

# Fujitsu Trouble Shooting Guide

## Current Models

These pages cover the current Inverter product range.

They also cover the ARY60U, ARY54U Single and AOY19/24F/U Multi Systems.

### Models with Wireless Controllers Trouble Shooting from the Indoor Unit

#### Wall Mounted Single Systems ASY, ASYA & ASYB Includes AWYZ Nokria Models

Red Light Operation	Green Light Timer	Current Models
Off	2 Flashes	Reverse Comms Fail at Startup
Off	3 Flashes	Reverse Comms Fail In Use
Off	4 Flashes	Forward Comms Fail at Startup
Off	5 Flashes	Forward Comms Fail In Use
Off	8 Flashes	Wired Remote Control Failure
2 Flashes	2 Flashes	Indoor Air Sensor Fail
2 Flashes	3 Flashes	Indoor Pipe Sensor Fail
2 Flashes	4 Flashes	Indoor heat exchanger sensor error
2 Flashes	6 Flashes	Float switch operated
3 Flashes	2 Flashes	OD Disch Sensor Fail
3 Flashes	3 Flashes	OD Pipe Sensor Fail
3 Flashes	4 Flashes	OD Air Sensor Fail
3 Flashes	7 Flashes	Heatsink Sensor Error
3 Flashes	8 Flashes	Compressor Temp Sensor Fail
4 Flashes	2 Flashes	Forced Auto Switch Welded
4 Flashes	3 Flashes	Main Relay Welded
4 Flashes	4 Flashes	Power Failure
4 Flashes	7 Flashes	VDD Permanent Stop Protection
4 Flashes	8 Flashes	Reverse VDD Permanent Stop
5 Flashes	2 Flashes	IPM Protection
5 Flashes	3 Flashes	CT Abnormal
5 Flashes	5 Flashes	Compressor Failure
5 Flashes	6 Flashes	Outdoor Fan Failure
6 Flashes	2 Flashes	ID Fan Motor Locked
6 Flashes	3 Flashes	ID Fan Motor Rotation Error
7 Flashes	2 Flashes	High Discharge Temperature
7 Flashes	3 Flashes	High Pressure
7 Flashes	4 Flashes	4-Way valve abnormal
7 Flashes	5 Flashes	Pressure Switch Fail
7 Flashes	6 Flashes	Compressor Temperature error
8 Flashes	2 Flashes	Active Filter AFM Fail 1st Time
8 Flashes	3 Flashes	Active Filter AFM Fail 2nd Time
8 Flashes	4 Flashes	PFC Circuit Error
Blinking	Blinking	PCB Failure

#### All Other Wireless Indoor Units AUY, ABY & AWY Models. Including Multi Systems (Not J Series or VRF)

Red Light Operation	Green Light Timer	Yellow Light Swing	
On			Normal
On	Slow Blink	Slow Blink	Test
Blinks	Blinks	Off	ID PCB Fail
Blinks	Blinks	Blinks	OD PCB Fail
Blinks	2 Pulses	Off	OD Power Connection Failure
Blinks	3 Pulses	Off	OD Unit Pipe Sensor Fail
Blinks	4 Pulses	Off	OD Unit Air Sensor Fail
Blinks	4 Pulses	Blinks	OD Unit Air Sensor Short
Blinks	5 Pulses	Off	OD Unit Disch Sensor Fail
Blinks	5 Pulses	Blinks	OD Unit Disch Sensor Short
Blinks	6 Pulses	Off	High Pressure
Blinks	7 Pulses	Off	High Discharge or Compressor Temp
Blinks	9 Pulses	Off	OD Unit Compressor Temp Sensor
Blinks	10 Pulses	Off	IPM Error
Blinks	11 Pulses	Off	CT Error
Blinks	12 Pulses	Off	AFM Filter Error
Blinks	13 Pulses	Off	Compressor Error
Blinks	14 Pulses	Off	OD Fan Motor Fail
2 Pulses	Blinks	Off	Air Sensor Open
2 Pulses	Blinks	Blinks	Air Sensor Closed
3 Pulses	Blinks	Off	Pipe Sensor Open
3 Pulses	Blinks	Blinks	Pipe Sensor Closed
4 Pulses	Blinks	Off	Drain Problem
5 Pulses	Blinks	Off	Communication Error
5 Pulses	Blinks	Blinks	OD PCB or Wiring Error
6 Pulses	Blinks	Off	Indoor Fan Failure

