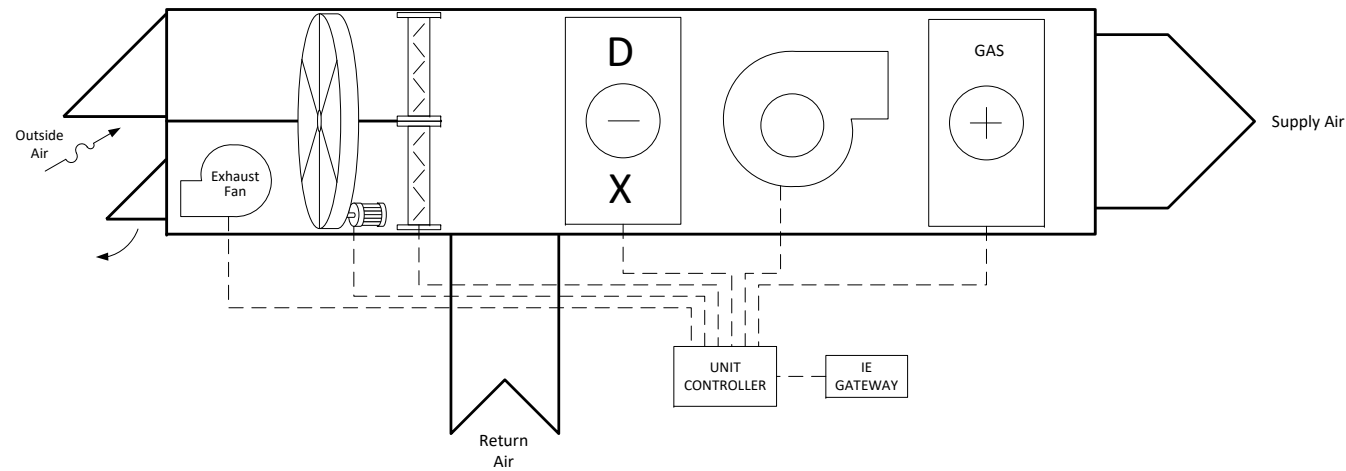


DAIKIN IE RTU LOGICAL DIAGRAM



SEQUENCE

OCCUPANCY

CCU WILL CONTROL THE RTU OCCUPANCY BASED ON A CUSTOMER PROVIDED SCHEDULE. THE CCU AND THE CLOUD UI WILL DISPLAY THE CURRENT OCCUPANCY STATUS.

COOLING / HEATING AND MODE CHANGEOVER

HEAT/COOL CHANGEOVER DECISION WILL BE MADE BY THE UNIT CONTROLLER BASED ON DAT SETPOINT WRITTEN BY THE CCU. UNIT WILL BE SWITCHED TO FAN ONLY MODE TO SAVE ENERGY WHEN CONDITIONING IS NOT REQUIRED. WHEN THERE IS A NEED FOR COOLING, THE CCU WILL ADJUST THE COOLING LOOP OUTPUT FROM 0-100% WHICH IS MAPPED TO 70 – 55 °F OF DAT SETPOINT. WHEN THERE IS A NEED FOR HEATING, THE CCU WILL ADJUST THE HEATING LOOP OUTPUT FROM 0-100% WHICH IS MAPPED TO 75 – 100 °F OF DAT SETPOINT.

DISCHARGE AIR TEMPERATURE CONTROL

THE CCU WILL CONTROL THE DAT SETPOINT BY DIRECTLY WRITING TO DAT COOLING SETPOINT (F) (DATCLGSETPOINT). THIS VALUE WILL BE SCALED FOR BOTH HEATING AND COOLING DAT SETPOINT. THIS VALUE WILL BE WRITTEN ONCE A MINUTE. RTU CONTROLLER WILL NOT TRANSITION TO A HEATING MODE, BUT WILL ACTIVATE "MIN DAT" MODE WHEN NECESSARY TO MAINTAIN "DATCLGSETPOINT" WITH HEAT RATHER THAN COOLING (THIS HAPPENS WHEN CONTROL TEMP SOURCE IS SET TO NONE).

FAN CONTROL

CCU WILL BE ABLE TO CONTROL FAN SPEED FOR BOTH SINGLE ZONE AND MULTI ZONE SYSTEMS. IN THE PROFILE CONFIGURATION PAGE THERE WILL BE A TOGGLE TO SELECT IF THE SYSTEM IS SINGLE ZONE OR MULTI-ZONE. THIS WILL BE ENABLED MANUALLY BY THE USER BASED ON ACTUAL SITE CONFIGURATION. AT ANY TIME CCU WILL WRITE VALUES FOR EITHER SINGLE ZONE OR MULTIZONE SYSTEM POINTS. FOR A SINGLE ZONE SYSTEM CCU FAN LOOP OUTPUT WILL BE MAPPED TO FAN SPEED (REMOTESFCAP) AND FOR MULTIZONE SYSTEM CCU FAN LOOP OUTPUT SHALL BE MAPPED TO DUCT PRESSURE SETPOINT (DSPSPT UNIT).

