a-gsm series

Integrated antenna, dual SIM, quad band GSM/GPRS/DTMF/SMS ARDUINO, TEENSY, BBB & RASPBERRY PI compatible shield

- **Integrated GSM antenna and uFL connector for external antenna**
- **DUAL SIM socket***
- **Worldwide compatibility # quad band module**
- **GSM / GPRS / SMS / DTMF supported**
- **Integrated uSD(TF) socket**
- **USB miniB interface**
- **2.8V-5V serial interface**
- **5.30-24V wide voltage switching power supply**
- **ARDUINO, BBB and RASPBERRY PI direct compatibility**
- **Windows, MAC and Linux PC connectivity**
- **Audio jacks (out-870 mW, in- capacitor MIC)**
- **Complex code examples**
- **Ideal for small-medium series gadget / project integration**

* single SIM active

The new **a-gsmII v2.105**, together with **b-gsmgnss v2.105**, belongs to the next generation of the successfully **a-gsm v2.064**, - ARDUINO, BBB & RASPBERRY PI compatible shied – and offers to best market performances for their product class, accompanied by reasonable cost.

Designed in EUROPE by **R&D Software Solutions** team -awarded in 2006 with the **GST SSC Bronze Award**, the a-gsmII shield proudly represents the concept of porting of professional solutions to the hobby/DYI market. This new version enhance the integration and performances of the previous **a-gsm** shield, including some new features inspired by customers feedback

The **a-gsm/b-gsmgnss series** answers at your needs for a fully integrated, functional and affordable cellular modem shield / platform. Smart complete design of the a-gsmII shield brings you the flexibility and easiness in integration, wherever your platform and application. Beyond ARDUINO / RASPBERY PI / others hobby / DYI platforms integration, the a-gsmII shield can be easily and in a time manner incorporated into your equipment regardless your previous experience in modem technology. The a-gsm series represents your best choice for usage into a wide range of designs requiring robust and reliable performance.

Standard a-gsmII features: high performance GSM/GPRS module (Quectel M95) with worldwide coverage- 850/950/1800/1900 MHz, integrated GSM antenna and u.FL socket for external antenna, DUAL SIM socket (placed on the top side of the shield), USB (WIN/LINUX/MAC, RPI/BBB [Debian] support; USB mini type B) and UART [TX, RX], POWER ON/OFF, MODEM STATUS and MODEM RESET 2.8V up to 5V compliant interfaces, micro SD slot (supporting micro TF cards up to 32Gb), high performance switching power supply [5 powering modes available], 2 x standard 3.5mm stereo jacks for high power output (870mW RMS) audio and for capacitor microphone input and a lot of other electrical interfaces, including SERIAL2, all in 84.00x53.34mm standard ARDUINO form factor.

Plug and replace [compatible with] the original Arduino GSM/Arduino GSM V2, in (almost) all projects using the ITBP Arduino GSM hack class [free download on https://itbrainpower.net/downloads].

Our range of products is available for ordering in following versions: with or without ARDUINO headers bundled.

Manufactured in EU.

Part number	Description	Usage
AGSM2105#BAP	a-gsmII 2.105 DUAL SIM, Arduino headers bundle	GLOBAL
AGSM2105#0AP	a-gsmII 2.105 DUAL SIM, no Arduino headers	GLOBAL
AGSM2105#IND	a-gsmII 2.105, industrial grade	GLOBAL

Part number	Accessories description	
ITBP-UFL-SMAF#085	u.FL to SMA female panel 85mm pigtail	
ITBP-UFL-SMAF#100	u.FL to SMA female panel 100mm pigtail	

micro
SD
socket

POWER IN option
Vmain+GND

IO interface [autp 2.8V-5V]
power
reset
status
tx(rxd)
rx(txd)

status led
network led

modem
switches
RESET
ON/OFF

DUAL SIM
SOCKET

integrated
antenna

miniUSB
type B

mic
jack

speaker
jack
870mW!!!

