



ULTRA-TALK 3000

Communicating Zone Control System U.S. Patent No. 9,253,260

Start-up and Commission Guide for the UT3000 Zone Controller Code version 1.87

Applies to Daikin FIT & Amana "S" Inverter HVAC systems
(Supersedes all previous document versions)

Installing a zoned communicating HVAC system can be challenging and commissioning the HVAC network is of primary importance. So EWC offers this Start-up guide to save you time and labor cost.

Note: EWC highly recommends installing Daikin ONE+ thermostats in all zones!

However, as you will see, this start-up guide advises you to wait until the last step, to actually mount the thermostats to their respective (sub-base) wall plates. ***The initial Equipment Test and the Charging Mode shall be performed via the UT3000!***

INSTALLATION:

1. Install the communicating Indoor & Outdoor components, following the specific model IOM guide from the manufacturer.
 - 1a. This includes all required mechanical aspects such as: structural support, properly sized (or upgraded) duct work, a condensate removal system, and a flue/vent piping system if applicable.
2. Complete the refrigerant line set connections per industry standards, including a liquid line filter drier and a suitable oil trap, as applicable. Connect manifold gauges and evacuate the refrigerant line set and evaporator coil.
3. When all non-condensables have been removed and the refrigerant line set/coil proves to be leak free, insulate the vapor line and open the service valves per the manufacturer's IOM instructions. **NOTE:** OEM requires outdoor unit be energized for 2 hours prior to start-up!
4. Install the UT3000 zone controller, zone dampers, and zone thermostats following the UT3000 Technical Bulletin guidance.
 - 4a. **DO NOT MOUNT THE ZONE THERMOSTATS TO THE WALL PLATES YET!**
5. Route and connect all necessary electrical wiring (line voltage, control voltage, and data) for the communicating Indoor and Outdoor units, as well as the EWC zone control. This includes control wiring from the UT3000 to each thermostat wall plate.
 - 5a. **DO NOT MOUNT THE ZONE THERMOSTATS TO THE WALL PLATES YET!**
6. Energize (power up) all components. **NOTE:** OEM requires outdoor unit be energized for 2 hours prior to start-up!
7. After energizing all components, wait approximately 5 - 7 minutes for the HVAC network to configure.
 - 7a. **The "system" network should configure automatically! If so, skip down to Step 10.**
 - 7b. If the air handler or EEV circuit board shows error code "E77", the network has not configured and is unstable.
 - 7c. If the UT3000 displays "OAS BAD" instead of a valid OA temperature, the network has not configured and is unstable.
8. **Troubleshoot and Stabilize the network:**
 - 8a. 24vac must be available at each communicating terminal block (UT3000, EEV, FAU, AHU) except outdoor Inverters.
 - 8b. Measure the BIAS (vdc) from 24v "C" or "chassis ground" to "terminals 1 and 2" on each terminal block:
 - 8b1. If both readings are the same (ie 2.3 vdc and 2.3 vdc), the data wires are shorted. *Find and fix!*
 - 8b2. If one reading is correct and the other is 0vdc (ie 2.3vdc and 0vdc), one of the data wires is open. *Find and fix!*
 - 8c. Measure the Delta (BIAS) between terminals 1 and 2 at each communicating terminal block. If the reading is less than 0.6 vdc (ie 0.3 vdc or 0.4 vdc), *the BIAS must be increased to the specified 0.6 vdc. See Step 9 to increase the BIAS.*
9. Move the DS1 dip switches (#1 & #2) on the Outdoor communicating unit to the "OFF" position.
 - 9a. Re-measure across terminals 1 and 2 on all boards. All readings should match 0.6vdc (ie 0.59vdc / 0.61vdc).
 - 9b. If you measure more than 0.6vdc (ie 0.9vdc / 1.2vdc) the BIAS dip switches (#1 & #2) on the UT3000 are turned ON.
 - 9b1. Move the UT3000 BIAS dip switches (#1 & #2) to the OFF position, to lower the BIAS backdown to 0.6vdc.
 - 9b2. **The preferred Dip Switch configuration is Outdoor DS1 = OFF and UT3000 BIAS = OFF.**
10. **When the outdoor unit displays "E11" and the indoor unit (Air Handler, Furnace and/or EEV) displays "ON" and the UT3000 displays a valid outdoor air temperature, the HVAC network has properly configured! The system is now ready to commission!**
11. **DO NOT MOUNT THE ZONE THERMOSTATS TO THE WALL PLATES YET...**

See COMMISSION 1 - EQUIPMENT TEST "E11" on the next page.



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COMMISSION 1 - EQUIPMENT TEST "E11":

The E11 code means that the initial "Equipment Test" must be performed. You will use the UT3000 to initiate this test as the first step in the commissioning process. Normal HVAC operations are not allowed until this test is complete. **NOTE:** If the "System Test" has already been performed with an existing Daikin ONE+ thermostat, there is no need to perform it again via the UT3000. Although, running the System Test is good way to prove the network is stable and the UT3000 can reliably "talk" to the HVAC system.

