

# E300 / E200 Sensing Module

(Cat 193-ESM-\_\_\_\_\_-\_\_\_\_\_; 592-ESM-\_\_\_\_\_-\_\_\_\_\_)

**WARNING:** To prevent electrical shock, disconnect from power source before installing or servicing. Follow NFPA 70E requirements. Install in suitable enclosure. Keep free from contaminants. Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance shall be carried out by suitably trained personnel in accordance with applicable code of practice. In case of malfunction or damage, no attempts at repair should be made. The product should be returned to the manufacturer for repair. Do not dismantle the product.

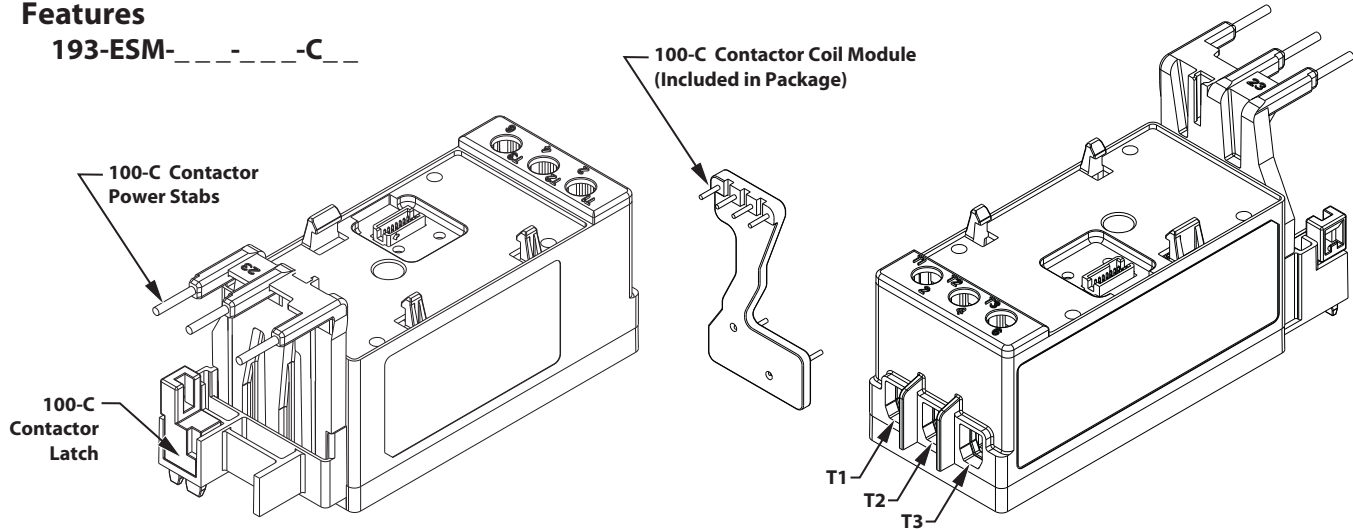
**Additional Resources:**

1) Go to <http://www.literature.rockwellautomation.com>;

