A General Guide To Room Style Products

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 10C - the suction line should sweat, but not freeze
- In heating mode both pipes should be between 30 and 60C
- Pipework should be refrigeration quality
- Look for restrictions. They could cause compressor failures.

Outdoor Unit
- Discharge Temperature should be between 50 and 70C
- Suction Temperature should be between -3 and 4C
- Check Suction Line is sweating in cooling - 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 the air short cycling?

Controller
- Is it a wired or wireless handsets.
- Is the handset too far away?
- When were the batteries changed last?
- With wired handset, check for interference.
- Is the unit in Emergency Mode?
- Check unit and controller channels compatible

Wiring
- Interconnecting comms wiring is low voltage
- If you have 230V live, check you have a neutral as well
- Check Mains and comms cable not swapped round
- Multi linked systems must be set up as such
- Check voltage drops! Check it isn't down to Earth!
- Interconnecting cables should be circular crimped

Selecting Test Run

Every unit has an Emergency (marked Auto (Off/On) button
Pressing this for less than five seconds initiates Emergency Operation
Pressing this for seven seconds initiates Test Cooling
Pressing this for ten seconds initiates Test Heating

Wire	E	1	2	3	4
Cool Only	Earth	Live	Neutral	N/A	N/A
Heat Pump	Earth	Live	Neutral	Heating	Defrost
Inverter	Earth	Live	Neutral	Comms	N/A

Sensor Resistances - Use to check Thermistor

Sensor readings are the same for both indoor and outdoor units.
If the fault code suggests the sensor is a problem but you get a sensor reaading as to the righ then either the Connection or PCB is at fault

Sensor	At 10C	At 20C	At 30C
Indoor Air All	30K 0hms	18K 0hms	12K 0hms
Indoor Pipe All	40K 0hms	25K 0hms	16K 0hms
Outdoor Air Singles	30K 0hms	18K 0hms	12K 0hms
Outdoor Pipe Singles	10K 0hms	6K 0hms	3K 0hms
Compressor Singles	100K 0hms	60K 0hms	40K 0hms
All Outdoor Multis	40K 0hms	25K 0hms	16K 0hms

Fault Diagnostics

Fault Codes are only used on Inverter Systems. Both Single and Super Multi Inverter Systems use the same fault codes as below.
Outdoor Codes are ONLY used by the Super Inverter Multi systems models 23 and 27, NOT single systems.

When a Fault Occurs the Timer Lamp wil start flashing and the unit stops
Turning the Power Off will reset the unit but will not clear the fault code
The unit will remember up to three fault codes.

To fund the fault code
Ensure power is on at the unit and point the remote controller at it so a signal can be received
For single systems (CSE and CSXE) press the CHECK button for more than 5 seconds
For Multi systems (CSME) press the Timer Setting Up Arrow for more than five seconds
H11 will appear on the Remote Control Display - this indicates that Interrogate Mode is Operational
Use the Timer Setting Up and Down Arrows to scroll between fault codes until four beeps are heard - this shows the Fault Code

Fault Codes are cleared from memory by setting Test Cooling and shorting the RESET terminals in the controller battery compartment.

Code	Outdoor LEDS - CU3E23 & CU4E27 Only				Meaning	Likely Cause
Reference	LED 1	LED 2	LED 3	LED4		
H11	Off	Off	Off	Off	Comms Failure	Faulty Wiring or other problem with ID to OD communication
H12	Off	Off	Off	Off	ID/OD Compatibility Problem	Over or Underindexed multi system
H14	Off	Off	Off	Off	Indoor Air Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H15	Off	Off	Off	Off	Compressor Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H16	On	On	Off	Off	Current Transformer Problem	Power Transistor Module or Outdoor PCB Faulty. Very Low Gas
H19	Off	Off	Off	Off	Indoor Fan Motor Locked	Fan Motor of Indoor PCB Failure
H21	Off	Off	Off	Off	Float Switch Operated	Check Drainage
H23	Off	Off	Off	Off	Indoor Pipe Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H27	Off	Off	Off	Off	Outdoor Air Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H28	Off	Off	Off	Off	Outdoor Pipe Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H30	Off	Off	Off	Off	Outdoor Discharge Sensor 1 Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H32	Off	Off	Off	Off	Outdoor Discharge Sensor 2 Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H33	Off	Off	Off	Off	Incorrect Connection Voltage	Indoor or Outdoor Voltage Incorrect/Faulty Wiring
H34	Off	Off	Off	On	Outdoor Heat Sink Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H36	Off	Off	Off	Off	Outdoor Gas Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H37	Off	Off	Off	Off	Outdoor Liquid Sensor Faulty	Sensor Disconnected, Faulty or Contacts Dirty
H39	Off	Off	Off	Off	Abnormal Indoor Operation	Incorrect Piping or Expansion Valve Problem
H41	Off	Off	Off	Off	Abnormal Wiring or Piping	Wiring or Piping Crossed ona Twin System
H97	Off	Off	Off	Off	Outdoor Fan Failure	Outdoor Fan Motor or PCB Failure
H98	On	Off	On	On	Indoor Coil Overheat (Heat Mode)	Dirty Filters or Indoor Coil. Very High Room Temperature
H99	On	Off	On	On	Indoor Coil De-Ice (Cool Mode)	Dirty Filters or Indoor Coil. Low Gas Charge or Low Ambient Temp
F11	On	Off	Off	Off	Reversing Valve Failure	Faulty Reversing Valve, Coil or Outdoor PCB
F17	On	Off	On	On	Standby Units Freezing	Multi Only. Expansion Valve Leakage
F90	On	Off	Off	On	PFC Failure	Problem with Inverter or Compressor
F91	Off	Off	On	On	Refrigeration Cycle Problem	Low Gas or Blockage
F93	Off	On	On	Off	Compressor Abnormal Revolution	Compressor Running Incorrectly
F95	Off	Off	Off	Off	Outdoor Coil Overheat (Cool Mode)	Dirty Condensor Coil, low gas or blockage
F96	Off	Off	Off	Off	IPM or Compressor Overheating	Excess or Low Gas Charge or dirty heat exchanger
F97	On	On	On	On	High Discharge/Compressor Temp	Low Gas Charge or Failed Compressor
F98	Off	On	Off	On	Overcurrent Protection	Outdoor Heat Exchanger Problem. Excess Gas
F99	Off	Off	On	Off	DC Overcurrent Protection	Outdoor PC, Power Transistor or Compressor Failure
None	On	On	Off	On	Control Box Overheating	Maintenance Required on OD Unit

For models CU3E23 & CU4E27 only there is a Green LED which normally flashes
If this is LIT then turn the power Off then On again. If it still does not flash the Outdoor PCB is Faulty.
If this is Off then there is a problem with the power supply.

Panasonic Free Style Products

General comments for Pipework, Indoor & Outdoor Units

- In general the Free Style product follows the notes for US Systems
- These are shown on page 140.
- Model specific comments and Fault Codes are shown here.

Selecting Test Run

At Handset press RUN then TEST BUTTONS
At OD UNIT press TEST HEAT or TEST COOL button
Unit will run for 30 minutes in test mode
For R410a models gas pipe temp will be displayed.

Wiring Schedule

Series	E	1	2	3	4
R22/R407C	Earth	Live	Neutral	Comms	Comms
R410a	Earth	Live	Neutral	Comms	Comms

Sensor Resistances

Use these to check sensors
All values in KOhms

	Sensor	At 0C	At 10C	At 20C	At 30C
R22/407C	Air Sensor	67K	40K	25K	16K
R22/407C	Pipe Sensor	67K	40K	25K	16K
R410a	Air Sensor	51K	30K	19K	12K
R410a	ID Pipe	67K	40K	25K	16K
R410a	OD Disch	168K	101K	63K	40K
R410a	OD Pipe (X3)	16K	10K	6K	4K

Fault Diagnostics – Older Style FS Units R22

First generation series 11NP Series with E style fault codes
Press check on the Wired Controller to call up the Fault Codes.

