ELP/DCM91 series

Multi-, Batterie- and Solar-Modul-Tester

OVERVIEW

- Automatic test and data aquisition
- Multichanel System possible (8, 16, 32, 64, 128, 256)
- Battery and solar panel are automatically tested
- Test parameters:
  Pmax, Ipmax, Vpmax, Rpmax, Ishort Vopen, FF, Rs and Rsh
- UI Curve in real time
- PT Curve in 24 h test or custom time set
- Export protocol to excel
- For each battery with the same or different specifications, the test list can be set with different working mode (CV/CC/CR/CW) and different test parameters
- Multi Chanel test the same time (parallel testing, very quick and accurate)
- For each channel, the biggest test steps is 1000 and the smallest step value is 0.001, and the accuracy is very high
- Two-part intelligent search modes are provided, rough search first and then accurate search, by which the Pmax point could be found faster and more accurately.
- It is very suitable for real-time tracking day and night
- Systems from 150 W to 200 KW, current 15 A to 1500 A and voltage from 150 V bis 600 V are possible

Generally the following key parameters of solar battery need to be tested:

Vopen	Open-circuit voltage, is the battery voltage when the battery current is 0
Ishort	Short-circuit current, is the current drawn from the battery when the resistance of electronic load is 0
Pmax	The maximum power of the battery. The Pmax point in I-V curve is usually called the maximum power point
Ipmax	The current value when battery is in the maximum power Pmax
Vpmax	The voltage value when battery is in the maximum power Pmax
Rpmax	The resistance value when battery is in the maximum power Pmax
FF	Fill factor, is the ratio of Pmax to the Vopen and Ishort, that is, Pmax/(Vopen*Ishort). FF is an important parameter which effects directly the solar battery performance. The bigger the FF value is, the higher utilization of solar battery to light is.
Rs	The series resistance of the battery.
Rsh	The shunt resistance of the battery.

System:

Model	9100	9104	9105	9106	9107	9108
Channel	8	16	32	64	128	256

The Test System is build by ELP/DCM97XX electronic loads.
Customized testsystem on request.

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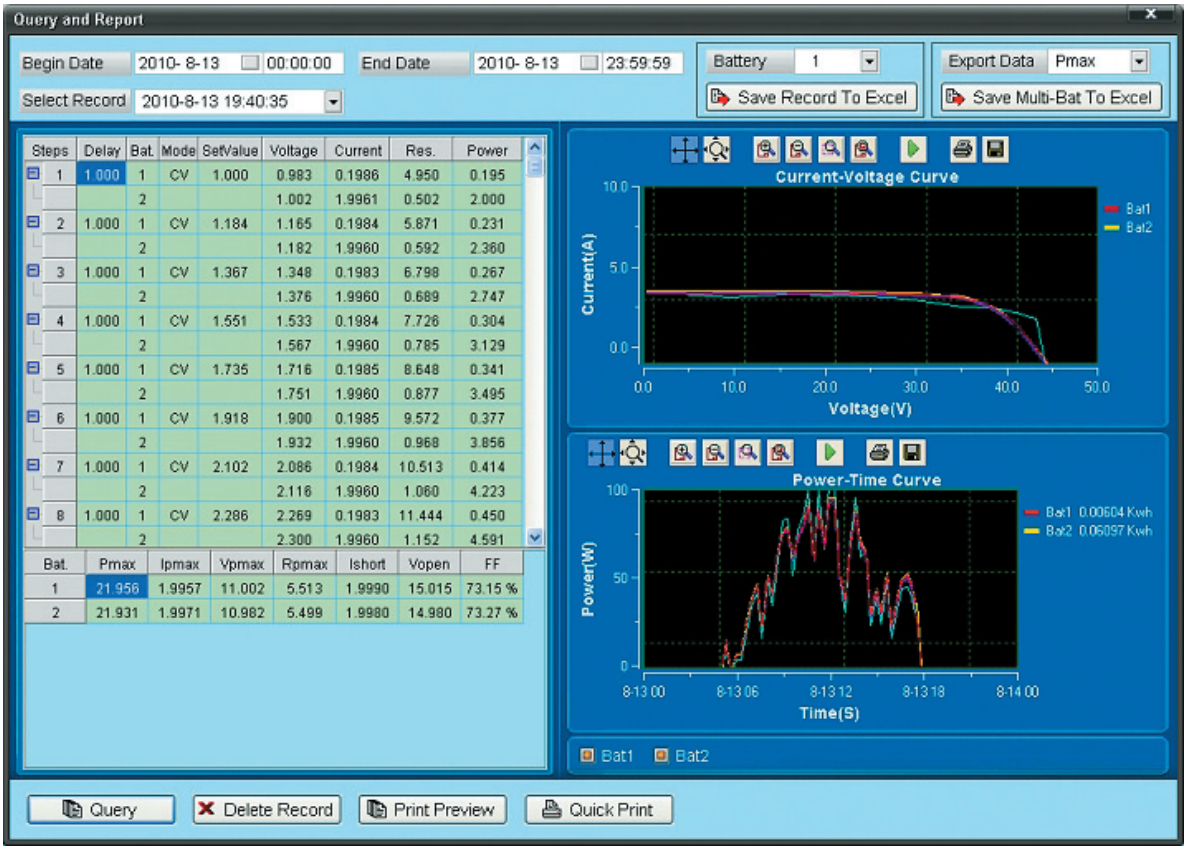
Screenshots:



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Screenshots:

Microsoft Excel - SingleBatteryData

	A	B	C	D	E	F	G	H	I
1	Date	Time	Pmax	Vpmax	Ipmax	Rpmax	Ishort	Vopen	FF
2	8/17/2010	9:08:37 AM	14.726	0.758	19.4356	0.039	20.0384	0.977	75.20 %
3	8/17/2010	9:09:35 AM	14.728	0.758	19.4317	0.039	20.0377	0.977	75.22 %
4	8/17/2010	9:10:40 AM	14.738	0.759	19.4268	0.039	20.0381	0.977	75.30 %
5	8/17/2010	7:10:55 PM	21.963	11.002	1.9962	5.512	1.9980	30.015	36.62 %
6	8/17/2010	7:12:36 PM	21.961	11.002	1.9960	5.512	1.9995	30.016	36.59 %
7	8/17/2010	7:13:19 PM	21.960	11.003	1.9959	5.513	1.9994	20.014	54.88 %
8	8/17/2010	7:14:40 PM	21.956	11.002	1.9957	5.513	1.9972	13.012	84.49 %
9	8/17/2010	7:15:18 PM	21.956	11.002	1.9957	5.513	1.9990	15.015	73.15 %
10	8/17/2010	7:20:59 PM	19.956	10.004	1.9949	5.015	1.9983	15.013	66.52 %

Microsoft Excel - MultiBatteryData

	A	B	C	D	E
1	Date	Time	Content	Bat1	Bat2
2	8/17/2010	9:08:37 AM	Pmax	14.726	21.921
3	8/17/2010	9:09:35 AM	Pmax	14.728	21.938
4	8/17/2010	9:10:40 AM	Pmax	14.738	21.486
5	8/17/2010	7:10:55 PM	Pmax	21.963	21.584
6	8/17/2010	7:12:36 PM	Pmax	21.961	21.934
7	8/17/2010	7:13:19 PM	Pmax	21.960	21.932
8	8/17/2010	7:13:57 PM	Pmax	21.074	21.486
9	8/17/2010	7:14:40 PM	Pmax	21.956	21.932
10	8/17/2010	7:15:18 PM	Pmax	21.956	21.931
11	8/17/2010	7:20:59 PM	Pmax	19.956	19.935

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Screenshots:

Preview

100% 1 Close

Solar Battery Test Record

Test Time: 8/17/2010 7:20:59 PM

Steps	Delay(S)	Battery No.	Test Mode	Set Value	Voltage	Current	Resistance	Power
1	1.000	1	CV	1.000	1.004	1.9956	0.503	2.004
		2			0.983	1.9973	0.492	1.963
2	1.000	1	CV	2.000	2.016	1.9954	1.011	4.024
		2			1.982	1.9973	0.992	3.959
3	1.000	1	CV	3.000	3.019	1.9955	1.513	6.025
		2			2.982	1.9973	1.493	5.956
4	1.000	1	CV	4.000	4.017	1.9955	2.013	8.015
		2			3.983	1.9973	1.994	7.955
5	1.000	1	CV	5.000	5.006	1.9954	2.509	9.988
		2			4.983	1.9972	2.495	9.953
6	1.000	1	CV	6.000	6.003	1.9952	3.009	11.977
		2			5.983	1.9971	2.996	11.949
7	1.000	1	CV	7.000	7.018	1.9952	3.518	14.002
		2			6.982	1.9971	3.496	13.943
8	1.000	1	CV	8.000	8.018	1.9949	4.019	15.995
		2			7.984	1.9970	3.998	15.944
9	1.000	1	CV	9.000	9.019	1.9952	4.520	17.994
		2			8.984	1.9970	4.499	17.940
10	1.000	1	CV	10.000	10.004	1.9949	5.015	19.956
		2			9.983	1.9969	4.999	19.935

Battery No.	Pmax	Ipmax	Vpmax	Rpmax	Ishort	Vopen	FF
1	19.956	1.9949	10.004	5.015	1.9983	15.013	66.52 %
2	19.935	1.9969	9.983	4.999	1.9978	14.980	66.61 %

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