CETONI

QMIX I/O-B

Hardware Manual

ORIGINAL INSTRUCTIONS 1.02 – MARCH 2016

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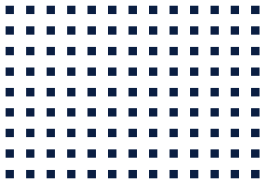

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1.2 Change history

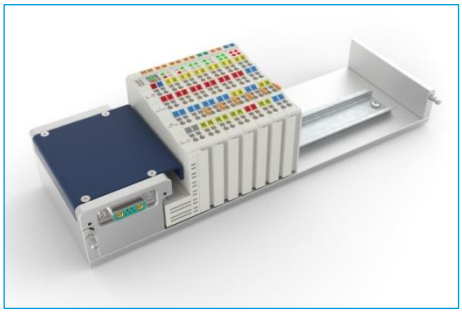
REV	DATE	CHANGES
1.00	18.12.2015	First version of the manual
1.02	11.03.2016	Revision Guide Design

2 Scope of Supply

The following items should be included in the scope of supply:

QMIX I/O-B MODULE

with mounted Beckhoff clamp modules, as ordered



CD-ROM QMIX ELEMENTS WIDTH:

- Device drivers for the USB interface
- QmixElements Software
- Qmix SDK (optional)
- Qmix device configuration
- Datasheets of the Beckhoff clamp modules

MANUAL HARDWARE

3 Technical Data

3.1 Environment

OPERATING TEMPERATURE	0°C ~ 50°C
STORAGE TEMPERATURE	-20°C ~ 75°C
OPERATING HUMIDITY	20% ~ 90%, non-condensing
STORAGE HUMIDITY	20% ~ 90%, non-condensing

3.2 General Data

DIMENSIONS (L X W X H)	310 x 100 x 76 mm
WEIGHT	1,1 kg without modules
MAX. NUMBER OF MODULES	15 (12 mm)

3.3 Electrical Data

SUPPLY VOLTAGE	24 VDC
MAX. CURRENT	7,5 A
POWER CONSUMPTION	load dependent (180 W max)

3.4 Interfaces

DEPENDING ON THE MOUNTED MODULES

4 Use

4.1 General Description of the Device

The Qmix I/O-B module is a part of the Qmix micro reaction and analysis system. It enables to receive digital and analog signals from sensors and transmit them to actuators or control systems.

4.2 Intended Use

The Qmix I/O-B module is used to monitor, control or regulate sensors and actuators in microfluidic systems. It is intended only to be used in a Qmix micro reaction system from CETONI GmbH. The application is usually carried out in laboratory-like rooms.

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!

4.4 Safety Advice

For the safe operation of Qmix I/O-B module it is necessary to observe the safety measures from the general section of the manual for the Qmix micro reaction system.

IMPORTANT. Please read this manual, the general part for the Qmix system, as well as the related software manual carefully and completely before putting your Qmix I/O-B module into operation.

5 Transportation and Storage

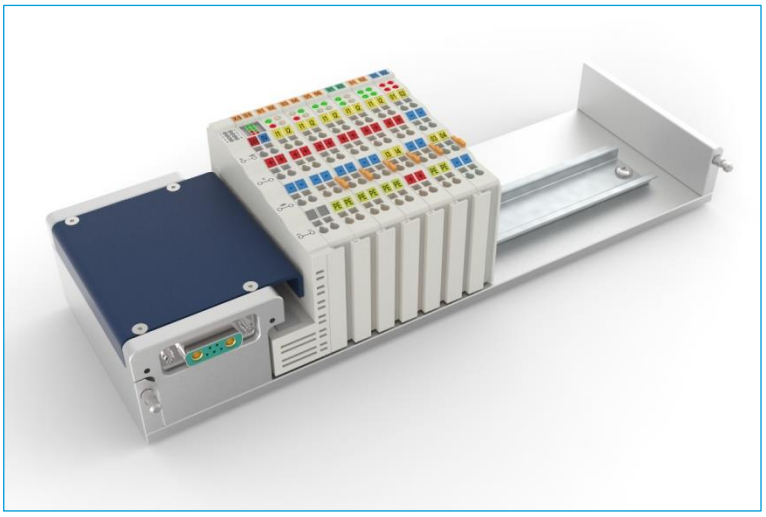
The individual modules must not be lifted or transported plugged-together. Transportation of plugged-together devices is only allowed in the original packaging.

