

Sparr Electronics Limited



User Manual

SERIAL TO USB DRIVE MODULE

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Manual Revision	Revision Date	List of Updates
00	23/09/2016	
01	20/07/2017	1. Contact Information

1. Introduction

- Serial to USB Drive - USB D Module performs the function of collecting the RS 232 Serial Data from any Device or System and facilitates storage of the same in Standard USB Stick / Pen / Thumb drive. This utilizes the large storage capacity available in the Removable Media for Storing regular flow of information for later analysis.
- This can help Systems which do not have sufficient memory space to store the data and transporting the contents to computer for Analysis.
- USB D is available as Module for integration to any device / system.

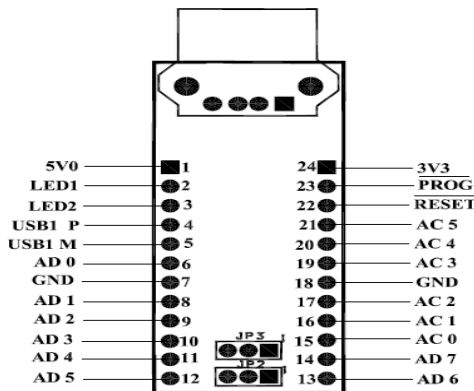
2. Technical Specifications

Serial Interface	
Interface	RS 232
Connectors	12 x 2 Berg Pins
Data Rates	300 to 115200 bps
Data Bits	7 or 8
Parity	Odd, Even, Mark, Space and No parity
Stop Bits	1 or 2
Flow Control	NONE, XON/XOFF & RTS/CTS
USB Interface	
Interface	USB Drive - USB 2.0 Compatible
Connectors	Type A Socket
Indicators (LED)	
Power ON	Red
USB	Green
Power	
Input	5 V DC
Environmental	
Operating	0 °C to 55 °C
Storage	-40 °C to 66 °C
Packaging	
Dimensions	(LxWxH) 51 mm(L) x 19 mm(W) x 18 mm (H)
Weight	10 g
Warranty	3 Months

3. Applications

- Weighing Machine storage.
- Point of Sale Terminals.
- Vehicle Performance gathering.
- Time & Attendance storage.
- Applications where large data storage is required

4. Serial to USB Drive Pin out and Mode Selection



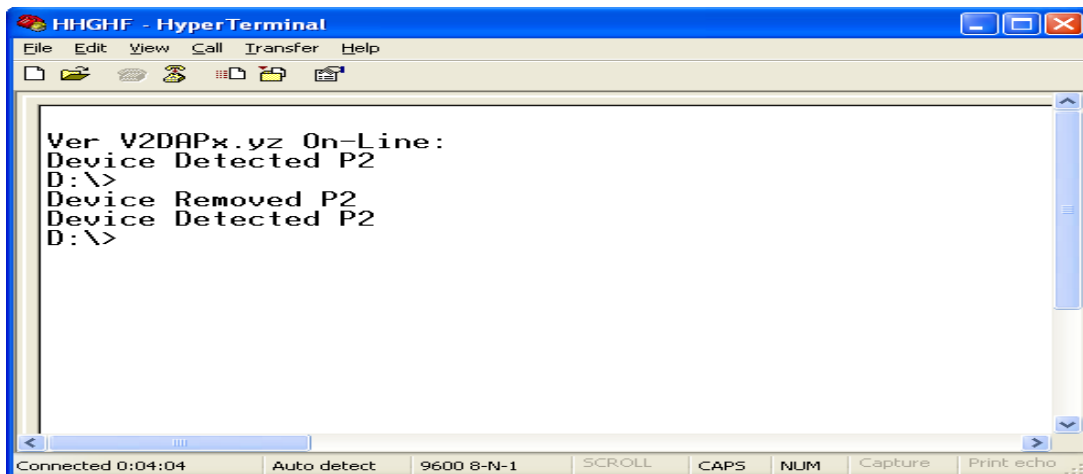
Data and Control Bus Configuration Selection		
JP2	JP3	Mode
Short 1 & 2	Short 1 & 2	UART
Short 2 & 3	Short 1 & 2	SPI
Short 1 & 2	Short 2 & 3	Parallel FIFO
Short 2 & 3	Short 2 & 3	UART

PIN no	Pin Name	Data and Control Bus Configuration Options			
		UART	Parallel FIFO	SPI Slave	I/O Ports
6	AD 0	TXD	D0	SCLK	PORT AD0
8	AD 1	RXD	D1	SDI	PORT AD1
9	AD 2	RTS#	D2	SDO	PORT AD2
10	AD 3	CTS#	D3	CS	PORT AD3
11	AD 4	DTR#	D4		PORT AD4
12	AD 5	DSR#	D5		PORT AD5
13	AD 6	DCD#	D6		PORT AD6
14	AD 7	RI#	D7		PORT AD7
15	AC 0	TXDEN#	RXF#		PORT AC0
16	AC 1		TXE#		PORT AC1
17	AC 2		WR		PORT AC2
19	AC 3		RD#		PORT AC3
20	AC 4				PORT AC4

OTHER PINS		
1	5V0	Power Input, Module supply pin
2	LED1	USB port 1 traffic indicator
3	LED2	USB port 2 traffic indicator
4	USB1 P	USP port 1 Data signal plus
5	USB1 M	USP port 1 Data signal minus
7,18	GND	Module supply ground
22	RESET	External reset signal. Active low
23	PROG	Program firmware. Active low used with reset
24	3V3	3.3V output from the module

5. Quick Reference

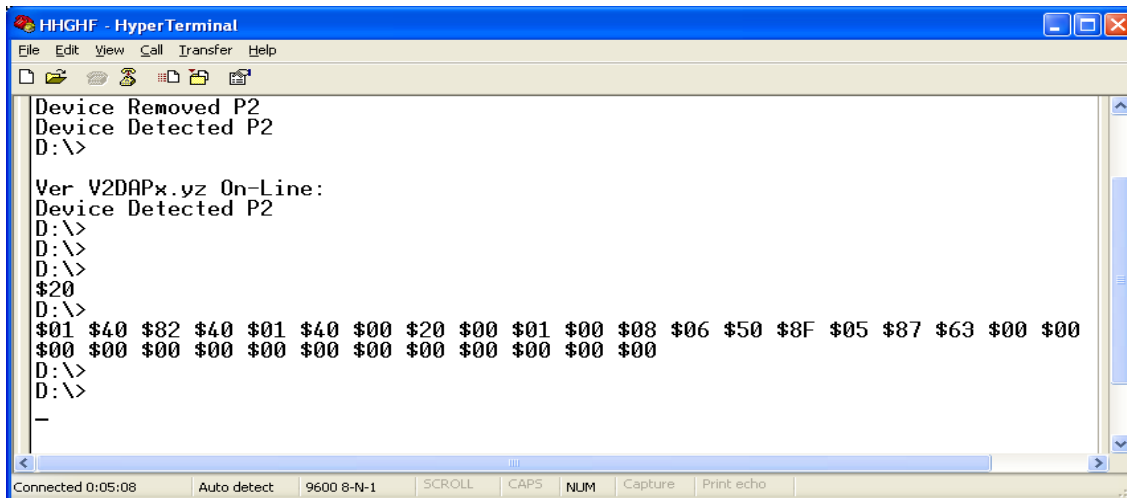
1. Mount the Serial to USB Drive module on the base board.
2. Connect serial and set the standard configuration as 9600, 8-N-1.
3. Power ON the board.
4. When power ON, check the Yellow LED is blinking for 3 times and turn OFF, Hyper terminal shows the version of the uploaded firmware.
5. Insert the Pen drive and verify that Yellow LED is glowing, and that time HyperTerminal shows the status 'Device Detected P2', after that when you remove the pen drive from the port, it shows 'Device Removed P2', as shown in figure below.



6. Set the monitor commands first, Type IPA (IPA<cr>) and ECS (ECS<cr>).
7. Type 'QP2' (QP2<enter>) module will respond with \$20(i.e. Bulk Only Mass Storage device is connected). i.e.; this is an 8 bit number and it shows the device type. The table is given below.

Bit number	Meaning
0	FTDI 232/245 device attached
1	Reserved
2	Printer class Device
3	HID Class Device(mouse, Keyboard)
4	CDC Class device(Modem, Mobile)
5	BOMS Class Device(USB flash disk, camera)
6	Unknown Device
7	Reserved

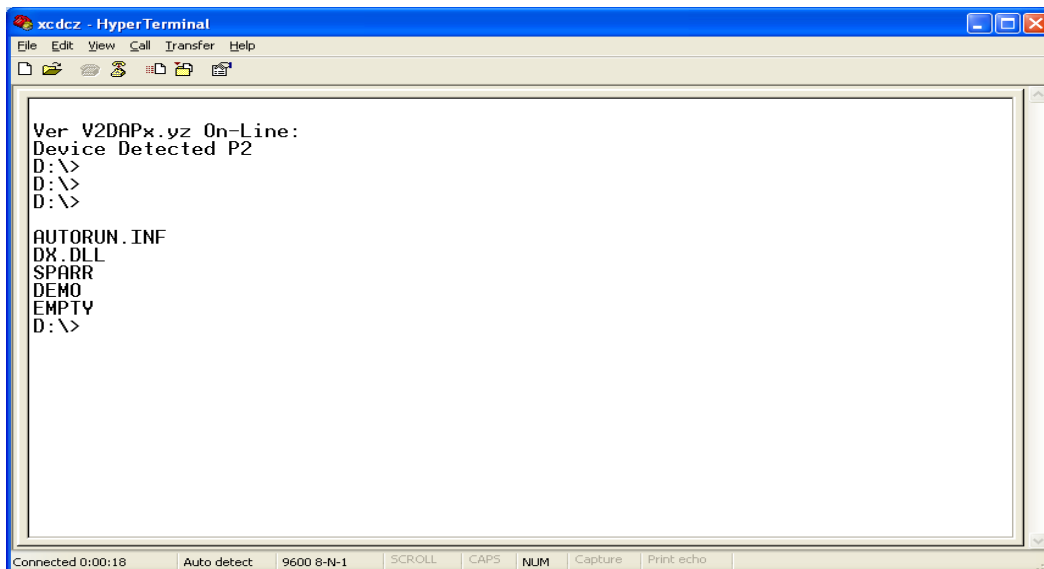
8. Type 'QD 0' (QD<space>n <cr>, where n=0-7) module will respond with 32 byte data shown below and the table below explains each byte meaning.



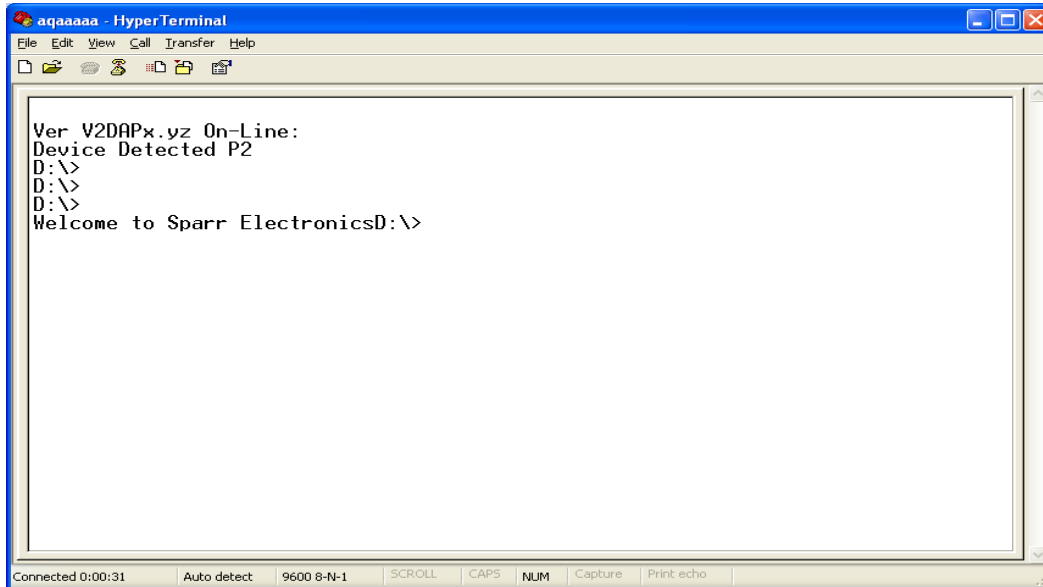
Byte Number	Meaning
1	USB address
2	Control EP 0 size
3	Pipe IN Ep no.
4	Pipe In size
5	Pipe Out EP no.
6	Pipe Out size
7	Data toggles
8	Device type
9	Reserved
10	Location
11	MI Index
12	Device Class
13	Device Sub Class
14	Device Protocol
15	VID low
16	VID high
17	PID low
18	PID high
19	BCD low
20	BCD high
21	Device speed
22-32	Reserved

