

Drill & Drop Probe Compact Trouble Shooting



Potential Problems & Solutions Overview

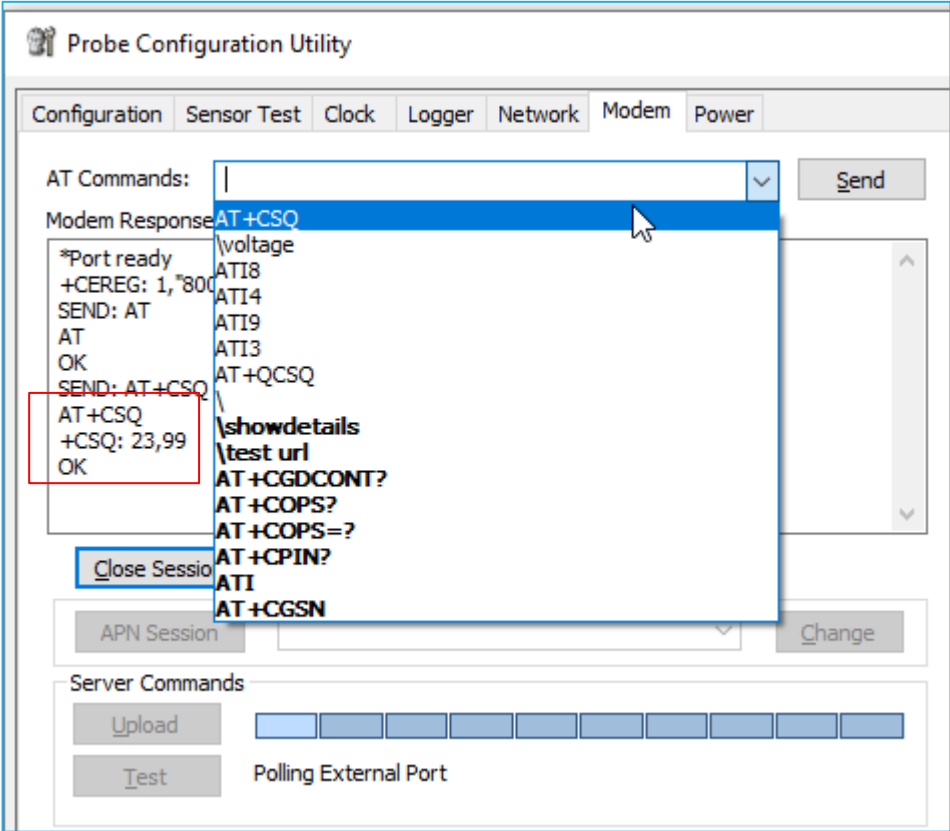


1. Cable chewing by animals – [page 3](#)
2. Lightning strike - [Replace unit](#)
3. Canopy height interference with antenna signal- [page 4](#)
4. Sim card account expired
5. Battery Life Investigate battery life – [page 7](#)
6. Cannot connect to probe- [No power to probe](#) – [page 11](#)
7. Battery status right now – [page 7](#)
8. Modem not lighting up – [page 22](#)
9. Modem not uploading – [page 21](#)
10. Telecom communication problem
11. Physical damage to Compact - [Replace unit](#)
12. Water intrusion into Compact - [Replace unit](#)

1. Cable chewing by animals



2. Canopy height interference with antenna signal



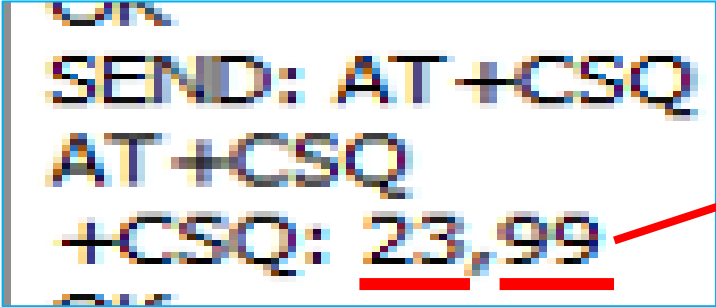
The signal level may differ depending upon the modem model .

For instance For NTC- 3000 AT command is AT +CSQ

And for a NTC-100 modem is AT +QCSQ

You can run AT command At +CSQ for signal test .

A result of 99 indicates no signal, anything else over 14 is good. This number can vary considerably, and two or three readings should be taken to get a good indication. Consistent results of 99, or below 10 may indicate antenna problems or other connection issues. The second number can generally be ignored.



Second number

3. For better connectivity



Internal Antenna



External Antenna



High Gain Antenna

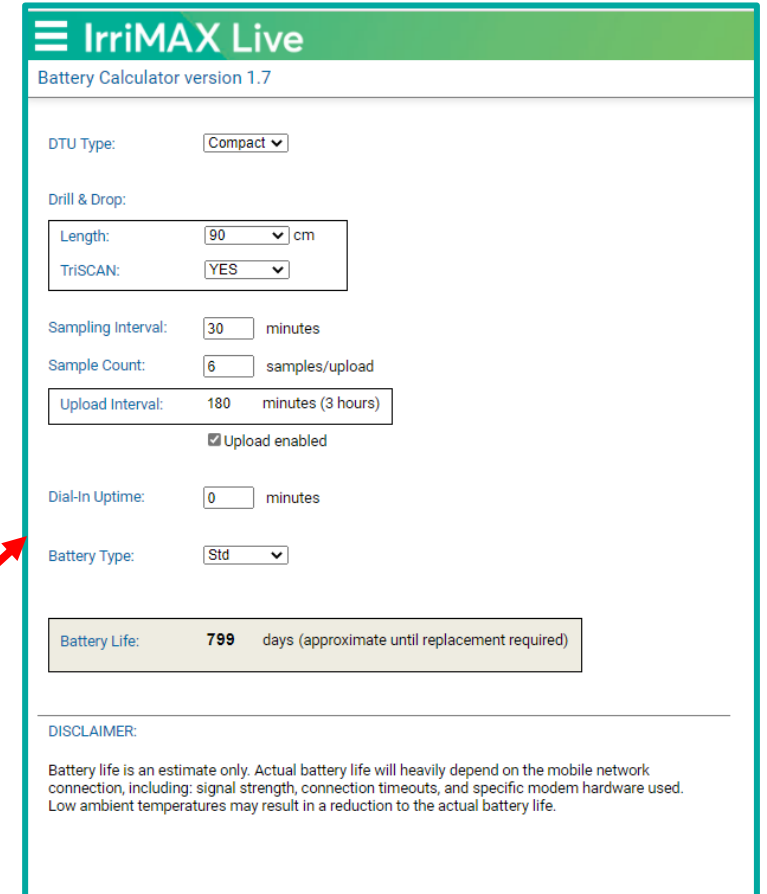
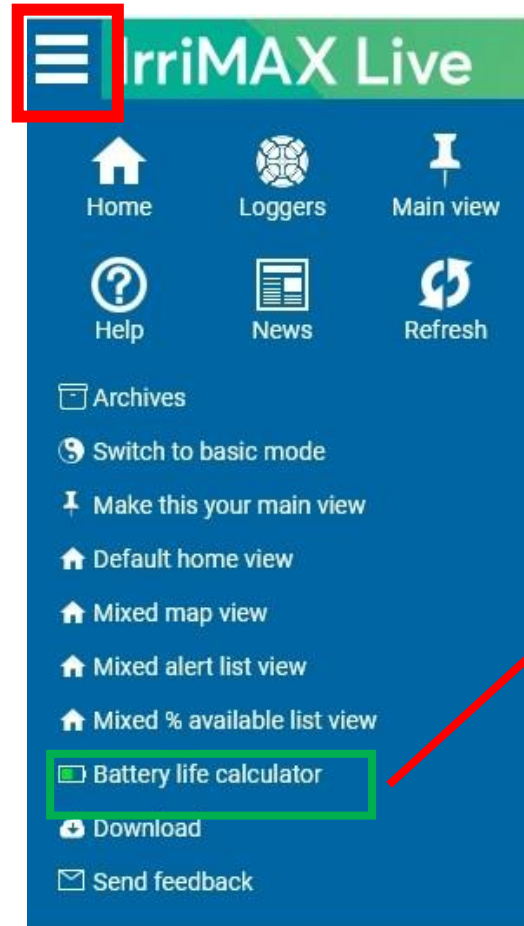
To Check Batteries Life

1. What you should expect from battery life?



You can view the **Battery life calculator** in the IrriMAX Live account.

