CETONI

CE QMIX SYSTEM

Hardware Manual – General Part

ORIGINAL INSTRUCTIONS 2.02 – MARCH 2016

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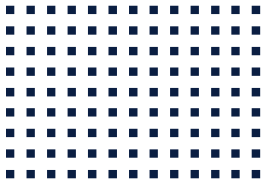


1 Overviews and Indexes

1.1 Content

Change History

REV	DATE	CHANGE
1.00	01.06.2012	First version of Qmix hardware manual
1.01	05.02.2013	Various minor changes
1.10	12.09.2013	Added Qmix BaseXT and TC, power consumption Q+
1.11	21.08.2014	Adaptation of the maximum heating temperatue of the Reaction module Q+ heating column and the High temperature T-mixer due to material changes.
2.00	31.03.2015	thematic splitting of the manual “Qmix hardware”
2.01	01.09.2015	added the Pressure Equipment Directive 2014/68/EU
2.02	11.03.2016	New corporate design

2 Introduction

2.1 Foreword

Thank you for deciding to purchase a CETONI product. We would like to support you with this handbook as far as possible in your interaction with the Qmix Microreaction and Analysis System. We are directly available for any questions or suggestions that you may have.

The Qmix System may only be taken in operation after carefully reading and understanding this manual. We wish you much success in your work with the Qmix System.

2.2 Symbols and Key Words Used

The following symbols are used in this manual and are designed to aid your navigation through this document:

HINT. Describes practical tips and useful information to facilitate the handling of the software.

IMPORTANT. Signifies important hints and other useful information that may not result in potentially dangerous or harmful situations.

CAUTION. Identifies a potentially harmful situation. Failure to avert this situation may result in damage to the product or anything in its proximity.

ATTENTION. Indicates a potentially dangerous situation. Failure to avert this situation may result in light or minor injuries or property damage.

2.3 Norms and Guide Lines

CETONI GmbH declares under its sole responsibility, that the individual Qmix devices and the Qmix System comply with the health and safety requirements of the relevant European directives.

2.4 Application Purpode

2.4.1 General Description of the Device

The Qmix system is a micro reaction and analysis system. It allows the implementation and optimization of chemical reactions using small amounts of reagents.

2.4.2 Intended Use

The Qmix system is used for implementation and evaluation of micro fluidic processes. Application usually takes place in laboratory-like rooms.

2.4.3 Reasonably Foreseeable Faulty Application

A use for applications distinct from the intended purpose can lead to dangerous situations and is to be omitted.

CAUTION. The unit must not be used as a medical device or for medical purposes.

2.4.4 Safety Advice

The safety of the user and a failure-free operation of the devices are assured only if original parts are used. Only original accessories may be used. Warranty claims will not be accepted for damage due to the use of alien accessories or expendables.

The devices have been developed and constructed in such a way as to largely rule out hazards due to its intended use. Nevertheless, you must observe the following security measures in order to exclude any remaining hazards.

- CETONI GmbH points out the responsibilities of the operator for the operation of the devices. The laws and regulations of the place of installation must be observed while operating the

devices! To ensure a safe work routine, operators and users must assume responsibility for adhering to regulations.

- The devices must not be used as a medical device or for medical purposes.
- The Qmix system is designed and approved to work in fluidic systems, which fall within the scope of Article 4 Para. 3 of the Pressure Equipment Directive 2014/68/EU.

  This means that the system may not exceed a maximum volume of 1 liter. With the use of fluids from Group 1 according to Article 13, Para. 1 of the Pressure Equipment Directive 2014/68/EU, the maximum allowable system pressure is 200 bar. For fluids from Group 2 it is 1000 bar. If different, product-specific values for the maximum pressure are given in the section "Technical Data", these values must be complied with. Regarding the maximum operating temperature, the specification from the section "Technical Data" must be observed.

  CETONI GmbH is not liable for consequences that may arise if the user expands the system by peripheral devices, such that one of the values or both values are exceeded.

  It is the user's responsibility to become familiar with the mentioned Pressure Equipment Directive and to comply with the prevailing requirements.
- Before operating the unit, the user must at all times ensure the operational reliability and the adequate and orderly condition of the unit.
- The user must be familiar with the operation of the devices and the software.
- The devices and pipes must be checked for damage before operation. Damaged pipes and plug devices must be replaced immediately.
- Cables must be laid in a way that avoids any risk of stumbling.
- Any moving parts must not be touched whilst the devices are in operation. There is a risk of crushing!
- Any parts that may be hot or cold must not be touched whilst the devices are in operation. There is a risk of a burn or frostbite!
- It is not allowed to use the devices in an explosive atmosphere or with potentially explosive substances.
- Wear protective glasses if you are working with corrosive, hot or otherwise dangerous substances during assembly work on the device.
- Transportation, storage or operation of the devices below 0°C with water in the fluid passages may cause damage to the modules.

