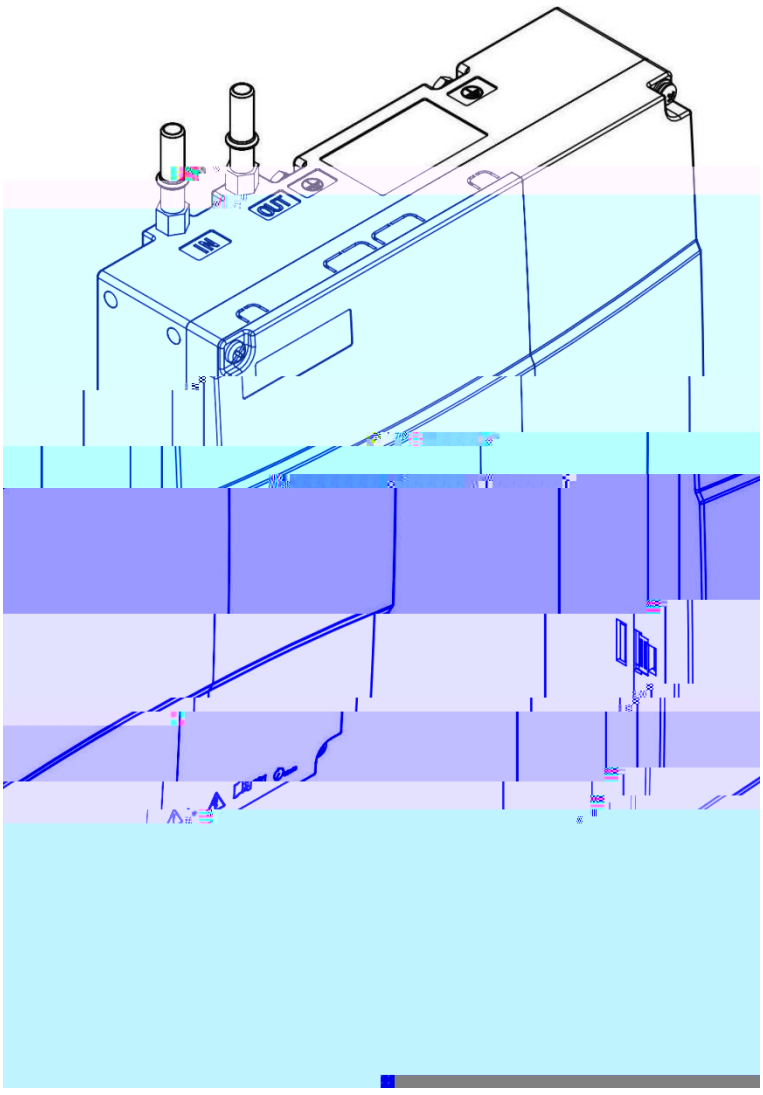

OUT
IN

HF631NLC

Modbus485

1

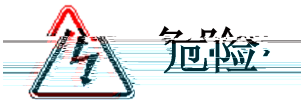
2

3 “ ” “ ” “ ”

4

5

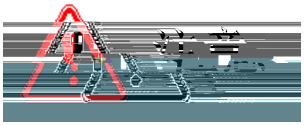
	“ ”
	“ ”
	“ ”



10



U V W



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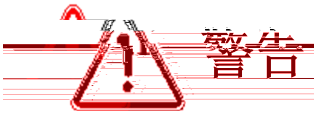
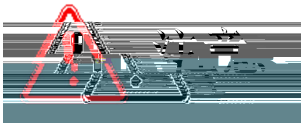
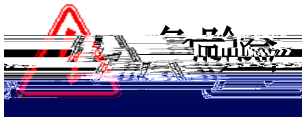




3



J ,"y04à

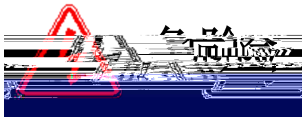


10

ESD

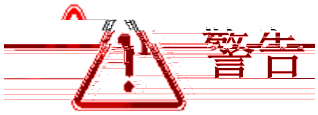







警告


警告


警告

1

RCD

RCM RCD

RCM

B RCD RCD

RCD RCD

2

500V

5MΩ

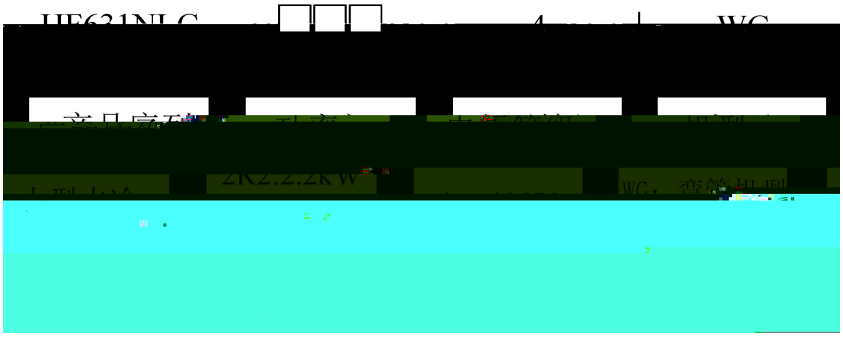
3

1
1.1 1
1.2 3
1.3 4
1.4 5
1.5 5
1.6 7
1.7 7
1.8 6
2
2.1 7
2.2 8
2.3 9
2.4 9
3
3.1 10
3.2 11
3.2.1 11
3.2.2 (mm) 11
3.2.3 11
3.3 13
3.3.1 13
3.3.2 14
3.3.3 17
4
4.1 19
4.2 LED 19
5
5.1 25
5.2 26
5.3 26
5.4 26
5.5 28
6
6.1 P0 31
6.2 P2 32
6.3 P3 35
6.4 P4 37
6.5 P5 39
6.6 P6 40
6.7 P7 41
6.8 P8 47
6.9 P9 51
6.10 V/F 1 P10 54
6.11 2 P11 57
6.12 1 P12 59

6.13 2 P13 61
6.14 P14 64
6.15 PID P15 65
6.16 P16 67
6.17 P19 68
6.18 P20 70
6.19 P21 70
6.20 P23 73
7
7.1 P0 76
7.2 P2 77
7.3 P3 82
7.4 P4 89
7.5 P5 92
7.6 P6 96
7.7 P7 98
7.8 P8 106
7.9 P9 121
7.10 V/F 1 P10 125
7.11 P21 127
7.12 P19 133
8
8.1 135
8.2 139
9
9.1 141
9.2 142
9.3 142
9.4 143
9.5 143

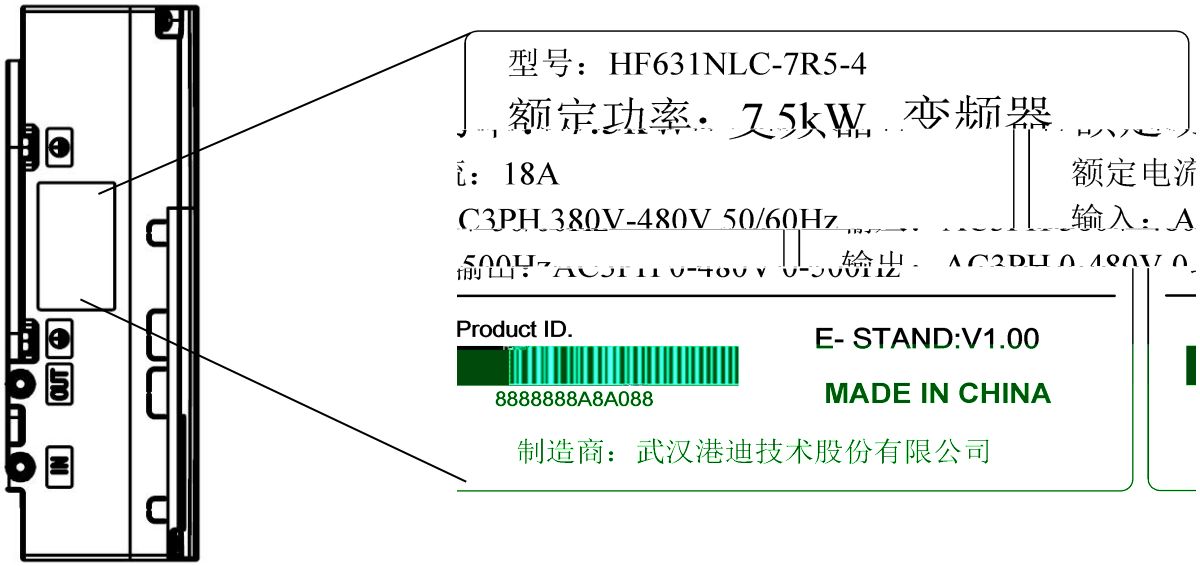
1

1.1



A	HF631NLC
B	2R2:2.2kW 4R5:4.5kW 011:11kW
C	2 220V 4 400V
D	WG

HF631NLC 7.5kW



HF631NLC-7R5-4 HF631NLC 7.5kW 400V

AC

3PH

380V-480V 50/60Hz

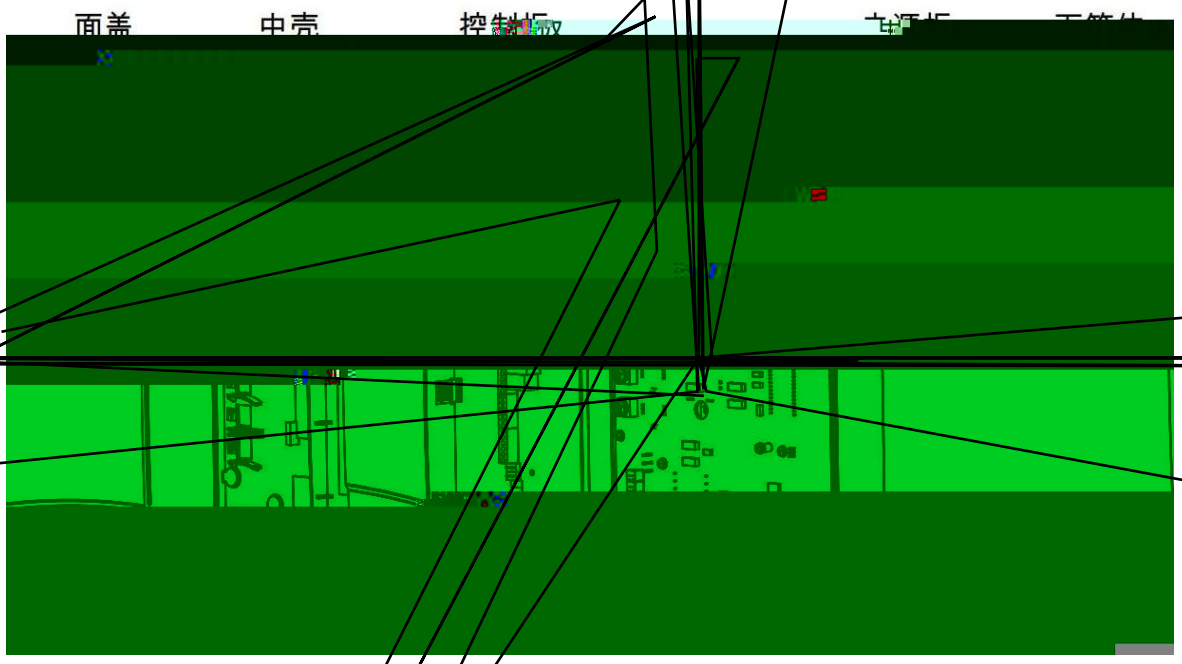
0-480V 0-500Hz

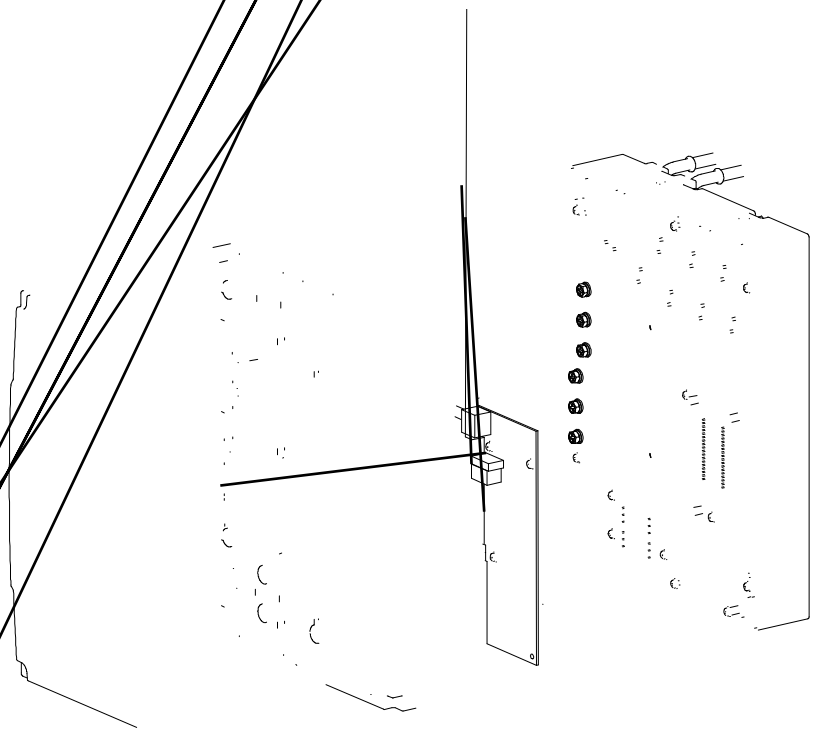
HF631NLC

	[A]	[kW]	
HF631NLC-2R2-2	10	2.2	
HF631NLC-2R2-2+WG			
HF631NLC-4R5-2	18	4.5	
HF631NLC-4R5-2+WG			
HF631NLC-7R5-2	30	7.5	
HF631NLC-7R5-2+WG			/
HF631NLC-4R5-4+WG	12	4.5	
HF631NLC-7R5-4	18	7.5	
HF631NLC-7R5-4+WG			
HF631NLC-011-4	24	11	
HF631NLC-011-4+WG			

1.2

HF631NLC





1.4

		(mm)			mm			8.8	kg
		H	W	D	A	B	φ	M	
220V	2.2kW	280 40mm	220	70	264	30	8mm	4-M6	4
	4.5kW								
	7.5kW								
400V	7.5kW								
	11kW								

		(mm)			mm			8.8	kg
		H	W	D	A	B	φ	M	
220V	2.2kW	280	220	70 52mm	264	30	8mm	4-M6	4
	4.5kW								
	7.5kW								
400V	4.5kW								
	7.5kW								
	11kW								

1.5

		AC 3PH 200 240V(220V) AC 3PH 380 480V(400V)
		50/60Hz
		-15% +10%

		fLN ± 2 ± 4 ≤ 2 fLN/s
		0
		1
		0 500Hz
		(SVC) V/F
		500Hz
		0.25Hz/150%(SVC)
		1:200(SVC)
		150% 5 1
		S
		SVC
	PID	
		16
		3 1 (0~10V 0~20mA)
		3 1 2 1 (0~10V 0~20mA)
		485
		-10 +40 40 1 1% 50 -10
		95%RH
		-20 +60 10-30
		≥1.2L/min

1.6

(1)

(2) 150%

(3)

1.7

	[kW]	[kW]
HF631NLC-2R2-2	2.2	0.092
HF631NLC-2R2-2+WG		
HF631NLC-4R5-2	4.5	0.144
HF631NLC-4R5-2+WG		
HF631NLC-7R5-2	7.5	0.218
HF631NLC-7R5-2+WG		
HF631NLC-4R5-4+WG	4.5	0.144
HF631NLC-7R5-4	7.5	0.218
HF631NLC-7R5-4+WG		
HF631NLC-011-4	11	0.277
HF631NLC-011-4+WG		

1.8



1. / “ ”

   /

2.

3.

   - R S T

   - U V W

4. 10

5.

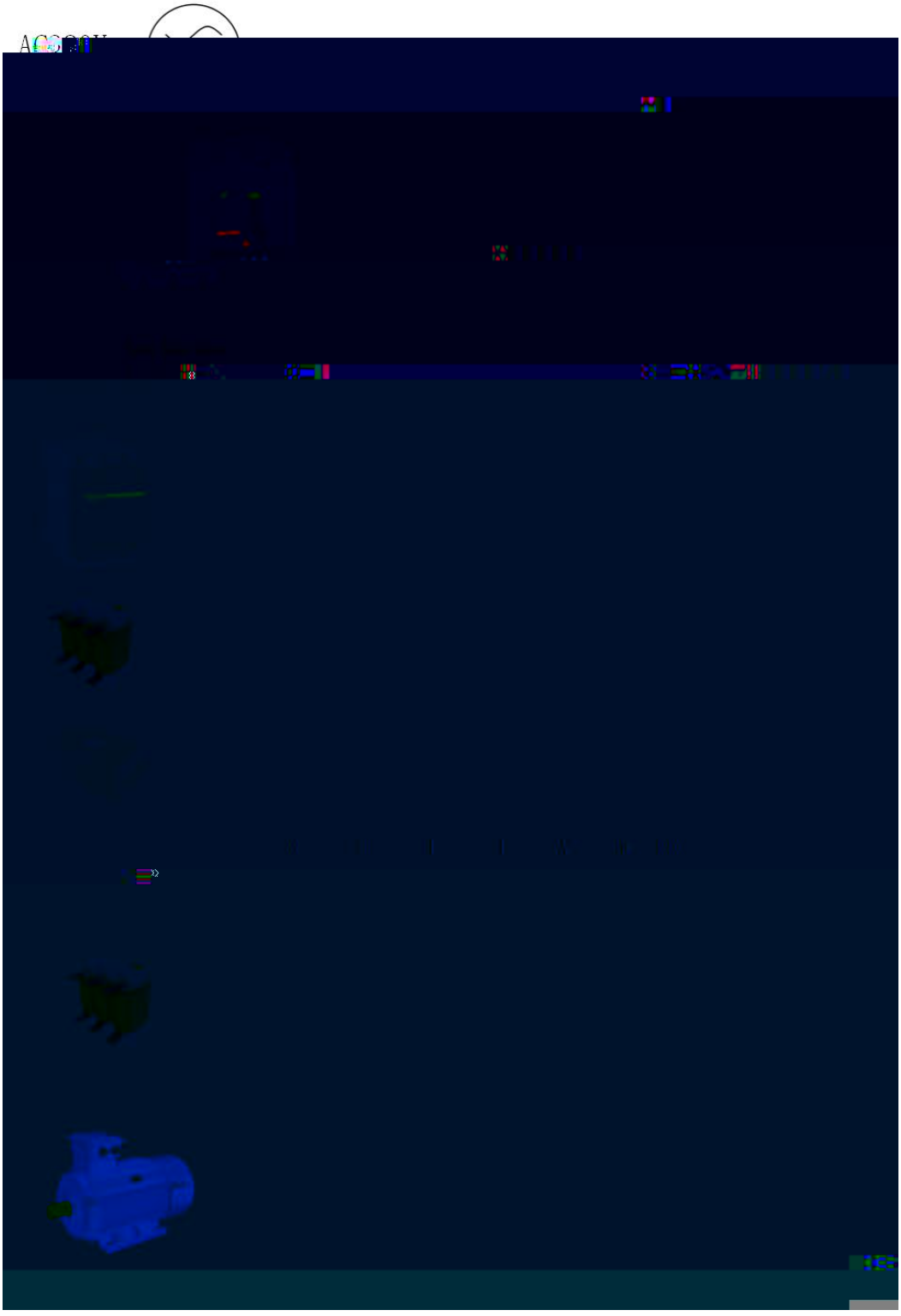


1.

