

	" # \$
	u \$ = >? @ , A BC =D E & >? F GH I J : K L MN ; < F O \$
	u PQ RS (T: U V WX. Y Z/[\] ^ _ ` / \] abc def WX gh i j k (T l m n opq r P s+ e >?
	u tu U v wx U V W 2 wx yz IEC * { | } ~ O •
	% & \$
	u ! " # \$ % & F ' () * + , - k . / O 1 2 F GH
	u 3 4 5 6 7 8 j MOSFET 9 k : ! ; < = P 2 d ef V WX IGBT >? j k s + . / @ A
	' (\$
	u : OB OC DE F 2GH p l J K 7 OC
	u t L q - MoN e t | OuP:

) * + , - . / O 1 2 3 4 5) 6 7 8 9 : ; < = > ? @ A B C D C E F G
H I J K L D M N O , P Q R F S T U V 5 W 8 X Y Z

 Q R

.....	1
S8T U VRS	6
1.1 WXRS	6
1.2 &Y* +	6
1.3 Z[.....	6
S\T Q	7
2.1]: ^ F _	7
2.1.1]	7
2.1.2 ` a	7
2.1.3 <b=P	8
2.2 cFde	8
2.3 fgWwx &	9
2.3.1 f ^ hki	9
2.3.2 fgWwx j /5i	10
2.3.3 fgWwxkl Q	12
2.3.4 fgWwxQ Zm.....	13
2.4 gWwx &	14
2.4.1 gWwx	14
2.4.2 gWwxQ	17
2.5 n Q &	19
2.6 Q 45; <	20
SoT	21
3.1 ^_	21
3.1.1 ^_ l p.....	21
3.1.2 q^ rs	22
3.1.3 LED t Z/[rs	22
3.1.4 ^_ (.....	23
3.2 > u.....	24
3.3	24
3.3.1	24
3.3.2 vw.	24

QR

8.1.3	\$H k	.....	98
8.2		.....	98
S T		.....	99
- R 1		.....	101
- R 2	* b	.....	104
- R 3	MODBUS	.....	106
- R 4	^ _ _ } W ~	.....	114
- R 5		.....	115

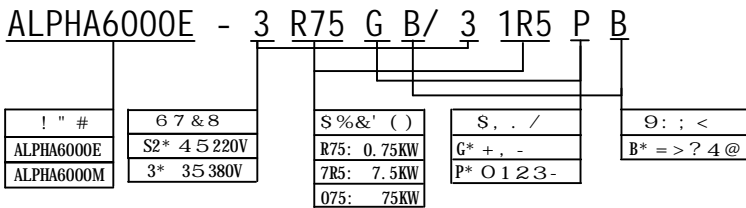
[\] ^ _ ` a

1.1 ! " #

*) s U 5 J A UV WX RS O1 s 7G

1.2 \$ % & ' ^

&Y* +



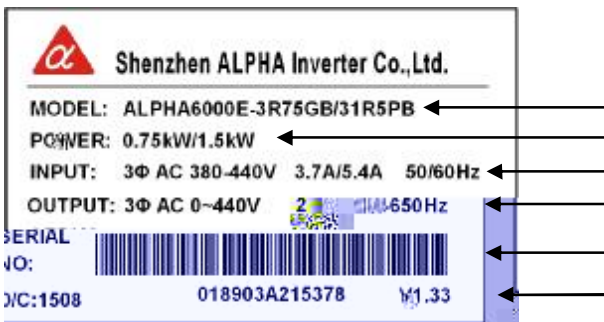
(1-1) * +,

ALPHA6000E b ALPHA6000M R c d e f 8 g h i j k l m n 8 o p q r i j F s t u V / F b v w x y z f { | } ~ q r • SVC F V / F q r Z

ALPHA6000M-S2R4GB ALPHA6000M-S2R75GB ? v w x y z f { | } ~ q r • SVC Z

1.3 - . / O 1

X 3 X - O / Z [ALPHA6000E 8 } ALPHA6000M } ~ - :



Q V @ @ t E k

(1-2 O 1 +,

2.1.3 @ABC

a < @ \ 2 t . < @ \] E ^ 9d V j 2_ \ ` a 40({ | b mT j a pf . 8 . . . L2 . 45 < 89 / 3 V ^ . . ^ .

2.2 23DE8FG

. e J f YZ&[* &Y YZc ' (Tt d c { gX(h)(T # de i 2-1 2-2 (2-1 23DE67

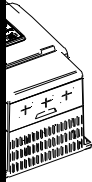
E#

M

(

风扇

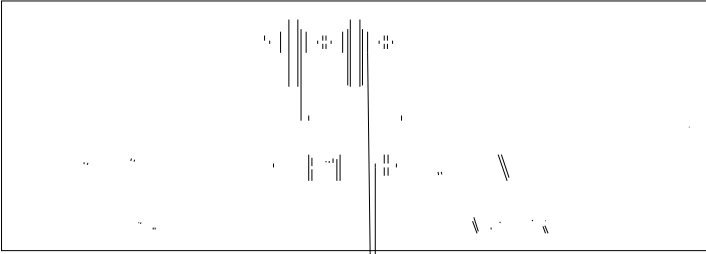
塑胶干化



S \ T Q

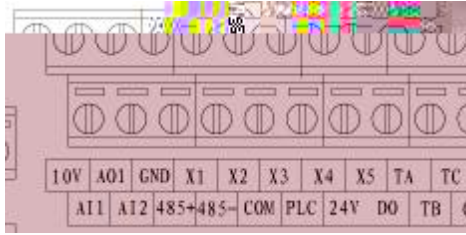
2.3.3 HI J KL [\ T] W





2.4 r s l J K L M N O

2.4.1 r s l J K L ` a



(2-15 S2R4GBt S2R75GB r s l J K L [\

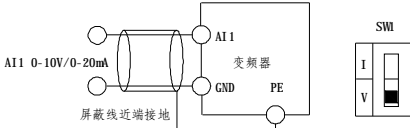
X2	X3	X4			TB
	COM		DO	TA	TC

yz	KL { *	%c	KL` a +,	& |
Vwx	X1	Vwx 1	3 4 W:	5' N V V R=3.9kt
	X2	Vwx 2	Vwx 1 Sz T 5.4 I/Owx	V 400Hz V @b
	X3	Vwx 3	} P3h~ Vwx { |	0) 30V 2 COM
	X4	Vwx 4	3 4 W: Vwx 3 Vw S2R4GB S2R75GB I 3 4 W: Vwx 1 Sz T 5.4 I/Owx } P3h~ Vwx { |	5' N V V R=3.9kt V 400Hz/50KHz(S21R5GB S22R2GB 3R75GB/31R5PB .) V @ b 0) 30V 2 COM
Vwx	X5	Vwx 5	\$ 3 4 W: Vwx 3 4 Vw 1 Sz T 5.4 I/Owx } P3h~ Vwx { |	5' N V V R=3.9kt V 50KHz V @b 0) 30V 2 COM
	X6 } S2R4 GB S2R75G B j ~	Vwx 6	\$ 3 4 W: Vwx 3 4 Vw 1 Sz T 5.4 I/Owx } P3h~ Vwx { |	5' N V V R=3.9kt V 50KHz V @b 0) 30V 2 COM
	DO	WW6 7 wx	3 4 W: wx 3 w x Sz T 5.4 I/Owx } P3h~ wx { |	5' N6 7 WW 8 @ b 0V) 26V 50mA b 0) 50KHz 2 COM
9	TA	9	3 4 9 wx Sz T 5.4 I/Owx (P3 h) wx { |	TA-TB TA-TC W e x o 250VAC/2A } COS: =1~ 250VAC/1A } COS: =0.4~ 30VDC/1A
	TB			
	TC			
	RA	9		RA-RC W e x o 250VAC/2A } COS: =1~ 250VAC/1A } COS: =0.4~ 30VDC/1A % 639 r s x &!
	RC			
PLC	V vw	Vwx v	) 24V PLC 24V j' N 4 PLC 2T; wx SW4 " W	X wx <# NPN F PNP & % 639 r s x &!
U	10V	+10V U	= >10V U } 2 GND~	20 mA WW @ 12V
	24V	+24V U	= >24V U } 2 COM~	100mA
	GND	+10V U 2	> F >10V U 2	j COM' N +10V A11 A12 AO1 vw
	COM	+24V U vw	{ | wx Q	GND' N
	PE	mn	wx mn? > 485 l mn ? Lwx	j f g W wx PE J &

2.4.2 r s l J K L] W

- > VwxQ

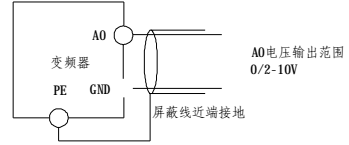
AI1 AI2wx > V(S2R4GB
 S2R75GB@AI1) AI1Q/ t W: SW3 u V
 @} 0) 10V~ V } 0) 20mA~ wx
 Q i



(2-18 ' (* - K L] W(

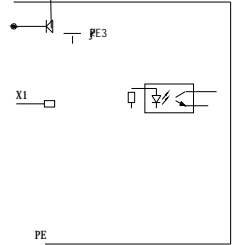
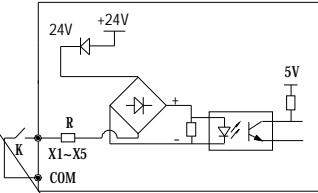
- > wxQ

> wx AO S2R4GB S2R75GB@
 <# @ { / t W: SW2
 u @/ > m Z/ _
 wxQ i



(2-21 PLC / - . / 1 k 23456MOW (" - . / ^ j k 789 : Of \$
f S T U P C 3 P L C B P C V f 2 f F Q
e O P 8 S R S 232 / R S 485 P L C V f 2 t B R S 485 w x F f R S 485 w x z Y w J W

； 输入多功能端子配线



& BC*

1pqr s 24Vt uv COMt u o g Mwxmnyz { | > } ~ • N

2p! ` , " # a b & c \$ % & \ ' 1mm () D * g | > t u N

3p ` , a b & c] M & c a b + ~ , t ' - . / O ~ 1 t D k 2 3 . / O 4 % ~ g h 5 6 * g F . / O ~ g h } PEN

4p 7 \] | > & c k 8 9 : ; < & = v > & \ = ' ? @ & A \ A & ' \ AB & O \ Ag CO * g \ DD
30cm () ME F d GHI MI J | > & c v > & & c KLMNM (OPQRZ [z { . / OS ? TN


X. ^ _ & CN2 = < ^ RJ-45F On k X=X _ ` D& XF
^ _ X 3 aL ^ P# ^ _ k . 5 F. 5 l . n ,
Z < = 5 l 6000ERcLED • CPU 8 Z
^ _ F X & O • z } F RJ-45 & W { w ! qEIA/TIA568B
bO • & aL ^ G ^ _ &

2.6] WhZBC

I jH 2 9 V U
I p 2 9H 8 U 9H ; <
I P \$ } e• -2 1000V sfgm \$ =
I h { .4Mt
I VZc m & \$mn i * ^ fgW) * MNfgW

I 89KL. / ~ gW& , mn (N / 50j
I 9dtmn mn? ek{| \$ q h =tlm mn?Xn
I : & o@(T @ sJA
I <p5 ;@ E wxpPEp fgW wxpPEp(T { | \$
v fgW l * fgW l * 8q ' (RS
` srj \$ s s wxj b l m s { | wx






[]

 危險	1	nwx \	V U
	2	dj t \ e >?	
	1	d M \$ D 2	4uv• G >
		?	



