

FLUKE 8024A Operator's Guide

Litho in U.S.A.

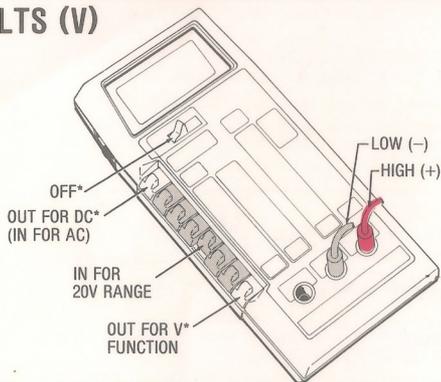
J.F. P/N 521484 August 1979

Rev. 1 2/80

WARNING

REMOVE INPUT SIGNAL AND TEST LEADS FROM 8024A INPUT TERMINALS BEFORE OPENING THE BATTERY COMPARTMENT OR OTHERWISE ACCESSING OR TOUCHING THE FUSE AND/OR BATTERY. DO NOT OPERATE THE INSTRUMENT UNLESS BATTERY COVER IS IN PLACE AND FULLY CLOSED.

VOLTS (V)



*NOTE: The function switches are push-push type. Do not pull them to the out or OFF positions.

- Connect the test leads as shown above.
- Depress the grey switch beside the desired range (20V is shown selected).
- Set the AC/DC switch out for DC or in for AC (DC is shown selected).
- Insure that all other switches are at the out or OFF positions.

WARNING

TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, DO NOT CONNECT THE 8024A TERMINALS TO SOURCES THAT EXCEED THE FOLLOWING LIMITS WHEN MEASURING VOLTAGES:

COMMON: 500V DC OR AC RMS WITH RESPECT TO EARTH GROUND.

V-kΩ-nS: 1000V DC OR 750V AC RMS WITH RESPECT TO THE COMMON TERMINAL (IN THE 200 mV RANGE, SOURCES GREATER THAN 300V AC RMS SHOULD NOT BE CONNECTED LONGER THAN 15 SECONDS).

- Connect the test leads to the circuit being measured.
- Read the measured value on the display. The minus sign will appear if the V-kΩ-nS terminal is negative with respect to the COMMON terminal.
- ACCURACY: 1-year, 18°C to 28°C (64°F to 82°F).
- DC: All ranges ±(0.1% of reading +1 digit)
- AC: See Section 1 of the 8024A Instruction Manual.

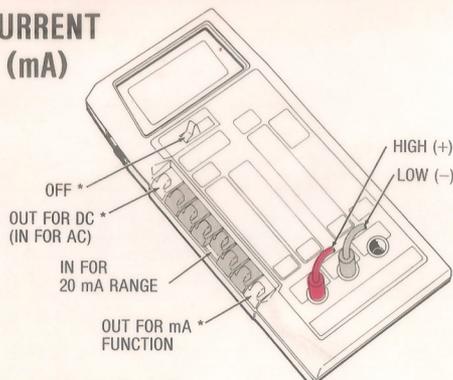
OVERRANGE INDICATION

If input signal exceeds range selected, the display will show a 1 followed by blanked digits. Select the next higher range for reading.

BATTERY/FUSE TYPE

BT appears on the display when approximately 20-hours of operation remain. BATTERY TYPE: 9V carbon-zinc or alkaline, NEDA type #1604 FUSE: 2A/250V rating. Use only AGX2.

CURRENT (mA)



* (See NOTE, VOLTS page)

- Connect the test leads as shown.
- Depress the grey switch beside the range desired (20 mA range shown selected).
- Set the AC/DC switch out for DC or in for AC (DC shown selected).
- Insure that all other switches are at the out or OFF positions.

WARNING

TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, DO NOT CONNECT THE 8024A TERMINALS TO SOURCES THAT EXCEED THE FOLLOWING LIMITS WHEN MEASURING CURRENT:

COMMON: 500V DC OR AC RMS WITH RESPECT TO EARTH GROUND.

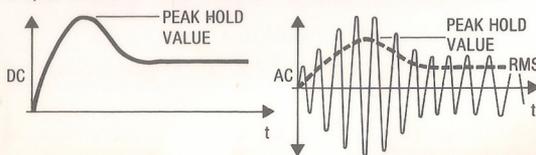
mA-°C: CURRENT OF 2 AMPS OR OPEN CIRCUIT VOLTAGE OF 250V DC/AC RMS.

- Connect the test leads to the circuit being measured.
- Read the measured value on the display. In DC, the minus sign will appear if the mA-°C terminal is negative with respect to the COMMON terminal.
- ACCURACY: 1-year, 18°C to 28°C (64°F to 82°F).
- DC: All ranges ±(0.75% of reading +1 digit)
- AC: See Section 1 of the 8024A Instruction Manual.

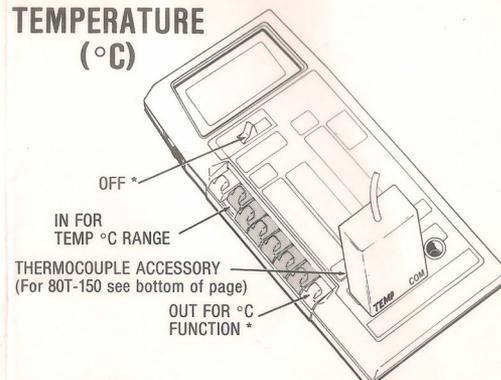
PEAK HOLD



- PEAK HOLD can be used in AC or DC for V (volts) and mA (current) functions.
- The PEAK HOLD switch is a push-push type. Push to the right (▶) only.
- Complete the steps and comply with the WARNING for the function selected.
- Push (▶) the PEAK HOLD switch to the ON position.
- The value of the most positive dc peak or ac rms level (see waveforms) will be captured in the display.
- For a new measurement, push (▶) the PEAK HOLD switch to the OFF position; then push (▶) again to the ON position.
- Specifications are listed in Section 1 of the 8024A Instruction Manual.



TEMPERATURE (°C)



* (See NOTE, VOLTS page)

WARNING

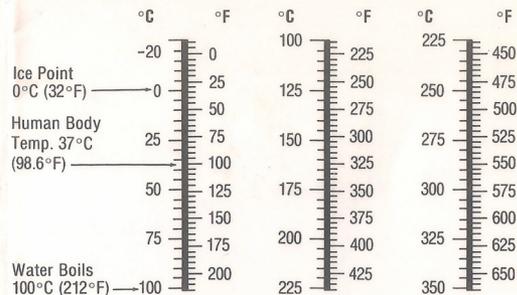
TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, DO NOT EXCEED THE MAXIMUM VOLTAGE AND TEMPERATURE LIMITS FOR THE ACCESSORY USED.

JOHN FLUKE THERMOCOUPLE ACCESSORIES

- Connect the thermocouple termination across the mA-°C and COMMON terminals with the TEMP side plugged into the mA-°C terminal.
- Depress the grey TEMP °C range switch.
- Insure that all other switches are at the out or OFF positions.
- The measured temperature is displayed in °C. For °F use either the conversion scales below or the formula °F = 1.8°C + 32°.
- INDICATING ACCURACY** FOR "K" TYPE THERMOCOUPLES: ±3°C ±1 digit, -20° to +300°C; 3% of rdg, +300°C to +1265°C.

**Specification good for 1-year with the 8024A at an ambient temperature of 18°C to 28°C (64°F to 82°F).

°C-to-°F CONVERSION SCALES



JOHN FLUKE 80T-150 ACCESSORIES

- Connect the 80T-150 termination across the V-kΩ-nS and COMMON terminals with the HI side plugged into the V-kΩ-nS terminal.
- Select the appropriate range (200 mV or 2V).
- Insure that all other switches are at the out or OFF positions.
- Set the 80T-150 POWER switch to the ON position and read the display as indicated on the accessory label.

CONDUCTANCE (nS)

(Use for measuring resistances above 20 MΩ)

DEPRESS BOTH AT THE SAME TIME FOR nS RANGE

OFF *

IN FOR nS FUNCTION *

* NOTE: The function switches are push-push type. Do not pull them to the out or OFF positions.

- Connect the test leads as shown.
- Depress the mA-°C-kΩ-nS function switch.
- AT THE SAME TIME, depress both of the grey nS range switches.
- Insure that all other switches are at the out or OFF positions.
- Insure that the device being measured contains no electrical energy.

WARNING

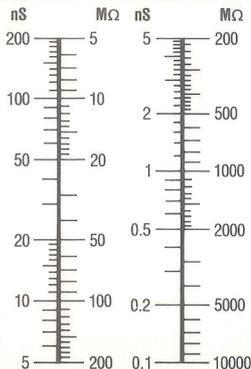
TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, DO NOT CONNECT THE 8024A TERMINALS TO SOURCES THAT EXCEED THE FOLLOWING LIMITS WHEN MEASURING CONDUCTANCE:

COMMON: 500V DC OR AC RMS WITH RESPECT TO EARTH GROUND.

