GUIDE

HF680N

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1.

1.1

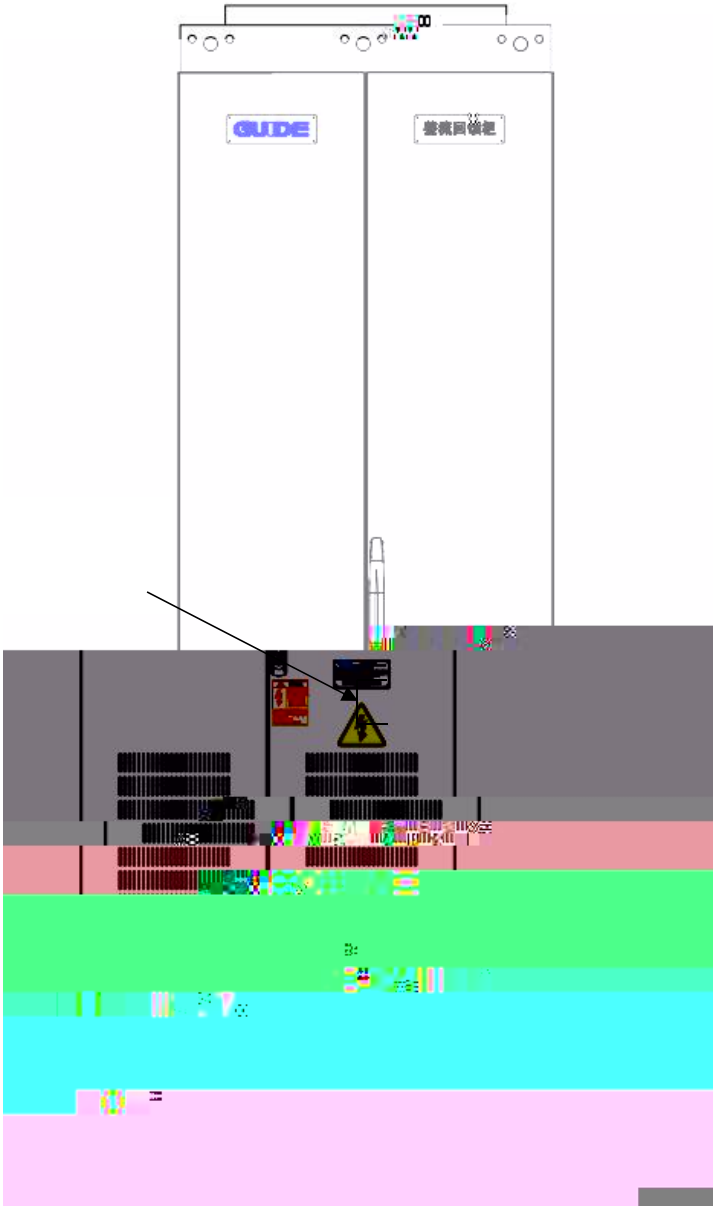


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RCD

RCM

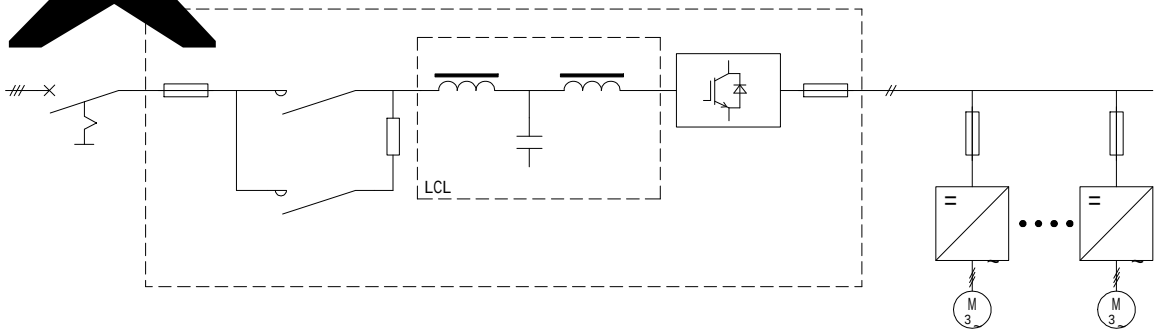
HF680N02C-400-5



2

1

HF680N LCL



IGBT AFE

DC24V

IGBT

2.2

1

AFE

2

		PID
		/
		/
		HE
		/
		/

2.3

GDHF-ADPX1 DP Profibus

DP GDHF-ADPX1 HF680N02M HF680N03M

GDHF-APGX1 PG F6

PG GDHF-APGX1 HF680N03M

15V PG

PN

2.4

1. / “ ” / 2. 3. - R S T - U V W - P N 4. 5 5. , ,

1. ä 2. 3. 40 4. 1 2 ‘

2.4.1

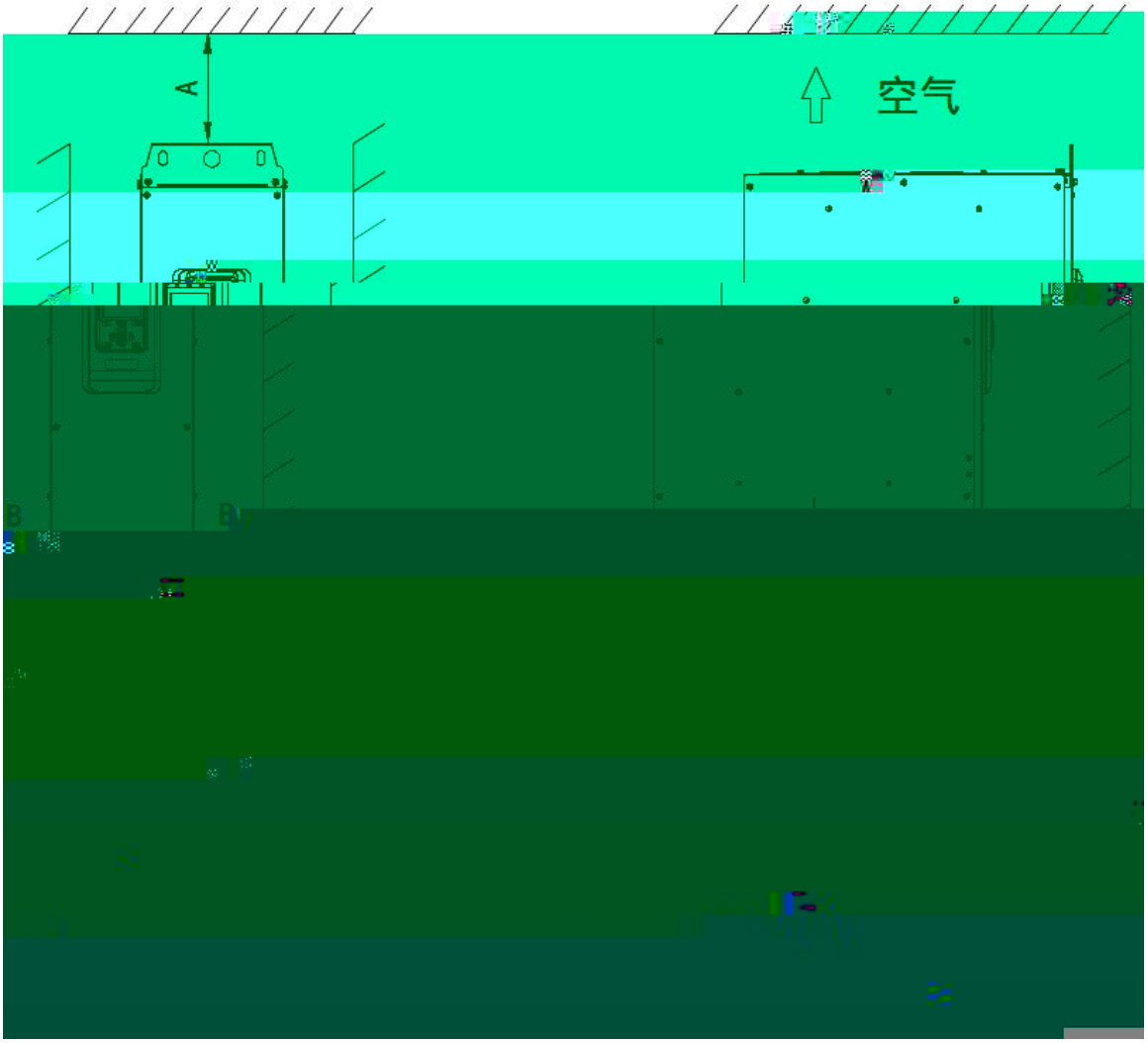
-
- -20 +60
- 0% 95%
-
-
-

1 5

2.4.2

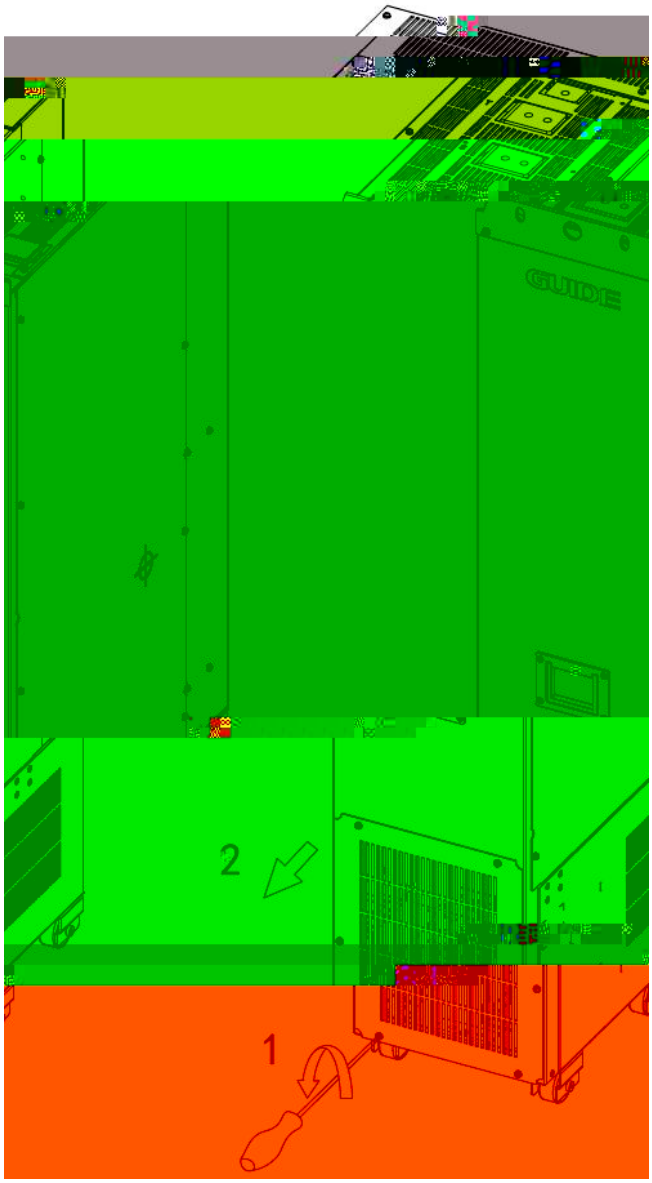
-
- -10 +40 +40 +50 1
  2% 50
- 95%RH
-
-
-
-
-
- 1000 1000 100 1%
  3000

2.4.3



	A ≥ 200mm	B ≥ 50mm

50mm



LCL

3.

3.1

LCL

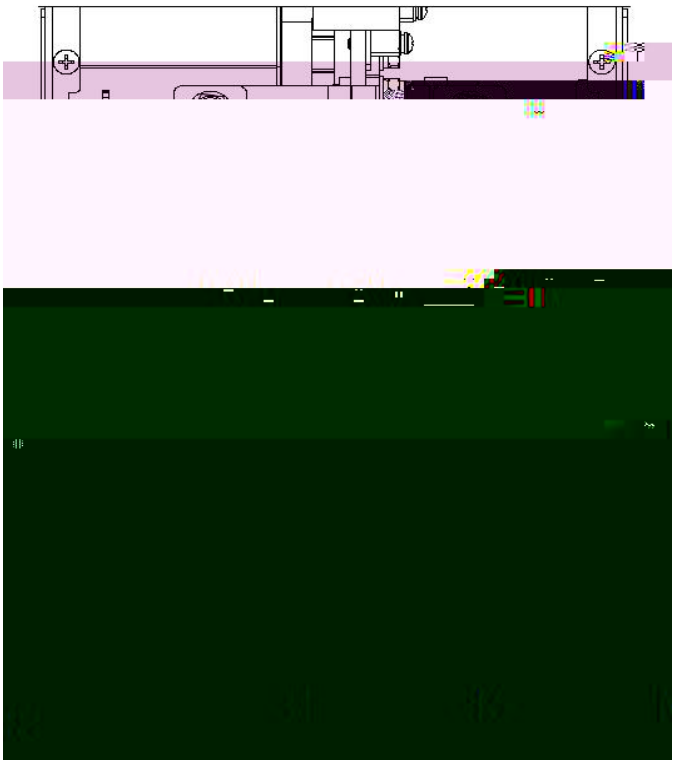
LCL

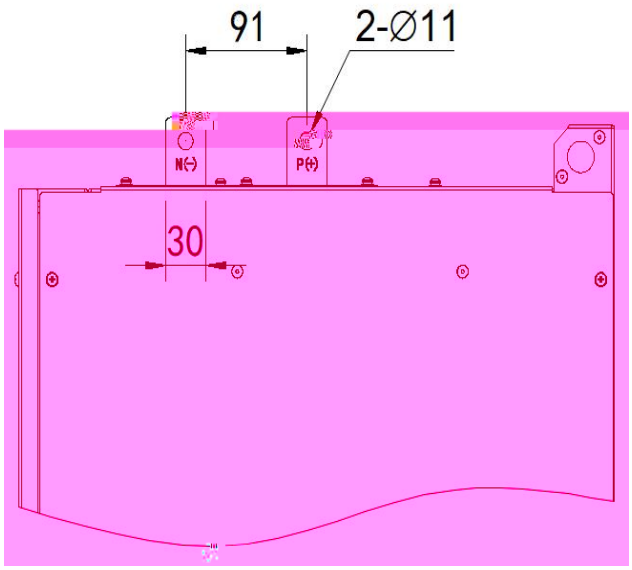
3.2

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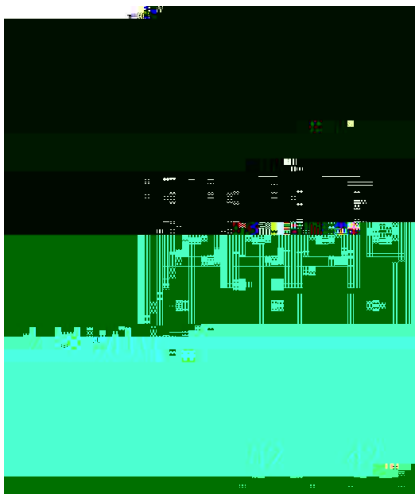
P +	
N -	
R S T	
	

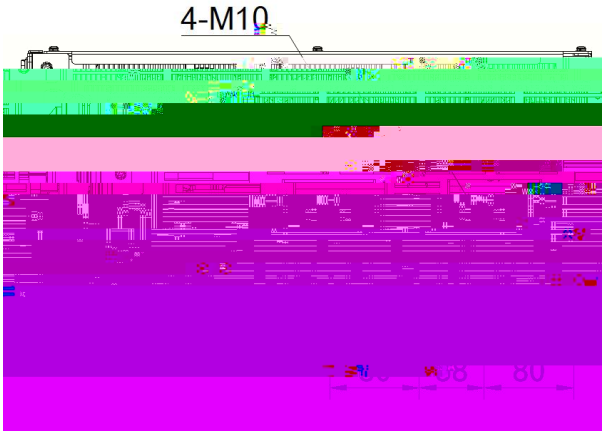
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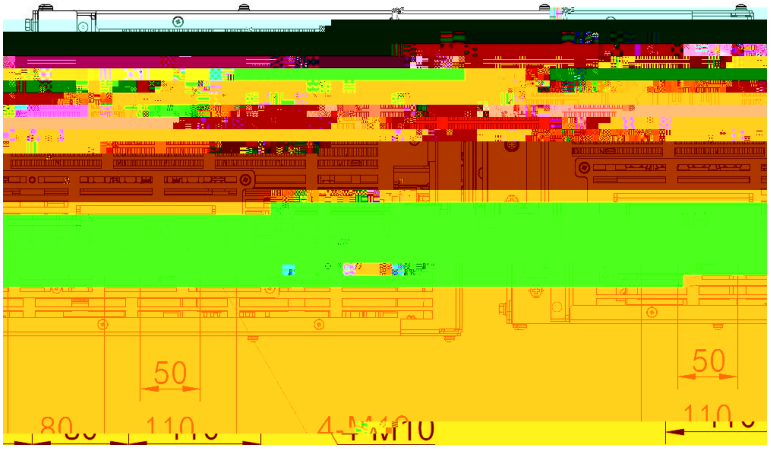


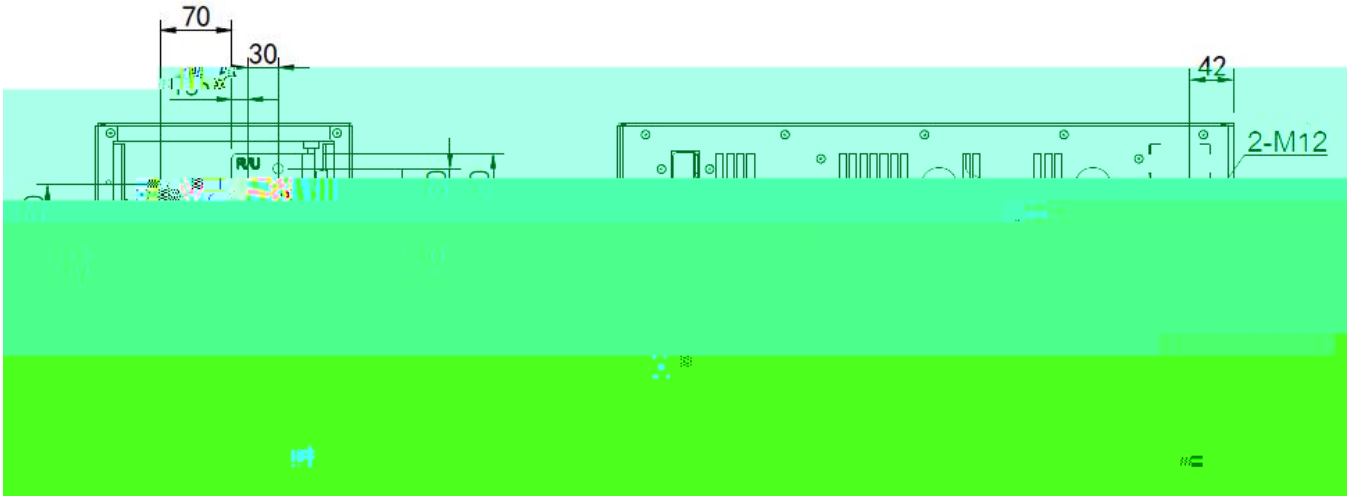
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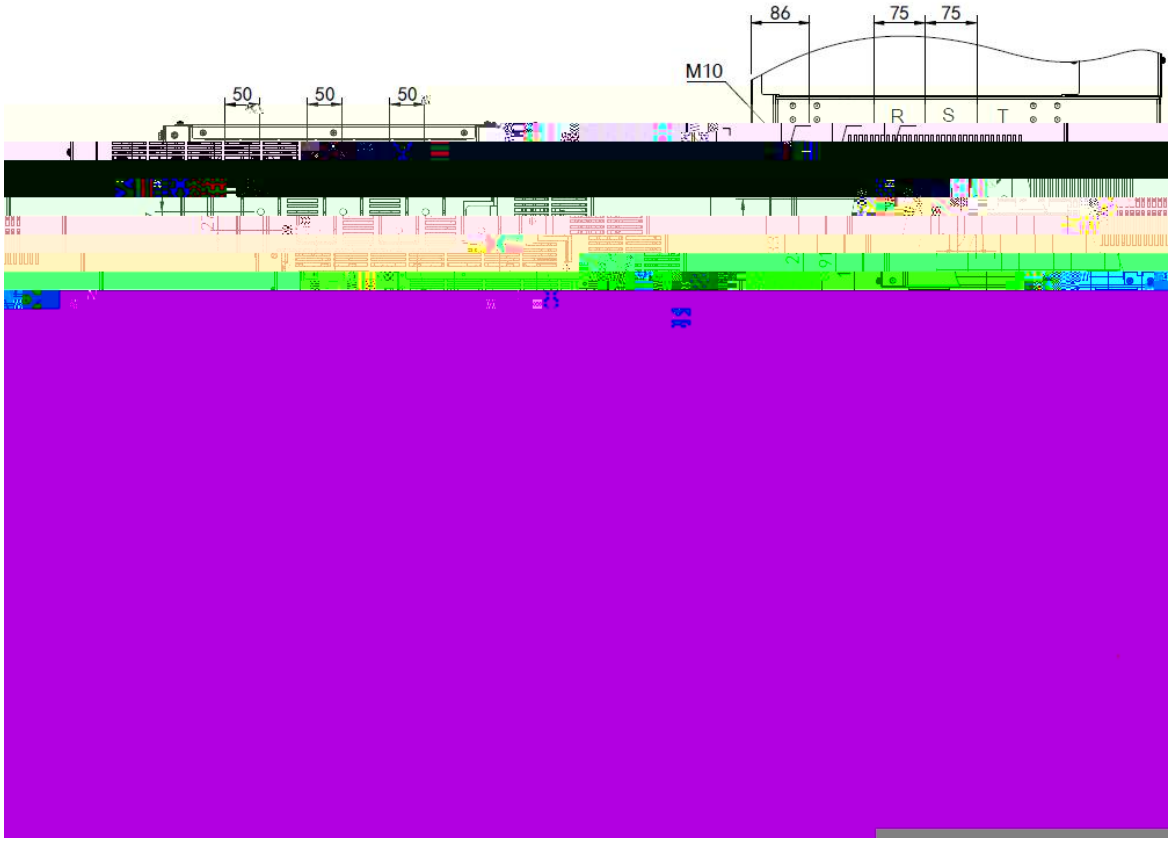
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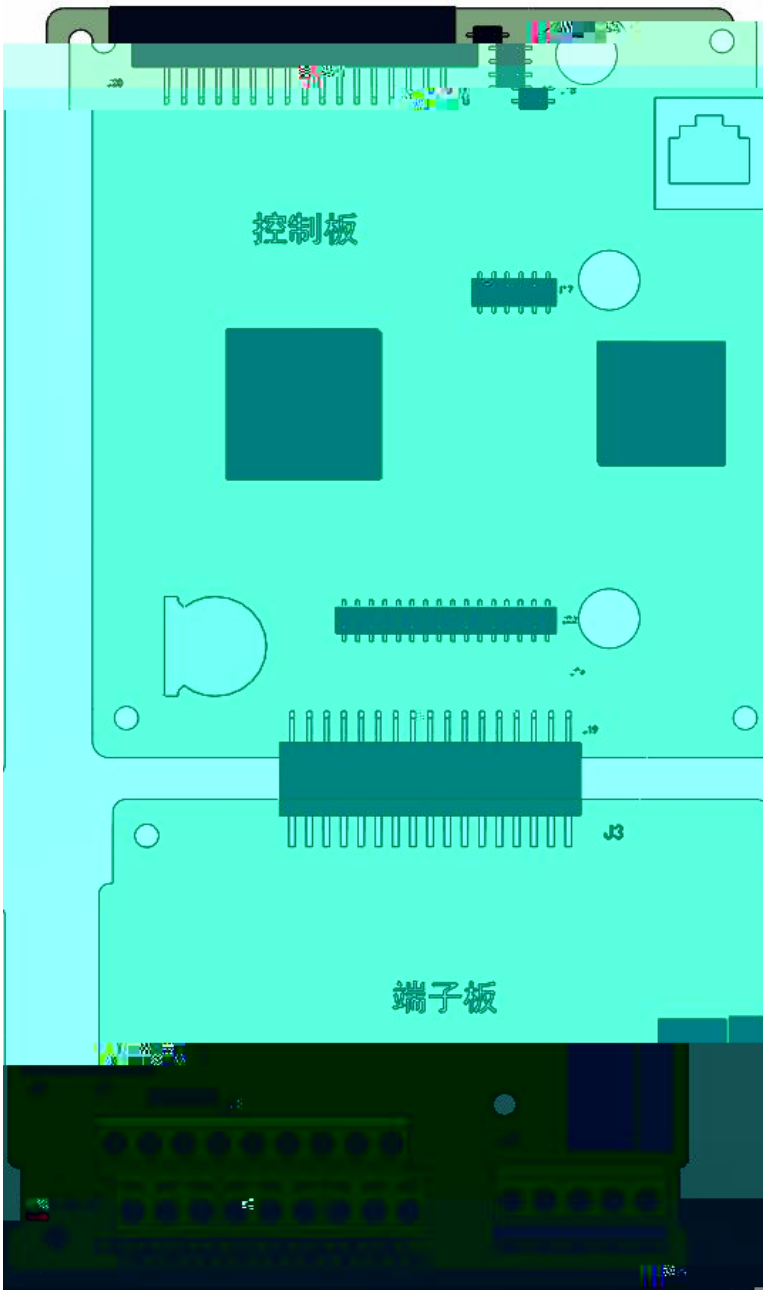
2 LCL

