BACnet Integration Manual
ITG-VT7600-BAC-E01

Product Overview

The VT7600 PI thermostat family is specifically designed for single stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units. The product features an intuitive, menu-driven, backlit LCD display that walks users through the programming steps, making the process extremely simple. Accurate temperature control is achieved due to the product's PI time proportional control algorithm, which virtually eliminates temperature offset associated with traditional, differential-based thermostats.

All models contain two digital inputs, which can be set by the user to monitor filter status, activate a remote temporary occupancy switch, and/or used as a general purpose service indicator. In addition, depending on the model, up to three remote sensors inputs are available. All programmable models contain a SPST auxiliary switch, which can be used to control lighting or disable the economizer function. For more advanced applications, an economizer control logic has been integrated onto the thermostat for use with proportional damper economizer actuators.

The additional following documentation is available on www.Lynxspring.com

- Detailed information on the thermostat (VT76xxX1020), is available on document LIT-VT7600-E01.

Contents

VT7600 series Protocol Implementation Conformance Statement (PICS)

Vendor Name: Lynxspring

Product Name: VT7600 Thermostat Series

Product Model Number: VT7600A1020B, VT7600B1020B, VT7605B1020B, VT7600H1020B, VT7652A1020B, VT7652B1020B, VT7656B1020B and VT7652H1020B.

Product Description:
The VT7600 series BACnet communicating thermostat have been specifically designed zoning and fan coil applications to be monitored on a BACnet MS-TP® network.

Supported BACnet Services

The BACnet communicating thermostat meets all requirements for designation as an Application Specific Controller (B-ASC). The BACnet thermostat series supports the following BACnet Interoperability Building Blocks (BIBBs).

Application Service	Designation
Data Sharing – Read Property - B	DS-RP-B
Data Sharing – Read Property Multiple - B	DS-RPM-B
Data Sharing – Write Property - B	DS-WP-B
Device Management - Device Communication Control - B	DM-DCC-B
Device Management – Dynamic Device Binding - B	DM-DDB-B
Device Management – Dynamic Object Binding - B	DM-DOB-B

Note 1: The thermostat does not support segmented requests or responses.

Objects Table

Object Name	Type and Instance	Object Property	Thermostat Parameter							
VT7600xYYYYB	Device 76004	Object_Identifier (R,W)	Unique ID number of a device on a network							
		Object_Name (R,W)	Unique name of a Device on a network							
		Max_Master (R,W)	Maximum master devices allowed to be part of the network							
		Major_Version (R)	N/A							
		MS/TP_Address (R,W)	BACnet Address							
		MS/TP_Baud_Rate (R,W)	N/A							
Object Name	**Type and Instance**	**Object Property**	**VT7600A1020B**	**VT7600B1020B**	**VT7605B1020B**	**VT7600H1020B**	**VT7652A1020B**	**VT7652B1020B**	**VT7656B1020B**	**VT7652H1020B**
Room Temperature	AV 7	Present_Value (R,W)	√	√	√	√	√	√	√	√
Room Temp Override	BV 8	Present_Value (R,W)	√	√	√	√	√	√	√	√
Outdoor Temperature	AV 9	Present_Value (R,W)	√	√	√	√	√	√	√	√
Outdoor Temp Override	BV 10	Present_Value (R,W)	√	√	√	√	√	√	√	√
Occupancy	MV 11	Present_Value (R,W)	√	√	√	√	√	√	√	√
System Mode HPU	MV 12	Present_Value (R,W)				√				√
System Mode RTU	MV 13	Present_Value (R,W)	√	√	√		√	√	√	
Fan Mode	MV 14	Present_Value (R,W)	√	√	√	√	√	√	√	√
Supply Temperature	AI 15	Present_Value (R)	√	√	√	√	√	√	√	√
Keypad Lockout	MV 16	Present_Value (R,W)	√	√	√	√	√	√	√	√
Schedule	SCH 78	Present_Value (R,W)					√	√	√	√
		Weekly_Schedule (R,W)	Occupancy Status							
			Monday							
			Tuesday							
			Wednesday							
			Thursday							
			Friday							
			Saturday							
			Sunday							

The Weekly_Schedule property will contain all the schedules for the week.

Object Name	Type and Instance	Object Property	VT7600A1020B	VT7600B1020B	VT7605B1020B	VT7600H1020B	VT7652A1020B	VT7652B1020B	VT7656B1020B	VT7652H1020B
Control Output	GRP 17	Present_Value (R)	√	√	√	√	√	√	√	√
PI Heating Demand	AV 18	Present_Value (R)	√	√	√	√	√	√	√	√
PI Cooling Demand	AV 19	Present_Value (R)	√	√	√	√	√	√	√	√
Economizer Output	AV 20	Present_Value (R)			√				√	
Controller Status	GRP 21	Present_Value (R)	√	√	√	√	√	√	√	√
AUX	BI 22	Present_Value (R)	√	√	√	√	√	√	√	√
G Fan	BI 23	Present_Value (R)	√	√	√	√	√	√	√	√
Y1 Cool	BI 24	Present_Value (R)	√	√	√	√	√	√	√	√
Y2 Cool	BI 25	Present_Value (R)		√	√	√		√	√	√
W1 Heat	BI 26	Present_Value (R)	√	√	√	√	√	√	√	√
W2 Heat	BI 27	Present_Value (R)		√	√			√	√	
Reversing Valve	BI 28	Present_Value (R)				√				√
DI 1 Status	BI 29	Present_Value (R)	√	√	√	√	√	√	√	√
DI 2 Status	BI 30	Present_Value (R)	√	√	√	√	√	√	√	√
Controller Alarms	GRP 31	Present_Value (R)	√	√	√	√	√	√	√	√
Frost Alarm	BI 32	Present_Value (R)	√	√	√	√	√	√	√	√
Clock Alarm	BI 33	Present_Value (R)	√	√	√	√	√	√	√	√
Filter Alarm	BI 34	Present_Value (R)	√	√	√	√	√	√	√	√
Service Alarm	BI 35	Present_Value (R)	√	√	√	√	√	√	√	√
Temperature Setpoints	GRP 36	Present_Value (R)	√	√	√	√	√	√	√	√
Occupied Heat Setpoint	AV 37	Present_Value (R,W)	√	√	√	√	√	√	√	√
Occupied Cool Setpoint	AV 38	Present_Value (R,W)	√	√	√	√	√	√	√	√
Unoccupied Heat Setpoint	AV 39	Present_Value (R,W)	√	√	√	√	√	√	√	√
Unoccupied Cool Setpoint	AV 40	Present_Value (R,W)	√	√	√	√	√	√	√	√

Object Name	Type and Instance	Object Property	VT7600A1020B	VT7600B1020B	VT7605B1020B	VT7600H1020B	VT7652A1020B	VT7652B1020B	VT7656B1020B	VT7652H1020B
General Options 1	GRP 41	Present_Value (R)	√	√	√	√	√	√	√	√
Temperature Scale	BV 42	Present_Value (R,W)	√	√	√	√	√	√	√	√
Heating Setpoint Limit	AV 43	Present_Value (R,W)	√	√	√	√	√	√	√	√
Cooling Setpoint Limit	AV 44	Present_Value (R,W)	√	√	√	√	√	√	√	√
Heating Lockout Temperature	AV 45	Present_Value (R,W)	√	√	√	√	√	√	√	√
Cooling Lockout Temperature	AV 46	Present_Value (R,W)	√	√	√	√	√	√	√	√
Deadband	AV 47	Present_Value (R,W)	√	√	√	√	√	√	√	√
Heating CPH	MV 48	Present_Value (R,W)	√	√	√	√	√	√	√	√
Cooling CPH	MV 49	Present_Value (R,W)	√	√	√	√	√	√	√	√
Frost Protection	BV 50	Present_Value (R,W)	√	√	√	√	√	√	√	√
General Options 2	GRP 51	Present_Value (R)	√	√	√	√	√	√	√	√
Power-up Delay	AV 52	Present_Value (R,W)	√	√	√	√	√	√	√	√
Temporary Occupancy Time	MV 53	Present_Value (R,W)	√	√	√	√	√	√	√	√
Fan Control	BV 54	Present_Value (R,W)	√	√	√	√	√	√	√	√
Min. On/Off Time	MV 55	Present_Value (R,W)	√	√	√	√	√	√	√	√
Fan Purge Delay	BV 56	Present_Value (R,W)	√	√	√	√	√	√	√	√
DI 1 Configuration	MV 57	Present_Value (R,W)	√	√	√	√	√	√	√	√
DI 2 Configuration	MV 58	Present_Value (R,W)	√	√	√	√	√	√	√	√

Object Name	Type and Instance	Object Property	VT7600A1020B	VT7600B1020B	VT7605B1020B	VT7600H1020B	VT7652A1020B	VT7652B1020B	VT7656B1020B	VT7652H1020B
Program Options	GRP 59	Present_Value (R)	√	√	√	√	√	√	√	√
Aux Contact	BV 60	Present_Value (R,W)	√	√	√	√	√	√	√	√
Progressive Recovery	BV 61	Present_Value (R,W)					√	√	√	√
Event Display	MV 62	Present_Value (R,W)					√	√	√	√
Stages	GRP 63	Present_Value (R)		√	√	√		√	√	√
Heating Stages	MV 64	Present_Value (R,W)		√	√			√	√	
Cooling Stages	MV 65	Present_Value (R,W)		√	√			√	√	
Heat Pump Stages	MV 66	Present_Value (R,W)				√				√
Economizer	GRP 67	Present_Value (R)			√				√	
Economizer Changeover Setpoint	AV 68	Present_Value (R,W)			√				√	
Economizer Minimum Position	AV 69	Present_Value (R,W)			√				√	
Mechanical Cooling	BV 70	Present_Value (R,W)			√				√	
Mixed Air Setpoint	AV 71	Present_Value (R,W)			√				√	
Heat Pump	GRP 72	Present_Value (R)				√				√
High Balance Point	AV 73	Present_Value (R,W)				√				√
Low Balance Point	AV 74	Present_Value (R,W)				√				√
Comfort Mode	BV 75	Present_Value (R,W)				√				√
Reversing Valve Configuration	BV 76	Present_Value (R,W)				√				√
Compressor Interlock	BV 77	Present_Value (R,W)				√				√

