# Tutorial

This tutorial describes how to change the settings of the LAIRD BT900 Bluetooth module on:

- EmStat Pico development board.
- Sensit BT (SNS and SPE)
- EmStat Go

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# 1 Bluetooth Development Mode

Most of our OEM instruments use the Laird BT900 module for Bluetooth communications. The Laird BT900 Bluetooth module can be set in a Development Mode to allow for changing the *smartBASIC* script running on it. SmartBASIC is a scripting language from Laird, the manufacturer of the Laird BT900 Bluetooth module.

For more information, see: BT900 Series Bluetooth Module | Laird Connectivity

# 2 Using the Dual Mode script from PalmSens

PalmSens has developed a script for using the Bluetooth module in Dual Mode. This means that it will identify itself as a classic Serial Port Profile (SPP) Bluetooth device and as a Bluetooth 4.0 or Bluetooth LE (BLE) device. The host (PC, mobile or other Bluetooth enabled device) can choose to connect via SPP or BLE. The latter allows for connecting with an **iOS app** for example.

The BLE settings used in our Dual Mode script are based on the VSP Application Note from Laird, which can be found here: <u>BT900 Series Bluetooth Module Documentation</u>

### 2.1 PalmSens BT900 programming tool

To easily update your device to the dual mode smartBASIC we have developed a simple tool to update your device. The tool works with:

- EmStat Pico development board.
- Sensit BT (SNS and SPE)
- EmStat GO

Select device to up	grade		🕑 Pal	
EmStat Pico Dev Board	Sensit BT (SNS or SPE)	EmStatGo		
The selected device will re	ceive a new SmartBASIC sc		」 aird BT900 module. The new	
script allows for connecting Make sure the device is co	via either Classic Bluetooth nnected via USB.	(SPP) or Bluetooth LE		
UPLOAD SCRIPT	OPEN BRIDGE O	NLY		
Upload the new script file (. communication with the BT	uwc) to the BT900 module, o	r set the device in Brid	lge mode for direct	

The tool works simply by selecting which device you have connected to your PC via USB and clicking the "UPLOAD SCRIPT"-button.

You can download the tool here: www.palmsens.com/ps-laird-bt900-upgrade-tool

## 3 Using your own custom smartBASIC script

In case you would like to use your own smartBASIC script for the Laird BT900 module, you can set the device in "Bridge Mode" using the Programmer tool as described in the previous section. When the device is in Bridge Mode you can directly access the BT900 module via a COM port. You can download the tools to update the BT900 module using UwTerminalX from the Laird website.

See for more information: <u>BT900 Series Bluetooth Module Documentation</u>

when using ow reminiate nom Land, please make sure to set manushaking to None.							
🖪 UwTerminalX (v1.12a)		- 🗆 X					
Terminal Config Speed Te	st U <u>p</u> date Abo <u>u</u> t Logs	Editor					
<u>Q</u> K <u>Q</u> uit	Duplicate Error Code Viewer BL	.654 USB Dongle - Exit autorun					
Port Settings	Terminal	Misc					
Device BT900 🗸 🔶 🗕	● CR ○ LF ○ CR LF ○ LF CR	Run program   Before  After XCompile					
Refresh Auto	AT +FWRH Line Size: 50	This allows you to run a program/batch/bash file before/ after a smartBASIC file is XCompiled/downloaded. %1 will be scale and with the ph/www file when the execution takes					
Port COM38 V	Confirm module clearing	be replaced with the sb/uwc file when the execution takes place.					
Baudrate 115200 $$	Skip download display	Run program even if XCompile fails					
Parity None V	<ul> <li>Show application filesize</li> <li>Check license on download</li> </ul>	Pre/Post-XCompile Execution					
Stop Bits 1 V	Escape CR/LF/Tab	Local XCompilers Online XCompile Cloud XCompilers					
Data Bits 8 🗸 🗸	Shift+enter line seperator						
Handshaking None 🗸 🗸 🗸	Enable SSL Weekly update check	By enabling Online XCompilation support, if a local XCompiler is not found, the source code will be uploaded and compiled remotely on a Laird server. Uploaded file data is not stored					
Save Device Configuration	Latest firmware checking	by Laird but IP addresses are stored in access logs which are used for security purposes only.					
Log file: UwTerminalX.log Enable Logging Append to Log							
USB Serial Port (FTDI) [EP5S13ASA]							
UwTerminalX version 1.12a (Windows (x86)), Built Feb 4 2020 Using QT 5.12.2							

#### When using UwTerminalX from Laird, please make sure to set Handshaking to None: