User manual

for

Aquarium and terrarium computer

valid for models: ProfiLux 3.1A, 3.1A eX, 3.1N, 3.1N eX

Contents

1 Preface

The availability of some functions depends on the model and the present accessories.

1.1 Characteristics

We thank you for your trust in our ProfiLux products!

You have herewith acquired an aquarium computer which convinces through performance, a simple operation and a convenient price.

Overview of the characteristics:

- 16 (A-models) or 32 (N-models) channel illumination control for dimmable and non-dimmable lamps, herewith up to 32 lamps can be programmed separately
- Sunrise and sunset
- Moon phase simulation, calendar-based
- Cloud simulation through random generator, thunderstorm simulation
- Rainy days, programmable
- Feeding pause for pumps
- Control of speed-variable current pumps (ebb/tide and wave simulation)
- Operation hour meter for lamps
- Burning-in mode for fluorescent tubes
- Battery-buffered real time clock
- PC-interfaces RS232, LAN and USB are built-in, WLAN optionally, operation with free Windows™-Software *ProfiLuxControl* possible
- Integrated web server (N-models only): display of values and states, change of important settings, e-mail-client, DHCP
- Connection option for external display
- Display of reminder texts (e.g. "Filter change!")
- Control of up to 48 (A-models) or 64 (N-models) switchable power sockets and dosing pumps
- 16 (A-models) or 32 (N-models) timers and dosing pumps programmable
- Child protection via PIN-code
- Simple and intuitive operation, all settings are made in form of interactive dialogues
- All settings are stored in a non-volatile storage (FRAM) even during power failures
- Computer is internally expandable with 2 additional modules, with our extension box Expansion Box there are practically no limits for extensions
- Connection option for radio-controlled clock receiver (DCF)
- Several aquarium computers can be networked
- Temperature sensor included in delivery
- Regulation of the pH-value
- Sequential temperature control for glow bar, ground heating and cooling, programmable nightly decrease, speed-regulated fans controllable
- Alarm function, output of the alarm optical, acoustic or via switchable powerbar

- Operation hour meter for all sensors
- Therapy program for ill fishes
- Redox and conductivity values can be measured respectively regulated (only eX-models or with the corresponding extension card)
- Connection option for level sensors
- Automatic calibration of all sensors
- Recording of measurement data
- Maintenance mode (e.g. to clean the aquarium)
- Flexible expansions at the ProfiLux Aquatic Bus (e.g. Expansion Box)
- Messages via e-mail or SMS

Additional characteristics (with corresponding expansion card):

- Measurement and control of oxygen, humidity and air-temperature
- Use of external signals (e.g. key buttons) for controlling the ProfiLux
- Illumination control via DALI

In order to be able to use our products optimally, you should take your time to read through this manual. Please pay also attention to the operating and warranty instructions.

1.2 Included in delivery

The following articles belong to the shipment:

- Controller
- Power supply unit
- Temperature sensor
- USB- connection cable
- This manual and the Programmer's Guide

Powerbars, light bars as well as all sensors except the temperature sensor are not part of the shipment of the aquarium computer and have to be ordered separately.

1.3 Important operating instructions

ProfiLux and its accessories (e.g. powerbars, expansion cars, expansion box, ProfiLux Touch, dosingpumps) will be destroyed through wetness or too high humidity – it is essential to pay attention to the technical data further below!

To guarantee a safe and riskless operation, the following instructions have to be absolutely followed! If they are ignored, the warranty claims expire and the manufacturer rejects any responsibility or liability for damages!

Power-supplied devices and water can become a dangerous combination. Therefore it is absolutely necessary to supply all power-supplied devices which are operated in the aquarium or next to it with supply voltage via a fault current protection switch!

The powerbar is operated with supply voltage and is not waterproof. This means that the powerbar has to be protected from humidity (also sprinkling water)! Please keep this in mind when you choose the place of installation.

- The light bar is waterproof, if you pay attention to the following:
- Close the tube screwing always thoroughly, consider the position of the sealing
- Never open the cable connections
- Never pull at the cables
- Don't expose the lamp sockets to mechanical pressure

To eliminate any danger, you always have to disconnect all power-supplied devices from power (pull all plugs out) when you work on your tank. You can never exclude that a glow bar, a pump or a lamp can be defective or will be

damaged during working on the aquarium. This can lead to perilous electric shocks! The aquarium controller can remain switched on, it works with safe voltages.

Despite all accuracy in the development and the manufacturing of our products you can never exclude a defect with absolutely certainty. Also external influences like a lightning stroke, cable break, mechanical damage etc. can lead to malfunctions! Therefore you should never leave an aquarium, particularly with electronics, unsupervised for a too long time. We herewith exclude any liability for consequential damages (e.g. dying of fishes) due to malfunctions, as far as this is legally permitted!

Our light bars may never be opened!

You may only connect the provided cables to the corresponding connections. If you connect other components, the warranty expires!

Use only the original power supply unit!

