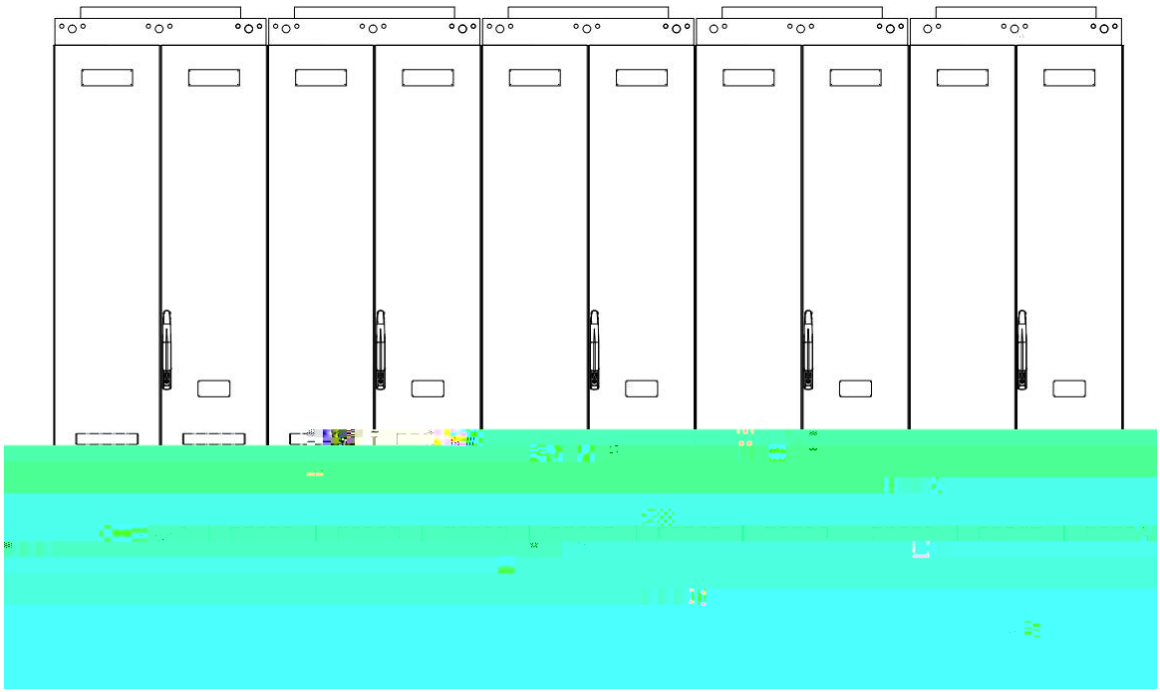
GUIDE

# J HF680N Δ

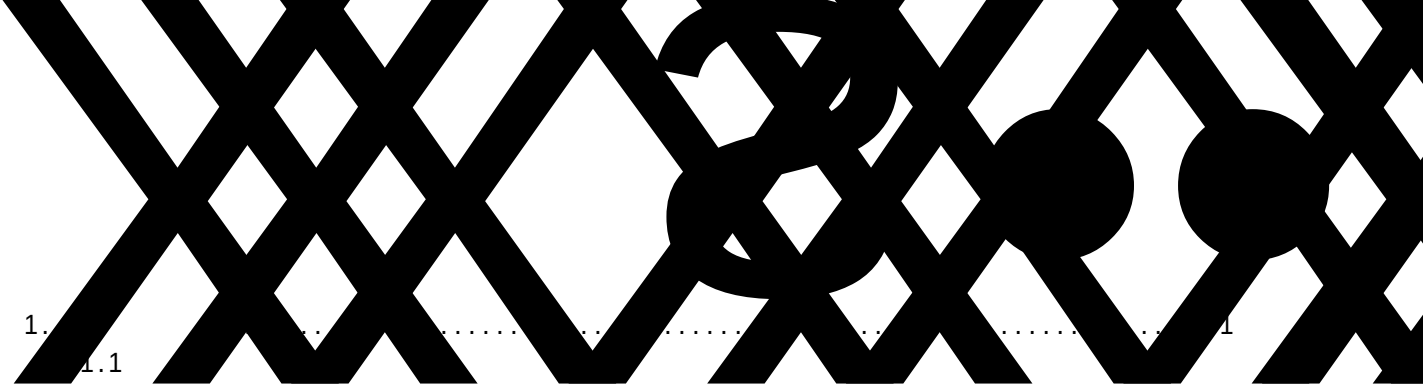
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Wuhan Guide Technology Co.,Ltd.



HF680N




1. ..... 1
1.1
1.2
1.3
2. ..... 6
2.1
2.2
2.3
2.4
2.4.1
2.4.2
2.4.3
2.4.4
3. ..... 14
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4. ..... 31
4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8
5. ..... 44
5.1
5.2
5.3
5.4
6. ..... 63
6.1
6.2
6.3 ¾3 ddddddddddd

7.2.1
7.2.2
7.2.3
7.2.4
8. ..... 78
8.1
8.1.1
8.1.2
8.1.3
8.2
8.3
8.3.1
8.3.2
8.3.3
8.3.4
8.3.5
8.3.6
8.3.7
8.3.8
8.3.9
9. ..... 108
9.1
9.1.1
9.1.2
9.1.3
9.1.4
9.1.5
9.1.6
9.1.7 AFE
10. ..... 114
10.1 P2
10.2 P3
10.3 P4
10.4 P5
10.5 P6
10.6 P7
10.7 1 P8
10.8 2 P9
10.9 3 P10
10.10 4 P11
10.11 1 P12
10.12 2 P13
10.13 3 P14
10.14 4 P15
10.15 1 V/F P16
10.16 2 V/F P17
10.17 3 V/F P18
10.18 4 V/F P19

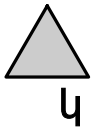
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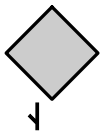
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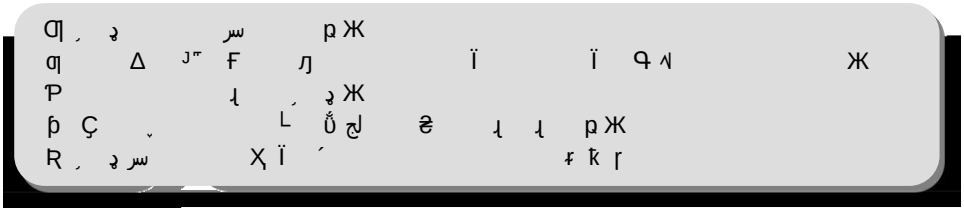
## 1.1











**1**

RCD

RCM RCD

RCM

B RCD RCD

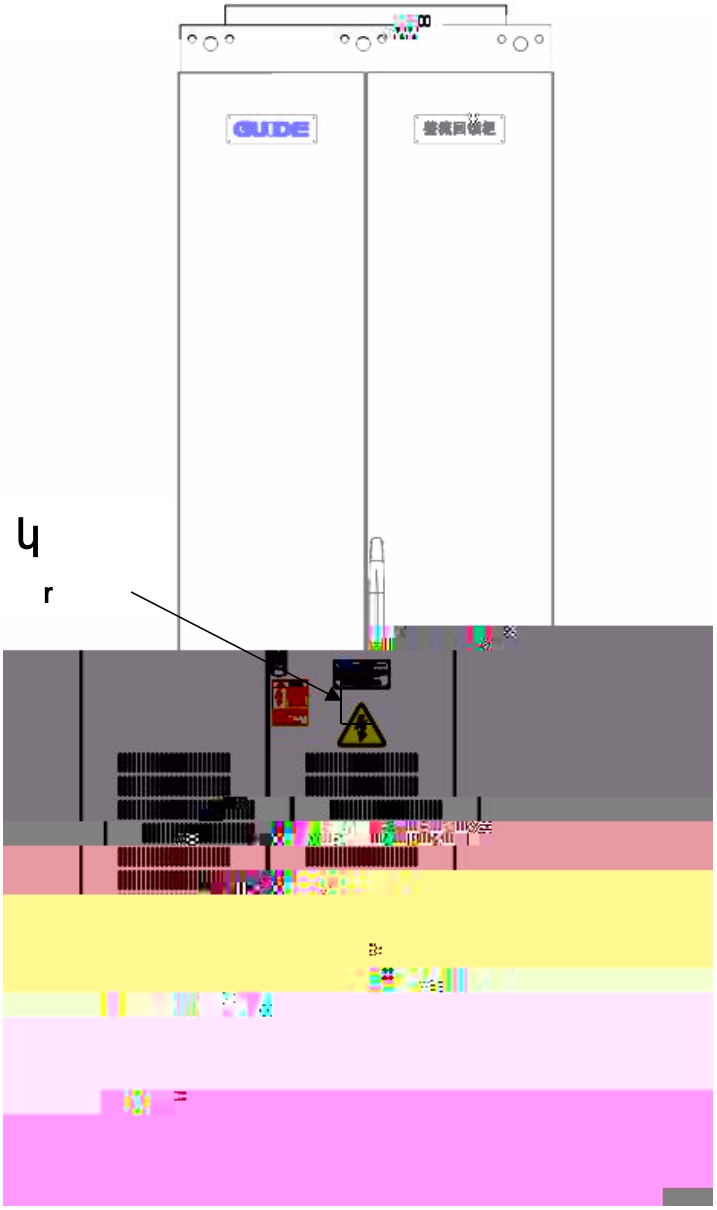
RCD RCD

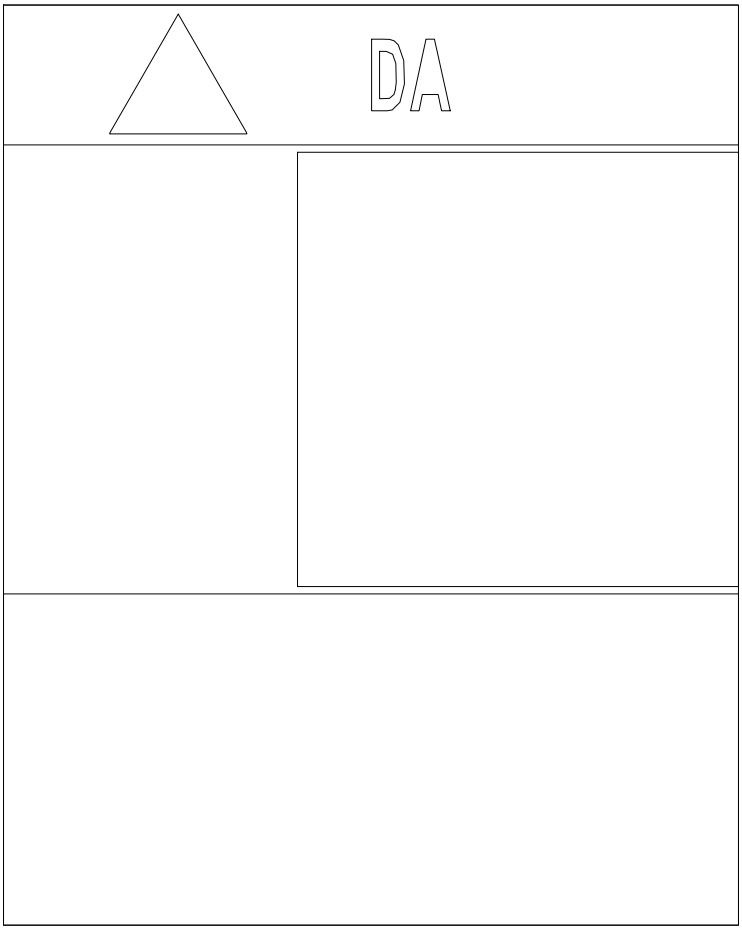
**2**

500V 5MΩ

**3**

HF680N02C-400-4




DA

## 1.2

(1)

(2)

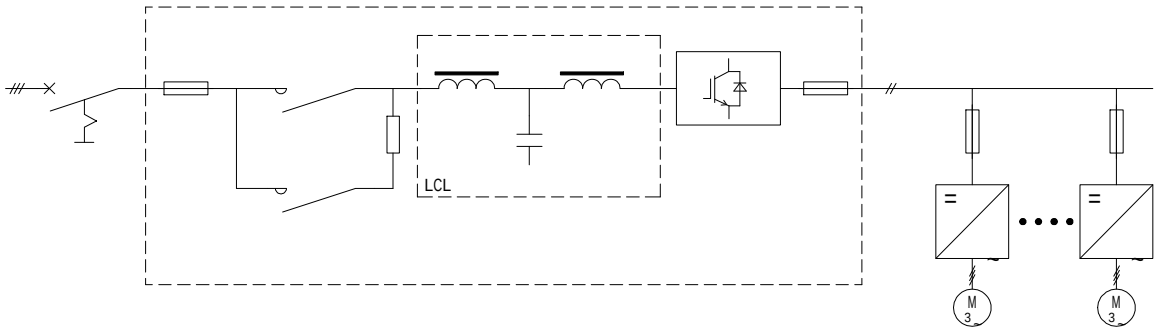
(3)

## 1.3

# 2.

## 2.1

HF680N LCL




IGBT AFE

DC24V

IGBT

## 2.2

1

AFE

V/F

2

| | | |
|---|---|---|
| | | |
| | | |
| | | PID |
| | | / |
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| | | / |
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| | | |

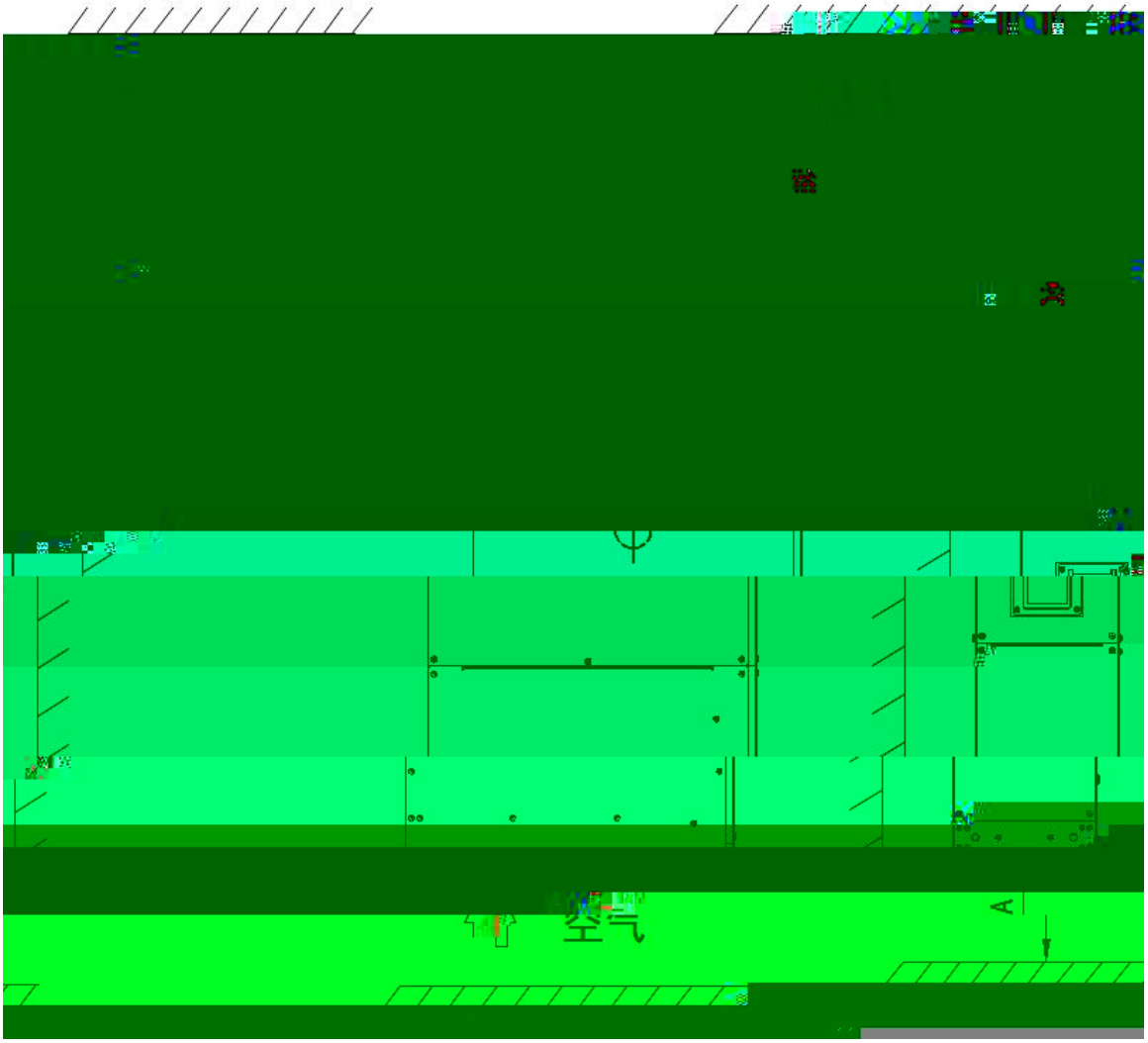
## 2.3

| | | |
|---|---|---|
| DP | GDHF-ADPX1 | GDHF-ADPX1 DP Profibus<br>HF680N02M HF680N03M |
| PG | GDHF-APGX1 | GDHF-APGX1 PG HF6<br>80N03M 15V<br>PG |
| PN | GDHF-APNX1 | GDHF-APNX1 Profinet<br>HF680N02M HF680N03M |
| | GDHF-AKZY1 | GDHF-AKZY1 HF680N02M HF680N03M |
| 2 | GDHF-KL2 | GDHF-KL2 2 HF680N02M<br>HF680N03M 2 |

### 2.4.2

- 
- -10 +40 +40 +50 1
  2% 50
- 95%RH
- 
- 
- 
- 
- 
- 1000 1000 100 1%
  3000

### 2.4.3



| | | |
|---|---|---|
| | A ≥ 200mm | B ≥ 50mm |

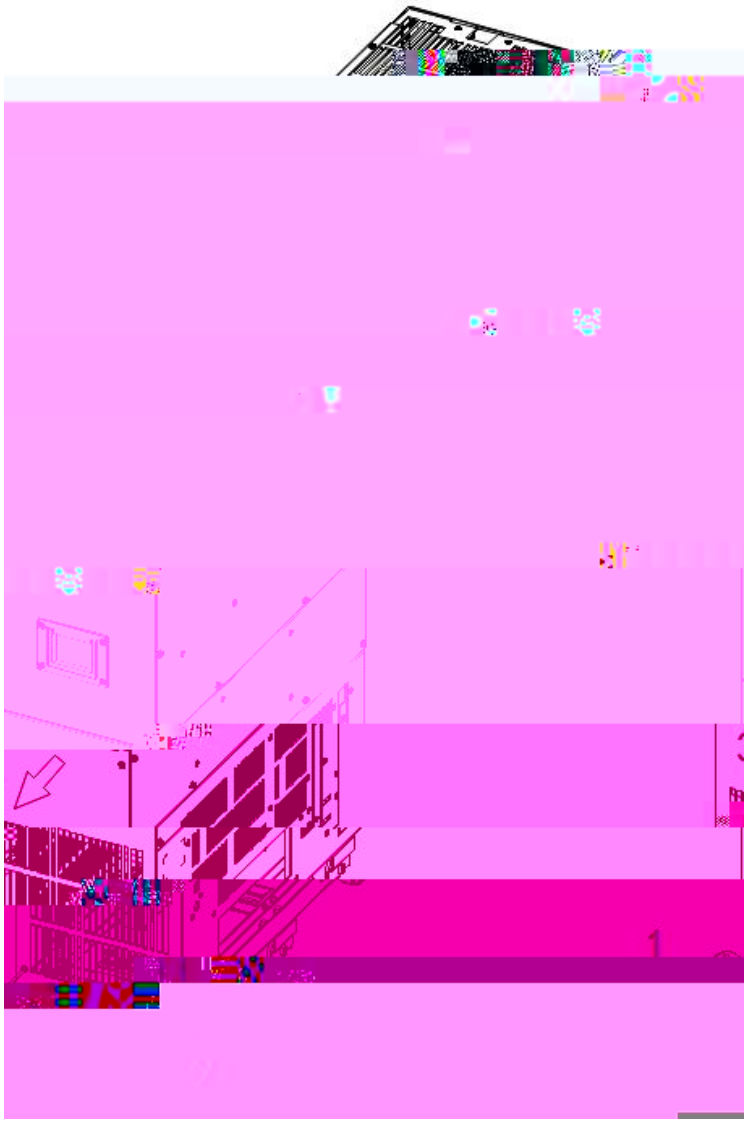
50mm

### 2.4.4

1

2 LCL

3



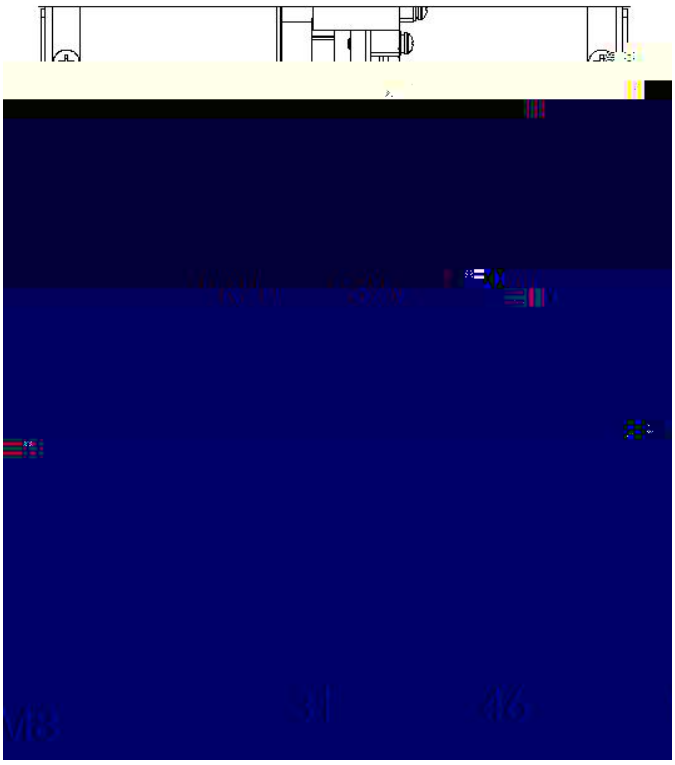
# 3.

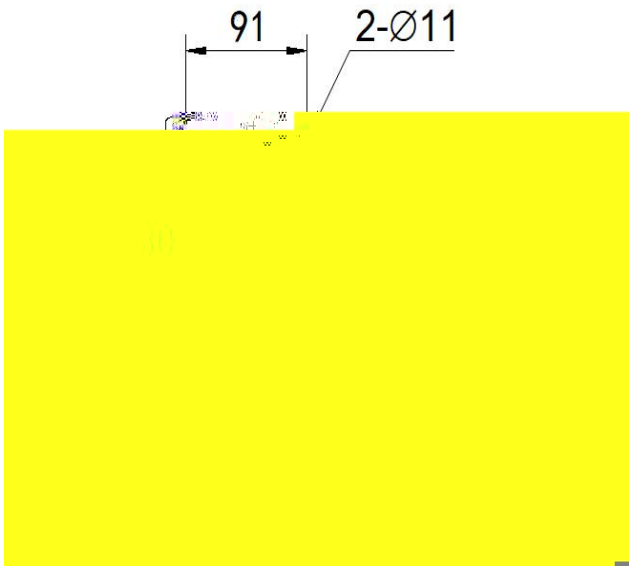
## 3.1

LCL h mAÐ

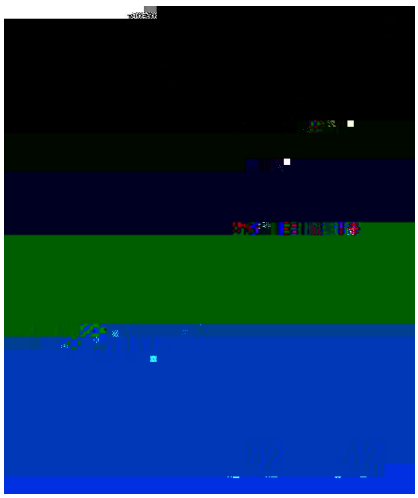
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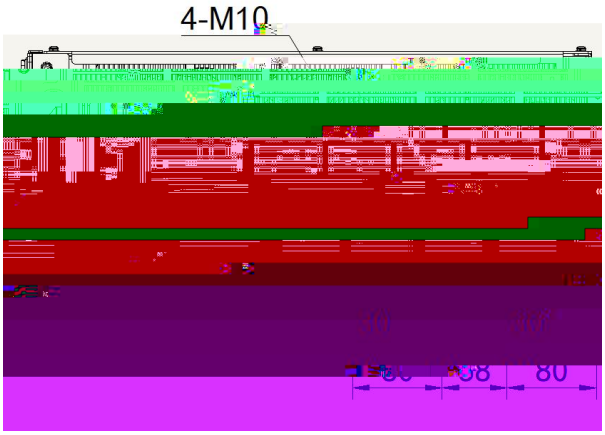
B4





