

# Alarms

## Alarm List

Alarms are categorized into three groups based on severity: critical, service priority, and service. Table 11 describes the non-FDD alarms. (see last page for alarm category explanations)

**Table 11: Alarms (Part 1 of 9)**

Severity	Alarm	How It Happens
Critical	C1 Locked Out Due to High Pressure	Three HPS1 trips within 2 hours.
	C2 Locked Out Due to High Pressure	Three HPS2 trips within 2 hours.
	C3 Locked Out Due to High Pressure	Three HPS3 trips within 2 hours.
	C4 Locked Out Due to High Pressure	Three HPS4 trips within 2 hours.
	C1 Locked Out Due to Low Pressure	Three LPS1 trips within 1 hour.
	C2 Locked Out Due to Low Pressure	Three LPS2 trips within 1 hour.
	C3 Locked Out Due to Low Pressure	Three LPS3 trips within 1 hour.
	C4 Locked Out Due to Low Pressure	Three LPS4 trips within 1 hour.
	C1 Locked Out Due to Coil Freeze	Three FS1 trips within 2 hours. (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C2 Locked Out Due to Coil Freeze	Three FS2 trips within 2 hours. (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C3 Locked Out Due to Coil Freeze	Three FS3 trips within 2 hours. (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C4 Locked Out Due to Coil Freeze	Three FS4 trips within 2 hours. (Evap Coil Temp < Evap Coil Temp Cutout SP)
	Exhaust Fan VFD Failure	EX VFD BI trips (must be set up as Exhaust or Variable Frequency Fan)
	HS1 Locked Out Due to Limit Switch	Three LS1 trips within 1 hour.
	HS2 Locked Out Due to Limit Switch	Three LS2 trips within 1 hour.
	HS3 Locked Out Due to Limit Switch	Three LS3 trips within 1 hour.
	Unit Shutdown Due to Smoke, etc.	SD input loses 24 VAC.
	Supply Fan VFD Failure	Fan VFD Input trips (must be set up as NOT Single Speed)
	No Heat-Cool Due to Unreliable Space-T	Input Unreliable
	4-Stage Communication Failure	4-Stage board goes from Online to Offline.
Economizer Communication Failure	Economizer board goes from Online to Offline.	

**Table 11: Alarms (Part 2 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Critical (Continued)</b>	Outputs Disabled Due to Low Input V	Blackout Conditions
	Outputs Limited Due Brownout Input V	Brownout Conditions
	Unit Locked Out Due to APS	Three APS trips within 1.5 hours. (if APS is installed or based on Duct Pressure if Variable Speed Fan enabled).
	Unit Locked Out Due to Supply Fan OL	Three FAN OVR trips within two hours.
	Unit Locked Out Due to High Duct-P	Duct Static Pressure is greater than the High Duct Static Pressure Setpoint.
<b>Service Priority</b>	Evaporator Coil Temp 1 Sensor Failure	Input unreliable and Number of Cooling Stages >= 1
	Condenser Coil Temp 1 Sensor Failure	Input unreliable and Number of Cooling Stages >= 1
	Evaporator Coil Temp 2 Sensor Failure	Input unreliable and Number of Cooling Stages >= 2
	Condenser Coil Temp 2 Sensor Failure	Input unreliable and Number of Cooling Stages >= 2
	Evaporator Coil Temp 3 Sensor Failure	Input unreliable and Number of Cooling Stages >= 3
	Condenser Coil Temp 3 Sensor Failure	Input unreliable and Number of Cooling Stages >= 3
	Evaporator Coil Temp 4 Sensor Failure	Input unreliable and Number of Cooling Stages >= 4
	Condenser Coil Temp 4 Sensor Failure	Input unreliable and Number of Cooling Stages >= 4
	Building Pressure Sensor Failure	Input unreliable
	Outdoor Air Temperature Sensor Failure	Input unreliable
	Return Air Temperature Sensor Failure	Input unreliable and Variable Speed Fan
	Supply Air Temperature Sensor Failure	Input Unreliable AND (Econ Comm Status = Online OR Mixed Air Sequencer = DAT Control)
	Unit Shutdown Due to Supply Fan Overload	FAN OVR Trip (but less than three in one hour as that would cause 'Unit Locked Out Due to Supply Fan OL')
	Main Controller Calibration Error	Missing Cal Data
	FDDM Controller Calibration Error	Missing Cal Data
	Econ Controller Calibration Error	Missing Cal Data
	4-Stage Controller Calibration Error	Missing Cal Data
	Unit Shutdown Due to Air Proving Switch	Cmd but no proof for >= 90 seconds (if this happens less than three in 1.5 hours; otherwise that would cause 'Unit Locked Out Due to APS')
	FDDS Controller Calibration Error	Missing Cal Data

