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Dallas, Texas, USA

Installation and Application Guide

Lennox VRF

BACnet Gateway

V0CTRL86P

THIS MANUAL MUST BE LEFT WITH THE OWNER FOR FUTURE REFERENCE

Equipment List

Package 1 of 1 consists of:

- 1 - BACnet gateway
- 1 - Instruction manual

General

The Lennox VRF BACnet gateway allows connection of up to four VRF systems to a building management system (BMS) using BACnet protocols.

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⚠ WARNING
 Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

⚠ WARNING
 Do not operate device with wet hands.

⚠ CAUTION
 Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch.

⚠ CAUTION
 Do not install device in areas where heavy oil, vapor, or gases containing sulfur may exist or the controller may be damaged.

⚠ CAUTION
 Clean device using a clean, damp cloth. Do not spray cleanser on or around device.

⚠ IMPORTANT
 These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities having jurisdiction before installation. Read all of the information in this manual before operating this equipment.

Network Setting

There is an Ethernet interface in the device (Eth0). The factory-set device address is 192.168.1.8.

Security

Default Admin User Name: admin
 Default Admin Password: 12345

Specifications

| Function | Description |
|-------------------------------|-----------------------------------------------------------|
| Input Supply Power | 24VAC |
| Bacnet Connection | BACnet/IP |
| I/O | 4 port 485 interface |
| Operating Temperature Range | 32°F ~ 122°F (0°C ~ 50) |
| Operating Humidity Range (Rh) | 25% ~ 90% |
| Dimensions | 10-1/2 in. X 10 in. X 2-3/8 in. (26 cm X 25 cm X 6 cm) |

System Connections

The BACnet instance number is a four-digit number that identifies the BACnet gateway bus (port), the type of unit (indoor unit or outdoor unit) and the unit's address. Device ID = XXXX

| X | X | X | X |
|-----------------------------------|----------------------------------------------|-----------------------------------------------------------|---|
| BACnet Bus (Port) Number (0-3) | Unit Type 0 Indoor Unit 1 Outdoor Unit | Unit Address (Indoor Unit 0-63) (Outdoor Unit 0-31) | |

Example - 0001 indicates BACnet device number 0, indoor unit type, indoor unit number 01.

