

# iNTouch BMS System

This guide contains information about the Intellihot iNTouch BMS module



# **Applicable Models:**

iQ251
iQ251D
iN401
iN501
iQ751
iQ1001
iQ1501
iQ2001
iQ3001

#### Product Support

Please use one of the following options for contacting Intellihot Technical Support:

- Call: 877-835-1705, and press 1 or call direct 866-692-6791
- Email: support@intellihot.com

When you contact Technical Support, please have the following information ready:

- Model Number
- Serial Number
- Date purchase / Date installed
- Installation location & application

#### 1. Introduction

Intellihot iNTouch BMS is a self-learning that incorporates built-in smart logic. This can be used with BACnet IP or MS/TP systems. The iNTouch module can be pre-ordered as an accessory, and it can be factory-installed and ready to use when selected or field-installed separately. The unit(s) will automatically detect the iNTouch is present, so no additional programming on the unit(s) is required. It is recommended to follow the "BMS Field Installation" steps if BMS is not factory installed.

\*\*Note: iN401 and iN501 has factory-installed iNTouch BMS option only

#### 2. BMS Field Installation

#### 2.1 BMS Wall-Hung

Procedure for field installation of Intellihot iNTouch BMS board on a wall-hung unit(s)

Models: iQ251/iQ251D

#### Included in kit (Part# IGT-SPR0067):

- iNTouch BMS Board
- Wiring Harness Power (mostly blue & brown wiring)
- Wiring Harness Signal (multi-colored wiring)

Please power down the unit before this or any other alteration.

#### **Board Installation:**

- 1. Locate the iNTouch mounting bracket inside the front door of the unit on the heat exchanger.
- 2. Place the BMS board into the bracket, pegs into holes first, then push down to snap into place.

#### Wiring Installation:

• Locate the control board in the unit.

Please refer to the control board and BMS board layout on the following page:



**BMS Board** 



**Control Board** 



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#### **Power Wiring Harness:**

- 1. Connect the BMS power connector (6 positions) to the BMS board, connection J3.
- 2. Connect the 4-position connector to the control board, connection J7.
- 3. Connect the 2-position connector to the control board, connection J6.
- 4. Remove existing jumper connector (6-position) connector from connection J8, replace it with a new 6-position connector to J8.

#### Signal Wiring Harness:

- 1. Connect the BMS signal connector (16-position) to BMS board connector J2.
- 2. Connect the 6-position connector to the control board, connection J11.
- 3. Connect the 4-position connector to the control board, connection J9.
- 4. Connect the 14-position connector to the control board, connection J24.
- Connect the 3-position connector to existing female connector on control board, connection J10. If the female connector is not present, please install the included connector in the connector installed in J10 (Black-Pin 1, Orange-Pin 6, White-Pin 7)



















#### 2.2 BMS Floor Mount

Procedure for field installation of Intellihot iNTouch BMS board on floor mount unit(s) \*\*Note: iN401 and iN501 has factory-installed iNTouch BMS option only

Models: iQ751/iQ1001/iQ1501/iQ2001/iQ3001

#### Included in kit (Part# IGT-SPR0068):

- iNTouch BMS Board
- Wiring Harness Power (mostly blue & brown wiring)
- Wiring Harness Signal (multi-colored wiring)

Please power down the unit before this or any other alteration.

#### **Board Installation:**

- 1. Locate iNTouch mounting bracket inside the front door of the unit on the right side.
- 2. Place the BMS board into the bracket, pegs into holes first, then push down to snap into place.



#### Wiring Installation:

• Locate the recommended control board on the unit. This control board will be used for all subsequent connections. Please check Appendix I for the location of the control board on the unit.

Model	Control board on the Unit
iQ751	H2
iQ1001	H2
iQ1501	H3
iQ2001	H7
iQ3001	H10

Please refer to the control board and BMS board drawings on page 4.

#### Power Wiring Harness:

- 1. Connect the BMS power connector (6 positions) to the BMS board, connection J3.
- 2. Connect the 4-position connector to control board, connection J7.
- 3. Connect the 2-position connector to control board, connection J6.
- 4. Remove existing jumper connector (6-position) connector from connection J8, replace it with a new 6-position connector to J8.

#### Signal Wiring Harness:

- 1. Connect the BMS signal connector (16-position) to BMS board connector J2.
- 2. Connect the 6-position connector to the control board, connection J11.
- 3. Connect the 4-position connector to the control board, connection J9.
- 4. Connect the 14-position connector to the control board, connection J24.
- Connect the 3-position connector to the existing female connector on the control board, connection J10. If the female connector is not present, please install the included connector in the connector installed in J10 (Black-Pin 1, Orange-Pin 6, White-Pin 7)















# 3. iNTouch Setup

#### 3.1 BACnet IP

The following steps shall be followed to install the iNTouch to the existing IP system. The IP Address must be modified to match the customer network system. See step 2 to set up via a web browser <u>or</u> step 3 to set up via field server toolbox. Only one setup procedure will be used.



- 2. <u>Set up via web browser:</u>
  - Open a web browser, and type in the IP address. The default IP address is "192.168.1.24". The IP address can be found through "Set up via FieldServer ToolBox" below if the default does not work.

SMC				FieldPoP"
Navigation	CN0977 Intellihot v1.00a			
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> </ul>	Status Settings Info Sta	ats		
> Setup	Status			0
> View	Name		Value	
<ul> <li>User Messages</li> </ul>	Driver_Configuration	DCC000		^
<ul> <li>Diagnostics</li> </ul>	DCC_Version	V6.05p (A)		
	Kernel_Version	V6.44d (A)		
	Release_Status	Normal		
	Build_Revision	4.26.1		
	Build_Date	2018-06-01 11:18:40 +0200		
	BIOS_Version	2.3.0		
	FieldServer_Model	ProtoCessor FFP485		
	Carrier Type	SPR Carrier		
	Data_Points_Used	75		
	Data_Points_Max	1500		
	Application Memory:			
	Protocol_Engine_Memory_Used	0.74%		
	Memory_Used	1,475 kB		
	Memory_Available	197,460 KB		
	Memory_Free_Bytes	197,460 KB		
	Memory_Min_Free_Bytes	197,313 KB		
	Memory Max Pytes Llead	1 744 kP		
	Memory Blocks	10597		
	Memory_Blocks	10597		

#### • Update the config file

Click "Setup" on the left list and click "File Transfer"

SMC	FieldPoP"
Navigation	File Transfer
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> <li>Sotum</li> </ul>	Configuration Firmware General
<ul> <li>File Transfer</li> <li>Network Settings</li> <li>Passwords</li> <li>Time Settings</li> <li>View</li> <li>User Messages</li> <li>Diagnostics</li> </ul>	Update Configuration Update the configuration file on the device. Choose Files No file chosen Submit
	Retrieve Retrieve the configuration file from the device. config.csv
Home HELP (F1) Contact Us	System Restart

• Click "Choose Files" to select the config file. Select the appropriate config file and then click "Open" Note: Wall-hung and floor mount units have a separate config file, and they are not interchangeable.

