



eCOMMERCE PRODUCT CATALOG

THINK AHEAD
THERMODISC

THE LEADER IN SENSORS AND CONTROLS
419-525-8300 www.thermodisc.com

Developing New Products Through Technology Leadership

Sensors and Controls

Since 1945, the Therm-O-Disc name has represented innovation in standards setting sensor and control development for the appliance, electronic and automotive industries.

As the world's leading supplier of controls to the appliance industry, Therm-O-Disc offers a wide array of general and special-purpose products:

- **Bimetal disc thermostats** are available in a variety of configurations to control temperature or provide overheating protection in a range of applications.
- **MICROTEMP® thermal cutoffs**, available in a variety of standard and custom configurations, provide reliable one-shot-over-temperature protection in a wide range of applications.
- **McGill® switches** are known industry-wide for customized solutions to electric switch applications. This versatile line of high quality rocker, toggle and snap-action switches features many patented, innovative designs.
- **Midwest Component NTC and PTC thermistors** provide temperature sensing in a range of applications, from surface mounting on PC boards to custom insert-molded plastic probes.

In addition to this traditional line of products, Therm-O-Disc most recently introduced the Silicon Temperature Control (STC), offering a solid-state approach to precise temperature control. The STC provides our customers with a cost-efficient electronic thermostat designed for integrated temperature sensing and switching with even greater reliability and better accuracy.



New Technology Development

Therm-O-Disc has a proven track record for quickly providing custom-engineered components for qualification testing and analysis. As part of the Emerson family, our world-class technology centers foster new product development and focus on engineered solutions. Specifically, our Advanced Technology Group offers expertise in developing sensor and control concepts that meet your specific needs and enable you to develop superior new products while better managing your technology risks.

Through the expertise of its Manufacturing Technology Group, Therm-O-Disc completes the cycle initiated by innovative product design and engineering, offering customers solutions from initial concept to final production. The group continues to explore future applications of sensing technologies, from thermal fuses and temperature sensors to pressure, flow-rate and liquid-level sensors. The Therm-O-Disc design team is dedicated to the development of innovative solutions and the refinement of existing products.



Introducing: Therm-O-Disc eCommerce

Global, Same-Day Shipping

Customer service is just as important to Therm-O-Disc today as it was in 1945. As technology changes, we remain focused on finding ways to improve the way we do business with our customers.

As part of our commitment to superior customer service, Therm-O-Disc is pleased to offer 24-hour, on-line order capability for our general purpose products. Just “click” on the eStore icon located at www.thermodisc.com to discover the following benefits:

- 24/7 on-line, global order capability
- Shipment from stock within 24 hours
- Alternative payment methods – credit card, electronic check
- Diverse product offering: 175 styles, initially
- Includes the 36T, 60T, 37T and thermal cutoff product groups
- E-mail feedback link for questions or comments

This guide provides an overview of the products available to you through our eCommerce site. Products with similar attributes are grouped together so that you may compare features. Specs are also available online at thermodisc.com



TCO Series Standard Styles

Reliable

Global Ratings

One Shot Operation



Upper Limit Temperature Protection

MICROTEMP® thermal cutoffs from Therm-O-Disc offer an accurate, reliable solution to upper limit protection. Known as a thermal fuse or TCO, the MICROTEMP® thermal cutoff provides protection against overheating by interrupting an electrical circuit when operating temperatures exceed the rated temperature of the cutoff.

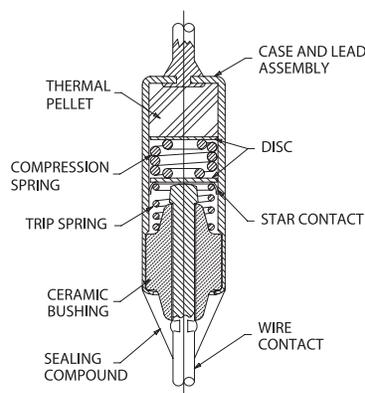
MICROTEMP® Features

- One shot operation cuts off electrical power.
- Current interrupt capacity up to 16 amps @ 250VAC (25 amps @ 125VAC).
- Low resistance
- Compact size

Operating Principle of the MICROTEMP® TCO

The active trigger mechanism of the thermal cutoff is an exclusively formulated, electrically nonconductive pellet. Under normal operating temperatures, the solid pellet holds spring-loaded contacts closed (see figure 1).

G4 SERIES MICROTEMP® TCO
CLOSED CIRCUIT

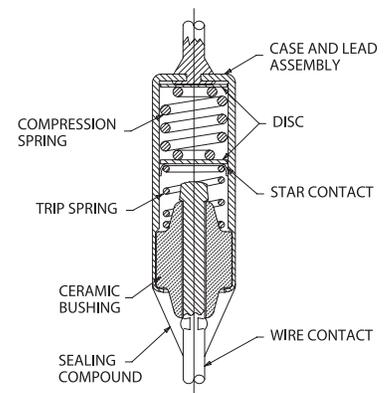


Grey area shows current patch

Figure 1

When a predetermined temperature is reached, the pellet melts, allowing the barrel spring to relax. The trip spring then slides the contact away from the lead and the circuit is opened (see figure 2).

G4 SERIES MICROTEMP® TCO
OPEN CIRCUIT



Grey area shows current patch

Figure 2

Once a MICROTEMP® thermal cutoff opens a circuit, the TCO needs to be replaced. This replacement procedure must include correction of the fault condition before the product is operated again.

Temperature Ratings

MICROTEMP® thermal cutoffs are available in a wide range of opening temperatures, providing designers with a high degree of design flexibility. Determining the correct TCO temperature calibration requires significant application testing.

New Applications

The calibration selection will be affected by application variables such as I²R self-heating of the TCO, heat transfer through insulation and heat dissipation due to heat sinking and air flow.

Refer to **Technical Bulletin TCO-A "application and installation of MICROTEMP® Thermal Cutoffs,"** for important information.

The MICROTEMP® Thermal Cutoff Series

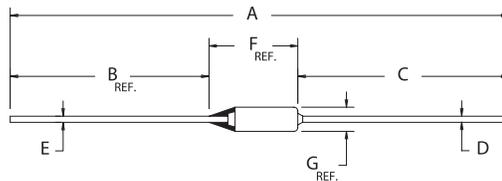
MICROTEMP® thermal cutoffs are available in a range of temperatures and electrical ratings to meet your application requirements.

G4 Series – Rated for continuous operating currents up to 10 amps at 250 VAC (15 amps at 120 VAC), the G4 Series MICROTEMP® TCO is the industry standard for over temperature protection. The G4 Series is applied to millions of appliances and personal care products each year, providing reliable back-up protection for temperature controlling thermostats and other over-temperature conditions. The G4 Series is also widely applied in office machines, portable heaters and industrial equipment as a thermal safeguard.

G5 Series – Designed for high current applications, the G5 Series MICROTEMP® TCO is rated for operating currents up to 16 amps at 250 VAC (25 amps at 120 VAC). Similar in appearance to the G4 Series, the G5 Series has a different internal construction capable of interrupting higher currents. G5 Series TCOs are found in electric heaters and other higher current devices requiring over-temperature protection.

G7 Series – The G7 Series MICROTEMP® TCO is designed to satisfy applications requiring lower current interrupt capability. The G7 Series thermal cutoff is approximately 30% smaller than the G4 and G5 Series and can satisfy the smaller size requirements of transformers, motors and electronic circuit applications.

