



1Phase Smart Power Meter Calibration Report

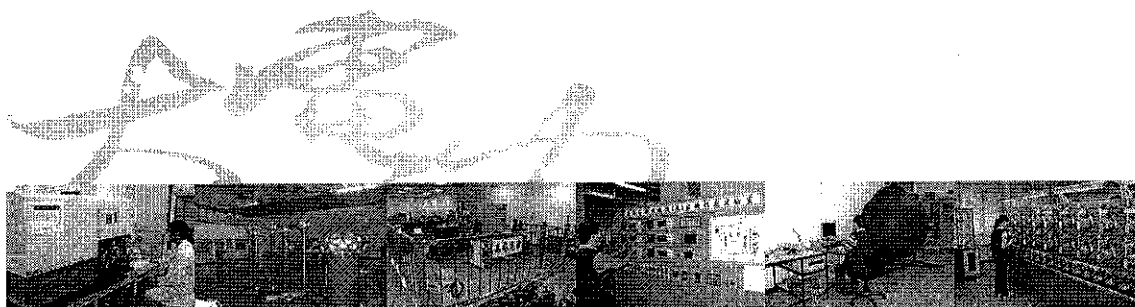
Report number : EC20120203

Issued date : 2012/09/21

Laboratory : Electrical and Temperature Calibration Laboratory

Address:No.6-6, Ronggong S Rd., Guanyin Township, Taoyuan
County 328, Taiwan, R.O.C.

Laboratory Accreditation Number : 0061



Taiwan Electric Research & Testing Center

Address:No.6-6, Ronggong S Rd., Guanyin Township, Taoyuan County 328, Taiwan, R.O.C.

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台灣大電力研究試驗中心

Taiwan Electric Research & Testing Center

Electrical and Temperature Calibration Laboratory
Report No. : EC20120203

Calibration Report



Applicant : ICP DAS Co.,Ltd

Address : No. 111, Guangfu N. Rd., Hukou Township,
Hsinchu County 30351, Taiwan, R.O.C.

Equipment : 1Phase Smart Power Meter

Manufacturer : ICP DAS Co.,Ltd

Model No. : PM-3114-100

Serial No. : PM3114A000PAHHA00001

Issued Date : 2012/09/21

Calibration Date : 2012/09/11

Temperature : 23±2°C

Humidity : 50±10%

Procedure Used : 60I-07-1812

Remark :

1. Calibration items with the same manufacturing number of the external CT (1, 2, 3, 4).
2. Calibration items RS485 communication interface and manufacturer of computer software (ICP DAS PM-3114-100, Version: V1.3) reader to indication value.

Calibration Standard			
Equipment	Manufacturer / Model No.	I.D. Number	Cal. Source / Cal. Date/ Report No./Cycle
Three Phase Standard	RADIAN/RD-30-231	300130	TERTEC / 101.04.09 / EC1010015 / 1 year

一、 Calibration Item & Result :

Alternating Current 60 Hz

Mold/resistance	Power Source Set Value				Standard Value(kW)	Indication Value(kW)	Error Value(%)	Uncertainty (%)
	Phase/Wire	Voltage(V)	Current(A)	P.F.				
CH1	1P2W	220	1	1.0	0.22000	0.2205	+0.23	0.16
CH1	1P2W	220	5	1.0	1.10000	1.1024	+0.22	0.05
CH2	1P2W	220	1	1.0	0.22000	0.2197	-0.14	0.05
CH2	1P2W	220	5	1.0	1.10000	1.0985	-0.14	0.16
CH3	1P2W	220	1	1.0	0.22000	0.2204	+0.18	0.05
CH3	1P2W	220	5	1.0	1.10000	1.1018	+0.16	0.16
CH4	1P2W	220	1	1.0	0.22000	0.2195	-0.23	0.16
CH4	1P2W	220	5	1.0	1.10000	1.0974	-0.24	0.16

The report issued by : *Bang-Yen Lai*

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60T-07-1801D

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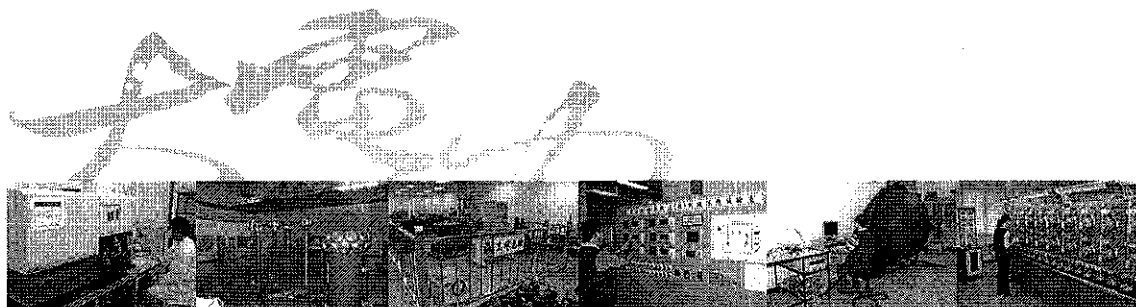
1Phase Smart Power Meter Calibration Report