We recommend strongly the use of a controlled glow bar. This should be set in a way that it switches off at a temperature that is ca. 1.5 °C above the required temperature. With this, a safety (a malfunction of the switchable socket does not lead to an excessive heating) and at the same time the controllability of temperature is guaranteed. For possible damages which result from the use of an uncontrolled glow bar and a malfunction of our products, we do not take over any liability!

Before a tube can be dimmed correctly, it has to be “burnt-in”! Burning in means that the tube may be operated for ca. 100 h only at full power (i.e. without dimming). The exact requirements for the burn- in can give you the tube manufacturer. If a tube is dimmed without being burnt-in before, it can result in a flickering or in a shorter lifetime. The burn-in can be done automatically.

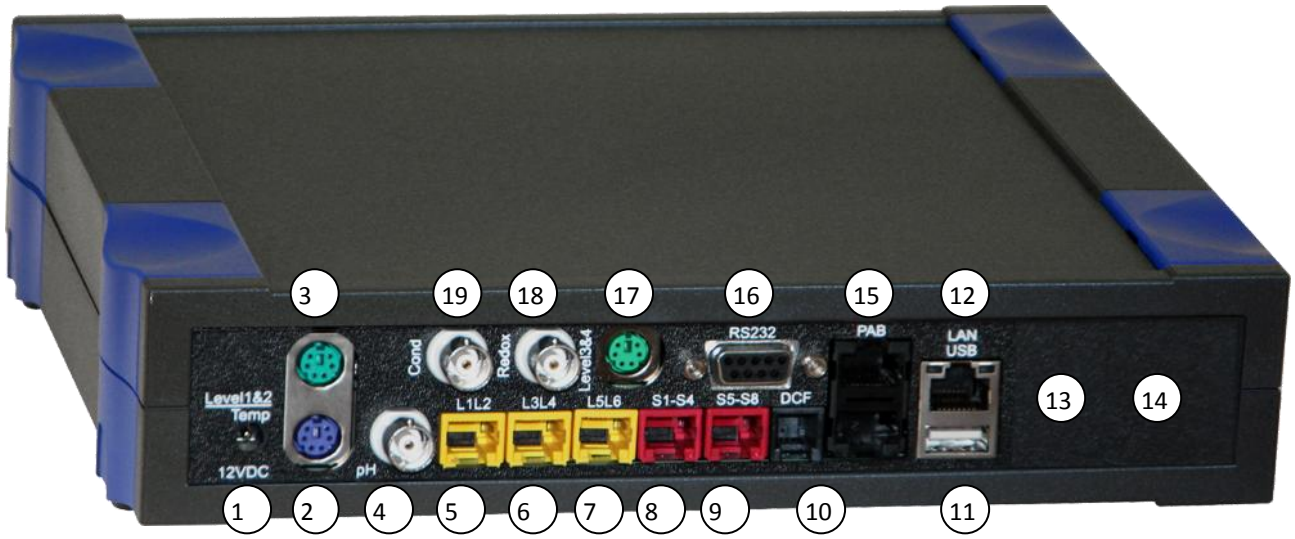
1.4 Connections

The device disposes of several labeled connections on the rear side. On the picture below you can see the rear side of a ProfiLux 3.1N eX. The other models are different in regards to the present ports, the differences are explained below. Please note for all connections:

Connect only original accessory for ProfiLux aquarium computers of GHL!

The connections have to be handled with care – do not use force to plug in!

Important: A false connection (e.g. plugging in a light bar plug into a powerbar socket) can lead to a destruction of the ProfiLux! A possible repair is no warranty case and therefore it is with costs! So please establish the connections always with greatest care.



	Name	Function	3.1A	3.1A eX	3.1N	3.1N eX
(1)	12VDC	Power supply input	√	√	√	√
(2)	Temp	Input for temperature sensor	√	√	√	√
(3)	Level1&2	Inputs for level sensors 1 and 2	√	√	√	√
(4)	pH	Input for pH-Sensor	√	√	√	√
(5), (6), (7)	L1L2, L3L4, L5L6	1-10 V-interface outputs	√	√	√	√
(8), (9)	S1-S4, S5-S8	Outputs for switchable powerbars and dosing pumps	√	√	√	√
(10)	DCF	Input for DCF77-Empfänger	√	√	√	√
(11)	USB	USB connection	√	√	√	√
(12)	LAN	Network connection			√	√
(13), (14)		2 Slots for expansion cards	√	√	√	√
(15)	PAB	2 connections for devices with ProfiLux Aquatic Bus	√	√	√	√
(16)	RS232	RS232-connection	√	√	√	√
(17)	Level3&4	Inputs for level sensors 3 and 4		√		√
(18)	Redox	Input for redox Sensor		√		√
(19)	Cond	Input for conductivity sensor		√		√

The ports are mentioned below. Please read also the *ProfiLux Programmer's Guide*, the referring settings are explained there.

1.4.1 12VDC

Here the DC plug of the shipped power supply is plugged in. Use only the delivered power supply unit!

1.4.2 Level

In this Mini-DIN-socket the plug of the level sensor is plugged. If you would like to connect two sensors at the same time, it can be realized by a splitter *PL-LY*.

1.4.3 Temp

In this socket the plug of the temperature sensor is plugged.