2.

2

2.1



HF631NLC

2.2

		( )
EMC		
		a) b) 100m
		dv/dt
	/ ( )	

2.3

		A	/ mm² CEFR 40%	A (AC-3)
220V	2.2 kW	10	2.5	9
	4.5 kW	18	4	12
	7.5 kW	30	6	25
400V	4.5 kW	12	2.5	12
	7.5 KW	18	4	18
	11 KW	24	6	18

2.4

		2%		1%	
		A	mH	A	mH
220V	2.2 kW	12.0	0.8	10	0.4
	4.5 kW	21.0	0.45	18	0.23
	7.5 kW	35.0	0.27	30	0.14
400V	4.5 kW	14	1.0	12	0.5
	7.5 KW	21.0	0.67	18	0.34
	11 KW	28.0	0.5	24	0.25

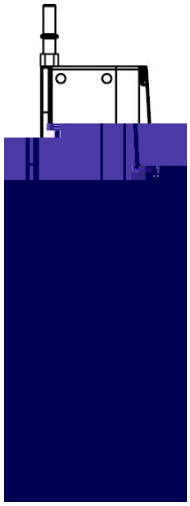
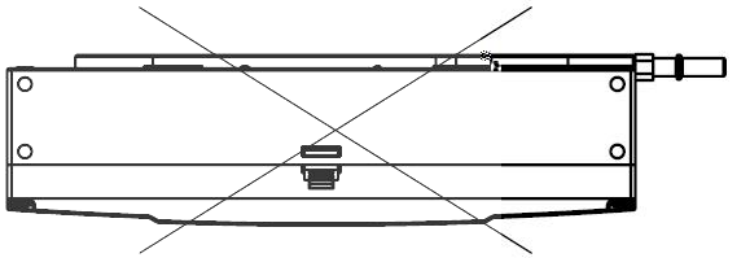
3

3.1

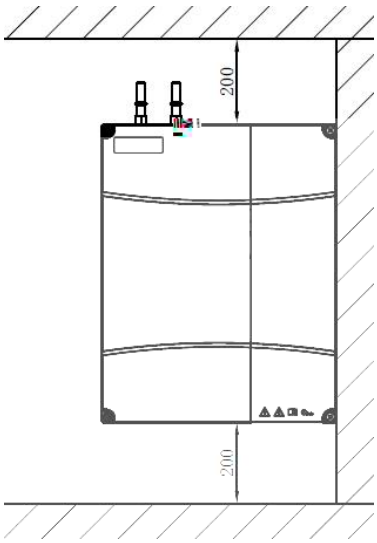
	20cm	6	
	-10 +40 40 1 1% 50 -10	-20 +60 1 /	-20 +60
	70 106 kPa 0.7 1.05	70 106 kPa 0.7 1.05	60 106 kPa 0.6 1.05
	10Hz ≤ f ≤ 57Hz 0.075mm 57Hz ≤ f ≤ 150Hz 9.8 m/s2	10Hz ≤ f ≤ 57Hz 0.075mm 57Hz ≤ f ≤ 150Hz 9.8 m/s2	I I
		100m/s² 11ms	100m/s² 11ms
		250mm <100kg 100mm ≥ 100kg	250mm <100kg 100mm ≥ 100kg
	95%RH		
	1000	1000 3000	100 1%
	2		

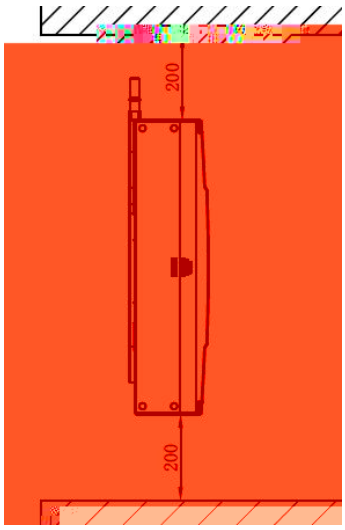
3.2

3.2.1

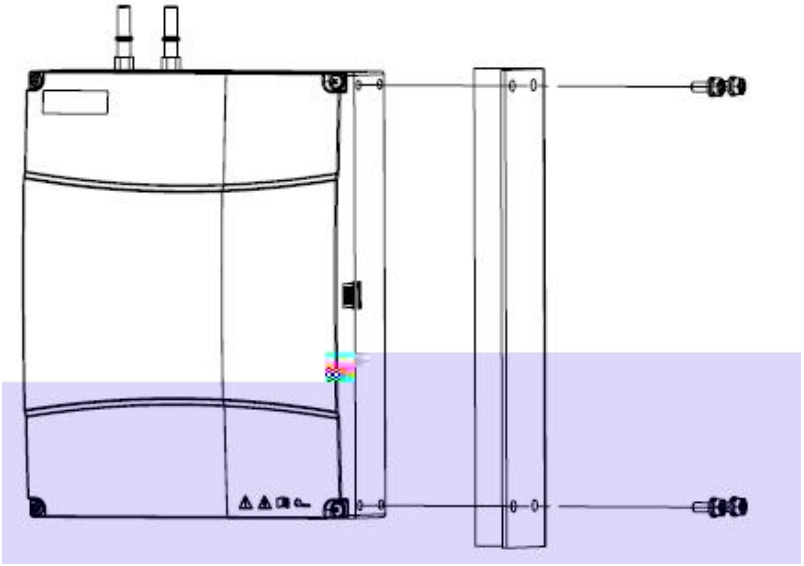
	

3.2.2 (mm)