WHEN USED IN A MULTIZONE SYSTEM, THE CCU WILL WRITE TO THE DUCT STATIC PRESSURE SETPOINT (DSPSPT UNIT) WITHIN AN ADJUSTABLE RANGE TO A NEW VALUE CALCULATED BASED ON SYSTEM HEATING OR COOLING LOAD. SYSTEM FAN LOOP OUTPUT SHALL BE 0-100% WHICH IS MAPPED TO 0.2-2.0 INCHES W. C. (ADJUSTABLE) (DEFAULT) OF THE DUCT STATIC PRESSURE SETPOINT. WHEN USED IN A SINGLE ZONE SYSTEM, THE CCU WILL WRITE THE FAN SPEED (REMOTESFCAP) WITHIN AN ADJUSTABLE RANGE TO A NEW VALUE CALCULATED BASED ON SYSTEM HEATING OR COOLING LOAD. SYSTEM FAN LOOP OUTPUT SHALL BE 0-100% WHICH IS MAPPED TO 0-100% FAN SPEED (ADJUSTABLE) (DEFAULT).

HUMIDITY CONTROL

WHEN HUMIDITY CONTROL IS ENABLED ON THE 75F CCU, THE DEHUM MODE WILL BE ENABLED. 75F WILL WRITE THE HUMIDITY READING AS AN AVERAGE OF ALL ACTIVE 75F SPACE HUMIDITY SENSORS [1MIN] TO RELATIVE HUMIDITY INPUT (BACNETRH). 75F WILL ALSO WRITE THE SETPOINT FOR RELATIVE HUMIDITY SETPOINT (HUMIDITYSPT) IF APPLICABLE [ONLY ON CHANGE OF STATE]. IF DEHUMIDIFICATION IS REQUIRED 75F MUST WRITE THE APPLICATION MODE SWITCHES TO AUTO DURING UNOCCUPIED MODE IF RTU HAS DEHUMIDIFICATION AVAILABLE (UNIT HAS REHEAT SOURCE), HUMIDITY CONTROL SHALL BE ENABLED MANUALLY ON THE CCU SETUP SCREENS. WHEN ENABLED, CCU SHALL WRITE THE SPACE HUMIDITY CALCULATED BY THE SYSTEM TO THE (BACNETRH) ON THE IE GW. WHEN ENABLED, CCU SHALL WRITE THE SPACE HUMIDITY SETPOINT FROM THE SYSTEM TO THE HUMIDITY SETPOINT (0-100%) ON THE RTU (HUMIDITYSPT). THE RTU CONTROLLER WILL USE INTERNAL LOGIC TO ENABLE AND DISABLE DEHUMIDIFICATION AND CONTROL DISCHARGE TEMPS TO MAINTAIN THE SPACE RELATIVE HUMIDITY TO WITHIN THE SPACE RELATIVE HUMIDITY SETPOINT AND IT'S ADJUSTABLE DEADBAND.

STANDALONE MODE (FAIL SAFE) FOR DAIKIN

75F WILL BE SENDING THE DAT COOLING SETPOINT (DATCLGSETPOINT) ONCE A MINUTE AS LONG AS THE UNIT IS ALIVE. THE UNIT CONTROLLER WILL RECOGNIZE THIS POINT WRITE AS THE HEARTBEAT CONFIRMING COMMUNICATION BETWEEN 75F AND DAIKIN. WHEN THE DATCLGSETPOINT HAS NOT BEEN WRITTEN TO IE GATEWAY FOR 5 CONSECUTIVE MINUTES, IT WILL BE ASSUMED THAT THE CCU HAS LOST COMMUNICATION TO THE GATEWAY AND THEN THE IE WILL APPLY THE FAIL SAFE SETTINGS UNTIL IE RECEIVES A NEW DATCLGSETPOINT HEARTBEAT FROM 75F. WHEN DAIKIN IE RECEIVES A NEW HEARTBEAT FROM 75F ALL VALUES WILL BE OVERRITTEN AND THE HEARTBEAT COUNT WILL START AGAIN.

