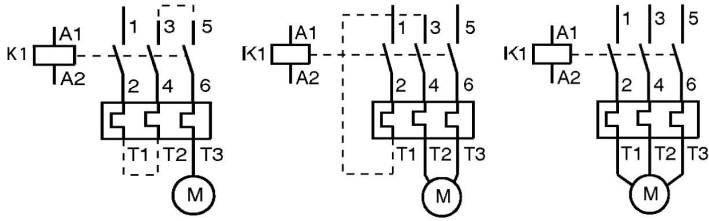


Bulletin 193-T Bimetallic Overload Relays

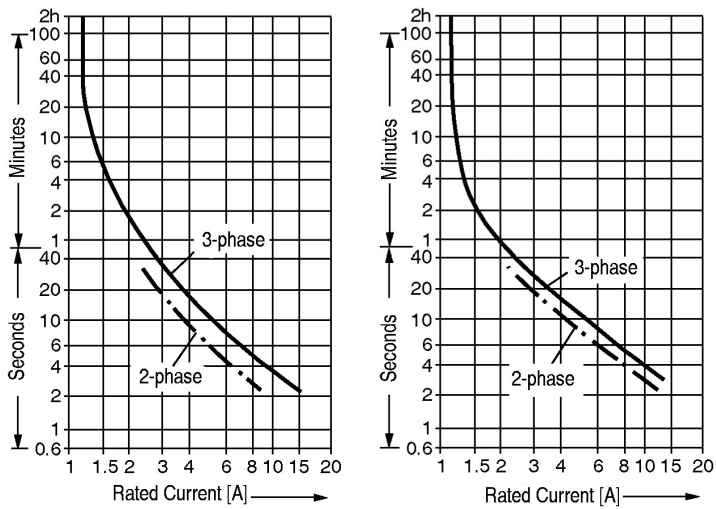
Thermal Overload Relays

Circuit Diagrams








Trip Characteristics

These trip characteristics refer to IEC 60947 and are average values from cold start at an ambient temperature of 20 °C. Trip time is pictured as a function of operating current. With the device at normal operating temperature, the trip time decreases to approximately 25% of the shown value.








Main Circuits

Cat. Nos.		193-TA...	193-TB...	193-TC...	193-TDC90
Rated isolation voltage U_i	[V]	690			1000
Rated surge withstand U_{imp}	[kV]	6			8
Rated operating voltage U_e	[V]	690			1000
Overvoltage category/pollution degree		III/3			
Safe isolation (between main circuit and auxiliary contacts per DIN, VDE 106, Part 101 and Part 101 A1)	[V]	440			
Current setting range		0.1...24	18...45	18...60 (75)	70...90
Direct load loss (for 3 current paths)					
min. value of adjustment range	[W]	2.5	3	3 (7)	16
max. value of adjustment range	[W]	6	7.5	7.5 (10)	23
Wiring cross section Type of clamp					
Terminal screws		M 4	M 6	M 8	
	multi-strand conductor with ferrule	[mm ²]	2 x (1...4)	1 x 25 / 2 x (1...10)	50
	solid conductor multi-strand conductor solid or multi-strand	[mm ²]	2 x (1...6)	2 x (1... 16)	16
		[mm ²]	14... 8	14... 2	50
		[AWG]			2
Flexible bus [mm]		—	—	6 x 9 x 0.8	
Recommended tightening torque	[Nm] [lb-in]	1.8 (16)	3.5 (31)	6 (54)	
Pozidrive screwdriver	Size	2			—
Slotted screwdriver	[mm]	1 x 6			—
Hex-head screw	[mm]	—			4

General

Cat. Nos.		193-TA...	193-TB...	193-TC...	193-TDC90
Weight	[kg (lbs)]	0.130 (0.29)	0.210 (0.46)	0.210 (0.46)	1.300 (2.86)
Standards		IEC 60947, DIN VDE 0660			
Approvals		CE, UL Listed, CSA, PTB, RINA			
Climatic withstand		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		continual			
Shock withstand (Sin impact 10 ms)	[G]	10			
Protection class		IP00			
		IP2X when attached			
Contact protection		Finger- and back of hand proof (VDE 0106, Part 100)			

Control Circuits

Cat. Nos.			193- TA...	193- TB...	193- TC...	193- TDC90
Rated isolation voltage U_i		[V]	500			
Rated surge withstand U_{imp}		[kV]	6			
Rated operating voltage U_e		[V]	500			
Overvoltage category/pollution degree			III/3			
Rated operating current I_e						
AC-15	220...240V	[A]	1.5	1.5		
	380...415V	[A]	0.5	0.9		
	500V	[A]	0.5	0.8		
DC-13	24V	[A]	0.9	0.9		
	60V	[A]	0.75	0.75		
	110V	[A]	0.4	0.4		
	220V	[A]	0.2	0.2		
Safe isolation (between auxiliary contacts) per DIN, VDE 106, and Part 101 A1		[V]	240			
Conventional thermal current I_{th}		[A]	6			
Short circuit withstand without welding, fuse g_L		[A]	6			
Wiring cross section Type of clamp						
Terminal screw			M 3.5			
	multi-strand conductor with ferrule	[mm ²]	2 x (0.75...2.5)			
	solid conductor solid or multi-strand	[mm ²] [AWG]	2 x (0.75...4) 18...14			
Recommended tightening torque		[Nm (lb-in)]	1.2 (11)			
Pozi-driv screwdriver		Size	2			
Slotted screwdriver		[mm]	1 x 6			