

# TM168BACS

## TM168BACS PICS

TM168BACS has been designed to strictly comply with the ASHRAE BACnet standard 135-2004.

BACnet enables integration between Devices designed for a wide variety of applications.

This Protocol Implementation Conformance Statement (PICS) document details the BACnet Interoperability Building Blocks that are supported in TM168BACS .



# Product Implementation Conformance Statement

## General

<b>Date:</b>	02 February 2012 (BBV2468608-07)
<b>Range name:</b>	TM168BACS
<b>Product name:</b>	TM168BACS
<b>Product model number:</b>	TM168BACS
<b>Vendor name:</b>	Schneider Electric
<b>Application software version:</b>	1.2
<b>Firmware revision:</b>	1.07.
<b>Base ASHRAE standard:</b>	135-2004
<b>BACnet Protocol version:</b>	1
<b>BACnet Protocol revision:</b>	4 <b>NOTE: Highest supported for all claimed objects and services</b>

## Product description

The TM168BACS is a device that enables TM168 controller range to behave as a BACnet Application Specific Controller (B-ASC). The TM168BACS communications module provides the appropriate BACnet services and Object support to achieve this. TM168 controller is programmable with the Software SoHVAC and targeted for HVAC applications.

## Device Profile Support

Highest conforming profile selected from each group

### Controller Profile:

BACnet Building Controller (B-BC)	
BACnet Advanced Application Controller (B-AAC)	
BACnet Application Specific Controller (B-ASC)	X
BACnet Smart Actuator (B-SA)	X
BACnet Smart Sensor (B-SS)	X

### Operator Profile:

BACnet Advanced Operator Workstation (B-AWS)	
BACnet Operator Workstation (B-OWS)	
BACnet Operator Display (B-OD)	

### Segmentation Capability

Segmentation	Supported	Window Size
Able to transmit segmented messages		
Able to receive segmented messages		

### Data Link Layer and Routing Options

Data Link	Supported	Data Rates	Router for Data Link
BACnet/IP			
Ethernet - ISO 8802_3			
MS/TP master	X	9600 baud 19.2 kbaud, 38.4 kbaud 76.8 kbaud	
MS/TP slave			
Zigbee			
ARCnet - ANSI/ATA 878.1			
RS-485 – ANSI/ATA 878.1			
LonTalk TP/FT-10			
LonTalk/IP			
Point-to-Point – EIA 232			
Point-to-Point – modem			

### Other Networking Options

Networking Option	Supported
Static Device Binding Supported	
Annex H, BACnet Tunneling Router over IP	
BACnet Broadcast Management Device (BBMD)	
BBMD supports registration by foreign device	
Device support registration as a foreign device	

### Character Sets Supported

Character Sets	Supported
ANSI X3.4	X
ISO 8859-1	X
ISO 10646 (USC-2)	
ISO 10646 (UCS-4)	
IBM / Microsoft DBCS	
JIS C 6626	

## BACnet Interoperability Building Blocks (BIBBS) Support

### Data Sharing:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DS-RP-A	ReadProperty-A	X	X	X	X					
DS-RP-B	ReadProperty-B	X	X	X	X	X	X	X	X	X
DS-RPM-A	ReadPropertyMultiple-A	X	X		X					
DS-RPM-B	ReadPropertyMultiple-B				X	X				X
DS-RPC-A	ReadPropertyConditional-A									
DS-RPC-B	ReadPropertyConditional-B									
DS-WP-A	WriteProperty-A	X	X	X	X					
DS-WP-B	WriteProperty-B				X	X	X	X		X
DS-WPM-A	WritePropertyMultiple-A	X	X							
DS-WPM-B	WritePropertyMultiple-B				X	X				X
DS-COV-A	COV-A									
DS-COV-B	COV-B									X
DS-COVP-A	COVP-A									
DS-COVP-B	COVP-B									
DS-COVU-A	COV-Unsolicited-A				X					
DS-COVU-B	COV-Unsolicited-B				X					
DS-V-A	View-A		X	X						
DS-M-A	Modify-A		X	X						
DS-AV-A	Advanced View-A	X								
DS-AM-A	Advanced Modify-A	X								

