飛碟UPS

www.ftups.com.tw

UPS Communication Protocol

1 Series

6K-10K

Rule

1. Computer and UPS respond both the "<cr>" as the end of a response.

2. UPS respond with “(“ start, and with one space separate the data.

3. In a UPS’s response, if there is no data, with “-” instead of data, and the length of the “-” as long as data.

4. In a UPS’s response, if some data length is less than the definition, type enough “#” before the data.

5. if UPS don’t accepts this command, responds (NAK<cr>

Hardware Description

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

COMPUTER		UPS
RX (pin2)	<---------->	TX
TX (pin3)	<---------->	RX
GND (pin5)	<---------->	GND

(9 pins female D-type connector)

1 Inquiry Command

1.1 QPI<cr>: Protocol ID Inquiry

協議 查詢

Computer: QPI<cr>

UPS: (PI <NN><cr>

N is an integer number ranging from 0 to 9. N 是一個整數，範圍從 0 到 9。

Function : To request the UPS Protocol ID.

1.2 QGS<cr>: The general status parameters inquiry 一般狀態參數查詢

Computer：QGS<cr>

UPS: (MMM.M HH.H LLL.L NN.N QQQ.Q DDD KKK.K VVV.V SSS.S XXX.X TTT.T b9b8b7b6b5b4b3b2b1b0a0a1<cr>

	Data	Description	Notes
a	(	Start byte	
b	MMM.M	Input voltage 輸入電壓	M is an Integer number 0 to 9. The units is V.
c	HH.H	Input frequency 輸入頻率	H is an Integer number 0 to 9. The units is Hz.
d	LLL.L	Output voltage 輸出電壓	L is an Integer number 0 to 9. The units is V.
e	NN.N	Output frequency 輸出頻率	N is an Integer number from 0 to 9. The units is Hz.
g	QQQ.Q	Output current 輸出電流	Q is an Integer number from 0 to 9. The units is A.
h	DDD	Output load percent 輸出負載百分比	For Off-line UPS: DDD is a percent of maximum VA, not an absolute value. For On-line UPS: DDD is Maximum of W% or VA %. VA% is a percent of maximum VA. W% is a percent of maximum real power.
j	KKK.K	Positive BUS voltage 正總線電壓	K is an Integer ranging from 0 to 9. The units is V.
k	VVV.V	Negative BUS voltage 負總線電壓	V is an Integer ranging from 0 to 9. The units is V.
l	SSS.S	Battery voltage 電池電壓	S is an Integer ranging from 0 to 9. The units is V.
m	XXX.X	Reserved 預訂的	X is an Integer ranging from 0 to 9. The units is V.
n	TTT.T	Max Temperature of the detecting pointers 最高溫度	T is an integer ranging from 0 to 9. The units is °C
o	b9b8b7b6b5b4b3b2b1b0a0a1	Ups status ups狀態	B9,b8: 00: standy; 待機 01: line-interactive; 在線互動 10: on-line. 在線 B7: Utility Fail 市電失敗 b6: Battery Low 電池電量低 b5: Bypass/Boost Active 旁路/升壓啟動

			b4: UPS Failed UPS 失敗 b3: EPO 緊急斷電埠 b2: Test in Progress 測試進行中 b1: Shutdown Active 關機啟動 b0: bat silence 電池靜音 a0: Bat test fail 電池測試失敗 a1: Bat test OK 電池測試正常

Example:

Computer: QGS<cr>

UPS: (220.2 50.0 220.0 50.0 027.0 100 345.8 344.9 241.0 ---.- 045.0 100011000000<cr>

Means:

I/P voltage is 220.2V.

I/P frequency is 50.0Hz

O/P voltage is 220.0V

O/P frequency is 50.0Hz.

O/P current is 27.0A

O/P load 100%

Positive BUS voltage is 345.8V

Negative BUS voltage is 344.9V

Battery voltage is 241.0V.

Temperature is 45.0 degrees of centigrade.

On-line mode, Utility OK, Bypass Active, UPS failed.

1.3 QMOD<cr>: UPS Mode inquiry UPS 模式查詢

Computer: QMOD<cr>

UPS: (M<cr>

Mode	Code(M)	
Power on mode	P	開機模式
Standby mode	S	待機模式
Bypass mode	Y	旁路模式
Line mode	L	線路模式
Battery mode	B	電池模式
Battery test mode	T	電池測試模式
Fault mode	F	故障模式
HE/ECO mode	E	HE/ECO 模式
Converter mode	C	轉換器模式
Shutdown mode	D	關機模式

For example:

Computer: QMOD<cr>

UPS: (Y<cr>

means: the current UPS mode is bypass mode.

1.4 QVFW<cr> : Main CPU Firmware version inquiry 主 CPU 固件版本查詢

Computer: QVFW<cr>
UPS: (VERFW: <m>.<n><cr>
<m> are 5 characters, represent firmware series number;
<n> can be 2~4 characters, represent version;
Example:
Computer: QVFW<cr>
UPS: (VERFW: 00123.01<cr>
00123: firmware series number;
01: version.

