

# Harmonic Power Meter Model F25



The Clamp-On Harmonic Meter Model F25 is a portable, battery operated power quality instrument. The Model F25 combines the simplicity and familiarity of digital clamp-ons with today's critical information on poor quality and harmonics. Operation is simple and direct. Select Amps/Volts, AC or DC on the rotary dial, connect and measure. The push of a button gives additional or more specific information. You can troubleshoot and measure power quality and harmonics with the ease of using a digital clamp-on, simply, safely and economically.

The Model F25 performs current and voltage measurements in True RMS as well as current and voltage in DC. It provides immediate readings of Total Harmonic Distortion (%THD), Individual Harmonic orders H<sub>bc</sub> and 1st through the 25th, Distortion Factor (%DF), Crest Factor (CF) and Peak of distorted currents and complex voltages. It also gives the Min, Max and Average measurement values so you can record for over 24 hours with an internal clock logging record time. Frequency (Hz) can be measured through either the current or the voltage at any time for the fundamental as well as the individual harmonic orders.

The Model F25 incorporates True RMS electronics and Hall effect technology to ensure accurate readings on distorted waveforms, including variable frequency signals.

The Model F25 is comfortable to hold, compact and easy to maneuver in a crowded breaker panel or transformer. Yet the hooked jaw design facilitates clamping and accommodates two 500 MCM conductors.

The high sensitivity Harmonic Meter Model F25 features another uncommon advantage by measuring low input levels (300mA and 50mV), permitting power quality measurements on low power or idling equipment.

## Features

- Designed for traditional and nonlinear loads
- Simple clamp-on operation with power quality features
- Accurate TRMS amps or volts (AC or AC + DC)
- Accurate DC measurements (A or V)
- Recording modes stores: min, max, avg, max & peak
- Direct reading of %THD, %DF, CF and Peak (+ or -)
- Display individual harmonic orders DC to 25th in A or V
- Smooth function for stable readings
- Auto or manual ranging
- Peak measurements (AC or DC)(+ or -)
- K factor for proper transformer sizing
- Percent ripple for DC
- Transformer Harmonic Derating Factor (THDF)
- Frequency measurements in A or V
- Auto-off feature
- 31-segment analog bargraph
- Low battery indicator
- Battery voltage level check
- Rugged Lexan® construction
- Audible control/warning indications
- Built to EN 61010, 600V, Cat. III safety standards
- Triple display

## Applications

- True RMS and DC voltage and current measurements
- Determine levels of voltage and current distortion
- Identify harmonic distortion patterns and sources of voltage harmonics
- Locate sources of harmonic current
- Measure individual harmonics
- Identify nonlinear loads
- Prevent overheating in electrical distribution equipment, false circuit breaker tripping
- Power factor correction capacitor failure
- Locate overloaded neutral wires
- Derate transformers and generators to prevent overheating
- Measure crest factor to evaluate harmonic content and determine CBEMA derating factor

## Specifications

ELECTRICAL	
<b>AC CURRENT (TRMS)</b>	
Measurement Range	0.30 to 1000.0Arms; ±0.5 to ±1500.0A peak
Accuracy	0.30 to 59.99A: 2% of Reading ± 20cts; 60 to 1500A peak: 2% of Reading ± 2cts
Crest Factor	>5.0 below 300A
Frequency Range	0.5Hz to 5kHz
<b>AC VOLTAGE (TRMS)</b>	
Range	0.05 to 600Vrms; ±0.05 to ±1500V peak
Accuracy	0.05 to 59.99V: 1% of Reading ± 10cts; 60 to 1500V peak: 1% of Reading ± 2cts
Input Impedance	1MΩ
Frequency Range	0.5Hz to 5kHz
<b>DC CURRENT</b>	
Operating Range	±0.10 to 1500.0A
Measurement Range	±0.30 ± 1500.0A
Basic Accuracy	0.30 to 59.99A: 2% of Reading ± 20cts; 60 to 1500A: 2% of Reading ± 2cts
<b>DC VOLTAGE</b>	
Range	±0.05 to ±600V
Accuracy	0.05 to 59.99V: 1% of Reading ± 10cts; 60 to 1500V peak: 1% of Reading ± 2cts
Input Impedance	1MΩ
<b>TOTAL HARMONIC DISTORTION (%THD)</b>	
Range	0.2% to 1000%
Resolution	0.1%
Accuracy	5% of Reading ± 2cts
Frequency Range	Fundamental 40Hz to 70Hz
Display	Digital: %THD and True RMS (A or V) Bargraph: True RMS (A or V)
<b>DISTORTION FACTOR (%DF)</b>	
Range	0.2% to 100%
Resolution	0.1%
Minimum Input	10V or 10A
Basic Accuracy	5% of Reading ± 2cts
Frequency Range	Fundamental 40Hz to 70Hz
Display	Digital: %DF and True RMS (A or V) Bargraph: True RMS (A or V)