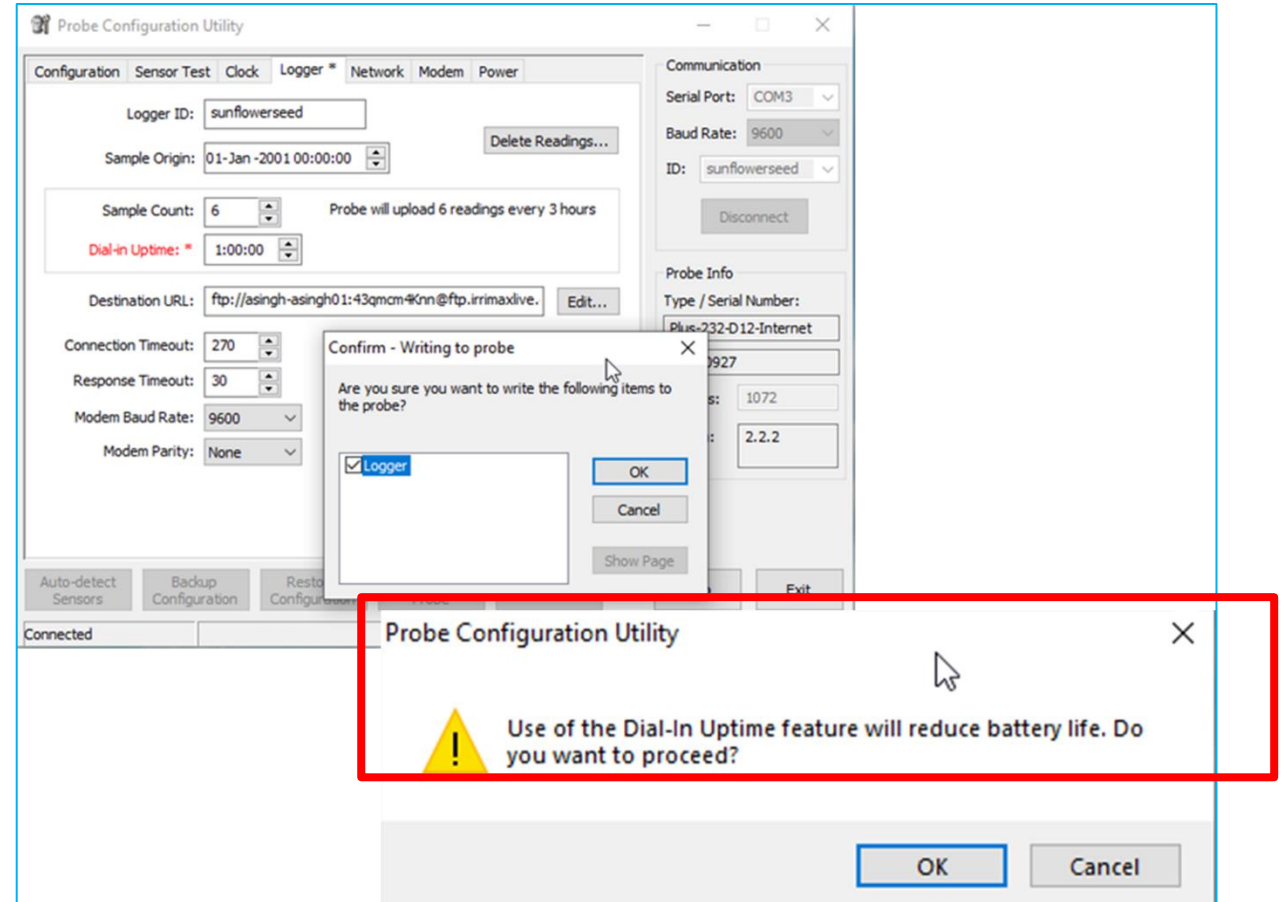
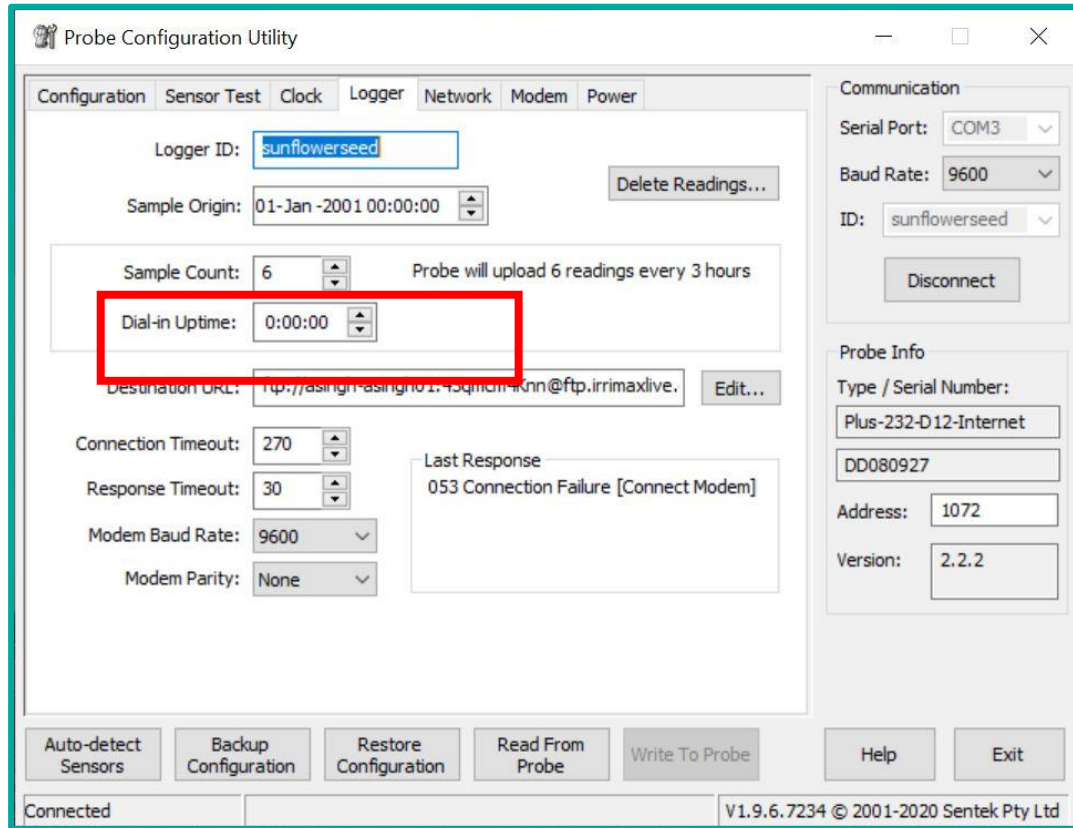
- Login to your IrriMAX Live account.
- Click the **main menu**
- Next, tap the Battery life calculator, to check the Battery Calculator.
- Type in your DTU type and probe details.....



DISCLAIMER:

Battery life is an estimate only. Actual battery life will heavily depend on the mobile network connection, including: signal strength, connection timeouts, and specific modem hardware used. Low ambient temperatures may result in a reduction to the actual battery life.

2. If battery does not last, check Dial In Uptime = 0:00:00



In case if the battery don't last for a longer time, it is recommended to check the Dial-in Uptime. If the time is changed or modified you may experience a difference in battery life, as the modem consume maximum battery if left **on** for a longer time.

When you try to update the time you receive a pop-up warning message on your PConfig screen.

3. Dial-In-Uptime in IrriMAX Live



IrriMAX Live
Battery Calculator version 1.7

DTU Type:

Drill & Drop:

Length: cm

TriSCAN:

Sampling Interval: minutes

Sample Count: samples/upload

Upload Interval: minutes (3 hours)

Upload enabled

Dial-In Uptime: minutes

Battery Type:

Battery Life: 799 days (approximate until replacement required)

DISCLAIMER:
Battery life is an estimate only. Actual battery life will heavily depend on the mobile network connection, including: signal strength, connection timeouts, and specific modem hardware used. Low ambient temperatures may result in a reduction to the actual battery life.

Dial-In Uptime: minutes

Dial-In Session Interval: days

Dial-In Session Time: minutes

Battery Type:

Battery Life: 217 days (approximate until replacement required)