#### Wall Mounted Multi Models

Initial Display			Further Interrogation by Pressing Test Button on Infra Red RC		
Red	Green	Meaning	Red	Green	Meaning
2 Flashes	Blinks	ID Sensor Failure	Blinks	2 Flashes	ID Air Sensor
2 Flashes	Blinks	ID Sensor Failure	Blinks	3 Flashes	ID Pipe Sensor
4 Flashes	Blinks	ID Control Error	Blinks	2 Flashes	Manual Auto Button Error
4 Flashes	Blinks	ID Control Error	Blinks	4 Flashes	Power Source Failure
5 Flashes	Blinks	Comms Failure	Blinks	2 Flashes	Reverse Comms Failure
5 Flashes	Blinks	Comms Failure	Blinks	3 Flashes	Forward Comms Failure
6 Flashes	Blinks	ID Fan Failure	Blinks	2 Flashes	Motor locked
6 Flashes	Blinks	ID Fan Failure	Blinks	3 Flashes	Motor RPM Incorrect
Blinks	2 Flashes	OD Thermistor Fail	2 Flashes	Blinks	OD Discharge Sensor Fail
Blinks	2 Flashes	OD Thermistor Fail	4 Flashes	Blinks	OD Pipe Sensor Fail
Blinks	2 Flashes	OD Thermistor Fail	6 Flashes	Blinks	OD Air Sensor Fail
Blinks	2 Flashes	OD Thermistor Fail	8 Flashes	Blinks	Compressor Temp Sensor Fail
Blinks	2 Flashes	OD Thermistor Fail	9 Flashes	Blinks	2 Way Valve Sensor Fail
Blinks	2 Flashes	OD Thermistor Fail	10 Flashes	Blinks	3 Way Valve Sensor Fail
Blinks	3 Flashes	Pressure Switch	2 Flashes	Blinks	Pressure Switch
Blinks	4 Flashes	ID Units Incorrect	2 Flashes	Blinks	Incorrect Indoor Unit Index
Blinks	5 Flashes	Inverter Failure	2 Flashes	Blinks	IPM Failure
Blinks	5 Flashes	Inverter Failure	5 Flashes	Blinks	Compressor Failure

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Current Models

## Wired Remote Control Models

Code Consists of Indoor Unit Address Followed by the Fault Code Below. No E denotes No Fault.

OO	ID to RC Comms Fail
O1	ID to OD Comms Fail
O2	ID Air Sensor Open
O3	ID Air Sensor Close
O4	ID Pipe Sensor Open
O5	ID Pipe Sensor Close
O6	OD Pipe Sensor Fail
O8	Power Source Connection Failure
O9	Drain Problem Float switch operated
OA	OD Air Sensor Fail
OC	Discharge sensor Fail
OE	Outdoor High Pressure Heatsink error
11	OD PCB Fail
12	ID Fan Fail
13	OD Signal Abnormal ID signal error
14	OD EEPROM Fail
15	Compressor Temp Failure
16	Pressure Switch Error
17	IPM Error
18	CT Error
19	Active Filter Module Error
1A	Compressor Failure
1B	OD Fan Failure
1C	Inverter to PCB Comms Fail
1D	2 Way Valve sensor Fail
1E	Expansion Valve Error
1F	Connection ID Unit Error
20	Indoor manual switch abnormal
24	Excessive high pressure protection on cooling

25	PFC circuit error
26	Indoor signal error
27	Indoor signal error
28	Indoor heat exchanger temperature error
29	Outdoor heat exchanger temperature (middle) error
2A	Power supply frequency detection error
2B	Compressor temperature error
2C	Four-way valve abnormal

### To Interrogate

When E:EE is displayed switch unit off and press the temp up and temp down buttons simultaneously for 3 seconds.

### To Return to Normal Operation

Press Temp Up and Temp Down Buttons together for 3 seconds.

### To Initiate Test Operation

Switch Unit Off & Press Master & Fan Buttons together for 3 seconds. Press Start/Stop to Initiate.

