

Echoflex Reference Guide

BACnet PICS for Elaho BACnet Interface

Overview

This reference guide defines the BACnet Protocol Implementation Conformance Statement (PICS) for use with Echoflex's Elaho BACnet Interface.

BACnet Protocol Implementation Conformance Statement

Object Name: Elaho BACnet Interface - configurable using ElahoAccess Mobile App

Description: BACnet representation of Elaho lighting system objects

Vendor Name: Echoflex Solutions, Inc.

Vendor Identifier: # 433

Model Name: Elaho BACnet Interface

Firmware Revision: v3.0.0 and later

Application Software Revision: v3.0.0 and later

Protocol Version: 1

Protocol Revision: 12

1. Product Description

The Elaho BACnet Interface allows a BACnet Client to interface with and control an Elaho lighting system. BACnet IP Clients physically connect to a Building Management Network where the BACnet Interface is also connected, positioning the BMS switch as a gateway between the Elaho system and BACnet client applications. It exposes a series of BACnet objects that reflect the state / condition of Elaho lighting devices and permits control.

2. BACnet Conformance Class Supported

BACnet Standardized Device Profile (Annex L):

- BACnet Operator Workstation (B-OWS)
- BACnet Advanced Operator Workstation (B-AWS)
- BACnet Operator Display (B-OD)
- 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)
- BACnet Gateway (B-GW)

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List All BACnet Interoperability Building Blocks Supported (Annex K):

DS-RP-B

DS-WP-B

DS-COV-B

3. BACnet Standard Protocol Services Supported

| Application Service | Initiates Requests | Executes Requests |
|---------------------|--------------------|-------------------|
| SubscribeCOV | – | ■ |
| ReadProperty | – | ■ |
| WriteProperty | – | ■ |
| I-Am | ■ | – |
| Who-Is | – | – |

4. Standard Object Types Supported

| Object-Type | Supported | Dynamically Creatable | Dynamically Deletable | Optional Properties Supported | Writable Properties |
|-------------------|-----------|-----------------------|-----------------------|-------------------------------|---------------------|
| Analog Value | ■ | – | – | Description | Present_Value |
| Binary Input | ■ | – | – | Description | – |
| Binary Value | ■ | – | – | Description | Present_Value |
| Device | ■ | N/A | N/A | – | – |
| Multi-state Value | ■ | – | – | Description | Present_Value |

5. Data Link Layer Option

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ATA 878.1, 2.5Mb. ARCNET (Clause 8)
- ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) -----
- MS/TP master (Clause 9), baud rate(s):
- 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: -----
- BACnet/ZigBee (Annex O).
- Other:

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6. Character Sets Supported

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

- ISO 10646 (UTF-8)
- IBM™ / Microsoft™ DBCS
- ISO 8859-1
- ANSI x3.4
- ISO 10646 (UCS-2)
- ISO 10646 (UCS-4)
- JIS 0208

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

- Supports connectivity with the Elaho lighting control system.

7. Special Functionality

| | | | |
|-------------------------------|------------------------------|--|--------------|
| Segmented Requests Supported | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Window Size: |
| Segmented Responses Supported | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Window Size: |

8. Router

- 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
 - Does the BBMD support network address translation? Yes No

9. Property Range Restrictions

Multi-state values: 1-16

- 1-16 = Preset 1-16
- 17 = Space Off
- 18 = No Preset Active But Not Off (*This is a valid system state to read, but cannot be applied from BACnet.*)

