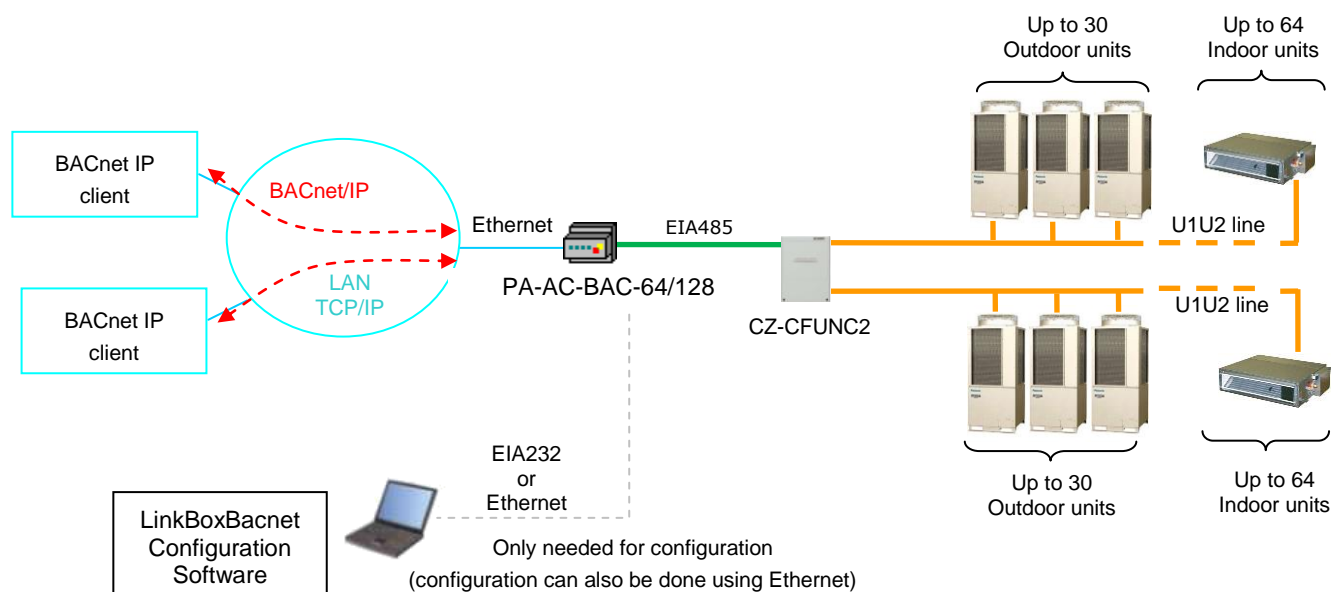# IntesisBox®
BACnet/IP Server - Panasonic

Gateway for Panasonic ECO-i VRF and PAC-i system integration into BACnet/IP networks

IntesisBox is a BACnet server device, capable of monitoring and controlling Panasonic ECO-i and PAC-i indoor units connected to a Panasonic CZ-CFUNC2 communication adaptor[1]. Up to 64 indoor units and 30 outdoor units can be integrated within a single channel. If you use both channels, up to 128 indoor units can be integrated.

BACnet client devices connected to the BACnet/IP network can read IntesisBox's internal datapoints by continuous polling or by means of BACnet subscription requests (COV). Panasonic indoor units can be monitored and controlled from BACnet using standard BACnet objects.

IntesisBox BACnet/IP Server series are configured using *LinkBoxBacnet,* a software tool for Windows® which is supplied along with the purchase of IntesisBox with no additional cost.

There are two models of IntesisBox BACnet/IP Server – Panasonic:

- **Model supporting up to 64 indoor units. Ref: PA-AC-BAC-64**
- **Model supporting up to 128 indoor units. Ref: PA-AC-BAC-128**

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[1] CZ-CFUN2 is an accessory provided by Panasonic and should be acquired separately.

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BACnet interface of IntesisBox

BACnet Interface	
Device type	Server
BACnet physical layer / media	BACnet/IP (accessible through Ethernet)
BACnet configurable parameters	• IP address. • Subnet mask. • Default gateway address. • BACnet port. • Device name. • Device instance number.
Interactivity with the BACnet system	• Internal point's Read / Write allowed. • Subscription requests (COV) allowed. *For more details see BACnet interface specifications below.*

BACnet interface specifications

BACnet Conformance Class Supported: Class 3
Data Link Layer Option: BACnet IP, (Annex J)

Segmented Requests/Responses Not Supported

BACnet Standard Application Services Supported and more details are explained in BACnet IP Server KNX PICS (protocol implementation conformance statement), included in the user manual.

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Existing BACnet objects/properties for each indoor unit

Object name	Object type	Property	Description
AdaptorLink1_ErrorCode	Multistate Input	Present Value	Error code from Adaptor Link 1
AdaptorLink2_ErrorCode	Multistate Input	Present Value	Error code from Adaptor Link 2
OnOff_All	Binary Output	Present Value	Turns On or Off all units at a time
Mode_All	Multistate Output	Present Value	Sets the operation mode of all indoor units
SetPoint_All	Analog Output	Present Value	Sets the set temperature of all indoor units
FanSpeed_All	Multistate Output	Present Value	Sets the fan speed of all indoor units
RemoteControl_Lock_All	Multistate Output	Present Value	Locks remote control commands
Consumption_Reset	Binary Output	Present Value	Resets consumptions information
Occupancy_All	Multistate Output	Present Value	Enable/disable occupancy in all indoor units
Occ_Cool_Setpoint	Analog Value	Present Value	Sets the setpoint when occupancy is active and cool mode is selected.
Occ_Heat_Setpoint	Analog Value	Present Value	Sets the setpoint when occupancy is active and heat mode is selected.
Unocc_Cool_Setpoint	Analog Value	Present Value	Sets the setpoint when occupancy is inactive and cool mode is selected.
Unocc_Heat_Setpoint	Analog Value	Present Value	Sets the setpoint when occupancy is inactive and heat mode is selected.
Occ_ContinousCheck	Binary Output	Present Value	Indicates if occupancy conditions are checked
UnOcc_DeadbandAction	Binary Output	Present Value	Action selected when occupancy is inactive and ambient temperature is in the deadband.
IUxxx_IU_Exist	Binary Input	Present Value	Indicates that the indoor unit is connected to the Adaptor Link
IUxxx_OnOff_status	Binary Input	Present Value	Indicates if the indoor unit is On or Off
IUxxx_ OnOff_command	Binary Output	Present Value	Turns the indoor unit On or Off
IUxxx_Mode_status	Multistate Input	Present Value	Reads the mode status of the indoor unit
IUxxx_Mode_command	Multistate Output	Present Value	Sets the mode of the indoor unit
IUxxx_SetPoint_status	Multistate Input	Present Value	Reads the set point status of the indoor unit
IUxxx_SetPoint_command	Analog Output	Present Value	Sets the set point temperature for the indoor unit
IUxxx_Room_Temperature	Analog Input	Present Value	Reads the room temperature where the indoor unit is placed
IUxxx_FanSpeed_status	Multistate Input	Present Value	Reads the fan speed status of the indoor unit
IUxxx_FanSpeed_command	Multistate Output	Present Value	Sets the fan speed of the indoor unit
IUxxx_AirDirection_status	Multistate Input	Present Value	Reads the air direction status of the indoor unit
IUxxx_AirDirection_command	Multistate Output	Present Value	Sets the air direction of the indoor unit
IUxxx_FilterSign_status	Binary Input	Present Value	Read the filter sign status of the indoor unit
IUxxx_FilterSign_Reset_command	Binary Output	Present Value	Clears the filter sign status of the indoor unit
IUxxx_ErrorCode	Multistate Input	Present Value	Reads the alarm code status of the indoor unit
IUxxx_RemoteControl_Lock	Multistate Value	Present Value	Locks or unlocks the remote controller
IUxxx_Occupancy	Multistate Value	Present Value	Sets occupancy mode
IUxxx_ ConsumptionYesterday	Analog Input	Present Value	Indicates Yesterday's consumption
IUxxx_ ConsumptionToday	Analog Input	Present Value	Indicates Today's consumption
IUxxx_ ConsumptionTotal	Analog Input	Present Value	Indicates Total consumption

NOTE: xxx stands for the number of the indoor unit (1..128)