1.4.4 pH

Here you have to connect the pH-sensor.

1.4.5 L1L2, L3L4 and L5L6

Each of these ports offers two independent 1-10V-interfaces with referring relay-control-output, you can connect here:

- dimmable lamps and power sockets
- controllable current pumps
- controllable heaters or coolers (e.g. fans)

1.4.6 S1-S4, S5-S8

These Western sockets serve to connect powerbars or dosing units from GHL. The function of each socket can be freely programmed.

Due to safety reasons all sockets are deactivated as a default setting!
If you want to connect a digital powerbar you have to make the corresponding settings in ProfiLux.

1.4.7 DCF77

Here you can connect a DCF77 radio controlled clock receiver of GHL. This has to be activated additionally, so that the ProfiLux computer decodes and uses the clock time of the receiver.

The DCF receiver receives radio signals of a DCF77 sender near Frankfurt. As it is the case for every other device that works with radio, interferences through electrical devices, a bad reception or the like can avoid the reception. Mostly it helps to place the receiver in a better position.

1.4.8 RS232

At this 9-pin SUB-D-socket you can connect:

- a PC with RS232-interface
- external display unit *ProfiLux View*
- SMS-Module
- EHEIM-Controller

For the connection of a PC over RS232 the included connection cable ProfiLux-Ser has to be used. The use of another cable can lead to malfunctions or even destructions. The RS232-connection of ProfiLux does not correspond to the PC norm, since additional signals for diagnostics and the external display unit ProfiLux View are transmitted!

1.4.9 PAB

At these sockets you can connect devices with ProfiLux Aquatic Bus.

1.4.10 Cond

At this BNC-connector the conductivity sensor has to be connected. According to the use (salt or fresh water) you have to set the measurement range accordingly in the ProfiLux.

1.4.11 Redox

At this BNC-connector the Redox-sensor is connected.

2 Installation

2.1 Positioning the aquarium computer

Position the device at a water-protected place.

In principle each mounting position is allowed, but you should pay attention to a good operability and that the display can be read without problems. Consider also the maximum cable lengths of used accessories when you select the position.

2.2 Installation of the sensors

The sensors should be positioned in a place in the aquarium so that water always flows around them.

Please pay attention that the sensors are fastened preferably vertically to the water surface (since otherwise they do not work properly!). To reduce the risk of algae, this should be a preferably dark place. For example an open external filter is a good place. The cable connection of these sensors may in no way reach into the water.

Hint:
The signal level many sensors is very weak. The more interference of electronic devices can have an effect on the sensor or the cable. Interferences can lead to false measuring values. Therefore you always have to pay attention that there is a sufficient distance between the sensor with the cable and sources of interference (e.g. ballasts, power cables, pumps, entertainment electronics, etc.)!

2.3 Connection of powerbars

At the connections S1S4 and S5S8 you can connect two conventional powerbars (with four sockets each). If you use a corresponding extension card, additionally two further conventional powerbars are controllable.

Furthermore you can connect also digital powerbars (with 6 sockets each) or also dosing pump from GHL.

Hints:

- If a digital Powerbar shall be operated at ProfiLux, you have to set this necessarily before in ProfiLux.
- The ProfiLux computer can administrate up to 64 switchable outputs (sockets) which are numbered from 1 to 64.
- All sockets are freely programmable in their function.
- If you have connected a powerbar, you should mark its sockets with a waterproof pen or a sticker with the corresponding numbers and their functions.
- The aquarium computer is connected with the powerbar via a Western cable provided together with the powerbar.

Numbering of the sockets:

The powerbars have to be mounted so that they are protected from water. They may not get in touch at any rate with water. The best place is therefore above the water line as far as it is guaranteed that it cannot fall into the tank!

The powerbar can be screwed with the help of both two black lugs to a wall or to a cupboard.

Attention:

At this ProfiLux 3.1 you must not connect older powerbars of ProfiLux or ProfiLux Plus (the predecessor models up to 2005)! This would lead to a destruction of the electronics!

2.4 Connection of lamps

The control cables of dimmable lamps (light bars, hanging lamps, moonlight etc.) are plugged into the Western sockets *L1L2*, *L3L4* or *L5L6.* The power cable of these lamps is plugged into a socket that is **permanently** supplied with voltage! An external shut-off is not necessary (this is already integrated in dimmable light bars resp. hanging lamps of GHL). If you do not use a lamp of GHL, you can achieve the shut-off by programming a switchable socket accordingly or via our accessory product *EVG-AP*.

The sockets *L1L2*, *L3L4* and *L5L6* dispose of two 1-10 V interfaces each and the belonging shut-off signals. The function of these interfaces can be set. As default setting, the 1-10 V interface *L1* is assigned to the illumination channel 1*, L2* to illumination channel 2, *L3* to illumination channel 3*, L4* to illumination channel 4. If the 1-10 V interfaces are used as a dimming control, a change of the assignment is in most of the cases not necessary.

