

C 7217

4 Digit LED Counter

A DIN cased 4-digit counter with high efficiency LED displays behind a red filter, giving a high contrast display under all lighting conditions. The counter may be pre-set from BCD switches, as may the register from which the 'Equals' output is derived when its contents are identical to those of the counter. With a similar output at 'Zero' the C7217 is suitable for many applications in batch counting, machine control, etc. All inputs and outputs are TTL/CMOS compatible.

- 11mm (0.43") Digit Height
- DIN Cased
- Presettable Internal Register
- Zero/Equal Output
- Battery Back-up Option



TIME/FREQUENCY OPTION

For timer or frequency counter applications a part is available (stock no. UCT 400), which is user/factory configurable as a counter/timer/frequency counter. The frequency/sampling rate of which may easily be modified by the user/factory. A separate data sheet is available for this module.

Stock Number				C 7217
Standard Meter				
Specification	Min.	Typ.	Max.	Unit
Supply voltage	4.5	5	5.5	V
Supply current		180		mA
Supply current with display blanked		1	5	mA
Input impedance		50		kilohms
Input signal level	3.5		±10	V
I/P frequency (counter)			2	MHz
I/P frequency (compare - register)	200	750		KHz
Display reading			9999	counts
Operating temperature range	0		50	°C

CONNECTOR SOURCING GUIDE

METHOD	Edge Connector - Lascar Stock No. EC 16 DS
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**DIMENSIONS** All dimensions in mm (inches)

## PIN FUNCTIONS

1. DP3(RH) 999.9
  2. DP2 99.99
  3. DP1 9.999
  4. DPCOM Connect to required decimal point to illuminate.
  5. DISCON Leave floating for normal operation. Connect to +5V to blank display. Connect to 0V to inhibit leading zero blanking.
  6. UP/DN When connected to +5V or left floating, the counter counts up. When connected to 0V it will count down.
  7. STORE Display updates normally when pin is at 0V or left floating. If taken to +5V the display will be held, although the counter will continue to collect data. When returned to its quiescent state or taken to 0V, the display is updated.
  8. C/BOR\* Inversion of Pin E output.
  9. INHIBIT Connect to +5V to inhibit counter input. Leave floating or connect to 0V to count normally.
  10. COUNT Counts on negative-going transitions at up to 2MHz.
  11. DE-B For 'De-bounced' counting at up to 50Hz, link Pins 10 and 11 if this facility is required.
  12. KEY Polarising slot for edge connector ensures correct orientation of PCB (corresponds with Pin M).
  13. +5V Positive power supply connection.
  - 14,15. 0V Negative power supply connection.
  16. REGIN Positive power supply connection for unregulated supply operation. Voltage range 7.5- 15V. Supply should be smoothed but not necessarily stabilised.
- A. UNITS  
B. TENS  
C. HUNDREDS  
D. THOUSANDS
- DIGIT SELECT OUTPUTS. Used for control of BCD data interfacing.  
Data is 4-way multiplexed by these outputs.
- E. C/BOR\* CARRY/BORROW This output will issue a positive pulse (duration typically 1µs) when the counter advances from 9999 to 0000 (counting up) or from 0000 to 9999 (counting down). It can be used for cascading counter units.
- F. ZERO Zero output is at a high level when the contents of the counter are 0000. Normally this output is at ground. Not valid during a Load Counter operation.
- G. EQUAL Equal output is at a high level when contents of counter and register are equal. Normally this output is at ground. Not valid during a Load Counter or Load Register operation.
- H. BCD8  
J. BCD4  
K. BCD2  
L. BCD1
- BCD input/output connections can be used for pre-setting counter/register contents, or for monitoring counter contents.
- M. KEY Polarising slot for edge connector, ensures correct orientation of PCB (corresponds with Pin 12).
- N. LDREG Leave floating for normal operation. Take to +5V to load BCD data into register. Take to 0V to blank display. NOTE - This function is overridden during loss of primary power supply to module with battery back-up option fitted.
- P. LDCTR Leave floating for normal operation. Take to +5V to load BCD data into counter. Take to 0V to force BCD I/O port to high impedance state.
- Q. SCAN On board multiplex scan oscillator has a normal free-running frequency of 10KHz. This may be reduced by the addition of a capacitor between SCAN pin and +5V or the oscillator may be directly overdriven to about 20KHz.
- R. RESET Leave floating or connect to 0V for normal operation. Take to +5V to reset counter.

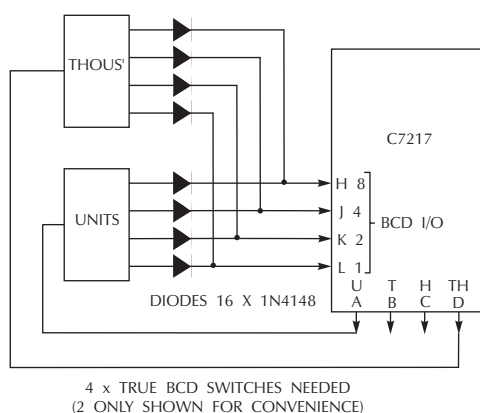
\*Invalid during Load Counter or Reset operations.

## BATTERY BACK-UP

Provision has been made for a small 3.6V 100mAh PCB type battery to be fitted. The on-board circuitry is arranged to automatically disable the display (to minimise power consumption) if the + 5V power supply is interrupted. This can provide more than 36 hours data retention with a fully charged battery in good condition. The battery is trickle charged during normal operation. Provision is also available for battery isolation during extended periods of non use. Should this be required, simply sever the solder pad link from the battery 0V connection to the counter 0V rail, and connect the battery 0V by way of the PCB pad provided to pin 14 or 15 by a switch.

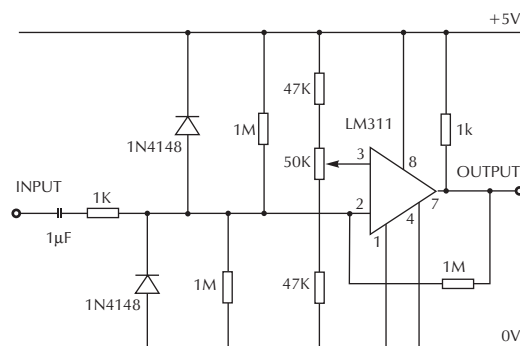
NOTE - You cannot use the Load Register function when loss of primary power occurs.

## OPERATING MODES



### Loading of Data from BCD Switches

Thumbwheel switches may be connected as illustrated for applications where counter and/or register set points are required. It is important to note that data may only be transferred at a rate solely controlled by the counter module, it is not possible to synchronise it to any external systems.



### Application of Low Level Signals

A comparator can be used to transform low level signals. D.C. rejection may be achieved by fitting a capacitor in series with input. A degree of positive feedback is recommended for stability.