

OPERATING MANUAL

LOW FREQUENCY FUNCTION GENERATOR

MODEL 453

KIKUSUI ELECTRONICS CORPORATION

On Power Supply Source, it is requested to replace the related places in the instruction manual with the following items.

(Please apply the item of \checkmark mark.)

- Power Supply Voltage: to _____ V AC
- Line Fuse: to _____ A
- Power Cable: to 3-core cable (See Fig. 1 for the colors.)

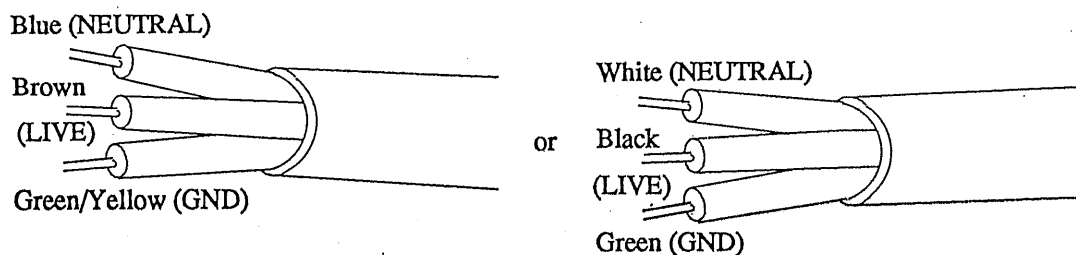


Fig. 1

Please be advised beforehand that the above matter may cause some alteration against explanation or circuit diagram in the instruction manual.

- * AC Plug: In case of Line Voltage 125V AC or more, AC Plug is in principle taken off and delivered, in view of the safety.
(AC Plug on 3-core cable is taken off in regardless of input voltages.)
To connect the AC Plug to the AC power cord, connect the respective pins of the AC Plug to the respective core-wires (LIVE, NEUTRAL, and GND) of the AC power cord by referring to the color codes shown in Fig. 1.

Before using the instrument, it is requested to fix a suitable plug for the voltage used.

G E N E R A L

KIKUSUI ELECTRONICS Model 453 Low Frequency Function Generator is convenient and versatile signal source of transient free between 1200 and 0.008 cycles per second.

It is designed to any general purpose low frequency testing application and is useful in the testing of vibration, servo system, geophysical equipment and for the electrical simulation of mechanical phenomena.

This Low Frequency Function Generator has a newly developed relaxation oscillator that is particularly convenient for the oscillator of very low frequency.

Both a triangular and a square wave voltage function of time are inherent in the oscillator circuit. A sinusoidal is synthesized from the triangular wave by a diode-network.

The oscillating system is non-frequency sensitive at these low frequencies so that output amplitude and distortion are virtually independent of the frequency.

Therefore, this generator is required no AVC system to have a transient time.

S P E C I F I C A T I O N

| | | |
|--|-----------------------|---|
| <u>Power Supply</u> | AC 100V 50/60 c/s | Approx. 140VA |
| <u>Dimension</u> (Max. Dimension) | 520 W × 240 H × 404 D | m/m |
| | 545 W × 260 H × 455 D | m/m |
| <u>Weight</u> | | Approx. 20 Kg |
| <u>Items supplied with equipment</u> | | |
| | Instruction Manual | 1 |
| | Test Data | 1 |
| | Short Bar | 1 |
| | Distortion Filter | built-in |
| <u>Frequency Range</u> | | 0.008 c/s to 1200 c/s |
| Range | | 5-Range: ×0.01, ×0.1, ×1, ×10, ×100 |
| Frequency Dial | | 0.8 to 12 |
| Accuracy | | 2% + (± 0.003 of dial indication) |
| Stability | | within 1% warm-up drift after starting 5 to 60 minutes. |
| | | within 0.5% for line voltage variation of 10%. |
| <u>Output</u> | | sinusoidal, square, triangular |
| Load Resistance | balance or unbalance | min. 2 K Ω |
| Max Output Voltage | | 30 V p-p |
| Frequency Response | | within 2% referring to 1000 c/s |
| Distortion (sinusoidal) | | less than 1% up to 100 c/s |
| | | less than 2% 100 to 1000 c/s |
| Output Impedance | | Approx. 25 Ω |
| Stability | | less than 2% for line voltage variation of 10%. |
| Voltage Unbalance | | less than 3% |
| <u>Voltage Meter</u> | | 0 ~ 30 V p-p |
| Indication | | half wave doubler type indicating open-circuit voltage |
| Accuracy | | 3% of full scale |
| <u>Synchronous Output</u> | | synchronized to Max. point of positive sinusoidal or triangular, and positive rise-up point of square wave. |
| Voltage | | more than - 10 V p-p |
| Pulse Width | | less than 5 μ s |
| | *except | 0.01 c/s Range |

FUNCTION OF CONTROLS AND TERMINALS

- POWER** Turning this toggle switch to "ON" , frequency dial is illuminated. After warm-up of 30 seconds, the equipment starts.
- FUNCTION** This knob is for selecting wave forms which is desired. It may be able to change one wavv form to another with transient free, and keep constant output voltage in "peak to peak value" Output wave of sinusoidal and triangular are in phase each other, square wave leads 90° for former wave forms.
- FREQUE** This knob is for continuous variable control of frequency with vernier mechanism. Turning it to clockwise, The frequency increases and dial turns $\frac{1}{2}$ to counter clockwise. When you turn directly center knob to counter clockwise , which is located on the dial, the frequency increass.
- FREQ. RANGE** This external black-colored knob is used to select the desired frequency range. Output frequency is equal to the dial indication multiplied by "0.01" , "0.1" , ...or "100" . Output voltage keep constant to frequency variation, and switching at a time has no transients.
- OUTPUT VOLTS CHECK** This knob is internal red-colored of coaxial controls which is above mentioned. Turning it to clockwise, Output terminalis open, and also voltage meter indicates open output voltage. If you remove a hand from the knob, return to the original position.
- AMPLITUDE** This variable resistor controls the amplitude of output voltage. Turning it to clockwise, output voltage increases.
- DC BAL** This is a semifixed-variable resistor for output DC coupled amplifier to adjust the DC component of output voltage to be zero.
- OUTPUT** These three terminals are located on right side of front panel. The terminals provide balanced or unbalanced output. (connect any a red-colored terminal to ground terminal)