



## ACD-41PQ 1000A Power Quality Clamp-on with THD Measurement

The ACD-41PQ provides a simple and effective way to verify if the electrical system is affected by harmonics. Enhanced troubleshooting capabilities with the Power analysis functions. Increase your ability analyze the data with an optional PC interface kit.

- TRMS sensing
- Measurements: Total Harmonics Distortion THD, AC/DC Voltage up to 600V, AC Current up to 1000A, Resistance, Frequency, Temperature
- ACD-41PQ also measures Active (W), Reactive (VAR) and Apparent (VA) Power with dual-display Power Factor readout
- AutoTect™ - Auto Selection of AC Volts, DC Volts or AC Amps
- Total Harmonic Distortion to 51st harmonic
- Optional PC interface capability
- Audible continuity
- Auto power off
- Automatic polarity
- Low battery indication
- Peak hold
- Data hold
- Large, easy to read LCD display with backlight
- Accommodates conductors up to 1.77" (45mm) in diameter
- Carrying case, test leads, batteries (installed), thermocouple and manual included
- Voltage overload protection for all functions up to 600V AC/DC

### No hassle warranty

*No waiting.*

*No shipping charges.*



Our commitment to high-quality products and customer service is demonstrated by our industry exclusive "No Hassle" warranty. In the unlikely event that an Amprobe Test Tool requires warranty service, any of our local dealers are authorized to replace it, on the spot.

(note: \$500 MSLP limit)



# ACD-41PQ 1000A Power Quality Clamp-on with THD Measurement

# Data Sheet

## Specifications (valid for 23 °C ± 5 °C, for less than 70 % relative humidity).

|                                  |  |                      |
|----------------------------------|--|----------------------|
| <b>Display</b>                   |  |                      |
| Voltage functions                | 6000 counts LCD display(s)   |                      |
| Power, Ohm & Hz functions        | 9999 counts LCD display(s)   |                      |
| ACA clamp-on function            | 4000 counts LCD display(s)   |                      |
| Update Rate                      | Power function   | 1 per second nominal |
|                                  | Voltage, ACA clamp-on, Ohm, Hz & Temperature functions   | 4 per second nominal |
| Polarity                         | Automatic  |                      |
| Operating Temperature            | 0°C to 40°C; < 80% RH @ < 31°C; decreasing linearly to 50% RH @ 40°C                             |                      |
| Altitude                         | Indoor operation, below 2000m.   |                      |
| Storage Temperature              | -20°C to 60°C, < 80% R.H. (with battery removed)   |                      |
| Temperature Coefficient          | nominal 0.15 x (specified accuracy)/ °C @ (0°C -18°C or 28°C -40°C)                              |                      |
| Sensing                          | True RMS sensing   |                      |
| Power Supply                     | standard 1.5V AAA Size (NEDA 24A or IEC LR03) battery X 2  |                      |
| Low Battery                      | Below approx. 2.4V   |                      |
| Power Consumption                | Voltage, ACA, Hz & Power functions   | 10mA typical         |
|                                  | Ohm & Temperature functions  | 4mA typical          |
|                                  | APO Timing   | Idle for 17 minutes  |
|                                  | APO Consumption  | 10µA typical         |
| Jaw opening & Conductor diameter | 45mm max   |                      |
| Dimension                        | 224 x 78mm x 40mm (8.9 x 3.1 x 1.6 in.)  |                      |
| Weight                           | 224 gm approx  |                      |
| Safety LVD                       | Meets EN60101-1:2001; EN61010-2-032(2002), Category III- 600 Volts ac & dc; pollution degree : 2 |                      |
| CE EMC                           | EN 61326-1   |                      |

## Electrical Specifications

|                         |  |                   |
|-------------------------|--|-------------------|
| <b>AC Voltage</b>       |  |                   |
| Voltage                 | Range  | Accuracy          |
| 600.0V                  | 50Hz to 60Hz                                     | ± (0.5% rdg + 5d) |
|                         | 45 to 50Hz, 60 to 500Hz                          | ± (1.5% rdg + 5d) |
|                         | 500Hz to 3.1kHz                                  | ± (2.5% rdg + 5d) |
| CMRR                    | > 60 dB @ DC to 60 Hz, Rs = 1 kΩ                 |                   |
| Input Impedance         | 2 MΩ, 30 pF nominal                              |                   |
| Crest Factor            | < 2.3 : 1 at full scale; < 4.6 : 1 at half scale |                   |
| ACV AutoTech™ Threshold | 30VAC (40 to 500 Hz) nominal                     |                   |
| <b>DC Voltage</b>       |  |                   |
| Range                   | 600.0 V  |                   |
| Accuracy                | ± (0.5% rdg + 5d)                                |                   |
| NMRR                    | > 50 dB @ 50/60 Hz                               |                   |
| CMRR                    | >120 dB @ DC, 50/60 Hz, Rs = 1 kΩ                |                   |
| Input Impedance         | 2 MΩ, 30 pF nominal                              |                   |
| DCV AutoTech™ Threshold | 2.4VDC nominal                                   |                   |

