╠

31010124
2017-03
100

HGD500 ↓ ΐ ﻙ ┗ ﺴ ΐ ﻙ غ ﺑ
ـ ┗ ـــــ ـ VF ┗ VVF غ ﻙ ┗ SVC
غ ╪

EM600 ↓

HGD500 ↓ ΐ ﻙ
11kW ﺽ ﻙ ⋮ ΐ w غ ﺟ
┗ SVC/ ± 8%
ﺨ ┗ VF/1:50 SVC/1:200, ± 0.2%
VF/1Hz/150% SVC/0.25Hz/150%
١
Profibus-DP CANopen غ DeviceNet
I/O
١ w ١ ١ ﺴﺪ غ

ΐ ﻙ ╠ ٧ ـ
ΐ ﻙ ﺴ ﺑ
w ١ ΐ w غ

Z ﺞ غ ﺞ ـ غ ﺟ Ẽ ﺃ ـ ٣

1 أ كح ٦ ↕ شخ
2 كح ∟ أ كح Ω ٦ ↕ شخ

1

1.1 HGD500 ↓ أ ﮒ ﮓ

١ 380 ـ 415V غ ـ / ١ 220V 230V

1.2 HGD500 ↓ ĩ ڑ

2.3.2

ΐ ϛϚ ΰΰ ΐ ϛϚ ṗ

U

3.2

3.2.1

a) №

b) 90kW №

3-2

3.2.2 **W**

HGD500 ↓ Ǐ W 3-1 W

3-1 W

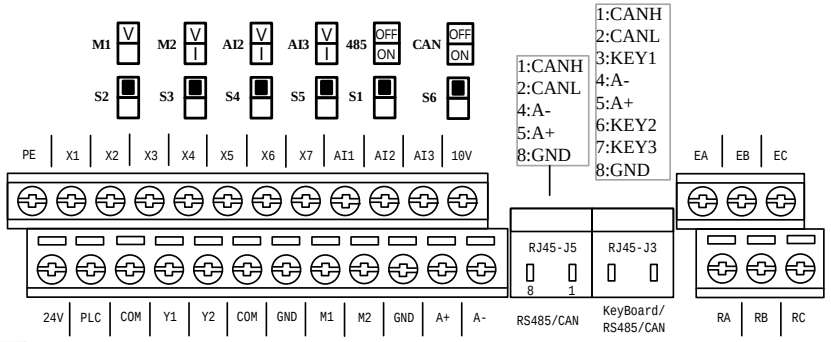
	W
R S T	
U V W	Ǐ ₣
	№≠ ṗ ا
PB	PB ٣
	ضر ضر

3-2 90kW 400kW

W	W1	W2	W3

3.3 └ж

3.3.1 └ж


M1 V
M2 V I
AI2 V I
AI3 V I
485 OFF ON
CAN OFF ON
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
8 1
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

ъ 3-5

₹	M2-GND	₹ 2	₹ ₃₀ DC 0 10V/0 20mA ˟ S3
w ₹	Y1-COM	₹	₹ ₹ ₹ ₁ DC48V ₹ 50mA
	Y2-COM	‖ ₹	₹ ₹ ₁ 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

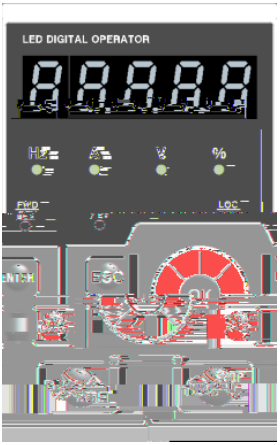
1) ¤ RJ45 ¤ , EIA/TIA568B ¦
2) RJ45¤ § RJ45 ¤
3) 30m Ï ~ 50m

4

4.1 w

4.1.1 LED

HGD500 ↓ ΐ ς L № LED LCD
LED LED ς Έ ς ñ ΐ ϒ
˜ ΐ ς ă Ω



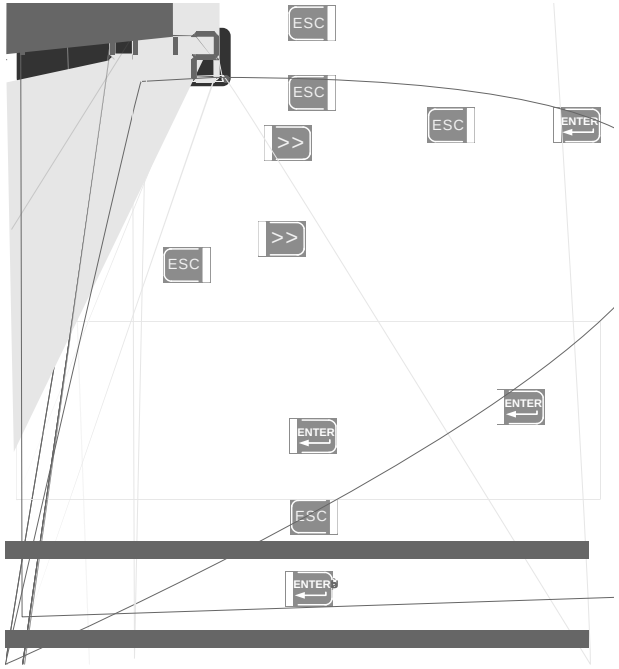
ϫ 4-1 LED

4.1.2 LED ΐ w

4-1 LED ΐ w

/	O	w
	˙	╞ w ˜ ę w ˜ Ⓟ ă
ESC	ϫ	ϫ ╞ ϒ ϒ ŭ ╞ ă
M.K	w ˜	˜ w F12.00 №≠ ¬ ¬ ΐ ΐ Ⓟ ę w
ENTER		ϒ ă ╞ w w
		L Ω ΐ ς
	/	L ΐ ς
	ς	ϒ w ă ₰ ╞ ă ΐ ⋮ ╞ ă OK w □

ъ 4-3 F03.28=5.28 ъ
ч ă U ENTER



4-4 يد

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

ﺡ 4-5 ₹ ٨ w

4.3

Ǐ ﻙ ˜ ˜ Ⓟ ╠ ≠ ₹
₹ ₹ ٨ غ

4.4

HGD500 1 ض F12.33 F12.37 w F12.32=1
1 ٨ 0 ٨ ˜ F12.33 F12.37
w ǎ Ⓟ ض Ǐ ﻙ Ǐ ǎ ╠
ـ ⌠ F12.33 ǎ Ǐ ﻙ Ǐ ǎ ╠ ـ ⌠
F12.34 ǎ

4.5 ǎ

HGD500 Ǐ ǎ غ w w F12.03 1 ENTER U Ǐ ﻙ
˜ ǎ “ UP” w ـ Ǐ 0
⌠ ⌡ ǎ Ǐ ﻙ w F12.03 2 ǎ ǎ
Ǐ ﻙ “ DN” ▯ ǎ U ـ w 0
⌡
1 ض ǎ ╠ ǎ “ NoDN” ǎ
w ECS ˜ ₹ ’P
2 Ǐ ﻙ ▯ ǎ “ GOoN”
▯ ⌐ ǎ ↕˜ ENTER ⌊
↕˜ ESC ŭ ╠ ǎ ٦ ˜ Ǐ ﻙ ǎ غ
Ǐ ﻙ
3 ǎ ˊ ǎ ض U

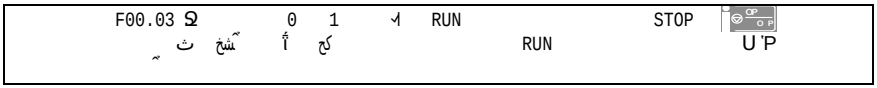
4.5

5.2 ╠

Ⱶ U ˈP

	ṗ
	ϧ ϛ ΐ ϛ
	ϫ ϛ ΐ ϛ

F04.19=0 ⁞
⁞ ٣ ٧ F00.15 ⁞ 1 ⁞
F04.19=1



L

F00.03=2 RUN Xi F/R ٍأ

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 / ٍأ

F00.07		0.00 F00.16	Hz	50.00	●
F00.14	ϖ 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 ˜ ´ ₮ w ă w F02 ɨ F03

5.7 ă

ʃ L ă

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

ض ╠ ϩ ↕

5.7.1 ă

ض ,

U Ϊ ϒ ث L F00.02=0

‰ ă

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

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

˜ ↕ w ɨ w ɨ ΐ ɨ

˜ Ⓟ ↕ ɜ F14 2 ă F14.34 2 ă

6 / ɒ

6.1 ṗ

أ كح Ü كح ĭ ì ă كح
₮ ـ أ كح ₮ Ü ض ⋮
HGD500 ↓ أ كح ṗ ĭ 6-1
6-1 HGD500 ↓ أ كح ṗ ĭ

	غمم	٨ غج	
SC	/EMC	1. ضر 2. 3. L ـ 4. ٧ ⋮ 5. أ شد شد 6. شش	1. ٦ 2. ٧ ⋮ 3. ٨ غج U 4.

HOC

			3. ' ↓
E11	ă ‖	1. ă ‖	1. ╠ ă ϩ ضر
E12		1. ϰ 2. ϰ 3. 4. 5. ' ↓	1. ϩ 2. ϰ ϩ 3. ϑ 4. ضم 5. ' ↓
E13		1. ϑ ⋮ 2. V/F ⌟ V/F 3.	1. ϑ ⋮ 2. V/F 3. ١
E14		1. ⌟	1.
E15	ΐ ϰ ϰ	1. ϰ Ω 2. ∟ ϰ ΐ Ω ρ ϰ ϰ شخ	1. STOP/RESET 2. ă 0x41 ث Ω ϰ
E16		1. ضِ Ϙ 2.	1. ضِ F10.03 0.0 2. F10.03 3. ϩ
E17	ΐ ϰ ϰ	ΐ ϰ ϰ	1. ΐ ϰ ϰ ϩ 2.
E18	Ϙ⌟ ϰ ϱ	1. 2. 3. ⌟ 4. ١ 5. ‾ ⊦	

			F07.23
E27	∫	Ϊ ϛ Ī ∫	ϧ
E28	∫	Ϊ ϛ Ī ∫	ϧ
E29	ṗ	1. ṗ SPI	1. Ṗ Ϩ 2.
E33	CANopen	1.	1.

		2. ϰ ϰ ϫ ϫ 3. 25	3. 4. U ϱ F28.44 -25
E50	ΐ	1. ϰ 2. ϫ	1. ϰ ϱ 2. ϱ 3.
E51	∫	F28.81 F28.85 F28.47 F28.51 ∀ F28.52 ϰ ∫	ΐ U ˫ F28.81 F28.85
E56		∀ ˫ ˆ Ü ₣	1. ϱ 2. ₣ ϱ ˫
E57	ϰ	1. ΐ ϰ ϛ	1. ϰ ϱ 2. ϱ 3.
E58	ϰ	1. ΐ ϰ ϛ	1. ϰ ϱ 2. ϱ 3.
E59		1. ϰ	1. ϰ ϱ
E61	CANSinee	1.	1. U

ΐ ϰ Ü U ₣ ˜ STOP/RESET
ΐ ϰ ϫ W ╠
U ═ ϯ Ė Ⱶ 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 ϸ Ü
ΐ ϰ ă ˫ U ϸ ϧ
Ü ϸ “ C002” ESC ˜ ă
U 5s ṗ ض ϸ ϸ

ϸ	ϸ غمم	ϸ ϧ	ϸ
C002	ΐ	ΐ	1. ϰ ϱ 2. ϱ
C003	ϰ	ϰ ϛ ϰ	1. ϰ ϱ ₣ 2. ϱ ϫ
C004		W Ɔ ΐ ϰ U	1. ϱ ϫ

C005		ⅴ Ⓟ ⌟ ⅈ Ŭ	1. ⅂
C006	₹	ⅴ Ⓟ ⌟ ⅈ Ŭ ₹	1. ₹ ⅂ ⌟

6.3 №

Ї ⅀ U w ĭ ⌟ ˜ ă № ṗ ă 6.1

6.3.1 w ă

ĭ ⅀ ă Ї

Ї ⅀ ضِ ă

ĭ ⅀ ă ˜ Ї

w ă

F12.02 1 2 ₹ └ ă ’ F12.02 0

₹ ă ’

6.3.2

RUN RUN

Ↄ⌟ └ w F00.02 ث

COM ™ COM

ث Ⓟ ث ⁊ └ ⅈ

ث └ └

ă 0 ⅴ ă

Ї ⅀ ™

└ RUN F/R=ON

ث └ w F00.02 ث

COM ™ COM

└ ⁊ └ ⁊ Ї ⁊ ⅂ ⅂ ’ ضِ

ă 0 ⅴ ă

Ї ⅀ ™

⁊ ⅄ h

ĭ ĭ ă F00.21 1 ĭ

h ĭ

Ї ⅀ ₹ ضِ 10 №

⅄˜ Ї h

6.3.3 ⅴ

ⅴ ⅴ ă

⅂ ⅄ ⅂ ⅄

╟ ضِ Ↄ⌟ └⌟ ï

HGD500 ↓ Ỉ ↓ ↓ ↓

8.3

ـا ١ ـا شخ ض ١>400VDC, ـُّ

ـهمم	شخ ـا Iav(A)	ـا Imax(A)	(mm²)
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

ـهمم		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

ـهمم		

9 w

9.1 w

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

F00.24

F02.05	X6	w	5 ï ¯ (RJOG)		14
F02.06	X7	w	6 UP		10
F02.07	AI1	w	7 DOWN		0
F02.08	AI2	w	8 UP/DOWN		0
F02.09	AI3	w	9		0
F02.10	AI4	w	10		0
F02.11	X8	w	11 1		0
F02.12	X9	w	12 2		0
F02.13	X10	w	13 3		0
F02.14	X11	w	14 4 ï ð 9-2 w AI4 X8 X11 ٧		0
			D7 D6 D5 D4 D3 D2 D1 D0		
F02.15		ï 1	*		*00 00000

		٧ AI4 ά ﺧ 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=№ ㄱ ㄱ 6 VF ㄱ№ Ud=0 Uq=K*t=F/Fe*2*№ ㄱ ㄱ			
F05.01	VF F1	0.00 F05.03	Hz	0.50	●
F05.02	VF ㄱ V1	0.0 100.0 100.0= ㄱ	%	1.0	●
F05.03	VF F2	F05.01 F05.05	Hz	2.00	●
F05.04	VF ㄱ V2	0.0 100.0	%	4.0	●
F05.05	VF F3	F05.03 ‰	Hz	5.00	●
F05.06	VF ㄱ V3	0.0 100.0	%	10.0	●
F05.07 VF № ㄱ		0 VF № ㄱ 1 AI1 2 AI2 3 AI3 4 Ⅱ X7			

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

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		E20 E22 E13 SIU SOU SOC IIP OIP 0 1		000 00000	
F07.01		0.20 10.00		1.00	●
F07.02		50 100	%	80	●
F07.03	ﮊ ﻗﺴﻢ	0 ﮊ 1 PT100 2 PT1000 3 KTY84-130/150 4 PTC130/150		0	●
F07.04		[redacted]		110	●
F07.05	[redacted]	0 200		90	●
[redacted]	١ └	0 1 ١ 2 ١ 3 ١ غ ١		2	[redacted]
F07.07	١ └ ١	[redacted]	%	131.0 703V	
[redacted]	١ └ ١	60.0 ∞ ١ 100.0= ‰ ١	%	76.0	
F07.08	[redacted]	١ └ ١ 100.0	%	86.0	[redacted]

[redacted]

		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 AI3 4 AI4(٧) 5 Ⅱ X7 6 1-6 F13.02 8 ر			
F13.02		-200.0 200.0 100.0=	%	100.0	●
F13.03	1	-200.0 200.0	%	0.0	●
F13.04	2	-200.0 200.0	%	0.0	●
F13.05	3	-200.0 200.0	%	0.0	●
F13.06	└ ٧ ⋮	0.00 120.00	s	0.05	●
F13.08	└	0 F13.09 1 AI1 2 AI2 3 AI3 4 AI4(٧) 5 Ⅱ X7 6 № 7		0	
F13.09	└	0.00 F00.16	Hz	50.00	●
F13.10		0.00 F00.16	Hz	0.00	●
F13.11		0.0 100.0	%	0.0	●
F13.12	ه	0.00 50.00	Hz	1.00	●
F13.13	⌟	0.0 100.0	%	0.0	●
F13.18	⁞ h	0 100	%	100	●
F13.19	⁞ h z └	0 1		1	●
F14	**2 ǎ**				
ǎ	ǎ HGD500 ´Y				
F15	**↑ w**				
F15.00	⌟	0.00 F00.16	Hz	5.00	●
F15.01	⌟ ٧		s	5.00	●
F15.02	⌟ ⋮		s	5.00	●
F15.03	٧ 2	0.00 650.00 F15.13=0 0.0 6500.0 F15.13=1 0 65000 F15.13=2	s	15.00	●
F15.04	⋮ 2		s	15.00	●
F15.05	٧ 3		s	15.00	●
F15.06	⋮ 3		s	15.00	●
F15.07	٧ 4		s	15.00	●
F15.08	⋮ 4		s	15.00	●

		3 ϟ			
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	ϟ ϛ	F25.03 F09.03	%	100.0
F25.03	ϟ ϛ	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	╠ ٥ 0	0.00 ╠ ٥ 1	%	4.00	●
F27.08	╠ ٥ 1	╠ ٥ 0 ╠ ٥ 2	%	12.00	●
F27.09	╠ ٥ 2	╠ ٥ 1 ╠ ٥ 3	%	23.00	●
F27.10	╠ ٥ 3	╠ ٥ 2 ╠ ٥ 4	%	37.00	●
F27.11	╠ ٥ 4	╠ ٥ 3 ╠ ٥ 5	%	52.00	●
F27.12 ı					