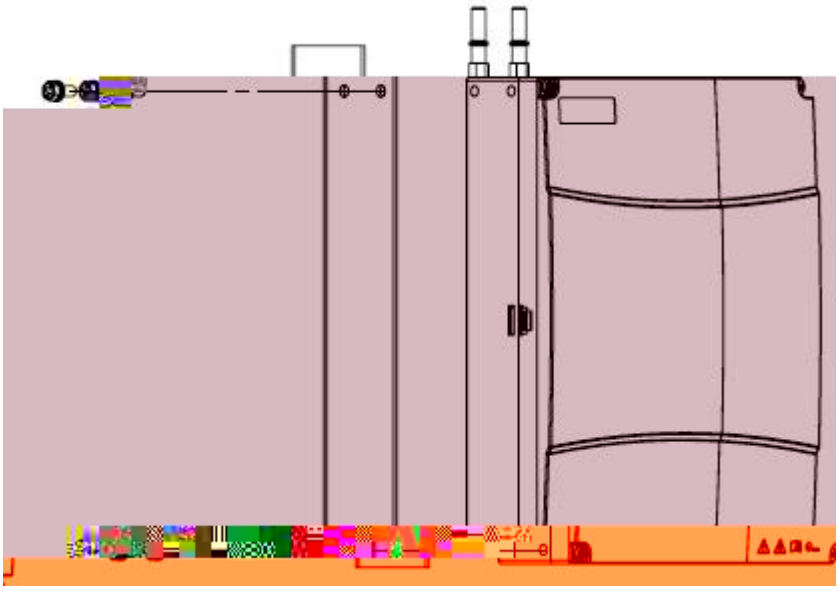


3.2.3



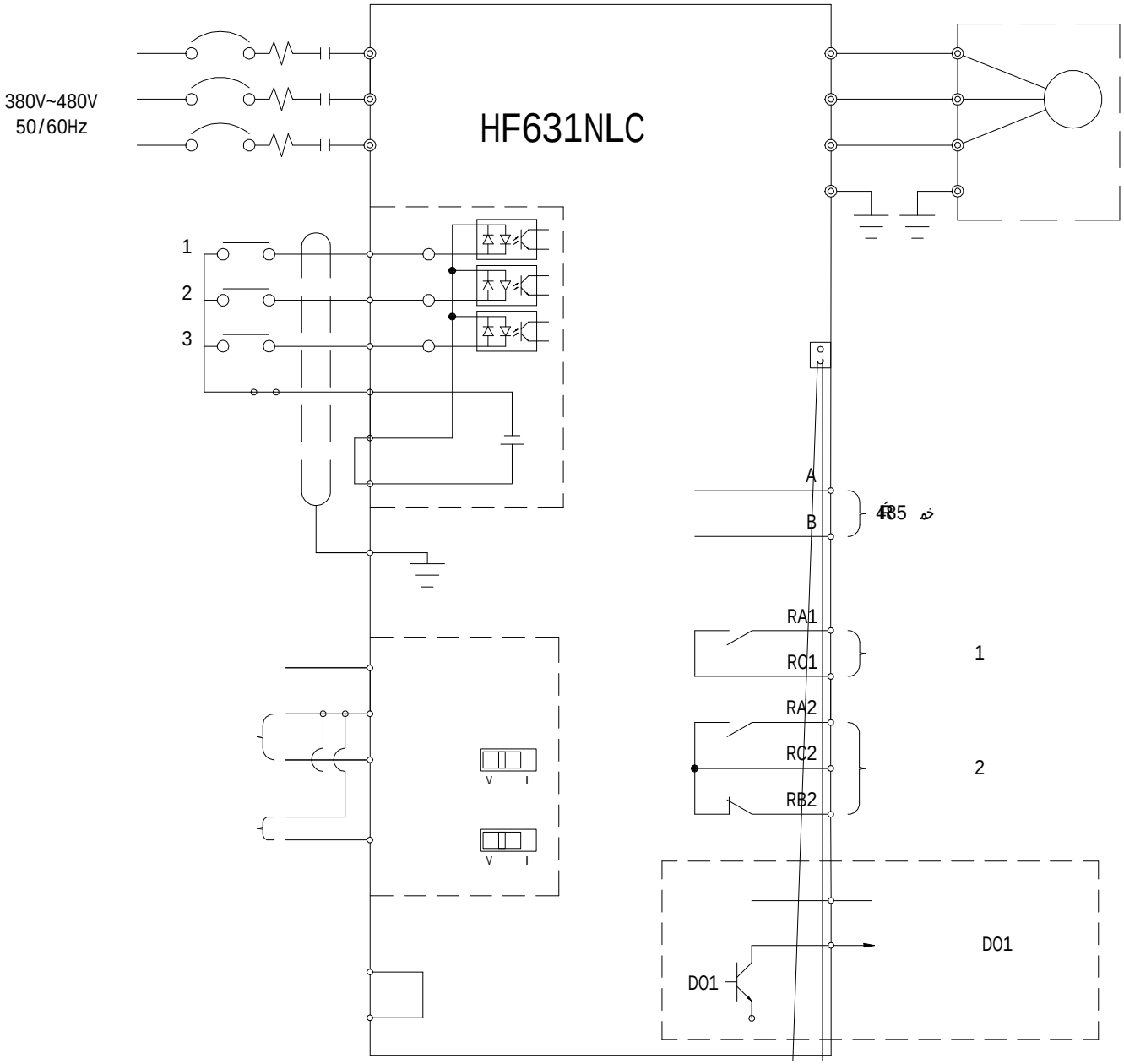
1

2 M6: 30±3KGF.CM

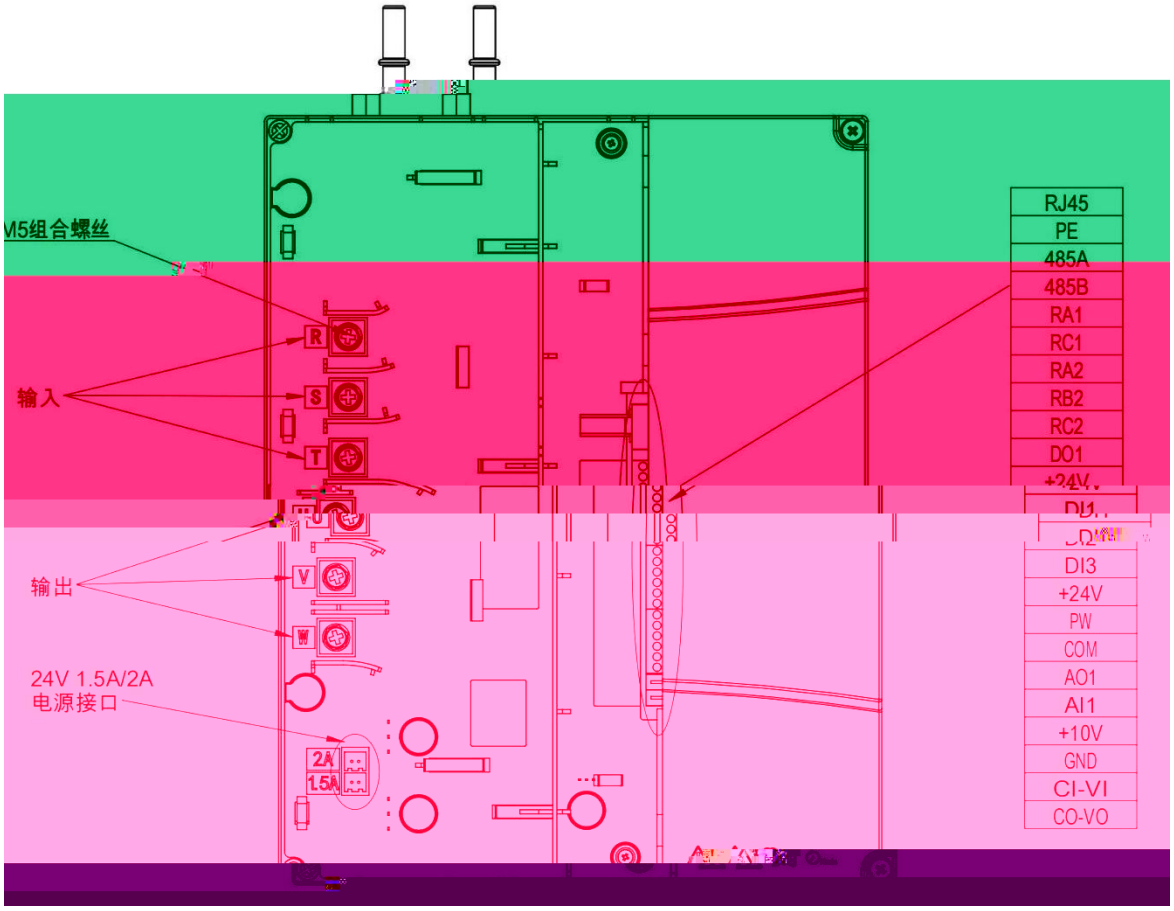


3.3

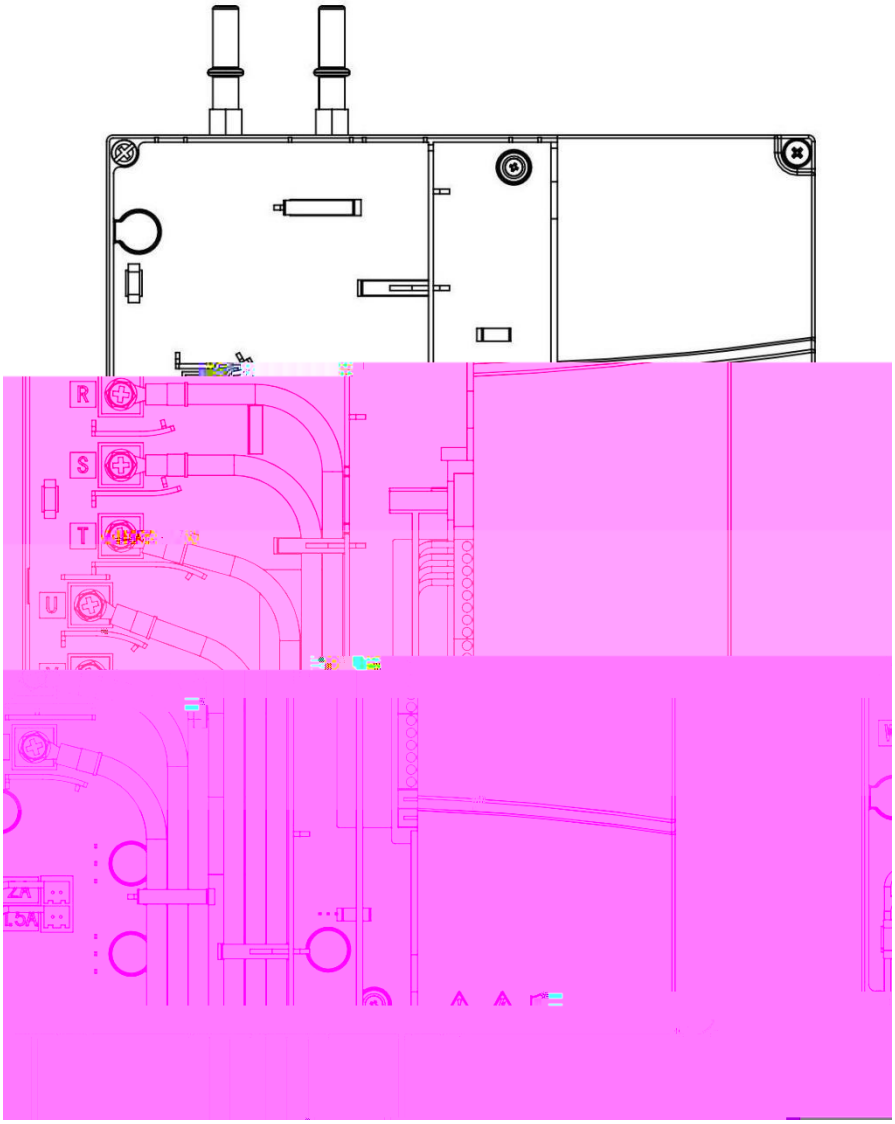
3.3.1

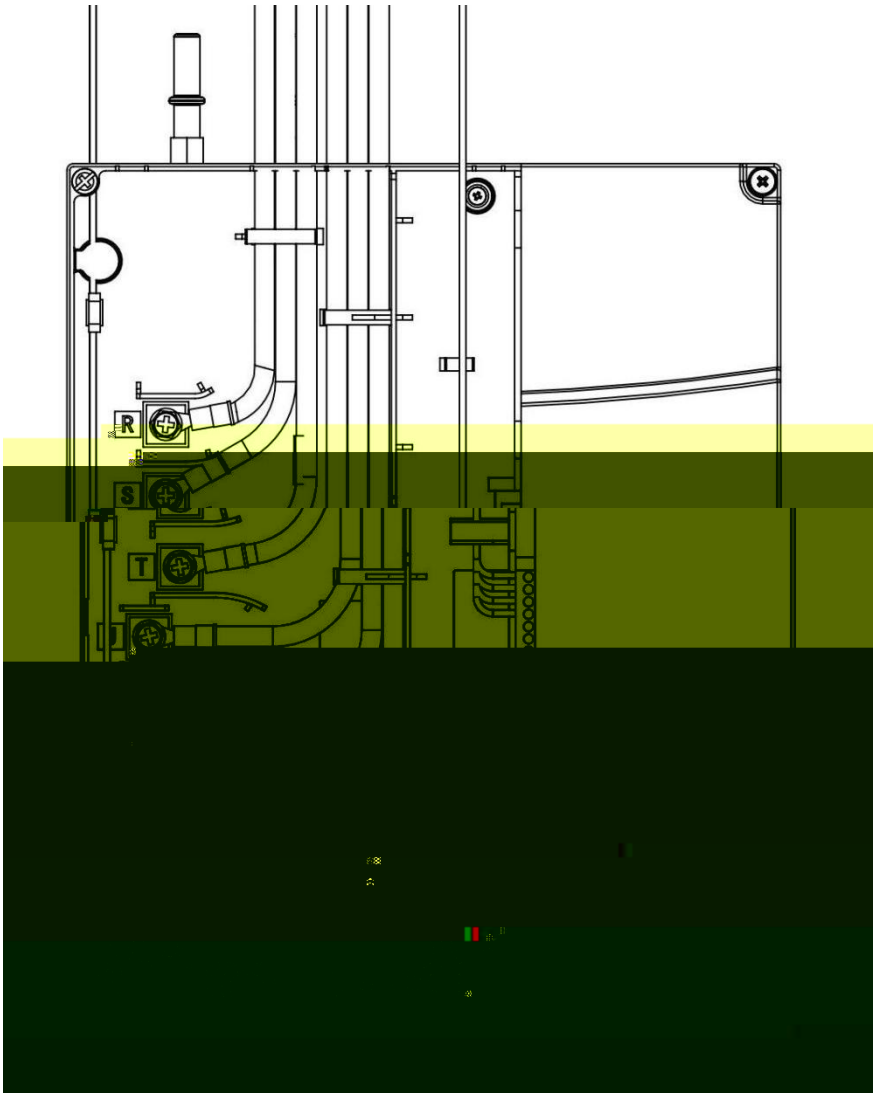

380V~480V
50/60Hz
HF631NLC
1
2
3
A
B
RA1
RC1
RA2
RC2
RB2
1
2
DO1
DO1

3.3.2



R S T	
U V W	
PE	


R
S
T
U



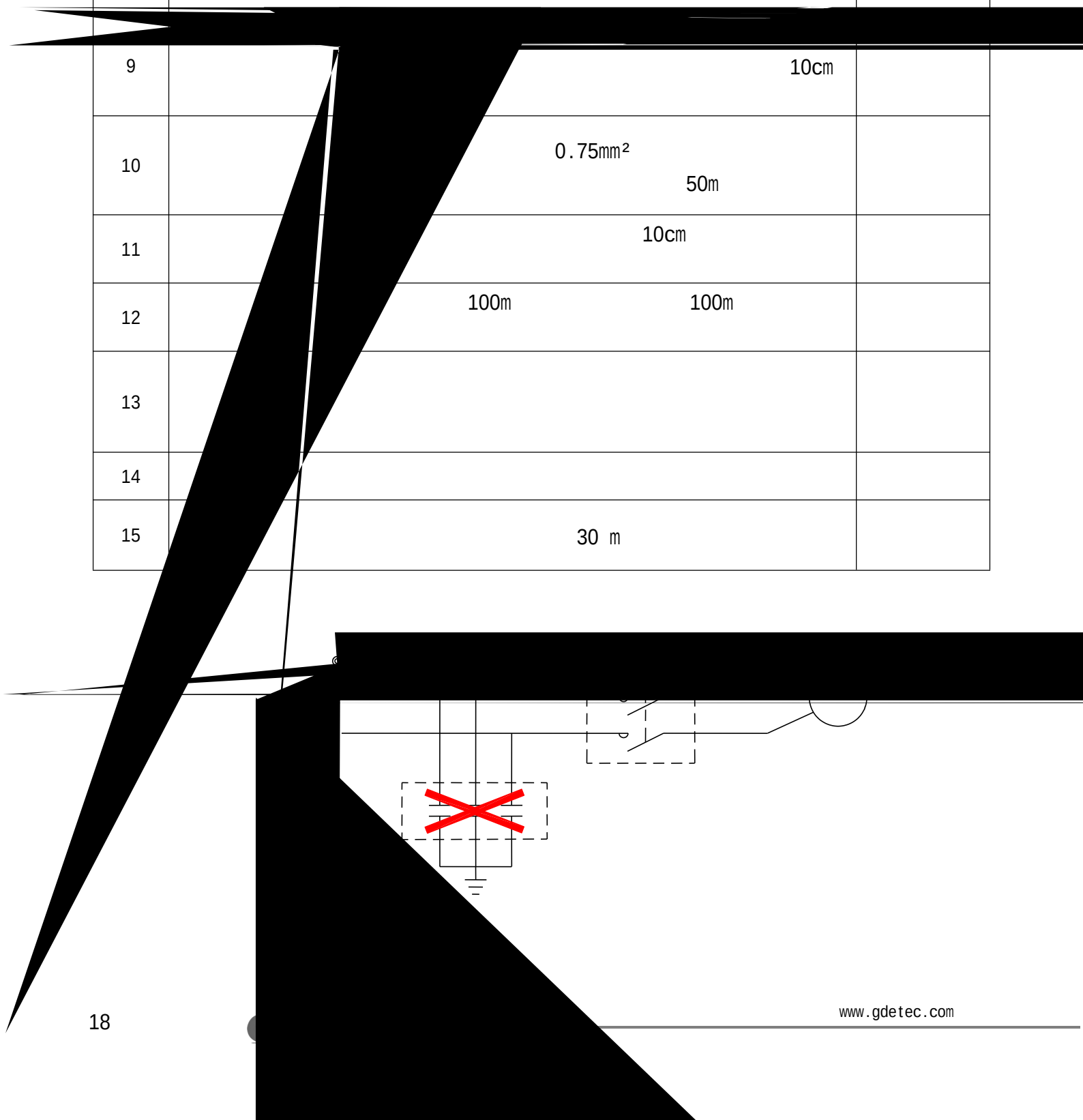
	10V—GND	10V	10V 50mA 5kΩ
	24V—COM	24V	24V ± 10% 200mA
	PW—COM		12 24V

	AI1—GND	1	1 AI1/AI2 0~10V 0~20mA 2 20kΩ 250Ω 3 CI-VI 4 10V 50Hz 5mV 5 ±1% 25
	AO1—GND	1	1 0 10V 0 20mA 2 (CO-VO) 3 10bit 1% 4 ±1% 25
	DI1—COM	1	1 3.3kΩ 2 12 30V 3 4 1KHz
	DI2—COM	2	
	DI3—COM	3	
	DO1—COM		1 200mA/30V 2 0 1kHz
	RA1	1	1 1 3A/AC250V 1A/DC30V 100 mA 2 2 3A/250Vac 1A/30Vdc 10 mA 3 ( )
	RC1	1	
	RA2	1	
	RB2	2	
	RC2	2	
RS485	485A	485 +	1 485
	485B	485 -	
	PE		
	RJ45		1

3.3.3

1		
2	10	
3	U V W	
4		

5		
6		
7	U V W	
8		
9	10cm	
10	0.75㎟ 50m	
11	10cm	
12	100m 100m	
13		
14		
15	30 m	



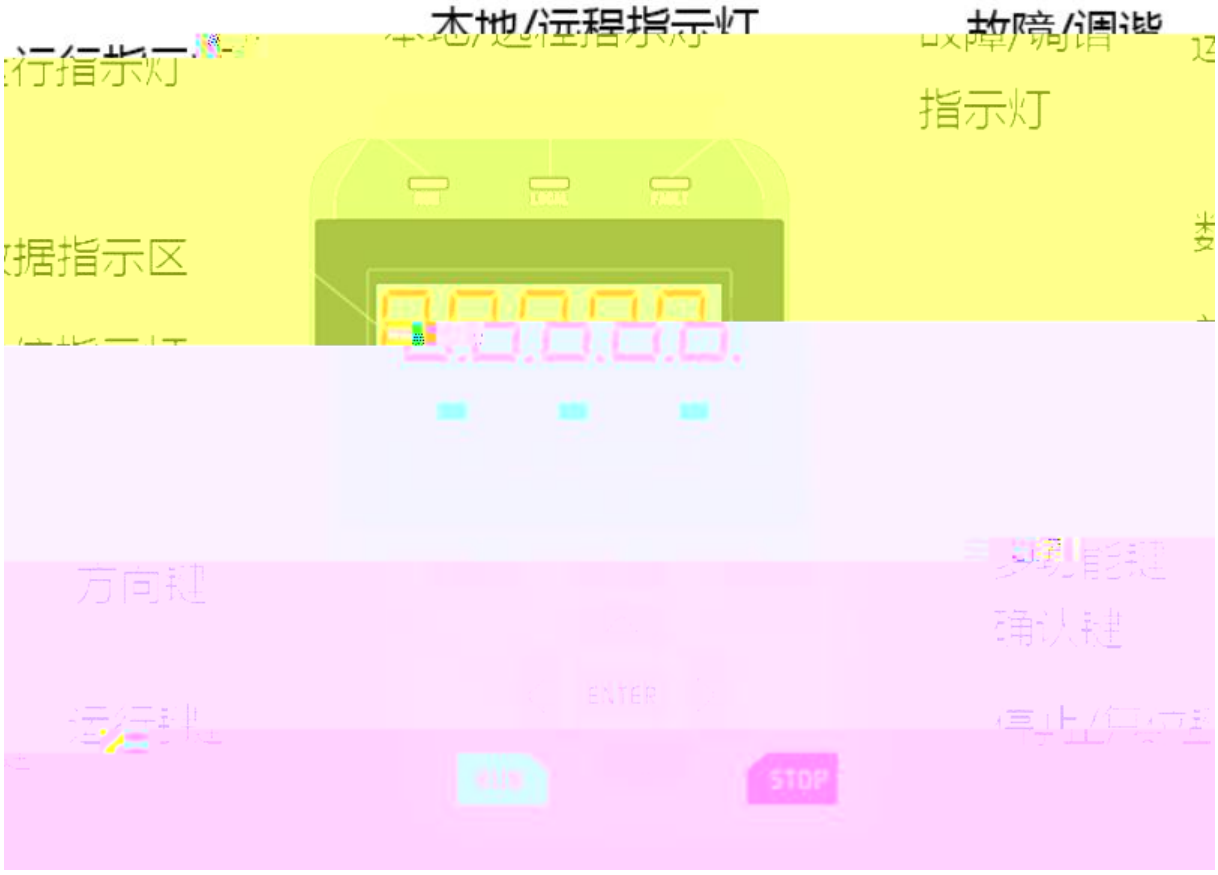
4

4.1

HF631NLC LED

4.2 LED

4.2.1 LED



1 LED

“ RUN ”

“ LOCAL ” /

“ FAULT ” /

“ HZ ” Hz RPM

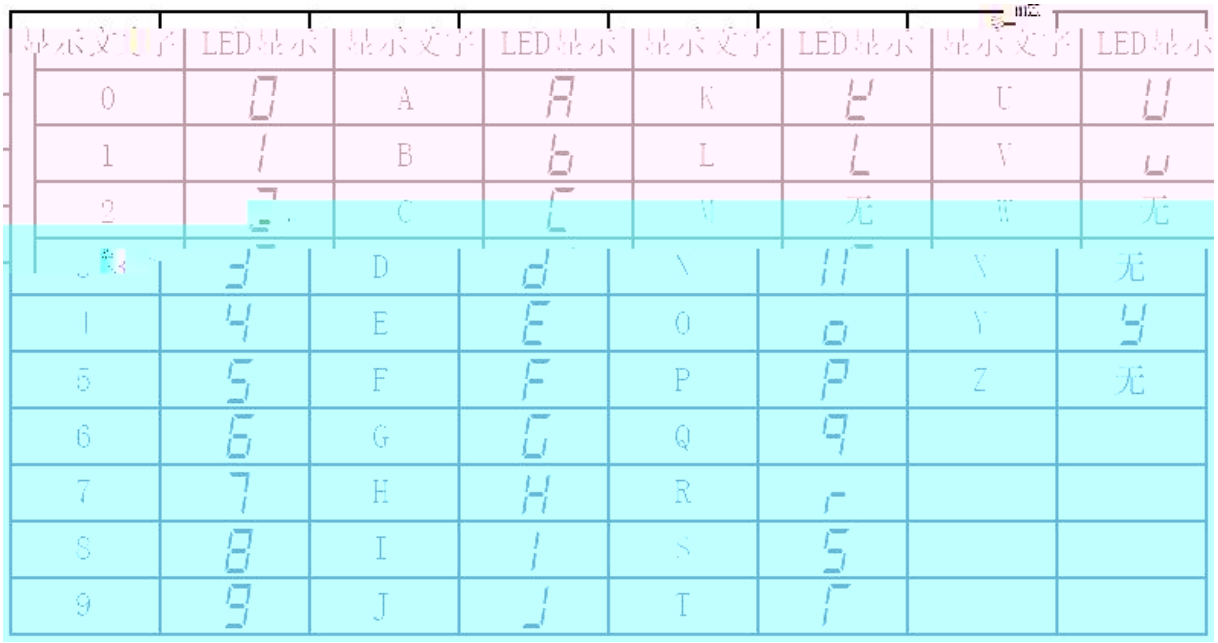
“ A ” A RPM %

“ V ” V %

2 LED LED

5 LED

LED

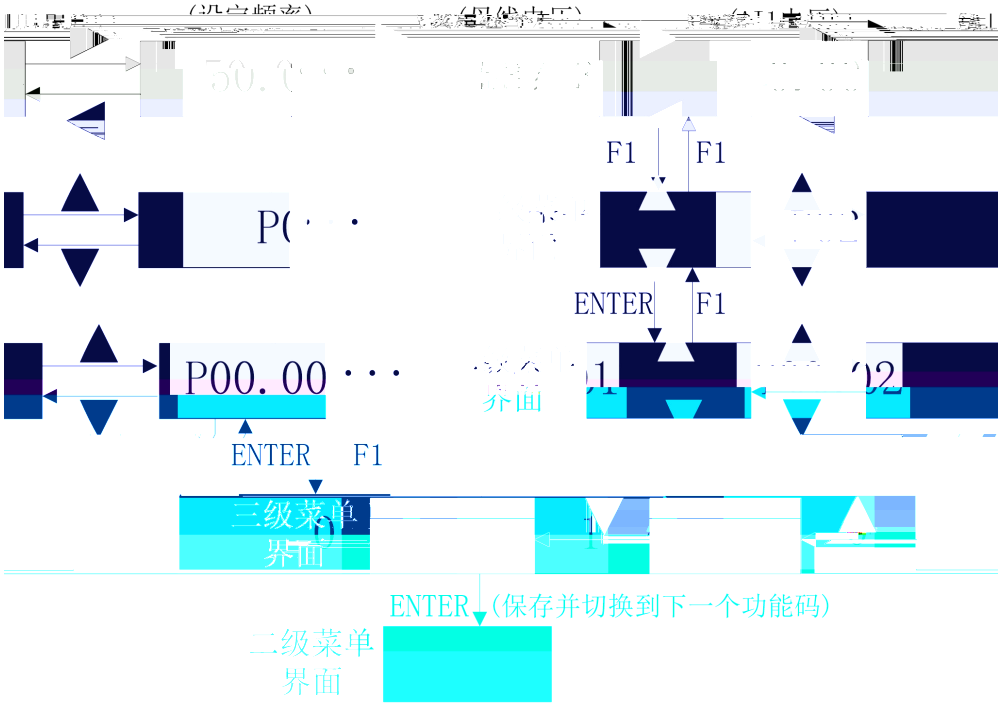


		F1 F1
	/	
		
		+1
		-1
		
		
		
		
		/

4.2.2 LED

1

LED /



( )/

( ) P02.05

F1 (▲)/ (▼)

F1

ENTER (▲)/ (▼)

(

) ( )/ ( ) (

) (▲)/ (▼) (

) ( ) F1

ENTER (

) (▲)/ (▼) ( )/

( ) ENTER

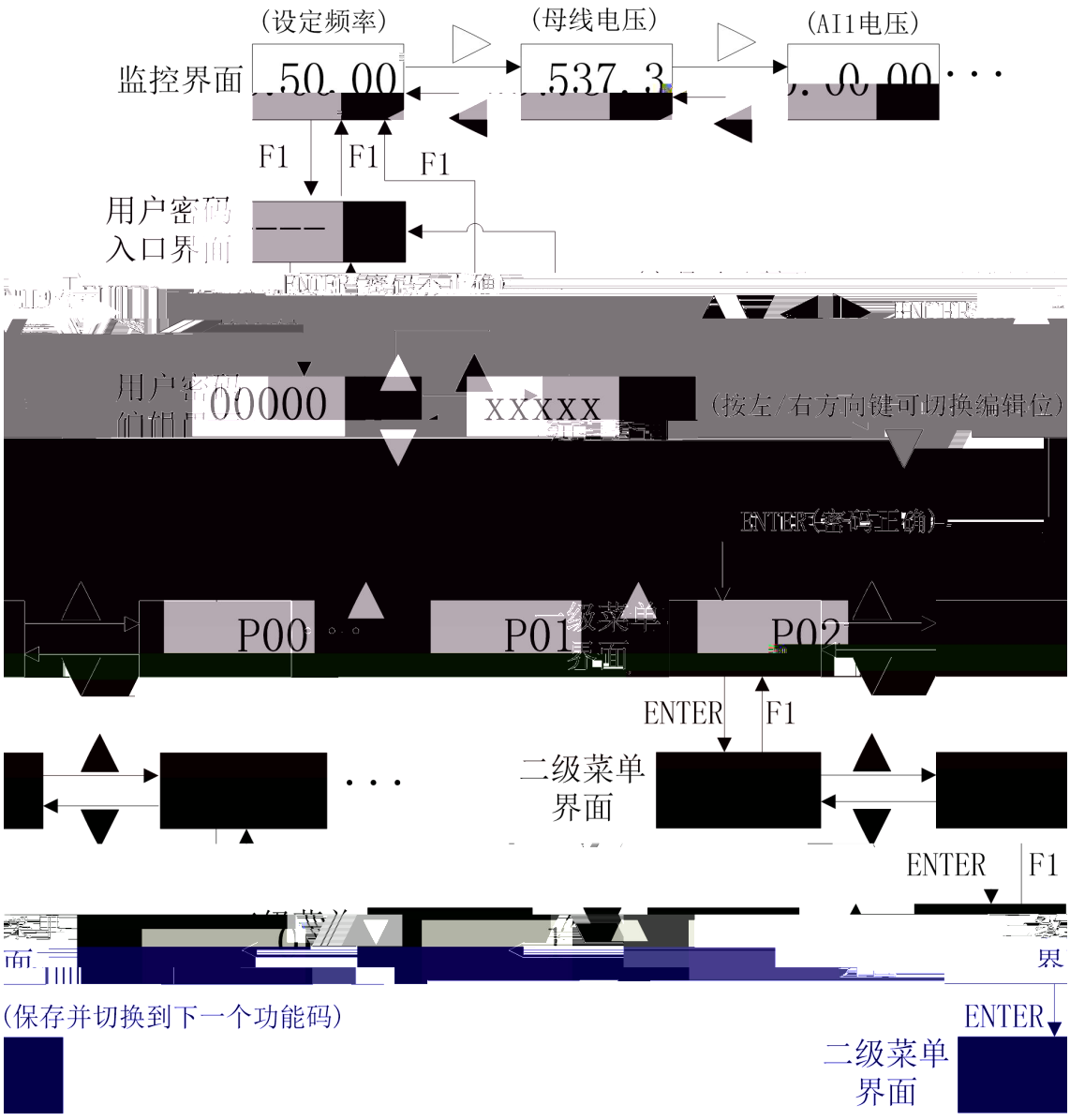
F1

2

F1 (▲)/

(▼)/ ( )/ ( )/ENTER

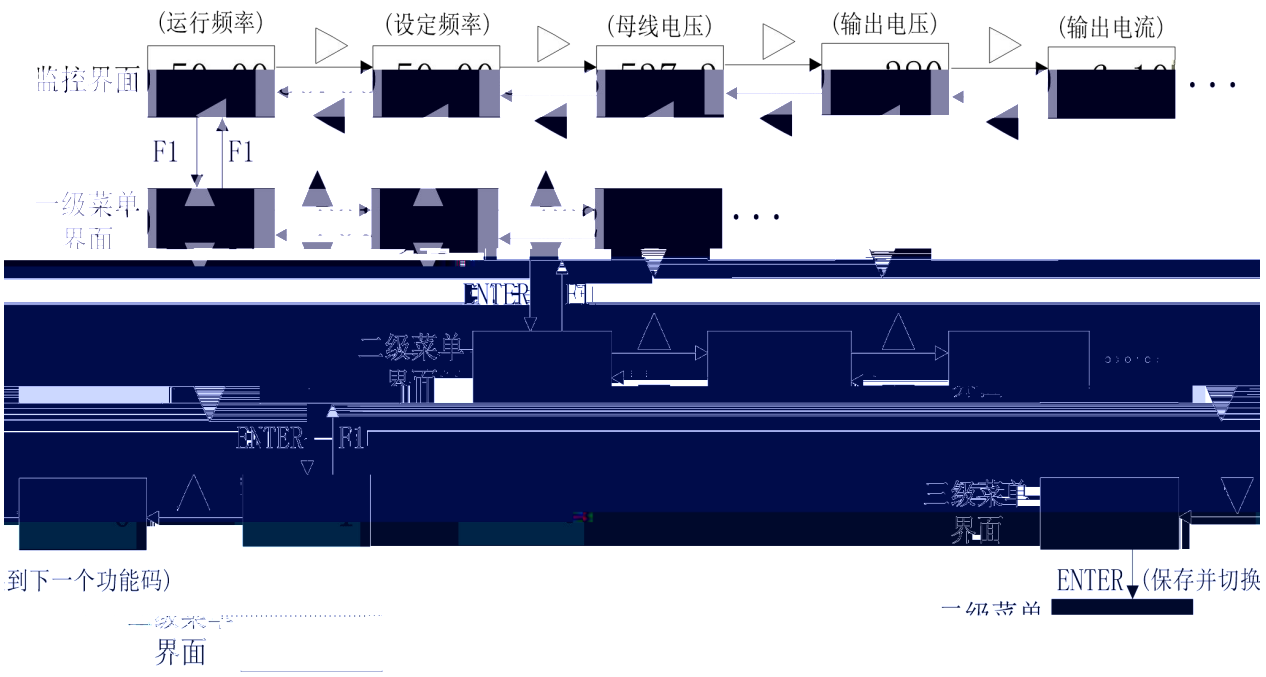
ENTER



3

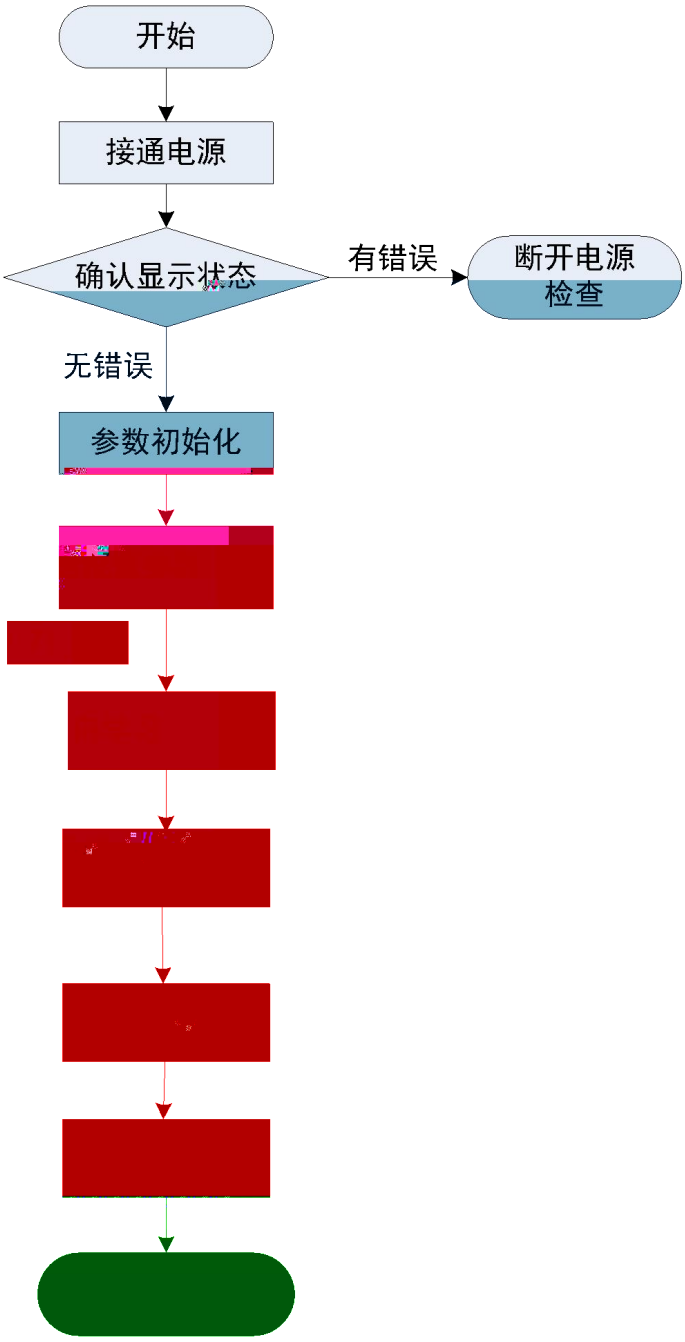
LED /

P02.03 P02.04



5

5.1



5.2

	AC380~480V 50/60Hz
	U,V,W

5.3

LED

50.00

E

P00.01

P00.01	0: 1 ( ) 2 ( )	0

5.4

V/F

P08.10	(Hz)	/ / / /	50 [Hz]
P08.12	(Hz)		
P10.35	(Kw)		
P10.36	(V)		
P10.37	(A)		
P10.38	(Hz)		
P10.39		(r/min)	
P08.01		[0] [1] [2] V/F	2

P08.10	(Hz)	/ / / /	50[Hz]
P08.12	(Hz)		
P10.35	(Kw)		
P10.36	(V)		
P10.37	(A)		
P10.38	(Hz)		
P10.39	(r/min)		
P08.01		[0] [1] [2] V/F	0
P10.54	(V)		

5.5

	1. (P10.54) 2. P10.71 11 ENTER TUNE 3. RUN FAULT	1. (P10.50); 2. D (P10.51); 3. Q (P10.52)
	1. 2. P10.71 12 ENTER TUNE 3. RUN FAULT	1. (P10.50); 2. D (P10.51); 3. Q (P10.52); 4. (P10.54)

1

HF631NLC

	1/5
	P10

2

1		
2	LOCAL	
3	UP/DOWN 5Hz	
4	RUN RUN	
5	4 50Hz	
6	STOP	

3

		STOP	
	1		
	2	LOCAL	
	3	UP/DOWN 5Hz	
	4	RUN RUN	
	5	4 50Hz	
	6	STOP	

P00.02		P23,P27 0 1 P11,P13,P16,P19,P20,P21 0 1	11	
P00.03				
P00.04		0 1	0	

6.2 P2

P02.01	F2	0 1 2 3 4	0	
P02.02	STOP	0 , STOP 1 , STOP	1	

P02.03	LED 1	0000 FFFF Bit00: 1 Hz Bit01: Hz Bit02: V Bit03: V Bit04: A Bit05: kW Bit06: % Bit07: DI Bit08: DO Bit09: Bit10: AI1 V Bit11: Bit12: Bit13: Bit14: Bit15: PID	1F	
P02.04	LED 2	0000 FFFF Bit00 PID Bit01 PLC Bit02 Bit03 2 Hz Bit04 Bit05 Bit06 AI1 V Bit07 Bit08 Bit09 Hour Bit10 Min Bit11 Bit12 Bit13 Hz Bit14 X Hz Bit15 Y Hz	0	

		0000 FFFF Bit00: Hz Bit01: V Bit02: DI Bit03: DO Bit04: Bit05: AI1 V Bit06: Bit07: Bit08: Bit09: PLC Bit10: Bit11: PID Bit12		
P02.05	LED		33	
P02.06		0.0001 6.5000	1	
P02.07		0.0 100.0	-	●
P02.08		-	-	●
P02.09		0h 65535h	-	

.2

6.3 P3

P03.00	1	0 1 2 3 4	1	
P03.01	2	5 6 UP 7 DOWN 8 9 10	4	
P03.02	3	11 12 1 13 2 14 3 15 4	9	
P03.03		16 1 17 2 18 19 UP/DOWN 20 1	12	
P03.04		21 22 PID 23 PLC 24 25 26	13	
P03.05		27 28 29 30	0	

P03.06		31 32 33 34 35 PID 36 1 37 2 38 PID 39 X 40 Y 41 1 42 2 43 PID 44 1 45 2 46 / 47 48 2 49 50 51.59:	0	
P03.07			0	
P03.08			0	
P03.09			0	
P03.10		0.000s 1.000s	0.010s	
P03.11		0 1 1 2 2 1 3 2	0	
P03.12	UP/DOWN	0.001Hz/s 65.535Hz/s	1.00Hz/s	
P03.13		0 1 DI1 DI2 DI3	0	

P03.14				
P03.15	1	0.0s 3600.0s	0.0s	
P03.16	2	0.0s 3600.0s	0.0s	
P03.17	3	0.0s 3600.0s	0.0s	

6.4 P4

P04.00				
P04.01		0 1 2 3 FDT1 4 5 1 6 7 8 9 10 11 PLC 12 13 14 15 16	0	
P04.02	1		2	

P04.03	2	17 18 19 20 21 22 23 2 24 25 FDT2	0	
P04.04	1	26 1 27 2 28 1 29 2 30 31 32 33	1	
P04.05		34 35 36 37 38 39 40	4	
P04.06		0.0s 3600.0s	0.0s	
P04.07	1	0.0s 3600.0s	0.0s	
P04.08	2	0.0s 3600.0s	0.0s	
P04.09	1	0.0s 3600.0s	0.0s	
P04.10		0.0s 3600.0s	0.0s	

P04.11		0 1 1 2 DO1	0	

6.5 P5

P05.00	AI 1	-10.00V P05.02	-10.00V	
P05.01	AI 1	-100.0% +100.0%	-100.00%	
P05.02	AI 1	P05.00 +10.00V	10.00V	
P05.03	AI 1	-100.0% +100.0%	100.00%	
P05.04	AI 1	0.00s 10.00s	0.10s	
P05.05	AI 2	-10.00V P05.07	-10.00V	
P05.06	AI 2	-100.0% +100.0%	-100.00%	
P05.07	AI 2	P05.05 +10.00V	10.00V	
P05.08	AI 2	-100.0% +100.0%	100.00%	
P05.09	AI 2	0.00s 10.00s	0.10s	
P05.10	AI 3	-10.00V P05.12	-10.00V	
P05.11	AI 3	-100.0% +100.0%	-100.00%	
P05.12	AI 3	P05.10 +10.00V	10.00V	
P05.13	AI 3	-100.0% +100.0%	100.00%	
P05.14	AI 3	0.00s 10.00s	0.10s	
P05.15				
P05.16				
P05.17				
P05.18				
P05.19				

P05.20	AI	AI1 1 1 2 P05.00 P05.03 2 2 2 P05.05 P05.08 3 3 2 P05.10 P05.13 4 4 4 P19.00 P19.07 5 5 4 P19.08 P19.15	321	
P5.21	AI	: AI1 0: 1:0.0%	0	

6.6 P6

P06.02		11 12 13 14 100.0% 1000.0A 15 100.0% 1000.0V 16		
P06.03				
P06.04	AO1	-100.0% +100.0%	0.00%	
P06.05	AO1	-10.00 +10.00	1	
P06.06				
P06.07				
P06.08				
P06.09				
P06.10				

6.7 P7

P07.00		0 1	1	
P07.01		0.20 10.00	1	
P07.02		50% 100%	80%	
P07.03		0 100	0	
P07.04		200.0 2200.0	760.0	
P07.05		0 100	20	
P07.06		50% 200%	150%	
P07.07		0 1	11	
P07.08		200.0V 2000.0V		
P07.09		0 20	0	

P07.10	DO	0 1		0
P07.11		0.1s	100.0s	1.0s
P07.12	/			

P07.15		25 26 27: 1 28: 2 29: 30 31 PID 40 41 45 51 100 101		●
P07.16		102 105 108 111 112 113 114 115 118 /PG 119: 120 170 202		●
P07.17				●
P07.18				●
P07.19				●
P07.20				●
P07.21				●

P07.22	●
P07.23	●
P07.24	●
P07.25	●
P07.26	
P07.27	●
P07.28	●
P07.29	●
P07.30	●
P07.31	●
P07.32	●
P07.33	●
P07.34	●
P07.35	●
P07.36	
P07.37	●
P07.38	●
P07.39	●
P07.40	●
P07.41	●
P07.42	●
P07.43	●
P07.44	

P07.47	1	11 0 1 2 113 114 15 202	0	
P07.48	2	/PG 118 0 21 0 1 111 45 26	0	
P07.49	3	1 27 0 1 2 2 28 0 1 2 29 0 1 2 30 0 1 2 7% PID 31 0 1 2	0	

P07.50	4	119 0 1 2 115 51	0	
P07.51	5			
P07.52	1			
P07.53	2			
P07.54		0 1 2 3 4	0	
P07.55		0% 100.0% 100.0% P08.10	100.00%	
P07.56				
P07.57				
P07.58				
P07.59				
P07.60				
P07.61				
P07.62				
P07.63		0 1	0	
P07.64		0.0 100.0	10.00%	
P07.65		0.0 60.0s	1.0s	
P07.66				
P07.67		0.0 50.0	20.00%	
P07.68		0.0s 60.0s	1.0s	
P07.69		0.0 50.0	20.00%	

P07.70		0.0s 60.0s	0.0s	
P07.71		0 100	40	
P07.72		0 100	30	
P07.73		0 300.0	20.0	
P07.74				
P07.75	6	51 0 1 170 0 1	11	

6.8 P8

P08.00				
P08.01	1	0 SVC 1 FVC 2 V/F	0	
P08.02		0 LED 1 LED 2 LED	0	
P08.03	X	0 P08.08 UP/DOWN 1 P08.08 UP/DOWN 2 3 AI1 4 5 6 7 PLC 8 PID 9	0	
P08.04	Y	P08.03 X	0	
P08.05	Y	0	0	

		1 X		
P08.06	Y	0% 150%	100%	
P08.07		0 X 1 2 X Y 3 X 4 Y 0 + 1 - 2 3	0	
P08.08		0.00Hz P08.10	50.00Hz	
P08.09		0 1	0	
P08.10		50.00Hz 500.00Hz	50.00Hz	
P08.11		0 P08.12 1 2 AI1 3 4 5	0	
P08.12		P08.14 P08.10	50.00Hz	
P08.13		0.00Hz P08.10	0.00Hz	
P08.14		0.00Hz P08.12	0.00Hz	
P08.15		0.5kHz 16.0kHz		
P08.16		0 1	1	
P08.17	1	0.00s 6500.0s		
P08.18	1	0.00s 6500.0s		
P08.19		0 1	1	