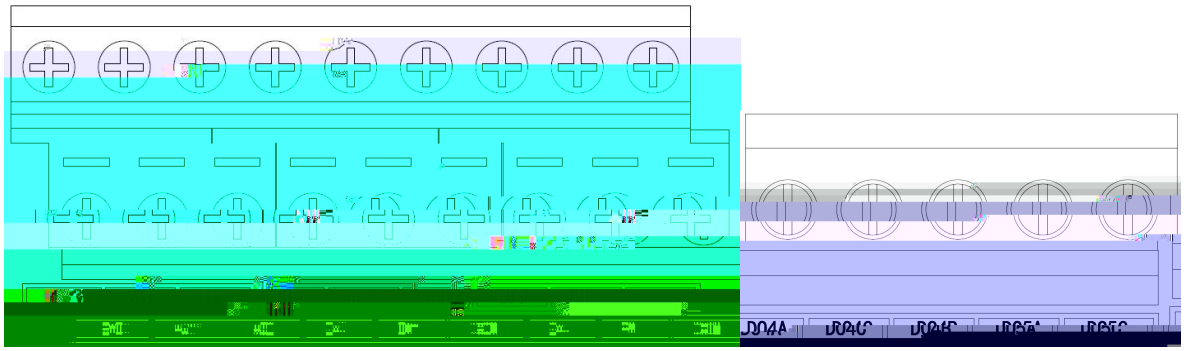
R S T	LCL
	LCL
P + N -	LCL
PTC	LCL



B6 LCL

2

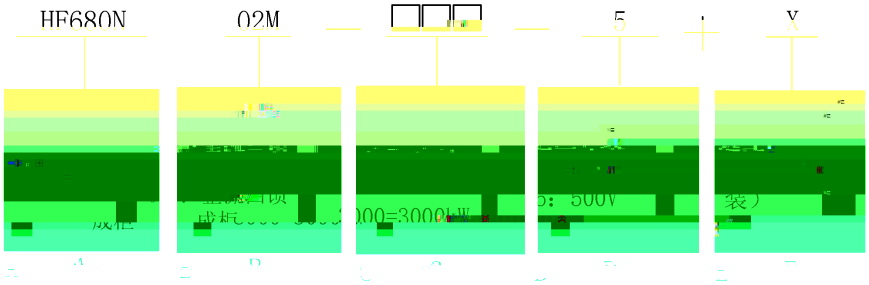




	+10V-GND	10V	+10V 50mA 1kΩ~5kΩ
	+24V-COM	24V	+24V 200mA
	PW		24V DI1~DI5 DO1 PW 24V
	AI1-GND	1	DC -10V~10V 100kΩ
	AI2-GND	2	-10VDC~10VDC/0mA~20mA J1 100kΩ 500Ω
	DI1- PW	1	3.3kΩ 9V~30V DI1-DI4 500Hz DI5 20KHz
	DI2- PW	2	
	DI3- PW	3	
	DI4- PW	4	
	DI5- PW	5	
	AO1-GND	1	J2 0V~10V 0mA~20mA
	AO2-GND	2	J8 0V~10V 0mA~20mA
	DO1-COM	1	0V~24V 0mA~50mA
	DO4A-DO4C	1	250VAC 3A COSϕ=0.4 30VDC 1A
	DO4B-DO4C	2	
	DO5A-DO5C	3	250VAC 2A COSϕ=0.4 30VDC 1A

	J1	AI2	
	J2	AO1	
	J3	AO2	





A	
B	02M 02C
C	132 132kW 3000 3000kW
D	5 380V 5 500V
E	

MB01	Modbus RTU	DP01	Profibus DP
PN01	Profinet	CAN01	CANopen

	Iac A					Pdch kW	
		Idc A	Pdc kW	Idch A	Pdch kW		
HF680N02C-2000-5	2805	3400	2567	2649	2000	2000	B6*4
HF680N02C-2500-5	3478	4215	3183	3311	2500	2500	B6*5
HF680N02C-3200-5	4152	5032	3799	4238	3200	3200	B6*6

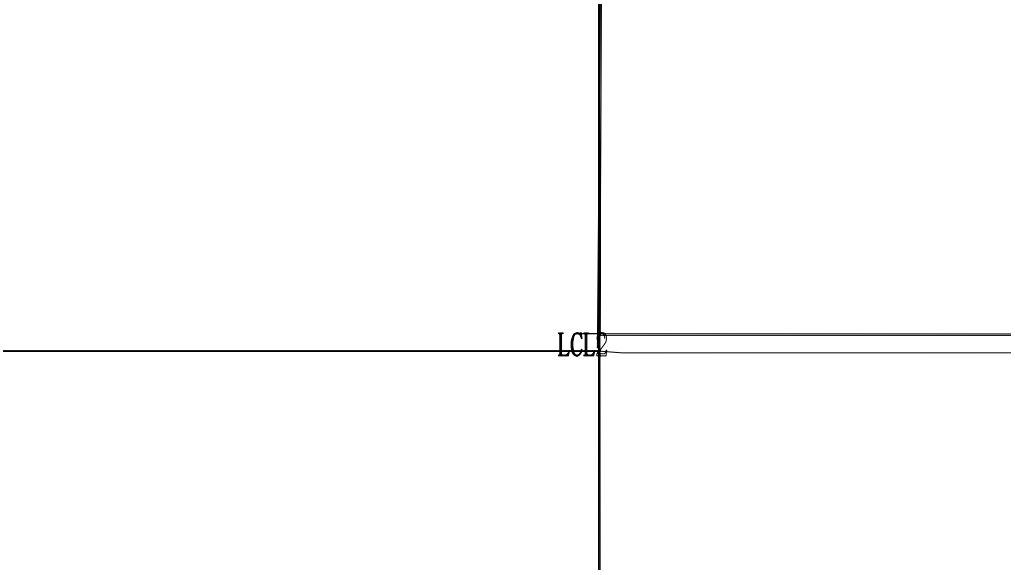
1 HF680N02M
2 HF680N02M

3.4

LCL

	LCL	
HF680N02M-160-5	GDHF680N-LCL-160-5	3 × 7R5
HF680N02M-220-5	GDHF680N-LCL-220-5	3 × 7R5
HF680N02M-315-5	GDHF680N-LCL-355-5	3 × 4R
HF680N02M-355-5	GDHF680N-LCL-355-5	3 × 2R5
HF680N02M-400-5	GDHF680N-LCL-450-5	3 × 2R5
HF680N02M-450-5	GDHF680N-LCL-450-5	3 × 2R5
HF680N02M-500-5	GDHF680N-LCL-560-5	3 × 2R5
HF680N02M-560-5	GDHF680N-LCL-560-5	3 × 2R5

“ ”


LCL2

3.6

		380V 500V
		50 / 60Hz
		-10% +10%
		<AC350V 15ms
		AFE
		0.999
		3%
		150% 5 1 180% 5 1
		570 810V
		1kHz 10kHz

3.7

+LCL		kW
HF680N02M-160-5+GDHF680N-LCL-160-5	B4	4.6
HF680N02M-220-5+GDHF680N-LCL-220-5	B5	6.3
HF680N02M-315-5+GDHF680N-LCL-355-5	B6	9.0
HF680N02M-355-5+GDHF680N-LCL-355-5		10.1
HF680N02M-400-5+GDHF680N-LCL-450-5		11.4
HF680N02M-450-5+GDHF680N-LCL-450-5		12.8
HF680N02M-500-5+GDHF680N-LCL-560-5		14.3
HF680N02M-560-5+GDHF680N-LCL-560-5		16.0

3.7

(1) IGBT

(2) 50%

(3) 0.999

(4) 3% GB/T 24337-2009

(5) 380V 500V -10% +10%

(6) DP PN

(7)

(8) 160kW 3200kW

3.8

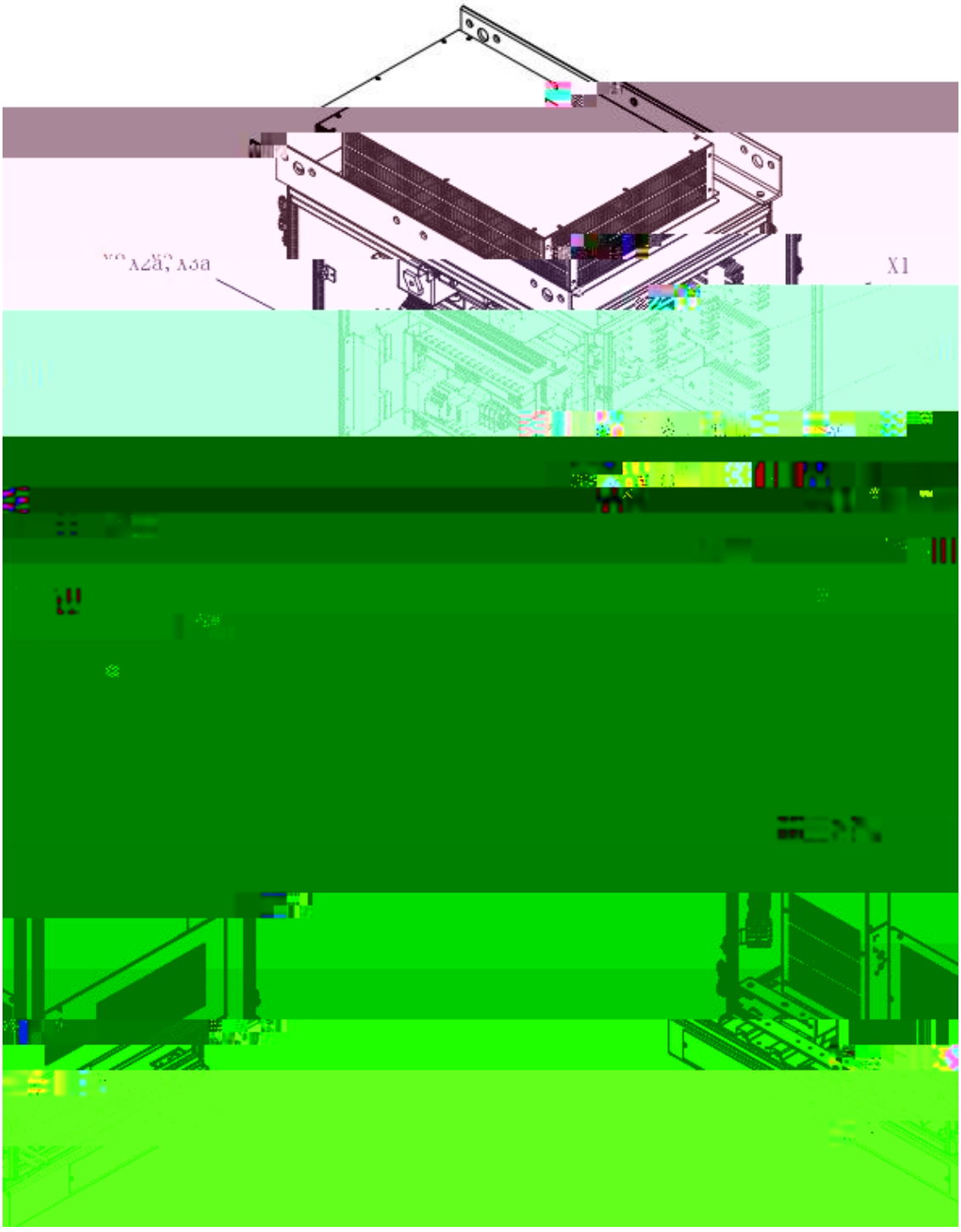
1

2 500kW

500kW

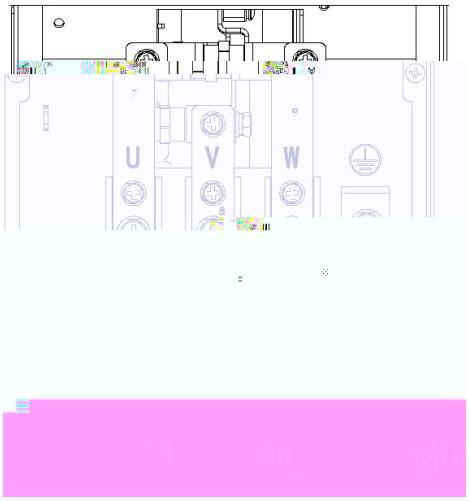
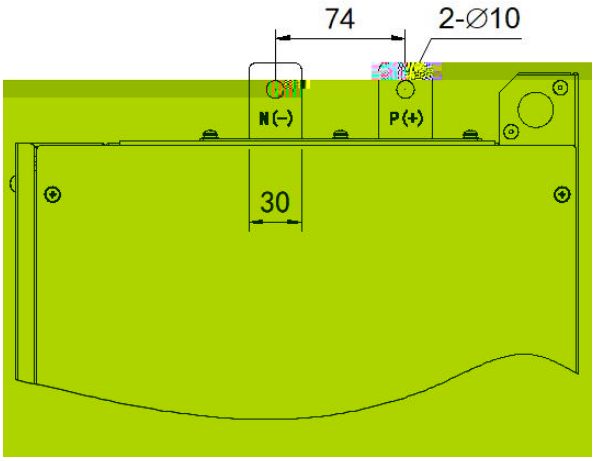
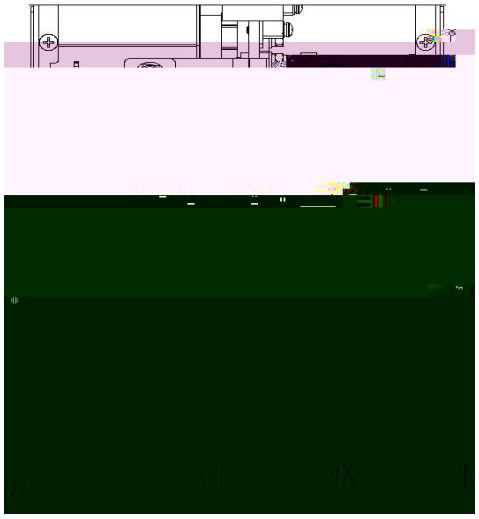
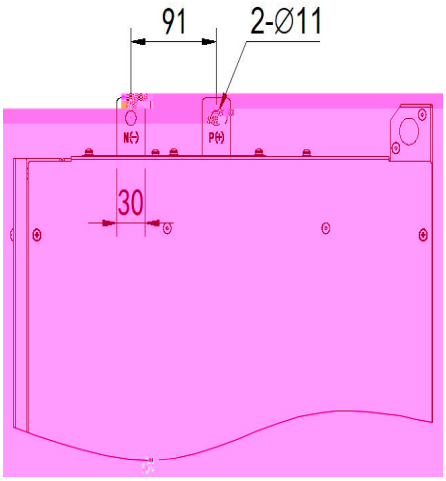


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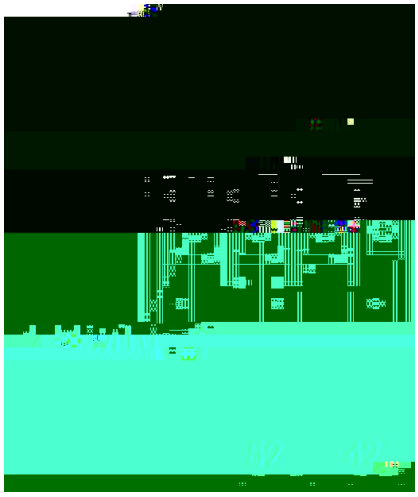


