╠

31010124
2017-03
100

HGD500 ↓ ΐ ⅄ ⊥ ⅄ ΐ ⅄ ⅄ ⅄

| | | |

1 أ كح ↕ ٦ شخ
2 كح ↕ ٦ Ω كح أ ∟ شخ

╠ 1
..... 2
..... 2
.....

1.2 HGD500 ↓ ĩ ڑ

2.3.2

ΐ ϛϚ ΰΰ ΐ ϛϚ ṗ

U

3.2 عج

3.2.1 عج

a) w عج يح №w

b) 90kW w عج يح №w

يح 3-2 عج ↓ يح

3.2.2 عج w

HGD500 ↓ أ كج عج w 3-1 w

3-1 عج w

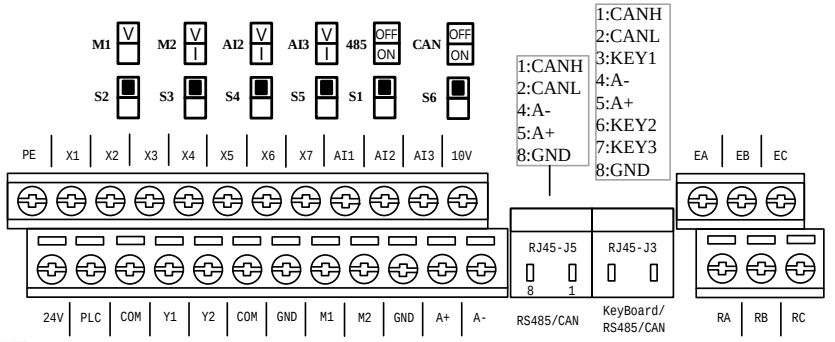
ـ	w
R S T	
U V W	أ كج ₣
⊕ ⊖	№≠ ṗ ـا ـ
⊕ PB	ـا ـا ⊕ ٤ PB
	ضر ضر

3-2 90kW 400kW

ـقمم	W	W1	W2	W3

3.3 └ж

3.3.1 └ж


M1
M2
AI2
AI3
485
CAN
S2
S3
S4
S5
S1
S6
PE
X1
X2
X3
X4
X5
X6
X7
AI1
AI2
AI3
10V
24V
PLC
COM
Y1
Y2
COM
GND
M1
M2
GND
A+
A-
1:CANH
2:CANL
4:A-
5:A+
8:GND
RJ45-J5
RS485/CAN
1:CANH
2:CANL
3:KEY1
4:A-
5:A+
6:KEY2
7:KEY3
8:GND
RJ45-J3
KeyBoard/
RS485/CAN
EA
EB
EC
RA
RB
RC

ϟ 3-5

₹	M2-GND	₹ 2	₹ ₯ DC 0 10V/0 20mA ˟ S3
w ₹	Y1-COM	₹	₹ ≀ DC48V ₹ 50mA
	Y2-COM	‖ ₹	₹ ≀ DC48V ₹ 50mA ‖ ₹ ₹ 100kHz ₹ <5 kΩ
ς ₹	R1 EA-EB-EC	ς ₹	EA-EC: EB-EC:
	R2 RA-RB-RC		RA-RC: RB-RC:
	A+	RS-485 o	485 № ˜
	A-		485 № ˜
	CANH	CANSinee o	CAN № ˜
	CANL		CAN № ˜

HGD500

3.3.8 └ ‰

3-13 └ ‰

3.4

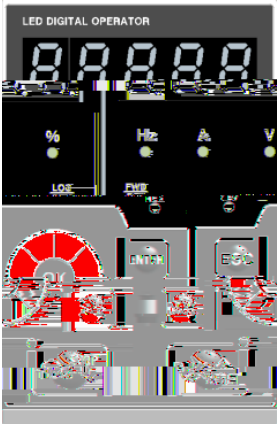
1) o RJ45 o , EIA/TIA568B ‰
2) RJ45o ¸ RJ45 o
3) 30m Ï ~ 50m

4

4.1 w

4.1.1 LED

HGD500 ↓ Ǐ ᦟ L № LED LCD
LED LED ᦟ ´E ᦟ ᦵ ǐ ٧
˜ Ǐ ᦟ ǎ Ƹ



ᦳ 4-1 LED

4.1.2 LED Ǐ w

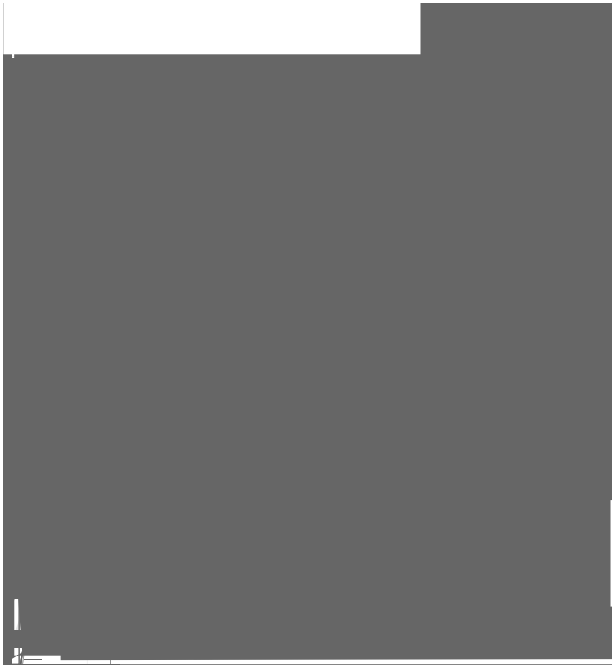
4-1 LED ǐ w

/	O	w
	ᵕ	╠ w ˜ ẹ w ˜ Ⓟ ǎ
ESC	ᦳ	ᦳ ╠ ٧ ٧ ŭ ╠ ǎ
M.K	w ˜	˜ w F12.00 №≠ ˫ ˫ ǐ ǐ Ⓟ ẹ w
ENTER		٧ ǎ ╠w w
		L Ƹ˫ Ǐ ᦟ
	/	L Ǐ ᦟ
	ᦟ	٧ w ǎ ᵛ ╠ ǎ ǐ ⋮ ╠ ǎ OK w □

ENTER

ۯ 4-3 F03.28=5.28 ۯ

۱ ۵ U ENTER



يد 4-4

ENTER ENTER 2 ١ 2 ١ ~ w ٧ 32
F11 ~ ١ F11
w ض F11 U 'P ↕ ~ ∫ w
F11.00 F00.07 F11.01 F00.09 F11.31

ϫ 4-5 ₮ ϟ w

4.3

ΐ ϰ ˜ ˚ Ⓟ ╠ ≠ ₮
₮ ₮ ϟ غ

4.4

HGD500 1 ض F12.33 F12.37 w F12.32=1
1 ϟ 0 ϟ ˜ F12.33 F12.37
w ă Ⓟ ض ΐ ϰ ΐ ă ╠
˫ ⌠ F12.33 ă ΐ ϰ ΐ ă ╠ ˫ ⌠
F12.34 ă

