

ENERGY SPLIT: Split system air conditioners with free-cooling system.

Cooling Capacity: 4,2 ÷ 15,6 kW



UPS_{48VDC}
RC Hi-Tech

FREE_{COOLING}
RC Hi-Tech

rcgroupairconditioning



MAIN FEATURES

- Telecommunication split-system air conditioners.
- Proportional automatic free-cooling system. Three working mode.
- 8 models available for a wide selection opportunity.
- Average step of 1,5kW.
- Rotary or scroll compressor.
- R407c refrigerant charge.
- Supply fans directly coupled to brushless type electric motors.
- Horizontal or Vertical air flow.
- Double power supply (Network + 48VDC UPS)
- Evaporating unit suitable for indoor installation.
- Moto-condensing unit suitable for outdoor installation.

MAIN BENEFITS

- The proprietary software foresees unit working with the lowest noise emission during the night.
- Working continuity even during black-out periods.
- Automatic restart of the unit.
- Availability of electric heater.
- Easily of maintenance.

PROPORTIONAL FREE-COOLING SYSTEM

The cooling system is totally proportional and allows three working modes:

- total free-cooling: only fresh air is used to cool the ambient;
- partial free-cooling: the fresh air is used for a pre-cooling and the compressor or the chilled water are used to balance the load;
- mechanical cooling: the compressor or the chilled water are used to cool the ambient

DOUBLE POWER SUPPLY
(Network + 48VDC UPC)

WORKING LIMITS

Room humidity from 20 up to 75% rH
Room temperature from 16 up to 35°C
Ambient temperature from -30 up to 45°C



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MAIN COMPONENTS**INDOOR UNIT****FRAMEWORK**

- Frame in galvanized steel sheet, painted with epoxy powders.
- Galvanized steel sheet panels painted with epoxy powders, internally insulated with noise absorption material and seals to ensure air tight with the panels.
- Colour RAL 9002
- The frame can be installed on the ceiling (horizontal air flow) or wall mounting installation (vertical air flow).

FILTER SECTION

- Washable air filters with G3 efficiency, with cells in synthetic fibre and metallic frame (EN 779-2002).

EVAPORATING SECTION

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops.
- Frame in galvanized steel.
- Condensate tray in peraluman with PVC flexible discharge pipe.

REFRIGERANT CIRCUIT

- Thermostatic expansion valve.
- Pressure transducer with indication, control and protection functions, on high pressure.
- Low pressure safety switch.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Refrigerant connection valves on liquid line and suction line.
- R407C refrigerant charge.

SUPPLY FANS SECTION

Power supply 48VDC from UPS

- Double suction centrifugal fans with forward curved vanes directly coupled to external rotor electric motor.
- Brushless type electric motor with continuous variation of the rotation speed. The motor rotation control is obtained by signal coming from the microprocessor control.
- Temperature sensor on room air intake
- Temperature sensor on room air delivery.
- Grille on room air suction.
- Double row adjustable grille on air delivery.
- System for air flow loss alarm

DIRECT FREE-COOLING SECTION

Power supply 48VDC from UPS

- Deviating damper on ambient air.
- Proportional servomotor directly driven by microprocessor control.
- Grille on ambient air suction.
- Temperature sensor on ambient air.

ELECTRICAL PANEL

In accordance with EN60204-1 norms complete with:

- Double power supply, from network and from UPS 48VDC
Models 4 R1, 5 R1, 6 Z1, 7 Z1, 8 Z1:
- 230/1/50 power supply for compressor, condenser fan and eventual electric heater.
- Models 10 Z1, 13 Z1, 15 Z1:
- 400/3/50+N power supply for compressor, condenser fan and eventual electric heater.
- For all models:
- 48 VDC power supply from UPS for supply fans, free-cooling damper servomotor, auxiliary circuit and microprocessor control.
- Magnetothermic switch for 230/1/50 power supply line (from network)
- Magnetothermic switch for 48VDC power supply line (from UPS)
- Auxiliary circuit 48VDC (from UPS).
- Contactor for compressor
- Phases monitoring relay (only models 10.Z1, 13.Z1, 15.Z1)

- Terminals for General Alarm 1
- Terminals for General Alarm 2
- Wall mounting remote terminal kit that includes containing box, terminal, telephone cable for connection to the unit (length 10m).

CONTROL SYSTEM

Power supply 48VDC from UPS

- Microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
 - Real time clock.
 - Main components hour-meter.
 - Menu with protection password.
 - LAN connection.
 - LN function to obtain a low noise unit running. The system works proportionally to the load on the fan rotation speed either of the condenser fan or the supply fan. The system allows a low noise unit running during night time anyway according to the programmed sets.
 - Automatic restart of the unit in case of power failure

OUTDOOR UNIT**FRAMEWORK**

- Base and frame in galvanized steel sheet, painted with epoxy powders.
- Colour RAL 9002

ON / OFF COMPRESSOR

- Rotary compressor with rotary vane (model R1) optimized for R407C refrigerant.
- Scroll compressor (model Z1) with spiral profile optimized for R410A refrigerant.
- Electric motor with direct on line starting.
- Rubber supports.

REFRIGERANT CIRCUIT

- Sight glass.
- Filter dryer on liquid line.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Refrigerant connection valves on liquid line and suction line.
- R407C refrigerant charge and lubricant oil.

CONDENSING COIL

- Heat exchanger coil with high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops. The combination of two factors, special tubes and fins, allow to optimally combine the following aspects:
 - Maximum capacity relative to the size of the exchanger.
 - Minimum charge of refrigerant.
 - Reduction of the air flow required for the heat exchange.
- Frame in galvanized steel.

CONDENSER FAN SECTION

- Axial fan with sickle-shaped blade, fan guard and optimized for low noise levels.
- External rotor AC type electric motor with stepless variable speed for condensing pressure control.
- IP54 enclosure class.

ELECTRICAL PANEL

In accordance with EN60204-1 norms, suitable for outdoor installation, complete with:

- Main switch with door lock safety and remote signalling for open/close switch
- Terminals for compressor and condenser fan power supply

OPTIONAL ACCESSORIES

ENERGY SPLIT

MODEL SIZE	04 R1 S0 XS	05 R1 S1 XS	06 Z1 S1 XS	08 Z1 S1/S XS	09 Z1 S1/S XS	11 Z1 S2 XS	13 Z1 S2 XS	16 Z1 S3 XS
311 - Electric heater	•	•	•	•	•	•	•	•
408 - FC system removal detractor	•	•	•	•	•	•	•	•
909 - Clogged filters alarm	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•
925 - Terminal removal detractor	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•
939 - Fresh air kit	•	•	•	•	•	•	•	•

