

P 10-932

Precision Air Conditioners

Cooling capacity 7 ÷ 160 kW

- **Strict control of room temperature and humidity**
- **High efficiency values**
- **Wide selection of configurations**
- **Reduced ground view clearance**



Last generation control panel



DESCRIPTION

P series precision air conditioning units have design and operational features suitable for rooms where sensible nature heat loads are prevailing.

CONFIGURATIONS

PXO: upwards flow air conditioners with direct expansion with air or water condensation.

PWO: upwards flow air conditioners with chilled water.

PXU: downwards flow air conditioners with direct expansion with air or water condensation.

PWU: downwards airflow air conditioners with chilled water.

FEATURES

The P series precision air conditioning units are designed for precision air conditioning of technological rooms characterized by elevated thermal loads to be eliminated, such as computing centres and other applications where high performances and maximum reliability are required.

Precision Air Conditioning units can be customized as per necessities, in order to offer a complete control of temperature, of humidity and of air quality through accessories such as humidifier, after-heating and high efficiency filters.

In order to guarantee the maximum reliability and flexibility, there are available both solutions with double circuit and solution with different cooling mediums:

Two Sources

The Twin Sources system ensures cooling continuity in case of unavailability, for whatever reason, of the primary source: overhead, maintenance, night or seasonal stop or stop for any emergency.

This system includes the assembly inside the air conditioner of a second cooling source, complete with its regulation and completely independent from the primary one.

They only share the aluminium finned pack, allowing both a high thermal exchange efficiency.

Free Cooling

This system employs external air, a renewable energy source, for cooling the Free Cooling water circuit by an external dry cooler.

The Free Cooling circuit works in place of, or along, the mechanical cooling with direct expansion.

STRUCTURE

The structure consists of a steel frame painted with dark grey epoxy powders (RAL7024) guaranteeing a durable finish. Acoustic insulation self-extinguishing panels covered with anti-friction film.

FANS

Centrifugal fans with backward curved blades (plug fans) with EC motor directly coupled to the electronic control to minimize power consumption and noise emissions.

FILTERS

Corrugated baffle filters, not regenerable, self-extinguishing, G4 efficiency class (according to EN 779).

Differential pressure switch (STANDARD) for dirty filter alarm.

The control of filter dirt conditions via Modbus is available as an option.

ELECTRONIC CONTROLLER

The evolved electronic adjustment maximises energy saving and optimizes all operating modes of the units, both direct expansion and chilled water.

— The controller allows to supervise all main components of the unit, with more than 50 different variables that guarantee real time monitoring of all operating cycles.

— The units have a standard RS485 Modbus board, BACnet, LonWorks and SNMP are available as options, for a simple and quick interface with BMS (Building Management System) supervising systems.

— View of all operating parameters in 8 languages.

CHILLED WATER COILS

Only for W configurations

Large surface batteries, positioned in such a way as to optimise airflow and heat transfer, made of refrigerating quality copper tubes with al-

uminium louvers mechanically merged, fitted with motorised 3way valve (2way is also available in the selection process).

COMPRESSORS

Only for X configurations

High efficiency scroll compressor with low power consumption.

ACCESSORIES

Direct expansion

- DC brushless compressors with inverter control
- Electric power supply line for remote condenser
- Electric power supply line with speed adjustment for remote condenser
- Condenser adjustment with 0-10V signal for remote condenser with EC fans
- Water condenser
- Condensate adjustment pressure valve
- "LAC" (Low Ambient Control) valve has the function of bypassing the condenser, injecting warm gas in the liquid piping, to maintain the refrigerant pressure stable. Use is recommended in very cold climates, in case of inverter compressors and in case of oversized condensers with respect to the real necessities of the units.

Chilled water

- Two ways modulating valves
- Inlet and outlet water temperature probes
- "Power Valve" kit: automatic adjustment and balancing valve of the water circuit, which allows to guarantee a constant water flow rate and monitor the efficiency of the unit in real time.

Heating

- Low thermal inertia electric batteries with differentiated stages regulation
- Low thermal inertia electric batteries with modulating regulation
- Water heating batteries with 2 or 3 ways modulating valve (available on request on some models only)

Humidification

- Room humidity probe
- Flow humidity probe
- Submerged electrodes humidifier (also available with low conductivity cylinder)

Water presence detection

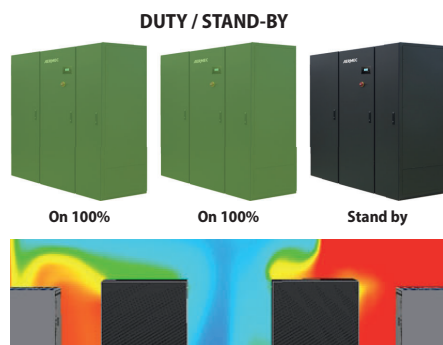
- Available as punctual probe or fabric belt (length 5 m) Allows to have an alarm in case water presence, even partial, is detected.

SMARTNET

The innovative **SMARTNET** system revolutionises the local area network concept.

This system, using the modulation capabilities of its components, allows dividing the workload across all units in the local area network.

Compared to the Duty Stand-by (n+1 or n+n) redundancy system, where the backup units were stopped waiting for a problem to arise,



These units in the direct expansion configurations work with R410A refrigerant, which does not damage the ozone layer.

In dual circuit configuration you can control the power output thanks to electronic adjustment that automatically manages the compressors activation depending on the load request.

Electronic expansion valve standard on all sizes.

Mechanicals and structural

- Condensate discharge pump
- Condensation and humidifier drain pump
- Flow overpressure dampers
- Motorised damper on suction
- M5 (EU5) efficiency air filter on air supply
- Flow plenum with adjustable grills.
- Sub-base plenum with front grids.
- **Plenum Free Cooling:** available for direct expansion and downward flow versions, complete with motorised dampers and the external air temperature probe. Used to perform **direct Free Cooling** taking advantage of external air and will work in place of or supporting the direct expansion mechanical cooling.
- Height adjustable support for raised floor installation
- Grilled panels for front flow
- Closed panels for downwards air intake
- Panels with "sandwich" counter-panels (available on request on some models only)
- Panels with increased soundproof upholstery (available on request on some models only)

Electrical

- The unit has a standard power supply 400V ~ 3N 50Hz. The following voltages are available as an alternative: 400V ~ 3N 60Hz, 230V ~ 3 60Hz, 380V ~ 3N 60Hz
- Electric power supply line without neutral
- "Basic" version automatic transfer switch (ATS)
- Advanced" version automatic transfer switch (ATS)

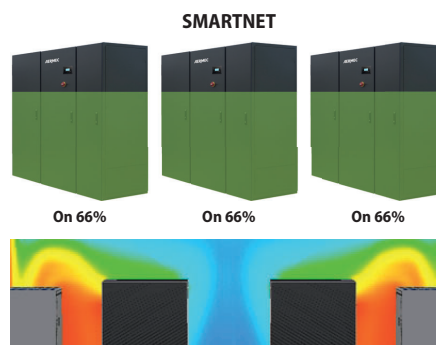
Regulation

- Constant flow rate ventilation adjustment
- Constant pressure ventilation adjustment
- Local area network configuration and cable
- User terminal for remote installation

For further details refer to the technical documentation or to the selection program.

the SMARTNET system allows to maintain the units connected on the network always active with various advantages:

- greater efficiency of the units with partial loads;
- optimal air distribution, eliminating the risk of environment hot-spots;
- internal system redundancy,



TECHNICAL DATA

PXO: upwards airflow - direct expansion with air or water condensation

		PXO 071	PXO 141	PXO 211	PXO 251	PXO 321	PXO 322	PXO 361	PXO 422	PXO 461	PXO 512	PXO 662	PXO 852	PXO 932
Cooling performances (1)														
Total cooling capacity	kW	8,2	14,7	21,0	27,4	35,2	33,8	38,1	43,7	48,1	57,8	67,3	84,4	94,9
Sensible cooling capacity	kW	7,9	12,9	21,0	25,7	35,2	33,8	38,1	43,7	46,8	53,6	66,2	73,7	86,3
EER (2)	W/W	3,83	3,40	3,30	3,14	3,13	3,34	3,57	3,47	3,63	3,34	3,26	3,27	3,64
Fans														
Type	type	Plug-fan EC inverter												
Air flow rate	m ³ /h	2200	3200	7000	7000	12000	12000	14000	14000	14000	14000	18000	18000	21000
Refrigerant circuit														
Number	no.	1	1	1	1	1	2	1	2	1	2	2	2	2
Sound data														
Sound pressure (3)	dB(A)	51	59	56	57	67	67	58	58	58	59	61	61	61
Possible configurations														
Free Cooling		-	-	-	-	Yes	-	-	-	Yes	-	Yes	Yes	-
Two Sources		-	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	Yes	Yes
Electric data														
Power supply		400V ~ 3N 50Hz												

