




IEC Bimetallic Overload Relays

Product Selection ❶



Fast Shipment Program Cat. Nos. are printed in blue.

 Cat. Nos. 193-HPD110... GPD630	Mounting	Adjustment Range (A) ❶	Cat. No.	*	
 Cat. Nos. 193-BSA18... BSC32	Directly to contactors 100 & 104-A09 through -A30	0.10...0.16	193-BSA18		
		0.16...0.24	193-BSA26		
		0.24...0.40	193-BSA35		
		0.40...0.60	193-BSA70		
		0.60...1.0	193-BSA90		
		0.8...1.2	193-BSB12		
		1.0...1.6	193-BSB16		
		1.5...2.3	193-BSB22		
		2.0...3.0	193-BSB30		
		2.8...4.2	193-BSB42		
		4.0...6.0	193-BSB60		
		5.5...8.0	193-BSB80		
		6.0...10	193-BSC10		
		10...16	193-BSC15		
		16...24	193-BSC24		
22...32	193-BSC32				
 Cat. Nos. 193-CPC30... CPC75	Directly to contactors 100 & 104-A38, and -A45	18...30	193-CPC30		
		30...45	193-CPC45		
		45...60	193-CPC63		
	Directly to contactors 100 & 104-A60, and -A75	60...75	193-CPC75		
		Separately mounted from Contactors ❷❸			
		100 & 104-B110	66...110	193-HPD110	
100 & 104-B180	60...88	193-DPC88			
	80...120	193-DPD120			
	120...200 ❹	193-DPD200			
100 & 104-B250	120...180	193-EPD180			
100 & 104-B300	180...300	193-EPD300			
100 & 104-B400	160...240	193-FPD240			
	240...400	193-FPD400⊗			
100 & 104-B600	252...378	193-GPD378⊗			
	378...630	193-GPD630⊗			


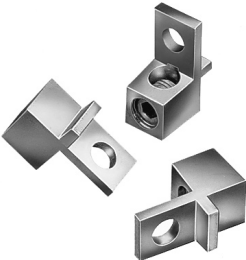


⊗ Voltage Suffix Code

The Cat. No. as listed is incomplete. The **Cat. Nos. 193-G** have as standard, an interposing relay to interrupt 10A control circuits. Coil Voltage Suffix Code is required for the interposing relay. Select a Voltage Suffix Code from the table below to complete the Cat. No. Example: **Cat. No. 193-GPD378⊗** becomes **Cat. No. 193-GPD378G**. For other voltages, consult Allen-Bradley Sales Office.

Voltage	24V	110V	120V	208V	220V	240V	380V	415V	440V	480V	500V	600V
50 Hz	K	D	-	-	A	T	N	I	B	-	M	-
60 Hz	J	-	D	H	L	A	-	-	G	B	-	C

- ❶ For motors with Service Factor of 1.15 or greater, use motor nameplate full load current. For motors with Service Factor of 1.0, use 90% of the motor nameplate full load current.
- ❷ Does not include terminal lugs. See Accessories page 3-99 for listing.
- ❸ Flexible bus connectors are also available. See page 3-99 for listing.
- ❹ When using the 199-LF1 lug kit, maximum FLC setting is 184A.

Accessories — Page 3-99
 Specifications — Page 3-100
 Approximate Dimensions — Page 3-102




 Cat. No. 193-BC1 Cat. No. 193-BC3		Description		Used with Cat. No.	Pkg. Qty.	Cat. No.	*
		Anti-tamper shield		193-B, C, D, E, F, G and H	1	193-BC1	
Current adjustment anti-tamper shield		193-B, C, D, E, F, G and H		193-BC3			
		Terminal lug kit	Conductor Range 10mm ² ...50mm ² (#8...1/0AWG)	193-H	3	199-LE1	
			16mm ² ...120mm ² (#6...4/0AWG)	193-D	3	199-LF1	
			25mm ² ...240mm ² (#4...500 MCM AWG)	193-E	3	199-LG1	
			50mm ² ...185mm ² (2x1/0...350 MCM AWG)	193-F	3	199-LH1	
			50mm ² ...240mm ² (2x1/0...500 MCM AWG)	193-G	3	199-LJ1	
		External reset for IP66 (Type 3/4/12) enclosures		193-B, C, D, E, F, G, and H	1	193-MR3	
		External reset adapter			1	193-RA1	
		Electrically operated remote reset (AC or DC)		193-B, C, D, E, F, G, and H	1	193-ER1 [⊗]	

⊗ Voltage Suffix Code

The Cat. No. as listed is incomplete. Select a Voltage Suffix Code from the table below to complete the Cat. No. For other voltages, consult Allen-Bradley Sales Office.

