The protocol between 3645 A Family Power supply and PC

Power supply can be connected to RS-232 interface by the DB9 plug on the back panel through the level switching circuit. The following instructions can help you to understand how to control the output of power supply by PC.
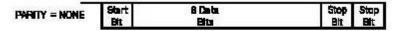
A. RS-232 Communication Set

You can set the baud rate and address of the power supply by the MENU on the LCD panel.

1 Address: (0 1)
2 Baud rate: 9600 (4800, 9600, 19200, 38400)
3 Data bit: 8
4 Stop bit: 1
5 Verify: None

PARITY = NONE	Start Bit	8 Data Bits	Stop Bit	Stop Bit

B. DB9 Serial interface

The output of DB9 interface on the back panel is TTL, and you need to level switching it by the auxiliary 3311 to transfer and connect it to the PC Com port.

Power		Level Converter	3110		PC
VCC	1			1	VCC
RXD	2			2	RXD
TXD	3			3	TXD
NC	4			4	DTR
GND	5			5	GND
NC	6			6	NC
NC	7			7	RTS
NC	8			8	NC
NC	9			9	NC

C. Frame format

The length of the frame is 26 bytes (compatible with FAB). The form is as the following:

AAH	Address	Command	Byte 4 to 25 are relevant information	Check

Directions:
1 AAH occupies a byte
2 Address (0~31) occupies a byte
3 Command occupies a byte. And the contents are as the following:

a 80H------Set the upper limit of current, power and the
   voltage level.
b 81H------Read the current, voltage, power and the current
   status. The statuses include ON/OFF, over current and
   overpower status of the power supply.
c 82H------Control the ON/OFF of the power supply
d 83H------Set the protection of power supply
e 84H------Read the protection status of power supply
f 85H------Demarcate the power command
g 86H------Return the actual output voltage to power supply
h 87H------Demarcate the current command
i 88H------Return the actual output voltage to power supply
j 89H------Set the demarcating information of power supply
k 8AH------Read the demarcating information
l 8BH------Set the serial number of power supply
m 8CH-----Read the serial number, product model and software
   version of power supply
n 12H-------Check

4 If you want to control the output of the power supply by PC,
   you have to set the power supply as PC controlled status. And
   the command is 82H. If you want to demarcate the output of the
   power supply and set the demarcating information and serial
   number of the power supply, you have to set the protection
   status as OFF first.
5 The 26th byte is check. It's the sum of the previous twenty-
   five bytes.

F. The instructions of the Command list

1 Set Max current, Max power and voltage levgel (80H)

Byte 1	AAH
Byte 2	Addresses (0 1)
Byte 3	Command (80H)
Byte 4	Low byte of the Max current
Byte 5	High byte of the Max current
Byte 6	Low byte of the low word of the Max voltage
Byte 7	High byte of the low word of the Max voltage
Byte 8	Low byte of the high word of the Max voltage
Byte 9	High byte of the high word of the

	Max voltage
Byte 10	Low byte of the Max power
Byte 11	High byte of the Max power
Byte 12	Low byte of the low word of the voltage set
Byte 13	High byte of the low word of the voltage set
Byte 14	Low byte of the high word of the voltage set
Byte 15	High byte of the high word of the voltage set
Byte 16	New address of the power supply
Byte 17~25	Keep for the system
Byte 26	Check

The Current, Voltage and Power are all expressed in two bytes, with low byte in the front and the high byte behind.
For example: The current value 3589H is showed as

89H	35H

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The range of current set 0-3000mA
The range of voltage set 0-36000mV
The range of power set: 0-108 (Enlarge 100 times)
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2 Read the current, voltage, power value and the status of the power supply (81H)

Byte 1	AAH
Byte 2	Address (0—31)
Byte 3	Command 81H
Byte 4	Low byte of current
Byte 5	High byte of current
Byte 6	Low byte of the low word of the voltage
Byte 7	High byte of the low word of the voltage

Byte 8	Low byte of the high word of the voltage
Byte 9	High byte of the high word of the voltage
Byte 10	Low byte of power
Byte 11	High byte of power
Byte 12	Low byte of Max current
Byte 13	High byte of Max current
Byte 14	Low byte of the low word of the Max voltage
Byte 15	High byte of the low word of the Max voltage
Byte 16	Low byte of the High word of the Max voltage
Byte 17	High byte of the High word of the Max voltage
Byte 18	Low byte of Max power
Byte 19	High byte of Max power
Byte 20	Low byte of the low word of the voltage set
Byte 21	High byte of the low word of the voltage set
Byte 22	Low byte of the High word of the voltage set
Byte 23	High byte of the High word of the voltage set
Byte 24	Power supply status
Byte 25	Keep for the system
Byte 26	Checking code

The current, voltage and power are all expressed in two bytes, with low byte in

the front and high byte behind

Power supply status occupies one byte, each bit is defined as:
From high to low

7	6	5	4	3	2	1	0

Bit 0 Power supply status 0 for OFF 1 for ON
Bit 1 Over current status 0 for Normal 1 for abnormal
Bit 2 Over power status 0 for Normal 1 for abnormal
Bit 3 Operation status 0 for Keyboard 1 for PC

Notes: The frame format from Power supply to PC is as the above.

3 Control the ON/OFF of the power supply (82H)

Byte 1	AAH
Byte 2	Address (0—31)
Byte 3	Command (82H)
Byte 4	The status of the power supply
Byte 5~25	Keep for system
Byte 266	Check6

The status of the power supply is expressed in one byte. Each bit is defined as the following:
From high to low

7	6	5	4	3	2	1	0

Bit 0 The status of the power supply 0 for OFF 1 for ON
Bit 1 The power supply controlled by PC 0 for Self-controlling
     of the power itself 1 for PC controlling the power
Explanation Only under the situation of PC controlling, you can set the parameters of the power.

4. Power supply automatically upper-transmits the max current, the max power and the voltage levels to the PC.
The frame is the same as frame of the setup of the max current, the max power and the voltage levels.

Examples:
1. Set the parameters:
3000mA,36000mV,10800(108W) ,3000V
AA 00 80 B8 0B A0 8C 00 00 30 2A B8 0B 00 00 00 00 00 00 00 00 00 00 00 00 36

2. Read the parameters:
AA 00 81 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 2B

3. Set control status:
A: PC control, output ON
AA 00 82 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 2F
B: PC control, output OFF
AA 00 82 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 2E

4.Self-controlled
AA 00 82 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 2C