

1.0 Reference and Address			
Report Number	160331069GZU-001	Original Issued: 12-Sep-2016	Revised: None
Standard(s)	<p>UL 61010-1 Issued: 2012/05/11 Ed: 3 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements</p> <p>CSA C22.2 NO.61010-1 Issued: 2012/05/11 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1: General Requirements</p> <p>UL 61010-2-032 Issued: 2014/08/08 Ed: 1 Safety Requirements 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</p> <p>CSA C22.2 NO.61010-2-032 Issued: 2014/12/01 Safety Requirements 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</p> <p>UL 61010-2-033 Issued: 2014/08/08 Ed:1 Safety Req. for Electrical Equipment for Measurement, Control, & Laboratory Use – Part 2-033: Particular Requirements for Hand-held Multimeters & Other Meters, for Domestic & Professional Use, Capable of Measuring Mains Voltage</p> <p>CSA C22.2 NO.61010-2-033 Issue: 2014/12/01 Safety Req. for Electrical Equipment for Measurement, Control, & Laboratory Use – Part 2-033: Particular Requirements for Hand-held Multimeters & Other Meters, for Domestic & Professional Use, Capable of Measuring Mains Voltage</p>		
Applicant	Shenzhen New Huayi Instrument Co.,LTD.	Manufacturer	Shenzhen New Huayi Instrument Co.,LTD.
Address	3/F, Block 2, Instrument World Industrial Park, Guiyue Road, Longhua New District, Shenzhen, 518110, P.R.C.	Address	3/F, Block 2, Instrument World Industrial Park, Guiyue Road, Longhua New District, Shenzhen, 518110, P.R.C.
Country	Chnia	Country	Chnia
Contact	Michael Tu	Contact	Michael Tu
Phone	0755-82790534	Phone	0755-82790534
FAX	--	FAX	--
Email	michael.tu@peak-meter.com	Email	michael.tu@peak-meter.com

2.0 Product Description	
Product	Digital Clamp Meter
Brand name	PEAK METER
Description	All models in this report are the same in the construction of enclosure, similar in circuit schematics and PCB layout, except for model number, some measure functions, maximum rated current measure.
Models	PM2018A, PM2018B, PM2018S, PM2118, PM2118S
Model Similarity	<p>PM2018A (AC clamp meter) is capable for measuring AC current, AC voltage, DC voltage, resistance, and circuit continuity measurement.</p> <p>PM2018B(AC clamp meter) is capable for measuring AC current, AC voltage, DC voltage, Low resistance voltage , resistance, circuit continuity, Capacitor, and temperature.</p> <p>PM2018S (AC clamp meter) is capable for measuring AC current, AC voltage, and DC voltage.</p> <p>PM2118(AC/DC clamp meter) is capable for measuring AC current, DC current, μA DC current AC voltage, DC voltage, Low resistance voltage, resistance, circuit continuity, Capacitor, and temperature.</p> <p>PM2118S(AC/DC clamp meter) is capable for measuring AC current, DC current, AC voltage, DC voltage, resistance, and circuit continuity.</p>
Ratings	Measurement category: CAT III 600V Battery operation: DC1.5V x2,size AAA
Other Ratings	N/A

3.0 Product Photographs

Photo 1: Front view of PM2018A and PM2018B



Photo 2: Front view of PM2018S and PM2118



3.0 Product Photographs

Photo 3: Front view of PM2118S

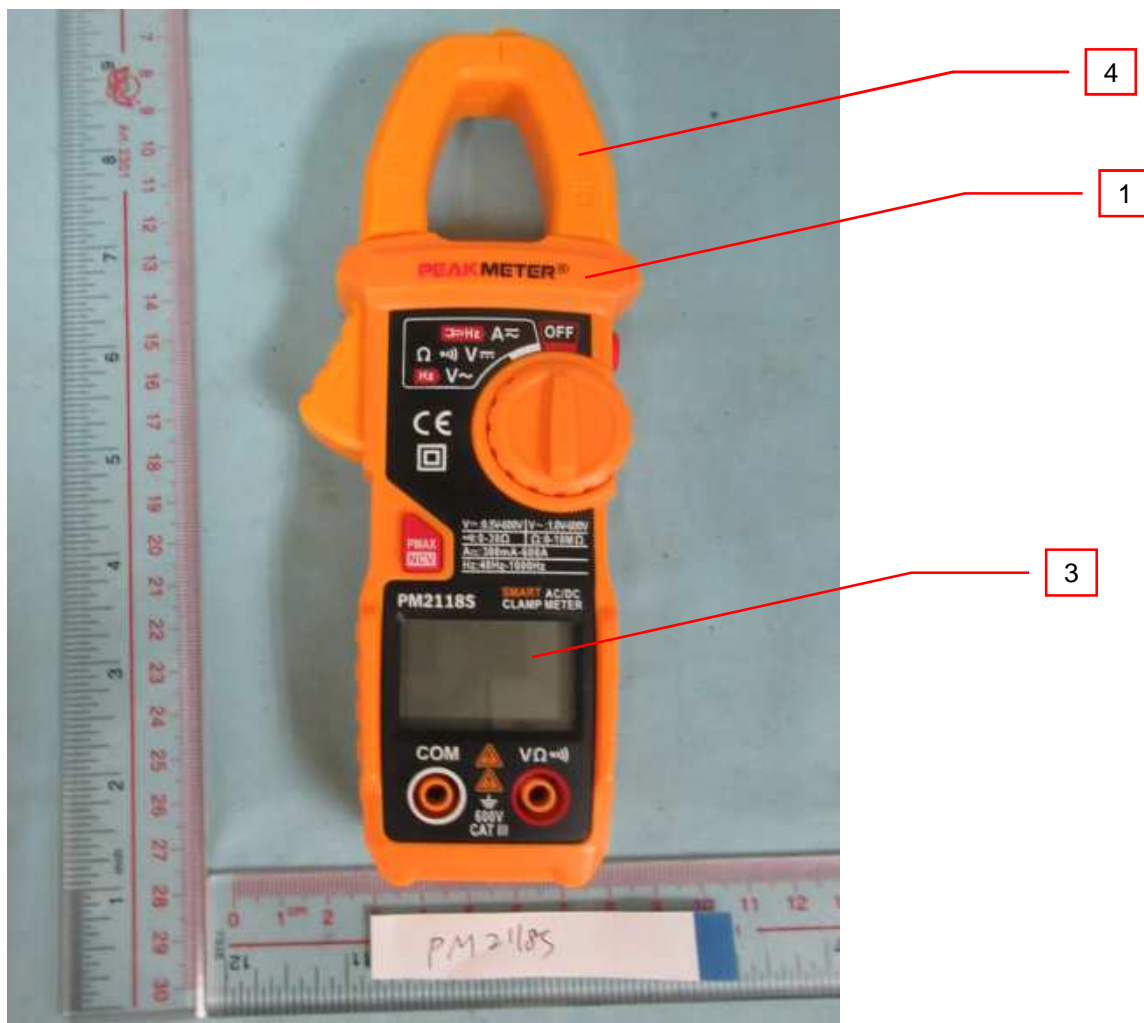


Photo 4: Rear view



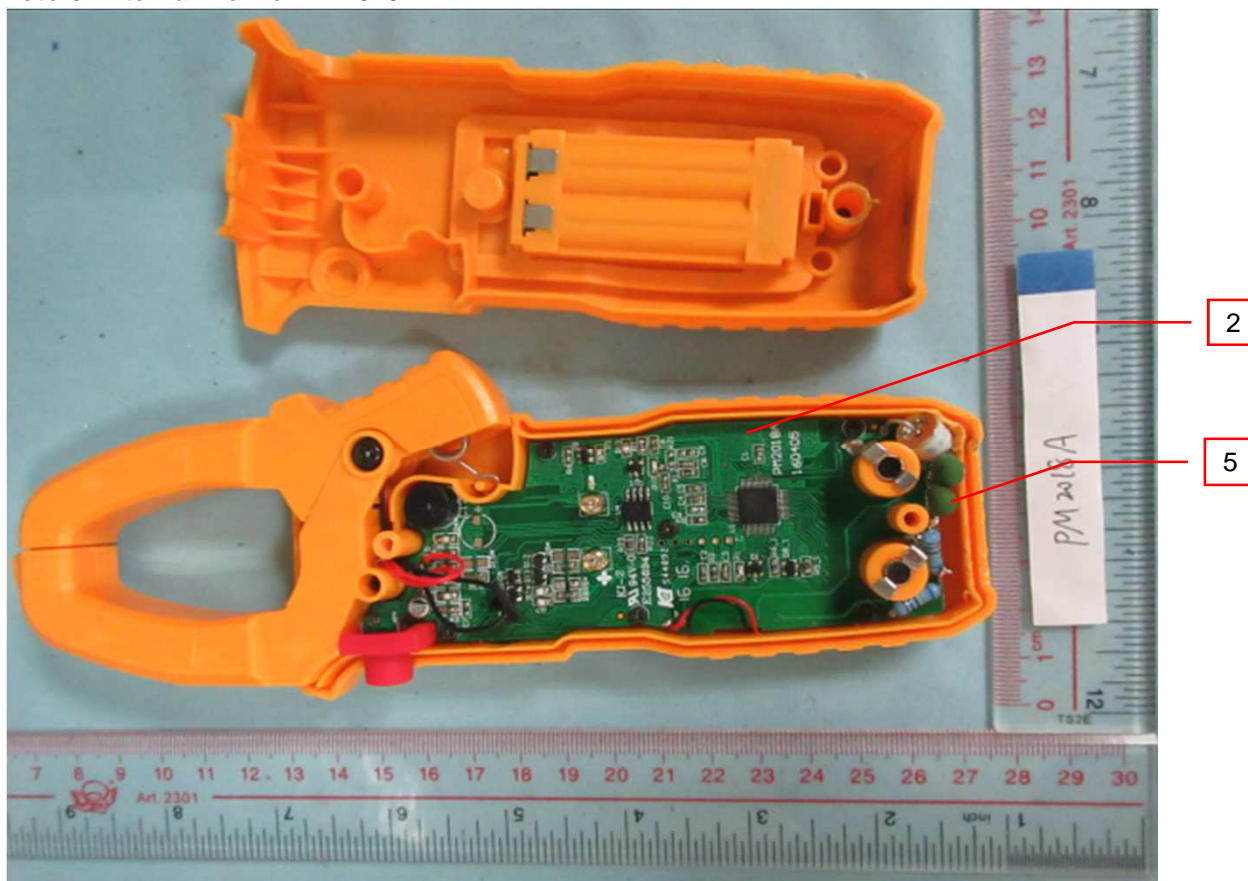
3.0 Product Photographs

Photo 5: Battery compartment view



Remark: The rear view of PM2018A, PM2018B, PM2018S, PM2118S and PM2118 are the same.

