Test Report issued under the responsibility of:

TEST REPORT
EN 61010-1
Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements
EN 61010-2-032
Safety requirments for electrical equipment for measurement, control and laboratory use
Part 2- 032: Particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement
EN 61010-2-033
Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 2-033: Particular requirements for HAND-HELD MULTIMETERS and other METERS, for domestic and professional use, capable of measuring MAINS voltage

Report Number. ..... :	130830067GZU-001
Date of issue ..... :	8 Oct 2013
Total number of pages..... .	36
Applicant's name..... :	Uni-Trend Group Limited
Address ..... :	Rm901, 9/F, Nanyang Plaza, 57 Hung To Road, Kwun Tong, Kowloon, Hong Kong
Test specification:	
Standard..... :	EN 61010-1:2010, EN 61010-2-032:2012 EN 61010-2-033:2012
Test procedure ..... :	LVD
Non-standard test method……. :	N/A
Test Report Form No. ..... :	TTRF_EN61010_2_032&033A
Test Report Form(s) Originator .... :	Intertek
Master TRF..... :	2013-05
Test item description ..... :	Digital Clamp Multimeter
Trade Mark ..... :	UNI-T
Manufacturer ..... :	Uni-Trend Technology (China) Limited
Model/Type reference ..... :	UT202A
Ratings ..... :	Measurement category: CAT III 300V, CAT II 600V Powered by battery: 1x 9Vdc, type 6F22 or 1604A

Testing procedure and testing location:			
☒	**Testing Laboratory:**		
Testing location/ address.....:		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China	
☐	**Associated Laboratory:**	N/A	
Testing location/ address.....:		N/A	
	Tested by (name + signature) .....:	Rocky Tan	Rocky Tan
	Approved by (name + signature) ..:	Justin He	
☐	**Testing procedure: TMP**		
Testing location/ address.....:		N/A	
	Tested by (name + signature) .....:	N/A	
	Approved by (name + signature) ..:	N/A	
☐	**Testing procedure: WMT**		
Testing location/ address.....:		N/A	
	Tested by (name + signature) .....:	N/A	
	Witnessed by (name + signature)..:	N/A	
	Approved by (name + signature) ..:	N/A	

List of Attachments (including a total number of pages in each attachment - Table 1):		
Document No.	Documents included / attached to this report (description)	Page Numbers
Appendix 1	photographs	3

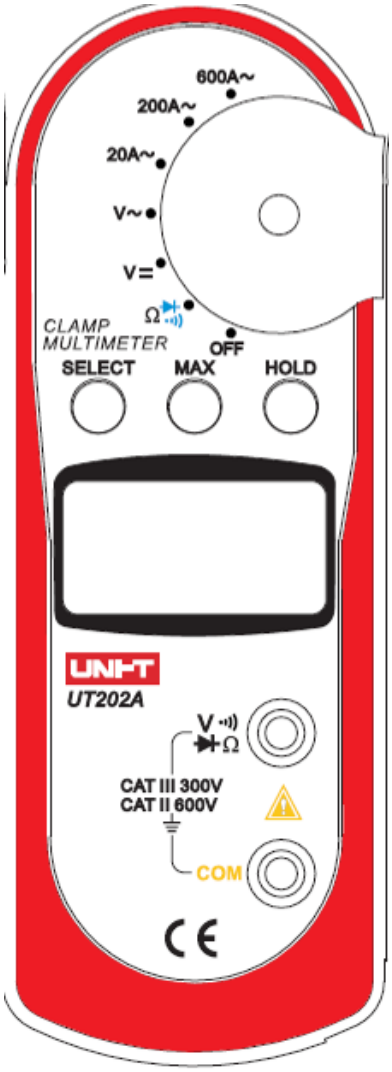
Summary of testing:
All applicable clauses performed.

Test Report History:
This report may consist of more than one report and is valid only with additional or previous issued reports:

Ref. No.	Item
None	

Tests performed (name of test and test clause):	Testing location:
All applicable clauses performed	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China

Copy of marking plate



Front panel marking

C ETL US LISTED
Intertek
4007682

Conforms to UL STD 61010-1, IEC STD 61010-2-032, Certified to CSA STD C22.2 NO.61010-1,61010-2-032.

⚠ WARNING

To avoid electrical shock, remove test leads before opening case.To prevent damage or injury install battery shown in the operating manual.

⚠ AVERTISSEMENT

Pour éviter le choc électrique, enlevez les fils test avant cas d'ouverture. Pour empêcher des dommages ou des dommages installez la batterie montrées dans l'operating manual.

Rear marking

Test item particulars:

Type of item	:	Measurement
Description of equipment function	:	See General product information
Connection to MAINS supply	:	None
Overvoltage category	:	CAT II and CAT III
POLLUTION DEGREE	:	2
Means of protection	:	Class II (isolated)
Environmental conditions	:	Extended (Specify): 0-50℃
For use in wet locations	:	No
Equipment mobility	:	Hand-held
Operating conditions	:	Continuous
Overall size of equipment (W x D x H)	:	Approximate: 76 x 208 x 30mm
Mass of equipment (kg)	:	0,24 (including battery)
Marked degree of protection to IEC 60529	:	IP X0

Possible test case verdicts:

- Test case does not apply to the test object	:	N/A
- Test object does meet the requirement	:	P (Pass)
- Test object does not meet the requirement	:	F (Fail)

Testing:

Date of receipt of test item	:	30 Aug 2013
Date (s) of performance of tests	:	30 Aug 2013 – 30 Sep 2013

General remarks:

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 Form A.xx are optional if used as record.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid

General product information:

The equipment covered by this report is AC digital clamp mulitmeter which intend to measure AC current, AC/DC voltage, diode, continuity and resistance.

