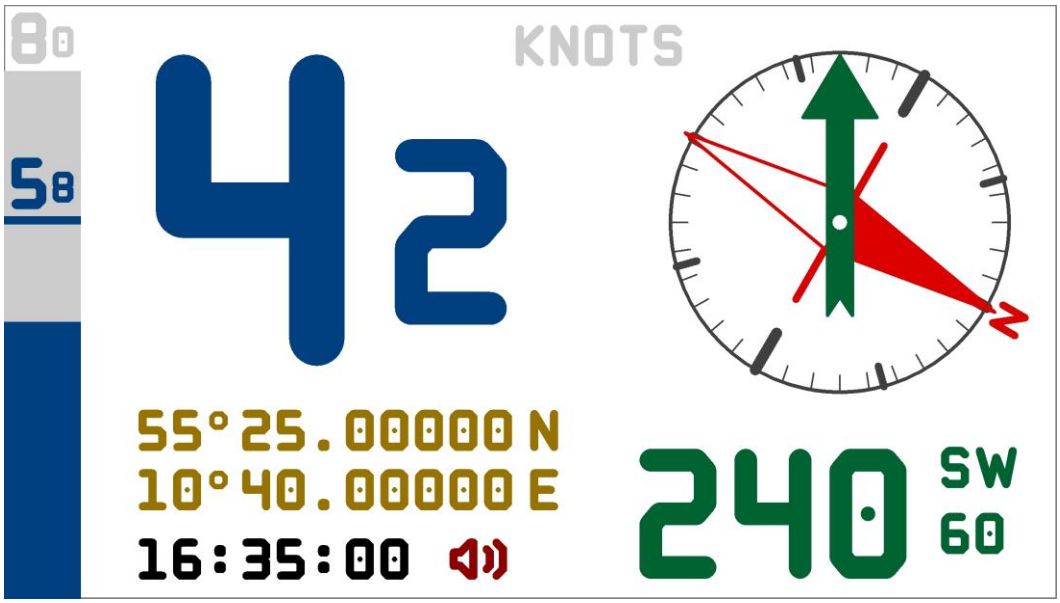
SCOGinstrument 2.4 for Windows

Bring life to an old laptop on board Your boat! ☺

By Christian Wang, cwangdk@gmail.com, Denmark

Full screen displaying SOG (speed over ground) and COG (course over ground) when sailing.

July 19th 2022



DOWNLOAD: https://cwang.dk/cwdk-scoginstrumentwin.html#sidetop

Background

You have probably already all the instruments on Your boat that You want.I haven't. My only instrument is a depth echo sounder - and a smartphone that is hard to see in sunlight.

My sailboat is an old and small one: The Swedish Maxi77, 25 feet, from 1974.

I made this small old-fashion Windows application to meet these requirements:

- Spend no (or at least little) money.
- Use one of my older laptops – placed/fixed in my boats cabin, protected against rain, seawater and direct sunlight – no big holes in the boat body!
- Use my existing GPS-receiver with USB-interface.***)***
- Laptop screen, using big letters/numbers in full screen mode, must be visible from (almost) any position in the cockpit, sitting or standing up.

**) Newer than 2012, that means a SiRF-IV chip sending NMEA0183 sentences. For example the GlobalSat G-StarIV BU353S4 with USB Interface – or a similar GPS-receiver – could be a Bluetooth-GPS-receiver! The receiver must be running on the laptop with test software, and You must be able to identify the COM-port number used by the receiver before running the SCOGinstrument application.*

The package

SCOGinstrument.exe, (the application).

SCOGinstrument.ini, (the settings file), partly editable from application – fully editable with text-editor i.e.notepad.exe.

