Instruction Manual

JSL-74B General Purpose Timer

Version 0.9.4 (June 9, 2026)

1. Overview

This JSL-74B timer can count from 0.01 second to 9999 hours. Operating function modes include Single Delay, Delayed Interval, and Cycle. It can count-down or count-up. This timer can be activated automatically when powering up, by a front panel button, or via an external switch.

Timer Function Summary

Function	Description
SDL (Single Delay)	One timer period (T1). The timer runs once and stops.
DINT (Delayed Interval)	Two timer periods (T1 and T2). The timer runs T1, then T2, then stops.
CYCL (Cycle)	Two timer periods (T1 and T2). The timer continuously repeats T1 and T2 until stopped.

2. Specifications

Timer range: 0.01 seconds to 9999 hours.
Timer mode: Single Delay, Delayed Interval, Cycle.
Timer trigger: power on, front pushbutton, or external switch.
Timer accuracy: < 1 s/day.
Power supply: 90 - 260 V AC or DC.
Power consumption: less than 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

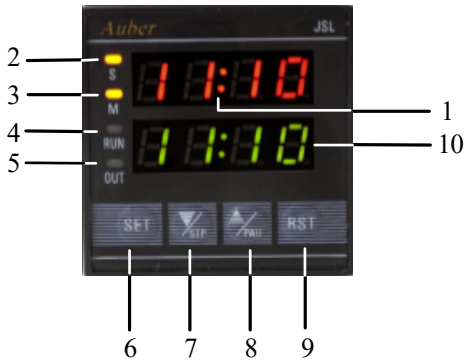


Figure1. Front panel of JSL-74B timer.

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 energized; turns off when relay is de-energized.
6. **SET Button**: press it momentarily to set T1 and T2; press and hold it for 3 seconds to enter the programming mode. In programming mode, press it momentarily will go to the next parameter setting. This button is disabled when timer is running.
7. ▼ **Down** / **STP Button**: This button 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** / **PAU Button**: This button increases the value in the programming mode; when timer is running, pressing and holding this button pauses the timer. Once you release the Up button/ PAU button, the timer will resume.
9. **RST Button**: Reset and start the timer.
10. **Digital LED 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

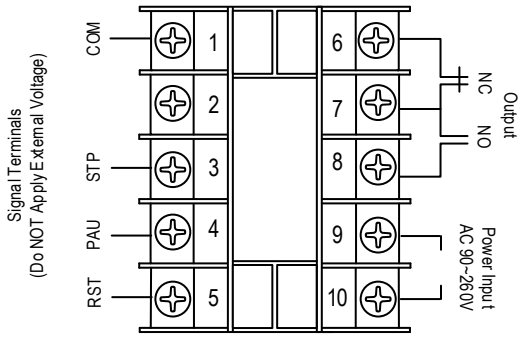


Figure 2. Terminal assignment of JSL-74B.

Table 1. Terminal Assignment on JSL-74B.

Pin #	Function	Description	Details
Terminals 1 to 5 are low-voltage signal terminals (WARNING: Do NOT Apply External Voltage)			
1	Common	Common point for signal/control.	4.1
2	N.A.	No function (reserved for customized applications).	

3	STP	Stop the timer when this terminal is connected to COM terminal.	4.2
4	PAU	Pause the timer when this terminal is connected to the COM terminal.	4.3
5	RST	Reset the timer when this terminal is connected to the COM terminal.	4.4
Terminals 6 to 10 are high-voltage terminals			
6	Relay Output	Normally closed contact.	4.5
7	Relay Output	Common point.	
8	Relay Output	Normally open contact.	
9	AC Power Input	90 ~ 260 VAC power input.	4.6
10	AC Power Input		

Details on Terminals:

4.1. Terminal 1 is the COM. It is the COM pin for terminal 3, 4, and 5. It serves as the DC ground of the circuit board.

4.2. Terminal 3 is the STP input. It serves a similar function as the "STP" button on the front panel. The terminal carries a 5 VDC standby voltage, and when it is connected to the COM terminal, the voltage is pulled down to 0 VDC to trigger the stop action.

***However, please note**:* The timer's reactions to the STP button and the STP terminal are slightly different.

- While the timer is counting, press and hold the STP button will pause the timer and maintain its current relay output status till the STP button is released.
- When an external switch is used to short the STP terminal with the COM terminal, the timer value will reset to its original value and the relay output status will also be reset to its initial state as soon as these two terminals are connected.