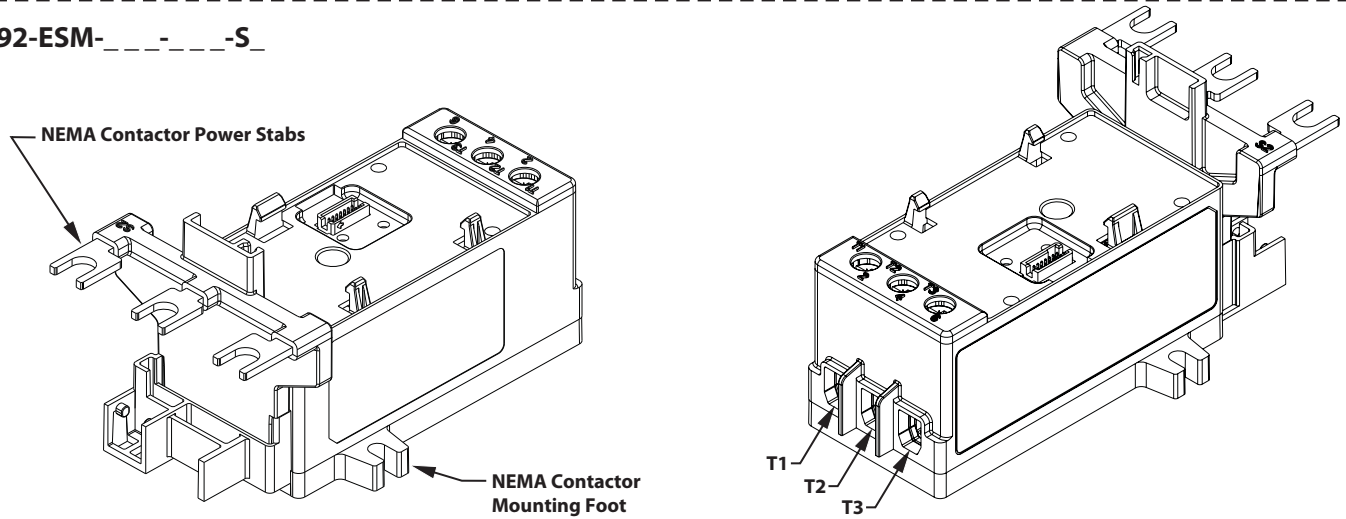
2) Go to **Search**. Type in publication number: **193-UM015**