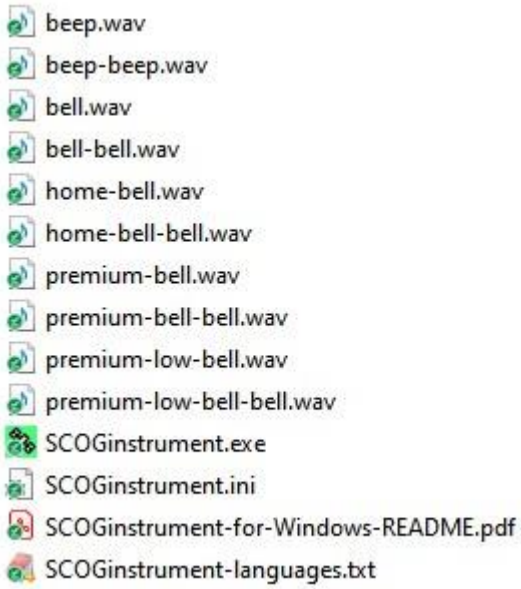
SCOGinstrument-languages.txt, (the languages file), fully editable with text-editor i.e.notepad.exe.

bell.wav and **bell-bell.wav**, replaceable sound files for ship-bell ringing, if activated.And some extra soundfiles.

This README pdf-file

Installation

Create a folder, and unzip/copy the files to the folder.



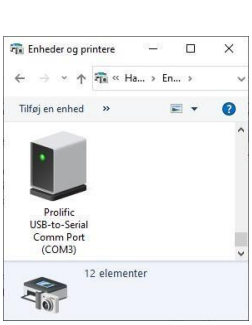
Testing Your GPS-receiver

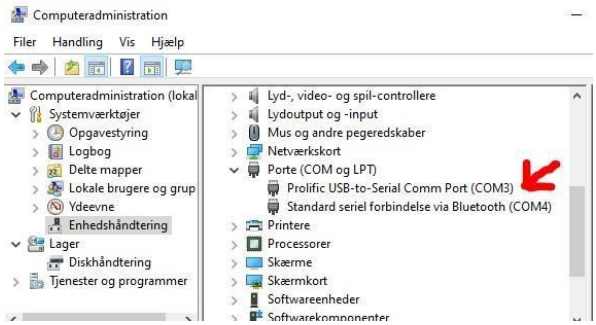
IMPORTANT: You will only be able to use SCOGinstrument if Your GPS-receiver works with Your laptop!

Use either a USB-GPS-receiver or a Bluetooth-GPS-receiver.

You might need to install a device specific driver.

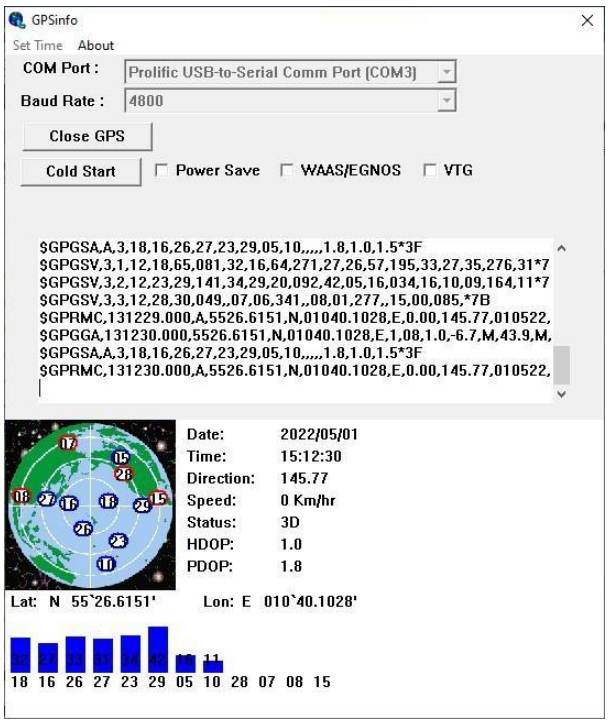
Identify the GPS-port number for Your specific GPS-receiver connected to Your specific laptop. You can lookup the COM-port number by using Windows Device Manager.





See Your GPS-receiver manual or find relevant guides online.

Test that the GPS-receiver is running with GPS-test software - example:



SCOGinstrument uses the NMEA0183 $GPRMC-sentences, that holds position coordinates, SOG speed over ground, COG course over ground and a “valid” indicator.

