Product Specifications

Avi-on BACnet Link

Local Interface to Building Control Systems

Two-Way Communication

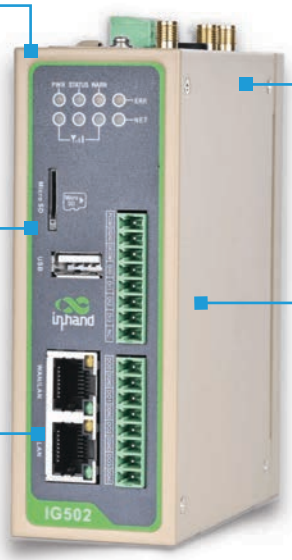
Creates two-way communication over local Ethernet to building control systems using BACnet over IP

Highly Scalable

Support thousands of connection points using a single BCS Link

No Gateways Required

The Avi-on ecosystem is gateway-free



Simple Set Up

The BCS Bridge is easy to install and configure using Avi-on Pro

With or without Remote Capability

Available as a software update to the Avi-on LTE Bridge, or as a stand alone device with no remote connectivity

Description

The BCS Link interfaces between Building Control Systems via BACnet IP to provide two-way building control integration. An Internet connection to the cloud is not required.

SUPPORTED DATA TYPES

Data Export:

Device Status
Send real time device status and dimming level changes from any Avi-on device

Motion Triggers
Send an update to the BCS any time a motion sensor is triggered

Daylight Values
Send an update to the BCS anytime a daylight sensor updates the dimming level on a group of lights

Fixture Energy Consumption Data
Send energy consumption data to the BCS every 15 minutes on all data points enabled with the appropriate energy monitoring Avi-on fixture controller (AVI-IFAC and AVI-XFAC)

Control Inputs:

On/Off/Dim
Adjust dimming levels or on/off status to groups of lights or individual lights, trigger scenes

Special Schedules
Turn on and off devices for groups or individual devices for special holiday or override schedules.

Demand Response
Enable pre programmed demand response modes from a BCS trigger

Emergency Mode Triggers
Trigger emergency lighting mode in emergency circuits from a BCS (or any BACnet IP compatible) control signal

Project		Location/ Type	

ORDERING INFORMATION

	Part Number	Name	Description
☐	**AVI-BACnet-LTE-UPDATE**	BACnet Link Update	Remote communications and BACnet Link capability on a single platform. Remote configuration supported
☐	**AVI-BACnet-LINK-V2**	Stand alone BACnet Link	Runs on identical, but physically separate hardware from the LTE Bridge. Local (in mesh) configuration only

SUPPORTED BACNET MESSAGES

Message	Functions	Data Type	Unit	Min Value	Max value
Dimming	Read/Write	Real	Percent	0	100
Motion Sensing	Read	Binary	Binary PV	N/A	N/A
Energy Monitoring	Read	Analog Register Meter Reading	Watt Hours* 15 minute interval	0	5242880
Scene Triggers	Write	Binary	Binary PV	N/A	N/A
Color Changing	Read/Write	Analog Value	Degrees Kelvin	2700	5000

** Raw readings in 15 minute increments*

To get kWh/15 minute interval consumption it is necessary to subtract the latest reading from the prior reading. A blank reading means data was not received for that interval. If the reading was lost, but the device was operating, the next interval that reports will include all the energy used since the prior received interval, so lost intervals will not cause loss of data. The interval is broadcast every 15 minutes at the end of the interval (latency <3 seconds). The receiving system should time stamp based on local system time.

When a device register value exceeds 5242880 or on a power cycle, the register value will reset to 0 and start again. Interpreting the data requires "rollover" logic to recognize these rollovers and produce a correct value. This is standard logic in BCS systems designed to handle ordinary meter reading data.

SPECIFICATIONS

Input Voltage Specifications	Min	Max	Unit
Supply Voltage (AC Power Supply)	110	240	VAC. 50/60HZ
Device Input (DC)	12	48	VDC
Power Consumption	200	500	mA

System Communications	Min	Max	Unit
Ethernet RJ-15	10	100	Mbps
Bluetooth Signal Frequency	2402	2480	MHz
Bluetooth Wireless Range*	-	120*	Feet
LTE Signal (M2M LTE CAT1 (Update configuration only)	Various	Various	MHz
LTE Wireless Range	Requires 2 bars of signal for reliable operation^		N/a

