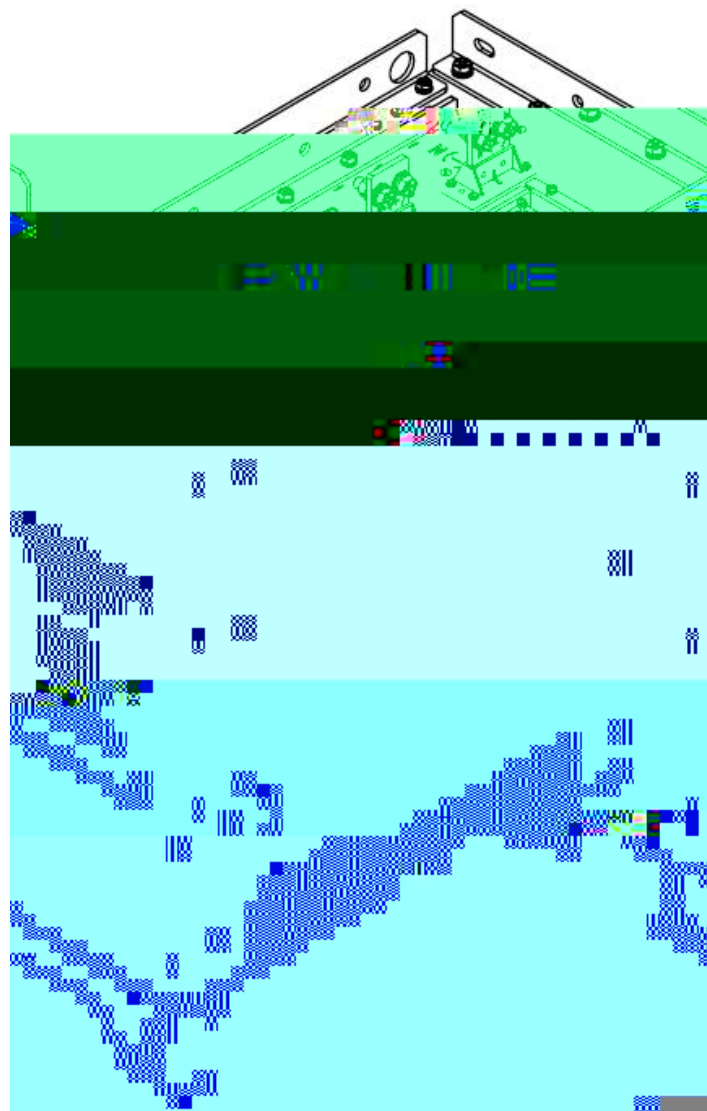




HF650LC

- 1.
- 1.1
- 1.2
- 1.3
- 1.4
- 2.
- 2.1
- 2.2
- 2.3
- 2.4
- 2.5
- 2.6
- 2.7
- 2.8
- 2.9
- 2.10
- 3.
- 3.1
- 3.2
- 3.3
- 3.4
- 3.5
- 3.6
- 3.7 PGC2
- 3.8 PGD2
- 4.
- 4.1
- 4.2
- 4.3

6.2.9

7.

7.1 P1

7.2 P2

7.3 P3

7.4 P4

7.5 P5

7.6 P6

7.7 P7

7.8 1 P8

7.9 2 P9

7.10 3 P10

7.11 4 P11

7.12 1 P12

7.13 2 P13

7.14 3 P14

7.15 4 P15

7.16 1 V/F P16

7.17 2 V/F P17

7.18 3 V/F P18

7.19 4 V/F P19

7.20 1 P20

7.21 2 P21

7.22 3 P22

7.23 4 P23

7.24 MODBUS P32

7.25 P33

8.

8.1

8.2

8.3

8.4

8.5

8.6

8.7

8.8

8.9 V/F

8.10

8.11

9.

9.1

9.2

9.3

10.

10.1

10.2

10.3

10.4] m "

1.2

1

RCD

RCM

RCD

RCM

B

RCD

RCD

RCD

RCD

2

500V

5M Ω

3

1.3

(1)

(2)

(3)

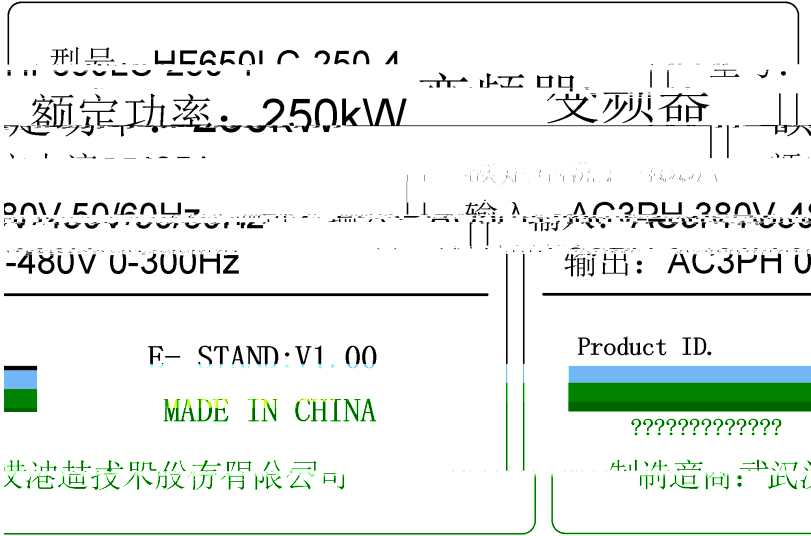
(4)

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

1.4

A	HF650 LC
B	160=160kW 250=250kW 450=450kW
C	4 400V
D	S

HF650LC
 2-2
 250kW



2-2

HF650LC-250-4
 HF650
 250kW
 400V

AC
 3PH
 380V~480V 50/60Hz
 0-480V 0-300Hz

2.3

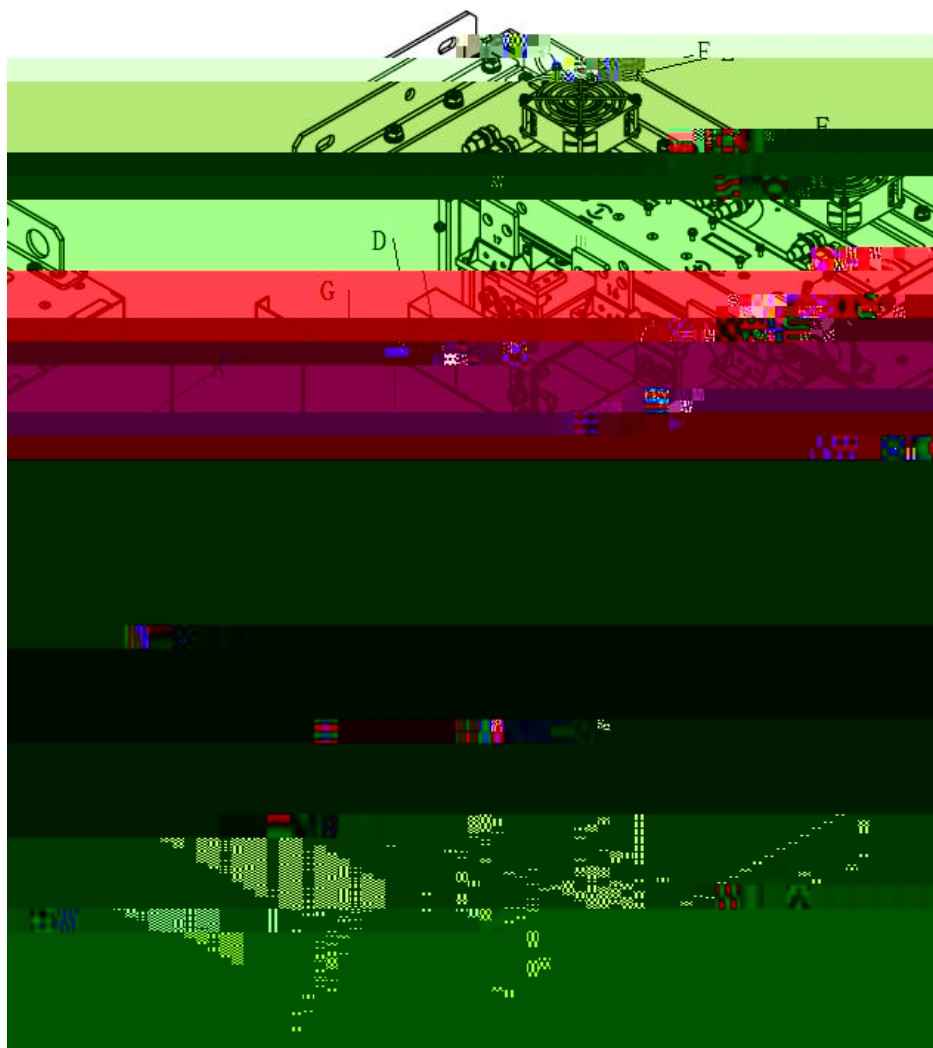
2-3 HF650LC					
	1		2		
	[A]	[kW]	[A]	[kW]	
HF650LC-160-4	330	160	265	132	
HF650LC-185-4	360	185	330	160	
HF650LC-220-4	438	220	360	185	12
HF650LC-250-4	485	250	438	220	
HF650LC-280-4	545	280	485	250	
HF650LC-160-4-S	330	160	265	132	
HF650LC-185-4-S	360	185	330	160	L2
HF650LC-220-4-S	438	220	360	185	6
HF650LC- ; 85 IJ					

1		150%	5	1
2		180%	5	5
3	HF650LC-160-4	HF650LC-450-4	2	12
4	HF650LC-160-4-S	HF650LC-450-4-S		1
	6			

2.4

HF650LC

HF650LC-160-4 HF650LC-450-4



A-

B-

C-

D-

E- 1 F- 2 G-

24 °

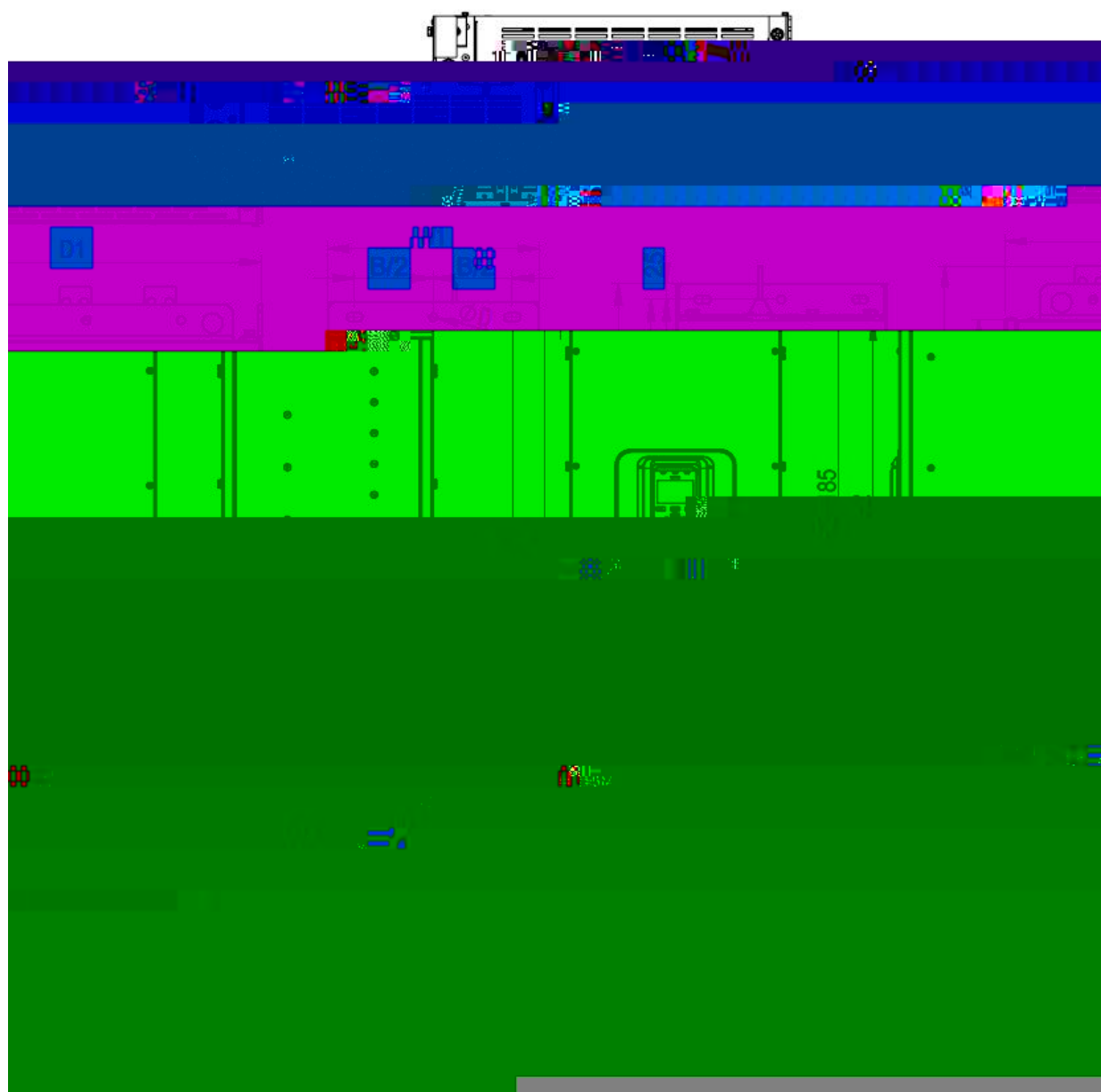
DIN2353-L

/

18mm

M26 × 1.5

2.5

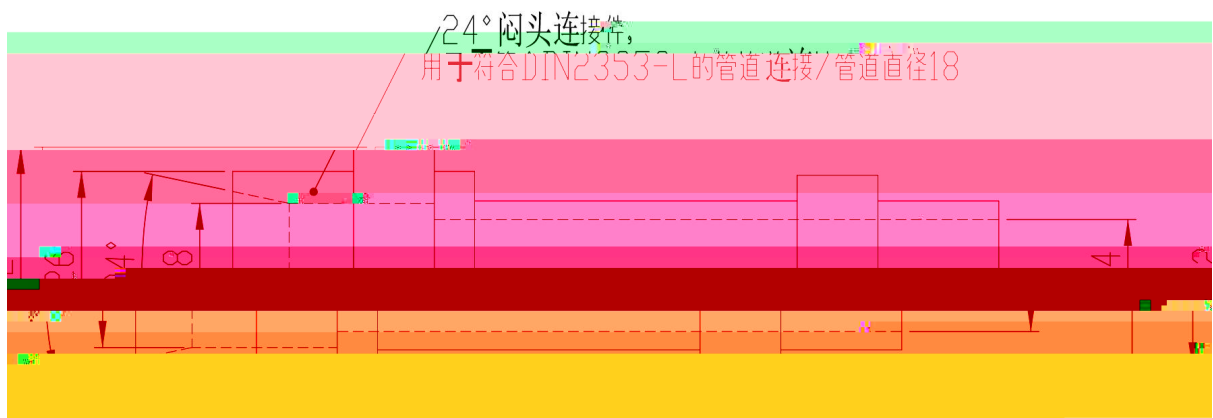


		(mm)			(mm)			D	8.8	kg
		H1	W1	D1	A	B	C			
L2	160 kW	815.5	335	567.5	765	250	275	Φ 13	M12	130
	185 kW									
	220 kW									
	250 kW									
	280 kW									
L3	315 kW	993.5	335	567.5	943.5	250	275	Φ 13	M12	155
	355 kW									
	400 kW									
	450 kW									

2.6

PID	
	8 2 -10V +10V 0mA/4mA 20mA
	5 3 2 2 0 +10V 0mA/4mA 20mA
LCD	
	1000m
	-15 +50 50 60 0
	95%RH
	-20 +60
	/ / 6 4
	(L/min) L2 22L/min,L3 24L/min
	() 55
	5
	MPa 0.6

	(Kpa)	80~150
	(mm)	
		/ PA PEX Teflon



2.7

- (1) 200%
- (2) 50% HF650LC
- (3) HF650LC

2.8

:

HF650LC-160-4

ACR-0200-070U-0.4SC-3058

2



5





	W	W	W
ACR-0200-070U-0.4SC-3058	140	40	180
ACR-0250-056U-0.4SC-3058	155	44	199

3.

1. / “ ”

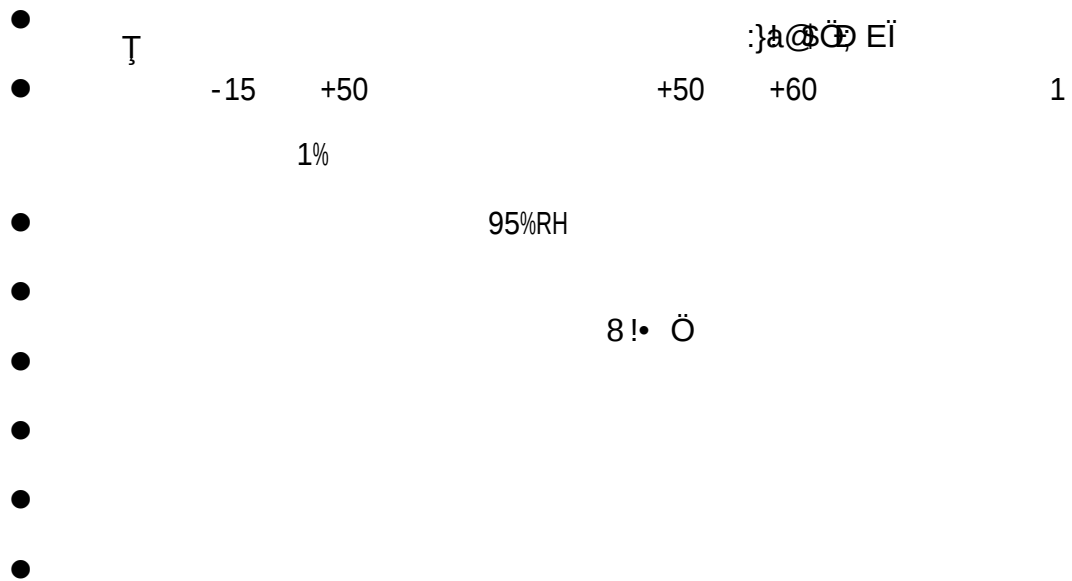
/

2.

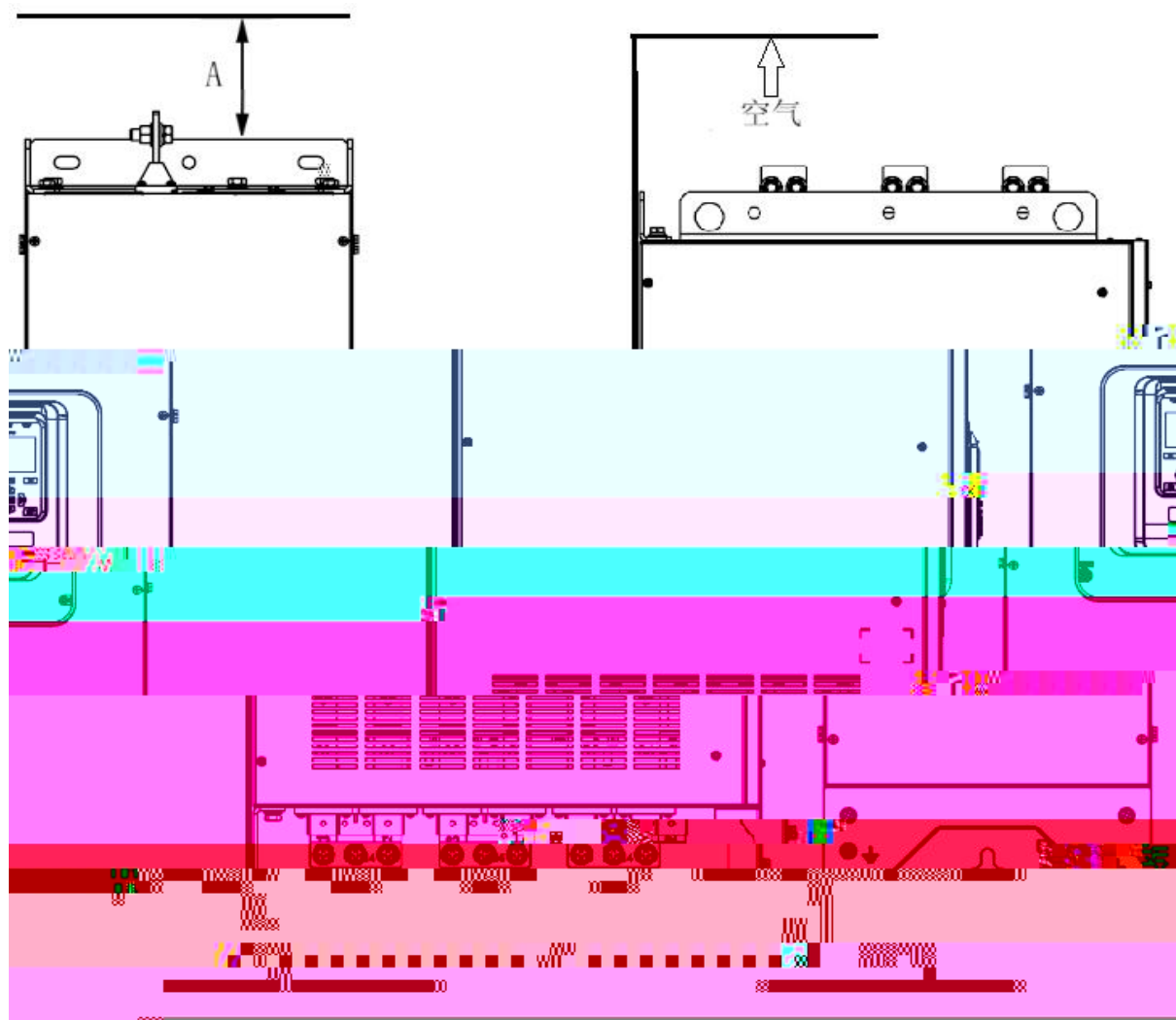
3.

