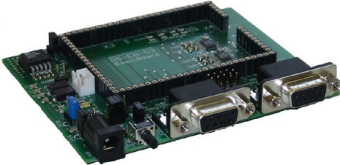


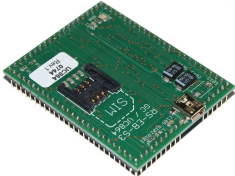





## Quick Start Guide for Starter RS-EB-S3 and its adapter boards

Thank you for buying the Round Solutions RS-EB-S3 board. The RS-EB-S3 is able to drive all serial modules of Round Solutions. By using of an interface board, it is able to plug any kind of module with up to four UART to the S3 board. The supply voltage will be selected automatic by connecting the adapter board to the main board. The linear regulator on the main board is able to drive the current peaks of a GSM module. Customers that already have a main board S3, can move fast and inexpensive to any other module supported by Round Solutions.

<p><b>RS-EB-S3</b></p>	 <p>Basic board S3 for adapter board</p>		
<p><b>PCB-RS-ADB-GM862</b></p>	 <p>GM862 connected on adapter board</p>	<p><b>PCB-RS-ADB-GE863-GPS</b></p>	 <p>GE863 on adapter board with embedded antenna</p>
<p><b>PCB-RS-ADB-UC864 (also for GC864)</b></p>	 <p>GC864 connected on adapter board</p>	<p><b>PCB-RS-ADB-TCCAM</b></p>	 <p>Camera adapter board connected to S3 board</p>
<p><b>SIM-Card-Reader</b></p>	 <p>SIM card holder on GE863 / GE864 / GC864 adapter</p>	<p><b>PCB-RS-ADB-GPS</b></p>	 <p>Lassen IQ and Copernicus connected on adapter</p>
<p><b>Bluetooth modules</b></p>	<p>Bluetooth connected on adapter board (Coming soon)</p>	<p><b>Other wireless modules</b></p>	<p>Other modules will follow. <i>One for all and all for one.</i> The basic board can be upgraded by ordering of an adapter board</p>

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# 1 Using with GSM or combined GSM/GPS module

We would like to recommend to new customers to test the basics like voice call, SMS and data call first, before moving on to GPRS and sending of JPGs compressed pictures based on Easy camera or using the GPS module inside the GPRS module. If you need help, we recommend that you use the Round Solutions Internet forum ([www.roundsolutions.com/forum](http://www.roundsolutions.com/forum)), and use the "SEARCH" function to find former postings with the same topic. It is always very helpful to mention which firmware version is inside the GPRS module (AT+GMR).

## Components and parts for the quick start

- Starter kit with accessories antenna from Round Solutions
- Product Description Guide, HW User Guide, SW User Guide on [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs)
- Power supply that is able to support 2 Ampere peak current
- Full-featured SIM card if you would like to use CSD and GPRS.

As a first step, we help you to get started without the Camera connected.

## 1.1 Connectors and jumpers on starter kit board RS-EB-S3

### 1.1.1 X10 and X11 Power in

These connectors are the input for the supply voltage of your power supply. Please take care that your power supply is able to support 2 Ampere peak current. Please note, that the supply voltage to the adapter board will be set automatically with **resistor R100** on the used adapter board. Without adapter board, the output voltage on regulator U10 will be 1,25 Volt.

### 1.1.2 JP10

This Jumper can disconnect the supply voltage and to measure the current on the starter kit board.

### 1.1.3 JP11/J12 Lilon battery used / not used

Jumper J11 is to change the voltage of the linear regulator from 4 Volt to 5,4 Volt. 4 Volt is the voltage that to be used if you do not use a LiIon battery (default) and JP12 has to be set on position 1-2. A supply voltage of 5,4 Volt will be used if you run the GPRS module on a battery. In that

case, Jumper J12 has to be connected to the pin "battery charge" on the GPRS module (Connecting of 2-3). Please note that the charging of the battery is a function of the GPRS module of Telit. By using of other modules, the battery will not be charge on the PCB.

#### **1.1.4 Battery connector X20 (Li-Ion battery)**

This connector connects the battery. Please use Li Ion batteries that with security components only.

#### **1.1.5 LED10 Main power**

The green LED tells you the power on of the main power regulator on the board.

#### **1.1.6 J20 Auto power on**

With jumper J20 you active the auto power on of the GSM module by any power on the board. (Default)

#### **1.1.7 S20 Manual power on**

With switcher S20, you power on the module manually. It has to be pushed for at least 1 second and the released. For power off use the same procedure.

#### **1.1.8 X100 / COM A (AT command interface, +/- 12 Volt)**

RS232 on V.28 level (+/- 12 Volt) to connect to the COM port of your PC (default). By using of the converter cable RS232 to USB, you can connect to the USB port on your PC.

#### **1.1.9 X101 /COM A (AT command interface, CMOS level)**

This UART interface can be used to wire the evaluation board on CMOS level 2,8 Volt to your external micro controller board. R100, R101 and R102 have to remove. Otherwise, you will get a short circuit with the lines of your micro controller.

#### **1.1.10 X200 /COM B (NEMEA GPS interface)**

This UART is the NEMEA output port of the GPS module.

### 1.1.11 X300 /COM C (Binary GPS interface)

This UART of the internal GPS module can be wired by jumper J300 and J400 to an UART of the GPRS module. This is default, if you would like to control the GPS module via AT commands. The control by binary Sirf Star 3 protocol is official not supported. More about this issue in our user forum [www.roundsolutions.com/forum](http://www.roundsolutions.com/forum) .

### 1.1.12 X400 /COM D (Second serial link of GPRS module)

This UART can be connected to the binary port of the internal GPS module. By GPRS modules without internal GPS module it is not in use for standard operation.

COM D has other function as well. The UART can be used as a trace port for debugging of the GPRS module. For such a trace, you will get some special trace software from us, if necessary. ***Please take care, that this two lines can accessed in your final own PCB as well.*** A solder pad to solder a wire is even enough. Based on that we can see what is going on inside the module during operation.

### 1.1.13 X600 Audio

This Connector can be used to connect audio accessories.

### 1.1.14 X800 CMOS camera

This connector is planned to connect the CMOS camera by an adapter board. This board is an option. Part number and price is listed in our price list.

### 1.1.15 X500 SIM card signals

This connector will be used to connect an external SIM card holder.

### 1.1.16 X700 GPIO

The pins are a mix of different GPIO. For further details please have a look on the schematic diagram.

### 1.1.17 LED30 GSM module status

For more details on the flashing of the LED, please have a look in the Product Description guide of the GM862 (fast blinking: Net search, slow blinking: Registered full service).

### 1.1.18 LED31 Test LED

This LED is wired to GPIO16 of the GPRS module. This LED can be controlled by Python scripts or by AT command AT#GPIO. For further details please have a look in the latest manuals.

### 1.1.19 JP30 Jumper to start Python script

Selection of jumper pins	Selected function
1-2	Run Python script after power on (DTR=High)
2-3	DTR line is controlled by COM A ( your PC). DTR = High => Run Python script DTR = Low => AT command mode
No jumper	AT command mode after power on (DTR=Low)

For further details we recommend to have a look in the latest manuals listed at [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs).

### 1.1.20 Using serial CMOS to USB adapter CAB-ROU200

Black = GND

Green or Blue = Rx (related to USB)

White =Tx (related to USB)

## 1.2 Quick Start for GPRS modules without the camera

1. Modem cable: Please be sure that you use a modem cable and not a null modem cable. At [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs) you can find our powerful terminal program 'RSTerm' with special terms for these applications.

If using the STK-RS-UC864 please connect the USB interface on the adapter board instead of the X100. Especially in UMTS mode only the USB interface can provide sufficient data rates for high speed UMTS.

2. Power supplies for RS-EB-S3: Please use 6-10 V power supply which can take a peak current of 2 Ampere when the module tries to connect to the GSM network. If your power supply is not able to support the peak current, then you will get a reset of the GSM module. The GPRS module needs a negative pulse/ground of at least 1second on the ON pin. You can use the automatic power on or the switcher S20 to power on the GPRS module.

3. SIM card: Be sure that your SIM card support SMS, data call or GPRS if you would like to use these services. If you do not have the services required, please contact your GSM network operator. If possible, please take away the PIN number for an easy start (not always possible e.g. on Vodafone Germany).

4. First steps (very short version). Below we explain the use of the GSM module with terminal software:

Ensure that the (straight) modem cable is connected to your PC, the antenna is connected, a SIM card is in the SIM card holder and that the power is connected to the RS-EB-S3 board.

The GPRS modules comes with autobauding. The recommended speed is 38.400, 8,N,1.

More about autobauding you will find in the Software User Guide.

Send the command "AT". If you get the answer "OK", then you are fine.

Next step should be to send the PIN number (if applicable) with the command AT+CPIN.

Having done that you could use the command AT+CREG to check the GSM network status.

If you use a SIM card that supports voice calls as well, then you could use the command ATD 123456789; to start a voice call to a phone on your desktop or your mobile handset.

Please do not forget ";" at the end of the number!

Without the ";" you start a data call; an analogue PSTN phone will ring, a ISDN phone may or may not ring. An ISDN phone coded as a voice device only will not ring and you will get an error code as an answer from the GPRS module. The level of the error codes depends on the settings of the commands AT+CMEE. We recommend to set AT+CMEE=2

If you have any questions, please check out the comprehensive technical manuals under [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs) and register into the Round Solutions Technical Forum under [www.roundsolutions.com/forum](http://www.roundsolutions.com/forum)

### 1.3 Connect of camera

It is highly recommended to make a standard EASY GPRS connection and to play with access to a HTTP server or to send an email before you start with Easy camera, because any wrong GPRS parameter will give you a negative result. The forum on [www.roundsolutions.com/forum](http://www.roundsolutions.com/forum) is a useful source for frequently done mistakes and to learn some more about GPRS. Please be sure that you connect the flexible cable of the camera right. By an inverse connection of the camera will not work.



For the basic information on EASY CAMERA and the CMOS camera please use the Product Description and AT command list. ([www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs) )

Next step will be to use the EASY CAMERA AT commands and send your first picture by email or much easier by using of our test software "RS Term".

## 1.4 EASY GPRS

EASY GPRS is explained in the manuals. Please note that the parameters for GPRS connections are not equal by all the GPRS operators around the world. Some times the parameters by SIM cards with monthly fee are different from pre paid SIM cards (Pay as you go SIM cards) by the same GSM operator.

The forum on [www.roundsolutions.com/forum](http://www.roundsolutions.com/forum) with its SEARCH function is a good source to find the "Frequently done mistakes" by using GPRS.

## 1.5 Antenna interface

The connector version of the GPRS modules comes with different adapter cables and antennas. The BGA version comes with embedded ceramic antenna. For using with external antennas, it has to be replaced to a RF cable with stripped end. Please solder the stripped end cable carefully, because a wrong soldered cable will increase you the VSWR.

## 2 Using with GPS module Trimble

We will not describe the jumpers and connectors again. Please connect the adapter board with the GPS module to the main board. The supply voltage will be set automatically. The main UART of the GPS module is connected to COM A on the S3 board. By using of Trimble test software, you can control the GPS module with your PC.

Connector on S3 Board	Trimble serial port
COM A	Port A Lassen IQ
COM B	Port A Copernicus
COM C	Port B Lassen IQ
COM D	Port B Copernicus

The upper selection is the default by ST100, ST101, ST200 and 201. Please read the schematic diagram, if you would like to change the default selection.

## 3 Using with Bluetooth module KC Wirefree

We will not describe the jumpers and connectors again. Please connect the adapter board with the Bluetooth module to the main board. The supply voltage will be set automatically. The main UART of the Bluetooth module is connected to COM A on the S3 board. By using of terminal software you can control the Bluetooth module with your PC.

## 4 Using with WLAN module MOD-WXX-511M

### 4.1 How to plug to module onto the Adapterboard

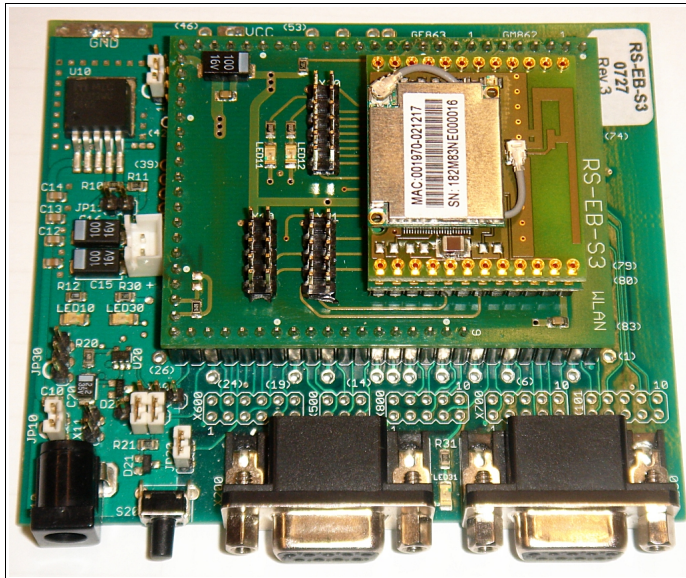


Fig. 1: Completely mounted WLAN-STK

Plug the MOD-WXX511M (Fig. 2: MOD-WXX-511M) onto the Adapterboard so that the integrated antenna (structure on PCB) directs to the edge of the adapterboard (Fig. 3: WLAN module on adapter board).

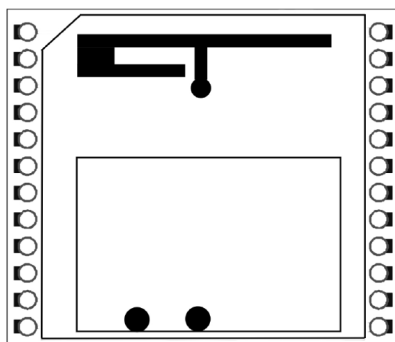


Fig. 2: MOD-WXX-511M

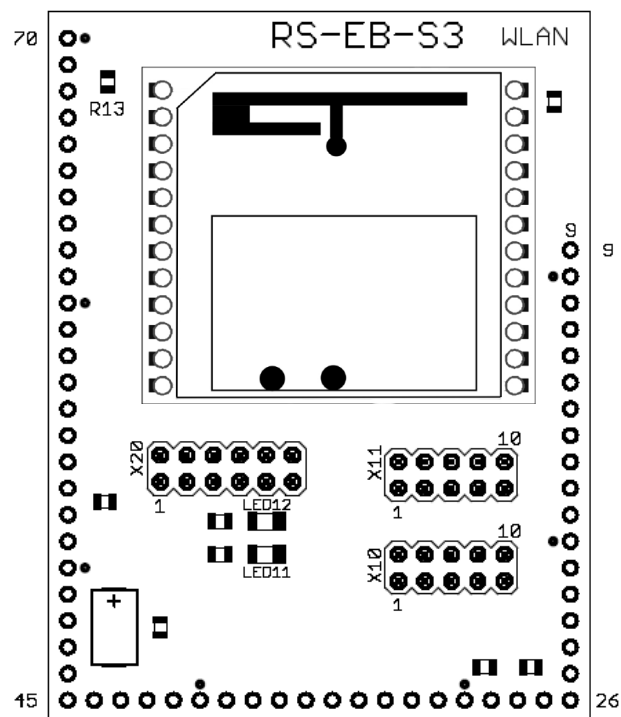


Fig. 3: WLAN module on adapter board

## 4.2 Quick Start Guide

1. Open your favourite terminal tool
2. Disable any handshaking/flow control on your RS232
3. Set the baudrate to 9600 BPS
4. Open com Port
5. Connect you PC with the DSUB of the S3-Board which is labelled with X100 (if the Com-Ports point to you, it's the right one)
6. Power up the S3-Board
7. When the red LED stops blinking you'll get a prompt ">"
8. Optional enable local echo of terminal)
9. WLAN? shows now all available WLAN networks, more commands you'll find in the Command Interface Manual.

## 5 Using with GPS-Kit universal

Please solder the AarLogic GPS module (3M or 3T) onto the adapte board.

### 5.1 COM selection:

Selection of jumper pins	Selected connection
ST10/1-5 ST10/3-7	GPS Receiver D10 / Channel A on X100 (= COMA)
ST10/2-6 ST10/4-8	GPS Receiver D10 / Channel A on X200 (= COMB)
ST10/5-9 ST10/7-11	GPS Receiver D10 / Channel A on X300 (= COMC)
ST10/6-10 ST10/8-12	GPS Receiver D10 / Channel A on X400 (= COMD)
ST11/1-5 ST11/3-7	GPS Receiver D10 / Channel B on X100 (= COMA)
ST11/2-6 ST11/4-8	GPS Receiver D10 / Channel B on X200 (= COMB)
ST11/5-9 ST11/7-11	GPS Receiver D10 / Channel B on X300 (= COMC)
ST11/6-10 ST11/8-12	GPS Receiver D10 / Channel B on X400 (= COMD)
ST20/1-5 ST20/3-7	GPS Receiver D20 on X100 (= COMA)
ST20/2-6 ST20/4-8	GPS Receiver D20 on X200 (= COMB)
ST20/5-9 ST20/7-11	GPS Receiver D20 on X300 (= COMC)
ST20/6-10 ST20/8-12	GPS Receiver D20 on X400 (= COMD)
ST30/1-5 ST30/3-7	GPS Receiver D30 on X100 (= COMA)
ST30/2-6 ST30/4-8	GPS Receiver D30 on X200 (= COMB)
ST30/5-9 ST30/7-11	GPS Receiver D30 on X300 (= COMC)
ST30/6-10 ST30/8-12	GPS Receiver D30 on X400 (= COMD)

## 5.2 GPS Receiver Enables:

Selection of jumper pins	Selected function
ST40/none ST40/1-4 ST40/4-7	GPS Receiver D10 always disabled GPS Receiver D10 always enabled GPS Receiver D10 controlled by RTS on X100 (= COMA)
ST40/none ST40/2-5 ST40/5-8	GPS Receiver D20 always disabled GPS Receiver D20 always enabled GPS Receiver D10 controlled by RTS on X100 (= COMA)
ST40/none ST40/3-6 ST40/6-9	GPS Receiver D30 always disabled GPS Receiver D30 always enabled GPS Receiver D30 controlled by RTS on X100 (= COMA)

## 5.3 GPS Antenna Power Supply:

Selection of jumper pins	Selected function
X10/none	Power Supply for GPS Antenna on D10 off
X10/1-2	Power Supply for GPS Antenna on D10 via X11: X11-1 = Power Supply + X11-2 = Power Supply - (GND)
X10/2-3	internal Power Supply for GPS Antenna on D10

## 5.4 GPS Receiver D30 (optional):

Selection of jumper pins	Selected function
D30/1	Power Supply +
D30/2	Power Supply - (GND)
D30/3	TxD
D30/4	RxD
D30/5	Enable
D30/6	Backup Supply

## 6 Using with other modules in the future

We will follow the footprint of our first adapter board and supply voltage to the future modules will be set automatically again.

## 7 Recommendations and hints

Any recommendation and tip is welcome. Based on the Round Solutions Internet Forum there is big community that grows each week. Our target is to support you with necessary products, accessories and services as best as possible. Based on your feedback we improve our product portfolio, support and service continuously. Please feel free to contact us by:

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Fax: +49 (0)6102 79928199  
Email: [customerserices@roundsolutions.com](mailto:customerserices@roundsolutions.com)  
or in our Internet forum on [www.roundsolutions.com/forum](http://www.roundsolutions.com/forum)

Yours Round Solutions Team

## **8 Appendix**

### **8.1 Schematic diagrams**

The schematic diagrams are listed on CD or and on [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs)  
You will need at least RS-EB-S3 basic board and maybe the schematic of one of the adapter boards.

### **8.2 Component placement specification**

The schematic diagrams are listed on CD or and on [www.roundsolutions.com/techdocs](http://www.roundsolutions.com/techdocs)  
You will need at least the placement specification and maybe the schematic of one of the adapter boards.