

STANDARD INFORMATION

If the project requires any changes to the Certification Data Report outside of Section 1, then this SUN applies.

Standard: UL 61010-2-032

Standard ID: 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 [UL 61010-2-032:2024 Ed.3]

Previous Standard ID: 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 [UL 61010-2-032:2020 Ed.2]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **July 31, 2026**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: No action is required for currently certified products. If modifications to the product after the effective date require an evaluation and/or testing, then the product must undergo re-evaluation to the new requirements.

Overview of Changes:

- New requirements for surge protective devices
- New requirements for minimum ratings for voltage of measuring terminals
- Revisions to clearances and creepage distances
- Modifications to the jaw ends abrasion test
- Protections against hazard occurring from reading a voltage value
- Addition of clearances between mains circuits and input/output circuits

Specific details of new/revise requirements are found in table below

Note: If the listing references a Canadian standard, per the Canadian Electrical Code (CSA C22.2#0) Section titled Language of markings, Caution and Warning Markings shall be in English and French.

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i>

The following changes have been identified in the foreword of the standard:

In 1.1.1, definitions of current sensor types have been moved to a new Annex FF;

Clause 2, all normative references have been dated and new normative references have been added;

3.2.103, a new definition PROTECTIVE FINGERGUARD has been added which replaces the previous definition of PROTECTIVE BARRIER;

In 4.4.2.101 is a new subclause about surge protective devices;

In 5.1.5.101.2, minimum RATINGS for voltage of measuring TERMINALS are required;

Subclause 6.5.1 has been modified;

Subclause 6.5.5 is no longer used;

Subclause 6.6.101 modifies 6.6.101 and 6.6.102 of previous edition:

1) in 6.6.101.1, insulating material of group I may be allowed for determination of CREEPAGE DISTANCES of measuring circuit TERMINALS;

2) in 6.6.101.2, CLEARANCES and CREEPAGE DISTANCES up to 3 000 V for measuring circuit TERMINALS in unmated position have been defined;

3) in 6.6.101.3, requirements for measuring circuit TERMINALS in partially mated position have been specified;

4) in 6.6.101.4, requirements for measuring circuit TERMINALS in mated position have been specified;

5) Subclause 6.6.101.5 replaces 6.6.102;

Subclause 6.6.102 replaces 6.101 of previous edition with modifications;

Subclause 6.101.2 replaces 6.9.101.1 of previous edition with modifications;

Subclause 6.101.3 replaces 6.9.101.2 of previous edition with modifications;

Subclause 6.101.4 replaces 6.9.102 of previous edition with modifications;

In 8.101, JAW ENDS abrasion test has been modified;

8.105 is a new subclause for input/output leads attachment has been added;

In 9.101.2, relocation of 101.3 of previous edition;

In 9.101.3, relocation of 101.4 of previous edition, extension to MEASUREMENT CATEGORY II and reference to IEC 61000-4-5 for tests;

Table 104 has been replaced by Table K.101;

In 9.102, relocation of Clause 102 of previous edition;

In 14.101, relocation of 14.102. Subclause 14.101 of previous edition has been deleted;



CLAUSE	VERDICT	COMMENT
		In 101.3 is a new subclause for protections against HAZARD occurring from reading a voltage value in replacement of Clause EE.5 of previous edition;
		In Table D.101, transients are disregarded for insulation between JAW ENDS and input/output circuits;
		In Clause F.101, test voltages for routine test of JAWS have been modified;
		In K.2.1, another method for determination of CLEARANCES of secondary circuits is proposed;
		In K.3.2, new Table K.15 and Table K.16 for CLEARANCE calculation;
		In K.3.101 is a new clause;
		Clause K.4, redraft of the clause to propose a method for determination of Ut for circuits which reduce TRANSIENT OVERVOLTAGES;
		Table K.101 replaces Table 104;
		Subclause K.101.4 has been reviewed and tables and tests for solid insulation have been modified;
		Table K.104 of previous edition has been deleted;
		Annex AA: Figure AA.1 has been redesigned;
		Annex EE: addition of a new informative annex for determination of CLEARANCES for Table 101;
		Annex GG: this annex was Annex EE of previous edition and the current sensor type of a CLAMP MULTIMETER is type A or type B.

