MTC-3C installation guide

The Modulating Temperature Control (MTC-3C) allows you to automatically control ventilation fans according to the ambient temperature.

When the temperature is at or below the temperature set point, the MTC-3C operates the fans at the idle speed setting. When the temperature exceeds the temperature set point, the MTC-3C increases the speed. When the temperature increases 6°F above the temperature set point, the MTC-3C increases the speed to maximum.

Features

- One variable speed output
- Adjustable 40-90°F temperature set point
- 6°F temperature differential
- Automatic and manual modes
- Adjustable idle speed for automatic mode
- One-foot temperature probe, extendable to 500 feet
- Overload protection fuse
- Rugged enclosure (corrosion resistant, water resistant, and fire retardant)
- CSA approval
- Two-year limited warranty

Electrical ratings

- 120/230 VAC, 60 Hz
- 10 A at 120/230 VAC, general-purpose (resistive)
  - 8.5 A model also available
- 7 FLA at 120/230 VAC, PSC motor
- 1/2 HP at 120 VAC, 1 HP at 230 VAC, PSC motor
- Fuse: 15 A, 250 VAC ABC-type ceramic

The MTC-3C is designed for high current and is too strong for small motors. The MTC-3C might not operate properly when running fan motors with a very inductive power factor and that draw less than 0.5 A. To test for this problem, connect the control to the motor and adjust the control from minimum to maximum. If the motor jerks or locks during any part of the range of operation, the current draw is too low.

Adding more motors in parallel to increase the current draw, or wiring and using the motor for 120 V operation can solve the problem. If this is not a viable solution, an 8.5 A version (MTC-3C-8.5) is available from your dealer.

Installing the MTC-3C

The MTC-3C must be installed by a qualified electrician.

Before installing or servicing the MTC-3C, switch OFF the power supply at the source.

Install the MTC-3C and all equipment connected to it according to local electrical codes.

Mount the unit on a sheltered, vertical surface, with the electrical knockouts facing down.

Use a screwdriver to tighten the screws in the enclosure. Do not use a drill or over tighten the screws; this can crack the enclosure and ruin the watertight seal.

Use the electrical knockouts for bringing wires or cables into or out of the enclosure. Use watertight strain reliefs or conduit connectors at all cable-entry points.

Before removing electrical knockouts, remove the cover to prevent damaging the control. Do not make additional holes in the enclosure; this can damage the watertight seal or components and void the warranty.

Only permanent split capacitor motors appropriate for variable speed control, or shaded pole motors, can be used on the variable stage.

120 VAC

1. Connect the white wire to both the neutral side of the line and the common lead going to the motor.
2. Connect the blue wire to the other side of the motor.
3. Connect the black wire to the line side of the power line coming into the control.
4. Ensure the red wire has a marrette or similar connector installed to insulate any bare wire.

230 VAC

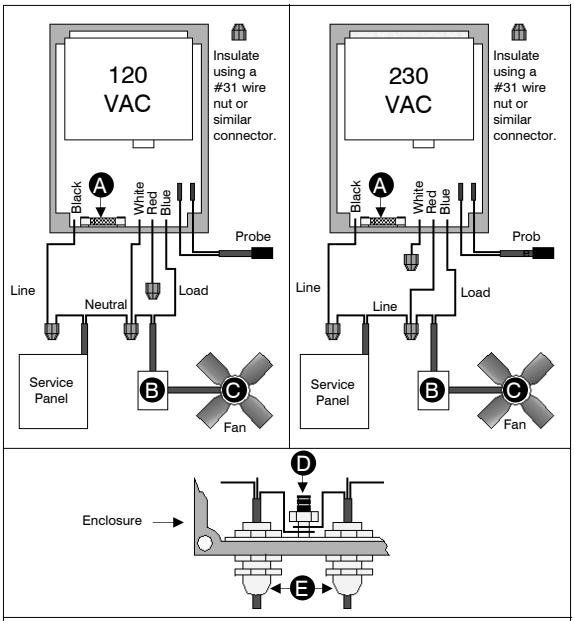
1. Connect the red wire to one side of the line and the common lead going to the motor.
2. Connect the blue wire to the other wire from the motor.
3. Connect the black wire to the line side of the power line coming into the control.
4. Ensure the white wire has a wire nut or similar connector installed to insulate any bare wire.

Temperature probe

Follow the guidelines below and connect the temperature probe as shown in the diagram.

- Do not run the probe cable in the same conduit as AC power cables
- Do not run the sensor cable beside AC power cables or near electrical equipment.
- When crossing other cables or power lines, cross them at a 90 degree angle.

You can extend probe cables up to 500 feet. For more information, contact your dealer or Phason.