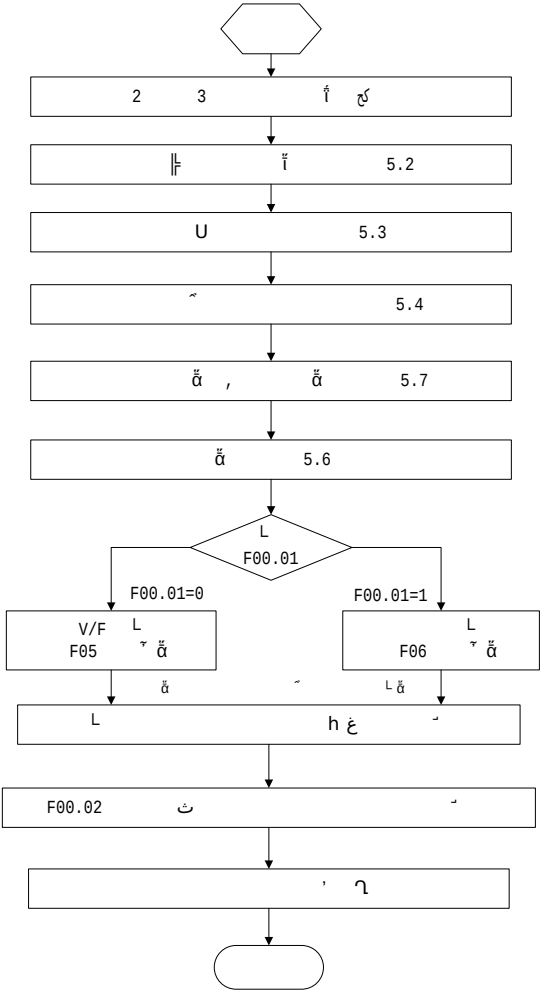
4.5 ă

HGD500 ί ă غ w w F12.03 1 ENTER U ΐ ϰ
˝ ă “ ” w ˫ ΐ 0
⌠ ỳ □ ă ΐ ϰ w F12.03 2 ă ă
ΐ ϰ “ ” □ ă U ˫ w 0
ỳ
1 ض ă ╠ ă “ ” ă
w ECS ˜ ₮ 'P
2 ΐ ϰ □ ă “ ”
□ ϩ ă ↕˜ ENTER └
↕˜ ESC ŭ ╠ ă ỉ ˚ ΐ ϰ ă غ
ΐ ϰ
3 ă ˴ ă ض U

4.5

5

5.1 ΐ ϛ



ϰ 5-1 ΐ ϛ ϰ

5.2 ╠

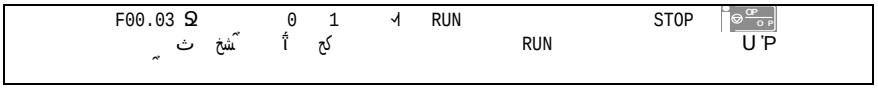
⊢ U ΄P

	ṗ
	ϟ ϒ ΐ ϛ
	ϫ ϛ ΐ ϛ

F04.19=0 ⁞

⁞ ₹ ٧ F00.15 ⁞ 1 ⁞

F04.19=1



L

F00.03=2 RUN Xi F/R ٲ

RUN F/R أ شخ ‖ Xi

Xi ↕ F04.19=0 ⁞ 5-3 يد يد

يد b Xi X1 X7 F02.00 F02.06 ‘ L ’

F00.03=3 RUN Xi F/R / ٲ

F00.07		0.00 F00.16	Hz	50.00	●
F00.14	ѵ 1	0.00 650.00 F15.13=0	s	15.00	●
F00.15	⋮ 1	0.00 650.00 F15.13=0	s	15.00	●
F00.16		1.00 600.00	Hz	50.00	
F00.18		F00.19 F00.16	Hz	50.00	●
F00.19		0.00 F00.18	Hz	0.00	●
F00.21	ΐ L	0 / ΐ 1 ΐ		0	

ă ˜ ˊ ₮ w ă w F02 ɨ F03

5.7 ă

ʃ L ă

	,	
F01.34=1		
F01.34=11 □	₥	
F01.34=2	₥ ╠	
F01.34=12 □		

ض ╠ ↕ ϩ

5.7.1 ă

ض ,

U Ϊ ك ث L F00.02=0

‰ ă

	ă
1	F01.00 ﻡ F01.01 w F01.02 ϧ F01.03 F01.04 F01.05 F01.06
2	F14.00 F14.06 ☪ □

ﻡ
F01.34=1 Ϊ ك ϧ
F01.34=2 Ϊ ك ϧ
ﻡ □
F01.34=11 Ϊ ك ϧ
F01.34=12 Ϊ ك ϧ
№ “ tune ” ₮ ʃ Δ

˜ ↕ w ɨ w ɨ ΐ ɨ

˜ Ⓟ ↕ ɜ F14 2 ă F14.34 2 ă

6 / ɒ

6.1 ṗ

أ ﻙ Ü ﻙ ï ì ă ﻙ
Ŧ ـ أ ﻙ Ŧ Ü ﺽ ⋮
HGD500 ↓ أ ﻙ ṗ ï 6-1
6-1 HGD500 ↓ أ ﻙ ṗ ï

	غم	ﻝ غج	
	/EMC	1. ضر 2. 3. ـL 4. ⋮ ٧ 5. أ شد شد 6. شي	1. ٦ 2. ⋮ ٧ 3. ﻝ غج U 4.

			3. ' ↓
	ă Ⅱ	1. ă Ⅱ	1. ╠ ă ϖ ضر ˵˵
		1. ϰ 2. ϰ 3. 4. 5. ' ↓	1. ϖ˵ 2. ϰ ϖ 3. ∀ 4. ˵ ضضم 5. ' ↓
		1. ∀ ⋮ 2. V/F ⌐ V/F ˵˵ 3.	1. ∀ ⋮ 2. V/F ˵˵ 3. ϒ
		1. ⌐	1.
	ΐ ϰ ϰ	1. ϰ Ώ 2. └ ϰ ΐ Ώ ρ ϰ ϰ شخ	1. STOP/RESET 2. ă 0x41 ث Ώ ϰ
		1. ض Ϙ 2.	1. ض F10.03 0.0 2. F10.03 3. ϖ
	ΐ ϰ ϰ	ΐ ϰ ϰ	1. ΐ ϰ ϰ ϖ 2.

1.
2.
3. ⌐
4. ϒ
5. ϯ ł

Ϙ⌐ ϰ ϱ˵˵

			F07.23
	∫	Ï ֆ Ī ∫	ֈ
	∫	Ï ֆ Ī ∫	ֈ
	ṗ	1. ṗ SPI	1. Ṗ Ղ 2.
	CANopen	1.	1.

		2. ϰ ϰ ϫ ϫ 3. 25	3. 4. U ϱ F28.44 -25
	ΐ	1. ϰ 2. ϫ	1. ϰ ϱ 2. ϱ 3.
	∫	F28.81 F28.85 F28.47 F28.51 ϑ F28.52 ϰ ∫	ΐ U ˫ F28.81 F28.85
		ϑ ˫ ˆ Ü ₣	1. ϱ 2. ₣ ϱ ˫
	ϰ	1. ΐ ϰ ϛ	1. ϰ ϱ 2. ϱ 3.
	ϰ	1. ΐ ϰ ϛ	1. ϰ ϱ 2. ϱ 3.
		1. ϰ	1. ϰ ϱ
	CANSinee	1.	1. U

ΐ ϰ Ü U ₣ ˜ STOP/RESET
ΐ ϰ ϫ W ╠
U = ϯ Ė ⊢ 2

ض غمم

	SC	HOC	HOU	SOC	SOU	SLU	ILP	OLP	OL	OH
0	1	2	3	4	5	6	7	8	9	10

E11 ΐ ˆ U “ E ” U “ E11 ” “ 11 ”

6.2 ϸ ṗ

ΐ ϰ Ü ΐ ϰ U ϸ ϸ Ü
ΐ ϰ ă ˫ U ϸ ϰ ϫ
Ü ϸ “ ” ESC ˜ ˜ ă
U 5s ṗ ض ϸ ϸ
ϸ

ϸ	ϸ غمم	ϸ ϰ ϫ	ϸ
	ΐ	ΐ	1. ϰ ϱ 2. ϱ
	ϰ	ϰ ϛ ϰ	1. ϰ ϱ ₣ 2. ϱ ϫ
		L W ´ C ΐ ϰ U	1. ϱ ϫ

		ⅴ Ⓟ ⌟ ⅈ Ŭ	1. ⅂
	₹	ⅴ Ⓟ ⌟ ⅈ Ŭ ₹	1. ₹ ⅂ ⌟

6.3 №

Ї ⅄ U w Ї ⌟ ˜ ă № ṗ ă 6.1

6.3.1 w ă

Ї ⅄ ă Ї ă ă ⅄ ă Ї ⅄ ă ˜ Ї w ă F12.02 1 2 ₹ └ ă ’ F12.02 0 ₹ ă ,

6.3.2

RUN RUN Ↄ⌟ └ w F00.02 ч COM ⅏ COM ч Ⓟ ч ₇ └ ⅈ ч └ └ ă 0 ⅴ ă Ї ⅄ ⅏ └ RUN F/R=ON ч └ w F00.02 ч COM ⅏ COM └ ₹ └ ₹ Ї ₹ ⅂ ⅂ ’ ⅇ ă 0 ⅴ ă Ї ⅄ ⅏ ₇ ⅄ h Ї Ї ă F00.21 1 Ї h Ї Ї ⅄ ₹ ⅇ 10 № ⅄ ˜ Ї h

6.3.3 ⅴ

ⅴ ⅴ ă ⅂ ⅄ ⅂ ⅄ ╠ ⅇ Ↄ⌟ ⌙ ї

6.3.5 **غ**

أ ↂ أ ↂ ˜ └ غ ˜

أ ↂ F00.23
ↂ أ ضِ ↂ كل ↂ
ↂ أ ضِ ↂ ₣ كل ↂ
أ ↂ ضِ ṗ
أ ↂ ỉ ˜ ضر
ỉ └ عجـ № └ عجـ 3

6.3.6 **ↂ˜**

أ ↂ ↂ˜
أ ↂ ₣ PWM ˜ عجـ 30mA أ
ↂ ↂ ↂ 200mA ,˜ 0.1
ↂ

6.3.7 **˜**

ⁿ أ ↂ ¨
¨ ⁿ أ ↂ ¨

F00.23 Õ¡î 2³PòË@Ò¡Ó"ì '^en6F507E EBCB4>16<0D791n-US0542CB4>17780EC16 0 0 1 85.704 368

ⁿ أ ↂ ₣ ¨
₦N2¥Q PkDF4Bd US399Ỉ1/F1ↂ756 T1 0 0 1 11513 71611 TmTJET EMC /P AMCID 4BDC 98E320C BT/F21 0

0.1

8.3

ـا ١ ـا شخ ض ١>400VDC, ّ

ـهم	شخ ـا I_{av}(A)	ـا I_{max}(A)	(mm^2)
BR100-045	45	75	10
BR100-160	75	150	16
BR100-315	120	300	25

غ

ـا ١ غ أ كج ـا 2 ٦ ↕

غ

8.4 ٧

8.4.1 I/O ٧

ـهم		w
EC-IO-A1	I/O ٧	4 w :X8 X11 1 ₣ Y3 w F03.04 w 1 AI4 -10V +10V ١ PT100/PT1000 كج
EC-IO-A3	I/O ٧ 3	1 كج ₣ Y3 w F03.04 w 1 T1/T2 1 +15V

8.4.2 ٧

ـهم		

9 w

9.1 w

HGD500 ↓ Ť ⸗ w “ w ” ‟ 24 Ì F18 ă
Ť ⸗ F19 3
F00 w ă **F01**

F00.24

| | | |

		٧ AI4 ά ﺫ AI1			
F02.33	1	0.00 F02.35	V	0.10	●
F02.34	1	−100.0 +100.0	%	0.0	●
F02.35	1	F02.33 10.00	V	9.90	●
F02.36	1	−100.0 +100.0	%	100.0	●
F02.37	2	-10.00 F02.39	V	0.10	●
F02.38	2	−100.0 +100.0	%	0.0	●
F02.39	2	F02.37 10.00	V	9.90	●
F02.40	2	−			

		0 ⌟ 1 ⌟			
F03.09	Y1	0.000 30.000	s	0.000	●
F03.10	Y1	0.000 30.000	s	0.000	●
F03.11	Y2	0.000 30.000	s	0.000	●
F03.12	Y2	0.000 30.000	s	0.000	●
F03.13	R1	0.000 30.000	s	0.000	●
F03.14	R1	0.000 30.000	s	0.000	

3	L	39	
4	⌟ FJOG		

16	∫	63	H └
17		64	I └

18 ΐ ς

		1 V/F 2 1.3 V/F 3 1.7 V/F 4 V/F 5 VF № Ud=0 Uq=K*t=№ ϡ ϡ 6 VF ϰ№ Ud=0 Uq=K*t=F/Fe*2*№ ϡ ϡ			
F05.01	VF F1	0.00 F05.03	Hz	0.50	●
F05.02	VF ϡ V1	0.0 100.0 100.0= ϡ	%	1.0	●
F05.03	VF F2	F05.01 F05.05	Hz	2.00	●
F05.04	VF ϡ V2	0.0 100.0	%	4.0	●
F05.05	VF F3	F05.03 ‰	Hz	5.00	●
F05.06	VF ϡ V3	0.0 100.0	%	10.0	●
F05.07 VF № ϡ		0 VF № ϡ 1 AI1 2 AI2 3 AI3 4 Ⅱ X7			

```
4  AI4(     ۷ )
5                №
6  AI2 ڇ AI3 Ǔ
7  AI2 ڇ AI3 Ǔ
```

F06.48	□	0.00 10.00	ms	0.40	
F06.49	□ └	1.0 100.0		5.0	
F06.50	□ └	0.00 10.00		0.20	
F07	**w**				
F07.00		0 1		000 00000	
F07.01		0.20 10.00		1.00	●
F07.02		50 100	%	80	●
F07.03	ﻡ ﻙ	0 ﻙ 1 PT100 2 PT1000 3 KTY84-130/150 4 PTC130/150		0	●
F07.04		0 200		110	●
F07.05		0 200		90	●
F07.06	١ └	0 1 ١ 2 ١ 3 ١ غ ١		2	
F07.07	١ └ ١	110.0 150.0 380V,100.0=537V	%	131.0 703V	
F07.08	١ └ ١	60.0 ∞ ١ 100.0= ‰ ١	%	76.0	
F07.09	∞ ١	١ └ ١ 100.0	%	86.0	●

		2 ⌟			
F07.28		0.0 6000.0 0.0	s	0.0	
F07.29	∟	0			

F08.33	8	ǎ مخ F08.19		0	●
F08.34	8	0.0 6000.0	s/min	5.0	●
F08.35	9	ǎ مخ F08.19		0	●
F08.36	9	0.0 6000.0	s/min	5.0	●
F08.37	10	ǎ مخ F08.19		0	●
F08.38	10	0.0 6000.0	s/min	5.0	●

F09.20	PID №№	0.00 100.00 100.00%= №№	%	100.00	●
F09.21	PID ΐ	0.000 30.000	s	0.000	●
F09.22	PID ΐ	0.000 30.000	s	0.000	●
F09.23	PID ₣	0.000 30.000	s	0.000	●
F09.24	PID ΐ	0.00 100.00 100.00= ΐ	%	100.00	●
F09.25	PID ΐ	0.00 100.00 0.00= ΐ	%	0.00	●
F09.26	PID ΐ	0.000 30.000	s	0.000	●
F09.27	PID L	0 1 2 3		0	●
F09.28	⌟	0.00 100.00 100.00 PID ΐ	%	100.00	●
F09.29		0.0 6500.0	s	0.0	●
F09.30	⌟	0.00 100.00 100.00 PID ΐ	%	0.00	●
F09.31		0.0 6500.0	s	0.0	●
F09.32	PID 1	0.0 PID ΐ F09.03		0.0	●
F09.33	PID 2	0.0 PID ΐ F09.03		0.0	●
F09.34	PID 3	0.0 PID ΐ F09.03		0.0	●
F09.35	ΐ ٨	ΐ ٨ 10.00	V	10.00	●
F09.36	ΐ ٨	0.00 ΐ ٨	V	0.00	●
F09.37	PID ΐ ṗ № №	0 № 1 F09.21 ⌠ U № 2 F09.38 №		0	●
F09.38	PID ΐ ṗ №	0.00 100.00	%	30.00	●
F10	**w**				
F10.00	Modbus ضي خ	1 247 0 ضي خ		1	
F10.01	Modbus	0 4800 1 9600 2 19200 3 38400 4 57600 5 115200		1	
F10.02	Modbus	0 1-8-N-1 1 +8 +1 1 1-8-E-1 1 +8 +1 +1 2 1-8-O-1 1 +8 +1 +1 3 1-8-N-2 1 +8 +2 4 1-8-E-2 1 +8 +1 +2 5 1-8-O-2 1 +8 +1 +2		0	
F10.03	Modbus	0.0 60.0, 0.0	s	0.0	●
F10.04	Modbus	1 20	ms	2	●
F10.05	w	0 1		0	
F10.06		0 1 Modbus ٧ ΰ		0	

HGD500

HGD500	↓	أ	كج	٧١	
F10.36	PZD6 Ü	غمم			65535 ●

		3 ٧			
F16.01		1 65535 F16.13=0 0.1 6553.5 F16.13=1 0.01 655.35 F16.13=2 0.001 65.535 F16.13=3	m	1000	●
F16.02	Ⅱ	0.1 6553.5		100.0	●
F16.03		F16.04 65535		1000	●
F16.04		1 F16.03		1000	●
F16.05					

F25.02	۱ ʒ	F25.03 F09.03	%	100.0
F25.03	۱ ʒ	0.1 F25.02	%	0.1

F27.02	╠	0 ╠ ΐ 1 0.00 ╠ 2 - ╠ + ╠		1	
F27.03	╠ └	╠ 0 ⌟ 1 ٧ ╠ 0 1		10	
F27.04	╠	0.00 500.00	%	500.00	
F27.05	╠	0.00 500.00	%	50.00	●
F27.06	╠	0 1000	ms	0	●
F27.07	╠ ٥مز 0	0.00 ╠ ٥مز 1	%	4.00	●
F27.08	╠ ٥مز 1	╠ ٥مز 0 ╠ ٥مز 2	%	12.00	●
F27.09	╠ ٥مز 2	╠ ٥مز 1 ╠ ٥مز 3	%	23.00	●
F27.10	╠ ٥مز 3	╠ ٥مز 2 ╠ ٥مز 4	%	37.00	●
F27.11	╠ ٥مز 4	╠ ٥مز 3 ╠ ٥مز 5	%	52.00	●
F27.12	ı				