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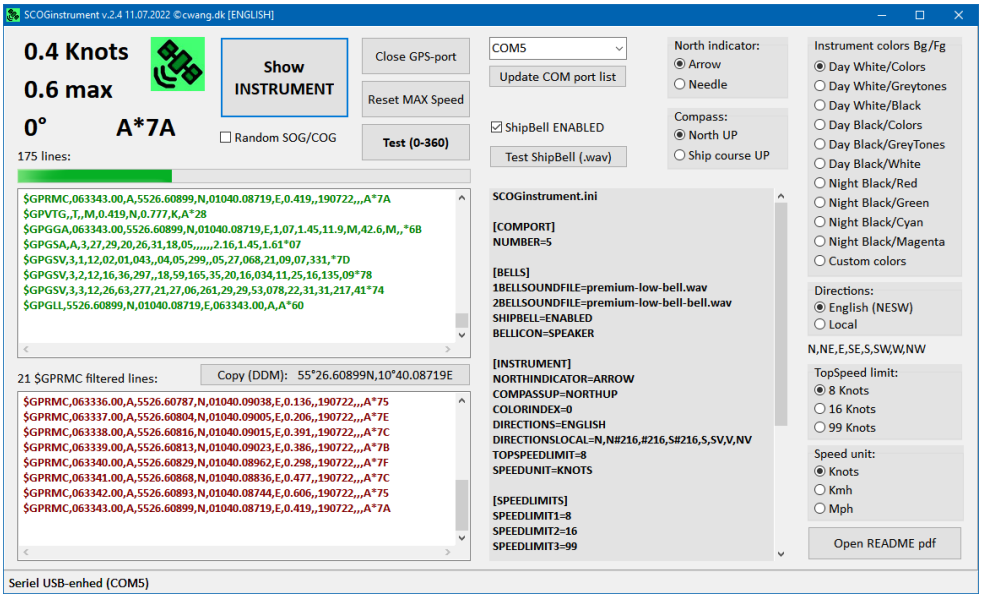
Run SCOGinstrument.exe for the first time



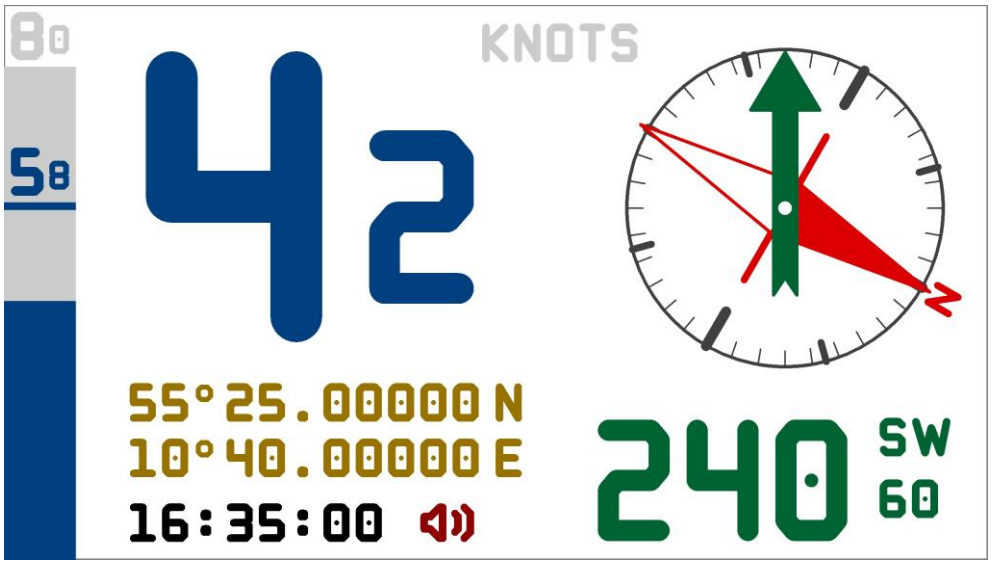
Settings screen mode

This is the settings screen mode. Select the correct COM-port number, and wait for **red** incoming $GPRMC-sentences in the bottom window.

IMPORTANT: You will only be able to use SCOGinstrument if Your GPS-receiver works with Your laptop!

