KLIXON

20413, 20600, 20650 SERIES

Snap-Action
Automatic and Manual reset
Fixed Temperature Thermostats

Key Features

- Klixon snap-action bimetal disc assures positive make/break action.
- Available with surface, thru-wall,well or cavity-type mountings
- Temperature setting factory calibrated to your specifications
- High capacity – up to 30 amps at 120, 240, and 277 VAC resistive.
- Extra high capacity – up to 40 amps at 120 and 240 VAC resistive

Automatic reset Standard Constructions

Single-Pole, Single-Throw
20601 / 04 / 06 F or L
Small Oval Top Flange

Single-Pole, Double-Throw
20600D
Small Oval Top Flange

Single-Pole, Single-Throw
20603 / 05 F or L
Small Oval Top Flange

Double-Pole, Single-Throw
20650
Small Oval Top Flange

Manual Reset Standard Constructions

Manual Override
20611 / 12 / 16L
Special Oval Bottom Flange

Trip Free
20413
Small Oval Top Flange

Manual Override
20650
Integral Surface Flange

Trip Free
20615 / 19L
Small Oval Top Flange

Description

Klixon® thermostats have been in production for over 50 years. The 20413, 20600, and 20650 series thermostats are especially designed ed for applications where space, capacity and ease of assembly are important production factors. They are fixed-setting, snap-acting, automatic or manual reset temperature controls that are ideal for such applications as: air conditioners, heating and ventilating equipment, vending machines, dryers, unit heaters, tabletop appliances, etc.

All automatic series are available as limit switches (open on temperature rise) or fdan switches (close on temperature rise). Switch action is SPST, SPDT, or DPST with automatice reset types. Manual reset is available as a limit switch in SPST construction only.

The switch mechanism is actuated by the Klixon snap-action, bimetal disc which may be enclosed or exposed. Enclosed disc devices are particularly recommended for applications in which dust and lint are prevalent in the environment. Exposed disc types are used in applications where a faster thermal response to radiant heat is needed. Contact parts are enclosed for both disc types for protection against contamination.

Mountings and Terminals

A variety of terminals and mounting flanges are available to meet installation requirements of most applications.

Flanges can be used for surface or thru-wall mountings; or, thermostats can be supplied without flanges for well or cavity-type mountings. Flange rotations are specified by looking down on the terminals and rotating the flange 30^{o}, 45^{o}, or 90^{o} CW or CCW.

Flanges Available

- Small oval bottom flange
- Integral surface flange
- No flange cup
- 3/4" deep cup
- Special oval bottom flange

Electrical connections to the thermostat must be tight; otherwise, resistance in a loose connection may cause sufficient temperature rise to affect the performance of the thermostat or damage the terminals or

Terminals Available

Quick connects are available in siver flash or plain brass.

- 1/4"Quick connects 0^{o}, 30^{o}, 45^{o}, 90^{o} terminals are male spade type .250" x .032" thick.
- Strap terminals for electric heating
- Brass screw terminals 0^{o}, 45^{o}

When screw terminals are specified, washer head screws are supplied unassembled. Assembled washer head screws are available at extra cost. Standard screw terminals have 8-32 NC-2 threads.

Temperaturre Settings, Tolerances and Nominal Differentials

The ranges of temperature settings, tolerances, and nominal differentials shown below are available. Differential is the difference between opening and closing temperature in ^{o}F. For example, a thermostat which opens at 180^{o}F and closes at 140^{o}F has a 40^{o} differential. (Lowest unit prices are achieved by selecting differentials in the 30^{o}F to 59^{o}F range). For temperature settings and differentials other than those shown, please consult Marketing.

Standard Tolerances

Highest Temperature Setting ^{o}F	Nominal Differential ^{o}F	Standard Tolerances ^{o}F Open	Close
-10 to 80	10 to 14*	±5	±5
	15 to 29	±6	±6
	30 to 59	±6	±7
	60 to 150	±7	±8
81 to 200	10 to 29*	±5	±5
	30 to 39	±5	±6
	40 to 59	±5	±7
	60 to 150	±6	±8
201 to 250	20 to 29	±5	±6
	30 to 39	±5	±7
	40 to 59	±6	±8
	60 to 150	±7	±9
251 to 300	30 to 39	±6	±8
	40 to 59	±7	±10
	60 to 150	±8	±11
301 to 350	30 to 39	±7	±10
**	40 to 59	±8	±12
	60 to 150	±9	±13

- Available in SPST construction only.
  SPDT thermostats must have 15^{o} minimum differentials.

