This supplement contains information necessary to ensure the accuracy of the above manual.

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For detailed specifications and ordering info go to www.TestEquipmentDepot.com
Change #1

On page 7, under General Specification, change Operating environment:

From: 0 °C to 50 °C at <70% R.H.

To: 0 °C to 50 °C at <70% R.H. for all functions except ranges 10A ranges: 0 °C to 40 °C at <70% R.H.
Visit www.amprobe.com for
• Catalog
• Application notes
• Product specifications
• Product manuals
1. Display
   Afficheur
   Anzeige
   Display
   Pantalla

2. Feature Buttons
   Boutons de fonctions
   Funktionsstasten
   Pulsanti delle funzioni
   Botones de función

3. Function/Range Switch
   Commutateur de gamme/fonction
   Funktion/Bereich-Schalter
   Selettor funzione/portata
   Selector de la función y del rango

4. Test Lead Connections
   Branchements des cordons de test
   Messleitungsanschlüsse
   Boccole per i cavetti
   Conexiones de los conductores de prueba

5. Strap Clip
   Clip de bretelle
   Klemme
   Clip in velcro
   Clip para correa

6. Battery/Fuse Door
   Capot des fusibles/pile
   Batterie-/Sicherungsabdeckung
   Sportello del vano portapile/fusibili
   Puerta de la batería y el fusible

30XR-A

MADE IN TAIWAN
PATENTS PENDING
www.amprobe.com
30XR-A
Professional Digital Multimeter

Users Manual
• Mode d’emploi
• Bedienungshandbuch
• Manuale d’Uso
• Manual de uso
30XR-A Digital Multimeter

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Safety Information
To Avoid possible electric shock, personal injury, damage to the meter or the equipment under test, adhere to the following practices:

• Do not exceed the maximum overload limits per function (see specifications) nor the limits marked on the instrument itself. Never apply more than 600 VDC between the test lead and earth ground.
• Inspect DMM, test leads and accessories before every use. Do not use any damaged part.
• Never ground yourself when taking measurements. Do not touch exposed circuit elements or probe tips.
• Do not operate the instrument in an explosive atmosphere.
• Exercise extreme caution when measuring voltage >20 V // current >10 mA // AC power line with inductive loads // AC power line during electrical storms // current, when the fuse blows in a circuit with open circuit voltage >600 V // servicing CRT equipment.
• Always measure current in series with the load – NEVER ACROSS a voltage source. Check fuse first. Never replace a fuse with one of a different rating.
• Do not change the position of the Function/Range Switch while the MIN MAX or the HOLD feature is enabled. Erroneous readings will result.
• Remove test leads before opening battery or case to change battery or fuses.
Symbols Used in this Manual

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Battery</td>
</tr>
<tr>
<td>D</td>
<td>Double insulated</td>
</tr>
<tr>
<td>W</td>
<td>Refer to the manual</td>
</tr>
<tr>
<td>T</td>
<td>Direct Current</td>
</tr>
<tr>
<td>J</td>
<td>Earth Ground</td>
</tr>
<tr>
<td>~</td>
<td>Alternating Current</td>
</tr>
<tr>
<td>✓</td>
<td>Dangerous Voltage</td>
</tr>
<tr>
<td>✓</td>
<td>Audible tone</td>
</tr>
<tr>
<td>✓</td>
<td>Complies with EU directives</td>
</tr>
<tr>
<td>✓</td>
<td>Underwriters Laboratories, Inc</td>
</tr>
</tbody>
</table>

Making Measurements

Verify Instrument Operation
Before attempting to make a measurement, verify that the instrument is operational and the battery is good. If the instrument is not operational, have it repaired before you attempting to make a measurement.

Correcting an Overload (Ω) Indication
An Ω or indication may appear on the display to indicate that an overload condition exists. For voltage and current measurements, an overload should be immediately corrected by selecting a higher range. If the highest range setting does not eliminate the overload, interrupt the measurement until the problem is identified and eliminated. The Ω indication is normal for some functions, for example, resistance, continuity, and diode test.

Measuring DC Voltage
See Figure -1-
1. Set the Range Switch to an appropriate L range.
2. Connect the Test Leads: Red to VΩ G, Black to COM.
3. Connect the Test Probes to the circuit test points.
4. Read the display, and, if necessary, fix any overload (Ω) conditions.

Measuring AC Voltage
See Figure -2-
1. Set the Range Switch to an appropriate L range.
2. Connect the Test Leads: Red to VΩ G, Black to COM.
3. Connect the Test Probes to the circuit test points.
4. Read the display, and, if necessary, fix any overload (Ω) conditions.

Preparing for Current Measurements

- Turn off circuit power before connecting the test probes.
- Allow the meter to cool between measurements if current measurements approach or exceeds 10 amps.
- A warning tone sounds if you connect a test lead to a current input before you select a current range.
- Open circuit voltage at the measurement point must not exceed 600 V.
- Always measure current in series with the load. Never measure current across a voltage source.
Measuring DC Current

1. Set the Range Switch to an appropriate A range.
2. Connect the Test Leads: Red to mA or 10 A, Black to COM.
3. Turn off power to the circuit being measured.
4. Open the test circuit (X) to establish measurements points.
5. Connect the Test Probes in series with the load.
6. Turn on power to the circuit being measured.
7. Read the display, and, if necessary, fix any overload (Ω) conditions.

Measuring AC Current

1. Set the Range Switch to an appropriate A range.
2. Connect the Test Leads: Red to mA or 10 A, Black to COM.
3. Turn off power to the circuit being measured.
4. Open the test circuit (X) to establish measurements points.
5. Connect the Test Probes in series with the load.
6. Turn on power to the circuit being measured.
7. Read the display, and, if necessary, fix any overload (Ω) conditions.

Measuring Resistance

1. Set the Range Switch to an appropriate Ω range.
2. Connect the Test Leads: Red to VΩ G, Black to COM.
3. Turn off power to the circuit being measured. Never measure resistance across a voltage source or on a powered circuit.
4. Discharge any capacitors that may influence the reading.
5. Connect the Test Probes across the resistance.
6. Read the display. If Ω appears on the highest range, the resistance is too large to be measured.

Measuring Continuity (<50 Ohms)

1. Set the Range Switch to R.
2. Connect the Test Leads: Red to VΩ G, Black to COM.
3. Turn off power to the circuit being measured.
4. Discharge any capacitors that may influence the reading.
5. Connect the Test Probes across the resistance.
6. Listen for the tone that indicates continuity (< 50 Ohms).

Checking Diodes

1. Set the Range Switch to G.
2. Connect the Test Leads: Red to VΩ G, Black to COM.
3. Turn off power to the circuit being measured.
4. Free at least one end of the diode from the circuit.
5. Connect the Test Probes across the diode.
6. Read the display. A good diode has a forward voltage drop of about 0.6 V. An open or reverse biased diode will read Ω.
Measuring NCV (Non-Contact Voltage)  See Figure -8-
1. Range switch may be set to OFF or any function/range.
2. Test leads are not used for the NCV test.
3. Press the NCV button. The display goes blank, a tone sounds and the red LED next to the NCV button on the front panel lights up to verify that the instrument is operational. While pressing the button hold the top-center of the meter (sensor location) close to the conductor/circuit in question.
4. If a voltage in the range of 70 to 600 V ac is present, a tone sounds and the red LED next to the NCV button on the front panel lights up.

Testing Battery Voltage (1.5 and 9 volt)  See Figure -9-
1. Set the Range Switch to the appropriate BATT setting, 1.5 V or 9 V.
2. Connect the Test Leads: Red to BATT 1.5 V or BATT 9 V, Black to COM.
3. Connect the Test Probes across the battery. The meter applies an appropriate load to the battery.
4. Read the display. A good 1.5 volt battery should measure >1.2 V, and a good 9 volt battery should measure > 7.2 V.

Additional Features

Input Lead Warning
The 30XR-A emits a continuous tone to indicate that the user has placed the unit in a potentially dangerous configuration. Specifically, a test lead is in a current connector and the Range Switch is set to measure some other function. If, in this configuration, the DMM is connected to a voltage source, very high and potentially dangerous current could result. The meter includes fast acting fuses as additional protection for all current ranges.