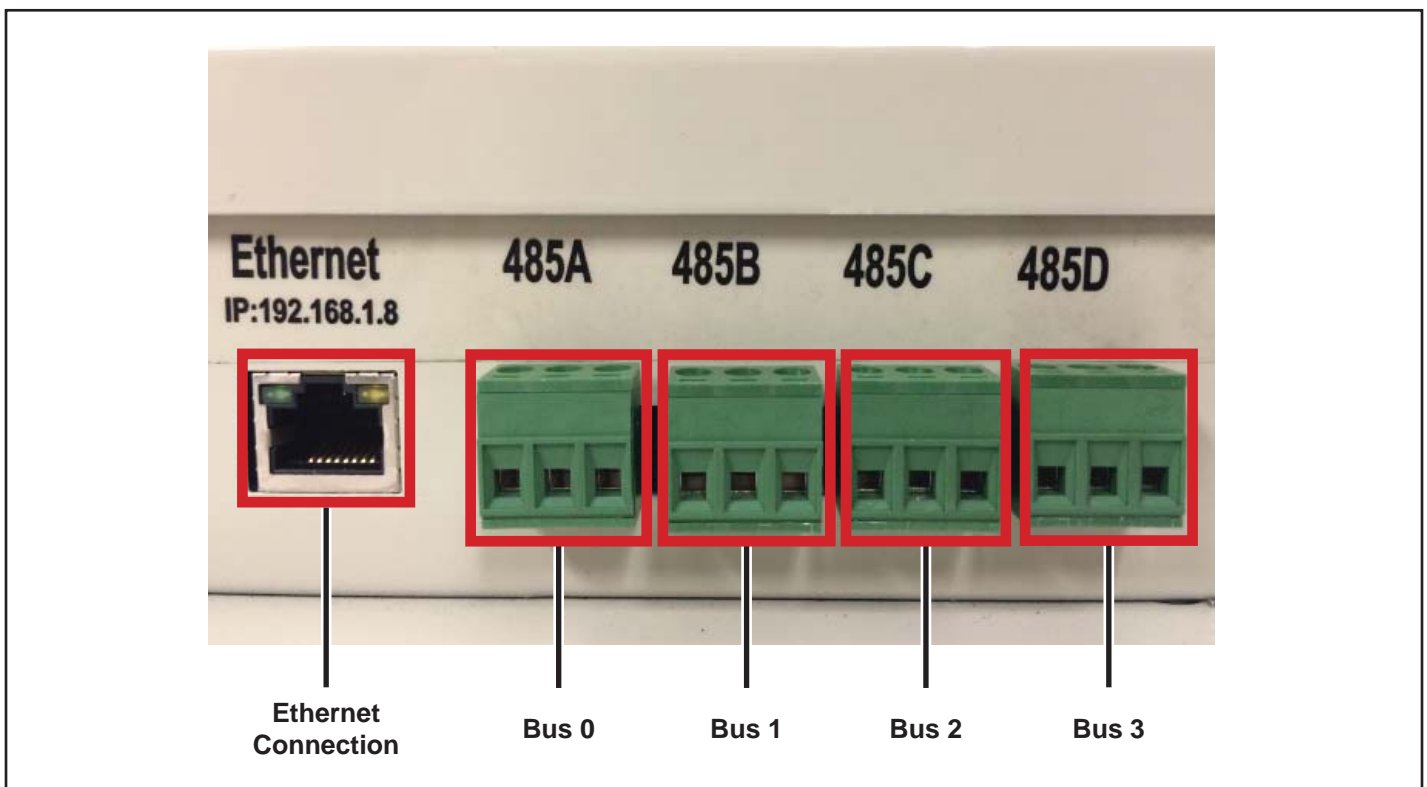


Figure 1. VRF BACnet Gateway Connection Points

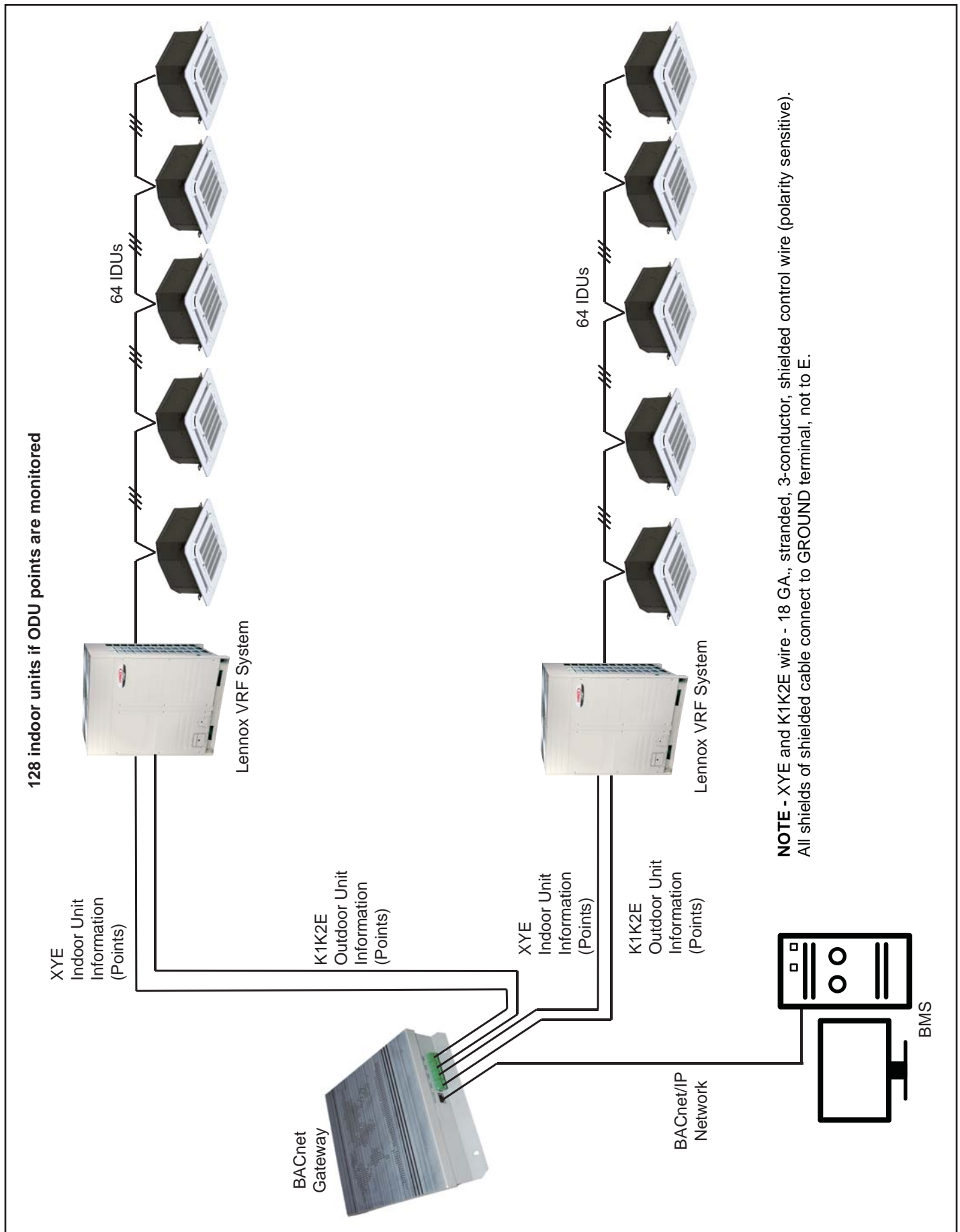


Figure 2. Indoor and Outdoor Unit Monitoring

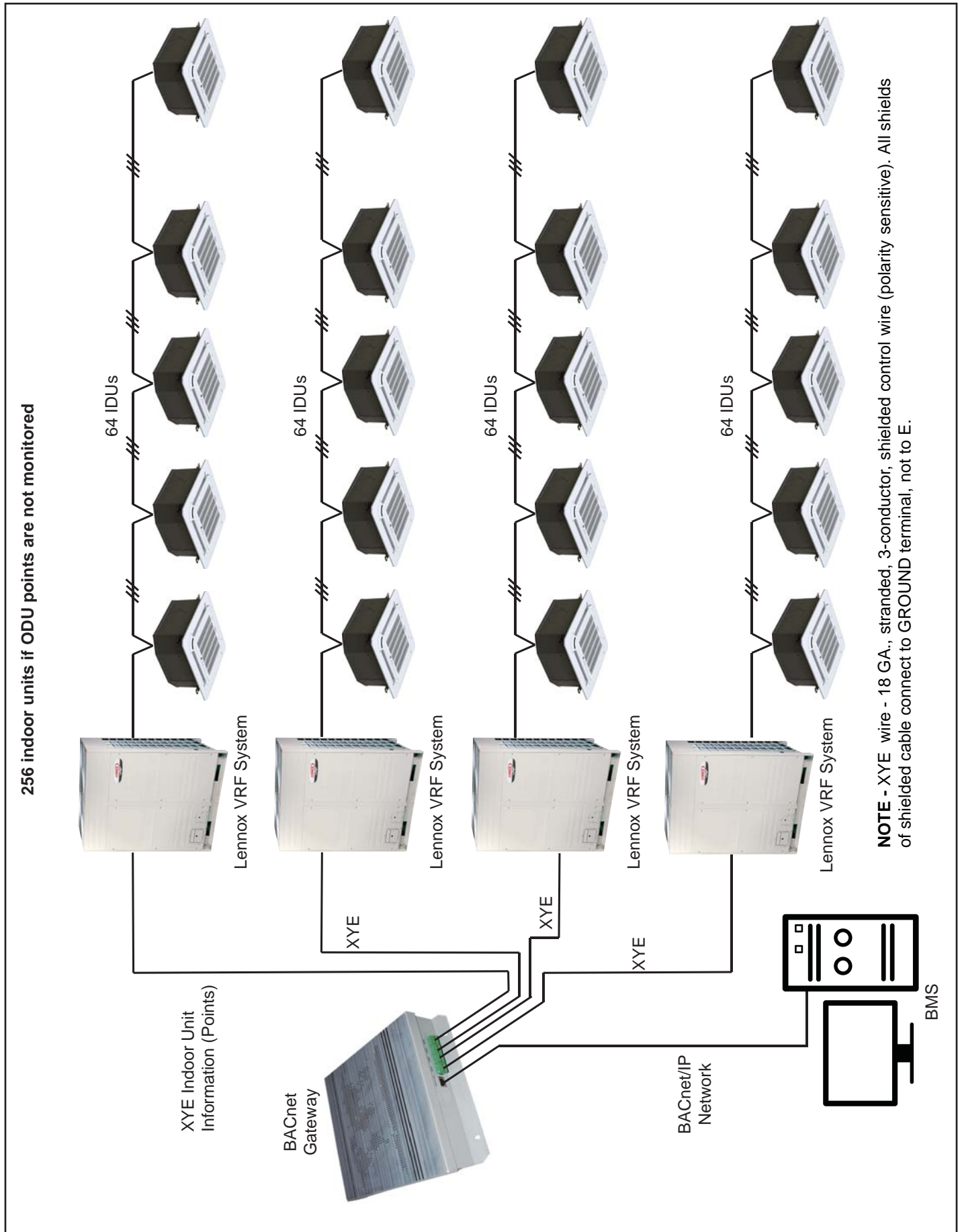


Figure 3. Indoor Unit Only Monitoring

BACnet Object Points List

BACnet Object Points List

| Indoor Unit Point List | | | | | | | | |
|------------------------|---------------------|----------------------|-------------|------------------------|---------|------------------|----------|-----|
| Item | Function Identifier | Object Identifier | Object type | Possible Options | | | | |
| 1 | Mode | AC_OModeSetting | MO | Heating | Cooling | Dehumidify (Dry) | Fan only | OFF |
| 2 | Mode Status | AC_QueryMode | MI | Heating | Cooling | Dehumidify (Dry) | Fan only | OFF |
| 3 | Fan Speed | AC_OFANSpeed | MO | High | Medium | Low | --- | --- |
| 4 | Fan Speed Status | AC_QueryFANSpeed | MI | High | Medium | Low | --- | --- |
| 5 | Setpoint | AC_OTempSetting | AO | °C | --- | --- | --- | --- |
| 6 | Setpoint Status | AC_QuarryTempSetting | AI | °C | --- | --- | --- | --- |
| 7 | Room Temperature | AC_ITempIndoor | AI | °C | --- | --- | --- | --- |
| 8 | Swing | AC_OSwing | BO | Inactive | Active | --- | --- | --- |
| 9 | Error Code | AC_IMalfunction | MI | See details on page 9 | | | | |
| 10 | Protection Code | AC_IProtect | MI | See details on page 10 | | | | |

