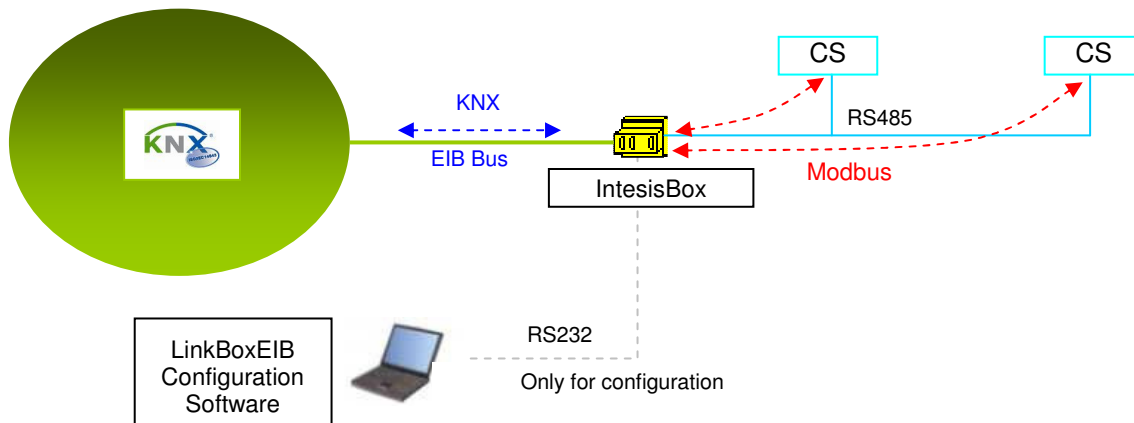# IntesisBox®
KNX - AIRZONE

Gateway for the integration of Airzone InnoBUS into KNX systems.

Full integration of Airzone InnoBUS air conditioning with KNX control systems.

All points of the Airzone system are associated to KNX group addresses, so that the entire Airzone system behaves as one more part of the KNX system with the same configuration and operational characteristics. *IntesisBox connects directly to the EIB bus, by its internal opto-isolated bus coupler, and behaves as one more devices into the KNX system.*

IntesisBox continuously polls the Airzone points configured and maintains the status of all of them updated in memory, ready to be consulted from KNX. *When a change occurs in an Airzone point, a write request can be sent to KNX immediately, to the associated KNX Group. This is configurable per point.*

When a write request is received from KNX, of a group address associated with an Airzone point, the corresponding write message is sent immediately to Airzone to perform the corresponding action. *IntesisBox incorporates virtual signals, which are accessible from KNX, indicating in real time the communication status with the Airzone system.*

IntesisBox KNX series are configured using *LinkBoxEIB,* **a software tool for windowsTM which is supplied along with the purchase of IntesisBox with no additional cost***. With the installation of LinkBoxEIB, a Demo project for integration of Airzone InnoBus is also installed, using this demo project makes the engineering needed for this integration easy and quick, almost plug&play.*

Intesis software

URL http://www.intesis.com
email info@intesis.com
tel +34 938047134

Airzone InnoBUS and its integration with KNX using IntesisBox

The Airzone InnoBUS is a system for Control of Climatization by zones. The system is composed of a System Controller (CS) and up to 32 modules for Zone (or Local Control - CL). To every zone, it can be associated a thermostat, a motorized grille and/or an electro-valve for radiation floors, as well as presence detectors or window-status detectors. All zones communicate between them and with the System Controller by means of a Local communication bus composed of 4 wires. (Read more details in the InnoBUS Installation Manual).

The System Controller (CS) incorporates a communication port, from which a home automation system can supervise and control every parameter of the home climatization zones in a bi-directional way, being reflected the orders given from the home automation system in the Airzone system's thermostats.

This communication port of the CS is the one used by *IntesisBox KNX - Airzone* to communicate with the Airzone system. This communication port is RS485, which means that is possible to connect more than one System Controller (CS) in bus to a single IntesisBox using a simple twisted pair bus cable.

