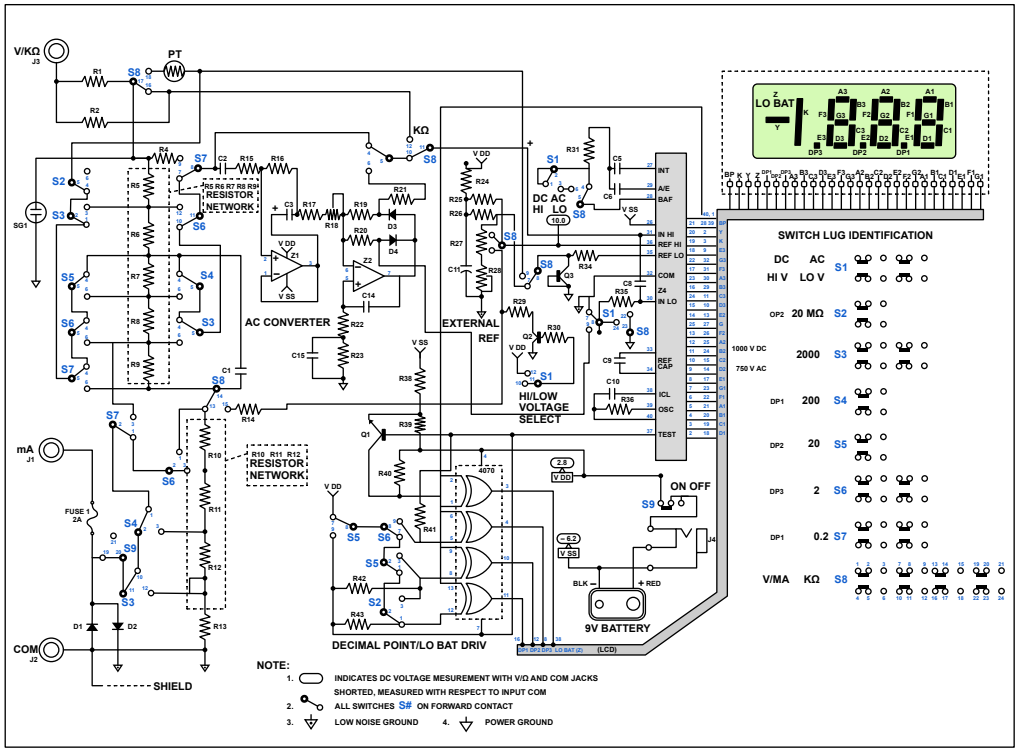
SCHEMATIC DIAGRAM



PARTS LIST

PART	DESCRIPTION
U1,U2	IC, LOW POWER DUAL OP AMP
U3,	IC, C-MOS QUAD EX-OR GATE
U4,	LSI, 3½ DIGIT A/D CONVERTER
Q1-Q4	TR. Si NPN SWITCH
ZD2	DIODE, ZENNER 12V 1W
D1,D2	DIODE, Si RECT. 3A 50V
D3,D4,D6,D7	DIODE, Si SWIT. 0.1A 75V
RN1-RN5	RESISTOR NETORK 9mΩ, 900KΩ, 90KΩ, 9KΩ, 900Ω
RN6-RN8	RESISTOR NETWORK 9Ω, 0.9Ω
RN9	PRECISIONS RESISTOR 0.09Ω
RN10	PRECISIONS RESISTOR 100Ω
R1	RESISTOR, 100Ω 5% ½W C.F.
R2	RESISTOR, 1MΩ 5% ¼W C.F.
R3	RESISTOR, 10KΩ 5% ¼W C.F.
R4	RESISTOR, 2.2MΩ 5% ¼W C.F.
R5	RESISTOR, 4.93KΩ 1% ¼W M.F.
R6	RESISTOR, SEMI FIXED 500Ω
R7,R8	RESISTOR, 5.62KΩ 1% ¼W M.F.
R9	RESISTOR, 5.6KΩ 5% ¼W C.F.
R10	RESISTOR, 400Ω 5% ¼W C.F.
R12	RESISTOR, 200Ω 5% ¼W C.F.
R14	RESISTOR, 1KΩ 5% ¼W C.F.
R15	RESISTOR, 1KΩ 1% ¼W C.F.
R16	RESISTOR, 10KΩ 5% ¼W C.F.
R17	RESISTOR, SEMI FIXED 2KΩ

