

Bulletin 592 E100 Overload Relay Application and Installation (Cat 592-1EF_T, 592-1EF_C, 592-1EFGD)



At the end of its life, this equipment should be collected separately from any unsorted municipal waste.

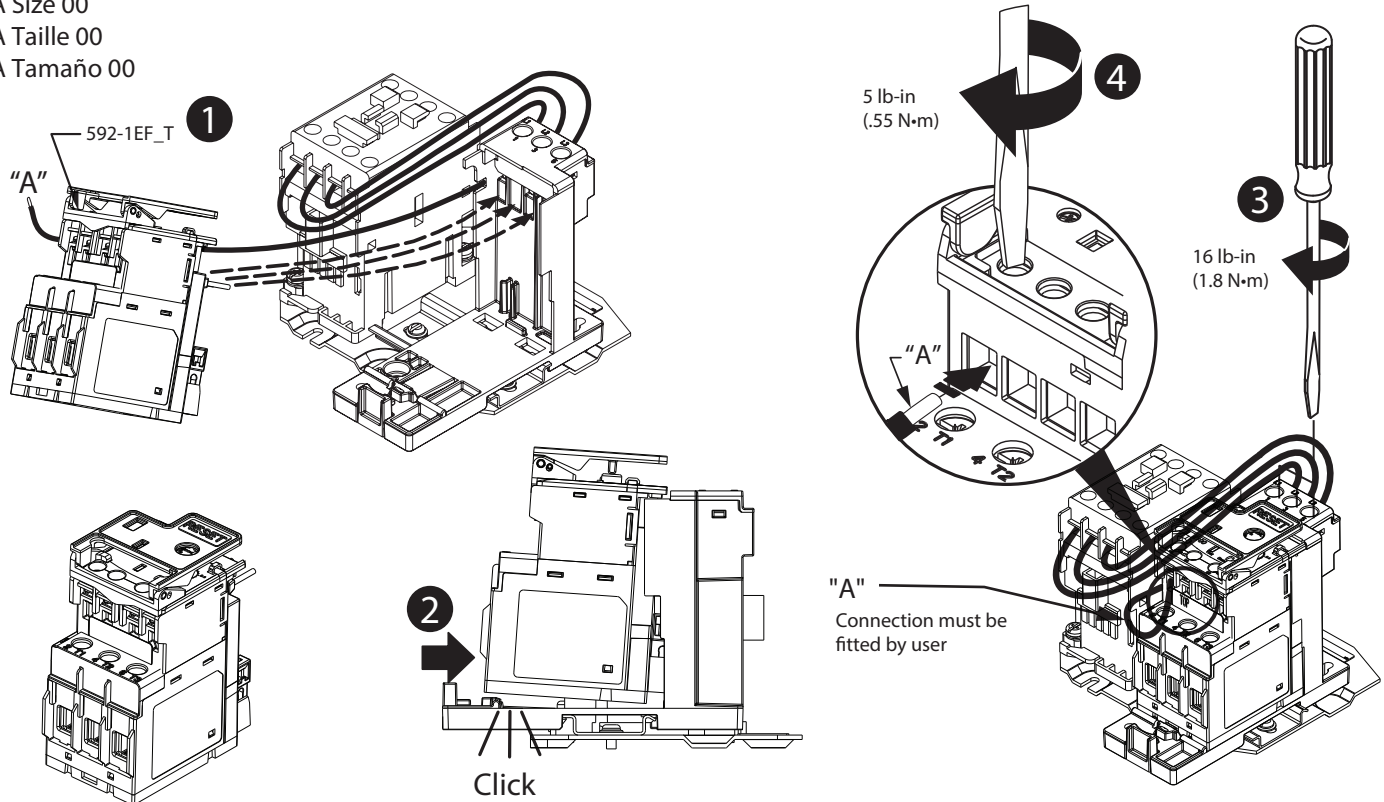


WARNING: To prevent electrical shock, disconnect from power source before installing or servicing. Install in suitable enclosure. Keep free from contaminants. Follow NFPA 70E requirements.