The capacity of the Airzone system that IntesisBox can manage is 4 system controllers (CS) and 32 zones (CL) per system. (Contact AIRZONE in case you need to integrate bigger systems)

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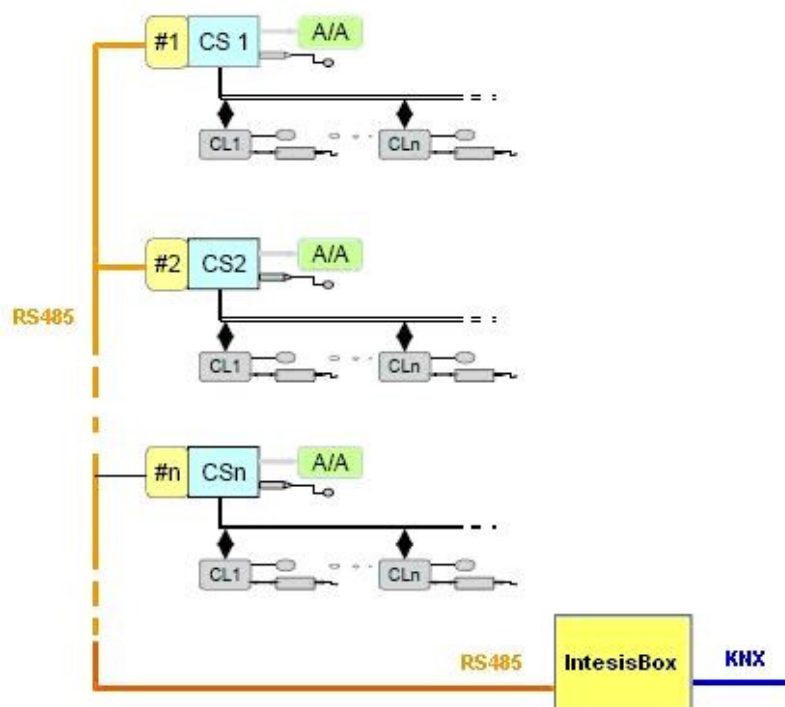
Airzone signals available from KNX

The signals (communication objects) available per every **System Controller** (CS) are:

Signal Name	Data Type EIS	Read/Write
Communication Error CS 0-> Normal 1-> Indicates comm. error with the CS	1 - Switching (1 bit)	Read
Operation Mode of the Machine 0-Stop, 1-Cold, 2-Heat, 3-Ventilation, 4-Heat+	14 - Counter (8 bit)	Read/Write
Mode STOP	1 - Switching (1 bit)	Read/Write
Mode COLD	1 - Switching (1 bit)	Read/Write
Mode HEAT	1 - Switching (1 bit)	Read/Write
Mode VENTILATION	1 - Switching (1 bit)	Read/Write
Mode HEAT+	1 - Switching (1 bit)	Read/Write
Differential setpoint Radiation Floor Cold	5 - Float (16 bit)	Read/Write
Differential setpoint Radiation Floor Heat	5 - Float (16 bit)	Read/Write
Timer protection anti-shortcycle 0-> 10 seconds 1-> 04 Minutes	1 - Switching (1 bit)	Read/Write
Mode Permanent Ventilation 0-> Ventilation Automatic (only on demand) 1-> Ventilation Continuous	1 - Switching (1 bit)	Read/Write
Summer Protection Return Temperature 0-> 06 ºC 1-> 08 ºC 2-> 10 ºC 3-> 12 ºC	14 - Counter (8 bit)	Read/Write
Winter Protection Return Temperature 0-> 32 ºC 1-> 34 ºC 2-> 36 ºC 3-> 38 ºC	14 - Counter (8 bit)	Read/Write
Mode close of last grid 0-> Close with no delay 1-> Close with delay of 60 seconds	1 - Switching (1 bit)	Read/Write
Machine 1 or 2 steps 0-> Machine 1 Step 1-> Machine 2 Steps	1 - Switching (1 bit)	Read/Write
Mode heat + global 0-> Mode Heat+ global not enabled 1-> Mode Heat+ global enabled	1 - Switching (1 bit)	Read/Write

