Excellence Without Compromise

EWC® CONTROLS INC.

ULTRA-TALK® 3000

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

Addendum sheet for UT3000
Code versions 1.33 - 1.50
APPLIES TO DAIKIN INVERTER SYSTEMS ONLY

STOP & read this bulletin before you start the Inverter or perform repairs on the sealed system!

EWC Controls is proud to announce that the Ultra-Zone® UT3000 Zone Control has been approved to operate with the Daikin FIT™ or Goodman ComfortNet™ Inverter based HVAC systems!

The Daikin Inverter A/C or HP will provide variable BTU capacity based on a proportional demand from the Ultra-Zone UT3000 zone controller.

If you are installing a Daikin or Goodman Inverter system and a CTK04 thermostat, along with the Ultra-Zone UT3000 Zone Controller, these start-up instructions on page 1 & 2, apply to you.

Upon power-up, the CTK04 communicating thermostat facilitates a "System Test" on the Inverter system. This test is required to confirm 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 CTK04, 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 can be performed via any CTK04 thermostat, connected to any communicating zone terminal block, on the UT3000 zone controller.***

IMPORTANT: ALL ZONE THERMOSTATS MUST BE OFF!!! **(No Cool, Heat or Fan),** ***including the CTK04 thermostat being used to initiate the System Test.***

Follow these steps to perform a "System Test" verify "Refrigerant Charge" or "System Pump-Down".

1. Any of the above "Sealed System" functions can be performed via the CTK04 thermostat in any zone. ***ALL zone thermostats must be set to "OFF" with no demands for Cool, Heat or Fan.***

2. See the Daikin Inverter Condensing Unit Installation and Service Reference for instructions on performing the "System Test" verifying the "Refrigerant Charge" or "System Pump-Down" for repairs.

3. Using the CTK04 in any zone, navigate to and access the "ComfortNet User Menu". Select the "EQUIP TEST" tab and then "SYSTEM TEST" in order to start the System Test. ***Refer to the next page for thermostat graphics of this procedure.***

4. DO NOT INTERRUPT THE TEST!!! After the system test is complete and/or the refrigerant charge has been verified, you may decide to re-access the Climate Talk User Menu and modify other settings such as *(Cool or Heat Trim Settings, Cooling Profile, Temperature Rise, Clear Diagnostic Faults, etc).* Contact EWC Controls Technical Support if you have questions.

5. After these tasks have been performed, you may now set all zones to demand conditioned air.

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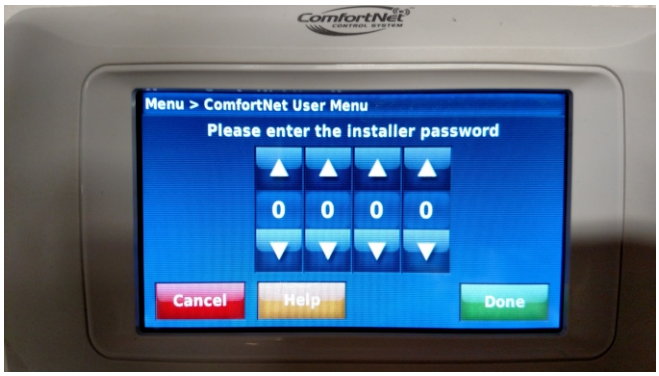
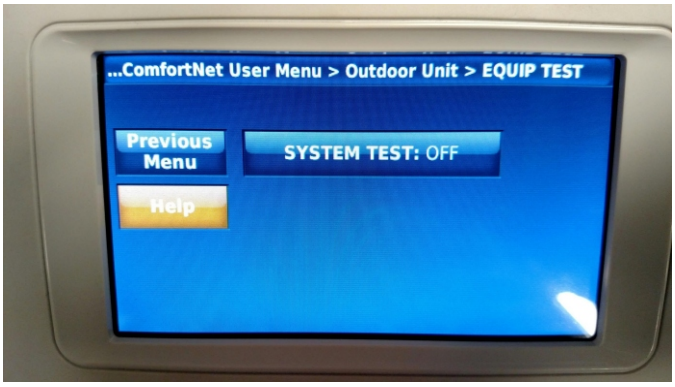
THE INVERTER "SYSTEM TEST" PROCEDURE