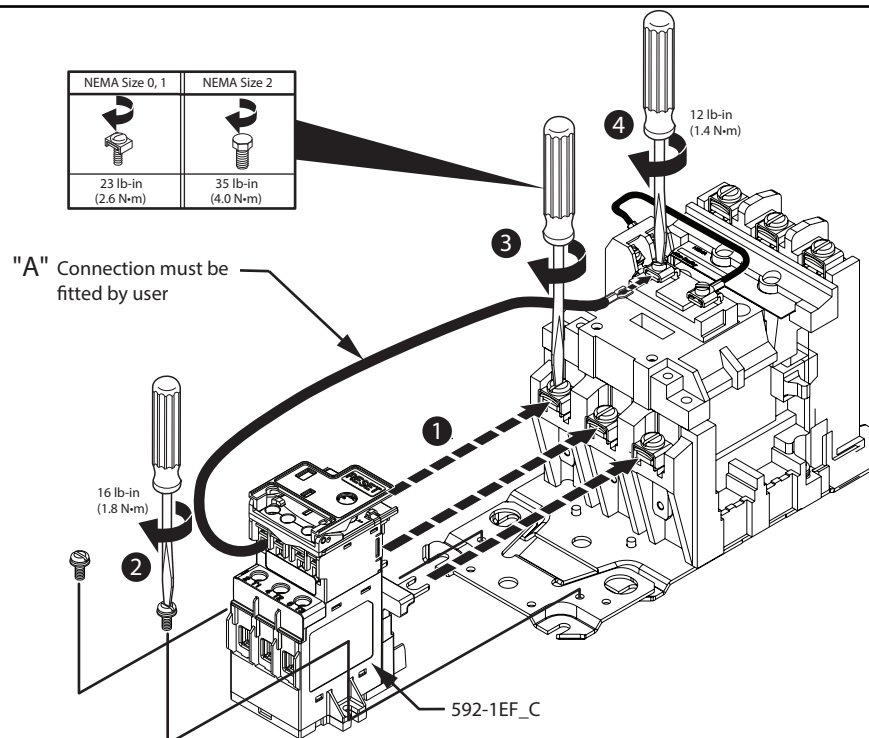
AVERTISSEMENT: Avant le montage et la mise en service, couper l'alimentation secteur pour éviter toute décharge. Prévoir une mise en coffret ou armoire appropriée. Protéger le produit contre les environnements agressifs. Respectez les exigences NFPA 70E.

ADVERTENCIA: Desconéctese de la corriente eléctrica, antes de la instalación o del servicio, a fin de impedir sacudidas eléctricas. Instálelo en una caja apropiada. Manténgalo libre de contaminantes. Siga los requisitos NFPA 70E.

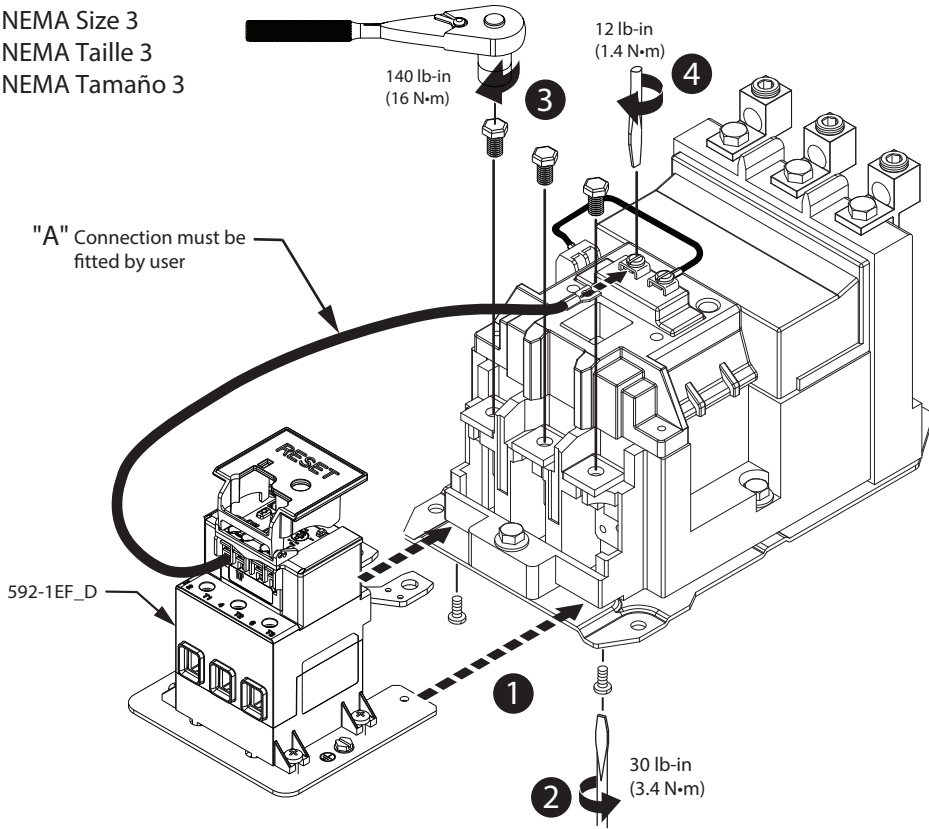
NEMA Size 00
NEMA Taille 00
NEMA Tamaño 00