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Machine Configuration local/remote 　　0 -> Local Configuration (Switches in board CS) 　　1 -> Remote Configuration (MODBUS)	1 - Switching (1 bit)	Read/Write
Return Temperature	5 - Float (16 bit)	Read
Impulsion Temperature	5 - Float (16 bit)	Read
Outdoor Temperature	5 - Float (16 bit)	Read
Boiler Temperature	5 - Float (16 bit)	Read
Fire Alarm 　　0-> Normal 　　1-> Alarm	1 - Switching (1 bit)	Read
Machine Start/Stop status Indicator 　　0-> Stop 　　1-> Start	1 - Switching (1 bit)	Read
Floor relay status - zone 1..32 　　0-> Stop 　　1-> Start	1 - Switching (1 bit)	Read

Airzone signals available from KNX (continue)

The signals (communication objects) available per every **Zone** (CL) are:

Signal Name	Data Type EIS	Read/Write
Communication Error ZN 0-> Normal 1-> Indicates comm. error with the CL	1 - Switching (1 bit)	Read
Mode Zone 0-Comfort, 1-Eco	14 - Counter (8 bit)	Read/Write
Mode COMFORT Zone	1 - Switching (1 bit)	Read/Write
Mode ECO Zone (A variation of 0.5º/30 min. is allowed with a maximum of 2º)	1 - Switching (1 bit)	Read/Write
OFF/ON Zone 0-> OFF 1-> ON	1 - Switching (1 bit)	Read/Write
Hold Zone 0 -> Hold Zone inactive (push button/touchscreen in the thermostat are operative) 1 -> Hold Zone active (push button/touchscreen in the thermostat are not operative)	1 - Switching (1 bit)	Read/Write
Minimum value for Temp. setpoint in the Zone	5 - Float (16 bit)	Read/Write
Maximum value for Temp. setpoint in the Zone	5 - Float (16 bit)	Read/Write
Temperature setpoint	5 - Float (16 bit)	Read/Write
Master/Zone Thermostat 0 -> ZoneThermostat 1 -> Master Thermostat (allows to change the Mode of the whole system)	1 - Switching (1 bit)	Read/Write
Zone Air Conditioner enable 0 -> Zone Air Conditioner disabled 1 -> Zone Air Conditioner enabled	1 - Switching (1 bit)	Read/Write
Zone Radiation Floor enable 0 -> Zone Radiation Floor disabled 1 -> Zone Radiation Floor enabled	1 - Switching (1 bit)	Read/Write
Master Radiation Floor enable 0 -> Master Radiation Floor disabled 1 -> Master Radiation Floor enabled (1) This bit will only be valid when the thermostat is also master	1 - Switching (1 bit)	Read/Write
Grid opening angle 0 -> Opening angle 90 º 1 -> Opening angle 50 º 2 -> Opening angle 45 º 3 -> Opening angle 40 º (1) Only used in mode Heat or Heat+, in mode Cold or Ventilation will always open at 90º	14 - Counter (8 bit)	Read/Write

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Minutes grid open Amount of time in which the grid was open in the zone, since the last reset of the register, in fractions of 10 minutes (1=10 m, 5=50 m, 15=150 m, etc…)	10 - Counter (16 bit)	Read/Write
Master Zone Direction 0 -> This zone is the master n -> Direction of the master zone	14 - Counter (8 bit)	Read/Write
Zone grid open 0 -> Zone grid closed 1 -> Zone grid opened	1 - Switching (1 bit)	Read
Zone master/slave 0 -> Zone Master (with thermostat) 1 -> Zone Slave (without thermostat)	1 - Switching (1 bit)	Read
Battery Low in the thermostat 0 -> Battery Ok in the Thermostat 1 -> Battery Low in the Thermostat	1 - Switching (1 bit)	Read
Thermostat connected to Zone Module 0 -> Thermostat not connected to zone module 1 -> Thermostat connected to zone module	1 - Switching (1 bit)	Read
Local Temperature of the zone	5 - Float (16 bit)	Read

To obtain more detailed information about the meaning of every signal consult the documentation of the Airzone InnoBus system or contact Airzone.

IntesisBox capacity

Element	Max.	Notes
Airzone System Controllers	4	Maximum number of Airzone system controllers supported
Airzone Zones: Nr. of System Controllers x 32	128	Maximum number of Airzone zones supported
KNX Groups	2000	Total number of KNX Groups that can be used in IntesisBox.
Listening addresses	1000	Total number of KNX Groups that can be used as listening addresses.
Listening addresses per KNX Group.	255	Total number of listening addresses that can be associated to a KNX Group.