Fault Code	Indoor Unit PCB			Meaning
At Remote	LED1	LED2	LED3	Of Fault Code
E1	Flash	Flash	Flash	Signal from RC to ID Unit faulty
E2	Lit			Float Switch
E3		Lit		Air Sensor Faulty
E4			Lt	Pipe sensor Faulty

Second Generation 21NP Series with F Fault Codes
Press Check on the Wired Controller to call up the Fault Codes

Fault Code	Indoor Unit PCB				Outdoor Unit PCB				Meaning
At Remote	LED1	LED2	LED3	LED4	LED1	LED2	LED3	LED4	Of Fault Code
F2	Lit	Lit		Lit	Lit				Float switch
F3		Lit			Lit				Indoor Air Sensor Faulty
F4			Lit		Lit				Indoor Air Sensor Faulty
F5	Lit	Lit	Lit	Lit	Lit				Signal from RC to ID faulty
F5	Lit	Lit			Lit				No Signal from ID to RC
F6		Lit	Lit	Lit	Lit				Signal from ID to OD faulty
F6			Lit	Lit	Lit				No Signal from Od to ID
F13	Lit				Lit			Lit	OD Unit Overcurrent Protection
F15	Lit				Lit	Lit			HP Switch
F18	Lit		Lit				Lit		Outdoor Pipe Sensor Faulty

Third Generation 32JP Models and Later
Press Check on the Wired Handset and use the Fault Codes on the next page. **Please Note:** The LED codes shown are not applicable to R22/R407c units but the F codes are

Fault Codes – FS Series

Current Models R410a

Pressing Check on the wired remote while CHECK is flashing will give the Fault and the address of the unit with the Fault
Pressing Timer Set with the fault displayed will display a second code giving further information (detail code)
Pressing Check for 5 seconds will check past faults

On wireless handsets press the temp up for 5 seconds to enter error check mod
Scroll through the codes using the temp up button until a beep is heard from the indoor unit
Press set and repeat until the full code is displayed

F Code Display	Detail Display	Outdoor LED 302	303	304	305	306	307	308	309	Meaning Of Code
F15	O1		Flash	Flash	Flash	Flash		See Note 1		Drain Failure
F16	O1						Flash	See Note 1		Louvre Failure
F17	O1							See Note 1		Option Problem
F17	O2	Flash	Flash				Flash	See Note 1		DC Fan Motor Failure
F20	O1				Flash		Flash	See Note 1		ID Air Sensor
F20	O2	Flash			Flash		Flash	See Note 1		RC Air Sensor
F21	O1		Flash		Flash		Flash	See Note 1		ID Pipe Sensor
F25	O1	Only for Older Models with LEDS 1-6						See Note 1		Addressing Incorrect
F26	O1			Flash		Flash	Flash	See Note 1		RC Comms Problem
F27	O1		Flash	Flash		Flash	Flash	See Note 1		ID - OD Comms Disconnected ID
F27	O2	Only for Older Models with LEDS 1-6						See Note 1		ID - OD Comms Connection ID
F27	O5	Flash	Flash	Flash		Flash	Flash	See Note 1		ID - OD Comms Connection ID
F27	O1	Flash		Flash		Flash				ID - OD Comms Disconnected OD
F27	O2	Only for Older Models with LEDS 1-6								ID - OD Comms Connection OD
F27	O5					Flash				ID - OD Comms Connection OD
F29	O1	Only for Older Models with LEDS 1-6								ID PCB Setting
F30	O1						Flash			ID/OD Capacity Incorrect
F30	O2			Flash			Flash			Phase Rotation
F31	O1		Flash							Low Pressure
F31	O2	Flash								High Pressure
F31	O6			Flash	Flash					Reversing Valve
F31	O8		Flash				Flash			Indoor Coil Iced
F31	O9		Flash	Flash	Flash					Gas Leak
F31	10		Flash	Flash		Flash				Low Gas, Valve Shut or Blockage
F32	O3			Flash		Flash				Inverter Low dc Volts
F32	O4	Flash	Flash			Flash				Inverter IPM
F32	O5	Flash	Flash							Compressor Overcurrent
F32	O6	Flash	Flash		Flash					Compressor Disch Temp High
F32	O8	Flash		Flash	Flash					Inverter PFC
F32	O9	Flash				Flash				Inverter High dc Volts
F32	10	Flash	Flash	Flash						Compressor Rotation Problem
F33	O1	Only for Older Models with LEDS 1-6								Compressor High Current
F33	O2	Only for Older Models with LEDS 1-6								High Discharge Temp
F35	2		Flash			Flash				OD dc Fan Motor Locked
F40	O1			Flash						OD Outlet Sensor
F40	11				Flash					Suction Temp
F40	21	Flash		Flash						OD Liquid Sensor
F40	31	Flash	Flash	Flash						Defrost Sensor
F40	51		Flash	Flash						Discharge Sensor
F40	41	Only for Older Models with LEDS 1-6								Discharge Sensor
F40	61	Only for Older Models with LEDS 1-6								OD Pipe Sensor
F41	O2	Flash	Flash				Flash			HP Switch
F41	O3	Only for Older Models with LEDS 1-6								Heating HP Switch
F41	11	Flash					Flash			Low Pressure Sensor
F42	O1	Only for Older Models with LEDS 1-6								Compressor Current Sensor
F42	11		Flash		Flash					Current Sensor Open
F44	O1	Flash			Flash					Inverter IPM Sensor
F49	O1	Only for Older Models with LEDS 1-6								OD PCB Setting Faulty
F49	O2	Only for Older Models with LEDS 1-6								OD PCB Setting Faulty

