

AIRGROUP

A u s t r a l i a

ABN 68 547 176 720

COOL BREEZE

TECHNICAL MANUAL

PART 1

AIR GROUP AUSTRALIA MANUFACTURED UNITS ONLY

2008 EDITION
SERVICE GROUP AUSTRALIA
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INTRODUCTION

This document is designed as a guide only, and does not cover all possible faults that may occur. It is intended for use by technicians and trades people with fault finding skills and relevant qualifications. Its aim is to help identify failed components and assist in diagnosis of system faults. The guide has been set out in logical order, from the basic to the more complex faults. All faults should be approached in this order and all instructions followed to avoid incorrect fault identification and/or part replacement. It should be noted that all information provided in this guide is based on current designs. Variations to these designs will be encountered on earlier models, since modifications have occurred to the product.

ABBREVIATIONS

V	Volt
W	Watt
CZ	Coolzone
CO	Comfort
MX	Formerly "Maxima"
CZR	Coolzone Rotary
KDU	Keypad Display Unit
MCU	Master Control Unit
R/U	Roof Unit
cct	Circuit
DVT	Drain Valve Timer
PIR	Passive Infra-Red (detector)
LED	Light Emitting Diode
PIN	Personal Identification Number
MRU	Modular Roof Unit
MWL	Magnetic Water Level System
MS	Magnetic Sensor Water Level System

SAFETY NOTES

Electrical & Rotary Machinery

- All electrical equipment should be isolated before work is performed. If 'live testing' is required all necessary safety precautions should be followed.

Working at Heights

- When work is to be performed at heights all necessary safety precautions should be followed.

INSTALLATION NOTES

Motor & Fan

- A fan clipping two opposite points of the cowling indicates the dropper is 'out of square'. Diagonal dimensions of dropper must be equal, +/-10mm.
- Centralise the fan in the cowling by tightening the nearest 8mm motor mounting nut to the point of contact. This will only achieve several millimetres of movement due to fan and cowling tolerances.
- When replacing a Roof Unit circuit board or fan motor a 'minimum speed set-up' (see page 30 for details) should be performed to avoid damaging motors by operating below specified minimum RPM values.
- Fan blade pitch should not be altered from factory setting as significant changes in motor loading, airflow and noise characteristics will result.
- The fan motor will not operate if the Motor Speed Key is not fitted to the keypad or MCU circuit board.

Plumbing

- Non-return type valves are **not required** as isolation valves in water supply. Back flow is not possible due to physical air gap created by water inlet design. Using a non-return type valve may result in a pressure lock between it and the solenoid valve due to water hammer or water expansion from heat.

INSTALLATION NOTES

Plumbing (continued)

- In installations where copper water supply piping is connected directly to water inlet solenoid elbow a slight 'humming' or 'buzzing' may be heard. This can be eliminated by connecting a length of flexible water pipe, immediately before the solenoid elbow.
- Drainage pipe size, position and discharge location must all conform to local regulations.

Electrical

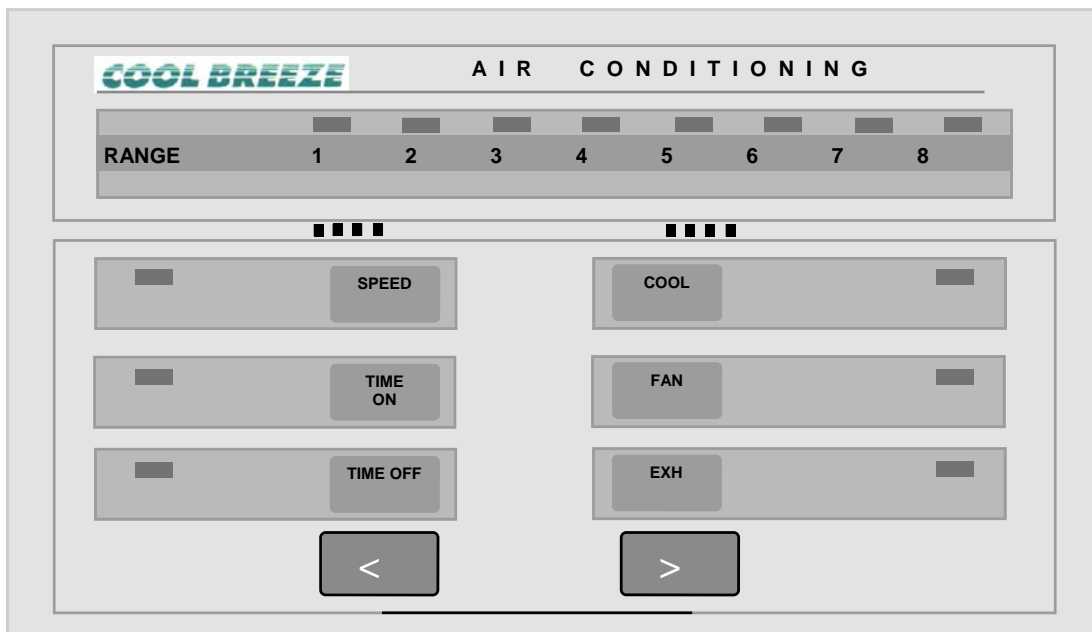
- All units should be powered from a dedicated circuit protected by a 10A or 15A re-wireable fuse or circuit breaker, (Ref: AS3000, 2.4.2). A GPO or socket outlet is not required and therefore RCD protection is not required. Flexible wiring can be joined to fixed wiring in a junction box, (Ref: AS3000, 3.7.2.7). Supplying a unit from an existing RCD protected power circuit may result in nuisance tripping of that device due to the sum of leakage current from all appliances on that circuit.
- Damage to equipment can occur if power is not isolated when connecting or disconnecting keypads, or appliances from Roof Units or MCU's.