### Changing the Sensor Position

The unit can sense the air temperature at the unit or controller

Turn Unit Off  
To change press THERMOSENSOR button for 5 seconds to unlock  
Toggle the THERMOSENSOR button & controller is displayed  
Set to desired setting (unit or controller)  
Press THERMOSENSOR button for 5 seconds to lock

### Two Handsets/1 Unit – set on RC DIP SWs

Single handset DIP SW1 is On & 2 is Off  
Dual Handset Master Both On & Slave both Off

### Group Control up to 16 Unit from 1 RC Handset

Set DIP SW3 on RC to ON  
Set Each ID Unit Rotary SW to Unit Address (0-15) in series

### Auto Restart on Power Failure

DIP SW2-3 on ID Unit. Off is autorestart (std)/On is Manual Restart

### Auto Changeover

DIP SW5 on RC. On is autochangeover (std)/Off is Manual

### Memory Retention on Power Failure

Dip SW6 on RC. On is Memory/Off is no memory

## Outdoor PCB Fault Codes

Inverter OD Unit PCBs (1 red LED)

OD PCB LED

Pulses	Models 9-30	Models 36-54
1	Comms Failure	Comms Failure
2	Disch Sensor Fail	Disch Sensor Fail
3	Pipe Sensor Fail	Pipe Sensor Fail
4	Air Sensor Fail	Air Sensor Fail
5	2 Way Valve Sensor	
6	3 Way Valve Sensor	
7	Compressor Thermistor	Compressor Thermistor
8	Pressure Switch	Heatsink Sensor Fail
9	Indoor Comms Error	Pressure Switch
10	Current Trip	
11	CT Fail	
12	Compressor Position Fail	IPM Error
13	Compressor Start Fail	Compressor Position Fail
14	Timer Failure	Compressor Start Fail
15		OD Upper Fan Fail
16		OD Lower Fan Fail
Slow Blink		Protect Operation

Non Inverter OD PCBs (2 red LEDs)

LED 1

LED 2

Blinks	Blinks	OD PCB Fail
1 Pulse	Lift	Power Source Failure
2 Pulses	Lift	OD Disch Temp Sensor
3 Pulses	Lit	OD Pipe Sensor
4 Pulses	Lit	OD Air Sensor
5 Pulses	Lit	Comms Failure
6 Pulses	Lit	Indoor Unit Error
7 Pulses	Lit	High Discharge Temp
8 Pulses	Lit	High Pressure
9 Pulses	Lit	Compressor Temp Abnormal
10 Pulses	Lit	Compressor Temp Sensor Fail

Inverter Multi AOY30

This has 4 LEDs A,B, C & D to denote which circuit has the fault  
Up to 8 flashes - faults are identical to above 9-30 Single System

9	Pressure Switch A
10	Pressure Switch B
11	Indoor Unit Indexing Problem
12	IPM Fail
13	Compressor Position Fail
14	Compressor Fail
15	OD Fan Upper Fail
16	OD Fan Lower Fail
17	PCB Fail

Interconnecting Wiring

This has 4 LEDs A,B, C & D to denote which circuit has the fault  
Up to 8 flashes - faults are identical to above 9-30 Single System

	Live	Neutral	Comms
CO Multis	2	1	3
HP Multis	1	2	3
AOY90T	3	2	1
ALL OTHERS	1 or L	2 or N	3

We recommend external pumps have their own power supply.  
Taking Power for a pump from the unit is a major source of Errors.

# Fujitsu Trouble Shooting Guide

## A General Guide

### Pipework

- Pipe sizes and lengths should be as the relevant Technical Guide
- Both lines should be insulated
- No line accessories or oil traps should be fitted
- In cooling mode both pipes should be between 0 and 10°C - the suction line should sweat, but not freeze
- In heating moded both pipes should be between 30 and 60°C
- Pipework should be refrigeration quality
- Refrigerant should be R22, unless stated on the outdoor unit
- Look for restrictions. They could cause compressor failures.

