



SUPPLIER CERTIFICATION NOTICE TO CSA Ref No: N04-071

(updated May 1, 2005)

Relating to CSA Standard C22.2 No 100-04, Motors and Generators,
Portable and Standby Generators, 12kW and below
Re-Issue date of September 23, 2004
Application date prior to April 1, 2005
Effective date of November 1, 2005
Re-Issue date of July 29, 2005
New Effective date of November 1, 2006

Major Revision:

Clause 11.2.8 of the new CSA Standard C22.2, No. 100 specifies requirements for protection and control of portable and standby generators. The requirements also cover the use of supplementary protectors rated with a Trip Code in portable generators.

Overview:

With the release of the new standard, CSA has recognized the differing levels of classification found under UL1077 for supplementary protectors. Previous to this standard, manufacturers have chosen which classification to comply to. A specifying engineer may have selected a UL1077 device, while not realizing for example, that the device was not tested or rated for motor starting applications or it's tripping current was excessive. The new standard ensures proper selection of supplemental protectors is met when used in protecting output circuits of portable generators.

MP applauds CSA for undertaking this standard change to ensure uniformity in the use and application of supplementary protectors.

Clause 11.2.8.2.5 states:

A supplemental protector may be used in the output circuits of portable generators in order to comply with Clause 11.2.8.1, provided that the supplemental protector complies with the following:

- (a) It is suitable for use in industrial equipment.
- (b) It has an "overload must trip" classification of TC0, TC1, or TC3.
- (c) It has a "suitable for further use" classification of U3 or U1a or has a classification of C3 or C1a if provided with the required line side fuse or moulded case circuit breaker.
- (d) Its short-circuit rating is equal to or greater than the available current from the generator output at rated voltage.
- (e) It has an overload rating classification of OL1.
- (f) The 250V single-phase and three-phase output circuits are protected by multi-pole protectors meeting the intention of Rule 14-302 of *the Canadian Electrical Code, Part I*.

MP Response:

MP has undertaken the necessary submittals and tests to ensure compliance to the new CSA Standard and is pleased to announce that the Series 14 (5-20A), Series 16 (5-35A) and Series 02-Model 600 supplementary circuit protectors are compliant to the revised Sixth Edition of the CSA Standard C22.2 No 100-04, Motors and Generators.



CSA witness testing was completed on March 17, 2005. Additional testing completed in April. Here is compiled the CSA Criteria, explanations, and the MP Classification for further detailed compliance information.

CSA 11.2.8.2.5 Criteria -

- (a) It is suitable for use in industrial equipment.

MP supplemental circuit protectors are suitable for use in industrial equipment. Furthermore, the portable generator manufacturer may want to consider the use of optional rubber boots, which protects the breaker and seal mounting holes against harm from dust, dirt, grease, and environmental elements.

- (b) It has an "overload must trip" classification of TC0, TC1, or TC3.

Tripping Current (TC) is coded as a percentage of the amp rating. The "Maximum Ultimate Trip" of supplemental protectors, is the current rating at which a circuit protection device will trip within a certain period of time at a specified temperature, typically given at 25 deg C / 77 deg F:

- TC0 - tripping current is less than 125% of amp rating
- TC1 - tripping current is the range of 125% to 135% of amp rating
- TC2 - tripping current is more than 135% of amp rating
- TC3 - tripping current and time is standardized at 135% and at 200% of amp rating

MP Series 14 have TC3 Classification
MP Series 16 have TC3 Classification
MP Series 02-Model 600 have TC3 Classification

- (c) It has a "suitable for further use" classification of U3 or U1a or has a classification of C3 or C1a if provided with the required line side fuse or moulded case circuit breaker.

The short-circuit current rating (SC) is kiloamperes followed by a letter and number designating the test conditions, and any calibration and dielectric strength tests following the short-circuit test, and defined below:

- C – a short circuit test was conducted with series over current protection
- U – a short circuit test was conducted without series over current protection
- 1 – a recalibration test and dielectric strength test was not conducted
- 1a- the supplementary protector was permanently open after the short-circuit test. A dielectric strength test and a voltage withstand test were conducted.
- 2 – a recalibration test and dielectric strength test were conducted as part of short-circuit testing
- 3 – a recalibration test, dielectric strength test, and voltage withstand test were conducted as part of short circuit testing

MP Series 14 have 500A U3 125VAC Classification, 5-15A
400A U3 125VAC Classification, 16-20A
2kA C3 (2xIn) 125VAC Classification, 5-20A
1kA U3 32VDC Classification, 5-20A

MP Series 16 have 1kA U1a 125VAC Classification, 5-25A
500A U3 125VAC Classification, 26-35A
1kA U1a 125VAC Classification, 26-35A
1kA U1a (4xIn) 250VAC Classification, 26-35A
1kA U1a 50VDC Classification, 5-35 A



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**MP Series 02-Model 600 have 1kA U3 125VAC Classification, 6-14A
5kA U3 125VAC Classification, 15-20A**

- (d) Its short-circuit rating is equal to or greater than the available current from the generator output at rated voltage.

The generator manufacturer must ensure that the supplemental protector has a larger short circuit rating than the available current from the generator output at rated voltage.

See SC Ratings above in (c).

- (e) It has an overload rating classification of OL1.

Overload rating (OL), designating whether the supplemental protector has been tested for general use or motor starting applications.

OL0 – tested at 1.5 times amp rating for general use

OL1 – tested at 6 times AC rating or 10 times DC rating for motor starting applications

MP Series 14 have OL1 Classification 125VAC/32VDC

MP Series 16 have OL1 Classification 125VAC/32VDC

MP Series 02-Model 600 have OL1 Classification 125VAC

- (f) The 250V single-phase and three-phase output circuits are protected by multi-pole protectors meeting the intention of Rule 14-302 of *the Canadian Electrical Code, Part I*.

