

## BACnet Protocol Implementation Conformance Statement

### BACNET PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT

This statement describes the BACnet capabilities of the 963 Supervisor v3.10 when it is used in conjunction with the Trend Open Protocol Server v1.1 and its BACnet driver.

**Date:** 19/01/2009  
**Vendor Name:** Trend Control Systems Ltd.  
**Product Name:** 963 Supervisor  
**Product Model Number:** 963, TOPS  
**Applications Software Version:** TOPS Iss 2.00      **Firmware Revision:** Detailed firmware revision can be read from the TOPS Device object  
**BACnet Protocol Revision:** 4

### PRODUCT DESCRIPTION

963 is a graphical, real-time, user interface for the building control system. It enables the user to monitor plant or building services, and make changes to the way the building is controlled from a graphical display. TOPS provides communications facilities to other applications when used with 963, it enables 963 to communicate with BACnet devices enabling the 963 to read values from, or write values to those devices, and receive alarms from the BACnet devices.

### LIST ALL BACNET INTEROPERABILITY BUILDING BLOCKS SUPPORTED (ANNEX K):

ID	BIBB	Title
1.1	DS-RP-A	Data Sharing-ReadProperty-A
1.3	DS-RPM-A	Data Sharing-ReadProperty Multiple-A
1.7	DS-WP-A	Data Sharing-WriteProperty-A
1.9	DS-WPM-A	Data Sharing-WritePropertyMultiple-A
2.1	AE-N-A	Alarm and Event-Notification-A
3.1	SCHED-A	Scheduling-A
4.4	T_ATR_A	Trending-Automated Trend Retrieval-A
5.1	DM-DDB-A	Device Management-Dynamic Device Building-A

### SEGMENTATION CAPABILITY

- Segmented requests supported      Window Size
- Segmented responses supported      Window Size

### STANDARD OBJECT TYPES SUPPORTED

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using the CreateObject service.
- 2) Whether objects of this type are dynamically deletable using the DeleteObject service.
- 3) List of the optional properties supported.
- 4) List of all properties that are writable where not otherwise required by this standard.
- 5) List of proprietary properties and for each its property identifier, datatype, and meaning.
- 6) List of any property range restrictions.

#### Device Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
  - Location
  - Description
  - Max\_Segments\_Accepted
  - APDU\_Segment\_Timeout
  - Configuration\_Files
  - Last\_Restore\_Time
  - Backup\_Failure\_Timeout
  - Active\_COV\_Subscriptions
4. Writeable Properties: None
5. Proprietary Properties: None
6. Property Range Restrictions: None

**AVAILABLE BACNET PROPERTIES**

The tables below list the BACnet objects, and properties that the 963 can read from, or write to when used in conjunction with TOPS.

**BACnet Analogue Input Object**

The BACnet analogue input object maps to the Trend sensor module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read	Value (V)
Units	Read	Units (%)

**BACnet Binary Input Object**

The BACnet binary input object maps to the Trend digital input module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read	Value (V)

**BACnet Analogue Output Object**

The BACnet analogue output object maps to the Trend analogue driver module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read	Value (V)
Units	Read	Units (%)

**BACnet Schedule Object**

The BACnet schedule object maps to the Trend time zone module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Exception_Schedule	Read/Write	Exceptions (Cn)
Weekly_Schedule	Read/Write	Normal Week Wn).

**BACnet Analogue Value Object**

The BACnet analogue value object maps to the Trend knob module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read/Write	Value (V)
Units	Read	Units (%)
Low_Limit	Read	Bottom Range (B)
High_Limit	Read	Top Range (T)

**BACnet Binary Value Object**

The BACnet binary value object maps to the Trend switch module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read/Write	Value (V)

**BACnet Binary Output Object**

The BACnet binary output object maps to the Trend digital driver module.

BACnet Property	Read/Write	Trend Parameter
Object_Name	Read	Label (\$)
Present_Value	Read	Value (V)
Units	Read	Units (%)

**BACnet Device Object**

The BACnet device object maps to the Trend time module, and address module.

