

# FLUKE®

# Fluke 116

## HVAC Multimeter

with Temperature and Microamps

## Technical Data



Actual size



### Compact true-rms meter for HVAC troubleshooting

The Fluke 116 was specifically designed for the HVAC professional. It has everything needed in an HVAC meter including temperature and microamp measurements to quickly troubleshoot problems with HVAC equipment and flame sensors.

#### Features include:

- Built in thermometer for HVAC applications
- Microamps to test flame sensors
- LoZ: helps prevent false readings due to ghost voltage
- Large white LED backlight to work in poorly lit areas
- Resistance, continuity, frequency and capacitance
- Min/Max/Average with elapsed time to record signal fluctuations
- Compact ergonomic design for one-handed operation
- Compatible with optional magnetic hanger (ToolPak™)
- CAT III 600 V safety rated

#### General specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 90 %.

The accuracy specifications take the form of:  
 $\pm ( [ \% \text{ of reading} ] + [ \text{counts} ] )$

|                                                       |                                                             |
|-------------------------------------------------------|-------------------------------------------------------------|
| Maximum voltage between any terminal and earth ground | 600 V                                                       |
| Surge protection                                      | 6 kV peak per IEC 61010-1 600 V CAT III, Pollution Degree 2 |
| Display                                               | Digital: 6,000 counts, updates 4/sec                        |
| Bar graph                                             | 33 segments, updates 32/sec                                 |
| Operating temperature                                 | -10 °C to + 50 °C                                           |
| Storage temperature                                   | -40 °C to + 60 °C                                           |
| Battery                                               | 9 volt Alkaline, NEDA 1604A/IEC 6LR61                       |
| Battery life                                          | 400 hours typical, without backlight                        |

## Accuracy specifications

| Measurement                                       | Range                       | Resolution       | Accuracy $\pm$ ([% of reading] + [counts])                                                     |
|---------------------------------------------------|-----------------------------|------------------|------------------------------------------------------------------------------------------------|
| DC millivolts                                     | 600.0 mV                    | 0.1 mV           | 0.5 % + 2                                                                                      |
| DC volts                                          | 6.000 V                     | 0.001 V          | 0.5 % + 2                                                                                      |
|                                                   | 60.00 V                     | 0.01 V           |                                                                                                |
|                                                   | 600.0 V                     | 0.1 V            |                                                                                                |
| Auto volts                                        | 600.0 V                     | 0.1 V            | 2.0 % + 3 (dc, 45 Hz to 500 Hz)<br>4.0 % + 3 (500 Hz to 1 kHz)                                 |
| AC millivolts <sup>1</sup><br>true-rms            | 600.0 mV                    | 0.1 mV           | 1.0 % + 3 (dc, 45 Hz to 500 Hz)<br>2.0 % + 3 (500 Hz to 1 kHz)                                 |
| AC volts <sup>1</sup> true-rms                    | 6.000 V                     | 0.001 V          | 1.0 % + 3 (45 Hz to 500 Hz)<br>2.0 % + 3 (500 Hz to 1 kHz)                                     |
|                                                   | 60.00 V                     | 0.01 V           |                                                                                                |
|                                                   | 600.0 V                     | 0.1 V            |                                                                                                |
| Continuity                                        | 600 $\Omega$                | 1 $\Omega$       | Beeper on < 20 $\Omega$ off > 250 $\Omega$ ; detects opens or shorts of 500 $\mu$ s or longer. |
| Ohms                                              | 600.0 $\Omega$              | 0.1 $\Omega$     | 0.9 % + 2                                                                                      |
|                                                   | 6.000 k $\Omega$            | 0.001 k $\Omega$ | 0.9 % + 1                                                                                      |
|                                                   | 60.00 k $\Omega$            | 0.01 k $\Omega$  |                                                                                                |
|                                                   | 600.0 k $\Omega$            | 0.1 k $\Omega$   |                                                                                                |
|                                                   | 6.000 M $\Omega$            | 0.001 M $\Omega$ |                                                                                                |
|                                                   | 40.00 M $\Omega$            | 0.01 M $\Omega$  | 1.5 % + 2                                                                                      |
| Diode test                                        | 2.000 V                     | 0.001 V          | 0.9 % + 2                                                                                      |
| Capacitance                                       | 1000 nF                     | 1 nF             | 1.9 % + 2                                                                                      |
|                                                   | 10.00 $\mu$ F               | 0.01 $\mu$ F     |                                                                                                |
|                                                   | 100.0 $\mu$ F               | 0.1 $\mu$ F      |                                                                                                |
|                                                   | 9999 $\mu$ F                | 1 $\mu$ F        |                                                                                                |
|                                                   | 100 $\mu$ F to 1000 $\mu$ F |                  | 1.9 % + 2                                                                                      |
|                                                   | > 1000 $\mu$ F              |                  | 5 % + 20                                                                                       |
| Lo-Z capacitance                                  | 1 nF to 500 $\mu$ F         |                  | 10 % + 2 typical                                                                               |
| Temperature <sup>2</sup><br>(Type-K thermocouple) | -40 °C to 400 °C            | 0.1 °C           | 1 % + 10 <sup>2</sup>                                                                          |
|                                                   | -40 °F to 752 °F            | 0.2 °F           | 1 % + 18 <sup>2</sup>                                                                          |
| AC $\mu$ amps<br>true-rms<br>(45 Hz to 500 Hz)    | 600.0 $\mu$ A               | 0.1 $\mu$ A      | 1.5 % + 3 (2.5 % + 3 > 500 Hz)                                                                 |
| DC $\mu$ amps                                     | 600.0 $\mu$ A               | 0.1 $\mu$ A      | 1.0 % + 2                                                                                      |
| Hz (V or A input) <sup>3</sup>                    | 99.99 Hz                    | 0.01 Hz          | 0.1 % + 2                                                                                      |
|                                                   | 999.9 Hz                    | 0.1 Hz           |                                                                                                |
|                                                   | 9.999 kHz                   | 0.001 kHz        |                                                                                                |
|                                                   | 50.00 kHz                   | 0.01 kHz         |                                                                                                |

### Notes:

<sup>1</sup> All ac voltage ranges except Auto-V/LoZ are specified from 1 % to 100 % of range. Auto-V/LoZ is specified from 0.0 V. Because inputs below 1 % of range are not specified, it is normal for this and other true-rms meters to display non-zero readings when the test leads are disconnected from a circuit or are shorted together. For volts, crest factor of  $\leq 3$  at 4000 counts, decreasing linearly to 1.5 at full scale. AC volts is ac-coupled. Auto-V LoZ, and ac mV are dc-coupled.

<sup>2</sup> Temperature uncertainty (accuracy) does not include the error of the thermocouple probe.

<sup>3</sup> Frequency is ac coupled, 5 Hz to 50 kHz for ac voltage. Frequency is dc coupled, 45 Hz to 5 kHz for ac current.

## Ordering information

**Fluke-116** HVAC Multimeter with Temperature and Microamps

### Included

TL75 Test Leads, 80BK Integrated Temperature Probe, holster, User's manual and 9 V battery (installed).



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