Use the original packaging for transportation or shipping of the module.

Concerning the storage conditions, please observe the data from chapter “Technical data”.

IMPORTANT. Risk of damaging the device. Do not transport the modules plugged-together.

6 Operation



The Qmix I/O-B module makes it possible to integrate the extensive Beckhoff Bus Terminal system into the Qmix microreaction system. In the following chapters the installation of the clamp modules on the Qmix I/O-B module and the general connection of the clamp modules are described.

For clamp modules-specific details, such as clamp assignment and meaning of the display elements, please refer to the data sheet of the respective clamp module.

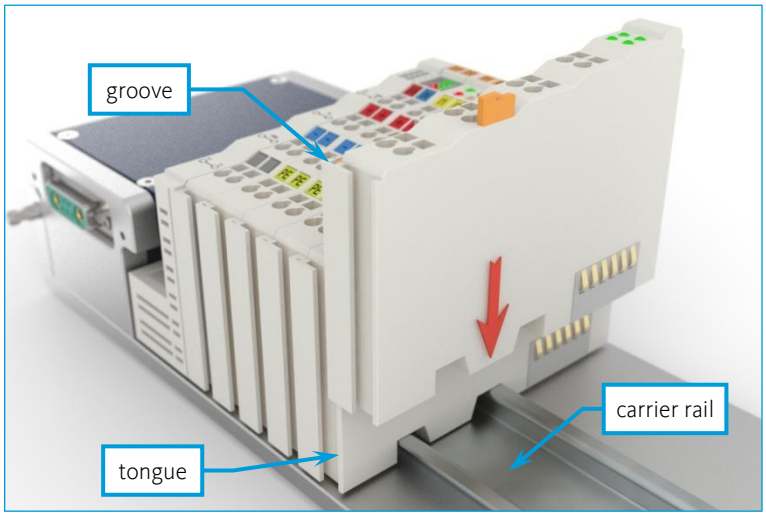
The Qmix I/O-B module is configured and delivered according to your wishes. If you want to add or remove clamp modules, please observe the relevant sections in this, as well as in the corresponding software manual.

CAUTION. Do not place the clamp modules on the gold spring contacts in order to avoid soiling or scratching!
The devices are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the devices, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, e.g. data contacts.

6.1 Inserting Clamp Modules

CAUTION. Turn off the power supply before inserting or removing clamp modules. Not doing so may cause damage to the device.

The clamp modules are equipped with tongue and groove joints. Position the clamp module to be added so that it is correctly aligned to the previous or possibly subsequent clamp modules and then push it into the assembly until it snaps into the carrier rail.

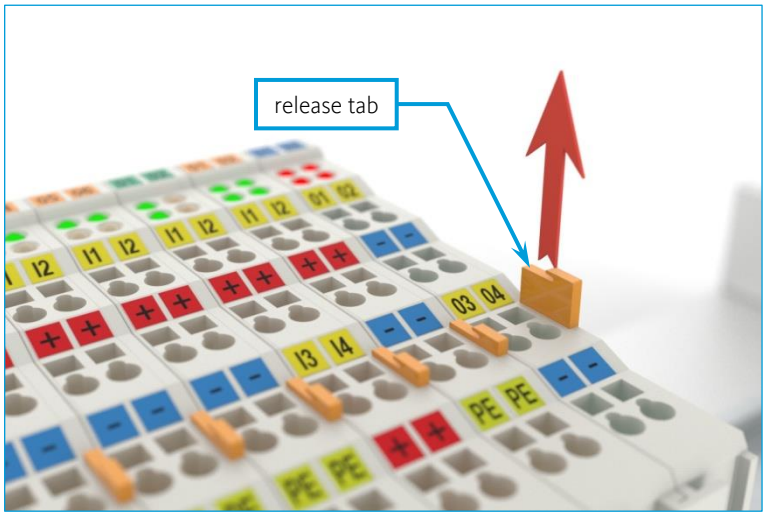


With the clamp module snapped in place, the electrical connections for the data contacts and power contacts to the previous or possibly subsequent clamp modules are established.

