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environmental complex solution

Fresh solutions in the world of climate

TELECOM A/C

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TABLE OF SYMBOLS

OPERATING MODE


Only cooling


Cooling – heating


Only Heating

CONDENSER


Air cooled


Water cooled


Condenserless

COMPRESSOR


Scroll


Reciprocating


Twin screw or screw

MOUNTING METHOD


External (Outside)


Internal (Inside)


Roof top

OPTIONS


Reversal on water

Free-Cooling


Anti-freeze

Hydro pack

ECSO Soft Fan

Electronic
thermotatic valve


Direct connect fan


Variable expense


Thermo dynamic
heat recycling

VENTILATION (ROOF TOPS)


Filtration


Fan


Mixing


Recovery


Heating


Cooling


Heat pump


Noise reduction


Moisture

We have devised this table of symbols, indicating all the basic functions and characteristics of the unit, to make the use of this guide easy.

Such air-conditioning equipment is meant for use at telecommunications facilities and is meant to exactly control parameters of the microclimate, which are necessary for dependable, faultless and long time operation of highly-sensitive electronic equipment. At such facilities they have very strict requirements for in-premises air parameters as well as strict and limited installation area allocations. For these purposes ECSO has developed a range of single unit air-conditioning systems of different configurations.

PRODUCT MARKING

1	2	3	4	5	6	7	8
E	M	S	I	FC	0004	M	E

1 Manufacturer
- **E:** ECSO

2 Unit type
- **M:** Monoblock type
- **S:** Split unit

3 Size type
- **S:** Small
- **M:** Medium
- **L:** Large

4 Mounting method
- **I:** Inside (Internal)
- **O:** Outside (External)
- **H:** Hanging
- **C:** Split type

5 Free cooling
- **- :** Standard
- **FC:** Free-cooling

6 Model

7 Microprocessor
- **P:** pCO1 Microprocessor
- **M:** mAC Microprocessor
- **N:** without Microprocessor
- **I:** micom Microprocessor

8 Configuration
- **C:** Only cooling
- **E:** Cooling + Heating
- **H:** Cooling + Humidification
- **X:** Cooling + Heating + Humidification

EMSI

Indoor air conditioners from 4,0 kW to 13,5 kW

General features

The EMSI indoor air conditioner is specifically designed to control the internal environment of outdoor cabinets, shelters and containers which require cooling by means of energy efficient and highly reliable air conditioning units.

IMPROVEMENT OF OPERATING CONDITIONS

The floor-based EMSI unit provides electronic equipment with the perfect working environment. Designed specifically to maintain the perfect temperature and humidity for sensitive electronics, the EMSI helps maximize component life and ensures stable operational conditions.

EASY INSTALLATION

When safeguarding electronic equipment, performance is crucial. All EMSI components have therefore been specially tested. The compact design of the unit and the standard size of supply and return air inlets also makes it easy to retrofit the unit to an existing system, thus adding more cooling capacity without involving any major modifications. Mounted indoors, EMSI is also less prone to vandalism than outdoors air conditioning systems.

EASY MAINTENANCE

The majority of components are mounted in such a way that they are accessible from the front of the unit and arranged in separate sections, thereby enabling easy and fast maintenance.

FEATURES

The EMSI is equipped with an internal closed loop air circuit, which ensures no entrance of dirt or humidity from the ambient to the enclosure. Additionally, the EMSI employs free air-cooling which offers savings on power consumption and improves component lifetime, by minimizing the run time of the refrigeration system. In case of mains power failure, a DC driven fan can provide free-cooling for emergency operation. A hotspot temperature sensor connection, integrated self-test switch, occupied override connection, LED indicator for warning, failure and/or alarm, smoke alarm connection, mounting template and multiple analogue/digital alarm input/output are all standard features of the ESMI air conditioners. A full range of optional accessories are available.

PRODUCT RANGE

The EMSI air conditioner can be supplied in a range of capacities between 4,0 kW and 13,5 kW. The air conditioner operates in temperatures from -40°C (in closed loop an arctic kit is needed to achieve -40°C) to +55°C (-40°F to +131°F). It is available in a wide range of voltages in frequencies 50Hz.

CONTROL

The EMSI uses state-of-the-art microprocessor controls to monitor functions such as temperature. For example, the safety refrigerant circuit temperature is monitored to ensure that the refrigerant pressure is not too high. An additional high pressure safety switch shuts down the system if the pressure continues to rise. Multiple alarms are available as standard. The EMSI series is equipped with power failure anti-cycle controls. The low pressure control allows the unit to meet the requirements of cold outdoor conditions. Telemetry control capabilities allow a remote change of control set points and provide off-site monitoring of all run/alarm conditions and test, if needed.

Functionality

Automatic switching between:

- Active cooling
- Free cooling
- Recycling
- Heating

Special modes:

- Emergency cooling
- Smoke alarm
- Dehumidification circle

Unique features

- Easy installation
- Low running costs
- Convenient size
- Indoor installation
- Difficult to vandalize

Model EMSI		**4**	**6**	**8**	**10**	**12**
Cooling capacity	kW	4	5,5	8	11,5	13.5
Electricity	V/Hz/F	230 / 50 / 1 - 400 / 50 / 3				
Air flow	m³/hr	1400	1600	2400	3200	3550
Filter		G4/F5				
Electric heater	kW	1,5 - 3 - 4,5				
Working temperature		From -40°C to +55°C				
DIMENSIONS						
Length	mm	363	459	653	690	690
Width	mm	105	105	105	105	105
Height	mm	1590	1590	1590	1590	1590
Case		Material – Aluminum without paint				
Refrigerant		R 134a				

Model EMSI - FC		**4**	**6**	**8**	**10**	**12**
Cooling capacity	kW	4	5,5	8	11,5	13,5
Electricity	V/Hz/F	230 / 50 / 1 - 400 / 50 / 3				
Air flow	m³/hr	1400	1600	2400	3200	3550
Filter		G4/F5				
Electric heater	kW	1,5 - 3 - 4,5				
Working temperature		From -40°C to +55°C				
DIMENSIONS						
Length	mm	363	459	653	690	690
Width	mm	105	105	105	105	105
Height	mm	1590	1590	1590	1590	1590
Case		Material – Aluminum without paint				
Refrigerant		R 134a				

Standard components

- High strength aluzink cabinet
- Variable cooling temperature set points
- Condenser fan speed control
- Evaporator fan speed control
- High and low pressure starts, automatic reset
- Refrigerant R134a, environmental friendly
- Crank Case heater to extend and protect compressor lifetime
- G4 standard filter
- Variable heating temperature set points
- Service mode; provides comfort situation for service personnel
- Integrated self-test switch
- 3 potential free alarm outputs with corresponding LED

Options

- Heater kit
- DC option 24 or 48 VDC for emergency cooling
- Filter F5
- Internal recycle filter PPI 15
- Filter guard
- Modulating damper for free cooling 0-100 %
- Energy saving with free cooling
- Alarm Cable – various extensions
- Hot spot sensor
- Humidity controller
- Interconnection cable and random start of multiple units
- Occupied switch – for service mode
- Smoke alarm cable – various extensions
- Smoke detector kit
- Wall ducts
- Air distributor – 90Ø
- LCD information display
- Remote telemetry control/ alarm capability
- Test kit for lap top

Telecom A/C

EMSO

Outdoor air conditioners from 6,0 kW to 14,0 kW

General features

The EMSO high performance air conditioners are specifically designed to control the internal environment of outdoor communication shelters. They are designed to remove excess heat from temperature sensitive electronic equipment where the equipment temperature is required to be maintained within defined limits to achieve optimum performance. The program offers two different types and a wide variety of performances and options.

EMSO

The EMSO is equipped with an internal closed loop filtered air circuit.

EMSO-FC

The EMSO-FC has the additional option of free air-cooling which offers savings on power consumption and longevity of component lifetime by minimizing the run time of the refrigeration system.

FEATURES

Both EMSO units offer 35% standard and 90% optional filtration to the internal circuit. An adjustable air bleed allows a small proportion of ambient air into the supply air to provide fresh air for personnel. This may also provide a dilution of battery gases in relevant applications. Epoxy coated condenser and evaporator coils, low ambient temperature protection, multiple unit run time and equalization control (lead lag) are all standard features of the EMSO air conditioners. The compact design of the ESMO units, along with standard supply/return air inlet sizes allows easy retrofit of the air conditioner to an existing enclosure. This gives the ability to add more cooling capacity, without any modifications, to the enclosure once it has been deployed.

PRODUCT RANGE

The ESMO series from ECSO features a rugged industrial weather resistant enclosure in two convenient sizes, spanning through a performance range from 6 kW through 14 kW. It operates in temperatures from -40°C (closed loop requires low temperature kit below -10°C) to +55°C (-40°F to +131°F). The EMSO units are available in a wide range of voltages in frequencies of 50Hz. The ESMO air conditioners can easily be installed on the external surface of an outdoor stationary enclosure and exposed to the elements. Alternative mounting arrangements can be provided to accommodate individual requirements.

- Active cooling section
- Bypass damper for ambient air cooling
- Filter section
- Electrical heating section
- Control panel section

CONTROLS

The ESMO series uses state-of-the-art microprocessor controls providing multiple functions, temperature monitoring, safety control and alarm conditions. Refrigerant circuit temperature monitoring provides alarm outputs for high pressure caused by a blocked condenser coil. An additional high pressure switch shuts down the system, if pressure continues to rise. The ESMO series incorporates the most advanced technology available to ensure maximum climate control capability. The ESMO series is equipped with power failure anti-cycle controls. The low pressure safety control allows the unit to function and meet the requirements of cold outdoor conditions. Telemetry control capabilities (optional) allow you to change control set points remotely and provide off-site monitoring of all run/alarm conditions, if needed.

Functionality

Automatic switching between:

- Active cooling
- Free cooling
- Recycling
- Heating

Special modes:

- Emergency cooling
- Smoke alarm
- Dehumidification circle

Unique features

- Easy installation
- Low running costs
- Convenient size
- Wide range of voltages and frequencies
- Rugged, industrial, weather-resistant unit
- Stable control at changing/extreme ambient conditions

Model EMSO		58	90	110	141
Cooling capacity	kW	5,8	8,7	11,3	14,1
Electricity	V/Hz/F	400 / 50 / 3			
Air flow	m^3/hr	1650	2800	3200	3710
Filter		G4			
Electric heater	kW	1,5 - 3			
Working temperature		From -40°C to +55°C			
DIMENSIONS					
Length	mm	1000	1000	1150	1150
Width	mm	490	490	560	560
Height	mm	1800	1800	1930	1930
Case		Material – Aluminum without paint			
Refrigerant		R-134a			

Model EMSO - FC		58	90	110	141
Cooling capacity	kW	4	5,5	8	11,5
Electricity	V/Hz/F	230 / 50 / 1			
Air flow	m^3/hr	1650	2800	3200	3710
Filter		G4			
Electric heater	kW	1,5 - 3			
Working temperature		From -40°C to +55°C			
DIMENSIONS					
Length	mm	1000	1000	1150	1150
Width	mm	490	490	560	560
Height	mm	1800	1800	1930	1930
Case		Material – Aluminum without paint			
Refrigerant		R-134a			

Standard components

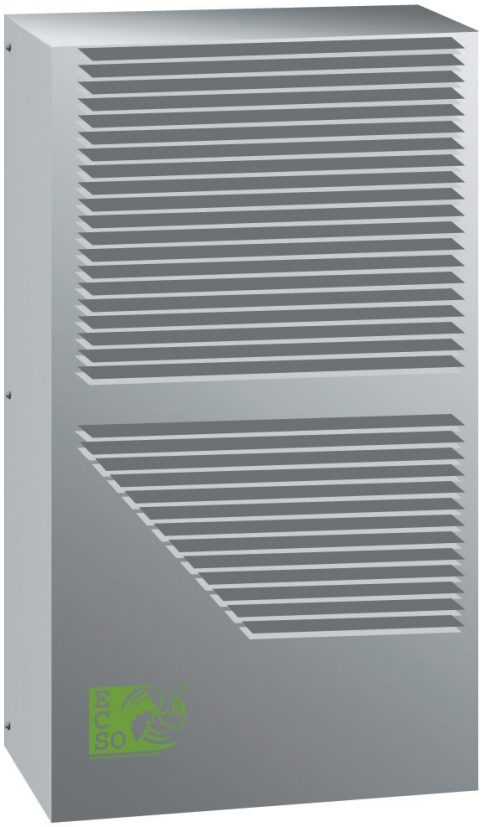
- Wall mounted outdoor installation
- High strength aluzink cabinet with pitched roof, painted
- Condenser fan speed control
- Evaporator fan speed control
- Coated condenser and evaporator coil
- High and low pressure stats, automatic reset
- Refrigerant R134a, environmental friendly
- Crank Case heater to extend and protect compressor lifetime
- G4 standard filter
- Over pressure function 0-20% (manual setting)
- Variable heating and cooling temperature settings
- Service mode; provides comfort situation for service personnel
- Integrated self-test switch
- 3 potential free alarm outputs with corresponding LED
- indicators on control panel (warning, fault and alarm)

Options

- Heater kit
- DC option 24 or 48 VDC for emergency cooling
- Fine filter F5 – F8
- Filter guard
- Compressor Hood
- Modulating damper for free cooling 0-100 %
- Energy saving free cooling
- Alarm Cable – various extensions
- Hot spot sensor
- Humidity controller
- Interconnection cable and random start of multiple units
- Occupied switch – for service mode
- Smoke alarm cable – various extensions
- Smoke detector kit
- Supply and return grills
- Supply and return wall ducts
- Artic kit
- LCD information display/control panel

EMSH

Outdoor/Indoor air conditioners from 0,4 kW to 3,0 kW



General features

ECSO Air Conditioners are specifically designed for the removal of heat from cabinets containing temperature-sensitive electrical, electronic, or telecommunications equipment. Closed-loop cooling maintains a clean, sealed internal environment to insure optimum performance and maximum life of the enclosed electronics, while protecting against the intrusion of airborne contaminants and humidity.

The internal cabinet air is circulated in a closed loop by the evaporator fan. This draws warm air from the top of the cabinet and returns it at the bottom via the cooling coil (evaporator). Heat is transferred from the air into the refrigerant, which is then compressed by the compressor. This compressed refrigerant gas is then transferred through a coil (condenser), where the heat is transferred to ambient air. This ensures no entrance of dust and/or humidity from the ambient to the enclosure.

Our air conditioners can be supplied in a range of capacities from 0,4 kW– 3,0 kW). They operate in temperatures from -40°C to +55°C (-40°F to +131°F) and is available in voltages of 230V, 50Hz

FEATURES

- Quick & Easy Installation on Indoor & Outdoor Enclosures
- Closed Loop Cooling for Controlled Environments
- Rated for Indoor & Outdoor Use
- Built in control board
- Lead-lag to control multiple cooling units on a single cabinet

APPLICATIONS

- Base Stations/Telecom shelters
- Indoor Cabinets/Outdoor Cabinets
- Power Supply Cabinets/Battery Cabinets/Rectifier Cabinets
- Network Switching Rooms/Computer Rooms
- Server, Rack Cooling
- Automation Control Cabinets/Process Control Centers
- Machine Cooling/Drive Cabinets/ CNC Machines

Functionality

ECSO Line of Air-conditioners is specifically designed for the removal of heat from cabinets containing temperature-sensitive electrical, electronic, or telecommunications equipment. Closed-loop cooling maintains a clean, sealed internal environment to insure optimum performance and maximum life of the enclosed electronics, while protecting against the intrusion of airborne contaminants and humidity.

