ECU60 5 Ton Environmental Control Unit

The Ideal Replacement for 3 Ton Air Conditioners

General Description

SO 9001 REGISTERED COMPAN

The ECU60 was designed as a field replacement for Marvair's AVP36, 3 ton air conditioner, and other brands of 3 ton wallmounts. The ECU60 provides 50% more cooling than the AVP36, yet has identical supply air and return air openings. This allows the ECU60 to be installed quickly and easily. No cutting or sawing of the shelter is required.

Marvair™

Marvair's ECU60 environmental control units are used primarily to cool electronic and communications shelters requiring cooling even when outside temperatures drop below 60°F (15°C). The ECU60 has the necessary controls and components for operation



during these temperatures. In addition, factory and field installed accessories can be used to meet specific requirements.

The 1ø, no heat model is ETL listed to UL Std. 1995, 2nd Ed., and CAN/CSA -C22.2 No. 236-95 2nd. Ed.





Standard Features Designed for Operation in Low Ambient Conditions

- Low ambient control cycles condenser fan to maintain proper refrigerant pressures.
- Timed low pressure by-pass for start-up of compressor when outdoor temperatures are below 55°F (13°C).

High Efficiency

- Lanced fins and rifled tubing on condenser & evaporator coils.
- High efficiency compressor for reliable and quiet operation.

Built-in Reliability

- High pressure switch with lockout relay and automatic reset low pressure switch protects refrigerant circuit.
- Adjustable compressor time delay.

Remote Alarm Capability

· Dry contacts can be used for

remote alarm or notification upon lockout.

Ease of Installation

- Sloped top sheds water while side sealing flanges minimize the chance of water leaks.
- Built-in mounting flanges facilitate installation and minimizes chance of water leaks.
- Supply and return openings exactly match 3 Ton models.
- Factory installed disconnect on all 208/230v units.

Rugged Construction

- Copper tube, aluminum fin evaporator and condenser coils.
- Baked on neutral beige finish over galvanneal steel for maximum cabinet life. (Other finishes are available.)

Design Features

· All service is from the side of

the ECU60, including compressor access.

• Field or factory installed electric heat is available to meet any requirement or simple field changes.

Quiet Operation

- · High density insulation.
- Low RPM, quiet condenser fan.

Service

- Nationwide network of service centers.
- 24 hours/day toll free service number.
- Technical and application support is available via phone or e-mail.
- All components easily accessible for field service.



Options

The ECU60 is designed and built to stringent requirements of the communications/ electronic shelter. Applications occur that have special requirements. Numerous options are available for the ECU60 that meet these special needs.

Hard Start Kit

Used on single phase equipment to give the compressor higher starting torque under low voltage conditions. (Field installed only)

Desert Duty Kit

Sealed bearing condenser fan motor and special controls to allow improved operation in desert environments and ambients up to 130°F (54°C).

Dehumidification

Humidity controller overrides thermostat and allows electric heat to operate simultaneously with cooling. See Dehumidification Application Bulletin for details.

Coastal Environment Package

Extends life of unit when units are to be installed near an ocean or sea. Includes coated condenser coil, sealed ball bearing fan motor, stainless steel fasteners, sealed control panel and protective coating on copper tubing in the condenser compartment.

Stainless Steel Cabinet

All exterior sheet metal constructed of stainless steel.

Hot Gas By-pass

Used in specialty applications; i.e., Magnetic Resonance Imaging (MRI) buildings, to prevent magnetic voltage disturbance caused by compressor cycling. Hot gas by-pass option packages are available to allow operation to 20°F (-7°C). Please refer to Hot Gas By-pass Application Bulletin for details.

Color

The standard cabinet color is Marvair's driftwood beige. Other colors include arctic white, silver grey and desert brown. Contact your representative or the factory for color chips.

Protective Coil Coatings

Either the condenser coil or evaporator coil or both can be coated with a protective coating. Used in corrosive or marine environments such as power plants, paper mills, and applications susceptible to salt-spray. **Note:** Cooling capacity of units with coated coil(s) may be reduced by up to 5%.

Grilles

Supply grille. 28" x 8" (711 mm x 203 mm)	P/N 80675
Return air filter grille. (Required) 28" x 14" (711 mm x 356 mm)	P/N 80672

Controllers, Thermostats and Sub-Bases

CommStat3™ Microprocessor Controller P/N S/04581 Solid state controller designed to operate a fully or partially redundant air conditioning system. Insures equal wear on both air conditioners while allowing the lag unit to assist upon demand. Lead/ lag changeover is factory set at 7 days, but is field programmable in 1/2 day increments from 1/2 to 7 days. The CommStat 3™ Controller has LED's to indicate status & function, digital display of temperature, a comfort override button for energy savings, five alarm relays, a built in temperature sensor and is fully programmable. See CommStat 3 Controller Product Data Sheet for details on operation & installation.

