

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 DEI®/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 and 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: 18650 lithium cell
- Maximum line level: ±35V
- Line input impedance: 12 kΩ
- Line input high threshold: ±1.4V
- Bluetooth® RF power: 8 dBm
- AriStim size: 91mm - 30mm - 23mm
- Weight (with battery): 79g
- Temperature range: 0°C – 60°C

Android Application

Download

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.

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.

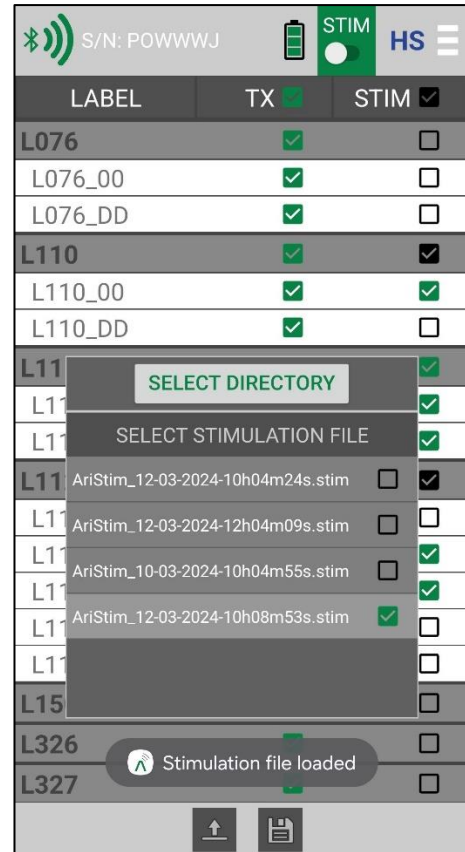
The same applies for the “STIM” checkboxes: stimulation of each label (with SDI as SDI or SDI as DATA interpretation) can be activated or de-activated from the Home Page:

LABEL	TX	STIM
L076	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L076_00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L076_DD	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L110	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L110_00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L110_DD	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L111	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L111_00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L111_DD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112_00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112_01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112_10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112_11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L112_DD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
L150	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L150_00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L150_DD	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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).

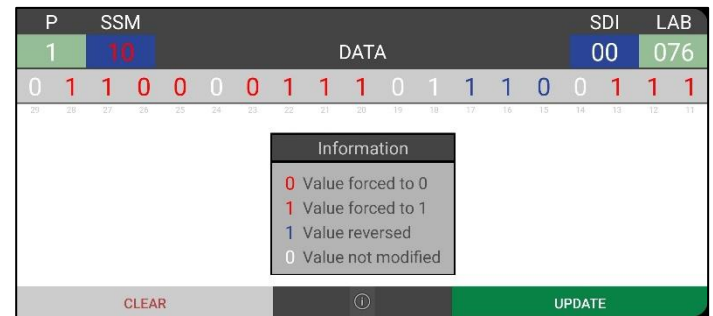
The directory of stimulation configuration files can be selected by clicking the “SELECT DIRECTORY” button:



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 -> 1, 1 -> 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...

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:

LABEL	TX	Hz
L012	<input checked="" type="checkbox"/>	
L012_DD_ALT	<input checked="" type="checkbox"/>	25,0
L025	<input checked="" type="checkbox"/>	
L025_DD_GPS_LAT	<input checked="" type="checkbox"/>	25,0
L026	<input checked="" type="checkbox"/>	
L026_DD_GPS_LONG	<input checked="" type="checkbox"/>	25,0
L034	<input checked="" type="checkbox"/>	
L034_00_GPS_GND1	<input checked="" type="checkbox"/>	50,0
L034_01_GPS_GND2	<input checked="" type="checkbox"/>	50,0
L034_10_GPS_GND3	<input checked="" type="checkbox"/>	50,0
L034_11_GPS_GND4	<input checked="" type="checkbox"/>	50,0
L223	<input checked="" type="checkbox"/>	
L223_00_HDG1	<input checked="" type="checkbox"/>	10,0
L223_11_HDG2	<input checked="" type="checkbox"/>	10,0
L245	<input checked="" type="checkbox"/>	
L245_00_PITCH	<input checked="" type="checkbox"/>	50,0
L246	<input checked="" type="checkbox"/>	
L246_00_ROLL	<input checked="" type="checkbox"/>	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.

Create label

Label 23

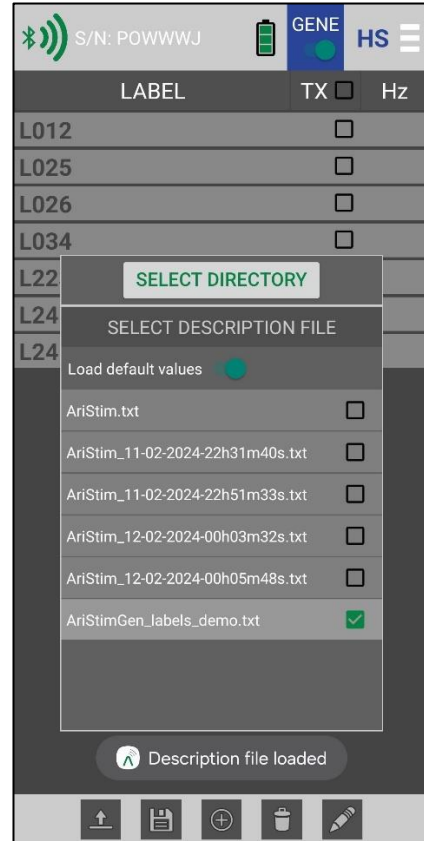
	Rate	Position
SDL00	<input checked="" type="checkbox"/> 10 Hz	1
SDL01	<input checked="" type="checkbox"/> 10 Hz	2
SDL10	<input checked="" type="checkbox"/> 10 Hz	3
SDL11	<input checked="" type="checkbox"/> 10 Hz	4
SDLDD	<input type="checkbox"/> 1 Hz	5

OK

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 from a format to another.

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



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

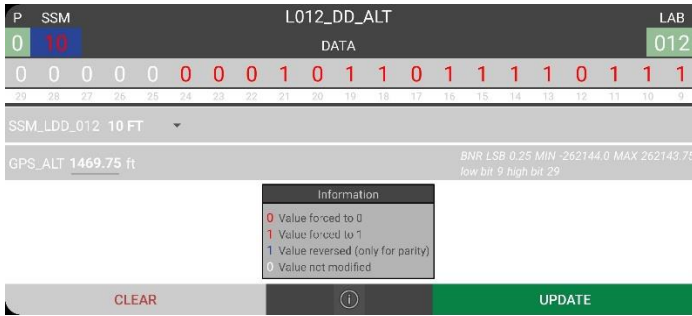
OK

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):



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 -> 1, 1 -> 0 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.