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Warranty information

mTC3 and **cFlow** are warranted against defects in material or workmanship for 2 years. **TC2BIP, mTC3** & **cFlow** accessories warranted against defects in material or workmanship for 6 months.

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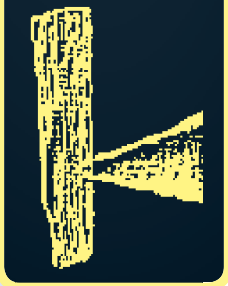
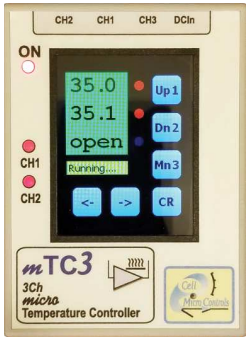
Since 1989 we have been designing and manufacturing temperature control and perfusion instruments for electrophysiology and microscopy research, where precision and low noise are critical. Our wide range of accessories include tissue chambers, thin transparent ITO heaters, miniature thermistor probes, reusable culture chambers, miniature perfusion devices, etc. Our customers are in over 250 universities and companies in North America, Europe and Asia.

Cell MicroControls
Equipment for cellular & electrophysiology research

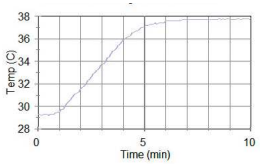


*m*TC3 Digital 3ch micro-Temperature Controller



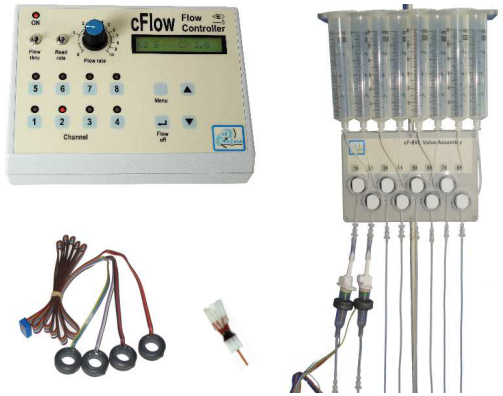
- Sophisticated **miniature low power** controller for heating small tissue baths, microscope stages, small animal heaters, portable incubator
- **3 independent channels**
- **Compatible** with many low voltage **heater elements**
- **USB/S232** port for control, logging
- **2 heating modes, PWM** [8W] or **analog** [2W]
- Maintains **setpoint** and **parameters** in **EEPROM**
- **Firmware reprogrammable** - for upgrades, customization

The ***m*TC3 micro-Temperature Controller** is a versatile 3 channel temperature controller powerful enough to heat small tissue baths, microscope stages, small animal heaters etc. but also able to control miniature heating devices like the **MPRE8**, **HPRE2** and thin ITO heaters. The ***m*TC3** uses state-of-the-art microcontrollers to provide a flexible instrument rather than a modular PID design where there is no control over the user interface and instrument function. The ***m*TC3** has two ways of driving heaters, with a **PWM** (pulse width modulated 2.5-20kHz) or an **analog** output for lower noise. In the **PWM** mode it can control currents up to 1.5Amps provided by a Li-ion battery or 15V power supply.



Temperature in well in a 96 well plate using **mTC3** to control **HWT-96**.

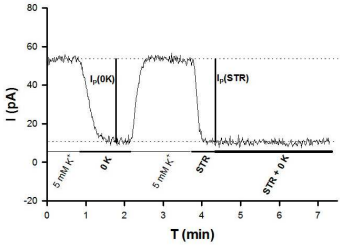
cFlow Flow/switch Perfusion System



- **8 Ch perfusion control**
- **Rapid** pinch valve **switching (typ. 50ms)**
- **Simultaneous flow control** (0.1-10ml/min).
- **RS232, analog, digital interface** (CLAMPEX)
- **Upgradeable firmware via USB/RS232**

The versatile **cFlow** 8 Channel Switch/Flow controller can be used to switch solutions as well as control the flow rate. For flow control optical sensors that fit around standard dripsets detect the passing droplets. The controller adjusts the valve open time to compensate for different size tubing, pressure head. In switched mode the **cFlow** can rapidly switch between solutions (eg. using **MPRE8**). Any channel can be set for flow or switched mode.

Push buttons select the flow channel or commands can be given from the USB/RS232 interface, analog or digital input (using optional cable).



Na/K pump current with solutions switched with **cFlow**. Courtesy J. Gao SUNY @ Stony Brook, NY

Accessories

Tissue chambers & microscope adapters

We make many different tissue chambers with volumes from 120µl to 1ml. Shown is the **BT-1-TBS** with field stimulation.

ITO Transparent glass heaters

Transparent glass heaters from small **120µm** thick used to form the bottom of tissue chambers to large **1.1mm** thick for heating microscope stages.

Thermistor probes

Low solution levels require miniature thermistor probes like the **TH-10Km** (0.45mm diam.)

Pre-heater [single channel]

The **HPRE2** is very compact, (3 tube construction) has excellent heat exchange properties and a **low thermal mass**.

Pre-heater [8 channel]

With 8 fine (360µm ID) fused silica barrels merging in a miniature mixing tip (**1-2µl)** the **MPRE8** delivers temperature controlled solutions near individual cells for **rapid** solution changes (typ. 100ms).

Culture/stim system

The **Culture/stim** system allows you to use acutely dissociated or culture cells grown in a **low cost reusable** tissue chamber that clips into a holder. Field stimulation can be applied using a low voltage (<10V) stimulator.

Transparent ITO microscope stages

These **transparent** ITO stages allow temperature control over a large surface for observation, use of transparent 96 well plates etc.