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HF681

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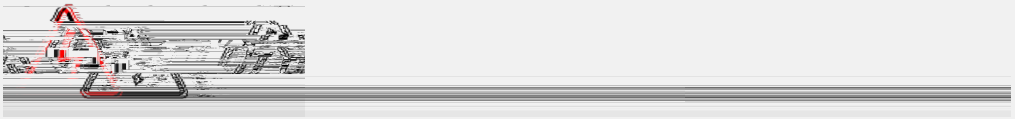
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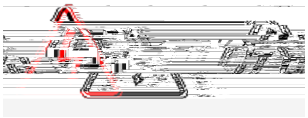
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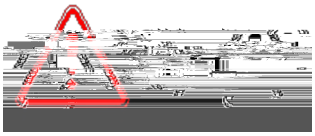
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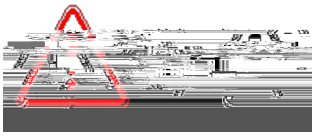
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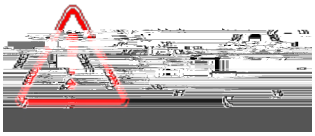
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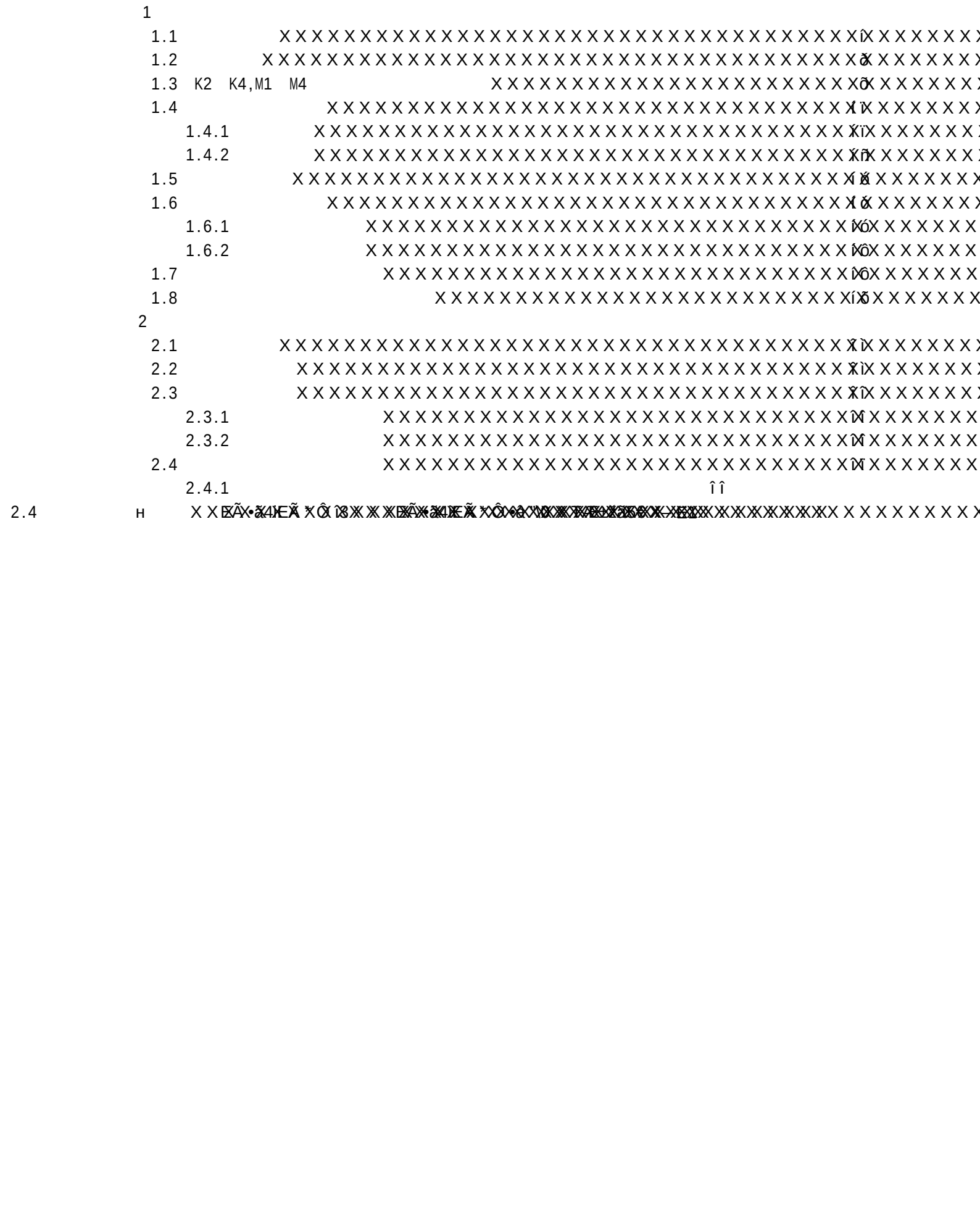
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6.1.6 P7 X X X

8.1 XXXX

# 1

## 1.1

### 1.1.1

| | |
|---|---|
| A | :HF681N |
| B | :01M 03M |
| C | :1R5=1.5kW 160=160kW |
| D | :4:400V |
| E | PC04 |

### 1.1.2

HF681N 22Kw

HF681N01M-022-4 HF681N 22kW
400V
AC
DC
3PH
380V-480V 50/60Hz
DC537V 679V

HF681N 7.5kW



HF681N03M-7R5-4 HF681N 7.5kW
400V
AC
DC
3PH
DC537V 679V
0-480V 0-300Hz

## 1.2

### 1.2.1 HF681N

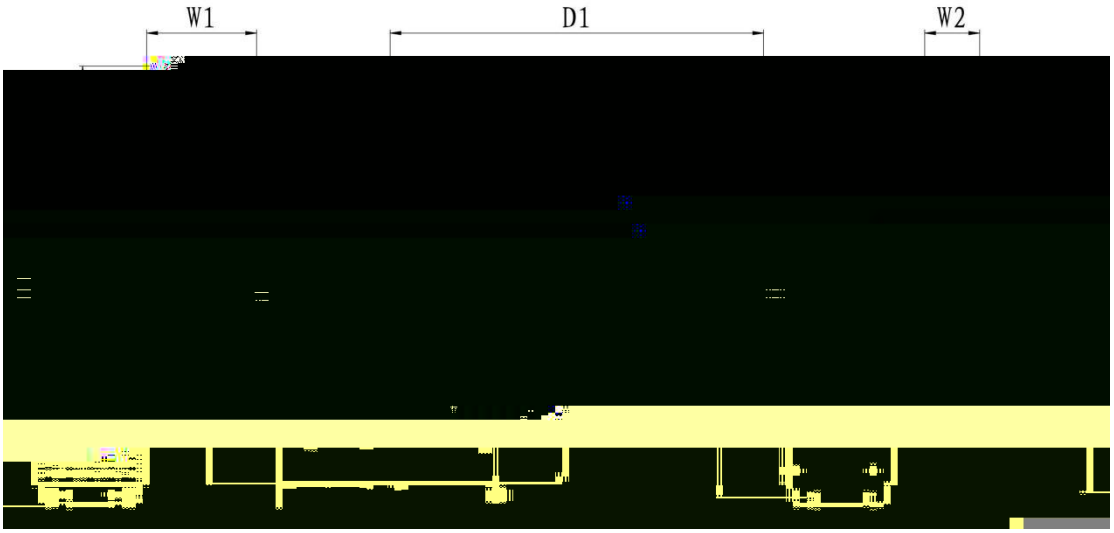
K2 22kW 45kW

### 1.2.2 HF681N

M1 1.5-7.5kW

M4 90-110kW

## 1.3 K2 K4,M1 M4

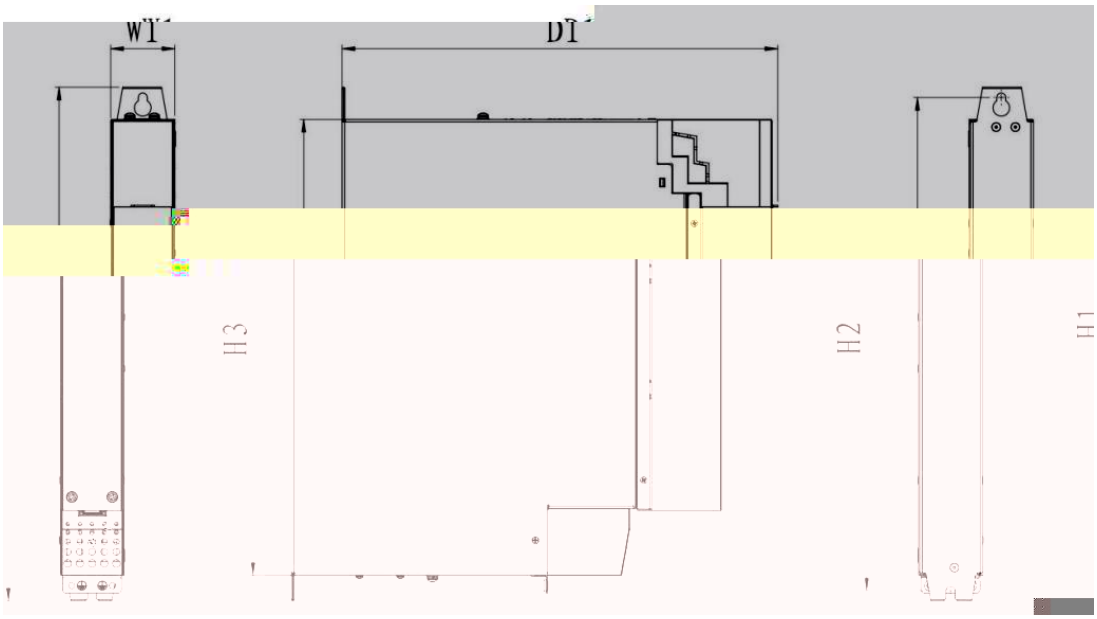



K2

| | (mm) | | | | | | / | (mm) | (kg) |
|---|---|---|---|---|---|---|---|---|---|
| | H1 | H3 | W1 | D1 | H2 | W2 | | | |
| HF681N01M-22-4 | 400 | 355 | | | | | | | |

K4

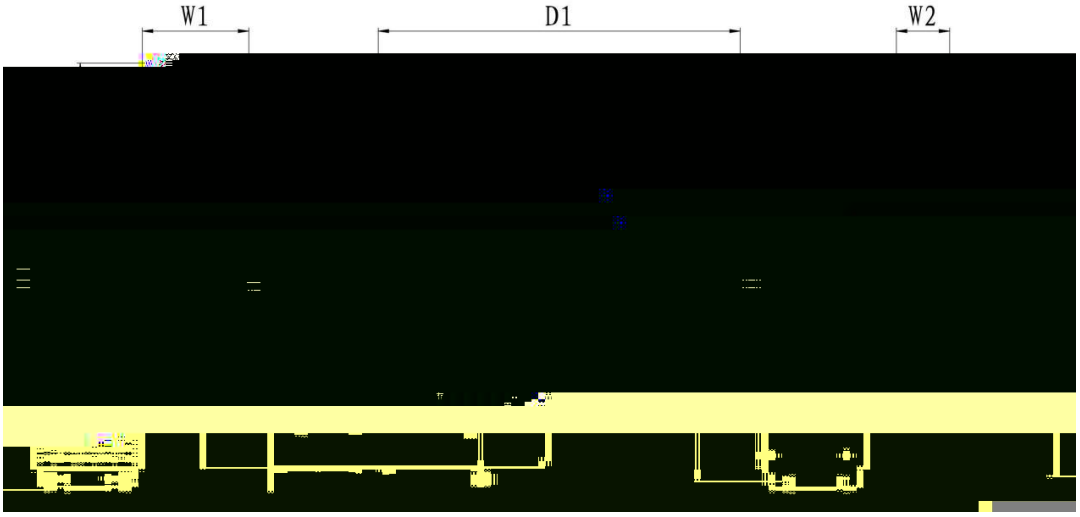
| | (mm) | | | | (mm) | | | (mm) | (kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | H1 | H3 | W1 | D1 | H2 | W2 | W3 | | | |
| HF681N01M-160-4 | 400 | 355 | 300 | 340 | 384 | 250 | 150 | 7 | 36 | K4 |




M1

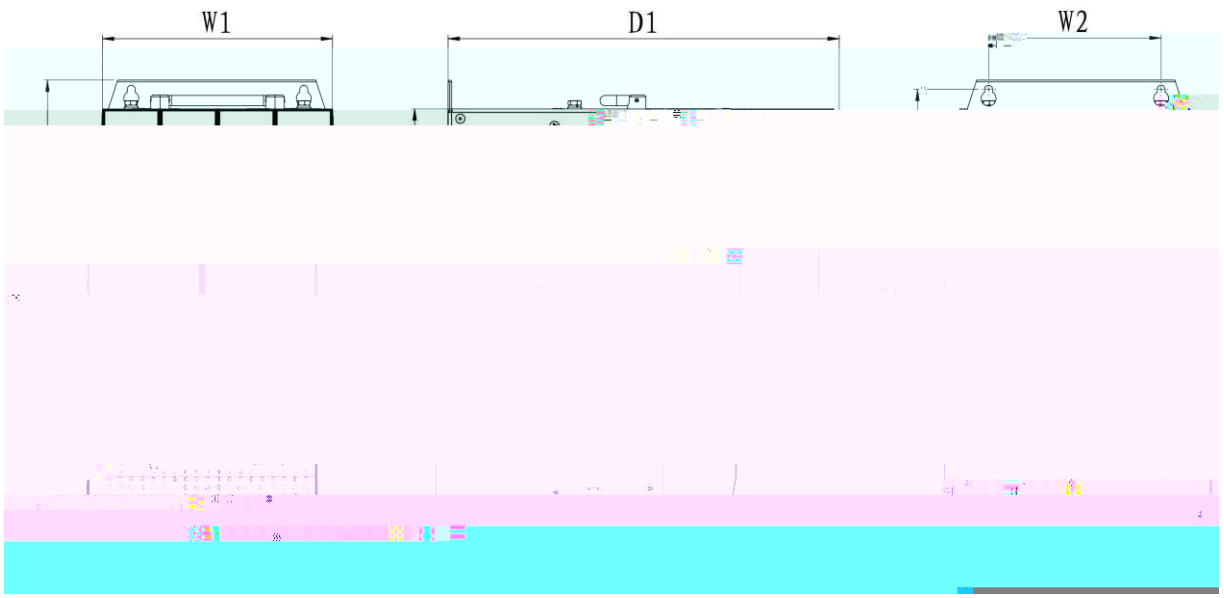
(mm) ϵ

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HF681N03M-5R5-4 | 400 | 355 | 50 | 340 | 384 | / | / | 7 | | |
| HF681N03M-7R5-4 | 400 | 355 | 50 | 340 | 384 | / | / | 7 | | |




**M2**

| | (mm) | | | | | | (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | H1 | H3 | W1 | D1 | H2 | W2 | / | (mm) | (kg) | |
| HF681N03M-011-4 | 400 | 355 | 100 | 340 | 384 | 50 | / | 7 | | |
| HF681N03M-015-4 | 400 | 355 | 100 | 340 | 384 | 50 | / | 7 | | |
| HF681N03M-018-4 | 400 | 355 | 100 | 340 | 384 | 50 | / | 7 | 9 | M2 |
| HF681N03M-022-4 | 400 | 355 | 100 | 340 | 384 | 50 | / | 7 | | |
| HF681N03M-030-4 | 400 | 355 | 100 | 340 | 384 | 50 | / | 7 | | |
| HF681N03M-037-4 | 400 | 355 | | | | | | | | |




M3

| | (mm) | | | | (mm) | | | (mm) | (kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | H1 | H3 | W1 | D1 | H2 | W2 | / | | | |
| HF681N03M-045-4 | 400 | 355 | 200 | 340 | 384 | 150 | / | 7 | 17 | M3 |
| HF681N03M-055-4 | 400 | 355 | 200 | 340 | 384 | 150 | / | 7 | | |
| HF681N03M-075-4 | 400 | 355 | 200 | 340 | 384 | 150 | / | 7 | | |

M4

| | (mm) | | | | (mm) | | | (mm) | (kg) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | H1 | H3 | W1 | D1 | H2 | W2 | W3 | | | |
| HF681N03M-090-4 | 400 | 355 | 300 | 340 | 384 | 250 | 150 | 7 | 31 | M4 |
| HF681N03M-110-4 | 400 | 355 | 300 | 340 | 384 | 250 | 150 | 7 | | |

## 1.4

### 1.4.1

| | | |
|---|---|---|
| | | 380V 480V |
| | | 50/60Hz |
| | | -15% +10% |
| | | fLN ± 2 ± 4<br>≤ 2 fLN/s |
| | | *1.414 |
| | | |
| | | 150% 5 1 |

| | | |
|---|---|---|
| | | 43 14 29 |
| | | 30 10 20 |
| | | 1 RS485 Modbus<br>1 CAN CANopen |
| | LED | |
| | | |
| | | |
| | | 1000 1000<br>100 1%<br>3000 |
| | | -10 +40 40<br>1 1% 50<br>-10 |
| | | 95%RH |
| | | -20 +60<br>10-30 |
| | | 98% |
| | | 1 RJ45<br>2 RJ45 |
| | | IP20 |
| | | |
| | | 2 |
| | | ≤80db |

## 1.4.2

537V 679VDC

-15% +10%

0

8 2 0 +10V 0mA/4mA
20mA

5 3 2 2
1 0 +10V 0mA/4mA 20mA 1 0 +10V

LED

## 1.5

~ í • 200%

~ î • 50% HF681N

~ ï HF681N

## 1.6

### 1.6.1

| | | [kW] | | [kW] |
|---|---|---|---|---|
| 1 | HF681N01M-22-4 | 22 | K2 | 0.19 |
| 2 | HF681N01M-45-4 | 45 | | 0.33 |
| 3 | HF681N01M-110-4 | 110 | K3 | 0.73 |
| 4 | HF681N01M-160-4 | 160 | K4 | 1.1 |

## 1.6.2

| | | [kW] | | [kW] |
|---|---|---|---|---|
| 1 | HF681N03M-1R5-4 | 1.5 | | 0.05 |
| 2 | HF681N03M-2R2-4 | 2.2 | | 0.06 |
| 3 | HF681N03M-3R7-4 | 3.7 | M1 | 0.07 |

## 1.8

# 2

## 2.1

## 2.2

| | | |
|---|---|---|
| | | |
| | | |
| | | |

| | | |
|---|---|---|
| | | ( ) |
| EMC | | |
| | | |
| | | |
| | | a)<br>b)<br>100m |
| | | |

| |
|---|
| / ( ) |

## 2.4

### 2.4.1

| | | 2% | |
|---|---|---|---|
| | | A | mH |
| HF681N01M-22-4 | 22kW | 49 | 0.26 |
| HF681N01M-45-4 | 45kW | 89 | 0.15 |
| HF681N01M-110-4 | 110kW | 196 | 0.07 |
| HF681N01M-160-4 | 160kW | 292 | 0.05 |

### 2.4.2

| | | 1% | |
|---|---|---|---|
| | | A | mH |
| HF681N03M-1R5-4 | 1.5 kW | 4 | 1.75 |
| HF681N03M-2R2-4 | 2.2 kW | 5.7 | 1.22 |
| HF681N03M-3R7-4 | 3.7 kW | 10.2 | 0.69 |
| HF681N03M-5R5-4 | 5.5kW | 15 | 0.47 |
| HF681N03M-7R5-4 | 7.5kW | 18 | 0.39 |
| HF681N03M-011-4 | 11kW | 24 | 0.29 |
| HF681N03M-015-4 | 15kW | 32 | 0.22 |
| HF681N03M-018-4 | 18.5kW | 38 | 0.18 |
| HF681N03M-022-4 | 22kW | 47 | 0.15 |
| HF681N03M-030-4 | 30kW | 65 | 0.11 |
| HF681N03M-037-4 | 37kW | 75 | 0.09 |

| | | | |
|---|---|---|---|
| HF681N03M-045-4 | 45kW | 94 | 0.07 |
| HF681N03M-055-4 | 55kW | 115 | 0.06 |
| HF681N03M-075-4 | 75kW | 155 | 0.05 |
| HF681N03M-090-4 | 90kW | 188 | 0.04 |
| HF681N03M-110-4 | 110kW | 215 | 0.03 |

## 2.5

| | | | | |
|---|---|---|---|---|
| | | | | |
| | Ω | Ω | KW<br>30% Kc | KW<br>50% Kc |
| 22kW | 22 | 18 | ≥ 8 | ≥ 11 |
| 45kW | 13 | 8 | ≥ 15 | ≥ 20 |
| 110kW | 5.1 | 4.8 | ≥ 38 | ≥ 50 |
| 160kW | 3.3 | 2.2 | ≥ 58 | ≥ 96 |

1 100%

2 Kc

3 Kc a 20 Kc=10% - 20%

b Kc=30%

c Kc=40 - 50%

4

## 2.6

HF681

$I \geq 0.8*$
$I1+I2+I3+I4+I5+I6+...$
$I1+I2+I3+I4+I5+I6+... \leq 300A$
$I4+I5+I6+... \leq 100A$

$I >$

| | | |
|---|---|---|
| | | I ≥ 0.8* I1+I2+I3+I4+I5+I6+... I3+I4+I5+I6+... ≤ 100*n A n<br><br>I1+I2 ≤ 300A<br>I4+I5+I6+... ≤ 100A |