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
4.4	Testing in SINGLE FAULT CONDITIONS		P
4.4.1	Fault tests		P
4.4.2	Application of SINGLE FAULT CONDITIONS		P
4.4.2.1	*SINGLE FAULT CONDITIONS not covered by 4.4.2.2 to 4.4.2.14 and in 4.4.2.101*		—
4.4.2.101	*INPUT VOLTAGES*		P
	a) up to 600 V a.c. r.m.s., the voltage applied to the TERMINALS is the RATED voltage multiplied by 1,90 but not to exceed 920 V a.c. r.m.s.;	Tested with 920 V a.c. r.m.s, no hazard during and after test	P
	b) above 600 V a.c. r.m.s. and up to 1 000 V a.c. r.m.s., the voltage applied to the TERMINALS is 1 100 V a.c. r.m.s.;		N/A
	c) above 1 000 V a.c. r.m.s., the voltage applied to the TERMINALS is the RATED voltage multiplied by 1,1;		N/A
	d) of d.c. voltage, the d.c. voltage applied to the TERMINALS is the RATED voltage multiplied by 1,1.	Tested with 660 V d.c r.m.s, no hazard during and after test	P
4.4.2.2	PROTECTIVE IMPEDANCE		N/A
4.4.2.3	PROTECTIVE CONDUCTOR		N/A
4.4.2.4	Equipment or parts for short-term or intermittent operation	Continuous working	N/A
4.4.2.5	Motors	No motor	N/A
	– stopped while fully energized		N/A
	– prevented from starting		N/A
	– one phase interrupted (multi-phase)		N/A
4.4.2.6	Capacitors		N/A
4.4.2.7	MAINS transformers	No mains transformer	N/A
4.4.2.7.2	Short circuit		N/A
4.4.2.7.3	Overload		N/A
4.4.2.8	Outputs		N/A
4.4.2.9	Equipment for more than one supply		N/A
4.4.2.10	Cooling	No cooling	N/A
	– air holes closed		N/A
	– fans stopped		N/A
	– coolant stopped		N/A
	– loss of cooling liquid		N/A
4.4.2.11	Heating devices	No heating devices	N/A
	– timer overridden		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	– temperature controller overridden		N/A
4.4.2.12	Insulation between circuits and parts		N/A
4.4.2.13	Interlocks		N/A
4.4.2.14	Voltage selectors		N/A
4.4.3	Duration of tests		—
4.4.4	Conformity after application of fault conditions		P
5	MARKING AND DOCUMENTATION		P
5.1.1	Required equipment markings		P
	- Visible from the exterior; or		P
	- Visible after removing cover or opening door		N/A
	- Visible after removal from a rack or panel		N/A
	Not put on parts which can be removed by an operator		N/A
	Letter symbols (IEC 60027) used		N/A
	Graphic symbols (IEC 61010-1: Table 1) used		P
5.1.2	Identification		P
	Equipment is identified by:		P
	a) Manufacturer's or supplier's name or trademark	Trademark: UNI-T	P
	b) Model number, name or other means	UT202A	P
	Manufacturing location identified		N/A
	aa) for current sensors designed for use only with a specific model of equipment, a clear identification of the equipment, or with symbol 14 of Table 1 if this information is available only in the documentation;		N/A
	bb) for Type A current sensors, with symbol 102 of Table 1;		P
	cc) for Type B and Type C current sensors, with symbol 101 of Table 1;	Type A current sensors	N/A
	dd) for Type D current sensors, symbol 101 of Table 1 is permitted with an additional marking (see 5.1.5.102).		N/A
	The relevant symbol (14, 101 or 102) shall be marked adjacent to the JAWS or	The symbol of 102 is marked adjacent to the JAW	P
	the marking of the MEASUREMENT CATEGORY for the JAWS, if present (see 5.1.5.101 and 5.1.5.102)		P
5.1.3	MAINS supply	Powered by battery	N/A
	Equipment is marked as follows:		N/A
	a) Nature of supply:		—

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	1) a.c. RATED MAINS frequency or range of frequencies ..... :		N/A
	2) d.c. with symbol 1		N/A
	b) RATED supply voltage(s) or range ..... :		N/A
	c) Max. RATED power (W or VA) or input current ... :		N/A
	The marked value not less than 90 % of the maximum value	(see Form A.2)	N/A
	If more than one voltage range:		—
	Separate values marked; or		N/A
	Values differ by less than 20 %	(see Form A.2)	N/A
	d) OPERATOR-set for different RATED supply voltages:		—
	Indicates the equipment set voltage		N/A
	Portable equipment indication is visible from the exterior		N/A
	Changing the setting changes the indication		N/A
	e) Accessory MAINS socket-outlets accepting standard MAINS plugs are marked:		N/A
	With the voltage if it is different from the MAINS supply voltage ..... :		N/A
	For use only with specific equipment		N/A
	If not marked for specific equipment it is marked with:		N/A
	The maximum rated current or power; or		N/A
	Symbol 14 with full details in the documentation		N/A
5.1.4	Fuses		N/A
	Operator replaceable fuse marking (see also 5.4.5) ..... :	No fuse used	N/A
5.1.5	TERMINALS, connections and operating devices		P
5.1.5.1	General		P
	Where necessary for safety, indication of purpose of TERMINALS, connectors, controls and indicators marked		P
	If insufficient space, symbol 14 used		P
	Push-buttons and actuators of emergency stop devices and indicators:	No such devices	—
	used only to indicate a warning of danger or		N/A
	the need for urgent action		N/A
	coloured red		N/A
	coded as specified in IEC 60073		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary means of coding provided, if meaning of colour relates (see IEC 60073):		N/A
	to safety of persons; or		N/A
	safety of the environment		N/A
5.1.5.2	TERMINALS		N/A
	MAINS supply TERMINAL identified		N/A
	Other TERMINAL marking:		N/A
	a) FUNCTIONAL EARTH TERMINALS (symbol 5 used)		N/A
	b) PROTECTIVE CONDUCTOR TERMINALS:		N/A
	Symbol 6 is placed close to or on the TERMINAL; or		N/A
	Part of appliance inlet		N/A
	c) TERMINALS of control circuits (symbol 7 used)		N/A
	d) HAZARDOUS LIVE TERMINALS supplied from the interior		N/A
	Standard MAINS socket outlet; or		N/A
	RATINGS marked; or		N/A
	Symbol 14 used		N/A
5.1.5.101	*Measuring circuit TERMINALS*		P
5.1.5.101.1	*a) mark the RATED voltage to earth*		P
	b) mark the RATED voltage or the RATED current, as applicable, of each pair or set	Rated voltage marked	P
	c) the pertinent MEASUREMENT CATEGORY for each pair or set of measuring circuit TERMINALS or symbol 14 of Table 1		P
	Markings shall be placed adjacent to the TERMINALS. or on the RATING plate or scale plate	Markings are placed adjacent to the TERMINALS	P
	For any set of measuring circuit TERMINALS, symbol 14 of Table 1 does not need to be marked more than once, if it is close to the TERMINALS.		P
	marked "CAT lll" or "CAT IV" as applicable	CAT III	P
	Measuring circuit TERMINALS that do not have a RATING for connection to voltages above the levels of 6.3.1, may be marked with alternative markings		P
	Measuring circuit TERMINALS which are dedicated only for connection to specific TERMINALS of other equipment need not be marked		N/A
	TERMINALS markings shall be visible for NORMAL USE		P

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.5.101.2	*Measuring circuit TERMINALS RATED for MEASUREMENT CATEGORIES II, III or IV*	CAT II and CAT III	P
5.1.5.101.3	*Measuring circuit TERMINALS RATED for connection to voltages above the level of 6.3.1*		P
5.1.5.101.4	*Low voltage, permanently connected, or dedicated measuring circuit TERMINALS*		N/A
5.1.5.102	*Voltage and current RATINGS of JAWS*		P
	Current sensors that are intended to be used on UNINSULATED conductors shall be marked with the value of the RATED voltage to earth of the JAWS	CAT III 300V and CAT II 600V	P
	Current sensors that are intended to be used only on insulated conductors shall be marked to indicate that the current sensor must not be used on UNINSULATED conductors, or with symbol 14.		N/A
	JAWS of Type A, Type B or Type C current sensors shall be marked with the relevant MEASUREMENT CATEGORY II, III or IV	Type A JAWS marked with CAT III and CAT II	P
	Type D current sensors shall not be marked with any MEASUREMENT CATEGORY.		N/A
	The value of the RATED current shall be marked.	Near to the rotary button	P
5.1.6	Switches and circuit breakers	No switches and circuit breakers	N/A
	If disconnecting device, off position clearly marked		N/A
	If push-button used as power supply switch:		N/A
	Symbol 9 and 15 used for on-position		N/A
	Symbol 10 and 16 used for off-position		N/A
	Pair of symbols 9, 15 and 10, 16 close together		N/A
5.1.7	Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION		P
	Protected throughout (symbol 11 used)		P
	Only partially protected (symbol 11 not used)		N/A
5.1.8	Field-wiring TERMINAL boxes		N/A
	If TERMINAL or ENCLOSURE exceeds 60 °C:		N/A
	Cable temperature RATING marked..... :		N/A
	Marking visible before and during connection or beside TERMINAL		N/A
5.2	Warning markings		P
	Visible when ready for NORMAL USE		P
	Are near or on applicable parts		P
	Symbols and text correct dimensions and colour:		—

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	a) symbols min 2,75 mm and text 1,5 mm high and contrasting in colour with background		P
	b) symbols and text moulded, stamped or engraved in material min. 2,0 mm high and	Texts were silkscreened on the rear enclosure	N/A
	0,5 mm depth or raised if not contrasting in colour		N/A
	If necessary marked with symbol 14		P
	Statement of the instructions to isolate or disconnect if access by using a tool to HAZARDOUS LIVE parts is permitted		P
5.3	Durability of markings		P
	The required markings remain clear and legible in NORMAL USE		P
5.4	Documentation		P
5.4.1	General		P
	Equipment is accompanied by documentation for safety purposes for OPERATOR or RESPONSIBLE BODY		P
	in an accepted language of the country where the product is intended to be placed on the market	Not checked	N/A
	Safety documentation for service personnel authorized by the manufacturer		P
	Documentation necessary for safe operation is provided in printed media or	Hard copy provided	P
	in electronic media if available at any time		P
	Documentation includes:		—
	a) intended use	Specified in the operation manual	P
	b) technical specification	Specified in the operation manual	P
	c) name and address of manufacturer or supplier	Specified in the operation manual	P
	d) information specified in 5.4.2 to 5.4.6	Specified in the operation manual	P
	e) information to mitigate residual RISK (see also subclause 17)		N/A
	f) accessories for safe operation of the equipment specified		N/A
	g) guidance provided to check correct function of the equipment, if incorrect reading may cause a HAZARD from harmful or corrosive substances of HAZARDOUS live parts	Specified in the operation manual	P
	h) instructions for lifting and carrying	Weight less than 18kg	N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	aa) probe assemblies to be used for MAINS measurements shall be RATED as appropriate for MEASUREMENT CATEGORY III or IV and		P
	shall have a voltage RATING of at least the voltage of the circuit to be measured;		P
	bb) documentation shall clearly identify the MEASUREMENT CATEGORIES where the equipment may be used and where it must not be used		P
5.4.2	Equipment ratings		P
	Documentation includes:		—
	a) Supply voltage or voltage range.....:	Powered battery 9V	N/A
	Frequency or frequency range .....:		N/A
	Power or current rating.....:		N/A
	b) Description of all input and output connections in accordance to 6.6.1 a)		N/A
	c) RATING of insulation of external circuits in accordance to 6.6.1 b)		N/A
	d) Statement of the range of environmental conditions (see 1.4)		N/A
	e) Degree of protection (IEC 60529)		N/A
	f) if impact rating less than 5 J:		N/A
	IK code in accordance to IEC 62262 marked or		N/A
	symbol 14 of table 1 marked, with		N/A
	RATED energy level and test method stated		N/A
	aa) information about each relevant MEASUREMENT CATEGORY		P
bb)	*a warning not to use the equipment for measurements on MAINS CIRCUITS if not intend for any measurement category*		N/A
	Warning statements and a clear explanation of warning symbols:		—
	Provided in the documentation; or		P
	Information is marked on the equipment		N/A
5.4.3	Equipment installation	Handheld equipment	N/A
	Documentation includes instructions for:		N/A
	a) assembly, location and mounting requirements		N/A
	b) protective earthing		N/A
	c) connections to supply		N/A
	d) PERMANENTLY CONNECTED EQUIPMENT:		N/A
	1) Supply wiring requirements		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	2) If external switch or circuit-breaker, requirements and location recommendation		N/A
	e) ventilation requirements		N/A
	f) special services (e. g. air, cooling liquid)		N/A
	g) instructions relating to sound level		N/A
	aa) for permanently connected measuring circuit TERMINALS RATED for MEASUREMENT CATEGORIES II, III or IV		N/A
	bb) for permanently connected measuring circuit TERMINALS that are not RATED for MEASUREMENT CATEGORIES II, III or IV		N/A
5.4.4	Equipment operation		P
	Instructions for use include:		P
	a) *identification and description of operating controls*		P
	b) *a clear identification of the equipment;*		P
	c) *specifications of limits for intermittent operation*	Continuous working	N/A
	d) *specifications of limits of the current versus the frequency*		N/A
	e) *explanation of symbols used*		P
	f) *instructions for interconnection*		N/A
	g) *replacement of consumable materials*	Battery	P
	h) *instructions for cleaning and decontamination*		N/A
	i) *instructions for the application and removal of the current sensor;*		N/A
	j) *instructions to de-energise the installation or to adopt safe operating procedures*		N/A
	k) instructions to de-energise the installation during application and removal of Type C current sensors		N/A
	l) instructions about the function of the tactile indicator or PROTECTIVE BARRIER,		P
	m) a warning to the OPERATOR about Type D current sensors		N/A
	n) a warning to the OPERATOR that individual protective equipment should be used		N/A
	o) a warning to the OPERATOR not to use a flexible current sensor if the wear indicator is visible		N/A
	p) a warning not to use a current sensor if the wear indicator in the JAW END is visible		N/A
	q) a warning not to use a current sensor above its RATED frequency, if the magnetic circuit can reach a hazardous temperature (see 10.101).		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	A statement about protection impairment if used in a manner not specified by the manufacturer		P
5.4.5	Equipment maintenance and Service		P
	Instructions for RESPONSIBLE BODY include:		—
	Instructions sufficient in detail permitting safe maintenance and inspection and continued safety:		P
	Instruction against the use of detachable MAINS supply cord with inadequate rating		N/A
	Specific battery type of user replaceable batteries	9V Battery (NEDA1604A or 6LF22)	P
	Any manufacturer specified parts		N/A
	Rating and characteristics of fuses	No fuse used	N/A
	Instructions include following subjects permitting safe servicing and continued safety:		N/A
	a) product specific RISKS may affect service personnel		N/A
	b) protective measures for these RISKS		N/A
	c) verification of the safe state after repair		N/A
5.4.6	Integration into systems or effects resulting from special conditions		N/A
	Aspects described in documentation		N/A
6	PROTECTION AGAINST ELECTRIC SHOCK		P
6.1	General		P
6.1.1	Requirements		—
6.1.2	Exceptions		N/A
	aa) conductive parts of a JAW END, provided that they meet the requirements of 6.9.101.		N/A
6.2	Determination of ACCESSIBLE parts		P
6.2.1	General		P
	Unless obviously determination of ACCESSIBLE parts as specified in 6.2.2 to 6.2.4		N/A
6.2.2	Examination		P
	- with jointed test finger (as specified B.2)		P
	- with rigid test finger (as specified B.1) and a force of 10 N		P
6.2.3	Openings above parts that are HAZARDOUS LIVE	No such opening	N/A
	- test pin with length of 100 mm and 4 mm in diameter applied		N/A
6.2.4	Openings for pre-set controls		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	- test pin with length of 100 mm and 3 mm in diameter applied		N/A
6.3	Limit values for ACCESSIBLE parts		P
6.3.1	Levels in NORMAL CONDITION	Network: A1 Max leakage current: 0,120mApeak, 0,0254mArms	P
6.3.2	Levels in SINGLE FAULT CONDITION	Network: A1 Max leakage current: 0,120mApeak, 0,0258mArms	P
6.4	Primary means of protection		P
	a) ENCLOSURES or PROTECTIVE BARRIERS (see 6.4.2)		P
	b) BASIC INSULATION (see 6.4.3)		N/A
	c) Impedance (see 6.4.4)		N/A
6.5	Additional means of protection in case of SINGLE FAULT CONDITION		P
6.5.1	ACCESSIBLE parts are prevented from becoming HAZARDOUS live by the primary means of protection and supplemented by one of:		P
	a) *SUPPLEMENTARY INSULATION (SEE 6.5.3)*		P
	b) *Current or voltage limiting device (see 6.5.6)*		N/A
	c) *REINFORCED INSULATION (see 6.5.3).*		P
	d) *PROTECTIVE IMPEDANCE (see 6.5.4)*		N/A
	Alternatively one of the single means of protection is used:		P
	e) REINFORCED INSULATION (see 6.5.3)		P
	f) PROTECTIVE IMPEDANCE (see 6.5.4)		N/A
6.5.2	PROTECTIVE BONDING	Class II equipment	N/A
	NOT USED		N/A
6.5.3	SUPPLEMENTARY and REINFORCED INSULATION		P
	Meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7		P
6.5.4	PROTECTIVE IMPEDANCE		N/A
	Limits current or voltage to level of 6.3.1 in NORMAL and to level of 6.3.2 in SINGLE FAULT CONDITION		N/A
	CLEARANCE, CREEPAGE DISTANCE between terminations of the impedance meet requirements of DOUBLE or REINFORCED INSULATION of 6.7		N/A
	The PROTECTIVE IMPEDANCE consists of one or more of the following:		—
	a) appropriate single component suitable for safety and reliability for protection, it is:		N/A
	1) RATED twice the maximum WORKING VOLTAGE		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	2) resistor RATED for twice the power dissipation for maximum WORKING VOLTAGE		N/A
	b) combination of components		N/A
	Single electronic device not used as PROTECTIVE IMPEDANCE		N/A
6.5.5	Automatic disconnection of the supply		N/A
6.5.6	Current- or voltage-limiting devices		N/A
6.6	Connections to external circuits		P
6.6.1	Connections do not cause ACCESSIBLE parts of the following to become HAZARDOUS LIVE in NORMAL CONDITION or SINGLE FAULT CONDITION:		P
	- the external circuits		P
	- the equipment		N/A
	Protection achieved by separation of circuits; or		N/A
	short circuit of separation does not cause a HAZARD		N/A
	Instructions or markings for each terminal include:		—
	a) RATED conditions for TERMINAL		N/A
	b) Required RATING of external circuit insulation		N/A
6.6.2	TERMINALS for external circuits		N/A
	TERMINALS which receive a charge from an internal capacitor are not HAZARDOUS LIVE after 10 s of interrupting supply connection		N/A
6.6.3	Circuits with terminals which are HAZARDOUS LIVE		N/A
	These circuits are:		N/A
	Not connected to ACCESSIBLE conductive parts; or		N/A
	Connected to ACCESSIBLE conductive parts, but are not MAINS CIRCUITS and have one TERMINAL contact at earth potential		N/A
	No ACCESSIBLE conductive parts are HAZARDOUS LIVE		N/A
6.6.4	ACCESSIBLE terminals for stranded conductors		N/A
	No RISK of accidental contact because:		N/A
	Located or shielded		N/A
	Self-evident or marked whether or not connected to ACCESSIBLE conductive parts		N/A
	ACCESSIBLE TERMINALS will not work loose		N/A
6.6.101	*Measuring circuit TERMINALS*		P

