

STANDARD INFORMATION

Standard Number: UL 508A
Standard Name: Industrial Control Panels
Standard Edition and Issue Date: 2nd Edition Dated December 20, 2013
Date of Revision: June 17, 2017 and July 31, 2017
Date of Previous Revision of Standard: March 31, 2017

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **February 1, 2019**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revise 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

Overview of Changes:

- Component Standard and High Fault Ratings.
- Clarification of Clause SB4.2.1, Exception No. 3 for Enclosure air conditioners or multimotor and combination load equipment that is cord-and-attachment-plug connected or supplied from a branch circuit protected at 60 A or less and not required to have a short circuit current rating.
- Feeder tap conductors.
- Wiring Ferrules for use in Industrial Control Panels.
- Marking of SCCR.
- Marking of Overload Setting.
- SB 4.3.1 correction.
- Cable Assemblies and Fittings for Power Control Circuits.
- SB 4.2.3 Exception No. 4 – Substituting for a Non-Current Limiting Overcurrent Device.

Specific details of new/revise 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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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										
The following changes are for the June 17, 2017 revision.												
52	Info	General Markings										
52.1		<p>An industrial control panel shall be provided with a nameplate marking that includes the following:</p> <ul style="list-style-type: none"> a) Manufacturer’s name or authorized designation; b) Complete electrical rating of each source of supply as specified in 49.1; c) <u>Short circuit current rating of industrial control panel as specified in 49.5;</u> d) e) Field wiring diagram number when required load ratings from 52.2 or field wiring information of 54.1 – 54.9, 60.1, or 60.2 is included only on the diagram; and e) e) Factory identification as specified in 52.5. <p>e) Enclosure Type rating (for enclosed panels only) as specified in 53.1.</p>										
Table 52.1		<table border="1"> <thead> <tr> <th rowspan="2">Paragraph</th> <th rowspan="2">General description</th> <th colspan="2">Location categories (see notes)</th> </tr> <tr> <th>Enclosed</th> <th>Open</th> </tr> </thead> <tbody> <tr> <td>52.1</td> <td> General markings Nameplate stating: manufacturer, maximum voltage, total FLA, largest motor FLA, phase, frequency, field wiring diagram, <u>environmental type rating</u>, short circuit current rating </td> <td style="text-align: center;">a-b</td> <td style="text-align: center;">f</td> </tr> </tbody> </table>	Paragraph	General description	Location categories (see notes)		Enclosed	Open	52.1	General markings Nameplate stating: manufacturer, maximum voltage, total FLA, largest motor FLA, phase, frequency, field wiring diagram, <u>environmental type rating</u> , short circuit current rating	a - b	f
Paragraph	General description	Location categories (see notes)										
		Enclosed	Open									
52.1	General markings Nameplate stating: manufacturer, maximum voltage, total FLA, largest motor FLA, phase, frequency, field wiring diagram, <u>environmental type rating</u> , short circuit current rating	a - b	f									
66	Info	Construction										
66.6	Info	Disconnecting means										



New clause added;

For such circuits all of the following requirements shall be met:

- 66.6.4
- a) Permanent cautionary marking(s) as required by 55.4 shall be placed adjacent to the supply circuit disconnecting operating handle(s), indicating that it does not de-energize all exposed live parts when it is in the open (off) (isolated) position;
 - b) A permanent cautionary warning such as Figure 67.1 shall be placed on a non-removable part inside the control enclosure in proximity to each excepted circuit, or shall be identified by color as defined in 66.9.1.

Supplement SB	Info	SHORT CIRCUIT CURRENT RATINGS FOR INDUSTRIAL CONTROL PANELS
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SB4	Info	Ratings
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SB4.2	Info	Short circuit current ratings of individual power circuit components
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All power circuit components, including disconnect switches, branch circuit protective devices, branch circuit fuseholders, load controllers, motor overload relays, terminal blocks, and bus bars, shall have a short circuit current rating expressed in amperes or kiloamperes and voltage.

SB 4.2.1

Exception No. 1: Power transformers, reactors, current transformers, dry-type capacitors, resistors, varistors, and voltmeters are not required to have a short circuit current rating.

Exception No. 2: The "S" contactor of a wye-delta motor controller is not required to have a short circuit current rating.

Exception No. 3: Enclosure air conditioners or ~~multimotor and combination load equipment that is~~ are cord-and-attachment-plug connected ~~or supplied from a branch circuit protected at 60 A or less~~ is ~~is~~ are not required to have a short circuit current rating.



Table SB4.4

Column 1	Column 2						
Transformer	Minimum Transformer Secondary Voltage (V)						
Max kVA	208Y/120 ^b	208	240	480Y/277 ^b	480	600Y/347 ^b	600
5	840 A <u>830 A</u>	670 A	580 A	360 A	290 A	230 A <u>290 A</u>	230 A
10	1,660 A	1,330 A	1,150 A	730 A <u>720 A</u>	580 A	460 A <u>580 A</u>	460 A
15	2,490 A <u>2,480 A</u>	1,990 A	1,730 A <u>1,720 A</u>	1,090 A <u>1,080 A</u>	870 A <u>860 A</u>	690 A <u>860 A</u>	690 A
20	3,310 A	2,650 A	2,300 A	1,440 A	1,150 A	920 A <u>1,150 A</u>	920 A
25	4,140 A	3,310 A	2,870 A	1,800 A	1,440 A	1,150 A <u>1,440 A</u>	1,150 A
30	4,980 A <u>4,960 A</u>	3,980 A <u>3,970 A</u>	3,450 A <u>3,440 A</u>	2,160 A <u>2,150 A</u>	1,730 A <u>1,720 A</u>	1,380 A <u>1,720 A</u>	1,380 A
45	7,450 A <u>7,440 A</u>	5,960 A <u>5,950 A</u>	5,170 A <u>5,160 A</u>	3,240 A <u>3,230 A</u>	2,590 A <u>2,580 A</u>	2,070 A <u>2,580 A</u>	2,070 A
75	12,410 A <u>12,400 A</u>	9,930 A <u>9,920 A</u>	8,610 A <u>8,600 A</u>	5,390 A <u>5,370 A</u>	4,310 A <u>4,300 A</u>	3,450 A <u>4,300 A</u>	3,440 A <u>3,440 A</u>
100	16,550 A <u>16,530 A</u>	13,240 A <u>13,220 A</u>	11,470 A <u>11,460 A</u>	7,190 A <u>7,180 A</u>	5,740 A <u>5,730 A</u>	4,590 A <u>5,730 A</u>	4,590 A

^a Z assumed to be 2.1%. All values are rounded up.
^b Short-circuit current shown is line-to-neutral. (1.25 times line-to-line)

The following changes are for the July 31, 2017 revision.

28 Info **Field Wiring**

New section added;

28.7

Cable Assemblies and Fittings

Cable assemblies, male and female cable fittings, panel-mounted fittings and fittings intended for use in power circuits shall comply with 28.5.6, 28.6.2, 28.6.3 and the requirements in one of the following:

28.7.1

- a) The Outline of Investigation for Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery, UL 2237; The Standard for Cable Assemblies and Fittings for Industrial Control and Signal Distribution, UL 2238.

37 Info **Field Wiring Terminals**

New section added;

37.8

Cable Assemblies and Fittings

Cable assemblies, male and female cable fittings, panel-mounted fittings and fittings intended for use in remote-control, signaling, and power-limited circuits shall comply with the requirements in the Standard for Cable Assemblies and Fittings for Industrial Control and Signal Distribution, UL 2238, or the Outline of Investigation for Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery, UL 2237.

37.8.1

Exception: Cable assemblies and fittings for connection to a Class 2 circuit or a low-voltage limited-energy circuit are not required to comply with this requirement.



SB	Info	SHORT CIRCUIT CURRENT RATINGS FOR INDUSTRIAL CONTROL PANELS
SB4	Info	Ratings
SB4.2	Info	Short circuit current ratings of individual power circuit components
		A high fault short circuit current rating for a motor controller, an overload relay, or a combination motor controller, as specified in SB4.2.2 (a) or (c), shall only be used as the short circuit current rating of the component when the specified branch circuit protective device is provided.
SB4.2.3		<i>Exception No. 4: When the specified branch circuit protection related to the high fault short-circuit current rating is a non-current limiting overcurrent device, a current-limiting overcurrent device fuse according to Table SB4.2 is able to be used at the same high fault rating where the interrupting rating of the current-limiting overcurrent device fuse is equal to or greater than the specified overcurrent device, and where the rated current of the fuse is equal to or less than the specified overcurrent device.</i>
SB4.3	Info	Feeder components that limit the short circuit current available
		For branch circuits <u>feeder and branch circuit components and overcurrent protective devices</u> supplied by a power transformer with an isolated secondary winding, the short circuit current rating on the line side of the transformer shall be one of the following: a) For a power transformer with a marked or known impedance, where the secondary short circuit current (Isc) is calculated using the formulas below, and where the short circuit current rating of all components and interrupting rating of all overcurrent protective devices in the secondary circuit <u>supplied by the transformer</u> are not less than the calculated secondary short circuit current (Isc), the interrupting rating of the primary overcurrent protective device is able to be assigned to the short circuit current rating on the line side of the power transformer circuit.
SB4.3.1		Single Phase Transformers: Transformer Full-Load Current (IFL) = (Transformer kVA \times 1000) / Voltage* Short Circuit Current (ISC line-to-line) = ((Transformer Full Load Current (IFL)) / Transformer Impedance (Z) *Line-to-line secondary voltage
		Three Phase Transformers: Transformer Full-Load Current (IFL) = (Transformer kVA \times 1000) / (Voltage** \times 1.732)



Short Circuit Current (ISC line-to-line-to-line) = ((Transformer Full Load Current (IFL)) / Transformer Impedance (Z)

**Line-to-line-to-line secondary voltage

Note: These formulas and Tables SB4.3 and SB4.4 provide the worse case value for ISC (assumes infinite available short circuit current).

- b) For a power transformer with an unmarked impedance, or with a marked or known impedance not less than 2.1%, the impedance shall be permitted to be assumed to be 2.1%. The short circuit rating shall be determined by either the formula method in SB4.3.1(a) or by using Tables SB4.3 or SB4.4 as follows:

For a power transformer with a rated kVA not exceeding that in Column 1 of Table SB4.3 (single phase) or Table SB4.4 (three phase) and a specified secondary voltage not less than one of the values listed in Column 2, where the short circuit current rating of all components and interrupting rating of all overcurrent protective devices in the secondary circuit supplied by the transformer are not less than the corresponding available short-circuit current short-circuit shown for the specified secondary voltage in Column 2 of the table, the interrupting rating of the primary overcurrent protective device is able to be assigned to the short circuit current rating on the line side of the power transformer circuit.

For circuits components that do not comply with SB4.3.1(a) or SB4.3.1(b), the lowest short circuit current rating of the components or the lowest interrupting rating of the overcurrent protective devices in the secondary circuit supplied by the transformer, whichever is lower, is assigned to the line side of the power transformer circuit.

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.