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Point Reference

Analog Values

| # | Description | Notes |
|----|------------------|-------|
| 1 | Space 1: Zone 1 | |
| 2 | Space 1: Zone 2 | |
| 3 | Space 1: Zone 3 | |
| 4 | Space 1: Zone 4 | |
| 5 | Space 1: Zone 5 | |
| 6 | Space 1: Zone 6 | |
| 7 | Space 1: Zone 7 | |
| 8 | Space 1: Zone 8 | |
| 9 | Space 1: Zone 9 | |
| 10 | Space 1: Zone 10 | |
| 11 | Space 1: Zone 11 | |
| 12 | Space 1: Zone 12 | |
| 13 | Space 1: Zone 13 | |
| 14 | Space 1: Zone 14 | |
| 15 | Space 1: Zone 15 | |
| 16 | Space 1: Zone 16 | |
| 17 | Space 2: Zone 1 | |
| 18 | Space 2: Zone 2 | |
| 19 | Space 2: Zone 3 | |
| 20 | Space 2: Zone 4 | |
| 21 | Space 2: Zone 5 | |
| 22 | Space 2: Zone 6 | |
| 23 | Space 2: Zone 7 | |
| 24 | Space 2: Zone 8 | |
| 25 | Space 2: Zone 9 | |
| 26 | Space 2: Zone 10 | |
| 27 | Space 2: Zone 11 | |
| 28 | Space 2: Zone 12 | |
| 29 | Space 2: Zone 13 | |
| 30 | Space 2: Zone 14 | |
| 31 | Space 2: Zone 15 | |
| 32 | Space 2: Zone 16 | |
| 33 | Space 3: Zone 1 | |
| 34 | Space 3: Zone 2 | |

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Analog Values

| # | Description | Notes |
|----|------------------|-------|
| 35 | Space 3: Zone 3 | |
| 36 | Space 3: Zone 4 | |
| 37 | Space 3: Zone 5 | |
| 38 | Space 3: Zone 6 | |
| 39 | Space 3: Zone 7 | |
| 40 | Space 3: Zone 8 | |
| 41 | Space 3: Zone 9 | |
| 42 | Space 3: Zone 10 | |
| 43 | Space 3: Zone 11 | |
| 44 | Space 3: Zone 12 | |
| 45 | Space 3: Zone 13 | |
| 46 | Space 3: Zone 14 | |
| 47 | Space 3: Zone 15 | |
| 48 | Space 3: Zone 16 | |
| 49 | Space 4: Zone 1 | |
| 50 | Space 4: Zone 2 | |
| 51 | Space 4: Zone 3 | |
| 52 | Space 4: Zone 4 | |
| 53 | Space 4: Zone 5 | |
| 54 | Space 4: Zone 6 | |
| 55 | Space 4: Zone 7 | |
| 56 | Space 4: Zone 8 | |
| 57 | Space 4: Zone 9 | |
| 58 | Space 4: Zone 10 | |
| 59 | Space 4: Zone 11 | |
| 60 | Space 4: Zone 12 | |
| 61 | Space 4: Zone 13 | |
| 62 | Space 4: Zone 14 | |
| 63 | Space 4: Zone 15 | |
| 64 | Space 4: Zone 16 | |
| 65 | Space 5: Zone 1 | |
| 66 | Space 5: Zone 2 | |
| 67 | Space 5: Zone 3 | |
| 68 | Space 5: Zone 4 | |
| 69 | Space 5: Zone 5 | |
| 70 | Space 5: Zone 6 | |

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Analog Values

| # | Description | Notes |
|-----|------------------|-------|
| 71 | Space 5: Zone 7 | |
| 72 | Space 5: Zone 8 | |
| 73 | Space 5: Zone 9 | |
| 74 | Space 5: Zone 10 | |
| 75 | Space 5: Zone 11 | |
| 76 | Space 5: Zone 12 | |
| 77 | Space 5: Zone 13 | |
| 78 | Space 5: Zone 14 | |
| 79 | Space 5: Zone 15 | |
| 80 | Space 5: Zone 16 | |
| 81 | Space 6: Zone 1 | |
| 82 | Space 6: Zone 2 | |
| 83 | Space 6: Zone 3 | |
| 84 | Space 6: Zone 4 | |
| 85 | Space 6: Zone 5 | |
| 86 | Space 6: Zone 6 | |
| 87 | Space 6: Zone 7 | |
| 88 | Space 6: Zone 8 | |
| 89 | Space 6: Zone 9 | |
| 90 | Space 6: Zone 10 | |
| 91 | Space 6: Zone 11 | |
| 92 | Space 6: Zone 12 | |
| 93 | Space 6: Zone 13 | |
| 94 | Space 6: Zone 14 | |
| 95 | Space 6: Zone 15 | |
| 96 | Space 6: Zone 16 | |
| 97 | Space 7: Zone 1 | |
| 98 | Space 7: Zone 2 | |
| 99 | Space 7: Zone 3 | |
| 100 | Space 7: Zone 4 | |
| 101 | Space 7: Zone 5 | |
| 102 | Space 7: Zone 6 | |
| 103 | Space 7: Zone 7 | |
| 104 | Space 7: Zone 8 | |
| 105 | Space 7: Zone 9 | |
| 106 | Space 7: Zone 10 | |

