

Test Report issued under the responsibility of:



TEST REPORT
IEC 61010-1
Safety requirements for electrical equipment for measurement,
control, and laboratory use
Part 1: General requirements

Report Number.....: 20289-1-TR
Date of issue.....: 2019 / 09 / 11
Total number of pages.....: 13

Name of Testing Laboratory preparing the Report.....: **CERELAB**, division of:
Certification Entity for Renewable Energies, S.L.

Applicant's name.....: **Monsol Electronic, S.L.**
Address.....: C/ La Gitanilla 17, Nave 1 (Portón A). Edificio Promálaga
29004 Málaga (Spain)

Test specification:

Standard.....: Clauses 10.1 & 6.8 of Standard:
IEC 61010-1:2010, AMD1:2016
Test procedure.....: Partial tests
Non-standard test method.....: N/A

Test Report Form No.....: IEC61010_1L
Test Report Form(s) Originator.....: VDE Testing and Certification Institute
Master TRF.....: 2017-10-20

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Test item description :	CcM4 Power analyser (*)	
Trade Mark	Energy CcM	
Manufacturer	Monsol Electronic, S.L.	
Model/Type reference	CcM4 (*) / (20289-1; 20289-2; 20289-3 CERE Internal code)	
Ratings	0-63 A	
	(*).- 3 different models are tested, for differences see "General Product Information" Section	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	CERELAB , division of: Certification Entity for Renewable Energies, S.L.
	Testing location/ address	C/ Valgrande 18, Nave H 28108 Alcobendas, Madrid (Spain)
	Tested by (name, function, signature)	J. Antonio Díaz (Project Engineer)
	Approved by (name, function, signature) ..	Alberto Martín (Technical Manager)
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	

List of Attachments (including a total number of pages in each attachment)		
Document No.	Documents included / attached to this report (description)	Page No.
1	Photograph Annex	11 – 12
2	List of equipment list	13

Documents referenced by this report (available on request):		
Document Name or No.	Documents description	Page No.
--	N/A	--

Summary of testing:

The following 3 samples of the device are tested:

- Power analyser M1
- Power analyser M2
- Power analyser M4

According to the requirement of the applicant, only heating test and dielectric strength test (after heating test) are performed.

After performing the above described tests, we conclude that the samples tested comply with the specification applied.

Clause	Comment
Cl. 10.1 Surface temperature limits for protection against burns	EUT complied with the requirement
Cl. 6.8 Procedure for voltage tests	EUT Complied with the requirement Humidity preconditioning is not performed Impulse voltage test is not performed

Test Report History: This report may consist of more than one report and is only valid with additional or previous issued reports:	
Report Ref. No.	Item
N/A	
Tests performed (name of test and test clause): Cl. 10.1 Surface temperature limits for protection against burns Cl. 6.8 Procedure for voltage test	Testing location: CERELAB , division of: Certification Entity for Renewable Energies, S.L. C/ Valgrande 18, Nave H 28108 Alcobendas, Madrid (Spain)
Summary of compliance with National Differences (List of countries addressed): No specific country tested <input checked="" type="checkbox"/> The product fulfils the requirements of Cl. 10.1 & Cl. 6.8 of IEC 61010-1:2010 + A1:2016	