**20413 series – up to 300^{o}
20600 series – up to 350^{o}
20650 / 54 series – up to 300^{o}; minimum differential 30^{o}.

Manual Reset Construction

There are two basic manual reset constructions:

1) Manual Override – contracts can be closed at any time after device has actuated by depressing reset button.
2) Trip-Free – contacts will remain open after device has actuated until bimetal disc resets, even if reset button is depressed.

Agency Recognition

Klixon 206 Series Thermostats are recognized by UL and CSA. Please consult Marketing for international approvals.

UL Electrical Group
File No. E9977
U.S. Guide No. XAPX2
Canada Guide NO. XAPX8
HC&R Group
File NO. MP986
U.S. Guide No. MBPR2
Canada Guide No. MBRR8

For further information write or call:
Texas Instruments Incorporated

Commercial Sensors & Controls
Thermal Controls Marketing
34 Forest Street, MS 23-10
Attleboro, MA 02703-0964
Phone: (508) 236-3192
(508) 236-1894
Fax; (508) 236-2349
or visit our website @: www.tisensors.com

Ambient Temperature

-40^{o}F to $+350^{o}$F
-40^{o}C to $+177^{o}$C

Underwriters' Laboratories Electrical Current Ratings

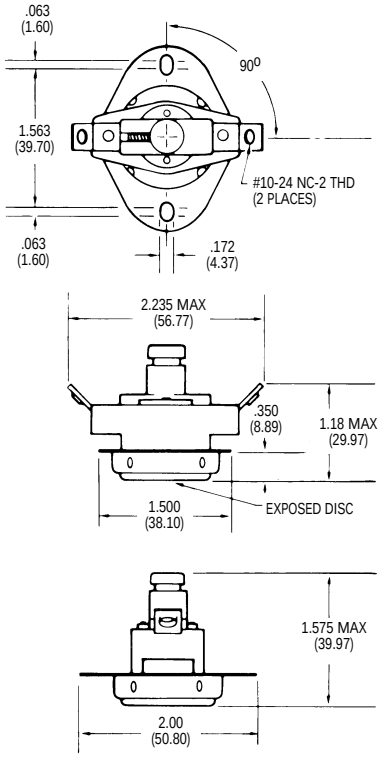
Device	Contacts	Number Cycles	120 V				240 V				277 V				480 V				
			Amps Res	FLA	LRA	Pilot Duty	Amps Res	FLA	LRA	Pilot Duty	Amps Res	FLA	LRA	Pilot Duty	Amps Res	FLA	LRA	Pilot Duty	800 mV DC
20413 MR	1-3	6,000	48	16	96	480	48	8	48	690					48			690	
20613	1-3	6,000	48	16	96	480	48	8	48	690					48			690	
20600D	1-2	100,000	10	5.8	34.8	125	5	2.9	17.4	125									
	1-3	30,000	25	16	84	672	25	12	60	960	22	8	42	775					
	1-2	30,000	10	5.8	34.8	270	5	4.2	17.4	270	5			125					
20601F, L (appliance)	1-3	100,000	25	10	60	480	25	5	30	480									
	1-3	30,000	25	16	84	672	25	12	60	960	22	8	42	775	13	5	30		
20601 (HVAC)	1-3	100,000	16.6	16.6	88	480	8.3	8.3	49.8	690	7.2	7.2	43.2	1630					
20602F or L	1-3	100,000				125													X
20603/5	1-3	100,000	40	35	110	880	40	35	110	1760	35	30	95	1760	20	9	30	960	
20604F, L	1-3	100,000	25	10	60	480	25	5	30	380	22	8	42	775	13	5	10	320	
20606F, L	1-3	100,000				125													
20611L MR	1-3	6,000	25	10	60	480	25	5	30	480									
20612 MTR	1-3	6,000																	X
20616 MR	1-3	6,000				125													
20615L MRTF	1-3	6,000	16.6	10	60	480	8.3	5	30	480	7.2			690					
20619L MRTF	1-3	6,000	25	10	60	480	25	5	30	480	25			690					
20650F, L	1-3, 4-5	100,000	25	10	60	480	25	5	30	480	22	8	42	775					
20650F, L, H	1-3	30,000	25	10	60	480	25	5	30	480	23	23	100	1855	13	5	30	400	
	4-5	30,000	25	16	84	672	25	12	60	960	23	23	88	1633					
20650H	1-3	6,000					25	7	42	670									
	4-5	6,000					23	7	42	670									
	5-2	6,000					5	5.8	39.8	556									

