

**EXPANSION CARD OPZ2/B – OPZ2/C**  
**for**  
**Navicontrol Gold Serie Autopilots**

Installation Guide



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# HARDWARE / SOFTWARE INSTALLATION

This interface allows you to expand the features of your Navicontrol autopilot. It can be installed on every 'gold serie' autopilot by the following instructions:.

- Switch off the main supply.
- Open the Processor Box.
- Insert the card and fix it by the three supplied screws.
- Connect all the expansions as explained hereinafter.
- Close the Processor box.
- Switch on the main supply.
- Enter the install menu and enable them.
- Exit the install menu.

## **WARNING:**

**On the first installation, all the new functions are disabled. You must enable ONLY the ones really connected and disable the others!**

### **For the AP3003gold, AP303gold and AP203gold autopilots**

To enter the SOFTWARE install menu of this card, you have to hold pressed **STBY** and **SET** for 3 seconds at least, release the keys and press **AUTO** to enter the expansion card menu.

Now, you can select the functions by pressing **SET** and change the values using **◀** or **▶**.

To exit the install menu, press **STBY**.

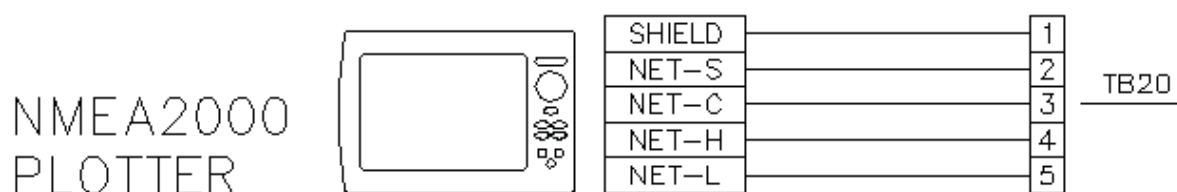
### **For the AP103gold autopilot**

To enter the SOFTWARE install menu of this card, you have to hold pressed **☀** for 5 seconds at least, release the keys and press **AUTO** to enter the expansion card menu.

Now, you can select the functions by pressing **☀** and change the values using **◀** or **▶**.

To exit the install menu, press **STBY**.

### TB20 NMEA2000



This connector interfaces the autopilot to the other instrumentations that use this standard. This is a passive device and it needs an external power supply (supplied by the NMEA2000 bus).

The install function is named **NMEA2000** and the valid values are:

- **OFF** (not present)
- **ON** (enabled)

### TB21 FOLLOW-UP 1

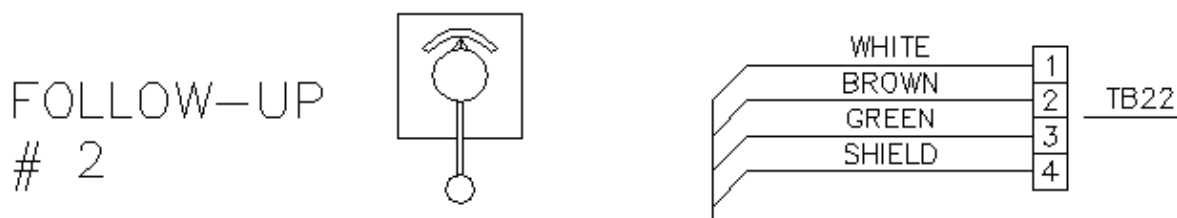


This connector interfaces the autopilot to the first Navicontrol FOLLOW-UP.

The install function is named **FOLLOWUP 1** and the valid values are:

- **OFF** (not present)
- **FU A** (follow-up 'A' type, with zero hysteresis)
- **FU B** (follow-up 'B' type, without zero hysteresis)

### TB22 FOLLOW-UP 2

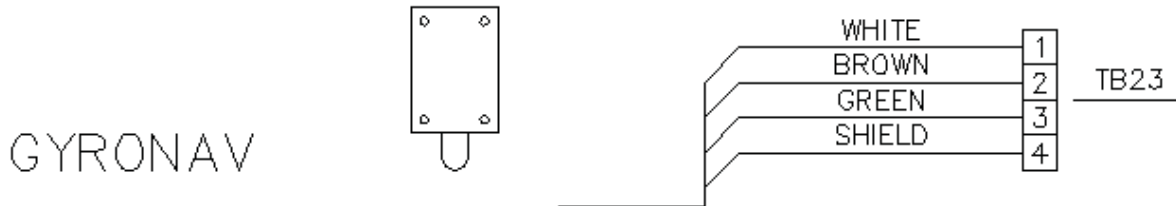


This connector interfaces the autopilot to the second Navicontrol FOLLOW-UP.

