GUIDE

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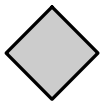
1.1



1.2

(1) PLC DP

1.3

2. ج ’

2.1

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1. └ كح شخ شخ
2. ´ غ \/
3. └ كح ج

ǚ └ كح شخ ضر يد ═

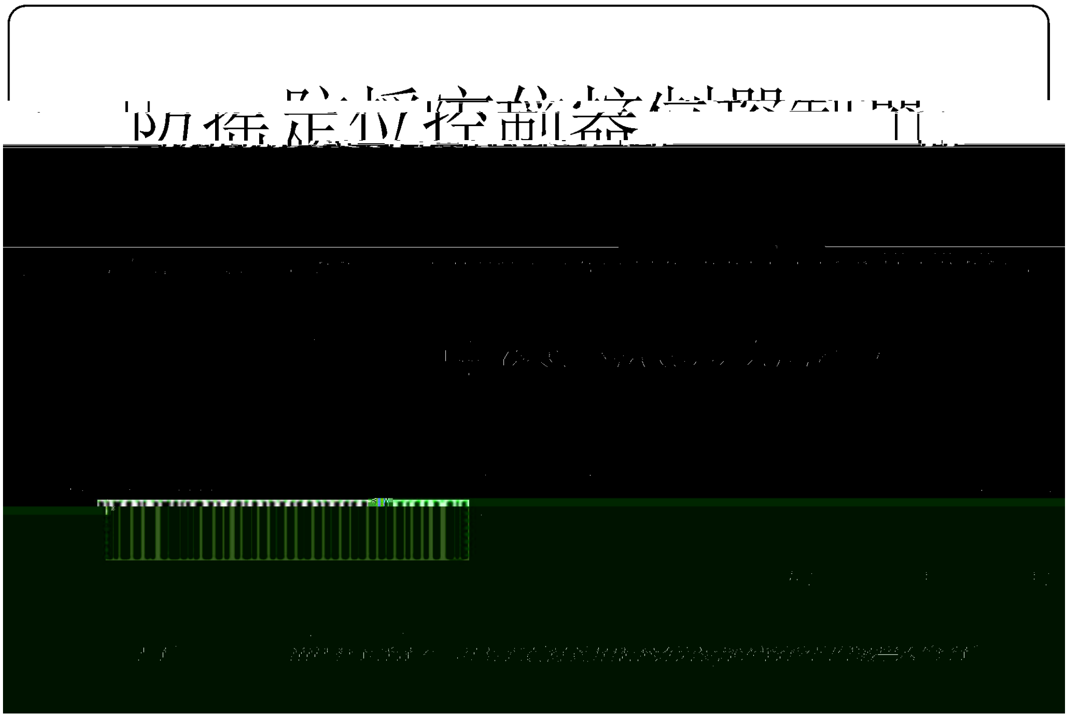
2.2 ج قمم̃ أ̃

└ كح قمم̃ ح

CrSCU 1

CrSCU	└ كح	100	AC220V

ᒪ كج يج 2-2



CrSCU ᒪ كج

100 ╠ ↓

220AC 220V

2.3 ج

AC220V

DP

IP20

2.7 :

GDHF-K6C1	GDHF-K6C1 أ LCD
GDHF-PN02 ١	PROFINET TCP/IP غ IT ‰ GDHF-PN02 ١ PROFINET ٦
GDHF-PGD2 PG ١	GDHF-PGD2 PG ١ 15V
GDHF-DP03 ١	GDHF-DP03 ١ ‰ Profibus ‰

2.8

2.8.1

3 №

2.8.2

GDHF-DP03 ١ غ J14 GDHF-DP03

١

- GDHF-DP03 ١
- ١
- DP ١
- DP

EMC GDHF-DP03

DP

2.8.3

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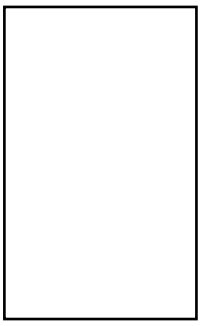
2.8.4 PROFIBUS

DP

№

B1	B
A1	A
PE	PROFIBUS
B2	B
A2	A
PE	PROFIBUS

7 A B غ



2.9 ٧

2.9.1 PGD2 ٧

GDHF-PGD2 □ PG ٧ ˜ 10

B-

2 كج ˜ ἶ ⌠ PG \/ ˜

3 كج ضر └ كج PE \|

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يشى كج ₮ PGD2 \/ قمم

قمم /\| قمم

1 كج ₮ قمم ₮

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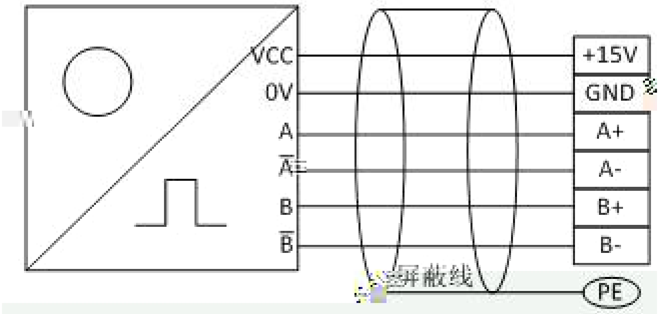
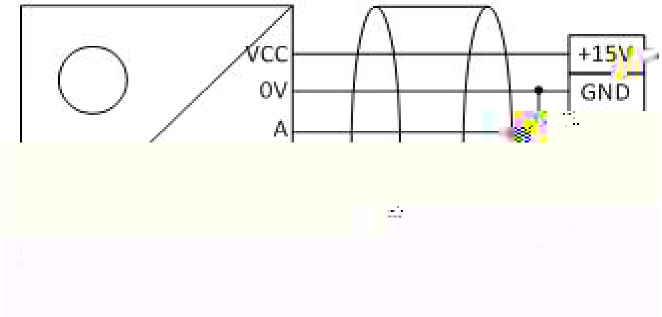
	ج	قمم كج
		HLE45-1024L-6F.AC
	ᵾ	RHI90N-ONAK1R61N-1024
		EC120P45-H6PR-1024

