BACnet Server

Panasonic VRF

Gateway for the integration of Panasonic Air Conditioning into BACnet/IP or BACnet MSTP control and monitoring systems

USER MANUAL

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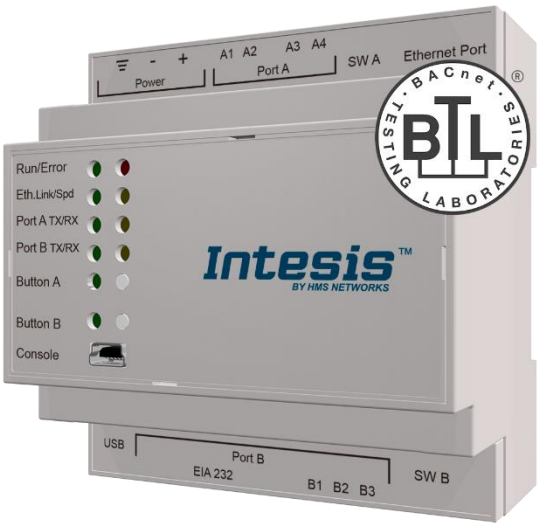

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Gateway for the integration of Panasonic Air Conditioning into BACnet/IP or BACnet MSTP control and monitoring systems.

ORDER CODE	LEGACY ORDER CODE
INBACPAN016O000	PA-AC-BAC-16
INBACPAN064O000	PA-AC-BAC-64
INBACPAN128O000	PA-AC-BAC-128

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1 Description

1.1 *Introduction*

This document describes the integration of Panasonic VRF air conditioning systems into BACnet compatible devices and systems using gateway *Intesis BACnet Server – Panasonic VRF.*

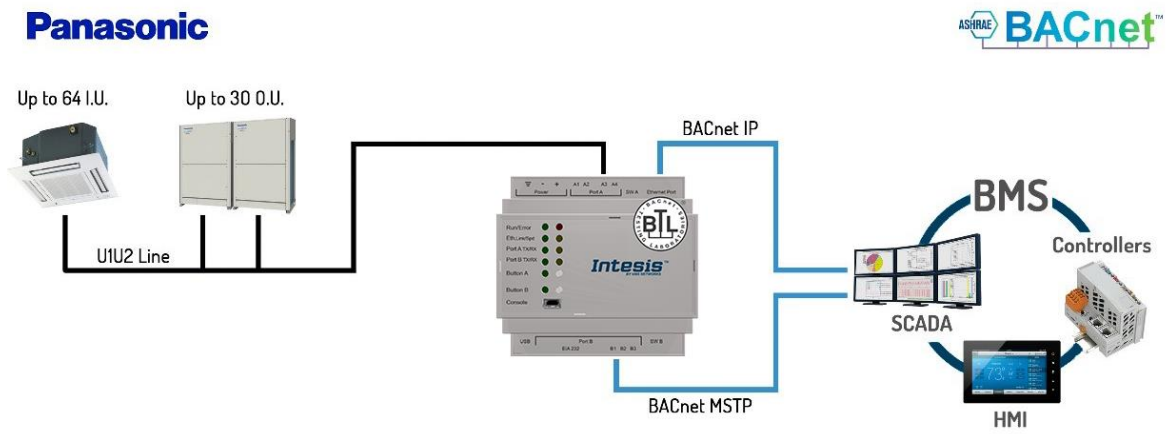
The aim of this integration is to monitor and control your Panasonic air conditioning system, remotely, from your Control Center using any commercial SCADA or monitoring software that includes a BACnet/IP or BACnet MSTP driver. To do it so, Intesis allows BACnet/IP and BACnet MSTP communication, acting as a server (B-AAC profile), allowing polling or subscription requests (COV).

Intesis makes available the Panasonic VRF conditioning system indoor units through independent BACnet objects.

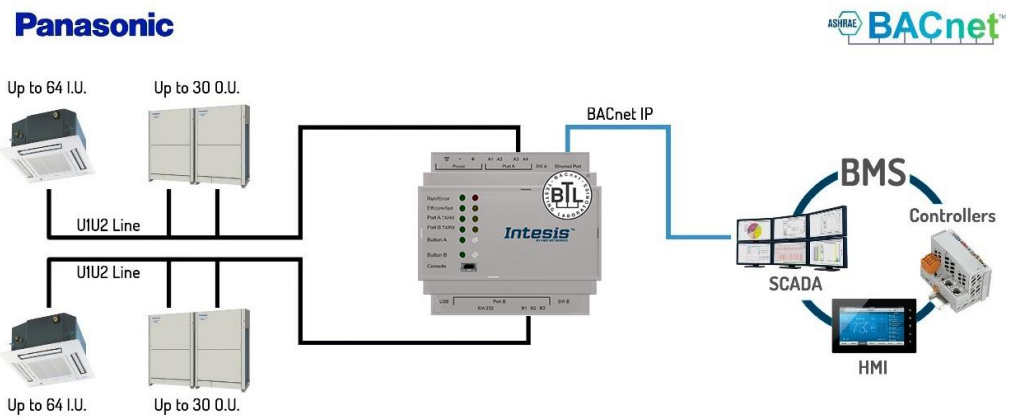
Intesis provides a fixed BACnet object IDs mapping based on Indoor unit addresses. Simple configuration is needed: just select the appropriate communication parameters (IP address, baud rate…).

Up to 128 indoor units supported, depending on product version.

This document assumes that the user is familiar with BACnet and Panasonic technologies and their technical terms.



Integration of Panasonic VRF compatible systems into BACnet/IP or BACnet MSTP control systems



Integration of Panasonic VRF compatible systems into BACnet/IP control systems

1.2 *Functionality*

Intesis™ continuously monitors Panasonic VRF network for all configured signals and keeps the updated status of all of them in its memory, ready to be served when requested from the BACnet side.

Commands toward the indoor units are permitted.

Each indoor unit is presented as a set of BACnet objects.

Element	Object supported
Outdoor Unit	• Command • Status
Indoor Unit	• Status • Command • Communication status
General signals (all units)	• Command

1.3 *Capacity of Intesis*

Element	Max.	Notes
Number of indoor units	128*	Number of indoor units that can be controlled through Intesis

* There are different models of *Intesis BACnet Server – Panasonic VRF* each one with different capacity. The table above shows the capacity for the top model (with maximum capacity).

Their order codes are:

- INBACPAN016O000: BACnet IP + MSTP supporting up to 16 indoor units
- INBACPAN064O000: BACnet IP + MSTP supporting up to 64 indoor units
- INBACPAN128O000: BACnet IP supporting up to 128 indoor units

2 Protocol Implementation Conformance Statement

BACnet Protocol Implementation Conformance Statement (PICS)

Date: *2018-04-20*
Vendor Name: *HMS Industrial Networks S.L.U*
Product Name: *Intesis-BACnet-Panasonic VRF*
Product Model Number: *INBACPAN---O000*
Application Software Version: *1.0.0.0*
Firmware Revision: *14.1.0.0*
BACnet Protocol Revision: *14*

Product Description:

Panasonic VRF to BACnet Gateway

Abstraction of Panasonic air conditioning system properties and functionalities as BACnet Objects.
Capacity of 16, 64 or 128 indoor units depending on product version.

2.1 *BACnet Standardized Device Profile (Annex L):*

☐ BACnet Operator Workstation (B-OWS)

☐ BACnet Building Controller (B-BC)

☒ BACnet Advanced Application Controller (B-AAC)

☐ BACnet Application Specific Controller (B-ASC)

☐ BACnet Smart Sensor (B-SS)

☐ BACnet Smart Actuator (B-SA)

Additional BACnet Interoperability Building Blocks Supported (Annex K):
Reference of BIBBs List

2.2 *Segmentation Capability:*

Segmented request supported	☐ No	☒ Yes	Window Size · *16* ·
Segmented responses supported	☐ No	☒ Yes	Window Size · *16* ·

2.3 *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): 9600, 19200, 38400, 57600, 76800, 115200 **(only for 16&64 versions)**
☐ 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:

2.4 *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

2.5 *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

2.6 *Character Sets Supported*

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

☒ ISO 10646 (UTF-8)	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS X 0208

2.7 *Gateway*

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

Panasonic VRF Air Conditioning System

3 BACnet Interoperability Building Blocks Supported (BIBBs)

3.1 *Data Sharing BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
DS-RP-A	Data Sharing-ReadProperty–A	☐	ReadProperty	☒	☐
DS-RP-B	Data Sharing-ReadProperty–B	☒	ReadProperty	☐	☒
DS-RPM-A	Data Sharing-ReadPropertyMultiple–A	☐	ReadPropertyMultiple	☒	☐
DS-RPM-B	Data Sharing-ReadPropertyMultiple–B	☒	ReadPropertyMultiple	☐	☒
DS-RPC-A	Data Sharing-ReadPropertyConditiona–A	☐	ReadPropertyConditional	☒	☐
DS-RPC-B	Data Sharing-ReadPropertyConditional–B	☐	ReadPropertyConditional	☐	☒
DS-WP-A	Data Sharing-WriteProperty–A	☐	WriteProperty	☒	☐
DS-WP-B	Data Sharing-WriteProperty–B	☒	WriteProperty	☐	☒
DS-WPM-A	Data Sharing-WritePropertyMultiple–A	☐	WritePropertyMultiple	☒	☐
DS-WPM-B	Data Sharing-WritePropertyMultiple–B	☒	WritePropertyMultiple	☐	☒
DS-COV-A	Data Sharing-COV–A	☐	SubscribeCOV	☒	☐
		☐	ConfirmedCOVNotification	☐	☒
		☐	UnconfirmedCOVNotification	☐	☒
DS-COV-B	Data Sharing-COV–B	☒	SubscribeCOV	☐	☒
		☒	ConfirmedCOVNotification	☒	☐
		☒	UnconfirmedCOVNotification	☒	☐
DS-COVP-A	Data Sharing-COVP–A	☐	SubscribeCOVProperty	☒	☐
		☐	ConfirmedCOVNotification	☐	☒
		☐	UnconfirmedCOVNotification	☐	☒
DS-COVP-B	Data Sharing-COVP–B	☐	SubscribeCOVProperty	☐	☒
		☐	ConfirmedCOVNotification	☒	☐
		☐	UnconfirmedCOVNotification	☒	☐
DS-COVU-A	Data Sharing-COV-Unsubscribed–A	☐	UnconfirmedCOVNotification	☐	☒
DS-COVU-B	Data Sharing-COV- Unsubscribed -B	☐	UnconfirmedCOVNotification	☒	☐

3.2 *Alarm and Event Management BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
AE-N-A	Alarm and Event-Notification–A	☐	ConfirmedEventNotification	☐	☒
		☐	UnconfirmedEventNotification	☐	☒
AE-N-I-B	Alarm and Event-Notification Internal–B	☒	ConfirmedEventNotification	☒	☐
		☒	UnconfirmedEventNotification	☒	☐
AE-N-E-B	Alarm and Event-Notification External–B	☐	ConfirmedEventNotification	☒	☐
		☐	UnconfirmedEventNotification	☒	☐
AE-ACK-A	Alarm and Event-ACK–A	☐	AcknowledgeAlarm	☒	☐
AE-ACK-B	Alarm and Event-ACK–B	☒	AcknowledgeAlarm	☐	☒
AE-ASUM-A	Alarm and Event-Alarm Summary–A	☐	GetAlarmSummary	☒	☐
AE-ASUM-B	Alarm and Event-Alarm Summary–B	☒	GetAlarmSummary	☐	☒
AE-ESUM-A	Alarm and Event-Enrollment Summary-A	☐	GetEnrollmentSummary	☒	☐
AE-ESUM-B	Alarm and Event-Enrollment Summary-B	☐	GetEnrollmentSummary	☐	☒
AE-INFO-A	Alarm and Event-Information–A	☐	GetEventInformation	☒	☐
AE-INFO-B	Alarm and Event-Information–B	☒	GetEventInformation	☐	☒
AE-LS-A	Alarm and Event-LifeSafety–A	☐	LifeSafetyOperation	☒	☐
AE-LS-B	Alarm and Event-LifeSafety–B	☐	LifeSafetyOperation	☐	☒

3.3 *Scheduling BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
SCHED-A	Scheduling–A *(must support DS-RP-A and DS-WP-A)*	☐			
SCHED-I-B	Scheduling-Internal–B *(shall support DS-RP-B and DS-WP-B)* *(shall also support ether DM-TS-B or DS-UTC-B)*	☒			
SCHED-E-B	Scheduling-External–B *(shall support SCHED-I-B and DS-WP-A)*	☐			

3.4 *Trending BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
T-VMT-A	Trending - Viewing and Modifying Trends–A	☐	ReadRange	☒	☐
T-VMT-I-B	Trending - Viewing and Modifying Trends Inernal–B	☒	ReadRange	☐	☒
T-VMT-E-B	Trending - Viewing and Modifying Trends External–B	☐	ReadRange	☐	☒
T-ATR-A	Trending - Automated Trend Retrieval–A	☐	ConfirmedEventNotification	☐	☒
		☐	ReadRange	☒	☐
T-ATR-B	Trending - Automated Trend Retrieval–B	☒	ConfirmedEventNotification	☒	☐
		☒	ReadRange	☐	☒

3.5 *Network Management BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
NM-CE-A	Network Management - Connection Establishment–A	☐	Establish-Connection-To-Network	☒	☐
		☐	Disconnect-Connection-To-Network	☒	☐
NM-CE-B	Network Management - Connection Establishment– B	☐	Establish-Connection-To-Network	☐	☒
		☐	Disconnect-Connection-To-Network	☐	☒
NM-RC-A	Network Management - Router Configuration–A	☐	Who-Is-Router-To-Network	☒	☐
		☐	I-Am-Router-To-Network	☐	☒
		☐	I-Could-Be-Router-To-Network	☐	☒
		☐	Initialize-Routing-Table	☒	☐
		☐	Initialize-Routing-Table-Ack	☐	☒
NM-RC-B	Network Management - Router Configuration–B	☐	Who-Is-Router-To-Network	☒	☒
		☐	I-Am-Router-To-Network	☒	☒
		☐	Initialize-Routing-Table	☐	☒
		☐	Initialize-Routing-Table-Ack	☒	☐