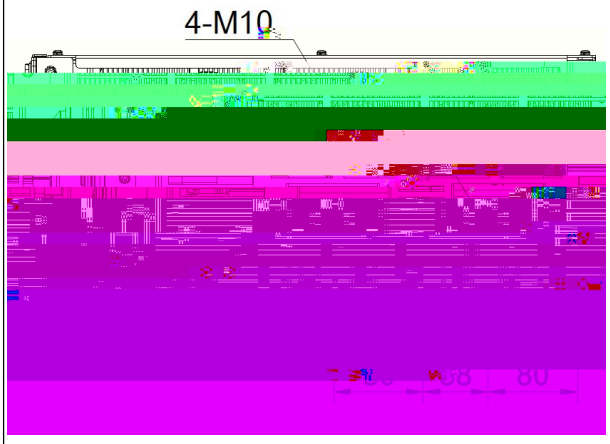
2 b

W نم ₡W

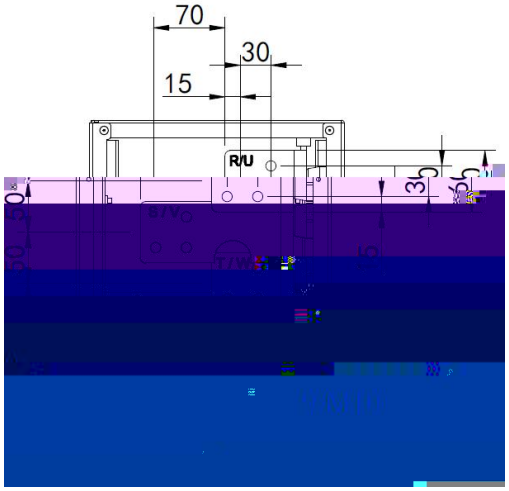
B3	
	
B4	
	

B5

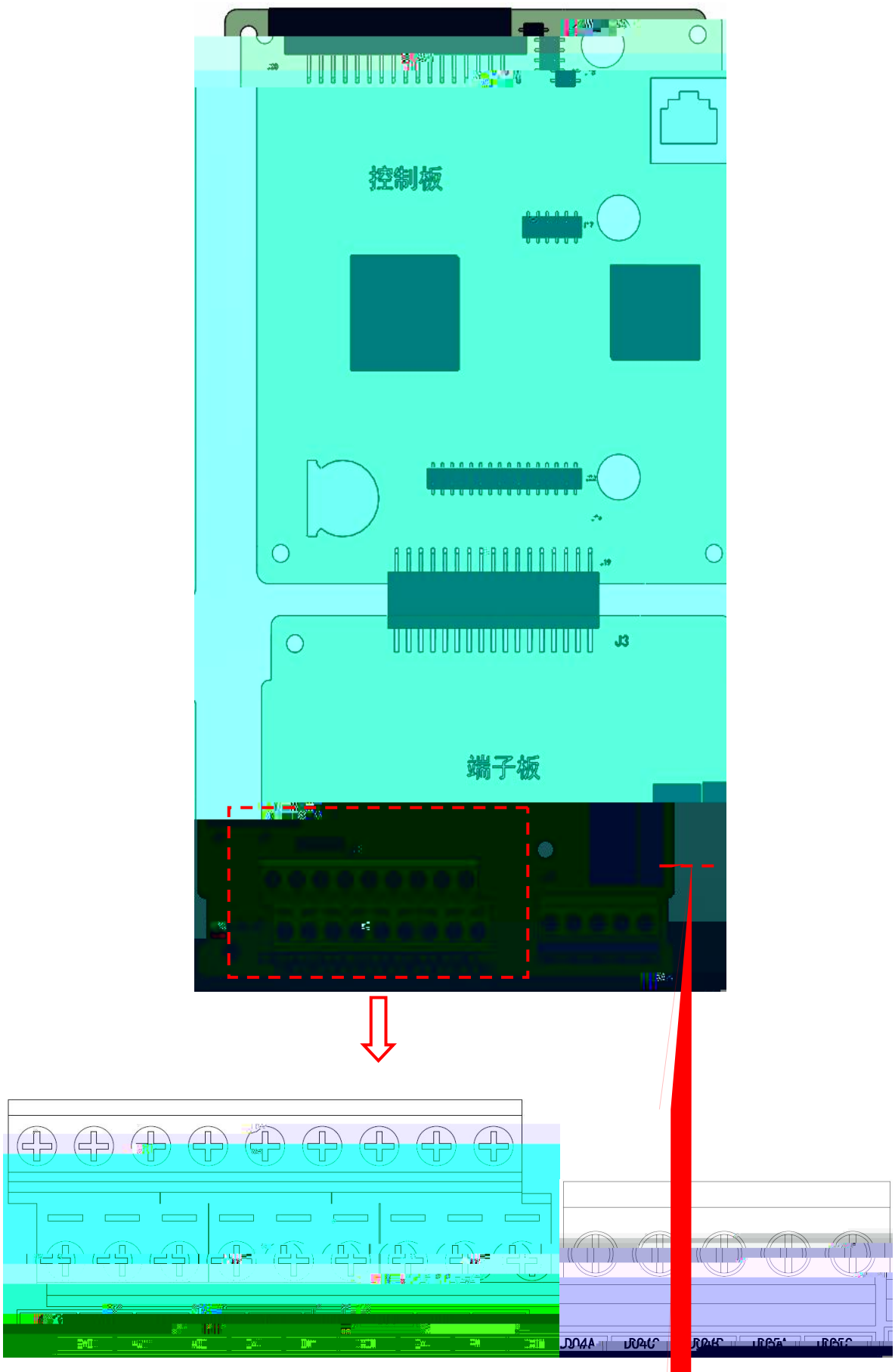




B6

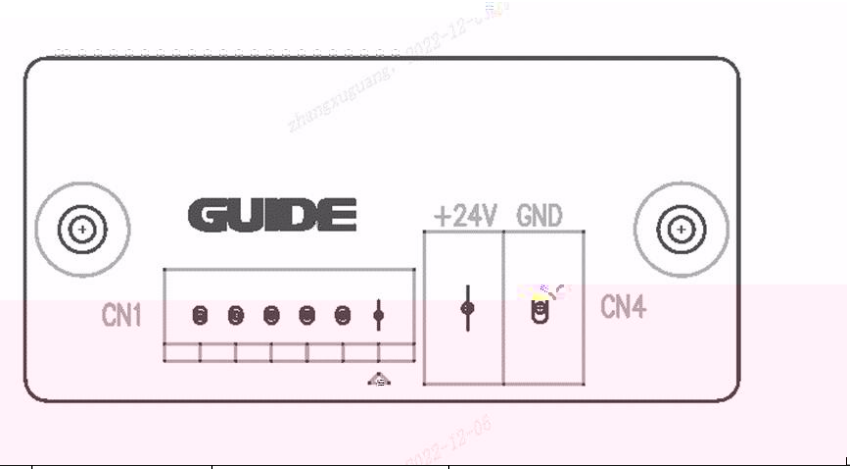





控制板
J3
端子板

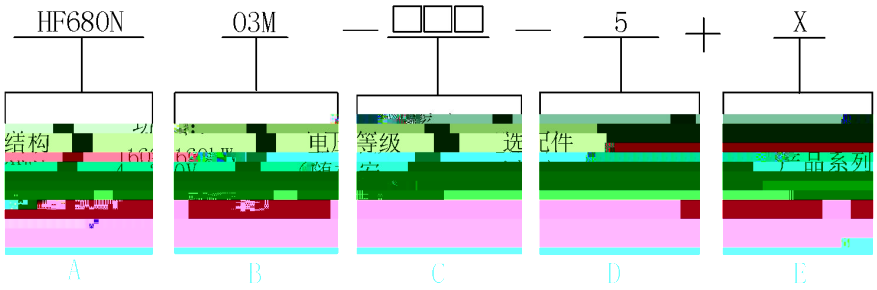
	+10V-GND	10	+10V 50mA 1kΩ~5
	+24V-COM	24V	+24V 200mA
	PW	71	24V DI1~DI5 DO1 PW 24V
	AI1-GND	1	DC -10V~10V 100kΩ
	AI2-GND	2 J1	-10VDC~10VDC/0mA~20mA 100kΩ 500Ω
	DI1- PW	1	3.3kΩ 9V~30V DI1-DI4 500Hz DI5 20KHz
	DI2- PW	2	
	DI3- PW	3	
	DI4- PW	4	
	DI5- PW	5	
	AO1-GND	1	J2 0V~10V 0mA~20mA
	AO2-GND	2	J8 0V~10V 0mA~20mA
	DO1-COM	1	0V~24V 0mA~50mA
	DO4A-DO4C	1	250VAC 3A COSϕ=0.4
	DO4B-DO4C	2	30VDC 1A
	DO5A-DO5C	3	Y2 250VAC 2A COSϕ=0.4 30VDC 1A

2



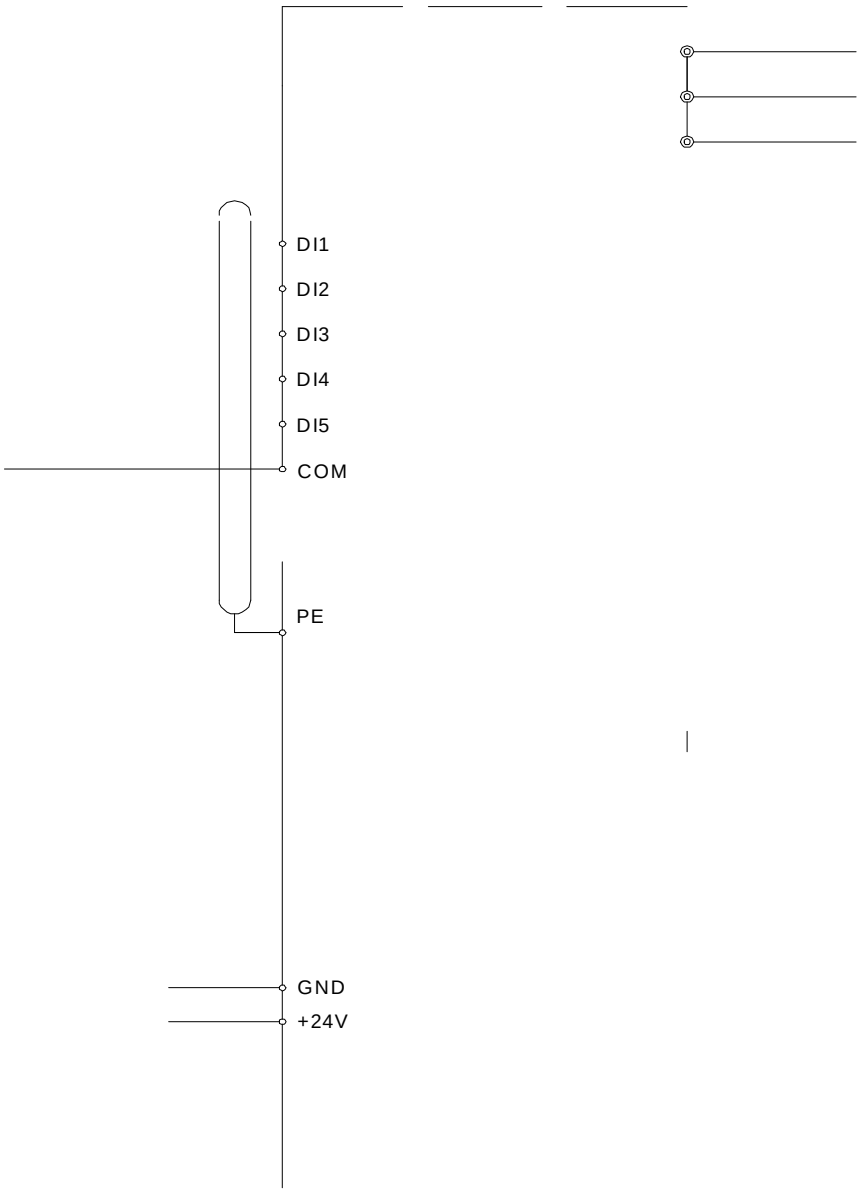
DC+24V	CN4	+24V-GND	
	CN1		L1/L2/L3

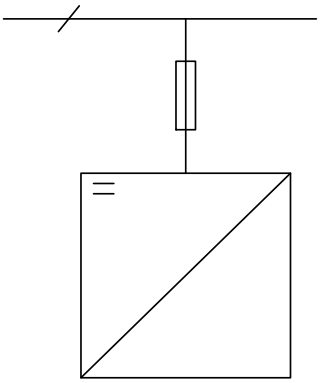
4.3



A	
B	03M 03C
C	160 160kW 1000 1000kW
D	5 380V 5 500V
E	

4.5





HF680N03M-220-5	120	498
HF680N03M-250-5	150	549
HF680N03M-280-5	70*2	611
HF680N03M-315-5	70*2	687
HF680N03M-355-5	90*2	792
HF680N03M-400-5	120*2	925
HF680N03M-450-5	150*2	1055
HF680N03M-500-5	70*4/185*2	1160
HF680N03M-560-5	70*4/185*2	1270

1. 560kW

2. HF680N

4.6

		540V 810V
		(VC) (SVC) V/F
		Profibus DP
		380V 500V 5%
		0 300Hz
		0Hz/200%(VC SVC) 0.8Hz/150%(V/F)
		1kHz 10kHz
		150% 5 1 180% 5 1

4.7

		kW			kW
HF680N03M-045-5	B3	0.8	HF680N03M-220-5	B5	4.2
HF680N03M-055-5		1.0	HF680N03M-250-5		4.8
HF680N03M-075-5	B4	1.4	HF680N03M-280-5	B6	5.6
HF680N03M-090-5		1.7	HF680N03M-315-5		6.3
HF680N03M-110-5		2.1	HF680N03M-355-5		7.1
HF680N03M-132-5		2.5	HF680N03M-400-5		8.0
HF680N03M-160-5		3.0	HF680N03M-450-5		9.0
HF680N03M-185-5	B5	3.5	HF680N03M-500-5		10.0
HF680N03M-200-5		3.8	HF680N03M-560-5		11.2

4.7

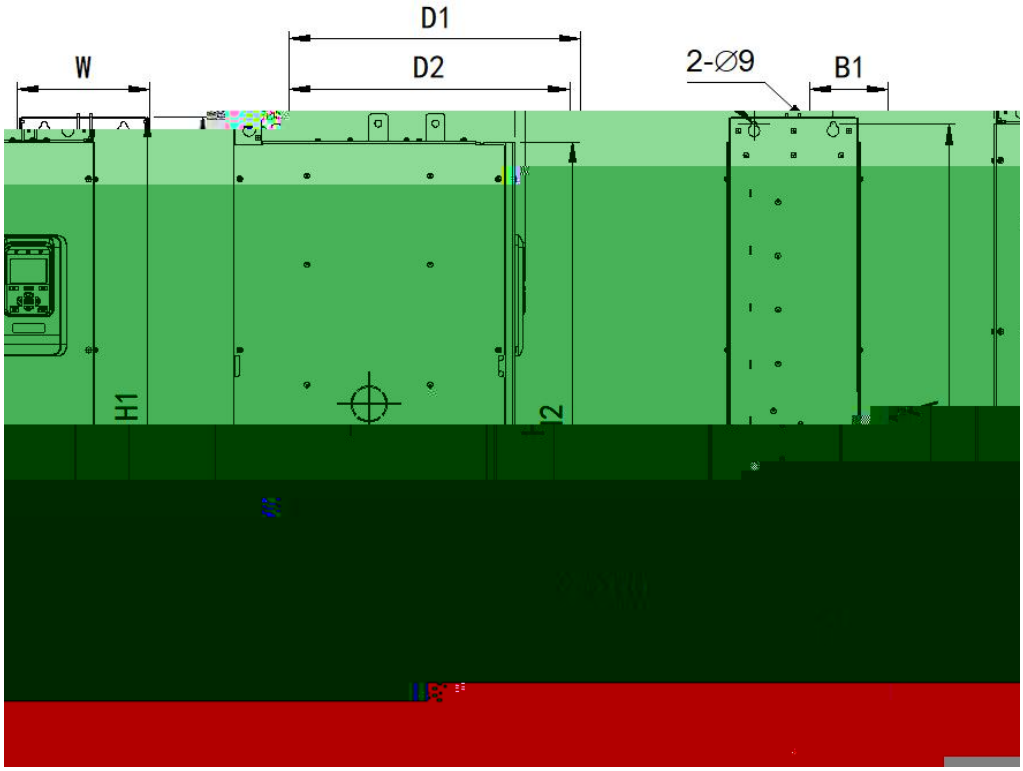
(1) 200%

(2) 50% HF680N

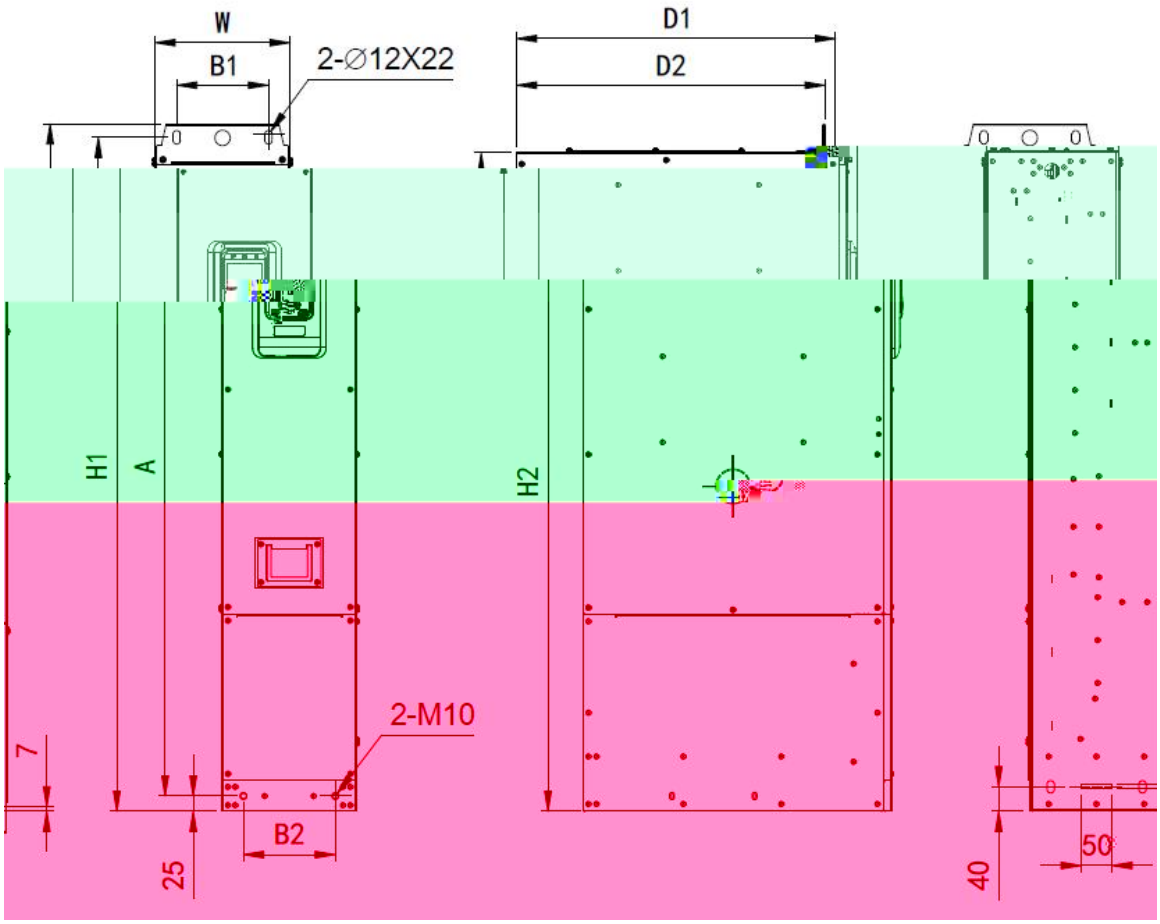
(3) HF680N

5.

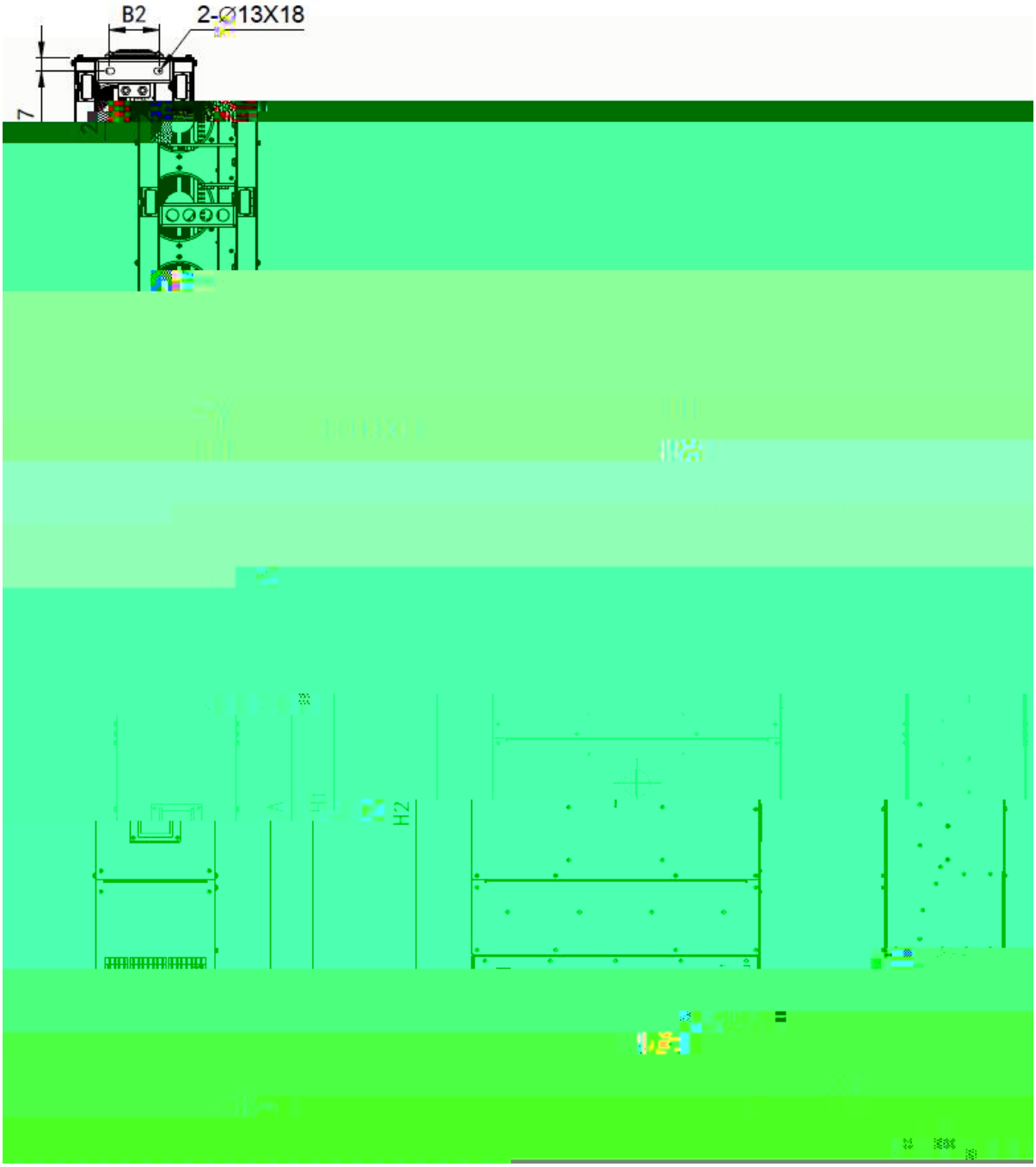
5.1



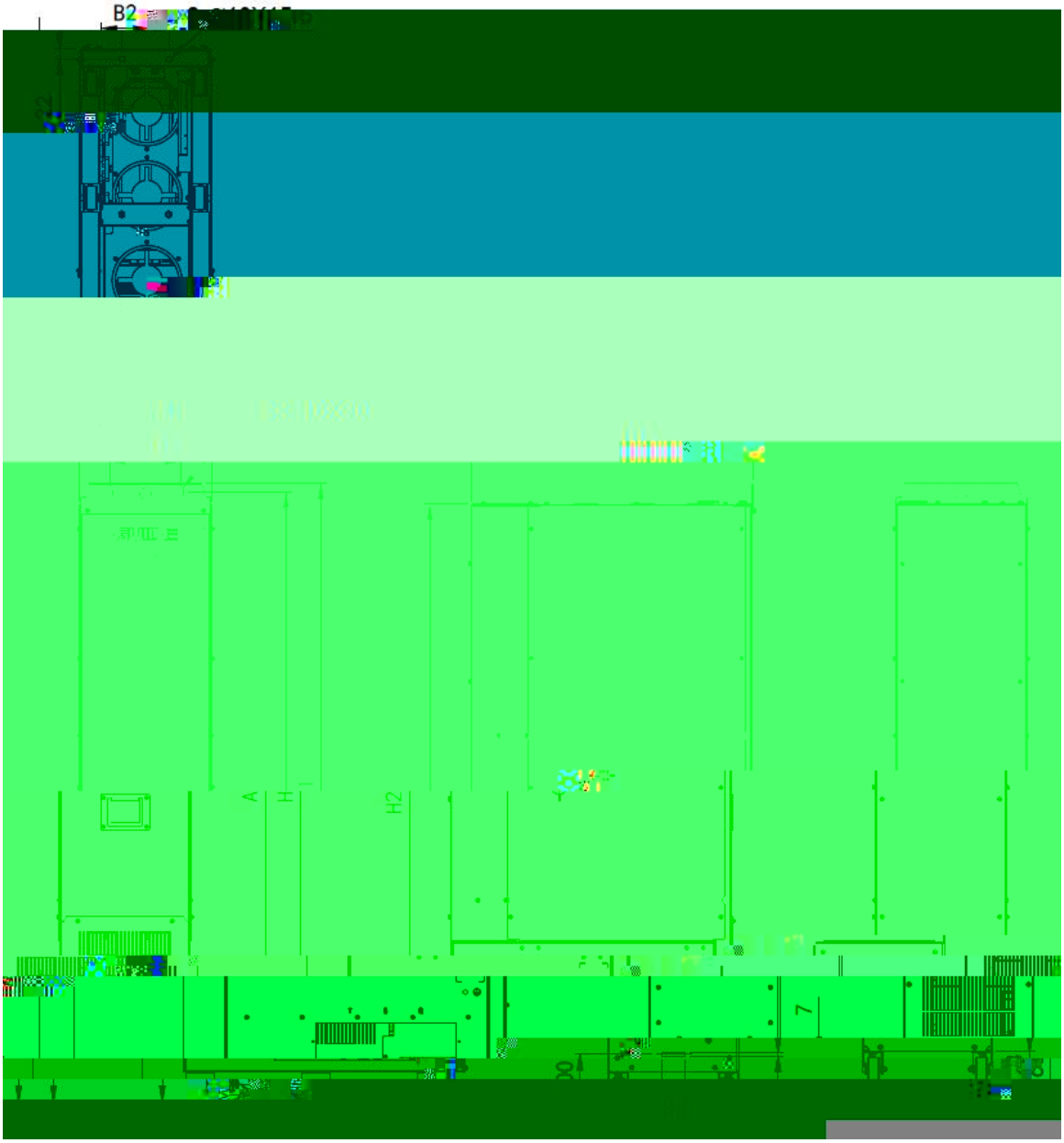
B4



B5



B6

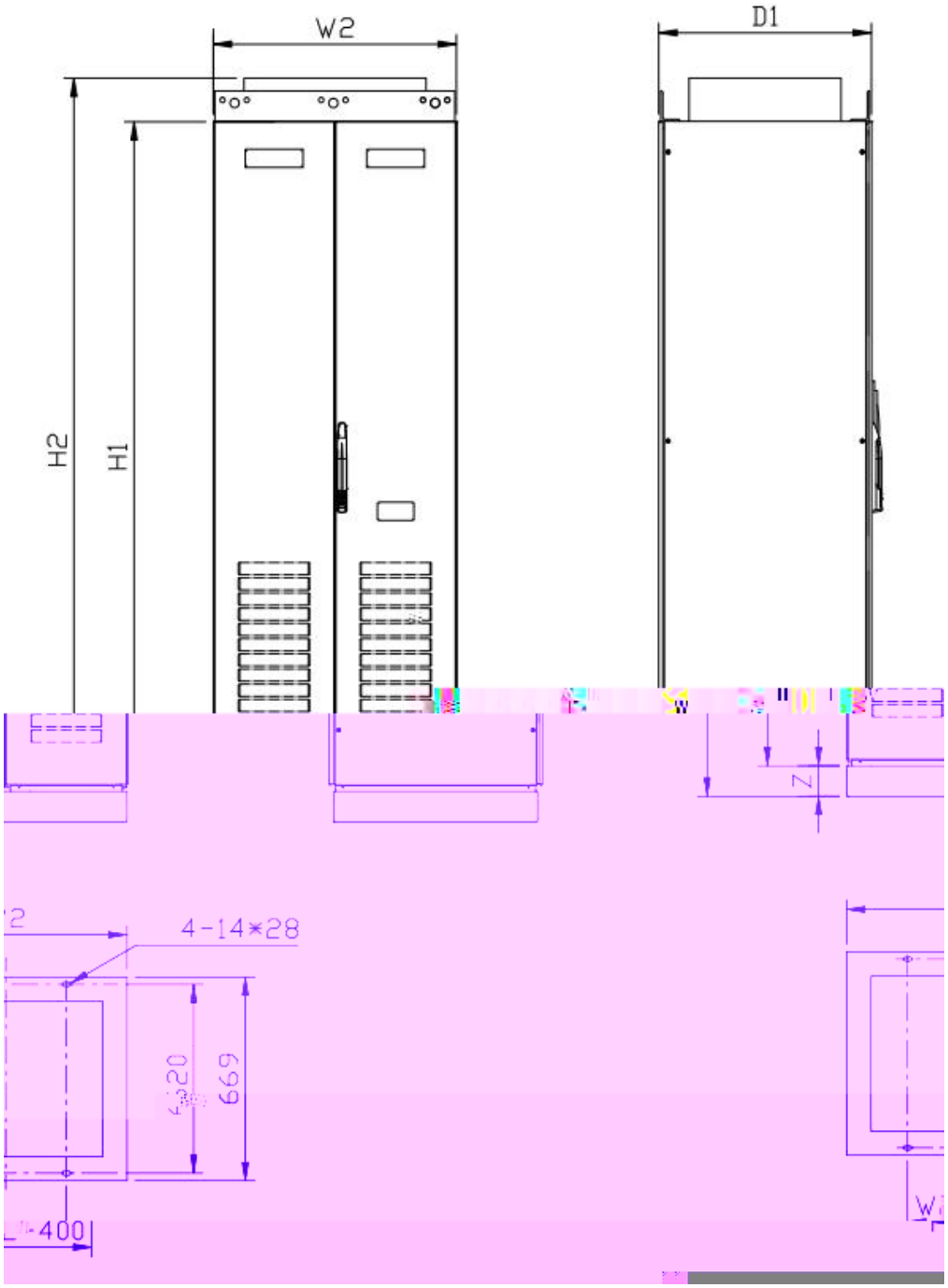


LCL

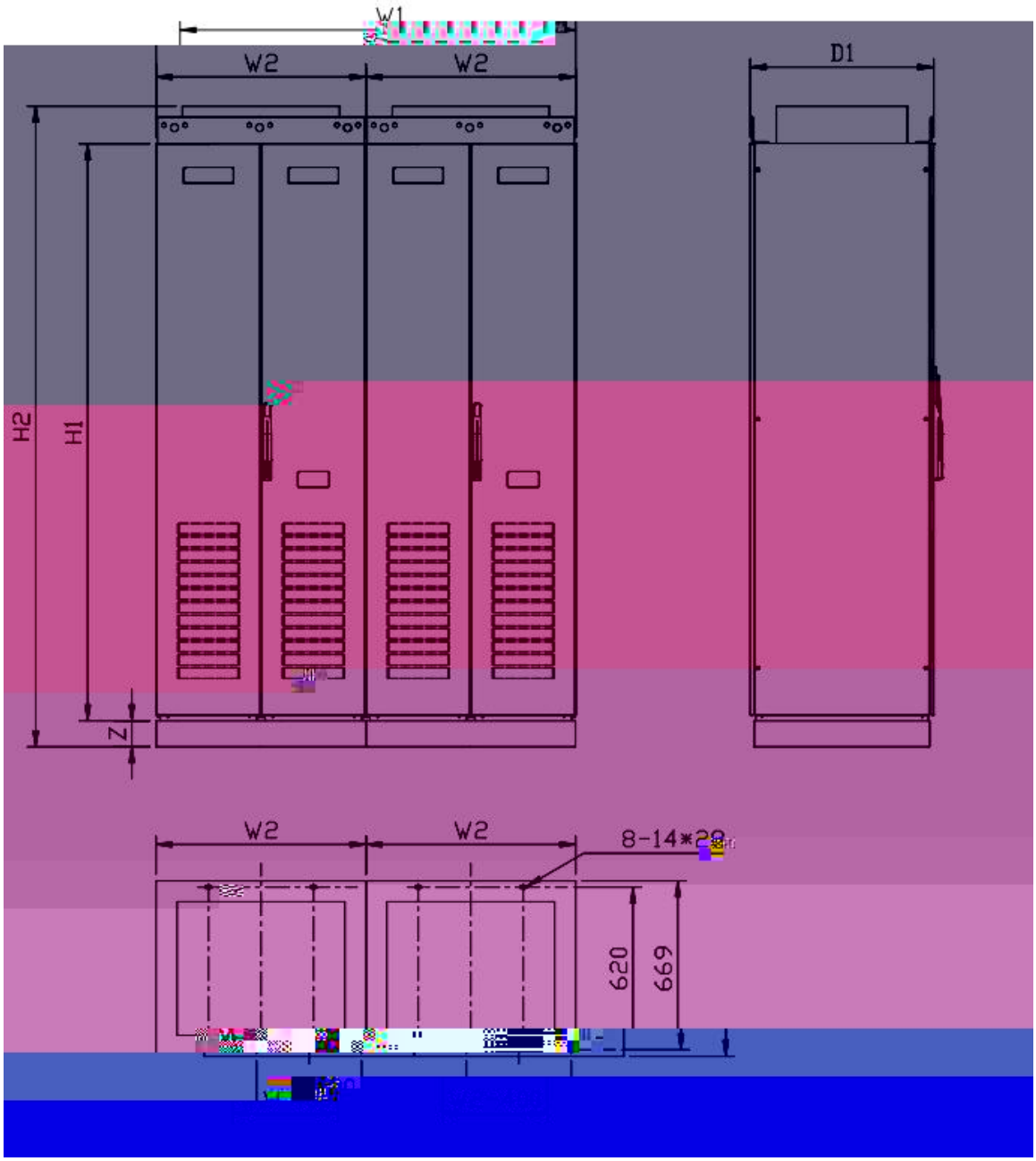
		mm					mm			8.8	kg
		H1	H2	W	D1	D2	A	B1	B2		
HF680N02M-160-5	B4	920	880	210	462	444	899	125	150	4-M8	55
HF680N02M-220-5	B5	1125	1075	220	520	505	1075	150	150	4-M10	80
HF680N02M-315-5	B6	1315	1268	250	618	600	1295	150	100	4-M12	120
HF680N02M-355-5											
HF680N02M-400-5											
HF680N02M-450-5											
HF680N02M-500-5											
HF680N02M-560-5											

5.2

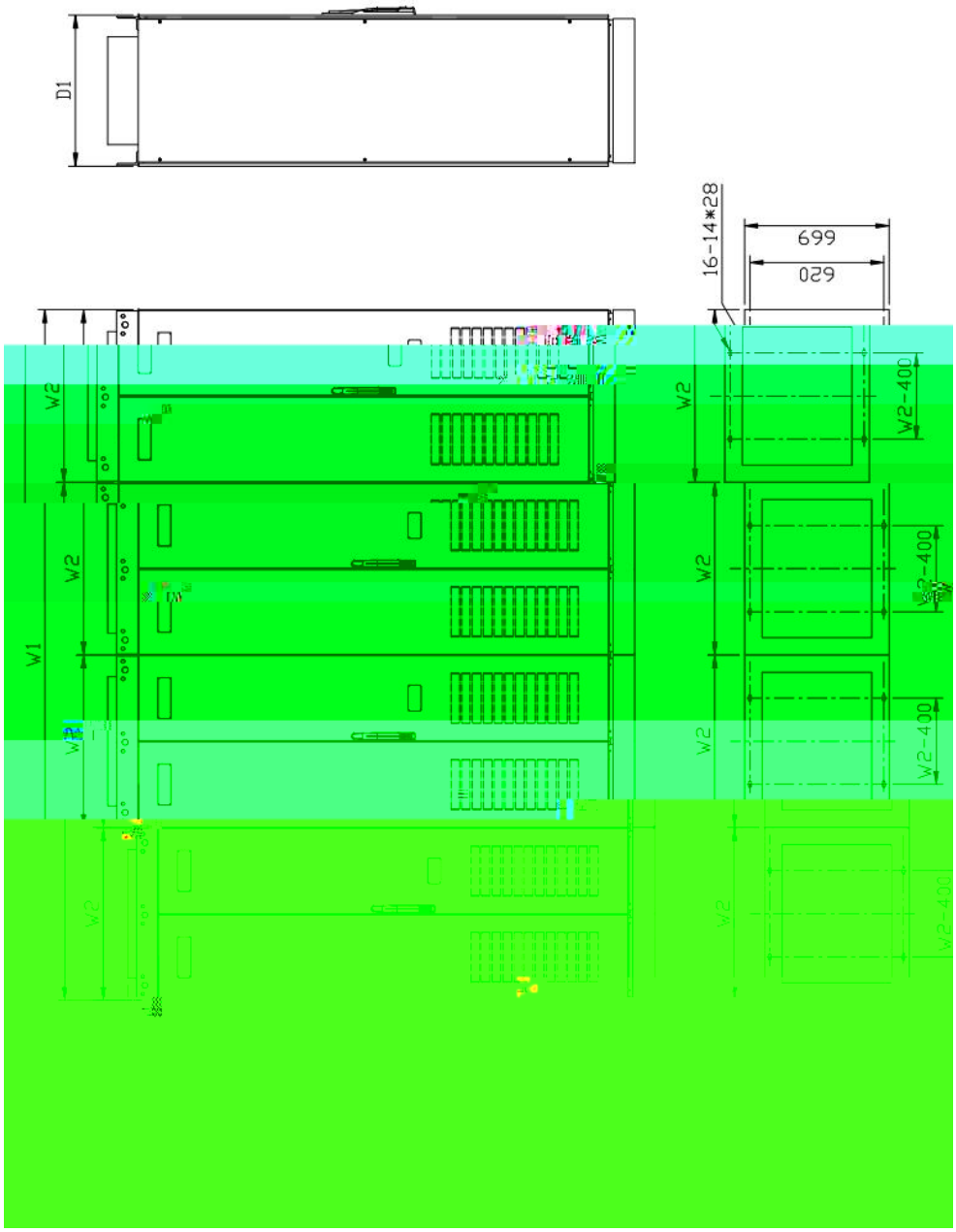
315kW~3200kW

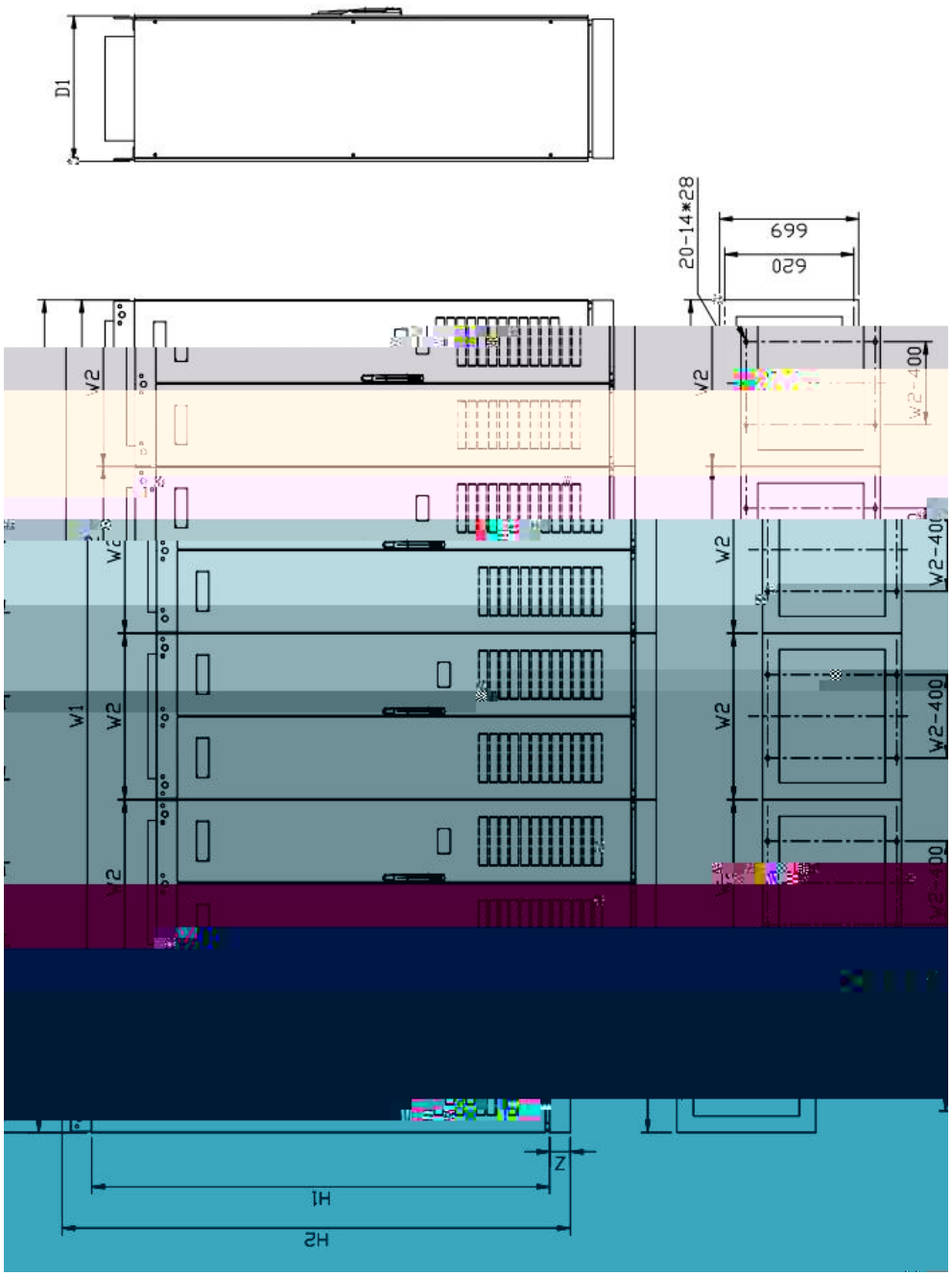


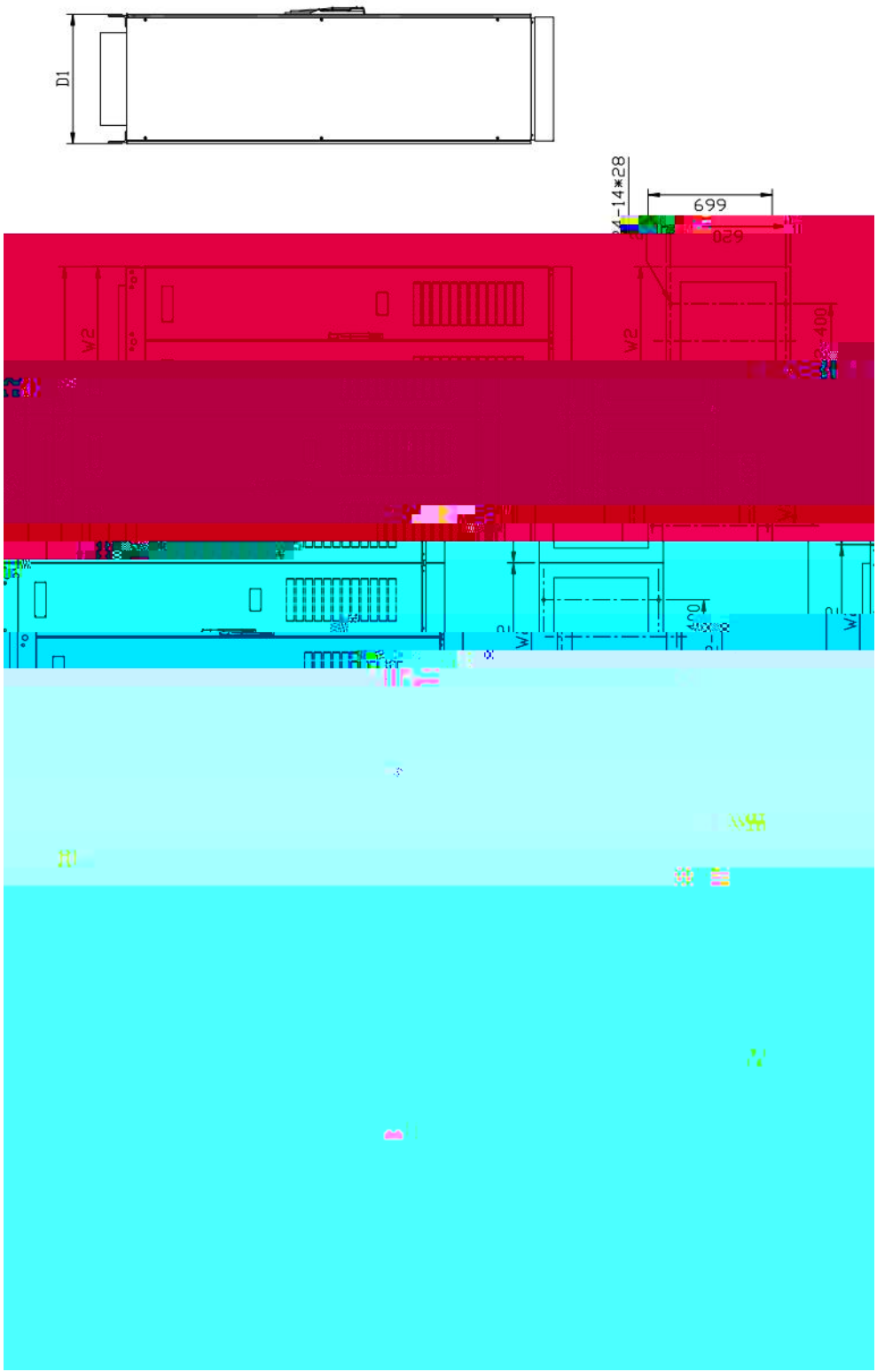
HF680N02C-315-5 HF680N02C-400-5 HF680N02C-560-5



