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Introduction

⚠️⚠️Warning

Read “Safety Information” before you use the Meter.

The Fluke 374, 375, and 376 (the Meter) measure true-rms ac current and voltage, dc current and voltage, inrush current, resistance, and capacitance. The 375 and 376 also measure frequency and dc millivolts. The detachable iFlex (Flexible Current Probe) that is included with the 376 (optional with the 374 and 375) expands the measurement range to 2500 A ac. The Flexible Current Probe provides increased display flexibility and allows measurements of awkward sized conductors and improved wire access. The illustrations in this manual show the 376.
How to Contact Fluke

To contact Fluke, call one of the following telephone numbers:

- Technical Support USA: 1-800-44-FLUKE (1-800-443-5853)
- Calibration/Repair USA: 1-888-99-FLUKE (1-888-993-5853)
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31 402-675-200
- Japan: +81-3-3434-0181
- Singapore: +65-738-5655
- Anywhere in the world: +1-425-446-5500

Or, visit Fluke's website at www.fluke.com.


To see, print, or download the latest manual supplement, visit http://us.fluke.com/usen/support/manuals.
Safety Information

A **Warning** identifies conditions and actions that pose hazard(s) to the user. A **Caution** identifies conditions and procedures that could cause Meter damage, equipment under test damage, or permanent loss of data.

Symbols used on the Meter and in this manual are explained in Table 1.

⚠️⚠️Warning

To prevent possible electrical shock or personal injury, follow these guidelines:

- Use the Meter only as specified in this manual or the protection provided by the Meter can be compromised.
- Examine the case before you use the Meter. Look for cracks or missing plastic. Carefully look at the insulation around the connectors.
- Never measure current while the test leads are inserted into the input jacks.
- Make sure the battery door is closed and latched before operating the Meter.
- Remove the test leads from the Meter before the battery door is opened.
- Examine the test leads for damaged insulation or exposed metal. Check test lead continuity. Replace damaged test leads before using the Meter.
- Do not use the Meter if it operates incorrectly. Protection can be compromised. When in doubt, have the Meter serviced.
• Do not use the Meter around explosive gas, vapor or in damp or wet environments.
• Use only type AA batteries, properly installed in the Meter case, to power the Meter.
• When measuring current with the Jaw, keep fingers behind the Tactile Barrier. See "The Meter" ①.
• To avoid false readings that can lead to electrical shock and injury, replace the batteries as soon as the low battery indicator (□) appears.
• When servicing the Meter, use only specified replacement parts.
• Have the Meter serviced only by qualified service personnel.
• Be careful around voltages > 30 V ac rms, 42 V ac peak, or 60 V dc. Such voltages pose a shock hazard.
• Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and earth ground.
• When using the probes, keep fingers behind the finger guards on the probes.
• Connect the common test lead before connecting the live test lead. When disconnecting test leads, disconnect the live test lead first.
• Do not work alone so assistance can be rendered in an emergency.
• Use extreme caution when working around bare conductors or bus bars. Contact with the conductor could result in electric shock.
Clamp Meters
Safety Information

- Adhere to local and national safety codes. Individual protective equipment must be used to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Disconnect circuit power and discharge all high-voltage capacitors before you measure resistance, continuity, or capacitance.
- For the 374 and 375, do not measure ac/dc current in circuits carrying more than 1000 V or 600 A with the Meter Jaw.
- For the 376, do not measure ac/dc current in circuits carrying more than 1000 V or 1000 A with the Meter Jaw.
- Never operate the Meter with the back cover removed or the case open.
- Do not measure ac current in circuits carrying more than 1000 V or 2500 A with the Flexible Current Probe.
- Do not apply the Flexible Current Probe around or remove from HAZARDOUS LIVE conductors.
- Do not use the flexible current sensor if the inner contrasting insulation color is showing.
- Take special care during fitting and removal of the Flexible Current Probe. De-energize the installation under test or wear suitable protective clothing.
Caution

To avoid possible damage to the Meter or to equipment under test:
- Use the proper jacks, function, and range for the measurement application.
- Clean the case and accessories with a damp cloth and mild detergent only. Do not use abrasives or solvents.

