

MFJ-886

Frequency Counter

Instruction Manual

Introduction

The MFJ-886 frequency counter is a compact, pocket sized test instrument, designed for ease of use and dependable performance.

This manual is intended to help those who have never used a frequency counter get started as quickly as possible. For those users familiar with test and measurement equipment, complete specifications and a detailed description of operation controls is included.

Features

- 50 ohm input for full range 1 MHz to 3 GHz coverage.
- High Speed 300 MHz direct count with 0.1 Hz per second resolution.
- 10 digit LCD display.
- Ultra sensitive synchronous detector bar graph of RF signal strength.
- Low power consumption 6 hour NiCd battery operation.
- Low battery indicator.
- Hold switch locks display.
- Supplied with telescoping whip antenna and AC wall adaptor.

SPECIFICATIONS

Input Sensitivity (Typical)	
Amplifier	50 ohm
Impedance	50 ohm, VSWR<2:1
Range	1 MHz - 3 GHz
Sensitivity	<0.8 mV @ 100 MHz <7 mV @ 300 MHz <6 mV @ 1 GHz <100 mV @ 2.4 GHz
Maximum Input	15 dBm

Frequency Display Resolution			
Range	Gate Time	LSD	Sample Display
300 MHz	0.0625 Sec	10 Hz	300.00000 MHz
	0.25 Sec	1 Hz	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 Hz	3000.00000 MHz

RF Signal Strength Bargraph		
Frequency	1st 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: 210g
 Battery: Internal 4 AA 600 mAH NiCd battery pack.
 Power: 9 VDC, 300 mA wall plug adapter.
 Time-base: <1 PPM typ. 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.

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.

HOLD SWITCH

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

GATE SWITCH

This switch selects the gate or measured time. A longer gate means counting for a longer period and results in more digits displayed.

BATTERY OPERATIONS

The MFJ-886 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

Signal Input

Do not exceed maximum signal input level! 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.

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	Typ. Distance in Meters
Cordless Phone	0.3
Analog 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.

12 MONTH LIMITED WARRANTY

MFJ Enterprises, Inc. Warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. to be free from defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original of machine reproduction or such proof-of-purchase to MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery shall be cause to void any and all warranty terms immediately.
2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product under warranty, provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashiers check, or money order for \$7.00 covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ product under warranty upon request. A dated proof-of-purchase and a \$5.00 personal check, cashiers check, or money order must be provided to cover postage and handling.
4. This warranty is NOT void for owners who attempt to repair defective units. Technical consultation is available by calling (601) 323-5869.
5. This warranty does not apply to kits sold by or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided on the wired and tested PC board product is returned. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepai red.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ products.
8. Out-of-warranty Service: MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
9. This warranty is given in lieu of any other warranty expressed or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, Mississippi 39759, USA and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
12. This warranty gives you specific rights, and you may also have other rights which vary from state to state.