Standard Configurations

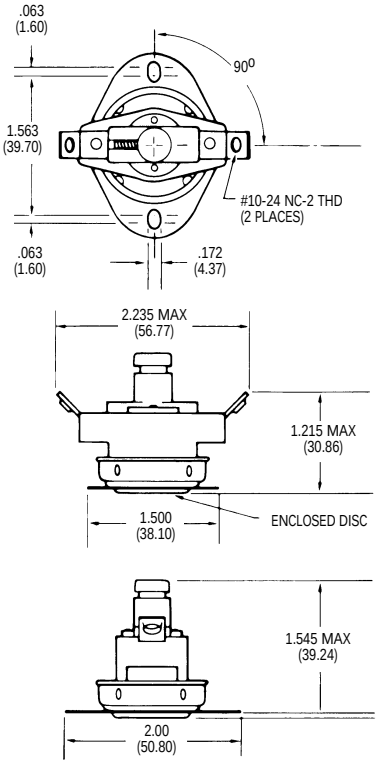
Model	Switch Type	Capacity	Contacts	Clearance	
				Thru Air	Over Surface
20413L	MR-TF	High	Ag	3/8"	1/2"
20600D	SPDT	High	Ag	1/8"	1/4"
20601L, F	SPST	High	Ag	1/8"	1/4"
20602L, F	SPST	mVdc	Au	1/8"	1/4"
20603L, F	SPST	Extra High	AgCdO	1/8"	1/4"
20604L, F	SPST	High	Ag	1/4"	3/8"
20605L, F	SPST	Extra High	AgCdO	1/4"	3/8"
20606L, F	SPST	Pilot Duty	Ag Ribbed	1/8"	1/4"
20611L	MR	High	Ag	1/8"	1/4"
20612L	MR	mVdc	Au	1/8"	1/4"
20615L	MR-TF	High	Ag	1/8"	1/4"
20616L	MR	Pilot Duty	Ag Ribbed	1/8"	1/4"
20619L	MR-TF	High	Ag	1/4"	3/8"

20413 Series Standard Constructions

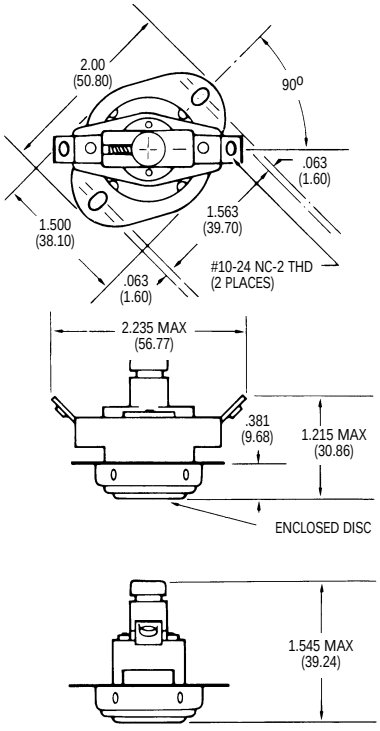
Small Oval Top Flange @ 90° Exposed Disc 45° Screw terminals