external
antenna
connector

Arduino RESET SWITCH

5V Gnd Vin
Arduino power IN

Vbat+GND
POWER IN option
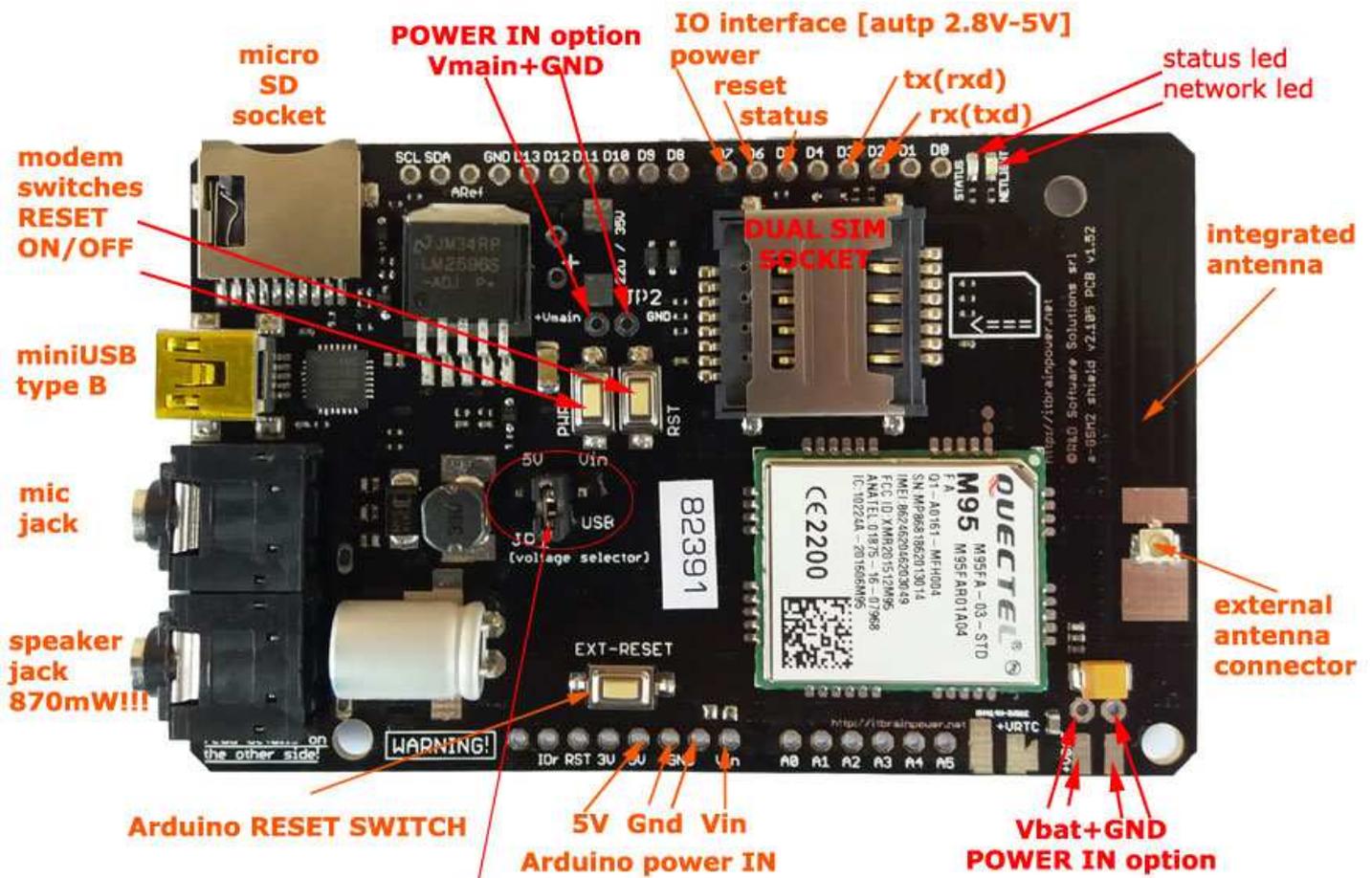
Power supply input selector - JP1