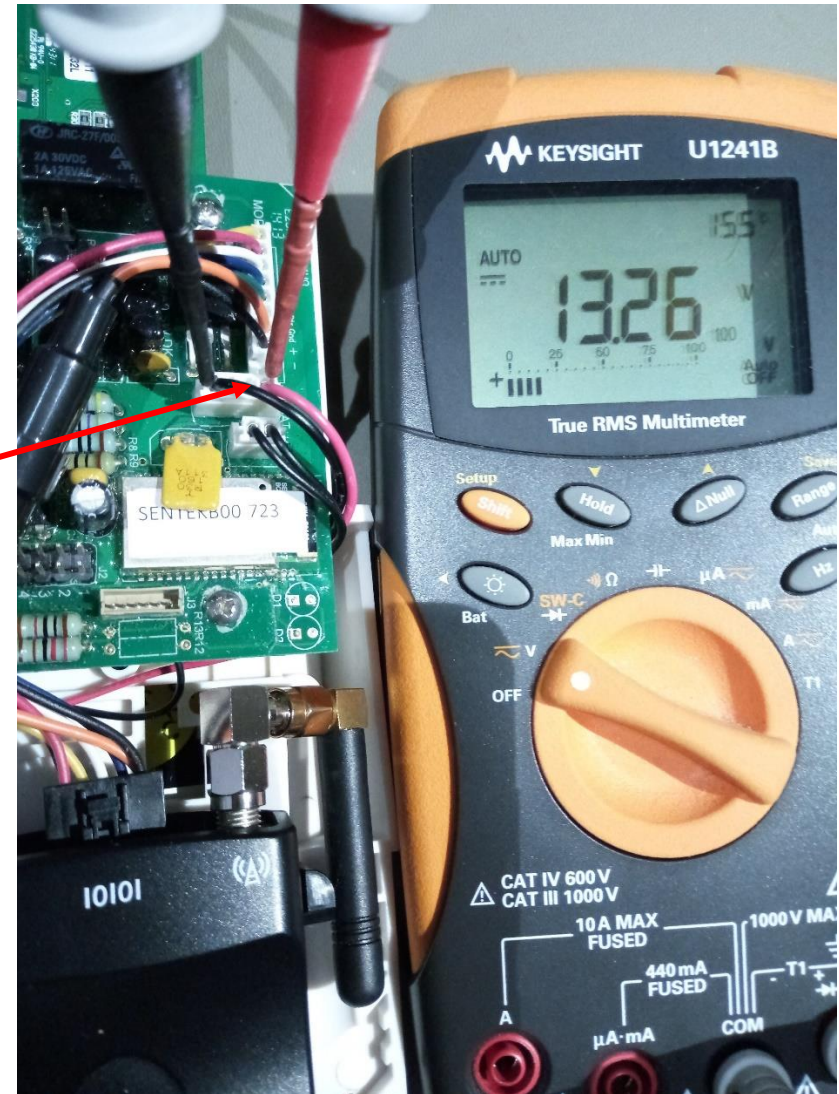
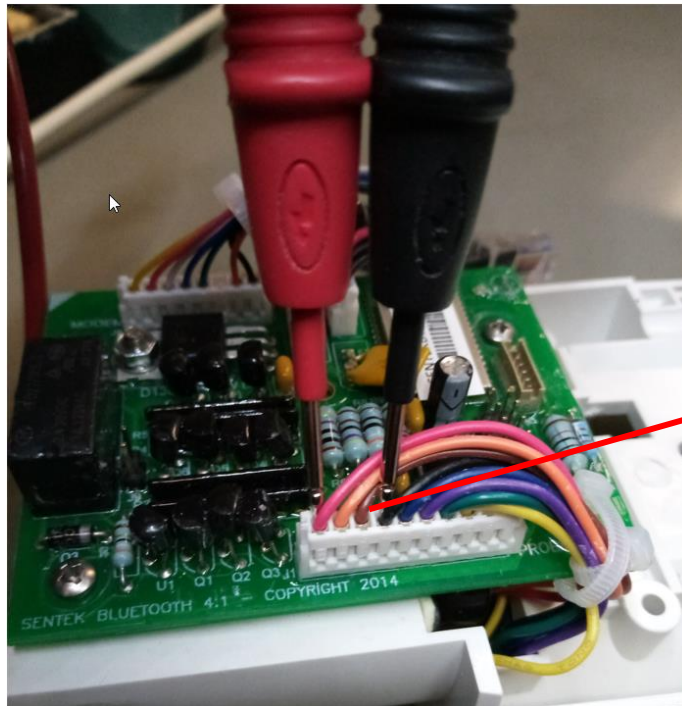
So it recommended to set the time 0 minutes.

As displayed in the example once we update the time to 10 min the battery life has been updated to from 799 to 217.

4. Check Voltage at battery plug

PCB has no power, cable damage or not plugged in correctly with probe

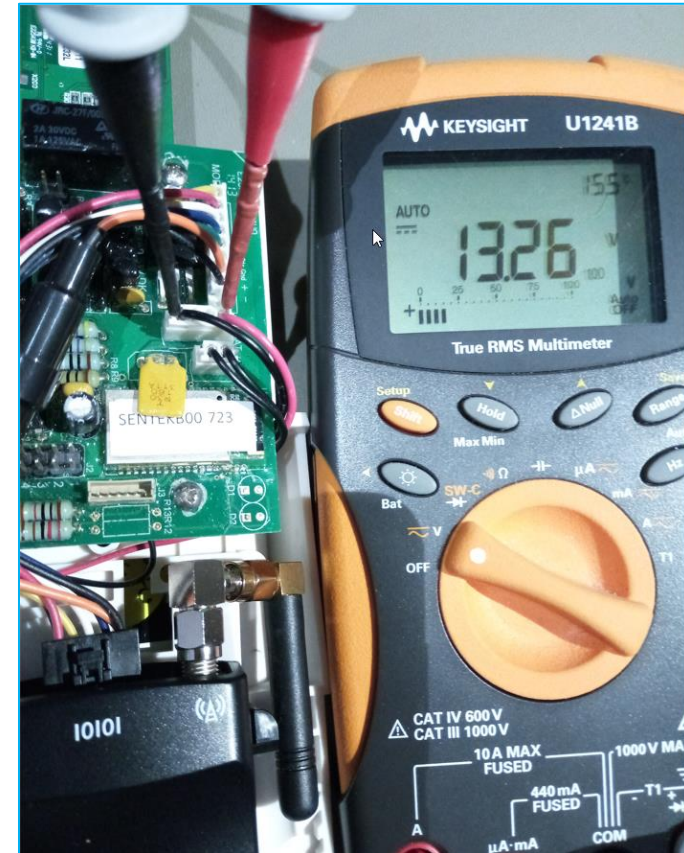
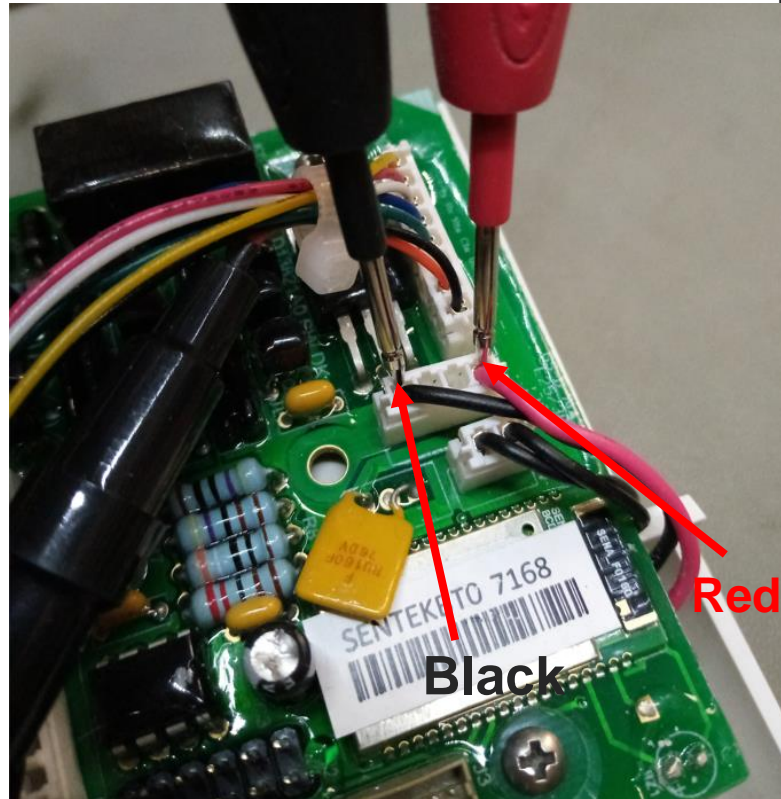
The **Red Multimeter** lead should be connected to the +Positive Battery wire and the **Black -Negative Multimeter** lead connected to the +Positive connection point on the Compact PCB.



5. Is power going to the probe?

Check **red** and **black** wire on long plug. To Check the Voltage by probing the **red** and **black** wires on the plug labelled J1.)

Currently compact bodies are glued onto this threads. You need to unplug the frame to test the connections on J1.



Test result

6. Sleep Mode Current test = < 0.45

If you receive the value **0.26 mA** that indicates **Current** is fine

Note : If the sleep mode **Current** is **0.8 mA** or higher then this shows that some part of the system is faulty.



7. Now Test Current under load in “Open Session”



Click “Open Session”

The screenshot shows the 'Probe Configuration Utility' window with the 'Modem' tab active. The 'Open Session' button is highlighted with a red box. A yellow callout box with an arrow points to this button. The interface includes fields for AT Commands, Modem Response, APN Session, and Server Commands. The status bar at the bottom shows 'Connected' and 'V1.9.6.7234 © 2001-2020 Sentek Pty Ltd'.

8. Test Current under load in “Open Session”



The screenshot displays the 'Probe Configuration Utility' window with the 'Modem' tab selected. The 'AT Commands' field is empty, and the 'Send' button is visible. The 'Modem Response' area shows the following text: `*Port ready`, `+CEREG: 1,"8004","8E1B90E",,8`, `SEND: AT`, `AT`, and `OK`. A red arrow points from the 'OK' response to a yellow callout box on the right. The 'Communication' section on the right shows 'Serial Port: COM3', 'Baud Rate: 9600', and 'ID: sunflowerseed'. The 'Disconnect' button is highlighted with a red line. The 'Probe Info' section shows 'Type / Serial Number: Plus-232-D12-Internet' and 'DD080927'. The 'Address' is '1072' and the 'Version' is '2.2.2'. The status bar at the bottom indicates 'Connected' and 'Getting external port data'.

This shows the session is now open

9. Test Current in “Open Session” (Modem is active)

The current will vary during the test from approximately 30 mA to 60 mA, the average being about 40 mA.