The following changes have been identified as having the most impact on current products:

4	Info	Tests <i>New clause added;</i>
4.4.2.101		Surge protective devices Surge protective devices used in MAINS CIRCUITS or in circuits measuring MAINS shall be short-circuited and open-circuited.
5	Info	Marking and documentation
5.1.5.101	Info	Measuring circuit TERMINALS <i>New clause added;</i>
5.1.5.101.2		Measuring circuit TERMINALS RATED for MEASUREMENT CATEGORIES The relevant MEASUREMENT CATEGORY shall be marked for TERMINALS of measuring circuits RATED for MEASUREMENT CATEGORIES. The MEASUREMENT CATEGORY markings shall be "CAT II", "CAT III" or "CAT IV" as applicable. The RATED voltage of the TERMINALS of a measuring circuit intended for MAINS voltage measurements shall be equal to or higher than their RATED a.c. r.m.s. line-to-neutral or d.c. voltage.



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		Marking those TERMINALS with more than one type of MEASUREMENT CATEGORY and its RATED voltage is permissible. Conformity is checked by inspection.
6	Info	Protection against electric shock <i>New clause added;</i> ACCESSIBLE parts shall be prevented from becoming HAZARDOUS LIVE in SINGLE FAULT CONDITION. The primary means of protection (see 6.4) shall be supplemented by one of a) or b) below. Alternatively, one of the single means of protection c) or d) below shall be used (see Figure 4 and Annex DD). 6.5.1 a) SUPPLEMENTARY INSULATION (see 6.5.3); b) current- or voltage-limiting device (see 6.5.6); c) REINFORCED INSULATION (see 6.5.3); d) PROTECTIVE IMPEDANCE (see 6.5.4). Conformity is checked by inspection and as specified in 6.5.3, 6.5.4, or 6.5.6, as applicable.
6.6	Info	Connections to external circuits <i>New section added;</i> Measuring circuit TERMINALS When determining the values of CREEPAGE DISTANCES for measuring circuit TERMINALS of a HAND-HELD current sensor intended to be connected only to a HAND-HELD probe assembly complying with IEC 61010-031:2022, the applicable values of CREEPAGE DISTANCES from material group I are allowed to be applied to all material groups. 6.6.101 Requirements for measuring circuit TERMINALS in unmated position, partially mated or mated position are defined respectively in 6.6.101.2, 6.6.101.3 and 6.6.101.4. Requirements for specialized measuring circuit TERMINALS are defined in 6.6.101.5. See standard for details.
		<i>New section added;</i> Input/output circuit leads 6.6.102 Input/output circuit leads are used to connect the current sensor to external equipment for the purpose of measuring the current on the secondary circuit or powering the current sensor.



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		<p>Input/output circuit leads shall meet the requirements of 6.6.102.2 and 6.6.102.3, and attachment of the output circuit leads shall meet the requirements of 8.105 (see also Table D.101, column with heading "2 and 3").</p> <p>See standard for details.</p>
8	Info	<p>Resistance to mechanical stresses</p> <p>JAW ENDS abrasion test</p> <p>When current sensors are applied to or removed from conductors, their JAW ENDS can be submitted to abrasion, in particular when the conductor is a busbar. These current sensors shall be designed to be safe after the JAW ENDS abrasion test of this Subclause 8.101, performed to simulate the wear of the JAWS during insertion and removal. This requirement is applicable only to Type A and Type B current sensors RATED for MEASUREMENT CATEGORIES III and IV. The requirements of this Subclause 8.101 do not apply to current sensors with a sliding JAW, current sensors with fork-style JAWS and flexible current sensors.</p> <p>JAW ENDS can have a wear indicator to view the limit of use after abrasion. A wear indicator is a feature with a contrasting colour designed to be not visible until a limit has been reached.</p> <p>One unconditioned sample of the current sensor in NORMAL CONDITION and one preconditioned sample of the current sensor that has been conditioned as specified in 10.5.2 a) are treated as follows.</p> <p>A plate is prepared consisting of a rigid material, covered on both sides by emery cloth. The plate is a minimum of 50 mm by 450 mm, with a thickness not exceeding 2 mm. <u>The emery cloth is No. 120 grit, with aluminium oxide abrasive bound in an enclosed coating and with a cloth backing.</u></p> <p><u>With the JAWS open, the samples are positioned as shown in Figure 102 and then the JAWS are closed.</u></p> <p><u>The samples are moved along the plate over a distance of 200 mm, or a lesser amount if restricted by the design, for 50 cycles – one cycle consisting of one forward and one reverse movement – so as to abrade the closing point of the JAWS (see Figure 102). The emery cloth is replaced after each sample has been treated.</u></p> <p><u>a) If the JAW ENDS include a wear indicator, the test has a minimum of 25 cycles. The test is terminated 2 cycles after the wear indicator becomes visible but is not carried out for more than 50 cycles in total.</u></p>