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	Conductive parts of each unmated measuring circuit TERMINAL which could become HAZARDOUS LIVE when the maximum RATED voltage is applied to other measuring circuit TERMINALS on the equipment shall be separated by at least the CLEARANCE and CREEPAGE DISTANCE of Table 101 from the closest approach of the test finger touching the external parts of the TERMINAL in the least favourable position.	No unmated measuring circuit terminals	N/A
6.6.102	*Specialized measuring circuit TERMINALS*		N/A
6.7	Insulation requirements	See appended table	P
6.8	Procedure for dielectric strength tests	See appended table	P
6.9	Constructional requirements for protection against electric shock		P
6.9.1	If a failure could cause a HAZARD:		P
	a) Security of wiring connections		N/A
	b) Screws securing removable covers		P
	c) Accidental loosening		N/A
	d) CLEARANCES and CREEPAGE DISTANCES not reduced below the values of basic insulation by loosening of parts or wires		P
6.9.2	Insulating materials		P
	Material not to be used for safety relevant insulation:		P
	a) Easily damaged materials not used		P
	b) Non-impregnated hygroscopic materials not used		P
6.9.3	Colour coding		N/A
	Green-and-yellow insulation shall not be used except:		N/A
	a) protective earth conductors;		N/A
	b) PROTECTIVE BONDING conductors;		N/A
	c) potential equalization conductors;		N/A
	d) functional earth conductors		N/A
6.9.101	*Insulation requirements for JAWS and JAW ENDS*		P
6.9.101.1	*Pre-treatment of the JAW ENDS*		P
6.9.101.2	*Protection against touching the HAZARDOUS LIVE conductor*		P
6.9.101.3	*HAND-HELD or hand-manipulated parts*		P
	Type A current sensors shall be separated by DOUBLE INSULATION or REINFORCED INSULATION		P
6.9.101.4	*Insulation of flexible current sensors*	No flexible current sensors	N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	provide at least DOUBLE INSULATION or REINFORCED INSULATION when new, and		N/A
	at least BASIC INSULATION when the wear indicator is visible		N/A
	a contrasting colour of wear indicator		N/A
	a flexible current sensor without a wear indicator shall provide at least DOUBLE INSULATION or REINFORCED INSULATION when new and after typical lifetime wear.		N/A
6.9.101.5	*Pull test for endcaps of flexible current sensors*		N/A
	the endcaps of a flexible cord shall be securely fixed		N/A
	After the last pull:		N/A
	a) the insulation shall not have moved more than 1 mm more than the displacement from the first pull if it is subjected to 16 pulls;		N/A
	b) CLEARANCES and CREEPAGE DISTANCES shall not have been reduced below the applicable values of K.101 for REINFORCED INSULATION; and		N/A
	c) the current sensor shall pass the tests of K.101.4 for REINFORCED INSULATION.		N/A
6.9.102	*Input measuring circuit leads*	Not evaluated in this report	N/A
	meet the requirements of IEC 61010-031		N/A
6.9.103	*Output circuit leads*	Not evaluated in this report	N/A
	The output circuit leads of current sensors shall have REINFORCED INSULATION between their outer surfaces and their conductors.		N/A
	The mated connectors and TERMINALS located at the current sensor ENCLOSURE body shall have REINFORCED INSULATION between their outer surfaces and their conductors.		N/A
	For Type A, Type B and Type C current sensors, the insulation of the output circuit leads, and of the mated connectors and TERMINALS is based on the requirements of K.101		N/A
	For Type D current sensors, the insulation of the output circuit leads and of the mated connectors and TERMINALS is based on the requirements of K.101 for 300 V in CAT II		N/A
6.9.101	*METER RATINGS*		P
	RATED for a minimum of 300 V a.c. r.m.s. to earth, and a minimum CAT III	CAT III 300V	P
	The RATED voltage of measuring circuit TERMINALS shall be equal to or higher than the RATED voltage to earth of the TERMINALS		P