1. Press the UP ▲ and DOWN ▼ button (underneath the LCD) at the same time and then release, to access the Equipment Menus. The LCD will display *"Select SYS Menu"*.
2. Press the DOWN ▼ button (one or more times) to see all available equipment menus.
 - 2a. Example: **MENU HEAT PUMP** = Available and **HEAT PUMP N/A** = Not available.
 - 2b. Select the Air Conditioner or Heat Pump menu by pressing the RIGHT ► button.
 - 2c. The LCD will show *"Wait for System"* while UT3000 accesses the outdoor unit menu.
3. The first folder in the outdoor unit's menu will be "Config".
 - 3a. Press the DOWN ▼ button until you see **"Equipment Test"** on the LCD screen.
4. Press the RIGHT ► button to select Equipment Test. The LCD will show *"Wait for System"*.
 - 4a. The LCD will display **"System Test"**.
 - 4b. Press the RIGHT ► button to select System Test. The LCD will display *OFF.
 - 4c. Press the DOWN ▼ button to see *ON and then press the RIGHT ► button to select *ON.
5. The LCD will show *"Updating System"*. Then the LCD screen will display *ON.
6. The system test will start in a few minutes. **DO NOT INTERRUPT THE TEST!**
 - 6a. Leave the LCD buttons alone! The LCD screen will resume scrolling on its own.
 - 6b. The test will end in approximately 8 -15 minutes. **Be patient!**
 - 6c. When the test is complete, the HVAC system will cycle off-line.
 - 6d. The absence of the E11 code on the outdoor unit confirms that the test was successful.
 - 6e. The HVAC system is now ready for Charge Mode!
7. **DO NOT MOUNT THE ZONE THERMOSTATS TO THE WALL PLATES YET!**

See Commission 2 - CHARGE MODE on the next page.



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COMMISSION 2 - CHARGE MODE:

After a successful system test, it is strongly recommended to initiate "Charge Mode".

1. Press the UP ▲ and DOWN ▼ buttons (underneath the LCD) at the same time then release, to access the Equipment Menus. The LCD will display "Select SYS Menu".
2. Press the DOWN ▼ button (one or more times) to view all available equipment menus.
 - 2a. Example: **MENU AIR COND** = Available and **AIR COND N/A** = Not available.
 - 2b. Select the Air Conditioning or Heat Pump menu by pressing the RIGHT ► button.
 - 2c. The LCD will show "Wait for System" while UT3000 enters the outdoor unit menu.
3. The first folder in the outdoor unit menu will be "Config".
 - 3a. Press the DOWN ▼ button until you see the "SYS SETUP2" folder on the LCD screen.
4. Press the RIGHT ► button to access the SYS SETUP 2 folder.
 - 4a. The LCD will display "Wait for system".
5. The first subfolder inside the SYS SETUP2 folder is "SYS SETUP RESET".
 - 5a. Press the DOWN ▼ button until you see "Charge Mode" on the LCD screen.
 - 5b. Press the RIGHT ► button to select "Charge Mode". The LCD will show *OFF.
 - 5c. Press DOWN ▼ button to view ON, and then press RIGHT ► button to select ON
6. The LCD will display "Updating System". Then the LCD will show *ON.
7. The charging mode will start in a few minutes!
 - 7a. Leave the LCD buttons alone! The LCD screen will resume scrolling on its own.
 - 7b. DO NOT MOUNT the zone thermostats to the wall plates yet!
 - 7c. The system will remain in charge mode for 1 hour at full capacity.
 - 7d. Follow the charging mode instructions per the specific IOM guidance from Daikin Mfg.
 - 7e. When charge mode is complete, the HVAC system will cycle off-line.
 - 7f. *If you complete the charge mode in less time, you can terminate Charge mode by performing the same procedure described above and selecting OFF.*
8. **After Charging Mode is complete, you can mount all zone thermostats to the wall plates!**

See Commission 3 - THERMOSTAT SETUP, on the next page.



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COMMISSION 3 - THERMOSTAT SETUP:

After a successful charge mode, you can mount all the zone thermostats and configure each thermostat to the UT3000 and the HVAC system network. *The EWC zone control must be added manually to each communicating thermostat!*

This final step is just as critical as the others. You must ensure that all communicating thermostats receive the latest Daikin software (OTA) upgrade and that each zone thermostat (*Daikin "ONE" or Daikin "Touch" or Amana "Touch"*) are assigned the proper designation of either "Zone 1" or "Additional Zone".

1. Navigate to the "Home WiFi" screen of each communicating thermostat and allow the homeowner to identify their own home WiFi network and input their own WiFi password, while you look the other way.
2. Allow sufficient time (approximately 10 minutes) for all thermostats to download the latest OTA software updates.
3. Using the Zone 1 "Master" thermostat, navigate to "Dealer Edit" and begin the setup routine.
4. Access the "Equipment Setup" folder and select "Add Equipment" and then select "EWC Zone board".
5. On the next screen, confirm "EWC Zone board" is shown and assign that thermostat (check box) as "Zone 1"....The Zone 1 thermostat Equipment Folder will find and display ALL communicating HVAC system components, including the zone board. Complete the setup, exit Dealer Edit and go to the Home screen.
6. Using any additional thermostats (other than Zone 1) navigate to "Dealer Edit" and begin the setup routine.
7. Access the "Equipment Setup" folder and select "Add Equipment" then select "EWC Zone board".
8. On the next screen, confirm "EWC Zone board" is shown and assign all additional thermostats (check box) as "Additional Zone"... "Additional Zone thermostat Equipment Folders will display the zone board and any other components that were added manually. **Communicating HVAC system components will not be displayed.** Don't worry if the discovery wheel icon keeps spinning...It will stop. Complete the setup, exit Dealer Edit and go to the Home screen.

Note: For twinning applications, Zone 1 on a sub-panel board must also be assigned as an "additional Zone".

Note: This "Startup" guidance assumes the UT3000 is new or has been reset to factory default.

Congratulations!

You may now operate your communicating HVAC system via the zone thermostats!

For additional guidance pertaining to the Ultra-Zone UT3000 zone system, see Technical Bulletin #090375A0280, Addendum Sheet #090376A0180 (English) and Addendum Sheet #090376A0188 (Spanish).

EWC provides superior technical support via our Tech line at 800 - 446-3110 8am - 5pm Eastern