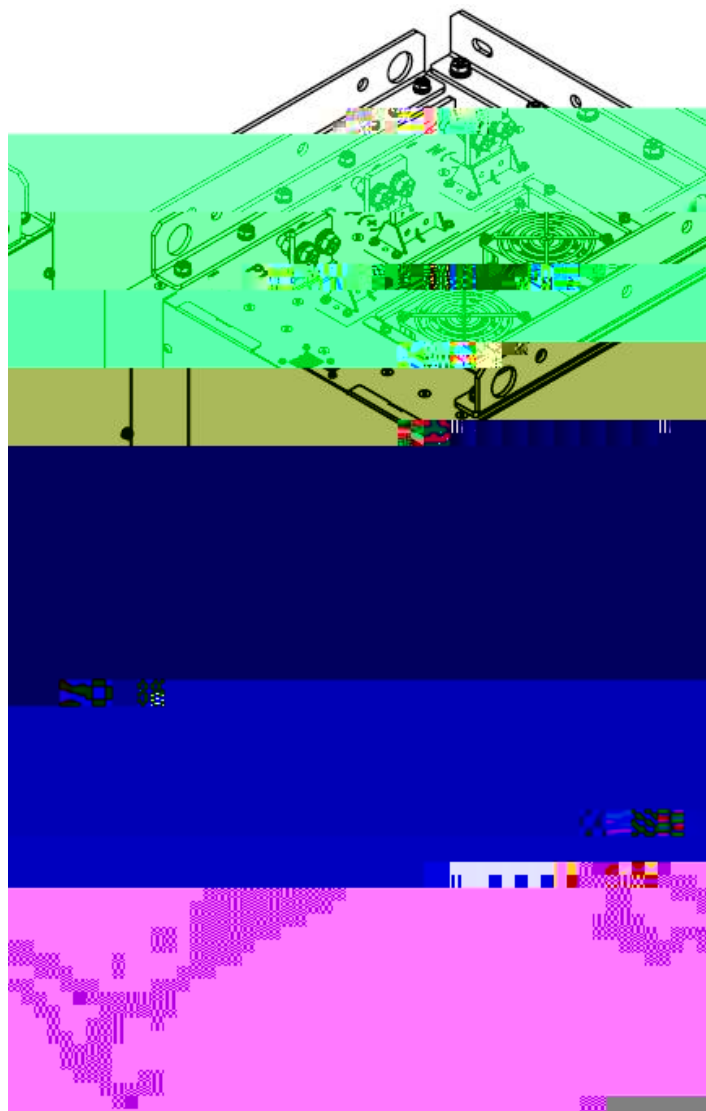


GUIDE



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

3

1.3

(1)

(2)

(3)

(4)

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

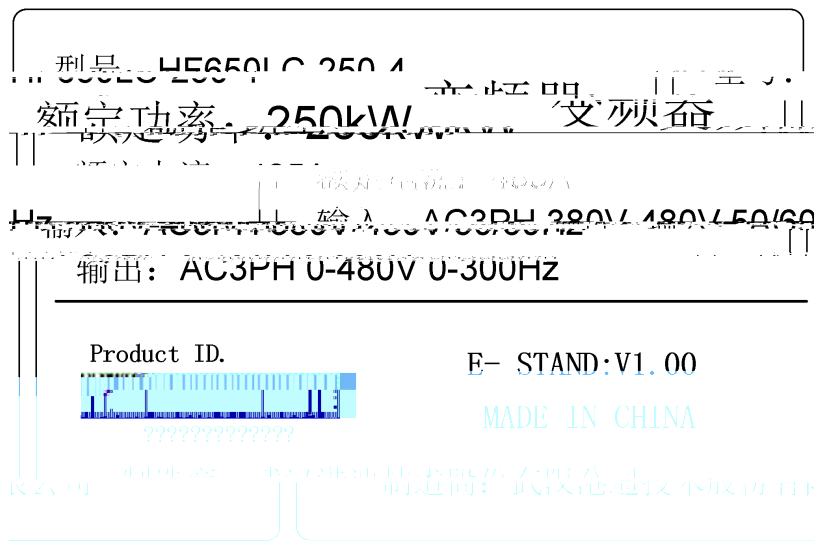
1.4

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

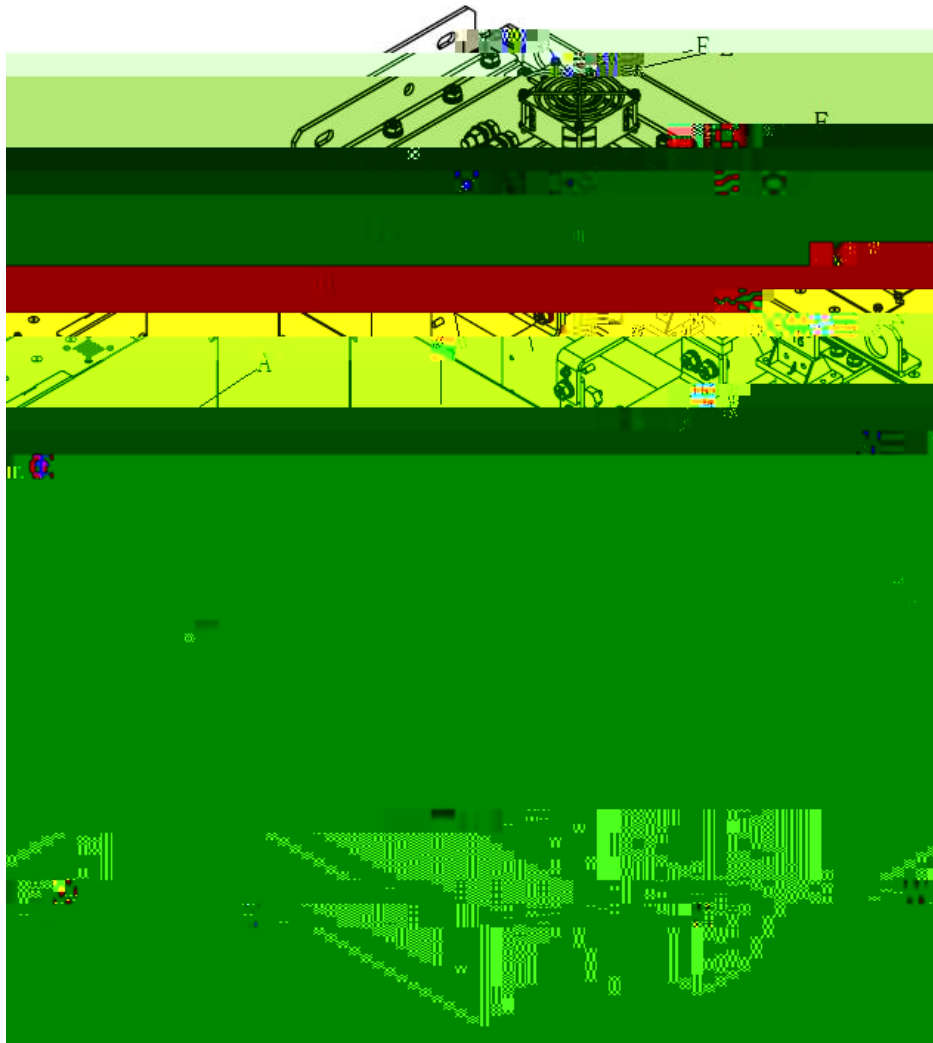
		2-3 HF650LC			
		1		2	
	[A]	[kW]	[A]	[kW]	
HF650LC-160-4	330	160	265	132	
HF650LC-185-4	360	185	330	160	
HF650LC-220-4	438	220	360	185	12
HF650LC-250-4	485	250	438	220	
HF650LC-280-4	545	280	485	250	
HF650LC-160-4- S	330	160	265	132	
HF650LC-185-4- S	360	185	330	160	L2
HF650LC-220-4- S	438	220	360	185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

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°

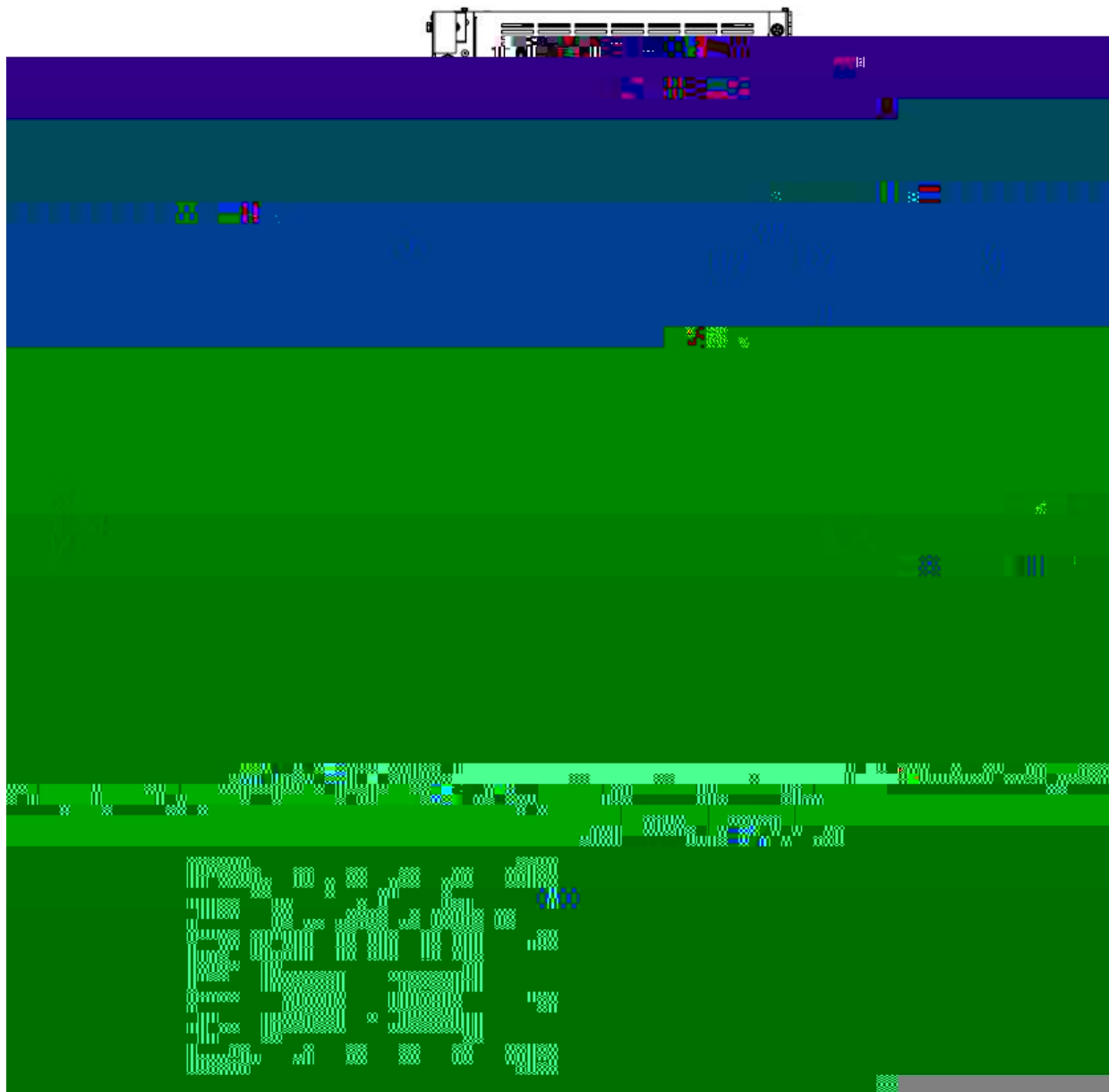
DI N2353-L

/

18mm

M26x 1.5

2 5

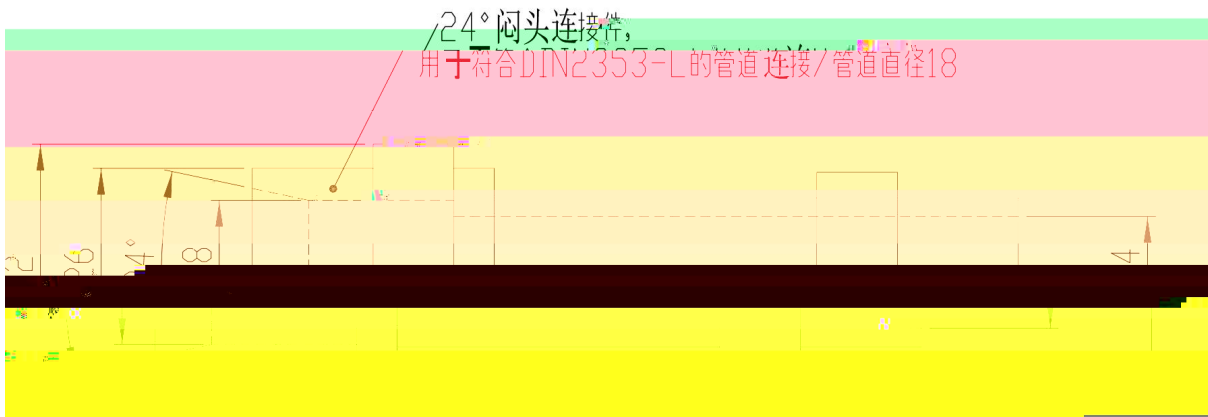


		(mm)			(mm)			D	8.8	kg
		H1	W1	D1	A	B	C			
L2	160 kW	815.5	335	567.5	765	250	275	13	M2	130
	185 kW									
	220 kW									
	250 kW									
	280 kW									
L3	315 kW	993.5	335	567.5	943.5	250	275	13	M2	155
	355 kW									
	400 kW									
	450 kW									

2 6

PI D	
	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/mi n)	L2 22L/mi n, L3 24L/mi n
()	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

ACT-020-070U-0.4SC-37

2



	W	W	W
ACR-0200-070U-O. 4SC-3058	140	40	180
ACR-0250-056U-O. 4SC-3058	155	44	199

V

3.

1.

/

" "

2

/

3

- R S

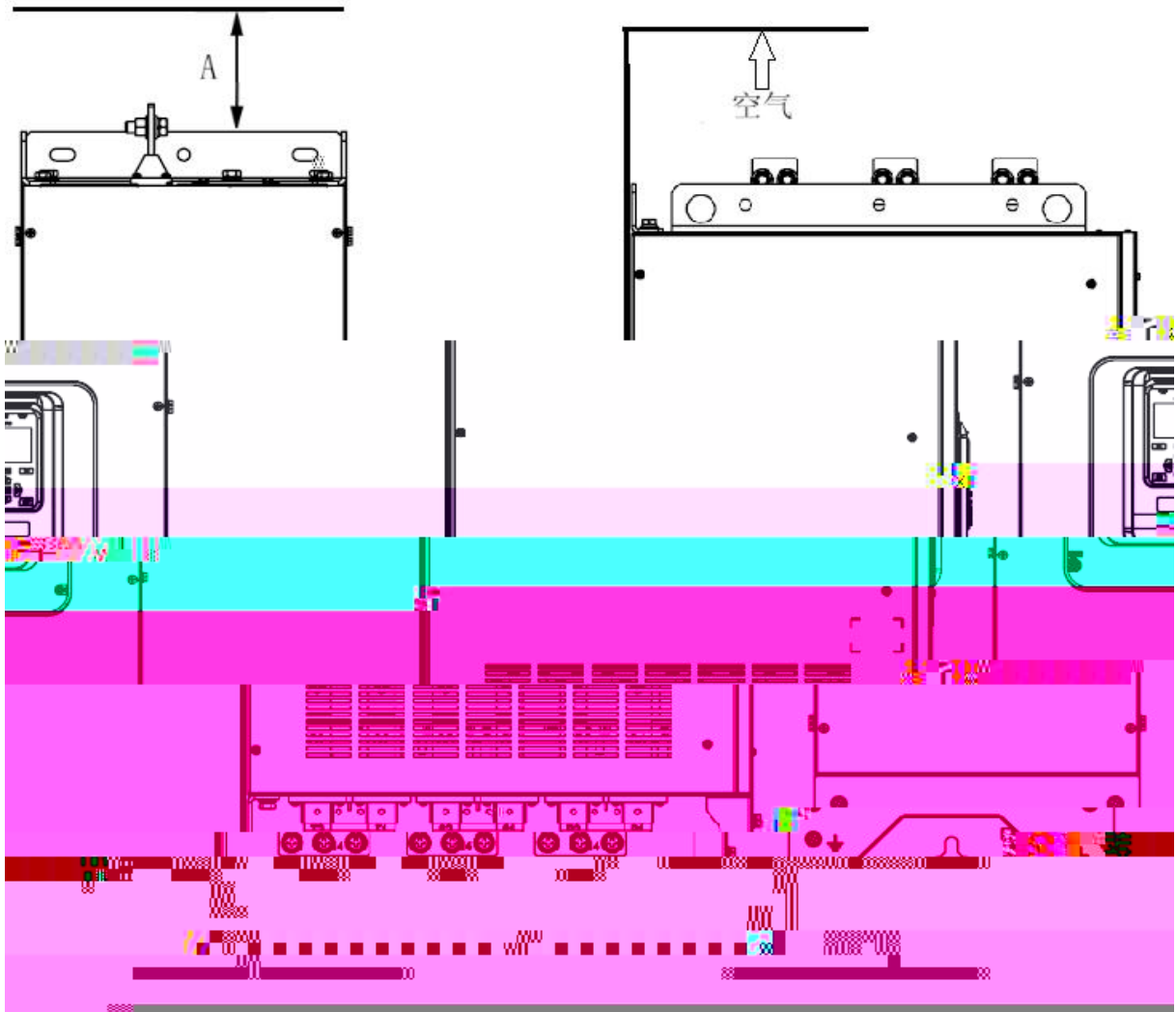
3.2

-
- -15 +50 +50 +60 1
- 1%
- 95%RH
-
-
-
-
-
-

20 0

ΕΙΣΑΓΩΓΗ

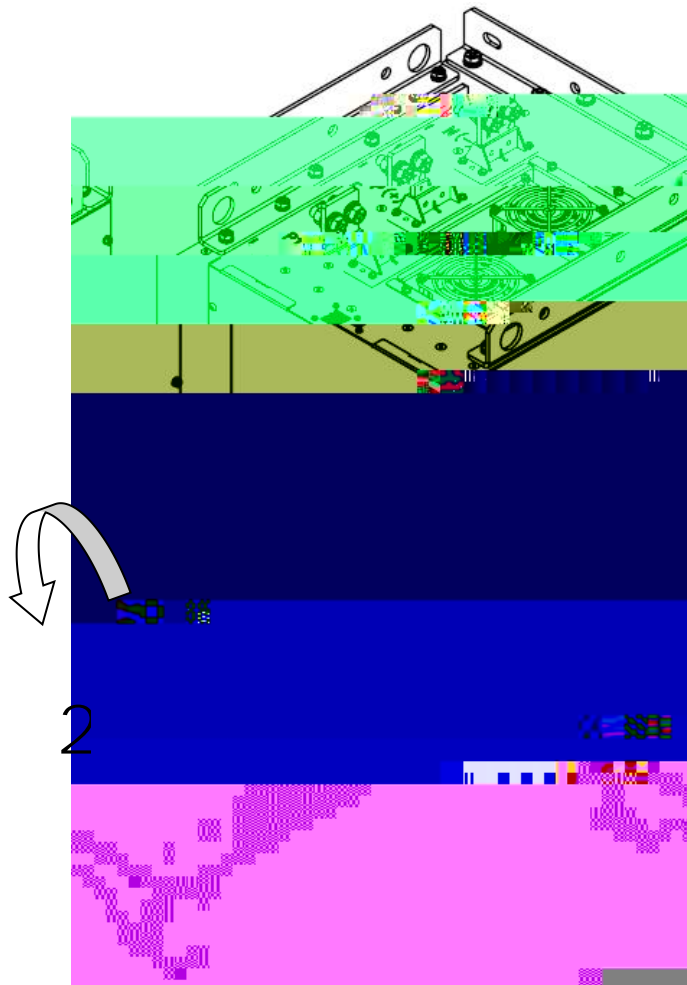
3.3



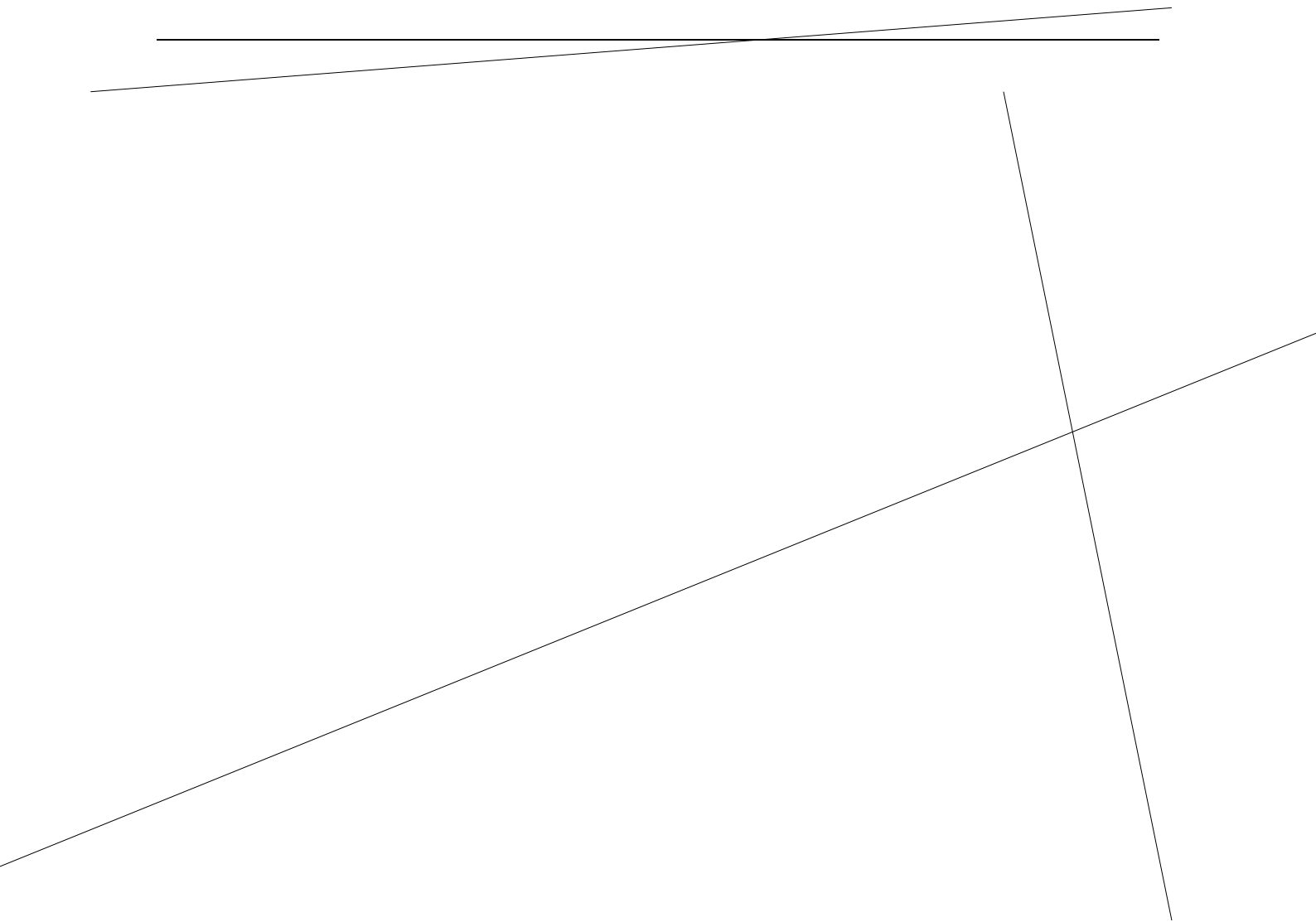
	A 200mm

3.4

1	1	4	5mm
2	2		

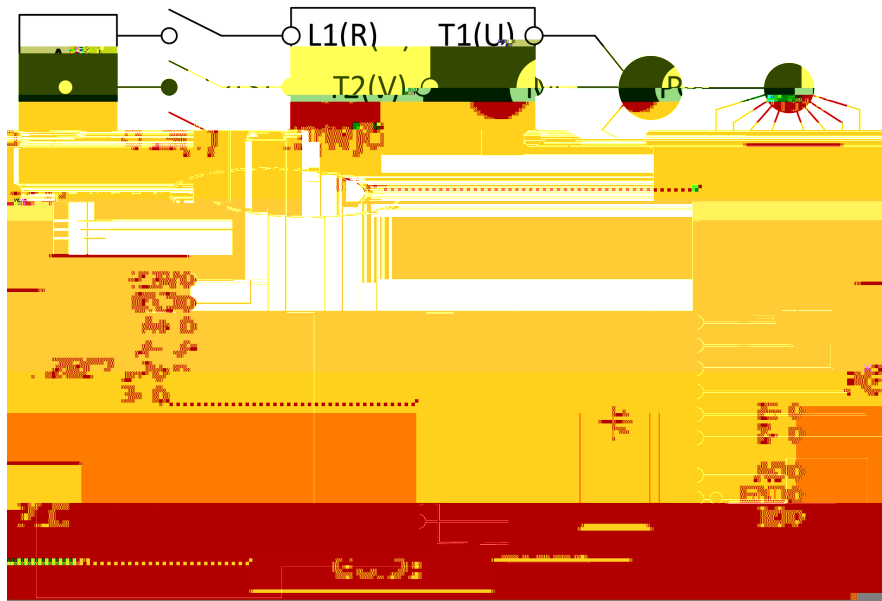


3-1





PGC2

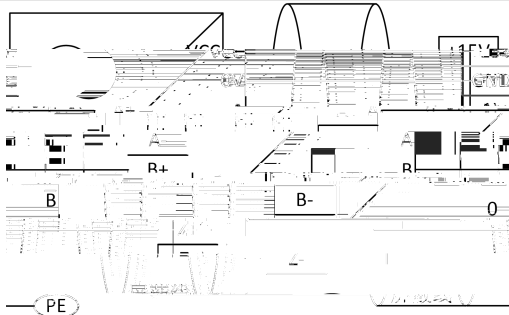


- 1 PG
- 2 PG
- 3 PE
- 4 PG A- B- Z- GND
- 5 PGC2 15V RS-422
- PGC1
- 15V

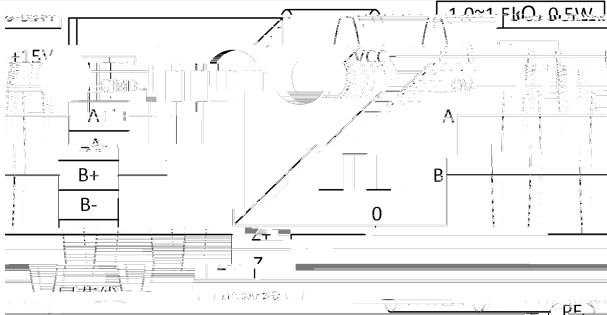
1
a

		HLE45-1024L-6F.AC
		RHI 90N-ONAK1R61N-1024
		EC120P45-H6PR-1024


b

		
		HLE45- 600L - 3F. AC
		RVI 78N- 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
		RHI 58N- OBAK1R6XN- 1024
		EC120P45- L6TR- 1024

GUIDE

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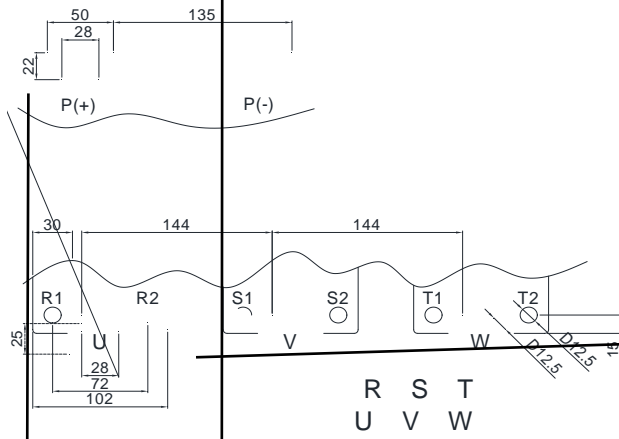
14
15

30 m

4.2

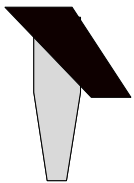
160kW ~ 280kW

L2



P	
N	
R S T	
U V W	
⊥	

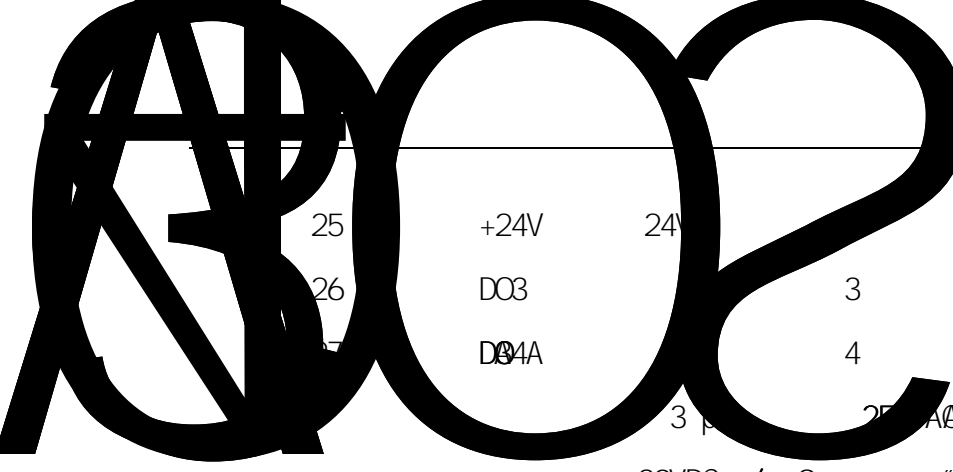
4.3



& é

3

1	+10V		10V						
2	GND								
3	AI 1+/AV1		1				0/4 20mA		
			1				-10 10V		
4	AI 1-		1						
5	AI 2+/AV2		2				0/4 20mA		
			2				-10 10V		
6	AI 2-		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	DI 1			1					
10	DI 2			2					
11	DI 3			3					
12	DI 4			4					
13	DI 5			5					
14	DI 6			6					
15	DI 7			7					
16	DI 8			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

D03

3

DC24V 50mA ==

27

D04A

4

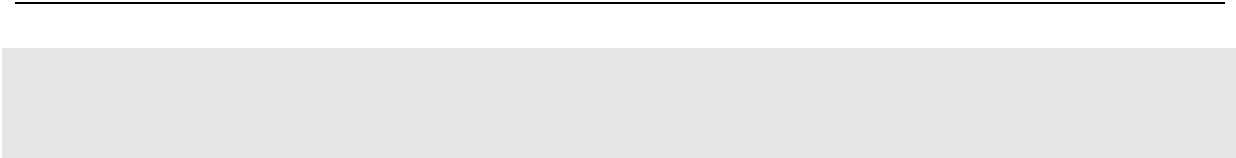
3 p 25 A AC 3A *ACOS =0.4

30VDC / 9 m









1

2

AC

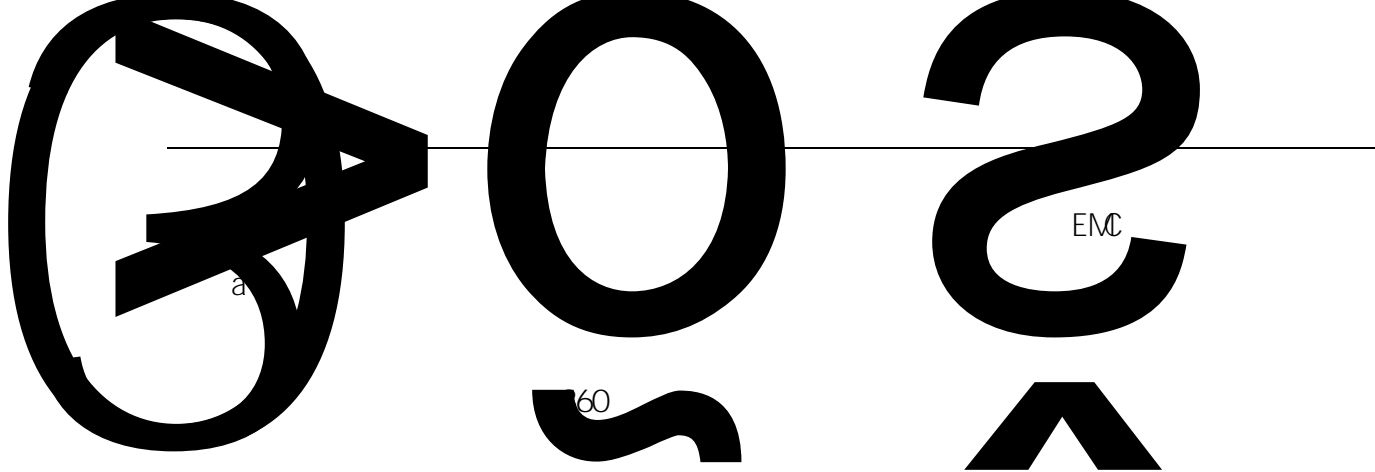
1

2

3

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			





b

4)4i

3

1

>õš

4

PLC

20cm



50m

e



5.

5.1

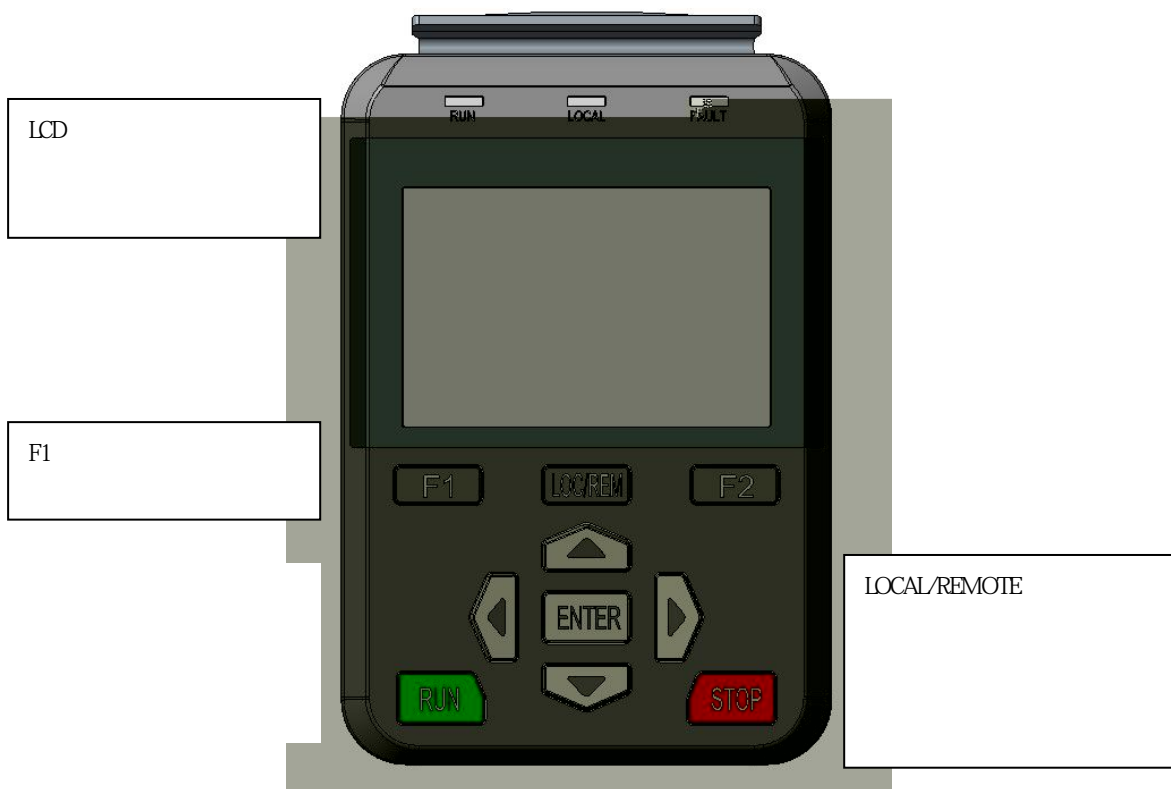
HF650

F1 LOCAL/REMOTE

F2 RUN STOP

/RESET

ENTER



5.2

ENTER

RUN STOP
 LOCAL/REMOTE /

5.3



	FWD REV
	: Hz
	A
	N N W E

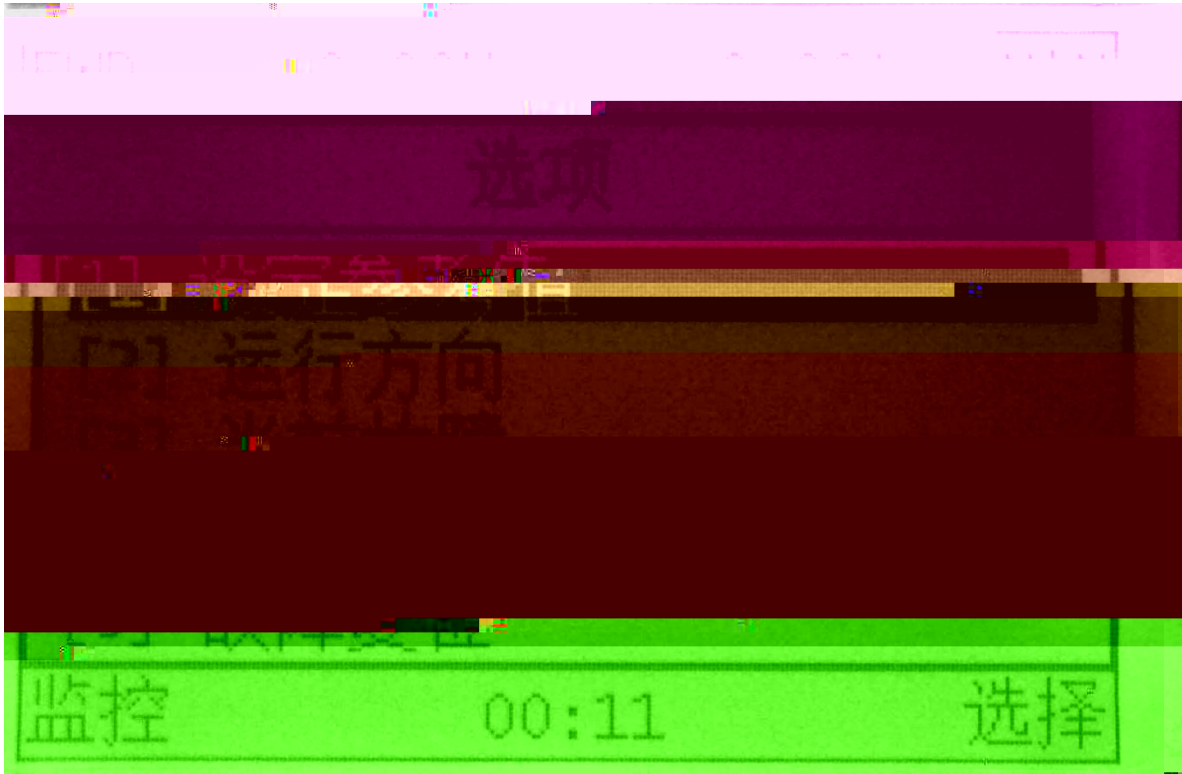
3

F1 F2

" " " " " "