- R S

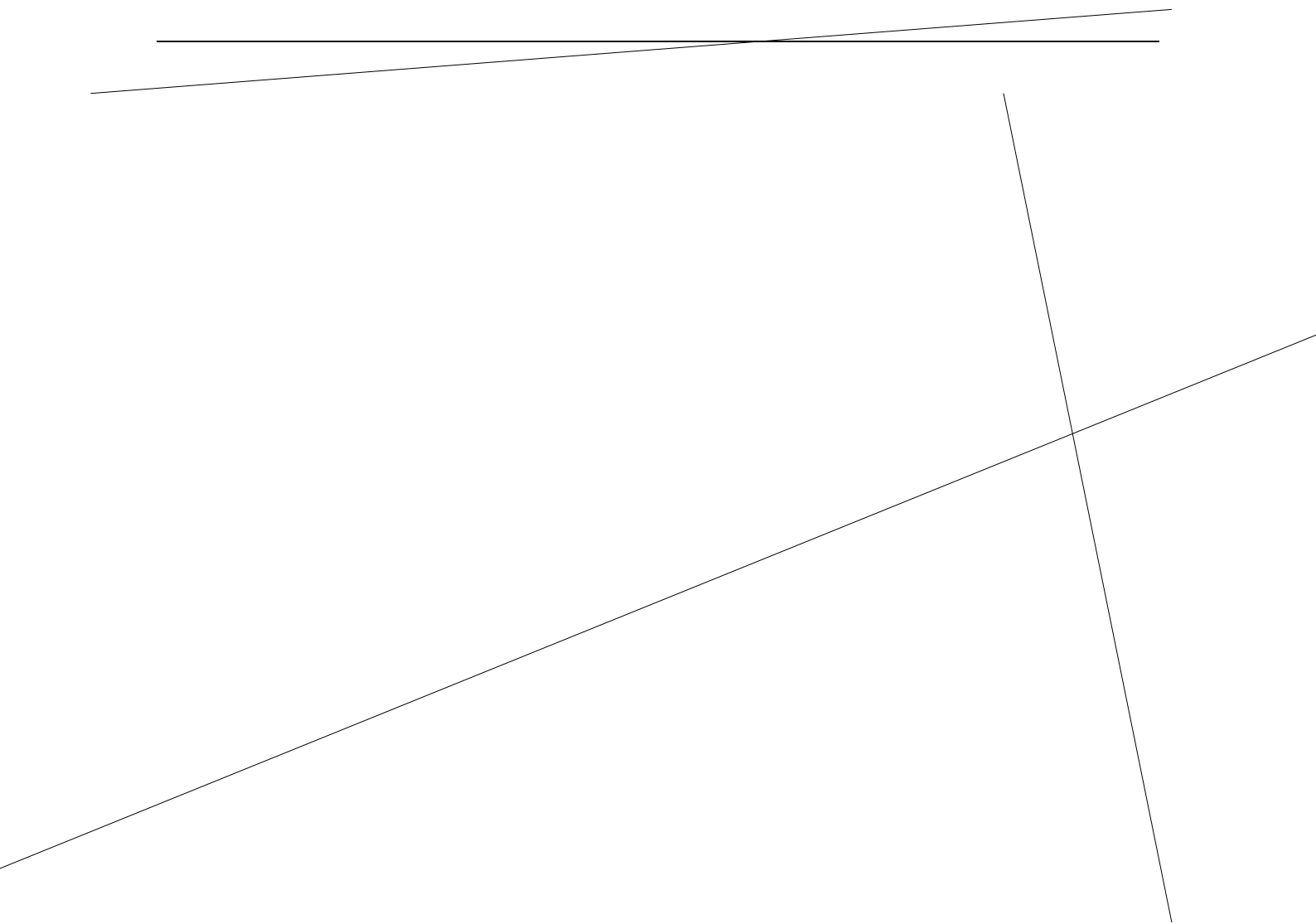
3.2



3.3

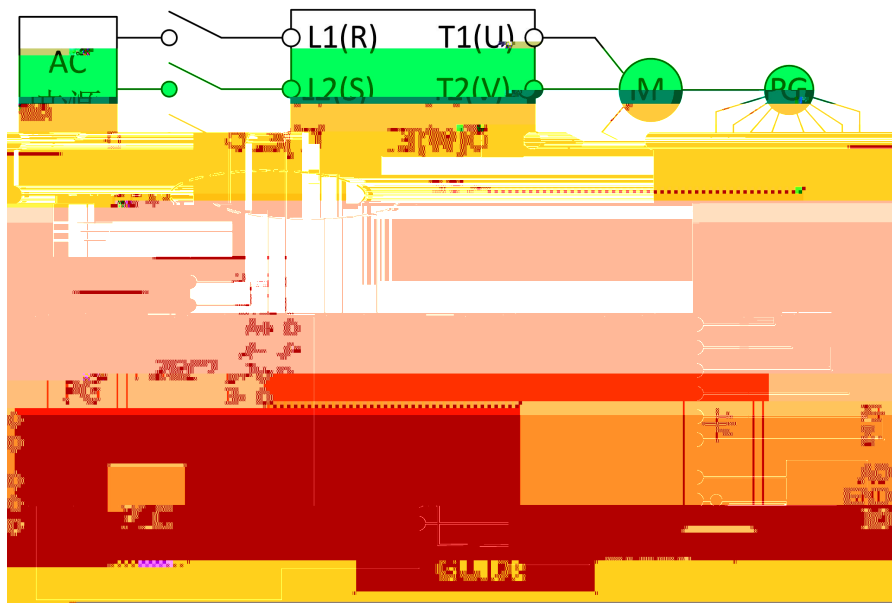


	$A \geq 200\text{mm}$



m''

PGC2

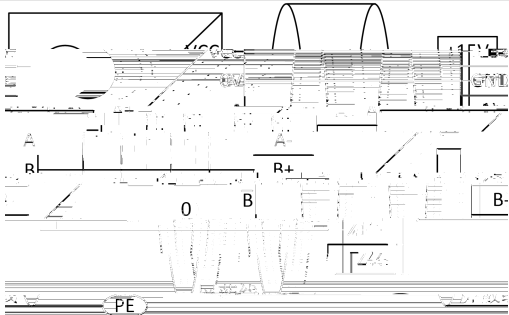


- 1 PG
- 2 PG
- 3 PE
- 4 PG A- B- Z- GND
- 5 PGC2 15V RS-422
- PGC1
- 15V

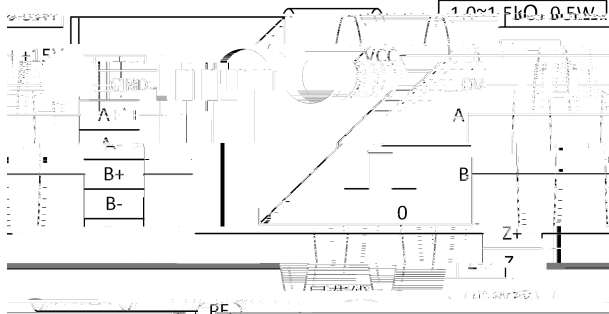
1
a

		HLE45-1024L-6F.AC
		RH I90N-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

4

15V

		
		HLE-45-600L-6LY.AC
		RHI58N-0BAK1R6XN-1024
		EC120P45-L6TR-1024

4.

4

1

2

10

3

U V W

4

5

6

7

7

U w w p

"

P	
N	
R S T	
U V W	
	

4.3

1

1	3	4	5	6	7	8
---	---	---	---	---	---	---

+1



[illegible]

25	+24V	24V		
26	D03		3	DC24V 50mA
27	D04A		4	
				250VAC 3A $\text{E} \cos \phi = 0.4$
		30VDC / 9		



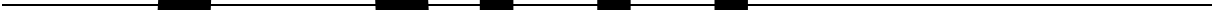
	1 2
AC	1 2 3

4.6

		A	/ mm ²	/ mm ²	A (AC-3)
			CEFR	40%	
HF650LC-160-4	12	200	50	95	182
HF650LC-185-4		225	50	120	198
HF650LC-220-4		275	70	2*70	241
HF650LC-250-4		300	70	2*70	267
HF650LC-280-4		340	95	2*95	300
HF650LC-160-4-S	6	400	95	95	363

HF650LC-185-4-S		450	120	120	396
HF650LC-220-4-S		550	2*70	2*70	482
HF650LC-250-4-S		600	2*70	2*70	534
HF650LC-280-4-S		680	2*95	2*95	600
HF650LC-315-4		387	95	2*95	341
HF650LC-355-4	12	417	120	2*120	368
HF650LC-400-4		475	2*50	2*150	418
HF650LC-450-4		531	2*70	2*150	468
HF650LC-315-4-S		775	2*95	2*95	682
HF650LC-355-4-S	6	835			

EMC



EMC

1 EMC

EMC

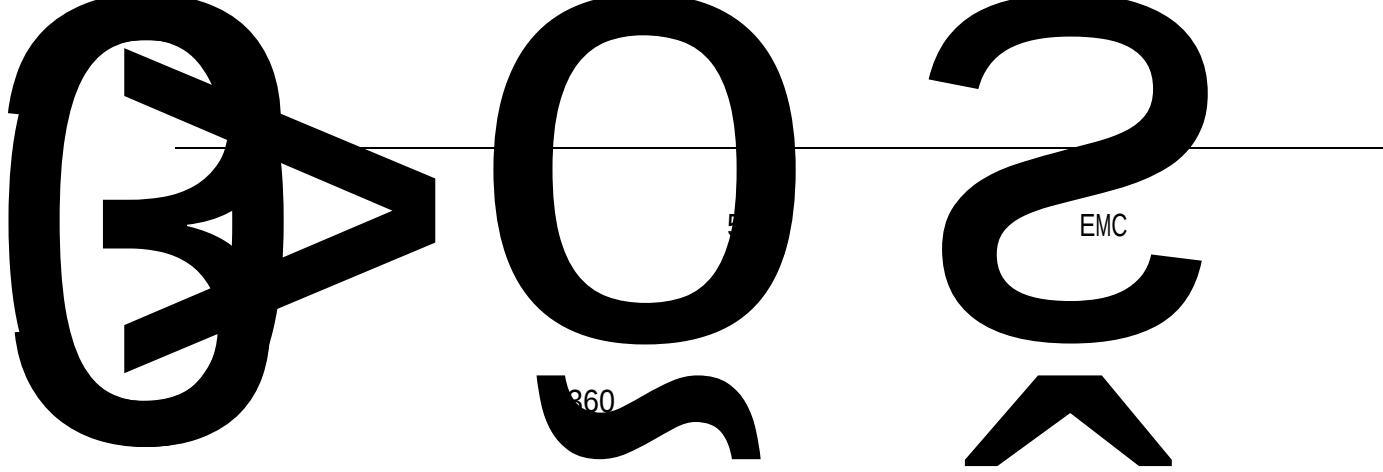
electromagnetic compatibility

EMC

“ ”

W





b

4j4i 3 1

20cm

4

PLC

50m

e

5.