4.3. Terminal 4 is the PAU input. It functions the same as the "PAU" button on the front panel. This terminal carries a 5 VDC standby signal, and when it is connected to the COM terminal, the voltage is pulled down to 0 VDC, triggering the pause function.

4.4. Terminal 5 is the RST input. It functions the same as the "RST" button on the front panel but offers additional configuration options. This terminal carries a 5 VDC standby signal, and when it is connected to the COM terminal, the voltage is pulled down to 0 VDC to initiate the reset action. The user can configure the input to respond to either a falling edge or a rising edge. Refer to Section 6.7 for details.

4.5. Terminal 6, 7, and 8 are contacts of a C-form 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 contact" that does not provide power by itself. Please see the wiring examples in Section 7.

4.6. Terminal 9 and 10 are for power input. The power input for the timer needs to be connected to terminal 9 and 10. The voltage should be in the 90 to 260VAC range, such as 120VAC or 230VAC.

4.7. Note on Wiring of the input terminals (3, 4, and 5)

There are two main ways to wire the input terminals STP, PAU, and RST (3, 4, and 5) to the COM terminal.

- **Using Physical Switches**

Connecting a normally open (NO) momentary push button switch between the terminal (3, 4, and 5) to the COM terminal (1).

- **Using an External Logic Signal**

Instead of using a physical switch, you can also use an external logic signal to control the timer. Figure 7.3 shows a wiring example using an NPN transistor and a 10 kΩ resistor to interface the logic signal with the timer input.

4.8. Note on Triggering Actions on Input Terminals (3, 4, and 5).

On the STP and the PAU terminals (3 and 4), functions are triggered when the switch is pressed (closed), i.e., when the terminal voltage is pulled from high to low. On the RST terminal (5), the function can be triggered by either a rising-edge (low-to-high transition) or by a falling edge (high-to-low transition) depending on the setting of the RUN parameter.

5. Set the Time T1 and T2

Press the "SET" button momentarily, and T1 will show up at the top display. Use Up and Down button to change the value on the lower display. Press SET again to set the T2 (only for Delayed Interval or Cycle mode). Press SET button to confirm the setting and exit the timer setting mode.

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

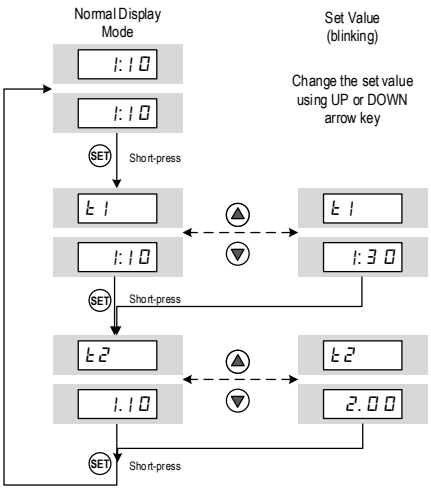


Figure 3. How to access T1 and T2 settings.

6. Access Parameters in the Menu

Press the SET button for 3 seconds to bring up the parameter menu. The first parameter "FUNC" will appear on the top display. The lower display will show its current value in flashing. To change the value, use the Up or the Down button to select different parameter values, and then press the SET button to confirm the new value and move on to the next parameter. See Figure 4 for a flow chart on how to access and change parameter values. For the definition of each parameter value, see following section.

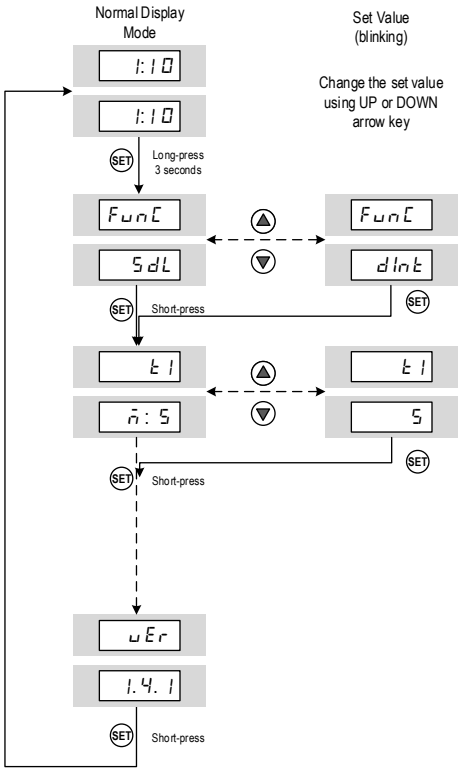


Figure 4. Flow chart of how to program JSL-74B.