b \|

يحـ



C4 R0

3 └عج w :

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1	1ˇ	+10V	10V ₮
2	2ˇ	GND	ⅎ , ₮ض
3	3ˇ	AI1+/AV1	1 مخ0/4 20mA ˇ 1 ⅎ مخ-10 10V
4	4ˇ	AI1-	1
5	5ˇ	AI2+/AV2	2 مخ0/4 20mA ˇ 2 ⅎ مخ-10 10V
6	6ˇ	AI2-	2
7	7ˇ	AO1	1 ₮ ₮ 0/4 20mA J1 I يحa ₮ ⅎ0 10V J1 V يحb ˷ ɣp
8	8ˇ	AO2	2 ₮ ₮

3

3.2 ㄴ ㄱ ㅂ

4.1

F1 LOCAL/REMOTE

F2 R /RESET ENTER

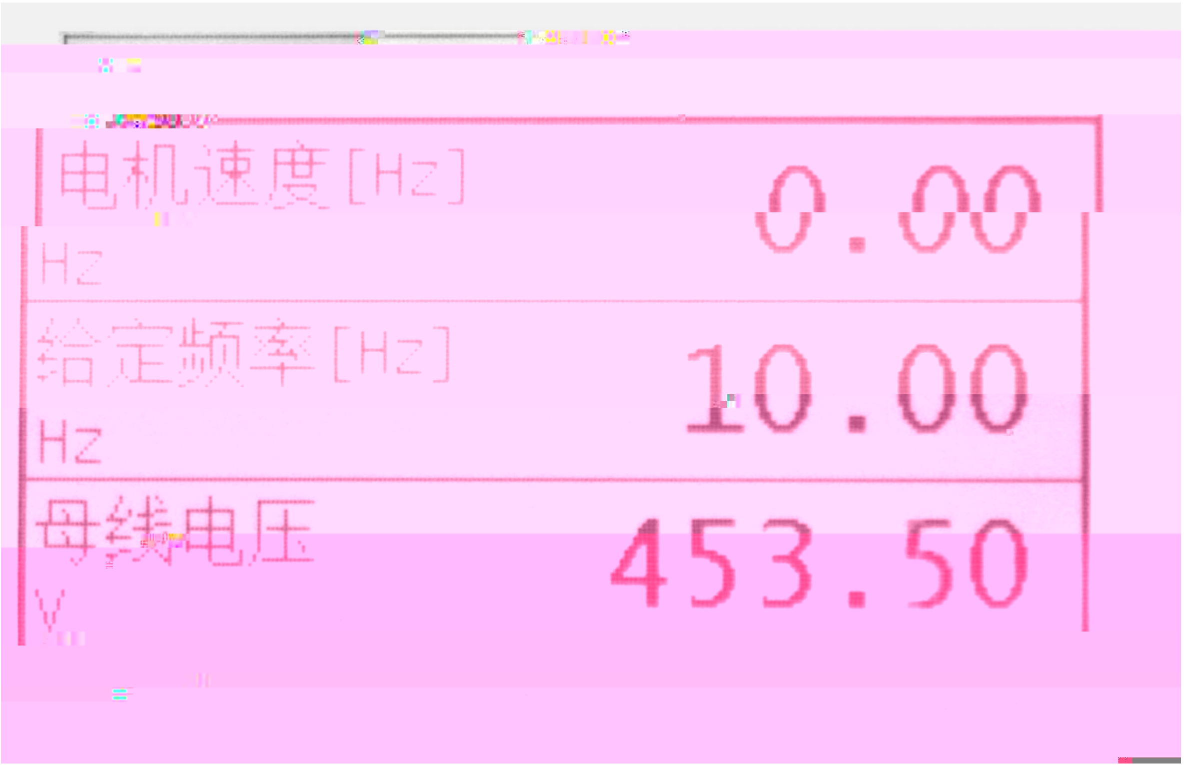
4

4

ᒪ ﮑ RUN ﻍ STOP ᘯ ﻍ ᒪ ﮑ ᾅ

℗ ⌠ ﺿ LOCAL/REMOTE ℗ ﺿ /

4.3 ﻍ ﻴ ﻳﺤ



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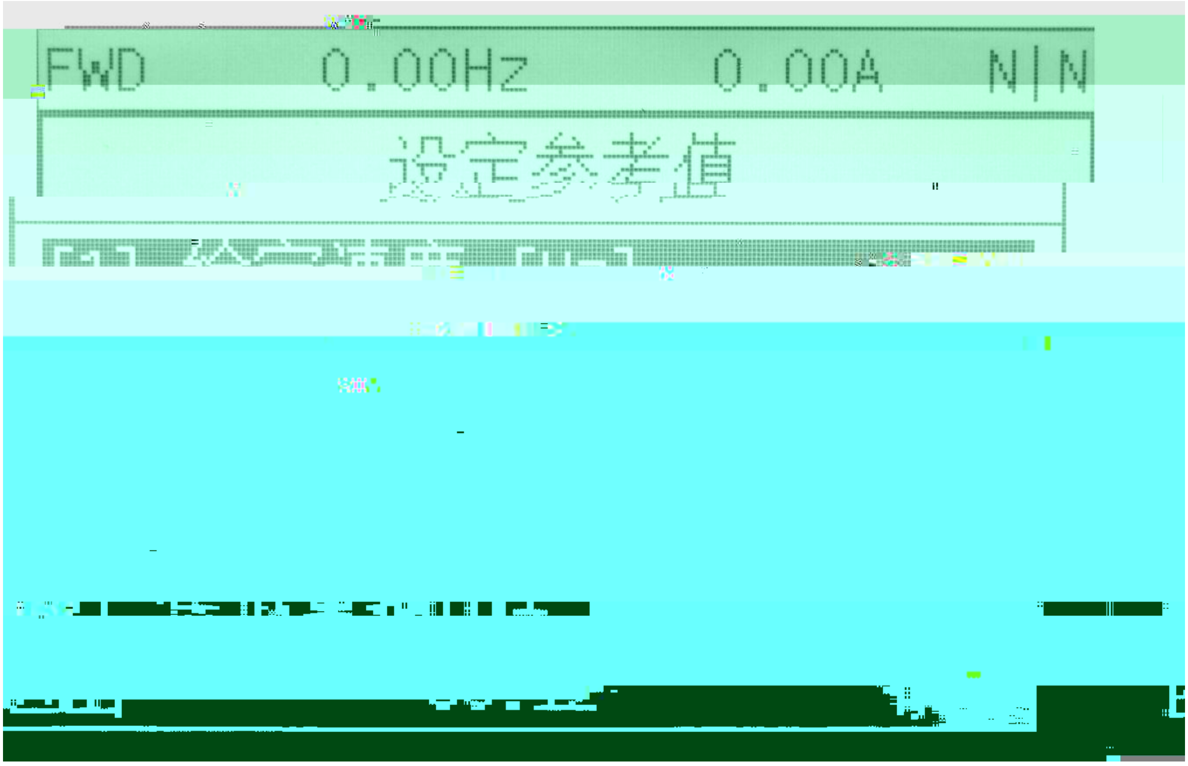
5	Reset Error	╠
6	Monitor Setting	
7	Firmware Version	
8	Menu Language	

1	Parameter Setting	
2	Function	

4.4 ꜓



1 ἇ Reference Set

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	№	꜓	ἇ
Reference Set ἇ	Speed	[Hz]	꜓ Hz
		[%]	꜓ %
	Torque	[%]	꜓ %
	Torque limiter ˪	[%]	˪ %
	₮1	[%]	1 ₮
	₮2	[%]	2 ₮

2 h Change Direction

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3 ╠ Current Error

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4 ╠ ҏ Current Warnning

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5 Reset Error

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6 Monitor Setting