Copy of marking plate: The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks. <p style="text-align: center;">No marking plate provided</p>
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Test item particulars:	
Type of item	Measurement / Control / Laboratory
Description of equipment function.....	Current measurement
Connection to MAINS supply	Permanent / Detachable cord set / Non detachable cord set / None / Battery operated
Overvoltage category	II / III / IV
POLLUTION DEGREE	PD3
Means of protection.....	Class I (PE connected) / Class II (isolated)
Environmental conditions	Normal / Extended (Specify):
For use in wet locations	Yes / No
Equipment mobility	Portable / Hand held / Floor standing / Fixed / Built in
Operating conditions.....	Continuous / Short time / Intermittent
Overall size of equipment (W x D x H).....	72 x 42 x 30 mm
Mass of equipment (kg).....	140 g
Marked degree of protection to IEC 60529.....	IPX0 (Not marked)
Possible test case verdicts:	
- Test case does not apply to the test object	N/A (Not Applicable)
- Test object does meet the requirement	P (Pass)
- Test object does not meet the requirement	F (Fail)
Testing:	
Date of receipt of test item	2019 / 08 / 05
Date (s) of performance of tests.....	2019 / 08 / 07 to 2019 / 08 / 09
General remarks:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory. "(see ENCLOSURE #)" refers to additional information appended to the report. "(see Form A.xx)" refers to a Table appended to the report. Bottom lines for measurement Tables Forms A.xx are optional if used as record.</p>	
Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60529:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the general product information section.	
Name and address of factory (ies)	Monsol Electronic, S.L. C/ La Gitanilla 17, Nave 1 (Portón A). Edificio Promálaga 29004 Málaga (Spain)

General product information and other remarks:

Description of unit:

EUT is a device installed directly in the installation protection (circuit breaker), used for measurement of electric parameters.

The maximum current capability is 63 A.

According to the requirement of the applicant, three samples of the device are tested:

- Power analyser M1 CcM4 (XP-Power)
- Power analyser M2 CcM4 (Traco Power)
- Power analyser M4 CcM4 (Aimtec)

Description of model differences:

The differences between the three samples tested, is the internal power supply of the unit, used to power the measuring circuit.

Description of special features:

(HV circuits, high pressure systems etc.)

N/A

IEC 61010-1			
Clause	Requirement + Test	Result - Remark	Verdict
6	PROTECTION AGAINST ELECTRIC SHOCK		--
6.8	Procedure for voltage tests	(see Forms A.14 and A.18)	P
10	EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT		--
10.1	Surface temperature limits for protection against burns		P
	Easily touched surfaces within the limits in NORMAL and in SINGLE FAULT CONDITION:	(see Form A.26A) According to the requirement of the applicant, only normal condition test is performed	—
	– at an specified ambient temperature of 40 °C		P
	– for equipment rated above 40 °C ambient temperature limits not exceeded raised by the difference to 40 °C		N/A
	Heated surfaces necessary for functional reasons exceeding specified values:	No such parts	—
	– Are recognizable as such by appearance or function; or		N/A
	– Are marked with symbol 13		N/A
	– Guards are not removable without tool	No such parts	N/A

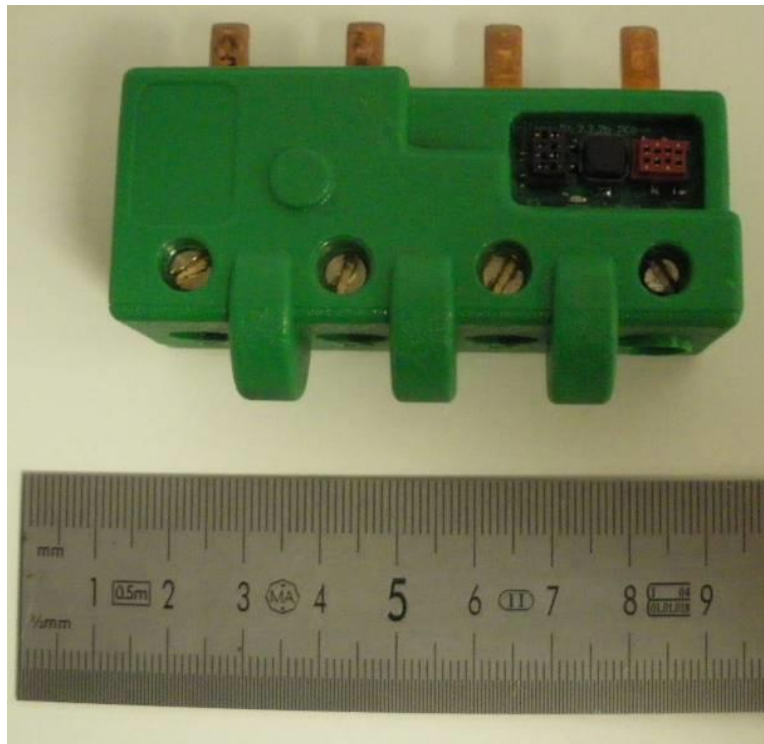
IEC 61010-1						
Clause	Requirement — Test			Result — Remark	Verdict	
6.8	TABLE: Dielectric strength tests				Form A.18	P
4.4.4.1 b)	Conformity after application of SINGLE FAULT CONDITIONS ¹					(*)
6.4	Primary means of protection ²					(*)
6.6	Connections to external circuits					(*)
6.7	Insulation requirements ² (see Annex K)					(*)
6.10.2	Fitting of non-detachable MAINS supply cords ¹					(*)
9.2 a) 2)	Eliminating or reducing the sources of ignition within the equipment					(*)
9.4 c)	Limited-energy circuit					(*)
9.6.1	Overcurrent protection basic insulation between MAINS - parts					(*)
	Test site altitude			550 m		—
	Test voltage correction factor (see table 10).....			1,12		—
Location or references from Forms A.1 and A.14	Clause or sub-clause	Humidity	Working voltage	Test voltage	Comments (NOTE)	Verdict
		Yes/No	[r.m.s./d.c.]	[r.m.s./peak/d.c.]		
Mains circuit against SELV connectors	6.8 & 10.1	No	230 Vrms	3000 Vrms	Sample M1 No dielectric breakdown	P
Mains circuit against SELV connectors	6.8 & 10.1	No	230 Vrms	3000 Vrms	Sample M2 No dielectric breakdown	P
Mains circuit against SELV connectors	6.8 & 10.1	No	230 Vrms	3000 Vrms	Sample M4 No dielectric breakdown	P
¹ Record the fault, test or treatment applied before the dielectric strength test. ² Humidity preconditioning required. NOTE: Test duration may be recorded.						
Supplementary information: (*) - By requirement of the applicant, only dielectric strength test after normal heating test is performed.						

TESTED BY: JADS DATE: 2019/08/07 TEST EQUIPMENT LIST ITEM: 3, 4

IEC 61010-1					
Clause	Requirement — Test	Result — Remark			Verdict
10.	TABLE: Temperature Measurements	Form A.26A			P
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				N/A
10.3	Other temperature measurements				N/A
Operating conditions:					
Frequency	50 Hz	Test room ambient temperature (ta) .. :	25 °C		
Voltage	230 V	Test duration	1 h 15 min		
Part / Location	t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
SAMPLE M1					
Lateral of enclosure	47,48	62,48	85	P	
Lateral of enclosure	60,03	75,03	85	P	
Top of enclosure	61,13	76,13	85	P	
SAMPLE M2					
Lateral of enclosure	47,04	62,04	85	P	
Lateral of enclosure	66,25	81,25	85	P	
Top of enclosure	64,01	79,01	85	P	
SAMPLE M4					
Lateral of enclosure	48,52	63,52	85	P	
Lateral of enclosure	56,81	71,81	85	P	
Top of enclosure	61,31	76,31	85	P	
NOTE 1 - t_m = measured temperature t_c = t_m corrected ($t_m - t_a + 40$ °C or max. RATED ambient) t_{max} = maximum permitted temperature NOTE 2 - see also 14.1 with reference to component operating conditions NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary NOTE 4 - see Form A.26B for details of winding temperature measurements					
Supplementary information:					

