



## Three Phase Compact Smart Meter Calibration Report

Report number : EC2010007801D

Issued date : 2010/06/10

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.

TEL:886-3-483-9090

FAX:886-3-483-8119

E-mail:customer\_service@ms.tertec.org.tw

Website:www.tertec.org.tw

- ◆ This report is calibration report.
- ◆ The testing result is only responsible to the tested sample.
- ◆ The report can be fully duplicated only. To excerpt any part of this report is invalid unless permitted by TERTEC.
- ◆ The contents on the report can not be used for advertisement, publication and merchandised activities.
- ◆ The report is invalid if without the seal on each page.
- ◆ Inquiry telephone:886-3-483-9090 ext. 8201



財團法人

台灣大電力研究試驗中心  
Taiwan Electric Research & Testing Center

Electrical and Temperature Calibration Laboratory  
Report No. : EC2010007801D

## Calibration Report

Applicant : ICP DAS Co.,Ltd

Issued Date : 2010/06/10

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

Calibration Date : 2010/06/08

Equipment : Three Phase Compact Smart Meter

Temperature : 23±2°C

Manufacturer : ICP DAS Co.,Ltd

Humidity : 50±10%

Model No. : PM-2133

Procedure Used : 60I-07-1812

Serial No. : 9908032509080134

Remark :

1. Calibration items with the same manufacturing number of the external CT (1, 2, 3).
2. Calibration items RS485 communication interface and manufacturer of computer software (ICP DAS PM-213, Version: VI.1) 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 / 99.04.13 / EC990018 / 1 year

Calibration Item &amp; Result :

Alternating Current 60 Hz

Power Source Set Value				Standard Value (kW)	Indication Value (kW)	Error Value (%)	Uncertainty (%)
Phase/Wire	Voltage(V)	Current(A)	P.F.				
3P4W	220	1	1.0	0.66000	0.66067	+0.10	0.18
3P4W	220	5	1.0	3.30000	3.30307	+0.09	0.09
3P4W	220	10	1.0	6.60000	6.61170	+0.18	-----
3P4W	220	30	1.0	19.80000	19.85635	+0.28	-----

Instruction :

1. Test method : according to Wattmeter calibration procedure, used of P.F source correction devices apply the watt/var Standard calculating the 3Phase compact smart Meter error value(%).
2.  $Error(\%) = ((E_{UUT} - E_{STD}) / E_{STD}) \times 100\%$ ,  $E_{UUT}$  : 3Phase compact smart 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.

The report issued by :

1. The testing result is only responsible to the tested sample. The report can be fully duplicated only. ~~It~~ except any part of this report is invalid unless permitted by TERTEC.
2. The contents on the report can not be used for advertisement, publication and merchandised activities.

60T-07-1801C



## Single Phase Compact Smart Meter Calibration Report

Report number : EC2010007802D

Issued date : 2010/06/10

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.

TEL:886-3-483-9090

FAX:886-3-483-8119

E-mail:customer\_service@ms.tertec.org.tw

Website:www.tertec.org.tw

- ◆ This report is calibration report.
- ◆ The testing result is only responsible to the tested sample.
- ◆ The report can be fully duplicated only. To excerpt any part of this report is invalid unless permitted by TERTEC.
- ◆ The contents on the report can not be used for advertisement, publication and merchandised activities.
- ◆ The report is invalid if without the seal on each page.
- ◆ Inquiry telephone:886-3-483-9090 ext. 8201



財團法人

台灣大電力研究試驗中心  
Taiwan Electric Research & Testing Center

Electrical and Temperature Calibration Laboratory  
Report No. : EC2010007802D

## Calibration Report

Applicant : ICP DAS Co.,Ltd

Issued Date : 2010/06/10

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

Calibration Date : 2010/06/08

Equipment : Single Phase Compact Smart Meter

Temperature : 23±2°C

Manufacturer : ICP DAS Co.,Ltd

Humidity : 50±10%

Model No. : PM-2133

Procedure Used : 60I-07-1812

Serial No. : 9908032509080134

Remark :

1. Calibration items with the same manufacturing number of the external CT (1, 2, 3).
2. Calibration items RS485 communication interface and manufacturer of computer software (ICP DAS PM-213, Version: V1.1) 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 / 99.04.13 / EC990018 / 1 year

Calibration Item &amp; Result :

Alternating Current 60 Hz

Power Source Set Value				Standard Value (kW)	Indication Value (kW)	Error Value (%)	Uncertainty (%)
Phase/Wire	Voltage(V)	Current(A)	P.F.				
1P2W	220	1	1.0	0.22000	0.21966	-0.15	0.05
1P2W	220	5	1.0	1.10000	1.09911	-0.08	0.06
1P2W	220	10	1.0	2.20000	2.19982	-0.01	-----
1P2W	220	30	1.0	6.60000	6.60649	+0.10	-----

Instruction :

1. Test method : according to Wattmeter calibration procedure, used of P.F source correction devices apply the watt/var Standard calculating the 3Phase compact smart Meter error value(%).
2.  $Error(\%) = ((E_{UUT} - E_{STD}) / E_{STD}) \times 100\%$ ,  $E_{UUT}$  : Single Phase compact smart Meter Energy Standard,  $E_{STD}$  : Energy Standard
3. Expanded uncertainty the level of confidence is 95% and the coverage factor  $k=2$ .

The report issued by :

1. The testing result is only responsible to the tested sample. The report can be fully duplicated only. To ~~except~~ any part of this report is invalid unless permitted by TERTEC.
2. The contents on the report can not be used for advertisement, publication and merchandised activities.

60T-07-1801C