

Systems Integration

APOGEE™ Open Processor with McQuay Microtech Driver: Microtech 2000 Water Source Heat Pump

Table 1. Microtech 2000 Water Source Heat Pump.

Point	Type	Description	Range/Units
01	LAO	Device Address	—
02	LAO	Application Number	5018
03	LAI	Space Temperature	°F
04	LAI	Discharge Air Temperature	°F
05	LAI	Leaving Water Temperature	°F
06	LAI	Operating Mode	See Table 2
07	LAI	Fan Run Hours	Hours
08	LAI	Compressor Run Hours	Hours
09	LAI	Compressor Starts	Starts
10	LAI	Set Point Adjustment	°F
11	LAI	Heating Set Point	°F
12	LAI	Cooling Set Point	°F
13	LAI	Warnings	See Table 3
14	LAI	Current Fault	See Table 4
15	LAI	Previous Fault	See Table 4
16	LDI	Fan Status	Off/On
17	LDI	Compressor Status	Off/On
18	LAO	Unoccupied Cooling Room Set Point. Water Source Heat Pump attempts to maintain room temperature by discharging a constant temperature of air. For cooling, typical discharge temperature is room temperature minus 20°F. Unit begins cooling based on room temperature. If unit is in unoccupied time period, Set Point attempts to maintain room temperature between unoccupied Set Points. If room Set Point Adjustment is active, Set Points are adjusted based on value of Set Point Adjustment (Point 10).	0 – 255°F

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Table 1. Microtech 2000 Water Source Heat Pump.

Point	Type	Description	Range/Units
19	LAO	Occupied Cooling Room Set Point. Water Source Heat Pump attempts to maintain room temperature by discharging a constant temperature of air. Typical discharge temperature is room temperature minus 20°F. Unit begins cooling based on room temperature. If unit is in occupied time period, Set Point attempts to maintain room temperature between occupied Set Points. If room Set Point Adjustment is active, Set Points are adjusted based on value of Set Point Adjustment (Point 10).	0 – 255°F
20	LAO	Unoccupied Heating Room Set Point. Water Source Heat Pump attempts to maintain room temperature by discharging a constant temperature of air. Typical discharge temperature is room temperature plus 30°F. Unit begins heating based on room temperature. During an unoccupied time period, Set Point attempts to maintain room temperature between unoccupied room Set Points. If room Set Point Adjustment is active, Set Points are adjusted based on value of Set Point Adjustment (Point 10).	0 – 255°F
21	LAO	Occupied Heating Room Set Point. Water Source Heat Pump attempts to maintain room temperature by discharging a constant temperature of air. Typical discharge temperature is room temperature plus 30°F. Unit begins heating based on room temperature. If unit is in occupied time period, Set Point attempts to maintain room temperature between occupied Set Points. If room Set Point Adjustment is active, Set Points are adjusted based on value of Set Point Adjustment (Point 10).	0 – 255°F
22	LAO	Room Temperature Low Warning Set Point. If room temperature is too cold, Water Source Heat Pump sends warning to Open Processor through this point. Set Points control temperatures which activate this alarm.	0 – 255°F
23	LAO	Room Temperature High Warning Set Point. If room temperature is too hot, Water Source Heat Pump sends warning to Open Processor through this point. Set Points control temperatures which activate this alarm.	0 – 255°F
24	LAO	Filter Hours	Hours
25	LAO	Max Filter Hours	Hours
26	LDO	Clear Fault	No/Yes
27	LAO	Auto/Manual Set Point	See Table 5
28	LAO	System Command	See Table 6
29	LAO	Occupied/Unoccupied Set Point	0 = Occupied 255 = Unoccupied
30	LAO	Auxiliary Output Set Point	De-energized Energized
99	LDI	Device Communication Failure	Normal/Failed

Table 2. Operating Mode (Point 06).

Value	Mode
0	Unoccupied
1	Occupied
2	Override
3	Occupied – Load Shed. Allows the Water Source Heat Pump to distribute the heating/cooling Set Points based on the load shed level set at the WSHP controller.
4	Occupied – Load Shed. Allows the Water Source Heat Pump to distribute the heating/cooling Set Points based on the load shed level set at the WSHP controller.
5	Fan Only
8	Compressor Off
9	Unit Shutdown
190	Off – Condensate Overflow
191	Off – Brownout
204	Off – Room Temperature Sensor Fail
205	Off – Low Discharge Air Temperature
206	Off – Low Refrigerant Pressure
207	Off – High Refrigerant Pressure

Table 3. Warnings Mode (Point 13).

Value	Mode
0	No Loop Flow Requested
1	Room Too Warm
2	Room Too Cool
4	Change Filter
8	Rapid Cycling
16	Bad DAT Sensor
32	Bad LWT Sensor
64	Unused
128	Request Loop Flow

Table 4. Faults (Points 14 and 15).

Value	Mode
204	Room Temperature Sensor Fail
205	Low Discharge Air Temperature
206	Low Refrigerant Pressure
207	High Refrigerant Pressure
255	None

Table 5. Auto/Manual Mode (Point 27).

Value	Mode
0	Manual Unoccupied
1	Manual Occupied
5	Manual Fan Only
9	Manual Off
255	Auto

Table 6. System Command (Point 28).

Value	Description
0	Not Received
8	On – Enable
9	On – Load Shed 1
10	On – Load Shed 2
11	On – Load Shed 3
12	On – Load Shed 4
13	On—Load Shed 5
14	On – Load Shed 6
15	On – Load Shed 7
24	Lock Out Heat
32	Lock Out Cool
40	Lock Out Compressor
48	Unit Shutdown
64	Supplemental Heat Enabled
128	Clear Fault

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