MP supplemental protectors are available in single pole and the generator manufacturer must use a more expensive multi-pole protector for 250V output circuits.

(S14, S16, S02 Compliance Charts follow)

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Series 16

Mid Amp

**Performance Certified Supplemental Protectors
 Circuit Breakers for Equipment**

Series 16 are Supplementary Protectors and carry agency approvals from :
 UL (UL1077/UL1500), CSA (CSA 22.2), VDE (IEC 934) and CCC.
 UL and CSA acceptance levels are shown below.

**Tripping Current
 (TC)**

	5A	35A
	TC3	
	TC1	

TC1 Tripping current is in the range of 125% to 135% of amp rating.
 (UL, CSA)
 TC3 Tripping current and time is standardized at 135% and at 200% of amp
 rating. (CSA)

**Overload Rating
 (OL)**

	5A	25A 26A	35A
125VAC	OL1		
	OL1		
250VAC	OL1		
	OL1		OL0
32VDC	OL1		
	OL0		
50VDC	OL0		

OL0 Tested at 1.5 times amp rating for general use. (UL, CSA)
 OL1 Tested at 6 times AC rating and 10 times DC rating for motor starting
 applications. (UL, CSA)

**Short Circuit
 (SC)**

	5A	25A 26A	35A
125VAC	U1a @ 1,000A		U3 @ 500A
	C1 @ 2,000A		C1 @ 1,000A
250VAC	C1 (4In) @ 1,000A		
	U1a @ 1,000A		
32VDC	C1 @ 1,000A		
	C1 @ 1,000A		
50VDC	C1 @ 1,000A		
	U1a @ 1,000A		

C1 As short circuit test was conducted with series over current protection.
 The Supplementary Protector was permanently open after the short-circuit test.
 A dielectric strength test and a voltage withstand test were conducted. (UL, CSA)
 U1a As short circuit test was conducted without series over current protection.
 The Supplementary Protector was permanently open after the short-circuit test.
 A dielectric strength test and a voltage withstand test were conducted. (CSA)
 U3 As short circuit test was conducted without series over current protection.
 A recalibration test, dielectric strength and voltage withstand test were conducted
 as part of the test. (CSA)

KEY: = compliant to CSA STD 22.2, No 235-04
 = recognized per UL1077



Series 14

**Performance Certified Supplemental Protectors
 Circuit Breakers for Equipment**

*Series 14 are Supplementary Protectors and carry agency approvals from;
 UL (UL1077/UL1500), cUL, CSA (CSA 22.2), VDE (IEC 934) and CCC.
 UL and CSA acceptance levels are shown below.*

	5A	20A
Tripping Current (TC)	TC3	
	TC2	

TC2 Tripping current is more than 135% of amp rating. (UL, CSA, cUL)
 TC3 Tripping current and time is standardized at 135% and at 200% of amp rating. (CSA)

	5A	20A	
Overload Rating (OL)	125VAC	OL1	
	250VAC	OL1	
	32VDC	OL1	
	50VDC	OL1	

OL1 Tested at 6 times AC rating and 10 times DC rating for motor starting applications. (UL, CSA, cUL)

	5A	15A	16A	20A
Short Circuit (SC)	125VAC	U3 @ 500A		U3 @ 400A
		C3 (2xIn) @2,000A		
	250VAC	C1 @ 1,000A		
	32VDC	U3 @ 1,000A		
	50VDC	C1 @ 1,000A		

C1 A short-circuit test was conducted with series over current protection. A recalibration was not conducted as part of short-circuit testing. (UL, CSA, cUL)
 C2 A short circuit test was conducted with series over current protection. A recalibration test and dielectric strength test were conducted as part of the test. (UL, CSA, cUL)
 C3 A short circuit test was conducted with series over current protection. A recalibration test, dielectric strength and voltage withstand test were conducted as part of the test. (CSA)
 U3 A short circuit test was conducted without series over current protection. A recalibration test, dielectric strength and voltage withstand test were conducted as part of the test. (CSA)

KEY: = compliant to CSA STD 22.2, No 235-04
 = recognized per UL 1077



Series 02
 Model 600

Performance Certified Supplemental Protectors
Circuit Breakers for Equipment

Model 600 are Supplementary Protectors and carry agency approvals from; UL (UL1077), CSA (CSA 22.2), VDE (IEC 934) and CCC. UL and CSA acceptance levels are shown below.

	6A	20A
Tripping Current (TC)	TC3	
	TC1	

TC1 Tripping current is in the range of 125%to 135% of amp rating. (UL, CSA)
 TC3 Tripping current and time is standardized at 135% and at 200% of amp rating. (CSA)

	6A	20A
Overload Rating (OL)	125VAC	OL1
	277VAC	OL1

OL1 Tested at 6 times AC rating and 10 times DC rating for motor starting applications. (UL, CSA)

	6A	14A	15A	20A	
Short Circuit (SC)	125VAC	U3 @ 1,000A		U3 @ 5,000A	
	277VAC	C1 @ 5,000A			
		U1 @ 1,000A			

C1 A short circuit test was conducted with series over current protection. A recalibration was not conducted as part of short circuit testing. (UL, CSA)
 U1 A short circuit test was conducted without series over current protection. A recalibration was not conducted as part of short circuit testing. (UL, CSA)
 U3 A short circuit test was conducted without series over current protection. A recalibration test, dielectric strength and voltage withstand test were conducted as part of the test. (CSA)

KEY: = compliant to CSA STD 22.2, No 235-04
 = recognized per UL1077