MIN MAX Measurements

To avoid erroneous readings, do not change the position of the Function/Range Switch while the MIN MAX function is enabled.
The MIN MAX function works within the active measurement mode to capture and display the minimum or maximum reading associated with that measurement. Pressing the MIN MAX button for less than 1 second enables the function and shows MIN or MAX along with the appropriate minimum or maximum reading on the display. Each subsequent press toggles between the two modes. To exit the function, press the MIN MAX button for more than 1 second.

HOLD Measurements

To avoid erroneous readings, do not change the position of the Function/Range Switch while the HOLD function is enabled.
The HOLD function is used to make a measurement and hold the reading after removing the leads from the test circuit. Pressing the HOLD button during a measurement will capture and hold the reading. Pressing the HOLD button again will release the display for subsequent measurements.
Product Maintenance

Cleaning
To clean the meter, use a soft cloth moistened with water. Using benzene, alcohol, acetone, ether, paint thinner, lacquer thinner, ketone or other solvents may deform or discolor the meter and its display.

Troubleshooting
If the meter appears to operate improperly, check the following items first.
1. Review the operating instructions to ensure the meter is being used properly.
2. Inspect and test the continuity of the test leads.
3. Make sure the battery is in good condition. The low battery symbol appears when the battery falls below the level where accuracy is guaranteed. Replace a low-battery immediately.
4. Check the condition of the fuses if the current ranges operate incorrectly.

**WARNING**
To avoid electrical shock remove the test leads from both the meter and the test circuit before accessing the battery or the fuses.

Battery and Fuse Replacement
To access these parts, you must first remove the cover from the battery compartment. The battery cover is on the rear of the meter and is held in place with two screws. After removing these screws, you can easily remove and replace the battery. To replace the mA fuse, pry it from its clips using a small screwdriver. A spare mA fuse is located between the battery and the mA fuse.

- **Battery**: 9 V NEDA mA Fuse: Fast Blow 250 mA/600 V (Amprobe® FP375)
- **10 A Fuse**: Fast Blow 10 A/600 V, minimum interrupt rating 30 kA (10 x 38 mm) fuse (Amprobe® FP160) or equivalent.

Repair
All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company’s name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

In-Warranty Repairs and Replacement – All Countries
Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product.
Non-Warranty Repairs and Replacement – US and Canada
Non-warranty repairs in the United States and Canada should be sent to an Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.

Non-Warranty Repairs and Replacement – Europe
European non-warranty units can be replaced by your Amprobe® Test Tools distributor for a nominal charge.

WARRANTY
The 30XR-A Digital Multimeter is warranted against any defects of material or workmanship within a period of one (1) year following the date of purchase of the multimeter by the original purchaser or original user. Any multimeter claimed to be defective during the warranty period should be returned with proof of purchase to an authorized Amprobe® Test Tools Service Center or to the local Amprobe® Test Tools dealer or distributor where your multimeter was purchased. See maintenance section for details. Any implied warranties arising out of the sale of a Amprobe®, Test Tools multimeter, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the above stated one (1) year period. Amprobe®, Test Tools shall not be liable for loss of use of the multimeter or other incidental or consequential damages, expenses, or economical loss or for any claim or claims for such damage, expenses or economical loss. Some states do not allow limitations on how long implied warranties last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
Specifications

General Specifications
Display: 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.
Polarity: Automatic, positive implied, negative polarity indication.
Overrange: (OL) or (-OL) is displayed.
Zero: Automatic.
Low battery indication: The \( \text{B} \) is displayed when the battery voltage drops below the operating level.
Measurement rate: 2.5 per second.
Operating environment: 0 °C to 50 °C at < 70 % R.H.
Storage temperature: -20 °C to 60 °C, 0 to 80 % R.H. with battery removed from meter.
Temperature Coefficient: 0.1 × (specified accuracy) per °C. (0 °C to 18 °C, 28 °C to 50 °C).
Environment: Indoor use, Altitude up to 2000 m
Battery life: 200 hours typical with carbon-zinc.
Dimensions: 196 x 92 x 60 mm (7.7” x 3.5” x 2.4”).
Weight: Approx. 426 .(0.94 lb.) without holster, including battery.
Accessories: One pair test leads (TL36), 9 V battery (installed), Magna Grip™ Holster, and Operating Instructions.
Warranty: One (1) Year

Approvals:

Safety: Conforms to UL1244; EN61010-1: Cat II - 600V / Cat III - 300V. Class 2, Pollution degree II. The 30XR-A is recommended for use with local level power distribution, appliances, portable equipment, etc, where only smaller transient overvoltages may occur, and not for primary supply lines, overhead lines and cable systems.
EMC: Conforms to EN61326-1.

Electrical Specifications (at 23 °C ± 5 °C, <75 % R.H. non-condensing)
DC VOLTS
Ranges: 200 mV, 2 V, 20 , 200 V, 600 V
Accuracy: All ranges, ± (1.0 % rdg + 1 dgt)
Resolution: 100 µV in 200 mV range
Input impedance: 10 MΩ
Overload protection: 200 mV range: 600 V dc or 600 V ac rms 15 seconds.
Other ranges: 600 V dc or 600 V ac rms
AC VOLTS (45 Hz – 500 Hz)
Ranges: 200 mV, 2 V, 20 V, 200 V, 600 V
Accuracy: All ranges, ± (1.5 % rdg + 4 dgt)
Resolution: 100 μV in 200 mV range
Input Impedance: 10 MΩ
Overload protection: 200 mV range: 600 V dc or 600 V ac rms 15 seconds
Other ranges: 600 V dc or 600 V ac rms
DC CURRENT
Ranges: 200 μA, 2 mA, 20 mA, 200 mA, 10 A
Accuracy: 200 μA to 200 mA ranges: ± (1.5 % rdg + 1 dgt)
10 A range: ± (2.0 % rdg + 3 dgt)
Resolution: 0.1 μA in 200 μA range
Burst voltage: 200 μA Range: 1 mV/1 μA
2 mA Range: 100 mV/1 mA
20 mA Range: 13 mV/1 mA
200 mA: 4.6 mV/1 mA
10 A: 40 mV/1 A
Overload Protection: μA / mA input: F 0.25 A / 600 V, Min. I.R. 30 kA, (6.3x32 mm)
10 A input: F 10 A / 600 V, Min. I.R. 100 kA, (10x38 mm) (10 A for 4 minutes maximum followed by a 12 minute cooling period)
AC CURRENT (45 Hz – 500 Hz)
Ranges: 200 μA, 2 mA, 20 mA, 200 mA, 10 A
Accuracy: 200 μA to 200 mA ranges: ± (2.0 % rdg + 4 dgt)
10 A range: ± (2.5 % rdg + 4 dgt)
Resolution: 0.1 μA in 200 μA range
Burst voltage: See DC Current
Overload Protection: μA / mA input: F 0.25 A / 600 V, Min. I.R. 30 kA, (6.3x32 mm)
10 A input: F 10 A / 600 V, Min. I.R. 100 kA, (10x38 mm) (10 A for 4 minutes maximum followed by a 12 minute cooling period)
RESISTANCE
Ranges: 200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 2 MΩ, 20 MΩ
Accuracy: 200 Ω to 200 kΩ ranges: ± (1.0 % rdg + 4 dgt)
2 MΩ ranges: ± (1.5 % rdg + 4 dgt)
20 MΩ range: ± (2.0 % rdg + 5 dgt)
Resolution: 100 mΩ in 200 Ω range
Open circuit volts: 200 Ω range: 3.0 V dc
Other ranges: 0.3 V dc typical
CONTINUITY
Audible indication: 75 Ω ± 25 Ω
Response time: 100 ms
Overload protection: 600 V dc or 600 V ac rms
DIODE TEST
Test current: 1.0 mA (approximate)
Accuracy: ± (1.5 % rdg + 3 dgt)
Resolution: 0.001 V
Open circuit volts: 3.0 V dc typical
Overload protection: 600 V dc or 600 V ac rms
BATTERY TEST
Ranges: 1.5 V, 9 V
Accuracy: ± (3.5 % rdg + 2 dgt)
Resolution: 1 mV, 10 mV
Load Test current: 1.5 V range: 150 mA typical
9 V range: 5 mA typical
Overload protection: 600 V dc or 600 V ac rms
NON-CONTACT VOLTAGE (NCV)
AC Volts: 70 V to 600 V ac
Red LED and Audible Indicator
REPLACEMENT PARTS
TL36 – Test Lead Set w/ Alligator clips
FP375 – Fuse Pack 250 mA/600 V (4 each)
FP160 – Fuse Pack 10 A/600 V (2 each)