Table 2. List of Parameters in JSL-74B.

Code		Description	Range	Initial	Note
Set Values (Short-press the SET button)					
T1	t1	Set value for T1		1:10	6.1
T2	t2	Set value for T2		1.10	6.2
Parameters (Long-press the SET button for 3 seconds)					
FUNC	FunC	Timer function, operating mode	SDL, DINT, CYCL,	SdL	6.3
T1	t1	Time unit of T1 timer	S, M:S, M, H:M, H, D:H	m:S	6.4
T2	t2	Time unit of T2 timer		S	
TDIR	tdir	Timer direction	UP, DN	dn	6.5
POM *	Pon	Power-on memory.	OFF, ON	oFF	6.6 *
OUT	out	Relay output mode	OFDL, ONDL	oFdL	6.7
RUN	run	Timer starting mode	PU, RS-F, RS-R	rS-r	6.8
STOP	StoP	Relay status when the timer is stopped. Conditional parameter.	0, 1	0	6.9
VER	uEr	Firmware version. Display only.	1.5.0	1.5.0	6.10

***Note**: * This parameter POM is not available in JSL-74B with firmware v1.4.1.*

Definition of Parameters

6.3 FUNC

This parameter sets the timer function. Three timer function modes are available.

- **SDL** (Single Delay): Only one timer setting, T1, is available. The timer will run for a pre-set time duration and stop.

  In Single Delay and On Delay mode (i.e., **FUNC** = **SDL**, **OUT** = **ONDL**), a special parameter "**STOP**" will appear in the parameter menu. Please refer to section 6.8 below.

- **DINT** (Delayed Interval): Two timer settings, T1 and T2, are available. The timer will run through the preset durations T1 and T2 sequentially and then stop with no repetition.

- **CYCL** (Cycle): Two timer settings, T1 and T2, are available. The timer will run through the preset durations T1 and T2 sequentially and repeat the Cycle till a user stops the timer using the STP button or the STP terminal.

6.4 T1 and T2

The T1 (and T2 if available) parameter determines the unit and range of the time of the pre-set time T1 (and T2). The available settings and the according timer range are listed in the table below.

Table 3. Timer Units and Range.

T1 / T2 Settings	Timer Units	Timer Range
S	Seconds	0.01 s ~ 99.99 s
M:S	Minutes and seconds	1 s ~ 99 m 59 s.
M	Minutes	1 m ~ 9999 m
H:M	Hours and minutes	1 m ~ 99 h 59 m
H	Hours	1 h ~ 9999 h
D:H	Days and hours	1 h ~ 99 d 23h

6.5 TDIR

This parameter determines the timer direction. The timer can either count up or count down. This setting applies to both T1 and T2.

- **UP:** counting up.
- **DN:** counting down.

6.6 POM

Power-on memory, which determines how the timer behaves after a power interruption. This parameter is available in firmware v1.5.0, not available in v1.4.1.

- **OFF**: No power-on memory. After a power loss, the unit resets.
- **ON**: After a power loss, the unit resumes operation from the point at which the outage occurred once power is restored.

6.7 OUT

This parameter determines the output mode of the relay module. Available options are:

- **OFDL** (Off Delay): The relay energizes when timing starts and de-energizes when the timer reaches the setpoint.

- **ONDL** (On Delay): The relay de-energizes when the timer starts counting and energizes when the timer reaches the setpoint.

For timer function mode with only one timer setting, i.e., SDL (Single Delay), the OUT setting applies to T1.

For timer function mode with two timer settings, i.e., DINT (Delayed Interval) and CYCL (Cycle), the OUT setting applies to T1. The relay status during T2 will just be the opposite of T1.

6.8 RUN

This parameter determines how the timer should start counting when the RST terminal (#5) and the COM terminal (#1) are used. The standby voltage of RST terminal is 5VDC relative to the COM terminal (DC ground). When RST and COM are connected, the voltage on RST will be pulled low to 0 V, creating a falling edge of DC voltage; when RST and COM terminals are disconnected, the voltage on RST will rise to "high" to 5 V, creating a rising edge of DC voltage.