NEMA Size 0, 1, 2
NEMA Taille 0, 1, 2
NEMA Tamaño 0, 1, 2



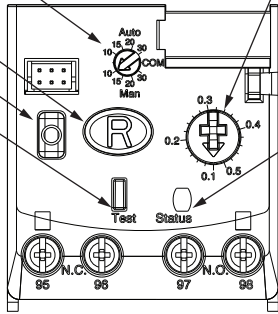
NEMA Size 3
 NEMA Taille 3
 NEMA Tamaño 3



To adjust trip current, turn dial until the desired current is aligned with the pointer. Trip rating is 120% of dial setting.

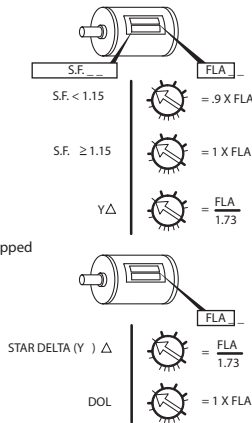
Selectable Trip Class
 Automatic/Manual Reset Mode

Push to reset
 Push to stop
 Push to test



Trip Indicator Window
 Red indicator not visible: Not Tripped
 Red indicator visible: Tripped

592-1EF*



Overload Relay Contact Status
 Contact Ratings: N.O. C600 / N.C. B600 (AC)
 N.O. / N.C. R300 (DC)

	Normal	Stop Pressed	Test Tripped
95	96 Closed	96 Open	96 Open
97	98 Open	98 Open	98 Closed

Main Connections

Rated Insulation Voltage (Ui): 690V AC
 Rated Operational Voltage (Ue) IEC/UL: 690V AC / 600V AC
 Rated Operating Frequency: 50 / 60 Hz

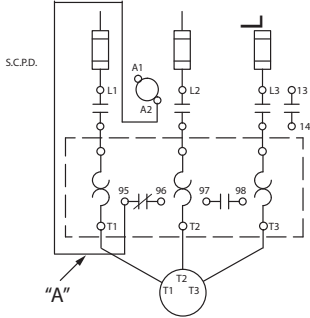
Wire Type	# Wires	Control Wiring		Power Wiring					
		Range	Torque	592-1EF_T Range	592-1EF_T Torque	592-1EF_C Range	592-1EF_C Torque	592-1EFGD Range	592-1EFGD Torque
Flexible Stranded w/ Ferrule	1 Wire	0.75...2.5 mm ²	1.4 N·m	2.5...16 mm ²	2.5 N·m	2.5...16 mm ²	2.5 N·m	4.0...35 mm ²	4.6 N·m
	2 Wires*			2.5...10 mm ²	3.4 N·m	2.5...10 mm ²	3.6 N·m		
Stranded / Solid	1 Wire	0.75...4.0 mm ² (18...12 AWG)	1.4 N·m (12 lb-in)	2.5...16 mm ² (14...6 AWG)	2.5 N·m (22 lb-in)	2.5...16 mm ² (14...6 AWG)	2.5 N·m (22 lb-in)	4.0...35 mm ² (12...1 AWG)	4.6 N·m (40 lb-in)
	2 Wires*			2.5...16 mm ² (14...6 AWG)	3.4 N·m (30 lb-in)	2.5...16 mm ² (14...6 AWG)	3.6 N·m (32 lb-in)		

