

User Manual



Hangzhou Zhongchuang Electron Co., Ltd

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— General Introduction

With the characteristic of simple content, easy operation, large temperature data storag, ET3916 multi channel data recorder supports thermocouple input, such as $J_x K_x T_x E_x S_x N_x B_x R$ type, to reach the requirement of production line, laboratory and measurement development department.

Its widely used in Lighting appliances, power tools, household appliances, electric motors, electric heating appliances, pharmaceutical, petroleum, chemical, metallurgy, electric power and other industries and scientific research units and other fields of production enterprises, laboratories, quality supervision departments

二、 Main Features

- Adopt 5 inches industrial true-color display LCD display screen;
- Adopt high speed and high performance 32 bits ARM microprocessor, fast response speed; It supports multi channel signals' acquisition, recording, display, alarm;
- Each measurement module supports measurement of 8 channels, the max to 64 channels;
 Modules quantity can be equipped according to customers' requirement.
- Support 4/8/16/32 multi-interface real-time numerical display, support cylindrical chart, real-time curve to display the measurement data.
- The data can be displayed at most 6 bits, and the display range can be from -999.99 to 9999.99
- Equipped GB2312 Chinese Character Library with full input method;
- Each channel supports parameter setting separately(including upper/ lower alarm, temperature calibration, display unit) and arbitrary naming;
- When the measured temperature excesses upper/ lower alarm, it will alarm (optional: relay alarm output Module)
- Real-time clock: adopt hardware real-time clock, lithium battery power; the max time error is
 ±1 min/year
- Each channel is isolated, disturb of high frequency and isolated voltage peak value reach 400V
- Supports thermocouple measurement: $J_{\lambda} K_{\lambda} T_{\lambda} E_{\lambda} S_{\lambda} N_{\lambda} B_{\lambda} R$
- The 8GB FLASH memory chip is used to store historical data, and the data can be exported through the U disk;
- Measurement speed for option: slow speed: 1 s/channel, medium speed: 0.5 s/channel;
- USB-HOST and USB-DEVICE communication port; USB-HOST to export the historical data through U-Disk; USB-DEVICE to communicate with computer;

\equiv , Performance Index

3.1. Main Technical Index

	ET3916 Series	ET3916-T Series	
MODEL	ET3916-08、ET3916-16	ЕТЗ916-08Т、ЕТЗ916-16Т	
	ЕТЗ916-24、ЕТЗ916-32	ЕТЗ916-24Т、ЕТЗ916-32Т	
	ЕТ3916-48、ЕТ3916-64	ЕТЗ916-48Т、ЕТЗ916-64Т	
Channels	8 channel	s ~ 64 channels	
Measurement Range		60mV	
Accuracy	0.05%FS	0.02%FS	
Temperature Display	0.190	0.01%C	
Resolution	0.1 °C	0.01 °C	
Supported	KITESNDD (mlaaga abaal	thermonormal sheet for details indicators)	
Thermocouple Type	K_{J} , I_{L} , E_{J} , N_{J} , B_{J} , R (please check thermocouple sheet for details indicated by the second se		
Cold Compensation	10.590		
Accuracy	E	-0.5 C	
Measuring Speed	Slow speed: 1 s/channel, medium speed: 0.5 s/channel		
Display Mode	numerical, curve, bar charts		
Calibration	isolated correction	n factor of each channel	
Alarm	Isolated alarm setting(upper upper limit, upper limit, lower limit, lower low		
Alaliii		limit)	
Data Record Interval		1s	
Data Storage	8G		

3.2. Thermocouple Sheet

Themocouple	Temperature	ET3916	5 Series	ET3916	-T Series	N/M	
type	Range	Accuracy	Resolution rate	Accuracy	Resolution rate		
K	-200~1372°C	±0.8°C		±0.3°C			
J	-200~1100°C	±0.7°C	-	±0.25°C	Exc erro 0.01°C ther an c com	Exclude the error of thermocouple an cold junction	
Т	-100~400°C	±0.5°C		±0.2°C			
E	-50~830°C	±0.5°C	0.1%	±0.2°C			
S	-50~1760°C	±2°C	0.1°C	±0.8°C			
Ν	-200~1300°C	±1°C		±0.4°C			
В	600~1820°C	±2.4°C		±0.95°C		compensation	
R	-50~1768°C	±2.1°C		±0.82°C			

