

CLOSE CONTROL
AIR CONDITIONERS

TECNAIR

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TECHNICAL **SPECIFICATIONS**



SURVEY³

ELECTRONIC CONTROL SYSTEM

The Survey³ control microprocessor has been designed for simple, intuitive operation and real-time monitoring of all unit operating cycles using a large colour display (320 x 240 pixels) and touch keys.

The Survey³ provides an integrated storage system for operating conditions, includes USB download and a real-time temperature and humidity graphical display.

Thanks to the RS485 and RJ45 ports, Survey3 allows simple interfacing with monitoring and BMS systems, with the following integrated protocols: Modbus RTU, Modbus IP, BACnet IP (Accessory) and BACnet MS/TP (Accessory). Integration of supervisory web pages is also possible and includes an option of sending e-mail alerts in the event of an alarm (Accessory).



SMARTnet

THE SMART LOCAL NETWORK

The innovative SMART NET system revolutionises the concept of the local network. Taking advantage of the unit's modular nature, the SMART NET system allows the workload to be actively shared among all the units in the local network.

This translates directly into energy savings of up to 60% compared to redundant networks (n+1 or n+n).



POWERvalve

WATER FLOW REGULATION VALVE AND MONITORING OF ENERGY USE

Electronic control of the water flow rate allows the POWER VALVE system to automatically balance the hydraulic circuit independently of the pressure, ensuring a continuous, unvarying water flow rate.

Moreover, by detecting the water inlet and outlet temperatures, real-time monitoring of the delivered cooling by the unit and a calculation of the energy efficiency ratio (EER) are both possible.

SMARTcool

ADVANCED COOLING CIRCUIT CONTROL SYSTEM

The cooling circuit is a key component in ensuring optimum performance in direct expansion units.

This is why TECNAIR has developed the SMART COOL system, which consists of hardware and software solutions designed to optimise the management, maintenance, safety and reliability of the cooling circuit.



HARDWARE SOLUTIONS

The following come as standard on each cooling circuit:

- Anti-vibration mounts on the compressor's suction and delivery tubing, which eliminate operating vibrations and reduce noise.
- Liquid receiver with safety valve and filter with refrigerant transit sight glass.
- High-efficiency electronic expansion valves (EEV).
- Non-return valves on delivery and liquid tubing (supplied loose).
- Refrigerant evaporation and condensation pressure probes.
- Liquid refrigerant suction and delivery temperature probes.

Accessories:

- Brushless compressors with inverter control and oil separator.
- Condensation pressure control for air and water condensation.
- Condensation control kit for low room temperatures.



SOFTWARE SOLUTIONS

- Visualisation of the operating conditions of the entire cooling cycle of the unit on a display and via the system supervision system (BMS). This allows remote supervision of the operation of the unit and prompt intervention should the need arise, thus reducing the risk of any defects in the system.
- Control of the electronic expansion valve (EEV) and compressor inverter via master Modbus protocol.
- Active control of superheating, desuperheating and subcooling.
- Over 15 control functions for performance and energy optimisation of cooling circuit components.
- Over 20 active and passive safety functions to safeguard the components on the cooling circuit.

UPA/OPA: Direct expansion air conditioners with air-cooled or water-cooled condensers

MODELS		71	141	211	251	301	321	322	361	461	422	512	662	852	932
Performance															
Cooling capacity (1)	kW	8.2	14.7	21.0	27.4	32.3	35.2	33.8	38.1	48.1	43.7	57.8	67.3	84.4	94.9
Sensible cooling capacity (1)	kW	7.9	12.9	21.0	25.7	32.3	35.2	33.8	38.1	46.8	43.7	53.6	66.2	73.7	86.3
EER (2)		3.83	3.40	3.30	3.14	3.21	3.13	3.34	3.57	3.63	3.47	3.34	3.26	3.27	3.64
Air flow rate	m³/h	2,200	3,200	7,000	7,000	12,000	12,000	12,000	14,000	14,000	14,000	14,000	18,000	18,000	21,000
SPL - Sound pressure level (3)	dB(A)	51	59	56	57	67	67	67	58	58	58	59	61	61	61
Dimensions and weights															
Width	mm	750	750	860	860	1,410	1,410	1,410	1,750	1,750	1,750	1,750	2,300	2,300	2,640
Depth	mm	600	600	880	880	880	880	880	880	880	880	880	880	880	880
Height	mm	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990
Overall weight	kg	170	225	280	305	360	385	430	460	470	535	540	685	705	745
Air-cooled Free Cooling		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Water-cooled Free Cooling		○	○	○	○	○	●	○	○	●	○	○	●	●	○
Two Sources		○	○	●	○	○	●	○	○	●	○	●	●	●	●

UPU/OPU: Chilled water air conditioners

MODELS		10	20	30	50	60	70	80	110	160	220
Performance											
Cooling capacity (1)	kW	9.9	17.2	30.0	41.0	52.8	63.1	65.4	80.0	110.0	160.0
Sensible cooling capacity (1)	kW	9.3	14.9	27.8	36.2	47.4	54.2	61.8	73.0	99.7	146.0
EER (2)		38.26	29.13	30.00	24.54	22.75	24.17	24.79	24.17	29.33	24.17
Air flow rate	m³/h	2,200	3,200	7,000	8,000	12,000	12,000	16,000	18,000	24.000	36,000
SPL - Sound pressure level (3)	dB(A)	51	59	56	60	67	68	61	62	62	65
Dimensions and weights											
Width	mm	750	750	860	860	1,410	1,410	1,750	1,750	2,640	3,495
Depth	mm	600	600	880	880	880	880	880	880	880	880
Height	mm	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990
Overall weight	kg	125	150	245	250	270	280	375	410	690	810
Two Sources		○	○	○	●	○	●	○	●	●	○

Notes:

(1) Performance refers to: intake air 24°C-45%Rh; R410a refrigerant; condensing temperature 45°C; water temperature 7/12°C; external static pressure 30 Pa. The declared performance does not consider the heat generated by the fans, which must be added to the thermal load of the system.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / input power of compressors + input power of fans (excluding air-cooled condensers).

(3) Soundpressurelevelsatadistanceof2m; in a free field; pursuant to UNI EN ISO 3744:2010.



FREEcooling TWOsources

P series PACKAGED

Close control air conditioners

Although optimised for data centres, the technical characteristics of the **P series** units make them ideal for various types of special applications, including: metrology labs, TV production studios, musical instrument recording and storage rooms, museums and archives, control rooms in power stations and railway junctions.

Moreover, they are ideal for use in many industrial sectors: optics, electronics, electromedical devices, electrical or electronic equipment production, musical instrument production, etc.

GENERAL SPECIFICATIONS

- Versions with upward and downward air delivery.
- Strict control of room temperature and humidity.
- Very high EER (energy efficiency ratio) and low operating costs.
- High usage flexibility and wide range of accessories.

Free Cooling and Two Sources models available

UGA: Direct expansion air conditioners with air-cooled or water-cooled condensers

MODELS		932	1342
Performance			
Cooling capacity (1)	kW	102.6	153.9
Sensible cooling capacity (1)	kW	102.6	153.9
EER (2)		4.16	4.54
Air flow rate	m³/h	18,000	31,500
SPL - Sound pressure level (3)	dB(A)	56	61
Dimensions and weights			
Width	mm	2,390	3,120
Depth	mm	921	921
Height	mm	1,990	1,990
Overall weight	kg	910	1240

UGU: Chilled water air conditioners

MODELS		70	150	150 XH	230	230 XH	300
Performance							
Cooling capacity (1)	kW	55.5	112.6	129.7	176.6	220.7	202.8
Sensible cooling capacity (1)	kW	55.5	112.6	129.7	176.6	220.7	202.8
EER (2)		31.17	36.32	36.94	36.65	38.86	33.97
Air flow rate	m³/h	11,000	23,000	26,000	36,000	39,000	45,200
SPL - Sound pressure level (3)	dB(A)	58	60	62	63	65	62
Dimensions and weights							
Width	mm	1,320	1,840	1,840	2,740	2,740	4,020
Depth	mm	921	921	1,050	921	1,050	921
Height	mm	1,990	1,990	2,350	1,990	2,350	1,990
Overall weight	kg	540	840	865	1,220	1,250	1,630

Notes:

(1) Performance refers to: intake air 32°C-30%Rh; R410a refrigerant; condensing temperature 45°C; water temperature 12/20°C; external static pressure 30 Pa. The declared performance does not consider the heat generated by the fans, which must be added to the thermal load of the system.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / input power of compressors + input power of fans (excluding air-cooled condensers).

(3) Soundpressurelevelsatadistanceof2m; in a free field; pursuant to UNI EN ISO 3744:2010.



FREEcooling TWOsources

G series GREAT

Close control air conditioners for large data centres

In designing air conditioning systems for large data centres, the need to house electrical wires and the enormous quantities of air required to cool the serves has made it necessary to increase the height of the raised floors up to the current 550/1000 millimetres. A large space was therefore created under the air conditioner in which to install the adjustable support. It was then decided to exploit this large space to house the delivery fans without increasing the machine's footprint, making the most of the available space instead.

GENERAL SPECIFICATIONS

- Separate air-cooling section for mounting under raised floors.
- High delivered cooling capacity to footprint ratio.
- Optimised air distribution in raised floor.
- Reduced energy consumption of fans.

Chilled water versions available in XH (Extended Height)

Free Cooling and Two Sources models available

W series COLD WALL

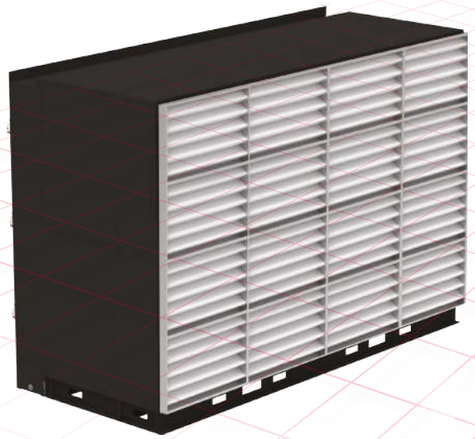
Close control air conditioners for installation in service corridors

The **W Series** units feature constructive and operational characteristics able to satisfy the design criteria of latest-generation large Data Centres in the presence of a technical service corridor. The units are designed to withdraw the warm air generated by the servers, coming from the warm corridor, and blow chilled air directly into the Data Hall.

