

# MODEL 135

## PNEUMATIC CONTROLLER FOR LOW TEMPERATURE SHUTOFF

### OVERVIEW

The Model 135 thermal probe is a pneumatic controller with an integral, rigid insertion bulb used to protect downstream piping systems and equipment from experiencing temperature excursions below desired minimum operating temperature due to equipment malfunction or customer overdraw of system capacity.

As thermal probe outer sheath is exposed to lower temperatures, it contracts in length. The internal Invar plunger remains unchanged in length, pushing a ball/plug away from its seat, allowing the inlet gas pressure to be "vented". This is NOT a SAFETY DEVICE

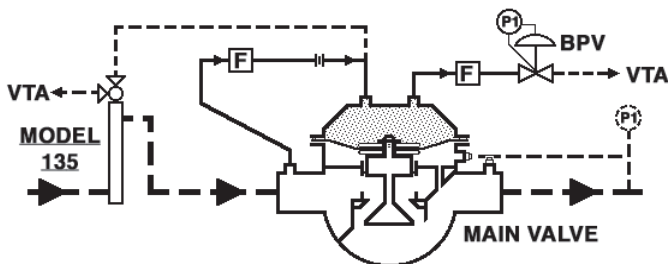
### FEATURES

- High static pressure capability.
- BRZ/BR construction; SST construction.
- 8°F  $\Delta T$  span.
- Std. Opt-55; Cleaned and packaged for GOX service
- Std. Opt-56; Cleaned and packaged for non-oxygen service.

### APPLICATIONS

Primarily utilized with a pressure loaded reducing regulator with fail-close action upon loss of loading pressure. Used with any compatible fluid that can be vented to atmosphere in an environmentally acceptable method.

#### HOOKUP SCHEME T1

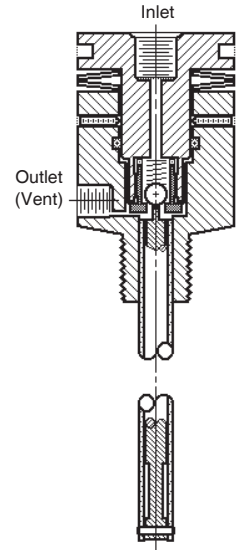


Use 1/4" tubing (ID of 0.180" or greater) when probe is installed within 18 feet of regulator.

Use 3/8" tubing (ID of 0.277" or greater) when probe is installed within 150 feet of regulator.



MODEL 135



### CONNECTIONS

1/2" NPT (DN15), O-RING (OPT-64)



### COMMON APPLICATIONS

VAPORIZERS



### TEMPERATURE SET POINTS

+50°F, +30°F, +25°F, +15°F, +10°F, 0°F,  
-10°F, -15°F, -20°F, -30°F, -40°F, -50°F

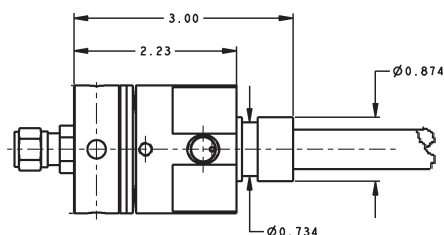
## TECHNICAL SPECIFICATIONS

<b>Control Head Inlet Pressure Range:</b>	0 – 600 psig.
<b>Thermal Element Pressure Range:</b>	BRZ/BR – Full vac. to 720 psig SST – Full vac. to 3000 psig <b>NOTE:</b> SST in O2 service velocities at point of installment should be limited to the recommendations of CGA G-4.4 Figure 2, when probe is made of stainless steel, to minimize risk of ignition made by sparking debris.
<b>Exposed Fluid Temperature Range:</b>	-320°F to +400°F
<b>Ambient Temperature Range:</b>	-60°F to +140°F
<b>Temperature Set Points Range Between:</b>	-50°F to +50°F
<b>Temperature Span:</b>	Begins venting at 8°F above Temperature Set Point (TSP). "Full Venting " at TSP.

PART	MATERIALS	
	MODEL 135-B	MODEL 135-S
Control Head	Brass ASTM B16 C36000	316L SST ASTM A479
Thermal Element	Brass ASTM B16 C36000	316L SST ASTM A479
Plunger	Invar	Invar
Trim	Brass, SST, Cu	SST, Cu
O-Ring	FK; Fluorosilicone	FK
Belleville Washers	SST	SST
Set Screws	SST	SST
Screen	Monel	Monel
Spring	SST	SST
Brazing Material	Ag	Ag

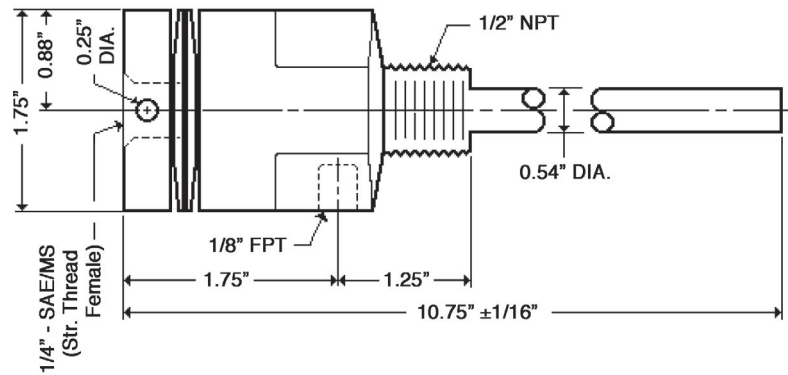
## OPTION SPECIFICATIONS

**OPT - 64:** **O-RING INSERTION SEAL.** NPT threaded insertion connection replaced with o-ring seal for quick installation/removal. Use requires that a thermal well be supplied by customer.



## DIMENSIONS & WEIGHTS

EST. SHIP WT: 2.5 LBS.



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MODEL 135-B LOW TEMPERATURE SHUTOFF

35 B — POS 5 BR 7 — POS 10 0 0 0 0 0 0 0 M B

MODEL 135-S LOW TEMPERATURE SHUTOFF

35 S — POS 5 SS 7 — POS 10 0 0 0 0 0 0 0 POS 17 B

POSITION 5 - INSERTION CONNECTION.	
INSERT. CONN.	CODE
STD - 1/2" NPT	1
O-RING - OPT-64	2

POSITION 10 - TEMPERATURE SET POINT			
TEMPERATURE - °F	CODE	TEMPERATURE - °F	CODE
+50	1	-10	7
+30	2	-15	8
+25	3	-20	9
+15	4	-30	A
+10	5	-40	B
0	6	-50	C

POSITION 17 - SERVICE OPTIONS		
Descripton	Option	CODE
Oxygen Cleaning Per Cashco Specification S-1134	-55	M
Non-Oxygen Cleaning Per Cashco Specification S-1542	-56	N

\* For information on ATEX see pages 4 & 5 on the IOM.