3.6 *Device Management BIBBs*

BIBB Type		Active	BACnet Service	Initiate	Execute
DM-DDB-A	Device Management - Dynamic Device Binding–A	☒	Who-Is	☒	☐
		☒	I-Am	☐	☒
DM-DDB-B	Device Management - Dynamic Device Binding–B	☒	Who-Is	☐	☒
		☒	I-Am	☒	☐
DM-DOB-A	Device Management - Dynamic Object Binding–A	☐	Who-Has	☒	☐
		☐	I-Have	☐	☒
DM-DOB-B	Device Management - Dynamic Object Binding–B	☒	Who-Has	☐	☒
		☒	I-Have	☒	☐
DM-DCC-A	Device Management - DeviceCommunicationControl–A	☐	DeviceCommunicationControl	☒	☐
DM-DCC-B	Device Management - DeviceCommunicationControl–B	☒	DeviceCommunicationControl	☐	☒
DM-PT-A	Device Management - PrivateTransfer–A	☐	ConfirmedPrivateTransfer	☒	☐
		☐	UnconfirmedPrivateTransfer	☒	☐
DM-PT-B	Device Management - PrivateTransfer–B	☐	ConfirmedPrivateTransfer	☐	☒
		☐	UnconfirmedPrivateTransfer	☐	☒
DM-TM-A	Device Management - Text Message–A	☐	ConfirmedTextMessage	☒	☐
		☐	UnconfirmedTextMessage	☒	☐
DM-TM-B	Device Management - Text Message–B	☐	ConfirmedTextMessage	☐	☒
		☐	UnconfirmedTextMessage	☐	☒
DM-TS-A	Device Management - TimeSynchronization–A	☐	TimeSynchronization	☒	☐
DM-TS-B	Device Management - TimeSynchronization–B	☒	TimeSynchronization	☐	☒
DM-UTC-A	Device Management - UTCTimeSynchronization–A	☐	UTCTimeSynchronization	☒	☐
DM-UTC-B	Device Management - UTCTimeSynchronization–B	☐	UTCTimeSynchronization	☐	☒
DM-RD-A	Device Management - ReinitializeDevice–A	☐	ReinitializeDevice	☒	☐
DM-RD-B	Device Management - ReinitializeDevice–B	☒	ReinitializeDevice	☐	☒
DM-BR-A	Device Management - Backup and Restore–A	☐	AtomicReadFile	☒	☐
		☐	AtomicWriteFile	☒	☐
		☐	CreateObject	☒	☐
		☐	ReinitializeDevice	☒	☐
DM-BR-B	Device Management - Backup and Restore–B	☐	AtomicReadFile	☐	☒
		☐	AtomicWriteFile	☐	☒
		☐	ReinitializeDevice	☐	☒
DM-R-A	Device Management - Restart–A	☐	UnconfimedCOVNotification	☐	☒
DM-R-B	Device Management - Restart–B	☐	UnconfimedCOVNotification	☒	☐
DM-LM-A	Device Management - List Manipulation–A	☐	AddListElement	☒	☐
		☐	RemoveListElement	☒	☐
DM-LM-B	Device Management - List Manipulation–B	☐	AddListElement	☐	☒
		☐	RemoveListElement	☐	☒
DM-OCD-A	Device Management - Object Creation and Deletion–A	☐	CreateObject	☒	☐
		☐	DeleteObject	☒	☐
DM-OCD-B	Device Management - Object Creation and Deletion–B	☐	CreateObject	☐	☒
		☐	DeleteObject	☐	☒
DM-VT-A	Device Management - Virtual Terminal–A	☐	VT-Open	☒	☐
		☐	VT-Close	☒	☒
		☐	VT-Data	☒	☒
DM-VT-B	Device Management - Virtual Terminal–B	☐	VT-Open	☐	☒
		☐	VT-Close	☒	☒
		☐	VT-Data	☒	☒

4 Service Types

Service type	Service name	Supported	Remarks
Alarm and Event Services	AcknowledgeAlarm	☒	
	ConfirmedCOVNotification	☐	
	ConfirmedEventNotification	☐	
	GetAlarmSummary	☒	
	GetEnrollmentSummary	☐	
	SubscribeCOV	☒	
File Access Services	AtomicReadFile	☐	
	AtomicWriteFile	☐	
Object Access Services	AddListElement	☐	
	RemoveListElement	☐	
	CreateObject	☐	
	DeleteObject	☐	
	ReadProperty	☒	
	ReadPropertyConditional	☐	
	ReadPropertyMultiple	☒	
	ReadRange	☒	
	WriteProperty	☒	
	WritePropertyMultiple	☒	
Remote Device Management Services	DeviceComminicationControl	☒	
	ConfirmedPrivateTransfer	☐	
	ConfirmedTextMessage	☐	
	ReinitializeDevice	☒	
Virtual Terminal Services	VtOpen	☐	
	VtClose	☐	
	VtData	☐	
Security Services	Authenticate	☐	
	RequestKey	☐	
Unconfirmed Services	I-Am	☒	
	I-Have	☐	
	UnconfirmedCOVNotification	☐	
	UnconfirmedEventNotification	☐	
	UnconfirmedPrivateTransfer	☐	
	UnconfirmedTextMessage	☐	
	TimeSynchronization	☒	
	UtcTimeSynchronization	☐	
	Who-Has	☒	
	Who-Is	☒	
	LifeSafetyOperation	☐	
	SubscribeCOVProperty	☐	
	GetEventInformation	☒	

5 Objects

5.1 *Supported Object Types*

The objects supported are shown in the table below.

Object Type	ID	Supported	Management Point
Analog-Input	0	☒	LXOUXX_Demand Limit. Ratio_S LXOUXX_High Pressure Sensor LXOUXX_Low Pressure Sensor LXOUXX_Working Time LXOXXUXX_Setpoint_S LXOXXUXX_Room Temperature LXOXXUXX_Disch.Setpoint Cool_S LXOXXUXX_Disch.Setpoint Heat_S LXOXXUXX_Disch.Current Temp. LXOXXUXX_Heat Exchanger Temp. LXOXXUXX_Heat Setpoint Up Limit LXOXXUXX_Heat Setpoint Low Limit LXOXXUXX_Cool Setpoint Up Limit LXOXXUXX_Cool Setpoint Low Limit LXOXXUXX_Dry Setpoint Up Limit LXOXXUXX_Dry Setpoint Low Limit LXOXXUXX_Auto Setpoint Up Limit LXOXXUXX_Auto Setpoint Low Limit LXOXXUXX_Unit Error Code LXOXXUXX_Consumption Yesterday LXOXXUXX_Consumption Today LXOXXUXX_Consumption Total
Analog-Output	1	☒	Temperature Setpoint (all units) LXOUXX_Demand Limit. Ratio_C LXOXXUXX_Setpoint_C LXOXXUXX_Bacnet ambient temperature LXOXXUXX_Disch.Setpoint Cool_C LXOXXUXX_Disch.Setpoint Heat_C
Analog-Value	2	☐	Occupancy Cool Setpoint Occupancy Heat Setpoint Unoccupancy Cool Setpoint Unoccupancy Heat Setpoint
Averaging	18	☐	
Binary-Input	3	☒	LXOXXUXX_On/Off_S LXOXXUXX_Wired Remote Controller_S LXOXXUXX_Filter Sign LXOXXUXX_Allow On/Off from RC_S LXOXXUXX_Allow Mode from RC_S LXOXXUXX_Allow Setpoint from RC_S
Binary-Output	4	☒	On/Off (all units) LXOXXUXX_On/Off_C LXOXXUXX_Wired Remote Controller_C LXOXXUXX_Filter Reset LXOXXUXX_Allow On/Off from RC_C LXOXXUXX_Allow Mode from RC_C LXOXXUXX_Allow Setpoint from RC_C
Binary-Value	5	☒	Unoccupancy Deadband Action
Calendar	6	☐	
Command	7	☐	
Device	8	☒	Device INBACPAN---O000
Event-Enrollment	9	☐	
File	10	☐	
Group	11	☐	
Life-Safety-Point	21	☐	

Life-Safety-Zone	22	☐	
Loop	12	☐	
Multistate-Input	13	☒	LXOXXUXX_Mode_S LXOXXUXX_FanSpeed_S LXOXXUXX_Vane Position_S LXOXXUXX_Unit Type LXOXXUXX_Occupancy_S
Multistate-Output	14	☒	Mode (all units) FanSpeed (all units) Vane Position (all units) LXOXXUXX_Mode_C LXOXXUXX_FanSpeed_C LXOXXUXX_Vane Position_C LXOXXUXX_Occupancy_C
Multistate-Value	19	☒	
Notification-Class	15	☒	
Program	16	☐	
Schedule	17	☒	
Trend-Log	20	☒	
Trend-Log-Multiple	27	☒	

5.2 *Member objects*

5.2.1 Type: Gateway

Object-name	Description	Object-type	Object-instance
Device INBACPAN---O000	Panasonic VRF to BACnet Gateway	Device	246 *Instance number of device object can be configured with MAPS*

5.2.2 Type: Central control

Object-name	Description	Object-type	Object-instance
On/Off (all units)	0-Off, 1-On	BO	0
Mode (all units)	1-Heat, 2-Cool, 3-Fan, 4-Dry, 5-Auto	MO	0
FanSpeed (all units)	1-Auto,2-Low,3-Med,4-High	MO	1
Vane Position swing (all units)	1-Stop,2-Pos1,3-Pos2,4-Pos3,5-Pos4,6-Pos5,7-Swing	MO	2
Temperature Setpoint (all units)	16..30 ºC	AO	0

5.2.3 Type: Outdoor Unit

Oxx is a generic prefix for the BACnet object name, where:

Variable	Description
"Lx"	Panasonic Line (1..2)
"Oxx"	Outdoor Unit address (1..31)

Variable	Description
(O[1..30]*25)+((L-1)*1000)+10000)	FO (formula for OU)

Object-name	Description	Object-type	Object-instance
LXOUXX_Communication Error OU	0-No Error, 1-Error	BI	FO+0
LXOUXX_Demand Limit. Ratio_S	1-0%, 2-100%, 3-200%, 4-No Limit	AI	FO+0
LXOUXX_Demand Limit. Ratio_C	1-0%, 2-100%, 3-200%, 4-No Limit	AO	FO+0
LXOUXX_High Pressure Sensor	bar	AI	FO+1
LXOUXX_Low Pressure Sensor	bar	AI	FO+2
LXOUXX_Working Time	0..16777215 hours	AI	FO+3

5.2.4 Type: Indoor Unit

OxxUxx is a generic prefix for the BACnet object name, where:

Variable	Description
"Lx"	Panasonic Line (1..2)
"Oxx"	Outdoor Unit address (1..31)
"Uxx"	Indoor Unit address (1..64)

Variable	Description
(U[1..64]*100)+((L-1)*20000)	FU (formula for IU)

Object-name	Description	Object-type	Object-instance
LXOXXUXX_On/Off_S	0-Off,1-On	BI	FI+0
LXOXXUXX_On/Off_C	0-Off,1-On	BO	FI+0
LXOXXUXX_Mode_S	1-Heat, 2-Cool, 3-Fan, 4-Dry, 5-Auto, 6-AutoHeat, 7-AutoCool	MI	FI+0
LXOXXUXX_Mode_C	1-Heat, 2-Cool, 3-Fan, 4-Dry, 5-Auto	MO	FI+0
LXOXXUXX_Setpoint_S	16..30 ºC / 61..86 ºF	AI	FI+0
LXOXXUXX_Setpoint_C	16..30 ºC / 61..86 ºF	AO	FI+0
LXOXXUXX_FanSpeed_S	1-Auto, 2-Low, 3-Low+, 4-Med, 5-Med+, 6-High	MI	FI+1
LXOXXUXX_FanSpeed_C	1-Auto, 2-Low, 3-Med, 4-High	MO	FI+1
LXOXXUXX_Vane Position_S	1-Stop, 2-Pos1, 3-Pos2, 4-Pos3, 5-Pos4, 6-Pos5, 7-Swing	MI	FI+2
LXOXXUXX_Vane Position_C	1-Stop, 2-Pos1, 3-Pos2, 4-Pos3, 5-Pos4, 6-Pos5, 7-Swing	MO	FI+2
LXOXXUXX_Room Temperature	-35..92,5 ºC / -31..198,5 ºF	AI	FI+0
LXOXXUXX_Bacnet ambient temperature	ºC / ºF	AO	FI+3
LXOXXUXX_Wired Remote Controller_S	0-Body sensor, 1-Remote control sensor	BI	FI+1
LXOXXUXX_Wired Remote Controller_C	0-Body sensor, 1-Remote control sensor	BO	FI+1
LXOXXUXX_Disch.Setpoint Cool_S	-10..10 ºC / 13..50 ºF	AI	FI+2
LXOXXUXX_Disch.Setpoint Cool_C	-10..10 ºC / 13..50 ºF	AO	FI+1
LXOXXUXX_Disch.Setpoint Heat_S	-10..10 ºC / 13..50 ºF	AI	FI+3
LXOXXUXX_Disch.Setpoint Heat_C	-10..10 ºC / 13..50 ºF	AO	FI+2
LXOXXUXX_Disch.Current Temp.	-35..92,5 ºC / -31..198,5 ºF	AI	FI+4
LXOXXUXX_Heat Exchanger Temp.	-1..26 ºC / 30..79 ºF	AI	FI+5
LXOXXUXX_Heat Setpoint Up Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+6
LXOXXUXX_Heat Setpoint Low Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+7
LXOXXUXX_Cool Setpoint Up Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+8
LXOXXUXX_Cool Setpoint Low Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+9
LXOXXUXX_Dry Setpoint Up Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+10
LXOXXUXX_Dry Setpoint Low Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+11
LXOXXUXX_Auto Setpoint Up Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+12
LXOXXUXX_Auto Setpoint Low Limit	-35..92,5 ºC / -31..198,5 ºF	AI	FI+13
LXOXXUXX_Unit Error Code	0-No Error, X-Error(0..255)	AI	FI+14
LXOXXUXX_Filter Sign	0-Normal, 1-Alarm	BI	FI+2
LXOXXUXX_Filter Reset	0-No reset, 1-Reset	BO	FI+2
LXOXXUXX_Communication Error IU	0-No error, 1-Error	BI	FI+3
LXOXXUXX_Allow On/Off from RC_S	0-Allow, 1-Not allow	BI	FI+4
LXOXXUXX_Allow On/Off from RC_C	0-Allow, 1-Not allow	BO	FI+3
LXOXXUXX_Allow Mode from RC_S	0-Allow, 1-Not allow	BI	FI+5
LXOXXUXX_Allow Mode from RC_C	0-Allow, 1-Not allow	BO	FI+4

LXOXXUXX_Allow Setpoint from RC_S	0-Allow, 1-Not allow	BI	FI+6
LXOXXUXX_Allow Setpoint from RC_C	0-Allow, 1-Not allow	BO	FI+5
LXOXXUXX_Unit Type	1:Not Defined, 2-TBD, 3-GHP, 4-PAC, 5-VRF	MI	FI+3
LXOXXUXX_Occupancy_S	1-Occupied, 2-Unoccupied, 3-Disable	MI	FI+4
LXOXXUXX_Occupancy_C	1-Occupied, 2-Unoccupied, 3-Disable	MO	FI+3
LXOXXUXX_Consumption Yesterday	kWh	AI	FI+15
LXOXXUXX_Consumption Today	kWh	AI	FI+16
LXOXXUXX_Consumption Total	kWh	AI	FI+17

5.3 *Objects and properties*

5.3.1 INBACPAN---O000 (Device Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier**	BACnetObjectIdentifier	(Device, 246)	R	R
Object_Name**	CharacterString	"Device INBACPAN---O000"	R	R
Object_Type	BACnetObjectType	DEVICE (8) (Device Object Type)	R	R
System_Status	BACnetDeviceStatus	OPERATIONAL (0)	R	R
Vendor_Name	CharacterString	"HMS Industrial Networks"	R	R
Vendor_Identifier	Unsigned16	246	R	R
Model_Name	CharacterString	"INBACPAN---O000"	R	R
Firmware_Revision	CharacterString	"14.1.0.0"	R	R
Application_Software_ Version	CharacterString	"1.0.0.0"	R	R
Location	CharacterString	""	O	-
Description	CharacterString	"PANASONIC to BACnet Gateway"	O	R
Protocol_Version	Unsigned	1	R	R
Protocol_Revision	Unsigned	14	R	R
Protocol_Services_ Supported	BACnetServiceSupported	Refer to section 4 [Service Types]	R	R
Protocol_Object_Types_ Supported	BACnetObjectTypes Supported	Refer to section 5.1 [Object Types]	R	R
Object_List	BACnetArray[N] of BACnetObjectIdentifier	BACnetARRAY[N]	R	R
Structured_Object_List	BACnetArray[N] of BACnetObjectIdentifier	-	O	-
Max_APDU_Length_ Accepted	Unsigned	480 when MSTP / 1476 when BACnet/IP	R	R
Segmentation_Supported	BACnetSegmentation	SEGMENTED-BOTH (0)	R	R
Max_Segments_accepted	Unsigned	16	O	R
VT_Classes_Supported	List of BACnetVTClass	-	O	-
Active_VT_Sessions	List of BACnetVTSession	-	O	-
Local_Date	Date	Current date	O	R
Local_Time	Time	Current time	O	R
UTC_Offset	INTEGER	-	O	-
Daylight_Savings_Status	BOOLEAN	-	O	-
APDU_Segment_Timeout	Unsigned	3000	R	R
APDU_Timeout	Unsigned	3000	R	R
Number_of_APDU_ Retries	Unsigned	3	R	R
List_Of_Session_Keys	List of BACnetSessionKey	-	O	-
Time_Synchronization_ Recipients	List of BACnetRecipient	-	O	-