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Analog Values

| # | Description | Notes |
|-----|------------------|-------|
| 107 | Space 7: Zone 11 | |
| 108 | Space 7: Zone 12 | |
| 109 | Space 7: Zone 13 | |
| 110 | Space 7: Zone 14 | |
| 111 | Space 7: Zone 15 | |
| 112 | Space 7: Zone 16 | |
| 113 | Space 8: Zone 1 | |
| 114 | Space 8: Zone 2 | |
| 115 | Space 8: Zone 3 | |
| 116 | Space 8: Zone 4 | |
| 117 | Space 8: Zone 5 | |
| 118 | Space 8: Zone 6 | |
| 119 | Space 8: Zone 7 | |
| 120 | Space 8: Zone 8 | |
| 121 | Space 8: Zone 9 | |
| 122 | Space 8: Zone 10 | |
| 123 | Space 8: Zone 11 | |
| 124 | Space 8: Zone 12 | |
| 125 | Space 8: Zone 13 | |
| 126 | Space 8: Zone 14 | |
| 127 | Space 8: Zone 15 | |
| 128 | Space 8: Zone 16 | |
| 129 | Space 9: Zone 1 | |
| 130 | Space 9: Zone 2 | |
| 131 | Space 9: Zone 3 | |
| 132 | Space 9: Zone 4 | |
| 133 | Space 9: Zone 5 | |
| 134 | Space 9: Zone 6 | |
| 135 | Space 9: Zone 7 | |
| 136 | Space 9: Zone 8 | |
| 137 | Space 9: Zone 9 | |
| 138 | Space 9: Zone 10 | |
| 139 | Space 9: Zone 11 | |
| 140 | Space 9: Zone 12 | |
| 141 | Space 9: Zone 13 | |
| 142 | Space 9: Zone 14 | |

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Analog Values

| # | Description | Notes |
|-----|-------------------|-------|
| 143 | Space 9: Zone 15 | |
| 144 | Space 9: Zone 16 | |
| 145 | Space 10: Zone 1 | |
| 146 | Space 10: Zone 2 | |
| 147 | Space 10: Zone 3 | |
| 148 | Space 10: Zone 4 | |
| 149 | Space 10: Zone 5 | |
| 150 | Space 10: Zone 6 | |
| 151 | Space 10: Zone 7 | |
| 152 | Space 10: Zone 8 | |
| 153 | Space 10: Zone 9 | |
| 154 | Space 10: Zone 10 | |
| 155 | Space 10: Zone 11 | |
| 156 | Space 10: Zone 12 | |
| 157 | Space 10: Zone 13 | |
| 158 | Space 10: Zone 14 | |
| 159 | Space 10: Zone 15 | |
| 160 | Space 10: Zone 16 | |
| 161 | Space 11: Zone 1 | |
| 162 | Space 11: Zone 2 | |
| 163 | Space 11: Zone 3 | |
| 164 | Space 11: Zone 4 | |
| 165 | Space 11: Zone 5 | |
| 166 | Space 11: Zone 6 | |
| 167 | Space 11: Zone 7 | |
| 168 | Space 11: Zone 8 | |
| 169 | Space 11: Zone 9 | |
| 170 | Space 11: Zone 10 | |
| 171 | Space 11: Zone 11 | |
| 172 | Space 11: Zone 12 | |
| 173 | Space 11: Zone 13 | |
| 174 | Space 11: Zone 14 | |
| 175 | Space 11: Zone 15 | |
| 176 | Space 11: Zone 16 | |
| 177 | Space 12: Zone 1 | |
| 178 | Space 12: Zone 2 | |