Photo 6: Internal view of PM2018A



3.0 Product Photographs

Photo 7: PCB bottom view of PM2018A

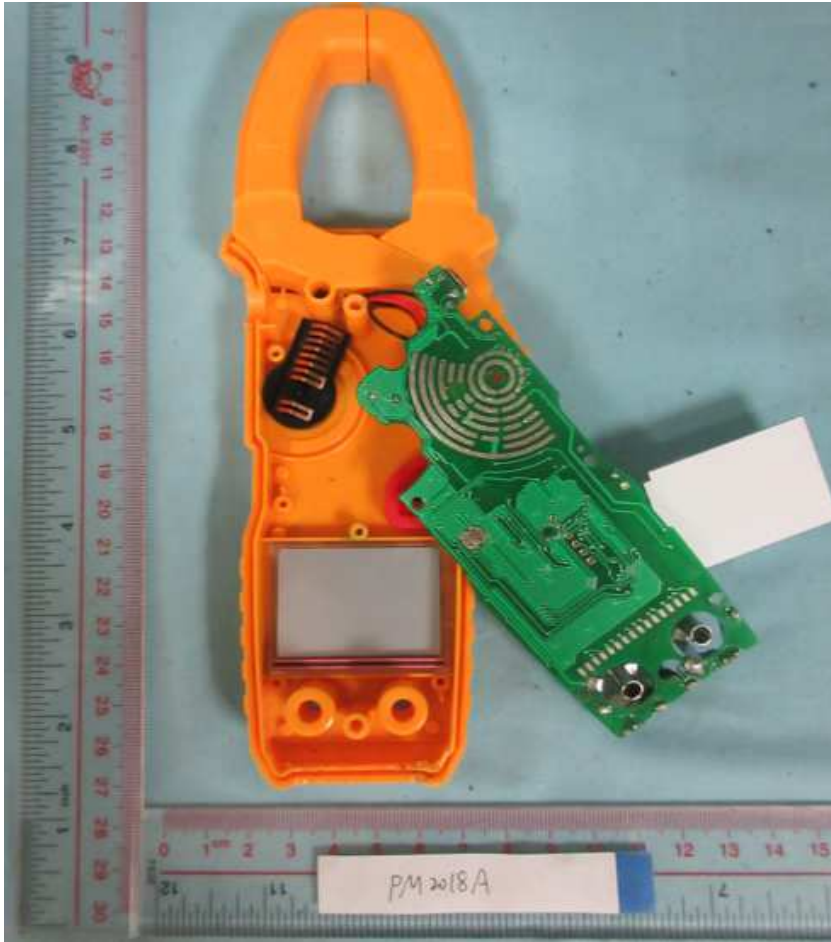


Photo 8: Internal view of PM2018B

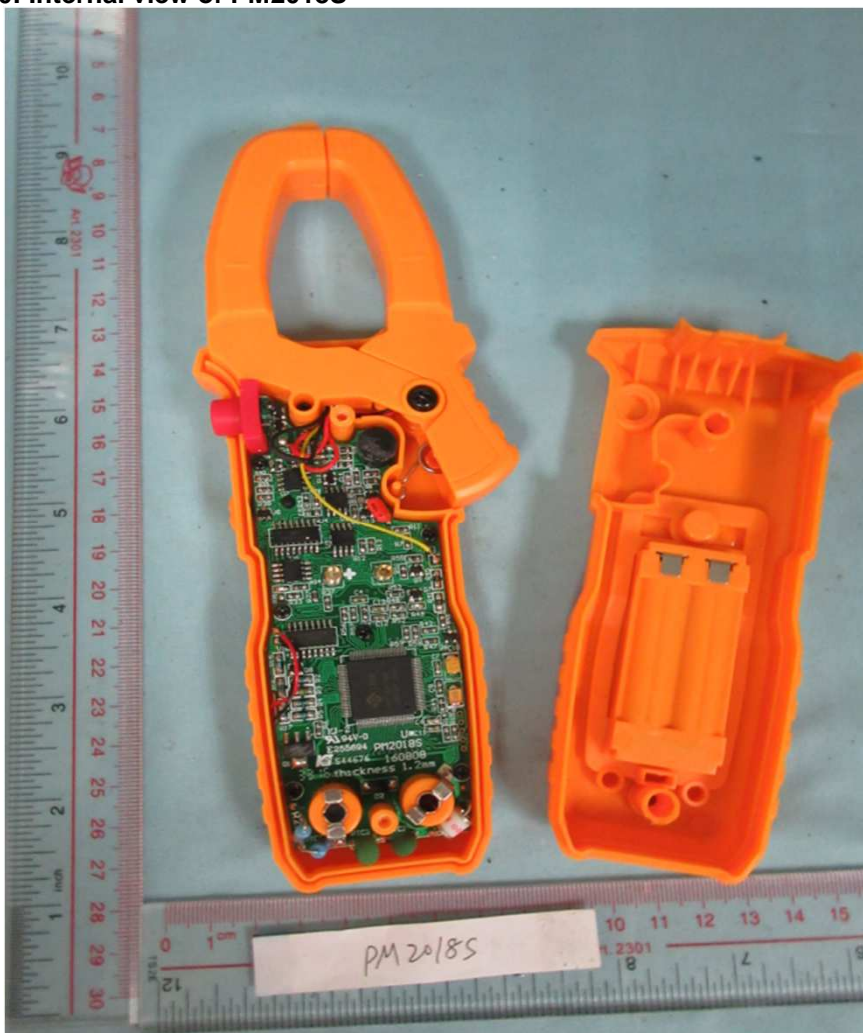


3.0 Product Photographs

Photo 9: PCB bottom view of PM2018B



Photo 10: Internal view of PM2018S



3.0 Product Photographs

Photo 11: PCB bottom view of PM2018S

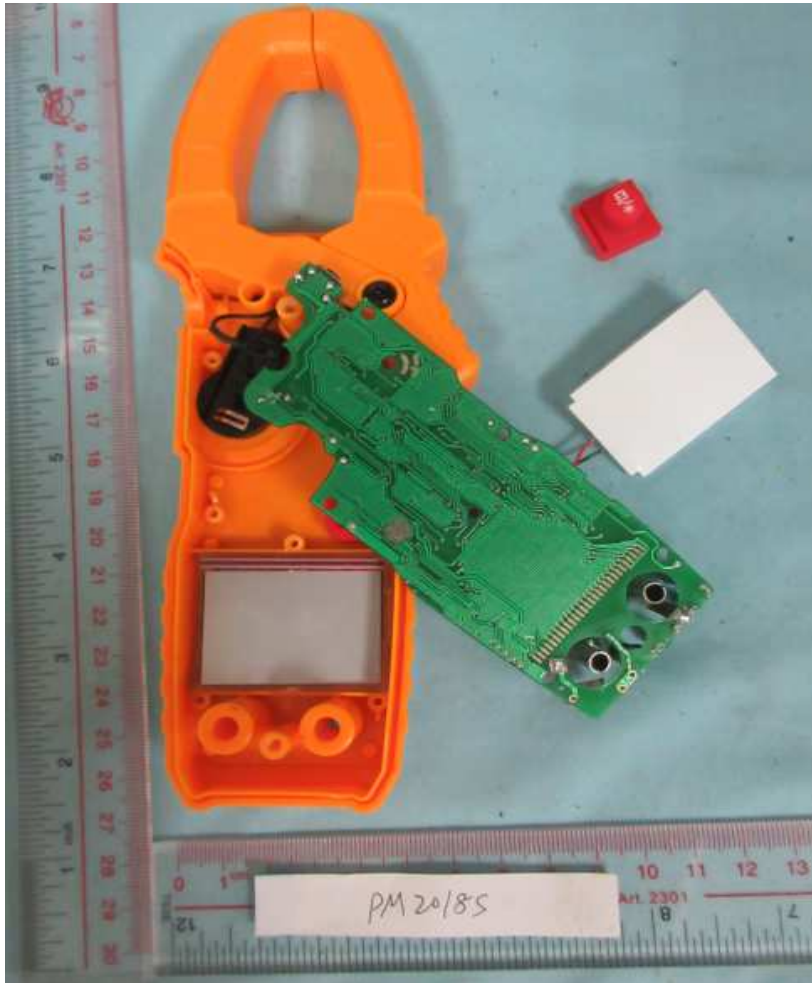
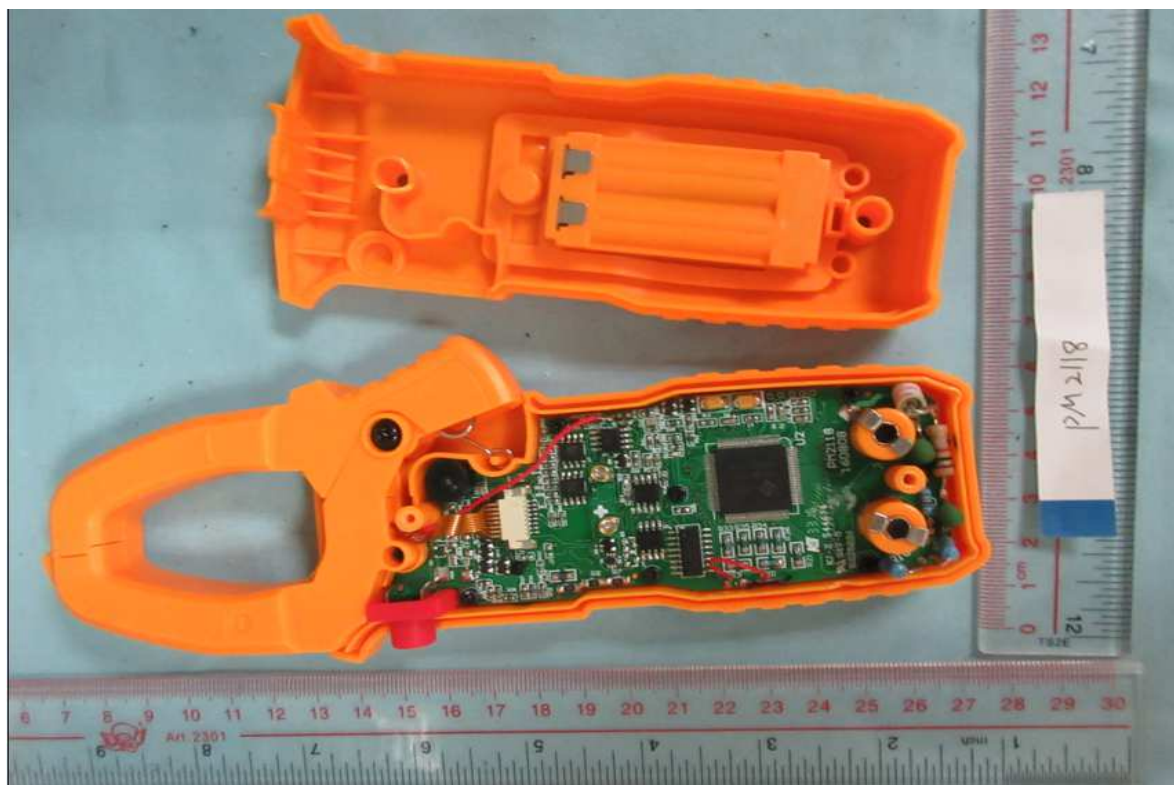