📀 Open							;	K F
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\square$ $\rightarrow$ This	PC > Downloads > New folder (6) >	New folder	~	ō	Search New folde	r	Q	
Organize 👻 New folder						•		
Screenshots ^	Name	Date modified	Туре	Size				
o Creative Cloud Fil	intellihot-config for iQ251 08_12_1	9 8/21/2019 4:39 PM	Microsoft Excel C		33 KB			
OneDrive								
💻 This PC								
🗊 3D Objects								
Desktop								
Documents								
Downloads     Music								
Fictures								
Videos								tes
🟪 OS (C:)								
🛫 Shared (\\igtiser								
illi Network								
File nar	me: intellihot-config for iQ251 08_12_19	)		~	All Files		~	
					Open	Ci	ancel	
		-		-			_	
		Delete						
Home	HELP (F1) Contact Us	System Restart						

• Click "Submit"

SMC		[FieldPoP"]
Navigation CN0977 Intellihot v1.00a About Setup - File Transfer - Network Settings - Passwords - Time Settings View User Mesages - Diagnostics	File Transfer         Configuration       Firmware       General         Update Configuration         Update the configuration file on the device.         Choose Files       Intellihot-cc08_12_19.csv         • intellihot-config for iQ251 08_12_19.csv         • intellihot-config for iQ251 08_12_19.csv (application/vnd.ms-excel) - 33109 bytes, last modified: 8/21/2019         Submit	
	Retrieve Retrieve the configuration file from the device. config.csv Delete	
Home HELP (F1) Cont	act Us System Restart	

• Click "System Restart" and "OK"

SMC	Configura 192.168.1.24 says System Restart		guration. FieldPo
Navigation CN0977 Intellihot v1.00a - About Setup - File Transfer - Network Settings - Passwords - Time Settings View - User Messages - Diagnostics	File Tran       Press OK to confirm         Configura       Press OK to confirm         Update Configuration       Update the configuration file on the device.         Update the configuration file on the device.       Choose Files intellihot-c_08_12_19.cv         • intellihot-config for iQ251 08_12_19.cv         Submit	OK Cancel	ed: 8/21/2019
	Retrieve Retrieve the configuration file from the device. config.csv		
Home HELP (F1) Contact	Us System Restart		

• The system will restart and reload. The config file has been updated.

• Update the IP address-for BMS/BAS with BACnet IP only Click "Setup" and then "Network Setting"

SMC			Fie	ldPoP"
Navigation	Network Settings			
CN0977 Intellihot v1.00a     About     Setup	IP Settings			
<ul> <li>File Transfer</li> <li>Network Settings</li> <li>Passwords</li> <li>Time Settings</li> </ul>	Note Updated settings only take effect	after a System Restart. If the IP Address is changed	i you will need to direct your browser to the new IP Address after the System Resta	rt.
> View		N1 IP Address	192.168.1.24	
User Messages     Diagnostics		N1 Netmask	255.255.255.0	
Diagnostics		N1 DHCP Client State	DISABLED V	
		Default Gateway	192.168.1.1	
		Domain Name Server1	8.8.8	
		Domain Name Server2	8.8.4.4	
		Cancel	Update IP Settings	
	MAC Address			
	N1 MAC Address: 00:50:4E:12:0D	:2C		
Home HELP (F1) Contact Us	System Restart			

• Modify the IP address (Default Gateway may need to modify also depends on the network) (The IP address changed to "192.168.1.23" in the example.). Then click on "Update IP Settings"

Navigation	Network Settings			
CN0977 Intellihot v1.00a • About • Setup • File Transfer	IP Settings			
Network Settings     Passwords     Time Settings	Updated settings only take	effect after a System Restart. If the IP Address is changed y	ou will need to direct your browser to the new IP Address after the System Re	start.
<ul> <li>View</li> <li>User Messages</li> <li>Diagnostics</li> </ul>		N I IP Address N I Netmask N I DHCP Client State Default Gateway Domain Name Server 1 Domain Name Server 2 Cancel	192.168.1.23         255.255.255.0         DISABLED ↓         192.168.1.1         8.8.8.8         6.8.4.4         Update IP Settings	
	MAC Address N1 MAC Address: 00:50:4E	:12:0D:2C		

• Click "System Restart" and "OK"

	C' 🕜	i 192.168.1.24/ht	tm/fsgui.htm#23_OID		8	30% … 🛡 ☆	lii\		Ξ
C	SMC		A System Restart	is required to apply updated Ne	twork Settings.		FieldPoP	]	
-	Navigation		Network Settings						
~	CN0977 Intellihot v1.00a • About		IP Settings						
	<ul> <li>Setup</li> <li>File Transfer</li> <li>Network Settings</li> <li>Passwords</li> </ul>		Note Updated settings only take effect	System Restart Press OK to confirm	ied you will need to direct your browser to th	he new IP Address after the Syste	em Restart.		
	Time Settings     View     User Messages     Diagnostics			OK Cancel	192.168.1.23 255.255.255.0				
				N1 DHCP Client State Default Gateway	DI: 192.168.1.1	SABLED 🧹			
				Domain Name Server1 Domain Name Server2	8.8.8.8 8.8.4.4				
				Cancel	Update IP	Settings			
			MAC Address N1 MAC Address: 00:50:4E:12:0D:2C						
	Home HELP (F1)	Contact Us	System Restart						

• The web browser with the old IP address will not work anymore. Open a new browser with the new IP address.

			FieldPo	₀P <sup>∞</sup>
Navigation	CN0977 Intellihot v1.00a			^
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> </ul>	Status Settings	Info Stats		
> Setup	Status			0
> View	Name	Value		
<ul> <li>User Messages</li> </ul>	Driver_Configuration	DCC000		^
<ul> <li>Diagnostics</li> </ul>	DCC_Version	V6.05p (A)		_
	Kernel_Version	V6.44d (A)		_
	Release_Status	Normal		_
	Build_Revision	4.26.1		- 117
	Build_Date	2018-06-01 11:18:40 +0200		_
	BIOS_Version	2.3.0		_
	FieldServer_Model	ProtoCessor FFP485		_
	Carrier Type	SPR Carrier		_
	Data_Points_Used	75		_
	Data_Points_Max	1500		- 11
	Application Memory:			- 11
	Protocol_Engine_Memory_Used	0.74%		

• <u>View the data and change temperature set point and/or ON/OFF</u> Click "View" and then "Data Arrays. Three arrays are shown on the list. The array "DA\_AO\_01" holds the temperature set point and config file version.

Navigation	DA_AO_01						
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> <li>Setup</li> <li>View</li> <li>Connections</li> <li>Data Arrays</li> </ul>	Data Array						
	Data Array Attrib	Data Array Attrib			Value		
	Data Array Name	Data Array Name			DA AO 01		
	Data Format	Data Format			UInt16		
• DA_AO_01	Length in Items	Length in Items			2		
• DA_AO_02	Bytes per Item	Bytes per Item			2		
DA_DO_01     Nodes	Data Age			1:55.321s			
Nodes     Map Descriptors     User Messages		Display Format	UInt16			T	
Diagnostics	Data Array						
	Offset	256	U		20001	1	
	0	256			20001		

- Click "Enable Data Editing"
- Double Click on temp then input the temperature value + 256 to change the setpoint. (Type in 396 for 140F and 376 for 120F in the example). Press Enter
- Click "Disable Data Editing"

Navigation	DA_AO_01									
CN0977 Intellihot v1.00a • About • Setup • View	Data Array									
View		Name				Value				
> Connections	Data Array Name	Data Array Name				DA_A0_01				
V Data Arrays	Data Format	Data Format								
• DA_AO_01	Length in Items			2						
• DA_AO_02	Bytes per Item			2						
DA_DO_01	Data Age			2:25.338s						
<ul> <li>Map Descriptors</li> <li>User Messages</li> </ul>	D	isplay Format	JInt16			¥				
<ul> <li>Diagnostics</li> </ul>	Data Array									
0	Offset		0			1				
	0	396			20001					

• The array "DA\_AO\_02" holds the data read from the water heater (see the data points table below for understanding data)

	DA_AC	0_02									
7 Intellihot v1.00a	Data	Array									
ut	•										
р	Data Array	Attrib									
1		Name Value									
onnections	Data Arra	lata árray Name Dá 40,07									
ata Arrays	Data Forn	at					UInt16				
DA_AO_01	Length in	Items					147				
DA_AO_02	Bytes per	Item					2				
DA_DO_01	Data Age						0.565s				
odes											
ap Descriptors			Displa	y Format UInt	16					•	
Messages	Data Array	Data Array									
nostics	Offset	0	1	2	3	4	5	6	7	8	9
	0	1	120	1	0	241	0	0	0	172	0
	10	0	0	0	0	0	0	0	2	0	0
	20	77	75	74	0	30	0	0	0	0	0
	30	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
	40			0	0	0	0	0	0	0	0
	40 50	0	0	•			0	0	0	0	0
	40 50 60	0	0	0	0	0	-			0	0
	40 50 60 70	0 0 0	0 0 0 0	0	0	0	0	0	0	0	0
	40 50 60 70 80	0 0 0 0	0 0 0 0	0	0 0 0 0	0	0	0	0	0	0
	40 50 60 70 80 90	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0	0	0	0	0
	40 50 70 80 90 100	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0	0 0 0 0 0	0	0

- The array "DA\_DO\_01" holds the ON\_OFF (0—OFF; 1—ON). Click "Enable Data Editing"
- Double Click on value and then type in 0/1 to change OFF/ON and press Enter.
- Click "Disable Data Editing"

Navigation	DA_DO_01			
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> </ul>	Data Array			
> Setup	Data Array Attrib			
View	Name		Value	
> Connections	Data Array Name		DA_DO_01	
	Data Format		Bit	
	Length in Items		1	
DA_AO_02	Bytes per Item		0	
DA_DO_01	Data Age		7.123s	
Nodes     Map Descriptors     User Messages	Display Format	Bit		٠
Diagnostics	Data Array			
Diagnostics	Offset		0	
	0	1		

# SMGierra



Navigation	DA_DO_01			
<ul> <li>CN0977 Intellihot v1.00a</li> <li>About</li> <li>Setup</li> </ul>	Data Array			0
View	Name		Value	
> Connections	Data Array Name		DA_D0_01	
V Data Arrays	Data Format		Bit	
<ul> <li>DA_AO_01</li> </ul>	Length in Items		1	
• DA_AO_02	Bytes per Item		0	
• DA_DO_01	Data Age		4.727s	
Nodes     Map Descriptors	Display Format Bit		۲	
Diagnostics	Data Array			0
Diagnostics	Offset		0	
	0	0		
Home HELP (F1) Contact Us	Disable Data Editing			

- 3. Set up via FieldServer ToolBox:
  - After connecting, the default IP address and device name will be shown. This address most likely will need to be changed, so please press the settings in the program. The FieldServer Toolbox shown can be downloaded at http://www.sierramonitor.com/customer- care/resource-center

sma FieldServer Toolbox	and the state	and the second s	THE OWNER ADDRESS	-	D	
FieldServer	Toolbox				C	<b>M</b> sierra
Setup Help					2	monitor
DEVICES	÷	IP ADDRESS	MAC ADDRESS	FAVORITE	CONNECTIVITY	
CN0977 Intellihot v1.00	a	192.168.1.24	00:50:4E:10:17:43	*	•	Connet 🔯 -

• A configure device options menu should appear. Click on network settings and then change the IP address to match your situation.

IP ADDRESS	MAC ADDRESS	FAVORITE CONNE	smc Device Network Settings	
192.168.1.24	00:50:4E:10:17:43	* •		50
ie 🔤 Cor	nfigure Device		Device Netw	ork Settings
:04 2015	Configure Device		CN0977 Intellihot v1.00a	192.168.1.24
CN09	177 Intellihot v1.00a 19	92.168.1.24	N1 IP Address	192, 168, 1, 24
	Network Settings		N1 Netmask	255.255.0.0
	File Transfer		N1 DHCP Client State	Disabled
	Set Device Time		N1 DHCP Server State	Disabled
		Close	N1 Default Gateway	192.168.1.0
			Cancel	Undate IP Settings

• The newly assigned IP address for the device should be shown on the main screen.

FieldServer Toolbox		10 March 10	Loger CM Loger CM			= 0 X
FieldServer	Toolbox				S	M Sierra monitor
Setup Help		1040-049-049-049		Second and American		
DEVICES	•	BY ADDRESS	MAC ADDRESS	HAVORITE	CONNECTIVITY	
CN0977 Intellihot v1.00	)a	10.1.10.99	00:50:4E:10:17:43	*	•	Connect Q -/-

#### 3.2 BACnet MS/TP

- INTouch agreements R ß ŝ **C**3 ěě 52 5 ano ĝ 1 () Caution ol. 31 OLED 2 31-3 000 LOUNT Alar 1 J1-2 dine-High Voltage Area 2 Ð -D-Ð J1-1 3 ĝ 뭪 )1 JI 11 11 വ J١ JL ф ħ \_\_\_\_\_ Funtine 12 12 12 12 . . 5 Alwa 9 Parata 5 5 đ X
- Connect to the MS/TP connections toward the center of the module.

**MS/TP Connection** 

• The default device ID for the iNTouch device is "111". Locate this device in your program, and if there is a conflict, then the device ID should be changed. Please contact Intellihot Technical Service for assistance.



#### 4. Wiring and Data Points

#### 4.1 Wiring of the iNTouch Board

The iNTouch panel comes well labeled with the wired connection points easily accessible.



<u>Wired connections (labeled from left to right along the bottom of the board)</u>: Outputs:

- 1. *Recirculation Pump* Dry Contact 120V/5A powers the building recirculation pumps based on learned usage.
- 2. Louver Power Dry Contact 120V/5A power the louvers if present
- 3. Alarm Status Dry Contact 24V/3A indicates if a unit is experiencing an error code.
- 4. Run-Time Status Dry Contact 24V/3A indicates if the unit is firing

Inputs:

- 5. *Remote ON/OFF* Dry Contact Unit can be turned on or off remotely. Comes with a factory jumper for proper operation should feature not be utilized.
- 6. *Louver Feedback* Dry Contact displays louver position. Comes with factory jumper for proper operation should feature not be utilized.
- 7. Manifold Temperature Thermistor Monitor water temperature (For iQ251/iQ251D ONLY)

**Note:** The Remote On/Off, and the Louver feedback pins will have a factory jumper installed across them. This is done so the unit functions correctly if the user does not utilize these points. Pull the jumper out and make the proper pin connections to use any of the connections. Please leave the jumper ON if a connection is not used.

