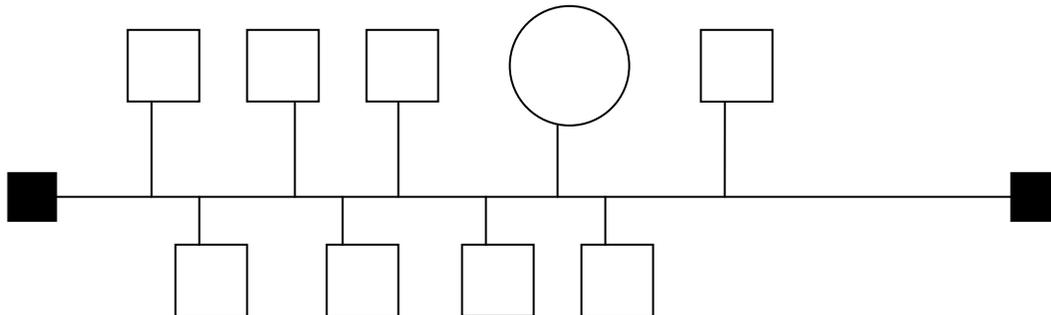


## One Reason NMEA 2000® Standard Does Not Allow Daisy Chaining

### Network Design (Drawing Number 2)

Historically, the notion of network topology was given significant consideration when the NMEA 2000 network topology was defined.

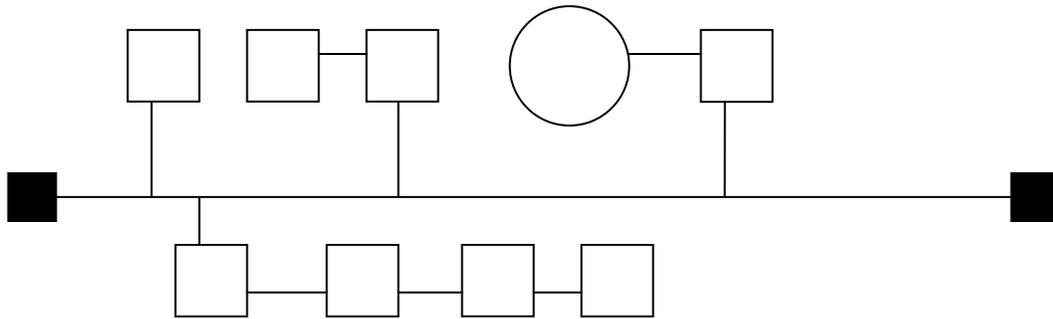


The above illustration shows the intended notion. The black squares are the terminators. The white blocks are devices and the circle is a power source. All devices connect via a TEE connector. This is clean, simple, easy to understand and troubleshoot, calculate voltage drops and loads, determine where to optimally insert power within the topology, etc.

Disconnecting one device has no bearing on anything else (electrically) in the network, unless of course it was the power source or a terminator.

NMEA does not control how networks are installed or actually configured. NMEA can only affect what they certify, i.e. the product and the cables. By trying to minimize network design errors, the NMEA 2000 Standard improves the likelihood that proper networks will exist, that networks will function as intended, with no ill consequences for the users of these systems. The NMEA 2000 standard currently does not allow multiple NMEA 2000 connections on a device unless they are isolated, supporting for instance a Class 2 redundant capability or if the device functions as some form of gateway between network segments.

To allow daisy chaining of devices from a single drop cable introduces significant risk to the network. This is because of the possibilities that having more than one NMEA 2000 connector on a device can bring about.



The above illustration shows one possibility of daisy chaining. Consider that once a drop cable is used to daisy chain devices, the drop cable becomes essentially another backbone cable.

The potential problems with shields are extremely important and reason enough to avoid daisy chaining. The non regulated network design, plug-and play system, such as NMEA 2000 may be extended or added to at any time by anyone. A daisy-chained network increases dramatically the probability and likelihood of the NMEA 2000 network not working properly. This results in a high risk of network degradation and possible network failure

Looking at the below illustration points out the kinds of mistakes that could be made if the NMEA 2000 Standards Committee were to allow daisy chaining to be available on the devices. The network topology variants are endless, with only the original topology notion guaranteed (by NMEA 2000) to work properly. With multiple connectors on devices to support daisy chaining unanticipated and undesired variations can and will happen.

