

Gobius 4i, for fluid tanks, industrial version

Installation Guide



Before you begin

1. Please make sure that no parts are missing. (3 sensors, 1 panel, 1 control unit (091427), 1 3M cleaning towel, 3 cables, warranty statement and installation instructions on how to attach the sensors, connect a analogue gauge, 4-20 mA and a relay driven pump.)
2. Determine the best places on your tank to place the sensors and where to place the panel.
3. Determine the best way to safely access electricity from your battery 12/24 Volts or AC 220 Volts.

Quick installation

- Attach the sensors to the tank
- Connect all parts
- Start Gobius
- Calibrate when the tank is full or empty
- Change the default settings
- Control the new settings
- Test and run Gobius

Installing the panel and connecting the system

1. Decide where to place the Gobius panel. You may increase the length of the panel cable up to 20 meters by shopping a standard PC network TP cable.
2. We suggest that you make a small rectangular hole where you want to place the cable from the panel to the control unit. The hole should be at least 4 x 22 mm. Please see the enclosed hole template at page 5.
3. Use the pre-attached adhesive to fasten the panel to the wall.
4. Connect the panel and the sensors to the control unit. Then connect the cables to the battery. Make sure to connect + and - correctly to the battery (+ is white and - is black), as shown on the control unit. Please see the illustration at page 5.
5. If you want to connect Gobius to an external display (VDO) or to a relay to be able to control a pump, you should use the analogue output on the control unit together with the enclosed cable. You will find a more detailed description of this on a separate page.



We recommend that you put a layer of Vaseline, which prevents oxidation, on the plugs that are connected to the control unit. The electronics of the product are protected from damp. The sensors and the control unit do not resist water. Please contact FM Marin for advise on how to make Gobius waterproof. Furthermore we recommend you to connect your Gobius via a 500 mA fuse.

Attaching the sensors to the tank

Start by reading through the **green** document before attaching the sensors to the tank on levels $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ or on other levels if you so prefer.

Keep in mind that the sensors are sensitive to physical shock and therefore must be handled carefully.

Control of sensors and panel before calibrating the tank (and possible change of predefined settings)

Connect the control unit to the current. When Gobius is starting all lamps are lit, one after another, once.

(If Gobius doesn't start press the  at the panel). After this a control of the sensors is carried out and each lamp will flash simultaneously with the red lamp.

Finally the yellow, green and blue lamp will show a steady light. This means that Gobius has not yet been calibrated and that you may move on to the next step.

If there should be a problem with one of the sensors, either with the connection or with the sensor itself, this is illustrated by the responding lamp on the panel showing a steady light together with the red lamp. For further information, please see the "table of lights" at page 7.

You must act on this before proceeding with the installation.

If you suspect that the system does not function correctly, please contact our support service by email or by phone. The support service is free of charge.

Calibration – empty or full tank?


No tanks are the same; there are always differences in e.g. size, thickness, construction and age. In order to compensate for these differences you have to calibrate the system before you start to use your Gobius.

The tank may be empty or full during calibration. Gobius is preset for calibration of a full tank, i.e. when the level of liquid is above the uppermost sensor. See page 3, change of settings, how to switch to calibration of empty tank.


Calibration during installation

1. Choose calibration of full or empty tank
2. Start with a full tank or empty the tank and change settings to calibration of empty tank



3. Start Gobius and wait for the blue, green and yellow lights
4. Press and hold the  button until all lights are on
5. Release the button as soon as the lights are on
6. The calibration starts automatically and takes around 30 seconds
7. When the blue light is on the calibration is done


Calibration at a later date


1. Choose calibration of full or empty tank
2. Start with a full tank or empty the tank and change settings to calibration of empty tank
3. When Gobius is on, press the  button
4. Wait until all lights are on
5. Once the lights are on, release the button
6. The calibration starts automatically and takes around 30 seconds
7. When the blue light is on the calibration is done


Change of predefined settings

Gobius is made to be optimized for your unique tank and your requirements. There are differences in tank material, calibration of full or empty tank, appropriate interval between measurements and a pump alternative of your choice. You will find the predefined settings of Gobius on page 7 of this documentation. If these are not in accordance with your requirements you will need to change them. You will find the available options in the table on page 7.

