

TELECOM SOLUTIONS

AIR CONDITIONERS FOR TELECOMMUNICATIONS FROM 1,5 TO 20 kW

- ▶ Low operational and maintenance costs
- ▶ Wide range of full inverter solutions
- ▶ Reliability and extended operation
- ▶ Advanced control
- ▶ Free-cooling technology



TELECOM SOLUTIONS

RELIABILITY AND EXTENDED OPERATION

Reliability and extended operation

Constructional rationality plus the proven high quality of the components are key features aimed at ensuring:

- ✓ Continuous operation (24 hours a day, 365 days a year).
- ✓ Design life of over 10 years.
- ✓ MTBF and MTTR values at the top of their category.



ADVANCED CONTROL

Stand-by and alarm management

The microprocessor allows:

- ✓ Easy-to-use navigation;
- ✓ Advanced management of the stand-by unit;
- ✓ Automatic rotation on a time basis;
- ✓ Alarm rotation;
- ✓ Alarm management and transmission;
- ✓ LAN management between connected units;
- ✓ Easy connection to supervisory systems;
- ✓ Double power supply management;
- ✓ Multi-language management;
- ✓ Emergency function;
- ✓ Manual function.

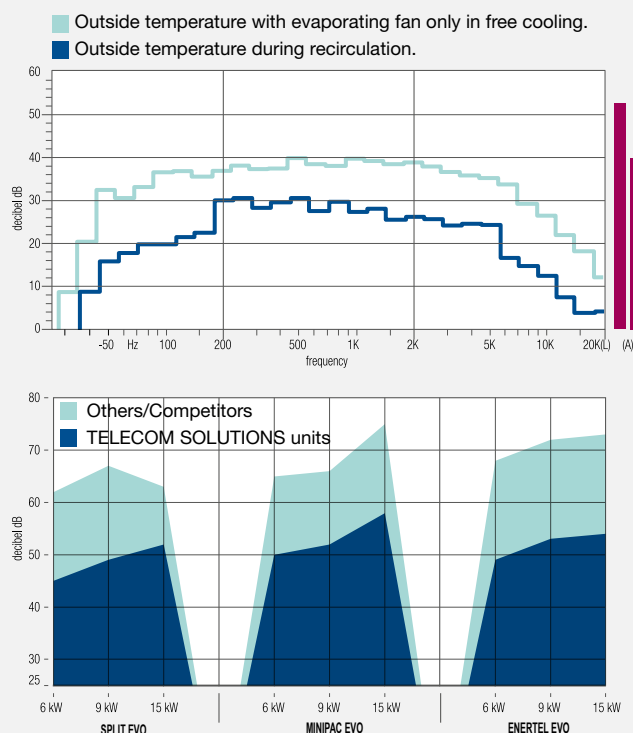


EXTREMELY LOW NOISE

Reducing sound emissions is one of the greatest needs for air conditioning units located in urban areas.

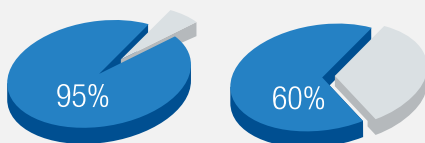
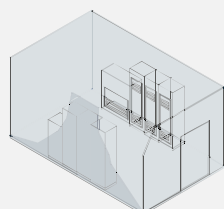
TELECOM SOLUTIONS is the new range of high efficiency air conditioners featuring a strong sound emission reduction:

- ✓ Sound proofing delivery plenum;
- ✓ Anti-vibration feet for the unit and the fans fastening;
- ✓ Compressor inside a sound proofed box;
- ✓ Sound proofed recirculating fans cap;
- ✓ Condensing pressure check through the fan speed regulator;
- ✓ Autotransformer to reduce vibration.



Unmanned premises with almost no latent heat value.
Required S.H.R. $\geq 95\%$

Manned premises with latent heat value.
Required S.H.R. $\geq 60\%$

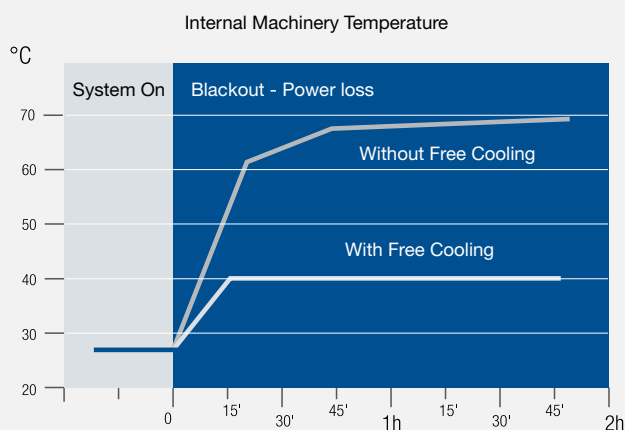


HIGH CAPACITY SENSITIVE COOLING

- ✓ No latent cooling required.
- ✓ Since the technological rooms are unmanned, the latent heat values remain almost zero.
- ✓ Thus, the requested S.H.R. values (Sensible and Total Cooling Capacity Ratio) are 95%, compared to typical S.H.R. values of around 60% in the manned premises.

BLACKOUT MANAGEMENT

- ✓ UPS connections system (48V DC)
- ✓ For the double power supply versions (UPS, 48V DC), the Free cooling function is instantly activated in the event of a blackout.



TELECOM SOLUTIONS

Climaveneta's TELECOM SOLUTIONS offer is the result of research and development with various telecommunications companies aimed at finding an innovative no-compromise solution for the modern telecommunications applications.



INVERTER TECHNOLOGY

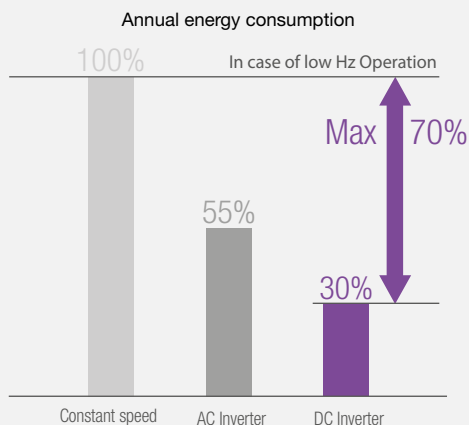
The inverter driven compressor is a key component for Climaveneta products: thanks to its extremely precise regulation of the power capacity through variable frequency, it can greatly increase the efficiency of partial loads.



Compared to a traditional on/off compressor, the inverter technology ensures a quick achievement of the desired set point and a precise control over temperature variations. Once the desired value has been reached, the compressor rotation decreases, reducing energy consumption and effectively maintaining the temperature conditions over time.

In this respect the new TELECOM SOLUTIONS range represents the ultimate solution for air conditioning in the telecommunications sector, thanks to the most updated DC Inverter Brushless compressors and the new generation EC fans combined with the electronic thermostatic valve.

Both solutions allow for perfect adaptation of the unit's performance to the real requirements of the building even at partial loads, which represent more than 75% of the operating time of the system. This ensures an energy savings of up to 50% more than solutions based on traditional ON/OFF compressors.



Low operational and maintenance costs

The key features of efficient and long-lasting air conditioning systems are; reduced energy consumption combined with low operational and maintenance costs.

For this reason the modern FULL INVERTER units deliver the best cost and benefit ratio, with significant advantages in terms of TCO (Total Cost of Ownership).

Consequently, the payback time is 2 years compared to NON FULL INVERTER solutions where payback per unit only comes after 10 years.

Double Advantage: FREE COOLING + INVERTER

It is well known that energy savings are guaranteed with FREE COOLING systems. The Telecom range combines innovative FULL INVERTER compressors with the free cooling technology, thus resulting in 35% higher energy savings compared to traditional on/off solutions.



HCAT - i-HCAT

Split air conditioners for telecommunication shelters available in on-off and inverter version. Free cooling.

Cooling Capacity: **4.9 - 17 kW**



UNIT DESCRIPTION

HCAT / i-HCAT split air conditioners for telecommunication shelters combine an outdoor condenser unit (available in both the BASIC and LT low temperature versions) with the indoor unit.

Available for ceiling or wall installation, HCAT / i-HCAT units are available with product ranges from 4.9 to 17 kW, both in the ON-OFF and Inverter technology. All the units are equipped with external panels in electrogalvanised powder coated steel sheets and, upon request, with a Free Cooling damper which ensures 30% annual energy savings compared to standard systems.

The evaporating section fan works on a direct current at 48 Volts for a reliable operation even in emergency situations (optional). The TELECOM SOLUTIONS range units are made to ensure a standard level of operation even under extreme environmental conditions with temperatures of up to +48°C.



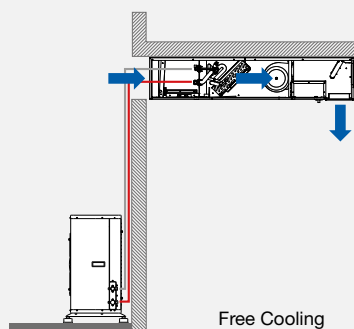
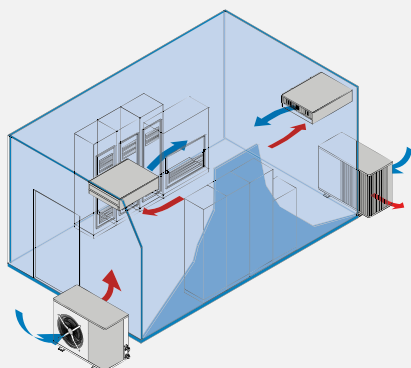
FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecom sector.
- ✓ Contact for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete control of the PLC outdoor unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network.

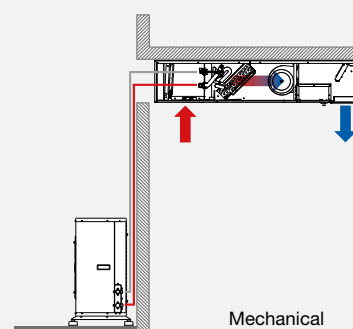
MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC).
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ EC fans for outdoor condenser units.

SPLIT



Free Cooling



Mechanical

ON/OFF Version



ROTARY



SCROLL



HFC R410A

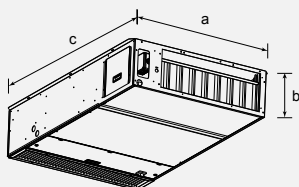
HCAT		0011	0021	0031	0041	0051	0056	0061
N° Circuits / N°Compressors		1/1	1/1	1/1	1/1	1/1	1/1	1/1
Compressor		rotary	scroll	scroll	scroll	scroll	scroll	scroll
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50
COOLING CAPACITY								
Total Cooling Capacity (1)	kW	4,87	6,35	8,37	9,51	10,50	14,10	15,70
Sensible Cooling Capacity (1)	kW	4,87	6,02	7,20	9,51	10,20	13,30	14,60
SHR (1)		1,00	0,95	0,86	1,00	0,97	0,94	0,93
Compressors power input (1)	kW	1,18	1,62	2,27	2,37	2,73	3,64	4,10
Evaporator air flow	m³/h	1450	1450	1600	2450	2450	3200	3200
Free-cooling air flow (opt.)	m³/h	1450	1450	1600	2450	2450	3200	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,29	0,29	0,31	0,45	0,45	0,49	0,49
Evaporator fan AC power input	kW	0,20	0,20	0,21	0,49	0,49	0,52	0,52
Condenser air flow	m³/h	3200	3200	3200	3600	3600	4900	4900
Condenser fan AC power input	kW	0,13	0,13	0,13	0,13	0,13	0,25	0,25
Electric heater capacity (opt.)	kW	1,70	1,70	1,70	3,40	3,40	3,40	3,40
EER - Energy efficiency ratio (1)	kW/kW	3,24	3,26	3,21	3,18	3,13	3,20	3,22
MAX outdoor temperature	°C	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	-35	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (2)	dB(A)	52	53	53	56	56	58	58
Net weight indoor unit with Free cooling	kg	85	85	85	123	121	128	130
Net weight indoor unit without Free cooling	kg	74	74	74	107	98	109	111
Net weight outdoor unit	kg	67	93	93	109	102	125	130

INSTALLATION TYPES

(*) Air delivery
modifiable in the yard

	FREE-COOLING	FREE-COOLING	NO FREE-COOLING	NO FREE-COOLING
0011	✓	✓	✓	✓
0021	✓	✓	✓	✓
0031	✓	✓	✓	✓
0041	✓	✓	✓	✓
0051	✓	✓	✓	✓
0056	✓	✓	✓	✓
0061	✓	✓	✓	✓

DIMENSIONS (mm)

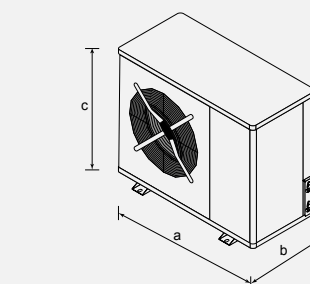


INDOOR UNIT with free cooling

	a	b	c
0011	990	310	1500
0021	990	310	1500
0031	990	310	1500
0041	1110	400	1523
0051	1110	400	1523
0056	1110	400	1523
0061	1110	400	1523

INDOOR UNIT without free cooling

	a	b	c
0011	990	310	1060
0021	990	310	1060
0031	990	310	1060
0041	1110	405	1236
0051	1110	405	1236
0056	1110	405	1236
0061	1110	405	1236



OUTDOOR UNIT

	a	b	c
0011	900	370	740
0021	900	370	740
0031	900	370	740
0041	900	370	990
0051	900	370	990
0056	900	420	1240
0061	900	420	1240

NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Inverter Version



i-HCAT

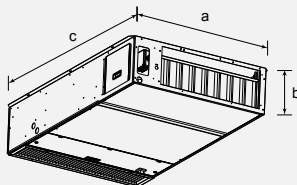
		0031		0051		0071	
N° Circuits / N°Compressors		1/1		1/1		1/1	
Compressor		rotary inverter		rotary inverter		scroll inverter	
Refrigerant		R410A		R410A		R410A	
Power supply	V/Ph/Hz	230/1/50		230/1/50		400/3N/50	
COOLING CAPACITY		MIN	MAX	MIN	MAX	MIN	MAX
Total Cooling Capacity (1)	kW	3,97	10,20	4,89	12,40	6,78	17,00
Sensible Cooling Capacity (1)	kW	3,73	7,81	4,89	11,90	6,78	16,50
SHR (1)		0,94	0,77	1,00	0,96	1,00	0,97
Compressors power input (1)	kW	0,75	2,39	0,78	3,18	1,1	4,23
Evaporator air flow	m³/h	800	1600	1600	3200	1950	3900
Free-cooling air flow (opt.)	m³/h	800	1600	1600	3200	1950	3900
Evaporator fan 48 V DC power input (opt.)	kW	0,09	0,31	0,15	0,49	0,15	0,5
Evaporator fan AC power input	kW	0,16	0,21	0,39	0,52	0,41	0,54
Condenser air flow	m³/h	3200	3200	6400	6400	8640	8640
Condenser fan AC power input	kW	0,13	0,13	0,25	0,25	0,53	0,53
Electric heater capacity (opt.)	kW	1,7		3,4		3,4	
EER - Energy efficiency ratio (1)	kW/kW	3,82	3,74	3,44	3,14	3,32	3,21
MAX outdoor temperature	°C	48		48		48	
MIN outdoor temperature	°C	-20		-20		-20	
MIN outdoor temperature (LT version)	°C	-35		-35		-35	
Outdoor sound pressure level (2)	dB(A)	52		56		58	
Net weight indoor unit with Free cooling	kg	85		120		155	
Net weight indoor unit without Free cooling	kg	74		109		125	
Net weight outdoor unit	kg	100		108		175	

INSTALLATION TYPES

(*) Air delivery modifiable in the yard

	FREE-COOLING	FREE-COOLING	NO FREE-COOLING	NO FREE-COOLING
0021	✓	✓	✓	✓
0041	✓	✓	✓	✓
0051	✓	✓	✓	✓

DIMENSIONS (mm)

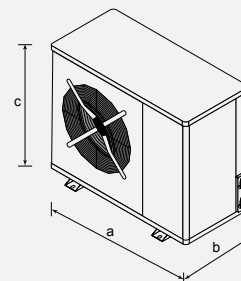


INDOOR UNIT with free cooling

	a	b	c
0031	990	310	1500
0051	1110	400	1523
0071	1340	450	1618

INDOOR UNIT without free cooling

	a	b	c
0031	990	310	1060
0051	1240	405	1236
0071	1200	450	1236



OUTDOOR UNIT

	a	b	c
0031	900	420	990
0051	900	420	1240
0071	1200	550	1450

NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

MID - i-MID



Packaged air conditioners for telecommunication shelters available in on-off and inverter version. Free Cooling.
Cooling Capacity: **2 - 15 kW**

UNIT DESCRIPTION

Available with cooling capacity from 1.9 to 15 kW, the units are direct expansion packaged systems for indoor installation, which are fitted with external panels in powder coated steel sheets.

The units can be fitted with a Free Cooling damper (optional) that ensures 30% annual energy savings compared to standard systems, while the evaporating section fan works on a direct current at 48 Volts for a reliable operation even in an emergency situation. (optional).

TELECOM SOLUTIONS units are made to ensure a standard level of operation even under extreme environmental conditions with temperatures of up to +48°C. MID, i-MID are available in two different versions: in the UNDER units, the outlet air flow is flush to the ground and pointed downwards, while in the OVER versions (for MID units only) the air flow inlet is from the front side and the air flow outlet is upwards or frontal.



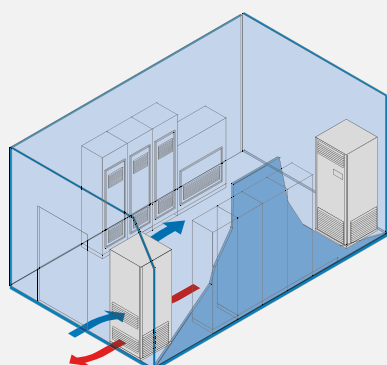
FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecom sector.
- ✓ Contact for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete outer control of the PLC outdoor unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network.

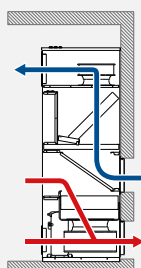
MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC)
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ Evaporator EC fans (for models 0003 ÷ 0056).