5.1

HF650

F1 LOCAL/REMOTE

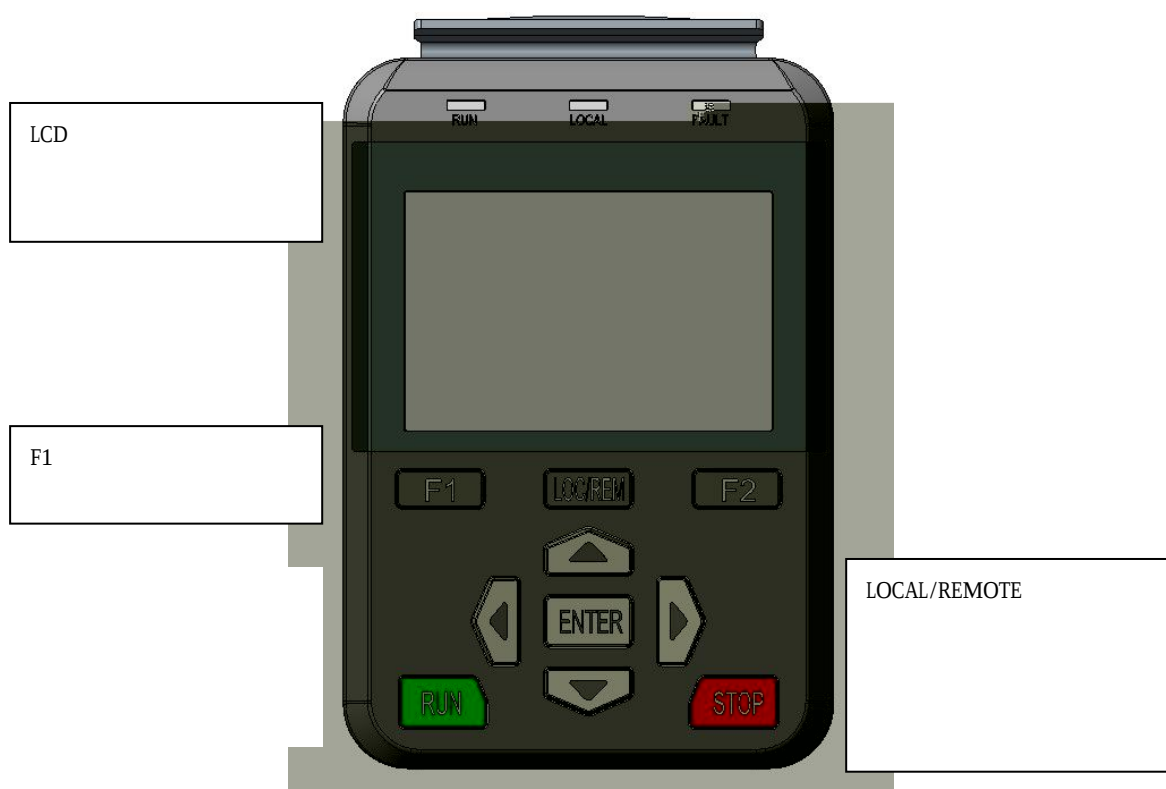
F2

RUN

STOP

/RESET

ENTER



5.2

ENTER

5.3



	FWD REV
	:HZ
	A
I	N N W E

“ ” “ ” “ ” “ ”

” “ ”

选项

[1] 设置初始值

[2] 运行方向

[3] 当前位置

0.0000

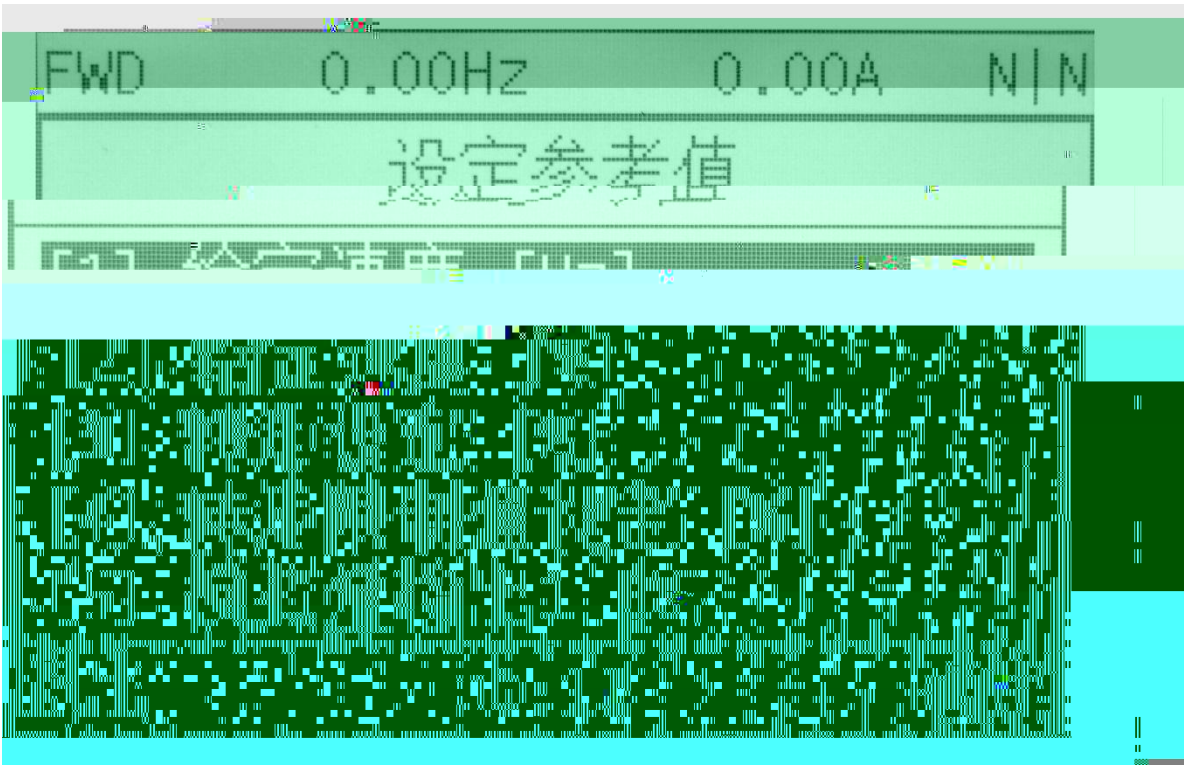
1	Reference Set	
2	Change Direction	
3	Current Error	
4	Current Warning	

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		
		[%]	%
		[%]	%
	limiter	[%]	%
	1	[%]	1
	2	[%]	2

2 Change Direction

3 Current Error

-
- 4 Current Warning
 - 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	

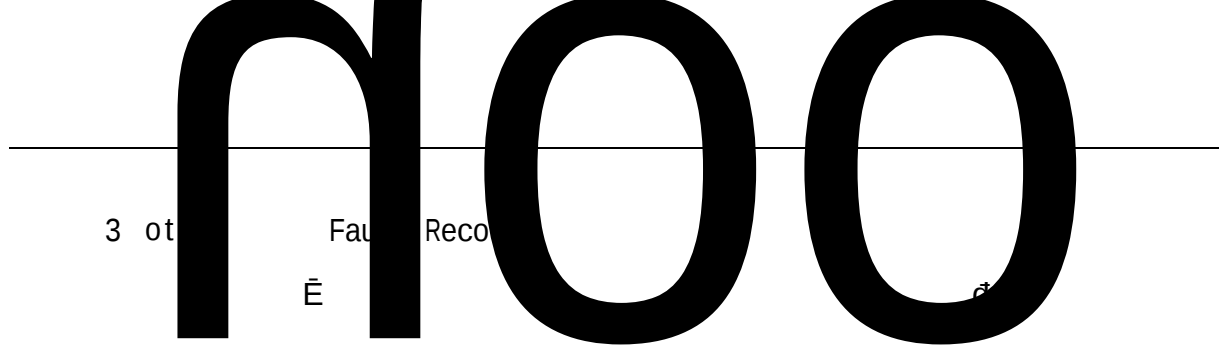
1

2

5



“ Enter ”



3 ot

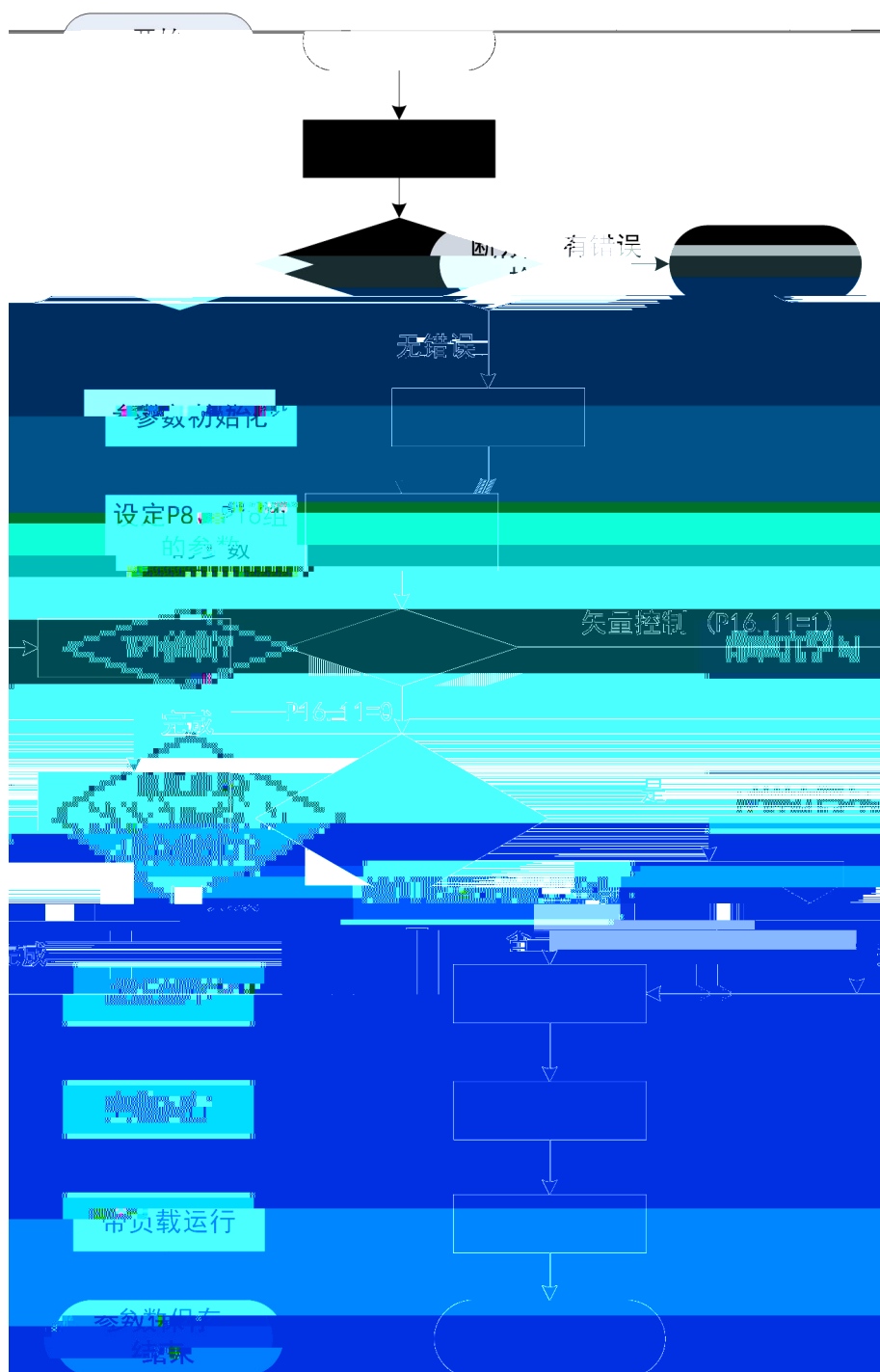
Fau Reco

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đ

6.

6.1



6.2.3

5.4 “ ”

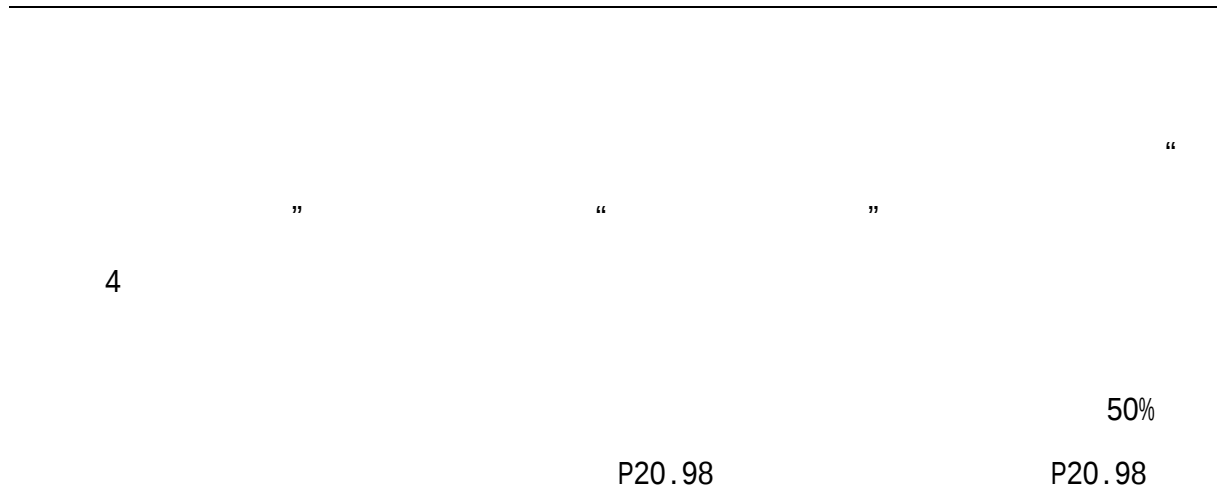
6.2.4

7.7

P8.0		[0] [1] [2]DP [3]MODBUS [4]	1
P8.3		[0] [1]	1
P8.6		0 300s	0
P8.7			0
P8.10		[0] I/O [1] 1 [2] 2 [3] [4]DP [5]MODBUS [6]	3
P8.14		0.1 10.0	1
P8.15	1		100
P8.16	1	P8.15	3
P8.17	2		200
P8.18	2	P8.15 P8.17	4
P8.33		0.1 10.0	1
P8.34	1		100
P8.35	1	P8.34	3
P8.36	2		200
P8.37	2	P8.34 P8.36	4

$\dot{W}$
 $\ddot{W}$
 $\dot{W}$
 Φ

t m



6.2.6

HF650LC

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

6.2.7

7.

