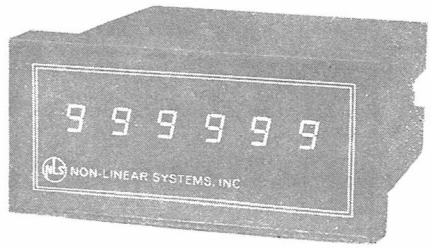
RC-6TB & RC-6TB/CC
EVENT COUNTERS

INSTRUCTIONS



INTRODUCTION.

The RC-6TB and the RC-6TB/CC are panel-mounted, six-digit event counters. The RC-6TB totalizes electronic signals; the RC-6TB/CC electromechanical contact-closures. In each of these counters, the count is registered in a six-digit, 0.3-inch-high LED display. Count rates up to one megahertz can be accommodated.

Both counters incorporate the following features: input gating (hold), reset, display blanking, display latching, overflow indication and cascadability. These are described in detail below.

The meters are designed to operate with a +5 VDC ±5% regulated power supply.

Calibration of the instruments is not required.

SPECIFICATIONS.

COUNT RATE: RC-6TB - 1 MHz
RC-6TB/CC - 100 Hz

INPUT SIGNAL:

RC-6TB: Count is registered when threshold voltage of approximately +2.5 volts is crossed by a signal going in the negative direction. Maximum signal excursion is ±30 volts. Recommended signal excursion is 0 to +5 volts.

RC-6TB/CC: Count is registered on contact-closure to ground.

INPUT IMPEDANCE: 100 kilohms in parallel with the series combination of 0.1 microfarad and 10 kilohms.

DISPLAY: 0.3" high,LED

DECIMAL POINT LOCATION: Any one of six locations selected by an internal jumper.

OVERFLOW INDICATION: All decimal points are illuminated.

OPERATING TEMPERATURE: 0° to 50°C

POWER REQUIREMENTS: +5 VDC ±5% @ approximately 0.3A

DIMENSIONS: See figure 1

WEIGHT: Approximately 5 oz (142 g)

MOUNTING DATA.

A rectangular panel cutout is recommended for mounting the instruments. The recommended dimensions are:

92 millimeters +1, -0 mm (3.622 inches +0.040, -0 in.)

43 millimeters +1, -0 mm (1.693 inches +0.040, -0 in.)

The meters will also fit the DIN/NEMA standard cutour, 92 mm x 45 MM (3.622 x 1.772 in.) and the widely used 99.7 mm x 42.72 mm (3.925 in. x 1.682 in.) cutout.

Any panel thickness from 1.524 mm (0.060 in.) to 4.57 mm (0.18 in.) may be used.

To mount the meter, remove the retaining spring from its holes in the sides of the meter at the rear. Insert the meter from the front of the panel cutout. Replace the retaining spring and slide it behind the mounting panel to fasten the meter in place. It does not matter whether the retaining spring swings from above or below the meter.

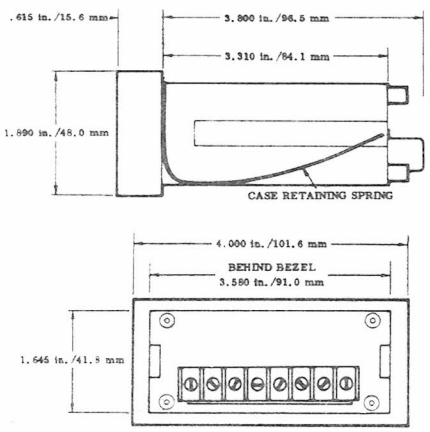


Figure 1. Outline Drawing

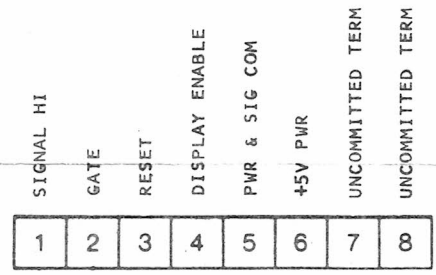


Figure 2. Connection Information

OPERATION.

POWER SUPPLY. The power supply should be regulated and have an output of +5.0 volts ±5%. It should be capable of delivering a current of 350 milliamps.