## BACnet Interoperability Building Blocks (BIBBS) Support

### Alarms and Events:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
AE-N-A	Notification-A	X	X							
AE-N-I-B	Notification Internal				X	X				X
AE-N-E-B	Notification External-B									
AE-ACK-A	ACK-A	X	X							
AE-ACK-B	ACK-B				X	X				X
AE-ASUM-A	Summary-A									
AE-ASUM-B	Alarm Summary-B									X
AE-ESUM-A	Enrollment Summary-A									
AE-ESUM-B	Enrollment Summary-B				X	X				
AE-INFO-A	Information-A									
AE-INFO-B	Information-B				X	X				X
AE-LS-A	LifeSafety-A									
AE-LS-B	LifeSafety-B									
AE-AS-A	Alarm Summary-A									
AE-VN-A	View Notification-A	X		X						
AE-VM-A	View Modify-A	X								
AE-AVM-A	Advanced View Modify-A		X							
AE-AVN-A	Advanced View Notifications-A		X							
AE-ELVM-A		1								

1 Not required for devices conformance to a Protocol Revision less than 7

## BACnet Interoperability Building Blocks (BIBBS) Support

### Schedules:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
<b>SCHED-A</b>	Scheduling - A									
<b>SCHED-B</b>										
<b>SCHED-I-B</b>	Scheduling - Internal-B					X				
<b>SCHED-E-B</b>	Scheduling - External-B				X					
<b>SCH-VM-A</b>	Scheduling - View Modify		X							
<b>SCH-AVM-A</b>	Scheduling - Advanced View Modify	X								
<b>SCH-WS-A</b>	Scheduling - Weekly Schedule-A									
<b>SCH-WS-I-B</b>	Scheduling - Weekly Schedule Internal-B									
<b>SCH-R-B</b>	Scheduling - Readable-B									

### Trends:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
<b>T-VMT-A</b>	Viewing and Modifying Trends-A									
<b>T-VMT-I-B</b>	Viewing and Modifying Trends Internal-B				X					
<b>T-VMT-E-B</b>	Viewing and Modifying Trends External-B									
<b>T-ATR-A</b>	Automated Trend Retrieval-A									
<b>T-ATR-B</b>	Automated Trend Retrieval-B				X					
<b>T-V-A</b>	View-A		X							
<b>T-A-A</b>	Archiving-A									
<b>T-AVM-A</b>		X								

## BACnet Interoperability Building Blocks (BIBBS) Support

### Device Management:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DM-DDB-A	Dynamic Device Binding - A	X	X	X	X					X
DM-DDB-B	Dynamic Device Binding - B	X	X	X	X	X	X	2	2	X
DM-DOB-A	Dynamic Object Binding - A				X					
DM-DOB-B	Dynamic Object Binding - B	X	X	X	X	X	X	2	2	X
DM-DCC-A	DeviceCommunicationCont rol-A	X								
DM-DCC-B	DeviceCommunicationCont rol-B									X
DM-PT-A	Private Transfer-A									
DM-PT-B	Private Transfer-B									
DM-TM-A	Text Message-A									
DM-TM-B	Text Message-B									
DM-TS-A	TimeSynchronization-A									
DM-TS-B	TimeSynchronization-B				X	X	X			X
DM-UTC-A	UTCTimeSynchronization-A									
DM-UTC-B	UTCTimeSynchronization-B				X	X				
DM-RD-A	ReinitializeDevice-A	X								
DM-RD-B	ReinitializeDevice-B				X	X	X			X
DM-BR-A	Backup and Restore-A	X								
DM-BR-B	Backup and Restore-B				X					
DM-R-A	Restart-A									
DM-R-B	Restart-B									
DM-LM-A	List Manipulation-A									
DM-LM-B	List Manipulation-B									
DM-OCD-A	Object Creation and Deletion-A	X	X							
DM-OCD-B	Object Creation and Deletion-B									
DM-VT-A	Virtual Terminal-A									
DM-VT-B	Virtual Terminal-B									
DM-ANM-A		X								
DM-ADM-A		X								
DM-MTS-A		X	X							

2 Not required if the device is a BACnet MS/TP Slave



BACnet Interoperability Building Blocks (BIBBS) Support

Network Management:

BIBBS	description	BACnet Standard								TM168BACS Device
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
<b>NM-CE-A</b>	Connection Establishment-A	X			X					
<b>NM-CE-B</b>	Connection Establishment-B									
<b>NM-RC-A</b>	Router Configuration-A									
<b>NM-RC-B</b>	Router Configuration-B									