Voltage	24V	48V	110V	115V	120V	220V	240V
50 Hz	J	—	D	—	—	A	—
60 Hz	J	—	—	—	D	—	A
DC	Z24	Z48	—	Z01	—	—	—

Overload Optional Mounting Arrangements

	Description	Used with Overload Relay Cat. No.	Type	Pkg. Qty.	Cat. No.	*			
		DIN rail/panel adapter					193-B 193-C	Panel Mounting or 35mm DIN rail mounting	5 2
	Overload relay adapter	193-CPC30 193-CPC45	For direct mounting to contactors Cat. Nos. 100-A60 & A75	10	193-CA1				
	Flexible bus connector Kit	Overload Relay Cat. No.	For power connections between contactor and overload relay						
		193-H					Contactor Cat. No. 100-B110	3	199-PCE1
		193-D					100-B180	3	199-PCF1
		193-E					100-B250	3	199-PCG1
		193-F					100-B400	3	199-PCH1
193-G	100-B600	3	199-PCJ1						

Product Selection — Page 3-98
 Specifications — Page 3-100
 Approximate Dimensions — Page 3-102

Electrical										
Rated thermal current I_{th} contacts (A)		5								
Rated insulation voltage U_i IEC/UL (V)		660/600								
Electrical rating of contacts	Utilization Category	Voltage U_e (V)			Trip 95-96 N.C. (A)			Alarm 97-98 N.O. (A)		
	AC15	12...120			3.0		3.0			
		220...240			1.5		1.5			
		380...480			0.75		0.75			
		500...600			0.60		0.60			
	DC13 (L/R = 15ms)	24			1.1		1.1			
		110			0.4		0.4			
		220			0.2		0.2			
		440			0.08		0.08			
Dielectric strength		2500V for 1 minute								
Mechanical										
Contact operation		1 N.O....1 N.C. isolated contacts (Above 300V same polarity)								
Construction										
Body material		Thermoset plastic								
Contact material		Fine silver								
Terminal markings		CENELEC EN 50 005 and NEMA								
Max. cable size	Overload type (Cat. No. 193-)	BSA	BSB	BSC	CPC	HPD	DPD	EPD	FPD	GPD
	Power Terminals mm^2 (AWG)	10 (#8)	10 (#8)	10 (#8)	35 (#2)	50 (#1/0)	120 ① (#4/0)	240 ① (500 MCM)	2-185 ① (2-350 MCM)	2-240 ① (2-500 MCM)
	Trip & Alarm Contacts	2-2.5 mm^2 (2-#14 AWG)								
Tightening Torque	Overload Type (Cat. No. 193-)	BSA	BSB	BSC	CPC	HPD	DPD	EPD	FPH	GPD
	Power Terminals N • m (lb. in.)	1.8 (16)	1.8 (16)	1.8 (16)	3.5 (31)	16.9 (150)	27 (240)	42 (375)	42 (375)	42 (375)
	Bul. 199 Lugs N • m (lb. in.)	—	—	—	—	16.9 (150)	31 (275)	42 (375)	31 (275)	31 (275)
	Trip & Alarm Terminals N • m (lb. in.)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)	1.8 (16)
Degree of protection to IEC 529	Power Terminals	IP20	IP20	IP20	IP20	IP00	IP00	IP00	IP00	IP00
	Trip & Alarm Contacts	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Operating position		+ 22.5° from normal								
Mounting		Direct to contactor terminals or panel and rail mounting with adaptor				Panel	Panel	Panel	Panel	Panel
Bimetal heating method		Direct	Direct	Direct	Direct	CT	CT	CT	CT	CT
Environmental										
Temperature: Operation		-5°C...+40°C (-23°F...+104°F)								
Storage		-50°C...+70°C (-58°F...158°F)								
Temperature compensation		Within a range of -5°C...+40°C (-23°F...104°F)								
Altitude		2000m per IEC 947-4								
Remote Reset Specifications (Cat. No. 193-ER1⊗)										
Operating Voltage		± 10...15% Rated Coil Voltage								
Coil Burden		AC — 18 VA DC — 12 Watts								
Response Time		AC — 20 mSec DC — 100 mS								
Duty Cycle		20% not to exceed 2 minutes every 10 minutes								
Ambient Temperature Range:		Operation: -5°C...+40°C (-23°F...+104°F) Storage: -50°C...+70°C (-58°F...158°F)								