HF680N02C-800-5　HF680N02C-1000-5

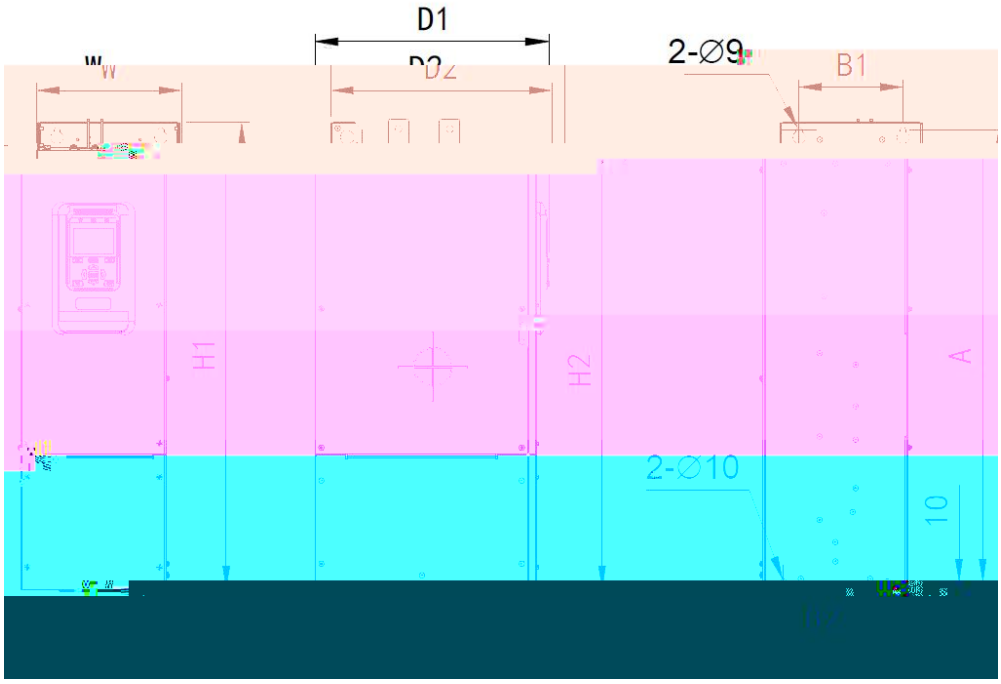

D1
16-14*28
699
620
W2
W2-400
W1


D1
20-14*28
699
620
W2
W2-400
W1
Z
H1
H2

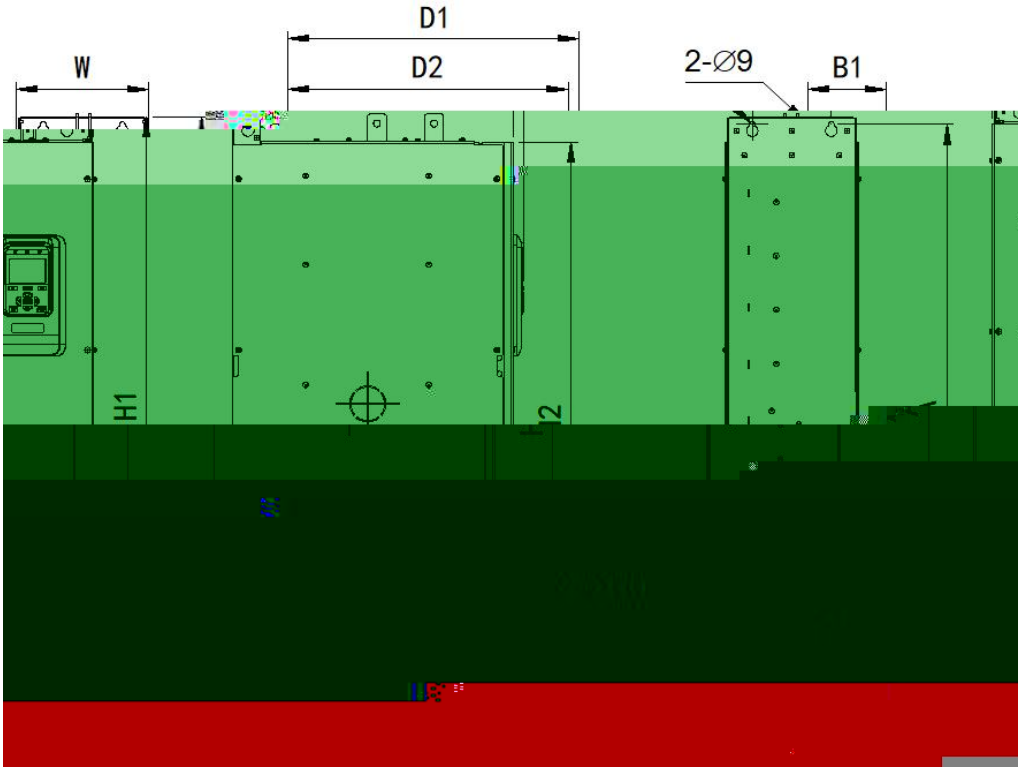

D1
699
W2
W2
400
400

		mm						kg
		H1	H2	W1	W2	D1	Z	
4	HF680N02C-800-5+Z4 HF680N02C-1000-5+Z4	2200	2640	1600	800	700	300	1800

5.3



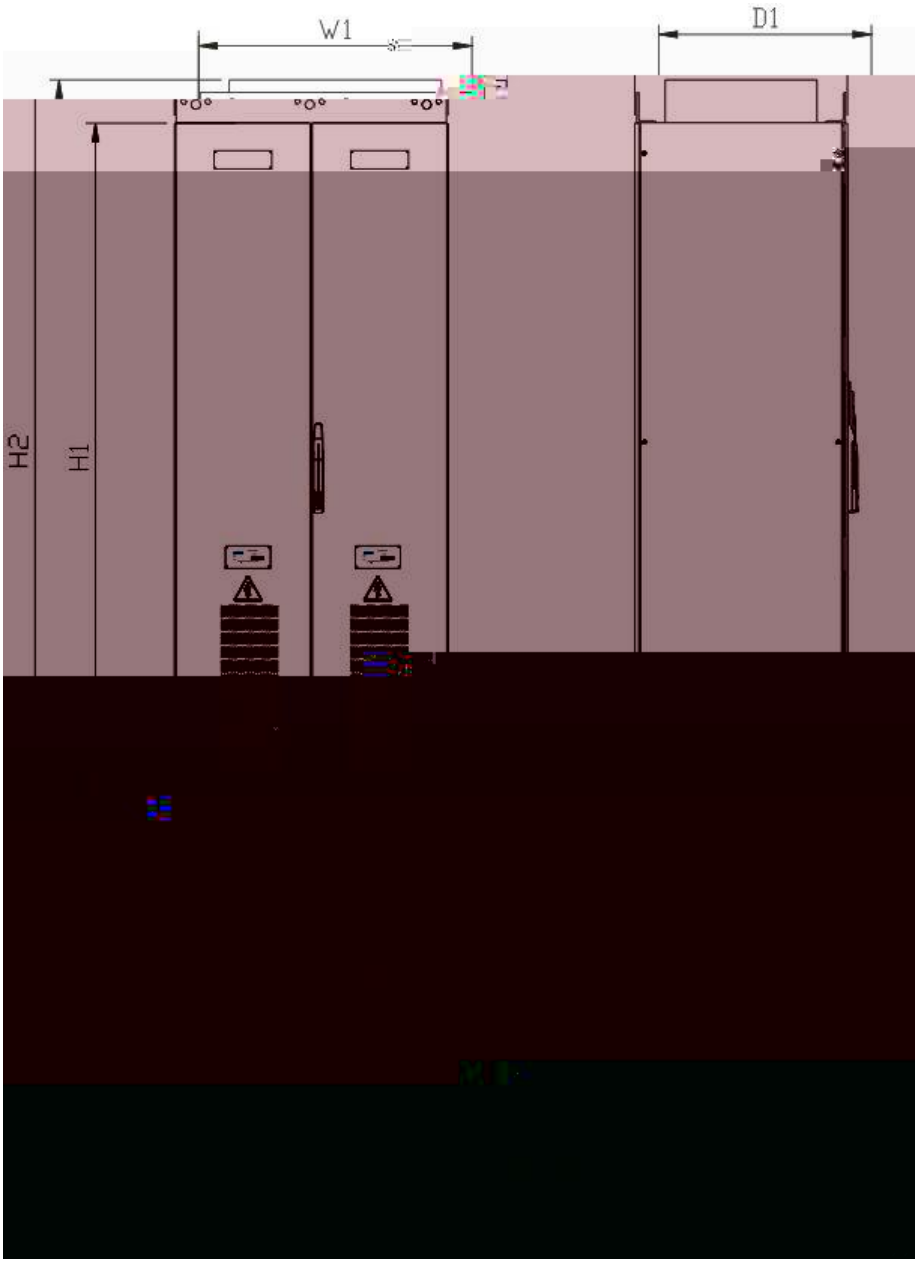
B3



B4

		mm					mm			8.8	kg
		H1	H2	W	D1	D2	A	B1	B2		
HF680N03M-045-5	B3	673	633	210	337	320	652	150	150	4-M8	30
HF680N03M-055-5											
HF680N03M-075-5	B4	920	880	210	462	444	899	125	150	4-M8	55
HF680N03M-090-5											
HF680N03M-110-5											
HF680N03M-132-5											
HF680N03M-160-5											
HF680N03M-200-5	B5	1122	1075	221	522	505	1075	150	150	4-M10	80
HF680N03M-220-5											
HF680N03M-250-5											
HF680N03M-280-5											
HF680N03M-315-5	B6	1315	1268	250	618	600	1295	150	100	4-M12	120
HF680N03M-355-5											
HF680N03M-400-5											
HF680N03M-450-5											
HF680N03M-500-5											
HF680N03M-560-5											

5.4



		mm					
		H1	H2	W1	D1	Z	kg
1	HF680N03C-630-5+Z1 HF680N03C-710-5+Z1 HF680N03C-800-5+Z1 HF680N03C-900-5+Z1 HF680N03C-1000-5+Z1	2200	2440	800	700	100	900
2	HF680N03C-630-5+Z2 HF680N03C-710-5+Z2 HF680N03C-800-5+Z2 HF680N03C-900-5+Z2 HF680N03C-1000+Z2	2200	2540	800	700	200	900
3	HF680N03C-630-5+Z3 HF680N03C-710-5+Z3 HF680N03C-800-5+Z3 HF680N03C-900-5+Z3 HF680N03C-1000+Z3	2200	2590	800	700	250	900
4	HF680N03C-630-5+Z4	2200	2640	800	700	300	

00+Z

6.

B₴

	N|N W E



4

ENTER F1/F2

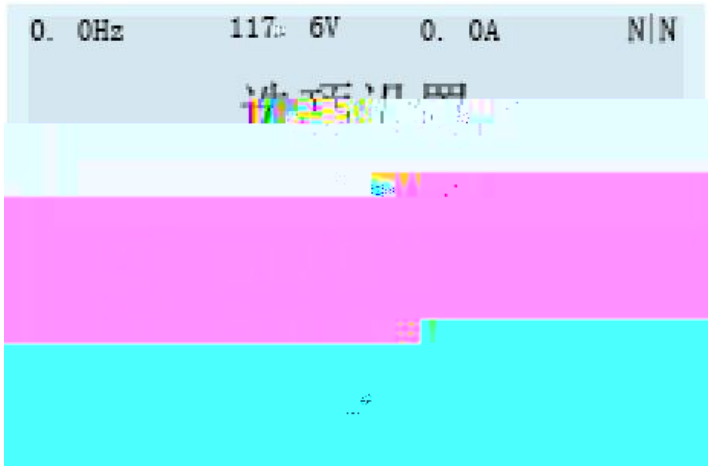
6.4

Option Set

1

2

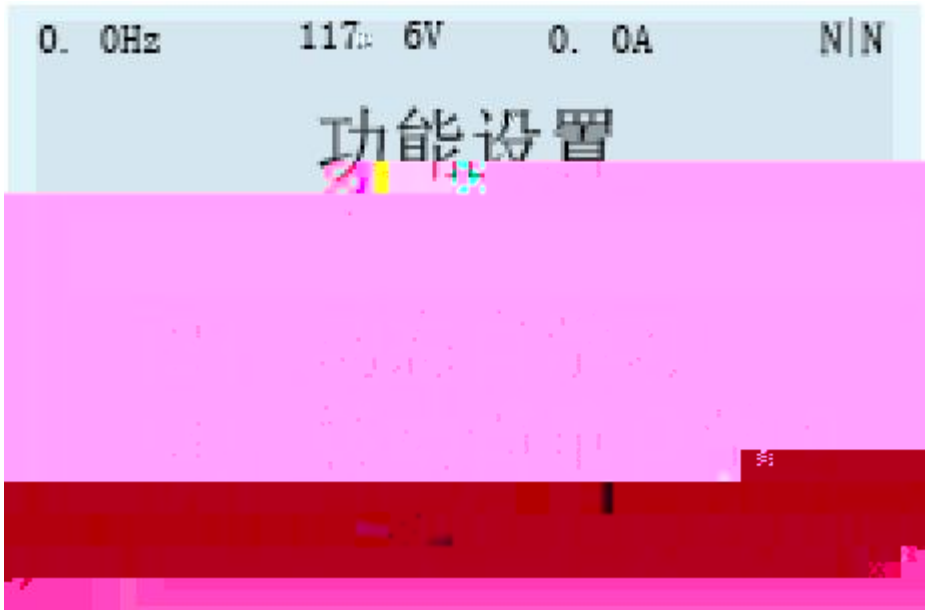
6.4.1



1	Choose Direction	
2	Reset Error	
3	Menu Language	
4	Monitor Setting	
5	LCD Contrast	
6	Time Setting	
7	Version	
8	OLD COM	

	Torque limiter	[%]	%
	1 Analog output1	[%]	1
	2 Analog output2	[%]	2

6.4.4



Function Setting

1	MotoTuning I	
2	MotoTuning II	

3	MotoTuning III	
4	DC-Link Tuning (AFE)	AFE
5	Shortcut Paras Setting	
6	Parameter Initialization	
7	Delete Fault Records	
8	System Restart	
9	Backup Parameter	
10	Recover Parameter	
11	Compare Parameter	
12	Backup Para DSP DSP	DSP
13	Restore Para DSP DSP	DSP

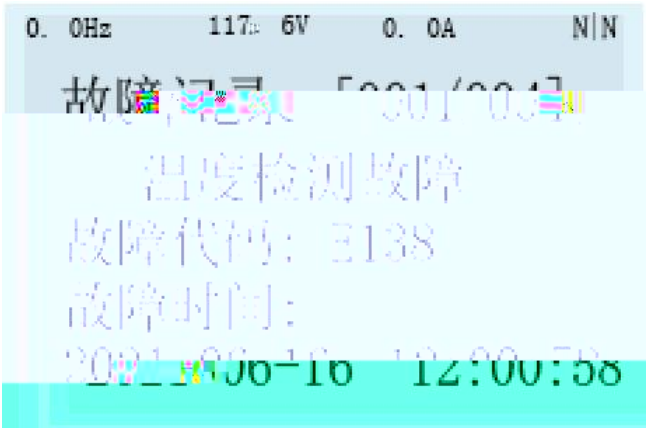
1

2

5

▼ ▲ “Enter”

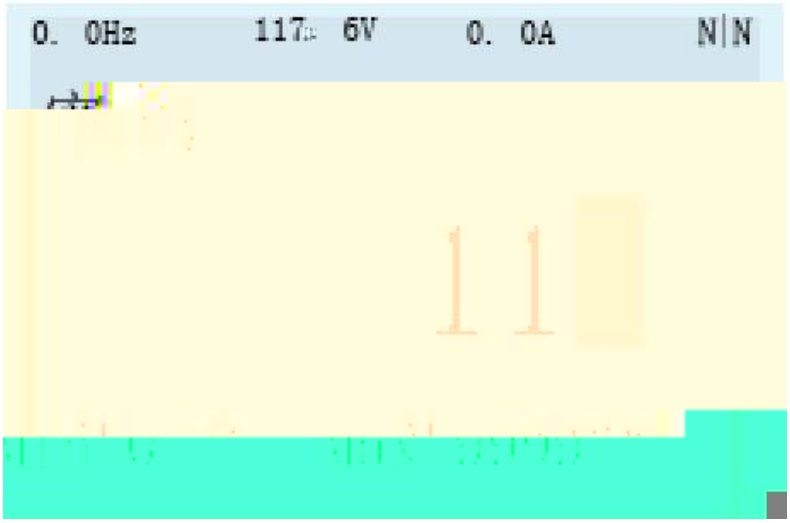
6.4.5



Fault Record

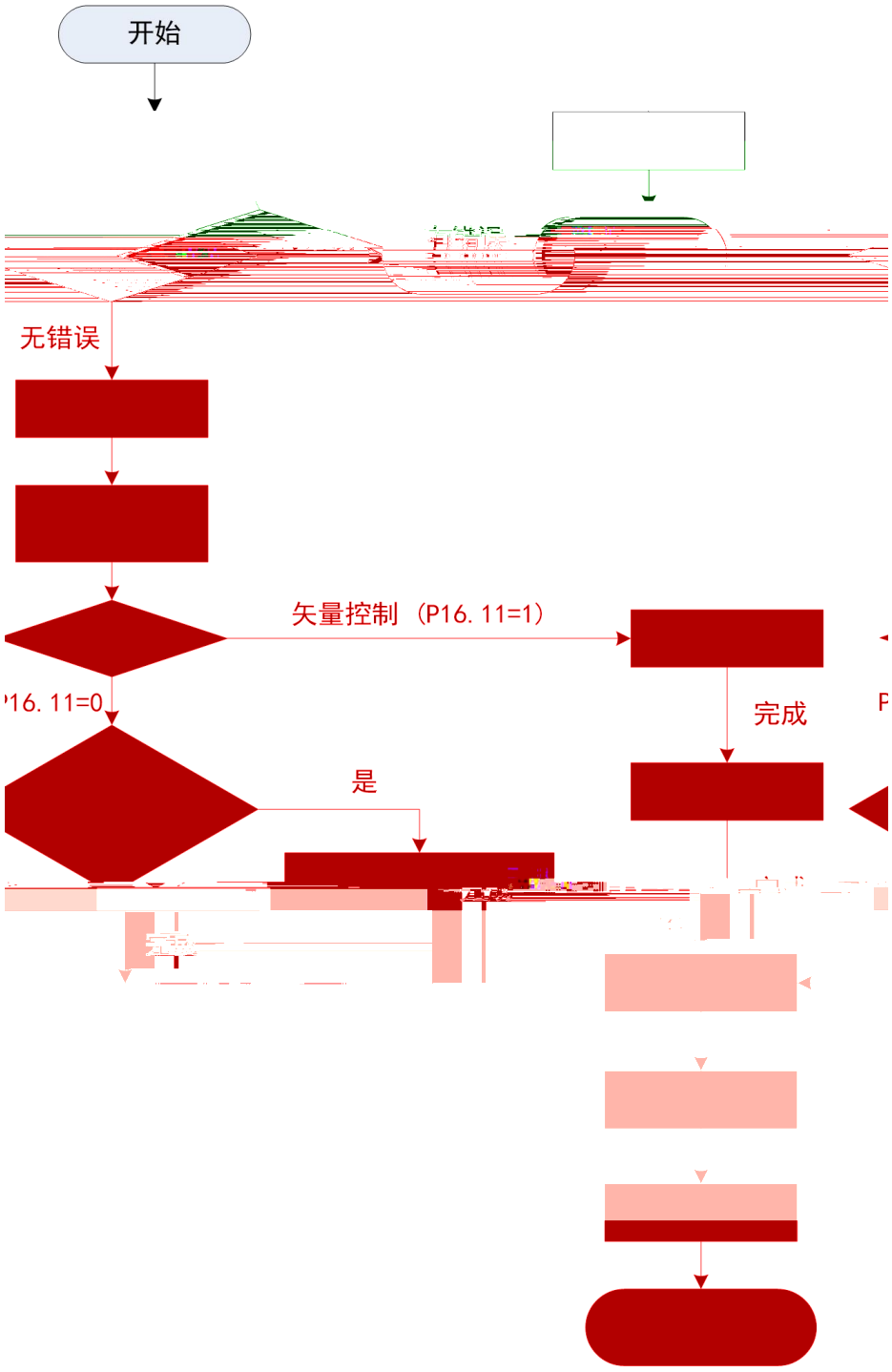
6.4.6

Access Permissions



7.

7.1



/

V/F P16.11=0 V/F

P16.11=2 P16.11=1

7.2

1
2
3
4 AC380~500V 50/60Hz
5 U,V,W
6
7 PG PG
8
9
10



Warring/Error

N | E W | E

7.2.1

5.4 “ ”

7.2.2

P16.2			
P16.3			
P16.4			
P16.5			
P16.6			
P16.7		120×P16.5 / P16.6	
P16.9		120×P16.5/P16.7	
P16.11		[0]V/F [1] [2]	0
P16.14	V/F	[0] V/F [1] V/F [2]	0
P16.24		V/F	50 [Hz]
P8.16	1	P8.15	3
P8.35	1	P8.34	3
P8.0		[0] [1] [2]DP [3]MODBUS [4]	1

		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	
P8.10			3
P8.3		[0] [1]	1
P7.0	[1]	0~	

gr com

4

50%

7.2.4

HF680N

	7.5% 50% 50%
	1/5
	P16
	V/F

7.2.7

1

2 LOC/REM LOCAL LOCAL

3 ENTER [1] RUN

RUN 5Hz

8.

