

# TROUBLESHOOTING GUIDE

| FAULT                                     | POSSIBLE CAUSES                                                                                                                                                | REMEDIES                                                                                                                                                                                                          |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>The system does not start.</b>         | Built-in safety timers have been activated                                                                                                                     | Ensure that 5 minutes has passed from turn on time.                                                                                                                                                               |
|                                           | A breaker has turned OFF or a fuse has blown.                                                                                                                  | Check breakers and fuses.                                                                                                                                                                                         |
|                                           | The thermostat set point is incorrect.                                                                                                                         | Check control settings are correct. Check the thermostat “set-point” is set low enough for cooling or high enough for heating.                                                                                    |
|                                           | The master wall controller timer setting is incorrect.                                                                                                         | Check the master wall controller timer settings. See Operating Instructions section.                                                                                                                              |
| <b>Air does not flow (Indoor unit)</b>    | Zones might be switched off.                                                                                                                                   | Check zones are switched on.                                                                                                                                                                                      |
|                                           | During heating operation, the hot start function may have been activated.                                                                                      | During heating operation the indoor fan is delayed for 46 seconds or until the indoor coil reaches 24°C (whichever occurs first). This is to prevent cold drafts. Wait 46 seconds and the air will start flowing. |
|                                           | During defrost of the outdoor coil in heating operation; the indoor fan will not operate for several minutes. (“HEAT” LED flashes on master wall control).     | This is normal operation during the defrost cycle to prevent cold air being blown into rooms.                                                                                                                     |
| <b>Cooling/Heating is not sufficient.</b> | The cooling/heating function may not work effectively when the return air filter is clogged with dust and dirt.                                                | Clean the return air filter.                                                                                                                                                                                      |
|                                           | The cooling/heating function may not work effectively if the air inlet and air outlet on the outdoor unit are blocked.                                         | Make sure the air inlet and air outlet on the outdoor unit is not blocked. Check that the area around the outdoor unit is free from obstructions that may cause the airflow to recirculate.                       |
|                                           | The airflow across the indoor coil may not be enough and the anti-freeze protection or over heat prevention systems can lower the cycle capacity for the unit. | Reduce the total static pressure on the indoor fan to increase airflow. For example increase duct sizes, reduce tight duct work bends or increase return air grille size.                                         |
|                                           | The cool/heat load is too great for the air conditioner.                                                                                                       | Perform a heat load analysis on the conditioned space. You may need to consider upgrading your air conditioner with a larger system.                                                                              |
|                                           | Open windows or doors will cause inefficient operation.                                                                                                        | Close windows and doors in conditioned areas.                                                                                                                                                                     |
|                                           | Appropriate zones not turned on.                                                                                                                               | Turn on appropriate zones (if applicable)                                                                                                                                                                         |
|                                           | The outside temperature is beyond the air conditioner design conditions.                                                                                       | If you know a extreme day is coming turn the air conditioner on a few hours before ambient temperatures reach extreme. This should help on those few extreme days.                                                |
|                                           | You may be trying to operate the whole house on ESP Fan Mode.                                                                                                  | Change fan mode to CONT HIGH fan speed. This increases the total fan speed. This will boost fan capacity.                                                                                                         |