The Show INSTRUMENT button will be enabled when GPX-fix is obtained from the GPS-receiver and incoming red $GPRMC-sentences are visible on the screen.

Now press the Show instrument-button to change screen to graphic instrument-mode:



Instrument screen mode

If Your GPS-receiver is not moving, speed is zero and no course is displayed: “- - -“.

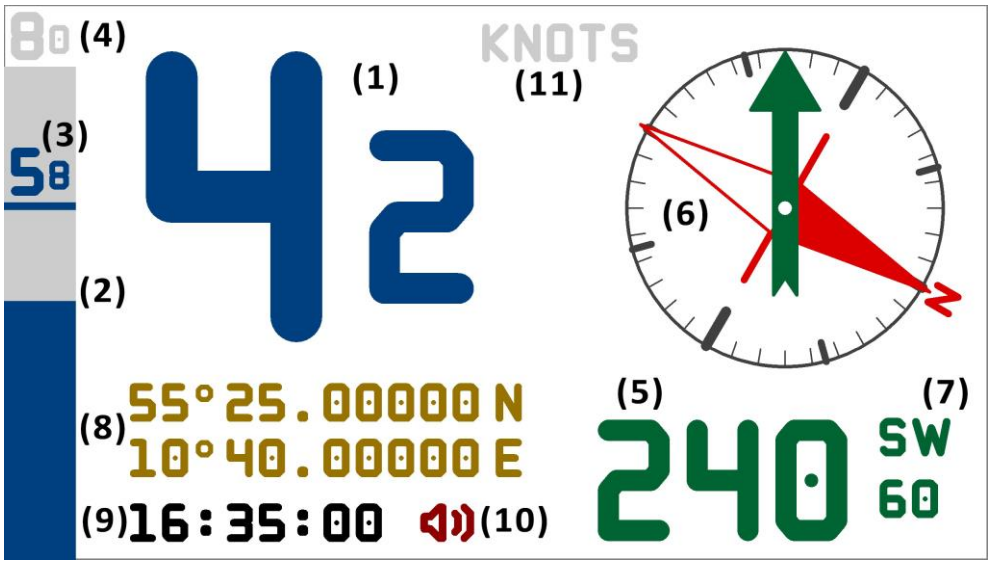
Click the mouse on screen (or press a key) to return to Settings screen mode.

Check the Random SOG/COG checkbox, and press the Show instrument-button again.

Also try the Test (0-360)-button.

In this way, shifting between the Settings-screen and the Instrument-screen, You can see the effect of different settings on the Instrument screen using Random-button or Test(0-360)-buttons even if the GPSreceiver is not moving – if You’re not yet sailing!.

Instrument screen legend



Speed

1: SOG, speed over ground in Knots, 1 decimal.*)*

2: Vertical speedbar, height = SOG.

3: Max speed reached after entering Instrument mode.

4: Top speed limit (speedometer range).

Course

5: COG, course over ground (integer).

6: COG in compass.

7: Approx.Direction – and below: 180 degrees opposite to COG (course over ground).

Position, clock, ship-bells and speed unit.

8: Position coordinates.

9: Time/clock.

10: Icon (bell or loudspeaker) indicating that ShipBell are enabled.

11: Selected speed unit.

**) When speed is >=10, SOG-numbers are shown I reduced sizes to avoid interference with compass on the right side of the screen.*

The instrument screen layout is designed for 16:9 screens, and it fits 4:3 screens by leaving some background colored space over and under the 16:9 layout, with the speed bar in full screen height.

The settings window size is approx.1200x700 pixels wide, and cannot be resized. Therefore You have to move it around on the screen when selecting the settings if Your laptop screen has a lower resolution than 1200x700 pixels. Still the Instrument screen will fit lower screen resolutions.

Settings saved to .INI-file during runtime

The following settings will be saved in the .INI-file when changed on the Settings screen:

- COM-port number
- ShipBell ENABLED (The two soundfiles: Se next chapter!)
- North indicator (arrow or needle)
- Compass (relative to north or course)
- Instrument colors BG/FG (background/foreground)
- Directions (Local charset, special characters: See next chapter!)
- TopSpeed limit (The three selectable top-speed-limits: See next chapter!)
- Speed unit (knots/kmh/mph)

Settings in the .INI-file only editable with a text-editor

The following settings must be edited in a text-file editor, i.e.notepad.exe.