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7 ﻨﻬ Firmware Version

4

11	Compare Parameter ᾰ̋	ᾰ̋ غ ᾰ̋ U ↓ ₮ ᾰ̋ ᾰ̋ Δ . U ₮ ᗑ ₮ ᾰ̋ ₮ ᗑ ῐ́ ᾰ̋

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▼ ▲ ℗ ᾰ̋ “ Enter ” ˜

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3 Fault Record

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4 Access Permissions

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5 Display Set n

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5.1

1

2 V/F

5.2

5.2.1

U P

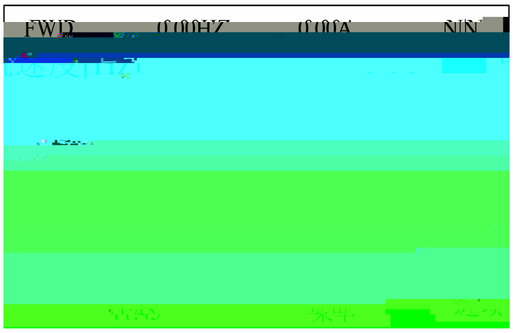
1

AC220V 50Hz

2

3 PG PG

5.2.2



5.2.3 ǎ Δ .

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5.2.4 ǎ

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w	O		
P1.1	۱	۱ ۱ 485V └ كح	-500
P7.14			1000
P7.15			1000
P7.59	∓	∓ ∓	0

5.2.5 ∓ ǎ

1 DP ∓

w	O		
P33.0	Profibus	/ Profibus	1
P33.1	خي ضر	└ كح ضي PLC خي ضر	
P33.21	[W4]	PLC └ └ كح	1 └ 0
P33.22	[W4]		0 1
P33.23	[W5]	PLC └ └ كح	2 └ 1
P33.24	[W5]		0 1
P33.53	∓ [W4]	└ كح ĭ	1 0

P33.54	₹ [W4]		0 1
P33.55	₹ [W5]	└ ح ₹	19 ₹
P33.56	₹ [W5]		2 100
P33.57	₹ [W6]	└ ح ï	2 1
P33.58	₹ [W6]		0 1

2 ₹

w	O		
P6.0	AO 1 ₹	₹	1 ~ ₹
P6.2	AO 1 ₹	AO1 ₹	-100.0
P6.3	AO 1 ₹	AO1 ₹	100.0

5.2.6 ă

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23

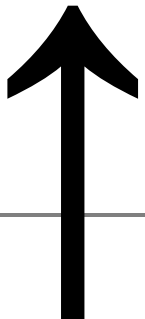
24

25 FUNC 25

26

27 FUNC 27

11	h	h	˜
12	ɒ	ɒ	
13	ɒ		
14	ɒ	ɒ	
15	ɒ	ɒ	
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	PROFIBUSw 1	PROFIBUSw 1 ₮1	˜
50	PROFIBUSw 2	PROFIBUSw 2 ₮1	˜
51	PROFIBUSw 3	PROFIBUSw 3 ₮1	˜
52	PROFIBUSw 4	PROFIBUSw 4 ₮1	˜
53	PROFIBUSw 5	PROFIBUSw 5 ₮1	˜
54 56	FUNC 54 FUNC 56		



6.5 P5

ｗ	O		مخ	
P5.0	AI1 قمم	[0] [1]0 +10V [2]-10 +10V [3]0 20mA	0 3	1
P5.1	AI1	AI1 ٱ̃ ﻟﺎ مخ ٱ̀ ـ ↕ ـ ﺗ̈ ٱ̃	0.0 1000.0 [ms]	25.0 [ms]
P5.2	AI1 ﻷ	AI1 ﻷ	-10.00 10.00 [V]	0.000 [V]
P5.3	AI1	AI1	-20.00 20.00 [mA]	0.000 [mA]
P5.4	AI1 ﻷ	AI1 ﻷ	-10.00 10.00 [V]	0.000 [V]
P5.5	AI1	AI1	0.00 20.00 [mA]	0.000 [mA]
P5.6	AI1	AI1	-300.0 300.0 [%]	0.0 [%]
P5.7	AI1 ﻷ	AI1 ﻷ	-10.00 10.00 [V]	10.000 [V]
P5.8	AI1	AI1	0.00 20.00 [mA]	20.000 [mA]
P5.9	AI1	AI1	-300.0 300.0 [%]	100.0 [%]
P5.18	AI2 قمم	[0] [1]0 +10V [2]-10 +10V [3]0 20mA	0 3	3

P	A01	A01 ( ) [10] A01	000 1000 [ ]	0.0 [%]
P6.8	A01		0.0 1000.0 [ms]	10.0 [ms]
P6.14	A02	7-1	0 14	4
P6.16	A02			

4	∓	∓
5	~	~
6	~	~
7		
8	∧ (%)	∧ (№ ∓)
9	∓ w	∓ w
10	∓ ∧	∓ ∧
11	└ ح (%)	└ ح (150 № ∓)
12	DP	Profibus
13	ă	ă P6.7 P6.21 ∓
14	ض	∓

6.7 ă P7

w	O		مخ	
P7.14			60.0 100.0 [ ]	87.5 [ ]
P7.15			50.0 100.0 [ ]	80.0 [ ]
P7.19	[1]	1	100.0 720.0 [%]	120.0 [%]
P7.20	[2]	2	100.0 720.0 [%]	120.0 [%]
P7.21	[3]	3	100.0 720.0 [%]	120.0 [%]
P7.22	[4]	4	100.0 720.0 [%]	120.0 [%]
P7.59	∓	[0] [1]	0 1	1
P7.60	∓		0.10 3.00 [s]	0.30 [s]

6.8 1 ଯ ᒪ P8

ᴡ	O			مخ	
		[0]			
		[1]			
P8.0	ଯ꜊	[2]DP	0 4		0
		[3]MODBUS			
		[4] ᴡ شج			
P8.3					

6

P8.23 ข Ⅵ 5	ข	0.0 300.0 [%]	300.0 [%]
P8.24 ข 5	P8.21 ⌠ P8.23 ข	0.0 300.0 [s]	10.00 [s]
P8.25 ข Ⅵ 6	ข	0.0 300.0 [%]	300.0 [%]

[%]

00 0 0

3

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P8.42 ⁞ ά Ⅵ 5

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P12.26	h	h	0.00 2.00 [s]	0.00 [s]
P12.27	ĭ h	ĭ h	0.00 2.00 [s]	0.00 [s]
P12.28	h └	h	0.00 2.00 [s]	0.07 [s]
P12.29	ĭ h └	ĭ h	0.00 2.00 [s]	0.07 [s]
P12.32	h	h	0.0 20.0 [%]	0.0 [%]
P12.33	ĭ h	ĭ h	0.0 20.0 [%]	0.0 [%]
P12.34	h	h	0.00 2.00 [s]	0.00 [s]
P12.35	ĭ h	ĭ h	0.00 2.00 [s]	0.00 [s]
P12.36	h	h	0.00 2.00 [s]	0.50 [s]
P12.37	ĭ h	ĭ h	0.00 2.00 [s]	0.50 [s]

6.10 1 ă V/F P16

w	O		مخ	
P16.0	۱	۱	320 460 [V]	380 [V]
P16.2	w	ă	0.0 4000.0 [kW]	ههم [kW]
P16.3	۱	ă	320 460 [V]	380 [V]
P16.4		ă	0.0 6500.0 [A]	ههم [A]
P16.5		ă	0.0 300.0 [Hz]	50.0 [Hz]
P16.6		ă	0 6000 [rpm]	1465 [rpm]
P16.7		ă	2 12 [pole]	4 [pole]
P16.9	□	ă	0 7200 [rpm]	1500 [rpm]

	[0]V/F └		
	[1]		
P16.11 └	[2]	0 4	0
	[3]		
	[4]		
P16.12		1.00 10.00 [kHz]	3.00 [kHz]
	[0] V/F		
P16.14 V/F	[1] V/F		
	[2] 0		

6

P16.64	V/F	V/F	0.0 1000.0 [%]	100.0 [%]
P16.66	└	V/F └	0.0 1000.0 [%]	100.0 [%]
P16.67	Ω˙ └˙	Ω˙ └˙	0.0 1000.0 [%]	100.0 [%]
P16.68	Ω˙ └˙ №	Ω˙ └˙ №	0.0 1000.0 [%]	100.0 [%]
P16.69	└˙	└˙	0.0 1000.0 [%]	100.0 [%]
P16.70	└˙ №	└˙ №	0.0 1000.0 [%]	100.0 [%]

6.11 Position Control P29

w	O		مذ	
P29.0	Pos Ctrl Type	[0] No Pos Control [1] DI Pos Control [2] PB Pos Control [3] MB Pos Control	0 3	0
P29.1	Pos Ctrl Gain	└	0.0 5000.0	100.0
P29.2	Transation Speed		0.00 200.00 [m(rad)/min]	1.00 [m(rad)/min]
P29.3	Pulses perMM/MRad	/ Ⅱ	0.00 650.00	30.00
P29.4	Pos Reach Bandwidth	ضر	0.00 100.00 [mm(mrad)]	10.00 [mm(mrad)]
P29.5	Pos Reach Time	ضر	0.0 20.0 [s]	0.5 [s]
P29.7	Crane Part Select	[0] Hoist [1] Slew [2] Luff	0 2	0
P29.8	OutPosCorct_Enable	[0] Disable [1] Enable	0 1	0
P29.10	OutPosCorct_Type	[0] IO [1] Data	0 1	0
P29.16	Base Point 1		0.0 65535 [mm(mrad)]	0 [mm(mrad)]

P29.18	Target Point 1		0.0 65535 [mm(mrad)]	1000 [mm(mrad)]
P29.37	POS Feedback Mode	[0] Normal FCK [1] AI FCK [2] Integral FCK	0 2	0

6.12 DP P33

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

		[0] × 1 [1] × 10			
P33.30	[W8]	[2] × 100 [3] × 1000 [4] × 10000	0	4	1
P33.31	[W9]	7-2	0	37	0
		[0] × 1 [1] × 10			
P33.32	[W9]	[2] × 100 [3] × 1000 [4] × 10000	0	4	0
P33.33	[W10]	7-2	0	37	0
		[0] × 1 [1] × 10			
P33.34	[W10]	[2] × 100 [3] × 1000 [4] × 10000	0	4	0
P33.35	[W11]	7-2	0	37	0
		[0] × 1 [1] × 10			
P33.36	[W11]	[2] × 100 [3] × 1000 [4] × 10000	0	4	0
P33.37	[W12]	7-2	0	37	0
		[0] × 1 [1] × 10			
P33.38	[W12]	[2] × 100 [3] × 1000 [4] × 10000	0	4	0
P33.39	[W13]	7-2	0	37	0
		[0] × 1 [1] × 10			
P33.40	[W13]	[2] × 100 [3] × 1000 [4] × 10000	0	4	0
P33.41	[W14]	7-2	0	37	0
P33.42					

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		

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	

P33.70	₣ [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	

1 L

L 0

	w	
CW0.0	RUN	h ~ ‘ 0 ’ ‘ 1 ’ h

CW0.1	RUN@REV	‘0’ ‘1’
CW0.2	REQUEST_INFO	‘0’ ‘1’
CW0.3	RESET	‘0’ ‘1’
CW0.4	External FAULT	‘0’ ‘1’ Profibus
CW0.5	External ALARM	‘0’ ‘1’ Profibus
CW0.6	DRIVE ENABLE	‘0’ ‘1’
CW0.8	SPD/TRQ Switch	‘0’ ‘1’
CW0.9	HOOK	‘0’ ‘1’
CW0.10	Anti Crab Open	‘0’ ‘1’
CW0.11	Torque_Limit_Ctrl	‘0’ ‘1’ PROFIBUS
CW0.12 CW0.13	MOTION_CTRL	‘00’ 1 ‘01’ 2 ‘10’ 3 ‘11’ 4
CW0.14	TORQUE_ZERO	‘0’ ‘1’
CW0.15	FREE_RUNNING_STOP	‘0’ ‘1’

└ 1

CW1.0	ANTI_SWAY	‘ 0 ’ ‘ 1 ’
CW1.1	UP_LMT_SW	‘ 0 ’ ‘ 1 ’
CW1.2	POSITION_CTRL_ENABLE	‘ 0 ’ ‘ 1 ’
CW1.3	BASE_POINT_1	‘ 0 ’ ‘ 1 ’
CW1.4	ANTI_SWAY_MEC	‘ 0 ’ ‘ 1 ’
CW1.5	POS_AI_HOISTRUN	
CW1.6	Soft_Landing	‘ 0 ’ ‘ 1 ’
CW1.10	AUTO_SEMI_START	‘ 0 ’ ‘ 1 ’

6

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0

	w	
SW0.0	READY	‘ 0 ’ ‘ 1 ’
SW0.1	RUN	‘ 0 ’ ‘ 1 ’
SW0.2	FAULT	‘ 0 ’ ‘ 1 ’
SW0.3	MOTOR BRAKE	‘ 0 ’ ‘ 1 ’
SW0.4	WARNING	‘ 0 ’ ‘ 1 ’
SW0.5	DIRECTION	‘ 0 ’ ‘ 1 ’

SW0.6	M_STEP0	1 ‘0’ 1 ‘1’ 1
SW0.7	M_STEP1	2 ‘0’ 2 ‘1’ 2
SW0.8	M_STEP2	3 ‘0’ 3 ‘1’ 3
SW0.9	M_STEP3	4 ‘0’ 4 ‘1’ 4
SW0.10	Reserved	
SW0.11	Reserved	
SW0.12	REMOTE/LOCAL	/ ‘0’ ‘1’
SW0.13	Reserved	
SW0.14 SW0.15	MOTION SEL	‘00’ 1 ‘01’ 2 ‘10’ 3 ‘11’ 4

1

6

4	└ 3	20	[%]
5	└ 4	21	[%]
6	[32]	22	└ [%]
7	[32]	23	└ [Hz]
8	32_MSW	24	w
9	32_LSW	25	w
10	∓	26	∓ 1[%]
11	ğ └	27	∓ 2[%]
12	ğ 0 @32bit	28	v └
13	ğ 1 @32bit	29	⋮ └
14	ğ 2 @32bit	30 37	SET_W12 19
15	ğ 3 @32bit		

∓

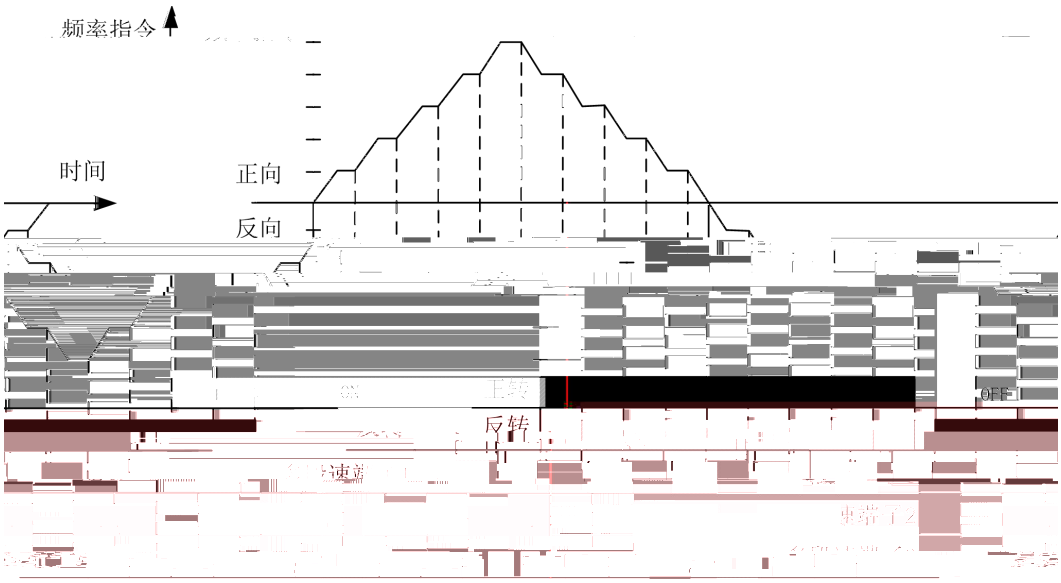
0		23	ı
1	0	24	
2	1	25	
3	2	26	
4	3	27	A
5	4	28	B
6	5	29	C
7	ğ 0 @32bit	30	
8	ğ 1 @32bit	31	∓ ı
9	ğ 2 @32bit	32	
10	ğ 3 @32bit	33	1
11	ğ 4 @32bit	34	2
12	ğ 5 @32bit	35	∓ w
13	[32]	36	
14	[32]	37	
15	32bit_MSW	38	
16	32bit_LSW	39	

17		40	
18	₮	41	Mwh ˩
19	₮	42	Kwh ˩
20	[rpm]	43	Mwh ΰ
21	[rpm]	44	Kwh ΰ
22	˧	45 48	AW26 29

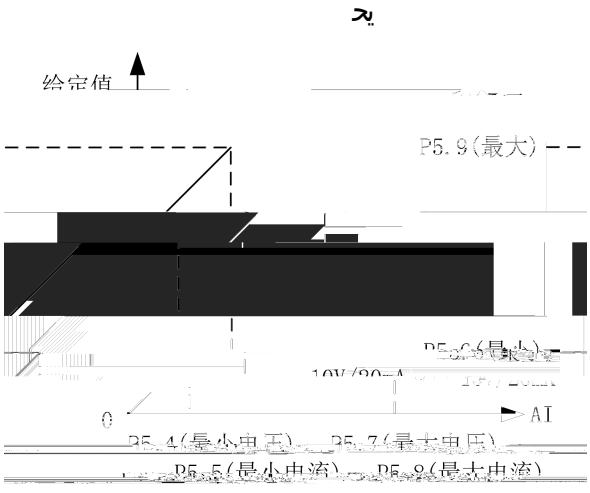
B. [1] L

4 16 ২ (8421) 7

(FORWARD) ĭ (REVERSE) ˆ ǎ P12.2(1) ɛ



7.2



7.3 ₮

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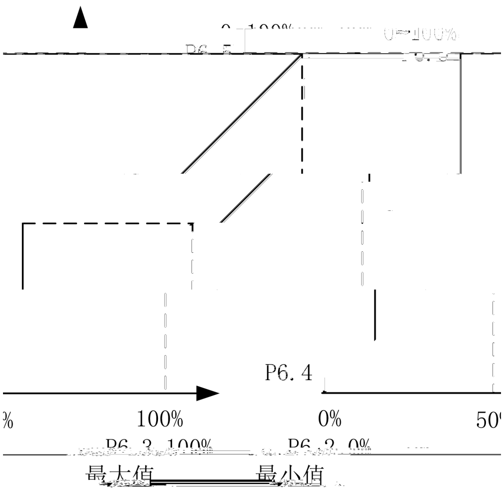
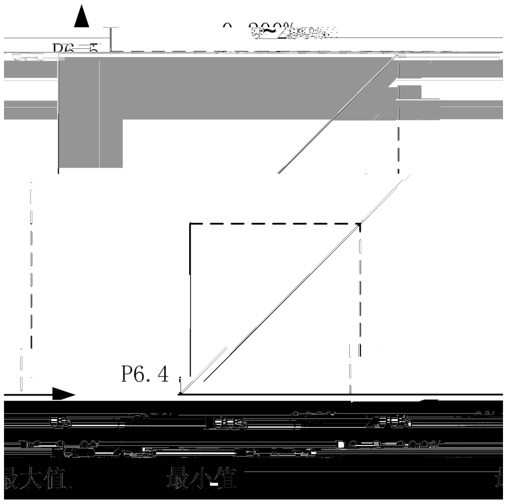
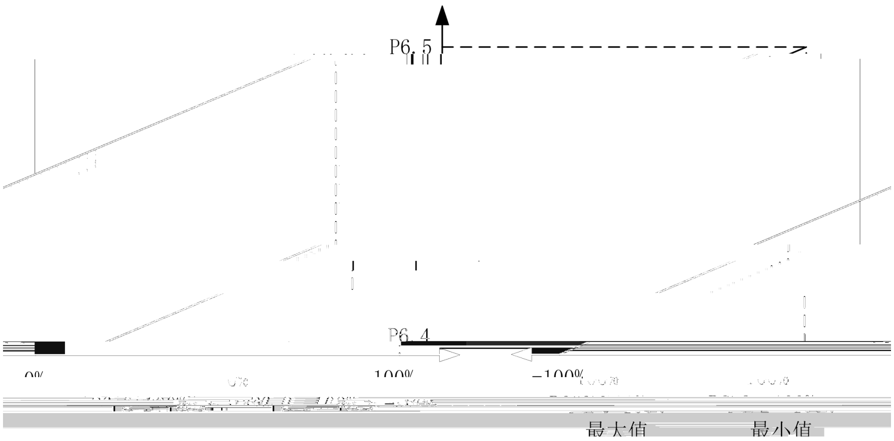


(a) ₮ ݜ 0~100%



b ₮ ݜ 0~200%



c ₮ ݜ -100~100%

7.4 Ω └ặ

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P8.3 ⁞ ặ ײַ

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P8.6 └ݣ ǖ ₮ Ω˥ ⊥ ݓ P8.6 ṗ

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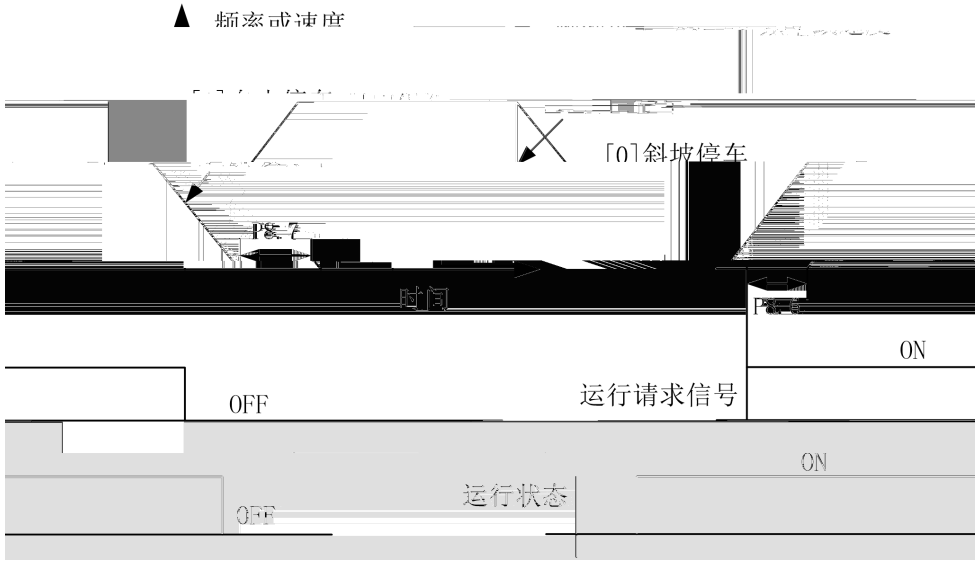
P8.7 U ⅂ ї ݓ ặ ṗ └ݣ



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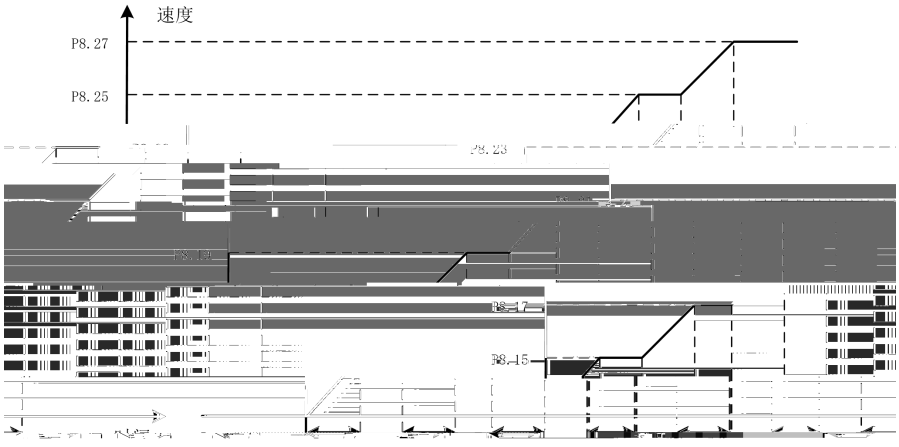
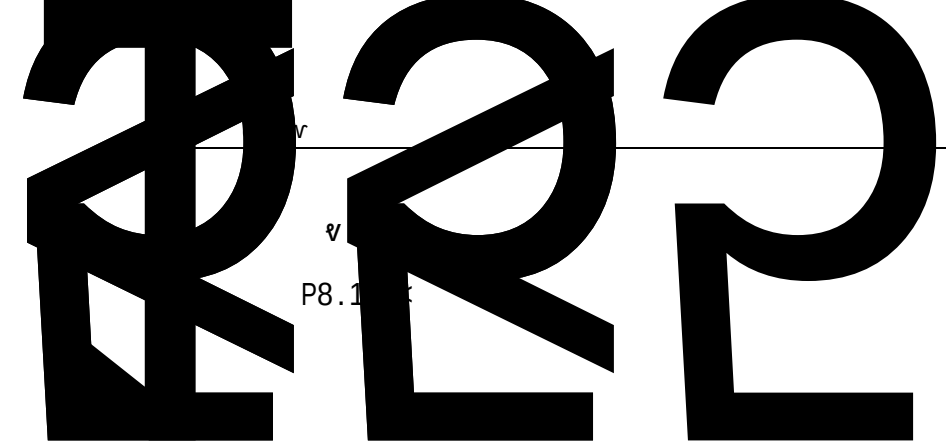
P8.14

P8.14 P8.33

P8.33





P8.1

ᡓ ᛰ 1 ᡓ =P8.14×P8.16×(ᡓ ×0.001)

⁞ ᛰ 1 ⁞ =P8.33×P8.35×(⁞ ×0.001)

7.5 ﻍ ᒪᒧ ᒪ

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P12.2 P12.17 ᒪ ﻋﮑ ᾰ̋

P12.0=[1] ᒪ ₮ ᷉

	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

7.6 ᾰ̋ ﻍ V/F ᒪ ᾰ̋

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P16.0 P16.9 ᾰ̋ ᒧ ᒪ ﻋﮑ ᾰ̋

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P16.7 120×P16.5/P16.6 ṹ P16.9

1 7

2 V/F

P16.14 d ي/V/صي - P16.11- v =خم

$$L = T^2 \frac{g}{(2\pi)(2\pi)} = T^2 \; 0.2485$$

g=9.8

P8.59.

1) "  " 101.64 2 32

1.65 " 101.65 2 32

2) 1m

101.64 101.65 .64 101.64 .x

101.65

8.

8.1

W01	SYS_NOT_RDY	(Ready)	P1.1 -500
W02	NO_DRV_ENABLE	[ ]	P3
W03	LOCAL_EM	[ ]	P3
W04	REMOTE_EM	[ ]	P3
W09	DP P/B ALARM	DP	DP
W10	MODBUS MODBUS ALARM	Modbus	Modbus
W15	PARAMETER ERROR		
W18	Temp_Sensing Fail		
W20	SLV_NOT_RDY		
W21	1 SLV1_CAN_ERR	1	1

8.2

[E114]	MOP	P7.59
[E115]	OS	P7.19 P7.19
[E118]	PG ERROR	P20.14 P20.15
[E119]	SPEED ABNORMAL	P20.14 P20.15 P7.31 P7.32
[E138]	TEMP_SENSING FAIL	
[E162]	1 CAN SLV1_CAN_ERR	1
[E167]	CAN CAN_ERR	
[E180]	DP P/B ERROR	
[E181]	DP P/B_EM	CW0.4
[E200]	LOCAL_EM	[ ] P3
[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.

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4. 2

1. CMOS

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3.

9.1

9.2

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└ كح	1. ˉ ᒉ 2. كل 3.	1. ˉ ₮ ο 2. كل ء 3. نهٖ ˉ
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9.3

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9.4

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