

## J1939/J1708/ISO15765 Adaptor



### Features:

- Support both Bluetooth 4.0 & BLE and RS232 Interface at the same time
- One RS232/Bluetooth accesses Heavy-Duty Vehicle, Siren Sound, One-wire I button, Spreader Device, GPS Device, and I/O
- Both 12V and 24V Power Supply work well
- One PNP digital Input and one NPN digital input and one Open Collect digital output
- One PWM out, and its frequency denotes vehicle speed
- Quick solution for OEM Fleet management applications

### Description:

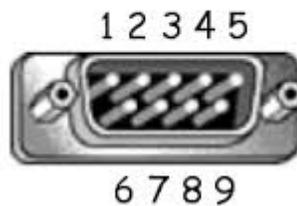
This adaptor uses Bluetooth Module (Slave role) and DFL168A IC, which can access SAE J1939, SAE J1708, ISO15765 protocols, police or fire-truck or ambulance siren sound, and lots of spreader or GPS serial device or one-wire device or inputs and output by an interface RS232 and/or Bluetooth Serial Port. It will be perfect for fleet management system. All you need are one RS232 or Bluetooth, you can monitor vehicle, siren sound signal, spreader status and i-button or other discrete inputs.

*We strongly recommend customer to read the "AT Command" of DFL168A data sheet before reading this data sheet.*

*Please read "6.2 Quik Start" "6.3 AT Command Summary" "6.4 AT Command Details" "6.8 Power Management" of DFL168A Data sheet*

### DB9 Male Pinout:

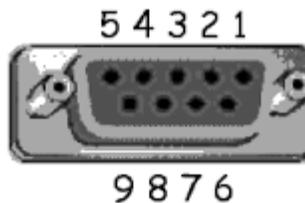
## DB9 Male



Pin 1	CANL, It is CAN BUS pin
Pin 2	I button's One Wire Input/output pin, It has an internal pull-up resistor (1K) to 5V , you directly connect I-button. The value of I-button is got by "AT OW RD" command
Pin 3	CANH, It is CAN BUS pin
Pin 4	Ground
Pin 5	Siren Speaker's one terminal. It is DFL168A's Din0, and shared with PNP digital input. The value is got by "AT rd 0" command. If both "PNP digital input " and "Siren sound input" are used at the same time, the "AT RD 0" command will get "logic OR" of two inputs.
Pin 6	12V or 24V Power supply input
Pin 7	J1708+
Pin 8	J1708-
Pin 9	Siren Speaker's 2nd terminal. It is Din0, and shared with PNP digital input. The value is got by "at rd 0" command. If both "PNP digital input " and "Siren sound input" are used at the same time, the "AT RD 0" command will get "logic OR" of two inputs.

## DB9 Female Pinout:

## DB9 Female



Pin 1	Speed output pin, It is PWM output. The frequency of PWM denotes the vehicle speed. The frequency of each 1km/h is set by "Programmable parameter at address 0x1D". You must use "AT PP 1d SV hh" and "AT PP 1d ON" and "AT PPP" command to set up the relation between PWM frequency and vehicle speed.
Pin 2	TXD1 output (RS232). It is RS232 interface with external PC or host. "AT" command will use this RS232 port. Of cause, "AT" command can use Bluetooth Serial port too.
Pin 3	RXD1 input (RS232). It is RS232 interface with external PC or host. "AT" command will use this RS232 port. Of cause, "AT" command can use Bluetooth Serial port too.