		1 0.1 2 0.01		
P08.20				
P08.21		0.00Hz P08.10	0.00Hz	
P08.22		2 0.01Hz	2	
P08.23		0 1	0	
P08.24		0 1 1 2	0	
P08.25		0 P08.10 1 2 100Hz	0	
P08.26	UP/DOWN	0 1	0	
P08.27		0 1 2 3 AI1 4 5 6 7 PLC 8 PID 9	0	
P08.28		0 1 2	0	
P08.29		0 1	0	

		2		
P08.30		1 100	20	
P08.31		0.00Hz 10.00Hz	0.00Hz	
P08.32		0.0s 100.0s	0.0s	
P08.33	/	0% 100%	0%	
P08.34	/	0.0s 100.0s	0.0s	
P08.35		0 1 S A 2 S B	0	
P08.36	S	0.0% 100.0%- P08.37	30.00%	
P08.37	S	0.0% 100.0%- P08.36	30.00%	
P08.38		0 1	0	
P08.39		0.00Hz	0.00Hz	
P08.40		0.0s 100.0s	0.0s	
P08.41		0% 100%	0%	
P08.42		0.0s 100.0s	0.0s	
P08.43		0% 100%	100%	
P08.44		0s 65000s	0s	
P08.45				
P08.46				
P08.47				
P08.48				
P08.49				

6.9 P9

P09.00		0 1	0	
P09.01		0.0% 100.0%	0.00%	
P09.02		0.0% 50.0%	0.00%	
P09.03		0.1s 3000.0s	10.0s	
P09.04		0.1% 100.0%	50.00%	
P09.05		0m 65535m	1000m	
P09.06		0m 65535m	0m	
P09.07		0.1 6553.5	100	
P09.08		1 65535	1000	
P09.09		1 65535	1000	
P09.10	0	-100.0% 100.0%	0.00%	
P09.11	1	-100.0% 100.0%	0.00%	
P09.12	2	-100.0% 100.0%	0.00%	
P09.13	3	-100.0% 100.0%	0.00%	
P09.14	4	-100.0% 100.0%	0.00%	
P09.15	5	-100.0% 100.0%	0.00%	
P09.16	6	-100.0% 100.0%	0.00%	
P09.17	7	-100.0% 100.0%	0.00%	
P09.18	8	-100.0% 100.0%	0.00%	
P09.19	9	-100.0% 100.0%	0.00%	
P09.20	10	-100.0% 100.0%	0.00%	
P09.21	11	-100.0% 100.0%	0.00%	
P09.22	12	-100.0% 100.0%	0.00%	
P09.23	13	-100.0% 100.0%	0.00%	
P09.24	14	-100.0% 100.0%	0.00%	
P09.25	15	-100.0% 100.0%	0.00%	
P09.26	PLC	0 1 2	0	

P09.27	PLC	0 1 0 1	0	
P09.28	PLC 0	0.0s h 6553.5s h	0.0s h	
P09.29	PLC 0	0 3	0	
P09.30	PLC 1	0.0s h 6553.5s h	0.0s h	
P09.31	PLC 1	0 3	0	
P09.32	PLC 2	0.0s h 6553.5s h	0.0s h	
P09.33	PLC 2	0 3	0	
P09.34	PLC 3	0.0s h 6553.5s h	0.0s h	
P09.35	PLC 3	0 3	0	
P09.36	PLC 4	0.0s h 6553.5s h	0.0s h	
P09.37	PLC 4	0 3	0	
P09.38	PLC 5	0.0s h 6553.5s h	0.0s h	
P09.39	PLC 5	0 3	0	
P09.40	PLC 6	0.0s h 6553.5s h	0.0s h	
P09.41	PLC 6	0 3	0	

P09.42	PLC 7	0.0s h 6553.5s h	0.0s h	
P09.43	PLC 7	0 3	0	
P09.44	PLC 8	0.0s h 6553.5s h	0.0s h	
P09.45	PLC 8	0 3	0	
P09.46	PLC 9	0.0s h 6553.5s h	0.0s h	
P09.47	PLC 9	0 3	0	
P09.48	PLC 10	0.0s h 6553.5s h	0.0s h	
P09.49	PLC 10	0 3	0	
P09.50	PLC 11	0.0s h 6553.5s h	0.0s h	
P09.51	PLC 11	0 3	0	
P09.52	PLC 12	0.0s h 6553.5s h	0.0s h	
P09.53	PLC 12	0 3	0	
P09.54	PLC 13	0.0s h 6553.5s h	0.0s h	
P09.55	PLC 13	0 3	0	
P09.56	PLC 14	0.0s h 6553.5s h	0.0s h	
P09.57	PLC 14	0 3	0	
P09.58	PLC 15	0.0s h 6553.5s h	0.0s h	

P10.08	VF 3	0.0% 100.0%	0.00%	
P10.09	VF	0.0% 200.0%	0.00%	
P10.10	VF	0 200	64	
P10.11	VF	0 100		
P10.12		0 4	3	
P10.13	VF	0 P10.14 1 2 AI1 3 4 5 6 PLC 7 PID 8 100.0%	0	
P10.14	VF	0V	0V	
P10.15	VF	0.0s 1000.0s 0V	0.0s	
P10.16	VF	0.0s 1000.0s 0V	0.0s	
P10.17	VF	0 / 0 1 0	0	
P10.18	VF	50 200%	150%	
P10.19	VF	0 1	1	
P10.20	VF	0 100	20	
P10.21	VF	50 200%	50%	
P10.22		650.0V ~800.0V	760.0V	
P10.23		0 1	0	
P10.24		0 100	30	

P	.25		100	30
	.26		0 50Hz	5Hz
P10.27				
P10.28				
P10.29				
P10.30				
P10.31				
P10.32				
P10.33				
P10.34	1		2	2
P10.35	1		0.1kW 1000.0kW	
P10.36	1	0	1V 2000V	
P10.37	1		0.01A ز	

> RP Oc R" ìÐ

		>55kW		
P10.52	1Q	0.01mH 655.35mH <=55kW 0.001mH 65.535mH >55kW		
P10.53	1	0 12	0	
P10.54	1	0.1V 6553.5V		
P10.55	1	0 60000	0	
P10.56~ P10.60				
P10.61				
P10.62				
P10.63				
P10.64				
P10.65				
P10.66				
P10.67				
P10.68				
P10.69				
P10.70				
P10.71		0 1 2 11 12	0	

6.11 2 P11

P11.00	2	2		2
P11.01		0.1kW 1000.0kW		
P11.02		1V 2000V		
P11.03		0.01A 655.35A	<=55kW	
		0.1A 6553.5A	>55kW	
P11.04		0.01Hz		
P11.05		1rpm 65535rpm		
P11.06				
P11.07				
P11.08				
P11.09				
P11.10				

P11.29			0	
P11.30				
P11.31				
P11.32			0	
P11.33			0.0 °	
P11.34				
P11.35			4	
P11.36				
P11.37		0 1 2 11 12	0	

6.12 1 P12

P12.00	1	1 100	30	
P12.01	1	0.01s 10.00s	0.50s	
P12.02	1	0.00 P02.05	5.00Hz	
P12.03	2	1 100	20	
P12.04	2	0.01s 10.00s	1.00s	
P12.05	2	P02.02	10.00Hz	
P12.06		50% 200%	100%	
P12.07				
P12.08		0 200	64	
P12.09		0 P12.10 1 2 AI1 3 4 5 6 7 1-7 P12.10	0	
P12.10		0.0% 200.0%	150.00%	

P12.11		0 P12.12 1 2 AI1 3 4 5 6 7 1-7 P12.12	0.00%	
P12.12		0.0% 200.0%	150.00%	
P12.13		0 60000	2000	
P12.14		0 60000	1300	
P12.15		0 60000	2000	
P12.16		0 60000	1300	
P12.17		0 1	0	
P12.18		0: 1: 2:	1	
P12.19		0 50	5	
P12.20		1% 300%	50%	
P12.21		10% 500%	100%	
P12.22		0 1	0	
P12.23		1% 50%	5%	
P12.24		50% 180%	80%	
P12.25		0,1,2	0	
P12.26				
P12.27		50 500	100	
P12.28		0,1	0	
P12.29		0	0	

P12.30	Kp	1 100	6	
P12.31	Ki	1 100	6	
P12.32	Z	0,1	1	
P12.33	SVC	10 1000	100	
P12.34	SVC	5 200	40	
P12.35	SVC	5 200	30	
P12.36	SVC	0 80%	30%	
P12.37	SVC	0.8K P08.15	1.5K	
P12.38		0,1	0	
P12.39		0 1000	200	
P12.40				
P12.41		0 80	50	
P12.42	SVC	0 1	0	
P12.43		0 1	0	
P12.44		0.00 P12.02	0.30Hz	
P12.45		1 100	10	
P12.46		0.01s 10.00s	0.50s	
P12.47		0 1	0	
P12.48		0.0 ° 10.0 °	0.8 °	
P12.49		0,1,2	0	
P12.50		0,1	0	
P12.51	SVC	0 360.0	0	

6.13 2 P13

P13.00	1	1 100	30	
P13.01	1	0.01s 10.00s	0.50s	
P13.02	1	0.00 P13.05	5.00Hz	
P13.03	2	1 100	20	
P13.04	2	0.01s 10.00s	1.00s	

P13.05	2	P13.02	10.00Hz	
P13.06		50% 200%	100%	
P13.07		0.000s 0.100s	0.000s	
P13.08		0 200	64	
P13.09		0 P13.10 1 2 AI1 3 4 5 6 7 1.7 P13.10	0	
P13.10		0.0% 200.0%	150.00%	
P13.11		0 P13.12 1 2 AI1 3 4 5 6 7 1.7 P13.12	0.00%	
P13.12		0.0% 200.0%	150.00%	
P13.13		0 60000	2000	
P13.14		0 60000	1300	
P13.15		0 60000	2000	
P13.16		0 60000	1300	
P13.17		0 1	0	

P13.18		0: 1: 2:	1	
P13.19		0 50	5	
P13.20				
P13.21				
P13.22		0,1	0	
P13.23	2	0 SVC 1 FVC 2 V/F	0	
P13.24	2	0 1 1 1 2 2 3 3 4 4	0	
P13.25		0.0% 0.1% 30.0%		
P13.26				
P13.27		0 100		
P13.28		1% 50%	5%	
P13.29		50% 180%	80%	
P13.30		0,1,2	0	
P13.31				
P13.32		50 500	100	
P13.33		0,1	0	
P13.34		0	0	
P13.35	Kp	1 100	6	
P13.36	Ki	1 100	6	
P13.37	Z	0,1	1	
P13.38	SVC	10 1000	100	
P13.39	SVC	5 200	40	

P13.40	SVC	5 200	30	
P13.41	SVC	0 80%	30%	
P13.42	SVC	0.8K P08.15	1.5K	
P13.43		0,1	0	
P13.44		0 1000	200	
P13.45				
P13.46		0 80	50	
P13.47	SVC	0 1	0	
P13.48		0 1	0	
P13.49		0.00 P12.02	0.30Hz	
P13.50		1 100	10	
P13.51		0.01s 10.00s	0.50s	

6.14 P14

P14.00		0 Modbus 1 2	0	
P14.01		MODBUS 0 300BPS 1 600BPS 2 1200BPS 3 2400BPS 4 4800BPS 5 9600BPS 6 19200BPS 7 38400BPS 8 57600BPS 9 115200BPS	5009	
P14.02	MODBUS	0 (8-N-2) 1 (8-E-1) 2 (8-O-1) 3 (8-N-1) (MODBUS)	3	
P14.03		1 247 0	1	

P14.04		0ms 20ms	2	
P14.05		0.0 0.1s 60.0s	0	
P14.06		MODBUS 0 MODBUS 1 MODBUS	31	
P14.07		0 0.01A 1 0.1A	0	
P14.08		0,1	0	
P14.09		0 60.0	0	

6.15 PID P15

P15.00	PID	0 P15.01 1 2 AI1 3 4 5 6	0	
P15.01	PID	0.0% 100.0%	50.00%	
P15.02	PID	0 1 AI1 2 3 4 5 6 7 8	0	
P15.03	PID	0 1	0	
P15.04	PID	0 65535	1000	
P15.05	Kp1	0.0 100.0	20	
P15.06	Ti1	0.01s 10.00s	2.00s	
P15.07	Td1	0.000s 10.000s	0.000s	
P15.08	PID	0.00	2.00Hz	

P15.09	PID	0.0% 100.0%	0.00%	
P15.10	PID	0.00% 100.00%	0.10%	
P15.11	PID	0.00 650.00s	0.00s	
P15.12	PID	0.00 60.00s	0.00s	
P5.13	PID	0.00 60.00s	0.00s	
P15.14		-	-	
P15.15	Kp2	0.0 100.0	20	
P15.16	Ti2	0.01s 10.00s	2.00s	
P15.17	Td2	0.000s 10.000s	0.000s	
P15.18	PID	0 1 DI 2 3	0	
P15.19	PID 1	0.0% P15.20	20.00%	
P15.20	PID 2	P15.19 100.0%	80.00%	
P15.21	PID	0.0% 100.0%	0.00%	
P15.22	PID	0.00 650.00s	0.00s	
P15.23		0.00% 100.00%	1.00%	
P15.24		0.00% 100.00%	1.00%	
P15.25	PID	0 1 0 1	0	
P15.26	PID	0.0% 0.1% 100.0	0.00%	
P15.27	PID	0.0s 20.0s	0.0s	
P15.28	PID	0 1	0	

6.16 P16

P16.00	VDI1	0 59	0	
P16.01	VDI2	0 59	0	
P16.02	VDI3	0 59	0	
P16.03	VDI4	0 59	0	
P16.04	VDI5	0 59	0	
P16.05	VDI	0 VDOx VDI 1 P16.06 VDI VDI1 VDI2 VDI3 VDI4	0	
P16.06	VDI	0 1 VDI1 VDI2 VDI3 VDI4 VDI5	0	
P16.07	AI1 DI	0 59	0	
P16.08	AI2 DI	0 59	0	
P16.09	AI3 DI	0 59	0	
P16.10	AI DI	0 1 AI1	0	
P16.11	VDO1	0 DIx 1 40 P04 DO	0	

P16.12	VDO2	0 DIx 1 40 P04 DO	0	
P16.13	VDO3	0 DIx 1 40 P04 DO	0	
P16.14	VDO4	0 DIx 1 40 P04 DO	0	
P16.15	VDO5	0 DIx 1 40 P04 DO	0	
P16.16	VDO1	0.0s 3600.0s	0.0s	
P16.17	VDO2	0.0s 3600.0s	0.0s	
P16.18	VDO3	0.0s 3600.0s	0.0s	
P16.19	VDO4	0.0s 3600.0s	0.0s	
P16.20	VDO5	0.0s 3600.0s	0.0s	
P16.21	VDO	0 1 VDO1 VDO2 VDO3 VDO4 VDO5	0	

6.17 P19

P19.00	AI 4	-10.00V P19.02	-10.00V	
P19.01	AI 4	-100.0% +100.0%	-100.0%	
P19.02	AI 4 1	P19.00 P19.04	3.00V	
P19.03	AI 4 1	-100.0% +100.0%	30.00%	
P19.04	AI 4 2	P19.02 P19.06	6.00V	
P19.05	AI 4 2	-100.0% +100.0%	60.00%	
P19.06	AI 4	P19.04 +10.00V	10.00V	
P19.07	AI 4	-100.0% +100.0%	100.00%	
P19.08	AI 5	-10.00V P19.10	-10.00V	
P19.09	AI 5	-100.0% +100.0%	-100.00%	

P19.10	AI	5	1	P19.08 P19.12	-3.00V	
P19.11	AI	5	1	-100.0% +100.0%	-30.00%	
P19.12	AI	5	2	P19.10 P19.14	3.00V	
P19.13	AI	5	2	-100.0% +100.0%	30.00%	
P19.14	AI	5		P19.12 +10.00V	10.00V	
P19.15	AI	5		-100.0% +100.0%	100.00%	
P19.16~ P19.23						
P19.24						
P19.25						
P19.26	AI1			-100.0% 100.0%	0.00%	
P19.27	AI1			0.0% 100.0%	0.50%	
P19.28						
P19.29						
P19.30						
P19.31						
P19.32						
P19.33						
P19.34	AI1		1	-10.000V 10.000V		
P19.35	AI1		1	-10.000V 10.000V		
P19.36	AI1		2	-10.000V 10.000V		
P19.37	AI1		2	-10.000V 10.000V		
P19.38						
P19.39						
P19.40						
P19.41						
P19.42	AO1		1	0.500V 4.000V		
P19.43	AO1		1	0.500V 4.000V		
P19.44	AO1		2	6.000V 9.999V		
P19.45	AO1		2	6.000V 9.999V		

P19.46				
P19.47				
P19.48				
P19.49				

6.18 P20

P20.00	/	0 1	0	
P20.01		0 1 P20.03 1 2 AI1 3 4 5 6 7 1-7 P20.03	0	
P20.02				
P20.03		-200.0% 200.0%	150.00%	
P20.04		0 10.00	0.00%	
P20.05		0.00Hz	50.00Hz	
P20.06		0.00Hz	50.00Hz	
P20.07		0.00s 650.00s	0.00s	
P20.08		0.00s 650.00s	0.00s	

6.19 P21

P21.00		0.00Hz	2.00Hz	

P21.01		0.0s	6500.0s		20.0s
P21.02		0.0s	6500.0s		20.0s
P21.03	2	0.0s	6500.0s		
P21.04	2	0.0s	6500.0s		
P21.05	3	0.0s	6500.0s		
P21.06	3	0.0s	6500.0s		
P21.07	4	0.0s	6500.0s		
P21.08	4	0.0s	6500.0s		
P21.09	1	0.00Hz			0.00Hz
P21.10	2	0.00Hz			0.00Hz
P21.11		0.00Hz			0.00Hz
P21.12		0.0s	3000.0s		0.0s
P21.13		0	1 ¡	√	($

λ E

P21.28	FDT2	0.00Hz	50.00Hz	
P21.29	FDT2	0.0% 100.0% FDT2	5.00%	
P21.30	1	0.00Hz	50.00Hz	
P21.31	1	0.0% 100.0%	0.00%	
P21.32	2	0.00Hz	50.00Hz	
P21.33	2	0.0% 100.0%	0.00%	
P21.34		0.0% 300.0% 100.0%	5.00%	
P21.35		0.01s 600.00s	0.10s	
P21.36		0.0% 0.1% 300.0%	200.00%	
P21.37		0.00s 600.00s	0.00s	
P21.38	1	0.0% 300.0%	100.00%	
P21.39	1	0.0% 300.0%	0.00%	
P21.40	2	0.0% 300.0%	100.00%	
P21.41	2	0.0% 300.0%	0.00%	
P21.42		0: 1:	0	
P21.43		0 P21.44 1 AI1 2 AI2 3 AI3 P21.44	0	
P21.44		0.0Min 6500.0Min	0.0Min	
P21.45				
P21.46				
P21.47		0 100	75	
P21.48		0 1	0	
P21.49		P08.51 P08.10	0.00Hz	