## PEAK-rms HOLD (ACA & ACV only)

|          |                 |
|----------|-----------------|
| Response | 65ms to 90% rdg |
|----------|-----------------|

# ACD-41PQ 1000A Power Quality Clamp-on with THD Measurement

# Data Sheet

## Electrical Specifications (continued)

|                      |                         |
|----------------------|-------------------------|
| <b>Ohms</b>          |                         |
| Range                | 000.0 to 999.9 $\Omega$ |
| Accuracy             | $\pm$ (1.0% rdg + 6d)   |
| Open Circuit Voltage | 0.4VDC typical          |

|                                  |                                      |
|----------------------------------|--------------------------------------|
| <b>Audible Continuity Tester</b> |                                      |
| Audible threshold                | between 10 $\Omega$ and 300 $\Omega$ |
| Response time                    | 250 $\mu$ s                          |

|                                |                                   |  |
|--------------------------------|-----------------------------------|--|
| <b>ACA Current (Clamp-on)</b>  |                                   |  |
| <b>Range</b>                   | <b>Frequency</b>                  | <b>Accuracy <sup>1) 2)</sup></b>                 |
| 40.00A, 400.0A, 1000A          | 50 Hz / 60 Hz                     | $\pm$ (0.5% rdg + 5d)                            |
| 40.00A, 400.0A                 | 45 to 50 Hz, 60 to 500 Hz         | $\pm$ (2.0% rdg + 5d)                            |
| 1000A                          | 45 to 50 Hz, 60 to 500 Hz         | $\pm$ (2.5% rdg + 5d)                            |
| 40.00A, 400.0A                 | 500 Hz to 3.1 kHz                 | $\pm$ (2.5% rdg + 5d)                            |
| 1000A                          | 500 Hz to 3.1 kHz                 | $\pm$ (3.0% rdg + 5d)                            |
| <b>ACA AutoTech™ Threshold</b> | 1A AC (40Hz ~ 500Hz only) nominal |  |
| <b>Crest Factor</b>            | 40.00A & 400.0A:                  | < 2.5 : 1 at full scale; < 5.0 : 1 at half scale |
|                                | 1000A:                            | < 1.4 : 1 at full scale; < 2.8 : 1 at half scale |

- 1) Induced error from adjacent current-carrying conductor: < 0.06A/A
- 2) Specified accuracy is from 1% rdg to 100% rdg of range and for measurements made at the jaw center. When the conductor is not positioned at the jaw center, position errors introduced are:  
 Add + 1% rdg to specified accuracy for measurements made WITHIN jaw marking lines (away from jaw opening)  
 Add + 4% rdg to specified accuracy for measurements made BEYOND jaw marking lines (toward jaws opening)

|   |                         |
|---|-------------------------|
| <b>Temperature</b>                                |                         |
| <b>Range</b>                                      | <b>Accuracy</b>         |
| -50°C to -20°C                                    | $\pm$ (2.0% rdg + 6°C)  |
| -20°C to 300°C                                    | $\pm$ (2.0% rdg + 3°C)  |
| -58°F to -4°F                                     | $\pm$ (2.0% rdg + 12°F) |
| -4°F to 572°F                                     | $\pm$ (2.0% rdg + 6°F)  |
| Type-K thermocouple range & accuracy not included |                         |

|                  |                               |
|------------------|-------------------------------|
| <b>Frequency</b> |                               |
| <b>Range</b>     | 5.00 Hz to 500.0 Hz           |
| <b>Accuracy</b>  | $\pm$ (0.5% rdg + 4d)         |
| <b>Range</b>     | <b>Sensitivity (Sine RMS)</b> |
| 40A              | > 4A                          |
| 400A             | > 40A                         |
| 1000A            | > 400A                        |
| 600V             | > 30V                         |