#### 4.2 Data Points

Below is a table of the data points that are written and/or monitored by the Intellihot iNTouch system. These are shown from a system-level along with seeing some points at a per-unit level. The table shows the point name, point description, read or write (R/W) from the BMS side, and other details.

#### i<u>Q251/iQ251D</u>

If the wall-hung unit software version is v73 or later:

Data Level	Point Name	Data Type	Rigister Address	Objec t_ID	Length	R/ W	Direction	Unit	Scalin g	Defaul t	Range	Comments
SystemLevel	Set_ON_OFF_BACnet	BV	DA_DO_01: 0	1	1 Bit	w	BMS to Heater		1	1	1-enabled 0-disabled	
SystemLevel	Set_Temperature	AV	DA_AO_01: 0	1	16 Bits	w	BMS to Heater		1	256	356-446 Hi-Byte: Command-1 Lo-Byte:Value(100- 190F)	376: 120F 356: 100F 446: 190F
SystemLevel	BACnet_Config_Version	AV	DA_AO_01: 1	2	16 Bits	R	Heater to BMS		1		200XX	200XX: iQ251/iQ251 D
SystemLevel	Actual_reMote_ON_OFF_S tatus	AV	DA_AO_02: 0	3	16 Bits	R	Heater to BMS		1		1-enabled 0-disabled	
SystemLevel	Actual_Setpoint	AV	DA_AO_02: 1	4	16 Bits	R	Heater to BMS	F	1		100-190F	
SystemLevel	Unit_Count	AV	DA_AO_02: 2	5	16 Bits	R	Heater to BMS		1		110 for iQ251/iQ251D	
SystemLevel	Sys_Alarm_Code	AV	DA_AO_02: 3	6	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit1: Details on Errors ( if Error is one of E1.E8.E9.EA) Bit12-Bit15: Unit#	
SystemLevel	Interface_Status	AV	DA_AO_02: 4	7	16 Bits	R	Heater to BMS		1		Bit0-Pump, Bit1-LouvrePower, Bit2-Alarm, Bit3-RunTime, Bit4-remote_ON_OFF, Bit5-LouvreFeedback, Bit6-BACnet_ON_OFF, Bit7-iNTouch_Installed	Control Bit
SystemLevel	Manifold_Tank_Temperatur	AV	DA_AO_02: 5	8	16 Bits	R	Heater to BMS	F	1			
SystemLevel	Remote_Setpoint	AV	DA_AO_02: 6	9	16 Bits	R	Heater to BMS	F	1		100-190	
SystemLevel	Prognostic_Flag	AV	DA_AO_02: 7	10	16 Bits	R	Heater to BMS		1			
SystemLevel	Software_Version	AV	DA_AO_02: 8	11	16 Bits	R	Heater to BMS		1			
Unit Level	Unit_ID	AV	DA_AO_02: 9	12	16 Bits	R	Heater to BMS		1		110 for iQ251/iQ251D	
Unit Level	Unit_Alarm_Code	AV	DA_AO_02: 10	13	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit1: Details on Errors ( if Error is one of E1,E8,E9,EA) Bit12-Bit15: Module#	Object_ID Unit1: 12 - 19 Unit2: 20 - 27 Unit3: 28 - 35
Unit Level	Unit_lcon_Status	AV	DA_AO_02: 11	14	16 Bits	R	Heater to BMS		1		Bit0-Flame, Bit1-Blower, Bit2-Flow, Bit3- Bit4- Bit5- Bit5- Bit6- Bit7-	Unit4: 36 - 43 Unit5: 44 - 51 Unit6: 52 - 59 Unit7: 60 - 67 Unit8: 68 - 75 Unit9: 76 - 83 Unit10: 84 - 91

Unit Level	Unit_Inlet_Tempurature	AV	DA_AO_02: 12	15	16 Bits	R	Heater to BMS	F	1		32-80	
Unit Level	Unit_Outlet_Tempurature	AV	DA_AO_02: 13	16	16 Bits	R	Heater to BMS	F	1		100-212	
Unit Level	Unit_Flue_Temperature	AV	DA_AO_02: 14	17	16 Bits	R	Heater to BMS	F	1		32-200	
Unit Level	Unit_Flow_GPM	AV	DA_AO_02: 15	18	16 Bits	R	Heater to BMS	GPM	10		0-250	
Unit Level	Unit_Firing_Rate	AV	DA_AO_02: 16	19	16 Bits	R	Heater to BMS	k_bt u	1		0-251	
Unit Level	Blower_Fault	AV	DA_AO_02: 89	92	16 Bits	R	Heater to BMS		1			
Unit Level	Blocked_Flue	AV	DA_AO_02: 90	93	16 Bits	R	Heater to BMS		1			
Unit Level	Ignition_Failure	AV	DA_AO_02: 91	94	16 Bits	R	Heater to BMS		1			
Unit Level	Water_Valve_Fault	AV	DA_AO_02: 92	95	16 Bits	R	Heater to BMS		1			
Unit Level	Inlet_Sensor_Short_Ckt	AV	DA_AO_02: 93	96	16 Bits	R	Heater to BMS		1			
Unit Level	Outlet_Sensor_Short_Ckt	AV	DA_AO_02: 94	97	16 Bits	R	Heater to BMS		1			Fault
Unit Level	Tank_Sensor_Short_Ckt	AV	DA_AO_02: 95	98	16 Bits	R	Heater to BMS		1			Indication
Unit Level	Recirc_Sensor_Short_Ckt	AV	DA_AO_02: 96	99	16 Bits	R	Heater to BMS		1			Unit1: 1 Unit2: 2
Unit Level	Flue_Sensor_Short_Ckt	AV	DA_AO_02: 97	100	16 Bits	R	Heater to BMS		1		110 for iQ251/iQ251D	Unit3: 3 Unit4: 4
Unit Level	Inlet_Sensor_Open_Ckt	AV	DA_AO_02: 98	101	16 Bits	R	Heater to BMS		1			Unit5: 5 Unit6: 6
Unit Level	Outlet_Sensor_Open_Ckt	AV	DA_AO_02: 99	102	16 Bits	R	Heater to BMS		1			Unit8: 8 Unit9: 9
Unit Level	Tank_Sensor_Open_Ckt	AV	DA_AO_02: 100	103	16 Bits	R	Heater to BMS		1			Unit10: 10
Unit Level	Recirc_Sensor_Open_Ckt	AV	DA_AO_02: 101	104	16 Bits	R	Heater to BMS		1			
Unit Level	Flue_Sensor_Open_Ckt	AV	DA_AO_02: 102	105	16 Bits	R	Heater to BMS		1			
Unit Level	Software_Error	AV	DA_AO_02: 103	106	16 Bits	R	Heater to BMS		1			
Unit Level	Flue_Temp_OverHeat	AV	DA_AO_02: 104	107	16 Bits	R	Heater to BMS		1			
Unit Level	Heat_Exchanger_Overheat	AV	DA_AO_02: 105	108	16 Bits	R	Heater to BMS		1			
System Level	Blower_On	AV	DA_AO_02: 106	109	1 Bit	R	Heater to BMS		1			
System Level	Flow_On	AV	DA_AO_02: 107	110	1 Bit	R	Heater to BMS		1		1-enabled 0-disabled	System Status Bit
System Level	Flame_On	AV	DA_AO_02: 108	111	1 Bit	R	Heater to BMS		1			
Unit Level	Unit_Blower_On	AV	DA_AO_02: 109	112	1 Bit	R	Heater to BMS		1			Unit_lcon_S tatus
Unit Level	Unit_Flow_On	AV	DA_AO_02: 110	113	1 Bit	R	Heater to BMS		1		1-enabled 0-disabled	Unit 1 to Unit 10
Unit Level	Unit_Flame_On	AV	DA_AO_02: 111	114	1 Bit	R	Heater to BMS		1			Object_ID: 112-141
System Level	External_Pump	AV	DA_AO_02: 139	142	1 Bit	R	BMS to External		1			
System Level	External_Louvre_Fan	AV	DA_AO_02: 140	143	1 Bit	R	BMS to External		1			
System Level	External_Alarm	AV	DA_AO_02: 141	144	1 Bit	R	BMS to External		1			
System Level	External_Run_Time	AV	DA_AO_02: 142	145	1 Bit	R	BMS to External		1		1-enabled	Interface St
System Level	External_Remote_On_Off	AI	DA_AO_02: 143	146	1 Bit	R	BMS to External		1	1	0-disabled	atus
System Level	External_Louvre_Feedback	AI	DA_AO_02: 144	147	1 Bit	R	BMS to External		1		]	
System Level	External_Remote_On_Off_ Bacnet	AI	DA_AO_02: 145	148	1 Bit	R	BMS to External		1		1	
System Level	External_Bacnet_Install_Sta tus	AI	DA_AO_02: 146	149	1 Bit	R	BMS to External		1		]	

