

## **AiM Software Documentation**

## BitField management

Race Studio 3 Ver. 3.08.02 | Firmware 1.18.12

The RS3 3.08.02 release, in conjunction with the firmware 1.18.12 release, features the BitField management.

If a field of the ECU Stream is defined as BitField, like, for example, FLAG\_FBX\_1 - FLAG\_FBX\_5 in the SEAT SPORT LEON CUP MK3 TRACTION 2015 protocol, every bit of these fields can be considered as independent channels:

Save	Save As		Close Transmit				
hannels	ECU Stream	-	The second se	s Parameters Shift L	ights and Alarms	Display	SmartyCam
nameis	-		ort - LEON_CUP_MK3_T		Change ECU		¢
	ID		Name	Function	Unit	Freq	
	ECU 17		T ENG AIR	Temperature	C 0.1	20 Hz	^
	ECU 18	<u></u>	T_ENG_OIL	Temperature	C 0.1	20 Hz	
	ECU 19	2	T_ENG_WATER	Temperature	C 0.1		
	ECU 20	2	T AIR	Temperature	C 0.1	20 Hz	
	ECU 21	2	I FBX MAIN	Current	A 0.001	20 Hz	
	ECU 22		FLAG_FBX_5	Number (bitfield)	#	20 Hz	
	ECU 23		FLAG_FBX_4	Number (bitfield)	#	20 Hz	
	ECU 24		FLAG_FBX_3	Number (bitfield)	#	20 Hz	
	ECU 25		FLAG_FBX_2	Number (bitfield)	#	20 Hz	
	ECU 26		FLAG_FBX_1	Number (bitfield)	#	20 Hz	
	ECU 32		T_GBX_OIL	Temperature	C 0.1	20 Hz	
	ECU 44		V_WHL_REF	Vehicle Spd	km/h 0.1	20 Hz	
	ECU 46	•	FLAG_TCS_On	Code	#	20 Hz	
	ECU 47		FLAG_ABS	Code	#	20 Hz	
	ECU 48	$\checkmark$	FLAG_TCS	Number	#	20 Hz	
	ECU 49	$\checkmark$	FUEL_LEVEL	Fuel Level	10.1	20 Hz	
	ECU 50	$\checkmark$	FUEL_CONS	Fuel Level	10.1	20 Hz	
	ECU 51		S_FUEL	Number	#	20 Hz	·

		ECU Channel Se	ttings	×				
Name		FLAG_FBX_5						
Sampling Freq	uency	20 Hz						
Unit of Measur	e	#						
Display Precisi	on	no decimal place	•	\$				
Configure bit fi	elds of th	ne channel						
I Bit	Bit Name							
✔ 0 (low	) <b>b0</b>							
	b1 C	Click here to enter a label for this bit field						
2	b2	b2						
✓ 3	b3	b3						
✓ 4	b4	b4						
5	b5							
6	b6							
7 (higl	h) <b>b7</b>							
			Save	Cancel				

## Clicking on one of these fields, the bits are shown:



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The bits are named b0-b7 by default, but you can change their name for a better management:

<b>.</b>			ECU Channel Set	ttings	×		
Name			FLAG_FBX_5				
Sampling Frequency			20 Hz	\$			
Unit of Measure			#		_		
Display Precision			no decimal place	\$			
Config	ure bit field	is of the	e channel				
Bit Name							
	0 (low)	TempS	Status				
	1	b1	b1				
	2	b2					
$\bigtriangledown$	3	<b>b</b> 3	b3				
		b4					
$\bigtriangledown$		b5					
$\checkmark$		<b>b</b> 6					
$\bigtriangledown$	7 (high)	b7					
				Save	Cancel		

Once saved the configuration, it is possible to use the bitfields in order to activate alarms or digital outputs:

In this example, the LED1 is turned ON when the bit called TempStatus of the channel FLAG\_FBX\_5 is ON.

The bitfield recording is not changed, so all the bits of a channel are recorded in one single channel.

<b>9</b>	New Alarm					
Description				Import	Exp	ort
If All 🔶	of the following conditions are true:					
FLAG_FBX_5 : TempState	us	<b>\$</b> 1	1 is ON		\$	[+
then trigger the following act	ion(s):					
LED 1	continuously		\$	Red	¢ [·	- [+
Until:	met 🔶			ок	Car	
				OK	Car	icei