USER MANUAL   JULY 2016

STEREO FM RADIO SHIELD FOR ARDUINO®
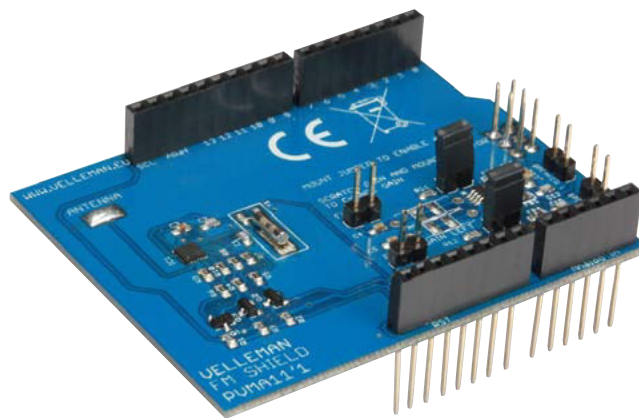
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Let's get started!

FEATURES AND SPECS

The VMA11 is a radio and RDS receiver combined with a powerful and efficient 2.8 W class D audio amplifier. All of this is designed in the familiar Arduino formfactor. In short, this module is ideal if you want to create your own clock radio or if you want to add FM functionality to your projects!
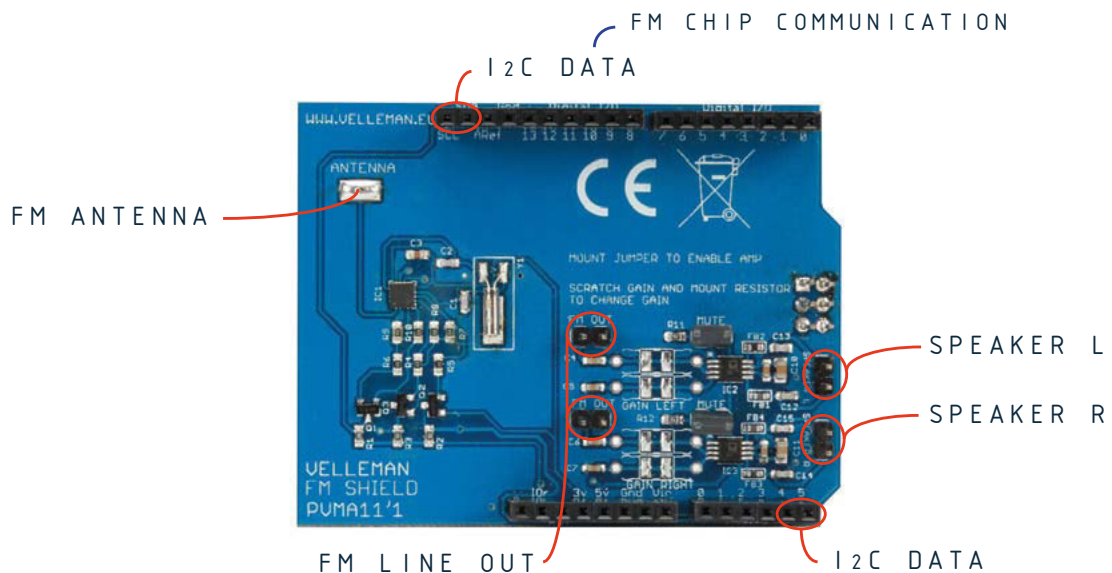
FEATURES

