STANDARDS UPDATE NOTICE (SUN)
ISSUED: June 19, 2018

STANDARD INFORMATION

This SUN establishes the Continuing Certification approach to Automatic Electrical Controls

Standard Number: CSA E60730-1
Standard Name: Automatic Electric Controls - Part 1: General Requirements
Standard Edition and Issue Date: 5th Edition Dated December 1, 2015
Date of Revision: December 1, 2015
Date of Previous Revision of Standard: 4th Edition Dated Mach 1, 2013

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 October 19, 2018

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised requirements and which products will require re-evaluation. **NOTE:** After October 19, 2018, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes:

- New requirements for battery powered controls and battery application
- Requirements for switch mode power supplies
- Changes to Table H.12 to align with CISPR 22 related to radio frequency emissions.
- Revisions to Annex J. Exemptions to tests related to thermistors used in Type 1, SELV controls.
- New requirements for remotely operated control functions
- Requirements updated for temperature sensing controls.

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

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action Required:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

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.

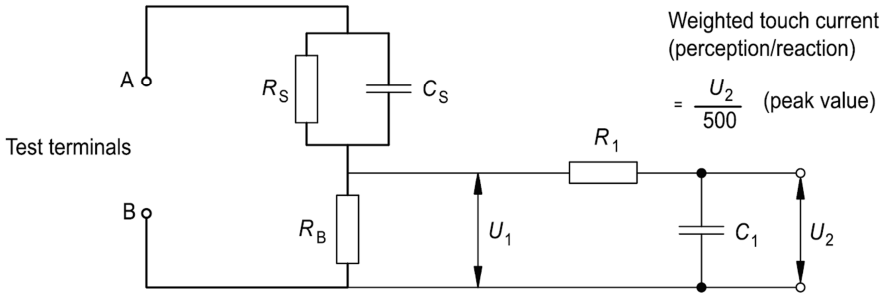
STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		Additions to existing requirements are underlined and deletions are shown ~~lined out~~ below.
11.13	Info	**Protective controls and components of protective control systems**
11.13.4		***New section added;*** **Batteries**
11.13.4.1		CONTROLS containing batteries shall be designed to reduce the RISK of fire, explosion and chemical leaks under normal conditions and after a single FAULT in the CONTROL. For USER-replaceable batteries, the design shall reduce the likelihood of reverse polarity installation if this would create a HAZARD.
11.13.4.2		Battery circuits designed for a total battery capacity > 1 000 mAh shall be designed so that: – the output characteristics of a battery charging circuit are compatible with its rechargeable battery (see Annex V); and – for non-rechargeable batteries, discharging at a rate exceeding the battery manufacturer's recommendations, and unintentional charging, are prevented; and – for rechargeable batteries (see Annex V), charging and discharging at a rate exceeding the battery manufacturer's recommendations, and reversed charging, are prevented; and – replaceable batteries shall either: • have contacts that cannot be shorted with the test finger (Figure 2); or • be inherently protected to avoid creating a HAZARD within the meaning of the standard. NOTE: Reversed charging of a rechargeable battery occurs when the polarity of

	the charging circuit is reversed, aiding the discharge of the battery.
11.13.4.3	If a battery with a capacity > 1 000 mAh contains liquid or gel electrolyte, a battery tray shall be provided that is capable of retaining any liquid that could leak as a result of internal pressure build-up in the battery. The requirement to provide a battery tray does not apply if the construction of the battery is such that leakage of the electrolyte from the battery is unlikely. NOTE: An example of a battery construction where leakage of the electrolyte is considered to be unlikely is the sealed CELL valve-regulated type.
11.13.4.3.1	If battery tray is required, its capacity shall be at least equal to the volume of electrolyte of all the CELLS of the battery, or the volume of a single CELL if the design of the battery is such that simultaneous leakage from multiple CELLS is unlikely. NOTE: If several CELLS (for example, the six CELLS in a 12 V lead-acid battery) are in a single casing, its fracture could lead to a greater volume of leakage than from a single CELL.
11.13.4.4	Compliance with 11.13.4.1 to 11.13.4.3.1 is checked by inspection and by evaluation of the data provided by the EQUIPMENT MANUFACTURER and battery manufacturer. When appropriate data is not available, compliance is checked by the test of 11.13.4.4.1 to 11.13.4.4.4 and 11.13.4.5. However, batteries that are inherently safe for the conditions given are not tested under those conditions. Consumer grade, non-rechargeable carbon-zinc or alkaline batteries are considered safe under short-circuiting conditions and therefore are not tested for discharge; nor are such batteries tested for leakage under storage conditions. The battery used for the following tests is a new non-rechargeable battery or as provided with, or recommended by the manufacturer for use with, the CONTROL.
11.13.4.4.1	Unintentional charging of a non-rechargeable battery. The battery is charged while briefly subjected to the simulation of any single component FAILURE that is likely to occur in the charging circuit and that would result in unintentional charging of the battery. To minimize testing time, the FAILURE is chosen that causes the highest charging current. The battery is then charged for a single period of 7 h with that simulated FAILURE in place.
11.13.4.4.2	Excessive discharging rate. The battery is subjected to rapid discharge by open-circuiting or short-circuiting any current-limiting or voltage-limiting components in the load circuit of the battery under test. NOTE: Some of the tests specified can be hazardous to the persons carrying them out; it is suggested that all appropriate measures to protect personnel against possible chemical or explosion HAZARDS be taken.
11.13.4.4.3	See Annex V.