P21.50		P 0.0s 6500.0s	0.0s	
P21.51		0.00Hz P21.49	0.00Hz	
P21.52		0.0s 6500.0s	0.0s	
P21.53		0.0Min 6500.0Min	0.0Min	
P21.54		0.00% 200.0%	100.00%	
P21.55		0~200%	100.00%	
P21.56		0,1	0	
P21.57	DPWM	5.00Hz P08.10	12.00Hz	
P21.58	PWM	0 1	0	
P21.59		0 1 1	1	
P21.60	PWM	0 PWM 1 10 PWM	0	
P21.61		0 1	1	
P21.62		100 120	110	
P21.63		60.0V 1100.0V		
P21.64				
P21.65		100% 200%	150%	
P21.66		200.0V 2200.0V		

6.20 P23

P23.00	(Hz)	0.01Hz	7000H	
P23.01	(Hz)	0.01Hz	7001H	
P23.02	(V)	0.1V	7002H	
P23.03	(V)	1V	7003H	
P23.04	(A)	0.01A	7004H	
P23.05	(kW)	0.1kW	7005H	
P23.06	(%)	0.10%	7006H	
P23.07	DI	1	7007H	

P23.08	DO	1	7008H	
P23.09				
P23.10	AI1 V / mA	0.01V/0.01mA	700AH	
P23.11				
P23.12		1	700CH	
P23.13		1	700DH	
P23.14		1	700EH	
P23.15	PID	1	700FH	
P23.16	PID	1	7010H	
P23.17	PLC	1	7011H	
P23.18				
P23.19	(Hz)	0.01Hz	7013H	
P23.20		0.1Min	7014H	
P23.21				
P23.22	AI1 V	0.001V/0.01mA	7016H	
P23.23				
P23.24		1m/Min	7018H	
P23.25		1Min	7019H	
P23.26		0.1Min	701AH	
P23.27				
P23.28		0.01%	701CH	
P23.29		0.01Hz	701DH	
P23.30	X	0.01Hz	701EH	
P23.31	Y	0.01Hz	701FH	
P23.32		1	7020H	
P23.33			7021H	
P23.34				
P23.35	(%)	0.10%	7023H	
P23.36		100.00%	7024H	
P23.37		0.1 °	7025H	

P23.38	ABZ	1	7026H	
P23.39	VF	1V	7027H	
P23.40	VF	1V	7028H	
P23.41	DI	1	7029H	
P23.42	DO	1	702AH	
P23.43	DI	1	702BH	
P23.44	DO	1	702CH	
P23.45		1	702DH	
P23.46			702EH	
P23.47~ P 23.57				
P23.58	Z	100.00%	703AH	
P23.59	(%)	0.01%	703BH	
P23.60	(%)	0.01%	703CH	
P23.61		1	703DH	
P23.62		1	703EH	
P23.63		0.01%	703FH	
P23.64		1	7040H	
P23.65		0.01%	7041H	
P23.66				
P23.67				
P23.68				
P23.69				
P23.70	1RMP			
P23.71				
P23.72				
P23.73				
P23.74		0.1V	704AH	

7

7.1 P0

P00.00			0
		0 65535	

P00.00

P00.00 00000

P00.01		0
	0	
	1	
	2	

000

P00.02			11
			P23,P27
		0	
		1	
			P11,P13,P16,P19,P20,P21
		0	
		1	

P00.04			0
		0	
		1	

0 1

7.2 P2

P02.01	F2		0
		0	F2
		1	
		2	
		3	
		4	

F2 F2

0

1

2

F2

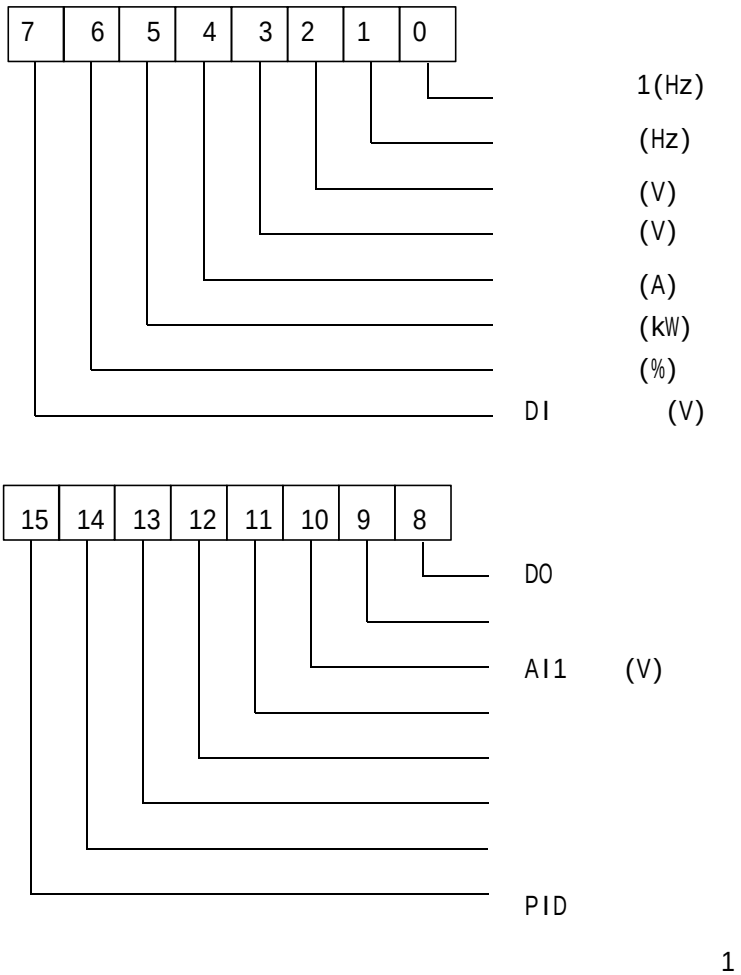
3

F2 FJOG

4

F2 RJOG

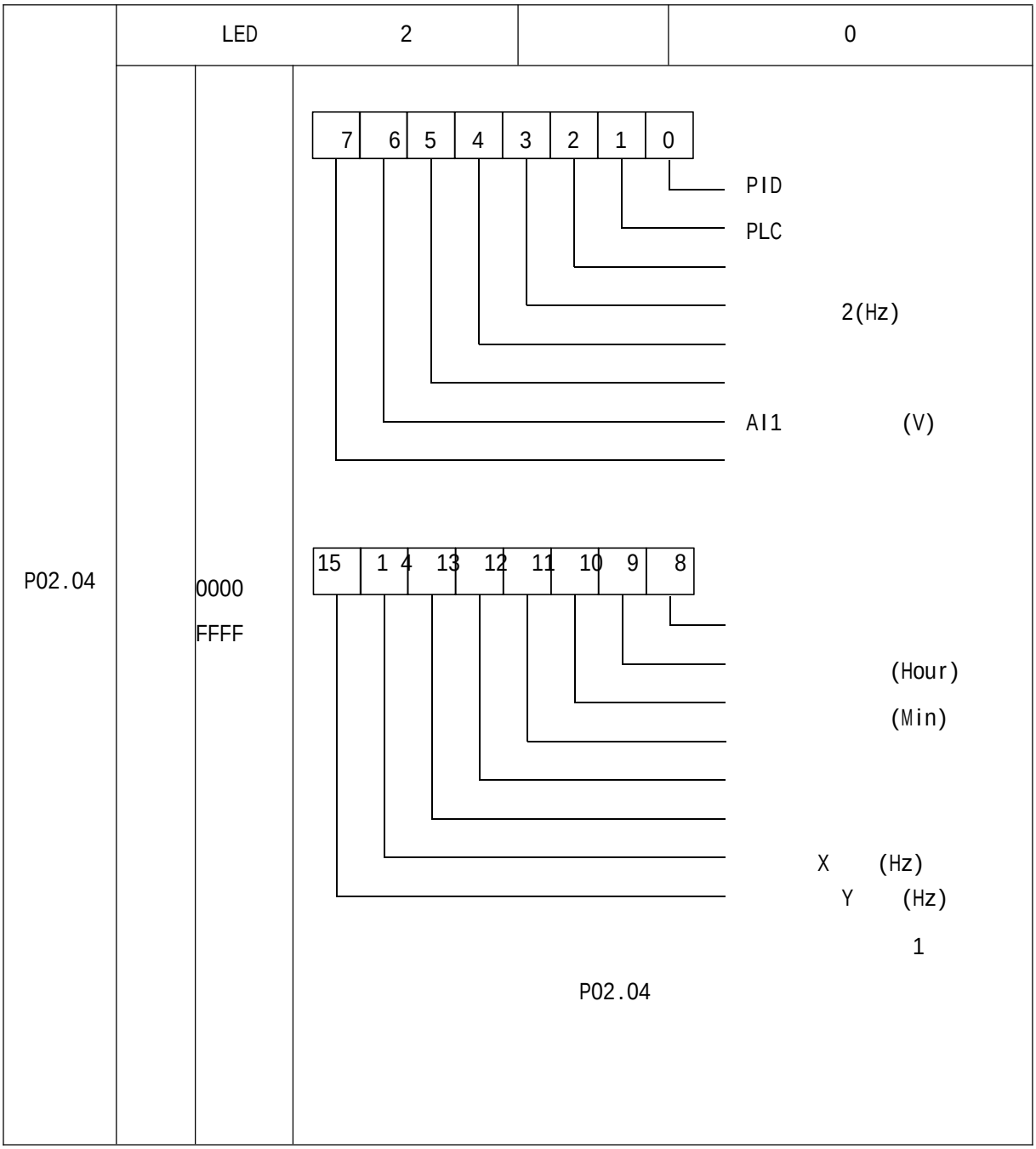
	LED	1		1F
P02.03		0000 FFFF		



1

P02.03

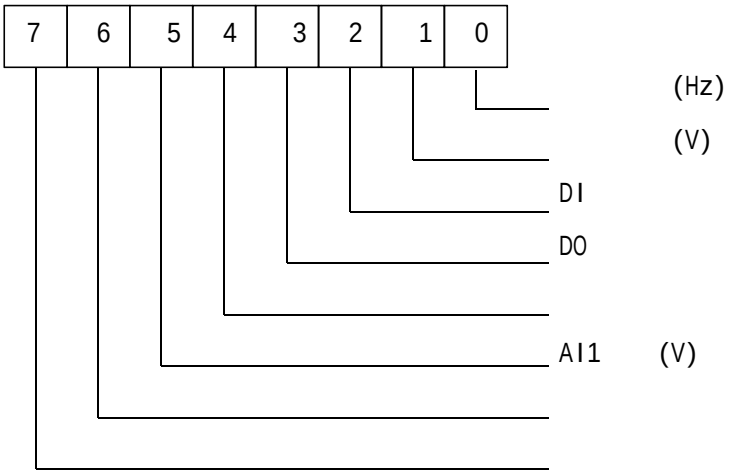
P02.02	STOP/RESET		1
		0	,STOP/RES
		1	,STOP/RES



32 P02.03 P02.04

P02.03

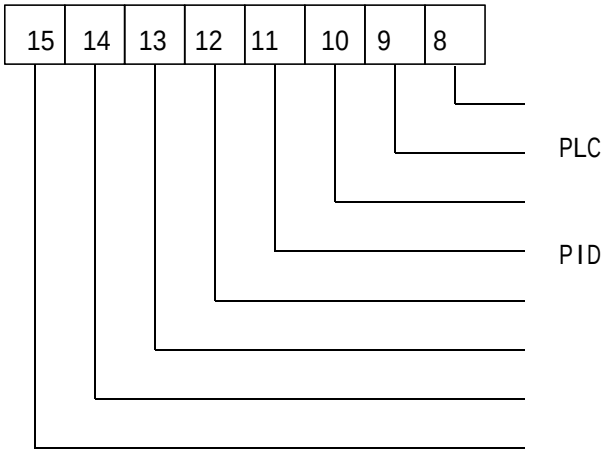
	LED		0



P02.05

0000

FFFF



1

P02.05

P02.06			1.0000
		0.0001 6.5000	

P02.12

P02.07			0
		0.0 100.0	

IGBT

IGBT

P02.09			0h
		0h 65535h	

P21.17

12 ON mm'm'ʎn m¯"ɤ ŋm"

P02.11			
P02.12			1
		0	0
		1	1
		2	2
		3	3

P21.17 24 ON

P02.14			-
		0 65535	

7.3 P3

HF631NLC 3 1

P03.00	DI1	1	
P03.01	DI2	4	
P03.02	DI3	9	
P03.03			
P03.04			
P03.05			
P03.06			
P03.07			
P03.08			
P03.09			

0		“ ”
1	FWD	

2	REV	
3		P03.01 “ ”
4	FJOG	FJOG RJOG
5	RJOG	P21.00 P21.01 P21.02
6	UP	
7	DOWN	
8		P08.38
9	RESET	RESET
10		PLC PID
11		E015 P07.47
12	1	16 16 16
13	2	
14	3	
15	4	
16	1	4 4
17	2	
18		P08.07
19	UP/DOWN	UP/DOWN UP/DOWN P08.08
20		P08.02=1

		P08.02=2
21		
22	PID	PID PID
23	PLC	PLC PLC
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		E015
34		
35	PID	PID P15.03
36	1	STOP
37	2	
38	PID	PID PID
39	X	X P08.08

Y

Y P08.08

40

41 1 4 4

42 2

PID DI P15.18=1

43 PID PID P15.05 P15.07

P15.15 P15.17

44 1 1 2 E027 E028

P07.49

6	1	0	1	0
7	0	1	1	0
8	1	1	1	0
9	0	0	0	1
10	1	0	0	1
11	0	1	0	1
12	1	1	0	1
13	0	0	1	1
14	1	0	1	1
15	0	1	1	1
16	1	1	1	1

0 OFF 1 ON

2	1		
OFF	OFF	1	P08.17 P08.18
OFF	ON	2	P21.03 P21.04
ON	OFF	3	P21.05 P21.06
ON	ON	4	P21.07 P21.08

2	1		
OFF	OFF	1	P10 P12
OFF	ON	2	P11

P03.10	DI		0.010s
		0.000s 1.000s	

DI

DI

Dly	2	REV
DIn	3	

DIn DIx Dly

DIn DIx Dly DIn DI1 DI10

DIx Dly DIn

3 2 DIn DIx Dly

DIx	1	FWD
Dly	2	REV
DIn	3	

DIn DIx Dly

DIn DIx Dly DIn DI1 DI10

DIx Dly DIn

P03.12	UP/DOWN		1.00Hz/s
		0.01Hz/s 65.535Hz/s	

UP/DOWN

P8.22 2 0.001Hz/s 65.535Hz/s P8.22

1 0.01Hz/s 655.35

P03.15	DI1		0.0s
		0.0s 3600.0s	
P03.16	DI2		0.0s
		0.0s 3600.0s	
P03.17	DI3		0.0s

		0.0s 3600.0s

DI

DI1 DI2 DI3

P03.13	DI	1		00000
			DI1	
		0		
		1		
			DI2	0 1
			DI3	0 1

DI COM

DI COM

7.4 P4

HF631NLC 1 (AO1) 1

(DO1) 2

P04.02	1		2
P04.03	2		0
P04.04	DO1		1

3 3

0		

1		ON
2		ON
3	FDT1	P21.19 P21.20
4		P21.21
5		0 ON OFF
6		ON P07.00 P07.02
7		10s ON
8		P09.08 ON
9		P09.08 ON P9
10		P09.05 ON
11	PLC	PLC 250ms
12		P21.17 ON
13		ON
14		ON
15		ON
16		

17		ON
18		ON OFF
19		ON
20		
21		
22		
23	2	0 ON ON
24		P02.13 P21.16 ON
25	FDT2	P21.28 P21.29
26	1	P21.30 P21.31
27	2	P21.32 P21.33
28	1	P21.38 P21.39
29	2	P21.40 P21.41
30		P21.42 ON
31		
32		ON
33		ON
34		P21.28 P21.29
35		P02.07) P21.47 ON P21.47 ON
36		P21.36 P21.37
37		ON ON

38		
40		P21.53 ON

P04.07	1		0.0s
		0.0s 3600.0s	
P04.08	2		0.0s
		0.0s 3600.0s	
P04.09	DO1		0.0s
		0.0s 3600.0s	

1 2 DO1

P04.11	DO		00000
			1
		0	
		1	
			2 0 1
			DO1 0 1

1 2 DO1

0

7.5 P5

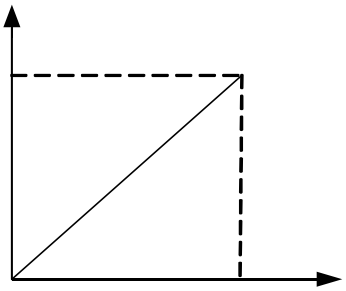
P05.00	AI 1		-10.00V
		-10.00V P05.02	

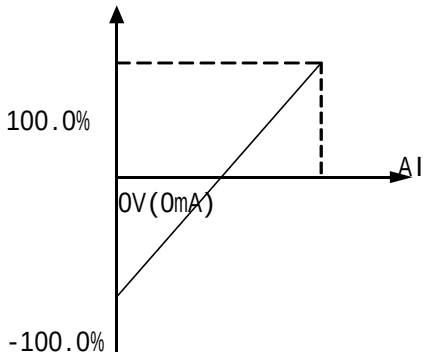
P05.01	AI 1		-100.00%
		-100.00% 100.0%	
P05.02	AI 1		10.00V
		P05.00 10.00V	
P05.03	AI 1		100.0%
		-100.00% 100.0%	
P05.04	AI1		0.10s
		0.00s 10.00s	

“ ” P05.02 “
” “ ” P05.00
“AI ” P05.21 0.0%
1mA 0.5V

AI1 AI1

100.0%





P05.05	AI 2		-10.00V
		-10.00V P05.07	
P05.06	AI 2		-100.00%
		-100.00% 100.0%	
P05.07	AI 2		10.00V
		P05.05 10.00V	
P05.08	AI 2		100.0%
		-100.00% 100.0%	
P05.09	AI2		0.10s
		0.00s 10.00s	