*FOR MULTIPLE CONDUCTOR APPLICATIONS THE SAME SIZE AND STYLE WIRE MUST BE USED.

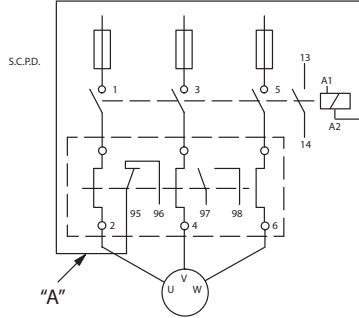
Bulletin 592 E100 Overload Relay Application and Installation

Wiring Diagrams

3-Phase, Full-voltage Direct-on-line Starter, NEMA Symbology

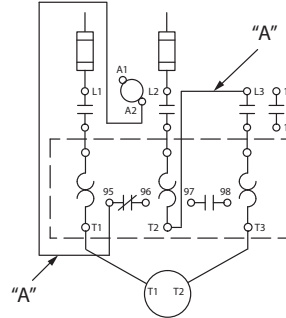


3-Phase, Full-voltage Direct-on-line Starter, IEC Symbology



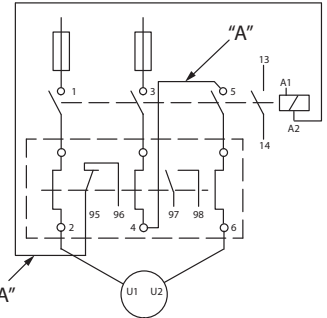
"A" Connection must be fitted by user

1-Phase, Full-voltage Direct-on-line Starter, NEMA Symbology



"A" Connection must be fitted by user

1-Phase, Full-voltage Direct-on-line Starter, IEC Symbology



Short Circuit Ratings, per UL60947-4-1 and CSA 22.2 No. 60947-4-1

Table 1: E100 UL Standard Fault Ratings, Type I

E100 Overload		Contactor	Short Circuit Protection Device (1)		Standard Fault Rating	
Cat No	Amp Range	Cat. No.	UL class RK5 Fuse Max (A)	Circuit Breaker Frame Max Amp	600 Vac	
592-	1EFAT	0.1-0.5 A	500-T, 9A	1	---	1kA
	1EFBT	0.2 - 1 A	500-T, 9A	3	---	
	1EFCT	1 - 5 A	500-T, 9A	15	---	
	1EFDT	3.2 - 16.0 A	500-T, 9A	35	---	
	1EFBC	0.2 - 1 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	3	---	5kA
	1EFCC	1 - 5 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	15	140G-H2 (20 A) ⁽²⁾⁽³⁾	
	1EFDC	3.2 - 16.0 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	50	140G-H2 (60 A) ⁽²⁾⁽³⁾	
	1EFEC	5.4-27.0 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	70 100 100	140G-H2 (70 A) ⁽²⁾⁽³⁾ 140G-H2 (100 A) ⁽²⁾⁽³⁾ 140G-H2 (100 A) ⁽²⁾⁽³⁾	
	1EFFC	11-55 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	70 100 175	140G-H2 (70 A) ⁽²⁾⁽³⁾ 140G-H2 (100 A) ⁽²⁾⁽³⁾ 140G-J2 (175 A) ⁽³⁾	
	1EFGD	20-100 A	500F-D, 90A	350	140G-K3 (350 A) ⁽³⁾	
					10kA	

