WOW FLUTTER METER
MODEL: MK-669C

Description

The MK-669C is intended for measurements of wow flutter in the recording/playback equipment for magnetic tapes, video tapes, discs, film, etc. in accordance with JIS, NAB, DIN(IEC/ANSI), and CCIR standards. The center frequencies used in measurements are 3kHz for RMS, NAB, and 3.15kHz for IEC(DIN/CCIR). Wow flutter values measured with the sigma memory and peak-hold methods can be read with digital display and tape speed measurement is possible using a 4-digit frequency counter simultaneously with the wow flutter. Furthermore, the GO-NO judgment function for wow flutter and tape speed measurements is provided.

(RMS: Corresponds to the former JIS specifications.)

Features

1. Wow flutter measurements possible in accordance with different standards for RMS, NAB at 3kHz and for IEC(DIN/CCIR) at 3.15kHz.
2. Wide wow flutter range, 0.001% to 3%, for accurate measurements for all classes of recording/playback equipment.
3. Measurements can be made under weighted and unweighted conditions; in addition, wow and flutter can be separately determined.
4. At IEC(DIN/CCIR) measurements, a sigma memory for three modes, 1, 2, and 3, enables readings at the hold condition of the meter.
5. FIN(Frequency Intermodulation) measurements in accordance with DIN45411 are possible.
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Specifications

- **Center Frequency Range**
  3kHz, 300Hz and 3.15kHz, 300Hz

- **Input Level**
  0.1mV~10Vrms Two ranges
  0.1mV~30mVrms, 5mV~10Vrms

- **Input Impedance**
  300kΩ ♦ 20%, unbalanced.

- **Measurement Range**
  0.0015% to 3% in 6 ranges:
  (However 0.1 to 30mV ranges is 0.003 to 3%)

- **Indication Modes**
  Effective value for RMS, average value for NAB and peak value for IEC (DIN/CCIR).

- **Indication Accuracy**
  5% of full scale at 4Hz on all ranges.

- **Frequency Characteristic**
  Weighted 0.1 to 200Hz for JIS, NAB and IEC (DIN/CCIR)
  Wow Flutter: 0.5 to 6Hz
  Unweighted: JIS, NAB: 0.5 to 200Hz, -0.03dB
  IEC (DIN/CCIR): 0.3 to 200Hz, -3dB
  Rolloff:
  JIS, NAB: -6dB/oct below 0.5Hz
  -15dB/oct above 200Hz
  IEC (DIN/CCIR): 0.3 to 200Hz, -3dB
  -6dB/oct below 0.3Hz
  -15dB/oct above 200Hz

- **FIM (Frequency Intermodulation) Measurement**
  Range: Corresponding to wow flutter measurement
  Filter Characteristics
  FIM at ON:
  Lowpass filter: -3dB at 500Hz
  Rolloff: -36dB/oct above 500Hz
  160Hz Filter at ON:
  Highpass filter: -3dB at 100Hz
  Rolloff: -12dB/oct below 100Hz

- **Tape Speed Indication**
  3 ♦ kHz: 4-digit display

- **Measurements With Memory**
  Method: Sigma memory for IEC
  Peak-hold for JIS, NAB, IEC
  Driving:
  Manual, repeat and automatic control with input monitor. (Manual or repeat operation when input signal is applied.)
  Sigma Mode:
  3 points: 1st, 2nd and 3rd
  Measuring Time:
  2.5 sec: crystal-controlled
  Memory Read Time:
  Approx. 2 to 6 seconds, variable, with internal adjustment.
  Preparation Time:
  For automatic control with input signal:
  1 to 2 seconds, variable, with internal adjustment.

- **Wow Flutter Digital Indication**
  (Counter display during readout time at memory measurements.)
  Display:
  3 digits, effective, at 3%, 0.3% and 0.03% ranges.
  2½ digits, effective, at 1%, 0.1% and 0.01% ranges.
  Accuracy:
  0.2% +1 digit at full scale.
  Display Time:
  Corresponds to memory readout time.

- **Recording Signal Source**
  Frequency: 3kHz and 3.15kHz ♦ 30×10⁻⁵ (crystal controlled)
  Output Voltage:
  Approx. 0.2Vrms at open circuit
  Output Impedance:
  Approx. 600Ω, unbalanced

- **Drift Signal**
  Output Voltage:
  1.0V ± 10% per 1% drift
  Output Impedance:
  Approx. 600Ω, unbalanced

- **Recorder Signal**
  Output Voltage:
  1VDC ± 5% at full scale
  Output Impedance:
  Approx. 600Ω, 10%, unbalanced

- **Flutter Signal**
  Output Voltage:
  1Vrms ± 5% at full scale
  Output Impedance:
  Approx. 600Ω, 10%, unbalanced

- **Judge Signal**
  Output Voltage:
  +5V (TTL level)

- **Frequency Counter (When used independently)**
  Range:
  10Hz to 99.99kHz in 2 ranges
  0.01 to 9.999kHz and 0.1 to 99.99kHz
  Accuracy:
  (1count + ref. Frequency accuracy)
  Reference Frequency:
  600kHz ± 10⁻⁴: crystal-controlled
  Input Voltage:
  100mV to 10Vrms
  Input Impedance:
  Approx. 300kΩ, unbalanced
  Measurement Time:
  2 ranges: 0.1 and 1 sec
  Display:
  4-digit

- **Operating Temp.**
  Range: 0 to 40°C

- **Power Requirements**
  100V, 115V, 215V or 230V
  50/60Hz (voltage selector provided)
  Approx. 25VA

Specifications are subject to change without notice.

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