The available settings of RUN parameter are:

- **RS-R (**Rising-Edge): When the internal voltage on the RST terminal rises from low to high, the timer will start counting. A "Rising Edge" can be created by releasing a closed switch that connects RST (#5) and COM (#1) terminals. This is the factory default setting. (It is also equivalent to set RUN = RST in the older model JSL-74A.)

- **RS-F** (Falling-Edge): When the internal voltage on the RST terminal falls from high to low, the timer will start counting. A "Falling Edge" can be created by pressing down a normally open switch, maintained action or momentary action, that connects RST (#5) and COM (#1) terminals.

- **PU** (Power Up): The timer will start counting once the unit is powered up or on a rising-edge if the RST and the COM terminals are used.

The diagram below shows when the timer will start counting when the RUN parameter is configured differently. The second row shows the status of a NO switch that connects COM and RST terminal together. The third low shows the voltage status on the RST terminal. And the last three rows shows when the timer counting is triggered in each configuration.

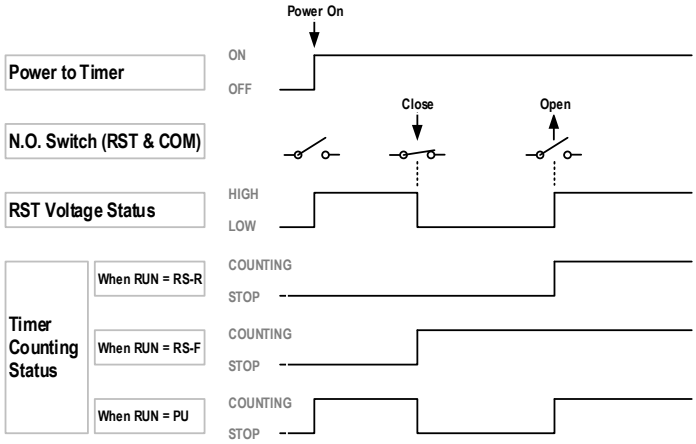


Figure 5. Start the timer with different RUN configuration.

6.9 STOP

This parameter is only available in a configuration when the Timer Function is set to Single Delay mode (FUNC = SDL) **AND** when the Relay Output Mode is set to On Delay mode (OUT = ONDL). If these two conditions are not met, the STOP parameter will NOT appear in the menu.

When the timer is configured in such way (FUNC = SDL, and OUT = ONDL), the output relay should stay off (de-energized) when the timer is counting, and the relay should turn on (engage) at the end of timer. In other words, the initial status of the relay is OFF, and the end status of the relay is ON.

This parameter "STOP" determines whether the output relay should be reset to the initial status or should be set to the end status when the timer is interrupted by a user by pressing the STP button or connecting the STP terminal to COM terminal.

Two settings are available:

- **STOP = 0:** Does not reset the output relay to the initial status. The output relay should engage when the RST button is pressed. Press the RST button again can release the output relay. The effect is the same when RST terminal is connected to COM terminal.

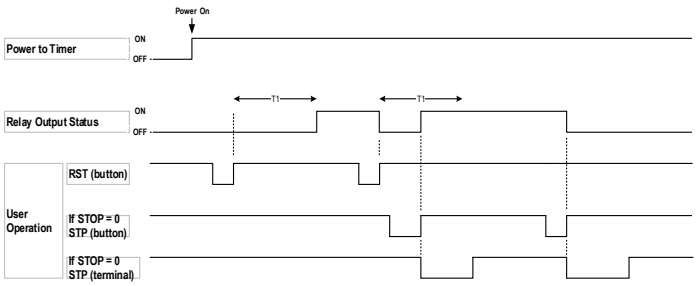


Figure 6.1. Timing diagram of FUNC = SDL, OUT = ONDL, and STOP = 0.

- **STOP = 1:** Reset the output relay to the initial status (de-energized) when the RST button is pressed. The effect is the same when RST terminal is connected to COM terminal.

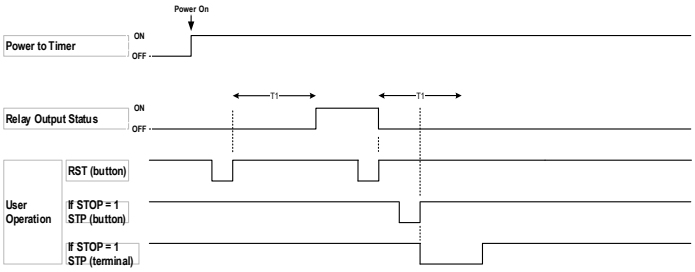


Figure 6.2. Timing diagram of FUNC = SDL, OUT = ONDL, and STOP = 1.

