A72 Series Temperature Controls For Cooling Towers and Evaporative Condensers With Weather Resistant Enclosure

Application

A72AE and A72CE temperature controls are designed to provide adequate head pressure by controlling the fan or water flow on evaporative condensers and cooling towers. Low refrigerant head pressure, which may be caused by abnormally low cooling water temperature, causes the capacity of the refrigeration system to fall off rapidly. Cooling towers and evaporative condensers recommend two systems of control, mechanical or atmospheric-draft type cooling. An A72 is available for either system.

The A72AE-1 **opens** the circuit on a temperature drop. The control is wired in series with the fan motor (or fan motor controller) to stop the fan when the cooling water temperature falls to a predetermined minimum temperature. This maintains the minimum head pressure required for proper system operation. (See Fig. 2.)

The A72CE-1 **closes** the circuit on a temperature drop. The control is wired in series with a normally closed motorized valve or solenoid valve. When the cooling water temperature is below the control set point, the valve is opened. The cooling water then flows through a low header in the atmospheric cooling tower, reducing the cooling effect of the tower. (See Fig. 3).

Operation of the cooling tower is sometimes necessary when outdoor temperatures may drop below 32°F (0°C). The A72CE (which closes on temperature drop) is used to control electric heaters in the cooling tower sump in applications where the water may freeze. The control may also be wired to sound an alarm indicating the sump water has reached a predetermined minimum temperature.

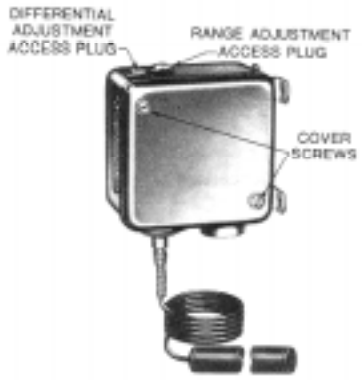


Fig. 1 -- The A72 control for cooling towers and evaporative condensers.

All Series A72 controls 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.

Specifications

Product Number	**A72AE-1**	DPST Contacts Open on Temperature Drop
	A72CE-1	DPST Contacts Close on Temperature Drop
Range		25 to 90°F (–5 to 30°C)
Differential	**Minimum At Top of Range**	5F° (2.8C°)
	Minimum At Bottom of Range	12F° (6.7C°)
	Maximum At Top of Range	45F° (25C°)
Ambient Temperature	**Minimum**	–65°F (–54°C)
	Maximum	150°F (66°C)
Maximum Bulb Temperature		170°F (77°C)
Enclosure		Weather Resistant with Rubber Gasketed Cover
Material	**Case**	.070 (1.8 mm) Cold Rolled Steel
	Cover	.070 (1.8 mm) Cold Rolled Steel
Finish		Gray Enamel
Bulb and Capillary		Cross Ambient Bulb and Capillary With Neoprene Coating
Wiring Connections		Screw Type Terminals
Conduit Opening		¾" Female Conduit Hub
Mounting		Two Mounting Feet
Shipping Weight	**Individual Pack**	4.1 lb (1.9 kg)
	Overpack of 10 Units	47 lb (21.3 kg)

General Description

The A72 controls have a two pole contact unit. The rubber gasket-lined, weather resistant enclosure is made of heavy gauge steel. The range and differential adjustments can be made by removing the gasket-lined access plugs. (See Fig. 1.) Direct-reading scales can be observed by removing the cover.

The bulb and capillary are neoprene coated to resist the effects of corrosive chemicals and abrasion. The sensing element is cross ambient to provide operation under all temperature conditions within the rating of the control.

Repairs and Replacement

Field repairs must not be made except for replacement of the cover. For a replacement control or cover, contact the nearest Johnson Controls distributor.

Ordering Information

To order specify the Product Number only.

Electrical Ratings

Motor Ratings	120 V 1 Phase	208 V 1 Phase	240 V 1 Phase	220 V 2 Phase	208 V 3 Phase	220 V 3 Phase
Horsepower	2	3	3	5	5	5
AC Full Load Amp	24.0	24.0	24.0	15.0	15.9	15.0
AC Locked Rotor Amp	144.0	144.0	144.0	90.0	95.4	90.0
AC Non-Inductive Amp	24.0	24.0	24.0	—	—	—
DC Non-Inductive Amp	3.0	—	0.5	—	—	—
Pilot Duty — 125 VA, 120/600 VAC 57.5 VA, 120/300 VDC						

NOTE: Only single-phase AC ratings apply when used as a two-circuit switch. The combined load must not exceed 5640 VA and must have a common return. The load on either contact must not exceed the ratings in the table.