① Using Allen-Bradley Bulletin 199 Terminal Lug Kits. See Accessories page 3-99.

Product Selection — Page 3-98

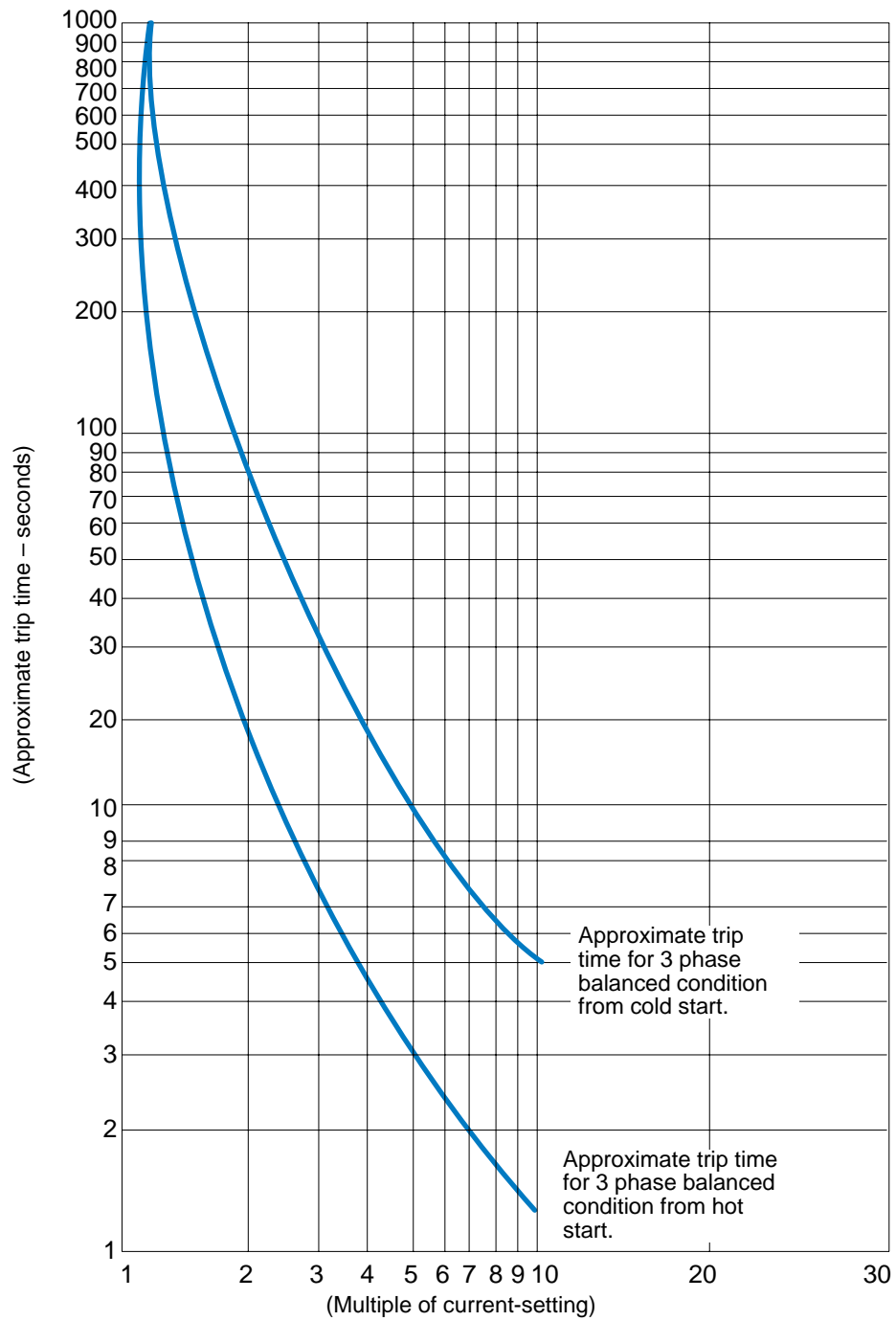
Accessories — Page 3-99

Approximate Dimensions — Page 3-102

Overload Relay Trip Times

The tripping time of the Bulletin 193 bimetal overload relay can be approximated by using the table below.

1. Locate the intersection of the "approximate trip time" curve with the proper "multiple of current-setting" found on the horizontal axis.
