GHL Doser 3

Instruction Manual

Valid from Firmware-Version 1.00

As of 2025-07-01

Table of Contents

Preface

Thank you for choosing the GHL Doser 3!
With this professional dosing system, you receive a reliable tool that effectively supports you in the daily care of your aquarium.

Our goal is to help make your hobby more convenient, safer, and more precise.

Enjoy Your Passion!

GHL Takes Care of the Rest!

Get the most out of your GHL Product.

GHL products are well-equipped with simple and intuitive features. To get the most out of our products, we recommend reading the Instruction Manual. Doing so will provide you with the most profound details for using our product. This and other helpful documents can be downloaded from our website's download area (*Support* > *Downloads*). Visit our homepage at www.aquariumcomputer.com, our Support Forum, or our Knowledge Base, or follow us on Facebook to become a GHL-Product expert and fully utilize the full range of functions offered by your device.

1 Safety Instructions

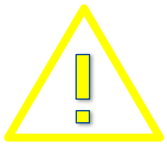
Please read these instructions carefully before operating the *GHL Doser 3*.

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 safety instructions and the device's operation.
Failure to follow these instructions will void any warranty claims. Be sure to read over the safety instructions provided by this Doser manual.

In this manual, the following symbols are used:

TIP

General note, tip, or advice.



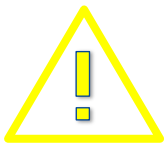
WARNING

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

DANGER

Warning: Failure to comply can result in injury or damage to the device.

1.1 Safety of Children and Vulnerable Persons



WARNING

This equipment must not be used:

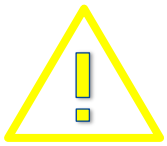
- By small children and vulnerable persons with limited physical, sensory, or mental capabilities.
- By people who are unfamiliar with the functions of this product.

1.2 Intended Use

The *GHL Doser 3* is intended exclusively for use in the domestic area. *GHL Doser 3* may only be operated with GHL accessories.

- The dosing pump unit may only be used to dispense the following liquids into aquariums and ponds:
- (Salt) water
- Commercially available additives for aquariums and ponds, such as fertilizers and trace elements
- Balling salts

Ensure the device is placed 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, or 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 become wet or dirty, thoroughly clean and dry it with a dry cloth.

DANGER

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

For your 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 *GHL Doser 3 Stand Alone* and *GHL Doser 3 EXT*.

2.2 Features

Leistungsmerkmale im Überblick:

- 1x Level sensor input (green PS/2 socket, dual function), Standalone only
- 1x Input for digital temperature sensor, BNC socket, Standalone only
- 2x ProfiLux Aquatic Bus (PAB Western sockets)
- 1x Control Pad connection, Standalone only
- 4x Outputs for Magnetic Stirrer
- 1x USB/LAN connection, Standalone only

2.3 Scope of Delivery

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

- *GHL Doser 3*

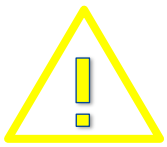
- 24V Power supply
- Tubing adapters
- Supplementary sheet

PAB connection cables and sensors are not included with the GHL Doser 3. These items are available in our online shop, the GHL Store.
Please check whether all items are in perfect condition. In the event of damage, please get in touch with the retailer from whom you purchased the GHL Doser 3 immediately.

WARNING

Damaged GHL Doser 3 units or components must never be put into operation under any circumstances.

2.4 Important Operating Instructions



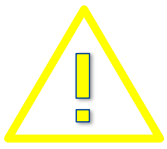
WARNING

To ensure safe operation, the following guidelines must be followed.
Disregarding these safety guidelines will void your warranty. In such cases, the manufacturer rejects any responsibility or liability for damage.

3 Connections of the GHL Doser 3

3.1 General

Applies to all connections:



WARNING

- Connect only original accessories from GHL.
- Do not use excessive force when plugging in connectors. If a plug contact does not fit, it is essential to verify that you have selected the correct socket.

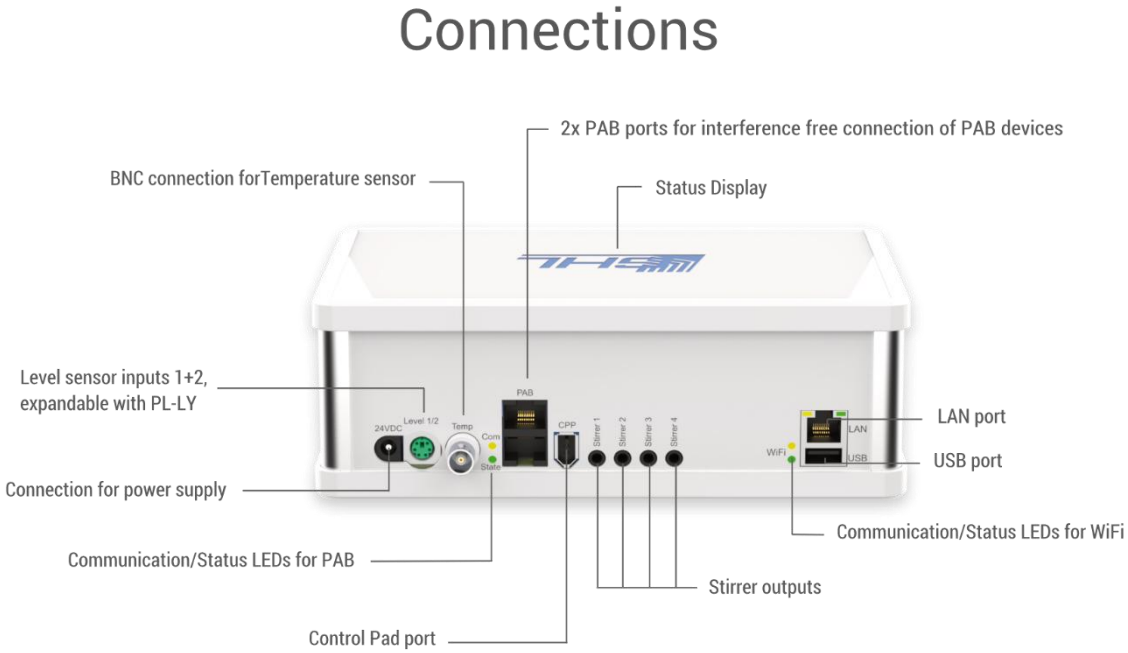
DANGER

- Incorrect connection (For example, inserting a USB connector into a *PAB* connector) can damage the *GHL Doser 3.*
- A repair caused by this is not covered under warranty.

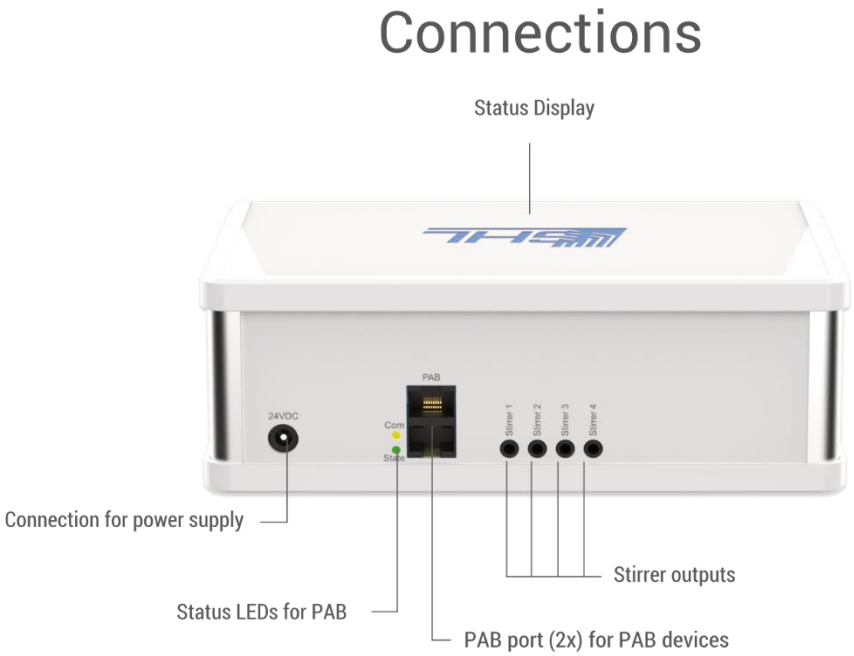
3.2 Connection Overview

The *GHL Doser 3* includes the following connection ports and displays:

Stand Alone:



EXT:



3.2.1 Level Sensor Connection (*Stand Alone* only)

Level sensors (D2.1 SA-only) are used for monitoring and maintaining set water levels. These sensors can be connected to the on-board Level port (**Green** Mini DIN socket). A single Level port can either accept a single sensor or two separate sensors. With a PL-LY splitter cable (available as an accessory), two level sensors can be connected to a single Level sensor port and be controlled independently.

3.2.2 Temperature Sensor Input (*Stand Alone* only)

The white BNC socket is where a Digital Temperature sensor can be connected.

TIP

- Place the sensors in an area where water can constantly circulate 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 sensor 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 obtain the most accurate measurements, please maintain a sufficient distance between the sensors/cables and sources of interference. These can include Electronic ballasts, power lines, pumps, and consumer electronics, among others. False readings can be avoided by following these precautions.

3.2.3 PAB Ports

The **black** RJ45 Western sockets are where *PAB* devices can be connected. For example, additional Dosers EXT can be connected via the PAB port. For more information, please refer to the "*Connection to PAB*" section.

3.2.4 USB Connection (*Stand Alone* only)

The *GHL Doser 3* can be connected to a PC via USB cable. This means that all settings can be configured comfortably using *GHL Control Center. GCC* software can be downloaded free of charge from our website's download area.

3.2.5 GHL Control Pad Connection (*Stand Alone* only)

(*Stand Alone* only: A GHL Control Pad can be connected here.

3.2.6 Stromversorgungseingang

24V DC hollow socket for connection to the power supply. Use only the original power supply to supply power to the *GHL Doser 3* device.

DANGER

- Connecting a non-GHL-branded power supply may lead to the destruction of the *GHL Doser 3*!
- A repair caused by this is not a guarantee and is therefore subject to a charge.

4 Activation

4.1 Installing the GHL Doser 3

The device must be protected from water at all times!

Mount the Doser in a water-protected area. When selecting the mounting material, make sure that you have adequate sizing and stability. Ensure that the unit cannot fall into water during assembly or everyday use.

If the device is placed inside an aquarium cabinet, ensure it is positioned in an area free from splashing water and moisture or liquids that can penetrate.

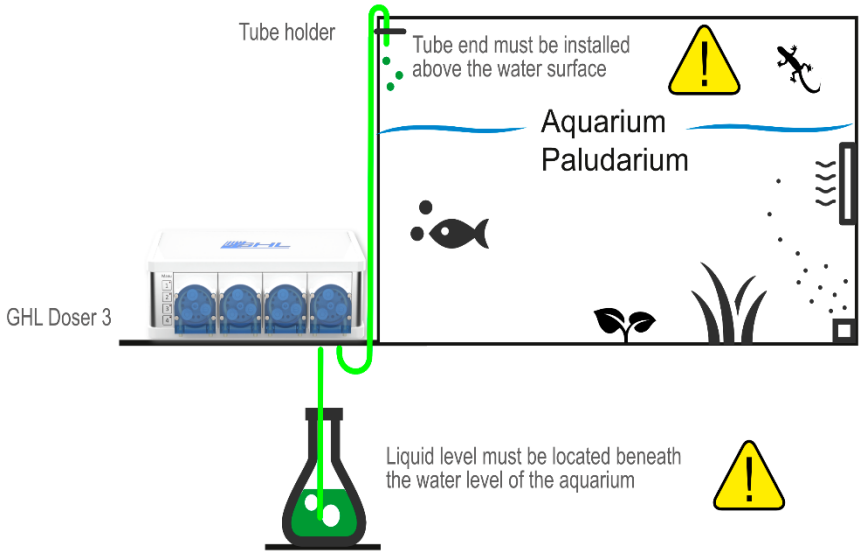
GHL Doser 3, as well as its accessories, are susceptible to damage from excess moisture or atmospheric humidity. Please refer to the technical data and notes below for guidance.