**Features**

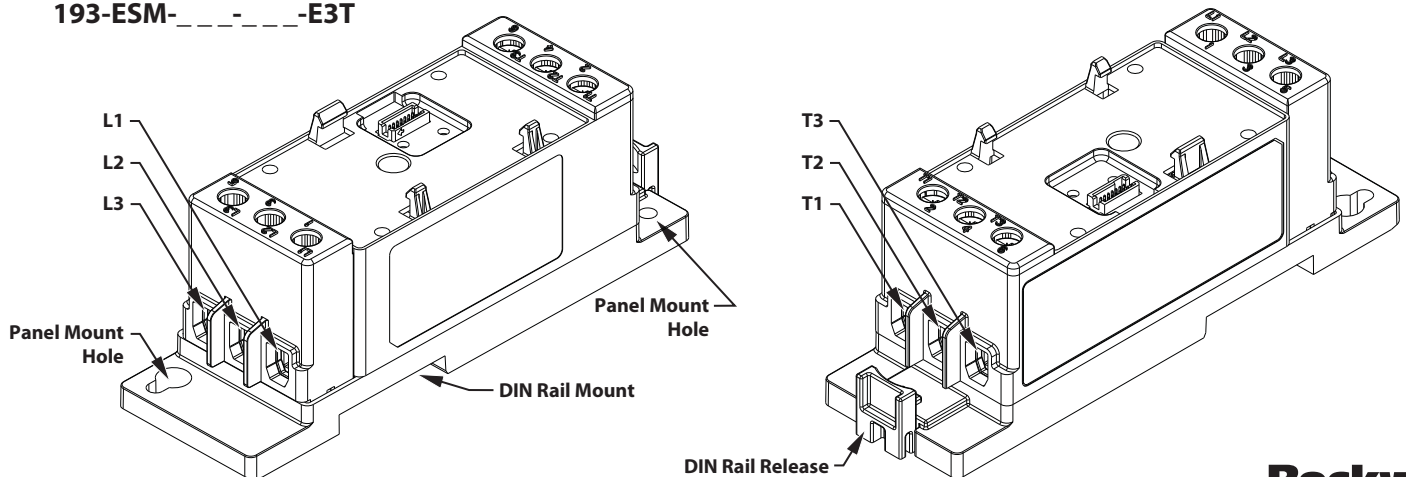
193-ESM-\_\_\_\_\_-\_\_\_\_\_-C



592-ESM-\_\_\_\_\_-\_\_\_\_\_-S



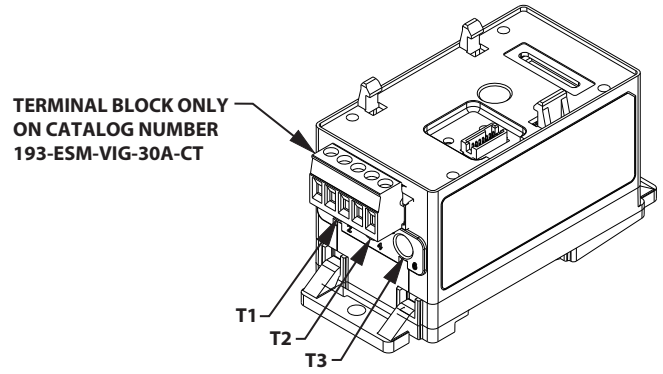
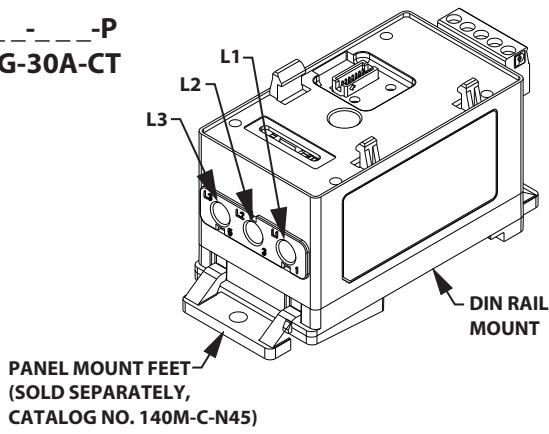
193-ESM-\_\_\_\_\_-\_\_\_\_\_-E3T



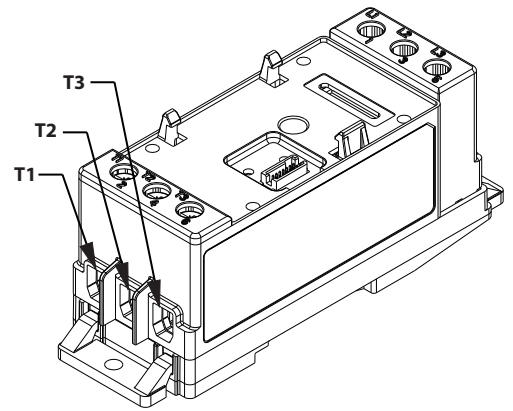
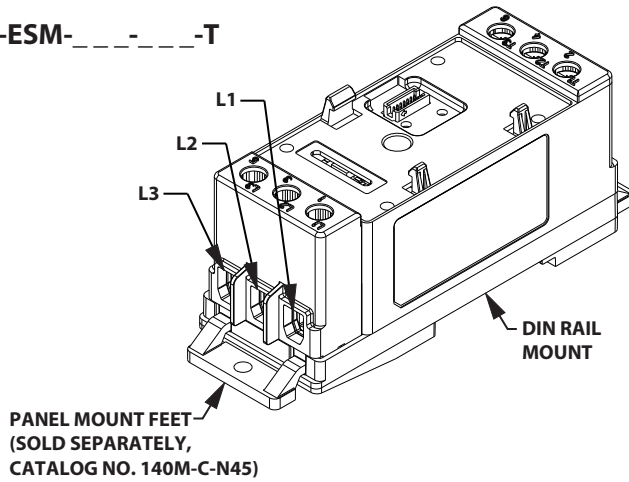
**Features**