6.10 VER

This is a display-only parameter, which shows the current firmware version. It is added to JSL-74B with firmware version 1.4.1. Current firmware version is v1.5.0.

7. Wiring Examples

7.1 Using a Normally Open Momentary Switch to Start the Timer.

In this example, we will use a momentary action normally open switch to start the timer. At the moment the switch is released, the timer will start counting. We will set the timer for 2 seconds, and use the timer's N.O. output contacts to energize an external mechanical relay during these 2 seconds.

Connect 120VAC power to terminals 9 and 10. For the consistency with the wiring examples, we will connect the live line to terminal 8 and connect the neutral line to terminal 10.

WARNING: Do NOT apply external voltages to signal terminals 1 to 5.

On the Signal Terminals side (1 ~ 5), connect COM (terminal 1) with RST (terminal 5) using a momentary action switch with normally open contacts. If you want to add a switch to pause the timer, connect COM with PAU (terminal 4) using a maintained action normally open switch.

Now, you can power on the timer and adjust the settings. Please enter the menu by long-press the SET button for 3 seconds and confirm the parameters are set as below.

FUNC = SdL (Single Delay)
T1 = 5 (seconds)
TDIR = dn (for counting down)
POM = oFF (no power-on memory)
OUT = oFdL (Off Delay)
RUN = r5-r (rising-edge triggered)
VER = 1.5.0 (version number, viewing only)

Then, after the timer is at the normal operation mode, short-press the SET button to bring up the set value for **T1**, and edit the timer to "2.00" using the arrow buttons.

Now, you can press and release the momentary switch that connects 1 and 5, the time value on the top display should start counting down, the RUN indicator should light up, and the NO contacts of the output relay (terminals 8 and 7) should close (pull in). You can test the resistance between terminals 8 and 7.

To connect the output to an external mechanical relay, disconnect the timer from AC power source, jump the terminal 9 (live line) to the NO contact terminal 8. Connect terminal 7 (hot line) to one of the 120 VAC relay coil tabs. Connect the other coil tab to the neutral line. We use Auber's R30A relay as an example in Figure 7.1. Wiring to the load is now shown in the diagram.

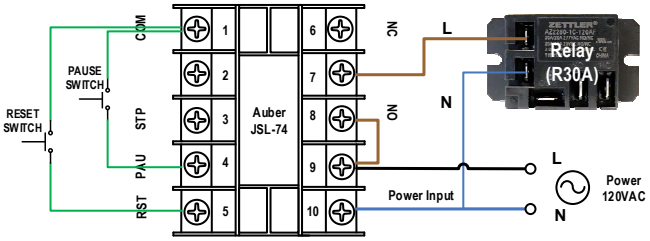


Figure 7.1. Using a normally open momentary switch to start the timer.

7.2 Using a Normally Open Maintained Switch to Start the Timer.

In some applications, a user may want to use a maintained-action normally open switch to start the timer at the moment that the switch is pressed down (contacts closed). Or, a user may want to use a normally open alarm relay from another control unit to start the timer, and the counting should start when the alarm relay closes.

In such cases, a user should change the parameter value for "RUN" in the menu, set RUN = r5-F (falling-edge triggered).

The wiring of the switch is the same as in the previous wiring example, section 7.1. A simplified wiring diagram is shown in Figure 7.2.

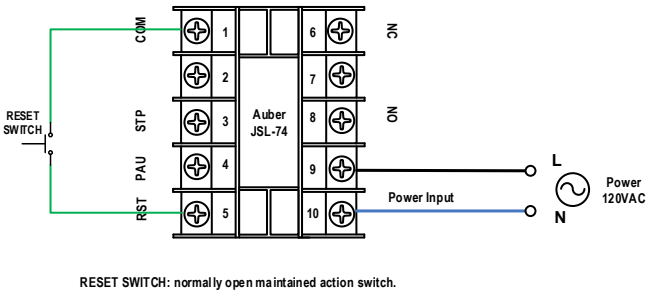


Figure 7.2. Using a normally open maintained switch to start the timer.

7.3 Using External Logic Signal to Start the Timer.

In some applications, a user may want to use an external logic signal to start the timer. A simple wiring example is shown in Figure 7.3.