Minimum



Medium



Maximum

It show the expected range for this operation with the Modem active ‘On’.

10. Test Voltage under Load in “Open Session



Readings should be above 12000 - 13000 mVolts.

Probe Configuration Utility

Configuration | Sensor Test | Clock | Logger | Network | Modem | Power

AT Commands: Send

Modem Response:

```
*Port ready
+CEREG: 1, "8004", "8E1B90E", 8
SEND: AT
AT
OK
SEND: \ voltage
*Voltage = 13567 mV.
```

Close Session

APN Session Change

Server Commands

Upload

Test Polling External Port

Communication

Serial Port: COM3

Baud Rate: 9600

ID: sunflowerseed

Disconnect

Probe Info

Type / Serial Number: Plus-232-D12-Internet

DD080927

Address: 1072

Version: 2.2.2

Auto-detect Sensors | Backup Configuration | Restore Configuration | Read From Probe | Write To Probe | Help | Exit

Connected | Getting external port data | V1.9.6.7234 © 2001-2020 Sentek Pty Ltd

under AT Commands:
type in: \ voltage

Read Voltage level here

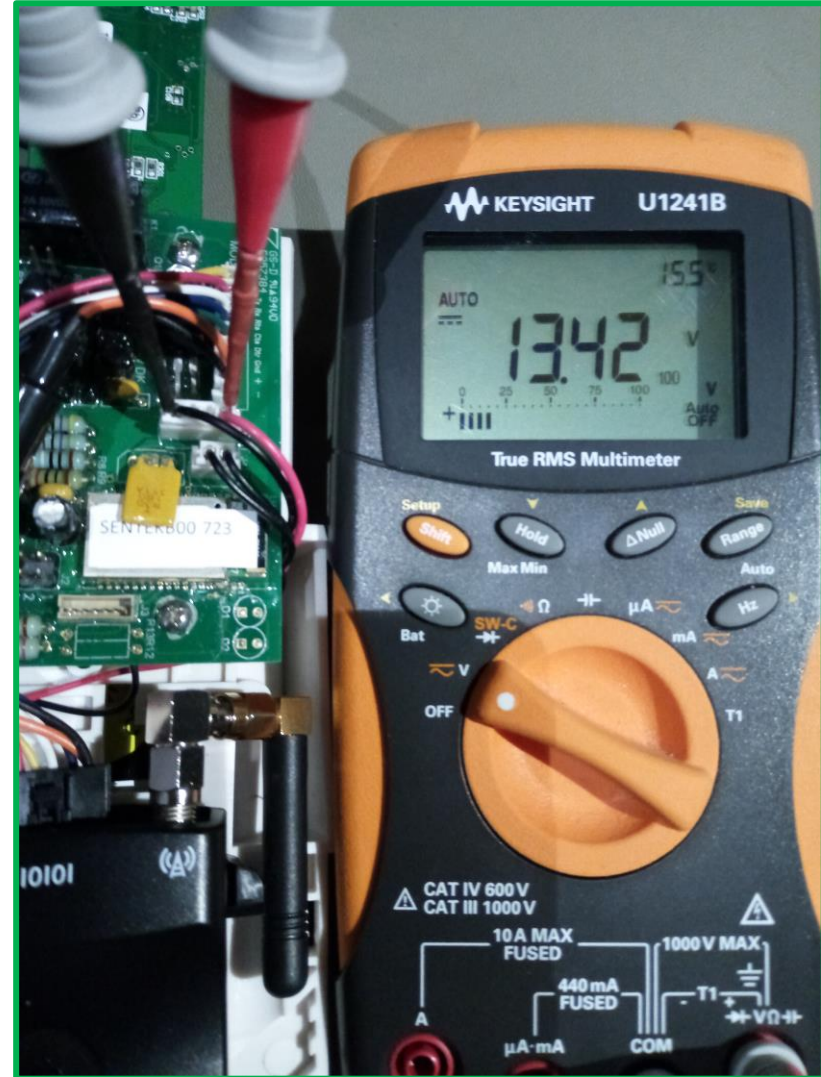
11. Test Voltage under Load in “Open Session



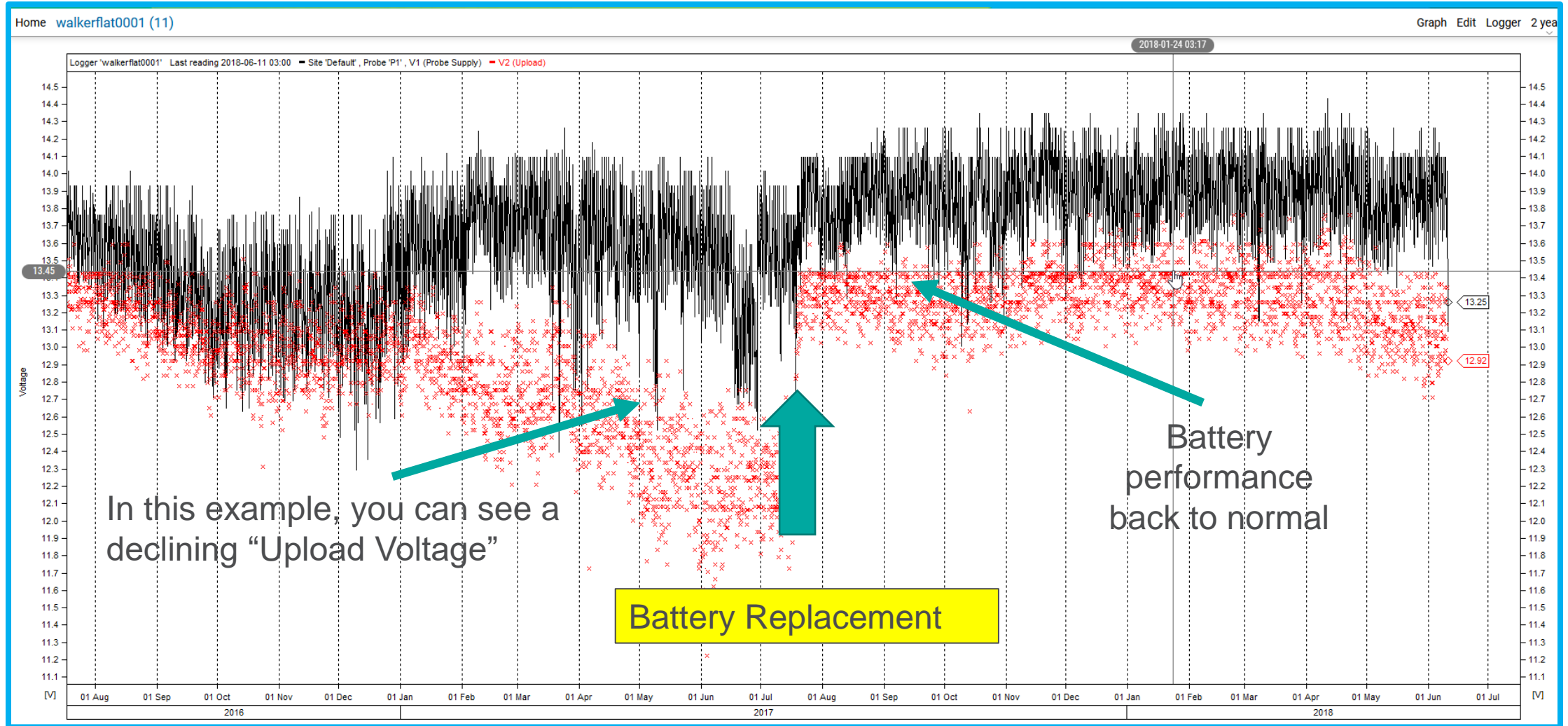
The Test voltage photos for ‘ **Open Session** ’ and the ‘ **Upload** ’ test show a voltage range during both tests; Average

The Average voltage should be about 13.42 mV

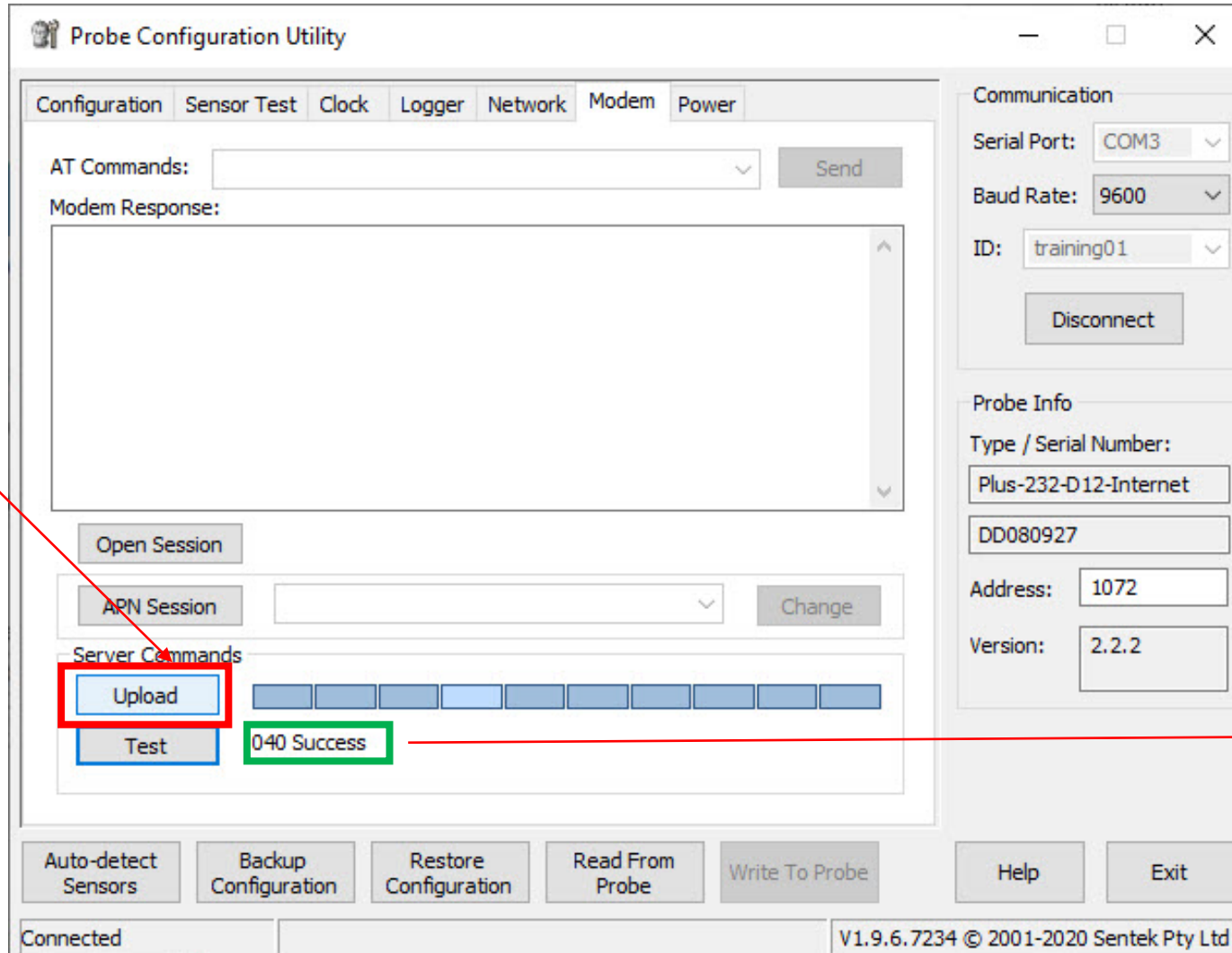
Note: If the Voltages level drops down to **11 Volts** anytime during a test then this indicates that the battery will need replacing very soon.



12. Log into IrriMAX Live and look at Probe Supply & Upload Voltages



13. Run Modem Upload Test



Click "Upload"

A successful upload test is indicated by 040 Success

14. Run Modem Upload Test



053 Connection Failure Modem not responding to commands, or could not connect to internet (see note below)

Progress codes	Server	Upload response codes
000 No Error Only occurs after first ever power on (No upload has been attempted)	Disconnecting from FTP server, APN server and shutting down modem	040 Success Upload was successful (file transferred to FTP server)
001 Initializing Interface Initialisation and connect strings being sent		041 Success (No Data) No new data to upload
002 Initializing FTP Connecting to FTP server		042 User Cancel Pressed Cancel in PConfig
003 Transferring data		051 Clock Not Set Clock needs to be reset (modify or re-sync with PC and write to probe)
004 Uploading to Server Uploading file/s to FTP server		053 Connection Failure Modem not responding to commands, or could not connect to internet (see note below)
005 Disconnecting from		054 Server Error Problem communicating with FTP server

15. Modem Light

Visual – LED indicator

The NTC-100 modem has a Network LED which visually indicates the RSRP.

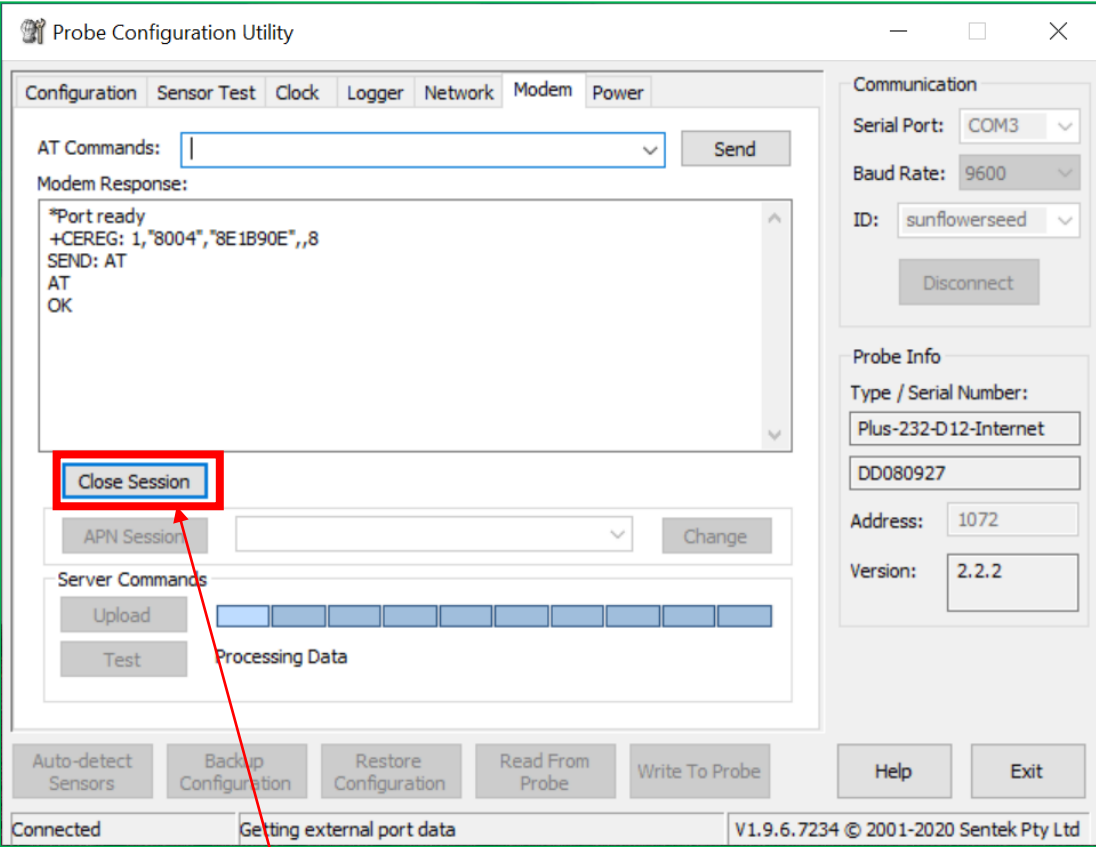
The table below details the signal strength relative to the reported value from the network service command.

Signal Strength	Network LED (RSRP)	RSRP	RSRQ
Excellent	GREEN	> -90	> -90
Good	AMBER	-90 to -100	-10 to -15
Fair	RED	-100 to -120	-15 to -20
Poor	Off	< -120	< -20

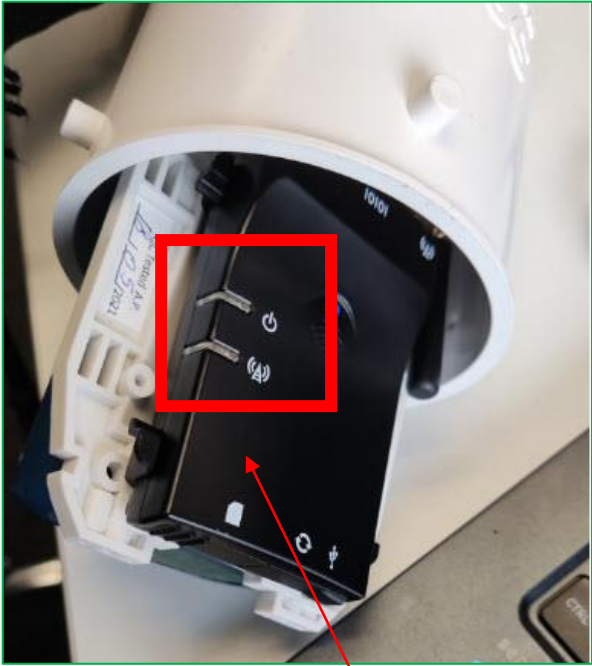
RSRP (Reference Signals Received Power)
RSRQ (Reference Signal Received Quality)



16. Shut down “Open Session” causes the Modem Light to go out



Click “Close Session”



Make sure the Modem Power light goes **off**, when you close an “Open Session”.

