

Setting up communication between master/slave SLATE devices:

The Base Rate SLATE Lead Lag system is configured of a master SLATE controller which runs the lead lag logic as well as controls the first SLATE device. Burners 2-4 are separate SLATE systems, each built in its own SLATE panel.

The SLATE master will generate commands to the slave SLATE systems which are in part dependent on information shared back by the slave burners.

The following document shows how to configure BACnet communication between the master and the slave burners. Both the master and slave wire sheets have been designed using BACnet registers to receive data from other SLATE systems on the network. Any changes made to the wire sheets may result in broken communication. Use the Reports/BACnet Registers buttons in the Niagara projects (master/slave) if changes are required. Also reference the “Peer to Peer BACnet Configuration” document for additional BACnet configuration instructions.

NOTE: SLAVE devices are assigned their order in the sequence by virtue of the BACnet configuration and NOT in the wire sheet.

NOTE: Insure each SLATE system is assigned its own IP address using the Base display. Menu/Base setup/Network/Ethernet/IP addr. All SLATE systems must be on the same subnet.

Accessing the BACnet Configuration Pages in the Honeywell Generic Pages

- Open the Generic pages on the SLATE device to be configured. Click on “Module Pages” then the “BASE” module.

< SLATE		Module Pages	
Module Pages	MODULE INFORMATION View/Edit information about any Module.	DIGITAL View/Control Digital I/O Modules	
Register Tools	BASE View/Edit Base Module	ANNUNCIATOR View/Edit Annunciator Modules	
System Tools			
Logger Tools	BURNER View/Edit Burner Modules		
Language	FUEL AIR View/Edit/Commission Fuel Air Modules		
Help	LIMIT View/Edit Limit Modules		
	ANALOG View/Edit Analog I/O Modules		

- Click on the “Communication Setup” button.

< Generic SLATE Base - Status None

Base State Running	Application Status (FBE / Wire street)	General Setup	Communication Setup
Base Fault No event	L1 Voltage 163.2 <small>psi</small>	Aux Voltage 3.3	
FBE Fault No event	System Current Draw 0.4	Aux Current 0.0 <small>mA</small>	
Kit ID: Test_Lead_Lag_4	0 = 24V 1 = 120/240 V		
Date/Time: 2016-12-08 5:35 pm	Battery status High (None, Reversed, Low, Medium, High)		
Day Seconds: 63350 Thursday	Boost convertor voltage 0.6		
System Up Time: Up 1 day 21:27:40	Boost output voltage 165.1		
	CPU temperature 30.7		
	Snubber temperature 36.3		

- Click the “BACnet” tab.

< Base Status SLATE Base - Communications None

Ethernet Source Static IP address Address 192.168.92.10 Subnet Mask 255.255.255.0 Router Address 192.168.92.1 DNS Address 192.168.92.1 MAC Address 0.0.0.0.0.0	RS-485 Protocol None Baud Rate 38400 Parity None	BACnet Configuration Status Configuration OK
Communication Setup		
Modbus BACnet Router and Foreign Device		
RS-485 Slave Address 1		
Modbus/TCP Configuration None		
Modbus/TCP Port 502		

- The required fields to fill out are Device Object Instance, Ethernet Configuration, and MAC Address, depending on the protocol needed/used. If using BACnet over Ethernet, fill out the Device Object Instance field (NOTE: each SLATE device must have a unique instance number) and the Ethernet Configuration which in this application of SLATE devices communicating to other SLATE devices on the same network, will be either “Plain BACnet/IP” or “BACnet/Ethernet”. All configured SLATE devices on the network must use the same Ethernet configuration.

The screenshot shows the 'SLATE Base - Communications' configuration window. The 'BACnet' tab is selected under 'Communication Setup'. The 'Device Object Instance' field is highlighted with a red box. The 'Ethernet Configuration' dropdown is also highlighted with a red box, showing 'Plain BACnet/IP'. The 'BACnet Configuration Status' box indicates 'Configuration OK'.

NOTE: Both Master and Slave devices MUST be configured in order for the Lead Lag system to function correctly. An improperly configured SLATE Master device will result in the Lead Lag application to be non-functional while an improperly configured SLATE Slave device will result in that Lead Lag stage to be non-functional.

Setting up BACnet communication over Plain BACnet/IP or BACnet/Ethernet from the SLATE Base menu:

In this configuration we show the BACnet configuration over a network. To configure communication over RS485, see the “Peer to Peer BACnet Configuration” document for additional information.

