

Types A19BAC, A28AA Single and Two-Stage Space Thermostats for Farm and General Purpose Applications

Application

The single-stage A19BAC and the two-stage A28AA thermostats incorporate single-pole double-throw switches for controlling automatic ventilation or heating in livestock barns, poultry houses, milk houses, brooder houses and other buildings. The 30 to 110°F (0 to 43°C) and 0 to 140 F (-15 to 60°C) temperature ranges permit use for many space applications.

All Series A19 and A28 space thermostats are designed for use *only* as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of, control failure.

For general purpose two-stage remote temperature controls refer to LIT-125130, Series A28. For portable heater thermostat with extension cord and chain hanger refer to LIT-125040, Type A19BAG.

Features

- Liquid-filled sensing element provides uniform control at ambient temperatures not exceeding the range.
- Dependable single-pole, double-throw snap acting contacts in dusttight enclosure.
- Close differential models available for critical requirements.
- Adjustable cutout stop supplied as standard.



Fig. 1 -- Exterior view of Space Thermostat.

General Description

The enclosed Pennswitches are sealed against dust and other foreign material found in farm buildings. A compact helical, temperature element, specially treated against corrosion, is firmly attached to the exterior of the case to allow maximum sensitivity to changes in air temperature. The liquid-filled sensing element provides accurate operation unaffected by barometric pressure changes or altitude. Mounting may be by wiring conduit or to a flat surface with screws through holes provided in back of frame.

Specifications

Type Number	A19BAC	One SPDT Switch
	A28AA	Two SPDT Switches
Conduit Opening	7/8" (22 mm) Diameter Hole for 1/2" Conduit	
Contact Action	Red to Yellow Closes on Temperature Rise Red to Blue Opens on Temperature Rise	
Switch	Sealed, Dust Protected Pennswitch, SPDT	
Differential	Each Switch	Approximately 3 1/2 F° (1.9 C°)
	Between Stages (A28AA)	3 F° (1.7 C°)
Enclosure	Case	.062" (1.6 mm) Cold Rolled Steel
	Cover	.025" (0.6 mm) Cold Rolled Steel
Finish	Gray Baked Enamel	
Range	30 to 110° F (0 to 43° C) Standard, 0 to 140° F (-15 to 60° C) Optional (Quantity Orders Only)	
Sensing Element	Coiled Element on Top of Thermostat	
Shipping Weight	A19BAC	Individual Pack 1.0 lb (0.45 kg)
		Overpack of 50 Units 51 lb (23 kg)
	A28AA	Individual Pack 1.1 lb (0.5 kg)
		Overpack of 50 Units 56 lb (25 kg)

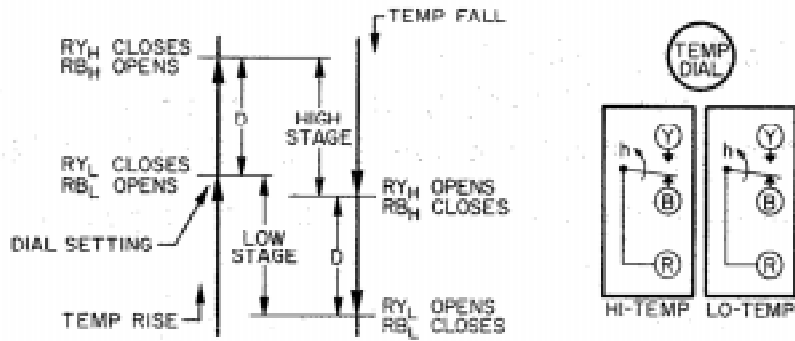


Fig. 2: Switching action of the two-stage control is illustrated in the sketch above. RB_H, RY_H indicates HI-TEMP; RB_L, RY_L indicates LO-TEMP. "D" represents the differential between stages.

Knob range adjustment and visible scale are standard. Models are available with a knob for field convertible adjustment. These models are supplied with a snap-in plug in the cover for concealed screwdriver slot adjustment. The thermostat is converted to knob adjustment by removing the snap-in plug and pressing the knob onto the slotted shaft. (See Fig. 3.)

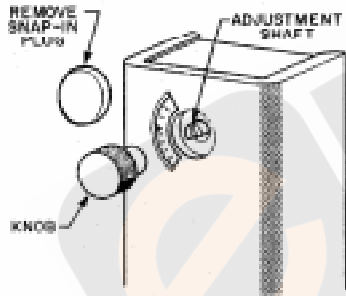


Fig. 3: Drawing showing snap-in plug removed and the knob in line to assemble. Press the knob onto the slotted shaft.

Repairs and Replacement

Field repairs must not be made. For a replacement thermostat contact the nearest Johnson Controls wholesaler.

