Self-Hold 7AM Series Thermal Protectors

Motor Protection FEATURES

- Recognized component in UL product category XCSZ2, overheating protection for motors.
- Tested to UL standard 2111:
  - 18 day locked rotor test
  - limited short circuit test
  - 10 cycle locked rotor and 50 cycle endurance test
  - 0°C ambient test
- Miniature size.
- Reliable temperature performance over the life of the device.
- Both current and temperature sensitive for maximum design flexibility.
- Short lead time.
- Thermtrol will customize to your specifications by adding leads and terminals, or even a complete harness if desired.
- ROHS compliant.

APPLICATIONS

- Remote location motors
- Vacuum cleaner motors
- Submersible pump motors
- Fractional horsepower motors
- Can be used virtually anywhere an auto reset and/or a one shot protector is used!

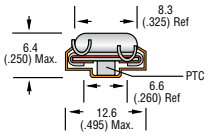
Appliance Protection FEATURES

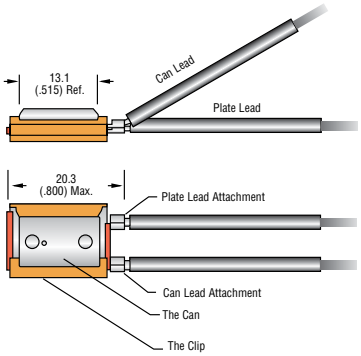
- Recognized component in UL product category XAPX2, temperature indicating and regulating equipment.
- Tested to UL standard 873.
- Miniature size.
- Reliable temperature performance over the life of the device.
- Both current and temperature sensitive for maximum design flexibility.
- Short lead time.
- Thermtrol will customize to your specifications by adding leads and terminals, or even a complete harness if desired.
- ROHS compliant ratings available.

APPLICATIONS

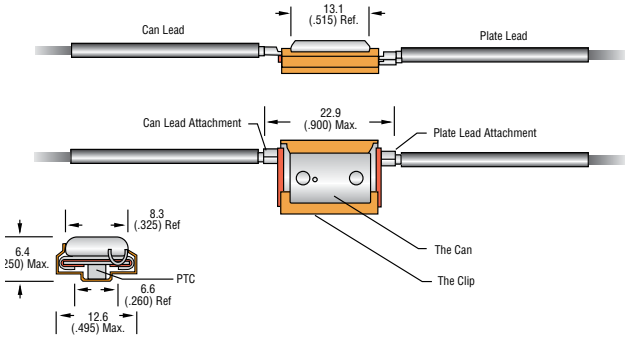
- Countertop appliances
- Transformers
- Vacuum cleaners
- Medical equipment
- Lighting
- Battery chargers
- Welders

Thermtrol's innovative Self-Hold 7AM thermal protector combines the protection of a Klixon® 7AM with a self-holding feature. Designed to prevent overheating in motors, the Self-Hold 7AM offers the best attributes of one shot protectors and auto reset protectors in a single package. The Self-Hold 7AM, once activated in a fault condition, maintains its open state until power is removed. No reset button here-simply remove power and the device will cool and reset. This inherent design feature adds an extra level of security over automatic reset devices of any type. It is the reliable, cost effective solution for numerous applications.





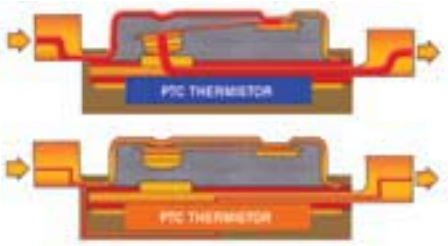
Type A, Radial Lead Configuration



Type B, Axial Lead Configuration

Here's how the Self-Hold 7AM functions. . .

- Developed by Thermtrol, the Self-Hold 7AM is a Thermal Protector/PTC Heater combination. The PTC Heater is electrically located across the contacts of the protector.
- When the protector contacts are open, the heater is in series with the load. The heater then maintains the temperature sensitive bimetal of the protector in an open state.
- To reset the Self-Hold 7AM, power must be removed for sufficient time to allow the Self-Hold 7AM to cool to below the protector's reset point.



All dimensions mm (in.)

Klixon® is a registered trademark of Sensata Technologies.

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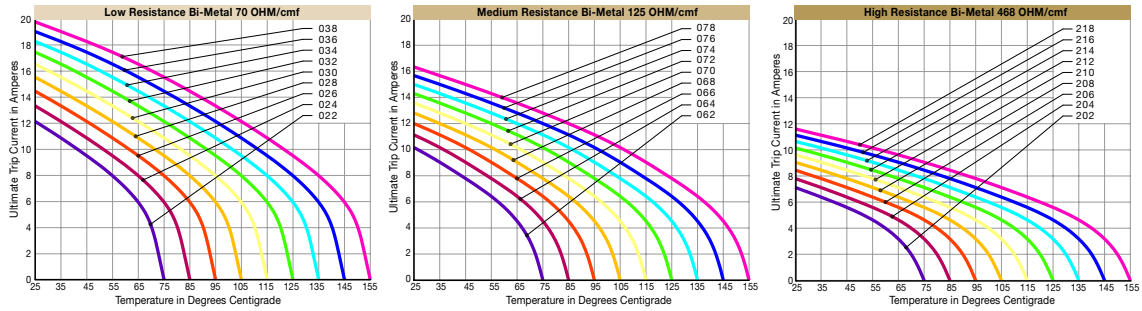
Bi-Metal Options

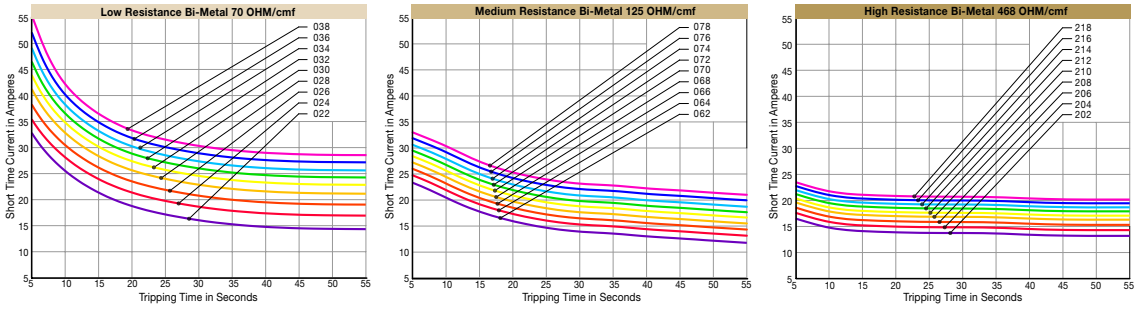
Self-Hold 7AM performance is dependent upon the applied current as well as temperature. Differenct Bi-metals are incorporated to achieve various performance characteristics. In applications where temperature rise is less than 2°C per second, use low-resistance ratings. High-resistance Bi-Metal is recommended for applications with 2°- 5°C per second rates of temperature rise. Contact Thermtrol for additional application consideration if the rate of temperature rise exceeds 5°C per second. Use these curves to determine which Bi-Metal may trip in the manner required for your application.

Ultimate Trip Current vs. Protector Ambient Temperature

Approximate: to be used for selecting samples only



Average First Cycle Tripping vs. Current in 25°C Ambient



Leads

Thermtrol's state-of-the-art automated lead processing equipment can produce lead wires to meet customer application needs for overall length, wire type, wire size, terminated connection and stripped length requirements. Standard lead size is 18AWG. 20AWG-14AWG is also available.

Agency Approvals

Model Type	Primary Applications	Approved Ratings	Approved Values		UL/CUL Approval		VDE Approval	
			Temp. Code	Temp.(°C)	File No.	Standard	Lic. No.	Standard
SA7AM	Appliance	120Vac/15/FLA 85LRA	020-037, 072, 201-217, 329	65-150	E19340 Vol. 1 Sec. 5	ULB73& C22.2 NO. 24-93	–	–
SH7AM	Appliance	120Vac/15/FLA 85LRA	020-029, 329	65-110	E19340 Vol. 1 Sec. 3	ULB73& C22.2 NO. 24-93	–	–
SI7AM	Appliance	120Vac/15/FLA 85LRA	029-031, 329	110-120	E19340 Vol. 1 Sec. 6	ULB73& C22.2 NO. 24-93	–	–
	Motor	120Vac	072	125	E40044 Vol. 1 Sec. 2	UL211 C22.2 NO. 77	–	–
SJ7AM	Appliance	240Vac/10Amp 208Vac/12Amp	020-028, 329, 201-208, 429	65-110	E19340 Vol. 1 Sec. 7	UL873 C22.2 NO. 24-93	–	–
SK7AM	Motor	240Vac	020-036, 201-216	65-145	E40044 Vol. 1 Sec. 3	UL211 C22.2 NO. 77	–	–
			020-036, 201-216	65-145	–	–	40010337	0631 PART 1, 2-2
	Appliance	250Vac/8Amp	020-036, 201-216	65-145	–	–	40010338	0631 PART 1, 2-9
SL7AM	Motor/Appliance	240Vac/8Amp	020-036, 201-216	65-145	–	–	40010337	0631 PART 1, 2-2
SM7AM	Motor	120Vac	020-036, 201-216, 061-076, 161-176, 329	65-145	E40044 Vol. 1 Sec. 3	UL211 C22.2 NO. 77	–	–
	Appliance	120Vac	020-037 072 201-217 329	65-145	E19340 Vol. 1 Sec.5 &8	UL 873 C22.2 NO. 24-93	-	-
SP7AM	Appliance	240Vac/10Amp 208Vac/12Amp	029-037, 209-217	110-150	E19340 Vol. 1 Sec. 7	UL873 C22.2 NO. 24-93	–	–
		250Vac/8Amp	020-036, 201-216	65-145	–	–	40010338	0631 PART 1, 2-9
SX7AM	Motor	120Vac	020-040	65-165	E40044 Vol. 1 Sec. 10	UL211 C22.2 NO. 77	–	–

Sleeving

In order to achieve optimum heat transfer from the protected medium or ambient to the thermostat, the Self Hold 7AM has been designed with the case connected to the bimetallic disc. This feature makes it necessary to electrically insulate the 7AM from the mounting surface. Typically, this is accomplished with a Mylar sleeve marked with the part number. Custom markings and other sleeve materials are available.

Numbering System

SH7AM	202	A	5	-XXX-5
Select Model	*Select Code for Low, Medium or High Resistance*	*Select A or B*	*Opening Temperature Tolerance is ± 5°C*	*Use Only if High Seal Gasket is Required*

Motor Protection

Model	Temperature	Voltage & Current Rating
SM7AM	65°C–145°C	120 Vac 85 LRA
SK7AM	65°C–145°C	240 Vac 85 LRA
SX7AM	65°C–145°C	120Vac 85 LRA

OR

Appliance Protection

Model	Temperature	Voltage & Current Rating
SH7AM	65°C–110°C	120 Vac 22 Amps
SA7AM	65°C–150°C	120 Vac 22 Amps
SJ7AM	65°C–110°C	240 Vac 10 Amps
SP7AM	110°C–150°C	240 Vac 10 Amps

Note: Unless otherwise requested, samples will be produced with 6" long, #18 gauge, XLPE 125C 600V (UL3173) leads. Thermtrol will apply mylar insulation to electronically isolate the protector body.

Nonstandard opening temperatures and bimetal resistances are available. Contact conditioned device also available.

Terminal Config.

A	Type A Radial Leads
B	Type B Axial Leads

High-Seal Gasket

Designate this special order, high seal gasket for applications subjected to over-molding, dipping, or varnishing. Otherwise leave this space blank.

Standard Opening Temp. Code

Opening Temp. °C	Low Resis. Bi-Metal 70 /cmf	Med Resis. Bi-Metal 125 /cmf	High Resis. Bi-Metal 468 /cmf
65	020	—	—
70	021	061	201
75	022	062	202
80	023	063	203
85	024	064	204
90	025	065	205
95	026	066	206
100	027	067	207
105	028	068	208
110	029	069	209
115	030	070	210
120	031	071	211
125	032	072	212
130	033	073	213
135	034	074	214
140	035	075	215
145	036	076	216
150	037	077	217
155	038	078	218
160	039	079	219
165	040	—	220
170	336	—	—
175	316	403	—