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## FMS-1655 BACnet MS/TP Protocol Implementation Conformance Statement

Date: March 24, 2014

Vendor Name: Triatek Holdings, LLC

**Product Name:** FMS-1655 Series Isolation Controller with Safety Halo™

Product Model Number: FMS-1655 Firmware Revision: 2.14 or higher BACnet Protocol Revision: 5

#### **Product Description:**

The TRIATEK FMS-1655 Series Isolation Controller is an ultra-sensitive instrument used to control and/or monitor air pressure in hospital rooms, labs, and clean rooms. This unit is a precision measuring system capable of measuring and displaying air pressures down to 0.0001" WC (0.025 Pa). This particular model isolation controller is capable of acting as a stand-alone device or as part of a building automation system using the BACnet MS/TP protocol.

	essures down to 0.0001" WC (0.025 Pa). This particular ice or as part of a building automation system using the
BACnet Standar	dized Device Profile (Annex L):
BACnet Build BACnet Adva BACnet Appl BACnet Sma	rator Workstation (B-OWS)  Jing Controller (B-BC)  Janced Application Controller (B-AAC)  Jication Specific Controller (B-ASC)  To Sensor (B-SS)  To Actuator (B-SA)
List all BACnet II	nteroperability Building Blocks Supported (Annex K):
DS-RP-B	Read Property
DS-RPM-B	Read Property Multiple
DS-WP-B	Write Property
DM-DDB-B	Dynamic Device Binding
DM-DOB-B	Dynamic Object Binding
DM-DCC-B	Device Communication Control
DS-TS-B	Time Synchronization
DS-UTC-B	UTC Time Synchronization
DM-RD-B	Reinitialize Device
Segmentation C	apability:
Segmented requ	ests supported Yes 🗌 No 🔀
	onses supported Yes No 🔀





Standard Object Types Supported:			
Analog Input Object Type  1. Dynamically creatable u  2. Dynamically deletable u	using BACnet's CreateObje using BACnet's DeleteObje		
3. List of optional properti	ies supported:		
DESCRIPTION			
4. List of all properties tha	t are writable where not	otherwise required by this standard:	
DESCRIPTION			
OUT_OF_SERVICE			
5. List of proprietary prop	erties:		
Property Identifier	Property Datatype	Meaning	
6. List of any property value	ue range restrictions:		
Property Identifier	Restrictions		
, ,	-		





Analog Output Object Typ 1. Dynamically creatable u 2. Dynamically deletable u	ısing BACnet's CreateObj	
3. List of optional properti	es supported:	
DESCRIPTION		
4. List of all properties tha	t are writable where not	otherwise required by this standard:
OUT OF SERVICE		
5. List of proprietary prop	erties:	
Property Identifier	Property Datatype	Meaning
	_	
6. List of any property valu	ue range restrictions:	
Property Identifier	Restrictions	
PRESENT_VALUE	MINIMUM: 0.0; MAXIN	MUM: 100.0





Analog Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No			
3. List of optional propert	ties supported:		
DESCRIPTION			
PRIORITY_ARRAY			
RELINQUISH_DEFAULT			
4. List of all properties that	at are writable where not	otherwise required by this standard:	
OUT_OF_SERVICE		· · ·	
5. List of proprietary prop	nerties:		
Property Identifier	Property Datatype	Meaning	
6. List of any property val	Restrictions		
r roperty identifier	Nestrictions		
	†		





Binary Input Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  3. List of optional properties supported:	
DESCRIPTION	
4. List of all properties that are writable where not otherwise required by this standard:	
5. List of proprietary properties:	
Property Identifier Property Datatype Meaning	
6. List of any property value range restrictions:	
6. List of any property value range restrictions:  Property Identifier Restrictions	





