

1.6 GHz Universal Counter HM 8021 - 4



Frequency range 0 Hz to 1.6 GHz

Mainframe HM8001-2



Option H085, a high-stability oscillator with a stability of $\pm 5 \times 10^{-7}$ per day



Option H0801, page 74



10 MHz time base with 1 ppm stability (TCXO)

Input A:

Input impedance 1 M Ω , maximum sensitivity 20 mV_{rms}

Input C:

Input impedance 50 Ω , maximum sensitivity 30 mV_{rms}

Time interval resolution up to 10 ps

Offset mode over the entire measurement range



Gate input (in combination with H0801)

Mainframe HM8001-2 required for operation

1.6 GHz Universal Counter HM8021-4

Valid at 23 °C after a 30 minute warm-up period

Measurement functions

Frequency A/C, Period A;
Totalize A;
Pulse width  /  (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_{rms} (sine wave)
80 mV (pulse)
80 MHz – 150 MHz: 60 mV_{rms} (sine wave)
20 Hz – 80 MHz (auto trig.): 50 mV_{rms} (sine wave)

Minimum pulse width: 5 ns

Input noise: 100 µV (typ.)

Coupling: AC or DC (switchable)

Input impedance: 1 MΩ || 40 pF

Attenuator: x 1, x 20 (switchable)

Max. input voltage:
0 to 440 Hz: 400 V (DC + AC_{peak})
1 MHz: decreasing to 8 V_{rms}

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 Ω nominal

Coupling: AC

Max. input voltage: 5 V (DC + AC_{peak})

Input characteristics (external gate)

Input impedance: 4.7 kΩ

Max. input voltage: ±30 V

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

Min. pulse duration: 50 ns

Min. effective gate time: 150 µs

Frequency measurement (Input A)

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

Resolution: ±1 or 2 LSD

Period duration measurement

Range: 10000 sec to 66.6 ns

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

Resolution: ±1 or 2 LSD

Totalize (manual / external gated)

Range: DC to 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: 100 ns to 10 ps

Resolution: 1 or 2 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 µs

Timebase

Frequency: 10 MHz clock
10 MHz crystal

Accuracy (between 10° C and 40° C):

±5 × 10⁻⁷

Aging: ±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: +10° C to +40° C

Max. relative humidity: 10% – 90%
(without condensation), 5% – 95% RH

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

Weight: approx. 0.6 kg

Accessories supplied: Operator's Manual

Optional accessories:

HZ33/HZ34 (17-0033-0000 / 17-0034-0000) Test Cable 50 Ω (BNC-BNC)
HZ24 (27-0024-000) Attenuators 50 Ω
HO85 (16-6085-0000) OCXO
HZ10S/R (17-0010-000S/R) Silicone test lead

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