STANDARDS UPDATE NOTICE (SUN)
ISSUED: February 12, 2021

STANDARD INFORMATION

This SUN establishes a new edition of CSA C22.2 No. 14 and introduces a new standard CSA C22.2 No. 286 for Industrial Control Panels and Assemblies that are currently certified to CSA C22.2 No. 14.

Standard: Industrial Control Equipment, CSA C22.2 No. 14
Standard Edition and Issue Date: 13th Edition Dated March 1, 2018
Date of Revision: March 1, 2018
Date of Previous Revision of Standard: March 1, 2013

For Control Panels and Assemblies:
Replacement Standard: Industrial Control Panels and Assemblies, CSA C22.2 No. 286

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **See below**

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:** Effective immediately, 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

For Industrial Control Panels and Assemblies:

- All industrial control panels and assemblies must be certified to CSA C22.2 No. 286 before **January 6, 2022**

For products that are not Industrial Control Panels and Assemblies:

- Products must update their listing to CSA C22.2 No. 14-18 before **April 11, 2023**

Overview of Changes:

Changes between CSA C22.2 No. 14-13 and CSA C22.2 No. 14-18:

- Construction requirements for accessible circuits
- Leakage current testing requirements
- Construction requirements for wireless controls

Changes between CSA C22.2 No. 14 and CSA c22.2 No. 286

- Additional requirements for wiring
- Additional requirements for protection
- Additional requirements for markings

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).

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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

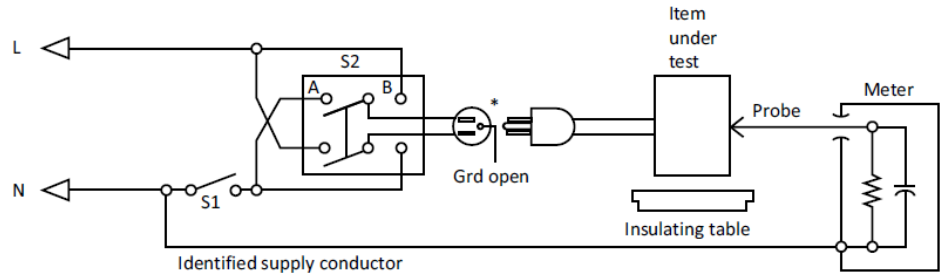
CLAUSE	VERDICT	COMMENT
		Additions to existing requirements are underlined and deletions are shown lined out below.
		THE FOLLOWING CHANGES REFLECT THE CHANGES BETWEEN CSA C22.2 NO. 14-13 AND CSA C22.2 NO. 14-18
4	Info	**Construction**
4.5		Environmental considerations for non-hazardous locations shall comply with CAN/CSA-C22.2 No. ~~94~~ 94.2.
4.20		***New section added;*** **Wireless controls**
4.20.1		Industrial control equipment utilizing wireless methods for remote control of safety control functions shall be evaluated in accordance with this Clause, in addition to other applicable Clauses of this Standard.
4.20.2		Safety control functions associated with wireless controls, covering both transmitters and receivers, shall be evaluated in accordance with CSA C22.2 No. 0.8. This evaluation shall include, but not be limited to the following: a) software, including how the code handles various failure modes such as data corruption, message loss, repetition of messages, data loss or extra data in a message, message delay, etc.; b) hardware, including all devices directly controlled by the software; and c) electro-magnetic compatibility (EMC).
4.20.3		When applying the requirements of Clause 4.20.2, the equipment shall be evaluated assuming the following parameters as defined within CSA C22.2 No. 0.8: a) control class C, unless the controlled function is not a safety control function and in this case control class B may be utilized; b) overvoltage category III; and c) test level 3.
4.20.4		Wireless controls shall be designed to safeguard effectively against unintended activation of any function under their control.
4.20.5		Wireless controls shall be marked to identify the corresponding base control unit the wireless device is associated with.
4.20.6		Wireless controls shall be designed such that, in the event of loss of power to the remote control system for any reason, the wireless control shall revert to a safe state.

CLAUSE	VERDICT	COMMENT
4.20.7		Wireless controls shall be marked where visible after installation with the maximum functional distance between the wireless control and the remote control system.
6	Info	**Tests**
6.26		***New section added;*** **Leakage current**
6.26.1		The leakage current test shall be performed on cord-connected equipment, as described in Clauses 6.26.2 to 6.26.7. The leakage current shall not exceed the leakage current value specified in Table 56.
6.26.2		Leakage current tests shall be performed with the equipment at normal operating temperature. Equipment intended to be installed in a damp or wet environment, or that through normal operation produces internal moisture, shall be humidity-conditioned as specified in Clause 6.26.3 prior to the measurement of leakage current.
6.26.3		Equipment intended to be humidity conditioned as specified in Clause 6.26.2 shall be first be exposed to ambient air at a temperature of at least 30 °C until thermal equilibrium is attained before being exposed to air at a relative humidity of 93 ±2% at a temperature of 32.0 ±2.0 °C for 168 h, except as specified in Clause 6.26.4.
6.26.4		Devices intended for indoor use only are kept in the chamber for 48 h.
6.26.5		The measurement of leakage current shall be made using one of the test circuits shown in Figure 9.
6.26.6		Leakage current measurements shall be made for each supply system on which a product is intended to be used (see Table 57). The test voltage shall be the nominal system voltage for the supply system in which the equipment is intended to operate. Nominal system voltage (e.g., 120 V) is that specified in CSA CAN3-C235. For equipment that is rated for dual-voltage operation (i.e., 208/240 V), tests shall be conducted at the rated nominal system voltage that is deemed most severe.
6.26.7		The measurement instrument is an electronic or a direct-indicating type, average responding, calibrated at 60 Hz, and indicating the rms value of a pure sine wave, with an accuracy of 5% at an indication of 0.5 mA. The meter shall have a terminal-to-terminal impedance equivalent to a 1500 Ω resistance shunted by a 0.15 µF capacitance.

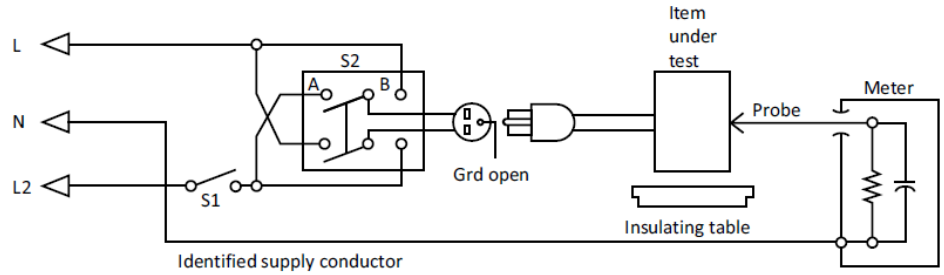
CLAUSE	VERDICT	COMMENT
Table 56		***New table added;*** **Leakage current limits for cord-connected equipment** **Test location** / **Leakage current limit, mA** Exposed parts bonded to the attachment plug ground pin / 3.5 Exposed parts not bonded to the attachment plug ground pin / 0.5 Exposed surfaces of insulating material (100 x 200 mm metal foil electrode) and surfaces hand-held during usage / 0.5
Table 57		***New table added;*** **Leakage current test circuit** **Intended supply field, V** / **Figure 9 (a)** / **Figure 9 (b)** / **Figure 9 (c)** 120 / X / / 208 (derived from 120/ 208 single-phase system) / / X / 240 (derived from 120/ 240 single-phase system) / / X / 240 (derived from 240/ 417 three-phase system) / X / / 120/208 (derived from 120/208 three-phase system) / / / X 120/208 (single phase) / / / X

CLAUSE	VERDICT	COMMENT
		New figure added;

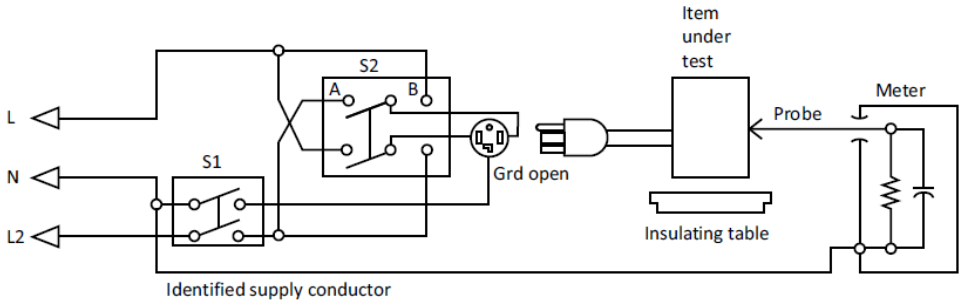
Leakage current measurement circuits



**(a) Unbalanced supply systems*Receptacle appropriate for the supply system/configuration used.*



(b) Balanced supply systems without identified supply conductor connection at load