Pin 4	RXD2 input (RS232). It is RS232's rxd for Device1. Device1 is spreader or GPS device. You must use "AT DEV1 " command to access device1 by TXD1/RXD1 or Bluetooth Serial port. Of cause, you can directly use transparent mode to access device1 by TXD1/RXD1 or Bluetooth.
Pin 5	Ground
Pin 6	TXD2 output (RS232). It is RS232's Txd for Device1. Device1 is spreader or GPS device. You must use "AT DEV1 " command to access device1 by TXD1/RXD1 or Bluetooth Serial port. Of cause, you can directly use transparent mode to access device1 by TXD1/RXD1 or Bluetooth
Pin 7	CTS2 input (RS232) or NPN digital input. J5's jumper decides its function. Short J5's 1 and 2 is for "NPN digital input". Short J5's 2 and 3 is for "CTS2 input". CTS2 is for device1's flow control when device1 flow control is enabled. NPN digital input is DFL168A's Din3/sleep. The value is got by "AT rd 3" command. Sleep pin function can be enabled/disabled by "AT sleep pin 1"/ "AT sleep pin 0" For NPN digital input, Logic 1 means input voltage must be equal to or greater than 1.6V. Logic 0 means input voltage must be equal to or less than 0.8V. Other voltage value is unexpected. If NPN digital input is open (float), adaptor will get "logic 1". If NPN digital input is short to ground, adaptor will get "logic 0".
Pin 8	RTS2 output (RS232) or open collect digital output. J6's jumper decides its function. Short J6's 1 and 2 is for "digital output". Short J6's 2 and 3 is for "RTS2 output". RTS2 is for device1's flow control when device1 flow control is enabled. Digital output is DFL168A's Dout0. The value is controlled by "AT WD 0 " command.
Pin 9	PNP digital input. Logically, it shares with Siren speaker input. It is DFL168A's Din0. The value is got by "AT rd 0" command. If both "PNP digital input " and "Siren sound input" are used at the same time, the "AT RD 0" command will get "logic OR" of two inputs. Logic 1 means input voltage must be equal to or greater than 5.7V. Logic 0 means input voltage must be equal to or less than 4.2V. Other voltage value is unexpected.

## Bluetooth Quick Start:

The default setting is baud rate 57600 for this Adaptor. Bluetooth EDR Name is "DafulaiE", Bluetooth BLE name is "DafulaiB". Password is "1234". If you want to use default setting of Bluetooth, you will do nothing, just power on your Master Bluetooth and pair our adaptor Bluetooth. If no Bluetooth connection, Bluetooth LED will blink at half second rate. After pairing and connecting successfully, Bluetooth LED will be on.

In the hyperterminal of Bluetooth COM port, you cannot see the hint prompt ">" at the beginning. You just send any command such as "ATI", you will see responding and hint prompt ">". Everything will return to normal.

## How to change Bluetooth Setting?

In order to change Bluetooth setting such as EDR/BLE name, password and baud rate, you should start by following steps below:

**Step1:** connect RXD1/TXD1 to PC RS232 (you may need USB-RS232 adaptor), run hyperterminal in windows. Please set baud rate= 57600 (may be other value, please use current baud rate) no parity 1 stop bit, and no flow control. Of cause, you can use existing Bluetooth COM port to

run hyperterminal in windows. But we recommend you to use RS232.

**Step 2:** Connect 12V or 24V power supply to Male DB9 of this adaptor. The red PWR LED will be on and Bluetooth LED will be blink at half second rate. The Siren/Exin will be on for short time and then off.

*If you do not connect vehicle or you select incorrect vehicle bus protocol, adaptor will be sleep after 175 seconds. So step 3 must be done within 175 seconds. If you cannot finish step 3 within 175 seconds, please press upper letter "U" in hyperterminal after you get "sleep" message, you will get extra 175 seconds for your continue to step 3.*

**Step 3:** When ">" occurs in hyperterminal, please type command if you want to change EDR name to "*Myname*":

> AT DER Name *Myname*

response will be :

OK

>

Please type command if you want to change BLE name to "*Myname*":

>AT BLE Name *Myname*

response will be :

OK

>

Please type command if you want to change Password to "56789":

>AT BlueT PW 56789

response will be :

OK

>

Please type the following commands if you want to change baud rate to 115200:

>AT PP 1C SV 2B

>AT PP 1C ON

>AT PPP

**Step 4:** Don't make any master Bluetooth connect to our adaptor Bluetooth (or simply turn off master Bluetooth). Power off 12V or 24V power supply for short time and then power on again. The red PWR LED will be on and Bluetooth LED will be blink at half second rate. The Siren/Exin will be on for short time and then off. You will see many stranger response characters in RS232 hyperterminal (that is actual configuration request/response characters). Of cause, if you changed baud rate in previous step, you must set up RS232 hyperterminal to new baud rate after step 3 and before step 4. At last you will see hint prompt ">" .