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
6.10	Connection to MAINS supply source and connections between parts of equipment		N/A
6.10.1	MAINS supply cords	No MAINS supply cord	N/A
	RATED for maximum equipment current (see 5.1.3 c)		N/A
	Cable complies with IEC 60227 or IEC 60245		N/A
	Heat-resistant if likely to contact hot parts		N/A
	Temperature RATING (cord and inlet) .....:		N/A
	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		N/A
	Detachable cords with IEC 60320 MAINS connectors:		—
	Conform to IEC 60799; or		N/A
	Have the current RATING of the MAINS connector		N/A
6.10.2	Fitting of non-detachable MAINS supply cords		N/A
6.10.2.1	Cord entry		N/A
	a) Inlet or bushing with a smoothly rounded opening; or		N/A
	b) Insulated cord guard protruding >5 D		N/A
6.10.2.2	Cord anchorage		N/A
	Protective earth conductor is the last to take the strain		N/A
	a) Cord is not clamped by direct pressure from a screw		N/A
	b) Knots are not used		N/A
	c) Cannot push the cord into the equipment to cause a HAZARD		N/A
	d) No failure of cord insulation in anchorage with metal parts		N/A
	e) Not to be loosened without a tool		N/A
	f) Cord replacement does not cause a HAZARD and method of strain relief is clear		N/A
	Push-pull and or torque test		N/A
6.10.3	Plugs and connectors		N/A
	MAINS supply plugs, connectors etc., conform with relevant specifications		N/A
	If equipment supplied at voltages below 6.3.2.a) or from a sole source:		—
	Plugs of supply cords do not fit MAINS sockets above rated SUPPLY voltage		N/A
	MAINS type plugs used only for connection to MAINS supply		N/A
	Plug pins which receive a charge from an internal capacitor		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessory MAINS socket outlets:		—
	a) Marking if accepts a standard MAINS supply plug (see 5.1.3e)		N/A
	b) Input has a protective earth conductor if outlet has EARTH TERMINAL CONTACT		N/A
6.11	Disconnection from supply source		N/A
6.11.1	Disconnects all current-carrying conductors		N/A
6.11.2	Exceptions		N/A
6.11.3	Requirements according to type of equipment		N/A
6.11.3.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment		N/A
	Employs switch or circuit-breaker		N/A
	If switch or circuit-breaker is not part of the equipment, documentation requires:		—
	a) Switch or circuit-breaker to be included in building installation		N/A
	b) Suitable location easily reached		N/A
	c) Marking as disconnecting for the equipment		N/A
6.11.3.2	Single-phase cord-connected equipment	Powered by battery	N/A
	Equipment is provided with one of the following:		N/A
	a) Switch or circuit-breaker		N/A
	b) Appliance coupler (disconnectable without tool)		N/A
	c) Separable plug (without locking device)		N/A
6.11.4	Disconnecting devices		N/A
6.11.4.1	Disconnecting device part of equipment		N/A
	Electrically close to the SUPPLY		N/A
	Power-consuming components not electrically located between the supply source and the disconnecting device		N/A
	Except electromagnetic interference suppression circuits permitted to be located on the supply side of the disconnecting device		N/A
6.11.4.2	Switches and circuit-breakers		N/A
	When used as disconnection device:		—
	Meets IEC 60947-1 and IEC 60947-3		N/A
	Marked to indicate function .....:		N/A
	Not incorporated in MAINS cord		N/A
	Does not interrupt PROTECTIVE EARTH CONDUCTOR		N/A
6.11.4.3	Appliance couplers and plugs		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.3.2):		N/A
	Readily identifiable and easily reached by the operator		N/A
	Single-phase portable equipment cord length not more than 3 m		N/A
	PROTECTIVE EARTH CONDUCTOR connected first and disconnected last		N/A
7	PROTECTION AGAINST MECHANICAL HAZARDS		P
7.1	Equipment does not cause a mechanical HAZARD in NORMAL nor in SINGLE FAULT CONDITION		P
	Conformity is checked by 7.2 to 7.7		P
7.2	Sharp edges		P
	Easily touched parts are smooth and rounded		P
	Do not cause injury during NORMAL USE and		P
	Do not cause injury during SINGLE FAULT CONDITION		P
7.3	Moving parts		N/A
7.4	Stability	Hand held equipment	N/A
7.5	Provisions for lifting and carrying	Less than 18kg	N/A
7.6	Wall mounting		N/A
7.7	Expelled parts		N/A
8	RESISTANCE TO MECHANICAL STRESSES		P
8.1	Equipment does not cause a HAZARD when subjected to mechanical stresses in NORMAL USE		P
8.2	ENCLOSURE rigidity test		P
8.2.1	Static test		P
8.2.101	*JAW impact test*		P
8.2.2	Impact test		P
8.3	Drop test		P
9	PROTECTION AGAINST THE SPREAD OF FIRE		P
9.1	No spread of fire in NORMAL and SINGLE FAULT CONDITION		P
	MAINS supplied equipment meets requirements of 9.6 additionally	Powered by battery only	N/A
	Conformity is checked by minimum one or a combination of the following (see Figure 11):		—
	a) SINGLE FAULT test of 4.4; or		P

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Application of 9.2 (eliminating or reducing the sources of ignition); or		N/A
	c) Application of 9.3 (containment of fire within the equipment)		P
9.2	Eliminating or reducing the sources of ignition within the equipment		N/A
9.3	Containment of the fire within the equipment, should it occur	Plastic Enclosure flammability classification V-0	P
9.4	Limited-energy circuit		N/A
9.5	Requirements for equipment containing or using flammable liquids		N/A
9.6	Overcurrent protection		N/A
9.6.1	MAINS supplied equipment protected		N/A
	BASIC INSULATION between MAINS parts of opposite polarity provided		N/A
	Devices not in the protective conductor		N/A
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		N/A
9.6.2	PERMANENTLY CONNECTED EQUIPMENT		N/A
	Overcurrent protection device:		N/A
	Fitted within the equipment; or		N/A
	Specified in manufacturer's instructions		N/A
9.6.3	Other equipment		N/A
	Protection within the equipment		N/A
10	EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT		P
10.1	Surface temperature limits for protection against burns		P
10.2	Temperatures of windings		N/A
10.3	Other temperature measurements	The temperature of non-metallic ENCLOSURES is measured	P
10.4	Conduct of temperature tests		P
10.5	Resistance to heat	70℃ and for 7 hours, no damage occur	P
10.5.101	*Resistance to heat of current sensors*	Tested at 105℃ in the heating cabinet	P
10.101	*Other temperatures of current sensors*		N/A
11	PROTECTION AGAINST HAZARDS FROM FLUIDS		N/A
11.1	Protection to OPERATORS and surrounding area provided by EQUIPMENT	No fluid	N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
	All fluids specified by manufacturer considered		N/A
11.2	Cleaning		N/A
11.3	Spillage		N/A
11.4	Overflow		N/A
11.5	Battery electrolyte		N/A
	Battery electrolyte leakage presents no HAZARD		N/A
11.6	Specially protected equipment		N/A
11.7	Fluid pressure and leakage		N/A
12	PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE		N/A
12.1	Equipment provides protection		N/A
12.2	Equipment producing ionizing radiation		N/A
12.3	Ultraviolet (UV) radiation		N/A
12.4	Microwave radiation		N/A
12.5	Sonic and ultrasonic pressure		N/A
12.6	Laser sources		N/A
13	PROTECTION AGAINST LIBERATED GASES AND SUBSTANCES, EXPLOSION AND IMPLOSION		P
13.1	Poisonous and injurious gases and substances		N/A
13.2	Explosion and implosion		N/A
13.2.1	Components		N/A
13.2.2	Batteries and battery charging	No hazard when reversed the polarities of battery	P
13.2.3	Implosion of cathode ray tubes		N/A
14	COMPONENTS AND SUBASSEMBLIES		P
14.1	Where safety is involved, components and subassemblies meet relevant requirements		P
14.2	Motors	No motor used	N/A
14.2.1	Motor temperatures		N/A
	Does not present a HAZARD when stopped or prevented from starting; or		N/A
	Protected by over-temperature or thermal protection device conform with 14.3		N/A
14.2.2	Series excitation motors		N/A
	Connected direct to device, if overspeeding causes a HAZARD		N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
14.3	Overtemperature protection devices		N/A
	Devices operating in a SINGLE FAULT CONDITION		N/A
	a) Reliable function is ensured		N/A
	b) RATED to interrupt maximum current and voltage		N/A
	c) Does not operate in NORMAL USE		N/A
	If self-resetting device used to prevent a HAZARD, protected part requires intervention before restarting		N/A
14.4	Fuse holders		N/A
	No access to HAZARDOUS LIVE parts		N/A
14.5	MAINS voltage selecting devices		N/A
	Accidental change not possible		N/A
14.6	MAINS transformers tested outside equipment		N/A
14.7	Printed circuit boards		P
	Data shows conformity with V-1 of IEC 60695-11-10 or better; or	PCB have flammability classification V-0	P
	Test shows conformity with V-1 of IEC 60695-11-10 or better		N/A
	Not applicable for printed wiring boards with limited-energy circuits (9.4)		N/A
14.8	Circuits or components used as TRANSIENT OVERVOLTAGE limiting devices		N/A
	Test conducted between each pair of MAINS SUPPLY TERMINALS		N/A
	No HAZARD resulting from rupture or overheating of the component:		N/A
	- no bridging of safety relevant insulation		N/A
	- no heat to other parts above the self-ignition points		N/A
14.101	*Circuits or components used as TRANSIENT OVERVOLTAGE limiting devices in measuring circuits used to measure MAINS*		N/A
14.102	*Probe assemblies and accessories*		P
15	PROTECTION BY INTERLOCKS		N/A
15.1	Interlocks are designed to remove a HAZARD before OPERATOR exposed		N/A
15.2	Prevention of reactivation		N/A
15.3	Reliability		N/A
16	HAZARDS RESULTING FROM APPLICATION		P

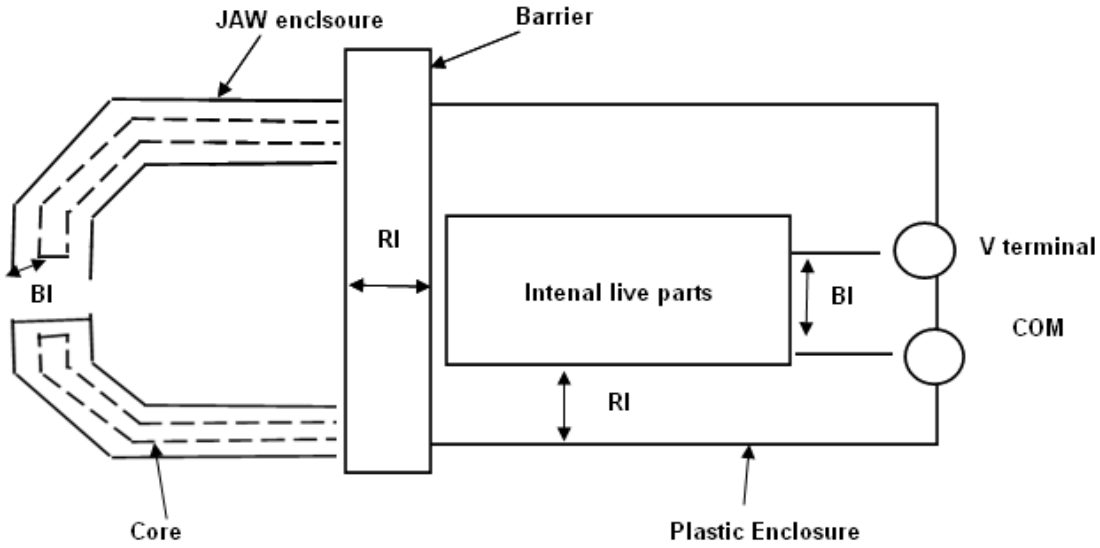
EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
16.1	REASONABLY FORESEEABLE MISUSE		N/A
	No HAZARDS arising from settings not intended and not described in the instructions		N/A
	Other cases of REASONABLY FORESEEABLE MISUSE addressed by RISK assessment		N/A
16.2	Ergonomic aspects		N/A
16.101	*Reliance on the displayed value*		p
16.101.1	*Over-range indication*		P
16.101.2	*Low battery indication*		P
17	RISK ASSESSMENT		P
	RISK assessment conducted, if HAZARD might arise and not covered by Clauses 6 to 16		P
101	*Measuring circuits*		P
101.1	*The equipment shall provide protection against HAZARDS resulting from NORMAL USE and REASONABLY FORESEEABLE MISUSE of measuring circuits,*		P
	a) a current measuring circuit shall not interrupt the circuit being measured during range changing, or during the use of current sensors with an internal current transformer		N/A
	b) An electrical quantity that is within specification for any TERMINAL shall not cause a HAZARD when it is applied to that TERMINAL or any other compatible TERMINAL, with the range and function settings set in any possible manner		P
	c) Any interconnection between the equipment and other devices or accessories shall not cause a HAZARD even if the documentation or markings prohibit the interconnection while the equipment is used for measurement purposes		P
	d) A TEMPORARY OVERVOLTAGE or a TRANSIENT OVERVOLTAGE applied on the measuring circuits TERMINALS in voltage measurement function shall not cause a HAZARD		P
	e) Other HAZARDS that could result from REASONABLY FORESEEABLE MISUSE shall be addressed by RISK assessment		N/A
101.2	*Current measuring circuits*		P
	If a high voltage could be generated by an open-circuit condition of the output circuit, any voltage above the levels of 6.3.2 shall not be ACCESSIBLE		N/A
101.3	*Protection against mismatches of inputs and ranges*		P

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement + Test	Result - Remark	Verdict
101.3.1	*In NORMAL CONDITION and in cases of REASONABLY FORESEEABLE MISUSE, no HAZARD shall arise when the maximum RATED voltage or current of a measuring TERMINAL is applied to any other compatible TERMINAL, with any combination of function and range settings*		P
101.3.2	*Protection by a certified overcurrent protection device*		N/A
101.3.3	*Protection by uncertified current limitation devices or by impedances*		P
101.3.4	*Test leads for the tests of 101.3.2 and 101.3.3*		P
101.4	*Functional integrity*		P
101.4	*Protection against MAINS overvoltages*		P
102	*Prevention of HAZARD from arc flash and short-circuits*		P
102.1	*The current sensor shall be constructed to mitigate the RISK of arc flash and short-circuits*		P
102.2	*Protection against short-circuits during clamping*		P
102.3	*Protection against short-circuits in closed position*		P

ANNEX F	ROUTINE TESTS		N/A
	Manufacturer ´s declaration	Not checked	N/A

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Block diagram of system**	**Form A.14**	P