| Outdoor Unit Point List | | | | | | | | |
|-------------------------|---------------------|-------------------|-------------|------------------------|---------|------|------|-----|
| Item | Function Identifier | Object Identifier | Object type | Possible Options | | | | |
| 1 | Operation Mode | AC_IOperationMode | MO | Heating | Cooling | Stop | --- | --- |
| 2 | Condenser Fan Speed | AC_IFANSpeed | MI | High | Medium | Low | Stop | --- |
| 3 | Ambient Temperature | AC_ITempOutdoor | AI | °C | --- | --- | --- | --- |
| 4 | Indoor Quantity | AC_ITotalACs | AI | Number of indoor units | | | | |
| 5 | Compressor 1 | AC_ICom1Current | AI | Current in Amps | | | | |
| 6 | Compressor 2 | AC_ICom2Current | AI | Current in Amps | | | | |
| 7 | Compressor 3 | AC_ICom3Current | AI | Current in Amps | | | | |
| 8 | Error Code | AC_IMalfunction | MI | See details in page 13 | | | | |
| 9 | Protection Code | AC_IMalfunction | MI | See details in page 14 | | | | |

Indoor Unit Points

Indoor Unit Table 1. Mode

| Attribute Identifier | Data Type | Attribute value | Meaning | Read/Write |
|----------------------|------------------------|------------------------|---------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-output 1 | - | R |
| Object Name | CharacterString | AC_OModeSetting | - | R |
| Object Type | BACnetObjectType | MultiState-output | - | R |
| Description | CharacterString | Operation mode setting | - | O |
| Options | Integer | 1 | Heat | O |
| | | 2 | Cool | |
| | | 3 | Dry | |
| | | 4 | Fan | |
| | | 6 | OFF | |

Indoor Unit Table 2. Mode Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|----------------------|------------------------------------|---------------------------------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 3 | R |
| Object Name | CharacterString | AC_QueryMode | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | QueryMode | O |
| Status Text | BACnet ARRAY[N] CharacterString | {"Heat", "Cool", "Dry", "Fan only", "Stop"} | O |

Indoor Unit Table 3. Fan Speed

| Attribute Identifier | Data type | Attribute value | Meaning | Read/Write |
|----------------------|------------------------|---------------------|---------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-output 2 | - | R |
| Object Name | CharacterString | AC_OFanSpeed | - | R |
| Object Type | BACnetObjectType | MultiState-output | - | R |
| Description | CharacterString | Fan Speed Setting | - | O |
| Options | Integer | 1 | High | O |
| | | 2 | Medium | |
| | | 3 | Low | |

Indoor Unit Table 4. Fan Speed Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|----------------------|------------------------------------|-----------------------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 4 | R |
| Object Name | CharacterString | AC_QueryFanSpeed | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | QueryFanSpeed | O |
| Status Text | BACnet ARRAY[N] CharacterString | {"High", "Middle", "Low", "Stop"} | O |

Indoor Unit Table 5. Setpoint

| Attribute Identifier | Data type | Attribute value | Read/Write |
|----------------------|-------------------------|-----------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-output 1 | R |
| Object Name | CharacterString | AC_OTempSetting | R |
| Object Type | BACnetObjectType | Analog-output | R |
| Description | CharacterString | Setpoint | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |

NOTE - All values are degrees Celsius (°C). You must send degrees Celsius (°C) values and you will receive degrees Celsius (°C). Range: 16°C - 32°C.

Indoor Unit Table 6. Setpoint Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|----------------------|-------------------------|---------------------|------------|
| Object identifier | BACnetObjectIdentifier | Analog-input 4 | R |
| Object name | CharacterString | AC_QueryTempSetting | R |
| Object type | BACnetObjectType | Analog-input | R |
| Current value | REAL | 0 | R |
| Description | CharacterString | QueryTempsetting | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |

NOTE - The sent value is degrees Celsius (°C).

Indoor Unit Table 7. Room Temperature

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|----------------------|-------------------------|--------------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 1 | R |
| Object Name | CharacterString | AC_ITempIndoor | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Description | CharacterString | Indoor Temperature | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |

NOTE - The received value is degrees Celsius (°C).

Indoor Unit Table 8. Swing

| Attribute Identifier | Data type | Attribute value | Read/Write |
|----------------------|------------------------|-----------------|------------|
| Object Identifier | BACnetObjectIdentifier | Binary-output 1 | R |
| Object Name | CharacterString | AC_OSwing | R |
| Object Type | BACnetObjectType | Binary-output | R |
| Description | CharacterString | Swing Setting | O |
| Inactive Text | CharacterString | Turn off | O |
| Active Text | CharacterString | Turn on | O |

NOTE - inactive means swing OFF, active means swing ON.