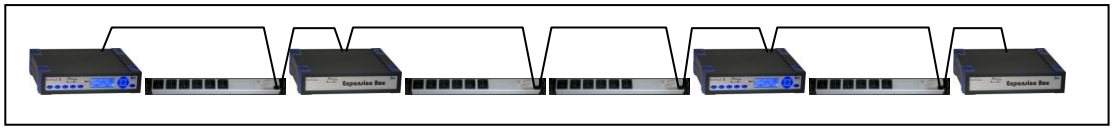
2.5 Connection of current pumps

The control cables of controllable current pumps are connected to *L1L2, L3L4* or *L5L6*. Therefore, you have to set the function of the corresponding 1-10 V interface accordingly.

Hint: For the connection of Tunze®-current pumps we offer a suitable adapter cable.

2.6 Connection of PAB-participants

Devices with ProfiLux Aquatic Bus – in short PAB – are connected to the PAB-ports. Several PAB devices are daisy-chained in sequence. This means that the first PAB participant is connected with a PAB cable to one of the PAB connections at ProfiLux 3. The next participant is connected at the free PAB connection of the precedent PAB participant. To this bus also several ProfiLux computers can be connected. The last participants of the PAB therefore have always a free PAB connection. Trough this, the PAB represents a line connection via the single participants from one end to the other. A ring or star-shaped topology of the PAB bus is not permitted.



2.7 Connection of the power supply

Plug the DC-plug of the power supply into the socket labeled 12VDC.

Never use another power supply, since a false polarity or voltage can destroy the device! The power supply unit has a nominal voltage of 12 V. The positive pole is in the middle of the plug.

2.8 Connection to the PC

ProfiLux can be connected RS232, USB or Ethernet with a PC. With our PC operating program all settings can be made comfortably. Of course all settings can be made completely without a PC via the ProfiLux keypad.

2.9 Safety instructions

At all cables that go away from the aquarium, water can pour down. Therefore place the cables in a way that no water can reach electric or electronic parts!

Before you plug any device into a wall outlet, you have to make absolutely sure that the device is not damaged (e.g. transport damage).

Please pay especially attention that

- The housings and feeding cables are not damaged and that no hot parts can be reached
- The lamp sockets are plugged firmly and waterproof into the light bar
- The cable connections are tightly fixed

In case of malfunctions disconnect immediately the devices from power supply!

3 Operation

3.1 Operating elements

The keypad and displays of ProfiLux 3.1:

(1)	Sun	Quick access key illumination settings
(2)	Clock	Quick access key time settings
(3)	°C	Quick access key temperature settings
(4)	pH	Quick access key pH-settings
(5)	f	Function key Extras
(6)	Alarm	Alarm-LED, lights in red in an alarm case
(7)		Display
(8), (9), (10), (11)	Arrow upwards, downwards, left, right	Navigation keys
(12)	RETURN, ↵	Confirmation key
(13)	Esc	Termination key

3.2 Display

In case of no alarm, the display shows in the upper line day of week, date and clock time. If a DCF receiver is connected and it receives a signal, then in the upper line additionally an antenna symbol between date and time is blinking.

In case of operation condition different symbols are displayed on the right side of the display:

A alarm is pending

Maintenance active

Feeding pause active

Moon phase

Reminder

Manual control for illumination or powerbars active

Message or Email received

In the lower lines current values are displayed, e.g. dimming position of an illumination channel or moon phase, state of the level sensors or temperature.

You can set which values are displayed.

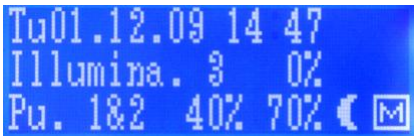
In the basic setting **not** all values described below are displayed, if necessary the display settings have to be adapted accordingly.

3.2.1 Display illumination channel

Display content of the current dimming position in per cent of an illumination channel. Example:

3.2.2 Display current

Display content of the current performance of both current pumps in per cent. Example:



3.2.3 Display moon phase

Display content of the current moon phase in per cent (0% = new moon, 100% = full moon). Example:

3.2.4 Display level sensors

Display content of the current states of both level sensors. An activated (or not existing) sensor is displayed with an "X", an inactive sensor with "-". Example:

3.2.5 Display sensor values

Examples:

Display of the minus symbol – the regulation has activated the belonging switchable socket (if existing) to decrease the pH-value.

Display of the plus symbol – the regulation has activated the belonging switchable socket (if existing) to increase the pH-value.

Display of the cooling symbol (*) – the regulation has activated the belonging switchable socket (if existing) to decrease the temperature.

Display of the symbols bottom heater and glow bar– the regulation has activated the belonging switchable sockets (if existing) to increase the temperature.

3.3 General

If you have connected the optionally available DCF module (radio-controlled clock receiver), you have activated *Use DCF* and the DCF signal can be received, the clock time and the date is set automatically after switching on the power supply.

Otherwise it makes sense to set first the time and date before you make further settings.

All settings which you make are stored permanently and remain also after a blackout. The clock is battery-buffered and runs for several weeks in case of a blackout.

