2) The following table shows the fault protections. When failures happens, the PCB alarms and buzzer rings three times. Failure code appears, and the PCB operates protection procedures.

Failure code: For the machine with LED display, the code shows on LED, for machine without LED, the code reflects by the running light.

| Failure | Running Light Flash | LED Display |
|---|---|---|
| RT Sensor Failure | Once / Period | E1 |
| IPT Sensor Failure | Twice / Period | E2 |
| Indoor Fan Motor Failure | 6 times / Period | E6 |

When failure happened, the code is displayed statically, if there are several failure codes should be reported at the same time, then failure codes appears one by one every eight seconds correspondingly.

a. Sensor's failure protection: when the sensor's temperature is out of the range $-50°C \leq T \leq 110°C$, then sensor failure is determined. Once RT, IPT sensor failures appear, the compressor stops and indoor and outdoor fan motors shut off. Remote controller doesn't response to any signal except for shutdown. During failure the machine can run in fan mode. After the failure is settled, the PCB restores to standby status.

b. Failure protection of Indoor PG fan motor: If there is no feedback signal of rotate speed within 5s, the indoor fan motor stops, meanwhile, the compressor, outdoor fan motor, four-way valve and auxiliary electric heater etc. cut down. 10 seconds later, the indoor fan motor restarts again, once there is no feedback signal of rotate speed within 5 seconds either, then the machine stops and goes into indoor fan motor failure protection, buzzer rings three times, and running light flashes at 6 times per 8 seconds. When the failure is confirmed, once there is feedback signal, the failure is relieved automatic.

some reason, when power supply come back again, the AUTO-RESTART function will set synchronously and automatically to work. So the air conditioner would work at the same mode before.

**Auto-restart Pre-setting (optional)**:

If Auto-restart function is needed, follow the steps below to activate this function:

1) Pulling the air-con's plug out of socket.

2) Pressing and holding the Emergency button (ON/OFF) on the indoor, then insert the plug into the socket again.

3) Keep pressing the Emergency button for more than 10 seconds until three short beeps are heard. The **Auto-restart** function has been started.

9. **Protection and Failure Display**
   - When protection display is available, controller will show error code, digital LED shows error code and setting temperature by turns.
   - If there is more than one failure, it will show at first that in front of the error list.
   - Protection display function can be selected in hardware, and the default don't display;
   - To insure of in and out communist is credibility, the failures relate to outdoor unit will remain failure state for 2 minutes max after recovered.
   - In all failures, only sensor failures don't have to repower to cancel.
   - **Error list**

| Failure type | LED CODE | DIGITAL LED CODE |
|---|---|---|
| In and out communication failure | RUN、TIMER –both winking | E0 |
| Outdoor communication failure | RUN、TIMER –both winking | EC |
| Outdoor sensor | RUN-1 time/8s | E1 |
| Indoor coil temperature sensor | RUN-2 times /8s | E2 |
| Outdoor coil temperature sensor | RUN-3 times /8s | E3 |
| System abnormity | RUN-4 times /8s | E4 |
| Type mismatch | RUN-5 times /8s | E5 |
| Indoor fan motor | RUN-6 times /8s | E6 |
| Outdoor temperature sensor | RUN-7 times /8s | E7 |
| Discharge temperature sensor | RUN-8 times /8s | E8 |
| Invert module abnormity | RUN-9 times /8s | E9 |
| Outdoor fan motor（DC） | RUN-10 times /8s | EF |
| Current sensor | RUN－11 times /8s | EA |
| EEPROM failure | RUN-12 times /8s | EE |
| Top of compressor temperature switch | RUN-13 times /8s | EP |
| Voltage sensor | RUN-14 times /8s | EU |

**Protection display code list:**

| Protection type | LED CODE | DIGITAL LED CODE |
|---|---|---|
| higher or lower voltage | RUN-winking,TIMER-1 time/8s | P1 |
| Over current | RUN- winking,TIMER-2 times /8s | P2 |
| Discharge temperature | RUN- winking,TIMER-4 times /8s | P4 |
| Over cooling in cooling mode | RUN-light,TIMER-5 times /8s | P5 |
| Over heating in cooling mode | RUN- light,TIMER-6 times /8s | P6 |
| Over heating in heating mode | RUN- light,TIMER-7 times /8s | P7 |
| Outdoor temperature too high or low | RUN- light,TIMER-8 times /8s | P8 |
| Drive protection(Overload) | RUN- winking,TIMER-9 times/8s | P9 |
| Module self protection | RUN- winking,TIMER-10 times/8s | P0 |

● Outdoor failure display

There is a LED on outdoor power board, when compressor is running; it is normally light; when no feedback of signal to power board from compressor, it will wink by lighting 1s and going out 1s. If failures happened, it will light 0.5s, go out 0.5s, winking several times and go out 3s for a cycle to indicate failures. The failure list is the follow:

| Wink time | Failure |
|---|---|
| 1 | IPM protection |
| 2 | higher or lower voltage |
| 3 | Over current |
| 4 | Discharge temperature too high |
| 5 | Outdoor coil temperature too high |
| 6 | Drive abnormity |
| 7 | Communication abnormity with indoor unit |
| 8 | Compressor over heat（switch on top of compressor） |
| 9 | Outdoor air temperature sensor failure |
| 10 | Outdoor coil temperature sensor failure |
| 11 | Outdoor discharge pipe temperature sensor failure |
| 12 | Voltage sensor failure |
| 13 | Current sensor failure |
| 14 | IPM abnormity |
| 15 | Outdoor communication abnormity |
| 16 | DC fan motor no feedback |
| 17 | defrosting |