



# Race Studio 3 BitField management

## Question:

What is a Bitfield channel? How can I create, configure and manage a Bitfield channel with AiM devices?

## Answer:

If a channel of the ECU Stream is defined as BitField like, for example, FLAG FBX 5 ECU channel in the SEAT\_Sport – TCR\_MK3\_CAN1\_2016 protocol, every bit of these fields can be considered as an independent channel.

ECU: SEAT\_Sport - TCR\_MK3\_CAN1\_2016 (ver. 00.01.01) 500 Kbit/sec

Enable the CAN Bus 120 Ohm Resistor

Silent on CAN Bus

Enabled Channels (Max. 120) 78 / 80

ID	Name	Function	Unit	Freq
ECU 64	I XAP OUT	Current	A 0.001	10 Hz
CC30	FLAG XAP ST	Number	#	10 Hz
CC31	FLAG XAP CDIAG	Number	#	10 Hz
CC32	N XAP CNT	Number	#	10 Hz
CC33	T XAP PCB	Head Temp	C 0.1	10 Hz
CC34	N XAP VERSION	Number	#	10 Hz
CC35	XAP FREE2	Number	#	10 Hz
ECU 78	XAP FREE1	Number	#	10 Hz
CC37	FLAG FBX 5	Status Code or Bit Fields	#	10 Hz
CC38	FLAG FBX 4	Status Code or Bit Fields	#	10 Hz
CC39	FLAG FBX 3	Status Code or Bit Fields	#	10 Hz
CC40	FLAG FBX 2	Status Code or Bit Fields	#	10 Hz
CC41	FLAG FBX 1	Status Code or Bit Fields	#	10 Hz
CC42	FLAG FBX RELAY2	Status Code or Bit Fields	#	10 Hz
ECU 29	FLAG FBX RELAY1	Status Code or Bit Fields	#	10 Hz
ECU 48	FBX DEV1	Number	#	10 Hz
CC45	D ECU LAMBDA	Generic Lambda	lambda 0.01	10 Hz
CC46	P ECU RAIL	Fuel Press	bar 0.01	10 Hz
CC47	A ECU IGN	Ignition Adv Angle	deg 0.1	10 Hz
CC48	S ECU INJ	Time	ms	10 Hz
ECU 56	A ECU THERM	Angle	deg 0.1	10 Hz
CC50	P DSG CLUTCH1	Pressure	bar 0.01	10 Hz
CC51	P DSG CLUTCH2	Pressure	bar 0.01	10 Hz
CC52	R DSG SHAFT1	Engine RPM	rpm	10 Hz
ECU 60	R DSG SHAFT2	Engine RPM	rpm	10 Hz
CC54	I FBX MAIN	Current	A 0.001	10 Hz
CC55	T FBX PCB	Temperature	C 0.1	10 Hz
CC56	I FBX TURNLIGHT	Current	A 0.001	10 Hz

Clicking on one of these channels, the single bits are displayed as here pictured:

ECU Channel Settings

Name: FLAG FBX 5

Sampling Frequency: 10 Hz

Unit of Measure: #

Configure bit fields of the channel

<input checked="" type="checkbox"/>	Bit	Name
<input checked="" type="checkbox"/>	1 (low)	b1
<input checked="" type="checkbox"/>	2	b2
<input checked="" type="checkbox"/>	3	b3
<input checked="" type="checkbox"/>	4	b4
<input checked="" type="checkbox"/>	5	b5
<input checked="" type="checkbox"/>	6	b6
<input checked="" type="checkbox"/>	7	b7
<input checked="" type="checkbox"/>	8 (high)	b8

Save Cancel

The bits are named b1-b8 by default, but can be changed for a better management:

ECU Channel Settings

Name: FLAG FBX 5

Sampling Frequency: 10 Hz

Unit of Measure: #

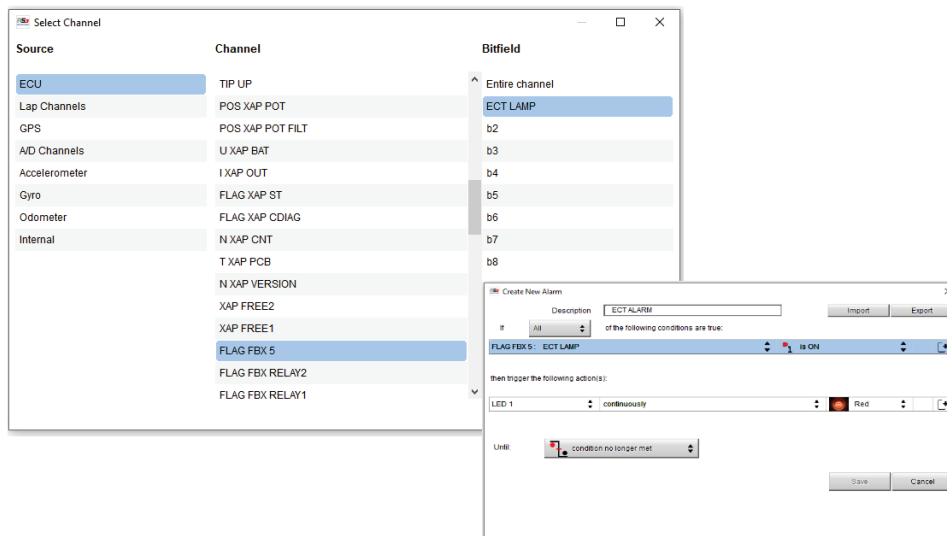
Configure bit fields of the channel

<input checked="" type="checkbox"/>	Bit	Name
<input checked="" type="checkbox"/>	1 (low)	ECT LAMP
<input checked="" type="checkbox"/>	2	b2
<input checked="" type="checkbox"/>	3	b3
<input checked="" type="checkbox"/>	4	b4
<input checked="" type="checkbox"/>	5	b5
<input checked="" type="checkbox"/>	6	b6
<input checked="" type="checkbox"/>	7	b7
<input checked="" type="checkbox"/>	8 (high)	b8

Save Cancel

Once saved the configuration, it is possible to use the bitfields to activate alarms, icons or digital outputs, based on the single bit status or also as an "entire channel".

In the following example, LED1 is turned ON when the bit called ECT LAMP of the channel FLAG FBX 5 is ON



In this other example, the water temperature icon labeled " Engine Coolant Temp " is activated when the bit called "ECT LAMP" of the FLAG FBX 5 channel is ON.