STEP 1: USING ANY CTK04 ON ANY ZONE, TOUCH THE ***"MENU"*** TAB AND SELECT THE ***"COMFORTNET USER MENU".***

STEP 4: SELECT ***"EQUIP TEST"*** IN ORDER TO ACCESS THE INVERTER ***"SYSTEM TEST"*** OPTION.



STEP 2: YOU WILL THEN BE ASKED FOR A PASSWORD. *The thermostat's Date Code is the password. You can find it in* ***"Equipment Status"*** *under the MENU tab.*



STEP 5: SELECT ***"SYSTEM TEST"*** TO CHANGE THE SELECTION FROM *"OFF"* TO ***"ON"***.

STEP 3: SELECT ***"Outdoor Unit"*** TO ACCESS THE OUTDOOR UNIT MENU SETTINGS.

STEP 6: SELECT THE ***"ON"*** OPTION AND PRESS ***"DONE"***. Your Inverter Heat Pump or Air Conditioner test will start. The test will last approx. 10 - 15 minutes. ***DO NOT interrupt the test.***

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NEW MENU ITEMS and UPDATES

1. **Zone Weight** feature (1.33 -1.50 only) allows the Installer to select the weight value of each zone. Imposes a limit on the allowable system capacity by zone.
2. **W2 Lockout** feature defaults to 99F. You must manually set this value *(typically 45F - 55F)* if you decide to utilize it.
3. **OAS-SP** (Outdoor Air Sensor-Setpoint) now defaults to OFF. You must manually set this value *(typically 30F - 35F)* if you decide to utilize it.
4. **PID LOOP** is now capped at the assigned zone weight(s) multiplied by the detected zone thermostat demand(s) multiplied by 3.
5. **Default Dampers** CLOSED or OPEN after the purge cycle, (during idle periods).
6. **UT3000 Code Version** is displayed upon power up and in the programming menu.
7. **Total Zones** feature allows the Installer to select the exact number of zones on each panel.
8. **SAS RSP DLY** (Supply Air Sensor Response Delay) now defaults to 22 seconds (22s).
9. **Updated "Electronic" Twinning Diagrams** on pages 4, 5 & 6.

TABLE 1

FEATURE	DEFAULT	RANGE TO SELECT
System Type	Heat/Cool	Heat Pump or Heat/Cool
HP Type	NON Dual Fuel	Dual Fuel or Non-Dual Fuel
T-Stat Type	Heat/Cool	Heat Pump or Heat/Cool
Rev Valve	RV 'O'	'O' Type RV or 'B' Type RV
Fan Mode	Gas	GAS or HYDRO (Electric)
OAS SP	OFF	OFF or 7° to 42° F
O.T. Offset	8° F	5° to 20° F
U.T. Offset	7° F	5° to 12° F
SAS HP TGT	112° F	90° to 120° F
SAS Gas TGT	142° F	120° to 170° F
SAS Cool TGT	47° F	40° to 60° F
SAS RSP DLY	22s	10seconds - 180seconds
W2 Threshold	95%	65% - 99% (Adj. in 5 point increments)
PURGE FAN	25%	25% - 100% (Adj. in 25 point increments)
Zone 1 Weight	70%	0% to 100%
Zone 2 Weight	15%	0% to 100%
Zone 3 Weight	15%	0% to 100%
Total Zones	3	2 or 3 zones per panel
Limit SAS PID	N	Yes or No
DMP DFLT	Open	Open or Close
W2 lockout	99° F	20° to 99° F

UT3000 PANEL TWINNING PROCEDURES

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TECHNICAL BULLETIN
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Refer to the Graphics on Pages 4, 5 & 6.