NESS

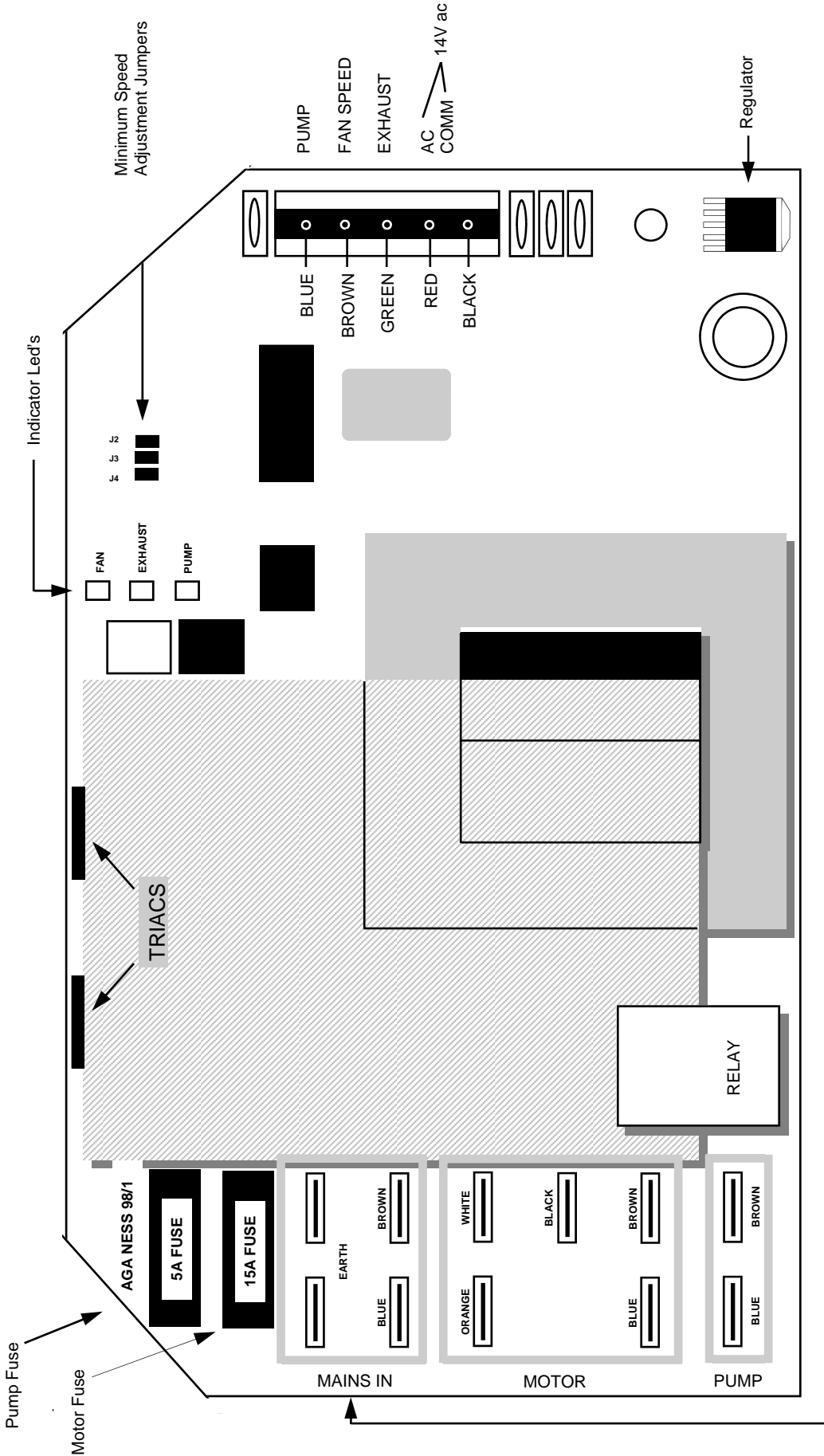
No longer available - Replace with QM Conversion Kit SP3156

- Wall Control :** Ness 14V ac (obsolete)
- Compatible Roof Unit:** Ness R/U (SP3010) (obsolete)
- Control Cable:** 5-pin pre-terminated low voltage
- Fan Motor:** 370W, 600W, 750W
- Drainage:** Hydraulic Drain Valve (SP2064) or Bleed Off - (no capacity for Electric Drain Valve)
- Pump:** 240V Pump
- Solenoid:** 240V or 24Vac with retro fit kit (SP2057) both off pump supply
- Modes of Operation:**
- | | |
|---------|---|
| FAN | - ventilation with fresh air |
| EXHAUST | - extraction of air |
| COOL | - for evaporative cooling |
| TIMER | - countdown timer to switch unit on or off after timed interval |
- Fan Speeds:** 8 speeds all modes

NESS KDU



NESS ROOF UNIT (SP3010) (No longer available)



Incoming Mains 240 volts AC

WHEN REPLACING 5 WIRE MOTOR WITH CURRENT 6 WIRE MOTOR. MUST REPLACE MOTOR LEAD EXTENSION (SP6020)

ORANGE	S2
WHITE	S1
BLUE	FAN RUN
BROWN	FAN ACTIVE
BLACK	SPARE
CAP REMAINS IN ORIGINAL TERMINALS	

WHEN REPLACING ROOF UNIT	CURRENT ROOF UNIT
OLD STYLE SCREW TERMINALS	
S2	ORANGE
S1	WHITE (capacitor wired in series)
FAN RUN	BLUE
FAN ACTIVE	BROWN
SPARE	BLACK

NESS FAULT GUIDE

ELECTRICAL FAULTS			
FAULT	Ref	CAUSE	ACTION
1. NO RESPONSE FROM KEYPAD	1.1	240V mains supply isolated	Check mains fuse, circuit breaker or unit isolation switch
	1.2	Keypad not connected	Check 5-pin cable connections
	1.3	Cable fault	Check continuity of cable
	1.4	Roof unit failure	If 14 Vac not present at pin 2 (red) replace roof unit
	1.5	Keypad failure	Keypad obsolete & unavailable - requires change of control system
2. NO RESPONSE FROM WALL CONTROL	2.1	Fuse blown or circuit breaker tripped	Check for short or earth fault in system or arcing in 6-pin motor plug

FAN FAULTS			
FAULT	Ref	CAUSE	ACTION
3. FAN NOT OPERATING <i>Select 'FAN' and fault find as follows</i>	3.1	Keypad failure - no signal to roof unit, check indicator LED's	Keypad obsolete & unavailable - requires change of control system
	3.2	Motor fuse blown (if fitted)	Replace 15A fuse
	3.3	Capacitor failure (motor will buzz but not rotate)	Replace capacitor
	3.4	Motor not powered	Check continuity through 6-pin motor plug connection
	3.5	Motor seized	Replace motor
	3.6	Fan jammed in cowling	Centralise in cowling
	3.7	Roof unit failure	Replace roof unit
	3.8	Motor failure or shutdown due to thermal overload	Test motor & compare current draw to motor name plate value
4. FAN NOT OPERATING IN EXHAUST	4.1	Any of the above FAN faults	Check to 3.1 to 3.8 above
	4.2	Roof unit failure	If relay does not change over when ordered - replace roof unit
5. FAN CONSTANTLY RUNNING	5.1	Keypad transistor failure	If fan runs with RED control wire disconnected keypad has failed - IMPORTANT See 1.5 above
	5.2	Roof unit triac shorted	Replace roof unit