Supported BACnet Object Types (Summary)

ID	description	Protocol Revisions		BACnet Standard								TM168BACS Device		
		Introduced	Updated	B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported Protocol Revisions	Createable	Deletable
23	Accumulator	4		X										
0	Analog Input	0		X										
1	Analog Output	0		X										
2	Analog Value	0	1	X									N	N
18	Averaging	1		X										
3	Binary Input	0	1	X										
4	Binary Output	0		X										
5	Binary Value	1		X									N	N
6	Calendar	0		X	X									
7	Command	0		X										
8	Device	0	1	X	X	X	X	X	X	X	X		N	N
9	Event Enrollment	0	4	X	X		X	X						
10	File	0	1, 9	X									N	N
11	Group	0		X										
21	Life Safety Point	2	4, 5	X										
22	Life Safety Zone	2	4, 5	X										
12	Loop	0	7	X										
13	Multi-state Input	0	1	X										
14	Multi-state Output	0		X										
19	Multi-state Value	1	1	X									N	N
15	Notification Class	0	1, 4	X	X		X	X					N	N
16	Program	0		X										
24	Pulse Converter	4		X										
17	Schedule	0	1, 4	X	X		X	X						
20	Trend Log	1	7	X	X		X							
30	Access Door	6		X										
25	Event Log	7		X										
28	Load Control	6		X										
29	Structured View	5		X										
27	Trend Log Multiple	7		X										
	Lighting Output <sub>2</sub>	9i												
	Access Credential	9		X										
	Access Point	9		X										
	Access Rights	9		X										
	Access User	9		X										
	Access Zone	9		X										

Supported BACnet Object Types (Summary - Continued)

ID	description	Protocol Revisions		BACnet Standard								TM168BACS Device		
		Introduced	Updated	B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported Protocol Revisions	Createable	Deletable
37	<b>Credential Data Input</b>	<b>9</b>		X										
38	Global Group <sub>2</sub>	9p												
39	CharacterString Value <sub>2</sub>	9w												
40	DateTime Value <sub>2</sub>	9w												
41	Double Value <sub>2</sub>	9w												
42	BitString Value <sub>2</sub>	9w												
43	OctetString Value <sub>2</sub>	9w												
44	Time Value <sub>2</sub>	9w												
45	Singed Value <sub>2</sub>	9w												
46	Unsigned Value <sub>2</sub>	9w												
47	Date Value <sub>2</sub>	9w												

1 Implied requirements of Device Profile are in respect to the protocol revision support by the device. If the object type did not exist in the BACnet standard for the revision supported by the device it is not required.

2 Object types proposed for ASHRAE standard by SSPC 135 committee but not currently approved

## Analog Value

BACnet Standard – Analog Value					TM168BACS Device - BACnet Analog Value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R			Object ID	R	
77	<i>object-name</i>	R			Name	R	W
79	<i>object-type</i>	R			BACnet type	R	
85	<i>present-value</i>	R <sup>4</sup>			Value	R	W
28	<i>description</i>			O	Description	R	W
111	<i>status-flags</i>	R			Status flags	R	
36	<i>event-state</i>	R			Event state	R	
103	<i>reliability</i>			O		R	
81	<i>out-of-service</i>	R			Out of service	R	W
117	<i>units</i>	R				R	W
87	<i>priority-array</i>			O <sup>1</sup>	Command Priority Levels		
104	<i>relinquish-default</i>			O <sup>1</sup>	Relinquish default		
22	<i>cov-increment</i>			O <sup>2</sup>	COV increment	R	W
113	<i>time-delay</i>			O <sup>3</sup>	Time delay	R	W
17	<i>notification-class</i>			O <sup>3</sup>	BACnet notification	R	W
45	<i>high-limit</i>			O <sup>3</sup>	Upper limit	R	W
59	<i>low-limit</i>			O <sup>3</sup>	Lower limit	R	W
25	<i>deadband</i>			O <sup>3</sup>	Deadband	R	W
52	<i>limit-enable</i>			O <sup>3</sup>	Limit enable	R	W
35	<i>event-enable</i>			O <sup>3</sup>	Event enable	R	W
0	<i>acked-transitions</i>			O <sup>3</sup>	Acknowledged transitions	R	
72	<i>notify-type</i>			O <sup>3</sup>	Notify type	R	W
130	<i>event-time-stamps</i>			O <sup>3</sup>	To-off-normal time, To-fault time, To-normal time	R	
168	<i>profile-name</i>			O			
603	<i>Host-register-address</i>			O <sup>5</sup>		R	
604	<i>If-av-object-32-bits</i>			O <sup>5</sup>		R	

<sup>1</sup> If present-value is commandable, then both of these properties shall be present.

