AMPROBE®

Data Sheet

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**

CAT III 600V c UL US N10140 CE

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)

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Data Sheet

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

Display		
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

AC Voltage		
Voltage	Range	Accuracy
600.0V	50Hz to 60Hz 45 to 50Hz, 60 to 500Hz 500Hz to 3.1kHz	± (0.5% rdg + 5d) ± (1.5% rdg + 5d) ± (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	
DC Voltage		
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)

Ohms		
Range	000.0 to 999.9 Ω	
Accuracy	± (1.0% rdg + 6d)	
Open Circuit Voltage	0.4VDC typical	
Audible Continuity Tester		
Audible threshold	between 10Ω and 300Ω	
Response time	250µs	

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

Temperature	
Range	**Accuracy**
-50°C to -20°C	± (2.0% rdg + 6°C)
-20°C to 300°C	± (2.0% rdg + 3°C)
-58°F to -4°F	± (2.0% rdg + 12°F)
-4°F to 572°F	± (2.0% rdg + 6°F)
Type-K thermocouple range & accuracy not included	

Frequency	
Range	5.00 Hz to 500.0 Hz
Accuracy	± (0.5% rdg +4d
Range	**Sensitivity (Sine RMS)**
40A	> 4A
400A	> 40A
1000A	> 400A
600V	> 30V

THD% rdg-F (Total Harmonic RMS / Fundamental RMS) x 100%	
Range:	0.0% to 999.9% (Range for Dual Display mode: 0% to 99%)
Harmonic	**Accuracy** (Specified accuracy @ ACA fundamental > 5A ; ACV fundamental > 50V)
Fundamental	± (1.5% rdg + 6d)
2nd ~ 3rd	± (5.0% rdg + 6d)
4th ~ 16th	± (2.5% rdg + 6d)
17th ~ 46th	± (3.0% rdg + 6d)
47th ~ 51st	± (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 [1) 2)]		
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 [1) 3)]			
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)

1) 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)

2) Add 1% rdg to specified accuracy @ ACA fundamental < 5A or ACV fundamental < 90V.
Accuracy is not specified @ ACA fundamental < 1A or ACV fundamental < 30V

3) 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	PART NUMBER
PC Interface kit (PC connection cable with software)	RS-232 KIT2

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