NESS FAULT GUIDE

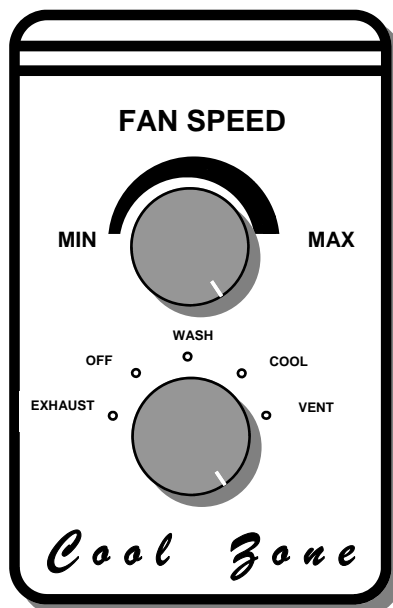
WATER FAULTS			
FAULT	Ref	CAUSE	ACTION
6. WATER NOT ENTERING UNIT <i>Select 'COOL' and fault find as follows</i>	6.1	Isolation tap closed	Open tap and retry
	6.2	Solenoid not energized	Check 240V ac supply to solenoid
	6.3	Solenoid mesh strainer blocked	Remove solenoid & clean mesh strainer and check water quality
	6.4	Solenoid coil open circuit or failed	Replace solenoid
	6.5	Low water pressure	Fit low pressure diaphragm (green) to float valve
	6.6	Pressure lock between solenoid & non return type valve	Relieve pressure & fit standard Isolation tap
7. WATER CONTINUALLY RUNNING FROM UNIT <i>Select 'COOL' and fault find as follows</i>	7.1	Correct operation when in use for bleed off system	Adjust bleed off rate to suit
	7.2	Hydraulic drain valve not closing due to low water pressure	Suggest bleed off system be used
	7.3	Hydraulic drain valve seeps some water during operation	If leaking is excessive or valve body cracked; replace
	7.4	Solenoid leaking	Replace solenoid
	7.5	Water level set too high	Adjust float valve setting
	7.6	Float valve failed	Replace diaphragm or float valve
8. WATER NOT DRAINING FROM UNIT	8.1	Correct operation for bleed off unit	Ensure bleed off rate set as required
	8.2	Hydraulic drain valve jammed shut	Replace drain valve
9. WATER NOT CIRCULATING <i>Select 'COOL' and fault find as follows</i>	9.1	Keypad failure - no signal to roof unit, check indicator LED's	If Pump LED not lit suspect keypad failure - See 1.5
	9.2	Roof unit failure - no 240V supply to pump/solenoid	With Pump LED lit test for 240V at terminals - replace roof unit if not present
	9.3	Pump fuse blown (if fitted)	Replace with 5A fuse
	9.4	Pump motor seized, impellor stripped, base cracked	Replace pump
	9.5	Pump strainer basket clogged	Remove & clean strainer basket
	9.6	Restrictor tap closed (if fitted)	Open restrictor tap
	9.7	Water distribution manifold blocked	Remove & flush manifold of any blockages

COOLZONE CZR SERIES (COOLZONE ROTARY)

No longer available - Replace with QM Conversion Kit SP3156

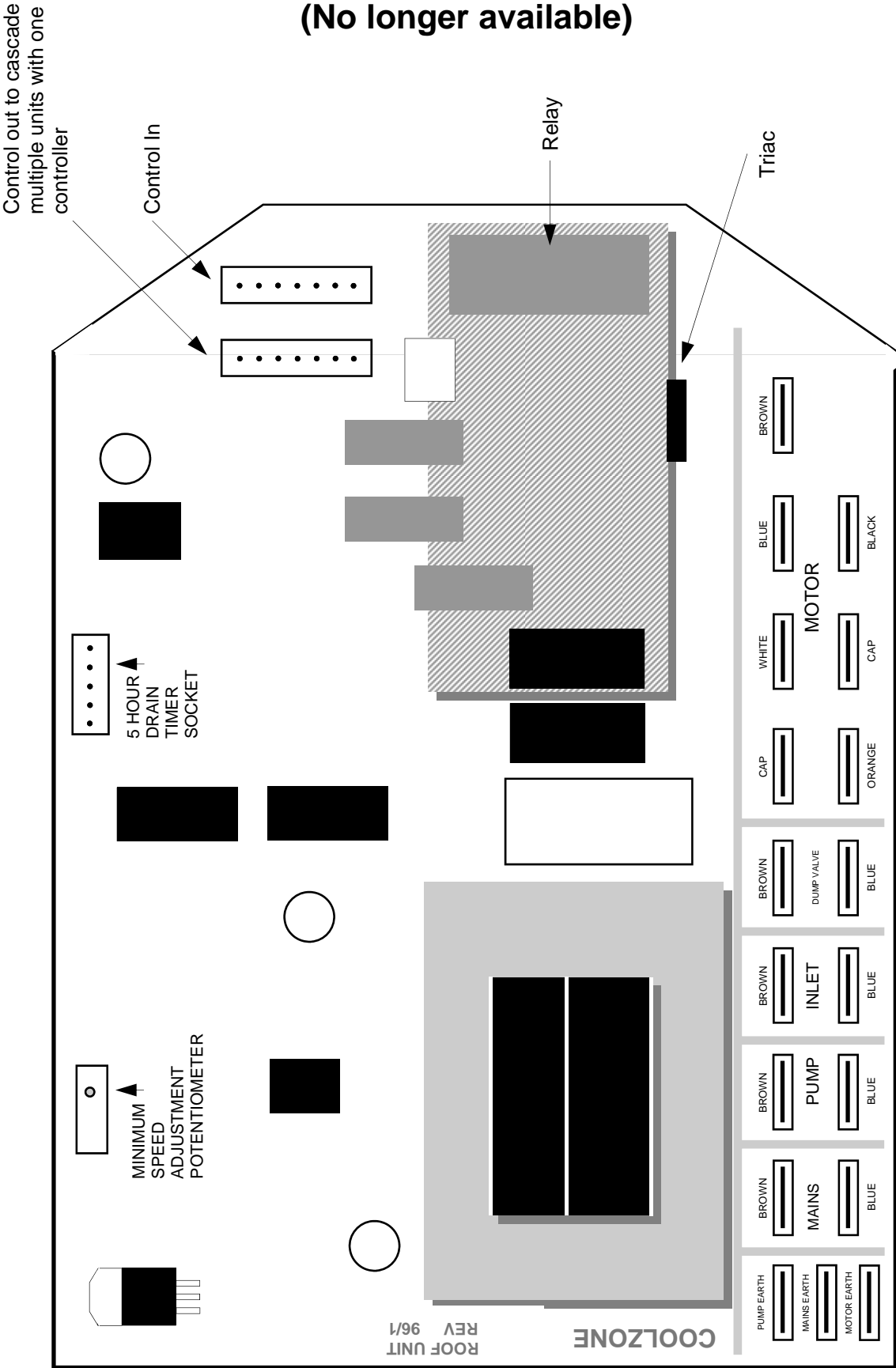
- Wall Control :** Coolzone rotary 12V dc (SP3200 thru 3210)
Three factory preset speed ranges to suit model size
80, 105-130 and 160-250 (Obsolete)
- Compatible Roof Unit:** COOLZONE Rotary R/U (SP3002) (Obsolete)
- Control Cable:** 7-pin 12V dc pre-terminated split 4/3 at wall control
(SP5212)
- Fan Motor:** 370W, 600W, 750W
- Drainage:** 240V Electric Drain Valve (SP2062), Hydraulic Drain Valve
(SP2064) or bleed off tray
- Pump:** 240V Pump
- Solenoid:** 240V or 24Vac with retro-fit kit (240/24V transformer)
- Modes of Operation:** VENT - fan only for ventilation with fresh air
EXHAUST - reverse fan direction to extract air
WASH - pad wash with pump circulating water
COOL - fan and pump both operate for cooling
- Fan Speeds:** Variable potentiometer
- Other Features:** 2.5 hrs drain cycle standard or 5 hours with Timer
(SP3004)

