GSM 4 click

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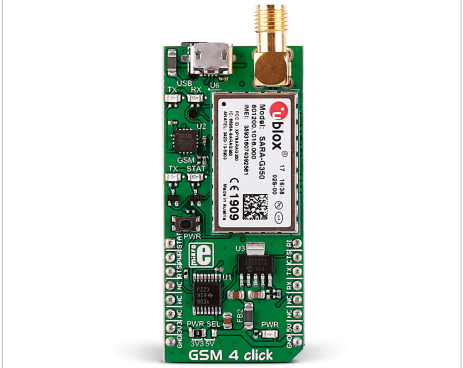

GSM 4 click	
IC/Module	SARA-G3 [1]
Interface	UART, USB
Power supply	3.3V or 5V
Website	www.mikroe.com/click/gsm-4 [2]
Schematic	GSM 4 click Shematic [3]

GSM 4 click is a mikroBUS™ add-on board that features the u-blox **SARA-G3** series 2.5G GSM/GPRS cellular module. The SARA-G3 module has a miniature LGA (Land Grid Array) form factor as well as a RF transceiver and a power amplifier. The click can respond and react to phone calls or messages and send and receive data.

The click also has a 3.5mm jack for connecting headphones and a microphone. It runs on either **3.3V** or **5V** power supply, has an antenna connector and a SIM card socket. It communicates with the target MCU through UART connection or USB port.

Features and usage notes

Global coverage

GSM 4 click has global quad-band coverage. The 900MHz and 1800MHz frequencies are used in most parts of the world (Europe, Africa, Middle East, Asia). The 850MHz and 1900MHz are used in North, South and Central America.

Power management

In idle mode the module typically uses 0.3mA, which is ideal for battery powered IoT devices and home automation systems.

Specifications for GSM/GPRS Data

- GSM/GPRS power class 4 (33 dBm) for 850/900 bands
- GSM/GPRS power class 1 (30 dBm) for 1800/1900 bands
- GSM/GPRS Bands - GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz

Additional information about the click

The power button on the board is used to wake up the device if only the USB port is used.

The onboard zero ohm SMD jumper selects between 3.3V or 5V I/O voltage levels.

In order to avoid communication issues when using only USB, you should put the VCC jumper on 5V position. If you don't want to remove it from 3V3 just connect the 3V3 and 5V pin with a jumper wire.

Additional information about the module

All SARA modules, including the one on this click, have a "nested design" — same form factor and footprint.

SARA-G3 module provides a high-speed SIM/ME interface, including automatic detection and configuration of the voltage required by the connected (U)SIM card or chip. Both 1.8V and 3V SIM types are supported.

The module includes a High-Speed USB 2.0 compliant interface with maximum data rate of 480 Mb/s.

Applications: remote monitoring automation, asset tracking, surveillance and security, home automation systems, point of sales terminals etc.

Key features

- GSM Quad-band 850/1900, 900/1800 MHz
- Maximum output power -8dBm
- IPv4/IPv6 dual-stack
- Embedded TCP/IP and UDP/IP stack
- Power consumption in idle-mode 0.5mA
- USB port for connecting to PC
- MikroBUS™ UART interface
- Runs on either 3.3V or 5V power supply

Pinout diagram

This table shows how the pinout on GSM 4 click corresponds to the pinout on the mikroBUS™ socket.

Notes	Pin	mikroBUS™					Pin	Notes
Network Status	**STAT**	1	AN	PWM	16	**RI**	Incoming ring detection
Power ON/OFF	**PWRKEY**	2	RST	INT	15	**CTS**	UART Clear To Send
UART Request To Send	**RTS**	3	CS	TX	14	**TXD**	UART data Transmit
	NC	4	SCK	RX	13	**RXD**	UART data Receive
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
+3.3V power input	**+3.3V**	7	+3.3V	+5V	10	**5V**	+5V power input
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Programming

The demo uses generic AT parses also used with all previous GSM click boards. The example is a simple test procedure which rejects any incoming call.

- Maximum current detected : 220 mA – little lower than in case 3G Sara click
- Usable on : ARM, PIC, PIC32, AVR and FTDI compilers

Initialization routine for GSM4. Assignings gsm4_evn_default as default handler and gsm4_ev_ring function as handler for incoming calls. Routine also sends 3 AT commands.

```
void gsm4_init( void )
{
    engine_init( gsm4_evn_default );

    at_cmd_save( "RING", 1000, NULL, NULL, NULL, gsm4_ev_ring );

    at_cmd( "AT" );
    at_cmd( "AT+CSCS=\"GSM\"" );
    at_cmd( "AT+CMGF=1" );
}
```

Resources

- Schematic [3]
- Module data sheet [1]
- Libstock library [4]
- Tutorial: 2G,3G and 4G [5]
- Tutorial: Introduction to GSM [6]
- mikroBUS™ standard specifications [7]

References

[1] https://www.u-blox.com/sites/default/files/SARA-G3_DataSheet_(UBX-13000993).pdf
[2] http://www.mikroe.com/click/gsm-4
[3] http://cdn-docs.mikroe.com/images/6/63/GSM-4-click.pdf
[4] http://libstock.mikroe.com/projects/view/1959/gsm4-click
[5] http://learn.mikroe.com/2g-3g-4g-speed/
[6] http://learn.mikroe.com/introducing-the-gsm/
[7] http://www.mikroe.com/mikrobus/

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