Max_Master * **	Unsigned	127	R	W
Max_Info_Frames *	Unsigned	1	O	R
Device_Address_Binding	List of BACnetAddressBinding	NULL (empty)	R	R
Database_Revision	Unsigned	0	R	R
Configuration_Files	BACnetArray[N] of BACnetObjectIdentifier	-	O	-
Last_Restore_Time	BACnetTimeStamp	-	O	-
Backup_Failure_Timeout	Unsigned16	-	O	-
Active_COV_ Subscriptions	List of BACnetCOVSubscription	List of BACnetCOVSubscription	O	R
Slave_Proxy_Enable	BACnetArray[N] of BOOLEAN	-	O	-
Manual_Slave_Address_ Binding	List of BACnetAddressBinding	-	O	-
Auto_Slave_Discovery	BACnetArray[N] of BOOLEAN	-	O	-
Slave_Address_Binding	BACnetAddressBinding	-	O	-
Last_Restart_Reason	BACnetRestartReason	-	O	-
Time_Of_Device_Restart	BACnetTimeStamp	-	O	-
Restart_Notification_ Recipients	List of BACnetRecipient	-	O	-
UTC_Time_ Synchronization_ Recipients	List of BACnetRecipient	-	O	-
Time_Synchronization_ Interval	Unsigned	-	O	-
Align_Intervals	BOOLEAN	-	O	-
Interval_Offset	Unsigned	-	O	-
Profile_Name	CharacterString	-	O	-

* Only available when MSTP is used

** Configurable through the configuration tool.

5.3.2 Occupancy Cool Setpoint (Analog Value Object Type)

Current Setpoint when both Cool mode and Occupancy are enabled, and the room is occupied. Check section 7.2.5.1 for more information.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 0)	R	R
Object_Name	CharacterString	*Occupancy Cool Setpoint*	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	-15..60 ºC / 4..140 ºF	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units **	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

5.3.3 Occupancy Heat Setpoint (Analog Value Object Type)

Current Setpoint when both Heat mode and Occupancy are enabled, and the room is occupied. Check section 7.2.5.1 for more information.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 1)	R	R
Object_Name	CharacterString	*Occupancy Heat Setpoint*	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	-15..60 ºC / 4..140 ºF	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units **	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

5.3.4 Unoccupancy Cool Setpoint (Analog Value Object Type)

Current Setpoint when when both Cool mode and Occupancy are enabled, and the room is unoccupied. Check section 7.2.5.1 for more information.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 2)	R	R
Object_Name	CharacterString	*Unoccupancy Cool Setpoint*	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	-15..60 ºC / 4..140 ºF	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units **	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

5.3.5 Unoccupancy Heat Setpoint (Analog Value Object Type)

Current Setpoint when when both Heat mode and Occupancy are enabled, and the room is unoccupied. Check section 7.2.5.1 for more information.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 3)	R	R
Object_Name	CharacterString	*Unoccupancy Heat Setpoint*	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	-15..60 ºC / 4..140 ºF	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units **	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

5.3.6 OccupancyContinuousCheck (Binary Value Object Type)

It indicates if the system is continuously checking the setpoint and occupancy conditions. Check section 7.2.5.1 for more information.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Value, 0)	R	R
Object_Name	CharacterString	*OccupancyContinuousCheck*	R	R
Object_Type	BACnetObjectType	BINARY_VALUE (5)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Inactive_Text	CharacterString	"Disabled"	O	R
Active_Text	CharacterString	“Enabled"	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	-
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

5.3.7 Unoccupancy Deadband Action (Multistate Value Object Type)

It indicates the action to be performed by the system when Unoccupancy is enabled and Room Temperature is within the deadband.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, 29)	R	R
Object_Name	CharacterString	*Unoccupancy Deadband Action*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	2	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Unoccancy Deadband Action table** below*	O	R
Priority_Array	BACnetPriorityArray	-	R	-
Relinquish_Default	Unsigned	-	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	Unsigned	-	O	-
Fault_Value	Unsigned		O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Unoccancy Deadband Action table

Check possible Occupancy values in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
0	OFF
1	Current mode

5.3.8 On/Off (all units) (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, 0)	R	R
Object_Name	CharacterString	*On/Off (all units)*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Off"*	O	R
Active_Text	CharacterString	*"On"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.9 Mode (all units) (Multistate Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 0)	R	R
Object_Name	CharacterString	*Mode (all units)*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	x	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*5*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Mode (all units) table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Mode (all units) table

Mode interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

5.3.10 FanSpeed (all units) (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 1)	R	R
Object_Name	CharacterString	*FanSpeed (all units)*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	x	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*4*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **FanSpeed (all units) table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

FanSpeed (all units) table

FanSpeed interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Auto
2	Low
3	Med
4	High

5.3.11 Vane position (all units) (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 2)	R	R
Object_Name	CharacterString	*Vane Position (all units)*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	x	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*8*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Vane Position (all units) table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Vane Position (all units) table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Stop
2	Pos1
3	Pos2
4	Pos3
5	Pos4
6	Pos5
7	Swing

5.3.12 Temperature Setpoint (all units) (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, 0)	R	R
Object_Name	CharacterString	*Temperature Setpoint (all units)*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	16..30 ºC / 61..86 ºF	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.13 LxOxx_Demand Limit Ratio_S (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (OU[1..30]*25)+((L-1)*1000)+10000)+ 0)	R	R
Object_Name	CharacterString	*LXOUXX_Demand Limit. Ratio_S*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	0..200 % (255-No limit)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits		R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.14 LxOUxx_Demand Limit Ratio_C (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, (OU[1..30]*25)+((L-1)*1000)+10000)+ 0)	R	R
Object_Name	CharacterString	*LXOUXX_Demand Limit. Ratio_C*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	0..200 % (255-No limit)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.15 LXOUXX_High Pressure Sensor. (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (OU[1..30]*25)+((L-1)*1000)+10000)+ 1)	R	R
Object_Name	CharacterString	*LxOUxx_High Pressure Sensor*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	x	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	*bar*	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.16 LXOUXX_Low Pressure Sensor. (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (OU[1..30]*25)+((L-1)*1000)+10000)+ 2)	R	R
Object_Name	CharacterString	*LxOUxx_Low Pressure Sensor*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	x	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	*bar*	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.17 LxOUxx_Working Time (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (OU[1..30]*25)+((L-1)*1000)+10000)+ 3)	R	R
Object_Name	CharacterString	*LxOUxx_Working Time*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	0..16777215	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	*Hours*	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits		O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.18 LxOxxUxx On/Off_S (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+0)	R	R
Object_Name	CharacterString	*LxOxxUxx On/Off_S*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Off"*	O	R
Active_Text	CharacterString	*"On"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.19 LxOxxUxx_On/Off_C (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+0)	R	R
Object_Name	CharacterString	*LxOxxUxx_On/Off_C*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Off"*	O	R
Active_Text	CharacterString	*"On"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.20 LXOXXUXX_Mode_S (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, (U[1..64]*100)+((L-1)*20000)+0)	R	R
Object_Name	CharacterString	*LXOXXUXX_Mode_S*	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 ~ 5	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*5*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Mode table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	R
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Mode table

Mode interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

5.3.21 LXOXXUXX_Mode_C (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, (U[1..64]*100)+((L-1)*20000)+0)	R	R
Object_Name	CharacterString	*LXOXXUXX_Mode_C*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 ~ 5	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*5*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Mode table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	R
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Mode table

Mode interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

5.3.22 LxOxxUxx_Setpoint_S (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+0)	R	R
Object_Name	CharacterString	*LxOxxUxxSetpoint_S*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	16..30 ºC / 61..86 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.23 LxOxxUxx_Setpoint_C (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, (U[1..64]*100)+((L-1)*20000)+ 0)	R	R
Object_Name	CharacterString	*LxOxxUxxSetpoint_C*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	16..30 ºC / 61..86 ºF	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.24 LxOxxUxxFanSpeed_S (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, (U[1..64]*100)+((L-1)*20000)+ 1)	R	R
Object_Name	CharacterString	*LxOxxUxxFanSpeed_S*	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 ~ 6	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*4*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **FanSpeed table** below*	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	List of Unsigned	-	O	R*
Fault_Values	List of Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

FanSpeed table

FanSpeed interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Auto
2	Low
3	Low+
4	Med
5	Med+
6	High

5.3.25 LxOxxUxxFanSpeed_C (Multistate Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, (U[1..64]*100)+((L-1)*20000)+1)	R	R
Object_Name	CharacterString	*LxOxxUxxFanSpeed_C*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 ~ 4	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*4*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **FanSpeed table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

FanSpeed table

FanSpeed interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Auto
2	Low
3	Med
4	High

5.3.26 LxOxxUxxVane Position_S (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, (U[1..64]*100)+((L-1)*20000)+ 2)	R	R
Object_Name	CharacterString	*LxOxxUxxVane Position_S*	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 ~ 7	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*7*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Vane Position table** below*	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	List of Unsigned	-	O	R*
Fault_Values	List of Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Vane Position table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Stop
2	Pos1
3	Pos2
4	Pos3
5	Pos4
6	Pos5
7	Swing

5.3.27 LxOxxUxxVane Position_C (Multistate Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, (U[1..64]*100)+((L-1)*20000)+2)	R	R
Object_Name	CharacterString	*LxOxxUxxVane Position_C*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 ~ 5	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*7*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Vane Position table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Vane Position table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Stop
2	Pos1
3	Pos2
4	Pos3
5	Pos4
6	Pos5
7	Swing

5.3.28 LxOxxUxx Room Temp. (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+1)	R	R
Object_Name	CharacterString	*LxOxxUxxRemote Sensor Temp.*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits		O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.29 LxOxxUxx_Bacnet ambient temperature (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, (U[1..64]*100)+((L-1)*20000)+ 3)	R	R
Object_Name	CharacterString	*LxOxxUxx_Bacnet ambient temperature*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	16..30 ºC / 61..86 ºF	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.30 LxOxxUxx Wired Remote Controller_S (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+1)	R	R
Object_Name	CharacterString	*Wired Remote Controller_S*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Body sensor"*	O	R
Active_Text	CharacterString	*"Remote control sensor"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.31 LxOxxUxx_ Wired Remote Controller_C (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+1)	R	R
Object_Name	CharacterString	Wired Remote Controller_C	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Body sensor"*	O	R
Active_Text	CharacterString	*"Remote control sensor"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.32 LXOXXUXX_Disch.Setpoint Cool_S (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+2)	R	R
Object_Name	CharacterString	*LXOXXUXX_Disch.Setpoint Cool_S*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-10..10 ºC / 13..50 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.33 LxOxxUxx_Disch_Setpoint Cool_C (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, (U[1..64]*100)+((L-1)*20000)+ 1)	R	R
Object_Name	CharacterString	*LxOxxUxxDisch_Setpoint Cool_C*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	-10..10 ºC / 13..50 ºF	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.34 LXOXXUXX_Disch.Setpoint Heat_S (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+3)	R	R
Object_Name	CharacterString	*LXOXXUXX_Disch.Setpoint Heat_S*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-10..10 ºC / 13..50 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.35 LxOxxUxx_Disch_Setpoint Heat_C (Analog Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Output, (U[1..64]*100)+((L-1)*20000)+ 2)	R	R
Object_Name	CharacterString	*LxOxxUxxDisch_Setpoint Heat_C*	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	-10..10 ºC / 13..50 ºF	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	*Configurable through BACnet and Config Tool*	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.36 LXOXXUXX_Disch.Current temperature (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+4)	R	R
Object_Name	CharacterString	*LXOXXUXX_Disch.Current temperature_S*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.37 LXOXXUXX_Heat Exchanger Temp. (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+5)	R	R
Object_Name	CharacterString	*LXOXXUXX_Heat Exchanger Temp.*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-1..26 ºC / 30..79 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.38 LXOXXUXX_Heat Setpoint Up Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+6)	R	R
Object_Name	CharacterString	*LXOXXUXX_Heat Setpoint Up Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.39 LXOXXUXX_Heat Setpoint Down Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+7)	R	R
Object_Name	CharacterString	*LXOXXUXX_Heat Setpoint Down Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.40 LXOXXUXX_Cool Setpoint Up Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+8)	R	R
Object_Name	CharacterString	*LXOXXUXX_Cool Setpoint UpLimit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.41 LXOXXUXX_Cool Setpoint Down Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+9)	R	R
Object_Name	CharacterString	*LXOXXUXX_Cool Setpoint Down Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.42 LXOXXUXX_Dry Setpoint Up Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+10)	R	R
Object_Name	CharacterString	*LXOXXUXX_Dry Setpoint Up Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.43 LXOXXUXX_Dry Setpoint Down Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+11)	R	R
Object_Name	CharacterString	*LXOXXUXX_Dry Setpoint Down Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.44 LXOXXUXX_Auto Setpoint Up Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+12)	R	R
Object_Name	CharacterString	*LXOXXUXX_Auto Setpoint Up Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.45 LXOXXUXX_Auto Setpoint Down Limit (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+13)	R	R
Object_Name	CharacterString	*LXOXXUXX_Auto Setpoint Down Limit*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-35..92,5 ºC / -31..198,5 ºF	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.46 LXOXXUXX_Unit Error Code (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+14)	R	R
Object_Name	CharacterString	*LXOXXUXX_Unit Error Code*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	0-No Error, X-Error (0..255)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	-	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.47 LxOxxUxx Filter Sign (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+2)	R	R
Object_Name	CharacterString	*Filter Sign*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Normal"*	O	R
Active_Text	CharacterString	*"Alarrm"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.48 LxOxxUxx_Filter Reset (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+2)	R	R
Object_Name	CharacterString	*Filter Reset*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"No reset"*	O	R
Active_Text	CharacterString	*"Reset"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.49 LxOxxUxx_Allow On/Off from RC_S (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+3)	R	R
Object_Name	CharacterString	*Allow On/Off from RC_S*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.50 LxOxxUxx_Allow On/Off from RC_C (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+3)	R	R
Object_Name	CharacterString	*Allow On/Off from RC_C*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.51 LxOxxUxx_Allow Mode from RC_S (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+4)	R	R
Object_Name	CharacterString	*Allow Mode from RC_S*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.52 LxOxxUxx_Allow Mode from RC_C (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+4)	R	R
Object_Name	CharacterString	*Allow Mode from RC_C*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.53 LxOxxUxx_Allow Setpoint from RC_S (Binary Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Input, (U[1..64]*100)+((L-1)*20000)+5)	R	R
Object_Name	CharacterString	*Allow Setpoint from RC_S*	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Value	BACnetBinaryPV	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.54 LxOxxUxx_Allow Setpoint from RC_C (Binary Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Output, (U[1..64]*100)+((L-1)*20000)+5)	R	R
Object_Name	CharacterString	*Allow Setpoint from RC_C*	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	*"Allow"*	O	R
Active_Text	CharacterString	*"Not allow"*	O	R
Change_Of_State_Time	BACnetDatetime	-	O	R
Change_Of_State_Count	Unsigned	-	O	R
Time_Of_State_Count_Reset	BACnetDatetime	-	O	R
Elapsed_Active_Time	Unsigned	-	O	R
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	R
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	BACnetBinaryPV	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.55 LxOxxUxxUnit Type (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, (U[1..64]*100)+((L-1)*20000)+ 3)	R	R
Object_Name	CharacterString	*LxOxxUxxUnit Type*	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 ~ 5	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*5*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Unit Type Table** below*	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	List of Unsigned	-	O	R*
Fault_Values	List of Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Unit Type Table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Not defined
2	TBD
3	GHP
4	PAC
5	VRF