THERMAL CUTOFF CONSTRUCTIONS						
G4 Series		G5 Series		G7 Series		Calibration
Standard Style	Product Type	Standard Style	Product Type	Standard Style	Product Type	Open Temp (+0/-5°C)
620566	G4A01072C	481327	G5A01072C			72°C
620673	G4A01077C	481328	G5A01077C	620676	G7F01077C	77°C
620568	G4A01084C	481361	G5A01084C	620677	G7F01084C	84°C
620674	G4A01093C	481362	G5A01093C	620678	G7F01093C	93°C
620569	G4A01098C	481379	G5A01098C	620679	G7F01098C	98°C
620570	G4A01104C	481380	G5A01104C			104°C
620571	G4A01110C	481363	G5A01110C	620680	G7F01110C	110°C
620572	G4A01117C	481329	G5A01117C	620681	G7F01117C	117°C
620573	G4A01121C	481330	G5A01121C	620682	G7F01121C	121°C
620574	G4A01128C	481381	G5A01128C	620683	G7F01128C	128°C
620661	G4A01144C	481365	G5A01144C	620684	G7F01144C	144°C
620600	G4A01152C	481382	G5A01152C	620685	G7F01152C	152°C
620599	G4A01167C	481383	G5A01167C	620686	G7F01167C	167°C
620576	G4A01184C	481386	G5A01184C	620687	G7F01184C	184°C
620577	G4A01192C	481331	G5A01192C			192°C
620578	G4A01216C	481387	G5A01216C			216°C
620671	G4A01229C	481388	G5A01229C			229°C
620580	G4A01240C	481364	G5A01240C			240°C



MICROTEMP® TCO

STANDARD DIMENSIONS

		G4 and G5 Series	G7 Series
Long Lead (01)	A Overall Length ± 12 (±3.0)	3.26" (82.8mm)	3.26" (82.8mm)
	B Epoxy Lead Length (Reference)	1.30" (33.0mm)	1.50" (38.1mm)
	C Case Lead Length ± .06 (± 1.5)	1.38" (34.9mm)	1.38" (34.9mm)
Lead Material and Diameter	D Case Lead Diameter	.040" (1.0mm)	.023" (.57mm)
	D Case Lead Material	Tin Plated Copper	Tin Plated Copper
	E Epoxy Lead Diameter	.040" (1.0mm)	.023" (.57mm)
	E Epoxy Lead Material	Silver Plated Copper	Silver Plated Copper
Case Dimensions	F Case Length (Reference)	.58" (14.7mm)	.38" (9.6mm)
	G Case Diameter (Reference)	.158" (4.0mm)	.118" (3.0mm)

36T Series Standard Styles

1/2" (12.7mm) Bimetal Disc

Compact Design

Auto & Manual Reset



1/2" (12.7mm) Snap Action Temperature Control

The 36T series of 1/2" (12.7mm) bimetal disc temperature controls offer proven reliability in a compact design. The snap action of the bimetal disc provides high-speed contact separation resulting in excellent life cycle characteristics at electrical loads up to 15 amps at 120 VAC and 10 amps at 250 VAC.

36T Features

- .250" x .032" (6.3 mm x .8 mm) nickel-plated brass terminals
- Increased electrical spacing and eyelet construction for global agency compliance
- Enclosed bimetal disc for protection against airborne contaminants
- 100% operation check

36T Switch Constructions

The 36T standard style series is available in the following switch constructions:

Automatic Reset – This design can be built to either open or close its electrical contacts on temperature rise. When the temperature returns to the specified reset temperature, the contacts automatically return to their original state.

Manual Reset – This design is available only with electrical contacts that open on temperature rise. The minimum manual reset temperature is 90°F (32°C) while the maximum auto reset temperature is -4°F (-20°C).

36T Mounting Configurations

All 36T standard style brackets are crimped at 90 degrees to the terminal centerline.

Airstream Mounting – The bimetal disc sensing element extends through a hole in the mounting surface into the airstream. All standard style airstream mount brackets are made from aluminum with .145" (3.68 mm) diameter mounting holes.

Surface Mounting – The bimetal disc sensing element is positioned firmly against the mounting surface to sense the actual surface temperature. All standard style surface mount brackets are made from stainless steel with .145" (3.68 mm) diameter mounting holes.