Ordering Information

To order, specify Product Number only when available. If not available, specify:

1. Type Number.
2. Coiled air bulb.
3. Range.
4. Celsius scale plate, if required.
5. Solid cover (concealed adjustment) with screwdriver slot adjustment, if required.

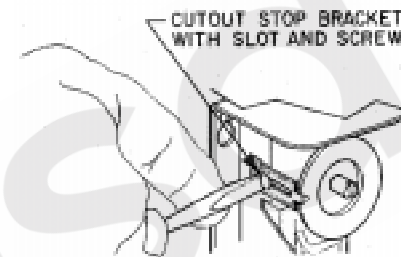


Fig. 4: The thermostats have a screw type cutout stop. The stop screw must be loosened and moved to the stop setting desired. Tighten screw after setting is made.

Electrical Ratings

Type A19BAC

Voltage, AC	120	208	240	277
Full Load Amps.	16.0	9.2	8.0	—
Locked Rotor Amps	96.0	55.2	48.0	—
Non-Inductive or Resistance Load Amps.* (Not Lamp Loads)	22.0	22.0	22.0	22.0
Pilot Duty — 125 VA, 24/600 VAC				

*SPST Rating.

Type A28AA

Voltage, AC	120	208	240
Full Load Amps.	16.0	9.2	8.0
Locked Rotor Amps.	96.0	55.2	48.0
Non-Inductive or Resistance Load Amps. (Not Lamp Loads)	16.0	9.2	8.0
Pilot Duty — 125 VA, 24/277 VAC			

NOTE: When used as a two circuit switch, the total connected load must not exceed 2000 VA.

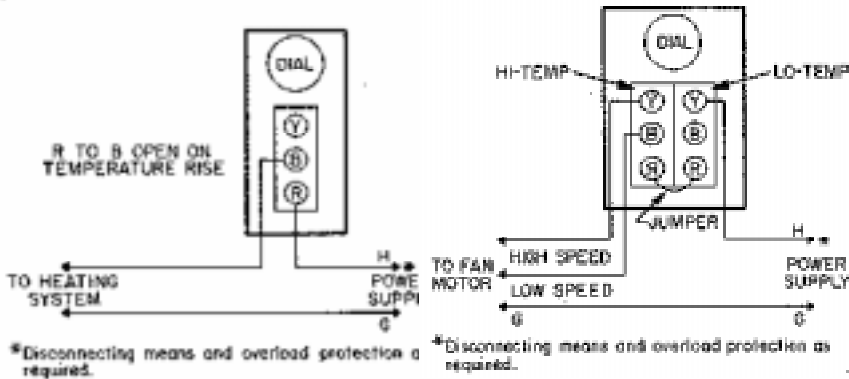


Fig. 5: An A19BAC in typical heating control circuit.

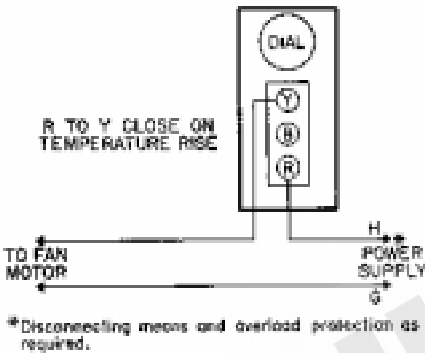


Fig. 6: An A19BAC in typical ventilating or cooling control circuit.

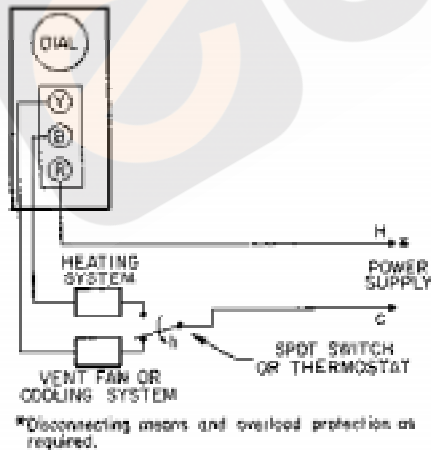


Fig. 7: An A19BAC in control of heating and ventilating systems.

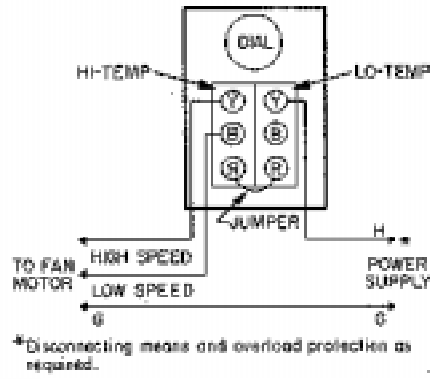


Fig. 8: An A28AA shows typical wiring for the control of a two speed ventilating fan. When control temperature reaches the dial setting, the low temperature switch starts the fan on low speed. If the space temperature continues to rise, the high temperature switch supplies power to the high speed motor winding while disconnecting to the low speed winding.

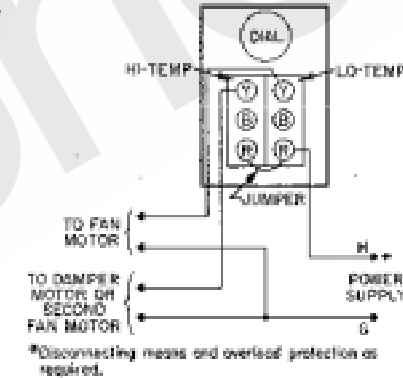


Fig. 9: Typical hookup for a two-speed volume fan application. Fan starts when the temperature reaches the dial setting. If the temperature continues to rise, the damper motor is energized by the high temperature switch.

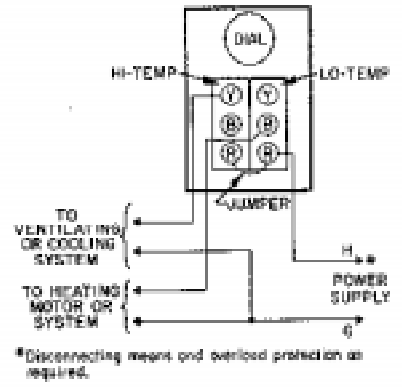


Fig. 10: Typical wiring for a combination heating and cooling system automatic changeover. A temperature increase to dial setting turns off the heating system when the R-B low temperature switch contacts open. An increase of approximately 3F° (1.7C°) turns on the fan or cooling system through the R-Y contacts of the high temperature switch.

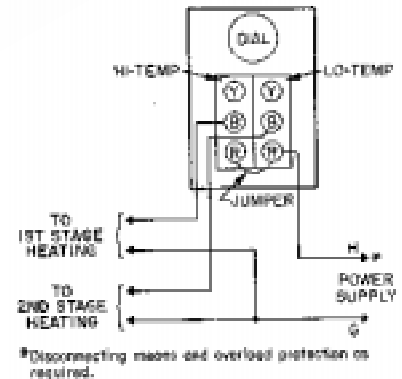
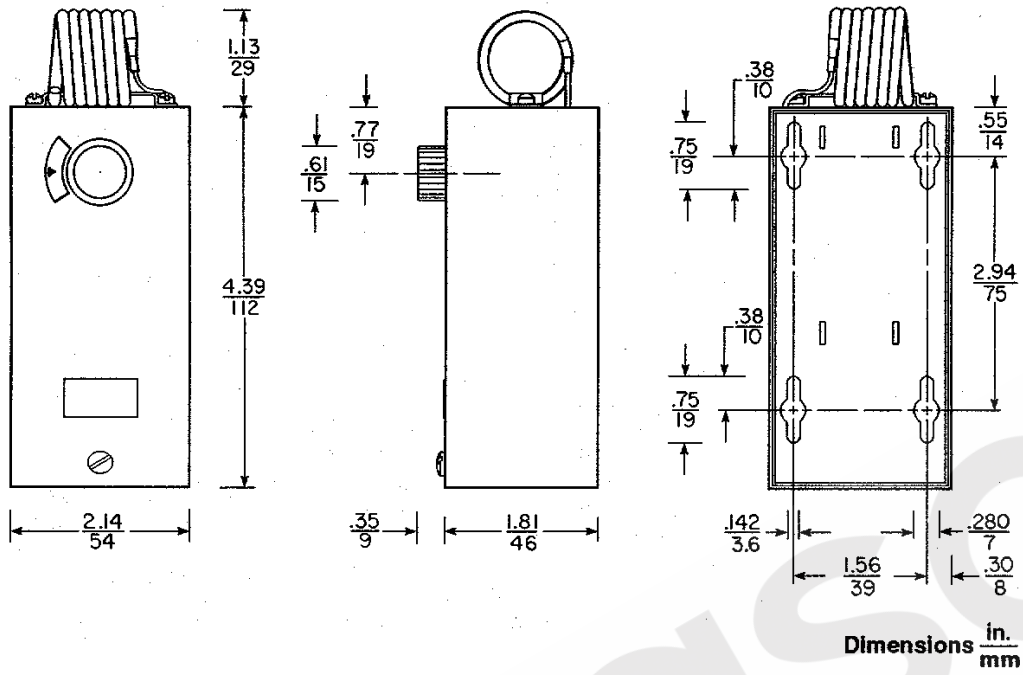


Fig. 11: Typical hookup for two-stage heating. On a temperature drop to dial setting the first stage heating turns on. If the temperature continues to drop about 3F° (1.7C°) the second heating stage turns on.



Performance specifications appearing herein are nominal and are subject to accepted manufacturing tolerances and application variables.

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