LL357A1 Lead/Lag Controller

Two stage heat and cool thermostat with solid state module for redundant operation with adjustable (2°-12°F (1.1° -6.7°C)) interstage differential. (See the LL357A1 Product Data Sheet for details.)

<i>Thermostat</i> One stage cool and one stage heat.	P/N 50071
<i>Thermostat</i> Two stage cool and two stage heat.	P/N 50059
Noto, Fither sub base can be used with either th	hormostat

Note: Either sub-base can be used with either thermostat.

Sub-BaseP/N 50072Fan: Auto and on.System: Auto and on.

Sub-Base P/N 50062 No fan switch. System: Auto and on. Note: 50062 requires a field installed jumper for proper operation.



Summary Ratings (Wire Sizing)

	00 =	None	05 =	5 kw	09 =	9kw	10 =	10kw		15 = 15	5 kw		
MODEL/	CIRCU	JIT #1	CIRCUIT #1		CIRCUIT #1		CIRCUIT #1		CIRCU	IIT #1	CIRCUIT #2		
SUFFIX	MCA	MFS	МСА	MFS	МСА	MFS	MCA	MFS	MCA	MFS	MCA	MFS	
ECU60/A	40	60	40	60	-	-		60	40	60	52	60	
ECU60/C	28	40	-	-		40	-	_		60	_		
ECU60/D	15	20	_		17	20	_		26	30	-	_	

The above chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet.

MCA = Minimum Circuit Ampacity (Wiring Size Amps) MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

Efficiency and Capacity Ratings*

MODEL	60A	60C	60D
COOLING BTUH	53,000	53,000	53,000
RATED CFM	1840	1840	1840
ESP	0.20	0.20	0.20

*@ 95°F outdoor and 80°F DB and 67°F WB indoor.

Note: All performance and capacity ratings are for a 60 Hz power supply. Ratings are also affected by altitude.

Electrical Characteristics

BASIC		OL	ITDOOR F	AN MOTO	R	INDOOR FAN MOTOR									
MODEL	VOLTS	Hz/Ph	RLA	LRA	MCC	VOLTS	Hz/Ph	RPM	FLA	HP	VOLTS	Hz/Ph	RPM	FLA	HP
ECU60A	208/230	60/1	25.64	135.0	40.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	5.2	1/2
ECU60C	208/230	60/3	16.0	137.0	24.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	5.2	1/2
ECU60D	460	60/3	8.97	69.0	14.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	5.2	1/2

RLA = Rated Load Amps LRA = Locked Rotor Amps MCC = Maximum Continuous Current FLA = Full Load Amps

Unit Load Amps

BASIC MODEL	COOLING	LOAD OF RES	ISTIVE HEATING	G ELEMENTS ON	ILY (IN AMPS)	TOTAL HEATING AMPS (MAX.)						
	AMPS (MAX.)	05 KW	09 KW	10 KW	15 KW+	05KW	09KW	10KW	15KW+			
ECU60A•	34	21	-	42	63	26	-	47	68			
ECU60C•	24	-	22	-	36	-	27	-	41			
ECU60D ···	17	_	11	-	18	-	16	-	23			

•Heating kW shown for 240V. Derate heat output by 25% for 208V service. + Total heating amps for ALL 1ø units with 15kW includes both circuits (#1 and #2) •••Heater kW shown for 480V.

NOTE: Three phase equipment contains single-phase motor loads. Values shown are maximum phase loads. Loads are not equally balanced on each phase. Total cooling and total heating amps include motor loads.

Sensible/Total Ratio @95°F

(35°C) Outside Air DB

MODEL	ECU60
TOTAL CAPACITY	53,000
SENSIBLE HEAT RATIO	0.75
SENSIBLE CAPACITY	39.700

Sensible ratios based on ARI Standard 210 Indoor Conditions of 80°F (27°C) WB indoor.

CFM @ ESP (Wet Coil)

MODEL	0.10	0.20	0.30
ECU60		1900	1760

Ship W	/eight
MODEL	ECU60
	LBS/KG
ECU60	535/245



Dimensional Data – ECU60

MODEL	А	В	С	D	E	F	G	Η	Ι	J	K	L	М	N	0	Р	Q
60 (inches)	45	22-5/8	86	8	18	14	42-1/2	28	1-5/16	40-9/16	38-9/16	1-1/8	43-1/8	42-3/16	40-1/2	2-1/4	83-5/16
60 (mm)	1143	575	2184	203	457	356	1080	711	33	1030	980	29	1095	1072	1029	57	2116
NOTE Discussional to		1/1/ 1/ 10															

NOTE: Dimensional tolerance ± 1/16" (2 mm)



Complete installation instructions are in the ComPac I[™] & II[™] A/C Manual. Detailed dimensional data available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website at www.marvair.com or by contacting Marvair[™] at 229-273-3636. As part of Marvair's continuous improvement program, specifications are subject to change without notice.



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