3 phase/4 wire, 3 phase/3 wire, RS232/USB
1 phase/2 wire, 1 phase/3 wire, SD card memory

3 PHASE POWER ANALYZER
with harmonic measurement

Model : DW-6195 ***TFT LCD*** ***ISO-9001, CE, IEC1010***





Clamp Probes, A1, A2, A3
CP-1201





Lutron

SD card real time data recorder with harmonic measurement

3 PHASE POWER ANALYZER

Model : DW-6195 TFT LCD

FEATURES

* Analysis for 3 phase multi-power system, 1P/2W, 1P/3W, 3P/3W, 3P/4W. Voltage and Current are the True RMS value.
* 3 current probes (CP-1201) are included, if change the current probes, the calibration procedures are not necessary.
* Current probe input signal/ranges with selection :
  Input signal (ACV) :
  200 mV/300 mV/500 mV/1 V/2 V/3 V.
  Ranges (ACA) :
  20 A/200 A/2000 A/30 A/300 A/ 3000 A 60A/600A/6000A
* Meter can cooperate the universal current probes.
* Complete set with 4 PCs Test Leads, 4 PCs Alligator clips, 3 PCs Clamp Probe (CP 1201), AC to DC 9V adapter, 2 G SD memory card and Carrying bag.
* Measurement :
  V (phase-to-phase), V (phase-to-ground)
  A (phase-to-ground)
  KW / KVA / KVAR / PF (phase)
  KW / KVA / KVAR / PF (system)
  KWH / KVAH / KVARH / PFH (system)
  Phase angle
* Harmonics display (1-50th order).
* Simultaneous display of Harmonics and Waveform.
* Display of Waveform with Peak Values.
* Analysis of Total Harmonic Distortion (THD).
* Graphic Phase diagram with 3-Phase system parameters.
* 3 phase Voltage or Current Unbalanced Ratio (VUR, AUR) and Unbalanced Factor.
* Calculated Unbalanced Current through Neutral Line (An)
* Capture Transient events (including Dip, Swell and Outage) with programmable threshold (%).
* Programmable CT ratio (1 to 600) and PT ratio (1 to 1000).
* ACV input impedance is 10 Mega ohms.
* Safety Standard : IEC 1010, CAT III 600V.
* Built-in clock and Calendar, real time data record with SD memory card , sampling time set from 2 to 7200 seconds. Just slot in the SD card into the computer, it can down load the all the measured value with the time information (year, month, data, hour, minute, second) to the Excel directly, then user can make the further data analysis by themselves.
* Powered by AA (UM-3) DC 1.5 V X 8 batteries (Alkaline type) or DC 9V adapter.
* Computer data output, can cooperate with optional USB Cable/USB-01, RS232 cable/UPCB-02 and Data Acquisition software, SW-811,SW-U811
* Optional current probes : CP-1201, CP-2000, CP-200, CP-3000,CP-3001,CP-6001 detail specification.
* User can order the meter only (without the current probes) with the special request as intend to cooperate their own current probes.
* Patented.

GENERAL SPECIFICATIONS:

Circuit	Custom one-chip of microprocessor LSI circuit	
Display	* LCD Size : 81.4 X 54 mm (3.2 X 2.1 inch) * TFT LCD (320 X 240 pixels) with back light.	
Measurement	* V (phase-to-phase) * V (phase-to-ground) * A (phase-to-ground) * KW / KVA / KVAR / PF (phase) KW / KVA / KVAR / PF (system) KWH / KVAH / KVARH / PFH (system) * Power factor * Phase angle * Frequency * Harmonics display.	
Wire connections	1P/2W, 1P/3W, 3P/3W, 3P/4W.	
Voltage ranges	10 ACV to 600 ACV, auto range.	
Current probe input signal and range	* Current probe input signal volage (ACV) : *200mV/300mV/500mV/1V/2V/3V.* * Current probe input current range (ACA) : *20 A/200A/2000A (1200 A)/30A/300A/3000A* 60A/600A/6000A * Meter can cooperate the universal current probe.	
Safety standard	IEC1010 CAT III 600 V.	
ACV input impedance	10 Mega ohms.	
Range select	ACV	Auto range.
	ACA	Manual range.
Clamp frequency response	40 Hz to 1 KHz.	
Spec. tested frequency	45 to 65 Hz.	
Over load protection	ACV	720 ACV rms
	ACA	1300 ACA with clamp probe * *For the Clamp ,CP-1201*
Data Hold	Freeze the display reading.	
Data Record	SD Card Record.	
Sampling Time	Approx. 1 second.	
Power ON/OFF	Manual OFF by push button.	
Over Indicator	* LCD display show " OL ". * The data save into the SD card will show " 9999 " or " 999 " (overleap the decimal point).	
Under Indicator	* The data save into the SD card will show " 9999 " or " 999 " (overleap the decimal point).	
Real time data logger	* Real time data logger, saved the data into SD memory card and down load the all the measured value with the time information (year/month/data/ hour/minute/second) down load to the Excel * Sampling time for data logger : 2 seconds to 7200 seconds, the during of setting step are 2 seconds.	
Data Output USB/RS232 * *Computer interface*	RS232 computer serial interface : * Connect the optional USB cable USB-01 will get the USB plug. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug.	
Operating Temperature	0 to 50℃ (32 to 122℉).	
Operating Humidity	Less than 80% R.H..	
Power Supply	* DC 1.5V, AA (UM-3) Battery X 8 PCs (Alkaline or heavy-duty battery). * AC to DC 9V power adapter.	
Power Consumption	* Meter : 362 DCmA. * Clamp : 22 DCmA.	
Clamp max. conductor Size	50 mm (2.0 inch) Dia. * *For the Clamp ,CP-1201*	
Weight	* Meter : 840g (meter only) * Clamp (includded cable) : 500g	
Dimension	*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 PC * Test Leads (TL88-4AT).....1. Set (4 PCs) * Alligator clips (TL88-4AC) 1 Set (4 PCs) * Clamp Probe (CP-1201)....3 PCs * AC to DC 9V adapter..... 1 PC * SD card (4 G)..... 1 PC * Carrying bag.....1 PC	
Optional Accessories	* 2000 Amp current probe, CP-2000 * 200 Amp current probe, CP-200 * 1200 Amp current probe, CP-1201 * Flexible 3000 Amp current probe, CP-3000, CPF-3002,CP-3001, CP-6001 * USB Cable , USB-01 * RS232 cable, UPCB-02 * Data Acquisition software, SW-U811	

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, ,< 10 A	Meter + CP-1201	±(1 %+0.1A)
	0.01A, ≧ 10 A	Meter only	±(0.5 %+0.02A)
200A	0.01A, < 100 A	Meter + CP-1201	±(1 %+0.5A)
	0.1A, ≧ 100 A	Meter only	±(0.5 %+0.2A)
1200A	0.1A, < 1000 A	Meter + CP-1201	±(1 %+5A)
	1A, ≧ 1000 A	Meter only	±(0.5 %+2A)

Power factor

Range	*Resolution*	*Accuracy*
0.00 to 1.00	0.01	±0.04

Remark :
*** PFH : Long term power factor**
*** PFΣ:**
For 3Φ4W, 3Φ3W
PFΣ = (PF1 + PF2 + PF3)/3
For 1Φ3W
PFΣ = (PF1 + PF2)/2

Φ (Phase angle)

Range	*Resolution*	*Accuracy*
-180° to 180°	0.1°	±1° *ACOS (PF)

Active (Real) Power

Range	*Resolution*	*System Accuracy*
0.000 to 9.999 KW	*0.001/0.01/0.1 KW	±(1.2%+0.008KW)
10.00 to 99.99 KW	*0.01/0.1 KW	±(1.2%+0.08KW)
100.0 to 999.9 KW	0.1 KW	±(1.2%+0.8KW)
1.000 to 9.999 MW	0.001 MW	±(1.2%+0.008MW)

** The resolution is changed according the different ACA range.*

Frequency

Range	*Resolution*	*System Accuracy*
45 to 65 Hz	0.1 Hz	±0.1 Hz

Apparent Power

Range	*Resolution*	*System Accuracy*
0.000 to 9.999 KVA	*0.001/0.01/0.1KVA	±(1.2%+0.008KVA)
10.00 to 99.99 KVA	*0.01/0.1 KVA	±(1.2%+0.08KVA)
100.0 to 999.9 KVA	0.1 KVA	±(1.2%+0.8KVA)
1.000 to 9.999 MVA	0.001 MVA	±(1.2%+0.008MVA)

** The resolution is changed according the different ACA range.*

Reactive Power

Range	*Resolution*	*Accuracy*
0.000 to 9.999 KVAR	*0.001/0.01/0.1KVAR	±(1.2%+0.008 KVAR)
10.00 to 99.99 KVAR	*0.01/0.1 KVAR	±(1.2%+0.08 KVAR)
100.0 to 999.9 KVAR	0.1 KVAR	±(1.2%+0.8 KVAR)
1.000 to 9.999 MVAR	0.001 MVAR	±(1.2%+0.008 MVAR)

** The resolution is changed according the different ACA range.*

Watt Hour (Active Power Hour) : WH

Range	*Resolution*	*System 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 Power Hour) : SH

Range	*Resolution*	*System 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 Power Hour) : QH

Range	*Resolution*	*System 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)

Harmonics of AC voltage in Magnitude
** Fundamental frequency 50 Hz, 60 Hz*

Range	*Resolution*	*System Accuracy*
1 to 20th	0.1 V	± (2 % + 0.5 V)
21 to 30th		± (4 % + 0.5 V)
31 to 50th		reference

Harmonics of AC voltage in Percentage
** Fundamental frequency 50 Hz, 60 Hz*

Range	*Resolution*	*Accuracy*
1 to 20th	0.1 %	± (2 % + 10 d)
21 to 30th		± (4 % + 20 d)
31 to 50th		reference

Harmonics of AC current in Magnitude
** Fundamental frequency 50 Hz, 60 Hz*

Range	*Resolution*	*System Accuracy*
1 to 20th	0.1 A	± (2 % + 0.5 A)
21 to 30th		± (4 % + 0.5 A)
31 to 50th		reference

Harmonics of AC current in Percentage
** Fundamental frequency 50 Hz, 60 Hz*

Range	*Resolution*	*System Accuracy*
1 to 20th	0.1 %	± (2 % + 10 d)
21 to 30th		± (4 % + 20 d)
31 to 50th		reference

Peak value of ACV or ACA

Range	*Resolution*	*System Accuracy*
ACA(Peak to Peak)	0.001A to 1 A	

** us = micro seconds*

Crest Factor of ACV or ACA

Range	*Resolution*	*System Accuracy*
1.000 - 99.99	0.001	± (5 % + 30 d)

Total Harmonic Distortion

Range	*Resolution*	*System Accuracy*
0 to 20 %	0.1 %	± (2 % + 5 d)
20.1 to 100 %		± (6 % + 10 d)

* Appearance and specifications listed in this brochure are subject to change without notice.