V-kΩ-nS: 500V DC OR AC RMS WITH RESPECT TO THE COMMON TERMINAL.

- Connect the test leads across the device being measured (connect the red test lead to the + end of polarized capacitors for leakage measurements).
- Conductance is displayed in Siemens which equals 1/Ω. Use the conversion scales below to determine the equivalent resistance.
- ACCURACY: 1-year, 18°C to 28°C (64°F to 82°F): ±(2% of rdg +10 digits).

CONDUCTANCE-TO-RESISTANCE CONVERSION (S = 1/Ω)



EXAMPLE:
When measuring conductance across a 30 MΩ resistance, your 8024A will display 33.3 (nS).

RESISTANCE (kΩ)

IN FOR TONE (OUT FOR SILENT)

IN FOR 20 kΩ RANGE

IN FOR kΩ FUNCTION *

* (See NOTE, CONDUCTANCE page)

- Connect the test leads as shown.
- Depress the mA-°C-V-kΩ-nS switch.
- Depress the grey switch beside the range desired (20 kΩ is shown selected).
- Insure that all other switches are at the out or OFF positions.
- Make sure that the device being measured contains no electrical energy.

WARNING

TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, DO NOT CONNECT THE 8024A TERMINALS TO SOURCES THAT EXCEED THE FOLLOWING LIMITS WHEN MEASURING RESISTANCE OR CONTINUITY:

COMMON: 500V DC OR AC RMS WITH RESPECT TO EARTH GROUND.

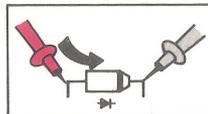
V-kΩ-nS: 500V DC OR AC RMS WITH RESPECT TO THE COMMON TERMINAL.

- Connect the test leads across the device being measured.
- Read the measured value on the display.
- ACCURACY: 1-year, 18°C to 28°C (64°F to 82°F):
200Ω Range: ±(0.2% of reading +3 digits)
2 kΩ, 20 kΩ, 200 kΩ Ranges: ±(0.1% of reading +1 digit)
2000 kΩ Range: ±(0.15% of reading +1 digit)
20 MΩ Range: ±(2% of reading +1 digit)

DIODE TEST (▶▶)

▶▶ 2 kΩ, 200 kΩ, and 20 MΩ ranges will turn-on P-N junctions.

(The open circuit voltage is less than 3.5V on the 2 kΩ range and less than 1.5V on all other ranges.)



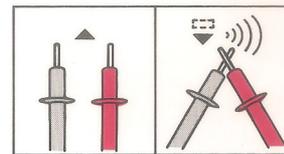
NOTE: Use the 200 kΩ range for testing diodes with audio tone.

IN CIRCUIT RESISTANCE MEASUREMENTS

200Ω, 20 kΩ, and 2000 kΩ ranges can make in circuit resistance measurements.

CONTINUITY TESTING

(Use for passive circuit testing)



- Select the kΩ function, 2 kΩ range.
- If the audible tone is desired, depress the AC/DC switch.
- Insure that the device being measured contains no electrical energy.

WARNING

TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, COMPLY WITH THE WARNING FOR THE RESISTANCE (kΩ) FUNCTION.

- Connect the test leads to the circuit being measured.
- Continuity between the test leads will cause the down arrow (▼) to appear on the display and the audible tone to sound (if enabled).

LEVEL DETECTOR [≡ |||)]

(Use for ACTIVE circuit testing)

WARNING

TO AVOID ELECTRICAL SHOCK AND/OR INSTRUMENT DAMAGE, COMPLY WITH THE WARNING FOR THE RESISTANCE (kΩ) FUNCTION.

- Use this function for sensing logic levels and other active signals less than 250V dc or ac rms in amplitude.
- Select the kΩ function, 200 kΩ range (Zin > 100 kΩ).
- If the audible tone in desired, depress the AC/DC switch.
- Comparison is made between a +0.8V dc reference voltage and the input signal, with respect to the COMMON terminals. If the input signal:
 - Is more positive than +0.8V, the 8024A displays an up arrow (▲).
 - Is less positive than +0.8V, 8024A displays a down arrow (▼). If enabled, the audible tone sounds.
 - Passes back and forth through +0.8V, the 8024A displays both arrows. If enabled, the audible tone sounds.
 - Average value is negative, the minus sign appears.
 - Average value is very near zero, the minus sign may flicker (≡).
- See the 8024A Instruction Manual for response time specifications.

