

**科士达科技发展有限公司**

**文件名称：**SNMP卡协议扩展

**文件编号：**

**版 本 号：ver 0.1**

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| --- | --- | --- | --- | --- | --- |
| 序 次 | 修 改 内 容 | 版 本 | 修改人 | 审核 | 生效日期 |
| [1](#correct16) | 初次编写 | 0.01 | 王利民 |  |   |
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COMMAND SUMMARY

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| --- | --- | --- |
| ITEM | COMMAND | DESCRIPTION |
| 1 | ADJ | adjust ups parameter |
| 2 | SAV | Change ups settings  |
| 3 | **SET** | Write ups CPU register |
| 4 | GET | Read ups CPU register |
| 5 | INF | UPS real time data |
| 6 | ICP | Update ups firmware |
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1. **General:**

This document specifies the RS232C communication protocol of

Advanced-Intelligent UPS. This protocol provides the following

features :

1. Monitor charge status.

2. Monitor battery status and conditions.

3. Monitor main power status.

**Computer gives command to UPS. All commands have to end with a < cr >.**

**UPS responds to computer. All responses have to end with a < cr> .**

**\*\*\* UPS must respond to every command within 500ms \*\*\***

**B. Hardware:**

BAUD RATE............... : 2400 bps

DATA LENGTH.......... : 8 bits

STOP BIT..................... : 1 bit

PARITY........................ : NONE

CABLING :

COMPUTER UPS

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RX <---------- TX (pin 9)

TX ----------> RX (pin 6)

GND <--------> GND (pin 7)

(9 pins female D-type connector)

**C. COMMUNICATION PROTOCOL:**

**1.ADJ command** : adjust ups parameter

 Computer : ADJXXNNNN<cr>

 XX: address (x is form 0 to F)

 NNNN：value(N is form 0 to F)

|  |
| --- |
| Write adjust value |
| XX | NNNN | Range  |
| 00 | Input volt | 3891~4301 |
| 01 | Inverter volt | 3891~4301 |
| 02 | Output volt | 3891~4301 |
| 03 | +Bus volt | 3891~4301 |
| 04 | -Bus volt | 3891~4301 |
| 05 | +battery volt | 3891~4301 |
| 06 | -Battery volt | 3891~4301 |
| 07 | +charger volt | 3891~4301 |
| 08 | -Charger volt | 3891~4301 |
| 09 | DC volt | 3891~4301 |
| 40 | Save  | 3891~4096 |
| Read adjust value |
| 20 | Input volt | 3891~4301 |
| 21 | Inverter volt | 3891~4301 |
| 22 | Output volt | 3891~4301 |
| 23 | +Bus volt | 3891~4301 |
| 24 | -Bus volt | 3891~4301 |
| 25 | +battery volt | 3891~4301 |
| 26 | -Battery volt | 3891~4301 |
| 27 | +charger volt | 3891~4301 |
| 28 | -Charger volt | 3891~4301 |
| 29 | DC volt | 3891~4301 |
|  |  |  |

NOTE:

When ups receive 40 command, ups will save this parameter to eeprom

Case1: Write adjust value

UPS response:

if command is valid ups will response NNNN<cr>.

if command is invalid ups will response “NAK”<cr>

Case2: Read adjust value

UPS response:

if command is valid ups will response the current value ,the format is NNNN<cr>.

if command is invalid ups will response “NAK”<cr>

**2.SAV command**  : change ups parameter

Computer : SAVXXNNN<cr>

 XX: address (x is form 0 to F)

 NNN：value(N is form 0 to F)

|  |
| --- |
| Write settings  |
| address | value | function |
| 00 | 0,1,2 | Work mode : 0:normal 1:ECO 2: parallel |
| 01 | 0~99 | Parallel ID |
| 02 | 220,230,240 | Output volt  |
| 03 | 50,60  | Output frequency |
| 04 | 175,180 | Battery eod voltage/cell: unit:0.01V  |
| 05 | 0~20 | UPS parallel number |
| 06 | 0~20  | UPS redundance number |
| 07 | 1,2,4,5,10 | Bypass frequency trace point |
| 08 | 5,10,15,20,25 | Bypass voltage high protection point |
| 09 | 20,30,45 | Bypass voltage low protection point |
| 0A | 16,18,20 | Battery number |
| 0B | 0~99 | Battery parallel number |
| 0C | 0~200 | Battery Capacity |
| 0D | 190~230 | Float charge volt/cell ,unit: 0.01V |
| 0E | 230~235 | const charge volt/cell,unit: 0.01V |
| 0F | 1~5 | Inverter voltage level  |
| 30 | 0~255 | Save settings to eeprom |
| Read settings |
| address | value | function |
| 40 | 0~255 | Work mode : 0:normal 1:ECO 2: parallel |
| 41 | 0~255 | Parallel ID |
| 42 | 0~255 | Output volt  |
| 43 | 0~255 | Output frequency |
| 44 | 0~255 | Battery eod voltage/cell: unit:0.01V  |
| 45 | 0~255 | UPS parallel number |
| 46 | 0~255 | UPS redundance number |
| 47 | 0~255 | Bypass frequency trace point |
| 48 | 0~255 | Bypass voltage high protection point |
| 49 | 0~255 | Bypass voltage low protection point |
| 4A | 0~255 | Battery number |
| 4B | 0~255 | Battery parallel number |
| 4C | 0~255 | Battery Capacity |
| 4D | 0~255 | Float charge volt/cell ,unit: 0.01V |
| 4E | 0~255 | const charge volt/cell ,unit: 0.01V |
| 4F | 0~255 | Inverter voltage level  |

NOTE:

When ups receive 30 command, ups will save this settings to eeprom

Case1: Write value

UPS response:

if command is valid ups will response NNN<cr>.

if command is invalid ups will response “NAK”<cr>

Case2: Read adjust value

UPS response:

if command is valid ups will response the current value ,the format is NNN<cr>.

if command is invalid ups will response “NAK”<cr>

**3.SET command:** write ram value

Computer : SETXXXXNNNN<cr>

 XXXX: address (x is form 0 to F)

 NNNN：value(N is form 0 to F)

 Ups : OK<cr>. NAK<cr>

**4.GET command:** read ram value

Computer : GETXXXX<cr>

 XXXX: address (x is form 0 to F)

 Ups : NNNN(N is form 0 to F)<cr> or NAK<cr>

 **5.INF command:** UPS real time data

 Computer : INF <cr>

 UPS : UPS status data stream, such as

(AAA.A BBB.B CCC.C PPP.P MMM.M NNN.N RRR.R SS.S TTT QQ.Q XXX.X ZZZ.Z<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 follows:

a. Start byte : (

b.I/P R voltage : AAA.A

M is an integer number ranging from 0 to 9.

The unit is “ Volt”.

b.I/P S voltage : BBB.B

M is an integer number ranging from 0 to 9.

The unit is “ Volt”.

c.I/P T voltage : CCC.C

M is an integer number ranging from 0 to 9.

The unit is “ Volt”.

d.O/P voltage : PPP.P

P is an integer number ranging from 0 to 9.

The unit is “Volt”.

e.inv voltage : MMM.M

P is an integer number ranging from 0 to 9.

The unit is “Volt”.

e. P battery voltage : NNN.N

P is an integer number ranging from 0 to 9.

The unit is “Volt”

f. N battery voltage : RRR.R

P is an integer number ranging from 0 to 9.

The unit is “Volt”

g. input frequency: SS.S

P is an integer number ranging from 0 to 9.

The unit is “Hz”

h. loader percent: TTT

P is an integer number ranging from 0 to 9.

i. UPS internal Temp: QQ.Q

P is an integer number ranging from 0 to 9.

The unit is “C”

j. P BUS voltage : XXX.X

P is an integer number ranging from 0 to 9.

The unit is “Volt”

k. N BUS voltage : ZZZ.Z

P is an integer number ranging from 0 to 9.

The unit is “Volt”

**6.ICP command:** UPS firmware update

Computer : ICP<cr>

 Ups : OK<cr> or NAK<cr>

7. FCT **command:** Factory settings

 Computer : FCTXSSSSS<cr>

 X: address (x is form 0 to F)

 SSSSS：string (S is character)

|  |
| --- |
| Write adjust value |
| X | SSSSS | Range  |
| 1 | Factory name | Length =16(ex. “KSTAR “) |
| 2 | Device name | Length =10(ex. “YDE6K “) |
| 3 | Power | Length =2,value <99 |
| 4 | BUS cap time  | Length =5, value <99999 |
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