BACnet Property	Read/Write	Trend Parameter
		Time Module
Local_Time	Read	Hour (H)
Local_Time	Read	Minute (N)
Local_Date	Read	Day (D)
Local_Date	Read	Month (M)
Local_Date	Read	Year (Y)
Local_Date	Read	Day of Week (W)
		Address Module
Object_Name	Read	Identifier (D)
Firmware_Version	Read	Version (C)

**BACnet Trend Log Object**

BACnet Trend Log Object maps to the Trend plot module.

BACnet Property	Read/Write	Trend Parameter
Buffer_Size	Read	Number of Records (N)
Record_Count	Read	Record Count (R)
Total_Record_Count	Read	Total Record Count (C)
Log_Buffer	Read	Log Values (Bn)
Log_Interval	Read	Interval (I)
Object_Name	Read	Label (\$)
Notification_Threshold	Read	Notification Threshold (n)
Records_Since_Notification	Read	Records Since Last Notification (r)
Last_Notify_Record	Read	Last notify Record (l)

**AVAILABLE BACNET PROPERTIES** (Continued)

**BACnet Alarms**

963 can receive BACnet alarms from BACnet alarm notification classes that TOPS has subscribed to. The BACnet alarms are converted to Trend alarms by TOPS and passed to 963. Sensor HIGH, sensor LOW, sensor READ, driver SDGT, plot BBUF, digital input alarms are calculated using the EVENT TYPE property, and the TO Event state according to the table below. Other alarms are assigned alarm codes by 963 see the 963 Engineering Manual for details.

BACnet Parameters			Trend Alarm						
			Sensor			Digital Input		Driver	Plot
			HIGH	LOW	READ	DI=1	DI=0	SDGT	BBUF
To Event State	normal								✓
	fault			✓					
	offnormal				✓	✓	✓		
	high-limit	✓							
	low-limit		✓						
Event Type Property	CHANGE_OF_STATE				✓	✓			
	COMMAND_FAILURE						✓		
	OUT_OF_RANGE	✓	✓	✓					
	BUFFER_READY								✓

**DATA LINK LAYER OPTIONS:**

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ANSI/ATA 878.1, 2.5 MB. ARCNET (Clause 8)
- ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s):
- MS/TP master (Clause 9), baud rate(s):
- MS/TP slave (Clause 9), baud rate(s):
- Point-To-Point, EIA 232 (Clause 10), baud rate(s):
- Point-To-Point, modem, (Clause 10), baud rate(s):
- LonTalk, (Clause 11), medium:
- Other:

**DEVICE ADDRESS BINDING:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)  Yes  No

**NETWORKING OPTIONS:**

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)  
Does the BBMD support registrations by Foreign Devices?  Yes  No

**CHARACTER SETS SUPPORTED:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- ANSI X3.4
- IBM™/Microsoft™ DBCS
- ISO 8859-1
- ISO 10646 (UCS-2)
- ISO 10646 (UCS-4)
- JIS C 6226

**If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:**

N/A

Please send any comments about this or any other Trend technical publication to [techpubs@trendcontrols.com](mailto:techpubs@trendcontrols.com)

© 2008 Honeywell Technologies Sàrl, ECC Division. All rights reserved. Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, La Pièce, 16, 1180 Rolle, Switzerland by its Authorized Representative, Trend Control Systems Limited.

Trend Control Systems Limited reserves the right to revise this publication from time to time and make changes to the content hereof without obligation to notify any person of such revisions or changes.

**Trend Control Systems Limited**

P.O. Box 34, Horsham, West Sussex, RH12 2YF, UK. Tel:+44 (0)1403 211888 Fax:+44 (0)1403 241608 [www.trend-controls.com](http://www.trend-controls.com)

**Trend Control System USA**

6670 185<sup>th</sup> Avenue NE, Redmond, Washington 98052, USA. Tel:(425) 869-3900 Fax:(425) 869-8445 [www.trend-controls.com](http://www.trend-controls.com)

---