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The 1 Km Rule

The Net2 data line uses RS485 data signalling. This specifies that the data line is connected to the units as a series of point-to-point nodes, NOT as a star, ring or multiple line network. Each cable must be terminated at each end and the total length of any single line must not exceed 1000 metres.

Without termination, reflections of these fast signals will cause data propagation (multiple signals) resulting in some data corruption. Star and ring layouts do not allow correct termination and so are not allowed because of these signal reflections.
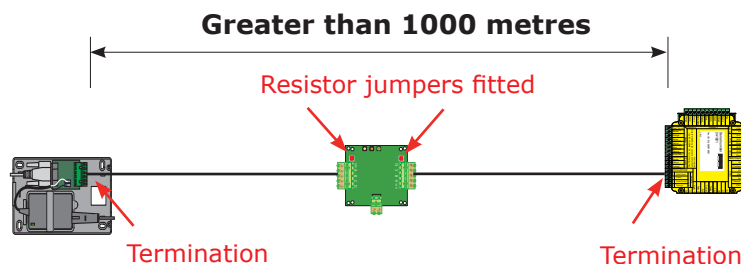
 See also: *AN1087 - How to create multiple data lines and side spurs with a repeater. < http://paxton.info/876 >*

Termination

No individual data cable can be longer than 1000 metres as this is limited by the power of the data converter. By using a repeater we can originate another 1000 metre data line from any point. For example, if we require a data line of 1500 metres, the repeater can be placed anywhere within 1000 metres of either end of the data line.
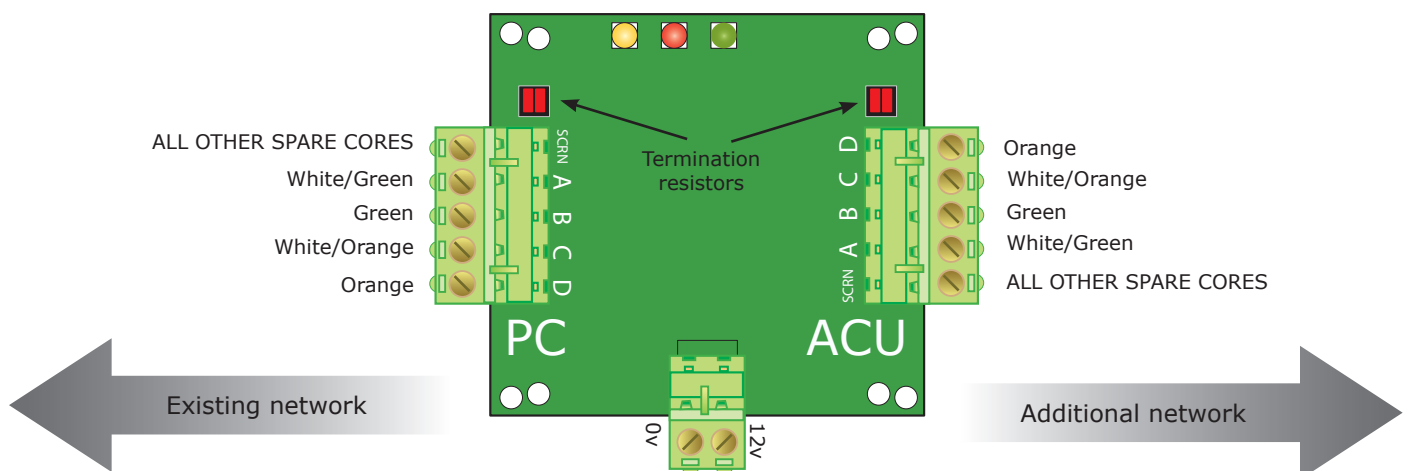
The two sections become individual data lines and therefore both must be terminated at each end.

This is done on many units with a switch or jumpers. If not, free resistors are provided with the data converter.

Greater than 1000 metres

Resistor jumpers fitted

Termination   Termination

This unit has onboard resistors which can be put into circuit by putting the jumper across the 2 pins.

Up to 5 repeaters can be used on a data network. This gives a maximum distance of 6000 metres for a data line with a repeater placed every 1000 metres down the line.

The repeater 'direction' must be wired as above.
Although the repeater is a bi-directional unit, the LED indications will be incorrect if this is not done.

    Mark 2 PCB: Red = 12V (always on);   Green = PC data (flashes if data is received from PC direction);
    Yellow = ACU data (flashes if data is received from ACU direction - ACU's are responding to the PC data)

    Mark 1 PCB: Green = 12V (always on); Red = PC data (flashes if data is received from PC direction);
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CE

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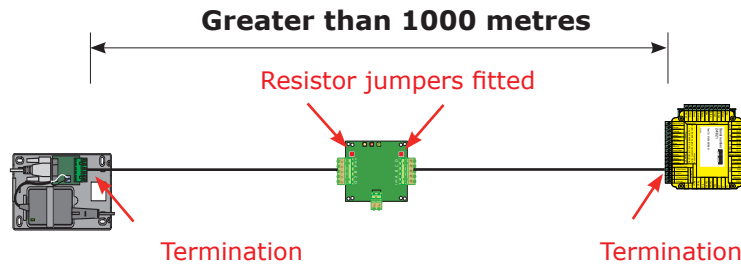
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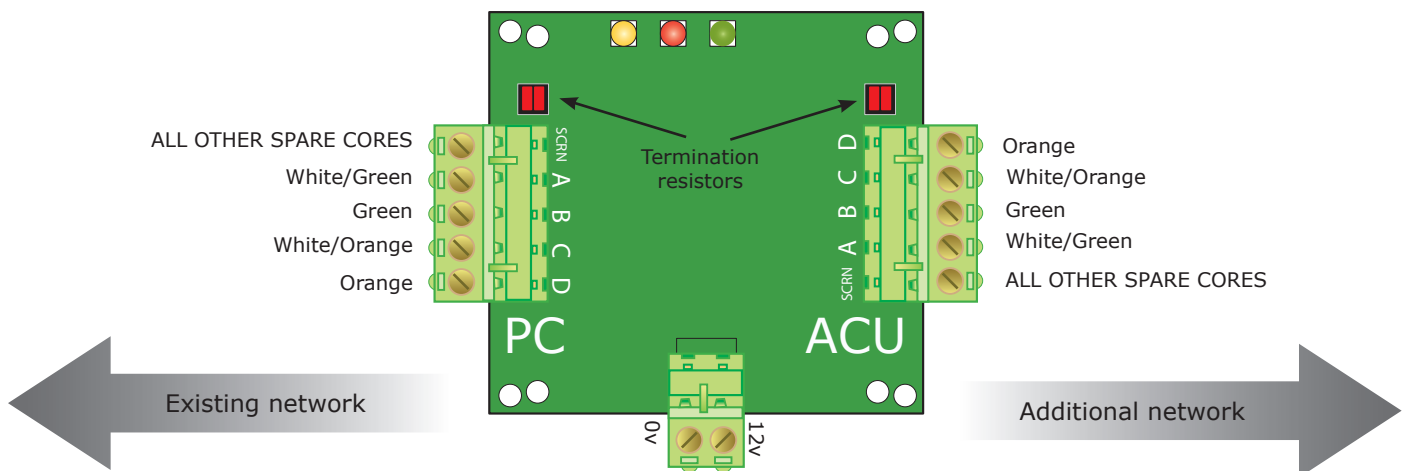
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CE