SILENT mode：the control logic of compressor and fan motor

Parameter

Code	Meaning	Range	**Initial**
F1	F1frequency setting	20~120Hz	
F3	F3 frequency setting	20~120Hz	
F5	F5 frequency setting	20~120Hz	
F7	F7 frequency setting	20~120Hz	
F9	F9 frequency setting	20~120Hz	
F19	1st fan speed	0-99（The actual fan speed is the set value *10）	
F20	2st fan speed	0-99（The actual fan speed is the set value *10）	
F21	3st fan speed	0-99（The actual fan speed is the set value *10）	
F22	4st fan speed	0-99（The actual fan speed is the set value *10）	
F23	5st fan speed	0-99（The actual fan speed is the set value *10）	
F24	6st fan speed	0-99（The actual fan speed is the set value *10）	
P22	DC Fan operating mode	0=Auto/ 1=manual	0
P23	DC Fan manual speed	0-99（The actual speed is the set value *10）	80
D1-D60	Compressor frequency setting	20~120Hz	

1. The control logic of compressor

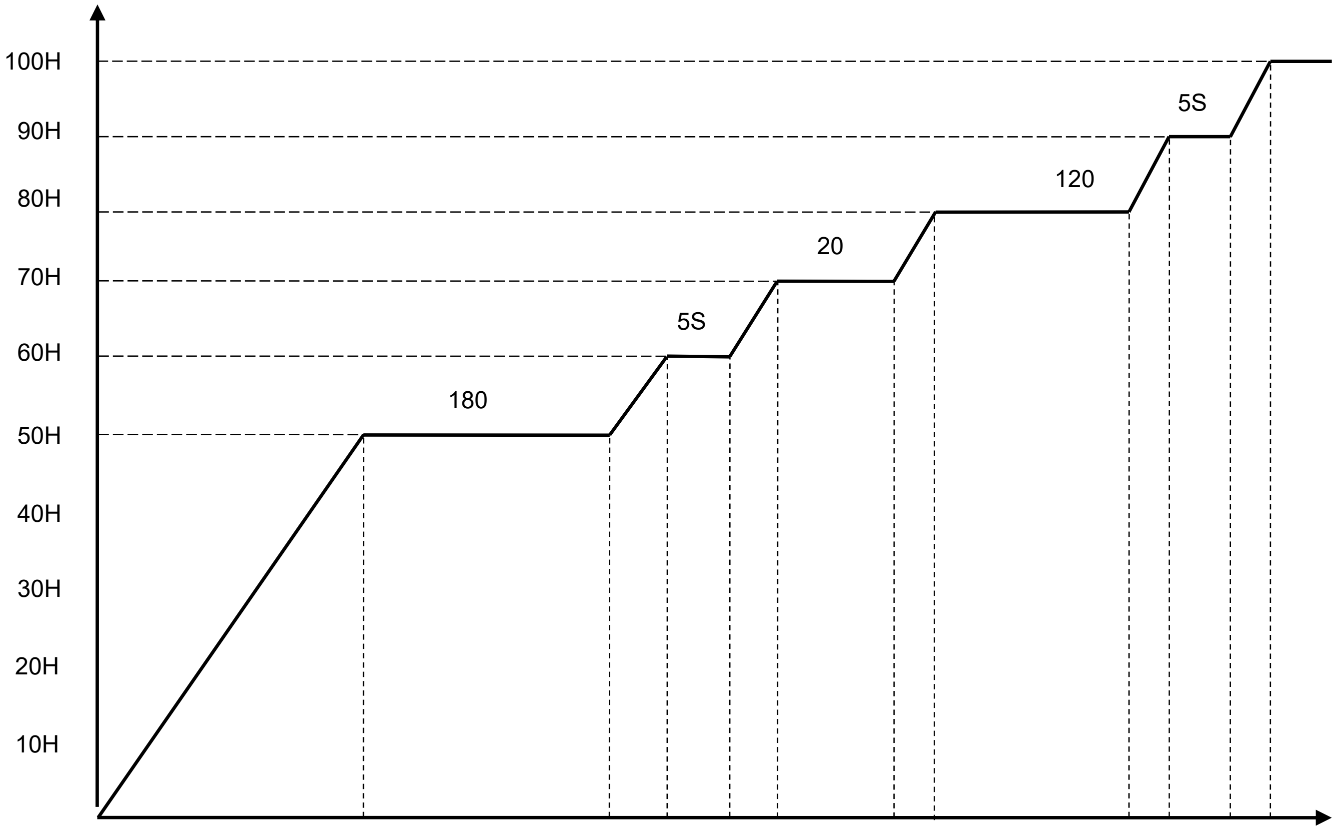
After entering silent mode, the compressor operating frequency is 20Hz lower than that in "SMART" mode, but the guaranteed minimum frequency is 30Hz.

