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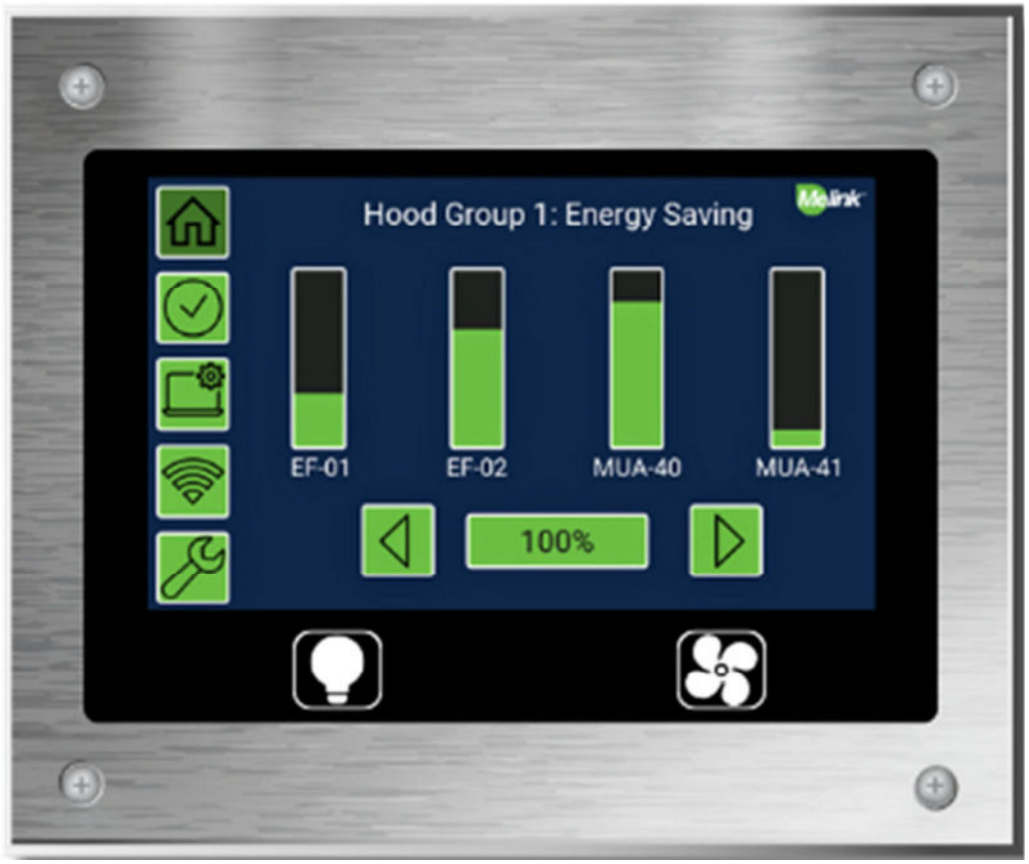
Intelli-Hood 4 Troubleshooting Guide



Intelli-Hood®
Melink Corporation

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Intelli-Hood®
Troubleshooting Guide

I. About this Document

The purpose of this document is to provide basic troubleshooting techniques for the Intelli-Hood Kitchen Control System. The intended audience of this document is the end user of the system: the building owner, kitchen manager, kitchen staff, or maintenance technician.

II. Related Documents

Operations and Maintenance Manual

- Provides information regarding basic operation & maintenance.

Installation Manual

- Provides detailed installation instructions of the components including mechanical installation of parts, power wiring, and control wiring.

VFD Manuals

- Refer to documents provided by the VFD manufacturer for information regarding any aspect of the Variable Frequency Drives including power wiring, control wiring, programming, and faults. Information can be found on their respective web pages.
- System is continually expanding capabilities. Presently, capable of utilizing Modbus control for ABB, Allen-Bradley, Trane, Danfoss, Siemens, Schneider, Samsung, & Yaskawa.

