Communication Protocol

Model ST2683

ULTRA HIGH RESISTANCE METER

RS232 Setup

Baud rate：9600
Parity check：none
Data bit：8 bits
Stop bit：1bit

A. Output Data

Function T Testing status

No.	DATA	Description
1	<	Start character
2	**T**	Testing status
3	**#1**	Insulation Resistance value. Example:1.000G (1.000GΩ) When the value is out of measurement range, “000000” will be outputted.
4	**#2**	
5	**#3**	
6	**#4**	
7	**#5**	
8	**#U**	
9	**#1**	Leakage current value. Example: 10.00u (10.00μA)
10	**#2**	
11	**#3**	
12	**#4**	
13	**#5**	
14	**#U**	
15	**OR**	0: Less than Low range limit 1: Larger than High range limit
16	**GD**	0: Fail 1: Pass
17	**BP**	0: Beep when fails 1: Beep when passes 2: Beeper off
18	**AU**	0: Manual ranging 1: Auto ranging
19	**RG**	Range number from 1 to 6
20	**VO**	Voltage number from 1 to 9
21	**#1**	Low limit value. Example: 0.100M (0.100MΩ)
22	**#2**	
23	**#3**	
24	**#4**	
25	**#5**	
26	**#U**	
27	**#1**	High limit value. Example: 9999**.**G (9999GΩ) **: : : : .**G (infinite)
28	**#2**	
29	**#3**	
30	**#4**	
31	**#5**	
32	**#U**	
33	>	End character.

Function D Discharging status

No.	DATA	Description
1	<	Start character
2	**D**	Discharging status
3	**0**	Meaningless data.
4	**0**	
5	**0**	
6	**0**	
7	**0**	
8	**0**	
9	**0**	
10	**0**	
11	**0**	
12	**0**	
13	**0**	
14	**TR**	0: Trigger mode off 1: Trigger mode on
15	**OR**	Meaningless data
16	**GD**	
17	**BP**	0: Beep when fails 1: Beep when passes 2: Beeper off
18	**AU**	0: Manual ranging 1: Auto ranging
19	**RG**	Range number from 1 to 6
20	**VO**	Voltage number from 1 to 9
21	**#1**	Low limit value. Example: 0.100M (0.100MΩ)
22	**#2**	
23	**#3**	
24	**#4**	
25	**#5**	
26	**#U**	
27	**#1**	High limit value. Example: 9999**.**G (9999GΩ) **: : : : .**G (infinite)
28	**#2**	
29	**#3**	
30	**#4**	
31	**#5**	
32	**#U**	
33	>	End character.

Function S Setup status

No.	DATA	Description
1	<	Start character
2	**S**	Setup status
3	**0**	Meaningless data.
4	**0**	
5	**0**	
6	**0**	
7	**0**	
8	**0**	
9	**0**	
10	**0**	
11	**0**	
12	**0**	
13	**0**	
14	**0**	
15	**OR**	
16	**GD**	
17	**BP**	0: Beep when fails 1: Beep when passes 2: Beeper off
18	**AU**	0: Manual ranging 1: Auto ranging
19	**RG**	Range number from 1 to 6
20	**VO**	Voltage number from 1 to 9
21	**#1**	Low limit value. Example: 0.100M (0.100MΩ)
22	**#2**	
23	**#3**	
24	**#4**	
25	**#5**	
26	**#U**	
27	**#1**	High limit value. Example: 9999**.**G (9999GΩ) **: : : : .**G (infinite)
28	**#2**	
29	**#3**	
30	**#4**	
31	**#5**	
32	**#U**	
33	>	End character.

Function E Enter Clearing state

Function I Performing Clearing operation

No.	DATA	Description
1	<	Start character
2	**E/I**	Clearing status
3	**#1**	Current open clear data. Example: 0.040mV
4	**#2**	
5	**#3**	
6	**#4**	
7	**#5**	
8	**m**	
9	**V**	
10	**0**	Meaningless data
11	**0**	
12	**0**	
13	**0**	
14	**0**	
15	**OR**	0: Less than Low range limit 1: Larger than High range limit
16	**GD**	0: Fail 1: Pass
17	**BP**	0: Beep when fails 1: Beep when passes 2: Beeper off
18	**AU**	0: Manual ranging 1: Auto ranging
19	**RG**	Range number from 1 to 6
20	**VO**	Voltage number from 1 to 9
21	**#1**	Low limit value. Example: 0.100M (0.100MΩ)
22	**#2**	
23	**#3**	
24	**#4**	
25	**#5**	
26	**#U**	
27	**#1**	High limit value. Example: 9999**.**G (9999GΩ) **: : : : .**G (infinite)
28	**#2**	
29	**#3**	
30	**#4**	
31	**#5**	
32	**#U**	
33	>	End character.

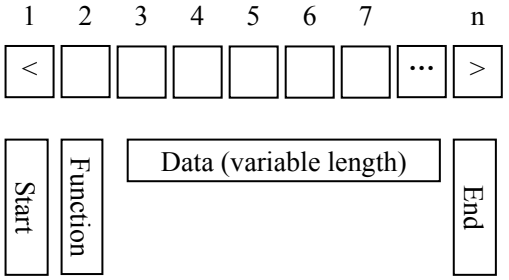
Note: The instrument will not be sending any data when it is in its SETUP menu, but a discharge command from the computer could bring the instrument back to the discharging status.

Function J A synchronizing signal sent by the instrument after power on ***(This function will not be influenced by the command "O")***

No.	DATA	Description
1	<	Start character
2	**J**	Setup status
3	**0**	Meaningless data.
4	**0**	
5	**0**	
6	**0**	
7	**0**	
8	**0**	
9	**0**	
10	**0**	
11	**0**	
12	**0**	
13	**0**	
14	**0**	
15	**OR**	
16	**GD**	
17	**BP**	0: Beep when fails 1: Beep when passes 2: Beeper off
18	**AU**	0: Manual ranging 1: Auto ranging
19	**RG**	Range number from 1 to 6
20	**VO**	Voltage number from 1 to 9
21	**#1**	Low limit value. Example: 0.100M (0.100MΩ)
22	**#2**	
23	**#3**	
24	**#4**	
25	**#5**	
26	**#U**	
27	**#1**	High limit value. Example: 9999**.**G (9999GΩ) **: : : : .**G (infinite)
28	**#2**	
29	**#3**	
30	**#4**	
31	**#5**	
32	**#U**	
33	>	End character.

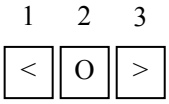
B. Receive Data

Protocol：



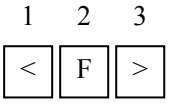
Command O

Enable the instrument to send data, the instrument is disabled to send any data by default.



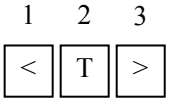
Command F

Disable the instrument to output data, but the instrument can still receive the command from a computer.



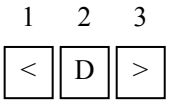
Command T

Bring the instrument to the testing status (same function as pressing the TEST key from the front panel)



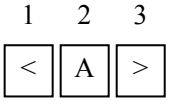
Command D

Bring the instrument to the discharging status (same function as pressing the DISCHARGE key from the front panel)



Command A

Enable the AUTO ranging function. (This command is only valid under Discharging or Testing status)



Command L/H

Setup the Low/High limit. (This command is only valid under the discharging status.)

1	2	3	4	5	6	7	8	9
<	L/H	#	#	#	#	P	U	>

L: Low limit
H: High limit

Data byte

U: unit 0:M, 1:G

P: point position, follow #3=1, follow #4=2, follow #5=3, follow #6=4

Note: infinite high limit can be configured as **<H::::41>**

Command R

Select a measurement range manually.

1	2	3	4
<	R	#	>

#: range number

Command V

Change the measurement voltage when the instrument is only under the discharging status.

1	2	3	4
<	V	#	>

#: Voltage number 0~9（10V~1000V）

Command E

Perform the open circuit correction, only when the instrument is under the discharging status.

(Send this command first time to enter the clearing state, send this command again to perform the clearing operation.)

1	2	3
<	E	>

Command B

Setup the beep status, only valid when the instrument is under the discharging status.

1	2	3	4
<	B	#	>

0：Fail 1：Pass 2：Off

Command G

Setup the trigger measurement mode, only valid under the discharging status.

1	2	3	4
<	G	#	>

0：Trigger on 1：Trigger off