## Application Note AN1052 How to use VW(Volkswagen) MFSW both for CarPC and Stereo

CarPC JoyCon Exc + BSGc(Button Signal Generator CAN)



## 1. Wiring

The signal of VW(Volkswagen) MFSW is CAN. You can get the CAN signal at the radio jack.



Intercept the CAN wire with CarPC JoyCon Exc and BSGc.



## 2. Setup of CAN steering wheel control buttons

Check **Setting** and click **CAN Scan**, then CPJexc CAN Scanner pops up.

+ JoyCon	Explorer - [1(CPJexc):CarPC JoyCon Exc] : default*
Option	About
Folder Button Voice Preset Misc FW	1(CPJexc):CarPC JoyCon Exc default Preset App Launcher Image
A       B       C/D       LED       BSG       MIX         Resistor       Button       Resistor       Button       Resistor       Resistor         A1       3       •       0       •       Resistor       Resistor       Resistor         A1       3       •       0       •       Resistor       Resistor       Resistor         A2       8       •       14       •       Resistor       Resistor       Resistor       Resistor         A3       7       •       32       •       Resistor       Resi	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 1 A12 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 C1 C2 D1 D2
A7 7 92 A8 8 105	ESC F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 Brt ScriBrk
A9 8 119 CAN Scan	Tab Q W E R T Y U I O P [] Del End Bage 7 8 9 +
A11 9 • 143 • Auto Detect A12 7 • 160 •	Shift Z X C V B N M / Shift $\uparrow$ 1 2 3 $\leftarrow$ S $\bigcirc$
Clear Setting Save/Apply	

Click **Start Scan** and press the steering wheel buttons, CAN messages are listed at left listbox. Drag and drop the CAN messages to the right listbox or copy the CAN message to the left listbox with the ">" button. The CAN message in the right listbox can be used as a Button.

CPJexc CAN Scanner -			
CAN Message	Button Message	Button	
Dur: 0 Len: 8 ID:0234 Data:01 01 01 01 01 01 01 0E	Dur: 0 Len: 8 ID:0234 Data:01 01 01 01 01 01 01 0E		
Dur: 0 Len: 8 ID:0234 Data:01 00 01 01   01 01 01 0E	Dur: 0 Len: 8 ID:0234 Data:01 00 01 01   01 01 01 0E		
Dur: 0 Len: 8 ID:03CD Data:02 01 02 02   02 02 02 0E	Drop		
Dur: 0 Len: 8 ID:03CD Data:02 00 02 02 02 02 02 02 0E	J-DIOP		
	>		
	<	>	
▶ Start Scan	Dur: 0 Len: 8 ID:0234 Data:01 00 01 01   01 01 01 0E	Send	
ID Filter Config Clear Save Load	∧ ∨ Delete Clear Export Import Exi	t Apply	

You can save the CAN messages as a file(.can) with **Save** button or load CAN messages from a file(. can) with **Load** button.

"Dur:" is duration of the CAN message. If the CAN message is repeated periodically while the button is being pressed, set the duration above 0. The unit of "Dur" is 10ms. To assign the CAN button message as a button, select a button in the drop down list. CAN button can be assigned to all channel buttons.

+ JoyCon Explorer - [1(0	CPJex	c):CarPC JoyCon Exc] : default*	- 🗆 ×
Option About			
Folder Button Voice Preset Misc FW 1(CPJexc):CarPC default	: JoyCo	on Exc	her Image
A B C/D LED BSG MIX Resistor Button			
Range Position	44 A	5 A6 A7 A8 A9 A10 11 A12	
CPJ	lexc (	CAN Scanner –	
CAN Message		Button Message	Button
Dur: 0 Len: 8 ID:0234 Data:01 01 01 01 01 01 01 00 00		Dur: 0 Len: 8 ID:0234 Data:01 01 01 01 01 01 01 01 0	A2 Down
Dur: 0 Len: 8 ID:0234 Data:01 00 01 01 01 01 01 00 0E		Dur: 0 Len: 8 ID:0234 Data:01 00 01 01 01 01 01 00	A2Up Y
Dur: 0 Len: 8 ID:03CD Data:02 01 02 02   02 02 02 0E			4211p
Dur: 0 Len: 8 ID:03CD Data:02 00 02 02   02 02 02 0E			A3 Down
			A3 Up
			A4Up
	>		A5 Down
4			A5 Up
4			A6 Down
	_		A6 Up
1	_		A7 Down
7	_		A8 Down
			A8 Up
			A9 Down
			A9 Up
		4	A 10 Down
			A10 Up
Start Scan		Dur: 0 Len: 8 ID:0234 Data:01 00 01 01   01 01 01 00 0 0	A11 Down A11 Up
ID Filter Config Clear Save Load		∧ ∨ Delete Clear Export Import Exit	A12 Down A12 Up
			B1 Down

Up Button appears as a gray bar, Down Button appears as a green bar.



Button bar turns to green when the steering wheel button is pressed.

-A2 Down Button

Click **Apply** to download the CAN button setting.

You can save the CAN button setting as a file(.cbn) with **Export** button or import CAN button setting from a file(.cbn) with **Import** button.

ID Filter 🗙
<ul> <li>✓ Show sent CAN message</li> <li>✓ Enable CAN ID Filter</li> </ul>
CAN ID ✓ 0234 ✓ 03CD
Select All Unselect All

				CF	Jexo
CAN Me	ssage				
Dur:	0 Len: 8 ID:0234 Data:01 01 01 0	1   01	101010E		
Dur:	0 Len: 8 ID:0234 Data:01 00 01 0		Send		Н
Dur:	0 Len: 8 ID:03CD Data:02 01 02	-	Сору		ы
+Dur:	0 Len: 8 ID:0234 Data:01 00 01 0	110	LUIUIUE	-	

You can see only the message with the ID you want by checking **Enable** CAN ID Filter at ID filter Dialog.

You can send the CAN message with Send command or by doubleclicking the CAN message in the listbox. If the Show sent CAN message is checked, the CAN message sent on the CAN bus is listed in the left listbox.

## 3. BSGc(Button Signal Generator setting)

- 1. Choose the number of BSG device in **Num. of BSG**.
- 2. Choose the **BSG index**.
- 3. Choose the **Type** of BSG as BSG-C.



Drag and Drop IBUS message from the **CPJexc CAN Scanner** to BSG Button.

CAN message of **Up Button** is generated when the steering wheel button is pressed.

CAN message of **Down Button** is generated when the steering wheel button is released. **Name** of BSG button is spoken when the Button is pressed.

			+	+ JoyCon Explorer - [10						
CPJexc CAN Scanner					Ъđ	Preset Ed	lit	Option	Ab	out
Button Message		Button		-					1(CP)	exc).C
Dur: 0 Len: 8 ID:0234 E	Data:01010101 0101010E	A1 Dov	Fold	er Butt	on V	/oice Preset	Misc	FW	BMW	Stere
Dur: 0 Len: 8 ID:0234 E	Data:01000101 0101010E	A1Up	A	B	C/D	LED BSC	GÌN			
Dur: 0 Len: 8 ID:03CD I	Data:02 01 02 02   02 02 02 0E	A2 Down	00	wn Up	,	Name		1		_
Dur: 0 Len: 8 ID:03CD I	Data:02 00 02 02   02 02 02 0E	A2 Up	1Dat	a:110	_		-	02		=
		Drag-	Dro	<b>)</b> ≞			_	03	A1 A	12
			3						-	
>			4					Config		
			5						B1 E	32

The CAN Message dialog box appears by clicking the BSG button. You can type CAN message in the edit box. "Dur:" is duration of the IBUS message that is repeated while the button is being pressed.

+	JoyCon Explorer - [1(CPJexc):CarPC JoyCon Exc] : BMW Stereo.prs – 🗖 🗙
	Preset Edit Option About
Folder Button	Voice Preset Misc FW 1(CPJexc):CarPC JoyCon Exc BMW Stereo
A B C/ Down Up	Button 1 Down - CAN Message ×
1Data:01(	Dur: 0 Len: 8 ID:0234 Data:01 01 01 01 01 01 01 0E
2	Send
3	
4	Config

You can test the BSG button by clicking the number. And you can also test the Down or Up message by Send command in the context menu that appears by right clicking of the button message.



BSG settings can be saved as or restored from a file(.bsg) with **Import** and **Export** button.

Drag-drop buttons to the BSG buttons to connect a steering wheel button to a BSG button.