The operation of the device is very easy. With the keys ***Arrow upwards*** and ***Arrow downwards*** you can navigate in the menus and make your selection. If you are in a menu, a symbol in the upper edge on the right will show you if with ***Arrow upwards*** and/or ***Arrow downwards*** further menu items can be reached. The keys ***pH*** , ***°C***, ***Sun*** and ***Clock*** lead you directly into the corresponding setting menus. With the *f*-key you get directly to *Extras*. With the ***RETURN***-key you confirm a selection or setting, with the ***Esc***-key the current process is cancelled.

After each setting process you are asked if you would like to store the changed settings. Only after confirmation with *Yes* the new settings are taken over and are stored. These settings are also stored in the non-volatile storage (FRAM, is independent from power supply) and are loaded from there again after a power outage.

When you operate the device you will face the following types of dialogues:

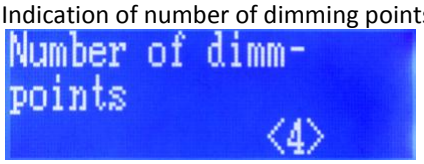
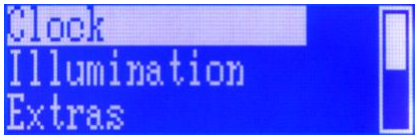
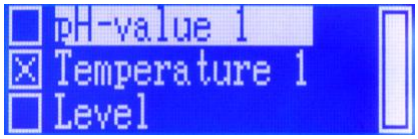
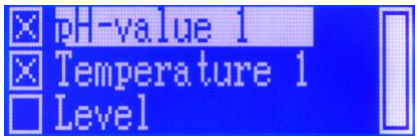
Dialogue type	Example	Operation
Selection Yes / No	Before storing a setting 	With ***Arrow left*** you select *Yes*, with ***Arrow right*** you select *No*. The angle brackets mark the selection. The selection is confirmed with ***RETURN***.
Entering a number (0-9)	Indication of number of dimming points 	With ***Arrow upwards*** the figure is increased, with ***Arrow downwards*** it is decreased. The set figure is confirmed with ***RETURN***.
Entering a value, a date or a time	Setting of a nominal value 	With ***Arrow left*** and ***Arrow right*** you select die position of the number you would like to change. With ***Arrow upwards*** the digit is increased, with ***Arrow downwards*** decreased. The set number is confirmed with ***RETURN***.
Entering a text	Reminder text	With ***Arrow left*** and ***Arrow right*** you select the position in the text which you would like to change. With ***Arrow upwards*** and ***Arrow downwards*** the

		figure is changed. The set text is confirmed with ***RETURN***.
Simple selection – selection of an option	Selection of a menu item 	With ***Arrow upwards*** and ***Arrow downwards*** you select an entry, with ***RETURN*** you confirm this selection.
Multiple selection - Several options can be selected at the same time	Selection of measurement values to be stored  Not selected  Selected	With ***Arrow upwards*** and ***Arrow downwards*** you choose an entry, with ***Arrow right*** you select the entry (then the box is displayed with a dot in the middle), with ***Arrow left*** the selection of the entry is removed (then a blank box is shown). With ***RETURN*** this selection is confirmed.

3.4 Standard display

During the normal operation the following information is shown on the display:

Upper line: Date with day of week and clock time as well as DCF symbol, if there is reception (only with additionally available module)

Lower lines according to the setting, e.g. light intensity of the single illumination channels or current water temperature and pH-value as well as the activity of the controllers

If the standard display can be seen, the device is in the main menu. Then besides the navigation keys and ***RETURN*** also the quick access – keys are active.

If you are in a submenu, after a certain time period without user activity ProfiLux returns automatically into the main menu.

3.4.1 Feeding pause

Furthermore the ***Esc***-key has the feeding pause - function during the standard display. If you press the ***Esc***-key during the standard display, the pumps (resp. the switchable sockets, whose function is set to *Filter*) are deactivated. After expiry of the set time the pumps are again automatically activated. During the feeding pause the FP-symbol is blinking and on the display *FP* as well as the remaining pause time is displayed.

The feeding pause can be stopped by pressing the ***Esc***-key again.

4 Expansion cards

4.1 General

ProfiLux is modularly expandable. To be able to use additional sensors, powerbars, dimmable lamps etc., the installation of up to 2 additional modules is possible.

To be able to use the modules, possibly a firmware update of the controller is necessary. Have a look here also at the instructions which are delivered together with the module.

If you do not like to do the installation by yourself, we can do this for you for a low charge (possibly together with a firmware-update).

At the moment the following cards are supported:

Module description	Function
PLM-2L4S	2 additional 1-10 V interfaces for the connection of further dimmable lamps or controllable current pumps as well as a connection for a further 4-socket powerbar. Important hint: To be able to use the new 1-10 V interfaces you have to set before the corresponding function (e.g. illumination channel)! The same is also valid for the new powerbar outputs.
PLM-4L	4 additional 1-10 V interfaces to connect further dimmable lamps or controllable current pumps. Important hint: To be able to use the new 1-10 V interfaces you have to set before the corresponding function (e.g. illumination channel)!
PLM-Redox	A galvanically isolated input for a Redox-sensor.
PLM-RS485	Serial RS485-interface to establish networks and/or for the transmission of data via longer distances. After installation of this card, another COM-port besides the onboard-RS232-interface (COM1) is available. **If necessary check the settings under *Remote control* and *Communication*.**
PLM-pH	A galvanically isolated input for a pH-sensor.
PLM-CondS and PLM-CondF	A galvanically isolated input for a conductivity sensor. PLM-CondS measures in the range of 0 – 100 mS (salt water), PLM-CondF measures in the range of 0 – 2000 µS (fresh water).
PLM-USB	USB-interface to connect to a PC. After installation of this card, another COM-Port next to the onboard-RS232-interface (COM1) is available. If necessary check the settings under *Remote control* and *Communication*.
PLM-CondS-Redox and PLM-CondF-Redox	A galvanically isolated input for a conductivity sensor and a galvanically isolated input for a Redox-sensor. PLM-CondS-Redox measures in the range of 0 – 100 mS (salt water), PLM-CondF-Redox measures in the range of 0 – 2000 µS (fresh water).
PLM-pH-Temp	A galvanically isolated input for a pH-sensor and an input for a temperature sensor.
PLM-Temp	A galvanically isolated input for a temperature sensor.
PLM-CondS-pH and PLM-CondF-pH	A galvanically isolated input for a conductivity sensor and a galvanically isolated input for a pH-sensor. PLM-CondS-pH measures in the range of 0 – 100 mS (saltwater), PLM-CondF-pH measures in the range of 0 – 2000 µS (fresh water).
PLM-LAN and PLM-WLAN	Interface for LAN resp. WLAN
PLM-Humidity-Temp	Measurement input for our combined humidity-/air temperature sensor.
PLM-Oxygen	A galvanically isolated input for an oxygen-sensor.
PLM-pH-Redox	A galvanically isolated input for a pH-sensor and galvanically isolated input for a Redox-sensor.
PLM-DALI	Galvanically isolated DALI interface.
PLM-ADIN	Two 1-10 V voltage inputs and four digital switching inputs
PLM-pH/Redox	A galvanically isolated input for a pH-sensor or a redox-sensor (adjustable).

If you have installed a measurement card: Do not forget the settings and calibration!

The installation of a module requires greatest care! You have to pay attention that

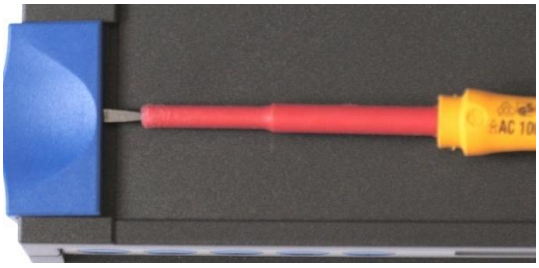
- First the controller is without electrical power (remove plug of power supply)
- The electronics is not damaged through electrostatic charging (ground resp. discharge yourself; earthed work environment)
- You treat the housing with special care.

4.2 Open the housing

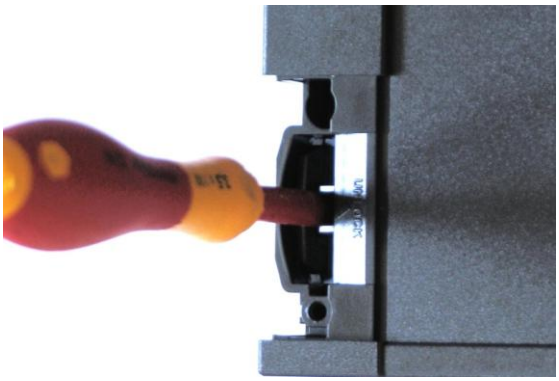
Before you can insert a module, it is necessary to open the housing.

Attention: All steps described below can be made easily and without any use of force!

First remove the 8 covering caps (4 at the top, 4 at the bottom). In each covering cap there is a little hole on the side. Put a little flat slotted screwdriver in this hole. The cap releases through this. Look at the following picture:



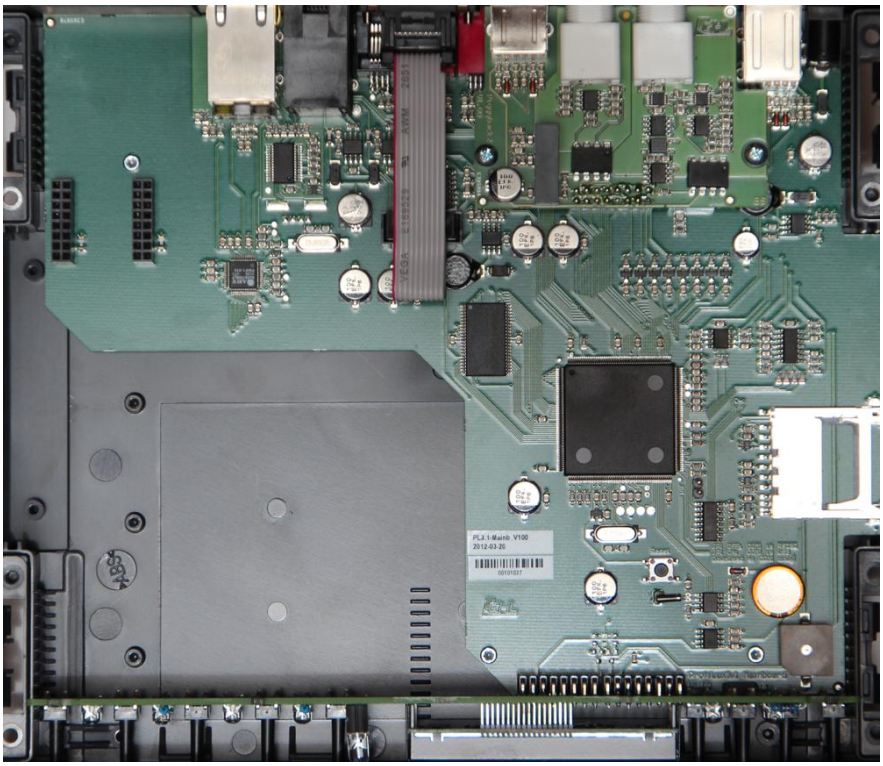
After all covering caps have been removed, the upper housing part can be removed. The housing is only stuck together, through releasing the 4 lugs, the housing can be opened. The easiest way to do this is to push a round item, ca. 5mm of diameter, from top into the housing locking. On the following picture a screwdriver is used for this.