" " "

ENTER



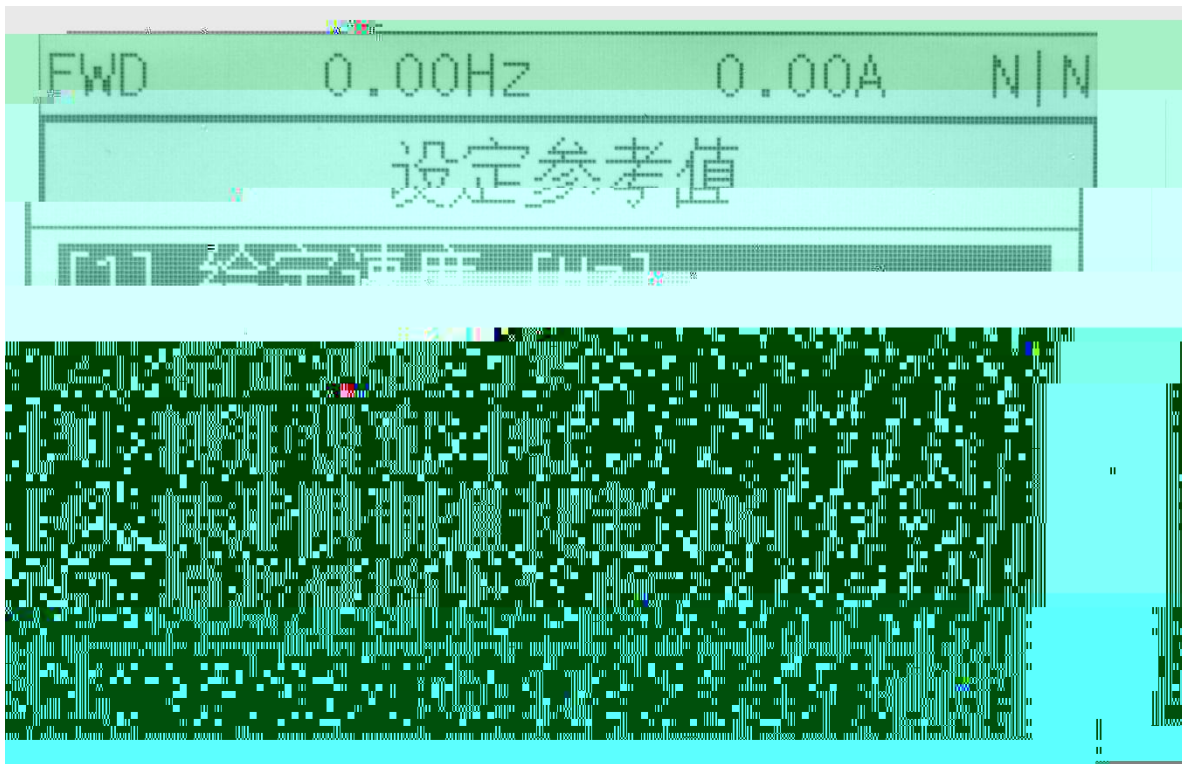
1	Reference Set	
2	Change Direction	
3	Current Error	
4	Current Warning	

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	MtoTuning I	
2	MtoTuning II	
3	MtoTuning III	
4	DC-Link Tuning (AFE)	AFE

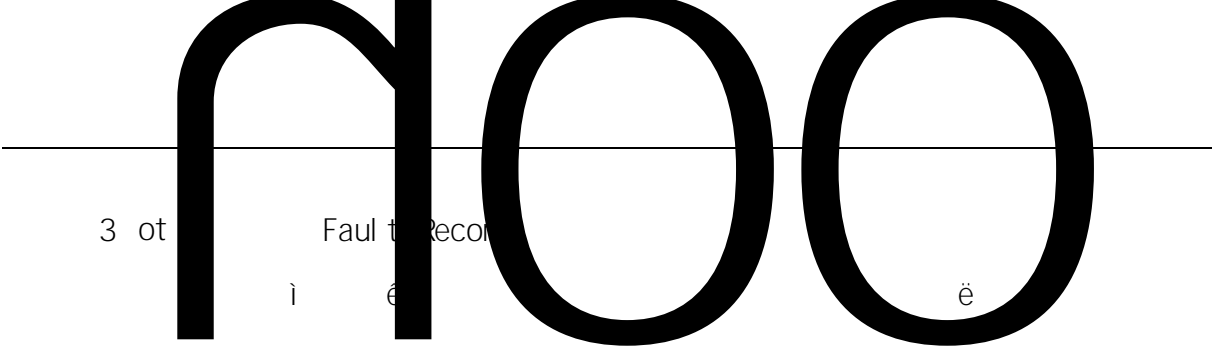
5	Shortcut Paras Setting	
6	Parameter Initialization	
7	Delete Fault Records	
8	System Restart	
9	Backup Parameter	
10	Recover Parameter	
11	Compare Parameter	

1

2

5

" Enter "



3 ot

Fault t Recon

i

e

ë

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



4

"

"

"

"

P20. 98

P20. 98

50%

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

7

2 1

8. 2

8

3 2

9

4 3

10

11

12

13

. NC

14

15

. NC

16

17

0 1 0 00

1

1 01 2 10 3 11
4

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	PROFI BUS 1	PROFI BUS 1
50	PROFI BUS 2	PROFI BUS 2
51	PROFI BUS 3	PROFI BUS 3
52	PROFI BUS 4	PROFI BUS 4
53	PROFI BUS 5	PROFI BUS 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	AI 1	[0] [1] 0 +10V [2] -10 +10V [3] 0 20mA	0 3	1	
P5.1	AI 1	AI 1	0.0 1000.0 [ms]	25.0 [ms]	
P5.2	AI 1	AI 1	-10.00 10.00 [V]	0.000 [V]	8.4
P5.3	AI 1	AI 1	-20.00 20.00 [mA]	0.000 [mA]	8.4
P5.4	AI 1	AI 1	-10.00 10.00 [V]	0.000 [V]	8.4
P5.5	AI 1	AI 1	0.00 20.00 [mA]	0.000 [mA]	8.4
P5.6	AI 1	AI 1	-300.0 300.0 [%]	0.0 [%]	8.4
P5.7	AI 1	AI 1	-10.00 10.00 [V]	10.000 [V]	8.4
P5.8	AI 1	AI 1	0.00 20.00 [mA]	20.000 [mA]	8.4
P5.9	AI 1	AI 1	-300.0 300.0 [%]	100.0 [%]	8.4
P5.18	AI 2	[0] [1] 0 +10V [2] -10 +10V [3] 0 20mA	0 3	3	

		AI 2			
P5. 19	AI 2		0. 0 1000. 0 [ms]	25. 0 [ms]	
P5. 20	AI 2	AI 2	-10. 00 10. 00 [V]	0. 000 [V]	
P5. 21	AI 2	AI 2	-20. 00 20. 00 [mA]	0. 000 [mA]	
P5. 22	AI 2	AI 2	-10. 00 10. 00 [V]	0. 000 [V]	
P5. 23	AI 2	AI 2	0. 00 20. 00 [mA]	0. 000 [mA]	
P5. 24	AI 2	AI 2	-300. 0 300. 0 [%]	0. 0 [%]	
P5. 25	AI 2	AI 2	-10. 00 10. 00 [V]	10. 000 [V]	
P5. 26	AI 2	AI 2	0. 00 20. 00 [mA]	20. 000 [mA]	
P5. 27	AI 2	AI 2	-300. 0 300. 0 [%]	100. 0 [%]	

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

7-1

0		
1		
2		
3		
4		
5		
6		
7		
8	(%)	()
9		
10		
11	(%)	(150)
12	DP	Prof i bus
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



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
[s]

4.00
[s]

P9. 37

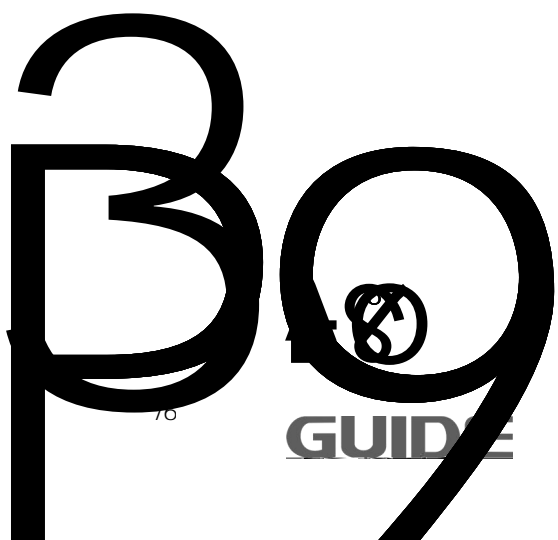
2

P9. 34

P9. 36

0.0 300.0

[s]



7.10

3

P10

P10.0

[0]

[1]

[2] DP

[3] MODBUS

[4]

0 4

0

P10.1



P1 350

2

D. 34

5FW x e " ° ò f

cc m

0 0500 0710

[2 co w

EXE EXE B91 eb ev B

wgdetec. co

GUIDE

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]	
P11. 46							

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				

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

... (n) ...

... (n) ...

b

... ..

2

P13

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]	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					

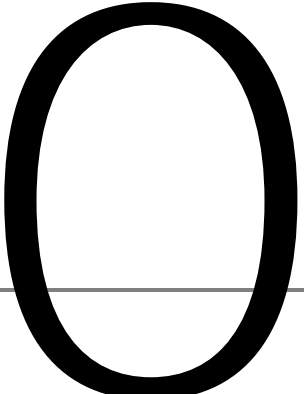
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P14. 27			0.00 2.00 [s]	0.00 [s]	8.8
P14. 28			0.00 2.00 [s]	0.07 [s]	8.8
P14. 29			0.00 2.00 [s]	0.07 [s]	8.8
P14. 32			0.0 20.0 [%]	0.0 [%]	8.8
P14. 33			0.0 20.0 [%]	0.0 [%]	8.8
P14. 34			0.00 2.00 [s]	0.00 [s]	8.8
P14. 35			0.00 2.00 [s]	0.00 [s]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

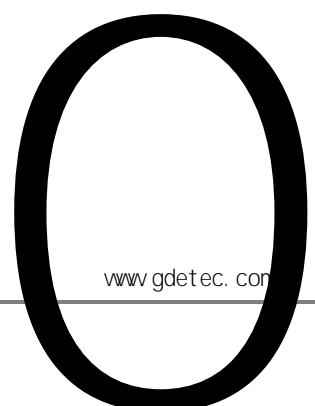
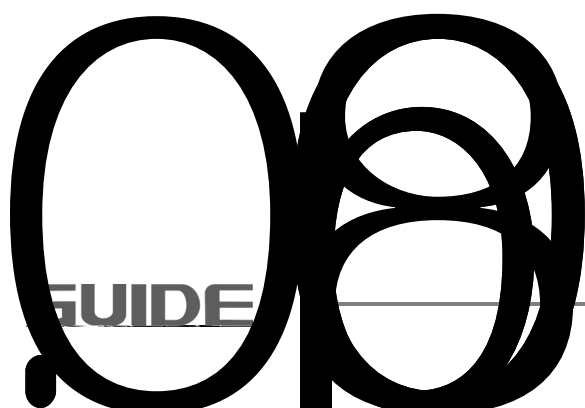
7.15	4	P15			
P15.0		[0]	0	1	1
		[1]			8.8
P15.1		[0] [%]			
		[1] [Hz]	0	2	1
		[2] [rpm]			
P15.2	1		0.0	3000.0	10.0
P15.3					

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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	8.9
			[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	0. 00	8. 9
		[s]	[s]	
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	/.5i	È
				[%]		

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] P I D 1 [2] P I D 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	

0.00

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	8.9
				[s]	[s]	
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] P I D	1	0	3	0
	[2] P I D	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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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	2. 00	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	
				[nChm]		[nChm]	
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	DROOP	0	DROOP	0.0	100.0	0.0	8.10
				[%		[%	
P21. 61	DROOP		DROOP	30	2000	50	8.10
				[ms]		[ms]	
P21. 62				0.0	1000.0	100.0	8.10
				[%		[%	
P21. 63							

b



P21. 78				0.00	50.00	0.00
				[m]	[m]	[m]
P21. 79				0.80	65.50	0.000
				[mH]	[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]	[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
	5%			[%]	[%]	[%]
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]	[s]

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

2

90.0 110.0 100.0
[%] [%]

P22. 78

0.00 650.00 0.00
[nChm] [nChm]

P22. 79

0.00 65.50
[nH] [nH]

P22. 80

1

1

0.800 1.350 1.140

P22. 81

2

2

0.800

⊗

0.80 m

↓

↓

± 0.15 0

m

GL

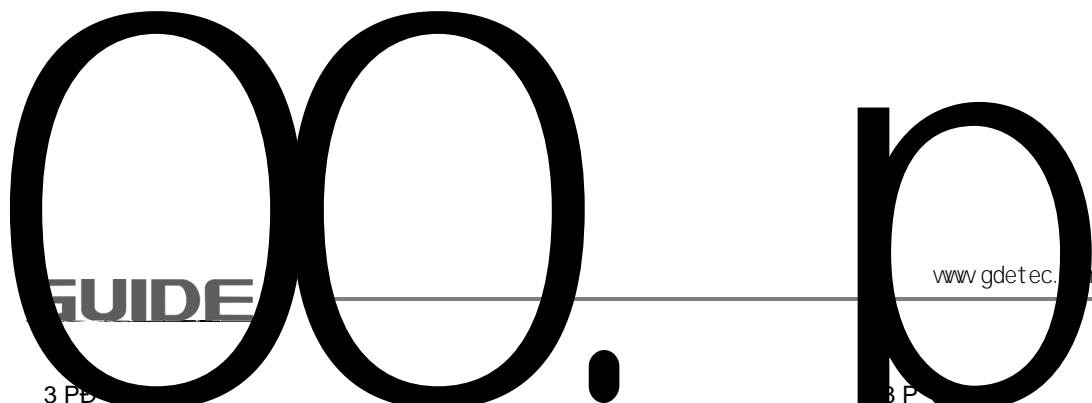
7. 23

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			0	7	0	
	3		-300. 0	300. 0	0. 0	8. 10
P23. 3			[%		[%	
P23. 4	@		0	300	0	
					[
P23. 5			0	1000	0	
			[ms]		[ms]	
P23. 6			0. 0	200. 0	100. 0	8. 10
			[%		[%	
	[0]					
	[1]	P23. 8				
	P23. 9					
	[2]					
P23. 7						

σ @



P23. 14

3 145

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

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 [nChm]	0.00 [nChm]	
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	Profi bus	[0] [1]	0 1	0
P33. 1		PLC	1 255	1
P33. 2	ENVY V3	[0] PPO 1 [1] PPO 2 [2] PPO 5 [3] GUI DE	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
[VøVøW

P33. 31

[VØ]

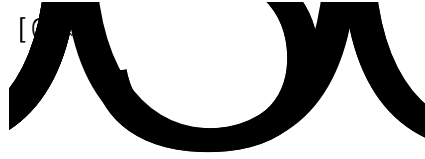
7-2

0 37

0

P33. 32

[VØ]

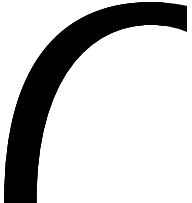


P33. 44	[W5]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000	0 4	0
P33. 45	[V0]	7-3	0 48	0
P33. 46	[V0]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0
P33. 47	[W1]	7-3	0 48	0
P33. 48	[W1]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0
P33. 49	[V2]	7-3	0 48	0
P33. 50	[V2]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0
P33. 51	[V3]	7-3	0 48	0
P33. 52	[V3]	[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. 62
[V8]

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

0



P33. 70	[W2]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0	
P33. 71	[W3]	7-3	0 48	0	
P33. 72	[W3]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0	
P33. 73	[W4]	7-3	0 48	0	
P33. 74	[W4]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0	
P33. 75	[W5]	7-3	0 48	0	
P33. 76	[W5]	[0] × 1 [1] × 10 [2] × 100 [3] × 1000 [4] × 10000 [5] [% × 1 [6] [% × 10 [7] [% × 100	0 7	0	

7-3

0	
1	0
2	1
3	2
4	3
5	4
6	5
7	0 @32bi t
8	1 @32bi t
9	2 @32bi t
10	3 @32bi t
11	4 @32bi t
12	5 @32bi t
13	[32]
14	[32]
15	32bi t_MSW
16	32bi t_LSW
17	
18	
19	
20	[rpn]
21	[rpn]
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	AV22 29

8.

8.1

450kW

900kW

450kW

P2.0

8.2

P12.0

[0]

[1]