|   |   |
|---|---|
| <b>THD% rdg-F (Total Harmonic RMS / Fundamental RMS) x 100%</b> |   |
| <b>Range:</b>   | 0.0% to 999.9% (Range for Dual Display mode: 0% to 99%)                                   |
| <b>Harmonic</b>   | <b>Accuracy (Specified accuracy @ ACA fundamental &gt; 5A ; ACV fundamental &gt; 50V)</b> |
| Fundamental   | $\pm$ (1.5% rdg + 6d)   |
| 2nd ~ 3rd   | $\pm$ (5.0% rdg + 6d)   |
| 4th ~ 16th  | $\pm$ (2.5% rdg + 6d)   |
| 17th ~ 46th   | $\pm$ (3.0% rdg + 6d)   |
| 47th ~ 51st   | $\pm$ (4.5% rdg + 6d)   |

# ACD-41PQ 1000A Power Quality Clamp-on with THD Measurement

# Data Sheet

## Electrical Specifications (continued)

### Total Power Factor (PF)

| Range        | Accuracy (Specified accuracy @ ACA fundamental > 2A ; ACV fundamental > 50V) |                       |
|--------------|--|-----------------------|
| 0.10 to 0.99 | F to 21st harmonic   | 22nd to 51st harmonic |
| 0.10 to 0.99 | ± 3d   | ± 5d                  |

### Power (VA)

| Range              | Accuracy <sup>1) 2)</sup> |                   |                   |
|--------------------|---------------------------|-------------------|-------------------|
| 0 to 600.0 kVA     | F to 10th                 | 11th to 46th      | 47th to 51st      |
| @ PF = 0.99 to 0.1 | ± (2.0% rdg + 6d)         | ± (3.5% rdg + 6d) | ± (5.5% rdg + 6d) |

### Power (kW and kVAR)

| Range                | Accuracy <sup>1) 3)</sup> |                   |                   |                  |
|----------------------|---------------------------|-------------------|-------------------|------------------|
| 0 to 600.0 kW / kVAR | F to 10th                 | 11th to 25th      | 26th to 46th      | 47th to 51st     |
| @ PF = 0.99 to 0.70  | ± (2.0% rdg + 6d)         | ± (3.5% rdg + 6d) | ± (4.5% rdg + 6d) | ± (10% rdg + 6d) |
| @ PF = 0.70 to 0.50  | ± (3.0% rdg + 6d)         | ± (3.5% rdg + 6d) | ± (4.5% rdg + 6d) | ± (10% rdg + 6d) |
| @ PF = 0.50 to 0.30  | ± (4.5% rdg + 6d)         | ± (4.5% rdg + 6d) | ± (4.5% rdg + 6d) | ± (10% rdg + 6d) |
| @ PF = 0.30 to 0.20  | ± (10% rdg + 6d)          | ± (10% rdg + 6d)  | ± (10% rdg + 6d)  | ± (15% rdg + 6d) |

<sup>1)</sup> Specified accuracy is for ACA clamp measurement at the center of jaws. When the conductor is not positioned at the jaw center, position errors introduced are: Add 1% rdg to specified accuracy for ACA measurements made WITHIN jaw marking lines (away from jaw opening)

Accuracy is not specified for ACA measurement made BEYOND jaw marking lines (toward jaws opening)

<sup>2)</sup> Add 1% rdg to specified accuracy @ ACA fundamental < 5A or ACV fundamental < 90V.

Accuracy is not specified @ ACA fundamental < 1A or ACV fundamental < 30V

<sup>3)</sup> Add 1% rdg to specified accuracy @ ACA fundamental < 5A or ACV fundamental < 90V.

Accuracy is not specified @ ACA fundamental < 2A or ACV fundamental < 50V

### OPTIONAL ACCESSORIES

PC Interface kit (PC connection cable with software)

### PART NUMBER

RS-232 KIT2

### Amprobe® Test Tools

website: [www.Amprobe.com](http://www.Amprobe.com)

email: [info@amprobe.com](mailto:info@amprobe.com)

Everett, WA 98203

Tel: 877-AMPROBE

### Amprobe® Test Tools Europe

Amprobe Test Tools Europe

Beha-Amprobe GmbH

In den Engematten 14

79286 Glottertal, Germany

Tel.: +49 (0) 7684 8009 - 0