- worldwide FM support
- RDS/RBDS support
- volume control
- automatic frequency control
- automatic gain control
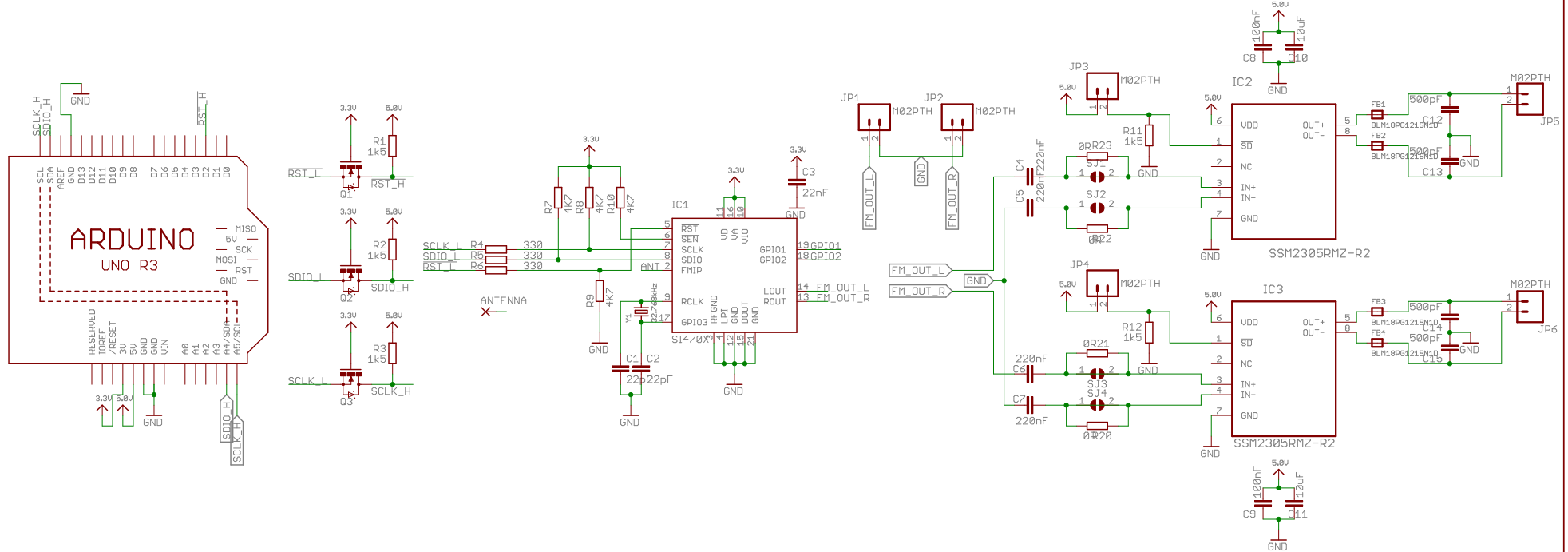- Arduino® library available
- class D 2.8 W amplifier

SPECIFICATIONS

- interface: I2C
- power / logic level: 3.3 V
- sensitivity: 1.7 μ Vemf
- max. output power: 2.8 W (4 Ohm) or 1.6 W (8 Ohm)
- default gain: 18 dB (8 x) (adjustable)
- THD: 0.02 % (1 W 8 Ohm / 1 kHz)
- S/N ratio: 98 dB (1.4 W / 8 Ohm)
- dimensions: 68 x 54 x 23 mm

PINOUT

DIAGRAM

ARDUINO
UNO R3

SCL SDA AREF D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0
MISO 5V SCK MOSI RST GND
RESERVED IOREF /RESET 3V 5V GND GND VIN A0 A1 A2 A3 A4/SDA A5/SCL

SCLK_H
SDIO_H
RST_H
GND

3.3V 5.0V GND

SDIO_H
SCLK_H

RST_L Q1 RST_H
R1 1k5
3.3V 5.0V

SDIO_L Q2 SDIO_H
R2 1k5
3.3V 5.0V

SCLK_L Q3 SCLK_H
R3 1k5
3.3V 5.0V

SCLK_L R4 330
SDIO_L R5 330
RST_L R6 330

R7 4K7 R8 4K7 R9 4K7 R10 4K7
3.3V

ANTENNA
ANT

R9 4K7
GND

Y1 32.768kHz
C1 22pF C2 22pF
GND

IC1
RST
SEN
SCLK
SDIO
FMIP
VD VA VIO
GPIO1
GPIO2
RCLK RFGND LPI GND DOUT GPIO3
LOUT ROUT
SI470X
GND

3.3V
C3 22nF
GND

19 GPIO1
18 GPIO2
14 FM_OUT_L
13 FM_OUT_R

JP1 M02PTH JP2 M02PTH
FM_OUT_L GND FM_OUT_R

FM_OUT_L
FM_OUT_R
GND

JP3 M02PTH
5.0V
R11 1k5
GND

C4 220nF
C5 220nF
SJ1 0RR23
SJ2 0R22

JP4 M02PTH
5.0V
R12 1k5
GND

C6 220nF
C7 220nF
SJ3 0R21
SJ4 0R20

IC2
VDD
SD
NC
IN+
IN-
GND
OUT+
OUT-
SSM2305RMZ-R2

5.0V
C8 100nF C10 10uF
GND

FB1 BLM18PG121SN1D
FB2 BLM18PG121SN1D
C12 500pF
C13 500pF
GND

JP5 M02PTH

IC3
VDD
SD
NC
IN+
IN-
GND
OUT+
OUT-
SSM2305RMZ-R2

5.0V
C9 100nF C11 10uF
GND

FB3 BLM18PG121SN1D
FB4 BLM18PG121SN1D
C14 500pF
C15 500pF
GND

JP6 M02PTH

LIBRARY

Please install the library which you can download from the following link:
https://github.com/Velleman/VMA11

With this library you can control the FM shield and find example code which will show you all possible features.

If you are not familiar with installing Arduino libraries, please read the following explanation:
https://www.arduino.cc/en/Guide/Libraries