# TROUBLESHOOTING GUIDE

| FAULT                                                                                                                                                                                | POSSIBLE CAUSES                                                                                                                                                                     | REMEDIES                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Steam emitted from outdoor unit.</b>                                                                                                                                              | This is caused by the defrosting operation of the outdoor units heat exchanger in heating operation in cold ambient conditions.                                                     | This is normal during the defrost operation in cold ambient conditions.                                                                                                                                                                                                                          |
|                                                                                                                                                                                      | Condensation of water on the outdoor coil during heating operation.                                                                                                                 | This is normal during heating operation. You can purchase drip trays to contain then drain this excess water.                                                                                                                                                                                    |
| <b>Set temperature cannot be adjusted.</b>                                                                                                                                           | The zone control set temperature limits are being exceeded.                                                                                                                         | Check the upper and lower temperature limits are set correctly. See operation manual for details on setting upper and lower temperature limits.                                                                                                                                                  |
| <b>Occasional wishing noise can be heard on heating cycle.</b>                                                                                                                       | This is the sound of the gas changing directions as de-ice cycle begins.                                                                                                            | This is a normal function of an air conditioner. The unit is removing any ice on the outdoor unit.                                                                                                                                                                                               |
| <b>The compressor is running but the system is not cooling.</b>                                                                                                                      | You are in heating mode.                                                                                                                                                            | Check the temperature settings.                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                      | The reversing valve has jammed between heating and cooling.                                                                                                                         | Replace reversing valve.                                                                                                                                                                                                                                                                         |
| <b>The outdoor coil keeps freezing over.</b>                                                                                                                                         | Outdoor coil sensor might be faulty. See sensor (temperature/resistance) table and check resistance value.                                                                          | Replace faulty sensor.                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                      | May have obstruction in outdoor coil.                                                                                                                                               | Remove obstructions.                                                                                                                                                                                                                                                                             |
| <b>There is only one condenser fan working.</b>                                                                                                                                      | The fan is faulty. Test the fan motor for correct voltage, check the motor winding resistance, open circuit, check capacitor, etc.                                                  | Replace faulty fan. If the fan motor needs to be replaced and there isn't one available immediately, then just disconnect the fan electrically and cover the faulty motors fan guard. This way the unit can still operate at reduced capacity using 1 fan until you get a replacement fan motor. |
| <b>The system is short on gas. You've fixed the leak and want the system to operate at 100% so gas charge can be corrected. What can you do to ensure 100% compressor operation?</b> | You can adjust your wall controller temperature so you have a large differential. This will operate at the system at 100% till the temperature gets to within 4°C of the set point. | Select Cooling or heating mode. If cooling adjust set-points more than 4°C lower than room temp. If Heating adjust set-points more than 4°C higher than room temp. Complete charging procedure until finished.                                                                                   |
| <b>The indoor unit gives out odour.</b>                                                                                                                                              | This happens when smell of the room, furniture, or cigarettes are absorbed into the unit and discharged with the airflow.                                                           | If this happens, we recommend you to run the air conditioner on cooling for a period of time with the doors and windows open or have the indoor unit washed by a technician. Consult the installer from whom you bought the air conditioner.                                                     |
|                                                                                                                                                                                      | Check the drain is not piped into the sewerage drain line.                                                                                                                          | Re-pipe drain with a P-Trap and connect into household drainage or storm water drain.                                                                                                                                                                                                            |

# TROUBLESHOOTING GUIDE

| FAULT CODE | SEQUENCE OF EVENTS                                                                                                                                                                                                                                                                                      | POSSIBLE CAUSES                                                                                                                                                                                                             | REMEDIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>E2</b>  | E2 displayed on master wall controller. Anti freeze protection & over heat protection is bypassed. Compressor PWM (loaded) opens 100%. Pre-heat on defrost is determined by 60 second delay timer.                                                                                                      | Indoor Coils (Coil Out) sensor is open or short circuit.                                                                                                                                                                    | Replace indoor (Coil Out) Sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|            |                                                                                                                                                                                                                                                                                                         | Resistance of sensor is outside AMIB board parameters range. E. g: Temperature reading is greater than or less than the corresponding temperature of coil sensor resistance in the chart. Coil sensor is physically damaged | Check resistance reading of the sensor and compare if it complies to temperature and resistance chart. If not, replace faulty sensor. If the measured resistance is >42K ohm or <1. 4K ohm after the unit is turned off for 10 seconds, then the coil sensor is faulty.                                                                                                                                                                                                                                                          |
|            |                                                                                                                                                                                                                                                                                                         | Sensor not plugged into indoor board sensor.                                                                                                                                                                                | Plug-in sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>E3</b>  | E3 will be displayed on master wall control every time it is switched on. Note: If there are two sensors on one zone the system will switch to the sensor that is working and no fault code will be displayed, unit will operate as normal. E3 is displayed on the appropriate zone controller (LM-ZC). | Remote sensor is in short circuit                                                                                                                                                                                           | Replace room sensor's) / wall control. NOTE: Carry out Ultima test procedure.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|            |                                                                                                                                                                                                                                                                                                         | No sensor connected.                                                                                                                                                                                                        | Fit appropriate zone sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|            |                                                                                                                                                                                                                                                                                                         | Electrical Interference                                                                                                                                                                                                     | Use zone cables with correct CAT5E with ActronAir specification cables. Cables must be undamaged and connected properly. Ensure correct separation from 240V mains cables is maintained. Ensure zones and/or control cable are not coiled up in roof space or pulled tightly over ceiling timbers etc. Ensure that the earth wire of mains is connected properly. Ensure RJ45 sockets and plugs connected are free from dirt, dust moisture and etc. Check installation and commissioning guide for guidelines on installation o |
| <b>E4</b>  | No preheat on start up, indoor fan will come on straight away. After de-ice, indoor fan will start after 30 seconds. No Low Capacity Mode in heating or cooling mode E4 will be displa                                                                                                                  | Indoor Coils (Coil In) sensor is open or short circuit.                                                                                                                                                                     | Replace indoor (Coil In) Sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|            |                                                                                                                                                                                                                                                                                                         | Coil sensor is physically damaged.                                                                                                                                                                                          | Check resistance reading of the sensor and compare if it complies to temperature and resistance chart. If not, replace faulty sensor. If the measured resistance is >42K ohm or <1. 4K ohm after the unit is turned off for 10 seconds, then the coil sensor is faulty                                                                                                                                                                                                                                                           |
|            |                                                                                                                                                                                                                                                                                                         | Resistance of sensor is outside AMIB board parameters range. E. g: Temperature reading is greater than or less than the corresponding temperature of coil sensor resistance in the chart.                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