1. On the SLATE Base module, click the “Menu” button.
2. Using the up/down arrows, move to “Base setup” and click the “OK” button on the SLATE Base module.
3. Using the up/down arrows, move to “Network” and click the “OK” button on the SLATE Base module.
4. Using the up/down arrows, move to “Ethernet” and click the “OK” button on the SLATE Base module.
5. Using the up/down arrows, move to “BACnet” and click the “OK” button on the SLATE Base module.
6. Using the up/down arrows, move to “Configuration” and click the “OK” button on the SLATE Base module.
7. Using the up/down, left/right arrows, select the connectivity protocol and move to OK on the screen and click the “OK” button on the SLATE Base module.

Transmitting/Receiving Data:

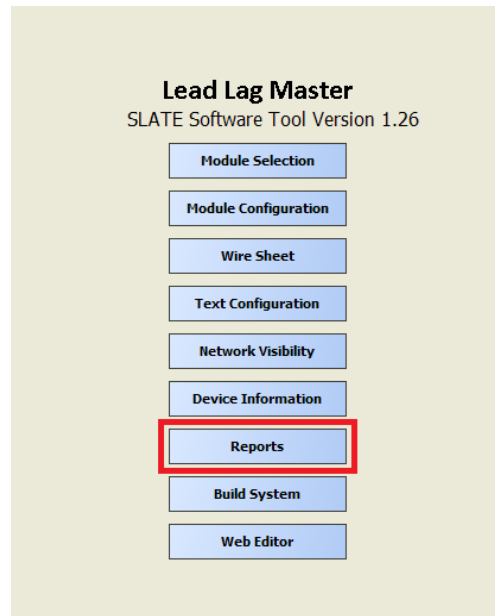
Once communication has been set up on the Base modules, we are ready to set up the binding (transmit/receive). Each SLATE wire sheet (master/slave) requires information from the other SLATE Bases. For example, the SLATE Master must know the state of each of the Slave burners and each of the SLATE Slaves, must know if the SLATE Master is commanding it to start its sequence. This is just one example of the multiple messages that are passed between the SLATE Master and SLATE Slave.

The data of each (Master/Slave) is “queried” by the SLATE system that needs the information. The following BACnet binding section must be completed for each of the SLATE devices in the lead lag system. We start with setting up the SLATE Master to query each of the SLATE Slaves for the data it needs to process its logic (wire sheet).

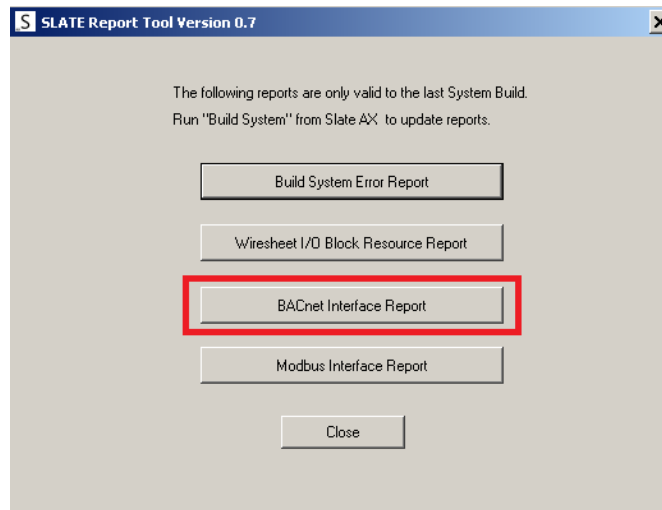
<u>Required Data for Master (from Slaves):</u>	<u>Object ID</u>	<u>Slave #</u>
1 Burner 2 state	116	2
2 Burner 3 state	116	3
3 Burner 4 state	116	4
4 Burner 2 throttle	117	2
5 Burner 3 throttle	117	3
6 Burner 4 throttle	117	4
7 Auto/Manual/LL burner 2	115	2
8 Auto/Manual/LL burner 3	115	3
9 Auto/Manual/LL burner 4	115	4
10 Burner 2 in LL/Run	120	2
11 Burner 3 in LL/Run	120	3
12 Burner 4 in LL/Run	120	4
13 Burner 2 local demand	111	2
14 Burner 3 local demand	111	3
15 Burner 4 local demand	111	4

The BACnet Object ID is found in the BACnet Interface report in Niagara AX. The Master BACnet Interface report is found in the Master SLATE Device while the Slave BACnet interface report is found in the Slave Device.

In the Master SLATE device click on the “Reports” button.



Click on the “BACnet Interface Report” button.



NOTE: Before a report can be generated, make sure you first click on the “Build System” button once the Lead Lag station is loaded.