Change of settings

You change the settings by pressing the  button on the panel. Gobius automatically flicks through the alternatives as presented in the table on page 7. Release the button when your choice is shown. Thereby you have made a new setting. Repeat this until you have made the changes you want.

1. Leave Gobius on
2. With a pen, make notes in the table of the changes you need to do.
3. Press the  button until the chosen rows' colours are shown in the panel
4. Release the button to make your choice a setting
5. Repeat this until you have made the changes you want


By keeping the  button pressed until all alternatives are passed, you may flick through all alternatives without making any change of settings.




A wrongly chosen setting is corrected by repeating the procedure and thus correcting the setting.

N.B!!! If you change to tank material steel/aluminum, you will need to redo the calibration. Else, this is not required.


Settings control

Your settings are shown each time you turn off Gobius using the  button. This will not happen when you turn off Gobius from an external source.

2 different ways of turning Gobius on and off Gobius

You start Gobius by a quick push on the panel's  button or by switching on the current from an external source. A function control on lamps and sensors is immediately performed. When the control is done the level is measured and the correct lamp is lit.

During the measuring you may hear a soft humming sound from each of the sensors. Thereafter a calculation is performed in the control unit and the result is immediately presented by the lighting of the lamp corresponding to the right level.

You turn off Gobius by a quick push on the  button or by switching off the current from an external source. When Gobius is off it will memorize all settings and the calibration. I.e. you will not need to redo the calibration due to the current being turned off for a lengthy period of time.

Gobius technology (patented)

Each sensor consists of two active parts; a shaker and an accelerator. When the shaker creates a vibration in the tank wall, the accelerator measures the size of the vibration and passes the data on to the control unit. The control unit then starts to calculate in order to give an exact estimate of whether the liquid level has passed the sensor or not.

The sensors are set to detect liquid levels through tank walls that are made of stainless steel, steel, aluminium or plastic. If the tank's wall thickness is changing over time (e.g. due to possible sedimentation/corrosion), you may need to redo the calibration according to the above instructions.

Gobius requires no extra maintenance

The construction of Gobius has many advantages. For instance, since the sensors never are in direct contact with liquid inside the tank, they will not become worn out. Another positive aspect of Gobius is its low electricity consumption, which is less than 40 mA (12 Volts).

Gobius does not require any extra maintenance. The only thing to remember is to calibrate the tank 1 - 2 times/year.



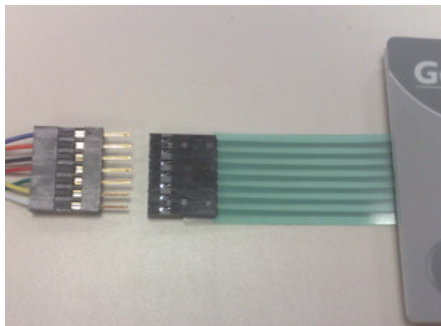
Thank you for choosing Gobius from FM Marin!

Please do not forget to register your Gobius products on www.fmmarin.se, Products, in order for the warranty to apply and to receive free technical support.