1.5 QBV<cr>: The P battery information inquiry 電池信息查詢

Computer：QBV<cr>
UPS: (RRR.R NN MM CCC TTT<cr>
Or (RRR.R NN MM CCC TTTTT<cr>

	Data	Description	Notes
a	(	Start byte	
b	RRR.R	Battery voltage	R is an Integer number 0 to 9. The units is V.
c	NN	Battery piece number	NN is from 01 to 20.
d	MM	Battery group number	MM is an Integer number 01 to 99.
e	CCC	Battery capacity	CCC is an Integer number 000 to 100.
f	TTT/ TTTTT	Battery remain time	T is an Integer number 0 to 9. The units is minutes.

1.6 QTPR<cr>: The temperature inquiry 溫度查詢

Computer：QTPR<cr>
UPS: (RRR.R SSS.S HHH.H LLL.L<cr>

	Data	Description	Notes
a	(	Start byte	
b	RRR.R	temperature1(PFC NTC)	R is an Integer number 0 to 9. The units is ℃.
c	SSS.S	temperature2(Ambient NTC)	S is an Integer number 0 to 9. The units is ℃.
d	HHH.H	temperature3(Charger NTC)	H is an Integer number 0 to 9. The units is ℃.
e	LLL.L	Reserve	L is an Integer number 0 to 9. The units is ℃.

For example:
Computer：QTPR<cr>
UPS: (032.0 032.4 ---.- ---.- <cr>
Means:
The first temperature check point is 32.0℃;

The second temperature check point is 32.4℃;

There is no the third and the fourth temperature check points

2 Control Command

2.1 T<cr>: 10 seconds test 10 秒測試

Computer: T<cr>

UPS: None response.

Means: Test for 10 seconds and then return to utility.

(1) If battery low occurs during testing, UPS will return to utility immediately.

(2) Only when UPS is in line mode, and the battery voltage is not less than 13V/pcs, the command is executed.

2.2 T<cr>: 10 seconds test

Computer: T<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Test for 10 seconds and then return to utility.

(1) If battery low occurs during testing, UPS will return to utility immediately.

(2) Only when UPS is in line mode, and the battery voltage is not less than 13V/pcs, the command is executed.

2.3 TL<cr>: Test until battery low

Computer: TL<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Test until battery low and then return to utility.

This command is used to let the user to discharge the battery by setting the time to test, that is to say that the user should discharge the battery by periods, with this command the ups will do it by itself.

2.4 T<n><cr>: Test for specified time

Computer: T<n><cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

<n> is a number ranging from.2, .3, ..., 01, 02,..., to 99.

Means: Test for <n> minutes

2.5 S<n><cr>: Shutdown

Computer: S<n><cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

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

The UPS output will be off in <n> minutes, even if the utility is present.

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

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

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

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

2.6 S<n>R<m><cr>: Shutdown and restore

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

UPS: None response

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

The shut down sequence is the same as the previous command. When the <m> minutes expired, the utility do not restore, the UPS will wait until utility restore.

If UPS is in waiting shutdown status, the “C” command can let the shut down command cancelled.

If UPS is in restore waiting status, the “C” command can let the UPS output turned on, but UPS must be hold off at least 10 seconds. (if utility is present)

<n> is a number ranging from .2, .3, ..., 01, 02, ..., to 99.

<m> is a number ranging from 0000 to 9999. If it is 0000, there will be no restore, and if control power could be shut off, then turn off it immediately.

2.7 S<n>R<m><cr>: Shutdown and restore

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

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

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

The shut down sequence is the same as the previous command. When the <m> minutes expired, the utility do not restore, the UPS will wait until utility restore.

If UPS is in waiting shutdown status, the “C” command can let the shut down command cancelled.

If UPS is in restore waiting status, the “C” command can let the UPS output turned on, but UPS must be hold off at least 10 seconds. (if utility is present)

<n> is a number ranging from .2, .3, ..., 01, 02, ..., to 99.

<m> is a number ranging from 0001 to 9999.

2.8 CS<cr>: Cancel shutdown

Computer: CS<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Cancel the S<n><cr> and S<n>R<m><cr> **and SON** command.

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

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

2.9 C<cr>: Cancel shutdown

Computer: C<cr>

UPS: None

Function: Cancel the S<n>R<m><cr> command.

Note:

UPS only accepts this command when the SnRm command has not been complete.

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

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).

2.10 CT<cr>: Cancel test

Computer: CT<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Cancel all test activity and connect the utility to output immediately.

2.11 SON<cr>: Remote turn on UPS

Computer: SON<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Remote turn on UPS.

2.12 SOFF<cr>: Remote turn off UPS

Computer: SOFF<cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: Remote turn off UPS.

2.13 BZOFF<cr>: Silence buzzer beep

Computer: BZOFF <cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: The buzzer beep silence .

2.14 BZON<cr>: buzzer beep open

Computer: BZON <cr>

UPS: (ACK<cr> if UPS accepts this command, otherwise, responds (NAK<cr>

Means: The buzzer beep open