The install function is named **FOLLOWUP 2** and the valid values are:

- **OFF** (not present)
- **FU A** (follow-up 'A' type, with zero hysteresis)
- **FU B** (follow-up 'B' type, without zero hysteresis)

### TB23 GYRONAV

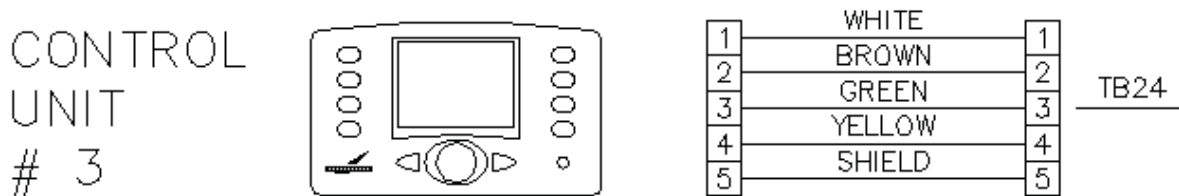


This connector interfaces the autopilot to the Navicontrol GYRONAV.

The install function is named **GYRONAV** and the valid values are:

- **OFF** (not present)
- **ON** (enabled)

### TB24 CONTROL UNIT 3



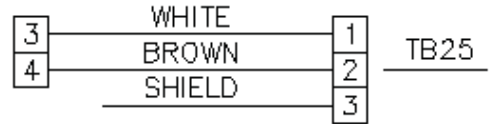
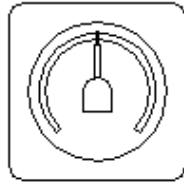
This connector interfaces the autopilot to the third Navicontrol CONTROL UNIT.

This function is always **ENABLED**: it means that when you connect the device, it starts working immediately.

**TB25 RUDDER INDICATOR 3**

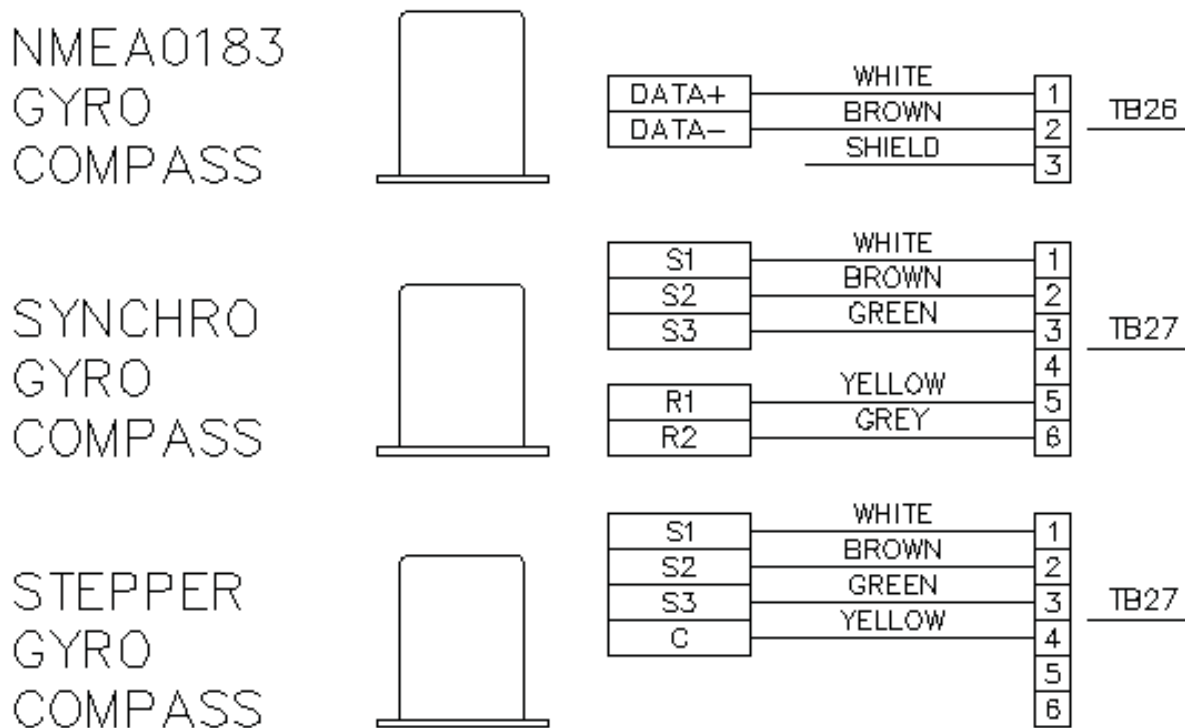
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RUDDER  
INDICATOR  
# 3



This connector interfaces the autopilot to the third Navicontrol ANALOG RUDDER INDICATOR.

This function is always ENABLED: it means that when you connect the device, it starts working immediately.

**TB26 NMEA0183  
TB27 GYRO COMPASS**


These connectors interface the autopilot to the external gyrocompass. They accept two kind of signals: digital type NMEA0183 (TB26) or synchro/stepper type (TB27).

