PL Calculator

The PL Calculator is a Microsoft Excel spreadsheet that calculates the viability of a PL network. The operation of a PL network depends on:
The cumulative current/voltage required by the PL devices on each branch.
The transmission of data over RS485.
The voltage drop over the cable run.

The Excel calculator requires arbitrary figures to be included and these will very often cause a negative result when the customer enters their figures. It is necessary to use the 'Solver' which is a Microsoft Add In, to get the correct result.

1. Open the PL Calculator. This can be opened from:
a) The System manager software bundle.
b) By opening Excel and going to *File – Open*.
c) Using the *Open* icon on the tool bar.

It has been found that the calculator program will not open successfully on some individual computers from certain of the above methods. If you find that the program does not open successfully for you then try another method of opening the program.

2. Type in the PL devices in your proposed system. Begin with the PL farthest away from the iDR and type in the cable length between the PL and the next PL.
3. A negative result is to be expected at this stage.

It is now necessary to use the *Solver*. Click on *Tools* on the Excel toolbar and you may see the solver already installed. If you do not see it then:

   I. Select *Tools*.
  II. Select *Add-Ins*
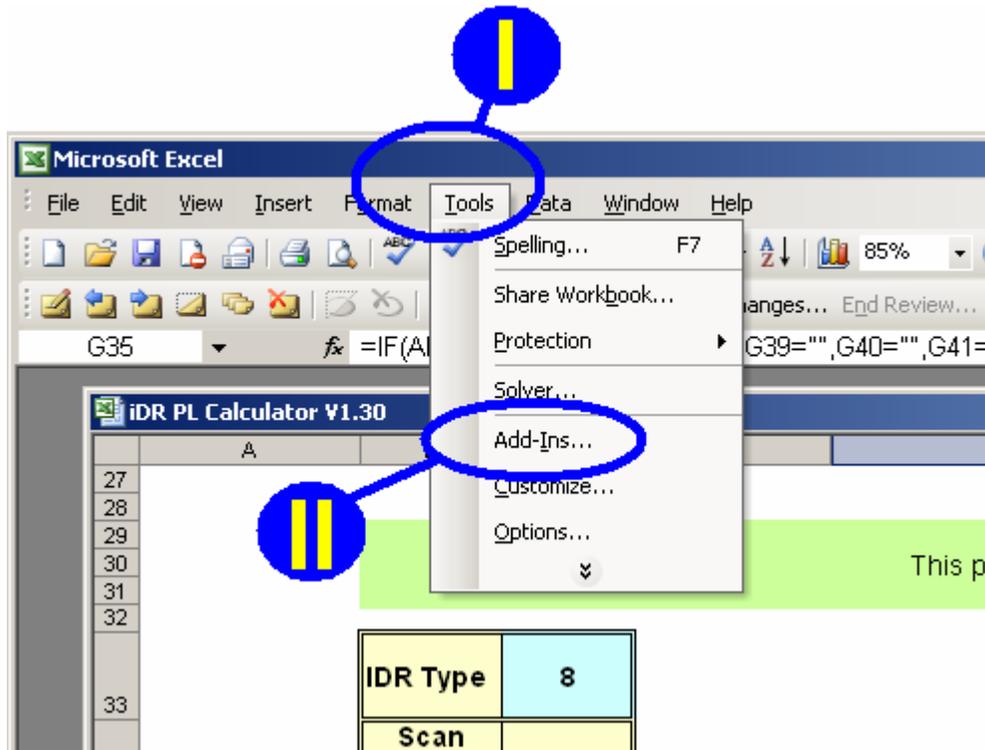
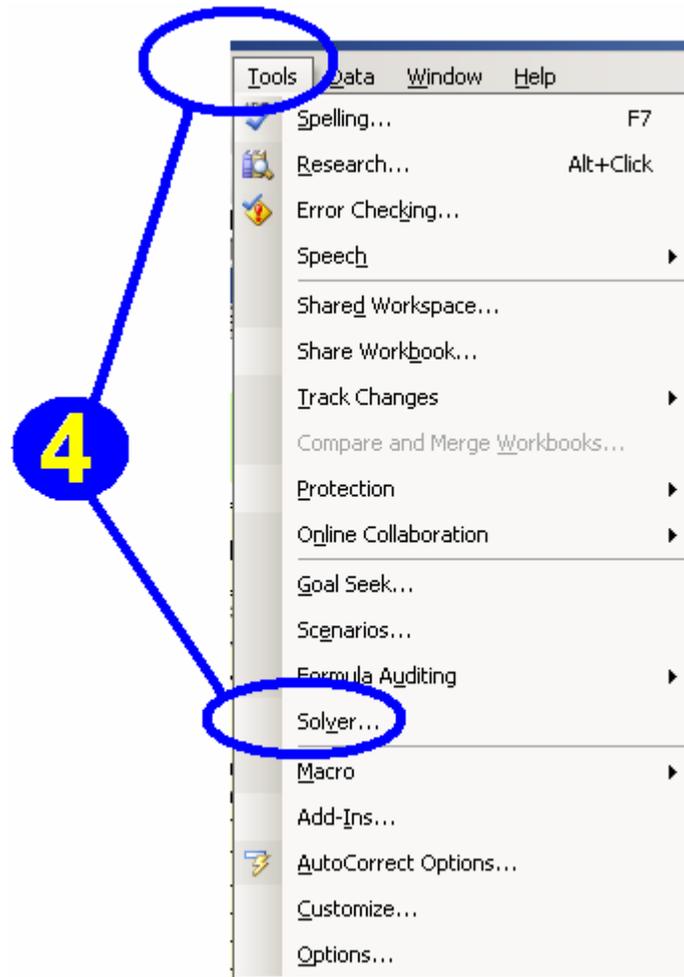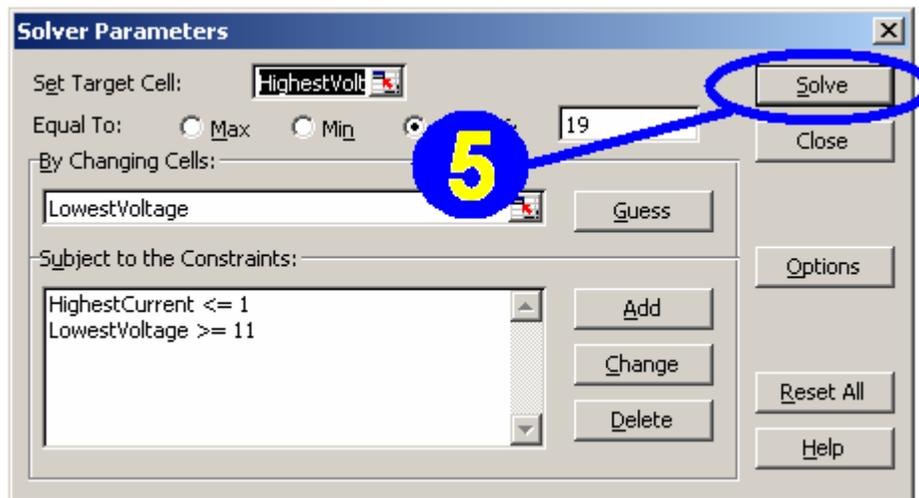 III. Check the *Solver Add-In*.
  IV. *OK*.
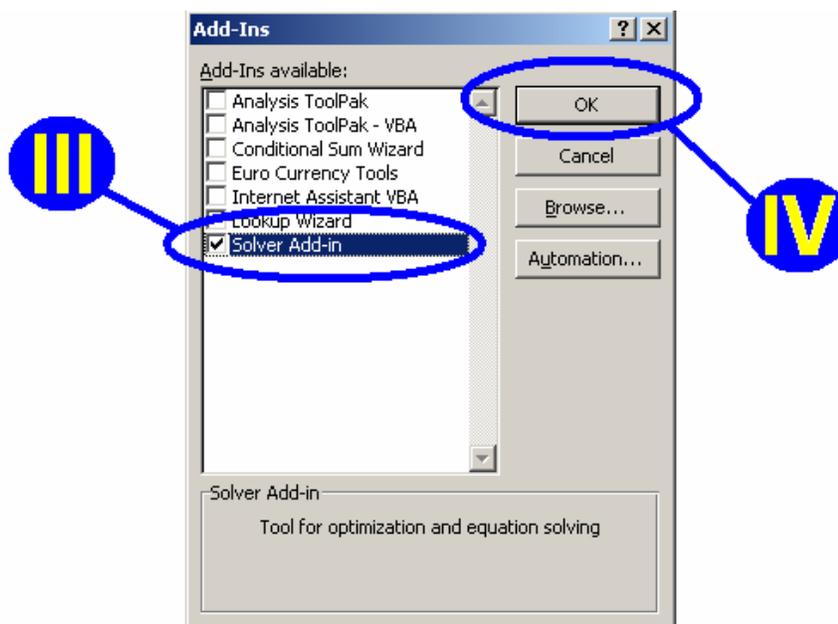
4. From the *Tools* menu select *Solver*.

