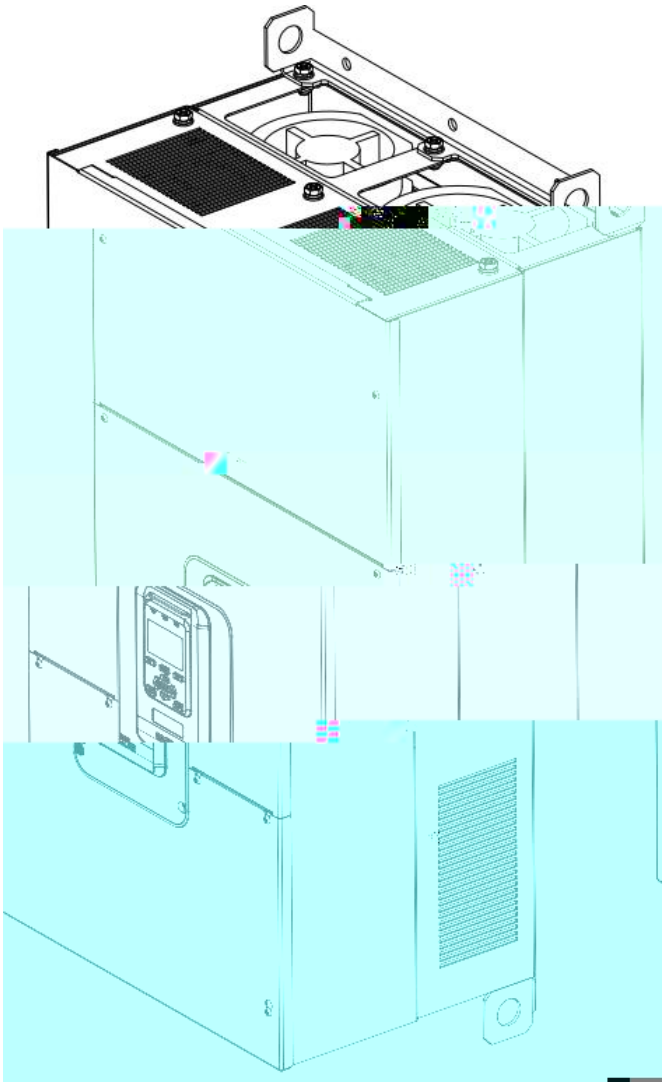
GUIDE



HF650

1.

1.1

1.2

(1)

(2)

(3)

(4)

LVD	2014/35/EU	EN 61800-5-1
EMC	2014/30/EU	EN 61800-3

1.3

1

RCD

RCM RCD

RCM

B RCD RCD

RCD RCD

2

500V

5MΩ

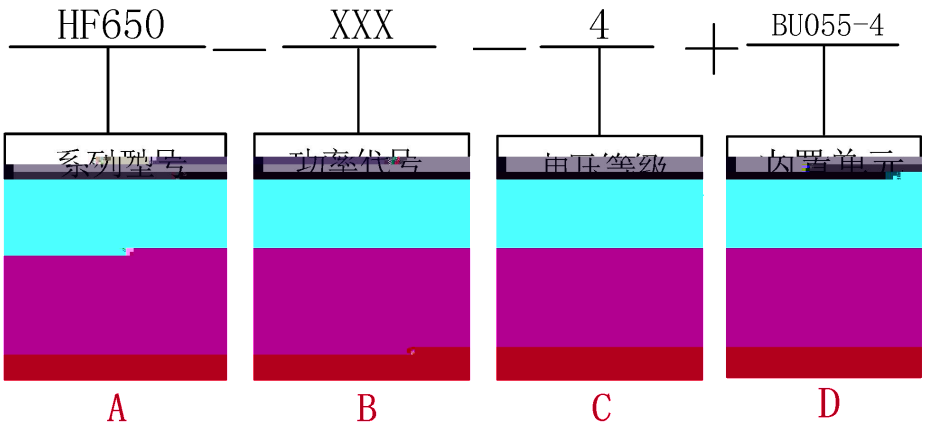
3

2.

2.1

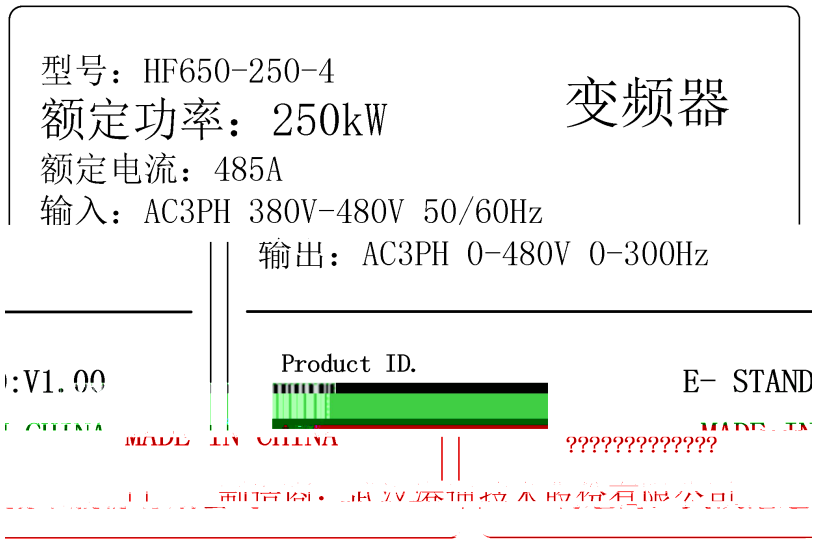
1.
2.
3.
4.

2.2



2-1

HF650 2-2 250kW



2-2

HF650-250-4 HF650 250kW 400V

AC

3PH

380V-480V 50/60Hz

0-480V 0-300Hz

2.3

2-3 HF650

	[A]	[kW]	[A]	[kW]		(kg)
HF650-0R4-4	1.8	0.4	--	--	I1	3
HF650-0R7-4	3.3	0.75	1.8	0.4		
HF650-1R5-4	4.8	1.5	3.3	0.75		
HF650-2R2-4	5.7	2.2	4.8	1.5	I2	3.5
HF650-3R7-4	10.2	3.7	5.7	2.2		
HF650-5R5-4	15	5.5	10.2	3.7		
HF650-7R5-4	18	7.5	15	5.5		
HF650-011-4	24	11	18	7.5	I3	4.5
HF650-015-4	32	15	24	11		
HF650-018-4	41	18.5	32	15	I4	10.5
HF650-022-4	47	22	41	18.5		
HF650-030-4	65	30	47	22		
HF650-037-4	75	37	65	30	I5	35

HF650-045-4	94	45	75	37		
HF650-055-4	115	55	94	45		
HF650-075-4	155	75	115	55	I6	52
HF650-090-4	188	90	155	75		
HF650-110-4	215	110	188	90		
HF650-132-4	265	132	215	110	I7	108.5
HF650-160-4	330	160	265	132		
HF650-185-4	365	185	330	160		
HF650-220-4	438	220	365	185	I8	146
HF650-250-4	485	250	438	220		
HF650-280-4	545	280	485	250		
HF650-315-4	610	315	545	280		
HF650-355-4	668	355	610	315	I9	210
HF650-400-4	720	400	668	355		
HF650-500-4	930	500	820	450	I10	305