COOLZONE ROTARY



CZR BOARD DIAGRAM (SP3002)

(No longer available)



CZR FAULT FINDING

ELECTRICAL FAULTS			
FAULT	Ref	CAUSE	ACTION
1. NO RESPONSE FROM WALL CONTROL	1.1	No power to roof unit	Check mains fuse, circuit breaker or isolation switch
	1.2	No 12V dc supply to wall control	Check 7-wire cable for continuity
	1.3	Faulty wall control	Replace wall control
	1.4	Faulty roof unit	Replace roof unit
	1.5	Fuse blown or circuit breaker tripped	Check for short or earth fault in system or arcing in 6-pin motor plug

FAN FAULTS			
FAULT	Ref	CAUSE	ACTION
2. FAN NOT OPERATING <i>Select 'VENT' and fault find as follows</i>	2.1	No power to roof unit	Check mains fuse, circuit breaker or isolator switch
	2.2	Motor not powered	Check continuity through 6-pin plug to motor
	2.3	Wall control failure	Substitute new controller to verify & replace if required
	2.4	Motor seized or fan jammed in cowling	Replace motor or balance fan
	2.5	Motor Failed or shut down due to thermal overload	Test motor & compare current draw to motor name plate valve
3. FAN NOT OPERATING IN EXHAUST	3.1	Wall control failure	Substitute new controller to verify and replace if necessary
	3.2	Roof unit relay failure	Replace roof unit
4. FAN CONSTANTLY RUNNING	4.1	Roof unit failure, triac shorted	If fan runs when OFF selected replace roof unit
5. WATER NOT ENTERING UNIT <i>Select "COOL" and fault find as follows</i>	5.1	Isolation tap closed	Open tap
	5.2	Solenoid coil open circuit	Replace solenoid
	5.3	Roof unit failure	Test for 24Vac at inlet terminal and replace if roof unit if required
	5.4	Solenoid mesh strainer blocked	Remove solenoid, clean mesh strainer and check water quality
	5.5	Low water pressure	Fit low pressure diaphragm (green) to float valve

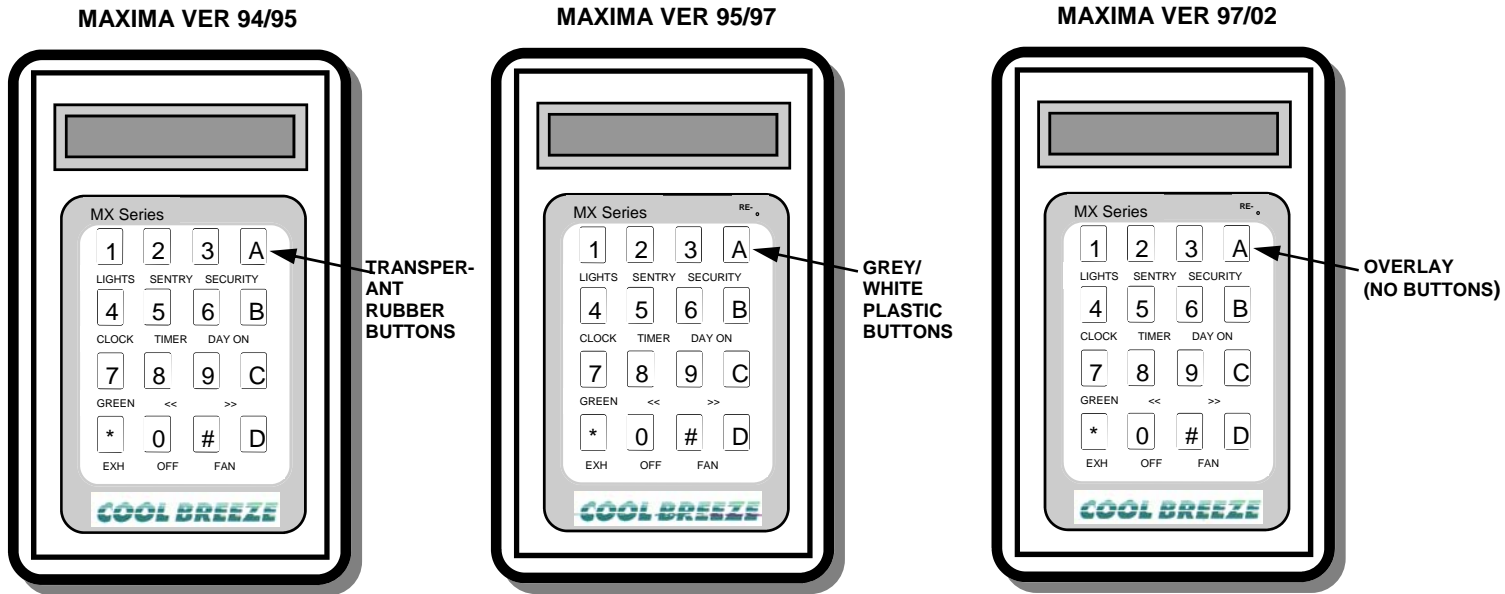
CZR FAULT FINDING

WATER FAULTS			
FAULT	Ref	CAUSE	ACTION
6. WATER NOT CIRCULATING <i>Select "COOL" and fault find as follows</i>	6.1	Pump failure; seized, impellor stripped or base cracked	Replace Pump
	6.2	Faulty roof unit	If 240V not present at pump terminals - replace roof unit
	6.3	Pump strainer basket clogged	Remove & clean strainer basket
	6.4	Restrictor tap closed (if fitted)	Open restrictor tap
	6.5	Water distribution manifold blocked	Remove & flush manifold of any blockages
7. WATER CONTINUALLY RUNNING FROM UNIT <i>Select "COOL" and fault find as follows</i>	7.1	Correct operation for bleed off unit	Ensure bleed off rate is set as required
	7.2	Water level set too high	Adjust float valve setting
	7.3	Solenoid leaking or failed	Replace solenoid
	7.4	Electric drain valve failure	Replace drain valve and ensure DVT is fitted if required
	7.5	Hydraulic drain valve failed or leaking	Replace drain valve
	7.6	Roof unit failure	If 240V not present at drain terminals replace roof unit
	7.7	Float valve diaphragm failed	Replace diaphragm
8. WATER NOT DRAINING AT SHUTDOWN	8.1	Drain Valve and/or roof unit triac shorted as result	If 240V present at drain terminals with OFF selected replace roof unit & drain valve

MAXIMA PLUS SERIES

Wall Control :	MX Series 12 Vdc (SP3222)
Master Control Unit:	MCU Plus 17 Vdc (SP3228)
Compatible Roof Unit:	CO R/U (SP3006) / Fused R/U (SP3003) / Modular R/U (SP3000)
Control Cable:	Keypad to MCU, 4-pin pre-terminated (SP5202) MCU to Roof Unit, 7-pin pre-terminated (SP5200) MCU to Temp Sensor, 3-pin pre-terminated (SP5204) All other wiring plain twin, minimum 14/0.18 or 21 AWG
Fan Motor:	370W, 600W, 750W
Drainage:	240V Electric Drain Valve (SP2062), Bleed Off or Counter-weight Drain Valve (SP2040)
Pump:	240V Pump
Solenoid:	24V or 24Vac or retro-fit kit (dependant on R/U)
Modes of Operation:	FAN - ventilation with fresh air EXHAUST - to extract air COOL - for evaporative cooling AUTO - controls unit to maintain constant preset temperature TIMER - countdown timer to switch unit on and off after timed interval DAILY ON & DAILY OFF TIMERS
Fan Speeds:	100 speeds in all modes
Standard:	Mains powered battery backed smoke detectors Emergency 12 V battery powered lighting Remote temperature sensor Digital clock & temperature displays Variable drain cycle – 0 to 23 hours Back-lit LCD display with 2 lines, 40 character text Keypad reset button (current version)
Plus Upgrade:	Home security system including: Passive infra-red detectors External siren and strobe light Internal sounder
Optional Features:	Dual keypads Gas detector Perimeter security

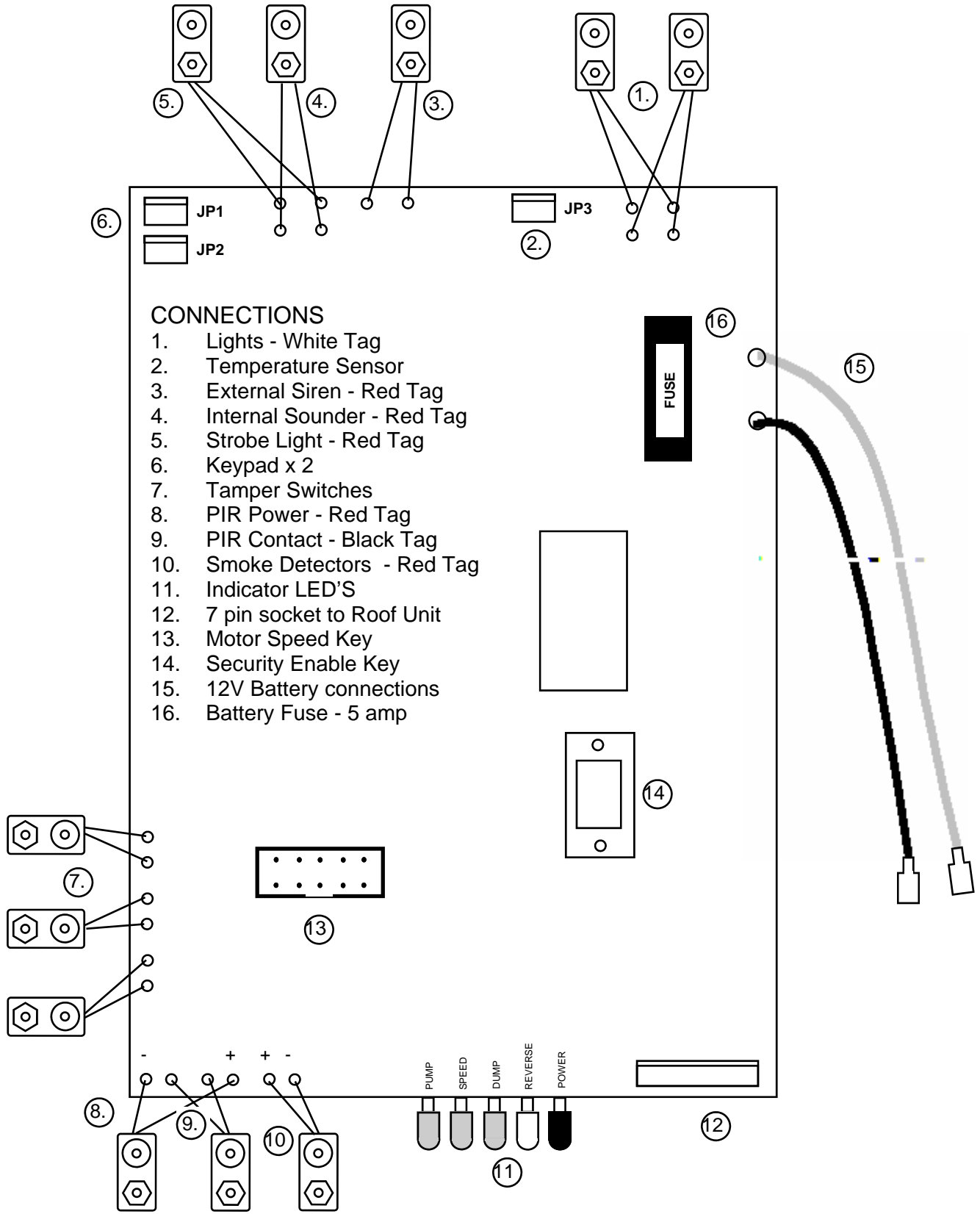
MAXIMA KEYPADS (MAXIMA)



NOTES

- MCU Indicator LED's display outgoing control signals only.
- R/U Indicator LED's display incoming control signals only.
- Resetting an MX keypad will not affect preset values, these are retained by the MCU.
- If the MCU reset button is pressed or both mains and battery power are isolated, the MCU will 'RESET' to factory settings.
- Motor speed keys and external drain valve timers are fitted to the MCU
- **Red Label Compatibility** Earlier versions of MX keypads and MCU's utilised a different style microprocessor . THEY ARE NOT COMPATIBLE WITH CURRENT VERSIONS. Current versions are marked with a red label on the microprocessor of the keypad and MCU. When replacing parts check if it is red label equipment or not.
- Current version MCU's have internal timing for electric drain valves .This is noted by a fluorescent orange sticker on the MCU stating: FITTED WITH INTERNAL DRAIN VALVE TIMER. Earlier versions without internal timing will not have a sticker and require an External Drain Valve Timer. There are two styles, both are fitted to the 7-pin control cable. Either at the at MCU or at the roof unit. The timers generate a 5 second ON and 15 second OFF duty cycle to increase durability of the drain valve. They do not affect the drain cycle times.