INDOOR

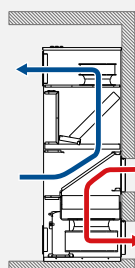


Free Cooling

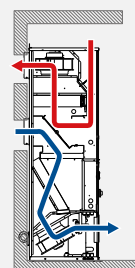


OVER

Mechanical

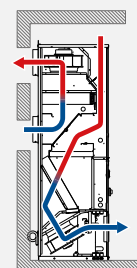


Free Cooling



UNDER

Mechanical



ON/OFF Version



ROTARY



SCROLL



R410A

MID		0001	0003	0004	0011	0021	0031	0041	0051	0056	0061
N° Circuits / N°Compressors		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Compressor		rotary	rotary	rotary	rotary	scroll	scroll	scroll	scroll	scroll	scroll
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50
COOLING CAPACITY											
Total Cooling Capacity (1)	kW	1,94	2,92	3,40	4,82	6,00	7,99	9,43	10,60	13,80	14,80
Sensible Cooling Capacity (1)	kW	1,53	2,83	3,15	4,82	5,90	7,14	9,23	9,70	13,40	13,90
SHR (1)		0,79	0,97	0,93	1,00	0,98	0,89	0,98	0,92	0,97	0,94
Compressors power input (1)	kW	0,58	0,80	0,96	1,17	1,64	2,20	2,30	2,71	3,40	3,96
Evaporator air flow	m³/h	300	990	990	1450	1450	1450	2200	2200	3200	3200
Free-cooling air flow (opt.)	m³/h	300	990	990	1450	1450	1450	2200	2200	3200	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,04	0,18	0,18	0,24	0,24	0,25	0,45	0,45	0,49	0,49
Evaporator fan type		EC	AC	AC	AC	AC	AC	AC	AC	AC	EC
Evaporator fan power input	kW	0,06	0,15	0,15	0,26	0,26	0,26	0,48	0,48	0,52	0,98
Condenser air flow	m³/h	500	1210	1210	2600	2600	2600	3700	3700	4500	4500
Condenser fan type		AC	AC	AC	AC	AC	AC	EC	EC	EC	EC
Condenser fan power input	kW	0,14	0,23	0,23	0,73	0,73	0,73	0,79	0,79	0,83	0,83
Electric heater capacity (opt.)	kW	1	1	1	1,7	1,7	1,7	3,4	3,4	3,4	3,4
EER - Energy efficiency ratio (1)	kW/kW	2,49	2,47	2,54	2,24	2,29	2,50	2,64	2,66	2,91	2,56
MAX outdoor temperature	°C	48	48	48	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	n.a	n.a	n.a	-35	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (2)	dB(A)	49	52	52	53	53	54	56	56	60	61
Net weight OVER	kg	43,5	n.a.	n.a.	163	176	185	262	270	275	290
Net weight UNDER	kg	n.a.	85	85	180	193	202	252	260	265	280

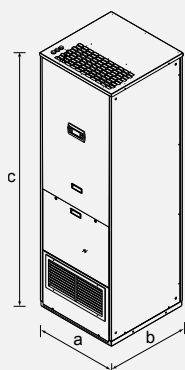
INSTALLATION TYPES

	OVER	UNDER	OVER	OVER	UNDER	UNDER	UNDER	UNDER
0001	✓	✗	✗	✗	✗	✗	✗	✗
0003	✗	✓	✗	✗	✗	✗	✗	✗
0004	✗	✓	✗	✗	✗	✗	✗	✗
0011	✗	✗	✓	✓	✓	✓	✓	✓
0021	✗	✗	✓	✓	✓	✓	✓	✓
0031	✗	✗	✓	✓	✓	✓	✓	✓
0041	✗	✗	✓	✓	✓	✓	✓	✓
0051	✗	✗	✓	✓	✓	✓	✓	✓
0056	✗	✗	✓	✓	✓	✓	✓	✓
0061	✗	✗	✓	✓	✓	✓	✓	✓

DIMENSIONS (mm)

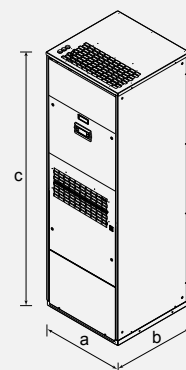
MID - UNDER

	a	b	c
0001	--	--	--
0003	505	395	1265
0004	505	395	1265
0011	650	650	2000
0021	650	650	2000
0031	650	650	2000
0041	895	750	2050
0051	895	750	2050
0056	895	750	2050
0061	895	750	2050



MID - OVER

	a	b	c
0001	394	250	900
0003	--	--	--
0004	--	--	--
0011	650	650	2075
0021	650	650	2000
0031	650	650	2075
0041	895	750	2050
0051	895	750	2050
0056	895	750	2050
0061	895	750	2050



NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Inverter Version



i-MID		0031		0051		0061	
N° Circuits / N°Compressors		1/1		1/1		1/1	
Compressor		rotary inverter		rotary inverter		scroll inverter	
Refrigerant		R410A		R410A		R410A	
Power supply	V/Ph/Hz	230/1/50		230/1/50		400/3N/50	
COOLING CAPACITY		MIN	MAX	MIN	MAX	MIN	MAX
Total Cooling Capacity (1)	kW	3,93	9,66	4,32	12,10	6,44	15,10
Sensible Cooling Capacity (1)	kW	3,27	7,56	4,31	11,60	6,44	13,80
SHR (1)		0,83	0,78	1,00	0,96	1,00	0,91
Compressors power input (1)	kW	0,74	2,29	0,79	3,09	1,09	4,5
Evaporator air flow	m³/h	800	1600	1600	3200	1600	3200
Free-cooling air flow (opt.)	m³/h	800	1600	1600	3200	1600	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,08	0,25	0,14	0,48	0,15	0,49
Evaporator fan type		AC		EC		EC	
Evaporator fan power input	kW	0,2	0,26	0,14	0,48	0,29	0,98
Condenser air flow	m³/h	2600	2600	4500	4500	4500	4500
Condenser fan type		AC		EC		EC	
Condenser fan power input	kW	0,73	0,73	0,75	0,75	0,83	0,83
Electric heater capacity (opt.)	kW	1,7		3,4		3,4	
EER - Energy efficiency ratio (1)	kW/kW	2,35	3,79	2,57	3,39	2,91	2,76
MAX outdoor temperature	°C	48		48		48	
MIN outdoor temperature	°C	-20		-20		-20	
Outdoor sound pressure level (2)	dB(A)	54		56		61	
Net weight UNDER	kg	205		246		284	

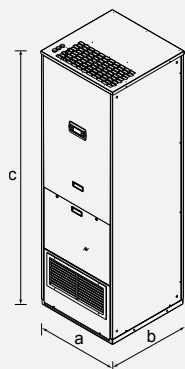
INSTALLATION TYPES

	OVER	UNDER	OVER	OVER	UNDER	UNDER	UNDER	UNDER
0031								
0051								
0061								

DIMENSIONS (mm)

i-MID - UNDER

	a	b	c
0031	650	650	2000
0051	895	750	2050
0061	895	750	2050



NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

MED - i-MED

Packaged air conditioners for telecommunication shelters available in on-off and inverter version. Free-cooling.

Cooling Capacity: **2 - 20 kW**



UNIT DESCRIPTION

The MED, i-MED air conditioners for telecommunication shelters are direct expansion packaged systems for outdoor installation. Available with cooling capacities from 2 to 20 kW, all the units are fitted with external panelling in electrogalvanised powder coated steel sheets. The units can be fitted with a Free Cooling damper (optional) that ensures 30% annual energy savings compared to a traditional solution. The evaporating fan works on a constant current of 48 Volts to ensure reliable operation even in an emergency situation.

MED and i-MED units are available in two different versions: with air flow outlet from the upper side (OVER) or from the bottom (UNDER).



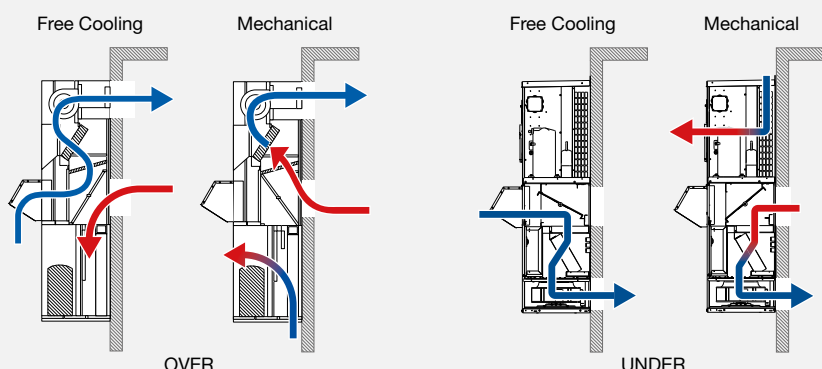
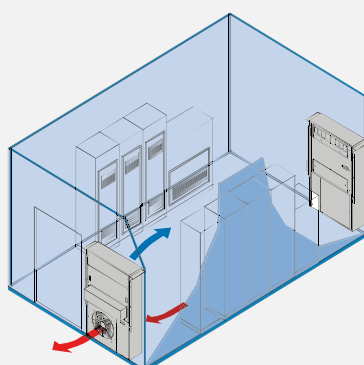
FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel sheets for maximum resistance to rust. (Peraluman panelling available upon request)
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecom sector.
- ✓ Contact for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete control of the PLC outdoor unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network

MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC).
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ Evaporator EC fans.