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		<p><u>NOTE 25 cycles are performed if the wear indicator becomes visible before the 23rd cycle and 50 cycles are performed if the wear indicator is not visible before the 48th cycle.</u></p> <p><u>b) If the JAW ENDS do not include a wear indicator, the test is terminated when 50 cycles are completed.</u></p> <p><u>After the abrasion test, the samples of current sensor are submitted to the provisions of the conformity statements of 6.101.3 and 6.101.4.</u></p> <hr/> <p><i>New section added;</i></p> <p>Attachment of the input/output leads</p> <p>8.105 The attachment of the input/output leads to the current sensor and to the TERMINALS (see Figure 105) shall withstand forces likely to be encountered in NORMAL USE without damage which could cause a HAZARD. The insulation of the input/output leads shall be mechanically secured to avoid retraction.</p> <p>See standard for details.</p> <hr/> <p><i>New section added;</i></p> <p>Protection against the spread of fire and arc flash</p> <p>9 The current sensor shall provide protection against fire or arc flash resulting from NORMAL USE and REASONABLY FORESEEABLE MISUSE of measuring circuits, as specified in a) and b) below:</p> <p>See standard for details.</p> <hr/> <p>101 Info Measuring circuits</p> <hr/> <p><i>New section added;</i></p> <p>Indicating devices</p> <p>101.3 No HAZARD shall occur from reading a voltage value when the current sensor is operated for measuring MAINS voltages and in the event of REASONABLY FORESEEABLE MISUSE.</p> <p>See standard for details.</p> <hr/>



CLAUSE	VERDICT	COMMENT
Annex K	Info	Insulation requirements not covered by 6.7
K.3	Info	Insulation in circuits not addressed in 6.7, Clause K.1, Clause K.2 or Clause K.101, and for measuring circuits where measurement categories do not apply <i>New clause added;</i> CLEARANCES between MAINS CIRCUITS and input/output circuits CLEARANCES for DOUBLE or REINFORCED INSULATION are based on the sum of the peak WORKING VOLTAGE of the MAINS CIRCUIT and the input/output circuit, and the highest expected additional TRANSIENT OVERVOLTAGE from the MAINS CIRCUIT or the input/output circuit. The calculation method of K.3.2 is used. If a protective screen is used, the BASIC INSULATION between the screen and the MAINS CIRCUIT and input/output circuit is determined or calculated separately. K.3.101 Conformity is checked by inspection and test. NOTE An example of CLEARANCE calculations for the secondary circuit based on the method in K.3.2 using the lower TRANSIENT OVERVOLTAGE value of one level are given below. A clamp wattmeter using a type A current sensor is applied to an UNINSULATED CONDUCTOR connected to MAINS voltage of 230 V and with a MEASUREMENT CATEGORY III. A current transformer is located between the MAINS and the secondary circuit. The input voltage for power measurement of the clamp wattmeter is also 230 V a.c. The HAZARDOUS LIVE UNINSULATED CONDUCTORS within the JAWS and the input/output circuit are insulated by DOUBLE INSULATION (see Figure K.101). <i>New section added;</i> Attenuation of TRANSIENT OVERVOLTAGE levels Current sensors or parts of current sensors may be used under conditions where TRANSIENT OVERVOLTAGES are reduced. Various technologies of components exist such as transformer, surge protective device (SPD), capacitance, resistance, and these can have different behaviour in terms of TRANSIENT OVERVOLTAGES attenuation. K.4 See standard for details.



CLAUSE	VERDICT	COMMENT
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New annex added;

CLAMP MULTIMETER

Annex GG

The primary purpose of CLAMP MULTIMETERS is to measure current and voltage on a live MAINS.

The following Figure GG.1 shows graphical representations of typical CLAMP MULTIMETERS for illustration purposes. CLAMP MULTIMETERS may look different depending on the design.

See standard for details.
