ProfiLux Expansion Box 2

Instruction Manual

Valid from firmware -version 2.0 2

as of 2016-10-22

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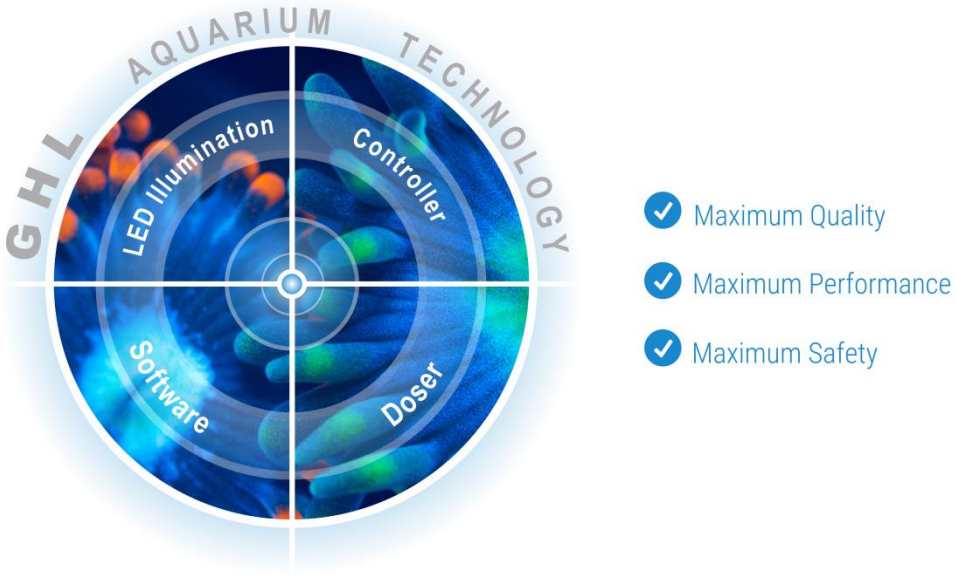


Congratulations on your Purchase

Thank you for purchasing our product and allowing us to help you support your path to successful fishkeeping !

With a GHL *Expansion Box2*, you have a highly professional piece of equipment at your fingertips. In connection with your *ProfiLux Computer*, our EXB 2 will assist in your daily monitoring and maintenance routine.

We are confident that our product will help make your hobby more effective, safe, and help you spend more time enjoying your aquarium , terrarium or pond .

With this in mind -

Enjoy Your Passion!

GHL Takes Care of the Rest.

1 Safety Instructions

Please read these instructions carefully before operating the Expansion Box 2.

GHL products are built with maximum security and safety in mind. However, product safety for this device can only be guaranteed if you follow these guidelines.

Anyone who uses this device must become familiar with the following safety instructions and the operation of the device.

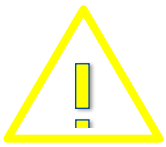
Failure to follow these instructions will invalidate any warranty claims to follow.

Be sure to also observe the safety instructions in the ProfiLux manual and the respective manuals of other equipment manufacturers.

In this manual, the following symbols are used:

TIP

General note, tip or advice.



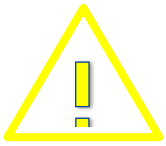
WARNING

Important note for operation, to avoid damage to the equipment, and for your safety.

DANGER

Warning that non-compliance can result in injury or damage to the device.

1.1 Safety of Children and Vulnerable Persons



WARNING

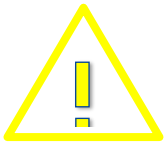
This equipment must not be used :

- By small children and vulnerable persons with limited physical, sensory or mental capabilities.
- By people who are unfamiliar with the functions of this product.

1.2 Intended Use

The *Expansion Box 2* is intended exclusively for use in the domestic area. *The Expansion Box 2* may only be operated with GHL accessories.

Make sure to place the device away from splashing water, moisture or other liquids .



WARNING

Moisture indicators are placed inside the unit and will change color when exposed to excessive moisture .

Removing these indicators will void all warranty claims .

DANGER

- Make sure that the power cord is plugged into a grounded outlet ; otherwise you could get an electric shock or cause a fire .
- Protect the power cable from damage (For example, twisting , kinking , clamping). Please also pay attention to the joints and connections to the device .
- Disconnect the power plug by pulling the plug, not the cable .
- Never attempt to disassemble , repair or alter the equipment by yourself .
- Do not insert sharp objects into the electrical contacts and ports .

DANGER

- If the unit falls into the aquarium or has been exposed to moisture or humidity , first turn off the power to the device via the fuse or circuit breaker , then pull the power cord.
- Never touch the power plug with wet hands .