Small Oval Bottom Flange @ 90° Enclosed Disc 45° Screw Terminals

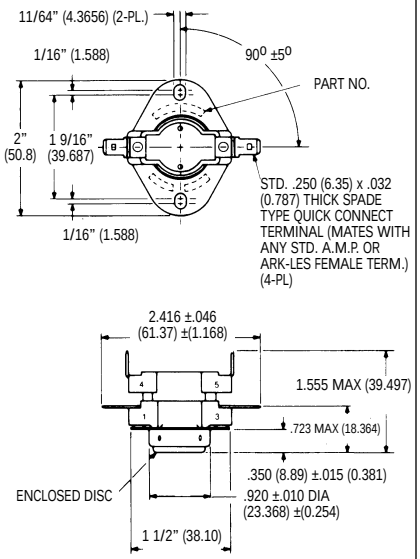


Small Oval Top Flange @ 45° CCW Enclosed Disc 45° Screw Terminals

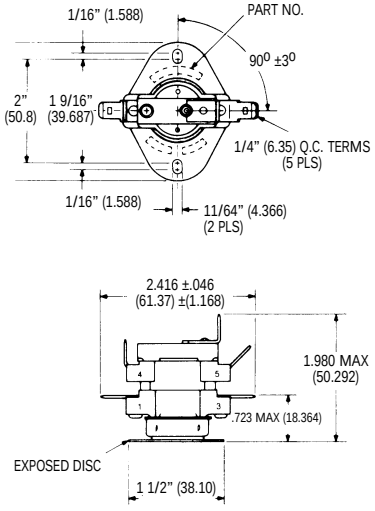


20650 Series Standard Constructions

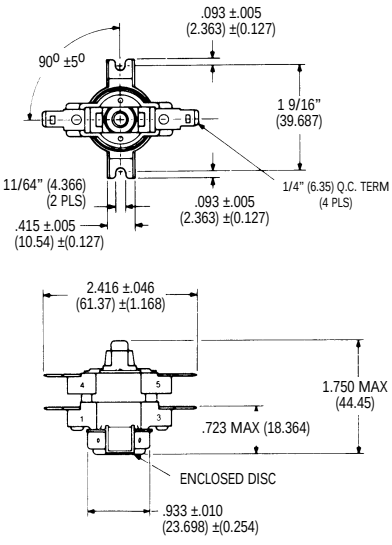
DPST Automatic Reset



SPST Plus SPDT Automatic Reset

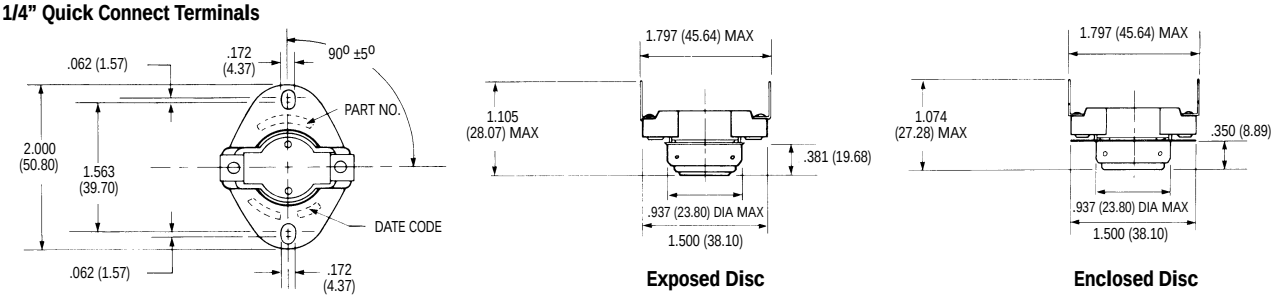


DPST Manual Reset



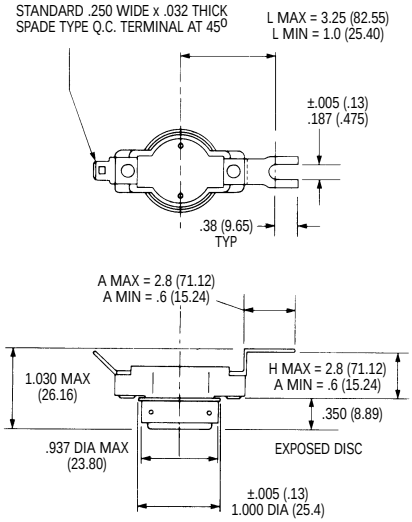
20600 Series Preferred Physical Construction

20601 / 04 / 08 F or L Small Oval Top Flange at 90° 1/4" Quick Connect Terminals

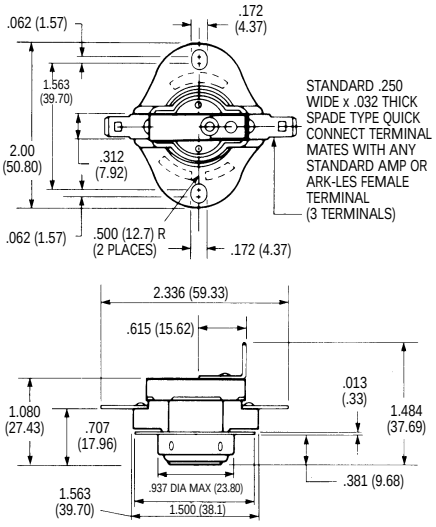


Other Physical Constructions

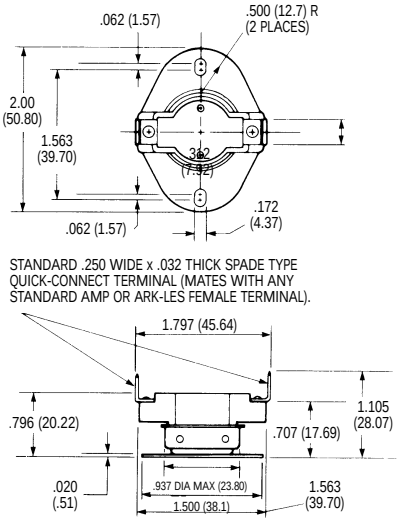
20601 / 04
No Flange Cup
Thru-Wall Mounting
Forked Terminals



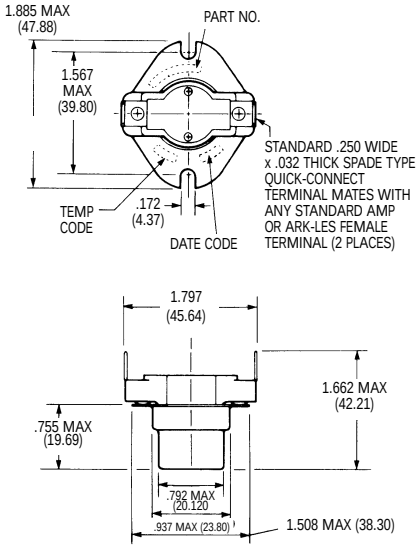
20600D
Single-Pole, Double-Throw
Small Oval Top Flange
at 90° Rotation
Quick-Connect Terminals



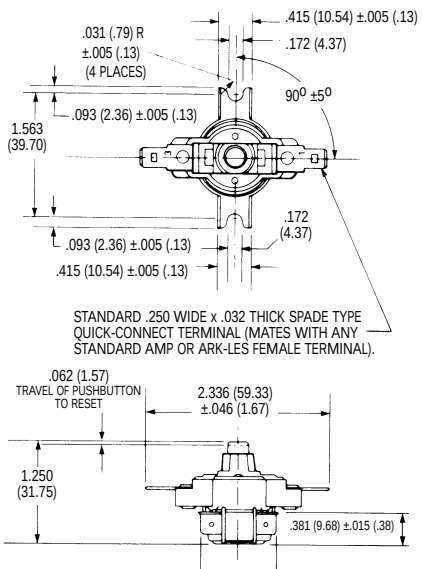
20601 / 04 / 06 / 08
Small Oval Bottom Flange
at 90° Rotation
Quick-Connect Terminals



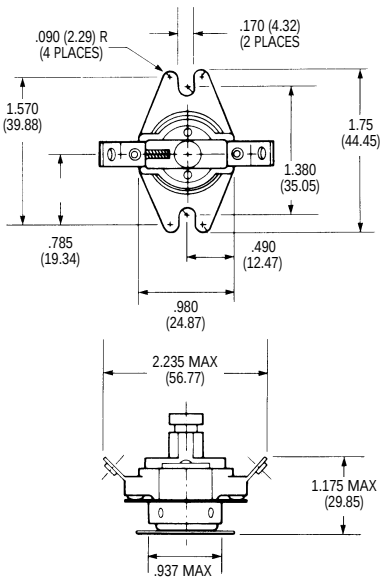
20601 / 04
Small Oval Flange
3/4" Depth Cup
Quick-Connect Terminals



20611 / 20616 / L
Manual Reset, Manual Override
Integral Flange, Surface Mounting
Quick-Connect Terminals



20615L / 206619L
Special Oval Bottom Flange
Manual reset, Trip Free, Surface Mounting
45° Screw Terminals



To facilitate processing your request, please fax this page to our Product Specialists.

To: Marketing Dept.
Texas Instruments
Attleboro, MA 02703

Phone: (508) 236-3192
(508) 236-1894

Fax: (508) 236-2349

From _____

Company _____

Address _____

Phone _____

Fax _____

The following information will help us determine the correct thermostat design for your application. You may refer to the charts on pages 2 and 3 for assistance.

Request: Pricing _____ Application Assistance _____

Description of Application _____

Estimated Annual Usage _____

Automatic Reset_____ MR_____ MR-TF_____ SPST_____ SPDT_____ DPST_____

Open Temperature _____ Maximum Tolerance _____

Close Temperature _____ Maximum Tolersnce _____

Temperature Exposures: Maximum _____ Minimum _____

Location With Respect to Heat Source _____

Temperature Transfer Medium (air, metal surface, etc.)_____

Type of Heat Source: Convection _____ Conduction _____ Radiation _____

Electrical Requirements: _____ Amps @ _____ Volts; AC or DC _____

Resistive _____ Inductive _____* Capacitive _____*

Tungsten Filament _____ Milliamp _____ Pilot Duty _____

*If inductive or capacitive, indicate power factor _____

(If available, please send copy of electrical / plumbing diagram).

Switch Termination (type and angle)_____

Flange (type and angle of rotation) _____

Enclosed or Exposed Disc _____

Environment (dust, lint, chemical fumes, etc.) _____

_____

Agency Approvals _____

TEXAS INSTRUMENTS