



DUCTZONE
HVAC SOFTWARE

EXAMPLE_RESIDENCIAL RESIDENCIAL (MULTIZONING EASYZONE SOLUTION)



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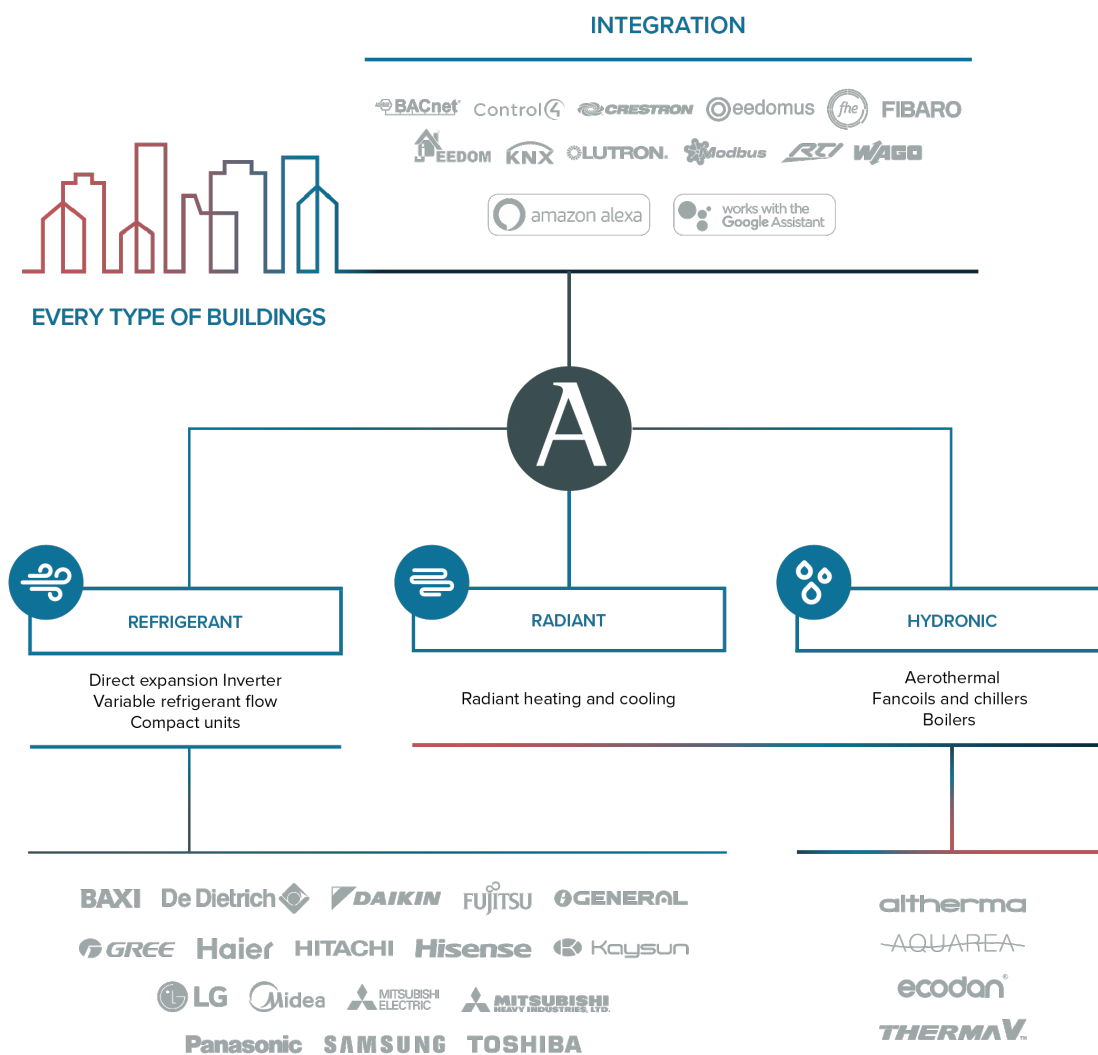
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Airzone, Smart Climate Control

Airzone is the world leader in HVAC climate control systems. With over 20 years of experience, it is one of the most prestigious companies in the HVAC industry. Airzone Solutions allow the user to control different types of technologies with the same interface.

ALL AIRZONE SYSTEMS CAN BE COMBINED INTO THE SAME PROJECT, INTEGRATED WITH OTHER CONTROL SYSTEMS AND ALSO CONTROLLED REMOTELY.



If you have any questions, please contact us at projects@airzonecontrol.com and our Projects Department will help you in anything you need.

	EASYZONE	VAF
Single split	✓	✓
Multi-split	✓	✓
VRF (heat pump)	✓	✓
VRF (heat recovery)		✓
Fancoil (2 pipes)	✓	
Underfloor heating	✓	✓

The concept of smart control by Airzone

The smart control performed by our systems allows the user to achieve an optimal level of thermal and acoustic comfort as **every single zone is controlled independently**.

Airzone controllers manage the entire installation and favor a more rational use of energy.

We offer numerous possible combinations so that our solutions can be adapted to the needs of the user and the installation.



An Airzone Integrated Zoning System transforms a traditional ducted HVAC system into a multizone system, basing its operation on two main factors:

- Optimization of the HVAC system energy use, thanks to the dedicated Airzone Communication Gateways.
- Providing the highest thermal comfort range to every zone.

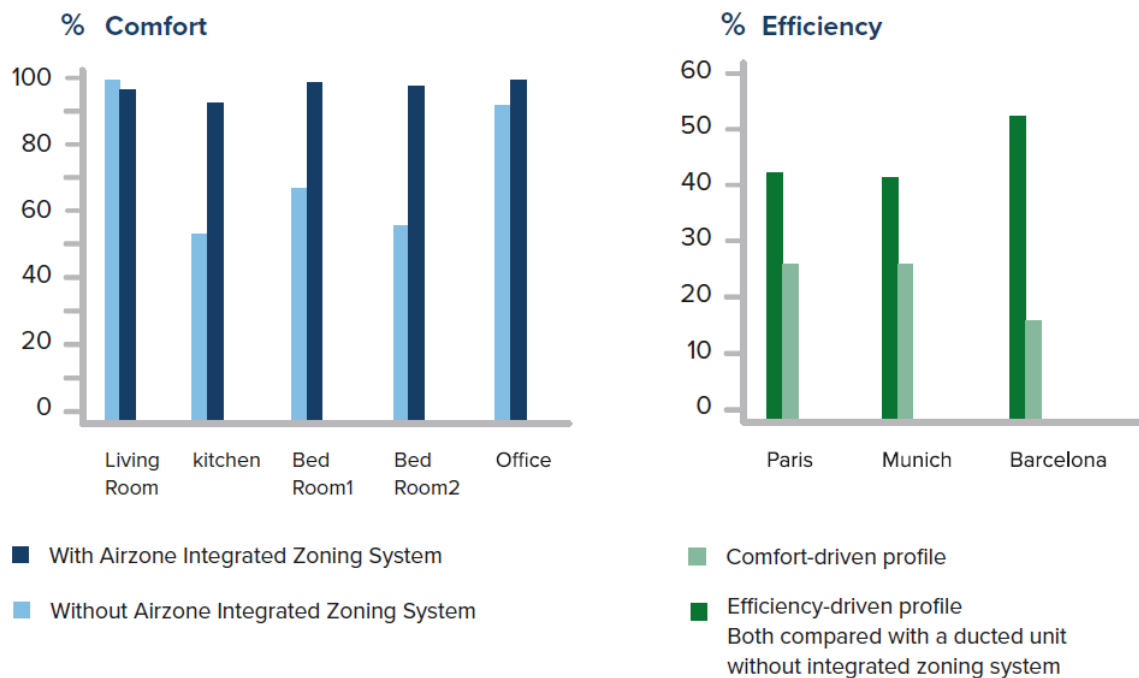
The Airzone Integrated Zoning Systems allow to increase energy savings as well as diminish first costs. This happens by means of the communications between Inverter units and Airzone system, as well as efficiency algorithms.

It allows to individually control the temperature of every zone conditioned by the same ducted indoor unit. This occurs thanks to the communications that exist between the sensors installed on each zone and the motorized elements installed on ducts. Therefore, the system covers only the thermal load of those zones where both thermal demand and occupancy exist.

Zoning systems

The Integrated Zoning System developed by **Airzone allows to regulate the air flow** supplied to each airconditioned zone and may satisfy the thermal needs of each one of them. In addition, it includes several efficiency algorithms which **by controlling Inverter heat pumps** (operation mode, set point temperature, fan speed, etc.) **optimizes energy using**.