HF631NLC 1

AI 000

AI1

P05.21

5		0 1.2
6	PULSE	0.01kHz 50.00kHz
7		
8	AI1	0V 10V 0 20mA
9		
10		0
11		0
12		0.0% 100.0%
13		0
14		0.0A~1000.0A
15		0.0V~1000.0V
16	( )	-2 2

P06.04	AO1		0.0%
		-100.0% +100.0%	
P06.05	AO1		1.00
		-10.00 +10.00	

AO

“ b ” k Y X

Y=kX b

AO1 100% 10V 20mA

0V 10V 0mA 20mA

0 8V

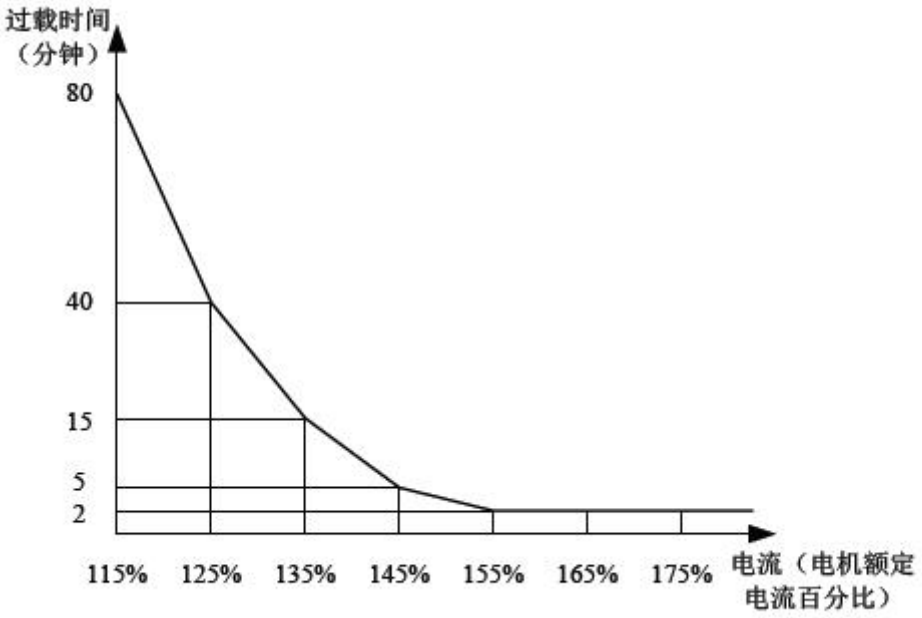
3V “ -0.50 ”, “ 80% ”

7.7 P7

P07.00			1
		0	
		1	
P07.01			1.00
			0.20 10.00

P07.00=0

P07.00=1



120% 30

30 Ix

30 125% 135%

30 Ix (40-30) ÷ (125%-Ix)=(40-15) ÷ (125%-135%)

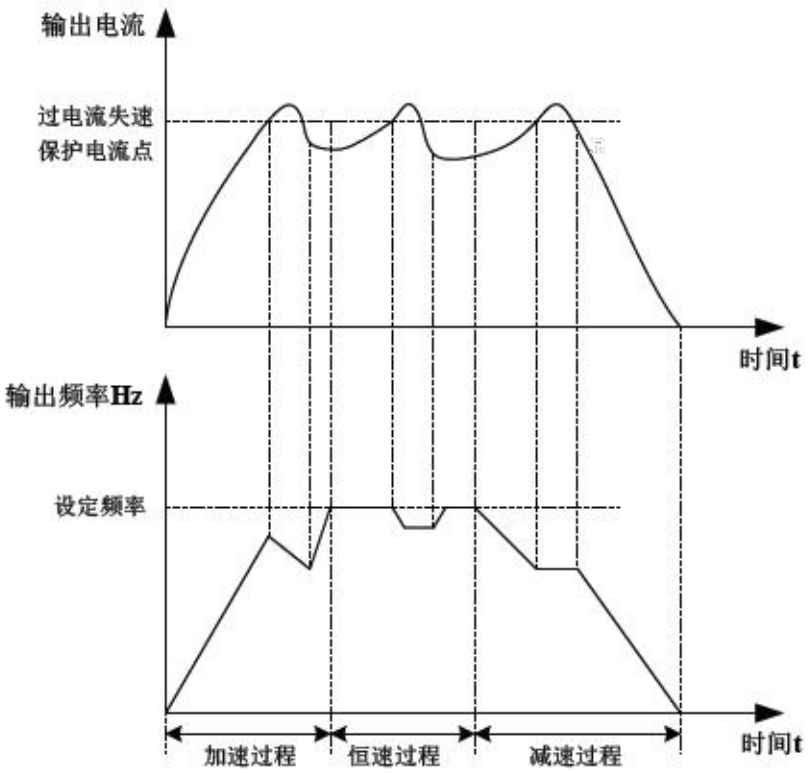
Ix=129% 120% 30

P07.01=120% ÷ Ix=120% ÷ 129%=0.93

P07.01

80%

20 0



P07.07			11
P07.08			
		200.0V~2000.0V	

UVW

P07.09			0
		0 20	

DO 1

P07.10

P07.20

BI T9	BI T8	BI T7	BI T6	BI T5	BI T4	BI T3	BI T2	BI T1	BI T0
							DI 3	DI 2	DI 1

ON 1 OFF

0 DI

P07.21

BIT4	BIT3	BIT2	BIT1	BIT0
	DO1			

2 1

ON 1 OFF

0 DI

P07.22

P07.23

P07.24

P07.27

P07.28

P07.29

P07.30

P07.17 P07.24

P07.43		
P07.44		

P07.47	1		00000
			E011
		0	
		1	
		2	
			E113
			E114
			E015
			E0202
P07.48	2		00000
			E118
		0	
		1	VF
		2	VF
			E021
		0	
		1	
			E111 P07.47
			E045 P07.47
			E026 P07.7
P07.49	3		00000

1 E027 P07.47

2 E028 P07.47

E029 P07.47

		0% 100.0%

A** P07.54

P07.55

P07.63			0
		0	
		1	
P07.64			10.0%
		0.0% 100.0%	
P07.65			1.0s
		0.0s 60.0s	

P07.64

P07.65 7%

P07.67			15.0%
		0.0% 50.0%	
P07.68			1.0s
		0.0s 60.0s	

P07.67

P07.68 E115

P07.69			20.0%
		0.0% 50.0%	
P07.70			2.0s

		0.0s 60.0s

P07.69 P07.70 E119

0.0s

7.8 P8

1 0

0 SVC

P08.01

1 FVC

2 V/F

0 “LOCAL” RUN STOP

1 “LOCAL” FWD( ) REV( ) FJOG( ) RJOG( )

2 “LOCAL”

P08.03	X		0
		0	P08.08 UP/DOWN
		1	P08.08 UP/DOWN
		2	
		3	AI1
		4	
		5	
		6	
		7	PLC
		8	PID
		9	

10

0

P08.08 “ ” ▲ ▼

UP DOWN

P08.08 “ ”

1

P08.08 “ ” ▲ ▼

UP DOWN

▲ ▼

UP DOWN

P08.23 “ ” P08.23

P08.23

2

3 AI1

4

HF631NLC 1 AI1

AI1 -10V 10V 0/ 4mA 20mA J1

AI1 HF631NLC 5
3 2 2 4
P05 P19
P05.20 AI1 5 5
, P05 P19

5

6 DI
HF631NLC 4 4 16
P09 16 “ ” “ ” P08.10

DI P3
P3

7 PLC
PLC 1~16
1~16 P9

8 PID
PID

PID P15 “PID ”

9

P08.04	Y		0
		0	P08.08 UP/DOWN
		1	P08.08 UP/DOWN
		2	
		3	AI1
		4	
		5	

		6	
		7	PLC
		8	PID
		9	

X Y

X P08.03

X+Y X X+Y Y X+Y

1 P08.08 ▲
▼ UP DOWN

2 AI1 100%
P08.05 P08.06
Y X P08.03 P08.04

P08.05	Y		0
	0		
	1		X
P08.06	Y		0
			0% 150%

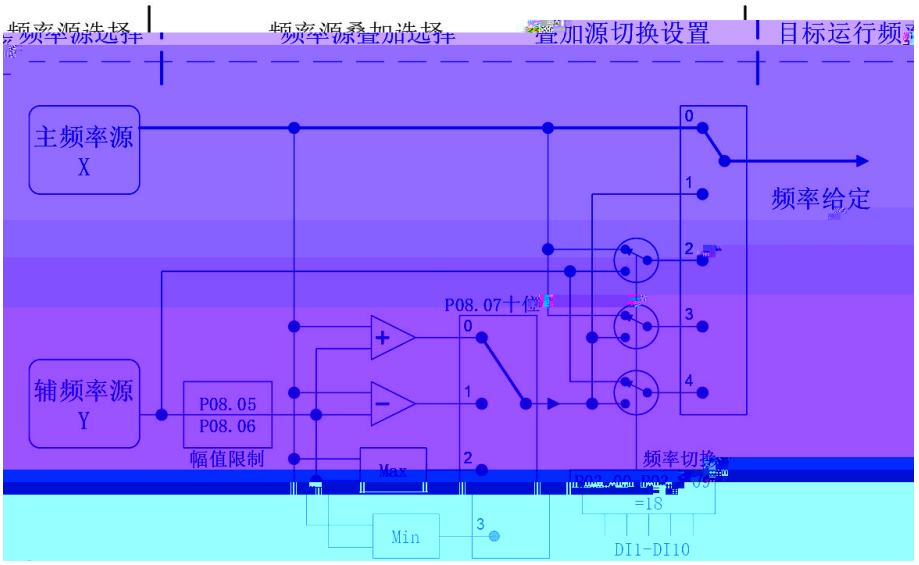
“ ” P08.07 1 3 4

P08.05
X X

P08.07			0
	0		X
	1		

		2	X Y
		3	X
		4	Y
		0	+
		1	-
		2	
		3	

X Y



0 X

X

1 “ ”

2 X Y 18

X 18

Y

3 X 18

X 18

4 Y 18

Y 18

0 X+ Y

X Y

1 X- Y

X Y

2 MAX X Y X Y

P08.08			50.00Hz
		0.00	

“ ” “ UP/DOWN ”

P08.09				0
		0		
		1		

U V W

P08.10			50.00 Hz
		5.00Hz 500.00Hz	

HF631NLC DI5 100.0%

P08.10

HF631NLC 500Hz

P08.22

P08.22 1 0.1Hz P08.10 50.0Hz 500.0Hz

P08.22 2 0.01Hz P08.10 50.00Hz 500.00Hz

P08.11			0
		0	P08.12
		1	
		2	AI1

		3	
		4	
		5	

P08.12
100% P08.12

“ ”

P08.12			50.00Hz
		P08.14	P08.10
P08.13			0.00Hz
		0.00Hz	P08.10

PULSE P08.13
P08.11

P08.14			0.00Hz
		0.00Hz	P08.12

P08.14
P21.14

P08.15			
		0.5kHz 16.0kHz	

	→
	→
	→
	→

	→
	→
	→

0

P08.16

0
1

P21.03 P21.04
P21.05 P21.06
P21.07 P21.08

P08.19			1
	0	1	
	1	0.1	
	2	0.01	

HF631NLC 3 1 0.1 0.01

P8

P08.21			0.00Hz
		0.00Hz	P08.10

P8.21

P08.23			0
	0		
	1		

“ ” P08.08

▲ ▼ UP DOWN

“ ” ▲

▼ UP DOWN

P08.24			0
	0	1	
	1	2	

HF631NLC 2 2

1 P10 P12 2 P11 P13

P08.24 DI

P08.25			0
		0	P08.10
		1	
		2	100Hz

P08.25

P08.25 1

P08.26	UP/DOWN		0
		0	
		1	

▲ ▼ UP/DOWN

P08.27			0
		0	
		1	
		2	
		3	AI1
		4	
		5	
		6	
		7	PLC

		8	PID
		9	
			0 9
			0 9

X P08.03 P08.03

P08.03~ P08.07

P08.28			0
		0	
		1	
		2	

0

0

0

1
2

P08.31			0.00Hz
		0.00Hz 10.00Hz	
P08.32			0.0s
		0.0s 100.0s	

P08.31

PLC

1

P08.31 0
P08.08 2.00Hz 2.00Hz
P08.31 5.00Hz 5.00Hz
P08.32 2.0s 2.0s
0.00Hz
2
P08.03 0
P08.08 10.00Hz 10.00Hz
P08.31 5.00Hz 5.00Hz
P08.32 2.0s 2.0s
5.00Hz 2.0s 10.00Hz

P08.33			0%
		0% 100%	
P08.34			0.0s
		0.0s 100.0s	

0

P08.35			0
		0	
		1	S A
		2	S B

0

1 S A S

S P08.36 P08.37

S

$$t = (\frac{4}{9} \times (\frac{f}{f_b})^2 + \frac{5}{9}) \times T$$

f f b T 0 f b

P08.36	S		30.0%
		0.0%	100.0%- P08.37
P08.37	S		30.0%
		0.0%	100.0%- P08.36

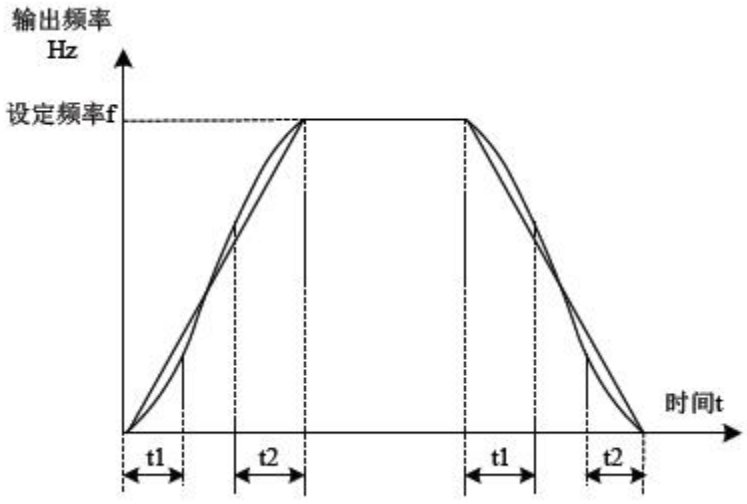
P08.36 P08.37 S A

P08.36 + P08.37 ≤ 100.0%

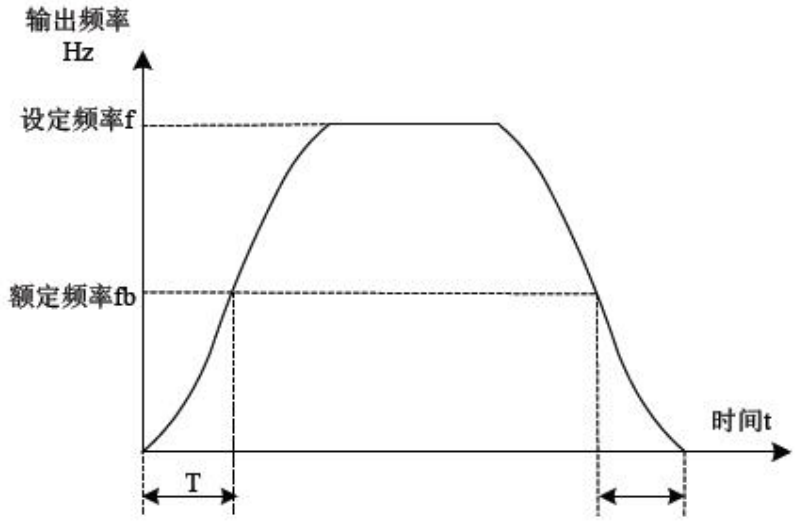
t1 P08.36

t2 P08.37 0

t1 t2



S A



S B

P08.38			0
		0	
		1	

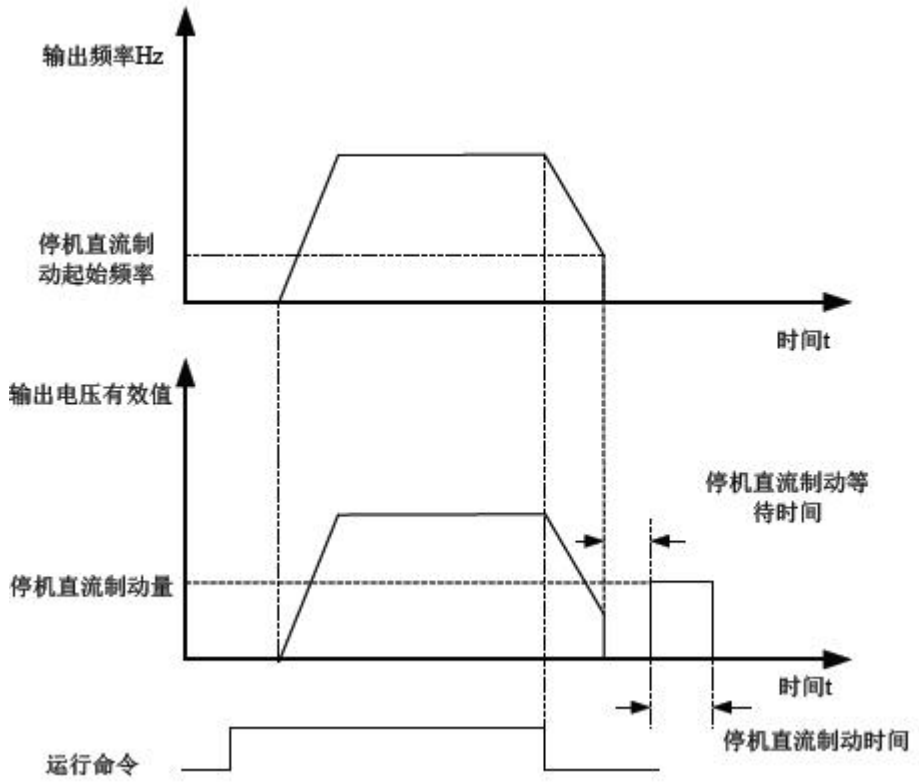
0 0

1

P08.39			0.00Hz
		0.00Hz	
P08.40			0.0s
		0.0s 36.0s	
P08.41			0%
		0% 100%	
P08.42			0.0s
		0.0s 36.0s	