### Outdoor Unit

- Discharge temperature should be between 50 & 70°C
- Suction temperature should be between -3 & 4°C
- If fan switches off check for high discharge temperature
- Check Suction Line is sweating – problem if not!
- Hot Recip. Compressor = PROBLEM!
- Sweating/Frost on expansion line – undercharged



### Indoor Unit

- Is it level? Have we adequate drainage?
- Smells are always due to site conditions or drains
- Flashing lights? = Fault Diagnostics – see over
- When were the filters last cleaned?
- Is the unit too large/small (between 5/20 air circs / hr)
- Is it on Timer/Test Mode

### Controller

- EE:EE on LCD handset – fault diagnostics – see over
- Is the handset too far away?
- When were the batteries changed last?
- Heat Pump models 7-14 – NOT auto changeover
- Timer is one shot, unless it has 'repeat' mode
- With wired handset, check for interference. Cable should be screened
- Is it on Timer/Test Mode

### Wiring

- In general interconnecting wiring is 240 Volt, but see chart for details
- With LCD wired handset models, Terminal 3 is the Live Not Terminal 1 NEVER apply mains voltage to Terminal 1 on these models
- With LCD wired handset models wiring should be screened
- Check Voltage drops! Check it isn't down to Earth!
- Has it got a timeclock/BMS interface?
- Interconnecting cables MUST be circular crimped

### What the separate wires do in the interconnecting cables

Note – Wires are 240V Live except where marked neutral or Earth or signal.

Cables marked Signal are digital pulses and you should not attempt to measure these with a meter.

Wire	E	N	L	1	2	3	4	5	6
ASY7-12A	Earth	Neutral	Comp+Fan	Unused	Unused	Unused	Unused	Unused	Unused
ASY7-12R	Earth	Neutral	Comp	Unused	Unused	Rev Valve	OD Fan	Unused	Unused
ASY13PS	Earth	Neutral	Line to OD	Unused	Unused	Signal	Unused	Unused	Unused
ASY14A & ABY14-24A	Earth	Unused	Unused	Neutral	Comp+Fan	Unused	Unused	Unused	Unused
ASY17-30A	Earth	Unused	Unused	Live to In	Neutral	Comp+Fan	Unused	Unused	Unused
ASY14-17R & ABY14R	Earth	Unused	Unused	Neutral	Comp	Rev Valve	OD Fan	Unused	Unused
ASY20-30R & ABY18-24R	Earth	Unused	Unused	Neutral	Comp	Fan Hi	Rev Valve	Fan Low	Unused
AUY12-18AG	Earth	Unused	Unused	Neutral	Comp	Fan Hi	Fan Low	Unused	Unused
AUY12-18RG	Earth	Unused	Unused	Neutral	Comp	Fan Hi	Rev Valve	Fan Low	Unused
AUY18-54A, ABY30-54A & ARY24-60A	Earth	Unused	Unused	Comp	Neutral	Live to In	Unused	Unused	Unused
AUY18-54R, ABY30-54R & ARY24-60R	Earth	Unused	Unused	Signal	Neutral	Live to In	Unused	Unused	Unused

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Current Models

## Wired Controllers – Fault diagnostics

A Fault Condition is signalled by EE:EE appearing on the LCD panel. The unit should be interrogated by switching it off on the handset then pressing either the down arrows on the SET TIME and TEMP/DAY buttons together for 3 seconds for 7 day models or the ENERGY SAVE & ZONE CONTROL buttons for other models. The Failure code is in 2 parts – Fault and Address. The Fault Code is an E code. The second is the unit address for multi linked systems – with single units this is always 00. 7 day models have the fault code as shown in the table below above the address. Other models have the codes below, minus the 0, followed by the address – e.g. E9:00 denoting Float Switch on Unit 0.



## Outdoor Unit with

A fault condition is signified by flashing red LED's on the the outdoor PCB if it is equipped with one. Except for multisplits and 2 LED models, the diagnostics are shown in the table on the right. For 2 LED models flashing signifies sensor failure and constantly lit indicates high discharge temperature.

