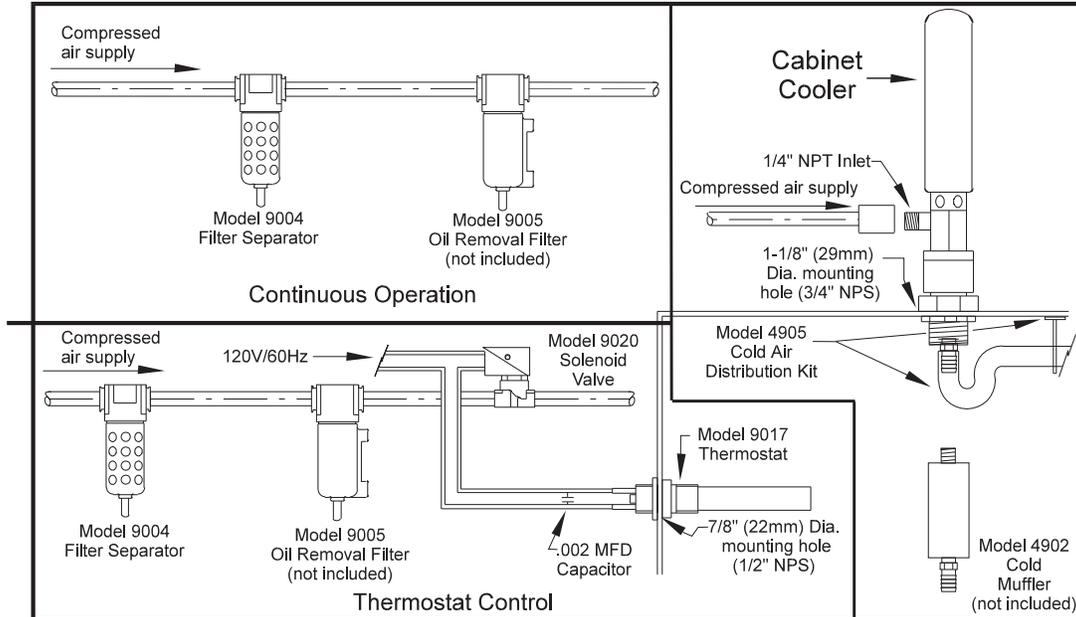




CABINET COOLER[®] INSTALLATION & MAINTENANCE
 Models: 4010 through 4040, 4210 through 4280, 4310 through 4380



COMPRESSED AIR LINE SIZES

Compressed air lines should be sized to hold pressure drops to a minimum. When installing supply lines, use 1/4" pipe for runs up to 10' (3m). Use 3/8" pipe for runs up to 50' (15.2m), and 1/2" pipe for runs over 50' (15.2m). If Cabinet Cooler is being used in a dual Cabinet Cooler application, please see Installation and Maintenance Sheet LIT 4015 for additional instructions. If using compressed air hose, consider 3/8" I.D. hose to be the same as 1/4" pipe and 1/2" I.D. hose to be the same as 3/8" pipe. Do not use restrictive fittings such as quick connects. They can "starve" the Cabinet Cooler by causing excessive line pressure drop.

COMPRESSED AIR SUPPLY

With proper filtration and separation of dirt, moisture and oil from the compressed air supply, the Cabinet Cooler will run for years with no maintenance required. Filtering for contaminants and separation of moisture is required for all Cabinet Coolers.

All Cabinet Cooler Systems include a Model 9004 Automatic Drain Filter Separator which provides 5 micron filtration. The automatic drain is float actuated to eliminate the possibility of passing water into the enclosure, even during continuous operation. **(Impulse-type automatic drains must not be used. They may allow water to pass through the filter during continuous operation.)**

To prevent problems associated with oil, use an oil removal filter (Model 9005 Oil Removal Filter not included). The oil removal filter should be used downstream from the automatic drain filter separator. Filters should be used close to each Cabinet Cooler, within 10 to 15' (3 to 4.6m) is best.

Cabinet Coolers are designed to use normal shop air supplies of 80 to 100 PSIG (5.5 to 6.9 BAR). Thermostat control can minimize compressed air usage and should be used whenever possible.

USING THE CABINET COOLER

For Use On A Flat Surface Of A NEMA Type 12 Enclosure.

The Cabinet Cooler mounts to the enclosure through a 1-1/8" (29mm) diameter hole. A nut is supplied to lock it in place. The cooler is not position sensitive.

USING THE CABINET COOLER (con't)

The Cabinet Cooler will provide a 50°F (28°C) temperature drop from supply air temperature at 100 PSIG (6.9 BAR). An elevated inlet temperature will produce a corresponding rise in cold air temperature and reduction in cooling capacity.

COLD AIR DISTRIBUTION KIT

The Model 4904 Cold Air Distribution Kit includes 8' (2.4m) of flexible (1/2" I.D.) vinyl tubing, (8) adhesive backed clips to hold the tubing in place, (1) elbow and (1) end plug. The tubing is used to direct the cold air for circulation or to hot spots, as needed. Holes may be drilled or cut ("V" shaped) in the tubing. If the end is plugged, use at least (6) 1/8" (3.2mm) diameter holes in tube to eliminate excessive back pressure on the Cabinet Cooler.

HUMIDITY

If ambient air can circulate through the enclosure, humidity from this air may condense on the tubing used to distribute the cold air. Any moisture in an electrical enclosure is dangerous. To prevent this potential problem, close off any vents or fan intakes that allow ambient air into the enclosure. Fans can be relocated inside the cabinet to help circulate the cold air.

THERMOSTAT

Some Cabinet Cooler Systems are equipped with thermostat control. The Model 9017 Thermostat mounts in a 7/8" (22mm) diameter hole. It is not position sensitive and should be mounted in a hot area of the enclosure. It may be mounted through the enclosure wall or on a bracket inside the enclosure.

The electrical requirement is 120V/60Hz, 100V/50Hz or 240V, 50/60Hz, and should be connected to the hot line supplying the solenoid valve. It is normally open, actuated closed, when the temperature rises. The thermostat is preset at 95°F (35°C). It will normally hold that setting within + or - 2°F (1°C) inside the cabinet.

To change the temperature setting:

Use a cup, thermometer and meter to check continuity. Using the cup, mix hot and cold water until the thermometer shows the desired temperature for the enclosure. Insert the plain end (not the threaded end) of the thermostat into the water and check continuity across the leads. Adjust screw until switching occurs (slight turn of the adjusting screw). The thermostat will be set to actuate at the temperature of the water.

If the temperature at the mounting location of the thermostat changes very slowly, the solenoid valve may chatter. This can be corrected by changing the thermostat location or by adding the Model 4519 .002 Microfarad Capacitor across the leads (included).

SOLENOID VALVE

Systems with thermostat control include a Model 9020 or 9021 Solenoid Valve. Mount the solenoid valve on the compressed air line between the filter and the Cabinet Cooler. The solenoid valve requires 120V/60Hz, 100V/50Hz or 240V, 50/60Hz supply. The valve is normally closed, actuated open. In most cases, it is controlled by the thermostat. It can also be actuated by the machine control.

TROUBLESHOOTING & MAINTENANCE

If The Cabinet Cooler Is Not Producing Cold Air, check the pressure by installing a gauge at the compressed air inlet of the cooler. Large pressure drops are possible due to undersized lines, restrictive fittings and clogged filter elements.

For replacement or repair filter and regulator parts, contact EXAIR at 1-800-903-9247 or techhelp@exair.com. Call (513) 671-3322 for outside the US and Canada.

NOISE MUFFLING

All Cabinet Cooler Systems are equipped with sound muffling. In most applications, the noise level is less than 75 dBA. A muffler can be easily retrofitted to the cold air discharge (Model 4902 Cold Muffler not included).

If you have any questions or problems, please contact an EXAIR Application Engineer at:

Toll Free: 1-800-903-9247 (U.S. & Canada)
 Telephone: 513 671-3322 outside of U.S. & Canada
 Toll Free Fax: 866-329-3924 (U.S. & Canada)
 FAX: 513 671-3363 outside of U.S. & Canada
 E-mail: techhelp@exair.com
 Website: www.exair.com

For more information about this product, visit
 "Frequently Asked Questions" at www.exair.com
FAQ at www.EXAIR.com