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Analog Values

| # | Description | Notes |
|-----|-------------------|-------|
| 179 | Space 12: Zone 3 | |
| 180 | Space 12: Zone 4 | |
| 181 | Space 12: Zone 5 | |
| 182 | Space 12: Zone 6 | |
| 183 | Space 12: Zone 7 | |
| 184 | Space 12: Zone 8 | |
| 185 | Space 12: Zone 9 | |
| 186 | Space 12: Zone 10 | |
| 187 | Space 12: Zone 11 | |
| 188 | Space 12: Zone 12 | |
| 189 | Space 12: Zone 13 | |
| 190 | Space 12: Zone 14 | |
| 191 | Space 12: Zone 15 | |
| 192 | Space 12: Zone 16 | |
| 193 | Space 13: Zone 1 | |
| 194 | Space 13: Zone 2 | |
| 195 | Space 13: Zone 3 | |
| 196 | Space 13: Zone 4 | |
| 197 | Space 13: Zone 5 | |
| 198 | Space 13: Zone 6 | |
| 199 | Space 13: Zone 7 | |
| 200 | Space 13: Zone 8 | |
| 201 | Space 13: Zone 9 | |
| 202 | Space 13: Zone 10 | |
| 203 | Space 13: Zone 11 | |
| 204 | Space 13: Zone 12 | |
| 205 | Space 13: Zone 13 | |
| 206 | Space 13: Zone 14 | |
| 207 | Space 13: Zone 15 | |
| 208 | Space 13: Zone 16 | |
| 209 | Space 14: Zone 1 | |
| 210 | Space 14: Zone 2 | |
| 211 | Space 14: Zone 3 | |
| 212 | Space 14: Zone 4 | |
| 213 | Space 14: Zone 5 | |
| 214 | Space 14: Zone 6 | |

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Analog Values

| # | Description | Notes |
|-----|-------------------|-------|
| 215 | Space 14: Zone 7 | |
| 216 | Space 14: Zone 8 | |
| 217 | Space 14: Zone 9 | |
| 218 | Space 14: Zone 10 | |
| 219 | Space 14: Zone 11 | |
| 220 | Space 14: Zone 12 | |
| 221 | Space 14: Zone 13 | |
| 222 | Space 14: Zone 14 | |
| 223 | Space 14: Zone 15 | |
| 224 | Space 14: Zone 16 | |
| 225 | Space 15: Zone 1 | |
| 226 | Space 15: Zone 2 | |
| 227 | Space 15: Zone 3 | |
| 228 | Space 15: Zone 4 | |
| 229 | Space 15: Zone 5 | |
| 230 | Space 15: Zone 6 | |
| 231 | Space 15: Zone 7 | |
| 232 | Space 15: Zone 8 | |
| 233 | Space 15: Zone 9 | |
| 234 | Space 15: Zone 10 | |
| 235 | Space 15: Zone 11 | |
| 236 | Space 15: Zone 12 | |
| 237 | Space 15: Zone 13 | |
| 238 | Space 15: Zone 14 | |
| 239 | Space 15: Zone 15 | |
| 240 | Space 15: Zone 16 | |
| 241 | Space 16: Zone 1 | |
| 242 | Space 16: Zone 2 | |
| 243 | Space 16: Zone 3 | |
| 244 | Space 16: Zone 4 | |
| 245 | Space 16: Zone 5 | |
| 246 | Space 16: Zone 6 | |
| 247 | Space 16: Zone 7 | |
| 248 | Space 16: Zone 8 | |
| 249 | Space 16: Zone 9 | |
| 250 | Space 16: Zone 10 | |

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Analog Values

| # | Description | Notes |
|-----|-------------------|-------|
| 251 | Space 16: Zone 11 | |
| 252 | Space 16: Zone 12 | |
| 253 | Space 16: Zone 13 | |
| 254 | Space 16: Zone 14 | |
| 255 | Space 16: Zone 15 | |
| 256 | Space 16: Zone 16 | |

