



ULTRA-TALK® 3000

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

Addendum sheet for the UT3000 Zone Control Code version 1.86

**Applies to Daikin® FIT & Amana® “S” Inverter based systems
with Daikin® or Amana® communicating thermostats and
the Ultra-Talk® UT3000 Zone Panel “Twinning” instructions**

STOP & read this bulletin before you start the Inverter!

If you are installing a Daikin/Amana Inverter based system with the Ultra-Zone UT3000 Zone Controller and Daikin/Amana communicating thermostats, **refer to our Startup & Commission guide #090376A0194**

This addendum provides guidance on “Twinned” (4 - 5 zones) communicating systems.

The Daikin Inverter A/C or HP will provide variable BTU capacity based on a proportional demand from the UT3000 and the communicating thermostats. The 1.86 code version is fully compatible with enhanced de-humidification control via the Daikin/Amana communicating thermostats.

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

** Enhanced De-humidification Control and System Fault Alerts are facilitated via the Daikin One+ thermostats. These functions are extremely important and cannot be achieved unless communicating thermostats are installed.*

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 (approx 15 minutes) for all thermostats to download the latest software updates.
3. **Using the Zone 1 “Master” thermostat**, navigate to “Dealer Edit” and then to “Installer Wizard”.
4. Access the “Equipment Setup” folder, and select “Add Equipment”...Then select “Zone Board”.
5. On the next screen, confirm “EWC Zone Board” is shown and “designate” that thermostat as “Zone 1”.
6. Using any “Slave” thermostat **other than Zone 1**, navigate to “Dealer Edit” and then to “Installer Wizard”.
7. Access the “Equipment Setup” folder, and select “Add Equipment”...Then select “Zone Board”.
8. On the next screen, confirm “EWC Zone Board” is shown and “designate” thermostats as “Additional Zone”.

The Daikin One+ communicating thermostat can activate the “System Test” on the Inverter system. This test is required to calibrate the Inverter system settings and parameters. Normal cooling 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.

The “System Test” may last 5 to 15 minutes and **MUST NOT BE INTERRUPTED!** The system test must be performed via the “Master” Daikin One+ thermostat connected to the zone 1 terminal block only! **See Page 2.**

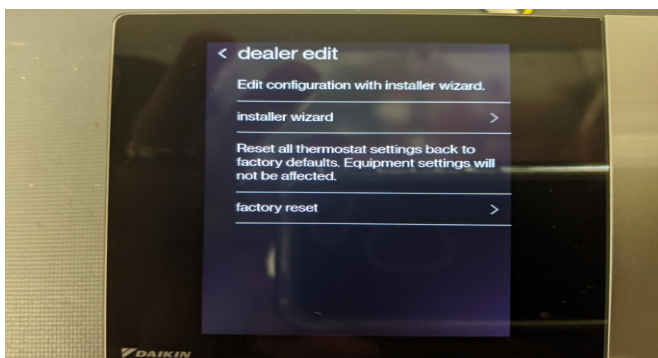
IMPORTANT: ALL ZONE THERMOSTATS MUST BE SET TO OFF DURING THE SYSTEM TEST!!! Including the Daikin ONE+ thermostat being used to initiate the System Test...DO NOT INTERRUPT THE TEST!!!

Follow the Daikin One+ thermostat prompts to perform a “System Test” verify “Refrigerant Charge” or “Pump-Down the System”. For a detailed commissioning and installation video, including further instructions on the Daikin ONE+ smart thermostat, please visit the thermostat website at:

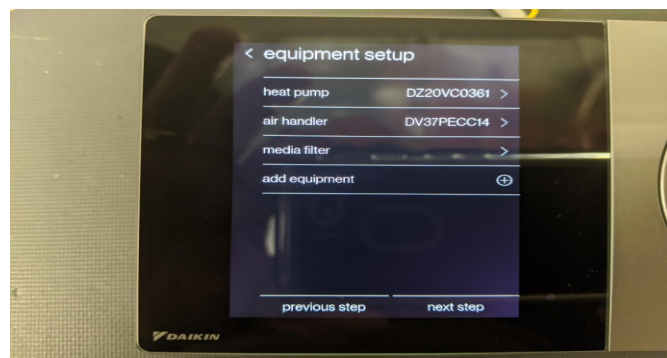
https://daikinone/smart_thermostats/oneplus/pros/