Table 1. Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>~</td>
<td>AC (Alternating Current)</td>
<td>⬇️</td>
<td>Earth ground</td>
</tr>
<tr>
<td>⋯</td>
<td>DC (Direct Current)</td>
<td>⚠️</td>
<td>Do not dispose of this product as unsorted municipal waste. Go to Fluke’s website for recycling information.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Hazardous voltage</td>
<td>⚡️</td>
<td>Conforms to European Union directives.</td>
</tr>
</tbody>
</table>
### Safety Information

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>💩</td>
<td>Battery. Low battery when shown on display.</td>
<td>⚡️</td>
<td>Double insulated</td>
</tr>
<tr>
<td>🚫</td>
<td>Examined and licensed by TÜV Product Services.</td>
<td>🚫</td>
<td>Conforms to relevant Australian standards.</td>
</tr>
<tr>
<td>☠️</td>
<td>Do not apply to or remove from HAZARDOUS LIVE conductors.</td>
<td>⚡️</td>
<td>Application around and removal from HAZARDOUS LIVE conductors is permitted.</td>
</tr>
<tr>
<td>Symbol</td>
<td>Meaning</td>
<td>Symbol</td>
<td>Meaning</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>--------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| CAT III | IEC Measurement Category III  
CAT III equipment has protection  
against transients in equipment in  
fixed-equipment installations, such  
as distribution panels, feeders and  
short branch circuits, and lighting  
systems in large buildings. | CAT IV | IEC Measurement Category IV  
CAT IV equipment has protection  
against transients from the primary  
supply level, such as an electricity  
Meter or an overhead or  
underground utility service. |

*Note*

*The Measurement Category (CAT) and voltage rating of any combination of test probe,  
test probe accessory, current clamp accessory, and the Meter is the LOWEST rating of  
any individual component.*
The Meter

Clamp Meters
The Meter
Auto Power Off

Backlight

ON + ON = 3999 + =

MIN MAX + ON + = 3999 + 3999

fig02_3.eps
Clamp Meters
The Meter

Display Hold

MIN MAX AVG

1x
2x
3x
2 sec = Exit
Flexible Current Probe

1. Connect the flexible current probe to the meter.
2. Set the range on the meter.
3. The display shows current readings of <0.5 A or >0.5 A.
Clamp Meters

The Meter

Fig. 07 - Jaw

<0.5 A >0.5 A

Fig. 07 - Hz (375 & 376)

>5 A >20 A

Hz
374, 375, 376
Users Manual

Fig 08
Clamp Meters
The Meter

Figure 09_10.eps

15
Fig 15.eps
Specifications

Electrical Specifications

AC Current via Jaw

Range

374 and 375 ........................................600.0 A
376 .....................................................999.9 A

Resolution ...............................................0.1 A

Accuracy .................................................2 % ± 5 digits (10-100 Hz)
2.5 % ± 5 digits (100-500 Hz)

Crest Factor (50/60 Hz) ..........................3 @ 500 A (375 and 376 only)
2.5 @ 600 A
1.42 @1000 A (376 only)

Add 2 % for C.F. > 2
374, 375, 376

Users Manual

AC Current via Flexible Current Probe
Range ....................................................2500 A

Resolution

374 and 375 ........................................0.1 A (≤ 600 A)
1 A (≤ 2500 A)

376 ......................................................0.1 A (≤ 999.9 A)
1 A (≤ 2500 A)

Accuracy .................................................3 % ±5 digits (5 – 500 Hz)

Crest Factor (50/60Hz) ...........................3.0 at 1100 A (375 and 376 only)
2.5 at 1400 A
1.42 at 2500 A

Add 2 % for C.F. > 2
Position Sensitivity

Figure 1. Position Sensitivity
Distance from Optimum | i2500-10 Flex | i2500-18 Flex | Error |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.5 in (12.7 mm)</td>
<td>1.4 in (35.6 mm)</td>
<td>± 0.5 %</td>
</tr>
<tr>
<td>B</td>
<td>0.8 in (20.3 mm)</td>
<td>2.0 in (50.8 mm)</td>
<td>± 1.0 %</td>
</tr>
<tr>
<td>C</td>
<td>1.4 in (35.6 mm)</td>
<td>2.5 in (63.5 mm)</td>
<td>± 2.0 %</td>
</tr>
</tbody>
</table>

Measurement uncertainty assumes centralized primary conductor at optimum position, no external electrical or magnetic field, and within operating temperature range.