Binary Values

| # | Description | Notes |
|----|--------------------------------|-------|
| 1 | Space 1 Lockout Status | |
| 2 | Space 2 Lockout Status | |
| 3 | Space 3 Lockout Status | |
| 4 | Space 4 Lockout Status | |
| 5 | Space 5 Lockout Status | |
| 6 | Space 6 Lockout Status | |
| 7 | Space 7 Lockout Status | |
| 8 | Space 8 Lockout Status | |
| 9 | Space 9 Lockout Status | |
| 10 | Space 10 Lockout Status | |
| 11 | Space 11 Lockout Status | |
| 12 | Space 12 Lockout Status | |
| 13 | Space 13 Lockout Status | |
| 14 | Space 14 Lockout Status | |
| 15 | Space 15 Lockout Status | |
| 16 | Space 16 Lockout Status | |
| 17 | Space 1 Timeclock Hold Status | |
| 18 | Space 2 Timeclock Hold Status | |
| 19 | Space 3 Timeclock Hold Status | |
| 20 | Space 4 Timeclock Hold Status | |
| 21 | Space 5 Timeclock Hold Status | |
| 22 | Space 6 Timeclock Hold Status | |
| 23 | Space 7 Timeclock Hold Status | |
| 24 | Space 8 Timeclock Hold Status | |
| 25 | Space 9 Timeclock Hold Status | |
| 26 | Space 10 Timeclock Hold Status | |
| 27 | Space 11 Timeclock Hold Status | |

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Binary Values

| # | Description | Notes |
|----|---------------------------------|-------|
| 28 | Space 12 Timeclock Hold Status | |
| 29 | Space 13 Timeclock Hold Status | |
| 30 | Space 14 Timeclock Hold Status | |
| 31 | Space 15 Timeclock Hold Status | |
| 32 | Space 16 Timeclock Hold Status | |
| 33 | Space 1 Demand Response Status | |
| 34 | Space 2 Demand Response Status | |
| 35 | Space 3 Demand Response Status | |
| 36 | Space 4 Demand Response Status | |
| 37 | Space 5 Demand Response Status | |
| 38 | Space 6 Demand Response Status | |
| 39 | Space 7 Demand Response Status | |
| 40 | Space 8 Demand Response Status | |
| 41 | Space 9 Demand Response Status | |
| 42 | Space 10 Demand Response Status | |
| 43 | Space 11 Demand Response Status | |
| 44 | Space 12 Demand Response Status | |
| 45 | Space 13 Demand Response Status | |
| 46 | Space 14 Demand Response Status | |
| 47 | Space 15 Demand Response Status | |
| 48 | Space 16 Demand Response Status | |

Binary Inputs

| # | Description | Notes |
|----|---------------------------|-------|
| 1 | Space 1 Occupancy Status | |
| 2 | Space 2 Occupancy Status | |
| 3 | Space 3 Occupancy Status | |
| 4 | Space 4 Occupancy Status | |
| 5 | Space 5 Occupancy Status | |
| 6 | Space 6 Occupancy Status | |
| 7 | Space 7 Occupancy Status | |
| 8 | Space 8 Occupancy Status | |
| 9 | Space 9 Occupancy Status | |
| 10 | Space 10 Occupancy Status | |
| 11 | Space 11 Occupancy Status | |
| 12 | Space 12 Occupancy Status | |

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Binary Inputs

| # | Description | Notes |
|----|---------------------------|-------|
| 13 | Space 13 Occupancy Status | |
| 14 | Space 14 Occupancy Status | |
| 15 | Space 15 Occupancy Status | |
| 16 | Space 16 Occupancy Status | |

Multistate Values

| # | Description | Notes |
|----|------------------------|-------|
| 1 | Space 1 Preset Status | |
| 2 | Space 2 Preset Status | |
| 3 | Space 3 Preset Status | |
| 4 | Space 4 Preset Status | |
| 5 | Space 5 Preset Status | |
| 6 | Space 6 Preset Status | |
| 7 | Space 7 Preset Status | |
| 8 | Space 8 Preset Status | |
| 9 | Space 9 Preset Status | |
| 10 | Space 10 Preset Status | |
| 11 | Space 11 Preset Status | |
| 12 | Space 12 Preset Status | |
| 13 | Space 13 Preset Status | |
| 14 | Space 14 Preset Status | |
| 15 | Space 15 Preset Status | |
| 16 | Space 16 Preset Status | |