WE7141
100 MHz Universal Counter Module

■ Overview

The WE7141 is a universal counter module with a limited range of basic functions. Its flash memory contains setup information required for module operations, such as ranges and gate times. The setup information is transferred to the PC when the module is connected.

■ Features

• Measurement of frequencies from 1 Hz to 120 MHz
• Wide variety of measurement functions (time interval, pulse width, duty factor, totalization, etc.)
• D/A output function
• Auto-trigger function

■ Input Section Specifications

• Number of input channels: 2 (A, B)
• Input format: Non-isolated unbalanced
• Connector type: BNC
• Input impedance: 1 MΩ, 40 pF (Typical value (see Note 1))
• Input coupling: DC, AC
• Low frequency: –3 dB point during AC coupling: 35 Hz (Typical value (see Note 1))
• Attenuator: ×1, ×10
• Trigger level
  When the attenuator is set to ×1: –5 V to +5 V (resolution: 20 mV)
  When the attenuator is set to ×10: –40 V to +40 V (resolution: 200 mV)
  Setting accuracy (see Note 2): ±10% ±30 mV of the set value (When the attenuator is set to ×1)
• Trigger slope: Rise, Fall
• Auto trigger: Automatically set to the center value of the input amplitude
  Operation frequency range: Sine wave 50 Hz to 120 MHz (sensitivity: 250 mVrms)
  Operation voltage range: ±5 V (When the attenuator is set to ×1)
• Input sensitivity (see Note 2)
  50 mVrms: DC < input frequency ≤ 60 MHz
  100 mVrms: 60 MHz < input frequency ≤ 120 MHz
• Maximum input voltage
  40 V (DC + ACpeak): DC ≤ input frequency < 4 MHz
  (140 + 5) [V (DC + ACpeak)]
  4 MHz ≤ input frequency < 120 MHz
  (Overvoltage Category: CAT I and II)
• Channel B gate
  Gate signal used during frequency A and totalize count measurements
  Input range: Gate setting pulse width is 100 ns to 100 s (The number of input cycles of channel A within the gate time does not exceed 2^32 counts.)

Gate time of channel B > One period of the input signal of channel A
• Minimum input pulse width (see Note 2): 10 ns (except when using 1/2 prescaler)

Note 1: Typical value represents a typical or average value. It is not strictly guaranteed.
Note 2: Value or allowed value obtained during standard operating conditions.

Specifications for Individual Measurement Functions

Frequency A
• Measurement range: 1 Hz to 120 MHz (when using 1/2 prescaler), 1 mHz to 60 MHz
• Gate time (see Note 1)
  When using prescaler: 10 ms, 100 ms, 1 s, 10 s
  When not using prescaler: 10 ms, 100 ms, 1 s, 10 s, CH B gate (channel B pulse width)
• Resolution:

\[
\pm 10 \text{ns} \pm \frac{1}{2} \times \text{Trigger error (see Note 3)} \times \text{Measurement frequency (Hz)}
\]

Period A
• Measurement range: 20 ns to 999,999,999 s
• Multiplier: 1, 10, 100, 1000
• Resolution

\[
\pm 10 \text{ns} \pm \frac{1}{2} \times \text{Trigger error (see Note 3)} \times 10^N \quad (s)
\]

(10^N denotes the multiplier (N = 0, 1, 2, 3).)

Time Interval A → B
• Measurement range: 60 ns to 999,999,999 s
• Input frequency range: 1 mHz to 50 MHz (for input channels A and B)
Continuous Measurement

Totalized Count

Frequency Ratio A/B

Duty Cycle A

Pulse Width A

D/A Output

Reference Time Specifications

Totalized Count A

Continuous Measurement

Note 1: When one period of the input frequency is greater than or equal to the set gate time, the gate time is the time over one period of the input signal.

Note 2: Values obtained under standard operating conditions. Values outside the measurement range are not guaranteed.
■ General Specifications

• Standard operating conditions
  Temperature: 23 ±2°C, humidity: 50 ±10% RH,
  Power voltage/frequency error: within 1% of rating, after
  the warmup time has passed
• Warmup time: At least 30 minutes
• Operating conditions: Same as those of the measuring
  station
• Storage conditions
  Temperature: –20 to 60°C
  Humidity: 20 to 80% RH
• Power consumption: 6 VA (Typical value at 100 V/50 Hz
  (see Note))
• External dimensions: Approx. 33{1.30} (W) × 243{9.57} (H) × 232{9.13} (D) mm{inch) (projections excluded)
• Weight: Approx. 0.7 {1.54} kg{lb}
• Number of used slots: 1
• Standard accessory: User’s Manual (1)
• Optional accessories
  700976  50 Ω terminator
  366921  Adapter (BNC plug - banana terminal jack)
  366923  Connection adapter (T-shaped BNC)
  366924  BNC cable (1 m (3.28 ft))
  366925  BNC cable (2 m (6.56 ft))
  366926  BNC alligator clip cable (1 m (3.28 ft))

Note: Typical value represents a typical or average value. It
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<th>AVAILABLE MODEL</th>
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<tr>
<td>Model</td>
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<td>707141/HE</td>
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■ Dimensions

Unit: mm (inch)