193-ESM-\_\_\_\_-P

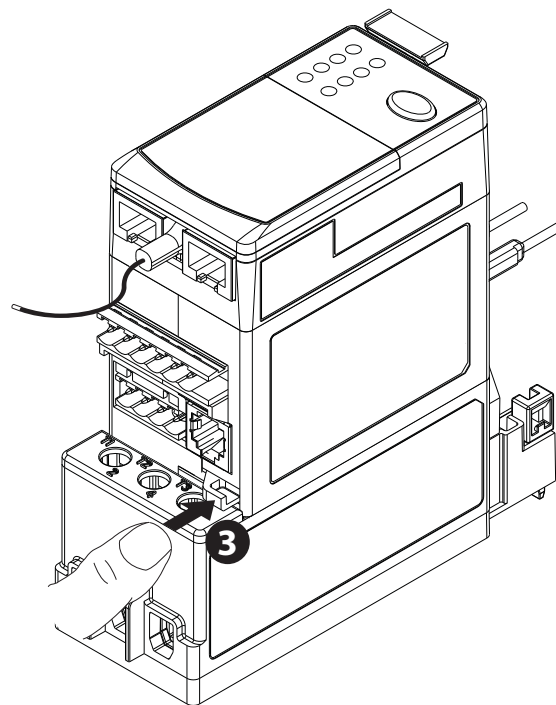
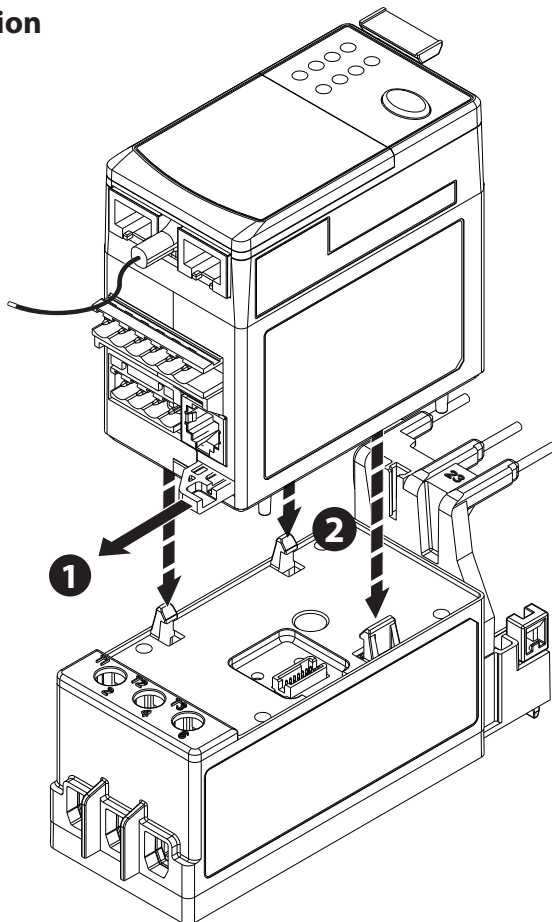
193-ESM-VIG-30A-CT