ETC – ELECTRONIC TEMPERATURE CONTROL INSTALLATION & MAINTENANCE

	<p>Power Supply Voltage: 120 VAC (Model 9238 & 9258) 240 VAC (Model 9239 & 9259) Frequency: 50/60 HZ Power Supply Current: Model 9238 250 mA max Model 9239 165 mA max Model 9258 325 mA max Model 9259 215 mA max Sensor: Type J Thermocouple Control Range: 70 - 130°F Accuracy: ± 1°F of the temperature setting Enclosure rating: NEMA 4X, IP 65, UL508 UL94-5V Polycarbonate Temperature Sampling Rate: 1 Reading/second Max. Temp.: 158°F (70°C) Replacement Fuse: Model 9238 & 9258 Buss AEC 5A 120V Fast Acting Model 9239 & 9259 Buss AEC 5A 250V Fast Acting Replacement Fuse Size: Ø 1/4" x 1-1/4" (Ø 6.3mmx32mm)</p> <p>THE ETC SHOULD NOT BE USED IN AN EXPLOSIVE OR FLAMMABLE AREA.</p>
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EXAIR’s ETC (Electronic Temperature Control) provides precise temperature control of the EXAIR Cabinet Cooler System. The LED display is easily viewed from a distance and constantly monitors the internal temperature of the electrical enclosure. The ETC system is designed to meet and comply with NEMA 4, 4X, 12 and IP65 ratings. Temperature can be changed quickly with the touch of a button. The ETC offers the reliability of a solid state temperature controller and uses a quick response Type J thermocouple for temperature measurement.

ALWAYS DISCONNECT THE POWER PRIOR TO REMOVING THE COVER.



- Solenoid surface can become hot after prolonged use. Allow to cool completely before touching.

INSTALLATION

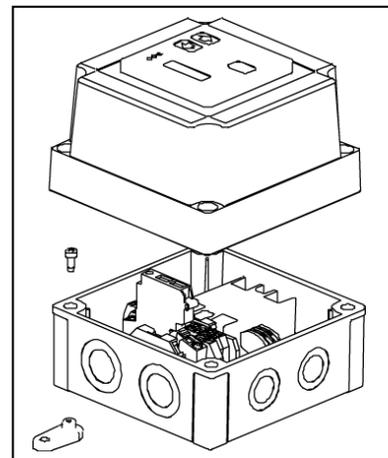
Please refer to the Cabinet Cooler Installation and Maintenance Sheet that is enclosed with the Cabinet Cooler®. The ETC has been pre-wired for fast installation. It is easily substituted for EXAIR’s standard valve and thermostat kit (as shown on the Cabinet Cooler Installation and Maintenance sheet).

Pre-Installation requirements to maintain CE compliance

- Since the ETC is permanently wired, an external switch or circuit breaker must be added during installation as a disconnection device.
- The switch or circuit breaker shall meet the relevant requirements of IEC 60947-1 and IEC 60947-3 and disconnect all current carrying conductors and shall not interrupt the Protective Earth (Ground) Conductor.
- For all supply wiring, circuit breakers and switches, a minimum 15A load carrying capacity is required, in addition to meeting all local electric codes.
- Switch and circuit breaker must be labeled with “I” symbol for On and “O” for Off.
- Since the ETC is permanently wired, grounding per local codes must be maintained.

Since the ETC is intended to be permanently wired, do not position equipment in a space where it is difficult to operate the power disconnect (external switch or circuit breaker). Power disconnect should be near the equipment and within reach of the operator of the ETC unit.

1. Connect the compressed air supply to the solenoid valve, paying attention to flow direction arrow on brass valve body (in and out). The solenoid valve should be located downstream from the filter(s) and before the Cabinet Cooler. For ease of connecting the compressed air pipe to the solenoid valve, the electrical coil can be detached from the valve body by removing the metal clip with a flat blade screwdriver.
2. Locate the desired position for the ETC plastic enclosure. The ETC is lightweight, and is easy to mount. The ETC comes with (4) mounting feet and (4) self tapping screws. To mount the feet to the box, remove the cover and drop one of the self tapping screws into one of the (4) holes on the base of the box where the cover was mounted. Place one of the mounting feet into the corresponding hole on the bottom of the base and tighten the screw. Repeat for other (3) holes. Replace the cover and tighten the screws holding the cover to the base. See Figure at right. The ETC can now be mounted using the 4 holes in the mounting feet. Use #10 or M5 screws.
3. Drill a 1/2" (13mm) diameter hole through your electrical enclosure to locate the electrical supply for the ETC.
4. Remove hex nut from the ETC liquid tight conduit connector.
5. Thread the (3) wires and the thermocouple through the drilled hole. The foam sealing washer should be placed on the outside of your electrical enclosure between the liquid tight conduit connector and the metal enclosure. Tighten the retaining nut from the inside of the enclosure to ensure a tight seal at the foam washer.
6. For 120 VAC, make the following connections:
Black – Hot
White – Neutral
Green/Yellow – Ground



For 240 VAC, make the following connections:
Orange – Hot
Orange – Hot
Green/Yellow – Ground

7. Position the thermocouple inside the enclosure where desired. It is not sensitive to mounting position. The thermocouple must be mounted inside the enclosure. It should not be mounted directly in the cold airstream that exhausts from the Cold Air Distribution Kit. Do not kink the wires. Ordinary tape can be used to hold the thermocouple in position.