A	Fuse: 15 A, 250 VAC ABC-type ceramic
B	**Important:** A suitable switch must be installed between the control and the motor. **Important:** Il est essentiel ou'un interrupteur convenable soit installé entre le contrôle et le moteur.
C	**Caution:** For controlling shaded-pole, permanent-split-capacitor, or universal motors only. **Caution:** Destiné uniouement à bague de déphasage ou à condensateur permanent.
D	Connect all ground wires to the grounding terminal located near the cable entry points.
E	Use liquid-tight connectors at the cable entry points and seal with an RTV silicone.

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Automatic mode

1. Turn the **Temp Set** knob completely clockwise.
2. Turn the **Idle Set** knob to the minimum speed desired.
3. Turn the **Temp Set** knob to the desired temperature.

Manual mode

1. Turn the **Temp Set** knob completely clockwise.
2. Turn the **Idle Set** knob to the desired idle speed.

Maintaining the MTC-3C

Proper care and maintenance will help your MTC-3C last longer. To prevent damage to the control, perform the following steps after the first two weeks of operation, and once a year after that.

1. Switch off the power to the control.
2. Remove the cover and check inside for moisture. If there is any moisture, wipe it away using a dry cloth.
3. Check all cable entry points to make sure they are properly sealed. If they are not properly sealed, apply silicone sealant around the entry points.

If you need to seal the enclosure, use a sealant that is labelled as 'non-corrosive', 'electronics grade', or 'neutral cure', such as GE Silicone RTV6780B, RTV 142, or RTV 162.

Do not use a sealant that is labelled as 'acetic acid cure' or 'acetoxy cure'. These sealants release acetic acid while curing, which can damage the control and will void the warranty.

4. Check all wires to make sure they are properly connected and that they are in good condition.
5. Fasten the cover to the enclosure and then switch on the power to the control.

Cleaning the MTC-3C

To clean the MTC-3C, wipe the surface with a damp cloth.

Be careful when washing the room using a high-pressure washer. DO NOT spray the control using a high-pressure washer, this can damage the control and will void the warranty.

Evidence of moisture damage inside the control will void the warranty.

Troubleshooting

If this guide fails to resolve your problem, contact your dealer.

The fan motor will not run

- Reset the thermal cutout on the fan motor and allow the motor to cool.
- Check the wiring.
- Use a test light or voltmeter to test the power at the control.
- Replace the fuse. If the fuse blows immediately, a problem exists with the wiring or the fan motor. If the fuse blows after a delay (minutes, days, or weeks), the load is exceeding the current rating of the control.

The fan motor growls

- To ensure the motor is working: disconnect the black wire from the LINE, disconnect the blue wire from the motor, and connect the LINE directly to the motor.
- Use a short probe (stock probe length) on the MTC-3C to ensure excessive electrical noise is not being induced onto the probe.

The Temp Set knob will not control the fan speed

- Replace the temperature probe if the motor runs at idle or full speed regardless of the temperature setting.

Limited warranty

This warranty applies only to the Phason Inc. (Phason) Modulating Temperature Control (MTC-3C). If you need warranty service, return the product and original proof of purchase to your dealer.

Phason warrants the MTC-3C subject to the following terms and conditions.

This warranty is valid only to the original purchaser of the product, for two years from the manufacturing date. The manufacturing date is stated in the first eight digits of the serial number in the form year-month-day.

Phason hereby warrants that should this product fail because of improper workmanship, Phason will repair the unit, effecting all necessary parts replacements without charge for either parts or labor.

Conditions

- Installation must be done according to Phason's enclosed installation instructions.
- The product must not have been previously altered, modified, or repaired by anyone other than Phason.
- The product must not have been involved in an accident, misused, abused, or operated or installed contrary to the instructions in our user and/or installation manuals. Phason's opinion about these items is final.
- The person requesting warranty service must be the original purchaser of the unit, and provide proof of purchase upon request.
- All transportation charges for products submitted for warranty must be paid by the purchaser.

Except to the extent prohibited by applicable law, no other warranties, whether expressed or implied, including warranties of merchantability and fitness for a particular purpose, shall apply to this product. Any implied warranties are excluded.

Phason is not liable for consequential damages caused by this product.

Phason does not assume or authorize any representatives, or other people, to assume any obligations or liabilities, other than those specifically stated in this warranty.

Phason reserves the right to improve or alter the MTC-3C without notice.

Phason controls are designed and manufactured to provide reliable performance, but they are not guaranteed to be 100 percent free of defects. Even reliable products can experience occasional failures and the user should recognize this possibility.

If Phason products are used in a life-support ventilation system where failure could result in loss or injury, the user should provide adequate back up ventilation, supplementary natural ventilation, or an independent failure-alarm system. The user's lack of such precautions acknowledges their willingness to accept the risk of such loss or injury.

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