

# AMPROBE®

## DM-4 Power Quality Recorder



The DM-4 addresses the needs of the most demanding Power Quality professionals. The device incorporates full set of measuring features crucial for complete Power Quality analysis. An innovative Remote User Interface (PDA) allows safe, easy and convenient operation of the device remotely. The Remote User Interface (PDA) is also used for data viewing, analysis and transfer. Independently, the DM-4 can be used directly with the PC type of computer. Since the DM-4 does not have any control buttons on its enclosure, it is protected against setup changes by unauthorized persons while the device is recording.



**Rugged Remote User  
Interface with Memory**

- True RMS (TRMS)
- Extremely easy to setup and operate
- Comes as a complete kit: carrying case, CTs, test leads, PC software & download cable, Remote User Interface (PDA) w/ protective hard case and interface cable are included with product
- Rugged Remote User Interface with memory for easy data downloads in the field and increased safety
- Works with single (two and three wire) and three phase systems (Y and Delta)
- Detects and records voltage spikes 100 nS or slower
- Detects and records voltage Sags and Surges
- Built in scope displays waveforms
- Records all parameters (single or three phase) simultaneously
- Manual and programmable recording start
- Selectable fundamental frequency of 50 or 60 Hz
- Special data compression system and user selectable rates allow recording from several hours to several years
- Download capabilities with PC (Windows compatible software) or PDA (Palm OS)
- Line or battery powered
- Safety: CATIII, 600V



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## DM-4 Power Quality Recorder



FEATURES	DM-4	ACCURACY
Supplied Current Transducer	1000A Standard CT, 2" internal diameter CT	Input accuracy: +/- (2% Rdg + 2 LSD)
AC Current	Standard CT (DM-CT-HTA): 5 - 1000A Or optional Small size CT (DM-CT-100): 1A - 100A For more CT options visit <a href="http://www.Amprobe.com">www.Amprobe.com</a>	
AC Voltage including Sags and Surges	From 20V - to 1000V	+/- (3% Rdg + 2 LSD)
Voltage Transients	200-6000Vpp Duration > 100nS	±10% Rdg
Harmonics (Voltage and Current)	THD, DC and individual up to 51th	+/- (5% Rdg + 2 LSD) @ DC to 25 harmonics**
Power	Working (W), Reactive (VAR) and Apparent (VA)	+/- (3.0% Rdg + 2 LSD)
Energy	Working (kWh), Reactive (VARh) and Apparent (VAh)	+/- (3.0% Rdg + 2 LSD)
Peak Demand	KW	+/- (3.0% Rdg + 2 LSD)
Power Factor (True and Displacement)	0.00 - 1.00	+/- 3%
Phase sequence	1 - 2 - 3	
Selectable Fundamental Frequencies	50/60 Hz	
Available Recording Time	Several hours to several years depending on setup	

OPTIONAL ACCESSORIES	PART NUMBER
100A Compact Clamp (0.5A to 100A)	DM-CT-100
USB-RS-232 Adapter	RS-USB

REPLACEMENT PARTS (supplied with product)	PART NUMBER
1000A Clamp	DM-CT-HTA
Remote user interface (PDA) with connection cables	Recommended Tungsten E2 Ordered through PALM retailers, visit <a href="http://www.palm.com">www.palm.com</a> for details
Remote user interface protective case	DM-4CASE
Soft Carrying case	HW1254A
External power supply 12VDC	DMT-EXTPS
Test leads and alligator clips (set of 4)	KITENERGY3
PDA/DM-4 Interface Cable	RS-PDA
RS-232 Computer Cable	RS-232
PC Windows Software	<a href="http://www.amprobe.com">www.amprobe.com</a>
Palm OS Software	<a href="http://www.amprobe.com">www.amprobe.com</a>
Instruction Manual	<a href="http://www.amprobe.com">www.amprobe.com</a>