2. Read the "approximate trip time" in seconds along the vertical axis.



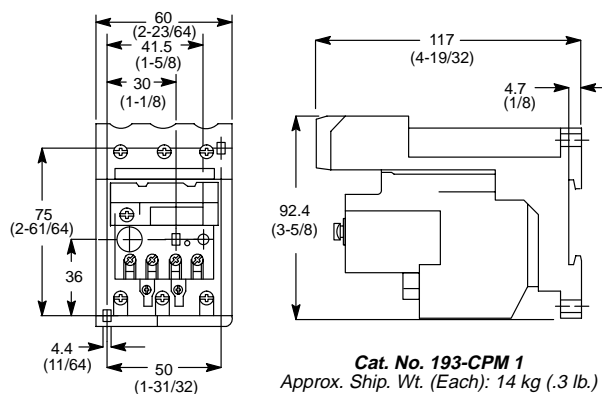
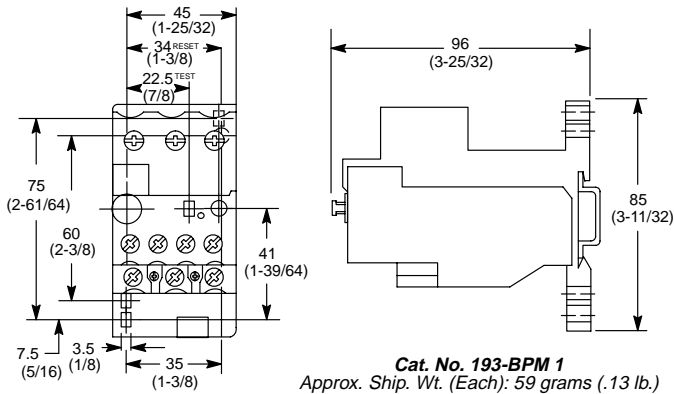
Product Selection — Page 3-98
 Accessories — Page 3-99
 Approximate Dimensions — Page 3-102

IEC Bimetallic Overload Relays

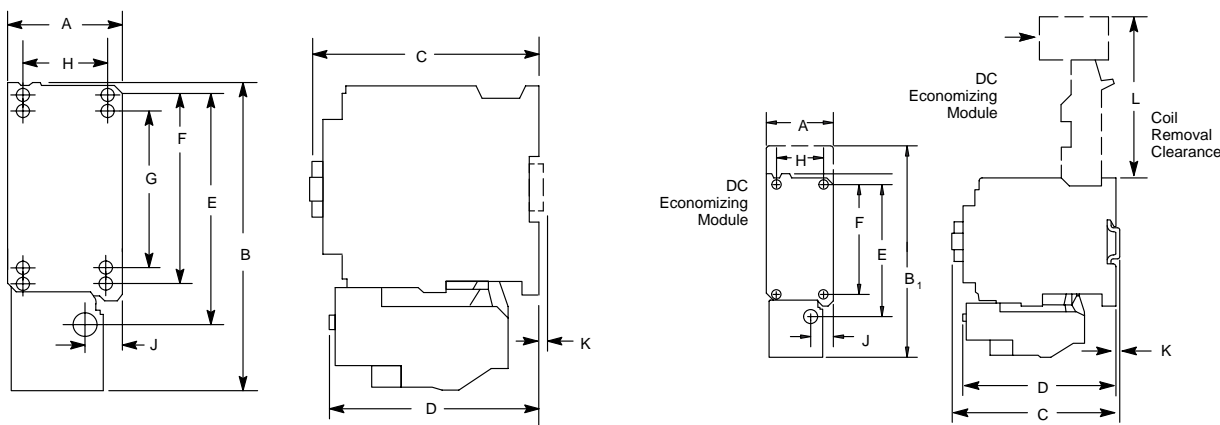
Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Separately Mounted Bimetallic Overload Relay