III. Glossary of Abbreviations

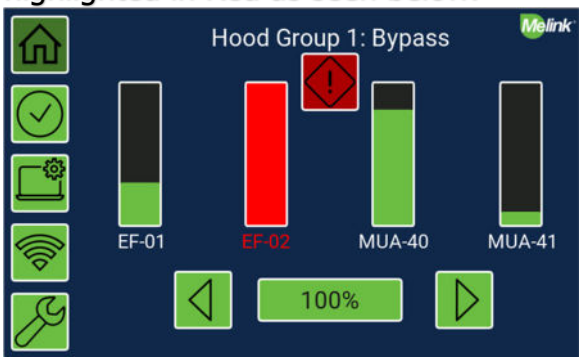
The following terms and abbreviations are used throughout literature pertaining to the Intelli-Hood System.

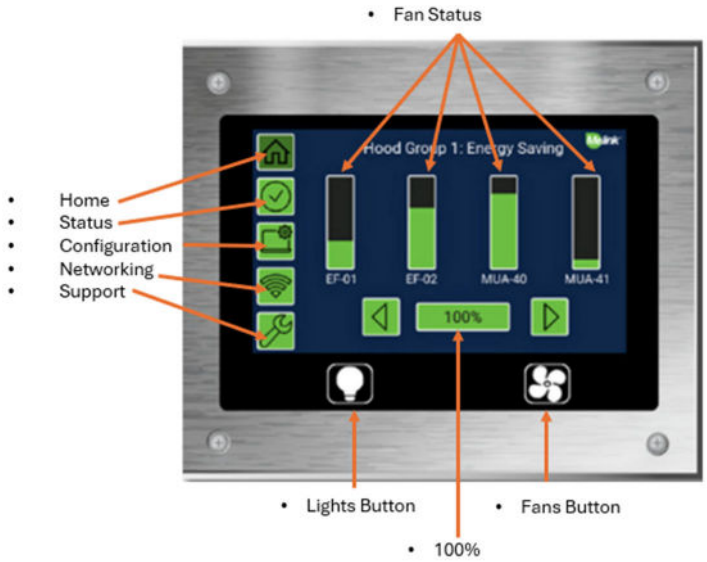
- IH: Intelli-Hood
- VFD: Variable Frequency Drive
- TP: Touchpad
- APU: Air Purge Unit
- SC: System Controller
- HC: Hood Controller
- AT: Auxiliary Touchpad
- AIO: Auxiliary Analog Out Device
- ALC: Auxiliary Light Controller
- APS: Auxiliary Power Supply
- EF: Exhaust Fan
- MUA: Make Up Air

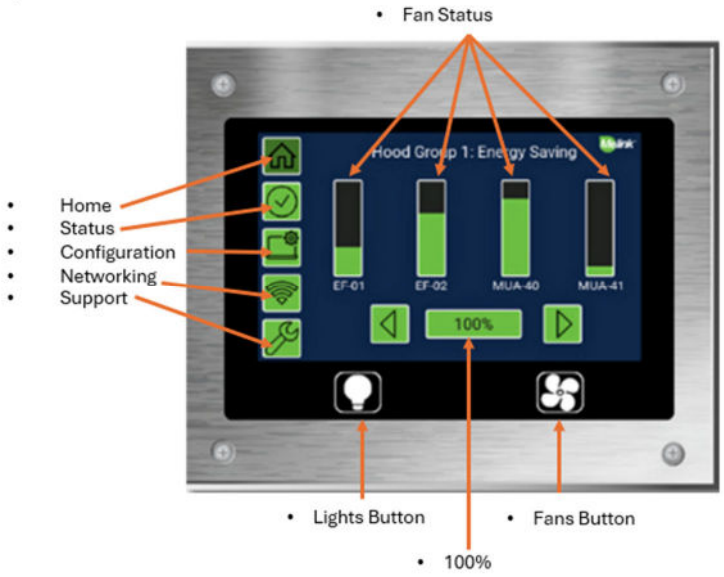
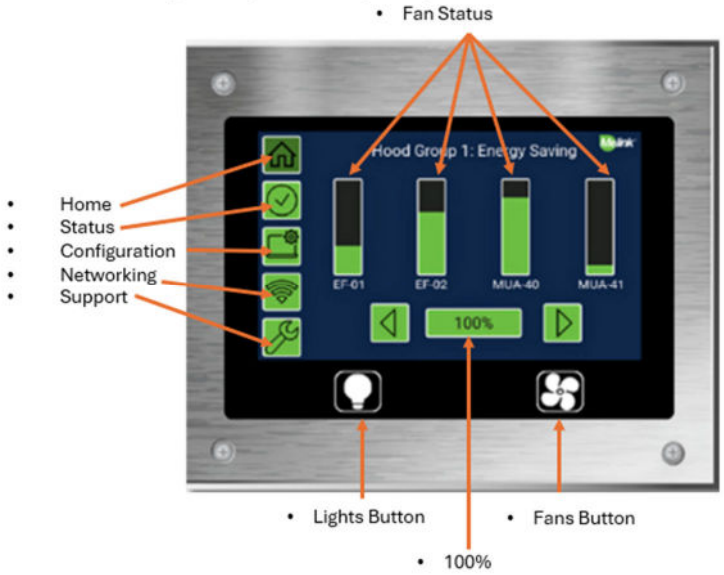
IV. Diagnostics/Troubleshooting

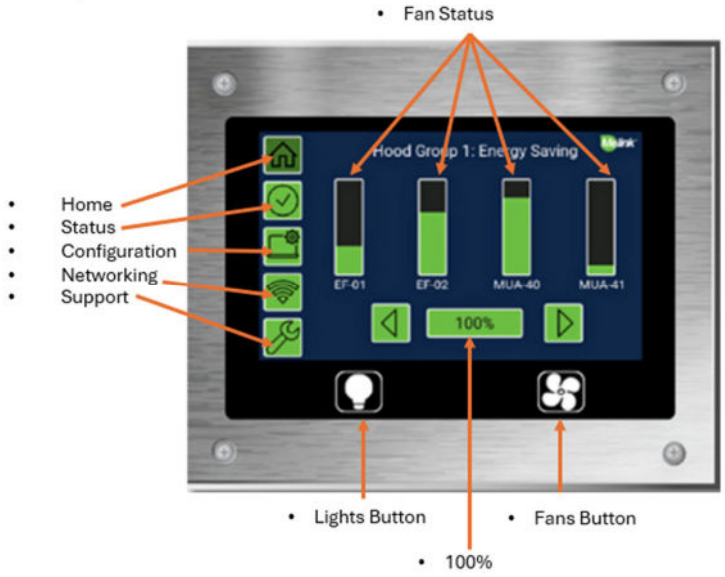
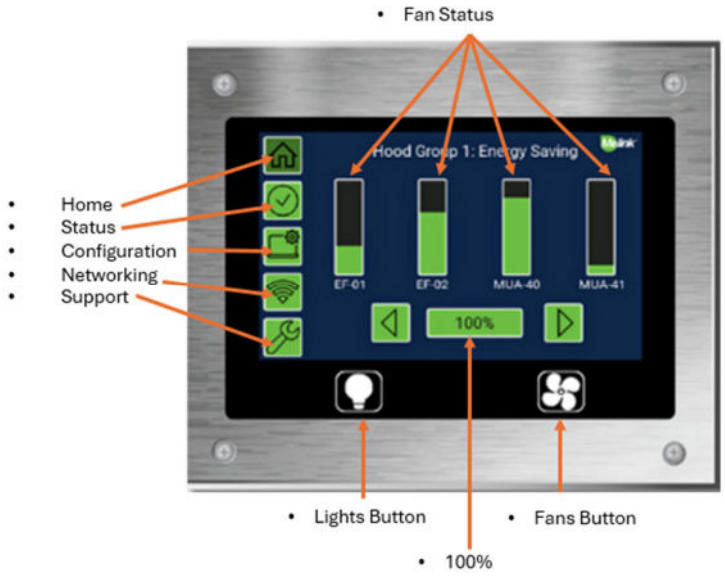
a. Touchpad Display (TP)