**Don't power off** before you see hint prompt ">" .

**Step 5:** Setup a Bluetooth COM port in PC. After setup, you can open another hyperterminal with Bluetooth COM port to access "J1939/J1708/ISO15765 adaptor" by "AT" command. When setup ok and connect a Bluetooth COM port, Bluetooth LED will be on. Attention must be paid, if you open both rs232 and Bluetooth hyperterminals, you only send command from one terminal at the same time. You will see response of "J1939/J1708/ISO15765 adaptor" from both RS232 and Bluetooth.

**Note:** Baud rate only has 9600, 19200, 38400,57600,115200 if you use Bluetooth. Setting up to other baud rate will lead to unexpected result if you use Bluetooth

## Special "AT" Command:

J1939/J1708/ISO15765 adaptor uses a special "DFL168A". It does not support "AT RV" command because it does not support analog input. And you cannot use "AT Brd hh" command to setup baud rate. You must use programmable parameter command ( such as "AT pp 1c sv *hh*", "AT pp 1c on" and "AT ppp" commands) to change baud rate. And baud rate only has 9600, 19200, 38400,57600,115200 if you use Bluetooth.

We add 7 new "AT" commands for Bluetooth.

### 1 AT DER Name *Myname*

This command will change Bluetooth EDR name to "*Myname*".

"*Myname*" must be equal to or shorter than 8 "characters", and the beginning character must be letter.

And you cannot use "space" as character.

For example, "AT DER Name City567" will change Bluetooth EDR name to "City567"

Default name is "DafulaiE".

Adaptor can remember the setting even though power off.

The actual configuration action will happen after re-power on "J1939/J1708/ISO15765 adaptor".

### 2 AT BLE Name *Myname*

This command will change Bluetooth BLE name to "*Myname*".

"*Myname*" must be equal to or shorter than 8 "characters", and the beginning character must be letter.

And you cannot use "space" as character.

For example, "AT BLE Name City567" will change Bluetooth BLE name to "City567"

Default name is "DafulaiE".

Adaptor can remember the setting even though power off.

The actual configuration action will happen after re-power on "J1939/J1708/ISO15765 adaptor".

3 AT BlueT PW *Mypw*

This command will change Bluetooth password to "*Mypw*".

"*Mypw*" must be equal to or shorter than 8 "digital characters".

For example, "AT BlueT PW 987646" will change Bluetooth password to "987646"

Default password is "1234".

Adaptor can remember the setting even though power off.

The actual configuration action will happen after re-power on "J1939/J1708/ISO15765 adaptor".

4 AT D EDR

This command will display Bluetooth EDR Name.

5 AT D BLE

This command will display Bluetooth BLE Name.

6 AT D PW

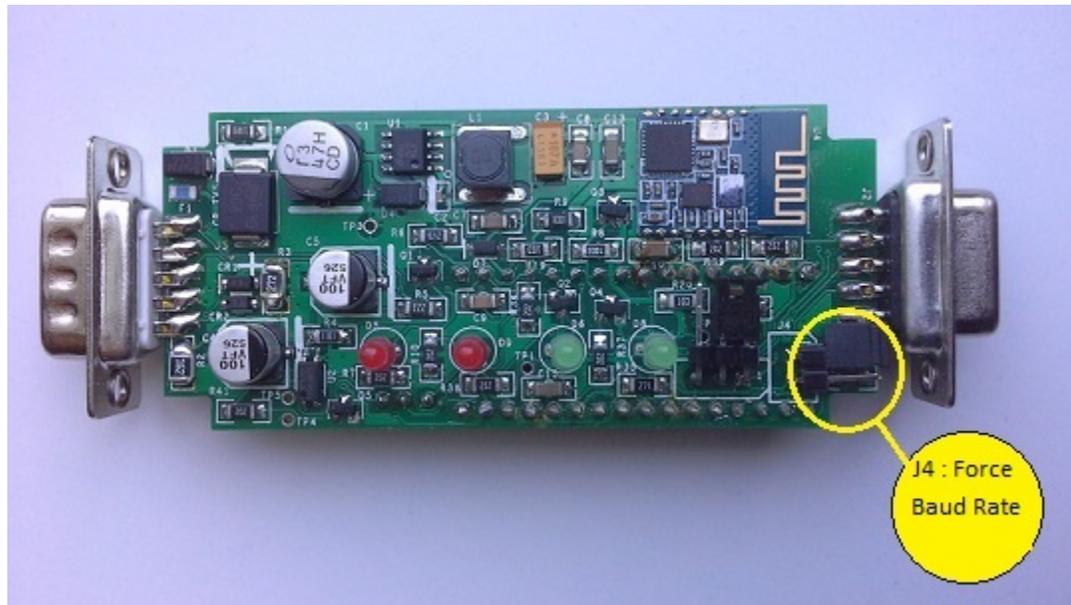
This command will display Bluetooth Password.