7.1 P1

P1.21		[0] [1]	0 1	0	

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	

7.3 P3

P3.0	1		0 32	1	
P3.1	2		0 32	2	
P3.2	3		0 32	5	
P3.3	4		0 32	6	
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		
11		
12		
13	.NC	
14		
15	.NC	
16		
17	0	1 0 00
18	1	1 01 2 10 3 11
		4
19		
20		AFE
21		
22	FUNC 22	
23	FUNC 23	

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	FUNC 21	
22		
23		
24 31	FUNC 24 FUNC 31	
32		AFE
33 48	FUNC 33 FUNC 48	
49	PROFIBUS 1	PROFIBUS 1
50	PROFIBUS 2	PROFIBUS 2
51	PROFIBUS 3	PROFIBUS 3
52	PROFIBUS 4	PROFIBUS 4
53	PROFIBUS 5	PROFIBUS 5
54 56	FUNC 54 FUNC 56	
57	1	
58	2	
59	3	
60	4	
61	1	1
62	2	2
63	3	3
64	4	4

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	

		A12			
P5.19	A12		0.0 1000.0 [ms]	25.0 [ms]	
P5.20	A12	A12	-10.00 10.00 [V]	0.000 [V]	
P5.21	A12	A12	-20.00 20.00 [mA]	0.000 [mA]	
P5.22	A12	A12	-10.00 10.00 [V]	0.000 [V]	
P5.23	A12	A12	0.00 20.00 [mA]	0.000 [mA]	
P5.24	A12	A12	-300.0 300.0 [%]	0.0 [%]	
P5.25	A12	A12	-10.00 10.00 [V]	10.000 [V]	
P5.26	A12	A12	0.00 20.00 [mA]	20.000 [mA]	
P5.27	A12	A12	-300.0 300.0 [%]	100.0 [%]	

P6.21	A02	A02 (P6.14 [13])	0.0 100.0 [%]	0.0 [%]	
P6.22	A02	A01	0.0 1000.0 [ms]	10.0 [ms]	

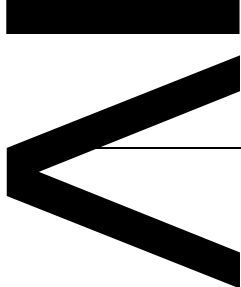
7-1

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	[1]	1	0.0 100.0 [%]	20.0 [%]	8.6
P7.9	[2]	2	0.0 100.0 [%]	20.0 [%]	8.6
P7.10	[3]	3	0.0 100.0 [%]	20.0 [%]	8.6
P7.11	[4]	4	0.0 100.0 [%]	20.0 [%]	8.6
P7.12			600 820 [V]	800 [V]	8.6
P7.13			300 500 [V]	350 [V]	8.6
P7.14			60.0 100.0 []	87.5 []	8.6
P7.15			50.0 100.0 []	80.0 []	8.6
P7.19	[1]	1	100.0 720.0 [%]	120.0 [%]	8.6
P7.20	[2]	2	100.0 720.0 [%]	120.0 [%]	8.6
P7.21	[3]	3	100.0 720.0 [%]	120.0 [%]	8.6



ó

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							
			[0]						
			[1]						
P9.0			[2]DP	0	4		0		
			[3]MODBUS						
			[4]						
P9.1									
P9.2									
P9.3			[0]	0	1		0		8.7
			[1]						
P9.6				0.00	300.00				

P9.18	2	P9.15	P9.17	0.0	300.0	4.00
				[s]		[s]

P9.37

2

P9.34

P9.36

0.0 300.0

[s]

[s]

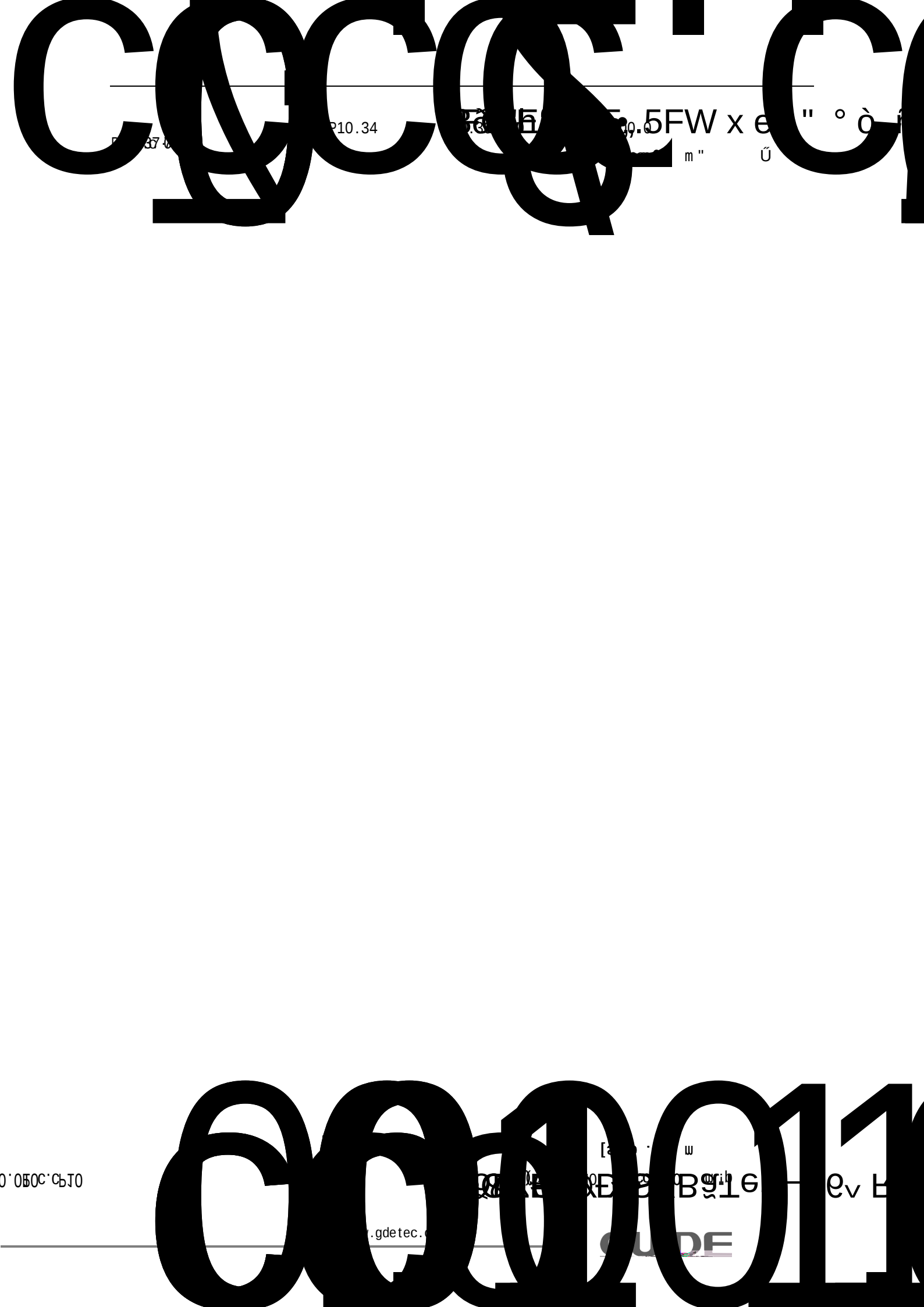
bath bath

bath

7.10 3 P10

	[0]		
	[1]		
P10.0	[2]DP	0 4	0
	[3]MODBUS		
	[4]		

P10.1



7.11 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	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	
P11.11					
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	0.0 300.0 [s]	7.00 [s]	8.7
P11.21	4		0.0 300.0 [%]	300.0 [%]	8.7
P11.22	4	P11.19 P11.21	0.0 300.0 [s]	10.00 [s]	8.7
P11.23	5		0.0 300.0 [%]	300.0 [%]	8.7
P11.24	5	P11.21 P11.23	0.0 300.0 [s]	10.00 [s]	8.7
P11.25	6		0.0 300.0 [%]	300.0 [%]	8.7
P11.26	6	P11.23 P11.25	0.0 300.0 [s]	10.00 [s]	8.7
P11.27	7		0.0 300.0 [%]	300.0 [%]	8.7
P11.28	7	P11.25 P11.27	0.0 300.0 [s]	10.00 [s]	8.7
P11.29	8		0.0 300.0 [%]	300.0 [%]	8.7
P11.30	8	P11.27 P11.29	0.0 300.0 [s]	10.00 [s]	8.7
P11.32		[0] [1]PROFIBUS [2]MODBUS [3]	0 3	0	8.7
P11.33			0.1 10.0	1.0	8.7
P11.34	1		0.0 300.0 [%]	100.0 [%]	8.7
P11.35	1	P11.34	0.0 300.0 [s]	3.00 [s]	8.7
P11.36	2		0.0 300.0 [%]	200.0 [%]	8.7

P11.37	2	P11.34	P11.36	0.0	300.0	4.00	8.7
				[s]		[s]	
P11.38	3			0.0	300.0	240.0	8.7
				[%]		[%]	
P11.39	3	P11.36	P11.38	0.0	300.0	7.00	8.7
				[s]		[s]	
P11.40	4			0.0	300.0	300.0	8.7
				[%]		[%]	
P11.41	4	P11.38	P11.40	0.0	300.0	10.00	8.7
				[s]		[s]	
P11.42	5			0.0	300.0	300.0	8.7
				[%]		[%]	
P11.43	5	P11.40	P11.42	0.0	300.0	10.00	8.7
				[s]		[s]	
P11.44	6			0.0	300.0	300.0	8.7
				[%]		[%]	
P11.45	6	P11.42	P11.44	0.0	300.0	10.00	8.7
				[s]		[s]	
B11.46							
B11.46							
		0					

b

b

30`0

30`0

7.12	1	P12
------	---	-----

P12.27	0.00	2.00	0.00	8.8
	[s]		[s]	
P12.28	0.00	2.00	0.07	8.8
	[s]		[s]	
P12.29	0.00	2.00	0.07	8.8
	[s]		[s]	
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	0.00	8.8
	[s]		[s]	
P12.35	0.00	2.00	0.00	8.8
	[s]		[s]	
P12.36	0.00	2.00	0.50	8.8
	[s]		[s]	
P12.37	0.00	2.00	0.50	8.8
	[s]		[s]	