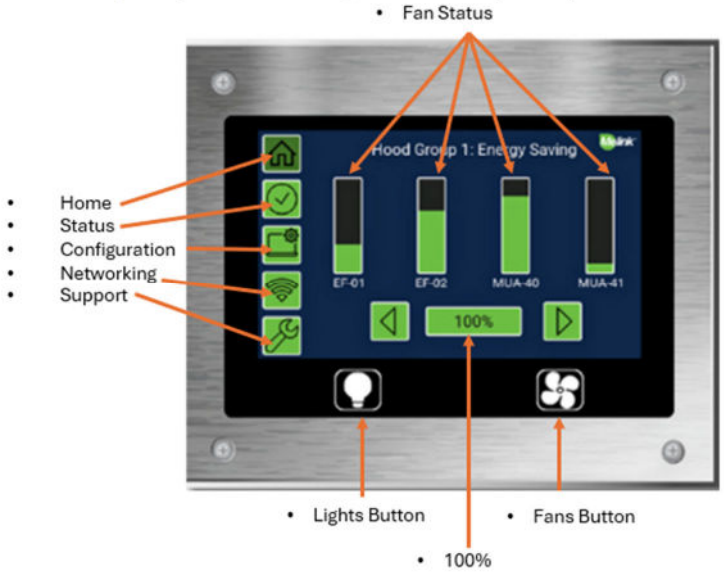
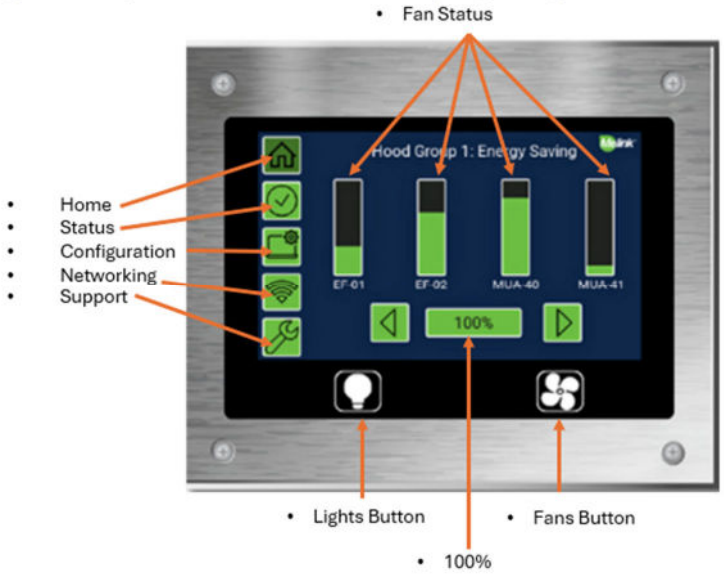
Note: The Intelli-Hood touchpad will display this symbol on the touchpad when a fault is active. Press the active fault button to navigate to active fault detail. The fan associated with the active fault will be highlighted in Red as seen below.

