

# FLUKE®

## Fluke 87V-Ex Intrinsically Safe True-RMS Multimeter

Designed to deliver maximum productivity and safety in and around potentially explosive work zones

### Technical Data

The Fluke 87V-Ex is the ATEX-certified intrinsically safe version of the most popular meter in the world, the Fluke 87V. Intrinsically safe (I.S.) are protective methods employed in potentially explosive atmospheres. ATEX is the most stringent I.S. standard in Europe for products used in hazardous locations. Certified I.S. tools are designed to prevent the release of sufficient energy to cause ignition of flammable material.


I.S. standards apply to all equipment that can create one or more of a range of defined potential explosion sources such as electrical sparks, static electricity and mechanical friction. I.S. tools are designed for industries such as petro-chemical, grain processing, oil platforms and refineries, pharmaceutical and pipelines as well as other hazardous environments. For more information on intrinsic safety, visit [www.fluke.com/ex](http://www.fluke.com/ex).



#### Features:

- Unique function for accurate voltage and frequency measurements on variable speed motor drives (VSD's)
- Atex 137 safety rating for use in zone 1 and zone 2
- CAT IV 600 V safety approval for non-Ex industrial environments
- Large display with bright, two-level backlight makes the 87V-Ex very easy to read
- Built-in thermometer (probe included)
- True-rms ac voltage and current for accurate measurements on non-linear signals
- 4-1/2 digit mode for precise measurements (20,000 counts)
- Measure up to 1000 V and 10 A (ac/dc)
- Frequency to 200 kHz and % duty cycle
- Resistance, continuity and diode test
- 10,000  $\mu$ F capacitance range for components and motor caps
- Min/Max-Average and Peak capture to record transients and variations automatically
- Relative mode to remove test lead interference on resistance measurements
- Auto and manual ranging for maximum flexibility
- Analog bargraph for fast changing or unstable signals
- Input Alert provides audible warning against wrong use of input jacks

#### Safety ratings

- ATEX safety rating:  II 2 G EEx ia IIC T4
- Electrical safety rating: EN61010-1 CAT IV 600 V and CAT III, 1000 V



## Summary specifications

| Specifications                                       |  |   |
|--|--|---|
| <b>Voltage dc</b>                                    | Maximum voltage:<br>Accuracy:<br>Maximum resolution:   | 1000 V<br>± (0.05 % + 1)<br>10 µV   |
| <b>Voltage ac</b>                                    | Maximum voltage:<br>Accuracy:<br>AC bandwidth:<br>Maximum resolution:  | 1000 V<br>± (0.7 % + 2) True-rms<br>20 kHz*<br>0.1 mV   |
| <b>Current dc</b>                                    | Maximum amps:<br>Amps accuracy:<br>Maximum resolution:   | 10 A (20 A for 30 seconds maximum)<br>± (0.2 % + 2)<br>0.01 µA  |
| <b>Current ac</b>                                    | Maximum amps:<br>Amps accuracy:<br>Maximum resolution:   | 10 A (20 A for 30 seconds maximum)<br>± (1.0 % + 2) True-rms<br>0.1 µA  |
| <b>Resistance</b>                                    | Maximum resistance:<br>Accuracy:<br>Maximum resolution:  | 50 MΩ<br>± (0.2 % + 1)<br>0.1 Ω   |
| <b>Capacitance</b>                                   | Maximum capacitance:<br>Accuracy:<br>Maximum resolution:   | 9,999 µF<br>± (1 % + 2)<br>0.01 nF  |
| <b>Frequency</b>                                     | Maximum frequency:<br>Accuracy:<br>Maximum resolution:   | 200 kHz<br>± (0.005 % + 1)<br>0.01 Hz   |
| <b>Duty cycle</b>                                    | Maximum duty cycle:<br>Accuracy:<br>Maximum resolution:  | 99.90 %<br>± (0.2 % per kHz + 0.1 %)<br>0.10 %  |
| <b>Temperature measurement</b>                       | Range:   | -200.0 °C to 1090 °C (-328 °F to 1994 °F)<br>excluding probe  |
| <b>80BK Temperature Probe</b>                        | Range:<br>Accuracy:  | -40.0 °C to 260 °C (-40 °F to 500 °F)<br>2.2 °C or 2 % whichever is greater   |
| <b>Conductance</b>                                   | Maximum conductance:<br>Accuracy:<br>Maximum resolution:   | 60.00 nS<br>± (1.0 % + 10)<br>0.01 nS   |
| <b>Diode</b>   | Range:<br>Resolution:<br>Accuracy:   | 3 V<br>1 mV<br>± (2 % + 1)  |
| <b>Duty cycle range</b>                              | Accuracy:  | Within ± (0.2 % per kHz + 0.1 %)  |
| <b>Measurements restriction in Ex-hazardous area</b> | Voltage:<br>Current:   | ≤ 65 V<br>≤ 5 A   |
| <b>Environmental specifications</b>                  | Operating temperature:<br>Storage temperature:<br>Humidity (w/o condensation):<br><br>Operating altitude:  | -20 °C to +55 °C<br>-40 °C to +60 °C<br>0 % to 90 % (0 °C to 35 °C)<br>0 % to 70 % (35 °C to 55 °C)<br><br>2000 m   |
| <b>Safety specifications</b>                         | Overvoltage category:<br>Agency approvals:<br>ATEX specification:<br>Agency approvals:   | EN 61010-1 to 1000 V CAT III, 600 V CAT IV<br>CSA, TÜV<br>EX II 2 G EEx ia IIC T4<br>ZELM 05 ATEX 027   |
| <b>Mechanical and General Specifications</b>         | Size:<br>Weight:<br>Weight with holster:<br>Display (digital):<br><br>Display analog:<br>Warranty:<br>Battery life (Alkaline):<br>Shock:<br>Vibration: | 201 x 98 x 52 mm (with holster)<br>1.09 lbs<br>1.46 lbs<br>6000 counts updates 4/sec.<br>19,999 counts in high-resolution mod<br>32 segments, updates 40/sec.<br>1 year<br>~400 hours typical, without backlight<br>1 Meter drop per IEC 61010-1:2001<br>Per MIL-PRF-28800 for a Class 2 instrument |

\*with low pass filter; 3 dB @ 1 kHz

### Ordering Information

**Fluke-87-5-Ex** Intrinsically Safe  
True-rms Multimeter

#### Included

DMM with holster, TL75 Test Lead Set, AC72 Alligator Clip Set, instruction manual in English, French, German and CD Rom with additional manuals in multiple languages.

**Fluke. Keeping your world up and running.™**

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Printed in U.S.A. 5/2006 2523579 D-EN-N Rev B