SPLIT



ON/OFF Version



ROTARY



SCROLL



R HFC R410A

MED		0001	0003	0004	0011	0021	0031	0041	0051	0056	0061	0071	0091
N° Circuits / N°Compressors		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Compressor		rotary	rotary	rotary	rotary	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50
COOLING CAPACITY													
Total Cooling Capacity (1)	kW	1,94	2,87	3,46	4,90	6,41	8,38	9,58	10,50	14,30	16,60	18,20	20,50
Sensible Cooling Capacity (1)	kW	1,53	2,87	3,09	4,90	6,04	7,21	9,58	10,20	13,50	15,20	15,80	17,70
SHR (1)		0,79	1,00	0,89	1,00	0,94	0,86	1,00	0,97	0,94	0,92	0,87	0,86
Compressors power input (1)	kW	0,58	0,79	0,96	1,16	1,58	2,19	2,34	2,69	3,33	3,84	4,74	5,47
Evaporator air flow	m³/h	300	700	700	1450	1450	1600	2450	2450	3200	3500	3500	3900
Free-cooling air flow (opt.) (2)	m³/h	300	700	700	1450	1450	1600	2450	2450	3200	3500	3500	3900
Evaporator fan 48 V DC power input (opt.)	kW	0,04	0,18	0,18	0,24	0,24	0,25	0,50	0,50	0,48	0,94	0,94	0,99
Evaporator fan AC power input	kW	n.a.	0,15	0,15	0,26	0,26	0,26	0,48	0,48	0,48	0,93	0,93	0,91
Condenser air flow	m³/h	500	1100	1100	2500	2500	2500	4000	4000	4900	5900	5900	5900
Condenser fan AC power input	kW	0,10	0,14	0,14	0,13	0,13	0,13	0,22	0,22	0,68	0,38	0,38	0,38
Electric heater capacity (opt.)	kW	1,0	1,0	1,0	1,7	1,7	1,7	3,4	3,4	3,4	3,4	3,4	3,4
EER - Energy efficiency ratio (1)	kW/kW	3,34	2,52	2,64	3,22	3,30	3,29	3,17	3,12	3,17	3,21	3,00	3,02
MAX outdoor temperature	°C	48	48	48	48	48	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	n.a.	n.a.	n.a.	-35	-35	-35	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (3)	dB(A)	49	52	52	52	52	52	54	54	58	62	62	62
Net weight OVER	kg	43,5	n.a.	n.a.	160	180	175	205	215	220	290	295	300
Net weight UNDER	kg	n.a.	75	75	165	175	170	265	270	275	300	310	325

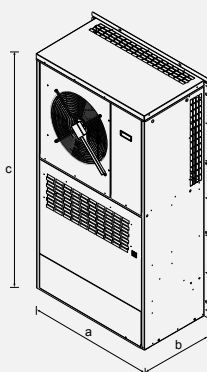
INSTALLATION TYPES

	UNDER	OVER	UNDER
0001	✓	✗	✗
0003	✓	✗	✗
0004	✓	✗	✗
0011	✗	✓	✓
0021	✗	✓	✓
0031	✗	✓	✓
0041	✗	✓	✓
0051	✗	✓	✓
0056	✗	✓	✓
0061	✗	✓	✓
0071	✗	✓	✓
0090	✗	✓	✓

DIMENSIONS (mm)

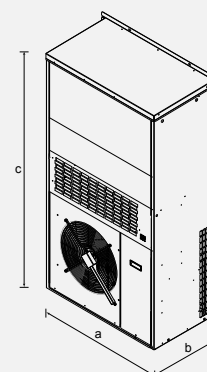
MED - UNDER

	a	b	c
0001	--	--	--
0003	505	394	1236
0004	505	394	1236
0011	976	500 (745)	1735
0021	976	500 (745)	1735
0031	976	500 (745)	1735
0041	1016	600 (840)	1935
0051	1016	600 (840)	1935
0056	1016	600 (840)	1935
0061	1196	780 (1025)	2280
0071	1196	780 (1025)	2280
0091	1196	780 (1025)	2280



MED - OVER

	a	b	c
0001	394	250	900
0003	--	--	--
0004	--	--	--
0011	970	500 (745)	1814
0021	970	500 (745)	1814
0031	970	500 (745)	1814
0041	1011	600 (850)	2115
0051	1011	600 (850)	2115
0056	1011	600 (850)	2115
0061	1178	777 (856)	2240
0071	1178	777 (856)	2240
0091	1178	777 (856)	2240



The dimensions between () include rain proof cover, when foreseen

NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) For MED 0001, 0003 and 0004 free cooling function is available through external extractor accessory

