

## 403M • Series 44 Remote Panel with S/O/W ON/OFF Heating System

### Description of Temperature Control

- 403M-Maxitrol Series 44 Electronic Modulating Space Temperature Control Unit Cycling/Temperature Control Relay, Summer/Off/Winter
- Discharge Sensor Mounted in Blower
- Discharge Min. 40°F to 80°F/Max. 80°F to 140°F Discharge Set Point
- Room Cycling Thermostat Mounted on Remote Panel

### Applications

Where tempered make-up air is required to heat a building.

### Heater Type

100% Outside Air Single Speed or Variable Air Volume (VAV) Industrial Unit

### Sequence of Operations

With the disconnect in the ON position and the SUMMER/OFF/WINTER switch (SW-02) in WINTER position, the unit is energized by the room thermostat (TS-02) or a signal from the CO interlock (CO-09) and power is supplied to the damper motor (MT-02), if equipped.

When the damper motor approaches the OPEN position (approximately 70%), the damper-end switch (SW-07) closes energizing the blower motor starter contactor (ST-01) and powering the blower motor (MT-01). The blower motor can also be energized from the service switch (SW-05). After the blower is energized the “Blower On” light (LI-01) will illuminate on the remote panel.

*If the unit is equipped with the low-temperature limit control (TS-07), after ten minutes, the low-temperature limit control shuts down the unit if the discharge temperature does not reach the minimum set-point on the low-temperature limit control. Upon shutdown TS-07 will energize the “Low Temperature” light on the remote panel (LI-03) and the damper will close.*

*If the unit is equipped with a smoke detector (AL-02), the smoke detector will shut down the unit if smoke is detected.*

*If an exhaust fan starter coil is tied into the exhaust fan interlock (C1-01), the exhaust fan will turn on.*

*If the unit is equipped with a firestat (TS-22), the unit will shut down if the temperature exceeds the control’s setting.*

*If the unit is equipped with a clogged filter switch (PS-02), the pressure drop across the filters will be monitored. If the pressure drop exceeds the set-point, PS-02 will illuminate the “Clogged Filter” light on the remote panel (LI-05).*

When the low airflow switch (PS-01) is proven, the high temperature limit control (TS-04) is energized. The high temperature limit control will monitor the air temperature and shut down the burner if the temperature set point is exceeded. The high temperature limit will require a manual reset.

*If equipped, the optional low and high gas pressure switches (PS-03 & PS-04) will be energized. If the gas pressure is not between the set-points the burner will turn off and require a manual reset.*

(Note: when the remote panel is in SUMMER position the burner is locked out)

The flame relay (RE-07) is energized when the burner ON/OFF intake air stat (TS-06) calls for heat. The pilot valve (VA-03) opens, and the ignition transformer (TR-03) energizes, providing a signal to spark the spark rod.

After the flame rod (SN-02) proves flame, the main valves (VA-01 & VA-02) open, and the ignition transformer de-energizes. The burner can also be energized from the service switch (SW-06). After the main gas valves open the “Burner On” light (LI-02) will illuminate on the remote panel. If the flame rod does not prove after 3 ignition cycles, the burner will shut off and the “Flame Failure Light” (LI-04) will illuminate on the remote panel. The pilot valve (VA-03) stays energized.

*If the unit is equipped with dual flame rods (SN-03), timer (T1-11) is energized. After the timer’s set point is exceeded, the flame sensing is switched from SN-02 to SN-03 (SN-03 is located at the opposite end of the burner) for continual flame monitoring during unit operation.*

On a call for heat from the room thermostat (TS-03) the discharge air is at the high fire discharge setting. On a high fire call, the amplifier (AM-01) will send a high fire discharge signal to the gas valve (VA-05). The unit will stay in high fire until the room thermostat is satisfied and the unit will shut down. On a call from a CO sensor, the unit will go into low fire and send a low fire signal to the gas valve until the CO sensor is satisfied at which time the unit will shut off. The discharge air sensor (TS-01) monitors the air and keeps the discharge air temperature at 60 °F or 120 °F.