- If the device has gone wet or dirty, thoroughly dry or clean it with a dry cloth.

DANGER

- The device may not be operated if it has been damaged in any way (e.g. damaged power cord or plug, liquids or objects have gotten into the interior, device has been exposed to excessive moisture, the normal operation is disturbed, or the device has been dropped.)

For your own safety, please look at the hazard prevention and safety instructions in the chapters that follow.

2 General

2.1 About this Manual

These instructions apply to the *Expansion Box 2* The functionality of your *Expansion Box 2* is determined by existing expansion cards, sensors, *PAB* devices and LED lights.

2.2 Features / Resources

The Expansion Box 2 is an extension of your aquarium computer beginning from *ProfiLux 3*. This extension box allows you to expand your *ProfiLux Aquarium Computer System* with further resources such as sensor connections, 1-10 V interfaces and switching outputs. The total of all available inputs and outputs in the *ProfiLux System* is referred to as resources.

Features overview:

- 4 x 1-10V interfaces (Yellow Western sockets, double allocation)
- 2 x Universal inputs for pH or ORP sensors (Switchable), BNC connectors
- 1 x Universal input for fresh or seawater conductance sensor (Switchable), BNC connector
- 1 x input for digital temperature sensor, BNC connector
- 1 x *Mitras Lightbar Interface* (Mitras Western socket)
- 2 x *ProfiLux Aquatic Bus* (*PAB* Western sockets)
- 2 x *Level sensor* inputs (Green PS/2 connector, double allocation)

Furthermore, the *Expansion Box 2* provides 4 additional expansion slots for adding more *ProfiLux Expansion Cards*

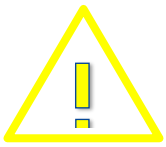
2.3 Scope of Delivery

Please check the contents of this box. The following items should be included :

- Expansion Box 2
- Power supply
- Supplementary sheet

PAB connection cables and sensors are not supplied with the *Expansion Box 2* They are available online in our shop *GHL Store* (*GHL Store USA for US Customers*).

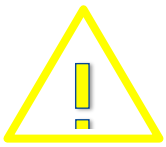
Please check to make sure all items are in perfect condition . In case of damage , immediately contact the dealer from whom you purchased the *Expansion Box 2.*



WARNING

Damaged Expansion Boxes or components may not be put into operation under any circumstances .

2.4 Important Operating Instructions



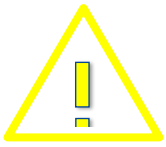
WARNING

To ensure safe operation , the provisions referred here must be followed.
Disregarding these safety guidelines, will result in voiding your warranty.
The manufacturer rejects any responsibility or liability for damage !

3 Connections of the Expansion Box 2

3.1 General

Applies to all connections :



WARNING

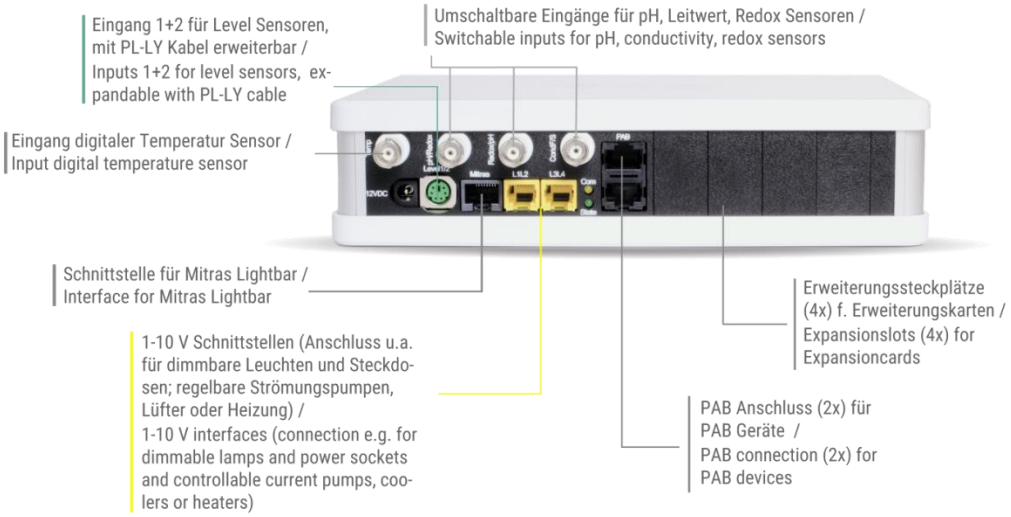
- Connect only original accessories from GHL.
- Do not use force when plugging connectors . If a plug contact does not fit , it is imperative to check that you have chosen the correct socket.