3. List of optional properties supported:  DESCRIPTION INACTIVE_TEXT ACTIVE_TEXT  4. List of all properties that are writable where not otherwise required by this standard:  OUT_OF_SERVICE
INACTIVE_TEXT ACTIVE_TEXT  4. List of all properties that are writable where not otherwise required by this standard:
4. List of all properties that are writable where not otherwise required by this standard:
4. List of all properties that are writable where not otherwise required by this standard:
OUT_OF_SERVICE
5. List of proprietary properties:
Property Identifier Property Datatype Meaning
6. List of any property value range restrictions:
Property Identifier Restrictions





Binary Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No No			
3. List of optional properti	es supported:		
DESCRIPTION			
PRIORITY_ARRAY RELINQUISH_DEFAULT			
MEEHINGOISH_BEIMOEI			
	t are writable where not	otherwise required by this standard:	
PRESENT_VALUE			
OUT_OF_SERVICE			
5. List of proprietary properties:			
Property Identifier	Property Datatype	Meaning	
	1		
6. List of any property value	_		
Property Identifier	Restrictions		
	+		





Device Object Type  1. Dynamically creatable using BACnet's CreateObject service?  Yes □ No □			
2. Dynamically deletable using BACnet's DeleteObject service?  Yes No No			
3. List of optional properti	es supported:		
DESCRIPTION			
LOCAL_TIME			
LOCAL_DATE			
UTC_OFFSET			
DAYLIGHT_SAVINGS_STAT	US		
MAX_MASTER			
MAX_INFO_FRAMES			
4. List of all properties tha	t are writable where not o	otherwise required by this standard:	
OBJECT_IDENTIFIER			
OBJECT_NAME			
NUMBER_OF_APDU_RETR	IIES		
APDU_TIMEOUT			
UTC_OFFSET			
MAX_MASTER			
MAX_INFO_FRAMES			
5. List of proprietary properties:			
Property Identifier	Property Datatype	Meaning	
6. List of any property value range restrictions:			
Property Identifier Restrictions			
APDU_TIMEOUT	MINIMUM: 0; MA	XIMUM: 3000	
NUMBER_OF_APDU_RETR	IES MINIMUM: 0; MA	XIMUM: 10	
MAX_MASTER	MINIMUM: 0; MA	XIMUM: 127	
MAX_INFO_FRAMES MINIMUM: 1; MAXIMUM: 255			





Multistate Output Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes □ No □  No □			
3. List of optional properti	es supported:		
DESCRIPTION			
4. List of all properties tha	t are writable where not o	otherwise required by this standard:	
OUT_OF_SERVICE			
5. List of proprietary prop	erties:		
Property Identifier	<b>Property Datatype</b>	Meaning	
	_		
6. List of any property valu	le range restrictions:		
Property Identifier	Restrictions		
PRESENT_VALUE	MINIMUM: 1; MAXIMU	M: 3	



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): Characteristics and substituting the state of the stat
Device Address Binding:
Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)
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)
Character Sets Supported:
Indicating support for multiple character sets does not imply that they can all be supported simultaneously.
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:  Not Applicable



## FMS-1650 BACnet MS/TP Protocol Implementation Conformance Statement

Date: March 24, 2014

Vendor Name: Triatek Holdings, LLC

Product Name: FMS-1650 Series Isolation Controller

**Product Model Number:** FMS-1650 **Firmware Revision:** 2.14 or higher **BACnet Protocol Revision:** 5

### **Product Description:**

The TRIATEK FMS-1650 Series Isolation Controller is an ultra-sensitive instrument used to control and/or monitor air pressure in hospital rooms, labs, and clean rooms. This unit is a precision measuring system capable of measuring and displaying air pressures down to 0.0001" WC (0.025 Pa). This particular model isolation controller is capable of acting as a stand-alone device or as part of a building automation system using the BACnet MS/TP protocol.

