

CSC UCM Issues

Frequently asked questions

How do I remotely start and stop the unit?

A binary input is provided to take the unit unoccupied, this point is also utilized by the factory mounted time clock. This input is what should be used for normal time of day scheduling of a unit not connected to a Trane building automation system. This input is a priority 3 input.

New units with manual switch 1TB7-8 and 1TB3-10 a closure between points is unoccupied.
Old units without manual switch 1TB3-2 and 1TB3-10 a closure between points is unoccupied.

When troubleshooting it is important to understand that these points provide 24 VAC to 1U1-A1-J1-1 in order to take the unit unoccupied.

How do I override all normal operating commands to stop the fan and all heating and cooling functions?

A binary input is provided for external interlock auto stop. This is a priority 2 input. Typically this is connected to a smoke detection system.

Open the circuit between 1TB3-3 and 1TB3-11 to place the unit in stop mode. This is not to be used for normal time of day scheduling. Typically used for a safety stop.

When troubleshooting it is important to understand that these points provide 24 VAC to 1U1-A1-J1-2 in order to allow unit operation.

How can I bring the fan on and lock out all heating and cooling functions?

A binary input is provided for fan on ventilate. This is a priority 1 input. In this mode it should be noted that the freeze protection will not stop the fan or close the outside air dampers however fan motor protection will be enforced and on units with fan modulation duct static protection and airflow modulation functions will be active.

Close the circuit between 1TB3-4 and 1TB3-14 to place the unit in Max. ventilation mode. This is not to be used for normal unit operation. Typically used for part of a smoke evacuation system. It should be noted in this mode: Fan is on, static pressure control is active, outside air damper is requested open. Caution; if a low entering air temp. is detected the fan will not stop and the outside air dampers will not be given a close request. Heat is locked out along with cooling functions. Water valves will be opened if low temp is detected to help prevent freezing however the coil is not the primary concern in this mode.

When troubleshooting it is important to understand that these points provide 24 VAC to 1U1-A4-J1-2 in order to place the unit in Max. Vent.

My unit with water side economizer closes both valves and my water pumps dead head. What can I do?

I would start out assuming that nothing is wrong with the unit. It is very likely that the unit was ordered with energy saving valves and the system was not designed to allow for pump modulation. The unit can be converted to allow constant water flow by changing the switch setting on 1U1-A3-SW3-3 to the off position. This only works for water side econ. Units. Units with condensing pressure control must operate on pumping systems that allow pump modulation or that are equipped with bypass loops. Note: Before making any changes we need to make sure that all parties are in agreement that pump modulation is not a requirement on the job. It is possible that the pump VFD's just haven't been installed yet. If we just make the change without asking it is possible we will get in trouble at a later date for not modulating our valves.

Any changes to these switches should be noted on the configuration label.

How can I enable NHMW on my unit?

Make the following switch change 1U1-A3-SW3-4 turn to "ON".

For Supply Air Temp. Control units (VAV) a night heat sensor (5RT3) and a morning warm-up sensor (5RT5) will be required. (Even on Tracer Systems)

To verify operation take the unit to the unoccupied mode and set all temperature set points to max. The fan should start and the unit should be in an unoccupied heating mode. The fan may require a 5 min minimum off time to expire before starting. If this does not work, the UCM you are working with is not capable of doing NHMW. If the unit is on a Tracer system this mode can be activated even if it is not functional with this test.

How can I make my Zone Temperature Control unit do occupied day heating?

Make the following switch change 1U1-A3-SW2-2 turn to "ON".

CAUTION: Before making this change make sure that 1U1-A3-SW2-3 is "OFF" If this switch is "ON" you are not dealing with a zone temp. control unit and you will lose fan motor overload protection.

When verifying operation of the heating function please keep in mind that the heating set point must be lower than the cooling set point.

Can I read any temperatures off the UCM?

Yes. A service menu can be viewed by placing 1U1-A3-SW2-4 to the "ON" position. This will activate five additional displays.

1. - (Auto Remote) Supply air setpoint or reset modified supply air setpoint.
1. - (Auto Local) Reset modified supply air setpoint or external setpoint input signal.
2. - Zone / Night Heat sensor reading (5RT3).
3. - Supply air sensor reading (4RT1).
4. - Morning warm-up sensor reading (5RT5).
5. - Entering air sensor reading (4RT4).

