BACnet Terminology

for the Synergy Network Controller

Introduction:

This document connects the BACnet terms to their equivalent Synergy term in a way that is helpful for both Synergy-capable and BACnet-savvy users alike. The intent is to represent the differing terms by their common usage or purpose. To that end terms that are the same are not present.

Reference Documents:

In order to derive the maximum benefit from this glossary of terms, you may need to refer to these documents:

1. "Synergy Network Controller Expanded Protocol Implementation Conformance Statement"
2. ASHRAE 135-xxxx, "BACNET -- A Data Communication Protocol for Building Automation and Control Networks"

1.

BACnet term	Explanation and Comments	Synergy term
device	In BACnet a "device" is a physical computing element (with a network-unique BACnet ID) that uses the BACnet protocol for communication and has connections to and control over other equipment such as HVAC&R, lighting, and other building systems. In Synergy the "controller" is the embodiment of the BACnet device.	controller

2.

BACnet term	Explanation and Comments	Synergy term
object and Object_Type	In BACnet an "object" generally represents either a category of input or a category of output (Output_Type.) In Synergy, these objects are referred to by their actual name (relay, dimmer, switch, button, partition, file, analog input, or cabinet (controller). Collectively in Synergy, they are called devices. Because Synergy's physical inputs and outputs have capabilities that do not exclusively correspond to a single input/output category/Object_Type, the BACnet user is allowed to refer to the same physical input or output through more than one Object_Type. In this way, the BACnet user can "get at" all the capabilities of each Synergy device.	device

3.

BACnet term	Explanation and Comments	Synergy term
Instance_ Number	BACnet instance numbers map directly to the Synergy "Hotel" numbering system used to identify inputs and outputs. The Synergy Network Controller is directly connected to 1-16 modules, each of which contains inputs to receive information from the building and outputs to control lighting loads. The module types are relay, dimmer, legacy (maxstar) and SIMPLY5. Each module has an address wheel which is set to a unique (to its Controller) number, 0-15. This number or module ID is the upper two digits of the "Hotel" number. The module's inputs are numbered sequentially beginning with 1, as are the module's outputs. These numbers are the lower two digits of the "Hotel" number. SIMPLY5-Group instance numbers (3MLGG) are in the inclusive range is 30000-39215. The least-significant 4-digits (MLGG) identify the module (M), DALI loop (L), and group number (GG.) The least-significant two digits (GG) are the group number which is always in the inclusive range 0-15 (16 groups per loop.) The next most significant digit (L) identifies which of the three loops the group is on. The inclusive range for the loop number is 0-2. The next most significant digit (M) is the module address. Because there is only one digit for the DALI Module's address, it must be set to a value in the inclusive range 0-9. SIMPLY5 instance numbers (2MLPP) are in the inclusive range is 20000-39263. The least-significant 4-digits (MLPP) identify the module (M), DALI loop (L), and point number (PP.) The least-significant two digits (PP) are the point number which is always in the inclusive range 0-63 (64 points per loop.) The next most significant digit (L) identifies which of the three loops the point is on. The inclusive range for the loop number is 0-2. The next most significant digit (M) is the module address. Because there is only one digit for the DALI Module's address, it must be set to a value in the inclusive range 0-9. Legacy dimmer (maxstar) instance numbers (1MPPP) are in the inclusive range 10000-13999. The least-significant 4-digits (MPPP) identify the module (M) and the point number (PPP.) The least-significant 3-digits (PPP) are the point number which is always in the inclusive range 0-999. The next most significant digit (M) is the module address. Legacy dimmer (maxstar) module addresses are restricted to the inclusive range 0-3. Remote Station instance numbers (2000 + SSBB) are in the inclusive range 2000-7999. First subtract 2000 to get a number in the range 0-5999. This is the Remote Station Hotel Number (SSBB.) The least-significant two digits (BB) are the button/input number, and the two next most significant digits (SS) are the station number (0-59.) Relay and Dimmer instance numbers (MMPP) are in the inclusive range 0-1507. The least-significant two digits (PP) are the point number. For relay modules, this is always in the inclusive range 0-7. For dimmer modules, this is always in the inclusive range 0-5. The next two most significant digits (MM) are the module address, which is always limited to the inclusive range 0-15. The instance number for the Synergy Group will be directly related to the	hotel number

	"Hotel" number for the output or set of outputs that belong to the group. For example, by default dimmers 101 thru 103 are in group 101. The instance numbers for partitions begin with 1 and go up. The instance number for the device object is always the same as the Controller's BACnet ID. See the answer to question 7 "How do I get the instance number of my Synergy Network Controller's device object." The instance number for the file object begins with 0 and goes up. See the answer to question 13 "What files can I read and write on my Synergy Network Controller."	

4.

BACnet term	Explanation and Comments	Synergy term
property	In BACnet properties represent the externally visible characteristics of an object. In Synergy physical devices have attributes.	attribute

5.

BACnet term	Explanation and Comments	Synergy term
Analog_Input object	The BACnet concept of an Analog_Input object is exactly the same as a physical analog input in Synergy. Synergy allows buttons on Remote Stations to be treated as either an Analog_Input object or a Binary_Input object.	Analog Input, button

6.

BACnet term	Explanation and Comments	Synergy term
Analog_Output object	The BACnet concept of an Analog_Output object is exactly the same as a physical analog output in Synergy. Synergy allows relays to be treated as either an Analog_Output object or a Binary_Output object. This makes it possible to simulate dimming of non-dimmable ballasts (which are connected to a relay module, instead of a dimmer module.)	dimmer, relay

7.

BACnet term	Explanation and Comments	Synergy term
Analog_Value object	Because the BACnet concept of an Analog_Value object is "a control system parameter residing in the memory of the BACnet Device", that made it the best candidate for representing Synergy Groups, which are a way of collecting physical output devices that you want to control in unison. Synergy doesn't allow input devices to be group members because the purpose is to change the output level of the Synergy group and have the level affect the output level of all the members of the group.	Synergy group

8.

BACnet term	Explanation and Comments	Synergy term
Binary_Input object	The BACnet concept of a Binary_Input object is a physical device or hardware input that can only be in one of two distinct states. This is exactly what you expect from a button or switch. However because Synergy buttons and switches are more versatile than that, they can also be accessed as Analog_Input objects.	button, switch

9.

BACnet term	Explanation and Comments	Synergy term
Binary_Output object	The BACnet concept of a Binary_Output object is a physical device or hardware output that can only be in one of two distinct states. This is exactly what you expect from a relay. However because Synergy relays are more versatile than that, they can also be accessed as Analog_Output objects. It is sometimes convenient to refer to a dimmer as a Binary_Output object if you only want to command it "ON" or "OFF".	dimmer,relay

10.

BACnet term	Explanation and Comments	Synergy term
Binary_Value object	Because the BACnet concept of a Binary_Value object is "a control system parameter residing in the memory of the BACnet Device", that made it the best candidate for representing partitions, which are a control point. Generally a switch or sensor is used to change the state of the partition ("present" or "absent".)	partition

11.

BACnet term	Explanation and Comments	Synergy term
Device object	In BACnet the Device object represents the externally visible characteristics of the BACnet Device. In Synergy this is called the Controller. Sometimes you may hear it called a "cabinet" which is a way of including everything directly connected to the Controller.	cabinet, controller

12.

<table>
<tr><th>BACnet term</th><th>Explanation and Comments</th><th>Synergy term</th></tr>
<tr><td>File object</td><td>In BACnet the File object is used to describe properties of data files in the device/controller that may be accessed using File Services (see Clause 14). Synergy just calls it a file. The file instance number used by BACnet must be translated to a filename according to this table:
<table>
<tr><th>Instance Number</th><th>Filename</th></tr>
<tr><td>0</td><td>TEMP.TXT</td></tr>
<tr><td>1</td><td>SCRIPT.TXT</td></tr>
<tr><td>2</td><td>LOGIC.TXT</td></tr>
<tr><td>3</td><td>PASS.BIN</td></tr>
<tr><td>4</td><td>LOG.BIN</td></tr>
<tr><td>5</td><td>STRIKE.BIN</td></tr>
<tr><td>6</td><td>CONFIG.INI</td></tr>
<tr><td>7</td><td>SYNERGY.RTB</td></tr>
<tr><td>8</td><td>GREET.RIF</td></tr>
<tr><td>9</td><td>THANKS.RIF</td></tr>
<tr><td>10</td><td>PRIORITY.BIN</td></tr>
<tr><td>11</td><td>TASKINFO.DAT</td></tr>
<tr><td>12</td><td>LOGIC.TMP</td></tr>
<tr><td>13</td><td>LOG.INI</td></tr>
<tr><td>14</td><td>LOGIC.BAD</td></tr>
<tr><td>15</td><td>SCRIPT.BAD</td></tr>
<tr><td>16</td><td>NOTES.TXT</td></tr>
<tr><td>17</td><td>GREET.WAV</td></tr>
<tr><td>18</td><td>THANKS.WAV</td></tr>
<tr><td>19</td><td>REQUEST.WAV</td></tr>
<tr><td>32</td><td>GATEWAY.INI</td></tr>
<tr><td>33</td><td>GATEWAY.RTB</td></tr>
<tr><td>34</td><td>LUTRON.INI</td></tr>
<tr><td>35</td><td>PASSWORD.BIN</td></tr>
<tr><td>64</td><td>LITE.RTB</td></tr>
<tr><td>100</td><td>FILE100</td></tr>
<tr><td>101</td><td>FILE101</td></tr>
<tr><td>102</td><td>FILE102</td></tr>
<tr><td>103</td><td>FILE103</td></tr>
<tr><td>104</td><td>FILE104</td></tr>
<tr><td>105</td><td>FILE105</td></tr>
<tr><td>106</td><td>FILE106</td></tr>
<tr><td>107</td><td>FILE107</td></tr>
<tr><td>108</td><td>FILE108</td></tr>
<tr><td>109</td><td>FILE109</td></tr>
</table>
</td><td>file</td></tr>
</table>

13.

<table>
<tr><th>BACnet term</th><th>Explanation and Comments</th><th>Synergy term</th></tr>
<tr><td>Present_Value property</td><td>In BACnet Present_Value is the current value, in engineering units, of the input or output. It is a real number (e.g. 23.6.) In Synergy this same idea is expressed as a percent in the range 0-100. It is an integer number. In Synergy certain levels have specific meanings:
<table>
<tr><th>Present_Value / level</th><th>description</th></tr>
<tr><td>0</td><td>OFF and relinquish the priority</td></tr>
<tr><td>1</td><td>OFF, w/o relinquishing the priority</td></tr>
<tr><td>2-99</td><td>level, percentage</td></tr>
<tr><td>100</td><td>ON</td></tr>
<tr><td>128</td><td>STOP</td></tr>
<tr><td>129</td><td>LOWER</td></tr>
<tr><td>130</td><td>RAISE</td></tr>
<tr><td>131</td><td>BLINK</td></tr>
<tr><td>255</td><td>NULL (relinquish the priority)</td></tr>
<tr><td>1000.0 * fade-time + level
NOTE: fade-time is in 1/10 second units</td><td>FADE</td></tr>
</table>
</td><td>level</td></tr>
</table>