2-6

1 100A 300A

2 100A

3 80%

100% 150%

80%

4

5

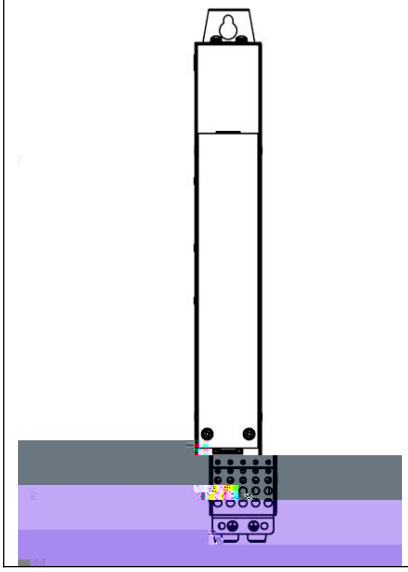
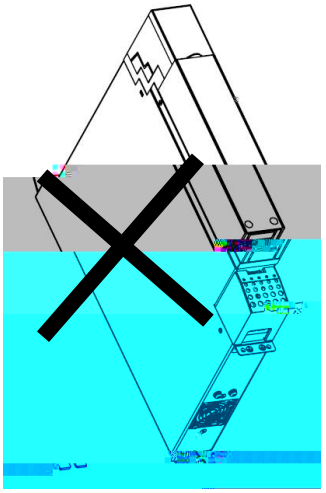
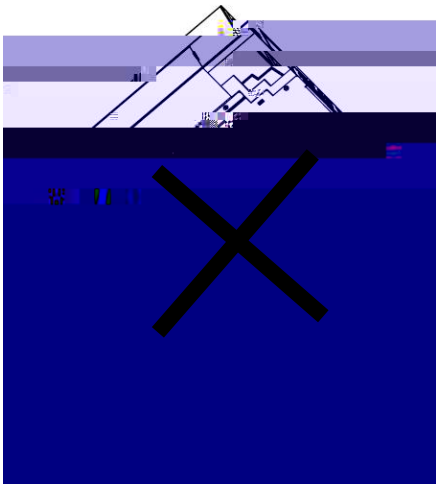
# 3

## 3.1

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | 10cm<br>5cm | 6 | |
| | -10 +40<br>40<br>1<br>1% 50<br>-10 | -20 +60<br>1 / | -20 +60 |
| | 70 106 kPa<br>0.7 1.05 | 70 106 kPa<br>0.7 1.05 | 60 106 kPa<br>0.6 1.05 |
| | 10Hz ≤ f ≤ 57Hz<br>0.075mm<br>57Hz ≤ f ≤ 150Hz<br>9.8 m/s2 | 10Hz ≤ f ≤ 57Hz<br>0.075mm<br>57Hz ≤ f ≤ 150Hz<br>9.8 m/s2 | I I |
| | | 100m/s² 11ms | 100m/s² 11ms |
| | | 250mm <100kg<br>100mm ≥ 100kg | 250mm <100kg<br>100mm ≥ 100kg |
| | 95%RH | | |
| | 1000 | 1000<br>3000 | 100 1% |
| | 2 | | |
| | | | |

## 3.2

### 3.2.1

| | | |
|---|---|---|
|  |  |  |

### 3.2.2



| | | ( mm) | |
|---|---|---|---|
| K2 | 22kW 45kW | A ≥ 300 | B ≥ 10 |
| K3 | 110kW | A ≥ 300 | B ≥ 10 |
| K4 | 160kW | A ≥ 300 | B ≥ 10 |
| M1 | 1.5kW 7.5kW | A ≥ 300 | B ≥ 10 |
| M2 | 11kW 37kW | A ≥ 300 | B ≥ 10 |
| M3 | 45kW 75kW | A ≥ 300 | B ≥ 10 |
| M4 | 90kW 110kW | A ≥ 300 | B ≥ 10 |

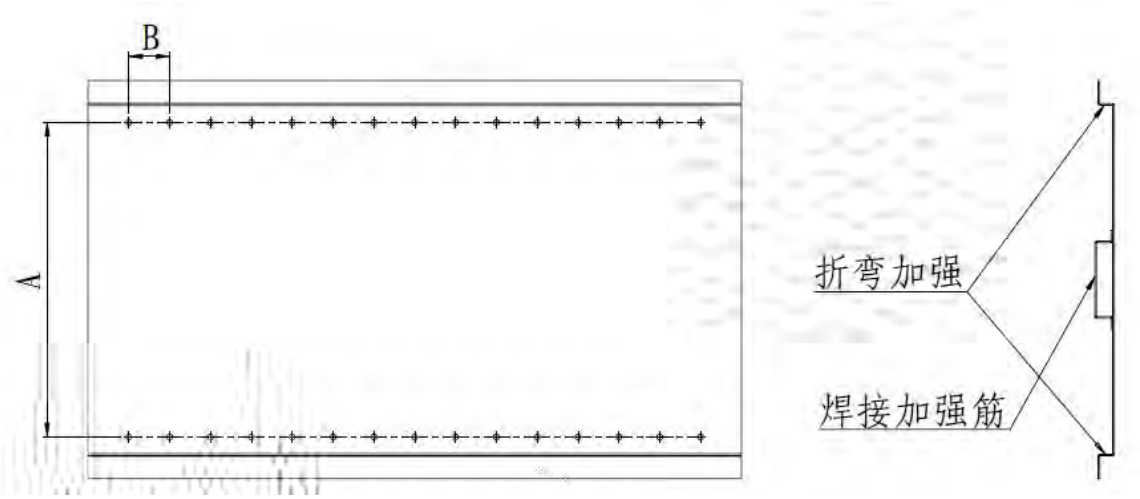
### 3.2.3

| | | | |
|---|---|---|---|
| 1 | M1 | 1.5kW 7.5kW | 2-M6X16 |
| 2 | M2 | 11kW 37kW | 4-M6X16 |
| 3 | M3 | 45kW 75kW | 4-M6X16 |
| 4 | M4 | 90kW 110kW | 8-M6X16 |
| 5 | K2 | 22kW 45kW | 4-M6X16 |
| 6 | K3 | 110kW | 4-M6X16 |
| 7 | K4 | 160kW | 8-M6X16 |

M6: 30 ± 3KGF.CM

:

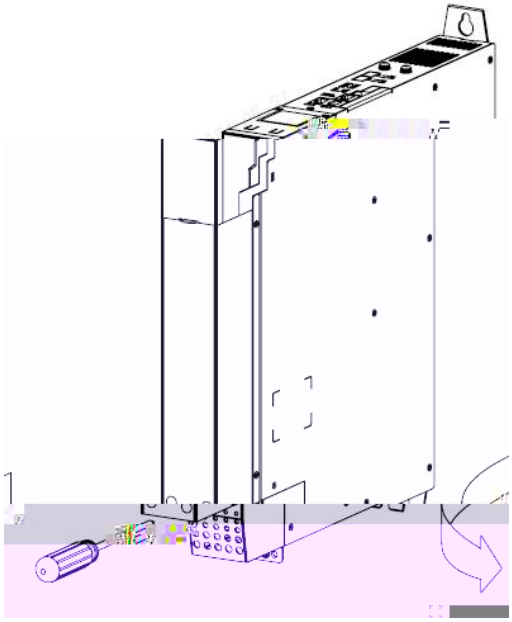
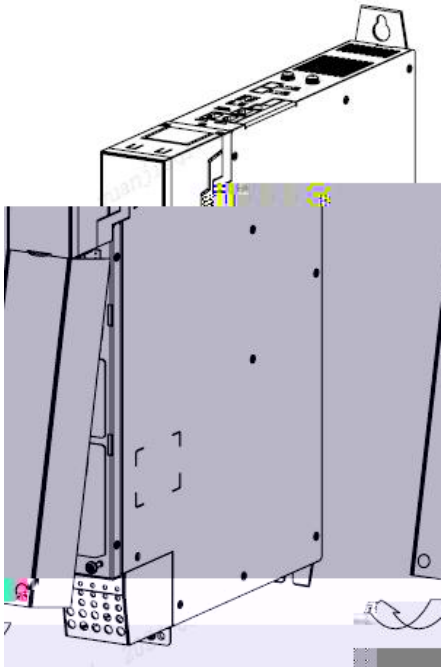
2mm




| | | | mm | | |
|---|---|---|---|---|---|
| | | | A | B | M |
| 1 | | | 384 | 50 | M6 |

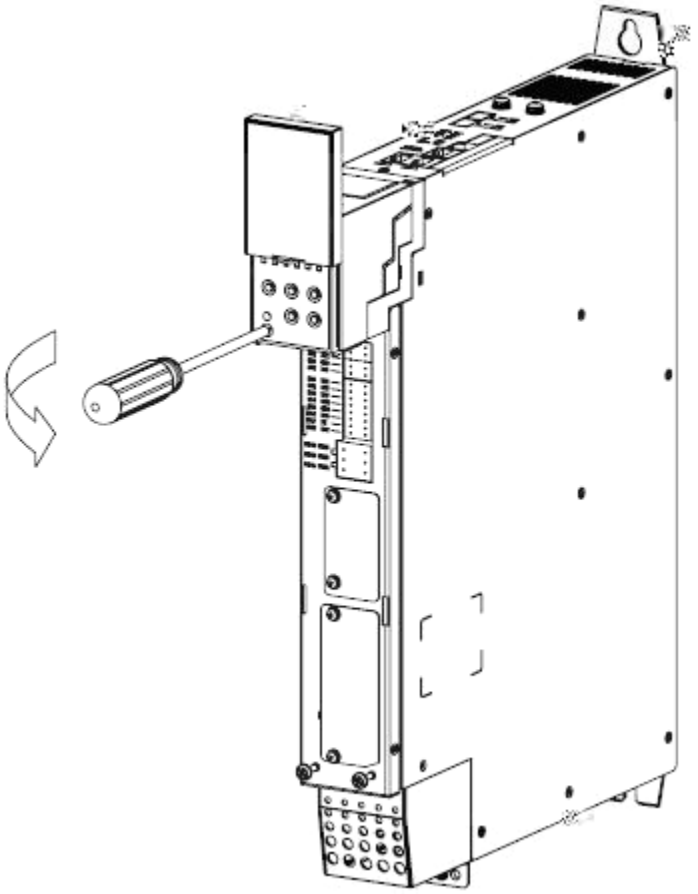
M4: 12 ± 1KGF.CM M5: 20 ± 2KGF.CM M6: 30 ± 3KGF.CM

### 3.2.4

| | |
|---|---|
| 1 |  |
| 2 |  |

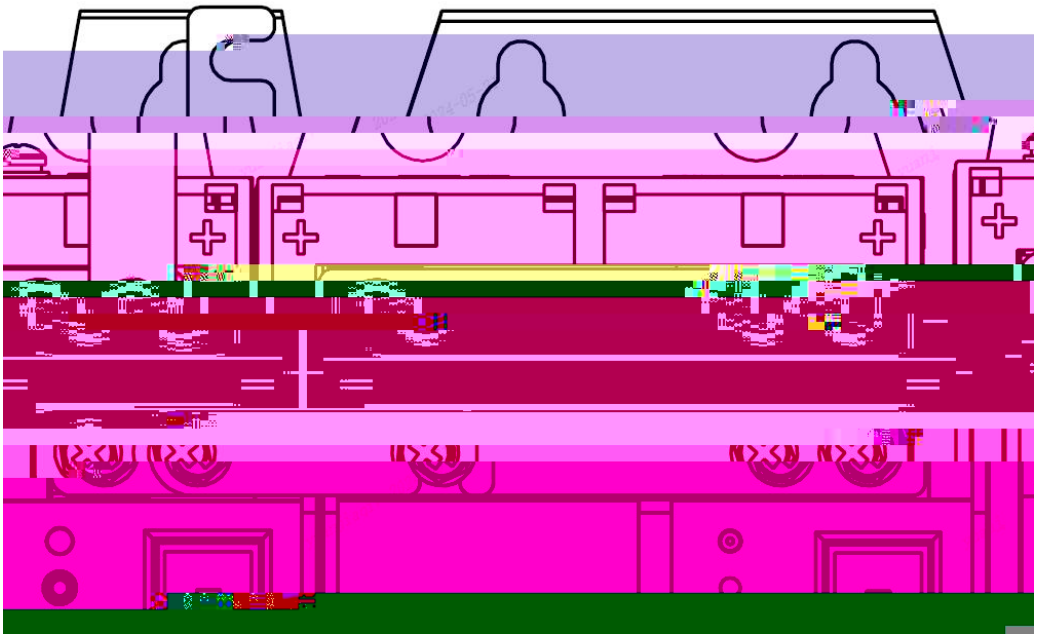
### 3.2.5

1.



2.

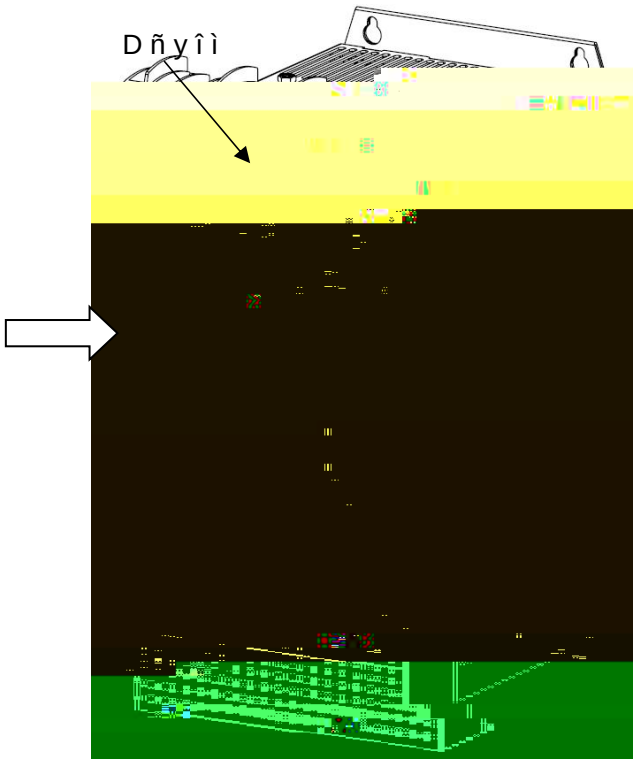
3.



### 3.2.6

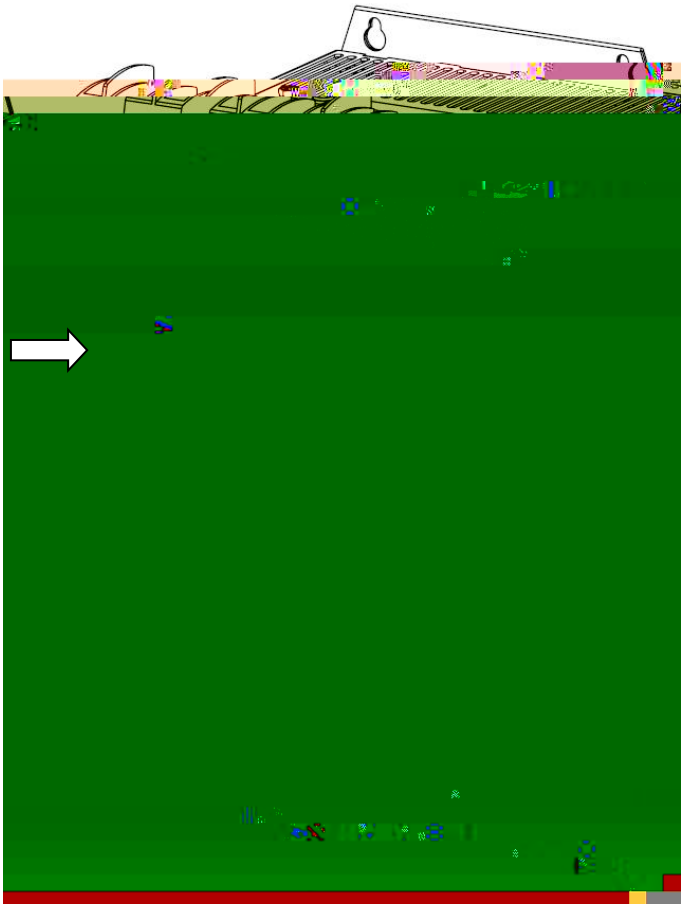
1.

2. M5X20



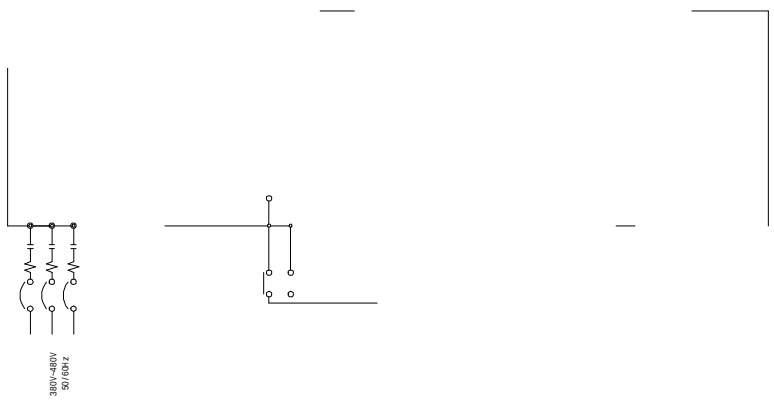
3.

4.

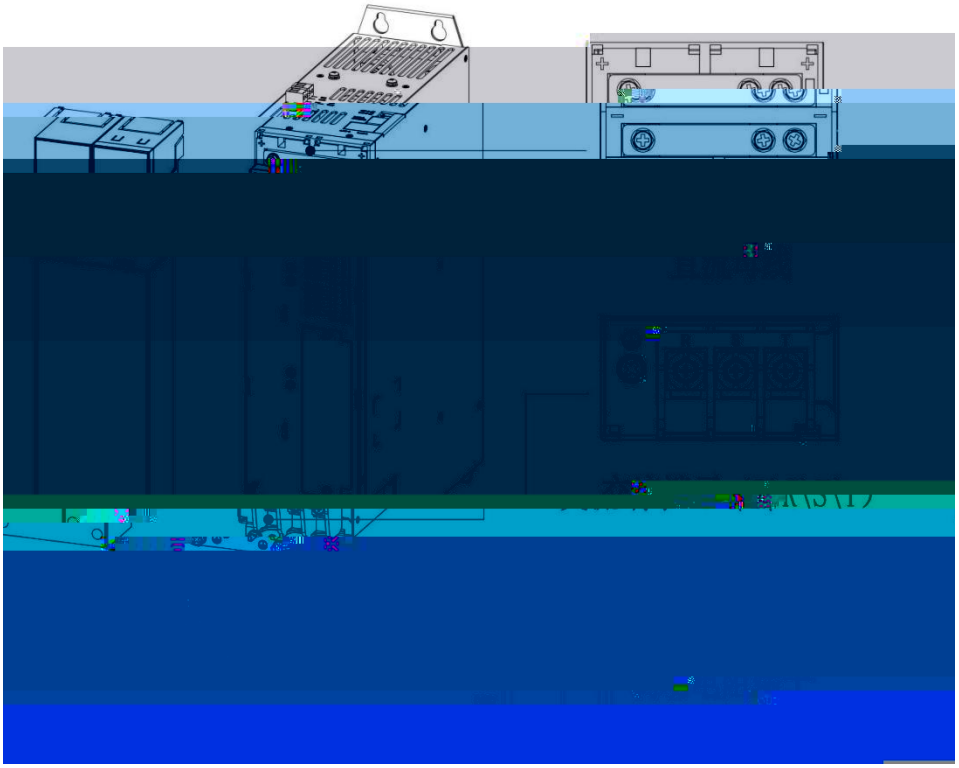


## 3.3

### 3.3.1

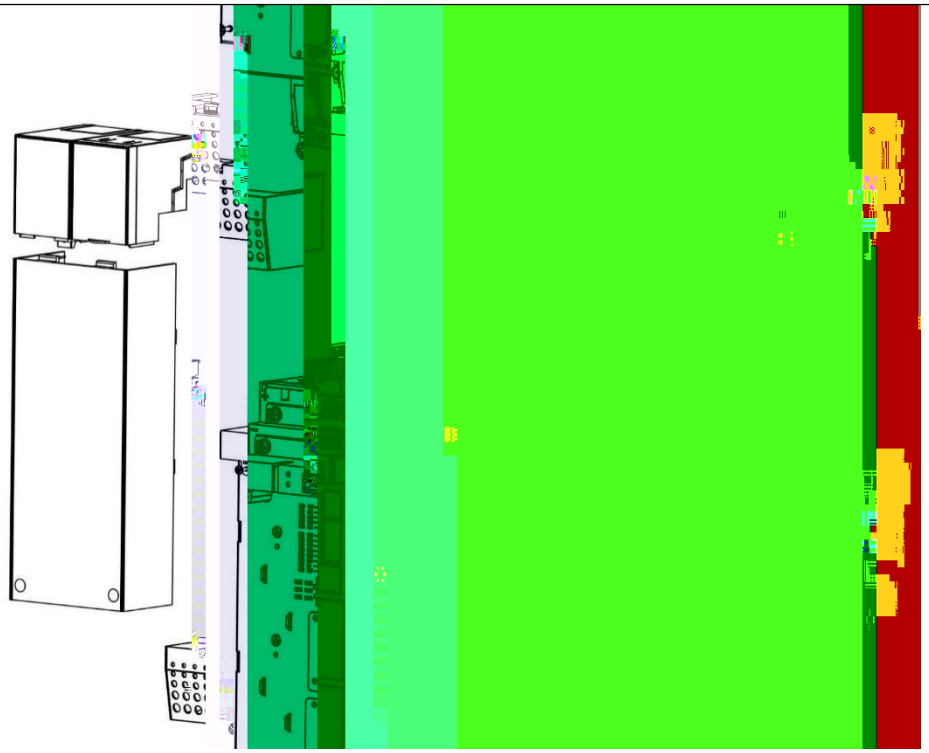


### 3.3.2

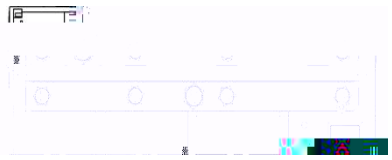
| K2 |
| --- |
|  |
| K3 |
| |

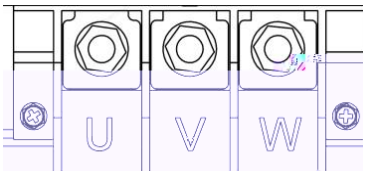
| K4 |
| --- |
| |
| M1 ⅝ ˛ r Ṇ r |
|  |

M2



M3





| M4 |
| --- |
|  |

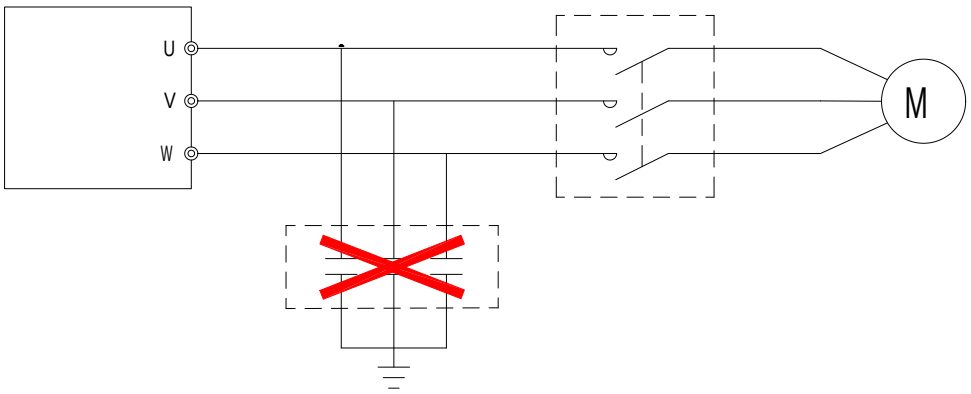
| | |
| --- | --- |
| + | |
| - | |
| R S T | |
| U V W | |
| P(+) | |
| DBR | |
| PE | |

### 3.3.3

1

2

| | | |
|---|---|---|
| 13 | | |
| 14 | | |
| 15 | 30 m | |



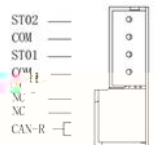
### 3.3.5

PG

| | | | |
|---|---|---|---|
| | 485A-485B | 485 | Modbus |
| | CANH-CANL | CAN | CAN<br>CANopen |

| | | | |
|---|---|---|---|
| | RJ45-A | | |
| | RJ45-B | | |
| | RJ45-C | | |
| | +24V--GND | 24V | |
| | 24V-COM | 24V | 24V ± 10%<br>200mA |
| | PW-COM | | 24V<br>DI DO PW<br>24V |
| | DI1 DI14-COM | | 3.3kΩ |
| | DI15 DI43-COM | | 9V~30V<br>500Hz |
| | DO1 DO10-COM | | 0V~24V<br>0mA~50mA |
| | DO11 DO30-COM | | |

| | | | |
|---|---|---|---|
| | | | |
| | 485-R | 485 | ON<br>OFF |
| | CAN-R | CAN | ON<br>OFF |




| | | | |
|---|---|---|---|
| | RJ45-A | | |
| | RJ45-B | | |
| | RJ45-C | | |

| | | | |
|---|---|---|---|
| | +24V--COM | 24V | |
| | +10V-GND | 10V | +10V<br>50mA<br>1kΩ~5kΩ |
| | 24V-COM | 24V | 24V ± 10%<br>200mA |
| | PW-COM | | 24V<br>DI<br>DO PW<br>24V |
| | AI1--GND | 1 | -10VDC~10VDC<br>/0mA~20mA<br>100k<br>Ω 500<br>Ω |
| | AI2--GND | 2 | DC -10V~10V<br>100kΩ |
| | DI1 DI8--COM | | 3.3kΩ<br>9V~30V<br>500Hz DI5<br>20KHz |
| | STO1--COM | STO 1 | STO<br>STO<br>20<br>STO COM<br>STO |
| | STO2--COM | STO 2 | |
| | AO1--GND | 1 | 0V~10V<br>0mA~20mA |

AO2--GND 2 0V~10V

0V~10V

DO1 DO3--COM

| | | | |
|---|---|---|---|
| | CAN-R | CAN | CAN<br>ON<br>OFF |

# 4

## 4.1LED

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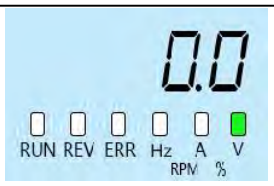
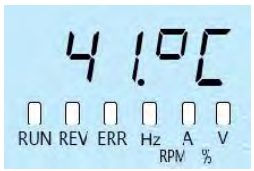
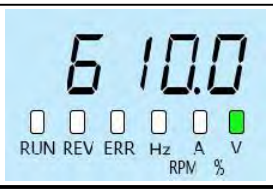
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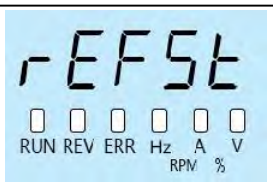
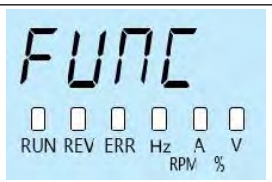
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## 4.2

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|  0.0 RUN REV ERR Hz A V RPM % | | s |
|  41.°C RUN REV ERR Hz A V RPM % | | |
|  610.0 RUN REV ERR Hz A V RPM % | | s |

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| | DKXyy | | yy |
| | zXyy | | yy |
| | yyyyX | | DKEX<br>dh ^X<br>t X<br>d,hZX<br>&Z/X<br>^ dX<br>^hEX |
| | ,Xyy | | yy |
| | DXyy | | yy |
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1 /

2 V/F P16.11=0

V/F

3 P16.11=2 P16.11=1

## 5.2

AC380~460V 50/60Hz

U,V,W

PG PG

## 5.3

LED

### 5.5.2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | 1] | | |
| P16.11 | | [0]V/F<br>[1]<br>[2] | 0 | P7.4 | [<br>1] | 0~300[%] | 235% |
| P16.14 | V/F | [0] V/F<br>[1] V/F<br>[2] | 0 | P7.19 | [<br>1] | 100.0<br>720.0[%] | 120% |

## 5.6

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| | | | |
|---|---|---|---|
| P16.11 | 0 | V/F | |
| | 1 | | |
| | 2 | | |

2

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| | | |
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| | | |
| | V/F | |

3

| | | | | |
|---|---|---|---|---|
| | | | | 1,<br>2,<br>3, “<br>”<br>4, “<br>”<br>5 VF |
| | V/F | | | |
| | | | | 1,<br>2,<br>3,<br>4,<br>5, “<br>”<br>6, “<br>” |
| | | | & | |
| | | | & | 1,<br>2, 50%<br>3,<br>4,<br>5,<br>6, “<br>”<br>7, “<br>” |

4

| | | |
|---|---|---|
| 1 | | |
| 2 | LOC/REM LOCAL LOCAL | |
| 3 | ENTER [1]<br>5Hz | |
| 4 | RUN RUN | |
| 5 | 4<br>50Hz | |
| 6 | STOP | |

5

| | | | |
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| | | | |
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| | | | |
| | | | |
| | | | |
| | | STOP | |
| | 1 | | |
| | 2 | LOC/REM LOCAL LOCAL | |
| | 3 | ENTER<br>[1] 5Hz | |
| | 4 | RUN RUN | |
| | 5 | 4<br>50Hz | |
| | 6 | STOP | |
| | | | |

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6

## 6.1

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| | | |
| | P0 | |
| | P3 | |
| | P4 | |
| | P5 | |
| | P6 | |
| | P7 | |
| | P8 | CANBus |

### 6.1.1 P0

| | | | | | |
|---|---|---|---|---|---|
| P0.0 | | [0]<br>[1] | 0 1 | 0 | |
| P0.1 | | | 0 3 | 0 | |
| P0.2 | | [0]380V<br>[1]440V<br>[2]480V | 0 2 | 0 | |
| P0.3 | | [0]50HZ [1]60HZ | 0 1 | 0 | |
| P0.4 | | | | | |
| P0.5 | | | | | |

### 6.1.2 P1

| | | | | | |
|---|---|---|---|---|---|
| P3.0 | 1 | | 0 43 | 0 | |
| P3.1 | 2 | | 0 43 | 0 | |
| P3.2 | 3 | | 0 43 | 0 | |

| | | | |
|---|---|---|---|
| P3.3 | 4 | 0 43 | 0 |
| P3.4 | 5 | 0 43 | 0 |
| P3.5 | 6 | | |

| | | |

| | | |
|---|---|---|
| 42 | | 1 |
| 43 | | 1 |

| | | |
|---|---|---|
| | | |
| 0 | | DI DI |
| 1 | | DI DI |

### 6.1.3 P4

| | | | | | |
|---|---|---|---|---|---|
| P4.0 | 1 | | 0 32 | 0 | |
| P4.1 | 2 | | 0 32 | 0 | |
| P4.2 | 3 | | 0 32 | 0 | |
| P4.3 | 4 | | 0 32 | 0 | |
| P4.4 | 5 | | 0 32 | 0 | |
| P4.5 | 6 | | 0 32 | 0 | |
| P4.6 | 6 | | 0 32 | 0 | |
| P4.7 | 7 | | 0 32 | 0 | |
| P4.8 | 8 | | 0 32 | 0 | |
| P4.9 | 9 | | 0 32 | 0 | |
| P4.10 | 10 | | 0 32 | 0 | |
| P4.11 | 11 | | 0 32 | 0 | |
| P4.12 | 12 | | 0 32 | 0 | |
| P4.13 | 13 | | 0 32 | 0 | |
| P4.14 | 14 | | 0 32 | 0 | |
| P4.15 | 15 | | 0 32 | 0 | |
| P4.16 | 16 | | 0 32 | 0 | |
| P4.17 | 17 | | 0 32 | 0 | |
| P4.18 | 18 | | 0 32 | 0 | |
| P4.19 | 19 | | 0 32 | 0 | |
| P4.20 | 20 | | 0 32 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| P4.21 | 21 | | 0 32 | 0 | |
| P4.22 | 22 | | 0 32 | 0 | |
| P4.23 | 24 | | 0 32 | 0 | |
| P4.24 | 25 | | 0 32 | 0 | |
| P4.25 | 26 | | 0 32 | 0 | |
| P4.26 | 27 | | 0 32 | 0 | |
| P4.27 | 28 | | 0 32 | 0 | |
| P4.28 | 29 | | 0 32 | 0 | |
| P4.29 | 30 | | 0 32 | 0 | |

| | | |
|---|---|---|
| 0 | | DO |
| 1 | | |
| 2 | | |
| 3 | 1 | |
| 4 | 2 | |
| 5 | 3 | |
| 6 | 4 | |
| 7 | | |
| 8 | | |
| 9 | 1 | |
| 10 | 2 | |
| 11 | 3 | |
| 12 | | |
| 13 | | |
| 14 | 1 | |
| 15 | 2 | |
| 16 | 3 | |
| 17 | | DO |
| 18 | | DO |

| | | |
|---|---|---|
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | Cab | |
| 24 | 90% | 90% |
| 25 | 100% | 100% |
| 26 | 90% | 90% |
| 27 | 110% | 110% |
| 28 | ٧ ]W٧ „ | 0 |
| 29 | | |
| 30 | | |
| 31 | | |
| 32 | | |

### 6.1.4 P5

| | | | | | |
|---|---|---|---|---|---|
| P5.0 | | | | 0 1 | 0 |
| P5.1 | | ID | | 0 10 | 0 |
| P5.2 | | 1 | 1 | 0 300 | 0 |
| P5.3 | | 2 | 2 | 0 300 | 0 |
| P5.4 | | 3 | 3 | 0 300 | 0 |
| P5.5 | 4 | 4 א mMא " | 4 | 0 300 | 0 |
| P5.6 | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| P5.14 | 3 | 3 | 0 300 | 0 | |
| P5.15 | 4 | 4 | 0 300 | 0 | |
| P5.16 | 5 | 5 | 0 300 | 0 | |
| P5.17 | 1 | 1 | 0 300 | 0 | |
| P5.18 | 2 | 2 | 0 300 | 0 | |
| P5.19 | 3 | 3 | 0 300 | 0 | |
| P5.20 | 4 | 4 | 0 300 | 0 | |
| P5.21 | 5 | 5 | 0 300 | 0 | |
| P5.22 | 1 | 1 | 0 300 | 0 | |
| P5.23 | 2 | 2 | 0 300 | 0 | |
| P5.24 | 3 | 3 | 0 300 | 0 | |
| P5.25 | 4 | 4 | 0 300 | 0 | |
| P5.26 | 5 | 5 | 0 300 | 0 | |
| P5.27 | 1 | 1 | 0 300 | 0 | |
| P5.28 | 2 | 2 | 0 300 | 0 | |
| P5.29 | 3 | 3 | 0 300 | 0 | |
| P5.30 | 4 | 4 | 0 300 | 0 | |
| P5.31 | 5 | 5 | 0 300 | 0 | |
| P5.32 | 110%FwdMaxP | 110% | 0 6 | 0 | |
| P5.33 | 110%RevMaxP | 110% | 0 6 | 0 | |
| P5.34 | 100%FwdMaxP | 100% | 0 6 | 0 | |
| P5.35 | 100%RevMaxP | 100% | 0 6 | 0 | |
| P5.36 | 90%FwdMaxP | 90% | 0 6 | 0 | |
| P5.37 | 90%RevMaxP | 90% | 0 6 | 0 | |
| P5.38 | 80%FwdMaxP | 80% | 0 6 | 0 | |
| P5.39 | 80%RevMaxP | 80% | 0 6 | 0 | |
| P5.40 | 100%FwdMaxP | 100% | 0 6 | 0 | |
| P5.41 | 100%RevMaxP | 100% | 0 6 | 0 | |
| P5.42 | 90%FwdMaxP | 90% | 0 6 | 0 | |
| P5.43 | 90%RevMaxP | 90% | 0 6 | 0 | |
| P5.44 | 50%FwdMaxP | 50% | 0 6 | 0 | |
| P5.45 | 50%RevMaxP | 50% | 0 6 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| P5.46 | 25%FwdMaxP | 25% | 0 6 | 0 | |
| P5.47 | 25%RevMaxP | 25% | 0 6 | 0 | |
| P5.48 | 110%FwdMaxP | 110% | 0 6 | 0 | |
| P5.49 | 110%RevMaxP | 110% | 0 6 | 0 | |
| P5.50 | 100%FwdMaxP | 100% | 0 6 | 0 | |
| P5.51 | 100%RevMaxP | 100% | 0 6 | 0 | |
| P5.52 | 90%FwdMaxP | 90% | 0 6 | 0 | |
| P5.53 | 90%RevMaxP | 90% | 0 6 | 0 | |
| P5.54 | 80%FwdMaxP | 80% | 0 6 | 0 | |
| P5.55 | 80%RevMaxP | 80% | 0 6 | 0 | |
| P5.56 | | | 0 6553 | 0 | |
| P5.57 | | | 0 6553 | 0 | |
| P5.58 | | | 0 1 | 0 | |

### 6.1.5 P6

P6.0 320 4v

| | | | | | |
|---|---|---|---|---|---|
| P7.5 | | | 0 1 | 0 | |
| P7.6 | | | 30 100 | 0 | |
| P7.7 | | | 30 100 | 0 | |
| P7.8 | | | 0 30 | 0 | |
| P7.9 | | | 0 1 | 0 | |
| P7.10 | | | 0 200 | 0 | |
| | | | 0 12 | 0 | |

[redacted]

| | | | | | |
|---|---|---|---|---|---|
| | | | | 1 | 0 |
| P8.1 | CanBus | | | 0 1 | 0 |
| P8.2 | 8 0n | | 8 | 0 1000<br>0 1000 | [redacted] |
| P8.3 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| P8.18 | Rpdo Mapping 8 | RPDO | 8 | 0 | 9 | 0 |
| P8.19 | Rpdo Mapping 9 | RPDO | 9 | 0 | 9 | 0 |
| P8.20 | Rpdo Mapping 10 | RPDO | 10 | 0 | 9 | 0 |
| P8.21 | Rpdo Mapping 11 | 0 | Mapping | 0 | 9 | 0 |

| | | |
|---|---|---|
| 3 | HZ | 9.1.5 |
| 4 | % | 9.1.5 |
| 5 | % | 9.1.5 |
| 6 | % | 9.1.5 |
| 7 | Hz | 9.1.5 |
| 8 | | 9.1.5 |
| 9 | | 9.1.5 |

| | | | | | |
|---|---|---|---|---|---|
| | P11 | 4 | | P31 | CAN |
| | P12 | 1 | | P32 | MODBUS |
| | P13 | 2 | | P33 | |
| | P14 | 3 | | | |
| | P15 | 4 | | | |

### 6.2.1 P0

[0]

P0.0 [1] 0 1 0

;

P0.1 ; 0 27 1

P0.3 [0]50HZ [1]60HZ 0 1

| | | | | |
|---|---|---|---|---|
| P3.13 | HDI5 | 0.100<br>50.000 | | 0.100 |
| P3.14 | HDI5 | 0.0 | 300.0 | 0.0 |
| P3.15 | HDI5 | 0.100<br>50.000 | | 0.100 |

| | | | | |
|---|---|---|---|---|
| 15 | .NC | | | |
| 16 | | | | |
| 17 | 0 | 1 | 0 | 00 |

| | | | | | |
|---|---|---|---|---|---|
| P4.17 | 2 | | 0 500 | 0 | |
| P4.18 | 3 | | 0 500 | 0 | |
| P4.19 | 4 | | 0 500 | 0 | |

| | | |
|---|---|---|
| | | |
| 0 | | |
| 1 | | 7.2 |
| 2 | | ON |
| 3 | | 7.2 |
| 4 | | |
| 5 | | |
| 6 | 1 | [6] [9] |
| 7 | 2 | |
| 8 | 3 | |
| 9 | 4 | |
| 10 | FUNC 10 | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | 7.7 |
| 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 | PROFIBUS 1 | PROFIBUS 1 1 |
| 50 | PROFIBUS 2 | PROFIBUS 2 1 |
| 51 | PROFIBUS 3 | PROFIBUS 3 1 |
| 52 | PROFIBUS 4 | PROFIBUS 4 1 |

| | | |
|---|---|---|
| 53 | PROFIBUS 5 | PROFIBUS 5 1 |
| 54 56 | FUNC 54 FUNC 56 | |
| 57 | 1 | 1 1 |
| 58 | 2 | 2 1 |
| 59 | 3 | 3 1 |
| 60 | 4 | 4 1 |
| 61 | 1 | 1 1 |
| 62 | 2 | 2 1 |
| 63 | 3 | 3 1 |
| 64 | 4 | 4 1 |

### 6.2.4 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] | 0.0<br>[ms] | |
| P5.2 | AI1 | AI1 | -10.00 10.00<br>[V] | 0.000<br>[V] | 7.3 |
| P5.3 | AI1 | AI1 | -20.00 20.00<br>[mA] | 0.000<br>[mA] | 7.3 |
| P5.4 | AI1 | AI1 | -10.00 10.00<br>[V] | 0.000<br>[V] | 7.3 |
| P5.5 | AI1 | AI1 | 0.00 20.00<br>[mA] | 0.000<br>[mA] | 7.3 |
| P5.6 | AI1 | AI1 | -300.0 300.0<br>[%] | 0.0<br>[%] | 7.3 |
| P5.7 | AI1 | AI1 | -10.00 10.00<br>[V] | 10.000<br>[V] | 7.3 |

| | | | | | |
|---|---|---|---|---|---|
| P5.8 | AI1 | AI1 | 0.00 20.00 [mA] | 20.000 [mA] | 7.3 |
| P5.9 | AI1 | AI1 | -300.0 300.0 [%] | 100.0 [%] | 7.3 |
| 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] | 0.0 [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 [%] | |

### 6.2.5 P6

| | | | | | |
|---|---|---|---|---|---|
| P6.0 | AO1 | 7-1 | 0 14 | 2 | |
| P6.2 | AO1 | AO1 | -300.0 300.0 [%] | 0.0 [%] | 7.4 |

| | | | | | |
|---|---|---|---|---|---|
| P6.3 | AO1 | AO1 | -300.0 300.0 [%] | 100.0 [%] | 7.4 |
| P6.4 | AO1 [mA V] | AO1 | 0.0 100.0 [%] | 0.0 [%] | 7.4 |
| P6.5 | AO1 [mA V] | AO1 | 0.0 100.0 [%] | 100.0 [%] | 7.4 |
| 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 | |
| P6.16 | 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 | A02 | A01 | 0.0 1000.0 [ms] | 10.0 [ms] | |

**7-1**

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8 (%) ( )