DANGER

- Incorrect connection (For example, plugging a lighting unit plug into a *PAB* connection) can lead to destruction of the *Expansion Box 2* and/or the light bar!
- A repair caused by this, is not covered under warranty and will therefore incur repair charges.

3.2 Connection Overview

The *Expansion Box 2* standard equipment includes the following connectors:



3.2.1 1-10 V Interfaces

Equipment with 1-10 V interfaces can be connected to the yellow RJ12 Western modular jacks L1 / L2 or L3 / L4 by using the control cables that are included with that piece of equipment.

These are:

- Dimmable tubular *Lightbar ALB*
- Effect-LED-Light *Mitras-Simu-Stick*
- Dimmable *Powerbars*
- Controlled heating or cooling (e.g. *Propeller Breeze*)
- Controllable flow pumps

Each of these jacks include two independent 1-10V interfaces and associated relay control outputs. If necessary, each jack can be extended with the splitter cable *-YL2*, available in different lengths.

3.2.2 Interface for Mitras Lightbar

A *Mitras Lightbar* with its digital interface, can be connected to the black Mitras RJ45 Western modular jack.

3.2.3 Level Sensor Inputs

Level Sensors can be used for water level control and can be connected to the green level connection. Since this is a socket with double allocation, you also can use a splitter cable (Y-cable *PL-LY*, not included) to connect two level sensors and control them independently.

3.2.4 Sensor Inputs

The following sensors can be connected to the blue BNC Sockets:

- Digital Temperature Sensor (Only)
- pH-, Conductivity-, ORP Sensors

The inputs for pH, Conductivity and ORP can be switched and adapted to the desired measuring range. The default function of each sensor input corresponds to the first-mentioned sensor input label at the back of the *Expansion Box 2* For example, if an input is labeled, pH / redox, the sensor input is adjusted to pH. If it is labeled, Redox / pH, the sensor input is set to Redox, etc.

TIP

- Place the sensors in an area where water can constantly circulate around them.
- To prevent algae growth, it is best to place the sensors in a dark spot. For mounting, an open external filter would be a good place.
- To ensure proper sensor measurement, attach the sensors perpendicular to the water surface.
- Make sure that the cable connection of the sensor is not immersed in water under any circumstances.
- Many sensors are very susceptible to interference due to their low level signals. To provide the most accurate measurements, please have enough distance between the sensors / cables and sources of interference. These can include: Electronic ballasts, power lines, pumps, consumer electronics, etc. False readings can be avoided by following these precautions.
- Please also refer to the instruction manual for the individual sensors.

3.2.5 PAB-Inputs

PAB devices can be connected to the black RJ45 western modular jacks. Please also refer to subsection *Connection to PAB*.

4 Hardware Modules

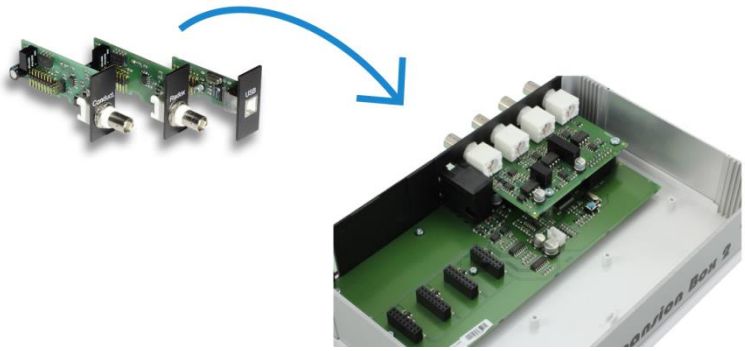
4.1 General

The *Expansion Box 2* is modular and can be expanded as such. In order to use additional sensors, power strips, dimmable lamps etc., you must first install the appropriate *ProfiLux Expansion Card*, up to 4 additional *ProfiLux Expansion Cards* can be added.

Before adding *ProfiLux Expansion Cards* to the *Expansion Box 2*, a firmware update may be required. Please follow the accompanying notes of the *Expansion Cards* to check if an update is required.

Firmware 2.01 supports the following expansion cards:

Interfaces		Sensor Inputs	
PLM-4L	*PLM-CondF*	*PLM-pH-Redox*	*PLM-CondF-Redox*
PLM-2L4S	*PLM-Oxygen*	*PLM-pH/Redox-Cond*	*PLM-pH-Redox-2Level*
PLM-ADIN	*PLM-Humidity-Temp*	*PLM-CondSpH*	*PLM-4Level*
PLM-DALI	*PLM-pH/Redox*	*PLM-CondF-pH*	*PLM-pH-Redox-DigTemp*



ProfiLux Expansion Cards can be inserted easily into the provided expansion slots. They are automatically detected by the *ProfiLux Computer* and can be combined with other *expansion cards* as desired.

