

STANDARD INFORMATION

Standard Number: UL 61010-2-030 / CSA C22.2 No. 61010-2-030

Standard Name: Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2-030: Particular Requirements for Equipment Having Testing or Measuring Circuits

Standard Edition and Issue Date: 2nd Edition dated December 21, 2018

Date of Revision: December 21, 2018

Date of Previous Revision of Standard: UL: 1st Edition revised September 16, 2016, CSA: 1st Edition reaffirmed 2016

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **No action is required for currently certified products to maintain certification.**

This SUN is being presented to assist users of the standard to appreciate the significance of the changes made to the standard that will apply should the product described be modified after January 1, 2022

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Effective immediately, this revised standard will be exclusively used for evaluation of new products. This 2nd edition of UL 61010-2-030 / CSA C22.2 No. 61010-2-030 is to be used in conjunction with the 3rd edition of UL 61010-1 / CSA C22.2 No. 61010-1.

Overview of Changes:

- Indirect bonding for testing and measuring circuits has been modified
- Clearance and creepage distance for wet locations exceeding 1 000 V has been specified
- The voltage source for testing overvoltage limiting component or circuit may be limited to 400 V
- Requirements against transient overvoltages for mains voltage measuring circuits have been added
- Requirements for measuring circuits from 1 000 V d.c. to 1 500 V d.c. have been added
- Requirements for reduction of transient overvoltages have been modified

Specific details of new/revised requirements are found in table below.

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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>
6	Info	Protection against electric shock Indirect bonding for testing and measuring circuits Devices to establish indirect bonding are the following: a) Voltage limiting devices which become conductive when the voltage across them exceeds the relevant levels of 6.3.2 a), with overcurrent protection to prevent breakdown of the device. <u>The duration versus the current shall not exceed the levels of Figure 101.</u> Conformity is checked by connecting the ACCESSIBLE conductive parts to the MAINS supply TERMINALS <u>maximum HAZARDOUS LIVE voltage according to the equipment RATINGS</u> while the equipment is <u>operated</u> in NORMAL USE. The current between the ACCESSIBLE conductive parts and the PROTECTIVE CONDUCTOR TERMINAL shall not exceed the relevant levels of 6.3.2 a) <u>is measured with the circuit of Figure A.1.</u> 6.5.2.101 b) Voltage-sensitive tripping devices which interrupt all poles of the MAINS supply or the HAZARDOUS LIVE voltage source and connect the ACCESSIBLE conductive parts to the PROTECTIVE CONDUCTOR TERMINAL whenever the voltage across them reaches the relevant levels of 6.3.2 a). <u>The tripping duration versus the current shall not exceed the levels of Figure 101.</u> Conformity is checked by applying successively the relevant voltage level of 6.3.2 a) and the maximum RATED voltage between the ACCESSIBLE conductive parts and the PROTECTIVE CONDUCTOR TERMINAL. <u>The current between the ACCESSIBLE conductive parts and the PROTECTIVE CONDUCTOR TERMINAL is measured with the circuit of Figure A.1.</u> <u>Voltage limiting devices or voltage-sensitive tripping devices as defined in a) and b), shall have at least the voltage and current RATINGS of the measuring TERMINALS.</u> <u>Conformity is checked by inspection.</u>



CLAUSE	VERDICT	COMMENT
6.6	Info	<p>Connections to external circuits</p> <p>Measuring circuit TERMINALS</p> <p>The conductive parts of each unmated measuring circuit TERMINAL which could become HAZARDOUS LIVE when the highest RATED voltage is applied to other measuring circuit TERMINALS on the equipment shall be separated by at least:</p> <p>a) for TERMINALS with voltage RATING up to 1 000 V a.c. or 1 500 V d.c., the applicable 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 (see Figure 1),</p> <p>b) for TERMINALS with voltage RATING exceeding 1 000 V a.c. or 1 500 V d.c., <u>2,8 mm for the CLEARANCE and CREEPAGE DISTANCE from the closest approach of the test finger touching the external parts of the TERMINAL in the least favourable position.</u></p> <p>6.6.101 <u>Additionally, TERMINALS with voltage RATING exceeding 1 000 V a.c. or 1 500 V d.c. shall withstand the voltage test of 6.8 with a test voltage equal to the RATED voltage of the TERMINAL multiplied by 1,25 applied between the closest approach of the test finger touching the external parts of the TERMINAL in the least favourable position and the other measuring circuit TERMINALS.</u></p> <p><u>For WET LOCATIONS, there are no CLEARANCE and CREEPAGE DISTANCE requirements for voltages between 16 V a.c. r.m.s. and 30 V a.c. r.m.s., or between 35 V d.c. and 60 V d.c., but conductive parts of unmated measuring circuit TERMINAL shall not be ACCESSIBLE.</u></p> <p><u>Annex CC provides information regarding the recommended dimensions of 4 mm TERMINALS.</u></p> <p><u>Conformity is checked by inspection, by the determination of ACCESSIBLE parts, by measurement of the applicable CLEARANCES and CREEPAGE DISTANCES, and if applicable, by the voltage test of 6.8.</u></p> <hr/> <p><i>New clause added;</i></p> <p>CREEPAGE DISTANCES</p> <p>Addition:</p> <p>6.7.1.3 Add the following new paragraph after the third paragraph:</p> <p>For HAND-HELD EQUIPMENT not powered from the MAINS or the measuring circuit, CREEPAGE DISTANCES are allowed to be according to material group I for all insulating materials.</p>



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
6.7.1.5		Requirements for insulation according to type of circuit See standard for details.
14		Components and subassemblies
14.101		Circuits used to limit TRANSIENT OVERVOLTAGE in measuring circuits used to measure MAINS <u>The MAINS voltage is the maximum RATED line-to-neutral voltage of the MAINS being measured. For measuring circuits RATED for MAINS line-to-neutral voltages above 400 V a.c. r.m.s. or d.c., the test may be performed with an available voltage source that has a line-to-neutral voltage of at least 400 V a.c. r.m.s. or d.c. The voltage source does not, in this case, need to match the measuring circuit RATING, but circuits RATED for a.c. are tested with an a.c. source, and circuits RATED for d.c. are tested with a d.c. source.</u> <u>The overvoltage limiting component or circuit shall not rupture or overheat during the test. If the results of the test are questionable or inconclusive, the test is to be repeated two more times.</u>
101	Info	Measuring circuits
101.3	Info	Protection against mismatches of inputs and ranges
101.3.3		Protection by uncertified current limitation devices or by impedances A voltage equal to the highest RATED voltage for any TERMINAL is applied between the TERMINALS of the measuring circuit for 1 min. The source of the test voltage shall be able to deliver a current of at least the possible a.c. or d.c. short-circuit current as applicable. If the function or range controls have any effect on the electrical characteristics of the input circuit, the test is repeated with the function or range controls in every combination of positions. <u>During the test, the voltage output of the source is measured. If the source voltage decreases by more than 20 % for more than 10 ms, the test is considered inconclusive and is repeated with a lower impedance source.</u>
101.4		<i>New clause added;</i> Protection against MAINS overvoltages See standard for details.
Annex K	Info	Insulation requirements not covered by 6.7
Table K.101		CLEARANCES for MEASUREMENT CATEGORIES II, III and I Added requirements for 1000V-1500V (see standard for details).
CUSTOMERS PLEASE NOTE: This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.		