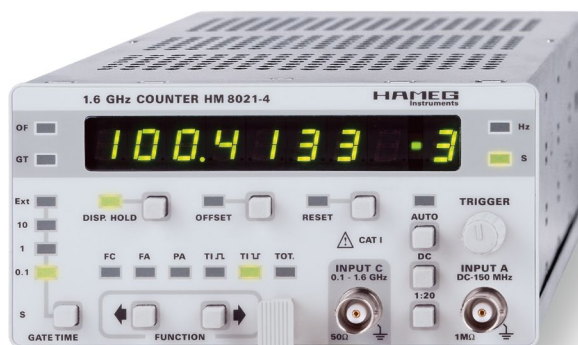




## 1.6GHz Universal Counter HM8021-4

HM8021-4



Mainframe HM8001-2  
required for Operation



HZ33, HZ34  
Test Cable BNC/BNC



- Measurement Range 0Hz...1.6GHz
- 10MHz Time Base with 1ppm Stability (TCXO)
- Input A: Input Impedance 1M $\Omega$ , Sensitivity 20mV<sub>rms</sub>  
Input C: Input Impedance 50 $\Omega$ , Sensitivity 30mV<sub>rms</sub>  
8-Digit Resolution for 10s Measuring Time
- Time Interval Resolution up to 10ps
- External Gate Input (with Option H0801)

## 1.6 GHz Universal Counter HM8021-4

All data valid at 23 °C after 30 minutes warm-up.

### Measurement functions

Frequency A/C, Period A;  
Totalize A;  
Pulse width:  $\square$  /  $\square$  (averaged);  
Totalize A during ext. gate

### Input characteristics (Input A)

**Frequency range:**  
0...150 MHz: DC-coupled  
10 Hz...150 MHz: AC-coupled

**Sensitivity:** (normal triggering)  
DC...80 MHz: 20 mV<sub>rms</sub> (sine wave)  
80 mV (pulse)  
80...150 MHz: 60 mV<sub>rms</sub> (sine wave)  
20 Hz...80 MHz (auto trig.): 50 mV<sub>rms</sub> (sine wave)

**Minimum pulse width:** 5 ns

**Input noise:** 100  $\mu$ V (typ.)

**Coupling:** AC or DC (switchable)

**Input impedance:** 1 M $\Omega$  || 40 pF

**Attenuator:** x1, x20 (switchable)

**Max. input voltage:**  
0...440 Hz: 400 V (DC + AC<sub>peak</sub>)  
1 MHz: decreasing to 8 V<sub>rms</sub>

### Input characteristics (Input C)

**Frequency range:** 100 MHz...1.6 GHz

**Sensitivity:**  
to 1.3 GHz: 30 mV (typ. 20 mV)  
to 1.6 GHz: 100 mV (typ. 80 mV)

**Input impedance:** 50  $\Omega$  nominal

**Coupling:** AC

**Max. input voltage:** 5 V (DC + AC<sub>peak</sub>)

### Input characteristics (external gate)

**Input impedance:** 4.7 k $\Omega$

**Max. input voltage:**  $\pm$ 30 V

**High/low level:** >2 V / <0.5 V

**Min. pulse duration:** 50 ns

**Min. effective gate time:** 150  $\mu$ s

### Frequency measurement (Input A)

**LSD:**  $(2.5 \times 10^{-7} \text{ s} \times \text{freq.}) / \text{measurement time}$

**Resolution:** 1 LSD

### Period duration measurement

**Range:** 66.6 ns...10,000 s

**LSD:**  $(2.5 \times 10^{-7} \text{ s} \times \text{period}) / \text{measurement time}$

**Resolution:** 1 LSD

### Totalize (manual/external gated)

**Range:** DC...20 MHz

**Min. pulse duration:** 25 ns

**LSD:** 1 count

**Resolution:** LSD

**Ext. gate error:**  
in manual mode only: 100 ns

### Time interval (averaged)

**LSD:** 10 ps...100 ns

**Resolution:** 1 LSD

### Offset

**Range:** covers the entire measurement range

### Gate time

(Gate time cannot be less than 1 period.)

**Range:** 100 ms...10 s in 3 steps

**External gate time:** min. 150  $\mu$ s

### Timebase

**Frequency:** 10 MHz clock  
10 MHz crystal

### Accuracy

(between 10 °C and 40 °C):  $\pm 5 \times 10^{-7}$

**Aging:**  $\pm 3$  ppm/15 years

### Miscellaneous

**Display:** 8-digit 7-segment LED display with 7.65 mm digit height, sign and exponent

**Power consumption:** approx. 7 Watt

**Operating temperature:** +5...+40 °C

**Storage temperature:** -20...+70 °C

**Rel. humidity:** 5...80 % (non condensing)

**Dimensions (W x H x D):** 135 x 68 x 228 mm

**Weight:** approx. 0.6 kg

### Accessories supplied: Operator's Manual

#### Recommended accessories:

HZ20 Adapter, BNC to 4mm banana  
HZ24 Attenuators 50  $\Omega$  (3/6/10/20 dB)  
HZ33 Test Cable 50  $\Omega$  (BNC-BNC) 0.5 m  
HZ34 Test Cable 50  $\Omega$  (BNC-BNC) 1.0 m