Configuring AIRSYS FCB for Higher Heat Load Sites (> 10kW)

Issue Detail:

The default configuration of the FCB calls for mechanical assist at 78.9°F. Due to internal delay built into the existing AC units, the mechanical cooling assist does not engage immediately upon FCB release (request for MC assist). On sites that have "higher" heat load (>10 kW) this delay can result in the site temperature going significantly above the control limit of ~ 79˚F and in more extreme cases can threaten to trigger a high temp alarm (~ 90˚F).

FCB Control Adjustment description for Higher Heat load sites

A. **Lower mechanical assist turn on point** from 78.9°F to 73°F. This will allow the HVAC system to participate in maintaining site temperature over most if not all of its standard operating range. If equipped with economizer capability, this new setting will allow for the economizer capacity of the existing HVAC system to have the opportunity to contribute to temperature control before the MC function is triggered.

Note: Mechanical assist mode has minimum 8min run time to prevent short cycling the AC units

B. **Lower the Free Cooling turn on point** from 72.8°F to 68°F and max speed setting from 78.9°F to 71°F. This will lower the performance window of the FCB so it has the opportunity to maintain site temperature without requiring any help from the existing HVAC system. When doing so the FCB can maintain site temp while consuming < 500 Watts.

C. **Increase the minimum temperature difference for Free Cooling** from 3.6°F to 5°F (Toutdoor – Tindoor). For heavier loaded sites the FCB requires a higher minimum cooling capacity in order to provide measurable benefit.

For questions or assistance on making these control adjustments please contact Tempest's HVAC Support Line:

HVACSupport@TempestTelecom.com
(805) 879-5432

Detail Instructions for Control Adjustment

All control parameters for the FCB can be changed through the L01 Menu. To access the L01 Menu:

1. Press **Up** and **Down** together to reach indoor temperature display
2. Press **Up** for SEt and then press **Sel**. Your screen should display L01.
3. Press **Sel**, enter the password 123 and press **Sel** again. Your screen should display U01.

Change the following parameters to optimize for higher heat load sites:

Parameter	Description	Default	Change to
P51	Password	123	N/A
U01	Free Cooling Turn On	72.8	68
U02	Free Cooling Max Speed Temperature	78.9	70
U03	Min Temp Difference for Free Cooling	3.6	5
U07	AC1 Turn Off	74.8	70
U06	AC1 Turn On	78.9	73
U09	AC2 Turn Off	74.8	70
U08	AC2 Turn On	78.9	73

***NOTE**: Must lower "Turn Off" first as "Turn On" cannot be lower than "Turn Off"*

FCB Control Diagram Reference (*before above changes*):

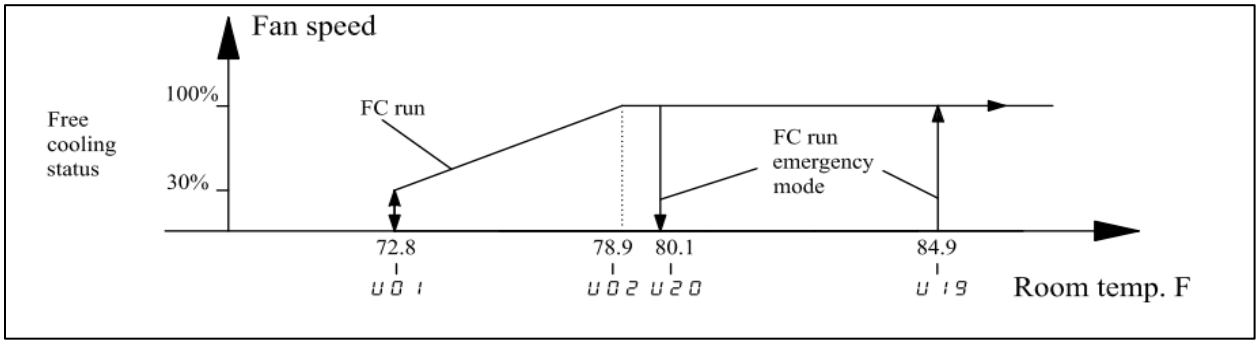

Figure 1: Control Diagram for Free Cooling

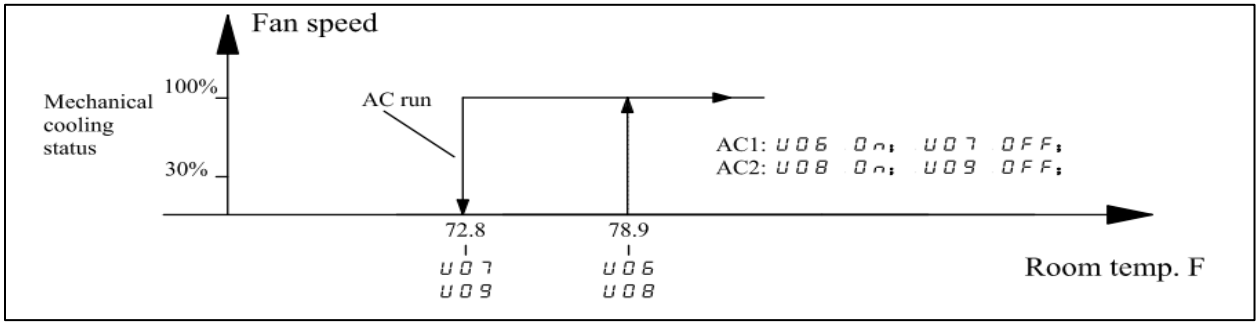

Figure 2: Control Diagram for Mechanical Assist