150% 5 1

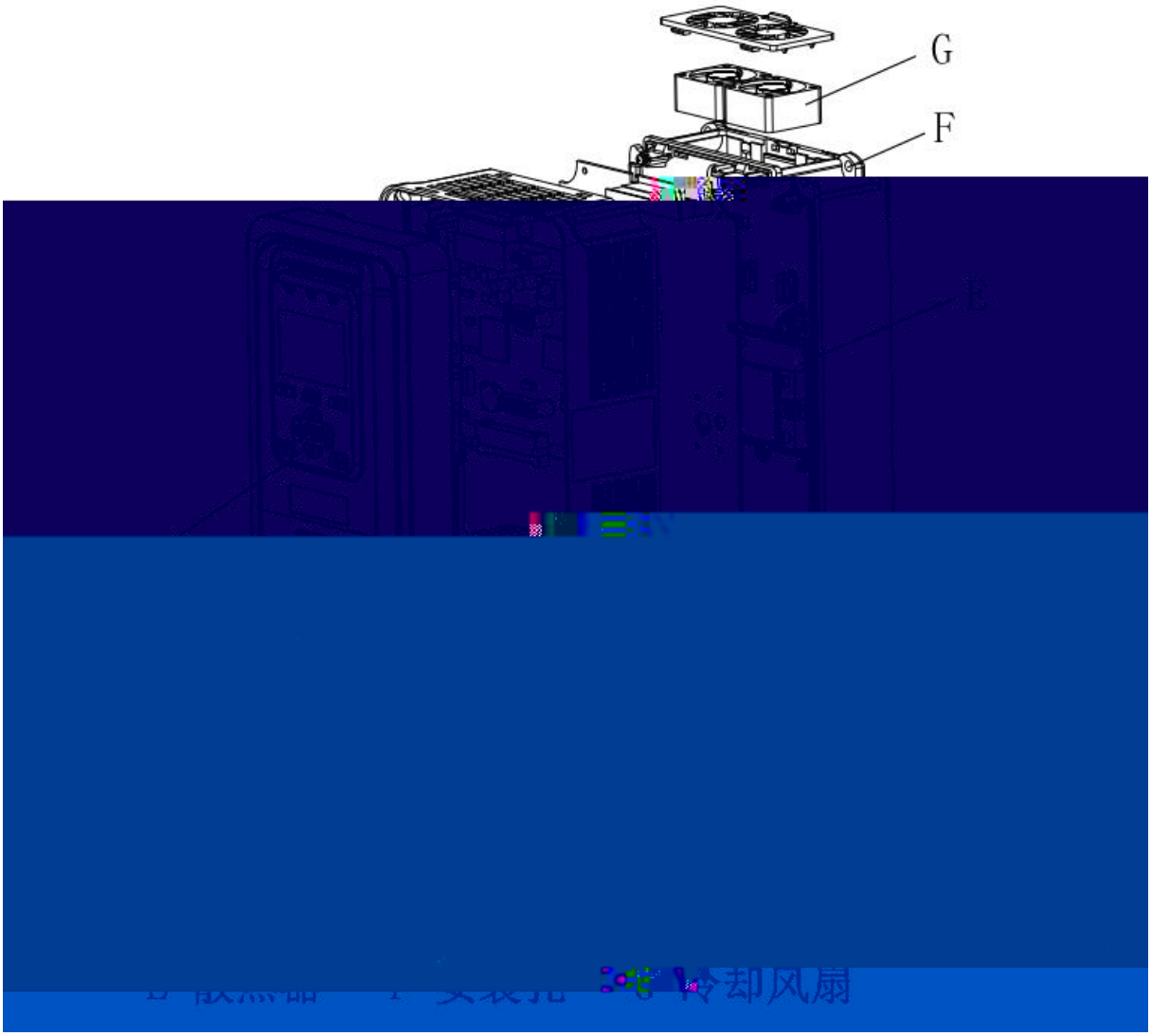
200% 5 5

0.4kW-30kW ; 37kW-160kW 185kW

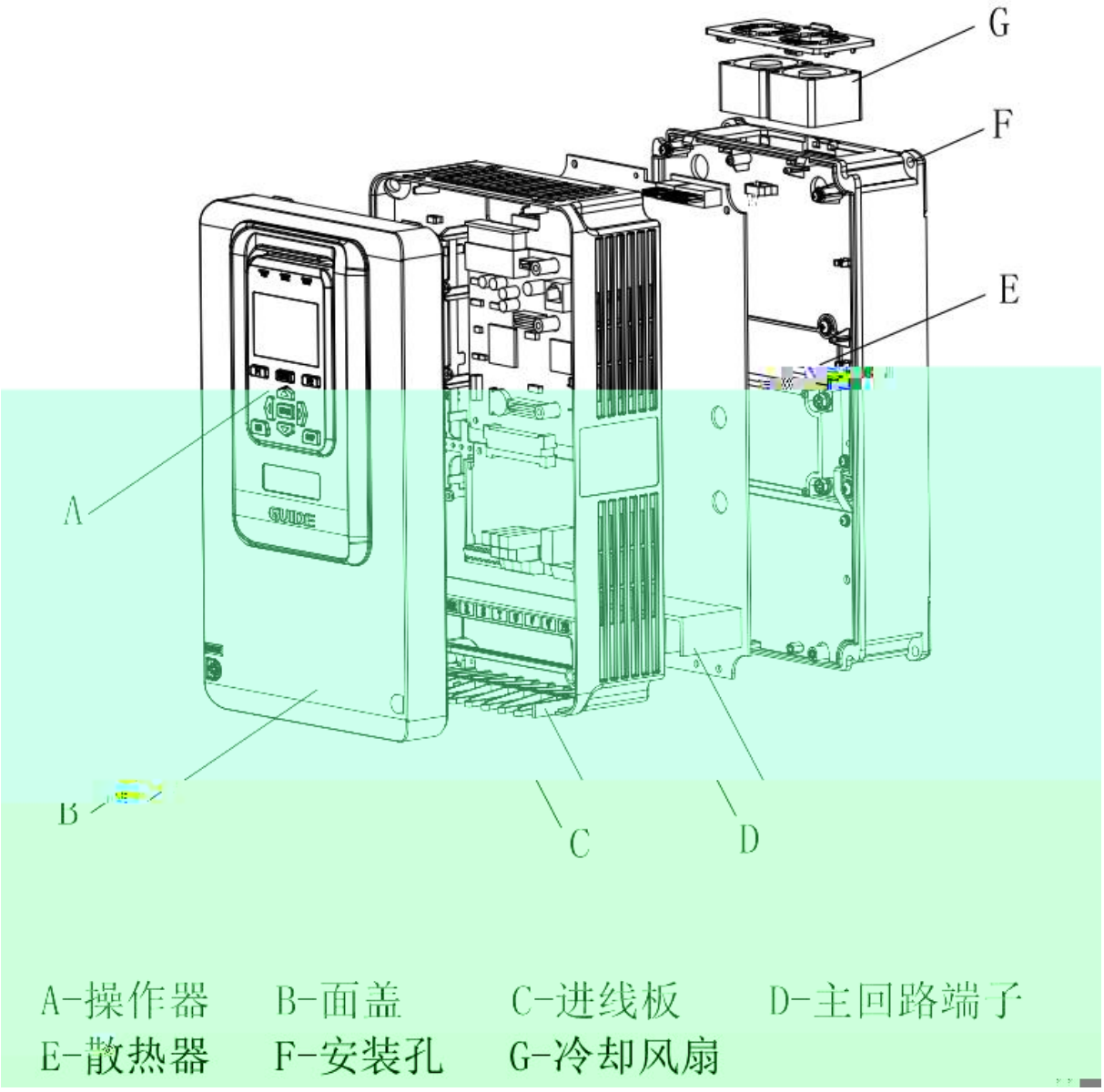
2.4

HF650

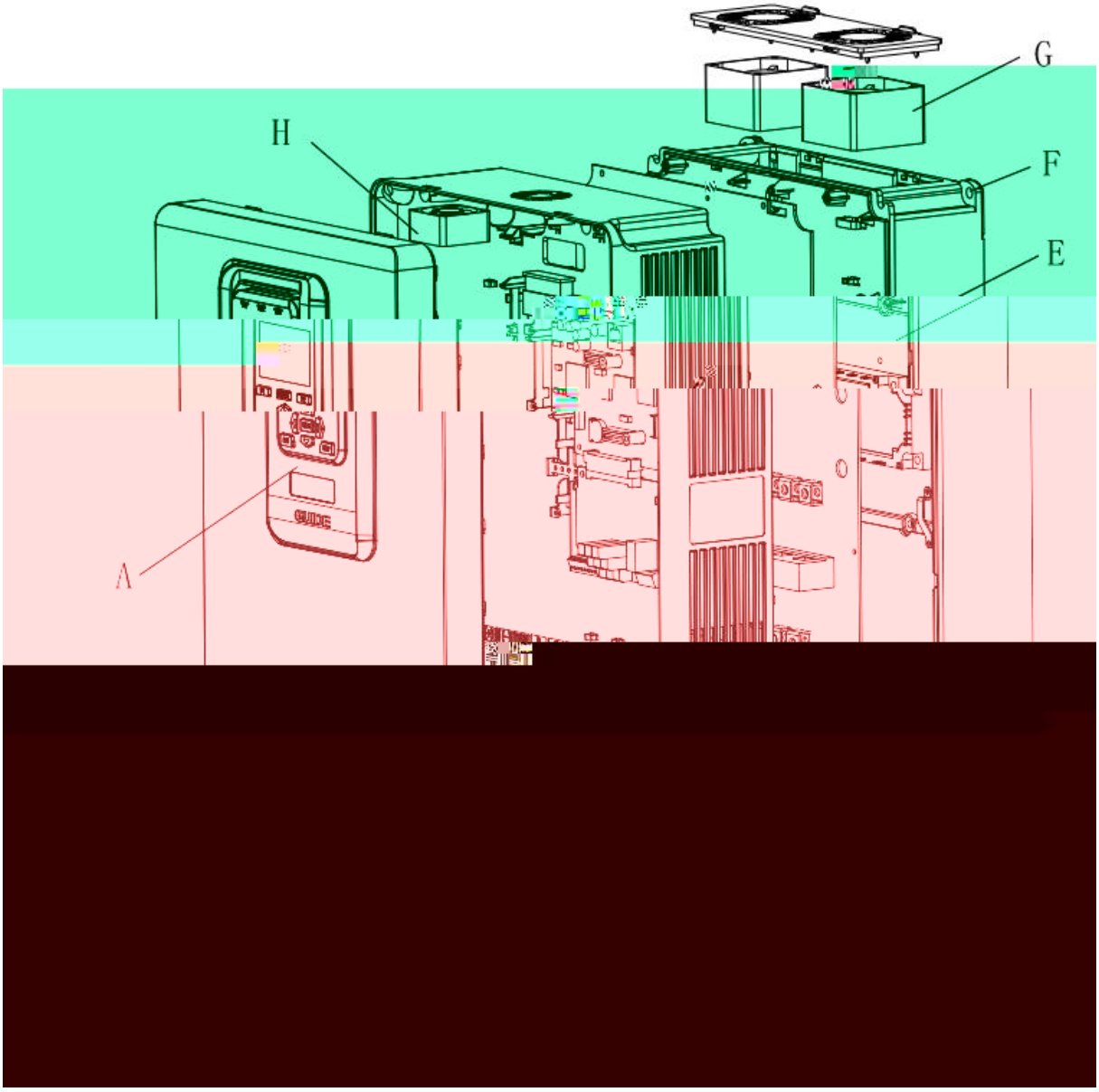
HF650-0R4-4　　HF650-7R5-4



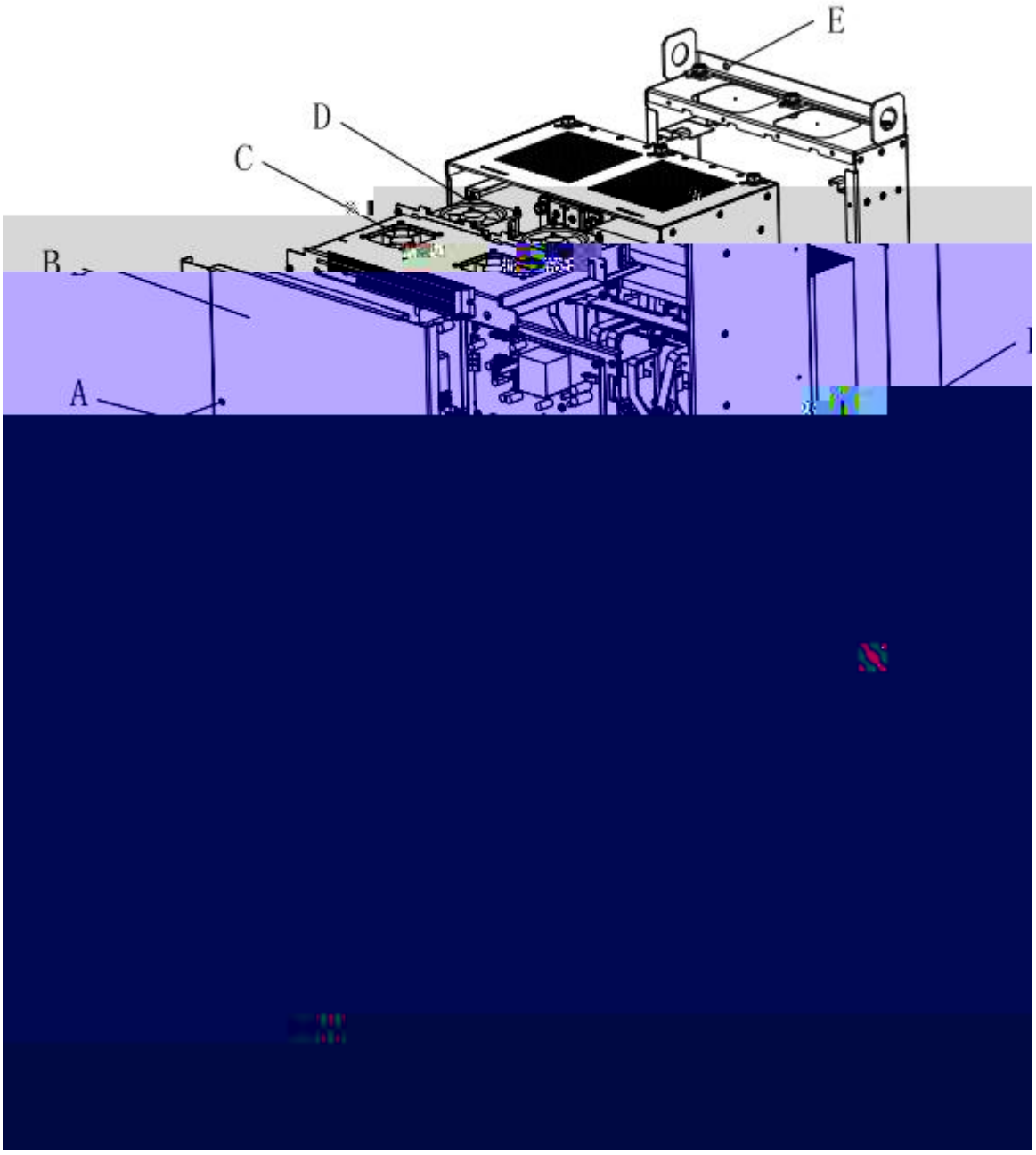
HF650-011-4　HF650-015-4



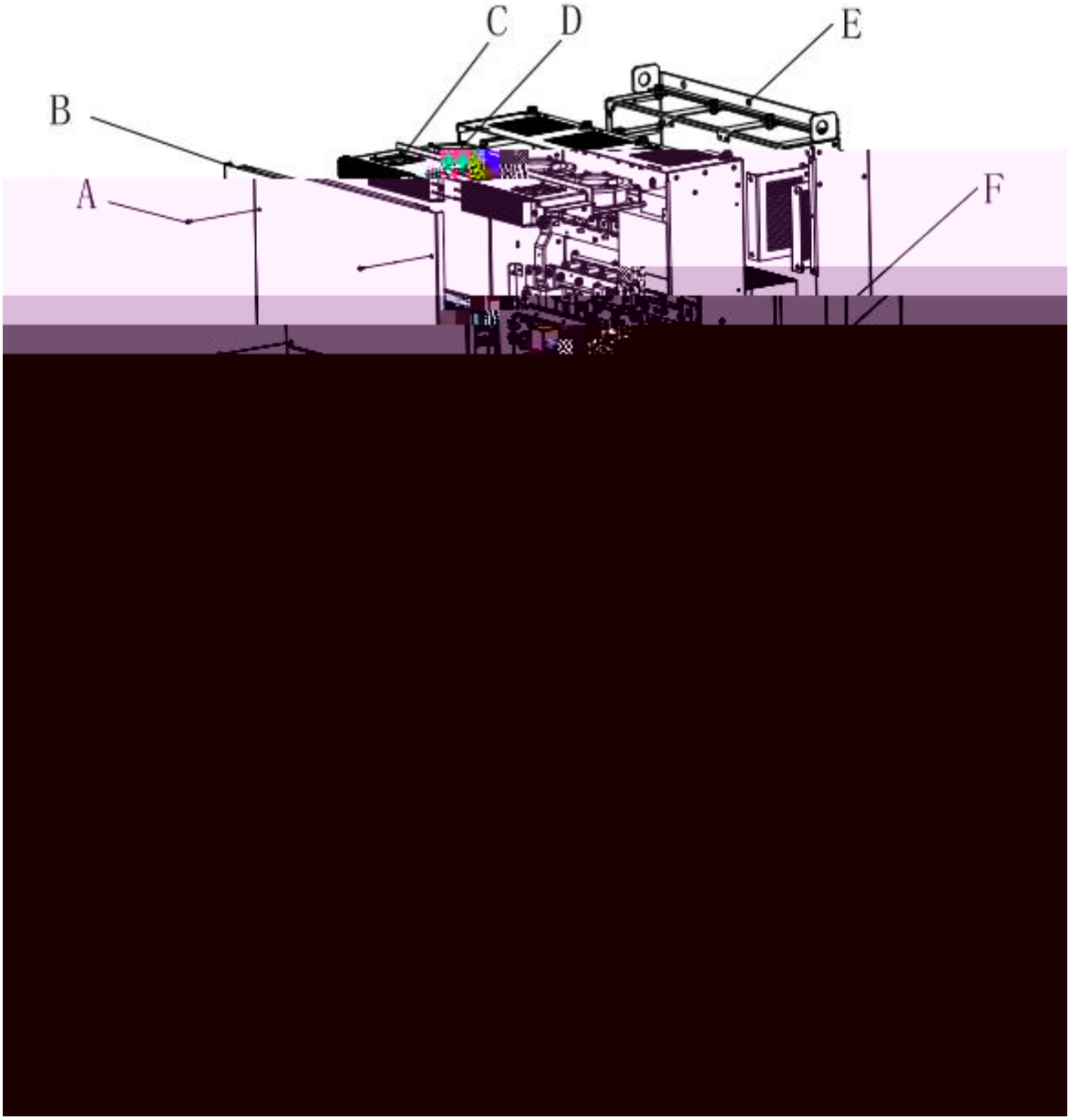
HF650-018-4　　HF650-030-4



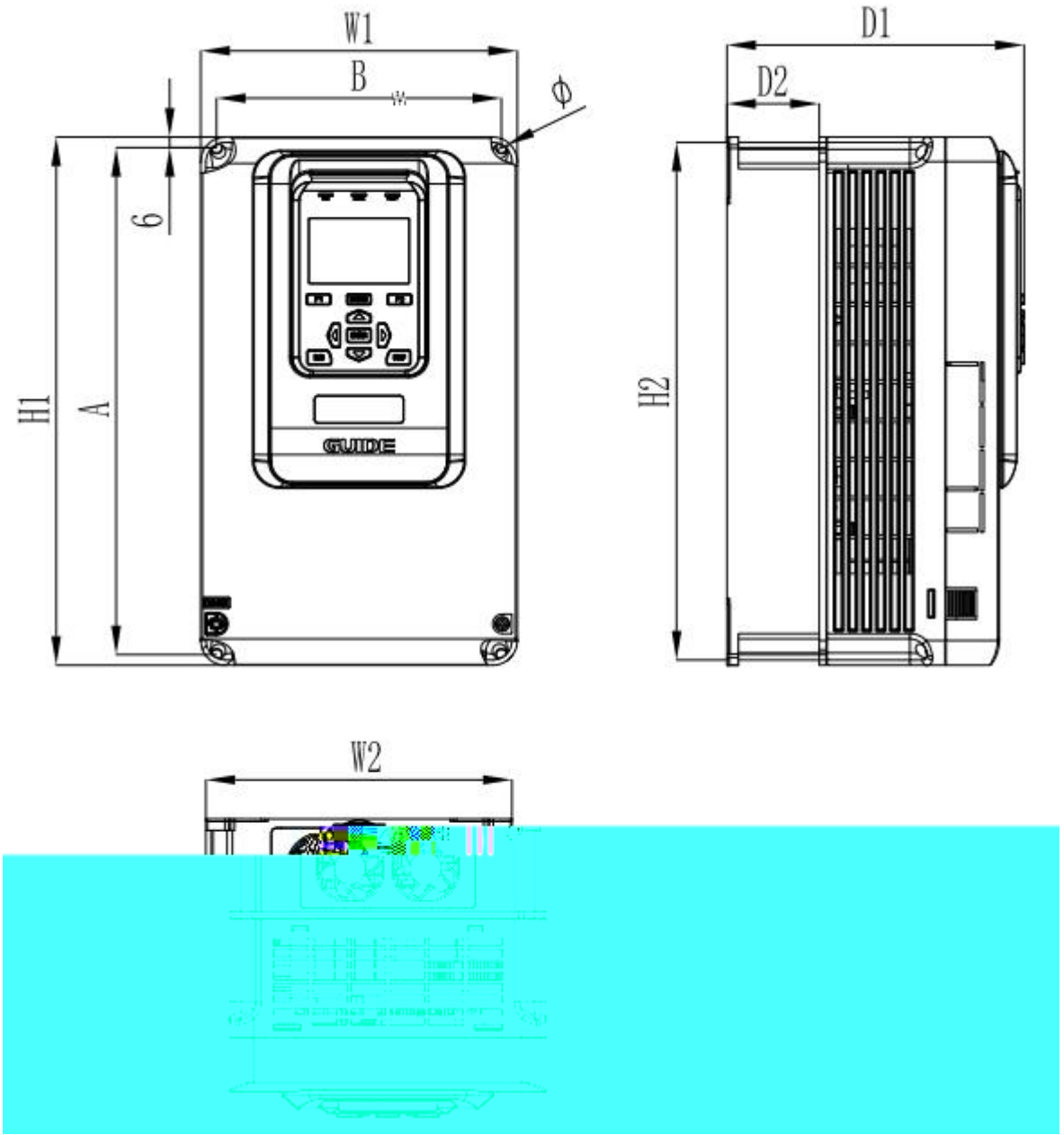
HF650-037-4　HF650-090-4



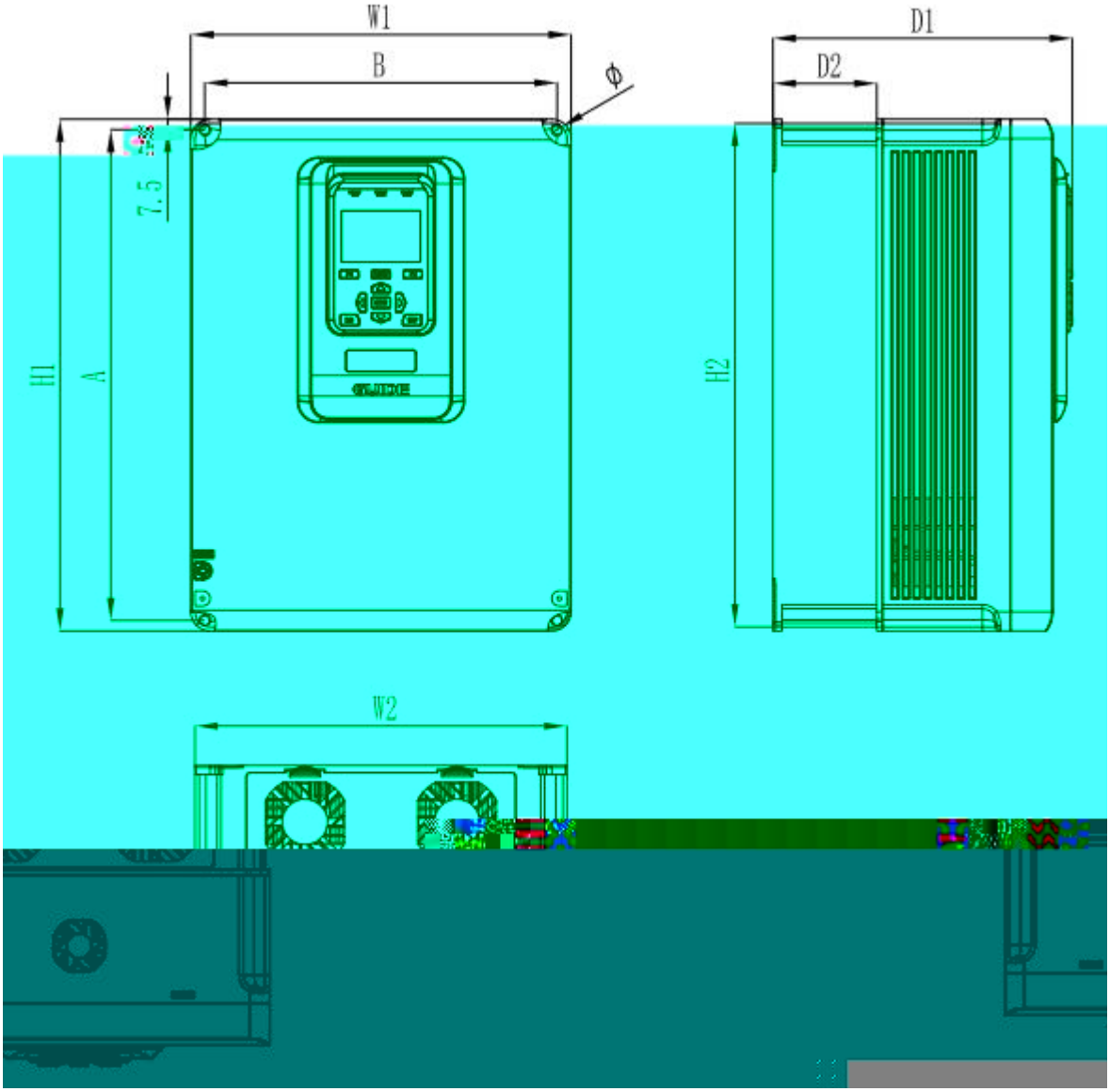
HF650-110-4　HF650-500-4



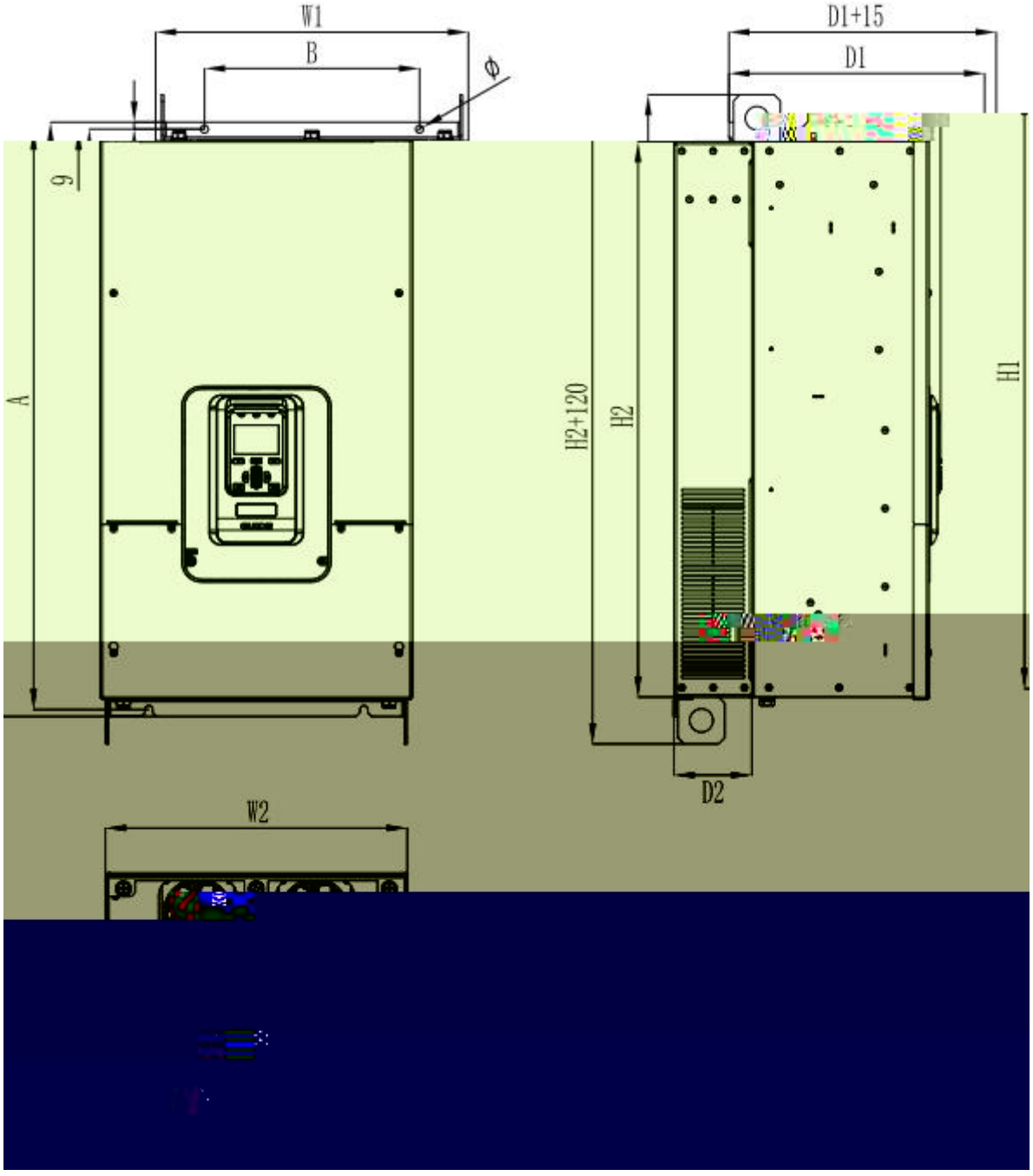
2.5



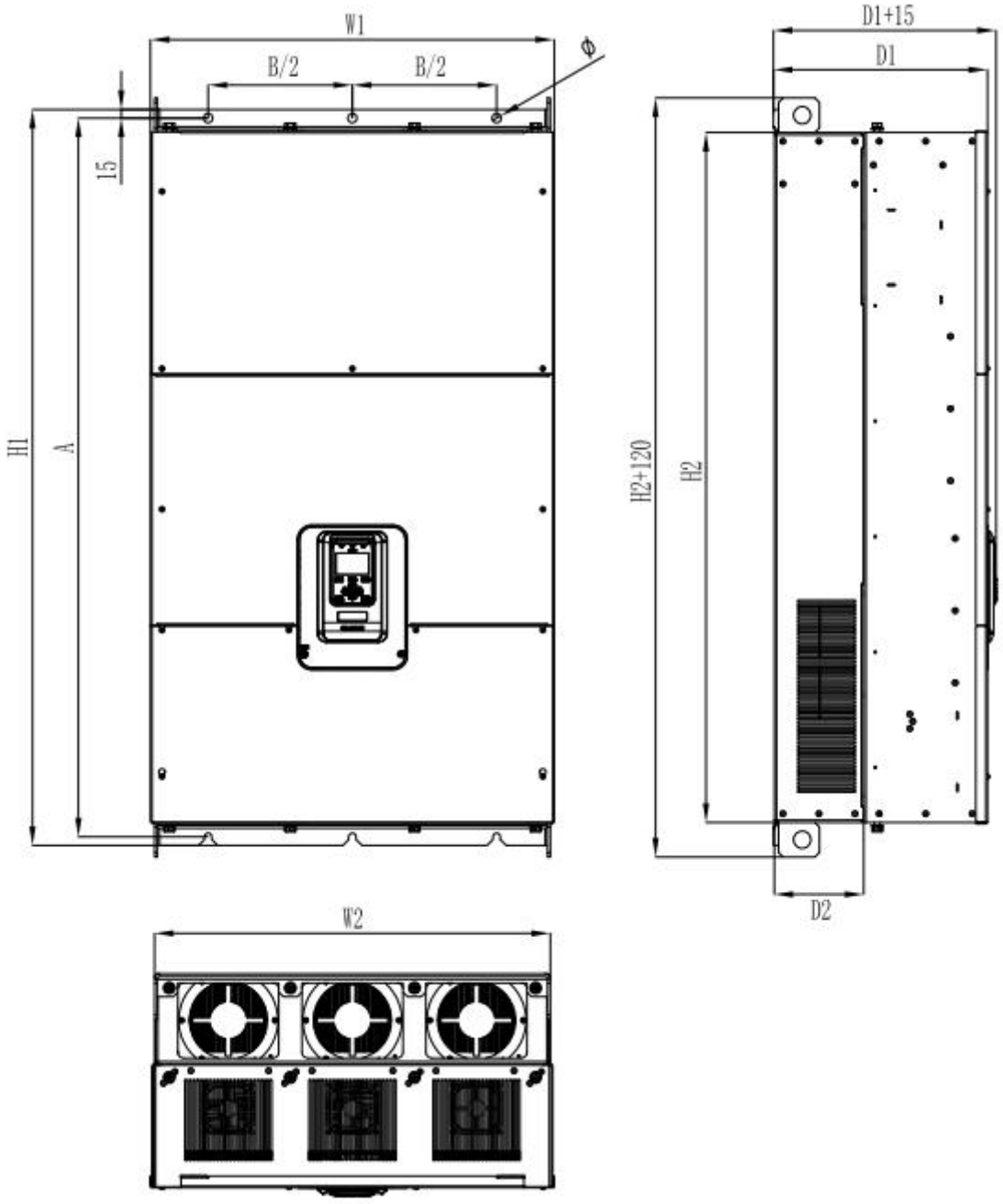
I1-I3



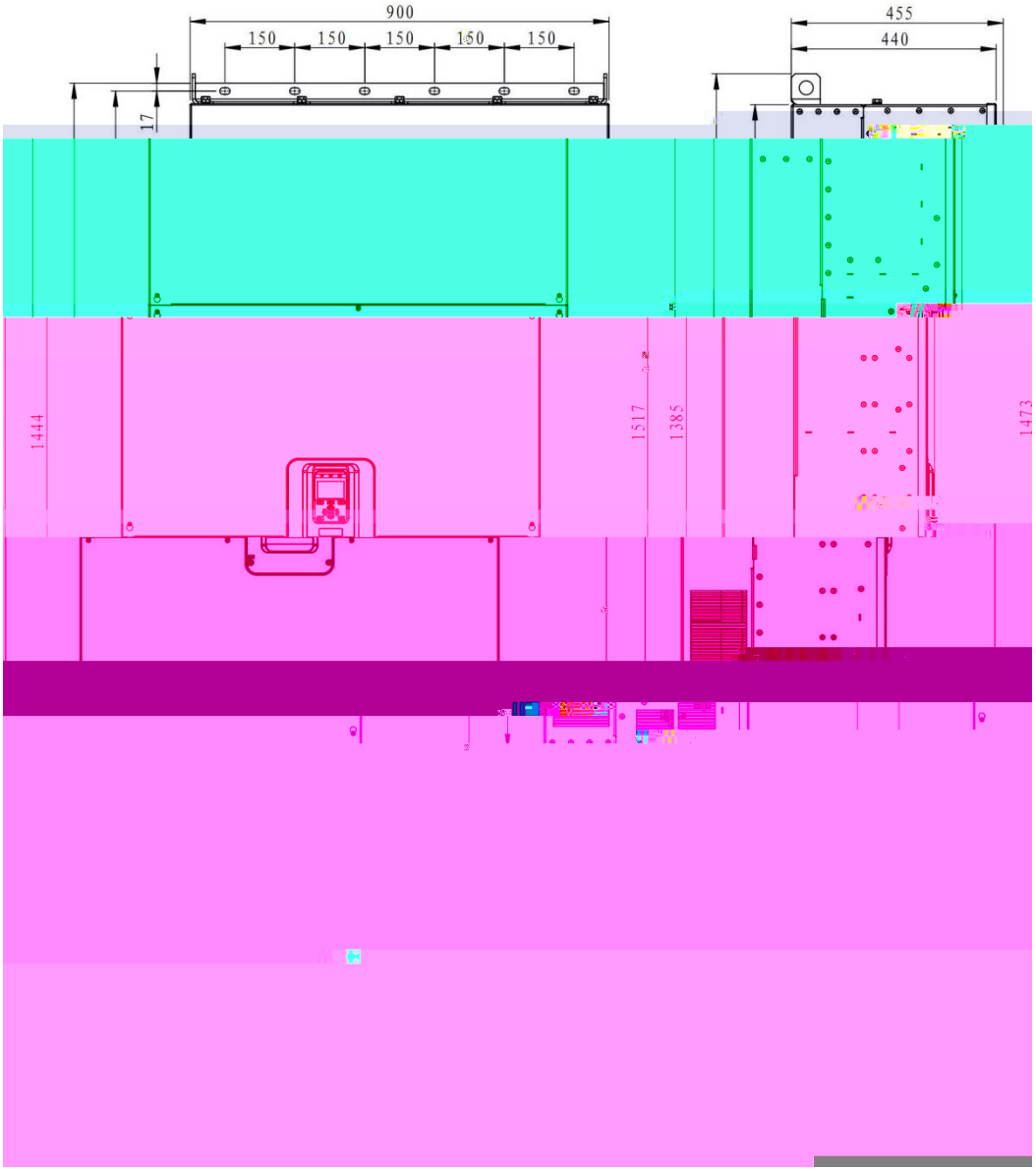
14



I5-I6



17-19


900
150
150
150
150
150
17
455
440
1444
1517
1385
1473

I2	2.2KW 3.7KW 5.5 KW 7.5 KW	260	254	140	134	170	52.5	248	122	4-φ6	4-M5	3.5
I3	11 KW 15 KW	300	294	180	174	170	52.5	288	162	4-φ6	4-M5	4.5
I4	18.5 KW 22 KW 30 KW	370	364	275	269	215	75	355	255	4-φ7	4-M6	10.5
I5	37 KW 45 KW 55 KW	600	565	340	326	282	110	585	225	2-φ9	4-M8	35
I6	75 KW 90 KW	760	710	400	386	327	100	742	275	2-φ9	4-M8	52
I7	110 KW 132 KW 160 KW	930	850	490	476	335	155	900	350	3-φ13	6-M12	108.5
I8	185 KW 220 KW 250 KW 280 KW	1140	1060	500	486	355	155	1110	350	3-φ13	6-M12	146
I9	315 KW 355 KW 400 KW	1275	1195	700	686	370	155	1245	500	3-φ15	6-M14	210
I10	500 KW	1473	1385	900	890	440	155	1444	300	6-14X22	12-M12	305

2.6

		380V 480V
		50/60Hz
		-15% +10%
		fLN ± 2 ± 4 ≤ 2 fLN/s

		0
		1
		0 300Hz
		1kHz 10kHz
		0.01Hz x0.1%
		(VC) (SVC) V/F
	V/F	
		PG PG
		300Hz
		0Hz/200%(VC SVC) 0.8Hz/150%(V/F)
		1:500(SVC) 1:1000(VC)
		±0.02% (VC) ±0.2% (SVC) ±0.5% (V/F)
		5 150% 1 200% 5
	PID	
		DP CAN Modbus Ethernet Profinet
		PID / / / / AFE
		8 2 -10 +10V 0mA/4mA 20mA
		5 3 2 2 0 +10V 0mA/4mA 20mA
	LCD	
		1000 1000 100 1% 3000

		-10 +40 40 1 1% 50 -10
		95%RH
		-20 +60 10-30
		>0.85 >0.999
		98%
		3 J14 I0 J15 I0 J13 PG
		IP20
		2
		≤80db

2.7

(1) 200%

(2) 50% HF650

(3) HF650

2.8

	[kW]	[kW]		[kW]	[kW]
HF650-0R4-4	0.4	0.059	HF650-055-4	55	1.486
HF650-0R7-4	0.7	0.079	HF650-075-4	75	1.956
HF650-1R5-4	1.5	0.092	HF650-090-4	90	2.422
HF650-2R2-4	2.2	0.102	HF650-110-4	110	3.1
HF650-3R7-4	3.7	0.151	HF650-132-4	132	3.663
HF650-5R5-4	5.5	0.218	HF650-160-4	160	4.495
HF650-7R5-4	7.5	0.277	HF650-185-4	185	4.91
HF650-011-4	11	0.328	HF650-220-4	220	5.88

HF650-015-4	15	0.5	HF650-250-4	250	7.044
HF650-018-4	18.5	0.645	HF650-280-4	280	7.708
HF650-022-4	22	0.722	HF650-315-4	315	8.003
HF650-030-4	30	0.906	HF650-355-4	355	8.718
HF650-037-4	37	1.128	HF650-400-4	400	9.1
HF650-045-4	45	1.313	HF650-500-4	500	11.13

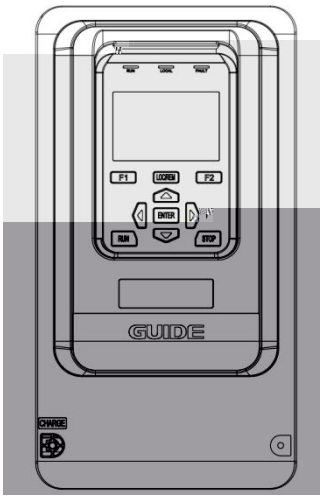
	BU110-4	110KW
	BU160-4	132KW-160KW
	GDBU-4045B	
	GDBU-4220B	

3.1

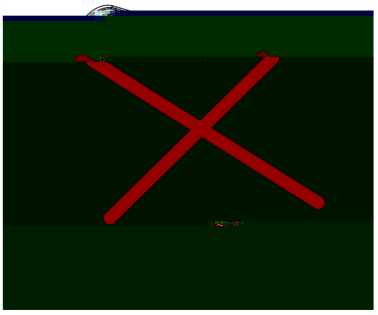
	10cm 5cm	6	
	-10 +40 40 1 1% 50 -10	-20 +60 1 /	-20 +60
	70 106 kPa 0.7 1.05	70 106 kPa 0.7 1.05	60 106 kPa 0.6 1.05
	10Hz ≤ f ≤ 57Hz 0.075mm 57Hz ≤ f ≤ 150Hz 9.8 m/s²	10Hz ≤ f ≤ 57Hz 0.075mm 57Hz ≤ f ≤ 150Hz 9.8 m/s²	II
		100m/s² 11ms	100m/s² 11ms
		250mm <100kg 100mm ≥ 100kg	250mm <100kg 100mm ≥ 100kg
	95%RH		
	1000 1000 100 1% 3000		
	2		