Below is the complete SLATE Slave BACnet Object ID report.

NOTE: Making changes to the wire sheet may change the Object ID report.

BACnet Interface Report							
	Object ID	Object Name	Resource	BACnet Type	Units	Min Value	Max Value
1	104	m1ControlProgram_Header_Sensor	m1r308	Analog Input (AI)		-3.402823E+038	3.402823E+038
2	110	m1ControlProgram_Setpoint	m1r1000	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
3	111	m1ControlProgram_Manual_On_Off	m1r1001	Analog Value (AV)		-3.402823E+038	3.402823E+038
4	112	m1ControlProgram_Proportional	m1r1002	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
5	113	m1ControlProgram_Integral	m1r1003	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
6	114	m1ControlProgram_Derivative	m1r1004	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
7	115	m1ControlProgram_PID_Manual_Lag	m1r1005	Analog Value (AV)		-3.402823E+038	3.402823E+038
8	116	m1ControlProgram_BurnerStatusOutput	m1r1006	Analog Value (AV)		-3.402823E+038	3.402823E+038
9	117	m1ControlProgram_EffectiveThrottle	m1r1010	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
10	118	m1ControlProgram_PID_Out	m1r1011	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
11	119	m1ControlProgram_Or1_Output	m1r1012	Analog Value (AV)		-3.402823E+038	3.402823E+038
12	120	m1ControlProgram_InGroupRun	m1r1013	Analog Value (AV)		-3.402823E+038	3.402823E+038
13	121	m1ControlProgram_InGroupDemand	m1r1014	Analog Value (AV)		-3.402823E+038	3.402823E+038
14	122	m1ControlProgram_Slave_Nr	m1r1015	Analog Value (AV)		-3.402823E+038	3.402823E+038
15	123	m1ControlProgram_SlaveNr_Out	m1r1016	Analog Value (AV)		-3.402823E+038	3.402823E+038
16	124	m1ControlProgram_SensorValue	m1r1017	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
17	125	m1ControlProgram_LeadLagThrottle	m1r1018	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
18	126	m1ControlProgram_Com_OK	m1r1019	Analog Value (AV)		-3.402823E+038	3.402823E+038
19	127	m1ControlProgram_LFH_Threshold	m1r1020	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
20	128	m1ControlProgram_LFH_Timer	m1r1021	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
21	129	m1ControlProgram_LFH_Enable	m1r1022	Analog Value (AV)		-3.402823E+038	3.402823E+038
22	130	m1ControlProgram_And_Out	m1r1023	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
23	131	m1ControlProgram_PID_Disable	m1r1024	Analog Value (AV)		-3.402823E+038	3.402823E+038
24	132	m1ControlProgram_Compare5_Out	m1r1025	Analog Value (AV)		-3.402823E+038	3.402823E+038
25	133	m1ControlProgram_And6_Out	m1r1028	Analog Value (AV)		-3.402823E+038	3.402823E+038
26	134	m1ControlProgram_And7_Out	m1r1029	Analog Value (AV)		-3.402823E+038	3.402823E+038
27	135	m1ControlProgram_Select5_Out	m1r1030	Analog Value (AV)		-3.402823E+038	3.402823E+038
28	136	m1ControlProgram_Select8_Out	m1r1032	Analog Value (AV)		-3.402823E+038	3.402823E+038
29	137	m1ControlProgram_And3_Out	m1r1033	Analog Value (AV)		-3.402823E+038	3.402823E+038
30	138	m1ControlProgram_Select_Out	m1r1034	Analog Value (AV)		-3.402823E+038	3.402823E+038
31	139	m1ControlProgram_And8_Out	m1r1035	Analog Value (AV)		-3.402823E+038	3.402823E+038
32	140	m1ControlProgram_Or4_Out	m1r1036	Analog Value (AV)		-3.402823E+038	3.402823E+038
33	141	m1ControlProgram_Header_Temp	m1r1037	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038

Close

Save to Excel Spreadsheet .xls File

SLATE Slave BACnet Interface Report (for Master)

The SLATE Master logic requires five items from each of the SLATE Slaves. Since the Master logic includes the first stage (burner 1), BACnet communication must bring in the five items from burners 2-4 for a total of 15 items.

Master Base:

< Communications
SLATE Base - BACnet Binding

None

Register Select: Bind Register 1 ▾

Live status:

BACnet bind 1 data =
3.000 Data read from device

BACnet bind 1 status =
Access - Normal Status code
1

Status message

Setup: Device=2|AV-116

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present-value. propid may use a BACnet property name or number. May be indexed.

