

Series CT8 Thermal Overload Relays

B

CT8 Overloads

Simple and effective motor protection for applications to 12 Amps

Sprecher + Schuh has been a leader in providing superior motor protection. The CT8 is an economical thermal overload relay yet includes proven features like “Differential tripping”, Automatic / Manual reset modes, and isolated alarm circuit contacts as standards.

Consistent and reliable protection

The consistent high quality of Sprecher + Schuh thermal overload relays is ensured by a complex current calibration procedure performed after each unit is at full operating temperature. Calibration is performed at the largest and smallest current the overload can handle. The accurate time/current characteristic curve obtained in this manner guarantees reliable motor protection every time.

Superior Class 10 characteristics

Today’s T-Frame motors have less copper and iron than the old U-Frame motors that were popular when traditional Class 20 overload relays were designed. For this reason, faster Class 10 overloads like the CT8 Series have been recognized by many motor manufacturers as the ideal type to

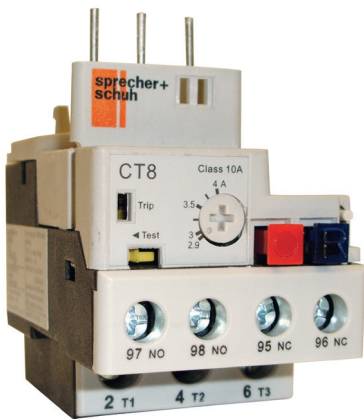


assure optimum protection of “T” frame motors.



Protection from single phase conditions

A unique feature not found in traditional thermal overload relays provides accelerated tripping under single phase conditions. This is accomplished with a special “differential tripping” mechanism built into CT8 (see illustration at right).



Sprecher + Schuh provides outstanding motor protection with our CT8 Thermal Overload Relay

Ambient temperature compensation

All Sprecher + Schuh thermal overload relays are temperature compensated. An additional bimetallic ambient compensation strip, built into the conductor-bimetal transmission path, ensures that the tripping characteristics of the relay remain constant over an ambient temperature range of -20°C to $+60^{\circ}\text{C}$.

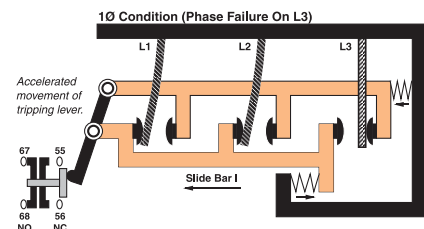
Single phase applications

CT8 Series thermal overload relays can be applied for protection of single phase AC motors. The relays have the same characteristics as shown for three phase operation. To maintain these characteristics, each element of the overload relay must carry the motor current as shown in the connection diagram on page B57.

Other standard features

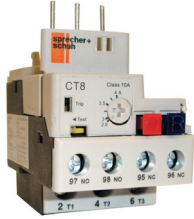
CT8 thermal overload relays feature a fail-safe “trip-free” design that prevents the device from being held closed during an overload. In addition, a selectable lever permits the user the option to choose the manual or automatic reset modes.

A separate NO signal contact is also provided on CT8 overloads which is isolated from the NC trip contact. This permits the use of a trip signal voltage different than that of the control voltage.



CT8 Thermal Overload Relays offer accelerated tripping under single phase conditions

CT8 Thermal Overload Relays - Trip Class 10, Manual or Automatic reset ①

Overload Relay	Directly Mounts to Contactor...	Adjustment Ranges [A]	Catalog Number
 <p>CT8</p>	CA8-09...12	0.10...0.16	CT8-A16
		0.16...0.25	CT8-A25
		0.25...0.4	CT8-A40
		0.35...0.5	CT8-A50
		0.45...0.63	CT8-A63
		0.55...0.80	CT8-A80
		0.75...1.0	CT8-B10
		0.90...1.3	CT8-B13
		1.10...1.6	CT8-B16
		1.4...2.0	CT8-B20
		1.8...2.5	CT8-B25
		2.3...3.2	CT8-B32
		2.9...4.0	CT8-B40
		3.5...4.8	CT8-B48
		4.5...6.3	CT8-B63
		5.5...7.5	CT8-B75
	7.2...10	CT8-C10	
CA8-12	9.0...12.5	CT8-C12	




