 8. The relay is a "dry switch" that does not provide power by itself. Please see the wiring examples in Section 7.
3. Terminal 5 is the reset terminal that has the same function as the RST key in the front panel. Please see a note at the end this section.
4. Terminal 4 is the pause/mute terminal that function the same as the "V/PAU" key in the front panel.
5. Terminal 3 is the stop terminal that function the same as the "V/STP" key in the front panel.
6. Terminal 1 is the common contact for the terminal 3/4/5. There are two ways to operate terminal 3, 4 and 5.
- 6.a) Connecting a normally open (NO) momentary push button switch between the terminal (3, 4 or 5) to the COM (1). Please note, the function starts when you release (or open) the button of the switch, not when you press down the switch. See Figure 5.

6.b) Connect a DC logic signal (TTL or CMOS or voltage in the range from 3 to 30 VDC) between the terminal (3, 4 or 5) to the COM (1). Please note, the function is rising-edge triggered. The logic signal should normally be at a high level. The function starts when the signal goes from low to high. If you have an inverted logic signal, you need to connect a NPN transistor between the terminal and COM; add 10Kohm resistor to the gate for signal input. See Figure 6 for details.

7. Terminal 2 is reserved for customized applications.

**Note for terminal 3, 4, and 5.** These terminals are activated by the rising phase of control signal. If the control signal is from a NO switch that is connected to the terminal, the action starts when the switch is released (from close to open). When the control signal is received from an external device, the action starts as the voltage goes from low to high.

**5. How to Set the Timer and Relay Delay Time T1/T2**

Press “SET” key momentarily, and T1 will show up at the top display. Use Up and Down key to set the value. Press SET again to set the T2 (only for delayed interval or cycle mode). Press SET key to confirm the setting and exit the timer setting mode.

When adjusting the time, each time the Up or Down key is pressed, the value will increase by one unit. But if key is held, the value will continuously increase, as the holding time increases, the speed of number increasing will accelerate. You can use this feature for large number increment. When the number is getting close to desired value, release the key. Press it momentarily for fine setting adjustment.

**6. Programming**

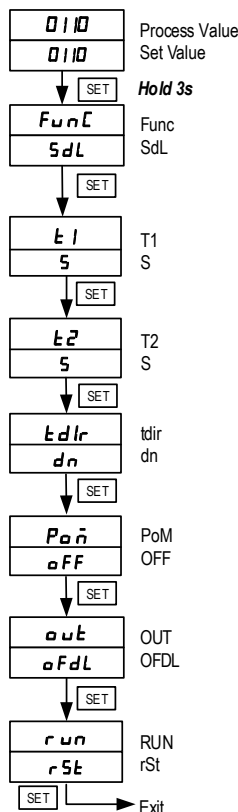


Figure 3. Flow chart of how to program JSL-74A.

Press the SET key for 3 seconds to enter programming mode. To reach individual parameter settings, use up/down key to select different programming values. Press the SET key to confirm and move on to next parameter. See Figure 3 for the procedure. For the definition of each programming value, see following section.

**Definition of Programming Parameters**

**Func, timer operating function mode.** Available options are:

**SdL** (single delay): relay turns on at the beginning of relay delay time T1 (OFDL); relay turns on at the end of relay delay time T1 (ONDL). It will not change until the timer is reset or repowered again. In Single Delay ON mode, a special parameter for stop function, STOP will show up in the parameter menu. For details please refer to note1 below.

**dn** (delayed interval): relay turns on at the end of T1 time delay then off at the end of T2 time delay (OFDL); relay turns off at the end of T1 time delay then on at the end of T2 time delay (ONDL). There is no repeat.

**CYCL** (cycle): repeat relay on and off in cycle. Relay turns on at the end of T1 time delay then off at the end of T2 time delay (OFDL); relay turns off at the end of T1 time delay then on at the end of T2 time delay (ONDL). It will repeat this cycle until power is off.

**T1 or T2, timer range.** Available options are:

**S:** 0.01 s ~ 99.99 s.

**M:S:** 1 s ~ 99 m 59 s.

**M:** 1 m ~ 9999 m.

**H:M:** 1 m ~ 99 h 59 m.

**H:** 1 h ~ 9999 h.

**D:H:** 1 h ~ 99 d 23h.

**tdir, timing direction.** Available options are:

**up:** counting up.

**dn:** counting down.

**PoM, power-on memory setting.** Available options are:

After a loss of power, this timer can be set to either reset when power is restored, or continue running from the point of power outage.

**ON:** After a loss of power, this unit will continue running from the point of power outage when power is restored.

**OFF:** After a loss of power, this unit will be reset when power is restored.

**OUT, relay output mode.** Available options are:

**OFDL** (off delay): relay will be on at the start of timer and off when time reach the set point.

**ONDL** (on delay): relay will stay off at the start of timer and on when time reach the set.

**RUN, timer starting run mode.** Available options are:

**PU** (power up): When timer is powered up, timer will start counting.

**rSt** (reset): When reset button is pressed and released, timer will start counting.

**Note 1:** Running the single delayed on mode.

When running the Single Delay On mode, depending on the applications, users may want the relay to stay at off (initial state), or stay on (final state) when the operation is interrupted by stop function. Examples. A) Some user uses the timer to turn on a buzzer at the end of a process for notification purpose. He wants to be able to disable the buzzer (change to initial state) by simply

pushing a button once he acknowledged the notification. B) Some users want to delay the process of turning on an oven. But sometimes, they may want to cancel the delay (change to the final state) to start the oven by pushing the stop key. In order to satisfy these two conflict requirements, a special parameter for stop function, STOP will show up in the parameter menu when both ONDL (on delay) and SDL (single delay) are selected. STOP can be selected as 0 (default) or 1. When it is set to 0, during the delay, stop signal will set relay to the final state (pulled-in). When it is set to 1, during the delay, stop signal will set the relay to the initial state (dropped-out). When the time delay is finished and relay pulled in, user can reset the relay to the initial state by sending a stop signal, regardless of the STOP setting.

**7. Wiring Examples**

1) Signal controlled by external switches.

In the timer, power (120 or 240V AC) is sent to terminal 9 and 10. The external reset (RST) and pause (PAU) switch should be momentary type. These keys are only needed if you want to control the timer remotely. Otherwise, you can use the front keys on the timer. These switches can also be replaced with a control signal from computer or other control devices. **The alarm speaker used in this example is also optional. It is to show how to wire the output. You can substitute it with any output such as a coffee grinder.** The output terminals (#6, 7 and 8) are from a "C form" internal relay. It is a dry switch that does not provide the power by itself. In this case, the alarm is powered by the 120VAC. The external switch connected to the alarm is for disabling the sound if needed.

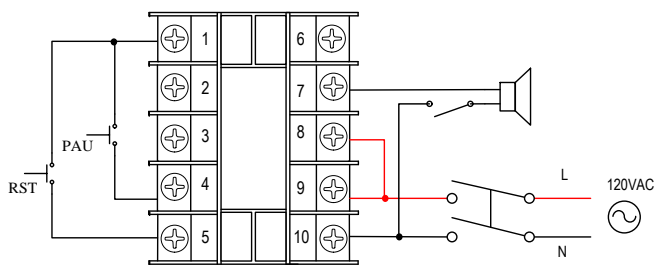


Figure 4. Wiring example of JSL-74A.

2) Signal controlled by DC logic signal.

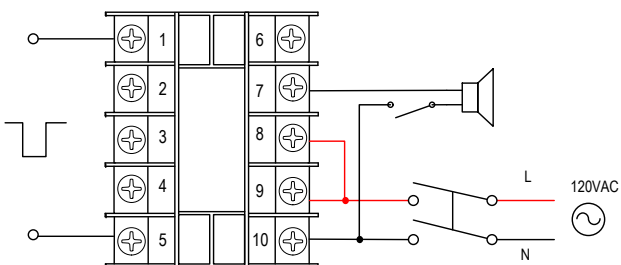


Figure 5. Rising-edge triggered signal.

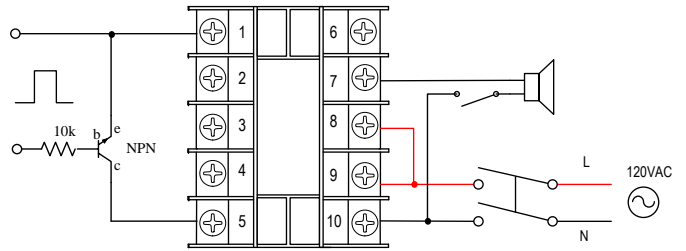
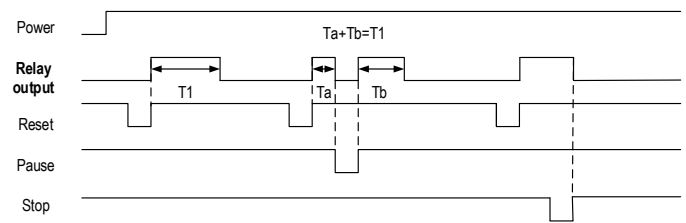


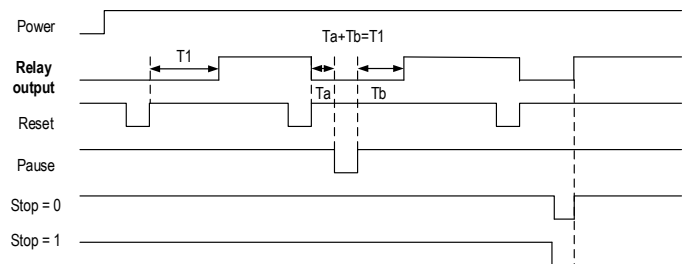
Figure 6. Inverted logic signal.

**8. Timing Diagrams**

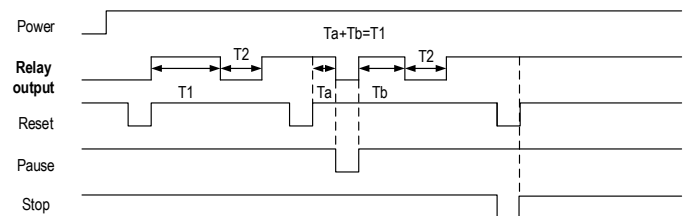
Following diagrams show relay output ON/OFF time under different relay output modes and operating function modes. Please note: 1) "RUN" is set to "rSt" in following examples, powering up to start the timer is not discussed here. 2) Timer starts counting from the moment when the reset key/switch is released or input (TTL) signal is from low to high. 3) The timer display stops counting as soon as stop key/switch is pressed (from high to low), but relay output will only be triggered when stop key/switch is released (from low to high).



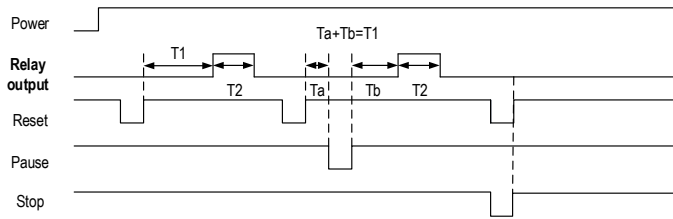
A. single delay (delay off).



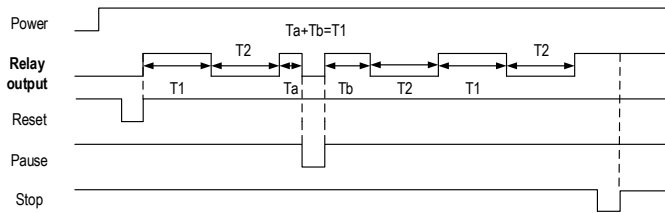
B. single delay (delay on) (for stop function please see Note 1 on page 2 for details).



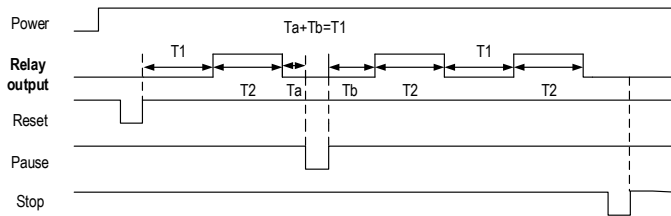
C. delay interval (delay on).



D. delay interval (delay off).



E. cycle (delay on).



F. cycle (delay off).

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