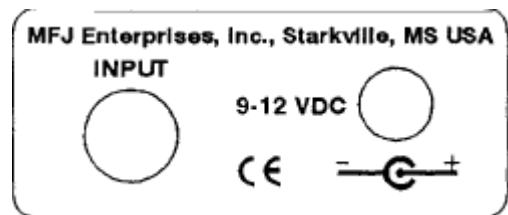
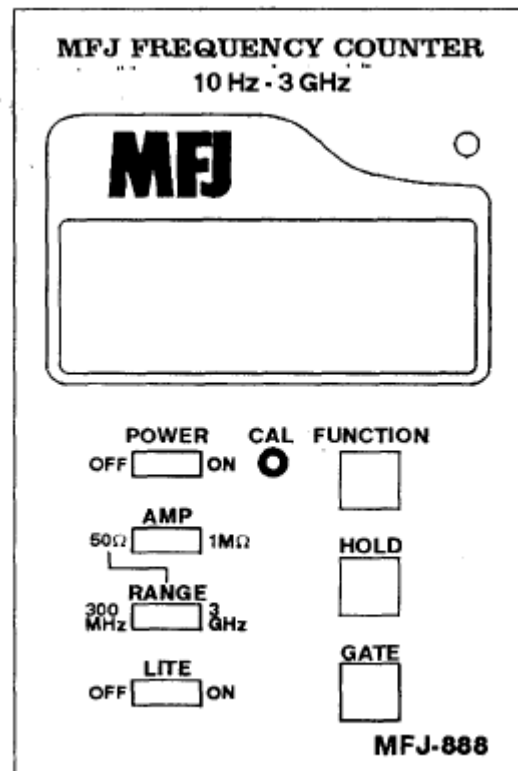


MFJ-888
Frequency Counter
Instruction Manual



Introduction

The MFJ-888 frequency counter is a compact, pocket sized test instrument, designed for ease of use and dependable performance. This manual is intended to help these who have never used a frequency counter get started as quickly as possible. For these users familiar with test and measurement equipment, complete specifications and a detailed description of operation controls is included.

Features

- 50 ohm input for range 1 MHz to 3 GHz coverage.
- 1 Meg ohm input for range 10 Hz to 50 MHz.
- High Speed 300 MHz direct count with 0.1 Hz per second resolution.
- 10 digit LCD display.
- Ultra sensitive synchronous detector 16 section bar graph of RF signal strength.
- Hi-Z low range:
- Measures frequency and period.
- LED Backlight
- Beeper.
- Low power consumption 6-hour NiCd battery operation.
- Low battery indicator.
- Automatic held.
- Held switch locks display.
- 4 selectable gate speeds.
- Supplied with telescoping whip antenna and AC wall adapter.

SPECIFICATIONS

Input Sensitivity (Typical)			
Amplifier	1 Meg Ohm		50 ohm
Impedance	1 Meg Ohm, 30 pF		50 ohm, VSWR<2:1
Range	10 Hz - 50 MHz		1 MHz - 3 GHz
Sensitivity	<10 mV a 10 Hz - 10 MHz <20 mV @ 10 MHz- 50 MH		<0.8 mV @u 100 MHz <7 mV @.3D0 MHz. <6 mV u. 1 GHz <100mV@2.4G11z
Maximum Input	100 Vans		15 dBm
Frequency Display Resolution			
Range	Gate Time	LCD	Sample Display
300 MHz	0.0625 Sec	10 Hz	300.00000 MHz
	0.25 See	1 z	300.000000 MHz
	1 Sec	1 Hz	300.000000 MHz
	4 Sec	0.1 Hz	300.000000 MHz
3 GHz	0.0625 Sec	1000 Hz	3000.000 MHz
	0.25 Sec	100 Hz	3000.0000 MHz
	1 Sec	10 Hz	3000.00000 MHz
	4 Sec	10 1 1z	3000.00000 MHz

RF Signal Strength Bargraph		
Frequency	Ist Segment	Full Scale
27 MHz	7 mV	100 mV
150 MHz	5 mV	90 mV
800 MHz	10 mV	200 mV

Cabinet: Stamped aluminum with black anodized finish.
 Display: 10 digit Liquid Crystal Display.
 Size: 3.15" H X 2.7" W X 1.22" D
 Weight: 250g
 Battery: Internal 4 AA 600 mAH NiCd battery pack.
 Power: 9 VDC, 300 mA wall plug adapter.
 Time-base: ≤ 1 PPM typical at room temp.

CONTROLS

POWER SWITCH

This slide switch turns on power to the counter and initiates a 2.0 second test of all LCD segments.