Photo 12: Internal view of PM2118

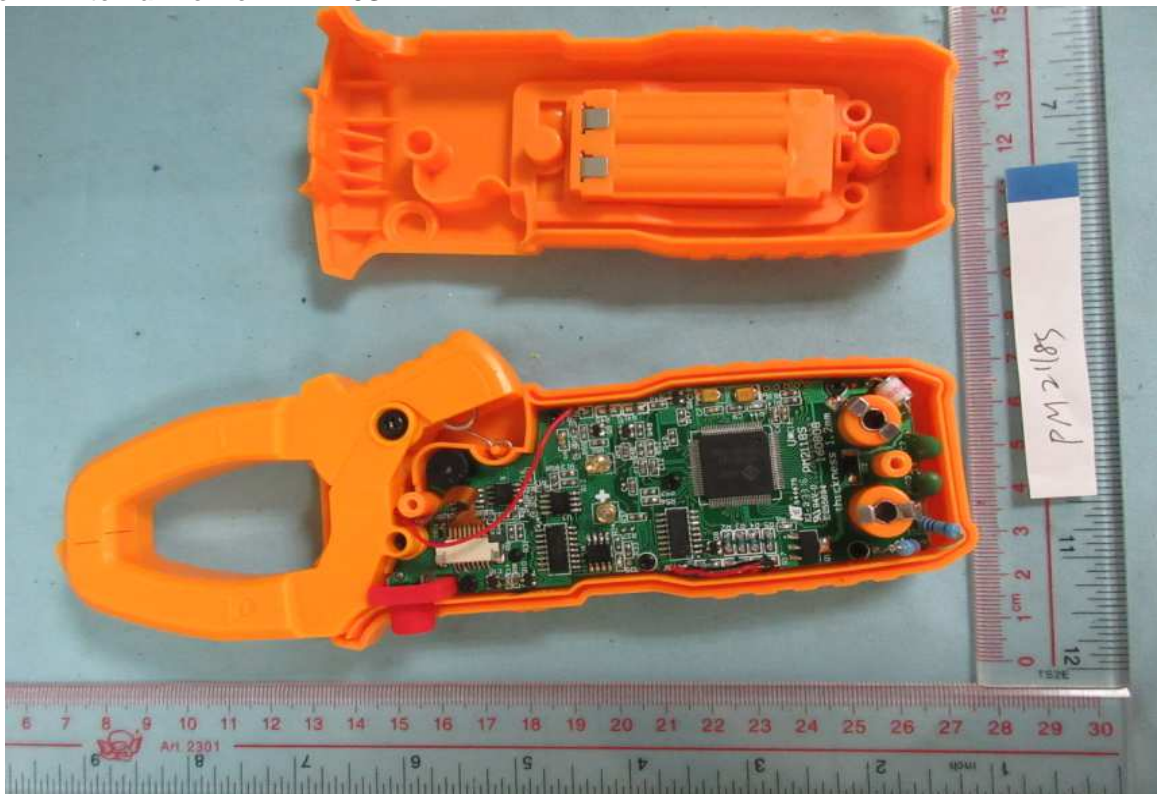


3.0 Product Photographs

Photo 13: PCB bottom view of PM2118



Photo 14: Internal view of PM2118S



3.0 Product Photographs

00 to 15: PCB bottom view of PM2118S

