

Specifications For Cone Paper Fo Measuring Instrument

Model OST-727

1. Summary

Model OST-727 is a measuring instrument which measures displacement of a cone paper excited by a drive speaker with a displacement sensor, and sets frequency at the displacement peak value to Fo according to direct method. This equipment judges a cone paper to be pass or no pass about Fo frequency by setting of an upper - lower allowance.

2. System composition



- Measurement unit
- Personal computer (OS: Microsoft Windows10 64bit)
- Laser displacement sensor made (KEYENCE COPORATION)
 - Sensor head (Model IL-030) + Sensor amplifier unit (Model IL-1000)
 - Measuring range : $\pm 10\text{mm}$ from the reference distance (30mm)

The following are the essential setting items for sensor.

- Sampling rate : 0.33ms
- Averaging rate : one
- Analog output scaling : Free range
- Analog voltage output : $\pm 5\text{V}$

3. Specifications

Frequency Range	10 Hz~10000 Hz
Frequency Resolution	2048 points of logarithm (between start frequency and stop frequency)
Accuracy of Frequency	Within 0.1%
Distortion	Within 3%
Output Voltage	0.100 V~4.000 V (0.001V step). Constant voltage drive (impedance of the drive speaker 4 Ω or more)
Output Voltage Accuracy	± (3%+0.02 V)
Sweep Frequency Range	±2 times of the allowance or manual setting e.g. In case of Fo=200 Hz allowance ±30 Hz →Sweep Frequency Range:140 Hz~260 Hz
Sensor Input	3.5 VAC rms
Sensor Input range	Sensor Input range is set to any among 3 ranges (1 time, 5 times and 25 times) automatically.
Sensor Locative-calls Voltage	±5 VDC
Measuring Time	Approx. 4 s
Measurement Accuracy	±(3%+1 Hz) at Q = 1.6 or more
Measurement Result Output	Serial number, Fo (measured value), Judgment (Go, Lo, Hi)
Judgment Allowance Setup	Centering Frequency 10 Hz~10000 Hz (0.1Hz step)
Upper and Lower Limit Allowance Setup	±1 Hz~20000 Hz (0.1 Hz step)
Output items	Setting conditions (Product number, Lot, Measurement date, Temperature and relative humidity, Memorandum, Centering Fo, Upper and lower limit allowance), The number of measurement, Average value, Maximum value, Minimum value, R (max.-min.), Standard deviation, Cp, Cpk, Histogram, The number and rate of "GO (pass)", The number(Lo, Hi, Total) and rate of "NG (no pass)"
Power Source	AC 100, 120, 200, 220,240 V ±10% (internal change) 50/60Hz
Power consumption	100W
Dimensions (Measurement unit)	390(W) × 110(H) × 280(D) mm (excluding projections)
Mass (Measurement unit)	Approx. 6.7kg
Other Functions	Buzzer sound(NG judgment→once, Judgment impossible→twice), Measurement result preservation and Measurement graph output (jpg, csv, printer)

Some specifications may be changed without notice due to improvement.

Note 1 : The range of the Fo frequency which can be measured is different depending on the sensor to be used. The sensor of an accessory (IL-030 + IL-1000) has the range that is between approx. 20 Hz and approx. 300 Hz. In case of the Fo frequency is more than 300 Hz, it is necessary to use a different sensor. Please contact us.

Note 2 : Please prepare a drive speaker, a jig and a printer.

Note 3 : Jigs are some fixtures for a drive speaker, a cone paper to be tested or a sensor head. Model AP-1727 ("Positioning jig with moving arm for a sensor head", option) is provided as a fixture for a sensor head by Onsoku.

Note 4 : Fo frequency of the drive speaker is 1/3 of Fo frequency of the cone paper to be tested or less to measure correctly.

4. The results of the measurement