Thermal Overload Relay Features:

- Standard motor protection for AC and DC motors
- Overload protection Trip Class 10A
- Auxiliary switch (1 NO and 1 NC)
- Phase loss sensitivity
- Manual/Auto reset button
- Test release
- Stop button
- Trip indicator

B

CT8 Overloads

Accessories

Enclosure	Description	For Use With...	Catalog Number	
	Remote Reset Solenoid - For remote resetting of the solid state overload relay	CT7N CT8	CMR7N-* <i>Replace * with coil code below</i>	See page B45
	External Reset Button - Used for manually resetting overloads mounted in enclosures	CT8 all	Use D7 Reset	See page H57
	Adaptor External Reset - Mounts on relay reset button and provides larger actuation surface.	CT7N CT8	CT7N-RA3	See page B45

CMR7N Remote Reset Coil Codes

A.C. Coil Code	Voltage Range		
	50 Hz	60 Hz	50 / 60 Hz
24Z	~	~	24V
120	110V	120V	~
240Z	~	~	220...240V




D.C. Coil Code	Voltage
24D	24VDC
110D	110VDC
125D	125VDC

① Contactors noted will physically attach to the overload relays listed. This reference is not intended to be a guide for selecting contactors. Size overload relays using the full load current of the motor.

Electrical Data

Main Circuits		
Rated Insulation Voltage U^i	[V]	690 AC
Rated Impulse Strength U_{imp}	[kV]	6 AC
Rated Operating Voltage U^e	IEC/UL [V]	690/600 AC




Terminations - Power

Terminal Type  M3.5		
 Fine stranded w/ ferrule	[mm ²]	2 x (1.5...4)
 Solid or coarse stranded	[mm ²]	2 x (1.5...4)
	[AWG]	2 x (16...12)
Torque Requirement	[Nm]	1.2
	[Lb-in]	10.6
Pozidrive screwdriver	Size	2
Slotted screwdriver	[mm]	1 x 6



Control Circuits

Rated Insulation Voltage U^i			[V]	690 AC
Rated Impulse Strength U_{imp}			[kV]	4 AC
Rated Operating Voltage U^e			IEC/UL [V]	690/600 AC
Rating Designation		I_e	A600/Q300 N.O./N.C.	
Rated Operating Current				
AC-15	24V	[A]	4	
	240V	[A]	2	
	400V	[A]	1.6	
	600V	[A]	0.15	
	24V	[A]	2	
DC-13	110V	[A]	0.4	
	220V	[A]	0.25	
	440V	[A]	0.08	
Thermal Current	I_{the}	[A]	5	
Short Circuit Withstand, fuse gG		[A]	6	
Contact Reliability			15V, 2mA	

Terminations - Control

Terminal Type  M3.5		
 Fine stranded w/ ferrule	[mm ²]	2 x (1...4)
 Solid or coarse stranded	[mm ²]	2 x (1...4)
	[AWG]	2 x (18...12)
Torque Requirement	[Nm]	1.2
	[Lb-in]	10.6
Pozidrive screwdriver	Size	2
Slotted screwdriver	[mm]	1 x 6

General Data

Weight	[kg (lb)]	0.115 (.25)
Standards		IEC/EN 60947-1, -4-1, -5-1; UL508; CSA C22.2 NO. 14
Approvals		 
Temperature Compensation		Continuous (Temperature Range -5...+40°C per IEC 60947-4-1, EN60947; PTB: -20...+60°C)
Vibration Resistance	(PER IEC 68-2-6) [G]	3
Shock Resistance	(PER IEC 68-2-27) [G]	30
Type of Protection		IP2X