Slave 2, BurnerStatusOutput (Slave 2 burner state)

We start with “Bind Register 1”. This wire sheet register requires the state of Burner 2. In the “Setup” field, we start by identifying from what device we will be requesting the data. As noted, this will be Burner 2 (Device=2). The “|” key is located above the “Enter” key on US keyboards. The following item entered in the “Setup” field is the object type. This can be found in the BACnet Interface Report in the BACnet Type column. In all cases, the object type is Analog Value (AV). Enter a dash after the object type followed by the register that contains the required information. In the case of Bind Register 1, we require Burner State 2. Reference the BACnet Interface Report column “Object ID” for the appropriate register (116= BurnerStatusOutput).

Repeat these configurations until all BACnet com for the SLATE Master is complete.

< Communications

SLATE Base - BACnet Binding

None

Register Select: Bind Register 2 ▼

Live status:

BACnet bind 2 data =
13.000 Data read from device

BACnet bind 2 status =
Access - Normal Status code 1

Status message

Setup: Device=3|AV-116

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=present-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select:

Bind Register 3 ▼

Live status:

BACnet bind 3 data =	
13.000	Data read from device
BACnet bind 3 status =	
Access - Normal	Status code 1
Status message	

Setup: Device=4|AV-116

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

```
Device = 12 | AO-123
Device = 12 | AO-123 | propid = present-value           (Same as above)
Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)
Device = 48 | BO-456 | propid=present-value [ 3 ]      (Indexed item: use square brackets.)
```

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select: Bind Register 4 ▼

Live status:

BACnet bind 4 data =
0.000 Data read from device

BACnet bind 4 status =
Access - Normal Status code
1

Status message

Setup: Device=2|AV-117

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=present-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present-value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select: Bind Register 5 ▼

Live status:

BACnet bind 5 data =
50.000 Data read from device

BACnet bind 5 status = Status code
Access - Normal 1

Status message

Setup: Device=3|AV-117

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=present-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. If omitted means present value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select: Bind Register 6 ▼

Live status:

BACnet bind 6 data =
89.000 Data read from device

BACnet bind 6 status =
Access - Normal Status code 1

Status message

Setup: Device=4|AV-117

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=present-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select: Bind Register 7 ▼

Live status:

BACnet bind 7 data =
2.000 Data read from device

BACnet bind 7 status =
Access - Normal Status code 1

Status message

Setup: Dev=2|AV-115

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

< Communications

SLATE Base - BACnet Binding

None

Register Select:

Bind Register 8

Live status:

BACnet bind 8 data =

2.000

Data read from device

BACnet bind 8 status =

Access - Normal

Status code 1

Status message

Setup:

Dev=3|AV-115

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

Slave 3, PID_Manual_Lag (Slave 3 Auto/Manual selector switch)

< Communications

SLATE Base - BACnet Binding

None

Register Select:

Bind Register 9

Live status:

BACnet bind 9 data =

2.000

Data read from device

BACnet bind 9 status =

Access - Normal

Status code 1

Status message

Setup:

Dev=4|AV-115

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

Slave 4, PID_Manual_Lag (Slave 4 Auto/Manual selector switch)

Slave 2, InGroupRun (Slave 2 in Run and in Lead Lag group)Slave 3, InGroupRun (Slave 3 in Run and in Lead Lag group)

Slave 4, InGroupRun (Slave 4 in Run and in Lead Lag group)

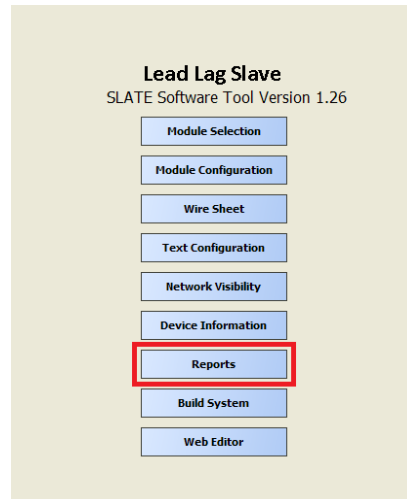
Slave 2, Manual On Off (Slave 2 demand permissive)

Slave 3, Manual_On_Off (Slave 3 demand permissive)