1. Any of the above “Sealed System” functions can be performed via the Daikin One+ thermostat in zone 1 only! **All zone thermostats must be set to “OFF” with no demands for Cool, Heat or Fan.**
2. After the system test is complete and/or the refrigerant charge has been verified, you may decide to re-access the Equipment User Menus and modify other settings such as (Cool or Heat Trim Settings, Cooling Profile, Temperature Rise, Clear Diagnostic Faults, etc).
3. You may now set all zones to demand conditioned air. See page 7 for guidance on “Naming Thermostats”.

THE INVERTER “SYSTEM TEST” PROCEDURE



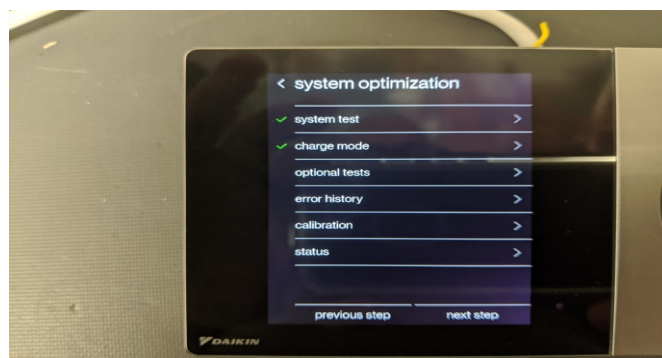
Step 1: Using the Daikin ONE+ thermostat connected to Zone 1 only, navigate to “**Dealer Edit**”, insert the password and select the **Installer Wizard**.



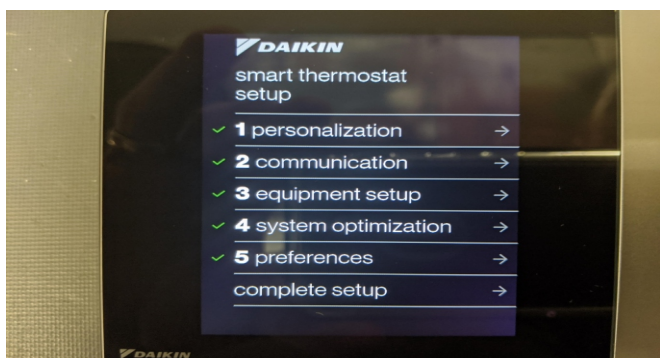
Step 4: Select “**Heat Pump or AC**” or select “**Furnace or Air Handler**” in order to access the menu folders for each unit. Otherwise, select “**Next Step**” to move to the next screen.



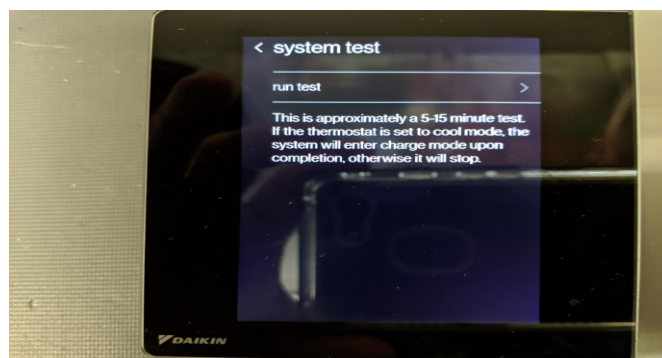
Step 2: Then select “**Begin Full Setup**” on that screen.



Step 5: Select “**System Test**” to advance to the next screen. You can navigate back to this screen after the system test is complete, and select “Charge Mode” to confirm that the refrigerant level in your system is correct.



Step 3: Select “**Equipment Setup**” to access the equipment menu folders.



