

Digit Multimeter

B. TH1951/TH1961 Digit Multimeter

Features

- TH1951 5 1/2 digit display(119,999 counts)
 TH1961 6 1/2 digit display(1,199,999 counts)
- 12 different measurement capabilities: DCV/ACV, DCI/ACI, Ω 2W/ Ω 4W, Frequency/Period, Diode Test, Continuity, dB/dBm
- High brightness vacuum fluorescent display
- True-rms AC voltage and current measurement, bandwidth up to 100kHz(TH1951)/300kHz(TH1961)
- DCV measurement accuracy up to 0.0035%, resolution up to 0.1uV
- Max. measurement rate: 1000 meas/sec
- Equal accuracy frequency measurement up to 1.1MHz
- Relative mode(REL) to eliminate residual reading
- 2 W, 4W resistance measurement mode selectable
- Built-in mX +b,%, dB, dBm etc. mathematics calculation function
- 512 readings storage and MAX/MIN/AVER/STD statistics
- Up to 30,000 readings storage(without statistics)
- HI/IN/LO comparator function
- USB, GPIB and RS-232 Interfaces provide easy system communication
- Calibration without opening the case
- 10 sets of multimeter setup can be stored and loaded



TH1951/TH1961

The TH1951/TH1961 5 1/2, 6 1/2 digit multimeter can test voltage/current/resistance fast and accurately. Its outstanding performance, such as max.1,200,000 counts, high reading rate 1000 meas/sec as well as DC voltage accuracy of 0.0035% provides an ideal cost-effective option for customer.

The concise design of front panel of TH1951/TH1961 makes it easier to locate and select the measurement function. High brightness VFD display allows the user to view clearly. Its 12 different measurement functions, including DCV/ACV, DCI/ACI, Ω 2W/ Ω 4W, Frequency/Period, Diode Test, Continuity, dB/dBm, cover all basic measurement needs.

Many new technologies have been adopted in TH1951/TH1961, such as high speed low noise 26 bits A/D converter which gives the good linear and low noise performances. Fast response servo amplifier, floating power source and low offset buffer amplifier constitute front end of servo so as to remove the traditional attenuation, reduce offset drifting as well as to increase measurement rate. The SMD in the multimeter reduces the system density and volume.

TH1951/TH1961 adopts special input overload protect circuit which can stand 1500V voltage between input and ground. When overloaded, it can recover fast so as to ensure the safety and reliability of the equipment.

Standard GPIB, USB(or RS-232) interface with universal communication software is used with TH1951/TH1961 for easy

communication, data analysis and statistics as well as construction of an automatic measurement system. The system accepts SCPI (standard commands for programmable instrument) command sets. It is compatible in communication software

| Test function | |
|--------------------------------|--|
| Test parameter | DCV, ACV, DCI, ACI, Ω 2W, Ω 4W, FREQ, PERI, CONT, DIODE |
| Mathematics function | mX+b, %, dB, dBm, REL |
| Range | Auto, Manual |
| Display | VFD |
| Trigger Mode | INT/MAN/BUS/EXT |
| Programmable Time Delay | 0 - 6000ms |
| Reading storage and statistics | 2 to 512 readings can be stored, loaded and counted Type of statistics: MAX, MIN, AVER, STD |
| Reading Hold | To find out best stable reading for each data block of the given reading number according to the given accuracy. |
| Limitation measurement | To judge HI, IN, LO and display, with ALARM for HI/LO |
| Setup storage | 10 setup files can be stored and loaded |
| Calibration | Recommend Fluke5520A with TH1951 /TH1961 Accuracy Calibration software (option) |
| Communication interface | SCPI command support for GPIB(optional), RS232(optional) and USB(standard) interface |

| Specifications | |
|--|--|
| Measurement condition | |
| Calibration interval: one year | |
| Operation Humidity: 18°C-28°C , \leq 90%RH; When resistor range is 10M and 100M, \leq 70%RH | |
| Warming up time: 30 min | |
| Accuracy is expressed as: +/-(% of reading +% of range) | |
| Temperature coefficient: 0°C--18°C & 28°C--40°C,+0.1%*accuracy /°C | |
| Following is the specification at slow mode, others please refer the operation manual . | |

| Full Scale Reading digits and Reading Rate (meas/sec) | | | | |
|---|-------------|-----------|---------|--------|
| Rate | Slow | | Med | Fast |
| | TH1951 | TH1961 | | |
| Full scale reading (digits) | 119,999 | 1,199,999 | 119,999 | 11,999 |
| Reading rate (meas/sec) | DC V,DC I | 4 | 2 | 16 |
| | AC V,AC I | 3 | 1.5 | 4 |
| | Ω 2W | 4 | 2 | 16 |
| | Ω 4W | 3 | 1.5 | 10 |