5.3.56 LxOxxUxx_Occupancy_S (Multistate Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, (U[1..64]*100)+((L-1)*20000)+ 4)	R	R
Object_Name	CharacterString	*LxOxxUxx_Occupancy_S*	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	x	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*3*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Occupancy table** below*	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Alarm_Values	List of Unsigned	-	O	R*
Fault_Values	List of Unsigned	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Occupancy table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Occupied
2	Unoccupied
3	Disable

5.3.57 LxOxxUxx_Occupancy_C (Multistate Output Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, (U[1..64]*100)+((L-1)*20000)+3)	R	R
Object_Name	CharacterString	*LxOxxUxx_*Occupancy*_C*	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	x	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	*3*	R	R
State_Text	BACnetArray[N] of CharacterString	*Check **Occupancy table** below*	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
Feedback_Value	Unsigned	-	O	W
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

Occupancy table

Vane Position interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Occupied
2	Unoccupied
3	Disable

5.3.58 LXOXXUXX_Consumption Yesterday (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+15)	R	R
Object_Name	CharacterString	*LXOXXUXX_Consumption Yesterday*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	kWh	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.59 LXOXXUXX_Consumption Today (Analog Input Object Type)

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+16)	R	R
Object_Name	CharacterString	*LXOXXUXX_Consumption Today*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	kWh	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

5.3.60 LXOXXUXX_Consumption Total (Analog Input Object Type)

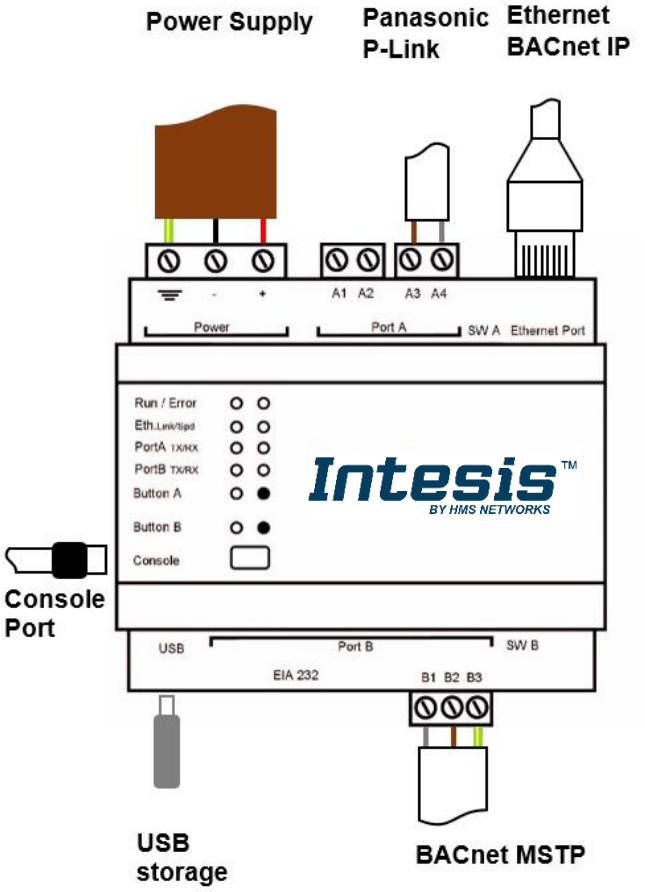
Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, (U[1..64]*100)+((L-1)*20000)+17)	R	R
Object_Name	CharacterString	*LXOXXUXX_Consumption Total*	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	kWh	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) // Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	R
Time_Delay	Unsigned	-	O	R*
Notification_Class	Unsigned	-	O	R*
High_Limit	REAL	-	O	R*
Low_Limit	REAL	-	O	R*
Deadband	REAL	-	O	R*
Limit_Enable	BACnetLimitEnable	-	O	R*
Event_Enable	BACnetEventTransitionBits	-	O	R*
Acked_Transitions	BACnetEventTransitionBits	-	O	R*
Notify_Type	BACnetNotifyType	-	O	R*
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	R*
Profile_Name	CharacterString	-	O	-

* Only available when specific object has a Notification Class configured

6 Connections

6.1 *Connections for 16 (INBACPAN016O000) and 64 (INBACPAN064O000) versions*

Find below information regarding the Intesis connections available.



Power Supply
Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply.

If using DC power supply:
Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (check table below). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.

If using AC power supply:
Make sure the voltage applied is of the value admitted (24 Vac). Do not connect any of the terminals of the AC power supply to earth, and make sure the same power supply is not supplying any other device.

Ethernet / BACnet IP (UDP) / Console (UDP & TCP) / Modbus TCP/IP
Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 cable. If communicating through the LAN of the building, contact the network administrator and make sure traffic on the port used is allowed through all the LAN path (check the gateway user manual for more information). With factory settings, after powering up the gateway, DHCP will be enabled for 30 seconds. After that time, if no IP is provided by a DHCP server, the default IP 192.168.100.246 will be set.

PortA / P-Link Panasonic
Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors A3 and A4 of gateway's PortA. There is no polarity to be respected.

PortB / BACnet MSTP
Connect the EIA485 bus to connectors B1 (B+), B2 (A-) and B3 (SNGD) of gateway's PortB. Respect the polarity.

Note for PortB; *Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices connected to the bus, and in each end of the bus it must be a termination resistor of 120 Ω. The port includes a DIP-Switch for configuration of biasing circuit as well as termination:*

SW1:
ON: *120 Ω termination active*
OFF: *120 Ω termination inactive*
SW2-3:
ON: *Polarization active*
OFF: *Polarization inactive*

If the gateway is installed in one bus end, make sure that termination is active.

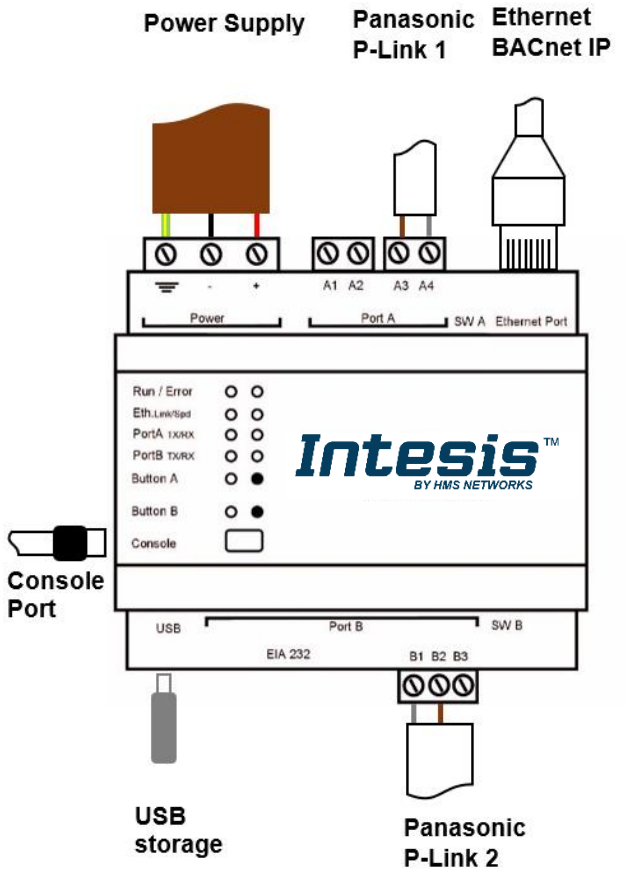
Console Port
Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Remember that Ethernet connection is also allowed. Check the user manual for more information.

USB
Connect a USB storage device (not a HDD) if required. Check the user manual for more information.

Ensure proper space for all connectors when mounted (see section 9).

6.2 *Connections for 128 (INBACPAN128O000) version*

Find below information regarding the Intesis connections available.



Power Supply
Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply.

If using DC power supply:
Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (check table below). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.

If using AC power supply:
Make sure the voltage applied is of the value admitted (24 Vac). Do not connect any of the terminals of the AC power supply to earth, and make sure the same power supply is not supplying any other device.

Ethernet / BACnet IP (UDP) / Console (UDP & TCP) / Modbus TCP/IP
Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 cable. If communicating through the LAN of the building, contact the network administrator and make sure traffic on the port used is allowed through all the LAN path (check the gateway user manual for more information). With factory settings, after powering up the gateway, DHCP will be enabled for 30 seconds. After that time, if no IP is provided by a DHCP server, the default IP 192.168.100.246 will be set.

PortA / P-Link 1 Panasonic
Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors A3 and A4 of gateway's PortA. There is no polarity to be respected

PortB / P-Link 2 Panasonic
Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors B1 and B2 of gateway's PortB. There is no polarity to be respected.

Console Port
Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Remember that Ethernet connection is also allowed. Check the user manual for more information.

USB
Connect a USB storage device (not a HDD) if required. Check the user manual for more information.

Ensure proper space for all connectors when mounted (see section 9).

6.3 *Power device*

The first step to perform is to power up the device. To do so, a power supply working with any of the voltage range allowed is needed (check section 8). Once connected the ON led will turn on.

WARNING! To avoid earth loops that can damage the gateway, and/or any other equipment connected to it, we strongly recommend:

- The use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth**.
- The use of AC power supplies only if they are floating and not powering any other device.

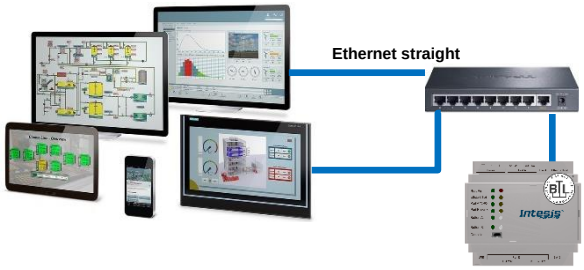
6.4 *Connection to BACnet*

6.4.1 BACnet IP

Connect the communication cable coming from the network hub or switch to the ETH port (Figure above) of Intesis. The cable to be used shall be a straight Ethernet UTP/FTP CAT5 cable

In case there is no response from Intesis to the frames sent by the BACnet client device, check that both the client and Intesis are operative and reachable from the network connection used by Intesis. Check the Intesis Ethernet interface sending *Pings* to its IP address using a PC connected to the same Ethernet network.

Check as well with the network admin that there are no limitations regarding UDP communication or ports blocked.



BACnet IP connection using switch/hub and straight cable

6.4.2 BACnet MSTP (only available for 16 and 64 versions)

Connect the EIA485 bus to connectors B1 (-), B2 (+) and B3 (SNGD) of gateway's PortB. Respect the polarity.

Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices connected to the bus, and in each end of the bus it must be a termination resistor of 120 Ω. Set port switch SW1 to ON if gateway is installed on one bus end. SW2-3 will generally go to OFF (polarization inactive), unless there isn't a client / header device providing polarization in the bus.

6.5 *Connect to Panasonic P-Link installation*

Use the PortA connector in the top corner of the Intesis device in order to connect Panasonic P-Link bus to the Intesis. Remember to follow all safety precautions indicated by Panasonic.

Connect the Panasonic P-Link bus to connectors A3 and A4 of gateway's PortA. Bus is not sensitive to polarity.

Note that for the version of 128 unis, the gateway supports up to 2 Panasonic lines, therefore the line 1 is connected to the Port A and the line 2 is connected to the Port B (connectrors B1/B2). Bus is not sensitive to polarity.

6.6 *Connection to Modbus TCP/IP (Energy meters)*

Use the Ethernet connector to communicate with the Modbus Energy meters.

Once the Energy meters are connected, running and tested, make sure they are available from the Intesis device LAN network/IP before going to the next step.

6.7 *Connection to the configuration tool*

This action allows the user to have access to configuration and monitoring of the device (more information can be found in the configuration tool User Manual). Two methods to connect to the PC can be used:

- **Ethernet:** Using the Ethernet port of Intesis.
- **USB:** Using the console port of Intesis, connect a USB cable from the console port to the PC.

7 Set-up process and troubleshooting

7.1 *Pre-requisites*

It is necessary to have a BACnet IP client or MSTP device operative and well connected to the corresponding BACnet port of Intesis and the Panasonic VRF installation connected to their corresponding ports as well.

Connectors, connection cables, PC to use the configuration tool and other auxiliary material, if needed, are not supplied by HMS Industrial Networks S.L.U for this standard integration.

Items supplied by HMS Networks for this integration are:

- Intesis gateway.
- Link to download the configuration tool.
- Product documentation.

7.2 *Intesis MAPS. Configuration & monitoring tool for Intesis BACnet series*

7.2.1 Introduction

Intesis MAPS is a Windows® compatible software developed specifically to monitor and configure Intesis new generation gateways.

The installation procedure and main functions are explained in the *Intesis MAPS BACnet User Manual*. This document can be downloaded from the link indicated in the installation sheet supplied with the Intesis device or in the product website at www.intesis.com.

In this section, only the specific case of Panasonic VRF to BACnet systems will be covered.

Please check the Intesis MAPS BACnet User Manual for specific information about the different parameters and how to configure them.

7.2.2 Connection

To configure the Intesis connection parameters press on the ***Connection*** button in the *menu bar*.

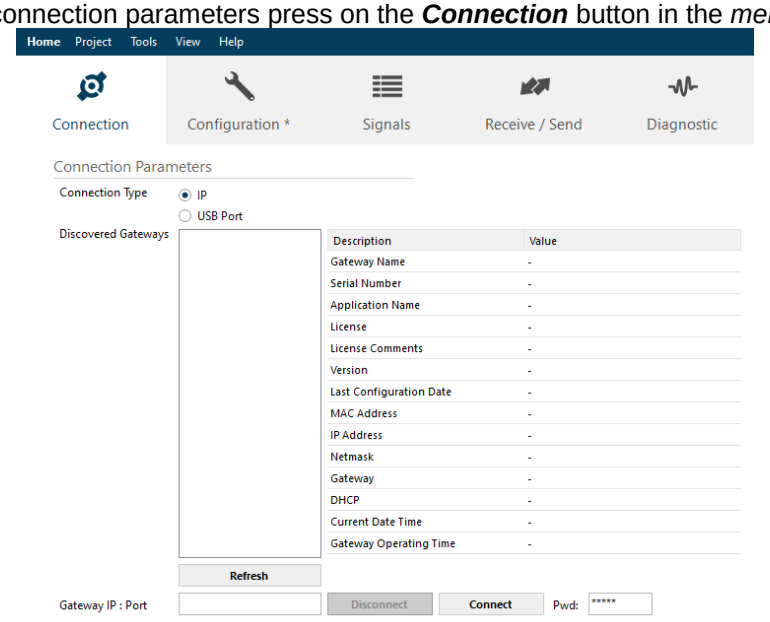


Figure 7.1 MAPS connection

7.2.3 Configuration tab

Select the ***Configuration*** tab to configure the connection parameters. Three subsets of information are shown in this window: General (Gateway general parameters), BACnet Server (BACnet interface configuration) and Panasonic (Panasonic VRF interface parameters).