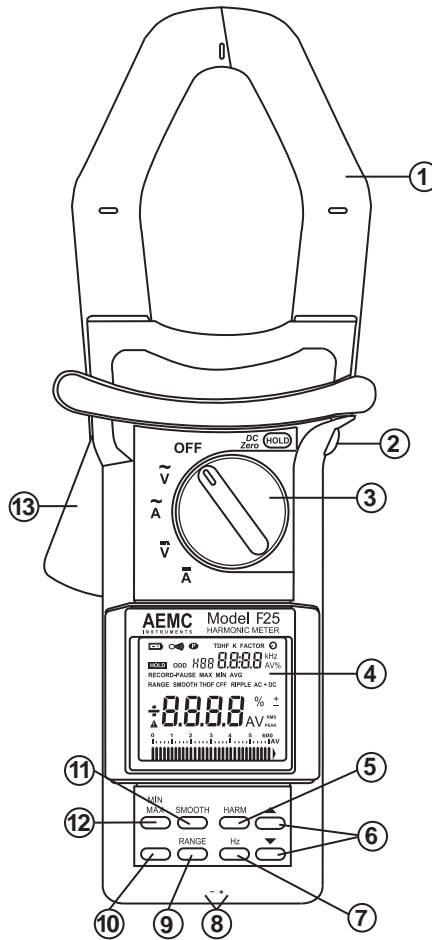
# Specifications

INDIVIDUAL HARMONICS	
Range	0.2% to 300% (%THD or %DF)
Rank	Hdc (DC component), H01 to H25
Resolution	0.1%
Accuracy	Distortion >10% & rank <H13: 5% of Reading $\pm$ 2cts Distortion >10% & rank >H13: 10% of Reading $\pm$ 2cts Distortion <10% & rank <H13: 10% of Reading $\pm$ 2cts Distortion <10% & rank >H13: 15% of Reading $\pm$ 2cts
Frequency Range	Fundamental 40Hz to 70Hz, 25th order
Display	Digital: %THD and Individual; Harmonic value (A or V); Bargraph: True RMS (A or V)
TRANSFORMER HARMONIC DERATING FACTOR (CBEMA THDF)	
Range	0.10 to 1.00
Resolution	0.01
Basic Accuracy	2% of Reading $\pm$ 2cts
Display	Digital: THDF; Bargraph: Arms
TRANSFORMER K-FACTOR RATING	
Range	1 to 30
Resolution	0.1
Accuracy	1 to 9.9%: 5% of Reading $\pm$ 2cts; 10 to 30: 10% of Reading $\pm$ 2cts
Display	Digital: %THD or K Factor; Bargraph: Arms
RIPPLE	
Range	1% to 999.9%
Resolution	0.1%
Basic Accuracy	2 to 99.9%: 5% of Reading $\pm$ 10cts; 100 to 999.9%: 5% of Reading $\pm$ 2cts
Display	Digital: % Ripple; Bargraph: DC (A or V)
CREST FACTOR (CF)	
Range	1.00 to 10.00
Resolution	0.01
Minimum Input	>5V or >5A
Accuracy	(40 to 70Hz): 1.00 to 3.50: 2% $\pm$ 2cts 3.51 to 5.99: 5% $\pm$ 2cts 6.0 to 10.0: 10% $\pm$ 2cts
Display	Digital: CF Bargraph: TRMS (A or V)
FREQUENCY (HZ)	
Range	0.5 to 20,000Hz
Minimum Input	2A or 2V
Accuracy	0.5Hz to 999.9Hz: 0.1% of Reading $\pm$ 2cts 1000Hz to 9999Hz: 0.2% of Reading $\pm$ 2cts 10kHz to 20kHz: 0.5% of Reading $\pm$ 2cts
Display	Digital: Hz; Bargraph: DC (A or V), TRMS (A or V)

Model F25 Hard Carrying Case



# Construction



- |                                 |                     |                                   |
|---------------------------------|---------------------|-----------------------------------|
| 1. Jaw assembly (2.13", 54mm)   | 6. Hdc, H 01 – H 25 | 11. Min/Max                       |
| 2. Hold/data hold               | 7. Hz               | 12. Smooth                        |
| 3. Rotary range selector switch | 8. Input            | 13. Lever for jaw opening/closing |
| 4. LCD Display                  | 9. Range            |                                   |
| 5. Harm                         | 10. Shift           |                                   |

## ORDERING INFORMATION

## CATALOG NO.

**Clamp-on Harmonic Power Meter Model F25 (600VAc/Dc and 1500Aac/Dc) ..... Cat. #2111.39**

Model F25 is supplied with a set of test leads, 9V battery, two test probes, two grip probes, insulated banana jack to BNC connector, hard carrying case and user manual