**Table 11: Alarms (Part 3 of 9)**

Severity	Alarm	How It Happens
Service	Duct Pressure Sensor Failure	Input Unreliable and Variable Speed Fan
	Return Air Humidity Sensor Failure	Input unreliable
	Outdoor Air Humidity Sensor Failure	Input unreliable
	Supply Humidity Sensor Failure	Input unreliable
	Indoor Air Quality Sensor Failure	Input unreliable
	Outdoor Air Quality Sensor Failure	Input unreliable
	Fresh Air Intake Sensor Failure	Input unreliable
	Mixed Air Temp Sensor Failure	Input unreliable
	Space Indoor temp Sensor Failure	Input unreliable
	Space Offset Sensor Failure	Input unreliable
	C1 Shutdown Due to High Pressure	HPS1 Trip
	C2 Shutdown Due to High Pressure	HPS2 Trip
	C3 Shutdown Due to High Pressure	HPS3 Trip
	C4 Shutdown Due to High Pressure	HPS4 Trip
	C1 Shutdown Due to Low Pressure	LPS1 Trip
	C2 Shutdown Due to Low Pressure	LPS2 Trip
	C3 Shutdown Due to Low Pressure	LPS3 Trip
	C4 Shutdown Due to Low Pressure	LPS4 Trip
	C1 Shutdown Due to Coil Freeze	FS1 Trip (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C2 Shutdown Due to Coil Freeze	FS2 Trip (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C3 Shutdown Due to Coil Freeze	FS3 Trip (Evap Coil Temp < Evap Coil Temp Cutout SP)
	C4 Shutdown Due to Coil Freeze	FS4 Trip (Evap Coil Temp < Evap Coil Temp Cutout SP)
	Low Outdoor Air Temp Cooling Cutout	OAT < OAT Cooling Cutout
	Econ Economizing When it Should Not	Economizer Damper % Command > Min OA Position + FDD Damper Min Position Tolerance
	Econ Not Economizing When It Should	Economizer Damper % Command < Min OA Position + FDD Damper Min Position Tolerance
	Economizer Damper Not Modulating	ABS(Economizer Damper % Command - Economizer Damper Position) > FDD Economizer Damper Allowed Error
	Economizer Letting In Excess Outdoor Air	(Economizer Damper % Command > Min OA Position + FDD Damper Min Position Tolerance AND Ramp Min OA) <b>OR</b> (Economizer Damper % Command > FDD Damper Min Position Tolerance AND Ramp Closed)
	HS1 Shutdown Due to Limit Switch	LS1 Trip
	HS2 Shutdown Due to Limit Switch	LS2 Trip
	HS3 Shutdown Due to Limit Switch	LS3 Trip
	HS1 Off Due to Gas Valve	H1 with no GV1 for >=6 minutes
	HS2 Off Due to Gas Valve	H2 with no GV2 for >=6 minutes
	HS3 Off Due to Gas Valve	H3 with no GV3 for >=6 minutes
Dirty Filter	DFS Trip	