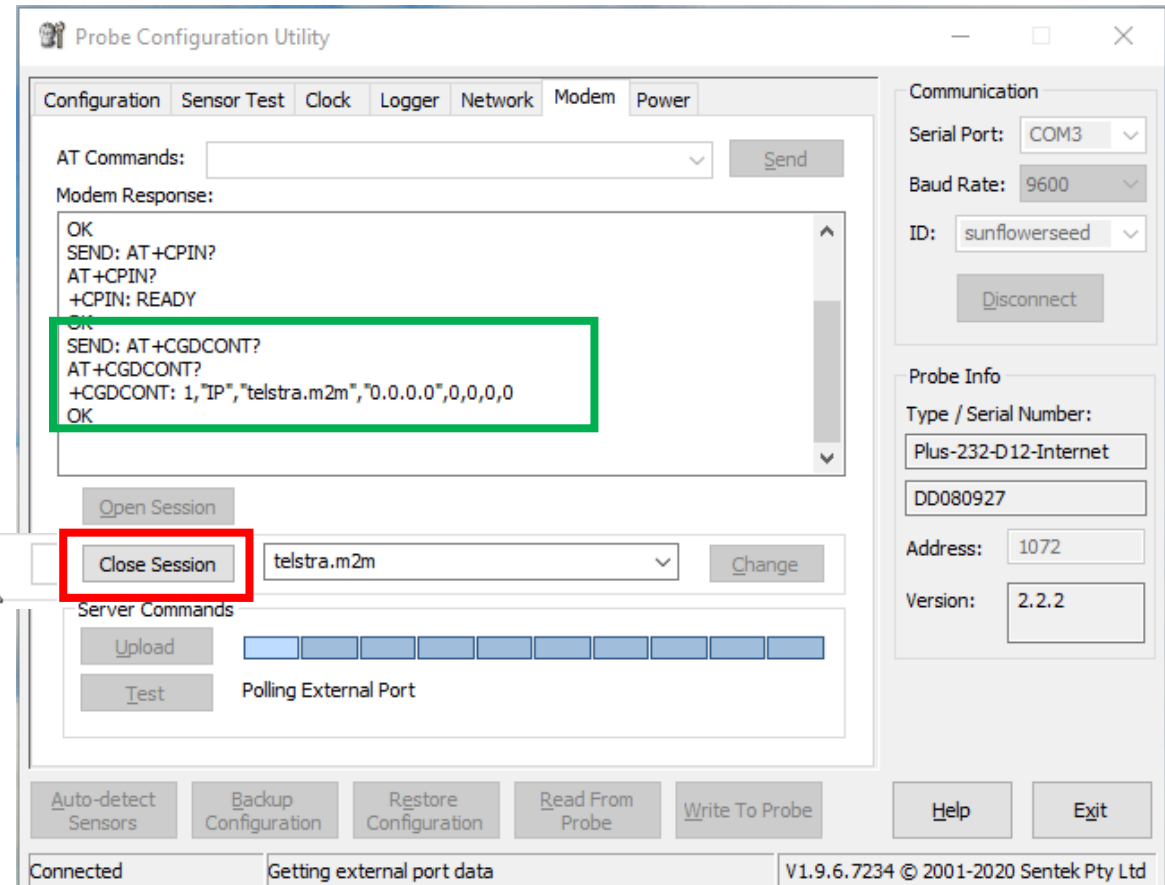
17. APN Session

This field shows progress messages when reading or writing the APN.

The APN session is used to query the APN which is currently set in the modem .

Click APN Session

APN Session



The screenshot shows the 'Probe Configuration Utility' window with the 'Modem' tab selected. The 'Modem Response' area displays the following text:

```
OK
SEND: AT+CPIN?
AT+CPIN?
+CPIN: READY
OK
SEND: AT+CGDCONT?
AT+CGDCONT?
+CGDCONT: 1,"IP","telstra.m2m","0.0.0.0",0,0,0
OK
```

The 'Close Session' button is highlighted with a red box, and the 'APN Session' button is highlighted with a blue dashed box. A yellow box with the text 'Click APN Session' has a red arrow pointing to the 'APN Session' button. The 'Server Commands' area shows 'Polling External Port'.

Communication settings: Serial Port: COM3, Baud Rate: 9600, ID: sunflowerseed.

Probe Info: Type / Serial Number: Plus-232-D12-Internet, DD080927, Address: 1072, Version: 2.2.2.

Buttons: Auto-detect Sensors, Backup Configuration, Restore Configuration, Read From Probe, Write To Probe, Help, Exit.

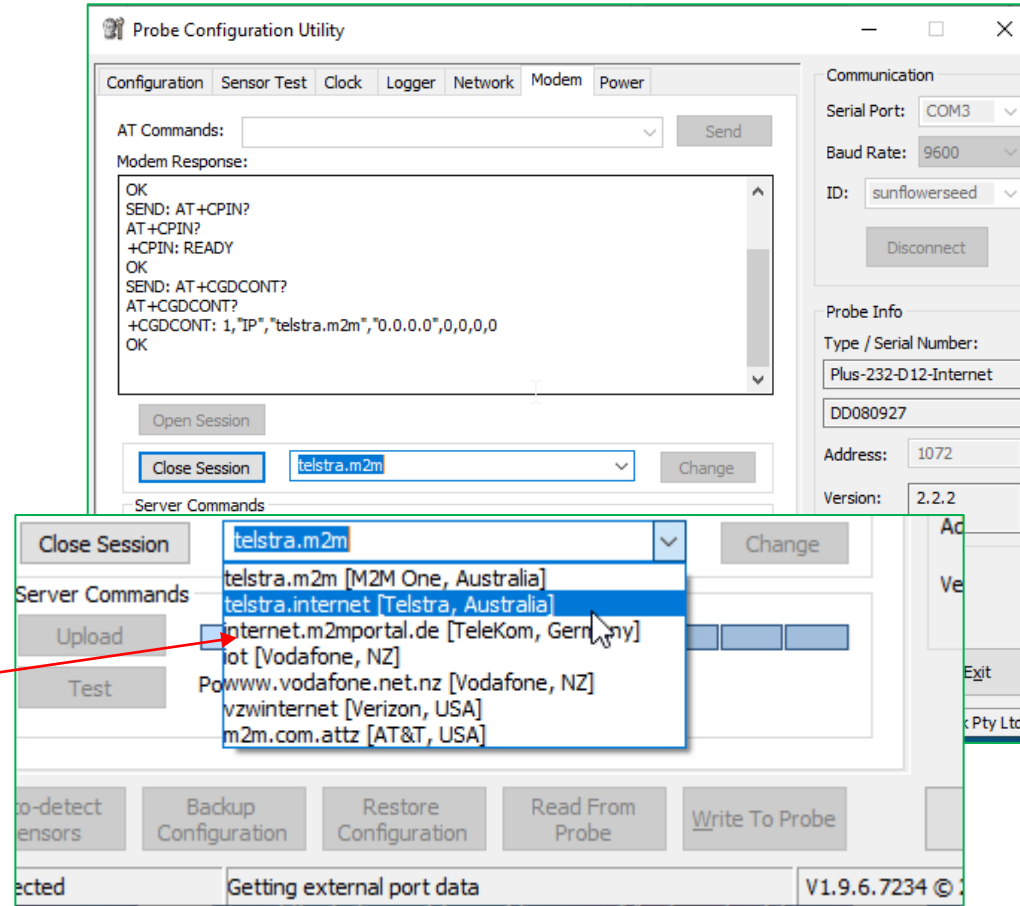
Status: Connected, Getting external port data, V1.9.6.7234 © 2001-2020 Sentek Pty Ltd

18. APN Session Cont..



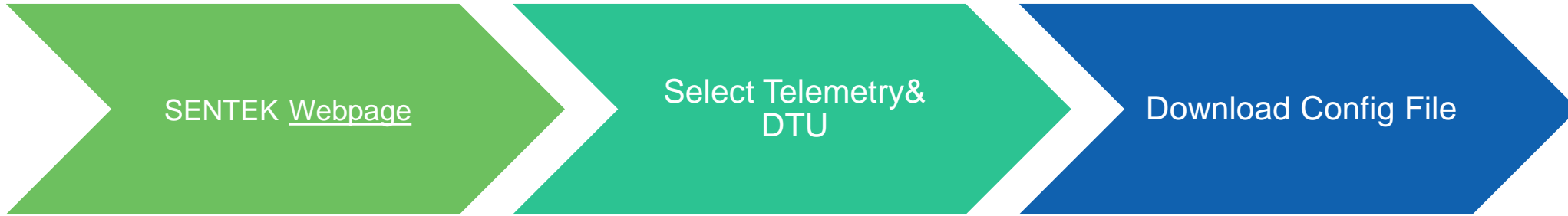
A new APN value can be entered or selected from the drop-down list.

“**APN Session**” provides a way to retrieve and update the APN (Access Point Name) in the modem.