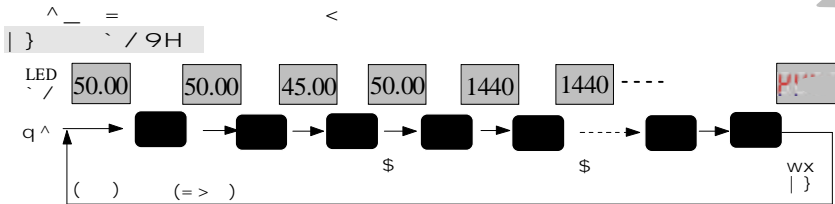
3.1.2 KD` a +,

^_.\$ 8Sq^ VSq^ 4 m3-1: /
 _ 3-1 DEKD` a_

KD	KD%c	KD` a
	3 / * ^	V * 3 | } | } 2 q PRG/ESC ^ 9 H k 3 | } V h x q ENTER ^ + s V q PRG/ESC B k x k h x k | } + s * @ A 2 9 H @ A ` / h , 2 9 H , | } F h
	^	V s) \$ 2 o .
{ 3t 	. W ^ (, 2 -)  - ^ (3 2 -) 	OP t h t t \$ | } LED t . / ^ / % E O q L ^ + OP \$ t ` / | } O \$ ^ _ 1 2 OP { \$ PID P > PID { P

dYM	TYOP	dY- . / MUVOP
	; .	c
REVC cZ /	] 9#	8 C
REVC cZ /	; .	C P%
	; .	c C
TRIP @AZ / [	] . /	@A
REMOTE Z / [	] #	^_ | } wx | }
	. /	A | }

3.1.4 DEMFGDg



SoT

[] n

45: STp \$% pUp \$% S*p R \$% p-p) V\$ \$%

P0 n

^ a O k ~	8. 64 () WL% C	Tj - 0. 12 . () A#	+ l] ^	m n	MODBUS fo
P0.00	) ` / >	0 O .) 1 WX >)	0	T	0100
P0.01		0 V/F 1 j 2 W 3 V/F b N } S2R4GB F S2R75GB \$ 2-	0	U	0101
P0.02	{ \$	0.00Hz	0.00Hz	T	0102
P0.03	\$ U 1	0 NULL 1 { \$ { 1 2 2 wx AI1 3 wx AI2 } S2R4GB F S2R75GB j ~ 5 V 6 P 8 z 9 wx UP/DOWN 10 b 2 (PLC) 11 PID 4 7 j U 0) 7 2 z wx qS z pl _	1	U	0103

~ a k ~	WL %c	] ^A#	+l] ^	m n	MODBUS f o
Pl.19	n	30.0%) 100.0% 4 @= G PV n 3015GB %	100.0%	U	0213
Pl.20	j l _	0 8oj @A Uu1 1 j 2e , Uu @A Uu1 2 8oj , Uu	0	U	0214

~ a k ~	WL %c	] ^ A#	+ l] ^	m n	MODBUS f o
P2.34	% 2e	d 132kW 0.1) 3600s e 160kW 1.0) 3600s	22kW 3.0s { | 10.0s	T	0322
P2.35	P% 2e q	0 1 q 1 10 q 2 0.1 q	0	U	0323
P2.36	YZ &[	0 G p 1 &[8	0	U	0324

~ a k ~	WL %c	] ^ A#	+ l] ^	m n	MODBUS f o
P3.03	X3 wx 4	0) 49 z . 50 T e V 51 T Di HE 53 2 E u 74 wx 77 PID 0 78 PIDcb2eHE 79 &c 9Hv ^_ 45 46 52 54) 73 75 76 j	37	U	0403
S21R5GB S22R2GB 3R75GB/31R5PB					
P3.04	X4 wx 4	0) 79 z . 82 +J BJ V	0	U	0404
P3.05	X5 wx 4	0) 79 z . 80 PULSE V 81 J +J AJ V	0	U	0405
P3.06	X6 wx 4	0) 79 z .	0	U	0406
S2R4GB S2R75GB					
P3.04	X4 wx 4	0) 79 z .	0	U	0404
P3.05	X5 wx 4	0) 79 z . 80 PULSE V 81 J	0	U	0405
P3.06	j	-	-	*	0406
P3.07	j	-	-	*	0407
P3.08	j	-	-	*	0408
P3.09	j	-	-	*	0409
P3.10	j	-	-	*	040A
P3.11	j	-	-	*	040B
P3.12	j	-	-	*	040C
P3.13	X wx e • 2e	0.002s) 1.000s	0.010s	T	040D

P5 PLC

a k~	WL%c	] ^A#	+l] ^	m n	MODBUS f o
P5.00	b >	0 c 1 1 c 2} # z ~ 2 &[c	2	U	0600
P5.01	PLC x/ u	0 BS8zWB 1 B 2{ tz 9[2 B 2{ 9[	0	U	0601
P5.02	2 PLC | } u	0 1 \$ 0 2G D b R	0	U	0602
P5.03	tz 2e E u	0 | 1 b	0	U	0603
P5.04	b 2 T1	0.1) 3600	10.0	T	0604
P5.05	b 2 T2	0.0) 3600	10.0	T	0605
P5.06	b 2 T3		10.0	T	0606
P5.07	b 2 T4		10.0	T	0607
P5.08	b 2 T5		10.0	T	0608
P5.09	b 2 T6		10.0	T	0609
P5.10	b 2 T7	0.0) 3600	10.0	T	060A
P5.11	b 2 T8		10.0	T	060B
P5.12	b 2 T9		10.0	T	060C
P5.13	b 2 T10		10.0	T	060D
P5.14	b 2 T11		10.0	T	060E
P5.15	b 2 T12		10.0	T	060F
P5.16	b 2 T13		10.0	T	0610
P5.17	Rb 2 T14		10.0	T	0611

p611

R2

P7 PID

Y <=	WL%	J ^A#	+l J ^	m n	MODBUS fo
P7.00	00				

00

P9 V/F

~ a k ~	WL %c	] ^ A#	+ l] ^	m n	MODBUS f o
P9.00	V/F I \$	0 9 } l 0 1 - } l 1) 2.0~ 2 - } l 2) 1.5~ 3 - } l 3) 1.2~ 4 \$ V/F I } Q P9.01) P9.06 t ~	0	U	0A00
P9.01	V/F F1	0.0) P9.03	10.00Hz	U	0A01
P9.02	V/F @ V1	0.0) 100.0%	20.0%	U	0A02
P9.03	V/F F2	P9.01) P9.05	25.00Hz	U	0A03
P9.04	V/F @ V2	0.0) 100.0%	50.0%	U	0A04
P9.05	V/F F3	P9.03) P0.09	40.00Hz	U	0A05
P9.06	V/F @ V3	0) 100.0%	80.0%	U	0A06
P9.07	W	0.0 G W 0.1) 30.0% W	75kw 0.0% 93kw . 0.1%	T	0A07
P9.08	W p x	0.00) 50.00Hz	16.67Hz	T	0A08
P9.09	U =>	0.0) 250.0%} 100%--	75kw 80.0% 93kw . 0.0%	T	0A09
P9.10	U=> 2e	0.10) 25.00s	2.00s	T	0A0A
P9.11	u	0 1			

PA:

` a
k ~

SxT ym

PC ` /

 ` a

~ a k ~	WL%c	] ^A#	+l] ^	m n	MODBUS f o
		3 V 4 \$			
Pd.05	x, 9	20) 110%	100%	T	0E05
Pd.06	i R)	20.0) 200.0%	160.0%	U	0E06
0007					

PE R

~ a k ~	WL %c	J ^ A #	+l] ^	m n	MODBUS f o
PE:00	~/@A u	0) 30	1	T	0F00
PE.01	@A}	0 NULL 1 Uu1 k u@ 2 Uu2 Wu @ 3 Uu3 Y gW ' 4 OC1 P 5 OC2 % 6 OC3 9 7 Ou1 P @ 8 Ou2 % @ 9 Ou3 9 @ 10 GF 11 OH1 +, , 12 QL1 13 OL2 14 SC W 15 EF0 DGA j @A 16 EF1 wx . j @A 17 SP1 V J) 18 SP0 J) 19 CCF1 gW@A 1 5 | ^_ e 20 CCF2 gW@A 2 ^_ e & @A&[2 | . 21 CCF3 EEPROM @A 22 CCF4 AD H@A 23 CCF5 RAM @A 24 CCF6 CPU KL 25 PCE H o ~ 26 j 27 HE R @A 28 DE R @A 29 CUE @A	NULL	*	0F01
PE.02	@A 2	0.00Hz) .	0.00Hz	*	0F02
PE.03	@A 2 \$	0.00Hz) .	0.00Hz	*	0F03
PE.04	@A 2	0) 2 q	0.0A	*	0F04
PE.05	@A 2 k @	0) 1000V	0V	*	0F05
PE.06	@A 2 8 7	0: StP 2: dEc %	1: Acc P 3: con	S	

PF

B7

~ a k ~	WL %c	] ^A#	+l] ^	m n	MODBUS f o
PF.00	t	0 t { | t	0	T	1000
PF.01	v	0 j ! " E % 1 \$ \$ } P0.02-F t { | t p % 2 \$ t j p %	0	T	1001
PF.02	vBL	0 1 D\$@A R 2 RH) \$ (R \ t \ \$) 3 RH) \$ (R \ t \$)	0	U	1002
PF.03		0 1 2 . 3 4 @ = ^ _	0	U	1003
PF.04	G/P u	0 G (9) 1 P (& })	0	U	1004
PF.05	j	j	-	*	1005
PF.06	j	-	-	*	1006
PF.07	j	-	-	*	1007
PF.08	j	-	-	*	1008
PF.09		0) 9999		*	1009
PF.10	k	0.00) 99.99		*	100A
PF.11	' O F b	0.000) 9.999		*	100B