# TROUBLESHOOTING GUIDE

| FAULT CODE                          | SEQUENCE OF EVENTS                                                                                                                                                                      | POSSIBLE CAUSES                                                        | REMEDIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Constant E5</b>                  | No display change to LM-ZC zone control. Communication lost between indoor and outdoor.                                                                                                 | Incorrect wiring from indoor board to outdoor board.                   | Check wiring diagrams and fix incorrect wirings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                     |                                                                                                                                                                                         | Data cable is shorted or damaged.                                      | Check cable continuity and replace if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                     | E5 will be displayed every time unit is switched on. System will stop functioning.                                                                                                      | Faulty indoor or outdoor circuit board.                                | Check voltages and compare with the expected voltages in ESP Ultima System in Normal Operation in next section.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Alternating E5 and Set Temp.</b> | System will stop functioning. Broken cable / open circuit wire. E5 will be displayed on wall control every time it is switched on. Zone control display solid E5, zone lights stays on. | Incorrect wiring from indoor board to wall control.                    | Check and fix any incorrect wiring. Or replace cable/zone motor/zone interconnecting cable.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                     |                                                                                                                                                                                         | Loss of communication between 8-zone module and zone controls/sensors. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                     |                                                                                                                                                                                         | Interconnecting cable open or closed circuit.                          | Check/test cable and replace if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                     |                                                                                                                                                                                         | Broken Cat5 cable between indoor board and 8Z-VAV                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                     |                                                                                                                                                                                         | Dirty or loose contacts on cat5 cable                                  | Ensure RJ45 sockets and plugs connected are free from dirt, dust moisture and etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                     |                                                                                                                                                                                         | Too many zone barrel installed.                                        | Check number of zone motors and ensure it does not exceed 10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                     |                                                                                                                                                                                         | Excessive cable lengths.                                               | Check cable lay out and reduce cable length to within the maximum cable lengths allowed. See maximum cable length guidelines.                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                     |                                                                                                                                                                                         | Faulty zone motor                                                      | Test zone motor and if necessary replace motor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                     |                                                                                                                                                                                         | Electrical Interference                                                | Use zone cables with correct CAT5E with ActronAir specification cables. Cables must be undamaged and connected properly. Ensure correct separation from 240V mains cables are maintained. Ensure zones and/or control cable are not coiled up in roof space or pulled tightly over ceiling timbers etc. Ensure that the earth wire of mains is connected properly. Ensure RJ45 sockets and plugs connected are free from dirt, dust moisture and etc. Check installation and commissioning guide for guidelines on installation of communication cable. |
|                                     |                                                                                                                                                                                         | Sensor reading incorrectly.                                            | Check/test sensor and compare versus temperature resistance chart. Replace if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