System illustration



Plug from control unit to the panel the tank



Attaching the sensors to

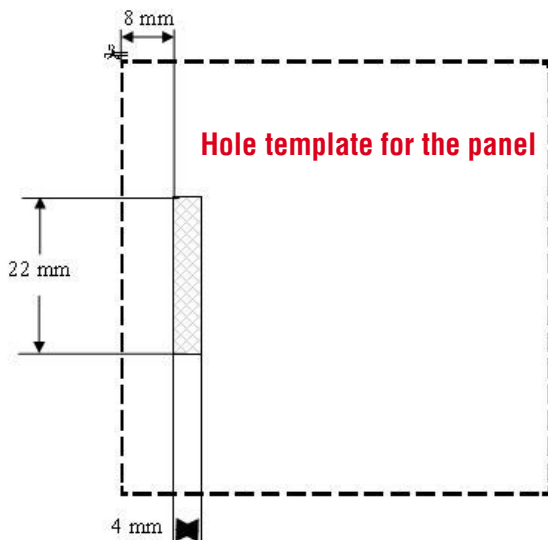
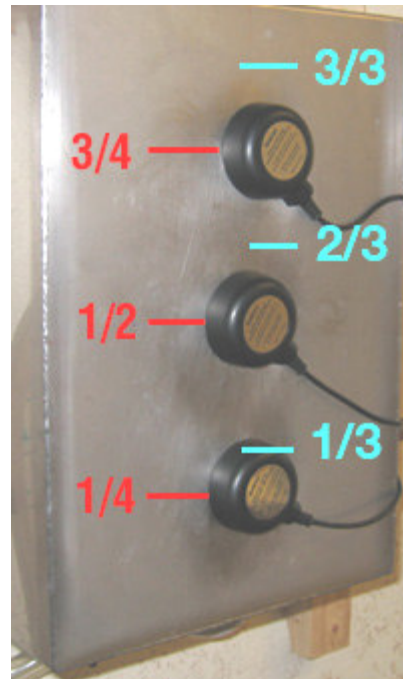




Table of lights – what the lamps on the panel show

Lamp Blue	Lamp Green	Lamp Yellow	Lamp Red	Explanation
○	○	☼	☼	When starting Test of the 1/4-sensor
○	☼	○	☼	Test of the 1/2-sensor
☼	○	○	☼	Test of the 3/4-sensor
○	○	●	●	Sensor errors Sensor test ready, 1/4-sensor not functioning
○	●	○	●	Sensor test ready, 1/2-sensor not functioning
●	○	○	●	Sensor test ready, 3/4-sensor not functioning
○	●	●	●	Sensor test ready, 1/4-sensor and 1/2-sensor not functioning
●	○	●	●	Sensor test ready, 1/4-sensor and 3/4-sensor not functioning
●	●	○	●	Sensor test ready, 1/2-sensor and 3/4-sensor not functioning
●	●	●	●	Sensor test ready, no sensors functioning
○	○	○	●	When measuring Tank is empty
○	○	●	○	Tank level 1/4
○	●	○	○	Tank level 1/2
●	○	○	○	Tank level 3/4
○	○	○	☼	Tank is empty, Gobius is measuring
○	○	☼	○	Tank level 1/4, Gobius is measuring
○	☼	○	○	Tank level 1/2, Gobius is measuring
☼	○	○	○	Tank level 3/4, Gobius is measuring
●	●	●	○	At delivery Gobius is not yet calibrated
☼	☼	☼	○	When calibrating Gobius is calibrating

● = light ○ = no light ☼ = flashing light



Indicators in Set-up Mode

Mark your choose	Lamp Blue	Lamp Green	Lamp Yellow	Lamp Red	Duration	Description
	●	●	●	●	5 s	Calibration
P	○	○	○	●	5 s	Calibration of full tank
	○	○	●	○	5 s	Calibration of empty tank
	○	●	○	○	5 s	Measurement period 1 minute
P	○	●	○	●	5 s	Measurement period 5 minutes
	○	●	●	○	5 s	Measurement period 10 minutes
	○	●	●	●	5 s	Measurement period 20 minutes
P	●	○	○	○	5 s	Tank in plastic, 5 – 10 mm
	●	○	○	●	5 s	Tank in plastic, 3 – 5 mm
	●	○	●	○	5 s	Tank in stainless steel 1,25–2 mm
	●	○	●	●	5 s	Tank in steel/aluminum 3-4 mm
P	●	●	○	○	5 s	Pump = No Pump
	●	●	○	●	5 s	Pump = When Full
	●	●	●	○	5 s	Pump = When Empty
	○	○	○	○	N/A	Will remain in this state until the button is released. The set-up mode will be exited without changing any parameters.

P = Predefined setting ● = light ○ = no light

Measurement period when pumping

Measurement Period	Measurement Period when pumping
1 minute	10 seconds
5 minutes	30 seconds
10 minutes	30 seconds
20 minutes	30 seconds