



Active Thermal Management

*The trusted name in thermal protection...*

**Parts list** – before proceeding, check that you have received all of the following:

- |                          |                      |
|--------------------------|----------------------|
| Cool-stick main assembly | (1)                  |
| Power supply             | (1)                  |
| Brackets                 | (1 ea, left & right) |
| Control unit             | (1)                  |

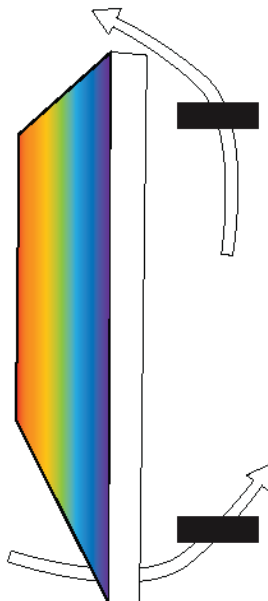
### **Instructions for installation of the Cool-stick™ enclosure ventilator**

**An important disclaimer** -- The Cool-stick was designed to provide a gentle curtain of fresh room air to flat-panel displays which have been mounted in enclosures that restrict natural ventilation. There is a very wide range of possible installations; on-the-wall, in-the-wall, cabinet mounted, and so on. While we have made every effort to provide a reasonably high rate of air flow at a very low noise level, the details of a given installation are beyond our control, and there will be situations in which the Cool-stick may not be able to provide sufficient cooling to ensure that a particular display device won't overheat. It is the responsibility of the installer to verify that the panel, or other equipment being cooled, is not overheating after installation is complete.

We are available for technical consultation at no charge week days from 8:30 to 4:30 PST at 661-294-7999.

#### **Cool-stick installation guidelines:**

To work effectively, Cool-stick must have one opening through which room air can enter the panel's enclosure, and another through which heated air can leave. The most satisfactory arrangement is a slot of no less than 1" height running the entire width of the panel just above and just below the panel.



*Openings along the vertical edges of the panel are not needed and will upset the desired bottom-to-top airflow pattern.*

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661-294-7999

***It is suggested that part 1 of the test for sufficient ventilation be performed now, before the panel is installed in its enclosure; see below.***

Using the included brackets, (note that there is a left and a right bracket) mount the Cool-stick so that the fans' labels are facing upwards and the fans are either pointed straight up or are tilted toward the panel slightly so that the air stream will hit the display's rear panel near the bottom, letting the air flow along the rear panel towards its top.

(See sketch above; the black rectangles are the Cool-sticks viewed on edge.)

Where possible, mounting the Cool-stick horizontal and slightly above the bottom of the display panel is often the preferred arrangement.

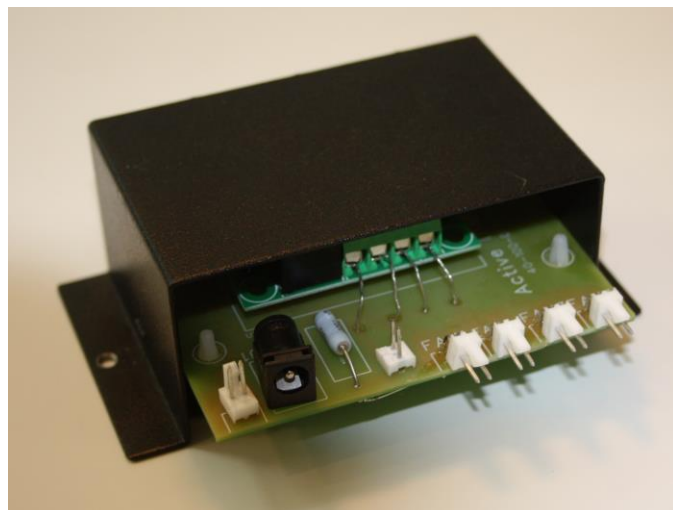
One of the Cool-stick's mounting channels slips into the round hole in each bracket, and the other channel is placed in the slot that positions the channels at the desired angle (protruding not more than 1/8" on the other side); see accompanying photograph. Wood screws or other fasteners appropriate for the particular installation should be used to fasten the brackets to the enclosure framework.