Report number : EC20120203D

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Taiwan Electric Research & Testing Center

Electrical and Temperature Calibration Laboratory
Report No. : EC20120203D

Calibration Report

Applicant : ICP DAS Co.,Ltd
Address : No. 111, Guangfu N. Rd., Hukou Township, Hsinchu County 30351, Taiwan, R.O.C.
Equipment : 1Phase Smart Power Meter
Manufacturer : ICP DAS Co.,Ltd
Model No. : PM-3114-100
Serial No. : PM3114A000PAHHA00001

Issued Date : 2012/09/21
Calibration Date : 2012/09/11
Temperature : 23±2°C
Humidity : 50±10%
Procedure Used : 60I-07-1812

Remark :

1. Calibration items with the same manufacturing number of the external CT (1, 2, 3, 4).
2. Calibration items RS485 communication interface and manufacturer of computer software (ICP DAS PM-3114-100, Version: V1.3) reader to indication value.

Calibration Standard			
Equipment	Manufacturer / Model No.	I.D. Number	Cal. Source / Cal. Date/ Report No/Cycle
Three Phase Standard	RADIAN/RD-30-231	300130	TERTEC / 101.04.09 / EC1010015 / 1 year

一、 Calibration Item & Result :

Alternating Current 60 Hz

Power Source Set Value					Standard Value(kW)	Indication Value(kW)	Error Value(%)	Uncertainty (%)
Mold/resistance	Phase/Wire	Voltage(V)	Current(A)	P.F.				
CH1	1P2W	220	10	1.0	2.20000	2.2052	+0.24	0.39
CH1	1P2W	220	30	1.0	6.60000	6.6150	+0.23	0.28
CH2	1P2W	220	10	1.0	2.20000	2.1974	-0.12	0.35
CH2	1P2W	220	30	1.0	6.60000	6.5898	-0.15	0.80
CH3	1P2W	220	10	1.0	2.20000	2.2042	+0.19	0.35
CH3	1P2W	220	30	1.0	6.60000	6.6107	+0.16	0.57
CH4	1P2W	220	10	1.0	2.20000	2.1955	-0.21	0.16
CH4	1P2W	220	30	1.0	6.60000	6.5847	-0.23	0.57

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60T-07-1801D



Calibration Report

Alternating Current 50 Hz

Power Source Set Value					Standard Value(kW)	Indication Value(kW)	Error Value(%)	Uncertainty (%)
Mold/resistance	Phase/Wire	Voltage(V)	Current(A)	P.F.				
CH1	1P2W	220	1	1.0	0.22000	0.2205	+0.24	0.16
CH1	1P2W	220	5	1.0	1.10000	1.1024	+0.22	0.05
CH1	1P2W	220	10	1.0	2.20000	2.2048	+0.22	0.05
CH1	1P2W	220	30	1.0	6.60000	6.6134	+0.20	0.16
CH2	1P2W	220	1	1.0	0.22000	0.2197	-0.14	0.05
CH2	1P2W	220	5	1.0	1.10000	1.0984	-0.15	0.05
CH2	1P2W	220	10	1.0	2.20000	2.1967	-0.15	0.16
CH2	1P2W	220	30	1.0	6.60000	6.5870	-0.20	0.97
CH3	1P2W	220	1	1.0	0.22000	0.2204	+0.18	0.05
CH3	1P2W	220	5	1.0	1.10000	1.1018	+0.17	0.16
CH3	1P2W	220	10	1.0	2.20000	2.2033	+0.15	0.05
CH3	1P2W	220	30	1.0	6.60000	6.6074	+0.11	0.39
CH4	1P2W	220	1	1.0	0.22000	0.2194	-0.27	0.16
CH4	1P2W	220	5	1.0	1.10000	1.0972	-0.25	0.16
CH4	1P2W	220	10	1.0	2.20000	2.1945	-0.25	0.16
CH4	1P2W	220	30	1.0	6.60000	6.5821	-0.27	0.25

二、Instruction :

1. Test method : according to Wattmeter calibration procedure, used of P,F source correction devices apply the watt/var Standard calculating the 1Phase Smart Power Meter error value(%).
2. $Error(\%) = ((E_{UUT} - E_{STD}) / E_{STD}) \times 100\%$, E_{UUT} : 1Phase Smart Power Meter Energy Standard , E_{STD} : Energy Standard
3. Expanded uncertainty the level of confidence is 95% and the coverage factor $k=2$.
4. Three phase compact smart Meter Energy used single phase two wire theorem.
5. The use of standard calibration devices traceable to national standards of weights and measurement laboratory and Pink Technology Co.Ltd (report No.E110372A, traceable data 2011.08.12, calibration cycle is one year).