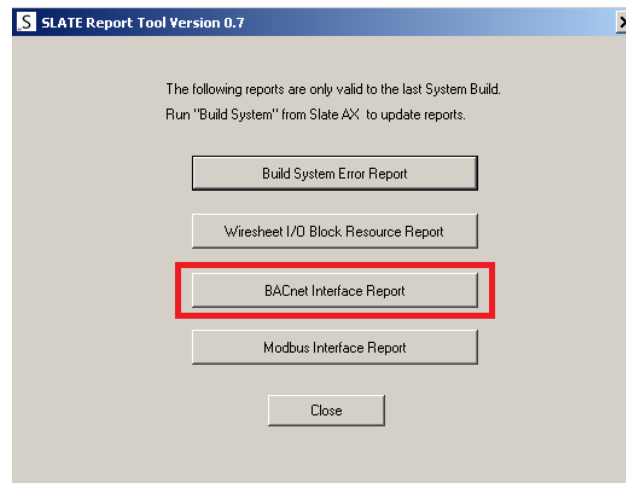
Slave 4, Manual_On_Off (Slave 4 demand permissive)

SLATE Master BACnet Interface Report

In the Slave SLATE device click on the Reports button.



Click on the BACnet Interface Report button.



NOTE: Before a report can be generated, make sure you first Build once the Lead Lag station is loaded.

Slave Bases:

SLATE Master BACnet Interface Report for Slave 2

BACnet Interface Report							
	Object ID	Object Name	Resource	BACnet Type	Units	Min Value	Max Value
1	123	m1ControlProgram_Min_Mod_Value	m1r1001	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
2	124	m1ControlProgram_InterstageDelay	m1r1003	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
3	125	m1ControlProgram_Error_Threshold	m1r1004	Analog Value (AV)		-3.402823E+038	3.402823E+038
4	126	m1ControlProgram_Err_Timer	m1r1005	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
5	127	m1ControlProgram_DropStageThreshold	m1r1006	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
6	128	m1ControlProgram_NextStageThresh	m1r1007	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
7	129	m1ControlProgram_BurnerDemand_3	m1r1008	Analog Value (AV)		-3.402823E+038	3.402823E+038
8	130	m1ControlProgram_BurnerDemand_4	m1r1009	Analog Value (AV)		-3.402823E+038	3.402823E+038
9	131	m1ControlProgram_BurnerDemand_2	m1r1010	Analog Value (AV)		-3.402823E+038	3.402823E+038
10	132	m1ControlProgram_Throttle2	m1r1011	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
11	133	m1ControlProgram_Throttle3	m1r1012	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
12	134	m1ControlProgram_Throttle4	m1r1013	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
13	135	m1ControlProgram_SensorValue	m1r1015	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
14	136	m1ControlProgram_StagesActiveCompare	m1r1016	Analog Value (AV)		-3.402823E+038	3.402823E+038
15	137	m1ControlProgram_StageDriver1	m1r1017	Analog Value (AV)		-3.402823E+038	3.402823E+038
16	138	m1ControlProgram_ControllerDemand	m1r1018	Analog Value (AV)		-3.402823E+038	3.402823E+038
17	139	m1ControlProgram_Counter	m1r1019	Analog Value (AV)		-3.402823E+038	3.402823E+038
18	140	m1ControlProgram_Stage1	m1r1020	Analog Value (AV)		-3.402823E+038	3.402823E+038
19	141	m1ControlProgram_Stage2	m1r1021	Analog Value (AV)		-3.402823E+038	3.402823E+038
20	142	m1ControlProgram_Stage3	m1r1022	Analog Value (AV)		-3.402823E+038	3.402823E+038
21	143	m1ControlProgram_Stage4	m1r1023	Analog Value (AV)		-3.402823E+038	3.402823E+038
22	144	m1ControlProgram_And2_Output	m1r1024	Analog Value (AV)		-3.402823E+038	3.402823E+038
23	145	m1ControlProgram_And3_Output	m1r1025	Analog Value (AV)		-3.402823E+038	3.402823E+038
24	146	m1ControlProgram_And1_Output	m1r1026	Analog Value (AV)		-3.402823E+038	3.402823E+038
25	147	m1ControlProgram_Compare4_Output	m1r1028	Analog Value (AV)		-3.402823E+038	3.402823E+038
26	148	m1ControlProgram_Compare6_Out	m1r1029	Analog Value (AV)		-3.402823E+038	3.402823E+038
27	149	m1ControlProgram_Compare16_Out	m1r1030	Analog Value (AV)		-3.402823E+038	3.402823E+038
28	150	m1ControlProgram_Throttle_1_out	m1r1031	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
29	151	m1ControlProgram_CounterValue	m1r1032	Analog Value (AV)		-3.402823E+038	3.402823E+038
30	152	m1ControlProgram_Select16_Out	m1r1033	Analog Value (AV)		-3.402823E+038	3.402823E+038
31	153	m1ControlProgram_OneShot7_Out	m1r1034	Analog Value (AV)		-3.402823E+038	3.402823E+038
32	154	m1ControlProgram_Compare17_Out	m1r1035	Analog Value (AV)		-3.402823E+038	3.402823E+038
33	155	m1ControlProgram_Compare18_Out	m1r1036	Analog Value (AV)		-3.402823E+038	3.402823E+038
34	156	m1ControlProgram_And7_Out	m1r1037	Analog Value (AV)		-3.402823E+038	3.402823E+038
35	157	m1ControlProgram_Select17_out	m1r1038	Analog Value (AV)		-3.402823E+038	3.402823E+038
36	158	m1ControlProgram_Select18_out	m1r1039	Analog Value (AV)		-3.402823E+038	3.402823E+038