Pollution degree ..... : 2	Overvoltage category ..... : CAT III and CAT II

Area	Location	Insulation type	WORKING VOLTAGE			Test voltage	Comments (NOTE 3)
		(NOTE 1)	RMS V	Peak V	Frequency kHz	(NOTE 2) V	
A	Live parts on the PCB to accessible parts	RI	CAT II 600V, CAT III 300V	-	-	4234,0Vrms（3470 x 1,22）	Pass
B	Live part along the button to accessible parts	RI	CAT II 600V, CAT III 300V	-	-	4234,0Vrms（3470 x 1,22）	Pass
C	V terminal to COM terminal before PTC, ZOV and high impedance resistors	BI	CAT II 600V, CAT III 300V	-	-	2564,0Vrms（2210 x 1,16）	Pass
D	Core in the opening of the clamp to clamp enclosure	BI	CAT II 600V, CAT III 300V	-	-	2564,0Vrms（2210 x 1,16）	Pass
E	Barrier between accessible enclosure and clamp measure parts	RI	CAT II 600V, CAT III	-	-	4234,0Vrms（3470 x 1,22）	Pass

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Block diagram of system**					**Form A.14**		P
			300V					

NOTE 1 – Type of insulation:
BI = BASIC INSULATION
DI = DOUBLE INSULATION
PI = PROTECTIVE IMPEDANCE
RI = Reinforced INSULATION
SI = Supplementary INSULATION
see also Form A.15 for further details

NOTE 2 - Types of voltage
Peak impulse test voltage (pulse)
r.m.s.
d.c.
peak

NOTE 3 - OVERVOLTAGE CATEGORIES or POLLUTION DEGREES which differ should be shown under "Comments"

Supplementary Information:

Enclosure Material group considered as CTI II, CAT II 600V and CAT III 300V, operation altitude up 2000m, so that limited of clearance and creeage distance as following:

CL (BI) = 3,0mm, CL (RI) = 5,9mm; CR (BI) = 4,3 mm, CR (RI)= 8,6mm

On PCB: CR (BI) = CL (BI) = 3,0mm

Material group of JAWS considered as CTI IIIb, so that CR (BI) = 6,0mm

Remark: CL: clearance; CR: creepage distance

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Clearances and Creepages**		**Form A.15**	P
6.2.2	Examination	6.5.4	Protective impedance	—
6.4.2	ENCLOSURES and protective barriers	6.5.6	Current- or voltage-limiting device	—
6.4.4	Impedance			—

Area	Location	Insulation type	WORKING VOLTAGE (NOTE 2)			Clearance		Creepage		CTI	Verdict	Comments
	(See Form A.14)	(NOTE 1)	RMS V	Peak V	Frequency kHz	Required mm	Measured mm	Required mm	Measured mm			
A	Live parts on the PCB to accessible parts	RI	CAT II 600V, CAT III 300V	-	-	5,9	10,58	8,6	10,58	II	P	
B	Live part along the button to accessible parts	RI	CAT II 600V, CAT III 300V	-	-	5,9	11,91	8,6	11,91	II	P	
C	V terminal to COM terminal before PTC, ZOV and high impedance resistors	BI	CAT II 600V, CAT III 300V	-	-	3,0	8,43	3,0	>8,43	II	P	
D	Core in the opening of the clamp to clamp enclosure	BI	CAT II 600V, CAT III 300V	-	-	3,0	6,15	6,0	6,15	IIIb	P	
E	Barrier between accessible enclosure and clamp measure parts	RI	CAT II 600V, CAT III 300V	-	-	5,9	9,71	8,6	9,71	II	P	

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

6.7	**TABLE: Insulation requirements- Clearances and Creepages**		**Form A.15**	P
6.2.2	Examination	6.5.4	Protective impedance	—
6.4.2	ENCLOSURES and protective barriers	6.5.6	Current- or voltage-limiting device	—
6.4.4	Impedance			—

Area	Location	Insulation type	WORKING VOLTAGE (NOTE 2)			Clearance		Creepage		CTI	Verdict	Comments
	(See Form A.14)	(NOTE 1)	RMS V	Peak V	Frequency kHz	Required mm	Measured mm	Required mm	Measured mm			

NOTE 1 – refer to Form A.14 for type of insulation shown in the insulation diagram NOTE 2 - to be used for definition of required insulation (see Form A.14)

Input supply voltage…….:	- V	- Hz

Supplementary information:

Enclosure Material group considered as II, CAT II 600V and CAT III 300V, operation altitude up 2000m, so that limited of clearance and creeage distance as following:

CL (BI) = 3,0mm, CL (RI) = 5,9mm; CR (BI) = 4,3 mm, CR (RI)= 8,6mm

On PCB: CR (BI) = CL (BI) = 3,0mm

Material group of JAWS considered as CTI IIIb, so that CR (BI) = 6,0mm

Remark: CL: clearance; CR: creepage distance

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

6.8	**TABLE: Dielectric strength tests**	**Form A.19**	
4.4.4.1 b)	Conformity after application of SINGLE FAULT CONDITIONS[1]		P
6.4	Primary means of protection[2]		P
6.6	Connections to external circuits		P
6.7.	Insulation requirements[2] (see Annnex K)		P
6.10.2	Fitting of non-detachable MAINS supply cords[1]		N/A
9.2 a) 2)	Eliminating or reducing the sources of ignition within the equipment		N/A
9.4 c)	Limited-energy circuit		N/A
9.6.1	Overcurrent protection basic insulation between MAINS - parts		N/A
	Test site altitude.....:	Up to 500m	—
	Test voltage correction factor (see Table 10).....:	1,16 or 1,22	—

Location or references from Forms A.1 and A.14	Clause or sub-clause	Humidity Yes/No	Working voltage V	Test voltage r.m.s./peak/ d.c.	Comments (NOTE)	Verdict
Internal live parts to outer accessible parts	4.4.4.1 b)	No	CAT II 600V, CAT III 300V	2564,0Vrms	Basic insulation, 1 min	P
	6.4; 6.6; 6.7	Yes	CAT II 600V, CAT III 300V	4234,0Vrms	Reinforced insulation, 1 min	P
Core in the JAW to outer surface of JAW enclosure	102.3	No	CAT II 600V, CAT III 300V	2564,0Vrms	Basic insulation, 1 min	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:

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

10.	**TABLE : Temperature Measurements** **Form A.27A**	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	P

Operating conditions:	See below descriptions for details		
Frequency .....:	- Hz	Test room ambient temperature (ta)...:	23.7℃ °C
Voltage .....:	- V	Test duration.....:	- h - min

Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments
Condition: Measured 600VAC/50Hz in normal; test duration: 2 hours 6 min					
Enclosure near to V terminal	23,8	50,1	85	P	
Button surface	23,8	50,1	85	P	
LCD display	23,8	50,1	85	P	
Battery compartment	23,9	50,2	85	P	
PCB near to V terminal	31,2	57,5	130	P	
Condition: short battery 9V; test duration: 2 hours					
Enclosure near to V terminal	36,9	65,9	105	P	
Button surface	24,9	51,2	105	P	
LCD display	26,9	53,2	105	P	
Battery compartment	45,6	71,9	105	P	
PCB near to V terminal	33.1	59,4	130	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.21B for details of winding temperature measurements

Supplementary information:

Corrected to Rated max temperature 50℃

EN 61010-1 / EN 61010-2-032 / EN 61010-2-033			
Clause	Requirement — Test	Result — Remark	Verdict

