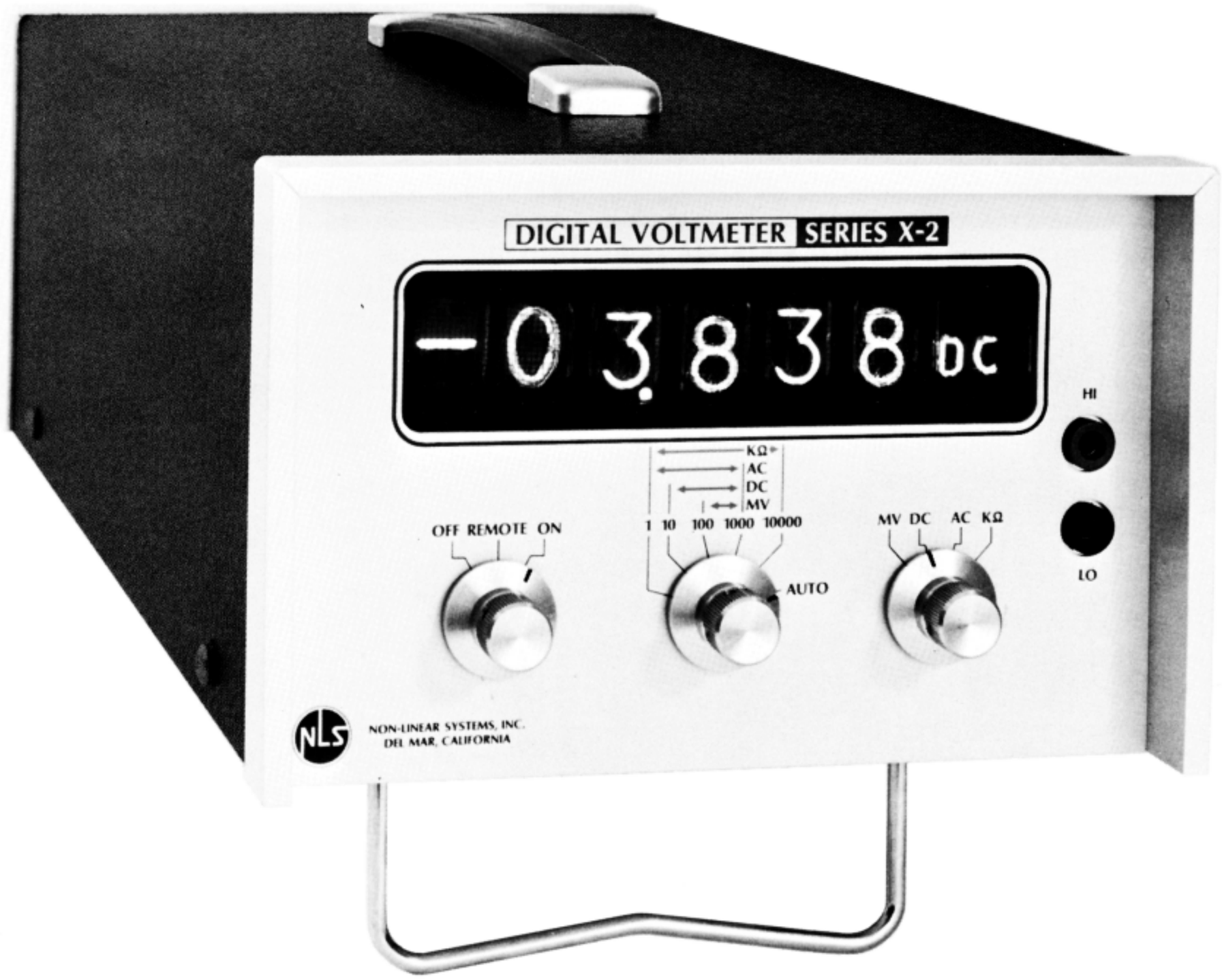
MULTIFUNCTION DIGITAL VOLTMETER
SERIES X-2



FEATURES

- Basic Meter - DC volts
- Multifunction - AC volts, Millivolts, Ratio and Ohms (optional accessories)
- Exclusive Anti-Bobble Circuit
- Portable
- Automatic Polarity
- Manual and Automatic Ranging
- 5th Digit, 20% Over-Range
- High Accuracy
- High Speed
- Integrated Circuit Construction
- High Common-Mode-Rejection
- Display Storage
- Systems Applications
- Tilt Stand

ULTRA TEMPERATURE STABLE!

The Series X-2 Digital Voltmeter is a temperature compensation unit affording dependable, high accuracy measurement over its entire operating temperature range.

Temperature coefficient is NOT specified, because the thermal compensation design feature of the X-2 allows it to maintain its rated accuracy in a thermally extreme environment.

