

AriStim – ARINC 429 Stimulator-Generator

Description

AriStim is an ARINC 429 Bluetooth® stimulator and generator for an Android Smartphone. In stimulation mode it enables the acquisition and stimulation of each received bit of any label / SDI at both High Speed and Low Speed in real time on his RX line. AriStim then sends the modified labels on his TX line with a certified Holt® ARINC 429 output buffer. In generation mode, the RX line is disabled and AriStim sends generated labels autonomously on his TX line.

The associated AriStim Android application decodes, displays each label, and provides an easy-to-use stimulation an generation interface for each SDI (as SDI or as DATA).

There is no limit to the number of stimulated or generated labels.

The battery powered device has a small size and is very simple to use (no cable). With the provided 18650 lithium battery, the runtime is over 40 hours and 2 years in standby. AriStim is delivered with an 18650 charger.



Features

Interface with AriStim

- 2mm banana plugs for the ARINC 429 lines (hot: yellow plug, cold: green plug).
- Bluetooth[®] 3.0 interface with the Smartphone.
- One green LED (device status).
- Latency of only one label between RX and TX.

Power Management

The electronic board is always powered by the battery.

There is no button on the AriStim device. An ARINC 429 line with at least one label wakes it up from sleep. Another way is to disconnect and reconnect the battery.

The blinking frequency of the LED indicates if the device is connected to the smartphone via Bluetooth®:

- **2 Hz** blinking frequency: device not connected.
- 1 Hz blinking frequency: device connected.

If AriStim is not connected to the smartphone and no label is received, it will go to sleep after 2 minutes, the LED is then switched OFF. The battery lasts more than 2 years in this mode. Please note that in generation mode, AriStim sleep function is disabled, meaning the module generates continuously.



Specifications

- Included battery:
- Maximum line level:
 - Line input impedance: 12 kΩ
 - Line input high threshold: ±1.4V
 - 8 dBm

±35V

- Bluetooth[®] RF power: AriStim size:
- 91mm 30mm 23mm 79g

 $0^{\circ}C - 60^{\circ}C$

18650 lithium cell

- Weight (with battery):
 - Temperature range:

Android Application

Download

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The AriStim application is freely available here:

MEONYS AriStim Android Application

The installation is automatic and creates a shortcut on the smartphone main page.



AriStim Application Information

Device Connection

Before using the application for the first time, AriStim needs to be paired with the smartphone. The Android Bluetooth® settings can be accessed from the application by clicking on "Click to connect" label, then "SETTINGS". AriStim device has to be powered up to allow pairing (see "Power Management").

The Bluetooth[®] password is "0000".

When going back to the application, the device that has just been paired is visible with its serial number. It has to be selected before going back to the AriStim Home page.

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Stimulation mode

Home Page

The Home page displays in real time the list of received labels, the detected line speed (HS or LS) and device information (serial number, connection status and battery charge). The checkboxes "TX" are set by default, which means AriStim does not modify the ARINC line by default. When unchecking the TX boxes, the corresponding labels disappear from AriStim TX line.

The same applies for the "STIM" checkboxes: stimulation of each label (with SDI as SDI or SDI as DATA interpretation) can be activated or de-activated from the Home Page:

*))) s/n: powww	J LV	STIM	HS
LABEL	TX 🐻	S	TIM 🗹
L076			
L076_00	\checkmark		
L076_DD	\checkmark		
L110			
L110_00	\checkmark		
L110_DD	\checkmark		
L111			
L111_00	\checkmark		$\mathbf{\overline{\mathbf{A}}}$
L111_DD	\checkmark		
L112			
L112_00	\checkmark		\checkmark
L112_01	\checkmark		\checkmark
L112_10	\checkmark		\checkmark
L112_11	\checkmark		\checkmark
L112_DD	\checkmark		\checkmark
L150			
L150_00	\checkmark		
L150_DD	\checkmark		
	± 🗄		

Home Page

By clicking on the load/save buttons in the bottom bar, the stimulation parameters of all labels can be loaded and saved as a stimulation configuration (.stim file).

The directory of stimulation configuration files can be selected by clicking the "SELECT DIRECTORY" button:

*))) S/N: POWW	NJ 📋	STIM	HS
LABEL	TX 🖪	S1	IM 🗹
L076			
L076_00	\checkmark		
L076_DD			
L110			
L110_00	\checkmark		\checkmark
L110_DD	\checkmark		
L11 SELE	CT DIRECTO	RY	
L11			<u> </u>
L11 SELECT	STIMULATION	N FILE	
L11 AriStim_12-03-20)24-10h04m24s.	stim	
L11 AriStim_12-03-20)24-12h04m09s.	stim	
L11 AriStim_10-03-20)24-10h04m55s.	stim	
L11 AriStim_12-03-20)24-10h08m53s.	stim	
	-		
L326 💦 Stin	nulation file loa	aded	
L327			
	<u>土</u> 💾		

Saving stimulation Parameters

Stimulation Page

When clicking on a label / SDI in the Home page, the Stimulation page is displayed, showing stimulation options of the selected label (and interpretation):



Stimulation Page

Actual raw data information is displayed, and each field / bit is clickable. The legend indicates stimulation options:

- Value forced to 0.
- Value forced to 1.
- Value reversed $(0 \rightarrow 1, 1 \rightarrow 0$ in real time).
 - Value not modified.

