**HOW TO CALCULATE VOLTAGE LOSSES ON A RUN OF CABLE**

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**Use this simple formula**

**V = I x L x 0.019**

**A**

V = Voltage drop, in volts

I = Current in ampere

L = Cable length, in metres

A = Cross-sectional area of cable, in square mm

The formula can be transposed, to determine the cable size

required for a pre-determined acceptable voltage drop:

**A = I x L x 0.019**

**V**

**Example:**

You have a solar panel array that can generate 30 amps maximum.

You can accept a voltage drop from panels to regulator of 1 volt,

over a distance of 10 metres.

First, note that the cable length will be 20 metres, since the current has to

travel both ways.

Therefore,

A = 30 (amps) x 20 (metres) x 0.019 = 11.4 square mm

1 (volt)

**How much power is lost?**

Use the equation P = V x I

Power loss is then 1 (volt) x 30 (amps) = 30 Watts.

This is consumed by heating the cable.

**Where does the value of 0.019 come from?**

The resistance of a copper cable, of cross-section area 1 square mm,

is about 0.019 per metre.