Required Data for Slave 2 (from Master):

Object ID

- 1 Burner 2 demand command
- 2 Burner 2 throttle command
- 3 Header temperature

- 131
- 132
- 135

Register Select:

Bind Register 1

Live status:

BACnet bind 1 data =

0.000

Data read from device

BACnet bind 1 status =

Access - Normal

status code 1

status message

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Setup:

Dev=1|AV-131

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO,AI,AV,BO,BI,BV,MI,MO,MV

Master: BurnerDemand_2 (Slave 2 demand command from Master)

Register Select:

Bind Register 2

Live status:

BACnet bind 2 data =

50.000

Data read from device

BACnet bind 2 status =

Access - Normal

status code 1

status message

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Setup:

Dev=1|AV-132

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO,AI,AV,BO,BI,BV,MI,MO,MV

Master: Throttle2 (Slave 2 throttle command from Master)

Register Select:

Bind Register 3 ▼

Live status:

BACnet bind 3 data =

72.490

Data read from device

BACnet bind 3 status =

Access - Normal

status code 1

status message

Setup:

Dev=1|AV-135

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO,AI,AV,BO,BI,BV,MI,MO,MV

Master: SensorValue (header sensor)

Burner 3:

SLATE Master BACnet Interface Report for Slave 3

BACnet Interface Report							
	Object ID	Object Name	Resource	BACnet Type	Units	Min Value	Max Value
1	123	m1ControlProgram_Min_Mod_Value	m1r1001	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
2	124	m1ControlProgram_InterstageDelay	m1r1003	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
3	125	m1ControlProgram_Error_Threshold	m1r1004	Analog Value (AV)		-3.402823E+038	3.402823E+038
4	126	m1ControlProgram_Err_Timer	m1r1005	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
5	127	m1ControlProgram_DropStageThreshold	m1r1006	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
6	128	m1ControlProgram_NextStageThresh	m1r1007	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
7	129	m1ControlProgram_BurnerDemand_3	m1r1008	Analog Value (AV)		-3.402823E+038	3.402823E+038
8	130	m1ControlProgram_BurnerDemand_4	m1r1009	Analog Value (AV)		-3.402823E+038	3.402823E+038
9	131	m1ControlProgram_BurnerDemand_2	m1r1010	Analog Value (AV)		-3.402823E+038	3.402823E+038
10	132	m1ControlProgram_Throttle2	m1r1011	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
11	133	m1ControlProgram_Throttle3	m1r1012	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
12	134	m1ControlProgram_Throttle4	m1r1013	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
13	135	m1ControlProgram_SensorValue	m1r1015	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
14	136	m1ControlProgram_StagesActiveCompare	m1r1016	Analog Value (AV)		-3.402823E+038	3.402823E+038
15	137	m1ControlProgram_StageDriver1	m1r1017	Analog Value (AV)		-3.402823E+038	3.402823E+038
16	138	m1ControlProgram_ControllerDemand	m1r1018	Analog Value (AV)		-3.402823E+038	3.402823E+038
17	139	m1ControlProgram_Counter	m1r1019	Analog Value (AV)		-3.402823E+038	3.402823E+038
18	140	m1ControlProgram_Stage1	m1r1020	Analog Value (AV)		-3.402823E+038	3.402823E+038
19	141	m1ControlProgram_Stage2	m1r1021	Analog Value (AV)		-3.402823E+038	3.402823E+038
20	142	m1ControlProgram_Stage3	m1r1022	Analog Value (AV)		-3.402823E+038	3.402823E+038
21	143	m1ControlProgram_Stage4	m1r1023	Analog Value (AV)		-3.402823E+038	3.402823E+038
22	144	m1ControlProgram_And2_Output	m1r1024	Analog Value (AV)		-3.402823E+038	3.402823E+038
23	145	m1ControlProgram_And3_Output	m1r1025	Analog Value (AV)		-3.402823E+038	3.402823E+038
24	146	m1ControlProgram_And1_Output	m1r1026	Analog Value (AV)		-3.402823E+038	3.402823E+038
25	147	m1ControlProgram_Compare4_Output	m1r1028	Analog Value (AV)		-3.402823E+038	3.402823E+038
26	148	m1ControlProgram_Compare6_Out	m1r1029	Analog Value (AV)		-3.402823E+038	3.402823E+038
27	149	m1ControlProgram_Compare16_Out	m1r1030	Analog Value (AV)		-3.402823E+038	3.402823E+038
28	150	m1ControlProgram_Throttle_1_out	m1r1031	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
29	151	m1ControlProgram_CounterValue	m1r1032	Analog Value (AV)		-3.402823E+038	3.402823E+038
30	152	m1ControlProgram_Select16_Out	m1r1033	Analog Value (AV)		-3.402823E+038	3.402823E+038
31	153	m1ControlProgram_OneShot7_Out	m1r1034	Analog Value (AV)		-3.402823E+038	3.402823E+038
32	154	m1ControlProgram_Compare17_Out	m1r1035	Analog Value (AV)		-3.402823E+038	3.402823E+038
33	155	m1ControlProgram_Compare18_Out	m1r1036	Analog Value (AV)		-3.402823E+038	3.402823E+038
34	156	m1ControlProgram_And7_Out	m1r1037	Analog Value (AV)		-3.402823E+038	3.402823E+038
35	157	m1ControlProgram_Select17_out	m1r1038	Analog Value (AV)		-3.402823E+038	3.402823E+038
36	158	m1ControlProgram_Select18_out	m1r1039	Analog Value (AV)		-3.402823E+038	3.402823E+038