3.2

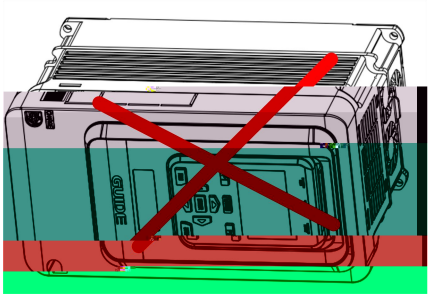
3.2.1



OK



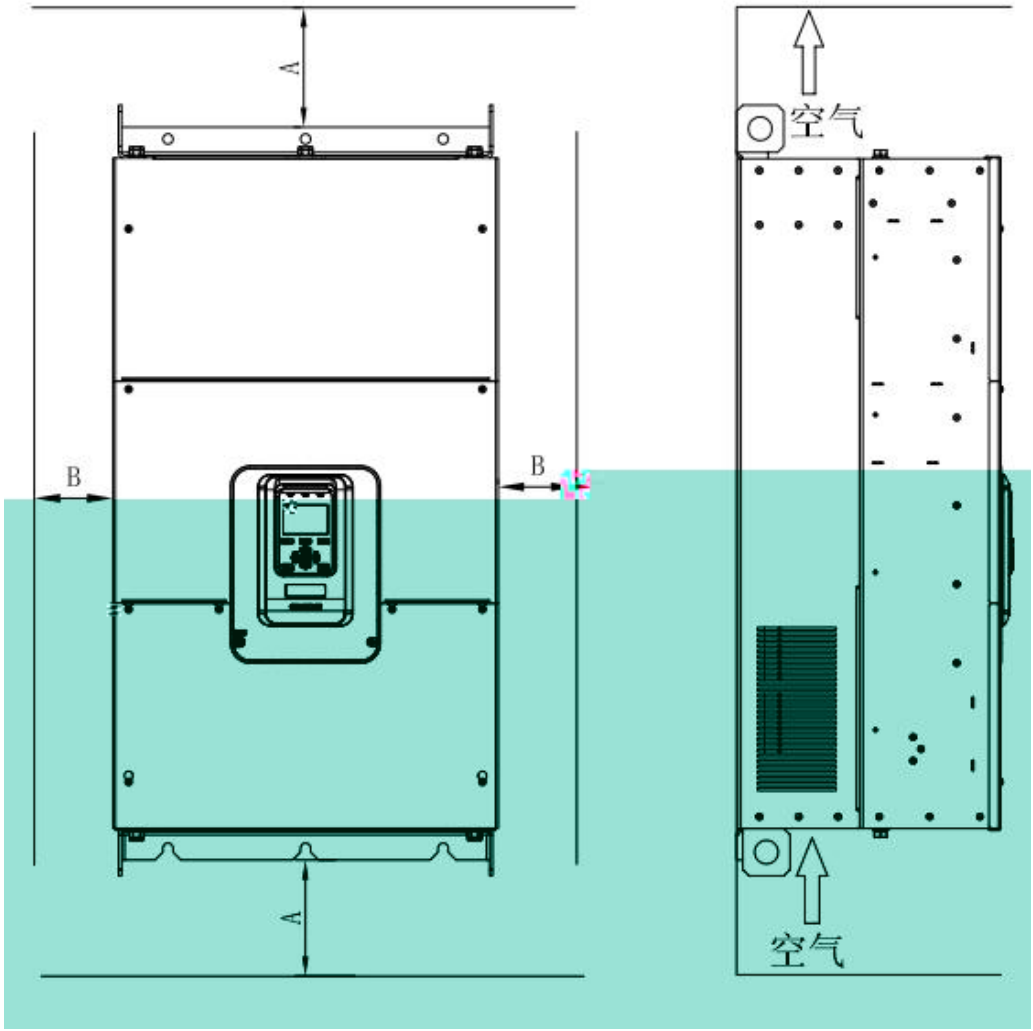
NG



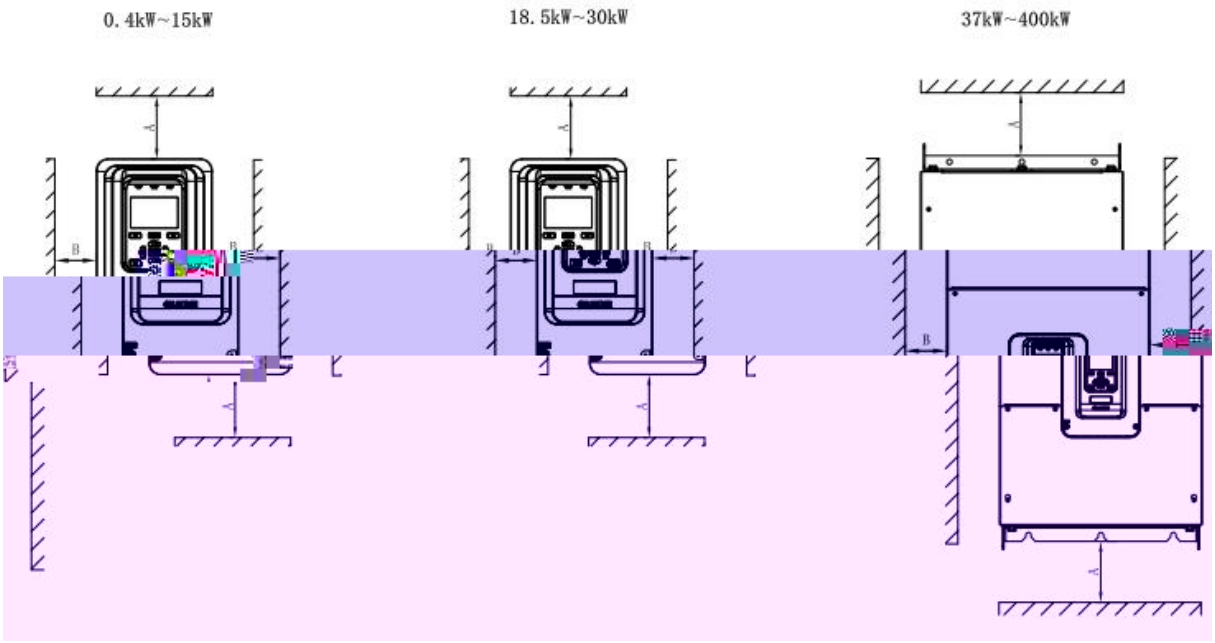
NG

3.2.2

1

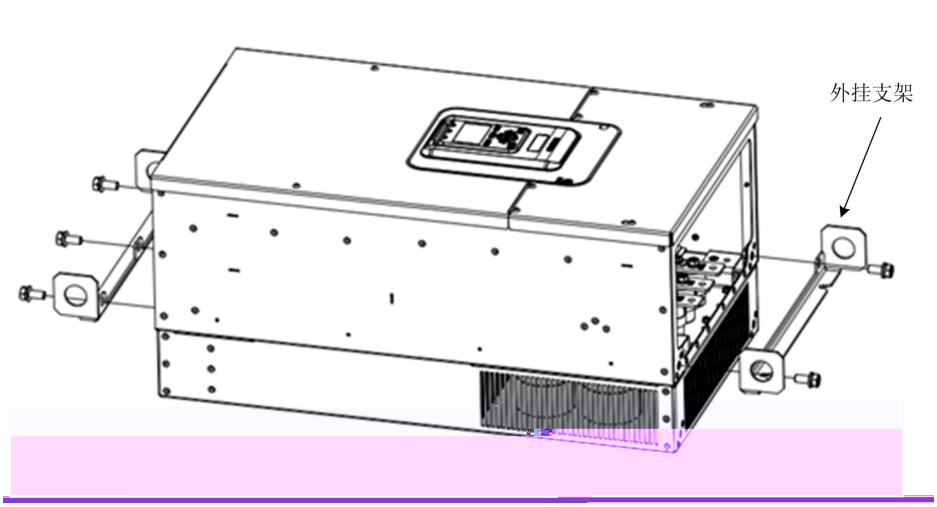


3-1



0.4kW~15kW	A ≥ 100mm	B ≥ 40mm
18.5kW~30kW	A ≥ 200mm	B ≥ 50mm
37kW~400kW	A ≥ 300mm	B ≥ 50mm
500KW	A ≥ 400mm	B ≥ 50mm

2



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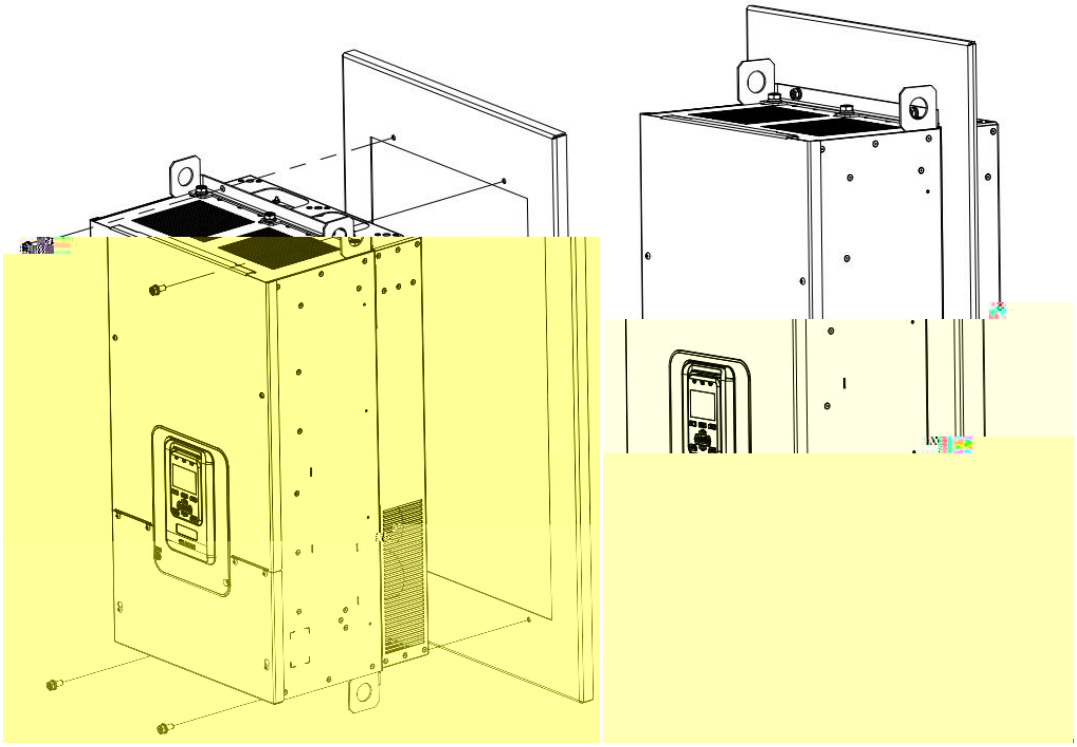
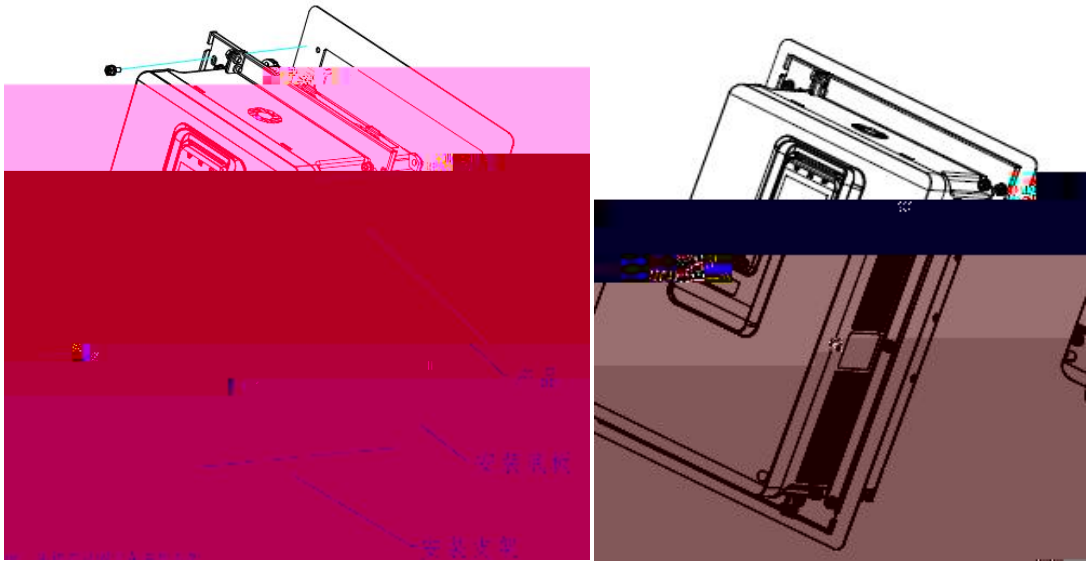


3-3



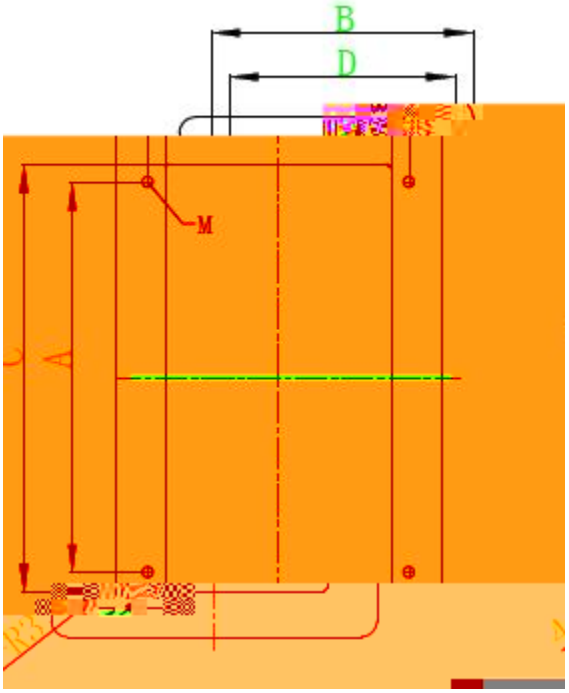
3-4

1

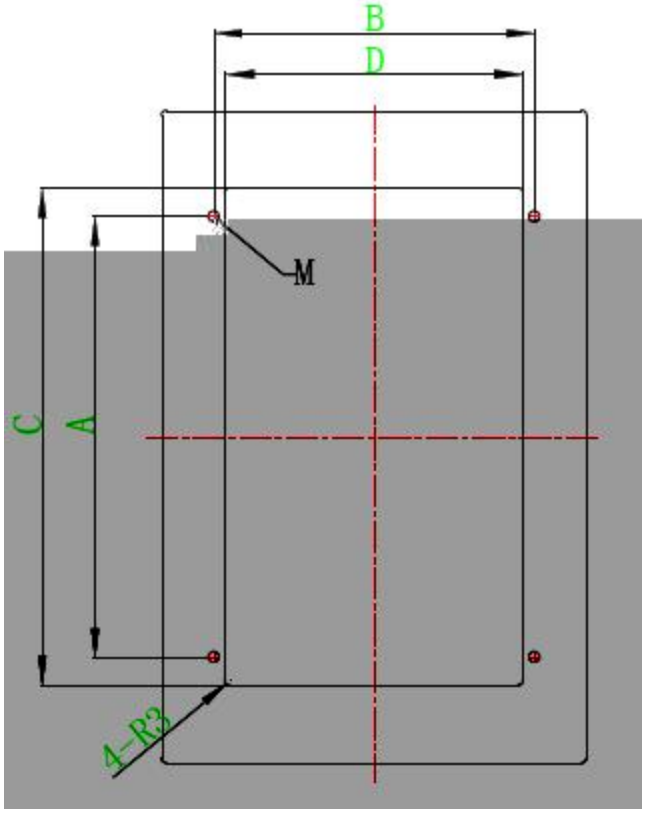
2

3

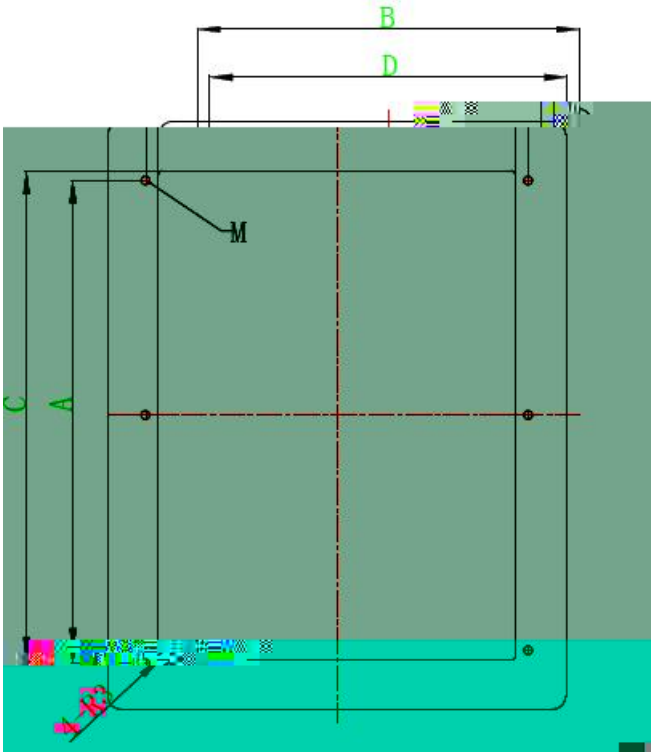
3



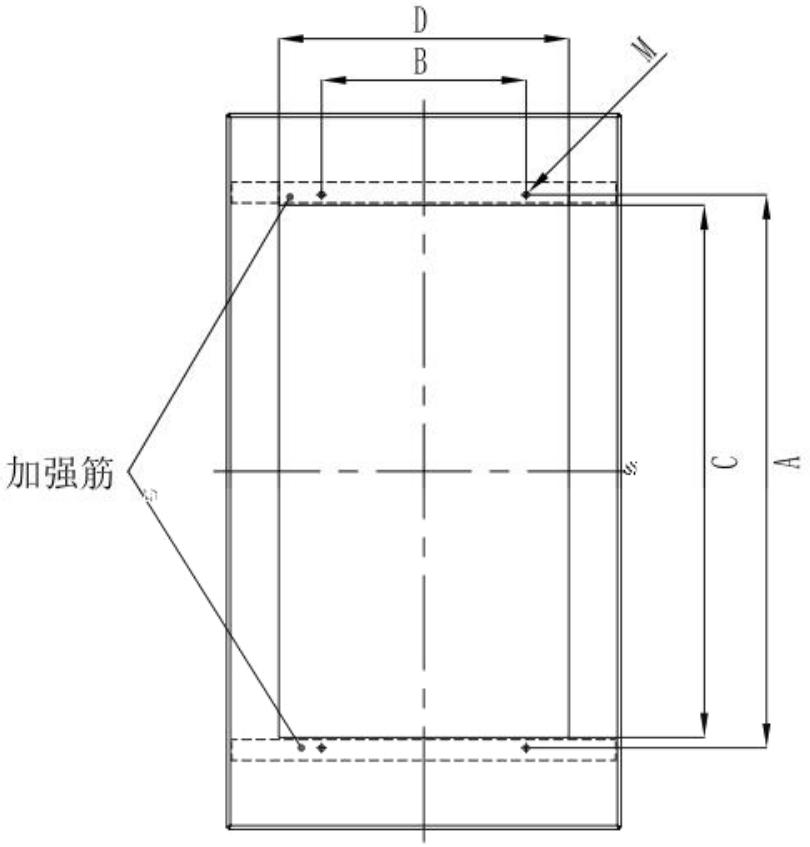
3-5 I1-I2



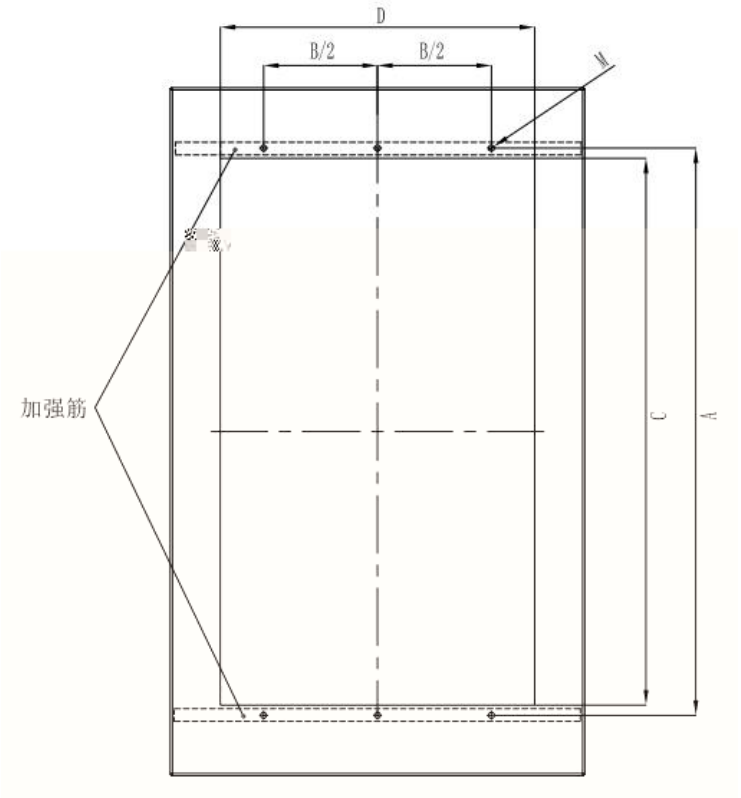
3-6 I3



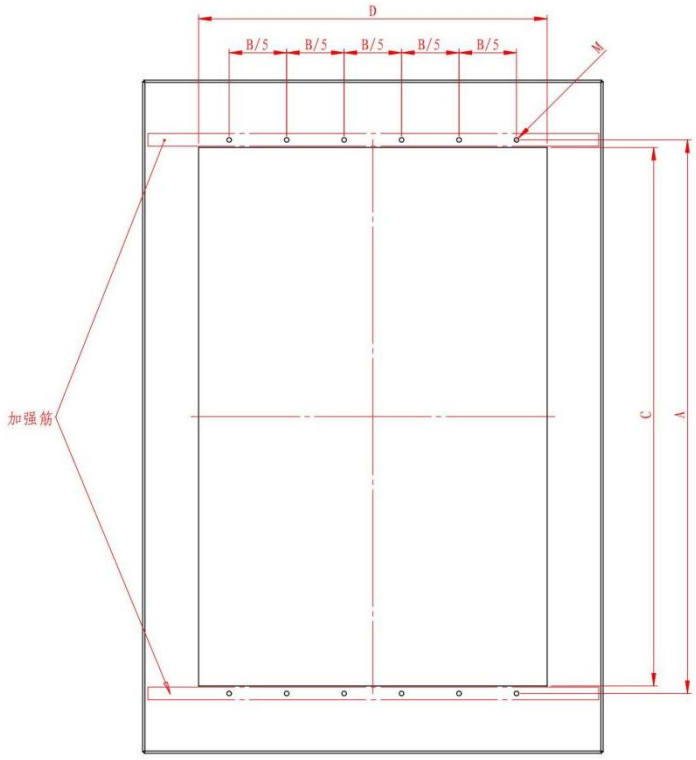
3-7 I4



3-8 I5-I6



3-9 I7-I9



3-10 I10

	(mm)		(mm)		
	A	B	C	D	
I1	240	160	262.5	138	4-M6
I2	240	160	262.5	138	4-M6
I3	270	197	304	182	4-M6
I4	360	292	374	273	6-M6
I5	585	275	570	330	4-M6
I6	742	275	715	390	4-M8
I7	900	350	855	480	6-M12
I8	1110	350	1065	490	6-M12
I9	1245	500	1200	690	6-M14
I10	1444	750	1405	910	12-M12