It is possible to stimulate any field independently providing powerful stimulation options:

- Inverting parity bit on one label / SDI.
- Changing SSM. _
- Modifying label number.
- Changing data of selected label / SDI...

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Generation mode

AriStim offers a new generation mode, please visit our website to explore and subscribe to a generation function subscription offer:

www.meonys.com/arinc-429-bluetooth-generator/

Home Page

The generation mode can be enabled by clicking on the STIM/GENE button in the top bar.

Home page displays the device information (serial number, connection status and battery charge), the line speed (HS or LS) can be changed by clicking the LS/HS button:

*))) s/N: POWWWJ	GENE	HS
LABEL	ТХ	Hz
L012		1
L012_DD_ALT	~	25,0
L025		2
L025_DD_GPS_LAT	~	25,0
L026		1
L026_DD_GPS_LONG	~	25,0
L034		1
L034_00_GPS_GND1	~	50,0
L034_01_GPS_GND2	~	50,0
L034_10_GPS_GND3	~	50,0
L034_11_GPS_GND4	~	50,0
L223		1
L223_00_HDG1	~	10,0
L223_11_HDG2	~	10,0
L245		2
L245_00_PITCH	~	50,0
L246		1
L246_00_ROLL	~	50,0

Home Page

Labels generation can be done manually by creating labels from the application by clicking the create label button on the bottom bar, then specify label number, SDI, rate and position within the frame. Labels can be deleted by clicking the delete button or edited by selecting the label in the list (long click) then clicking the edit button.

Label 23			
	Rate		Position
SDI_00	10	Hz	1
SDI_01	10	Hz	2
SDI_10	10	Hz	3
SDI_11 💟	10	Hz	4
SDI_DD] 1	Hz	5

Home Page create labels

Labels generation can also be done by loading a label description file (txt or xml formats). To get a description file as an example, simply create manually some labels from the application and save them to a description file with the format of your choice (txt or xml). Label description files can be loaded and saved in txt or xml format independently providing flexibility with the use of different file formats and file conversion form a format to another.

The directory of label description files can be selected by clicking the "SELECT DIRECTORY" button:

*))	S/N: POWW	wJ 📋	GENE	HS
	LABE	L	тх 🗆	Hz
L01	2			
L02	5			
L02	6			
L03	4			_
L22	SELE	CT DIRECTO	RY	_
L24	SELECT	DESCRIPTIO	N FILE	
L24	Load default val	ues 🦲		
	AriStim.txt)
	AriStim_11-02-2	024-22h31m40s	.txt 🗌	
	AriStim_11-02-2	024-22h51m33s	.txt).
	AriStim_12-02-2	024-00h03m32s	.txt)
	AriStim_12-02-2	024-00h05m48s	.txt	ľ
	AriStimGen_labe	els_demo.txt		
	🔊 Des	cription file lo	aded	
	<u></u>	\oplus	1	

Loading label description file

Labels data can also be saved and loaded from a label description file, select "Save default values" button to save data as default values.

SAVE DESCRIPTION FILE
File type FIDO (.txt)
Save default values
ОК

Saving label description file

Once all the labels are listed in the Home page, click on "TX" checkboxes to enable the generation of the labels.



Generation Page

When clicking on a label / SDI in the Home page, the Generation page is displayed, showing generation options of the selected label (and interpretation):

Р	SSM							LC)12_	DD_	ALT								_ L	AB
0									D,	ATA									C	12
0	0	0	0	0	0	0	0	1	0	1	1	0	1	1	1	1	0	1	1	1
-29	28	27	26	25	24	23	22	.21	20	19	18	17	16	15	14	13	12	11	10	9
SSM					•															
GPS		1469	. 75 ft											BNR LS low bit	SB 0.25 9 high	i MIN - bit 29	26214	4.0 MA	X 262	43.75
Information O Value forced to 0 1 Value forced to 1 1 Value reversed (only for parity) 0 Value not modified																				
			CLE	AR						(i)						UPI	DATE			

Generation Page

Actual raw data information is displayed, and each field / bit is clickable. The legend indicates generation options:

- Value forced to 0.
- Value forced to 1. -
- Value reversed $(0 \rightarrow 1, 1 \rightarrow 0 \text{ in real time})$.
- Value not modified.

It is possible to modify any field independently providing powerful generation options:

- Inverting parity bit on one label / SDI.
- Changing SSM. -
- Changing data of selected label / SDI...

If a label description file was loaded, the label data are also displayed in engineering format. Label data can be modified from the bit field or the engineering field independently providing a powerful generation option.

Warnings

This product shall only be used with the provided battery. The use of incompatible battery may affect compliance or may result in damage to the product and invalidate the warranty.

The provided battery shall only be charged with the provided Lithium-Ion charger. The use of incompatible battery charger may affect compliance or may result in damage to the battery and invalidate the warranty.

To avoid malfunction or damage to your AriStim product please observe the following:

- Do not expose to water or moisture.
- Do not expose to heat from any source; AriStim product is designed for reliable operation at the specified temperatures.
- Care must be taken when handling to avoid mechanical or electrical damage to the product and connectors.