3.3. General Technical Index

• Power Voltage:220V.AC±10%, or110V.AC±10%, 45~65Hz;

- Display: 5 inches industrial true-color display, 854×480
- ♦ Working Temperature:0°C~40°C
- ♦ Storage Temperature:-10°C~70°C
- ♦ Relative Humidity:<80%
- Communication port: USB Device, USB Host(standard); RS232, rely alarm output(optional);
- ◆ Dimension:260mm×300mm×100mm (L×W×H);

3.4. Standard Accessory

- Power Plug*1
- K type (2 meters long), 1 for each channel
- User manual*1
- USB Square Line* 1

四、 Appearance





Fig 4-1 Diagram of front panel

- ① USB-HOST Communication port
- 2 Power Switch
- 3 Company logo and model
- (4) Display screen
- 5 Functions key
- 6 Direction key
- ⑦ Confirm/ Enter key
- 8 Numerical key

4.2. Back Panel

			4
	CH25-32	CH57-64	AC 100-120V 54 50Hz
	CH17-24	CH49-56	
8	CH09-16	CH41-48	
		CH33-40	

Fig 4-2 Diagram of back panel

- ① Connection port of 8 channels
- (2) Thermocouple reference terminal
- ③ Power Voltage Switch(110V/220V)
- (4) Power plug
- (5) USB-DEVICE conneciton port

五、 Display and Operation

5.1. Numerical Interface

5.1.1. Numerical diaplay Interface of 4, 8, 16, 32 channels



Fig 5-1 Numerical Interface of 4 channels

2020/03/06 12:20:0	DO DA	TA AUTO) 19.9°C 1/ 8 SLOW
CH01 K	СНО2 К	СНОЗ К	СНО4 К
20. 00 °c	20.00 °c	20. 00 °c	20. 00 °c
Empty	Empty	Empty	Empty
СНО5 К	СНО6 К	СНО7 К	СНОВ К
20. 00 °c	20. 00 °c	20. 00 °c	20. 00 °c
Empty	Empty	Empty	Empty

Fig 5-2 Numerical Interface of 8 channels

2020/03/06 12:20:0	DO DA	TA AUTO	0 19.	Curve
^{CH01} 20,00 °⊂	сног 20 00 °с	Сноз 20 00 °с	CH04	
CH05	CH06	20.00 C	CHOB	Columnar
20. 00 °c	20. 00 °c	20.00 °c		Data Set
CH09	CH10	CH11	CH12	CH Set
ZU. UU C	ZU. UU C	20. 00 C	CH16	Record
20. 00 °c	20.00 °c	20. 00 °c		Sys Set

Fig 5-3 Numerical Interface of 16 channels

2020/03	3/06 12:20:0	00	DA	TA	AUTO	0 19.9	°C 1/ 2 SLOW
CH01	20. 00 °c	CH02	20. 00 °C	CH03	20. 00 °C	CH04	20. 00 °C
CH05	20. 00 °C	CH06	20. 00 °C	CH07	20. 00 °C	CH08	20. 00 °c
CH09	20. 00 °C	CH10	20. 00 °C	CH11	20. 00 °C	CH12	20. 00 °c
CH13	20. 00 °C	CH14	20. 00 °C	CH15	20. 00 °C	CH16	20. 00 °C
CH17	20. 00 °C	CH18	20. 00 °C	CH19	20. 00 °C	CH20	20. 00 °C
CH21	20. 00 °C	CH22	20. 00 °C	CH23	20. 00 °C	CH24	20. 00 °C
CH25	20. 00 °C	CH26	20. 00 °C	CH27	20. 00 °C	CH28	20. 00 °C
CH29	20. 00 °C	CH30	20. 00 °C	CH31	20. 00 °C	CH32	20. 00 °C

