ICS 17.220
N 22

DB43

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DB43/T 879.1—2014

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2014-06-06 发布　　2014-08-06 实施

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1

0 1.5 kHz

35kV 7kA

2

GB 1207

GB 1208

GB 4824 ISR

GB/T 2423.1 2 A

GB/T 2423.2 2 B

GB/T 2423.4 2 Db 12h+12h

GB/T 2423.56 2 Fh

GB/T 11021

GB/T 13850 idt IEC 688:1992

GB/T 17626.3 idt IEC 61000-4-3:1995

GB/T 17626.4 idt IEC 61000-4-4:1995

GB/T 17626.5 idt IEC 61000-4-5:1995

GB/T 17626.6

GB/T 17626.8

GB/T 17626.9

GB/T 17626.11

GB/T 20840.7 7

GB/T 20840.8 8

3

3.1

variable frequency electric quantity

a

b

3.2

variable frequency electric quantity transducer

3.3

span

1000V/CF=1.5

3.4

rated span

3.5

variable frequency electric quantity analyzer

3.6

variable frequency power standard source

3.7

primary converter

3.8

transmitting system

3.9

instantaneous value

3.10

rated primary voltage (current

3.11

rated secondary voltage (current

3.12

rated transformation ratio

3.13

accurate limit value voltage (current range

Umax Imax Umin Imin

3.14

accurate limit value frequency range

fmax fmin

3.15

span ratio

3.16

reference frequency

3.17

phase displacement

3.18

bandwidth

3.19

output

4.2

1000m

4.3

4.4

5

5.1

5.1.1

110V 220V 380V 660/690V 750V 1000/1140V 3/3.3kV 6kV 10kV 20kV 25kV 35kV

5.1.2

10A 12.5A 15A 20A 25A 30A 40A 50A 60A 75A

5.1.3

5 20 100 200 500

5.1.4

2

2 V

—	120/240	120	24
220/380	—	220	48
230/400	—	230	60
240/415	—	240	110 125
277/480	—	277	220 250
1			
2 230/400V IEC IEC 220/380V 240/415V 230/400V 1±10%			
3			

5.1.5

DC 50Hz 60Hz

5.2

5.2.1

GB 1207 GB/T 20840.7

5.2.2

GB 1208 GB/T 20840.8

20mA 50mA 100mA 200mA 500mA

5.2.3

VA GB 1208

Ω 2kΩ 20kΩ 2MΩ

5.2.4

VA GB 1208

Ω 0.1Ω 0.2Ω 0.5Ω

5.3

5.3.1

5.3.2

1T 2T 3T T

400ms

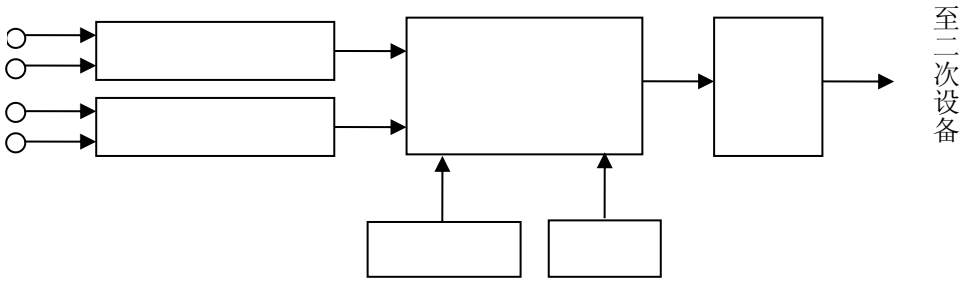
6

6.1

6.1.1

2 2 2

2



2

6.1.2

6.2

Um

3

	kV
1 kV	3 kV
4.5 kV	18 kV
9 kV	23 kV
15 kV	30 kV
220V 380V	1.5 kV

6.3

a
b
c
d

4

4

4.1 4

4

25K 60K

4

GB/T 11021	/K
	60 65 50
Y A E B F H	45 60 75 85 110 135

6.4

6.4.1

6.4.2

S S S1 S2 S3 S4

0.05 0.1 0.2 0.5 1 2

S1 0.1S1 0.2S1 0.5S1

S2 0.1S2 0.2S2 0.5S2

S3 0.1S3 0.2S3 0.5S3

S4 0.1S4 0.2S4 0.5S4

6.4.3

/

6.4.4

S 5 9

5

	±%			± ′		
	Umax Imax			Umax Imax		
	10	20	100	10	20	100
0.05	0.1	0.05	0.05	5	2	2
0.1	0.2	0.1	0.1	10	5	5
0.2	0.5	0.2	0.2	30	15	10
0.5	1	0.5	0.5	60	30	30
1	2	1	1	120	60	60
2	4	2	2	240	120	120

6 S1

	±%				± ′			
	Umax Imax				Umax Imax			
	2	5	20	100	2	5	20	100
0.05S1	0.1	0.05	0.05	0.05	5	2	2	2
0.1S1	0.2	0.1	0.1	0.1	10	5	5	5
0.2S1	0.5	0.2	0.2	0.2	15	10	10	10
0.5S1	1	0.5	0.5	0.5	60	30	30	30

7 S2

	±%					± ′				
	Umax Imax					Umax Imax				
	0.5	1	5	20	100	0.5	1	5	20	100
0.05S2	0.1	0.05	0.05	0.05	0.05	5	2	2	2	2
0.1S2	0.2	0.1	0.1	0.1	0.1	10	5	5	5	5
0.2S2	0.5	0.2	0.2	0.2	0.2	20	10	10	10	10
0.5S2	1	0.5	0.5	0.5	0.5	60	30	30	30	30

8 S3

	±%					± ′				
	Umax Imax					Umax Imax				
	0.2	0.5	5	20	100	0.2	0.5	5	20	100
0.05S3	0.1	0.05	0.05	0.05	0.05	5	2	2	2	2
0.1S3	0.2	0.1	0.1	0.1	0.1	10	5	5	5	5
0.2S3	0.5	0.2	0.2	0.2	0.2	20	10	10	10	10
0.5S3	1	0.5	0.5	0.5	0.5	60	30	30	30	30

6.7

5 9

3dB

6.8

tr BW

tr=0.35/BW

BW Hz tr s

50μs 7kHz

6.9

6.10

GB 4824

GB 4824 A B

6.11

11 12

11

		GB/T 17626.4	2kV / 5kHz	B
		GB/T 17626.11	/	A
		GB/T 17626.4	2kV / 5kHz	B
		GB/T 17626.6	(80 1000)MHz 30V/m 80% 1kHz	B
		GB/T 17626.4	4kV / 5kHz	B
		GB/T 17626.6	(0.15 80)MHz 10V/m 80% 1kHz	B
		GB/T 17626.11	/	A
		GB/T 17626.5	4kV 1.2μs/50μs	A
		GB/T 17626.3	(80 1000)MHz 30V/m 80% 1kHz	B
		GB/T 17626.8	100A/m	B
		GB/T 17626.9	1000A/m	B

12

EUT	A	B
		50%

6.12

GB/T 2423.56 13

13

I	5 500 Hz	0.5	10min
		1.0	30min
		5.0	30min
300min			

7

7.1

6.1.2

7.2

3 60s

7.3

6.3 1K

10 30

6.3

a 6.3

b

•

- 1/2

7.4

7.4.1

a

b

c 14

1/5

14

	30min

d

e

15

15

15 30

0

10

7.6.3

10

10

7.6.4

10

10

7.7

3

6.7

7.8

10

7.9

a f

φ

$$t_r = \Delta\varphi / \quad f$$

t_r 6.9

b

a

7.10

GB 4824 1 A

7.11

7.11.1

GB/T 17626.3 :

——

—— 1m

—— 80MHz 2000MHz

—— 1kHz 80%

——

-
-

—— 30V/m

6.11

7.11.2

GB/T 17626.4 :

——

——

-
-

—— EUT ≤1m

——

-
-

—— 1 /min

6.11

7.11.5

GB/T 17626.8 :

——

——

•

•

—— EUT

—— 100A/m

6.11

7.11.6

GB/T 17626.9

——

——

•

•

—— EUT

—— 1000A/m

6.11

7.12

7.12.1

GB/T 2423.2

——

—— +55 ±2

+70 ±2

—— 72h

7.12.2

GB/T 2423.1

——

—— -25 ±3

-40 ±3

—— 72h

16h

7.12.3

GB/T 2423.4

——
——　　1
——　　40　±2
　　55　±2
——
——　　2
　　24h

a　7.2

b

7.13

GB/T 2423.56“　　Fh”