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|---|---|---|---|---|---|
| P7.3 | [ 4] | 4 | 0.0 300.0 [%] | 180.0 [%] | 7.5 |
| P7.4 | [ 1] | 1 | 0.0 300.0 [%] | 235.0 [%] | 7.5 |
| P7.5 | [ 2] | 2 | 0.0 300.0 [%] | 235.0 [%] | 7.5 |
| P7.6 | [ 3] | 3 | 0.0 300.0 [%] | 235.0 [%] | 7.5 |
| P7.7 | [ 4] | 4 | 0.0 300.0 [%] | 235.0 [%] | 7.5 |
| P7.8 | [ 1] | 1 | 0.0 100.0 [%] | 20.0 [%] | 7.5 |
| P7.9 | [ 2] | 2 | 0.0 100.0 [%] | 20.0 [%] | 7.5 |
| P7.10 | [ 3] | 3 | 0.0 100.0 [%] | 20.0 [%] | 7.5 |
| P7.11 | [ 4] | 4 | 0.0 100.0 [%] | 20.0 [%] | 7.5 |
| P7.12 | | | 600 820 [V] | 800 [V] | 7.5 |
| P7.13 | | | 300 500 [V] | 350 [V] | 7.5 |
| P7.14 | | | 60.0 100.0 [ ] | 87.5 [ ] | 7.5 |
| P7.15 | | | 50.0 100.0 [ ] | 80.0 [ ] | 7.5 |
| P7.19 | [ 1] | 1 | 100.0 720.0 [%] | 120.0 [%] | 7.5 |
| P7.20 | [ 2] | 2 | 100.0 720.0 [%] | 120.0 [%] | 7.5 |
| P7.21 | [ 3] | 3 | 100.0 720.0 [%] | 120.0 [%] | 7.5 |
| P7.22 | [ 4] | 4 | 100.0 720.0 [%] | 120.0 [%] | 7.5 |
| P7.23 | 1 M1 | 1 | 0.00 3.00 [s] | 0.50 [s] | 7.5 |
| P7.24 | 1 M2 | 2 | 0.00 3.00 [s] | 0.50 [s] | 7.5 |
| P7.25 | 1 M3 | 3 | 0.00 3.00 [s] | 0.50 [s] | 7.5 |
| P7.26 | 1 M4 | 4 | 0.00 3.00 [s] | 0.50 [s] | 7.5 |

| | | | | | |
|---|---|---|---|---|---|
| P7.27 | 1 | 1 | 0.00 [s] | 3.00 [s] | 2.00 [s] |
| P7.28 | 2 | 2 | 0.00 [s] | 3.00 [s] | 2.00 [s] |
| P7.29 | 3 | 3 | 0.00 [s] | 3.00 [s] | 2.00 [s] |
| P7.30 | 4 | 4 | 0.00 [s] | 3.00 [s] | 2.00 [s] |
| P7.31 | | | 0.0 [%] | 100.0 [%] | 25.0 [%] |
| P7.32 | | | 0.00 [s] | 5.00 [s] | 1 [s] |
| P7.33 | | | 0.0 > V @ | | |

| | | | | | |
|---|---|---|---|---|---|
| P7.69 | | [0]<br>[1] | 0 1 | 0 | 7.5 |
| P7.70 | | | -25 150<br>[V] | 100<br>[V] | 7.5 |
| P7.71 | 1 | [0]<br>[1] | 0 1 | 0 | 7.5 |
| P7.73 | | [0]<br>[1] | 0 1 | 0 | |
| P7.74 | | | 300 500<br>[V] | 460<br>[V] | |
| P7.75 | | | 0.0 1000.0<br>[%] | 100.0<br>[%] | |
| P7.76 | | | 0.00 300.00<br>[s] | 1.00<br>[s] | |
| P7.77 | | | 0.0 200.0<br>[%] | 15.0<br>[%] | |
| P7.94 | | [0]<br>[1] | 0 1 | 1 | |
| P7.95 | | AFE | 0.0 3000.0<br>[s] | 15.0<br>[s] | |
| P7.96 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | |

### 6.2.7 1 P8

| | | | | | |
|---|---|---|---|---|---|
| P8.0 | | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P8.3 | | [0]<br>[1] | 0 1 | 0 | 7.6 |

| | | | | | |
|---|---|---|---|---|---|
| P8.4 | 2 | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P8.6 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.6 |
| P8.7 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.6 |
| P8.8 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.11 |
| P8.9 | | [0]<br>[1] | 0 1 | 0 | |
| P8.10 | | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | 0 6 | 0 | |
| P8.12 | 2 | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | 0 6 | 0 | |
| P8.15 | 1 | | 0.0 300.0<br>[%] | 100.0<br>[%] | 7.6 |
| P8.16 | 1 | P8.15 | 0.0 300.0<br>[s] | 3.00<br>[s] | 7.6 |
| P8.17 | 2 | | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P8.18 | 2 | P8.15 | P8.17 | 0.0 [s] | 300.0 [s] | 4.00 | 7.6 |
| P8.19 | 3 | | | 0.0 [%] | 300.0 [%] | 240.0 | 7.6 |
| P8.20 | 3 | P8.17 | P8.19 | 0.0 [s] | 300.0 [s] | 7.00 | 7.6 |
| P8.21 | 4 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P8.22 | 4 | P8.19 | P8.21 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P8.23 | 5 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P8.24 | 5 | P8.21 | P8.23 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P8.25 | 6 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P8.26 | 6 | P8.23 | P8.25 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P8.27 | 7 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P8.28 | 7 | P8.25 | P8.27 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P8.29 | 8 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P8.30 | 8 | P8.27 | P8.29 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |

P8.32 (

| | | | | | | |
|---|---|---|---|---|---|---|
| P8.37 | 2 | P8.34 | P8.36 | 0.0 300.0 [s] | 4.00 [s] | 7.6 |
| P8.38 | 3 | | | 0.0 300.0 [%] | 240.0 [%] | 7.6 |
| P8.39 | 3 | P8.36 | P8.38 | 0.0 300.0 [s] | 7.00 [s] | 7.6 |
| P8.40 | 4 | | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P8.41 | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| P8.59 | | | 0.00 100.00 | 0.00 | 7.11 |
| P8.60 | | | 0.00 50.00 | 0.00 | 7.11 |
| P8.61 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P8.62 | | | 0 1 | 0.5 | |
| P8.66 | | | 0.00 100.00<br>[ ] | 0.00 | 7.11 |
| P8.67 | | 0 | 0.00 50.00 | 0.00 | 7.11 |
| P8.68 | 16 | | 0 65535 | 0 | 7.11 |
| P8.69 | 16 | | 0 65535 | 0 | 7.11 |
| P8.70 | | | 0 1000 | 100 | 7.11 |
| P8.71 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P8.72 | | | 0.00 200.00 | 60.00 | |

### 6.2.8 2 P9

| | | | | | |
|---|---|---|---|---|---|
| P9.0 | | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P9.3 | | [0]<br>[1] | 0 1 | 0 | 7.6 |
| P9.4 | 2 | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P9.6 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.6 |

| | | | | | |
|---|---|---|---|---|---|
| P9.7 | | | 0.00 300.00 [s] | 0.00 [s] | 7.6 |
| P9.8 | | | 0.00 300.00 [s] | 0.00 [s] | 7.11 |
| P9.9 | | [0]<br>[1] | 0 1 | 0 | |
| P9.10 | | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | 0 6 | 0 | |
| P9.12 | 2 | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | 0 6 | 0 | |
| P9.15 | 1 | | 0.0 300.0 [%] | 100.0 [%] | 7.6 |
| P9.16 | 1 | P8.15 | 0.0 300.0 [s] | 3.00 [s] | 7.6 |
| P9.17 | 2 | | 0.0 300.0 [%] | 200.0 [%] | 7.6 |
| P9.18 | 2 | P8.15 P8.17 | 0.0 300.0 [s] | 4.00 [s] | 7.6 |
| P9.19 | 3 | | 0.0 300.0 [%] | 240.0 [%] | 7.6 |
| P9.20 | 3 | P8.17 P8.19 | 0.0 300.0 [s] | 7.00 [s] | 7.6 |
| P9.21 | 4 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P9.22 | 4 | P8.19 | P8.21 | 0.0 [s] | 300.0 [s] | 10.00 [s] | 7.6 |
| P9.23 | 5 | | | 0.0 [%] | 300.0 [%] | 100.0 [%] | 7.6 |
| P9.24 | 5 | P8.21 | P8.23 | 0.0 [s] | 300.0 [s] | 10.00 [s] | 7.6 |
| P9.25 | 6 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] | 7.6 |
| P9.26 | 6 | P8.23 | P8.25 | 0.0 [s] | 300.0 [s] | 10.00 [s] | 7.6 |
| P9.27 | 7 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] | 7.6 |
| P9.28 | 7 | P8.25 | P8.27 | 0.0 [s] | 300.0 [s] | 10.00 [s] | 7.6 |
| P9.29 | 8 | | | 0.0 [%] | 300.0 [%] | 300.0 [%] | 7.6 |
| P9.30 | 8 | P8.27 | P8.29 | 0.0 [s] | 300.0 [s] | 10.00 [s] | 7.6 |
| P9.32 | | [0]<br>[1]PROFIBUS<br>[2]MODBUS<br>[3] | | 0 | 3 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| P9.41 | 4 | P8.38 | P8.40 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P9.42 | 5 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P9.43 | 5 | P8.40 | P8.42 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P9.44 | 6 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P9.45 | 6 | P8.42 | P8.44 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P9.46 | 7 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P9.47 | 7 | P8.44 | P8.46 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P9.48 | 8 | | | 0.0 [%] | 300.0 [%] | 300.0 | 7.6 |
| P9.49 | 8 | P8.46 | P8.48 | 0.0 [s] | 300.0 [s] | 10.00 | 7.6 |
| P9.53 | | [0]<br>[1] | | 0 | 1 | 0 | 7.6 |
| P9.54 | | | | 0.0 [%] | 300.0 [%] | 0.0 | 7.6 |
| P9.55 | | [0]<br>[1] | | 0 | 1 | 0 | 7.6 |
| P9.56 | | | | 0.00 [s] | 300.00 [s] | 1.50 | 7.6 |
| P9.57 | | [0]<br>[1] | | 0 | 1 | 1 | |
| P9.58 | | | | 0.00 [s] | 300.00 [s] | 1.50 | |
| P9.59 | | | | 0.00 | 100.00 | 0.00 | 7.11 |
| P9.60 | | | | 0.00 | 50.00 | 0.00 | 7.11 |
| P9.61 | لم | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| P10.9 | | [0]<br>[1] | | 0 1 | 0 | |
| P10.10 | | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | | 0 6 | 0 | |
| P10.12 | 2 | [0]I/O<br>[1] 1<br>[2] 2<br>[3]<br>[4]DP<br>[5]MODBUS<br>[6]<br>[7]<br>[8] CANBUS | | 0 6 | 0 | |
| P10.15 | 1 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | 7.6 |
| P10.16 | 1 | | P8.15 | 0.0 300.0<br>[s] | 3.00<br>[s] | 7.6 |
| P10.17 | 2 | | | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.6 |
| P10.18 | 2 | P8.15 | P8.17 | 0.0 300.0<br>[s] | 4.00<br>[s] | 7.6 |
| P10.19 | 3 | | | 0.0 300.0<br>[%] | 240.0<br>[%] | 7.6 |
| P10.20 | 3 | P8.17 | P8.19 | 0.0 300.0<br>[s] | 7.00<br>[s] | 7.6 |
| P10.21 | 4 | | | 0.0 300.0<br>[%] | 300.0<br>[%] | 7.6 |
| P10.22 | 4 | P8.19 | P8.21 | 0.0 300.0<br>[s] | 10.00<br>[s] | 7.6 |

| | | | | | |
|---|---|---|---|---|---|
| P10.24 | 5 | P8.21 P8.23 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.25 | 6 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.26 | 6 | P8.23 P8.25 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.27 | 7 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.28 | 7 | P8.25 P8.27 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.29 | 8 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.30 | 8 | P8.27 P8.29 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.32 | | [0]<br>[1]PROFIBUS<br>[2]MODBUS<br>[3] | 0 3 | 0 | 7.6 |
| P10.33 | | | 0.1 10.0 | 1.0 | 7.6 |
| P10.34 | 1 | | 0.0 300.0 [%] | 100.0 [%] | 7.6 |
| P8.35 | 1 | P8.34 | 0.0 300.0 [s] | 3.00 [s] | 7.6 |
| P10.36 | 2 | | 0.0 300.0 [%] | 200.0 [%] | 7.6 |
| P10.37 | 2 | P8.34 P8.36 | 0.0 300.0 [s] | 4.00 [s] | 7.6 |
| P10.38 | 3 | | 0.0 300.0 [%] | 240.0 [%] | 7.6 |
| P10.39 | 3 | P8.36 P8.38 | 0.0 300.0 [s] | 7.00 [s] | 7.6 |
| P10.40 | 4 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.41 | 4 | P8.38 P8.40 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.42 | 5 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |

| | | | | | |
|---|---|---|---|---|---|
| P10.43 | 5 | P8.40 P8.42 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.44 | 6 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.45 | 6 | P8.42 P8.44 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.46 | 7 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.47 | 7 | P8.44 P8.46 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.48 | 8 | | 0.0 300.0 [%] | 300.0 [%] | 7.6 |
| P10.49 | 8 | P8.46 P8.48 | 0.0 300.0 [s] | 10.00 [s] | 7.6 |
| P10.53 | | [0]<br>[1] | 0 1 | 0 | 7.6 |
| P10.54 | | | 0.0 300.0 [%] | 0.0 [%] | 7.6 |
| P10.55 | | [0]<br>[1] | 0 1 | 0 | 7.6 |
| P10.56 | | | 0.00 300.00 [s] | 1.50 [s] | 7.6 |
| P10.57 | | [0]<br>[1] | 0 1 | 1 | |
| P10.58 | | | 0.00 300.00 [s] | 1.50 [s] | |
| P10.59 | | | 0.00 100.00 | 0.00 | 7.11 |
| P10.60 | | | 0.00 50.00 | 0.00 | 7.11 |
| P10.61 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P10.62 | | | 0 1 | 0.5 | |
| P10.66 | | | 0.00 100.00 [ ] | 0.00 | 7.11 |
| P10.67 | | 0 | 0.00 50.00 | 0.00 | 7.11 |
| P10.68 | 16 | | 0 65535 | 0 | 7.11 |
| P10.69 | 16 | | 0 65535 | 0 | 7.11 |

| | | | | | |
|---|---|---|---|---|---|
| P10.70 | | | 0 1000 | 100 | 7.11 |
| P10.71 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P10.72 | | | 0.00 200.00 | 60.00 | |

### 6.2.10 4 P11

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| P11.0 | | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P11.3 | | [0]<br>[1] | 0 1 | 0 | 7.6 |
| P11.4 | 2 | [0]<br>[1]<br>[2]DP<br>[3]MODBUS<br>[4]<br>[5] CANBUS | 0 4 | 0 | |
| P11.6 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.6 |
| P11.7 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.6 |
| P11.8 | | | 0.00 300.00<br>[s] | 0.00<br>[s] | 7.11 |
| P11.9 | | [0]<br>[1] | 0 1 | 0 | |

| | | | | | |
|---|---|---|---|---|---|
| | | [0]I/O | | | |
| | | [1] 1 | | | |
| | | [2] 2 | | | |
| | | [3] | | | |
| P11.10 | | [4]DP | 0 | 6 | 0 |
| | | [5]MODBUS | | | |
| | | [6] | | | |
| | | [7] | | | |
| | | [8] CANBUS | | | |
| | | [0]I/O | | | |
| | | [1] 1 | | | |
| | | [2] 2 | | | |
| | | [3] | | | |
| P11.12 | 2 | [4]DP | 0 | 6 | 0 |
| | | [5]MODBUS | | | |
| | | [6] | | | |
| | | [7] | | | |
| | | [8] CANBUS | | | |
| P11.15 | 1 | | 0.0 [%] | 300.0 [%] | 100.0 [%] |
| P11.16 | 1 | P8.15 | 0.0 [s] | 300.0 [s] | 3.000 [s] |
| P11.17 | 2 | | 0.0 [%] | 300.0 [%] | 200.0 [%] |
| P11.18 | 2 | 2 | | | |

| | | | | | |
|---|---|---|---|---|---|
| P11.70 | | 0 | 1000 | 100 | 7.11 |
| P11.71 | 1.71 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P12.20 | FCD _2X | m/min | m/min | 0.0 | 100.0 | 5.0 | 7.11 |
| P12.21 | | | | 0 | 1 | 0 | |
| P12.22 | | | | 0.0 [%] | 20.0 | 2.0 [%] | 7.7 |
| P12.23 | | | | 0.0 [%] | 20.0 | 0.0 [%] | 7.7 |
| P12.24 | | | | 0.0 [%] | 200.0 | 3 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| P12.57 | | | 0~10 | 0.10 | |

### 6.2.12 2 P13

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| P13.0 | | [0]<br>[1] | 0 1 | 1 | 7.7 |
| 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 | |
| P13.18 | FCD<br>LSW_2X | 16 | 0 65535 | 1000 | 7.11 |
| P13.19 | FCD<br>MSW_2X | 16 | 0 100 | 2 | 7.11 |
| P13.20 | FCD m/min<br>_2X | m/min | 0.0 100.0 | 5.0 | 7.11 |
| P13.21 | | | 0 1 | 0 | |

| | | | | |
|---|---|---|---|---|
| P13.22 | | 0.0 20.0 [%] | 2.0 [%] | 7.7 |
| P13.23 | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P13.24 | | 0.0 200.0 [%] | 30.0 [%] | 7.7 |
| P13.25 | | 0.0 200.0 [%] | 20.0 [%] | 7.7 |
| P13.26 | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P13.27 | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P13.28 | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P13.29 | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P13.30 | @ - ) ) ts | | | |

| | | | |
|---|---|---|---|
| P13.41 | 0.00 100.00 [s] | 0.10 [s] | 7.11 |
| P13.42 | 0 3000 [s] | 3 [s] | 7.11 |
| P13.43 | 0.0 50.0 [%] | 20.0 [%] | 7.11 |
| P13.44 | 0.00 5.00 [s] | 0.20 [s] | 7.11 |
| P13.45 | 20.0 100.0 [%] | 25.0 [%] | 7.11 |
| P13.46 | 0.00 5.00 [s] | 0.10 [s] | 7.11 |
| P13.47 | 0 30.0 [%] | 10.0 [%] | 7.11 |
| P13.48 | 0.00 5.00 [s] | 0.00 [s] | 7.11 |
| P13.49 | 0.00~1.00 | 0.1 | 7.11 |
| P13.50 | 0.0 10.0 [%] | 10.0 [%] | 7.11 |
| P13.51 | 0~100 | 30 | |
| P13.52 | 0~10 | 2 | |
| P13.53 | 0~10 | 0.1 | |
| P13.54 | 0~10 | 0.1 | |
| P13.55 | 0~30 | 2.0 | |
| P13.56 | 0~10 | 0.25 | |

### 6.2.13 3 P14

| | | | | | |
|---|---|---|---|---|---|
| P14.0 | | [0]<br>[1] | 0 1 | 1 | 7.7 |
| P14.1 | | [0][%]<br>[1][Hz]<br>[2][rpm] | 0 2 | 1 | |
| P14.2 | 1 | | 0.0 3000.0 | 10.0 | |
| P14.3 | 2 | | 0.0 3000.0 | 20.0 | |
| P14.4 | 3 | | 0.0 3000.0 | 35.0 | |
| P14.5 | 4 | | 0.0 3000.0 | 50.0 | |
| P14.6 | 5 | | 0.0 3000.0 | 50.0 | |
| P14.7 | 6 | | 0.0 3000.0 | 50.0 | |
| P14.8 | 7 | | 0.0 3000.0 | 50.0 | |
| P14.9 | 8 | | 0.0 3000.0 | 50.0 | |
| P14.10 | 9 | | 0.0 3000.0 | 50.0 | |
| P14.11 | 10 | | 0.0 3000.0 | 50.0 | |
| P14.12 | 11 | | 0.0 3000.0 | 50.0 | |
| P14.13 | 12 | | 0.0 3000.0 | 50.0 | |
| P14.14 | 13 | | 0.0 3000.0 | 50.0 | |
| P14.15 | 14 | | 0.0 3000.0 | 50.0 | |
| P14.16 | 15 | | 0.0 3000.0 | 50.0 | |
| P14.17 | 16 | | 0.0 3000.0 | 50.0 | |
| P14.18 | FCD<br>LSW_2X | 16 | 0 65535 | 1000 | 7.11 |
| P14.19 | FCD<br>MSW_2X | 16 | 0 100 | 2 | 7.11 |
| P14.20 | FCD m/min<br>_2X | m/min | 0.0 100.0 | 5.0 | 7.11 |
| P14.21 | | | 0 1 | 0 | |
| P14.22 | | | 0.0 20.0<br>[%] | 2.0<br>[%] | 7.7 |

| | | | | | |
|---|---|---|---|---|---|
| P14.23 | | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P14.24 | | | 0.0 200.0 [%] | 30.0 [%] | 7.7 |
| P14.25 | | | 0.0 200.0 [%] | 20.0 [%] | 7.7 |
| P14.26 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P14.27 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P14.28 | | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P14.29 | | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P14.30 | @ | | 0 1 | 0 | |
| P14.31 | @ | | 0 2 | 0.3 | |
| P14.32 | | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P14.33 | | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P14.34 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P14.35 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P14.36 | | | 0.00 2.00 [s] | 0.50 [s] | 7.7 |
| P14.37 | | | 0.00 2.00 [s] | 0.50 [s] | 7.7 |
| P14.38 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P14.39 | | [0]<br>[1] | 0 1 | 0 | |
| P14.40 | | | 0.0 100.0 [%] | 10.0 [%] | 7.11 |
| P14.41 | | | 0.00 100.00 [s] | 0.10 [s] | 7.11 |

[0

P15.1

| | | | | | |
|---|---|---|---|---|---|
| P15.25 | | | 0.0 200.0 [%] | 20.0 [%] | 7.7 |
| P15.26 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P15.27 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P15.28 | | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P15.29 | | | 0.00 2.00 [s] | 0.07 [s] | 7.7 |
| P15.30 | @ | | 0 1 | 0 | |
| P15.31 | @ | | 0 2 | 0.3 | |
| P15.32 | | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P15.33 | | | 0.0 20.0 [%] | 0.0 [%] | 7.7 |
| P15.34 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P15.35 | | | 0.00 2.00 [s] | 0.00 [s] | 7.7 |
| P15.36 | | | 0.00 2.00 [s] | 0.50 [s] | 7.7 |
| P15.37 | | | 0.00 2.00 [s] | 0.50 [s] | 7.7 |
| P15.38 | | [0]<br>[1] | 0 1 | 0 | 7.11 |
| P15.39 | | [0]<br>[1] | 0 1 | 0 | |
| P15.40 | | | 0.0 100.0 [%] | 10.0 [%] | 7.11 |
| P15.41 | | | 0.00 100.00 [s] | 0.10 [s] | 7.11 |

| | | | | | |
|---|---|---|---|---|---|
| P15.42 | | | 0 3000 [s] | 3 [s] | 7.11 |
| P15.43 | | | 0.0 50.0 [%] | 20.0 [%] | 7.11 |
| P15.44 | | | 0.00 5.00 [s] | 0.20 [s] | 7.11 |
| P15.45 | | | 20.0 100.0 [%] | 25.0 [%] | 7.11 |
| P15.46 | | | 0.00 5.00 [s] | 0.10 [s] | 7.11 |
| P15.47 | | | 0 30.0 [%] | 10.0 [%] | 7.11 |
| P15.48 | | | 0.00 5.00 [s] | 0.00 [s] | 7.11 |
| P15.49 | | | 0.00~1.00 | 0.1 | 7.11 |
| P15.50 | | | 0.0 10.0 [%] | 10.0 [%] | 7.11 |
| P12.51 | | | 0~100 | 30 | |
| P12.52 | | | 0~10 | 2 | |
| P12.53 | | | 0~10 | 0.1 | |
| P12.54 | | | 0~10 | 0.1 | |
| P12.55 | | | 0~30 | 2.0 | |
| P12.56 | | | 0~10 | 0.25 | |
| P12.57 | | | 0~10 | 0.10 | |

### 6.2.15 1 V/F P16

| | | | | | |
|---|---|---|---|---|---|
| P16.0 | | | 320 460 [V] | 380 [V] | |

| | | | | |
|---|---|---|---|---|
| P16.2 | | 0.0 4000.0 [kW] | [kW] | |
| P16.3 | | 320 460 [V] | 380 [V] | |
| P16.4 | | 0.0 6500.0 [A] | [A] | |
| P16.5 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P16.6 | | 0 6000 [rpm] | 1465 [rpm] | |
| P16.7 | | 2 12 [pole] | 4 [pole] | 7.8 |
| P16.9 | | 0 7200 [rpm] | 1500 [rpm] | 7.8 |
| P16.11 | [0]V/F<br>[1]<br>[2] | 0 2 | 0 | |
| P16.12 | | 1.00 10.00 [kHz] | 3.00 [kHz] | 7.8 |
| P16.14 V/F | [0] V/F<br>[1] V/F<br>[2] | 0 2 | 0 | 7.8 |
| P16.15 | [0]<br>[1] | 0 1 | 0 | 7.8 |
| P16.16 | | 2 500 [ms] | 500 [ms] | |
| P16.17 V/F | [0]<br>[1] | 0 1 | 0 | |
| P16.18 | | 10 1000 [ms] | 200 [ms] | |
| P16.19 | [0]<br>[1] | 0 1 | 0 | |
| P16.22 | | 0.00 100.00 [s] | 0.00 [s] | 7.8 |
| P16.23 | V/F | 0.00 300.00 [Hz] | 0.00 [Hz] | |
| P16.24 | V/F | 0.00 300.00 [Hz] | 50.00 [Hz] | |
| P16.25 | | 0.0 120.0 [%] | 100.0 [%] | |
| P16.26 V/F | V/F | 0.00 10.00 [%] | 0.75 [%] | 7.8 |

| | | | | | |
|---|---|---|---|---|---|
| P16.27 | | | 0.0 200.0 [%] | 100.0 [%] | 7.8 |
| P16.30 | | | 0.0 100.0 [%] | 0.0 [%] | 7.8 |
| P16.33 | V/F | V/F | 0 6 | 2 | |

| | | | | | |
|---|---|---|---|---|---|
| P16.52 | | | 0.00 5.00 [Hz] | 0.00 [Hz] | 7.8 |
| P16.54 | | | 0.00 300.00 [s] | 0.00 [s] | 7.8 |
| P16.55 | | | 0.0 150.0 [%] | 75.0 [%] | 7.8 |
| P16.56 | | | 0.00 5.00 [Hz] | 0.00 [Hz] | 7.8 |
| P16.59 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.60 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.61 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.62 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.64 | V/F | V/F | 0.0 1000.0 [%] | 100.0 [%] | 7.8 |
| P16.66 | | V/F | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.67 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.68 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.69 | | | 0.0 1000.0 [%] | 100.0 [%] | |
| P16.70 | | | 0.0 1000.0 [%] | 100.0 [%] | |

### 6.2.16 2 V/F P17

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| P17.0 | | | 320 460 [V] | 380 [V] | |
| P17.2 | | | 0.0 4000.0 [kW] | [kW] | |
| P17.3 | | | 320 460 [V] | 380 [V] | |
| P17.4 | | | 0.0 6500.0 [A] | [A] | |
| P17.5 | | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.6 | | | 0 6000 [rpm] | 1465 [rpm] | |

| | | | |
|---|---|---|---|
| P17.7 | 2 12<br>[pole] | 4<br>[pole] | 7.8 |
| P17.9 | | | |

| | | | | | |
|---|---|---|---|---|---|
| P17.36 | V/F 2 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.37 | V/F 2 | | 0.0 125.0 [%] | 100.0 [%] | |
| P17.38 | V/F 3 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.39 | V/F 3 | | 0.0 125.0 [%] | 100.0 [%] | |
| P17.40 | V/F 4 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.41 | V/F 4 | | 0.0 125.0 [%] | 100.0 [%] | |
| P17.42 | V/F 5 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.43 | V/F 5 | | 0.0 125.0 [%] | 100.0 [%] | |
| P17.44 | V/F 6 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P17.45 | V/F 6 | | 0.0 125.0 [%] | 100.0 [%] | |
| P17.46 | V/F @ | | 0~347 | 0 | |
| P17.47 | @ | | 0~347 | 0 | 7.8 |
| P17.48 | | [0]<br>[1]PID 1<br>[2]PID 2<br>[3] | 0 3 | 0 | 7.8 |
| P17.49 | @ | | 0~347 | 0 | 7.8 |
| P17.50 | | | 0.00 300.00 [s] | 0.00 [s] | 7.8 |
| P17.51 | | | 0.0 150.0 [%] | 70.0 [%] | 7.8 |
| P17.52 | | | 0.00 5.00 [Hz] | 0.00 [Hz] | 7.8 |
| P17.54 | | | 0.00 300.00 [s] | 0.00 [s] | |
| P17.55 | | | 0.0 150.0 [%] | 75.0 [%] | |
| P17.56 | | | 0.00 5.00 [Hz] | 0.00 [Hz] | |
| P17.59 | | | 0.0 1000.0 [%] | 100.0 [%] | |

| | | | | | |
|---|---|---|---|---|---|
| P17.60 | | 0.0 [%] | 1000.0 [%] | 100.0 [%] | 7.8 |
| P17.61 | | 0.0 [%] | 1000.0 [%] | 100.0 [%] | |
| P17.62 | | 0.0 [%] | 1000.0 [%] | 100.0 [%] | |
| P17.64 | V/F | V/F | 0.0 [%] | 1000.0 [%] | 100.0 [%] |

## 6.2.17 3 V/F P18

| | | | |
|---|---|---|---|
| P18.0 | | 320 460 [V] | 380 [V] | |
| P18.2 | | 0.0 4000.0 [kW] | [kW] | |
| P18.3 | | 320 460 [V] | 380 [V] | |
| P18.4 | | 0.0 6500.0 [A] | [A] | |
| P18.5 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P18.6 | | 0 6000 [rpm] | 1465 [rpm] | |
| P18.7 | | 2 12 [pole] | 4 [pole] | 7.8 |
| 3 | | | | |
| P18.9 | | 0 7200 [rpm] | 1500 [rpm] | 7.8 |
| P18.11 | [0]V/F<br>[1]<br>[2] | 0 2 | 0 | |
| P18.12 | | 1.00 10.00 [kHz] | 3.00 [kHz] | 7.8 |
| P18.14 V/F | [0] V/F<br>[1] V/F<br>[2] | | | |

P18.24

V/F

| | | | | |
|---|---|---|---|---|
| P19.3 | | 320 460 [V] | 380 [V] | |
| P19.4 | | 0.0 6500.0 [A] | [A] | |
| P19.5 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P19.6 | | 0 6000 [rpm] | 1465 [rpm] | |
| P19.7 | | 2 12 [pole] | 4 [pole] | 7.8 |
| P19.9 | | 0 7200 [rpm] | 1500 [rpm] | 7.8 |
| P19.11 | [0]V/F<br>[1]<br>[2] | 0 2 | 0 | |
| P19.12 | | 1.00 10.00 [kHz] | 3.00 [kHz] | 7.8 |
| P19.14 V/F | [0] V/F<br>[1] V/F<br>[2] | 0 2 | 0 | 7.8 |
| P19.15 | [0]<br>[1] | 0 1 | 0 | 7.8 |
| P19.16 | | 2 500 [ms] | 500 [ms] | |
| P19.17 V/F | [0]<br>[1] | 0 1 | 0 | |
| P19.18 | | 10 1000 [ms] | 200 [ms] | |
| P19.19 | [0]<br>[1] | 0 1 | 0 | |
| P19.22 | | 0.00 100.00 [s] | 0.00 [s] | 7.8 |
| P19.23 | V/F | 0.00 300.00 [Hz] | 0.00 [Hz] | |
| P19.24 | V/F | 0.00 300.00 [Hz] | 50.00 [Hz] | |
| P19.25 | | 0.0 120.0 [%] | 100.0 [%] | |
| P19.26 V/F | V/F | 0.00 10.00 [%] | 0.75 [%] | 7.8 |
| P19.27 | | 0.0 200.0 [%] | 100.0 [%] | 7.8 |

| | | | | | |
|---|---|---|---|---|---|
| P19.30 | | | 0.0 100.0 [%] | 0.0 [%] | 7.8 |
| P19.33 | V/F | V/F | 0 6 | 2 | 7.8 |
| P19.34 | V/F 1 | | 0.0 300.0 [Hz] | 5.0 [Hz] | |
| P19.35 | V/F 1 | | 0.0 125.0 [%] | 11.5 [%] | |
| P19.36 | V/F 2 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P19.37 | V/F 2 | | 0.0 125.0 [%] | 100.0 [%] | |
| P19.38 | V/F 3 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P18.39 | V/F 3 | | 0.0 125.0 [%] | 100.0 [%] | |
| P19.40 | V/F 4 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P19.41 | V/F 4 | | 0.0 125.0 [%] | 100.0 [%] | |
| P19.42 | V/F 5 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P19.43 | V/F 5 | | 0.0 125.0 [%] | 100.0 [%] | |
| P19.44 | V/F 6 | | 0.0 300.0 [Hz] | 50.0 [Hz] | |
| P19.45 | V/F 6 | | 0.0 125.0 [%] | 100.0 [%] | |
| P19.46 | V/F @ | | 0~347 | 0 | |
| P19.47 | @ | | 0~347 | 0 | 7.8 |
| P19.48 | | [0]<br>[1]PID 1<br>[2]PID 2<br>[3] | 0 3 | 0 | 7.8 |
| P19.49 | @ | | 0~347 | 0 | 7.8 |
| P19.50 | | | 0.00 300.00 [s] | 0.00 [s] | 7.8 |
| P19.51 | | | 0.0 150.0 [%] | 70.0 [%] | 7.8 |
| P19.52 | | | 0.00 5.00 [Hz] | 0.00 [Hz] | 7.8 |

| | | | |
|---|---|---|---|
| P19.54 | 0.00 300.00 [s] | 0.00 [s] | |
| P19.55 | 0.0 150.0 [%] | 75.0 [%] | |
| P19.56 | 0.00 5.00 [Hz] | 0.00 [Hz] | |
| P19.59 | 0.0 1000.0 [%] | 100.0 [%] | |
| P19.60 | 0.0 1000.0 [%] | 100.0 [%] | 7.8 |
| P19.61 | 0.0 1000.0 [%] | 100.0 [%] | |
| P19.62 | | | |

| | | | | |
|---|---|---|---|---|
| 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 [%] | 7.9 |
| P20.27 | | 0.00 15.00 [%] | 2.00 [%] | 7.9 |
| P20.28 | [0] P20.16 P20.17<br>[1]<br>[2]<br>[3]DP | 0 3 | 0 | |
| P20.30 | [0] P20.31 P20.32<br>[1] 1<br>[2] 2<br>[3] | 0 3 | 0 | |
| P20.31 | | | | |

P20.40

| | | | | | |
|---|---|---|---|---|---|
| P20.57 | | | 0.0 100.0 [%] | 100.0 [%] | |
| P20.58 | | | 0.0 100.0 [%] | 100.0 [%] | 100% |
| P20.60 | DROOP | 0 DROOP | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P20.61 | DROOP | DROOP | 30 2000 [ms] | 50 [ms] | 7.9 |
| P20.62 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P20.63 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P20.64 | 2 | 2 | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P20.65 | 2 | 2 | 30 2000.0 ms | 50 ms | |
| P20.98 | | ( ) | 0.01 300.00 [s] | 0.75 [s] | |
| P20.99 | | | 0.00 10.00 [%] | 0.00 [%] | |

## 6.2.20 2 P21

| | | | | | |
|---|---|---|---|---|---|
| P21.0 | | [0]<br>[1] | 0 1 | 0 | 7.9 |
| P21.1 | | [0]<br>[1] 1<br>[2] 2<br>[3]<br>[4] P20.3<br>[5]DP<br>[6]MODBUS<br>[7] | 0 7 | 0 | 7.9 |
| P21.2 | | | 0 7 | 0 | |
| P21.3 | | | -300.0 300.0<br>[%] | 0.0<br>[%] | 7.9 |
| P21.5 | | | 0 1000<br>[ms] | 0<br>[ms] | |
| P21.6 | | | 0.0 200.0<br>[%] | 100.0<br>[%] | 7.9 |
| P21.7 | | [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 | 7.9 |
| P21.8 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.9 |
| P21.9 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.9 |
| P21.11 | | | 0 1000<br>[ms] | 0<br>[ms] | |
| P21.13 | | | 20.0 500.0<br>[ms] | 100.0<br>[ms] | 7.9 |
| P21.14 | | 1 | 0 60000 | 1024 | |

| | | | | | |
|---|---|---|---|---|---|
| P21.15 | | [0]<br>[1] | 0 1 | 0 | 7.9 |
| P21.16 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P21.17 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P21.18 | | | 0.0 300.0<br>[%] | 0.0<br>[%] | |
| P21.19 | | | 0.0 300.0<br>[%] | 0.0<br>[%] | |
| P21.20 | | [0]<br>[1] | 0 1 | 0 | |
| P21.21 | | [0]<br>[1] | 0 1 | 0 | |
| P21.22 | | | 0.0 300.0<br>[%] | 160.0<br>[%] | |
| P21.23 | | | 0.0 200.0<br>[%] | 20.0<br>[%] | |
| P21.24 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P21.25 | | | 0.0 200.0<br>[%] | 100.0<br>[%] | |
| P21.26 | | | 0.0 1000.0<br>[%] | 0.0<br>[%] | 7.9 |
| P21.27 | | | 0.00 15.00<br>[%] | 2.00<br>[%] | 7.9 |
| P21.28 | | [0]<br>P20.16 P20.17<br>[1]<br>[2]<br>[3]DP | 0 3 | 0 | |
| P21.30 | | [0] P20.31<br>P20.32<br>[1] 1<br>[2] 2<br>[3] | 0 3 | 0 | |
| P21.31 | | | 0.0 100.0<br>[%] | 5.0<br>[%] | |

| | | | | |
|---|---|---|---|---|
| P21.32 | | 0.0 100.0 [%] | 5.0 [%] | |
| P21.34 | [0]<br>[1] | 0 1 | 0 | 7.9 |
| P21.35 | | 0.0 100.0 [s] | 0.0 [s] | |
| P21.36 | | 50.0 150.0 [%] | 110.0 [%] | |
| P21.37 | | 0.0 150.0 [%] | 100.0 [%] | 7.9 |
| P21.38 | | 0.0 100.0 [%] | 25.0 [%] | 7.9 |
| P21.39 | | 0.0 120.0 [%] | 100.0 [%] | 7.9 |
| P21.40 | | 0.0 150.0 [%] | 100.0 [%] | 7.9 |
| P21.41 | | 0.0 150.0 [%] | 135.0 [%] | |
| P21.42 | [0]<br>[1] | 0 1 | 1 | |
| P21.43 | | 25 1000 [ms] | 75 [ms] | |
| P21.44 | | 25 1000 [ms] | 250 [ms] | |
| P21.45 | | 0.0 100.0 [%] | 22.0 [%] | |
| P21.46 | | 0.0 100.0 [%] | 18.0 [%] | |
| P21.47 | | 0.0 200.0 [%] | 92.0 [%] | |
| P21.48 | | 0.0 200.0 [%] | 87.0 [%] | |
| P21.49 | ụ | | | |

| | | | | | |
|---|---|---|---|---|---|
| P21.54 | Ki | | 0.0 1000.0 [%] | 100.0 [%] | |
| P21.55 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P21.56 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P21.57 | | | 0.0 100.0 [%] | 100.0 [%] | |
| P21.58 | | | 0.0 100.0 [%] | 100.0 [%] | 100% |
| P21.60 | DROOP | 0 DROOP | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P21.61 | DROOP | DROOP | 30 2000 [ms] | 50 [ms] | 7.9 |
| P21.62 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P21.63 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P21.64 | 2 | 2 | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P21.65 | 2 | 2 | 30 2000.0 ms | 50 ms | |
| P21.98 | | ( ) | 0.01 300.00 [s] | 0.75 [s] | |
| P21.99 | | | 0.00 10.00 [%] | 0.00 [%] | |

## 6.2.21 3 P22

| | | | | | | |
|---|---|---|---|---|---|---|
| P22.0 | [0]<br>[1] | | | 0 | 1 | 0 | 7.9 |
| P22.1 | [0]<br>[1]<br>[2]<br>[3]<br>[4]<br>[5]DP<br>[6]MODBUS<br>[7] | 1<br>2 | P20.3 | 0 | 7 | 0 | 7.9 |
| P22.2 | | | | 0 | 7 | 0 | |

| | | | |
|---|---|---|---|
| P22.32 | | 0.0 100.0<br>[%] | 5.0<br>[%] |
| P22.34 | [0]<br>[1] | 0 1 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| P22.54 | Ki | | 0.0 1000.0 [%] | 100.0 [%] | |
| P22.55 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P22.56 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P22.57 | | | 0.0 100.0 [%] | 100.0 [%] | |
| P22.58 | | | 0.0 100.0 [%] | 100.0 [%] | 100% |
| P22.60 | DROOP | 0 DROOP | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P22.61 | DROOP | DROOP | 30 2000 [ms] | 50 [ms] | 7.9 |
| P22.62 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P22.63 | | | 0.0 1000.0 [%] | 100.0 [%] | 7.9 |
| P22.64 | 2 | 2 | 0.0 100.0 [%] | 0.0 [%] | 7.9 |
| P22.65 | 2 | 2 | 30 2000.0 ms | 50 ms | |
| P22.98 | | ( ) | 0.01 300.00 [s] | 0.75 [s] | |
| P22.99 | | | 0.00 10.00 [%] | 0.00 [%] | |

### 6.2.22 4 P23

| | | | | | |
|---|---|---|---|---|---|
| P23.0 | | [0]<br>[1] | 0 1 | 0 | 7.9 |
| P23.1 | | [0]<br>[1] 1<br>[2] 2<br>[3]<br>[4] P20.3<br>[5]DP<br>[6]MODBUS<br>[7] | 0 7 | 0 | 7.9 |
| P23.2 | | | 0 7 | 0 | |
| P23.3 | | | -300.0 300.0<br>[%] | 0.0<br>[%] | 7.9 |
| P23.5 | | | 0 1000<br>[ms] | 0<br>[ms] | |
| P23.6 | | | 0.0 200.0<br>[%] | 100.0<br>[%] | 7.9 |
| P23.7 | | [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 | 7.9 |
| P23.8 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.9 |
| P23.9 | | P20.7 [1] | 0.0 300.0<br>[%] | 200.0<br>[%] | 7.9 |
| P23.11 | | | 0 1000<br>[ms] | 0<br>[ms] | |
| P23.13 | | | 20.0 500.0<br>[ms] | 100.0<br>[ms] | 7.9 |
| P23.14 | | 1 | 0 60000 | 1024 | |

| | | | | | |
|---|---|---|---|---|---|
| P23.15 | | [0]<br>[1] | 0 1 | 0 | 7.9 |
| P23.16 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P23.17 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P23.18 | | | 0.0 300.0<br>[%] | 0.0<br>[%] | |
| P23.19 | | | 0.0 300.0<br>[%] | 0.0<br>[%] | |
| P23.20 | | [0]<br>[1] | 0 1 | 0 | |
| P23.21 | | [0]<br>[1] | 0 1 | 0 | |
| P23.22 | | | 0.0 300.0<br>[%] | 160.0<br>[%] | |
| P23.23 | | | 0.0 200.0<br>[%] | 20.0<br>[%] | |
| P23.24 | | | 0.0 300.0<br>[%] | 100.0<br>[%] | |
| P23.25 | | | 0.0 200.0<br>[%] | 100.0<br>[%] | |
| P23.26 | | | 0.0 1000.0<br>[%] | 0.0<br>[%] | 7.9 |
| P23.27 | | | 0.00 15.00<br>[%] | 2.00<br>[%] | 7.9 |
| P23.28 | | [0]<br>P20.16 P20.17<br>[1]<br>[2]<br>[3]DP | 0 3 | 0 | |
| P23.30 | | [0] P20.31<br>P20.32<br>[1] 1<br>[2] 2<br>[3] | 0 3 | 0 | |
| P23.31 | | | 0.0 100.0<br>[%] | 5.0<br>[%] | |

| | | | |
|---|---|---|---|
| P23.32 | | 0.0 100.0 [%] | 5.0 [%] |
| P23.34 | [0]<br>[1] | 0 1 | 0 |

## 6.2.23 CanBus P31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P31.0 | CAN | | [0]<br>[1] | | | 0 1 | 0 |
| P31.1 | Canopen | ID | ID | | | 1 127 | 1 |
| P31.2 | | | [0] 20 Kbps<br>[1] 50 Kbps<br>[2] 125 Kbps<br>[3] 250 Kbps<br>[4] 500 Kbps<br>[6] 1000 Kbps | | | 0 6 | 5 |
| P31.3 | | | CAN | | | 0 60 [s] | 0 [s] |
| P31.4 | | | | | | 0~1000 | 0 |
| P31.5 | Tpdo | | TPDO | | | 0~255 | 5 |
| P31.6 | Tpdo | | TPDO | | | 0~1000 | 0.0 |
| P31.7 | Tpdo Event | | TPDO | | | 0~2000 | 0 |
| P31.8 | Rpdo | 1 | RPDO | 1 | | 0~9 | 0 |
| P31.9 | Rpdo | 2 | RPDO | 2 | | 0~9 | 0 |
| P31.10 | Rpdo | 3 | RPDO | 3 | | 0~9 | 0 |
| P31.11 | Rpdo | 4 | RPDO | 4 | | 0~9 | 0 |
| P31.12 | Rpdo | 5 | RPDO | 5 | | 0~9 | 0 |
| P31.13 | Rpdo | 6 | RPDO | 6 | | 0~9 | 0 |
| P31.14 | Rpdo | 7 | RPDO | 7 | | 0~9 | 0 |
| P31.15 | Rpdo | 8 | RPDO | 8 | | 0~9 | 0 |
| P31.16 | Rpdo | 9 | RPDO | 9 | | 0~9 | 0 |
| P31.17 | Rpdo | 10 | RPDO | 10 | | 0~9 | 0 |
| P31.18 | Rpdo | 11 | RPDO | 11 | | 0~9 | 0 |
| P31.19 | Rpdo | 12 | RPDO | 12 | | 0~9 | 0 |
| P31.20 | Rpdo | 13 | RPDO | 13 | | 0~9 | 0 |
| P31.21 | Rpdo | 14 | RPDO | 14 | | 0~9 | 0 |
| P31.22 | Rpdo | 15 | RPDO | 15 | | 0~9 | 0 |
| P31.23 | Rpdo | 16 | RPDO | 16 | | 0~9 | 0 |
| P31.24 | Tpdo | 1 | TPDO | 1 | | 0~29 | 0 |
| P31.25 | Tpdo | 2 | TPDO | 2 | | 0~29 | 0 |
| P31.26 | Tpdo | 3 | TPDO | 3 | | 0~29 | 0 |
| P31.27 | Tpdo | 4 | TPDO | 4 | | 0~29 | 0 |
| P31.28 | Tpdo | 5 | TPDO | 5 | | 0~29 | 0 |
| P31.29 | Tpdo | 6 | TPDO | 6 | | 0~29 | 0 |
| P31.30 | Tpdo | 7 | TPDO | 7 | | 0~29 | 0 |
| P31.31 | Tpdo | 8 | TPDO | 8 | | 0~29 | 0 |
| P31.32 | Tpdo | 9 | T× | Ā ∉ | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P31.37 | Tpdo | 14 | TPDO | 14 | 0~29 | 0 | |
| P31.38 | Tpdo | 15 | TPDO | 15 | 0~29 | 0 | |
| P31.39 | Tpdo | 16 | TPDO | 16 | 0~29 | 0 | |

RPDO

| | | |
|---|---|---|
| | | |
| 0 | | |
| 1 | 0 | 9.1.5 |
| 2 | 1 | 9.1.5 |
| 3 | HZ | 9.1.5 |
| 4 | % | 9.1.5 |
| 5 | % | 9.1.5 |
| 6 | % | 9.1.5 |
| 7 | Hz | 9.1.5 |
| 8 | | 9.1.5 |
| 9 | | 9.1.5 |

TPDO

| | | |
|---|---|---|
| | | |
| 0 | | 9.1.5 |
| 1 | 0 | 9.1.5 |
| 2 | 1 | 9.1.5 |
| 3 | 4 | 9.1.5 |
| 4 | | 9.1.5 |
| 5 | | 9.1.5 |
| 6 | | 9.1.5 |
| 7 | | 9.1.5 |
| 8 | A | 9.1.5 |

| | | |
|---|---|---|
| 9 | B | 9.1.5 |
| 10 | C | 9.1.5 |
| 11 | | 9.1.5 |
| 12 | | 9.1.5 |
| 13 | % | 9.1.5 |
| 14 | % | 9.1.5 |
| 15 | % | 9.1.5 |
| 16 | | 9.1.5 |
| 17 | | 9.1.5 |
| 18 | | 9.1.5 |
| 19 | % | 9.1.5 |
| 20 | % | 9.1.5 |
| 21 | 1% | 9.1.5 |
| 22 | 2% | 9.1.5 |
| 23 | | 9.1.5 |
| 24 | 1 | 9.1.5 |
| 25 | 1 | 9.1.5 |
| 26 | 2 | 9.1.5 |
| 27 | 2 | 9.1.5 |
| 28 | Kw | 9.1.5 |
| 29 | Kw | 9.1.5 |

| | | | | |
|---|---|---|---|---|
| P33.5 | | [0]<br>[1]<br>[2]<br>[3] | 0 3 | 0 |
| P33.6 | | | 0 1000<br>[ms] | 50<br>[ms] |
| P33.7 | | [0]<br>[1] | 0 1 | 0 |
| P33.8 | | | 0.0 10.0<br>[s] | 3.0<br>[s] |
| P33.13 | [WO] | 7-2 | 0 37 | 0 |
| P33.14 | [WO] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | |

| | | | | | |
|---|---|---|---|---|---|
| P33.24 | [W5] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 2 | |
| P33.25 | [W6] | 7-2 | 0 37 | 21 | |
| P33.26 | [W6] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 1 | |
| P33.27 | [W7] | 7-2 | 0 37 | 22 | |
| P33.28 | [W7] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 1 | |
| P33.29 | [W8] | 7-2 | 0 37 | 23 | |
| P33.30 | [W8] | [0] × 1<br>[1] × 10<br>[2] × 100<br>[3] × 1000<br>[4] × 10000 | 0 4 | 1 | |
| 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 | |

| | | | | | |
|---|---|---|---|---|---|
| P33.56 | [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 |

| | | | | | |
|---|---|---|---|---|---|
| P33.64 | [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

,

| | |
|---|---|
| 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 | [%] |
| 22 | [%] |
| 23 | [Hz] |
| 24 | |
| 25 | |
| 26 | 1[%] |
| 27 | 2[%] |
| 28 | |
| 29 | |
| 30 37 | SET_W12 19 |

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 | Mwh |
| 42 | Kwh |
| 43 | Mwh |
| 44 | Kwh |
| 45 48 | AW26 29 |

## 7.1

### 7.1.1

1 XX XX=

2 XX Y XX= Y=2,3,4,5

3 XX / XX=

4 XX / XX=

5 Z% Z=25 50 90 100

6 Z% Z=80 90 100 110

### 7.1.2

1 XX XX=

DO DI

2 XX XX=

DO

3

4

DO

| | | | |
|---|---|---|---|
| 2 | P5.8 | 0~300 | HZ |
| 3 | P5.9 | 0~300 | HZ |
| 4 | P5.10 | 0~300 | HZ |
| 5 | P5.11 | 0~300 | HZ |
| 1 | P5.12 | 0~300 | HZ |
| 2 | P5.13 | 0~300 | HZ |
| 3 | P5.14 | 0~300 | HZ |
| 4 | P5.15 | 0~300 | HZ |
| 5 | P5.16 | 0~300 | HZ |
| 1 | P5.17 | 0~300 | HZ |
| 2 | P5.18 | 0~300 | HZ |
| 3 | P5.19 | 0~300 | HZ |
| 4 | P5.20 | 0~300 | HZ |
| 5 | P5.21 | | |

| | | 1 1 |
|---|---|---|
| / / | | |
| | | |
| / / | | |
| | | |
| 110% 1 | | P |
| | | P |
| 100% 2 | | P |
| | | P |
| 90% 3 | | P |
| | | P |
| 80% 4 | | P |
| | | P |
| 100% 5 | | P |
| | | P |
| 90% 6 | | P |
| | | P |
| 50% 7 | | P |
| | | P |
| 25% 8 | | P |
| | | P |
| 110% 9 | | P |
| | | P |
| 100% 10 | | P |
| | | P |
| 90% 11 | | P |
| | | P |
| 80% 12 | | P |
| | | P |
| | | P |
| | | P |
| | | P |
| | | P |

110% 1 ~ 80%

12 12 P27

| | |
|---|---|
| 0 | |
| 1 | |
| 2 1 | 1 |
| 3 2 | 2 |
| 4 3 | 3 |
| 5 4 | 4 |
| 6 5 | 5 |

## 7.2

### 7.2.1

**1**

P12.0 [0] [1]

A. [0]

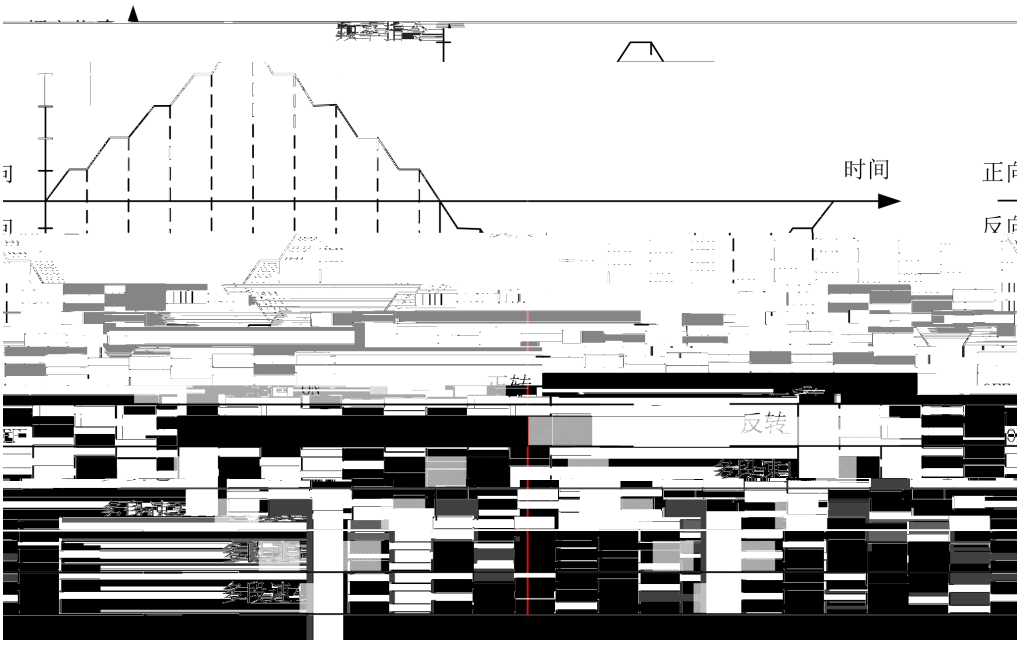
[1] [2] ---1

[6] 1 0 ---2

[7] 2 1 ---3

[8] 3 2 ---4

[9] 4 3 ---5




B. [1]

4 16 ( 8421 )

(FORWARD) (REVERSE) P12.2( 1)

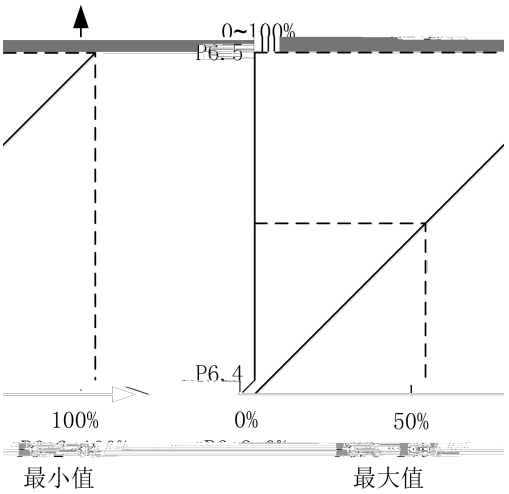
**2**

DI 22 “ ”

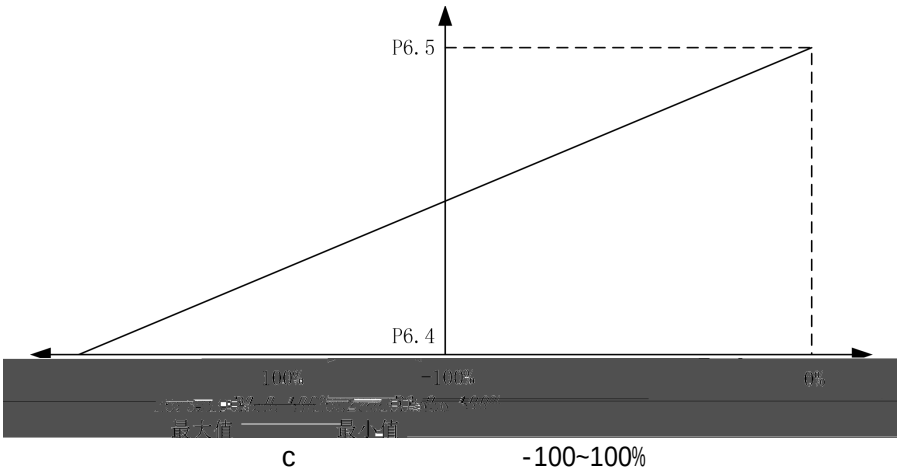
10Hz E106 “ 1 ”

10Hz 2s

E107 “ 2 ”




a 0~100% b 0~200%




c -100~100%

### 7.2.5

**1**

P7.0 P7.1 P7.2 P7.3

**2**

P7.4 P7.5 P7.6 P7.7 P7.4 P16.4

**3**

P7.8 P7.9 P7.10 P7.11

’D ’E ’F P16.4 ’D ’E ’F ! 3 u3 u

4

P7.12 P7.13 P7.12

P7.13

!

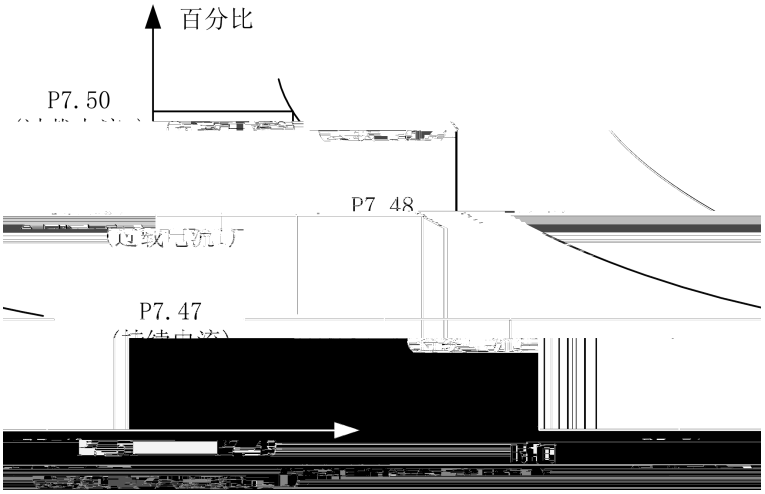
**9**

P7.33

P7.33

**10**

P7.48 P7.50




**11**

P7.64 P7.65 P7.66 HF681N

110kW P7.64 1

P7.65

P7.66

P7.66 ≥ P7.65 P16.0 380V P7.65 50V

647V P7.66 100V 697V

= u√ u3 3

= u√ u3 3

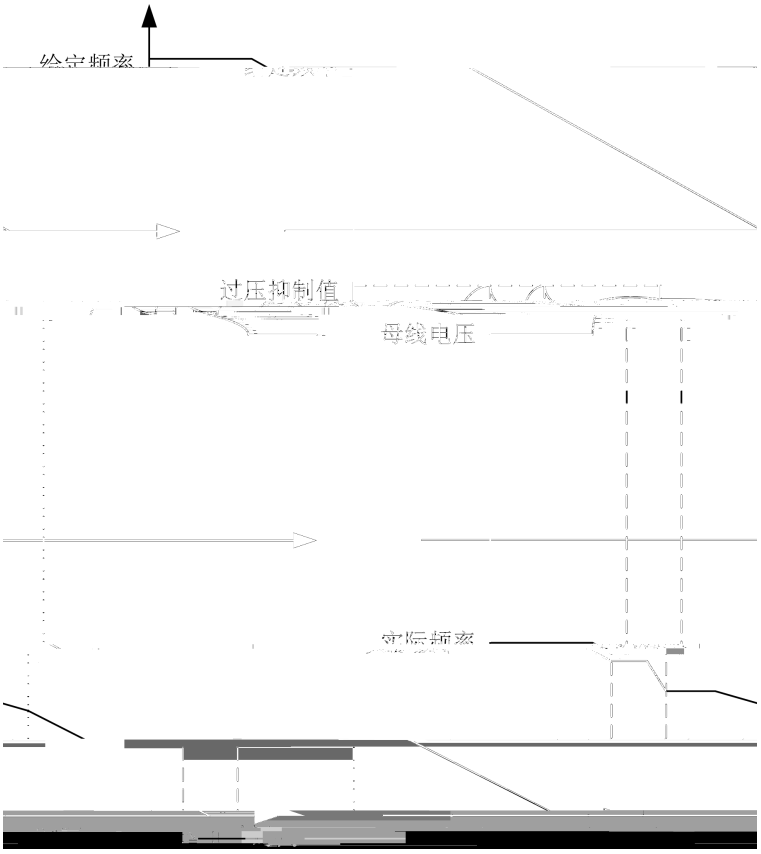
**12**

P7.69 P7.70 P7.71 P7.69

0 P16.0 380V P7.70

100V 711V =

u u3 3




P7.71 P7.71

### 7.2.6

**1**

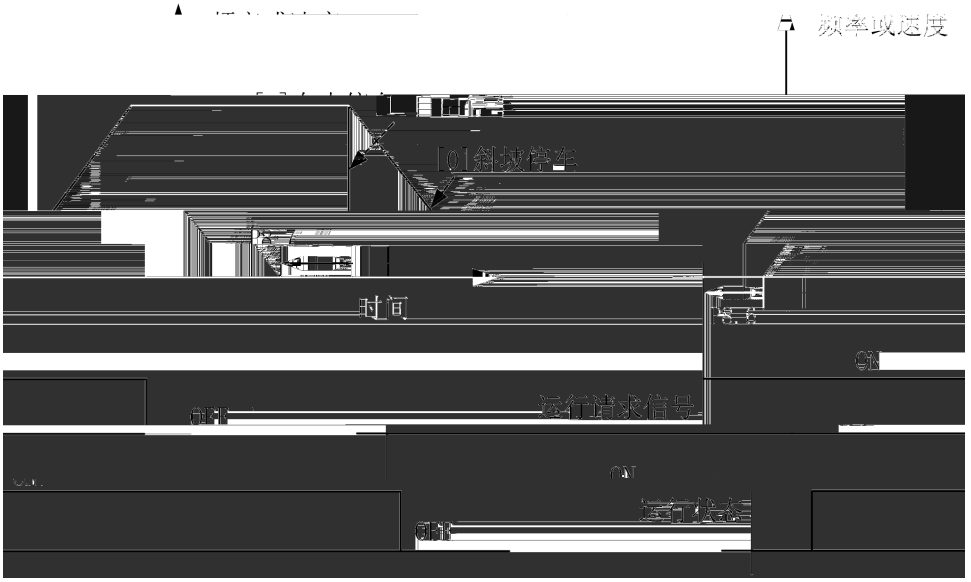
P8.3

[0]

[1]

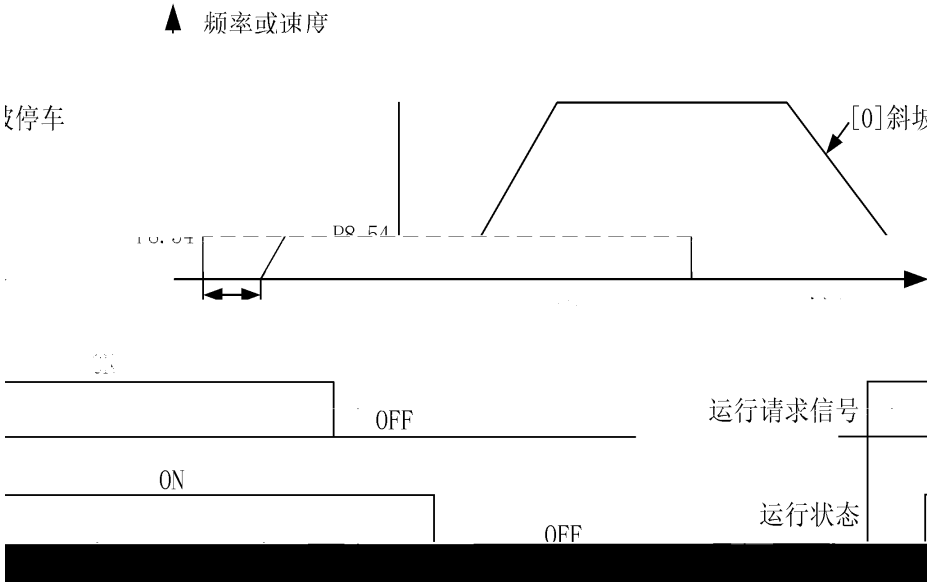
P8.6 P8.6

P8.7




P8.54 0 P8.3 [0]

P8.54




**2**

P8.14

P8.14 P8.33

P8.33

P8.15<P8.17<P8.19<P8.21<P8.23<P8.25<P8.27

| P8.15 | P8.17 | P8.19 | P8.21 | P8.23 | P8.25 | P8.27 |
|---|---|---|---|---|---|---|
| 10% | 20% | 30% | 50% | 60% | 80% | 100% |

### 7.2.7

**1**

P12.2 P12.17

P12.0=[1]

| | 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 |

P12.36 P12.37

P16

0.5Hz~2Hz >50Hz

| | | | |
|---|---|---|---|
| 1kHz | | | |
| 5kHz | | | |
| 10kHz | | | |

| | kHz |
|---|---|
| 0.4kW 11kW | 4 |
| 15kW 37kW | 3.5 |
| 45kW 110kW | 3 |

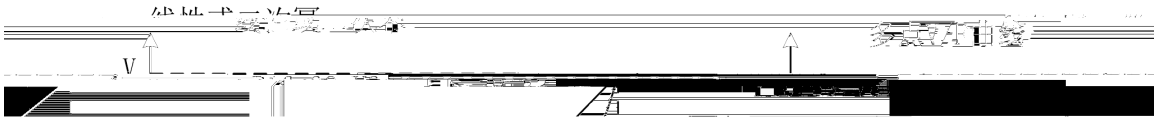
### 3 V/F

P16.14 V/F P16.11=0

[0] V/F

[1] V/F P16.33 P16.45 V/F

[2]




P16.34 P16.45 V/F V/F

V1 V2 V3 F1 F2 F3

**4**

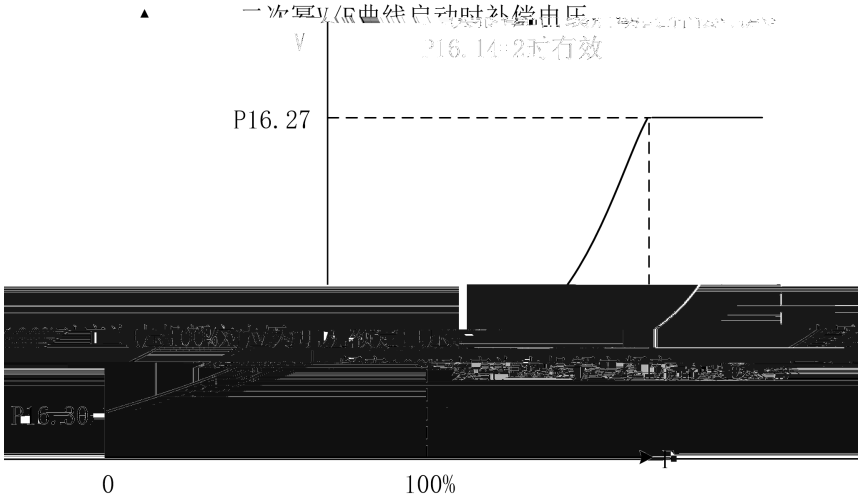
P16.15 V/F

V/F

**5**

P16.14=[0] V/F V/F P16.26 P16.26 P16.27P·

P16.27



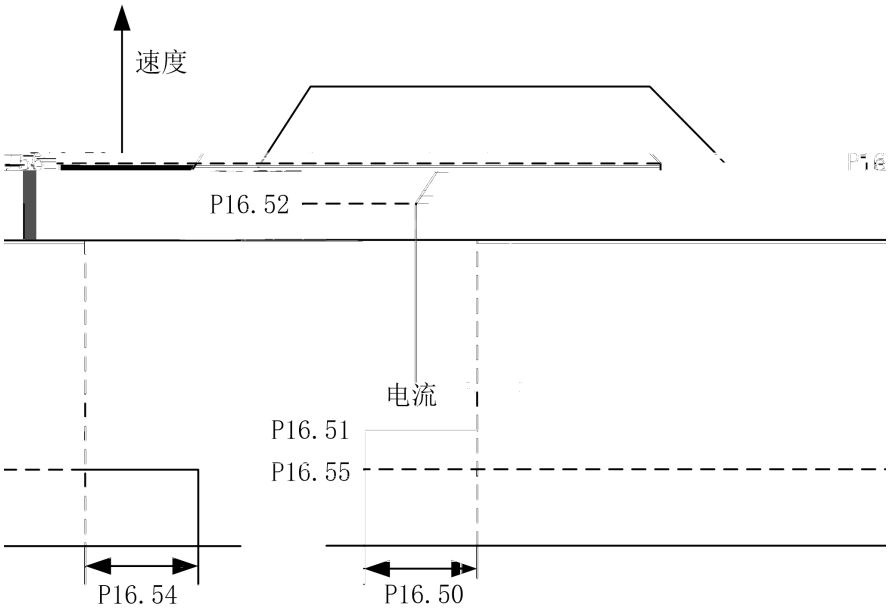

6

P16.50 P16.56

V/F

P16.50 P16.51 P16.52

P16.54 P16.55 P16.56



7

P16.64

## 7.2.9

1

P20.0

P20.0=0 P20.1=0 P20.2=0

P20.0=0 P20.1 ≠ 0 P20.2 ≠ 0

P20.0=1 P20.1 ≠ 0 P20.2 ≠ 0 1

0

P16.11 [1] [2]

P20.3 P20.1 [4]

2

P12.24 P12.25 0%

3

P20.7

P20.8 P20.9 P20.7=1

4

P20.15 A B

A B U V W

[0]

[1] A B

5

GDHF-PGD2 PG

PG ɪ ŋ ʎ V

0 DROOP P20.61 DROOP

**7** **1**

**8** **2**

P20.1 P20.2 [0]

**9**

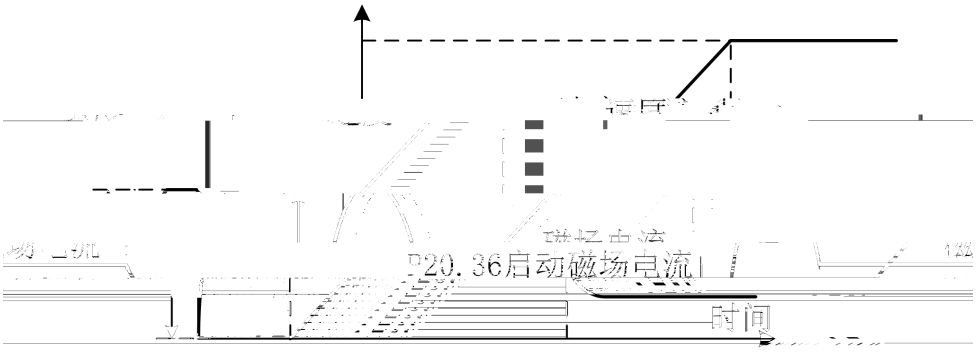
PGD1

PLC

DI DP CW0.10 “1”

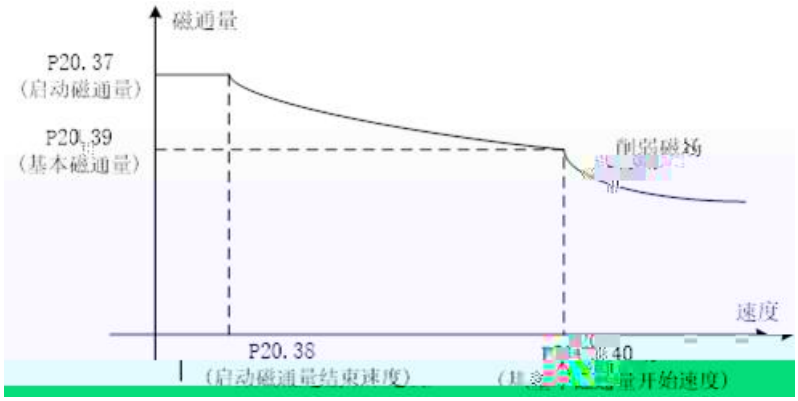
**10**

P20.36




**11**

P20.37 P20.40

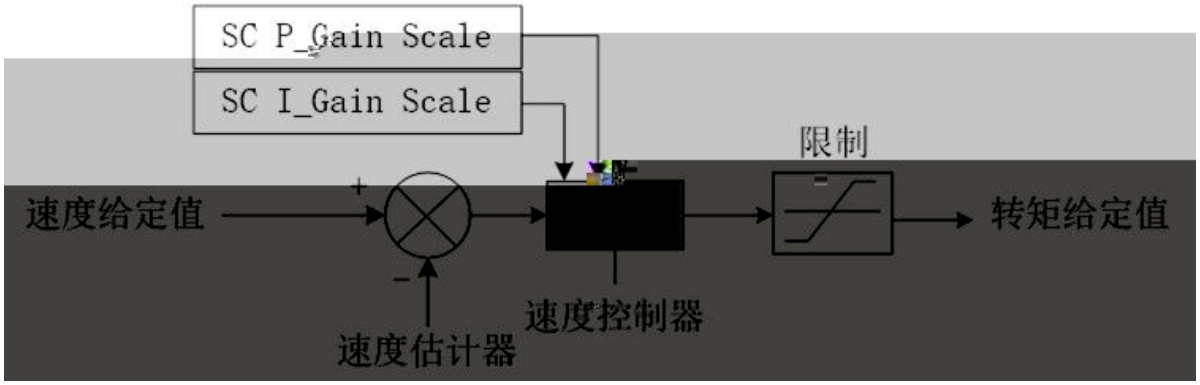



12

P20.55 ,

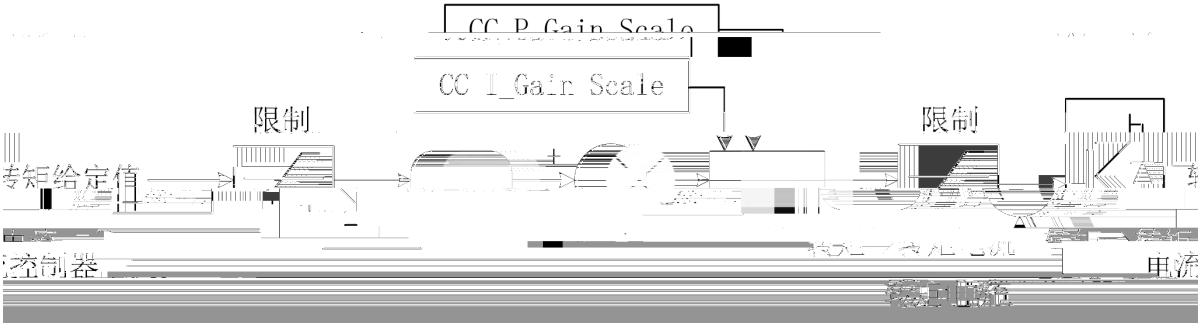
P20.56 ,

%




13

P20.62 P20.63 %



## 7.2.10

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| V/F | P16.64<br>V/F | (10 40Hz) | 100 | 80 150 | |
| | P16.12 | | | | |
| | P16.15 | | | | |
| | P16.26<br>V/F | | 0.75 | 0.5 1.2 | |
| | P7.0 | | 150 | 150 220 | |
| | P16.12 | | | | |
| | P7.0 | | 150 | 150 220 | |
| | P20.43 | | 75 | 50 100 | |
| | P20.56 | | 100 | 80 150 | |

### 7.2.11

**1**

P12.40 P12.41

P12.40

P12.41

1 =

| | | | |
|---|---|---|---|
| P7.31 | | 60 | |
| P7.32 | | 2 | |
| P8.7 | | 0.5 | 0.5 |
| P12.22 | | 0.8;<br>1.5; | 0.8 |
| P12.23 | | 0.8;<br>1.5; | |
| P12.24 | | 30;<br>5; | |
| P12.25 | | 20;<br>5; | |
| P12.32 | | 0.5% | 0.5 |
| P12.33 | | 0.5% | 0.5 |
| P12.40 | | 10 | 100% P16.6<br>10 % |
| P12.41 | | 0.1s | 0.3s 0.1s |
| P12.42 | | xxx s | 3s<br>P12.42<br>300s |
| P16.11 | | / | |

1

P12.42

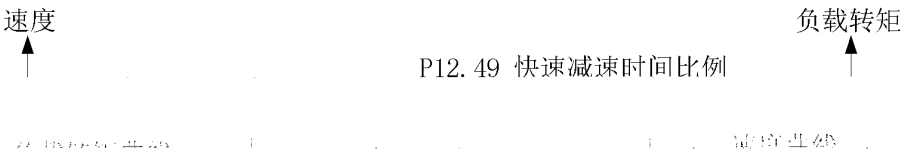
2

2

| | | | |
|---|---|---|---|
| | | | |
| P20.21 | | 0 “ ” | |
| P20.22 | | % | 50HZ 85HZ<br>85/50*100%=170% |
| P20.23 | | P20.22<br><br>10%-40% | 10T<br>4T<br>P20.22<br>4/10*100=40<br>40<br>P20.22 |
| P20.24 | | 100% | |
| P20.25 | | 100% | |
| P20.45 | | 6% | |
| P20.46 | | 5% | |
| P20.47 | | 90% | |
| P20.48 | | 77% | |
| P20.49 | | 100% | |
| P20.20 | | 1 “ ” | |

3

| | | |
|---|---|---|
| P12.43 | 20% | |
| P12.44 | 0.2s | |
| P12.45 | 30% | P12.43 |
| P12.46 | 0.1s | |
| P12.47 | 10% | |
| P12.48 | 3s | P12.47 |
| P12.49 | 0.2 | |
| P12.50 | 3% | |
| P12.38 | 1 | |



4

V/F

| | | | |
|---|---|---|---|
| P8.7 | | 15 | |
| P8.66 | | 70 | |
| P8.67 | | 40% | 0 |
| P8.70 | | | |

1

2 PLC

3

5

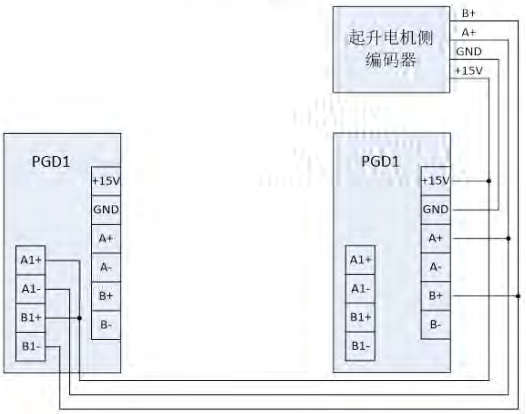
| | | | |
|---|---|---|---|
| P3.5 | 6 | 30 / | COM<br>COM |
| P3.6 | 7 | 40 | COM 2 |
| P3.7 | 8 | 41 | COM |
| P12.18 | FCD<br>LSW_2X | 2 | 1<br>16 |
| P12.19 | FCD<br>MSW_2X | 2 | 1<br>16 |
| P12.20 | FCD<br>m/min _2X | 2 | |

1 FCD LSW FCD MSW

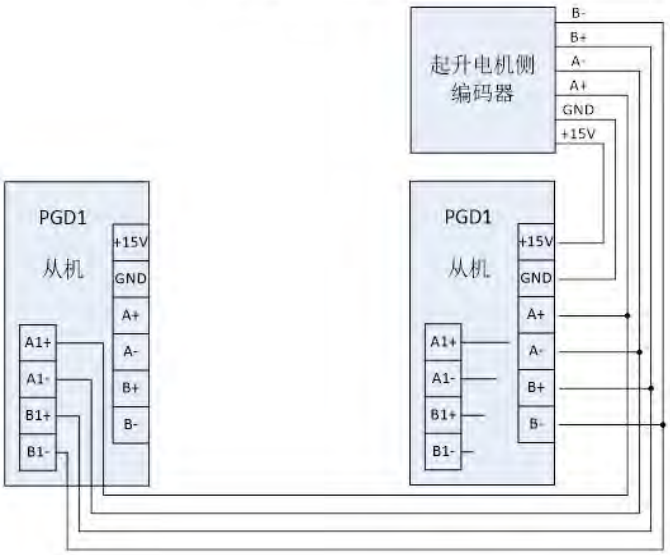
101.62 1 32 LSW 102.63 1 32 MSW

2

四线制编码器第二种接法




六线制编码器接法




P20.14

101.64 101.65

b

| | | | |
|---|---|---|---|
| P3.6 | 7 | 21 | DI |

| | | | |
|---|---|---|---|
| P3.7 | 8 | 29 | 1 |
| P8.8 | | 15s | 8 |
| P8.59 | | | |
| P8.60 | | 15 | P8.60 |
| P8.68 | 16 | | |
| P8.69 | 16 | | |
| P8.70 | | 50ms | P8.70 |
| P8.71 | | 0 | 0<br>1 |

c

T

ú L

Û Ù_____ L Û ÛÙäÛ Ý á Þ P8.59.

d

1) " " 101.64 ‘ 2 32

LSW ’ 101.65 ‘ 2 32 MSW ’

P7.13( )

[E113]
MIP

[E120]
IGBT
OT

[E157]
PDP[DB]

[E204]
DI
DI
ERR DUPLICATE DI SET

[E210]
Panel Error

[E220]
CRC

| | | | |
|---|---|---|---|
| | | | |
| W04 | REMOTE_EM | [ ] | P3 |
| W06 | OT | P7.14( ) | |
| W09 | DP P/BALARM | DP | DP |
| W10 | MODBUS MODBUS ALARM | Modbus | Modbus |
| W15 | PARAMETER ERROR | | |
| W18 | Temp_Sensing Fail | | |
| W26 | CAN | CAN | RJ45 |

### 8.2.2

[E105]
UV

P7.13( )

1 DI
[E106]
Brake abnormal 1

2 DI
[E107]
Brake abnormal 2

[E110]
OC

P7.4( )

P7.48(
1) P7.49( 1)

[E111]
OL

P7.48 P7.49

P7.8

[E112]
ZC

[E114]
MOP

P7.19
[E115]
P7.19
OS

[E116]

| | | |
|---|---|---|
| [E138] | TEMP_SENSING FAIL | |
| [E152] | U IGBT<br>PDP[U] | IGBT<br>IGBT |
| [E154] | V IGBT<br>PDP[V] | IGBT<br>IGBT |
| [E155] | W IGBT<br>PDP[W] | IGBT<br>IGBT |
| [E156] | Hardware OC | |
| [E167] | CAN<br>CAN_ERR | |
| [E170] | MOTOR TUNING FAIL | P7.33 |
| [E180] | DP<br>P/B ERROR | |
| [E181] | DP<br>P/B_EM | CW0.4 |
| [E171] | Ropeerror | |
| [E200] | LOCAL_EM | [ ]<br>P3 |
| [E201] | REMOTE_EM | [ ]<br>P3 |
| [E202] | Modbus<br>MODBUS EMERGENCY | Modbus CW0.4 |
| [E203] | DRIVE DISABLED | DP |
| [E204] | DI<br>ERR DUPLICATE DI SET | DI |
| [E210] | Panel Error | |

| | | |
|---|---|---|
| [E220] | CRC<br>MEMORY CRC ERR | |
| [E221] | PARAMETER ERROR | |

### 8.2.3

| | | | |
|---|---|---|---|
| | | | |
| | | • <br>• ON<br>• COM | • <br>• ON<br>• COM |
| | | • | • <br>• |
| | | • | • <br>• |
| | | • | • |
| | | • | • |
| | | • | • <br>• |
| | | • | • |
| | | • | • |
| | | • | • |
| | | • <br>ON | • ON |
| | | • | • V W |
| | | • | • / |

| | | |
|---|---|---|
| | | |
| | • | • <br> • |
| | • | • |
| | • <br> • <br> • | • <br> • <br> • |
| | • | • |
| | • | • |
| | • | • |
| | • | • |
| | • | • |

# 9

## 9.1 CANopen

### 9.1.1 CANopen

CANOpen CAN CAN Controller Area Network

1 ISO11898-2

CAN

CAN

CANopen

CANopen

CANopen CANopen CAN

### 9.1.2

1

CANopen

| COB-ID | DLC | Byte0 |
|---|---|---|
| 0x700+ ID | 1 | 5 |

2

TPDO CANopen

TPDO = * TPDO

| COB-ID | DLC |
|---|---|
| 0x80 | 0 |

3 TPDO

| COB-ID | DLC | Byte0 | Byte1 | Byte2 | Byte3 | Byte4 | Byte5 | Byte6 | Byte7 |
|---|---|---|---|---|---|---|---|---|---|
| (0x180~0x480)+Node-ID | 8 | ParaX | | ParaX | | ParaX | | ParaX | |

4 RPDO

| COB-ID | DLC | Byte0 | Byte1 | Byte2 | Byte3 | Byte4 | Byte5 | Byte6 | Byte7 |
|---|---|---|---|---|---|---|---|---|---|
| (0x200~0x500)+Node-ID | 8 | ParaX | | ParaX | | ParaX | | ParaX | |

### 9.1.3

1

PLC / CANopen
ID TPDO/RPDO PLC CANopen
RJ45

2

PLC CANopen CANopen
ID

2

| | | | | |
|---|---|---|---|---|
| P31.0 | CanBus | 0<br>1 | 0~1 | 0 |
| P31.1 | CanBus<br>ID | Node ID | 1~127 | 1 |
| P31.2 | CanBus | 0 50kbps<br>1 100kbps<br>2 125bps<br>3 250kbps<br>4 500kbps<br>5 1000kbps | 0~5 | 3 |
| P31.3 | | CAN | 0~5000 | 1000 |
| P31.4 | | | 0~1000 | 100 |
| P31.5 | TPDO | TPDO | 0~255 | 5 |
| P31.6 | TPDO | TPDO | 0~1000 | 0 |
| P31.7 | TPDO EVENT | TPDO | 0~2000 | 0 |
| P31.8~P31.23 | RPDO x | RPDO | 0~9 | 0 |
| P31.24~P31.39 | TPDO x | TPDO | 0~29 | 0 |

### 9.1.5 CANOpen

1

a) CanBus CANopen

b) CanBus

c)

TPDO

d) HB

2

a) CanBus CANopen

b)

c) TPDO

TPDO TPDO 4 16

TPDO TPDO TPDO

TPDO x TPDO

| TPDOx | COB-ID | DLC | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| TPDO1 | 0x180+ ID | 8 | TPDO 1 | TPDO 2 | TPDO 3 | TPDO 4 |
| TPDO2 | 0x280+ ID | 8 | TPDO 5 | TPDO 6 | TPDO 7 | TPDO 8 |
| TPDO3 | 0x380+ ID | 8 | TPDO 9 | TPDO 10 | TPDO 11 | TPDO 12 |
| TPDO4 | 0x480+ ID | 8 | TPDO 13 | TPDO 14 | TPDO 15 | TPDO 16 |

TPDO

| | | |
|---|---|---|
| 0 | | |
| 1 | 0 | |
| 2 | 1 | |
| 3 | 4 | |
| 4 | | |

| | | |
|---|---|---|
| 0.6 | M_STEP0 | 1<br>‘0’: 1<br>‘1’: 1 |
| 0.7 | M_STEP1 | 2<br>‘0’: 1<br>‘1’: 1 |
| 0.8 | M_STEP2 | 3<br>‘0’: 1<br>‘1’: 1 |
| 0.9 | M_STEP3 | 4<br>‘0’: 1<br>‘1’: 1 |
| 0.10 | Reserved | |
| 0.11 | Reserved | |
| 0.12 | REMOTE/LOCAL | /<br>‘0’<br>‘1’ |
| 0.13 | Reserved | |
| 0.14 | MOTION SEL | ‘00’ 1<br>‘01’ 2<br>‘10’ 3<br>‘11’ 4 |

4

| Bit0~Bit7 | Bit8~Bit15 |
|---|---|
| | |

d) RPDO

4 RPDO RPDO 4 16
RPDO RPDO RPDO
RPDO x RPDO

RPDOx COB-ID DLC 1 2 3 4

RPDO1 0x200+ ID 8 RPDO 1 RPDO 2 RPDO 3 RPDO 4

| | | | | |
|---|---|---|---|---|
| RPDO4 | 0x500+ ID | 8 | RPDO 13 | RPDO 14 |

# 10

| |
|---|
|  |
| 1.<br>2.<br>3.<br>4. |
|  |
| 1. CMOS<br>2.<br>3. |

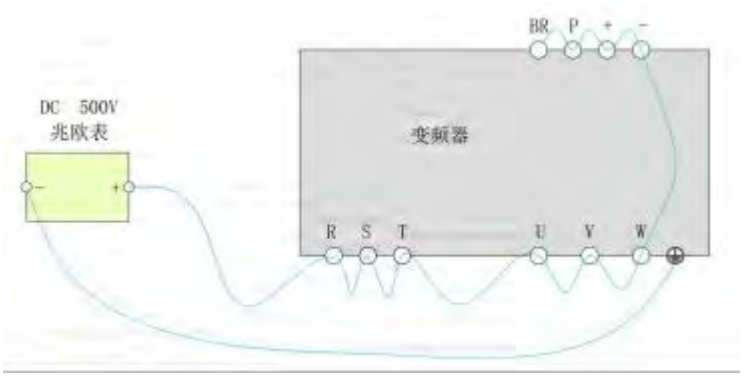
## 10.1

## 10.2

| | | |
|---|---|---|
| | | |
| | 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. |

(>500V) ( )

( 500V )




5 MΩ

VDR

## 10.3

# A MODBUS

## A1

MODBUS ASCII RTU

MODBUS

GUIDE RTU

## A2 CRC

CRC Cyclic Redundancy Check

CRC

CRC K R

N N K N K

N-K=R G(x) G(x) K

G(x) CRC

C(x) C(x) R ÿ x)(x)

```
        0X8801, 0X48C0, 0X4980, 0X8941, 0X4B00, 0X8BC1, 0X8A81, 0X4A40,
        0X4E00, 0X8EC1, 0X8F81, 0X4F40, 0X8D01, 0X4DC0, 0X4C80, 0X8C41,
        0X4400, 0X84C1, 0X8581, 0X4540, 0X8701, 0X47C0, 0X4680, 0X8641,
        0X8201, 0X42C0, 0X4380, 0X8341, 0X4100, 0X81C1, 0X8081, 0X4040 };

    INT8U nTemp;
    INT16U wCRCWord = 0xFFFF;

        while (wLength--)
        {
            nTemp = *nData++ ^ wCRCWord;
            wCRCWord >>= 8;
            wCRCWord  ^= wCRCTable[nTemp];
        }
        return wCRCWord;
} // End: CRC16
```

### A3 MODBUS

MODBUS

MODBUS —

T3.5

0...9 A...F

3.5

1.5

3.5

CRC

MODBUS

MODBUS

| | | | | CRC | |
|---|---|---|---|---|---|
| T3.5 | 1Byte | 1Byte | NBytes | 2Bytes | T3.5 |

MODBUS 1

## A4 MODBUS

0x01(HEX) (Read Coils)

| | | | |
|---|---|---|---|
| 0 | | | 1 ~ 247 |
| 1 | | | 0x01 |
| 2 | | [ ] | |
| 3 | | [ ] | |
| 4 | | [ ] | <N> |
| 5 | | [ ] | |
| 6 | CRC | [ ] | CRC16 |
| 7 | CRC | [ ] | |

0x02(HEX) (Read Discrete Inputs)

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 0x02 |
| 2 | [ ] | |
| 3 | [ ] | |
| 4 | [ ] | Input <N> |
| 5 | [ ] | |
| 6 | CRC [ ] | CRC16 |
| 7 | CRC [ ] | |
| 8 | | |

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 0x02 |
| 2 | | N / 8 |
| 3 | Input[8-0] | Input |
| 4 | Input [16-9] | |
| ..... | CRC [ ] | CRC16 |
| ..... | CRC [ ] | |
| (N / 8 + 5) | | |

0x03(HEX) (Read Holding Registers)

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 3 |
| 2 | [ ] | |
| 3 | [ ] | |
| 4 | [ ] | <N> |
| 5 | [ ] | |
| 6 | CRC [ ] | CRC16 |
| 7 | CRC [ ] | |
| 8 | | |

0x06(HEX) (Write Single Holding Registers)

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 6 |
| 2 | [ ] | |
| 3 | [ ] | |
| 4 | 1 [ ] | |
| 5 | 1 [ ] | |
| 6 | CRC [ ] | CRC16 |
| 7 | CRC [ ] | |
| 8 | | |

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 6 |
| 2 | [ ] | |
| 3 | [ ] | |
| 4 | 1 [ ] | |
| 5 | 1 [ ] | |
| 6 | CRC [ ] | CRC16 |
| 7 | CRC [ ] | |
| 8 | | |

0x10(HEX) (Write Multiple Holding Registers)

| | | |
|---|---|---|
| 0 | | 1 ~ 247 |
| 1 | | 16 |
| 2 | [ ] | |
| 3 | [ ] | |
| 4 | [ ] | <N> |
| 5 | [ ] | |
| 6 | | |

## A5 MODBUS

| 0x01 Coils | | |
|---|---|---|
| 0 | 0<br>1 | |
| 1 | 0<br>1 | |
| 2 | 1 | |
| 3 | 1 | |
| 4 | 0<br>1 | |
| 5 | 0<br>1 | |
| 6 | 00<br>01<br>10 | 1<br>2<br>3 |
| 7 | 11 | 4 |
| 8 | | |

| 0x04 Input Regs | | |
|---|---|---|
| | | |
| 0 | DI | [R] |
| 50 | AI 1 [V] | [R] : 100 => 1.0[V], -10 ~ +10[V] |
| 51 | AI 1 [I] | [R] : 100 => 1[mA], 0 ~ 20[mA] |
| 52 | AI2 [V] | [R] : 100 => 1.0[V], -10 ~ +10[V] |
| 53 | AI2 [I] | [R] : 100 => 1[mA], 0 ~ 20[mA] |

# B

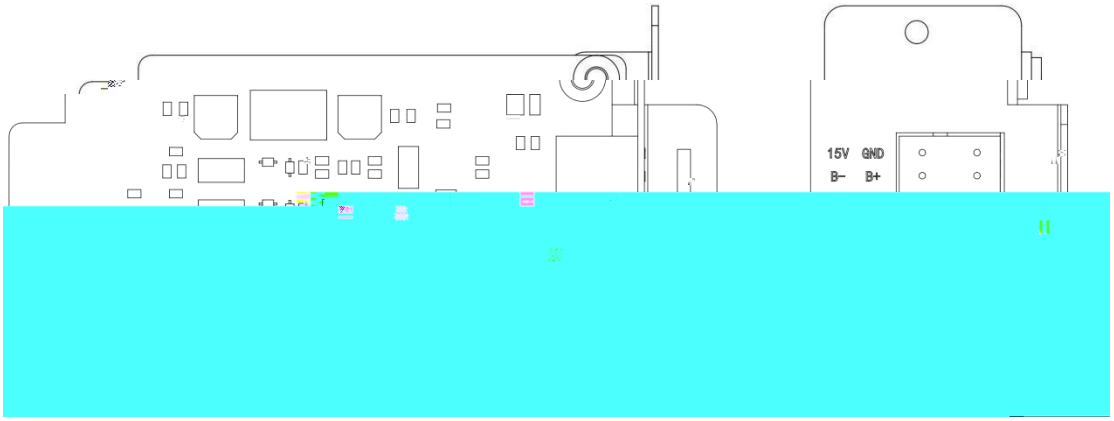
## B1 PG

### B1.1

#### 1.1.1

PG PG01

#### 1.1.2




### B1.2

#### 1.2.1

PG PG

+15V

#### 1.2.2

PG 10

| | |
|---|---|
| 15V | GND |
| B- | B+ |
| A- | A+ |
| B1- | B1+ |
| A1- | A1+ |

+15V GND A+ A- B+ B- A1+ A1- B1+ B1-

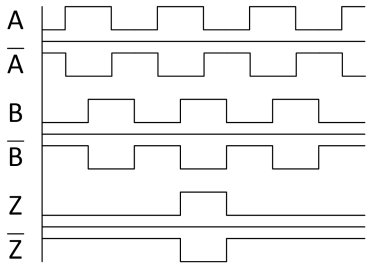
PE PE

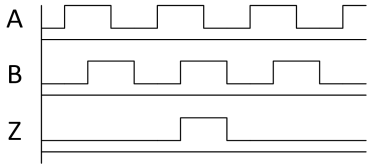
### 1.2.3

A B 1 2

90

1 2




A

B

Z N 0 GDHF-

APGX1

### 1.2.4

PG

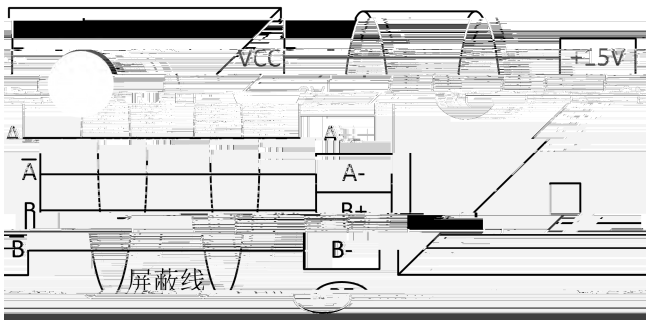
PG

PE

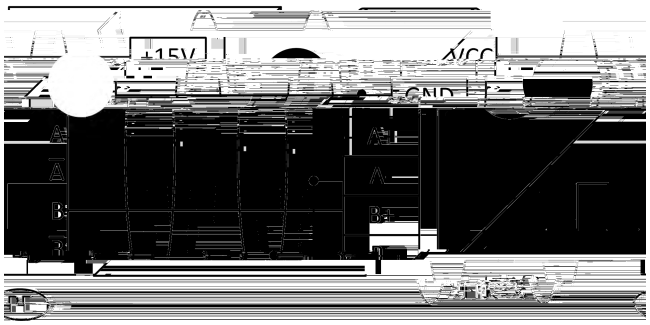
## B1.3

PG

### 1.3.1

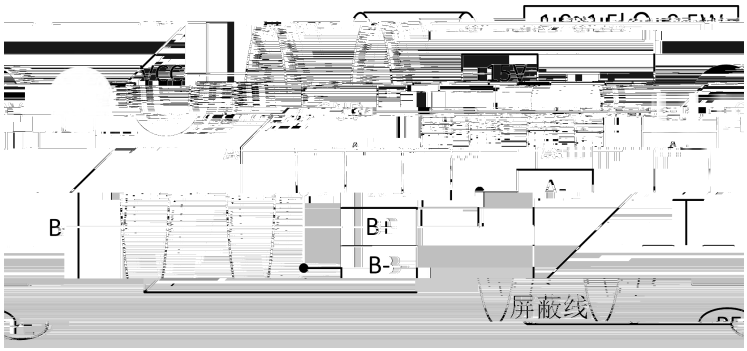


| | |
|---|---|
| | HLE45-1024L-6F.AC |
| | RHI90N-ONAK1R61N-1024 |
| | EC120P45-H6PR-1024 |



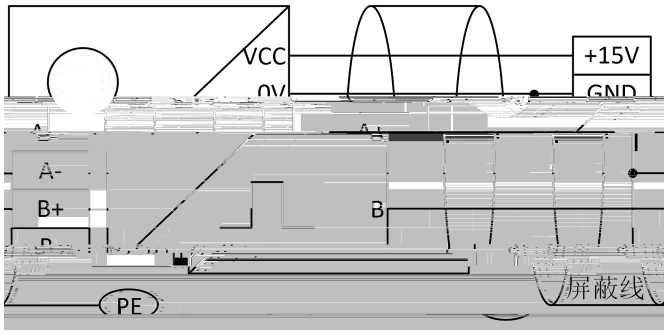

| | |
|---|---|
| | HLE45-600L-3F.AC |
| | RVI78N-10CALA31N-1024 |
| | EC120P45-P6PR-1024 |

### 1.3.2



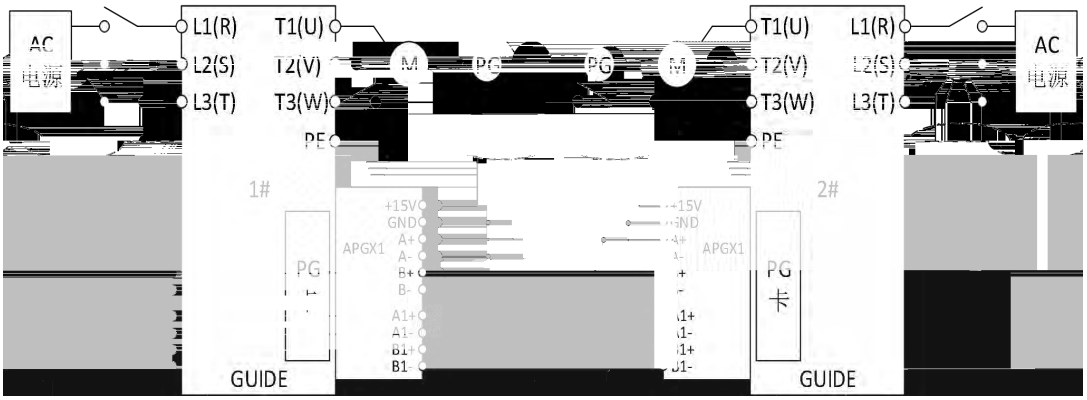

| |
|---|
| HLE45-1024L-30C.AC |
| EB38A6-C4PR-1024 |

### 1.3.3




| | |
|---|---|
| | HLE45-600L-3R.AC |
| | EB50A8-N4PR-1024 |

### 1.3.4

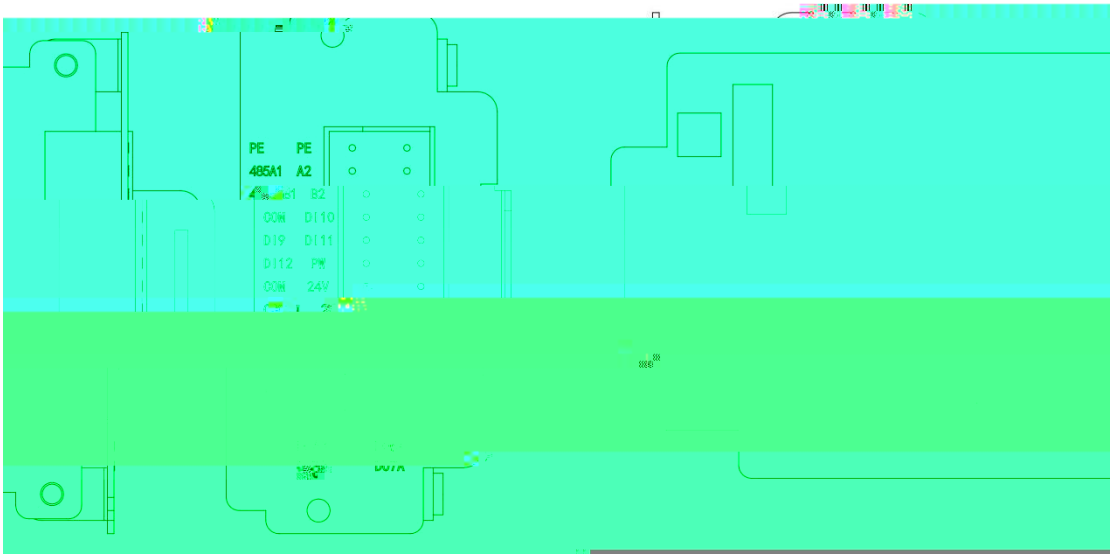



## B2 IO

IO I001

IO HF681N IO 4

2 1 485




IO I001

| | |
|---|---|
| PE | PE |
| 485A1 | A2 |
| 485B1 | B2 |

| | |
|---|---|
| COM | DI10 |
| DI9 | DI11 |
| DI12 | PW |
| COM | 24V |
| COM | 24V |
| | |
| DO6C | DO6A |
| DO7C | DO7A |

## B2.1

IO IO01 1 IO IO01

EMC IO IO01 IO

IO

## B2.2 IO

IO

| | | | |
|---|---|---|---|
| | 24V | 24VDC | 24VDC<br>24V<br>24V |
| | COM | 24VDC | 24VDC |
| | PW | | 24V |
| | DI9-PW | 9 | 1<br>2 3.3KΩ<br>9~30V |
| | DI10-PW | 10 | |
| | DI11-PW | 11 | |
| | DI12-PW | 12 | |
| | DO6A- DO6C | 6 | AC 250V,3AC,COS ≤0.4<br>DC 30V,1A |
| | DO7A-DO7C | 8 | |

## B2.3 IO

MODBUS J1 RS485 A2 B2

RS485 RS485

A2 B2 MODBUS

ON

íX MODBUS ID

MODBUS

îX

MODBUS

ïX MODBUS

[1]RS485

## B2.6 IO

IO01

MODBUS 2

= ×

| | |
|---|---|
| × 1 | |
| × 10 | 1 |
| × 100 | 2 |
| × 1000 | 3 |

| MODBUS | | |
|---|---|---|
| 1 | 1 | × 1 |
| 1 | 0.1 | × 10 |
| 1 | 0.01 | × 100 |
| 1 | 0.001 | × 1000 |

Hz ×10

49.9Hz I001 49.9 × 10 = 499

499 49.9Hz

## B2.7 I0

MODBUS EIA/TIA 485-A

**RS485** 127 31 1

RS-485

| RS485 | | | |
|---|---|---|---|
| | LINE A | LINE B | |
| | 135~165(3~20MHz) | 100~130(f>100KHz) | Ω |
| | <30 | <60 | PF/m |
| | <110 | -- | Ω/Km |
| | >0.64 | >0.53 | mm |
| | >0.34 | >0.22 | $mm^2$ |
| | | | |
| Kbit/s | <93.75 | 115.2 | |
| LINE A ( ) | 1200 | 1000 | |
| LINE B ( ) | 1200 | 600 | |

**RS485**

**RS485**

9.6kbit/s 14.4kbit/s 19.2kbit/s 38.4kbit/s 56kbit/s
57.6kbit/s 115.2kbit/s

MODBUS RTU

B

MB01 J25 MB01

MB01

- MB01
- MB01
-

EMC MB01

MB01 PE

| | |
|---|---|
| A1 | RS485_ |
| B1 | RS485_ |
| PE | |

MODBUS

MODBUS

| | | | | |
|---|---|---|---|---|
| WîXò | DK h^ | €ìõòìì W^<br>€íŕððìì W^<br>€îŕõîìì W^<br>€ïŕôðìì W^<br>€ðñŕòìì W^<br>€ññŕóòìì W^<br>€òíŕñîìì W^<br>€óíŕôìì W^<br>€ôîŕñòìì W^ | ì ô | ï |
| WîXó | DK h^ | €ìŽ^îïî<br>€íŽ^ðôñ | ì í | í |

ðX MODBUS ID

MODBUS

ñX

MODBUS

òX MODBUS

[1]RS485

## B3.5

MB01

MODBUS 2

= ×

| Kbit/s | <93.75 | 115.2 |
|---|---|---|
| LINE A ( ) | 1200 | 1000 |
| LINE B ( ) | 1200 | 600 |

RS485

RS485

9.6kbit/s 14.4kbit/s 19.2kbit/s 38.4kbit/s 56kbit/s 57.6kbit/s 115.2kbit/s

MODBUS RTU