**Table 11: Alarms (Part 4 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Service (Continued)</b>	FDD 1 Communication Failure	FDD Master Online -> Offline
	FDD 2 Communication Failure	FDD Slave Online -> Offline
	Unit has Received a Purge Request	PURGE-S on Econ trip
	Excessive Supply Air Temp Cooling	SAT < Excessive SAT Cooling Sp AND SAT Limit for Cooling Enable
	HS1 Gas Valve Failure	GV1 on without H1 for >= 5 seconds
	HS2 Gas Valve Failure	GV2 on without H2 for >= 5 seconds
	HS3 Gas Valve Failure	GV3 on without H3 for >= 5 seconds
	Excessive Supply Air Temp Heating	SAT > Excessive SAT Heating SP AND SAT Air Temp Limit for Heat Enabled
	Space Temperature Cooling Alarm	Space Temp > Operating Cooling SP for more than 60 minutes
	C1 Refrigerant Low	FDD Alarm, see Table 12.
	C2 Refrigerant Low	FDD Alarm, see Table 12.
	C3 Refrigerant Low	FDD Alarm, see Table 12.
	C4 Refrigerant Low	FDD Alarm, see Table 12.
	C1 Excessive Refrigerant Flow	FDD Alarm, see Table 12.
	C2 Excessive Refrigerant Flow	FDD Alarm, see Table 12.
	C3 Excessive Refrigerant Flow	FDD Alarm, see Table 12.
	C4 Excessive Refrigerant Flow	FDD Alarm, see Table 12.
	C1 Inefficient Compressor	FDD Alarm, see Table 12.
	C2 Inefficient Compressor	FDD Alarm, see Table 12.
	C3 Inefficient Compressor	FDD Alarm, see Table 12.
	C4 Inefficient Compressor	FDD Alarm, see Table 12.
	C1 Refrigerant Flow Restriction	FDD Alarm, see Table 12.
	C2 Refrigerant Flow Restriction	FDD Alarm, see Table 12.
	C3 Refrigerant Flow Restriction	FDD Alarm, see Table 12.
	C4 Refrigerant Flow Restriction	FDD Alarm, see Table 12.
	C1 High Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C2 High Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C3 High Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C4 High Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C1 Low Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C2 Low Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C3 Low Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C4 Low Side Heat Transfer Problem	FDD Alarm, see Table 12.
	C1 Reduce Evaporator Airflow	FDD Alarm, see Table 12.
	C2 Reduce Evaporator Airflow	FDD Alarm, see Table 12.
	C3 Reduce Evaporator Airflow	FDD Alarm, see Table 12.

**Table 11: Alarms (Part 5 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Service (Continued)</b>	C4 Reduce Evaporator Airflow	FDD Alarm, see Table 12.
	C1 Add Charge	FDD Alarm, see Table 12.
	C2 Add Charge	FDD Alarm, see Table 12.
	C3 Add Charge	FDD Alarm, see Table 12.
	C4 Add Charge	FDD Alarm, see Table 12.
	C1 Insufficient Refrigerant Flow	FDD Alarm, see Table 12.
	C2 Insufficient Refrigerant Flow	FDD Alarm, see Table 12.
	C3 Insufficient Refrigerant Flow	FDD Alarm, see Table 12.
	C4 Insufficient Refrigerant Flow	FDD Alarm, see Table 12.
	C1 Recover Charge	FDD Alarm, see Table 12.
	C2 Recover Charge	FDD Alarm, see Table 12.
	C3 Recover Charge	FDD Alarm, see Table 12.
	C4 Recover Charge	FDD Alarm, see Table 12.
	C1 Non-Condensables Present	FDD Alarm, see Table 12.
	C2 Non-Condensables Present	FDD Alarm, see Table 12.
	C3 Non-Condensables Present	FDD Alarm, see Table 12.
	C4 Non-Condensables Present	FDD Alarm, see Table 12.
	C1 Liquid Temp Greater Than Cond Temp	FDD Alarm, see Table 12.
	C2 Liquid Temp Greater Than Cond Temp	FDD Alarm, see Table 12.
	C3 Liquid Temp Greater Than Cond Temp	FDD Alarm, see Table 12.
	C4 Liquid Temp Greater Than Cond Temp	FDD Alarm, see Table 12.
	Hot H2O FS Open to Prevent Coil Freeze	Hydronic Heating Enabled <b>and</b> (HW Freeze BI trip and Unreliable OAT) <b>or</b> HW Freeze BI trip <b>and</b> OAT is less than 40°F
	Hot H2O FS Opened When It Should Not	Hydronic Heating Enabled <b>and</b> OAT is greater than 40°F and HW Freeze BI trip
	Space Temperature Heating Alarm	Space Temp is less than Operating Heating SP for more than 60 minutes.
	Not Economizing - No Supply Air Sensor	Free Cooling Available and MA Sequencer = DAT Control and SAT Unreliable <b>or</b> SAT Unreliable and MA Sequence = Zone Control and MA State = Mech and Free Cooling Available <b>or</b> Tstat Only and Mech and Free Cooling Available
	Using Return Instead of Space Temp	Effective Zone Source = Return Air Temp and Not TStat Only
	Air Proving Switch is Stuck Closed	APS is closed, but fan command is not given
	C1 Basic Data Not Available	FDD Alarm, see Table 12.
	C2 Basic Data Not Available	FDD Alarm, see Table 12.
	C3 Basic Data Not Available	FDD Alarm, see Table 12.
	C4 Basic Data Not Available	FDD Alarm, see Table 12.
	C1 Unit Off	FDD Alarm, see Table 12.

**Table 11: Alarms (Part 6 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Service (Continued)</b>	C2 Unit Off	FDD Alarm, see Table 12.
	C3 Unit Off	FDD Alarm, see Table 12.
	C4 Unit Off	FDD Alarm, see Table 12.
	C1 Return Air Web-Bulb Temp Out of Range	FDD Alarm, see Table 12.
	C2 Return Air Web-Bulb Temp Out of Range	FDD Alarm, see Table 12.
	C3 Return Air Web-Bulb Temp Out of Range	FDD Alarm, see Table 12.
	C4 Return Air Web-Bulb Temp Out of Range	FDD Alarm, see Table 12.
	C1 Ambient Temp Too Low	FDD Alarm, see Table 12.
	C2 Ambient Temp Too Low	FDD Alarm, see Table 12.
	C3 Ambient Temp Too Low	FDD Alarm, see Table 12.
	C4 Ambient Temp Too Low	FDD Alarm, see Table 12.
	C1 Ambient Temp Too High	FDD Alarm, see Table 12.
	C2 Ambient Temp Too High	FDD Alarm, see Table 12.
	C3 Ambient Temp Too High	FDD Alarm, see Table 12.
	C4 Ambient Temp Too High	FDD Alarm, see Table 12.
	C1 Return Air Wet-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C2 Return Air Wet-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C3 Return Air Wet-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C4 Return Air Wet-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C1 Return Air Wet-Bulb Temp Too High	FDD Alarm, see Table 12.
	C2 Return Air Wet-Bulb Temp Too High	FDD Alarm, see Table 12.
	C3 Return Air Wet-Bulb Temp Too High	FDD Alarm, see Table 12.
	C4 Return Air Wet-Bulb Temp Too High	FDD Alarm, see Table 12.
	C1 Condensing Temp Less Than Ambient	FDD Alarm, see Table 12.
	C2 Condensing Temp Less Than Ambient	FDD Alarm, see Table 12.
	C3 Condensing Temp Less Than Ambient	FDD Alarm, see Table 12.
	C4 Condensing Temp Less Than Ambient	FDD Alarm, see Table 12.
	C1 Suction Temp Less Than Evap Temp	FDD Alarm, see Table 12.

**Table 11: Alarms (Part 7 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Service (Continued)</b>	C2 Suction Temp Less Than Evap Temp	FDD Alarm, see Table 12.
	C3 Suction Temp Less Than Evap Temp	FDD Alarm, see Table 12.
	C4 Suction Temp Less Than Evap Temp	FDD Alarm, see Table 12.
	C1 Evap Temp Greater Than Ambient Temp	FDD Alarm, see Table 12.
	C2 Evap Temp Greater Than Ambient Temp	FDD Alarm, see Table 12.
	C3 Evap Temp Greater Than Ambient Temp	FDD Alarm, see Table 12.
	C4 Evap Temp Greater Than Ambient Temp	FDD Alarm, see Table 12.
	C1 Liquid Temp Less Than Ambient Temp	FDD Alarm, see Table 12.
	C2 Liquid Temp Less Than Ambient Temp	FDD Alarm, see Table 12.
	C3 Liquid Temp Less Than Ambient Temp	FDD Alarm, see Table 12.
	C4 Liquid Temp Less Than Ambient Temp	FDD Alarm, see Table 12.
	C1 Invalid Suction or Ambient Temp	FDD Alarm, see Table 12.
	C2 Invalid Suction or Ambient Temp	FDD Alarm, see Table 12.
	C3 Invalid Suction or Ambient Temp	FDD Alarm, see Table 12.
	C4 Invalid Suction or Ambient Temp	FDD Alarm, see Table 12.
	C1 Invalid RA Dry-Bulb or Web-Bulb Temp	FDD Alarm, see Table 12.
	C2 Invalid RA Dry-Bulb or Web-Bulb Temp	FDD Alarm, see Table 12.
	C3 Invalid RA Dry-Bulb or Web-Bulb Temp	FDD Alarm, see Table 12.
	C4 Invalid RA Dry-Bulb or Web-Bulb Temp	FDD Alarm, see Table 12.
	C1 Invalid Liquid and Suction Pressure	FDD Alarm, see Table 12.
	C2 Invalid Liquid and Suction Pressure	FDD Alarm, see Table 12.
	C3 Invalid Liquid and Suction Pressure	FDD Alarm, see Table 12.
	C4 Invalid Liquid and Suction Pressure	FDD Alarm, see Table 12.
	C1 Invalid Suction Temp	FDD Alarm, see Table 12.
	C2 Invalid Suction Temp	FDD Alarm, see Table 12.
	C3 Invalid Suction Temp	FDD Alarm, see Table 12.
	C4 Invalid Suction Temp	FDD Alarm, see Table 12.
	C1 Invalid Liquid and Suction Temp	FDD Alarm, see Table 12.