(1) Condensation temperature 45 °C; incoming air 24 °C / 45 % u.r.; external static pressure: 30Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

PWO: upwards airflow - with chilled water

		PWO 10	PWO 20	PWO 30	PWO 50	PWO 60	PWO 70	PWO 80	PWO 110	PWO 160	PWO 220
Cooling performances (1)											
Total cooling capacity	kW	9,9	17,2	30,0	41,0	52,8	63,1	65,5	80,0	110,0	160,0
Sensible cooling capacity	kW	9,3	14,9	27,8	36,2	47,4	54,2	61,8	73,0	99,7	146,0
EER (2)	W/W	38,26	29,13	30,00	24,54	22,75	24,17	24,79	24,17	29,33	21,17
Fans											
Type	type	Plug-fan EC inverter									
Air flow rate	m ³ /h	2200	3200	7000	8000	12000	12000	16000	18000	24000	36000
Refrigerant circuit											
Number	no.	1	1	1	1	1	1	1	1	1	1
Sound data											
Sound pressure (3)	dB(A)	51	59	56	60	67	68	61	62	62	65
Possible configurations											
Free Cooling		-	-	-	-	-	-	-	-	-	-
Two Sources		-	-	-	Yes	-	-	-	Yes	Yes	-
Electric data											
Power supply		400V ~ 3N 50Hz									

(1) Incoming air 24 °C / 45 % r.h.; water 7 °C / 12 °C; external static pressure: 30 Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

PXU: downwards airflow - direct expansion with air or water condensation

		PXU 071	PXU 141	PXU 211	PXU 251	PXU 321	PXU 322	PXU 361	PXU 422	PXU 461	PXU 512	PXU 662	PXU 852	PXU 932
Cooling performances (1)														
Total cooling capacity	kW	8,2	14,7	21,0	27,4	35,2	33,8	38,1	43,7	48,1	57,8	67,3	84,4	94,9
Sensible cooling capacity	kW	7,9	12,9	21,0	25,7	35,2	33,8	38,1	43,7	46,8	53,6	66,2	73,7	86,3
EER (2)	W/W	3,74	3,29	3,24	3,10	3,09	3,29	3,50	3,41	3,57	3,30	3,15	3,18	3,59
Fans														
Type	type	Plug-fan EC inverter												
Air flow rate	m ³ /h	2200	3200	7000	7000	12000	12000	14000	14000	14000	14000	18000	18000	21000
Refrigerant circuit														
Number	no.	1	1	1	1	1	2	1	2	1	2	2	2	2
Sound data														
Sound pressure (3)	dB(A)	51	57	62	62	67	68	59	59	59	59	63	63	62
Possible configurations														
Free Cooling		-	-	-	-	Yes	-	-	-	Yes	-	Yes	Yes	-
Two Sources		-	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	Yes	Yes
Electric data														
Power supply		400V ~ 3N 50Hz												

(1) Condensation temperature 45 °C; incoming air 24 °C / 45 % u.r.; external static pressure: 30Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

PWU: downwards airflow - with chilled water

		PWU 10	PWU 20	PWU 30	PWU 50	PWU 60	PWU 70	PWU 80	PWU 110	PWU 160	PWU 220
Cooling performances (1)											
Total cooling capacity	kW	9,9	17,2	30,0	41,0	52,8	63,1	65,4	80,0	110,0	160,0
Sensible cooling capacity	kW	9,3	14,9	27,8	36,2	47,4	54,2	61,8	73,0	99,7	146,0
EER (2)	W/W	32,09	23,54	27,03	20,91	21,28	22,77	23,21	19,80	24,39	19,80
Fans											
Type	type	Plug-fan EC inverter									
Air flow rate	m ³ /h	2200	3200	7400	8200	12000	12000	16000	18000	24000	36000
Refrigerant circuit											
Number	no.	1	1	1	1	1	1	1	1	1	1
Sound data											
Sound pressure (3)	dB(A)	51	60	57	62	68	68	62	63	63	66
Possible configurations											
Free Cooling		-	-	-	-	-	-	-	-	-	-
Two Sources		-	-	-	Yes	-	-	-	Yes	Yes	-
Electric data											
Power supply		400V ~ 3N 50Hz									

(1) Incoming air 24 °C / 45 % r.h.; water 7 °C / 12 °C; external static pressure: 30 Pa. Stated performances do not take into account the heat generated by the fans which must be added to the heat load of the system.

(2) EER: Energy Efficiency Ratio; total cooling capacity / input power to the compressors + the power of fans (excluding air condensers).

(3) Sound pressure: stated data 2m away, in free field according to UNI EN ISO 3744:2010

UPWARDS FLOW CONFIGURATIONS



Standard version with frontal air intake and upwards flow.



Version with front air intake and frontal air flow with distribution plenum with grid.



Version with air intake from the bottom, stand for raised floor, blind front panel and upflow air supply.

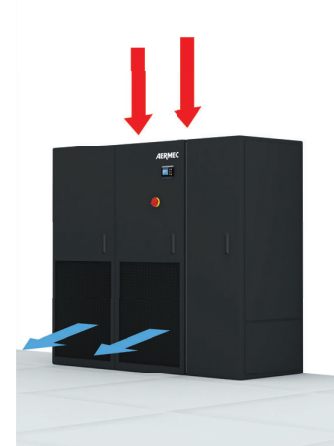
DOWNWARDS FLOW CONFIGURATIONS



Standard version with upwards suction and downwards airflow, with sub-base for raised flooring.

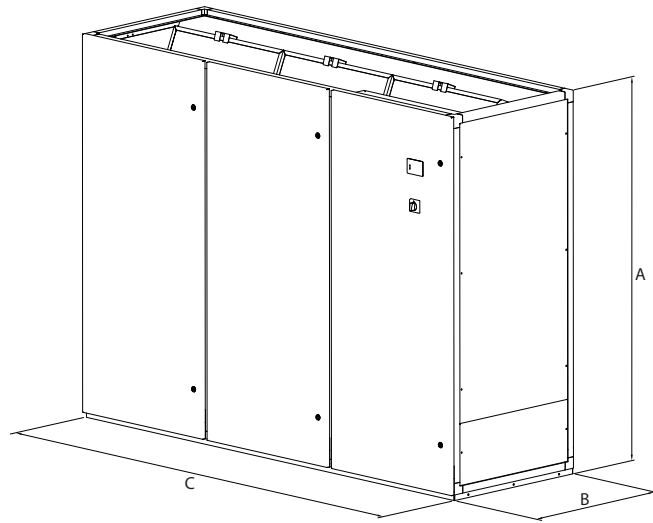


Version with upwards suction with frontal air flow with grilled plenum distribution.



Version with upwards suction with frontal air flow with grilled front panel.

DIMENSIONS



		PXO 071	PXO 141	PXO 211	PXO 251	PXO 321	PXO 322	PXO 361	PXO 422	PXO 461	PXO 512	PXO 662	PXO 852	PXO 932
Dimensions and weights														
A	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
B	mm	600	600	880	880	850	850	880	880	880	880	880	880	880
C	mm	750	750	860	860	1410	1410	1750	1750	1750	1750	2300	2300	2640
Empty weight	kg	180	210	270	270	365	390	440	450	450	500	640	660	860

		PWO 10	PWO 20	PWO 30	PWO 50	PWO 60	PWO 70	PWO 80	PWO 110	PWO 160	PWO 220
Dimensions and weights											
A	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
B	mm	600	600	880	880	850	850	880	880	880	880
C	mm	750	750	860	860	1410	1410	1750	1750	2640	3495
Empty weight	kg	155	160	220	240	240	260	340	360	540	700

		PXU 071	PXU 141	PXU 211	PXU 251	PXU 321	PXU 322	PXU 361	PXU 422	PXU 461	PXU 512	PXU 662	PXU 852	PXU 932
Dimensions and weights														
A	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
B	mm	600	600	880	880	850	850	880	880	880	880	880	880	880
C	mm	750	750	860	860	1410	1410	1750	1750	1750	1750	2300	2300	2640
Empty weight	kg	180	210	270	270	365	390	440	450	450	500	640	660	860

		PWU 10	PWU 20	PWU 30	PWU 50	PWU 60	PWU 70	PWU 80	PWU 110	PWU 160	PWU 220
Dimensions and weights											
A	mm	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
B	mm	600	600	880	880	850	850	880	880	880	880
C	mm	750	750	860	860	1410	1410	1750	1750	2640	3495
Empty weight	kg	155	160	220	240	240	260	340	360	540	700

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume responsibility or liability for errors or omissions.

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