CLOSED LOOP COOLING

The closed loop internal circuit protects the enclosed equipment from heat and airborne contaminants in all types of hostile environments. The creation of a controlled environment allows the enclosed equipment to operate under the best possible temperature and environmental conditions.

Model EMSH		4	6	10	12	18	24	30
Cooling capacity	kW	0,4	0,6	1	1,2	1,8	2,4	3
Electricity	V/Hz/F	230 / 50 / 1						
Filter		G4						
Electric heater	kW	1,5 - 3						
Working temperature		From -40°C to +55°C						
DIMENSIONS								
Length	mm	438	483	438	483	483	483	483
Width	mm	553	229	553	229	229	229	229
Height	mm	311	762	311	762	762	762	762
Case		Material – Aluminum without paint						
Refrigerant		R 134a						

Standard components

- Built-in advanced electronic board for intelligent control of the a/c unit
- Easy access to critical components from the front, eliminating the need to dismount the unit for service
- High quality and high performance bci fans with long lifetime
- Coated condenser coil to protect against contaminants

Options

- Heater kit
- Filter
- Power plugs
- Lead-lag controller for optimal operation of two or more units
- Special material & paint finishes
- Extended warranty & maintenance packages

ESSC

**Split-Air precision air conditioners
9,8 kW and 16,2 kW**

General features

With its Telecom Line, ECSO offers a range of professional air-conditioning solutions for the telecommunications infrastructure and for switch cabinets. All units are designed for 24/7 operation, 365 days a year, and offer maximum reliability and availability. Service is guaranteed through a worldwide network of specialist partners and branches.

The Split-Air is the space and energy-saving version for the reliable cooling of telecommunications containers. This special air-conditioning set with free cooling function consists of an evaporator and a compressor-condenser unit.

Because the indoor unit can be installed either on the ceiling or wall, the Split-Air is also suitable for use when space is at a premium. And the low noise level of the outdoor unit means it can be used without problem in residential areas, too.

Technical features

- Refrigerant R-407C, R-410A
- EU4 air filter
- Filter monitor
- Backup ventilation via 48V DC emergency power supply
- Outside air conditions -20/+45°C winter/summer
- Proportional free cooling facility with mixed mode
- MICOM microprocessor control
- Quiet operation
- Speed-controlled condenser and evaporator fan
- Automatic restart after power failure

MICOM MICROPROCESSOR

- Sequencing incl. alarm switching
- Quiet-running night mode
- Automatic high-pressure alarm reset
- Serial interface for RS485 connection to BMS systems (optional), compatible with all gateways
- Separate operator terminal with LCD
- SMS alarm forwarding (optional)

MODEL ESSC		98	162
Cooling capacity	kW	9,8	16,2
Electricity	V/Hz/F	400 / 50 / 3	
Air flow	m^3/hr	2000	3300
Filter		G4	
Electric heater	kW	5	7
Humidifier	kg/hr	4	4
Abs. power of humidifier	kW	3	3
Air flow	m^3/hr	2000	3300
Fan motor	kW	0,2*2	0,4*2
Compressor		Hermetic scroll	
Compressor power	kW	2,2	3,75
Condenser		0,1*8P	0,2*8P
Refrigerant		R-407C, R-410A	
Dimensions of the internal blok L/W/H	mm	1195 / 1150 / 507	1350 / 1300 / 545
Dimensions of the external blok L/W/H	mm	720 / 790 / 980	790 / 840 / 1100
Working temperature		From -20°C C to +45°C	

Options

- Compressor soft start
- Electric heating
- Humidifier
- Serial interface RS485 for connection to BMS systems
- Installation kit for outdoor unit
- Air intake and blow-out grilles
- Air duct section for indoor unit
- Valve on the suction and blow sides
- Condenser with anti-corrosive finish
- Refrigerant R-410A