<sup>2</sup> This property is required if the object supports COV reporting.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

<sup>4</sup> These are TM168BACS proprietary properties

- None of the writable values will be stored non volatile, so will be lost after power cycle of the device.
- All strings are restricted to 31 characters.
- Unsigned values are limited to 65536.
- If the precision of the value written to present\_value is greater than the precision of the variable in the application, TM168BACS will truncate the value to the controller precision.

## Controller Data Types

Data Type	Corresponding Controller Data Type	Precision	Maximum Range	Minimum Range
Signed 16	CJ_SHORT	0	32767	-32768
		1	3276.7	-3276.8
		2	327.67	-327.68
		3	32.767	-32.768
Unsigned16	(CJ_WORD)	0	65535	0
		1	6553.5	0
		2	655.35	0
		3	65.535	0
Signed 32	( CJ_LONG)	0	2147483647	-2147483648
		1	214748364.7	-214748364.8
		2	21474836.47	-21474836.48
		3	2147483.647	-2147483.648
Unsigned32	CJ_DWORD	0	4294967295	0
		1	429496729.5	0
		2	42949672.95	0
		3	4294967.295	0
Signed 8	CJ_S_BYTE	0	127	-128
		1	12.7	-12.8
		2	1.27	-1.28
		3	0.127	-0.128
Unsigned 8	CJ_BYTE	0	255	0
		1	25.5	0
		2	2.55	0
		3	0.255	0

## Binary Value

BACnet Standard – Binary Value					TM168BACS Device - BACnet digital value		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R				R	
77	<i>object-name</i>	R				R	W
79	<i>object-type</i>	R				R	
85	<i>present-value</i>	R <sup>1</sup>				R	W
28	<i>description</i>			O		R	W
111	<i>status-flags</i>	R				R	
36	<i>event-state</i>	R				R	
103	<i>reliability</i>			O		R	
81	<i>out-of-service</i>	R				R	W
46	<i>inactive-text</i>			O <sup>2</sup>		R	W
4	<i>active-text</i>			O <sup>2</sup>		R	W
16	<i>change-of-state-time</i>			O <sup>3</sup>		R	
15	<i>change-of-state-count</i>			O <sup>3</sup>		R	W
115	<i>time-of-state-count-reset</i>			O <sup>3</sup>		R	
33	<i>elapsed-active-time</i>			O <sup>4</sup>			
114	<i>time-of-active-time-reset</i>			O <sup>4</sup>			
66	<i>minimum-off-time</i>			O			
67	<i>minimum-on-time</i>			O			
87	<i>priority-array</i>			O <sup>5</sup>			
104	<i>relinquish-default</i>			O <sup>5</sup>			
113	<i>time-delay</i>			O <sup>6</sup>		R	W
17	<i>notification-class</i>			O <sup>6</sup>		R	W
6	<i>alarm-value</i>			O <sup>6</sup>		R	W
35	<i>event-enable</i>			O <sup>6</sup>		R	W
0	<i>acked-transitions</i>			O <sup>6</sup>		R	W
72	<i>notify-type</i>			O <sup>6</sup>		R	W
130	<i>event-time-stamps</i>			O <sup>6</sup>		R	
168	<i>profile-name</i>			O			
603	<i>Host-register-address</i>			O <sup>7</sup>		R	

- None of the writable values will be stored non volatile, so will be lost after power cycle of the device
- All strings are restricted to 31 characters.
- Unsigned values are limited to 65536
- Change\_Of\_State\_Count=0 (it is limited to zero)

<sup>1</sup> If one of the optional properties *inactive-text* or *active-text* is present, then both of these properties shall be present.

<sup>3</sup> If one of the optional properties *change-of-state-time*, *change-of-state-count*, or *time-of-state-count-reset* is present, then all of these properties shall be present.