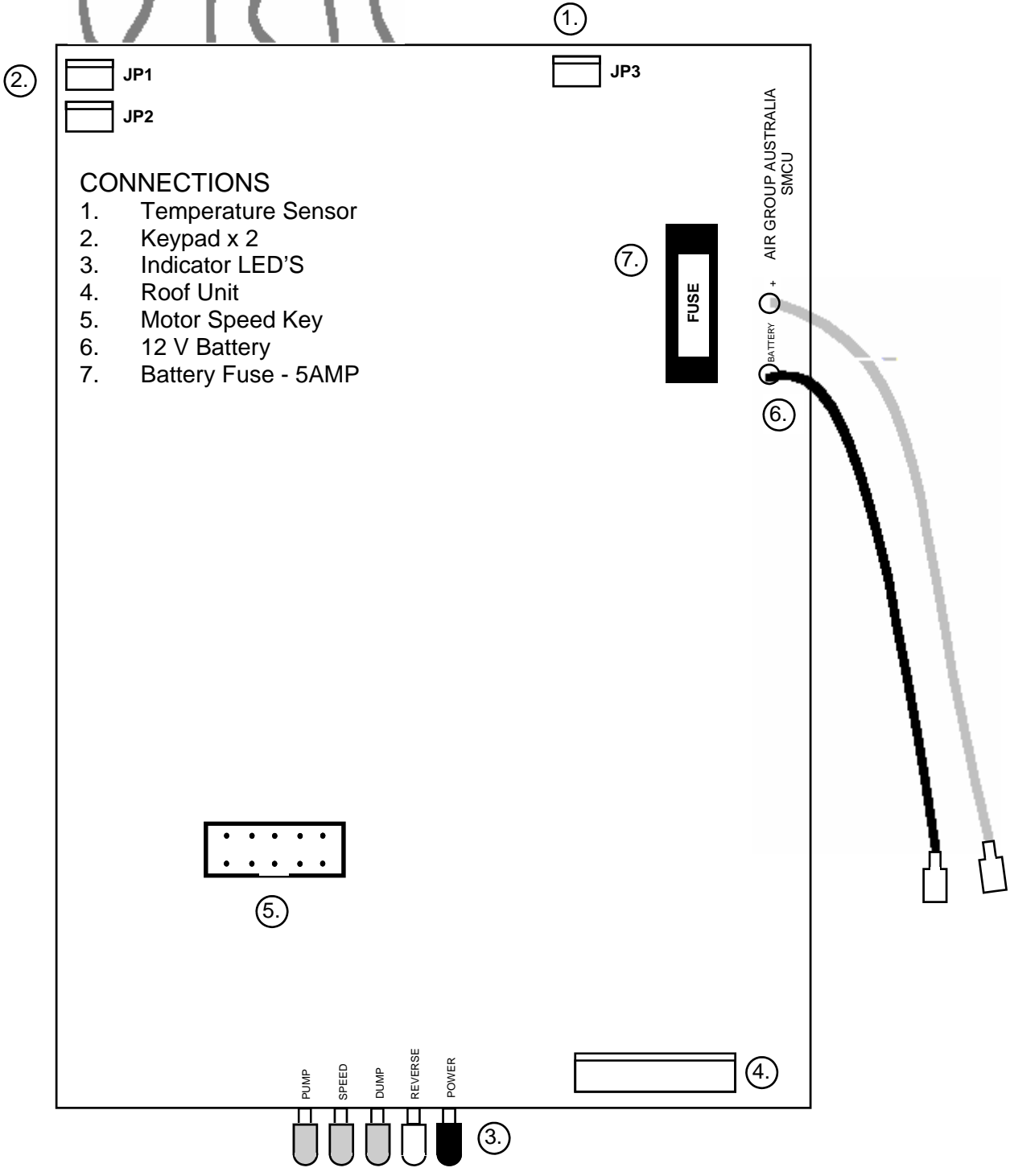
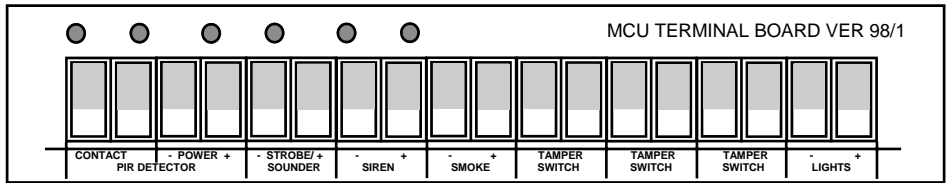
MCU WIRING DIAGRAM VER 96/2 (OBSOLETE)



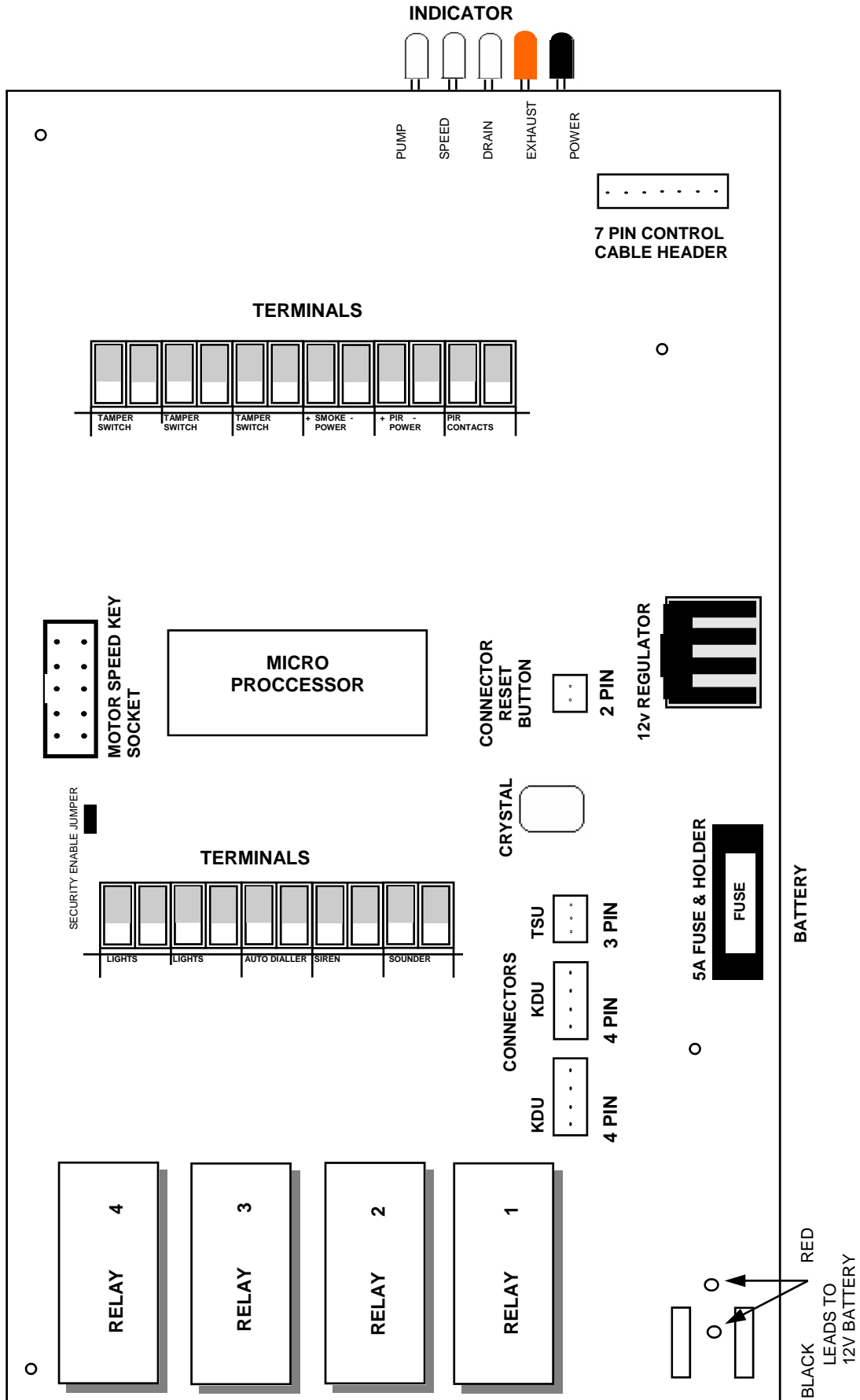
CONNECTIONS

- 1. Lights - White Tag
- 2. Temperature Sensor
- 3. External Siren - Red Tag
- 4. Internal Sounder - Red Tag
- 5. Strobe Light - Red Tag
- 6. Keypad x 2
- 7. Tamper Switches
- 8. PIR Power - Red Tag
- 9. PIR Contact - Black Tag
- 10. Smoke Detectors - Red Tag
- 11. Indicator LED'S
- 12. 7 pin socket to Roof Unit
- 13. Motor Speed Key
- 14. Security Enable Key
- 15. 12V Battery connections
- 16. Battery Fuse - 5 amp

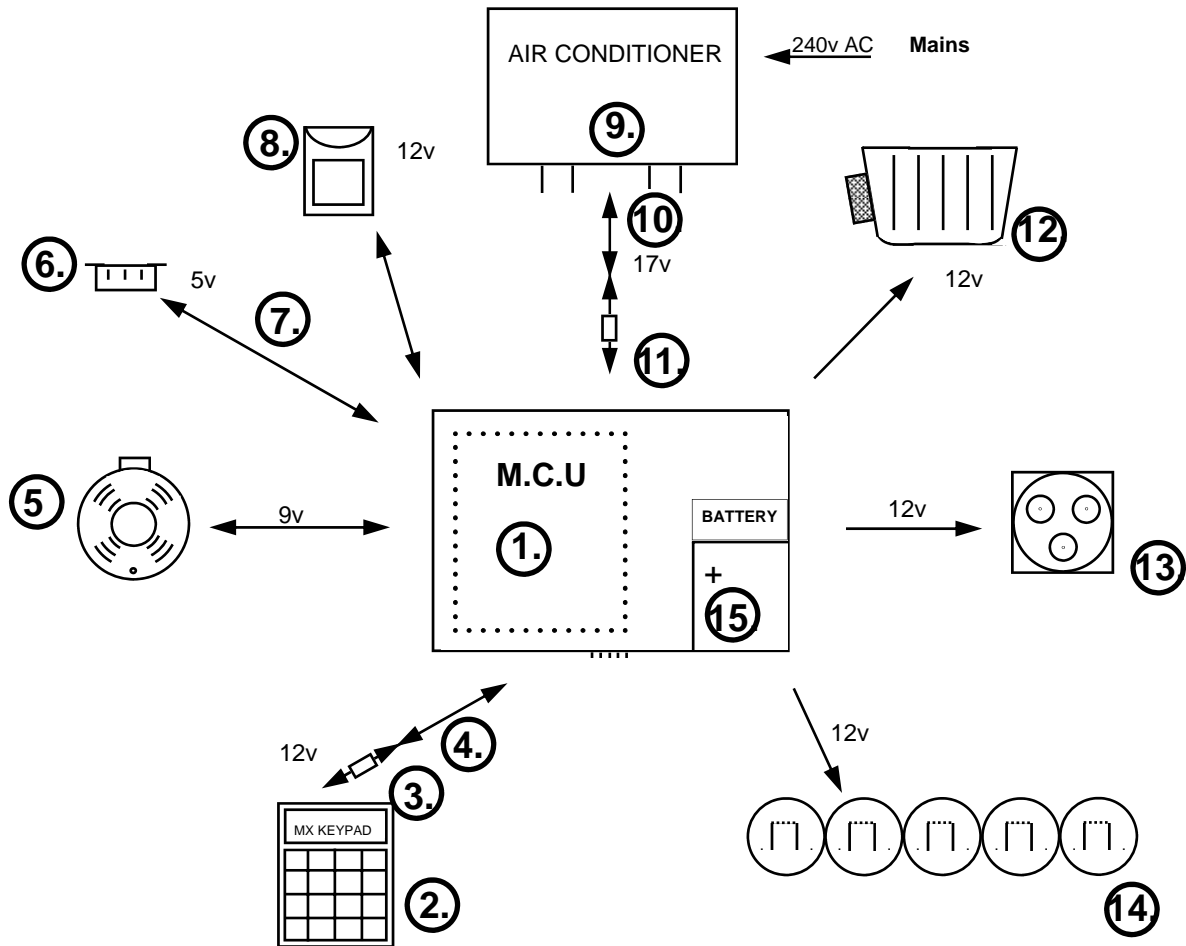
MCU WIRING DIAGRAM VER 98/1 (SP3228)



MCU BOARD CURRENT VERSION (SP 3228)



MX SCHEMATIC



MX SCHEMATIC TABLE

Dwg No	Description	Part No
1	Master Control Unit (MCU) Printed Circuit Board	SP 3228
2	Keypad Display Unit (K.D.U.)	SP 3222
3	4-Pin In-line Spike Filter	SP 3240
4	4-Pin Cable (10m)	SP 5202
5	Smoke Detector	SP 5014
6	Temperature Sensing unit (T.S.U.)	SP 3230
7	3-Pin Cable (8m)	SP 5204
8	Passive Infra-Red Detector (P.I.R.)	SP 5212
9	Air Conditioning Unit	
10	7-Pin Cable (12m)	SP 5200
11	7-Pin In-line Spike Filter	SP 3242
12	External Siren Box including Tamper Switch	SP 5008
13	Internal Sounder	SP 5020
14	Emergency Light	SP 5016
15	12V 7Ah Battery	SP 5002
16	Tamper Switch for MCU Box (not shown)	SP 5004
17	Strobe Light for Siren Box (not shown)	SP 5010

MX FAULT GUIDE

ELECTRICAL FAULTS			
FAULT	Ref	CAUSE	ACTION
1. NO DISPLAY AT KEYPAD	1.1	Keypad locked up	Push RESET button on keypad
	1.2	Roof unit not powered - Power LED not lit	Check mains fuse, circuit breaker or unit isolation switch
	1.3	MCU not powered - if red MCU Power LED not lit	Check 7-pin cable connections & unit isolation switch
	1.4	Roof unit failure	Check 17V dc between pins 1 & 7, if not present replace roof unit
	1.5	Keypad not connected	Check 4-pin cable connections
	1.6	Keypad failure	Substitute new keypad to verify and replace if required
	1.7	MCU failure	Replace MCU
2. NO RESPONSE FROM WALL CONTROL	2.1	Fuse blown or circuit breaker tripped	Check for short or earth fault in system or arcing in 6-pin motor plug