NB! Remember to close the SCOGinstrument application prior to editing the .INI-file.

The changes will appear when restarting the application.

ShipBell icon

In the section [BELLS]:
Setting BELLICON=SPEAKER or BELLICON=BELL will affect the visual appearance of the icon next to the clock (hh:mm:ss) on the bottom of the Instrument-screen. The SPEAKER- or the BELL-icon indicates that the SHIPBELL is enabled – if disabled no icon will show up. Edit the .INI-file with a text editor, i.e.notepad.exe.

ShipBell sound files

In the section [BELLS]:
You can replace the ship-bell sound-files to whatever You want. One sound file for “one ring” and another sound file for “two rings”. Remember to edit the SCOGinstrument.ini file with the correct sound filenames. Only wav-files will work. Edit the .INI-file with a text editor, i.e.notepad.exe.BTW: Audacity (free) is perfect for recording, converting and editing sound files.

Directions (NESW)

In the section [INSTRUMENT]:
If DIRECTIONS=LOCAL then DIRECTIONSLOCAL=N,N#216,#216,S#216,S,SV,V,NV defines the one- and two-letter strings to be displayed on the Instrument screen - as a rough direction indication. In the example above N#216 represents NØ (north-east) in Danish, where Ø corresponds to asci code 216 in the Windows language settings in Denmark. Feel free to change to Your need. Use any writable character and or #ascii values in this setting, each of the 8 directions separated by commas – and no spaces. Lookup any character and asci-values in the “Chracter Map” app in Windows. Edit the .INI-file with a text editor, i.e.notepad.exe.

TopSpeed limits

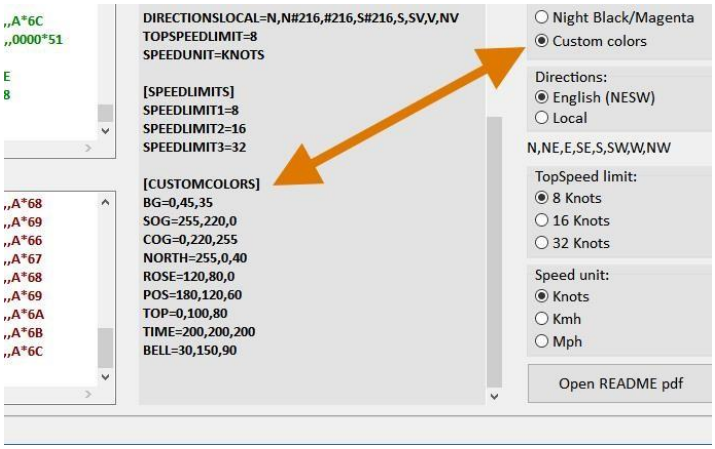
In the section [SPEEDLIMITS]:

The 3 selectable speed-limits (shown on the settings screen) are defined by the following .INI-settings. Chose any integer, each in the range 4..200, that suits Your boats speeds best, i.e.:

```
SPEEDLIMIT1=8
SPEEDLIMIT2=15
SPEEDLIMIT3=20
```

Custom colors

In the bottom of the .INI-file You'll find the custom color settings for the different parts of the instrument screen:




```
[CUSTOMCOLORS]
BG=0,40,30          Background
SOG=255,200,0       Speed over ground and speedbar
COG=0,200,255       Course over ground and COG indicator in compass
NORTH=255,0,40      North arrow/needle
ROSE=120,80,0       Compass rose - and time/clock
POS=180,120,60      Position coordinates
TOP=0,75,58         Top speed limit and speed unit on top of screen
TIME=200,200,200    Time/clock
BELL=30,150,90      Loudspeaker/bell icon
```

The numbers represents RED, GREEN and BLUE values for each RGB-color – all values must be in the interval of 0..255 - separated by commas and no spaces. Change the colors by using a 'RGB color picker' online, and type the RGB-values You prefer – i.e.: https://www.w3schools.com/colors/colors_picker.asp.