# TROUBLESHOOTING GUIDE

| FAULT CODE                                                                                                                 | SEQUENCE OF EVENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | POSSIBLE CAUSES                                       | REMEDIES                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>E6<br/>Fault<br/>discharge<br/>temp</b>                                                                                 | Compressor stops for 5 minutes for the 1st and 2nd trip. If the discharge sensor trips out three times in a row, then the unit will remain off for 15 minutes before attempting to re-start (note if discharge sensor is still above 100°C after 5 minutes (or 15 minutes 3rd trip) compressor will not attempt to re-start until sensor is below 100°C). Outdoor fan/s run on high. E6 will be displayed on wall control during the period the unit has tripped on the discharge sensor safety. | Low gas charge in system.                             | Additional gas needed to be added to pre-charge for any additional pipe length.               |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Blockage or restriction in refrigerant flow.          | Check for foreign substances in the pipe work. Clean/evacuate the refrigerant in the system.  |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | EXV is defective.                                     | Check if EXV solenoid and valves are in operation. See EXV testing procedure in next section. |
| <b>E7 Fault</b>                                                                                                            | Outdoor fans go to high (while unit is running). Defrost will occur every (23 minutes) when on heating. E7 will be displayed on wall control every time it is switched on.                                                                                                                                                                                                                                                                                                                       | Outdoor Coil sensor is open or short circuit.         | Replace outdoor coil sensor                                                                   |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | In correct wiring.                                    | Ensure, sensor is wired as per wiring diagram.                                                |
| <b>E8 Fault</b>                                                                                                            | Discharge protection will be bypassed. Unit will run as normal operation. E8 will be displayed on wall control every time it is switched on.                                                                                                                                                                                                                                                                                                                                                     | Compressor discharge sensor is open or short circuit. | Replace compressor discharge sensor                                                           |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Loose wiring on PCB.                                  | Ensure sensor is making good contact with PCB.                                                |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Incorrect wiring in PCB.                              | Check wiring and ensure it is wired according to wiring diagram.                              |
| <b>E9 Fault<br/>High<br/>or Low<br/>Pressure<br/>cut-out<br/>/ Phase<br/>error (3<br/>phase<br/>models<br/>only)</b>       | Compressor stops for 5 minutes for the 1st and 2nd trip. If the low or high pressure sensor trips out three times in a row, then the unit will remain off for 15 minutes before attempting to restart. Outdoor fans stop.                                                                                                                                                                                                                                                                        | Insufficient airflow over indoor coil.                | Check if the required airflow is flowing across the indoor coil.                              |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Under or over charged with refrigerant.               | Add or remove gas until gas charge is correct.                                                |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Faulty LP or HP control.                              | Inspect and test pressure control. Replace if necessary.                                      |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Insufficient airflow over outdoor coil.               | Check to see if the required airflow is flowing across the outdoor coil.                      |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Faulty O.D. board CPU relay.                          | Replace faulty PCB.                                                                           |
|                                                                                                                            | E9 will be displayed on wall control during the period the unit has tripped out on the safety, after the 3rd trip.                                                                                                                                                                                                                                                                                                                                                                               | There is/are blockage in refrigeration system.        | Remove blockage from refrigeration system.                                                    |
|                                                                                                                            | 3 Phase sequence relay will indicate a red light OFF (red light turns OFF) as well as showing E9, if the phase rotation is incorrect or unit has dropped a phase.                                                                                                                                                                                                                                                                                                                                | Incorrect phase rotation                              | Swap two of the phases from the incoming power supply.                                        |
| <b>Zone light<br/>in the<br/>master<br/>wall<br/>controller<br/>is turning<br/>off when<br/>the zone is<br/>turned ON.</b> | Light turns on when the zone button is pushed on master wall control and then switches off by itself.                                                                                                                                                                                                                                                                                                                                                                                            | Disconnected cable/open circuit cable.                | Ensure cables are connected correctly. Use components from Ultima test kit                    |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Faulty zone motor.                                    | Replace faulty zone motor. Use components from Ultima test kit                                |
|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Faulty zone control / sensor.                         | Replace faulty zone control/ sensor. Use components from Ultima test kit.                     |

# TROUBLESHOOTING GUIDE

## EXV OPERATION TEST

NOTE: This process will require two persons in order to carry out this procedure correctly.