Contact AIRZONE in case you need to integrate a bigger InnoBUS installation.

Ref.: IBOX-KNX-AIRZONE

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Sample applications

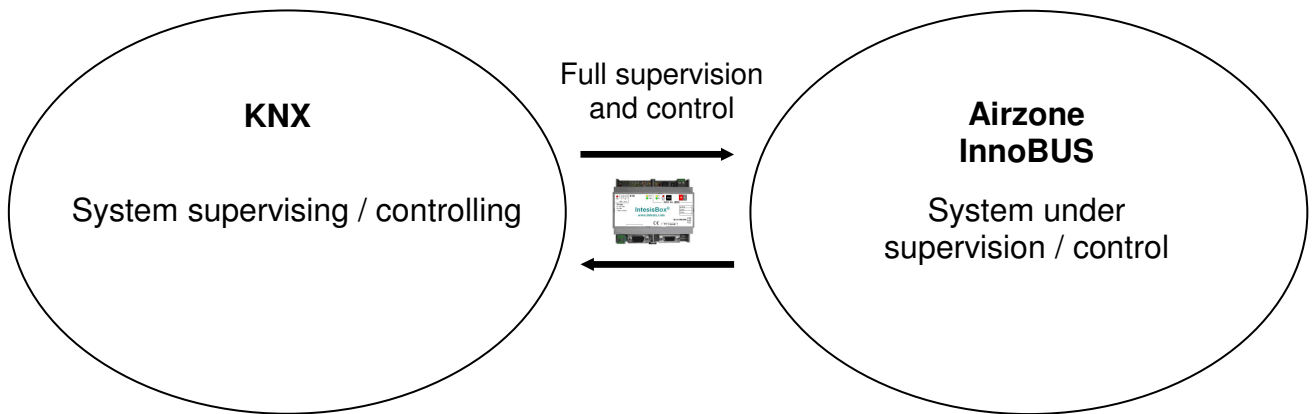**Integration of Airzone InnoBUS systems into KNX control systems.**
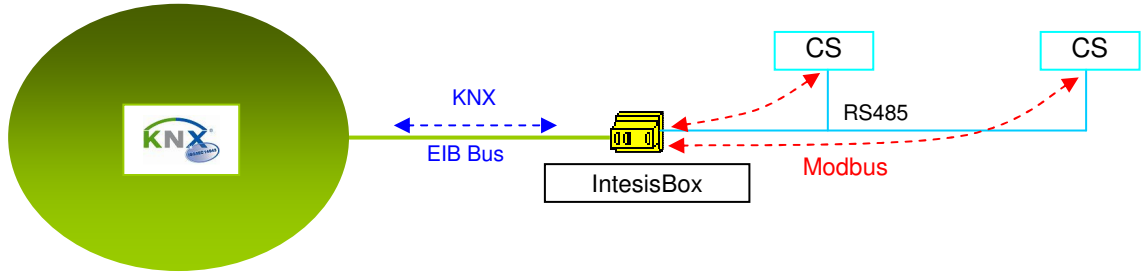
KNX control system

- Building Automation.
- Home Automation.
- …

**All kind of Airzone InnoBus air conditioning systems.**

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KNX interface of IntesisBox

KNX/EIB interface	
Bus coupler	Internal KNX TP1 (EIB) opto-isolated bus coupler unit for direct connection to EIB bus. Connector: 2 poles plug-in screw terminal block.
Configuration parameters	• Physical address.
Interactivity with KNX/EIB system	• When IntesisBox starts up, or after an EIB bus reset detection, all the updated values read from Airzone system will be sent to KNX. *Configurable individually per point.* • Any change detected in Airzone system (i.e. Ambient Temperature of a zone) is immediately transmitted to KNX. *Configurable individually per point.* • Any Airzone point can be updated with a read request sent to KNX when IntesisBox starts up, or after a bus reset detection (i.e. Temperature Set Point for a zone). *Configurable individually per point.*
KNX EIS (Datapoints) supported	• Switching (1 bit). • Dimming (4 bits). • Float (16 bits). • Scaling (8 bits). • Drive Control (1 bit). • Priority (2 bits). • Float IEEE (32 bits). • Counter (16 bits). • Counter (32 bits). • Counter (8 bits). • ASCII char (8 bits).

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Configuration tool

LinkBoxEIB	
	• Visual engineering tool, easy of use, for IntesisBox's configuration and monitoring compatible with Microsoft Windows operating systems, supplied with the purchase of IntesisBox with no additional cost.
	• Multi-window tool allowing to monitor simultaneously the communication activity with both protocols (systems), real time values for all the points allowing to modify any value (very useful for test purposes), console window showing debug and operation status messages, and configuration windows to configure all the IntesisBox's parameters and internal points.
	• Point configuration in plain text files (tab separated) for easy and quick configuration using Microsoft Excel (very useful in projects with a lot of points).
	• Allows configuring the IntesisBox's parameters and points while in off-line (not connected to the gateway).
	• Connection to the IntesisBox for download the configuration and monitoring by using serial COM port of the PC (serial cable also supplied).
	• Allows configuring all the external protocols available for IntesisBox® KNX series.
	• Upgrades for this software tool available free of charge whenever a new protocol is added to the IntesisBox® KNX series.
	• Multi-project tool allowing having in the engineer's PC the configuration for all the sites with different IntesisBox® KNX series gateways.
	• Multi-language tool, all the language-dependent strings are in a plain text file (tab separated) for easy modification or addition of new languages.
	• A list of system commands is available to send to the IntesisBox for debugging and adjust purposes (Reset, Date/time consultation/adjust, Firmware version request…).

Intesis software

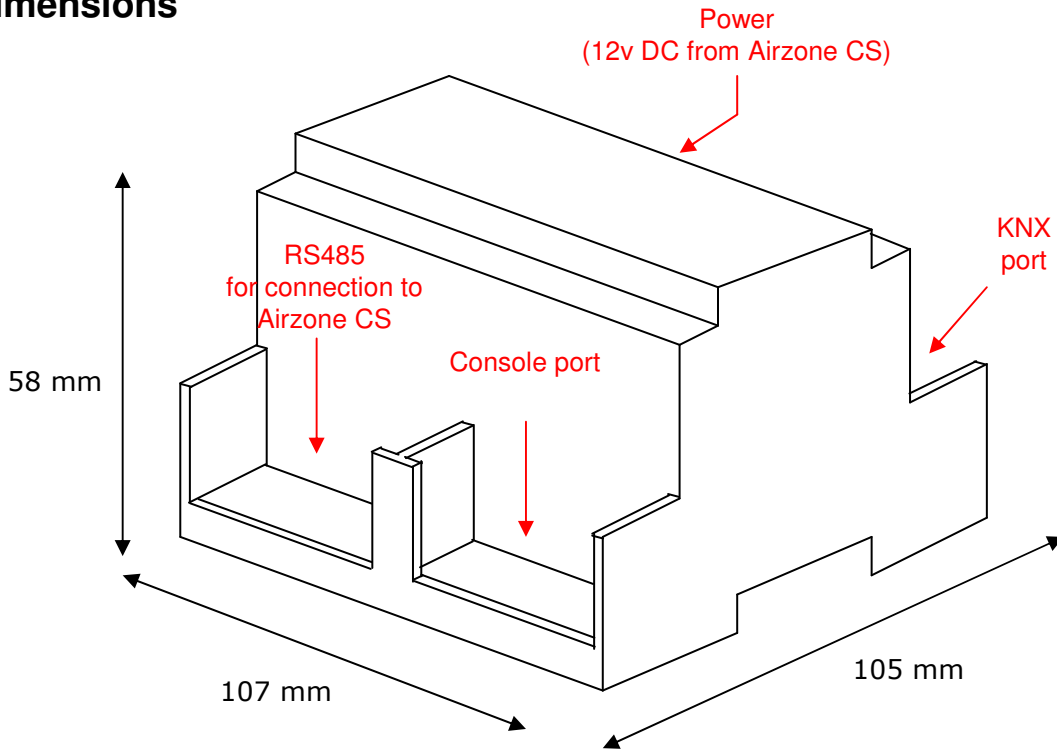URL http://www.intesis.com
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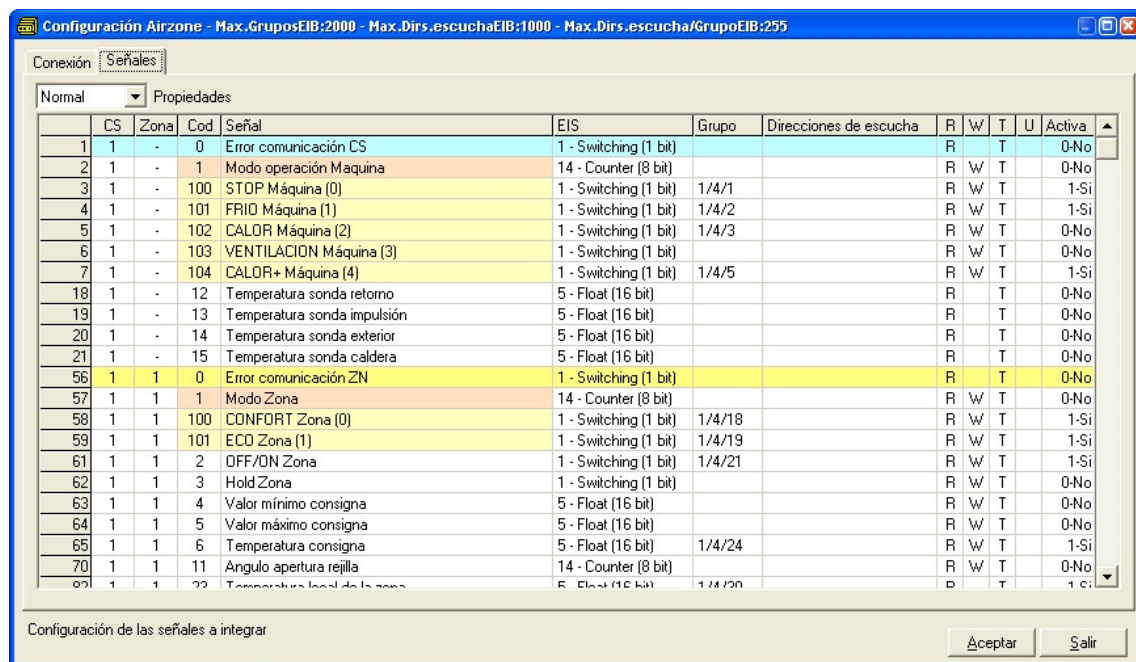
Technical characteristics