Bimetallic Overload Relay Mounted on a Contactor, AC or DC Operated (Economized Coil)

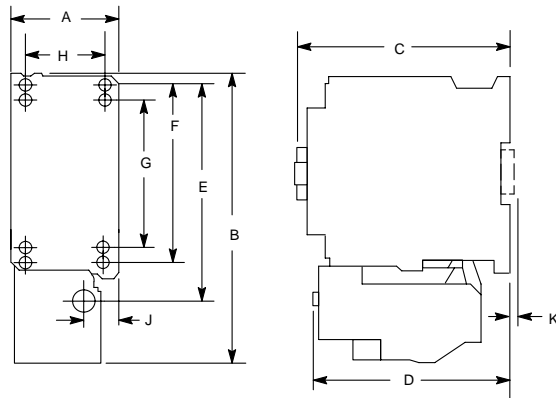


Cat. No.	A Wide	B High	B1 High	C Deep	D	E	F	G	H	J	K	L
100-A09 and 100-A12	45 (1-25/32)	119 (4-11/16)	-	84 (3-5/16)	98 (3-55/64)	81 (3-11/64)	60 (2-23/64)	50 (1-31/32)	35 (1-3/8)	6 (15/64)	2 (5/64)	-
100-A18 and 100-A24	56 (2-13/64)	127 (5)	-	92 (3-5/8)	103 (4-1/16)	91 (3-37/64)	75 (2-61/64)	60 (2-23/64)	35 (1-3/8)	17 (43/64)	2 (5/64)	-
100-A30	54.8 (2-5/32)	170 (6-45/64)	-	109 (4-19/64)	99 (3-59/64)	109 (4-19/64)	90 (3-35/64)	75 (2-61/64)	40 (1-37/64)	15.5 (39/64)	2 (5/64)	-
100-A38 and 100-A45	75 (2-61/64)	175 (6-29/32)	207 (8-5/32)	125 (4-59/64)	94 (3-45/64)	129 (5-1/16)	100 (3-15/16)	-	55 (2-11/64)	21 (27/32)	-	92.5 (3-41/64)
100-A60 and 100-A75	95 (3-3/4)	187 (7-3/8)	217 (8-35/64)	143 (5-5/8)	108 (4-1/4)	137 (5-25/64)	110 (4-13/32)	-	80 (3-5/32)	31 (1-7/32)	-	88 (3-15/32)

Cat. No.	Approximate Shipping Weights
193-B__	0.14 kg (0.3 lb.)
193-C__	0.25 kg (0.55 lb.)

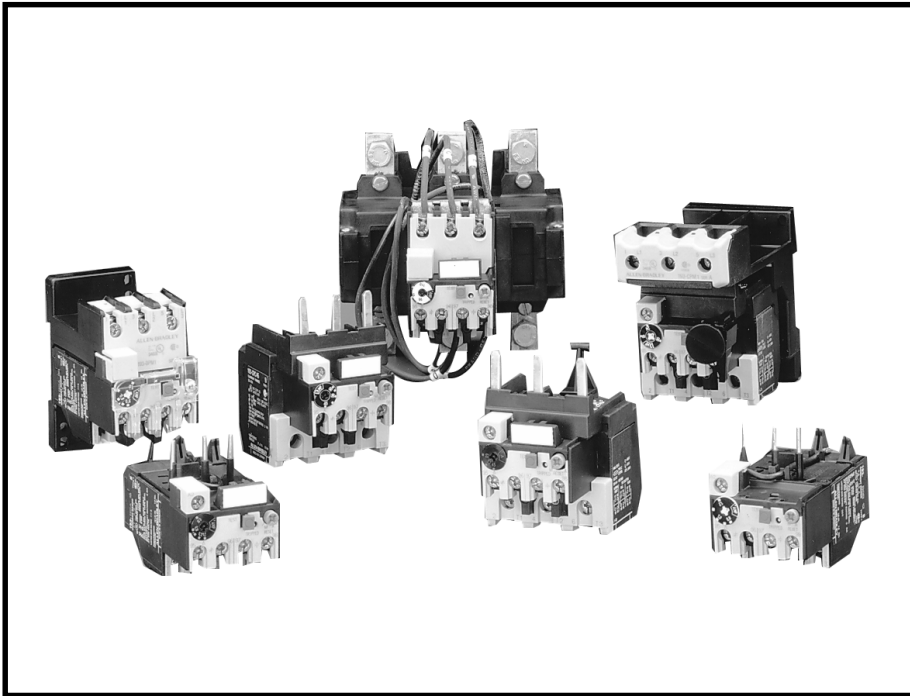
Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Bimetallic Overload Relay Mounted on a Contactor, DC Operated (Pure DC Coil)