Standard Object Types Supported

Object Type	Supported Objects	Dynamically Creatable	Dynamically Deletable	Optional Properties Supported	Writable Properties
Analog Input	☑	☐	☐	Reliability	Out_of_Service
Analog Value	☑	☐	☐	Reliability	Present_Value[a] Out_of_Service[a] Object_Name[b]
Binary Input	☑	☐	☐	Reliability Active_Text Inactive_Text	Out_of_Service
Binary Value	☑	☐	☐	Reliability Active_Text Inactive_Text	Present_Value Out_of_Service
Device	☑	☐	☐	Max_Master Max_Info_frames	Object_Identifier Object_name Max_Master
Group	☑	☐	☐	N/A	N/A
Multi-state Value	☑	☐	☐	Reliability States_Text	Present_Value Out_of_Service
Schedule	☑	☐	☐	Weekly_schedule	Present_Value Weekly_Schedule

a: Present_Value and Out_of_Service properties are writable for every AV objects except :

- PI Heating Demand (AV18)
- PI Cooling Demand (AV19)
- Economizer Output (AV20)

b: Object_Name property is writable for 2 objects only :

- Room_Temperature (AV6)
- Outdoor_Temperature (AV8)

List of proprietary properties

Property name	ID	BACnet Data type	Description
Major_Version	1000	CharacterString	The version number of the BACnet communications module. This the hardware version number
MS/TP_Address	1001	Unsigned	Display the MAC layer address of the module
MS/TP_Baud_Rate	1002	Unsigned	Display the communication baud rate of the module
Sensor_Offset	1005	REAL	Display the temperature or humidity calibration value. The range is –5.0 deg F to 5.0 deg F for a temperature and –15% to 15% for humidity.

List of property value range restrictions

Object name	Object Type and instance	Under range value	Over range value	Default value
Supply Temperature	AI15	-40°F (-40°C)	122°F (50°C)	N/A
Room Temperature	AV7	-40°F (-40°C)	122°F (50°C)	N/A
Outdoor Temperature	AV9	-40°F (-40°C)	122°F (50°C)	N/A
PI Heating demand	AV18	0%	100%	0%
PI Cooling demand	AV19	0%	100%	0%
Economizer Output	AV20	0%	100%	0%
Occupied Heat Setpoint	AV37	40°F (4.5°C)	90°F (32°C)	72°F (22°C)
Occupied Cool Setpoint	AV38	54°F (12°C)	100°F (37.5°C)	75°F (24°C)
Unoccupied Heat Setpoint	AV39	40°F (4.5°C)	90°F (32°C)	62°F (16.5°C)
Unoccupied Cool Setpoint	AV40	54°F (12°C)	100°F (37.5)	80°F (26.5°C)
Heating Setpoint Limit	AV43	40°F (4.5°C)	90°F (32°C)	90°F (32°C)
Cooling Setpoint Limit	AV44	54°F (12°C)	100°F (37.5)	54°F (12°C)
Heating Lockout Temperature	AV45	-15°F (-26°C)	120°F (49°C)	120°F (49°C)
Cooling Lockout Temperature	AV46	-40°F (-40°C)	95°F (35°C)	-40°F (-40°C)
Deadband	AV47	2°F (1°C)	5°F (2.5°C)	2°F (1°C)
Power-Up Delay	AV52	10 sec	120 sec	10 sec
Economizer Changeover Setpoint	AV68	14°F (-10°C)	70°F (21°C)	55°F (13°C)
Economizer Minimum Position	AV69	0%	100%	0%
Mixed Air Setpoint	AV71	50°F (10°C)	90°F (32°C)	55°F (13°C)
High Balance Point	AV73	34°F (1°C)	90°F (32°C)	90°F (32°C)
Low Balance Point	AV74	-40°F (-40°C)	30°F (-1°C)	-12°F (-24°C)

List of property enumeration sets for BV objects and BI objects

Object Name	Object Type and instance	Inactive_Text	Active_Text	Default value
Room Temp Override	BV8	Normal	Override	Normal
Outdoor Temp Override	BV10	Normal	Override	Normal
Aux	BI22	Off	On	Off
G Fan	BI23	Off	On	Off
Y1 Cool	BI24	Off	On	Off
Y2 Cool	BI25	Off	On	Off
W1 Heat	BI26	Off	On	Off
W2 Heat	BI27	Off	On	Off
Reversing Valve	BI28	Off	On	Off
DI 1 Status	BI29	Activated	Not Activated	Not Activated
DI 2 Status	BI30	Activated	Not Activated	Not Activated
Frost Alarm	BI32	Off	On	Off
Clock Alarm	BI33	Off	On	Off
Filter Alarm	BI34	Off	On	Off
Service Alarm	BI35	Off	On	Off
Temperature Scale	BV42	C	F	°F
Frost Protection	BV50	Off	On	Off
Fan Control	BV54	Off	On	On
Fan Purge Delay	BV56	Off	On	Off
Aux Contact	BV60	N.O.	N.C.	N.O.
Progressive Recovery	BV61	Off	Active	Off
Mechanical Cooling	BV70	Off	On	Off
Comfort Mode	BV75	Comfort	Economy	Comfort
Reversing Valve Configuration	BV76	Normally Heat	Normally Cool	Normally Cool
Compressor Interlock	BV77	Off	On	Off