1. Mount Panel "A" (Master) and Panel "B" (Slaves) in close proximity to the HVAC system and each other.

2. Install a dedicated 24v 50 or 60va listed transformer and run 24v power to both UT3000's. Make sure to maintain polarity. You may use separate 40va transformers if desired. DO NOT exceed 60va on any transformers. ** Do not power up yet.*

3. Connect the HVAC system low voltage wires to the Panel "A" SYSTEM block as shown.

4. Connect a CTK04 communicating thermostat to the Zone 1 "communicating" Tstat block on Panel "A".

5. Connect communicating or legacy 24v thermostats to all other Tstat blocks on Panel "A" & "B" as desired.

6. Panel "A" and "B" default to Heat/Cool type thermostats. When installing Legacy HP thermostats, access both Menus and reprogram to Heat Pump type Thermostats. Type "O" reversing valve.

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: You may connect to any unused zone on Panel "A" that you desire.***

8. Install one Supply Air Sensor and connect the wires to the SAS terminals of Panel "A" only. Panel B does not need any sensor connections. Panel "A" will share that data with Panel "B".

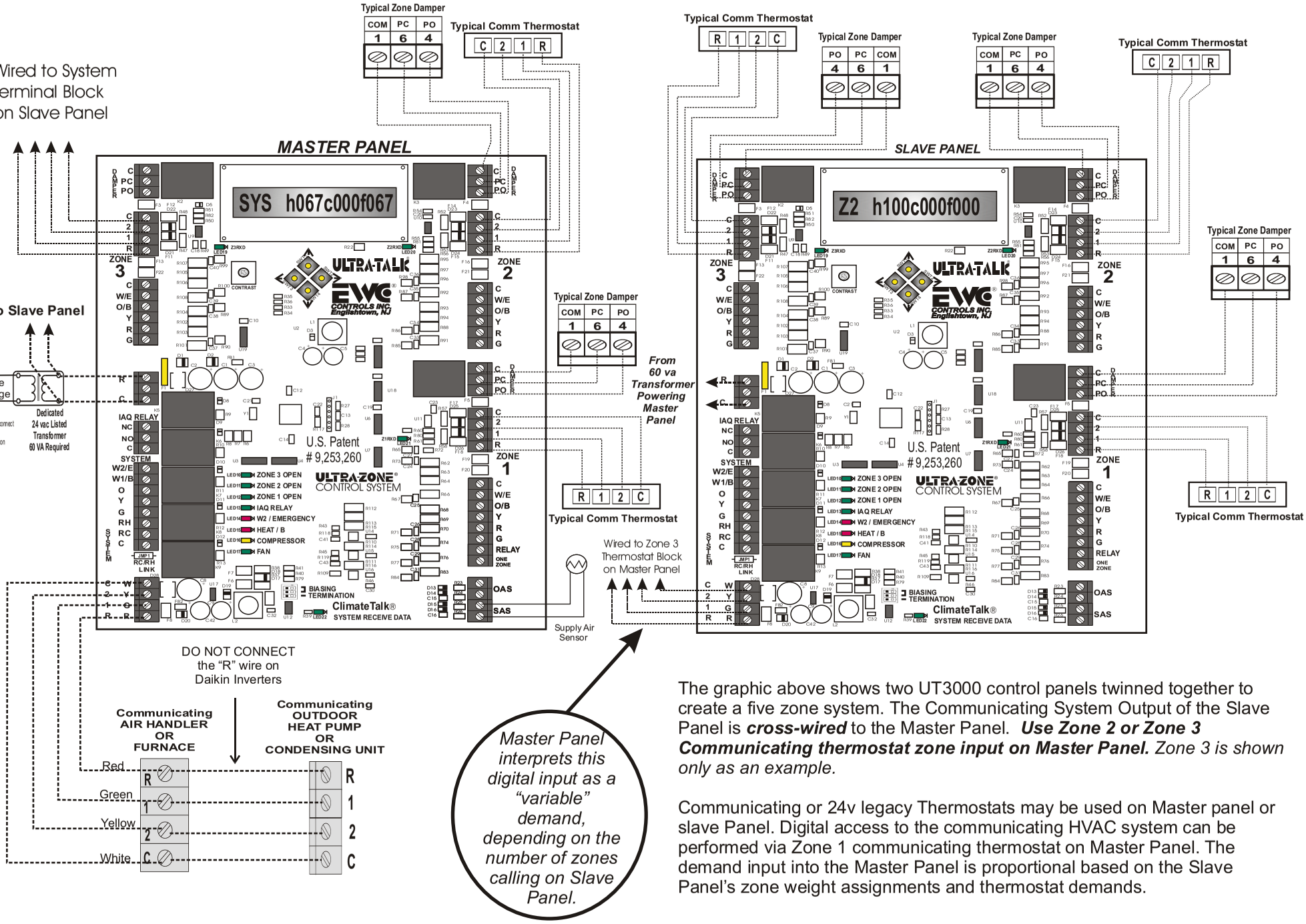
9. Panel "A" will retrieve the outside air temperature from the outdoor unit. There is no need to install an outside air sensor to the UT3000. Panel "A" will share that data with Panel "B".