(c) Balanced supply systems with identified supply conductor connection at load

Figure 9

Section(s), Clause(s)		THE FOLLOWING CHANGES REFLECT THE DIFFERENCES BETWEEN CSA C22.2 NO. 14 AND CSA C22.2 NO. 286
No. 286	No. 14	
1	1	Scope - Control Panels and assemblies up to 1500 V, up from 750 V assemblies. Allows ambient temperatures outside 0-40 Celsius. Added list of equipment excluded from industrial control panels requirements due to coverage under other programs.
4.1	4.1	Components - Acceptance criteria expanded
4.2	4.2	Enclosures - Shall be approved or shall be evaluated per No. 94.1 or per No. 14 requirements (not replicated within No. 286).
4.3	4.16	Grounding and Bonding - Removed amended impedance test value (based on ampere rating of device under No. 14, now default No. 0.4 test value). Added need for evaluation of suitability of DIN rail-mounted terminations. Size of grounding conductor table (Table 31 in No. 14) replaced with reference to CE Code Part I requirements. Added requirements for multiple systems and additional bonding provisions
4.4	4.14.1.4	Field Wiring Terminations – Added ampacity for terminations for devices intended for industrial heating controllers. Removed requirement for thickness of insulation of rubber or thermoplastic. Added notes for compliance to CE Code Part I, applicable product standards, and allowance for aluminum conductors
4.6	4.13	Internal Wiring - Added requirements for wiring of motors, heating loads, etc. per CE Code, Part I; avoiding contact with heat generating components; individual component standard wiring requirements; and ground and bonding conductors
4.7	4.1	Installation of Components – Added requirements regarding non-approved components; parts used in class 2 limited energy circuit, branch and feeder disconnects standards, and manual motor controllers
4.8.1	4.11.1	General Protection – General motor branch circuit requirements revised to reflect practices for industrial control panels. Combination motor controllers accepted as branch circuit protection with additional requirements specified
4.9	4.11.1.7	Supplementary Protection – Expanded and enhanced requirements for supplementary protectors including required short circuit current ratings, use for control circuits, and suitable application codes for various purposes
4.10	-	Explicit requirements for disconnecting means for each supply circuit added in compliance with CE Code guidelines
4.11	4.11.3	Instantaneous Trip Breakers – Revised requirements to specify compliance with Section 28 of CE Code and no loads other than motor control circuit
4.12	4.2.6	Temperature – Combined requirements for enclosure thermal insulation with overall consideration of thermal effects within control panels, added means for compliance via temperature testing, and added requirements for heating means for reduced external ambients

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No. 286	No. 14	
4.13	-	Assembly Short Circuit Current Rating(s) – New requirements collecting various criteria involved in determining panel SCCR (previously only required for panel with overload relay)
4.14	4.15	Electrical Spacings – Drastically simplified spacings requirements for panels (for example, methods A and B from No. 14 removed from consideration)
5	5	Markings – Added requirement to mark “industrial control panel (assembly)”, short circuit current rating, enclosure type rating (enclosed panels only), external ambient temperature range, and additional markings specific for panel applications
6.1	4.17	Service Entrance Equipment – Specific reference to No. 0.19 requirements added, additional requirements for servicing and adjusting added, and additional marking requirements added
6.2	-	Electric Heating Controllers – New requirements and markings in place for panels for heating loads
6.3	4.18	Use of Intrinsic Safety Barriers – Requirements clarified for intent not for hazardous locations
6.4	-	Oil and Gas Burning - New requirements and markings in place for panels for control of gas and oil burning equipment
6.5	-	Compressor Controllers - New requirements in place for panels for control of air compressors
6.6	-	Motor Control Centres - New requirements in place for modifications to motor control centre units/sections
7.2	6.2	Temperature Test – Optional test requirements added (from original No. 14 content) if required to verify thermal compliance of panel/components in panel from 4.12
Annex C	-	New Annex outlining means for calculating available fault current depending upon rating and impedance of transformers
Annex D	-	New Annex summarizing application guidelines for us of supplementary protectors
Annex E	-	New Annex providing details on application of required production line dielectric testing