• available accessory; - not available accessory

TECHNICAL DATA

ENERGY SPLIT

Model Size		04 R1 S0 XS	05 R1 S0 XS	06 Z1 S0 XS	07 Z1 S1 XS	08 Z1 S1 XS	10 Z1 S1 XS	13 Z1 S2 XS	15 Z1 S2 XS
Cooling capacity(1)									
Total	kW	4,2	5,3	6,0	7,0	9,6	11,4	12,8	15,6
Sensible	kW	3,9	4,9	5,4	6,2	8,3	9,9	12,0	14,2
SHR	kW/kW	0,93	0,93	0,90	0,89	0,87	0,87	0,94	0,91
Unit power input									
48VDC power supply from UPS	kW	0,31	0,31	0,34	0,44	0,58	0,61	0,65	0,90
Power supply from network	kW	0,91	1,39	1,83	1,82	2,12	2,46	3,02	3,78
Treatment fans	n.	2	2	2	2	2	2	2	2
Air flow	m³/h	1400	1400	1400	2000	2400	2800	3500	3900
Nominal external static pressure	Pa	30	30	30	30	30	30	30	30
Compressors		Rotary	Rotary	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Quantity	n.	1	1	1	1	1	1	1	1
Capacity steps	n.	1	1	1	1	1	1	1	1
Condenser fans	n.	1	1	1	1	1	1	1	1
Air flow	m³/h	1800	1800	2600	2600	3250	3450	3450	4400
Air filter	n.	1	1	1	1	1	1	1	1
Efficiency	G3	G3	G3	G3	G3	G3	G3	G3	G3
Refrigerant		R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
Total refrigerant charge	kg	2,0	2,0	2,0	2,0	2,0	2,9	3,1	3,1
Gas circuits	n.	1	1	1	1	1	1	1	1
Power supply - in-room unit	V/Ph/Hz	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC	230/1/50+48VDC
Power supply - outdoor unit	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50+N	400/3/50+N	400/3/50+N
Max operating current (FLA)									
48VDC power supply from UPS	A	5,5	5,5	5,5	7,5	10,3	11,0	11,7	15,0
Power supply from network	A	7,1	10,1	12,1	12,1	15,5	6,9	7,7	9,2
Starting current (LRA)									
48VDC power supply from UPS	A	6,0	6,0	6,0	8,0	10,8	11,5	12,2	15,5
Power supply from network	A	23,6	33,6	47,7	47,7	61,7	40,7	46,7	50,2
EER (1)	kW/kW	3,42	3,11	2,75	3,08	3,56	3,71	3,49	3,33
Sound pressure - Indoor unit - ISO 3744 (2)	dB(A)	55,0	55,0	55,0	54,0	57,5	61,0	63,0	65,0
Sound pressure - Outdoor unit - ISO 3744 (2)	dB(A)	55,0	55,0	53,0	53,0	57,0	57,0	57,0	58,0
Net weight - Indoor unit	kg	42	45	45	80	80	80	103	103
Net weight - Outdoor unit	kg	55	65	70	70	75	95	98	105
Refrigerant connections									
Liquid line - SAE Flare	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Suction line - SAE Flare	Ø	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	7/8"	7/8"
Hydraulic connections									
Condensate discharge	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FANS MOTOR THERMAL LOAD

(1) Referred to entering air at 28°C with 40% RH and outdoor air temperature 35°C

(2) Sound pressure 1m far in free field according to ISO3744 norm.

TECHNICAL DATA - OPTIONAL ACCESSORIES

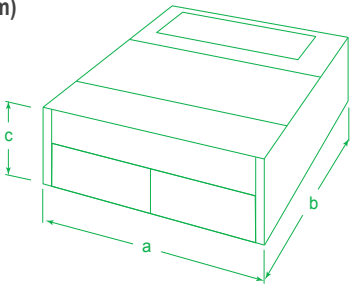
ENERGY SPLIT

MODEL SIZE		04 R1 S0 XS	05 R1 S0 XS	06 Z1 S0 XS	07 Z1 S1 XS	08 Z1 S1 XS	10 Z1 S1 XS	13 Z1 S2 XS	15 Z1 S2 XS
Electric heater									
Heating capacity	kW	1,0	1,0	1,0	3,0	3,0	3,0	3,0	3,0
Capacity steps	n.	1	1	1	1	1	1	1	1

DIMENSIONS - INDOOR EVAPORATING UNIT (mm)

DIMENSIONS - INDOOR EVAPORATING UNIT (mm)

SIZE	a	b	c
S0	784	1171	294
S1	980	1293	361
S2	1380	1349	392



DIMENSIONS - OUTDOOR MOTO-CONDENSING UNIT (mm)

SIZE	a	b	c
4R1 ÷ 5R1	805	326	669
6Z1 ÷ 8Z1	1048	415	841
10Z1 ÷ 15Z1	1307	535	890