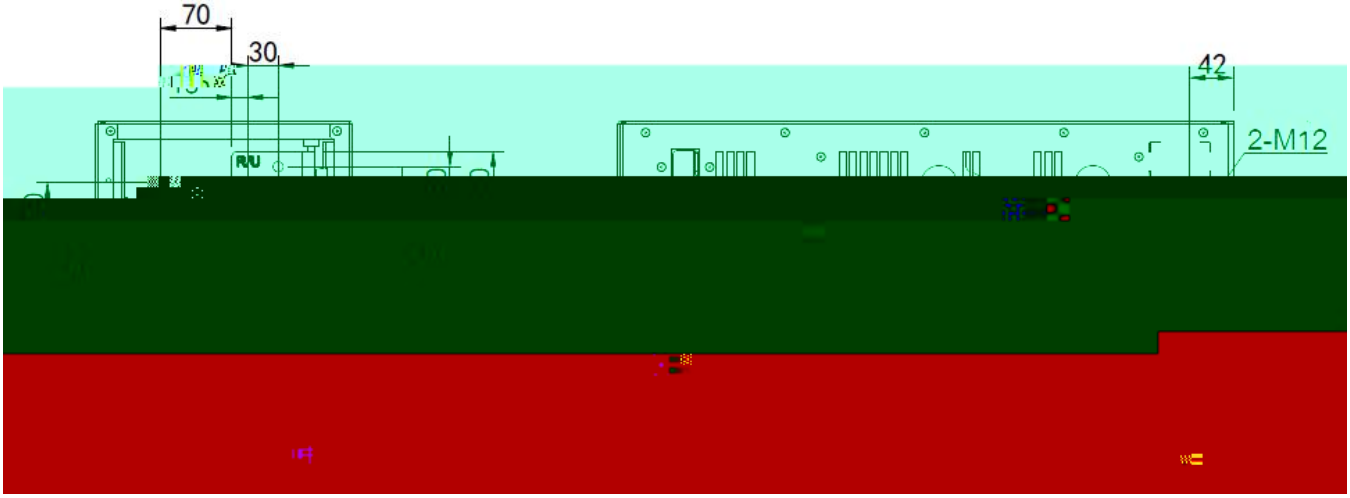
B5





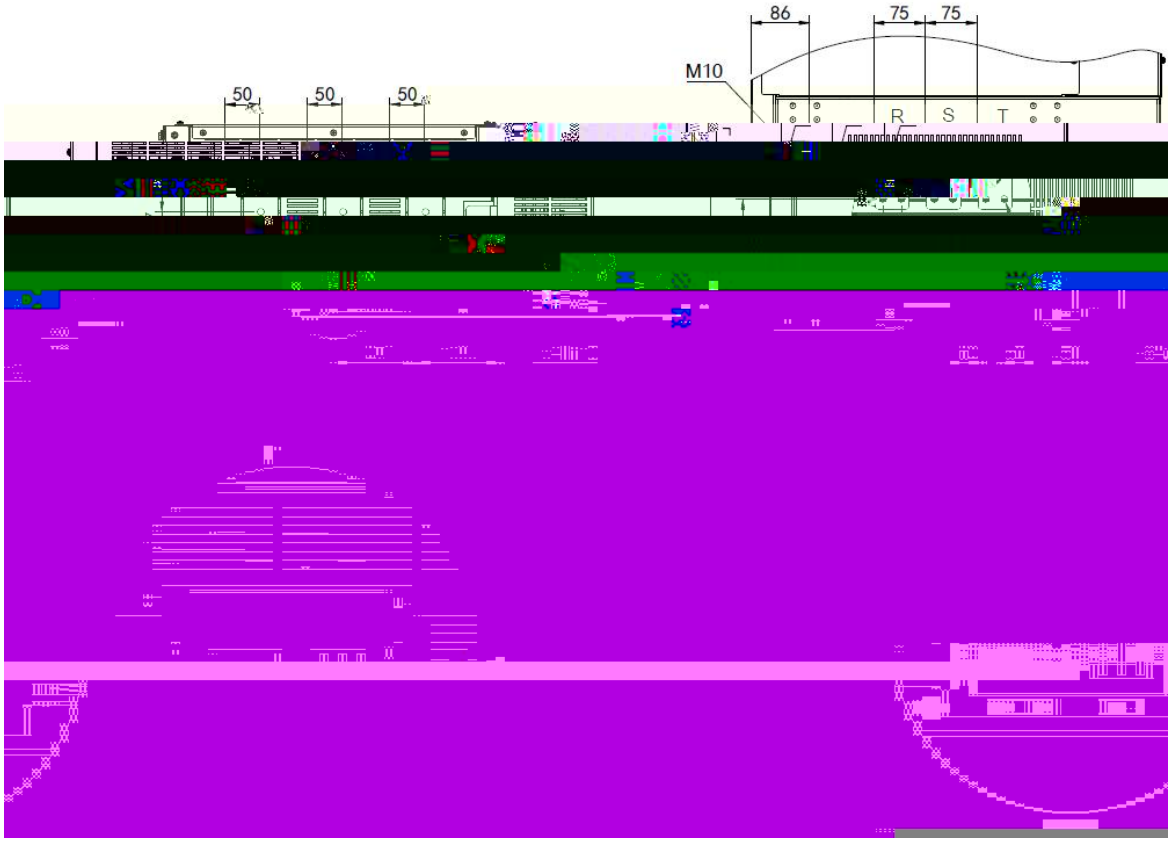

B6





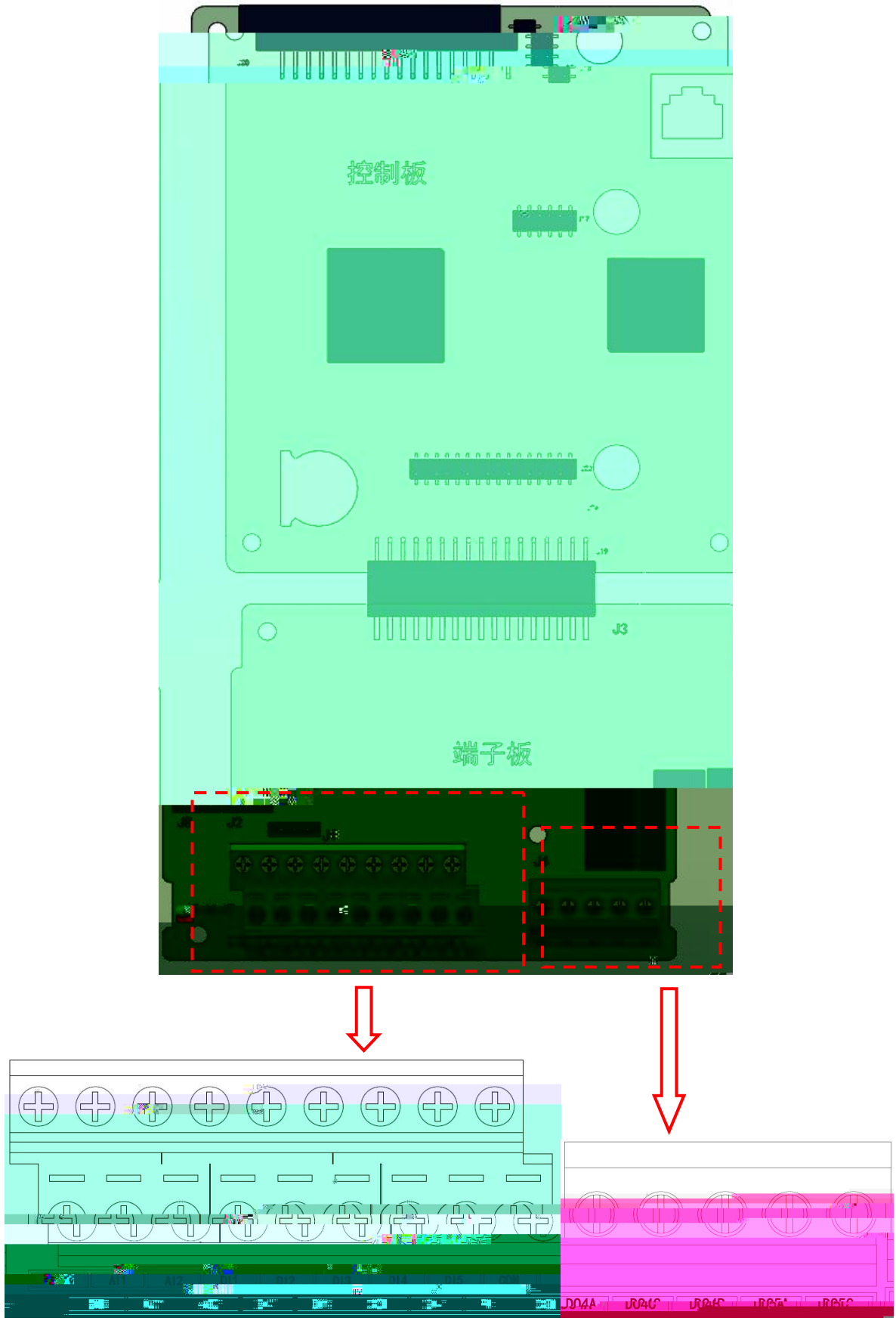
2 LCL

| | |
|---|---|
| R S T | LCL |
| | LCL |
| P + N - | LCL |
| PTC | LCL |




B6 LCL

2

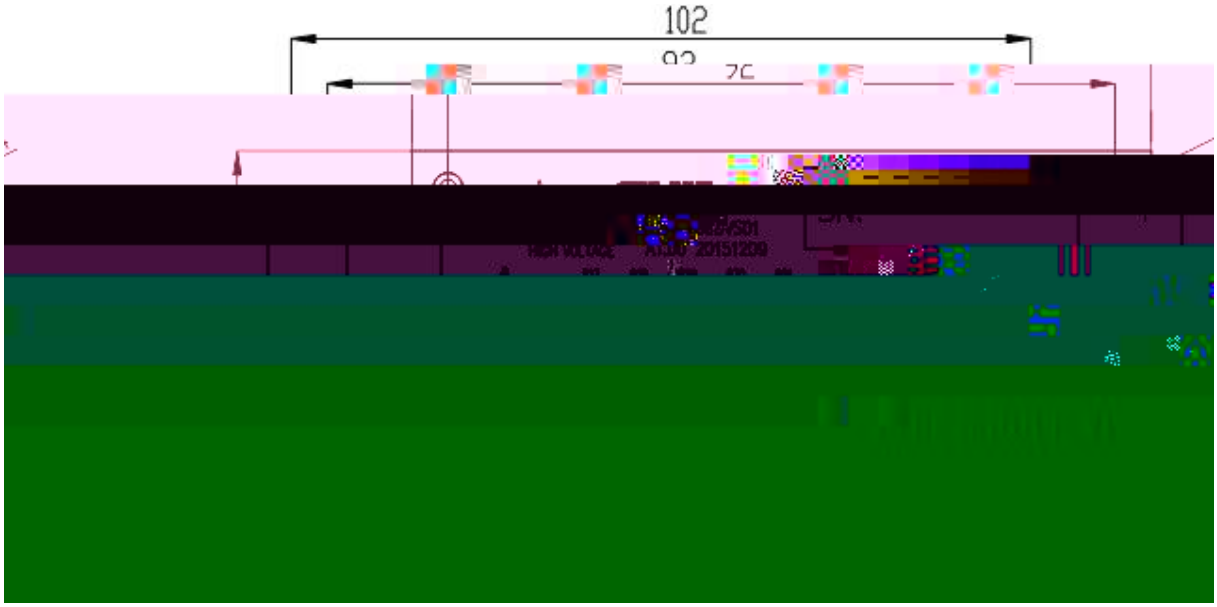


| | | |
|---|---|---|
| +10V-GND | 10V | +10V 50mA 1kΩ~5kΩ |
| +24V-COM | 24V | +24V 200mA |
| PW | | 24V DI1~DI5 DO1 PW 24V |
| AI1-GND | 1 | DC -10V~10V 100kΩ |
| AI2-GND | 2 | -10VDC~10VDC/0mA~20mA J1 100kΩ 500Ω |
| DI1- PW | 1 | |
| DI2- PW | 2 | 3.3kΩ |
| DI3- PW | 3 | 9V~30V DI1-DI4 |
| DI4- PW | 4 | 500Hz DI5 20KHz |
| DI5- PW | 5 | |
| AO1-GND | 1 | J2 0V~10V 0mA~20mA |
| AO2-GND | 2 | J8 0V~10V 0mA~20mA |
| DO1-COM | 1 | 0V~24V 0mA~50mA |

q

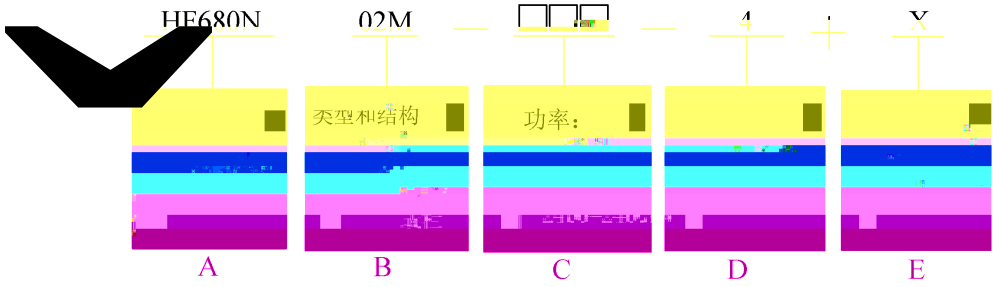


| | | | |
|---|---|---|---|
| DC+24V | CN4 | +24V-GND | |
| | CN1 | | L1/L2/L3 |




| | | | |
|---|---|---|---|
| | J1 | 1121S-7P | |
| | J2 | 2001S-5P(T) | |

## 3.3




| | |
|---|---|
| A | |
| B | 02M 02C |
| C | 132 132kW 2400 2400kW |
| D | 4 380V |
| E | |

| | | | |
|---|---|---|---|
| MB01 | Modbus RTU | DP01 | Profibus DP |
| PN01 | Profinet | CAN01 | CANopen |

Z1/ 100mm

Z2 200mm

Z3 250mm Î "

Z4 300mm

HF680N02C-o

620V

| | Iac A | Idc A | Pdc kW | Idch A | Pdch kW | Pdch kW | |
|---|---|---|---|---|---|---|---|
| HF680N02M-132-4 | 265 | 308 | 191 | 213 | 132 | 132 | B4 |
| HF680N02M-185-4 | 330 | 384 | 238 | 298 | 185 | 185 | B5 |
| HF680N02M-250-4 | 485 | 564 | 350 | 403 | 250 | 250 | |
| HF680N02M-315-4 | 545 | 634 | 393 | 508 | 315 | 315 | |
| HF680N02M-355-4 | 610 | 710 | 440 | 573 | 355 | 355 | B6 |
| HF680N02M-400-4 | 668 | 777 | 482 | 645 | 400 | 400 | |
| HF680N02M-450-4 | 720 | 838 | 519 | 726 | 450 | 450 | |
| HF680N02C-250-4 | 485 | 564 | 350 | 403 | 250 | 250 | |
| HF680N02C-315-4 | 545 | 634 | 393 | 508 | 315 | 315 | |
| HF680N02C-355-4 | 610 | 710 | 440 | 573 | 355 | 355 | B6 |
| HF680N02C-400-4 | 668 | 777 | 482 | 645 | 400 | 400 | |
| HF680N02C-450-4 | 720 | 838 | 519 | 726 | 450 | 450 | |
| HF680N02C-500-4 | 840 | 978 | 606 | 806 | 500 | 500 | |
| HF680N02C-630-4 | 1090 | 1268 | 786 | 1016 | 630 | 630 | 2*B6 |
| HF680N02C-800-4 | 1440 | 1676 | 1039 | 1290 | 800 | 800 | |
| HF680N02C-1200-4 | 2160 | 2514 | 1558 | 1935 | 1200 | 1200 | 3*B6 |
| HF680N02C-1600-4 | 2880 | 3352 | 2078 | 2581 | 1600 | 1600 | 4*B6 |

| | Iac A | Idc A | Pdc kW | Idch A | Pdch kW | Pdch kW | |
|---|---|---|---|---|---|---|---|
| HF680N02C-2000-4 | 3600 | 4190 | 2597 | 3226 | 2000 | 2000 | 5*B6 |
| HF680N02C-2400-4 | 4320 | 5027 | 3117 | 3871 | 2400 | 2400 | 6*B6 |

GDHF680N02M

HF680N02M

HF680N02M

3

## 3.4

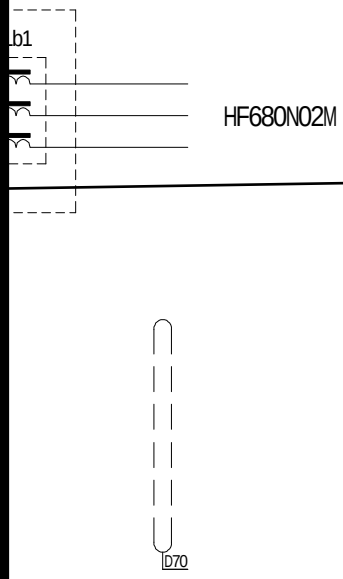
LCL

LCL

Lf Lb Cf

| | | Lf | Lb | Cf | |
|---|---|---|---|---|---|
| HF680N02M-132-4 | GDHF680N-LCL-132-4 | ACL-132-4 | PWM-132-4 | CAP-132-4 | 3 × 7R5 |
| HF680N02M-185-4 | GDHF680N-LCL-185-4 | ACL-185-4 | PWM-185-4 | CAP-185-4 | 3*7R5 |
| HF680N02M-250-4 | GDHF680N-LCL-250-4 | ACL-250-4 | PWM-250-4 | CAP-250-4 | 3 × 4R |
| HF680N02M-315-4 | GDHF680N-LCL-315-4 | ACL-315-4 | PWM-315-4 | CAP-315-4 | 3 × 2R5 |
| HF680N02M-355-4 | GDHF680N-LCL-355-4 | ACL-355-4 | PWM-355-4 | CAP-355-4 | 3 × 2R5 |
| HF680N02M-400-4 | GDHF680N-LCL-400-4 | BP-3i-3-4 א | | | |

B6-4


b1
HF680N02M
D70

“ ”

LCL

## 3.6

| | | |
|---|---|---|
| | | 380V 480V |
| | | 50 / 60Hz |
| | | -15% +10% |
| | | <AC320V 15ms |
| | | AFE |
| | | |
| | | 0.999 |
| | | 3% |
| | | 150% 5 1<br>180% 5 1 |
| | | 570V 710V |
| | | 1kHz 10kHz |

## 3.7

| +LCL | | kW |
|---|---|---|
| HF680N02M-132-4+GDHF680N-LCL-132-4 | B4 | 3.4 |
| HF680N02M-185-4+GDHF680N-LCL-185-4 | B5 | 5.6 |
| HF680N02M-250-4+GDHF680N-LCL-250-4 | | 7.5 |
| HF680N02M-315-4+GDHF680N-LCL-315-4 | B6 | 9.5 |
| HF680N02M-355-4+GDHF680N-LCL-355-4 | | 10.7 |
| HF680N02M-400-4+GDHF680N-LCL-400-4 | | 12.0 |
| HF680N02M-450-4+GDHF680N-LCL-450-4 | | 13.5 |