36T AUTOMATIC RESET SWITCH CONSTRUCTION							
Surface Mount			Airstream Mount			Calibration (+/-5°C)	
Standard Style	Product Type	Drawing Figure	Standard Style	Product Type	Drawing Figure	Open Temp	Close Temp
611807	36TXE22	1	611827	36TXE12	2	30°C	45°C
611808	36TXE21	1	611828	36TXE11	2	40°C	25°C
611809	36TXE22	1	611829	36TXE12	2	40°C	55°C
611810	36TXE21	1	611830	36TXE11	2	50°C	35°C
611811	36TXE22	1	611831	36TXE12	2	50°C	65°C
611812	36TXE21	1	611832	36TXE11	2	60°C	45°C
611813	36TXE22	1	611833	36TXE12	2	60°C	75°C
611814	36TXE21	1	611834	36TXE11	2	70°C	55°C
611815	36TXE22	1	611835	36TXE12	2	70°C	85°C
611816	36TXE21	1	611836	36TXE11	2	80°C	65°C
611817	36TXE22	1	611837	36TXE12	2	80°C	95°C
611818	36TXE21	1	611838	36TXE11	2	90°C	75°C
611819	36TXE21	1	611839	36TXE11	2	100°C	85°C
611820	36TXE21	1	611840	36TXE11	2	110°C	95°C
611821	36TXE21	1	611841	36TXE11	2	120°C	105°C
611822	36TXE21	1	611842	36TXE11	2	130°C	115°C
611823	36TXE21	1	611843	36TXE11	2	140°C	125°C
611824	36TXE21	1	611844	36TXE11	2	150°C	115°C
611825	36TXE21	1	611845	36TXE11	2	160°C	125°C
611826	36TXE21	1	611846	36TXE11	2	170°C	135°C

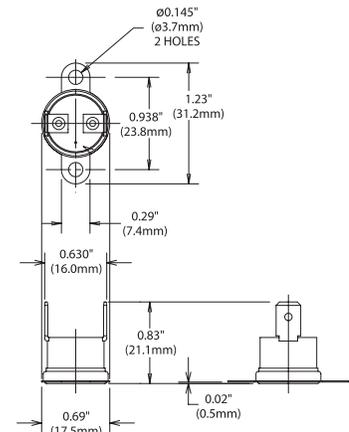


Figure 1

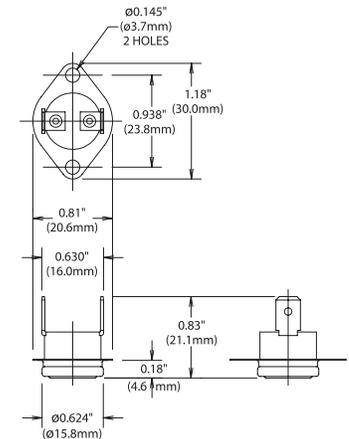


Figure 2

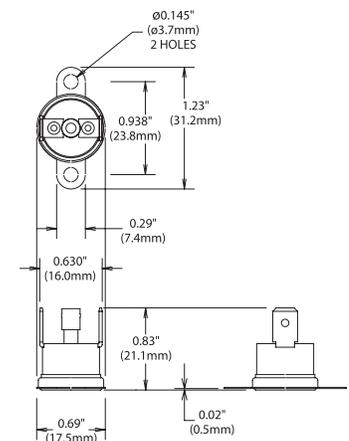


Figure 3

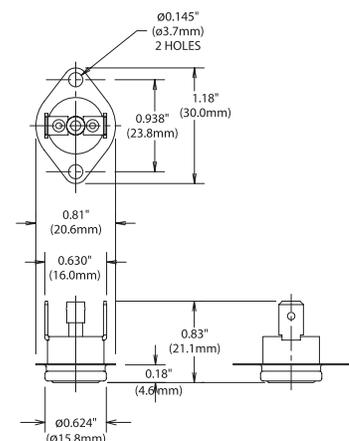


Figure 4

36T MANUAL RESET SWITCH CONSTRUCTION						
Surface Mount			Airstream Mount			Calibration
Standard Style	Product Type	Drawing Figure	Standard Style	Product Type	Drawing Figure	Open Temp (+/-5°C)
611847	36TXE26	3	611855	36TXE16	4	70°C
611848	36TXE26	3	611856	36TXE16	4	85°C
611849	36TXE26	3	611857	36TXE16	4	100°C
611850	36TXE26	3	611858	36TXE16	4	115°C
611851	36TXE26	3	611859	36TXE16	4	130°C
611852	36TXE26	3	611860	36TXE16	4	145°C
611853	36TXE26	3	611861	36TXE16	4	160°C
611854	36TXE26	3	611862	36TXE16	4	175°C