3.2.3

1

100mm

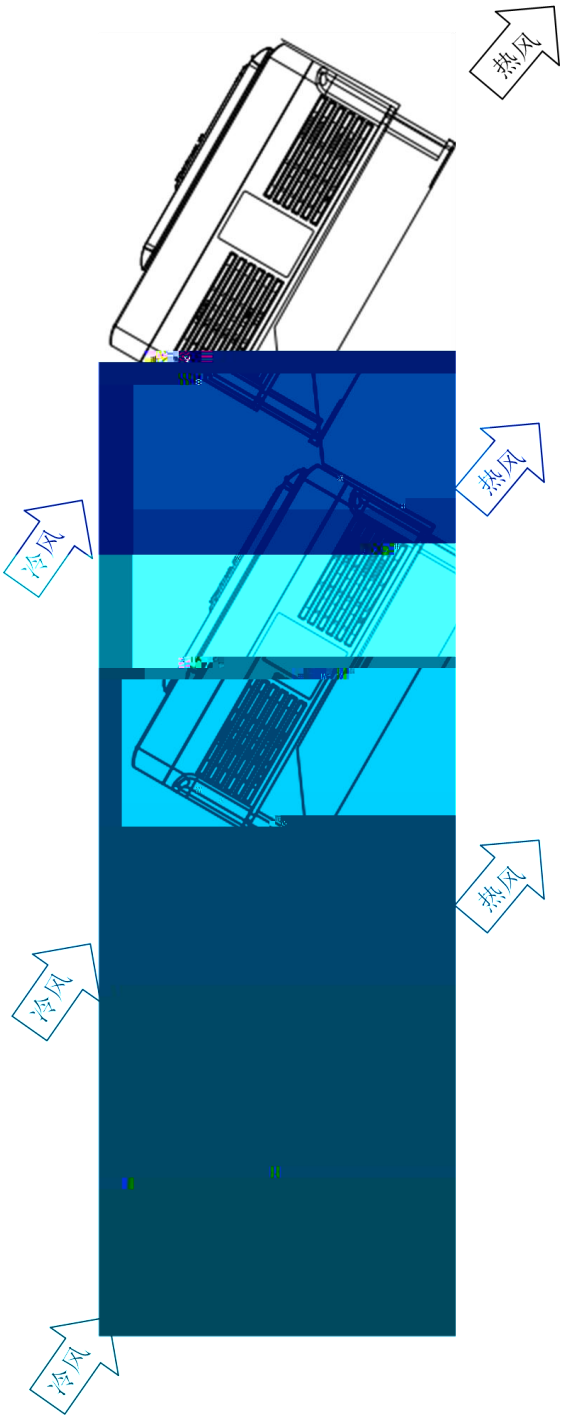
2

3-10

3-10

3

3-11



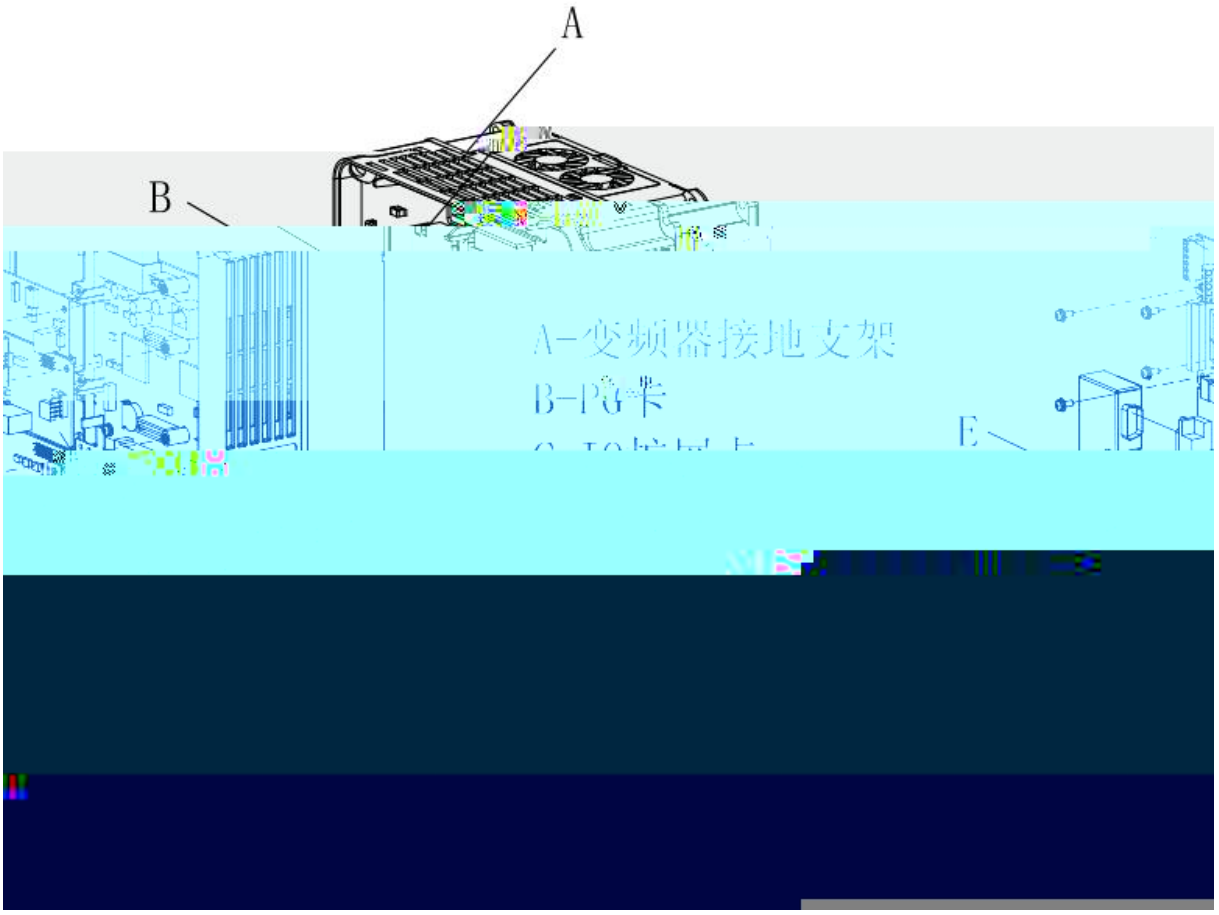
3-11

3.3

1 1 4 5㎜ Ø o 4

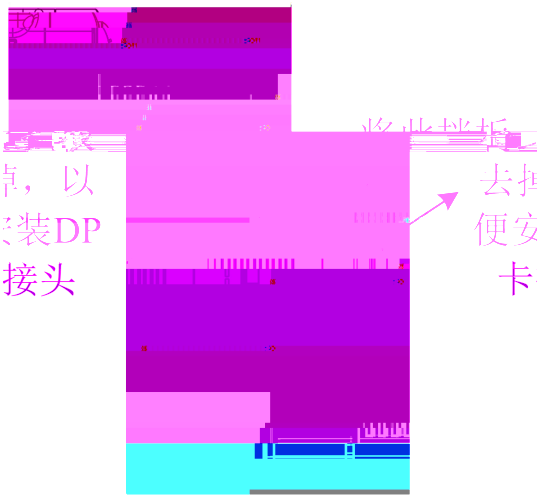
3.4

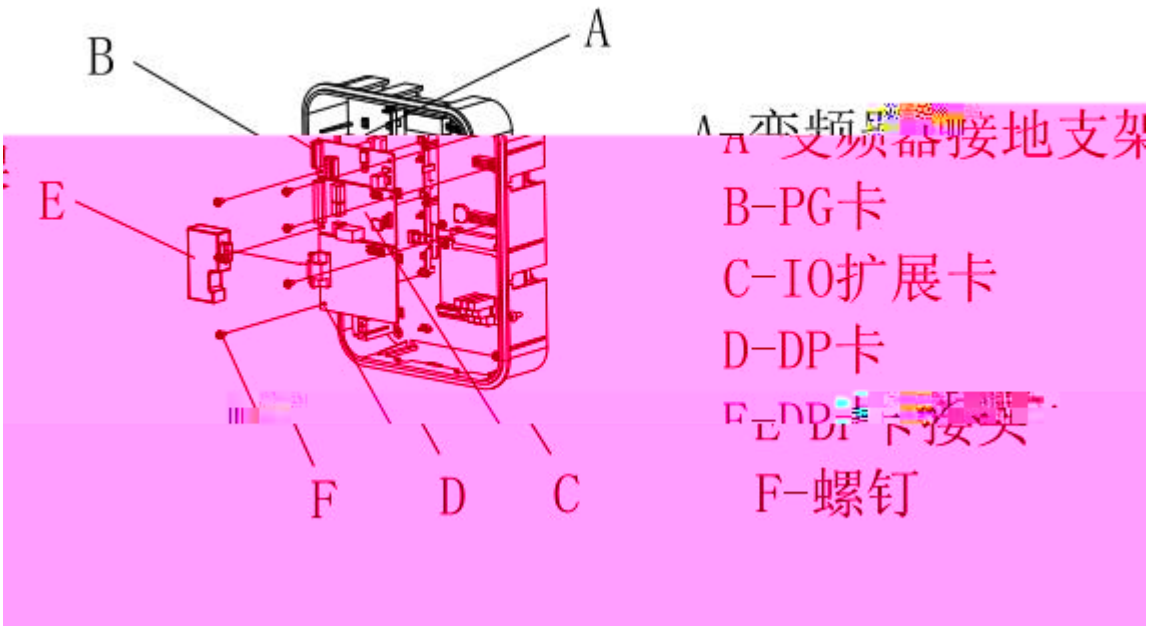
HF650



30kW

15KW DP





30KW

3.5 PGC2

GDHF-PGC2 PG 11

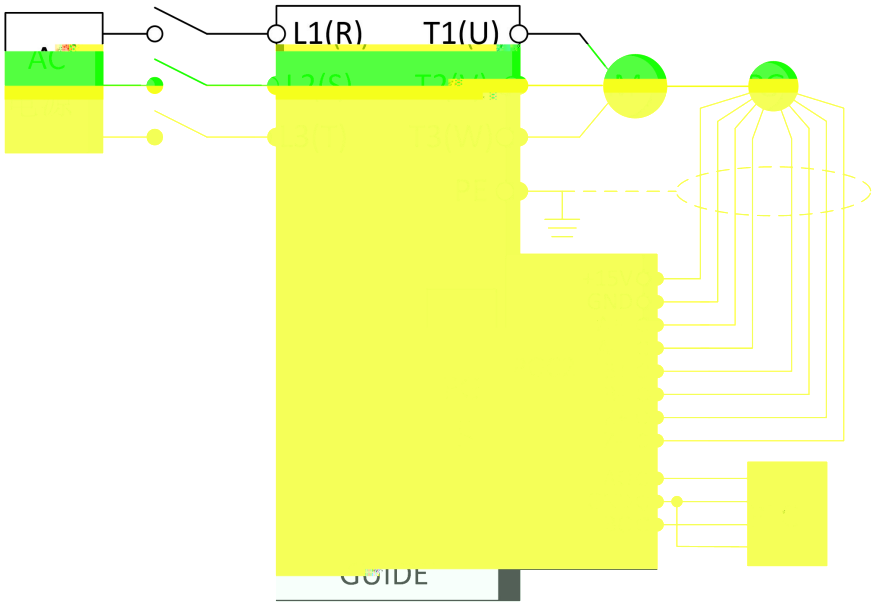
A+	A-	B+	B-	Z+	Z-

+15V	GND	AO	GND	BO

+15V,GND		…	15V ± 5%	300mA
A+,A- B+,B- Z+,Z-		0-80kHz	0-15V	…
AO,GND BO		0-50kHz	0-24V	…

PE PE

PGC2



1 PG

2 PG

3 PE

4 PG A- B- Z- GND

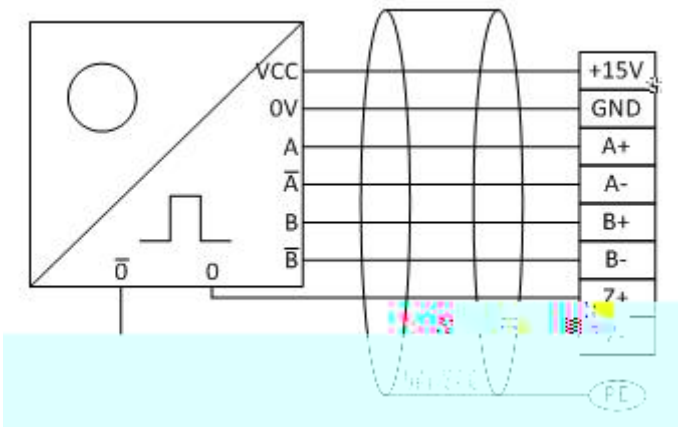
5 PGC2 15V RS-422

PGC2

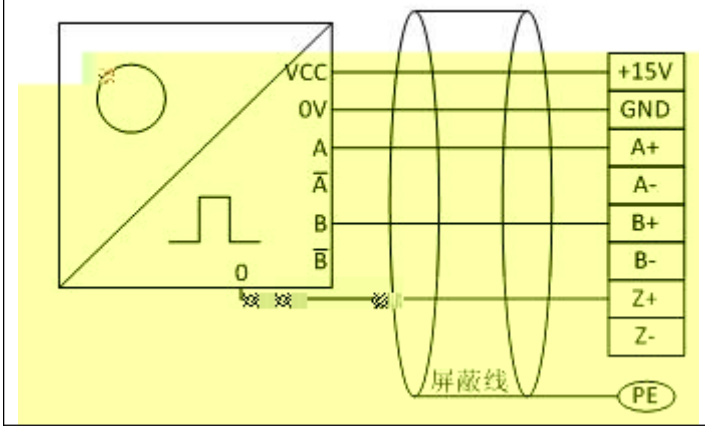
15V

1

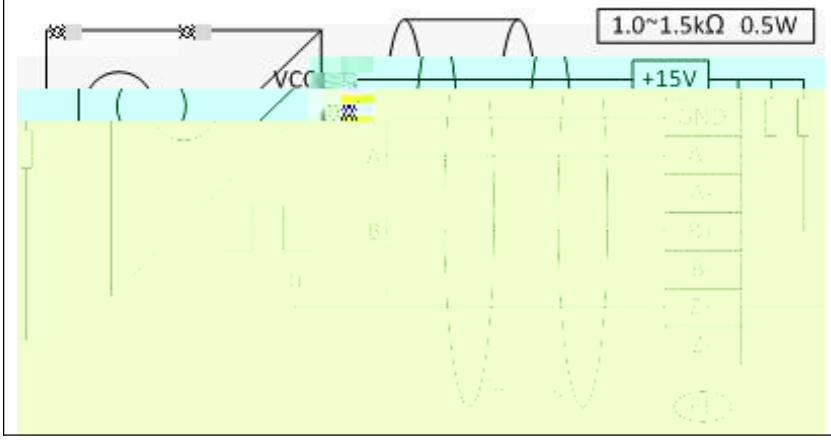
a

		
		HLE45-1024L-6F.AC
		RHI90N-ONAK1R61N-1024
		EC120P45-H6PR-1024

b

		
		HLE45-600L-3F.AC
		RVI78N-10CALA31N-1024
		EC120P45-P6PR-1024

2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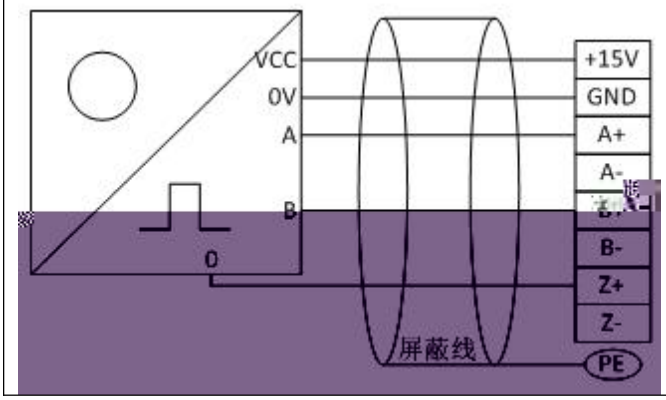
		EB38A6-C4PR-1024

3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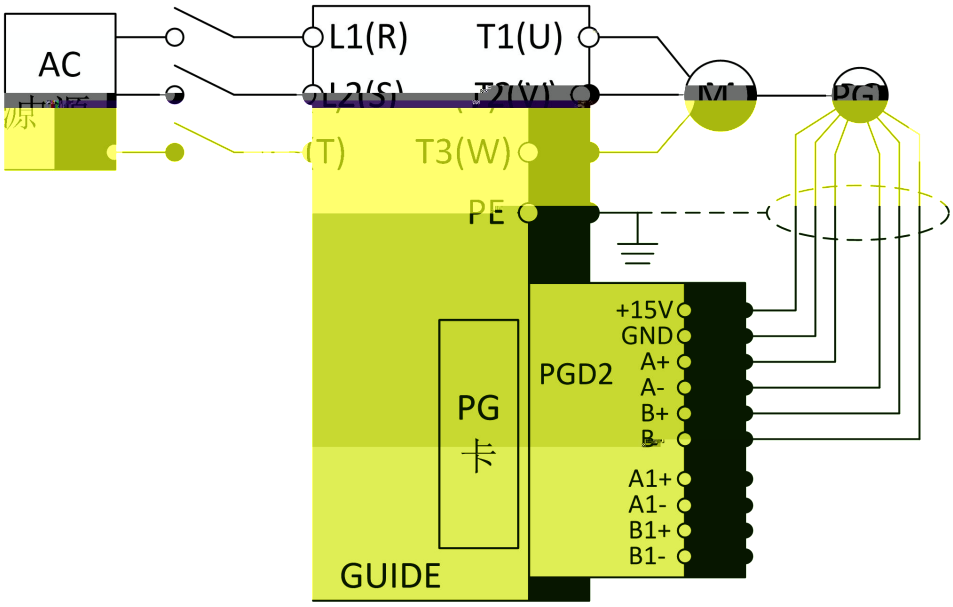


1 PG

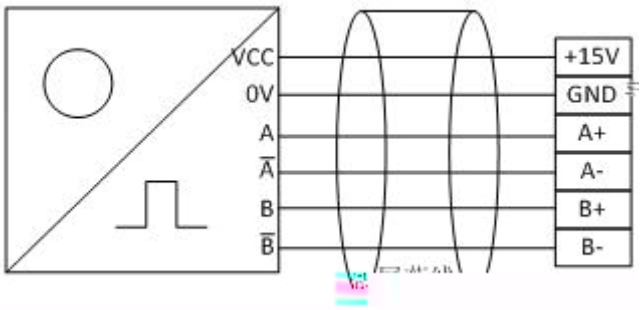
2 PG

3 PE

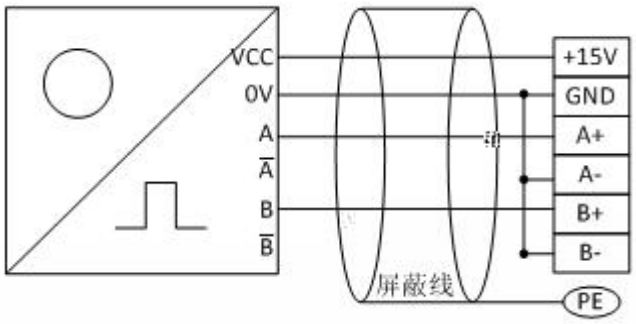
PGD2

1

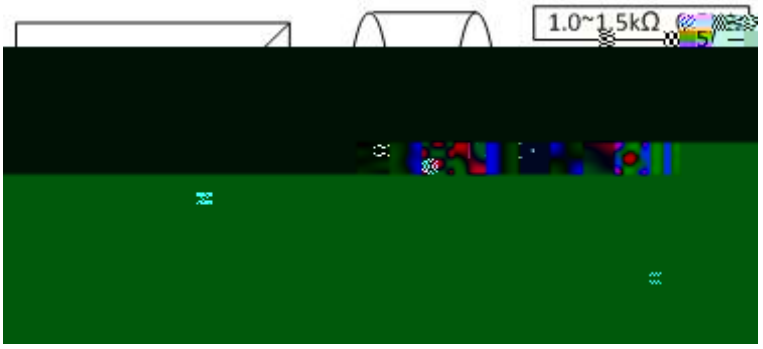
a

		
		HLE45-1024L-6F.AC
		RHI90N-ONAK1R61N-1024
		EC120P45-H6PR-1024

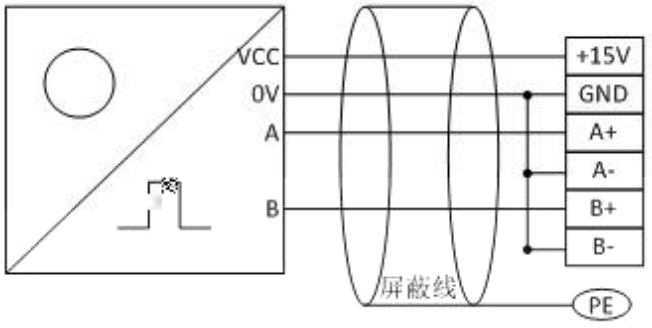
b

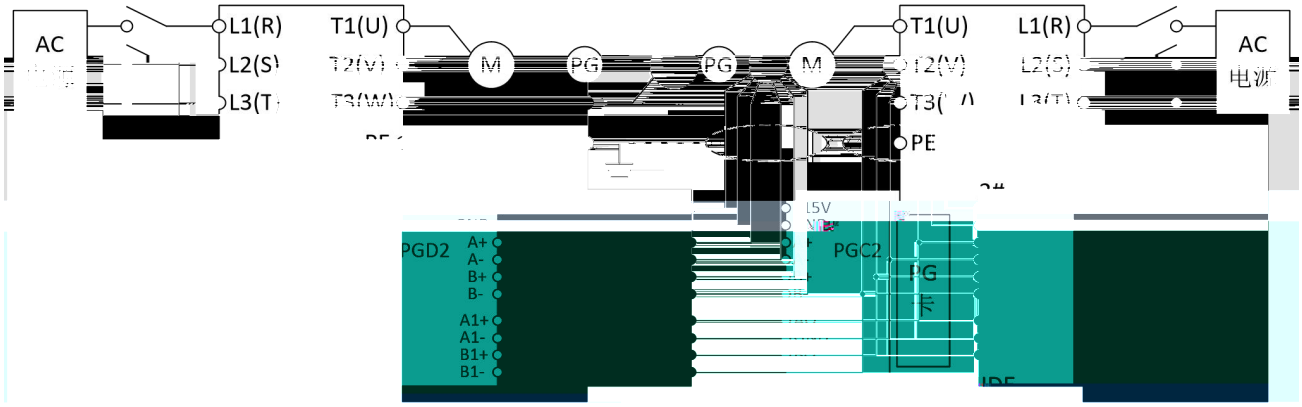
		
		HLE45-600L-3F.AC
		RVI78N-10CALA31N-1024
		EC120P45-P6PR-1024

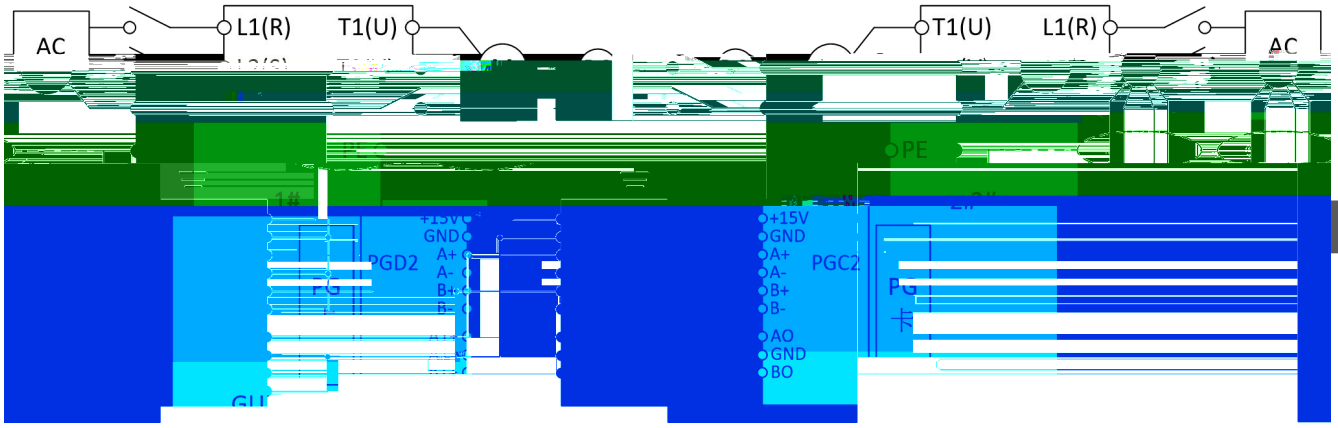
2

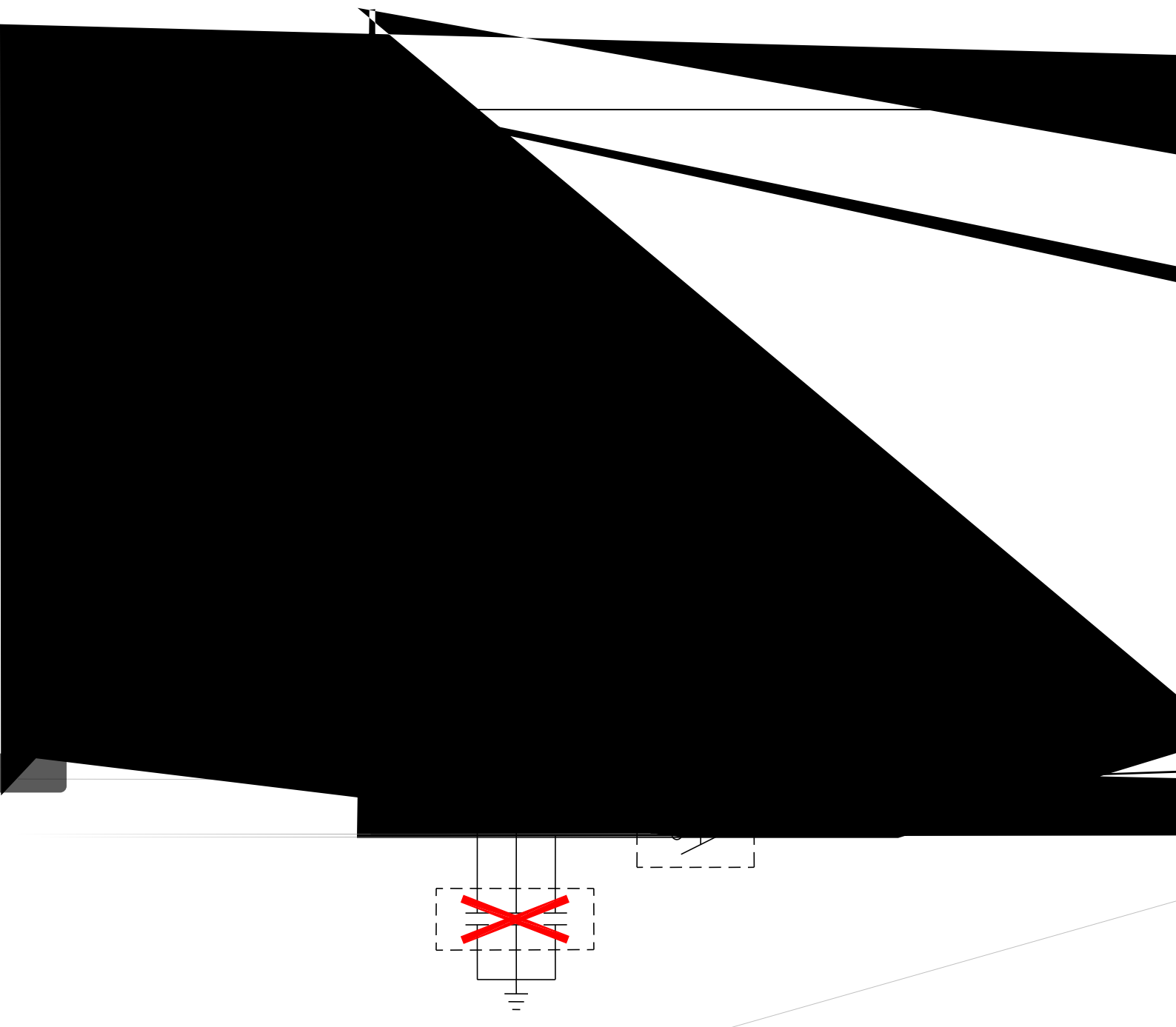
		
		HLE45-1024L-30C.AC
		EB38A6-C4PR-1024

3

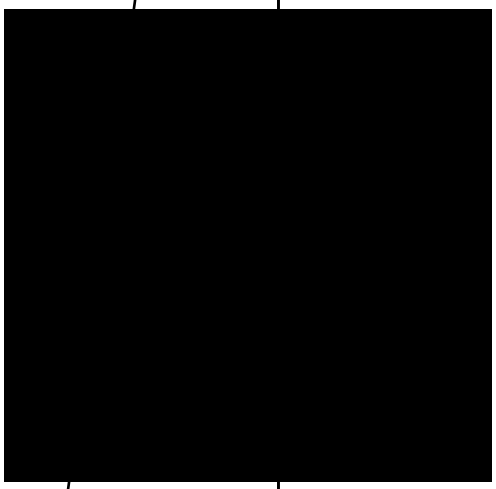
		
		HLE45-600L-3R.AC
		EB50A8-N4PR-1024


AC
L1(R)
T1(U)
M
PG
PG
M
T1(U)
L1(R)
AC
PE
PGD2
A+
A-
B+
B-
A1+
A1-
B1+
B1-
PGC2
PG


AC
L1(R)
T1(U)
T1(U)
L1(R)
AC
PE
PGD2
+15V
GND
A+
A-
B+
PGC2
+15V
GND
A+
A-
B+
B-
AO
GND
BO



135kW~500kW



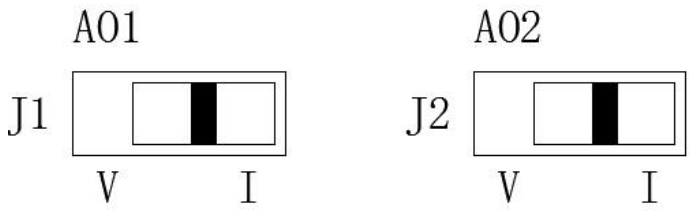
P(+)	
P1	37KW
N(-)	
R S T	
U V W	
DBR	160KW
PE	

4.3

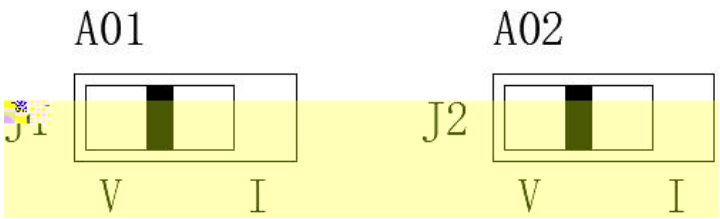
1

	1	2	3	4	5	6	7	8
	+10V	GND	AI1+	AI1-	AI2+	AI2-	AO1	AO2
	9	**10**	**11**	**12**	**13**	**14**	**15**	**16**
	DI1	DI2	DI3	DI4	DI5	DI6	DI7	DI8
	17	**18**	**19**	**20**	**21**	**22**	**23**	**24**
	PW	COM	PW	+24V	+24V	DO1	+24V	DO2
	25	**26**	**27**	**28**	**29**	**30**	**31**	
	+24V	DO3	DO4A	DO4C	DO4B	DO5A	DO5C	

2



a.



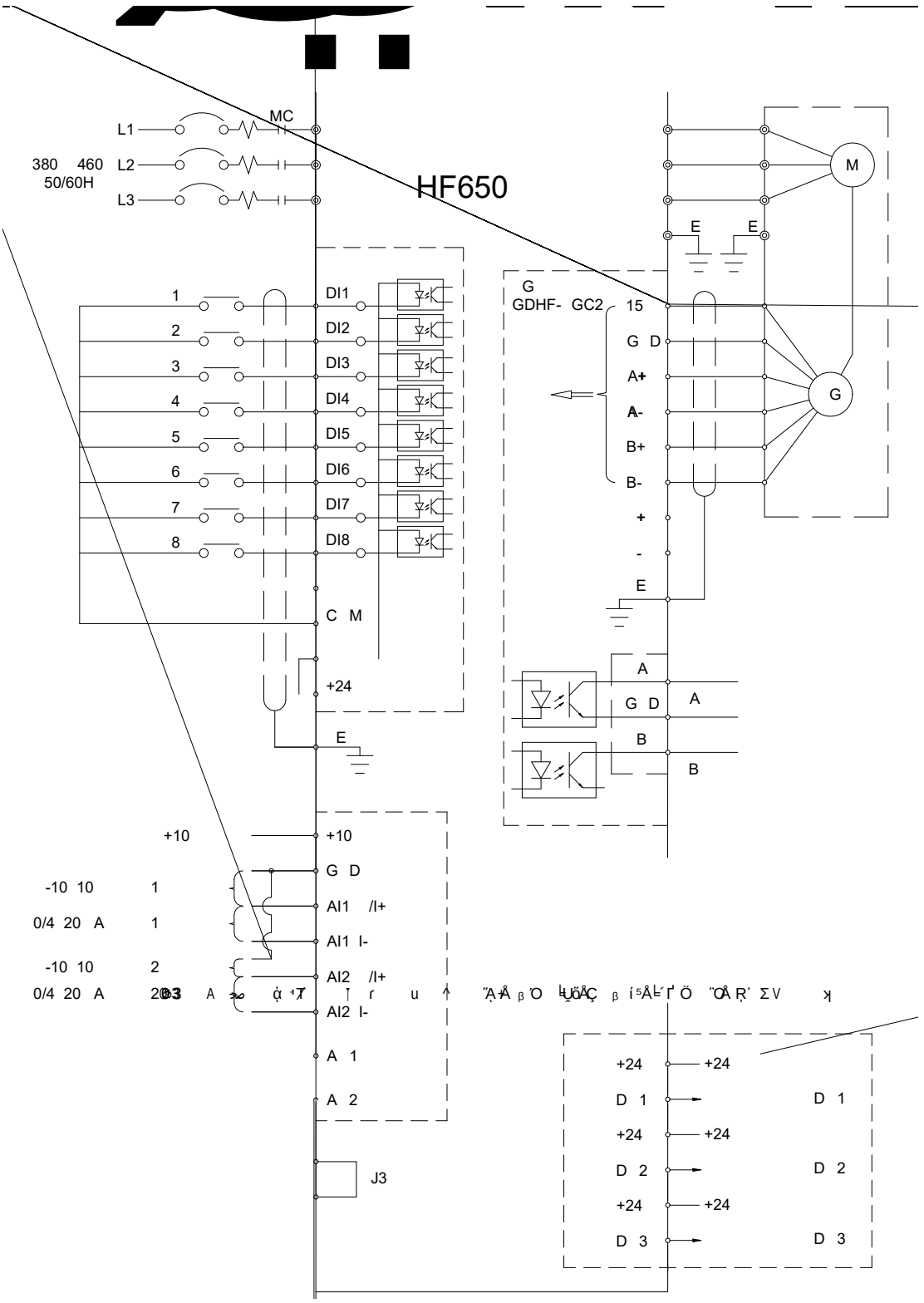
b.

