

# 3 Phase Power Meter / Data Logger Kit

## Model LDW-6092K

The LDW-6092K is a complete hand held 3-phase power meter kit, that supports data logging to SD memory card. The versatile meter measures a large number of power parameters for single phase or 3-phase systems. The meter has a multi-line LCD display showing all measured power parameters, and can be configured to record all its measurements to an SD memory card. The unit can record all parameters at time intervals ranging from 2 seconds to 2 hours, giving enough flexibility to capture short events or record data over a long period of time.

The meter measures the following parameters in either single phase or 3 phase:

- Voltage (10 to 600V AC)
- Current (individual per phase and total – 0.2A to 1200A AC)
- True Power (kW - individual per phase and total)
- Energy (kWh - individual per phase and total)
- Power Factor (individual and average)
- Apparent Power (KVA)
- Reactive Power (KVAR)
- Phase Angle



Measurements are true RMS and take into account the power factor.

The LDW-6092K also includes a full licence of the sophisticated graphing software *DPlot*, which makes it easy to open the data files saved by the unit and generate graphs of the measured parameters. This software is a general purpose graphing or analysis tool, so it can be used for other jobs as well.

The complete kit includes the meter, mains adaptor, 3 clamp-on current transformers (switchable range), 4 voltage leads with alligator clips, 2GB SD card, DPlot graphing software CD, and a soft carry case.

### Typical applications

- **Spot checking** all power parameters, including voltage, current, power, power factor, KVA
- Monitoring over a period of time for **peak demand** (by using the data logging function with a short time interval)
- Checking overall **energy usage** over a period of time (using the data logging function with a longer time interval)
- Recording **voltage dips and highs** from the incoming mains (but not short transients)
- **Energy saving** studies – to help identify what is using the most energy within a site
- On site **demonstrations** of energy saving systems and appliances – show the customer the actual energy savings on their own site!



## Specifications

Display	* LCD Size: 81.4 X 61 mm ( 3.2 X 2.4 inch ) * Dot Matrix LCD (320 X 240 pixels ) with back light	
Measurements	ACV, ACA, AC WATT ( True Power ) AC WATT( Apparent Power ) AC WATT( Reactive Power ) Power factor Phase angle Frequency	
Cable connections	1Phase/2Wire, 1Phase/3Wire, 3Phase/3Wire, 3Phase/4Wire	
Voltage ranges	10V AC to 600V AC, auto range.	
Current ranges	0.2A AC to 1200A AC, auto range/manual range.	
Safety standard	IEC1010 CAT III 600 V	
ACV input impedance	10 Megohms	
Current Clamp Frequency Response	40 Hz to 1 KHz	
AC frequency coverage	45 to 65 Hz.	
Overload protection	ACV	720V AC rms
	ACA	1300A AC with clamp probe CP-1200
Over Indicator	Shows " OL "	
Under Indicator	Shows " UR "	
Data Hold	Freezes the display reading	
Data Record	SD Card Recording of all measured parameters	
Sampling Time	Approx. 1 second	
Power ON/OFF	Manual OFF by push button	
Real time data logger	Real time data logger, saves the measured data into SD memory card along with date/time stamps. Format compatible with Microsoft Excel, and DPlot graphing software	
	Sampling time for data logger: 2 seconds to 7200 seconds, user selectable in 2 second increments.	
USB/RS232 Computer interface	RS232 computer serial interface: Connect the optional USB or RS232 cable plug, to receive measurements in real-time to a PC running optional real-time software package.	
Operating Temperature	0 to 50 °C (0 to 122 °F).	
Operating Humidity	Less than 80% R.H.	
Power Supply	DC 1.5V, AA ( UM-3 ) Battery X 8 PCs (Alkaline or heavy duty battery) for short term measurements AC to DC 9V mains adapter included	
Power Consumption	Meter: 300 mA DC / Clamp: 20mA DC	
Clamp max. conductor size	86 mm ( 3.4 inch ) Dia.	
Weight	Meter: 1049g ( includes batteries ) / Clamp: 522g	
Dimensions	Meter : 225 X 125 X 64 mm ( 8.86 X 4.92 X 2.52 inch )	
	Clamp : 210 X 64 X 33mm ( 8.3 X 2.5 X 1.3 inch )	
	Clamp jaw : 86 mm (3.4 inch)- outside	
Accessories Included	Instruction manual	1 piece
	Test Leads (LTL88-4AT)	1 Set (4 pieces)
Accessories Included	Alligator clips (LTL88-4AC)	1 Set (4 pieces)
	Clamp-on Current Transformer (LCP-1200)	3 pieces
Accessories Included	AC to DC 9V adapter	1 piece
	SD card ( 2GB )	1 piece
Accessories Included	DPlot Software CD	1 piece
	Carrying bag	1 piece
Optional Accessories	USB Cable , LUSB-01	
	RS232 cable, LUPCB-02  Data Acquisition software, LSW-U811-WIN	

