Raymarine Autopilot plugin for OpenCPN

For Seatalk 1 Autopilots and new since version 2.x Raymatine EVO Autopilot connected over NMEA2000 (SeatalkNG). The choice witch on is use can be made in the preferences.

Autopilot connected over Seatalk1 can control a Raymarine autopilot by sending and receiving special NMEA0183 ($STALK,…) messages to the course-computer.
For this functioning it is necessary to convert a messages from “NMEA” to “SEATALK”. For this conversion a special hardware is required.
(Seatalk – NMEA converter, for example Seatalk-link)
The hardware can be ordered here : **http://www.gadgetPool.de**
There is also a lot of Seatalk1 converter Software at github. (Try Seatalk for search). Then you can build your own.
It is tested with a Raymarine Smartpilot S1G an a ST6002+ Panel. But I think it would work with others too.

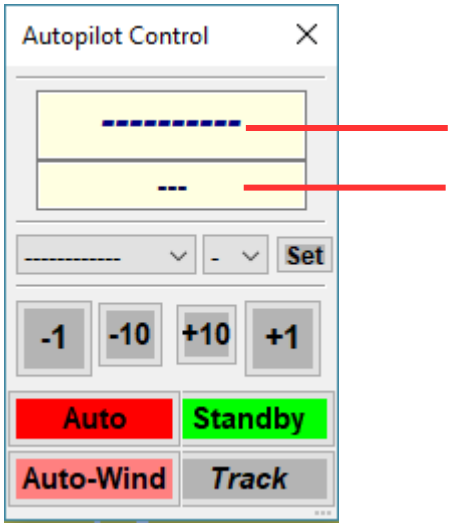
An Raymarine EVO Autopilot can also be handled by this plugin. (This is new since OpenCPN Version 5.8.x). In this case, a NMEA2000 connection must be made to OpenCPN in the OpenCPN connection dialog.

Install the plugin in accord with the Install and enable Instructions. After that activate the plugin.

Autopilot Dialog:

klick on Autopilot Icon in toolbar to show the Autopilot control-panel.

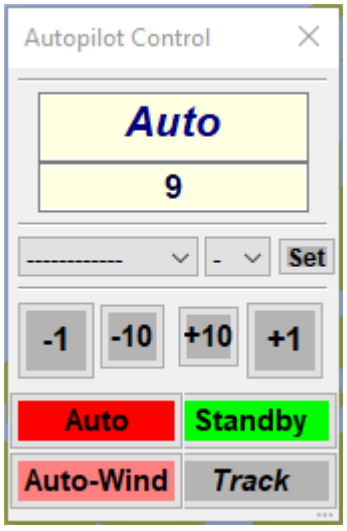
Autopilot Control-panel :



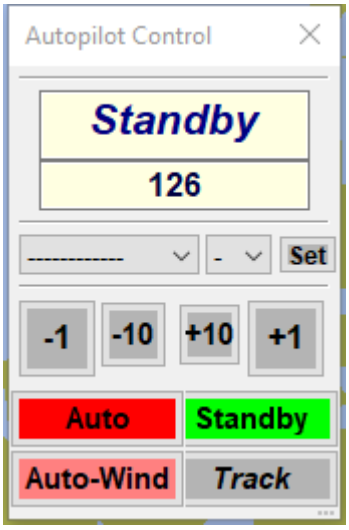
Status of Autopilot

MAG compass or Autopilot Course.

(shown, when there is no data from the Course-computer)
When the Control-panel looks like this, the push on the Buttons has no effect.



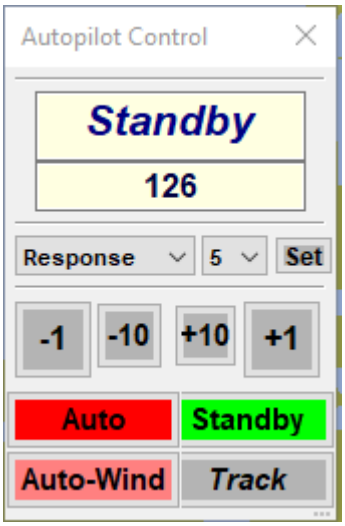
(Autopilot in Auto Mode)



(Autopilot in Standby Mode)

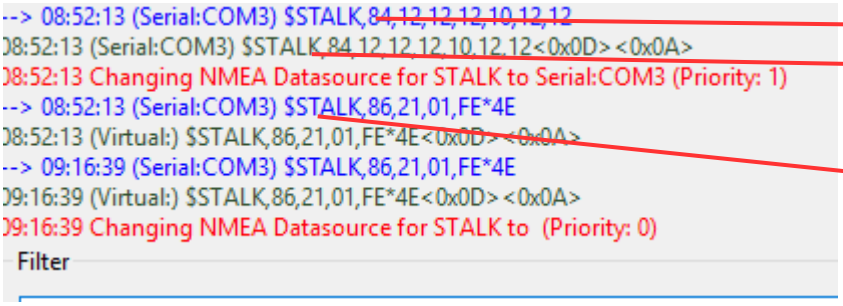
The Control-panel can be used like a Raymarine panel like for example ST6002. But not everything can be done.
The following functioning is given:
Go from “Standby” to “Auto” or “Auto-Wind” Mode.
When the Autopilot is in “Standby” Mode, the Increment and Decrement Buttons have no effect.
The “Track” Button has only an effect, when the Autopilot is in “Auto” Mode.

The “Response”, “Wind-Trim” and “Rudder-Gang” Parameters can be set to a Value when a Seatalk1 Autopilot is connected. When a EVO Pilot is connected, the parameters can not be changed.



When one of the Parameters is selected, the default Raymarine Value shown. (It is not known the Value that is set in the course-computer in the moment). By bushing the Button Set, the Value will be send to the course-computer. The Changes will be shown on other Display for 5 Seconds.

NMEA0183 Messages from an to Autopilot will be translated to SEATALK1 by SeatalkLink (Seatalk NMEA Converter)



Outgoing same message.
incoming message from course computer.

outgoing message.

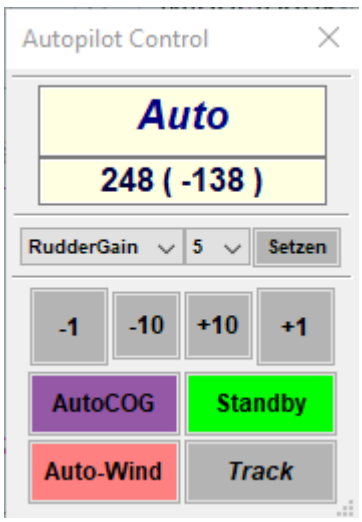
All messages named “$STALK,.....”. This is the Sentencename that will be understood by the Seatalk NMEA Converter for translating it to SEATALK messages.
The Sentencename can be changed in the Autopilot plugin preferences. The reason is, you see, that OpenCPN is sending every incoming message on the same COMx back although it comes from here. That makes traffic. (Bug in OpenCPN ?).

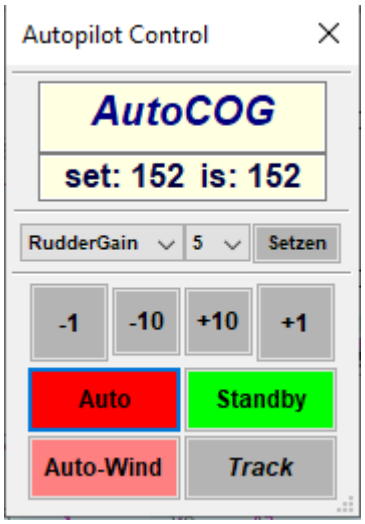
When a EVO Pilot is connected, the NME2000 messages can not be seen.

AutoCOG :

New in Version 2.x is the function “AutoCOG”. This can be activated in the preferences.
When it is active, the AUTO Button switches to “AutoCOG” when the Pilot in in Auto.Mode.