4 If one of the optional properties elapsed-active-time or time-of-active-time-reset is present, then both of these properties shall be present.

5 If present-value is commandable, then both of these properties shall be present.

6 These properties are required if the object supports intrinsic reporting.

7 This is TM168BACS proprietary property

Device

BACnet Standard – Device					TM168BACS Device – BACnet device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R				R	W
77	<i>object-name</i>	R				R	W
79	<i>object-type</i>	R				R	
112	<i>system-status</i>	R				R	
121	<i>vendor-name</i>	R				R	
120	<i>vendor-identifier</i>	R				R	
70	<i>model-name</i>	R				R	
44	<i>firmware-revision</i>	R				R	
12	<i>application-software-version</i>	R				R	
58	<i>location</i>			O		R	W
28	<i>description</i>			O		R	W
98	<i>protocol-version</i>	R				R	
139	<i>protocol-revision</i>	R				R	
97	<i>protocol-services-supported</i>	R				R	
96	<i>protocol_object-types-supported</i>	R				R	
76	<i>object-list</i>	R				R	
209	<i>structured-object-list</i>			O			
62	<i>max-apdu-length-accepted</i>	R				R	
107	<i>segmentation-supported</i>	R				R	
122	<i>vt-classes-supported</i>			O <sup>2</sup>			
5	<i>active-vt-sessions</i>			O <sup>2</sup>			
57	<i>local-time</i>			O <sup>3</sup> , 4		R	
56	<i>local-date</i>			O <sup>3</sup> , 4		R	
119	<i>utc-offset</i>			O <sup>4</sup>			
24	<i>daylight-savings-status</i>			O <sup>4</sup>			
10	<i>apdu-segment-timeout</i>			O <sup>1</sup>			
11	<i>apdu-timeout</i>	R				R	W
73	<i>number-of-apdu-retries</i>	R				R	W
55	<i>list-of-session-keys</i>			O			
116	<i>time-synchronization-recipients</i>			O <sup>5</sup>			
64	<i>max-master</i>			O <sup>6</sup>		R	W
63	<i>max-info-frames</i>			O <sup>6</sup>		R	W
30	<i>device-address-binding</i>	R				R	
155	<i>database-revision</i>	R				R	



154	<i>configuration-files</i>			O <sup>7</sup>			
157	<i>last-restore-time</i>			O <sup>7</sup>			
153	<i>backup-failure-timeout</i>			O <sup>8</sup>			
152	<i>active-cov-subscriptions</i>			O		R	
167	<i>max-segments-accepted</i>			O <sup>1</sup>			
172	<i>slave-proxy-enable</i>			O <sup>10</sup>			
169	<i>auto-slave-discovery</i>			O <sup>11</sup>			
171	<i>slave-address-binding</i>			O <sup>12</sup>			
170	<i>Manual-slave-address-binding</i>			O <sup>10</sup>			
168	<i>profile-name</i>			O		R	
196	<i>last-restart-session</i>						
203	<i>time-of-device-restart</i>			O <sup>13</sup>			
202	<i>restart-notification-recipients</i>			O <sup>13</sup>			
206	<i>utc-time-synchronization-recipients</i>			O <sup>5</sup>			
204	<i>time-synchronization-interval</i>			O <sup>14</sup>			
193	<i>align-intervals</i>			O <sup>14</sup>			
195	<i>interval-offset</i>			O <sup>14</sup>			
600	<i>receive-message-count</i>			O <sup>15</sup>		R	
601	<i>Transmit-message-count</i>			O <sup>15</sup>		R	
602	<i>error-message-count</i>			O <sup>15</sup>		R	

1 Required if segmentation of any kind is supported.

2 If one of the properties VT\_Classes\_Supported or Active\_VT\_Sessions is present, then both of these properties shall be present. Both properties are required if support for VT Services is indicated in the PICS.

3 If the device supports the execution of the TimeSynchronization service, then these properties shall be present.

4 If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.

5 If this property is present, then Time\_Synchronization\_Interval, Align\_Intervals and Interval\_Offset shall be present. If present, this property shall be writable.

6 These properties are required if the device is an MS/TP master node.

7 These properties are required if the device supports the backup and restore procedures.

8 This property must be present and writable if the device supports the backup and restore procedures.

9 This property is required if the device supports execution of either the SubscribeCOV or SubscribeCOVProperty service.

10 This property shall be present and writable if the device is capable of being a Slave-Proxy device.

11 This property shall be present if the device is capable of being a Slave-Proxy device that implements automatic discovery of slaves.