TESTED BY: JADS DATE: 2019 / 08 / 07 TEST EQUIPMENT LIST ITEM: 1, 2, 4, 5

ATTACHMENT #1: PHOTOGRAPH ANNEX

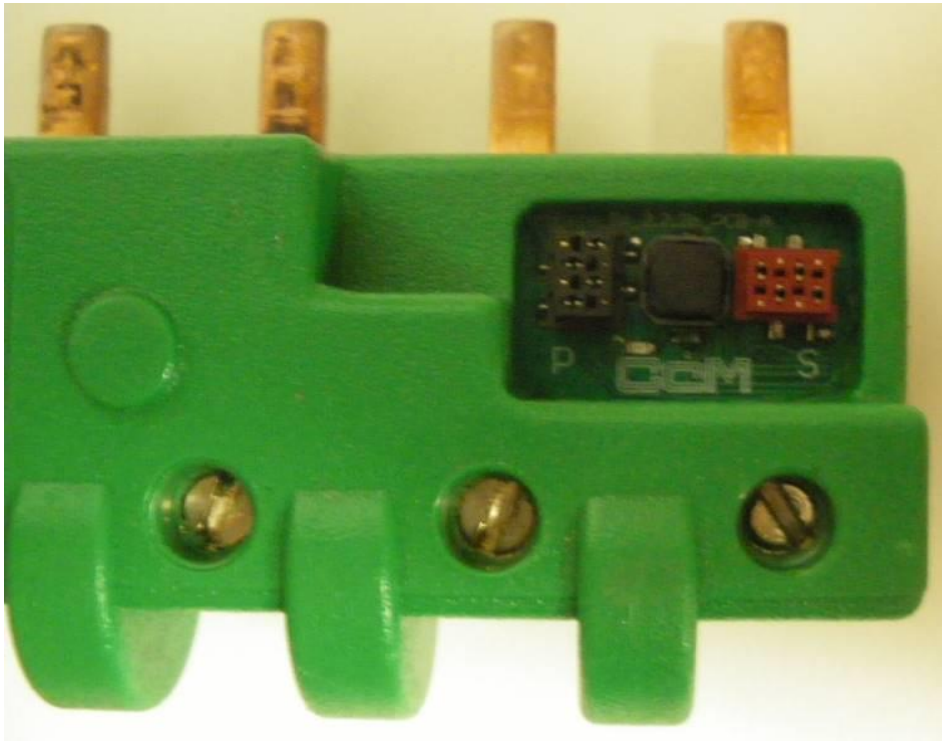


EUT – General view

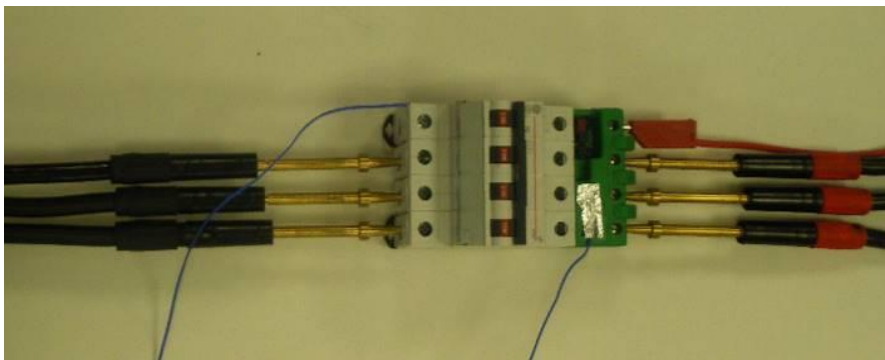


EUT – General view

ATTACHMENT #1: PHOTOGRAPH ANNEX



EUT – Detail of connection



Heating test detail

ATTACHMENT #2: TEST EQUIPMENT LIST

No.	TEST EQUIPMENT	Manufacturer	Model	INTERNAL CODE N°	CALIBRATION DATE	
					LAST	DUE
1	Multimeter & Current Clamp	FLUKE	337	CERE_013	31/07/2018	04/07/2020
2	Data Acquisition _ Thermal	KEYSIGHT	34972A	CERE_014	11/02/2019	07/02/2021
3	Safety Tester	CHAUVIN ARNOUX	CA6160D	CERE_025	07/05/2019	07/05/2021
4	Thermo-hygrometer	PCE	LOG 110	CERE_060	05/05/2018	20/04/2020
5	Multimeter	FLUKE	179	CERE_097	02/04/2019	15/03/2021