3

1	+10V	10V
2	GND	,
3	AI1+/AV1	1 0/4 20mA 1 -10 10V
4	AI1-	1
5	AI2+/AV2	2 0/4 20mA 2 -10 10V
6	AI2-	2
7	AO1	1 0/4 20mA J1 I a 0 10V J1 V b
8	AO2	2 0/4 20mA J2 I a 0 10V J2 V b
9	DI1	1
10	DI2	2
11	DI3	3
12	DI4	4
13	DI5	5
14	DI6	6
15	DI7	7
16	DI8	8
17	PW	
18	COM	24V
19	PW	
20	+24V	24V +
21	+24V	24V
22	DO1	1 DC24V 50mA
23	+24V	24V
24	DO2	2 DC24V 50mA

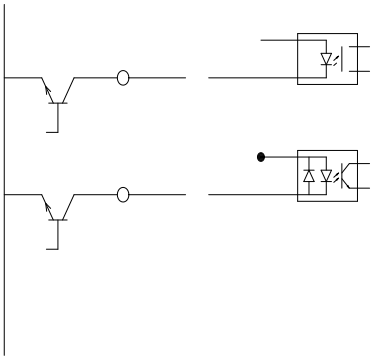
25	+24V	24V			
26	DO3		3		DC24V 50mA
27	DO4A		4		
				250VAC 3A COS =0.4	
		30VDC 1A			
28	DO4C		4		
29	DO4B		4		
				250VAC 3A COS =0.4	
		30VDC 1A			
30	DO5A		5		
				250VAC 2A COS =0.4	
		30VDC 1A			
31	DO5C		5		

4.4

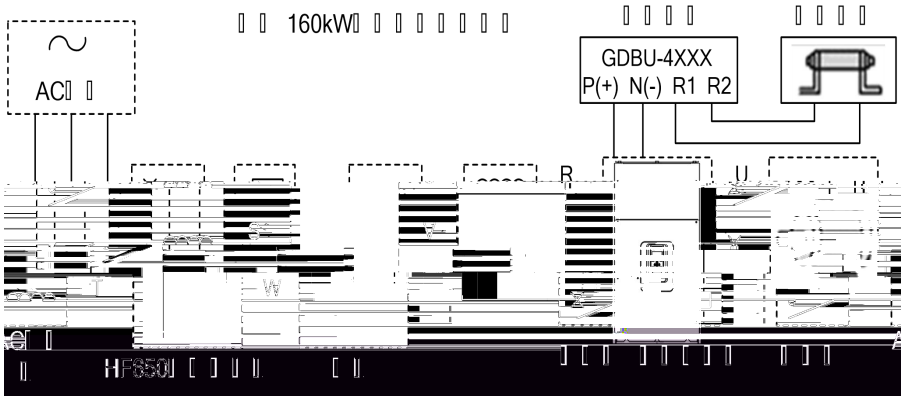

HF650
MC
L1
L2
L3
380 460
50/60H
M
E
E
G
GDHF- GC2
15
G D
A+
A-
B+
B-
+
-
E
G
1
2
3
4
5
6
7
8
DI1
DI2
DI3
DI4
DI5
DI6
DI7
DI8
C M
+24
E
A
G D
A
B
B
+10
+10
G D
-10 10
1
AI1 /I+
0/4 20 A
1
AI1 I-
-10 10
2
AI2 /I+
0/4 20 A
AI2 I-
A 1
A 2
J3
+24
+24
D 1
D 1
+24
+24
D 2
D 2
+24
+24
D 3
D 3

4.5

0V NPN



4.6



	1 2
AC	1 2 3

4.7

	A	/ mm² CEFR 40%	A (AC-3)
HF650-0R4-4	3.3	2.5	9
HF650-0R7-4	4.8	2.5	9
HF650-1R5-4	5.7	2.5	9
HF650-2R2-4	10.2	2.5	12
HF650-3R7-4	15	2.5	18
HF650-5R5-4	18	2.5	18
HF650-7R5-4	24	2.5	25
HF650-011-4	32	4	32
HF650-015-4	41	4	50
HF650-018-4	47	6	50
HF650-022-4	65	10	65
HF650-030-4	75	10	80
HF650-037-4	94	16	95
HF650-045-4	115	16	115
HF650-055-4	155	25	150
HF650-075-4	188	35	205
HF650-090-4	215	50	245
HF650-110-4	265	70	300
HF650-132-4	330	95	410
HF650-160-4	365	95	410
HF650-185-4	438	120	475
HF650-220-4	485	150	620
HF650-250-4	545	70*2	620
HF650-280-4	610	95*2	620
HF650-315-4	668	120*2	2*410
HF650-355-4	720	120*2	2*410
HF650-400-4	820	150*2	2*475
HF650-500-4	930	120*4	2*475

4.8

		2%		1%	
HF650-0R4-4	0.4 kW	2.2A	6.4 mH	2.2A	3.2mH
HF650-0R7-4	0.7 kW	4A	3.5 mH	4A	1.8 mH
HF650-1R5-4	1.5 kW	6A	2.4 mH	6A	1.2 mH
HF650-2R2-4	2.2 kW	7A	2.0 mH	7A	1.0 mH
HF650-3R7-4	3.7 kW	12A	1.1 mH	12A	0.6 mH
HF650-5R5-4	5.5kW	19A	743uH	19A	371 uH
HF650-7R5-4	7.5kW	22A	644 uH	22A	322 uH
HF650-011-4	11kW	28A	493 uH	28A	247 uH
HF650-015-4	15kW	38A	368 uH	38A	184 uH
HF650-018-4	18.5kW	49A	283 uH	49A	141 uH
HF650-022-4	22kW	57A	247 uH	57A	123 uH
HF650-030-4	30kW	76A	184 uH	76A	92 uH
HF650-037-4	37kW	88A	159 uH	88A	79 uH
HF650-045-4	45kW	113A	123 uH	113A	62 uH
HF650-055-4	55kW	131A	106 uH	131A	53 uH
HF650-075-4	75kW	178A	78 uH	178A	39 uH
HF650-090-4	90kW	227A	62 uH	227A	31 uH
HF650-110-4	110kW	259A	54 uH	259A	27 uH
HF650-132-4	132kW	320A	44 uH	320A	22 uH
HF650-160-4	160kW	398A	35 uH	398A	18 uH

HF650-185-4	185kW	446A	31 uH	446A	16 uH
HF650-220-4	220kW	528A	26 uH	528A	13 uH
HF650-250-4	250kW	573A	24 uH	573A	12 uH
HF650-280-4	280KW	657A	21 uH	657A	11 uH
HF650-315-4	315kW	735A	19 uH	735A	10 uH
HF650-355-4	355kW	805A	17 uH	805A	9 uH
HF650-400-4	400kW	856A	16 uH	856A	8 uH
HF650-500-4	500kW	1116A	13 uH	1116A	7 uH

4.9

160kW (100%

)

		Ω	Ω	KW 30% Kc	KW 50% Kc
HF650-0R4-4	0.4 kW	750	115	≥0.2	≥0.3
HF650-0R7-4	0.7 kW	750	115	≥0.2	≥0.35
HF650-1R5-4	1.5 kW	400	100	≥0.5	≥0.7
HF650-2R2-4	2.2 kW	250	78	≥0.8	≥1
HF650-3R7-4	3.7 kW	100	64	≥2.0	≥2.5
HF650-5R5-4	5.5kW	100	40	≥2.0	≥2.5
HF650-7R5-4	7.5kW	75	40	≥3.0	≥3.5
HF650-011-4	11kW	50	40	≥4.0	≥5.2
HF650-015-4	15kW	40	32	≥5	≥6.5

HF650-018-4	18.5kW	32	24	≥ 6	≥ 8.0
HF650-022-4	22kW	24	20	≥ 8	≥ 11
HF650-030-4	30kW	22	20	≥ 10	≥ 13
HF650-037-4	37kW	21	20	≥ 12	≥ 16
HF650-045-4	45kW	13	8	≥ 15	≥ 20
HF650-055-4	55kW	10	8	≥ 20	≥ 26
HF650-075-4	75kW	7.5	6	≥ 26	≥ 35
HF650-090-4	90kW	6.8	3.5	≥ 29	≥ 38
HF650-110-4	110kW	5.1	3.5	≥ 38	≥ 50
HF650-132-4	132kW	4.2	3.5	≥ 46	≥ 60
HF650-160-4	160kW	3.6	2.5	≥ 54	≥ 71

1 Kc

2 Kc a 20 Kc=10% - 20%

b Kc=30%

c Kc=40 - 50%

3

4.10 EMC

1 EMC

EMC electromagnetic compatibility

EMC

EMC

EMC

EMC

EMC

2 EMC

EMC

a

b PWM

c

d

3 EMC

EMC

EMC

5 EMC

a

360

b

4

3 1

PLC

20cm

20cm

90

c

EMC

d

50m

e

5.

5.1

HF650 F1 LOCAL/REMOTE

F2 RUN STOP

RUN STOP

LOCAL/REMOTE /

5.3

|

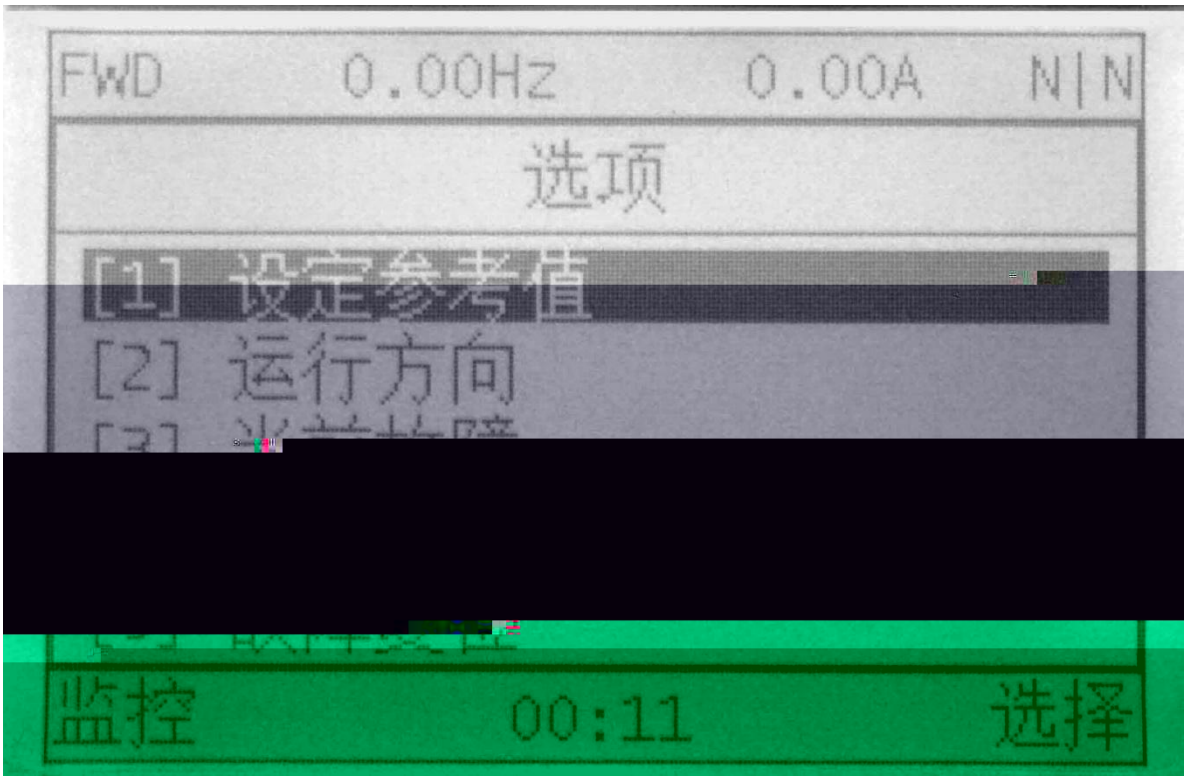
FWD REV
:HZ
A
N|N W E

3

F1 F2 “ ” “ ” “ ”

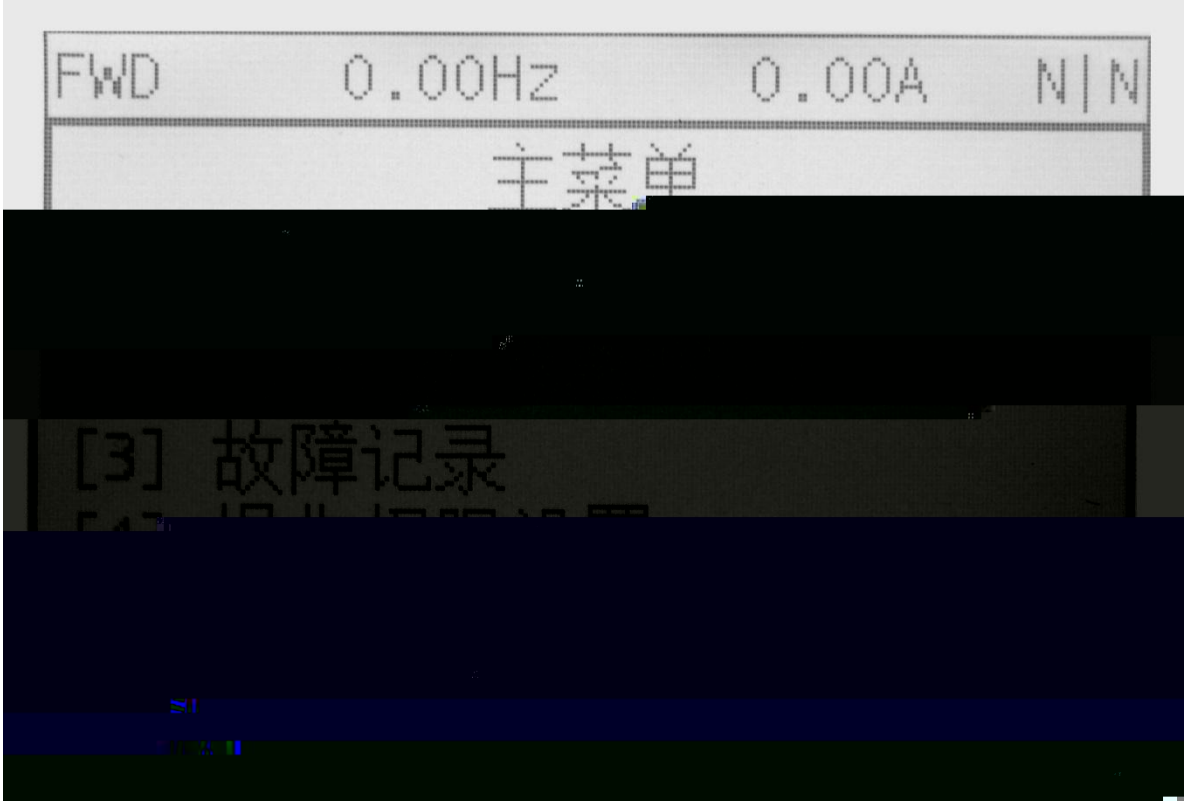
“ ” “ ”

ENTER



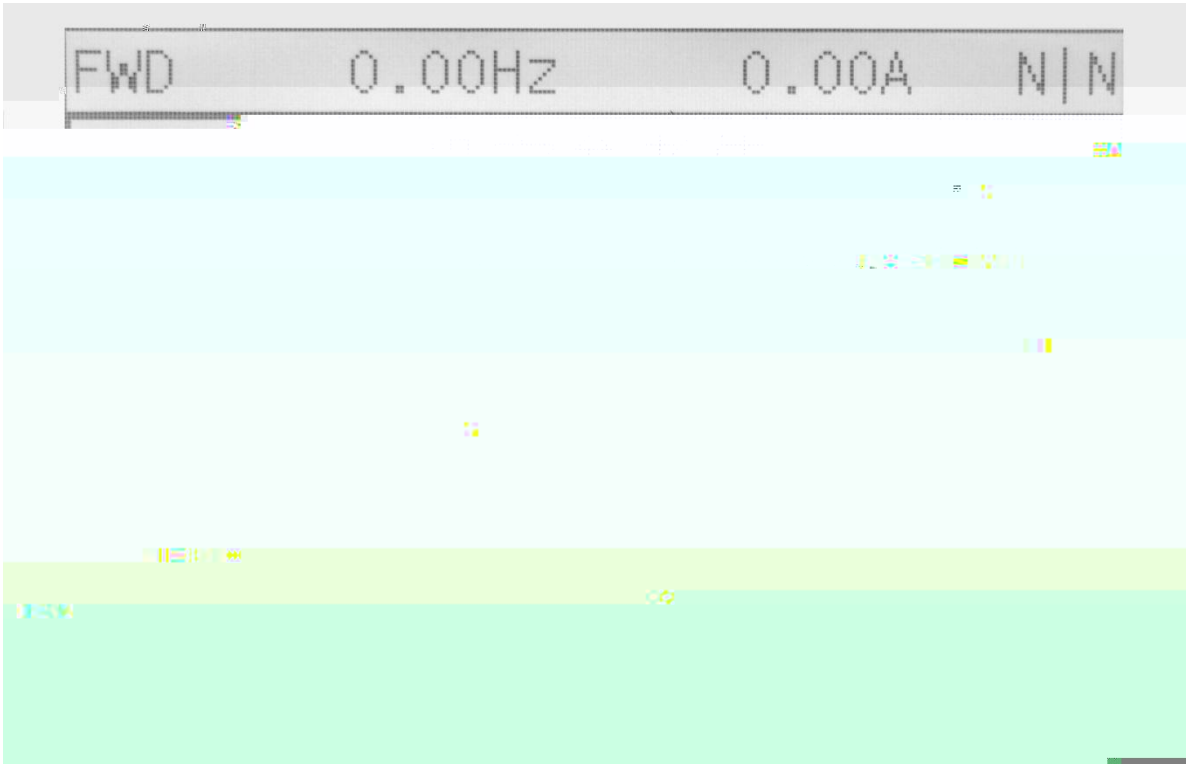
1	Reference Set	
2	Change Direction	
3	Current Error	
4	Current Warnning	

5	Reset Error	
6	Monitor Setting	
7	Firmware Version	
8	Menu Language	



1	Parameter Setting	
2	Function Setting	
3	Fault Record	
4	Access Permissions	
5	Display Setting	

5.4



1 Reference Set

Reference Set	Speed	[Hz]	Hz
		[%]	%
	Torque	[%]	%
	Torque limiter	[%]	%
	1	[%]	1
	2	[%]	2

2 Change Direction

3 Current Error

4 Current Warnning

5 Reset Error

6 Monitor Setting

7 Firmware Version

8 Menu Language

5.5

1 Parameter Setting

2 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	

1

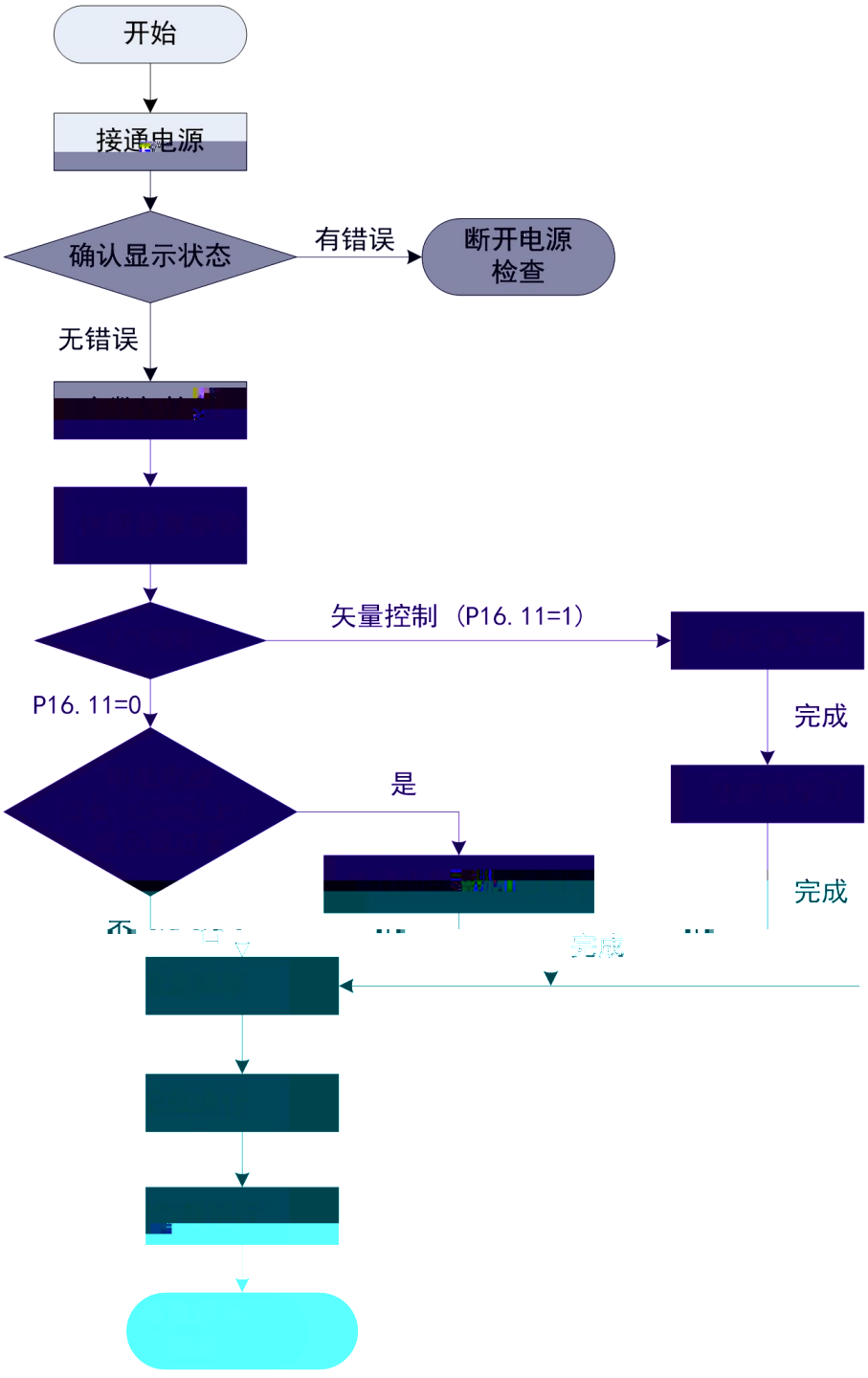
2

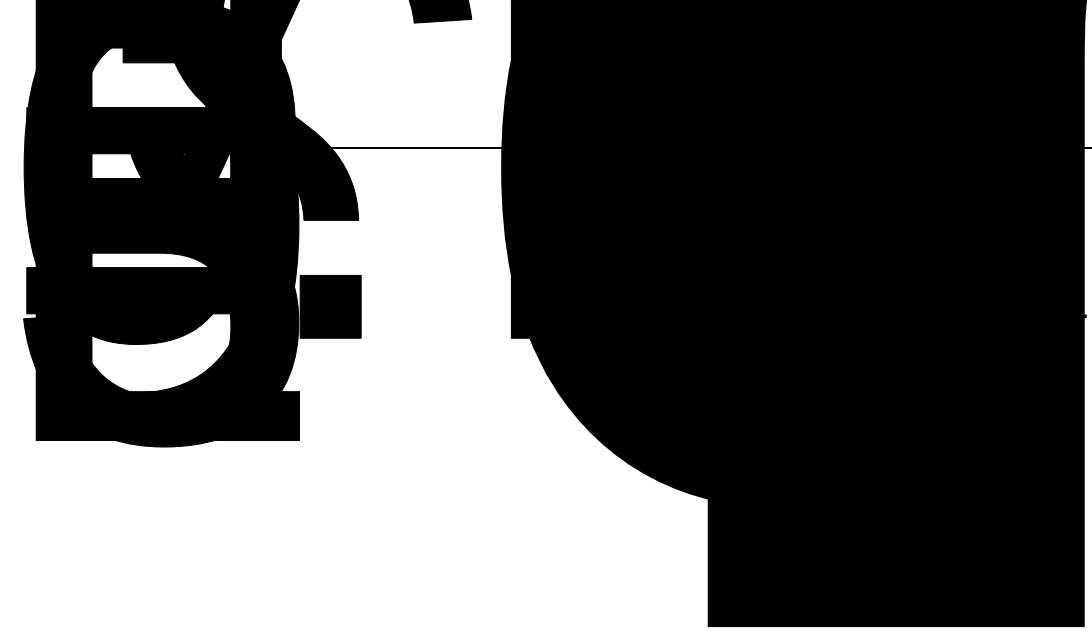
5

▼ ▲ “Enter”

6.

6.1





		[4] ODBUS	
P8.3		[	1
P7.0	[1]	0~300[%]	180%
P7.4	[1]	0~300[%]	235%
P7.19	[1]	100.0 720.0[%]	120%

6.2.5

1

6.2.6

HF650

4

5 4 50Hz

6 STOP

6.2.8

1

2

3

4

5

6 STOP

1

2

1

2

6.2.9

7.

