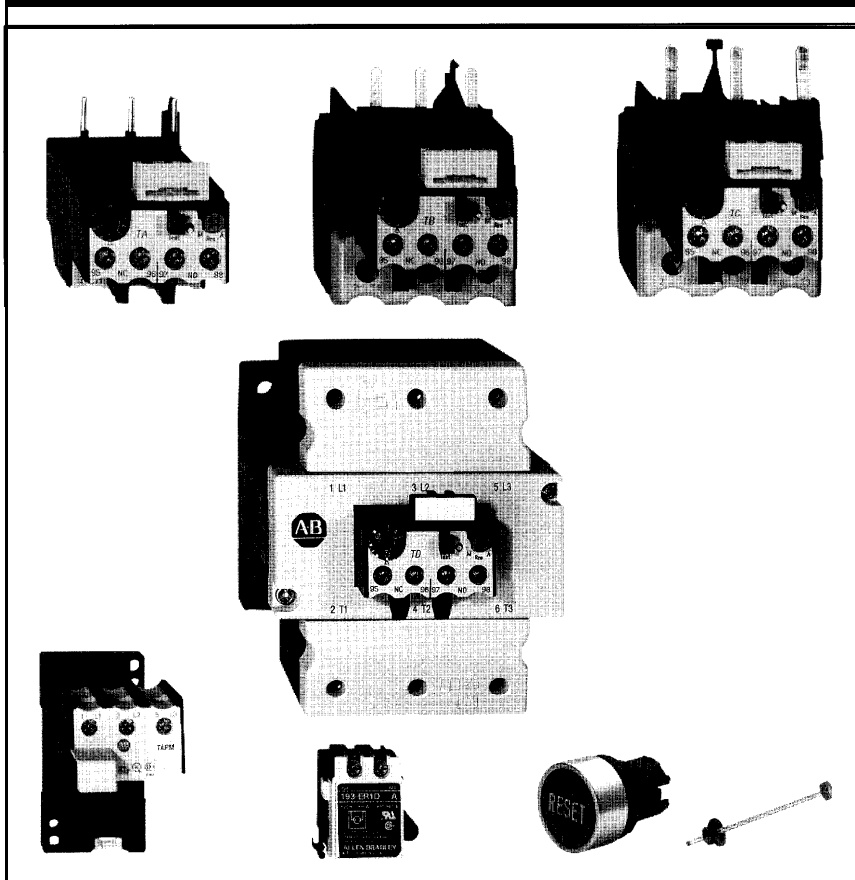




MCS-T BIMETALLIC OVERLOAD RELAYS



Bulletin 193-T

- Phase Failure Sensitivity
- Temperature Compensation
- Auxiliary Switch
(1 Normally Open and 1 Normally Closed Contact)
- Test/Stop Button
- Manual/Auto Reset Button
- Individual Mounting
- Protection of EEX Electric Motors (PTB)
- "Trip Free" Construction
- Trip Indicator

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Description

The Bulletin 193-T Bimetallic Overload Relays are designed for use with Bulletin 100-C contactors and Bulletin 104-C reversing contactors. These Class 10 ambient compensated bimetallic 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 508
- CSA 22.2 No. 14

Approvals:

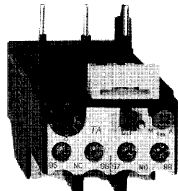
- UL Listed
- CSA Certified
- CE

Your order must include:

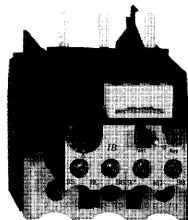
- The Cat. No. of overload relay selected.
- If required, Cat. No. of any accessories.

MCS-T Bimetallic Overload Relays

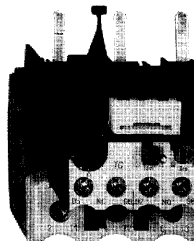
Product Selection



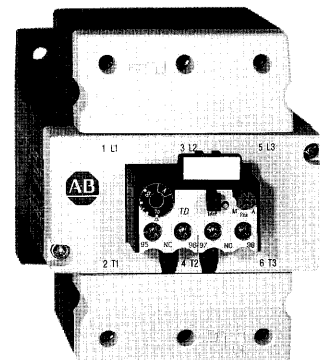
Cat. No. 193-TAC10



Cat. No. 193-TBC45



Cat. No. 193-TCC75

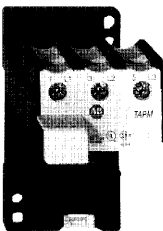
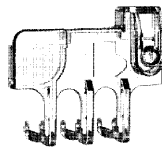