11.13.4.4.4		These tests shall not result in any of the following: – chemical leaks caused by cracking, rupturing or bursting of the battery jacket, if such leakage could adversely affect required insulation; or – spillage of liquid from any pressure relief device in the battery, unless such spillage is contained by the CONTROL without RISK of damage to the insulation or HARM to the USER; or – explosion of the battery, if such explosion could result in injury to a USER; or – emission of flame or expulsion of molten metal to the outside of the CONTROL enclosure.
11.13.4.5		After completion of the tests, the equipment is subjected to the electric strength tests of 13.2.
13	Info	**Electric strength and insulation resistance**
13.2	info	**Electric strength**
13.2.1		Compliance is checked by the following test of 13.2.2 to 13.2.4 inclusive, using insulation or disconnection test voltages as shown in Table 12. This test is made when specified in Clause 12 and Clause 17.
24	Info	**Components**
24.4		***New section added;*** Switch mode power supplies not covered by 24.2.1, including their peripheral circuitry, used in ELECTRONIC CONTROLS shall comply with the tests of 24.4.1 and all of the applicable requirements of this standard. NOTE: Subclause 24.4.1.11 gives the compliance criteria for the tests.
24.4.1		**Overload tests for switch mode power supplies**
24.4.1.1		Each output winding, or section of a tapped winding, is overloaded in turn, one at a time, while the other windings are kept loaded or unloaded, whichever load conditions of NORMAL USE is the least favourable.
24.4.1.2		The overload is carried out by connecting a variable resistor (or an electronic load) across the winding or the rectified output. The resistor is adjusted as quickly as possible and readjusted, if necessary, after 1 min to maintain the applicable overload. No further readjustments are then permitted.
24.4.1.3		For this test, any protective devices such as a fuse, manual reset circuit protector, thermal protector, etc. are allowed to remain in the circuit.
24.4.1.4		If overcurrent protection is provided by a current-breaking device, the overload test current is the maximum current which the overcurrent protection device is just capable of passing for 1 h. If this value cannot be derived from the specification, it is to be established by test.
24.4.1.5		If no overcurrent protection is provided, the maximum overload is the maximum power output obtainable from the power supply.

24.4.1.6	In case of voltage foldback, the overload is slowly increased to the point which causes the output voltage to drop by 5 %. The overload is then established at the point where the output voltage recovers and held for the duration of the test.
24.4.1.7	The duration of the test is to be for 1 h or until ultimate results are reached.
24.4.1.8	The maximum open-circuit voltage of each winding (directly at the winding of the transformer) and the maximum load current are measured and recorded such that the maximum output power may be determined.
24.4.1.9	The maximum open circuit voltage measurements shall be made during normal OPERATION and under single component FAILURE, see Table H.24.
24.4.1.10	For SELV applications, where the maximum open circuit voltage measured directly at the secondary of the transformer exceeds the limits specified in 2.1.5, the measurement of the maximum output voltage of each winding may be made after certain PROTECTIVE IMPEDANCES. In this case, the limits shall be in accordance with H.8.1.10.1.
24.4.1.11	Following each test (while still in a heated condition), the transformer is to be subjected to the electric strength test of 13.2.
24.4.1.12	Compliance shall be in accordance with items a), b), c), d), e) and f) of H.27.1.1.3.
24.5	***New clause added;*** Annex J is not applicable to THERMISTORS used in a circuit which meets all of the following requirements: – type 1 CONTROL as declared in Table 1, requirement 39; – connected to a SELV/PELV circuit as specified in Clause T.1; – low power circuit as specified in H.27.1.1.1; – the CONTROL or final equipment complies with Clause H.27 when the THERMISTOR is open or short circuited; – CONTROL with CLASS A CONTROL FUNCTIONS as declared in Table 1, requirement 92.

Annex E		***New annex added;*** **Circuit for measuring leakage current** A suitable circuit for measuring LEAKAGE CURRENT in accordance with H.8.1.10 is shown in Figure E.1.  R_S 1 500 Ω R_B 500 Ω C_S 0,22 µF R_1 10 000 Ω C_1 0,022 µF NOTE This figure is taken from IEC 60990:1999, Figure 4. **Figure E.1 – Circuit for measuring leakage currents**
Annex H	Info	**Requirements for electronic controls**
H.11	Info	**Constructional requirements**
H.11.12	Info	**Controls using software**
H.11.12.4		***New section added;*** **Remotely actuated control functions** This section contains requirements for remotely actuated control functions (see standard for details).
Annex J	Info	**Requirements for thermistor elements and controls using thermistors**
J.27		***New section added;*** **Abnormal operation**
J.27.1		Consideration of FAULT modes shall be made in accordance with Table H.24 for THERMISTORS used in PROTECTIVE CONTROLS.

Annex V	***New annex added;*** **Requirements for controls powered by secondary batteries (rechargeable)** This annex contains requirements for controls powered by batteries that can be recharged in the control (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.