8.1

8.1.1

DI1 DI2

DI3: 14 DI4

DO2 DO3:

DO4 DO

DO5

1

380V 220V P0.1

“ ” “ ”

“ DO4A ” “ DO4C ” “ DO5A ”

“ DO5C ” DO2 PLC

1

P3.0-P3.7 0 PLC DI “

” “ H:L ” DI 1

P3.0	1	
P3.1	20	
P3.2	14	LCL
P3.3	5	
P4.1 DO2	2	
P4.2 DO3	1	

P4.[illegible] DO4	0	DO
P4[illegible] DO5	32	
[illegible]0	180%	
P7.4	200%	
P7.12	730V	430V9 800V
P8.6	300s	3[illegible]0s ≤ 0.5s
P16.0	380V	
P16.2		400kW 400kW
P16.4		400kW 640A
P16.11	3	
P16.12	3	3K
P24.7	0V	ADJ

P16.0 P24.7 =P16.0

+P24.7 P16.0

AFE ” Stop

P8.6 **0.5s** Run

A B C

Stop

P N **P N** Local/Remote



P3.0		1	
P3.1		20	
P3.2		14	LCL
P3.3		5	
P4.1	DO2	2	
P4.2	DO3	1	
P4.3	DO4	0	DO
P4.4	DO5	32	
P7.0		180%	
P7.4		200%	
P7.12		730V	430V 800V
P8.6		300s	300s 0.5s
P16.0		380V	
P16.2			400kW 400kW
P16.4			400kW 640A
P16.11		3	
P16.12		3	3K
P24.7		0V	ADJ

P16.0 ≤ 375V 580V

375V P16.0 ≤ 400V 600V

400V P16.0 ≤ 430V 630V

430V P16.0 ≤ 450V 665V

450V P16.0 ≤ 460V 680V

P16.0 460V 700V

620V P16.0 380V P24.7

20V 620V

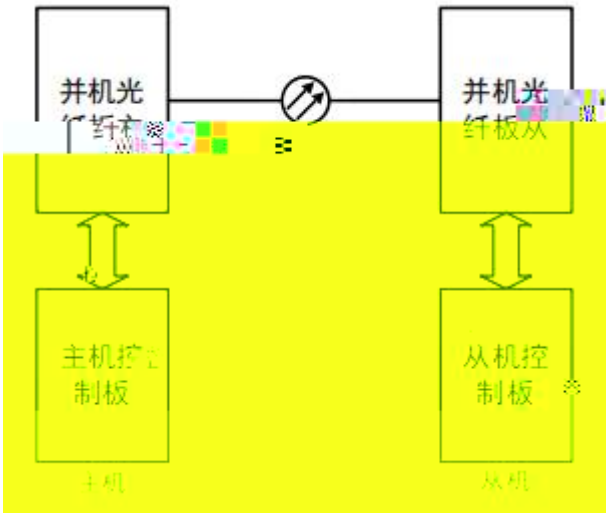
380V “ / ” “

D02

D04 D0

D05

1



380V 220V P0.1

* * DI D0

D0

“ D04A ” “ D04 ” “ D05A ”

“ D05C ”

P16.0	380V	
P16.2	1/2	800kW 400kW
P16.4	1/2	800kW 608A
P16.11	3	
P16.12	3	3K

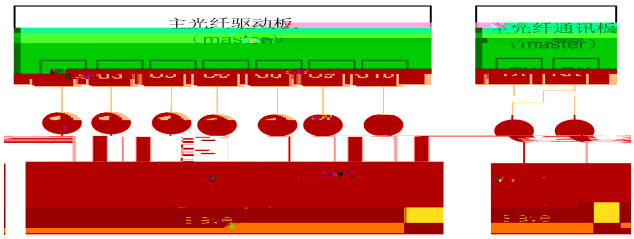
P2.0	1	
P2.3	1	
P3.0	1	
P3.1	20	
P3.2	14	LCL
P3.3	5	
P4.1 DO2	2	
P4.2 DO3	1	
P4.3 DO4	0	DO
P4.4 DO5	32	
P7.0	180%	
P7.4	200%	
P7.12	730V	430V 800V
P8.6	300s	300s 0.5s
P16.0	380V	
P16.2		800kW 800kW
P16.4		800kW 1216A

Local/Remote Remote

P3.0-P3.7 0 PLC DI DI

DI 1





P2.0	2	
P3.2	14	LCL
P4.3 DO4	0	DO
P4.4 DO5	32	
P4.1 DO2	2	
P7.0	180%	
P7.4	200%	
P7.12	730V	430V 800V
P16.0	380V	
P16.2	1/2	800kW 400kW
P16.4	1/2	800kW 608A
P16.11	3	
P16.12	3	3K

P2.0	1	

P2.3		1
P3.0		1
P3.1		20
P3.2		14
P3.3		5
P4.1	DO2	2
[redacted]		1
P4.3	DO4	0
P4.4	DO5	32
P7.0		180%
P7.4		200%
P7.12		730V
P8.6		300s

LCL

DO

430V

800V

b

5V P16. V 600V
0V P16.0 V
V P16.0 0V 665V
P16.0 0V 680V
P16.0

620V P16.0 380V P24.7

20V 620V

220V 220V

101.2 [W1] 101.77 CAN

@ 101.80 CAN @ 0

380V “ / ” “ ” 运行

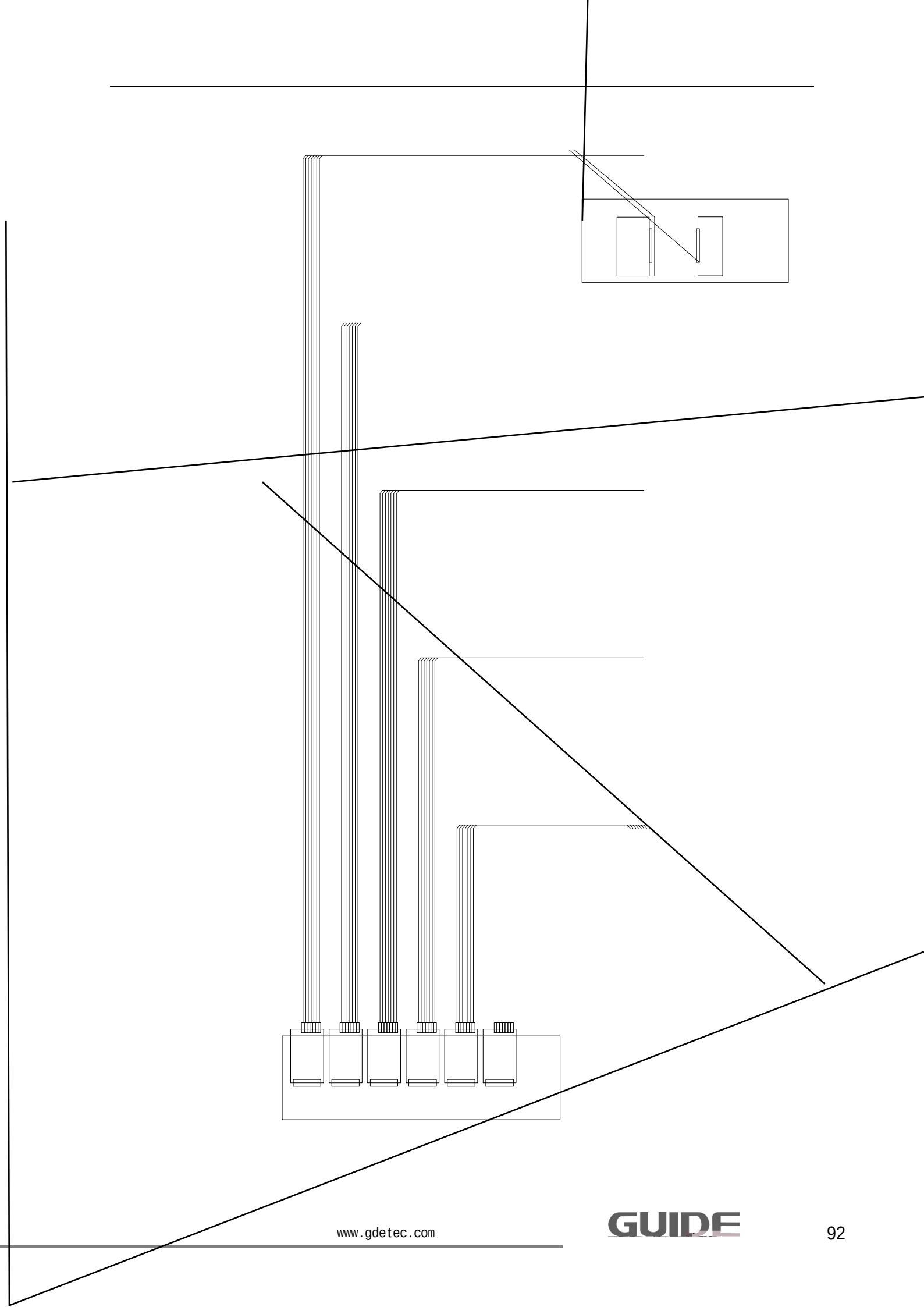
IGBT 300s 103.31

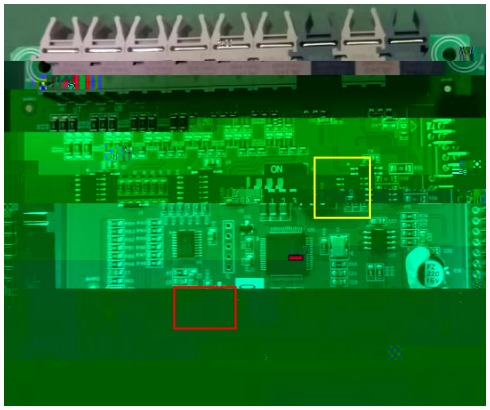
49-51Hz 103.30 AFE

停止

P8.6 0.5s 运行

103.23







PIN

“ ” PIN

DI1 DI2 DI4

DO2

DO4 DO

DO5

DI2

DO4 DO

DO5

P0.1 400KW

P0.1

1 “ DO4A ” “ DO4C ” 1

1 “ DO5A ” “ DO5C ” 1

DO2 PLC 1

P3.0-P3.7 0 PLC DI

DI DI 1



220V

1 2 3 4 5

P16.0 P24.7 =P16.0

+P24.7

≤

≤

≤

≤

≤

620V P16.0 380V P24.7 20V

620V

101.2 [W1] 101.77 CAN

@ 101.80 CAN @ 0

“ / ” “ ” 运行

AFE 2s

IGBT 300s IGBT

103.31 49-51Hz

停止

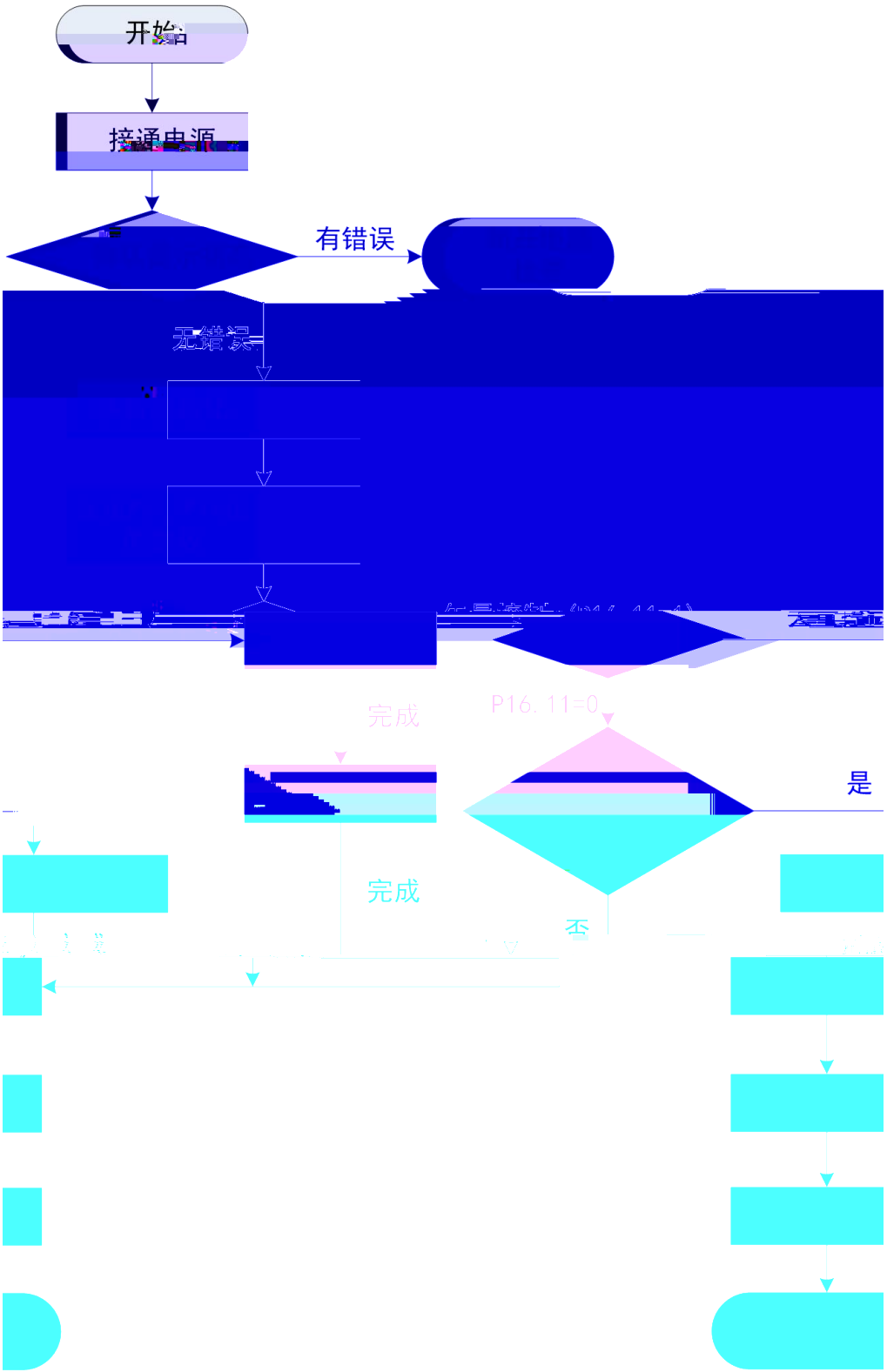
运行

103.23 102.54 102.55

102.56 停止

	A	B	C	
	102.54	102.55	102.56	
1	113.11	113.12	113.13	113.8
2	113.30	113.31	113.32	113.27
3	113.49	113.50	113.51	113.46

8.2



/

v א

8.3.3

6

8.3.4

P8.0	[0] [1] [2]DP [3]MODBUS [4]	1
P8.3	[0] [1]	1
P8.6	0 300s	0
P8.7		

6.0		0V
16.2		
P16.3		
P16.4		
P16.5		
P16.6		
P16.7		(120×P16.5 / P16.6)
P16.9		(120×P16.5 / P16.7)
P16.11		[0]V/F [1] [2]

8.3.5

5

P16.11 [1] [2]

[0] V/F

6

V/F (P20.74)

P20.74

P20.78 P20.79 P20.84

“

” “

“ ” “ ”

50%

P20.98 P20.98

8.3.6

HF680N

7.5%

5

0% 50%

1

2

1

2

8.3.9

9.

9.1

9.1.1

P2.0		[0] [1] [2]	0 2	0	500kW [0] 500kW [1] [2]
P2.2		[0] [1]	0 1	0	
P2.3			0 5	1	

9.1.2

P3.0	1	0 32	1
P3.1	2	0 32	2
P3.2	3	0 32	5

P8.6			0.00 300.00 [s]	0.00 [s]	IGBT

9.1.6

P16.0			320 550 [V]	500 [V]	
P16.2			0.0 4000.0 [kW]	[kW]	
P16.4			0.0 6500.0 [A]	[A]	
P16.11		[0]V/F [1] [2] [3] [4]	0 4	0	[3]
P16.12			3 8 [kHz]	3 [kHz]	3 8kHz

9.1.7 AFE

P24.0		[0] [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	AFE [0]
P24.1	@		0 347	0	

		[0]				
		[1]	1			AFE
P24.2		[2]	2	0	5	0
		[3] DP				[0]
		[4]MODBUS				
		[5]				
P24.3	@			0	347	0
P24.7	ADJ					

P24.28			0 6500 [mF]	0[mF]	
P24.29			0 6500 [mF]	0	AFE
P24.30			0 6.5 [mH]	0	AFE

10.

10.1 P2

[0]

P2.0 [1]

2		
3		
4	.NC	
5		</RST
6	1 0	8.2
7	2 1	
8	3 2	
9	4 3	
10		
11		
12		
13	.NC	
14		
15	.NC	
16		
17	0	1 0 00 1 01 2 10 3 11 4
18	1	
19		
20		AFE
21		
22	FUNC 22	
23	FUNC 23	
24		
25	FUNC 25	
26		
27	FUNC 27	
28		
29	FUNC 29	

10.3 P4

18	1	2
19	2	3
20	3	4
21	FUNC 21	o ڑ 3

10.4 P5

P5.0	AI1	[0] [1]0 +10V [2]-10 +10V [3]0 20mA	0 3	1	
P5.1	AI1	AI1	0.0 1000.0 [ms]	25.0 [ms]	
P5.2	AI1	AI1	-10.00 10.00 [V]	0.000 [V]	
P5.3	AI1	AI1	-20.00 20.00 [mA]	0.000 [mA]	
P5.4	AI1	AI1	-10.00 10.00 [V]	0.000 [V]	
P5.5	AI1	AI1	0.00 20.00 [mA]	0.000 [mA]	
P5.6	AI1	AI1	-300.0 300.0 [%]	0.0 [%]	
P5.7	AI1	AI1	-10.00 10.00 [V]	10.000 [V]	
P5.8	AI1	AI1	0.00 20.00 [mA]	20.000 [mA]	
P5.9	AI1	AI1	-300.0 300.0 [%]	100.0 [%]	
P5.18	AI2	[0] [1]0 +10V [2]-10 +10V [3]0 20mA	0 3	3	

P5.19	AI2	AI2	0.0 1000.0 [ms]	25.0 [ms]	
P5.20	AI2	AI2	-10.00 10.00 [V]	0.000 [V]	
P5.21	AI2	AI2	-20.00 20.00 [mA]	0.000 [mA]	
P5.22	AI2	AI2	-10.00 10.00 [V]	0.000 [V]	
P5.23	AI2	AI2	0.00 20.00 [mA]	0.000 [mA]	
P5.24	AI2	AI2	-300.0 300.0 [%]	0.0 [%]	
P5.25	AI2	AI2	-10.00 10.00 [V]	10.000 [V]	
P5.26	AI2	AI2	0.00 20.00 [mA]	20.000 [mA]	
P5.27	AI2	AI2	-300.0 300.0 [%]	100.0 [%]	

10.5 P6

P6.0	AO1		7-1	0 14	2
P6.1		1		0 1000	0
P6.2	AO1		AO1	-300.0 300.0 [%]	0.0 [%]
P6.3	AO1		AO1	-300.0	

P6.21	AO2	AO2 (P6.14 [13])	0.0 100.0 [%]	0.0 [%]	
P6.22	AO2	AO1	0.0 1000.0 [ms]	10.0 [ms]	

7-1

0

1

2

3

4

5

6

10.6 P7

P7.0	[1]	1	0.0 300.0 [%]	180.0 [%]	
P7.1	[2]	2	0.0 300.0 [%]	180.0 [%]	
P7.2	[3]	3	0.0 300.0 [%]	180.0 [%]	
P7.3	[4]	4	0.0 300.0 [%]	180.0 [%]	
P7.4	[1]	1	0.0 300.0 [%]	235.0 [%]	
P7.5	[2]	2	0.0 300.0 [%]	235.0 [%]	
P7.6	[3]	3	0.0 300.0 [%]	235.0 [%]	
P7.7	[4]	4	0.0 300.0 [%]	235.0 [%]	
P7.8	[1]	1	0.0 100.0 [%]	20.0 [%]	
P7.9	[2]	2	0.0 100.0 [%]	20.0 [%]	
P7.10	[3]	3	0.0 100.0 [%]	20.0 [%]	
P7.11	[4]	4	0.0 100.0 [%]	20.0 [%]	
P7.12			600 920 [V]	900 [V]	
P7.13			300 500 [V]	350 [V]	
P7.14			60.0 100.0 [ ]	87.5 [ ]	
P7.15			50.0 100.0 [ ]	80.0 [ ]	
P7.19	[1]	1	100.0 720.0 [%]	120.0 [%]	
P7.20	[2]	2	100.0 720.0 [%]	120.0 [%]	
P7.21	[3]	3	100.0 720.0 [%]	120.0 [%]	

P7.22	[4]		4	100.0 [%]	720.0 [%]	120.0 [%]
P7.23	1	M1	1	0.00 [s]	3.00 [s]	0.50 [s]
P7.24	1	M2	2	0.00 [s]	3.00 [s]	0.50 [s]
P7.25	1	M3	3	0.00 [s]	3.00 [s]	0.50 [s]
P7.26	1	M4	4	0.00 [s]	3.00 [s]	0.50 [s]
P7.27	1		1	0.00 [s]	3.00 [s]	2.00 [s]
P7.28	2		2	0.00 [s]	3.00 [s]	2.00 [s]

P8.37	2	P8.34	P8.36	0.0 [s]	300.0 [s]	4.00
P8.38	3			0.0 [%]	300.0 [%]	240.0
P8.39	3	P8.36	P8.38	0.0 [s]	300.0 [s]	7.00
P8.40	4			0.0 [%]	300.0 [%]	300.0
P8.41	4	œP8.38 ÿFO&L$	P8.40	0.0 [s]	300.0	

10.8 2 P9

P9.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P9.1					
P9.2					
P9.3		[0] [1]	0 1	0	
P9.6			0.00 300.00 [s]	0.00 [s]	
P9.7			0.00 300.00 [s]	0.00 [s]	
P9.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P9.11					
P9.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	
P9.14			0.1 10.0	1.0	
P9.15	1		0.0 300.0 [%]	100.0 [%]	
P9.16	1	P9.15	0.0 300.0 [s]	3.00 [s]	
P9.17	2		0.0 300.0 [%]	200.0 [%]	

P9.18	2	P9.15 P9.17	0.0 300.0 [s]	4.00 [s]	
P9.19	3		0.0 300.0 [%]	240.0 [%]	
P9.20	3	P9.17 P9.19	0.0 300.0 [s]	7.00 [s]	
P9.21	4		0.0 300.0 [%]	300.0 [%]	
P9.22	4	P9.19 P9.21	0.0 300.0 [s]	10.00 [s]	
P9.23	5		0.0 300.0 [%]	300.0 [%]	
P9.24	5	P9.21 P9.23	0.0 300.0 [s]	10.00 [s]	
P9.25	6		0.0 300.0 [%]	300.0 [%]	
P9.26	6	P9.23 P9.25	0.0 300.0 [s]	10.00 [s]	
P9.27	7		0.0 300.0 [%]	300.0 [%]	
P9.28	7	P9.25 P9.27	0.0 300.0 [s]	10.00 [s]	
P9.29	8		0.0 300.0 [%]	300.0 [%]	
P9.30	8	P9.27 P9.29	0.0 300.0 [s]	10.00 [s]	
P9.32		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	
P9.33			0.1 10.0	1.0	
P9.34	1		0.0 300.0 [%]	100.0 [%]	
P9.35	1	P9.34	0.0 300.0 [s]	3.00 [s]	
P9.36	2		0.0 300.0 [%]	200.0 [%]	

P10.18	2	P10.15 P10.17	0.0 300.0 [s]	4.00 [s]	
P10.19	3		0.0 300.0 [%]	240.0 [%]	
P10.20	3	P10.17 P10.19	0.0 300.0 [s]	7.00 [s]	
P10.21	4		0.0 300.0 [%]	300.0 [%]	
P10.22	4	P10.19 P10.21	0.0 300.0 [s]	10.00 [s]	
P10.23	5		0.0 300.0 [%]	300.0 [%]	
P10.24	5	P10.21 P10.23	0.0 300.0 [s]	10.00 [s]	
P10.25	6		0.0 300.0 [%]	300.0 [%]	
P10.26	6	P10.23 P10.25	0.0 300.0 [s]	10.00 [s]	
P10.27	7		0.0 300.0 [%]	300.0 [%]	
P10.28	7	P10.25 P10.27	0.0 300.0 [s]	10.00 [s]	
P10.29	8		0.0 300.0 [%]	300.0 [%]	
P10.30	8	P10.27 P10.29	0.0 300.0 [s]	10.00 [s]	
P10.32		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	
P10.33			0.1 10.0	1.0	
P10.34	1		0.0 300.0 [%]	100.0 [%]	
P10.35	1	P10.34	0.0 300.0 [s]	3.00 [s]	
P10.36	2		0.0 300.0 [%]	200.0 [%]	

P10.37	2	P10.34 P10.36	0.0 300.0 [s]	4.00 [s]	
P10.38	3		0.0 300.0 [%]	240.0 [%]	
P10.39	3	P10.36 P10.38	0.0 300.0 [s]	7.00 [s]	
P10.40	4		0.0 300.0 [%]	300.0 [%]	
P10.41	4	P10.38 P10.40	0.0 300.0 [s]	10.00 [s]	
P10.42	5		0.0 300.0 [%]	300.0 [%]	
P10.43	5	P10.40 P10.42	0.0 300.0 [s]	10.00 [s]	
P10.44	6		0.0 300.0 [%]	300.0 [%]	
P10.45	6	P10.42 P10.44	0.0 300.0 [s]	10.00 [s]	
P10.46	7		0.0 300.0 [%]	300.0 [%]	
P10.47	7	P10.44 P10.46	0.0 300.0 [s]	10.00 [s]	
P10.48	8		0.0 300.0 [%]	300.0 [%]	
P10.49	8	P10.46 P10.48	0.0 300.0 [s]	10.00 [s]	
P10.54			0.0 300.0 [%]	0.0 [%]	
P10.55		[0] [1]	0 1	0	
P10.56			0.00 300.00 [s]	3.00 [s]	
P10.57		[0] [1]	0 1	1	
P10.58			0.00 300.00 [s]	1.50 [s]	

10.10 4 P11

P11.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P11.1					
P11.2					
P11.3		[0] [1]	0 1	0	
P11.6			0.00 300.00 [s]	0.00 [s]	
P11.7			0.00 300.00 [s]	0.00 [s]	
P11.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P11.11					
P11.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	
P11.14			0.1 10.0	1.0	
P11.15	1		0.0 300.0 [%]	100.0 [%]	
P11.16	1	P11.15	0.0 300.0 [s]	3.00 [s]	
P11.17	2		0.0 300.0 [%]	200.0 [%]	

P12.0		[0] [1]	0	1	1
P12.1		[0][%] [1][Hz] [2][rpm]	0	2	1
P12.2	1		0.0	3000.0	10.0
P12.3	2		0.0	3000.0	20.0
P12.4	3		0.0	3000.0	35.0
P12.5	4		0.0	3000.0	50.0
P12.6	5		0.0	3000.0	50.0
P12.7	6		0.0	3000.0	50.0
P12.8	7		0.0	3000.0	50.0
P12.9	8		0.0	3000.0	50.0
P12.10	9		0.0	3000.0	50.0
P12.11	10		0.0	3000.0	50.0
P12.12	11		0.0	3000.0	50.0
P12.13	12		0.0	3000.0	50.0
P12.14	13		0.0	3000.0	50.0
P12.15	M.0				

P12.27			0.00 2.00 [s]	0.00 [s]	
P12.28			0.00 2.00 [s]	0.07 [s]	
P12.29			0.00 2.00 [s]	0.07 [s]	
P12.32			0.0 20.0 [%]	0.0 [%]	
P12.33			0.0 20.0 [%]	0.0 [%]	
P12.34			0.00 2.00 [s]	0.00 [s]	
P12.35			0.00 2.00 [s]	0.00 [s]	
P12.36			0.00 2.00 [s]	0.50 [s]	
P12.37			0.00 2.00 [s]	0.50 [s]	

10.12 2 P13

P13.0		[0] [1]	0 1	1	
P13.1		[0][%] [1][Hz] [2][rpm]	0 2	1	
P13.2	1		0.0 3000.0	10.0	
P13.3	2		0.0 3000.0	20.0	
P13.4	3		0.0 3000.0	35.0	
P13.5	4		0.0 3000.0	50.0	
P13.6	5		0.0 3000.0	50.0	
P13.7	6		0.0 3000.0	50.0	
P13.8	7		0.0 3000.0	50.0	
P13.9	8		0.0 3000.0	50.0	
P13.10	9		0.0 3000.0	50.0	
P13.11	10		0.0 3000.0	50.0	
P13.12	11		0.0 3000.0	50.0	
P13.13	12		0.0 3000.0	50.0	
P13.14	13		0.0 3000.0	50.0	
P13.15	14		0.0 3000.0	50.0	
P13.16	15		0.0 3000.0	50.0	
P13.17	16		0.0 3000.0	50.0	
P13.22			0.0 20.0 [%]	2.0 [%]	
P13.23			0.0 20.0 [%]	0.0 [%]	
P13.24			0.0 200.0 [%]	30.0 [%]	
P13.25			0.0 200.0 [%]	20.0 [%]	
P13.26			0.00 2.00 [s]	0.00 [s]	

P13.27			0.00 2.00 [s]	0.00 [s]	
P13.28			0.00 2.00 [s]	0.07 [s]	
P13.29			0.00 2.00 [s]	0.07 [s]	
P13.32			0.0 20.0 [%]	0.0 [%]	
P13.33			0.0 20.0 [%]	0.0 [%]	
P13.34			0.00 2.00 [s]	0.00 [s]	
P13.35			0.00 2.00 [s]	0.00 [s]	
P13.36			0.00 2.00 [s]	0.50 [s]	
P13.37			0.00 2.00 [s]	0.50 [s]	

10.13 3 P14

P14.0		[0] [1]	0 1	1	
P14.1		[0][%] [1][Hz] [2][rpm]	0 2	1	
P14.2	1		0.0 3000.0	10.0	
P14.3	2		0.0 3000.0	20.0	
P14.4	3		0.0 3000.0	35.0	
P14.5	4		0.0 3000.0	50.0	
P14.6	5		0.0 3000.0	50.0	
P14.7	6		0.0 3000.0	50.0	
P14.8	7		0.0 3000.0	50.0	
P14.9	8		0.0 3000.0	50.0	
P14.10	9		0.0 3000.0	50.0	
P14.11	10		0.0 3000.0	50.0	
P14.12	11		0.0 3000.0	50.0	
P14.13	12		0.0 3000.0	50.0	
P14.14	13		0.0 3000.0	50.0	
P14.15	14		0.0 3000.0	50.0	
P14.16	15		0.0 3000.0	50.0	
P14.17	16		0.0 3000.0	50.0	
P14.22			0.0 20.0 [%]	2.0 [%]	
P14.23			0.0 20.0 [%]	0.0 [%]	
P14.24			0.0 200.0 [%]	30.0 [%]	
P14.25			0.0 200.0 [%]	20.0 [%]	
P14.26			0.00 2.00 [s]	0.00 [s]	

P14.27		0.00 2.00 [s]	0.00 [s]
P14.28		0.00 2.00 [s]	0.07 [s]
P14.29		0.00 2.00 [s]	0.07 [s]
P14.32		0.0 20.0 [%]	0.0 [%]
P14.33		0.0 20.0 [%]	0.0 [%]
P14.34		0.00 2.00 [s]	0.00 [s]
P14.35		0.00 2.00 [s]	0.00 [s]
P14.36		0.00 .2000 [s]	0.50 [s]
P14.37	.00	0.00 2.00 [s]	0.50 [s]

10.14 4 P15

P15.27					0.00	2.00 [s]	0.00 [s]
P15.28					0.00	2.00 [s]	0.07 [s]
P15.29					0.00	2.00 [s]	0.07 [s]
P15.32					0.0	20.0 [%]	0.0 [%]
P15.33					0.0	20.0 [%]	0.0 [%]
P15.34					0.00	2.00 [s]	0.00 [s]
P15.35	نم	نم	نم	نم	0.00	2.00 [s]	0.00 [s]
P15.36					0.00	2.00 [s]	0.50 [s]
P15.37					0.00	2.00 [s]	0.50 [s]

10.15 1 V/F P16

P16.0			320 550 [V]	500 [V]	
P16.2			0.0 4000.0 [kW]	 [kW]	
P16.3			320 520 [V]	500 [V]	
P16.4			0.0 6500.0 [A]	 [A]	
P16.5			0.0 300.0 [Hz]	50.0 [Hz]	
P16.6			0 6000 [rpm]	1465 [rpm]	
P16.7			2 12 [pole]	4 [pole]	
P16.9			0 7200 [rpm]	1500 [rpm]	
P16.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P16.12			1.00 10.00 [kHz]	3.00 [kHz]	
P16.14	V/F	[0] V/F [1] V/F [2]	0 3	0	
P16.15		[0] [1]	0 1	0	
P16.16			2 500 [ms]	500 [ms]	
P16.17	V/F	[0] [1]	0 1	0	
P16.18			10 1000 [ms]	200 [ms]	
P16.19		[0] [1]	0 1	0	

P16.22			0.00 100.00 [s]	0.00 [s]
P16.23		V/F	0.00 300.00 [Hz]	0.00 [Hz]
P16.24		V/F	0.00 300.00 [Hz]	50.00 [Hz]
P16.25			0.0 120.0 [%]	100.0 [%]
P16.26	V/F	V/F	0.00 10.00 [%]	0.75 [%]
P16.27			0.0 200.0 [%]	100.0 [%]
P16.30			0.0 100.0 [%]	0.0 [%]
P16.33	V/F	V/F	0 6	2
P16.34	V/F	1	0.0 300.0 [Hz]	5.0 [Hz]
P16.35	V/F	1	0.0 128,	

10.16 2 V/F P17

P17.0			320 550 [V]	500 [V]	
P17.2			0.0 4000.0 [kW]	 [kW]	
P17.3			320 520 [V]	500 [V]	
P17.4			0.0 6500.0 [A]	 [A]	
P17.5			0.0 300.0 [Hz]	50.0 [Hz]	
P17.6			0 6000 [rpm]	1465 [rpm]	
P17.7			2 12 [pole]	4 [pole]	
P17.9			0 7200 [rpm]	1500 [rpm]	
P17.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P17.12			1.00 10.00 [kHz]	3.00 [kHz]	
P17.14	V/F	[0] V/F [1] V/F [2]	0 3	0	
P17.15		[0] [1]	0 1	0	
P17.16			2 500 [ms]	500 [ms]	
P17.17	V/F	[0] [1]	0 1	0	
P17.18			10 1000 [ms]	200 [ms]	
P17.19		[0] [1]	0 1	0	

P17.22			0.00 100.00 [s]	0.00 [s]	
P17.23		V/F	0.00 300.00 [Hz]	0.00 [Hz]	
P17.24		V/F	0.00 300.00 [Hz]	50.00 [Hz]	
P17.25			0.0 120.0 [%]	100.0 [%]	
P17.26	V/F	V/F	0.00 10.00 [%]	0.75 [%]	
P17.27			0.0 200.0 [%]	100.0 [%]	
P17.30			0.0 100.0 [%]	0.0 [%]	
P17.33	V/F	V/F	0 6	2	
P17.34	V/F 1		0.0 300.0 [Hz]	5.0 [Hz]	
P17.35	V/F 1		0.0 125.0 [%]	11.5 [%]	
P17.36	V/F 2		0.0 300.0 [Hz]	50.0 [Hz]	
P17.37	V/F 2		0.0 125.0 [%]	100.0 [%]	
P17.38	V/F 3		0.0 300.0 [Hz]	50.0 [Hz]	
P17.39	V/F 3		0.0 125.0 [%]	100.0 [%]	
P17.40	V/F 4		0.0 300.0 [Hz]	50.0 [Hz]	
P17.41	V/F 4		0.0 125.0 [%]	100.0 [%]	
P17.42	V/F 5		0.0 300.0 [Hz]	50.0 [Hz]	
P17.43	V/F 5		0.0 125.0 [%]	100.0 [%]	
P17.44	V/F 6		0.0 300.0 [Hz]	50.0 [Hz]	
P17.45	V/F 6		0.0 125.0 [%]	100.0 [%]	
P17.46	V/F @		0 300	0	
P17.47	@		0 300	0	

10.17 3 V/F P18

P18.0			320 550 [V]	500 [V]	
P18.2			0.0 4000.0 [kW]	 [kW]	
P18.3			320 520 [V]	500 [V]	
P18.4			0.0 6500.0 [A]	 [A]	
P18.5			0.0 300.0 [Hz]	50.0 [Hz]	
P18.6			0 6000 [rpm]	1465 [rpm]	
P18.7			2 12 [pole]	4 [pole]	
P18.9			0 7200 [rpm]	1500 [rpm]	
P18.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P18.12			1.00 10.00 [kHz]	3.00 [kHz]	
P18.14	V/F	[0] V/F [1] V/F [2]	0 3	0	
P18.15		[0] [1]	0 1	0	
P18.16			2 500 [ms]	500 [ms]	
P18.17	V/F	[0] [1]	0 1	0	
P18.18			10 1000 [ms]	200 [ms]	
P18.19		[0] [1]	0 1	0	

P18.22			0.00 100.00 [s]	0.00 [s]	
P18.23		V/F	0.00 300.00 [Hz]	0.00 [Hz]	
P18.24		V/F	0.00 300.00 [Hz]	50.00 [Hz]	
P18.25			0.0 120.0 [%]	100.0 [%]	
P18.26	V/F	V/F	0.00 10.00 [%]	0.75 [%]	
P18.27			0.0 200.0 [%]	100.0 [%]	
P18.30			0.0 100.0 [%]	0.0 [%]	
P18.33	V/F	V/F	0 6	2	
P18.34	V/F 1		0.0 300.0 [Hz]	5.0 [Hz]	
P18.35	V/F 1		0.0 125.0 [%]	11.5 [%]	
P18.36	V/F 2		0.0 300.0 [Hz]	50.0 [Hz]	
P18.37	V/F 2		0.0 125.0 [%]	100.0 [%]	
P18.38	V/F 3		0.0 300.0 [Hz]	50.0 [Hz]	
P18.39	V/F 3		0.0 125.0 [%]	100.0 [%]	
P18.40	V/F 4		0.0 300.0 [Hz]	50.0 [Hz]	
P18.41	V/F 4		0.0 125.0 [%]	100.0 [%]	
P18.42	V/F 5		0.0 300.0 [Hz]	50.0 [Hz]	
P18.43	V/F 5		0.0 125.0 [%]	100.0 [%]	
P18.44	V/F 6		0.0 300.0 [Hz]	50.0 [Hz]	
P18.45	V/F 6		0.0 125.0 [%]	100.0 [%]	
P18.46	V/F @		0 300	0	
P18.47	@		0 300	0	

P18.48		[0] [1]PID 1 [2]PID 2 [3]	0 3	0	
P18.49	@		0 300	0	
P18.50			0.00 300.00 [s]	0.00 [s]	
P18.51			0.0 150.0 [%]	70.0 [%]	
P18.52			0.00 5.00 [Hz]	0.00 [Hz]	
P18.54			0.00 300.00 [s]	0.00 [s]	
P18.55			0.0 150.0 [%]	75.0 [%]	
P18.56			0.00 5.00 [Hz]	0.00 [Hz]	
P18.59			0.0 1000.0 [%]	100.0 [%]	
P18.60			0.0 1000.0 [%]	100.0 [%]	
P18.61			0.0 1000.0 [%]	100.0 [%]	
P18.62			0.0 1000.0 [%]	100.0 [%]	
P18.64	V/F	V/F	0.0 1000.0 [%]	100.0 [%]	
P18.66		V/F	0.0 1000.0 [%]	100.0 [%]	
P18.67			0.0 1000.0 [%]	100.0 [%]	
P18.68			0.0 1000.0 [%]	100.0 [%]	
P18.69			0.0 1000.0 [%]	100.0 [%]	
P18.70			0.0 1000.0 [%]	100.0 [%]	

10.18 4 V/F P19

PR

P19.22		0.00 100.00 [s]	0.00 [s]
P19.23	V/F	0.00 300.00 [Hz]	0.00 [Hz]
P19.24	V/F	0.00 300.00 [Hz]	50.00 [Hz]
P19.25		0.0 120.0 [%]	100.0 [%]
P19.26 V/F	V/F	0.00 10.00 [%]	0.75 [%]
P19.27		0.0 200.0 [%]	100.0 [%]
P19.30		0.0 100.0 [%]	0.0 [%]
P19.33 V/F	V/F	0 6	2
P19.34 V/F 1		0.0 300.0 [Hz]	5.0 [Hz]
P19.35 V/F 1		0.0 125.0 [%]	11.5 [%]
P19.36 V/F 2		0.0 300.0 [Hz]	50.0 [Hz]
P19.37 V/F 2		0.0 125.0 [%]	100.0 [%]
P19.38 V/F 3		0.0 300.0 [Hz]	50.0 [Hz]
P19.39 V/F 3		0.0 125.0 [%]	100.0 [%]
P19.40 V/F 4		0.0 300.0 [Hz]	50.0 [Hz]
P19.41 V/F 4		0.0 125.0 [%]	100.0 [%]
P19.42 V/F 5		0.0 300.0 [Hz]	50.0 [Hz]
P19.43 V/F 5		0.0 125.0 [%]	100.0 [%]
P19.44 V/F 6		0.0 300.0 [Hz]	50.0 [Hz]
P19.45 V/F 6		0.0 125.0 [%]	100.0 [%]
P19.46 V/F @		0 300	0
P19.47 @		0 300	0

10.19 1 P20

				0	
P20.0		[0] [1]		0 1	0
P20.1		[0] [1] 1 [2] 2 [3] [4] [5]DP [6]MODBUS [7]	P20.3	0 7	0
P20.2				0 7	0
P20.3				-300.0 300.0 [%]	0.0 [%]
P20.4	@			0 300	0
P20.5				0 1000 [ms]	0 [ms]
P20.6				0.0 200.0 [%]	100.0 [%]
P20.7		[0] [1] P20.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	P20.8	0 7	0
P20.8		P20.7 [1]		0.0 300.0 [%]	200.0 [%]
P20.9		P20.7 [1]		0.0 300.0 [%]	200.0 [%]
P20.10				0	

P20.31	0.0 [%]	100.0 [%]	5.0 [%]
P20.32	0.0 [%]	100.0 [%]	5.0 [%]

P20.53	Kp				0.0 1000.0 [%]	100.0 [%]
P20.54	Ki				0.0 1000.0 [%]	100.0 [%]
P20.55					0.0 1000.0 [%]	100.0 [%]
P20.56					0.0 1000.0 [%]	100.0 [%]
P20.57		[0] [1]			0 1	0
P20.58					0.0 125.0 [%]	100.0 [%]
P20.59					1.0 25.0 [%]	2.5 [%]
P20.60	DROOP		0	DROOP	0.0 100.0 [%]	0.0 [%]
P20.61	DROOP		DROOP		30 2000 [ms]	50 [ms]
P20.62					0.0 1000.0 [%]	100.0 [%]
P20.63					0.0 1000.0 [%]	100.0 [%]
P20.66		1		1	0.0 1000.0 [%]	100.0 [%]
P20.67						

P20.77		2		2	90.0 110.0 100.0 [%] [%]
P20.78					0.00 650.00 0.00 [mOhm] [mOhm]
P20.79					0.00 65.50 0.000 [mH] [mH]
P20.80	1		1		0.800 1.350 1.140
P20.81	2		2		0.800 1.350 0.940
P20.82	3		3		0.800 1.350 1.080
P20.83	4		4		0.800 1.350 0.950
P20.84					0.00 655.00 0.00 [mH] [mH]
P20.85		85%	85%		40.0 150.0 108.0 [%] [%]
P20.86		87.5%	87.5%		40.0 150.0 106.5 [%] [%]
P20.87		90%	90%		40.0 150.0 105.0 [%] [%]
P20.88		92.5%	92.5%		40.0 150.0 103.5 [%] [%]
P20.89		95%	95%		40.0 150.0 102.0 [%] [%]
P20.90	5%	102.	102.5%		40.0 150.0 99.0 [%] [%]
P20.91		105%	105%		40.0 150.0 96.5 [%] [%]
P20.92		110%	110%		40.0 150.0 93.0 [%] [%]
P20.93		115%	115%		40.0 150.0 88.5 [%] [%]
P20.94		120%	120%		40.0 150.0 83.0 [%] [%]
P20.95		125%	125%		40.0 150.0 77.0 [%] [%]
P20.96		130%	130%		40.0 150.0 70.5 [%] [%]
P20.97		135%	135%		40.0 150.0 63.5 [%] [%]
P20.98				( )	0.01 300.00 0.75 [s] [s]
P20.99					0.00 10.00 0.00 [%] [%]

P21.54	Ki		0.0 [%]	1000.0 [%]	100.0
P21.55					

P21.78				0.00 [mOhm]	650.00 [mOhm]	0.00 [mOhm]
P21.79				0.00 [mH]	65.50 [mH]	0.000 [mH]
P21.80	1		1	0.800	1.350	1.140
P21.81	2		2	0.800	1.350	0.940
P21.82	3		3	0.800	1.350	1.080
P21.83	4		4	0.800	1.350	0.950
P21.84				0.00 [mH]	655.00 [mH]	0.00 [mH]
P21.85		85%	85%			

10.21 3 P22

P22.0		[0] [1]	0 1	0	
P22.1		[0] [1] 1 [2] 2 [3] [4] P22.3 [5]DP [6]MODBUS [7]	0 7	0	
P22.2			0 7	0	
P22.3			-300.0 300.0 [%]	0.0 [%]	
P22.4	@		0 300	0	
P22.5			0 1000 [ms]	0 [ms]	
P22.6			0.0 200.0 [%]	100.0 [%]	
P22.7		[0] [1] P22.8 P22.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	0 7	0	
P22.8		P22.7 [1]	0.0 300.0 [%]	200.0 [%]	
P22.9		P22.7 [1]	0.0 300.0 [%]	200.0 [%]	
P22.10			0 300	0	
P22.11			0 1000 [ms]	0 [ms]	

P22.31			0.0 [%]	100.0 [%]	5.0 [%]
P22.32			0.0 [%]	100.0 [%]	5.0 [%]
P22.34		[0] [1]	0	1	0
P22.35			0.0 [s]	100.0 [s]	0.0 [s]
P22.36			50.0 [%]	150.0 [%]	110.0 [%]
P22.37			0.0 [%]	150.0 [%]	100.0 [%]
P22.38			0.0 [%]	100.0 [%]	25.0 [%]
P22.39			0.0 [%]	120.0 [%]	100.0 [%]
P22.40			0.0 [%]	150.0 [%]	100.0 [%]
P22.41			0.0 [%]	150.0 [%]	135.0 [%]
P22.42		[0] [1]	0		1
P22.43			2		

P22.53	Kp	0.0 [%]	1000.0 [%]	100.0 [%]
P22.54	Ki	0.0 [%]	1000.0 [%]	100.0 [%]
P22.55		0.0	1000.0	

10.22 4 P23

P23.0

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P23.54	Ki		0.0 1000.0 [%]	100.0 [%]	
P23.55			0.0 1000.0 [%]	100.0 [%]	
P23.56			0.0 1000.0 [%]	100.0 [%]	
P23.57		[0] [1]	0 1	0	
P23.58			0.0 125.0 [%]	100.0 [%]	
P23.59			1.0 25.0 [%]	2.5 [%]	
P23.60	DROOP	0 DROOP	0.0 100.0 [%]	0.0 [%]	
P23.61	DROOP	DROOP	30 2000 [ms]	50 [ms]	
P23.62			0.0 1000.0 [%]	100.0 [%]	
P23.63			0.0 1000.0 [%]	100.0 [%]	
P23.66	1	1	0.0 1000.0 [%]	100.0 [%]	
P23.67	2	2	0.0 1000.0 [%]	100.0 [%]	
P23.69			0.00 2.00 [%]	1.00 [%]	
P23.70			0.00 2.00 [%]	1.00 [%]	
P23.71		[0] [1]	0 1	0	
P23.72		[0] [1]	0 1	1	
P23.73		[0] × 1 [1] × 10	0 1	0	
P23.74			0.00 650.00 [mOhm]	0.00 [mOhm]	
P23.75			0.70 1.00	0.90	
P23.76	1	1	90.0 110.0 [%]	100.0 [%]	
P23.77	2	2	90.0 110.0 [%]	100.0 [%]	

P23.78			0.00 [mOhm]	650.00 [mOhm]	0.00 [mOhm]
P23.79			0.00 [mH]	65.50 [mH]	0.000 [mH]
P23.80	1	1	0.800	1.350	1.140
P23.81	2	2	0.800		

10.23 P33

P33.0 Profibus	[0] [1]	0 1	0
P33.1	PLC	1 255	1
P33.2	[0]PPO 1 [1]PPO 2 [2]PPO 5 [3]GUIDE	0 3	2
P33.3		0 16	14
P33.4		ON	

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P33.31	[W9]	7-2	0 37 0
P33.32	[W9]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.33	[W10]	7-2	0 37 0
P33.34	[W10]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.35	[W11]	7-2	0 37 0
P33.36	[W11]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.37	[W12]	7-2	0 37 0
P33.38	[W12]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.39	[W13]	7-2	0 37 0
P33.40	[W13]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.41	[W14]	7-2	0 37 0
P33.42	[W14]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4 0
P33.43	[W15]	7-2	0 37 0

P33.44	[W15]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.45	[W0]	7-3	0 48	0	
P33.46	[W0]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.47	[W1]	7-3	0 48	0	
P33.48	[W1]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.49	[W2]	7-3	0 48	0	
P33.50	[W2]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.51	[W3]	7-3	0 48	0	
P33.52	[W3]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.53	[W4]	7-3	0 48	1	

P33.54	[W4]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.55	[W5]	7-3	0 48	19	
P33.56	[W5]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	2	
P33.57	[W6]	7-3	0 48	26	
P33.58	[W6]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	6	
P33.59	[W7]	7-3	0 48	30	
P33.60	[W7]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	1	
P33.61	[W8]	7-3	0 48	14	

P33.62	[W8]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0

7-2

0	
1	0
2	1
3	2
4	3
5	4
6	[32]
7	[32]
8	32_MSW
9	32_LSW
10	
11	
12	0 @32bit
13	1 @32bit
14	2 @32bit
15	3 @32bit
16	4 @32bit
17	5 @32bit
18	[Hz]
19	[rpm]
20	[%]
21	[%]
22	[%]
23	[Hz]
24	
25	
26	1[%]
27	2[%]
28	
29	
30 37	SET_W12 19

7-3

0	
1	0
2	1
3	2
4	3
5	4
6	5
7	0 @32bit
8	1 @32bit
9	2 @32bit
10	3 @32bit
11	4 @32bit
12	5 @32bit
13	[32]
14	[32]
15	32bit_MSW
16	32bit_LSW
17	
18	
19	
20	[rpm]
21	[rpm]
22	
23	
24	
25	
26	
27	A
28	B

29	C
30	
31	
32	
33	1
34	2
35	
36	
37	
38	
39	
40	
41 48	AW22 29

11.

11.1

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W01	SYS_NOT_RDY	(Ready)		
W02	NO_DRV_ENABLE	[ ]	P3	
W03	LOCAL_EM	[ ]	P3	
W04	REMOTE_EM	[ ]	P3	
W06	O.T	P7.14( )		
W09	DP P/B ALARM	DP	DP	
W10	MODBUS MODBUS ALARM	Modbus	Modbus	
W15	PARAMETER ERROR			
W18	Temp_Sensing Fail			
W20	SLV_NOT_RDY			
W21	1 SLV1_CAN_ERR	1	1	
W22	2 SLV2_CAN_ERR	2	2	
W23	3 SLV3_CAN_ERR	3		

[E113]	MIP	
[E114]	MOP	
[E115]	OS	P7.19 P7.19
[E116]	SLVC Fail	P7.23
[E117]	MOTOR STALL	P20.14 P20.15
[E118]	PG ERROR	P20.14 P20.15
[E119]	SPEED ABNORMAL	P20.14 P20.15 P7.31 P7.32
[E121]	IGBT1 OT1	
[E122]	IGBT2 OT2	
[E123]	IGBT3 OT3	
[E124]	IGBT4 OT4	
[E125]	IGBT5 OT5	
[E126]	IGBT6 OT6	
[E127]	IGBT7 OT7	
[E128]	IGBT8 OT8	
[E137]	FAN STALL	

[E138]	TEMP_SENSING FAIL
[E139]	Pre_Charging Fail P7.95
[E140]	Line UV
[E141]	Line OPEN
[E142]	Line Detection Error
[E143]	DI Line SW Fail
[E144]	Line SW SHORT
[E145]	(AFE) Line OV P16.0
[E146]	(AFE) Line Over_Freq
[E151]	U IGBT PDP [UT]
[E152]	U IGBT PDP [UB]
[E153]	V IGBT PDP [VT]
[E154]	V IGBT PDP [VB]
[E155]	W IGBT PDP [WT]
[E156]	W IGBT PDP [WB]



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- ON
- COM

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- ON
- COM (
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12.



12.2

1.
2.

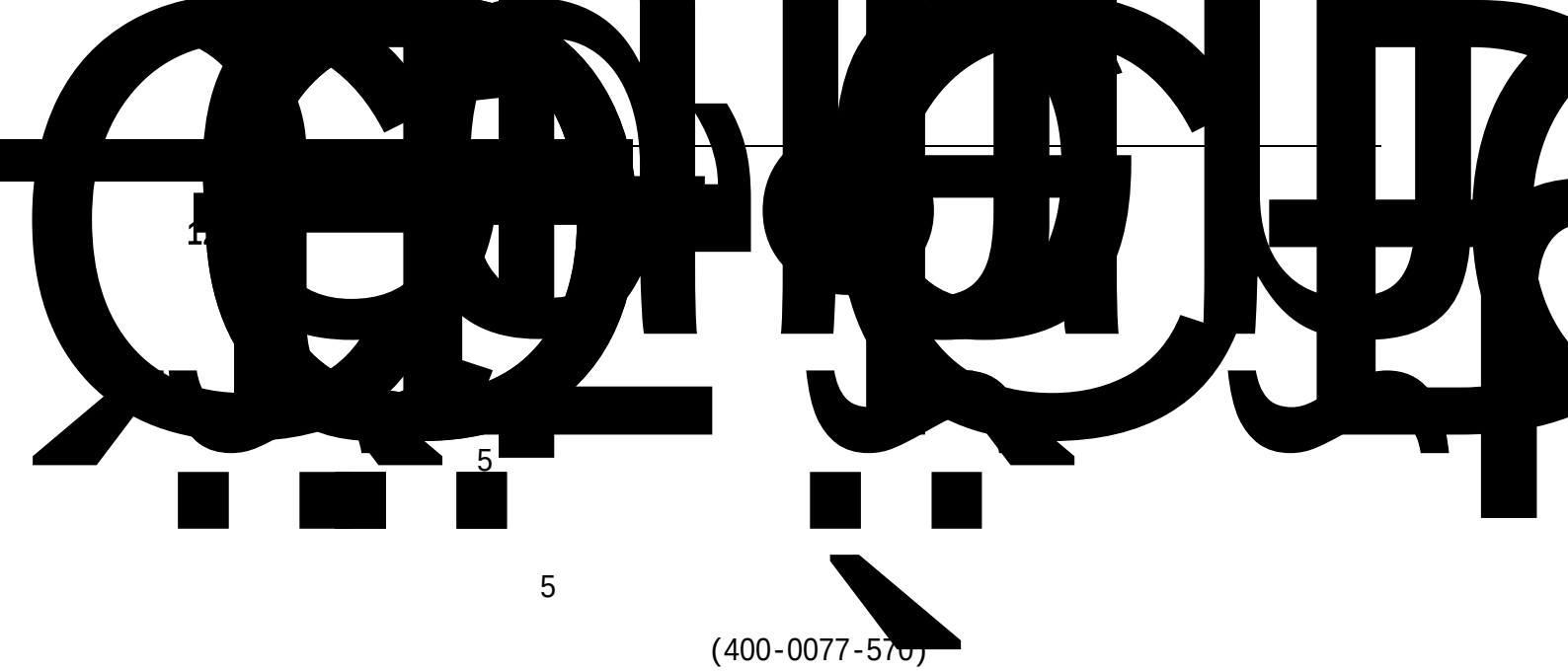
1.
2.

1.
2.
3.

1. > 40
   < 95%
2.

1.
2.

1.
2.
3.



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(400-0077-570)

1 40

2 80%

3 24 /

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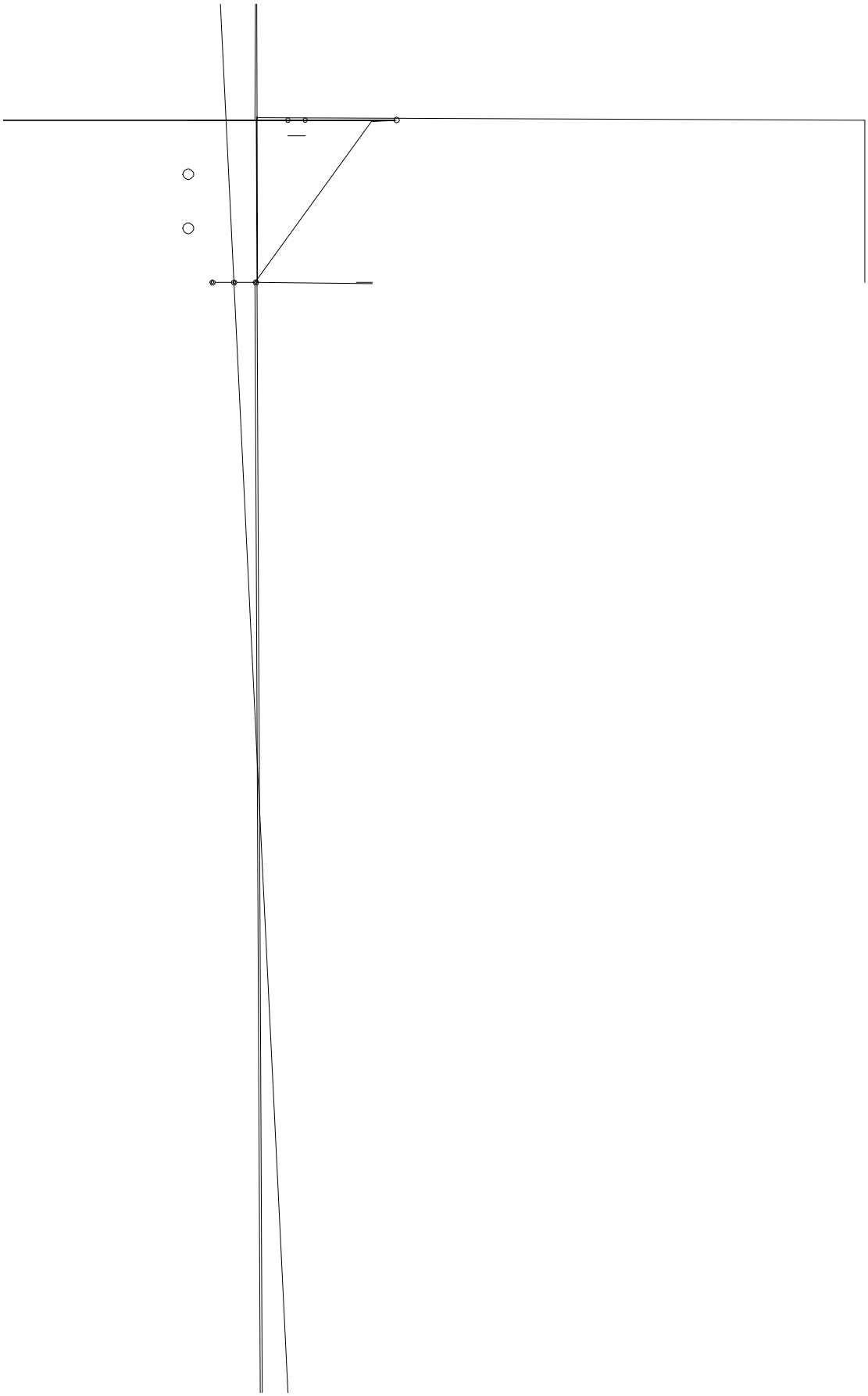
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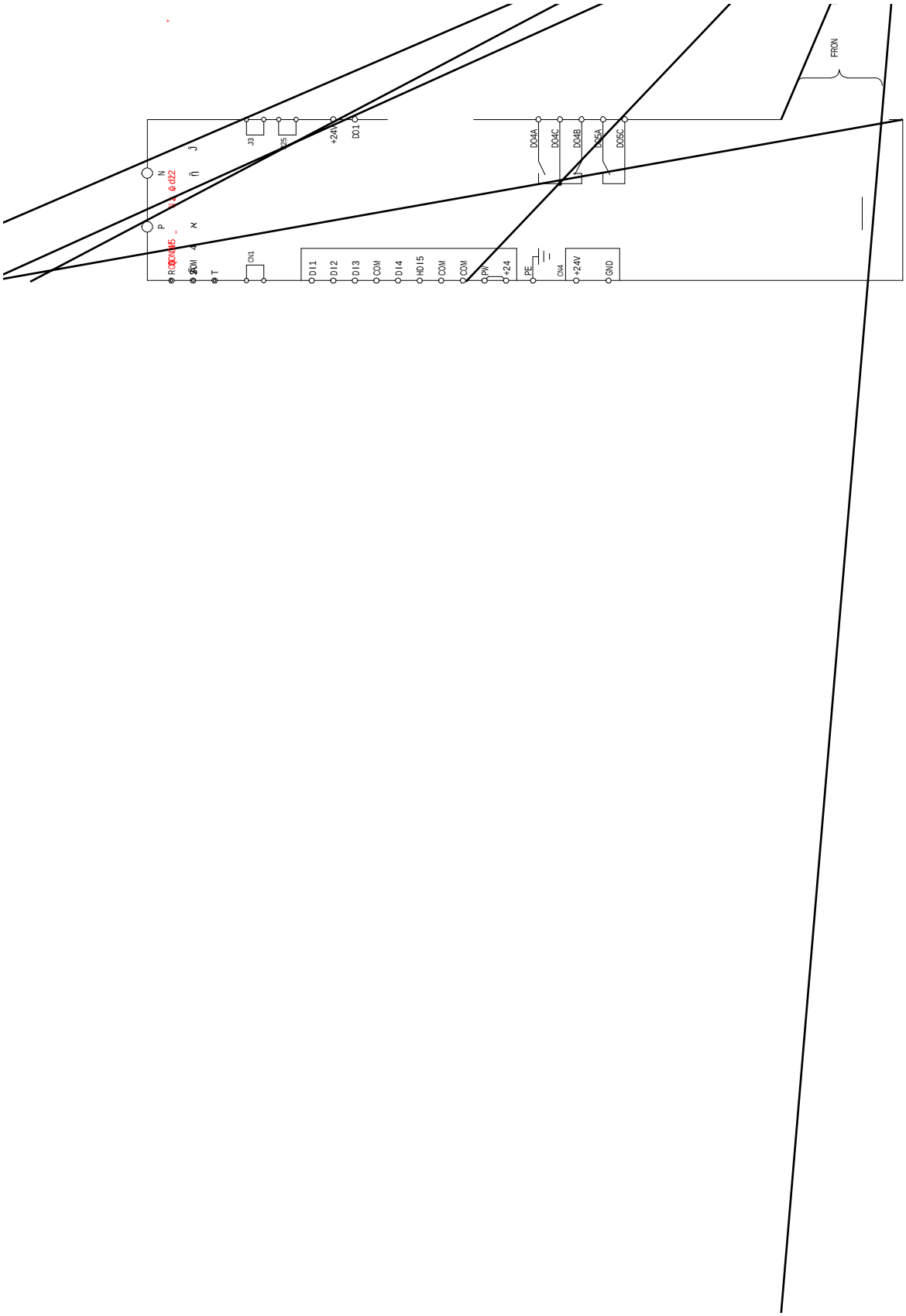
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FRON
J3
J25
+24V
DO1
DO4A
DO4C
DO4B
DO5A
DO5C
N
P
CN1
DI1
DI2
DI3
COM
DI4
HDI5
COM
COM
PW
+24
PE
CN4
+24V
GND

SL2
1
2
3
4
5
6
7
UT
UB
VT
VB
WT
WB
FL
SL1
1
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UT
UB
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VB
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MAU
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7
UT
UB
VT
VB
WT
WB
FL
9
8
9
8
9
8
9
8
9
8
9
8
MAU TX
MAU RX
SL1 TX
SL1 RX
SL2 TX
SL2 RX
SL5 TX
SL5 RX
SL4 TX
SL4 RX
SL3 TX
SL3 RX

HF680N-5

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