## 3.8

IGBT

50%

0.999

3% GB/T 24337-2009

380V 480V -15% +10%

DP PN

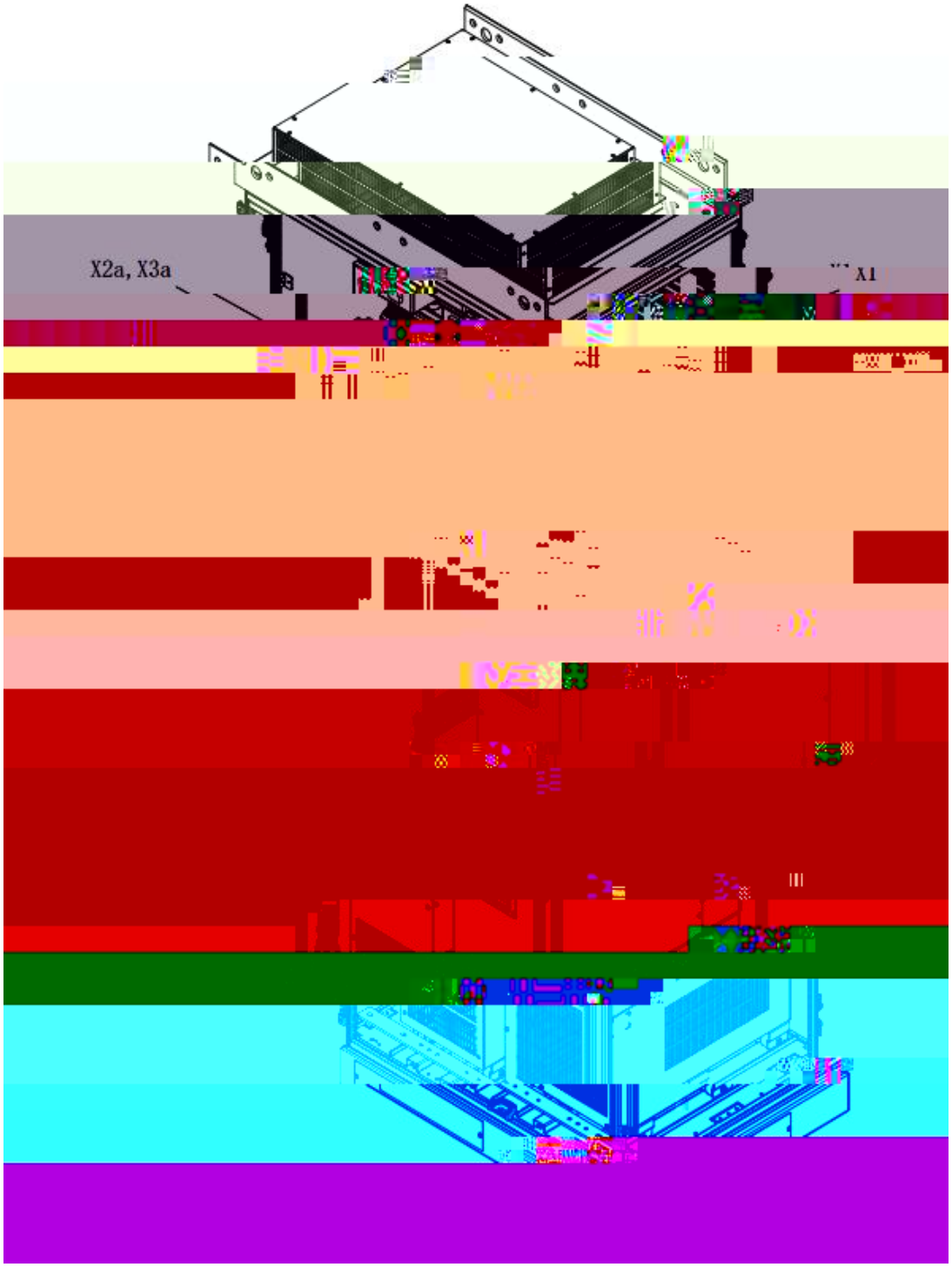
75kW 2400kW

## 3.9

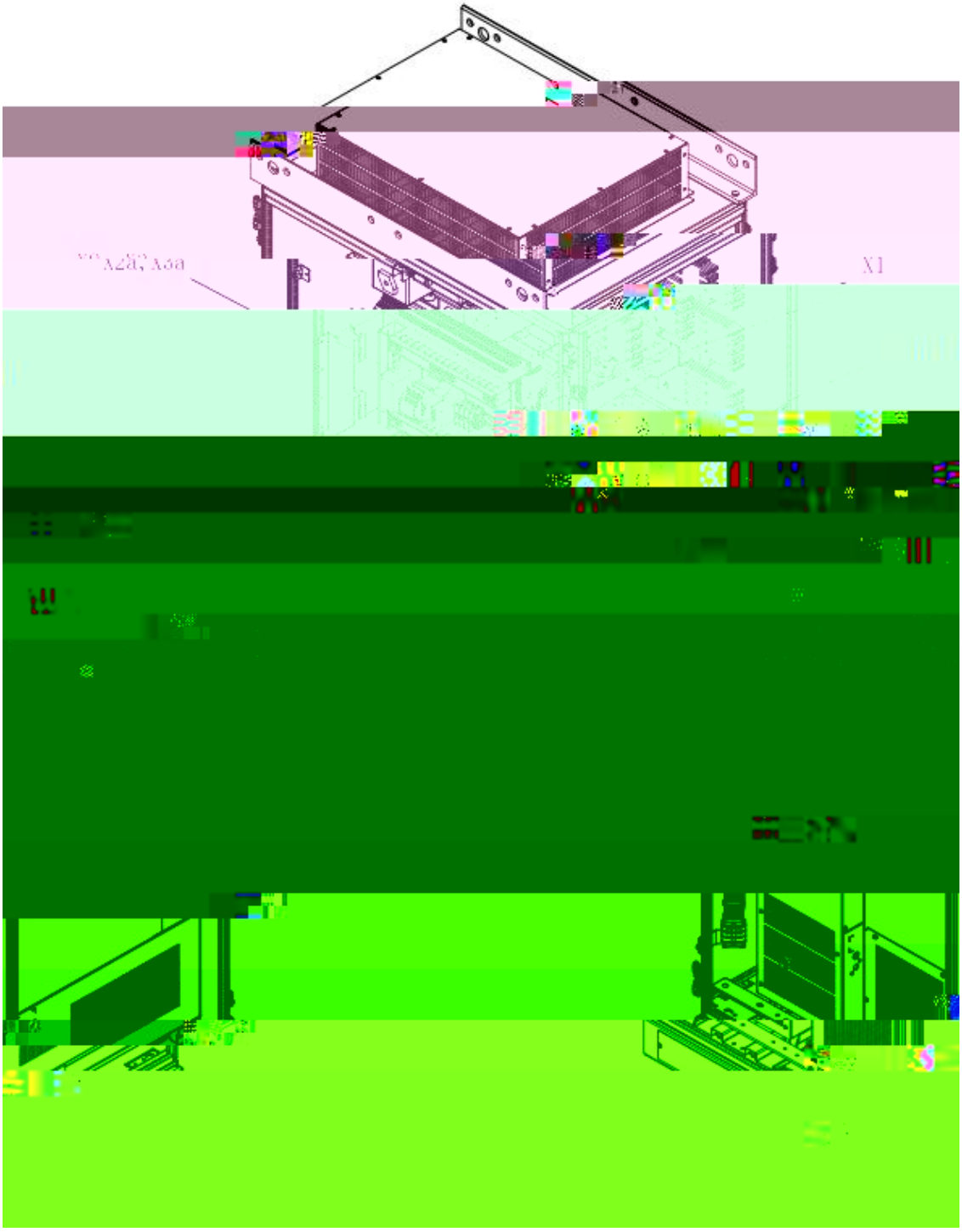
1

2 450kW

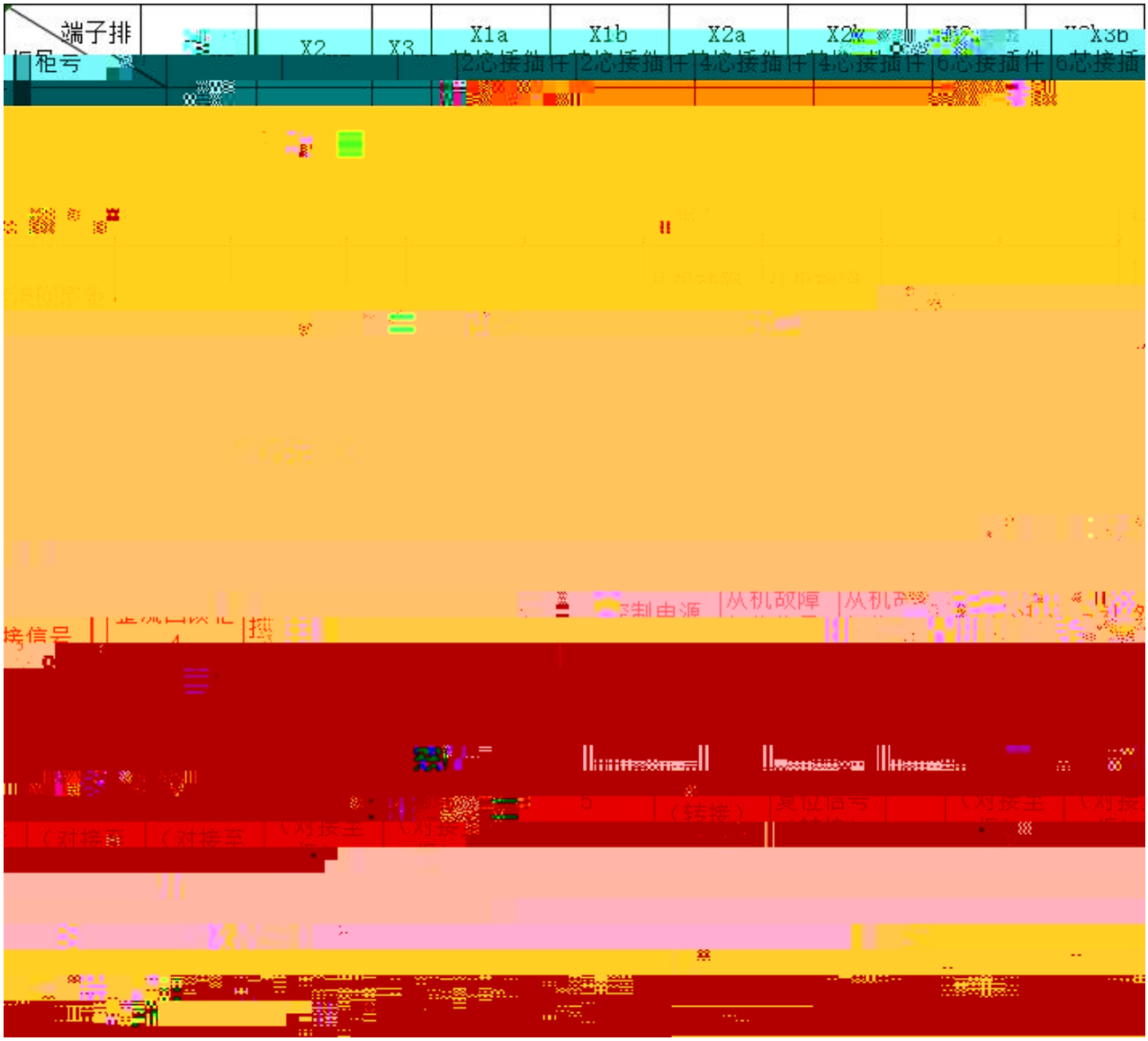
450kW




1 ( ) a



2 b


端子排
X2
X3
X1a
X1b
X2a
X2b
X3b
6芯接插件
从机故障

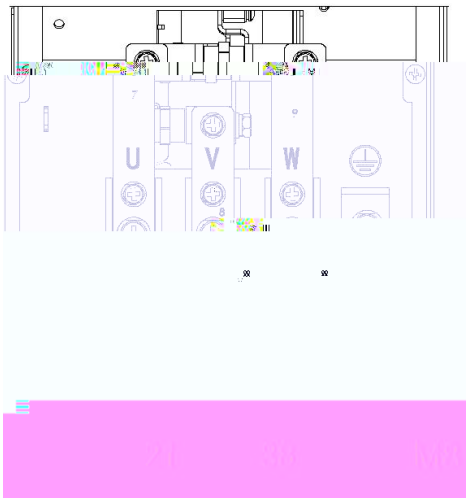
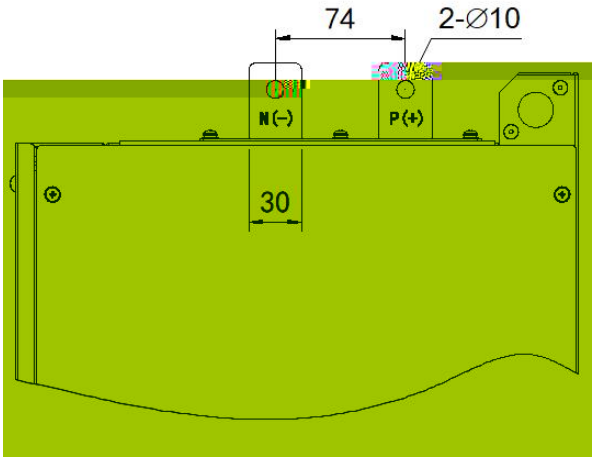
## 4.

## 4.1

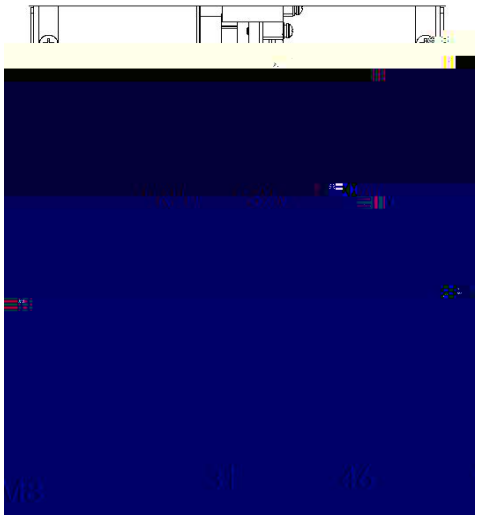
## 4.2

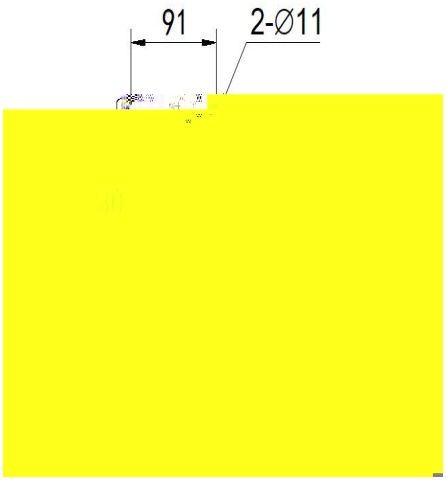
1

| | |
|---|---|
| P + | |
| N - | |
| U V W | |
| | |

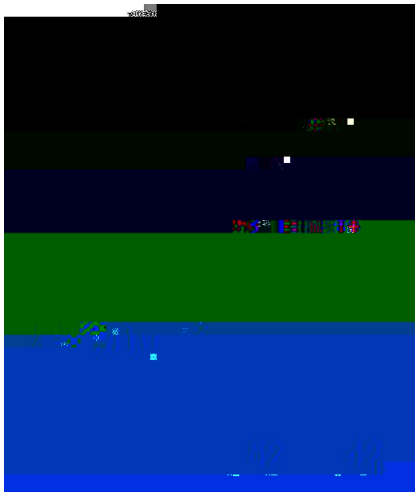
| B3 | |
|---|---|
|  |  |

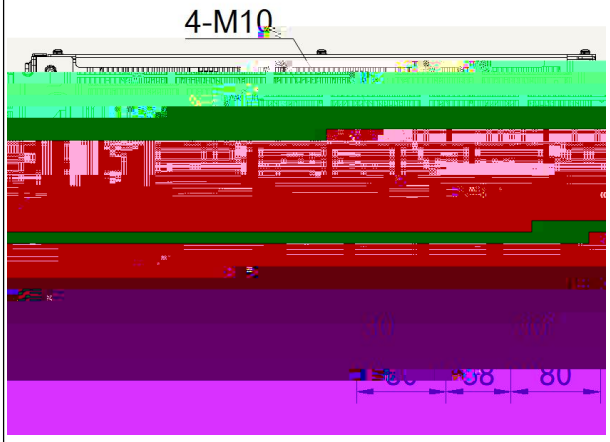
B4

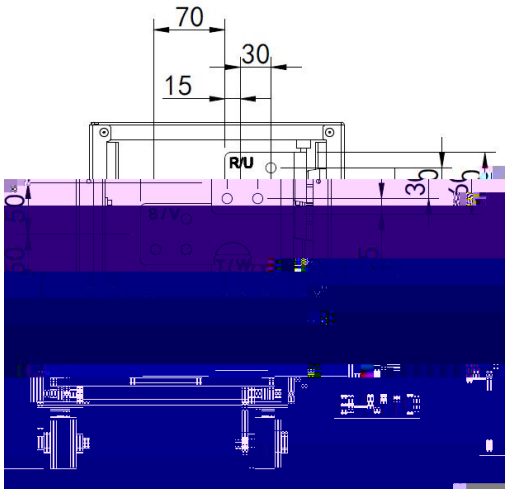


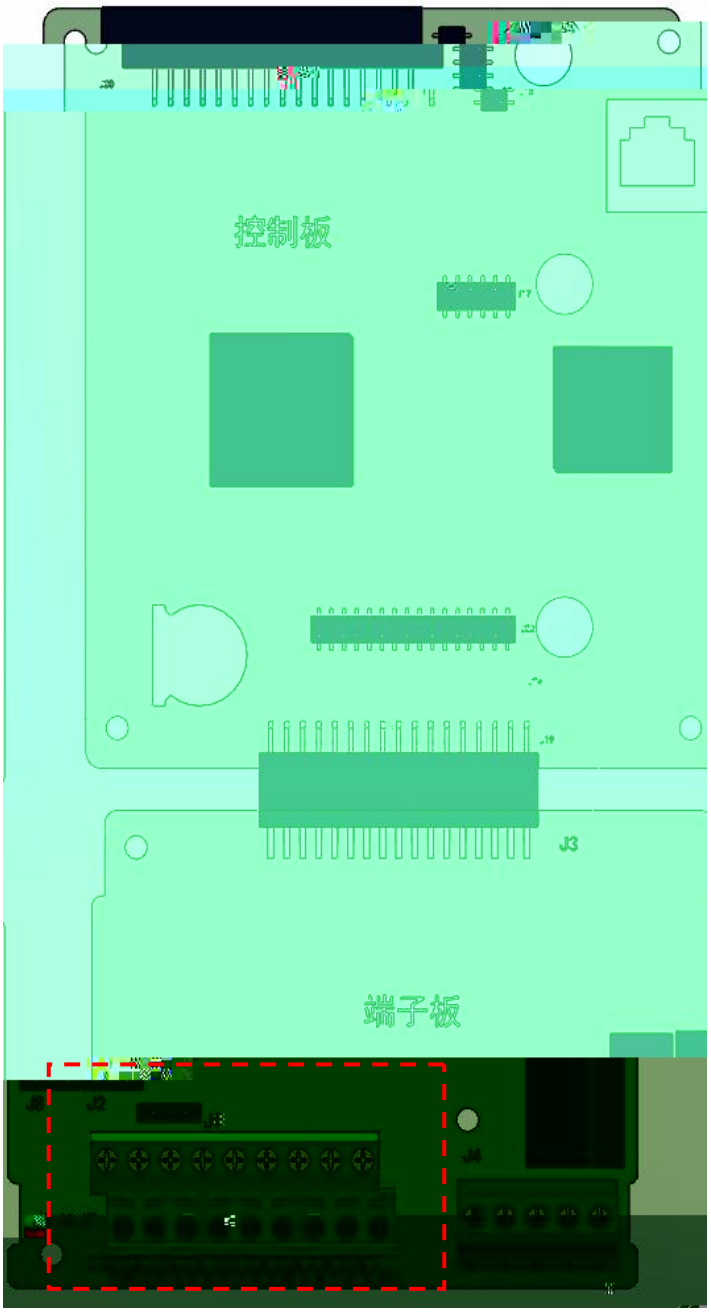


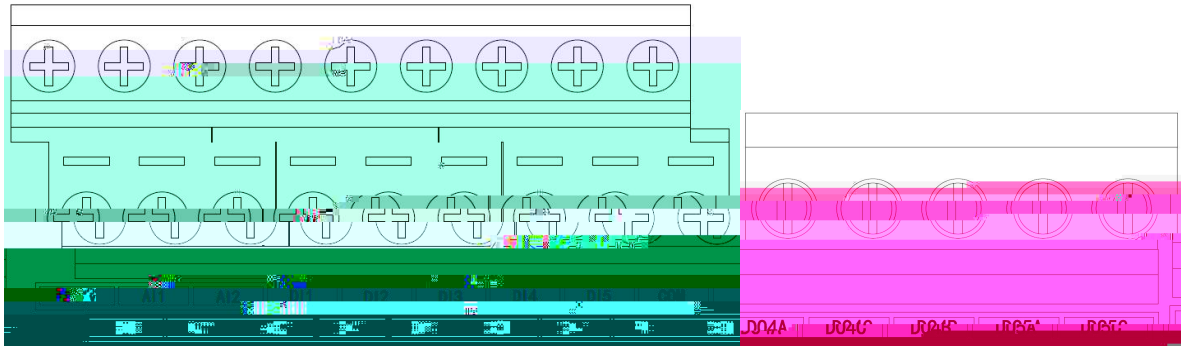

B5





| B6 | |
|---|---|
|  |  |


控制板
J3
端子板



| | | | |
|---|---|---|---|
| | +10V-GND | 10V | +10V 50mA<br>1kΩ~5kΩ |
| | +24V-COM | 24V | +24V<br>200mA |
| | PW | | 24V<br>DI1~DI5 DO1 PW<br>24V |
| | AI1-GND | 1 | DC -10V~10V 100kΩ |
| | AI2-GND | 2 | -10VDC~10VDC/0mA~20mA<br>J1<br>100kΩ 500Ω |
| | DI1- PW | 1 | 3.3kΩ<br>9V~30V DI1-DI4<br>500Hz DI5 20KHz |
| | DI2- PW | 2 | |
| | DI3- PW | 3 | |
| | DI4- PW | 4 | |
| | DI5- PW | 5 | |
| | AO1-GND | 1 | J2<br>0V~10V<br>0mA~20mA |
| | AO2-GND | 2 | J8<br>0V~10V<br>0mA~20mA |
| | DO1-COM | 1 | 0V~24V<br>0mA~50mA |
| | DO4A-DO4C | 1 | 250VAC 3A COS =0.4<br>30VDC 1A |
| | DO4B-DO4C | 2 | |
| | DO5A-DO5C | 3 | 250VAC 2A COS =0.4<br>30VDC 1A |

| | | | |
|---|---|---|---|
| | J1 | AI2 | |
| | J2 | AO1 | |
| | J8 | AO2 | |

| | | | |
|---|---|---|---|
| MB01 | Modbus RTU | DP01 | Profibus DP |
| PN01 | Profinet | CAN01 | CANopen |
| PG02 | | | |

Z1/Ď ž ď / Ē

| | | | | | |
|---|---|---|---|---|---|
| | [A] | [kW] | [A] | [kW] | |
| HF680N03M-200-4 | 415 | 200 | 367 | 185 | |
| HF680N03M-220-4 | 438 | 220 | 418 | 200 | |
| HF680N03M-250-4 | 485 | 250 | 440 | 220 | |
| HF680N03M-280-4 | 545 | 280 | 487 | 250 | B6 |
| HF680N03M-315-4 | 610 | 315 | 548 | 280 | |
| HF680N03M-355-4 | 668 | 355 | 615 | 315 | |
| HF680N03M-400-4 | 720 | 400 | 670 | 355 | |
| HF680N03M-450-4 | 820 | 450 | 725 | 400 | |
| HF680N03C-500-4 | 970 | 500 | 823 | 450 | 2*B5 |
| HF680N03C-500-4+PG02 | | | | | |
| HF680N03C-560-4 | 1090 | 560 | 975 | 500 | 2*B6 |
| HF680N03C-560-4+PG02 | | | | | |
| HF680N03C-630-4 | 1220 | 630 | 1095 | 560 | |
| HF680N03C-630-4+PG02 | | | | | |
| HF680N03C-710-4 | 1336 | 710 | 1230 | 630 | |
| HF680N03C-710-4+PG02 | | | | | |
| HF680N03C-800-4 | 1440 | 800 | 1340 | 710 | |
| HF680N03C-800-4+PG02 | | | | | |
| HF680N03C-900-4 | 1620 | 900 | 1445 | 800 | |
| HF680N03C-900-4+PG02 | | | | | |

## 4.4

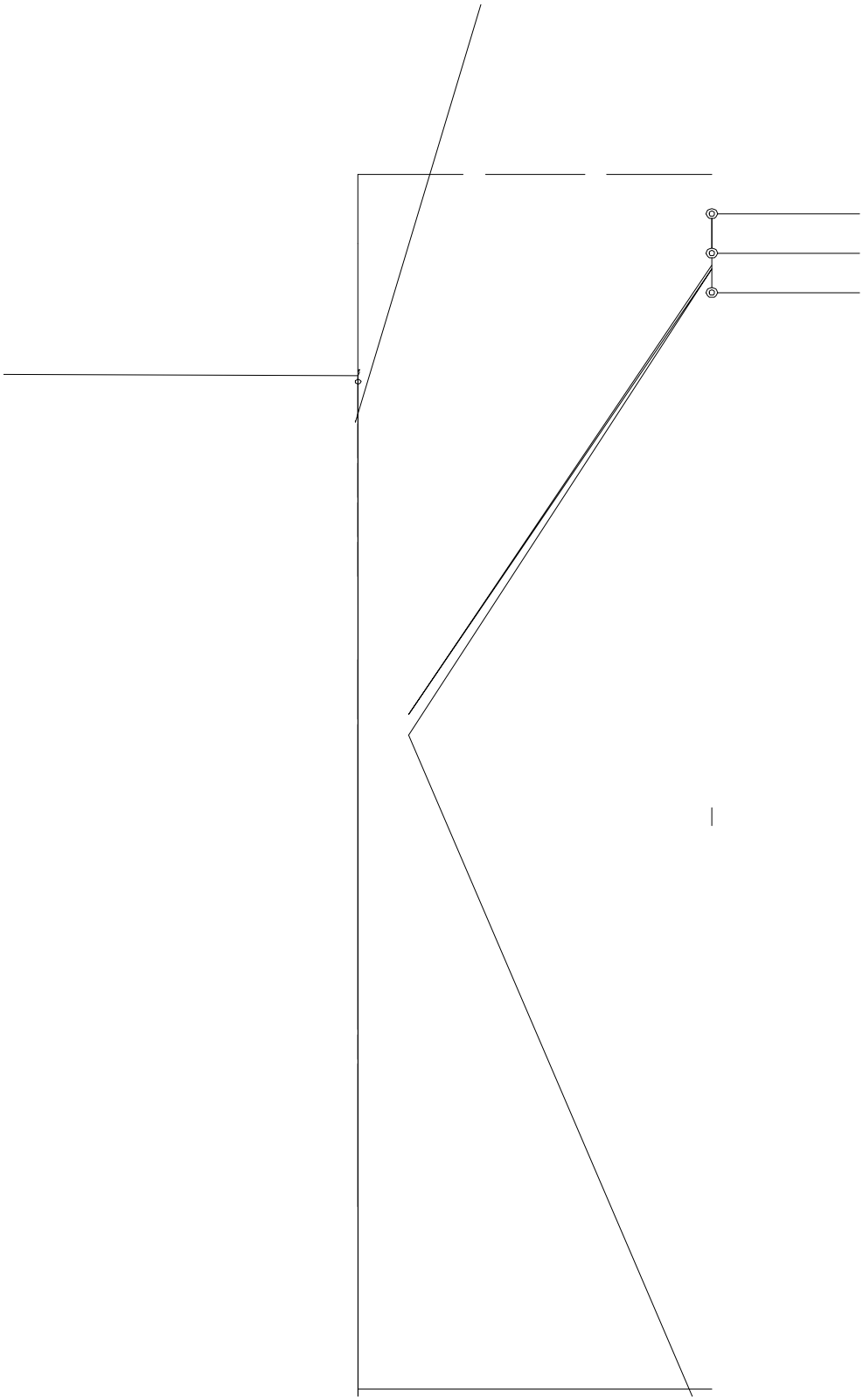
| | 1% | | | 1% | |
|---|---|---|---|---|---|
| | A | mH | | A | mH |
| 37kW | 75 | 0.09 | 200kW | 396 | 0.02 |
| 45kW | 94 | 0.07 | 220kW | 438 | 0.02 |
| 55kW | 115 | 0.06 | 250kW | 485 | 0.01 |
| 75kW | 155 | 0.05 | 280KW | 545 | 0.01 |
| 90kW | 188 | 0.04 | 315kW | 610 | 0.01 |
| 110kW | 215 | 0.03 | 355kW | 668 | 0.01 |
| 132kW | 265 | 0.03 | 400kW | 720 | 0.01 |
| 160kW | 303 | 0.02 | 450kW | 820 | 0.01 |
| 185kW | 365 | 0.02 | / | / | / |

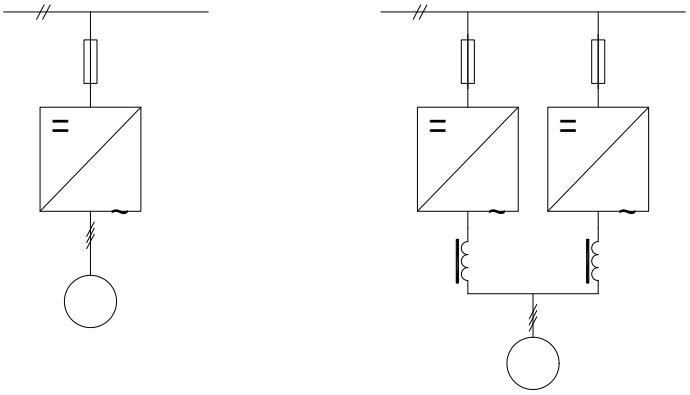
1. 100m

100m

2. 450kW

4.5





| | mm² 40% | A |
|---|---|---|
| HF680N03M-037-4 | 10 | 117 |
| HF680N03M-045-4 | 16 | 147 |
| HF680N03M-055-4 | 16 | 180 |
| HF680N03M-075-4 | 25 | 243 |
| HF680N03M-090-4 | 35 | 294 |
| HF680N03M-110-4 | 50 | 338 |
| HF680N03M-132-4 | 70 | 416 |
| HF680N03M-160-4 | 95 | 476 |
| HF680N03M-185-4 | 95 | 572 |
| HF680N03M-200-4 | 120 | 621 |
| HF680N03M-220-4 | 120 | 687 |
| HF680N03M-250-4 | 70*2 | 761 |
| HF680N03M-280-4 | 70*2 | 854 |
| HF680N03M-315-4 | 95*2 | 956 |
| HF680N03M-355-4 | 120*2 | 1047 |
| HF680N03M-400-4 | 120*2 | 1128 |
| HF680N03M-450-4 | 150*2 | 1285 |

1. 400kW

2. HF680N

## 4.6

540V 700V

(VC) (SVC) V/F

Profibus DP

380V 460V 5%

0 300Hz

0Hz/200%(VC

## 4.8

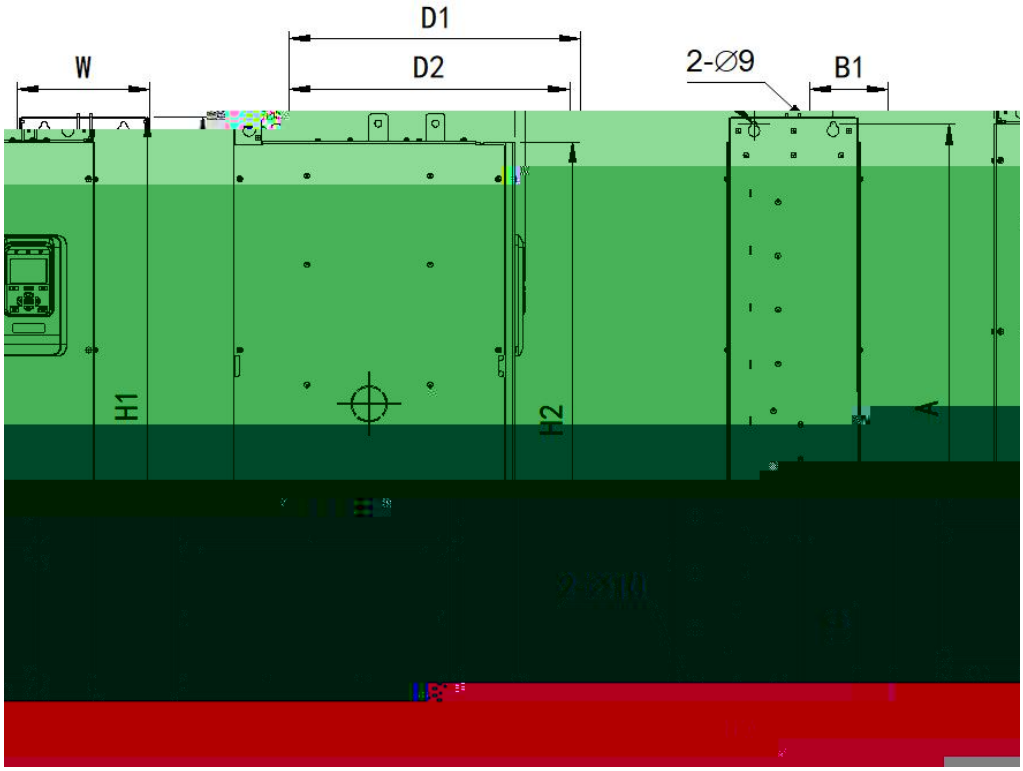
(1) 200%

(2) 50% HF680N

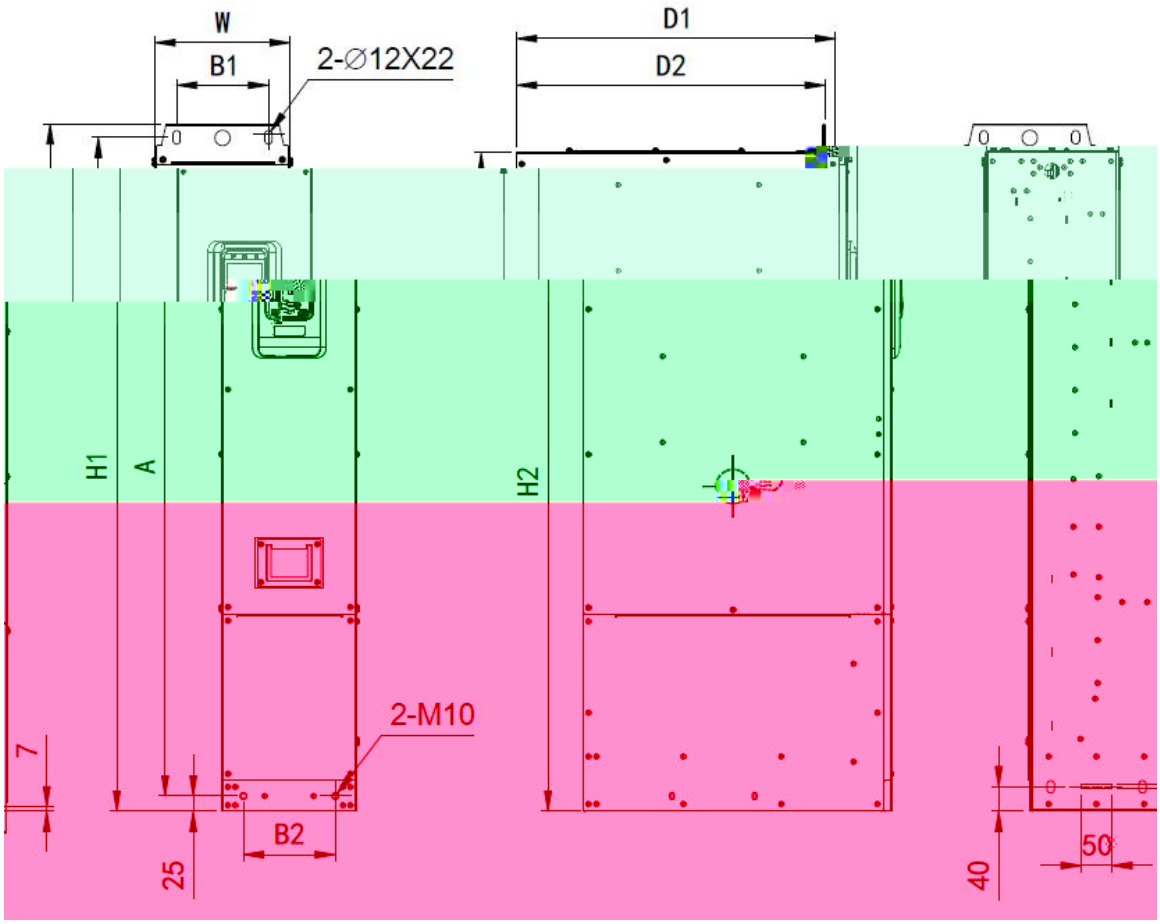
(3) HF680N

5.

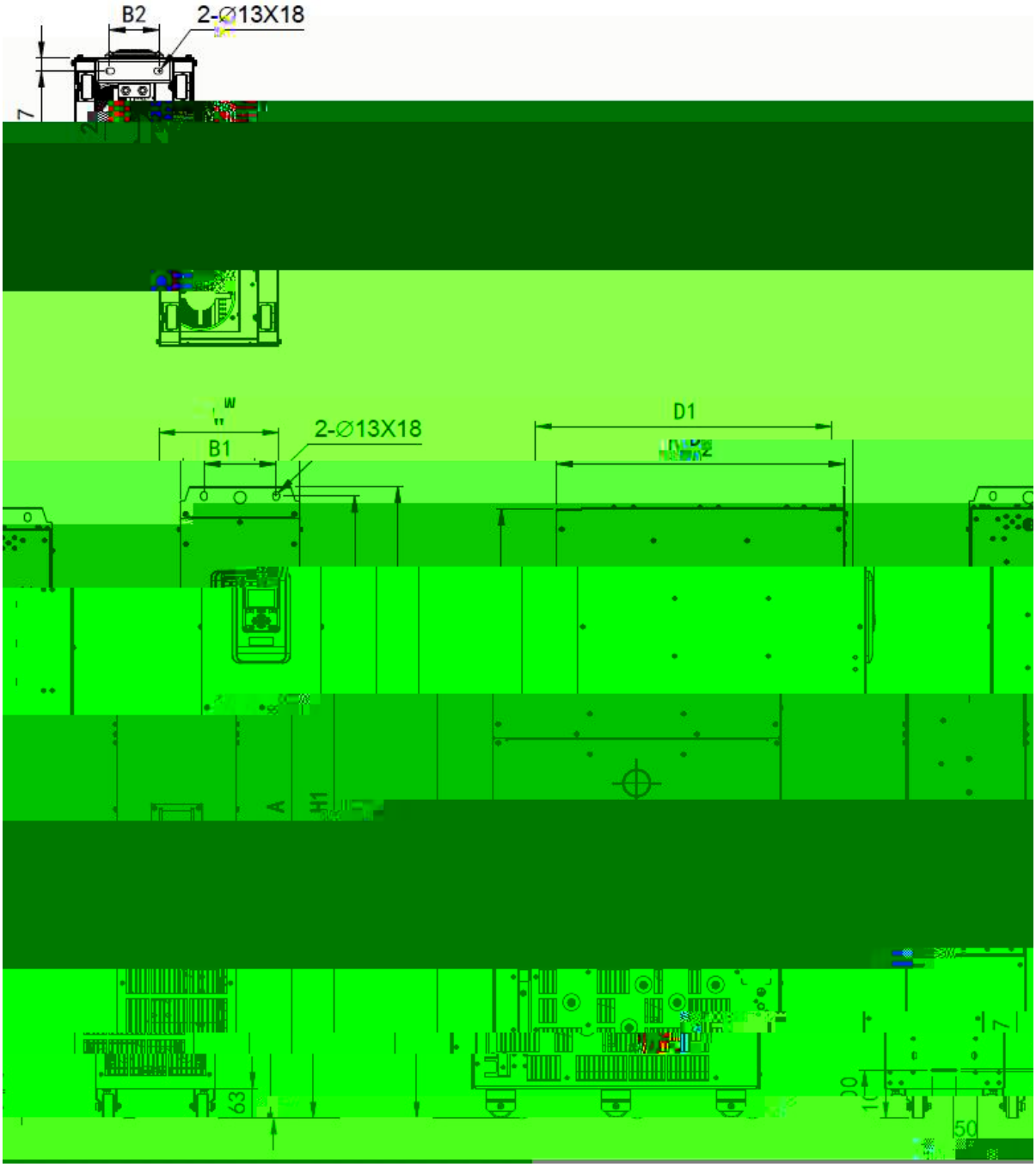
5.1



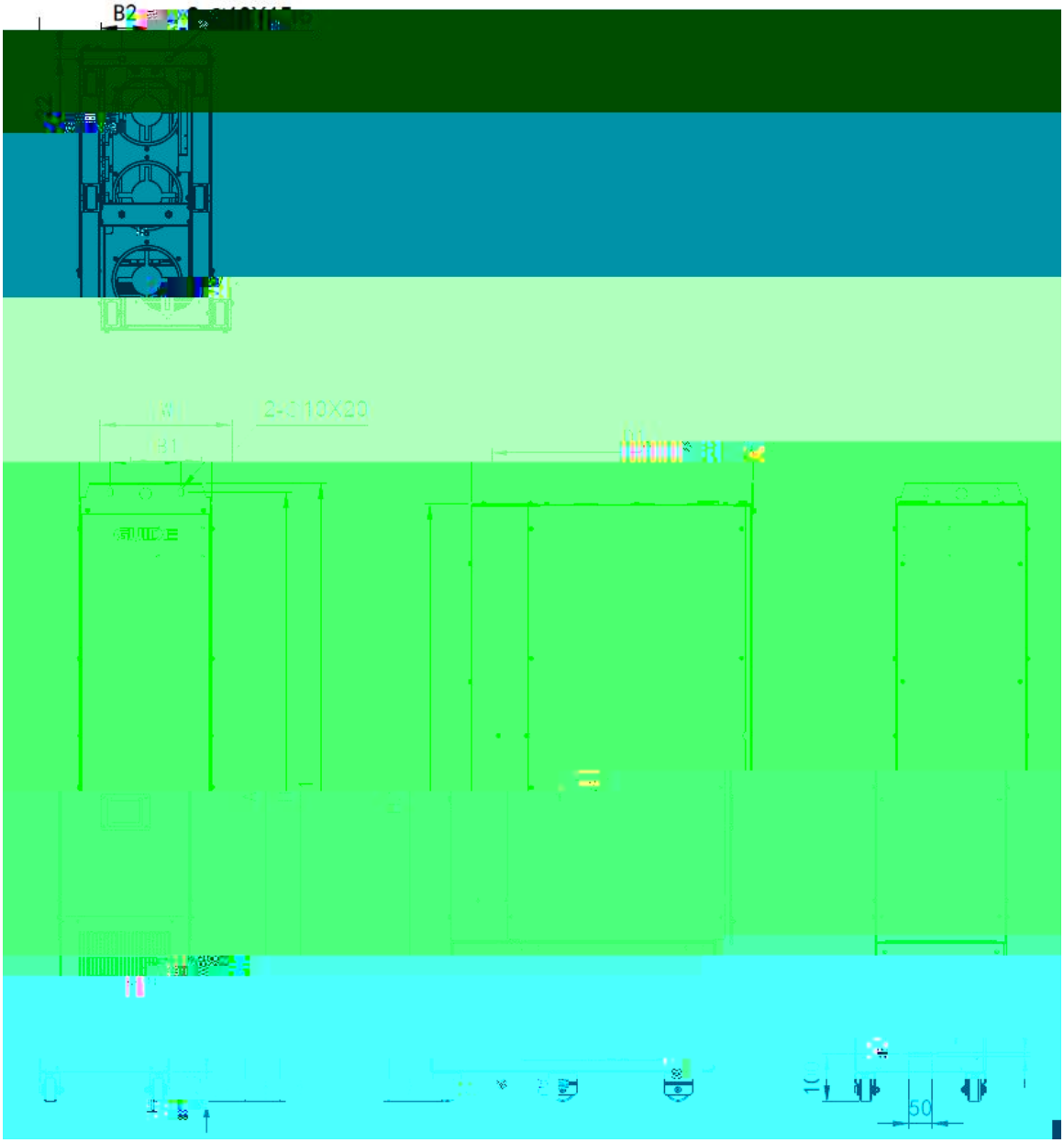

B4




B5




B6

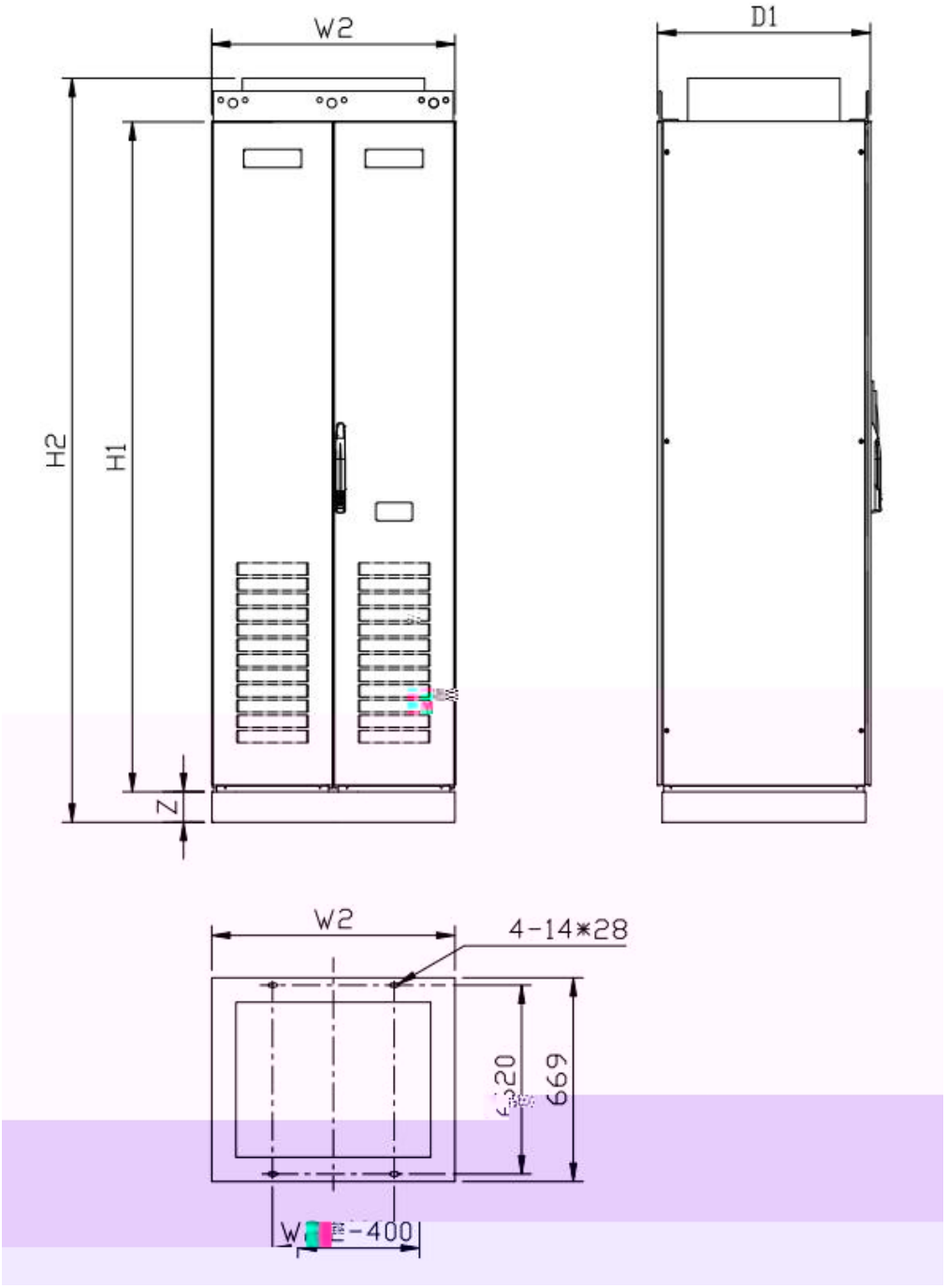



LCL

| | | mm | | | | | mm | | | | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | H1 | H2 | W | D1 | D2 | A | B1 | B2 | 8.8 | |
| HF680N02M-075-4<br>HF680N02M-132-4 | B4 | 920 | 880 | 210 | 462 | 444 | 899 | 125 | 150 | 4-M8 | 55 |
| HF680N02M-185-4<br>HF680N02M-250-4 | B5 | 1125 | 1075 | 220 | 520 | 505 | 1075 | 150 | 150 | 4-M10 | 80 |
| | B6 | 1315 | 1268 | 250 | 618 | 600 | 1295 | 150 | 100 | 4-M12 | È |

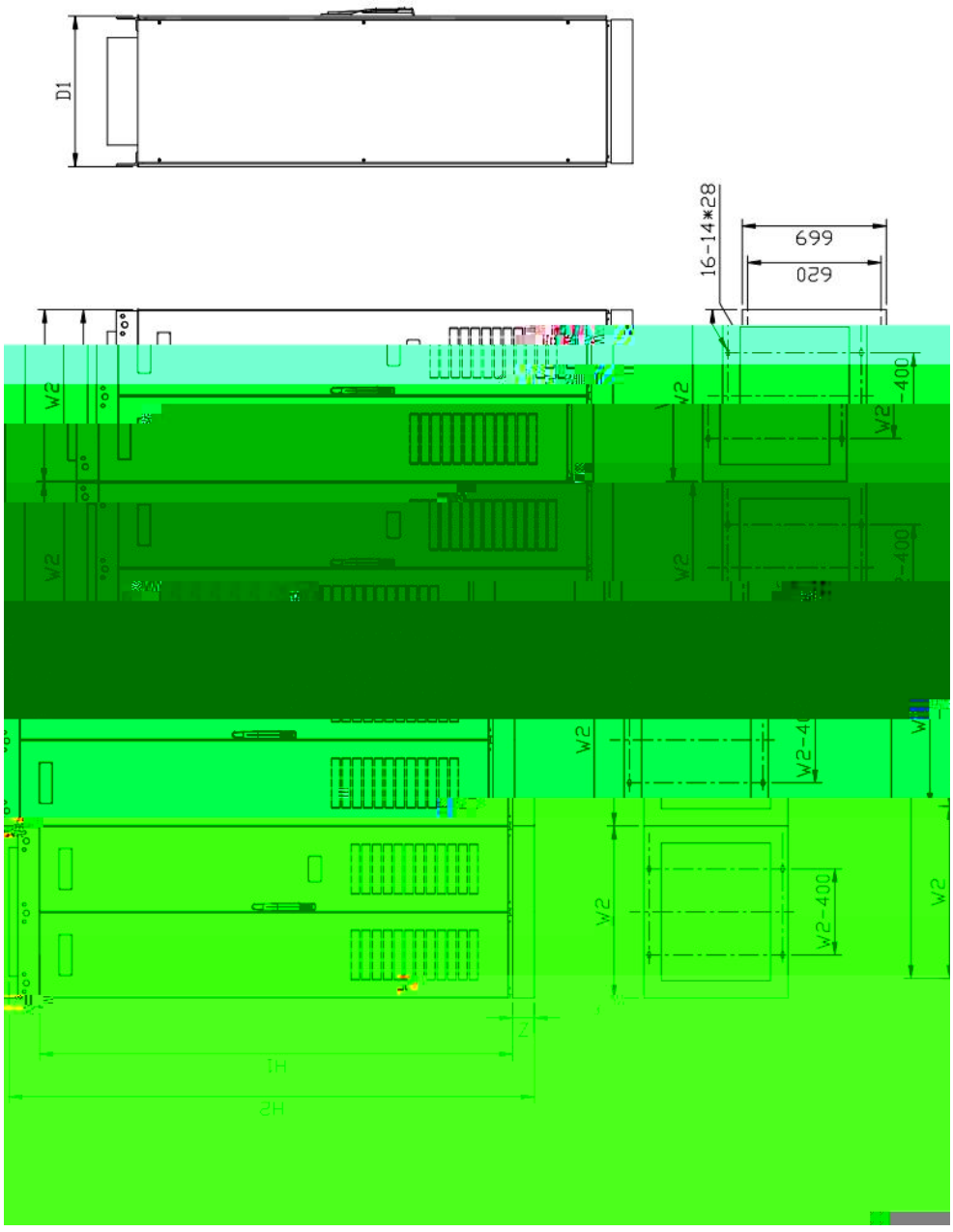
## 5.2

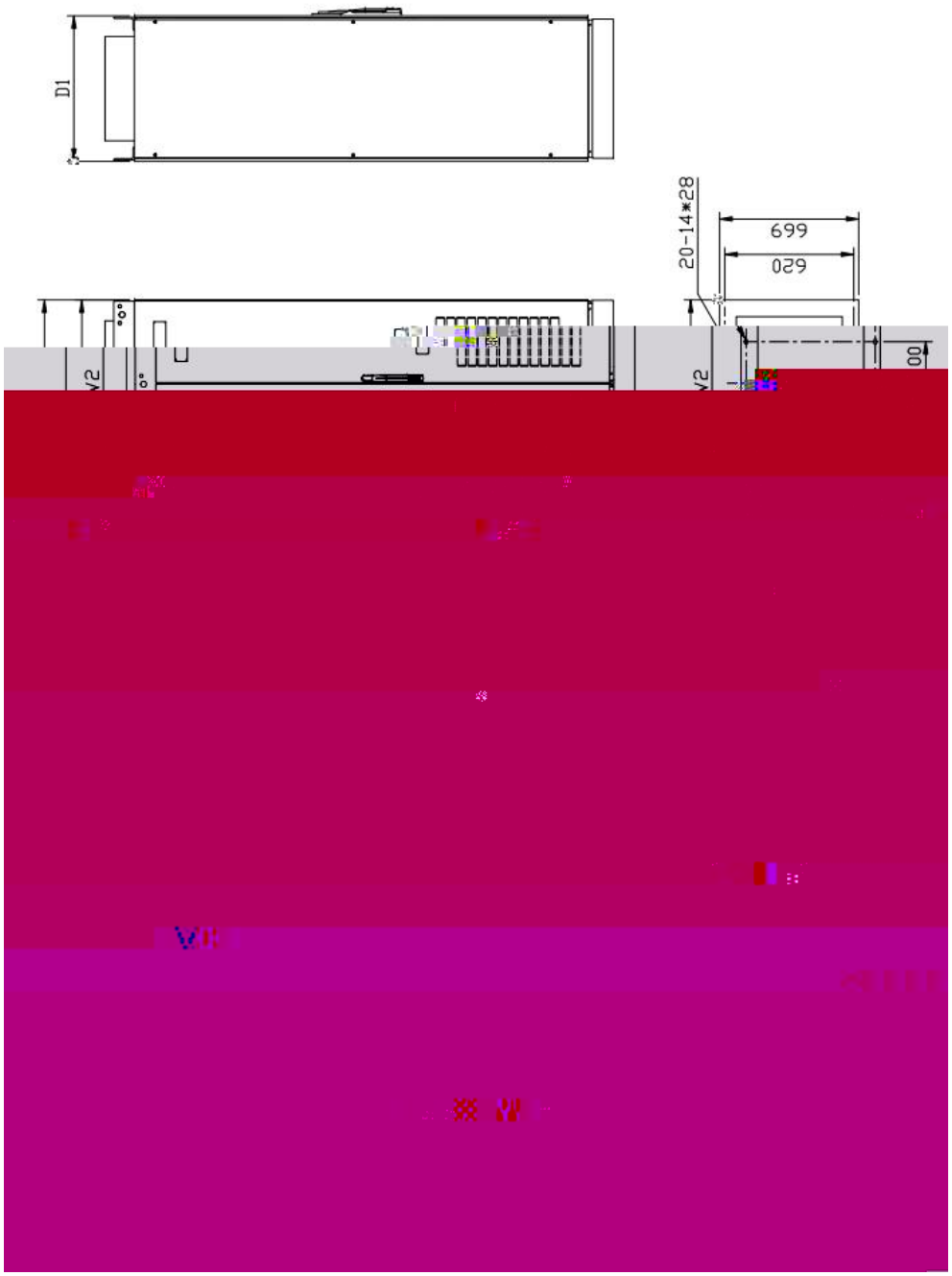
250kW~2400kW




HF680N02C-250-4 HF680N02C-315-4 HF680N02C-400-4 HF680N02C-450-4




D1
16-14*28
699
620
W2
W2-400

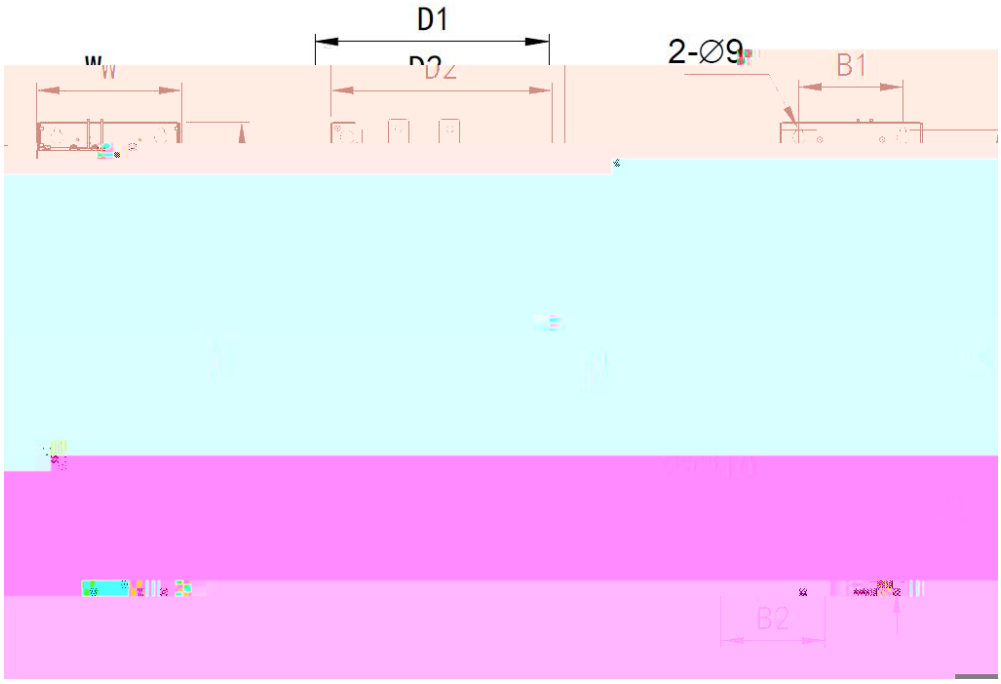

D1
20-14*28
699
620


D1
699
W2
W1

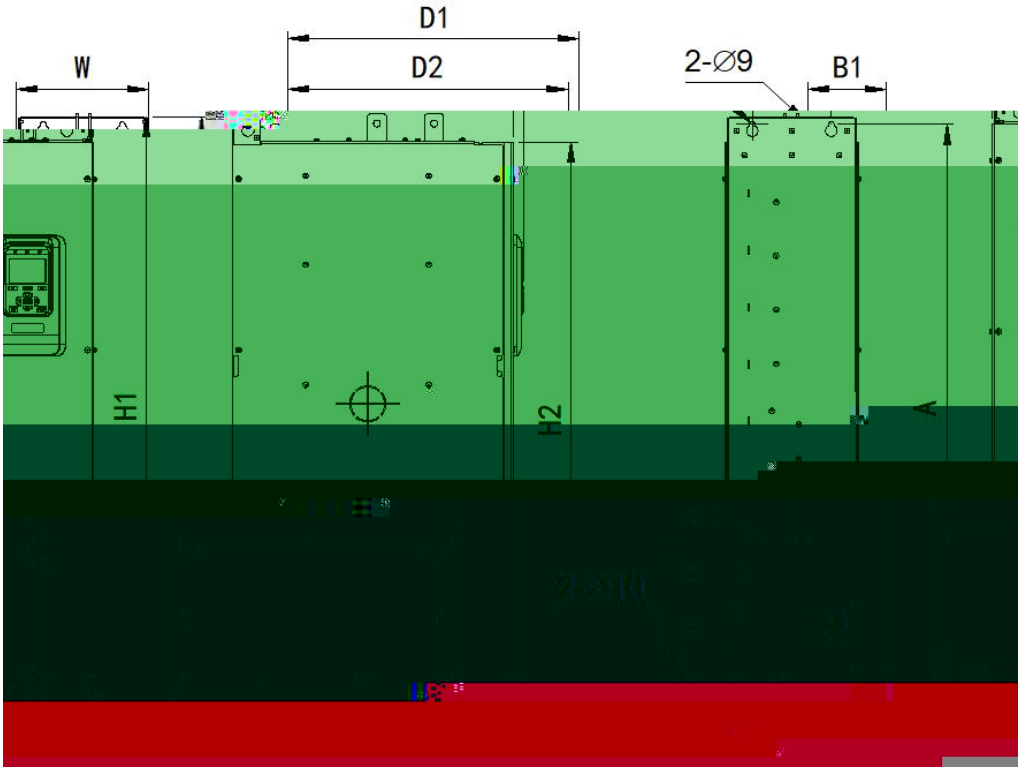
250kW 315kW 400kW 450kW

| | | mm | | | | | | kg |
|---|---|---|---|---|---|---|---|---|
| | | H1 | H2 | W1 | W2 | D1 | Z | |
| 1 | HF680N02C-250-4<br>HF680N02C-250-4+Z1<br>HF680N02C-315-4<br>HF680N02C-315-4+Z1<br>HF680N02C-400-4<br>HF680N02C-400-4+Z1 | 2200 | 2440 | / | 800 | 700 | 100 | 1000 |
| 2 | HF680N02C-250-4+Z2<br>HF680N02C-315-4+Z2<br>HF680N02C-400-4+Z2 | 2200 | 2540 | / | 800 | 700 | 200 | 1000 |
| 3 | HF680N02C-250-4+Z3<br>HF680N02C-315-4+Z3<br>HF680N02C-400-4+Z3 | 2200 | 2590 | / | 800 | 700 | 250 | 1000 |
| 4 | HF680N02C-250-4+Z4<br>HF680N02C-315-4+Z4<br>HF680N02C-400-4+Z4<br>HF680N02C-450-4+Z4 | 2200 | 2640 | / | 800 | 700 | 300 | 1000 |

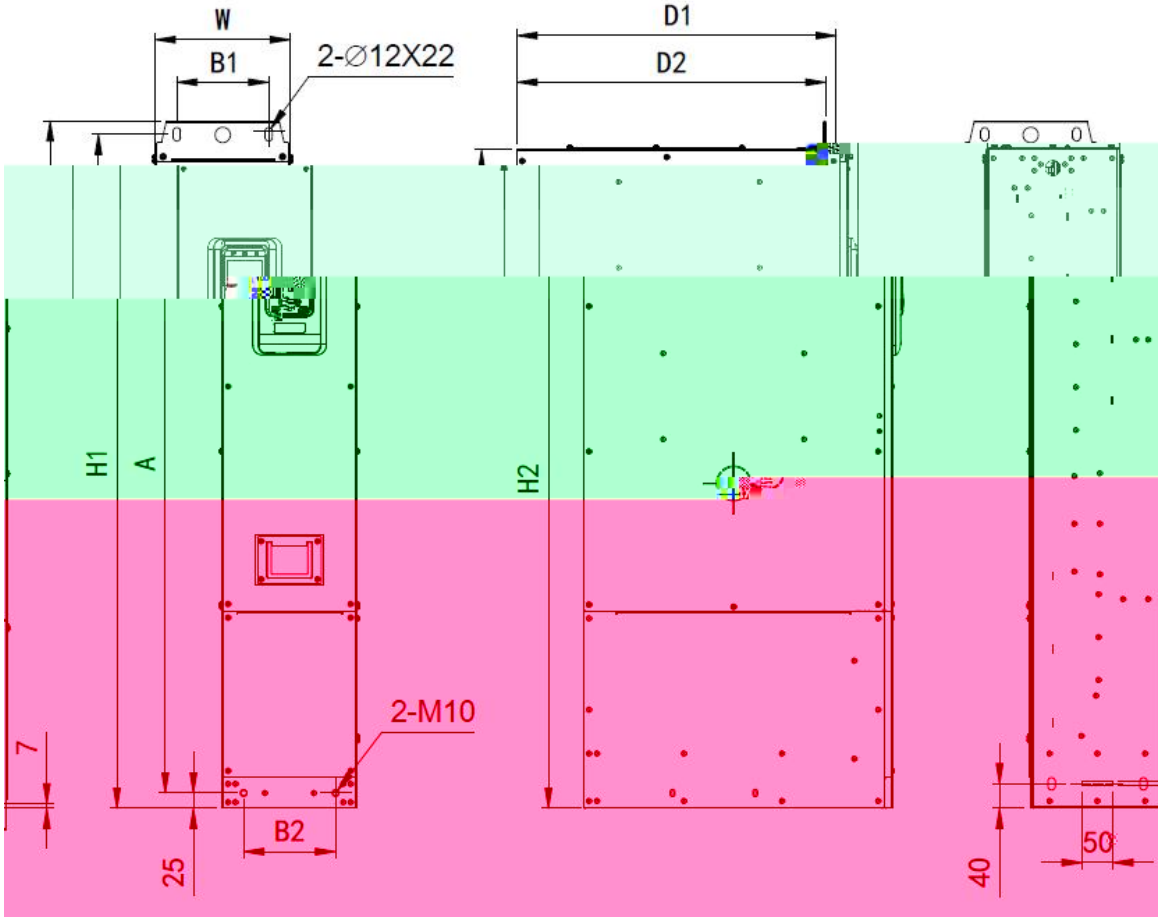
## 5.3



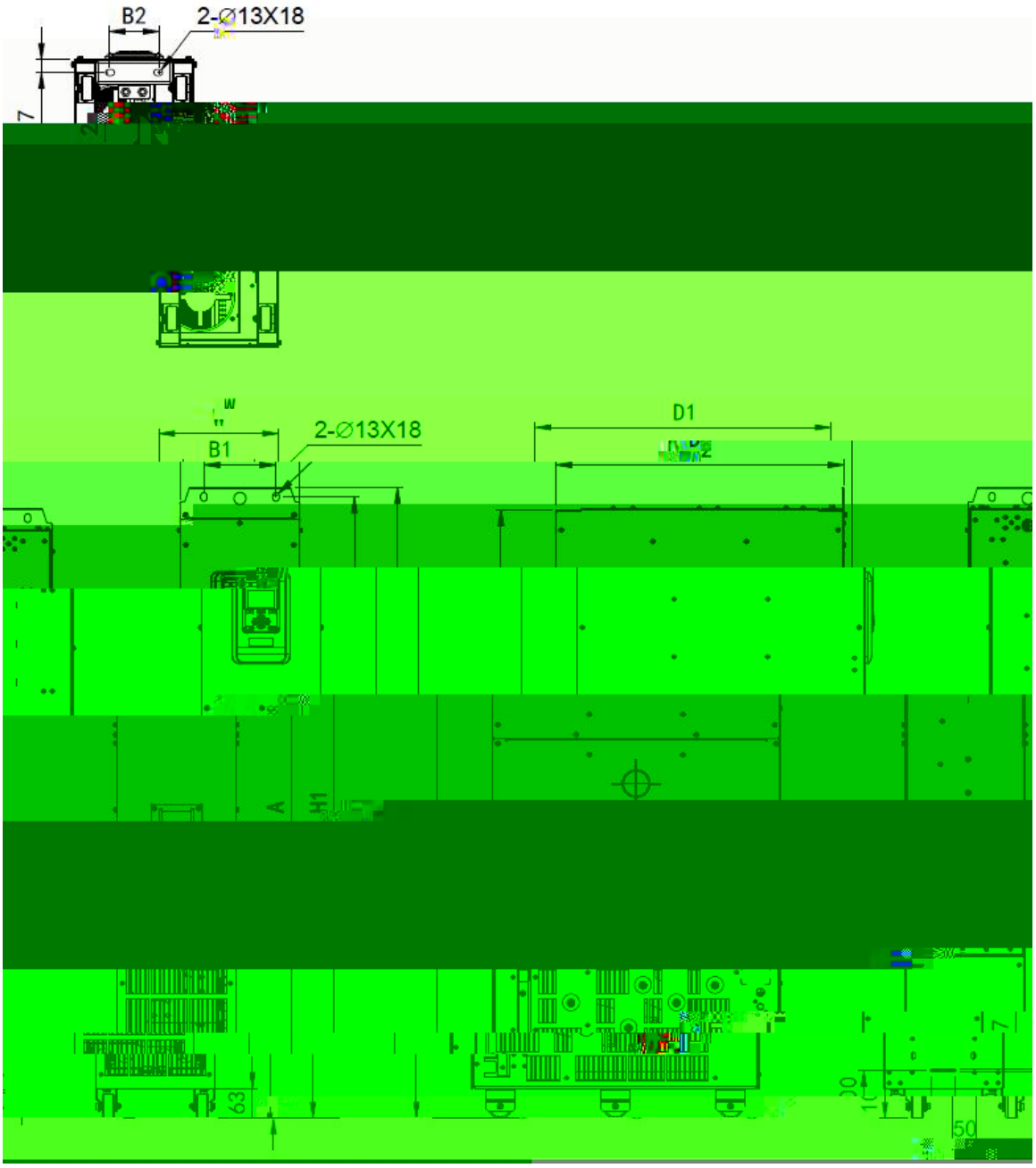

B3




B4




B5




B6

mm

mm

8.8 kg

H1 H2 W D1 D2 A B1 B2

| | | mm | | | | | kg |
|---|---|---|---|---|---|---|---|
| | | H1 | H2 | W1 | D1 | Z | |
| 1 | HF680N03C-500-4<br>HF680N03C-500-4+Z1 | 2200 | 2440 | 800 | 700 | 100 | 900 |
| | HF680N03C-560-4<br>HF680N03C-560-4+Z1 | | | | | | |
| | HF680N03C-630-4<br>HF680N03C-630-4+Z1 | | | | | | |
| | HF680N03C-800-4<br>HF680N03C-800-4+Z1 | | | | | | |
| 2 | HF680N03C-500-4+Z2 | 2200 | 2540 | 800 | 700 | 200 | 900 |
| | HF680N03C-560-4+Z2 | | | | | | |
| | HF680N03C-630-4+Z2 | | | | | | |
| | HF680N03C-800-4+Z2 | | | | | | |
| 3 | HF680N03C-500-4+Z3 | 2200 | 2590 | 800 | 700 | 250 | 900 |
| | HF680N03C-560-4+Z3 | | | | | | |
| | HF680N03C-630-4+Z3 | | | | | | |
| | HF680N03C-800-4+Z3 | | | | | | |
| 4 | HF680N03C-500-4+Z4 | 2200 | 2640 | 800 | 700 | 300 | 900 |
| | HF680N03C-560-4+Z4 | | | | | | |
| | HF680N03C-630-4+Z4 | | | | | | |
| | HF680N03C-800-4+Z4 | | | | | | |

# 6.

## 6.1

HF680N F1

LOCAL/REMOTE F2 RUN STOP /RESET ENTER



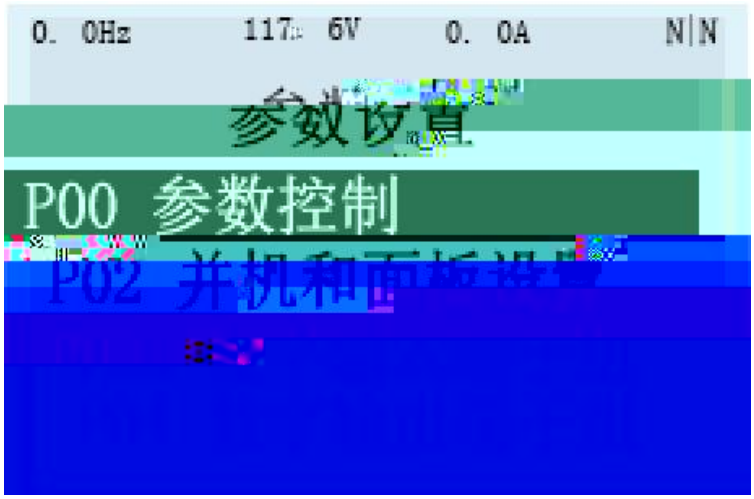
| | | |
|---|---|---|
| 6 | Security | |

6.4.1

| | |
|---|---|
| 1 | Choose Direction |
| 2 | Reset Error |
| 3 | Menu Language |
| 4 | Monitor Setting |
| 5 | LCD Contrast |
| 6 | Time Setting |

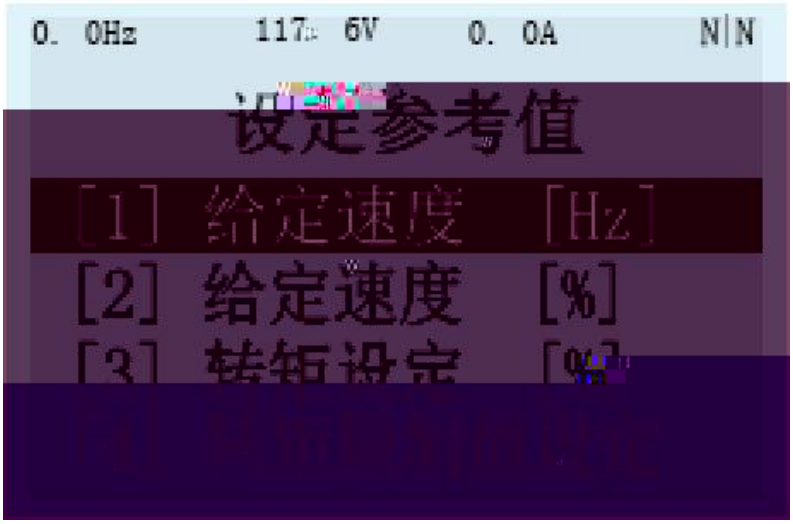
| | | |
|---|---|---|
| 7 | Version | |
| 8 | OLD COM | |

6.4.2




Parameter Setting

6.4.3




Reference Set

Referen_e n

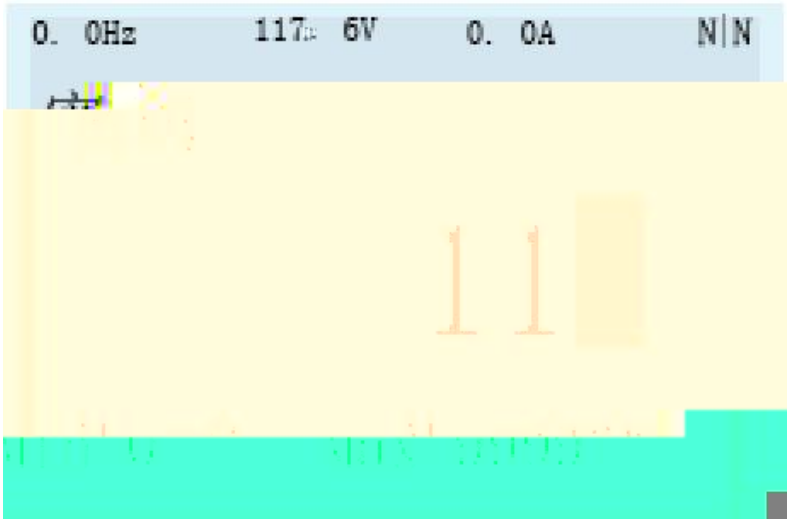
| | | |
|---|---|---|
| 1 | MotoTuning I | |
| 2 | MotoTuning II | |
| 3 | MotoTuning III | |
| 4 | DC-Link Tuning (AFE) | AFE |
| 5 | Shortcut Paras Setting | |
| 6 | Parameter Initialization | |
| 7 | Delete Fault Records | |
| 8 | System Restart | |
| 9 | Backup Parameter | |
| 10 | Recover Parameter | |
| 11 | Compare Parameter | |
| 12 | Backup Para DSP DSP | DSP |

| | | |
|---|---|---|
| 13 | Restore Para DSP<br>DSP | DSP |

ל

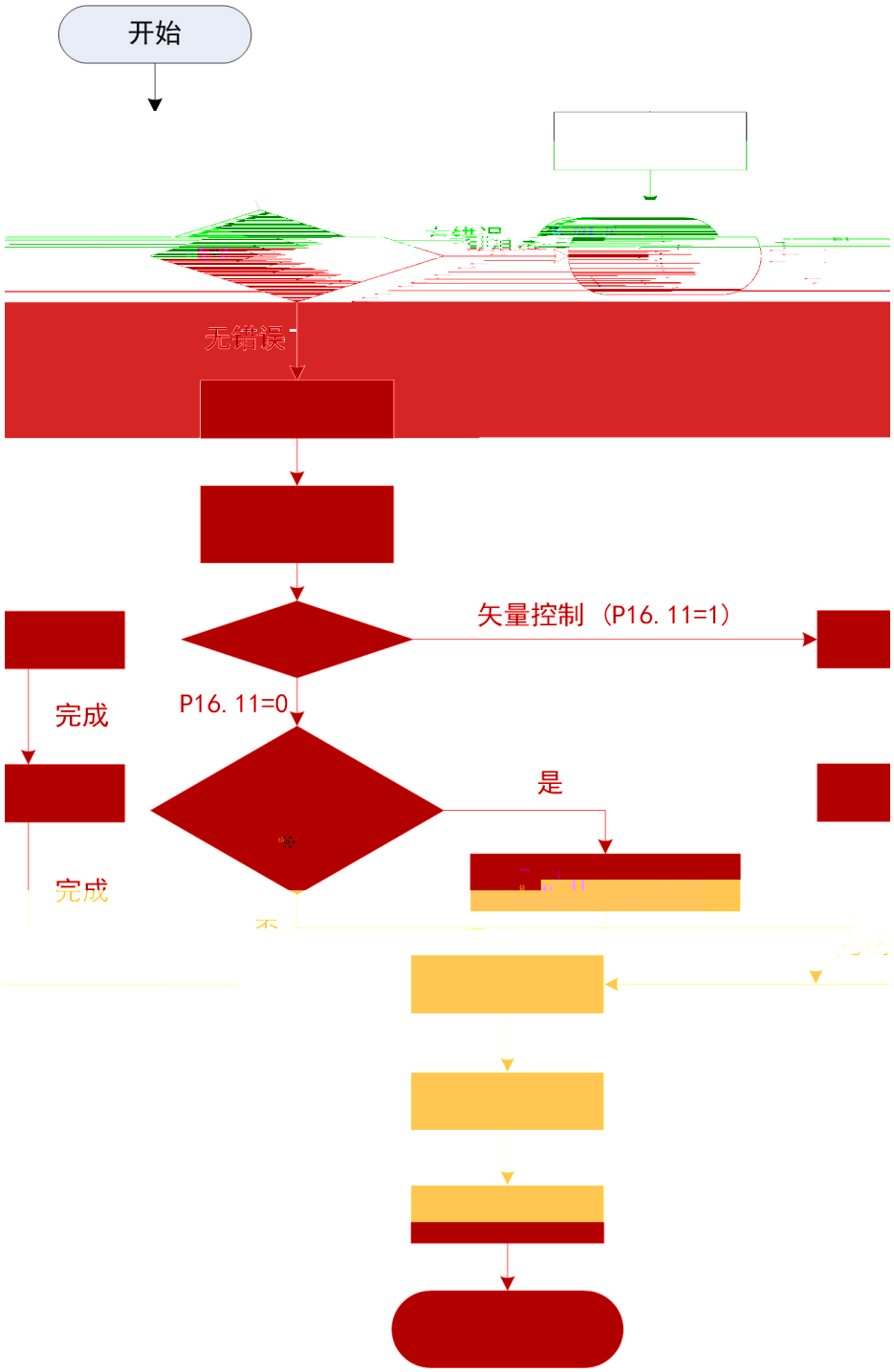
6.4.6

Access Permissions



# 7.

## 7.1



/

V/F P16.11=0 V/F

P16.11=2 P16.11=1

### 7.2.1

5.4 “ ”

### 7.2.2

| | | | |
|---|---|---|---|
| | | | |
| P16.2 | | | |
| P16.3 | | | |
| P16.4 | | | |
| P16.5 | | | |
| P16.6 | | | |
| P16.7 | | 120×P16.5 / P16.6 | |
| P16.9 | | 120×P16.5/P16.7 | |
| P16.11 | | [0]V/F<br>[1]<br>[2] | 0 |
| P16.14 | V/F | [0] V/F<br>[1] V/F<br>[2] | 0 |
| P16.24 | | V/F | 50<br>[Hz] |
| P8.16 | 1 | P8.15 | 3 |
| P8.35 | 1 | P8.34 | 3 |
| P8.0 | | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4] | 1 |

4

50%

### 7.2.4

HF680N

±e ! ¢Ø×Ð“‡Ó• -

1

2 LOC/REM LOCAL LOCAL

3 ENTER [1] RUN

RUN 5Hz

# 8.

## 8.1

### 8.1.1

DI1 DI2

DI3: 14 DI4

DO2 DO3:

DO4 DO

DO5

1 א

| | | |
|---|---|---|
| P4.3 | DO4 | 0 |
| P4.4 | DO5 | 32 |
| P7.0 | | 180% |
| P7.4 | | 200% |
| P7.12 | | 730V |
| P8.6 | | 300s |
| P16.0 | | 380V |
| P16.2 | | |

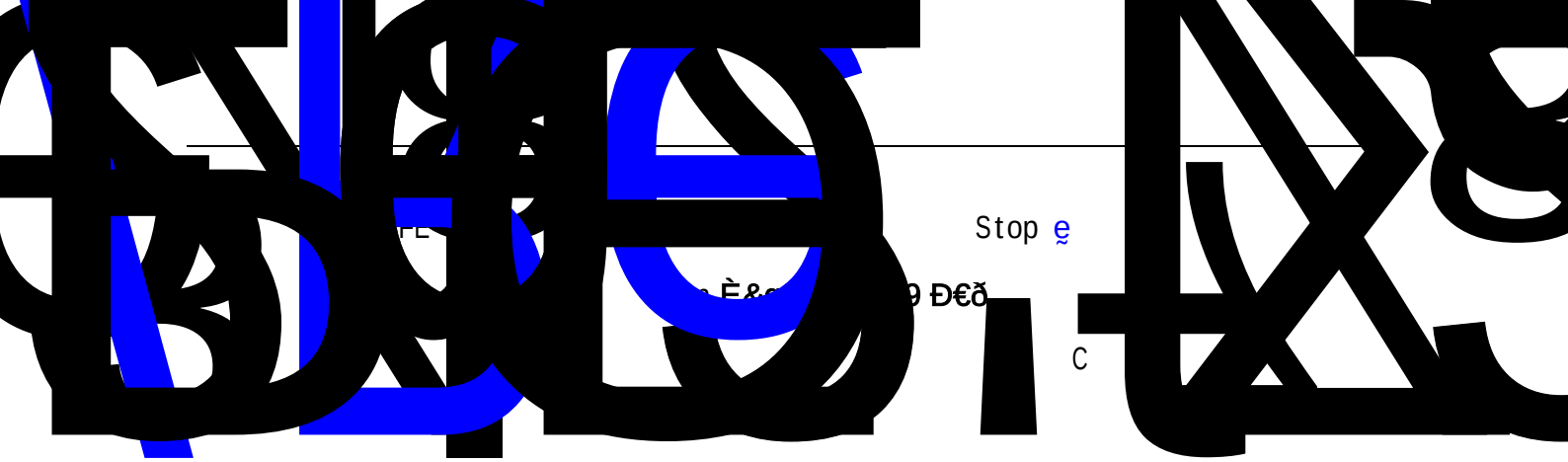
DO

430V

800V

300s

0.5s



Stop ę

È&¢ 9 Ð€õ

C

P N P N Local/Remote

Local P24.21 0 “ ”

“ ” Stop P24.28

/Re P24.21 1

Local/Remote Remote PLC Ä

2

380V 220V




| | | | |
|---|---|---|---|
| P3.0 | | 1 | |
| P3.1 | | 20 | |
| P3.2 | | 14 | LCL |
| P3.3 | | 5 | |
| P4.1 | DO2 | 2 | |
| P4.2 | DO3 | 1 | |
| P4.3 | DO4 | 0 | DO |
| P4.4 | DO5 | 32 | |
| P7.0 | | 180% | |
| P7.4 | | 200% | |
| P7.12 | | 730V | 430V<br>800V |
| P8.6 | | 300s | 300s<br>0.5s |
| P16.0 | | 380V | |
| P16.2 | | | |

P16 375V 580V

375V 16.0≤400V 600V

400V P16.0≤430V 630V

430V P16.0≤450V 665V

450V P16.0≤460V 680V

P16.0 460V 700V

620V P16.0 380V P24.7

20V 620V

380V “ / ” “ ”

运行 103.23

IGBT 300s 103.31 AFE

49-51Hz 103.30 AFE

停止

P8.6 0.5s 运行 103.23

102.54 102.55 102.56

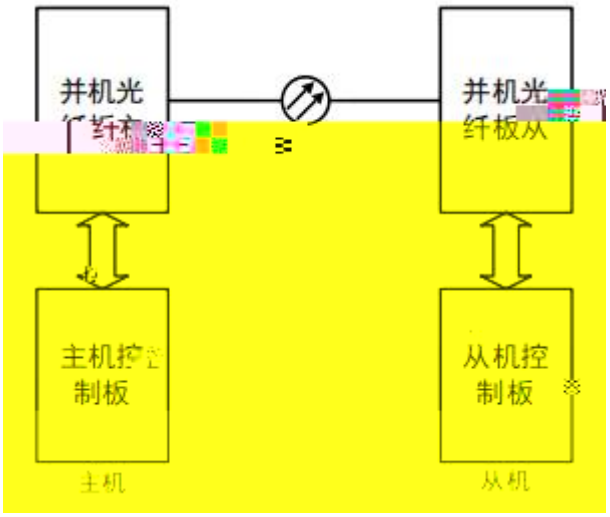
停止

D02

D04 D0

D05

1




380V 220V P0.1

DI DO

DO

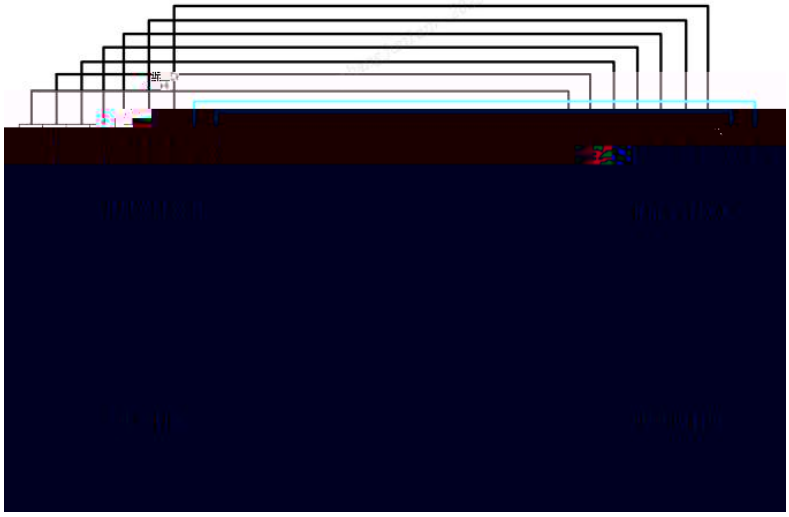
“ D04A ” “ D04C ” “ D05A ”

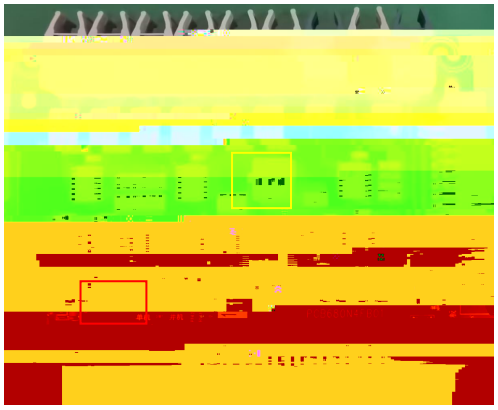
“ D05C ” D02 PLC

1

P3.0-P3.7 0 PLC DI “

” “ H:L ” DI 1







“ ”

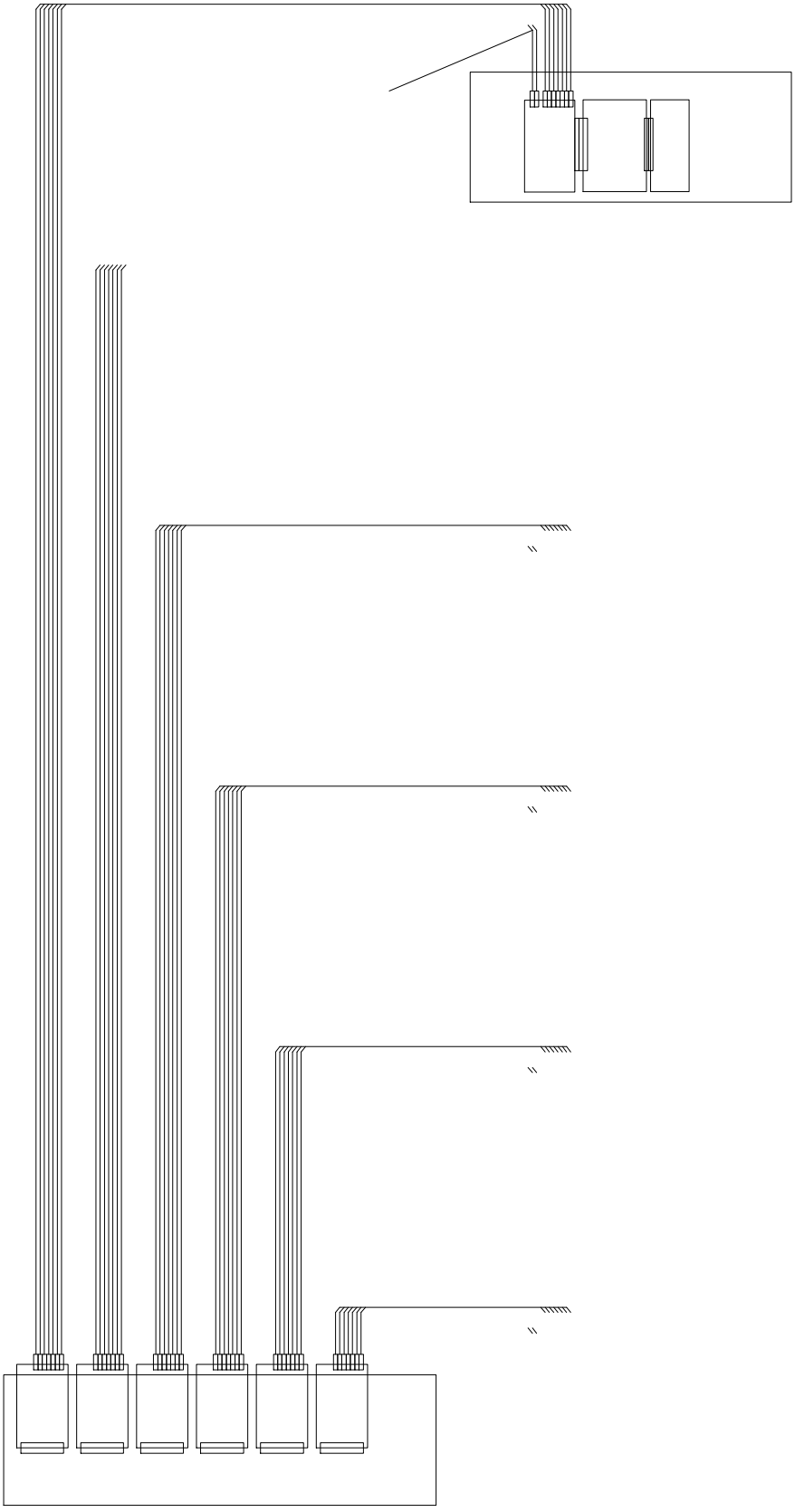
| | | |
|---|---|---|
| P2.0 | 2 | |
| P3.2 | 14 | LCL |
| P4.3 D04 | 0 | DO |
| P4.4 D05 | 32 | |
| P4.1 D02 | 2 | |
| P7.0 | 180% | |
| P7.4 | 200% | |
| P7.12 | 730V | 430V<br>800V |

| | | |
|---|---|---|
| P16.0 | 380V | |
| P16.2 | | 1 |

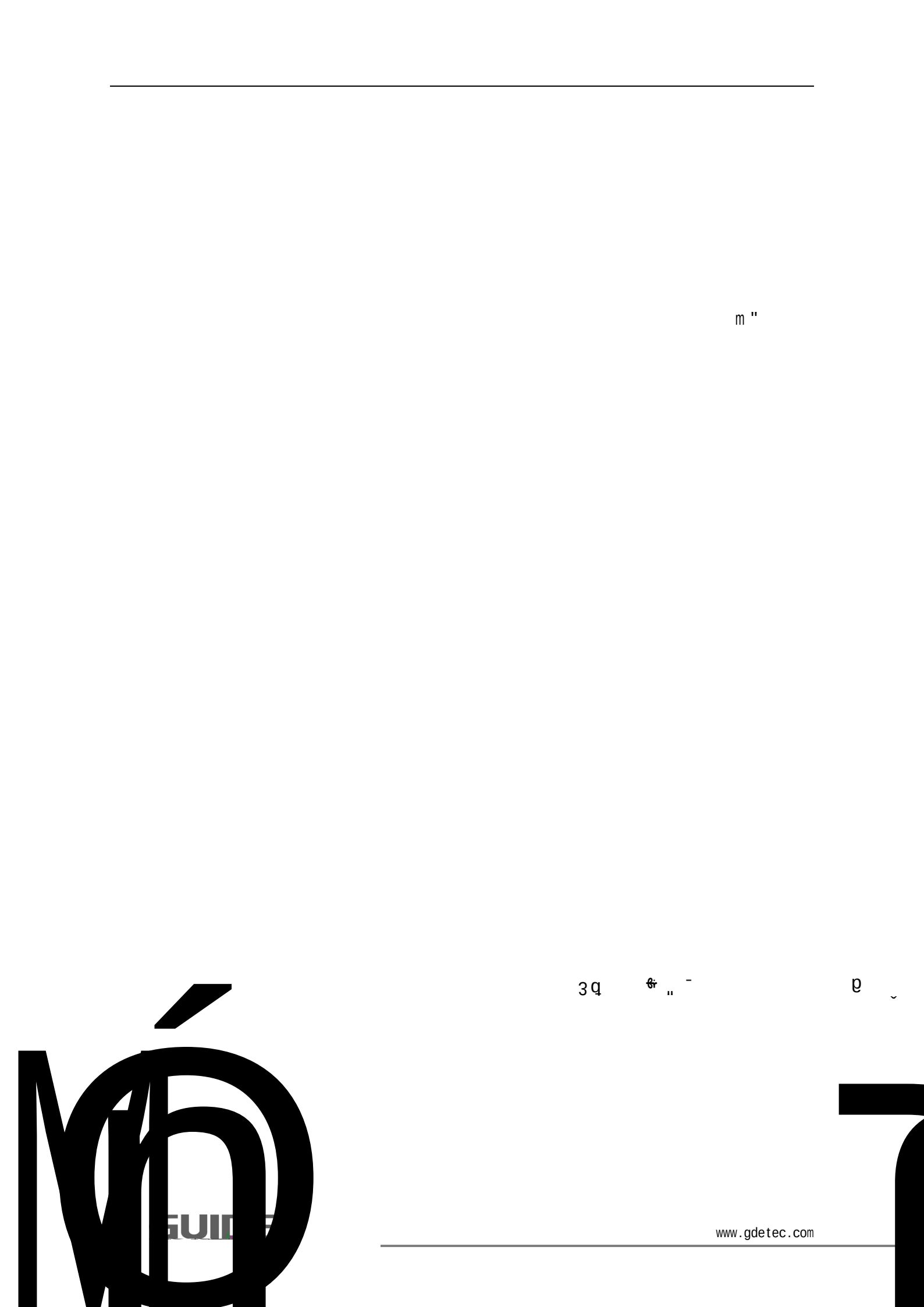
| | |
|---|---|
| P16.11 | 3 |
| P16.12 | 3 3K |
| | ADJ |
| P24.7 | 0V |

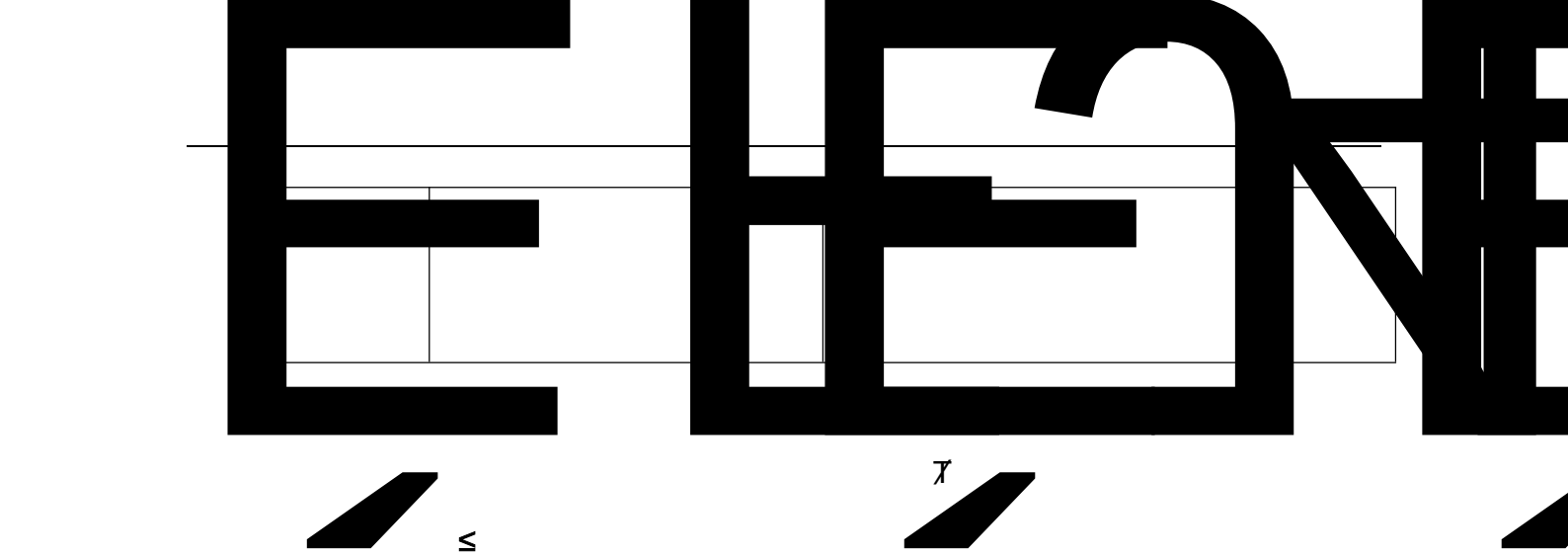
| | | | |
|---|---|---|---|
| P3.0 | | 1 | |
| P3.1 | | 20 | |
| P3.2 | | 14 | LCL |
| P3.3 | | 5 | |
| P4.1 | DO2 | 2 | |
| P4.2 | DO3 | 1 | |
| P4.3 | DO4 | 0 | DO |
| P4.4 | DO5 | 32 | |
| P7.0 | | 180% | |
| P7.4 | | 200% | |
| P7.12 | | 730V | 2 430V 800V |
| P8.6 | | 300s | |

| | | |
|---|---|---|
| 400V | P16.0 ≤ 430V | 630V |
| 430V | P16.0 ≤ 450V | 665V |
| 450V | P16.0 ≤ 460V | 680V |
| P16.0 | 460V | 700V |




参数
名称
16
13 12 11 10 9 8 7 6 5 4 3 2
101.5
数字量输入端子 [01 ~
101.6
数字量输出端子 [01 ~ 16]

























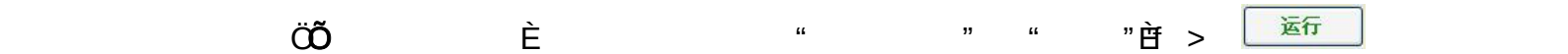


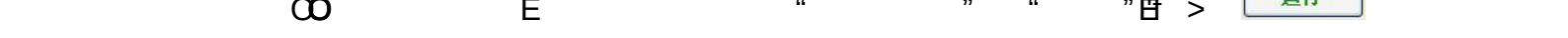


















































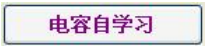






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|---|---|---|---|---|
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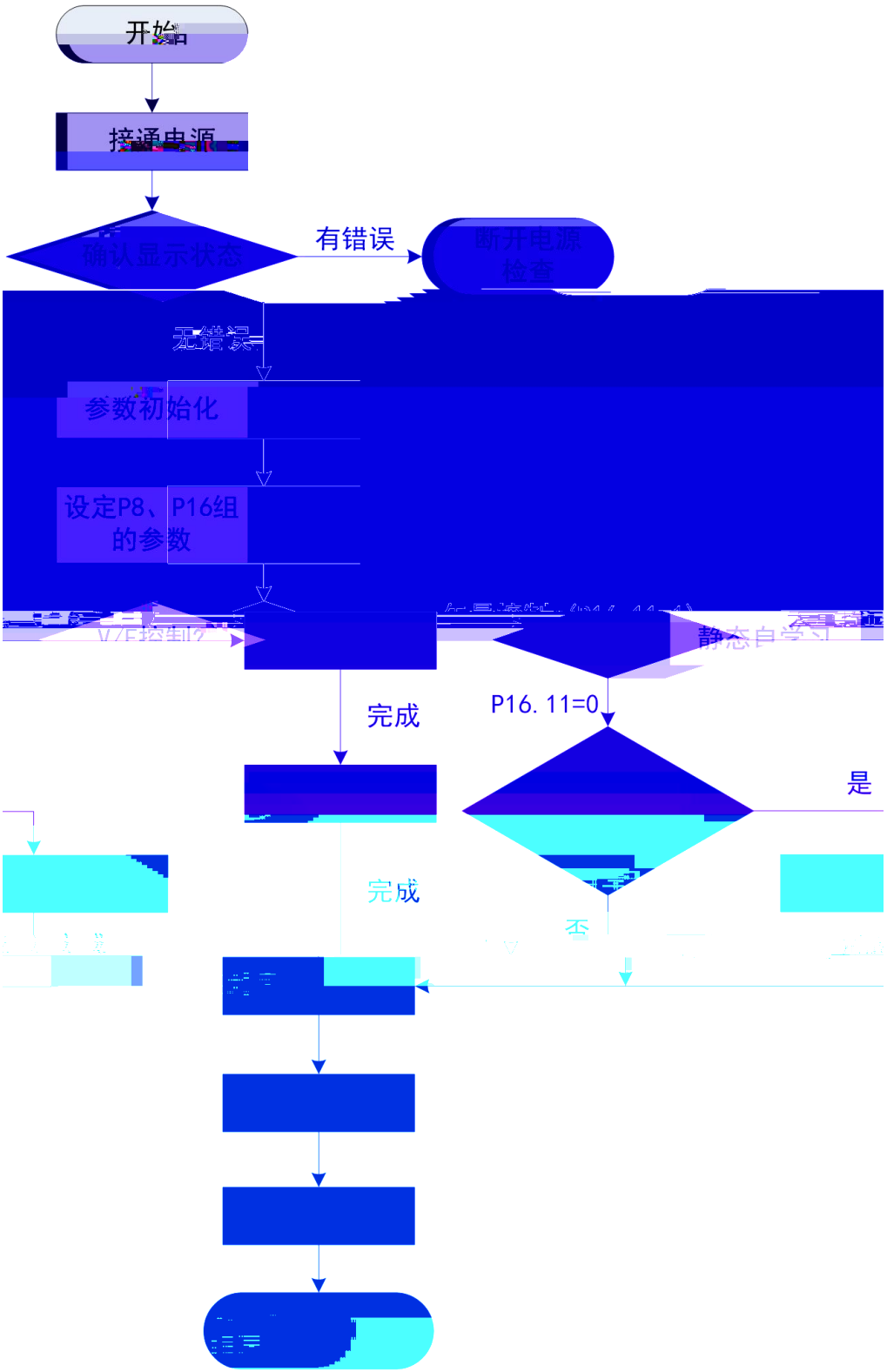
“ ” “ ”


电容自学习


停止

“ ” “ ”

8.2


开始
接通电源
确认显示状态
有错误
断开电源
检查
无错误
参数初始化
设定P8、P16组
的参数
完成
P16. 11=0
是
完成
否

/

V/F P16.11=0 V/F

P16.11=2 P16.11=1

## 8.3

### 8.3.1

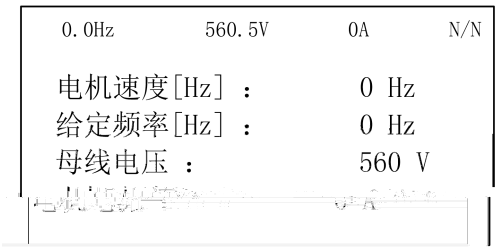
1 ±5V

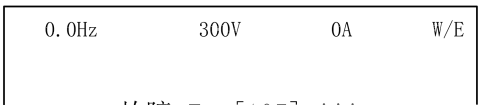
2 U,V,W

3

4 PG PG

### 8.3.2



### 8.3.3

6

### 8.3.4

**1**

1.1 1

| | | | |
|---|---|---|---|
| P16.11 | Basic Control Function | 0: V/F<br>1: | 0 V/F |
| P16.57 | Flying Start CL | 0-100% | 75% |
| P16.58 | Flying Start Mode | 0: FWD<br>1: REV<br>2: REV-FWD<br>3: FWD-REV | 0:FWD |
| P16.71 | Flying Start IsFlt | 0-500.0ms | 0.0ms |
| P16.72 | Flying Start FeType | 0: 1<br>1: 2 | 0: 1 |
| P16.73 | Flying Start FeAdjE | 0:<br>1: | 1: |

1. DI 21

2. P8.06 [ ] = 5.0

5. P16.71

6.P16.72 0 P16.73 1

1.2 2

| | | |
|---|---|---|
| P17.11 | Basic Control Function | 0: V/F<br>1:<br>2:<br>3: : |

1.3 3

| | | | |
|---|---|---|---|
| P18.11 | Basic Control Function | 0: V/F<br>1:<br>2:<br>3:<br>4: | 0 V/F |
| P18.57 | Flying Start CL | 0-100% | 75% |
| P18.58 | Flying Start Mode | 0: FWD<br>1: REV<br>2: REV-FWD<br>3: FWD-REV | 0:FWD |
| P18.71 | Flying Start IsFlt | 0-500.0ms | 0.0ms |
| P18.72 | Flying Start FeType | 0: 1<br>1: 2 | 0: 1 |
| P18.73 | Flying Start FeAdjE | 0:<br>1: | 1: |

1. DI 21
2. P8.06 [ ] = 5.0
3.P18.11 0 V/F
4. P18.58
2 3
5. P18.71

6.P18.72 0 P18.73 1

1.4 4

| | | | |
|---|---|---|---|
| P19.11 | Basic Control Function | 0: V/F<br>1:<br>2:<br>3:<br>4: | 0 V/F |
| P19.57 | Flying Start CL | 0-100% | 75% |
| P19.58 | Flying Start Mode | 0: FWD<br>1: REV<br>2: REV-FWD<br>3: FWD-REV | 0:FWD |
| P19.71 | Flying Start IsFlt | 0-500.0ms | 0.0ms |
| P19.72 | Flying Start FeType | 0: 1<br>1: 2 | 0: 1 |
| P19.73 | Flying Start FeAdjE | 0:<br>1: | 1: |

1. DI 21
2. P8.06 [ ] = 5.0
3.P19.11 0 V/F
4. P19.58
2 3
5. P19.71

6.P19.72 0 P19.73 1

| | | |
|---|---|---|
| P16.0 | | 380V |
| P16.2 | | |
| P16.3 | | |
| P16.4 | | |
| P16.5 | | |
| P16.6 | | |
| P16.7 | | (120×P16.5 / P16.6) |
| P16.9 | | (120×P16.5 / P16.7) |
| P16.11 | | [0]V/F<br>[1]<br>[2] |

### 8.3.5

5

P16.11 [1] [2]

[0] V/F

6

V/F (P20.74)

P20.74

P20.78 P20.79 P20.84

“

” “ ”

7

P20.79 P20.84

P20.85~P20.97

“

” “ ”

8

50%

P20.98 P20.98

### 8.3.6

HF680N

| | |
|---|---|
| | |
| | 7.5%<br>50%<br>50% |
| | 1/5 |
| | P16 |
| | V/F |

### 8.3.7

1

2 LOCAL/REMOTE LOCAL LOCAL

3 RUN RUN

5Hz

4

5 4 50Hz

6 STOP

### 8.3.8

1

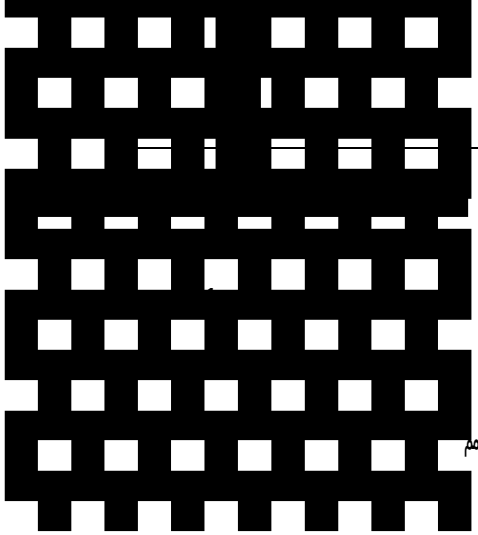
2

3

4

5

6 STOP



# 0

9.

| | | |
|---|---|---|
| 0 | | |
| 1 | | |
| 5 | | </RST |
| 14 | | |
| 15 | .NC | |
| 20 | | |

### 9.1.3

| | | | | | |
|---|---|---|---|---|---|
| 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 | [32] |

| | | |
|---|---|---|
| 0 | | |
| 1 | | |
| 2 | | ON |
| 32 | | |

### 9.1.4

| | | | | | |
|---|---|---|---|---|---|
| P7.0 | [ 1] | | 0.0 300.0 [%] | 180.0 [%] | |
| P7.4 | [ 1] | | 0.0 300.0 [%] | 235.0 [%] | |
| P7.12 | | | 600 820 [V] | 800 [V] | |
| P7.13 | | | 300 500 [V] | 350 [V] | |
| P7.14 | | | 60.0 100.0 [ ] | 87.5 [ ] | |
| P7.47 | | | 0.0 300.0 [%] | 100.0 [%] | |
| P7.48 | 1 | 1 | 0.0 300.0 [%] | 150.0 [%] | |
| P7.49 | 1 | 1 | 0.00 60.00 [s] | 60.00 [s] | |
| P7.50 | 2 | 2 | 0.0 300.0 [%] | 200.0 [%] | |
| P7.51 | 2 | 2 | 0.00 5.00 [s] | 5.00 [s] | |
| P7.95 | | | 0.0 20.0 [s] | 15.00 [s] | |

### 9.1.5

| | | | | | |
|---|---|---|---|---|---|
| P8.0 | | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4] | 0 4 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| P8.6 | | | 0.00<br>300.00<br>[s] | 0.00<br>[s] | IGBT |

## 9.1.6

| | | | | | |
|---|---|---|---|---|---|
| P16.0 | | | 320 460<br>[V] | 380<br>[V] | |
| P16.2 | | | 0.0<br>4000.0<br>[kW] | [kW] | |
| P16.4 | | | 0.0<br>6500.0<br>[A] | [A] | |
| P16.11 | | [0]V/F<br>[1]<br>[2]<br>[3]<br>[4] | 0 4 | 0 | [3] |
| P16.12 | | | 3 8<br>[kHz] | 3<br>[kHz] | 3 8kHz |

## 9.1.7 AFE

| | | | | | |
|---|---|---|---|---|---|
| P24.0 | | [0]<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6] | 0 6 | 0 | AFE<br>[0] |
| P24.1 | @ | | 0 347 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| P24.2 | | [0]<br>[1] 1<br>[2] 2<br>[3] DP<br>[4]MODBUS<br>[5] | 0 5 | 0 | AFE<br>[0] |
| P24.3 | @ | | 0 347 | 0 | |
| P24.7 | ADJ | | -30<br>30[V] | 0[V] | |
| P24.12 | Kp | | 0<br>1000[%] | 100[%] | |
| P24.13 | Ki | | 0<br>1000[%] | 100[%] | |
| P24.14 | @ | | 0<br>1000[%] | 200[%] | |
| P24.15 | @ | | 0<br>1000[%] | 200[%] | |
| P24.16 | Kp | | 0<br>1000[%] | 100[%] | |
| P24.17 | Ki | | 0<br>1000[%] | 100[%] | |
| P24.21 | | [0]<br>[1] | 0 1 | 0 | |
| P24.22 | | | 0<br>300[ms] | 30[ms] | |
| P24.25 | | [0]<br>[1] | 0 1 | 1 | |
| P24.26 | | | 0 150[%] | 100[%] | |
| P24.27 | PWM LB | LB | 0 65<br>[mH] | 0 | AFE |

| | | | | | |
|---|---|---|---|---|---|
| P24.28 | | | 0 6500 [mF] | 0[mF] | |
| P24.29 | | | 0 6500 [mF] | 0 | AFE |
| P24.30 | | | 0 6.5 [mH] | 0 | AFE |

## 10.

### 10.1 P2

| | | | | | |
|---|---|---|---|---|---|
| P2.0 | | [0]<br>[1]<br>[2] | 0 2 | 0 | |
| P2.1 | | [0]<br>[1]DP | 0 1 | 0 | |
| P2.2 | | [0] [1] | 0 1 | 0 | |
| P2.3 | | | 0 5 | 1 | |

### 10.2 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

.NC

4

</RST

5

## 10.3 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 |

## 10.4 P5

| | | | | | |
|---|---|---|---|---|---|
| P5.0 | AI1 | [0]<br>[1]0 +10V<br>[2]-10 +10V<br>[3]0 20mA | 0 3 | 1 | |
| P5.1 | AI1 | AI1 | 0.0 1000.0<br>[ms] | 25.0<br>[ms] | |
| P5.2 | AI1 | AI1 | -10.00 10.00<br>[V] | 0.000<br>[V] | |
| P5.3 | AI1 | AI1 | -20.00 20.00<br>[mA] | 0.000<br>[mA] | |
| P5.4 | AI1 | AI1 | -10.00 10.00<br>[V] | 0.000<br>[V] | |
| P5.5 | AI1 | AI1 | 0.00 20.00<br>[mA] | 0.000<br>[mA] | |
| P5.6 | AI1 | AI1 | -300.0 300.0<br>[%] | 0.0<br>[%] | |
| P5.7 | AI1 | AI1 | -10.00 10.00<br>[V] | 10.000<br>[V] | |
| P5.8 | AI1 | AI1 | 0.00 20.00<br>[mA] | 20.000<br>[mA] | |
| P5.9 | AI1 | AI1 | -300.0 300.0<br>[%] | 100.0<br>[%] | |
| P5.18 | AI2 | [0]<br>[1]0 +10V<br>[2]-10 +10V<br>[3]0 20mA | 0 3 | 3 | |

| | | | | | |
|---|---|---|---|---|---|
| P5.19 | AI2 | AI2 | 0.0 1000.0 [ms] | 25.0 [ms] | |
| P5.20 | AI2 | AI2 | -10.00 10.00 [V] | 0.000 [V] | |
| P5.21 | AI2 | AI2 | -20.00 20.00 [mA] | 0.000 [mA] | |
| P5.22 | AI2 | AI2 | -10.00 10.00 [V] | 0.000 [V] | |
| P5.23 | AI2 | AI2 | 0.00 20.00 [mA] | 0.000 [mA] | |
| P5.24 | AI2 | AI2 | -300.0 300.0 [%] | 0.0 [%] | |
| P5.25 | AI2 | AI2 | -10.00 10.00 [V] | 10.000 [V] | |
| P5.26 | AI2 | AI2 | 0.00 20.00 [mA] | 20.000 [mA] | |
| P5.27 | AI2 | AI2 | -300.0 300.0 [%] | 100.0 [%] | |

## 10.5 P6

| | | | | | |
|---|---|---|---|---|---|
| P6.0 | AO1 | 7-1 | 0 14 | 2 | |
| P6.1 | 1 | | 0 1000 | 0 | |
| P6.2 | AO1 | AO1 | -300.0 300.0 [%] | 0.0 [%] | |
| P6.3 | AO1 | AO1 | -300.0 300.0 [%] | 100.0 [%] | |
| P6.4 | AO1 [mA V] | AO1 | 0.0 100.0 [%] | 0.0 [%] | |
| P6.5 | AO1 [mA V] | AO1 | 0.0 100.0 [%] | 100.0 [%] | |
| P6.6 | AO1 | AO1 | -100.00 100.00 [%] | 0.00 [%] | |
| P6.7 | AO1 | AO1 (P6.0 [13] ) | 0.0 100.0 [%] | 0.0 [%] | |
| P6.8 | AO1 | AO1 | 0.0 1000.0 [ms] | 10.0 [ms] | |
| P6.14 | AO2 | 7-1 | 0 14 | 4 | |
| P6.15 | 2 | | 0 1000 | 0 | |
| P6.16 | AO2 | AO2 | -300.0 300.0 [%] | 0.0 [%] | |
| P6.17 | AO2 | AO2 | -300.0 300.0 [%] | 100.0 [%] | |
| P6.18 | AO2 [mA V] | AO2 | 0.0 100.0 [%] | 0.0 [%] | |
| P6.19 | AO2 [mA V] | AO2 | 0.0 100.0 [%] | 100.0 [%] | |
| P6.20 | AO2 | AO2 | -100.00 100.00 [%] | 0.00 [%] | |

| | | | | | |
|---|---|---|---|---|---|
| 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 | Profibus |
| 13 | | P6.7 P6.21 |
| 14 | | |

## 10.6 P7

| | | | | | |
|---|---|---|---|---|---|
| P7.0 | [ 1] | 1 | 0.0 [%] | 300.0 [%] | 180.0 [%] |
| P7.1 | [ 2] | 2 | 0.0 [%] | 300.0 [%] | 180.0 [%] |
| P7.2 | [ 3] | 3 | 0.0 [%] | 300.0 [%] | 180.0 [%] |
| P7.3 | [ 4] | 4 | 0.0 [%] | 300.0 [%] | 180.0 [%] |
| P7.4 | [ 1] | 1 | 0.0 [%] | 300.0 [%] | 235.0 [%] |
| P7.5 | [ 2] | 2 | 0.0 [%] | 300.0 [%] | 235.0 [%] |
| P7.6 | [ 3] | 3 | 0.0 [%] | 300.0 [%] | 235.0 [%] |
| P7.7 | [ 4] | 4 | 0.0 [%] | 300.0 [%] | 235.0 [%] |
| P7.8 | [ 1] | 1 | 0.0 [%] | 100.0 [%] | 20.0 [%] |
| P7.9 | [ 2] | 2 | 0.0 [%] | 100.0 [%] | 20.0 [%] |
| P7.10 | [ 3] | 3 | 0.0 [%] | 100.0 [%] | 20.0 [%] |
| P7.11 | [ 4] | 4 | 0.0 [%] | 100.0 [%] | 20.0 [%] |

P7.

P7.22 З Я З Я

| | | | | | |
|---|---|---|---|---|---|
| P7.60 | | | 0.10 3.00 [s] | 0.30 [s] | |
| P7.64 | | [0] [1] | 0 1 | 0 | |
| P7.65 | | | -25 100 [V] | 0 [V] | |
| P7.66 | | | -25 100 [V] | 0 [V] | |
| P7.69 | | [0] [1] | 0 1 | 0 | |
| P7.70 | | | -25 100 [V] | 0 [V] | |
| P7.73 | | [0] [1] | 0 1 | 0 | |
| P7.74 | | | 300 500 [V] | 460 [V] | |
| P7.75 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P7.76 | | | 0.00 300.00 [s] | 1.00 [s] | |
| P7.77 | | | 0.0 200.0 [%] | 15.0 [%] | |
| P7.94 | | [0] [1] | 0 1 | 1 | |
| P7.95 | | AFE | 0.0 3000.0 [s] | 15.0 [s] | |
| P7.96 | | | 0.00 300.00 [s] | 0.00 [s] | |

## 10.7 1 P8

| | | | | |
|---|---|---|---|---|
| P8.0 | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4] | 0 4 | 0 | |
| P861 | | | | |
| P8.2 | | | | |
| P8.3 | [0]<br>[1] | 0 1 | 0 | |
| P8.6 | | 0.00 300.00<br>[s] | 0.00 | |

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|---|---|---|---|---|---|
| P8.18 | 2 | P8.15 P8.17 | 0.0 300.0 [s] | 4.00 [s] | |
| P8.19 | 3 | | 0.0 300.0 [%] | 240.0 [%] | |
| P8.20 | 3 | P8.17 P8.19 | 0.0 300.0 [s] | 7.00 [s] | |
| P8.21 | 4 | | 0.0 300.0 [%] | 300.0 [%] | |
| P8.22 | 4 | P8.19 P8.21 | 0.0 300.0 [s] | 10.00 [s] | |
| P8.23 | 5 | | 0.0 300.0 [%] | 300.0 [%] | |
| P8.24 | 5 | P8.21 P8.23 | 0.0 300.0 [s] | 10.00 [s] | |
| P8.25 | 6 | | 0.0 300.0 [%] | 300.0 [%] | |
| P8.26 | 6 | P8.23 P8.25 | 0.0 300.0 [s] | 10.00 [s] | |
| P8.27 | 7 | | 0.0 300.0 [%] | 300.0 [%] | |
| P8.28 | 7 | P8.25 P8.27 | 0.0 300.0 [s] | 10.00 [s] | |
| P8.29 | 8 | | 0.0 300.0 [%] | 300.0 [%] | |
| P8.30 | 8 | P8.27 P8.29 | 0.0 300.0 [s] | 10.00 [s] | |
| P8.32 | | [0]<br>[1]PROFIBUS<br>[2]MODBUS<br>[3] | 0 3 | 0 | |
| P8.33 | | | 0.1 10.0 | 1.0 | |
| P8.34 | 1 | | 0.0 300.0 [%] | 100.0 [%] | |
| P8.35 | 1 | P8.34 | 0.0 300.0 [s] | 3.00 [s] | |
| P8.36 | 2 | | 0.0 300.0 [%] | 200.0 [%] | |

## 10.8 2 P9

[0]
[1]
P9.0 [2]DP E
[3]MOD

| | | | | | |
|---|---|---|---|---|---|
| P9.18 | 2 | P9.15 P9.17 | 0.0 300.0 [s] | 4.00 [s] | |
| P9.19 | 3 | | 0.0 300.0 [%] | 240.0 [%] | |
| P9.20 | 3 | P9.17 P9.19 | 0.0 300.0 [s] | 7.00 [s] | |
| P9.21 | 4 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.22 | 4 | P9.19 P9.21 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.23 | 5 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.24 | 5 | P9.21 P9.23 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.25 | 6 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.26 | 6 | P9.23 P9.25 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.27 | 7 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.28 | 7 | P9.25 P9.27 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.29 | 8 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.30 | 8 | P9.27 P9.29 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.32 | | [0]<br>[1]PROFIBUS<br>[2]MODBUS<br>[3] | 0 3 | 0 | |
| P9.33 | | | 0.1 10.0 | 1.0 | |
| P9.34 | 1 | | 0.0 300.0 [%] | 100.0 [%] | |
| P9.35 | 1 | P9.34 | 0.0 300.0 [s] | 3.00 [s] | |
| P9.36 | 2 | | 0.0 300.0 [%] | 200.0 [%] | |

| | | | | | |
|---|---|---|---|---|---|
| P9.37 | 2 | P9.34 P9.36 | 0.0 300.0 [s] | 4.00 [s] | |
| P9.38 | 3 | | 0.0 300.0 [%] | 240.0 [%] | |
| P9.39 | 3 | P9.36 P9.38 | 0.0 300.0 [s] | 7.00 [s] | |
| P9.40 | 4 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.41 | 4 | P9.38 P9.40 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.42 | 5 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.43 | 5 | P9.40 P9.42 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.44 | 6 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.45 | 6 | P9.42 P9.44 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.46 | 7 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.47 | 7 | P9.44 P9.46 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.48 | 8 | | 0.0 300.0 [%] | 300.0 [%] | |
| P9.49 | 8 | P9.46 P9.48 | 0.0 300.0 [s] | 10.00 [s] | |
| P9.54 | | | 0.0 300.0 [%] | 0.0 [%] | |
| P9.55 | | [0]<br>[1] | 0 1 | 0 | |
| P9.56 | | | 0.00 300.00 [s] | 3.00 [s] | |
| P9.57 | | [0]<br>[1] | 0 1 | 1 | |
| P9.58 | | | 0.00 300.00 [s] | 1.50 [s] | |

## 10.9 3 P10

| | | | | |
|---|---|---|---|---|
| | [0]<br>[1] | | | |
| P10.0 | [2]DP<br>[3]MODBUS<br>[4] | 0 | 4 | 0 |
| P10.1 | | | | |
| P10.2 | | | | |
| P10.3 | [0]<br>[1] | 0 | 1 | 0 |
| P10.6 | | 0.00 | 30 | |
| | | | | 0 |
| | [ | | | |

| | | | | | |
|---|---|---|---|---|---|
| P10.37 | 2 | P10.34 P10.36 | 0.0 300.0 [s] | 4.00 [s] | |
| P10.38 | 3 | | 0.0 300.0 [%] | 240.0 [%] | |
| P10.39 | 3 | P10.36 P10.38 | 0.0 300.0 [s] | 7.00 [s] | |
| P10.40 | 4 | | 0.0 300.0 [%] | 300.0 [%] | |
| P10.41 | 4 | P10.38 P10.40 | 0.0 300.0 [s] | 10.00 [s] | |
| P10.42 | 5 | | 0.0 300.0 [%] | 300.0 [%] | |
| P10.43 | 5 | P10.40 P10.42 | 0.0 300.0 [s] | 10.00 [s] | |
| P10.44 | 6 | | 0.0 300.0 [%] | 300.0 [%] | |
| P10.45 | 6 | P10.42 P10.44 | 0.0 300.0 [s] | 10.00 [s] | |
| P10.46 | 7 | | 0.0 300.0 [%] | 300.0 [%] | |
| P10.47 | 7 | P10.44 P10.46 | 0.0 300.0 [s] | 10.00 [s] | |
| P10.48 | 8 | | 0.0 300.0 [%] | 300.0 [%] | |
| P10.49 | 8 | P10.46 P10.48 | 0.0 300.0 [s] | 10.00 [s] | |
| P10.54 | | | 0.0 300.0 [%] | 0.0 [%] | |
| P10.55 | | [0]<br>[1] | 0 1 | 0 | |
| P10.56 | | | 0.00 300.00 [s] | 3.00 [s] | |
| P10.57 | | [0]<br>[1] | 0 1 | 1 | |
| P10.58 | | | 0.00 300.00 [s] | 1.50 [s] | |

| | | | | | | |
|---|---|---|---|---|---|---|
| P11.18 | 2 | P11.15 | P11.17 | 0.0 [s] | 300.0 [s] | 4.00 [s] |
| P11.19 | 3 | | | 0.0 [%] | 300.0 [%] | 240.0 [%] |
| P11.20 | 3 | P11.17 | P11.19 | 0.0 [s] | 300.0 [s] | 7.00 [s] |
| P11.21 | 4 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] |
| P11.22 | 4 | P11.19 | P11.21 | 0.0 [s] | 300.0 [s] | 10.00 [s] |
| P11.23 | 5 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] |
| P11.24 | 5 | P11.21 | P11.23 | 0.0 [s] | 300.0 [s] | 10.00 [s] |
| P11.25 | 6 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] |
| P11.26 | 6 | P11.23 | P11.25 | 0.0 [s] | 300.0 [s] | 10.00 [s] |
| P11.27 | | | | | | |

## 10.11 1 P12

| | | | | |
|---|---|---|---|---|
| P12.0 | [0]<br>[1] | 0 1 | 1 | |
| P12.1 | | | | |

| | | |
|---|---|---|
| P12.27 | 0.00 2.00<br>[ | |

## 10.12 2 P13

| | | | | | |
|---|---|---|---|---|---|
| P13.0 | | [0]<br>[1] | 0 | 1 | 1 |
| P13.1 | | [0][%]<br>[1][Hz]<br>[2][rpm] | 0 | 2 | 1 |
| P13.2 | 1 | | 0.0 | 3000.0 | 10.0 |
| P13.3 | 2 | | 0.0 | 3000.0 | 20.0 |
| P13.4 | 3 | | 0.0 | 3000.0 | 35.0 |
| P13.5 | 4 | | 0.0 | 3000.0 | 50.0 |
| P13.6 | 5 | | 0.0 | 3000.0 | 50.0 |
| P13.7 | 6 | | 0.0 | 3000.0 | 50.0 |
| P13.8 | 7 | | 0.0 | 3000.0 | 50.0 |
| P13.9 | 8 | | 0.0 | 3000.0 | 50.0 |
| P13.10 | 9 | | 0.0 | 3000.0 | 50.0 |
| P13.11 | 10 | | 0.0 | 3000.0 | 50.0 |
| P13.12 | 11 | | 0.0 | 3000.0 | 50.0 |
| P13.13 | 12 | | 0.0 | 3000.0 | 50.0 |
| P13.14 | 13 | | 0.0 | 3000.0 | 50.0 |
| P13.15 | 14 | | 0.0 | 3000.0 | 50.0 |
| P13.16 | 15 | | 0.0 | 3000.0 | 50.0 |
| P13.17 | 16 | | 0.0 | 3000.0 | 50.0 |
| P13.22 | | | 0.0 | 20.0 | 2.0<br>[%] |
| P13.23 | | | 0.0 | 20.0 | 0.0<br>[%] |
| P13.24 | | | 0.0 | 200.0 | 30.0<br>[%] |
| P13.25 | | | 0.0 | 200.0 | 20.0<br>[%] |
| P13.26 | | | 0.00 | 2.00 | 0.00<br>[s] |

| | | | | | |
|---|---|---|---|---|---|
| P13.27 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P13.28 | | | 0.00 2.00 [s] | 0.07 [s] | |
| P13.29 | | | 0.00 2.00 [s] | 0.07 [s] | |
| P13.32 | | | 0.0 20.0 [%] | 0.0 [%] | |
| P13.33 | | | 0.0 20.0 [%] | 0.0 [%] | |
| P13.34 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P13.35 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P13.36 | | | 0.00 2.00 [s] | 0.50 [s] | |
| P13.37 | | | 0.00 2.00 [s] | 0.50 [s] | |

**10.13 3 P14**

P14.0

# P1400

| | | |
|---|---|---|
| P14.27 | 0.00 2.000. [ | |

## 10.14 4 P15

| | | | | | |
|---|---|---|---|---|---|
| P15.0 | | [0]<br>[1] | 0 | 1 | 1 |
| P15.1 | | [0][%]<br>[1][Hz]<br>[2][rpm] | 0 | 2 | 1 |
| P15.2 | 1 | | 0.0 | 3000.0 | 10.0 |
| P15.3 | 2 | | 0.0 | 3000.0 | 20.0 |
| P15.4 | 3 | | 0.0 | 3000.0 | 35.0 |
| P15.5 | 4 | | 0.0 | 3000.0 | 50.0 |
| P15.6 | 5 | | 0.0 | 3000.0 | 50.0 |
| P15.7 | 6 | | 0.0 | 3000.0 | 50.0 |
| P15.8 | 7 | | 0.0 | 3000.0 | 50.0 |
| P15.9 | 8 | | 0.0 | 3000.0 | 50.0 |
| P15.10 | 9 | | 0.0 | 3000.0 | 50.0 |
| P15.11 | 10 | | 0.0 | 3000.0 | 50.0 |
| P15.12 | 11 | | 0.0 | 3000.0 | 50.0 |
| P15.13 | 12 | | 0.0 | 3000.0 | 50.0 |
| P15.14 | 13 | | 0.0 | 3000.0 | 50.0 |
| P15.15 | 14 | | 0.0 | 3000.0 | 50.0 |
| P15.16 | 15 | | 0.0 | 3000.0 | 50.0 |
| P15.17 | 16 | | 0.0 | 3000.0 | 50.0 |
| P15.22 | | | 0.0 | 20.0 | 2.0<br>[%] |
| P15.23 | | | 0.0 | 20.0 | 0.0<br>[%] |
| P15.24 | | | 0.0 | 200.0 | 30.0<br>[%] |
| P15.25 | | | 0.0 | 200.0 | 20.0<br>[%] |
| P15.26 | | | 0.00 | 2.00 | 0.00<br>[s] |

| | | | | | |
|---|---|---|---|---|---|
| P15.27 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P15.28 | | | 0.00 2.00 [s] | 0.07 [s] | |
| P15.29 | | | 0.00 2.00 [s] | 0.07 [s] | |
| P15.32 | | | 0.0 20.0 [%] | 0.0 [%] | |
| P15.33 | | | 0.0 20.0 [%] | 0.0 [%] | |
| P15.34 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P15.35 | | | 0.00 2.00 [s] | 0.00 [s] | |
| P15.36 | | | 0.00 2.00 [s] | 0.50 [s] | |
| P15.37 | | | 0.00 2.00 [s] | 0.50 [s] | |

P16

## 10.16 2 V/F P17

| | | | | | |
|---|---|---|---|---|---|
| P17.0 | | | 320 460<br>[V] | 380<br>[V] | |
| P17.2 | | | 0.0 4000.0<br>[kW] | <br>[kW] | |
| P17.3 | | | 320 460<br>[V] | 380<br>[V] | |
| P17.4 | | | 0.0 6500.0<br>[A] | <br>[A] | |
| P17.5 | | | 0.0 300.0<br>[Hz] | 50.0<br>[Hz] | |
| P17.6 | | | 0 6000<br>[rpm] | 1465<br>[rpm] | |
| P17.7 | | | 2 12<br>[pole] | 4<br>[pole] | |
| P17.9 | | | 0 7200<br>[rpm] | 1500<br>[rpm] | |
| P17.11 | | [0]V/F<br>[1]<br>[2]<br>[3]<br>[4] | 0 4 | 0 | |
| P17.12 | | | 1.00 10.00<br>[kHz] | 3.00<br>[kHz] | |
| P17.14 | V/F | [0] V/F<br>[1] V/F<br>[2] | 0 3 | 0 | |
| P17.15 | | [0]<br>[1] | 0 1 | 0 | |
| P17.16 | | | 2 500<br>[ms] | 500<br>[ms] | |
| P17.17 | V/F | [0]<br>[1] | 0 1 | 0 | |
| P17.18 | | | 10 1000<br>[ms] | 200<br>[ms] | |
| P17.19 | | [0]<br>[1] | 0 1 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| P18.48 | | [0]<br>[1]PID 1<br>[2]PID 2<br>[3] | 0 3 | 0 | |
| P18.49 | @ | | 0 300 | 0 | |
| P18.50 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | |
| P18.51 | | | 0.0 150.0<br>[%] | 70.0<br>[%] | |
| P18.52 | | | 0.00 5.00<br>[Hz] | 0.00<br>[Hz] | |
| P18.54 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | |
| P18.55 | | | 0.0 150.0<br>[%] | 75.0<br>[%] | |
| P18.56 | | | 0.00 5.00<br>[Hz] | 0.00<br>[Hz] | |
| P18.59 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.60 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.61 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.62 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.64 | V/F | V/F | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.66 | | V/F | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.67 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.68 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.69 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P18.70 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |

## 10.18 4 V/F P19

| | | | | | |
|---|---|---|---|---|---|
| P19.0 | | | 320 460<br>[V] | 380<br>[V] | |
| P19.2 | | | 0.0 4000.0<br>[kW] | <br>[kW] | |
| P19.3 | | | 320 460<br>[V] | 380<br>[V] | |
| P19.4 | | | 0.0 6500.0<br>[A] | <br>[A] | |
| P19.5 | | | 0.0 300.0<br>[Hz] | 50.0<br>[Hz] | |
| P19.6 | | | 0 6000<br>[rpm] | 1465<br>[rpm] | |
| P19.7 | | | 2 12<br>[pole] | 4<br>[pole] | |
| P19.9 | | | 0 7200<br>[rpm] | 1500<br>[rpm] | |
| P19.11 | | [0]V/F<br>[1]<br>[2]<br>[3]<br>[4] | 0 4 | 0 | |
| P19.12 | | | 1.00 10.00<br>[kHz] | 3.00<br>[kHz] | |
| P19.14 | V/F | [0] V/F<br>[1] V/F<br>[2] | 0 3 | 0 | |
| P19.15 | | [0]<br>[1] | 0 1 | 0 | |
| P19.16 | | | 2 500<br>[ms] | 500<br>[ms] | |
| P19.17 | V/F | [0]<br>[1] | 0 1 | 0 | |
| P19.18 | | | 10 1000<br>[ms] | 200<br>[ms] | |
| P19.19 | | [0]<br>[1] | 0 1 | 0 | |

## 10.19 1 P20

| | | | | | |
|---|---|---|---|---|---|
| P20.0 | | [0]<br>[1] | 0 1 | 0 | |
| P20.1 | | [0]<br>[1] 1<br>[2] 2<br>[3]<br>[4] P20.3<br>[5]DP<br>[6]MODBUS<br>[7] | 0 7 | 0 | |
| P20.2 | | | 0 7 | 0 | |
| P20.3 | | | -300.0 300.0<br>[%] | 0.0<br>[%] | |
| P20.4 | @ | | 0 300 | 0 | |
| P20.5 | | | 0 1000<br>[ms] | 0<br>[ms] | |
| P20.6 | | | 0.0 200.0<br>[%] | 100.0<br>[%] | |
| P20.7 | | [0]<br>[1] P20.8<br>P20.9<br>[2] 1<br>[3] 2<br>[4]<br>[5]DP<br>[6]MODBUS<br>[7] | 0 7 | 0 | |
| P20.8 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | |
| P20.9 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | |
| P20.10 | | | 0 300 | 0 | |
| P20.11 | | | 0 1000<br>[ms] | 0<br>[ms] | |

| | | | | | |
|---|---|---|---|---|---|
| P20.13 | | | 20.0 500.0 [ms] | 100.0 [ms] | |
| P20.14 | | 1 | 0 60000 | 1024 | |
| P20.15 | | [0]<br>[1] | 0 1 | 0 | |
| P20.16 | | | 0.0 300.0 [%] | 100.0 [%] | |
| P20.17 | | | 0.0 300.0 [%] | 100.0 [%] | |
| P20.18 | | | 0.0 300.0 [%] | 0.0 [%] | |
| P20.19 | | | 0.0 300.0 [%] | 0.0 [%] | |
| P20.20 | | [0]<br>[1] | 0 1 | 0 | |
| P20.21 | | [0]<br>[1] | 0 1 | 0 | |
| P20.22 | | | 0.0 300.0 [%] | 160.0 [%] | |
| P20.23 | | | 0.0 200.0 [%] | 20.0 [%] | |
| P20.24 | | | 0.0 300.0 [%] | 100.0 [%] | |
| P20.25 | | | 0.0 200.0 [%] | 100.0 [%] | |
| P20.26 | | | 0.0 1000.0 [%] | 0.0 [%] | |
| P20.27 | | | 0.00 15.00 [%] | 2.00 [%] | |
| P20.28 | | [0]<br>P20.16 P20.17<br>[1]<br>[2]<br>[3]DP | 0 3 | 0 | |
| P20.30 | | [0] P20.31<br>P20.32<br>[1] 1<br>[2] 2<br>[3] | 0 3 | 0 | |

| | | | |
|---|---|---|---|
| P20.31 | 0.0 [%] | 100.0 [%] | 5.0 [%] |
| P20.32 | 0.0 [%] | 100.0 [%] | 5.0 [%] |

| | | | | | |
|---|---|---|---|---|---|
| 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 [%] | |
| P20.56 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P20.57 | | [0]<br>[1] | 0 1 | 0 | |
| P20.58 | | | 0.0 125.0 [%] | 100.0 [%] | |
| P20.59 | | | 1.0 25.0 [%] | 2.5 [%] | |
| P20.60 | DROOP | 0 DROOP | 0.0 100.0 [%] | 0.0 [%] | |
| P20.61 | DROOP | DROOP | 30 2000 [ms] | 50 [ms] | |
| P20.62 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P20.63 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| 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]<br>[1] | 0 1 | 0 | |
| P20.72 | | [0]<br>[1] | 0 1 | 1 | |
| P20.73 | | [0] × 1<br>[1] × 10 | 0 1 | 0 | |
| P20.74 | | | 0.00 650.00 [mOhm] | 0.00 [mOhm] | |
| P20.75 | | | 0.70 1.00 | 0.90 | |
| P20.76 | 1 | 1 | 90.0 110.0 [%] | 100.0 [%] | |

| | | | | | |
|---|---|---|---|---|---|
| P20.77 | | 2 | | 2 | 90.0 [%] 110.0 [%] 100.0 [%] |
| P20.78 | | | | | 0.00 [mOhm] 650.00 [mOhm] 0.00 [mOhm] |
| P20.79 | | | | | 0.00 [mH] 65.50 [mH] 0.000 [mH] |
| P20.80 | 1 | | 1 | | 0.800 1.350 1.140 |
| P20.81 | 2 | | 2 | | 0.800 1.350 0.940 |
| P20.82 | 3 | | 3 | | 0.800 1.350 1.080 |
| P20.83 | 4 | | 4 | | 0.800 1.350 0.950 |
| P20.84 | | | | | 0.00 [mH] 655.00 [mH] 0.00 [mH] |
| P20.85 | | 85% | 85% | | 40.0 [%] 150.0 [%] 108.0 [%] |
| P20.86 | | 87.5% | 87.5% | | 40.0 [%] 150.0 [%] 106.5 [%] |
| P20.87 | | 90% | 90% | | 40.0 [%] 150.0 [%] 105.0 [%] |
| P20.88 | | 92.5% | 92.5% | | 40.0 [%] 150.0 [%] 103.5 [%] |
| P20.89 | | 95% | 95% | | 40.0 [%] 150.0 [%] 102.0 [%] |
| P20.90 | 5% | 102. | 102.5% | | 40.0 [%] 150.0 [%] 99.0 [%] |
| P20.91 | | 105% | 105% | | 40.0 [%] 150.0 [%] 96.5 [%] |
| P20.92 | | 110% | 110% | | 40.0 [%] 150.0 [%] 93.0 [%] |
| P20.93 | | 115% | 115% | | 40.0 [%] 150.0 [%] 88.5 [%] |
| P20.94 | | 120% | 120% | | 40.0 [%] 150.0 [%] 83.0 [%] |
| P20.95 | | | | | |

## 10.20 2 P21

| | | | | | |
|---|---|---|---|---|---|
| P21.0 | [0]<br>[1] | | | 0 1 | 0 |
| P21.1 | [0]<br>[1]<br>[2]<br>[3]<br>[4]<br>[5]DP | 1<br>2 | [5]D]]2D3<br>4] | P21.3 | |

| | | | | | |
|---|---|---|---|---|---|
| P21.14 | | 1 | 0 | 60000 | 1024 |
| P21.15 | [0]<br>[ | | | | |

| | | | | | |
|---|---|---|---|---|---|
| P21.54 | Ki | | 0.0 | 1000.0<br>[%] | 100.0<br>[%] |
| P21.55 | | | | | |

| | | | |
|---|---|---|---|
| P21.78 | | 0.00 | 650. |

## 10.21 3 P22

| | | | | | | |
|---|---|---|---|---|---|---|
| P22.0 | | [0]<br>[1] | | | 0 1 | 0 |
| P22.1 | | [0]<br>[1]<br>[2]<br>[3]<br>[4]<br>[5]DP<br>[6]MODBUS<br>[7] | 1<br>2 | P22.3 | 0 7 | 0 |
| P22.2 | | | | | 0 7 | 0 |
| P22.3 | | | | | -300.0 300.0<br>[%] | 0.0<br>[%] |
| P22.4 | @ | | | | 0 300 | 0 |
| P22.5 | | | | | 0 1000<br>[ms] | 0<br>[ms] |
| P22.6 | | | | | 0.0 200.0<br>[%] | 100.0<br>[%] |
| P22.7 | | [0]<br>[1]<br>P22.9<br>[2]<br>[3]<br>[4]<br>[5]DP<br>[6]MODBUS<br>[7] | 1<br>2 | P22.8 | 0 7 | 0 |
| P22.8 | | P22.7 | [1] | | 0.0 300.0<br>[%] | 200.0<br>[%] |
| P22.9 | | P22.7 | [1] | | 0.0 300.0<br>[%] | 200.0<br>[%] |
| P22.10 | | | | | 0 300 | 0 |
| P22.11 | | | | | 0 1000<br>[ms] | 0<br>[ms] |

| | | | | | |
|---|---|---|---|---|---|
| P22.13 | | | | 20.0 500.0 [ms] | 100.0 [ms] |
| P22.14 | | 1 | | 0 60000 | 1024 |
| P22.15 | [0]<br>[1] .0 | | æ | | |

| | | | |
|---|---|---|---|
| P22.31 | | 0.0 100.0<br>[%] | 5.0<br>[%] |
| P22.32 | | 0.0 100.0<br>[%] | 5.0<br>[%] |
| P22.34 | [0]<br>[1] | 0 1 | 0 |
| P22.35 | | 0.0 100.0<br>[s] | 0.0<br>[s] |
| P22.36 | | 50.0 150.0<br>[%] | 110.0<br>[%] |
| P22.37 | | 0.0 150.0<br>[%] | 100.0<br>[%] |
| P22.38 | | 0.0 100.0<br>[%] | 25.0<br>[%] |
| P22.39 | | 0.0 120.0<br>[%] | 100.0<br>[%] |
| P22.40 | | 0.0 150.0<br>[%] | 100.0<br>[%] |
| P22.41 | | 0.0 150.0<br>[%] | 135.0<br>[%] |
| P22.42 | [0]<br>[1] | 0 1 | 1 |
| P22.43 | | 25 1000<br>[ms] | 75<br>[ms] |
| P22.44 | | 25 1000<br>[ms] | 250<br>[ms] |
| P22.45 | | 0.0 100.0<br>[%] | 22.0<br>[%] |
| P22.46 | | 0.0 100.0<br>[%] | 18.0<br>[%] |
| P22.47 | | 0.0 200.0<br>[%] | 92.0<br>[%] |
| P22.48 | | 0.0 200.0<br>[%] | 87.0<br>[%] |
| P22.49 | | 0.0 150.0<br>[%] | 100.0<br>[%] |
| P22.51 | | 0.0 1000.0<br>[%] | 100.0<br>[%] |
| P22.52 | | 0.0 1000.0<br>[%] | 100.0<br>[%] |

| | | | | | |
|---|---|---|---|---|---|
| P22.77 | | 2 | | 2 | 90.0 110.0 100.0<br>[%] [%] |
| P22.78 | | | | | 0.00 650.00 0.00<br>[mOhm] [mOhm] |
| P22.79 | | | | | 0.00 65.50 0.000<br>[mH] [mH] |
| P22.80 | 1 | | 1 | | 0.800 1.350 1.140 |
| P22.81 | 2 | | 2 | | 0.800 1.350 0.940 |
| P22.82 | 3 | | 3 | | 0.800 1.350 1.080 |
| P22.83 | 4 | | 4 | | 0.800 1.350 0.950 |
| P22.84 | | | | | 0.00 655.00 0.00<br>[mH] [mH] |
| P22.85 | | 85% | 85% | | 40.0 150.0 108.0<br>[%] [%] |
| P22.86 | | 87.5% | 87.5% | | 40.0 150.0 106.5<br>[%] [%] |
| P22.87 | | 90% | 90% | | 40.0 150.0 105.0<br>[%] [%] |
| P22.88 | | 92.5% | 92.5% | | 40.0 150.0 103.5<br>[%] [%] |
| P22.89 | | 95% | 95% | | 40.0 150.0 102.0<br>[%] [%] |
| P22.90 | 5% | 102. | 102.5% | | 40.0 150.0 99.0<br>[%] [%] |
| P22.91 | | 105% | 105% | | 40.0 150.0 96.5<br>[%] [%] |
| P22.92 | | 110% | 110% | | 40.0 150.0 93.0<br>[%] [%] |
| P22.93 | | 115% | 115% | | 40.0 150.0 88.5<br>[%] [%] |
| P22.94 | | 120% | 120% | | 40.0 150.0 83.0<br>[%] [%] |
| P22.95 | | 125% | 125% | | 40.0 150.0 77.0<br>[%] [%] |
| P22.96 | | 130% | 130% | | 40.0 150.0 70.5<br>[%] [%] |
| P22.97 | | 135% | 135% | | 40.0 150.0 63.5<br>[%] [%] |
| P22.98 | | | ( ) | | 0.01 300.00 0.75<br>[s] [s] |

## 10.22 4 P23

| | | | | | |
|---|---|---|---|---|---|
| P23.0 | | [0]<br>[1] | | 0 1 | 0 |
| P23.1 | | [0]<br>[1] 1<br>[2] 2<br>[3]<br>[4] P23.3<br>[5]DP<br>[6]MODBUS<br>[7] | | 0 7 | 0 |
| P23.2 | | | | 0 7 | 0 |
| P23.3 | | | | -300.0 300.0<br>[%] | 0.0<br>[%] |
| P23.4 | @ | | | 0 300 | 0 |
| P23.5 | | | | | |

| | | | |
|---|---|---|---|
| P23.32 | | 0.0 [%] | 100.0 [%] | 5.0 [%] |
| P23.34 | [0]<br>[1] | 0 | 1 | 0 |
| P23.35 | | 0.0 [s] | 100.0 [s] | 0.0 [s] |
| P23.36 | | 50.0 [%] | 150.0 [%] | 110.0 [%] |
| P23.37 | | 0.0 [%] | 150.0 [%] | 100.0 [%] |
| P23.38 | | 0.0 [%] | 100.0 [%] | 25.0 [%] |
| P23.39 | | 0.0 [%] | 120.0 [%] | 100.0 [%] |
| P23.40 | | 0.0 [%] | 150.0 [%] | 100.0 [%] |
| P23.41 | | 0.0 [%] | 150.0 [%] | 135.0 [%] |
| P23.42 | [0]<br>[1] | 0 | 1 | 1 |
| P23.43 | | 25 | 1 | 0 |

| | | | | |
|---|---|---|---|---|
| P23.54 | Ki | 0.0<br>[%] | 1000.0<br>[%] | 100.0 |
| P23.55 | | | | |

| | | | | |
|---|---|---|---|---|
| P23.78 | | | 0.00 [mOhm] | 650.00 [mOhm] | 0.00 [mOhm] |
| P23.79 | | | 0.00 [mH] | 65.50 [mH] | 0.000 [mH] |
| P23.80 | 1 | 1 | 0.800 | | |

| | | | | | |
|---|---|---|---|---|---|
| P33.18 | [W2] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 | 4 | 0 |
| P33.19 | [W3] | 7-2 | 0 | 37 | 0 |
| P33.20 | [W3] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 | 4 | 0 |
| P33.21 | [W4] | 7-2 | 0 | 37 | 1 |
| P33.22 | [W4] | | | | |

| | | | | | |
|---|---|---|---|---|---|
| P33.31 | [W9] | 7-2 | 0 37 | 0 | |
| P33.32 | [W9] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.33 | [W10] | 7-2 | 0 37 | 0 | |
| P33.34 | [W10] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.35 | [W11] | 7-2 | 0 37 | 0 | |
| P33.36 | [W11] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.37 | [W12] | 7-2 | 0 37 | 0 | |
| P33.38 | [W12] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.39 | [W13] | 7-2 | 0 37 | 0 | |
| P33.40 | [W13] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.41 | [W14] | 7-2 | 0 37 | 0 | |
| P33.42 | [W14] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 0 | |
| P33.43 | [W15] | 7-2 | 0 37 | 0 | |

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

| | | | | | |
|---|---|---|---|---|---|
| P33.54 | [W4] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 0 | |
| P33.55 | [W5] | 7-3 | 0 48 | 19 | |
| P33.56 | [W5] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 2 | |
| P33.57 | [W6] | 7-3 | 0 48 | 26 | |
| P33.58 | [W6] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 6 | |
| P33.59 | [W7] | 7-3 | 0 48 | 30 | |
| P33.60 | [W7] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 1 | |
| P33.61 | [W8] | 7-3 | 0 48 | 14 | |

| | | | | | |
|---|---|---|---|---|---|
| P33.62 | [W8] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 | 7 | 0 |
| P33.63 | | [W9] 7-3 | 0 | 48 | 13 |
| P33.64 | [W9] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 | 7 | 0 |
| P33.65 | | [W10] 7-3 | 0 | 48 | 40 |
| P33.66 | [W10] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 | 7 | 6 |
| P33.67 | | [W11] 7-3 | 0 | 48 | 0 |
| P33.68 | [W11] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 | 7 | 0 |
| P33.69 | | [W12] 7-3 | 0 | 48 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| P33.70 | [W12] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 0 | |
| P33.71 | [W13] | 7-3 | 0 48 | 0 | |
| P33.72 | [W13] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 0 | |
| P33.73 | [W14] | 7-3 | 0 48 | 0 | |
| P33.74 | [W14] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 0 | |
| P33.75 | [W15] | 7-3 | 0 48 | 0 | |
| P33.76 | [W15] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000<br>[5] [%] × 1<br>[6] [%] × 10<br>[7] [%] × 100 | 0 7 | 0 | |

7-2

0
1 0
2 1
3 2
4 3
5 4
6 [32]
7 [32]
8 32_MSW
9 32_LSW
10
11
12 0 @32bit
13 1 @32bit
14 2 @32bit
15 3 @32bit
16 4 @32bit
17 5 @32bit
18 [Hz]
19 [rpm]
20 [%]
21 SSSSSSSSSSSSSSSS

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 |

# 11.

## 11.1

WO1 SYS_NOT_RDY (Ready)

[ P3

WO2 ]
NO_DRV_ENABLE

| | | |
|---|---|---|
| [E113] | MIP | |
| [E114] | MOP | |
| [E115] | OS | P7.19<br>P7.19 |
| [E116] | SLVC Fail | P7.23 |
| [E117] | MOTOR STALL | P20.14 P20.15 |
| [E118] | PG ERROR | P20.14 P20.15 |
| [E119] | SPEED ABNORMAL | P20.14 P20.15<br>P7.31 P7.32 |
| [E121] | IGBT1<br>OT1 | |
| [E122] | IGBT2<br>OT2 | |
| [E123] | IGBT3<br>OT3 | |
| [E124] | IGBT4<br>OT4 | |
| [E125] | IGBT5<br>OT5 | |
| [E126] | IGBT6<br>OT6 | |
| [E127] | IGBT7<br>OT7 | |
| [E128] | IGBT8<br>OT8 | |
| [E137] | FAN STALL | |

| | |
|---|---|
| [E138] | TEMP_SENSING FAIL |
| [E139] | Pre_Charging Fail<br>P7.95 |
| [E140] | Line UV |
| [E141] | Line OPEN |
| [E142] | Line Detection Error |
| [E143] | DI<br>Line SW Fail |
| [E144] | Line SW SHORT |
| [E145] | (AFE)<br>Line OV<br>P16.0 |
| [E146] | (AFE)<br>Line Over_Freq |
| [E151] | U IGBT<br>PDP [UT]<br>IGBT<br>IGBT |
| [E152] | U IGBT<br>PDP [UB]<br>IGBT<br>IGBT |
| [E153] | V IGBT<br>PDP [VT]<br>IGBT<br>IGBT |
| [E154] | V IGBT<br>PDP [VB]<br>IGBT<br>IGBT |
| [E155] | W IGBT<br>PDP [WT]<br>IGBT<br>IGBT |
| [E156] | W IGBT<br>PDP [WB]<br>IGBT<br>IGBT |

| | | |
|---|---|---|
| [E160] | SLVE FAULT | |
| [E161] | SLV_NOT_RDY | |
| [E162] | 1<br>SLV1_CAN_ERR | 1 |
| [E163] | 2 | |

## 11.3

| | | | |
|---|---|---|---|
| | | • | • DC15V |
| | | • | • D05<br>• D05<br>• |
| | | • | • D04<br>• |

- ON
- COM
- ON
- COM (
)
- ON
- V W
- /

# 12.



1.

2.

3.

4.

1. CMOS

2.

3.

## 12.1

## 12.2

| | | |
|---|---|---|
| | 1.<br>2. | 1. > 40<br>< 95%<br>2. |
| | 1.<br>2. | 1.<br>2. |
| | 1.<br>2.<br>3. | 1.<br>2.<br>3. |
| | 1.<br>2. | 1.<br>2. |
| | 1.<br>2. | 1.<br>2. |

## 12.3

| | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | 2 | 1<br>2 |
| PCB | | |

## 12.4

5

5

(400-0077-570)

1 40

2 80%

3 24 /

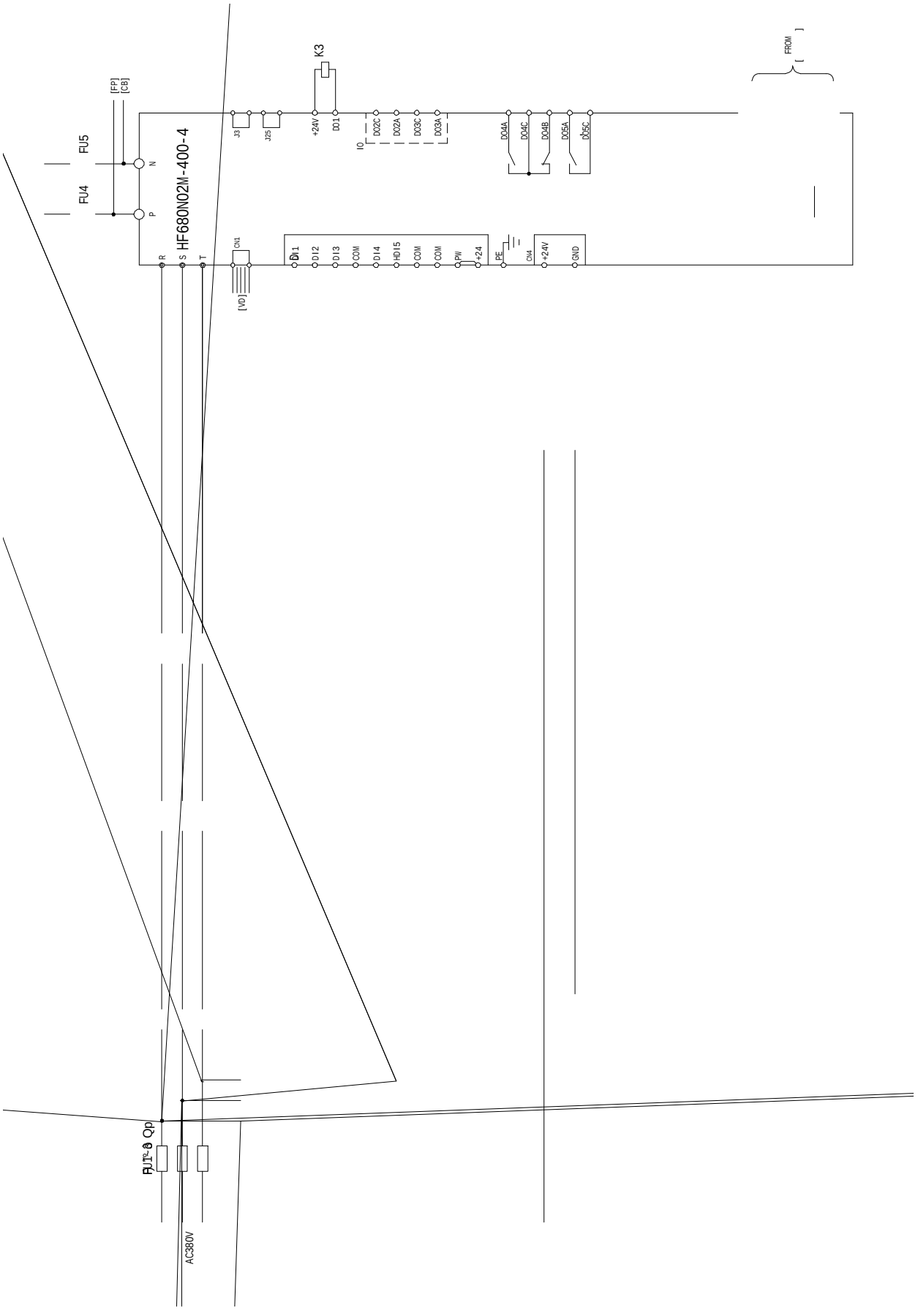
## 12.5

1

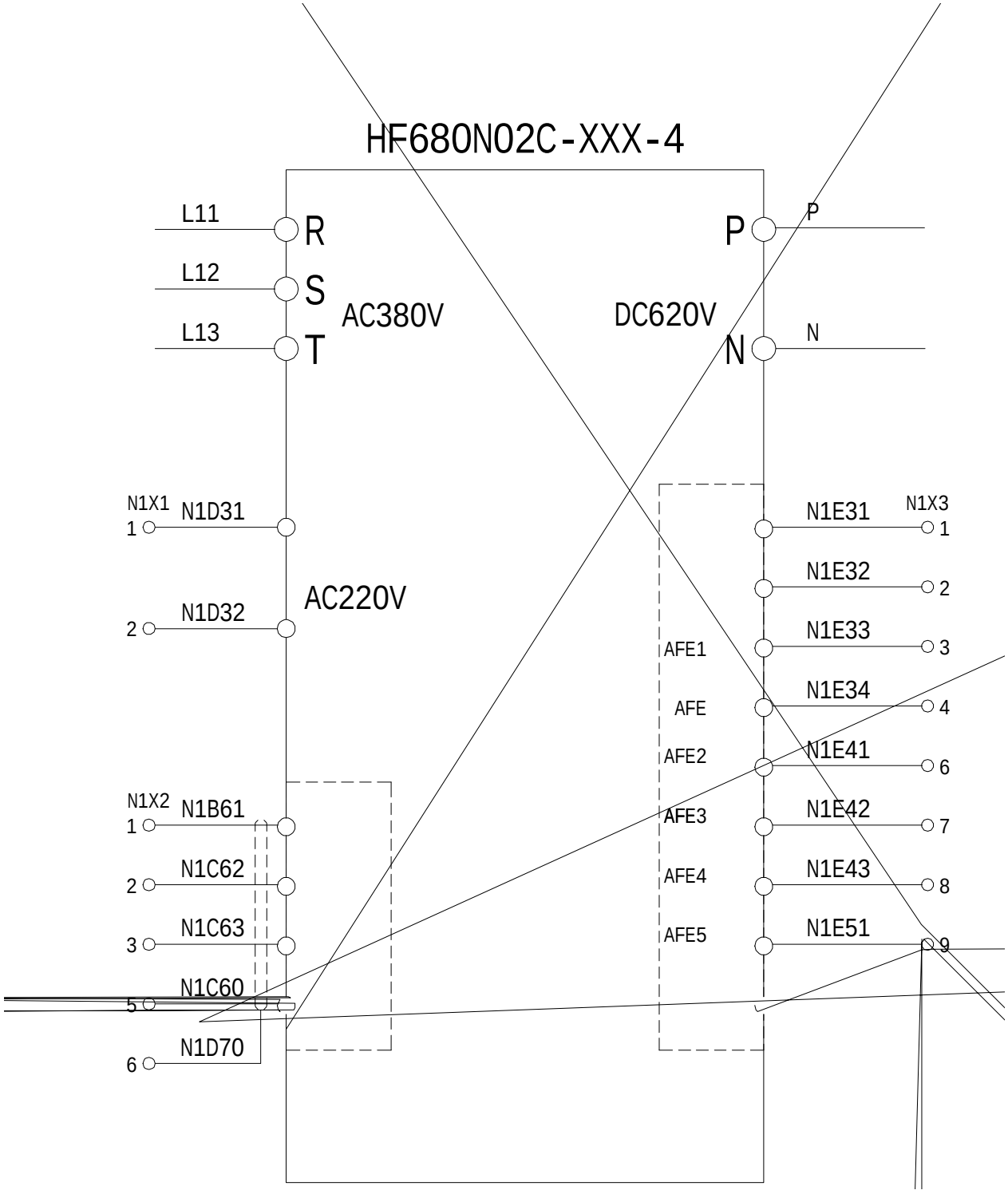
2 i

5

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HF680N02M-400-4
FU5
FU4
[FP]
[CB]
N
P
R
S
T
K3
J3
J25
+24V
DO1
IO
DO2C
DO2A
DO3C
DO3A
DO4A
DO4C
DO4B
DO5A
DO5C
FROM
CN1
[VD]
DI1
DI2
DI3
COM
DI4
HDI5
COM
COM
PW
+24
PE
CN4
+24V
GND
AC380V

MAU
1
2
3
4
5
6
7
UT
UB
VT
VB
WT
WB
FL
8
9
8
9
8
9
8
9
8
9
8
MAU RX
SL1 TX
SL1 RX
SL2 TX
SL2 RX
SL5 TX
SL5 RX
SL4 TX
SL4 RX
SL3 TX
SL3 RX


HF680N02C-XXX-4
L11
L12
L13
R
S
T
AC380V
P
N
DC620V
P
N
N1X1
1
N1D31
2
N1D32
AC220V
N1X2
1
N1B61
2
N1C62
3
N1C63
5
N1C60
6
N1D70
AFE1
AFE
AFE2
AFE3
AFE4
AFE5
N1E31
N1E32
N1E33
N1E34
N1E41
N1E42
N1E43
N1E51
N1X3
1
2
3
4
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7
8
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1
2
3

Wuhan Guide Technolo]ъ