The “SMART” mode is as follows：

◆ Compressor frequency control logic：

After the compressor starts to run, when the frequency is less than 50Hz, the compressor will directly increase to 50Hz; when the frequency is higher than 50Hz, the frequency increase will be controlled according to the compressor frequency increase control chart; when it exceeds 100Hz, it will be reduced by 10Hz every 30S.

- The compressor frequency increase control chart：



The compressor operating frequency used in different modes is divided into 18 gears, which are represented by codes D1-D60. The frequency is fixed at 60Hz during defrosting.

- The initial operating frequency of the compressor in the heating mode: according to the ambient temperature and the inlet water temperature, the control frequency is as follows:

Temperature	**Ambient temp.**							
Inlet water temp. （℃）	**[-∞,-5)**	**[-5,0)**	**[0,6)**	**[6,12)**	**[12,18)**	**[18,25)**	**[25,30)**	**[30,+ ∞)**
(- ∞,15]	D1	D2	D3	D4	D5	D6	D7	D8
（15,25]	D9	D10	D11	D12	D13	D14	D15	D16
（25,30]	D17	D18	D19	D20	D21	D22	D23	D24
（30,35]	D25	D26	D27	D28	D29	D30	D31	D32
（35, + ∞）	D33	D34	D35	D36	D37	D38	D39	D40

- The initial operating frequency of the compressor in the cooling mode: according to the ambient temperature and the inlet water temperature, the control frequency is as follows:

Temperature	**Ambient temp.**			
Inlet water temp. T_i（℃）	Ta≤27℃	27℃<Ta≤37℃	37℃<Ta≤43℃	43℃<Ta
30℃≤T_i	D41	D42	D43	D44
20℃≤T_i＜30℃	D45	D46	D47	D48
15℃≤T_i＜20℃	D49	D50	D51	D52
7℃≤T_i＜15℃	D53	D54	D55	D56

2. The control logic of fan motor

- ◆ The fan turns on 30 seconds earlier than the compressor; when shutting down, the fan turns off 30 seconds later than the compressor. The control of DC fan is divided into two modes: automatic and manual. When parameter P22=1, it is manual mode, and the wind speed is 780 (parameter P23);
- ◆ When parameter P22=0, it is automatic mode, and the speed of DC fan is controlled according to the table below.

① Heating mode：

- ✓ Outdoor ambient temp. T_outdoor＜5℃，the speed of the outdoor fan is 840 (parameter F24)
- ✓ Outdoor ambient temp.T_outdoor＞27℃，the speed of the outdoor fan is 520 (parameter F19)
- ✓ Outdoor ambient temp. 5≤T_outdoor≤27℃，The speed of the outdoor fan is adjusted according to the frequency of the compressor：
  - compressor frequency≤(parameter F1)，the speed of the outdoor fan is 520 (parameter F19)
  - (parameter F1)＜compressor frequency≤(parameter F3)，the speed of the outdoor fan is 580 (parameter F20)
  - (parameter F3)＜compressor frequency≤(parameter F5，the speed of the outdoor fan is 640 (parameter F21)
  - (parameter F5)＜compressor frequency≤(parameter F7)，the speed of the outdoor fan is 720(parameter F22)
  - (parameter F7)＜compressor frequency≤(parameter F9)，the speed of the outdoor fan is 780(parameter F23)
  - compressor frequency＞(parameter F9)，the speed of the outdoor fan is 840(parameter F24)

② Cooling mode：

- ✓ Outdoor ambient temp.T_outdoor＜15℃，the speed of the outdoor fan is 520 (parameter F19)
- ✓ Outdoor ambient temp.T_outdoor＞35℃，the speed of the outdoor fan is 840 (parameter F24)

- ✓ Outdoor ambient temp.15≤T_outdoor≤35℃，The speed of the outdoor fan is adjusted according to the frequency of the compressor：
  - compressor frequency≤(parameter F1)时，the speed of the outdoor fan is 520 (parameter F19)
  - (parameter F1)＜compressor frequency≤(parameter F3)，the speed of the outdoor fan is 640 (parameter F21)
  - (parameter F3)＜compressor frequency≤(parameter F5)，the speed of the outdoor fan is 720(parameter F22)
  - (parameter F5)＜compressor frequency≤(parameter F7)，the speed of the outdoor fan is 780(parameter F23)
  - (parameter F7)＜compressor frequency≤(parameter F9)，the speed of the outdoor fan is 840(parameter F24)
  - compressor frequency＞(parameter F9)，the speed of the outdoor fan is 840(parameter F24)

- ◆ When DC fan is selected, if DC fan stalls or no signal feedback, the DC fan fault will be reported, the unit will stop and the display will show the fault code.
- ◆ During defrosting, the fan stops.