7.1 P0

P0.0		[0] [1]	0 1	0	
P0.1			0 26	14	
P0.3		[0]50HZ [1]60HZ	0 1	0	
P0.4					

7.2 P2

P2.0	[0] [1] [2]	0 2	0	8.1
P2.1	[0] [1]DP	0 1	0	
P2.2	[0] [1]	0 1	0	
P2.3		0 5	1	
P2.33		1 100min	10	10min

P3.4	5		0 32	7	
P3.5	6		0 32	8	
P3.6	7		0 32	0	
P3.7	8		0 32	0	
P3.12		[0] [1]	0 1	0	

0		
1		
2		
3		
4	.NC	
5		</RST
6	1 0	8.2
7	2 1	
8	3 2	
9	4 3	
10		8.10
11		
12		
13	.NC	
14		
15	.NC	
16		
17	0	1 0 00 1 01 2 10 3 11 4
18	1	

7.4 P4

P4.0	1		0 64	0	
P4.1	2		0 64	0	
P4.2	3		0 64	0	
P4.3	4		0 64	0	
P4.4	5		0 64	0	
P4.16	1		0 500	0	
P4.17	2		0 500	0	
P4.18	3		0 500	0	
P4.19	4		0 500	0	

0		
1		8.3
2		ON
3		8.3
4		
5		
6	1	[6] [9]
7	2	
8	3	
9	4	
10	FUNC 10	
11		
12		
13		
14		
15		
16	FUNC 16	
17	0	1

18	1	2
19	2	3
20	3	4
21 31	FUNC 21 FUNC 31	
32		AFE
33 48	FUNC 33 FUNC 48	
49	PROFIBUS 1	PROFIBUS 1 1
50	PROFIBUS 2	PROFIBUS 2 1
51	PROFIBUS 3	PROFIBUS 3 1
52	PROFIBUS 4	PROFIBUS 4 1
53	PROFIBUS 5	PROFIBUS 5 1
54 56	FUNC 54 FUNC 56	
57	1	1 1
58	2	2 1
59	3	3 1
60	4	4 1
61	1	1 1
62	2	2 1
63	3	3 1
64	4	4 1

7.5 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]	8.4
P5.3	AI1	AI1	-20.00 20.00 [mA]	0.000 [mA]	8.4
P5.4	AI1	AI1	-10.00 10.00 [V]	0.000 [V]	8.4
P5.5	AI1	AI1	0.00 20.00 [mA]	0.000 [mA]	8.4
P5.6	AI1	AI1	-300.0 300.0 [%]	0.0 [%]	8.4
P5.7	AI1	AI1	-10.00 10.00 [V]	10.000 [V]	8.4
P5.8	AI1	AI1	0.00 20.00 [mA]	20.000 [mA]	8.4
P5.9	AI1	AI1	-300.0 300.0 [%]	100.0 [%]	8.4
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 [%]	

7.6 P6

P6.0	AO1	7-1	0 14	2	
P6.2	AO1	AO1	-300.0 300.0 [%]	0.0 [%]	8.5
P6.3	AO1	AO1	-300.0 300.0 [%]	100.0 [%]	8.5
P6.4	AO1 [mA V]	AO1	0.0 100.0 [%]	0.0 [%]	8.5
P6.5	AO1 [mA V]	AO1	0.0 100.0 [%]	100.0 [%]	8.5
P6.6	AO1	AO1	-100.00 100.00 [%]	0.00 [%]	
P6.7	AO1	AO1 (P6.0 [13])	0.0 100.0 [%]	0.0 [%]	
P6.8	AO1	AO1	0.0 1000.0 [ms]	10.0 [ms]	
P6.14	AO2	7-1	0 14	4	
P6.16	AO2	AO2	-300.0 300.0 [%]	0.0 [%]	
P6.17	AO2	AO2	-300.0 300.0 [%]	100.0 [%]	
P6.18	AO2 [mA V]	AO2	0.0 100.0 [%]	0.0 [%]	
P6.19	AO2 [mA V]	AO2	0.0 100.0 [%]	100.0 [%]	
P6.20	AO2	AO2	-100.00 100.00 [%]	0.00 [%]	
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		
7		
8	(%)	( )
9		
10		
11	(%)	(150)
12	DP	Profibus
13		P6.7 P6.21
14		

7.7 P7

P7.0	[1]	1	0.0 300.0 [%]	180.0 [%]	8.6
P7.1	[2]	2	0.0 300.0 [%]	180.0 [%]	8.6
P7.2	[3]	3	0.0 300.0 [%]	180.0 [%]	8.6
P7.3	[4]	4	0.0 300.0 [%]	180.0 [%]	8.6
P7.4	[1]	1	0.0 300.0 [%]	235.0 [%]	8.6
P7.5	[2]	2	0.0 300.0 [%]	235.0 [%]	8.6
P7.6	[3]	3	0.0 300.0 [%]	235.0 [%]	8.6
P7.7	[4]	4	0.0 300.0 [%]	235.0 [%]	8.6
P7.8					

P7.22	[4]		4	100.0 [%]	720.0 [%]	120.0 [%]	8.6
P7.23	1	M1	1	0.00 [s]	3.00 [s]	0.50 [s]	8.6
P7.24	1	M					

P7.60			0.10 3.00 [s]	0.30 [s]	
P7.64		[0] [1]	0 1	0	8.6
P7.65			-25 100 [V]	0 [V]	8.6
P7.66			-25 100 [V]	0 [V]	8.6
P7.69		[0] [1]	0 1	0	8.6
P7.70			-25 100 [V]	0 [V]	8.6
P7.71	1	[0] [1]	0 1	0	8.6
P7.73		[0] [1]	0 1	0	
P7.74			300 500 [V]	460 [V]	
P7.75			0.0 1000.0 [%]	100.0 [%]	
P7.76			0.00 300.00 [s]	1.00 [s]	
P7.77			0.0 200.0 [%]	15.0 [%]	
P7.94		[0] [1]	0 1	1	
P7.95		AFE	0.0 3000.0 [s]	15.0 [s]	
P7.96			0.00 300.00 [s]	0.00 [s]	

7.8 1 P8

P8.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P8.3		[0] [1]	0 1	0	8.7
P8.6			0.00 300.00 [s]	0.00 [s]	8.7
P8.7			0.00 300.00 [s]	0.00 [s]	8.7
P8.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P8.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P8.14			0.1 10.0	1.0	8.7
P8.15	1		0.0 300.0 [%]	100.0 [%]	8.7
P8.16	1	P8.15	0.0 300.0 [s]	3.00 [s]	8.7
P8.17	2		0.0 300.0 [%]	200.0 [%]	8.7
P8.18	2	P8.15 P8.17	0.0 300.0 [s]	4.00 [s]	8.7
P8.19	3		0.0 300.0 [%]	240.0 [%]	8.7

P8.20	3	P8.17 P8.19	0.0 300.0 [s]	7.00 [s]	8.7
P8.21	4		0.0 300.0 [%]	300.0 [%]	8.7
P8.22	4	P8.19 P8.21	0.0 300.0 [s]	10.00 [s]	8.7
P8.23	5		0.0 300.0 [%]	300.0 [%]	8.7
P8.24	5	P8.21 P8.23	0.0 300.0 [s]	10.00 [s]	8.7
P8.25	6		0.0 300.0 [%]	300.0 [%]	8.7
P8.26	6	P8.23 P8.25	0.0 300.0 [s]	10.00 [s]	8.7
P8.27	7		0.0 300.0 [%]	300.0 [%]	8.7
P8.28	7	P8.25 P8.27	0.0 300.0 [s]	10.00 [s]	8.7
P8.29	8		0.0 300.0 [%]	300.0 [%]	8.7
P8.30	8	P8.27 P8.29	0.0 300.0 [s]	10.00 [s]	8.7
P8.32		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P8.33			0.1 10.0	1.0	8.7
P8.34	1		0.0 300.0 [%]	100.0 [%]	8.7
P8.35	1	P8.34	0.0 300.0 [s]	3.00 [s]	8.7
P8.36	2		0.0 300.0 [%]	200.0 [%]	8.7
P8.37	2	P8.34 P8.36	0.0 300.0 [s]	4.00 [s]	8.7
P8.38	3		0.0 300.0 [%]	240.0 [%]	8.7

P8.39	3	P8.36 P8.38	0.0 300.0 [s]	7.00 [s]	8.7
P8.40	4		0.0 300.0 [%]	300.0 [%]	8.7
P8.41	4	P8.38 P8.40	0.0 300.0 [s]	10.00 [s]	8.7
P8.42	5		0.0 300.0 [%]	300.0 [%]	8.7
P8.43	5	P8.40 P8.42	0.0 300.0 [s]	10.00 [s]	8.7
P8.44	6		0.0 300.0 [%]	300.0 [%]	8.7
P8.45	6	P8.42 P8.44	0.0 300.0 [s]	10.00 [s]	8.7
P8.46	7		0.0 300.0 [%]	300.0 [%]	8.7
P8.47	7	P8.44 P8.46	0.0 300.0 [s]	10.00 [s]	8.7
P8.48	8		0.0 300.0 [%]	300.0 [%]	8.7
P8.49	8	P8.46 P8.48	0.0 300.0 [s]	10.00 [s]	8.7
P8.54			0.0 300.0 [%]	0.0 [%]	
P8.55		[0] [1]	0 1	0	
P8.56			0.00 300.00 [s]	3.00 [s]	
P8.57		[0] [1]	0 1	1	
P8.58			0.00 300.00 [s]	1.50 [s]	

7.9 2 P9

P9.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P9.3		[0] [1]	0 1	0	8.7
P9.6			0.00 300.00 [s]	0.00 [s]	8.7
P9.7			0.00 300.00 [s]	0.00 [s]	8.7
P9.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P9.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P9.14			0.1 10.0	1.0	8.7
P9.15	1		0.0 300.0 [%]	100.0 [%]	8.7
P9.16	1	P9.15	0.0 300.0 [s]	3.00 [s]	8.7
P9.17	2		0.0 300.0 [%]	200.0 [%]	8.7
P9.18	2	P9.15 P9.17	0.0 300.0 [s]	4.00 [s]	8.7
P9.19	3		0.0 300.0 [%]	240.0 [%]	8.7

P9.39	3	P9.36	P9.38	0.0 300.0 [s]	7.00 [s]	8.7
P9.40	4			0.0 300.0 [%]	300.0 [%]	8.7
P9.41	4	P9.38	P9.40	0.0 300.0 [s]	10.00 [s]	8.7
P9.42	5			0.0 300.0 [%]	300.0 [%]	8.7
P9.43	5	P9.40	P9.42	0.0 300.0 [s]	10.00 [s]	8.7
P9.44	6			0.0 300.0 [%]	300.0 [%]	8.7
P9.45	6	P9.42	P9.44	0.0 300.0 [s]		

7.10 3 P10

P10.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P10.3		[0] [1]	0 1	0	8.7
P10.6			0.00 300.00 [s]	0.00 [s]	8.7
P10.7			0.00 300.00 [s]	0.00 [s]	8.7
P10.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P10.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P10.14			0.1 10.0	1.0	8.7
P10.15	1		0.0 300.0 [%]	100.0 [%]	8.7
P10.16	1	P10.15	0.0 300.0 [s]	3.00 [s]	8.7
P10.17	2		0.0 300.0 [%]	200.0 [%]	8.7
P10.18	2	P10.15 P10.17	0.0 300.0 [s]	4.00 [s]	8.7
P10.19	3		0.0 300.0 [%]	240.0 [%]	8.7

P10.39	3	P10.36	P10.38	0.0 300.0 [s]	7.00 [s]	8.7
P10.40	4			0.0 300.0 [%]	300.0 [%]	8.7
P10.41	4	P10.38	P10.40	0.0 300.0 [s]	10.00 [s]	8.7
P10.42	5			0.0 300.0 [%]	300.0 [%]	8.7
P10.43	5	P10.40	P10.42	0.0 300.0 [s]	10.00 [s]	8.7
P10.44	6			0.0 300.0 [%]	300.0 [%]	8.7
P10.45	6	[1] P10.42 [0]	P10.44	0.0 300.0 [s]	10.00 [s]	8.7
P10.46	7			0.0 300.0 [%]	300.0 [%]	8.7
P10.47	7	P10.44	P10.46	0.0 300.0 [s]	10.00 [s]	8.7
P10.48	8			0.0 300.0 [%]	300.0 [%]	8.7
P10.49	8	P10.46	P10.48	0.0 300.0 [s]	10.00 [s]	8.7
P10.54				0.0 300.0 [%]	0.0 [%]	
P10.55		[0] [1]		0 1	0	
P10.56				0.00		

7.11 4 P11

P11.0		[0] [1] [2]DP [3]MODBUS [4]	0 4	0	
P11.3		[0] [1]	0 1	0	8.7
P11.6			0.00 300.00 [s]	0.00 [s]	8.7
P11.7			0.00 300.00 [s]	0.00 [s]	8.7
P11.10		[0]I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	0 6	0	
P11.13		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P11.14			0.1 10.0	1.0	8.7
P11.15	1		0.0 300.0 [%]	100.0 [%]	8.7
P11.16	1	P11.15	0.0 300.0 [s]	3.00 [s]	8.7
P11.17	2		0.0 300.0 [%]	200.0 [%]	8.7
P11.18	2	P11.15 P11.17	0.0 300.0 [s]	4.00 [s]	8.7
P11.19	3		0.0 300.0 [%]	240.0 [%]	8.7

P11.20	3	P11.17	P11.19	0.0 [s]	300.0 [s]	7.00 [s]	8.7
P11.21	4			0.0 [%]	300.0 [%]	300.0 [%]	8.7
P11.22	4	P11.19	P11.21	0.0 [s]	300.0 [s]	10.00 [s]	8.7
P11.23	5			0.0 [%]	300.0 [%]	300.0 [%]	8.7
P11.24	5	P11.21	P11.23	0.0 [s]	300.0 [s]	10.00 [s]	8.7
P11.25	6			0.0 [%]	300.0 [%]	300.0 [%]	8.7
P11.26	6	P11.23	P11.25	0.0 [s]	300.0 [s]	10.00 [s]	8.7
P11.27	7			0.0 [%]	300.0 [%]	300.0 [%]	8.7
P11.28	7	P11.25	P11.27	0.0 [s]	300.0 [s]	10.00 [s]	8.7
P11.29	8						

P11.39	3	P11.36	P11.38	0.0 300.0 [s]	7.00 [s]	8.7
P11.40	4			0.0 300.0 [%]	300.0 [%]	8.7
P11.41	4	P11.38	P11.40	0.0 300.0 [s]	10.00 [s]	8.7
P11.42	5			0.0 300.0 [%]	300.0 [%]	8.7
P11.43	5	P11.40	P11.42	0.0 300.0 [s]	10.00 [s]	8.7
P11.44	6			0.0 300.0 [%]	300.0 [%]	8.7
P11.45	6	P11.42	P11.44	0.0 300.0 [s]	10.00 [s]	8.7
P11.46	7			0.0 300.0 [%]	300.0 [%]	8.7
P11.47	7	P11.44	P11.46	0.0 300.0 [s]	10.00 [s]	8.7
P11.48	8			0.0 300.0 [%]		

7.12 1 P12

P12.0		[0] [1]	0 1	1	8.8
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	14		0.0 3000.0	50.0	
P12.16	15		0.0 3000.0	50.0	
P12.17	16		0.0 3000.0	50.0	
P12.22			0.0 20.0 [%]	2.0 [%]	8.8
P12.23			0.0 20.0 [%]	0.0 [%]	8.8
P12.24			0.0 200.0 [%]	30.0 [%]	8.8
P12.25			0.0 200.0 [%]	20.0 [%]	8.8
P12.26			0.00 2.00 [s]	0.00 [s]	8.8

P12.27			0.00 2.00 [s]	0.00 [s]	8.8
P12.28			0.00 2.00 [s]	0.07 [s]	8.8
P12.29			0.00 2.00 [s]	0.07 [s]	8.8
P12.32			0.0 20.0 [%]	0.0 [%]	8.8
P12.33			0.0 20.0 [%]	0.0 [%]	8.8
P12.34			0.00 2.00 [s]	0.00 [s]	8.8
P12.35			0.00 2.00 [s]	0.00 [s]	8.8
P12.36			0.00 2.00 [s]	0.50 [s]	8.8
P12.37			0.00 2.00 [s]	0.50 [s]	8.8

7.13 2 P13

P13.0		[0] [1]	0 1	1	8.8
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 [%]	8.8
P13.23			0.0 20.0 [%]	0.0 [%]	8.8
P13.24			0.0 200.0 [%]	30.0 [%]	8.8
P13.25			0.0 200.0 [%]	20.0 [%]	8.8
P13.26			0.00 2.00 [s]	0.00 [s]	8.8

P13.27			0.00 2.00 [s]	0.00 [s]	8.8
P13.28			0.00 2.00 [s]	0.07 [s]	8.8
P13.29			0.00 2.00 [s]	0.07 [s]	8.8
P13.32			0.0 20.0 [%]	0.0 [%]	8.8
P13.33			0.0 20.0 [%]	0.0 [%]	8.8
P13.34			0.00 2.00 [s]	0.00 [s]	8.8
P13.35			0.00 2.00 [s]	0.00 [s]	8.8
P13.36			0.00 2.00 [s]	0.50 [s]	8.8
P13.37			0.00 2.00 [s]	0.50 [s]	8.8

7.14 3 P14

P14.0		[0] [1]	0	1	1	8.8
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						

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P14.27			0.00 2.00 [s]	0.00 [s]	8.8
P14.28			0.00 2.00 [s]	0.07 [s]	8.8
P14.29			0.00 2.00 [s]	0.07 [s]	8.8
P14.32			0.0 20.0 [%]	0.0 [%]	8.8
P14.33			0.0 20.0 [%]	0.0 [%]	8.8
P14.34			0.00 2.00 [s]	0.00 [s]	8.8
P14.35			0.00 2.00 [s]	0.00 [s]	8.8
P14.36			0.00 2.00 [s]	0.50 [s]	8.8
P14.37			0.00 2.00 [s]	0.50 [s]	8.8

7.15 4 P15

P15.0		[0] [1]	0 1	1	8.8
P15.1		[0][%] [1][Hz] [2][rpm]	0 2	1	
P15.2	1		0.0 3000.0	10.0	
P15.3	2		0.0 3000.0	20.0	
P15.4	3		0.0 3000.0	35.0	
P15.5	4		0.0 3000.0	50.0	
P15.6	5		0.0 3000.0	50.0	
P15.7	6		0.0 3000.0	50.0	
P15.8	7		0.0 3000.0	50.0	
P15.9	8		0.0 3000.0	50.0	
P15.10	9		0.0 3000.0	50.0	
P15.11	10		0.0 3000.0	50.0	
P15.12	11		0.0 3000.0	50.0	
P15.13	12		0.0 3000.0	50.0	
P15.14	13		0.0 3000.0	50.0	
P15.15	14		0.0 3000.0	50.0	
P15.16	15		0.0 3000.0	50.0	
P15.17	16		0.0 3000.0	50.0	
P15.22			0.0 20.0 [%]	2.0 [%]	8.8
P15.23			0.0 20.0 [%]	0.0 [%]	8.8
P15.24			0.0 200.0 [%]	30.0 [%]	8.8
P15.25			0.0 200.0 [%]	20.0 [%]	8.8
P15.26			0.00 2.00 [s]	0.00 [s]	8.8

P15.27			0.00 2.00 [s]	0.00 [s]	8.8
P15.28			0.00 2.00 [s]	0.07 [s]	8.8
P15.29			0.00 2.00 [s]	0.07 [s]	8.8
P15.32			0.0 20.0 [%]	0.0 [%]	8.8
P15.33			0.0 20.0 [%]	0.0 [%]	8.8
P15.34			0.00 2.00 [s]	0.00 [s]	8.8
P15.35			0.00 2.00 [s]	0.00 [s]	8.8
P15.36			0.00 2.00 [s]	0.50 [s]	8.8
P15.37			0.00 2.00 [s]	0.50 [s]	8.8

P16.22			0.00 [s]	100.00 [s]	0.00 [s]	8.9
P16.23	V/F		0.00 [Hz]	300.00 [Hz]	0.00 [Hz]	
P16.24	V/F		0.00 [Hz]	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 [%]	8.9
P16.27			0.0 [%]	200.0 [%]	100.0 [%]	8.9
P16.30			0.0 [%]	100.0 [%]	0.0 [%]	8.9
P16.33	V/F	V/F	[00	6 300	2 20 0	8.9
P16.34	V/F	1	0.0 [%]	300.0 [Hz]	5.0 [Hz]	
P16.35	V/F	1	0.0 [	125.0 [%]	11.5 [%]	
P16.36	V/F	2	0.0 [%]	300.0 [Hz]	50.0 [Hz]	
P16.37	V/F	2	0.0	125.0 [%]	100.0 [%]	
P16.38	V/F	3	0.0 [%]	300.0 [Hz]	50.0 [Hz]	
P16.39	V/F	3	0.0	125.0 [%]	100.0 [%]	
P16.40	V/F	4	0.0	300.0 [Hz]	50.0 [Hz]	
P16.41	N6.40					

P16.50			0.00 300.00 [s]	0.00 [s]	8.9
P16.51			0.0 150.0 [%]	70.0 [%]	8.9
P16.52			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P16.54			0.00 300.00 [s]	0.00 [s]	8.9
P16.55			0.0 150.0 [%]	75.0 [%]	8.9
P16.56			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P16.59			0.0 1000.0 [%]	100.0 [%]	
P16.60			0.0 1000.0 [%]	100.0 [%]	
P16.61			0.0 1000.0 [%]	100.0 [%]	
P16.62			0.0 1000.0 [%]	100.0 [%]	
P16.64	V/F	V/F	0.0 1000.0 [%]	100.0 [%]	8.9
P16.66		V/F	0.0 1000.0 [%]	100.0 [%]	
P16.67			0.0 1000.0 [%]	100.0 [%]	
P16.68			0.0 1000.0 [%]	100.0 [%]	
P16.69			0.0 1000.0 [%]	100.0 [%]	
P16.70			0.0 1000.0 [%]	100.0 [%]	

7.17 2 V/F P17

P17.0			320 460 [V]	380 [V]	
P17.2			0.0 4000.0 [kW]	 [kW]	
P17.3			320 460 [V]	380 [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]	8.9
P17.9			0 7200 [rpm]	1500 [rpm]	8.9
P17.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P17.12			1.00 10.00 [kHz]	3.00 [kHz]	8.9
P17.14	V/F	[0] V/F [1] V/F [2]	0 3	0	8.9
P17.15		[0] [1]	0 1	0	8.9
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]	8.9
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 [%]	8.9
P17.27			0.0 200.0 [%]	100.0 [%]	8.9
P17.30			0.0 100.0 [%]	0.0 [%]	8.9
P17.33	V/F	V/F	0 6	2	8.9
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 [%]	
P17.48		[0] [1]PID 1 [2]PID 2 [3]	0 3	0	

P17.50			0.00 300.00 [s]	0.00 [s]	8.9
P17.51			0.0 150.0 [%]	70.0 [%]	8.9
P17.52			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P17.54			0.00 300.00 [s]	0.00 [s]	8.9
P17.55			0.0 150.0 [%]	75.0 [%]	8.9
P17.56			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P17.59			0.0 1000.0 [%]	100.0 [%]	
P17.60			0.0 1000.0 [%]	100.0 [%]	
P17.61			0.0 1000.0 [%]	100.0 [%]	
P17.62			0.0 1000.0 [%]	100.0 [%]	
P17.64	V/F	V/F	0.0 1000.0 [%]	100.0 [%]	8.9
P17.66		V/F	0.0 1000.0 [%]	100.0 [%]	
P17.67			0.0 1000.0 [%]	100.0 [%]	
P17.68			0.0 1000.0 [%]	100.0 [%]	
P17.69			0.0 1000.0 [%]	100.0 [%]	
P17.70			0.0 1000.0 [%]	100.0 [%]	

7.18 3 V/F P18

P18.0			320 460 [V]	380 [V]	
P18.2			0.0 4000.0 [kW]	 [kW]	
P18.3			320 460 [V]	380 [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]	8.9
P18.9			0 7200 [rpm]	1500 [rpm]	8.9
P18.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P18.12			1.00 10.00 [kHz]	3.00 [kHz]	8.9
P18.14	V/F	[0] V/F [1] V/F [2]	0 3	0	8.9
P18.15		[0] [1]	0 1	0	8.9
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 [s]	100.00 [s]	0.00 [s]	8.9
P18.23	V/F				

P18.50			0.00 300.00 [s]	0.00 [s]	8.9
P18.51			0.0 150.0 [%]	70.0 [%]	8.9
P18.52			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P18.54			0.00 300.00 [s]	0.00 [s]	8.9
P18.55			0.0 150.0 [%]	75.0 [%]	8.9
P18.56			0.00 5.00 [Hz]	0.00 [Hz]	8.9
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 [%]	8.9
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 [%]	

7.19 4 V/F P19

P19.0			320 460 [V]	380 [V]	
P19.2			0.0 4000.0 [kW]	 [kW]	
P19.3			320 460 [V]	380 [V]	
P19.4			0.0 6500.0 [A]	 [A]	
P19.5			0.0 300.0 [Hz]	50.0 [Hz]	
P19.6			0 6000 [rpm]	1465 [rpm]	
P19.7			2 12 [pole]	4 [pole]	8.9
P19.9			0 7200 [rpm]	1500 [rpm]	8.9
P19.11		[0]V/F [1] [2] [3] [4]	0 4	0	
P19.12			1.00 10.00 [kHz]	3.00 [kHz]	8.9
P19.14	V/F	[0] V/F [1] V/F [2]	0 3	0	8.9
P19.15		[0] [1]	0 1	0	8.9
P19.16			2 500 [ms]	500 [ms]	
P19.17	V/F	[0] [1]	0 1	0	
P19.18			10 1000 [ms]	200 [ms]	
P19.19		[0] [1]	0 1	0	

P19.22			0.00 100.00 [s]	0.00 [s]	8.9
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 [%]	8.9
P19.27			0.0 200.0 [%]	100.0 [%]	8.9
P19.30			0.0 100.0 [%]	0.0 [%]	8.9
P19.33	V/F	V/F	0 6	2	8.9
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 [%]	
P19.48		[0] [1]PID 1 [2]PID 2 [3]	0 3	0	

P19.50			0.00 300.00 [s]	0.00 [s]	8.9
P19.51			0.0 150.0 [%]	70.0 [%]	8.9
P19.52			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P19.54			0.00 300.00 [s]	0.00 [s]	8.9
P19.55			0.0 150.0 [%]	75.0 [%]	8.9
P19.56			0.00 5.00 [Hz]	0.00 [Hz]	8.9
P19.59			0.0 1000.0 [%]	100.0 [%]	
P19.60			0.0 1000.0 [%]	100.0 [%]	
P19.61			0.0 1000.0 [%]	100.0 [%]	
P19.62			0.0 1000.0 [%]	100.0 [%]	
P19.64	V/F	V/F	0.0 1000.0 [%]	100.0 [%]	8.9
P19.66		V/F	0.0 1000.0 [%]	100.0 [%]	
P19.67			0.0 1000.0 [%]	100.0 [%]	
P19.68			0.0 1000.0 [%]	100.0 [%]	
P19.69			0.0 1000.0 [%]	100.0 [%]	
P19.70			0.0 1000.0 [%]	100.0 [%]	

7.20 1 P20

P20.0		[0] [1]	0 1	0	8.10
P20.1		[0] [1] 1 [2] 2 [3] [4] P20.3 [5]DP [6]MODBUS [7]	0 7	0	8.10
P20.2			0 7	0	
P20.3			-300.0 300.0 [%]	0.0 [%]	8.10
P20.5			0 1000 [ms]	0 [ms]	
P20.6			0.0 200.0 [%]	100.0 [%]	8.10
P20.7		[0] [1] P20.8 P20.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	0 7	0	8.10
P20.8		P20.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P20.9		P20.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P20.11			0 1000 [ms]	0 [ms]	
P20.12	2x		0.0 300.0 [%]	100.0 [%]	

P20.13			20.0 500.0 [ms]	100.0 [ms]	8.10
P20.14		1	0 60000	1024	
P20.15	[0] [1]		0 1	0	8.10
P20.16			0.0 300.0 [%]	100.0 [%]	
P20.17			0.0 300.0 [%]	100.0 [%]	

P20.31			0.0 100.0 [%]	5.0 [%]	
P20.32			0.0 100.0 [%]	5.0 [%]	
P20.34		[0] [1]	0 1	0	8.10
P20.35			0.0 100.0 [s]	0.0 [s]	
P20.36			50.0 150.0 [%]	110.0 [%]	
P20.37			0.0 150.0 [%]	100.0 [%]	8.10
P20.38			0.0 100.0 [%]	25.0 [%]	8.10
P20.39			0.0 120.0 [%]	100.0 [%]	8.10
P20.40			0.0 150.0 [%]	100.0 [%]	8.10
P20.41			0.0 150.0 [%]	135.0 [%]	
P20.42		[0] [1]	0 1	1	
P20.43			25 1000 [ms]	75 [ms]	
P20.44			25 1000 [ms]	250 [ms]	
P20.45			0.0 100.0 [%]	22.0 [%]	
P20.46			0.0 100.0 [%]	18.0 [%]	
P20.47			0.0 200.0 [%]	92.0 [%]	
P20.48			0.0 200.0 [%]	87.0 [%]	
P20.49			0.0 150.0 [%]	100.0 [%]	
P20.51			0.0 1000.0 [%]	100.0 [%]	
P20.52			0.0 1000.0 [%]	100.0 [%]	

7.21 2 P21

P21.0		[0] [1]	0 1	0	8.10
P21.1		[0] [1] 1 [2] 2 [3] [4] P21.3 [5]DP [6]MODBUS [7]	0 7	0	8.10
P21.2			0 7	0	
P21.3			-300.0 300.0 [%]	0.0 [%]	8.10
P21.5			0 1000 [ms]	0 [ms]	
P21.6			0.0 200.0 [%]	100.0 [%]	8.10
P21.7		[0] [1] P21.8 P21.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	0 7	0	8.10
P21.8		P21.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P21.9		P21.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P21.11			0 1000 [ms]	0 [ms]	
P21.12	2x		0.0 300.0 [%]	100.0 [%]	

P21.13			20.0 500.0 [ms]	100.0 [ms]	8.10
P21.14		1	0 60000	1024	
P21.15		[0] [1]	0 1	0	8.10
P21.16			0.0 300.0 [%]	100.0 [%]	
P21.17			0.0 300.0 [%]	100.0 [%]	
P21.18			0.0 300.0 [%]	0.0 [%]	
P21.19			0.0 300.0 [%]	0.0 [%]	
P21.20		[0] [1]	0 1	0	
P21.21		[0] [1]	0 1	0	
P21.22			0.0 300.0 [%]	160.0 [%]	
P21.23			0.0 200.0 [%]	20.0 [%]	
P21.24			0.0 300.0 [%]	100.0 [%]	
P21.25			0.0 200.0 [%]	100.0 [%]	
P21.26			0.0 1000.0 [%]	0.0 [%]	8.10
P21.27			0.00 15.00 [%]	2.00 [%]	8.10
P21.28		[0] P21.16 P21.17 [1] [2] [3]DP	0 3	0	
P21.30		[0] P21.31 P21.32 [1] 1 [2] 2 [3]	0 3	0	

P21.31		0.0	100.0	5.0
		[%]		[%]
P21.32		0.0	100.0	5.0.0
		[%]		[%]
P21.34	[0] [1]	0	1	0
P21.35	è ³			

8.10

7.22 3 P22

P22.0		[0] [1]	0 1	0	8.10
P22.1		[0] [1] 1 [2] 2 [3] [4] P22.3 [5]DP [6]MODBUS [7]	0 7	0	8.10
P22.2			0 7	0	
P22.3			-300.0 300.0 [%]	0.0 [%]	8.10
P22.5			0 1000 [ms]	0 [ms]	
P22.6			0.0 200.0 [%]	100.0 [%]	8.10
P22.7		[0] [1] P22.8 P22.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	0 7	0	8.10
P22.8		P22.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P22.9		P22.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P22.11			0 1000 [ms]	0 [ms]	
P22.12	2x		0.0 300.0 [%]	100.0 [%]	

P22.13			20.0 500.0 [ms]	100.0 [ms]	8.10
P22.14		1	0 60000	1024	
P22.15		[0] [1]	0 1	0	8.10
P22.16			0.0 300.0 [%]	100.0 [%]	
P22.17			0.0 300.0 [%]	100.0 [%]	
P22.18			0.0 300.0 [%]	0.0 [%]	
P22.19			0.0 300.0 [%]	0.0 [%]	
P22.20		[0] [1]	0 1	0	
P22.21		[0] [1]	0 1	0	
P22.22			0.0 300.0 [%]	160.0 [%]	
P22.23			0.0 200.0 [%]	20.0 [%]	
P22.24			0.0 300.0 [%]	100.0 [%]	
P22.25			0.0 200.0 [%]	100.0 [%]	
P22.26			0.0 1000.0 [%]	0.0 [%]	8.10
P22.27			0.00 15.00 [%]	2.00 [%]	8.10
P22.28		[0] P22.16 P22.17 [1] [2] [3]DP	0 3	0	
P22.30		[0] P22.31 P22.32 [1] 1 [2] 2 [3]	0 3	0	

P22.31		0.0 [%]	100.0 [%]	5.0 [%]	
P22.32		0.0 [%]	100.0 [%]	5.0 [%]	
P22.34	[0] [1]	0	1	0	8.10
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 [%]	8.10
P22.38		0.0 [%]	100.0 [%]	25.0 [%]	8.10
P22.39		0.0 [%]	120.0 [%]	100.0 [%]	8.10
P22.40		0.0 [%]	150.0 [%]	100.0	

P22.53	Kp		0.0 1000.0 [%]	100.0 [%]	
P22.54	Ki		0.0 1000.0 [%]	100.0 [%]	
P22.55			0.0 1000.0 [%]	100.0 [%]	8.10
P22.56			0.0 1000.0 [%]	100.0 [%]	8.10
P22.57		[0] [1]	0 1	0	8.10
P22.58			0.0 125.0 [%]	100.0 [%]	8.10
P22.59			1.0 25.0 [%]	2.5 [%]	8.10
P22.60	DROOP	0 DROOP	0.0 100.0 [%]	0.0 [%]	8.10
P22.61	DROOP	DROOP	30 2000 [ms]	50 [ms]	8.10
P22.62			0.0 1000.0 [%]	100.0 [%]	8.10
P22.63			0.0 1000.0 [%]	100.0 [%]	8.10
P22.64	2	2	0.0 100.0 [%]	0.0 [%]	8.10
P22.65	2	2	30 2000.0 ms	50 ms	
P22.98		( )	0.01 300.00 [s]	0.75 [s]	
P22.99			0.00 10.00 [%]	0.00 [%]	

7.23 4 P23

P23.0		[0] [1]	0 1	0	8.10
P23.1		[0] [1] 1 [2] 2 [3] [4] P23.3 [5]DP [6]MODBUS [7]	0 7	0	8.10
P23.2			0 7	0	
P23.3			-300.0 300.0 [%]	0.0 [%]	8.10
P23.5			0 1000 [ms]	0 [ms]	
P23.6			0.0 200.0 [%]	100.0 [%]	8.10
P23.7		[0] [1] P23.8 P23.9 [2] 1 [3] 2 [4] [5]DP [6]MODBUS [7]	0 7	0	8.10
P23.8		P23.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P23.9		P23.7 [1]	0.0 300.0 [%]	200.0 [%]	8.10
P23.11			0 1000 [ms]	0 [ms]	
P23.12	2x		0.0 300.0 [%]	100.0 [%]	

P23.13			20.0 500.0 [ms]	100.0 [ms]	8.10
P23.14		1	0 60000	1024	
P23.15	[0] [1]		0 1	0	8.10
P23.16			0.0 300.0 [%]	100.0 [%]	
P23.17			0.0 300.0 [%]	100.0 [%]	

P23.31		0.0 100.0 [%]	5.0 [%]	
P23.32		0.0 100.0 [%]	5.0 [%]	
P23.34	[0] [1]	0 1	0	8.10
P23.35		0.0 100.0 [s]	0.0 [s]	
P23.36		50.0 150.0 [%]	110.0 [%]	
P23.37		0.0 150.0 [%]	100.0 [%]	8.10
P23.38		0.0 100.0 [%]	25.0 [%]	8.10
P23.39		0.0 120.0 [%] 0	100.0 [%]	8.10
P23.40		0.0 150.0 [%]	100.0 [%]	8.10
P23.41		0.0 150.0 [%]	135.0 [%]	
P23.42	[0] [1]	0 1	1	
P23.43		25 1000 [ms]	75 [ms]	
P23.44				

P23.53	Kp		0.0 1000.0 [%]	100.0 [%]	
P23.54	Ki		0.0 1000.0 [%]	100.0 [%]	
P23.55			0.0 1000.0 [%]	100.0 [%]	8.10
P23.56			0.0 1000.0 [%]	100.0 [%]	8.10
P23.57		[0] [1]	0 1	0	8.10
P23.58			0.0 125.0 [%]	100.0 [%]	8.10
P23.59			1.0 25.0 [%]	2.5 [%]	8.10
P23.60	DROOP	0 DROOP	0.0 100.0 [%]	0.0 [%]	8.10
P23.61	DROOP	DROOP	30 2000 [ms]	50 [ms]	8.10
P23.62			0.0 1000.0 [%]	100.0 [%]	8.10
P23.63			0.0 1000.0 [%]	100.0 [%]	8.10
P23.64	2	2	0.0 100.0 [%]	0.0 [%]	8.10
P23.65	2	2	30 2000.0 ms	50 ms	
P23.98		( )	0.01 300.00 [s]	0.75 [s]	
P23.99			0.00 10.00 [%]	0.00 [%]	

7.24 MODBUS P32

P32.0	MODBUS	[0] [1]	0 1	0	
P32.1	MODBUS ID		1 255	1	
P32.2		[0]RS485 [1]RS232	0 1	0	
P32.3		[0] 9600 BPS [1] 14400 BPS [2] 19200 BPS [3] 38400 BPS [4] 56000 BPS [5] 57600 BPS [6] 115200 BPS	0 6	3	
P32.4		[0] None_8_1_CFG [1] Even_8_1_CFG [2] Odd_8_1_CFG [3] None_8_2_CFG [4] Even_8_2_CFG [5] Odd_8_2_CFG	0 5	0	
P32.5	Modbus	Modbus 0 Modbus	0 100 [s]	0 [s]	0s
P32.6	Modbus	0- 1-	0 1	0	

7.25 P33

P33.0	Profibus	[0] [1]	0 1	0	
P33.1		PLC	1 255	1	
P33.2		[0]PPO1 [1]PPO2 [2]PPO5 [3]GUIDE	0 3	2	
P33.3			0 16	14	
P33.4			0 16	14	
P33.5		[0] [1] [2] [3]	0 3	0	
P33.6			0 1000 [ms]	50 [ms]	
P33.7		[0] [1]	0 1	0	
P33.8			0.0 10.0 [s]	3.0 [s]	
P33.13	[W0]	7-2	0 37	0	
P33.14	[W0]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.15	[W1]	7-2	0 37	0	
P33.16	[W1]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.17	[W2]	7-2	0 37	0	

P33.18	[W2]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.19	[W3]	7-2	0 37	0	
P33.20	[W3]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.21	[W4]	7-2	0 37	1	
P33.22	[W4]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0	
P33.23	[W5]	7-2	0 37	18	
P33.24	[W5]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	2	
P33.25	[W6]	7-2	0 37	21	
P33.26	[W6]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	1	
P33.27	[W7]	7-2	0 37	22	
P33.28	[W7]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	1	
P33.29	[W8]	7-2	0 37	23	
P33.30	[W8]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	1	

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	0	
P33.63	[W9]	7-3	0 48	13	
P33.64	[W9]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.65	[W10]	7-3	0 48	40	
P33.66	[W10]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	6	
P33.67	[W11]	7-3	0 48	0	
P33.68	[W11]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.69	[W12]	7-3	0 48	0	

P33.70	[W12]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.71	[W13]	7-3	0 48	0	
P33.72	[W13]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.73	[W14]	7-3	0 48	0	
P33.74	[W14]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	0	
P33.75	[W15]	7-3	0 48	0	
P33.76	[W15]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [%] × 1 [6] [%] × 10 [7] [%] × 100	0 7	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	Mwh
42	Kwh
43	Mwh
44	Kwh
45 48	AW26 29

8.

8.1

400kW 800kW 400kW

P2.0

8.2

1

P12.0 [0] [1]

A. [0]

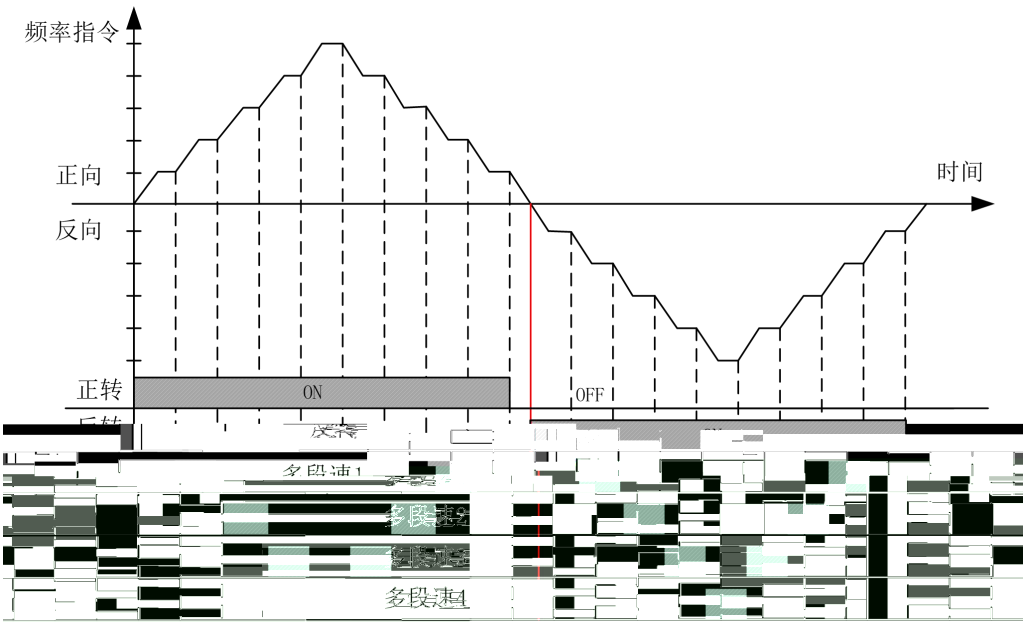
[1] [2] ---1

[6] 1 0 ---2

[7] 2 1 ---3

[8] 3 2 ---4

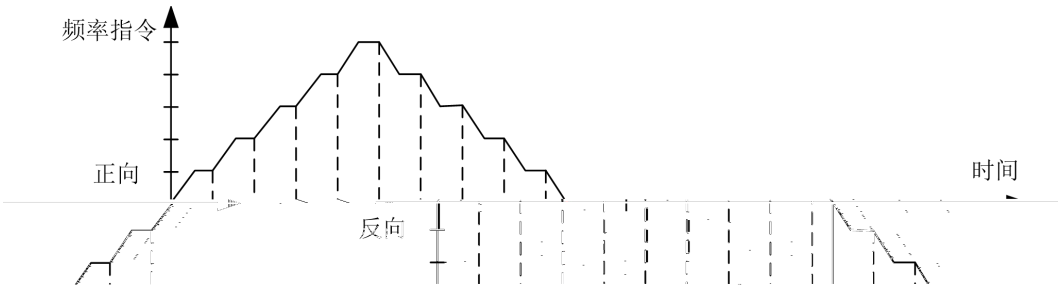
[9] 4 3 ---5



B. [1]

4 16 (8421)

(FORWARD) (REVERSE) P12.2(1)



2

DI 22 “ ”

10Hz E106 “ 1 ”

10Hz 2s

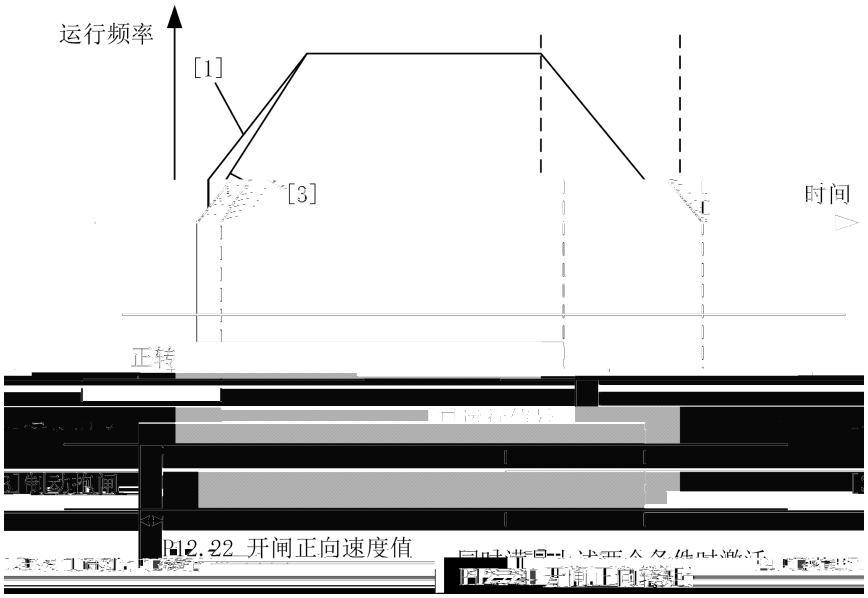
E107 “ 2 ”

8.3

/

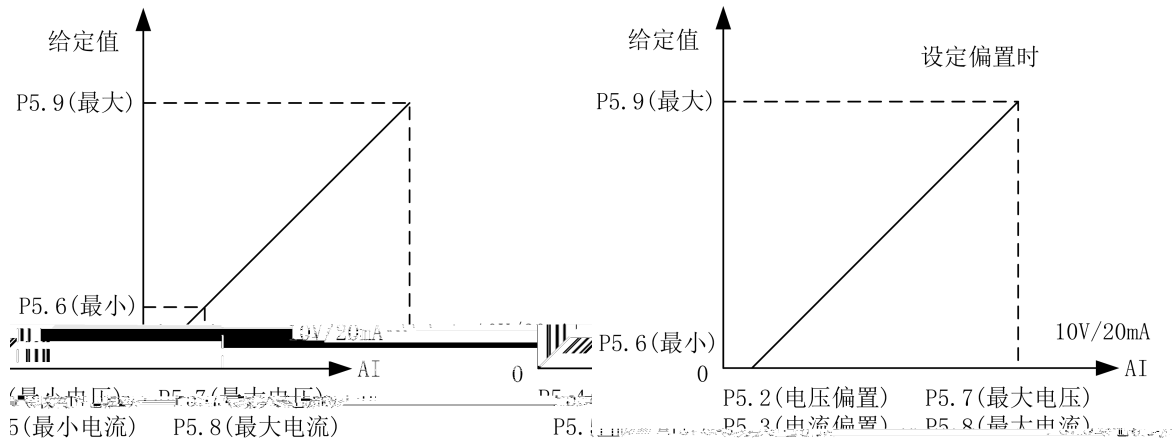
[1] [3] [3]

[1] [3]

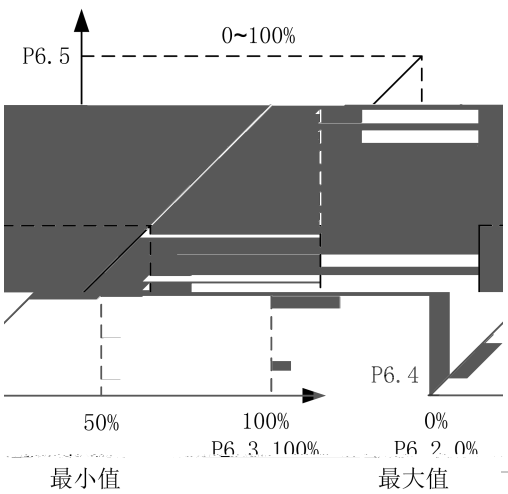


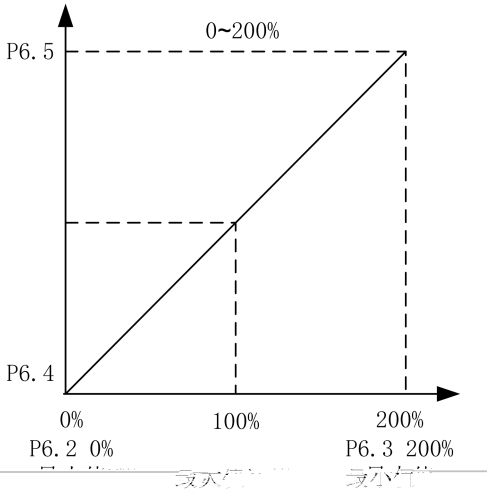
P2.22 开闸正向速度值

8.4

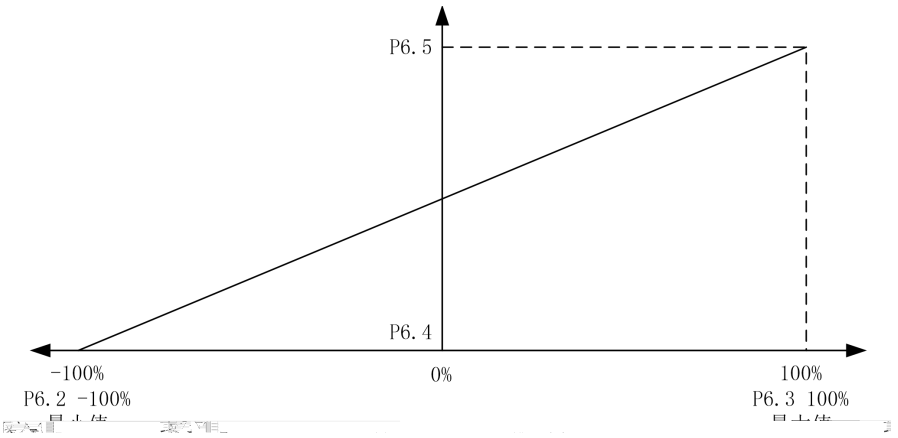


8.5





(a) 0~100% b 0~200%



c -100~100%

8.6

1

P7.0 P7.1 P7.2 P7.3

2

P7.4 P7.5 P7.6 P7.7 P7.4 P16.4

3

P7.8 P7.9 P7.10 P7.11 $I_a + I_b + I_c$

P16.4 $\frac{I_a + I_b + I_c}{} > P$ P

4

P7.12 P7.13 P7.12

P7.13

5

P7.14 IGBT P7.14

P7.15 IGBT P7.15

6

P7.19 P7.20 P7.21 P7.22 P7.19

P7.19 P7.22

7

P7.23 P16.11=1 P7.23

P7.23

P7.24 P7.26 P17.11=1 P18.11=1 P19.11=1

8

P7.31 P7.32 P16.11=2

P7.31 100% P7.32

P7.31 P7.32

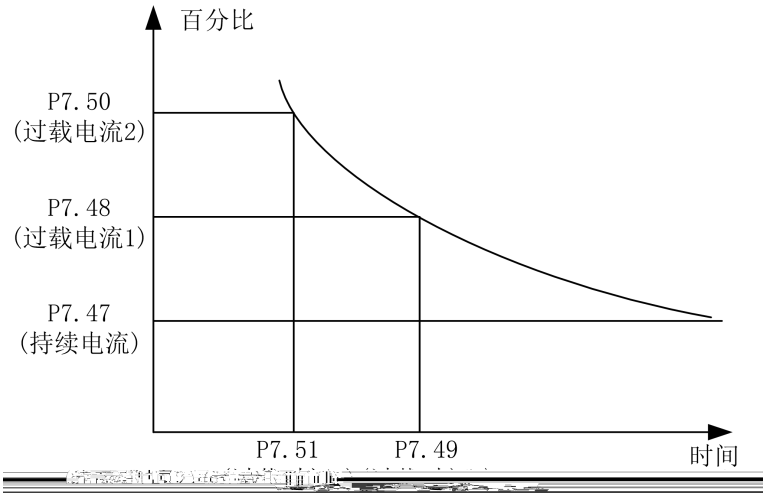
9

P7.33

P7.33

10

P7.48 P7.50



11

P7.64 P7.65 P7.66 HF650

37KW-160kW P7.64 1

P7.65

P7.66 P7.66

≥P7.65 P16.0 380V P7.65 0V 597V P7.66

20V 617V

= √ + +

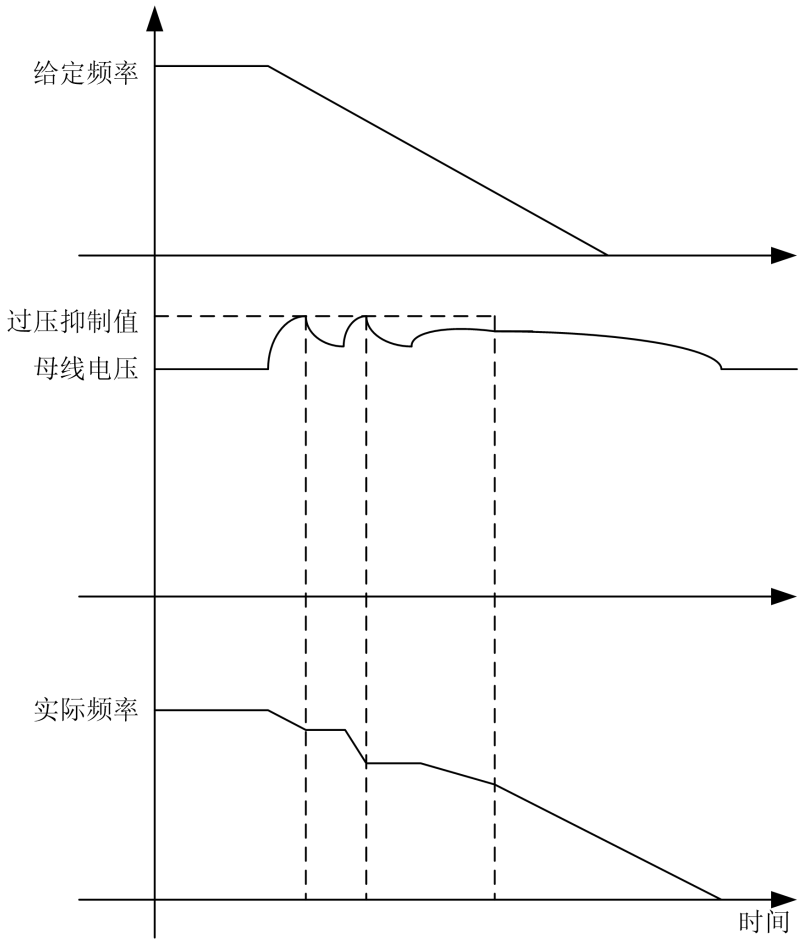
= √ + +

12

P7.69 P7.70 P7.71 P7.69

0 P16.0 380V P7.70 0V

611V = √ + +



P7.71 P7.71

8.7

1

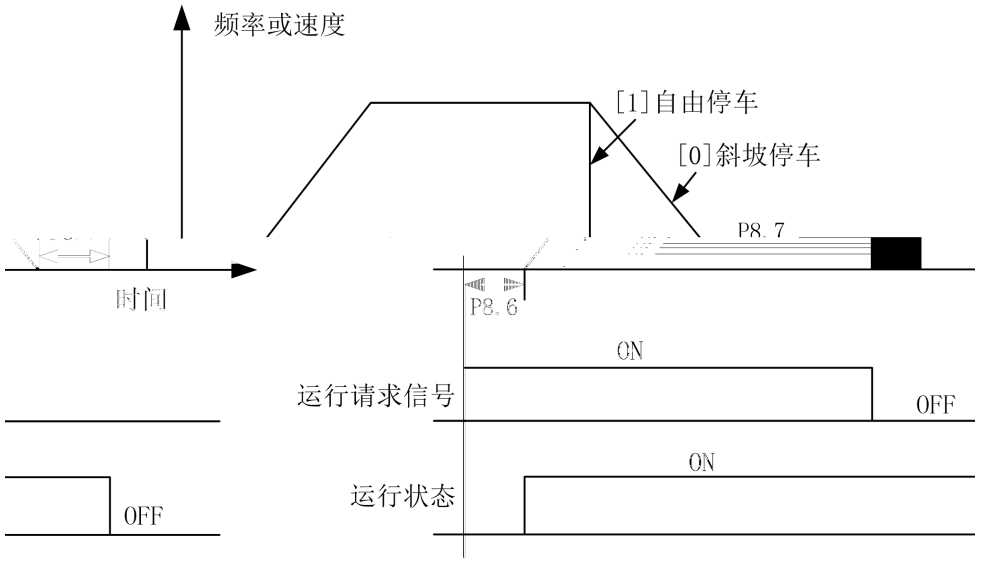
P8.3

[0]