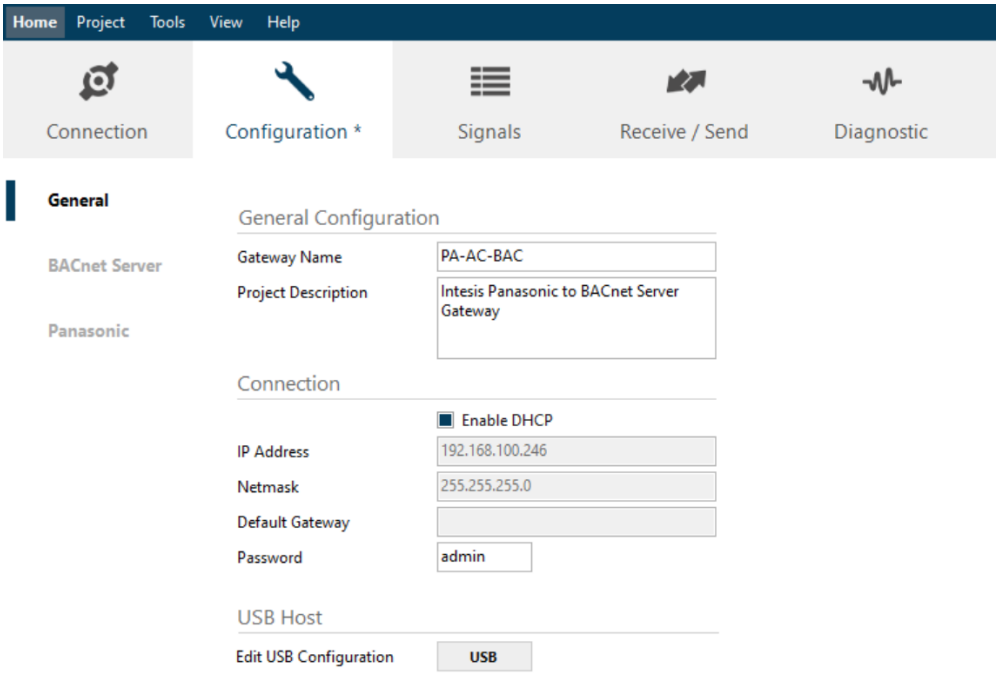


Figure 7.2 Intesis MAPS configuration tab

7.2.4 BACnet Server configuration

Set parameters of BACnet interface of Intesis.

Find description of these settings in *Intesis MAPS BACnet User Manual*.

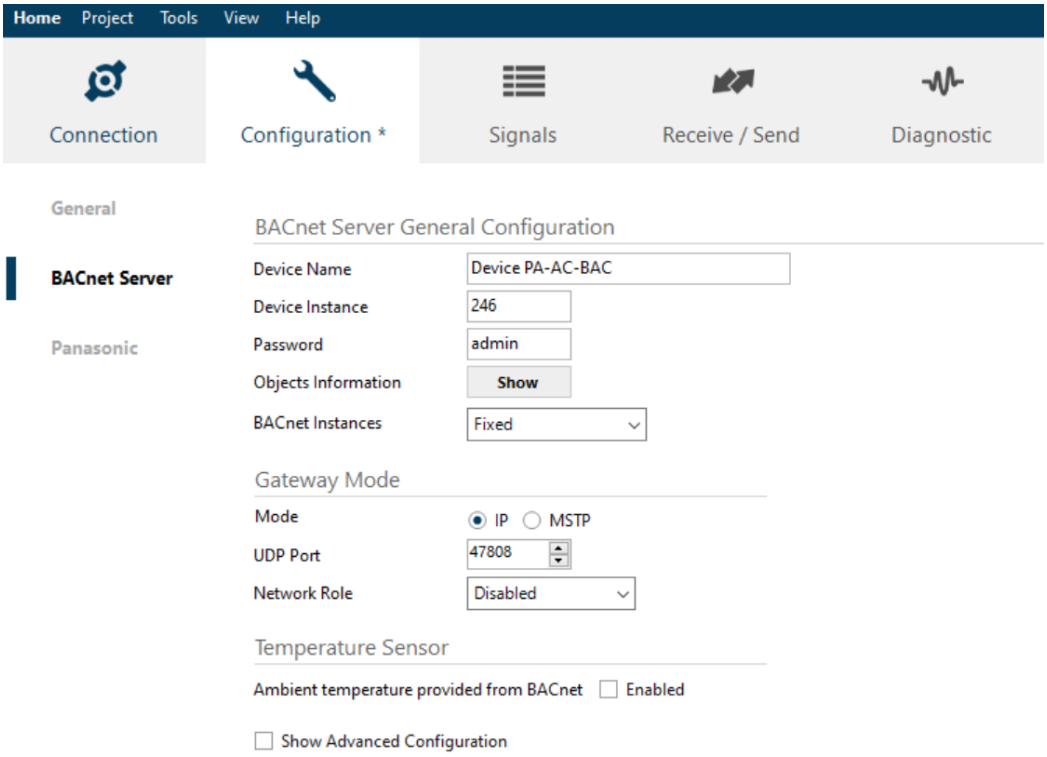


Figure 7.3 Intesis MAPS BACnet configuration tab

7.2.4.1 Ambient temperature provided from Bacnet (virtual temperature)

This option enables a Bacnet object to receive an ambient temperature from Bacnet to regulate the AC unit using Virtual Temperature function.

Case 1: Temperature setpoint IS NOT provided from Bacnet. (Checkbox deactivated).

In this case, the user setpoint is directly applied to the AC unit. Setpoint control and ambient temperature is based on the following objects:

LXOXXUXX_Setpoint_S	**16..30 ºC / 61..86 ºF**	**AI**	**FI+0**
LXOXXUXX_Setpoint_C	**16..30 ºC / 61..86 ºF**	**AO**	**FI+0**
LXOXXUXX_Room Temperature	**-35..92,5 ºC / -31..198,5 ºF**	**AI**	**FI+0**

- **Object formula Indoor (FI) + 0: LXOXXUXX_Setpoint_S (analog input)**

This object will report the current setpoint temperature set in the AC unit at anytime.

- **Object formula Indoor (FI) + 0: LXOXXUXX_Setpoint_C (analog output)**

This object can write the desired user setpoint.

- **Object formula Indoor (FI) + 0: LXOXXUXX_Room Temperature (analog input)**

This object will report the ambient temperature measured by the AC unit temperature probe, which usually corresponds with the temperature measured in the return path. See AC settings for further information.

Case 2: Temperature setpoint IS provided from Bacnet (use Virtual temperature) (Checkbox activated)

This feaure is provided to be used only in the following cases:

- There is no setpoint control from BMS or centralized system in parallel to the Intesis device.
- There is no setpoint control from RC, infrared remote or any other AC optional which allow setpoint management.

Considerning these sentences, the resulting system is that in which the setpoint control is only performed through the Intesis gateway.

Enabling this feature will add two additional Bacnet temperature objects to the previous list:

LXOXXUXX_Setpoint_S	16..30 ºC / 61..86 ºF	AI	FI+0
LXOXXUXX_Setpoint_C	16..30 ºC / 61..86 ºF	AO	FI+0
LXOXXUXX_Room Temperature	-35..92,5 ºC / -31..198,5 ºF	AI	FI+0
LXOXXUXX_Bacnet ambient temperature	**ºC / ºF**	**AO**	**FI+3**

- **Object formula Indoor (FI) + 0: LXOXXUXX_Setpoint_S (analog input)**

This object will report the current AC setpoint temperature. This value might be different than the setpoint received in object **LXOXXUXX_Setpoint_C** because of the Virtual Temperature function.

- **Object formula Indoor (FI) + 0: LXOXXUXX_Setpoint_C (analog output)**

This object has the same function explained in Case 1.

- **Object formula Indoor (FI) + 0: LXOXXUXX_Room Temperature (analog input)**

This object has the same function explained in Case 1.

- **Object formula Indoor (FI) + 3: LXOXXUXX_Bacnet ambient temperature (analog output)**

This object can receive a temperature value coming from Bacnet. This value is used to calculate a real setpoint for the AC unit using the below expression.

In Case 2, user setpoint temperature (**LXOXXUXX_Bacnet ambient temperature**) is not directly applied to the indoor unit but modified using the **Virtual Temperature formula.** This way, the real setpoint applied to the AC unit follows the next expression:

$$\boldsymbol{Real\ AC\ Setp = AC\ Amb\ Temp - (Bacnet\ Amb\ Temp - Bacnet\ Setp\ Temp)}$$, where:

- Real AC Setp (AC Real Temperature Setpoint) is the calculated setpoint value reported in object **LXOXXUXX_Setpoint_S.**
- AC Amb Temp (Ambient Temperature) is object **LXOXXUXX_Room Temperature**.
- Bacnet Amb Temp (Modbus ambient temperature) is object **LXOXXUXX_Bacnet ambient temperature.**
- Bacnet Setp Temp (Temperature Setpoint) is object **LXOXXUXX_Setpoint_C**.

Example: in a certain installation, we have the following data:

- *Ambient temperature measured in a Bacnet temperature probe = 23ºC (*object **Bacnet ambient temperature***).*
- *User demands, from a Bacnet thermostat, a setpoint = 25ºC (*object **Setpoint_C***).*
- *The AC unit is measuring in the return path a temperature = 24ºC (*object **Room Temperature***).*

*Following this example and considering the sytem working in heating mode, the real AC temperature setpoint (*object **Setpoint_S***) applied to the AC is:*

Real AC Setp (ºC) = 24 – (23 – 25) = 24 – (–2) = 24 + 2 = 26 ºC

Basically, Virtual Temperature function modifies the setpoint temperature set from Bacnet in object **Setpoint_C** making possible to use a Bacnet temperature probe as a reference (object **Bacnet ambient temperature**) for the AC control loop.
The idea of the Virtual Temperature is to keep the room temperature difference (in Bacnet) and apply it to the AC control loop by modifying the setpoint.
This value is recalculated constantly adapting the temperature difference to the AC control loop so the lower temperature delta in Bacnet result in a lower temperature delta applied to the AC unit and the opposite (the higher…the higher).

7.2.5 Panasonic configuration

Set parameters for connection with Panasonic's installation.

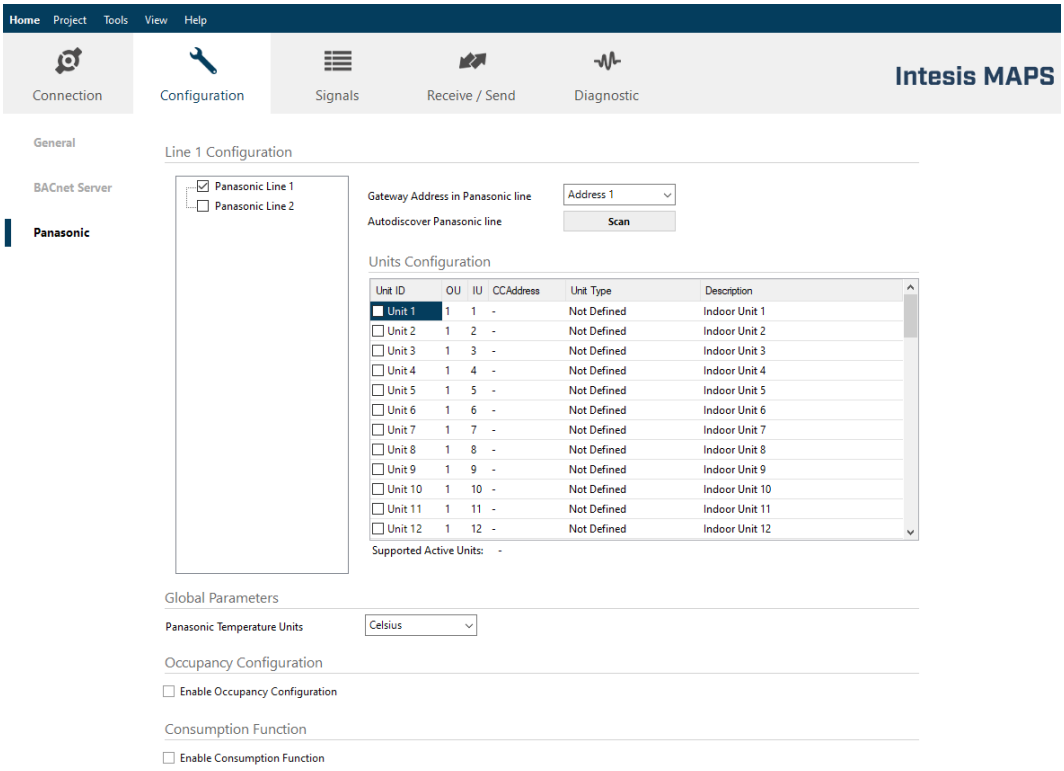


Figure 7.4 Intesis MAPS Panasonic configuration tab

Line configuration section:

Each line of Panasonic needs to be addressed by using the parameter "**Gateway Address in Panasonic line**". There are 2 addresses reserved for the gateway in the Panasonic bus: address 1 and address 2.
Note that only the version of 128 units allows the connection to 2 Panasonic lines simultaneously. The 16 and 64 units versions will only support the configuration of the "Panasonic Line 1".

In **Units Configuration** section you need to enter, for each unit:

- **Unit ID**. If it's active (checkbox at Unit xx), ranging from 1 to 64 indoor units that will be integrated (maximum number of units will depend on Intesis model)
- **Unit type**. Type will default to 'Not Defined'. When units have been detected after scan, it can be one of the following: TBD, GHP, PAC and VRF.
- **IU address**. Address 1..64 of Unit in Panasonic line.
- **OU address**. Address 1..30 of Outdoor Unit in Panasonic line.
- **Description**. Descriptive name to ease identification of the unit (for example, 'living room floor 1 unit', etc).

Additional to manual entry of each unit, autodiscover of present units in an P-Link installation is possible. To do so, click button **Scan**.

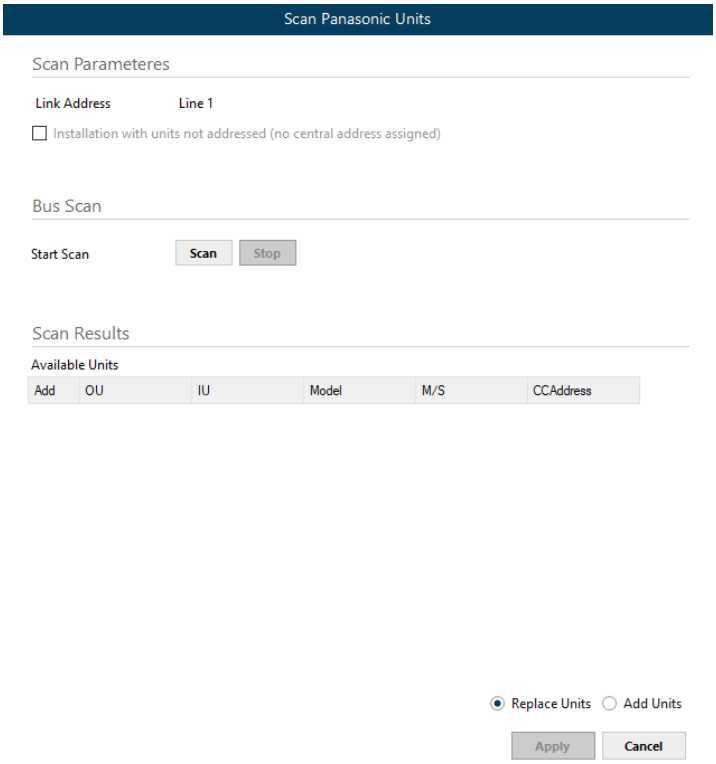


Figure 7.5 Intesis MAPS Scan Panasonic Units window

Scan parameters:
There are 2 different types of Scan to be applied. By default, the fastest one is defined since it is assumed that Panasonic units (indoor units and outdoor units) have been addressed. However, and only in case the units do not have an address assigned, the parameter **"Installation with units not addressed (no central address assigned)"** must be selected.