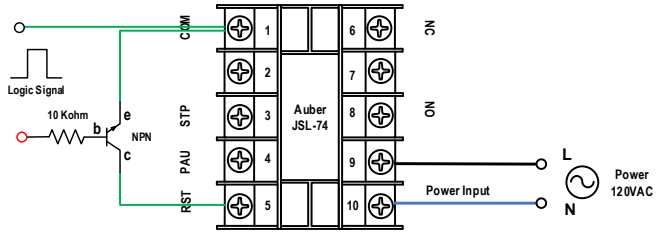


Figure 7.3. Using logic signal to start the timer.

8. Timing Diagrams

The diagrams in this section show the relay output status when a user operates RST, PAU, and STP buttons or terminals when the Timer Function (FUNC) and the Output Mode (OUT) are configured differently.

In all these cases, the RUN parameter is set to “RS-R”, meaning the timer starts when the RST button (on the front panel) or an external momentary normally open (N.O.) switch connected to terminals #1 and #5 is released.

Table 4. The Timing Diagram and the Corresponding FUNC and OUT settings.

Figure #	FUNC	OUT	RUN
8.1	SDL (Single Delay)	OFDL (Off Delay)	RS-R
8.2	SDL (Single Delay)	ONDL (On Delay)	RS-R
8.3	DINT (Delayed Interval)	OFDL (Off Delay)	RS-R
8.4	DINT (Delayed Interval)	ONDL (On Delay)	RS-R
8.5	CYCL (Cycle)	OFDL (Off Delay)	RS-R
8.6	CYCL (Cycle)	ONDL (On Delay)	RS-R

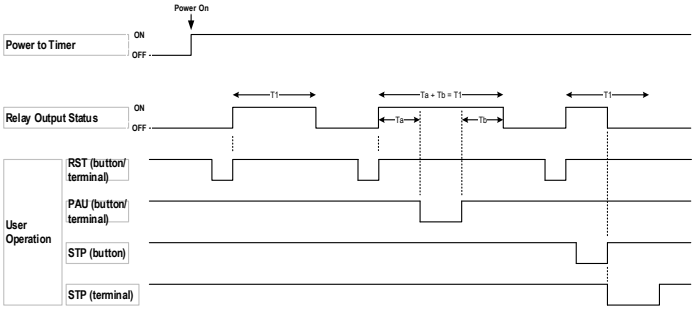


Figure 8.1. FUNC = SDL (Single Delay), OUT = OFDL (Off Delay).

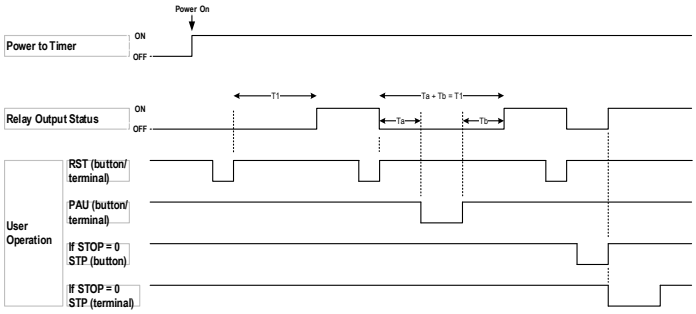


Figure 8.2(a). FUNC = SDL (Single Delay), OUT = ONDL (On Delay), STOP = 0.

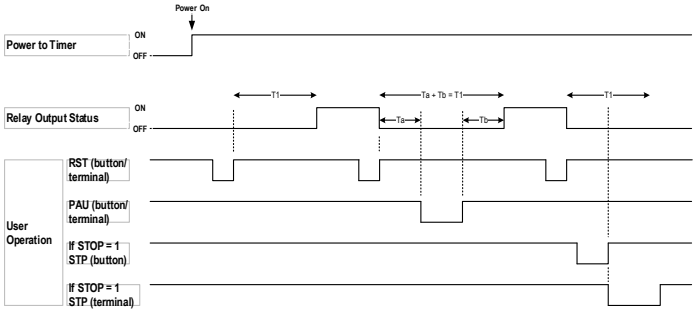


Figure 8.2(b). FUNC = SDL (Single Delay), OUT = ONDL (On Delay), STOP = 1.