Cat. No. 193-TDC90

Mounting on Contactor	Adjustment Ranges [A] ❶	Cat. No.	*
100-C09 ... 100-C37	0.1 ... 0.16	193-TAA16	
	0.16... 0.24	193-TAA24	
	0.24... 0.4	193-TAA40	
	0.4 ... 0.6	193-TAA60	
	0.6 ... 1.0	193-TAB10	
	1.0 ... 1.6	193-TAB16	
	1.6 ... 2.4	193-TAB24	
	2.4 ... 4	193-TAB40	
	4 ... 6	193-TAB60	
	6 ... 10	193-TAC10	
100-C12 ... 100-C37	10 ... 16	193-TAC16	
100-C23 ... 100-C37	16 ... 24	193-TAC24	
100-C30 ... 100-C43	18 ... 30	193-TBC30	
100-C37 ... 100-C43	30 ... 45	193-TBC45	
100-C60 ... 100-C85	18 ... 30	193-TCC30	
	30 ... 45	193-TCC45	
	45 ... 60	193-TCC60	
100-C72 ... 100-C85	60 ... 75	193-TCC75	
Separate Mounting	70 ... 90	193-TDC90	

❶ Multiply the rated motor current by 0.58 to select adjustment range when using wye- (star-) delta starters.

Modules

	Description	For Use With	Pkg. Qty.	Cat. No.	*
	DIN Rail / Panel Mounting Adapter For separate mounting of the motor protection relay, can be attached to DIN rail EN 50 022-35.	193-TA...	5	193-TAPM	
		193-TC...	2	193-TCPM	
	Setting Cover Protects against unauthorized or unintentional change of the operating mode and the rated motor current setting.	193-T all	1	193-BC1	
	Current Setting Cover Protects against unauthorized or unintentional change of rated motor current setting.	193-T all	1	193-BC3	
	Remote Reset For remote controlled resetting of the motor protection relay.	193-T all	1	193-ER1⊗	
	Reset Button Metal construction IP 66, non-illuminated with rod (Length: 142 mm, adjustment range 141...159 mm) Please consult push-button catalog 800E for additional types.	193-T all	1	800ES-R611WTR08	

⊗ **Voltage Suffix Code**

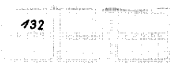

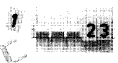
The Cat. No. as listed is incomplete. Select a voltage suffix code from the table below to complete the Cat. No.
 Example: 110 V, 50 HZ: **Cat. No. 193-ER1⊗** becomes **Cat. No. 193-ER1D**.

Standard Control Voltages

[V] [Hz]	24	48	110	115	120	220	220-230	240
50	J	-	D	-	-	A	F	-
60	J	-	-	-	D	-	-	A
DC	Z24	Z48	-	Z01	-	-	-	-

Labels

- Uniform labeling materials for contactors, motor starting equipment, timing relays and circuit breakers

	Description	Pkg. Qty.	Cat. No.	*
	Label Sheet • 10 sheets with 105 self-adhesive paper labels each, 6 x 17 mm	10	100-FMS	
	Marking Tag Sheet • 10 sheets with 160 perforated paper labels each, 6 x 17 mm • To be used with a transparent cover	10	100-FMP	
	Transparent Cover • 100 each • To be used with marking tag sheets	100	100-FMC	
	Marking Tag Carriers • 100 each • To be used with label frame:	System V4 / V5 100 System Bul. 1492W 100	100-FMA1 100-FMA2	

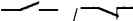
The labeling field of the overload relay may also be written on directly by hand.

Bulletin 193-T
MCS-T Bimetallic Overload Relays
Specifications

Main Circuits






Cat. No.	193-TA...	193-TB...	193-TC...	193-TDC90
Rated Insulation Voltage U_i [V]	690			1000
Rated Impulse Strength U_{imp} [kV]	6			8
Rated Operating Voltage U_e [V]	690			1000
Overvoltage Category/ Degree of Contamination	III/3			
Protective Separation (between main circuits and auxiliary contacts) per DIN, VDE 106, Part 101 and Part 101 A1 [V]	440			
Current Setting Ranges	0.1 ... 24	18 ... 45	18...60(75)	70 ... 90
I^2R Loss (for 3 main circuits)				
Lower Value of Adjustment Range [W]	2.5	3	3 (7)	<16
Upper Value of Adjustment Range [W]	6	7.5	7.5 (10)	<28




Control Circuit

Cat. No.	193-TA...	193-TB...	193-TC...	193-TDC90
Rated Insulation Voltage U_i [V]	500			
Rated Impulse Strength U_{imp} [kV]	6			
Rated Operating Voltage U_e [V]	500			
Overvoltage Category/ Degree of Contamination	III/3			
Rated Operating Current I_e				
AC-15	220...240 V [A]	1.5 / 1.5		
	380...415 V [A]	0.5 / 0.9		
	500 V [A]	0.5 / 0.8		
DC-13	24 V [A]	0.9 / 0.9		
	60 V [A]	0.75 / 0.75		
	110 V [A]	0.4 / 0.4		
	220 V [A]	0.2 / 0.2		

General

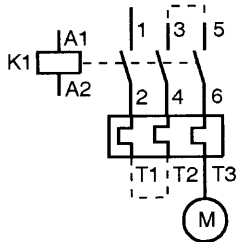
Cat. No.	193-TA...	193-TB...	193-TC...	193-TDC90
Weight [kg (lbs)]	0.13 (0.29)		0.21 (0.46)	0.21 (0.46)
Standards	IEC 947, EN 60 947, DIN VDE 0660, UL, LRS, GUS, CSA			
Corrosion Resistance	Humid/Warm, Constant, per DIN, IEC 68, Part 2-3 Humid/Warm, Cyclic, per DIN, IEC 68, Part 2-30			
Ambient Temperature open enclosed	-25 ... +50 °C (-13 ... 122 °F) -25 ... +40 °C (-13 ... 104 °F)			
Temperature Compensation	Continuous (Temperature Range -5...+40°C per IEC 947, EN 60947; PTB: -5...+50°C)			
Shock Resistance (10 ms sinusoidal shock) [G]	10			
Type of Terminal Protection	IP 00 IP 2LX in Connected State			
Finger Protection	Safe from Touch by Fingers and Back of Hand (VDE 0106, Part 100)			

Cat. No.	193-TA...	193-TB...	193-TC...	193-TDC90
Terminal Cross-Sections				
Terminal Type				
Terminal Screws	M 4	M 6	M 8	
 Flexible with Wire End Ferrule [mm ²]	2 x (1 ... 4)	1 x 25 / 2 x (1 ... 10)		50
 Solid Conductor [mm ²]	2 x (1 ... 6)	2 x (1 ... 16)		16
Stranded [mm ²]	-	-		50
Solid/Stranded Conductor [AWG]	14 ... 8	14 ... 2		2
Strip [mm]	-	-		6 x 9 x 0.8
Recommended Torque [N · m (lb-in)]	1.8 (16)	3.5 (31)		6 (54)
Pozidriv Screwdriver [Size]		2		-
Slotted Screwdriver [mm]		1 x 6		-
Hexagon Socket Size SW [mm]		-		4

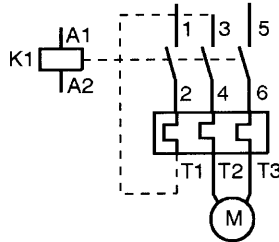
Cat. No.	193-TA...	193-TB...	193-TC...	193-TDC90
Protective Separation (between aux. contacts) per DIN, VDE 106, Part 101 and Part 101 A1 [V]				240
Conventional Thermal Current I_{th} [A]				6
Terminal Cross-Sections				
Terminal Type	M 3.5			
Terminal Screws				
 Flexible with Wire End Ferrule [mm ²]				2 x (0.75 ... 2.5)
 Solid Conductor [mm ²]				2 x (0.75 ... 4)
Solid/Stranded Conductor [AWG]				18 ... 14
Recommended Torque [N · m (lb-in)]				1.2 (11)
Pozidriv Screwdriver Size				2
Slotted Screwdriver mm				1 x 6