[] n

5.1 >?` a" P0R\$

P0.00) ` />	\$ b 0 1 0
-------------	------------

0 O•) 1 WX>)
 +, i P0.00 \$ 12 V) WX> > 12 S F %VhE %
 t { !E % tt ` / 6M % 0 j ` /

P0.01	\$ b 0)3 0
-------	------------

0 V/F 1 j
 2 W 3 V/FbN
 +, : V/F ^ | 8| . (G ({
 Hw R 67 uL
 W W ?]: } S2R4GB F S2R75GB
 ~
 V/FbN ^ = F @ i] uL

& BC*

UVWXYL |>1Z] M[` , ~q\] ^ ~ _ ` a2bc&' Mx^_ def gI &' hi j kM
 dl G&' j kmn7(opqf ~ &' j kMrsopt f ~ |>unMI Jvw1xyGz{ | Ghi
 j kgI v&' j kmn7} ~xref gI YL |>5•j kM P8 YL |>j k; <N
 v |>1Z M2 1 . /O&' n |>1 &' M . /O() D &' () D q
 5 3 M&' ~() D m(. /O() D 1 \$ 1 Mwxs |>un. \$ e y
 GN

P0.02 { \$	\$ b 0.00Hz) 0.00Hz
------------	---------------------

+, : t P0.03 P0.04=1 2 W ^ _ { \$ 2 | 4 \$

& BC*

P0.02~ , k ? M1 ENTERGf ^ M v. /O YM ` &
 qy N
 [P0.03g 7r 1M , (nj k P3.18M P3.18g 7r 2) Mk g 7 /) ' P0.02Dv \ n ~
 & } q \ 2) M &q N
 D1

P0.03 \$ U 1	\$ b 0) 11 1 1
--------------	----------------

c wx cY s w ^_ c Y s 2
 +Q Y s

P0.09 n	\$ b > 0.10) 650.0Hz > } j ~ 0.1) 1000Hz
P0.10	\$ b > MAX[50.00Hz . \$ z " \) 650.0Hz 50.00Hz > } j ~ MAX[50.0Hz . \$ z " \) 1000Hz 50.0Hz

+ , : n F_{BASE} \$ @ @U_N2 / D n•
] q ^ \$ yL 2(T } 7 4 5 6 7 q V/F} Q uF_{BASE} }
 i 5-0-1 @: i : / \$ +
 F_{MAX} ! "

\$ ' 03
= \$
\$ =
S))rp
YXi ?
/ 30.00F ?
P0.17=10 ?

P0.18 P	24
P0.19 %	24

+ , : F 2

P% : e
P 2

5.2 pY

P1.00	
-------	--

0

2 gh

- ,

> 2e

(

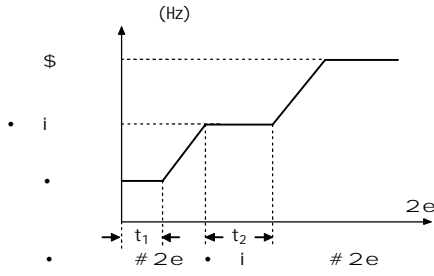
c



Sz T { |

P1.01 •	\$ b 0.10) 60.00Hz 0.50Hz
P1.02 • # 2e	\$ b 0.0) 10.0s 0.0s

+, •



(5-1-4 pq. w/pqwx. wYZ (

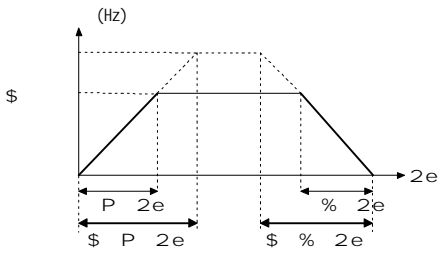
& BC*

? I /) R ? /) A Rg 7 /) \$? I /)] r 0] M ? I /) N

P1.07 P% >	\$ b 0) 3 0
------------	-------------

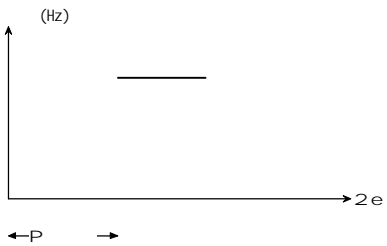
0 1 SI
2 j 3 j

说明 P% 8 : qz 9 O % i 5-1-5: /



(5-1-5 vWyzs

SI P WBF2_2 ; % Q %4 C P %// 2
2 ^ % 2 ^ 2P K =



SzT { |

SI 2_z 2e i 5-1-6 : / F L +A %k 0

& BC:

(n\v. /OgW ' , M2 , RB ' j DMq n, Re yG] ~ >?N
 v ' r ~ &Mk: >?4@SU, >?(n~' - N

P1.16	#	\$ b	0.00Hz)	0.00Hz
P1.17	#2e	\$ b	0) 3600.0s	0.0s

+, i # W q STOP ^ { k 4 - k #
 x- 0
 \$ #2e 02 # \$ \$ # 2 #

P1.18	u	\$ b	b 0) 3 3
-------	---	------	----------

0 1 n
 2 J 3 nFJ

& BC*

R. / uq\] r ~ &Mm(qg>?& ` , 2>?}
 R 2? LMd r ' ~ &M \I J s j kgI { 1\$3dUV %~ n >?
 4@ >?& N
 15kW (' - I n >?4@N

P1.19	n	\$ b	30.0) 100.0% 100.0%
-------	---	------	---------------------

+, i \$ y . aWt : \$ 2
 F u : F89 , e)
 n @xFJ @x} Pd.11~: 380V V n @! @J
 x 52V(WOn x 700V) 220V V 23V(WOn x 350V) \$ o 1 Pd.11
 r s

P1.20	j l _	\$ b	0) 2 0
-------	-------	------	--------

0 j @AUul 1 j 2e , Uu @AUul
 2 j , Uu

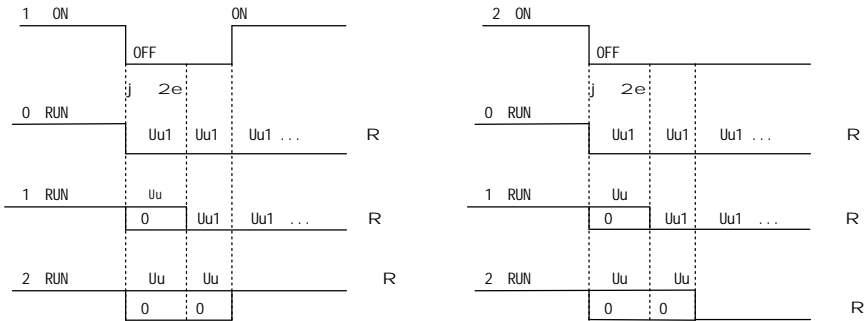
P1.21	j 2e	\$ b	0.5) 10.0s y
-------	------	------	--------------

P1.22	j , u	\$ b	0) 1 0
-------	-------	------	--------

0 1 %

P1.23	j % 2%	\$ b	0.10Hz/s) /s 10.00Hz/s
-------	--------	------	------------------------

+, : 2 u@ +l, Uu L2 / /D i 5-1-8: /
 2 u@ Uu Uul i 5-1-8: / E Uu 2 X V 0 RH
 + Uu J E Uul 2 + 9[- @v 300V + @A R 3 @A
 RH R Uul @A
 j , u 12 j , qz P1.23 j % % % 2 RH
 +q\$ 2 R\$



(5-1-8 | Y) :

5.3 ~ • @A" P2R\$

P2.00 x	\$ b 0.10Hz) . 5.00Hz
P2.01 x P 2e	\$ b 0.1) 3600s 6.0/20.0s
P2.02 x % 2e	\$ b 0.0) 3600s 6.0/20.0s

+, i

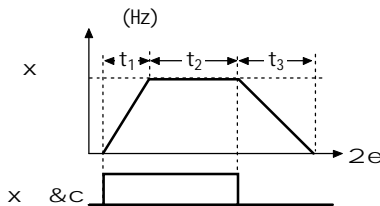
P2.00) P2.02 4x 2 J :

i 5-2-1: / t₁ t₃ x P F% 2e t₂ x 2e P2.00 x
 QP2.01 F P2.02 \$ x P% 2e 0k : 2e

x P 2e t₁qz z_ x % 2e t₃ L
 QP2.02 \$ \$ P2.02 \$ ' 0 2 q 0 % P2.02 \$ 02

+qGQ

$$t_1 = \frac{x \cdot Ux \cdot P \cdot 2e}{\dots}$$



(5-2-1 nq@AWL +,

& BC*

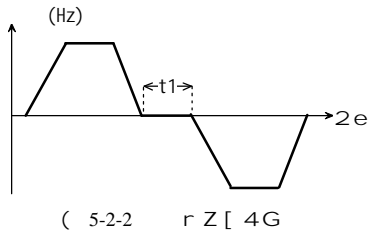
1p ?yG ? 1Z 0l G ?M ? :] 4H 7r N

2p[?] r 0mQ M ?yG3 M ' LK>?tu '] M] 4
 }

3p T } A | >tu ml G ? | >N

P2.03 C 9H2e	\$ b 0.0) 3600s 0.0s
--------------	----------------------

+, : Q c kCc QCc k c i l m
 2e i 5-2-2 : / t₁



P2.04	l _ >	\$ b 0) 3 0
-------	-------	-------------

0 1 0

2 3 j

+, : u0 2 \$ / + \$ @



P2.28 P 2e2	\$ b 0.1) 3600s 6.0/20.0s
P2.29 % 2e2	\$ b 0.1) 3600s 6.0/20.0s
P2.30 P 2e3	\$ b 0.1) 3600s 6.0/20.0s
P2.31 % 2e3	\$ b 0.1) 3600s 6.0/20.0s
P2.32 P 2e4	\$ b 0.1) 3600s 6.0/20.0s
P2.33 % 2e4	\$ b 0.1) 3600s 6.0/20.0s
P2.34 % 2e	\$ b 0.1) 3600s 3.0/10.0s

+, i b7=P% 2e2 3 4 4} P% 2e1QP0.18 P0.19 4- P % 2e
 Q j wx P3.01) P3.05 u O + P% 2e1 \$wx u * {
 672 q % 2ek = b 2 Fx P% 2e j wx
 Q G\$ u
 \$ wx * 2 +qP2.34 % 2e } P1.10~
 P% 2e On E | %P2.35 P% 2eq t \$ 2e / q 10q

P2.35 P% 2eq	\$ b 0) 2 0
--------------	-------------

0 1q 1 10q
 2 0.1q
 +, i P% 2e = P% 2e " P% 2eq

P2.36 YZ&[\$ b 0 1 0
------------	------------

0 G p 1 &[8
 +, i G p &[8 3 bc O>?a \$50(&[s+
 30j /F1+3 7. 44 Tf15. 12 O TD (8) Tj /F1+2 7. 4 O TD j /F1

Sz T { |

P2.49 PG% r 1	\$ b 1) 1000 1
	\$ b 1) 1000 1

+, i \$3t (PG) % El(t) . 2 ^ \$ h PG % r 1 = .
r w PG % r 2 .

P3.03 X3wx	\$ b 0) 79 37
P3.04 X4wx	\$ b 0) 79,82 0
P3.05 X5wx	\$ b 0) 81 0
P3.06 X6wx	\$ b 0) 79 0

+, i wx X1) X6 wx \$ P3.01) P3.06 4{ &3 ! " 6H 4 6H
 4 wx { 8S 2 \$ 1 m5-3-1

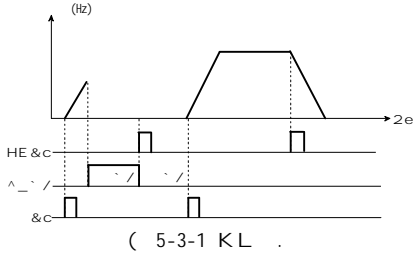
_ 5-3-1

=m5-3-1 : < { |

0- 4 : 4wx wx R wx | } 3 gh W wxl mn|
 } = wx L 4 <pKL ~

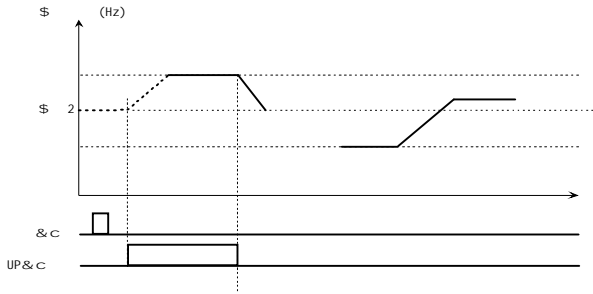
1) 5 > 1 P3.15 > \$

6-RST HE @A| } ^_STOP/RESET^* @A| } 3 4 RST wx* @A|
 } | } • wx q RSTZc { . W k HE : (
 Tq - - - i 5-3-1: /



7-FC \$ u OSFC \$ u wx + \$ QP0.06 \$ h 2 O
 L wx + \$ QP0.05 \$ h 1 FCwx 9
 H \$ B \$

8) 9 C x Zc FJOG/RJOG
 8 Zc • } ~2 4 FJOG wx k



SzT { |

16-P% pZc # gh D

} &c\$ ~ # \$

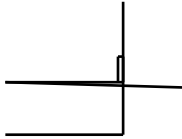
17- p wx 2

+GQ - m | } + p / f ^ ^

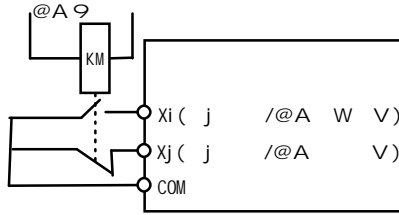
] 18) 24 26) 29 z

z 2 • / p u ^ _ wxZc A N8 F=1 3 7. 44166 D

)pf 786

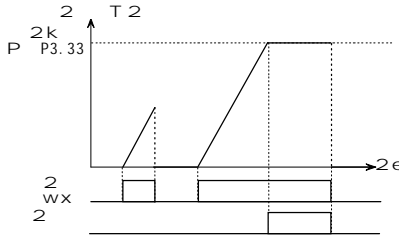


EIO j W EII j k j W0 8o
 j \$ RH 2EH0 j @A W EHI j @A J: r s i 5-3-6
 : /



(5-3-6 /

41- | } P wx = | } C P
 42) 44 wx PLC
 PLCsV b 2 t \$ 1GH PLC PIDsV } z \$ U22 PLCsV
 PLCK b 2 K wx 2K b 2 V0 K Zc` B x 9
 [wx eOq STOP ^ b T Di w• 2 q/ / O !
 b 8 + 54
 PLC | } HE PLC > | } wx 2tD\$PLC 2 t
 z 2e
 47-PIDsV PID t \$ 1GH PID \$ U22 PIDsV
 48- / > 9H
 > QP8.10 > \$ F wx | } > \$P8.10
 \$ 0} q > ~2 \$wx\$ 48 2 + > G 9H >
 49 53 2
 49 wx 2 22eWBT 2 2D0
 \$ 2k P } P3.33~2 pT2 i 5-3-7: /
 53 wx 2 P3.33 2k P E9H bc + |



(5-3-7 ^ 4 q* -

50-T e V T T V 200Hz 2 \$
 T
 51-T Di HE = T Di T e VQ
 74- wx wx V 2 36 wx
 77-PID 0 PID 2 \$wx\$ C 2 \$ > PID 2 \$
 wx\$ C 2 i
 78-PIDcb2eHE PID > 8 PI \$wx\$ C L22tI ! cb
 0
 80-PULSE V wx P V \$:
 1P4h P } l r s

SzT { |

81 J V PG J Vwx Z wx E 3t }
 PG~ AJ J CJ
 82 +J BJ V PG +J BJ V Z wx 3t } PG~B
 J F81 wxQ +J CJ

& BC*

I PG5 L- &` QS - ~ & OM&8 12) 30VDC ~g\ 1Zmj 2.4.2
|> =tu~*gGN

+, i e • 2e = V { e • l _ <pKL = C
e • 2e y U / 2 : y \$
aL " x67 \$ \$

0 { > 1 1 { > 2
 2 o > 1-G # } - P X1) X6 g58wx~
 3 o > 2-G # } - P X1) X6 g58wx~
 +, i @\$ &c } P0.07~ wx 2 { 1 2 o 1 2 O 54
 { > 1 FWD REV qZ/ c FWD REV C 9Hwx
 FWD REV C \$FWD 2 \$REV 2 O<C uP2.38 1 pC
 + p 0 ! " C +C z2 2 p wx i 1: /
 { > 2 RUN &c F/R: c { 2 \$RUN 2 •
 F/R\$ 2 F/R= 2 F/R 2C F/R\$ 2 cQ t \$RUN 2 p
 wx i 2
 o > 1 FWD REV qZ/ c FWD REV C HLD 2
 9Hwx FWD REV C \$FWD 2 \$REV 2C z2 2
 HLD ONH L 7.44 TD (#) Tj/F13Tf 15.12 0 TD 0.24 T44 0 TD (z) Tj/F1+3 7.44 Tf 7.(rk) Tj 0.24 Tc (SZ) Vc (
 4 O TD (=) Tj /F1+6 7. 44 Tf 16. 8 O TD (@ Tf 15. 12 OTD O Tc (

R

+, i wx UP/DOWN 4 UP/DOWNwx %\$ L UP/DOWNP ^ 4
 UP/DOWNwx %\$ L b

P3.18 {	UP/DOWN	u	.	\$ b	0) 2 2
---------	---------	---	---	------	--------

0 k STOP UP/DOWN P HE 0
 1 k STOP UP/DOWN P HE 0
 2 k STOP UP/DOWN P HE 0 k t P0.03 \$ 12 P0.02

+, i UP/DOWN 1 i 5-3-3 5-3-4: /
 P0.03\$ 1^_\$ 2 P3.18\$ 22 { \$ } P0.02~ 22
 &3 1 P0.02' (

P3.19 D0wx	4	\$ b	0) 37 0
------------	---	------	---------

P3.24 9	1(TA/TB/TC)	u	\$ b	0) 37 19
---------	-------------	---	------	----------

P3.25 9	2(RA/RC~	u	\$ b	0) 37 0
---------	----------	---	------	---------

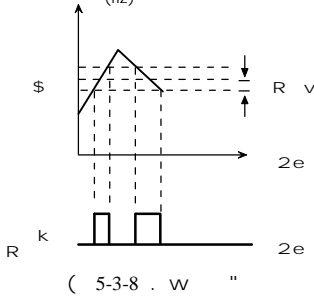
9 2(RA/RC~@639 X
 +, i v2WW: { wx D0 9 1 3 wx aL ^
 u 8j b F 1 m5-3-4
 - 5-3-4 1` aKL* +

	QR` a	` a
0	NULL	
1	RUN	l | } wx
2	FAR k	z r s P3.26 k R v
3	FDT R	1 P3.27 P3.28 R R w J: r s
4	FDTH . k	\$ % . C k . C" xk 2 wx
5	FDTL k	\$ \$ C k k<00/F1+8 6. 48 Tf 6. 48

29	QR` a	CI _` 2wx
30	i	0 2wx
31	j	j
32	j	j
33	1 c	\$ c 9H2) 34 E%
34	j	j
35	u R } ULP~	\$ u 2 u R
36	z	g 58S z Vwx } 18) 24 26) 29~ wx
37		74 V wx V 2 wx

P3.26	k R v	\$ b 0.00) 10.00Hz 2.50Hz
-------	-------	---------------------------

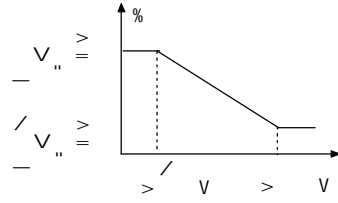
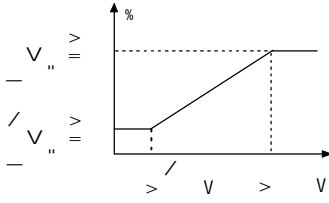
+, i k \$ 2 L { R v b \$ 0) &10.00Hz \$
 \$ R v 2 J wx i 5-3-8: /
 (Hz)



5.5 ' (T ` a" P4R\$

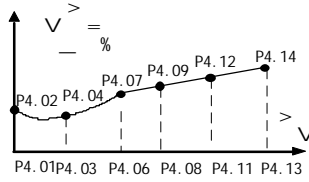
P4.00 > ' u	\$ b 0) 3 0
-------------	-------------

0 1 All
2 AI2} S2R4GB S2R75GB j ~ 3
+, i \$ P4.00 \$ 0 2 P4.01) P4.05 \$ 4 All V} P4.11) P4.15 \$ V\$
2W\$ i C KL
P4.00 \$ 0 W ' u 2 P4.01) P4.15 : \$ P4.00 : G ' (x e • 2
e G • 1W G _ 0
\$ P4.00 \$ 1 2(S2R4GB S2R75GB j)2 V 4 0 0 TD (p) Tj / F 1 + 8 7 6 5 /



(5-4-1' (* - Wm{ W

+, 2 \$ P4.00 \$ 1 2(S2R4GB S2R75GB j) 3 2 P4.01) P4.04 P4.06) P4.09 P4.11) P4.14
 (. (r s l z \$ F G 4' l \$ l Sx i
 5-4-2: / P4.01 P4.03 P4.06 P4.08 P4.11 P4.13 , bOP



(5-4-2' (* - Wm{ W

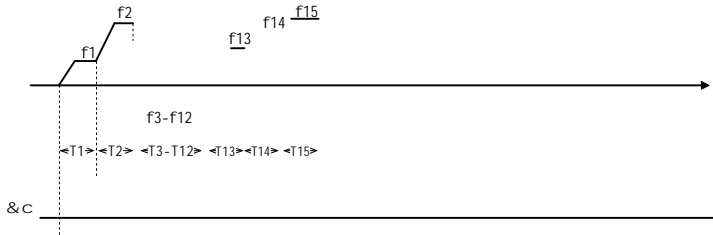
+, 3 e • 2e = V { e • l _ < pKL = C
 e • 2e y U / 2 : y \$
 a (2) Tj / F1+4 7. 44 Tf 7. 44 O TD (D) 9. 841+9 7EO4 I

P4.31	A01 b	\$ b	-100%)	100%	0.0%
P4.32	A02 b	\$ b	-100%)	100%	0.0%

+, i Ob Sbp m/ Oy Skpm/ Symp/ O• Sxpm/ +
 y=kx>10b A01b 100%= 10V O• Z 0) 10V= > 0) 8
 > i F ^ bU 3 G 4 gh ^ l O> o
 02 8V 2 3V +Oy \$ S-0.50p b \$ S80%p

P4.34 D0







P5.28 T10z	b	\$	\$ b	1 F) 4 r	1F
P5.29 T11z	b	\$	\$ b	1 F) 4 r	1F
P5.30 T12z	b	\$	\$ b	1 F) 4 r	1F
P5.31 T13z	b	\$	\$ b	1 F) 4 r	1F
P5.32 T14z	b	\$	\$ b	1 F) 4 r	1F
P5.33 T15z	b	\$	\$ b	1 F) 4 r	1F

+, i * t z P% 2eF c v 8 h { 4 1 m5-5-1

_ 5-5-1 PLC i @A] ^ +,

h o	P% 2e	P% 2e	c
1F	P% 2e1	P0.18 P0.19	F c
1r			r Cc
2F	P% 2e2	P2.28 P2.29	F c
2r			r Cc
3F	P% 2e3	P2.30 P2.31	F c
3r			r Cc
4F	P% 2e4	P2.32 P2.33	F c
4r			r Cc

P5.34	b	RDi	\$ b	0 1 0
P5.35	b	z R	\$ b	0) 15 0
P5.36	b	z 2e	\$ b	0.0) 3600 0.0

+, i b z RP5.35 R\$ PLC z

b z 2eP5.36 R\$ PLC z 2e

P5.34 12D b z RP5.35 b z 2eP5.36 D0 t RH 0

& . .

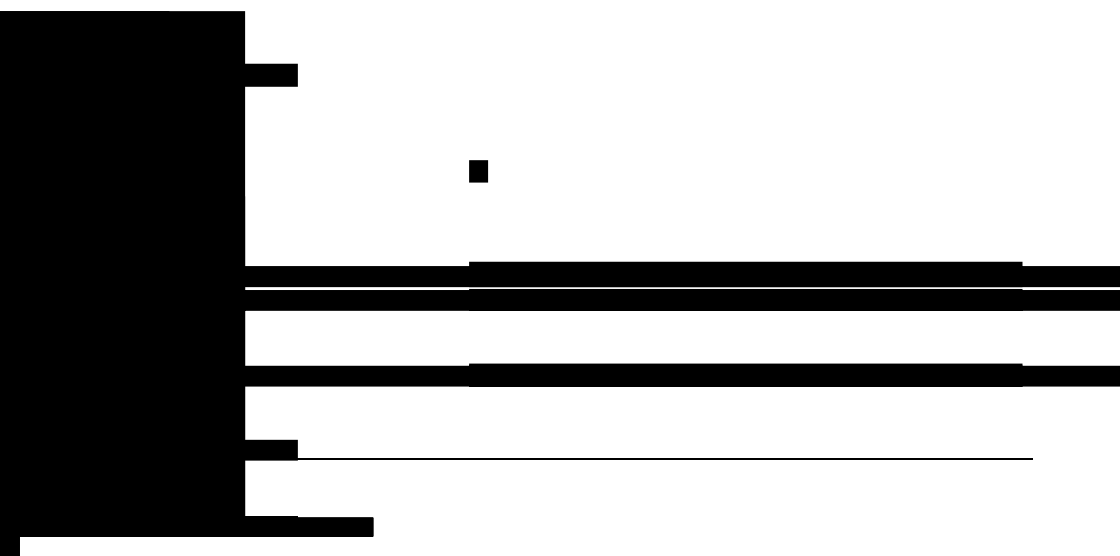
Sz T { |

P7.03 PIDCJ U1	\$ b 0) 5 0
P7.04 PIDCJ U2	\$ b 0) 5 0

0 PG J V} P7.03~/ j } P7.04~
1 AIIwx 2 AI2wx (S2R4GB S2R75GB j)
3 j 4 V
5 A

P7.05 CJ h	\$ b 0) 5 0
------------	-------------

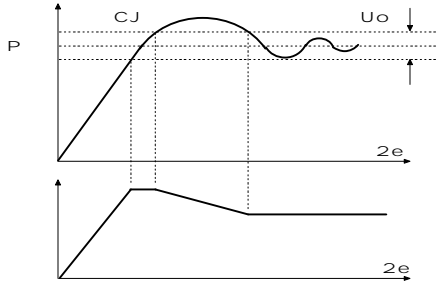
0 PIDCJ U1 1 PIDCJ U2
2 MIN} PIDCJ U1 PIDCJ U2~ 3 MAX} PIDCJ U1 PIDCJ U2~
4 PIDCJ U1>PIDCJ U2 5 PIDCJ U1-PIDCJ U2
+, i PIDCJ V F G CJ G 02 PID> { P > 2 q
= (=) U P { CJ G2! h



P7.22 ~Uo	\$ b 0.0) 999.9 0.0
-----------	---------------------

+, : \$CJ F\$ U PID ~Uo \$ 2 PID K # \$
 i 5-7-1: /

L \$\$! C F ~Uo - C y
 C 89 (^ .
 > PID2 ~Uo \$ P7.22 _ = ^ dQ PID2-Uo \$ P7.22
 i 5-7-1: /



(5-7-1 YZ(

P7.23 PID }	\$ b 0 1 0
-------------	------------

0 I C
 +, i \$ PID OP W OP : _ OP2 C
 C \$ PID OP W OP : _ %/2 Y C

P7.24 cb u	\$ b 0 1 0
------------	------------

0 k. 2 pcb 1 k. 2 9[cb

& BC*

R r k~ MIJU0M (/) F)] M P 9 N

P7.25 • _`	\$ b 0 1 0
------------	------------

0 • 1 •

& BC*

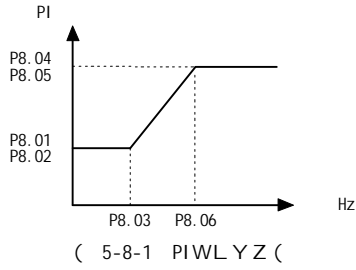
2 PID] (nN

P7.26 _`" 2	\$ b 0) 999s 120s
-------------	-------------------

P7.27 _`a	\$ b 0.00Hz) . 20.00Hz
-----------	------------------------

P7.28 ~•a	\$ b 0.0) 100% 80%
-----------	--------------------

+, i L i 2 p } : ! ~ F 67 S_
 `a p " 2E•
 L" 2 a + \$ I S_`p|}
 ^9Hv ~• |} @ CJ (T-vS~•pa L2 E/ } i : / 5-7-2~ ~•a \$
 b = > PIDCJ b!
 ^ ^_ . 12 @ \$ t PCh PC.01-PC.20 @ PC.16,PC.17 \$ 1 { \$ 0
 ` / |} 12 @ \$ 4 i 12 L qSEnTERp n W
 6M n @ v



\$ €E ! Fcb2e } } OP! Oy
 %/cb2e € P: } ! Oy cb2e / C E
 () ^ +) nG. E O ! Oy
 C v F1+1 7. 44 Tf 7. 44 O TD (Bz) Tj O. 24 Tc (Y7) Tj

P8.14 \$ =>	\$ b 0.0%) 200.0% 102.4%
-------------	--------------------------

+, i = Zc => % % %

P8.15 P 2e	\$ b 0.00) 120.0s 0.50s
P8.16 % 2e	\$ b 0.00) 120.0s 0.50s

+, i \$ > 2 P% 2e > L
B0k 2e P 2e B k 0 2e % 2e

P8.17 T U=>	\$ b 50.0%) 200.0% 117.0%
-------------	---------------------------

+, i = O 2= \$ O L

P8.18 T U=>	\$ b 50.0%) 200.0% 117.0%
-------------	---------------------------

+, i = D \$ = 2 b + P
C +%/

P8.23 i W	\$ b 0.0) 50.0% 0.0%
P8.24 i a	\$ b 0) 20% 5%

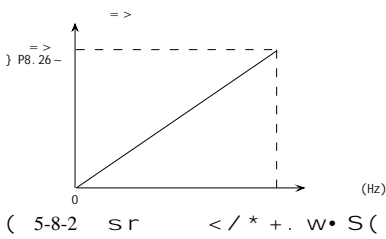
+, i P8.23i W => i 2 i 2 # 8
i a \$ b = 0) 20%

P8.25 \$ U	\$ b 0) 5 0
------------	-------------

0 P8.11 TURk z \$ 8T 1 AII
2 AI2 (S2R4GB S2R75GB j) 3 j
4 V 5 A

P8.26 => Oy	\$ b 40.0%) 160.0% 100.0%
P8.27 => yL	\$ b 0 1 2 0

0 q => l q => } j ~
2 j
+, i F C4 n D => => j bE C
n # Rk n
P8.26\$ => 100.0% = \$=>yL Sq =>p2 =
> \$: i 5-8-2



P8.28 i f J 2e	\$ b 0.05) 10.00s y
----------------	---------------------

+, i i f J D @ • J] \$ # [2e

5.10 V/Fr s " P9R \$

P9.00 V/FI \$	\$ b 0) 4 0
---------------	-------------

0

& BC*

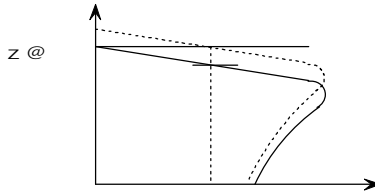
1p j kgI q m &' \$3K
 2p ? c &'] MI J, ` , ? 23B Md &' j kv` , & nV/F \ N

P9.08	W p x	\$ b	0.00)	50.00Hz	16.67 Hz
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+, 4 W p 1 i 5-9-3 p P9.00 ghV/Fl

P9.09	U =>	\$ b	0.0)	250.0%	75kw	80.0%	93kw	0.0%
P9.10	U=> 2e	\$ b	0.10)	25.00s	2.00s			

+, i Lt U mT L U=> aL G
 } i 5-9-4: /



PA.01	17	\$ b 2) 56 4
PA.02	1	\$ b 0.4) 999.9kW y
PA.03	1	\$ b 0) 24000r/m-280.855 0.851 0.86H
PA.04	1	\$ b 0.1) 999.9A y

+, i PA. 01) PA.04 \$ E 1 qz Z[\$
 J:

s dQQ 8 I ! " ! / 8s

4p j kn73 ' b D PA.29m? I r 0N

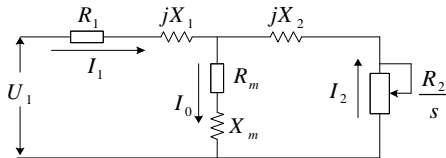
5p j kn73 M T } C -At- M j kn7q{ (M T } s C AtE N

4 p 2 d T U (F T U (: ({ L I₀ d

L_m h I U @ f n

$$I_0 = I \cdot \sqrt{1-h^2} \quad L_m = \frac{U}{2\sqrt{3}pf \cdot I_0} - L$$

&3 4 i 5-10-1: /



(5-10-1 j k P j J (

i 5-10-1 R₁ X₁ R₂ X₂ X_m I₀ b 7 \$ m x x x x

5.12 MODBUS 2 3 " PbR \$

8Sf PLC F 1-31 | MODBUS F 3 b } PLC~ A MODBUS Q
h f FE e KBz f • K E =L

f 8wF 8 | E K E . kf D Zc k { 6g
Pf

* RS-485 z @ q+8 @
• } B 1200 2400 4800

Pb.03	2R 2e	\$ b 0) 100.0s 0.0s
-------	-------	---------------------

+, i 0 8 2R
 0 2R Ve' Pb.03 \$ CWR | } O L. W j @
 A} EF0~ D\$

& BC*

[] F b k MqTr 2 M }

Pb.04	" x2e	\$ b 0) 500ms 5ms
-------	-------	-------------------

+, i 4 . L m\$ " x2e O

Pb.06	L Eeprom u	\$ b 0 1 0
-------	------------	------------

0 Eeprom 1 Eeprom

+, i

t \$ % th 2 s Eeprom \$. 12 Vw % th
 ! t Eeprom \$. 02 +@ % = ^ Eeprom L =
 MODBUS k K 0x00FF t o k EEPROM J \$ ^ _ ENTER



Eeprom e F Eeprom 8 F? n 1 i ! Fv F" #5
 \$%RAM &8' () * + ., F - l " 45 Pb.06' 0. Z .

Pb.07	CCF6@Al _	\$ b 0 1 0
-------	-----------	------------

0 @A 9[k 1 @A GQ

+, i t \$ 2 s` / @A \$ 12 O E@AW` / qz @A2
 . \$ 02 ` / @A 9[

Pb.08		\$ b 0 1 0
-------	--	------------

0 1 Zc

+, i \$ 12 . k Zc } 0x06 0x10~ Zc l _

&[1 B 0.01Hz k 0.1Hz k 1Hz : O% 6 1 P0.17

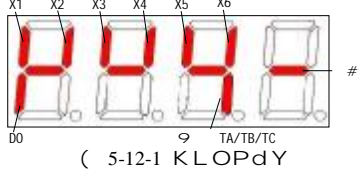
PC.05	} r/min~	\$ b 0 1 1
PC.06 \$	} r/min. / ~	\$ b 0 1 0

0 ` / 1 ` /
 +, i PC.05 \$ 1 | } ` / E r/min O\$ 0 + \$\$

1-857443720188-0420(20)-6(X)-B 7143174748 2008(X)2D (X)) T! D+3 7.44 TTf 7.68 0 D (X)20

SzT { |

```
PC.19 wx | } } E ~ $ b 0 1 0
0 \ / 1 \ /
+, i PC.19 $ 1 + \ / wx | } O $ 0 + \ / = %
wx | } wx X1) X6 +c WW6 7 wx D0 9 1 | } LED
t Z z #] Dms w | } t z #m/J wx | } | } ] +m/J wx
| } t xS # z i 5-12-1: /
```



```
PC.21 W \ / u $ b 1) 20 1
+, i PC.21 W \ / u t $ W Y \ / $ 1) 20 b 7 = PC.01) PC.20
$: $ \ / \ / 0 \ / 2 B$ $ Bqbc } B/k 20 26g 1~
S v \ / 0 \ /
W Y \ / @ PC.01) PC.20 Y @W 2 $W @A , CALL \ /
2qb Y s \ / L2Y \ / /
```

```
PC.22 \ / $ b 0.1) 999.9% 100.0%
+, i PC.22 \ / t W { \ / ~U = 8
= "PC.22} PG~
=120" # 7 "PC.22} ' PG~
$ =PID$ "PC.22} PG~
$ =120"$ # 7 "PC.22} ' PG~
```

```
PC.23 $ b 0.1) 999.9% 100.0%
+, i PC.23 W { \ / ~U = 8
= "PC.23} ' PG~ = "PC.23} PG~
$ =$ "PC.23} ' PG~ $ =$ "PC.23} PG~
```

& BC*

C~ @9 DT D D DT C 67 89 () T.2.6.48 (1668) 26.4 (19) T.14. T.r T.44 Tf7. Tf7k (P)f14./F2+1 7.

2 a } a W ~ , 9 Pd.01 Pd.03\$ 1F
 Pd.02 Pd.04\$ G

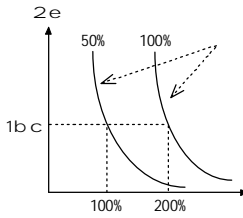
Pd.01	1	a	\$ b 0.0) 10.0V 10.0V
Pd.02	1	V G	\$ b 0) 4 0
Pd.03	2	a	\$ b 0.0) 10.0V 10.0V
Pd.04	2	V G	\$ b 0) 4 0

0 wx All 1 AI2(S2R4GB S2R75GB j)
 2 j 3 V
 4 \$

Pd.05	x, 9	\$ b 20) 110% 100%
-------	------	--------------------

/ O = P - = z = ! "

i 5-13-1: /



(5-13-1 j k SL] ^

= ! " U100%

Q

{ p! "

p8

o, ! 2

nG. O 8 (10%) o, U2 %/ 8

& BC*

&' ~ 67&K . /O~ 67&Kq %] M23g7Pd.05~ m(&' ~ N
 ? T] PWMMd OLI N

Pd.06	i R)	\$ b 20.0) 200.0% 160.0%
Pd.07	i R 2e	\$ b 0.0) 60.0s 60.0s

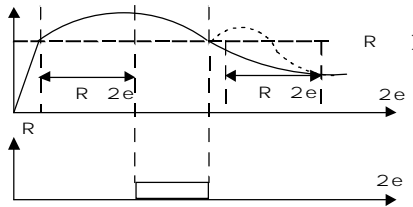
/ O i R) } Pd.06~ 4 i { \$ J =

b!

i R 2e} Pd.07~ 4 # [R) } Pd.06~ # [8 2

e i OLP2

i | } W 8 R) C # 2e R 2e



(5-13-2 w " + ` aYZ (

Sz T { |

& BC*

1p3/ S! OA] ~gI 1" k # dR. /O3/ ?TN
2pv3/ S] M[ST&K R3/ S! OMx' ~3/ S]
0N

Pd.08 ^ | \$ b 0) 3 1

0 1 P% 9

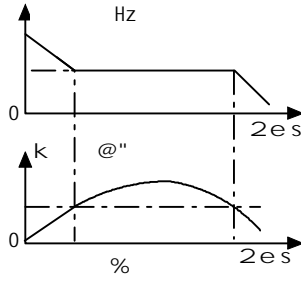
2 ! 3 2-

Pd.09 ^) | \$ b G 30) 180% 160% P 60) 140% 120%

/ Oi P% } 2 Q P 2e dQ u 4 . W

Pd.08 u1 2 32 G

\$ 1 2 P% 2 \$ G ;



(5-13-5 z s i

Pd.12	V	JR	n•	\$	b	1)	100%	100%
Pd.13	V	JR	2e	\$	b	2)	255s	10s

+ , i R V J VoJ 56) . V J 9 \$O

Sz T { |

Pd.33	k	x }	S2R4GB F	S2R75GB	j ~	\$ b	100.0%)	300.0%	y
Pd.34	k	}	S2R4GB F	S2R75GB	j ~	\$ b	0 1 1		

0 p 1 ! "

+, i

k x 100.0% = Pd.33\$ 300.0% 2 Pd.33

k x 230.0% e & 3 :

k ! k C \$: ; k

Pd.35 k V j R } 3030G/3037P 60 0 TD bo

k 30.5 Tf 6.48 0 TD . 477.12 TD 15 Tf 6

PE.11	TW 2e } h~	\$ b 0) 65530h 0
PE.12	T (MWh)	\$ b 0) 9999MWh 0
PE.13	T (KWh)	\$ b 0) 999KWh 0

+ , i T 2e (h) l | } 2eQT
 TW 2e (h) W | } 2e T
 T (MWh) T E
 T (KWh) T E

PE.14	IGBTa	\$ b 0.0) 200.0(0.0(
-------	-------	-----------------------

+ , i ` / IGBT \$ a

PE.15	a	\$ b 0.0) 200.0(0.0(
-------	---	-----------------------

+ , i ` / \$ a

5.16 WL " PFR \$

PF.00	t	\$ b 0) 9999 0
-------	---	----------------

+ , i t \$ t v B \$ 0 m / t \$ L 2

SzT { |

```

+, i
PF01 $ 0 j ! " E% y l m O( F p2% O"
l p2 % { | + % : F p2 s % 1S4T S ^
- \ / O { . / \ / + m / ! " % O { . / \ / + ! " %
PF01 $ 1 $$ } P0.02~F t { | t p%
PF01 $ 2 $ t j p%

```

& BC*

```

vW' j k; < MPE01 g7r 0=Yj k>? @Mxmv\ nd g7/) A j PID
A7vOP PIDk A7N PF01g7r 1] M nv\ nd g7/) N PF01g7r 2] M4
v\ n{ N

```

PF02 vBL	\$ b 0) 3 0
----------	-------------

```

0 1 D$@A R
2 RH )$ ( R\ t\ $ ) 3 RH )$ ( R\ t$ )

```

+, i

```

PF02 $ 0
PF02 $ 1 t D$ PE h B PE.00 k PE.08 : @A R b @A
PF02 $ 2 t RH )$ ( R t$ F $ )
PF02 $ 3 t RH )$ ( RF t$ $ )

```

& BC*

```

[ , 4 . / O j kg7 BqC1 1 D Mxm` , PF02g7r 2~(nM E S6 M
FRGHg7j kN
I JK LSE S6g7 MPE02m?E r 0MJC k~ TMNO{ N

```

PF03	\$ b 0) 3 0
------	-------------

```

0 1 j
2 3

```

+, i

```

1- j ^_ . $ . t k
2- . $ : t B k ^_ .
3- ' t ^_ . $ $ k
$ PF03 @! " ^_ $ PF03 • R@A
^_ $ PF03 • ^_ / PF03 G RH 0 ^_ / 2 q STOP
^ RH ^_ | } ` / O X Eeprom + CCF3
/ 3 t 4

```

3t	4	3t	4	3t	4
dn0	j	dn1		uP	.
SUCC		StP	^_ Stop ^	rEt	6
EFLF	8T	bdAF	^_ . L	rEF	L
UrO	X . 2	brtO	^_ . 2	LdtO	2

& BC*

```

. / Ov P $ M[ ` , (nMm QR, g7f~j k M S TU ~] N
j k QR(n QR V' U%WD M >? ! A ' - ~ . / O l GQR}
6000M-S2R4GBA S2R75GB XWY3 V110 S ( ) M6000M)S21R5GBA S22R2GBA 6000E ! XWY
3 V140 S ( ) Y3 j k QRN

```

PF04 G/P u	\$ b 0 1 0
------------	------------

```

0 G } 9 ~ 1 P } & } ~

```

+, i

\$ @= G/P 8 s + Bz 0 PF.02 vBL) 2 %
) \$ G ^ u P t t \$ l
 O) 2 5.5kWG ^ \$ % 7.5kW P ^ \$ PF.04=1

& BC*

ZM (n QP- r G-] M T l [N

PF.09	\$ b 0) 9999 y
PF.10 k	\$ b 0.00) 99.99 y
PF.11 ' O Fb	\$ b 0.000) 9.999 y
PF.12 k B7t	\$ b 0) 9999 y

[1] 2 34

6.1 8

R 8S@A2 ^_ . 4` / @A z2X PWM V@A | } @
 AZ/[STRIPp. / @A x GQ ~ L2TRS@Ab F ; =P : (
 RS =P F @Ak\$ 6M• qS p/HE^ p
 j wxHE 45 \$wx ` \$67 W @AD\$ 3 • (T
 W xw O 3 WfgW U8w @AHE O SSCp@A + ^
 10s O! " HE @A` / O^S @A E2 87} \$
 k @ ~ M E ow@A o q S3 /* ^ p V t 35| } x 1
 2= \$t PE.00) PE.08 S

_ 6-1 T BC

TY	%C	qa	Q
----	----	----	---

Uul k u@ I V @ I RS U @ RSR RSR
 I RSR)\$ I 378.52 30.72 0.48 re5+3 6.48

TY	%c	qa	Q
OL2		| | | V/FI | F @ | | P 2e | ^ )	| %/ " # P 2e | %/ " # 2e | V/FI F W | RS F @ | Wf 6. 42e O TD ( | ) Tj / F1 6.

6.3 j k 8 BC

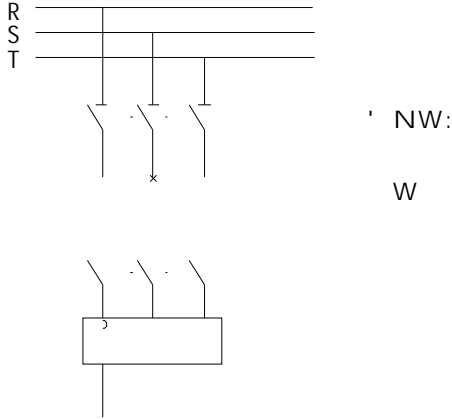
E g8@A RS{ b ; J =P F RSF =P
<

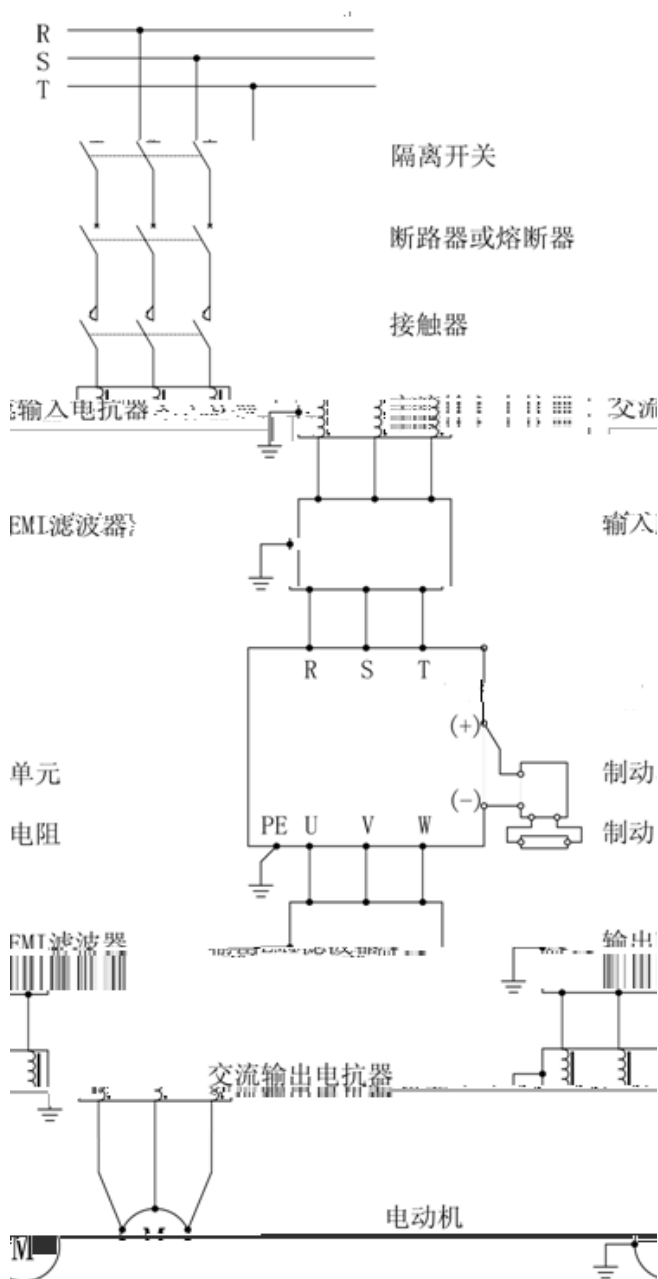
_ 6-3 j k 8 BC

	" #	BC
	U @ sP Uwx R S T. CHARGE LEDZ/[#s	| U | W U xw | RS U @ | nwx p
	s @m wx U V W @	| W U xw
	Q sE	| %4 Fa\$
	^_.. @A` / RSTRIP[s. /	| aL@A\$tS m6-1
	s Zc	| RS wx s
	<C u\$ s cZc	| \$ !" C % cZc
	@A wx s W x .	| wx W x .
	P @ s V	| RS P @
	\$ s	| V \$
C cJ	wxU V W s	| U V W = | t P2.45
1 y	P W s	| %
	s	| %4 " #P% 2e
	\$ s	| RS \$
	@mRS wx e @- s	| RS V/F }
e	s	| %4
	s	| %4
	oJ U J	| RS oJ U J | = J U & AC v U
	P U	| RS P U
P	K7 ' xb	| H
	.	.
	v	| " \
	M )	| M
	oJ )	| RS

[5] 6789

7.1 #] 8 cSNO(





(7-2 3018G/3022P T U V #] NO(

7.2 #] M` a+,

_ 7-1 l #] MG +,

]/ cS	J/	o /	* hj /	*EMI /	*sqN Tsq j	
rs	: 9 @A < p { W@Am T U@A	29 f U < p @A x/	% v - w • U XY	%/ KL (N/ 20j 2 U Q (N 20j 2 &	E eQ & (N ~ -]	^ 2 :

4 =* g k

7.2.1 h* - j /

u v v w • s` % 67
u
l : l Uo o ! 10 1 .
l z8 U. = W: =>
l oJ U @) } e3%~

7.2.2 sqN Tsqj

15kw ^ n 2 @ 18.5kwv 93kw
Q j b 110kw . n +
j b , j b q { x & vf gW @ q
8 10% z m
_ 7-2 j k` w8sqj cdQR_

2 xE j n . , aL TU
U U; R = Pb
R aL

S T \$ \$

8.1.2 ^

RS2 .8 ^9 U m \ / f W UZ/[\] 5) 10 bc
 O RS 9 o rj @G L
 RS o m 8-2 : /

_ 8-2 ^ " #

RS<Q	RS o	=
fgWwx gWw x	ss	
+,	s ?@	4) 6kg/cm ² @ K @ d
PCB V WX	s ?@	4) 6kg/cm ² @ K @ d
YZ&[	s s P sc@	\$HYZ&[D\$c@F
k	s ?@	4) 6kg/cm ² @ K @ d
o	s >	\$H o
	h s'	t q K h

RS F5j t k k \$ F5P k s+ mT
 V@A` / | } vmT k@A fW: kIGBT>? { | k 78
 ^ 2 45 z l m R U7 2 +,] @m V
 @ @m @ m V }m k &
 2 z 8 m V R !
 • } 40MHz / • j • } 2+ 100MHz
 / • / • (TV ' N
 U56 =J oJ) 2 o } T(
 Q) pV h X { X L aVL} X CF} XVV
 8w 4- ho@) \$ L} X v . / k78 ^VL} X
 QM L
 OVfgWo@ X (T 2e \$ o J\$ o@ Xt- %&
 VfgW h X (TtfgWwx R S T U V W PB(P1) + - j W v @
 sJM fgm} 220V s 250V 380V s 500V 660V s 1000V- gW
 fgm m
 = 380Vs fgW= h / 5M' gW= h / 3M'

8.1.3 ^ m[M/S

(T- = j x k %& F .
 x k %& { `F k z z 8 &[2 q m *
 \$H 67 | &367
 m 8-3 : / @ 2 2
 _ 8-3 - / 8Sm[4G

kYJ	O• \$H
YZ&[	2) 3
o	4) 5
V WX	5) 8

8.2 /

UV W K2 # 2 Vk
 I q * a . b C . ?@ @ &'] :
 I 8 ! + Y X fgW o } R RH Y 2
 @ ; ; W V @ v @ 2e 1) 2 / 2 .
 I . (Xv4V 8w
 F5 Po@ X | tmT %&- v k78 = h X 500V
 fgm X { h R/ 4M'

[B] CD,

) EC8CD, F<! GHI N

b @Z 3 G WB / U

\S y Z[24S

Q (b . / @A W 3 >

I ! ! " G _ % : . /

I O • * b ^

I U 7 78

I A ^ \ : . / k L @A

I j V } ~ 78

I & o ~ 78

I Q | O1 & 1H 2 @ { | Gv1HF 1HJ 2 Tf 8.

I

I :) f} :)*))

I 8

)f.8

S T

> 3 { E& H ' (;

I u \$

I ' (

I) \$

I *d *+

I

I { | } H

L O MSPQ

, - =

\$T

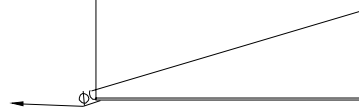
' .

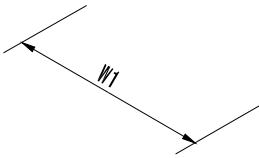
t .

- R1

} E:mm~

1) / 23





- R1

} E:mm~

2 &A

p RS

Rc		oT	oTU~ • kVA	oV A	VoV • A	W op • kW
ALPHA6000M	S2R4GB	1PH 220V 50/60Hz @b 176) 264V J / &5%	1.0	5.1	2.4	0.4
	S2R75GB		1.7	9.2	4.5	0.75
	S21R5GB		2.8	13.1	7.0	1.5
	S22R2GB		4.0	23	10.0	2.2
	3R75GB		1.6	3.7	2.5	0.75

31R

ALPHA6000E

3PH 380V
50/60Hz
@b 304)
456V
@J /
3% J /
&5%

XsYZ [

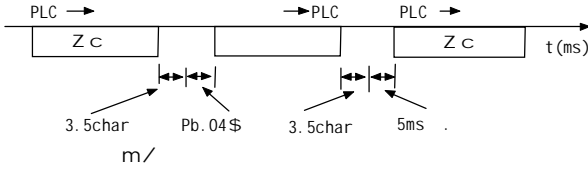
@	0) V @
	G 150% 1bc 180% 20 | P : 120% 1bc 150% 1 |
	J /
b	> 0.00) 650.0Hz > 0.0) 1000Hz} j ~
	{ Zc / 0.01" } -10() +40(~> Zc / 0.01" } 25(/ 10(~
\$ b	{ Zc 0.01Hz > Zc 1/1000
b	0.01Hz
\$	0) 10V 0) 20mA
P% 2e	0.1) 3600 | } P % 2ei \$ ~
	- P 125%
@/ }	4 V/F } u g5 V/F } \$ = PG V/F
	@ u@ ^ x, 9 , @J W u@ V J J = Je W
` a	-10() +40(@ e

3 MODBUS 2 3

3 } PLC~ . E \$ MODBUS LuH
 I MODBUS " LQ 1| f (PLC) F1) 31| " Bf WB K V
 f z 2 1| K ^\$ G 3 f qZ 3
 K kf Zc P ; CJ Pf
 I O•

	RS-485
	@q+8
	1200/2400/4800/9600/19200/38400bps u RX u / / WX L# RTU> 8E ASCII> 7 8E pE RTU> 1E ASCII> WX21E WX22E
	MODBUS RTU> ASCII> } j ~
	31 |

I & wx rs
 MODBUS wx 485+ 485-wx
 I 2 45; <
 (1) ^ f gW { | bN
 (2) Q ^ mn mn? ^ wx. 8w & l_ (<pKL. / -)
 PLC , b
 1. U9 | } & PLC F e I
 2. V U
 3. ^_ . \$: (Pb.00) Pb.08)
 4. 9 U ^ _ ` / J
 5. xwW• U
 6. PLC
 I \$
 PLC 2 ^\$: &3rs S S4 5T
 PO.03 PO.04 PO.07 PO.11 P7.00 P7.01 P7.03 P7.04 P8.11 P9.19 Pd.02 Pd.04
 Pb.00) Pb.08 Pd.16
 *41: I u S \$ p G O tZc L VJ s+ 02H
 *42: O• } uF WX u E% +(T x• M \$ OE . E F E
 L{ <\$ (T8T s+ (o
 *43: \$ \$ 02 . Zc - OZc \$ >02
 E% WE
 I K
 - KL. / I R f1 b aL ^ L K
 B KF . ! u WX R :
 I
 2f (PLC)= Zc FZc o z Lf
 Z bOD#102/R142.7.04-D1155



/B		Zc3	L o	CRCWX	2_
e' 3.5char .	1 char	1 char	n char	2 char	e' 3.5char .

LWX CRC-16 S WX CRCWX TU (:
 1~8 CRC-16 TU2vB 0 zw vB \$ 1 (16 E! 1)
 2~q LSB MSB L MSB LSB TUCRC-16
 3~ Zc3^TU CRC-16 Zc CRC-16 =!
 2 MODBUS-ASCII >
 ASCII > ` 2 } : ~ { A } ASCII t 3AH ~ 3 g ~ H A } ASCII t 0DH, 0AH ~
 \$ ` F 3 { A } (0) 9 A } F } @ ~ j ASCII t
 K K 4E K 4E L LRCWX Zc L o WX WX
 : WX L { AF } 45 EE ~ = t 8 K 2e # 1 | s + t
 n o ~ " 2 / 1ms 8S : /

/BE		Zc3	L o	LRCWX	2_A
1 char} 3AH~	2 char	2 char	n char	2 char	2 char} 0DH 0AH~

def \]

(0) 31) \$ 02 . kghZc ! l _

I Zc3

<# MODBUS Zc3 4

Zc3 (16 E)		Zc#		#		#	
		/ {	{	/ {	{	/ {	{
03H	R	8	8	7	7	5	5
06H	S {	8	8	8	8	5	5
08H	g	8	8	8	8	5	5
10H	V R	11	11	8	8	5	5

I ^ _ ` aH

16

[03H]

; S { Zc B: Z 3 ; IS { R o R ob 8 EF 8 E q, b
 o 8j b
 ; 1 | }

RTU>

Zc o		o		o	
	01		01		01
	03		03		83
	00		02		03
	20		00	CRC	01
	00		C1		31
	01		79		
CRC	85	CRC	D4		
	C0				

45 LS S 2q

ASCII>

Z c 3A 3031 3033 3030 3230 3030 3031 4442 0D0A } LRCWX DB~
 3A 3031 3033 3032 3030 4331 3339 0D0A } LRCWX 39~
 3A 3031 3833 3033 3739 0D0A } LRCWX 79~

[06H]

V S{ Zc S{ kZ Z . Z L L(T . R3 , b
 q 8 E 8 E , bk Zc o
 • 1

RTU>

Zc o		o		o	
	01		01		01
	06		06		86
	00		00		02
	01		01	CRC	C3
	00		00		A1
	01		01		
CRC	19	CRC	19		
	CA		CA		

ASCII>

Z c 3A 3031 3036 3030 3031 3030 3031 4637 0D0A } LRCWX F7~
 3A 3031 3036 3030 3031 3030 3031 4637 0D0A } LRCWX F7~
 3A 3031 3836 3032 3737 0D0A } LRCWX 77~

[08H]

gW Zc Zc otb } CJ f e 6K 3 L
 g5
 gWCJ

RTU>

Zc o		o		o	
	01		01		01
	08		08		88
	00		00		03
	00		00	CRC	06
	12		12		01
	34		34		
CRC	ED	CRC	ED		
	7C		7C		

ASCII>

Z c 3A 3031 3038 3030 3030 3132 3334 4231 0D0AA03

[10H]

V S{ Zc ok
q 8 E 8 E , b
\$ 50.00Hz

RTU>

Zc o	
	01
Zc 3	10
	00
	02
	00
	01
	02
	13
	88
CRC	AA
	E4

ASCII>

Z c 3A 3031 3130 :
3A 3031 3130 :
3A 3031 3930 :

+6 0D0A } LRCWX 4F~
} LRCWX EC~
} LRCWX 6C~

[10H]

L Zc
J \$ ^ _ ENTER :
K Pb.06=02
\$ P0.02 30.0Hz

k K 0x00FF t o KEEPR0M
q 8 E 8 E , bk Zc o 00FFH L

RTU>

Zc o	
} V ~	
	01
	10
	01
	02
	00
	01
	02
	0B
	B8
CRC	B0
	30

	01
	10
	01
	02
CRC	D9

RTU>

```
z c o           o           o
  z c 3         01
```

[VZc]} V~

R3	YJ	o	\$ b	v
00FFH	VZc	ym MODBUS	0100H) 0FFFH	7

06 F10 V LZc I t L VRAM = w x • +. w V
 L O 8 8 8 cLOV

tm 3 (DEC)	Modbus (HEX)
PF.00) PF.12	1000H) 100CH
(89)	(1100H) FFFFH)

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