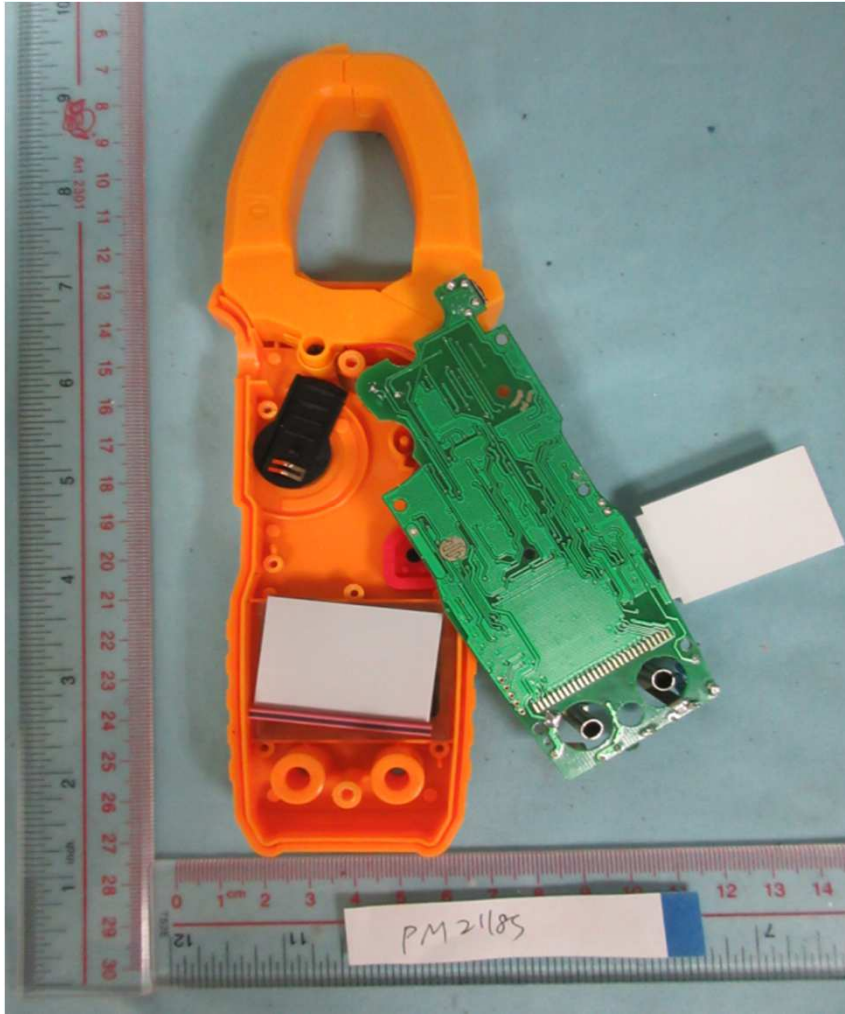


Photo 16: JAW interior view



3.0 Product Photographs

Photo 17: JAW interior view

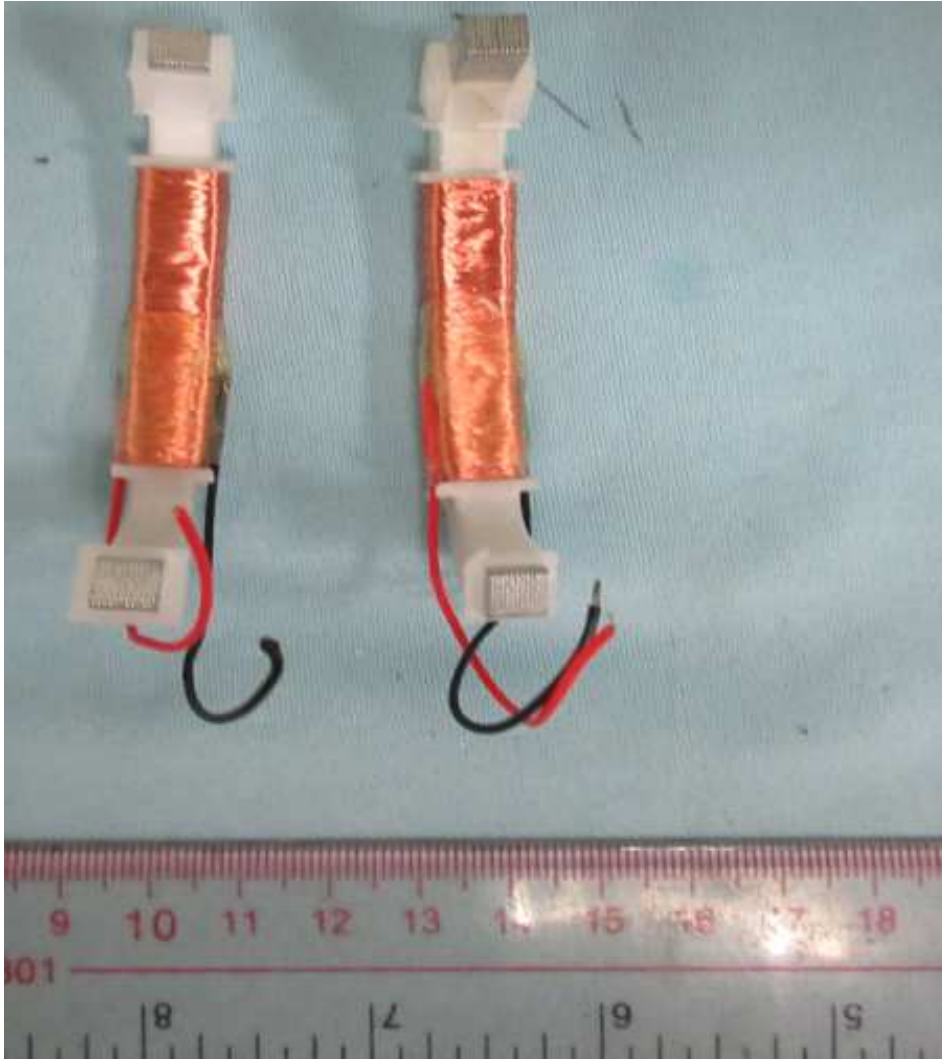
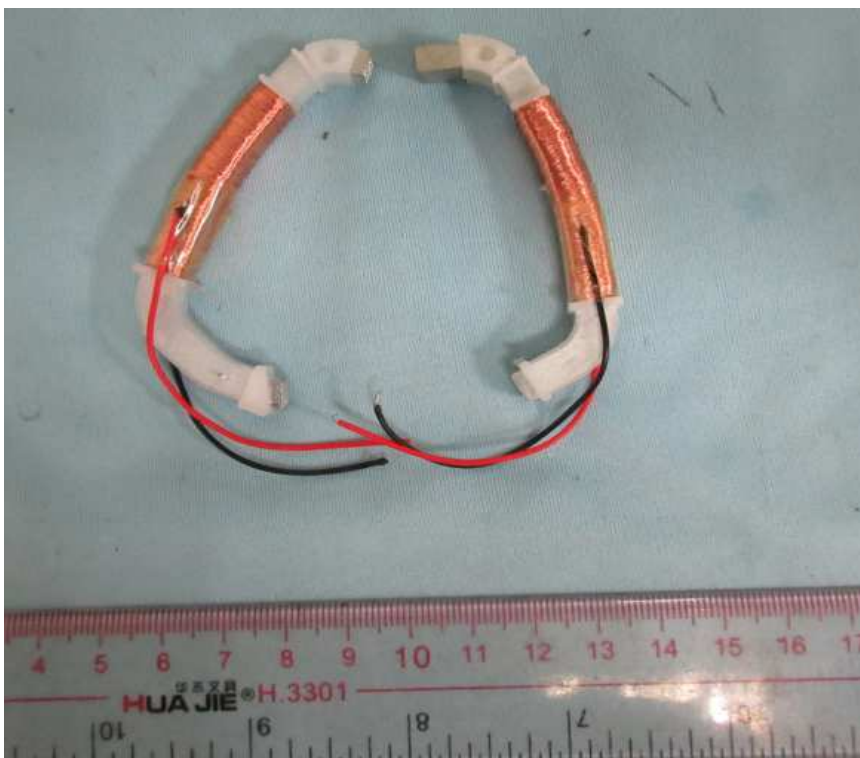