To ensure maximum safety and operation, the following regulations must be followed! Failure to follow the safety guidelines will result in VOIDING your warranty. The manufacturer rejects any responsibility or liability for damages resulting from misuse!

Combining powered equipment and water can be a dangerous combination if proper precautions are not taken. It is therefore essential to supply power to all mains-operated devices that are operated in the aquarium or the vicinity of the device via a residual current circuit breaker!
To avoid any danger, when working in the basin, disconnect all mains-operated devices by pulling the plugs! It can never be ruled out that a heating element, a pump, or a luminaire is defective.

As shown in the illustration (right), Dosers and dosing containers should always be positioned carefully to ensure that the contents of the dosing container do not drain into the tank.
- e.g., in case of unexpected events.

Optimal Doser Arrangement



To connect the dosing unit to the dosing containers, the peristaltic tubes of the dosing pumps must be extended. Select the tubing suitable for your application and attach it to the dosing pump tubing with the enclosed tube adapters. Avoid tensile loading. The tubing adapters are ideal for tubes with an inside diameter of 2 to 4 mm.

Ensure the tube connections fit snugly and cannot come apart. Push the dosing tubes onto the adapters as far as possible and avoid pulling on them.

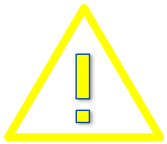
The pumps of the Doser are self-priming. To facilitate the suction of the dosing liquid, the tube leading into the dosing tank should be kept as short as possible on the suction side.

To prevent backflow through the siphoning effect, the dosing tube in the tank should not extend directly into the aquarium water on the pump side.

Please also note the following:

TIPP

- Please ensure reasonable access to the connections of the device
- Please consider the maximum cable lengths of the connected *PAB* cables, sensors, etc., when selecting the installation site
- Additional sensor cable extensions (*BNC2 cables*) and PAB cables are available in different lengths to fit your needs. They are available online in our *GHL Store (For US customers, GHL USA Store)*.



WARNING

- To ensure proper operation, the connection cables should never be kinked, crimped, or positioned in an unsuitable way.
- The *Doser* must be positioned away and protected from splashing water and excess humidity!
- Splashing water/saltwater and or condensing humidity (e.g., occurring near the sump) will *destroy the devices – this voids all warranty claims!!*

DANGER

- Products that are already powered should never be pulled by the cable. This may cause a malfunction or damage the connected products and the *GHL Doser 3*.
  They should only be pulled by the plug connected to the power socket.
- Ensure that a drip loop is installed for all cables and lines coming from the aquarium. Cables and tubing must be routed in a way that prevents water from entering electrical or electronic parts!

4.2 Connection to the Power Supply

Connect the *GHL Doser 3* to the power supply using the supplied power adapter. Insert the DC plug into the designated 24V DC hollow socket on the rear panel and connect the power connection cable with the plug to the power outlet.

DANGER

- Ensure that the mains voltage matches the voltage specified on the identification plate located on the bottom of the device.
- Connect the device only to a properly installed and grounded outlet with a minimum rating of 10 A.
- Never use a different voltage supply. Incorrect polarity or voltage can destroy the device.
- **Use only the supplied AC adapter**.
- The connection of a power supply that is not part of the *GHL Doser 3* leads to the destruction of the *GHL Doser 3*!
- A repair caused by this is not a guarantee and is therefore subject to a charge.

4.3 Connecting the Temperature Sensor

Connect the sensor connection cable to the corresponding BNC connector socket.

DANGER

- Sensor plugs must not be wet when connecting to the socket.
- Do not use force.
- Only connect *Digital Temperature Sensors* from GHL to the temperature sensor socket of *GHL Doser 3*
- Always connect the sensors to the respective jacks, as this could damage the device or the sensors.
- A repair caused by this is not a guarantee and is therefore subject to a charge.

TIP

- Place the digital temperature sensor in the aquarium to always be surrounded by water.

- Choose a location as dark as possible - such as an open external filter - this will prevent algae build-up.
- Mount the sensors as perpendicular to the water surface as possible to work correctly.
- The cable connection of the sensors must not reach into the water under any circumstances.
- Many sensors are very susceptible to interference due to their low signal level. Therefore, to avoid incorrect measurements, please ensure a sufficient distance between the sensors and cables, as well as sources of interference (e.g., EVGs, power lines, pumps, entertainment electronics).
- Also, observe the instructions in the operating manual of the individual sensors.

4.4 Connection of PAB-Devices

The *GHL Doser 3* features two PAB ports for connecting additional *GHL Doser EXT* devices or a *KH Director* via *ProfiLux Aquatic Bus*.

4.4.1 What is the PAB

PAB is an interference-free CAN-Bus system that allows for highly secure data transfer between all PAB devices. The range can be up to 100 m (300 FT).

- PAB cables are not included and must be purchased.

TIP

- Be sure to obtain suitable PAB cables in the appropriate lengths to meet your needs.
- *PAB*-cables are available online at *GHL Store (EU) and GHL USA Shop (US)* in different lengths from 0.5 m up to 50 m.

4.4.2 How does the ProfiLux Aquatic Bus work?

The system works according to the leader-follower principle. The leader unit is always *a GHL Doser Stand Alone or a GHL Doser Maxi Stand Alone (starting from model 2), to which all other bus participants, e.g.*, GHL Doser 3 / Maxi EXT, KH Director, or ION Director, can be subordinated as follower units.

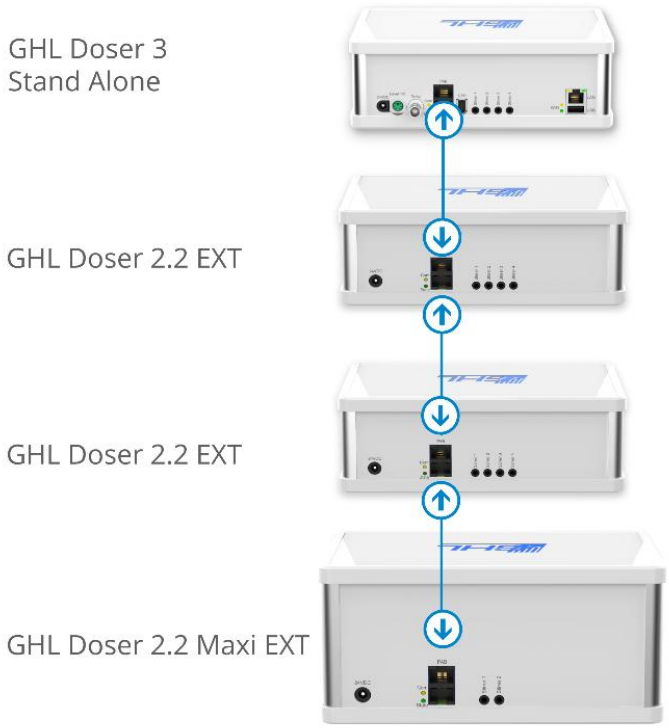
PAB devices are always connected in series. This means that all *PAB* devices must be connected to the *PAB* cables in a linear sequence, with each device connected to the next in sequence. The first *PAB* device is connected via a *PAB* connection cable with one of the *PAB* ports of the next party. The *PAB* works bi-directionally; this means that every PAB jack can be used for both input and output. The next participant is connected again at the free *PAB* port of the previous participant, and this process repeats.
The last device of the PAB, therefore, always has an unoccupied *PAB* connection.