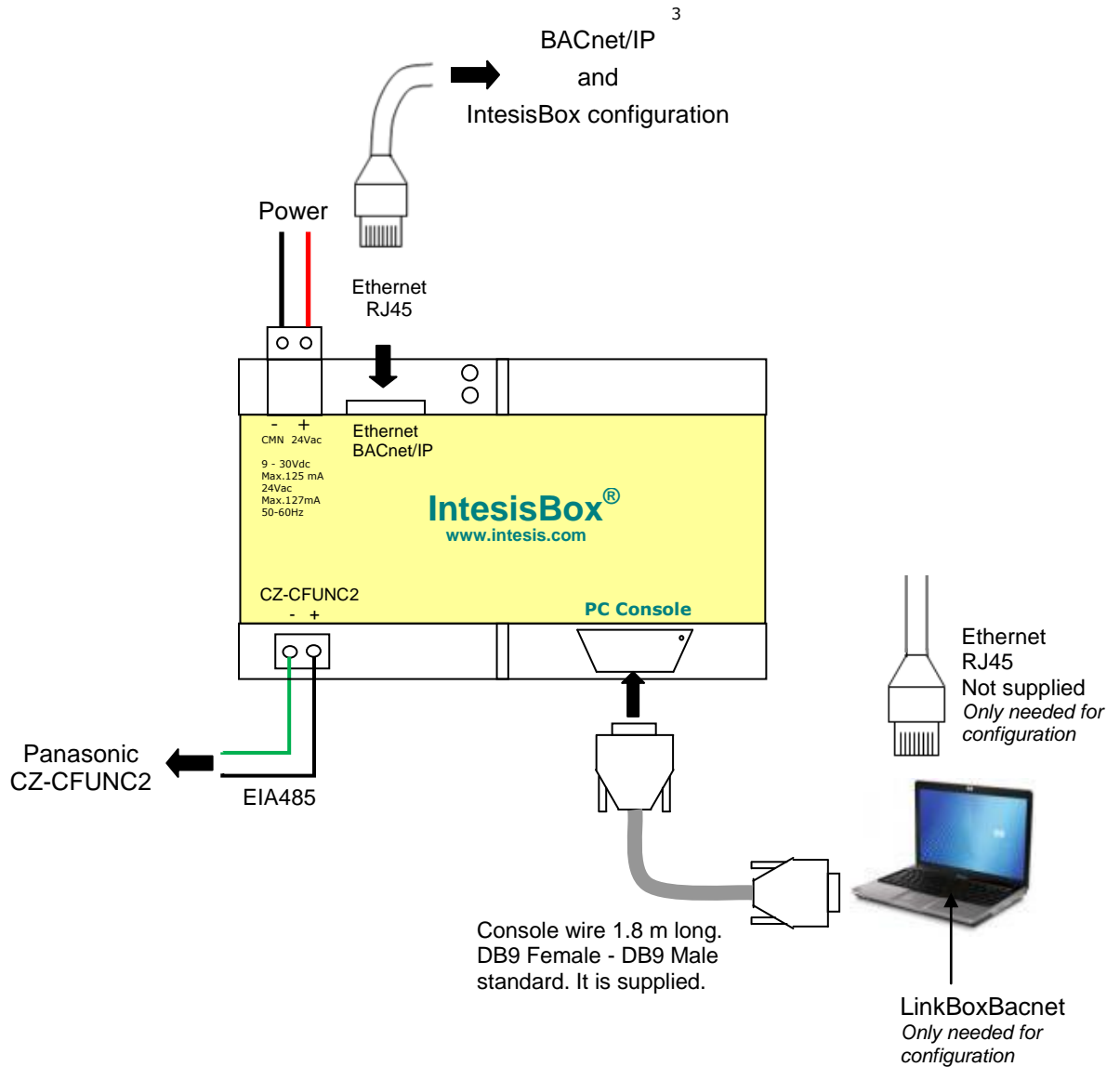URL http://www.intesis.com
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Mechanical & Electrical characteristics

Enclosure	Plastic, type PC (UL 94 V-0). Dimensions: 107mm x 105mm x 58mm.
Color	Light Grey / RAL 7035.
Power	9 to 30Vdc +/-10%, Max.: 125mA. 24Vac +/-10% 50-60Hz, Max.: 127mA Must use a NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply. Plug-in terminal block for power connection (2 poles).
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
Mounting	Wall. DIN rail EN60715 TH35.
BACnet/IP port	1 x Ethernet 10Base-T (RJ45).
CZ-CFUNC2 port	1 x EIA485 Plug-in screw terminal block (2 poles).
LED indicators	1 x Power. 2 x Ethernet port link and activity (LNK, ACT).
Console port	EIA232. (DB9 female connector, DCE). SELV
Configuration	Via console port[2] or Ethernet port
Firmware	Allows upgrades via console port.
Operational temperature	0°C to +70°C
Operational humidity	5 to 95%, non condensing
Protection	IP20 (IEC60529).
RoHS conformity	Compliant with RoHS directive (2002/95/CE).
Norms and standards	CE conformity to EMC directive (2004/108/EC) and Low-voltage directive (2006/95/EC) EN 61000-6-2 EN 61000-6-3 EN 60950-1 EN 50491-3