**Table 11: Alarms (Part 8 of 9)**

<b>Severity</b>	<b>Alarm</b>	<b>How It Happens</b>
<b>Service (Continued)</b>	C2 Invalid Liquid and Suction Temp	FDD Alarm, see Table 12.
	C3 Invalid Liquid and Suction Temp	FDD Alarm, see Table 12.
	C4 Invalid Liquid and Suction Temp	FDD Alarm, see Table 12.
	C1 Return Air Dry-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C2 Return Air Dry-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C3 Return Air Dry-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C4 Return Air Dry-Bulb Temp Too Low	FDD Alarm, see Table 12.
	C1 Return Air Dry-Bulb Temp Too High	FDD Alarm, see Table 12.
	C2 Return Air Dry-Bulb Temp Too High	FDD Alarm, see Table 12.
	C3 Return Air Dry-Bulb Temp Too High	FDD Alarm, see Table 12.
	C4 Return Air Dry-Bulb Temp Too High	FDD Alarm, see Table 12.
	C1 EI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C2 EI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C3 EI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C4 EI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C1 CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C2 CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C3 CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C4 CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C1 EI+C1 Below 75% Expected Performance	FDD Alarm, see Table 12.
	C2 EI+CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C3 EI+CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C4 EI+CI Below 75% Expected Performance	FDD Alarm, see Table 12.
	C1 FDD Not Functioning Sensor Unreliable	FDD Alarm, see Table 12.
	C2 FDD Not Functioning Sensor Unreliable	FDD Alarm, see Table 12.



**Table 11: Alarms (Part 9 of 9)**

Severity	Alarm	How It Happens
Service (Continued)	C3 FDD Not Functioning Sensor Unreliable	FDD Alarm, see Table 12.
	C4 FDD Not Functioning Sensor Unreliable	FDD Alarm, see Table 12.
	C1 FDD Not Monitoring Conditions	FDD Alarm, see Table 12.
	C2 FDD Not Monitoring Conditions	FDD Alarm, see Table 12.
	C3 FDD Not Monitoring Conditions	FDD Alarm, see Table 12.
	C4 FDD Not Monitoring Conditions	FDD Alarm, see Table 12.
	C1 FDD Not Monitoring Equipment Data	FDD Alarm, see Table 12.
	C2 FDD Not Monitoring Equipment Data	FDD Alarm, see Table 12.
	C3 FDD Not Monitoring Equipment Data	FDD Alarm, see Table 12.
	C4 FDD Not Monitoring Equipment Data	FDD Alarm, see Table 12.

## Alarm Categories

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- **Critical** – alarms in this category can be generalized as “hard lockouts”
  - Fan, heat/cool staging and/or ventilation output is locked out
  - Requires conditions to return to a normal range AND [Reset Lockouts](#) performed/cycle UCB power for normal operation to resume
- **Service Priority** – alarms in this category can be generalized as “soft lockouts”
  - Fan, heat/cool staging and/or ventilation output is shut down
  - Requires conditions to return to a normal range for normal operation to resume and the alarm to be “Cleared”
- **Service** – alarms in this category can be generalized as “informational”
  - Fan, heat/cool staging and/or ventilation features may not be available
  - Requires conditions to return to a normal range for features to be available and the alarm to be “Cleared”