A. [0]

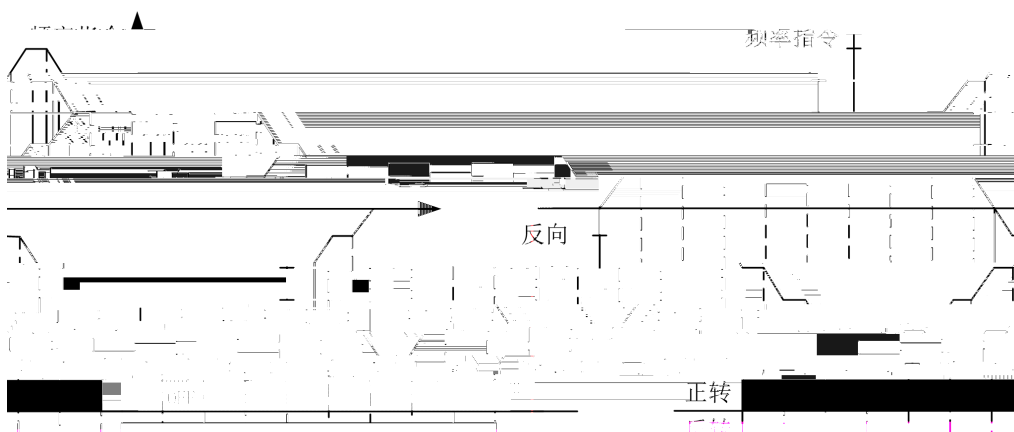
[1] [2] ---1

[6] 1 0 ---2

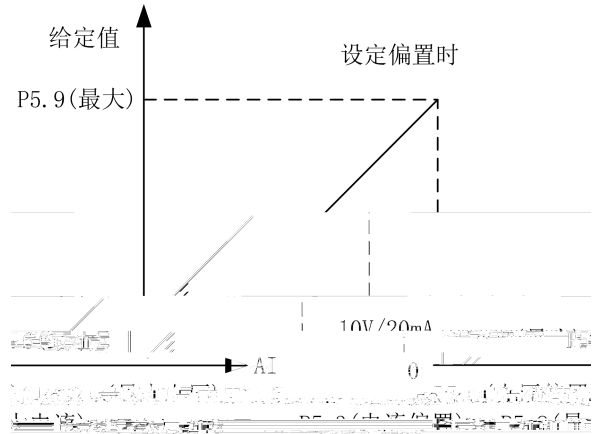
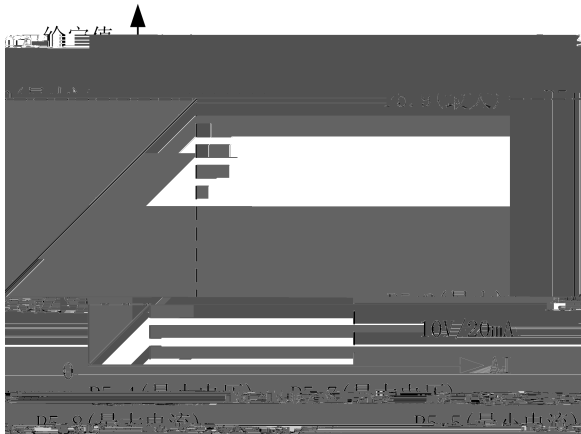
[7] 2 1 ---3

[8] 3 2 ---4

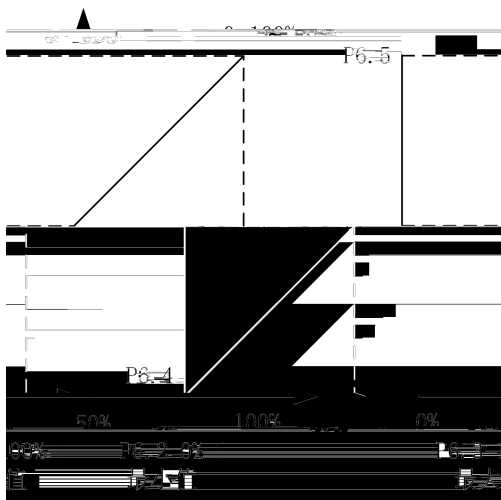
[9] 4 3 ---5



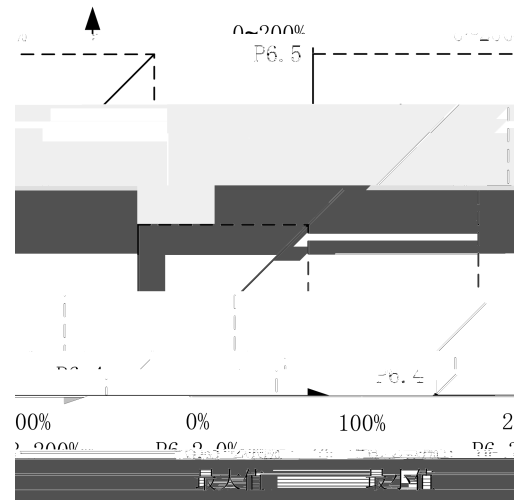
8.4



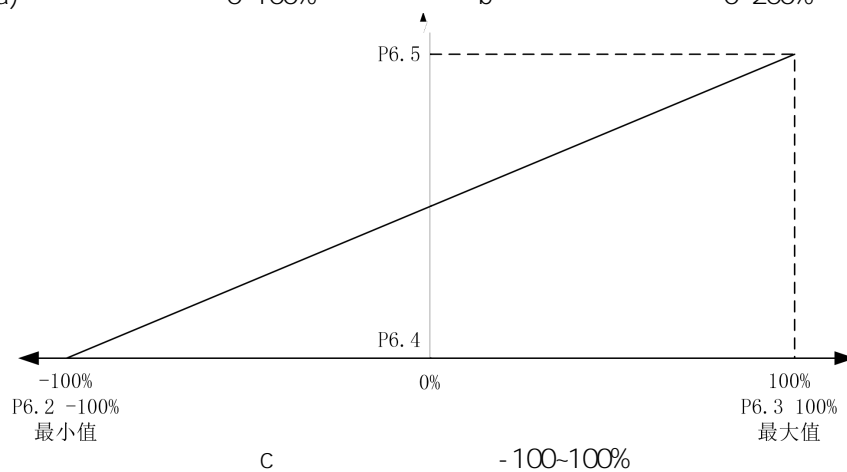
8.5



(a) 0~100%



b 0~200%



c

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
30kW

HF650LC

8.7

1

P8.3

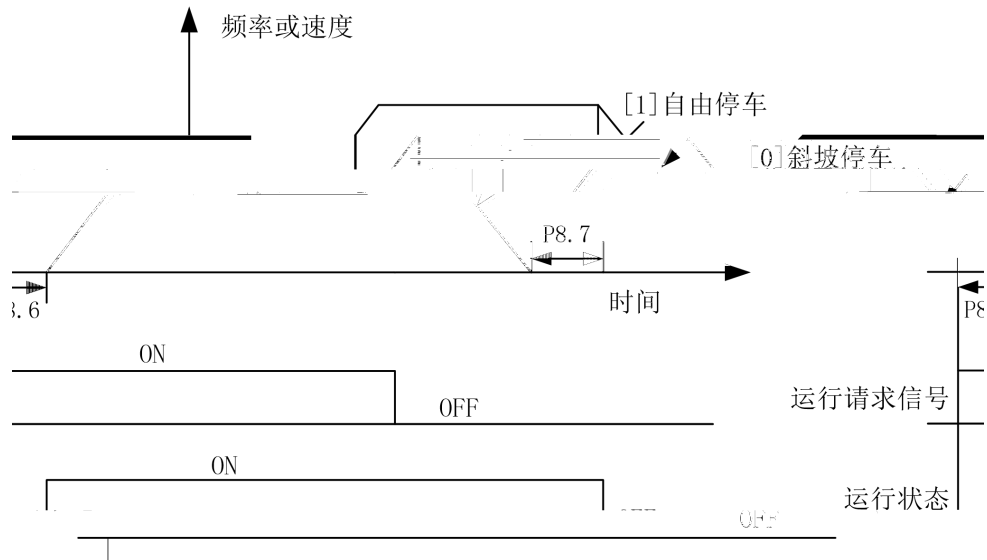
[0]

[1]