Please take into consideration that when the installation is not addressed, the scan process might take longer than the standard scan (up to 60 min). To decrease this time, it is highly recommended to reduce the OU range to be scanned as much as possible:

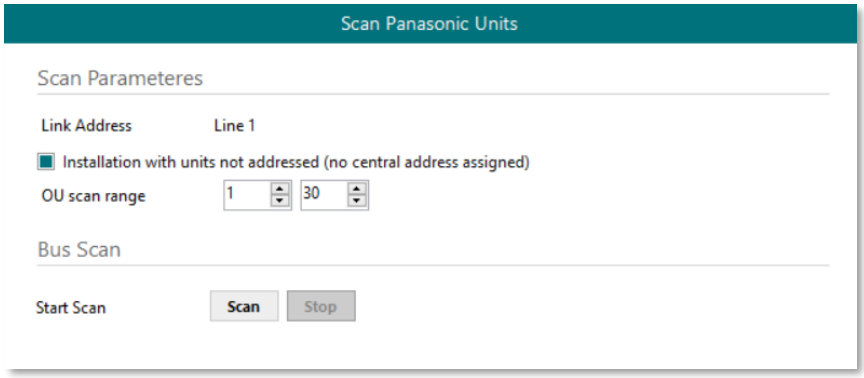


Figure 7.6 Intesis MAPS Long Scan Panasonic Units window

By pressing **Scan** button, connected Panasonic line will be scanned for available units. Error window will appear if there is a problem in the connection with P-Link bus (units not powered, bus not connected, …).

A progress bar will appear during the scan, which will take up to a few minutes. After scan is complected, detected units will be shown.

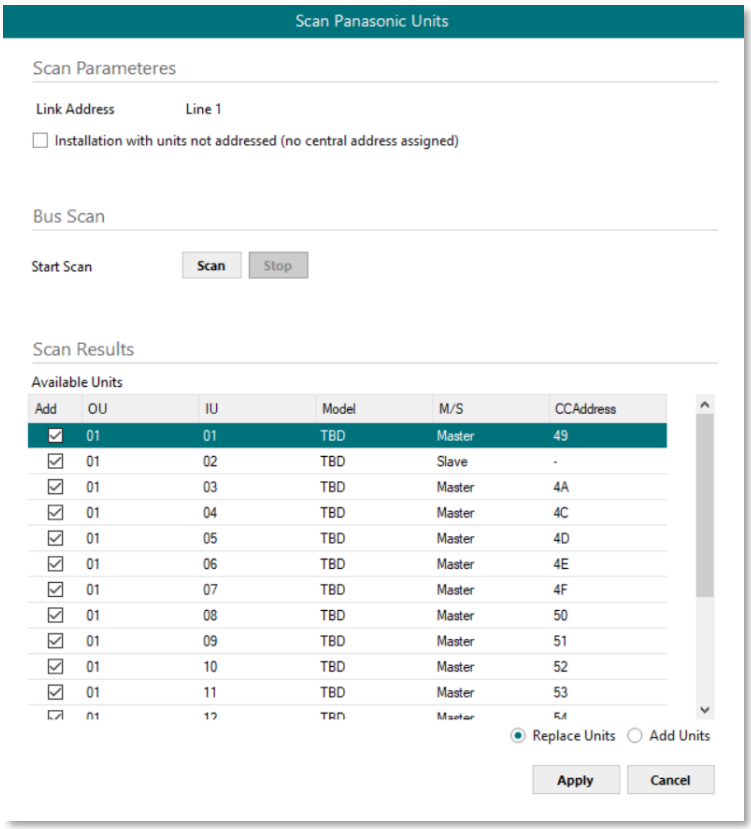


Figure 7.7 Intesis MAPS Scan Panasonic Units window with scan results

Select with its checkbox units to add (or replace) in installation, according to selection **Replace Units** / **Add Units**. After units to be integrated are selected, click button **Apply**, and changes will appear in previous **Units Configuration** window.

Global Parameters:

In this section it is possible to select the temperature units for monitoring of the temperature signals available in the gateways, Celsius (ºC) or Fahrenheit (ºF).

7.2.5.1 Occupancy Function

Each indoor unit has its own occupancy signal. Remember that this signal needs to be feed by an external presence sensor which indicates if there is presense or not (occupancy). This signal is processed directly in the Intesis gateway.

To enable the use of this function, check the parameter "Enable occupancy Configuration" available in Panasonic configuration tab.

This functionality modifies 3 parameters from the AC system: Setpoint, Mode and On/Off.

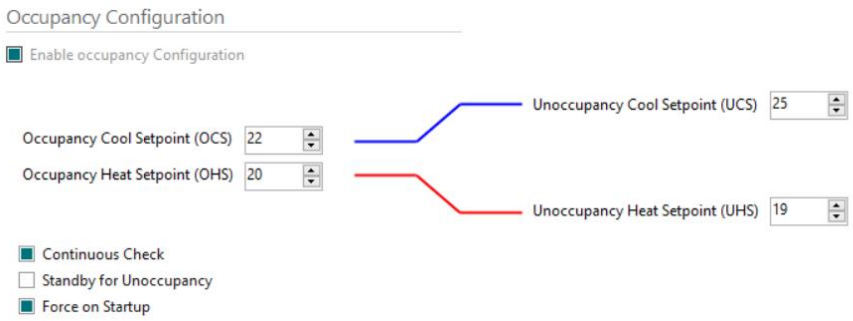


Figure 7.8 Occupancy configuration section

1. ***Occupancy/Unoccupancy Cool Setpoint (OCS/UCS)*:** Default value for setpoint temperature to be set when Occupancy/Unoccupancy is enabled and current mode is cool. UCS must always be greater or equal to OCS. Difference between OCS and OHS must be greater or equal to 2ºC/4ºF. It can be changed later on through BACnet (*Occ_Cool_setpoint and Unocc_Cool_Setpoint BAcnetObjects*) and newer value will persist.
2. ***Occupancy/Unoccupancy Heat Setpoint (OHS/UHS)*:** Default value for setpoint temperature to be set when Occupancy/Unoccupancy is enabled and current mode is heat. UHS must always be smaller or equal to OHS. Difference between OCS and OHS must be greater or equal to 2ºC/4ºF. It can be changed later on through BACnet (*Occ_Heat_setpoint and Unocc_Heat_Setpoint BACnet Objects*) and newer value will persist.
3. **Continous check:** This checkbox is used to determine if the gateway will check the occupancy conditions constantly (check) or not (unchecked) by default. That means that with the the checkbox active, conditions are checked on each change of the temperature too, while if unchecked, this is only checked when the occupancy status changes. This check option can be changed later on through BACnet (*Occ_ContinousCheck BACnet Object*) and newer value will persist.
4. **Standby for Unoccupancy:** This checkbox determines the action to be taken while the ambient temperature is in between the deadband. If unchecked, indoor unit will turn off and if checked will reamin on. It can be changed later on through BACnet (Unocc_DeadbandAcion BACnet Object) and newer value will persist.
5. **Force on startup:** If checked, values set in the configuration screen will be loaded after a reset. If unchecked, last values selected (as it can be changed through BACnet object) will be loaded after reset.

Note that the default units are in ªC and when changing from Celsius to Fahrenehit and vice versa all values are set to its default values.

When **occupancy mode is active** (there is presence in the room), according to current room temperature, **mode**, **setpoint** and **on/off** will be set to:

Condition	Setpoint	Mode	On/Off
Room temperature > OCS	Current OCS value	Cool	On
Room temperature < OHS	Current OHS value	Heat	On
OCS < Room temperature > OHS	OCS/OHS depending on current mode (If Fan or Dry mode is active, no setpoint is sent)	Current mode	On

When **unoccupancy mode is active** (there is no presence in the room), according to current room temperature, **mode**, **setpoint** and **on/off** will be set to:

Condition	Setpoint	Mode	On/Off
Room temperature > OCS	Current UCS value	Cool	On
Room temperature < OHS	Current UHS value	Heat	On
OCS < Room temperature > OHS	UCS/UHS depending on current mode (If Fan or Dry mode is active, no setpoint is sent)	Current mode	On (Deadband action =1)
			Off

			(Deadband action =0)

These checks will be done each time the indoor unit occupancy status is changed and each time the room temperature changes if ***check continuously*** checkbox is checked.

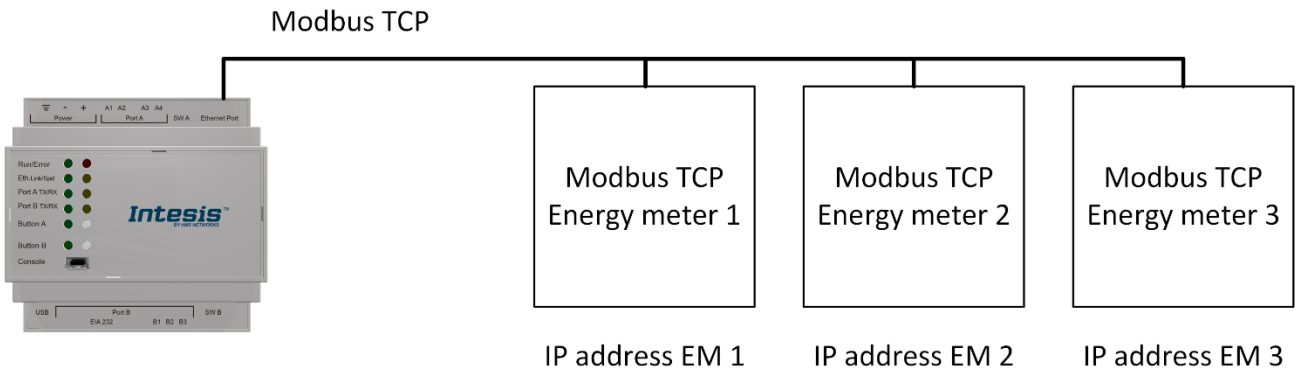
The configuration set on the occupany tab is applied from the very first moment the occupancy signal is enabled until the user changes the setpoint, mode or the On/Off signal, which disables occupancy functionality.

7.2.5.2 Consumption Function

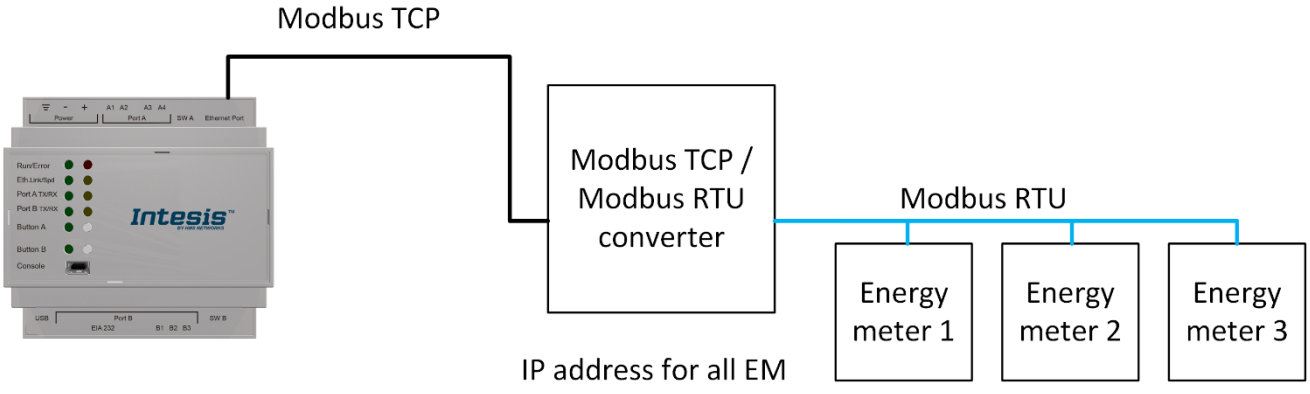
In this section it is possible to configure and link up to three Modbus Energy Metters with the Panasonic system.

Modbus TCP and Modbus RTU meters may be used. Consider that using Modbus RTU meters needs a Modbus RTU/TCP conversor in order to make them reacheable from the Intesis device.

Scheme 1: Modbus TCP Energy meters



Scheme 2: Modbus RTU Energy meters with Modbus TCP/RTU converter



Before continuing with this section, it is recommended to configure Panasonic system in advanced and setup and test the Modbus energy meters.

Once the above is completed, the recommended steps configuration for the energy meters in Maps are:

1) Enable consumption function and click in *Edit* button:

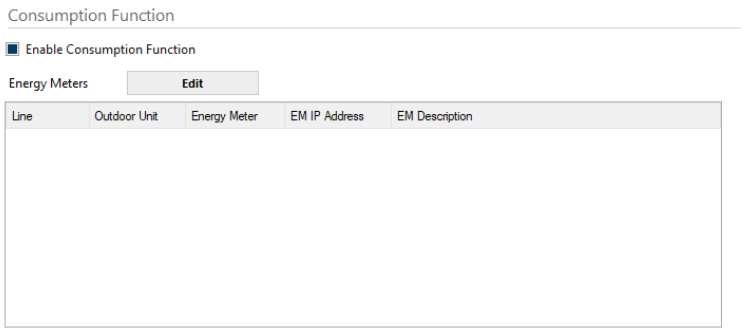


Figure 7.9 Consumption function settings

It will display this pop-up window:

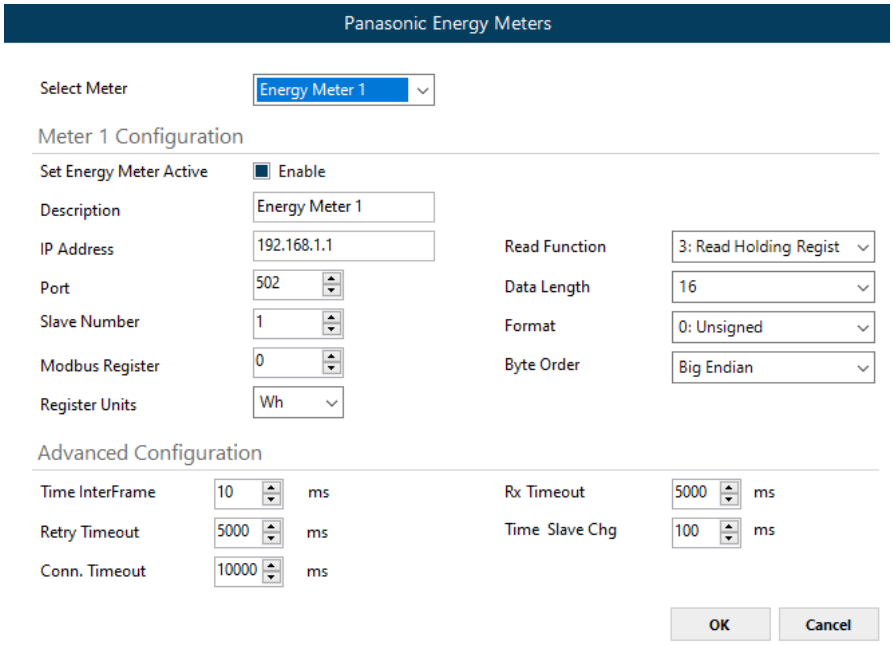


Figure 7.10 Energy meters configuration window

It is possible to configure up to three energy meters using the selector at the top.