Cat. No.	A Wide	B High	C Deep	D	E	F	G	H	J	K
100-A09 and 100-A12	45 (1-25/32)	119 (4-11/16)	105 (4-5/32)	119 (4-11/16)	81 (3-11/64)	60 (2-23/64)	50 (1-31/32)	35 (1-3/8)	6 (15/64)	2 (5/64)
100-A18 and 100-A24	56 (2-13/64)	127 (5)	113 (4-29/64)	124 (4-7/8)	91 (3-37/64)	75 (2-61/64)	60 (2-23/64)	35 (1-3/8)	17 (43/64)	2 (5/64)
100-A30	54.8 (2-5/32)	145 (5-45/64)	129 (5-3/32)	119 (4-11/16)	109 (4-19/64)	90 (3-35/64)	75 (2-61/64)	40 (1-37/64)	14 (9/16)	2 (5/64)
100-A38 and 100-A45	75 (2-61/64)	175 (6-29/32)	133 (5-1/4)	103 (4-3/64)	129 (5-1/16)	100 (3-15/16)	—	55 (2-11/64)	21 (27/32)	—
100-A60 and 100-A75	95 (3-3/4)	187 (7-3/8)	159 (6-1/4)	124 (4-7/8)	137 (5-25/64)	110 (4-13/32)	—	80 (3-5/32)	31 (1-7/32)	—

Product Selection — Page 3-98
 Accessories — Page 3-99
 Approximate Dimensions — Page 3-102



Bulletin 193

- Ambient Temperature Compensated
- Manual/Automatic Reset Modes
- Isolated Alarm Contact as Standard
- Sensitivity to Single Phase Conditions
- Visible Trip Indication

TABLE OF CONTENTS

Description	Page	Description	Page
Product Selection	3-98	Specifications	3-100
Accessories	3-99	Approximate Dimensions	3-102

Description

The Bulletin 193 Bimetallic Overload Relays are designed for use with Bulletin 100 contactors and Bulletin 104 reversing contactors. These Class 10 ambient compensated bimetal overload relays use integral heater elements; therefore, additional heater elements are not required. Further, the design includes a differential mechanism for sensitivity to single phase conditions.

The trip setting is adjustable over the listed motor full load current range. The overload relay can be operated in a manual or automatic reset mode. An isolated normally open contact is standard. An anti-tamper shield is available and snaps on the front of the overload relay to discourage field adjustments of the trip setting and reset mode.

Conformity to Standards:

IEC 947-4

BS 5424

VDE 0660

IEC 947-4 Type 2 Coordination
(UL and ASTA Certified)

UL 508

CSA C22.2 No. 14

Approvals:

CE Marked (Per EU Low Voltage
Directive 73/23/EEC 93/68/EEC)

CSA Certified (File No. LR1234)

UL Listed (File No. E14840;
Guide No. NKCR)

Approvals Pending:

DEMKO — Denmark

NEMKO — Netherlands

SEMKO — Sweden

SETI — Finland

A-B EXPRESS Fast Shipment Program

- Fast Shipment of Bulletin 193 Overload Relays to satisfy your unexpected demands.
- Make your selections from any of the Cat. Nos. printed in blue and identify your order as



Your order must include:

- The Cat. No. of overload relay selected.
- If required, Cat. No. of any accessories.