DIGITAL TIMER - MODES- rev. 5.5

JUMPER LOGIC

The different modes described can be accessed by setting the jumpers according to the following table.

MODE	JUMPER			DESCRIPTION
	B	**C**	**D**	
1	ON	ON	ON	MANUAL STOP WITH CANCEL
2	OFF	ON	ON	MANUAL STOP - CANNOT CANCEL
3	ON	OFF	ON	MACHINE MODE
4	OFF	OFF	ON	PAUSING
5	ON	ON	OFF	AUTOMATIC STOP - WITH CANCEL
6	OFF	ON	OFF	EARLY WARNING ON LED2
7	ON	OFF	OFF	GUARD DUTY
8	OFF	OFF	OFF	EARLY WARNING ON LED1

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1. Mode 1 - MANUAL STOP WITH CANCEL

After elapsed time, the cycle is ended by pressing PB1. Display reverts to previous set time. (does not hold the elapsed time)

A cycle is cancelled by pressing PB1 for 2 seconds. Buzzer sounds for 2 seconds along with LED2 illuminating simultaneously.

In addition, if set time is zero and PB1 is closed, (to start a cycle) the unit will start to count up to 99:59 in the current mode, at which point it stops timing, buzzer sounds. When PB1 is pressed a second time, buzzer chirps.

				2 SEC.			
PB1		↓		↓			↓
DISPLAY	TIME	COUNTDOWN		HOLD LAST TIME			TIME
LED1							
LED2							
BZ		CHIRP		2 SEC.			CHIRP
RLY	OPEN	CLOSED		OPEN			

MODE 1 - MANUAL STOP BEING CANCELLED

PB1		↓			↓	
DISPLAY	TIME	COUNTDOWN		OVERRUN		TIME
LED1						
LED2						
BZ		CHIRP				
RLY	OPEN	CLOSED		OPEN		

MODE 1 - MANUAL STOP MODE WITHOUT BEING CANCELLED

PB1		↓		↓	
DISPLAY	00:00	COUNTUP		00:00	
LED1					
LED2					
BZ		CHIRP		CHIRP	
RLY	OPEN	CLOSED		OPEN	

MODE 1 - COUNT UP

2. Mode 2 - MANUAL STOP, CANNOT CANCEL
Same as cycle 1 but cycle cannot be cancelled.

PB1		↓		↓
DISPLAY	TIME	COUNTDOWN	OVERUN	TIME
LED1		(green)		
LED2			(green)	
BZ		CHIRP	(green)	
RLY	OPEN	CLOSED	OPEN	

MODE 2 - CANNOT CANCEL

3. Mode 3 - MECHANICAL TRIGGER
For automation applications where PB1 is closed for the duration of the cycle by a mechanical switch.
The cycle cannot be cancelled during timing. If the mechanical switch is interrupted, LED2 illuminates for the duration of the cycle.

PB1		↓		↑
DISPLAY	TIME	COUNTDOWN	OVERUN	TIME
LED1		(green)		
LED2			(green)	
BZ		CHIRP	(green)	
RLY	OPEN	CLOSED	OPEN	

MODE 3 - MECHANICAL TRIGGER WITH NO INTERRUPTION

INTERRUPTION

PB1		↓	↑		↓	↑
DISPLAY	TIME	COUNTDOWN	COUNTDOWN	COUNTDOWN	OVERUN	TIME
LED1		(green)	(green)	(green)		
LED2			(green)	(green)	(green)	
BZ		CHIRP	CHIRP		(green)	
RLY	OPEN	CLOSED	CLOSED	CLOSED	OPEN	

MODE 3 - MECHANICAL TRIGGER WITH INTERRUPTION

4. Mode 4 - PAUSING

A. Counts down from a set value but time can be paused by pressing PB1. When paused, the display flashes the time.

B. If PB1 is pressed again the countdown resumes. (and display stops flashing) PB1 can be pressed to pause the timing an unlimited number of times. After the set time has elapsed, BZ/LED1/LED2/relay act as usual.

C. If set time starts is zero then it counts *up* and can be paused/resumed in the same way. Count-up can be terminated when by holding PB1 for 2 seconds. In this case BZ sounds to indicate the cycle is cancelled.

PB1		↓		↓		↓				↓	
DISPLAY	TIME	COUNTDOWN		HOLD		COUNTDOWN		OVERRUN		TIME	
LED1											
LED2											
BZ		CHIRP		CHIRP		CHIRP					
RLY	OPEN	CLOSED		OPEN		CLOSED				OPEN	

MODE 4 - PAUSING COUNT DOWN

2 SEC.

PB1		↓		↓		↓		↓		↓	
DISPLAY	00:00	COUNT UP		HOLD		COUNT UP		HOLD		00:00	
LED1											
LED2											
BZ		CHIRP		CHIRP		CHIRP		CHIRP		2 SEC	
RLY	OPEN	CLOSED		OPEN		CLOSED		OPEN			