2) Energy meter configuration
The settings for the meters are:

Settings related to the installation:

- **Set energy meter active**. It enables/disables the energy meter.
- **Description.** Internal description for the meter.
- **IP Address.** IP address where the energy meter is located.
- **Port.** Port for the Modbus TCP/IP connection. 502 port by default.
- **Slave number.** Slave Modbus address of the energy meter (**1 to 254**).

Settings related to the energy meter:

- **Modbus register (active energy imported).** Modbus register to read (**1 to 3000**).
- **Register units.** Units of the energy: **Wh / kWh**.
- **Read function.** Modbus Read function to use with this register. Functions **3: Read Holding Registers** and function **4: Read Input Registers** are supported.
- **Data length.** Set the length of the data. (16, 32 or 64 data bits).
- **Format.** Set the data format: **0: Unsigned / 1: Signed (C2) / 2: Signed (C1) / 3: Float**.
- **Byte order.** Set the data byte order: **Big Endian / Little Endian / Word Inv BE / Word Inv LE**.

In addition to these settings, it is possible to modify some Modbus parameters to adapt the Modbus communication to every installation. Usually, these settings should be left by default for a proper communication with the meter.

Figure 7.11 Detail for the Modbus configuration settings

Once this part is concluded, close the window using OK button to save the changes.

3) Assign energy meters to the Panasonic outdoor units.

The link between the meters and the Panasonic system is done in the next table:

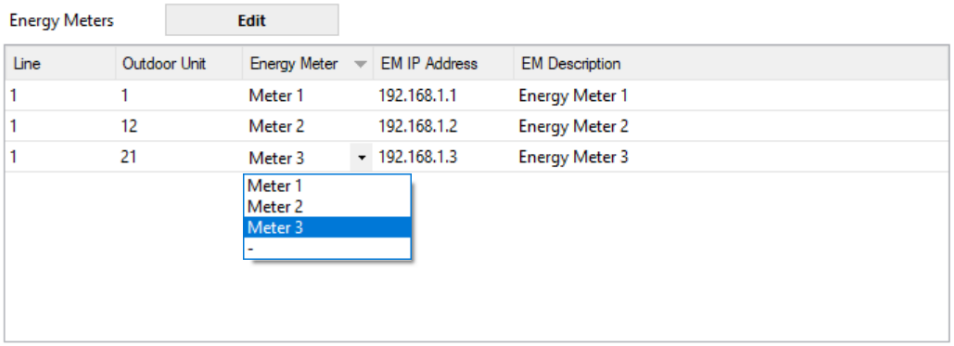


Figure 7.12 Energy meters table. Link between Modbus meter and Panasonic unit

To display the Panasonic outdoor units in this part of the configuration they must exist in Line 1 / Line 2 Configuration.

7.2.6 Signals

All available objects, Object Instances, its corresponding AC signal and other main parmaters are listed in the signals tab. More information on each parameter and how to configure it can be found in the Intesis MAPS BACnet user manual.

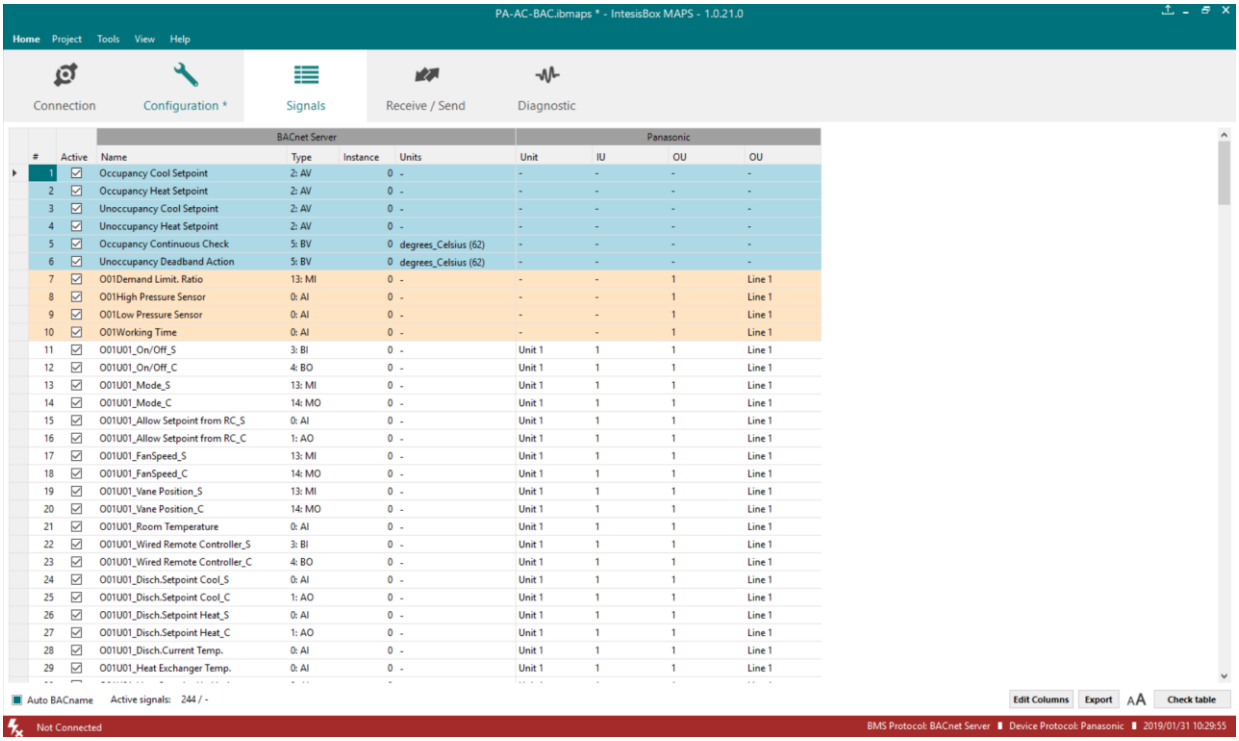


Figure 7.8 Intesis MAPS Signals tab

7.2.7 Sending the configuration to Intesis

When the configuration is finished, follow the next steps.

1.- Save the project (Menu option ***Project->Save***) on your hard disk (more information in Intesis MAPS User Manual).

2.- Go to tab '**Receive / Send**' of MAPS, and in **Send** section, press ***Send*** button. Intesis will reboot automatically once the new configuration is loaded.

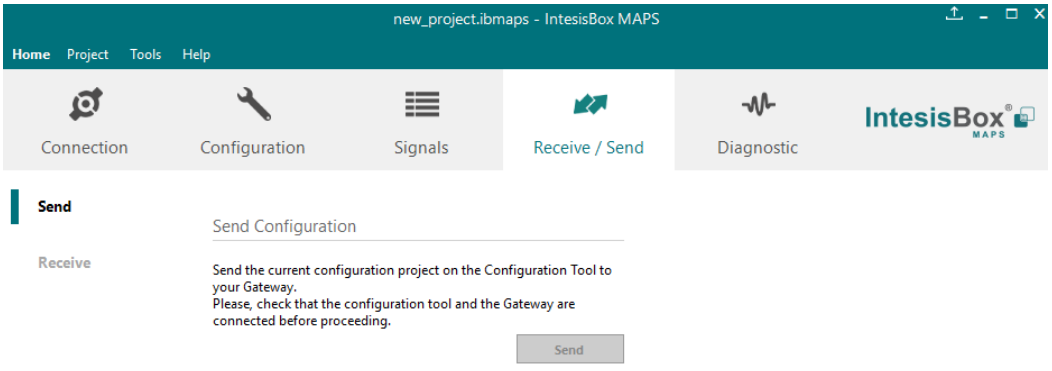


Figure 7.9 Intesis MAPS Receive/Send tab

After any configuration change, do not forget to send the configuration file to the Intesis using button Send File.

7.2.8 Diagnostic

To help integrators in the commissioning tasks and troubleshooting, the Configuration Tool offers some specific tools and viewers.

In order to start using the diagnostic tools, connection with the Gateway is required.

The Diagnostic section is composed by two main parts: Tools and Viewers.

- **Tools**
  Use the tools section to check the current hardware status of the box, log communications into compressed files to be sent to the support, change the Diagnostic panels' view or send commands to the gateway.

- **Viewers**
  In order to check the current status, viewer for the Internal and External protocols are available. It is also available a generic Console viewer for general information about communications and the gateway status and finally a Signals Viewer to simulate the BMS behavior or to check the current values in the system.

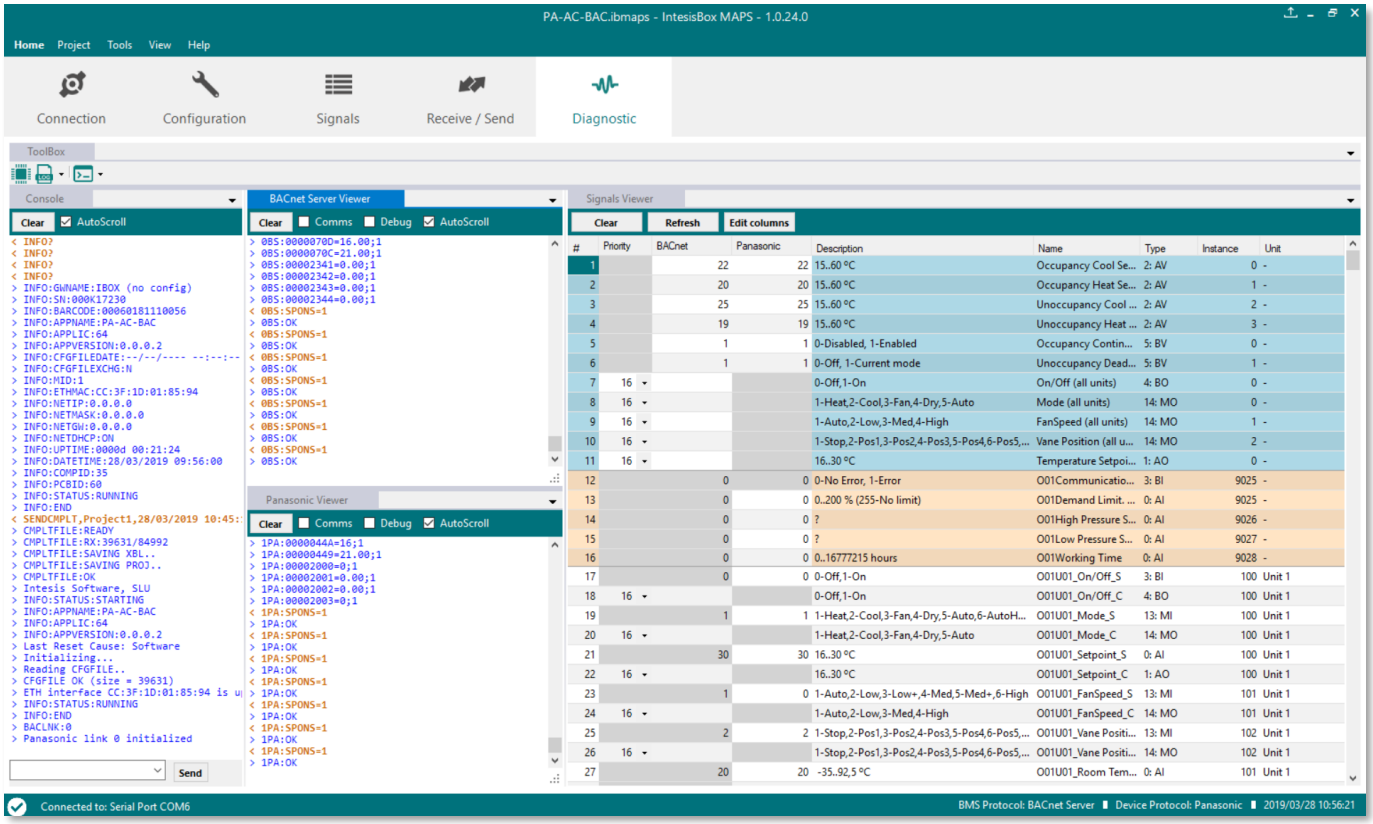


Figure 7.10 Diagnostic

More information about the Diagnostic section can be found in the Configuration Tool manual.

7.2.9 Set-up procedure

1. Install Intesis MAPS on your laptop, use the setup program supplied for this and follow the instructions given by the Installation wizard.

2. Install Intesis in the desired installation site. Installation can be on DIN rail or on a stable not vibrating surface (DIN rail mounted inside a metallic industrial cabinet connected to ground is recommended).

3. If using BACnet IP, connect the communication cable coming from the BACnet IP network to the port marked as Ethernet on Intesis (More details in section 6).

   If using BACnet MSTP, connect the communication cables coming from the BACnet MSTP network to the port marked as Port B on Intesis (More details in section 6).

4. Connect the communication cable coming from the Panasonic P-Link installation to the port marked as Port A of Intesis (More details in section 6).

5. In case you have the 128 version, connect the second Panasonic P-Link line to the port marked as Port B of Intesis (More details in section 6). Remember that BACnet MSTP is not available for this version.

6. Power up Intesis. The supply voltage can be 9 to 30 Vdc or just 24 Vac. Take care of the polarity of the supply voltage applied.

   WARNING! In order to avoid earth loops that can damage Intesis and/or any other equipment connected to it, we strongly recommend:

   - The use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth**.
   - The use of AC power supplies only if they are floating and not powering any other device.

7. If you want to connect using IP, connect the Ethernet cable from the laptop PC to the port marked as Ethernet of Intesis (More details in section 6).

   If you want to connect using USB, connect the USB cable from the laptop PC to the port marked as Console of Intesis (More details in section 6).

8. Open Intesis MAPS, create a new project selecting a copy of the one named **INBACPAN---O000**.

9. Modify the configuration as desired, save it and download the configuration file to Intesis as explained in the Intesis MAPS user manual.

10. Visit the Diagnostic section and check that there is communication activity, some TX frames and some other RX frames. This means that the communication with the BACnet master device and Panasonic installation is OK. In case there is no communication activity between Intesis and the BACnet and/or Panasonic units, check that those are operative: check communication cable used to connect all devices and any other communication parameter.

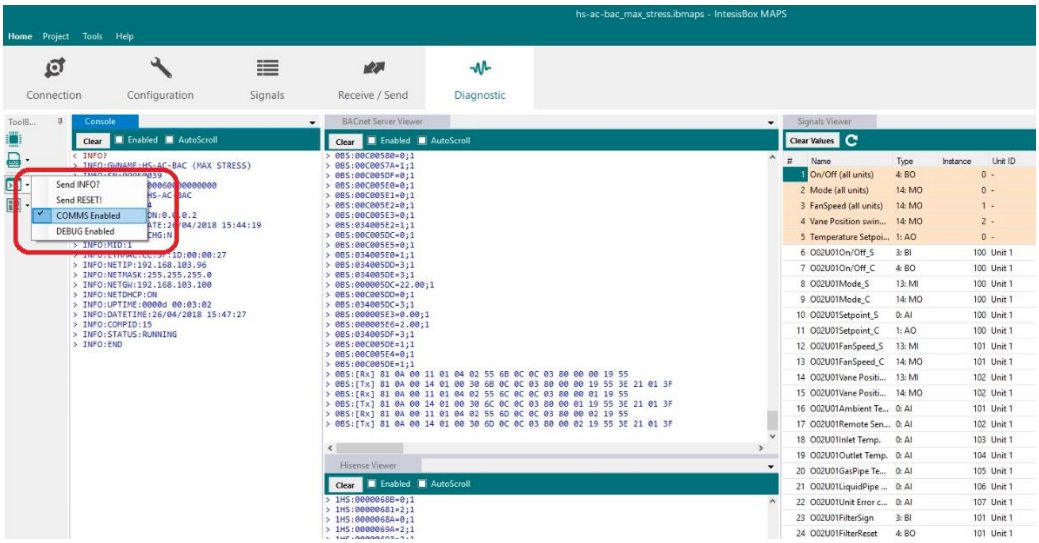


Figure 7.11 Enable COMMS

8 Electrical & Mechanical Features

8.1 *Intesis BACnet Server for Panasonic 16 and 64 units*

Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 90x88x56 mm Recommended space for installation (dxwxh): 130x100x100mm Color: Light Grey. RAL 7035
Mounting	Wall. DIN rail EN60715 TH35.
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm^2… 2.5mm^2 2 cores: 0.5mm^2… 1.5mm^2 3 cores: not permitted
Power	1 x Plug-in screw terminal block (3 poles) 9 to 36VDC +/-10%, Max.: 140mA. 24VAC +/-10% 50-60Hz, Max.: 127mA Recommended: 24VDC
Ethernet	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity
Port A	1 x P-Link Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports 1 x Plug-in screw terminal block green (2 poles) Reserved for future use
Switch A (SWA)	1 x DIP-Switch for serial EIA485 configuration: Reserved for future use
PORT B	1 x Serial EIA232 (SUB-D9 male connector) *Not used* 1 x Serial EIA485 Plug-in screw terminal block (3 poles) A, B, SGND (Reference ground or shield) 1500VDC isolation from other ports
Switch B (SWB)	1 x DIP-Switch for serial EIA485 configuration: Position 1: **ON:** 120 Ω termination active **Off:** 120 Ω termination inactive Position 2-3: **ON:** Polarization active **Off:** Polarization inactive

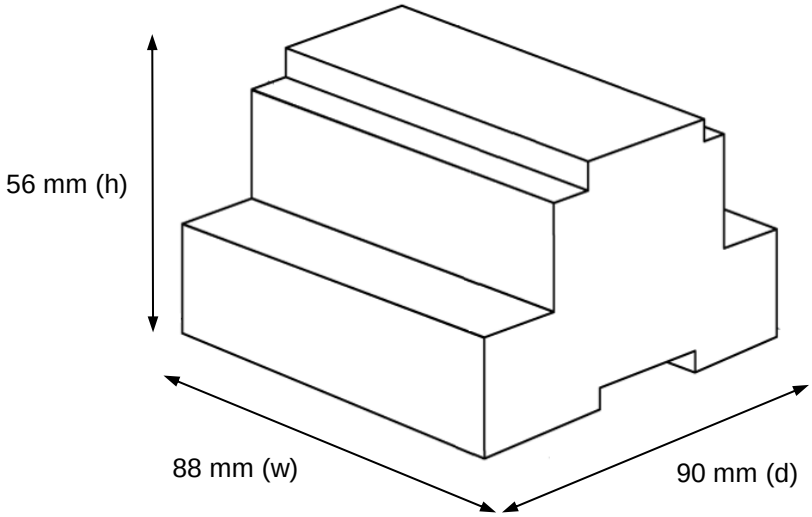
Battery	Size: Coin 20mm x 3.2mm Capacity: 3V / 225mAh Type: Manganese Dioxide Lithium
Console Port	Mini Type-B USB 2.0 compliant 1500VDC isolation
USB port	Type-A USB 2.0 compliant Only for USB flash storage device *(USB pen drive)* Power consumption limited to 150mA *(HDD connection not allowed)*
Push Button	Button A: Not used Button B: Sends I-Am message to all BACnet ports
Operation Temperature	0°C to +60°C
Operational Humidity	5 to 95%, no condensation
Protection	IP20 (IEC60529)
LED Indicators	10 x On board LED indicators 1 x Error LED 1 x Power LED 2 x Ethernet Link/Speed 2 x Port A TX/RX 2 x Port B TX/RX 1 x Button A indicator 1 x Button B indicator

8.2 *Intesis BACnet IP Server for Panasonic 128 units*

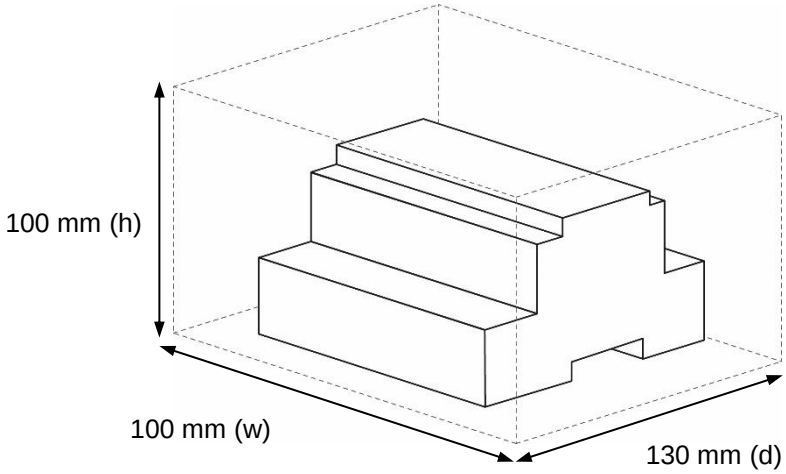
Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 90x88x56 mm Recommended space for installation (dxwxh): 130x100x100mm Color: Light Grey. RAL 7035
Mounting	Wall. DIN rail EN60715 TH35.
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm^2… 2.5mm^2 2 cores: 0.5mm^2… 1.5mm^2 3 cores: not permitted
Power	1 x Plug-in screw terminal block (3 poles) 9 to 36VDC +/-10%, Max.: 140mA. 24VAC +/-10% 50-60Hz, Max.: 127mA Recommended: 24VDC
Ethernet	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity
Port A	1 x P-Link 1 Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports 1 x Plug-in screw terminal block green (2 poles) Reserved for future use
Switch A (SWA)	1 x DIP-Switch for serial EIA485 configuration: Reserved for future use
PORT B	1 x Serial EIA232 (SUB-D9 male connector) *Not used* 1 x P-Link 2 Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports
Switch B (SWB)	1 x DIP-Switch for serial EIA485 configuration: Reserved for future use

Battery	Size: Coin 20mm x 3.2mm Capacity: 3V / 225mAh Type: Manganese Dioxide Lithium
Console Port	Mini Type-B USB 2.0 compliant 1500VDC isolation
USB port	Type-A USB 2.0 compliant Only for USB flash storage device *(USB pen drive)* Power consumption limited to 150mA *(HDD connection not allowed)*
Push Button	Button A: Not used Button B: Sends I-Am message to all BACnet ports
Operation Temperature	0°C to +60°C
Operational Humidity	5 to 95%, no condensation
Protection	IP20 (IEC60529)
LED Indicators	10 x On board LED indicators 1 x Error LED 1 x Power LED 2 x Ethernet Link/Speed 2 x Port A TX/RX 2 x Port B TX/RX 1 x Button A indicator 1 x Button B indicator

9 Dimensions



Recommended available space for its installation into a cabinet (wall or DIN rail mounting), with space enough for external connections



10 Error codes for Indoor and Outdoor Units

This list contains all possible values shown in Bacnet Object for "Error Code" for each indoor unit and outdoor unit.

It must be considered that Outdoor Units are only able to reflect a single error for each indoor / outdoor unit in the system. Thus, a unit having two or more active errors from that list will only report a single error code – the one of the first error that has been detected.

Error Code	Error in Control Panel	Error category	Error Description
0	N/A	N/A	No active error
1	A01	GHP Engine Issues	GHP - Engine oil pressure fault
2	A02		GHP - Engine oil level fault
3	A03		GHP - Engine over speed
4	A04		GHP - Engine under speed
5	A05		GHP - Ignition power supply failure
6	A06		GHP - Engine start up failure
7	A07		GHP - Fuel gas valve failure
8	A08		GHP - Engine stalled
9	A09		GHP - Engine overload
10	A10		GHP - High exhaust gas temp
11	A11		GHP - Engine oil level failure
12	A12		GHP - Throttle actuator fault
13	A13		GHP - Fuel gas valve adjustment failure
14	A14		GHP - Engine oil pressure sensor fault
15	A15		GHP - Starter power output short circuit
16	A16		GHP - Starter motor locked
17	A17		GHP - Starter current (CT) coil failed
19	A19		GHP - Wax Valve (3 Way) fault
20	A20		GHP - Cooling water temp high
21	A21		GHP - Cooling water level fault
22	A22		GHP - Cooling water pump fault
23	A23		GHP - Engine crank angle sensor failure
24	A24		GHP - Engine cam angle sensor failure
25	A25		GHP - Clutch fault
26	A26		GHP - Misfire
27	A27		GHP - Catalyst temperature fault
28	A28		GHP - Generator fault
29	A29		GHP - Converter fault
30	A30		GHP - Fuel gas pressure low
33	C01	Central Controller Issues	Duplicated setting of control address
34	C02		Central control number of units mis-matched
35	C03		Incorrect wiring of central control
36	C04		Incorrect connection of central control
37	C05		System Controller fault, error in transmitting comms signal, i/door or o/door unit not working, wiring fault
38	C06		System Controller fault, error in receiving comms signal, i/door or o/door unit not working, wiring fault, CN1 not connected correctly
44	C12		Batch alarm by local controller
48	C16		Transmission error from adaptor to unit
49	C17		Reception error to adaptor from unit
50	C18		Duplicate central address in adaptor
51	C19		Duplicate adaptor address
52	C20		Mix of PAC & GHP type units on adaptor
53	C21		Memory fault in adaptor
54	C22		Incorrect address setting in adaptor

Error Code	Error in Control Panel	Error category	Error Description
55	C23		Host terminal software failure
56	C24		Host terminal hardware failure
57	C25		Host terminal processing failure
58	C26		Host terminal communication failure
60	C28		Reception error of S-DDC from host terminal
61	C29		Initialization failure of S-DDC
63	C31		Configuration change detected by adaptor
65	E01	Addressing and Communication Problems	Remote control detecting error from indoor unit, Address not set/Auto address failed. Check interconnecting wiring etc. Re-address system.
66	E02		Remote detecting error from indoor unit,
67	E03		Indoor unit detecting error from remote,
68	E04		Indoor seeing error from outdoor. Qty of i/d units connected are less than qty set. Check; all i/d units are ON, reset turn off all units wait 5min power up
69	E05		Indoor unit detecting error from outdoor unit, Error in sending comms signal
70	E06		Outdoor unit detecting error from indoor unit, Error in receiving comms signal
71	E07		Outdoor unit detecting error from indoor unit, Error in sending comms signal
72	E08		Incorrect setting indoor/controller, Indoor address duplicated
73	E09		Incorrect setting indoor/controller, Remote address duplicated or IR wireless controller not disabled
74	E10		Indoor unit detecting error from 'option' plug, Error in sending comms signal
75	E11		Indoor unit detecting error from 'option' plug, Error in receiving comms signal
76	E12		Auto addressing failed, Auto address connector CN100 shorted during auto addressing
77	E13		Indoor unit failed to send signal to remote controller
78	E14		Setting Failure, Duplication of master indoor units
79	E15		Auto addressing failed, Number of indoor units connected are less than number set
80	E16		Auto addressing failed, Number of indoor units connected are more than number set
81	E17		Group control wiring error, Main indoor unit not sending signal for sub indoor units
82	E18		Group control wiring error, Main indoor unit not receiving signal for sub indoor units
84	E20		Auto addressing failed, No indoor units connected
88	E24		Auto addressing failed, Error on sub outdoor unit
89	E25		Auto addressing failed, Error on outdoor unit address setting
90	E26		Auto addressing failed, Quantity of main and sub outdoor units do not correspond to the number set on main outdoor unit P.C.B.
93	E29		Auto addressing failed, Sub outdoor unit not receiving comms for main outdoor unit
95	E31		Between units, Comms failure with MDC, does E31 remain after power is re-instated? If so replace PCB. & power PCB
97	F01	Sensor Faults	Indoor Heat Exch inlet temp sensor failure (E1)
98	F02		Indoor Heat Exch freeze temp sensor failure (E2)
99	F03		Indoor Heat Exch outlet temp sensor failure (E3)
100	F04		Outdoor Discharge temp sensor failure (TD) or (DISCH1)
101	F05		Outdoor Discharge temp sensor failure (DISCH2)
102	F06		Outdoor Heat Exch temp sensor failure (C1) or (EXG1)

Error Code	Error in Control Panel	Error category	Error Description
103	F07		Outdoor Heat Exch temp sensor failure (C2) or (EXL1)
104	F08		Outdoor Air temp sensor failure (TO)
106	F10		Indoor inlet temp sensor failure
107	F11		Indoor outlet temp sensor failure
108	F12		Outdoor Intake sensor failure (TS)
109	F13		GHP - Cooling water temperature sensor failure
112	F16		Outdoor High pressure sensor failure
113	F17		GHP - Cooling water temperature sensor fault
114	F18		GHP - Exhaust gas temperature sensor fault
116	F20		GHP Clutch coil temperature fault
119	F23		Outdoor Heat Exch temp sensor failure (EXG2)
120	F24		Outdoor Heat Exch temp sensor failure (EXL2)
125	F29		Indoor EEPROM error
126	F30		Clock Function (RTC) fault
127	F31		Outdoor EEPROM error
129	H01	Compressor Issues	Compressor Fault, Over current (Comp1)
130	H02		Compressor Fault, Locked rota current detected (Comp1)
131	H03		Compressor Fault, No current detected (Comp1)
133	H05		Compressor Fault, Discharge temp not detected (Comp1)
134	H06		Compressor Fault, Low Pressure trip
135	H07		Compressor Fault, Low oil level
136	H08		Compressor Fault, Oil sensor Fault (Comp1)
139	H11		Compressor Fault, Over current (Comp2)
140	H12		Compressor Fault, Locked rota current detected (Comp2)
141	H13		Compressor Fault, No current detected (Comp2)
143	H15		Compressor Fault, Discharge temp not detected (Comp2)
149	H21		Compressor Fault, Over current (Comp3)
150	H22		Compressor Fault, Locked rota current detected (Comp3)
151	H23		Compressor Fault, No current detected (Comp3)
153	H25		Compressor Fault, Discharge temp not detected (Comp3)
155	H27		Compressor Fault, Oil sensor fault (Comp2)
156	H28		Compressor Fault. Oil sensor (connection failure)
159	H31		Compressor Fault. IPM trip (IMP current on temperature)
193	L01	Incorrect Settings	Setting Error, Indoor unit group setting error
194	L02		Setting Error, Indoor/outdoor unit type/model miss-matched
195	L03		Duplication of main indoor unit address in group control
196	L04		Duplication of outdoor unit system address
197	L05		2 or more controllers have been set as 'priority' in one system - shown on controllers set as 'priority'
198	L06		2 or more controllers have been set as 'priority' in one system - shown on controllers not set as 'priority'
199	L07		Group wiring connected on and individual indoor unit
200	L08		Indoor unit address/group not set
201	L09		Indoor unit capacity code not set
202	L10		Outdoor unit capacity code not set
203	L11		Group control wiring incorrect
205	L13		Indoor unit type setting error, capacity
207	L15		Indoor unit paring fault
208	L16		Water heat exch unit setting failure
209	L17		Miss-match of outdoor unit with different refrigerant
210	L18		4-way valve failure
211	L19		Water heat exch unit duplicated address
213	L21		Gas type setup failure
225	P01		Indoor unit fault, Fan motor thermal overload