Enclosure	Plastic, type PC (UL 94 V-0). Dimensions: 107mm x 105mm x 58mm.
Color	Light Grey. RAL 7035.
Power	9 to 30Vdc +/-10% 1.4W. 24Vac +/-10% 1.4VA. Plug-in terminal bloc for power connection (2 poles). ***Power supply can be taken directly from the 12 Vdc output of the Airzone CS.***
Mounting	Wall. DIN rail EN60715 TH35.
InnoBUS port	1 x RS485. Plug-in screw terminal block (2 poles).
KNX port	1 x KNX TP1 (EIB) port opto-isolated. Plug-in terminal block (2 poles).
LED indicators	1 x Power. 2 x KNX port activity (Tx, Rx). 2 x InnoBUS port activity (Tx, Rx). 1 x KNX programming/bus.[1]
Push buttons	1 x KNX programming.[1]
Console port	RS232. DB9 female connector (DCE).
Configuration	Via console port.[2]
Firmware	Allows upgrades via console port.
Operational temperature range	-40°C to +70°C
Operational humidity range	5% to 95%, non condensing
Protection	IP20 (IEC60529).
RoHS conformity	Compliant with RoHS directive (2002/95/CE).
Certifications	CE

[1]   Not used for the moment. Reserved for future use.

[2]   Along with the device it is also supplied a standard DB9 male - DB9 female 1.8 m. cable for configuring and monitoring the device using a PC via serial COM port. The configuration software, compatible with MS Windows® operating systems, is also supplied.

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Dimensions

Power
(12v DC from Airzone CS)

KNX
port

RS485
for connection to
Airzone CS

Console port

58 mm

107 mm

105 mm

Recommended available space for its installation into a cabinet (wall or DIN rail mounting), with space enough for external connections:

100 mm

115 mm

130 mm

Intesis
software

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