

6 OPERATION SPECIFICATION

6.1. Application

The compressor must be applied to follow the technical instruction of R134a cooling applicants.

6.2. Installation

To install the compressor on applicant and connect the electronic control unit to compressor as above mentioned,

6.3. Set-up Voltage

When it start, the electronic control unit will automatically check and set-up the running voltage as fig. 5, If the voltage applied is over the limit, it will not start the compressor.

Fig. 5

When R2 = 0

12 v DC			24 v DC		
Cut-out	Cut-in	Max. voltage	Cut-out	Cut-in	Max. voltage
9.5 v	10.9 v	17±0.5V	21.4 v	22.9 v	31±0.5V

When the compressor start, it will stop when the voltage (V) is:	$V < 10.9\text{ v}$ $V > 31\pm 0.5\text{ v}$ $17\pm 0.5 < V < 22.9\text{ v}$
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When the compressor is running, it will stop when the voltage (V) is:	12 v DC condition: $V < 9.5\text{ v}$ $V > 17\pm 0.5\text{ v}$ 24 v DC condition $V < 21.4\text{ v}$ $V > 31\pm 0.5\text{ v}$
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The different value of R2 will set-up different cut-in and cut-out, it depends on the power supply.

R ₂ (KΩ)	12 V DC			24 V DC		
	Cut -out (V)	Cut -in (V)	Max. voltage (V)	Cut -out (V)	Cut -in (V)	Max. voltage (V)
0	9.5	10.9	16.8	21.4	22.9	30.7
11	10.5	11.9	16.8	23.1	24.6	30.7
82	11.1	12.6	16.8	24.4	25.9	30.7
∞	11.4	12.7	16.8	24.7	26.2	30.7

6.4. Starting Time & Running Speed

After set-up the voltage, the electronic control unit will check the running speed of compressor, it will stop if the running speed isn't over 1200 rpm within 3 second, then re-start after 2 minutes.

6.5. Current Protection

In any case, if the electronic control unit detect the current of compressor has kept >12 A for 3 second, it will stop the compressor, then re-start after 2 minutes.

6.6. Fan Current Protection

The electronic control unit also control the current of fan, if the current (I_{p2}) is over 1 A and continue for 3 seconds, both fan and compressor will be cut-off.

6.7. Running speed

In any case, if the running speed of compressor is lower 1200 rpm, the electronic control unit will stop the compressor and re-start after 2 minutes.

6.8. Temperature Protection

The temperature of electronic control unit is over 75°C, the compressor will stop for 2 minutes, then re-start.

6.9. Operational Errors Shown By LED.

When the electronic control unit records any operational error, there is a LED on electronic control unit to show the error by numbers of flashes as follows.

Number Of Flashes	Error	Possible Reason
1	The voltage applied is over the cut-out limits.	Lower or wrong voltage applied.
2	The starting, or running current of compressor, or fan current is outside the setting.	The fan broken, or the compressor is blocked or too heavy loading.
3	The running speed is too low.	Too heavy loading of refrigeration, the motor isn't strong enough to keep the running speed.
4	The temperature is over the limit.	Too heavy loading of refrigeration and high ambient temperature cause the electronic control unit is running too hot.