

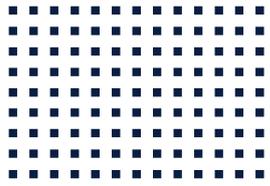


# CETONI

## CE QMIX TC2 Hardware Manual



ORIGINAL MANUAL 2.01 – MARCH 2016



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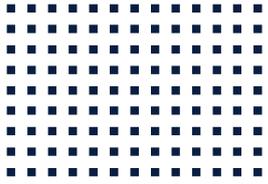
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# 1 Overviews and Indexes

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## 1.2 Change History

<b>REV</b>	<b>DATE</b>	<b>CHANGES</b>
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 temperature of the Reaction module Q+ heating column and the High temperature T-mixer due to material changes.
2.00	01.12.2015	Thematic splitting of the manual "Qmix hardware"
2.01	11.03.2016	New corporate design

## 2 Technical Data

### 2.1 Environment

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

### 2.2 General Data

<b>DIMENSIONS (L X W X H)</b>	310 x 72 x 78 mm
<b>WEIGHT</b>	1200 g
<b>NUMBER OF CONTROL LOOPS</b>	2
<b>POWER PER CONTROL LOOP</b>	240W max.
<b>CONTROL RANGE</b>	-127° C ~ 414°C
<b>RESOLUTION</b>	0.53 K (10 bit)

### 2.3 Electrical Data

<b>SUPPLY VOLTAGE</b>	24 VDC
<b>POWER CONSUMPTION</b>	load dependent (480 W max)

## 2.4 Interfaces

**TWO CONTROLLED HEATING CHANNELS**

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**TWO ADDITIONAL CONNECTORS FOR PT100  
TEMPERATURE SENSORS**

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**CONNECTOR FOR OFF-LINE POWER SUPPLY**

# 3 Use

## 3.1 General Description of the Device

The Qmix TC2 module is a part of the Qmix micro reaction and analysis system. It enables the control of two independent resistive heaters with PT100 temperature sensors. Two additional PT100 temperature sensors can be captured.

## 3.2 Intended Use

The Qmix TC2 module is used to control resistive heaters in microfluidic systems. It is intended to be used in a Qmix micro reaction system from CETONI GmbH. The application is usually carried out in a laboratory-like rooms.

## 3.3 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!

## 3.4 Safety Advice

For the safe operation of Qmix TC2 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 TC2 module into operation.

# 4 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.

# 5 Hardware



The Qmix TC2 Module provides two independent control loops for the connection of resistive heaters with PT100 temperature sensors. In addition, two PT100 temperature sensors can be captured.

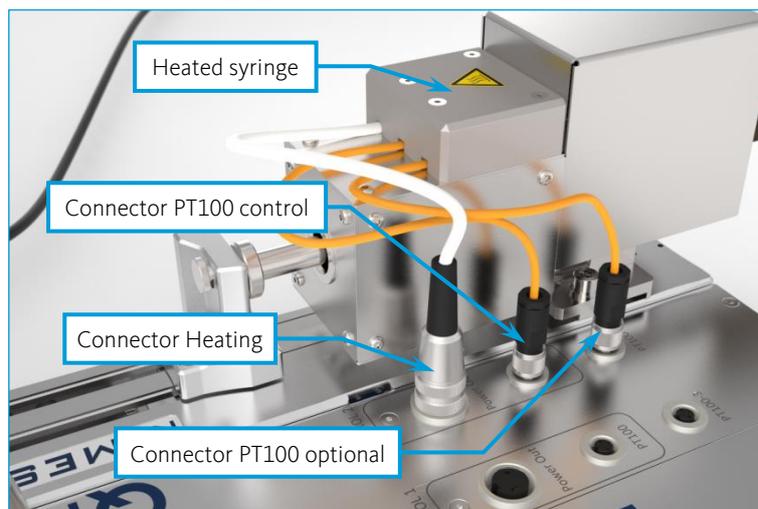
## 5.1 Operation



NO.	DESCRIPTION
1	Connector for Off-Line power supply (see manual of the Qmix BASE 600XT Module)
2	two independent temperature control loops
3	Connector for resistive heater No.1
4	Connector for PT100 temperature sensor for heater No.1
5	Connector for two additional PT100 temperature sensors

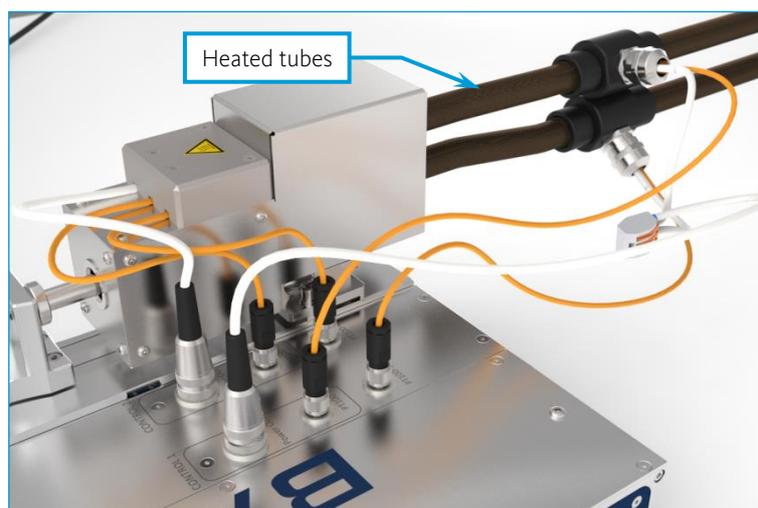
In the following picture a heated syringe is connected to the Qmix TC2 Module. The white cable with the larger plug is connected to the socket labeled "Power Out". For this, the plug is inserted into the socket (note orientation) and then fixed with the knurled cap. PT100 temperature sensors are integrated in two places inside the syringe. They are led to the outside as orange cables with slightly smaller connectors. Connect the sensor you want to use for controlling to the socket labeled "PT100" of the same control channel. Therefore, insert the plug into the socket (note orientation) and fix it with the knurled cap.

The second sensor may be connected to one of the additional PT100 ports. It can also be displayed in the software, but will not be used for controlling purposes.



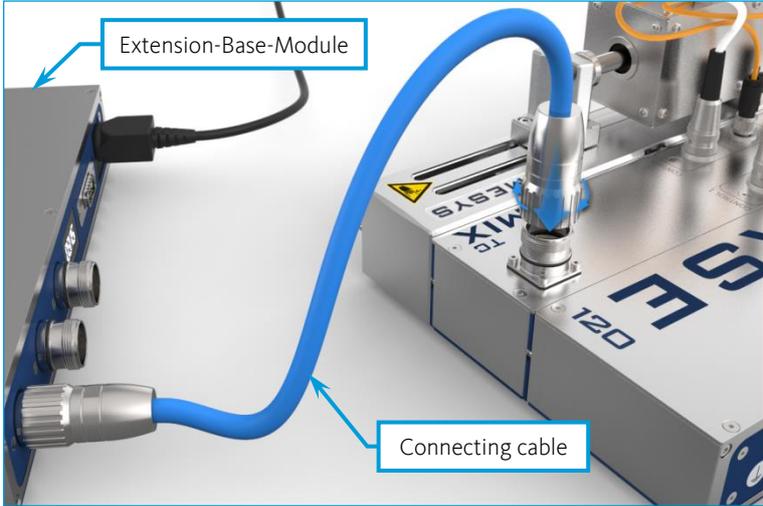
Qmix TC Module with heated syringe

The second temperature control loop can be used for example for connection of heated tubes.



Connection for heated tubes

The Qmix TC2 Module is suitable for Off-Line power supply via Qmix BASE 600XT Module (see manual of the Qmix BASE 600XT Module). Once you connect the ports of the two devices with the appropriate cable, the Qmix TC2 Module will automatically disconnect from the power supply of the base system and connect to the Qmix BASE 600XT Module.



Off-Line power supply

# 6 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.