Indoor Unit Table 9. Error Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|----------------------|------------------------------------|--------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 1 | R |
| Object Name | CharacterString | AC_IMalfunction | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Malfunction Status | O |
| Status Text | BACnet ARRAY[N] CharacterString | E0 | O |
| | | E1 | |
| | | E2 | |
| | | E3 | |
| | | E4 | |
| | | E5 | |
| | | E6 | |
| | | E7 | |
| | | E8 | |
| | | E9 | |
| | | EA | |
| | | EB | |
| | | EC | |
| | | ED | |
| | | EE | |
| EF | | | |
| No | | | |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Indoor Unit Table 10. Protection Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|----------------------|------------------------------------|--------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 2 | R |
| Object Name | CharacterString | AC_IProtect | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Protection Status | O |
| Status text | BACnet ARRAY[N] CharacterString | P0 | O |
| | | P1 | |
| | | P2 | |
| | | P3 | |
| | | P4 | |
| | | P5 | |
| | | P6 | |
| | | P7 | |
| | | P8 | |
| | | P9 | |
| | | PA | |
| | | PB | |
| | | PC | |
| | | PD | |
| | | PE | |
| PF | | | |
| No | | | |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Outdoor Unit Points

Outdoor Unit Table 1. Operation Mode

| Attribute Identifier | Data Mode | Attribute value | Meaning | Read/Write |
|----------------------|------------------------|--------------------|---------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 1 | | R |
| Object Name | CharacterString | AC_IOperationMode | | R |
| Object Type | BACnetObjectType | MultiState-output | | R |
| Description | CharacterString | Operation mode | | O |
| Status text | BACnet ARRAY [N] | 1 | Heat | O |
| | CharacterString | 2 | Cool | |
| | | 3 | Stop | |

Outdoor Unit Table 2. Condenser Fan Speed

| Attribute Identifier | Data Mode | Attribute value | Meaning | Read/Write |
|----------------------|------------------------|--------------------|---------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 2 | | R |
| Object Name | CharacterString | AC_IFanSpeed | | R |
| Object Type | BACnetObjectType | MultiState-input | | R |
| Description | CharacterString | Fan Speed | | O |
| Options | Integer | 1 | High | O |
| | | 2 | Medium | |
| | | 3 | Low | |

Outdoor Unit Table 3. Ambient Temperature

| Attribute Identifier | Data type | Attribute value | Read/Write |
|----------------------|-------------------------|---------------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 1 | R |
| Object Name | CharacterString | AC_ITempOutdoor | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Description | CharacterString | Outdoor Temperature | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |

NOTE - The received value is degrees Celsius (°C).

Outdoor Unit Table 4. Indoor Quantity

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------|-----------------------------------------------------------------------------------------------------------|-----------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 2 | R |
| Object Name | CharacterString | AC_ITotalACs | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Description | CharacterString | Indoor unit qty | O |
| Operation instruction | The CURRENT VALUE attribute of the selected object reflects the current INDOOR UNIT QUANTITY (Read only). | | |

Outdoor Unit Table 5. Error Code Compressor 1

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------|------------------------------------------------------------------------------------------------------------|----------------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 3 | R |
| Object Name | CharacterString | AC_ICom1Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Compressor 1 current | O |
| Unit | BACnetEngineering Units | Amperes | R |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 1 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 6. Error Code Compressor 2

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------|------------------------------------------------------------------------------------------------------------|----------------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 4 | R |
| Object Name | CharacterString | AC_ICom2Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Compressor 2 current | O |
| Unit | BACnetEngineering Units | Amperes | R |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 2 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 7. Error Code Compressor 3

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------|------------------------------------------------------------------------------------------------------------|----------------------|------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 5 | R |
| Object Name | CharacterString | AC_ICom3Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Description | CharacterString | Compressor 3 current | O |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 3 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 8. Error Code

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 3 | R |
| Object Name | CharacterString | AC_IMalfunction | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Malfunction Status | O |
| Status Text | BACnet ARRAY[N] CharacterString | E0 | O |
| | | E1 | |
| | | E2 | |
| | | E3 | |
| | | E4 | |
| | | E5 | |
| | | E6 | |
| | | E7 | |
| | | E8 | |
| | | E9 | |
| | | EA | |
| | | EB | |
| | | EC | |
| | | ED | |
| | | EE | |
| EF | | | |
| No | | | |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Outdoor Unit Table 9. Protection Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|----------------------|------------------------------------|--------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 4 | R |
| Object Name | CharacterString | AC_IProtect | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Protect Status | O |
| Status Text | BACnet ARRAY[N] CharacterString | P0 | O |
| | | P1 | |
| | | P2 | |
| | | P3 | |
| | | P4 | |
| | | P5 | |
| | | P6 | |
| | | P7 | |
| | | P8 | |
| | | P9 | |
| | | PA | |
| | | PB | |
| | | PC | |
| | | PD | |
| | | PE | |
| PF | | | |
| No | | | |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Appendix A. BACnet Protocol Observed

Supportive Object Type

| Object Type | Supported | Dynamic Established or Not | Dynamic Deleted or Not |
|---------------------------------|-----------|----------------------------|------------------------|
| Analog Input Object Type | X | X | X |
| Analog Output Object Type | X | X | X |
| Analog Value Object Type | X | X | X |
| Binary Input Object Type | X | X | X |
| Binary Output Object Type | X | X | X |
| Binary Value Object Type | X | X | X |
| Device Object Type | X | X | X |
| Multi-Status Input Object Type | X | X | X |
| Multi-Status Output Object Type | X | X | X |