5. In the Solver window click *Solve*.

6. The result now given can be considered a good indication whether positive or negative, of the viability of the proposed network. While the calculator is a very useful tool it must be remembered that it is theoretical and cannot be acted on as a guarantee of the viability of the proposed network.

	(ms)						
	PL Number, (counting from far end)	PL Type Number (3-4,6-10)	Cable Length from preceeding PL (m). (Total<= 500m)			Voltage at this PL (V)	Current Consumption of this PL at this voltage (A)	Curren At This PL (A)
PL-Anet Layout								
Terminator								
Farthest PL	1	10	100.0			16.66	0.0824	0.0
	2	4	50.0			17.51	0.0315	0.1
	3	4	60.0			18.10	0.0309	0.1
PL-Anet	4							0.1
CAT-5	5							0.1
Cables	6							0.1
	7							0.1
	8							0.1
	9							0.1
	10							0.1
	11							0.1
	12							0.1
	13							0.1
	14							0.1
Closest PL	15							0.1
DR		Total Length	210			19.00		0.14

Solver Results

Solver found a solution. All constraints and optimality conditions are satisfied.

Reports

- Answer
- Sensitivity
- Limits

◉ Keep Solver Solution
○ Restore Original Values

[OK] [Cancel] [Save Scenario...] [Help]

[×]

All OK. This is a good set lengths. If you have not a to see the likely voltages

Result

✔

Root from iDR / Branch A / Branch B / Branch C / Branch D / Branch E / Branch F / Branch G / Infor