N2K Man Over Board Button Solution (MOBS)

Disclaimer: This solution is in experimental state and comes without any warranty. Don't relay on this solution for personal safety. Any changes at the boats wiring or electrical and electronical givens can cause damages or critical situations. That is on your own risk only.

Components

The N2K MOBS consists of hardware and software components.

Hardware

I use an esp32-WROOM-32 micro controller which is connected to the N2K bus. The solution is only tested with a B&D Zeus2 MDF but should work with other MFD's too.

For the push button you can use any closing button, depending on the installation location with the appropriate protection class against water.

To connect it to the N2K bus I use a Waveshare SN65HVD230. This transceiver is controlled by the NMEA2000 library of Timo Lappalainen.

Since the ESP32 needs 5V power supply and the CAN-Bus power is 12V you need a step-down converter to 5V.

Software

The software (xxx) initializes the N2K interface and some more variables. A callback function is set for incoming N2K datagrams. In case of *PGN129029L* or *PGN129026L* this function retrieves navigational date like position, date, time , SOG, COG etc. an put it in the structure *PGNOut*. So this structure contains actual information at every time.

A MOB alarm is triggered when the alarm button is pressed more than ACTIVATION_TIME seconds (SendN2kMOBAlarm()). The alarm is send to the N2K bus.

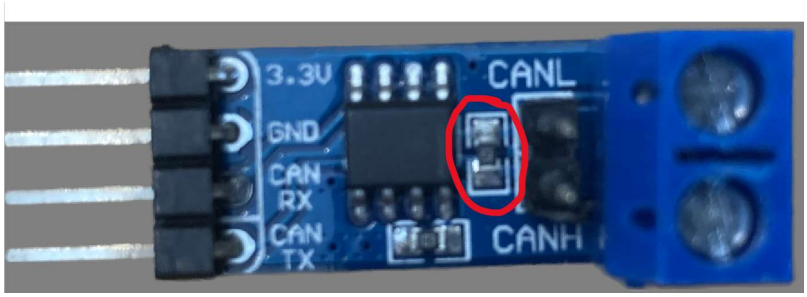
Additional libraries for CAN-Bus communication at https://github.com/ttlappalainen

- `ttlappalainen/NMEA2000-library`
- `ttlappalainen/NMEA2000_esp32`
- `ttlappalainen/NMEA0183`

N2K MOBS: Project steps

1. Get the hardware components
    - ESP32 dev module
    - SN65HVD230 CAN transceiver
    - DC-DC Step down converter 5V
    - One closing push button
2. Remove the 120 Ohm resistor from the transceiver
3. Do the wiring. (see below).
4. Get the needed libraries.
5. Compile and flash the software.
6. Install everything on your boat.
7. Hope that you never need to use it other purposes as experimental ones.

Remove the 120 Ohm resistor from the transceiver (see here for details at bottom of the page).



Wiring