Note: Protection provided by the equipment may be impaired if the equipment is used with accessories not provided or recommended by the manufacturer, or is used in a manner not specified by the manufacturer. Please contact EXAIR for specific recommendations.

CALIBRATION OFFSET

Occasionally, some users might use the ETC in a panel that has other temperature sensing equipment installed. If the temperature displayed on the ETC does not match the existing equipment, it can be offset to match. To do this, press and hold both arrow keys for (5) seconds. The display will show “CAL” for (5) seconds and then the Calibration Offset value. Use the arrow keys to adjust the value as needed ($\pm 30^\circ$ max).

UNITS

To change the units on the ETC, press and hold both arrow keys for (10) seconds. The display will show “F C” for 2 seconds, and then just the unit that the ETC is set to. Use the arrow keys to toggle to the desired unit of measurement. The new value will take effect (3) seconds after the last key stroke. The display will blink, then return to the primary display after (5) seconds.

SETTING THE THERMOSTAT

Setting for the correct temperature is important. It is best to choose a temperature that keeps the electronics in the electrical enclosure functioning without setting the temperature so low that it simply wastes compressed air. For

SETTING THE THERMOSTAT (Continued)

most applications, a setting of 90 to 95°F (32 to 35°C) is sufficient. Most electronic components are normally rated at 104°F (40°C). Some newer electronics can withstand more heat and have a maximum temperature rating of 122°F (50°C). For these applications, a temperature setting of 104 to 111°F (40 to 44°C) is adequate. For best results, check the manual on the piece of equipment for the maximum temperature rating. To change the set point, push and hold the “Push to Set” button. Use the arrows to change the temperature accordingly. Release the “Push to Set” button when you are done.

Note that the temperature you choose is the temperature the Cabinet Cooler will cool the enclosure down to. The ETC has a built in hysteresis of about 4 degrees. For example, each ETC is pre-set to 93°F, so once the enclosure cools down to 93°F and the Cabinet Cooler shuts off, the ETC will allow the temperature to rise by 4 degrees to 97°F before turning the Cabinet Cooler back on. This will maintain an effective average of 95°F. If your desired maximum temperature is 95°F, then the ETC will need to be set to 91°F, etc.

Maintenance, Inspection and Cleaning

Periodically inspect the ETC unit, wiring and parts for damage. If any damage is observed, disconnect the power and contact EXAIR for repair or replacement parts.

Periodically clean the ETC with a soft cloth & mild detergent.

EQUIPMENT ENVIRONMENTAL RATINGS

Installation Category II (Transient Over-voltage)
 Pollution Degree 2 (Temporary conductivity caused by condensation)
 Altitude limit: 6,562 feet (2,000m)
 ETC unit is intended for indoor & outdoor use
 Humidity: 80% RH non-condensing
 Mains supply voltage fluctuations
 (±10% of nominal voltage)

Symbol	Publication	Description
	IEC 60417-5019	Protective Conductor Terminal (Safety Ground)
	IEC 60417-5007	On (Supply)
	IEC 60417-5008	Off (Supply)
	IEC 60417-5041	Caution, hot surface
	ISO 7000-0434	Caution, risk of danger

WARRANTY

There is a one year warranty against defects in workmanship and materials. Defective products must be returned freight prepaid for repair or replacement at our option. This warranty applies under conditions of normal use, but does not apply to defects that result from intentional damage, negligence or unreasonable use or exposure. The ETC has no user serviceable parts inside. Warranty is void if there is evidence of tampering.

If you have any questions or problems, please contact an EXAIR Application Engineer at:

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 Toll Free Fax: 866-329-3924 (U.S. & Canada)
 FAX: 513 671-3363 outside of U.S. & Canada
 E-mail: techhelp@exair.com
 Website: www.exair.com

For more information about this product, visit
 "Frequently Asked Questions" at www.exair.com
FAQ at www.EXAIR.com