In the CAN bus standard every node has a defined and fixed ID and it is not intended that there is a flexible replacement and exchange necessary. However, for certain use cases a CAN bus with such a functionality can be required. In the said cases a self-assignment can be mandatory to avoid double IDs, but without a master controller or additional communication interfaces it is challenging to ensure compatibility. For example, if there are several identical battery modules that have to be replaced regularly or with varying applications like second-life usage, such a solution can be used. Therefore, this paper proposes the idea of a random self-assignment with very defined handling of how it can be ensured and checked that no ID is assigned twice and what to do if that happened. This solution has been implemented as a demonstrator and tested thoroughly including special cases with enforced errors.