MODE 4 - PAUSING COUNT UP
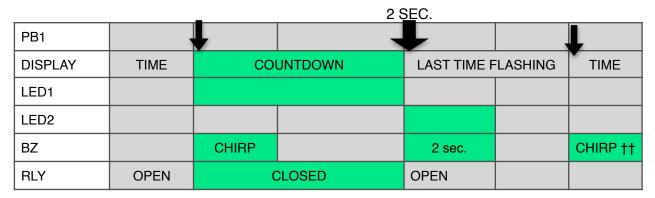
5. Mode 5 -AUTO STOP WITH CANCEL

Buzzer does not sound at the end of a cycle that runs to completion - it only sounds if the cycle is cancelled. (as shown)

PB1					
DISPLAY	TIME	COUNTDOWN			TIME
LED1					
LED2					2 SEC
BZ		CHIRP			
RLY	OPEN	CLOSED			OPEN

MODE 5 - AUTO STOP WITH NO CANCELLATION

2 SEC.

PB1						
DISPLAY	TIME	COUNTDOWN		LAST TIME FLASHING		TIME
LED1						
LED2						
BZ		CHIRP		2 sec.		CHIRP ††
RLY	OPEN	CLOSED		OPEN		

MODE 5 - AUTO STOP WITH A CANCELLATION

6. EARLY LED2

This is a new mode that replaces previous mode 6. Identical to mode 8 except the behaviors of LED1 and LED2 are reversed from mode 8. See mode 8 for written description.

PB1								
DISPLAY	TIME 1	COUNTDOWN					OVERRUN	TIME 1
LED1								
LED2					EARLY TIME			
BZ		CHIRP			2 SEC.			
RLY	OPEN	CLOSED					OPEN	

MODE 6 - CHART 1 - EARLY LED2

2 SEC.

PB1								
DISPLAY	TIME 1	COUNTDOWN				LAST TIME FLASHING		TIME 1
LED1								
LED2				EARLY TIME				
BZ		CHIRP		2 SEC		2 SEC		CHIRP
RLY	OPEN	CLOSED				OPEN		

MODE 6 - CHART 2 - EARLY LED2 WITH CANCELLATION

7. Mode7 - GUARD DUTY

Counts down but the time is reset to the starting value if PB1 is pressed anytime before the end of a cycle. If time elapses then LED2 and relay activate. (this is like the doomsday counter on the TV show "Lost") Cycle cannot be stopped except by disconnecting power.

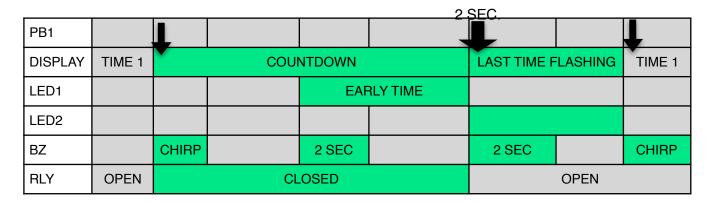| PB1 | | | | | | | | |
|---------|------|----|----|-------------|---------|----|----|
| DISPLAY | TIME | †† | †† | CD COMPLETE | OVERRUN | †† | |
| LED1 | | | | | | | |
| LED2 | | | | | | | |
| BZ | | CHIRP | CHIRP | | | CHIRP | |
| RLY | OPEN | | | | CLOSED | OPEN | |

†† = PARTIAL COUNTDOWN   MODE 7 - GUARD DUTY

8. Mode 8 - EARLY LED1

LED1 activates before the end of a cycle. to give an early warning to an operator. The amount of "early warning" time is settable as follows: holding all three buttons simultaneously for 5 seconds; then when the 3 buttons are released, the timer is in a state to set the "early" time. (indicated by the display blinking) The "early" time is set in the same way as the time is normally set with PB1,PB2, PB3.. After the "early" time is set, the display flashes this time for 5 seconds and then after that the time becomes "locked in" and the flashing stops.

For example:all 3 buttons are depressed for 5 seconds, then released. Using PB1 and PB2 a time is set for 40 seconds. This time blinks for 5 seconds and then displays steadily. Operator must now set the desired countdown time again if it is to be different from the "early" time of 40 sec.. When the next cycle runs, PB1 illuminates 40 seconds before the end of the cycle. At the end off the cycle, BZ/ LED2/relay activate as usual. This "early time" is erased (set to zero) by holding all 3 buttons down for 5 seconds.

PB1		↓					↓
DISPLAY	TIME 1	COUNTDOWN				OVERRUN	TIME 1
LED1				EARLY TIME			
LED2							
BZ		CHIRP		2 SEC.			
RLY	OPEN	CLOSED					OPEN

MODE 8 - CHART 1 - EARLY LED1

2 SEC.

PB1		↓				↓		↓
DISPLAY	TIME 1	COUNTDOWN				LAST TIME FLASHING		TIME 1
LED1				EARLY TIME				
LED2								
BZ		CHIRP		2 SEC		2 SEC		CHIRP
RLY	OPEN	CLOSED				OPEN		

MODE 8 - CHART 2 - EARLY LED1 WITH CANCELLATION