Photo 18: JAW interior view



4.0 Critical Components						
Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
3	1	Enclosure, Battery Cover	CHI MEI CORPORATION	PA-765(+)	ABS, 94V-0, 85°C, Material group II (400 ≤ CTI < 600)	UR
1	2	PCB	MEIZHOU KEJIE INTEGRATED CIRCUIT CO LTD	KJ-2	94V-0, RTI:130°C	UR
			SHENZHEN LONG JIANG INDUSTRY CO LTD	Various	130°C, V-0	UR
3	3	Plastic of LCD display window	CHI MEI CORPORATION	PA-765(+)	ABS, 94V-0, 85°C, Material group II (400 ≤ CTI < 600)	UR
3	4	JAW enclosure material	CHI MEI CORPORATION	PA-765(+)	ABS, 94V-0, 85°C, Material group II (400 ≤ CTI < 600)	UR
6	5	VARISTOR	SHENZHEN WEILIN HI-TECH CO LTD	WMZ12A-22RM120	Max. Allowable voltage: 625Vac, 825Vdc	UR

NOTES:

- 1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.
- 2) "Various" means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.
- 3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

5.0 Critical Unlisted CEC Components

No Unlisted CEC components are used in this report.

6.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

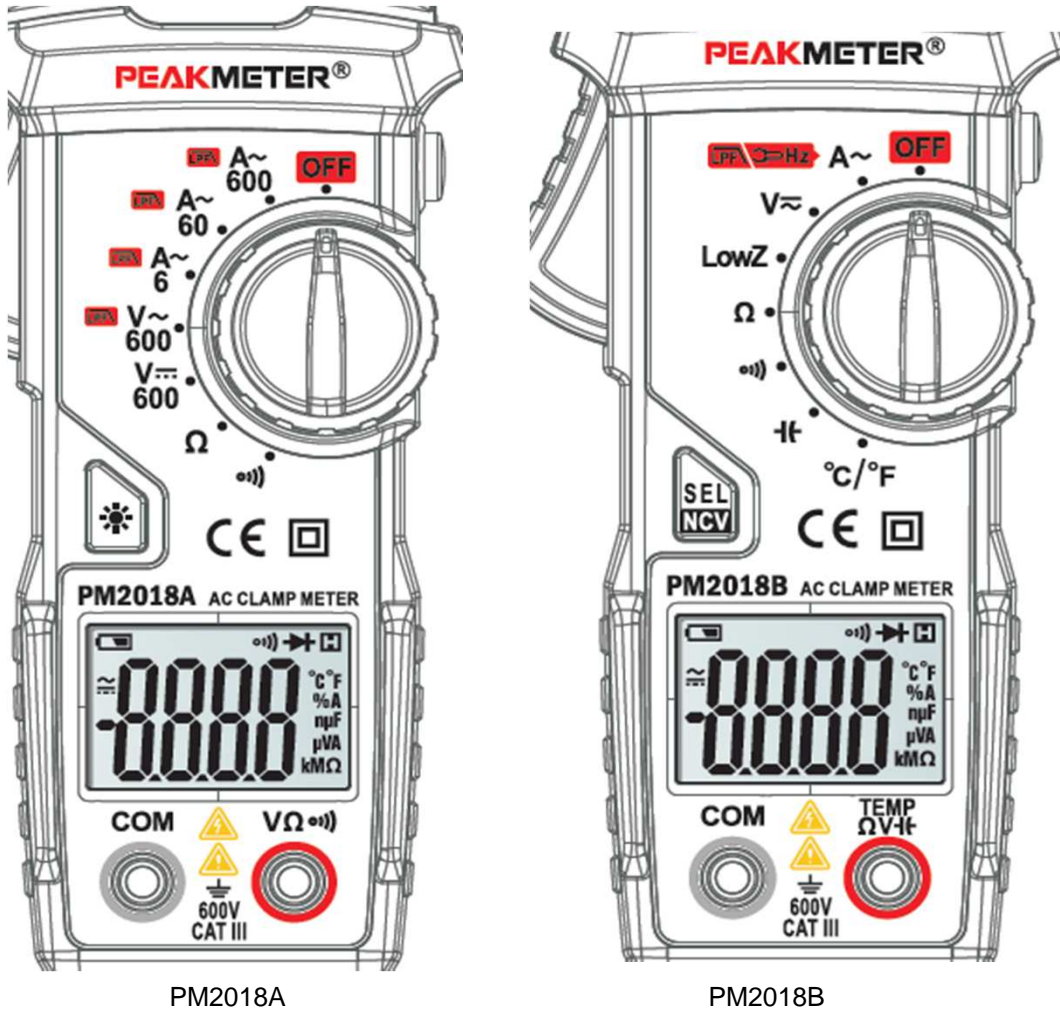
Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - The clearance and creepage distance between internal live parts and accessible parts are 10.5 mm and 10.5 mm for reinforced insulation, respectively.
The clearance and creepage distance between internal live parts in JAW and outer case of JAW are 5,5 mm and 6.0 mm for basic insulation, respectively.
2. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a non-metallic enclosure constructed with no openings other than those specifically described in Sections 4 and 5.
5. Grounding - This product is not provided with a means of grounding as it is double insulated.
6. Polarized Connection - This product is provided with a polarized power supply connection. All single pole switches and fuses are connected only to the ungrounded supply circuit conductor.
7. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets.
8. Schematics - Refer to Illustration 3 for schematics requiring verification during Field Representative Inspection Audits.
9. Markings - The product is marked as follows:
 - brand name
 - model number
 - electrical ratings.The markings in French are required:
Refer to Illustration 1 of section 7.0
10. Cautionary Markings - Refer to Illustration 1 of section 7.0
11. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustration 2 for details.

