

BACnet Heat Pump Controller - Electronic Output

Application Notes

Slave Mode

Table of Contents

Overview	2
BACnet	2
Using Auxiliary Points	2
Using the Controller as a Point Extension Device	2

Overview

Application 2590 is the slave mode application for the BACnet Heat Pump Multi-Stage Controller (P/N 550–790A). Slave mode is the default application that comes up when power is first applied to the controller. Slave mode provides no control. Instead, it allows the operator to perform equipment checkout before a control application is put into effect and to set some basic controller parameters (CTRL ADDRESS, APPLICATION, etc.).

BACnet

The BACnet Heat Pump Multi-Stage Controller communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks.

Table 1. Supported BIBBs.

Product	Supported BIBBs	BIBB Name
BTEC	DS-RP-B	Data Sharing-ReadProperty-B
	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B
	DS-WP-B	Data Sharing-WriteProperty-B
	DM-DDB-B	Device Management-Dynamic Device Binding-B
	DM-DOB-B	Device Management-Dynamic Object Binding-B
	DM-DDC-B	Device Management-Device Communication Control-B

Using Auxiliary Points

It is possible to have extra points available on a BACnet Heat Pump Controller - Electronic Output in addition to the ones used by the current application that is running in the controller. If these extra points are to be controlled by a field panel, they must be unbundled.

Using the Controller as a Point Extension Device

If the controller is used only as a point extension device, with no control application in effect, its application must be set to slave mode and the points must be unbundled at the field panel. All of these points must be controlled from the field panel in order to be used. See Table 2 for point database information.

All DOs can be used as separate DOs. In addition, DO 1, DO 2, DO 3, and DO 4 can be used in pairs, (DO 1 and DO 2) and (DO 3 and DO 4), to control a motor, as shown in the example. DO 5, DO 6, DO 7, and DO 8 cannot be used in pairs.

For other combinations of DOs and motors, see the *Start-up Procedures* for complete motor enable/reverse procedures.



If using either a motor or DOs as auxiliary points, be sure to set MTR SETUP to the correct value. If using a pair of DOs to control a motor, the DOs cannot be unbundled or commanded separately. Only MTR1 COMD and MTR2 COMD can be unbundled to control the motors.

**Table 2. Motor Enable/Reverse Values for MTR SETUP.
(For Floating-Type Dampers Only.)**

Motor 1 Not Used	Motor 1 Enabled	Motor 1 Enabled and Reversed
0	1	3

Example

If using DO 1 and DO 2 as the physical terminations for a direct acting motor, follow these steps:

1. Set MTR SETUP to 1 to enable the motor.
2. Unbundle MTR1 COMD at the field panel to command the motor from the field panel.

AOV1 may be used to control a motor. Unbundle AOV1 and command it in voltage to control a 0 to 10V motor.

Table 3. Point Database for Application 2590.

Object Type ^a	Object Instance (Point Number) ^b	Object Name and Description	Factory Default (SI Units) ^c	Eng. Units (SI Units) ^c	Range	Active Text	Inactive Text
AO	1	CTLR ADDRESS	99	—	0 to 255	—	—
AO	2	APPLICATION	2590	—	0 to 32767	—	—
AI	{04} ^d	ROOM TEMP	74.0 (23.45)	DEG F (DEG C)	48.0 to 111.75	—	—
AI	{13}	RM STPT DIAL	74.0 (23.45)	DEG F (DEG C)	48.0 to 111.75	—	—
AI	{15}	AUX TEMP	74.0 (23.496)	DEG F (DEG C)	37.5 to 165.0	—	—
BO	18	WALL SWITCH	NO	—	Binary	YES	NO
BI	{19}	DI OVRD SW	OFF	—	Binary	ON	OFF
AO	22	RMTMP OFFSET	0.0 (0.0)	DEG F (DEG C)	-31.75 to 32.0	—	—
BI	{24}	DI 2	OFF	—	Binary	ON	OFF
BI	{25}	DI 5	OFF	—	Binary	ON	OFF
BI	{26}	DI 6	OFF	—	Binary	ON	OFF

continued on next page...

Table 3. Point Database for Application 2590. (continued)

Object Type ^a	Object Instance (Point Number) ^b	Object Name and Description	Factory Default (SI Units) ^c	Eng. Units (SI Units) ^c	Range	Active Text	Inactive Text
BO	{29}	DAY.NGT	DAY	–	Binary	NIGHT	DAY
AO	{40}	AOV1	0	VOLTS	0.0 to 10.23	–	–
BO	{41}	DO 1	OFF	–	Binary	ON	OFF
BO	{42}	DO 2	OFF	–	Binary	ON	OFF
BO	{43}	DO 3	OFF	–	Binary	ON	OFF
BO	{44}	DO 4	OFF	–	Binary	ON	OFF
BO	{45}	DO 5	OFF	–	Binary	ON	OFF
BO	{46}	DO 6	OFF	–	Binary	ON	OFF
BO	{47}	DO 7	OFF	–	Binary	ON	OFF
AO	{48}	MTR1 COMD	0	PCT	0.0 to 102.0	–	–
AO	{49}	MTR1 POS	0	PCT	0.0 to 102.0	–	–
BO	{50}	DO 8	OFF	–	Binary	ON	OFF
AO	51	MTR1 TIMING	130	SEC	0 to 511	–	–
AI	{52}	AI 3	0.0	PCT.	0.0 to 102.0	–	–
AI	{53}	AI 4	37.5 (3.056)	DEG F (DEG C)	37.5 to 165.0	–	–
AO	{54}	AOV2	0	VOLTS	0.0 to 10.23	–	–
BI	{55}	DI 3	OFF	–	Binary	ON	OFF
AO	56	DPR1 ROT ANG	90	–	0 to 255	–	–
BI	{57}	DI 4	OFF	–	Binary	ON	OFF
AO	58	MTR SETUP	0	–	0 to 255	–	–
AO	59	DO DIR.REV	0	–	0 to 255	–	–
AO	{78}	CTL TEMP	74.0 (23.45)	DEG F (DEG C)	48.0 to 111.75	–	–
AO	96	CAL TIMER	12	HRS	0 to 255	–	–
AO	{97}	AOV3	0	VOLTS	0.0 to 10.23	–	–
AO	{99}	ERROR STATUS	0	–	0 to 255	–	–
^a Object Types are; Analog Input (AI), Analog Output (AO), Binary Input (BI) and Binary Output (BO). ^b Points not listed are not used in this application. ^c A single value in a column means that the value is the same in English units and in SI units. ^d Point numbers that appear in brackets {} may be unbundled at the field panel.							