The order of the devices can be freely selected. Also, several *ProfiLux Controllers* can be connected to the bus.
The PAB provides a line connection, extending from one end to the other, via the single PAB participants. A ring or star topology of the *PAB* bus is not allowed.

DANGER

- *PAB* devices must always be linearly connected.
- The last device on the PAB must always provide a free *PAB* port.
- Never connect the last two PAB devices through an additional PAB connection cable.
- Such a ring connection leads to malfunctioning and is not allowed.

4.4.3 Exemplary Connection of GHL Doser 3 with PAB Devices



4.5 Status Indicators of the GHL Doser 3

The *GHL Doser 3* features two status indicator lights, located on the housing cover and the back of the device. These lights provide system status information at a glance.

4.5.1 System-Status- LED on the housing cover

The LED-backlit GHL Logo in the housing cover of the *GHL Doser 3* lights up in different colors.

The various colors can show you at a glance the condition of your aquarium.

The color and blink codes shown depend on the particular *Doser* firmware.

For the meaning of the blink codes, please refer to the Support > FAQ section of our homepage at www.aquariumcomputer.com.

DANGER

- Never leave your aquarium or terrarium unsupervised for an extended period.
- The maximum amount of time without personal view depends on how long your aquarium, terrarium, or pond can survive without significant damage, even when errors occur.
- Always remember that technology can fail, and therefore malfunctions can never be ruled out!
  Power failures, incorrect settings, damage (for example, caused by water or overvoltage), or simply an unexpected operating situation can result in severe damage.
- The manufacturer declines any liability for (consequential) damage or loss arising in connection with the use of the *GHL Doser 3*, as far as permitted by law.

4.5.2 PAB Status LEDs on the Back Panel

Located on the back panel of the *GHL Doser 3,* next to the connection of the temperature sensor, are two LEDs that provide information

The upper yellow LED indicates proper communication within the *PAB* connection. The lower green LED indicates the status of the *PAB* communication.

Status	Meaning
The yellow LED flashes	*GHL Doser 3* receives *PAB* commands

The green LED is ON	*GHL Doser 3* is ready for operation
The green LED flashes quickly	*GHL Doser 3* startup / Firmware update
The green LED flashes every second, the yellow LED is OFF	*GHL Doser 3* has not received PAB commands for more than 30 seconds
Both LEDs are OFF	*GHL Doser 3* has no supply voltage

5 Operation

5.1 General Operating Instructions

The pumps of the Doser are automatically assigned to dosing channels 1 through 4. The integrated controller can control up to 16 pumps independently. If an additional slave unit has been connected, its pumps must be assigned to channels 5 through 8.

5.1.1 Dosing amount

The amount of liquid delivered by each dosing pump is determined by its runtime. A dosing pump can dispense between approximately. 8 ml and approx. 90 ml per minute, depending on the selected speed.

DANGER

- To ensure a long service life of your pumps, make sure that when operating at speed level 3, each pump runs for no longer than 15 minutes at a time.
- The subsequent pause time must be at least equal to the previous runtime.

5.1.2 Maintenance

To ensure smooth operation and long service life, a small amount of low-viscosity silicone paste should be applied at regular intervals to all moving parts as well as the tubing.

5.2 Operation on the device

The buttons on the front of the device allow for manual operation of the pumps. This allows you to quickly top up, vent the tube, or suck in liquid.

5.3 Operation via GHL Connect App

The GHL Doser 3 is primarily operated and configured via the GHL Connect app. The app provides access to all basic settings, including pump assignment, dosing times, volumes, and calibration.
Additional operating instructions can be found directly within the app.

5.4 Operation via Software GCC

The GHL Doser 3 can also be operated via a Windows PC using the GHL Control Center (GCC) software. The connection is established via a USB cable. This option is suitable for users who prefer to manage their devices using a PC.

