Series CT8 Thermal Overload Relays

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 that 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).

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°C.

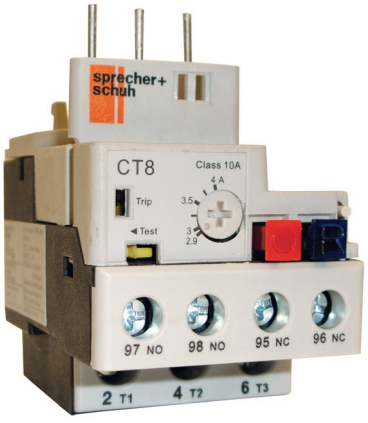
Single phase applications

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.

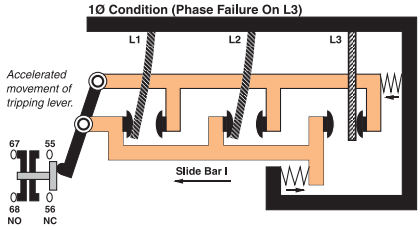
Other standard features

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.



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



CT8 Thermal Overload Relays offer accelerated tripping under single phase conditions

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

Overload Relay	Directly Mounts to Contactor...	Adjustment Ranges [A]	Catalog Number
 CT8	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

Accessories

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

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

❶ 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		[mm²]	2 x (1.5…4)
Solid or coarse stranded		[mm²]	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			A600/Q300
Rated Operating Current		I_e	N.O./N.C.
AC-15	24V	[A]	4
	240V	[A]	2
	400V	[A]	1.6
	600V	[A]	0.15
DC-13	24V	[A]	2
	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		[mm²]	2 x (1…4)
Solid or coarse stranded		[mm²]	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		CE cULus

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

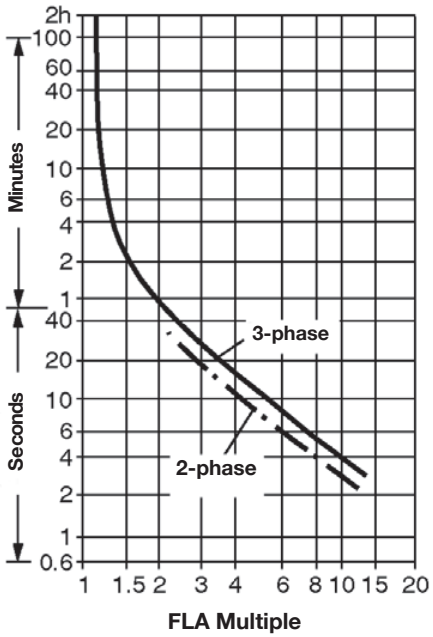
Ambient Temperature	Storage	-55…+80 °C (-67…+176 °F)
	Operating	-20…+60 °C (-4…+140 °F)
Humidity	Operating	5…95% Non-condensing
	Damp Heat	per IEC 68-2-3 and IEC 68-2-30
Max. Altitude	[m]	2000
Pollution Environment		Pollution Degree 3
Protection		
Type of Relay		Ambient Compensated, Time Delay, Phase 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		**CMR7N**
Maximum Command Impulse		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)

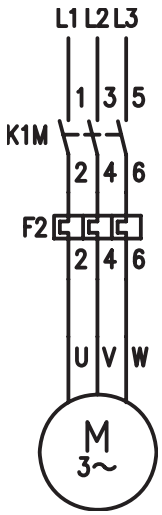
Tripping Characteristics

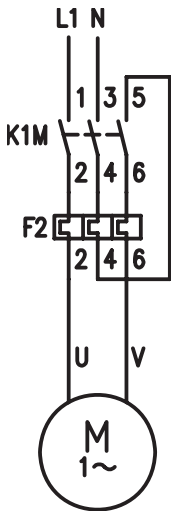
These trip characteristics refer to IEC 60947 and are average values from cold start at an ambient temperature of 20 °C. Trip time is pictured as a function of operating current. With the device at normal operating temperature, the trip time decreases to approximately 25% of the shown value.

Trip Class 10A



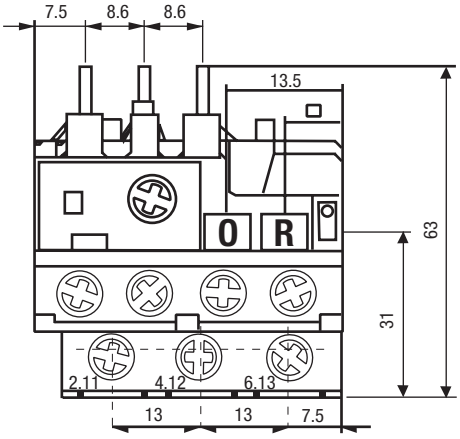
Connection Diagrams

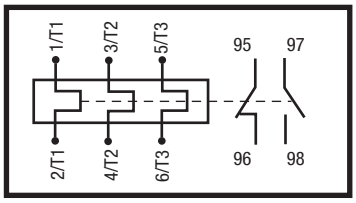




Series CT8

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





Terminal Marking