*Note: Command 1 to 3 only be taken actual configuration action in next power on. So you will see many stranger response characters at next power on at beginning if you use RS232 port. However, after second power on (the 3rd, 4th ... power on), these stranger response characters will disappear, Of course, if you use Bluetooth, you cannot see stranger response in any power on.*

### **Jumper Setting:**

J1939/J1708/ISO15765 adaptor has 3 jumpers for settings:

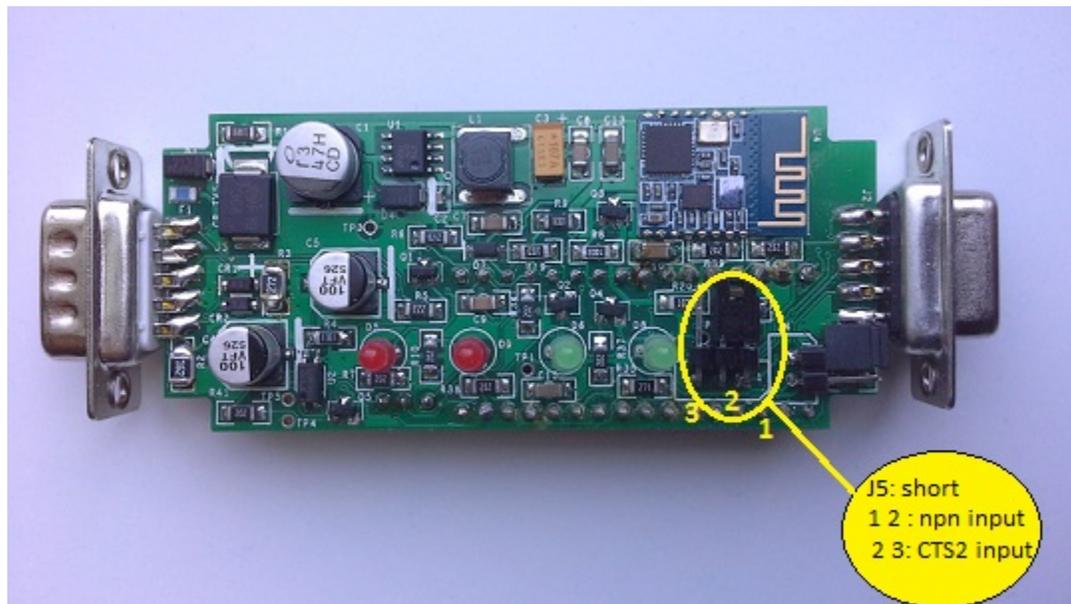
J4 is for forced Baud rate.



If short, it means that RS232's Baud rate will be forced to 57600. And you cannot use Bluetooth in this situation. You must disconnect with master Bluetooth. Simply you can turn off master Bluetooth power.

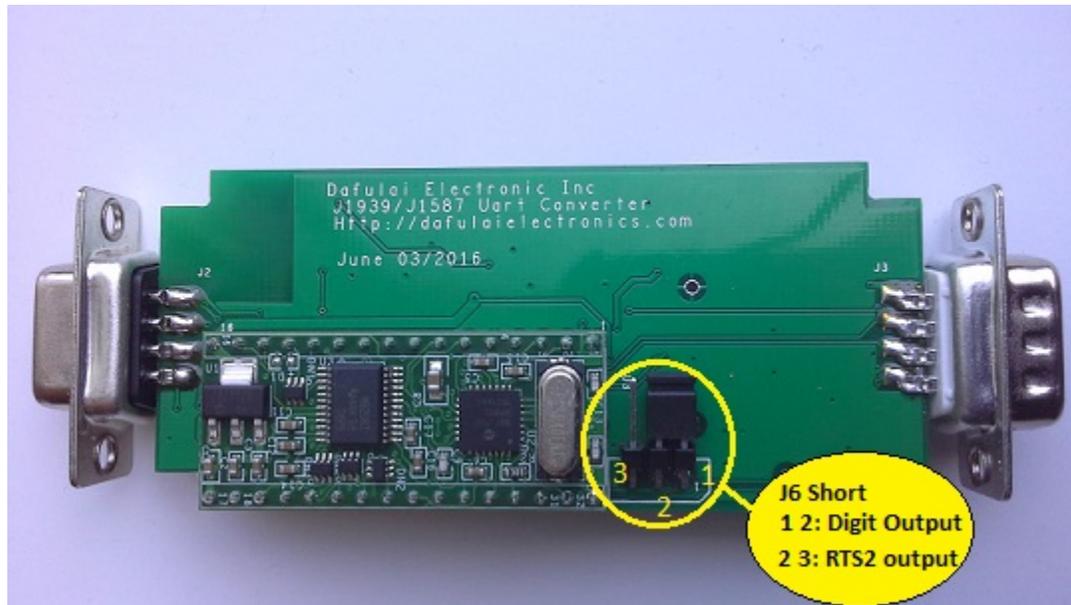
It is only used for you forgot baud rate. Default is open.

J5 is for selection of CTS2 and NPN digital Input.



If pin 1 and pin 2 short, it means NPN digital Input. If pin 2 and pin 3 short, it means CTS2 Input  
Actual flow control must be enabled by "AT DEV1 HFC 1" command. Default is NPN digital Input.

J6 is for selection of RTS2 and digital output.



If pin 1 and pin 2 short, it means digital output. If pin 2 and pin 3 short, it means RTS2 output.

Actual flow control must be enabled by "AT DEV1 HFC 1" command. Default is digital output.

## LED Display

J1939/J1708/ISO15765 adaptor has 4 LED displays:

Red "PWR": It will be on when power on

Red "BUS": It will be on when actual vehicle bus data exists.

Green "Siren/Exin": It will be on when siren sound exists or PNP input is logic 1. It will be on for very short time when power on even though No Siren sound and PNP input because capacitor inside adaptor needs time to be charged. You can delay a short time to read this value after power on in your software.

Green "Bluetooth" : It will be on if Bluetooth connection is OK, It will be blink at half second rate if this adaptor is searching Bluetooth host.

## Electrical Specification

Standard operating Temperature: -40 to 85 without Bluetooth, -5 to 65 with Bluetooth.

Storage Temperature: -55 to 125

Power supply : 9VDC to 40VDC (12V/46mA or 24V/23mA)

Maximum Power Input of Siren speaker: 400W for 4 Ohms speaker, 200W for 8 Ohms speaker

PNP Digital input:

Logic 1: voltage is 5.7V or more , Logic 0: voltage is 0V to 4.2V. Input maximum voltage must be less than 60V

NPN Digital input:

Logic 1: voltage is 1.6V or more, or input is open (float). Logic 0: voltage is 0V to 0.8V (or short to ground). Input maximum voltage must be less than 30V

Open collect output:

Maximum output current: 200mA. Maximum voltage: 38V

## **Mechanical dimension**

109mm(Length) x 42mm(Width) x 20mm(Height)

## **IMPORTANT NOTICE**

The information in this manual is subject to change without notice.

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