Mounting on Contactor	Cat. No.	Adjustment Ranges [A]	gL Back-Up Fuses max. I_e [A]	
			Type "1" Coordination	Type "2" Coordination
100-C09 ... 100-C37	193-TAA16	0.1 ... 0.16	25	0.5
	193-TAA24	0.16... 0.24	25	1
	193-TAA40	0.24... 0.4	25	2
	193-TAA60	0.4 ... 0.6	25	4
	193-TAB10	0.6 ... 1.0	25	4
	193-TAB16	1.0 ... 1.6	25	6
	193-TAB24	1.6 ... 2.4	25	10
	193-TAB40	2.4 ... 4	25	16
	193-TAB60	4 ... 6	25	20
	193-TAC10	6 ... 10	50	25
100-C12 ... 100-C37	193-TAC16	10 ... 16	63	35
100-C23 ... 100-C37	193-TAC24	16 ... 24	63	50
100-C30 ... 100-C43	193-TBC30	18 ... 30	80	63
100-C37 ... 100-C43	193-TBC45	30 ... 45	125	80
100-C60 ... 100-C85	193-TCC30	18 ... 30	80	63
	193-TCC45	30 ... 45	125	80
	193-TCC60	45 ... 60	160	100
100-C72 ... 100-C85	193-TCC75	60 ... 75	250	160
Separate Mounting	193-TDC90	70 ... 90	315	200

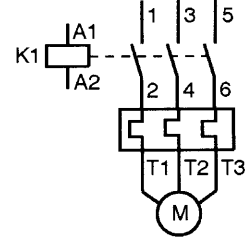
Connection Diagrams



1-pole



2-pole

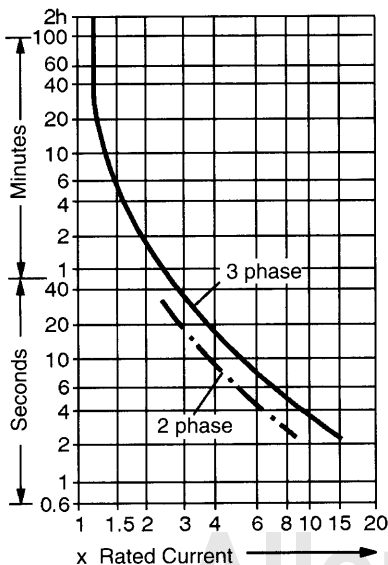


3-pole

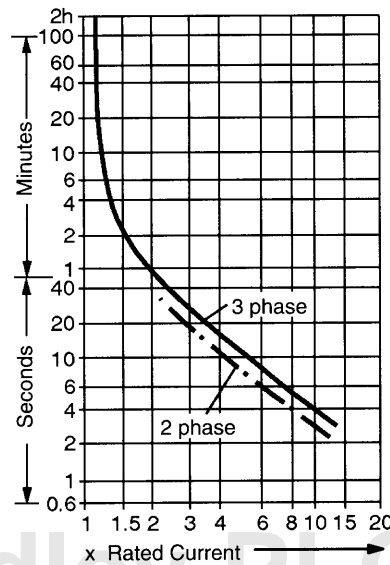
Tripping Characteristics

These tripping characteristics comply with IEC 947 and are the mean values of the scatter bands at 20°C ambient temperature starting from the cold state. Tripping time is a function of operating current. In equip-

ment at operating temperature, the tripping time of the overload relay falls to approximately 1/4 of the read value.



Cat. No. 193-TA..., 193-TB..., 193-TC...



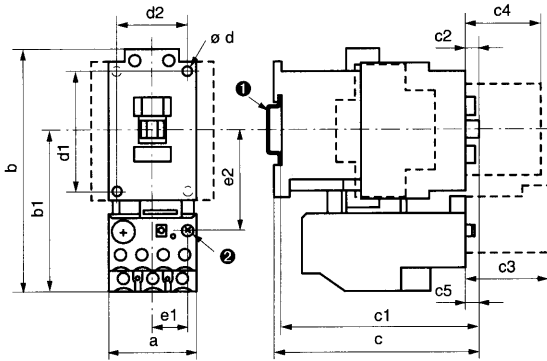
Cat. No. 193-TDC90

Bulletin 193-T
MCS-T Bimetallic Overload Relays
Dimensions

Approximate Dimensions

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

Mounted on 100-C Contactor

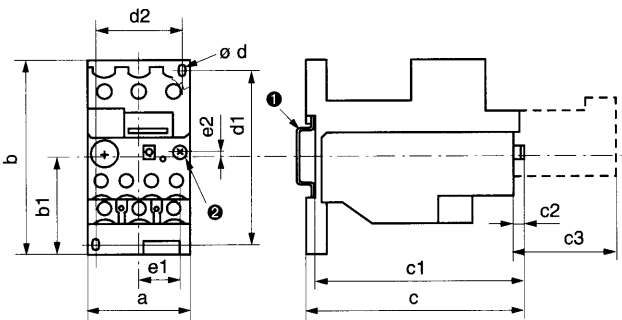


Cat. No. 193-TA..., 193-TB..., 193-TC...