2.4.5 Measures for Safe Operation

2.4.5.1 ELECTROMAGNETIC EMISSIONS

The Qmix system is intended for use in any type of facility, connected directly to the public power supply network that supplies buildings used for domestic purposes.

2.4.5.2 ELECTROSTATIC DISCHARGE

Floors should be made of wood, concrete, or ceramic tiles. If the flooring is made of a synthetic material; the relative humidity must be at least 30%.

2.4.5.3 ELECTRIC DISTURBANCES

The quality of the supply voltage should be to the standard of a typical business or hospital environment.

2.4.5.4 MAGNETIC DISTURBANCES

Do not place power connector cables, even of other appliances, in close proximity of the devices and their cables. Mobile communication devices may not be used in closer proximity of the devices or their cables than the recommended safety distance!

2.4.6 Safety Devices on the System

The system can be switched off at any time in an emergency using the mains switch on the Base Module (rocker switch on the side of the housing); this will cause no damage to the unit.

2.4.7 Condition of the Devices

Irrespective of the faultless manufacture of the devices, damage can occur whilst the unit is in operation. With this in mind, always carry out a visual check of the components mentioned before use. Pay particular attention to crushed cables, damaged tubing, and deformed plugs. If you should notice any damage, please do not use the devices and inform CETONI GmbH without delay. CETONI will put your devices back to an operational condition at the earliest. Do not attempt to repair the devices yourself.

2.5 Warranty and Liability

This devices left our company in perfect condition. Only the manufacturer is permitted to open the devices. All guarantee and liability entitlements, particularly damage entitlements due to personal injuries, are void if the devices are opened by an unauthorised person.

The duration of the warranty is 1 year from the day of delivery. It is not extended or renewed due to work carried out under warranty.

CETONI GmbH considers itself responsible for the devices with regard to safety, reliability and function only if assembly, new settings, changes, extensions and repairs are carried out by CETONI GmbH or an authorised centre, and if the devices have been used in accordance with the instruction manual.

The Qmix system conforms to the basic safety regulation standards. Industrial property rights are reserved on the circuits, methods, names, software programs, and units.

3 Initial Start-up

IMPORTANT. Please read this manual as well as the related software manual carefully and completely before bringing your Qmix system into service.
Please read in addition the specific parts of the manual of the respective modules used by you carefully and completely before before bringing your Qmix system into service.

3.1 Software Installation

Before connecting the system you need to install the supplied software and drivers. The procedure is clearly described and explained in the related software manual. The software manual ”QmixElements_Manual_EN.pdf” can be found in the folder “Manual” on either the CD or the USB-Stick from the scope of delivery.

IMPORTANT. Install the QmixElements software and device drivers as described in the software manual before using the USB port to connect the unit to the PC.

3.2 Setup and Connection of the System

Set your neMESYS module on a flat, horizontal surface, e.g. on table, floor-standing cupboard or apparatus trolley. The dosing platform can be placed in either a horizontal or vertical position.

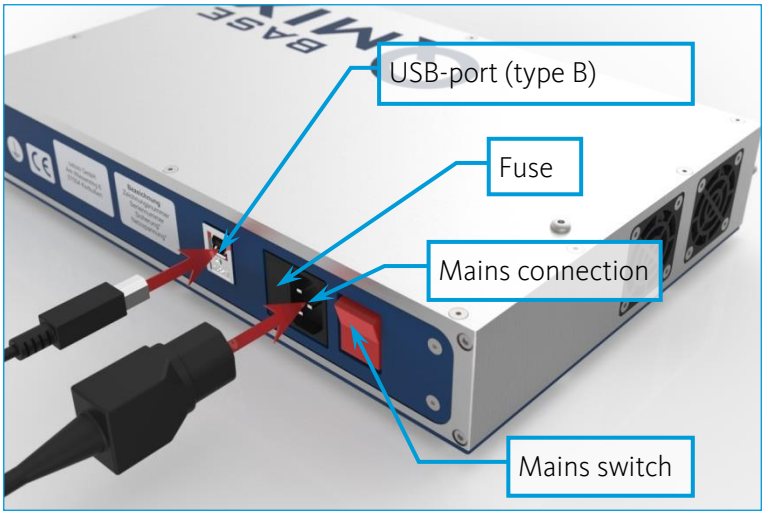
Make sure that the ventilation slots which are present on some devices do not get covered, to ensure best functionality.

CAUTION. Consider the reduced stability in the upright position and try to minimize the risk of overturning and place the devices at least 40cm from the edge of the table.

IMPORTANT. Make sure that the ventilation slots which are present on some devices do not get covered.