(1) Selected fuse or breaker size shall not exceed 4x starter FLA
 (2) 140G-H CB may be replaced with 140G-G CB up to 480V applications only
 (3) 140G Inverse Time CB may be replaced with 140MG Magnetic Only Trip Type

Table 2: Short Circuit Ratings, Type I, Using 140U D Frame Circuit Breakers

E100 Overload		Contactor	Maximum (1) Circuit Breaker 140U-D6D3-	Standard Fault Rating		
Cat No	Amp Range	Cat. No.		600Y / 347 V	480Y / 277 V	600Y / 347 V
592-	1EFAT	0.1-0.5 A	500-T, 9A	C15 (15A)	1 kA	65 kA
	1EFBT	0.2 - 1 A	500-T, 9A	C15 (15A)		
	1EFCT	1 - 5 A	500-T, 9A	C20 (20A)	5 kA	
	1EFDT	3.2 - 16.0 A	500F-A, 18A	C30 (30A)		
	1EFEC	5.4-27.0 A	500F-B, 27A	C30 (30A)		

Table 3: Type I, High Fault Ratings using 140G Circuit Breakers

E100 Overload		Contactor	Short Circuit Protection Device		Fault Rating		
Cat No	Amp Range	Cat. No.	Circuit Breaker Frame	Max Amp (1)	480 Vac	600 Vac	
592-	1EFCC	1-5 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-G6 ⁽²⁾	20 A	65 kA	---
	1EFCC	1-5 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-H6 ⁽²⁾	20 A	65 kA	25 kA
	1EFDC	3.2-16 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-G6 ⁽²⁾	60 A	65 kA	---
	1EFDC	3.2-16 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-H6 ⁽²⁾	60 A	65 kA	25 kA
	1EFEC	5.4-27.0 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-G6 ⁽²⁾	70 A 100 A 100 A	65 kA	---
	1EFEC	5.4-27.0 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-H6 ⁽²⁾	70 A 100 A 100 A	65 kA	25 kA
	1EFFC	11-55 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	140G-J6 ⁽²⁾	70 A 100 A 175 A	65 kA	25 kA
	1EFGD	20-100 A	500F-D, 90A	140G-K6 ⁽²⁾	350 A	65 kA	35 kA

(1) Selected fuse or breaker size shall not exceed 4x starter FLA
 (2) 140G Inverse Time CB may be replaced with 140MG Magnetic Only Trip Type

Table 4: Type I and Type II Fuse Coordination-per EN/IEC 60947-4-1

E100 Overload		Contactor	Standard Fault, Prospective S. C. current, Ir (kA)	High Fault, Conditional S. C. current, Iq (kA)	Max Voltage (V)	Fuse	
Cat No	Amp Range	Cat. No.				Type I & II Max Class J or CC (A)	
592-	1EFAT	0.1-0.5 A	1	100	600	3	
	1EFBT	0.2 - 1 A				6	
	1EFBC	0.2 - 1 A				500F-A, 18A	6
						500F-B, 27A	6
						500F-C, 45A	6
	1EFCT	1 - 5 A				500-T, 9A	15
	1EFCC	1 - 5 A				500F-A, 18A	15
						500F-B, 27A	15
						500F-C, 45A	15
	1EFDT	3.2 - 16.0 A				500-T, 9A	15
	1EFDC	3.2 - 16.0 A				500F-A, 18A	30
						500F-B, 27A	30
			500F-C, 45A	30			
	1EFEC	5.4-27.0 A	500F-A, 18A	30			
			500F-B, 27A	50			
			500F-C, 45A	40			
	1EFFC	11-55 A	500F-A, 18A	50			
			500F-B, 27A	40			
500F-C, 45A			60				
1EFGD	20-100 A	500F-D, 90A	100				
			200				
			3				
			5				

Table 5: E100 UL High Fault Fault Ratings (Type 1)