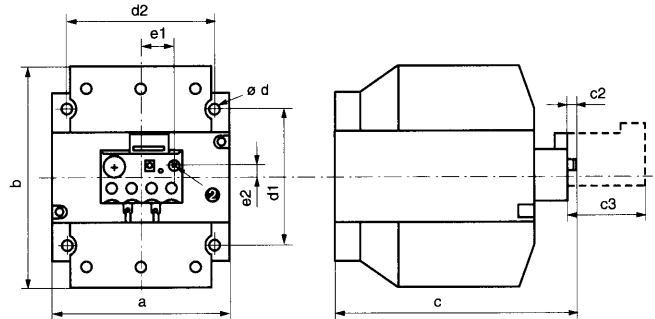
Model	For Contactor	a	b	b1	c	c1	c2	c3	c4	c5	ød	d1	d2	e1	e2
193-TA...	100-C09...100-C23	45 (1-25/32)	127 (5)	83 (3-17/64)	96 (3-25/32)	91 (3-37/64)	15 (19/32)	51 (2)	39 (1-17/32)	5 (13/64)	Two - \varnothing 4.5 (Two - \varnothing 3/16)	60 (2-23/64)	35 (1-25/64)	16.5 (21/32)	51 (2)
	100-C30...100-C37	45 (1-25/32)	127 (5)	83 (3-17/64)	105 (4-9/64)	99 (3-37/64)	6.5 (17/64)	51 (2)	39 (1-17/32)	9.5 (3/8)	Two - \varnothing 4.5 (Two - \varnothing 3/16)	60 (2-23/64)	35 (1-25/64)	16.5 (21/32)	51 (2)
193-TB...	100-C30...100-C37	60 (2-23/64)	140 (5-33/64)	97 (3-13/16)	105 (4-9/64)	99 (3-37/64)	6.5 (17/64)	51 (2)	39 (1-17/32)	6.5 (17/64)	Two - \varnothing 4.5 (Two - \varnothing 3/16)	60 (2-23/64)	35 (1-25/64)	16.5 (21/32)	57 (2-1/4)
	100-C43	60 (2-23/64)	140 (5-33/64)	97 (3-13/16)	107 (4-7/32)	103 (4-3/32)	6.5 (17/64)	51 (2)	39 (1-17/32)	8.5 (21/64)	Two - \varnothing 4.5 (Two - \varnothing 3/16)	60 (2-23/64)	45 (1-25/32)	16.5 (21/32)	57 (2-1/4)
193-TC...	100-C60...100-C85	72 (2-53/64)	185 (7-9/32)	120 (4-23/32)	125 (4-15/16)	120 (4-23/32)	8.5 (21/64)	51 (2)	39 (1-17/32)	28.5 (1-1/8)	Four - \varnothing 5.4 (Four - \varnothing 7/32)	100 (3-15/16)	55 (2-11/64)	16.5 (21/32)	82 (3-15/64)

Individual Mounting with Relay Base

Individual Mounting



Cat. No. 193-TA..., 193-TC...



Cat. No. 193-TDC90

Model	a	b	b1	c	c1	c2	c3	ød	d1	d2	e1	e2
193-TA...	45 (1-25/32)	85 (3-11/32)	44 (1-47/64)	95 (3-47/64)	90 (3-35/64)	5 (13/64)	51 (2)	Two - \varnothing 4.5 (Two - \varnothing 3/16)	60...74 (2-23/64...2-29/32)	35 (1-25/64)	16 (5/8)	3 (1/8)
193-TC...	60 (2-23/64)	90 (3-35/64)	44 (1-47/64)	117 (4-49/64)	112 (4-13/32)	15 (19/32)	51 (2)	Two - \varnothing 5.4 (Two - \varnothing 7/32)	74 (2-29/32)	50 (1-31/32)	16 (5/8)	0 (0)
193-TDC90	100 (3-15/16)	120 (4-23/32)	-	135 (5-5/16)	-	5 (13/64)	51 (2)	Four - \varnothing 6.2 (Four - \varnothing 1/4)	74 (2-29/32)	80 (3-5/32)	16 (5/8)	7 (9/32)

- ❶ May be mounted on 35 mm EN 50 022-35 DIN rail.
- ❷ With reset rod, maintain 9 mm maximum operating radius from center of reset button.
- c3 Remote reset
- c4 Auxiliary switch block