Required Data for Slave 3 (from Master):

- 1 Burner 3 demand command
- 2 Burner 3 throttle command
- 3 Header temperature

Object ID

- 129
- 133
- 135

Master: BurnerDemand_3 (Slave 3 demand command from Master)

Master: Throttle3 (Slave 3 throttle command from Master)

Register Select:

Bind Register 3 ▼

Live status:

BACnet bind 3 data =

73.090

Data read from device

BACnet bind 3 status =

Access - Normal

Status message

Status code

1

Setup:

Dev=1|AV-135

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed

Master: SensorValue (header sensor)

Burner 4: SLATE Master BACnet Interface Report for Slave 4

BACnet Interface Report							
	Object ID	Object Name	Resource	BACnet Type	Units	Min Value	Max Value
1	123	m1ControlProgram_Min_Mod_Value	m1r1001	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
2	124	m1ControlProgram_InterstageDelay	m1r1003	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
3	125	m1ControlProgram_Error_Threshold	m1r1004	Analog Value (AV)		-3.402823E+038	3.402823E+038
4	126	m1ControlProgram_Err_Timer	m1r1005	Analog Value (AV)	s	-3.402823E+038	3.402823E+038
5	127	m1ControlProgram_DropStageThreshold	m1r1006	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
6	128	m1ControlProgram_NextStageThresh	m1r1007	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
7	129	m1ControlProgram_BurnerDemand_3	m1r1008	Analog Value (AV)		-3.402823E+038	3.402823E+038
8	130	m1ControlProgram_BurnerDemand_4	m1r1009	Analog Value (AV)		-3.402823E+038	3.402823E+038
9	131	m1ControlProgram_BurnerDemand_2	m1r1010	Analog Value (AV)		-3.402823E+038	3.402823E+038
10	132	m1ControlProgram_Throttle2	m1r1011	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
11	133	m1ControlProgram_Throttle3	m1r1012	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
12	134	m1ControlProgram_Throttle4	m1r1013	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
13	135	m1ControlProgram_SensorValue	m1r1015	Analog Value (AV)	deg F	-3.402823E+038	3.402823E+038
14	136	m1ControlProgram_StagesActiveCompare	m1r1016	Analog Value (AV)		-3.402823E+038	3.402823E+038
15	137	m1ControlProgram_StageDriver1	m1r1017	Analog Value (AV)		-3.402823E+038	3.402823E+038
16	138	m1ControlProgram_ControllerDemand	m1r1018	Analog Value (AV)		-3.402823E+038	3.402823E+038
17	139	m1ControlProgram_Counter	m1r1019	Analog Value (AV)		-3.402823E+038	3.402823E+038
18	140	m1ControlProgram_Stage1	m1r1020	Analog Value (AV)		-3.402823E+038	3.402823E+038
19	141	m1ControlProgram_Stage2	m1r1021	Analog Value (AV)		-3.402823E+038	3.402823E+038
20	142	m1ControlProgram_Stage3	m1r1022	Analog Value (AV)		-3.402823E+038	3.402823E+038
21	143	m1ControlProgram_Stage4	m1r1023	Analog Value (AV)		-3.402823E+038	3.402823E+038
22	144	m1ControlProgram_And2_Output	m1r1024	Analog Value (AV)		-3.402823E+038	3.402823E+038
23	145	m1ControlProgram_And3_Output	m1r1025	Analog Value (AV)		-3.402823E+038	3.402823E+038
24	146	m1ControlProgram_And1_Output	m1r1026	Analog Value (AV)		-3.402823E+038	3.402823E+038
25	147	m1ControlProgram_Compare4_Output	m1r1028	Analog Value (AV)		-3.402823E+038	3.402823E+038
26	148	m1ControlProgram_Compare6_Out	m1r1029	Analog Value (AV)		-3.402823E+038	3.402823E+038
27	149	m1ControlProgram_Compare16_Out	m1r1030	Analog Value (AV)		-3.402823E+038	3.402823E+038
28	150	m1ControlProgram_Throttle1_out	m1r1031	Analog Value (AV)	%	-3.402823E+038	3.402823E+038