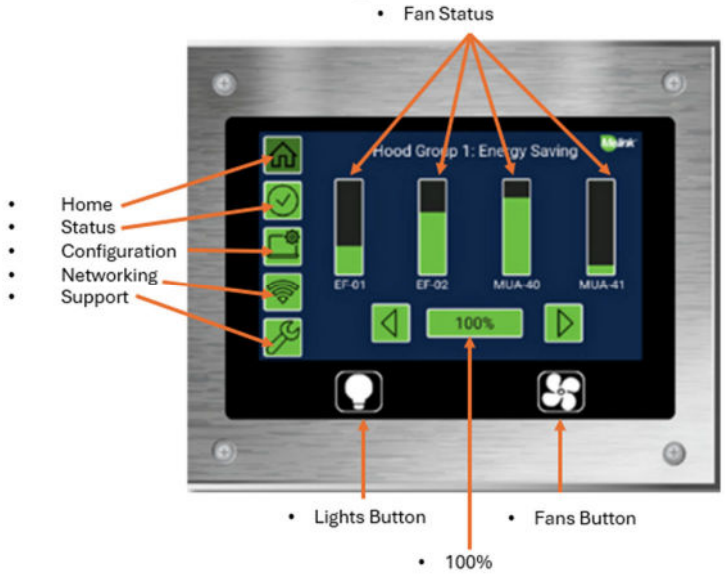
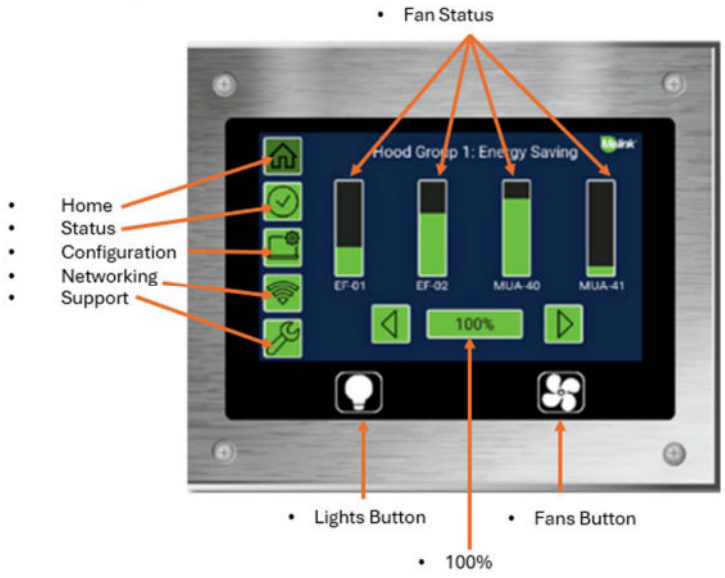


Fault Description	Items to Check
Temp Fault 	Example: HC-xx Temp Fault "Temperature Probe x Missing" • Check associated Hood Controller temp port cable connection as well as temp probe connection. • Check for damaged components. • Check programming. Verify the associated temp probe is part of the hood sensor design. Hit Configuration -> Enter Passcode -> Associated HC -> Verify active temp sensors. Hit Configuration -> Exhaust Hood -> Select Hood-xx -> Verify associated Temp probes. • Plug sensor into another Hood Controller temp port to verify temp sensor reading. • Replace temp probe.

	• If temp sensor is working but actual temp is inaccurate a temp offset can be added in the HC programming.
Optic Fault  	• Verify no obstructions to optic sensor infrared beam (Ansul Pipes, pots / pans, etc). • Confirm sensor lenses are clean. • Make sure that the cables are connected tightly on optic boards & on the hood controller. • Check alignment: Press Status -> HC-xx -> Verify Optics voltage gain. If the System attempts to calibrate when changing alignment, hardware is working properly. • Using the touchpad, go to Status -> HC-xx verify that the optics are not missing.
Variable Frequency Drive (VFD) Fault  	Note: (VFD with active fault will show blank box and Red Text) • Variable Frequency Drives (VFD) type (ABB, Danfoss, etc.) may not be identified correctly in Exhaust Fan or Aux Airflow programming. • Check Exhaust & Make-Up Air (Aux Airflow) status and confirm VFD type is correct. Press EF-xx / MUA-xx Fan Status -> Verify VFD Type. • VFD's will report active faults to the touchpad. Press EF-xx / MUA-xx Fan Status -> Verify VFD State and Comm Status • Check VFD programming to verify VFD communication address parameter is correct. • Check display on VFD(s) for active faults (i.e. F5 or F13). Go to respective VFD and confirm if any fault codes exist and troubleshoot in accordance with VFD User's Manual.