Tip: It will work especially easily if all 4 housing lockings (or at least 2 on each side) are released at the same time.

Pay attention that the front panel remains in the bottom housing part while you remove the upper housing cover carefully and slowly!

The opened device looks as follows (view varies depending on the model):



In the top left-hand you can see the sockets in which the modules have to be inserted.

4.3 Insert the module

The new module can be inserted into any slot. When you insert it, pay attention that all contact pins of the module disappear in a socket of the slot. No contacts may "remain"! The insertion has to be possible easily and without having to use any force!

4.4 Close the housing

Now the housing can be closed again.

First attach the upper housing part again carefully in the right direction (look at interior of cover). Check here that front panel and rear plate move properly into the right slots, if necessary correct their position slightly. Also here is important: Do not use force! Afterwards attach again the 8 covering caps.

4.5 Startup

Now the power supply can be connected again. The ProfiLux computer recognizes automatically the new hardware and provides the new functions after a successful system check.

After switching the device on, it shows the message *Examine hardware...*. If a card has been found, ProfiLux displays this. The number of the slot in which the module has been found, the module description and possibly the firmware version of the module is displayed.

5 Warranty/ liability

The warranty laws of your country are valid.

We guarantee that the supplied products correspond to the specifications and that the products do not have material resp. manufacturing defects. For the accuracy of the programming manual we do not take over a guarantee.

For damages of any type which result from an improper operation, wrong connecting, or from a not suited surrounding of the controller or accessories warranty claims expire.

We assume no liability for direct damages, indirect damages, consequential damages and third party damages as far as it is legally permitted. We do not take over guarantee that our product package corresponds to the requirements of the buyer.

6 Further information

6.1 Help and information

You will get from your specialist retailer. If you dispose of an Internet access, you can get tips and helpful suggestions on our website www.aquariumcomputer.com.

Furthermore GHL offers a specialized support forum: forum.aquariumcomputer.com

6.2 Firmware update

The firmware of your controller is continuously further developed. If you would like to use new functions or modules which are not yet supported by your current firmware, you can update your aquarium computer.

For this, there are several options:

- You send your computer to your specialist retailer or to GHL and let it be newly programmed (at cost price).
- You do the update by yourself. Therefore you need the newest firmware and the PC program *ProfiLuxControl*, both can be downloaded free of charge from our website, as well as our USB cable or serial connection cable. On the website also the instruction for the firmware update can be found.

7 Technical data

The device and its accessories have to be used indoor only. Wetness or too high humidity leads to malfunctions or damages.

Power supply	Wide range power supply 100 – 240 VAC (50 – 60 Hz), < 0,6 A RMS
Input voltage and power consumption of ProfiLux	12 VDC , max. 1.2 A
Environmental conditions	Operating temperature: 0° C – 40 ° C Operating humidity: Max. 80% rel. humidity, non condensing
pH-measurement	BNC input for pH-sensors, accuracy 0.1 pH, measurement range 3.0 pH to 10.5 pH
Temperature measurement	Mini-DIN socket for delivered temperature sensor, accuracy 0.1 °C, measurement range 11.5 °C to 38 °C
Conductance measurement	BNC input for conductance sensor, in fresh water accuracy 1 µS, measurement range 0 µs to 2000 µS, in salt water accuracy 0.1 mS, 0 mS to 100 mS
Redox measurement	BNC input for Redox sensor, accuracy 1 mV, measurement range -1000 mV to 1000 mV
Oxygen measurement	BNC input for oxygen sensor, accuracy 0.1%, measurement range 0% to 150%
Humidity measurement	Modular jack to connect a combined sensor, accuracy 0.1%, measurement range 1% to 99%
Air temperature measurement	Modular jack to connect a combined sensor, accuracy 0.1 °C, measurement range 0 °C to 60 °C
Level inputs	1 or 2 ports for 2 or 4 level inputs
Control powerbars	2 ports with 4 channels each
Control dimmable lamps	3 ports with 2 channels each

Dimensions	H x B x T = 58 mm x 240 mm x 198 mm
PC interfaces	• RS232, with additional signals • USB • Ethernet 10/100 (N-models only)
Module slots	2

8 The PC program

8.1 Preconditions

You need a version of the PC program *ProfiLuxControl* which matches to the firmware version of your ProfiLux. The latest version can be downloaded from our website.

It runs on the operating systems Microsoft Windows 2000®, Windows XP®, Windows Vista® and Windows 7®.

The connection to ProfiLux can be established by the following PC interfaces:

- RS232 interface
  If no RS232-interface is available on your PC, you can also use an USB-RS232-converter. In any case you have to use the ProfiLux-Ser cable!
- USB

- LAN/WLAN

8.2 General

With the button *Load* the settings of ProfiLux are read out and the program displays are updated. With *Save* the settings that you have made in the program are transmitted to the ProfiLux.

8.3 What it can do, what it can't do

With the PC program you can make almost all settings comfortably by mouse and keyboard that have to be done otherwise directly with the ProfiLux keypad.

- There are the following exceptions:
- Therapy program
- Sensor calibration
- Reminder confirmation

Particular are the pages *Illumination overview, Light scenarios* and *Measurement data.* On the page *Illumination overview* you get a graphical display of the light intensity over the time of all active lamps in that moment. The page *Light scenarios* offer a comfortable possibility to test different combinations of lamp light intensities in order to find the optimal illumination settings for your tank. Under *Measurement data* you can program the measurement data recording and can export the data into a file, see also *8.6 Measurement data*.

Another useful function, the loading and storing of settings is explained further below.

8.4 Connection between ProfiLux and PC

You have to make two steps before your ProfiLux device can be operated with the PC:

- PC and ProfiLux have to be connected with a cable via USB, RS232 or LAN
- The PC program has to be set up

Through pressing of *Connect* the connection between ProfiLux and PC is established. Before you should check first if the set COM port of the PC is correct and adjust it if necessary. Also the transfer rate (=baudrate) of the PC (resp. of *ProfiLuxControl*) and the connected ProfiLux has to be conform. Furthermore you can change the device address

which is as default setting set to 1. If you do not know the device address of the connected device you can click on *Start search* – herewith all addresses between 1 and 30 are queried until a device answers.

If the connection has been successfully established, *ProfiLuxControl* checks the connected aquarium computer and displays all settings that it has available according to the model and the firmware version. The connection can be disconnected by clicking onto *Disconnect*.

8.5 Save and load settings

The ProfiLux aquarium computer offers a lot of setting options. To find and execute the optimal settings can last a certain time. For those who would like to save their settings in order to be able to restore for example the settings after a firmware update, there are the following functions in the program menu *File*. The option to load and save settings is also interesting for retailers who make the startup for their customers. So the once found settings can be replicated quickly and safely for a certain tank type.

8.5.1 Save settings

Either sensor data (= settings of controllers and calibration data) or settings of the connected ProfiLux 3.1 are saved in a file (file ending *.par*).

How does the readout of the settings or sensor data out of the ProfiLux work?
The PC program uses *Parameter definition files* (file ending *.def*) in order to know which setting options exists resp. shall be read out in the connected ProfiLux computer. These files are located in the program directory of *ProfiLuxControl*. For the firmware version of ProfiLux 3 resp. ProfiLux 3 eX the appropriate *Parameter definition file* has to exist. E.g. for firmware version 5.14 of ProfiLux 3.1N the file is called e.g. *ParaList_V514_Profilux3.def*.

8.5.2 Load settings

Here the settings or sensor data from one file (file ending *.par*) are loaded and transmitted to the ProfiLux. If the file is from another ProfiLux with a different firmware version than the destination device, then a warning is output. Settings which are from a device with a firmware version older than the firmware version than the destination device can be loaded without any problems. The other way round it can lead to problems.

If problems occur during the transmission of the settings to the ProfiLux, a message is displayed. If the message is ignored, the transmission of the left settings will be continued.

If the device type does not fit, the process is completely interrupted.

When loading the sensor data, additionally also the serial number is checked. If this is not identical, only the controller settings but not the calibration data can be loaded. Through this, it is avoided that calibration data of another device are loaded (this would also make no sense), the other sensor data can be loaded.

Basically all settings that are found in the file are transmitted to the connected aquarium computer. If only a part of the settings shall be transmitted, then the file can be edited accordingly. For this, the lines in the file are to be deleted which contain entries with settings that shall not be transmitted. Also these files can be opened with a simple text editor.

8.6 Measurement data

ProfiLux is able to record measurement data.

With Read & Save all new existing measurement data is read out of the ProfiLux and is written into a text-file, ProfiLux 3 stores the time of the pick up so that the same data is not picked up several times. Before saving you have the possibility to determine several formats for the data export. The standard settings are well suited to import the file later easily in Microsoft Excel®.

If you select an already existing file for saving, the new data is added to the already existing data, as far as the existing file contains suitable information. This text file can then be opened with e.g. Microsoft Excel® in order to process the data.

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