1. Check both indoor coil sensors (evap in & out), Ensure the sensors are located in correct position and the resistances are read normal. If not, replace faulty sensor and test again, if normal proceed to next step.
2. Turn the system on and run for 5-10mins (This may not be possible depending on fault with system). Assign one person in the roof next to indoor unit/EXV and other person at the master wall control.
3. Turn system off at the master wall control (this should drive the EXV to the fully open position), can the person in the roof hear the EXV opening? (This can be identified through a slight vibration through the EXV, and a ticking noise as the valve opens). If this can be heard, the EXV is operating. If not, proceed to next step.
4. Isolate mains power and remove EXV stator coil from indoor board. Measure resistances of the stator coil (see below). If resistance readings are away from normal level, change EXV stator coil & re-test operations. If EXV stator coil resistances are normal proceed to next step.
5. Test supply voltages from indoor board to EXV stator coil. If voltage reading is not normal change the indoor board, repeat go back to test procedure
6. After all the process above and the EXV still not working, then it is faulty and must be replaced.

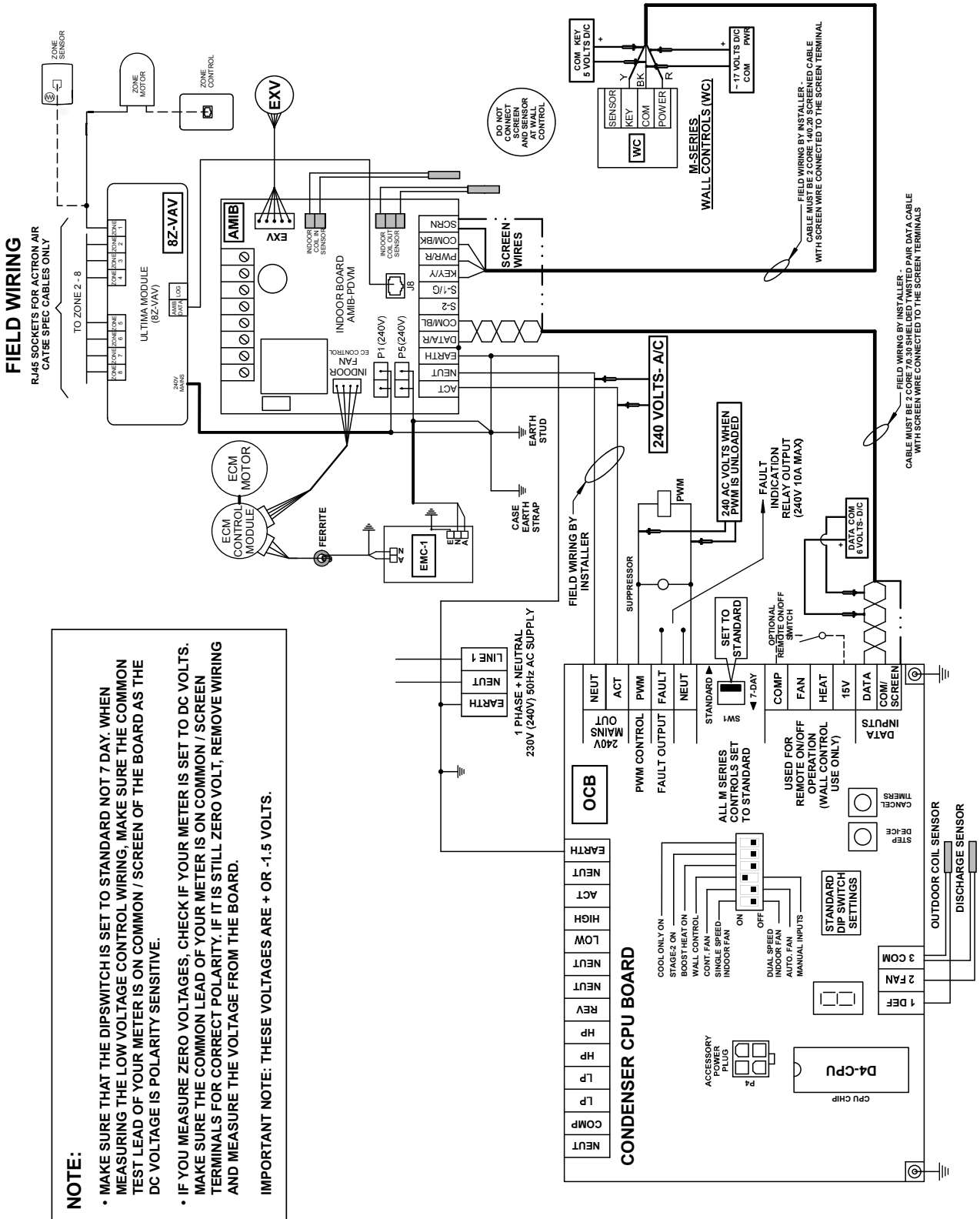
### Normal Stator Coil Resistance (Dunan EXV):

Between Grey and Black wires, 33 ohm;  
Between Grey and Yellow wires, 33 ohm;  
Between Grey and Red wires, 33 ohm;  
Between Grey and Orange wires, 33 ohm;

Power supply to EXV is from +12Vdc to +16Vdc (on grey wire). Grey wire is common (+ve).

