Model 4102 MF



Insulation & Multifunction Tester

Features

- Measures Insulation Resistance, voltage (AC-DC) measurements.
- Automatic hold facility.
- Continuity test with a short circuit current of minimum 200mA.
- Energy conservation is feature.
- EnerSave™ limits the test duration to about 10 Seconds t save energy.
- No moving parts.

All calibration are saved internally in a non volatile memory.

- Easy calibration at any facility around the world.
- Low cost maintenance, calibration, and ownership.
- Complies to all the latest regulations, including UK.

Specifications

Insulation Test

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Test voltage (DC V)	250V / 500V / 1000V	
Output voltage @ 1mA	Rated test Voltage +10% Max	
Measuring ranges	0.2M~2G / 0.2M-4G / 0.2M-8GΩ	
Accuracy	0.2M~4GΩ : ±3%rdg	
	4GΩ~ $8GΩ$: ±5%rdg	
When voltage is constant,		
Current is limited at	1.2mA	
Short circuit current	4mA Max.	

Continuity Test

Continuity rest	
Measuring ranges	0.01-1999Ω
Accuracy	$0.01\text{-}100\Omega$: ±1.0%rdg
	100-300Ω : ±1.5%rdg
	300-1999Ω : ±2.0%rdg
Short circuit current	>220mA
Open circuit voltage	5V dc
Resolution	±2 counts
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Voltmeter

AC voltage (Auto)	0-700V
DC voltage (Auto)	0-950V
Accuracy	±1.5% rdg
Resolution	±1V

Protections

Over load	700V (between all terminals)
Over voltage	Class III-700V towards ground
Fuse	500mA 250V, (5 × 20mm),
	HBC, Fast Blow

MOV Test & GAS Arrester Test

Test voltage	5-1020Vdc
Voltage result accuracy	±3% rdg
Voltage result resolution	±2 counts

General

Display	2 lines × 16 characters LCD	
Auto-null threshold	5Ω	
Buzzer threshold	3Ω	
Fast test	10Sec	
Long test	60Sec	
With PI and DAR test function	10Min	
Load battery test current	About 300mA	
Operating temperature	0°C to 40°C not in full sun	
Storage temperature	-10°C to 50°C	
Dimensions	250(L) × 190(W) × 110(D)mm	
Weight (battery included)	Approx 1460g.	
Power source	1.5V(AA) × 8	

Accessories

Instruction manual Test leads Shoulder belt **Batteries**

Hoyt Electrical Instrument Works, Inc.

23 Meter Street Penacook, NH 03303 Phone: (800) 258-3652 (603) 753-9592 Fax: Email: sales@hoytmeter.com www.hoytmeter.com

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Insulation & Multifunction Tester