AMP SWITCH

This slide switch selects either the 1 Meg ohm high impedance amplifier or 50 ohm amplifier.

RANGE SWITCH

This slide switch selects the frequency range to count. Select 300 MHz for frequencies between 1 MHz and 300 MHz. Select 3 GHz for frequencies between 10 MHz and 3 GHz. When the range switch is in the 3 GHz position, the prescaler will be activated and "Prescale" will appear on the LCD.

LITE SWITCH

This slide switch turns the LCD back light on and off.

FUNCTION BUTTON

This button selects the measurement mode of frequency or period. This button has four settings. The four modes of operation are Frequency Display, Period Display, Frequency Display with automatic HOLD, and Period Display with automatic hold.

HOLD BUTTON

This button will stop the counter from counting and keep the current display unchanged.

GATE BUTTON

This button selects the gate or measuring time. A longer gate means counting for a longer period and results in more digits displayed. The four gate speeds are 0.0625 sec, 0.25 sec, 1 sec, and 4 sec.

BATTERY OPERATIONS

The MFJ-888 frequency counter can operate for several hours from fully charged internal NiCd batteries. The batteries are charged when the AC/DC adaptor is connected. The batteries will be fully recharged in about 12 to 16 hours.

The batteries should be deep cycled occasionally by allowing them to completely discharge several times to maintain maximum battery capacity.

Caution

The NiCd batteries should last over several years; however, it is recommended that you check inside the counter after one year of operation to see if there is any sign of battery leakage or corrosion. Replace all batteries if any visible damage is observed.

USAGE INFORMATION . . .

MODES OF OPERATION

Frequency Display Mode. In this mode, "Frequency" will be displayed in the upper left corner of the LCD. The MFJ-888 will display the frequency of the signal received during transmission in MHz or Hz. If no signal is received or transmission ceases the LCD may display random numbers as the frequency range is scanned. In this mode of operation, the "HOLD" button can be pressed at any time to stop the counter and continually display the frequency of the transmission signal.

Period Display Mode. In this mode, "Period" will be displayed in the upper-center part of the LCD. The MFJ-888 will display the period of the signal received during transmission in mS, uS, or nS. If no signal is received or transmission ceases the LCD may display random numbers as the frequency range is scanned. In this mode of operation, the "HOLD" button can be pressed at any time to stop the counter and continually display the period of the transmission signal.

Frequency Display Mode with Automatic Hold. In this mode, "Frequency" will be displayed in the upper left corner of the LCD and "HOLD" will flash in the upper right corner of the LCD. As soon as a signal is received, the MFJ-888 will stop and display the frequency of the signal received during transmission in MHz or Hz. Press the "I TOLD" button to resume scanning the frequency range. If no signal is received the LCD may display random numbers as the frequency range is scanned.

Period Display Mode with Automatic Hold. In this mode, "Period" will be displayed in the upper center part of the LCD and "I TOLD" will flash in the upper right corner of the LCD. As soon as a signal is received, the MFJ-888 will stop and display the period of the signal received during transmission in mS, uS, or nS. Press the "1101,1)" button to resume scanning the frequency range. Kilo signal is received the LCD may display random numbers as the frequency range is scanned.

SIGNAL INPUT

When using the counter with an antenna for signal pickup, random counts may appear. This is normal, due to the high gain 10 to 16 dB amplifier circuitry. Weak signals and noise are amplified in the absence of a strong, readable signal. **Do not exceed** maximum signal input level (100 Vrms **for 1 Meg Ohm amplifier and 15 dBm** for 50 Ohm amplifier)!

ANTENNA SELECTION

The telescoping antenna is the most useful general-purpose antenna. When using a telescoping antenna, it will maximize the counter sensitivity if you collapse it to a minimum length for UHF, and fully extend it for HF and VHF.

DISTANCE FROM TRANSMITTER

The distance from a transmitter at which a frequency counter can read the frequency depends on many factors, such as type and location of the transmitting antenna, transmitter power, obstacles, and more. See the chart below for typical distances.

Transmitter	Typical Distance in Meters
Cordless Phone	0.3
Cellular Phone	3-20
CB Radio	2-8
VHF 2-way radio	3-30
UHF 2-way radio	3-30

CALIBRATIONS

A calibration adjustment opening in the counter top cover is labeled "CAL". This opening permits access to the trimmer capacitor that provides about a 10 PPM adjustment range of the time base oscillator. Use the slow gate time for maximum resolution and read a stable signal of known frequency. Adjust the trimmer for the correct frequency display. Calibrate at 4.1943 MHz or higher. The higher the calibration frequency, the more accurately the counter can be calibrated.

SCHEMATIC

NOTES