These facts produce an **increase of both comfort** number of hours and **energy savings** as can be seen in the following figures, extracted from an independent study from the Energy Researching Group of the University of Malaga, Spain, with the title “Report over the Airzone integrated zoning model and its comparison to a non-zoned system”.



Quality assurance

Our commitment to the highest quality is our hallmark. We design, develop and manufacture all our products. They are respectful with the environment and comply with all the international directives in terms of energy efficiency.

- US FCC certificate
- Intertek 4008862 UL Listed
- ISO Certificates: 9001 and 14001

For further information about US FCC certificate, please visit <https://fccid.io/SVS>

For further information about our certifications, please contact us at projects@airzonecontrol.com

BREEAM

BREEAM(Building Research Establishment Environmental Assessment Methodology) is a system of assessing, rating and certifying the sustainability of buildings. Using this system, buildings are given an overall scoring based on an objective evaluation.



The BREEAM ratings range from Acceptable to pass, Good, Very Good, Excellent to Outstanding. BREEAM evaluates 10 categories, and Airzone can improve the score in the following categories:



Management: “Sustainable Management”



Health and Wellbeing: “Thermal Comfort” and “Thermal Zoning”



Energy: “Energy efficiency”



Pollution: “GWP refrigerant – Building facilities”



Innovation: “Exemplary level in Energy efficiency and Sustainable management”

For further information, please visit www.breeam.com.

LEED

LEED (Leadership in Energy and Environmental Design) is a system for assessing environmental performance in the construction or renovation of buildings, which aims to achieve a rational and effective use of energy of materials and water



In LEED you can reach four levels: Certificate, Silver, Gold and Platinum. This certification method evaluates buildings according to 8 criteria and Airzone can obtain extra points in the following categories:



Energy and atmosphere: “Optimization of energy efficiency” and “Energy consumption measurement”



Indoor environmental quality: “Thermal Comfort”



Innovation in design: “Optimization of energy efficiency”

For further information, please visit <https://new.usgbc.org/leed>.

Energy consumption optimization

To achieve a high degree of comfort and reduce energy consumption, the communication between the control system and AC unit is required to be perfect. **The Airzone communication gateway®** is the device that enables this bi-directional communication, improving fundamental features of the operation of the AC units.

Thanks to **the Airzone communication gateway®**, Inverter/VRF systems **work in partial load most of the time**, resulting in the optimization of their performance. Our systems modify the Partial Load Ratio (PLR) by adjusting the set-point temperature of the AC unit based on the return temperature, boosting the performance of the unit. Thanks to this optimization of the energy consumption, zoned AC units can save up to **53% more than non-zoned Inverter AC units**.

Airzone communications gateways® are compatible with most AC units of the main manufacturers in the HVAC industry.



Effective control

Airzone has developed a series of energy-efficiency algorithms that improve the energy performance of the installation. Additionally, they offer multiple benefits to both installers and users.

Eco-Adapt algorithm

Airzone systems allow you to limit the highest and lowest set-point temperature both in cooling and heating. Whether it is from the Airzone Cloud webserver or from the Airzone Blueface thermostat, the user can choose among the different Eco-Adapt modes, depending on the desired limit temperatures, to optimize the energy consumption and save money.

Smart control for the whole installation

The user can perform a complete and effective control of the installation thanks to our interfaces, either from our state-of-the-art thermostats or remotely using the Airzone Cloud webserver.

Our interfaces allow the user to control the temperature, set schedules, change the operating mode or refer to the weather information, among many other features.



BMS Integration

Our Communication with building management control systems is carried out using the **Modbus RTU native protocol**.

We can apply Airzone control to other home and building automation systems, thanks to the development of integration gateways that use different protocols such as **BACnet** and **KNX** as well as enable communication with other open protocols, such as **LonWorks**.

In order to continue to offer fully integrated solutions, we work directly with integrated building

management companies. An example is our collaboration with **Wago and Lutron**.

Users with an Airzone Cloud webserver connected to their systems will be able to enjoy voice control functionalities, using **Amazon Alexa or Google Assistant**.





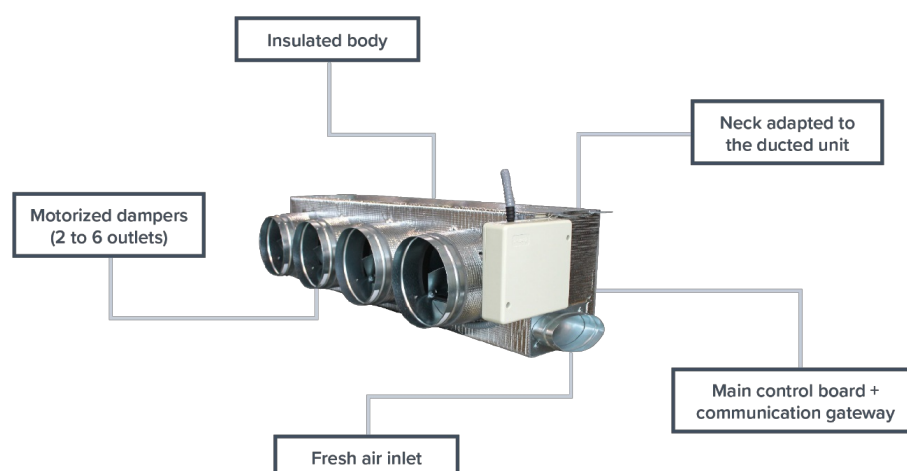
Easyzone, all-in-one system

Easyzone is a plug&play system that turns ducted AC units into highly efficient zoning systems. It is the perfect solution to optimize the performance of installations with Inverter or VRF units. Besides, it enables you to control your radiant zoned heating thanks to the radiant control module.

Integrated motorized plenum

The system is factory wired to avoid wiring errors. All fixing elements (ceiling fixing, damper-to-duct fixing flange) are included.

Available
for standard
and low-profile
indoor units.



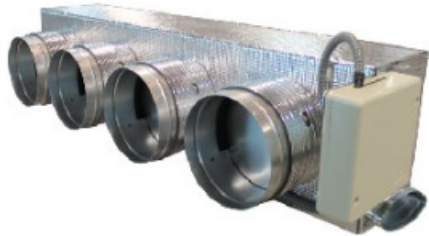
Compatible with the leading manufacturers around the world:



Easyzone is available in three different models:

Standard

Airzone standard motorized plenum with neck for mechanical adjustment to the ducted units of the main manufacturers. It includes dampers of 200 mm in diameter and it also has a separate input for the controlled mechanical ventilation.



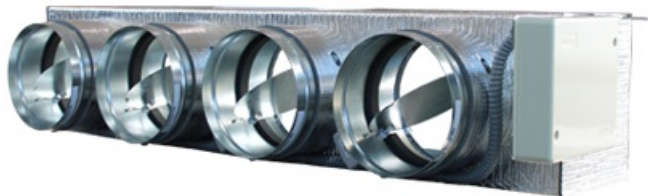
Slim

Airzone Slim motorized plenum is reduced in size to fit with smaller AC units. It includes dampers of 150 mm in diameter and it also has a separate input for the controlled mechanical ventilation.



Medium

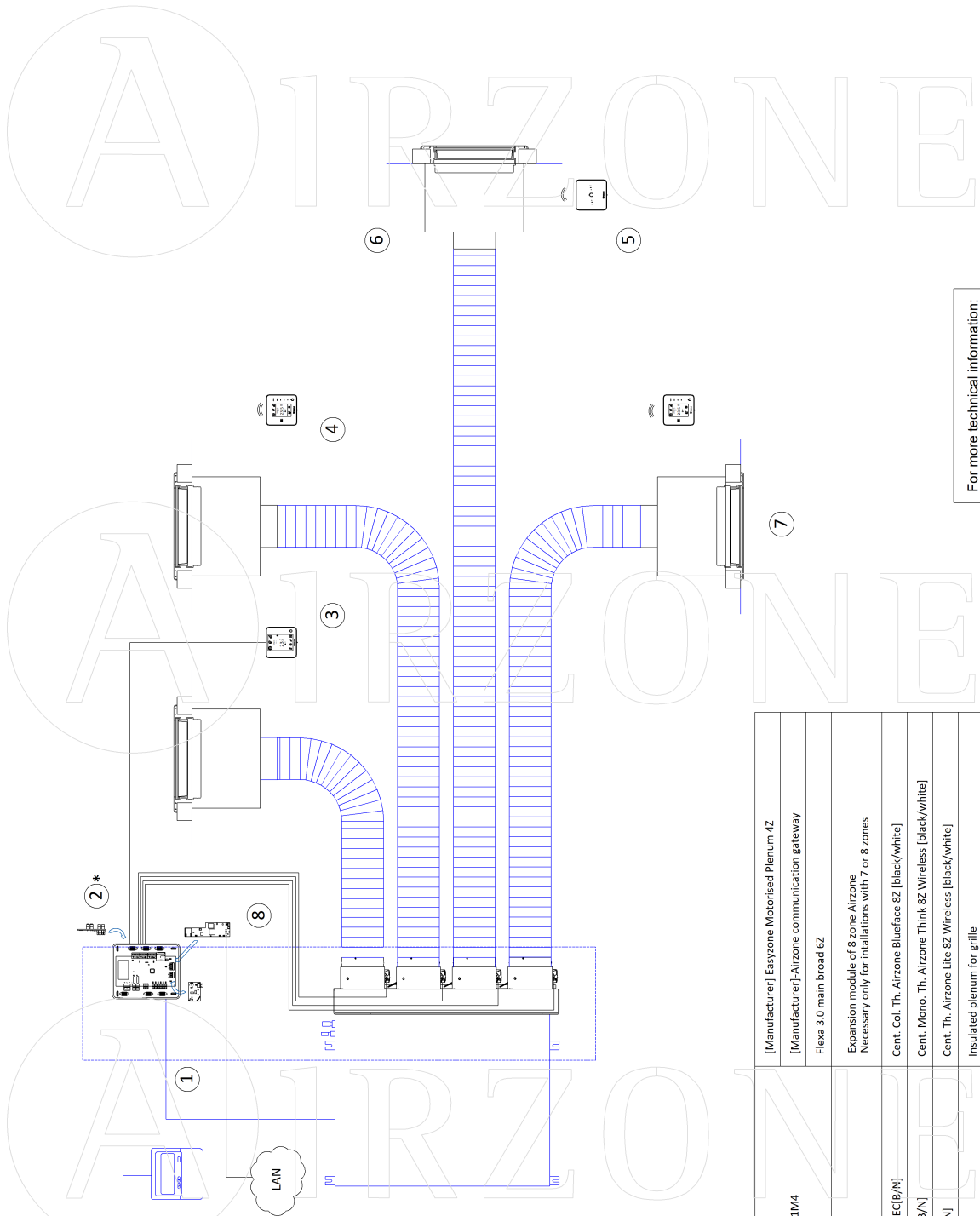
Airzone Medium motorized plenum with neck for mechanical adjustment to the ducted units of the main manufacturers. It includes dampers of 200 mm in diameter, the difference with the standard version is that it does not have a separate input for the controlled mechanical ventilation. In this way the height is reduced from 300mm to 250mm.



For more technical information please visit <http://myzone.airzonecontrol.com/>

Connection scheme

ZONED INVERTER UNIT FOR FLEXIBLE DUCT-UP TO 8Z



For more technical information:
<http://myzone.airzoneusa.com/>

①	AZE6[XXX]ST01M4	[Manufacturer] Easyzone Motorised Plenum 4Z [Manufacturer] Airzone communication gateway Flexa 3.0 main board 6Z
②	AZCEEXP8Z	Expansion module of 8 zone Airzone Necessary only for installations with 7 or 8 zones
③	AZCE6BLUEFACE[B/N]	Cent. Col. Th. Airzone Blueface 8Z [black/white]
④	AZCE6THINK[B/N]	Cent. Mono. Th. Airzone Think 8Z Wireless [black/white]
⑤	AZCE6LITE[B/N]	Cent. Th. Airzone Lite 8Z Wireless [black/white]
⑥	PREXXXXXT	Insulated plenum for grille
⑦	RDHXXXXXXBKX	Airzone double deflection grille
⑧	AZX6WEBSCLOUDC	Webserver Airzone Cloud WIFI

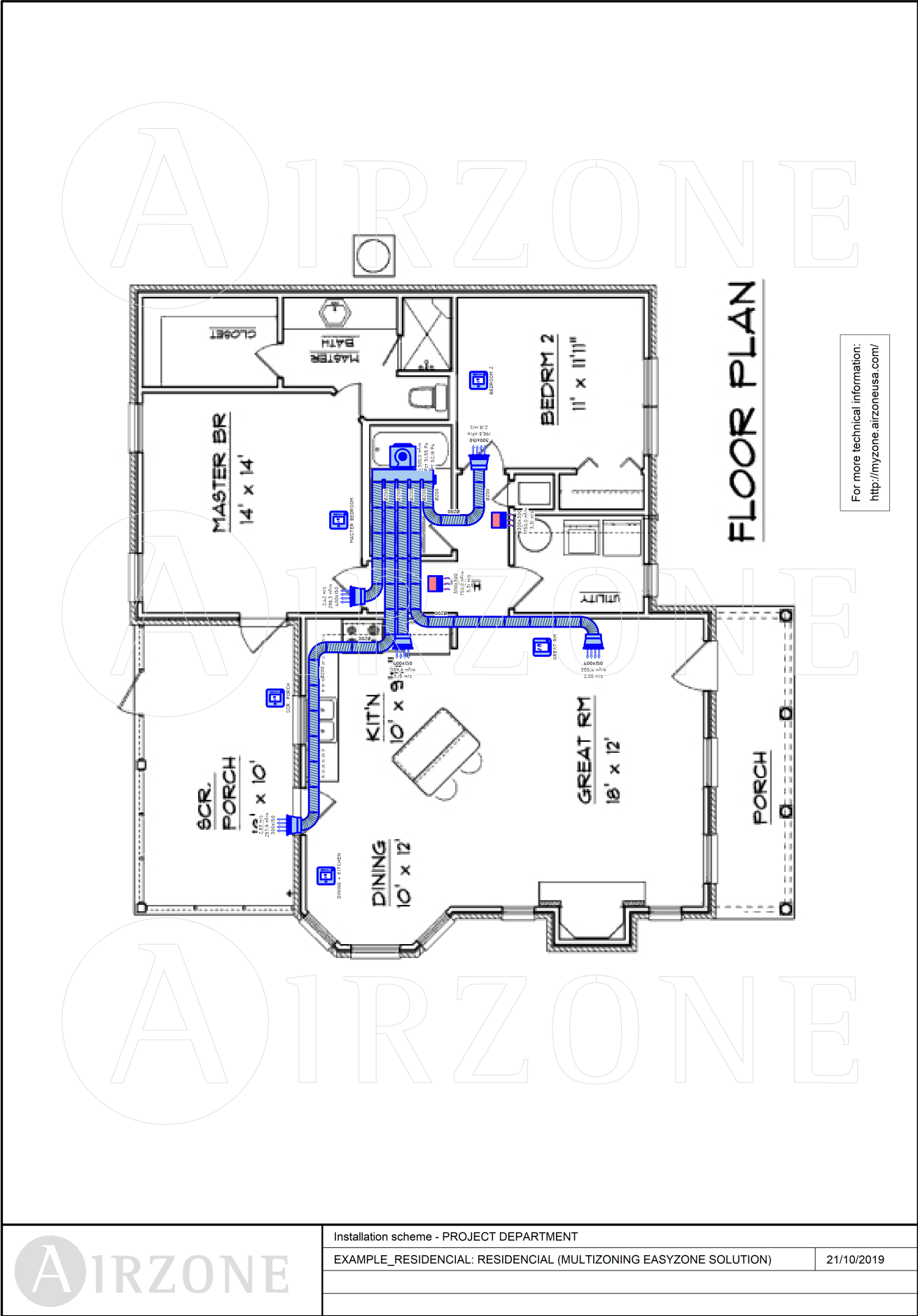


Connection scheme - PROJECT DEPARTMENT

EXAMPLE_RESIDENCIAL: RESIDENCIAL (MULTIZONING EASYZONE SOLUTION)

21/10/2019

Installation scheme



	Installation scheme - PROJECT DEPARTMENT	
	EXAMPLE_RESIDENCIAL: RESIDENCIAL (MULTIZONING EASYZONE SOLUTION)	21/10/2019

Duct calculation details

EQUIPMENT FEATURES						
Reference	Technology	Air flow (m³/h)	Total pressure (Pa)	Static pressure (Pa)	Gateway	Bypass damper
PEAD-M71JA	Direct expansion DX	1.500,0	52,18	51,55		-

ZONES				
Reference	Surface area (m²)	Air flow (m³/h) Supply/Return	Diffusion	Control
BEDROOM 2	12,4	198,8/0,0	BEDROOM 2	Term. BEDROOM 2: THINK THERMOSTAT
DINING + KITCHEN	24,3	389,6/0,0	DINING+KITCHEN	Term. DINING + KITCHEN: THINK THERMOSTAT
GREAT RM	22,1	355,4/0,0	GREAT RM	Term. GREAT RM: BLUEFACE THERMOSTAT
MASTER BEDROOM	18,6	298,3/0,0	MASTER BR	Term. MASTER BEDROOM: THINK THERMOSTAT
SCR. PORCH	16,1	257,9/0,0	SCR PORCH.	Term. SCR. PORCH: THINK THERMOSTAT
Total	93,4	1.500,0/0,0	-	-

RESULTS IN DUCTS											
Section	Dimensions (Horz.xVert.) or Ø (mm)	Area (m²)	eqv. Ø (mm)	Leng. (m)	eqvL. (m)	Air flow (m³/h)	Veloc. (m/s)	ΔPs (Pa)	ΔPf (Pa)	ΔPt (Pa)	Pt. Final (Pa)
Duct MASTER BR	Ø200	0,03142	200	2,00	0,00	298,3	2,64	0,00	2,00	2,00	11,36
Duct SCR PORCH.	Ø200	0,03142	200	7,00	11,66	257,9	2,28	8,93	5,36	14,28	23,64
Duct BEDROOM 2	Ø200	0,03142	200	2,00	11,58	198,8	1,76	5,52	0,95	6,47	15,83
Duct DINING+KITCHEN	Ø200	0,03142	200	3,00	0,00	389,6	3,44	0,00	4,87	4,87	14,23
Duct GREAT RM	Ø200	0,03142	200	5,50	5,90	355,4	3,14	8,10	7,55	15,65	25,01

RESULTS AT VENTS									
Ref.	Dimensions (Horz.xVert.) or Ø (mm)	Rat. Q (m³/h)	S. level (dBA)	Out. s. (m²)	Out. v. (m/s)	ΔPs (Pa)	ΔPb (Pa)	Throw (m)	ΔPv (Pa)
MASTER BR	400x150	298,3	< 15	0,03430	2,42	7,11	2,76	4,35	21,22
SCR PORCH.	300x150	257,9	< 15	0,02530	2,83	6,33	3,92	4,38	33,89
BEDROOM 2	300x150	198,8	< 15	0,02530	2,18	1,36	2,33	3,38	19,52
DINING+KITCHEN	400x150	389,6	18	0,03430	3,15	3,18	4,70	5,68	22,10
GREAT RM	400x150	355,4	16	0,03430	2,88	9,84	3,91	5,18	38,76
R01	300x300	750,0	26	0,06300	3,31	5,19	8,11	9,01	13,42
R01	300x300	750,0	26	0,06300	3,31	5,19	8,11	9,01	13,42

Abbreviations:	
<i>Rat. Q: Rated air flow</i> <i>S. level.: Regenerated individual sound level at head unit</i> <i>Out. s.: Effective output surface area</i> <i>Out. v: Output velocity</i> <i>ΔPs: Total pressure loss at input transformation piece</i> <i>ΔPb: Total pressure loss at vent</i> <i>ΔPv: Total pressure loss from fan</i>	<i>eqv. Ø: Equivalent diameter</i> <i>Leng: Duct length</i> <i>eqvL: Equivalent length of transformation pieces</i> <i>ΔPs: Total pressure loss at input transformation piece</i> <i>ΔPf: Pressure loss due to friction</i> <i>ΔPt: Total pressure loss</i> <i>ΔPt Final: Total pressure loss from fan</i>

List of materials

File code:	EXAMPLE_RESIDENCIAL
Description:	RESIDENCIAL (MULTIZONING EASYZONE SOLUTION)
Date:	21/10/2019

Item	Description	Units
AZEZ6MELST01M5	EASYZONE STANDARD+CMV 5 OUTPUTS 200	1
AZCE6BLUEFACECB	AIRZONE BLUEFACE COLOR THERMOSTAT WIRED WHITE	1
AZCE6THINKCB	AIRZONE THINK MONOCHROME THERMOSTAT WIRED WHITE	4
AZX6CABLEBUS100	AIRZONE BUS CABLE (2X0,5+2X0,22) 100 M	1

Other materials:

m	Circular / Flexible Ø200 duct	18,50
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NOTE: Duct length is not exact since the ductwork has been sized by means of a simplified template.

Plenum Easyzone	
Reference:	AZEZ6MELST01M5
Manufacturer:	MITSUBISHI ELECTRIC
Indoor unit Model:	PEAD-M71JA
Number of dampers:	5
Plenum technical sheet:	AZEZ6MELST0
Dimensions (mm) [Length x Width x Depth]:	1425x300x454