stand-alone device	ce or as part of a building automation system using th	
BACnet Standard	lized Device Profile (Annex L):	
BACnet Build BACnet Adva BACnet Appli BACnet Smar	ator Workstation (B-OWS) ing Controller (B-BC) nced Application Controller (B-AAC) cation Specific Controller (B-ASC) t Sensor (B-SS) t Actuator (B-SA)	
List all BACnet In	teroperability Building Blocks Supported (Annex K):	
DS-RP-B	Read Property	
DS-RPM-B	Read Property Multiple	
DS-WP-B	Write Property	
DM-DDB-B	Dynamic Device Binding	
DM-DOB-B	Dynamic Object Binding	
DM-DCC-B	Device Communication Control	
DS-TS-B	Time Synchronization	
DS-UTC-B	UTC Time Synchronization	
DM-RD-B	Reinitialize Device	
Segmentation Ca	pability:	
Segmented requests supported Yes No Segmented responses supported Responses supported Yes No Segmented Responses supported Responses		





Standard Object Types Su	pported:			
Analog Input Object Type  1. Dynamically creatable u  2. Dynamically deletable u	using BACnet's CreateObje using BACnet's DeleteObje			
3. List of optional properti	ies supported:			
DESCRIPTION				
4. List of all properties tha	t are writable where not	otherwise required by this standard:		
DESCRIPTION				
OUT_OF_SERVICE				
5. List of proprietary prop	erties:			
Property Identifier	Property Datatype	Meaning		
6. List of any property value	ue range restrictions:			
Property Identifier	Restrictions			
, ,	-			





Analog Output Object Typ 1. Dynamically creatable u 2. Dynamically deletable u	using BACnet's CreateObj	
3. List of optional properti	es supported:	
DESCRIPTION		
4. List of all properties tha	it are writable where not	otherwise required by this standard:
OUT_OF_SERVICE		
5. List of proprietary prop	erties:	
Property Identifier	Property Datatype	Meaning
6. List of any property valu	ue range restrictions:	
Property Identifier	Restrictions	
PRESENT_VALUE	MINIMUM: 0.0; MAXIN	ЛUM: 100.0





Analog Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes □ No □  Yes □ No □			
3. List of optional propert	ties supported:		
DESCRIPTION			
PRIORITY_ARRAY			
RELINQUISH_DEFAULT			
4. List of all properties that	at are writable where not	otherwise required by this standard:	
OUT_OF_SERVICE			
5. List of proprietary prop	perties:		
Property Identifier Property Datatype Meaning			
6. List of any property val	ue range restrictions:		
Property Identifier	Restrictions		
	_		





Binary Input Object Type  1. Dynamically creatable to  2. Dynamically deletable to	using BACnet's CreateObjeusing BACnet's DeleteObje	
3. List of optional propert	ies supported:	
DESCRIPTION		
4. List of all properties tha	at are writable where not	otherwise required by this standard:
5. List of proprietary prop	erties:	
Property Identifier	Property Datatype	Meaning
6. List of any property val	ue range restrictions:	
Property Identifier	Restrictions	





3. List of optional properties supported:  DESCRIPTION INACTIVE_TEXT ACTIVE_TEXT  4. List of all properties that are writable where not otherwise required by this standard:  OUT_OF_SERVICE
INACTIVE_TEXT ACTIVE_TEXT  4. List of all properties that are writable where not otherwise required by this standard:
ACTIVE_TEXT  4. List of all properties that are writable where not otherwise required by this standard:
4. List of all properties that are writable where not otherwise required by this standard:
5. List of proprietary properties:
Property Identifier Property Datatype Meaning
6. List of any property value range restrictions:
Property Identifier Restrictions





Binary Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No X				
3. List of optional propert	ies supported:			
DESCRIPTION PRIORITY_ARRAY				
RELINQUISH_DEFAULT				
	at are writable where not	otherwise required by this standard:		
PRESENT_VALUE				
OUT_OF_SERVICE				
5. List of proprietary prop				
Property Identifier	Property Datatype	Meaning		
	+			
6. List of any property val	ue range restrictions:			
Property Identifier	Restrictions			





Device Object Type  1. Dynamically creatable using BACnet's CreateObject service?  Yes □ No □					
	2. Dynamically deletable using BACnet's DeleteObject service?  Yes □ No □				
3. List of optional properti	es supported:				
DESCRIPTION					
LOCAL_TIME					
LOCAL_DATE					
UTC_OFFSET					
DAYLIGHT_SAVINGS_STAT	US				
MAX_MASTER					
MAX_INFO_FRAMES					
4. List of all properties tha	t are writable where not o	otherwise required by this standard:			
OBJECT_IDENTIFIER					
OBJECT_NAME					
NUMBER_OF_APDU_RETRIES					
APDU_TIMEOUT					
UTC_OFFSET					
MAX_MASTER					
MAX_INFO_FRAMES					
5. List of proprietary properties:					
Property Identifier	Property Datatype	Meaning			
6. List of any property value range restrictions:					
Property Identifier Restrictions					
APDU_TIMEOUT MINIMUM: 0; MAXIMUM: 30		XIMUM: 3000			
NUMBER_OF_APDU_RETRIES MINIMUM: 0; MA		XIMUM: 10			
MAX_MASTER MINIMUM: 0; MA		XIMUM: 127			
MAX_INFO_FRAMES MINIMUM: 1; MA		XIMUM: 255			





Multistate Output Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  3. List of optional properties supported:				
DESCRIPTION	11			
4. List of all properties that are writable where not otherwise required by this standard:			andard:	
OUT OF SERVICE		·	•	
5. List of proprietary prope	erties:			
Property Identifier	Property Datatype	Meaning		
6. List of any property value range restrictions:				
Property Identifier	Restrictions			
PRESENT_VALUE	MINIMUM: 1; MAXIMU	M: 3		



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): Characteristics and substituting the state of the stat
Device Address Binding:
Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)
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)
Character Sets Supported:
Indicating support for multiple character sets does not imply that they can all be supported simultaneously.
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:  Not Applicable



## HMS-1655 BACnet MS/TP Protocol Implementation Conformance Statement

Date: March 24, 2014

Vendor Name: Triatek Holdings, LLC

Product Name: HMS-1655 Series Fume Hood Controller with Safety Halo™

**Product Model Number:** HMS-1655 **Firmware Revision:** 2.14 or higher **BACnet Protocol Revision:** 5

### **Product Description:**

The TRIATEK HMS-1655 Series Fume Hood Controller is an ultra-sensitive instrument used to control and/or monitor the face velocity at the sash opening of laboratory fume hoods. This unit is a precision measuring system capable of measuring and displaying face velocities from zero to 200 ft/min with an accuracy of ±2 ft/min over the primary operating range of 60 ft/min to 140 ft/min. This particular model fume hood controller is capable of acting as a stand-alone device or as part of a building automation system using the BACnet MS/TP protocol.

building automat	tion system using the BACnet MS/TP protocol.
BACnet Standard	lized Device Profile (Annex L):
BACnet Build BACnet Adva BACnet Appli BACnet Smar	ator Workstation (B-OWS) ing Controller (B-BC) nced Application Controller (B-AAC) ication Specific Controller (B-ASC) it Sensor (B-SS) t Actuator (B-SA)
List all BACnet In	teroperability Building Blocks Supported (Annex K):
DS-RP-B	Read Property
DS-RPM-B	Read Property Multiple
DS-WP-B	Write Property
DM-DDB-B	Dynamic Device Binding
DM-DOB-B	Dynamic Object Binding
DM-DCC-B	Device Communication Control
DS-TS-B	Time Synchronization
DS-UTC-B	UTC Time Synchronization
DM-RD-B	Reinitialize Device
Segmentation Ca	apability:
Segmented requ	ests supported Yes No 🔀
Segmented respo	





Standard Object Types Su	upported:	
	using BACnet's CreateObjeusing BACnet's DeleteObje	
4. List of all properties that	at are writable where not	otherwise required by this standard:
DESCRIPTION OUT_OF_SERVICE		
5. List of proprietary properties:		
Property Identifier	Property Datatype	Meaning
6. List of any property val  Property Identifier	Restrictions	
Froperty Identifier	Restrictions	





Analog Output Object Ty  1. Dynamically creatable  2. Dynamically deletable	using BACnet's CreateObj	
3. List of optional propert	ies supported:	
DESCRIPTION		
4 List of all properties that	at are writable where not	otherwise required by this standard:
OUT_OF_SERVICE	2t are writable where not	otherwise required by this standard.
001_01_52		
5 List of proprietary prop	oerties:	
5. List of proprietary properties:  Property Identifier Property Datatype Meaning		
Troperty identifies		
6. List of any property val	ua rango rostrictions.	
Property Identifier	Restrictions	
PRESENT VALUE	MINIMUM: 0.0; MAXIN	ΛUM: 100 0
TRESERT_VALUE	141114114110141. 0.0, 1417-0.114	10010
	+	
	1	





Analog Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No No				
3. List of optional proper	ties supported:			
DESCRIPTION	• •			
PRIORITY_ARRAY				
RELINQUISH_DEFAULT				
	at are writable where not	otherwise required by this standard:		
OUT_OF_SERVICE				
5. List of proprietary property Identifier		Manying		
Property identifier	Property Datatype	Meaning		
6. List of any property va				
Property Identifier	Restrictions			





Binary Input Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No X				
3. List of optional properties	es supported:			
DESCRIPTION				
4. List of all properties tha	t are writable where not	otherwise required by this standard:		
5. List of proprietary prope	erties:			
Property Identifier	Property Datatype	Meaning		
	+			
C List of any property valu	io rango restrictions.			
6. List of any property value Property Identifier	Restrictions			
Troperty racination	Trestrictions			





Binary Output Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No Yes No Yes				
3. List of optional properties supported:				
DESCRIPTION				
INACTIVE_TEXT				
ACTIVE_TEXT				
4. List of all properties that are writable where not otherwise required by this standard:				
OUT_OF_SERVICE				
5. List of proprietary properties:				
Property Identifier Property Datatype Meaning				
Property Identifier Property Datatype Meaning				
Property Identifier Property Datatype Meaning				
Property Identifier Property Datatype Meaning				
Property Identifier Property Datatype Meaning				
Property Identifier Property Datatype Meaning				
6. List of any property value range restrictions:				
6. List of any property value range restrictions:				
6. List of any property value range restrictions:				
6. List of any property value range restrictions:				





Binary Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No X				
3. List of optional propert	ies supported:			
DESCRIPTION PRIORITY_ARRAY				
RELINQUISH_DEFAULT				
	at are writable where not	otherwise required by this standard:		
PRESENT_VALUE				
OUT_OF_SERVICE				
5. List of proprietary prop				
Property Identifier	Property Datatype	Meaning		
	+			
6. List of any property val	ue range restrictions:			
Property Identifier	Restrictions			





Device Object Type	sing BACook's Cuanta Ohios	t comice?		
<ol> <li>Dynamically creatable using BACnet's CreateObject service?</li> <li>Dynamically deletable using BACnet's DeleteObject service?</li> <li>Yes □ No ☒</li> <li>No ☒</li> </ol>				
3. List of optional properti	es supported:			
DESCRIPTION				
LOCAL_TIME	LOCAL_TIME			
LOCAL_DATE				
UTC_OFFSET				
DAYLIGHT_SAVINGS_STAT	US			
MAX_MASTER				
MAX_INFO_FRAMES				
4. List of all properties tha	t are writable where not o	therwise required by this standard:		
OBJECT_IDENTIFIER				
OBJECT_NAME				
NUMBER_OF_APDU_RETR	IES			
APDU_TIMEOUT				
UTC_OFFSET				
MAX_MASTER				
MAX_INFO_FRAMES				
5. List of proprietary prope	erties:			
Property Identifier	Property Datatype	Meaning		
6. List of any property valu	e range restrictions:			
Property Identifier Restrictions				
APDU_TIMEOUT MINIMUM: 0; MAXIMUM: 3000		IMUM: 3000		
NUMBER_OF_APDU_RETR				
MAX_MASTER MINIMUM: 0; MAXII				
MAX_INFO_FRAMES MINIMUM: 1; MAXIMUM: 255				





Multistate Output Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes □ No ☑  No ☑				
3. List of optional propert	ies supported:			
DESCRIPTION				
4. List of all properties that	at are writable where not	otherwise required by this standard:		
OUT_OF_SERVICE				
5. List of proprietary prop	erties:			
Property Identifier	Property Datatype	Meaning		
6. List of any property val	ue range restrictions:			
Property Identifier	Restrictions			
PRESENT_VALUE	MINIMUM: 1; MAXIMU	JM: 3		



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): Characteristic products and product in the product of the produ
Device Address Binding:
Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)
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)
Character Sets Supported:
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If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:  Not Applicable

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## HMS-1650 BACnet MS/TP Protocol Implementation Conformance Statement

Date: March 24, 2014

Vendor Name: Triatek Holdings, LLC

Product Name: HMS-1650 Series Fume Hood Controller

Product Model Number: HMS-1650 Firmware Revision: 2.14 or higher BACnet Protocol Revision: 5

## **Product Description:**

The TRIATEK HMS-1650 Series Fume Hood Controller is an ultra-sensitive instrument used to control and/or monitor the face velocity at the sash opening of laboratory fume hoods. This unit is a precision measuring system capable of measuring and displaying face velocities from zero to 200 ft/min with an accuracy of ±2 ft/min over the primary operating range of 60 ft/min to 140 ft/min. This particular model fume hood controller is capable of acting as a stand-alone device or as part of a building automation system using the BACnet MS/TP protocol.

building automa	ation system using the BACnet MS/TP protocol.
BACnet Standa	dized Device Profile (Annex L):
BACnet Buil BACnet Adv BACnet App BACnet Sma BACnet Sma	rator Workstation (B-OWS) ding Controller (B-BC) anced Application Controller (B-AAC) lication Specific Controller (B-ASC) art Sensor (B-SS) art Actuator (B-SA)
List all BACnet I	nteroperability Building Blocks Supported (Annex K):
DS-RP-B	Read Property
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DS-WP-B	Write Property
DM-DDB-B	Dynamic Device Binding
DM-DOB-B	Dynamic Object Binding
DM-DCC-B	Device Communication Control
DS-TS-B	Time Synchronization
DS-UTC-B	UTC Time Synchronization
DM-RD-B	Reinitialize Device
Segmentation (	Capability:
Segmented requ	uests supported Yes 🗌 No 🔀
Segmented resp	oonses supported Yes No 🗵





Standard Object Types S	Supported:	
2. Dynamically deletable	using BACnet's CreateObj using BACnet's DeleteObj	
3. List of optional proper	ties supported:	
DESCRIPTION		
4. List of all properties th	nat are writable where not	otherwise required by this standard:
DESCRIPTION OUT_OF_SERVICE		
5. List of proprietary pro	perties:	
Property Identifier	Property Datatype	Meaning
6. List of any property va	due range restrictions:	
Property Identifier	Restrictions	





Analog Output Object Typ 1. Dynamically creatable u 2. Dynamically deletable u	ısing BACnet's CreateObj	
3. List of optional properti	es supported:	
DESCRIPTION		
4. List of all properties tha	t are writable where not	otherwise required by this standard:
OUT OF SERVICE		
5. List of proprietary prop	erties:	
Property Identifier Property Datatype Meaning		
	_	
6. List of any property valu	ue range restrictions:	
Property Identifier	Restrictions	
PRESENT_VALUE	MINIMUM: 0.0; MAXIN	MUM: 100.0





2. Dynamically deletable	using BACnet's CreateObjousing BACnet's DeleteObjo	
3. List of optional propert	ties supported:	
DESCRIPTION		
PRIORITY_ARRAY RELINQUISH_DEFAULT		
RELINGUISH_BETAGET		
1 List of all properties th	at are writable where not	otherwise required by this standard:
OUT_OF_SERVICE	at are writable where not	otherwise required by this standard.
OOT_OT_SERVICE		
5. List of proprietary prop	perties:	
Property Identifier Property Datatype Meaning		
6. List of any property val	lue range restrictions:	
Property Identifier	Restrictions	
,		





Binary Input Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  3. List of optional properties supported:				
DESCRIPTION	es supporteu.			
DESCRIPTION				
4. List of all properties tha	at are writable where not	otherwise required by this standard:		
5. List of proprietary prop	erties:			
Property Identifier	Property Datatype	Meaning		
		_		
6. List of any property valu	ue range restrictions:			
Property Identifier	Restrictions			
	+			





Binary Output Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  3. List of optional properties supported:					
DESCRIPTION					
INACTIVE_TEXT					
ACTIVE_TEXT					
4. List of all properties that are writable where not otherwise required by this standard:					
OUT_OF_SERVICE					
5. List of proprietary prop	erties:				
Property Identifier	Property Datatype	Meaning			
6. List of any property valu	ue range restrictions:				
Property Identifier	Restrictions				
	1				





Binary Value Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes No No						
3. List of optional properties supported:						
DESCRIPTION PRIORITY_ARRAY						
RELINQUISH_DEFAULT						
4 List of all properties th	at are writable where not	otherwise required by this standard:				
4. List of all properties that are writable where not otherwise required by this standard:  PRESENT_VALUE						
OUT_OF_SERVICE						
5. List of proprietary prop	perties:					
Property Identifier	Property Datatype	Meaning				
6. List of any property va	lue range restrictions:					
6. List of any property va  Property Identifier	lue range restrictions:  Restrictions					





Device Object Type  1. Dynamically creatable using BACnet's CreateObject service?  2. Dynamically deletable using BACnet's DeleteObject service?  Yes □ No ☑  No ☑							
3. List of optional properties supported:							
DESCRIPTION							
LOCAL_TIME							
LOCAL_DATE							
UTC_OFFSET							
DAYLIGHT_SAVINGS_STATUS							
MAX_MASTER							
MAX_INFO_FRAMES							
4. List of all properties that are writable where not otherwise required by this standard:							
OBJECT_IDENTIFIER							
OBJECT_NAME							
NUMBER_OF_APDU_RETR	RIES						
APDU_TIMEOUT							
UTC_OFFSET							
MAX_MASTER							
MAX_INFO_FRAMES							
5. List of proprietary properties:							
Property Identifier	Property Datatype	Meaning					
6. List of any property valu	ue range restrictions:						
Property Identifier Restrictions							
APDU_TIMEOUT MINIMUM: 0; MA		XIMUM: 3000					
NUMBER_OF_APDU_RETR	IES MINIMUM: 0; MAX	MINIMUM: 0; MAXIMUM: 10					
MAX_MASTER	-	MINIMUM: 0; MAXIMUM: 127					
MAX_INFO_FRAMES	MINIMUM: 1; MA	MINIMUM: 1; MAXIMUM: 255					
1							





Multistate Output Object 1. Dynamically creatable u 2. Dynamically deletable u	ising BACnet's CreateObje ising BACnet's DeleteObje				
3. List of optional properties supported:					
DESCRIPTION					
4. List of all properties that are writable where not otherwise required by this standard:					
OUT_OF_SERVICE					
5. List of proprietary prope	erties:				
Property Identifier	<b>Property Datatype</b>	Meaning			
6. List of any property valu	le range restrictions:				
Property Identifier	Restrictions				
PRESENT_VALUE	MINIMUM: 1; MAXIMU	IM: 3			



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): Contalk, (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.)
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)
Character Sets Supported:
Indicating support for multiple character sets does not imply that they can all be supported simultaneously.
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:  Not Applicable

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