The number of the unit level data group will be as same as the number of the unit in the system

All	previous	wall-hung	unit software	versions (	v72 or earlie	r):
					•	

DataLevel	PointName	DataType	Rigister Address	Object _ID	Length	R / W	Direction	Uni t	Scaling	Default	Range	Comments
SystemLevel	Set_ON_OFF_BACnet	BV	DA_DO_01: 0	1	1 Bit	w	BMS to Heater		1	1	1-enabled 0-disabled	
SystemLevel	Set_Temperature	AV	DA_AO_01: 0	1	16 Bits	w	BMS to Heater		1	256	356-446 Hi-Byte: Command-1 Lo-Byte:Value(100-190F)	376-120F 356-100F 446-190F
SystemLevel	BACnet_Config_Version	AV	DA_AO_01: 1	2	16 Bits	R	Heater to BMS		1		100XX/200XX	100XX:iQ751/ 1001/1501 200XX:iQ251/ 251D
SystemLevel	Actual_reMote_ON_OF F_Status	AV	DA_AO_02: 0	3	16 Bits	R	Heater to BMS		1		1-enabled 0-disabled	
SystemLevel	Actual_Setpoint	AV	DA_AO_02: 1	4	16 Bits	R	Heater to BMS	F	1		100-190F	
SystemLevel	UnitCount	AV	DA_AO_02: 2	5	16 Bits	R	Heater to BMS		1		14 for iQ751/1001/1501 110 for iQ251/251D	
SystemLevel	SysAlarmCode	AV	DA_AO_02: 3	6	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Sensor# if Sensor Error Bit12-Bit15: Uint#	
SystemLevel	InterfaceStatus	AV	DA_AO_02: 4	7	16 Bits	R	Heater to BMS		1		Bit0-Pump, Bit1-LouvrePower, Bit2-Alarm, Bit3-RunTime, Bit4-remote_ON_OFF, Bit5-LouvreFeedback, Bit6-BACnet_ON_OFF, Bit7-iNTouch_Installed	Control Bit
SystemLevel	Manifold_Tank_Temper ature	AV	DA_AO_02: 5	8	16 Bits	R	Heater to BMS	F	1			
SystemLevel	Remote_setpoint	AV	DA_AO_02: 6	9	16 Bits	R	Heater to BMS	F	1		100-190	
SystemLevel	Prognostic_Flag	AV	DA_AO_02: 7	10	16 Bits	R	Heater to BMS		1		Bit0:FLAME_ON_OFF_CY CLES Bit1:BLOWER_HOUR Bit2:TIME_VALVE_CYCL E	
SystemLevel	Software_Version	AV	DA_AO_02: 8	11	16 Bits	R	Heater to BMS		1			
Unit Level	UnitID	AV	DA_AO_02: 9	12	16 Bits	R	Heater to BMS		1		14 for iQ751/1001/1501 110 for iQ251/251D	
Unit Level	UnitAlarmCode	AV	DA_AO_02: 10	13	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Sensor# if Sensor Error Bit12-Bit15: Module#	
Unit Level	Unitstatus bits	AV	DA_AO_02: 11	14	16 Bits	R	Heater to BMS		1		Bit0-Flame, Bit1-Blower, Bit2-Flow, Bit3- Bit3- Bit4- Bit5- Bit6- Bit6- Bit7-	Control Bit
Unit Level	UnitInlet temp	AV	DA_AO_02: 12	15	16 Bits	R	Heater to BMS	F	1		32-80	
Unit Level	UnitOutlet temp	AV	DA_AO_02: 13	16	16 Bits	R	Heater to BMS	F	1		100-212	
Unit Level	UnitLLH_Temperature	AV	DA_AO_02: 14	17	16 Bits	R	Heater to BMS	F	1		32-200	
Unit Level	UnitFlue_Temperature	AV	DA_AO_02: 15	18	16 Bits	R	Heater to BMS	F	1		32-200	
Unit Level	UnitFlow GPM	AV	DA_AO_02: 16	19	16 Bits	R	Heater to BMS	GP M	1		0-26	
Unit Level	UnitFiring rate	AV	DA_AO_02: 17	20	16 Bits	R	Heater to BMS	k_b tu	1		0-1501	

The number of the unit level data group will be as same as the number of the unit in the system

#### iN401/iN501/iQ751/iQ1001/iQ1501/iQ2001/iQ3001 If the software version of iQ751/iQ1001/iQ1501 is v80 or later: If the software version of iQ2001/iQ3001 is v02 or later: If the software version of iN401/iN501501 is v05 or later:

Data Level	Point Name	Data Type	Rigister Address	Object_I D	Lengt h	R/ W	Direction	Unit	Sc alin g	Def ault	Range	Comments
System Level	Set_ON_OFF_BACnet	BV	DA_DO_01: 0	1	1 Bit	w	BMS to Heater		1	1	1-enabled 0-disabled	
System Level	Set_Temperature	AV	DA_AO_01: 0	1	16 Bits	w	BMS to Heater		1	256	356-446 Hi-Byte: Command-1 Lo-Byte:Value(100- 190F)	376: 120F 356: 100F 446: 190F
System Level	BACnet_Config_Version	AV	DA_AO_01: 1	2	16 Bits	R	Heater to BMS		1		100XX	100XX: iN401/iN501/iQ 751/iQ1001/iQ1 501/ iQ2001/iQ3001
System Level	Actual_reMote_ON_OFF_Status	AV	DA_AO_02: 0	3	16 Bits	R	Heater to BMS		1		1-enabled 0-disabled	
System Level	Actual_Setpoint	AV	DA_AO_02: 1	4	16 Bits	R	Heater to BMS	F	1		100-190F	
System Level	Unit_Count	AV	DA_AO_02: 2	5	16 Bits	R	Heater to BMS		1		14 for iN401/iN501/iQ751/ iQ1001/iQ1501 13 iQ2001 12 iQ3001	
System Level	Sys_Alarm_Code	AV	DA_AO_02: 3	6	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Details on Errors ( if Error is one of E1,E8,E9,EA) Bit12-Bit15: Unit#	
System Level	Interface_Status	AV	DA_AO_02: 4	7	16 Bits	R	Heater to BMS		1		Bit0-Pump, Bit1-LouvrePower, Bit2-Alarm, Bit3-RunTime, Bit4- remote_ON_OFF, Bit5- LouvreFeedback, Bit5- BACnet_ON_OFF, Bit7- iNTouch_Installed	Control Bit
System Level	Remote_Setpoint	AV	DA_AO_02: 5	8	16 Bits	R	Heater to BMS	F	1		100-190	
System Level	Prognostic_Flag	AV	DA_AO_02: 6	9	16 Bits	R	Heater to BMS		1			
System Level	Software_Version	AV	DA_AO_02: 7	10	16 Bits	R	Heater to BMS		1			
Unit Level	Unit_ID	AV	DA_AO_02: 8	11	16 Bits	R	Heater to BMS		1		14 for iN401/iN501/iQ751/ iQ1001/iQ1501 13 iQ2001 12 iQ3001	
Unit Level	Unit_Alarm_Code	AV	DA_AO_02: 9	12	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Details on Errors ( if Error is one of E1,E8,E9,EA) Bit12-Bit15: Module#	Register           Address           Unit1:           DA_AO_02: 08           - DA_AO_02: 15           Unit2:           DA_AO_02: 16 -           DA_AO_02: 23
Unit Level	Unit_lcon_Status	AV	DA_AO_02: 10	13	16 Bits	R	Heater to BMS		1		Bit0-Flame, Bit1-Blower, Bit3- Bit4- Bit5- Bit6- Bit6- Bit7-	Unit2: 10-22: 24 - DA_AO_02: 24 - DA_AO_02: 31 Unit4: DA_AO_02: 32 - DA_AO_02: 39 <b>Object_ID</b> Unit1: 11 - 18 Unit2: 19 - 26 Unit3: 27 - 34 Unit4: 35 - 42
Unit Level	Unit_Inlet_Tempurature	AV	DA_AO_02: 11	14	16 Bits	R	Heater to BMS	F	1		32-190	

Unit Level	Unit_Outlet_Tempurature	AV	DA_AO_02: 12	15	16 Bits	R	Heater to BMS	F	1	100-212	
Unit Level	Unit_Flue_Temperature	AV	DA_AO_02: 13	16	16 Bits	R	Heater to BMS	F	1	32-200	
Unit Level	Unit_Flow_GPM	AV	DA_AO_02: 14	17	16 Bits	R	Heater to BMS	GPM	10	0-250	
Unit Level	Unit_Firing_Rate	AV	DA_AO_02: 15	18	16 Bits	R	Heater to BMS	k_bt u	1	0-3001	
Unit Level	Blower_Fault	AV	DA_AO_02: 40	43	16 Bits	R	Heater to BMS		1		
Unit Level	Blocked_Flue	AV	DA_AO_02: 41	44	16 Bits	R	Heater to BMS		1		
Unit Level	Ignition_Failure	AV	DA_AO_02: 42	45	16 Bits	R	Heater to BMS		1		
Unit Level	Water_Valve_Fault	AV	DA_AO_02: 43	46	16 Bits	R	Heater to BMS		1		
Unit Level	Inlet_Sensor_Short_Ckt	AV	DA_AO_02: 44	47	16 Bits	R	Heater to BMS		1		
Unit Level	Outlet_Sensor_Short_Ckt	AV	DA_AO_02: 45	48	16 Bits	R	Heater to BMS		1		
Unit Level	Tank_Sensor_Short_Ckt	AV	DA_AO_02: 46	49	16 Bits	R	Heater to BMS		1		
Unit Level	Recirc_Sensor_Short_Ckt	AV	DA_AO_02: 47	50	16 Bits	R	Heater to BMS		1	14 for	Fault Indication
Unit Level	Flue_Sensor_Short_Ckt	AV	DA_AO_02: 48	51	16 Bits	R	Heater to BMS		1	iQ1001/iQ1501 iQ1001/iQ1501	Unit1: 1
Unit Level	Inlet_Sensor_Open_Ckt	AV	DA_AO_02: 49	52	16 Bits	R	Heater to BMS		1	12 iQ3001	Unit3: 3
Unit Level	Outlet_Sensor_Open_Ckt	AV	DA_AO_02: 50	53	16 Bits	R	Heater to BMS		1		one of the
Unit Level	Tank_Sensor_Open_Ckt	AV	DA_AO_02: 51	54	16 Bits	R	Heater to BMS		1		
Unit Level	Recirc_Sensor_Open_Ckt	AV	DA_AO_02: 52	55	16 Bits	R	Heater to BMS		1		
Unit Level	Flue_Sensor_Open_Ckt	AV	DA_AO_02: 53	56	16 Bits	R	Heater to BMS		1		
Unit Level	Software_Error	AV	DA_AO_02: 54	57	16 Bits	R	Heater to BMS		1		
Unit Level	Flue_Temp_OverHeat	AV	DA_AO_02: 55	58	16 Bits	R	Heater to BMS		1		
Unit Level	Heat_Exchanger_Overheat	AV	DA_AO_02: 56	59	16 Bits	R	Heater to BMS		1		
System Level	Blower_On	AV	DA_AO_02: 57	60	1 Bit	R	Heater to BMS		1		
System Level	Flow_On	AV	DA_AO_02: 58	61	1 Bit	R	Heater to BMS		1	1-enabled 0-disabled	System Status Bit
System Level	Flame_On	AV	DA_AO_02: 59	62	1 Bit	R	Heater to BMS		1		
Unit Level	Unit_Blower_On	AV	DA_AO_02: 60	63	1 Bit	R	Heater to BMS		1		Unit_lcon_Stat
Unit Level	Unit_Flow_On	AV	DA_AO_02: 61	64	1 Bit	R	Heater to BMS		1	1-enabled 0-disabled	Unit 1 to Unit 4 Object ID: 63-
Unit Level	Unit_Flame_On	AV	DA_AO_02: 62	65	1 Bit	R	Heater to BMS		1		74
System Level	External_Pump	AV	DA_AO_02: 72	75	1 Bit	R	BMS to External		1		
System Level	External_Louvre_Fan	AV	DA_AO_02: 73	76	1 Bit	R	BMS to External		1		
System Level	External_Alarm	AV	DA_AO_02: 74	77	1 Bit	R	BMS to External		1		
System Level	External_Run_Time	AV	DA_AO_02: 75	78	1 Bit	R	BMS to External		1	1-enabled	Interface_Stat
System Level	External_Remote_On_Off	AI	DA_AO_02: 76	79	1 Bit	R	External to BMS		1	0-disabled	us
System Level	External_Louvre_Feedback	AI	DA_AO_02: 77	80	1 Bit	R	External to BMS		1		
System Level	External_Remote_On_Off_Bacnet	AI	DA_AO_02: 78	81	1 Bit	R	External to BMS		1		
System Level	External_Bacnet_Install_Status	AI	DA_AO_02: 79	82	1 Bit	R	External to BMS		1		
Unit Level	Manifold_Out_Sensor_Open_Alert	AV	DA_AO_02: 80	83	16 Bits	R	Heater to BMS		1		
Unit Level	Manifold_In_Sensor_Open_Alert	AV	DA_AO_02: 81	84	16 Bits	R	Heater to BMS		1	14 for iN401/iN501/iQ751/	Alert Indication Unit1: 1
Unit Level	Manifold_Out_Sensor_Short_Alert	AV	DA_AO_02: 82	85	16 Bits	R	Heater to BMS		1	iQ1001/iQ1501 13 iQ2001 12 iQ3001	Unit2: 2 Unit3: 3 Unit4: 4
Unit Level	Manifold_In_Sensor_Short_Alert	AV	DA_AO_02: 83	86	16 Bits	R	Heater to BMS		1		
Unit Level	Cascading_Alert	AV	DA_AO_02: 84	87	1 Bit	R	Heater to BMS		1	1-enabled	AL
Unit Level	Louvre_Power_Alert	AV	DA_AO_02: 85	88	1 Bit	R	Heater to BMS		1	0-disabled	Alert
Unit Level	Pump_Alert	AV	DA_AO_02: 86	89	16 Bits	R	Heater to BMS		1	 14 for iN401/iN501/iQ751/ iQ1001/iQ1501 13 iQ2001 12 iQ3001	Unit1: 1 Unit2: 2 Unit3: 3 Unit4: 4

The number of the unit level data group will be as same as the number of the unit in the system

# All other previous floor mount (iQ751/iQ1001/iQ1501/iQ2001/iQ3001) software versions:

DataLevel	PointName	DataType	Rigister Address	Object _ID	Length	R / W	Direction	Unit	Scaling	Default	Range	Comment s
SystemLevel	Set_ON_OFF_BACnet	BV	DA_DO_01: 0	1	1 Bit	w	BMS to Heater		1	1	1-enabled 0-disabled	
SystemLevel	Set_Temperature	AV	DA_AO_01: 0	1	16 Bits	w	BMS to Heater		1	256	356-446 Hi-Byte: Command-1 Lo-Byte:Value(100-190F)	376-120F 356-100F 446-190F
SystemLevel	BACnet_Config_Version	AV	DA_AO_01: 1	2	16 Bits	R	Heater to BMS		1		100XX/200XX	100XX:iQ7 51/1001/15 01 200XX:iQ2 51/251D
SystemLevel	Actual_reMote_ON_OF F_Status	AV	DA_AO_02: 0	3	16 Bits	R	Heater to BMS		1		1-enabled 0-disabled	
SystemLevel	Actual_Setpoint	AV	DA_AO_02:1	4	16 Bits	R	Heater to BMS	F	1		100-190F	
SystemLevel	UnitCount	AV	DA_AO_02: 2	5	16 Bits	R	Heater to BMS		1		14 for iQ751/1001/1501 110 for iQ251/251D	
SystemLevel	SysAlarmCode	AV	DA_AO_02: 3	6	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Sensor# if Sensor Error Bit12-Bit15: Uint#	
SystemLevel	InterfaceStatus	AV	DA_AO_02: 4	7	16 Bits	R	Heater to BMS		1		Bit0-Pump, Bit1-LouvrePower, Bit2-Alarm, Bit3-RunTime, Bit4-remote_ON_OFF, Bit6-LouvreFeedback, Bit6-BACnet_ON_OFF, Bit7-iNTouch_Installed	Control Bit
SystemLevel	Remote_setpoint	AV	DA_AO_02: 5	8	16 Bits	R	Heater to BMS	F	1		100-190	
SystemLevel	Prognostic_Flag	AV	DA_AO_02: 6	9	16 Bits	R	Heater to BMS		1		Bit0:FLAME_ON_OFF_CYCLE S Bit1:BLOWER_HOUR Bit2:TIME_VALVE_CYCLE	
SystemLevel	Software_Version	AV	DA_AO_02: 7	10	16 Bits	R	Heater to BMS		1			
Unit Level	UnitID	AV	DA_AO_02: 8	11	16 Bits	R	Heater to BMS		1		14 for iQ751/1001/1501	
Unit Level	UnitAlarmCode	AV	DA_AO_02: 9	12	16 Bits	R	Heater to BMS		1		Bit0-Bit7: Alarm Code Bit8-Bit11: Sensor# if Sensor Error Bit12-Bit15: Module#	
Unit Level	Unitstatus bits	AV	DA_AO_02: 10	13	16 Bits	R	Heater to BMS		1		Bit0-Flame, Bit1-Blower, Bit3- Bit4- Bit5- Bit6- Bit7-	Control Bit
Unit Level	UnitInlet temp	AV	DA_AO_02: 11	14	16 Bits	R	Heater to BMS	F	1		32-80	
Unit Level	UnitOutlet temp	AV	DA_AO_02: 12	15	16 Bits	R	Heater to BMS	F	1		100-212	
Unit Level	UnitFlue_Temperature	AV	DA_AO_02: 14	17	16 Bits	R	Heater to BMS	F	1		32-200	
Unit Level	UnitFlow GPM	AV	DA_AO_02: 15	18	16 Bits	R	Heater to BMS	GPM	1		0-26	
Unit Level	UnitFiring rate	AV	DA_AO_02: 16	19	16 Bits	R	Heater to BMS	k_btu	1		0-1501	

The number of the unit level data group will be as same as the number of the unit in the system

#### 4.3 Understand "Set\_Temperature" and Control Bits Datapoints

- Set\_Temperature the register is 16 bits (2 bytes). The high byte holds the command "1". The low byte contains the temperature value (default is 0). So, the default is 256. The set value shall be 256 + actual temperature value. For example, input "376" if "120F" is the target.
- Sys\_Alarm\_Code

Hexadecimal (Place Value)								
Thousands	Hundreds	Tens	Ones					
Γ	ſ							
Unit ID	Additional Information	Alarm	Code					

	Hexadeci	mal (Place Value): Thousands = Unit ID, Hundreds = A	dditional	Information, Tens and Ones = Error Code				
Unit ID	Additional Information	Description	Error Code	Description				
1	0,1	if Error Code is E1 0 - Blower Fault 1 - Blower speed signal fault	01	Blower Speed Fault (E1)				
2	1,2,3,4	if Error Code is E8 1 - Flow Sensor fault 2 - Unable to Open the water valve 3 - Unable to Close the water valve 4 - Water Valve Switch fault	03	Blocked Flue (E3)				
3	0,1,4	If Error Code is E9 or EA 0 -Heat exchanger inlet water temperature sensor 1- Heat exchanger water outlet temperature sensor 4- Flue temperature sensor	07	Ignition Failure (E7)				
4			08	Water Valve Alert (E8)				
			09	Temperature Sensor Shorted (E9)				
			0A	Temperature Sensor Open Circuit (EA)				
			0C	Flue Temperature Exceeded (EC)				
			0D	Heat Exchanger Outlet Temperature Exceeded (ED)				
		Unit ID: 1-4 (iN401/iN501/iQ751/iQ1001/iQ1	501), 1-3	(iQ2001), 1-2 (iQ3001)				
	Example: SysAlarm is decimal 8970. Convert to hexadecimal 230A. It means the alarm is on unit 2, the third sensor open. The "EA" is showing on unit 2.							