Step 6: Select the arrow and your Inverter Heat Pump or Air Conditioner test will start. The arrow will change to a spinning wheel indicating the test is underway. The test will last approx. 5 - 15 minutes. **DO NOT interrupt the test.**

UT3000 PANEL TWINNING PROCEDURE



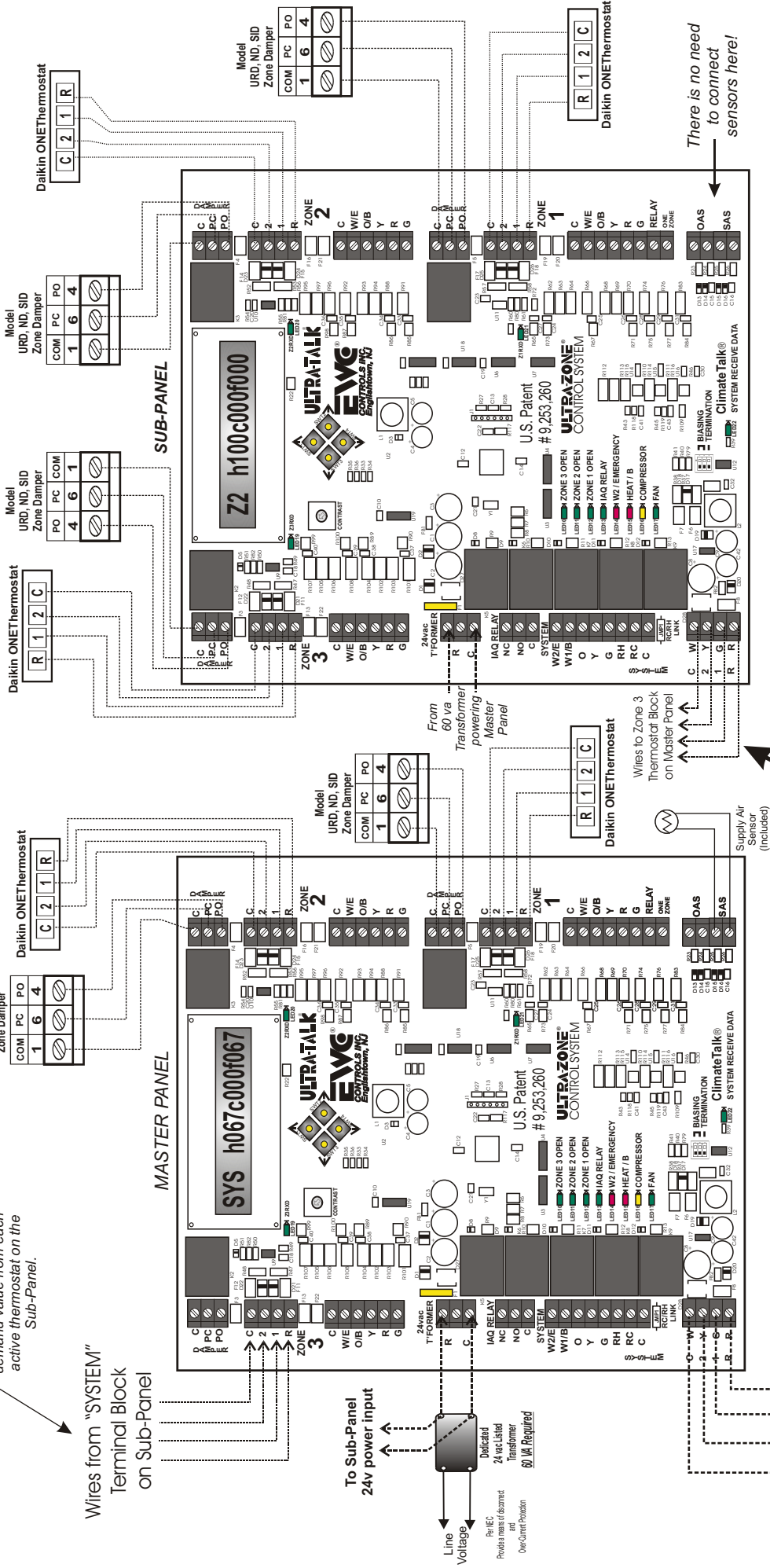
TECHNICAL BULLETIN ULTRA-TALK[®]3000 U.S. Patent No. 9,253,260

Refer to the “Twinning” diagram on page 4

1. Twinning requires both control panels to be the same code level. Both must be code 1.82 or 1.85 or 1.86
2. Mount Panel “A” and Panel “B” in close proximity to each other and the Indoor unit. See Technical Bulletin 090375A0260 for acceptable locations.
3. Install a dedicated 24v 60va listed transformer and run 24v power to both UT3000’s. **DO NOT** use separate transformers! ** Do not power up yet.*
4. Connect the communicating HVAC system control wiring to Panel “A” communicating SYSTEM block.
5. Connect communicating 24v thermostats to Panel “A” and Panel “B”. **The Panel “A” Zone 1 must be a communicating thermostat.** See page 1 for Daikin ONE+ thermostat setup/adding a zone controller.
6. Communicating thermostats are recommended on both panels, but only Zone 1 (Panel A) can access the communicating HVAC system menus and activate maintenance functions. See page 1 for Daikin One+ thermostat setup/adding a zone controller.
7. Connect the twinning wire connections between the communicating SYSTEM output block of Panel “B” to the communicating Zone 3 T-stat input of Panel “A”...NOTE: If Zone 3 (Panel A) is already being used, you may connect to Zone 2 (Panel A) instead. **DO NOT** use Zone 1 (Panel A) for twinning.
8. Install one Supply Air Sensor and connect the wires to the SAS terminals of Panel “A”.
9. Do not connect an Outside Air sensor to Panel “A”. It will retrieve the outdoor temperature from the communicating outdoor unit.
10. There is no need to connect sensors of any type to Panel “B”. It will retrieve the outdoor temperature from Panel “A”.
11. Now, Power Up the communicating HVAC system and power up the UT3000’s.
12. Panel “A” becomes the Master panel and will automatically configure and talk to the communicating HVAC system.
13. Panel “A” will automatically configure and talk to Panel “B”, which will become the Slave/Sub-panel.
14. Communicating thermostats connected to Panel “A & B” will also configure automatically.
15. Be patient and allow all devices to fully setup and configure. Typically 10 - 15 minutes.
16. Use the Zone 1 thermostat on Panel “A”, to enable the Inverter’s “Equipment System Test”. See page 1. Afterwards you can enable “Charge Mode”....It is also advisable to access the equipment diagnostic folders and clear all fault codes resulting from the installation process. Start off with a clean slate!
17. Finally, set all thermostats to operational mode and operate the HVAC system in both Heating and Cooling modes, to confirm proper operation.

4 or 5 Zones "Twinned" Full Communicating Configuration

Master Panel interprets this digital input as a "proportional" demand, depending on the demand value from each active thermostat on the Sub-Panel.

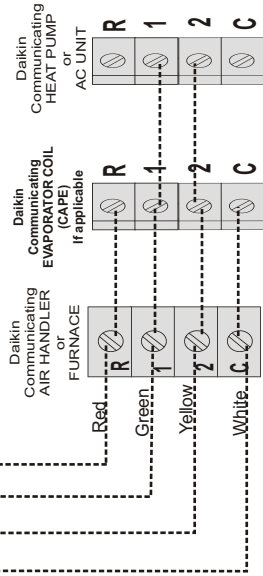


The graphic above shows two UT3000 control panels "twinned" together to create a communicating five zone system. The Communicating System Output of the Sub-Panel is "twinned" to the Master Panel's Zone 3 communicating thermostat input. **Twining to Zone 2 or Zone 3 on the Master Panel is allowed. DO NOT "twin" to Zone 1.**

It is highly advised to install Daikin Smart thermostats in all zones, and in particular Zone 1 of the Master Panel. Digital access to the communicating HVAC system must be performed via the Zone 1 communicating thermostat. See page 1.

The demand input into the Master Panel is proportional based on how many Sub-panel thermostats are demanding conditioned air, the assigned weight to each Sub-panel zone, and the demand value of each Sub-panel thermostat.

Master Panel interprets this digital input as a "proportional" demand, depending on the Heat/Cool demand value from each active thermostat on the Sub-Panel.



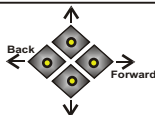
Wire the system network as shown in a daisy chain (series) configuration!

Common Troubleshooting Issues

SYMPTOM	SOLUTIONS
<p>Cooling will not run at all.</p> <p>E11 fault code displayed at thermostat or outdoor unit.</p> <p>LED's function normally.</p>	<ul style="list-style-type: none"> • Some HVAC systems require a "System Test" prior to normal operation. • Access the Zone 1 thermostat and perform the System Startup Test. • Clear all fault codes in the Outdoor and Indoor unit diagnostic menu folders.
<p>HVAC system does not respond properly. LCD screen says OAS Bad!</p> <p>Intermittent and/or nuisance faults occur.</p> <p>Cannot achieve 0.6vdc BIAS on the system data wires.</p> <p>Communicating thermostats display warnings.</p>	<p>Check BIAS DC voltages:</p> <ul style="list-style-type: none"> • Data 1 to C = 2.8vdc & Data 2 to C = 2.2vdc <ul style="list-style-type: none"> • For Modulating Furnace or Newer EEV equipped Air Handlers with 2 stage outdoor & older Inverter outdoor units. • For Modulating Furnace or Modular Air Handler with FIT Inverter and CAPE/CAPEA or CHPE EEV coils. • Data 1 to C = 1.9vdc & Data 2 to C = 1.3vdc <ul style="list-style-type: none"> • For 2 stage Furnace or Older TXV equipped Air Handlers with 2 stage outdoor & older Inverter outdoor units. • Data 1 to C = 2.3vdc & Data 2 to C = 1.7vdc <ul style="list-style-type: none"> • For 2 stage Furnace with FIT Inverter and CAPE/CAPEA or CHPE EEV coils. • • DO NOT use spare wires in the data cables for other 24v circuits or devices. ie UV lamp. • The preferred BIAS dip switch setting is (outdoor unit DS1 are both OFF) and (UT3000 BIAS are both OFF). Other BIAS dip switch settings are possible but may not be stable. <u>See page 8.</u> • Clear all fault codes in the Outdoor and Indoor unit diagnostic menu folders! • BIAS voltage readings shown above assumes FIT® or ComfortNet® equipment.
<p>Zone dampers do not respond properly.</p> <p>HVAC system functions normally.</p> <p>LED's function normally.</p>	<ul style="list-style-type: none"> • Check damper motor wiring for proper connections. • 24vac power at COM & PO/PC is gone. 500mA breaker is tripped: <ul style="list-style-type: none"> • Check damper motor wiring for continuity or shorts/miswiring. • Too many Spring type damper motors connected to one or more zones. • Refer to Page 15 of the Technical Bulletin for Spring Type Damper Isolation Wiring.

TROUBLESHOOTING

SYMPTOM	SOLUTIONS
Cooling will not run at all. Zone thermostat displays E11 fault code. LCD & LED's are responding properly.	Some HVAC systems require a "System Test" prior to normal operation. Access the Zone 1 thermostat and perform the System Startup Test. Clear all fault codes in the Outdoor and Indoor unit diagnostic menu folders. Access the Zone 1 thermostat and initiate System Charge mode.
HVAC system does not respond properly. Thermostats display faults. OAS BAD! is displayed on the LCD. Cannot achieve 0.6vdc BIAS on the system data wires.	Check BIAS DC voltages: Data 1 to C = 2.8 & Data 2 to C = 2.2 or Data 1 to C = 1.9 & Data 2 to C = 1.3. Combination of CAPE coil and 2 stage furnace will read Data 1 to C = 2.3 & Data 2 to C = 1.7. <i>BIAS switches (1 & 2) on the UT3000 should be set to ON. See Last Page!</i> Clear all fault codes in the Outdoor and Indoor unit diagnostic menu folders.
LCD & LED's function and HVAC system functions normally but dampers do not respond.	Check damper motor wiring for proper connections. Check damper motor 24volt & 500mA Breaker. Test wires for Continuity/Shorts. Check damper motor wiring for shorts/miswiring. Test wires for Continuity/Shorts. Refer to Page 15 of the Technical Bulletin for Damper Wiring.
LCD & LED's do not function and HVAC system does not respond.	Check HVAC & UT3000 system transformer supply voltage. Check HVAC & UT3000 system 24vac transformer voltage/fuse/breakers. Test all wires for Continuity, shorts to 24v Common or shorts to earth ground. Check HVAC & UT3000 system wiring for shorts and mis-wiring.
Time Delay is Active and won't allow Heat or Cool to Function.	When Troubleshooting, Simultaneously Press the Back & Forward buttons for 1 second to Bypass any Active Time Delay.