9. Type 'SC 0' (SC<space> n<cr>, where n=0-7) to set the USB as current device.

10. Type 'DIR' (DIR<cr>) command to see the files and folders in the connected USB drive. The response is shown below.



11. Type the command 'RD file name' (RD<space> <file name> <cr > eg; RD sparr) to read the data from the text file of USB drive.



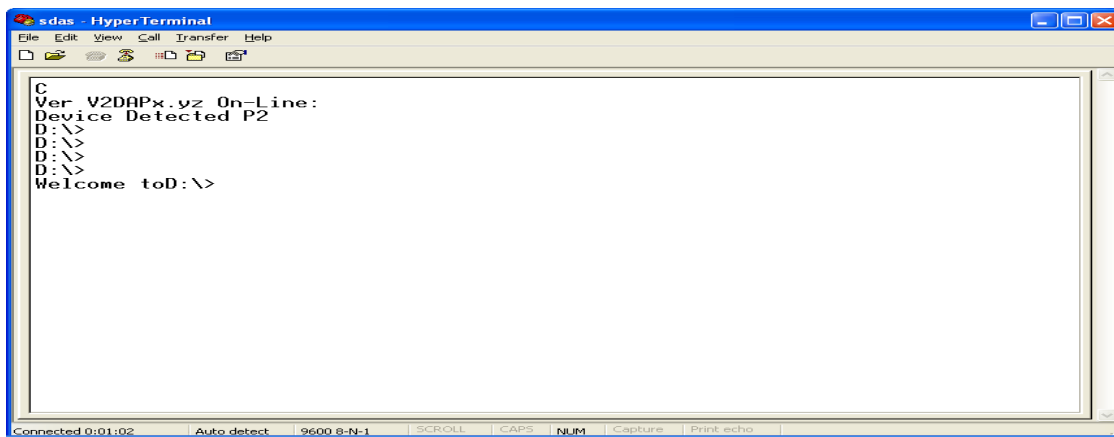
```
aqaaaa - HyperTerminal
File Edit View Call Transfer Help
Ver V2DAPx.vz On-Line:
Device Detected P2
D:\>
D:\>
D:\>
Welcome to Sparr ElectronicsD:\>
```

Connected 0:00:31 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

12. 'RDF' command. To read the particular number of characters of a file

Type the command 'OPR filename' (OPR<space> <filename> <cr > eg; OPR sparr Enter) to open a file for read.

