

PROGRAMMABLE DAILY ON/OFF TIMER MODULE – UP TO 7 CHANNELS

MODEL NO.: KS1507M

DESCRIPTIONS

This is a daily On/Off timer switch module in compact size. Allow to set up to 7 channels in a day. Furthermore, it has cycling function too. People can set repeat identical on/off interval from 1 minute up to 23 hours 59 minutes. Sized as 4 x 22 x 8 mm in width, height, and height. It is good to installed in an electrically powered device, such as electric fan, coffee maker, rice cooker, motor, to manipulate the "on" or "off " of their power source. The module is metal framed with 16 connection pins with 2 mm pitched. Good to mount on main board. To keep the setting data properly a 3.0 volts backup battery is suggested to apply. Low voltage detection circuit is built-in the module to check the power of backup battery. When its voltage is measured less than 2.7 V, a "low battery" sign is appeared in blinking to warning battery replacement. As well as setting the daily "on" and "off" time (up to 7 channels), it is possible to set the identical interval of "on" and "off" period, called as "cycling mode". In additional to the above two modes, a combination of the two modes is possible too.

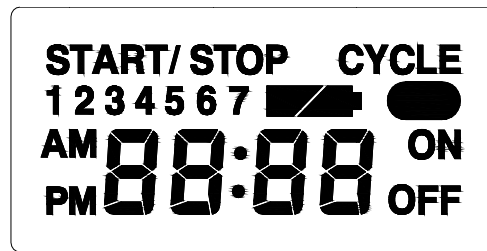


SPECIFICATIONS

- a. Physical Size: 34 x 22 X 7.6 mm
16 pins (pitch:2.0mm)
- b. LCD Display
 1. Screen Size: 27 x 13 mm
 2. Number of Digit: 4 digits
 3. Digit Height: about 4.5 mm
- c. Power Source:
Main Power – 3.6 VDC, converted from AC normally
Back Up Power – Battery, 3.0 VDC
- d. Built-in Low Power Detector: Warning mark (broken battery) flashing when backup voltage below 2.70 VDC
- e. Number of On/Off setting: 7 channels
- f. Shortest switch time: 1 minute
- g. Minimum programmable time interval: 1 minute
- h. Manual Override: supported
- i. Switching status indicator: supported
- j. Time Display: Either AM/PM or 0:00 for military time
- k. Output Control Signal:
* Timer ON : + 3.60 VDC
* Timer OFF : 0 VDC
- l. Operation Temperature: -10 ~ +50 degree C
- m. Storage Temperature: -20 ~ +60 degree C

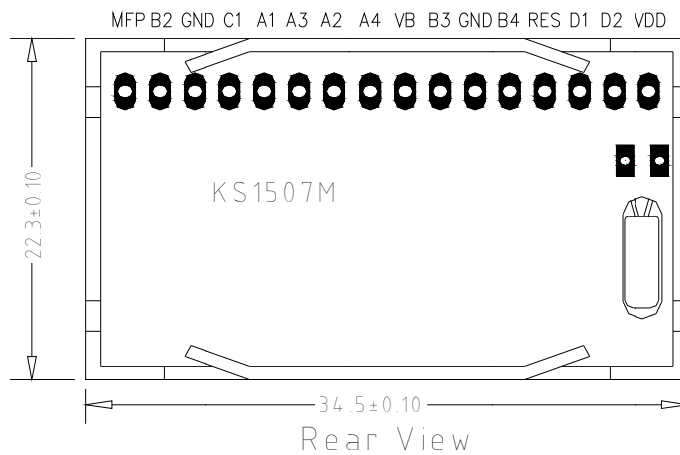
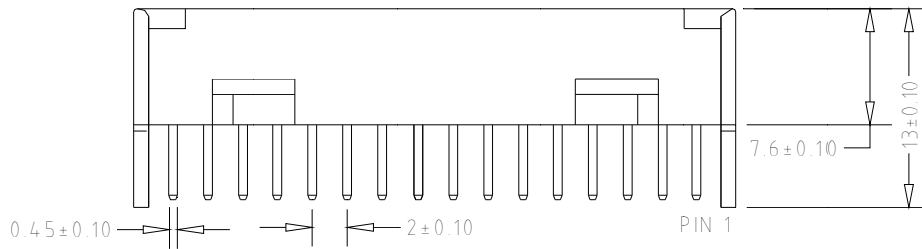
MODULE SPECIFICATION