CHECK YOUR WIRING

DETECTING 24vac SHORTS	SYMPTOM: Entire Panel or a Single Zone appears to be dead!
HVAC system not responding and UT3000 LED's are off.	If 24vac short has occurred, 24vac will be present at the UT3000 24v Input terminals R & C, but 24vac will not be present at any thermostat R&C terminals.
One or more thermostats will not power up and/or show a display.	SOLUTIONS: Remove wires from thermostat terminal blocks and allow 140 or 350mA circuit breaker to cool! Find and repair short(s) in thermostat field wiring. Restore 24 vac power.
ISOLATING 24vac SHORTS <i>140mA, 350mA & 500mA circuit breakers protect the UT3000 and react to a short in the Thermostat or Damper Motor field wiring.</i>	SOLUTIONS: Disconnect the wire(s) from the 'R' terminals on the UT3000 thermostat terminal blocks, and the "C/PO/PC" terminals on the UT3000 damper motor terminal blocks. Restore power. If the short is no longer present, Ohm out the thermostat and damper field wiring for continuity, shorts to common and/or shorts to earth ground. Replace or repair wires as necessary. Restore power.

Detecting 24v shorts to common or shorts to earth ground

When the 2.5A (F1) breaker is tripped it will get hot to the touch! The LCD and the LED's will not illuminate!

To reset the breaker, locate the short by removing each hot wire connected to the panel, one at a time. When the shorted wire is removed, the panel will resume normal functions. Now you must repair or replace the shorted wire. If one or more 140mA, 350mA or 500mA breakers trip, only the device(s) connected to that block will be affected. Remove each hot wire connected to that block until the voltage is restored. Find and repair the shorted wires or device before re-connecting the wires. If there is a short between the Data 1 & 2 wires or if the Data wires are shorted to 24v or earth ground, the communicating thermostat on that zone will alert you by displaying "Call for Service". If a non-communicating thermostat is connected and a short occurs on the 24v wires, the thermostat will not power up and that zone will not function. Find and repair the short using the methods described above.

TECHNICAL SUPPORT

EWC Controls provides superior toll free Troubleshooting Support for the UT3000 when you are on the job site!

Call 1-800-446-3110 Monday - Friday 8am to 5pm EST. Otherwise call 1-732-446-3110 for information on the UT3000 and other ULTRA-ZONE® products. Visit our web site to download this Technical Bulletin and other related information at www.ewcccontrols.com

When calling for Technical Support from the job-site, please have a good quality multi-meter, pocket screwdriver, and wire cutters/strippers on hand.

Addendum sheet for the UT3000 Zone Control Code version 1.86

**Applies to Daikin® FIT Inverter based systems and
the Daikin® One+ communicating thermostat and
Ultra-Talk® UT3000 Zone Panel “Twinning” instructions**

STOP & read this section before you leave the job site!

Installing a state of the art HVAC system requires skilled personnel who take pride in their craft. HVAC installers and technicians are highly skilled in refrigeration, sheet metal fabrication, plumbing and electricity. These days however, the HVAC technician must also be skilled in information technology.

You are not finished with this installation until you have familiarized the Homeowner with their new HVAC system and in particular the thermostats. Since the thermostat is the Homeowner's primary means of interfacing with the HVAC system, it is imperative that you guide the Homeowner through this process.

When the HVAC system is zoned, there may be two or more thermostats in the house. When those thermostats are WiFi capable, it is important to guide the Homeowner through the WiFi setup process. Software updates and thermostat (cloud) access cannot occur, until this important step is completed. Arguably, this should have been done already (see page 1) but if not, do it before you leave with the assistance of the Homeowner. DO NOT assume the Homeowner wants to (or can) do this on their own. Offer to assist the homeowner and if they decline, then at least you tried and you can document that fact on your work order.

- 1.** Navigate to the “Home WiFi” screen of each communicating thermostat and select “Use WiFi”.
- 2.** Allow the Homeowner to identify their own home WiFi network and input their own WiFi password, while you look the other way. This way the Homeowner's WiFi password remains secure.

2a. Allow all thermostats sufficient time to download the latest software updates.

2b. Meanwhile, encourage the Homeowner to download the “Daikin ONE” phone APP and create an on-line account using their preferred email address.

2c. Navigate to the “Home WiFi” screen of each thermostat and select “Daikin ONE Cloud”.

2d. Assist the Homeowner in connecting each zone thermostat to the Daikin ONE phone APP.

* Set the location(s) of each HVAC system. ie. Home, Vacation Home, Office 1, Restaurant, etc.

* Add + each thermostat one at a time, and follow the prompts on the phone APP and each zone thermostat screen. ie. Select settings / configuration / account.

* When prompted, enter the 6 digit number on the thermostat screen into the phone APP, in order to synchronize each thermostat to each location.

2e. Assist and advise the Homeowner on how to “name” each zone thermostat. ie. Main floor, Basement, Upstairs, for easy identification on the phone APP.

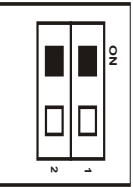
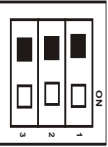
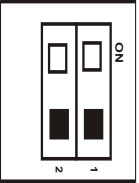
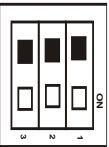
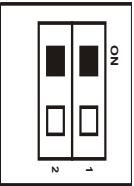
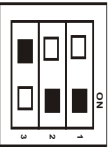
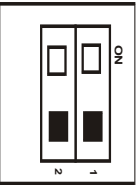
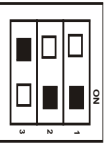
2f. When there are two or more zoned HVAC systems in a single home or multiple job sites each with a single zoned HVAC system, be very specific when naming each zone thermostat, for easier identification on the phone APP. *See examples below:*

- AC #1 master 1st floor, AC #1 slave 2nd floor, AC #1 slave Basement, etc.
- AC #2 master Great room, AC #2 slave Bedrooms, AC #2 slave Living room, etc.
- AC #3 master Main office, AC #3 slave Break room, AC #3 slave Waiting room, etc.
- As you finish “naming” each thermostat, it will automatically update in the Daikin One phone APP.

After these tasks have been performed, you may now set all zone thermostats to demand conditioned air. You can also leave the job site certain that you have educated the Homeowner, which should result in fewer call backs.

STABILIZING THE SYSTEM NETWORK

(Fix 2 is easiest to achieve & recommended)

DS1 OUTDOOR UNIT	DIP SWITCHES (UT 3000)	RESULTS
<div>  <div> <input type="checkbox"/> DS1 ON </div> <div>Factory Setting</div> </div>	<div>  <div> <input type="checkbox"/> BIASING TERMINATION </div> <div>Old Factory Setting = OFF</div> </div>	<div> DS1 ON & BIASING OFF <i>Voltage reading across Data terminals 1 & 2 = 0.3vdc</i> (Network is Unstable) </div>
<div>  <div> <input type="checkbox"/> DS1 OFF </div> <div>Field Setting</div> </div>	<div>  <div> <input type="checkbox"/> BIASING TERMINATION </div> <div>Old Factory Setting = OFF</div> </div>	<div> Both OFF = Stable Network <i>Voltage reading across Data terminals 1 & 2 = 0.6vdc</i> OLD GUIDANCE (Fix 1) </div>
<div>  <div> <input type="checkbox"/> DS1 ON </div> <div>Factory Setting</div> </div>	<div>  <div> <input type="checkbox"/> BIASING TERMINATION </div> <div>New Factory Setting = ON</div> </div>	<div> Both ON = Stable Network <i>Voltage reading across Data terminals 1 & 2 = 0.6vdc</i> NEW GUIDANCE (Fix 2) </div>
<div>  <div> <input type="checkbox"/> DS1 OFF </div> <div>Field Setting</div> </div>	<div>  <div> <input type="checkbox"/> BIASING TERMINATION </div> <div>New Factory Setting = ON</div> </div>	<div> DS1 = OFF & UT 3000 = ON Most Stable Network <i>Voltage reading across Data terminals 1 & 2 = 1.2vdc</i> BEST GUIDANCE (Fix 3) </div>