Digital EE Calibration (No Potentiometers) • • Keypad Operation • • Automatic Voltmeter AC/DC at Start/Reset • • ON-Reset/Restart Key • • Off Push Button(press more than 5 Sec on 1kV key) • • Auto-off • • Test ON-OFF • • Polarization Index(PI) on 250, 500 and 1000V • • Beltectric Absorption Ratio (DAR) on 250, 500 and 1000V • • Battery Test Test Battery at Start Test Battery at Start Test Battery at Start Battery Test at Switch ON / Reset • • • Voltmeter on request by Keypad Automatic Automatic Automatic Safety Voltmeter before each Test • • • Auto-Discharge on all Test and all Ranges • • • Continuity Short Circuit Current > 220mA (225mA Typical) • • • Continuity Open Circuit Voltage of 5V dc • • • Nominal Voltage @ ImA on all Insulation Ranges •	Features Comparison	4101 IN	4102 MF
Automatic Voltmeter AC/DC at Start/Reset ON-Reset/Restart Key Off Push Button(press more than 5 Sec on 1kV key) Auto-off Test ON-OFF Polarization Index(PI) on 250, 500 and 1000V Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V Battery Test Battery Test Test Battery at Start Battery Test at Switch ON / Reset Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Always ON Always ON Always ON Always ON Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω Continuity from 0.01Ω (220mA) to 1999Ω Continuity from 0.01Ω (220mA) to 1999Ω Covitmeter from ± 1Vdc to ±950Vdc Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Digital EE Calibration (No Potentiometers)	•	•
ON-Reset/Restart Key Off Push Button(press more than 5 Sec on 1kV key) Auto-off Auto-off Test ON-OFF Olarization Index(PI) on 250, 500 and 1000V Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V Battery Test Test Battery at Start Battery Test at Switch ON / Reset Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Always ON Always ON Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from $2 k\Omega$ (250V range) to $8 G\Omega$ (1kV Range) Continuity from 0.01Ω (220mA) to 199Ω DC Voltmeter from $\pm 1 V dc$ to $\pm 950 V dc$ AC Voltmeter from $\pm 1 V dc$ to $\pm 950 V dc$ AC Voltmeter from 1 Vac to $700 V ac$ Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Keypad Operation	•	•
Off Push Button (press more than 5 Sec on 1kV key) • • Auto-off • • Test ON-OFF • • Polarization Index(PI) on 250, 500 and 1000V • • Bettery Test Test Battery at Start Test Battery at Start Battery Test at Switch ON / Reset • • Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from $2 k\Omega$ (250V range) to $8 c\Omega$ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • </td <td>Automatic Voltmeter AC/DC at Start/Reset</td> <td>•</td> <td>•</td>	Automatic Voltmeter AC/DC at Start/Reset	•	•
Auto-off Test ON-OFF Polarization Index(PI) on 250, 500 and 1000V Polielectric Absorption Ratio (DAR) on 250, 500 and 1000V Battery Test Test Battery at Start Battery Test at Switch ON / Reset Voltmeter on request by Keypad Automatic Safety Voltmeter before each Test Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Always ON Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω Continuity from 0.01Ω (220mA) to 1999Ω Continuity from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	ON-Reset/Restart Key	•	•
Test ON-OFF Polarization Index(PI) on 250, 500 and 1000V Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V Battery Test Test Battery at Start Battery Test at Switch ON / Reset Voltmeter on request by Keypad Automatic Safety Voltmeter before each Test Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Always ON Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (14W Range) Continuity from 0.01Ω (220mA) to 1999Ω Continuity from 0.01Ω (220mA) to 1999Ω Covoltmeter from ± 1Vdc to ±950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Off Push Button(press more than 5 Sec on 1kV key)	•	•
Polarization Index(PI) on 250, 500 and 1000V • • Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V • • Battery Test Test Battery at Start Test Battery at Start Battery Test at Switch ON / Reset • • Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries o	Auto-off	•	•
Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V • • Battery Test Test Battery at Start Test Battery at Start Battery Test at Switch ON / Reset • • Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from \pm 1Vdc to \pm 950Vdc • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold	Test ON-OFF	•	•
Battery Test at Switch ON / Reset Test Battery at Start Test Battery at Start Battery Test at Switch ON / Reset • • Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from \pm 1Vdc to \pm 950Vdc • • AC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold &	Polarization Index(PI) on 250, 500 and 1000V	•	•
Battery Test at Switch ON / Reset • • Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999 Ω • • DC Voltmeter from \pm 1Vdc to \pm 950Vdc • • AC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold & Stop on Voltmeter ac / dc • • MOV / Protection Devices Test	Dielectric Absorption Ratio (DAR) on 250, 500 and 1000V	•	•