Touchpad Frozen  	• System may have lost configuration or configuration file was corrupted, tech support downloads the configuration files and emails it to the technician working on site. The tech will drag it to the root directory of a USB and save it as a ConfigurationFiles.zip file, power off the unit, place USB in port, cycle power on to the unit. • Verify that the base board LED's are lighting up. Power the system controller off, replace the cell battery on the base board then power back on. • Confirm proper addressing of Network Devices (Hood Controllers and Touchpads).
Unable to enter Configuration  	• Configuration access is password protected. Reach out to local administrator or contact Melink Corporation for support.

Touchpad is not displaying or controlling the correct Exhaust (KEF) or Auxiliary Airflows (MUA) 	• Check Touchpad (TP) address. Press and hold the Lights Button for 15 seconds. Change address to correct Comm address. • Replacement TP maybe defaulted to address of 1. • Check programming. Verify Touchpad is associated with correct hood group.
Lights Button does not control the System Controller lights output or correct Auxiliary Lighting Controller 	• Enter Configuration and navigate to Touchpad. Select associated touchpad and select. Verify Associated Light Controllers in Touchpad programming menu. • Verify Light Button is active in Touchpad programming menu • Check 15amp lighting fuse on System Controller. • Check 15amp fuse on Auxiliary Lighting Controller

Fans Button is not working  	• Enter Configuration and navigate to Touchpad. Select associated touchpad and select. Verify Fans Button is active. • Verify correct hood group is selected in Touchpad programming menu
Remote Access to the Melink Portal is not connecting.  	• Press the Networking -> Cellular -> Verify Registration State is "Home" -> Verify signal strength -> Verify RSRQ and RSRP signals. RSRQ < -9 and RSRP < -103 indicate good signal quality. • Check programming. Press Configuration -> Enter Passcode -> System Controller -> Verify Enable Remote Access, Enable Webserver, and Enable Backup NTP are set to Yes. • For LAN connections Press Networking -> Ethernet -> Verify IP -> Static or DHCP settings are accurate.

b. System Controller (SC)

Fault Description	Items to Check
LED's not on	• System may have lost input power. • Check connectors from Power Brick to I/O Board. • Check 3A input fuse next to on/off switch
LED on CPU Board not pulsing green	• Firmware may be corrupted. Contact Melink
Digital Inputs / Outputs programmed but inactive	• Verify DI/DO(s) are assigned to correct Hood Group(s)
24VDC Outputs are not providing 24VDC when activated	• Check 24VDC Fuse on I/O board
Auxiliary Input / Output module (AIO) is not working communicating with System Controller	• Verify System Controller (SC) and Variable Frequency Drives (VFD's) parity is set to 8-N-1. • Verify dip switch on module is set to normal. • Check configuration
Lights not working	• Check fuse, if blown confirm lighting circuit is less than 15 amps. • Confirm lighting leads are wired to System Controller (SC) or Auxiliary Light Controller (ALC) for control.
24VDC is not there	• Check 24VDC fuse. • Check 24VDC connection from power board to base board. • Verify DI/DO(s) are assigned to exhaust hoods.
System won't turn on	• Check power dipswitch located near fuse is "ON". • Check for AC power, may be interrupted by a shunt trip or Ansul micro switch. • Check circuit breaker panel. • If power is at the System Controller (SC), check fuse. • Check Power Brick to I/O Board connections • Interlock with enable feature selected to Building Automation System (BAS) or Water Wash Panel.
Digital Input / Outputs are not controlling proper hoods	• Confirm "Hood Groups" programmed correctly

c. Hood Controller (HC)

Fault Description	Items to Check
LED not pulsing	• Hood Controller (HC) may have lost communication to System Controller (SC). • Confirm cable connections to other HC's & SC.
Hood Controller (HC) LED pulsing but not communicating correctly	• Confirm HC rotary switches are set to proper address. • If HC is last in the Hood Network string, confirm Terminal Resistor dip switch is on.
APU fan(s) not working	• Check for voltage drop issue. • Check cable connections

d. Optic/Temp Sensor

Fault Description	Items to Check
Optic Fault "Emitter Missing" ▪ White printed circuit Board "Receiver Missing" ▪ Blue Printed Circuit Board	• Verify no optic sensor obstructions in hood. • Confirm sensors are clean. • Make sure that the cables are connected tightly on optic boards & on the hood controller. • Check alignment; use web application to check gain/voltage levels. If see attempts to calibrate when changing alignment, hardware is working properly. • Using the Touchpad, go to Status and under hood controller verify that the optics are not missing. • Many smartphone cameras can see Emitter Light. Use phone camera to verify light is emitting.
Temp Fault	• Make sure that the sensors are clean. It is not always necessary unless it has a large amount of grease or build up.