Power Measurement (cos $\theta$ : 0.5c – 0.5i)		
Value	Ranges	Accuracy
Active Power	0 – 999.9W 1KW – 999.9KW 1MW – 999.9MW	±(3%+2digit)
Reactive Power	0 – 999.9VAR 1KVAR – 999.9KVAR 1MVAR – 999.9MVAR	
Apparent Power	0 – 999.9VA 1KVA – 999.9KVA 1MVA – 999.9MVA	
Active Energy	0 – 999.9Wh 1KWh – 999.9KWh 1MWh – 999.9MWh	
Reactive Energy	0 – 999.9VARh 1KVARh – 999.9KVARh 1MVARh – 999.9MVARh	



Power Measurement (cos $\phi$ : 0.5c – 0.5i)		
Value	Ranges	Accuracy
Active Power	0 – 999.9W 1KW – 999.9KW 1MW – 999.9MW	±(3%+2digit)
Reactive Power	0 – 999.9VAR 1KVAR – 999.9KVAR 1MVAR – 999.9MVAR	
Apparent Power	0 – 999.9VA 1KVA – 999.9KVA 1MVA – 999.9MVA	
Active Energy	0 – 999.9Wh 1KWh – 999.9KWh 1MWh – 999.9MWh	
Reactive Energy	0 – 999.9VARh 1KVARh – 999.9KVARh 1MVARh – 999.9MVARh	

Cos $\Theta$ Measurement		
Cos $\Theta$	Resolution	Accuracy (expressed in degrees)
0.20	0.01	3°
0.50		4°
0.80		5°

Measurement of Harmonics		
Voltage		
Range	Accuracy	Resolution
DC – 25h	$\pm(5.0\%+2\text{digit})$	0.1V
26h – 33h	$\pm(10.0\%+2\text{digit})$	
34h – 51h	$\pm(15.0\%+2\text{digit})$	
The voltage harmonics will be null under the following threshold:		
<ul style="list-style-type: none"> <li>- DC: if &lt;1V or &lt;2% of 1<sup>st</sup> harmonic</li> <li>- 1<sup>st</sup> harmonic: if &lt;2V</li> <li>- 2<sup>nd</sup> - 51<sup>st</sup>: if &lt;1V or &lt;2% 1<sup>st</sup> harmonic</li> </ul>		

Current		
Range	Accuracy	Resolution
DC – 25h	$\pm(5.0\%+2\text{digit})$	0.1A
26h – 33h	$\pm(10.0\%+2\text{digit})$	
34h – 51h	$\pm(15.0\%+2\text{digit})$	
The voltage harmonics will be null under the following threshold:		
<ul style="list-style-type: none"> <li>- DC: if &lt;2% of 1<sup>st</sup> harmonic or &lt; 0,2% of clamp full scale</li> <li>- 1<sup>st</sup> harmonic: if &lt; 0,2% of clamp full scale</li> <li>- 2<sup>nd</sup> - 51<sup>st</sup>: if &lt;2% 1<sup>st</sup> harmonic or &lt; 0,2% of clamp full scale</li> </ul>		

## General Characteristics

### 13.1.7 Temperature Drift

Temperature drift: **0.1 x accuracy/K**

### 13.1.8 Safety

Insulation: **Class 2**

Pollution: **2**

Over-voltage category: **CAT III 600V~ (Phase-phase)**  
**CAT II 1000V~ (Phase-Phase)**

### Mechanical Features

Dimensions: **8.9" (L) x 4.1" (W) x 2.1" (H)**  
**225(L) x 104(W) x 54(H) mm**

Weight: **3.3 Lb (1.5kg)**

Internal Power Supply: **8 batteries 1.5V series AA**

Battery Life: **3-hours**

External Power Supply: **Use only Amprobe power supply Adapter code DM4EXTPS**

Sampling Speed: **83.33 usec at 60Hz.**

No. of Samples Per Period: **128**

### Clamp

Opening: **2.15" (53 mm)**

Maximum Diameter of The Cable: **2.00" (50 mm)**

## ENVIRONMENT

### Operating conditions

Reference Temperature: **73°F ± 2°F (23°C ± 1°C)**

Operating Temperature: **32°F to 122°F (0°C to 50 °C)**

Relative Humidity: **<70%**

Storage Temperature: **14°F to 140°F (-10°C to 60 °C)**

Storage Humidity: **<80%**