application sheet

RAKO CONTROLS

WA-NEX APPLICATION NOTES

The Rako WA-NEX is a network extender and can be used in instances where a network exceeds the maximum permissible or if the installed wiring does not allow correct connection of a Rakom network.

The Rako CAN data network has a maximum length of approximately 3km. When connecting devices in a daisy chain fashion this limit is unlikely to be exceeded. However when devices are connected to a hub location in a 'home run' or 'star' fashion large projects may reach this limit. The reason for this is that to enable star wiring, connections should be made into a RAKStar unit. Whilst the RAKStar offers great benefits in terms of being able to fault find and isolate cabling problems the way in which it achieves this is to create a series of data loops where the data is sent along one leg, only to be returned via a 'star termination' and thus on to the next leg. On larger projects this can result in surprising network lengths. For more details on how the RAKStar works see the document 'RAKStar diagnostics'.

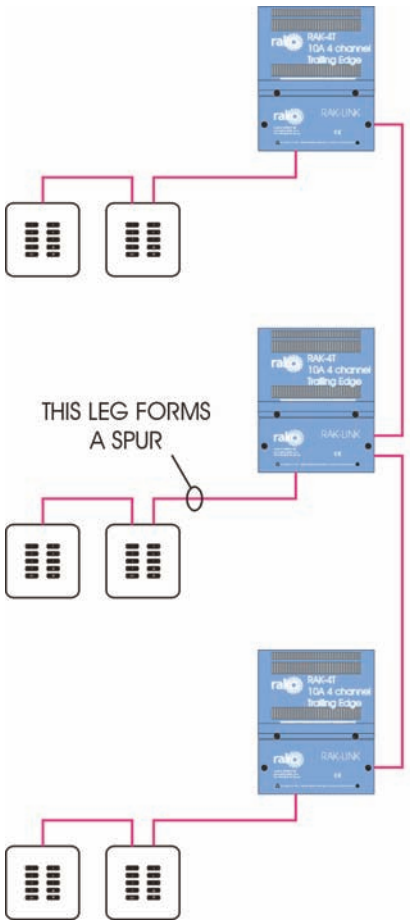
When the maximum network length is approached the network may become unreliable and intermittent. The solution to this problem is to split the network at a suitable point and add a WA-NEX (network extender unit) which creates two separate networks, both of which can have a 3km length. An alternative is to use two Bridge units connected over an ethernet network and use the Rako Etherbridge method of connection. The advantages of using the WA-NEX over Etherbridge include the lack of reliance on a 3rd party network. Additionally the WA-NEX allows functionality such as firmware upgrades across the entire network and if configured on the network (not necessary as it can be used as a 'plug and play' device) can give network diagnostics information.

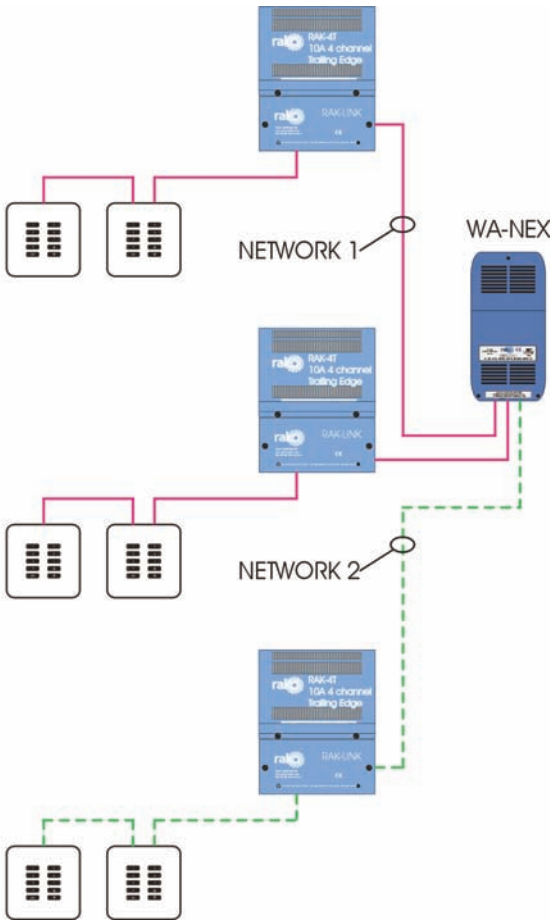
Etherbridge is still a valid means of connecting two separate networks, for example when two separate buildings, which are only connected via ethernet, both require two communicating Rako networks. For more information on Etherbridge connections refer to the document 'Etherbridge set-up'.

If a network is intended to be wired as a 'daisy chain' system it is common for the wiring to be inadequate to allow correct connections. This is most common when separate RAK locations are spread across different floors. As the WA-NEX allows two separate networks it is then possible to split the networks where the cabling problem exists.

Two examples of problem wiring that can be overcome by the use of a WA-NEX are given overleaf.

Example 1. RAKs located on separate floors with inadequate cabling between floors.





Example 2. More than two legs of a network at a RAKLink.