** Male-Female USB Extension Cable allows extending the Bluetooth radio up to 100ft (30M) from the base unit*
^Male-Female SMA Extension cable allows extending the LTE antenna up to 100F (30M) from the base unit

SPECIFICATIONS

Dimensions

Part	Length	Width	Height
All	5.00" (127 mm)	4.25 " (108 mm)	1.37 " (35 mm)

Certifications

Regulatory	Description
USA	Base Unit: FCC/ROHS/CE LTE: CE, FCC, PTCRB, Verizon Wireless, AT&T BLE: FCC, IC, BQB

Environmental

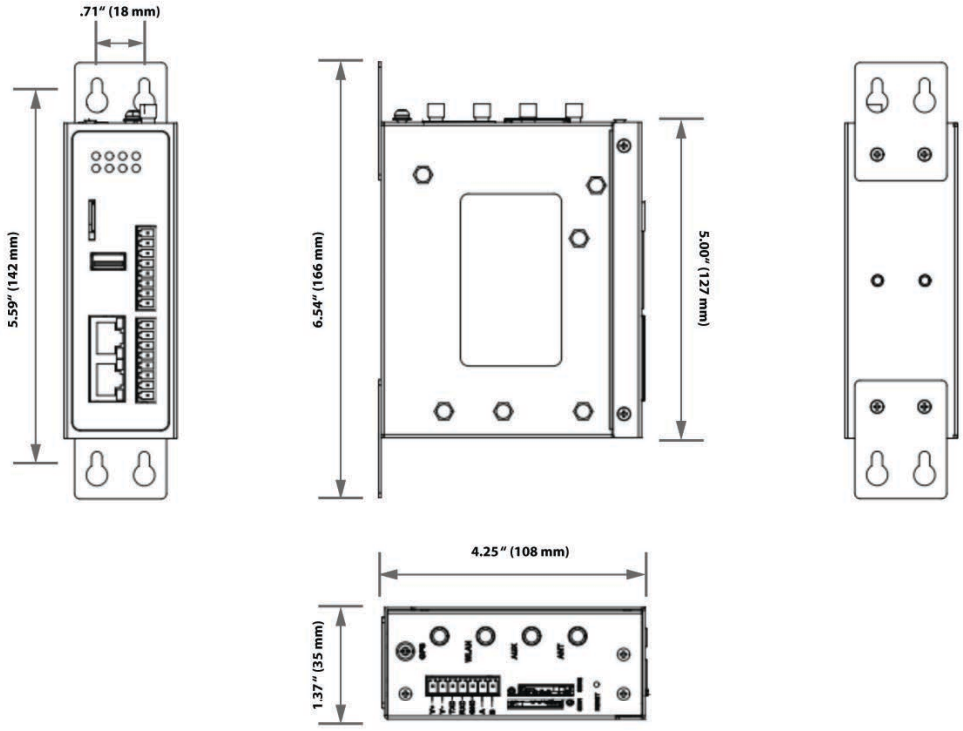
Type	Min
Ambient Operating Temperature	-4°F to 158°F (-20°C to 70°C)
Storage Temperature	-40°F to 185°F (-40°C to 85°C)

PORTS USED

These ports are only used by the Integrated LTE Bridge/BACnet link for remote access. No ports other than the user selected BACnet port are used for BACnet only configurations.

Port	Use
All web content (hXps used exclusively for content)	TCP/44
EMQTT protocol access RAB secure remote monitoring/management and firmware update (limited access, secured)	TCP/188 TCP/8883 (EMQTTS certificate verification port, open only when required)
Firmware upgrade (file, minio)	TCP/900
Remotely access the RAB through ngrok for device management and monitoring	TCP/82 ngrokd generates HTTP management page links using port 82 TCP/82 ngrokd generates HTTP management page links using port 82 TCP/83 ngrokd generates HTTPS management page links using port 83
AMQP Messaging Server (path for all Avi-on Cloud to local Avi-on network messages)	TCP 5671 (amqp) TCP 5672 (amqp) Resolves over cloudamqp.com and aws.amazon.com
DNS lookup	TCP and UDP 53 (dns). 8.8.8.8 (google.com by default, can be changed) DNS lookup can be routed through cellular exclusively if desired
Heartbeat only (hXp)	443. TCP/80 may be used if open, but not required
Required Whitelisted URLs	cloudamqp.com, aws.amazon.com Default DNS server lookup: 8.8.8.8 (google.com). DNS server can be changed on installation
Default BACnet Server Address	47808 (BAC0 Hex). Can be changed on installation

DIMENSIONS



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