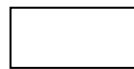


	1
! " #	
\$ % & ' (.....	
) ! * + ...	\$
	4
	5
) , - . / 0 1	2
) \$ 3 - . / 0 1	4
	8
5 6 7 8 / 9 -	:
5 \$ 1 8 / 9 -	
5) ; < 1 8 / 9 -	)
5 5 = > ? @ 9 -	5
5 2 ? @ A B 9 -	4
5 4 C D ? @ 9 -	E
	19
2 F G	H
2 \$ I J K L M L N	H



ZC3000 C ^ _ ` a b 6 c d e f 7 g h i j k l m n 8 / o p i q r s t u v w x
(32 y

1.2.3

é ê ë « a b ì Y í î ï v ð ñ t H h f î é ô Þ ` « # ° Ý Ç Ì Ì Â

1.2.4 FAT

H h f î Ì Ì Ì .xls Ì Ì 3 Ì « A Ì t Ì IJ ô Þ ` « # ° ij æ Î USB æ ç å ä TF å Î
 ā Ć Ķ ģ ģ Ŀ Í ã Ä Å A Ì h Ł o Ì = á ? @æ ç Ğ Ì Ļ Ĳ @Â

2.3.5

Ķ ģ Ó h 115200bps « Ě ě Č t Ł Ł SCPI Ł Ł t ASCII ý Ń Â ā ī ł ŋ f 115200bps
 s Ì = Ç Ě ě Č Ä

1.3

1.3.1

a b N B ä	23 °C ± 5 °C
Ñ b N B ä	65% R.H.
ñ A s Ğ ä	>60 ¾ h
Ì Ð s Ğ ä	12 ð η
6 7 · , ä	
* + ä	a b 15 °C ~ 35 °C Ñ b <80%RH
r s ä	a b 10 °C ~ 40 °C Ñ b 10~90%RH
æ ç ä	a b 0 °C ~ 50 °C
Ñ b ä	10~90%RH
A a Ć Ä J ä	T t K t J t N t E t S t R t B
8 / y # ä	% " # 6 y
6 c Ð b ä	đ Ð ā 1 Ē / ē Ą t Ě Ð ā 2 Ē / ē Ą t ě Ð ā 4 Ē / ē Ą Ě e
Ó h Ō # ä	1800.0
Ó Ł Ō # ä	-200.0
# ° ¼ ½ ä	USB æ ç Ì t TF å æ ç Ì
Ç õ ä	Ö / ö
= Ç ä	USB-232C
Ő ő Œ œ ä	SCPI

d Ì ü b Ć Ŕ ř + Ð ê Ŗ ö ÷ ü b Â

Ä J	6 c a b ć Ć ā ć Ä	6 7 ü b ā ć Ä
T Ä A a Ć	-150 °C ± 0 °C 0 °C ± 400 °C	η 1.0 °C η 0.8 °C
K Ä A a Ć	-100 °C ± 0 °C	η 1.2 °C

	$0 \hat{c}^a$	$1350 \hat{c}$	$\eta 0.8 \hat{c}$
J $\bar{A}_\lambda a \hat{C}$	$-100 \hat{c}^a$	$0 \hat{c}$	$\eta 1.0 \hat{c}$
	$0 \hat{c}^a$	$1200 \hat{c}$	$\eta 0.7 \hat{c}$
N $\bar{A}_\lambda a \hat{C}$	$-100 \hat{c}^a$	$0 \hat{c}$	$\eta 1.5 \hat{c}$
	$0 \hat{c}^a$	$1300 \hat{c}$	$\eta 0.9 \hat{c}$
E $\bar{A}_\lambda a \hat{C}$	$-100 \hat{c}^a$	$0 \hat{c}$	$\eta 0.9 \hat{c}$
	$0 \hat{c}^a$	$850 \hat{c}$	$\eta 0.7 \hat{c}$
	$0 \hat{c}^a$	$100 \hat{c}$	$\eta 4.5 \hat{c}$
S $\bar{A}_\lambda a \hat{C}$	$100 \hat{c}^a$	$300 \hat{c}$	$\eta 3.0 \hat{c}$
	$300 \hat{c}^a$	$1750 \hat{c}$	$\eta 2.2 \hat{c}$
	$0 \hat{c}^a$	$100 \hat{c}$	$\eta 4.5 \hat{c}$
R $\bar{A}_\lambda a \hat{C}$	$100 \hat{c}^a$	$300 \hat{c}$	$\eta 3.0 \hat{c}$
	$300 \hat{c}^a$	$1750 \hat{c}$	$\eta 2.2$

