

BR262HM1.1 User Guide

The BelaSigna R262 Host Module 1.1 (HM1.1) is a USB-bus powered unit designed around the STM32L052R8 micro controller that implements a stereo 32kHz USB audio (microphone) interface. The BR262HM1.1 is a plug-and-play USB device that relies upon the computer OS native USB audio driver.

User Interface

Audio recording

Use any preferred audio recording software on the host computer to record audio from the BR262HM1.1. If you can configure your OS to use the BR262HM1.1 as the default microphone device for VOIP calls and audio pick-up in general.

Indicator LED

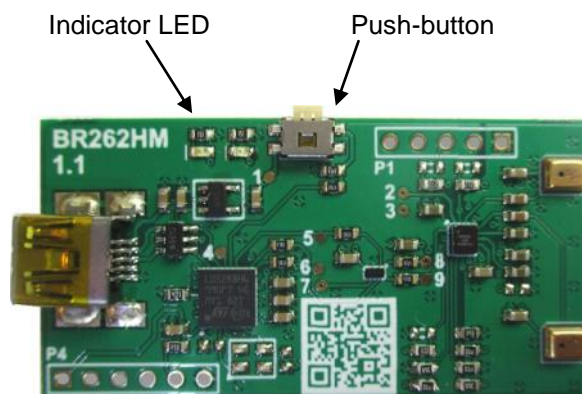
After plugging in the BR262HM1.1 in an available USB port on the host computer, the indicator LED starts blinking to indicate connection.

The LED's blinking frequency is as follows:

- 0.5 Hz USB is connected but no on-going audio streaming
- 1 Hz USB audio streaming with **algorithm disabled**, where both microphone signals are streamed over the USB interface.
- 2 Hz USB audio streaming with **algorithm enabled** (default mode), where the left channel is the first

Push button

The push button is used to toggle between algorithm disabled and algorithm enabled. The current algorithm mode is indicated by the LED during audio streaming.



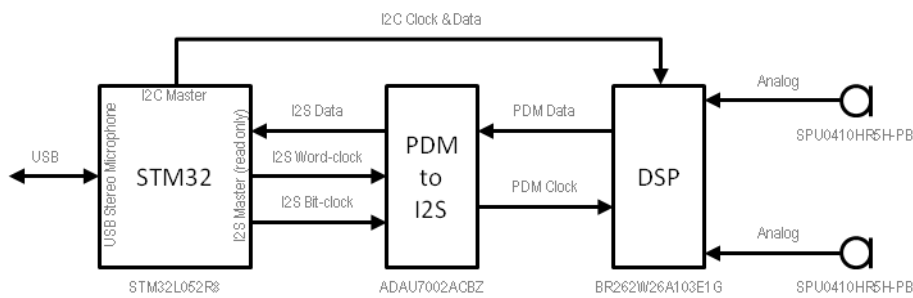
www.sallberg.at

Sällberg Technologies



BR262HM1.1 User Guide

System configuration



The micro controller is i2S master in read-only mode. The audio clock frequency is 32 kHz (I2S word clock) and with 32 bit frames per samples in stereo mode, the I2S bit clock generated by the MCU amounts to 2.048 Mhz. The PDM to I2S converter passes the I2S-bit clock to its PDM clock output. The 2.048 MHz PDM clock is the main clock source for the BelaSigna R262 that generates its necessary internal clocks by an internal PLL. The BelaSigna R262 samples the two microphones and processes the microphone signals according to the currently selected operating mode and settings.

Default BelaSigna R262 Configuration

The BelaSigna R262 is configured to the following default settings:

CLOCK_SEL = 1V	2.048 MHz external clock (this is the PDM clock rate from the ADAU7002-chip)
BOOT_SEL = 0.43 V	Boot to active mode where left channel is tuned for close talk distance (5 to 10 cm) and right channel is tuned for far-talk distance (2.5 to 5 m)
CHAN_SEL = 0.57 V	Dual noise reduced outputs
ALPHA_SEL = 0.28 V	The mixing ratio is 60 %

Please see the BelaSigna R262 Communications and configuration guide (M-20792-001) for more information about these settings.

All of these settings can be adjusted by sending I2C-commands from the micro-controller. If you are interested in the full source code for the micro-controller, please see our alternative product <https://dspboards.one/products/stm32mic>

www.sallberg.at

Sällberg Technologies

Research

Development

Knowledge
Transfer