

## MODELS 400 & 410

- Measures AC/DC current to 1000 A
- True RMS AC Measurements
- True power, apparent power and power factor (Model 410 only)
- 4000-count digital display with 40 segment analog bar graph
- Frequency counting
- Auto/Manual ranging
- Low battery indicator
- Jaw opening 2 1/4"
- Minimum, Maximum and Relative measurement modes
- Meets IEC-1010 Category III 600V safety standards
- RS-232C Port and Software to Connect to a PC (Model 410 only)
- Optically Isolated

designed primarily for the measuring of high currents found in automotive test, appliance troubleshooting, and industrial applications. Up to 1000 amperes AC or DC can be measured using convenient, clamp-on current

### 3<sup>3</sup>/<sub>4</sub>-Digit True RMS AC/DC Clamp-on Digital Multimeter

#### Model 400 3<sup>3</sup>/<sub>4</sub>-Digit AC/DC Clamp-on Meter

#### Model 410 3<sup>3</sup>/<sub>4</sub>-Digit AC/DC Clamp-on Meter with Power Measurement

The TEGAM Model 400 and Model 410 AC/DC Clamp Meters are accurate, cost-effective instruments



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## 3<sup>3</sup>/<sub>4</sub>-Digit True RMS AC/DC Clamp-on Digital Multimeter

sensing that requires no electrical contact with live circuits. The current clamp jaws open to 2.25 inches (57 mm) to accommodate a wide range of cable diameters. Both meters meet IEC-1010 Category III 600 V safety standards.

Beside high current measurement, the Model 400 and Model 410 AC/DC Clamp Meters can be used in more traditional DMM applications to measure AC and DC voltage, true RMS voltage, resistance, and frequency. In addition, these meters will also perform continuity testing, and provide an audible indication when circuit resistance is less than 40  $\Omega$ . Standard test leads and front-panel banana jacks are used for voltage, resistance and frequency measurements. The Model 410 provides all the capabilities of the

Model 400, and adds the ability to measure true power, apparent power, power factor and optically isolated RS-232C Port. In addition, the model 400 and Model 410 AC Clamp Meters include advanced features such as automatic and manual range selection, one-touch zero adjustment for DC Current measurement, and a variety of display hold modes to retain readings, including maximums and minimums, when it is convenient or impractical to view the display during actual measurement.

### Display and Controls

The display of the Model 400 and Model 410 AC/DC Clamp Meters includes a 3-3/4 digit readout (4000 counts) that updates at 2 readings per second. A 40-segment bar graph display located beneath the digital display,

provides indication of upward/downward readings and rapidly changing signals, with an update rate of 20 times per second.

Controls on the Model 400 and Model 410 consist of a single, easy-to-operate range/function select knob, and four pushbutton switches for selection of hold mode, range and relative mode. Relative mode provides readings referenced to a user-selected value other than zero. The meter can be held, and most controls operated, using one hand. Palm-size dimensions and a light weight of less than one pound facilitate portable operation. Power is supplied by two AAA cells. Battery life is conserved through an automatic power-off feature that turns off the meter after 30 minutes idle time. The display includes a low battery indicator.

## Specifications

### DC Voltage

Range:	0.4 V, 4 V, 40 V, 400 V, 600 V
Accuracy:	$\pm(0.5\% \text{ reading} + 3 \text{ digits})$
Input Impedance:	$\geq 100 \text{ M}\Omega$ on 0.4 V range; $\geq 10 \text{ M}\Omega$ on 4 V through 600 V ranges.
Maximum Input:	1000 Vdc; 1000 Vac peak.
Best resolution:	100 $\mu\text{V}$ .

### AC Voltage

Range:	4 V, 40 V, 400 V, 600 V
Accuracy:	$\pm(1.5\% \text{ reading} + 5 \text{ digits})$ , 50 Hz to 500 Hz.
Input Impedance:	10 $\text{M}\Omega$ .
Maximum Input:	750 Vdc; 750 Vac peak.
Best resolution:	1 mV.

## Specifications (continued)

### DC/AC Current

Range:	40 A and 1000 A
Accuracy:	0 A to 100 A: $\pm(2.0\% \text{ reading} + 8 \text{ digits})$ 100 A to 1000 A: $\pm(2.0\% \text{ reading} + 5 \text{ digits})$
Maximum Input:	1000 A dc or 1000 A ac.
Best resolution:	0.1 A

### Resistance

Range:	400 $\Omega$ , 4 k $\Omega$ , 40 k $\Omega$ , 400 k $\Omega$ , 4 M $\Omega$ , 40 M $\Omega$
Accuracy:	$\pm(1.5\% \text{ reading} + 5 \text{ digits})$
Maximum Input Volts:	600 V rms.
Best resolution:	0.1 $\Omega$ .
Continuity buzzer:	Sounds at $<40 \Omega$

### Frequency

Range:	100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz.
Accuracy:	$\pm(0.2\% \text{ reading} + 2 \text{ digits})$ .
Maximum Input Volts:	250Vdc or 250 V rms.
Best resolution:	0.01 Hz.

### True Power (Model 410 only)

Range:	600 W.
Accuracy:	$\pm(2\% \text{ reading} + 2 \text{ digits})$ .
Maximum Input:	1000 V or 1000 A, dc or ac rms.
Best resolution:	1 W.

### Apparent Power (Model 410 only)

Range:	600 VA
Accuracy:	$\pm(2\% \text{ reading} + 2 \text{ digits})$ .
Maximum Input:	1000 V or 1000 A, dc or ac rms.
Best resolution:	1 VA.

### Power Factor (Model 410 only)

Range:	0.3 to 1.0
Accuracy:	$\pm(2\% \text{ reading} + 2 \text{ digits})$ .
Maximum Input:	1000 V or 1000 A, dc or ac rms.
Best resolution:	0.01.

# MODELS 400 & 410

## Specifications (continued)

### General

Measurement Method:	Dual integration
Display:	3-3/4 digit LCD; 4000 counts maximum. Display includes 40-segment bar graph display.
Continuity buzzer:	Sounds when resistance is $<40 \Omega$ .
Range Select:	Auto or manual.
Polarity:	positive (no display sign) or negative (– sign).
Sampling Rate:	Digital display: 2/second. Bar graph: 20/second.
Jaw opening:	2.25 inches (57 mm)
Power Supply:	1.5 V AAA battery x 2.
Low Battery Indicator:	“BAT” light at $2.4 \text{ V} \pm 0.3 \text{ V}$ .
Auto Power Off:	After 30 minutes.
Operating Temperature:	$0^{\circ}$ to $40^{\circ}\text{C}$ at $\leq 80\%$ RH, non-condensing.
Temperature Coefficient:	$(0^{\circ}\text{C} \sim 18^{\circ}\text{C})$ , $(28^{\circ}\text{C} \sim 40^{\circ}\text{C})$ 0.2 x specified accuracy/ $^{\circ}\text{C}$ .
Storage Temperature:	$0^{\circ}$ to $60^{\circ}\text{C}$ at $\leq 80\%$ RH, non-condensing.
Dimensions:	9.65" H (245 mm) 3.39" W (86 mm) 1.77" D (45 mm)
Weight:	15.23 oz (432 gm)
Standard Accessories:	Carrying case, manual, test leads.