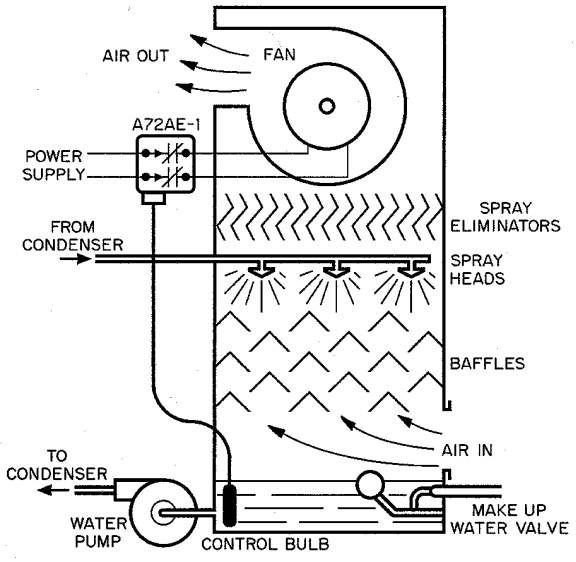


Fig. 2 — Typical wiring hookup and installation of the A72AE-1 on a forced draft cooling tower.

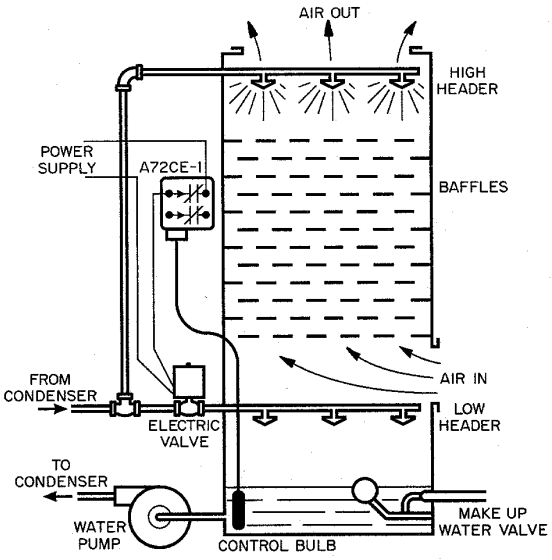
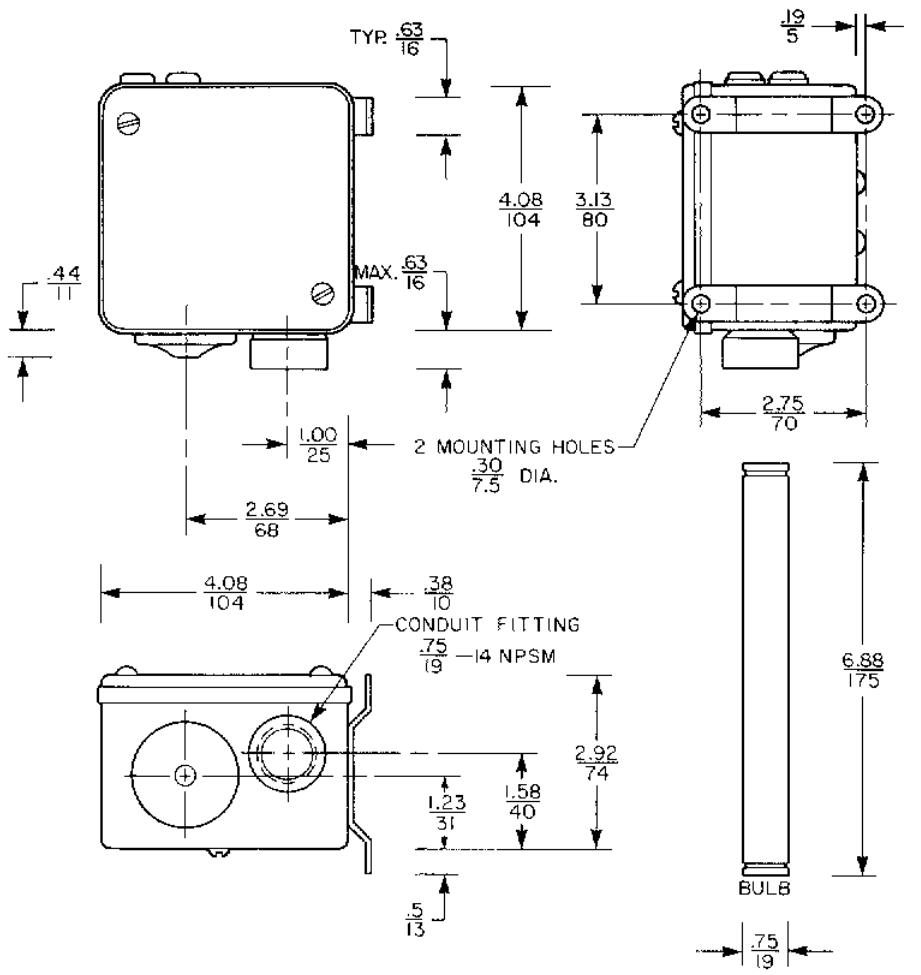


Fig. 3 — Typical wiring hookup and installation of the A72CE-1 on an atmospheric draft cooling tower.



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

Notes

JOHNSON CONTROLS

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