ZCtek

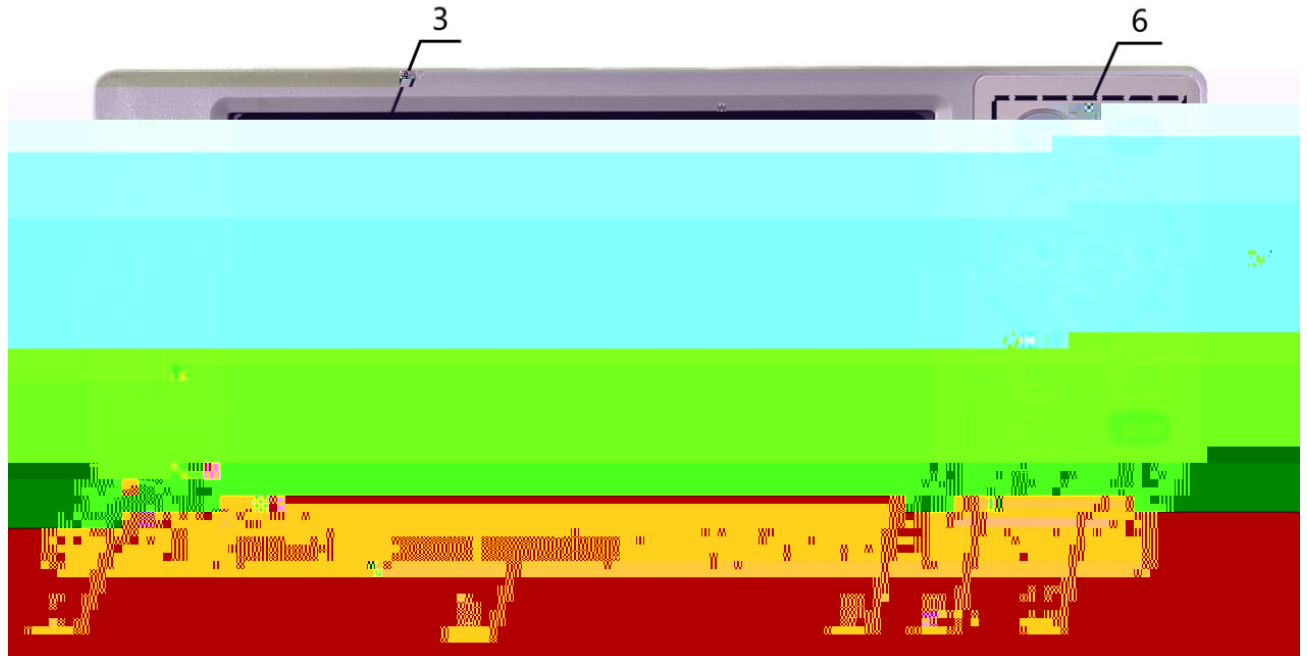
ZC21000

Multi-channel Temperature Recorder

Changzhou ZCtek Instruments Co., Ltd.

t d | ø Þ ð · , a b k Ö l j â þ ð · , a b § tNJ´ d | Nj - M nj · , v a ñ tΘ
 ž d | Ā ā e è v ĭ ñ t DŽ ĭ @)W ¾ ħ 3 t LJÖÆñ A t Ý Ğ 6 7 Â
 ı Ö ö Ŭ Ö ö d | t | Θ ŭ ! ĵ ŷ # ° Ū ū Â

3.1



3.1.1

3.1.1

$\text{q h} \dot{\text{U}} \text{p} \ddot{\text{O}} \ddot{\text{O}} \text{t} \dot{\text{U}} \text{p} \text{Lj} \text{€} \text{£} \acute{\text{u}} \acute{\text{u}} \text{p} \ddot{\text{E}} \ddot{\text{O}} \text{Æ} < \ddot{\text{U}} \text{Ä} \text{d} \mid \text{D} \text{Ä} \text{q h} ^{\circ} = \text{q} \text{s} \text{t} \text{i} \text{L} \ddot{\text{u}} \ddot{\text{U}} \text{Ä} \text{E}$
 « $\ddot{\text{O}} \text{Æ} < \ddot{\text{U}} \ddot{\text{u}}$
 $\text{d} \mid \text{ĩ} \text{B} \ddot{\text{O}} \text{Æ} \text{s} \text{t} \text{m} \text{n} \text{8} / \text{i} \text{Y} \ddot{\text{e}} \ddot{\text{O}} \text{Æ} \text{9} - \text{t} \dot{\text{U}} \text{p} \ddot{\text{O}} \ddot{\text{O}} \text{8} / \text{ə} \text{Ä} \ddot{\text{u}}$
 $\dot{\text{U}} \text{p} \text{Lj} \ddot{\text{O}} \ddot{\text{O}} \text{Æ} \text{t} \text{m} \text{n} \text{8} / \text{i} \text{ä} \text{t} \dot{\text{U}} \text{p} \ddot{\text{O}} \ddot{\text{O}} \text{8} / \text{Ä} \text{Ä} \ddot{\text{u}}$
 $\ddot{\text{o}} \text{ä} \text{d} \mid \text{3} \text{t} \text{Ĝ} \text{h} \text{N} \ddot{\text{e}} \text{q h} \text{t} \dot{\text{U}} \text{p} \ddot{\text{O}} \ddot{\text{O}} \text{Æ} \text{æ} \mid \text{C} \neq \text{Ä} \text{Ä}$

30

3.1.2

$\text{d} \mid \ll \text{G} \text{g} \text{Ä} \text{J} \mid \text{Y} \text{d} \mid \text{Ğ} \text{ğ} \text{Ä}$

3.1.3

$\text{è} \text{p} \} \text{i} \ll \text{t} \text{7} \text{g} \text{k} \text{l} \text{m} \text{n} \text{8} / \text{i} \text{Ä}$

3.1.4 SD

$\text{SD} \text{å} \text{å} \text{K} \text{t} \text{f} \text{'æ} \text{ç} \pm \ddot{\text{O}} \text{k} \text{6} \text{c} \text{Q} \text{Q} \text{Ä}$

3.1.5 USB

$= \text{á} \text{U} \text{ä} \text{tæ} \text{ç} \pm \ddot{\text{O}} \text{k} \text{6} \text{c} \text{Q} \text{Q} \text{Ä}$

3.1.6

6 c Q Q * / Ä t Dž v = > q 6 c d' Q Š t PASS q Ä ð ù v = > 6 c Ć d' Q Š t FAIL
Ä Ä ð Ä

3.1.7

R + q Ř Ě f ' Ĵ LCD 8 /] - « Ž Ä Ž Ž Ġ Ł t Ĵ R + κ Ł ª DZ õ Ž t Dz Ž Ĵ m
n 8 / | Ä Ĵ dz Ġ Ĵ 8 / Ä ú ġ H ú p Š t ¢ Ě Ġ Ñ ñ Ě Ä Ÿ H ú Ä

3.1.8

¢ Lj ě á Ě t o Œ ê Ý ě 6 7 9 - Ä

3.1.9

¢ Lj ě á Ě t o Œ ê Ý ě C D ? @ 9 - Ä

3.1.10

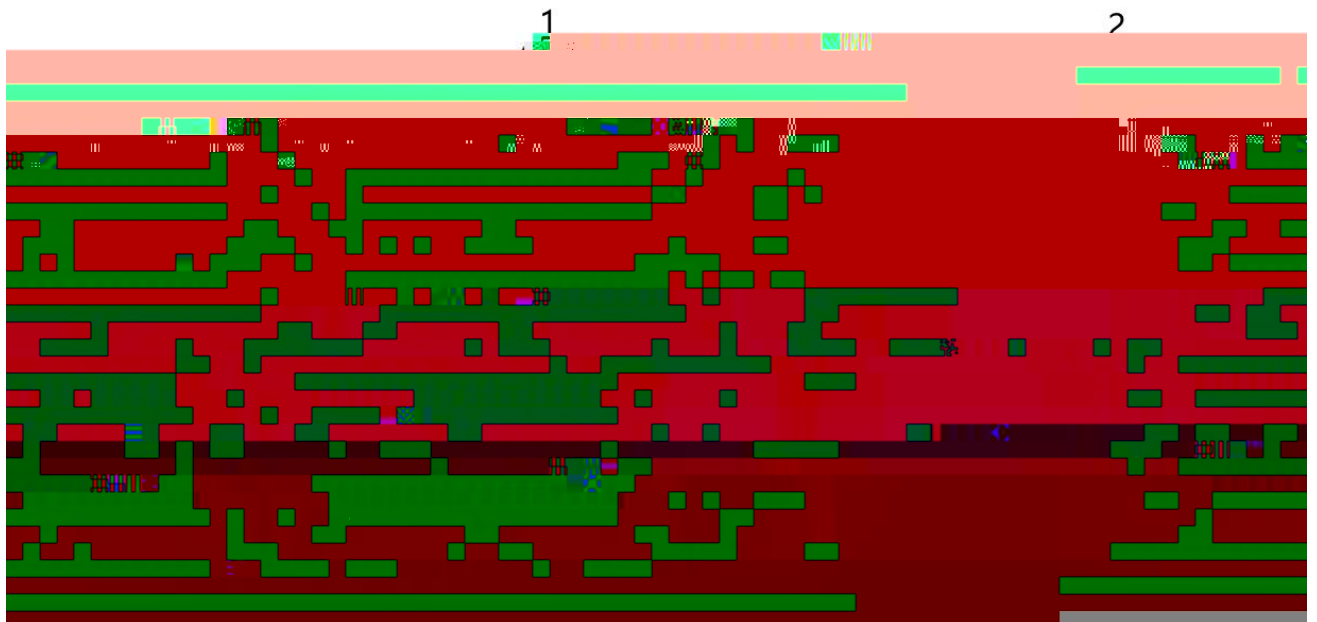
¢ Lj ě á Ě t o Œ ê Ý ě = > ? @ 9 - Ä

3.1.11 /

¢ Lj ě á Ě t o Æ Ł 6 c ä æ Ţ 6 c Ä

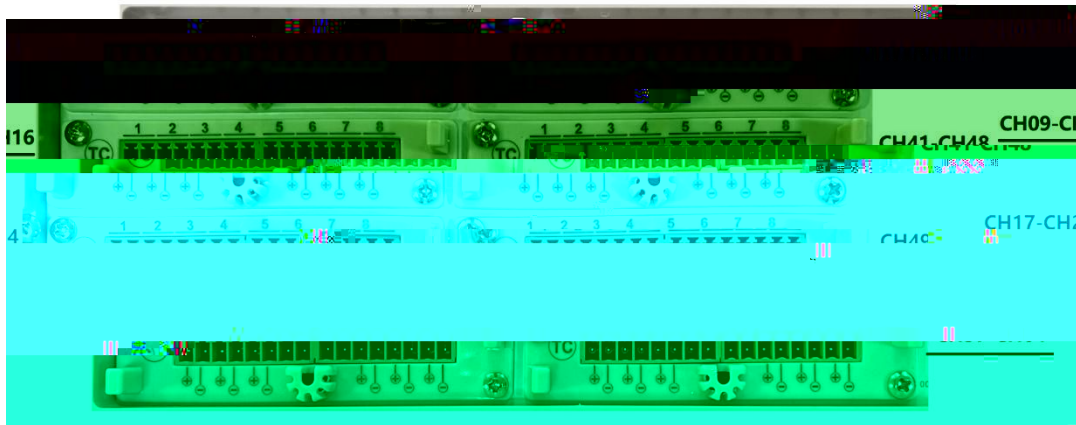
3.2

¹ 1 3.2.1 | ZC3000-64 ` « 3 - . / 0 1 | Ø Ý Ğ ø Ä ù



3.2.1 ZC3000-64

3.2.1



3.2.2 ZC3000-64

à Å 1 3.2.2 Dž / t CH01ÑCH64 « ê Â y@ t Þ â => . v 8 ` ê Â ù
 1 1 3.2.3 | Þ â => . | Ø t ø È ª è Ê Ê | => 1Ñ => 8 t ô õ => q v ê õ ê °
 ă Â t È ă ā+Ă | Å ąĆ ĭ ĩ ê ° ă Â t è ă ā-Ă | Å ąĆ ĭ ĩ ê ° ă Â Â



3.2.3

3.2.2 USB

= á # ° ° γ ê ą ĩ t Ñ Ñ ą ĩ « = Ç Â

3.2.3

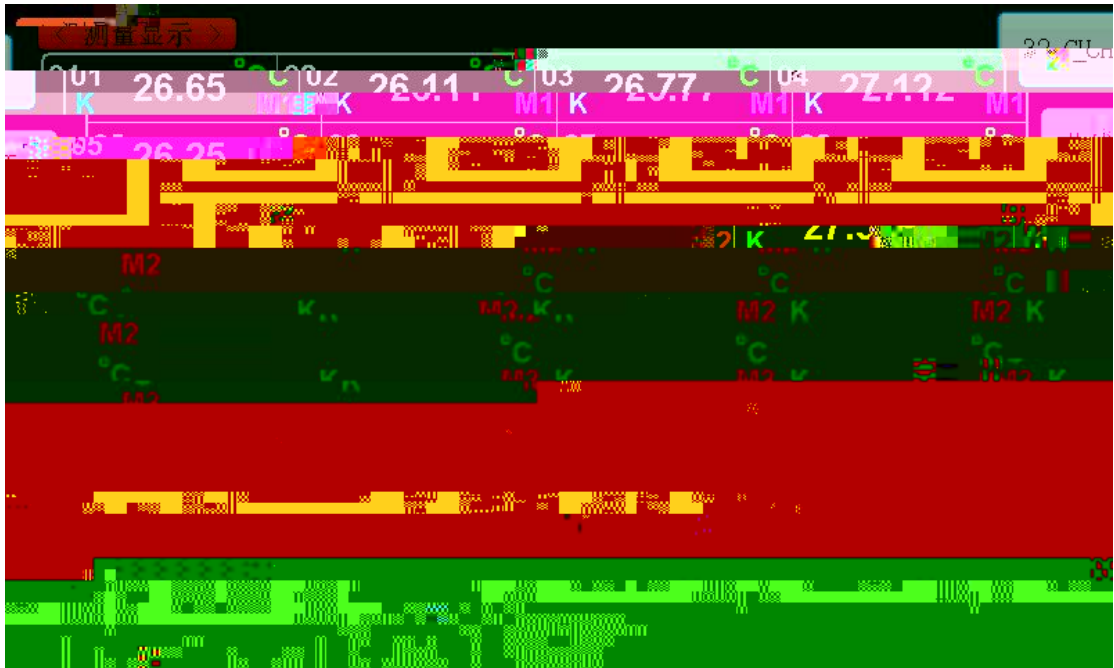
Ò ĩ ê Â t Ć o ĭ ` Â

3.2.4

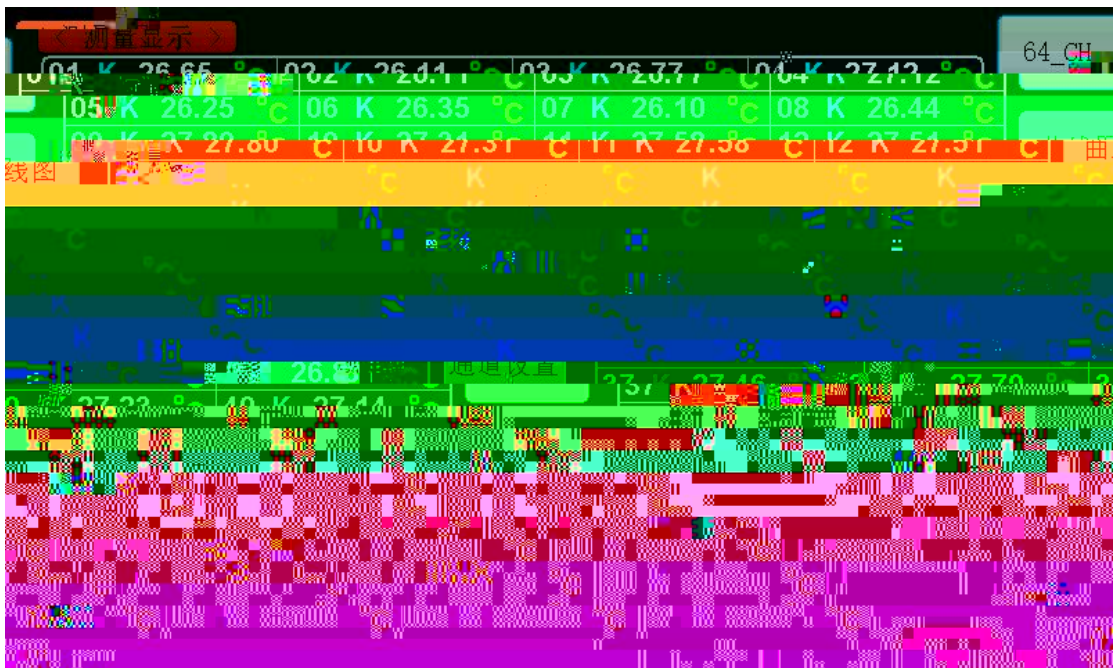
f ´ γ ê ą ĩ t Ń ě Ć Đ ą ĭ Â

4.1

ÖÆ%9 - ÕK678 / 9 - t Î ð 0 9 - ¢ - . ě á £ o Ƨ ê Ý ě 6 7 8
 / 8 = > 9 - ā ā ¹ 1 4. ç t 1 Ů



4.1.3 32_CH



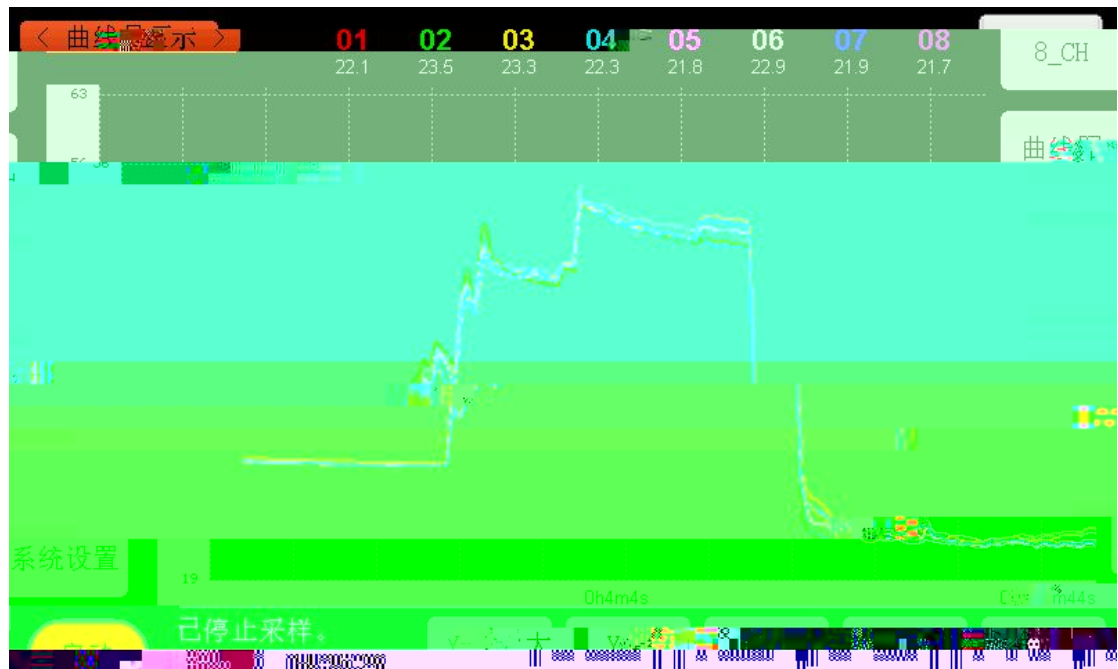
4.1.4 64_CH

Ã | ZC3000-64 ` | Ø G Ô Dz 9 - « µ õ 8 / " # | Ÿ ' (¢ £ Â _ Ê ¢ - . ë á £
 § t ¢ ¢ 8_CH ±16_CH ±32_CH | Ÿ 64_CH ž
 Ğ t ô · Ğ ĝ Â

8_CH ¢ Lj £ t 8 / 9 - ¢ ¢ 8_CH ±16_CH ±32_CH | Ÿ 64_CH ž
 Ğ ô · Ğ ĝ ù

4.2

Ŷ%9 - Ŭp i j Å«Ŧ° 1 Ŧϕ £ t 2 ê Ý ë ° 1 8 / 9 - ā ā ¹ 1 4.2.1 Dz / Äù
 Dz9 - f ° 1 « Ũ ƶ t § 8 / ž 8 ` => « a b ¬ - ù



1/3 ¢ Lj ' (£ Ý ë X Z « ' (¢ £ 9 - ù



4.2.4 X

X- ±X- X- X-

é Á = > « 6 a b 8 / p ù

Ů p Lj ¢ £ t Œ G # † £ ã ā 1 4.4.3 Dž / Ě t Ň ě Dz = > « ¹ É p t ¢ ENT Ñ

ñ ù

Ů p Lj ¢ £ t Œ G # † £ ã ā 1 4.4.3 Dž / Ě t Ň ě Dz = > « Å É p

4.5

Ĵ%9 - Ŭp i j Å «

£ t 2 ê Ý ë ? @ A B 9 -

4.6

Ŷ%9 - Ŭp i j Å « € £ t Ƨ ê Ý ë C D ? @ 9 - ā à º 1 4.6.1 Dž / Ä ù
Dz 9 - o ? @ μ Ÿ C D " # ù



4.6.1

Ŭp Lj € £ t Ò Ď Š Ō ā ū ō ā Ê Ë ŷ ù
Ŭp Lj € £ t Ò Ď 6 a b « ò y ù
Ŭp Lj € £ t Ò Ď e è § Ğ ā 1s ± 0.5s ± 0.25s ù
Ŭp Lj € £ t Ò Ď Ě ě Č ā 9600 ± 38400 ± 115200 ù ĩ ñ ĩ 115200 ù
Ŭp Lj € £ t Ò Ď 8 / Œ œ ā Ě Å ± English ù
Ŭp Lj Ò Ÿ t o H ú ĵ , « Ğ ğ M § Ğ ù
Ŭp Lj € £ t Ò Ď # ° A B « æ ç ` ŋ ā U ā ± TF-card ù ĵ - . Å Ƨ D æ ç
U ā ā TF å s t ĩ ñ # ° Č ij æ ù ĵ D U ā s t ĩ ñ # ° ij æ Ĵ U ā ù ĵ D TF å s t
ĩ ñ # ° ij æ Ĵ TF å ù ĵ ¥ § D Å U ā M TF å s t ĩ Lj Ò Ÿ « ? @ ĩ D ù
Ŭp Lj € £ t Ò Ď # ° A B « æ ç Ğ ĩ § Ğ ā ĩ ñ ± 10 ¼ ħ ± 30 ¼ ħ ± 1
Ł s ù ĩ ñ Ò Ÿ Nj / ô 5 ɸ Ě e è t ij æ P Ě # ° ù
Ŭp Lj Ò Ÿ t Ő Ğ £ ā t Ŋ ë A B Ğ t Lj A B Ğ ĩ U ā ± TF å Dž ij æ « A B

Ğ ù

ă Ú p Lj Ò Ī t Œ Ğ é õ Ó ā 1 4.6.2 Dž / Ă t Ț ħ Ñ L ů Ũ Ğ g ? @ t Ț ħ

5.1

í Ĥ ħ é Dž v « ZC3000 3 ξ USB O P Ý Ğ z ? G Ô Â y ? O P ù I d' SCPI

ə ɒ Ȯ(ə Nj / ɒ Ȯ Ȯ) Ć (y ´ d J « , 3 Â

Ø à t

ε ð ã LIMITə:ə

8 # (NR1), L R # (NR2), ä u R # (NR3) Â # p é Ê | 9.9E37 Â

NR1 m Ø ä ¹ ä

123

+123

-123

NR2 m Ø ä ¹ ä

12.3

+1.234

-123.4

NR3 m Ø ä ¹ ä

12.3E+5

123.4E-5

5.6

5.6.1 IDN

IDN O P f ´ À Å d | ID J t j l R B σ O' g ø S T ± d | Å J ± e è = > # M Û B

Ø í J Â

À Å Æ û ä *IDN?

À Å ø ø ä <CZZC,ZC3000,XXCH,Ver:X.XX>

j ä XXCH | e è = > # t Ver:X.XX | Û B Ø í J Â Ø ä ZC,ZC3000,64CH,Ver:1.00

5.6.2 FETCH

FETCH O P f ´ À Å d | Dž v = > a b p Â

À Å Æ û ä FETCH?

À Å ø ø ä <25.09> ,<25.91>,<25.96>,<25.76>

j ä ì ° = > # Ç ¥ ø ø # ° 7 Ç ¥ t = > # ° ž Ğ f η J ř , Û | Œ Â

5.6.3 MEAS

MEAS ɔ C D O P » f ´ ? L d | 6 7 e è Č ő " # t R B e è Ě æ ± £ ä n ± ý p |

Å J ± e è Ð b ± Å É ± ¹ É ² ? @ Â

O P b ä

MEAS:START f ' q R d | ÁÉÍ MæT e è Â

OPCEûă

MEAS:START <ON,OFF>

ØăăWrtCmd(f MEAS:START ONÛ)ùÁÉÍ d | e è Â

ÀΛCEûă MEAS:START?

ÀΛøşă <ON,OFF>

MEAS:KEYLOCK f ' n L d | € £ M p } i t Ĵ f Å yÆ† ő q R d | s t ø T d | -

. ¥ \$ r s Â

OPCEûă

MEAS:KEYLOCK <ON,OFF>

ØăăWrtCmd(f MEAS:KEYLOCK ONÛ)ùŜ Ő d | £ ã n t f Î Ū ûæ f d | - . € £ r s Â

ÀΛCEûă MEAS:KEYLOCK?

ÀΛøşă <ON,OFF>

MEAS:RATE f ' ? L d | e è Ð b Â

OPCEûă

MEAS:RATE <SLOW,MED,FAST>

yωă SLOWăđÐ

MEDăĚÐ

FASTăěÐ

ØăăWrtCmd(f MEAS:RATE SLOWÛ)ù ? L d | e è Ð b | đ Ð Â

ÀΛCEûă MEAS:RATE?

ÀΛøşă <SLOW,MED,FAST>

MEAS:MODEL:CH f ' ? L d | µ = > « ý þ | ŷ Ā, v Ě f CHÛ | = > J t ĵ f CHÛ

| f 1-64Û \$ t ? @ ò ő = > | Lj ŷ Ā t ĵ f CHÛ | f ALLÛ \$ t D Þ ? @ Dž v = > | Lj ŷ

Ā Â

OPCEûă

ò = > ? @ MEAS:MODEL:1 <TC_K,TC_J,TC_T,TC_N,TC_E,TC_S,TC_R,TC_B>

yωă TC_K: K Ā Ą Ć

MEAS:HIGH:CH f ' ? L d | μ = > « Ê Ë Å É p , e Ě ř CHÛ | = > J t ĵ ř CHÛ |
ř 1-64Û § t ? @ ò õ = > | Lj Ÿ Ā t ĵ ř CHÛ | ř ALLÛ § t D P ? @ Dž v = > | Lj Ÿ Ā Ā
O P Ą ů ă

ò = > ? @ MEAS:HIGH:1 <value>

Dž v = > ? @ MEAS:HIGH:ALL <value>

Ŕ ă ă ò = > ? @ WrtCmd(ř MEAS:HIGH:1 1800Û) ù ? L d | = > CH1 Ê Ë Å É p | 1800 Ā

Ŕ ă ă Dž v = > ? @ WrtCmd(ř MEAS:HIGH:ALL 1800Û) ù ? L d | Dž v = > Ê Ë Å É p |

1800 Ā

ò = > Ā ∧ Ą ů ă MEAS:HIGH:1?

ò = > Ā ∧ ø § ă <value>

Dž v = > Ā ∧ Ą ů ă MEAS:HIGH:ALL?

Dž v = > Ā ∧ ø § ă <value> , <value> , ø ø ø

ŋ ă _ = > ø § p ì ° = > # Ć ¥ ø § # ° 7 Ć ¥ t = > # ° ž Ġ f ŋ J ř , Û | Ŏ Ā

5.6.4 SYST

SYST ɔ C D O P » f ' ? L d | « C D ' (t Ř B a b ò y M Ê Ë × / ħ ² ? @ Ā
O P b ă

SYST:UNIT f ' ? L a b ò y 8 / Ů ɜ t ı ħ o | Ā ∧ ĵ , « a b ò y 8 / Ů ɜ Ā

O P Ą ů ă

SYST:UNIT <CEL,KEL,FAH>

γ ω ă

Ø ã ã WrtCmd(r SYST:

Ų Ų À ^