

BACnet Protocol Implementation Conformance Statement

Date: _____
Vendor Name: I-Controls, Inc.
Product Name: iRS703 Wireless enthalpy sensor
Product Model Number: iRS703
Applications Software Version: 1.0 Firmware Revision: 1.0
BACnet Protocol Revision: 2

Product Description:

iRS 703 wireless enthalpy sensor measures temperature and relative humidity in every sampling interval, and calculates its enthalpy automatically. A base module supports BACnet MS/TP protocol with baud rate from 9.6Kbps to 76.8Kbps. A sensor module uses wireless link to exchange the measuring with a base module.

List all BACnet Interoperability Building Blocks supported (see Annex K in BACnet 2004):

BIBB DM-DDB-B (Device Management – Dynamic Device Binding – B)
BIBB DM-DOB-B (Device Management – Dynamic Object Binding – B)
BIBB DM-TS-B (Device Management – Time Synchronization – B)
BIBB DS-RP-B (Data Sharing – Read Property – B)
BIBB DS-WP-B (Data Sharing – Write Property – B)

Which of the following device binding methods does the product support? (check one or more)

- Send Who-Is, receive I-Am (BIBB DM-DDB-A)
- Receive Who-Is, send I-Am (BIBB DM-DDB-B)
- Send Who-Has, receive I-Have (BIBB DM-DOB-A)
- Receive Who-Has, send I-Have (BIBB DM-DOB-B)
- Manual configuration of recipient device's network number and MAC address
- None of the above

Standard Object Types Supported:

On a separate page, please list each standard Object Type supported (i.e. an object of this type may be present in the product). For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using BACnet's CreateObject service
- 2) Whether objects of this type are dynamically deletable using BACnet's 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 value range restrictions

Data Link Layer Options (check all that are supported):

- BACnet IP, (Annex J)
 - Able to register as a 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): 9600, 19200, 38400, 76800
- 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: _____

Networking Options (check all that are supported):

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.:

- Annex H.3, BACnet Tunneling Router over UDP/IP
- BACnet/IP Broadcast Management Device (BBMD)
 - Does the BBMD support registrations by Foreign Devices? Yes No
- MS/TP Slave Proxy

Segmentation Capability (check all that apply): N/A

- Able to transmit segmented messages Window Size _____
- Able to receive segmented messages Window Size _____

Character Sets Supported (check all that apply):

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 (ICS-4) JIS C 6226

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

N/A

Include any addition information about the product's BACnet capabilities relevant to interoperability:

N/A

BACnet[®] object list of iRS703

Limitations on BACnet[®] objects

- Maximum length of character string : 30 octets
- Maximum length of octet string : 20 octets
- Maximum length of bit string : 11 octets (not used field – 1 octet-included)
- Dynamic creation/deletion is not supported for all objects in device.

F	FIXED	Modification is not permitted
C	CHANGEABLE	Modification by internal process
W	WRITTABLE	Modification via network is permitted

BACnet[®] Object list for iRS703 Wireless Enthalpy Sensor

Object Identifier	Alarm / Event	Descriptions
(Device, X)	N/A	
(Analog Input, 1)	High / Low temperature	Zone Temperature
(Analog Input, 2)	High / Low Humidity	Zone Relative Humidity
(Analog Value, 1)	N/A	Zone Enthalpy
(Analog Value, 2)	Low voltage (Battery)	Battery Remains
(Analog Value, 3)	N/A	Reference Temperature (Setpoint)
(Analog Value, 4)	N/A	Reference Humidity (Setpoint)

Device

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	W	(DEV, 0)	(DEV, 4194302)	(Device, 5000)
Object-name	R	N/A	F	0 byte	30 bytes	“Wireless enthalpy sensor”
Object-type	R	N/A	F	N/A	N/A	DEVICE (8)
System-Status	R	N/A	C	N/A	N/A	OPERATION (0)
Vendor-name	R	N/A	F	N/A	N/A	“i Controls”
Vendor-identifier	R	N/A	F	N/A	N/A	139
Model-name	R	N/A	F	N/A	N/A	“iRS703”
Firmware-revision	R	N/A	F	N/A	N/A	“1.0”
Application-software-version	R	N/A	F	N/A	N/A	“1.0”
Location	O	N/A	W	0 byte	30 bytes	“Unspecified”
Description	R	N/A	W	0 byte	30 bytes	“Unspecified”
Protocol-version	R	N/A	F	N/A	N/A	1
Protocol-Revision	R	N/A	F	N/A	N/A	2
Protocol-services-supported	R	N/A	F	N/A	N/A	Read/Write/Whois/Iam/Who-Has/I-Have/Tsync
Protocol-object-types-supported	R	N/A	F	N/A	N/A	AI/AV/DEV
Object-List	R	SIZE 6	F	N/A	N/A	(AI,1) (AI,2) (AV,1) (AV,2) (AV,3) (AV,4)
Max-apdu-length-accepted	R	N/A	F	N/A	N/A	480
Segmentation-supported	R	N/A	F	N/A	N/A	NO SEGMENTATION (3)
Local-time	R	N/A	C	0:0:0.0	23:59:59.0	Managed by internal process. (0:0:0.0 ~ 23:59:59.0)
Local-date	R	N/A	C	2000.1.1	2099.12.31	Managed by internal process
Apdu-timeout	R	N/A	F	N/A	N/A	6000
Number-of-apdu-retries	R	N/A	F	N/A	N/A	0
Max-master	R	N/A	W	1	127	127
Max-info-frames	R	N/A	W	1	255	1
Device-address-binding	R	LIST	F	N/A	N/A	NULL
Database-revision	R	N/A	F	N/A	N/A	0

(Analog Input, 1) Temperature

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Input, 1)
Object-name	R	N/A	F	0 byte	30 bytes	“Temperature”
Object-type	R	N/A	F	N/A	N/A	ANALOG INPUT (0)
Present_Value	R	N/A	W	Min_Pres_Value	Max_Pres_Value	0.0 (Writable when Out_Of_Service = T)
Description	O	N/A	W	0 byte	30 bytes	“Zone temperature”
Device_Type	O	N/A	F	N/A	N/A	“SHT1x”
Status_Flag	R	N/A	C	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	C	N/A	N/A	NORMAL(0)
Reliability	O	N/A	C	N/A	N/A	NO FAULT DETECTED (0)
Out_Of_Service	R	N/A	W	FALSE	TRUE	FALSE
Update_Interval	O	N/A	C	150	6000	15 / 30 / 60 / 90 / 120 / 180 / 300 / 600 sec
Units	R	N/A	W	N/A	N/A	Degree-C (62) / can be Degree-F (64)
Min_Pres_Value	O	N/A	F	N/A	N/A	-40.0 (Common)
Max_Pres_Value	O	N/A	C	N/A	N/A	120.0 / 248.0 when Degree-F is selected
Resolution	O	N/A	F	N/A	N/A	0.1
Time_Delay	O	N/A	W	0	255	0
Notification_Class	O	N/A	F	N/A	N/A	0
High_Limit	O	N/A	W	-40.0	120.0 at C 248.0 at F	100.0
Low_Limit	O	N/A	W	-40.0	120.0 at C 248.0 at F	0.0
Deadband	O	N/A	W	0.0	100	1.0
Limit_Enable	O	N/A	W	N/A	N/A	{T,T}
Event_Enable	O	N/A	W	N/A	N/A	{T,T,T}
Acked_Transitions	O	N/A	C	N/A	N/A	{T,T,T}
Notify_Type	O	N/A	W	0	1	EVENT (1) / can be ALARM (0)
Event_Time_Stamps	O	SIZE 3	C	N/A	N/A	Always use BACnetDataTime format

** Update_Interval is changed if DIP switch of sensor module is changed.

** If Units is changed, all related properties are changed according to the Units.

** HIGH_LIMIT, LOW_LIMIT can be selected.

(Analog Input, 2) Relative humidity

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Input, 2)
Object-name	R	N/A	F	0 byte	30 bytes	“Relative humidity”
Object-type	R	N/A	F	N/A	N/A	ANALOG INPUT (0)
Present_Value	R	N/A	W	0.0	100.0	0.0 (Writable when Out_Of_Service = T)
Description	O	N/A	W	0 byte	30 bytes	“Zone humidity”
Device_Type	O	N/A	F	N/A	N/A	“SHT1x”
Status_Flag	R	N/A	C	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	C	N/A	N/A	NORMAL(0)
Reliability	O	N/A	C	N/A	N/A	NO FAULT DETECTED (0)
Out_Of_Service	R	N/A	W	FALSE	TRUE	FALSE
Update_Interval	O	N/A	C	150	6000	15 / 30 / 60 / 90 / 120 / 180 / 300 / 600 sec
Units	R	N/A	F	N/A	N/A	%RH (29)
Min_Pres_Value	O	N/A	F	N/A	N/A	0.0
Max_Pres_Value	O	N/A	C	N/A	N/A	100.0
Resolution	O	N/A	F	N/A	N/A	0.1
Time_Delay	O	N/A	W	0	255	0
Notification_Class	O	N/A	F	N/A	N/A	0
High_Limit	O	N/A	W	0.0	100.0	100.0
Low_Limit	O	N/A	W	0.0	100.0	0.0
Deadband	O	N/A	W	0.0	100.0	1.0
Limit_Enable	O	N/A	W	N/A	N/A	{T,T}
Event_Enable	O	N/A	W	N/A	N/A	{T,T,T}
Acked_Transitions	O	N/A	C	N/A	N/A	{T,T,T}
Notify_Type	O	N/A	W	0	1	EVENT (1) / can be ALARM (0)
Event_Time_Stamps	O	SIZE 3	C	N/A	N/A	Always use BACnetDateTime format

** Update_Interval is changed if DIP switch of sensor module is changed.

** HIGH_LIMIT, LOW_LIMIT can be selected.

(Analog Value, 1) Enthalpy

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Value, 1)
Object-name	R	N/A	F	0 byte	30 bytes	“Enthalpy”
Object-type	R	N/A	F	N/A	N/A	ANALOG VALUE (2)
Present_Value	R	N/A	C	-46250.0	113750.0	0.0
Description	O	N/A	W	0 byte	30 bytes	“Zone enthalpy”
Status_Flag	R	N/A	F	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	F	N/A	N/A	NORMAL(0)
Out_Of_Service	R	N/A	F	N/A	N/A	FALSE
Units	R	N/A	F	N/A	N/A	J/kg Dry Air (23)

** Present_Value is updated automatically when temperature or humidity is changed.

** This object does not support writable Out_Of_Service Property.

(Analog Value, 2) Battery status

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Value, 2)
Object-name	R	N/A	F	N/A	N/A	“Battery status”
Object-type	R	N/A	F	N/A	N/A	ANALOG VALUE (2)
Present_Value	R	N/A	W	0.0	100.0	0.0 (Writable when Out_Of_Service = T)
Description	O	N/A	W	0 byte	30 bytes	“Voltage level of battery”
Status_Flag	R	N/A	C	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	C	N/A	N/A	NORMAL(0)
Out_Of_Service	R	N/A	W	FALSE	TRUE	FALSE
Units	R	N/A	F	N/A	N/A	% (98)
Time_Delay	O	N/A	W	0	255	0
Notification_Class	O	N/A	F	N/A	N/A	0
High_Limit	O	N/A	F	N/A	N/A	100.0
Low_Limit	O	N/A	W	0.0	100.0	75.0
Deadband	O	N/A	W	0.0	100.0	5.0
Limit_Enable	O	N/A	F	N/A	N/A	{T,F} : Low Limit Enabled
Event_Enable	O	N/A	F	0	255	{T,T,T} : To-Offnormal / To-normal enabled
Acked_Transitions	O	N/A	C	N/A	N/A	{T,T,T}
Notify_Type	O	N/A	W	0	1	ALARM (0) / EVENT (1) is possible
Event_Time_Stamps	O	SIZE 3	C	0.0	100.0	Always use BACnetDataTime format

** LOW_LIMIT can be selected

(Analog Value, 3) Reference temperature

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Value, 3)
Object-name	R	N/A	F	N/A	N/A	“Setpoint for temperature”
Object-type	R	N/A	F	N/A	N/A	ANALOG VALUE (2)
Present_Value	R	N/A	W	-40.0	120.0 at C 248.0 at F	0.0 (Writable when Out_Of_Service = T)
Description	O	N/A	W	0 byte	30 bytes	“Reference temperature”
Status_Flag	R	N/A	C	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	C	N/A	N/A	NORMAL(0)
Out_Of_Service	R	N/A	W	FALSE	TRUE	FALSE
Units	R	N/A	C	N/A	N/A	Degree-C (62) / can be Degree-F (64)

** Reserved for the future work.

** Units and Present_Value of this object is calibrated internally according to the value of Units property of (AI, 1).

(Analog Value, 4) Reference humidity

Property	C	ARRAY		MIN	MAX	INITIAL VALUE
Object-identifier	R	N/A	F	N/A	N/A	(Analog Value, 4)
Object-name	R	N/A	F	N/A	N/A	“Setpoint for humidity”
Object-type	R	N/A	F	N/A	N/A	ANALOG VALUE (2)
Present_Value	R	N/A	W	0.0	100.0	0.0 (Writable when Out_Of_Service = T)
Description	O	N/A	W	0 byte	30 bytes	“Reference humidity”
Status_Flag	R	N/A	C	N/A	N/A	{F,F,F,F}
Event_State	R	N/A	C	N/A	N/A	NORMAL(0)
Out_Of_Service	R	N/A	W	FALSE	TRUE	FALSE
Units	R	N/A	F	N/A	N/A	%RH (29)

** Reserved for the future work.