10. Power Up the entire HVAC system and power up the UT3000's.

11. Panel "A" Master and Panel "B" Slave will "talk" to each other and share all necessary system and zone control information.

12. Set all thermostats to operational mode and operate the HVAC system in both Heating and Cooling modes, to confirm proper operation. ***Call EWC Controls Engineering Dept. if you have questions.***

4-5 Zones Communicating Application



The graphic above shows two UT3000 control panels twinned together to create a five zone system. The Communicating System Output of the Slave Panel is ***cross-wired*** to the Master Panel. ***Use Zone 2 or Zone 3 Communicating thermostat zone input on Master Panel.*** *Zone 3 is shown only as an example.*

Communicating or 24v legacy Thermostats may be used on Master panel or slave Panel. Digital access to the communicating HVAC system can be performed via Zone 1 communicating thermostat on Master Panel. The demand input into the Master Panel is proportional based on the Slave Panel's zone weight assignments and thermostat demands.

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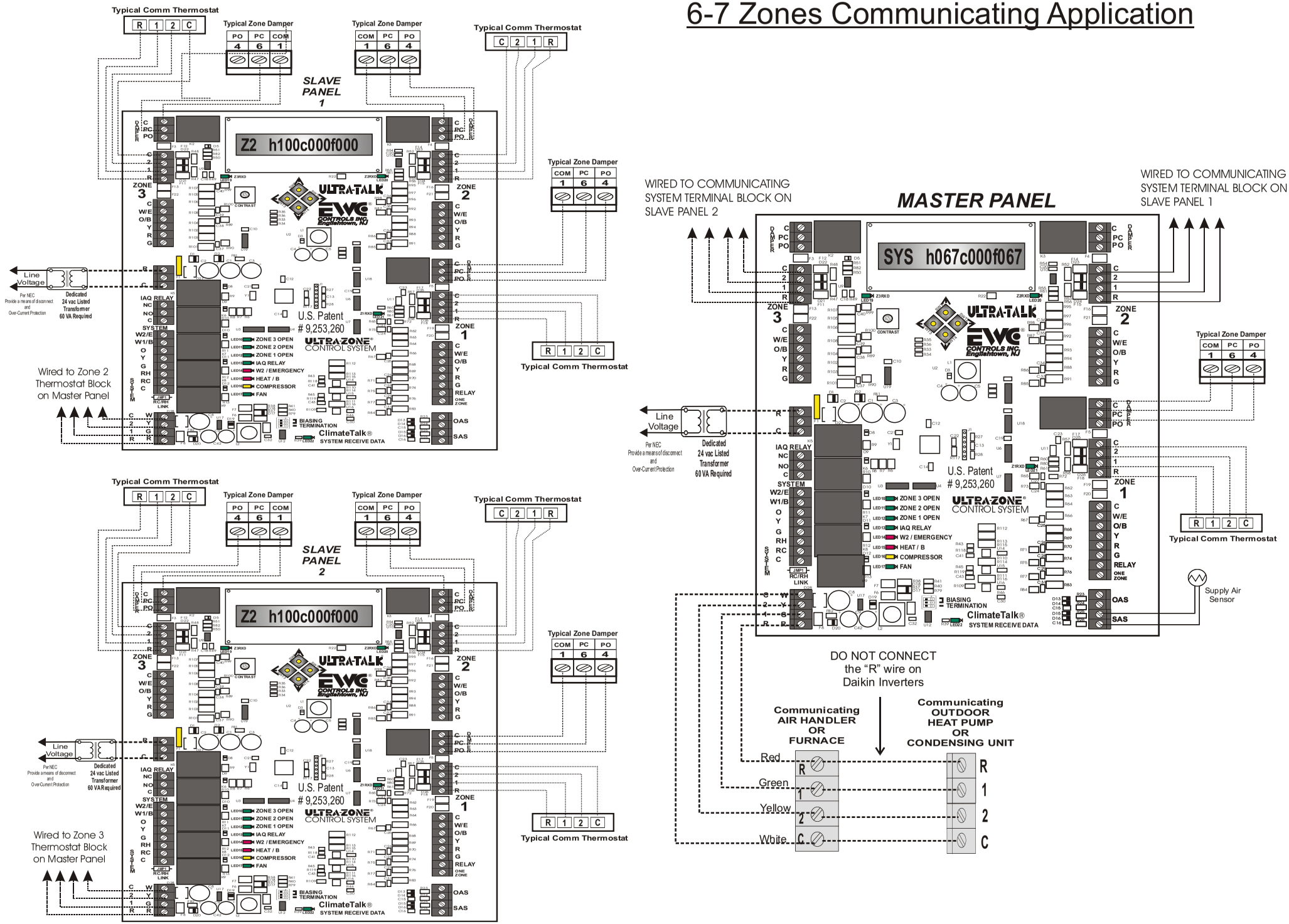
6-7 Zones Communicating Application



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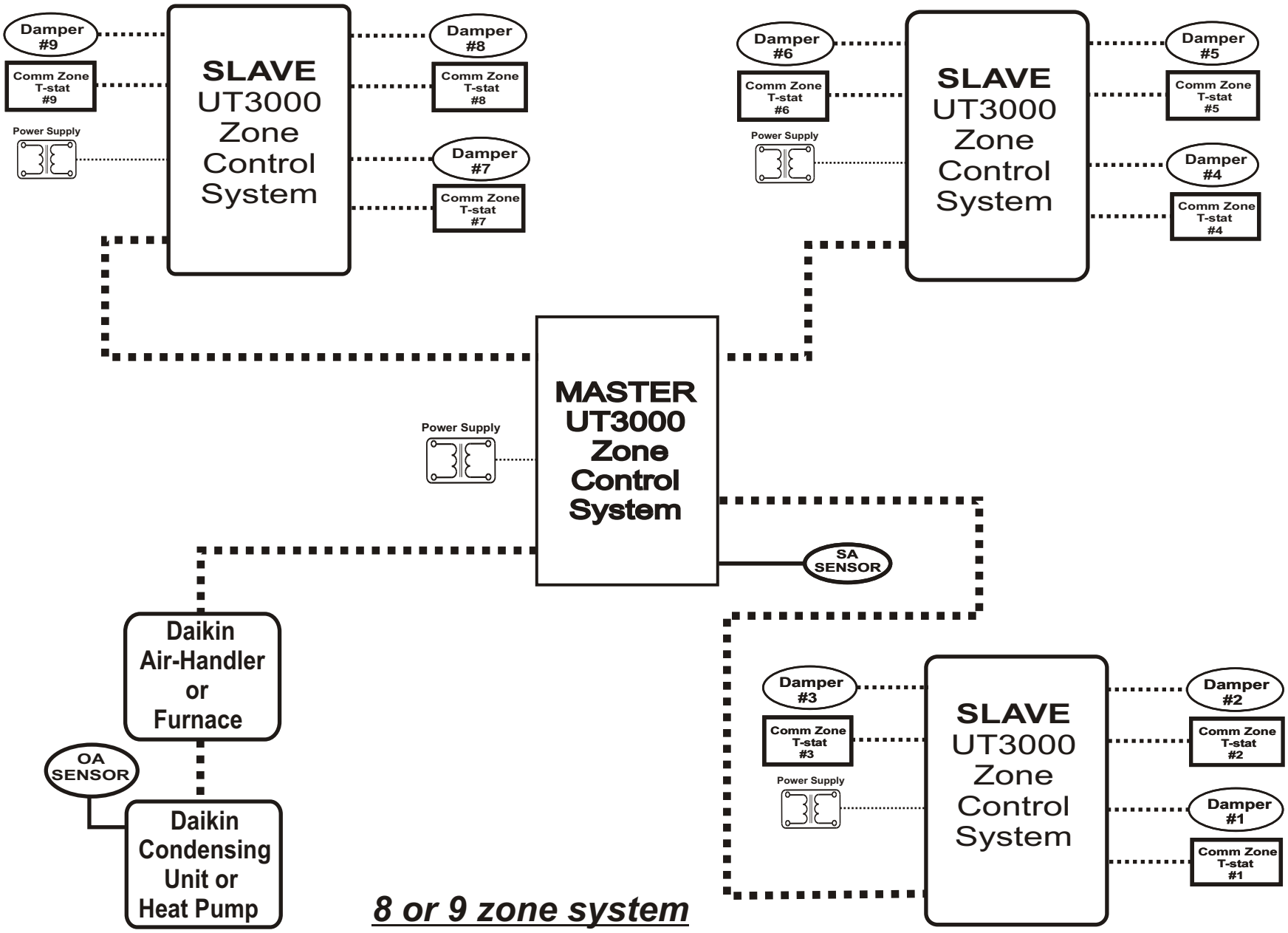
Single Line wiring 8-9 Zones Application



8 or 9 zone system

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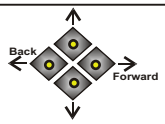
T R O U B L E S H O O T I N G

SYMPTOM	SOLUTIONS
LCD & LED's are responding properly but HVAC system is malfunctioning. Communicating T-stat displays fault messages.	Check HVAC system field wiring for proper connections, continuity & shorts. Some HVAC systems require a *"System Test"* prior to normal operation. Connect communicating T-stat directly to HVAC system & perform System Test. Check BIAS voltages: **C to Data 1 =2.8, C to Data 2 =2.2 *or* C to Data 1 =1.9vdc. C to Data 2 =1.3vdc.**
Data voltages are incorrect. LCD & LED's are responding properly and/or Zone Thermostats are malfunctioning.	Check Zone system wiring for shorts/miswiring. Test wires for Continuity/Shorts. Check BIAS voltage: **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** *BIAS/Term switches on the UT3000 panel and Outdoor units should be set OFF.* Check HVAC equipment for faults via a Communicating T-stat & clear all faults.
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 12 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 miswiring.
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 UT*3000 24v Input terminals R & C;* but 24vac will not be present at any *Thermostat R&C.*
Dampers not responding and The UT3000 LED's are off.	**SOLUTIONS:** Remove 24vac power from UT3000 and allow F1 circuit breaker to cool! Find and repair short(s) in damper and/or thermostat field wiring. Restore 24 vac power.
ISOLATING 24vac SHORTS *140mA & 500mA circuit breakers protect the UT3000 and react to a short in the Thermostat/Damper component field wiring.*	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 breaker is tripped it will get hot to the touch and none of the panel LED's will illuminate. The LCD will also cease to function. 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 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 short 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 no communicating thermostat is connected and a short occurs on the 24v wires, 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.ewccontrols.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.