Leica Total Station 'RS232' connection to Lion Homologation Program

Leica Total Stations from the following series can be connected:
Series 300, 400, 700 & 800 (eg TC/R 307, TC/R 405, TCR 705, TCR 805)
Flexline TS 02, 06, 09
Many other Leica instruments may also work but I have only tested the above models.
The screenshots are taken from a TS06+ simulator. The display on your instrument may differ slightly

First: Ensure that Tilt Correction is activated.
The instrument will not send complete information unless Tilt Correction is on and set to 2 Axis
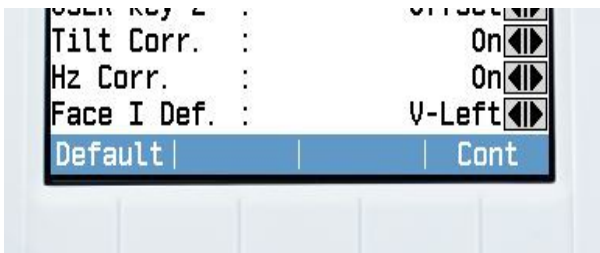
On your instrument you need the following settings:

COMMUNICATION SETTINGS
Baudrate: 9600
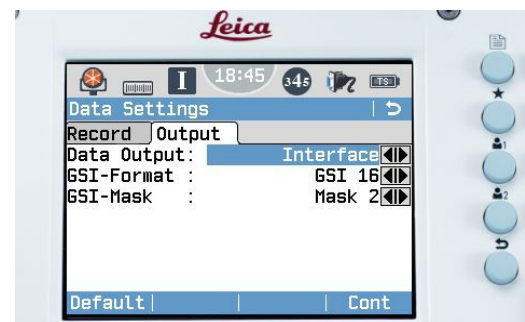Databits: 8
Parity: NONE
Endmark: CR/LF
Stopbits: 1

SYSTEM SETTINGS
Data Output: RS232 (or Interface)
GSI-Format: GSI16
GSI-Mask: MASK2

You can connect using cable or Bluetooth.

Connection with cable:
You need cable code: GEV 189 for connecting to Windows 2000, XP, Vista, 7
You need cable code: GEV 267 for connecting to Windows 8, 7, Vista, XP
Drivers can be downloaded from http://www.leica-geosystems.us/en/Downloads_11500.htm (or your local Leica site.)

In the homologation program, you click on the *RS232*, choose which
Leica.theo file to use, all as usual. Next, press the port update button which will tell you where your cable is plugged in. Choose the correct port. If you are using a GEV 189, this com port always has the same number. When using the GEV 267 or Bluetooth, the number changes when you re-start your computer.
Put your cursor in the correct cell, press start and the download will happen.
Keep the Serial Port Reading window open at all times.