HEARTBEAT FOR 75F

THE "SYSTEM CLOCK" POINT SHALL BE READ BY THE CCU PERIODICALLY TO DETERMINE THE DAT SETPOINT THE PLC IS CURRENTLY CONTROLLING TO. THE CLOCK VARIABLE POINT CAN BE USED AS A PRIMARY "HEARTBEAT" FOR CCU TO CHECK COMMUNICATION BETWEEN IE GATEWAY AND CCU. IN CASE HEARTBEAT IS NOT RECEIVED FOR 15 MINS THEN THERE WILL BE AN ALERT GENERATED IN CCU

UNIQUE IDENTIFIER FOR LINKING IE GW MAC ID TO 75F SYSTEM EQUIP

THERE WILL BE UNIQUE IDENTIFIER WHICH IS REQUIRED TO MAP IE GATEWAY MAC ID WITH SYSTEM EQUIP POINT IN 75F. THIS UNIQUE IDENTIFIER IS MODIFIED MAC ID OF IE GW WHICH WILL BE REQUESTED BY CCU THROUGH LOCAL API WHENEVER NEW SITE IS SETUP. THIS MODIFIED MAC ADDRESS WILL BE LINKED TO SYSTEM EQUIP POINT (~ AHU REF POINT) AND WILL BE DISPLAYED IN CCU AND PORTALS AS WELL.

ALARMING

CCU WILL READ THREE SEPARATE ALARM LEVELS (WARNINGS, PROBLEMS, AND FAULTS) AND ONE GENERAL ALARM VALUE. THESE ALARM CONDITIONS ORIGINATE IN THE EQUIPMENT PLC AND WILL BE RELAYED VIA THE IE GW TO THE CCU AND 75F PORTALS AND APPS. THEY WILL RETURN A NUMERIC VALUE THAT CORRESPONDS TO A DESCRIPTION OF THE ALARM CONDITION.

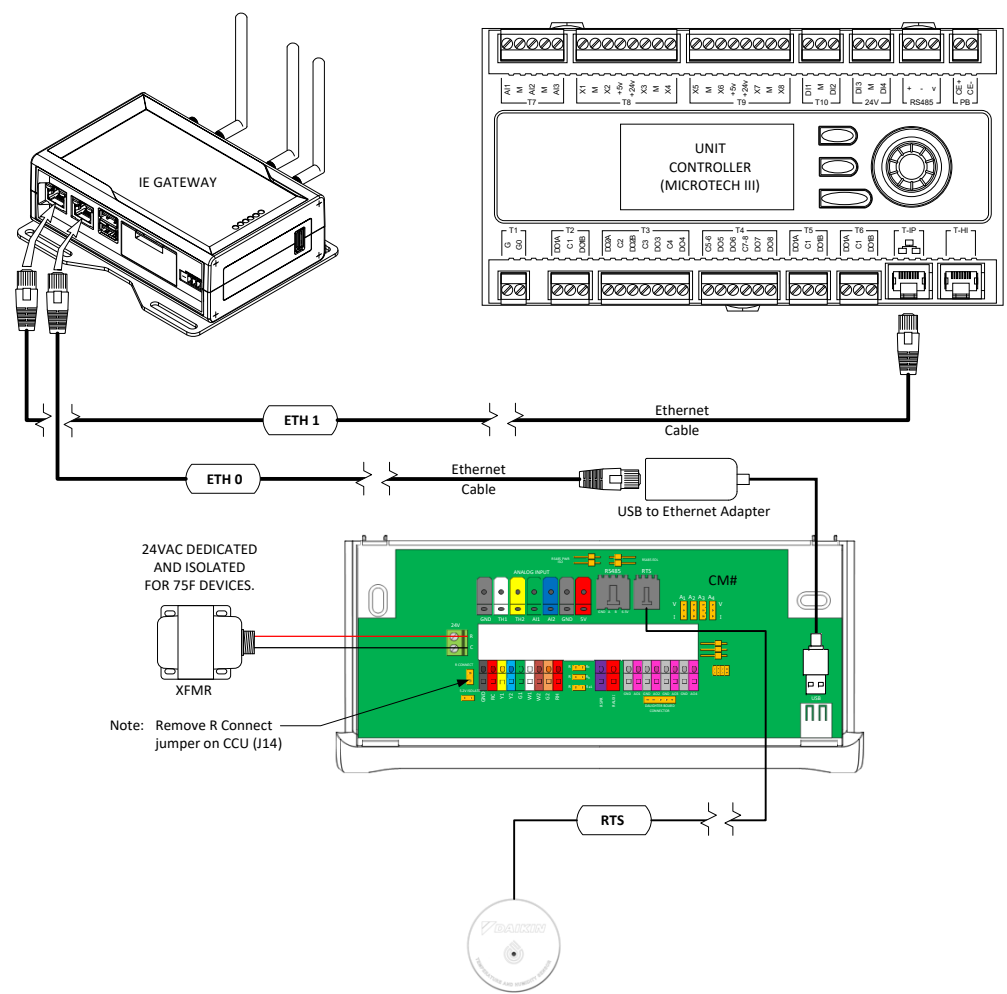
CCU and Daikin IE RTU Integration Point Mapping					
Point Name	Operation	75F Point Name	Possible Values	IE GW Point Name	Possible Values
System Occupancy	Occupancy Mode	occupancy	Unoccupied Occupied Preconditioning Forcedoccupied Vacation occupancysensing Off	OccMode	Unocc (1) Occ (0)
Operating Mode	Mode Changeover	conditioningMode	Auto Coolonly Heatonly	NetApplicMode	Auto (5) Fan Only (4)
Discharge Air Temperature Setpoint	Discharge Air Temperature Control	coolingLoopOutput heatingLoopOutput	0-100%	DATClgSetpoint	4.44 ~ 37.78 °C (40 ~ 100 °F)
Duct Static Pressure Setpoint Fan Speed Control Signal	Fan Control	fanLoopOutput (for multizone) or fanLoopOutput (for singlezone)	0-100% mapped to 0.2-2.0" W.C. (Adj.) 0-100% mapped to 0-100% (Adj.)	DSPSpt Unit RemoteSFCap	50 ~ 996 Pa 0-100%
De-Humidifier Mode Relative Humidity Humidity Setpoint	Humidity Control	Based on checkbox in profile config. page averageHumidity Max of targetMinInsideHumidity & targetMaxInsideHumidity	Yes (1) No (0) 0-100% 0-100%	HumidityCtrl BACnetRH HumiditySPT	Rel Hum (1) None (0) 0-163% 0-100%

D E N D I N G

P E N D I N G

PRELIMINARY

DAIKIN IE RTU PHYSICAL DIAGRAM



Central Control Unit Control Note						
Inputs/ Outputs						
Point Name	Point	Controller	Wire Label	Comments	Device Model	Device Range
Spare	TH1			10k Type II or DI		
Spare	TH2			10k Type II or DI		
Spare	AI1			0-10Vdc		
Spare	AI2			0-10Vdc		
Spare	BO1			Wet Contact		
Spare	BO2			Wet Contact		
Spare	BO3			Wet Contact		
Spare	BO4			Wet Contact		
Spare	BO5			Wet Contact		
Spare	BO6			Wet Contact		
Spare	BO7			Wet Contact		
Spare	AO1			0-10Vdc		
Spare	AO2			0-10Vdc		
Spare	AO3			0-10Vdc		
Spare	AO4			0-10Vdc		
Power In	24Vac	CM #	24Vac	24Vac	By Others	-
Other Ports						
Space Temp. and Humidity Sensor (RTH)	RTS	CM #	RTS	3 pin cable connector (No local interface option)	2001 (1000 Part)	*F/RH%
Spare	RS485			4 pin cable connector (Local Interface option)		

IE Gateway (Partial Connections)					
Front Side Interface Connections					
Point Name	Type	Physical Point	Label	Device Model	Comments
Antenna connector for 2.4GHz Wifi / Bluetooth	Coaxial	Wifi/BT	N/A	By Others	Antenna
Main antenna connector Internal Cellular Modem	Coaxial	CELL MAIN	N/A	By Others	Antenna
Reserved Factory Optional Global Navigation Satellite System	N/A	GPS			
Diversity antenna connector Internal Cellular Modem	Coaxial	CELL DIV	N/A	By Others	Antenna
Antenna connector for 5GHz Wifi	Coaxial	Wifi 5GHz			
Rear Side Interface Connections					
Point Name	Type	Physical Point	Label	Device Model	Comments
Ethernet ETH 1 Connector	Ethernet	ETH 1	ETH 1	Cat5 Cable	To Microtech III
Ethernet ETH 0 Connector	Ethernet	ETH 0	ETH 0	Cat5 Cable	To CCU (Adapter)
USB 0 connector	USB	USB 0			
USB 1 connector	USB	USB 1			
Service Panel	N/A	Service Panel			
Power IN connector	Plug	1	+	PWR IN +	24Vac Plug w/Screw TB
		2	-	PWR IN -	
		3	KEY	Not Connected	

Unit Controller Microtech III (Ethernet Connections)					
Point Name	Type	Physical Point	Label	Device Model	Comments
IP Service Interface Ethernet 10/100	Ethernet	T-IP	N/A	Cat5 Cable	To IE Gateway
Local Service Interface Ethernet 10/100	Ethernet	T-HI	N/A		

PRELIMINARY

Notes:	Project Name: <Project Name>
	Jobsite Address: <Project Address>
	Designer: <Designer Name>
	Diagram Description: <Sheet Description>