13　　3

6.4.4

8

8.1

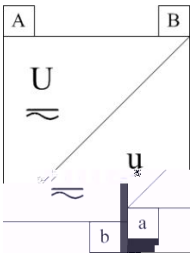
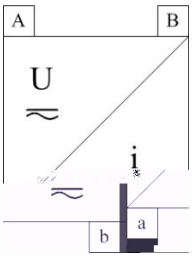
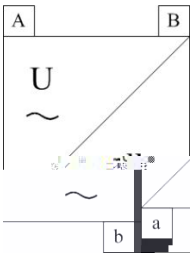
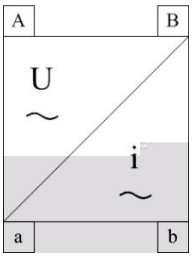
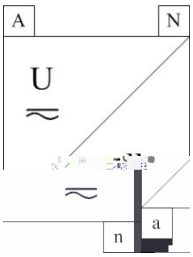
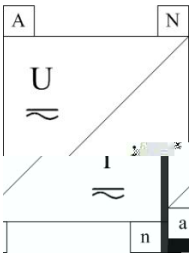
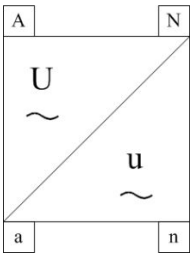
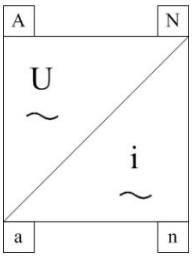
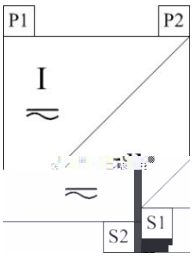
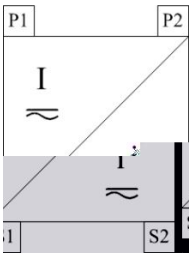
8.2

8.3

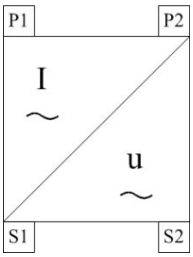
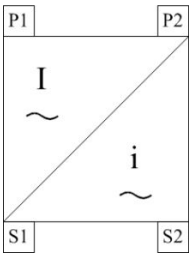
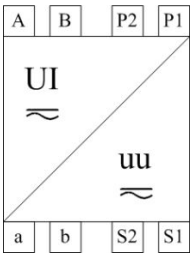
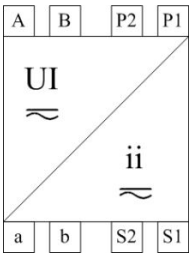
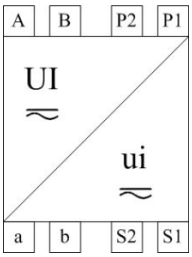
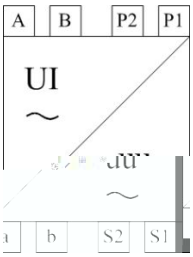
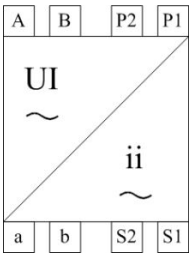
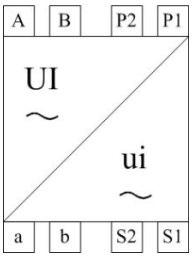
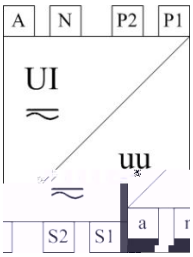
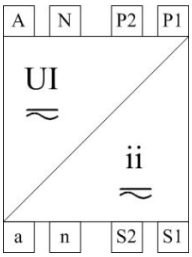
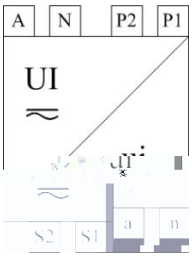
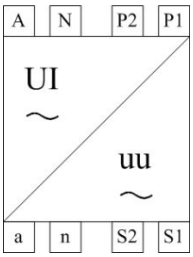
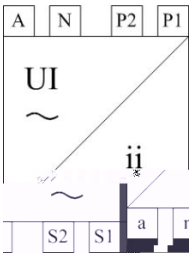
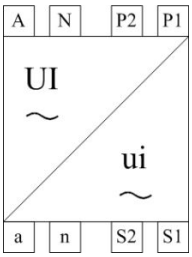
δ

6	6.7	7.7	●	○
7	6.8	7.8	●	○
8	6.9	7.9	●	○
9	6.10	7.10	●	○

A.3

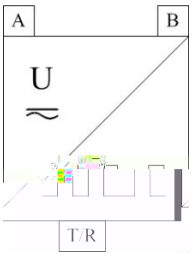
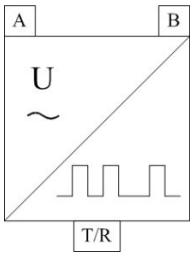
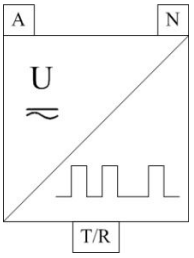
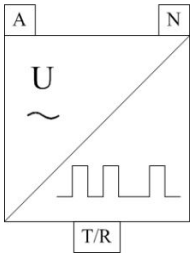
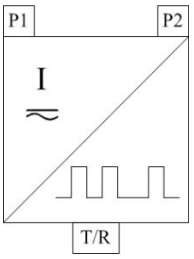
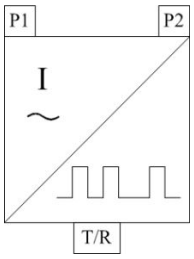
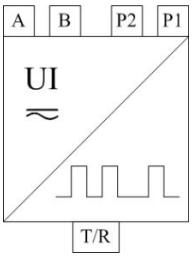
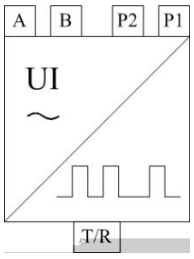
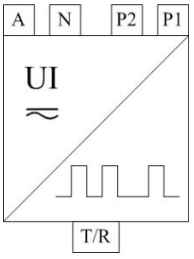
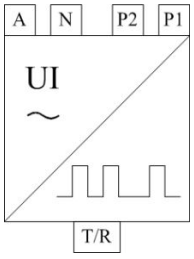
	 A B U u b a	 A B U i b a	
	 A B U b a	 A B U i a b	
	 A N U n a	 A N U n a	
	 A N U u a n	 A N U i a n	
	 P1 P2 I S2 S1	 P1 P2 I S2	

A.3

	 P1 P2 I u S1 S2	 P1 P2 I i S1 S2	
	 A B P2 P1 UI uu a b S2 S1	 A B P2 P1 UI ii a b S2 S1	 A B P2 P1 UI ui a b S2 S1
	 A B P2 P1 UI a b S2 S1	 A B P2 P1 UI ii a b S2 S1	 A B P2 P1 UI ui a b S2 S1
	 A N P2 P1 UI uu S2 S1 a n	 A N P2 P1 UI ii a n S2 S1	 A N P2 P1 UI S2 S1 a n
	 A N P2 P1 UI uu a n S2 S1	 A N P2 P1 UI ii S2 S1 a n	 A N P2 P1 UI ui a n S2 S1

A.1.3.2

A.4

	 A B U T/R	 A B U T/R
	 A N U T/R	 A N U T/R
	 P1 P2 I T/R	 P1 P2 I T/R
	 A B P2 P1 UI T/R	 A B P2 P1 UI T/R
	 A N P2 P1 UI T/R	 A N P2 P1 UI T/R

B

B.1

B.1.1

10

B.1

B.1

0.05 0.1 0.2 0.5 1.0 2.0

±1.5%

B.1.7

B.3 1%

0.05%( )

B.3

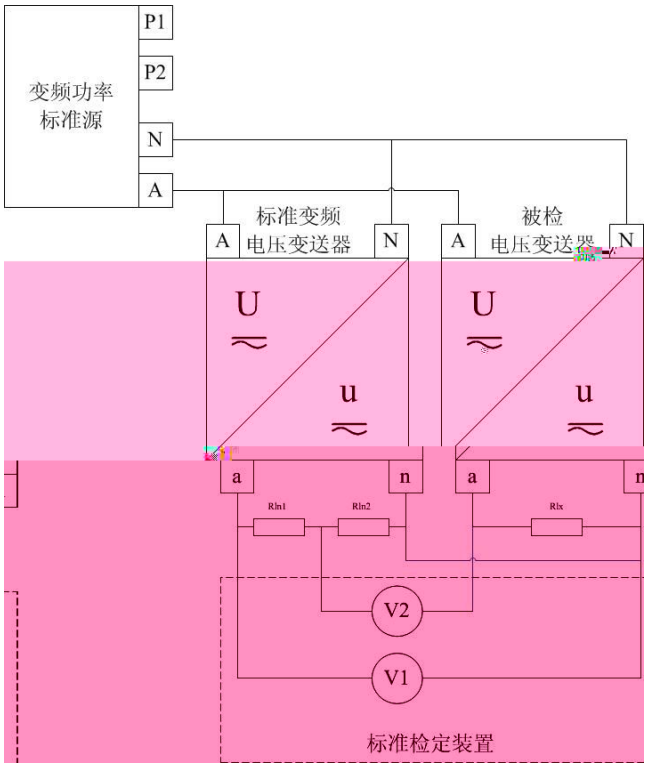
B.3

		0.02	0.05	0.1	0.2	0.5
%		0.01	0.02	0.05	0.05	0.1
		0.05	0.1	0.1	0.2	0.5

2

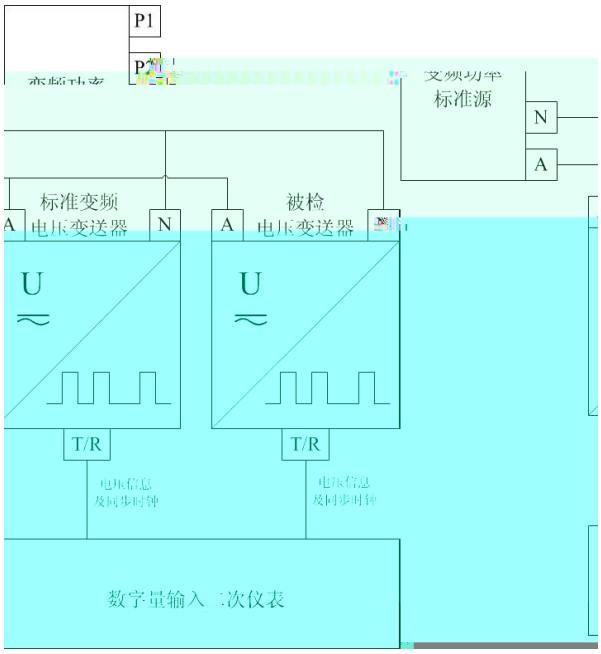
B.2

B.2.1



B.1

B.1

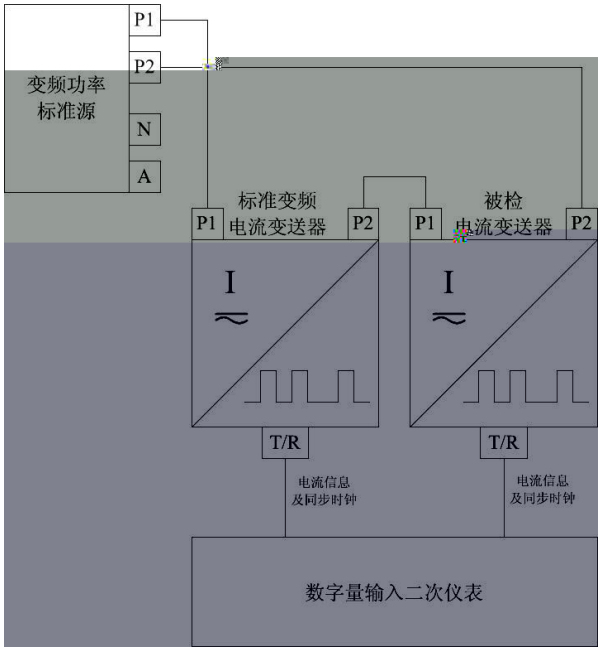


B.4

Ux

Un 10Hz 10

B.3.2

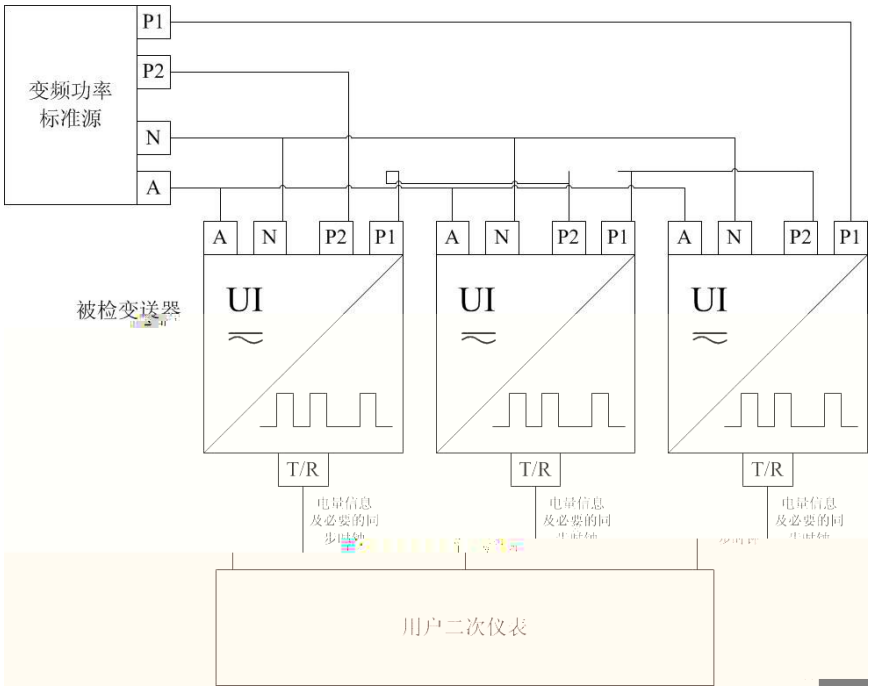


B.5

Ix

In 10Hz 10

B.3.3



B.6

C

PWM

P=UIcosφ

P —— PWM

U —— PWM

I —— PWM

φ —— PWM

U I φ U I φ

P P

$$P=\frac{\partial P}{\partial U}\ U+\frac{\partial P}{\partial I}\ I+\frac{\partial P}{\partial \varphi}\ \varphi=I\quad \varphi\ U+U\quad \varphi\ I+UI\quad \varphi\ \varphi$$

P P/P

—— = —— + —— + φ φ

φ φ

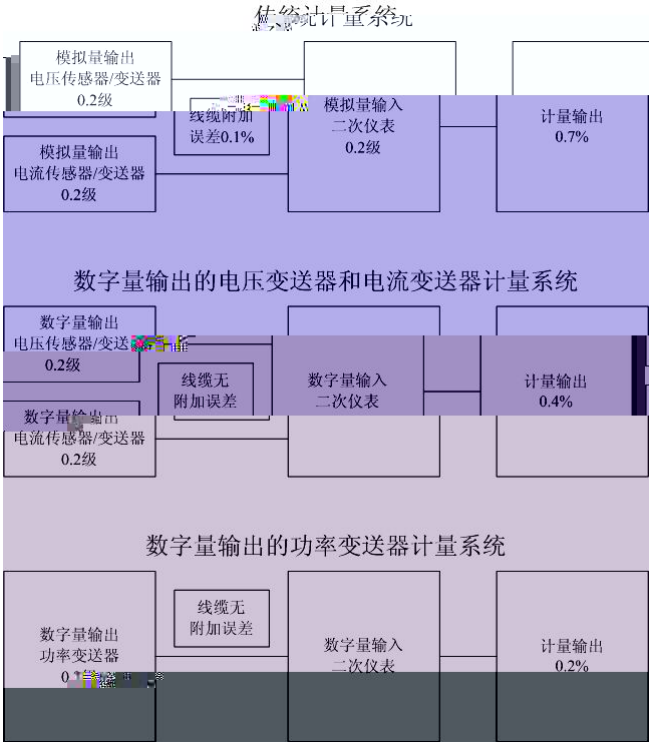
φ=0 ° 180 ° tanφ=0

φ=90 ° 270 ° tanφ=±∞

0 °~90 ° 10′ 0.0029 0.2

	φ °	cosφ	tanφ	%
1	36.9	0.7997	0.7508	0.2
2	60.0	0.5000	1.7321	0.5
3	78.5	0.1994	4.9152	1.4
4	87.1	0.0506	19.740	5.7
5	88.9	0.0192	52.081	15

D


传统计量系统
模拟量输出
电压传感器/变送器
0.2级
模拟量输出
电流传感器/变送器
0.2级
线缆附加
误差0.1%
模拟量输入
二次仪表
0.2级
计量输出
0.7%
数字量输出的电压变送器和电流变送器计量系统
数字量输出
电压传感器/变送
0.2级
数字量输出
电流传感器/变送器
0.2级
线缆无
附加误差
数字量输入
二次仪表
计量输出
0.4%
数字量输出的功率变送器计量系统
数字量输出
功率变送器
线缆无
附加误差
数字量输入
二次仪表
计量输出
0.2%

D.1

D.1