Connect the negative side of the supply to terminal 5 of the terminal block. Connect the positive side to terminal 6.

SIGNAL.

RC-6TB: Connect the "high" side of the signal to be counted to terminal 1. Connect signal common to terminal 5. A count is registered when the threshold voltage of approximately +2.5 volts is crossed by a signal going in the negative direction. Maximum signal excursion is ±30 volts. Recommended signal excursion is 0 to +5 volts.

RC-6TB/CC: Connect contacts of the contact-closure device to terminals 1 and 5. A count is registered when the contact closes.

GATE. To stop the counter from counting and hold the display, apply a "low" logic level (approximately zero volts) to terminal 2.

RESET. A contact-closure to ground or a rapidly (<3 µSec) falling logic level from +5V to 0 applied to terminal 3 will reset the counter.

Even if the closure to ground remains, or the logic level remains at 0, the counter will not be held in reset and will resume counting within approximately 30 mSec. (if gate input is "high" or floating).

If it is preferred to have the counter remain reset as long as terminal 3 is held "low", this can be achieved by gaining access to the PC board as described under "Decimal Point Location" and replacing capacitor C2 (100 pF) with a jumper. If the counter is viewed from the front, capacitor C2 will be found at the rear on the right side alongside of the CD4001AE integrated circuit.

DISPLAY ENABLE. To enable the display, terminal 4 must be connected to +5V (terminal 6). Removing this connection will cause the display to be blanked, but will not interfere with the counting process. One use for this feature is in battery-powered operation, since display blanking can greatly prolong battery life. A momentary pushbutton switch (not furnished) can be depressed to enable the display whenever a reading is desired.

DECIMAL POINT LOCATION. To illuminate a decimal point, an internal jumper connection must be made. The PC pads to be jumpered are shown below.

TO OBTAIN DECIMAL POINT SHOWN BELOW	JUMPER PC PADS SHOWN BELOW
XXXXX.X	E7 TO E11
XXXX.XX	E7 TO E10
XXX.XXX	E7 TO E9
XX.XXXX	E3 TO E6
X.XXXXX	E4 TO E6
.XXXXXX	E5 TO E6

The PC pad terminal location can be determined by observing the terminal designations etched on the PC board.

To gain access to the PC board, perform the following steps:

1. Using a knife or thin-bladed screwdriver, carefully pry off the front panel.

2. Remove the two screws behind front panel.

3. Slide meter out of case.

UNCOMMITTED TERMINALS (7 & 8). Any two of the three functions, "latch, overflow and light test", may be brought out to uncommitted terminals 7 and 8 of the terminal block by means of internal jumpering. Listed below are the PC pads associated with the three functions and the uncommitted terminals.

FUNCTION	PC PAD NO.
LATCH	E1
OVERFLOW	E2
LIGHT TEST	E8

UNCOMMITTED TERMINALS	PC PAD NO.
7	E14
8	E15

As stated above, PC pad terminal designations are etched on the PC board. To gain access to the PC board, follow the procedure set forth under "Decimal Point Location".

LATCH. Using internal jumpering as described under "Uncommitted Terminals (7 & 8)", the latch input may be brought out to terminal 7 or 8.

Information present in the counter when the latch input is raised to a "high" (+5V) logic level, will be stored in the latches and the display, and will be retained as long as the latch input is "high".

The latching function is independent of other counting functions so that the counter can continue to count, reset or hold.

OVERFLOW. Using internal jumpering as described under "Uncommitted Terminals (7 & 8)", the overflow may be brought out to terminal 7 or 8.

Additional counters can be cascaded using the overflow output, which provides one positive pulse for every 1,000,000 counts.

OVERFLOW INDICATION. When the total count reaches 1,000,000, all the decimal points light up indicating that the counter has exceeded its full scale capacity. The decimal points will remain illuminated until the counter is reset.

LIGHT TEST. Using internal jumpering as described under "Uncommitted Terminals (7 & 8)", the light test input may be brought out to terminal 7 or 8.

A "low" (ground) logic level applied to the light-test input will cause all 8's to be displayed. This provides verification that there are no missing segments in any of the six digits of the display.

RC-6TB

Prices and Specifications Subject to Change without Notice

Non-Linear Systems, Inc.
Originator of the digital voltmeter.

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