RS232 通讯协议

Hardware :

BAUD RATE . . . . :   2400 bps
DATA LENGTH . . . . :   8 bits
STOP BIT   . . . .:   1 bits
PARITY   . . . . :   NONE

A. COMMUNICATION PROTOCOL:

（1）Status Inquiry :

Computer : Q1<cr>

UPS : UPS status data stream, such as
(MMM.M NNN.N PPP.P QQQ RR.R S.SS TT.T   b7b6b5b4b3b2b1b0<cr>

UPS status data stream :
There should be a space character between every field for data separation. The meaning of each field is list as followed:
a. Start byte   : (

b.I/P voltage   : MMM.M
M is and integer number ranging from 0 to 9. The unit is Volt.

c.I/P fault voltage : NNN.N
N is and integer number ranging from 0 to 9. The unit is Volt.

** For OFF LINE UPS**
Its purpose is to identify a short duration voltage glitch which cause OFF line UPS to go to Inverter mode. If this occurs, the input voltage will appear normal at query prior to glitch and will still appear normal at next query.

The I/P fault voltage will hold glitch voltage till next query. After query, the I/P fault voltage will be same as I/P voltage until next glitch occurs.

d.O/P voltage   : PPP.P
P is an integer number ranging form 0 to 9. The unit is Volt.

e.O/P current   : QQQ
QQQ is a percentage of maximum current, not an absolute value.

f.O/P frequency : RR.R
R is an integer number ranging from 0 to 9. The unit is Hz.

g.Battery voltage : SS.S or S.SS

S is an integer number ranging from 0 to 9. For on-line units battery voltage/cell is provided in the form S.SS. For standby units actual battery voltage is provided in the form SS.S. UPS type in UPS status will determine which reading was obtained.

h.Temperature   : TT.T

T is an integer number ranging form 0 to 9. The unit is degree celsius.

i.UPS Status   : <U>

<U> is one byte of binary information such as <b7b6b5b4b3b2b1b0>. Where bn is a ASCII character '0' or '1'.

UPS status :

Bit	Description
7	1 : Utility Fail (Immediate)
6	1 : Battery Low
5	1 : Bypass/Boost or Buck Active
4	1 : UPS Failed
3	1 : UPS Type is Line-Interactive (0 is On_line)
2	1 : Test in Progress
1	1 : Shutdown Active
0	1 : Beeper On

j.Stop Byte   : <cr>

Example: Computer : Q1<cr>

UPS : (208.4 140.0 208.4 034 59.9 2.05 35.0 00110000<cr>

Means :   I/P voltage is 208.4V.

I/P fault voltage is 140.0V.

O/P voltage is 208.4V.

O/P current is 34 %.

I/P frequency is 59.9 HZ.

Battery voltage is 2.05V.

Temperature is 35.0 degrees of centigrade.

UPS type is on-line , UPS failed. Bypass

active , and shutdown not active.

Shut Down Command :

Computer : S<n><cr>

UPS: Shut UPS output off in <n> minutes.

(a) The UPS output will be off in <n> minutes, evenif the utility is present.

(b) But if the battery under occur before <n> minutes, the output is turned off immediately.

(c) After UPS shut down, the controller of UPS monitors the utility. If the utility is there, the UPS will waiting for 10 seconds and connect the utility to output.

(d) <n> is a number ranging from .2,.3,...,01,02,.., to 10.

For example : S.3<cr> --- shut output off in (.3) minutes

Shutdown and Restore Command :

Computer   : S<n>R<m><cr>

UPS: Shut UPS output off in <n> minutes, and waiting for <m> minutes then turn on UPS output again.

a.   The UPS output will be off in <n> minutes, even if the utility power is present.
b.   If the battery low occurs before <n> minutes, the output is turned off immediately.
c.   If UPS is in shutdown waiting state, the "C" command can let the shutdown procedure cancelled.
d.   If, after <m> minutes have expired, the utility has not been restored, the UPS will wait until it is restored.
e.   If UPS is in restore waiting state, the "C" command can let the UPS output turned on, but UPS must be hold off at least 10 seconds. (if utility is present)
f.   <n> is a number ranging form .2, .3, ..., 01, 02, ..., up to 10.
g.   <m> is a number ranging form 0000 to 9999. If it is 0000, there will be no restore.

Cancel Shutdown Command :

Computer   : C<cr>

UPS: Cancel the SN<n><cr> and SN<n>R<m><cr> command.

a. If UPS is in shut down waiting state, the shut down command is cancelled.

b. If UPS is in restore waiting state, the UPS output is turned on, but UPS must be hold off at least 10 seconds.

   (if utility is present)