Release and Application Notes for
YDNR-02, YDWG-02, YDEN-02 firmware 1.71

Contents

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I.   Release Notes

WebGauges: version updated to 2.0.6

Devices web-GUI: fixed text for XDR encoding usage

YDNR-02: now can parse some incoming XDR sentences

II. Incoming XDR sentences processing

NMEA 0183 XDR sentence allows to send various sensors data types.

XDR sentence format is:

`$--XDR,a,x.x,a,c--c*hh<CR><LF>`

Where:

a — Transducer type (single character, one from the list of allowed in NMEA 0183
Standard v 4.11)
x.x — Measured Value
a — Measurement units (single character, one from the list of allowed in NMEA 0183
Standard v 4.11)
c--c — Transducer ID (ASCII string)

Those blocks of 4 data items can repeat, for example, Battery Voltage, Current and
Temperature can be sent via the following sentence:

`$IIXDR,U,10.7,V,BATVOLT001,I,34.6,A,BATCURR001,C,46,C,BATTEMP001*3D`

YDNR-02 can now decode 3 XDR data items, see YDNR-02 "NMEA Settings" page end:

The last group is used to process incoming XDR sentences. For batteries, voltage, current and temperature are collecting. The length of identifier is limited to 15 symbols. For batteries and fluids, the number means zero-based number of the battery or tank (NMEA 2000 instance).

Incoming XDR #1	Battery #0	
Incoming XDR #2	Battery #0	
Incoming XDR #3	Battery #0	

You need to set type of NMEA 2000 data item here:

The last group is used to process incoming XDR sentences. For batteries, voltage, current and temperature are collecting. The length of identifier is limited to 15 symbols. For batteries and fluids, the number means zero-bas~~Type and NMEA 2000 instance of~~ nk (NMEA 2000 instance).

Type and NMEA 2000 instance of the sensor

| Incoming XDR #1 | Battery #0 | |

Select one from the list for which conversion to NMEA 2000 data items was implemented:

- **Battery** (NMEA 2000 PGN 127508 "Battery Status", "Battery Instances" aka battery numbers #0, 1 and 2 are supported)
- **Fluid level** (NMEA 2000 PGN 127505 "Fluid Level", tanks #0, 1 and 2 with fluid type 0 = DIESEL are supported)
- **Fluid level** (NMEA 2000 PGN 127505 "Fluid Level", tanks #0, 1 and 2 with fluid type 1 = FRESH WATER are supported)
- **Sea Temperature**, **Air Temperature** (NMEA 2000 PGNs 130311 "Envirnomental Paramteres", data fields "Sea Temperature" and "Air Temperature"
- **Atmospheric pressure** (NMEA 2000 PGNs 130311 "Envirnomental Paramteres", data field "Atmostpheric pressure" and 130314 "Actual Pressure", with "Pressure Instance" aka sensor number = 0 and Pressure Source = 0 = "Atmospheric pressure")

- **Exhaust Gas Temperature** (NMEA 2000 PGN 130316 "Temperature, Extended Range", data field "Actual Temperature", supports "Temperature Instances" aka sensor numbers #0 and 1, with Temperature Type = 14 = "Exhaust Gas Temperature").

Then you need to set the **XDR data ID** (Identifier of the sensor) for the selected data type:

Note: it is not possible to use two sensors **with the same XDR data IDs** even if they are connected to different NMEA 0183 Listener ports of YDNR-02 (or fed into receiving 0183 data streams of YDNR-02 Servers).

Example: Battery Data conversion configuration

Let's set up Battery Data conversion using an example XDR sentence from above:

`$IIXDR,U,10.7,V,BATVOLT001,I,34.6,A,BATCURR001,C,46,C,BATTEMP001*3D`

Suppose you already have NMEA 2000 PGN 127508 "Battery Status" with "Battery Instances" aka battery numbers #0 and #1 already used, say by our YDEG-04 engine gateway, but "Battery Instance" #2 is still free for use.

So we will map incoming XDR battery data to "Battery Instance" #2 and will set sensor identifiers BATVOLT001, BATCURR001, BATTEMP001:

And this will yield PGN 127508 "Battery Status" with Voltage, Current and Temperature data:
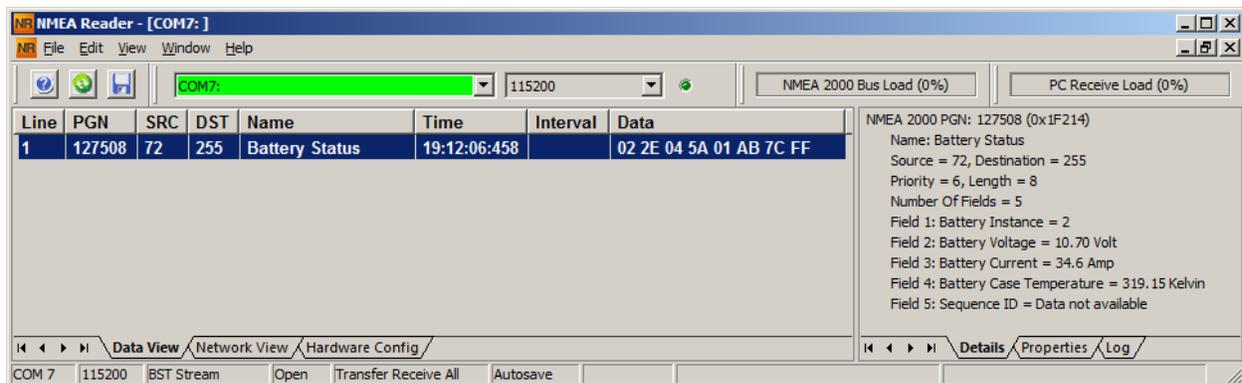
III.   Raymarine SeaTalk 1 and SeaTalk NG Autopilot mode switching via web-gauges