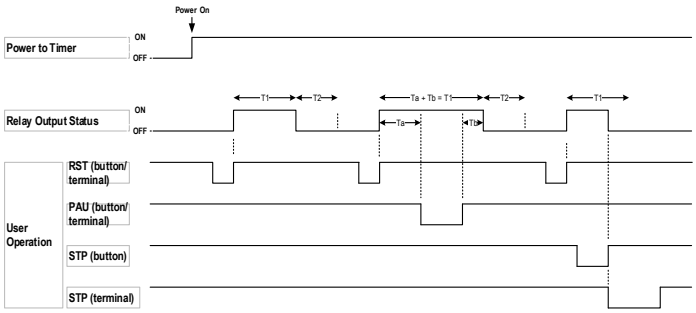


Figure 8.3. FUNC = DINT (Delayed Interval), OUT = OFDL (Off Delay).

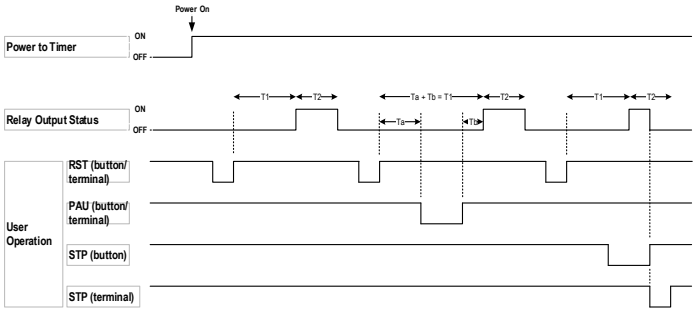


Figure 8.4. FUNC = DINT (Delayed Interval), OUT = ONDL (On Delay).

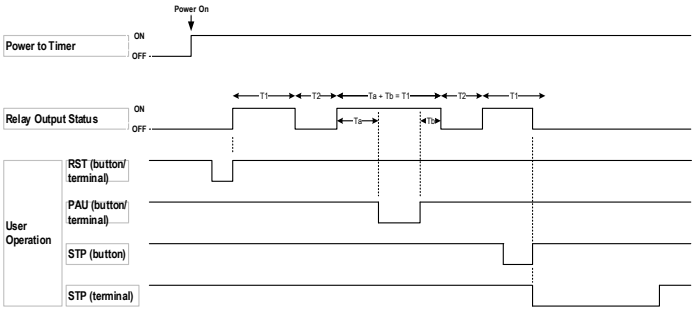


Figure 8.5. FUNC = CYCL (Cycle), OUT = OFDL (Off Delay).

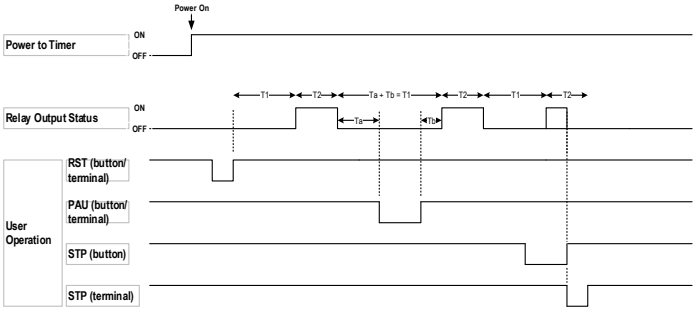


Figure 8.6. FUNC = CYCL (Cycle), OUT = ONDL (On Delay).

9. Application Notes

9.1 The STOP parameter in running the Single Delay mode.

When operating in Single Delay mode with On Delay output (FUNC = SDL, OUT = ONDL), users may want different relay behavior when the timing cycle is interrupted by the Stop function.

For example:
A) A user may use the timer to activate a buzzer at the end of a process. After acknowledging the notification, the user may want the Stop function to immediately silence the buzzer by returning the relay to its initial state.

B) A user may use the timer to delay the start of an oven. In some situations, the user may wish to cancel the remaining delay and immediately start the oven. In this case, the Stop function should force the relay to its final state.

To accommodate both applications, the STOP parameter becomes available whenever FUNC = SDL and OUT = ONDL. Two settings are available:

• STOP = 0: During the delay period, a Stop command forces the relay to its final state (energized).

• STOP = 1: During the delay period, a Stop command forces the relay to its initial state (de-energized).

Once the delay period has completed and the relay is energized, a Stop command will return the relay to its initial state regardless of the STOP setting.

(END)

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