Example: If Sys\_Alarm shows 8970 (decimal). Convert the decimal to hexadecimal 230A. Thousands place value is 2, which means the alarm is on unit number 2. Hundreds place value is 3, which means the third sensor. The tens and one's place value are 0A which indicates the error code "EA" means "Temperature Sensor Open Circuit"

Note: Consider hexadecimal place value (hundreds) only if the error code is "E1"/"E8"/"E9/

• Interface\_Status

Indicate the 4 relay outputs and 4 inputs on the iNTouch interface board (1-ON; 0-OFF)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
iNTouch_Installed	BACnet_ON_OFF	LouvreFeedback	Remote_ON_OFF	Runtime	Alarm	LouvrePower	Pump

• Prognostic\_Flag

Indicate the 4 relay outputs and 4 inputs on the iNTouch interface board (1—ON; 0—OFF)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
					Time_Valve	Blower	Ignition

#### • Unit\_Alarm\_Code

Hexadecimal (Place Value)								
Thousands	usands Hundreds Tens		Ones					
[]		Ι						
γ								
Module ID	Additional Informat	ion Alarm	Code					

	Hexadecimal (Place Value): Thousands = Module ID, Hundreds = Additional Information, Tens and Ones = Error Code								
Module ID	Additional Information	Description	Error Code	Description					
1	0,1	if Error Code is E1 0 - Blower Fault 1 - Blower speed signal fault	01	Blower Speed Fault (E1)					
2	3,4	if Error Code is E8 3 - Unable to Open the water valve 4 - Water Valve Switch fault	03	Blocked Flue (E3)					
	0,2,4	If error code is E9 or EA 00 - Heat exchanger inlet water temperature sensor 02 - Heat exchanger water outlet temperature sensor							
3		04 - Flue temperature sensor	07	Ignition Failure (E7)					
4			08	Water Valve Alert (E8)					
5			09	Temperature Sensor Shorted (E9)					
6			0A	Temperature Sensor Open Circuit (EA)					
7			0C	Flue Temperature Exceeded (EC)					
8			0D	Heat Exchanger Outlet Temperature Exceeded (ED)					
9									
10									
11									
12									
	Mod	ule ID: 1-2 (iN401), 1-2 (iN501), 1-3 (iQ751), 1-4 (iQ1001)	), 1-6 (iQ1	501), 1-8 (iQ2001), 1-12 (iQ3001)					
	Example: Unit Alarm is decimal 4097. Convert to hexadecimal 1001. It means the alarm is on module 1 and the error code "E1" is blower speed fault.								

Example: If Unit\_Alarm shows 13066 (decimal). Convert the decimal to hexadecimal 330A. Thousands place value is 3, which means the alarm is on module number H3. Hundreds place value is 3, which means the third sensor. The tens and one's place value are 0A which indicates the error code "EA" means "Temperature Sensor Open Circuit".

Note: Consider hexadecimal place value (hundreds) only if the error code is "E9" or "EA"

• Unit\_lcon\_Status

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
					Flow	Blower	Flame

Decimal Value		Binar	У	Note	Description	
	Flow	Blower	Flame	note	Description	
1	0	0	1		Flow = OFF, Blower = OFF, Flame = ON	
2	0	1	0		Flow = OFF, Blower = ON, Flame = OFF	
3	0	1	1	1 - ON	Flow = OFF, Blower = ON, Flame = ON	
4	1	0	0		Flow = ON, Blower = OFF, Flame = OFF	
5	1	0	1		Flow = ON, Blower = OFF, Flame = ON	
6	1	1	0		Flow = ON, Blower = ON, Flame = OFF	
7	1	1 1 1			Flow = ON, Blower = ON, Flame = ON	

## 5. Notes & Troubleshooting

#### 5.1 Notes

- 1. Verify the units are functioning correctly without iNTouch first. Then, power off and connect the iNTouch module.
- 2. Check the data points through the browser via 192.168.1.24. Make sure the data is visible. Check Appendix II if the web browser is unable to open the interface.
- 3. Verify that the interface status matches the unit.
- 4. Make sure iNTouch BMS board and IOT device are not installed on the same control board of a floormount model.
- 5. If there is one wall-hung unit, it can only be installed with either iNTouch BMS board or IoT device.
- 6. If multiple units are cascaded, then one iNTouch BMS board is sufficient for the entire cascaded setup. Otherwise, each unit will be needing one iNTouch BMS board.
- 7. Please make sure wall-hung unit (iQ251/ iQ251D) and floor mount unit (iN401/iN501/iQ751/ iQ1001/ iQ1501/ iQ2001/ iQ3001) has separate config file.
- 8. iN401 and iN501 has factory-installed iNTouch BMS option only.

#### 5.2 Troubleshooting

- 1. If a cascading issue, make sure all controls have identical software and proper hex IDs
- 2. If "bA Off", make sure the "Remote ON\_OFF" jumper is installed properly
- 3. If unit(s) fire off after firing on, check the "Louvre Feedback" jumper of Louvre system

# Appendix I Control Board location



BMS Board

iQ251/iQ251D



iQ751







iQ3001

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#### Appendix II IP Address setup

It may be necessary to set static IP if the BACnet interface does not show after connecting the ethernet cable and inserting the default IP address "192.168.1.24" on the web browser. Note: setting the static IP will not change the default IP address "192.168.1.24".

To set a static IP address in Windows 7, 8, and 10:

1. Click Start Menu > Control Panel > Network and Sharing Center or Network and Internet > Network and Sharing Center.

- 2. Click Change adapter settings.
- 3. Right-click on BMS.
- 4. Click Properties.
- 5. Select Internet Protocol Version 4 (TCP/IPv4).
- 6. Click Properties.
- 7. Select Use the following IP address.
- 8. Enter the IP address, Subnet mask, and DNS server based on the picture attached.
- 9. Click OK.

General	
You can get IP settings assigner this capability. Otherwise, you r for the appropriate IP settings.	d automatically if your network supports need to ask your network administrator
🔘 Obtain an IP address auto	matically
• Use the following IP addre	ss:
IP address:	192.168.1.1
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	1 12 1
Obtain DNS server addres	s automatically
Use the following DNS server	ver addresses:
Preferred DNS server:	8.8.8.8
Alternate DNS server:	8 . 8 . 4 . 4
🔲 Validate settings upon exi	it Advanced


NOTES



## Product Support

If the water heater requires additional support. Please use one of the following options for contacting Intellihot Technical Support

- Call: 877-835-1705, and press 1
- Email: support@intellihot.com

When you contact Technical Support, please have the following information ready:

- Model Number
- Serial Number
- Date purchase / Date installed
- Installation location & application
- Error code (if any) or other problem with the unit

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