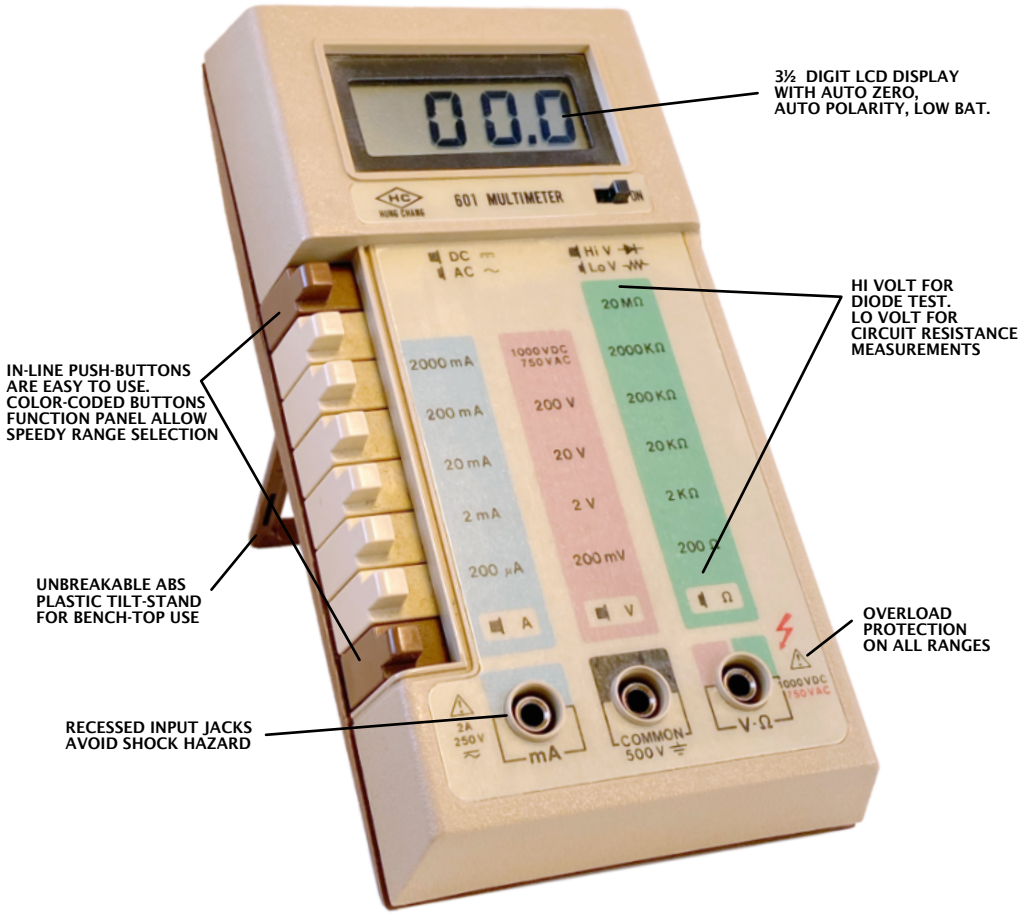
PART	DESCRIPTION
R18	RESISTOR, 50Ω 5% ¼W C.F.
R19	RESISTOR, 50KΩ 5% ¼W C.F.
R20	RESISTOR, 220KΩ 5% ¼W C.F.
R21	RESISTOR, 1MΩ 1% ¼W C.F.
R22-R25	RESISTOR, 1MΩ 5% ¼W C.F.
R26	RESISTOR, 1MΩ 5% ¼W C.F.
R27 A	RESISTOR, 510KΩ 1% ¼W M.F.
R27 B	RESISTOR, 51KΩ 1% ¼W M.F.
R29	RESISTOR, 470KΩ 5% ¼W C.F.
R30	RESISTOR, 113KΩ 1% ¼W M.F.
R31	RESISTOR, 47KΩ 5% ¼W C.F.
C3	CAP, MYLAR 0.022μF 10% 1000V
C4	CAP, TANTALUM 10μF 20% 15V
C6, C8	CAP, MYLAR 0.1μF 10% 100V
C7	CAP, TANTALUM 4.7μF 20% 15V
C9	CAP, POLYPROPL 0.22μF 10% 160V
C10	CAP, MYLAR 0.22μF 10% 100V
C11	CAP, MYLAR 0.1μF 10% 100V
C12	CAP, M1CA 100pF 5% 500V
SG1	SPARK GAP 1000V PC
ST1	IN RUSH CURRENT LIMITER 1MΩ 2C% 8mA, 500V
SW1-SW8	PUSH PUTTON SWITCH SET
SW9	SLIDE SWITCH SPDT
J4	DC JACK
LCD	3½ DIGIT LCD

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE QUALITY

DIGITAL MULTI-METER

MODEL HC 601

HC HUNG CHANG PRODUCTS CO., LTD.



RELIABLE, ACCURATE MEASUREMENTS

0.5% DC-VOLT ACCURACY

Amazing quality at low cost !

INSTRUMENT INCLUDES

1. **9 VOLT Battery**
2. **Spare Fuse**
3. **Safety Test Lead Set**
4. **Operator's Manual**

* **Soft Carrying case (Option)**

MODEL HC 601 SPECIFICATIONS

GENERAL

DISPLAY: 3½ digit LCD, 0.5" height, with polarity and range indication.
OVERRANGE INDICATION: 3 least significant digits blanked.
MAXIMUM COMMON MODE VOLTAGE: 500V peak.
OPERATING ENVIRONMENT: 0° to 50°C; less than 80% relative humidity up to 35°C, less than 70% relative humidity from 35° to 50°C.
STORAGE ENVIRONMENT: -15°C to 50°C.
TEMPERATURE COEFFICIENT: (0° to 18°C and 28° to 50°): less than 0.1x applicable accuracy specification per °C.
POWER: 9V alkaline or carbon-zinc battery (NEDA 1604)
BATTERY LIFE: 100 hours typical with carbon-zinc cells, 200 hours with alkaline cells.
BATTERY INDICATOR: Display indicates LO BT when less than 10% of life remains.
DIMENSIONS, WEIGHT: 170mm long x 89mm wide X 38mm thick (6.75" x 3.5" x 1.5"). Net weight 283g (10 oz.)

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY (1 YEAR) 18° to 28°C
200mV	100µV	
2 V	1mV	
20 V	10 mV	±(0.5% of reading + 1d
200 V	100 mV	
1000 V	1 V	

MAXIMUM ALLOWABLE INPUT: 1000V DC or peak DC non-switched 750V peak switched.
INPUT RESISTANCE: 10MΩ 20V to 1000V ranges.
NORMAL MODE REJECTION RATIO: Greater than 16dB at 50 Hz 60 Hz (1k unbalance).

DC CURRENT

RANGE	RESOLUTION	ACCURACY (1 YR) 18° to 28°C	MAXIMUM FULL SCALE VOLTAGE DROP
200 µA	100mA	± (1% reading + 1deg.)	0.25 V
2 mA	1 µA	± (1% reading + 1deg.)	0.25 V
20 mA	10 µA	± (1% reading + 1deg.)	0.25 V
200 mA	100 µA	± (1% reading + 1deg.)	0.25 V
2000 mA	1mA	± (2% reading + 1deg.)	0.7 V

OVERLOAD PROTECTION: mA input; 2A fuse (250V).

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY (1 YEAR) 18° to 28°C	FREQUENCY RANGE
200mV	100 µV		45Hz-500Hz
2 V	1mV		45Hz-500Hz
20 V	10mV	±(1% of reading + 5deg.)	45Hz-500Hz
200 V	100mV		45Hz-120Hz
750 V	1 V		45Hz-120Hz

MAXIMUM ALLOWABLE INPUT: 1000V peak non-switched 750V peak switched continuous except 200mV range; 15 sec. max. Above 300V.
INPUT IMPEDANCE: 10MΩ shunted by less than100pF 20V to 750V ranges.
RESPONSE: Average responding, calibrated in rms of a sine wave.

AC CURRENT

RANGE	RESOLUTION	ACCURACY (1 YR) 18° to 28°C (45Hz - 500Hz)	MAXIMUM FULL SCALE VOLTAGE DROP
200 µA	100mA	± (2% reading + 1deg.)	0.25 V rms
2 mA	1 µA	± (2% reading + 1deg.)	0.25 V rms
20 mA	10 µA	± (2% reading + 1deg.)	0.25 V rms
200 mA	100 µA	± (2% reading + 1deg.)	0.25 V rms
2000 mA	1mA	± (3% reading + 1deg.)	0.7 V rms

OVERLOAD PROTECTION: mA input; 2A fuse (250V).

RESISTANCE

RANGE	RESOLUTION	ACCURACY (1 YEAR) 18° to 28°C
200 Ω	0.1 Ω	± (0.5% reading + 4deg.)
2 kΩ	1 Ω	± (0.5% reading + 1deg.)
20 kΩ	10 Ω	± (0.5% reading + 1deg.)
200 kΩ	100 Ω	± (0.5% reading + 1deg.)
2000 kΩ	1 kΩ	± (1% reading + 1deg.)
20 MΩ	10 kΩ	± (2% reading + 1deg.)

MAXIMUM OPEN CIRCUIT VOLTAGE: 2.8V Hi, 280mV Lo, at nominal 9V battery.
MAXIMUM ALLOWABLE INPUT: 200V DC or rms.

FULLY OVERLOAD PROTECTED, UL 1244

Overload protection is accomplished on all ranges. For overvoltages protection accepted sparkgap with low capacitance is used which proved superior in performance than instruments using varistors. An inrush current limiter protects the resistance ranges. A pair of fast switching high durrent silicon diodes plus a fuse, provide excellent protection on all current ranges. Furthermore, the input of the A/C current is overvoltage protected and the battery eliminator input is protected against overvoltage and reverse polarity.
A 2 amp fuse protects the 2mA through 2000mA current range. Do not replace the fuse with a higher rated value or instrument damage that is not covered by the warranty may occur.

HI-LOW RESISTANCE / DIODE CHECK

On all resistance ranges, a HI (2.8V); and LO (280mV) Test voltage is push-button switch selectable (2nd function of AC/DC switch). Lo voltage allows convenient in-circuit measurement of all electronic components without affecting semi-conductors.

NOTICE: TURN TEST CIRCUIT POWER OFF AND DISCHARGE ALL CAPACITORS BEFORE ATTEMPTING IN-CIRCUIT RESISTANCE MEASUREMENT.

CONVENIENT PUSH-BUTTON OPERATION

Human engineered in-line push-button range and function switches allow true one hand operation. Easy to identify color-coded markings for each function make the operation of the instrument suprerior and more convenient than rotary switch-type instruments. Whether the instrument is on the bench or is tilted with its retractable stand, the function and range switches can be quickly and easily one-hand-selected without removing the other hand from the test point.