Note 1: LED308 is lit if the master unit is the problem or 309 for the slave
LED 301 is lit when power is supplied to the PCB

PANASONIC TROUBLE SHOOTING GUIDE

A General Guide To Urban Style Products

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 the suction line should sweat, but not freeze
- In heating mode both pipes should be between 30 and 60C
- Pipework should be refrigeration quality
- Look for restrictions. They could cause compressor failures.

Outdoor Unit
- Discharge Temperature should be between 50 and 70C
- Suction Temperature should be between -3 and 4C
- Check Suction Line is sweating in cooling - problem if not!
- Hot Recip. Compressor = PROBLEM
- Sweating/Frost on expansion line - undercharged

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- Is it level? Have we adequate drainage?
- Smells are always due to site conditions or drains.
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- When were the filters last cleaned?
- Is the unit too large/small (between 5/20 air circs/hr)
- Is the air short cycling?

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- Is it a wired or wireless handset.
- Is the handset too far away?
- When were the batteries changed last?
- With wired handset, check for interference.
- Is the unit in Emergency Mode?
- Check unit and controller channels compatible

Wiring
- Interconnecting comms wiring is low voltage
- If you have 230V live, check you have a neutral as well
- Check Mains and comms cable not swapped round
- Multi linked systems must be set up as such
- Check voltage drops! Check it isn't down to Earth!
- Interconnecting cables should be circular crimped

Selecting Test Run

Selecting Emergency Mode is done at the Indoor and Outdoor Unit PCB.
It bypasses the Control Sensors and should not be done for more than 30 minutes.

Indoor PCB - Switch SS1 to Emergency Setting
Outdoor PCB - Switch Emergency Switch 1 to ON
Outdoor PCB - Switch Emergency Switch 2 to Cool or

Wire	E	1	2	3
All	Earth	Live	Neutral	Comms

Sensor Resistances – Use to check Thermistor

Air and Pipe sensors apply to indoor AND outdoor units.
The discharge sensor is only in the outdoor unit.
If the fault code suggests the sensor is a problem but you get a sensor reading as to the right then either the connection or PCB is at fault.

Sensor	At 10C	At 20C	At 30C
Air Sensor	40K 0hms	25K 0hms	16K 0hms
Pipe Sensor	40K 0hms	25K 0hms	16K 0hms
Discharge Sensor	480K 0hms	293K 0hms	184K 0hms

TECHNICAL SUPPORT:
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