Voltmeter on request by Keypad Automatic Automatic Safety Voltmeter before each Test • • Auto-Discharge on all Test and all Ranges • • Continuity Short Circuit Current > 220mA (225mA Typical) • • Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from ± 1Vdc to ±950Vdc • • AC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold & Stop on Voltmeter ac / dc • • MOV / Protection Devices Test • • Gas Arrester Function • •	Battery Test	Test Battery at Start	Test Battery at Start
Safety Voltmeter before each Test Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Leads Auto-Null key Always ON Leads Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from $1 \text{ Vac to } 700 \text{ Vac}$ Accept $8 \text{ Rechargeable Batteries or Alkaline or normal}$ Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Battery Test at Switch ON / Reset	•	•
Auto-Discharge on all Test and all Ranges Continuity Short Circuit Current > 220mA (225mA Typical) Continuity Open Circuit Voltage of 5V dc Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) Continuity from 0.01Ω (220mA) to 1999 Ω DC Voltmeter from ± 1 Vdc to ± 950 Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Voltmeter on request by Keypad	Automatic	Automatic
Continuity Short Circuit Current > 220mA (225mA Typical)	Safety Voltmeter before each Test	•	•
Continuity Open Circuit Voltage of 5V dc • • Nominal Voltage @ 1mA on all Insulation Ranges • • Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from ± 1Vdc to ±950Vdc • • AC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold & Stop on Voltmeter ac / dc • • MOV / Protection Devices Test • • Gas Arrester Function • •	Auto-Discharge on all Test and all Ranges	•	•
Nominal Voltage @ 1mA on all Insulation Ranges Buzzer ON/OFF Always ON Always ON Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from ± 1Vdc to ±950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Continuity Short Circuit Current > 220mA (225mA Typical)	•	•
Buzzer ON/OFF Always ON Always ON Leads Auto-Null key • • Test Auto-Stop • • Re-programmable Microprocessor for Easy Updates • • Can be calibrated in ALL calibration laboratories • • Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) • • Continuity from 0.01Ω (220mA) to 1999Ω • • DC Voltmeter from ± 1Vdc to ±950Vdc • • AC Voltmeter from 1 Vac to 700 Vac • • Accept 8 Rechargeable Batteries or Alkaline or normal • • Smart Hold & Stop on Voltmeter ac / dc • • MOV / Protection Devices Test • • Gas Arrester Function • •	Continuity Open Circuit Voltage of 5V dc	•	•
Leads Auto-Null key Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from ± 1Vdc to ±950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Nominal Voltage @ 1mA on all Insulation Ranges	•	•
Test Auto-Stop Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from 2kΩ (250V range) to 8GΩ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from ± 1Vdc to ±950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Buzzer ON/OFF	Always ON	Always ON
Re-programmable Microprocessor for Easy Updates Can be calibrated in ALL calibration laboratories Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from \pm 1Vdc to \pm 950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Leads Auto-Null key	•	•
Can be calibrated in ALL calibration laboratories Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) Continuity from 0.01Ω (220mA) to 1999Ω DC Voltmeter from \pm 1Vdc to \pm 950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Test Auto-Stop	•	•
Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range) • • • • • • • • • • • • • • • • • • •	Re-programmable Microprocessor for Easy Updates	•	•
$8G\Omega \ (1kV \ Range) \\ \hline Continuity from 0.01\Omega \ (220mA) \ to \ 1999\Omega \\ \hline DC \ Voltmeter from \pm 1 \text{Vdc to } \pm 950 \text{Vdc} \\ \hline AC \ Voltmeter from 1 \ Vac to 700 \ Vac \\ \hline Accept 8 \ Rechargeable \ Batteries \ or \ Alkaline \ or \ normal \\ \hline Smart \ Hold \ \& \ Stop \ on \ Voltmeter \ ac \ / \ dc \\ \hline MOV \ / \ Protection \ Devices \ Test \\ \hline Gas \ Arrester \ Function \\ \hline \\ \bullet \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	Can be calibrated in ALL calibration laboratories	•	•
DC Voltmeter from ± 1Vdc to ±950Vdc AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function	Insulation measurement from $2k\Omega$ (250V range) to $8G\Omega$ (1kV Range)	•	•
AC Voltmeter from 1 Vac to 700 Vac Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function • • • • • • • • • • • • •	Continuity from 0.01 Ω (220mA) to 1999 Ω	•	•
Accept 8 Rechargeable Batteries or Alkaline or normal Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function • • • • • • • • • • • • • • • • • •	DC Voltmeter from ± 1Vdc to ±950Vdc	•	•
Smart Hold & Stop on Voltmeter ac / dc MOV / Protection Devices Test Gas Arrester Function • • • • • • • • • • • • • • • • • •	AC Voltmeter from 1 Vac to 700 Vac	•	•
MOV / Protection Devices Test Gas Arrester Function •	Accept 8 Rechargeable Batteries or Alkaline or normal	•	•
Gas Arrester Function •	Smart Hold & Stop on Voltmeter ac / dc	•	•
	MOV / Protection Devices Test		•
Ener Save™ • •	Gas Arrester Function		•
	Ener Save™	•	•

Hoyt Electrical Instrument Works, Inc.

23 Meter Street Penacook, NH 03303 Phone: (800) 258-3652 Fax: (603) 753-9592 Email: sales@hoytmeter.com www.hoytmeter.com

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