37T Series Standard Styles

$\frac{3}{4}$ " (19.1mm) Bimetal Disc

Moisture Resistant

Reliable



Moisture Resistant Temperature Control

The 37T series of $\frac{3}{4}$ " (19.1mm) bimetal disc temperature controls from Therm-O-Disc offer proven reliability in a moisture resistant sealed design. The snap action of the bimetal disc provides high-speed contact separation resulting in excellent life cycle characteristics at electrical loads up to 10 amps at 120V AC and 5 amps at 250V AC. The sealed design provides moisture resistance for moisture-prone environments. The 37T is the most popular and widely applied temperature control in refrigeration applications such as defrost termination and ice cube maker control. It is also applied in a range of heat pump and air conditioning applications.

37T Features

- Moisture resistant sealed design
- All materials pass the refrigeration industry's odor and taste tests
- #18 AWG lead wires with $\frac{1}{32}$ " (6.4mm) PVC insulation
- Rugged stainless-steel disc housing

37T Lead Wire Configuration

All 37T standard styles are provided with 24" (610mm) #24 AWG, 16/30 stranded copper wire with $\frac{1}{32}$ " (6.4mm) thick 105C PVC odorless insulation stripped $\frac{1}{2}$ " (12.7mm).

37T Automatic Reset Construction

The 37T standard style series is available in Automatic Reset SPST construction only. This design can be built to either open or close its electrical contacts on temperature rise.

When the temperature returns to the specified reset temperature, the contacts automatically return to their original state.

The open on rise contact design is typically used for refrigeration defrost termination and ice cube maker control.

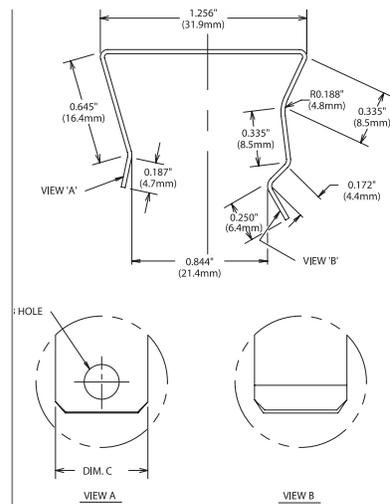
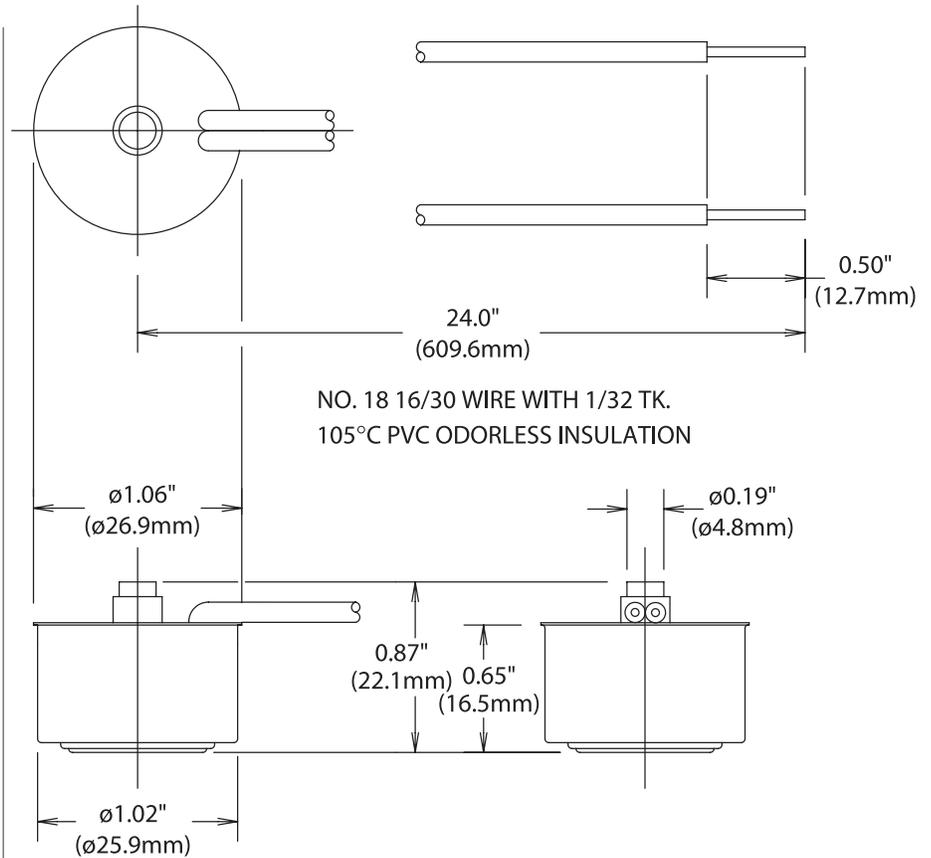
37T Mounting Configurations