NB! Remember to close the SCOGinstrument application prior to editing the .INI-file.

The changes will appear when restarting the application.

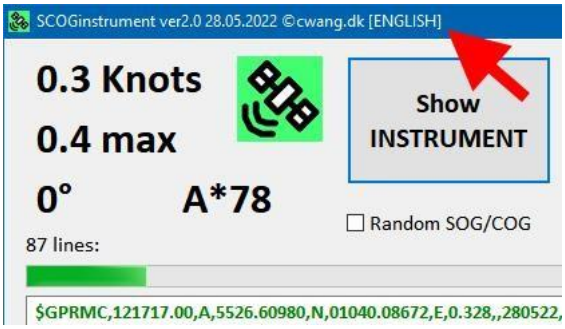
Language settings - editable with a text-editor

SCOGinstrument-languages.txt contains all language spefic screen texts.

```
SCOGinstrument Languages

[LOCALIZATION]
LANGUAGE=ENGLISH

[ENGLISH]
01=Show INSTRUMENT
02=Random SOG/COG
03=max
04=lines:
05=filtered lines:
06=Close GPS-port
07=Open GPS-port
```



You can write Your own language texts: Add a new paragraph beginning with **[MYLANGUAGE]** followed by all the two digit numbered (+ equation mark) lines in the new language.

TIP! You may start with translating the English texts to Your new language by using Google Translate.

Don't mess up the numbering of lines !! ☺

Finally change the selected language in the language file:

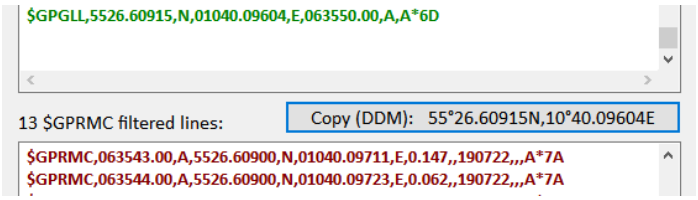
[LOCALIZATION]
LANGUAGE=**MYLANGUAGE**

The file can contain several languages.

Save the language file, and start SCOG-instrument.exe.

Tips

- Set Your laptop to “Never turn off the screen” in the Power-settings.
- During daytime, remember to adjust to maximum screen brightness.
- With NIGHT-colors selected, remember to adjust the screen brightness to use the proper dimmed setting according to the dark surroundings.
- With ShipBell enabled (or testing ship bell soundfiles), remember to turn on the laptop speaker.
- Preferable use a 12V/24V-power supply to ensure that the laptop never runs out of power on board.
- Search online for ‘best usb gps receiver windows’ or ‘‘best bluetooth gps receiver windows’. Even the cheapest will do the job, and usb-versions are the easiest to install.
- You might be able to use Your smartphones GPS via a share GPS app installed on the phone, and connected via Bluetooth or USB – but the setup process may be cumbersome.
- All numbers/characters are embedded as graphic-routines in the application. Except for special local direction characters – in this case the Windows font “Arial Rounded MT Bold” will be used, but only for the direction letter(s).
- About ship bell, see: https://classicsailor.com/2019/03/the-ships-bell-2/



- On the Settings screen, You can copy the position coordinates in DDM format (Degrees Decimal Minutes) – and i.e. paste it into Google Maps or other map/navigational apps.

Error reporting, suggestions and feedback to:

Christian Wang, cwang.dk, cwangdk@gmail.com, Kerteminde, Denmark

I am a genuine “hobby amateur programmer” and this software is therefore free only for non-commercial private/personal use. It comes with no kind of guarantees/warranties whatsoever, and I accept no responsibility for any malfunctions in the software - nor any adverse effects when using the software.

Still: All kinds of feedback are **most** welcome !!

Use it purely as a supplement to good sailing and navigation practice.

DOWNLOAD: https://cwang.dk/cwdk-scoginstrumentwin.html#sidetop

☺ *BRGDS and Safe Sailing !*

/cwang