AriScope – ARINC 429 Interface

Description

AriScope is an **ARINC 429** Bluetooth® interface for an Android Smartphone. It enables the acquisition and analysis of each received bit at both **High Speed** and **Low Speed** in **real time**.

The associated **AriScope** Android application displays the list of the received labels with **individual refresh rates**, detailed information and an **oscillogram** of a selected label.

AriScope is also able to record the whole activity of the line into a text file that is sent immediately by e-mail from the application.

The battery powered device has a small size and is very simple to use (no cable). With a fully charged 18650 lithium battery, the runtime is over **50 hours**.

Features

Interface with AriScope

-   Banana plugs (2mm) for the ARINC 429 line:
    -   o Hot point: yellow plug.
    -   o Cold point: green plug.
-   Bluetooth® 2.0 interface with the Smartphone.
-   One green LED (device status).

Power Management

The electronic board is always powered by the battery.

The device is in sleep mode if the LED is OFF. The battery lasts more than **2 years** in this mode.

There is no button on AriScope 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:

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

If AriScope is not connected to the smartphone and no label is received, it will go to sleep after **2 minutes**.

Characteristics

-   Included battery: 18650 lithium cell
                              Sanyo 3.6V – 3.5Ah
-   Battery life in sleep: 2 years
-   Battery life in use: 50 hours
-   Maximum line level: ±35V
-   Line input impedance: 12 kΩ
-   Line input high threshold: ±1.4V
-   Bluetooth® RF power: 4 dBm
-   AriScope size: 87mm - 30mm - 23mm
-   Weight (with battery):   79g

Android Application

Download

The AriScope application is freely available here:

[NAVEOL AriScope Android Application](#)

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



AriScope Logo and Flashcode

Device Connection

Before using the application for the first time, AriScope needs to be paired with the smartphone. The Android Bluetooth® settings can be accessed from the application by clicking on "NO DEVICES" label, then "SETTINGS". AriScope 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 Home page.

Home Page

The **Home** page displays in real time the list of received labels and the corresponding refresh rates, the total number of labels, the detected line speed (HS or LS) and device information (serial number, connection status and battery charge).
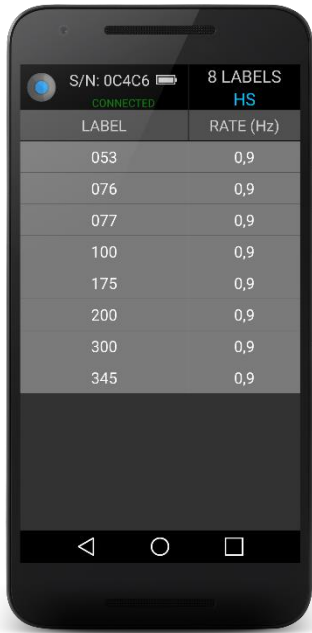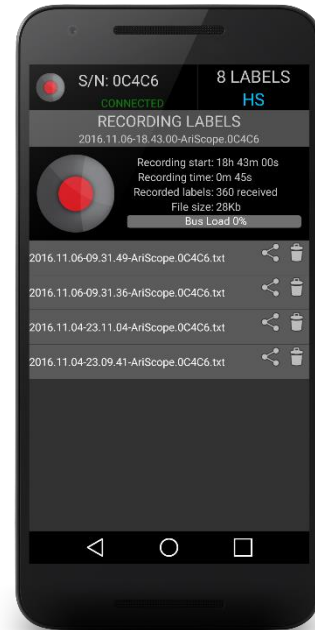
The analog data is automatically synchronized and aligned to the digital version of the label. Colors and Column headers ease data interpretation.

The page is for example useful to determine if the ARINC line has too many receivers connected (too low impedance which reduces peak-to-peak voltage).

Record Page

From the Home page, the user may access the **Record page** by clicking on the top left blue button (red when recording):

This page enables the user to record the whole ARINC line into a text file that can be sent by e-mail immediately after recording.

Clicking on one of the blue buttons starts recording. The labels are still decoded and a precise time stamp (20ns) is associated with each label.

Clicking again on the same button (now red) stops recording. A new file (with current date and time) is generated and displayed in the file list. The user may delete or share by e-mail the file. The last entered e-mail address is memorized.

The generated text file that is attached to the e-mail is easy to use (easy import in Excel):

Label Page

When clicking on a label in the Home page, the **Label page** is displayed, showing information of the selected label:
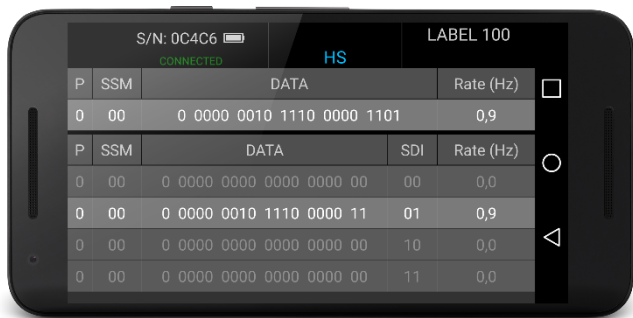
Raw data information is displayed, with both "SDI as data" and "SDI as SDI" representations.

The label rate is more specific: it now depends on SDI interpretation while the Home page displays rates regardless of SDI information.

Oscilloscope Page

From the Label page, clicking on a specific SDI or clicking on the "SDI as Data" version of the label launches the **Oscilloscope page**:

This page displays in real-time the analog acquisition of the selected label and SDI at **1.1 Msps in HS** and **137.5 ksps in LS**.