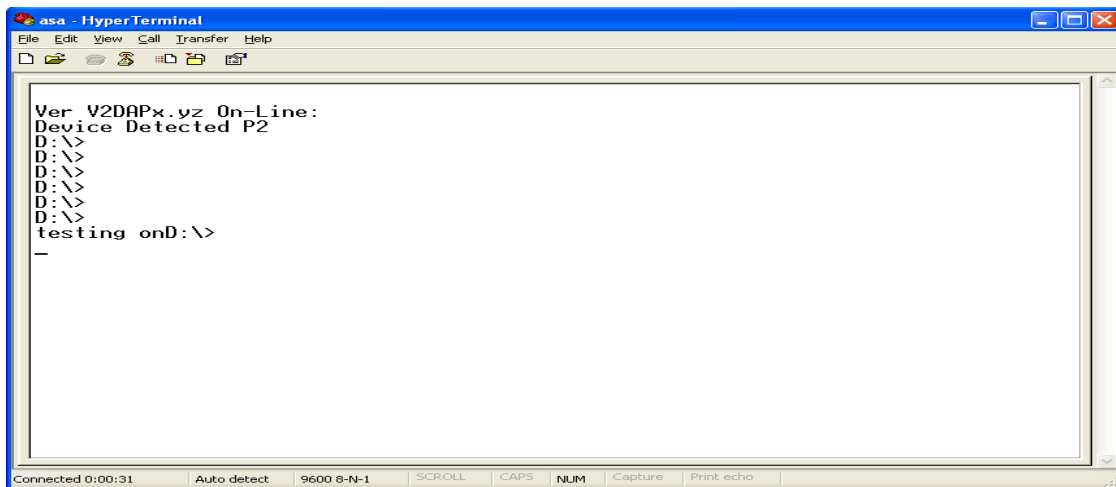
Type the command 'RDF size in hex' (RDF<space> <size in hex (4 bytes MSB 1st)> <cr > eg; RDF 00000010 Enter). The first 10 characters are only read from the file Sparr. As shown below



```
sdas - HyperTerminal
File Edit View Call Transfer Help
C
Ver V2DAPx.vz On-Line:
Device Detected P2
D:\>
D:\>
D:\>
D:\>
Welcome toD:\>
```

Connected 0:01:02 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo

13. To write data into a file in the USB drive use 'WRF' command.
14. Type the command 'OPW filename'
(OPW<space> <filename> <cr> eg; OPW EMPTY <cr>) to open a file for writing.
15. Type the command 'WRF size in hex'
(WRF<space> <size in hex (4 bytes MSB 1st)> <cr> eg; WRF 0000010 Enter for writing 10 characters).
16. Type the command 'CLF' (CLF<cr>) to close the file after writing.
17. Use 'RD' command to verify the data. RD<space> <file name> <cr>



```
asa - HyperTerminal
File Edit View Call Transfer Help
Ver V2DAPx.yz On-Line:
Device Detected P2
D:\>
D:\>
D:\>
D:\>
D:\>
D:\>
D:\>
testing onD:\>
_
Connected 0:00:31 Auto detect 9600 8-N-1 SCROLL CAPS NUM Capture Print echo
```

Please refer V2DAP Firmware Commands for more details.

6. Commands

DIR↓	01 0D	List files in current directory
DIR·file↓	01 20 file 0D	List specified file and size
CD·file↓	02 20 file 0D	Change current directory
CD·...↓	02 20 2E 2E 0D	Move up one directory level
RD·file↓	04 20 file 0D	Reads a whole file
DLD·file↓	05 20 file 0D	Delete subdirectory from current directory
MKD·file↓	06 20 file 0D	Make a new subdirectory in the current directory
MKD·file·datetime↓	06 20 file 20 datetime 0D	Make a new subdirectory in the current directory Also specify a file date and time
DLF·file↓	07 20 file 0D	Delete a file
WRF·dword↓data	08 20 dword 0D data	Write the number of bytes specified in the 1 st parameter to the currently open file
OPW·file↓	09 20 file 0D	Open a file for writing or create a new file
OPW·file·datetime↓	09 20 file 20 datetime 0D	Open a file for writing or create a new file Also specify a file date and time
CLF·file↓	0A 20 file 0D	Close the currently open file
RDF·dword↓	0B 20 dword 0D	Read the number of bytes specified in the 1 st parameter from the currently open file
REN·file·file↓	0C 20 file 20 file 0D	Rename a file or directory
OPR·file↓	0E 20 file 0D	Open a file for reading
OPR·file·date↓	0E 20 file 20 date 0D	Open a file for reading Also specify a file access date
SEK·dword↓	28 20 dword 0D	Seek to the byte position specified by the 1 st parameter in the currently open file
FS↓	12 0D	Returns the free space available on disk if less than 4GB is free
FSE↓	93 0D	Returns the free space available on disk
IDD↓	0F 0D	Display information about the disk if disk is less than 4GB
IDDE↓	94 0D	Display information about the disk
IDD↓	0F 0D	Display information about the disk
DSN↓	2D 0D	Display disk serial number
DVL↓	2E 0D	Display disk volume label
DIRT·file↓	2F 20 file 0D	List specified file and date and time of create, modify and file access

7. Contact and Support

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