	• Check the connections that go from the temperature probe to the HC. • Check for any damaged components. • Check that the number of temp sensors installed matches the number of temp sensors programmed. Hit Status and go to hood controllers. If a temperature sensor is not connected properly or does not work then it will show as "missing". • On the hood controller there are different ports that can be used to connect the cables for temperature sensors, swapping those may help to get rid of the fault. • Verify temperature sensor resistance is about 100 Ohms. • Cycle power to the unit.
Temperature not measuring correctly	• Temp probe may be defective. • Temp offset may be programmed incorrectly.

e. Variable Frequency Drives (VFD's)

Fault Description	Items to Check
Depends on VFD type	• Confirm Fault codes and refer to VFD Operations Manual.

f. Exhaust Fans (EF's)

Fault Description	Items to Check
EF will not run	• Confirm no faults at the Variable Frequency Drive (VFD). • Verify disconnect on the roof is turned on.
EF has high current draw	• Confirm motor rotation is spinning in the correct direction. • Confirm actual condition of the motor. Belt tension is correct or general cleaning has been performed.
EF is running, but low to no air flow	• Grease filters may need to be cleaned. • Check belt on fan, it may be broken or loose. • Obstruction in the duct. • If installed, dampers stuck shut. • Duct cleanout removed.
EF has an over voltage	• Check for condensation in the disconnect.
EF are running at 100%, but the MUA not running	• System Controller (SC) has lost power (Firemode) • Possible override interlock to Variable Frequency Drives (VFD's) from other control sources if power is present and System Controller (SC) is operating.

g. Make-Up Air (MUA) Interlock

Fault Description	Items to Check
MUA will not turn on	• Confirm start/stop from a 24VDC relay or internal relay is connected from the SC to the correct terminal points on the MUA control circuit.
System will not speed up when call for heat (OR) call for cool	• Confirm closure is received at the System Controller (SC) for the correct terminal points of the Make-Up Air (MUA). (Generally, after the Outdoor Air Temperature Sensor but before the Low Air Pressure switch).

h. Building Automation System (BAS) & BACnet

Fault Description	Items to Check
BAS cannot discover System Controller (SC)	• Check Ethernet cable and port connection. • Confirm IP address in the About Screen. • Check IP settings are configured per site's IT requirements in the System Menu. Static IP (If not using DHCP), Netmask, Gateway, Domain Name System (DNS) Server 1, DNS Server 2
BAS cannot discover Exhaust Fan (EF) & Make-Up Air (MUA) data	• Destination Network (DNET) number might need to be changed from 1 to a unique number to avoid data collision. • If multiple System Controllers are present on network, verify the System Controllers have different Device ID's to eliminate overlap.

i. Auxiliary Input / Output (AIO)

Fault Description	Items to Check
AIO won't work	• Check connections, 24VDC and digital comms from System Controller (SC) to AIO. • Confirm device exists in configuration, configuration settings and associated AUX air flows programmed and their associated devices providing speed reference. • Confirm parity in SC and Variable Frequency Drives (VFD's) is set to 8-N-1. • Confirm dip switch on module set to "Normal"

j. Auxiliary Light Controller (ALC)

Fault Description	Items to Check
ALC won't work	• Check Ethernet cable and port connection. • Confirm light controller address selected on touchpad for lights operation. • Confirm device exists in configuration. • Confirm lighting circuit is connected to ALC from control.

k. Auxiliary Power Supply (APS)

Fault Description	Items to Check
APS is not boosting signal	• Check circuit breaker. • Check connections. • Check for power.