If you wish to add an *expansion card*, please read the following instructions before you start :

WARNING

- If the *Expansion Box 2* is already in operation, pull the power plug and remove all sensors and *PAB* cables.
- Please prevent damage to internal electronics by avoiding static charges.
- Please do not wear clothing or shoes that may quickly become electrostatically charged.
- Please do not walk or stand on a carpet while working on electronic components.
- If possible, work on a grounded place.
- Before touching sensitive electronic components of the *Expansion cards* or the *Expansion Box* 2, please discharge yourself from static charges by touching unpainted metal or a grounded surface.

4.2 Installation

4.2.1 How to Open the Housing

Turn the Expansion Box 2 upside down and carefully loosen the 4 Allen screws in the 4 corners of the housing bottom plate. Pull the screws out and reverse the housing together with the bottom plate again.

Best grip bottom plate and housing cover on the right and left housing edge simultaneously and exert slight pressure while turning. Set the housing down again and lift the cover carefully.

Side panels, housing front as well as the black module cover plates on the rear panel are now loose.

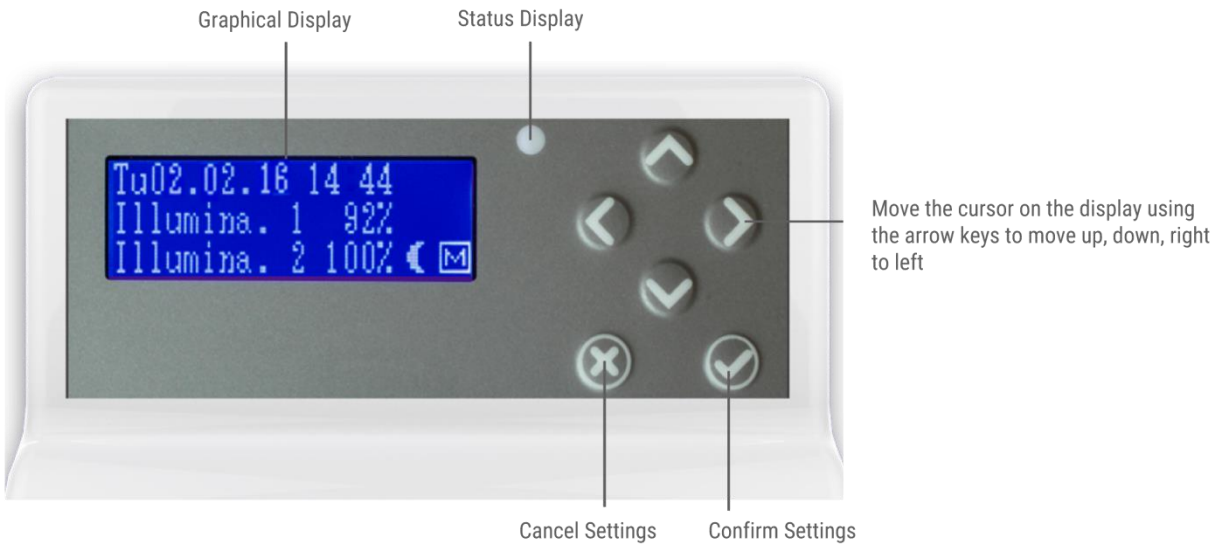
For every expansion slot , a module cover plate is provided as a placeholder on the rear panel

On the right , the empty slots for p lugging in the modules are seen in the illustration above.
On the left , you see the ex-works built -in Expansion Cards.

6 Operation

6.1 Operation on the Device

Use the navigation buttons (arrow keys) on the device to make settings or desired changes to your settings.



Set the time and date first.

Press any arrow key to enter. You can move up and down from the right to the left with the arrow keys in the menu.

The operation of the device is very simple. Use the up and down arrow keys to navigate through the menus and make a selection.

To confirm the selection of a menu item, press the confirmation key (Check mark button: Confirm input = Return). This will take you to the submenus.

Make the desired changes and save them with the confirmation key. Press the Cancel key (Cross mark button: Cancel input = Escape) to abort entries.

After each setting process, you are asked if you want to save the changed settings. Only after confirmation with Yes, the new settings are accepted and saved. These settings are also stored in the nonvolatile memory (EEPROM, independent of the mains voltage) and are restored after voltage interruption.

The following types of dialogs are used when operating the device: