Instruction Manual

JSL-64 1/32 DIN General Purpose Timer

Version 1.0 (August, 2015)

1. Overview

This JSL-64 timer can count from 0.01 second to 9999 minutes. Operating function modes include single delay, double delay, and cycle delay. It can count-down or count-up. The timer can be activated automatically when powering up, by front key pad, or via remote switch.

2. Specification

Timer range: 0.01 second to 9999 minutes.
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: 85-260 V AC or DC.
Power consumption: < 2W.
Relay output: 10A at 240VAC/30VDC (resistive load)
Average relay life: 100,000 times at rated current.
Operating temperature: 0-60 °C.
Humidity: 0-95% RH.
Panel cutout: 22 x 45 mm.
Outer dimension: 24 x 48 x 75 mm (1"x2"x3").

3. Front Panel

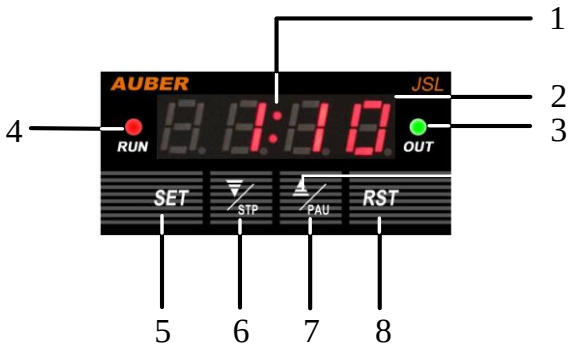


Figure1. Front panel

1. Time unit indicator (Colon sign): Turns on when time format is MM:SS (Minutes: Seconds) or HH:MM (Hours: Minutes) and flashes when the timer is running; turns off when time unit is M (Minutes) or S (Seconds).
2. LED digital display: During normal operation as a timer, it displays the actual time. When timer is stopped, it displays the preset value. During controller setup, it displays parameter value.
3. OUT indicator: Turns on when relay is on; turns off when relay is off.
4. RUN indicator: Turns on when timer is running; blinking/flashing when timer is paused; turns off when timer is stopped.
5. SET key: press it once to set T1 and T2 (if available); press and hold it for 3 second will enter the programming mode. This key is disabled when timer is running.
6. Down key / STP key: Reduces the value in the programming mode; when the timer is running, press it to stop the timer. (For special stop function in single delayed on mode, please see note 6 on page 3 for details).
7. Up key / PAU key: Increases the value in the programming mode; when timer is running, press and hold it will pause the timer; the timer will continue running after this key is released.
8. RST key: Reset key. When the timer is running, press it will restart the timer. If "RUN" parameter is set to RST, press it will start the timer after powered up.

4. Terminal Assignment

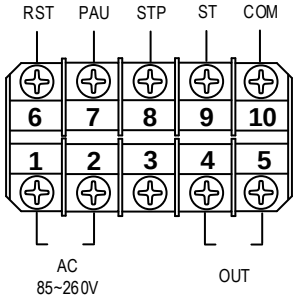


Figure 2. Terminal assignment.

Details:

1. Power for the timer needs to be connected to terminal 1 and 2. The voltage should be in the 85 to 260VAC range.
2. Terminal 4 and 5 are for normally-open (NO) relay output. When this relay is energized (or when the OUT LED is on), terminal 4 connects to terminal 5; When the relay is NOT energized (or when the OUT LED is off), terminal 4 disconnects terminal 5. The relay is a “dry switch” that does not provide power by itself. Please see the wiring examples in Section 7.
3. Terminal 6 is the reset terminal that has the same function as the RST key in the front panel. Please see note 6 on page 3.
4. Terminal 7 is the pause/mute terminal that function the same as the “^/PAU” key in the front panel.
5. Terminal 8 is the stop terminal that function the same as the “V/STP” key in the front panel.
6. Terminal 9 is reserved for customized applications.
7. Terminal 10 is the common contact for the terminal 3/4/5. There are two ways to operate terminal 6, 7 and 8.

7.a) Connecting a normally open (NO) momentary push button switch between the terminal (6, 7 or 8) to the COM (10). 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.

7.b) Connecting a DC logic signal (TTL or CMOS or voltage in the range from 3 to 30 VDC) between the terminal (6, 7 or 8) to the COM (10). Please note, the function is rising-edge triggered. The logic signal should normally be at 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 terminal and COM; add 10Kohm resistor to the gate for signal input. See Figure 6.

Note for terminal 6, 7, and 8. The function of all these terminals is accomplished by the rising phase of control signal. If the control signal is from a momentary NO switch that is connected to the terminal, the action starts when switch is released (from close to open). When the control signal is from another digital device, the action starts when voltage goes from low to high.

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

To change T1 timer setting, press SET key once. It will show t-1 at the display. Press SET key once again to enter. Then you can use Up and Down key to change/set the value. Press SET key once to confirm.

To change T2 timer setting (only available for delayed interval or cycle mode), press SET key once. It will show t-1 at the display. Use Up and Down key to go to t-2 parameter, then press SET key once to enter. You can use Up and Down key to change/set the value. Press SET key once to confirm.

When adjusting the time, each time the Up or Down key is pressed, the value will increase by one unit. But if you press and hold it, 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. Then, press it momentarily for fine setting adjustment.

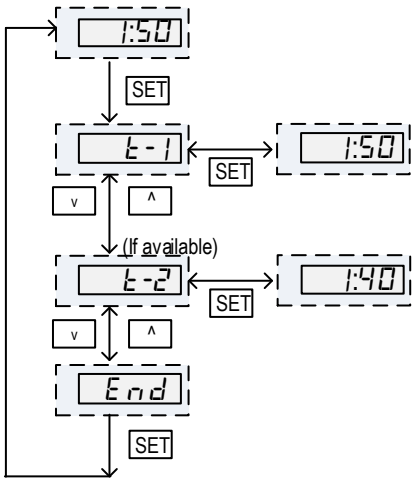


Figure 3. Flow chart of timer T1/T2 setting.

6. Programming

Press and hold SET key for 3 seconds to enter programming mode. For each parameter setting, use up/down key to select different programming values. Press SET key to confirm then exit. Please check figure 3 for details. For the definition of each programming value, see table 1.

Table 1. Parameters Description.

Code		Description	Initial	Note
Func	FunC	Timer operating function mode	SdL	1
T1	t1	T1 timer range	n:S	2
T2	t2	T2 timer range	n:S	
tdir	tdIr	Timing direction	dn	3
out	out	Relay output mode	oFdL	4
run	run	Timer starting mode	rSt	5
stop	StoP	Relay stop function	0	6

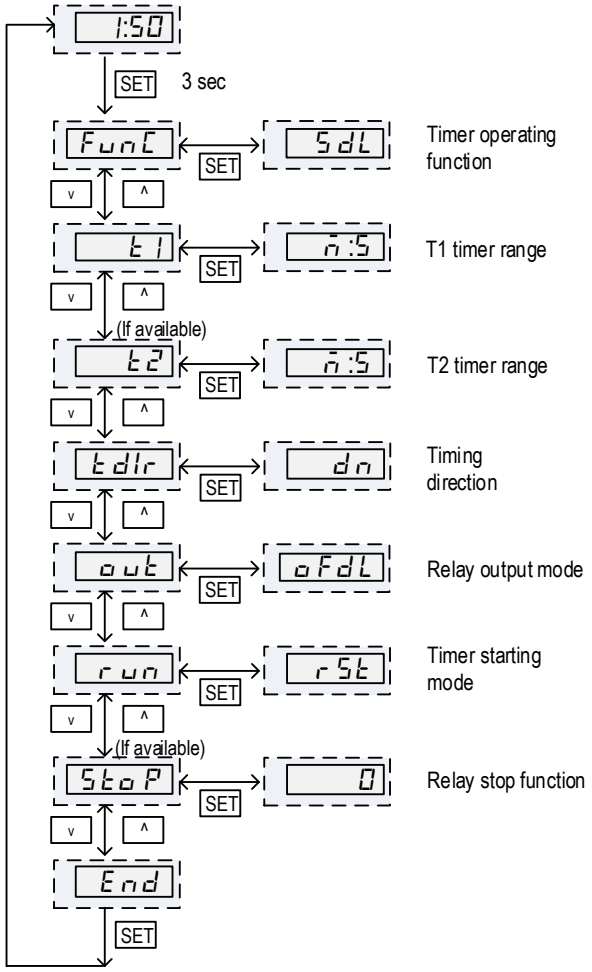


Figure 3. Flow chart of programming.

Definition of Programming Values

Note 1: Func, timer operating function mode, including Sdl, dint and CYCL.

SdL (single delay): Relay turns on at the beginning of relay delay time T1 (OFDL, note 4); Or relay turns on at the end of relay delay time T1 (ONDL, note 4). 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 note 6 below.

dint (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.

Note 2: T1 or T2, timer range (T2 is only available when Func is dint or CYCL)

S: 0.01s～99.99s.

M:S: 1s～99m59s.

M: 1m～9999m.

H:M: 1m～99h59m.

Note 3: tdir, timing direction.
up: counting up.
dn: counting down.

Note 4: OUT, relay output mode.
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.

Note 5: RUN, timer starting run mode.
PU (power up): timer starts when powered up.
rSt (reset): timer starts when reset button is pressed and released

Note 6: stop, relay stop function (only available when RUN is ONDL and Func is SDL)
When running the Single Delay On mode, depending on the applications, user may want the relay to stay at off (initial state), or, stay on (final state) when the operation is interrupted by stop function. Here are two 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 user wants to delay the process of turning on an oven. But sometimes, he 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 switches.

Power (120 or 240V AC) is sent to terminal 1 and 2.The external reset (RST) and pause (PAU) switch should be momentary type. They are needed only 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 (#4 and 5) are from an 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.

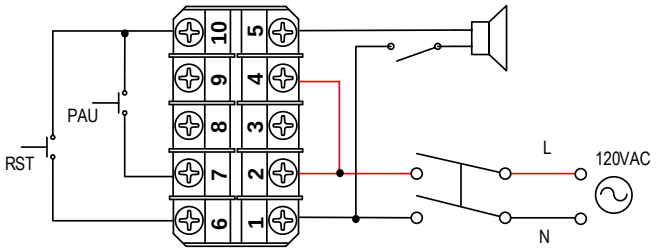


Figure 4. Wiring example of JSL-64.

2) Signal controlled by DC logic signal.

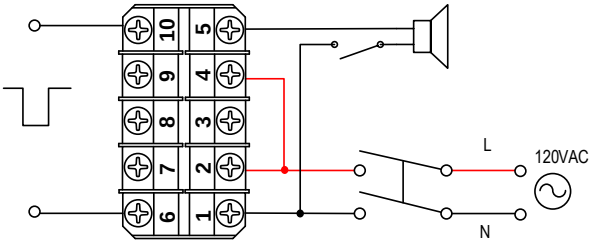


Figure 5. Rising-edge triggered signal.

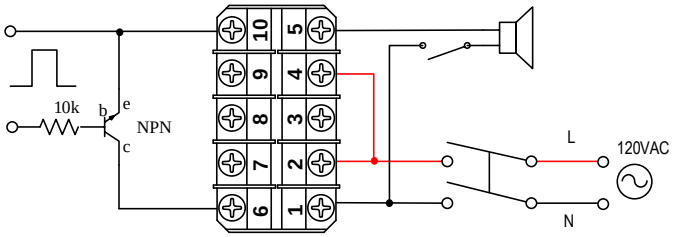
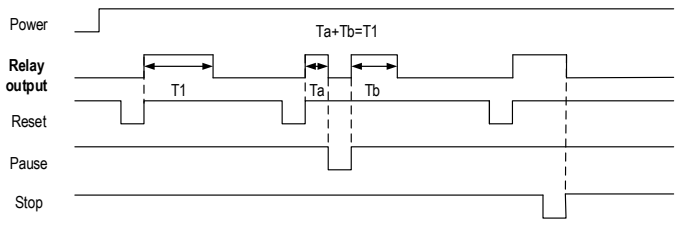


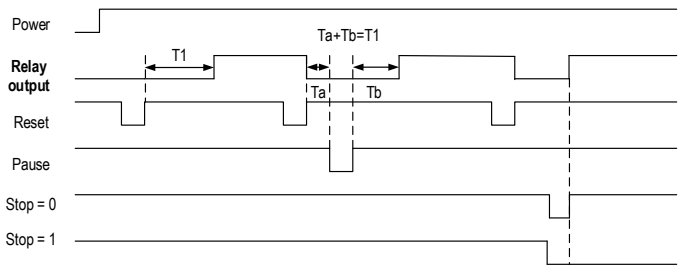
Figure 6. Inverted logic signal.

8. Timing Diagrams

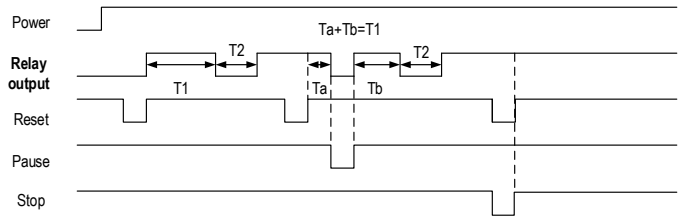
Following diagrams show relay output ON/OFF time under different relay output modes and operating function modes. Please note: 1) "RUN" is set to "rSt" in following examples, powering up to start the timer is not discussed here. 2) Timer starts counting from the moment when reset key/switch is released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



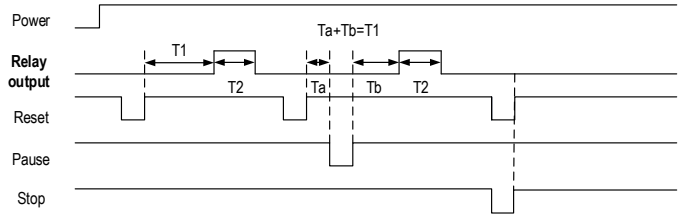
A. single delay (delay off).



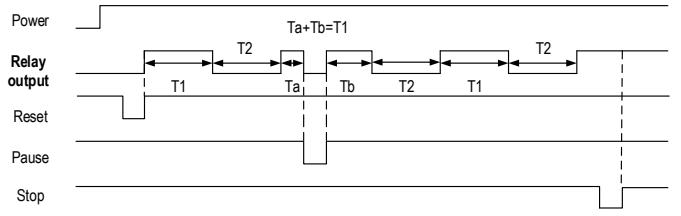
B. single delay (delay on) (for stop function please see Note 1 on page 2 for details).



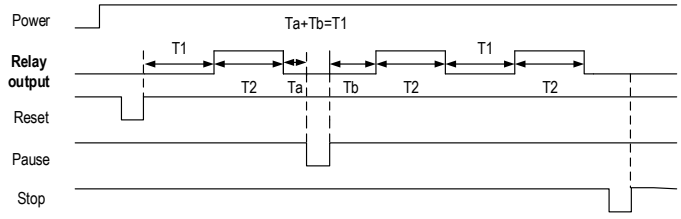
C. delay interval (delay on).



D. delay interval (delay off).



E. cycle (delay on).



F. cycle (delay off).

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