It should look something like this
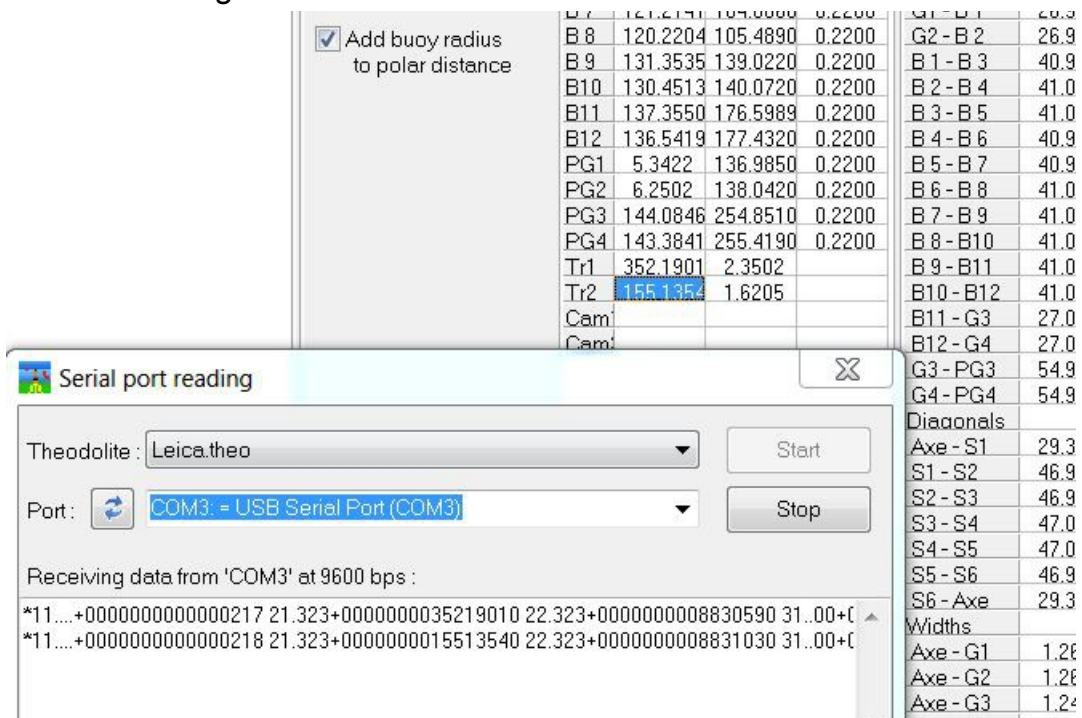
With Leica TC models, after download, you may see a message on the theodolite screen which says *'Communication failure'*. This is because there has been no acknowledgement but it is not a problem. Press the red button to clear this and carry on. With Flexline instruments you can turn off the acknowledge signal. This means that you no longer get the error message. Go to *Menu>Settings>Interface* and on the second page there is an option for *Acknowledge* on or off. Turn it *off*. (see bottom of page)

Connection using Bluetooth:

First you have to enable Bluetooth in the instrument. You go to the *Menu>Settings>Interface* and you change *Port* from RS232 to Bluetooth. Make sure that the Bluetooth tab is switched to *Active*. Then at the bottom of that screen on the left there is a notice that says *BT PIN*. Click on that and see what the pin number is. It is probably on the default which is 0000. You can change it to anything you want.
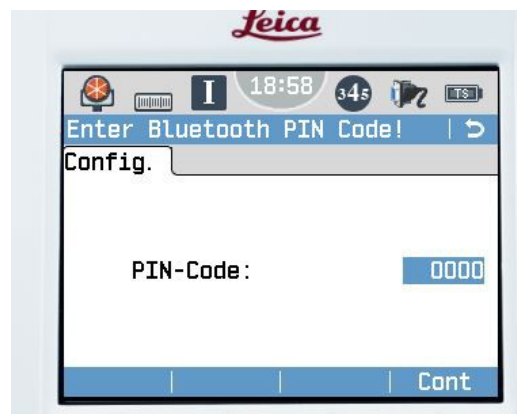
Next make sure the Bluetooth is switched on in your laptop. Go to the
taskbar at the bottom right of your desktop and find the Bluetooth logo.
Right click on it and click 'Show Bluetooth Devices'. That opens another
window and you click on '*Add a Device'.* Your computer should then find the
theodolite. You click on the theodolite logo and then it asks how you want
to connect. You pick the middle option which says something like *'Use device
code'.* That opens a box where you input the PIN number from the theodolite. (the one
which was 0000).
Now look at the theodolite and you will see a screen saying that something
is trying to connect. Say yes and that's it. You are connected.

Now you need to find the port number that Bluetooth is using. With the latest version of
the homologation software there is a port refresh button. Press this and you should see
your connections in the drop down box. When using Bluetooth or a GEV267 cable, this
port number can change each time you re-start your computer, so do a little check
before pressing start.
You can also check by clicking on the Bluetooth logo at the bottom of your computer
screen, look at Bluetooth devices then right click on the Theodolite icon, then go to
properties and look at the Hardware tab. It will say something like 'Standard Serial over
Bluetooth Link Com9'. It might be COM18 or COM12.

Next in the homologation program, you click on the *RS232*, choose which
Leica.theo file to use, all as usual. Next, where it says *Port,* you click in
there and manually type in COM9 of whatever com port your Bluetooth is using
that day. Press start and you are going.

One other thing you may find with the Flexline is that you can turn off the
acknowledge signal. This means that you no longer get a message saying
Communication Failure after you send data. Go to *Menu>Settings>Interface* and on
the second page there is an option for *Acknowledge* on or off. Turn it *off*.