Attach the thermal probe to the part of the panel's structure which becomes hottest in use. (See note below; this "hot spot" can be found during the first part of the test when the normal operating temperature of the display is being measured.) It is important that the probe be in close contact with the display; adhesive tape that isn't affected by moderate heat can be used to fasten the probe, while tie-wraps and anchors can secure the probe cable.



After installing the control unit, locating the thermal probe, and connecting the fan leads to the control unit (connect to any FAN connector, 1 - 4), connect the power supply to the connector (J1), and the thermal probe to connector THRM.

Control unit (may vary from picture)



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## **A test for sufficient ventilation –**

**Part 1** - Using a digital thermometer with an external probe, (readily available at electronics suppliers), measure the temperature of the display's back panel at the point where the temperature is highest or the temperature of the air coming out of the exhaust opening, if the panel has an internal fan, when the panel is operating in an open environment. Tape or otherwise fasten the probe so that it can't move. Let the panel run long enough to ensure that it's reached operating temperature, i.e., the thermometer reading is steady. Note the temperature and turn the panel off.

Note: inexpensive digital thermometers may not be highly accurate, but they are generally stable and repeatable, which is more important for this test.

**Part 2** - Carefully mount the panel in the enclosure, not allowing the probe to shift position, and apply any trim that will be used in the final installation. It should be possible to feed the probe wire out of the enclosure so that you can measure the panel's exhaust temperature while it's mounted in what will be its normal operating position. Turn the panel on and allow it to heat up. The Cool-stick fans will turn on when the temperature sensors reach about 90 degrees (F). Let the panel run until the temperature of the exhaust stream again reaches its highest temperature.

If the exhaust temperature hasn't increased by more than a few degrees over the original reading, the panel is being properly ventilated. It's possible that the temperature may even decrease slightly, indicating that the extra ventilation is causing somewhat higher airflow through the panel than normal. If the temperature is more than a few degrees higher than the "free air" reading, check that the fans are running. If they're not, check that the thermal probes are in good contact with the panel.

## **Adjusting the ATM Celsius-reading thermal control module –**

Snap the pc board out of its housing to expose the small module with a Celsius-reading display. The thermal sensor and power supply must be connected to the pc board, but the fans can be disconnected.

To see the temperature at which the fans will **Start**, press the **SET** button momentarily. To change this temperature, press the + or – buttons. After setting the new temperature, either press **SET** again, or wait a few seconds for the display to stop flashing. (The factory setting is 29 to 31 degrees for most ATM products using this module, approximately 85-87 degrees Fahrenheit.)

The only other parameter you might want to change is the differential – the difference in degrees (C) between the fans starting temperature and the stopping temperature. (The factory setting is typically 2 Celsius degrees, about 4 Fahrenheit degrees.)

To change the differential, press & hold **SET** until the digits stop flashing and “P0” is displayed. Press + once and the display will show P1. Press **SET** again and the present differential will display. Press + or – to set the desired differential, then wait a few seconds for the display to return to its normal mode.

If you accidentally change any other parameters, here are the factory settings:

P0=C (for “cooling”)

P2=110

P3=-50

P4=0

P5=0

P6=OFF

**For your convenience, here are some commonly-used Fahrenheit temperatures and their Celsius equivalents, rounded to the nearest whole degree:**

75F = 24C

80F = 27C

85F = 29C

90F = 32C

95F = 35C

100F = 38C

\*Pressing the ▲ or ▼ buttons again will cycle the display through the following codes: P1, P2, P3, P4, P5, P6, and back to P0. Many of these codes refer to parameters used in heating and refrigeration systems, not in cooling systems. Should any be adjusted accidentally, restore them to their factory settings:

P0 - C (for “cooling”)

P1 - Desired differential, set as described above

P2 - 110

P3 - -50

P4 - 0

P5 - 0

P6 - Off