[1]

P8.6 P8.6

P8.7

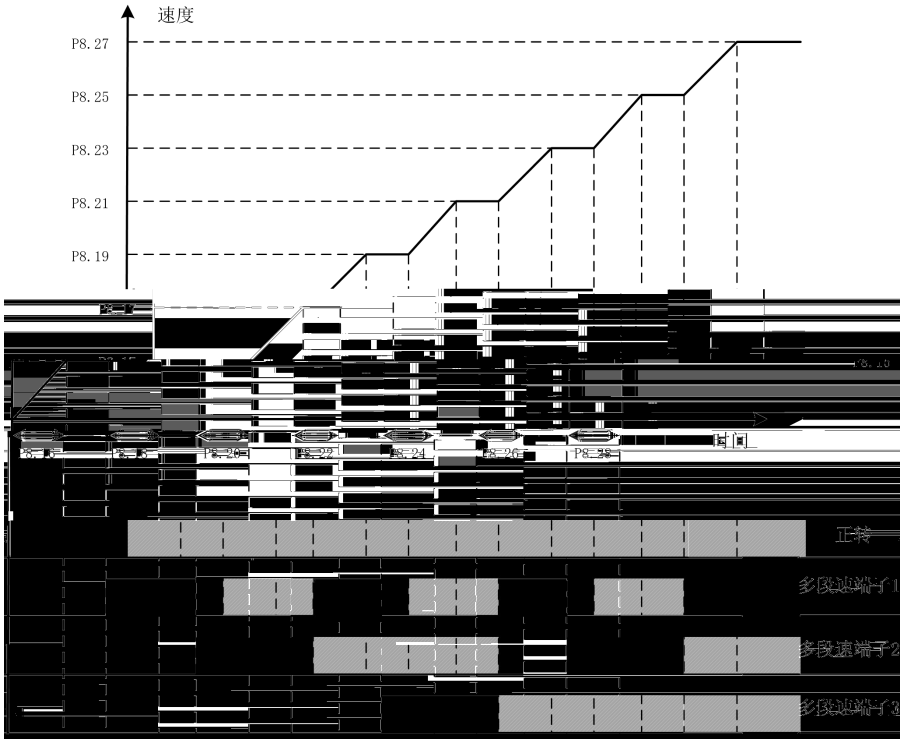


2

P8.14

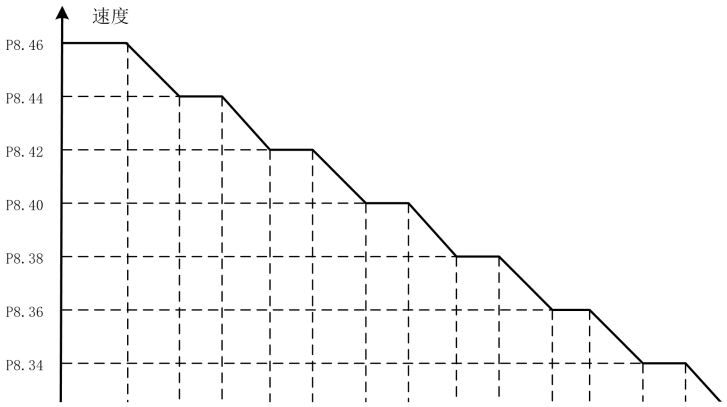
P8.14 P8.33

P8.33



P8.15<P8.17<P8.19<P8.21<P8.23<P8.25<P8.27

P8.15	P8.17	P8.19	P8.21	P8.23	P8.25	P8.27
10%	20%	30%	50%	60%	80%	100%



P8.34<P8.36<P8.38<P8.40<P8.42<P8.44<P8.46

P8.34	P8.36	P8.38	P8.40	P8.42	P8.44	P8.46
10%	20%	30%	50%	60%	80%	100%

3

PROFIBUS MODBUS

P8.13 P8.32

1 =P8.14×P8.16×(×0.001)

1 =P8.33×P8.35×(×0.001)

8.8

1

P12.2 P12.17

P12.0=[1]

	1	2	3	4

1	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	1	1	0	0
5	0	0	1	0
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

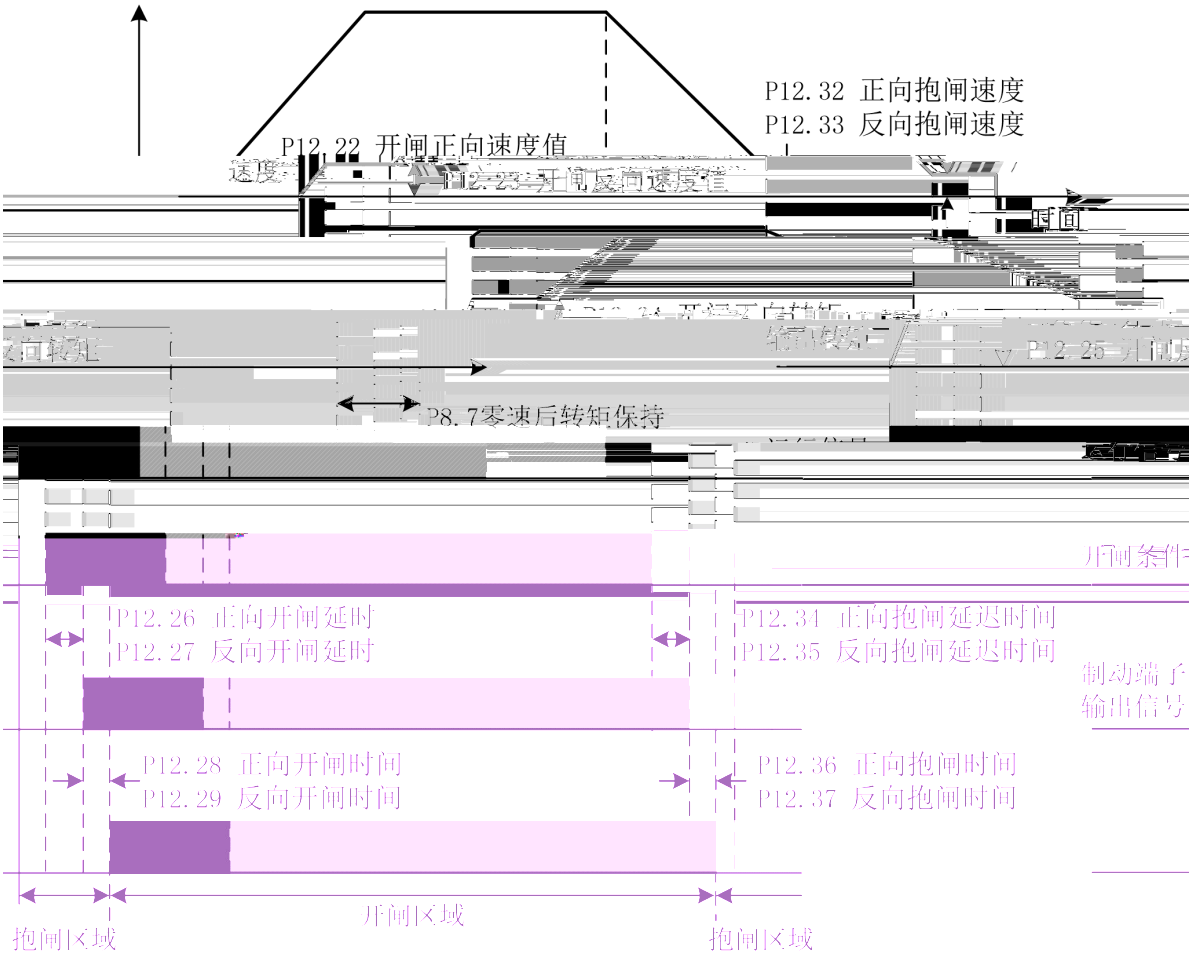
P12.22 P12.37 12.37

[3]12.25

12.25

é5 L(× Ö , P12m22 P12.23 P12.24 P12.25 k

12.37



8.9 V/F

1

P16.0 P16.9

P16.7 120 × P16.5/P16.6 P16.9

120 × P16.5/P16.7

P16.2 P16.4

2

P16.12

0.5Hz~2Hz >50Hz

1kHz			
5kHz			
10kHz			

	kHz
0.4kW 30kW	5
37kW 132kW	3
160kW 400kW	2

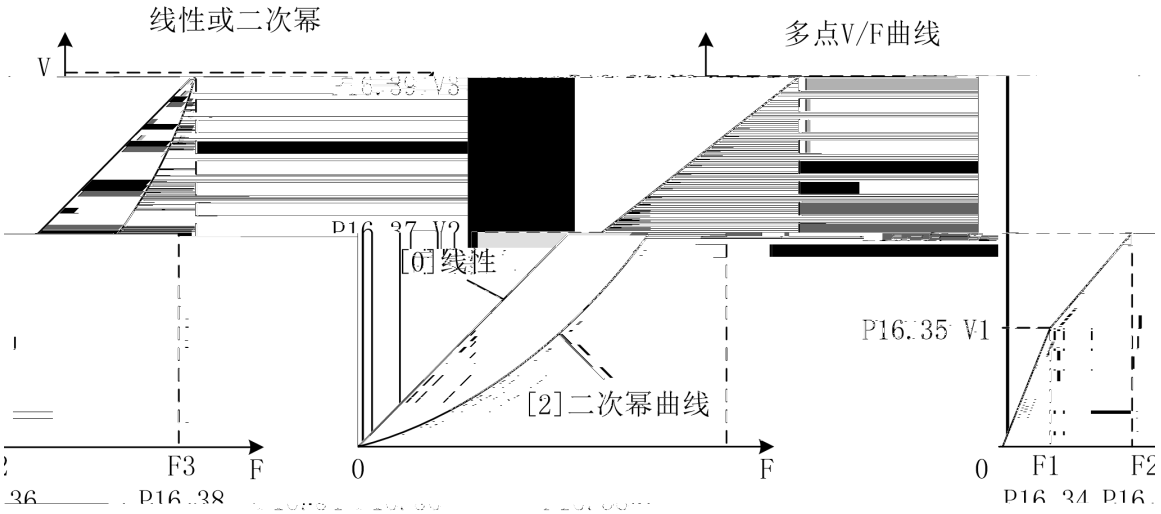
3 V/F

P16.14 V/F P16.11=0

[0] V/F

[1] V/F P16.33 P16.45 V/F

[2]



P16.34 P16.45 V/F V/F

V1 V2 V3 F1 F2 F3

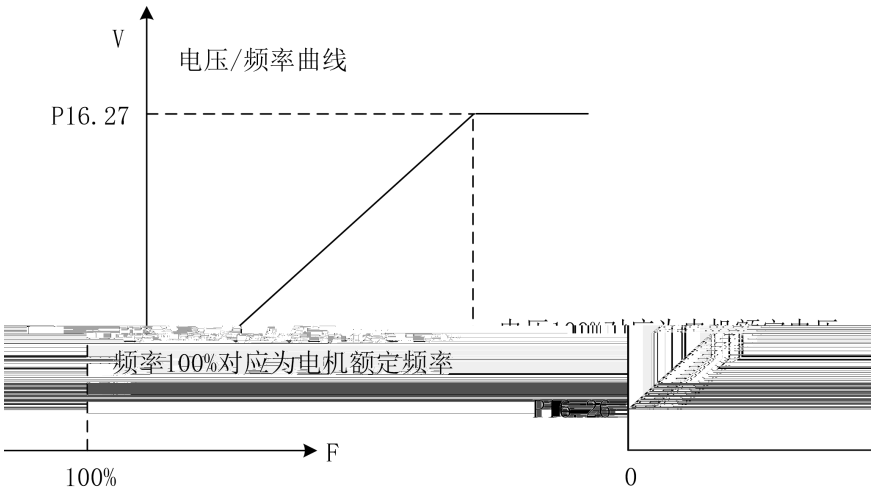
4

P16.15 V/F

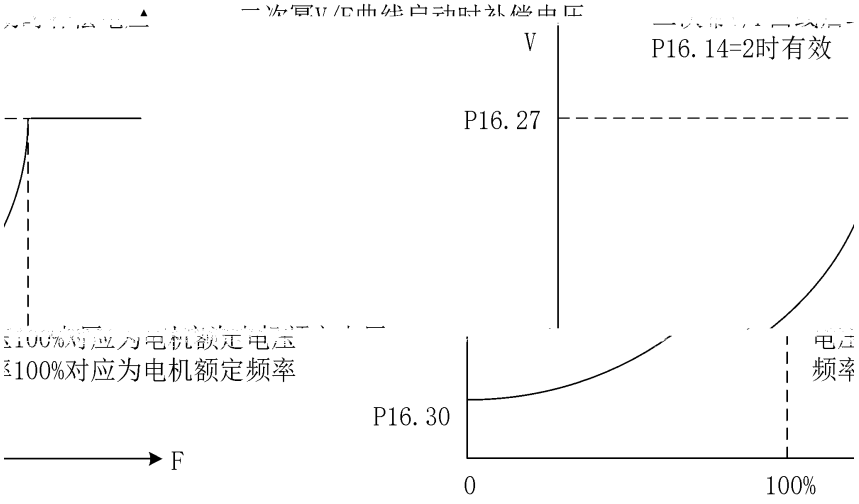
V/F

5

P16.14=[0] V/F V/F P16.26 P16.26 P16.27



P16.14=[2] V/F P16.30 P16.30 P16.27



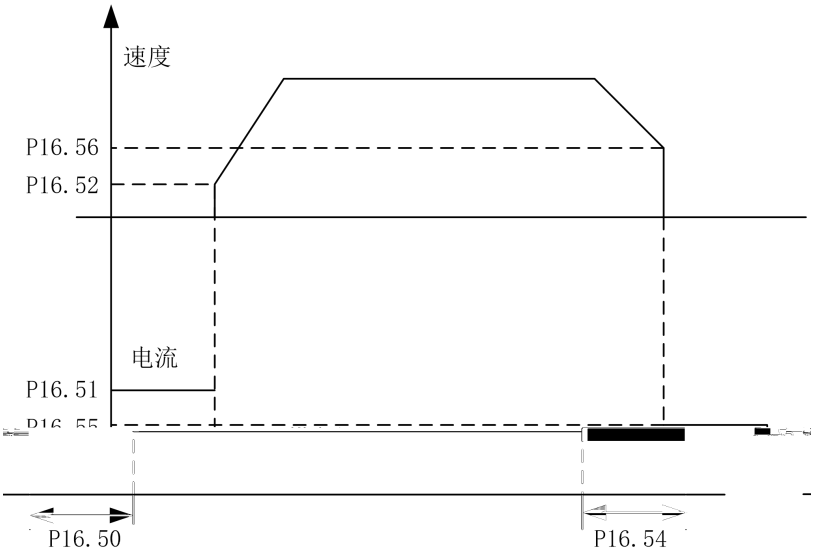
6

P16.50 P16.56

V/F

P16.50 P16.51 P16.52

P16.54 P16.55 P16.56



7

P16.64

8.10

1

P20.0

P20.0=0 P20.1=0 P20.2=0

P20.0=0 P20.1≠0 P20.2≠0

P20.0=1 P20.1≠0 P20.2≠0 1

0

P16.11 [1] [2]

P20.3 P20.1 [4]

2

P12.24 P12.25 0%

3

P20.7

P20.8 P20.9 P20.7=1

4

P20.15 A B

A B U V W

[0]

[1] A B

5

GDHF-PGD2 PG

GDHF-PGD2 PG

DI “[10]” DP “CW0.9”

P20.26 P20.27 0

2%

P20.34 [0] 1

0 P20.26 P20.27 0

P20.26 50% 100% P20.27 3% 5%

P20.34 [1] 2

200 P20.26 P20.27 0

HF650 P20.34 [1]

HF650 P20.34 [0]

6 DROOP

DROOP DROOP

P20.60 0

DROOP P20.61 DROOP

7 1

8 2

P20.1 P20.2 [0]

9

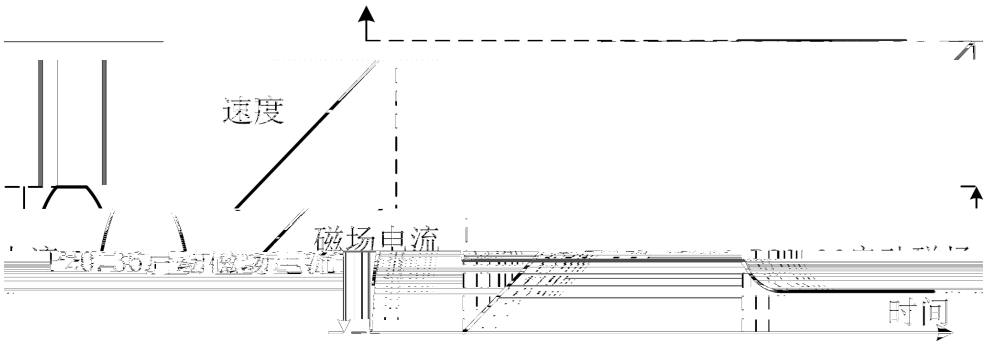
PGD1

PLC DI

DP CW0.10 “1”

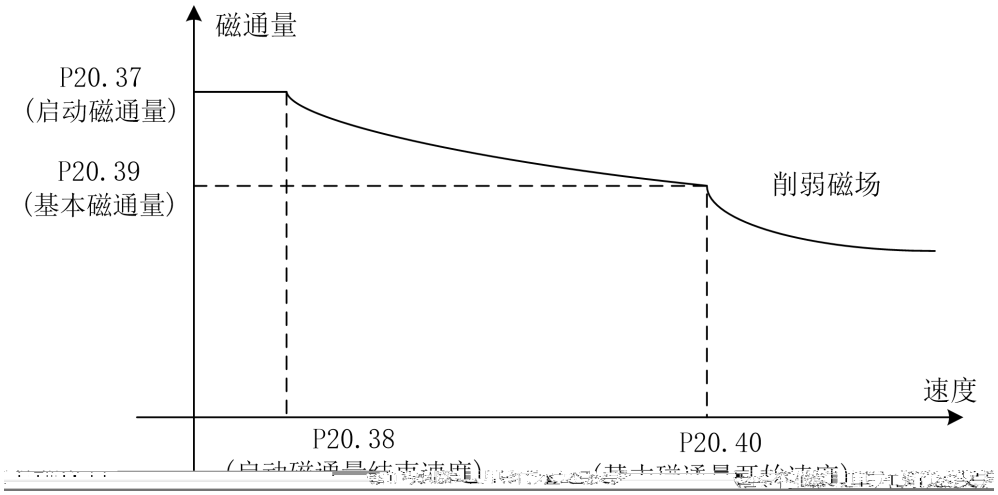
10

P20.36



11

P20.37 P20.40



12

P20.57 P20.58 P20.59 P20.57 1

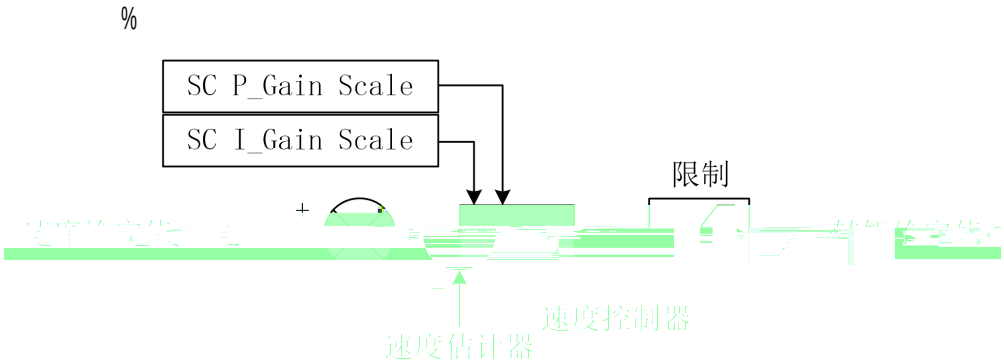
P20.58

P20.59

13

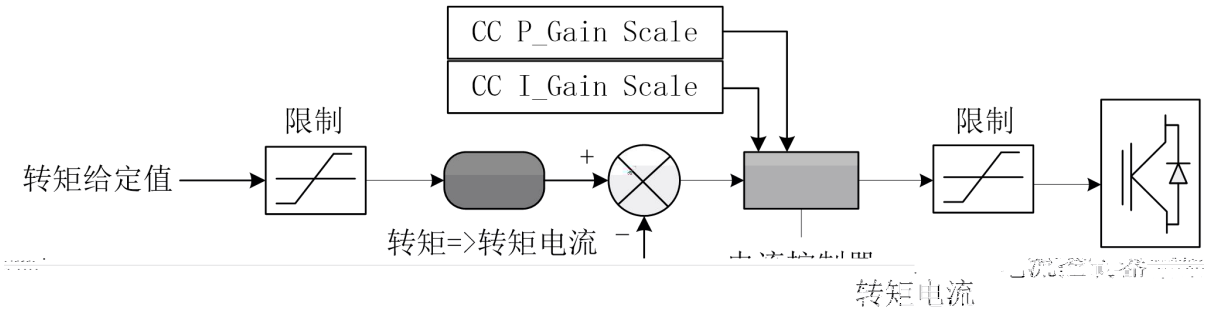
P20.55 ,

P20.56 ,



14

P20.62 P20.63 %


CC P_Gain Scale
CC I_Gain Scale
限制
转矩给定值
+
转矩=>转矩电流
−
限制

8.11

9.

9.1

W01	SYS_NOT_RDY	(Ready)	
W02	NO_DRV_ENABLE	[ ]	P3
W03	LOCAL_EM	[ ]	P3
W04	REMOTE_EM	[ ]	P3
W06	OT	P7.14( )	
W09	DP P/BALARM	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

[E111]	OL	P7.48(1) P7.49(1) P7.48 P7.49
[E112]	ZC	P7.8
[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
[E120]	IGBT OT	
[E138]	TEMP_SENSINGFAIL	
[E139]	Pre_Charging Fail	P7.95
[E140]	LineUV	
[E141]	Line OPEN	
[E142]	LineDetectionError	

DI

[E143] LineSWFail

[E144] LineSW SHORT

(AFE)

[E145] Line OV P16.0

(AFE)

[E146] Line Over_Freq

IGBT

[E152] U IGBT IGBT
PDP[U]

IGBT

[E154] V IGBT IGBT
PDP[V]

[E 00]

IGBT

[E155] W IGBT IGBT
PDP[W]

[E156] Hardware OC

[E157] PDP[DB]

[E160] SLAVE FAO

[E201]	REMOTE_EM	[ ] P3
[E202]	Modbus MODBUS EMERGENCY	Modbus CW0.4
[E203]	DRIVE DISABLED	DP
[E210]	Panel Error	
[E220]	CRC MEMORY CRC ERR	
[E221]	PARAMETER ERROR	

9.3

		•	•
		• ON	• ON
		• COM	• COM
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10.

1.

2.

3.

4.

1. CMOS

2.

3.

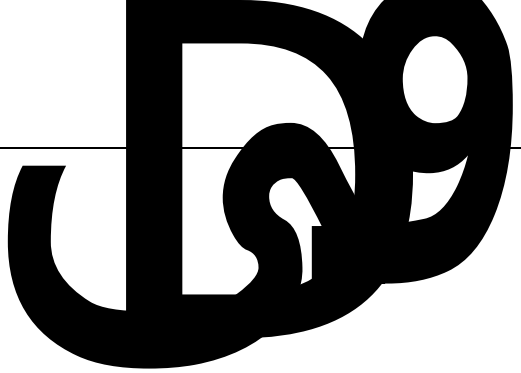
10.1

10.2

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

10.3

	2	1 2
PCB		



10.4

5

5

(400-0077-570)

1 40

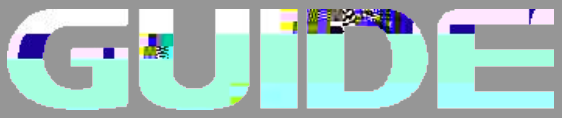
2 80%

3 24 /

10.5

1

2 w l



1

2

3

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