Fig 5-4 Numerical Interface of 32 channels

The numerical interface can display the measurement data of multiple measurement channels at the same time. The display interface can display data of channels 4, 8, 16 and 32 at the same time. Press direction key to pop out the selection box, and press direction key to move the selection box, so as to realize the page turning function. To hide the selection box, press **ESC**. Press direction key to call out selection

5.1.2. Functions key (F1~F6) Popup menu and hide

2020/03/06 12:20:0	00 DA	TA AUTO	0 19.9°C 1/ 4 SLOW
CH01	CH02	CH03	CH04
20. 00 °c	20. 00 °c	20. 00 °c	20. 00 °c
CH05	CH06	CH07	СНОВ
20. 00 °c	20. 00 °c	20. 00 °c	20. 00 °C
CH09	CH10	CH11	CH12
20. 00 °c	20.00 °c	20.00 °c	20.00 ℃
CH13	CH14	CH15	CH16
20 . 00 °c	20. 00 °c	20. 00 °c	20. 00 °c

Fig 5-5 Functions key menu in Numerical Interface of 16 channels

Take the 16-channel numeric display interface as an example. Press ENTER to display the function key menu as shown in the figure above. To hide the function key menu, press ESC. If the function key menu fails to pop out, press the function key (F1 to F6), the corresponding function can still be realized.

5.1.3. Setting interface of Numerical Interface

2020/03/06 12:20:00	SETTING	AUTO 19.	4CH
\rightarrow Display Ch Num:	16CH		8CH
Screen Roll:	Close		
Roll Time:	5s		16CH
			32CH
			Enter
			Back

Fig 5-6 Setting Interface of Numerical Interface

Press F3 on the numerical display interface to enter the setting interface of the numerical display interface, where you can set the display channels number, scrolling function and rolling time interval.

Press \uparrow or \downarrow to move the arrow in left screen to select the items and then modify by \leftarrow and \rightarrow or functions key $F1 \sim F4$;

After setting, press F5 to save the Settings and return to the numerical interface (the saved Settings will still be valid after restarting the device)If you press F6 or ESC, the Settings are not modified.

5.1.4. Channel Setting Interface

202	0/03/06 12:20:00	SETTING	AUTO 19.	°C
	Channel:	CH02		C
	TC Type:	К		°
	Range:	–180–1372°C		
→	Unit:	°C		
	UpUpLimit:	1350.00°C		Ň
	UpLimit:	999.00°C		
	DownLimit:	–50. 00°C		
	DownDownLimit:	–200. 00°C		
	Correct k:	1.0000		Litter
	Correct B:	+0. 00°C		Baak
	Name:	Empty		Dack

Fig 5-7 Channel Setting Interface

Selecting target setting channel by pressing the arrow key in the numerical interface, and press the F4 key to enter the channel setting interface, which displays eight items: unit, upper upper limit, upper limit, lower limit, lower limit, compensation K, compensation B, and channel name.

Press \uparrow or \downarrow to move the arrow on the left screen to confirm the selected item.
When the arrow points to "Display unit", you can adjust it by pressing \leftarrow or \rightarrow or
function keys $F1 \sim F3$. When the arrow points to the other six items, you can input the
setting values by using arrow keys or number keys.

When the arrow points to the channel name, press the **ENTER** key to ENTER the T9 Pinyin input interface, used to customize the channel name, support Chinese, English, numbers, symbols input.

Press F5 to save the Settings. If you press F6 or ESC, the Settings are not modified.

5.1.5. Customize Channel Name

Selecting the channel name by move \uparrow or \downarrow key in channel setting interface, and press ENTER to enter into the T9 Pinyin input interface, its shown as belowed:

2020/03/06 12:20:00	INPUT	Auto 19.	Chinese
(0/1 (Abc) <mark>1.a</mark> 2.b3.c4.	2) A 5. B 6. C		Abc
			Number
			Enter
			Back

Fig 5-8 T9 Pinyin input interface

In this interface, press $F1 \sim F3$ key and numerical key to realize the input of Chinese, English, numerical digits and symbol.

5.2. Curve Interface

5.2.1. Curve Interface

2020/03/06 12:20	00:00	CURVE	ļ	UT0 19.9°C	1/ 8 SLOW
1748.00°C					
					CH01
					20.00°C
					CH02
1236_00°C					20.00°C
1200100 0					CH03
					20.00°C
					CH04
724_00°C					20.00°C
/24.000					CH05
					20.00°C
					CH06
212 00°C	(c)	5	6		20.00°C
212.00 C					CH07
					20.00°C
					CH08
-300, 00°C					20.00°C
12:12:00	12:14:00 1:	2:16:00 12	:18:00 12:2	0:00 12:2	2:00

Fig 5-9 Curve Interface

5.2.2. Curve interface popup function menu

2020/03/06 12:20	00:00		CURVE		AUT	0 19.	Data
1748.00°C							
							Columnar
1236. 00 C							Cotting
							Setting
724. 00 °C	8	3					Axis-Y
212. 00 °C				8			Record
-300. 00 °C							Sys Set
12:12:00	12:14:00	12:16	:00 12:1	8:00	12:20:00		

Fig 5-10 Curve Interface with Functions Menu

Press F4 key to switch between "Axis-Y" and "Axis-x". When it displays "Axis-Y" in function menu, press \uparrow or \downarrow 键 to move the Y axis display area up and down, press \leftarrow or \rightarrow 键 to enlarge or shrink the Y axis display area. When it shows "Axis-x" in functional menu, press \leftarrow or \rightarrow 键 to enlarge or shrink the X axis display area. \uparrow and \downarrow don't take effect.

5.2.3. Setting Interface in Curve Interface

202	0/03/06	12:20:00	SETTING	AUTO 19.	
→	Displa	av Module:	Module1(CH01~CH08)		ee
	CH01:	Show			
	CH02: CH03:	Show Show			
	CH04:	Show			
	CH05: CH06:	Show Show			Entor
	CH07:	Show			
	CH08:	Show			Back

Fig 5-11 Setting Interface in Curve Interface

In the curve setting interface, you can set the display module of the curve interface, and set the display status of each curve.

Press	↑ or	\downarrow to move	the arrow c	on the left	of the	screen t	o confirm	the cur	rent
selection.	You can mo	dify the selected	l item by us	sing the \leftarrow	and	\rightarrow	or function	keys	F1
~ F4									

When you press F5, the information about the display area and temperature range of Y axis in the curve setting interface, the current display module in the curve setting interface, and the hidden information about the curve will be saved. (After the device is restarted, the previously saved Settings still exist). Press F6 or ESC to cancel the Settings and return to the curve screen.

5.3. Cylindrical Interface

5.3.1. Cylindrical Interface



Fig 5-12 Cylindrical Interface

5.3.2. Cylindrical Interface Popup Menu



Fig 5-13 Cylindrical Interface with Function Keys' Menu



5.3.3. Setting Interface in Cylindrical Interface

2020/03/06 12:20	:00	Setting	AUTO 19.	Data
→ Display:	Data °C			Percent
Y-Min: Y-Max:	0. 00° 40. 00°	C C		
				Enter Back

Fig5-14 Setting Interface in Cylindrical Interface

Press	\uparrow	or	\downarrow	to move	the arroy	v on	the	left	screen	to	confirm	the	current
modification.											-		

```
If the item "Display" or "Unit" is selected in the left screen, press \leftarrow and \rightarrow or function keys F1 \sim F4 to modify the selected item.
```

Select "Y-Min" or "Y-Max" on left screen, and input the setting value by direction key and numerical key.

Press F5, the information of display, unit, Y-Min and Y-Max will be saved.(After the device is restarted, the previously saved Settings still exist). Press F6 or ESC to cancel the Settings and return to the cylindrical interface.

5.4. System Interface

5.4.1. System Setting Interface

Press F6 to enter system setting interface when in the numerical interface, curve interface and cylindrical interface.

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202	0/03/06 12:20:00	SYS SET	AUTO 19.	Data
				Data
	Mode: ET3916			
	Serial: 0963213	2000		Curve
	Version: V1.00.	2133. 001		
				Columnar
→	Basic Setup			
	Mod Setup: Mould	1		
	TC REF Setup			
	Boot Update			Record
				Back

Fig 5-15 System Setting Interface

The upper part of the interface displays the device model, serial number, and program version. The lower part is used to enter the interface of basic Settings, module Setup, reference Setup, and boot update interface.

 \uparrow or \downarrow to move the cursor and select the item in left screen.

Press ENTER to enter into the item selected, such as "Basic setup", "Mod Setup", "REF Setup", "Boot update"

When the "Mod Setup" is selected, the date in this item can be modified by 5.4.2. Basic Settings

202	0/03/06 12:20	0:00	BASIC	AUTO 19.	Chineese
†	Language: Beep: Light: Style: Time: Speed: Warning:	English Open Mid Style1 2020-03-06 Slow Close	12:20:00		 English
					Back



Press ↑	or ↓	to mo	ve the	arrow	on the left	screen	to se	lect	the item	. You c	an	modif	y
the selected item	by using	the \leftarrow	and	\rightarrow	or functio	n keys	F1	~	F4				

5.4.3. Module Settings

Press

 \leftarrow or \rightarrow .

2020/03/06 12:20:00 Setting Module	SETTING Module1(CH01~CH08)	AUTO 19.	Defaule
→ ThermocType: Unit: UpUpLimit: UpLimit: DownLimit: DownDownLimit: Corrcet k: Corrcet b:	K °C 1350.00°C 999.00°C -50.00°C -200.00°C 1.0000 +0.00°C		Enter Back

Fig 5-17 Module Setting Interface

Press \uparrow or \downarrow to move the arrow on the left screen to select the item. The items "ThermocType" and "Unit, only could be modified by \leftarrow or \rightarrow , and for rest 6 items, the input value could be modified by direction keys or numerical keys.

Press F1 to back to default value.

After the Settings are complete, press F5 to save the Settings and modify the Settings of the eight channels in the corresponding module. If you do not want to save the Settings, press F6 or ESC to exit.

5.4.4. Reference Settings

2020/03/06 12:20:00	TC REF	AUTO 19.	Inside
→ Ref Style: Inside Correct: +00.00°C			Custom
			Enter
			Back

Fig 5-18 System Settings- Reference Setting

Press \uparrow or \downarrow to move the arrow on the left screen. When the arrow points to Reference Settings, press \leftarrow and \rightarrow to set the reference terminal mode to built-in or custom. When the arrow points to "Correct", you can enter the modified value in the built-in mode of the reference terminal or the customized value in the customized mode of the reference terminal through the numerical key.

There are two kinds of settings in TC reference terminal: Built-in and Custom. When its in built-in, there is the correction value to correct the temperature value of built-in 18B20. When its in custom, can input a setting value as temperature value of TC reference terminal.

5.5. Record Interface

In numerical interface, curve interface, columnar interface, Press F5 to enter into the Record interface, see as followed.

In record interface, users can select the items "Warning", "Record", "CVS" by direction key and press ENTER to enter the item selected.

2020/03/06 12:20:00	RECORD	Auto 19.	
			9 <u>1</u>))
→ Warning			
Record			()
CSV			
			.
			Back

Fig 5-19 Record Interface

5.5.1. Warning Record Interface

2020	0/03/06 12:20:00	WA	RNING	Auto 19.	Output
	Page: 1 , Tota	1: 1	1		
	Time	CH	Inf	ormation	
+	2020/03/06 12:20:00	CH01	Nromal	→UpupLimit	
			5		·
			8		
					2 <u></u>
	1 Jump				Back

Fig 5-20 Warning Information Browsing Information

When the arrow appoints to "Warning", press **ENTER** to browse the related information about the warning record.

Press F1 in this interface to delete and export its warning record.

2020/03/06 12:20:00	WARNING	Auto 19.	
Time:	2020/03/06 12:20:00		
Channel:	CH01		
Information:	Normal →UpLimit		a
TC Type:	К		12 ⁵
REF:	Inside +0.00°C		
UpUpLimit:	1350. 00°C		
UpLimit:	999.00°C		
DownLimit:	−50. 00°C		- 10 - 20
DownDownLimit:	–200. 00°C		
Correct k:	1.0000		Back
Correct b:	+0. 00°C		Dack

Fig 5-21Waring Information Detail Interface

202	20/03/06 12:20:00	HISTORY	Auto 19	
	Can't find USB-D	isk		
→	Time: 2020Y 3M 1.Output history	~2020Y 3M information		· · · · · · · · ·
	1.Delete history	information		
	Used memory:	6 MB/ 7664	MB	
				Back

Fig5-22 Warning Record Management Interface

5.5.2. History Record Interface

On the history interface, select year, month, and date, and enter the time setting interface of the history curve. On this interface, you can see the start time and end time of the selected date. After setting start time and display range of history curve, make the arrow points to "load curve by direction key, and press ENTER, then it will show the history curve. History curve interface support only Y operation, does not support the X-axis scaling, moving, need to adjust the time axis, return to the time setting screen of historical curves and reset the start time and display range of curves.

On the history record interface, press $\overline{F1}$ to ENTER the history data management page. After a time period is set, move the arrow to" Export History", and press ENTER to export history data (usb flash drive is required). The exported data is binary data, which needs to be analyzed by the upper computer to browse the data.



Fig 5-23History Record Interface



Fig 5-24 History Curve Time Setting Interface

2020/03/06 12:	20:00	HIS	STORY	Auto 1	19.9°C 1/8 SLOW
1748. 00°C					01104
Na Meneral Addition of the					CHU1
					CH02
1236. 00°C					°C
					°C
					CH04
724. 00 °C					CH05
					°C
					СН06
212. 00°C	<i>©</i>		8		СН07
					°C
-200,00°C					°C
12.00.00	12.02.00	12.04.00	12.06.00	12.08.00	12-10-00

Fig 5-25 History Curve Interface

2020/03/06	12:20:00	HISTORY	Auto 1	9
Can't → Time: 1.Out; 1.Dele	find USB-D 2020Y 3M out history ete history	isk ~2020Y 3M information information		
	,,,			
Used r	memory:	6 MB/ 7664 M	B	
				Back

Fig 5-26 History Record Export Interface

5.5.3. CSV Record Interface

On the CSV record interface, when the arrow points to the file name, press ENTER to enter into the CSV file management interface, on which you can delete or export. CSV files.

On the CSV record interface, press F1 to enter the interface for creating a new CSV file. On this interface, the file name is automatically generated based on the year, month, day, hour, minute, second and cannot be modified. You can set the record saving interval. After setting, move the arrow keys to point to "New File" and press ENTER to start recording data, then press F2 to stop recording data. CSV file. The records of the file cannot be started again after stopping.

The CSV record interface supports $\,$ to record a maximum of 50 .CSV files. If the records meet Hangzhou Zhongchuang Electron Co. , Ltd $\,15$

upper limit, users can delete unnecessary or exported .csv files to creat new files.

The exported .csv files can be opened in excel to browse the record information directly.

2020	1/03/06 12:20:00	CSV Auto 19.	New
	Page 1 , Total 1		Stop
	Name	Size	()(f
\rightarrow	20200306_121005. csv	79KB	
			·0
			Back
	1 Jump		

Fig 5-27 CSV Record Interface

2020/03/06 12:20:00	CSV新建	内置19.	
文件名: 20200306_	_121005. csv		
→ 记求间隔: 1秒 新建文件			
			返回

Fig 5-28 CSV Record Creation Interface

2020	/03/06 12:20:00	CSV	Auto 19.	New
	20200306_121005.csv Page: 1 , Total 1	saving		Stop
	Name	Siz	ze	
→	20200306_121005. csv	7	79KB	
4				
				··
				Back
	1 Jump			

Fig 5-29 CSV Record Interface+Record Save Status



Fig 5-30 CSV Record Management Interface

X		₩- -		202	11220_1103	18.csv - Mic	rosoft Excel			78		×
文	4 开始	插入 页	面布局	公式 数据	审阅	视图 负载	划过 特的	色功能 国	11队 百度	网盘 ♡	() - d	23
	A1	• (0	f_{x}	日期								~
	A	В	С	D	E	F	G	Н	I	J	K	F
1	日期	时间	单位	CH01	CH02	CH03	CH04	CH05	CH06	CH07	CH08	9
2	2021/12/20	11:03:23	C	17.1	17.2	17.6	17	17.1	17.1	17	17.2	:
3	2021/12/20	11:03:24	C	17.2	17.2	17.6	17.1	17.1	17.1	16.9	17.2	:
4	2021/12/20	11:03:25	C	17.2	17.3	17.6	17	17.1	17.1	16.7	17.2	:
5	2021/12/20	11:03:26	C	17.2	17.2	17.5	17	17.1	17.1	16.6	17.2	:
6	2021/12/20	11:03:27	C	17.2	17.2	17.5	16.9	17.1	17.1	16.6	17.2	:
7	2021/12/20	11:03:28	C	17.1	17.1	17.4	16.9	17	17	16.5	17.1	
8	2021/12/20	11:03:29	C	17.1	17.2	17.4	16.9	17	17	16.5	17.1	
9	2021/12/20	11:03:30	C	17.2	17.2	17.5	16.9	17.1	17.1	16.6	17.2	2
10	2021/12/20	11:03:31	C	17.2	17.3	17.4	16.9	17.1	17.1	16.5	17.1	
11	2021/12/20	11:03:32	C	17.2	17.3	17.4	16.8	17.1	17.1	16.5	17.1	. =
12	2021/12/20	11:03:33	C	17.2	17.3	17.4	16.8	17.1	17	16.5	17.2	
13	2021/12/20	11:03:34	C	17.2	17.2	17.4	16.9	17.1	17	16.5	17.2	1
14	2021/12/20	11:03:35	C	17.2	17.2	17.4	16.9	17.1	17.1	16.6	17.1	
15	2021/12/20	11:03:36	C	17.2	17.2	17.4	16.9	17.1	17.1	16.5	17.2	
16	2021/12/20	11:03:37	C	17.2	17.2	17.3	16.9	17.1	17	16.5	17.2	
17	2021/12/20	11:03:38	C	17.2	17.2	17.4	16.9	17.1	17	16.5	17.2	
18	2021/12/20	11:03:39	C	17.2	17.2	17.4	16.9	17.1	17	16.5	17.2	
19	2021/12/20	11:03:40	C	17.2	17.1	17.3	16.8	17	16.9	16.5	17.1	
20	2021/12/20	11:03:41	C	17.1	17.1	17.4	16.9	17	17	16.7	17.1	

Fig 5-31 CSV files in excel

六、 SCPI and Software

Please contact manufacturer for SCPI and Software if necessary.

七、 Notes and warranty

7.1. Packaging

The measuring instrument with its accessories, components, instruction, and production qualification certification should be placed in the plastic bag and stored in the solid box against dust, vibration and moisture.

7.2. Transport

Handle the measuring instrument with care during transport. Keep it away from moisture and rain.

7.3. Storage

The measuring instrument should be stored in a ventilated room with a temperature of -10° C ~ 50°C and a relative humidity of 15% to 85%. There should be no harmful impurities in the air to corrode the instrument.

7.4. Warranty

The maintenance of the instrument should be conducted qualified by technicians; please do not Hangzhou Zhongchuang Electron Co., Ltd $$17\$

replace the internal components of each instrument during maintenance; after the maintenance, the instrument needs recalibration, so as not to affect test accuracy. The user shall undertake the maintenance fees for the damage not within the scope of warranty which is caused by the arbitrary maintenance by the user or the replacement of the components.