use 5V pin
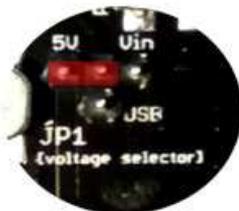
use Vin pin
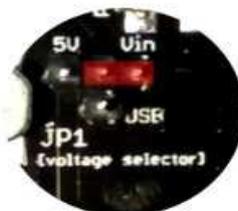
use USB as power
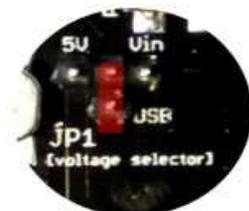
**via Vmain + GND
DO NOT PLACE
JUMPER!!!**

**via Vbat + GND
DO NOT PLACE
JUMPER!!!**

top side, details

a-gsm II by itbrainpower.net

FEATURES AT A GLANCE:

INTEGRATED GSM antenna and **u.FL connector for external GSM antenna**;

DUAL SIM socket, SINGLE STANDBY - (SIM cards required not included)

Quad band GSM/GPRS module (Quectel M95F) with true worldwide coverage: 850MHz, 900MHz, 1800MHz and 1900MHz

USB adapter embedded standard - SERIAL UART to USB bridge adapter with USB mini type B socket (you can use the a-gsmII board as wireless modem with your PC, connecting it directly thought USB to your PC – Windows, MAC and Linux compatible),

SERIAL TTL interface, down to 2.8V compliant (TX and RX) available in Arduino pin-out,

MicroSD card socket standard (support uTF cards up to 32 Gb),

SWITCH POWER Supply* with efficiency up to 95%; the shield can be powered using various powering inputs: Arduino Vin pin(5-12V), Arduino 5V pin and thought USB connector(*).

Audio in and out 3.5 stereo jacks standard - HIGH power audio output (870mW) and capacitor Microphone interfaces embedded,

Embedded switches: control for modem ON/OFF & modem RESET and Arduino Reset

DIGITAL AUDIO interface and SERIAL2 (3V TXD and RXD) interfaces available thought additional back PCB side pads.

COMPACT FORMAT: 84.00x53.34mm, around 15g.

*   5.30V-24V input support, 5 way powering profiles: via USB, Arduino Vin pin, Arduino 5V, Vmain pin [up to 24V] and Vbat+GND [4V/LiPo] pins with manual selector [1xjumper] for users convenience

**   High Speed GPRS Multi-slot class 12 (configurable 1~12) Downlink and uplink speed - 85.6 kbps Max

Extended Arduino, RaspberryPI and BBB support, with code examples: - **GSM, TCP/UDP, HTTP[s], DTMF coding and decoding, SMS** and other features and utilities like **DUAL SIM**, others.

RaspberryPI PPP and TCPIP routing support (Debian based) trough easy installation and usage scripts.

PIN definition:

Pin D2 = GSM TXD(RX),
Pin D3 = GSM RXD(TX),
Pin D7 = PWRKEY – MODEM ON/OFF,
Pin D5 = MODEM-STATUS,
Pin D6 = RESET-MODEM,
PinRST = Arduino RESET OUT,
Pin5V = Arduino 5V,
PinVin = Arduino Vin,
Pin GND(1&2) = GND

Standard Arduino Pin-out

ONE to ONE connection without additional cables for Arduino UNO/LEONARDO and Arduino MEGA ADK/MEGA 2560*

* Arduino LEONARDO & Arduino MEGA ADK/MEGA 2560, additional strap / 1k resistor may be needed

Easy RaspberryPI II, B+, III & Zero wiring

Connection name	RPi pin	a-gsmII shield pin
POWER a-gsm	**16**	D7 - power(UP/DOWN)
RESET a-gsm	18	D6 - reset *
a-gsm STATUS	**12**	D5 - status
serial TXD0	**08**	D3 - RX(TXD)
serial RXD0	**10**	D2 - TX(RXD)
GND	**06**/14	GND - on Arduino power IN connector
5V power supply	**02**/04	5V - on Arduino power IN connector **

*   connection not mandatory
**   recommendation: do not power a-gsmII from the RPI 5V PIN, power the a-gsmII shield from independent PS.

CODE EXAMPLES and UTILITIES:

Arduino examples list (C code):

- SMS_SS.ino - a-gsmII shield 2.105 send/read/list SMS example >> GSM SHIELD SEND/RECEIVE SMS tutorial code
- GPRS_HTTP.ino - a-gsmII shield 2.105 HTTP client over GPRS example>> GSM SHIELD GPRS over HTTP tutorial code
- SIM_UTILITIES.ino - a-gsmII shield 2.105 SIM/MODEM/NETWORK/POWER ON/POWER OFF utilities >> GSM SHIELD UTILITIES tutorial code

http://itbrainpower.net/a-gsmII   **copyright R&D Software Solutions srl**   **v1.03 2017, August**

- DTMF_SEND.ino - a-gsmII shield 2.105 send DTMF example >> GSM SHIELD DTMF SEND tutorial code
- DTMF_RECEIVE.ino - a-gsmII shield 2.105 receive/decode DTMF example >> GSM SHIELD DTMF RECEIVE tutorial code

Raspberry PI[BBB] examples list (python):
- powerOnOff.py - a-gsmII 2.105 power on / power off / modem communication example >> GSM SHIELD POWER ON/OFF tutorial code
- setSerial.py - a-gsmII 2.105 set serial communication speed example >> GSM SHIELD SET SERIAL SPEED tutorial code
- readSMS.py - a-gsmII 2.105 list/read SMS example >> GSM SHIELD READ/LIST SMS tutorial code
- sendSMS.py - a-gsmII 2.105 send SMS example >> GSM SHIELD SEND SMS tutorial code
- GprsHttp.py - a-gsmII 2.105 HTTP client over GPRS example >> GSM SHIELD GPRS over HTTP tutorial code
- a-gsmUtilities.py - a-gsmII 2.105 SIM/MODEM/MISCELLANEOUS (including DTMF) usage example utility >> GSM SHIELD UTILITIES tutorial code

UTILITIES:
- Arduino GSM class hack. Run (almost) any project written for the original Arduino GSM using the a-gsmII shield
- a-gsmII kickstart for Arduino **-** an interactive interface that allows to test the modem facilities with Arduino. Library based, Arduino C.
- itbpGSM REST IoT class. – light IoT GSM class support for itbrainpower.net modems with examples.
- a-gsmII-raspian-ppp-1.0.tar.gz **- Raspian PPP and routing utility**
- setSerial.py – change and save a-gsmII serial communication speed Python utility (included in a-gsmII-raspian-ppp.tar.gz and in a-gsmII-series-RaspberyPI-code-examples-1.0.tar.gz)

Additional documentation: (available on http://itbrainpower.net/downloads)
- Arduino/RaspberryPI gsm shield communication debug how to
- a-gsm audio wiring [valid for a-gsmII]
- a-gsm shield block schematics [valid for a-gsmII]
- a-gsm series GSM / GPRS / DTMF / SMS ARDUINO and RASPERRY PI compatible shield
- a-gsmII shield - TOP description
- a-gsm shield series - ARDUINO wiring using software serial, default in Arduino code examples [valid for a-gsmII]
- a-gsm shield series - Arduino wiring for hardware serial [valid for a-gsmII]
- a-gsm shield series - Raspberry PI B+ wiring schema [valid for a-gsmII]
- QUECTEL M95F AT command manual