3.2.1 Connecting the base module

Connect the USB port of the base module (USB type B) to a free USB port on your PC (USB type A), after having installed the QmixElements Software and device drivers. Use the provided cable with inlet connector for nonheating apparatus to connect the mains connection of the base module to the mains power supply. The device can be operated with alternating voltage from 90 to 264V and 47 to 63 Hz.



CAUTION. Risk of injury from damaged cables and plug devices. Inspect the unit and lines for damage before starting the unit! Never operate the unit with damaged lines and plugging devices! Only use cables from the scope of supply.

CAUTION. Danger of tripping over the power and connection cable. When laying cables, ensure that any risk of stumbling is avoided!

Turn on the device with the mains switch in order to bring it into an operational condition. The power switch should illuminate when the unit is turned on. If this is not the case, check that the power connector cable is correctly plugged into both the unit and mains power supply.

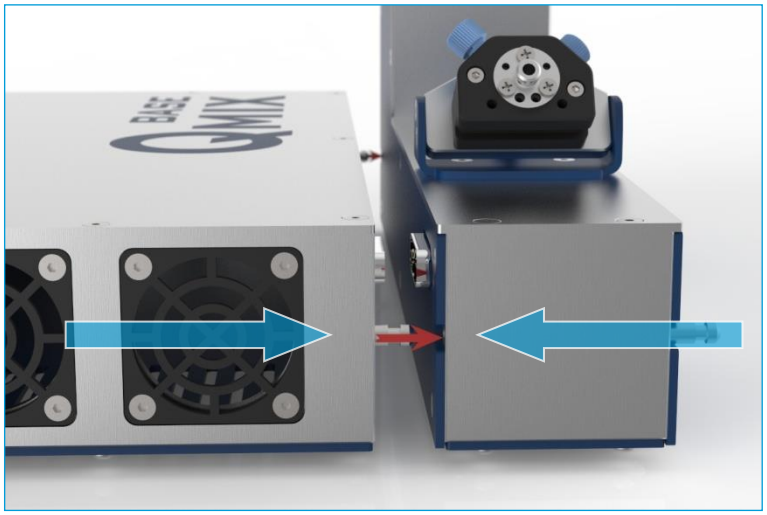
3.2.2 Connection of Additional Modules

In the following section will be described how to add modules to the Qmix system mechanically. Please read and follow the according section in the related software manual before connecting additional modules to ensure faultless operation of the system.

IMPORTANT. Please read and follow the according section in the related software manual before connecting additional devices.

Place the module that is to be connected next to your Qmix system. The locating pins of the last module in the system lay opposite to the locating holes of the module to be connected.

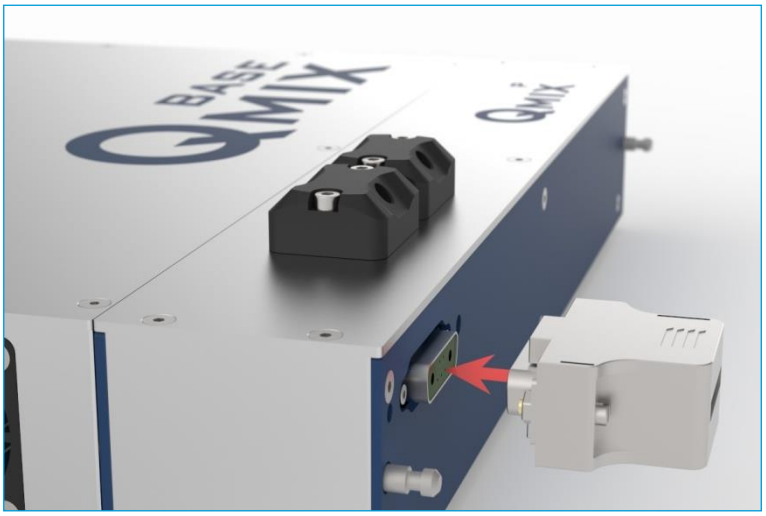
Plug the new module onto the system. The locating pins will be guided into each respective locating hole. Connect the D-Sub connectors together ensuring a secure contact. In order to guarantee a clean contact between the modules, both modules must lay flat on each other. Ensure that the modules are not tilted or twisted.



Connecting more modules

Connect the Bus-terminating-plug into the socket of the last connected module of your Qmix system. Ensure that this plug is plugged into the socket before the system is switched on. Otherwise disturbances to the data communication may occur.

IMPORTANT. Always plug the Bus-terminating-plug into the socket of the last connected module. Otherwise disturbances to the data communication may occur.



Connection bus terminator

WICHTIG. The function of the devices was tested with water prior to the delivery. Despite thorough cleaning minimal residues may remain in the system. If you have a critical application, you should rinse your system before use.

4 Disposal

Please return your old devices to CETONI GmbH which will ensure correct disposal according to the Electrical and Electronic Equipment Act.

Please decontaminate the device if necessary and include the completed Declaration of Decontamination form.