Instruction Manual

JSL-72A Timer for Coffee Grinder and Espresso Shot Timer

Version 1.2 (Feb, 2018)

1. Overview

This JSL-72A timer is specifically designed for controlling coffee grinder and espresso shot timer. It can count from 0.01" to 99.99" or from 1" to 99'59". Counting direction can be set by user (counting up or counting down). Accumulated time/ cups can be automatically stored in the timer and reset by user. Operating function modes include single dose, double dose and manual. Most function features can be activated by front key pad or remote switch. However, manual function can only be accessed through remote switch. Three different display modes can be programmed. User can shift among single/double dose display mode, total running time display mode, and total number of cups display mode. Timer adjust function can be deactivated to prevent any accidental change. Timing the espresso machine is done by installing two wires and a converter box in the espresso machine. The two wires needs to be piggybacked to the brew switch and neutral line. The converter will change the AC pump signal to a DC signal that control the timer.

2. Specification

Timer range: 0.01" to 99.99", or 1" to 99'59".
Timer mode: single dose, double dose, or manual.
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.
Relay life: 100,000 times.
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

1. Time range indicators: M for minutes. It will be illuminated when time base is MM:SS (Minutes: Seconds). It will be off when time base is SS.SS (Seconds).
2. Timer indicators: T1 is illuminated for single dose; T2 is illuminated for double dose.
3. OUT indicator: illuminated when relay is on; turns off when relay is off.

4. SET key. When timer is not running, in single/double dose display mode, press it will shift between single dose time (T1) and double dose time (T2) (see section 5.1 for details); press and hold it for 3 seconds will shift between single/double dose display mode and total running time/cups display mode (see section 5.1 for details); press and hold it for 5 seconds will enter the parameter programming menu (see section 5.2 for details).
5. Down key: When timer is not running, in single/double dose display mode, press it will lower the time setting value; in total running time/cups display mode, hold it for 4 seconds will reset the value.
When timer is running, in either display mode, press it will stop the timer. In programming mode, press it will go to the next programming value.
6. Up key: When timer is not running, in single/double dose display mode, press it will increase the time setting value. When timer is running, press it will stop the timer. In programming mode, press it will go to the previous programming value.
7. RST key: Reset key. When timer is not running, press it will activate the timer. When timer is running, press it will stop the timer.
8. LED digital display. In single/double dose display mode, the top displays the actual time; the bottom displays the set value. In total running time/cups modes, the top displays the accumulated running time/cups; the bottom displays tot/CuPS. In programming mode, the top displays setting parameters; the bottom displays programming value.
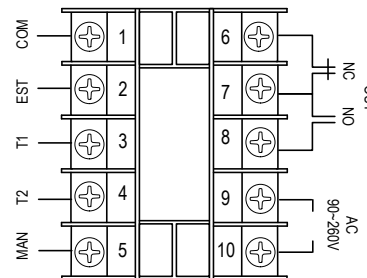
4. Terminal Assignment

Figure 2. Terminal assignment of JSL-72A.

Terminal functions when timer is running:
1. Terminal abbreviations: MAN (manual), T2 (double dose time), T1 (single dose time), COM (common), EST (espresso shot time).
2. Connecting EST and COM: Timer starts running when brew pump from espresso machine is activated.
2. Connecting MAN and COM: Timer starts running when they are connected.
3. Connecting T2 and COM: Timer starts running for T2 when they are disconnected.
4. Connecting T1 and COM: Timer starts running for T1 when they are disconnected.
5. Terminal 6, 7 and 8 are relay outputs. Terminal 6 & 7 are normally closed (NC), terminal 7 & 8 are normally open (NO). When output relay is deactivated, terminal 6 & 7are jumped and terminal 7& 8 are isolated. When output relay is activated, terminal 6 & 7are isolated and terminal 7& 8 are jumped.

5. Programming

When timer is not running, press SET key for 5 seconds to enter the programming menu. For each parameter setting, use up/down key to select different programming values. Press SET key to confirm and move on to next parameter. See figure 3 on next page for the procedure. For the definition of each programming value, see following section.
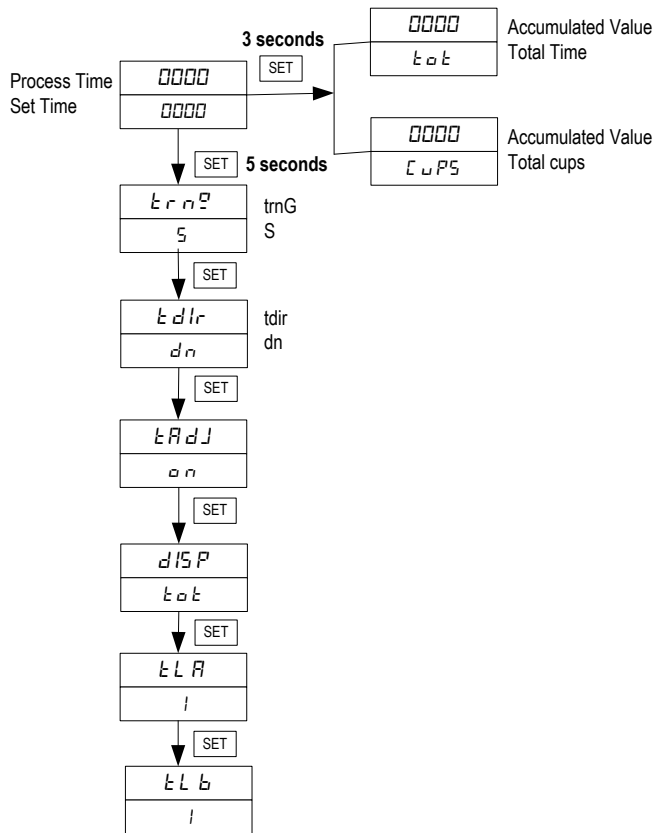

