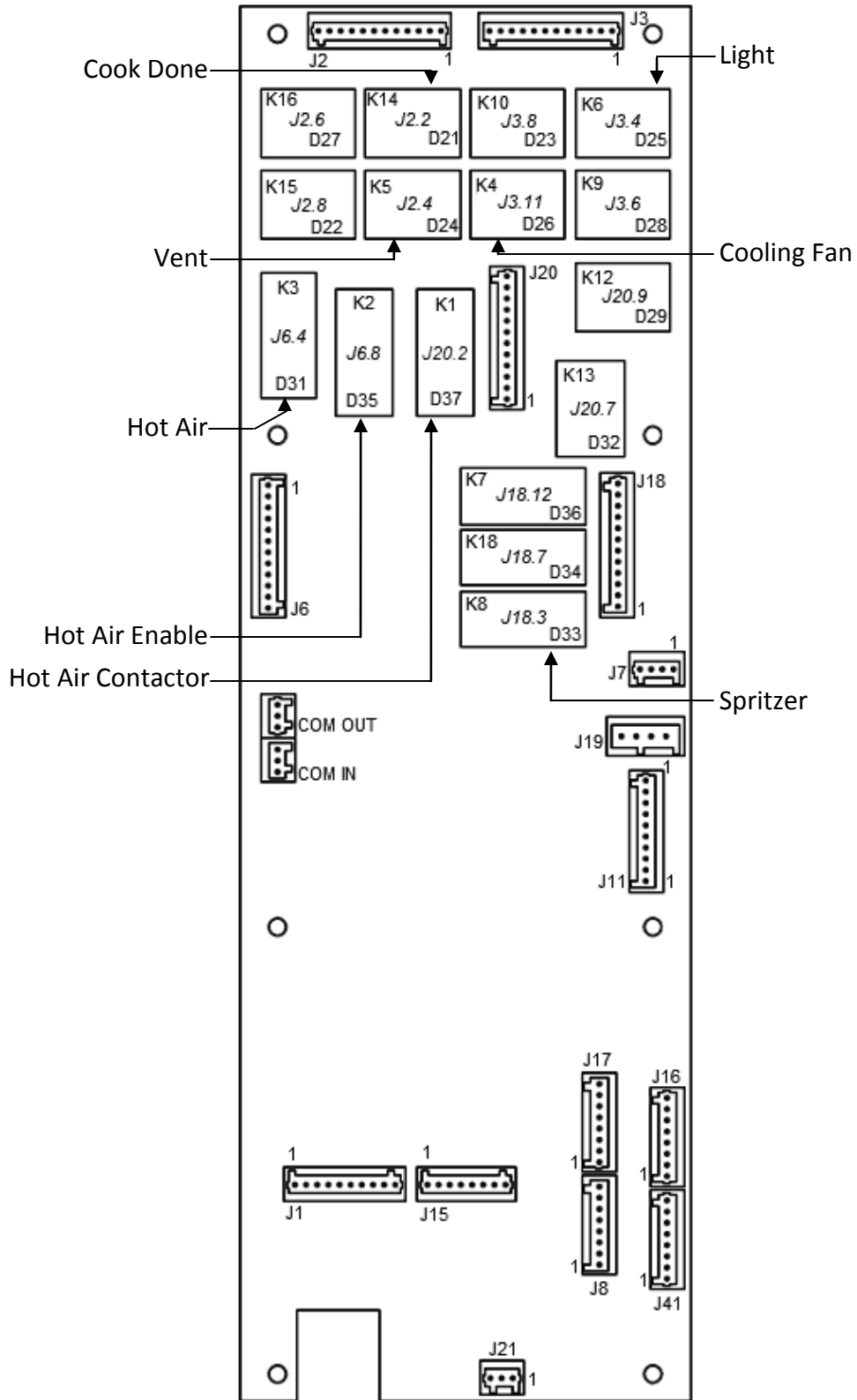


HV100E Sequence of Operation



Preheat: When the Control is first turned on, it begins to preheat the oven to 350°F by enabling the following relays. The activated relays are associated with red LEDs which will turn on when the control sends a call to the relay. Relays are designated with a K, LEDs are designated with a D, and Junctions are labeled with a J. In preheat the following LEDs will be lit:

1. D25 LED will come on as the **Light** relay, K6, is closed. The cavity lights will remain on until the Light button is pressed to turn them off. Check for 24 VDC output at J3.4, which feeds the cavity lights on the red wire.