12 This property shall be present if the device is capable of being a Slave-Proxy device.

13 These properties are required if the device supports the restart procedure as described in Clause 19.3.

14 If either Time\_Synchronization\_Recipients or UTC\_Time\_Synchronization\_Recipients is present, then this property shall be present and writable.

15 These are TM168BACS proprietary properties

- None of the writable values will be stored non volatile, so will be lost after power cycle of the device (except MAX\_Master, Max\_Info\_Frames and DeviceInstance).
- All strings are restricted to 31 characters.
- Unsigned values are limited to 65536.
- Number\_Of\_APDU\_Retries is restricted to the range 0..10
- The range of values for "max info frames" is restricted to: 1..3
- APDU\_Timeout is restricted to 1000 to 255000ms

File

BACnet Standard – File					TM168BACS Device -		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R				R	
77	<i>object-name</i>	R				R	
79	<i>object-type</i>	R				R	
28	<i>description</i>			O		R	
43	<i>file-type</i>	R				R	
42	<i>file-size</i>	R <sup>1</sup>				R	W
71	<i>modification-date</i>	R				R	
13	<i>archive</i>		W			R	W
99	<i>read-only</i>	R				R	
41	<i>file-access-method</i>	R				R	
141	<i>record-count</i>			O <sup>2</sup>			
168	<i>profile-name</i>			O			

1 If the file size can be changed by writing to the file, and File\_Access\_Method is STREAM\_ACCESS, then this property shall be writable.

2 This property shall be present only if File\_Access\_Method is RECORD\_ACCESS. If the number of records can be changed by writing to the file, then this property shall be writable.

- File\_Size=0, (writing is limited to value zero)
- the services AtomicFileRead, AtomicFileWrite and Reinitialize services are supported for updating FW on the communication module via BACnet

## Multi-State Value

BACnet Standard – Multi-State Value					TM168BACS Device -		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R				R	
77	<i>object-name</i>	R				R	W
79	<i>object-type</i>	R				R	
85	<i>present-value</i>	R <sup>1</sup>				R	W
28	<i>description</i>			O		R	W
111	<i>status-flags</i>	R				R	
36	<i>event-state</i>	R				R	
103	<i>reliability</i>			O <sup>2</sup>		R	
81	<i>out-of-service</i>	R				R	W
74	<i>number-of-states</i>	R				R	
110	<i>state-text</i>			O		R	
87	<i>priority-array</i>			O <sup>3</sup>			
104	<i>relinquish-default</i>			O <sup>3</sup>			
113	<i>time-delay</i>			O <sup>4</sup>		R	W
17	<i>notification-class</i>			O <sup>4</sup>		R	W
7	<i>alarm-values</i>			O <sup>4</sup>		R	W
39	<i>fault-values</i>			O <sup>4</sup>		R	W
35	<i>event-enable</i>			O <sup>4</sup>		R	W
0	<i>acked-transitions</i>			O <sup>4</sup>		R	
72	<i>notify-type</i>			O <sup>4</sup>		R	W
130	<i>event-time-stamps</i>			O <sup>4</sup>		R	
168	<i>profile-name</i>			O			
603	<i>Host-register-address</i>			O <sup>5</sup>		R	

1 This property shall be required if fault-values is present.

3 If present-value is commandable, then both of these properties shall be present.

4 These properties are required if the object supports intrinsic reporting.

5 This is TM168BACS proprietary property

- None of the writable values will be stored non volatile, so will be lost after power cycle of the
- All strings are restricted to 31 characters.
- Unsigned values are limited to 65536

## Notification Class

BACnet Standard – Notification Class					TM168BACS Device -		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	<i>object-identifier</i>	R				R	
77	<i>object-name</i>	R				R	W
79	<i>object-type</i>	R				R	
28	<i>description</i>			O		R	W
17	<i>notification-class</i>	R				R	
86	<i>priority</i>	R				R	W
1	<i>ack-required</i>	R				R	W
102	<i>recipient-list</i>	R				R	W
168	<i>profile-name</i>			O			

- Recipient\_List is restricted to 5 recipients
- None of the writable values will be stored non volatile, so will be lost after power cycle of the