Figure 3. Flow chart of programming

5.1 How to Set the Timer and Dose Time T1/T2

When timer is not running, in single/double dose display mode,

a) Press "SET" key to shift between single dose time T1 and double dose time T2. When parameter "tAdJ" is programmed to "ON" (see definition of "**tAdJ**" in next section), simply press up/ down key will increase/decrease the set value of each delay time. (Hold up/down key will increase the changing speed exponentially).

b) Hold "SET" key for 3s, the display will change to total running time/cups display mode. For how to program two different display modes, please see the definition of "**dISP**" in next section.

c) Hold "SET" key for 5s, the display will enter parameter programming menu.

5.2 Definition of Programming Values:

trnG: timer range.

S: 0.01 s ~ 99.99 s.

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

tdir: timing direction.

up: counting up.

dn: counting down.

*Note: the timing direction can only be changed in the single and double dose timer display. The manual control always counts up so that user can use its value to fine tune the single and double dose setting.

tAdJ: time adjust.

On: When timer is not running, adjust timer directly by pressing up/down key from the front panel.

Off: Values for timer T1/T2 are locked.

dISP: display mode.

Tot: total time (unit: second).

CUPS: number of cups.

*Note 1: in Tot mode: total time will only display integer part; when manual key is pressed and held, the running time is counted into total time until the manual switch is released.

*Note 2: in CUPS mode: number of cups will not be counted into total number when manual key is pressed.

*Note 3: press down key for 4 seconds will reset the display to zero in both modes.

tL A: constant A.

tL b: constant b.

These two constants are used for converting the total time display to other units, such as weight in grams.

dISP = T x A / b,

where T=T1 or T2. For example, if grind 1 gram of coffee takes 2 seconds, set A=1, b=2, this will convert the total display unit from second to gram.

6. Wiring Examples.

For coffee machine wiring examples, please check page 5 of J72ABX_manual.pdf

For grinder wiring examples, please see figures below:

6.1 Example 1. Wiring the timer in parallel to the grinder's power switch.
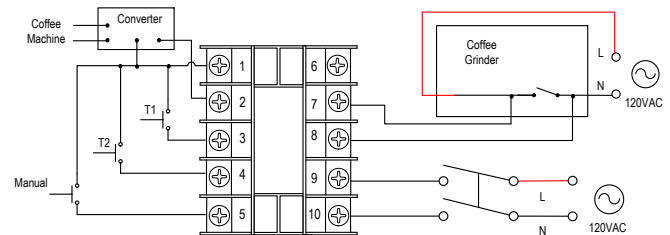

Figure 4. Wiring example 1 of JSL-72A.

Power (120 or 240 VAC) is sent to terminal 9 and 10. The manual remote switch is the only access to control the timer manually (no front key on the timer can be used for manual control). This switch can also be replaced with a control signal from computer or other control devices. The output terminals (# 6, 7, and 8) are from a "C-form" internal relay. It is a dry switch that does not provide any power by itself. The external switches should be momentary type. In Figure 4, the NO relay of the timer is wired in parallel to the power switch inside the coffee grinder. The coffee grinder can be turned on when either the power switch or the timer relay is closed. Terminal 1 and 2 are wired to the converter. The converter will change the AC pump signal from the coffee machine to a DC signal to control the timer.

6.2 Example 2. Wiring the timer in series to the grinder's power switch.
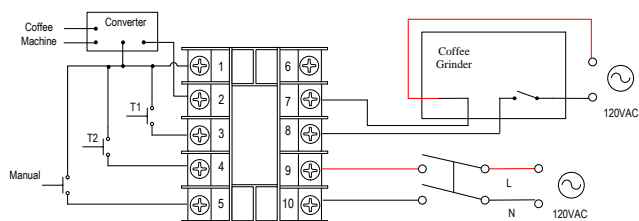

Figure 5. Wiring example 5 of JSL-72A.

The wiring is similar to the Figure 4 in the first example, but the NO relay on the timer is wired in series to the power switch of the coffee grinder. The switch on the coffee grinder is the master switch. Only when this master switch is closed, the coffee grinder can be controlled by the JSL-72A. Otherwise, this coffee grinder is at off status.