1 80%

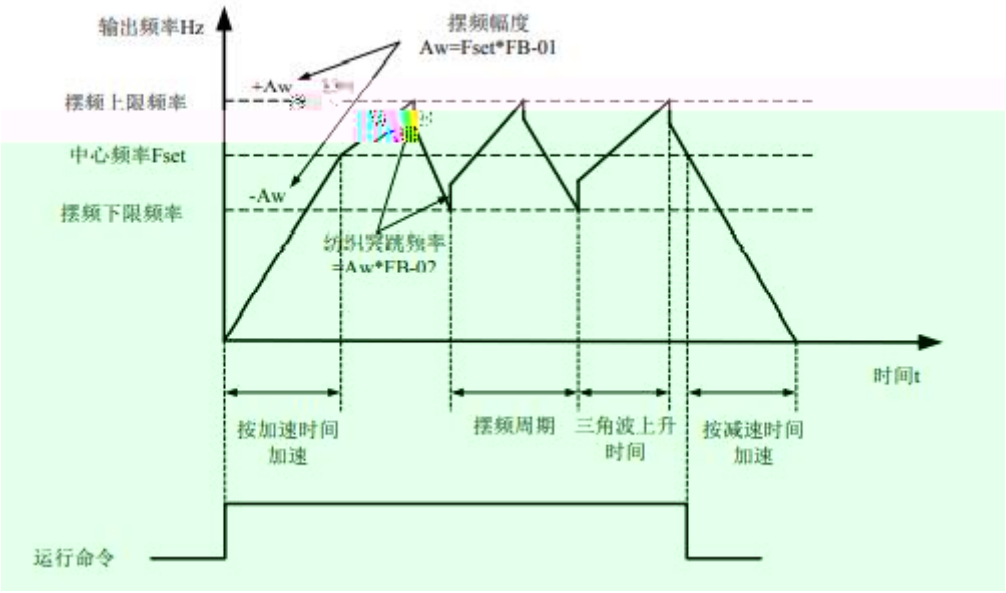
2 80% 80%



P08.43			100%
		0% 100%	

7.9 P9

P09.00 P09.01 P09.01 0 0



P09.00			0
		0	
		1	

0

1

P09.01			0.0%
		0.0% 100.0%	
P09.02			0.0%
		0.0% 50.0%	

P09.00=0 AW × P09.01

P09.00=1 AW × P09.01

AW × P09.02 02 P09.00=0
P09.00=1

P09.03			10.0s
		0.0s 3000.0s	
P09.04			50.0%
		0.0% 100.0%	

P09.04 P09.03
P09.03 × P09.04
P09.03 × 1 P09.04

P09.05		1000m
	0m 65535m	
P09.06		0m
	0m 65535m	
P09.07		100.0
	0.1 6553.5	

P09.08			1000
		1 65535	
P09.09			1000
		1 65535	

“

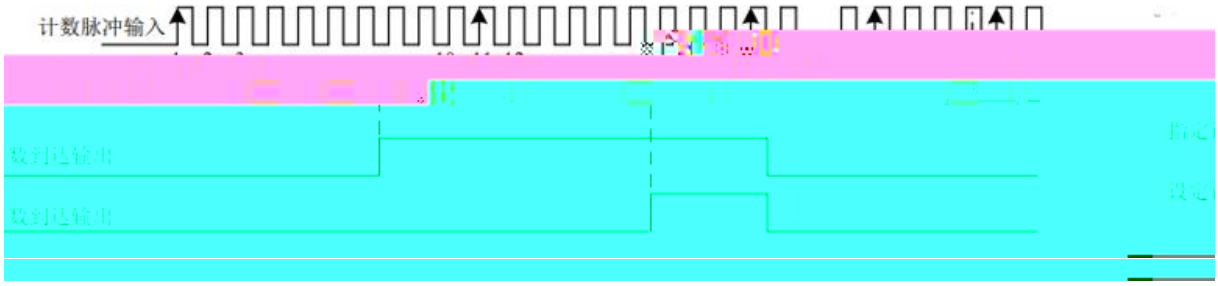
” 25 DI5

P09.08 DO “ ” ON

P09.09 DO “ ” ON

“ ”

P09.09 P09.08



HF631NLC

VF PID

PLC

P09.10	0		0.0%
		-100.0% 100.0%	
P09.11	1		0.0%
		-100.0% 100.0%	
P09.12	2		0.0%
		-100.0% 100.0%	
P09.13	3		0.0%
		-100.0% 100.0%	

	4		0.0%
P09.14			
		-100.0%	100.0%
	5		0.0%
P09.15			
		-100.0%	100.0%
	6		0.0%
P09.16			
		-100.0%	100.0%
	7		0.0%
P09.17			
		-100.0%	100.0%
	8		0.0%
P09.18			
		-100.0%	100.0%
	9		0.0%
P09.19			
		-100.0%	100.0%
	10		0.0Hz
P09.20			
		-100.0%	100.0%
	11		0.0%
P09.21			
		-100.0%	100.0%
	12		0.0%
P09.22			
		-100.0%	100.0%
	13		0.0%
P09.23			
		-100.0%	100.0%
	14		0.0%
P09.24			
		-100.0%	100.0%
	15		0.0%
P09.25			
		-100.0%	100.0%

VF PID

-100.0%~100.0%

VF

PID PID

DI P3

7.10 V/F 1 P10

P10.35			
		0.1kW 1000.0kW	
P10.36			
		1V 2000V	
P10.37			
		0.01A 655.35A <=55kW 0.1A 6553.5A >55kW	
P10.38			
		0.01Hz	
P10.39			
		1rpm 65535rpm	

VF

VF

P10.50			
		0.001Ω 65.535Ω <=55kW 0.0001Ω 6.5535Ω >55kW	
P10.51	D		

		0.01 655.35m	<=55kW
		0.00 65.535	>55kW
	Q		
P10.52			
		0.01mH 655 H	<=55kW
		0.001mH 535mH	>55kW
P10.54			
		0.1V 6553.5V	

P10.50~10.54

“

” “ ” P10.50~10.54 4 “

” P10.54

1 Ke E=(Ke* *2*pi)/60

2) E'(V/1000r/min) E=E'* /1000

3) E=P/(1.65*I)

(rpm) P3 (w) I (A)

“ ” A064

P10.50~10.54

0

0

P10.71

11

12

RUN

0 ا لم ة طي

11

12

40%

7.11 P21

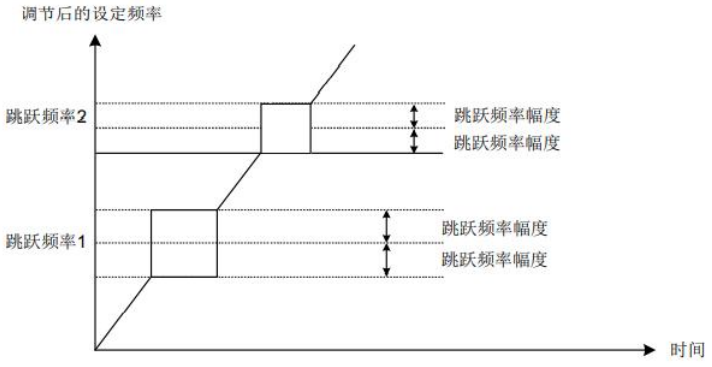
P21.00			2.00Hz
			0.00Hz
P21.01			20.0s
			0.0s 6500.0s
P21.02			20.0s
			0.0s 650000s

P21.07	4		20.0s
		0. 0s 6500.0s	
P21.08	4		20.0s
		0. 0s 6500.0s	

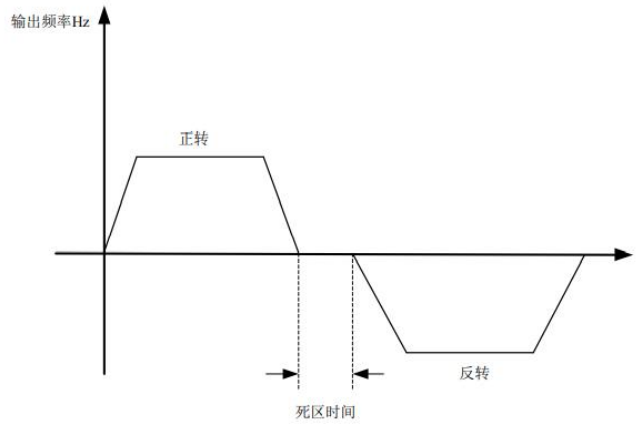
HF631NLC 4 P08.17\P08.18 3
4 P08.17 P08.18
DI 4
P03.01 P03.05

P21.09	1		0.00Hz
		0.00Hz	
P21.10	2		0.00Hz
		0.00 Hz	
P21.11			0.00Hz
		0.00	

HF631NLC 0



P21.12			0.0s
		0.00s 3000.0s	



0Hz

P21.13			0
		0	
		1	

P21.13=1

P21.14			0
		0	
		1	
		2	

HF631NLC

P21.15			0.0%
		0.0% 100.0%	

0

P21.15

= × (%) × (%)

P21.15 = 10.0% 50Hz 50%

= 50Hz × 50% × 10%=2.5Hz

= 50Hz – 2.5Hz = 47.5Hz

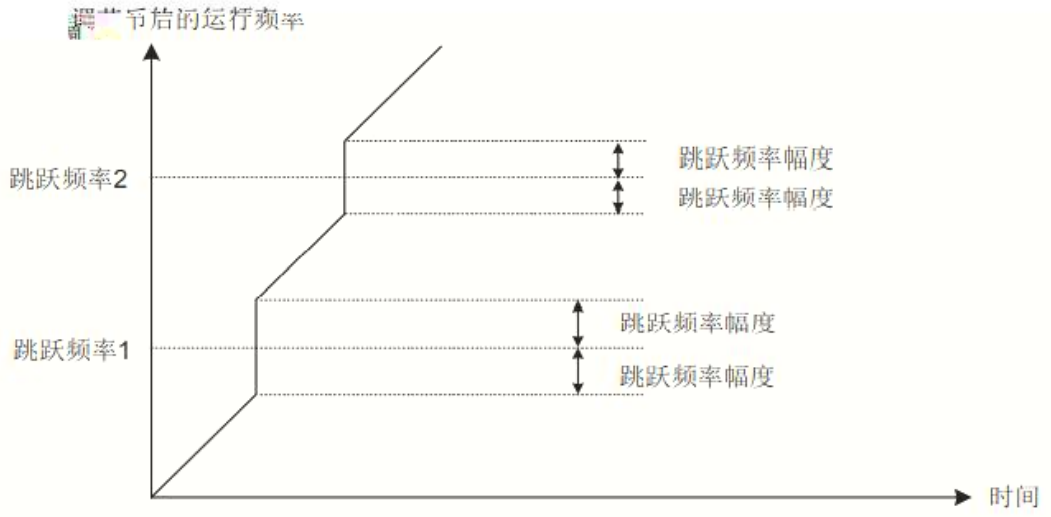
P21.18			1
		0 1	

1

1

1

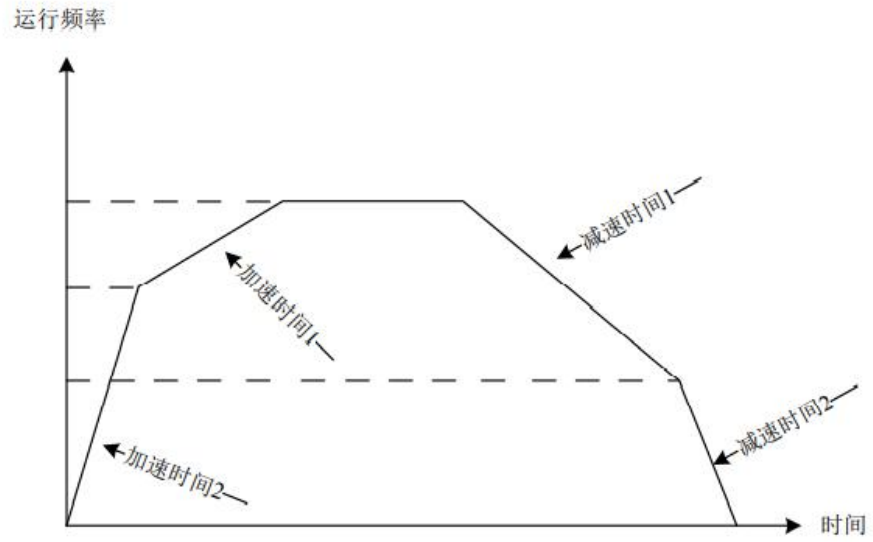
P21.22			0
		0 1	



P21.25	1 2		0.00Hz
		0.00Hz	
P21.26	1 2		0.00Hz
		0.00Hz	

1 DI

DI



P21.25

2 P21.25 1

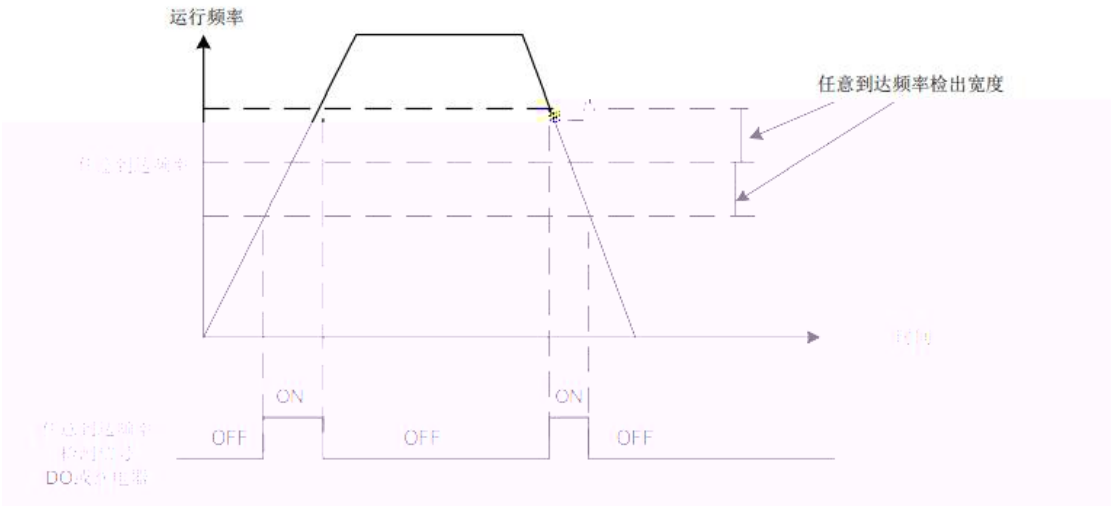
P21.26 1 P21.26

2

P21.31	1		0.0%
		0.0% 100.0%	
P21.32	2		50.00Hz
		0.00Hz	
P21.33	2		0.0%
		0.0% 100.0%	

DO

ON



P21.42			0
		0	
		1	
P21.43			0
		0	P21.44
		1	
		2	AI1
		3	
		100% P21.44	
P21.44			0.0Min
		0.0Min 6500.0Min	

P21.42

DO ON

0 P23.20

P21.43 P21.44

P21.61			1
		0	
		1	

E040

7.12 P19

P19.34	AI1 1		
		-10.000V 10.000V	
P19.35	AI1 1		
		-10.000V 10.000V	
P19.36	AI1 2		
		-10.000V 10.000V	
P19.37	AI1 2		
		-10.000V 10.000V	

AI AI

P23 AI P23.22

AI P23

AI

AI1

AI1 (2V)

AI1 P19.34

P23.21 P19.35

AI1 (8V) AI1 P19.36

P23.21 P19.37

-8V 8V

P19.42

8

8.1

	E001	1 2 3 4 5 6 7	1 2 3 4 5 6 7
	E003	1 2 3 4 5 6	1 2 3 4 5 6
	E004	1 2 3 4 5	1 2 3 4 5
	E008	1	1
	E011	1 P07.10 2 3	1 2 3
	E015	1 DI 2 IO	 1 2
	E018	1 2	1 2

EEPROM	E021	1 EEPROM	1
	E022	1 2	1 2
	E026	1	1
1	E027	1 DI 1 2 IO 1	1 2
2	E028	1 DI 2 2 IO 2	1 2
	E029	1	1
	E030	1 P07.64	1 P07.64 P07.65
PID	E031	1 PID P15.26	1 PID P15.26
	E040	1 2	1 2
	E041	1	1
	E045	1 2	1 2
	E051	SVC	P12.25 1 2 P07.72 1

	E060	PB “+”	PB “+”
	E061	1 P08.44	1 P08.44 0
	E100	1 2 3 4	1 2 3 4
	E101	1 2 3 4	1 2 3 4
	E102	1 2	1 2
	E105	1 2 3 4 5 6	1 2 3 4 5 6
	E108	1 2	1 2
	E110	1 2 3 4 5 6 7 V/F 8	1 2 3 4 5 6 7 V/F 8
	E111	1 2	1 2

E112 1 1

E113
1 1
2 2
3 3
4 4

E114
1 1
2 2
3 3
4 4

E115
1 1
2 2
3 Ã P07.67 3
P07.68

P23.45 G G
P19.45 1 7 Z %
11 12 9
1 P23.45=1
PG
2 P23.45=3 Z

E118
3 P23.45=5 Z

3 P23.45=6 Z
ABZ
P10.65 ḣ 1
4 P23.45=7

5 P23.45=12 PG
m " ɞ

	E170	1 P12.10 2 3 PG 4 5 P10.64	1 P12.10 2 3 PG 4 5 P07.72 0 P10.64
	E202	1 2 3 P14.00 3 P14	1 2 3 4
	A064	1. 2. P10.54 3. 4. 5.	1. 2. P10.54 3. 40% 40% 4. 5. “ STOP ”

8.2

	1 2 3 4 5 6	1 2 3 34 4~6

HF631	1 2 3 4 5	 1 34 2~5
“ E112 ”	1 2	1 2
“ HF631 ”	1 2	1 2
E120	1 2 3	1 P08.15 2 3
	 1 2 3 4	1 2 3 4
DI	 1 2 3 PW +24V 4	1 P3 2 3 PW +24V 4
	 1 2 3 PG 4	1 2 PG 3~4
	 1 2 3	1 2 3
Err17	 1	1 2 3 24V 4
8.8.8.8.8	1	1

9


1. 2. 3. 4.

1. CMOS 2. 3.

9.1

9.2

	1. 2.	1. > 40 < 95% 2.
	1. 2.	1. 2.
	1. 2. 3.	1. 2. 3.
	1. 2.	1. 2.
	1. 2.	1. 2.

9.3

	2	1 2
PCB		

9.4

5

5

(400-0077-570)

1 40

2 80%

3 24 /

9.5

1

2

5

1

2

3

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6

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