Timer / Counter / Frequency

LED, Multi Function, Digital

LB4063-101 220/240V.AC

Description:

The IEC 'Timer Counter' is a compact and versatile instrument for general laboratory timing to 0.1 mS, counting and measuring frequency or rate. It does not perform Geiger Counting.

Each of the 2x modes (Timing, Counting/Frequency) has a set of 'Functions' to select the type of function you want for the mode you selected. All selection is by LED and the indication reminds you always of the mode and function that is operating. A mains voltage version of this instrument is available. LB4063-101.

Special Features:

- High speed timing to 100 microseconds (0.0001s) resolution.
- Large six digit LED display.
- All press button operation with LED indication of functions.
- Several different modes of timing are selectable.
- Automatic loading memory up to a depth of 20 values.
- Memory items can be selectively deleted to remove errors. Memory items can be scrolled, totaled or averaged.
- Start/Stop TIME sockets also operate as remote Start/Stop sockets when running in COUNT or FREQUENCY modes.

Length: 240mm	Width: 140mm	Height: 110mm	Weight: 1.4kg

Power:

220/240V.AC. by removable mains cable.

Accuracy:

All operations relating to timing and frequency are crystal locked ensuring an accuracy of better than: 0.01% +/-1 least significant digit. All functions are microprocessor controlled.

Initial Power On:

Apply 220/240V.AC. and turn on the main switch on the rear panel.

Digital display should illuminate.

- Small LEDs indicate the Mode of operation and Function.
- Press MODE button to select the Mode of operation required.
- Press FUNCTION button to select Function required in that mode.

Press Button Operations:

- **Start:** Initiates timing or counting.
- **Stop:** Stops timing or counting and the value is stored in memory.
- **Reset:** Normally operated after stop. Zeroes the display and also performs an AutoMode external connections check on the start/stop sockets.
- **Mem Up** / **Mem Down:** Scrolls and recalls active memory locations.

Memory:

When STOP occurs by either press button or by socket connection, the last value is stored into memory. When any value is stored, the small 'MEM' LED is on. When 20 values are stored (memory full), the memory LED flashes.

MEM UP/DOWN
buttons scroll through the active memory store. When the first or last stored memory is reached, a longer beep sounds.

TOTAL
button adds all memory values together. Press and hold until double beep is heard. Total of memory values will display whilst button is held depressed.

AVRG
button calculates the average of all the memory values. Press and hold until double beep is heard. Average will display whilst button is held depressed.

PURGE
button removes selected memory values. Scroll to select the unwanted value. Press and hold button until double beep is heard. Selection is now erased from memory leaving the other values untouched. Display shows '------'.

CLEAR
button empties all memory values. Press and hold button until double beep is heard. Memory store will be empty and the small memory LED will be off.

Automode:

This function is set by pressing STOP then RESET buttons sequentially.

When set, the starting and stopping of timing will occur upon any change of state of the START / STOP electrical connections. This automatic feature can save classroom time and difficulty by eliminating the necessity of creating specific 'making' or 'breaking' external connections for experiments.

Modes:

Two different modes of operation are selectable:

- **Timing**, 99.9999 seconds by 0.0001s, then AutoRanges to 999.999 seconds by 0.001s.
- **Counting & Frequency**

Timing Functions for External Connections:

Start/Stop:

When status of the START socket connections is changed momentarily the timer runs. The start connections then have no effect. When the status of the STOP connections is changed momentarily the timer stops and the value is stored into memory.

Photogate:

When status of the START socket connections is changed the timer runs. When same sockets revert to original status the timer stops and the value is stored in memory. The sockets also provide the power required to run most photogate circuits.

Period:

When the status of the START socket connections is changed the timer runs. When same sockets revert to their original status there is no effect. When same sockets are changed again, the value is stored in memory, display is reset and the next period is started, effectively this is the time or period between successive Starts. Press STOP to stop timing.

Pendulum:

When the status of the START socket connections is changed the timer runs. When same sockets revert to original status there is no effect. When same sockets are changed and reverted again, there is no effect. Upon the fifth change, the value is stored in memory, the timer is reset and then starts timing the next pendulum period. Press STOP to stop timing. Effectively this is a double ‘PERIOD’ which occurs during a complete pendulum swing through a photogate.

Remote:

Duplicates the RESET and Memory Clear button function. Using a long cable, this socket can be joined to the common or ‘GRND’ socket by a switch or press button to create a REMOTE RESET control. As with the Reset button, this socket will clear the memory locations if joined to ‘GRND’ until two beeps are heard.

Counting & Frequency:

The START and STOP buttons or the joining of the TIME START/STOP sockets permits the counting and frequency measurement to Start or Stop. When stopped, the last value is automatically stored into memory.

Input Response:

Pulses of 20mV P/P to 100V can be counted. The sensitivity of the counting input can be,adjusted between these limits. For low level pulses, increase SENSITIVITY until a steady,and reliable counting occurs.

There are four different functions of counting and frequency:

Continuous:

Counting continues until Stop button is pressed or the Stop sockets change in state. The value is stored automatically.

10 Second Period:

After this time has expired, counting stops and the total is displayed. Value is automatically stored into memory.

100 Second Period:

After this time has expired, counting stops and the total is displayed. Value is automatically stored into memory.

Frequency:

in counts/sec: The pulses applied are counted per second and displayed as frequency to a maximum of 1MHz. Starting and stopping of the frequency function is performed by the buttons or the sockets in the TIME mode section. Each time the frequency is updated, the last value is stored in memory.

Optional Accessories:

- Photo gates for experiments.

Designed and manufactured in Australia