TABLE: 1 - List of components and circuits relied on for safety

Unique component reference or location	Application/function	Manufacturer / trademark (NOTE 1)	Type / model	Technical data (NOTE 2)	Standard	Mark(s) of conformity evidence of acceptance (NOTE 3 and 4)
Plastic Enclosure		LG Chemical Ltd	AF312	85℃,flammability of V-0, material group II	EN 61010-1: 2010 UL 94	UL and tested in appliance
Plastic Enclosure (Current clamp）		SILVER AGE ENGINEERING PLASTIC	2540	80℃,flammability of V-0, material group II	EN 61010-1: 2010 UL 94	UL and tested in appliance
Alternative		SILVER AGE ENGINEERING PLASTIC	2320	80℃,flammability of V-0, material group IIIb	EN 61010-1: 2010 UL 94	UL and tested in appliance
PCB		Various	Various	Min temperature. 120 ℃, V-0	UL 94	UL
Varistor VR1, VR2		LIEN SHUN ELECTRONICS CO LTD	911K	Varistor Voltage 819～1001,Withstand surge Current 1200A	UL 1414	UL E236826
PTC		SHENZHEN AMPRON SENSITIVE COMPONENTS CO., LTD	MZ11-05N152H55	1.5KΩ ±30%	EN 60738-1-1:2008 EN 60738-1:2006	TUV R50187698
Insulating Tape	Wrapped the winding of JAW	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CP-3002#	Flame retardant copper foil tape	UL 510	UL

NOTE → 1 List all different manufacturers of the above components → 4 asterisk indicates mark assuring agreed level of surveillance
→ 2 May include electrical, mechanical values
→ 3 List licence no or method of acceptance

Photo 1 - Front view

Photo 2 - Rear view

Photo 3 – Battery compartment

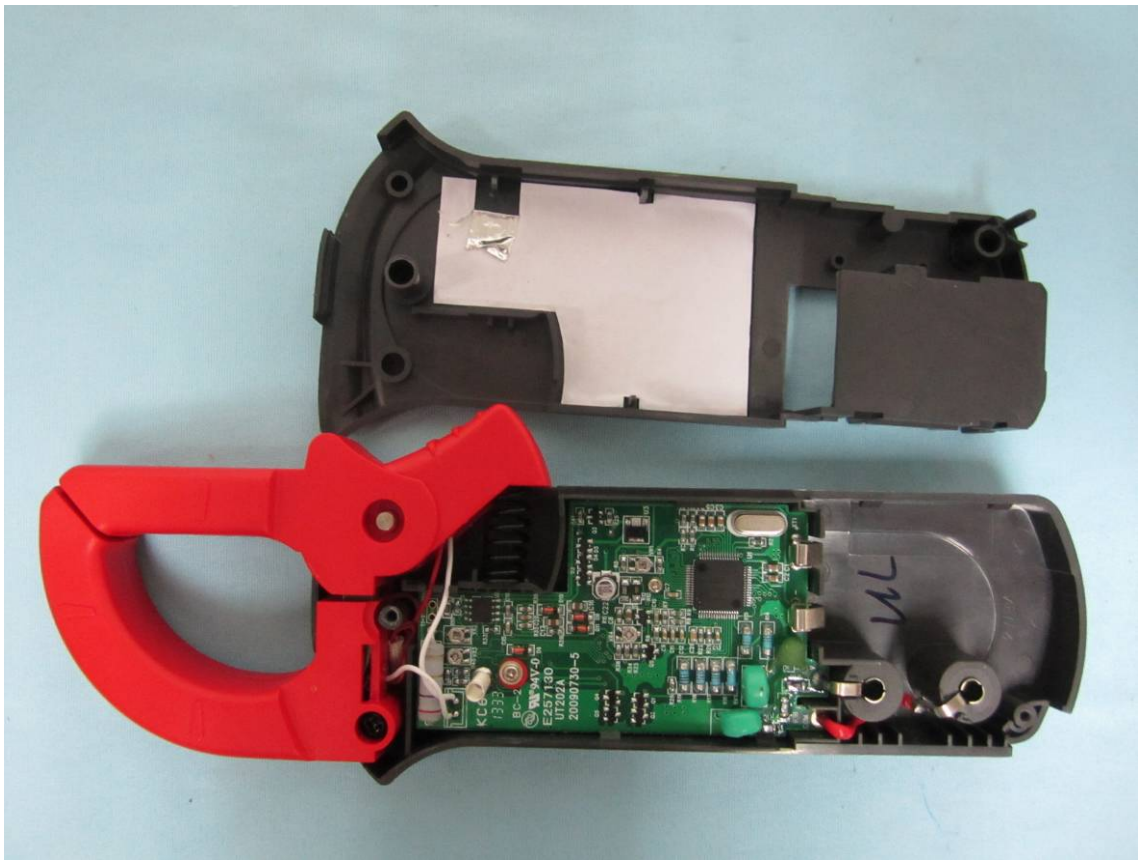


Photo 4 – Internal view

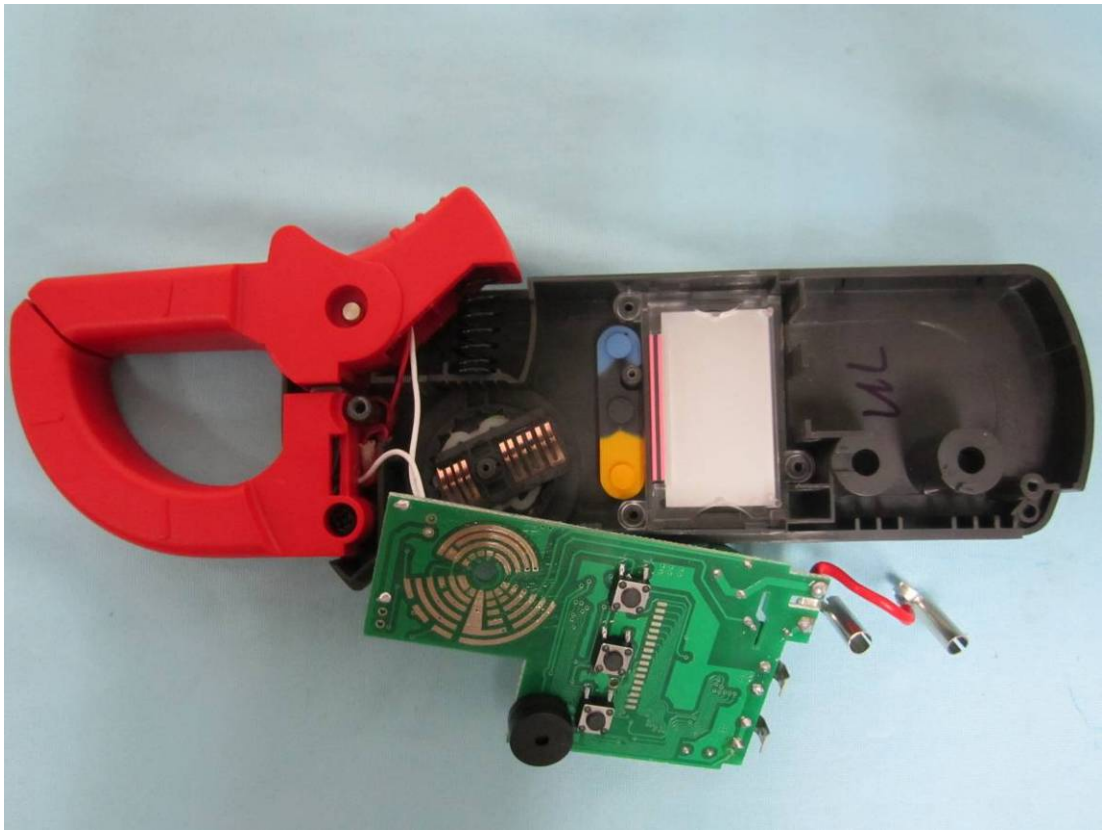


Photo 5 - Bottom PCB

Photo 6 - Internal view of JAW