Code	Fault	Diagnosis
E:0	I/U - R/C Comms	Check R/C wiring. Interference?
E:01	I/U - O/U Comms	Check intercon. wiring. Interference
E:02	Room Sensor Open	Sensor Missing
E:03	Room Sensor Short	Sensor Faulty
E:04	I/U Pipe Sensor Open	Sensor Missing
E:05	I/U Pipe Sensor Short	Sensor Faulty
E:06	O/U Pipe Sensor Open	Sensor Missing
E:07	O/U Pipe Sensor Short	Sensor Faulty
E:08	Power Source Error	Incorrect Power Supply
E:09	Float Switch	Check Drains - High Water Level
E:0A	O/U Air Sensor Open	Sensor Missing
E:0C	Disch Sensor Open	Sensor Missing
E:0D	Disch Sensor Short	Sensor Faulty
E:0F	High Disch Temp	Contamination In Pipework/ Gas Shortage
E:11	Model Abnormal	Check PCB compatability
E:12	Indoor Fan Failure	Check Fan and Motor
E:13	O/D Signal Abnormal	Communications?
E:14	Outdoor PCB Fail	PCB Failure

Fault	LED1	LED2	LED3	LED4	LED5	LED6
Signal Failure				Flash		
Indoor Unit Failure				Flash		
Discharge Sensor Fail						Flash
O/D Pipe Sensor Fail					Flash	Flash
O/D Air Sensor Fail			Flash		Flash	
Power Source Error		Flash				
PCB		Flash	Flash	Flash	Flash	Flash
PCB Failure						All Flashing Very Rapidly
High Pressure Trip	Flash					
Discharge Temp Trip		Flash				

## Wireless Remote Control Models – Diagnostics

Models with wireless handsets have three LED's on the units which light up to show operational, or fault conditions. In general the codes are as right, but there are other codes available.

Model References are

A=ASY7A/R

B=ASY9/12A/R

C=ASY14/17A/R

D=ASY20/30A/R

ABY14-24A/R & AUY12/18AG/RG

E=ABY36/45A

F=ABY36/45R

G=AUY18/45A

Unit	Code Means:-	Red	Green	Yellow
All	Power On	On	Off	Off
All	Timer Mode	On	On	Off
All	Louvre On	On	On or Off	On
All	HP Defrost Cont.	Long pulses	Off	Off
All	Test	Cont. Pulse	Cont. Pulse	Off
D,E,F	Power Fail	On	Cont Long	Pulses Off
All	PCB Failure	Cont. Short Pulse	Cont. Short Pulse	Off
G	Room Sensor Fault	1 Short Pulse	Rapid Pulse	Off
A,B,G	Sensor Fault	2 Short Pulses	Rapid Pulse	Off
D,E,F	Room Sensor Open/Fail	2 Short Pulses	Rapid Pulse	Off
E,F	Room Sensor Short	2 Short Pulses	Rapid Pulse	Rapid Pulse
C	Room Sensor Fault	3 Short Pulses	Long Pulse	Off
D,E,F	Pipe Sensor Open	3 Short Pulses	Rapid Pulse	Off
E,F	Pipe Sensor Short	3 Short Pulses	Rapid Pulse	Rapid Pulse
D,E,F	High Water	4 Short Pulses	Rapid Pulse	Off
F	Comms Failure	5 Short Pulses	Rapid Pulse	Off
G	High Water	6 Short Pulses	Rapid Pulse	Off
B,E,F	Fan Failure	6 Short Pulses	Rapid Pulse	Off
F	3ph Reversal	Rapid Pulse	2 Short Pulses	Off
C	Pipe Sensor Fault	Long Pulse	3 Short Pulses	Off
F OD	Pipe Sensor Open	Rapid Pulse	3 Short Pulses	Off
F OD	Pipe Sensor Short	Rapid Pulse	3 Short Pulses	Rapid Pulse
F OD	Temp Sensor Open	Rapid Pulse	4 Short	Pulses Off
F OD	Temp Sensor Short	Rapid Pulse	4 Short Pulses	Rapid Pulse
F	Discharge Sensor Open	Rapid Pulse	5 Short Pulses	Off
F	Discharge Sensor Short	Rapid Pulse	5 Short Pulses	Rapid Pulse
F	High/Low Pressure	Rapid Pulse	6 Short Pulses	Off
F	High Discharge Temp	Rapid Pulse 7	Short Pulses	Off

## Sensor Resistances – Use to Check Thermistors across the range

Sensor	At 10°C	At 20°C	At 30°C
Air Temperature Sensors	20K Ohms	13K Ohms	8K Ohms
Indoor Pipe Sensor	103K Ohms	63K Ohms	40K Ohms
Outdoor Pipe Sensor	10K Ohms	6K Ohms	4K Ohms
Discharge Sensor	646K Ohms	395K Ohms	250K Ohms