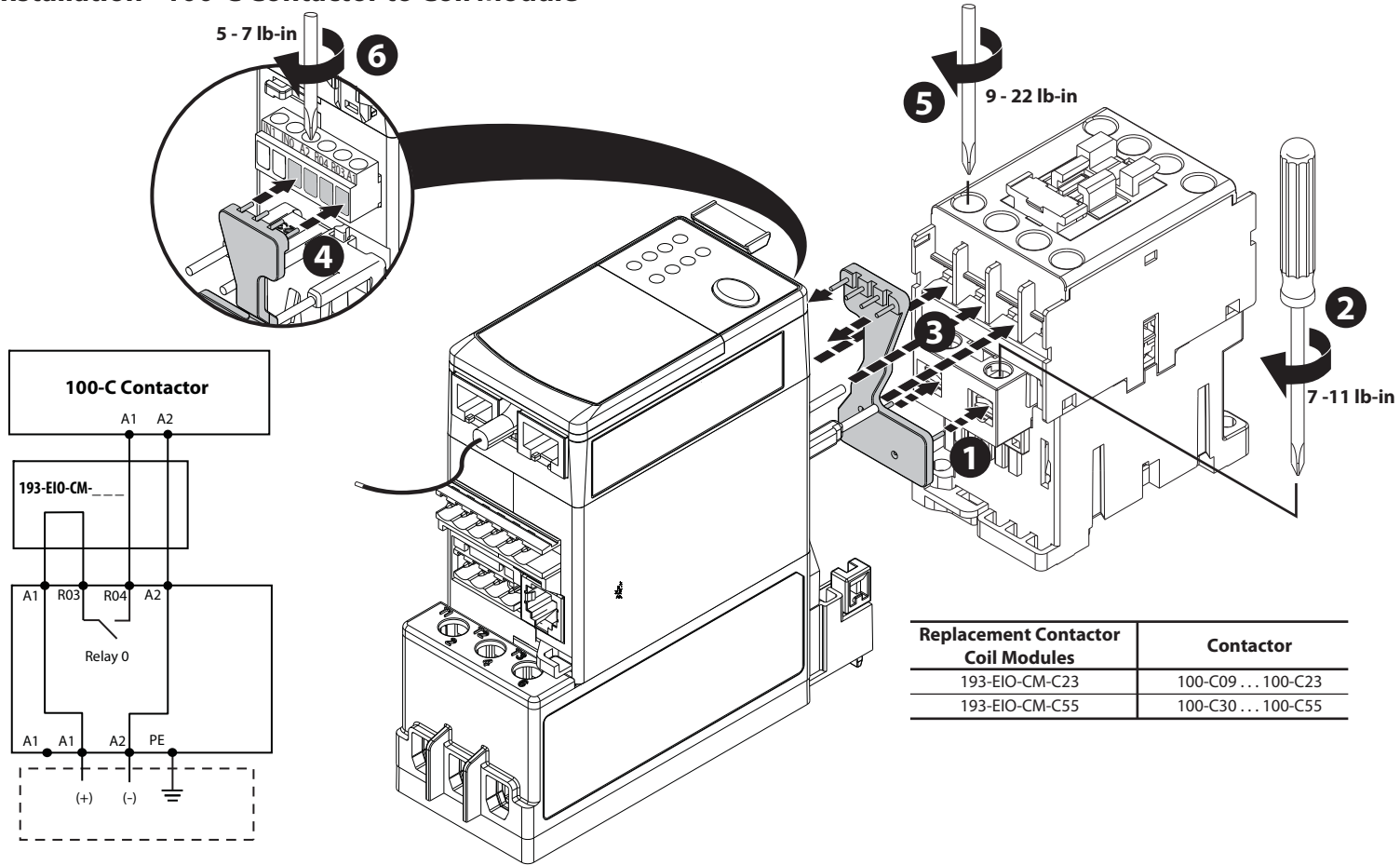
193-ESM-\_\_\_\_-T



**Installation**



### Installation - 100-C Contactor to Coil Module



### Short Circuit Ratings

The E300 / E200 overload relay is suitable for use on circuits capable of delivering not more than the RMS symmetrical amperes listed in the following tables:

Table 1 Standard Fault Short Circuit Ratings per UL60947-4-1 and CSA 22.2 No. EN60947-4-1

Sensing Module Catalog Number	Contactor Catalog Number	Maximum Starter FLC (A)	Maximum Available Fault Current (A)	Maximum Voltage (Vac)	Maximum RK5 Non-time Delay Fuse Size	Maximum Listed Circuit Breaker Size
193-ESM-___-30A-P, 193-ESM-VIG-30A-CT, 193-ESM-___-30A-T, 193-ESM-___-30A-E3T	-----	-----	5,000	600	110A	110A
193-ESM-___-60A-P, 193-ESM-___-60A-T, 193-ESM-___-60A-E3T	-----	-----			225A	225A
193-ESM-___-30A-C23	100-C09	9			90A	90A
	100-C12	12				
	100-C16	16				
	100-C23	23				
193-ESM-___-30A-C55	100-C30	30			200A	200A
	100-C37	37				
193-ESM-___-60A-C55	100-C43	43				
	100-C55	55				
	500-__A	18				
592-ESM-___-30A-S2	500-__B	27				
	500-__C	45	175A	175A		