| DC V | | | | | |
|--------|--------------|------------|-------------|-----------------|---------------|
| Range | Max. reading | Resolution | Accuracy | Input impedance | |
| TH1951 | 100mV | 119.999 | 1 μ V | 0.02+0.008 | >10G Ω |
| | 1V | 1.19999 | 10 μ V | 0.01+0.004 | >10G Ω |
| | 10V | 11.9999 | 100 μ V | 0.01+0.004 | >10G Ω |
| | 100V | 119.999 | 1mV | 0.01+0.004 | 10M Ω |
| | 1000V | 1010.00 | 10mV | 0.01+0.004 | 10M Ω |
| TH1961 | 100mV | 119.9999 | 0.1 μ V | 0.0065+0.0045 | >10G Ω |
| | 1V | 1.199999 | 1 μ V | 0.0040+0.0009 | >10G Ω |
| | 10V | 11.99999 | 10 μ V | 0.0035+0.0005 | >10G Ω |
| | 100V | 119.9999 | 100 μ V | 0.0045+0.0006 | 10M Ω |
| | 1000V | 1010.000 | 1mV | 0.0055+0.0015 | 10M Ω |

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| DC I | | | | | | |
|--------|--------------|--------------|------------|------------|-----------------------------------|--------|
| Range | | Max. reading | Resolution | Accuracy | Burden voltage/ shunt resistor | |
| TH1951 | 10mA | 11.9999 | 0.1μA | 0.05+0.008 | <0.15V/10.1Ω | |
| | 100mA | 119.999 | 1μA | 0.05+0.004 | <1.5V / 10.1Ω | |
| | 1A | 1.19999 | 10μA | 0.10+0.004 | <0.3V / 0.1Ω | |
| | 10A | 11.9999 | 100μA | 0.25+0.004 | <0.15V/10mΩ | |
| TH1961 | 10mA | 11.99999 | 10nA | 0.05+0.004 | <0.15V/10.1Ω | |
| | 100mA | 119.9999 | 0.1μA | 0.05+0.004 | <1.5V / 10.1Ω | |
| | 1A | 1.199999 | 1μA | 0.08+0.004 | <0.3V / 0.1Ω | |
| | 10A | 11.99999 | 10μA | 0.25+0.004 | <0.15V / 10mΩ | |
| AC V | | | | | | |
| Range | | 100mV | 1V | 10V | 100V | 750V |
| TH1951 | Max. reading | 119.999 | 1.19999 | 11.9999 | 119.999 | 757.5 |
| | Resolution | 1μV | 10μV | 100μV | 1mV | 10mV |
| | 10~20 Hz | 1.5+0.1 | | | | |
| | 20~50 Hz | 0.5+0.1 | | | | |
| | 50Hz~20 kHz | 0.1+0.1 | | | | |
| | 20~50 kHz | 0.3+0.15 | 0.3+0.1 | | | |
| | 50~100kHz | 1+0.15 | 1+0.1 | | | |
| TH1961 | Max. reading | 119.9999 | 1.199999 | 11.99999 | 119.9999 | 757.50 |
| | Resolution | 0.1μV | 1μV | 10μV | 100μV | 1mV |
| | 10~20 Hz | 1.50+0.20 | | | | |
| | 20~50 Hz | 0.50+0.10 | | | | |
| | 50Hz~100 Hz | 0.10+0.03 | | | | |
| | 100~20kHz | 0.05+0.03 | | 0.08+0.03 | | |
| | 20~50 kHz | 0.15+0.05 | 0.11+0.05 | | 0.18+0.05 | ----- |
| | 50~100kHz | 0.60+0.08 | | | | |
| | 100~300kHz | 4.00+0.05 | | | | |
| | ----- | ----- | | | | |

| AC I | | | | |
|--------|-----------------------------------|------------|------------|-------------|
| TH1951 | Range | 10mA | 1A | 10A |
| | Max. reading | 11.9999 | 1.19999 | 11.9999 |
| | Resolution | 0.1μA | 10μA | 100μA |
| | 10Hz~20 Hz | 1+0.08 | | |
| | 20Hz~50 Hz | 0.5+0.08 | | |
| | 50Hz~2 kHz | 0.25+0.08 | | |
| | 2 kHz~10 kHz | 2+0.08 | | |
| | Burden voltage/ shunt Resistor | <0.15V/10Ω | <0.3V/0.1Ω | <0.15V/10mΩ |
| TH1961 | Range | 10mA | 1A | 10A |
| | Max. reading | 11.99999 | 1.199999 | 11.99999 |
| | Resolution | 10nA | 1μA | 10μA |
| | 10Hz~20 Hz | 1.50+0.10 | | 1.60+0.10 |
| | 20Hz~50 Hz | 0.50+0.03 | | 0.60+0.30 |
| | 50Hz~100Hz | 0.10+0.3 | 0.12+0.03 | 0.15+0.03 |
| | 100Hz~2 kHz | 0.05+0.03 | 0.10+0.04 | 0.12+0.04 |
| | 2kHz~5 kHz | 0.10+0.03 | 0.50+0.03 | 0.60+0.05 |
| | 5kHz~10 kHz | 0.20+0.03 | 2.00+0.10 | 2.50+0.10 |
| | Burden voltage/ shunt Resistor | <0.15V/10Ω | <0.3V/0.1Ω | <0.15V/10mΩ |

| Ω 2W/Ω 4W | | | | | |
|-----------|-------------------|--------------|------------|---------------------|-------------------------|
| Range | | Max. reading | Resolution | Measurement current | Accuracy |
| TH1951 | 100 Ω | 119.999 | 1mΩ | 1 mA | 0.05+0.008 |
| | 1 kΩ | 1.19999 | 10mΩ | 1 mA | 0.03+0.004 |
| | 10 kΩ | 11.9999 | 100mΩ | 100μA | 0.03+0.004 |
| | 100 kΩ | 119.999 | 1Ω | 10μA | 0.03+0.004 |
| | 1 MΩ | 1.19999 | 10Ω | 10μA | 0.03+0.004 |
| | 10 MΩ | 11.9999 | 100Ω | 7.0×Rx/ (10M+Rx) | 0.1+0.004 |
| TH1961 | 100 Ω | 119.9999 | 100μΩ | 1 mA | 0.010+0.004 |
| | 1 kΩ | 1.199999 | 1mΩ | 1 mA | 0.010+0.001 |
| | 10 kΩ | 11.99999 | 10mΩ | 100μA | 0.010+0.001 |
| | 100 kΩ | 119.9999 | 100mΩ | 10μA | 0.010+0.001 |
| | 1 MΩ | 1.199999 | 1Ω | 10μA | 0.010+0.001 |
| | 10 MΩ | 11.99999 | 10Ω | 7.0×Rx/ (10M+Rx) | 0.040+0.001 |
| | 100 MΩ | 119.9999 | 100Ω | 7.0×Rx/ (10M+Rx) | 0.800+0.010 |
| | ----- | ----- | | | |
| | ----- | ----- | | | |
| | ----- | ----- | | | |
| Frequency | | | | | |
| Range | | Max. reading | Resolution | Accuracy | Sensitivity (sine wave) |
| TH1951 | 5Hz~10 Hz | 9.99999 | 10μHz | 0.05+0.1 | 200mV rms |
| | 10Hz~100Hz | 99.9999 | 100μHz | 0.01+0.01 | 40mV rms |
| | 100Hz~100 kHz | 999.999 | 1mHz | 0.005+0.002 | 40mV rms |
| | 100k~1.1MHz | 1099.99 | 1Hz | 0.005+0.002 | 100mV rms |
| TH1961 | 5Hz~10 Hz | 9.999999 | 1μHz | 0.05+0.1 | 200mV rms |
| | 10Hz~100Hz | 99.99999 | 10μHz | 0.01+0.01 | 40mV rms |
| | 100Hz ~100 kHz | 999.9999 | 10mHz | 0.005+0.002 | 40mV rms |
| | 100k~1.1MHz | 1099.999 | 0.1Hz | 0.005+0.002 | 100mV rms |

General Specifications

| | | |
|------------------------------------|-------------------|----------------------------|
| Operating Temperature and Humidity | | 0°C~40°C, ≤90%RH |
| Power Requirements | Voltage | 99V~121V AC , 198V~242V AC |
| | Frequency | 47.5Hz~63Hz |
| Power Consumption | 20 VA max. | |
| Dimensions (W×H×D) | 277mmx115mmx365mm | |
| Weight | 2.5 kg Approx. | |

Ordering Information

TH1951 5 1/2 Digit Multimeter

TH1961 6 1/2 Digit Multimeter

Instrument Accessories

TH26036 test leads one pair (black and red)
Power cord

Options

TH10003 GPIB interface board

TH12023 RS232C control software

TH26041 Glided shorting plate

TH26039 4 terminal Kelvin test clip

TH26040 SMD component test clip

TH12022 Accuracy Calibration software