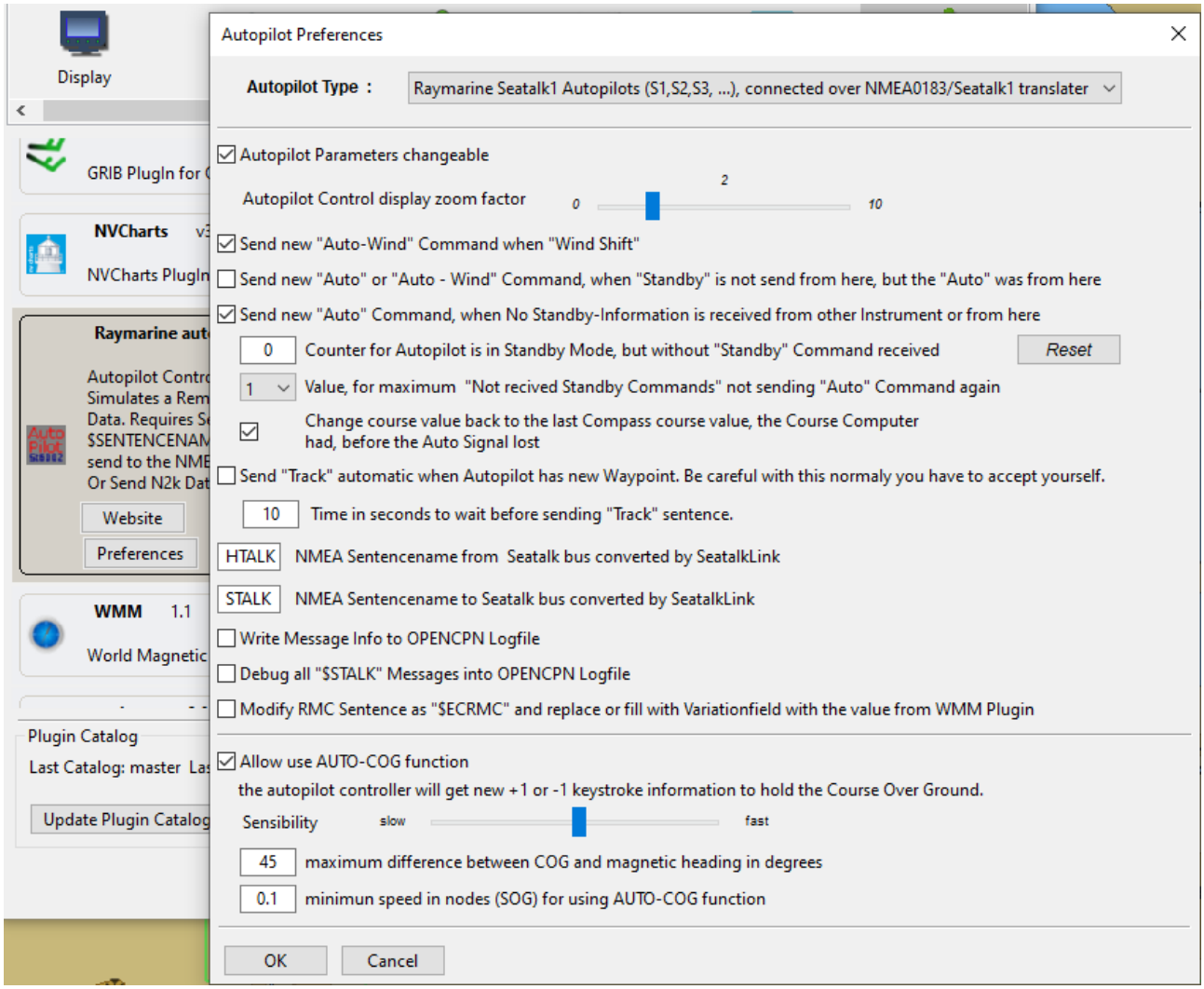
Now the “AUTOCOG” button can be pushed again, and the plugin now displays “AUTOCOG” and the button switches back to “AUTO”. (Is a toggle Mode).
This should also work with the “Auto” button on the Raymarine control displays.





In AutoCOG Mode, the Raymarine Autopilot is furthermore in AUTO-Mode. The plugin now send automatic new change heading information to the Autopilot to keep the COG course constant.
For this feature the COG must be available from GPS. Some setting for that can be made in the preferences.
(Be careful with this feature. There is no guarantee that it works always fine. Be save!)

The Preference Dialog from Autopilot Plugin



Description :

- Turning off the visibility of the “Autopilot Parameters” like “Response”, “Wind-Trim” and “Rudder Gain” in the Autopilot Control-panel. So you could not change them.
- With the autopilot zoom factor you can change the size of the plugin.
- It is able to send a new “AUTO-WIND” sentence to the Autopilot if there is a Wind-Shift. But be very careful with this feature. **You turn off the Raymarine security !**
  (The reason I implemented this is, that I often use “Auto-Wind” when there is low Wind, and I am too lazy to push the “Auto Butten” several times.)

- Sending a new “AUTO” or “AUTO-WIND” sentence when the signal for going to “Standby – Mode” is not coming from the Autopilot Plugin. **Also be very careful with this feature for your security.** The reason I implemented this is, when I used the Autopilot for hours, my course-computer has gone to “Standby” without a reason. So if you don't have hat this problem any time, I think you would not need. (feature is not tested yet)
- $SNBSE is a NMEA sentence to control the Seatalk NMEA Converter. It is able to switch off the sending of $STALK massages. (Not so much traffic on com Port)
- Rename the NMEA Sentencename coming from the gadgetpool Seatalk NMEA Converter.
- Rename the NMEA Sentencename sending the gadgetpool Seatalk NMEA Converter. When the sentencenames are different, it is able to implement a filter in OpenCPN so that the sentences are not send back.
- Modify RMC Sentence is for the Raymarine Instrumens to get the Variation, then it must not be set manuel. When EVO is selected, the varation PGN will be send.
- AutoCOG. Here the feature will be activated and some parametres than can be set.
- The sensibility means, how often the plugin sends new course changes(+/- 1 degree). Fastest is 2 seconds and slowest is 1 minute.