7.13	2	P13				
P13.0		[0]	0	1	1	8.8
		[1]				
		[0] [%]				
P13.1		[1] [Hz]	0	2	1	
		[2] [rpm]				
P13.2	1		0.0	3000.0	10.0	
P13.3	2		0.0	3000.0	20.0	
P13.4	3					

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

0

7

3

P14

P14.0		[0]	0	1	1	8.8
		[1]				
		[0] [%]				
P14.1		[1] [Hz]	0	2	1	
		[2] [rpm]				
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					

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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]	0	1	1	8.8
		[1]				
		[0] [%]				
P15.1		[1] [Hz]	0	2	1	
		[2] [rpm]				
P15.2	1		0.0	3000.0	10.0	
P15.3						

P15.27	0.00	2.00	0.00	8.8
	[s]		[s]	
P15.28	0.00	2.00	0.07	8.8
	[s]		[s]	
P15.29	0.00	2.00	0.07	8.8
	[s]		[s]	
P15.32	0.0			

7.16 1 V/F P16

P16.0			320 460	380	
			[V]	[V]	
P16.2			0.0 4000.0		
			[kW]	[kW]	
P16.3			320 460	380	7.16.3
			[V]	[V]	
P16.4			0.0 6500.0		
			[A]	[A]	
P16.5			0.0 300.0	50.0	
			[Hz]	[Hz]	
P16.6			0 6000	1465	
			[rpm]	[rpm]	
P16.7			2 12	4	8.9
			[pole]	[pole]	
P16.9			0 7200	1500	8.9
			[rpm]	[rpm]	
		[0] V/F			
		[1]			
P16.11		[2]	0 4	0	
		[3]			
		[4]			
P16.12			1.00 10.00	3.00	8.9
			[kHz]	[kHz]	
		[0] V/F			
P16.14 V/F		[1] V/F	0 3	0	8.9
		[2]			
		[0]			
P16.15		[1]	0 1	0	8.9
P16.16			2 500	500	
			[ms]	[ms]	
		[0]			
P16.17 V/F		[1]	0		

P16.22		0.00 100.00 [s]	0.00 [s]	8.9
P16.23	V/F	0.00 300.00 [Hz]		

		[0]				
P16.48		[1]PID 1		0 3	0	
		[2]PID 2				
		[3]				
P16.49	@			0 300	0	
P16.50				0.00 300.00	0.00	8.9
				[s]	[s]	
P16.51				0.0 150.0	70.0	8.9
				[%]	[%]	
P16.52				0.00 5.00	0.00	8.9
				[Hz]	[Hz]	
P16.54				0.00 300.00	0.00	8.9
				[s]	[s]	
P16.55				0.0 150.0	; .5 E	
				[%]		

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]		

P17.48		[0] [1]PID 1 [2]PID 2 [3]	0 3	0	
P17.49	@		0 300	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

0.00 100.00
[s]

		[0]				
P18.48		[1]PID	1	0	3	0
		[2]PID	2			
		[3]				
P18.49	@			0	300	0
P18.50				0.00	300.00	0.00
				[s]	[s]	8.9
P18.51				0.0	150.0	70.0
				[%]	[%]	8.9
P18.5						

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	

		[0]				
P19.48		[1]PID	1	0	3	0
		[2]PID	2			
		[3]				
P19.49	@			0	300	0
P19.50				0.00	300.00	0.00
				[s]	[s]	8.9
P19.51				0.0	150.0	70.0
				[%]	[%]	8.9
P19.52				0.00	5.00	0.00
				[Hz]	[Hz]	8.9
P19.54				0.00	300.00	0.00
				[s]	[s]	8.9
P19.55				0.0	150.0	
				[%]		

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8'

0

7.20

1

P20

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 [%]	

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	8.10
				[%]		[%]	
P20.56				0.0	1000.0	100.0	8.10
				[%]		[%]	
P20.57		[0]		0	1	0	8.10
		[1]					
P20.58				0.0	125.0	100.0	8.10
				[%]		[%]	
P20.59				1.0	25.0	2.5	8.10
				[%]		[%]	
P20.60	DROOP	0	DROOP	0.0	100.0	0.0	8.10
				[%]		[%]	
P20.61	DROOP		DROOP	30	2000	50	8.10
				[ms]		[ms]	
P20.62				0.0	1000.0	100.0	8.10
				[%]		[%]	
P20.63				0.0	1000.0	100.0	8.10
				[%]		[%]	
P20.66	1		1	0.0	1000.0	100.0	
				[%]		[%]	
P20.67	2		2	0.0	1000.0	100.0	
				[%]		[%]	
P20.69				0.00	2.00	1.00	
				[%]		[%]	
P20.70				0.00	2100	1.00	
				[%]		[%]	
P20.71		[0]		0	1	0	
		[1]					
P20.72		[0]		0	1	1	
		[1]					
P20.73		[0] × 1		0	1	0	
		[1] × 10					
P20.74				0.00	650.00	0.00	
				[mOhm]		[mOhm]	
P20.75				0.70	1.00	0.90	
P20.76	1		1	90.0	110.0	100.0	
				[%]		[%]	

7.21	2	P21						
P21.0		[0]				0 1	0	8.10
		[1]						
		[0]						
		[1]	1					
		[2]	2					
P21.1		[3]				0 7	0	8.10
		[4]		P21.3				
		[5]DP						
		[6]MODBUS						
		[7]						
P21.2						0 7	0	
P21.3						-300.0 300.0	0.0	8.10
						[%]	[%]	
P21.4	@					0 300	0	
P21.5						0 1000	0	
						[ms]	[ms]	
P21.6						0.0 200.0	100.0	8.10
						[%]	[%]	
		[0]						
		[1]		P21.8				
		P21.9						
		[2]	1					
P21.7		[3]	2			0 7	0	8.10
		[4]						
		[5]DP						
		[6]MODBUS						
		[7]						
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
						[%]	[%]	
P21.10						0 300	0	
P21.11						0 1000	0	
						[ms]	[ms]	
P21.13						20.0 500.0	100.0	8.10
						[ms]	[ms]	

P21.32			0.0 100.0 [%]	5.0 [%]	
P21.34		[0] [1]	0 1	0	8.10
P21.35			0.0 100.0 [s]	0.0 [s]	
P21.36			50.0 150.0 [%]	110.0 [%]	
P21.37			0.0 150.0 [%]	100.0 [%]	8.10
P21.38			0.0 100.0 [%]	25.0 [%]	8.10
P21.39			0.0 120.0 [%]	100.0 [%]	8.10
P21.40			0.0 150.0 [%]	100.0 [%]	8.10
P21.41			0.0 150.0 [%]	135.0 [%]	
P21.42		[0] [1]	0 1	1	
P21.43			25 1000 [ms]	75 [ms]	
P21.44			25 1000 [ms]	250 [ms]	
P21.45			0.0 100.0 [%]	22.0 [%]	
P21.46			0.0 100.0 [%]	18.0 [%]	
P21.47			0.0 200.0 [%]	92.0 [%]	
P21.48			0.0 200.0 [%]	87.0 [%]	
P21.49			0.0 150.0 [%]	100.0 [%]	
P21.51			0.0 1000.0 [%]	100.0 [%]	
P21.52			0.0 1000.0 [%]	100.0 [%]	
P21.53	Kp		0.0 1000.0 [%]	100.0 [%]	

P21.54	Ki			0.0	1000.0	100.0	
				[%]		[%]	
P21.55				0.0	1000.0	100.0	8.10
				[%]		[%]	
P21.56				0.0	1000.0	100.0	8.10
				[%]		[%]	
P21.57		[0]		0	1	0	8.10
		[1]					
P21.58				0.0	125.0	100.0	8.10
				[%]		[%]	
P21.59				1.0	25.0	2.5	8.10
				[%]		[%]	
P21.60	DR00P	0	DR00P	0.0	100.0	0.0	8.10
				[%]		[%]	
P21.61	DR00P	DR00P		30	2000	50	8.10
				[ms]		[ms]	
P21.62				0.0	1000.0	100.0	8.10
				[%]		[%]	
P21.63							

b

P21.78			0.00	655.00	0.00
			[mOhm]		[mOhm]
P21.79			0.00	65.50	0.000
			[mH]		[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	655.00	0.00
			[mH]		[mH]
P21.85	85%	85%	40.0	150.0	108.0
			[%]		[%]
P21.86	87.5%	87.5%	40.0	150.0	106.5
			[%]		[%]
P21.87	90%	90%	40.0	150.0	105.0
			[%]		[%]
P21.88	92.5%	92.5%	40.0	150.0	103.5
			[%]		[%]
P21.89	95%	95%	40.0	150.0	102.0
			[%]		[%]
P21.90	102.5%	102.5%	40.0	150.0	99.0
			[%]		[%]
P21.91	105%	105%	40.0	150.0	96.5
			[%]		[%]
P21.92	110%	110%	40.0	150.0	93.0
			[%]		[%]
P21.93	115%	115%	40.0	150.0	88.5
			[%]		[%]
P21.94	120%	120%	40.0	150.0	83.0
			[%]		[%]
P21.95	125%	125%	40.0	150.0	77.0
			[%]		[%]
P21.96	130%	130%	40.0	150.0	70.5
			[%]		[%]
P21.97	135%	135%	40.0	150.0	63.5
			[%]		[%]
P21.98		()	0.01	300.00	0.75
			[s]		[s]

7.22	3	P22				
P22.0		[0]		0	1	0
		[1]				8.10
		[0]				
		[1]	1			
		[2]	2			
P22.1		[3]		0	7	0
		[4]	P22.3			8.10
		[5]DP				
		[6]MODBUS				
		[7]				
P22.2				0	7	0
P22.3				-300.0	300.0	0.0
				[%]		[%]
P22.4	@			0	300	0
P22.5						

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			0.0 100.0 [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 [%]	8.10
P22.41			0.0 150.0 [%]	135.0 [%]	
P22.42		[0] [1]	0 1	1	
P22.43			25 1000 [ms]	75 [ms]	
P22.44			25 1000 [ms]	250 [ms]	
P22.45			0.0 100.0 [%]	22.0 [%]	
P22.46			0.0 100.0 [%]	18.0 [%]	
P22.47			0.0 200.0 [%]	92.0 [%]	
P22.48			0.0 200.0 [%]	87.0 [%]	
P22.49			0.0 150.0 [%]	100.0 [%]	
P22.51			0.0 1000.0 [%]	100.0 [%]	
P22.52			0.0 1000.0 [%]	100.0 [%]	

P22.77

2

90.0 110.0 100.0
[%] [%]

P22.78

0.00 650.00 0.00
[mOhm] [mOhm]

P22.79

0.00 65.50 0.00
[mH] [mH]

P22.80

1

1

0.800 1.350 1.140

P22.81

2

2

0.800

7.23

4

P23

P23.0	[0]		0	1	0	8.10	
	[1]						
	[0]						
	[1]	1					
	[2]	2					
P23.1	[3]		0	7	0	8.10	
	[4]		P23.3				
	[5]DP						
	[6]MODBUS						
	[7]						
P23.2	Unit		0	7	0		
P23.3	Unit		-300.0	300.0	0.0	8.10	
P23.4	@		[%]		[%]		
P23.5			0	300	0		
P23.6			0	1000	0		
P23.7			[ms]	1000	[ms]		
P23.8			[%]	100.0	[%]		
P23.9			0.0	100.0	100.0	8.10	
P23.10			[%]	00	[%]		
P23.11			[0]	P23.8			
P23.12			[1]				
P23.13			P23.9				
P23.14			[2]				
P23.15							
P23.16							
P23.17							
P23.18							
P23.19							
P23.20							
P23.21							
P23.22							
P23.23							
P23.24							
P23.25							
P23.26							
P23.27							
P23.28							
P23.29							
P23.30							
P23.31							
P23.32							
P23.33							
P23.34							
P23.35							
P23.36							
P23.37							
P23.38							
P23.39							
P23.40							
P23.41							
P23.42							
P23.43							
P23.44							
P23.45							
P23.46							
P23.47							
P23.48							
P23.49							
P23.50							
P23.51							
P23.52							
P23.53							
P23.54							
P23.55							
P23.56							
P23.57							
P23.58							
P23.59							
P23.60							
P23.61							
P23.62							
P23.63							
P23.64							
P23.65							
P23.66							
P23.67							
P23.68							
P23.69							
P23.70							
P23.71							
P23.72							
P23.73							
P23.74							
P23.75							
P23.76							
P23.77							
P23.78							
P23.79							
P23.80							
P23.81							
P23.82							
P23.83							
P23.84							
P23.85							
P23.86							
P23.87							
P23.88							
P23.89							
P23.90							
P23.91							
P23.92							
P23.93							
P23.94							
P23.95							
P23.96							
P23.97							
P23.98							
P23.99							

P23.14

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 [%]	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			25 1000 [ms]	250 [ms]	
P23.45			0.0 100.0 [%]	22.0 [%]	
P23.46			0.0 100.0 [%]	18.0 [%]	
P23.47			0.0 200.0 [%]	92.0 [%]	
P23.48			0.0 200.0 [%]	87.0 [%]	
P23.49			0.0 150.0 [%]	100.0 [%]	
P23.51			0.0 1000.0 [%]	100.0 [%]	
P23.52			0.0 1000.0 [%]	100.0 [%]	
P23.53	=		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
P23.66	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

0.00 650.

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	TIMEV. 43	[0] PPO 1 [1] PPO 2 [2] PPO 5 [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] ×		

P33.18
[W2eW2eW

P33.31

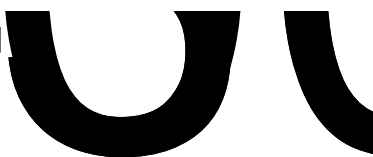
[W9]

7-2

0 37

0

/[θ]



P33.32

[W9]

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

P33.62

[W8]

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

0

P33.70	[W12]	$[0] \times 1$ $[1] \times 10$ $[2] \times 100$ $[3] \times 1000$ $[4] \times 10000$ $[5] [\%] \times 1$ $[6] [\%] \times 10$ $[7] [\%] \times 100$	0 7	0	
P33.71	[W13]	7-3	0 48	0	
P33.72	[W13]	$[0] \times 1$ $[1] \times 10$ $[2] \times 100$ $[3] \times 1000$ $[4] \times 10000$ $[5] [\%] \times 1$ $[6] [\%] \times 10$ $[7] [\%] \times 100$	0 7	0	
P33.73	[W14]	7-3	0 48	0	
P33.74	[W14]	$[0] \times 1$ $[1] \times 10$ $[2] \times 100$ $[3] \times 1000$ $[4] \times 10000$ $[5] [\%] \times 1$ $[6] [\%] \times 10$ $[7] [\%] \times 100$	0 7	0	
P33.75	[W15]	7-3	0 48	0	
P33.76	[W15]	$[0] \times 1$ $[1] \times 10$ $[2] \times 100$ $[3] \times 1000$ $[4] \times 10000$ $[5] [\%] \times 1$ $[6] [\%] \times 10$ $[7] [\%] \times 100$	0 7	0	

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

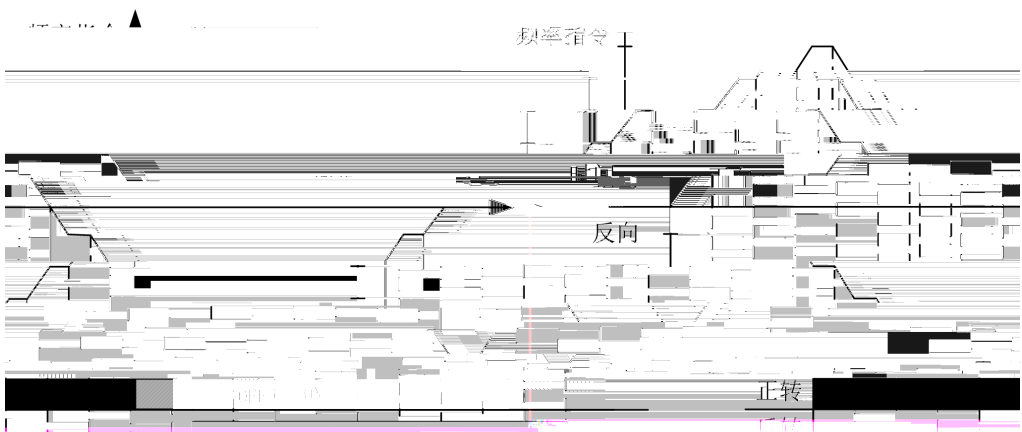
8.

8.1



8.2

		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



3. [1]

4

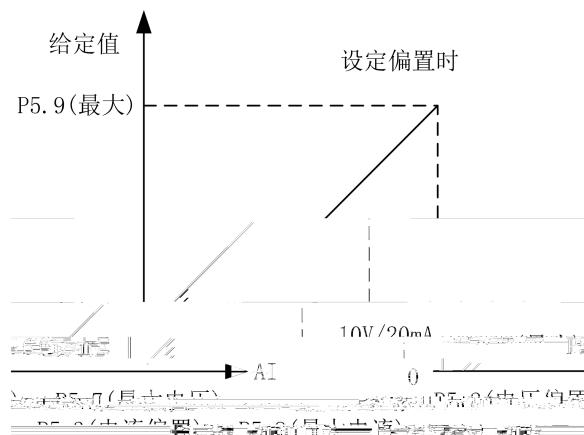
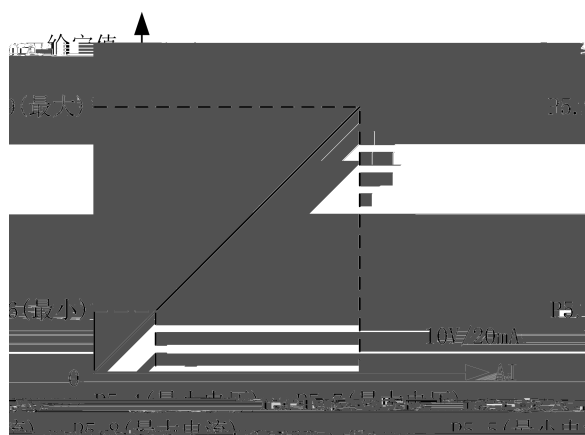
16

8421

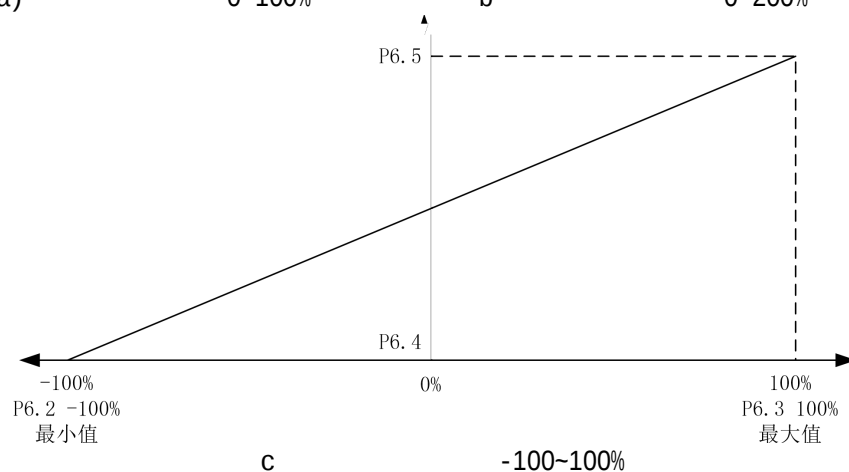
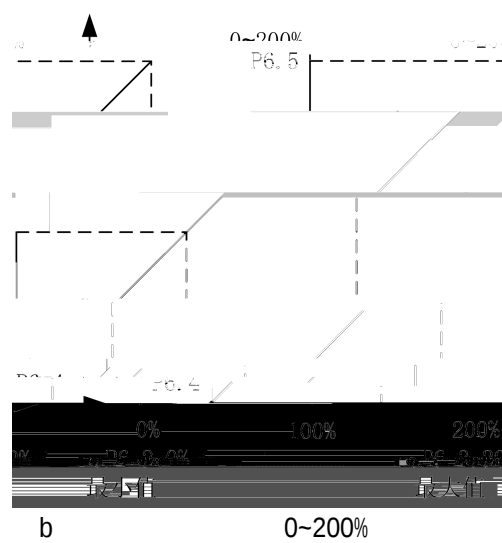
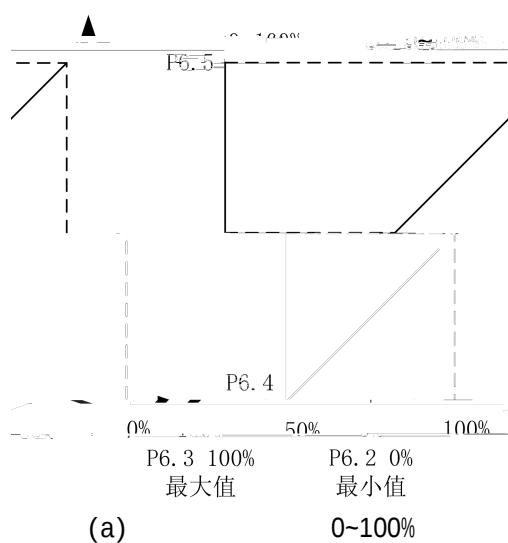
(FORWARD)

(REVERSE)

8.4



8.5



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

P16.4 $\left(\frac{\quad}{3} \right)$ 7.8 16.4 1.414

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

11

P7.64 P7.65 P7.66

HF650LC

30kW

8.7

1

P8.3

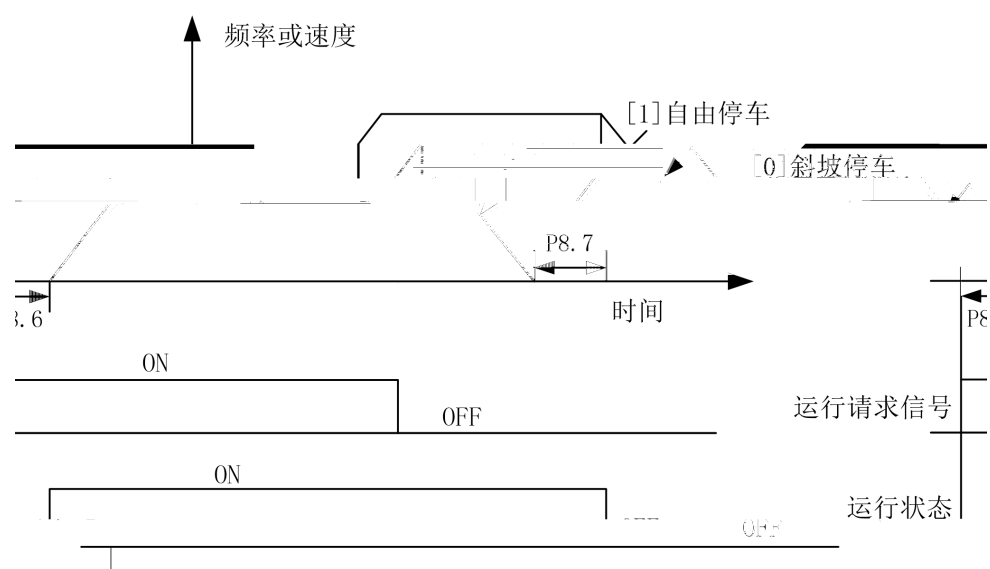
[0]

