ATTEN INSTRUMENTS

- Spectrum Analyzer
- RF & Microwave Components
- Signal Generator
- Frequency Counter
- Oscilloscope
- Regulated DC Power Supply
- Regulated AC Power Supply
- Switching Power Supply
- Power Inverter
- Attenuator/ Amplifier
- 850 Rework Station
- Soldering Station

FRANCHISER

FRANCHISER

F1000-C F2700-C
Frequency Counter Series

ATTEN®
INSTRUMENTS

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THE HIGH-TECH POPULARIZER

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ATTEN®
INSTRUMENTS

OPERATING INSTRUCTIONS

FREQUENCY COUNTER SERIES

■ ***F1000-C***
■ ***F2700-C***

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INTRODUCTION

The instrument is a multi-function and equal accuracy counter.

Features

Eight digits, bright seven-segment LED display, four function performance, low power dissipation circuit design, small size, light weight, high stability crystal oscillators ensure accuracy of measurement and full input signals conditioning.

Four functions

Frequency, period, totaling and self-checking. All functions are accomplished by a monolithic large-scale micro-processor. The input signals can be conditioned by attenuation. The position of switches, indicators, wiring terminals and all specifications are provided in this booklet. Before operate this unit, please refer to this instruction manual thoroughly for better use.

SPECIFICATIONS

1. Methods of Measurement

■ Frequency Measurement

CHANNEL 1

- Range: 10Hz ~10MHz direct counter
  10MHz ~100MHz scale by proportion
- Resolution: direct counter: 10Hz, 100Hz
  scale by proportion: 10Hz, 100Hz, 1000Hz
- Sampling time: 0.01s, 0.1s, 1s
- Accuracy: ±Timebase error±Trigger error
  ×Measured frequency±LED
  LED ＝100ns/ Sampling time×Measured frequency (or Measured period)

CHANNEL 2

- Measurement range:
  F1000C Model:
  100MHz ~1000MHz scale by proportion
  F2700C Model:
  100MHz ~2700MHz scale by proportion
- Resolution:
  Scale by proportion: 100Hz、1KHz、10KHz
  Sampling time: 0.01s, 0.1s, 1s
  Accuracy: ±Timebase error±Trigger error
  ×Measured frequency±LED

■ Period Measurement

Input: Channel 1 Range: 10Hz ~10MHz
Resolution: 10^{-7}S, 10^{-8}S, 10^{-9}S
Accuracy: ±Timebase error±Trigger error
×Measured frequency±LED

■ Totaling Measurement

Input: Channel 1 Range: 10Hz ~10MHz
Resolution: 1 count pulse

■ Self-Checking

Display: 8 bits LED, 0-9 repeatedly display

2. Input Characteristic

CHANNEL 1

- Input Sensibility:
  10MHz range: 10Hz ~8MHz 70mVrms
  8MHz ~10MHz 30mVrms
  100MHz range: 10MHz ~80MHz 30mVrms
  80MHz ~100MHz 30mVrms
- Attenuation: ×1, 1/20
- Filtering: Lowpass, 100KHz，-3dB
- Impedance: approx. 1MΩ (less than 35pF)
- Maximum Safety Voltage: 250V (DC+ACrms)
  (set ATT on 1/20)

CHANNEL 2

- Input Sensibility:
  F1000C: 30mVrms
  F2700C: 100MHz ~2400MHz 30mVrms
  2400MHz ~2700MHz 75mVrms
- Impedance: approx. 50Ω
- Maximum Safety Voltage: 3V

3. Timebase

- Timebase Frequency: 13MHz
- Short-term Stability: $\pm 3\times 10_{-9}$/S
- Long-term Stability: $\pm 2\times 10_{-5}$/month
- Temperature Coefficient: $\pm 1\times 10_{-5}$, 0℃ ~ 40℃
- Line Voltage: every ±10% vary based on every $\pm 1\times 10_{-7}$ vary of timebase frequency

4. General Conditions

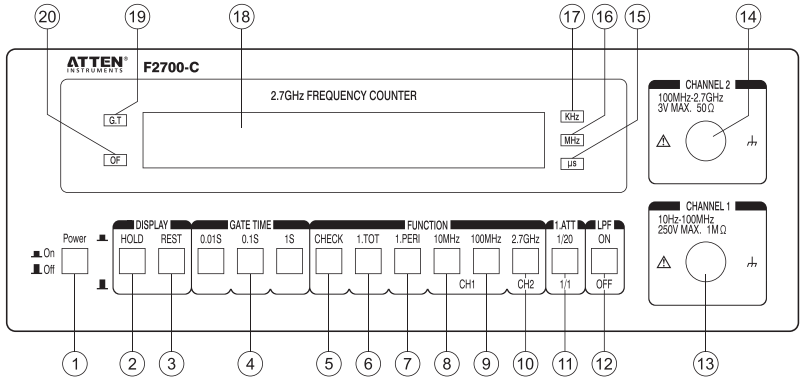
- Display: 8 digits, 0.39 inch red bright LED display with decimal point, sampling, overflow, KHz, MHz, μs indication.
- Power Requirement: AC 240±10% 50Hz
- Starting Time: 20 minutes when temperature below 25℃
- Temperature: Operating: -5℃ ~ +50℃
  Storage and Transportation: - 40℃ ~ +60℃
- Humidity: Operating: 10 ~ 90%RH
  Storage: 5 ~ 95%RH

OPERATION

1. Before Operation

- Power Requirement:
  AC 240±10%, 50Hz Single-phase, Maximum Power Consumption is 10W.
- It required to be pre-heated 20 minutes in advance before operation so as to ensure frequency stability of the crystal oscillator.

2. Features of Front Panel:



1) POWER Press down to switch on,
F1000C displays "1000-L" in two seconds
F2700C displays "2000-L" in two seconds

2) HOLD Press down to pause measuring and holding the current data.

3) REST Press down to immediately reset the counter and start a new period of measurement.

4) GATE TIME Select different resolutions and counting periods when measuring frequency and period.

5) CHECK Check the unit status, as well as 8 bits display 0-9 repeatedly and simultaneously when press it.

6) 1.TOT Total measurement.*(Channel 1 available)*

7) 1.PERI Period measurement.*(Channel 1 available)*

8) CH1 10MHz 10Hz ~10MHz range selectable. *(Channel 1 input)*

9) CH1 100MHz 10MHz ~100MHz range selectable. *(Channel 1 input)*

10) CH2 F1000C 1GHz: 100 MHz ~1GHz range selectable. *(Channel 2 input)*
F2700C 2.7GHz: 100 MHz ~2.7GHz range selectable. *(Channel 2 input)*

11) 1.ATT Switch of input signal attenuator. Input sensibility is attenuated by 20 times when press down. *(only Channel 1)*

12) LPF Low Pass Filter, AC100KHz, -3dB.

13) CHANNEL1 Input of Channel 1. Press "1.ATT" to lower the input signal when the input signal exceed 300mV, can improve accuracy of measured value.

14) CHANNEL2 Input of Channel 2

15) μs unit of period.

16) Mhz unit of frequency.

17) KHz unit of frequency.

18) Display

19) GT Sampling status, indicator lights means sampling.

20) OF Overflow, indicator lights means exceed 8 digits.

Note: ***All the function keys are released:***
F1000C displays "1000-L",
F2700C displays "2700-L"