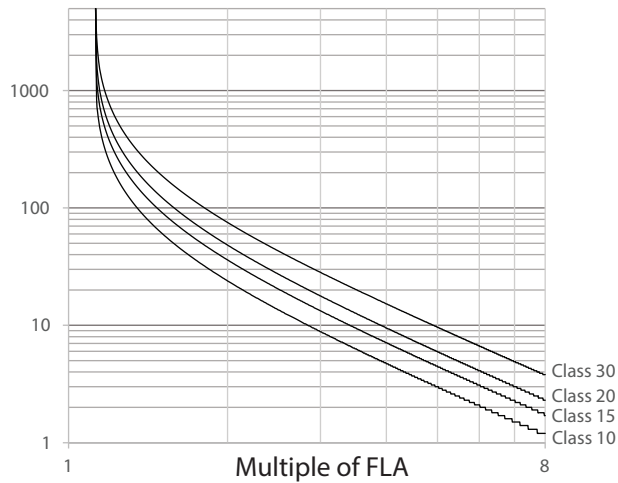
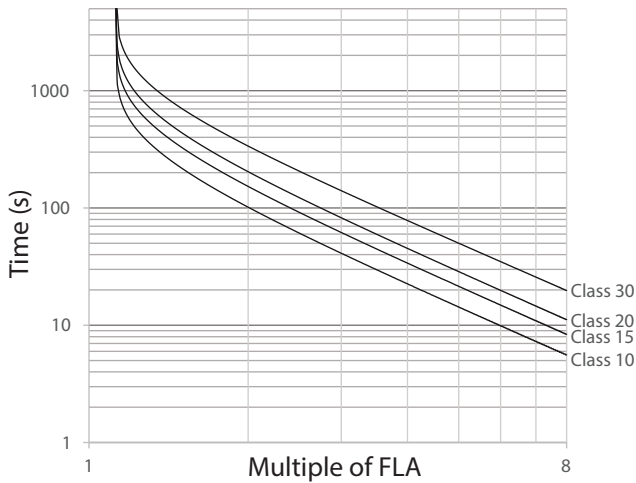
E100 Overload		Contactor	Short Circuit Protection Device (1) UL Fuse class / Max (A)			High Fault Rating
Cat No	Amp Range	Cat. No.	250 Vac	480 Vac	600 Vac	Type 1
592-	1EFAT	0.1-0.5 A	500-T, 9A	---	J / 2 A	J / 2 A
	1EFBT	0.2 - 1 A	500-T, 9A	---	J / 4 A	J / 4 A
	1EFCT	1 - 5 A	500-T, 9A	---	J / 15A	J / 15A
	1EFDT	3.2 - 16.0 A	500-T, 9A	---	J / 15 A	J / 15 A
	1EFBC	0.2 - 1 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	---	J / 4 A	J / 4 A
	1EFCC	1 - 5 A	500F-A, 18A 500F-B, 27A 500F-C, 45A	---	RK5 / 20 A	RK5 / 20 A
	1EFDC	3.2 - 16.0 A	500F-A, 18A	RK5 / 30 A	RK5 / 30 A	RK5 / 30 A
			500F-B, 27A	RK5 / 60	RK5 / 30 A	RK5 / 30 A
			500F-C, 45A	RK5 / 60	RK5 / 30 A	RK5 / 30 A
	1EFEC	5.4-27.0 A	500F-A, 18A	RK5 / 30 A	RK5 / 30 A	RK5 / 30 A
			500F-B, 27A	RK5 / 60	RK5 / 30 A	RK5 / 30 A
			500F-C, 45A	RK5 / 60	RK5 / 30 A	RK5 / 30 A
	1EFFC	11-55 A	500F-A, 18A	RK5 / 30 A	RK5 / 30 A	RK5 / 30 A
			500F-B, 27A	RK5 / 60	RK5 / 60 A	RK5 / 30 A
			500F-C, 45A	RK5 / 100	RK5 / 60 A	RK5 / 60 A
	1EFGD	20-100 A	500F-D, 90A	RK5 / 200 A	RK5 / 200 A	RK5 / 200 A





(1) Selected fuse size shall not exceed 4x starter FLA or as stated in table whichever is smaller

Trip Curves

Cold Trip Curves

Hot Trip Curves



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