Environmental

Ambient Temperature	Storage	-55...+80 °C (-67...+176 °F)
	Operating	-20...+60 °C (-4...+140 °F)
Humidity	Operating	5...95% Non-condensing
	Damp Heat	per IEC 68-2-3 and IEC 68-2-30
Max. Altitude	[m]	2000
Pollution Environment		Pollution Degree 3
Protection	Type of Relay	Ambient Compensated, Time Delay, Phase Loss Sensitive
	Nature of Relay	Bimetallic Overload Relay
	Trip Rating	125% FLA
	Trip Class	IEC: 10A, UL 10
	Reset Mode	Automatic or Manual
	Power dissipation	up to 0.4 A 7 W 0.5...12.5 A 6 W

Operating Limits

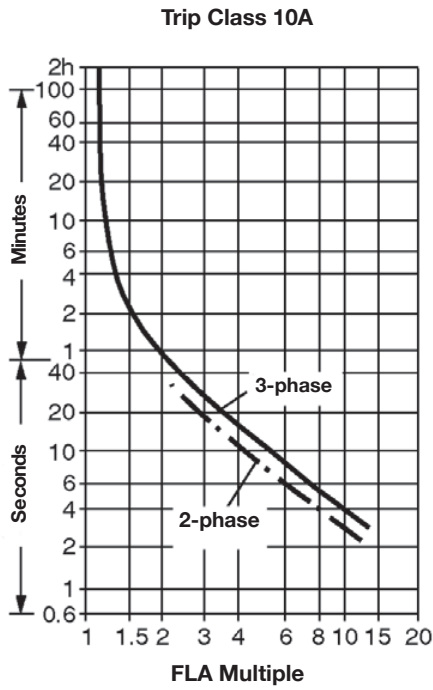
Maximum Command Impulse	CMR7N	
	5s	
AC 50/60Hz	Pick-up [$x U_s$]	0.8...1.1
	Drop-out [$x U_s$]	
DC	Pick-up [$x U_s$]	0.7...1.25
	Drop-out [$x U_s$]	

Coil Consumption

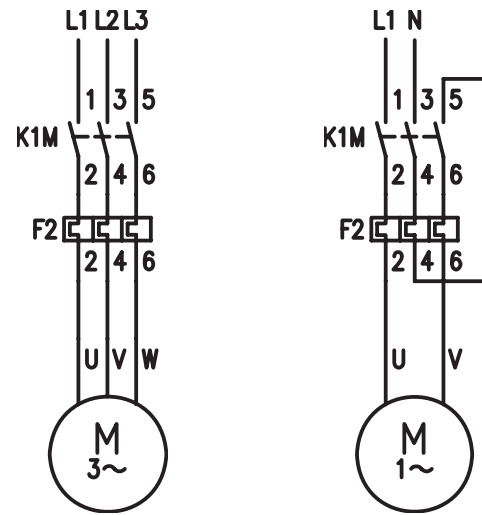
AC 50/60Hz	Pick-up [VA-W]	
	Hold-in [VA-W]	
DC	Pick-up [$x U_s$]	17 (24, 110, 125V) 25 (48V)
	Drop-out [$x U_s$]	17 (24, 110, 125V) 25 (48V)

Tripping 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.

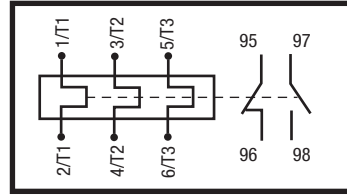
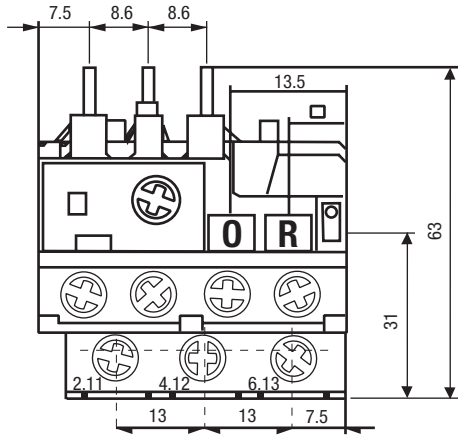


Connection Diagrams



Series CT8

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



Terminal Marking