7.0 Illustrations

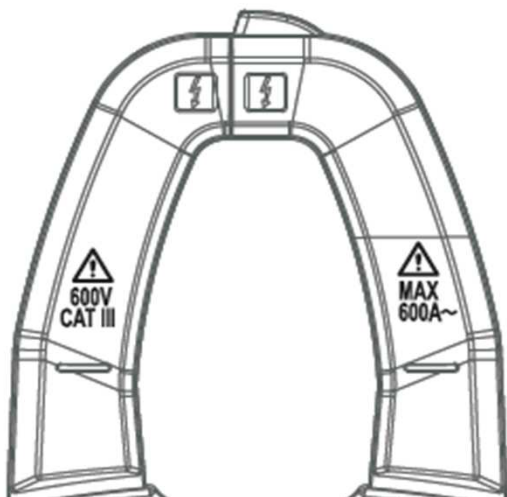
Illustration 1a - Front Cover Of PM 2018A, PM2018B



PM2018A

PM2018B

Illustration 1b --Markings on the clamp and on the battery cover



Remark:

- 1.The statement of conformity standards is stated in user manual due to dimension of enclosure.
- 2.The markings on front cover of all models are the same except the model number and measure function.

7.0 Illustrations

Illustration 2a - user manual(Partial)

PM2018A User Manual

1. Safety Information

Warnings

Special attention shall be paid when using the meter, improper use might cause an electric shock or damage the meter. General safety procedures shall be followed during the use and safety measures regulated by the instruction manual shall be completely respected.


To fully make use of the functions of the meter and ensure safe operation, please carefully read and follow the use method of this manual.


The meter meets IEC-61010-1, IEC-61010-2-030, IEC-61010-2-032 Safety Requirements for Electronic Measuring Instruments, it is of the secondary pollution and over-voltage standard is CATIII 600V.


1. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2. The Digital clamp meter Conforms to UL STD. 61010-1, 61010-2-032 and 61010-2-033; Certified to CSA STD. C22.2 NO. 61010-1, 61010-2-032 and 61010-2-033.


1.2 Marks

 Note (important security information, see the Instruction Manual)

 It can be used on hazardous live conductors.

 Double insulation protection (Category II)

CAT III follows the over-voltage (Setup) level III of IEC-61010-1 standard and pollution degree 2 means the impulse withstand voltage level of protection provided.

 In line with the European Union (EU) Standard

 Grounding

5.2 Replace Pen-shaped Meter

Warnings

When replacing the pen-shaped meter, the new ones shall be of the same or in equal level. The pen-shaped meter shall be in good condition, pen-shaped meter level: 1000V 10A.

7.0 Illustrations

Illustration 2b - Manual(Partial)

PM2018B User Manual

1. Safety information



Warning

Please operate this instrument with great care. Improper operation may result in an electric shock or damage to the instrument. Throughout the operation, you should follow the generally accepted safety procedures and take the safety measures as required by the Operation.

Please read carefully this Manual and take the operational methods as specified herein so as to make full use of the instrument's functionalities and ensure safe operation.

This instrument is in strict compliance with the safety requirements as specified in IEC-61010-1, IEC-61010-2-030 and IEC-61010-2-032 for electrical measuring instruments. Its pollution reaches the level of Class II and over-voltage standard is CAT III 600V.

1. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2. The Digital clamp meter conforms to UL STD. 61010-1, 61010-2-032 and 61010-2-033; Certified to CSA STD. C22.2 NO. 61010-1, 61010-2-032 and 61010-2-033.

3. If the test leads need to be replaced, you must use a new one which should meet EN 61010-031 standard, rated CAT III 600V, 10A or better.

DC or 600V AC

Working weight: max2000m

Display unit: LCD

Max display value: 6000 numbers

Polarity indication: automatic indication, '-' indicates negative polarity.

Over range indication: 'OL' or '-OL'

Sampling rate: approximately 3 times per second

Unit display: to display functions and electric quantity

Automatic shut-down time: 10 minutes

Power supply: 1.5V AAA battery ×2

Battery under-voltage indication: LCD display the symbol

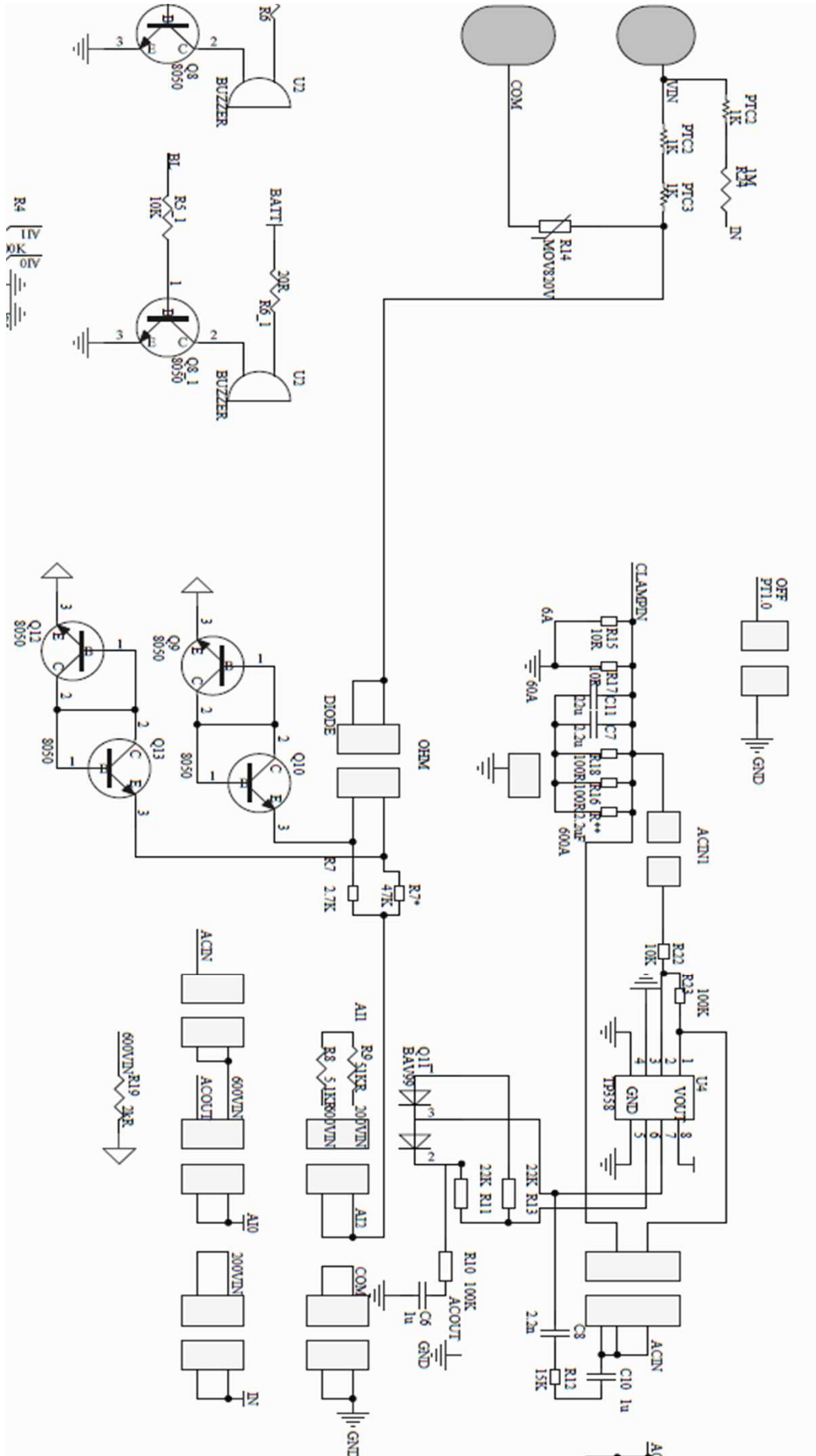
Temperature coefficient: less than 0.1% accuracy/°C

Working temperature: 18°C ~ 28°C

Storage temperature: -10°C ~ 50°C

7.0 Illustrations

Illustration 3- Schematics of PM2018A(Partial)



8.0 Test Summary			
Evaluation Period	6 May 2016- 12 Sep 2016		Project No. 160331069GZU
Sample Rec. Date	6-May-2016	Condition Prototype	Sample ID. S160331069-001~006
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Address: Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China)		
Test Procedure	Testing Lab		
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.			
The following tests were performed:			
Test Description	UL 61010-1 Issued: 2012/05/11 Ed: 3rd 2012; CSA-C22.2 No. 61010-1-12, Third Edition Issued: 2012/05/11 Clause	UL 61010-2-032 Issued: 2014/08/08 Ed: 1; CSA C22.2 NO.61010-2-032 Issued: 2014/12/01 Clause	UL 61010-2-033 Issued: 2014/08/08 Ed: 1; CSA C22.2 NO.61010-2-033 Issued: 2014/12/01 Clause
Fault condition	4.4.4	--	--
Marking durability test	5.3	--	--
Permissible limits for accessible part - normal condition	6.3.1	--	--
Permissible limits for accessible part - fault condition	6.3.2	--	--
Creepage distance and clearance	6.7	--	--
Procedure for dielectric strength tests	6.8	--	--
Static test	8.1.1	--	--
Dynamic test	8.1.2	--	--
Drop test	8.2.2	--	--
Equipment temperature limit	10.1	--	--
Non-metallic enclosure	10.5.2	--	--
Pre treatment of the jaw opening	-	6.9.101.1	-
JAW impact test	-	8.2.101	-
Resistance to heat of current sensors	-	10.5.101	-
Circuits or components used as transient overvoltage	-	14.101	-
Protection by uncertified current limitation devices or by	-	101.3.3	-
Protection against short-circuits during clamping	-	102.2	-
Input voltages	-	-	4.4.2.101

8.1 Signatures			
A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.			
Completed by:	Jackie Chen	Reviewed by:	Justin He
Title:	Engineer	Title:	Manager
Signature:		Signature:	

9.0 Correlation Page For Multiple Listings

The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.

BASIC LISTEE	Shenzhen New Huayi Instrument Co.,LTD.
Address	3/F, Block 2, Instrument World Industrial Park, Guiyue Road, Longhua New District, Shenzhen, 518110, P.R.C.
Country	Chnia
Product	Digital Clamp Meter

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

- 1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
- 2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
- 3) a control number issue by Intertek
- 4) a product descriptor that identifies the standards used for certification. Example:

For US standards, the words, "Conforms to" shall appear with the standard number along with the word, "Standard" or "Std." Example: "Conforms to ANSI/UL Std. XX."

For Canadian standards, the words "Certified to CAN/CSA Standard CXX No. XX." shall be used, or abbreviated, "Cert. to CAN/CSA Std. CXX No. XX."

Can be used together when both standards are used.

Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use.

The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to:

Intertek Testing Services Shenzhen Limited Guangzhou Branch

ETL Component Evaluation Center

Block E, No. 7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City

CETDD Guangzhou, China.

Attn: Ms. Joey Kuang

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

Dielectric Voltage Withstand Test

11.1 Dielectric Voltage Withstand Test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.

The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.

If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:

- 1 - a voltmeter in the primary circuit;
- 2 - a selector switch marked to indicate the test potential; or
- 3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.

In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

<u>Product</u>	<u>Test Voltage</u>	<u>Test Time</u>
All products covered by this Report.	3300Vrms	2 second
Between internal live parts and accessible parts	or 4700Vdc	2 second