29	151	m1ControlProgram_CounterValue	m1r1032	Analog Value (AV)		-3.402823E+038	3.402823E+038
30	152	m1ControlProgram_Select16_Out	m1r1033	Analog Value (AV)		-3.402823E+038	3.402823E+038
31	153	m1ControlProgram_OneShot7_Out	m1r1034	Analog Value (AV)		-3.402823E+038	3.402823E+038
32	154	m1ControlProgram_Compare17_Out	m1r1035	Analog Value (AV)		-3.402823E+038	3.402823E+038
33	155	m1ControlProgram_Compare18_Out	m1r1036	Analog Value (AV)		-3.402823E+038	3.402823E+038
34	156	m1ControlProgram_And7_Out	m1r1037	Analog Value (AV)		-3.402823E+038	3.402823E+038
35	157	m1ControlProgram_Select17_out	m1r1038	Analog Value (AV)		-3.402823E+038	3.402823E+038
36	158	m1ControlProgram_Select18_out	m1r1039	Analog Value (AV)		-3.402823E+038	3.402823E+038

Required Data for Slave 4 (from Master):

- 1 Burner 3 demand command
- 2 Burner 3 throttle command
- 3 Header temperature

Object ID

- 130
- 134
- 135

Register Select:

Bind Register 1

Live status:

BACnet bind 1 data =

1.000

Data read from device

BACnet bind 1 status =

Access - Normal

Status code 1

Status message

Setup:

Dev=1|AV-130

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present-value. propid may use a BACnet property name or number. May be indexed.

Master: BurnerDemand_4 (Slave 4 demand command from Master)

Register Select:

Bind Register 2

Live status:

BACnet bind 2 data =

89.000

Data read from device

BACnet bind 2 status =

Access - Normal

Status code 1

Status message

Setup:

Dev=1|AV-134

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=persent-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present-value. propid may use a BACnet property name or number. May be indexed.

Master: Throttle4 (Slave 4 throttle command from Master)

Register Select:

Bind Register3

Live status:

BACnet bind 3 data =

73.090

Data read from device

BACnet bind 3 status =

Access - Normal

Status code 1

Status message

Setup:

Dev=1|AV-135

The binding registers can be used to pull (read) data from any BACnet device, such as another SLATE control. Each register has an associated setup register and a status register with a code that identifies a status message. Status messages include reporting of any syntax errors in the setup register.

The setup register contains keyword=value pairs that are separated by the vertical bar character. Spaces are allowed, but optional.

Example setup strings to identify the device, object instance, and property that is read:

Device = 12 | AO-123

Device = 12 | AO-123 | propid = present-value (Same as above)

Device = 12 | objtype = 1 | instance = 123 | propid = 85 (Same as above using numeric objtype: 1 is AO, 85 is present value)

Device = 48 | BO-456 | propid=present-value [3] (Indexed item: use square brackets.)

Device omitted means this device. objtype omitted means the device object. objtype may be AO, AI, AV, BO, BI, BV, MI, MO, MV with a dash and an instance number, or the keyword objtype= and a BACnet numeric code. If the numeric code is used then the instance keyword is required. propid if omitted means present value. propid may use a BACnet property name or number. May be indexed.

Master: SensorValue (header sensor)

All configurations are “permanent” unless changes are made to either Master or SLAVE wire sheets.