Application Services of Supplied BACnet

| Application Services | Request Start | Request Performed |
|-------------------------|---------------|-------------------|
| Read Property | | X |
| Read Property Multiple | | X |
| Write Property | | X |
| Write Property Multiple | | X |
| Who-Has | X | X |
| Who-Is | | |
| I-Am | | X |

Legend

| Abbreviation | Meaning |
|--------------|-------------------|
| R | Read |
| W | Write |
| R/W | Read/Write |
| I | Input |
| O | Output |
| BI | Binary Input |
| BO | Binary Output |
| AI | Analog Input |
| AO | Analog Output |
| MI | Multistate Input |
| MO | Multistate Output |

Option of Data Link Layer

| |
|--------------------|
| ISO 8802-3,10BASE5 |
| ISO 8802-3,10BASE2 |
| ISO 8802-3,10BASET |

Supportive Character Set

| |
|------------------------|
| ANSI X3.4 |
| IBMTM/Microsoft TM ISO |
| 10646(UCS2)T |

Special Function

| | Yes | No | |
|----------------------------|-----|----|------------------|
| Subsection request support | X | | window size:1476 |
| Subsection respond support | X | | window size:1476 |

Appendix B. Indoor Unit Detailed Points

Indoor Unit Table 1. Mode

| Attribute Identifier | Data type | Attribute value | Meaning | Read/Write |
|----------------------|---------------------------|------------------------|-----------------------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-output 1 | | R |
| Object Name | CharacterString | AC_OModeSetting | | R |
| Object Type | BACnetObjectType | MultiState-output | | R |
| Description | CharacterString | Operation mode setting | | O |
| Current Value | REAL | 0 | | R |
| Status Flags | BACnetStatusFlags | F F F F | | R |
| Event Status | BACnet EventStatus | Normal | | R |
| Take Off Service | BOOLEAN | F | | R |
| Status Number | Unsigned | 6 | | R |
| Options | Integer | 1 2 3 4 6 | Heat Cool Dry Fan OFF | O |
| Priority Array | BACnetPriorityArra | NULL | | R |
| Release Default | Unsigned | 0 | | R |
| Publicly Type | Unsigned | 1701 | | O |
| Feedback Value | Unsigned | 6 | | |
| Event Enable | BACnetEventTransitionBits | T T T | | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | | O |
| Notify Type | BACnetNotifyType | Alarm | | O |

Indoor Unit Table 2. Mode Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|----------------------|------------------------------------|-------------------------------------------|------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 3 | R |
| Object Name | CharacterString | AC_QueryMode | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | QueryMode | O |
| Status Text | BACnet ARRAY[N] CharacterString | {"Heat","Cool","Dry", "Fan only", "Stop"} | O |

Indoor Unit Table 3. Fan Speed

| Attribute Identifier | Data type | Attribute value | Meaning | Read/Write |
|-----------------------------|---------------------------|------------------------|-----------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-output 2 | | R |
| Object Name | CharacterString | AC_OFanSpeed | | R |
| Object Type | BACnetObjectType | MultiState-output | | R |
| Description | CharacterString | Fan Speed Setting | | O |
| Current Value | Unsigned | 0 | | W |
| Status Flags | BACnetStatusFlags | F F F F | | R |
| Event Status | BACnet EventStatus | Normal | | R |
| Take Off Service | BOOLEAN | F | | R |
| Status Number | Unsigned | 6 | | R |
| Options | Integer | 1 2 3 | High Medium Low | O |
| Priority Array | BACnetPriorityArra | NULL | | R |
| Release Default | Unsigned | 0 | | |
| Time Delay | Unsigned | 1 | | O |
| Publicly Type | Unsigned | 1701 | | O |
| Feedback Value | Unsigned | 6 | | |
| Event Enable | BACnetEventTransitionBits | T T T | | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | | O |
| Notify Type | BACnetNotifyType | event | | O |

Indoor Unit Table 4. Fan Speed Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------|---------------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 4 | R |
| Object Name | CharacterString | AC_QueryFanSpeed | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | QueryFanSpeed | O |
| Status Text | BACnet ARRAY[N] CharacterString | {"High","Middle","Low", "Stop"} | O |

Indoor Unit Table 5. Setpoint

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|---------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-output 1 | R |
| Object Name | CharacterString | AC_OTempSetting | R |
| Object Type | BACnetObjectType | Analog-output | R |
| Description | CharacterString | Setpoint | O |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Degree-Celsius | R |
| Minimum | REAL | 16 | O |
| Maximum | REAL | 32 | O |
| Distinguishability | REAL | 1 | O |
| Priority Array Value | BACnetPriorityArra | NULL | R |
| Default Release | REAL | 0 | R |
| Distinguishability | REAL | 1 | O |
| Cov Increment | REAL | 1 | O |
| Low Valve Value | REAL | 16 | O |
| High Valve Value | REAL | 32 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | T T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |
| Publicly Type | Unsigned | 1701 | O |
| Time Delay | Unsigned | 1 | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | O |

NOTE - All values are degrees Celsius (°C). You must send degrees Celsius (°C) values and you will receive degrees Celsius (°C). Range: 16°C - 32°C.

