

CALIBRATION CERTIFICATE

DESCRIPTION: Report Energy Meter CT

MANUFACTURER – WallBox Chargers

MODEL – WBCOMM02-01A

SERIAL NUMBER –

- HW: Commander (Voltage and Current)
 - CT used during these tests was: EE-PRJ01-CT-V01-A-15
 - HV used during these tests was: EE-PRJ01-HV-V01-A-08
- FW: v106
- SW: 1.2.1



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Date of issue 21/04/2016

Certificate number: 000111

Date: 21/04/2016

Environmental conditions:

Temperature (23 ± 3) °C

Humidity (35 ± 5) %

Calibrated by: Eduard Castañeda

Procedure applied: EN 50470-3

Methods for acceptance testing are covered by the IEC 62058 series of standards. The dependability aspect is covered by the documents of the IEC 62059 series.

Revision of procedure: v1.0

Comments

Calibration results: within specifications EN 50470-3

The layout of the measurement is referred to our patterns.

The calibration uncertainty corresponds, except specific advice, to a deviation error <1.5% and it has been calculated from the uncertainty components of the patterns,

The calibration method, the environmental conditions, the device resolution and the contribution given by the product calibrated according specifications.

The difference between the measured value (CT) and the nominal (PM) within patterns.

Standards

Model : (PM) Power Meter: EEM-MA250

- Active Energy (IEC 62053-22) - Class 0.5 S
- Reactive Energy (IEC 62053-23) - Class 2

Voltage (V)

Table 1

	Test 5 at 10 A	Test 6 at 10 A	Test 5 at 15 A	Test 6 at 15 A	Test 5 at 25 A	Test 6 at 25 A
Voltage PM	242.7609 V	242.6140 V	241.7030 V	241.8600 V	239.9836	240.7992 V
Voltage CT firmware 1.0	223.8692 V	223.8623 V	223.0607 V	223.3685 V	221.8605 V	222.6726 V
Error firmware 1.0	7.78 %	7.73 %	7.71 %	7.65 %	7.55 %	7.53 %
Voltage CT firmware 2.x	242.7991 V	242.5740 V	241.7820 V	241.9375 V	239.9877 V	240.7043 V
Error firmware 2.x	-0.02 %	0.02%	-0.03 %	-0.03 %	0.002 %	0.04 %

Intensity (A)

Table 2

Single Phase	Test 3 15A (COMM)	Test 4 15A (COMM)	Test 5 15A (COMM)	Test 6 15A (COMM)	Test 3 10A (COMM)	Test 4 10A (COMM)
Mean Intensity PM	13.76 A	13.85 A	13.79 A	13.79 A	9.38 A	9.49 A
Mean Intensity CT	14.07 A	14.17 A	14.06 A	14.07 A	9.59 A	9.73 A
Error Firmware 1.0	2.25 %	2.31 %	1.97 %	2.03 %	2.24 %	2.53 %
Mean intensity CT Firmware 2.x	13.77 A	13.85	13.78 A	13.78 A	9.37	9.48 A
Error Firmware 2.x	0.11 %	0 %	0.09 %	0.03 %	0.11 %	0.11 %

Single Phase	Test 5 10A (COMM)	Test 6 10A (COMM)	Test 3 25A (COMM)	Test 4 25A (COMM)	Test 5 25A (COMM)	Test 6 25A (COMM)
Mean Intensity PM	9.46 A	9.45 A	22.34 A	22.53	22.48 A	22.55 A
Mean Intensity CT	9.65 A	9.65 A	22.86 A	23.06	22.93 A	23.02 A
Error Firmware 1.0	2.08 %	2.08 %	2.33 %	2.35 %	2.03 %	2.07 %
Mean intensity CT Firmware 2.x	9.46 A	9.46 A	22.34 A	22.53 A	22.48 A	22.55 A
Error Firmware 2.x	0.004%	0.07 %	0 %	0 %	0.01 %	0.02 %

Energy (kWh)

Table 3

Three Phase	1kW·h	2kW·h	3kW·h
Real Energy	3600000	72000000	10800000
Energy CT Firmware 2.x	3584366.09	717878807	10784877.49
Energy PM	3590075.93	7185655.54	10788658.48
Energy CT Firmware 1.0	3378358.31	6766050.82	10164412.66
Error PM	0.276	0.199	0.105
Error CT Firmware 2.x	0.434	0.295	0.140
Error CT Firmware 1.x	6.157	6.027	5.855

Time test (4h)

Table 4

Real energy (h)	Real energy (s)	Energy PM (W)	Energy CT (W)	Error PM (%)	Error CT (%)
0,5	1800	3598279,403	3597700,213	0,0477944	0,06388296
1	3600	7194456,701	7191595,394	0,0769903	0,116730641
1,5	5400	10798792,34	10795978,41	0,0111821	0,03723691
2	7200	14393310,56	14398027,88	0,0464545	0,013695267
2,5	9000	17997812,22	18006381,78	0,0121543	-0,03545432
3	10800	21593443,3	21602088,38	0,0303551	-0,00966841
3,5	12600	25195765	25201895,55	0,0168056	-0,00752202
4	14400	28791938,05	28791081,76	0,0279929	0,030966094

Time test with 25kWh

Table 6:

Real energy	Real energy (J)	Energy PM (W)	Energy CT (W)	Error PM (%)	Error CT (%)
1kWh	3600000	3597092,611	3585445,457	0,0808	0,4043
2kWh	7200000	7194773,873	7179787,049	0,0726	0,2807
3kWh	10800000	10797108,44	10783392,42	0,0268	0,1538
4kWh	14400000	14394418,33	14389154,07	0,0388	0,0753
5kWh	18000000	17987656,38	17998827,31	0,0686	0,0065
6kWh	21600000	21594158,23	21622116,9	0,0270	-0,1024
7kWh	25200000	25195191,4	25240531,79	0,0191	-0,1608
8kWh	28800000	28793125,98	28841658,54	0,0239	-0,1446
9kWh	32400000	32390047,4	32437216,8	0,0307	-0,1149
10kWh	36000000	35989659,62	36034638,62	0,0287	-0,0962
11kWh	39600000	39590469,9	39637256,02	0,0241	-0,0941
12kWh	43200000	43190045,18	43239116,28	0,0230	-0,0905
13kWh	46800000	46782692,4	46834352,61	0,0370	-0,0734
14kWh	50400000	50390685,02	50445981,29	0,0185	-0,0912
15kWh	54000000	53989263,16	54053685,16	0,0199	-0,0994
16kWh	57600000	57589012,38	57659379,04	0,0191	-0,1031
17kWh	61200000	61183793,21	61255701,1	0,0265	-0,0910
18kWh	64800000	64783902,09	64855794,48	0,0248	-0,0861
19kWh	68400000	68383869,33	68452701,93	0,0236	-0,0770
20kWh	72000000	71983316,94	72039947,92	0,0232	-0,0555
21kWh	75600000	75581648,66	75627200,41	0,0243	-0,0360
22kWh	79200000	79177981,75	79211919,56	0,0278	-0,0150
23kWh	82800000	82775164,83	82799703,96	0,0300	0,0004

24kWh	86400000	86375253,68	86387058,78	0,0286	0,0150
25kWh	90000000	89974183,15	89974205,63	0,0287	0,0287



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Date of issue 21/04/2016