You will need the version of GHL Control Center that matches the firmware of your GHL Doser 3. The free software is compatible with the following Microsoft operating systems: Windows Vista, Windows 7, Windows 8, and Windows 10. The connection to the ProfiLux can be established using the following PC interfaces:

- USB
- Wi-Fi / LAN

All settings that can be made via the GHL Connect App are also available in GHL Control Center. Further information and instructions can be found in the GHL Knowledge Base:

https://www.aquariumcomputer.com/knowledge-base

6 Assign further PAB Devices to the Stand-Alone

GHL Doser 3 is modular and can be extended with additional Extension Dosers. A total of 16 pumps can be controlled independently.

Before adding additional GHL EXT Dosers to the GHL Doser 3, a firmware update may be required.

6.1 Requirements

For proper operation, it is essential that the Standalone Doser (SA unit) can identify and assign all connected EXT Dosers.

Ensure that the GHL Doser 3 and all other PAB devices are powered on.

DANGER

- When assigning devices in an existing system, the numbering of the pumps may change (for example, by rearranging the order of the Ext/following devices, reconnecting the PAB cables to another port, etc.).
- Therefore, please make sure that critical devices and functions are deactivated before the assignment.
- Only if all pumps have been correctly assigned and rechecked, see under. 6.3 "Pump numbering", the deactivated devices may be put back into operation.

6.2 Assign additional Dosers

If all *PAB* connections and the power supplies of all devices are ensured at the *PAB*, further *EXT Dosers* can be assigned to the Stand-Alone Doser.

The Stand Alone Doser searches all devices connected to the PAB and then displays the serial numbers of the devices found. Then, select the serial numbers of all devices that should be assigned to this Stand-Alone *Doser* and confirm with *OK*.

The order of the devices determines the numbering of the pumps.

6.3 Pump numbering

If additional EXT Dosers are to be operated, ensure that no number is assigned more than once when numbering the pumps.

DANGER

- If you change resources (add, remove, or exchange of *EXT Dosers*), you must always newly assign them to the *GHL Doser 3*, so that all sensor inputs and pumps can be recognized and accepted by the *GHL Doser 3 Stand Alone*.
- To avoid damage, you must control the numbering of the pumps before restarting and adjust them if necessary.
- Only when all pumps have been correctly numbered and checked can the devices be put back into operation.

7 Warranty/Liability

You have a 2-year warranty that begins on the invoice date. This applies to material and manufacturing defects.

We guarantee that the supplied products meet the specified requirements and are free from material defects. Manufacturing defects. For the accuracy of the manuals, we do not guarantee damages of any kind that result from improper operation or an unsuitable environment. Furthermore, we do not warrant against damages caused by a faulty connection or excessive humidity. We accept no liability for direct damages, indirect damages, consequential damages, and third-party damages as far as it is legally permitted. We do not guarantee that our product package meets the buyer's requirements. Our warranty expires if the delivered original product is damaged or modified.

8 Additional Information

8.1 Help and Information

For help or further information, please visit our *Support Forum* at www.aquariumcomputer.com or contact your retailer.

8.2 Firmware-Update

The firmware of your *GHL Doser 3* is constantly being further developed. If you want to use new features that are not supported by your current firmware, you can update your *Doser*.

Be sure to back up your data **before** updating

9 Technical Data

Power supply	Wide range power supply 100 – 240 VAC (50 – 60 Hz), < 0,6 A
Input voltage	24 VDC
Environmental conditions	Operating temperature: 0°C - 40°C / 32°F – 104°F Humidity: Max 80% rel. Humidity non-condensing
Current consumption	2.500 mA max.
pH measurement	BNC input for pH sensor, accuracy 0.1 pH, pH range 3.0 to 10.5 pH
Temperature measurement	BNC input for the supplied digital temperature sensor, accuracy 0.1°C (33.8°F), Measuring range 0.0°C to 40°C (32°F – 104°F)
PC connection	USB Port
Dimensions	220 mm (8.66”) x 150 mm (5.9”) x 75 mm (2.95”)

GHL Advanced Technology©
GmbH & Co. KG
Marie-Curie-Straße 20
67661 Kaiserslautern
www.aquariumcomputer.com