P8.6

P8.6

P8.7



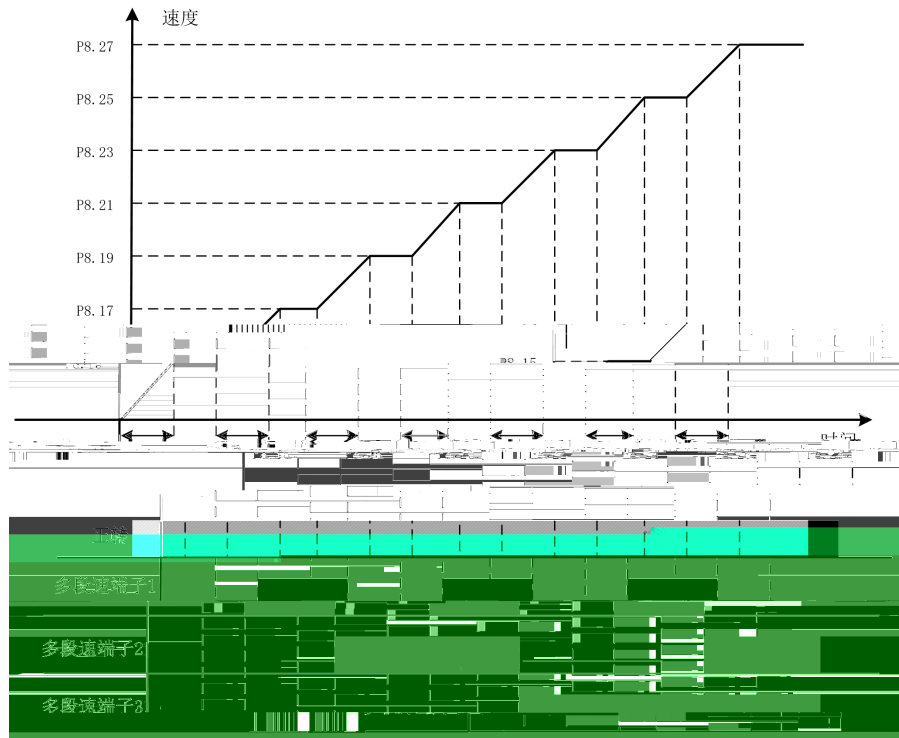
2

P8.14

P8.14

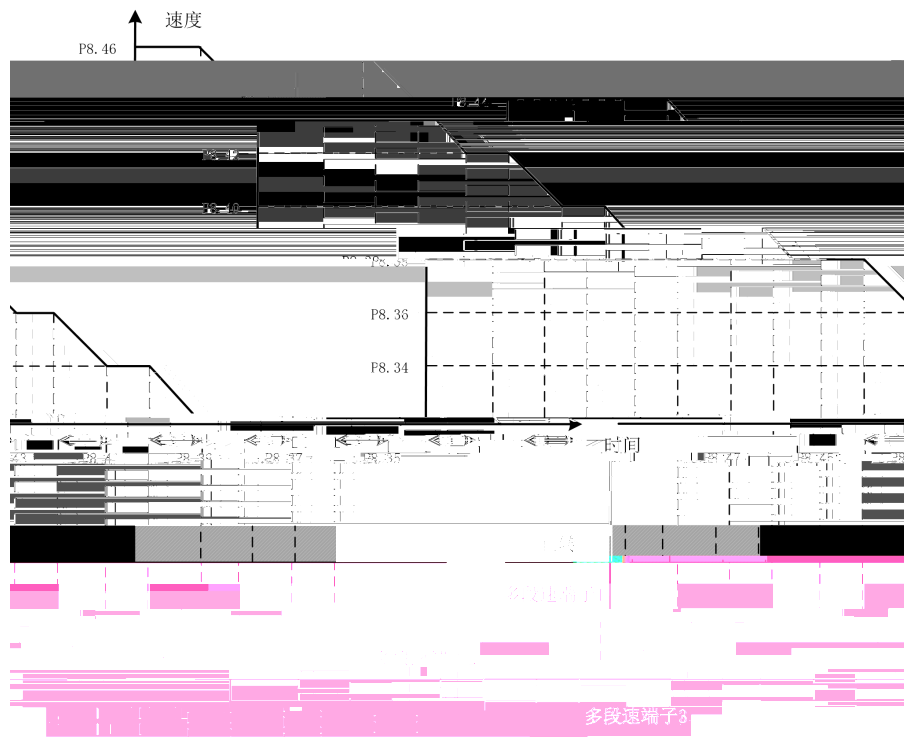
P8.33

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%



2

P12. 22 P12. 3

8.9

V/F

1

P16.0 P16.9

P16.7

120x P16.5/P16.6

P16.9

120x P16.5/P16.7

P16.2

P16.4

2

P16.12

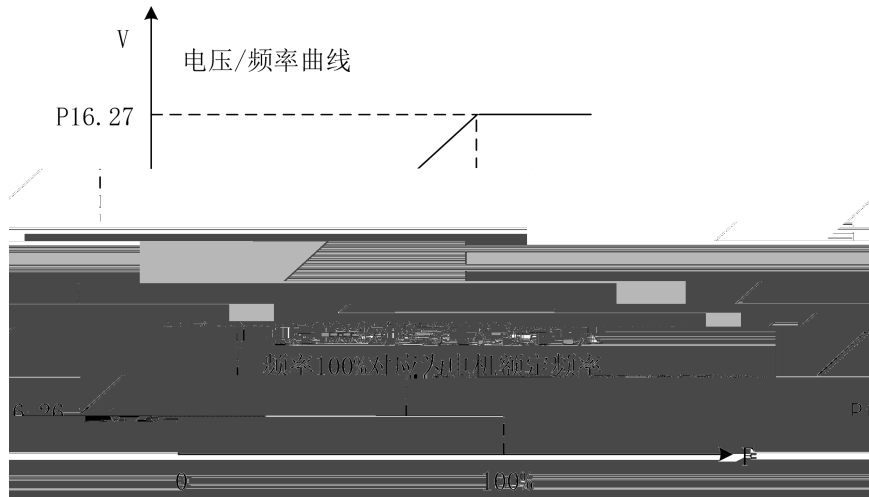
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3 M 3

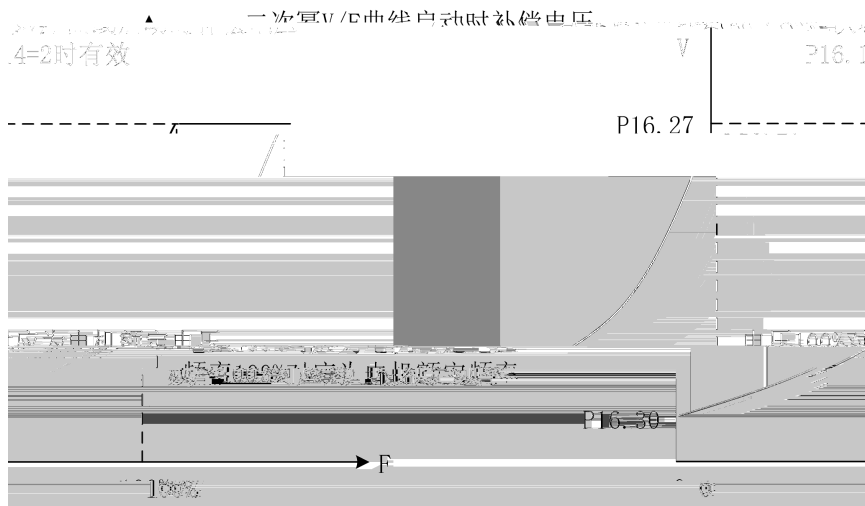


P16.14=[2]

V/F

P16.30 P16.30

P16.27



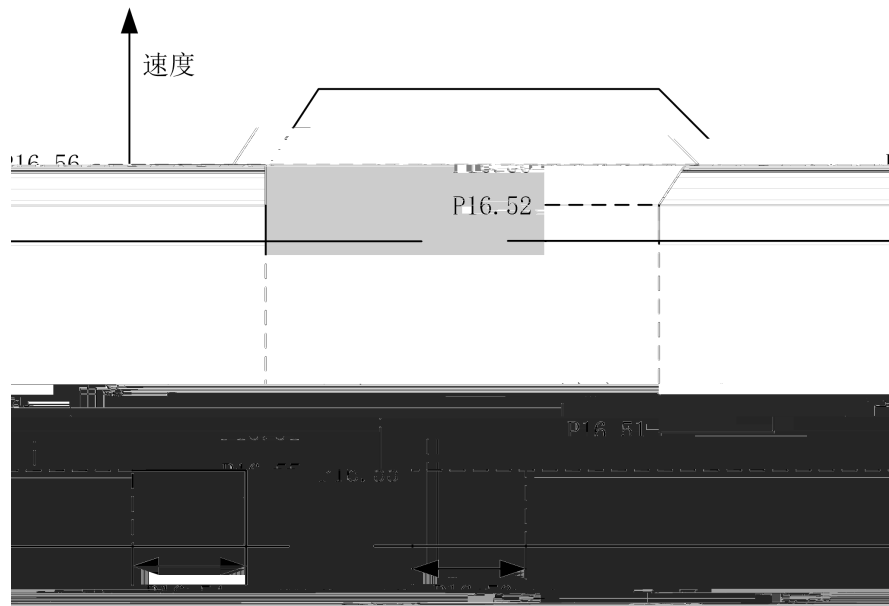
6

P16.50 P16.56

V/F

P16.50 P16.51 P16.52

P16.54 P16.55 P16.56



7

P16.64

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 " CVD. 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%

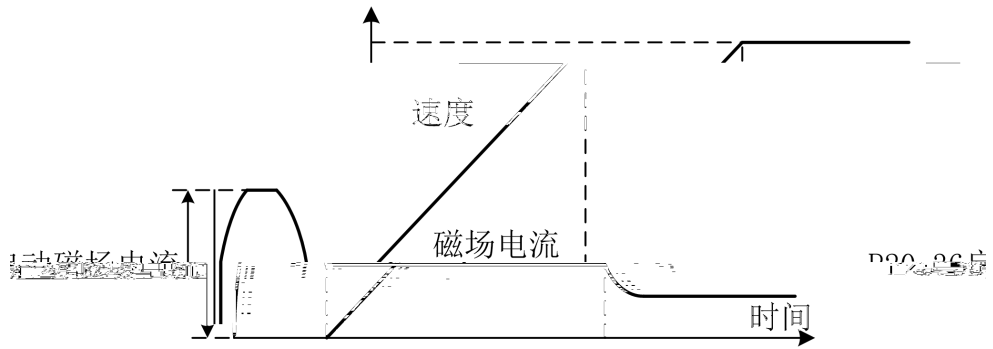
P20. 34 [1] 2

200 P20. 26 P20. 27 0

HF650LC P20. 34 [1]

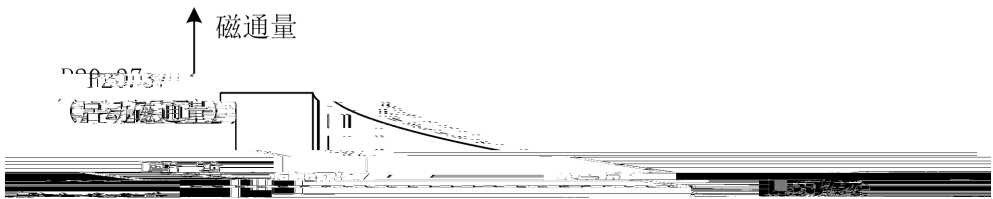
6

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

V01	SYS_NOT_RDY	(Ready)		
V02	NO_DRV_ENABLE]	[P3
V03	LOCAL_EM]	[P3
V04	REMOTE_EM]	[P3
V06	OT	P7. 14()	
V09	DP P/B ALARM	DP		DP
W1(RDRV				

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 P7. 19
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[E122]	I GBT2 OT2	
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[E125]	I GBT5 OT5	
[E126]	I GBT6 OT6	

[E127] IGBT7
OT7

[E128] IGBT8
OT8

[E137] FAN STALL

[E138] \$YÖG÷ Q“œ
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[E154]	V	I GBT PDP[VB]	I GBT I GBT
[E155]	W	I GBT PDP [VT]	I GBT I GBT
[E156]	W	I GBT PDP [VB]	I GBT I GBT
[E157]		PDP [DB]	
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[E162]		1 CAN SLV1_CAN_ERR	1
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9.3

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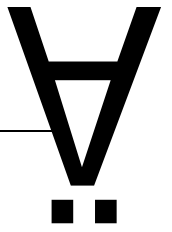
	
1.	CMOS
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10.1

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



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GUIDE

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