This type of chilled water unit is specifically designed to be modular and customisable, with a range of possible custom configurations to suit the architecture of modern Data Centres. Its reduced footprint and installation in a service corridor means **W Series** units avoid occupying critical spaces, thus maximising the capacity of the Data Hall.

GENERAL SPECIFICATIONS

- Technical services corridor mounting.
- No space occupied in the data centre.
- Very high EER (energy efficiency ratio) due to optimised airflow.
- Fully customisable to data centre specifications.



HWU: Chilled water air conditioners

MODELS		2X1	3X1	4X1	2X2	3X2	4X2
Performance							
Cooling capacity (1)	kW	112.0	189.9	258.9	224.0	379.9	500.5
Sensible cooling capacity (1)	kW	112.0	189.9	258.9	224.0	379.9	500.5
EER (2)		18.60	21.58	22.32	18.60	21.59	23.50
Air flow rate	m^3/h	25,000	37,500	50,000	50,000	75,000	96,000
SPL - Sound pressure level (3)	dB(A)	71	72	72	72	74	74
Dimensions and weights							
Width	mm	1900	2850	3800	1900	2850	3800
Depth	mm	1400	1400	1400	1400	1400	1400
Height	mm	1800	1800	1800	3600	3600	3600
Overall weight	kg	600	900	1200	1200	1800	2400

Notes:

(1) Performance refers to: intake air 40°C-25%Rh; R410a refrigerant; condensing temperature 45°C; water temperature 20/30°C; external static pressure 30 Pa. The declared performance does not consider the heat generated by the fans, which must be added to the thermal load of the system.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / input power of compressors + input power of fans (excluding air-cooled condensers).

(3) Soundpressurelevelsatadistanceof2m; in a free field; pursuant to UNI EN ISO 3744:2010.

R series IN-ROW

Air conditioners for “in-row” mounting

In air conditioning systems for large data centres, use of the following design concepts has now become a consolidated practice:

- The racks containing the servers are being increasingly positioned in accordance with the hot corridor (or hot aisle), and cold corridor (or cold aisle) layout.
- The air temperatures are left to rise up to 30-35°C in the hot corridor, and 20-25°C in the cold corridor, with very low humidity (never more than 30%).
- The performance of servers is continually increasing, while their size is getting smaller and smaller.

Many more servers can therefore be installed in one rack, allowing the remaining empty racks to be eliminated. At the same time, the dissipated heat rises, and more power is therefore required of the air conditioners.

GENERAL SPECIFICATIONS

- Airflow distribution as close as possible to servers.
- Rear suction from hot aisles and front delivery to cold aisles.
- Front and rear access for ease of maintenance.
- Hydraulic, refrigeration and electrical connections from above or below.

Free Cooling and Two Sources models available



FREE cooling TWO sources

HRA: Direct expansion air conditioners with air-cooled or water-cooled condensers

MODELS		121	201	231	361
Performance					
Cooling capacity (1)	kW	11.4	22.0	22.9	36.6
Sensible cooling capacity (1)	kW	11.4	19.9	22.6	34.7
EER (2)		3.70	3.52	3.66	3.91
Air flow rate	m^3/h	3,200	3,600	6,000	6,000
SPL - Sound pressure level (3)	dB(A)	51	53	54	56
Dimensions and weights					
Width	mm	300	300	600	600
Depth	mm	1,200	1,200	1,220	1,220
Height	mm	1,970	1,970	2,000	2,000
Overall weight	kg	220	235	235	235
Water-cooled Free Cooling		○	○	●	○
Two Sources		○	○	●	○

HRU: Chilled water air conditioners

MODELS		20	40
Performance			
Cooling capacity (1)	kW	24.5	37.3
Sensible cooling capacity (1)	kW	24.5	37.3
EER (2)		23.09	27.82
Air flow rate	m^3/h	5,600	9,000
SPL - Sound pressure level (3)	dB(A)	53	62
Dimensions and weights			
Width	mm	300	600
Depth	mm	1,200	1,220
Height	mm	1,970	2,000
Overall weight	kg	145	210
Two Sources		○	●

Notes:

(1) Performance refers to: intake air 32°C-30%Rh; R410a refrigerant; condensing temperature 45°C; water temperature 12/20°C; external static pressure 30 Pa. The declared performance does not consider the heat generated by the fans, which must be added to the thermal load of the system.

(2) EER (Energy Efficiency Ratio) = total cooling capacity / input power of compressors + input power of fans (excluding air-cooled condensers).

(3) Soundpressurelevelsatadistanceof2m; in a free field; pursuant to UNI EN ISO 3744:2010.



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