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[2] Standard cable DB9male-DB9female 1,8 meters long is supplied with the device for connection to a PC COM port for configuring and monitoring the device. The configuration software, compatible with Windows® operating systems, is also supplied.
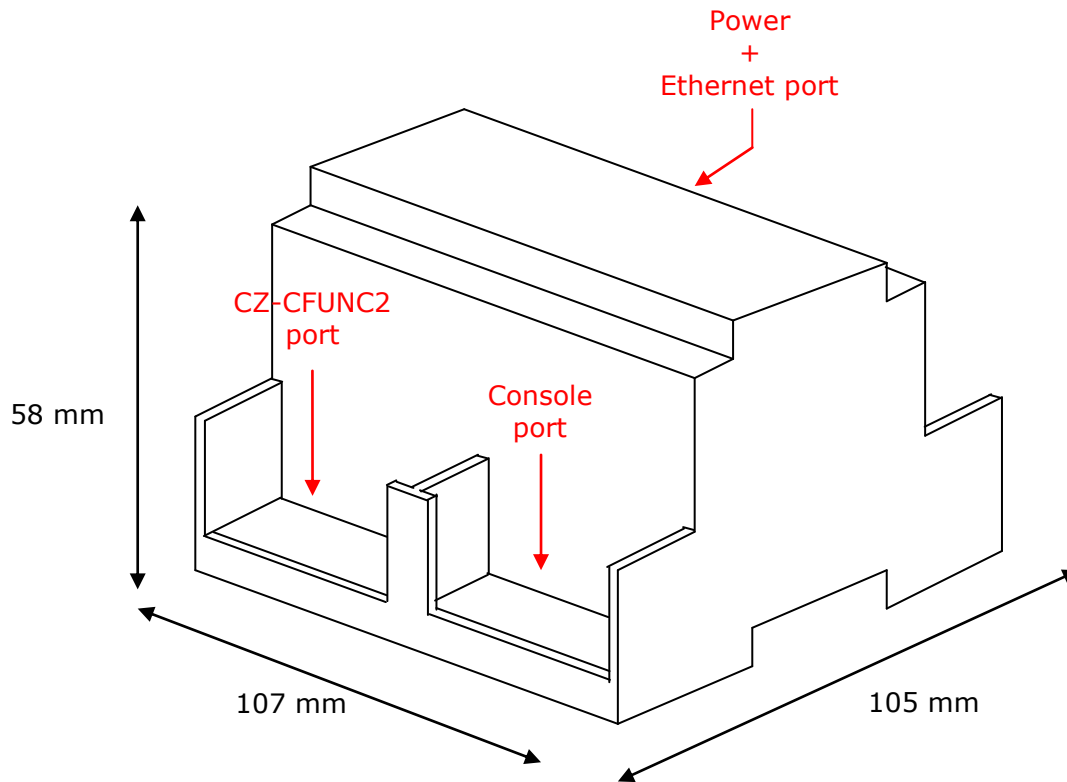
Intesis software

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Connections

BACnet/IP [3]
and
IntesisBox configuration

Power

Ethernet
RJ45

- +
CMN 24Vac

9 - 30Vdc
Max.125 mA
24Vac
Max.127mA
50-60Hz

Ethernet
BACnet/IP

IntesisBox®
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CZ-CFUNC2

PC Console

Panasonic
CZ-CFUNC2

EIA485

Ethernet
RJ45
Not supplied
*Only needed for
configuration*

Console wire 1.8 m long.
DB9 Female - DB9 Male
standard. It is supplied.

LinkBoxBacnet
*Only needed for
configuration*

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[3] Ethernet connection to the IP network. This connection can be used for BACnet/IP communication and for IntesisBox configuration.

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Dimensions

External dimensions

Power
+
Ethernet port

CZ-CFUNC2
port

Console
port

58 mm

107 mm

105 mm

Free space recommended in the install location of the device, with spacing enough for external connections.

100 mm

115 mm

130 mm

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