**DC Current**

Range

374 and 375 ......................... 600.0 A
376 ........................................ 999.9 A

Resolution ........................................ 0.1 A

Accuracy .................................. 2 % ± 5 digits

**AC Voltage**

Range
Clamp Meters
Specifications

374 and 375 ........................................600.0 V
376 ......................................................1000 V

Resolution
374 and 375 ........................................0.1 V
376 ......................................................0.1 V (≤ 600.0 V)
1 V (≤ 1000 V)

Accuracy .................................................1.5 % ± 5 digits (20 – 500 Hz)

DC Voltage
Range
374 and 375 ........................................600.0 V
376 ......................................................1000 V
Resolution
374 and 375 ........................................0.1 V
376 ..............................................0.1 V (≤ 600.0 V)
1 V (≤ 1000 V)

Accuracy ........................................1 % ± 5 digits

`mV dc`

Range
375 and 376.......................................500.0 mV

Resolution........................................0.1 mV

Accuracy ........................................1 % ± 5 digits

Frequency via Jaw

Range
375 and 376.......................................5.0 - 500.0 Hz

Resolution........................................0.1 Hz

Accuracy ........................................0.5 % ± 5 digits
Clamp Meters
Specifications

Trigger Level ........................................... 5 – 10 Hz, ≥ 10 A
10 – 100 Hz, ≥ 5 A
100 – 500 Hz, ≥ 10 A

Frequency via Flexible Current Probe
Range
375 and 376 ............................................. 5.0 – 500.0 Hz
Resolution ............................................... 0.1 Hz
Accuracy ................................................. 0.5 % ± 5 digits
Trigger Level ........................................... 5 – 20 Hz, ≥ 25 A
20 – 100 Hz, ≥ 20 A
100 – 500 Hz, ≥ 25 A

Resistance
Range
374 ....................................................... 6000 Ω
375 and 376 ........................................... 60 kΩ
Resolution

374..................................................... 0.1 Ω (≤ 600 Ω)
1 Ω (≤ 6000 Ω)
375 and 376....................................... 0.1 Ω (≤ 600 Ω)
1 Ω (≤ 6000 Ω)
10 Ω (≤ 60 kΩ)

Accuracy ................................................. 1 % ± 5 digits

Capacitance

Range ..................................................... 1000 μF

Resolution ........................................... 0.1 μF (≤ 100 μF)
1 μ F (≤ 1000 μF)

Accuracy ............................................. 1 % ± 4 digits

Mechanical Specifications

Size (L x W x H) ................................. 246 mm x 83 m x 43 mm
Weight.................................................. 388 g
Jaw Opening................................. 34 mm
Clamp Meters
Specifications

Flexible Current Probe Diameter .......... 7.5 mm
Flexible Current Probe Cable Length
(head to electronics connector) .............. 1.8 m

Environmental Specifications
Operating Temperature ...................... -10 °C – +50 °C
Storage Temp .................................. -40 °C – +60 °C
Operating Humidity ....................... Non condensing (< 10 – °C)

≤ 90 % RH (at 10 °C – 30 °C)
≤ 75 % RH (at 30 °C – 40 °C)
≤ 45 % RH (at 40 °C – 50 °C)

Operating Altitude .......................... 3000 meters
Storage Altitude ............................. 12,000 meters
EMC .............................................. EN 61326-1:2006
Temperature Coefficients ............... Add 0.1 x specified accuracy for each degree C above

28 °C or below 18 °C
Safety Specifications

Safety Compliance.......................... CAN/CSA-C22.2 No. 61010-1-04
    ANSI/UL 61010-1:2004
    ANSI/ISA-61010-1 (82.02.01):2004
    EN/IEC 61010-1:2001 to
    1000V Measurement Category (CAT) III
    600V Measurement Category (CAT) IV
    Pollution Degree 2
    EN/IEC 61010-2-032:2002

Agency Approvals................................

Batteries............................................2 AA, NEDA 15A, IEC LR6