# TROUBLESHOOTING GUIDE

## EXPECTED VOLTAGE DURING NORMAL OPERATION



# TROUBLESHOOTING GUIDE

## EC FAN TROUBLESHOOTING

| FAULT                                                    | SEQUENCE OF EVENTS                                                                                                                                      | POSSIBLE CAUSES                                                                                             | REMEDIES                                                                                                                 |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Airflow hunting during ESP &amp; Self Learn Mode.</b> | Indoor fan will intermittently “huff”.                                                                                                                  | Excessive static in ductwork.                                                                               | Reduce static where possible. See installation guidelines on duct installation.                                          |
| <b>Too much airflow when minimum zones are on.</b>       | Air is blowing too much when in minimum zones.                                                                                                          | Fan not set to ESP Mode.                                                                                    | Change fan setting to ESP Mode.                                                                                          |
|                                                          |                                                                                                                                                         | Duct design is not air balanced correctly.                                                                  | Adjust the duct design to air balance correctly.                                                                         |
|                                                          |                                                                                                                                                         | Minimum duct and outlet sizes requirements not followed.                                                    | Check versus ActronAir guidelines and adjust / change if necessary. See installation manual for guidelines.              |
| <b>ESP Mode is not available.</b>                        | When scrolling through fan speeds, ESP Mode is not selectable.                                                                                          | During commissioning, Self-Learn mode was not activated.                                                    | Carry out self learn mode. See additional operating instruction.                                                         |
|                                                          |                                                                                                                                                         | Self learn mode failed during commissioning.                                                                | Ensure that the air is balanced correctly (static may be too low). See guidelines on duct installation.                  |
| <b>Low airflow during AUTO Mode.</b>                     | System produces reduced airflow on Auto mode when all or minimum zones are on.                                                                          | System capacity has been designed to heat/cool only selected areas of the conditions space at any one time. | Operate indoor fan on Low/ Med/High speed to achieve more airflow.                                                       |
|                                                          |                                                                                                                                                         | Excessive static in ductwork.                                                                               | Reduce static where possible. Review duct design with reference to ActronAir design guidelines (Service Manual, Sec.21). |
| <b>Indoor fan not changing speeds when in Auto Mode.</b> | When zones are switched to the off position, or as the damper position of active zones close (VAV zones only), airflow to active zones does not reduce. | There is insufficient static within the duct design of the active zones.                                    | Review duct design with reference to ActronAir design guidelines (Service Manual, Sec. 21).                              |
|                                                          | When zones are switched to the on position, or as the damper position of active zones open (VAV zones only), airflow to active zones does not increase. | There is excessive static within the duct design of the active zones.                                       | Review duct design with reference to ActronAir design guidelines (Service Manual, Sec. 21).                              |



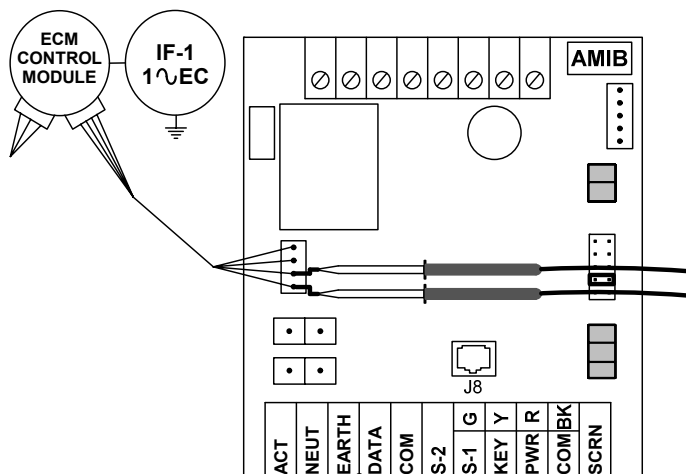
# TROUBLESHOOTING GUIDE

## EC FAN TROUBLESHOOTING continuation....

| FAULT                                                           | SEQUENCE OF EVENTS                                                                                                                                                                                      | POSSIBLE CAUSES                                                                                  | REMEDIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Indoor fan not changing speeds when in Auto Mode.</b></p> | <p>When zones are switched on or off, or as the damper position modulates between the open &amp; closed position (VAV zones only) of active zones open, airflow to actives zones does not increase.</p> | <p>The indoor PCB is not changing the fan PWM to adjust the fan PWM to adjust the fan speed.</p> | <p>Check the output PWM from indoor PCB. An increase in fan speed should result in a increase in the fan % PWM (duty cycle). Refer to table below test points expected voltages.</p> <p>To determine if the system may be suffering from excessive or insufficient static, check PWM &amp; RPM values through the indoor unit dashboard on the Master Wall Controller:</p> <ul style="list-style-type: none"> <li>• If the RPM is at its maximum value, and the PWM has not reached its requested value, this indicates a high static. (Please refer to RPM Limits on next page)</li> <li>• When switching off zones, and there is little or not change in the RPM value, this indicates insufficient static within remaining active zones duct work.</li> </ul> |

### To check output PWM in Indoor PCB

| UNIT MODEL        | EXPECTED PWM % (APPROX) |     |      |
|-------------------|-------------------------|-----|------|
|                   | LOW                     | MED | HIGH |
| SRV131E           | 40                      | 60  | 85   |
| SRV151E / SRM151E | 50                      | 75  | 99   |
| SRV171E / SRM171E | 60                      | 90  | 99   |
| SRV191E / SRM191E | 38                      | 56  | 80   |
| SRV201E / SRM201E | 45                      | 67  | 95   |
| SRV231E / SRM231E | 40                      | 55  | 80   |



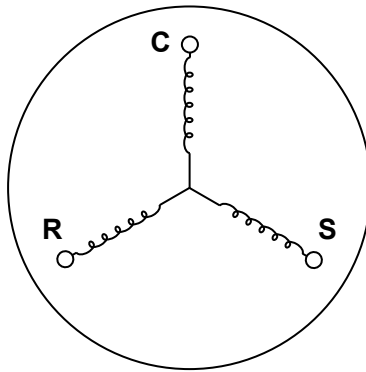
1. Set the tester to measure duty cycle.
2. Measure the the reading across PIN 3&4 (blue and yellow wires).
3. Change fan speed and check for any changes in readings.

# TROUBLESHOOTING GUIDE

## RPM Limits

| UNIT MODEL        | RPM LIMITS     |      |      |
|-------------------|----------------|------|------|
|                   | LOW            | MED  | HIGH |
| SRV131E           | non adjustable |      | 1290 |
| SRV151E / SRM151E | non adjustable |      | 1290 |
| SRV171E / SRM171E | non adjustable |      | 1290 |
| SRV191E / SRM191E | 950            | 1150 | 1290 |
| SRV201E / SRM201E | 950            | 1150 | 1290 |
| SRV231E / SRM231E | 950            | 1150 | 1290 |

## Compressor Windings



**COMPRESSOR WINDINGS  
SINGLE PHASE**

| UNIT MODEL | COMPRESSOR<br>PART NUMBER / MODEL | RATING OF COMPRESSOR WINDINGS<br>(OHMS) |             |             |
|------------|-----------------------------------|-----------------------------------------|-------------|-------------|
|            |                                   | C - S                                   | C - R       | S - R       |
| SRD131C    | ZPD42KSE-PFZ                      | 0.84-0.966                              | 0.46-0.53   | 1.3-1.496   |
| SRD151C    | ZPD54KSE-PFZ                      | 0.942-1.084                             | 0.472-0.544 | 1.414-1.628 |
| SRD173C    | ZPD61KCE-TF0                      | 2.226-2.562                             | 2.226-2.562 | 2.226-2.562 |
| SRD191C    | ZPD67-KCE-PFC                     | 1.404-1.616                             | 0.353-0.407 | 1.757-2.023 |
| SRD203C    | ZPD72KCE-TF0                      | 2.226-2.562                             | 2.226-2.562 | 2.226-2.562 |
| SRD233C    | ZPD83KCE-TF0                      | 1.821-2.095                             | 1.821-2.095 | 1.821-2.095 |