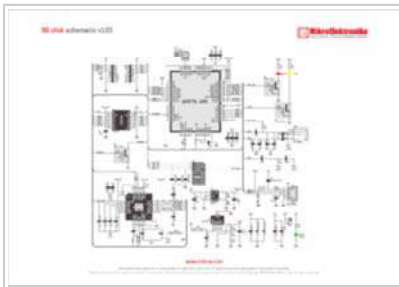


## 3G click

From MikroElektronika Documentation

**3G click** is a mikroBUST™ add-on board with Quectel's UG95 3G UMTS/HSPA module. The board has a rich set of components to simplify development: an SMA connector, earphone/microphone jack, MicroUSB port, as well as a SIM card slot. The network protocol stack includes support for TCP, UDP, PPP, MMS, FTP, SMTP, SMTPS, HTTP, HTTPS, PING, and SSL. 3G click communicates with the target MCU through the mikroBUST™ UART interface (RX, TX), with additional functionality provided by STAT, PWRKEY, RTS, R1, and CTS pins. The board is designed to use either a 3.3V or a 5V power supply.

### Features and usage notes



Schematic also available in PDF ([http://cdn-docs.mikroe.com/images/d/d6/3g\\_click\\_schematic\\_v](http://cdn-docs.mikroe.com/images/d/d6/3g_click_schematic_v))

Due to the nature of the protocol, 3G click comes in two different versions. The Europe and Australia version operates on the 900/2100@UMTS, 900/1800@GSM frequency band, while the USA version works on 850/1900@UMTS frequency band.

The boards are otherwise identical.

An onboard jumper allows you to choose the I/O voltage levels between 3.3V and 5V. Signal LEDs show the status of the data transmission.

The following are data rates the UG95 module can achieve using various supported protocols:

- HSPA: 7.2 Mbps (DL)/ 5.76 Mbps (UL) - UMTS: 384 Kbps (DL)/ 384 Kbps (UL) - GPRS: 85.6 Kbps (DL)/ 85.6 Kbps (UL) - EDGE: 236.8 Kbps (DL)

### Programming

This code snippet shows how easy it is to establish a connection with 3G click, and answer or hangup an incoming call.

```

1 #include "3G_click_lib.h"
2 #include "resources.h"
3
4 // TFT module connections
5 unsigned int TFT_DataPort at GPIOE_ODR;
6 sbit TFT_RST at GPIOE_ODR.B8;
7 sbit TFT_RS at GPIOE_ODR.B12;
8 sbit TFT_CS at GPIOE_ODR.B15;
9 sbit TFT_RD at GPIOE_ODR.B10;
10 sbit TFT_WR at GPIOE_ODR.B11;
11 sbit TFT_BLED at GPIOE_ODR.B9;
12
13 sbit GSM_PWR at GPIOC_ODR.B2;
14 sbit GSM_CTS at GPIOD_ODR.B13;
15 sbit GSM_RTS at GPIOD_IDR.B10;
16
17 bool answer_call = false;
18 bool hangup_call = false;
19
20 void system_init( void );
21
22 void main()
23 {
24     system_init();
25     display_init();
26     click_3g_api_init();
27
28     while( 1 )
29     {
30         click_3g_process();
31
32         if( Button( #GPIOC_IDR, 9, 80, 1 ) )
33             answer_call = true;
34
35         if( Button( #GPIOC_IDR, 8, 80, 1 ) )
36             hangup_call = true;
37
38         if( answer_call )
39         {
40             click_3g_call_answer();
41             answer_call = false;
42         }
43
44         if( hangup_call )
45         {
46             click_3g_call_hangup();
47             hangup_call = false;

```

### 3G click



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<b>IC/Module</b>	Quectel UG95 ( <a href="http://www.quectel.com/product/prodetail.aspx?id=78">http://www.quectel.com/product/prodetail.aspx?id=78</a> )
<b>Interface</b>	UART, STAT, PWRKEY, RTS, RI, CTS
<b>Power supply</b>	3.3V, 5V
<b>Website</b>	<a href="http://www.mikroe.com/click/3g-aa">www.mikroe.com/click/3g-aa</a> ( <a href="http://www.mikroe.com/click/3g-aa">http://www.mikroe.com/click/3g-aa</a> )  <a href="http://www.mikroe.com/click/3g-ea">www.mikroe.com/click/3g-ea</a> ( <a href="http://www.mikroe.com/click/3g-ea">http://www.mikroe.com/click/3g-ea</a> )

```
48     }  
49   }  
50 }
```

Code examples that demonstrate the usage of 3G click with MikroElektronika hardware, written for mikroC for ARM, AVR, FT90x, PIC and PIC32 are available on [TK].

## Resources

- 3G click example on Libstock (<http://libstock.mikroe.com/projects/view/1802/3g-click>)
- Quectel's M2M brochure with more info about UG95 ([http://www.quectel.com/UploadFile/Brochure/Quectel\\_Brochure\\_EN\\_V4.3.pdf](http://www.quectel.com/UploadFile/Brochure/Quectel_Brochure_EN_V4.3.pdf))
- Quectel's UG95 landing page with links to relevant documentation (<http://www.quectel.com/product/prodetail.aspx?id=78>)
- 2G sunset is near, article about 3G click on learn.mikroe.com (<http://learn.mikroe.com/2g-sunset-near/>)

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