List of property enumeration sets for MV objects

Object Name	Object Type and instance	BACnet Index	Text	Default value
Occupancy	MV11	1	Resume Schedule	Resume Schedule
		2	Occupied	
		3	Unoccupied	
		4	Temporary Occupied	
System Mode HPU	MV12	1	Off	Auto
		2	Auto	
		3	Cool	
		4	Heat	
		5	Emergency	
System Mode RTU	MV13	1	Off	Auto
		2	Auto	
		3	Cool	
		4	Heat	
Fan Mode	MV14	1	On	Auto
		2	Auto	
		3	Smart	
Keypad Lockout	MV16	1	Level 0	Level 0
		2	Level 1	
		3	Level 2	
Heating CPH	MV48	1	3 CPH	4 CPH
		2	4 CPH	
		3	5 CPH	
		4	6 CPH	
		5	7 CPH	
		6	8 CPH	
Cooling CPH	MV49	1	3 CPH	4 CPH
		2	4 CPH	
Temporary Occupancy Time	MV53	1	0 hour	3 hours
		2	1 hour	
		3	2 hours	
		4	3 hours	
		5	4 hours	
		6	5 hours	
		7	6 hours	
		8	7 hours	
		9	8 hours	
		10	9 hours	
		11	10 hours	
		12	11 hours	
		13	12 hours	
Minimum On/Off Time	MV55	1	0 minute	2 minutes
		2	1 minute	
		3	2 minutes	
		4	3 minutes	
		5	4 minutes	
		6	5 minutes	

Object Name	Object Type and instance	BACnet Index	Text	Default value
DI1 Configuration	MV57	1	None	None
		2	Rem NSB	
		3	Override	
		4	Filter	
		5	Service	
DI2 Configuration	MV58	1	None	None
		2	Rem NSB	
		3	Override	
		4	Filter	
		5	Service	
Event Display	MV62	1	2 Events	2 Event
		2	4 Events	
Heating Stages	MV64	1	1 Stage	2 Stages
		2	2 Stages	
Cooling Stages	MV65	1	1 Stage	2 Stages
		2	2 Stages	
Heat Pump Stages	MV66	1	1 Stage	2 Stages
		2	2 Stages	

The following figure shows which objects from the thermostat can be monitored and commanded from the

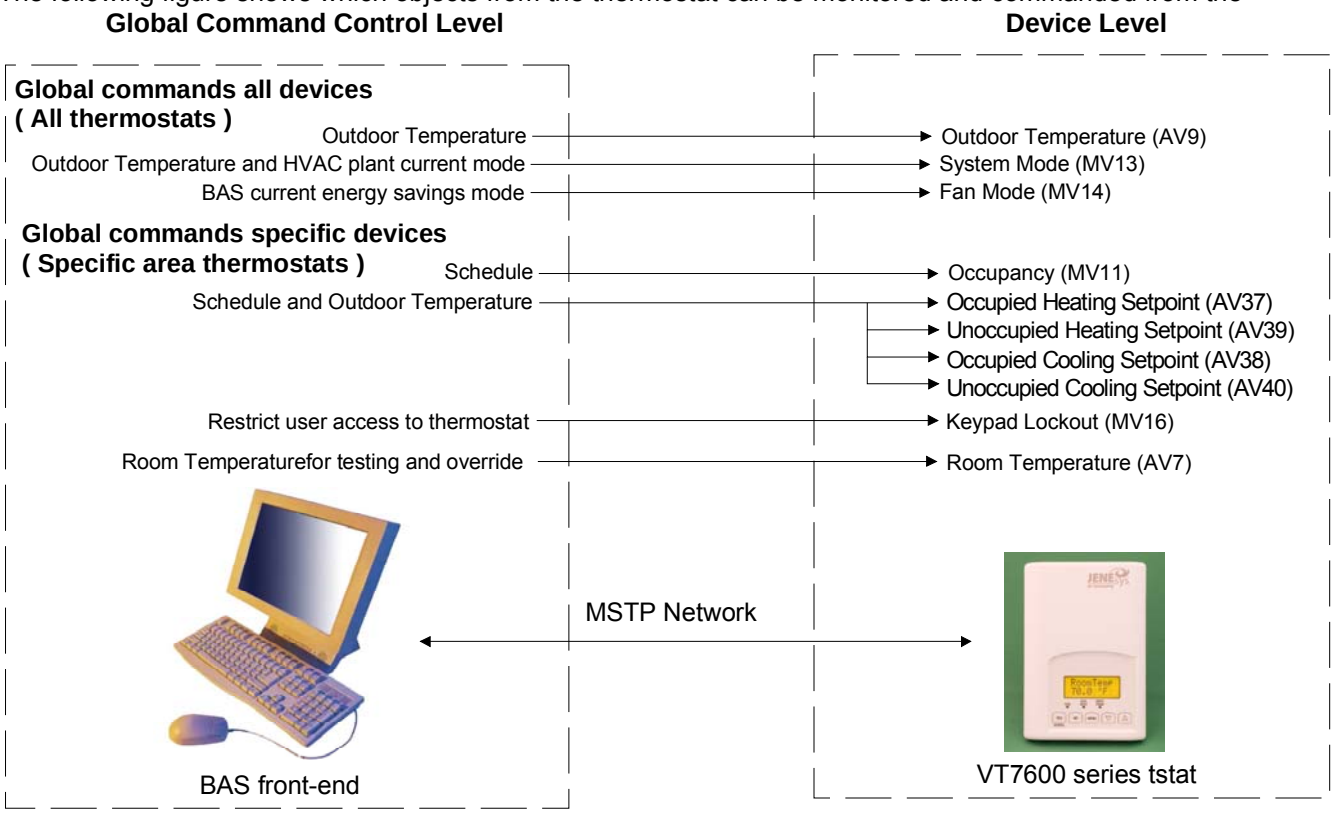
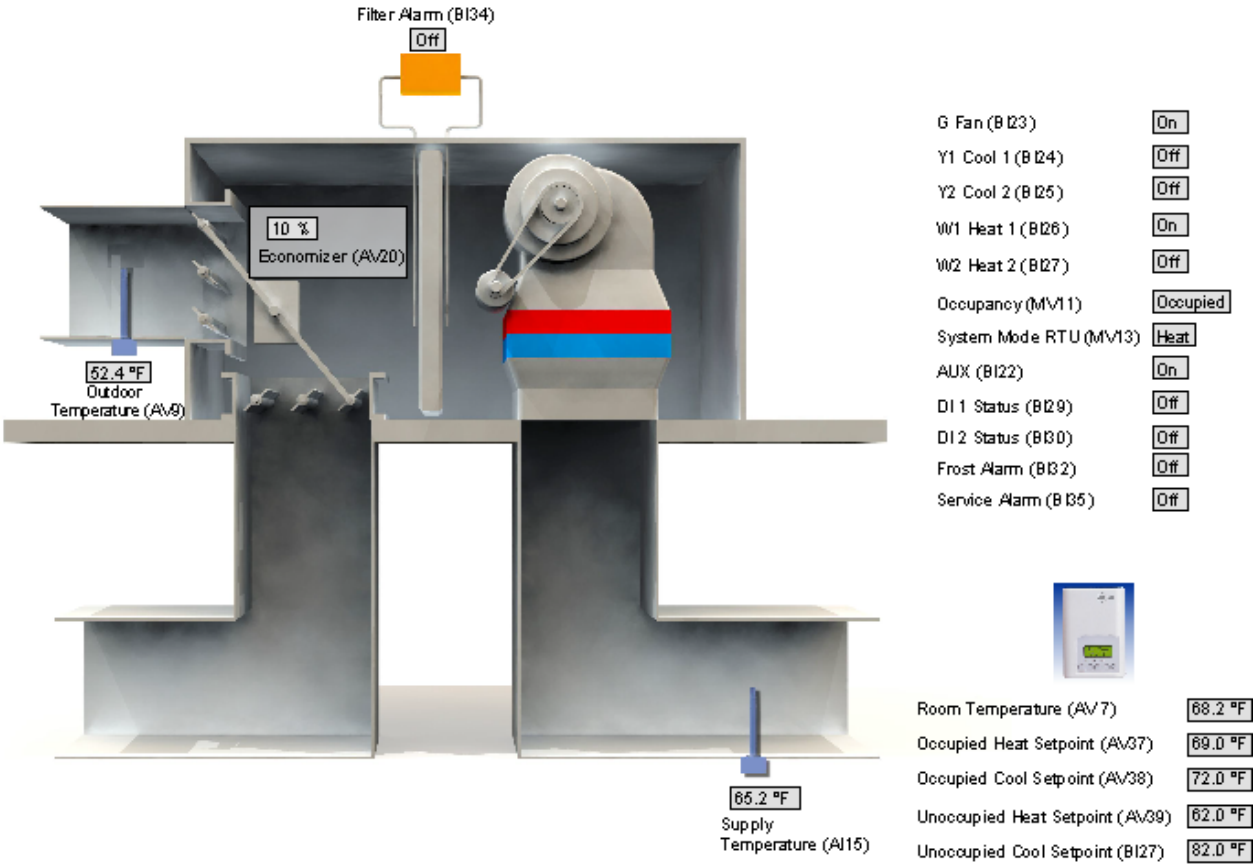


Figure 1: Global commands from a BAS front-end to a VT7600 series thermostat

Integration – Graphic User Interface (GUI) objects

The following objects should be typically used in a GUI:

- Room Temperature (AV7);
- Occupied and Unoccupied Heat Setpoints (AV 37 and AV39);
- Occupied and Unoccupied Cool Setpoints (AV 38 and AV40);
- Outdoor Temperature (AV9);
- Supply Temperature (AI15) (If available);
- Occupancy (MV11);
- System Mode RTU (MV13) or System Mode HPU (MV12);
- G Fan (BI23);
- Y1 Cool (BI24);
- Y2 Cool (BI25);
- W1 Heat (BI26);
- W2 Heat (BI27) or Reversing Valve (BI28);
- Economizer Output (AV20) (if available);
- Aux (BI22);
- DI 1 Status (BI 29);
- DI 2 Status (BI 30);
- Frost Alarm (BI32) (if available);
- Filter Alarm (BI34) (if available);
- Service Alarm (BI 35) (if available);



Configuration Objects

The following objects and group objects should be typically used for configuration purposes:

- General Options 1 Group GRP 41 and its complete list of objects;
- General Options 2 Group GRP 51 and its complete list of objects;
- Program Options Group GRP 59 and its complete list of objects;
- Stages Group GRP 63 and its complete list of objects;
- Economizer Group GRP 67 and its complete list of objects;
- Heat Pump Group GRP 72 and its complete list of objects.

If your BAS allows you to remove objects, Lynxspring recommends removing all configuration objects once your setup is complete. This will prevent unnecessary polling of non used objects and will help speed up the network.

Wiring guide

Overview

Lynxspring uses EIA-485 as the physical layer between their devices and supervisory controllers

For clarity we will use the term “Device” to represent any product with an active EIA-485 network connection, including Lynxspring and non-Lynxspring controllers.

Summary Specifications:

Parameter	Details
Media	Twisted pair, 22-24 AWG, shielded wire recommended
Characteristic Impedance	100-130 ohms
Distributed capacitance	Less than 100 pF per meter (30 pF per foot)
Maximum length per segment	1200 meters (4000 feet) Note: AWG 18 cable
Polarity	Polarity sensitive
Multi-drop	Daisy-chain (no T connections)
Terminations	120 ohms at each end of each segment
Network Bias Resistors	510 ohms per wire (max. of two sets per segment)
Maximum number of nodes per segment	64 (Lynxspring device only)
Maximum number of nodes per network	127
Baud rate	9600, 19200, 38400, 76800 (Auto detect)

Table 1: Summary of Specifications for a Lynxspring’ EIA-485 Network

Cable Type

Lynxspring recommends the use of balanced 22-24 AWG twisted pair with a characteristic impedance of 100-130 ohms, capacitance of 17 pF/ft or lower, with a braided shield.

Impedance

A value based on the inherent conductance, resistance, capacitance and inductance that represent the impedance of an infinitely long cable. The nominal impedance of the cable should be between 100Ωand 130Ω. However using130Ω will result in a lighter load on the network.

Capacitance (pF/ft)

The amount of equivalent capacitive load of the cable, typically listed in a per foot basis. One of the factors limiting total cable length is the capacitive load. Systems with long lengths benefit from using low capacitance cable (i.e. 30pF/ft or lower).

Network Configuration

EIA-485 networks use a daisy chain configuration. A daisy chain means that there is only one main cable and every network device is connected directly along its path.

Figure 3 illustrates two improper network configurations and the proper daisy chain configuration.

Other methods of wiring an EIA-485 network may give unreliable and unpredictable results. There are no troubleshooting methods for these types of networks. Therefore, a great deal of site experimentation may have to be done, making this a difficult task with no guarantee of success. Lynxspring will only support daisy chain configurations.

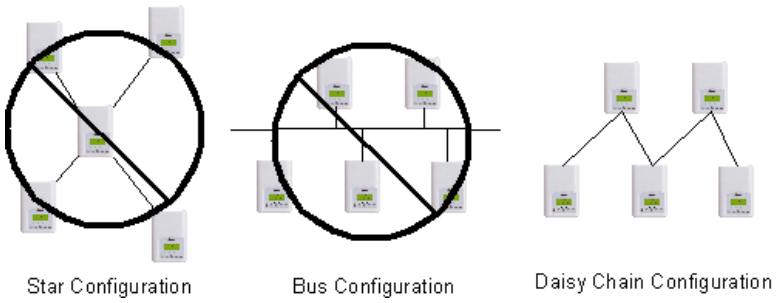


Figure 3: Three different network configurations: star, bus, and daisy chain. Only the daisy chain configuration is correct for an EIA-485 network.

Maximum Number of Devices

A maximum of 64 nodes is allowed on a single daisy chain segment. A node is defined as any device (Panel, Zone, Repeater, etc) connected to the RS485 network. Terminators do not count as a node.

To determine the number of nodes on a network, add the following:

One node for each device, including main panels
One node for each repeater on the chain

For the example in Figure 4, we have one node for the main Panel, plus 4 for the controllers, for a total of 5 nodes.