LCD DISPLAY FORMAT



LCD FORMAT

I/O PIN CONNECTION



PIN Description:

NO.	PIN NAME	FUNCTION	NO.	PIN NAME	FUNCTION
1	VDD	Power source, 3.00 V	9	A4	To cancel setting
2	D2	Side S/W, for manual On/Off	10	A2	To adjust hour
3	D1	Side S/W, for manual On/Off	11	A3	To enter setting mode
4	REST	To reset whole system	12	A1	To adjust minute
5	B4	Mode S/W	13	C1	To adjust channel No.
6	GND	Power Source, 0V	14	GND	Power source, 0 V
7	B3	Mode S/W	15	B2	Time setting On/Off
8	BATT + IN	Battery + 3.00 V	16	MFP	Output of control relay On/Off

TIME SETTING SELECTION, SLIDE S/W1:

B2	FUNCTION
VDD	TIME SETTING ON
GND	TIME SETTING OFF

MODE SELECTION, SLIDE S/W2:

B4	B3	FUNCTION
GND	GND	START COUNTING
GND	VDD	SETTING FOR CYCLE
VDD	GND	SETTING FOR START STOP

MANUAL ON/OFF SELECTION, SLIDE S/W3:

D2	D1	FUNCTION
GND	GND	RELAY MANUAL ON
GND	VDD	RELAY IN NORMAL
VDD	GND	RELAY MANUAL OFF

ABSOLUTE MAXIMUM RATING

Parameter	Rating	Unit
Supply Voltage to Ground Potential	-0.3 to +7.0	V
Applied IN/OUT Voltage	-0.3 to + 0.7	V
Power Dissipation	120	mW
Ambient Operating Temperature	0 to +50	Degree C
Storage Temperature	-20 to +60	Degree C

DC CHARACTERISTICS

Parameter	Minimum.	Typical	Maximum	Unit
Operating Voltage	2.4	3.6	5.5	V
Operating Current	-		1	mA

ELECTRIC, AND OPTICAL CHARACTERISTICS

(VDD - VSS = 3.0V, Fosc. = 32,768 Hz, Ta = 25 ; unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	VDD	-	2.2	-	4.2	V
Operating Current	Iop	No load	-	10	-	μA
IOA1-4, IOB2-4, IOC1, IOD1-4 Input Low Voltage	VIL	-	Vss	-	0.2 VDD	V
IOA1-4, IOB2-4, IOC1, IOD1-4 Input High Voltage	VIH	-	0.8 VDD	-	VDD	V
IOB1 Output Low Voltage	VML	IOL=2 mA	-	-	0.6	V
IOB1 Output High Voltage	VMH	IOH=-1 mA	2.4	-	-	V
LCD Supply Current	ILCD	All Segment On	-	-	10.0	μA
LCD Common Sink Current	IOL	VOL=0.2 V VLCD=0.0 V	10.0	-	-	μA
LCD Common Drive Current	IOH	VOH=3.4 V VLCD=3.6 V	-10.0	-	-	μA
LCD Segments Sink Current	IOL	VOL=0.2 V VLCD=0.0 V	1.0	-	-	μA
LCD Segments Drive Current	IOH	VOH=3.4 V VLCD=3.6 V	-1.0	-	-	μA
Time Accuracy	-	-	-1.0	-	+1.0	sec/day
Battery Low Indication (MCU checks at every 10 and 40 minutes of each hour to save power consumption)				2.7		V