DESCRIPTION

The NLS Series X-2 Digital Voltmeter is a portable, four-digit instrument with fifth digit, 20% over-range, automatic range and polarity. It is especially designed for accurately measuring DC volts from 10 microvolts to 1199.9V, AC voltage from 100 microvolts to 1000 volts, Resistance from 0.1 ohm to 12 megohms, Ratio from 0.001 to 100.00 and has current measuring capabilities when when used with external shunts.

The Series X-2 Digital Voltmeter is a solid-state integrating instrument that measures the amplitude of DC voltages or the integral of varying voltages. In these instruments the unknown input voltage is converted to a pulse train whose repetition rate is directly proportional to input voltage magnitude. The total number of pulses generated over a clocked 33-1/3 ms interval is counted electronically and displayed as the voltage value. Example: An input of 10 volts to the instrument creates 10,000 pulses in 33-1/3 ms; this is displayed as 10.000 volts.

If the input voltage changes during the measuring interval, the pulse repetition rate changes proportionately, and the total number of pulses that occur during the 33-1/3 ms sample period is a measure of the number of volt-seconds at the input. Since these instruments mathematically integrate the input voltage, they are useful for obtaining the velocity from a voltage which is proportional to acceleration. In addition, these instruments are inherently able to reject sinusoidal ripple because the integrated value of an integral number of sine waves is zero. Therefore, if an integral number of cycles of sine wave noise occurs during the 33-1/3 ms sampling interval, its contribution to the overall reading is "integrated out."

DESCRIPTION OF FEATURES

Multifunction Capability: Extra convenience and lower cost are provided since the basic meter measures DC volts, with optional functions available such as AC volts, Ohms, Millivolts, and Ratio measurement.

Exclusive Anti-Bobble Circuit: Special circuitry causes all sections to synchronize at "time zero" at the beginning of each measuring cycle. This synchronization eliminates indecision as to the correct least significant figure.

Automatic Polarity: Bipolar integration circuitry, by its nature, gives automatic polarity information and indication with no increase in reading time, thus saving time for the user.

Range Memory: Unless the input changes, the X-2 will remember the range selection chosen, saving more time for the user.

Reliability: Quality components assures the ultimate in trouble-free operation through the use of all solid-state devices, chopper-free circuitry, in-line flat-pack integrated circuits and glass epoxy (plug-in) circuit boards.

Over-ranging: Fifth-digit, 20% over-ranging in all ranges of DC, Millivolts, and K Ohms.

High Speed: 33-1/3 milliseconds reading time, 100 milliseconds settling time.

High CMR: Greater than 106 db @60 Hz, 1K line unbalance — 120 db @DC, 1K line unbalance (1000 VDC, Max.)

NMR: Greater than 30 db, typically 40 db.

Display: All Nixie* "in-line" readout of polarity, data, range, and function in use (easier to use and avoid errors).

Display Storage: This feature allows continuous, unblinking display of readings by storing information during the reading portion of the cycle. Prevents eye fatigue.

Data Output: Systems-oriented BCD, voltage level output (T^2L I.C. compatible). This is state-of-the-art design for computer interface.

Portability: Only 15 lbs., 0.5 cubic feet. For ease of movement and use, a carrying handle and a tilt-stand are included.

(*) Registered Trade Mark by Burroughs Corp.

SPECIFICATIONS FOR BASIC X-2

Circuitry:	Bipolar integration with voltage-to-frequency conversion: solid state.
DC Voltage Ranges:	± 11.999, ± 119.99 and ± 1199.9VDC
Accuracy:	± (0.0083% FS + 0.01% of reading) ASA Reference Conditions ± (0.0083% FS + 0.025% of reading) six months
Resolution:	0.0083% FS
Response Time:	Input buffer settling time: 100 ms Digitizing Time: 33-1/3 ms Range Decision Time: 10 ms
Input Resistance:	10 megohm, constant all ranges
CMR:	106 db min. @ 60 Hz, 1 K line unbal. 120 db min. @ DC, 1 K line unbal.
Polarity Selection:	Automatic
Range Selection:	Manual (Manual/Automatic Option)
Remote Trigger Connections:	Contact Closure or Voltage Level Control
Input Connections:	Front and rear. Input may be floated ± 1000 volts above ground.
Ambient Temperature:	12°C to 40°C (normal conditions) 0°C to 50°C (extreme conditions)
Power Requirements:	105/125 VAC, 50/400 Hz 240 VAC, 50/400 Hz
Power Used:	0.171 Amps, 21.4 watts 0.015 A, 1.9 watts (AC converter) 0.005A, 0.62 watts (Ohms/MV converter)
Storage Temperature:	-65°F to +167°F
Relative Humidity:	To 90% at 40°C (no condensation)
Mounting Position:	Any
Vibration:	3.25 G max., 5-55 CPS
Shock:	15 G
Weight:	15 lbs
Size:	6" H x 8-7/8" W x 16-3/8" D (including feet and handle). 1/2 rack size. 19" rack-mount available.