Prerequisites:

For SeaTalk NG Autopilot:

- YDNR-02 should be connected to SeaTalk NG backbone
- YDNR-02 Data Server "Direction" is set to "Both":

- YDNR-02 Data Routes from NMEA 2000 to Server #1 and back are enabled:

Input		Output						
		TCP/UDP Server			N2K	Port 0183		ST
Port/Server	Tunnel	1	2	3		1	2	
Server #1	☐	—	☐	☐	☑	☐	☐	☐
Server #2	☐	☐	—	☐	☐	☐	☐	☐
Server #3	☐	☐	☐	—	☐	☐	☐	☐
NMEA 2000	—	☑	☐	☐	—	☐	☐	☐
Port 0183 #1	☐	☐	☐	☐	☐	☐	☐	☐
Port 0183 #2	☐	☐	☐	☐	☐	☐	☐	☐
SeaTalk (ST)	—	☐	☐	☐	☐	☐	☐	—

Check all   Uncheck all

Update

Note that only relevant checkboxes are checked, you may have extra routes enabled

For SeaTalk 1 Autopilot:

- YDNR-02 should be connected to Autopilot via SeaTalk 1 bus
- YDNR-02 Data Server "Direction" is set to "Both" like in example above
- Generation of $STALK sentences should be enabled:

SeaTalk Settings

The Router has a bi-directional converter between SeaTalk and NMEA 0183. $STALK sentences can be used for debug purposes. The second setting does not effect autopilot and waypoint datagrams.

☑ Generate $STALK sentences for received datagrams

- YDNR-02 Data Routes from SeaTalk 1 to Server #1 and back are enabled:

| Input		Output						
		TCP/UDP Server			N2K	Port 0183		ST
Port/Server	Tunnel	1	2	3		1	2	
Server #1	□	—	□	□	□	□	□	☑
Server #2	□	□	—	□	□	□	□	□
Server #3	□	□	□	—	□	□	□	□
NMEA 2000	—	□	□	□	—	□	□	□
Port 0183 #1	□	□	□	□	□	□	□	□
Port 0183 #2	□	□	□	□	□	□	□	□
SeaTalk (ST)	—	☑	□	□	□	□	□	—

Check all   Uncheck all

Update

Note that only relevant checkboxes are checked, you may have extra routes enabled

Web-gauges setup

Edit AP control page

On web-gauges PAGE 5 edit all Autopilot Control button groups and set CONTROL / BANK = Third Party:
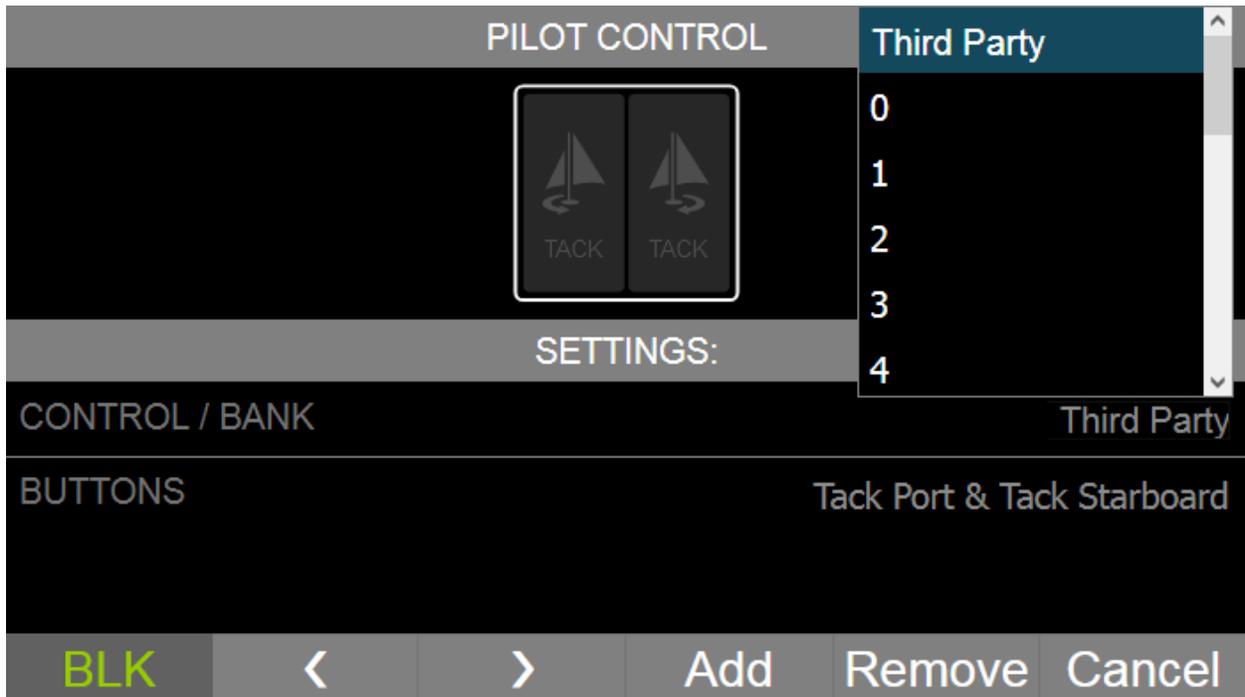
Note that **SeaTalk 1 Autopilot** does not support "Automatic Tack" command, so you will need to replace "TACK/DISMISS" button group with "Tack Port & Tack Starboard" button group:

Set Autopilot type

In Web-gauges OVERALL SETTINGS select desired "Third Party Autopilot" type, either "Raymarine SeaTalk NG" or "Raymarine SeaTalk 1"