What binary outputs are available for system interface? Unless otherwise indicated all of these points are dry and rated for 24 or 115 VAC duty. (Pilot duty service)

“Heat Relay”

These points are functional on Zone Temp. Heat/Cool or any unit with NHMW or PNS (Programable Night setback). Points can be used to activate external heaters or to reverse VAV box action when the CSC unit is actively heating.

Caution: If unit is provided with factory provided heat these control points are live and not intended for connection to systems requiring dry contacts. If unit is not provided with factory heat the control points are dry.

- 1TB5-1 N/O
- 1TB5-2 C
- 1TB5-3 N/C

“VAV BOX Heat/Cool Relay

These points are functional on supply air temp control units with NHMW or PNS. Control points are activated when CSC unit is in heating mode. It should be noted that the CSC unit can be in the heating mode while not actively heating, such as while transitioning out of morning warm-up.

- 1TB5-4 N/O
- 1TB5-5 C
- 1TB5-6 N/C

“Unoccupied Mode Indicator”

These points are functional on all units. These points are activated during unoccupied times. It should be noted that Night Heat and Morning Warm-up are considered unoccupied functions. However the transition period that terminates the morning warm-up function is considered an occupied mode.

- 1TB5-7 N/O
- 1TB5-8 C
- 1TB5-9 N/C

“Ventilation Relay”

These points are functional on all units. These points are activated during occupied times. It should be noted that Night Heat and Morning Warm-up are considered unoccupied functions. However the transition period that terminates the morning warm-up function is considered an occupied mode. Day heating and all cooling function are also occupied modes.

- 1TB5-10 N/O
- 1TB5-11 C
- 1TB5-12 N/C

“Condenser Water Relay”

These points are functional on all units. Points are activated prior to any cooling function that requires water.

1TB5-13 N/O
1TB5-14 C
1TB5-15 N/C

“Dirty Filter Indicator”

These points are functional only on units equipped with the factory mounted dirty filter switch. When a dirty filter condition is detected by a differential pressure switch these points are activated.

1TB5-16 N/O
1TB5-17 C
1TB5-18 N/C

“Alarm Indicator”

These points are functional on all units. Points are activated when a diagnostic condition is detected. Points will not be activated for a dirty filter or low condenser water temp.

1TB5-19 N/O
1TB5-20 C
1TB5-21 N/C

Supply Air Temperature Reset

This function resets the active supply air setpoint up when a field installed zone sensor detects temperatures below the reference point.

In order to activate this function the following switch configuration settings should be made and a reset sensor installed {5RT6} (SEN-218) to 1TB2-7 & 8.

1U1-A5

SW1-1 = OFF
SW1-2 = OFF

SW2-1 = OFF
SW2-2 = ON
SW2-3 = OFF
SW2-4 = OFF
SW2-5 = OFF

When the UCM has been configured for this control function, a reset sensor diagnostic will be displayed when the reset sensor {5RT6} is disconnected from A5-TB1-1 & 2. Once it is verified that the reset function is active on the UCM the three rotary dip switches (SW3, SW4, SW5) will need to be configured to provide the desired results.

1U1-A5

SW3 Reset Gain	SW4 Reset Reference	SW5 Reset Limit
0 = 1.0 deg. F	0 = 60 deg. F	0 = 5 deg. F
1 = 2.0 deg. F	1 = 64 deg. F	1 = 6 deg. F
2 = 3.0 deg. F	2 = 66 deg. F	2 = 7 deg. F
3 = 4.0 deg. F	3 = 68 deg. F	3 = 8 deg. F
4 = 5.0 deg. F	4 = 69 deg. F	4 = 10 deg. F
5 = 6.0 deg. F	5 = 70 deg. F	5 = 12 deg. F
6 = 7.0 deg. F	6 = 71 deg. F	6 = 15 deg. F
7 = 8.0 deg. F	7 = 72 deg. F	7 = 20 deg. F
	8 = 73 deg. F	
	9 = 74 deg. F	
	A = 75 deg. F	
	B = 76 deg. F	
	C = 77 deg. F	
	D = 78 deg. F	
	E = 79 deg. F	
	F = 80 deg. F	

New Supply Air Setpoint = Gain {A5-SW3} X (Reset Ref. {A5-SW4} - Zone Temp. {5RT6}) + Base Setpoint ("d" potentiometer or Tracer)

New Supply Air Setpoint - Base Setpoint must be less than or equal to Reset Limit {A5-SW5}

To view active supply air setpoint you must enable the service menu {1U1-A3-SW2-4 "ON"}. When you view the "1" display this is the active cooling setpoint.