[1]

P8.6

P8.6

P8.7



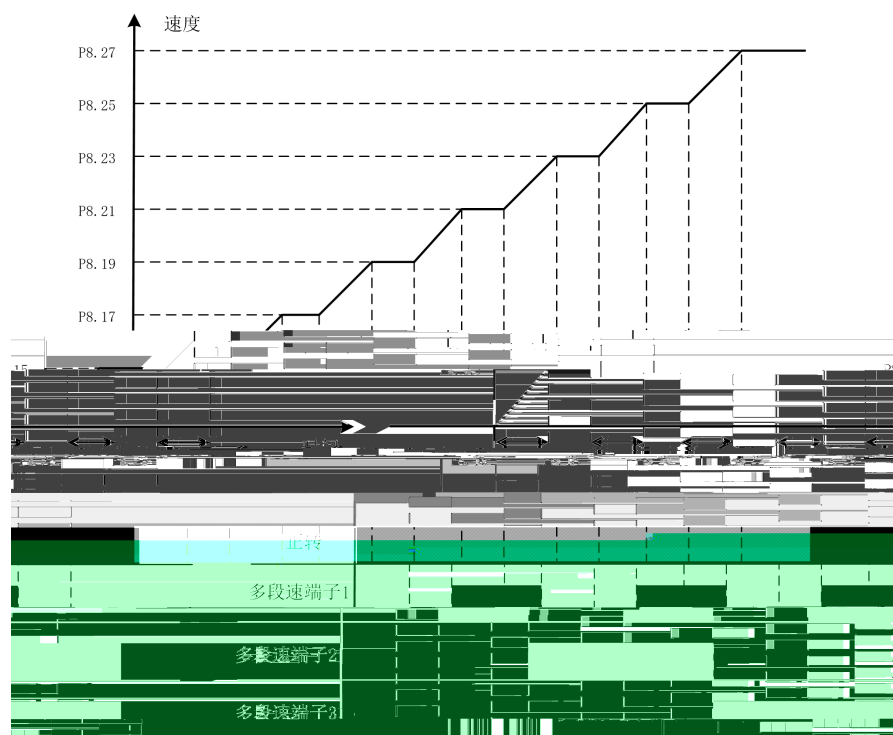
2

P8.14

P8.14

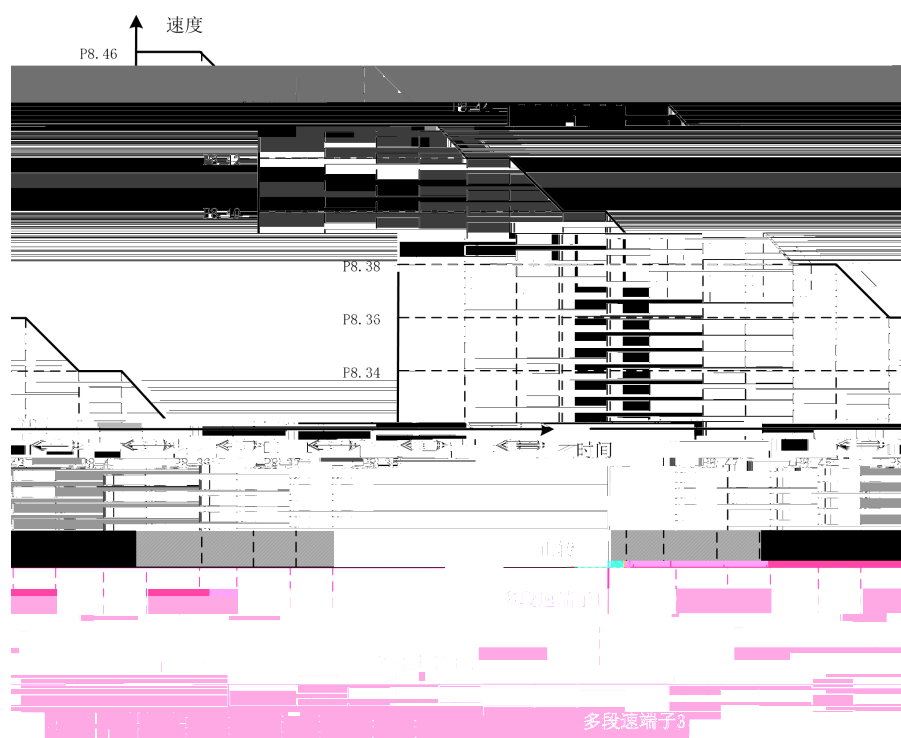
P8.33

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 P12.3

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

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\$Q+pradV# @ IN :3

3 V/F

P16.14	V/F	P16.11=0		
[0]	V/F			
[1]	V/F	P16.33	P16.45	V/F
[2]				

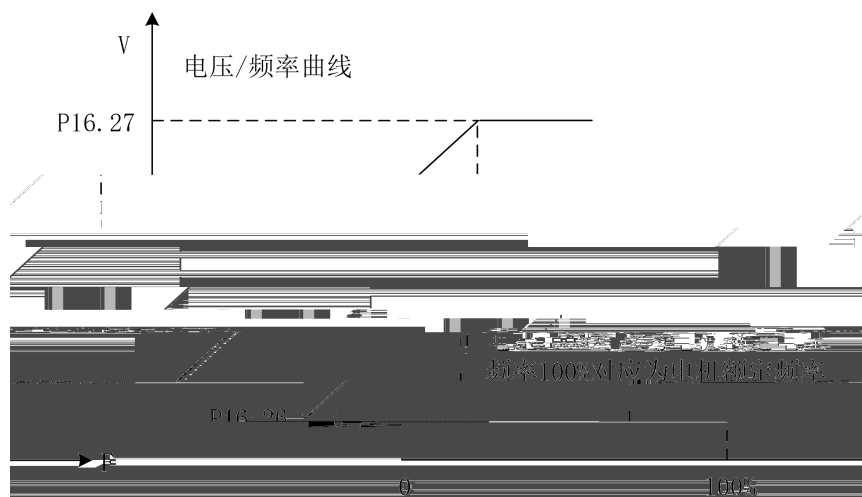
P16.34	P16.45		V/F	V/F			
		V1	V2	V3	F1	F2	F3

4

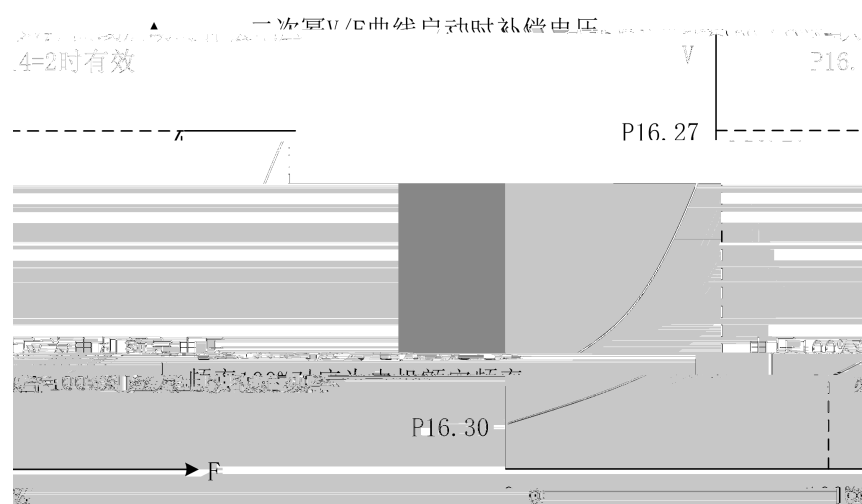
P16.15	V/F
V/F	

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

2

P20.7
P20.8 P20.9 P20.7=1

3

P20.13

4

P20.15 A B
A B U V W

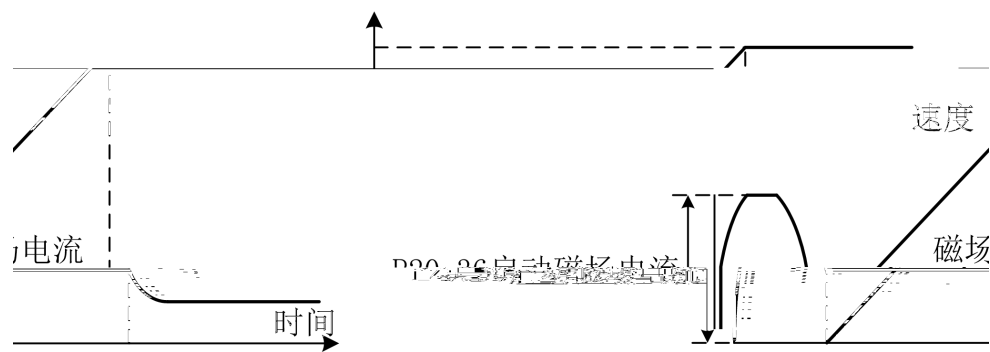
[0]
[1] A B

5

GDHF-PGD1 PG
GDHF-PGD1 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
HF650LC P20.34 [1]

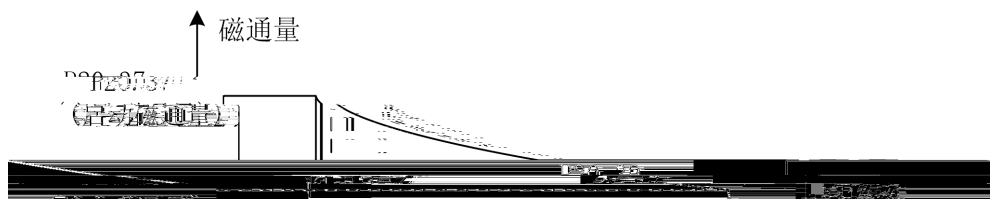
6

P20.36



7

P20.37 P20.40



8

P20.57 P20.58 P20.59

P20.57 1

P20.58

P20.59

9

P20.55

P20.56

9.

9.1

W01	SYS_NOT_RDY	(Ready)		
			[	P3
W02	NO_DRV_ENABLE	]		
			[	P3
W03	LOCAL_EM	]		
			[	P3
W04	REMOTE_EM	]		
W06	OT	P7.14(	)	
W09	DP P/B ALARM	DP		DP
W4	A			

9.2

[E111]	OL	P7.49(1) P7.48(1) P7.48 P7.49
[E112]	ZC	P7.8
[E113]	MIP	
[E114]	MOP	
[E115]	OS	P7.19
[E116]	SLVC Fail	P7.23
[E117]	MOTOR STALL	P20.15 P20.14
[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] \$YÖG÷ Q“œ
TEMP_SENSING FAIL

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[E154]	V	IGBT PDP[VB]	IGBT IGBT	
[E155]	W	IGBT PDP [WT]	IGBT IGBT	
[E156]	W	IGBT PDP [WB]	IGBT IGBT	
[E157]		PDP [DB]		
[E160]		SLAVE FAULT		
[E161]		SLV_NOT_RDY		
[E162]		1 CAN SLV1_CAN_ERR		1
[E167]		CAN CAN_ERR		
[E170]		MOTOR TUNING FAIL		P7.33
[E180]		DP P/B ERROR		
[E181]		DP P/B_EM		

9.3

		• • • ON COM	• • • ON COM	
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10.


1.
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4.


1. CMOS
2.
3.

10.1

10.2

	1. 2.	1. > 40 < 95% 2.
	1. 2. 3.	1. 2. 3. 4. 5. 6.
	1. 2. 3.	1. 2. 3.
	1. 2.	1. 2.
	1. 2.	1. 2.

10.3

1

2

GUIDE

1
2
3

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