All 37T standard styles are provided without a mounting bracket.

No Mounting Bracket – The standard 37T configuration is supplied without a mounting bracket. The phenolic centerpost construction can be utilized to accommodate an optional mounting bracket.

Surface Mounting – With the optional surface mount bracket (part # 52959), the 37T standard style can be mounted so the sensing element is positioned firmly against the surface to be monitored.

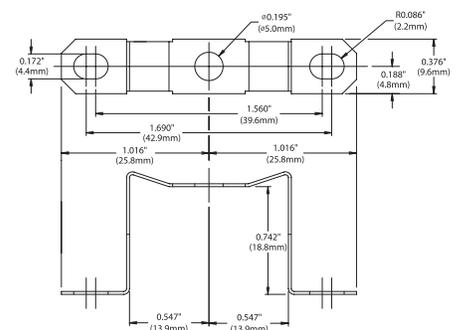
Tube Mounting – With the optional universal tube mount bracket (part # 68390), any 37T standard style can be firmly attached to tubes ranging from 1/4" (6.4mm) to 1/2" (12.7mm) in diameter.



Drawing Figure 1

37T SEALED CONTROLS			
Standard Style	Product Type	Open Temp (+/-5°C)	Close (+/-5°C)
611443	37T01	7.2°C	-3.9°C
611444	37T01	10.0°C	-1.1°C
611445	37T01	12.8°C	1.7°C
611446	37T01	15.6°C	4.4°C
611447	37T01	21.1°C	10.0°C

37T MOUNTING BRACKETS		
Bracket Part	Bracket Type	Drawing Figure
68390	Tube Mount Clip	1
52959	Surface Mount Bracket	2



Drawing Figure 2

60T Series Standard Styles

$\frac{3}{4}$ " (19.1mm) Bimetal Disc

Rugged Design

Auto & Manual Reset



$\frac{3}{4}$ " (19.1mm) Snap Action Temperature Control

The 60T series of $\frac{3}{4}$ " (19.1mm) bimetal disc temperature controls offer proven reliability in a rugged design. The snap action of the bimetal disc provides high-speed contact separation resulting in excellent life cycle characteristics at electrical loads up to 25 amps at 250 VAC.

60T Features

- .250" x .032" (6.3 mm x .8 mm) tin-plated brass terminals
- Enclosed bimetal disc for protection against airborne contaminants
- Welded construction for integrity of current carrying components
- 100% operation check

60T Switch Constructions

The 60T standard style series is available in the following switch constructions:

Automatic Reset – This design can be built to either open or close its electrical contacts on temperature rise. When the temperature returns to the specified reset temperature, the contacts automatically return to their original state.

Manual Reset – This design is available only with electrical contacts that open on temperature rise. The contacts can be manually reset after the control has cooled below the open temperature calibration. This construction is agency classified as "M2 Trip Free." A patented design holds the contacts open in the event the reset button is held in the depressed position.

60T Mounting Configurations

All 60T standard style brackets are crimped at 90 degrees to the terminal centerline.

Airstream Mounting – The bimetal disc sensing element extends through a hole in the mounting surface into the airstream. All standard style airstream brackets are made from .012" (0.3mm) stainless steel.

Surface Mounting – The bimetal disc sensing element is positioned firmly against the mounting surface to sense the actual surface temperature. All standard style surface brackets are made from .019" (0.5mm) stainless steel.

60T AUTOMATIC RESET SWITCH CONSTRUCTION							
Surface Mount			Airstream Mount			Calibration (+/-5°C)	
Standard Style	Product Type	Drawing Figure	Standard Style	Product Type	Drawing Figure	Open Temp	Close Temp
610090	60T22	1	610044	60T12	2	32.2°C	43.3°C
610091	60T22	1	610045	60T12	2	37.8°C	48.9°C
610092	60T22	1	610115	60T12	2	43.3°C	54.4°C
610093	60T21	1	610116	60T11	2	48.9°C	37.8°C
610094	60T22	1	610049	60T12	2	48.9°C	60.0°C
610095	60T21	1	610117	60T11	2	54.4°C	43.3°C
610096	60T22	1	610050	60T12	2	54.4°C	65.6°C
610097	60T21	1	610005	60T11	2	60.0°C	48.9°C
610098	60T22	1	610118	60T12	2	60.0°C	71.1°C
610099	60T21	1	610008	60T11	2	65.6°C	54.4°C
610100	60T22	1	610119	60T12	2	65.6°C	76.7°C
610101	60T21	1	610011	60T11	2	71.1°C	48.9°C
610102	60T22	1	610120	60T12	2	71.1°C	82.2°C
610103	60T21	1	610012	60T11	2	76.7°C	54.4°C
610104	60T22	1	610121	60T12	2	76.7°C	87.8°C
610105	60T21	1	610013	60T11	2	82.2°C	60.0°C
610106	60T22	1	610122	60T12	2	82.2°C	93.3°C
610107	60T21	1	610015	60T11	2	87.8°C	65.6°C
610108	60T21	1	610016	60T11	2	93.3°C	71.1°C
610109	60T21	1	610020	60T11	2	107.2°C	85.0°C
610110	60T21	1	610080	60T11	2	121.1°C	98.9°C
610111	60T21	1	610123	60T11	2	135.0°C	112.8°C
610112	60T21	1	610075	60T11	2	148.9°C	126.7°C
610113	60T21	1	610124	60T11	2	162.8°C	140.6°C
610114	60T21	1	610068	60T11	2	176.7°C	154.4°C

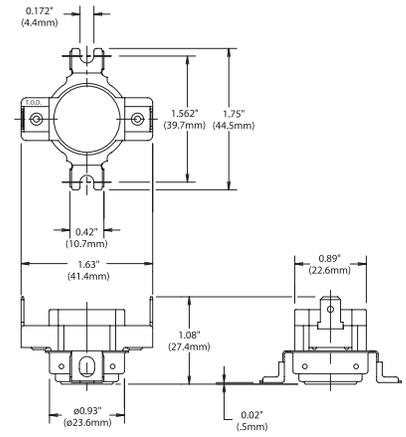


Figure 1

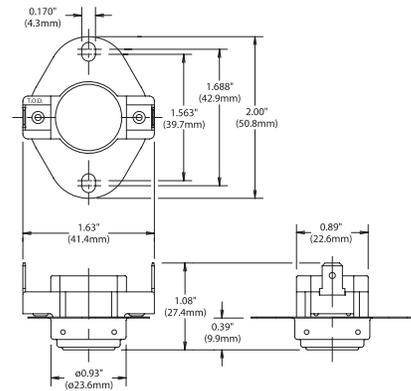


Figure 2

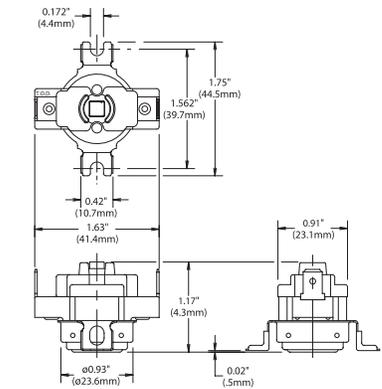


Figure 3

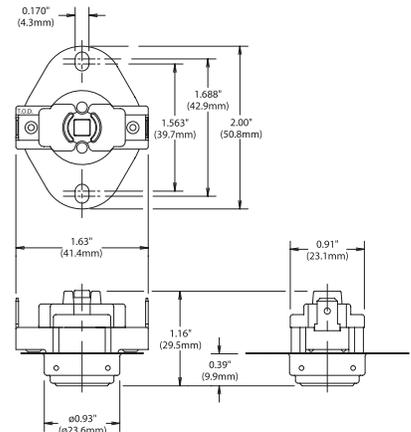


Figure 4

60T MANUAL RESET SWITCH CONSTRUCTION						
Surface Mount			Airstream Mount			Calibration
Standard Style	Product Type	Drawing Figure	Standard Style	Product Type	Drawing Figure	Open Temp (+/-5°C)
611228	60TX25	3	611220	60TX15	4	71.1°C
611229	60TX25	3	611221	60TX15	4	85.0°C
611230	60TX25	3	611222	60TX15	4	98.9°C
611231	60TX25	3	611223	60TX15	4	115.6°C
611232	60TX25	3	611224	60TX15	4	129.4°C
611233	60TX25	3	611225	60TX15	4	146.1°C
611234	60TX25	3	611226	60TX15	4	160.0°C
611235	60TX25	3	611227	60TX15	4	176.7°C

General Electrical Ratings

Family Type	Product Type	Rated Temperature	Rated Cycles	Rated Electrical Load	UL File #	CSA File #	CE License #
TCO	G4A01 (72°C through 240°C Calibrations)	Calibration Temp	1	10A @ 250VAC	E40667	LR26323	121992 121993
TCO	G5A01 (72°C through 240°C Calibrations)	Calibration Temp	1	16A @ 250VAC	E40667	LR26323	81062
TCO	G7F01 (77°C through 184°C Calibrations)	Calibration Temp	1	5A @ 250VAC	E40667	LR26323	112541
36T	36TXE11, 36TXE12, 36TXE21, 36TXE22	175°C	100,000	10A @ 240VAC	E19279	LR77886	115095
36T	36TXE16, 36TXE26	175°C	6,000	10A @ 240VAC	E19279	LR77886	115095
37T	37T01	105°C	100,000	10A @ 120VAC	E29653	LR62082	51003
60T	60T11, 60T12, 60T21, 60T22	175°C	100,000	25A @ 250VAC	E19279	LR10291	104130
60T	60TX15, 60TX25	175°C	6,000	25A @ 250VAC	E19279	LR10291	104130

NOTE: These are consolidated agency ratings. Please contact our Sales Engineering Department for more complete information.

IMPORTANT INFORMATION

Agency Recognition

These controls have been rated by major agencies throughout the world. The agency ratings can be used as a guide when evaluating specific applications. However the mechanical, electrical, thermal and environmental conditions to which a control may be exposed in an application may differ significantly from agency test conditions. Therefore you must not rely solely on agency ratings but must perform adequate testing of the product to confirm that the control selected will operate as intended in that application and environment.

Application of Standard Styles

You must determine the suitability of the control for your application, including the level of reliability required, and you are solely responsible for the function of the end-use product. A control may remain permanently closed or open as a result of exposure to excessive mechanical, electrical, thermal or environmental conditions, or at normal end-of-life. If failure of the control to operate could result in personal injury or property damage, you should incorporate supplemental system control features to achieve the desired level of reliability and safety. For example, backup controls have been incorporated in a number of applications for this reason.

Custom Products

In addition to the standard products shown in this guide, Therm-O-Disc offers a variety of other products to meet your unique applications. We have the expertise and experience to custom design products to meet the specific requirements of your application for temperature sensing, temperature control, and electric power control.

Refer to technical bulletins, available for any of these products, for important application information. For further information or assistance, please call one of our Sales Engineers at 419-525-8300.

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