2. D31 LED will be lit as the Hot Air (Power On) relay is enabled on this unit. The Hot Air relay is active whenever the red light is on at the Power Button. Check for 24 VDC output from K3 at J6.4 on the orange wire, which jumps to the common for the K2 relay at J6.7. The K2 relay waits for input from the Fan@Speed or Drive@Set Speed Relay, which is 24 VDC return at the grey wire in J11.4.

3. D35 LED shows the Hot Air Enable relay is activated when the Fan@Speed Relay is closed at the Inverter sending 24 VDC return in at J11.4; this signal closes K2. Check for 24 VDC output at J6.8 on the blue wire, which jumps to J20.1. J20.1 is the common to the K1 relay.

4. D37 LED is lit as the Hot Air Contactor relay is enabled when there is a **Call for heat**. A call for heat is generated when the cavity probe(or core probe when not in preheat) reads resistance/temperature below the current set point, which is 350°F during preheat. Check for 24 VDC at J20.2, which is the K1 relay output that feeds the contactor coil on the orange wire.

5. **Also in preheat**, the control will call for Fan High Speed Forward by sending 23 VDC return on J2.10 and J2.11, and 0 VDC on J2.9 and J2.12. Note: outside the ready band, which is -10 to +25°F, in relationship to the set point, the control automatically switches to high fan speed and can be used only in high fan speed or turbo fan speed. Once in ready band, all speeds are available.

After preheat: Once the unit is preheated, the control can be operated in Manual Mode or in one of the **100 programs**. Each program can have up to 6 steps and a hold. In each step the user can program

Core Probe (Yes/No), Cook Time, Mode (Steam/Combi/Reth/Hot A), Set Temp, Fan Speed (Gentle/Low/High/Turbo), Fan Reverse (Manual/Auto), Fan Reverse Time, and Vent Setting (Close/Open).

1. If Core Probe is “Yes”, the unit will look for the resistance at the probe port on the front on the control. If Fan reverse is set to Auto, the control will automatically reverse the fan every 2 minutes while a time counting down. If it is set to manual, the reverse time can be set. Also the Cook Time, Cook Mode, Set Temp, Fan Speed, as well as Vent position, can be programmed for each step. When the **Vent** is opened, D24 LED lights and 24 VDC is sent by K5 on the grey wire at J2.4; no voltage is present when the vent is closed.

2. If operating in **Manual Mode**, you can manually modify the Fan Speed, the Vent Position, Core or Cavity Probe, Time and Temp, Steam on Demand (not functional in steam mode) and the Cook Modes: Hot Air, Combi, Steam, and Retherm.

3. **Hot Air** uses the “call for heat” sequence mentioned above.

4. **Combi** uses the same call for heat and the Water Spritzer is cycled at 33% for the default setting, or 20 seconds on 40 Seconds off. The cycle rate can be adjusted from 0 to 100%. When the **Water Spritzer** is called for, D33 is lit, and K8 sends out 24 VDC on the Violet wire at J18.3.

5. **Steam** uses the same call for heat and the Spritzer is cycled at 100%. In steam the lowest temperature setting is 85°F and the maximum temperature in the steam mode is 225°F. Steam on demand is not available in Steam mode because the control is cycling the Spritzer at 100% already.

6. **Retherm** uses the Water Spritzer at a 25% duty cycle, or 15 seconds on 45 Seconds off, and the call for heat is set at 250°F as the default temperature. The Water Spritzer cycle rate can be adjusted from 10 to 90% and the Temperature can be set to 250 - 300°F.

7. When the **Control calls for the fan** to go Forward, J2.11 will have 23 VDC return and J2.12 will have 0 VDC. That condition will invert when the fan call is for Reverse; J2.12 will have 23 VDC return and J2.11 will have 0 VDC. The speeds are set by J2.9 and J2.10. 0 VDC on both is Gentle Speed, J2.9 with 23 VDC return and J2.10 with 0 VDC is Low Speed, J2.9 with 0 VDC and J2.10 with 23 VDC return is High Speed, and 23 VDC return on J2.9 and J2.10 is Turbo Speed.

8. The **Cooling Fan** is controlled by the probe located under the Inverter heat sink; it is cycled on at 100°F. When the Cooling Fan is called for, K4 Relay sends 24 VDC out at J3.11 on a grey wire, and the call is indicated by LED D26. The Cooling Fan is also activated at any time the timer is counting down.

9. **Cook Done** is not used. Therefore no wire is located at J2.2, where K14 sends 24 VDC when D21 is lit. However, Cook Done is activated when the Timer goes off on the control.

10. The **Quench** Solenoid is triggered, when enabled in the control programming, when the Quench probe reads above 150F, and the quench valve is turned off when the actual temperature is less than 135F during normal operation.