FAN FAULTS			
FAULT	Ref	CAUSE	ACTION
3. FAN NOT OPERATING <i>Select 'FAN' at keypad and fault find as follows</i>	3.1	Speed key not fitted	Check & fit correct size speed key to MCU
	3.2	Fan motor fuse blown	Replace 15A slow blow fuse
	3.3	Capacitor failure - motor will buzz but not rotate	Replace capacitor
	3.4	Motor not powered	Check continuity through 6-pin motor plug connection
	3.5	Motor seized or fan jammed in cowling	Replace motor or balance fan
	3.6	Motor shutdown due to thermal overload	Test motor & compare current draw to motor rating
	3.7	Keypad failure	If Speed LED not lit at MCU suspect keypad or MCU
	3.8	Roof unit failure	If MCU Speed LED & R/U Speed LED are lit replace R/U
	3.9	Master control unit failure	If MCU Speed LED not lit replace MCU
	3.10	Motor failure	Test motor to verify & replace
4. FAN NOT OPERATING IN EXHAUST <i>Select 'EXHAUST' at keypad and fault find as follows</i>	4.1	Any of the above FAN faults	Check to 3.1 to 3.10 above
	4.2	MCU failure	If Exhaust LED is not lit at MCU replace MCU
	4.3	Relay failed or locked up	If R/U Exhaust LED is lit yet motor direction has not reversed replace roof unit

MX FAULT GUIDE

FAN FAULTS CONTINUED			
FAULT	Ref	CAUSE	ACTION
5. FAN RUNNING CONSTANTLY <i>Select 'OFF' at keypad & fault find as follows</i>	5.1	System may be in AUTO or TIMER mode	Check system mode at keypad
	5.2	Roof unit triac shorted	If fan runs with R/U Speed LED not lit replace roof unit
6. UNIT STARTING OR STOPPING INDEPENDANTLY	6.1	Unit being affected by spike interference	Fit in-line spike filters to both ends of 4-pin & 7-pin cables
	6.2	System may be in AUTO or DAILY ON/OFF mode	Check system mode at keypad

WATER FAULTS			
FAULT	Ref	CAUSE	ACTION
7. WATER NOT ENTERING UNIT <i>Select 'COOL' and fault find as follows</i>	7.1	Isolation tap closed	Open tap & retry
	7.2	Solenoid time delay active	Wait 1 min for drain valve to close & delay to end and solenoid to open
	7.3	Keypad not signaling MCU - MCU drain LED not lit	Replace keypad & retest
	7.4	Roof unit not supplying solenoid 24 Vac	If 24 Vac not present at WATER INLET terminals replace roof unit
	7.5	Solenoid mesh strainer blocked	Remove solenoid and clean mesh strainer and check water quality
	7.6	Solenoid coil open circuit or failed	Replace solenoid
	7.7	Float valve sticking or low water pressure	Replace float valve or fit low pressure diaphragm (green)
	7.8	Pressure lock between solenoid & non-return valve	Relieve pressure & fit standard isolation tap
8. WATER CONTINUALLY RUNNING FROM UNIT <i>Select 'COOL' at keypad and fault find as follows</i>	8.1	MCU failure - no signal to roof unit	If MCU Drain LED not lit replace MCU
	8.2	Drain valve fuse blown	Replace 5A fuse on roof unit
	8.3	Roof unit failure	If 240V not present at drain Terminals replace roof unit
	8.4	Electric drain valve failure	Replace drain valve - IMPORTANT see 9.1
	8.5	Solenoid Leaking	Replace solenoid
	8.6	Water level set too high	Adjust float valve setting
	8.7	Float valve not shutting off	Replace diaphragm
	8.8	Counterweight drain valve A) Leaking from hoses or plastic clips B) Hoses incorrectly connected C) Physical or mechanical imparement of drain valve body	Replace plastic clips (SP2041) or hoses kit (SP2042) Do not re-use clips Replace hoses kit (SP2042) Replace drain valve (SP2040)

MX FAULT GUIDE

WATER FAULTS CONTINUED			
FAULT	Ref	CAUSE	ACTION
9. WATER NOT DRAINING FROM UNIT	9.1	Drain valve failed and/or roof unit triac shorted as a result	If 240V present at drain terminals when ' OFF ' is selected replace roof unit
	9.2	System is in AUTO mode and at end of cycle	Check system mode at keypad
	9.3	Counterweight drain valve A) Stuck in closed position	Replace drain valve (SP2040)
		B) Blockage in components	Replace drain valve (SP2040)
10. WATER DRAINING OUT OF CYCLE	10.1	Drain interval setting altered	Check duration of drain interval
	10.2	System in AUTO or TIMER mode	Check system mode at keypad
11. WATER NOT CIRCULATING <i>Select 'COOL' and fault find as follows</i>	11.1	Pump time delay is active	Wait 2 mins until delay ends
	11.2	Pump delay jumper JP3 not fitted	Check jumper JP3 on roof unit is fitted
	11.3	Keypad failure - no signal to MCU	If pump LED at MCU not lit after 3 mins suspect keypad or MCU fault
	11.4	Pump fuse blown	Replace 5A fuse
	11.5	Roof unit failure - no 240V supply to pump	Replace roof unit if 240V not present at pump terminals with Pump LED lit
	11.6	Pump failed	Replace pump
	11.7	Pump strainer basket clogged	Remove & clean strainer basket
	11.8	Restrictor tap closed	Open restrictor tap
	11.9	Water distribution manifold blocked	Remove & flush manifold of any blockages
12. EMERGENCY LIGHTS NOT OPERATING	12.1	Battery failure	Test battery voltage, 12V dc Correct under load (lights on)
	12.2	Incorrect circuit connection	Check lights are on two circuits
13. SENTRY SYSTEM NOT OPERATING	13.1	PIR failure	Check PIR operation and contact circuit continuity
14. 'REQUESTED KEY UNAVAILABLE' DISPLAYED	14.1	Security enable jumper not fitted to MCU	Check & fit jumper
	14.2	PIR contact cct open	Test for continuity from MCU
	14.3	PIR failure	Short suspected PIR out of circuit and test contact cct for continuity
	14.4	MCU failure	Replace MCU

MX FAULT GUIDE

SECURITY SYSTEM FAULTS			
FAULT	Ref	CAUSE	ACTION
15. PIN NOT RECOGNISED BY SYSTEM	15.1	System has reset to factory settings	Try 1234 as PIN then reload owners PIN
16. SYSTEM CONSTANTLY IN ALARM CONDITION	16.1	Tamper cct open or terminals not bridged	Test for continuity on cct or bridge tamper terminals
17. SYSTEM NOT GENERATING ALARM	17.1	MCU failure	Test using PANIC to trigger alarm & check for 12V dc at Siren and Sounder terminals
18. LOW BATTERY WARNING	18.1	Battery failure	Replace Battery
	18.2	MCU charging cct fuse blown	Replace 5A slow-blow fuse
	18.3	MCU charging cct failure	Replace MCU if 12V dc not supplied to battery leads