Indoor Unit Table 6. Setpoint Status

| Attribute identifier | Data type | Attribute value | Read/Write |
|-----------------------------|-------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 4 | R |
| Object Name | CharacterString | AC_QueryTempSetting | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | QueryTempsetting | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |

NOTE - The sent value is degrees Celsius (°C).

Indoor Unit Table 7. Room Temperature

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------------|---------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 1 | R |
| Object Name | CharacterString | AC_ITempIndoor | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Indoor Temperature | O |
| Unit | BACnetEngineering Units | Degree-Celsius | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Reliability | BACnetReliability | NO-FAULT-DETECTED | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Degree-Celsius | R |
| Minimum | REAL | -20 | O |
| Maximum | REAL | 100 | O |
| Distinguishability | REAL | 1 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | -20 | O |
| High Valve Value | REAL | 100 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | event | O |

NOTE - The received value is degrees Celsius (°C).

Indoor Unit Table 8. Swing

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|---------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Binary-output 1 | R |
| Object Name | CharacterString | AC_OSwing | R |
| Object Type | BACnetObjectType | Binary-output | R |
| Current Value | BACnetBinaryPV | inactive | W |
| Description | CharacterString | Swing Setting | O |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Polarity | BACnetPolarity | Normal | R |
| Inactive Text | CharacterString | Turn off | O |
| Active Text | CharacterString | Turn on | O |
| Time Delay | Unsigned | 1 | O |
| Status Change Time | BACnetDateTime | | O |
| Status Change Times | Unsigned | | O |
| Change Time To | 0BACnetDateTime | | O |
| Publicly Type | Unsigned | 1701 | O |
| Feedback Value | BACnetBinaryPV | inactive | O |
| Event Enable | BACnetEventTransitionBits | T T T | R |
| Affirm Transform | BACnetEventTransitionBits | T T T | O |
| Priority Array | BACnetPriorityArra | NULL | R |
| Default Release | BACnetBinaryPV | inactive | R |
| Notify Type | BACnetNotifyType | Alarm | O |

NOTE - Inactive means swing OFF, active means swing ON.

Indoor Unit Table 9. Error Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------------|------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 1 | R |
| Object Name | CharacterString | AC_IMalfunction | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Malfunction Status | O |
| Current Value | Unsigned | 0 | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Status Number | Unsigned | 11 | R |
| Status Text | BACnet ARRAY[N] CharacterString | E0 | O |
| | | E1 | |
| | | E2 | |
| | | E3 | |
| | | E4 | |
| | | E5 | |
| | | E6 | |
| | | E7 | |
| | | E8 | |
| | | E9 | |
| | | EA | |
| | | EB | |
| | | EC | |
| | | ED | |
| | | EE | |
| EF | | | |
| No | | | |
| Time Delay | Unsigned | 1 | O |
| Publicity Type | Unsigned | 1701 | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Indoor Unit Table 10. Protection Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------------|------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 2 | R |
| Object Name | CharacterString | AC_IProtect | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Protect Status | O |
| Current Value | Unsigned | 0 | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Status Number | Unsigned | 11 | R |
| Status Text | BACnet ARRAY[N] CharacterString | P0 | O |
| | | P1 | |
| | | P2 | |
| | | P3 | |
| | | P4 | |
| | | P5 | |
| | | P6 | |
| | | P7 | |
| | | P8 | |
| | | P9 | |
| | | PA | |
| | | PB | |
| | | PC | |
| | | PD | |
| PE | | | |
| PF | | | |
| No | | | |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Appendix C. Outdoor Unit Detailed Points

Outdoor Unit Table 1. Operation Mode

| Attribute Identifier | Data Mode | Attribute value | Meaning | Read/Write |
|-----------------------------|-------------------------------------|------------------------|----------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 1 | | R |
| Object Name | CharacterString | AC_IOperationMode | | R |
| Object Type | BACnetObjectType | MultiState-output | | R |
| Description | CharacterString | Operation mode | | O |
| Current Value | REAL | 0 | | R |
| Status Flags | BACnetStatusFlags | F F F F | | R |
| Event Status | BACnet EventStatus | Normal | | R |
| Take Off Service | BOOLEAN | F | | R |
| Status Number | Unsigned | 3 | | R |
| Status Text | BACnet ARRAY [N] CharacterString | 1 2 3 | Heat Cool Stop | O |
| Time Delay | Unsigned | 1 | | O |
| Publicly Type | Unsigned | 1701 | | O |
| Event Enable | BACnetEventTransitionBits | T T T | | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | | O |
| Notify Type | BACnetNotifyType | Alarm | | O |

Outdoor Unit Table 2. Condenser Fan Speed

| Attribute Identifier | Data Mode | Attribute value | Meaning | Read/Write |
|-----------------------------|---------------------------|------------------------|-----------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 2 | | R |
| Object Name | CharacterString | AC_IFanSpeed | | R |
| Object Type | BACnetObjectType | MultiState-input | | R |
| Description | CharacterString | Fan Speed | | O |
| Current Value | Unsigned | 0 | | R |
| Status Flags | BACnetStatusFlags | F F F F | | R |
| Event Status | BACnet EventStatus | Normal | | R |
| Take Off Service | serviceBOOLEAN | F | | R |
| Status Number | Unsigned | 4 | | R |
| Options | Integer | 1 2 3 | High Medium Low | O |
| Time Delay | Unsigned | 1 | | O |
| Publicly Type | Unsigned | 1701 | | O |
| Event Enable | BACnetEventTransitionBits | T T T | | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | | O |
| Notify Type | BACnetNotifyType | event | | O |

Outdoor Unit Table 3. Ambient Temperature

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|---------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 1 | R |
| Object Name | CharacterString | AC_ITempOutdoor | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Outdoor Temperature | O |
| Status Flags | BACnetStatusFlags | F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Degree-Celsius | R |
| Minimum | REAL | -20 | O |
| Maximum | REAL | 100 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | -20 | O |
| High Valve Value | REAL | 100 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | event | O |

NOTE - The received value is degrees Celsius (°C).

Outdoor Unit Table 4. Indoor Quantity

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------------|----------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 2 | R |
| Object Name | CharacterString | AC_ITotalACs | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Indoor unit qty | O |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | | R |
| Minimum | REAL | 0 | O |
| Maximum | REAL | 250 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | 0 | O |
| High Valve Value | REAL | 250 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the current INDOOR UNIT QUANTITY (it's read only). | | |

Outdoor Unit Table 5. Error Code Compressor 1

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 3 | R |
| Object Name | CharacterString | AC_ICom1Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Compressor 1 current | O |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Amperes | R |
| Minimum | REAL | 0 | O |
| Maximum | REAL | 200 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | 0 | O |
| High Valve Value | REAL | 200 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Notify Type | BACnetNotifyType | Alarm | O |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 1 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 6. Error Code Compressor 2

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 4 | R |
| Object Name | CharacterString | AC_ICom2Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Current Value | REAL | 0 | R |
| Description | CharacterString | Compressor 2 current | O |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Amperes | R |
| Minimum | REAL | 0 | O |
| Maximum | REAL | 200 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | 0 | O |
| High Valve Value | REAL | 200 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 2 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 7. Error Code Compressor 3

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | Analog-input 5 | R |
| Object Name | CharacterString | AC_ICom3Current | R |
| Object Type | BACnetObjectType | Analog-input | R |
| Description | CharacterString | Compressor 3 current | O |
| Current Value | REAL | 0 | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Unit | BACnetEngineering Units | Amperes | R |
| Minimum | REAL | 0 | O |
| Maximum | REAL | 200 | O |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Low Valve Value | REAL | 0 | O |
| High Valve Value | REAL | 200 | O |
| Width Valve Value | REAL | 1 | O |
| Enable Valve Value | BACnetLimitEnable | F T | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |
| Operation Instruction | The CURRENT VALUE attribute of the selected object reflects the COMPRESSOR 3 ELECTRIC CURRENT (Read only). | | |

Outdoor Unit Table 8. Error Code

| Attribute Identifier | Data type | Attribute value | Read/Write |
|-----------------------------|------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 3 | R |
| Object Name | CharacterString | AC_IMalfunction | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Malfunction Status | O |
| Current Value | Unsigned | 0 | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Status Number | Unsigned | 17 | R |
| Status Text | BACnet ARRAY[N] CharacterString | E0 | O |
| | | E1 | |
| | | E2 | |
| | | E3 | |
| | | E4 | |
| | | E5 | |
| | | E6 | |
| | | E7 | |
| | | E8 | |
| | | E9 | |
| | | EA | |
| | | EB | |
| | | EC | |
| | | ED | |
| | | EE | |
| EF | | | |
| No | | | |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Affirm Transform | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

Outdoor Unit Table 9. Protection Code

| Attribute Identifier | Data Mode | Attribute value | Read/Write |
|-----------------------------|------------------------------------|------------------------|-------------------|
| Object Identifier | BACnetObjectIdentifier | MultiState-input 4 | R |
| Object Name | CharacterString | AC_IProtect | R |
| Object Type | BACnetObjectType | MultiState-input | R |
| Description | CharacterString | Protect Status | O |
| Current value | Unsigned | 0 | R |
| Status Flags | BACnetStatusFlags | F F F F | R |
| Event Status | BACnet EventStatus | Normal | R |
| Take Off Service | BOOLEAN | F | R |
| Status Number | Unsigned | 17 | R |
| Status Text | BACnet ARRAY[N] CharacterString | P0 | O |
| | | P1 | |
| | | P2 | |
| | | P3 | |
| | | P4 | |
| | | P5 | |
| | | P6 | |
| | | P7 | |
| | | P8 | |
| | | P9 | |
| | | PA | |
| | | PB | |
| | | PC | |
| | | PD | |
| | | PE | |
| PF | | | |
| No | | | |
| Time Delay | Unsigned | 1 | O |
| Publicly Type | Unsigned | 1701 | O |
| Event Enable | BACnetEventTransitionBits | T T T | O |
| Affirm transform | BACnetEventTransitionBits | T T T | O |
| Notify Type | BACnetNotifyType | Alarm | O |

NOTE - Refer to the Lennox VRF Mobile App for error code descriptions.