(3) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Inverter Version



i-MED		0031		0051		0071	
N° Circuits / N°Compressors		1/1		1/1		1/1	
Compressor		rotary inverter		rotary inverter		scroll inverter	
Refrigerant		R410A		R410A		R410A	
Power supply	V/Ph/Hz	230/1/50		230/1/50		400/3N/50	
COOLING CAPACITY		MIN	MAX	MIN	MAX	MIN	MAX
Total Cooling Capacity (1)	kW	3,94	9,64	4,46	12,50	6,98	17,40
Sensible Cooling Capacity (1)	kW	3,68	7,85	4,46	12,00	6,98	16,60
SHR (1)		0,93	0,81	1,00	0,96	1,00	0,95
Compressors power input (1)	kW	0,75	2,30	0,79	3,10	1,18	4,40
Evaporator air flow	m³/h	800	1600	1600	3200	1950	3900
Free-cooling air flow (opt.)	m³/h	800	1600	1600	3200	1950	3900
Evaporator fan 48 V DC power input (opt.)	kW	0,08	0,25	0,14	0,48	0,3	0,99
Evaporator fan AC power input	kW	0,2	0,26	0,36	0,48	0,68	0,91
Condenser air flow	m³/h	3200	3200	4000	4000	5900	5900
Condenser fan AC power input	kW	0,13	0,13	0,68	0,68	0,38	0,38
Electric heater capacity (opt.)	kW		1,7		3,4		3,4
EER - Energy efficiency ratio (1)	kW/kW	5,25	4,19	5,65	4,03	5,92	3,95
MAX outdoor temperature	°C		48		48		48
MIN outdoor temperature	°C		-20		-20		-20
Outdoor sound pressure level (3)	dB(A)		52		54		62
Net weight UNDER	kg		175		230		310

INSTALLATION TYPES

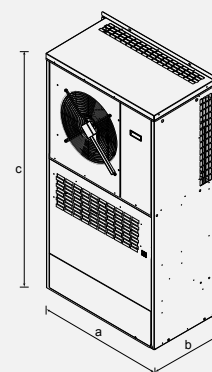
	UNDER	OVER	UNDER
0031	✗	✗	✓
0051	✗	✗	✓
0071	✗	✗	✓

DIMENSIONS (mm)

i-MED - UNDER

	a	b	c
0031	976	500 (745)	1735
0051	1016	600 (840)	1935
0061	1196	780 (1025)	2280

The dimensions between () include rain proof cover, when foreseen



NOTES

- (1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C
 (2) For MED 0001, 0003 and 0004 free cooling function is available through external extractor accessory
 (3) Measured at a height of 1 m and 1 m from the front of the unit in free field
 The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

FREE COOLER



Free cooling unit for telecommunication shelters

UNIT DESCRIPTION

Designed for the cooling of highly technological environments (telecommunication shelters and cabinets), FKO/FKI FREE COOLER units feature an advanced free cooling system that utilises the outdoor air to lower the indoor environment temperature. Outdoor air absorbed from the fan is filtered and then released to the indoor space.

The unit is available in indoor (FKI) or outdoor versions (FKO), in both cases provided with a waterproof jacket in order to avoid even a drop of water from entering the environment. Directly managed by the PLC controller, the units can be coupled to a TELECOM air conditioner s range. This ensures getting the best advantage from the free cooling operation, whenever possible.

For the stand-alone operation an electrical board kit able to manage the unit and two further pre-existing air conditioners are also available. In pre-existing plants, this solution offers the opportunity to add the free cooling function at a later date.

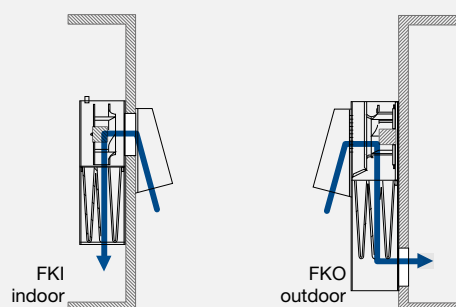


FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel sheets for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecom sector.
- ✓ 48 VDC EC radial fan with continuous speed modulation.
- ✓ Class G3 air filters.

MAIN OPTIONS

- ✓ Electrical panel for the unit's stand-alone management.
- ✓ Clogged filter sensor.
- ✓ Air prefilter in metal frame.



INDOOR / OUTDOOR Technical Data

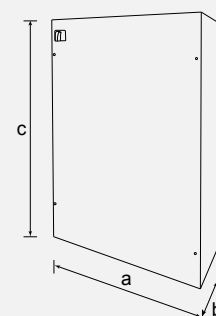
FREE COOLER		0021	0041	0051
VDC power supply	V	48	48	48
Max absorbed power	W	220	230	460
Max air flow	m³/h	2300	2450	3040
Cooling capacity (1)	kW	7,67	8,17	10,13
EER	kW/kW	34,85	35,51	22,03
Max frontal sound pressure (2)	dB(A)	62	65	66

(1) Ref. Conditions: 27°C indoor temperature -17°C outdoor temperature
 (2) Measured at a height of 1 m and 1 m from the front of the unit in free field
 The dimensions between () include rain proof cover, when foreseen

DIMENSIONS (mm)

FREE COOLER

	a	b	c
FKI 0021	646	296	955
FKI 0041	646	296	955
FKI 0051	646	296	955
FKO 0021	646	296 (542)	1227
FKO 0041	646	296 (542)	1227
FKO 0051	646	296 (542)	1227





for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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