TIMER COUNTER - timer, counter, freq.

Cat: 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/Freq) 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 slim very compact low voltage version of this instrument is available. LB4063-001.

SPECIAL FEATURES:

- High speed timing to 100 microseconds (0.0001s) resolution.
- Large six digit LED display. Press button operation, 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, totalled or averaged.
- Start/Stop TIME sockets also operate as remote Start/Stop sockets when running in COUNT or FREQUENCY modes.

Some larger bench models have the 'D' connector socket to operate IECs remote LED Display for classroom viewing. This display has large digits and displays both the data and the unit relating to the data (Hz, sec. etc.).

LB4063-101 timer-counter (mains)

Physical size: 240x140x110mm LxDxH **Weight: 1.4 kg**

SPECIFICATIONS:

POWER: 220/240V.AC by removable mains power 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 connection check on the START/STOP sockets (refer later in this instruction sheet).
- 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 Purge button until double beep is heard. That selection is now erased from memory leaving the other values untouched. The 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 'MEM' LED will be off.

MODES: Two different modes of operation are selectable:

- Timing
- Counting & Frequency

TIMING: AutoRange: 99.9999s by 0.0001s

999.999s by 0.001s

Resolution: 0.0001s up to 99.9999 seconds, then AutoRanges to 999.999 seconds by 0.001s.

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.

There are four different functions of timing:

START/STOP: When the status of the START 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 memory is loaded.

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

PERIOD: When status of the START connections is changed the timer runs. When same sockets revert to the original status there is no effect. When the same sockets are changed again, the value is stored in memory, the timer is reset and then starts timing the next period. To stop the timing press STOP.

PENDULUM: When the status of the START connections is changed the timer runs. When same sockets revert to the original status there is no effect. When same sockets are changed again, there is no effect. Upon the fourth change, the value is stored in memory, the timer is reset and then starts timing the next pendulum period. To stop timing press STOP.

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.

TOTAL counts over 10 or 100 sec.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.

REMOTE: duplicates the RESET 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.

EXTENSION DISPLAY:

The larger bench version of the IEC Multi Counter has a standard 15 pin 'D' connector for connection to the IEC remote large sized digital display for classroom viewing. This slave display can be hung on the wall and one small cable connects the two instruments. As the Modes and Functions are selected, the UNIT of the measurement is automatically displayed on the slave display.

OPTIONAL ACCESSORIES:

- Photo gates for experiments (LB2336-001).
- For large bench model only: Giant slave digital display for classroom viewing (LB1675-001), including 2M long connection cable.

Designed and manufactured in Australia