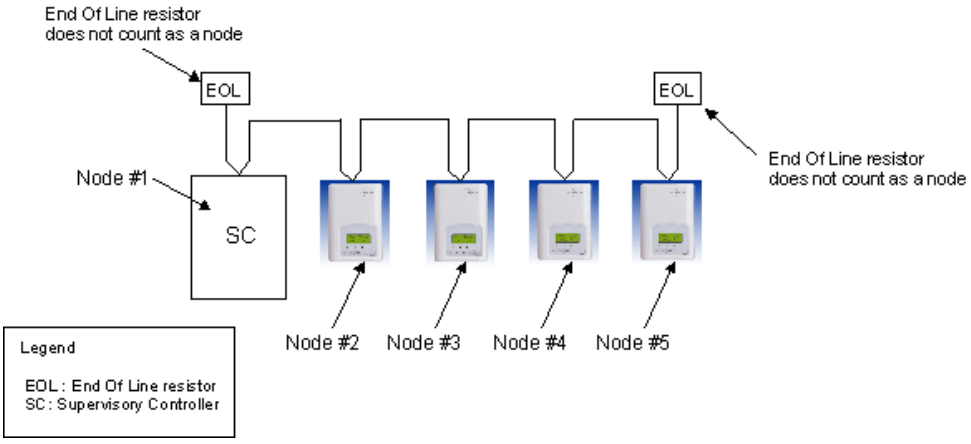


Figure 4: Five nodes network example.

If you have more than 64 devices, then repeaters are required to extend the network.

Maximum Cable Length

The maximum length of a chain is related to its transmission speed. The longer the chain, the slower the speed. Using proper cable, the maximum length of an EIA-485 daisy chain is 4000-ft (1200 m). This will only work reliably for data rates up to 100,000 bps. Lynxspring' maximum data rate is 76,800 bps.

If you require a maximum network length of more than 4000 feet, then repeaters are required to extend the network.

EIA-485 Repeaters

If you have more than 64 devices, or require a maximum network length of more than 4000 feet, then repeaters are required to extend the network. The best configuration is to daisy chain the repeaters to the main panel. From each of these repeaters, a separate daisy chain will branch off. Figure 5 demonstrates a valid use of repeaters in an EIA-485 network.

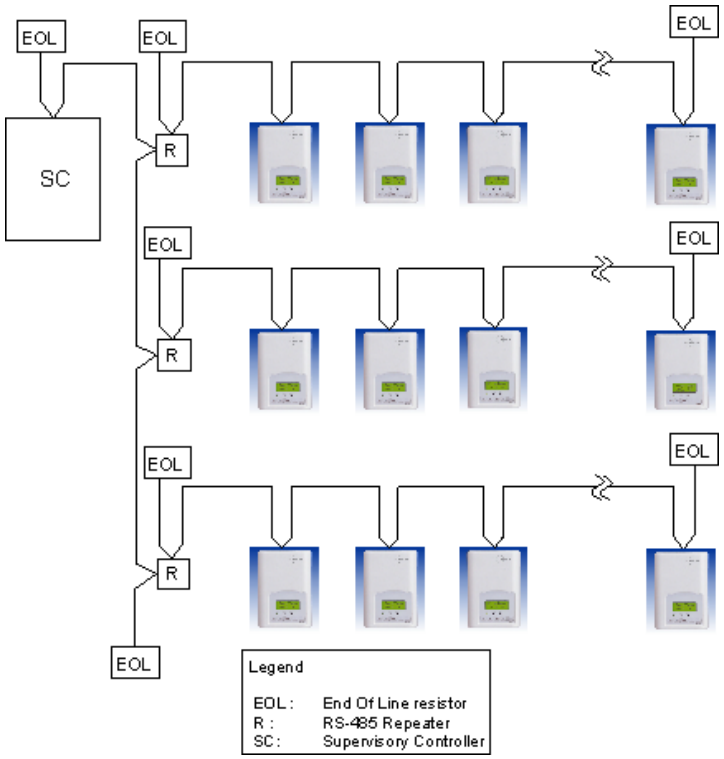


Figure 5: Correct usage – repeaters are daisy chained to the supervisory controller and separate daisy chains branch from each repeater.

Do not install repeaters in series, as this may result in network reliability problems. Figure 6 demonstrates an incorrect use of a repeater in an EIA-485 network.

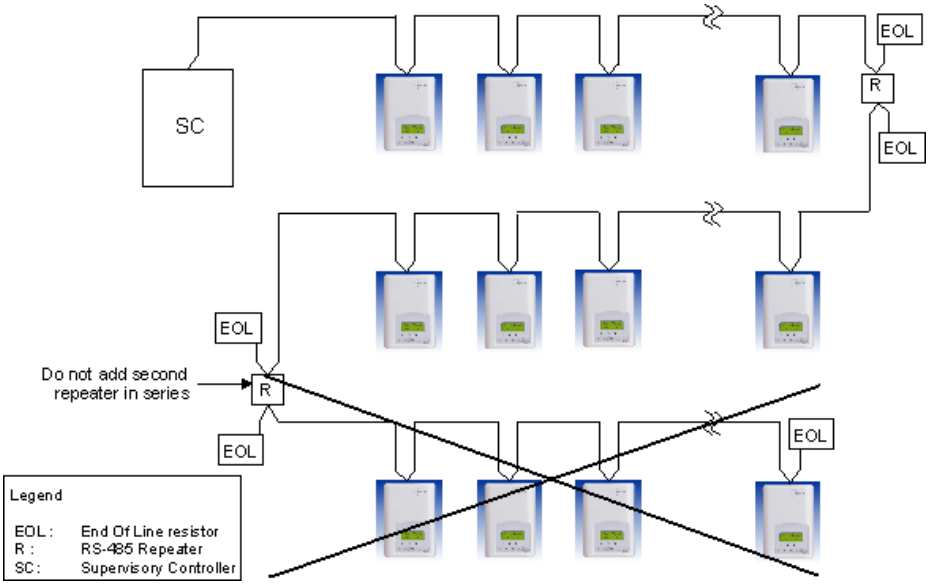


Figure 6: Incorrect usage – the second repeater in series may result in an unreliable system

End Of Line (EOL) Resistors

MS/TP network must be properly terminated. For daisy chain configurations, you must install an EOL resistor at each end of the daisy chain. The recommended resistance value of the EOL resistor is 120 Ω at each end of the link.

Network adapter

The polarity of the connection to the cable is important. From one module to the other it is important that the same colored wire be connected to “plus” or “+” and the other colored wire be connected to the “minus” or ”-“. Figure 7 shows the proper MS/TP connections and the location of the Status LED. This Status LED may help to troubleshoot network problems.

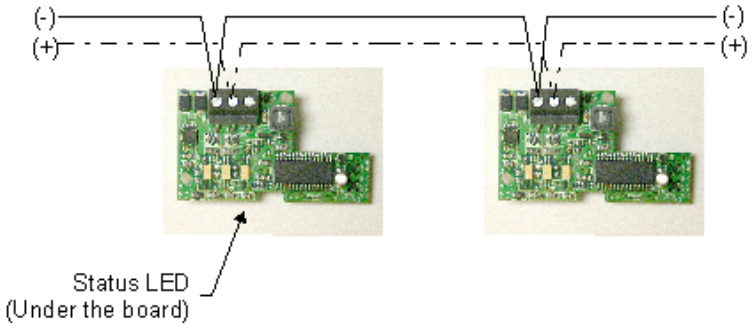


Figure 7: Correct MS/TP connections and location of a Status LED on a BACnet module

Table 2 shows the different possibilities with the Status LED behavior of the BACnet module.

Condition of the Status LED	Possible Cause	Solution
➢ 1 short blink	A T7600 BACnet module has been installed on a VT7600 thermostat	Install a VT7600 BACnet module on the thermostat
	A VT7600 module has been installed on a T7600 thermostat	Install the BACnet module on a VT7600 thermostat model
➢ 2 short blink (no wires connected to the module)	The right module has been installed on the right thermostat model	N/A
➢ 2 short blink (wires connected to the module)	Module is not at the same baud rate as the network	Power off and on the thermostat
➢ 2 short blinks and a longer blink (wires connected to the module)	The module has detected the presence of a network	N/A
➢ Right after power is applied: 2 long blinks and then no blinking	Polarity has been reversed at the module	Reverse polarity at the module

Table 2: Status LED condition and possible solutions

Default Device Name and default Device ID

Default **Device Name** is set to: Model number – MAC:

- Where MAC is the current MAC address of the device.
- Where Model number is Lynxspring part number.

The device name will be upgraded as soon as there is a change to the device MAC address.

- Default **Device ID** is set to: 76000 + MAC
- Where MAC is the current MAC address of the device.

The device ID will also be upgraded as soon as there is a change to the device's MAC.

For example, when a VT7600C1000B thermostat with a MAC address of 63 is connected to a network, its default Device Name will be VT7600C1000B-63 and its default Device ID will be 73063.

Both objects can be renamed from a front end to a new desired value

Tips and Things You Need To Know

- After the initial configuration of your device and if your BAS allows you to remove objects, we suggest that you remove all the configuration objects to prevent unnecessary polling of non used objects and to help speed up the network.

- All configuration objects are available and accessible locally from the device itself using the local configuration routine. Please refer to the Technical Manual LIT-VT7600-E01 for details.

- In its default mode of operation, the device will automatically match its baud rate to the baud rate of the network. Automatic baud rate detection will occur when the MS/TP communication port is initialized (on power up). If the network speed is changed, the device will keep listening at the previously detected speed for 10 minutes before resuming auto-bauding. Re-powering the devices will force right away auto-bauding.

- If the device should go off-line, the following binded thermostat parameters will be released:
    - Room Temperature
    - Outdoor Temperature
    - Occupancy

- The BACnet Data Link layer has two key parameters: the device object name and the device object ID. The device object name must be unique from any other BACnet device object name on the BACnet network (i.e. not just the MS/TP sub-network). The device object ID must be unique from any other BACnet device object ID on the entire BACnet network (i.e. not just the MS/TP sub-network).

Troubleshooting Section

Error / Trouble Condition	Possible Cause	Solution
Thermostat does not come online	Two or more controllers have the same MAC address.	Modify each duplicate address to a unique number.
	The MS/TP network has too many devices.	Do not exceed the maximum number of devices and maximum length allowed by the EIA-485 specifications.
	Too many devices were installed without any repeaters.	Repeaters need to be installed as specified in this document.
	The MS/TP cable runs are broken	Locate the break and correct wiring
	MS/TP connections at the module were reversed	Respect polarity of the wires on a MS/TP network.
	The thermostat does not have power	Apply power to the thermostat

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1.0	Created to coincide with release of the VT7600 as a BTL listed product.