Table 2 Short Circuit Ratings per EN60947-4-1

Overload Relay using Sensing Module Catalog Number	Prospective Short Circuit Current, $I_p$ (A)	Conditional Short Circuit Current, $I_q$ (A)	Maximum Voltage (V)
193-ESM-___-30A-C23, 193-ESM-___-30A-C55, 193-ESM-___-30A-E3T, 592-ESM-___-30A-S2, 193-ESM-___-60A-C55, 193-ESM-___-60A-E3T, 592-ESM-___-60A-S2, 193-ESM-___-30A-T, 193-ESM-___-60A-T, 193-ESM-___-30A-P, 193-ESM-___-60A-P, 193-ESM-VIG-30A-CT	3,000	100,000	690

Table 3 High Fault Short Circuit Ratings using stand alone overload relays when protected by fuses per UL60947-4-1 and CSA 22.2 No. EN60947-4-1

Sensing Module Catalog Number	Maximum FLC (A)	Maximum Available Fault Current (A)	Maximum Voltage (Vac)	Class J or CC Fuse
193-ESM-___-30A-P, 193-ESM-VIG-30A-CT, 193-ESM-___-30A-T, 193-ESM-___-30A-E3T	30	100,000	600	60A
193-ESM-___-60A-P, 193-ESM-___-60A-T, 193-ESM-___-60A-E3T	60			100A

Table 4 High Fault Short Circuit Ratings per UL60947-4-1 and CSA 22.2 No. EN60947-4-1 with Bul. 100-C and 100-D, IEC, contactors protected by fuses

Sensing Module Catalog Number	Contactor Catalog Number	Max. Starter FLC (A)	Max. Available Fault Current (A)	Maximum Voltage (V)	Class J or CC Fuse (A)
193-ESM-___-30A-C23	100-C09	9	100,000	600	20
	100-C12	12			20
	100-C16	16			30
	100-C23	23			30
	100-C30	30			50
193-ESM-___-30A-C55, 193-ESM-___-60A-C55	100-C37	37	100,000	600	50
	100-C43	43			70
	100-C55	55			80

# Short Circuit Ratings (Continued)

**Table 5 High Fault Short Circuit Ratings per UL60947-4-1 and CSA 22.2 No. EN60947-4-1 with Bul. 500 line, NEMA, Contactors protected by Fuses**

Overload Relay using Sensing Module Catalog Number	Contactor size	Max. Starter FLC (A)	Max. Available Fault Current (A)	Maximum Voltage (V)	Max. UL Fuse (A)	
					R	J
592-ESM-___-30A-S2	00	9	100,000	600	----	20
				240	30	30
592-ESM-___-30A-S2	0	18		600	30	30
				240	60	100
592-ESM-___-30A-S2	1	27		600	30	50
				240	100	200
592-ESM-___-60A-S2	2	45	600	60	100	

**Table 6 High Fault Short Circuit Ratings using Bul. 140MG Circuit Protectors per UL60947-4-1 and CSA 22.2 No. EN60947-4-1**

Sensing Module Catalog Number	Contactor Catalog Number	Maximum Starter FLC (A)	Maximum Available Fault Current (kA)		Circuit Protector Catalog Number	Maximum Circuit Protector Current (A)	Minimum Enclosure Size (in.)
			At 480Vac	At 600Vac			
193-ESM-___-30A-C55	100-C30	30	65	25	140MG-H8P-C50	50	24x20x8 with two hinges and two multi-turn screw type latches
	100-C37	37			140MG-H8P-C50	50	
	100-C43	43			140MG-H8P-C50	50	
193-ESM-___-60A-C55	100-C55	55			140MG-H8P-C80	80	

**Table 7 High Fault Short Circuit Ratings using listed Circuit Breakers per UL60947-4-1 and CSA 22.2 No. EN60947-4-1**

Sensing Module Catalog Number	Contactor Catalog Number	Maximum Starter FLC (A)	Maximum Available Fault Current (A)	Maximum Voltage (Vac)	Maximum Listed Circuit Breaker Size	Minimum Enclosure Volume (cu. in.)
193-ESM-___-30A-P, 193-ESM-VIG-30A-CT, 193-ESM-___-30A-T, 193-ESM-___-30A-E3T	-----	-----	100,000	600	100A	1547
193-ESM-___-60A-P, 193-ESM-___-60A-T, 193-ESM-___-60A-E3T	-----	-----				1547
193-ESM-___-30A-C23	100-C09	9				1547
	100-C12	12				
	100-C16	16				
	100-C23	23				
193-ESM-___-30A-C55	100-C30	30				1547
	100-C37	37				
193-ESM-___-60A-C55	100-C43	43				1547
	100-C55	55				
	500-__-A	18				
500-__-B	27					
592-ESM-___-60A-S2	500-__-C	45	2142			

**Table 8 Short Circuit Ratings per UL60947-4-1 and CSA 22.2 No. EN60947-4-1 with 100-C, IEC, contactors protected by Bul. 140U-D frame circuit breakers**

Overload Relay using Sensing Module Catalog Number	Contactor Catalog Number	Max. Starter FLC (A)	Max. Available Fault Current (A)	Maximum Voltage (V)	Max. Circuit Breaker 140U-D6D3-
193-ESM-___-30A-C23	100-C09	9	65,000	480V/277V	C30 (30 Amps)
	100-C12	12			
	100-C16	16			
	100-C23	23			
193-ESM-___-30A-C23	100-C09	9	35,000	600V/347V	C30 (30 Amps)
	100-C12	12			
	100-C16	16			
	100-C23	23			
193-ESM-___-30A-C23	100-C09	9	5,000	600V/347V	C30 (30 Amps)
	100-C12	12			
	100-C16	16			
	100-C23	23			

## Fuse Coordination

The following tables illustrate the fuse coordination tested when used with contactors stated:

**Table 9 Type I and Type II fuse coordination with Bul. 100-C and 100-D contactors per EN60947-4-1**

Overload Relay using Sensing Module Catalog Number	Contactor Catalog Number	Max. Starter FLC (A)	Prospective Fault Current, <i>I<sub>r</sub></i> (A)	Conditional Fault Current, <i>I<sub>q</sub></i> (A)	Maximum Voltage (V)	Type I Class J or CC Fuse (A)	Type II Class J or CC Fuse (A)
193-ESM-___-30A-C23	100-C09	9	1,000	100,000	600	20	15
	100-C12	12				20	20
	100-C16	16				30	30
	100-C23	23				40	40
193-ESM-___-30A-C55, 193-ESM-___-60A-C55	100-C30	30	3,000	100,000	600	50	50
	100-C37	37				50	50
	100-C43	43				70	70
	100-C55	55				80	80

**Table 10 Type I and Type II fuse coordination with Bul. 500 line, NEMA, contactors per EN60947-4-1**

Overload Relay using Sensing Module Catalog Number	Contactor size	Max. Starter FLC (A)	Prospective Short Circuit Current, <i>I<sub>r</sub></i> (A)	Conditional Short Circuit Current, <i>I<sub>q</sub></i> (A)	Maximum Voltage (V)	Type I Class J Fuse (A)	Type II Class J Fuse (A)
592-ESM-___-30A-S2	0	18	3,000	100,000	600	30	30
592-ESM-___-30A-S2	1	27				30	30
592-ESM-___-60A-S2	2	45				60	60

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/about-us/sustainability-ethics/product-environmental-compliance.page>.

Allen-Bradley, Rockwell Software, and Rockwell Automation are trademarks of Rockwell Automation, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

[www.rockwellautomation.com](http://www.rockwellautomation.com)

## Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444  
 Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640  
 Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846



PN-248343