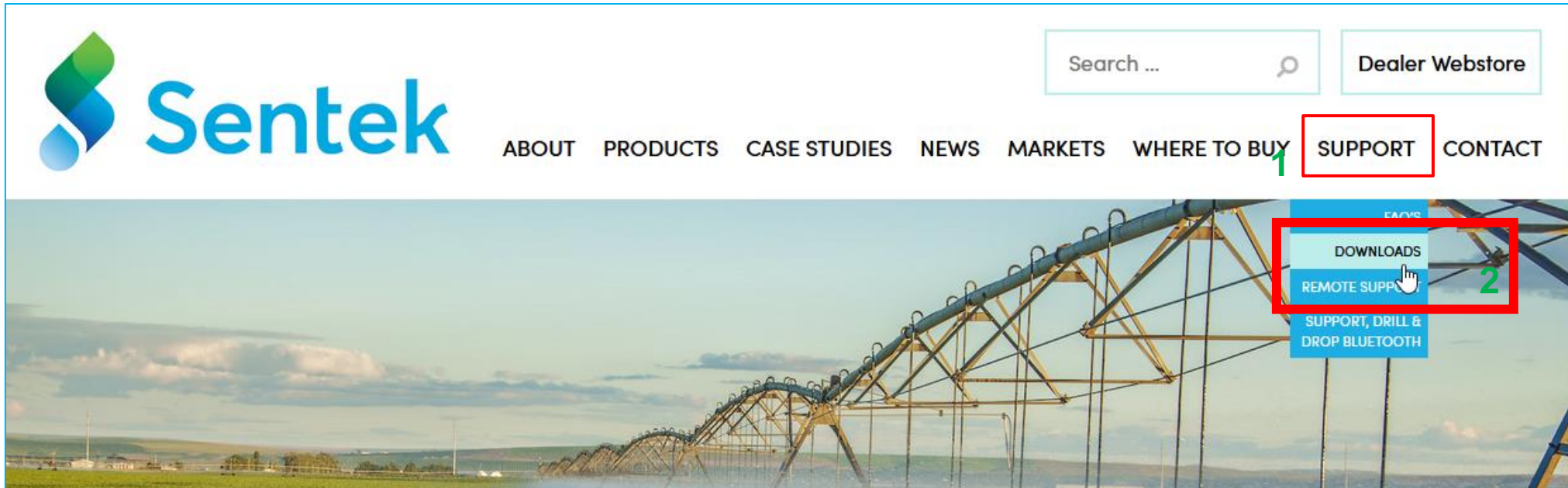


Select the APN number for your telecom provider here

19. If the modem is being changed, match with new network settings



Download the network setting from **Sentek** webpage.
From **Support** drop-down list, select **Downloads**.



20. Download



Next to go to network settings,

Choose an option:

- Click **Download** tab>Save Files

Or

- You can click [Network settings :Plus-Multi \(all modems\)](#)

Downloads

The Best Technical Support Resources Are The Local Sentek Dealers In Each Country. To Find Your Local Dealer's Contact Details, Click [Here](#).

- IrriMAX, latest release
- IrriMAX, support files
- Software & Apps
- Firmware
- Drivers
- Drill & Drop Probes
- EnviroSCAN Probes
- Diviner 2000 Probes
- Telemetry & DTU

Network settings_PLUS-MULTI (all modems)

1 file(s) 12.54 KB

Download

Download

Description Attached Files

This download includes a .zip file containing Network Setting files for all currently supported modems used with Sentek Plus and MULTI Internet firmware. Files should be extracted from the .zip file and the appropriate configuration file can be restored to the Sentek Plus-MULTI probe using the [Probe Configuration software](#).

Configurations for Current Modems

Sentek Modem SM200:
For 4G Cat-M1 (HL7800)
SM200-HL7800 4G_Cat-M1 (#318).cfg
For 3G, 4G Cat-1 (HL7650), requires probe firmware 1.8.1 / 2.1.1 or later
SM200-HL7650 3G,4G_Cat-1 (#319).cfg

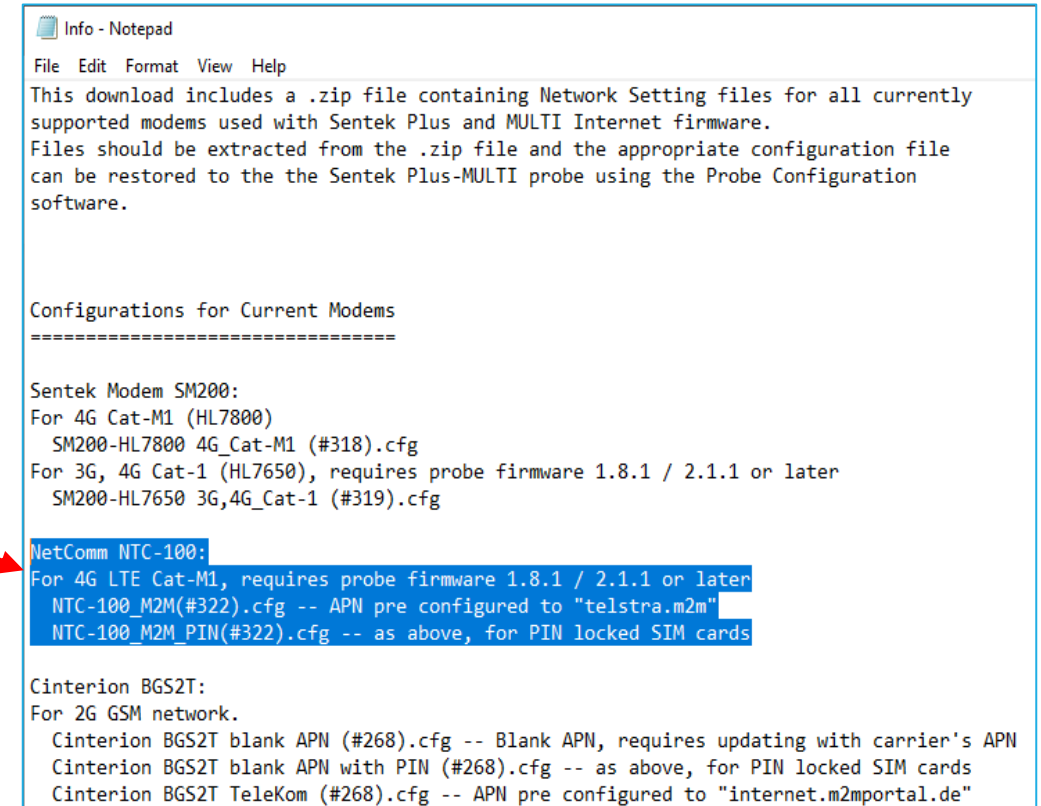
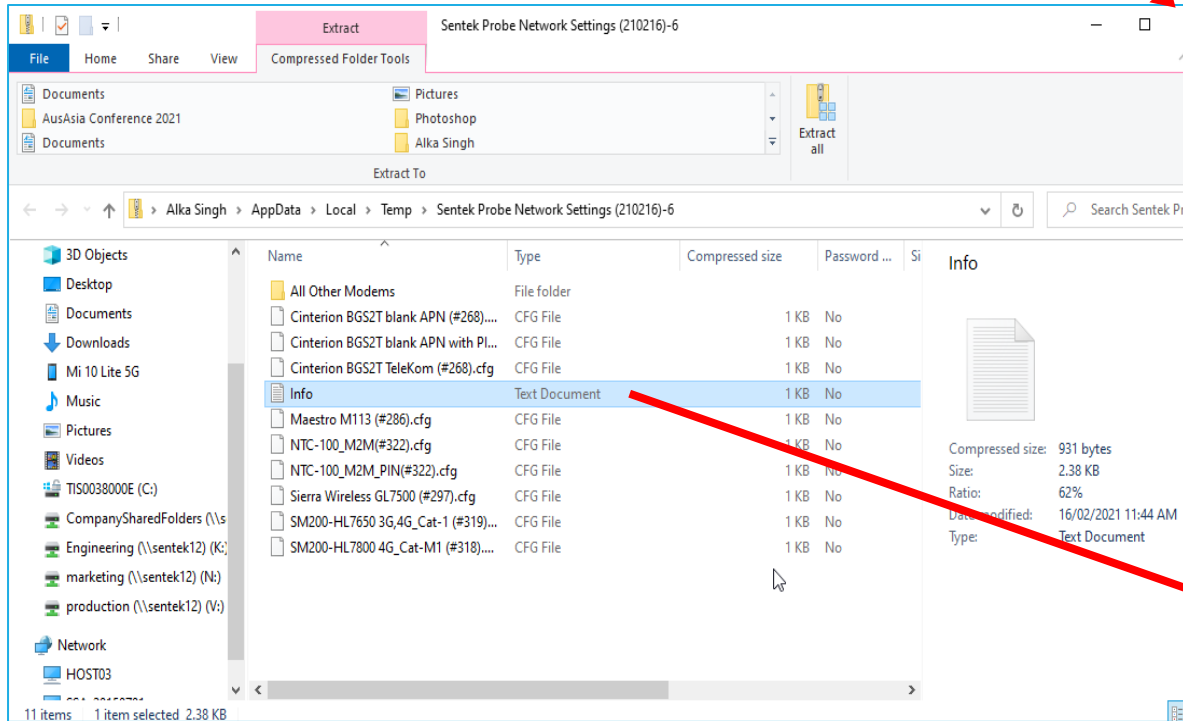
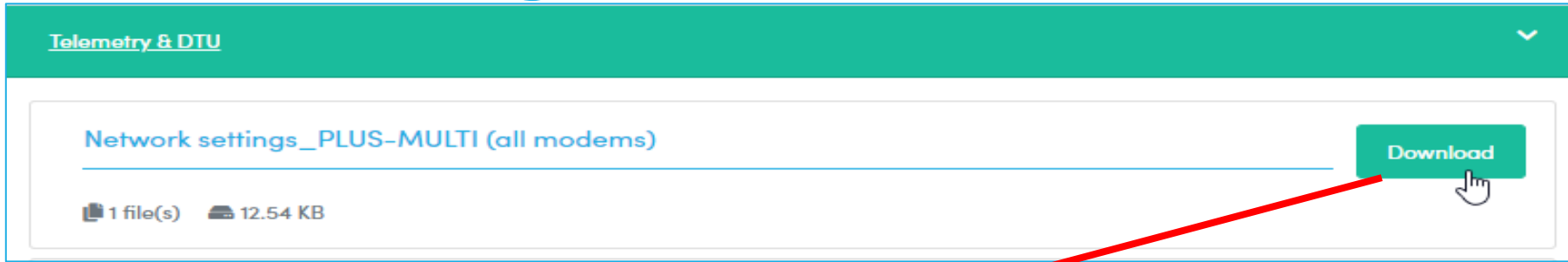
NetComm NTC-100:
For 4G LTE Cat-M1, requires probe firmware 1.8.1 / 2.1.1 or later
NTC-100_M2M(#322).cfg -- APN pre configured to "telstra.m2m"
NTC-100_M2M_PIN(#322).cfg -- as above, for PIN locked SIM cards

Cinterion BGS21:
For 2G GSM network.
Cinterion BGS2T blank APN (#268).cfg -- Blank APN, requires updating with carrier's APN
Cinterion BGS2T blank APN with PIN (#268).cfg -- as above, for PIN locked SIM cards
Cinterion BGS2T Telekom (#268).cfg -- APN pre configured to "internet.m2mportal.de"

Maestro M113#NFB:
For 4G within the USA; e.g. Verizon.
Maestro M113 (#286).cfg

Download

21. Download Config File

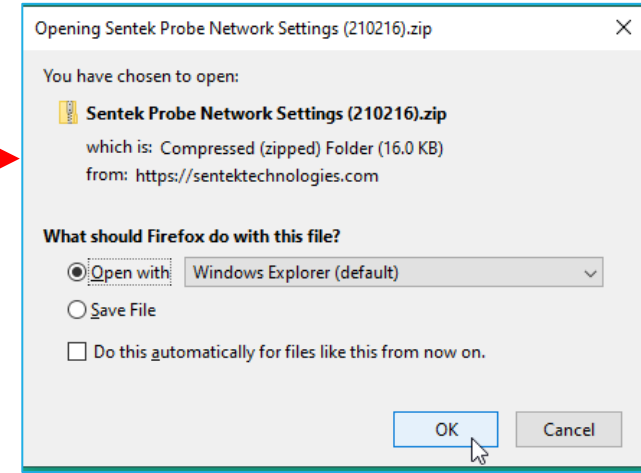


You can copy the config file and you can restore it by using **Probe Configuration software** from **Software & Apps**.

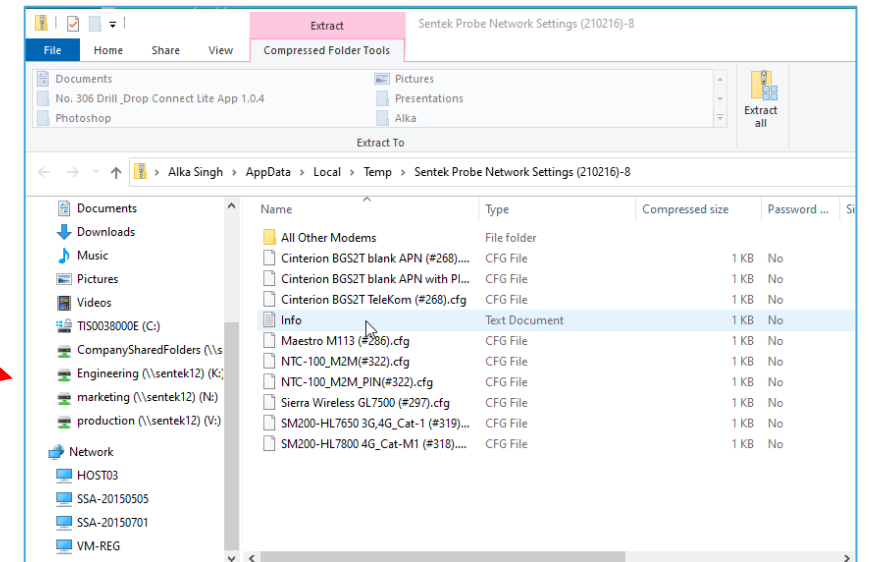
Download Config File



- Once you have Download the **Network setting file**.
- You receive a windows pop-up asking where you wish to save the file.
- Select **Windows explore** (recommended), click **OK**.
- Now, your file is in your local folder.



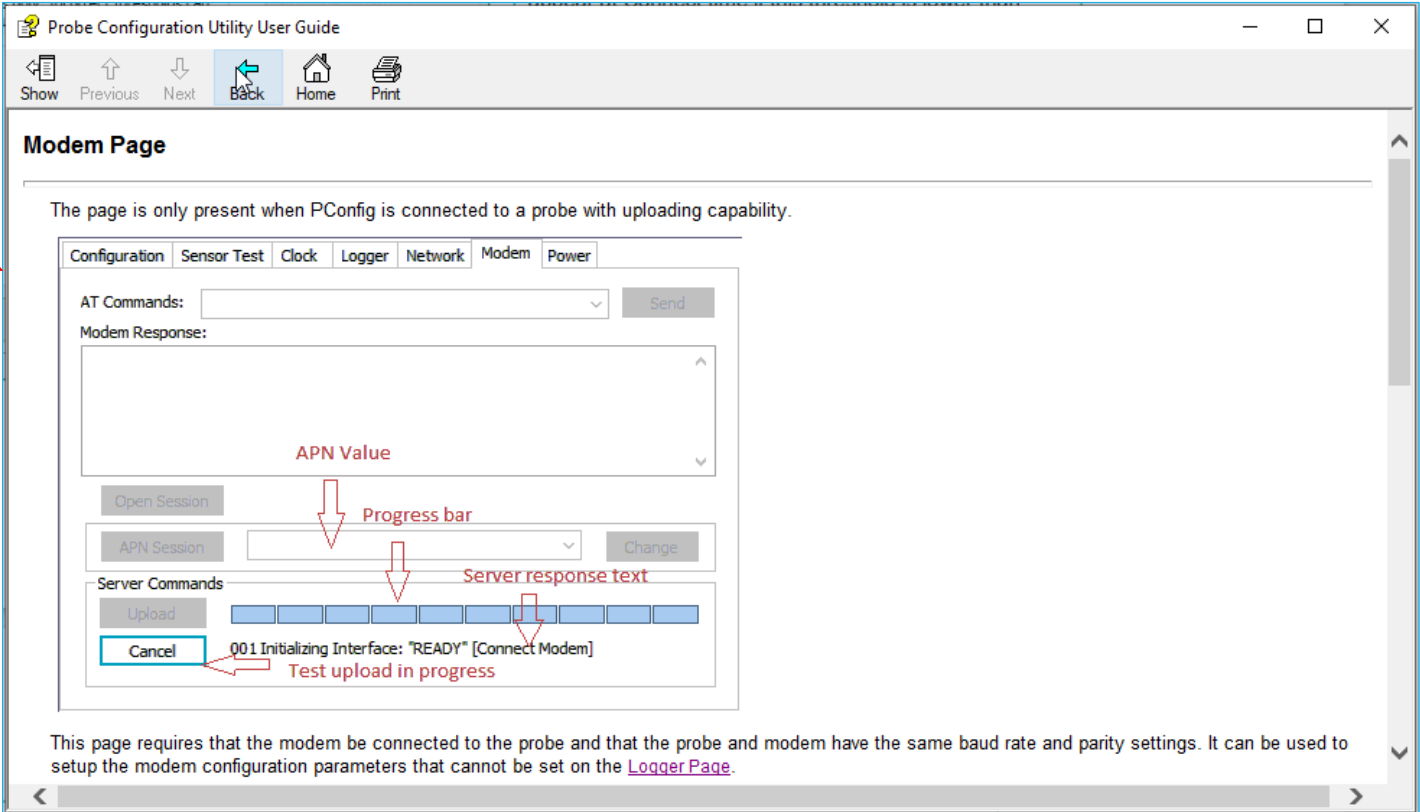
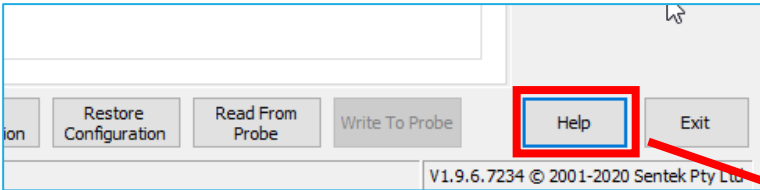
Your name>App Data> Local>Temp> Sentek Probe Network Settings(212016)



22. Help



For more detailed information about each tab, click **Help** tab.



23. Important Links



- [Sentek Plus Hardware Manual \(Ver. 2.1\) - Sentek Technologies](#)
- [Probe Configuration Utility](#)

Thank you