6.2 Removing Clamp Modules

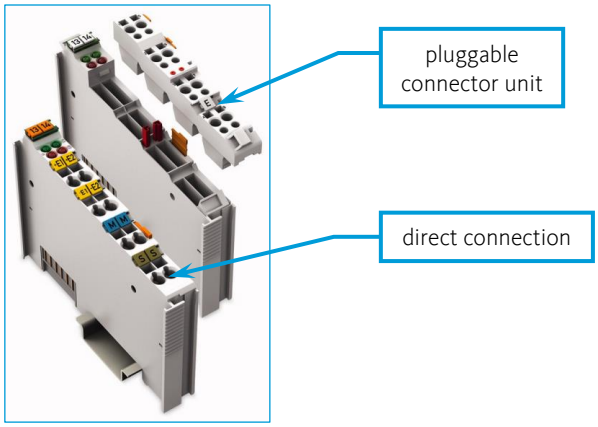
CAUTION. Turn off the power supply before inserting or removing clamp modules. Not doing so may cause damage to the device.

Remove the clamp module from the assembly by pulling the release tab. Electrical connections for data or power contacts are disconnected when removing the clamp module.



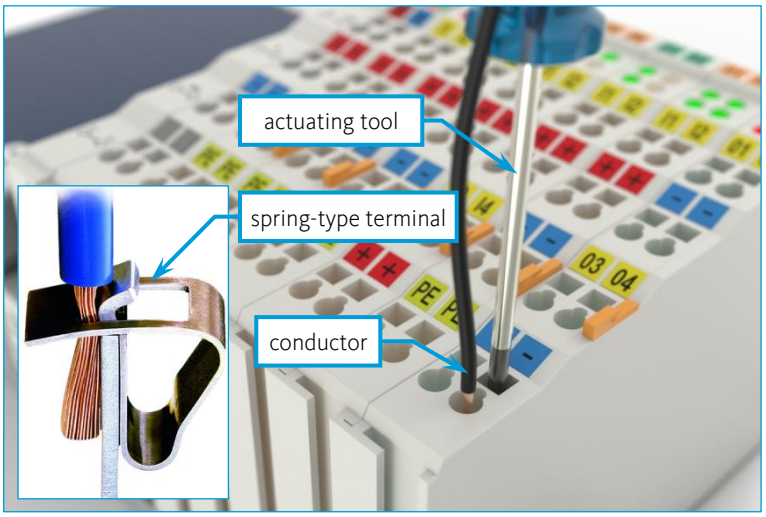
6.3 Connection

Clamp modules are available for direct connection are as well as with pluggable connector units. The pluggable connector unit allows, for example, in case of failure, the replacement of the terminal without having to completely dismantle the wiring.



In both cases the cables are fixated by a spring-type terminal, that allows the use of solid, and stranded conductors.

To open the spring-type terminal insert an actuating tool (e.g. slot screwdriver) into the opening above the connection. Then insert the conductor into the corresponding connection opening and remove the actuating tool. The conductor is now clamped firmly in place.



IMPORTANT. Only one conductor may be connected to each connection. Several individual conductors at one port are only permitted if they joined together in a crimped ferrule for a nominal cross-section of 1 mm² and with 8 mm length.

7 Maintenance and Care

If used in accordance with intended purpose, the device is maintenance-free. Should there be a failure despite this, which you cannot eliminate yourself, or which requires opening the device, please contact CETONI GmbH to coordinate further actions. The device may only be opened by CETONI GmbH or thereby authorized service staff. Otherwise the warranty and guarantee claims are void.

Software-related troubles are dealt with in the Software Manual.

For cleaning it please rub the surface gently with a soft, damp cloth. The cloth must not be wet, so that no fluency can trickle into the device. In case of a heavier soiling you can also use a little bit of detergent or alcohol.