

## Customer Support Engineers

Continuing with the introductions of the Sydney Technical Support staff, we have Mr James Chandra who with 24 years of experience across all areas of the industry from Industrial chillers through to domestic units is one of the more direct and to the point type characters amongst the crew.



Michael Tranter who is slightly lay-back but accurate in his approach to technical problems, joined our company in 2010 after ten years in air conditioning, and a short stretch in the mining industry.



When calling our technical support crew, we strongly advise that you note down the name of the person assisting you.

This becomes important should you require further assistance or a change over unit. In such cases, please quote the assisting tech's name on all paperwork.

## Contact Information:

Spare parts direct email:

[spareparts@fujitsugeneral.com.au](mailto:spareparts@fujitsugeneral.com.au)

Technical Support direct email:

[technicalsupport@fujitsugeneral.com.au](mailto:technicalsupport@fujitsugeneral.com.au)

Warranty Claims direct email:

[service@fujitsugeneral.com.au](mailto:service@fujitsugeneral.com.au)

## Technical Support contact numbers:

Australia Wide Local Call Technical Support:  
1300 364 484 or NSW Office on 02 8822 2600

QLD Customer Support Engineer:

Mr David Harper 0418 788 319 / 07 3257 2800

VIC/TAS Customer Support Engineer:

Mr Robert Haldane 0408 400 355 / 03 95435899

SA/NT Customer Support Engineer:

Mr Luke Meyers 0408220997 / 08 81721180

WA Customer Service:

Please use Australia Wide Local Call:

1300 364484 or WA Office on 08 9240 5877

## Technical Tips

### Communication Serial Signal Testing:

In order to test for serial signal communication a few principals need to be understood. Both indoor and outdoor units communicate to each other via the serial signal line that connects the two together. It is most important that you use the colour of the cables on the Fujitsu General side of the tag strip as the reference when conducting this test. Set your multimeter to read DC voltage.

### To test the indoor unit's serial signal:

A simple method of testing if communication is occurring is to disconnect the serial signal cable (Red on the Fujitsu General side of the tag strip) at the outdoor unit. Place the black lead of your multimeter to the neutral for the indoor unit (terminal 2, white cable on the outdoor unit's tag strip). Place the red lead of your multimeter on the signal wire (red) coming from the indoor unit. Your meter should read a fluctuating voltage when the unit is turned on.

### Technical Tips (Continued)

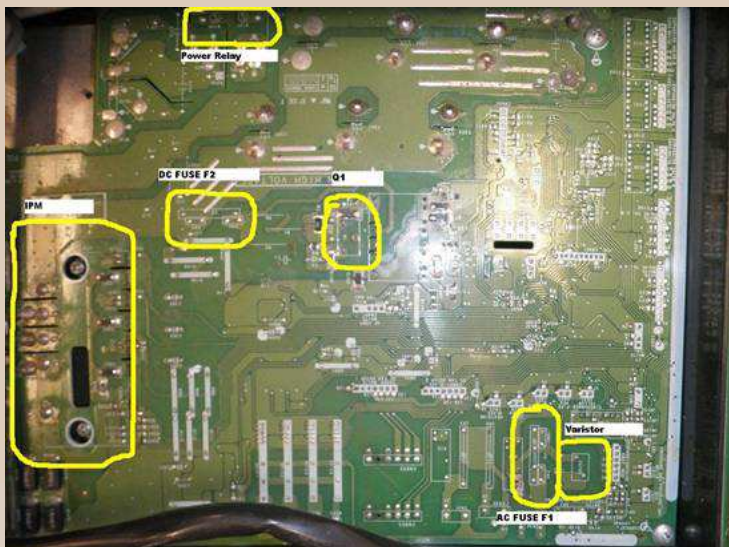
#### To test the outdoor unit's serial signal:

Leaving the serial signal cable disconnected, connect your multimeter probes to the outdoor units tag strip as follows. Multimeter black lead to neutral connection (white cable, terminal 2) the red cable of your multimeter to the serial signal (red cable, terminal 3) on the tag strip of the outdoor unit. Again, a fluctuating voltage should be observed.

Model Type	Indoor unit signal voltage	Outdoor unit signal voltage
Family 1 (AST & ART/C)	60 – 120 VDC Fluctuating	60 – 120 VDC Fluctuating
Family 2 (ASTA – ASTB)	40 – 90 VDC Fluctuating	40 – 90 VDC Fluctuating
Family 3a (ASTG)	70 – 130 VDC Fluctuating	70 – 130 VDC Fluctuating
Family 3b (ARTG, 3 phase product)	295 VDC Static	3 – 110 VDC Fluctuating

Below is a series of photos and diagrams that indicate the positioning of various components. Being aware of this will allow you to fault find faster and more accurately.

