

FM-340TB/120 & FM-340TB/240



INTRODUCTION

The FM-340TB Frequency Monitor was designed to measure and display the frequency of AC power lines. The use of a quartz crystal to control the time-base oscillator insures long-term accuracy and stability. No calibration adjustments are required. All solid-state circuitry is used to insure reliability and long life.

SPECIFICATIONS

Input Voltage:

FM-340TB/120: 85 to 125VAC
FM-340TB/240: 170 to 250VAC

Frequency Range: 0.45 Hz to 450 Hz

Resolution: 1 Hz

Accuracy: ± 1 Hz

Time Base:

1 second, crystal controlled

Display: 3 digit, 0.6" LCD. Display is updated every two seconds.

Operating Temperature: 0° to 50°C

Weight: 6.6 ounces (187grams)

Input Power:

FM-340TB/120: Less than 1.5 VA
FM-340TB/240: Less than 5 VA

OPERATING PRINCIPLES

The FM-340TB consists of a phase-locked loop frequency multiplier, a three-decade counter with latches and display, and a one-second crystal-controlled time base.

The counter counts the output of the frequency multiplier for a period of one second. At the end of the one-second period, the reading in the counter is transferred to the latches where it is stored. The readout displays the numbers stored in the latches.

One-half second after the transfer, the counter is reset to zero. After another one-half second a new count is initiated.

The time base is derived from a 2.097152 megahertz crystal oscillator. The output of the oscillator drives a 21-stage counter which, in turn, produces the accurate one-second timing pulses used to control the decade counter.

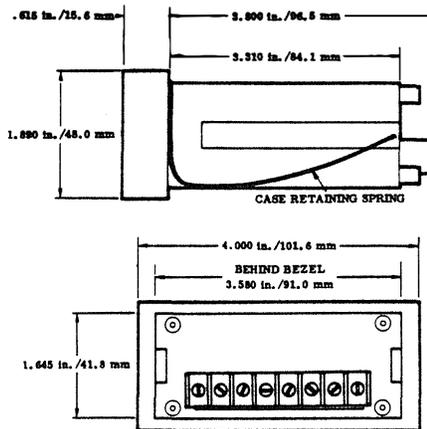


Figure 1. Outline Drawing

MOUNTING DATA

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

92 mm +1, -0mm (3.622 in+0.04,-0 in)
43 mm +1, -0 mm(1.693 in+0.04,-0in)

The meters will also fit the DIN/NEMA standard cutout, 92 mm x 45 mm (3.622 in 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.

OPERATION

Connect input AC line to terminals 3 and 6 of the terminal block. Apply power and allow ten seconds for the instrument to stabilize; the correct frequency reading should then be displayed.

FUSE REPLACEMENT

The FM-340TB contains a 1/32 ampere fuse for line protection. The fuse is type 3AG, Part Number 312.031 (Littlefuse Inc.). To replace the fuse, perform the following steps:

1. Shut off input line power.
2. Disconnect input line from terminal block at rear of instrument.
3. Using a knife or a small screwdriver blade, carefully pry off plastic front panel.
4. Remove the two screws and two retaining brackets behind front panel.
5. Slide meter out of case.
6. Carefully pull up on upper P.C. board until it has separated from lower P.C. board. the fuse, located on the lower board, will then be accessible.
7. Replace fuse.
8. Carefully replace upper P.C. board, making sure that every post is seated in it corresponding socket. Note that NLS logo and P.C. board number on both P.C. boards are toward rear of the instrument.
9. Reassemble instrument.

MAINTENANCE

As a safety measure when servicing the instrument, connect a one-to-one isolation transformer between the input terminals and the line voltage.

Specifications Subject to Change without Notice

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