MITSUBISHI ELECTRIC
COOLING & HEATING

AdvancedHVAC Controller Application

Y-Series Changeover Based on Ambient Temperature



APPLICATION SUMMARY

At The Auburn—a newly constructed mixed-use apartment building over street-level commercial spaces in Detroit's Cass Corridor district—developer Roxbury Group chose Mitsubishi Electric Cooling & Heating CITY MULTI® for the 58-unit apartment areas. Originally intended for students attending nearby Wayne State University, most current tenants are young professional seeking short commutes to work and environmental responsibilities.

Heat pump style systems are installed at The Auburn, so this unique changeover sequence has been applied to maintain comfort during seasons when some tenants desire cooling while the others need heating for their individual comfort. Desired temperature settings are adjustable by the tenant and adjustable by the building owner through Mitsubishi Electric's EB-50GU-A central controller.



Form No. AHCAP_YSeries_1.15 | Printed In The U.S.A

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Control Sequence of Operation

COOLING MODE:
When the outside air temperature is above the outside air cooling setpoint of 60° F (user adjustable at the AdvancedHVAC interface), the outdoor unit will remain exclusively in the cooling mode.

HEATING MODE:
When the outside air temperature is below the outside air heating setpoint of 40° F (user adjustable at the AdvancedHVAC interface), the outdoor unit will remain exclusively in the heating mode.

DUAL MODE:
While outside air temperature is between the outside air cooling setpoint and the outside air heating setpoint, the outdoor unit will alternate modes to ensure all zones heating or cooling needs are met. While operating in this temperature range, the outdoor unit will provide each mode – heating and cooling – one per period of time. The changeover trigger time in that period shifts based on outside air temperature relative to the setpoints. The closer the outside air temperature is to the outside air heating setpoint, the greater the amount of time in period is dedicated to heating, leaving less time for cooling. The closer the outside air temperature is to the outside air cooling setpoint, the greater the amount of time in period is dedicated to cooling, leaving less time for heating.

I/O Summary

Point Description	M-NET Points				Hardware Points			
	Digital Output	Digital Input	Analog Input	Operation Value	Digital Output	Digital Input	Analog Output	Analog Input
IDU Mode 1				X				
IDU Mode 2				X				
Outdoor Unit Temperature			X					

This application requires start up by factory authorized personnel. The application will be purchased and installed by others. A factory authorized person will start up and program the AdvancedHVAC controller. Please contact Mitsubishi Electric Cooling & Heating Professional Solutions Group for pricing and availability.

Model Number: AHA-03-A

Part Number	Qty	Description	Manufacturer
DC-A2IO	1	AdvancedHVAC IO Controller	Mitsubishi Electric
PSMN-40A24DS	1	120VAC - 24VDC 40A Power Supply	FDI

Mitsubishi Electric Cooling & Heating
1340 Satellite Boulevard, Suwanee, GA 30024
Phone: 800-433-4822 Fax: 800-889-9904

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