#### AOT45/54LJ\*YL Controller PCB



#### 1. IPM Testing – REFER TO CHART BELOW. DIODE TEST IS REQUIRED.

	Multimeter lead connections		Normal values
	Negative lead (BLACK)	Positive lead (RED)	
IPM POWER WIRE CONNECTIONS (if discrete module) or SOLDER PADS (if part of Inverter PCB)	P (Yellow)	U (Red)	All readings should be similar (~0.35-0.4v)
	P (Yellow)	V (White)	
	P (Yellow)	W (Black)	
	N (Blue)	U (Red)	All readings should be open (OL)
	N (Blue)	V (White)	
	N (Blue)	W (Black)	
	U (Red)	N (Blue)	All readings should be similar (~0.35-0.4v)
	V (White)	N (Blue)	
	W (Black)	N (Blue)	
	U (Red)	P (Yellow)	All readings should be open (OL)
	V (White)	P (Yellow)	
	W (Black)	P (Yellow)	

2. Check resistance across “Power Relay” solder points. ~118Ω is normal. If not, Check Power Relay wiring, connections onto relay, and relay coil.
3. Check “DC FUSE F2” for continuity. Less than 1Ω. If not, Check DC Fans, Compressor, IPM, Q1.
4. Q1 Testing – REFER TO CHART BELOW. DIODE TEST IS REQUIRED.

- This test can be done with the F2 fuse in or out

Base  
Negative lead

Collector  
Positive lead =OL (After Cap Charge)

O Emitter  
Positive Lead =.45

Reverse the multi meter leads

Base  
Positive lead

Collector  
Negative lead =.45  
O Emitter  
Negative lead =.48

Back of condenser

Base

Collector

O Emitter

5. Check “AC FUSE F1” for continuity. Should be less than 1Ω. If not, Check thermistors, EEV coil, RV solenoid, and Pressure switch for earth leakage.



### Technical Tips (Continued) ACTPM AND DIODE BRIDGE TESTING



1. Check DC Voltages on ACTPM. On the Red and Black wire, you should read 240 Volts DC.
2. On the Yellow and Blue wire, you should read 320 ~ 380 Volts DC depending on the model of the unit.
3. Ensure terminals and wires connected to them are the correct combination. The terminals are always labeled. The Diode bridge always has the + on the shaved corner.
4. Diode Bridge Testing – REFER TO CHART. DIODE TEST IS REQUIRED. REMOVE ALL WIRES.

	Multimeter lead connections		Normal / Expected values
	Negative lead (BLACK)	Positive lead (RED)	
DIODE BRIDGE WIRE CONNECTIONS (if discrete module) or SOLDER PADS (if part of PCB)	+ (Red)	~ (Grey)	All readings should be similar (~0.5v)
	+ (Red)	~ (White)	
	- (Black)	~ (Grey)	All readings should be open (OL)
	- (Black)	~ (White)	
	~ (Grey)	- (Black)	All readings should be similar (~0.5v)
	~ (White)	- (Black)	
	~ (Grey)	+ (Red)	All readings should be open (OL)
	~ (Grey)	+ (Red)	All readings should be open (OL)

5. If any results vary from readings stated in chart, replace Diode Bridge.
6. ACTPM Testing – REFER TO CHART. OHMS IS REQUIRED. REMOVE ALL WIRES.

Check the open or short-circuit		
Terminal	Tester(+)	Tester(-)
(+)	(-)	360kΩ ± 20%
(-)	N1	0 Ω
P	(+)	720kΩ ± 20%
L1	L2	Over 1MΩ
P	N1	360kΩ ± 20%
L1, L2	Control Box	∞ Ω
L2	N2	Over 1MΩ

Check the diode		
Terminal	Tester(+)	Tester(-)
L2	P	Over 1MΩ
P	L2	Over 1MΩ

Ref. value 1  
Specifications for Multimeter  
Manufacturer : FLUKE  
Model name : FLUKE11  
Power source : DC9V.

Ref. value 2  
Specifications for Multimeter  
Manufacturer : Sanwa  
Model name : PM3  
Power source : DC3V.

7. Ensure the range can go above 200k ohms.
8. If any results vary from readings stated in chart, replace ACTPM.

### Next Issue

Other key staff responsible for delivering our customer service to you plus serial signal testing on J-Series.