## Electrical Specifications

### ACV

Range	Resolution	Accuracy
10.0V to 600.0V (Phase to neutral line)	0.1V	± (0.5%+0.5V)
10.0V to 600.0V (Phase to phase)		

### ACA

Range	Resolution	Accuracy
20A	0.001A/0.01A	± (0.5%+0.1A)
200A	0.01A/0.1A	± (0.5%+0.5A)
1200A	0.1A/1A	± (0.5%+5A)

### Power factor and $\Phi$ (Phase angle)

Range	Resolution	Accuracy
-180° to 180°	0.1°	± 1° * ACOS(PF)
Measures PFH (long term power factor average). Measures PF <sub>Σ</sub> (average power factor across phases).		

### Frequency

Range	Resolution	Accuracy
45 to 65 Hz	0.1 Hz	0.1 Hz

### Real Power

Range	Resolution	Accuracy
0.000 to 9.999 KW	0.001 KW	± (1%+0.008 KW)
10.00 to 99.99 KW	0.01 KW	± (1%+0.08 KW)
100.0 to 999.9 KW	0.1 KW	± (1%+0.8 KW)
1.000 to 9.999 MW	0.001 MW	± (1%+0.008 MW)

### Apparent Power

Range	Resolution	Accuracy
0.000 to 9.999 KVA	0.001 KVA	± (1%+0.008 KVA)
10.00 to 99.99 KVA	0.01 KVA	± (1%+0.08 KVA)
100.0 to 999.9 KVA	0.1 KVA	± (1%+0.8 KVA)
1.000 to 9.999 MVA	0.001 MVA	± (1%+0.008 MVA)

Range	Resolution	Accuracy
0.000 to 9.999 KVAR	0.001 KVAR	± (1%+0.008 KVAR)
10.00 to 99.99 KVAR	0.01 KVAR	± (1%+0.08 KVAR)
100.0 to 999.9 KVAR	0.1 KVAR	± (1%+0.8 KVAR)
1.000 to 9.999 MVAR	0.001 MVAR	± (1%+0.008 MVAR)

### Watt Hour ( Real Energy ) : WH

Range	Resolution	Accuracy
0.000 to 9.999 KWH	0.001 KWH	± (2%+0.008 KWH)
10.00 to 99.99 KWH	0.01 KWH	± (2%+0.08 KWH)
100.0 to 999.9 KWH	0.1 KWH	± (2%+0.8 KWH)
1.000 to 9.999 MWH	0.001 MWH	± (2%+0.008 MWH)

### VA Hour ( Apparent Energy ) : SH

Range	Resolution	Accuracy
0.000 to 9.999 KVAH	0.001 KVAH	± (2%+0.008 KVAH)
10.00 to 99.99 KVAH	0.01 KVAH	± (2%+0.08 KVAH)
100.0 to 999.9 KVAH	0.1 KVAH	± (2%+0.8 KVAH)
1.000 to 9.999 MVAH	0.001 MVAH	± (2%+0.008 MVAH)

### VAR Hour ( Reactive Energy ) : QH

Range	Resolution	Accuracy
0.000 to 9.999 KVARH	0.001 KVARH	± (2%+0.008 KVARH)
10.00 to 99.99 KVARH	0.01 KVARH	± (2%+0.08 KVARH)
100.0 to 999.9 KVARH	0.1 KVARH	± (2%+0.8 KVARH)
1.000 to 9.999 MVARH	0.001 MVARH	± (2%+0.008 MVARH)