External Setpoint Input

This function externally sets the active Supply Air or Zone cooling setpoint by using an isolated 4-20 mA or 2-10 VDC signal. Unit must be operated in the “Local” mode. Remote is for Trane BAS only.

In order to activate this function the following switch configuration settings should be made and external analog signal attached to 1TB2-9(+) &10(-).

1U1-A5

SW1-1 = OFF(2-10VDC) or ON(4-20mA)

SW1-2 = OFF

SW2-1 = OFF

SW2-2 = OFF

SW2-3 = OFF

SW2-4 = ON

SW2-5 = OFF

When the UCM has been configured for this control function, a reset sensor diagnostic will be displayed when the external signal is disconnected from 1U1-A5-TB1-4 &5

To view active supply air or Zone Cooling setpoint you must enable the service menu {1U1-A3-SW2-4 “ON”}. When you view the “1” display this is the active cooling setpoint

Cooling Setpoint	4-20 mA Signal	2-10 VDC Signal
50 deg. F	4	2
55 deg. F	6	3
60 deg. F	8	4
65 deg. F	10	5
70 deg. F	12	6
75 deg. F	14	7
80 deg. F	16	8
85 deg. F	18	9
90 deg. F	20	10

VFD Issues

Questions you should always ask:

1. What if any diagnostics are displayed on the UCM?
2. What if any diagnostics are displayed on the VFD?
3. Has this unit ever operated correctly?
4. Is the VFD located in the unit or is it remotely mounted?
5. Was this unit ordered with a VFD or is this a field conversion?
6. If this is a field conversion was a factory conversion kit ordered?
7. Is the VFD equipped with a bypass?

Diagnostics (VFD Units) :

• VFD Fault or CT is bad.

Symptom - CE occurs right away VFD never gets a start command.

Cause - This is usually caused by an open VFD fault circuit.

Symptom - CE occurs after about 5 minutes of operating fan never starts. Display never changes out of the pre-fan mode.

Cause - Wiring problem to the run relay or between the run relay and the VFD.

Key Pad Mode - Manual.
TERMINAL - ?
Ready to receive signal.

Symptom - CE occurs after about 5 minutes of operating fan at minimum speed. Display never changes out of the pre-fan mode.

Cause - C.T. is not located on a line between the VFD and the fan motor.

Cause - A3 - SW6 is set to too High a value.

Cause - Wrong number of passes for CT that is installed.

Cause - VFD minimum speed is set too low. (Recommend about 33%)

Symptom - CE occurs during fan operation. Display changes out of the pre-fan mode to fan on or pre-cool.

Cause - C.T. is not located on a line between the VFD and the fan motor.

Cause - A3 - SW6 is set to too High a value.

Cause - Wrong number of passes for CT that is installed.

Cause - Failed CT or wiring problem to CT.

Cause - VFD minimum speed is set too low. (Recommend about 33%)

Cause - Wiring problem to the run relay or between the run relay and the VFD.

Symptom - CE never occurs however VFD never operates above minimum speed.

Cause - A3 - SW3-5 should be set to on.

Cause - Speed reference signal to VFD has been interrupted.

Diagnostics :

Phase reversal

The CSC unit is equipped with three transformers that provide phase protection on the incoming lines. If the primary and secondary on any of these transformers is out of phase the unit will be stuck in a phase reversal condition. Check transformers 1T1, 1T2 and 1T5.

Unit is stuck in the “stop” mode (A 00).

- If unit is in auto remote make sure Tracer has not placed unit in STOP.
- If unit is not on Tracer system make sure it is set to local.
- Make sure the external stop circuit is not open.
- Make sure the 1T5 transformer has not failed.
- Check to make sure that you have 24VAC on 1U1-A1J1-2.