The install function is named **GYROCOMP** and the valid values are:

- **OFF** (not present)
- **NMEA** (NMEA0183 type), **HDT sentences at 10Hz minimum.**
- **360** (360:1, synchro type, valid for **OPZ2/C** only)
- **180** (180:1, synchro type, valid for **OPZ2/C** only)
- **90** (90:1, synchro type, valid for **OPZ2/C** only)
- **6 ST** (6 step/°, stepper type, valid for **OPZ2/B** only)

When installing a digital type gyrocompass (NMEA0183, HDT sentences at 10Hz min.), you have only to connect it to the **TB26** connector.

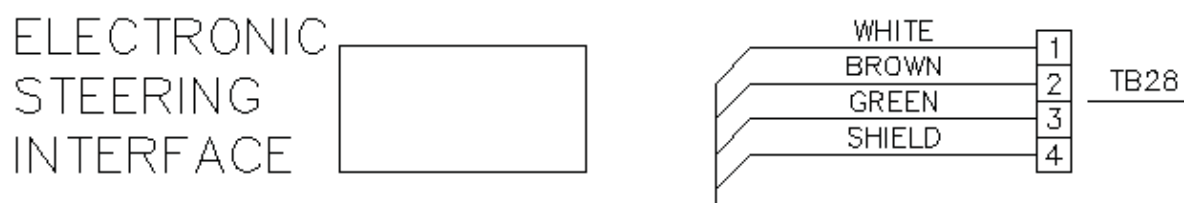
When installing a synchro/stepper type, you have to connect it to the **TB27** connector and, if not already supplied with a specific voltage configuration, you have to solder the following resistors:

**SYNCHRO GYROCOMPASS (OPZ2/C only)**

Output voltage	R33	R36	R39	R43
	(S1-S2-S3)			(R1-R2)
Less than 24Vac	3K3 3W	3K3 3W	3K3 3W	3K3 3W
From 24Vac to 50Vac	4K7 3W	4K7 3W	4K7 3W	4K7 3W
From 50Vac to 100Vac	10K 3W	10K 3W	10K 3W	10K 3W

**STEPPER GYROCOMPASS (OPZ2/B only)**

Output voltage	R33	R36	R39	R43
All voltages (from 12 to 100Vdc)	10K 3W	10K 3W	10K 3W	None

**TB28 ELECTRONIC STEERING**

This connector interfaces the autopilot to the Navicontrol ELECTRONIC STEERING INTERFACE used by the electronic steering systems.

The install function is named **ACTUATOR** and the valid values are:

- **OFF** (not present)
- **EA n** (electronic actuator type A, 40 degrees full scale, normal output)
- **EA r** (electronic actuator type A, 40 degrees full scale, reverse output)
- **EB n** (electronic actuator type B, 25 degrees full scale, normal output)
- **EB r** (electronic actuator type B, 25 degrees full scale, reverse output)

## USING THE NEW FUNCTIONS

### GYROCOMPASS

**For the AP3003gold and AP303gold autopilots.**

When the hardware/software installation is accomplished, you may decide to use the external gyrocompass or the standard magnetic compass signal by pressing the **SET** key for 5 seconds at least, then change the current setting by pressing **◀** or **▶**.

On the top of the display, you will see:

- **MAGN COMP** for the standard magnetic compass (FGX60 or FGX90)
- **GYRO COMP** for the external gyrocompass

We **STRONGLY** recommend to change this setting **ONLY** in STANDBY mode.

This setting is stored and remains until you change it again.

If your gyrocompass has a synchro/stepper output, you have to align the reading of the autopilot with the reading of the gyrocompass every time you start-up the system. You can do that when you are in select-mode (**GYRO COMP**), by turning the knob.

**For the AP203gold and AP103gold autopilots.**

You cannot use an external gyrocompass and all the setting menus are disabled with these autopilots.

### FOLLOW-UP

**For the AP3003gold autopilot.**

When the hardware/software installation is accomplished, you can use it by entering the **FOLLOW UP** mode and pressing the **FW-UP** key. You can use, at the same time, the Control Unit knob or the external follow-up/s simply turning them: the ones you turn, is the active device.

Remember: when you have finished to use the follow-up/s, press **STBY** to exit the **FOLLOW UP** mode and release the control on the rudder.

**For the AP303gold, AP203gold and AP103gold autopilots.**

When the hardware/software installation is accomplished, you can use it by entering the **FOLLOW UP** mode and turning the external follow-up/s while you are in STANDBY mode. The external follow-up/s is not active in the others mode (AUTO, NAV, etc.).

Remember: when you have finished to use the follow-up/s, press **STBY** to exit the **FOLLOW UP** mode and release the control on the rudder.

### **GYRONAV**

When the hardware/software installation is accomplished, this rate sensor is always active improving the response of the magnetic compass (FGX60 or FGX90).

### **NMEA2000**

At this stage, this application has to be defined.

### **ELECTRONIC STEERING**

When the hardware/software installation is accomplished, this output is always active and it does not determine a relevant change in using the autopilot.

Remember that the indication of the rudder position (on the Control Unit and on the analog rudder indicator), is simulated: the true position is the one visualized by the Electronic Steering System.