

MCS 10

**Fully Integrated
Multichannel
Conductivity
Spectroscopy**

From -40 °C to +150 °C

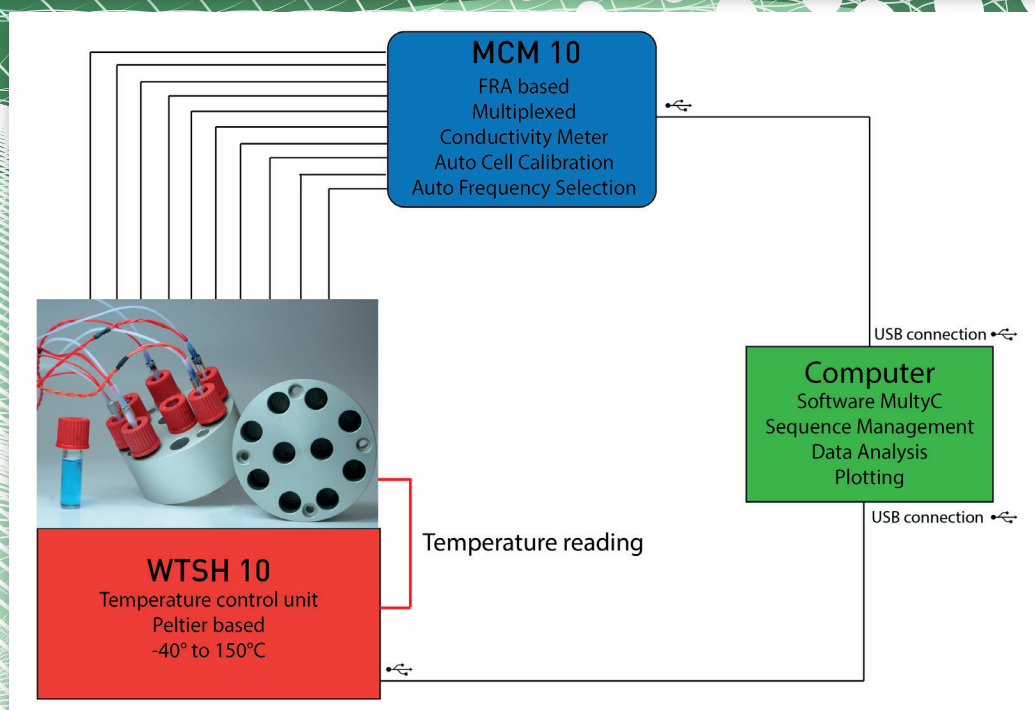


**Fast
Cost Effective
Accurate**

- Measure 10 samples at multiple frequencies
- 7 Conductivity ranges from 0.2 $\mu\text{S}/\text{cm}$ to 2 S/cm
- Save cost and reduce waste using small volume of liquid
- -40 °C to +150 °C scan in a single unit



The **Liquid Conductivity System - MCS 10** - is a unique integration.



MCM 10: Multichannel Conductivity Meter based on Frequency Response Analyser (EIS)

WTSH 10: Peltier based temperature control unit with 10 slots.

HTCC: Small volume sealed conductivity cells.

Continuous and accurate measurements

The FRA based Multiplexed Conductivity Meter - MCM 10 - runs repeated frequency scans and **conductivity is automatically calculated at the optimal frequency**. This provides continuous conductivity measures during the entire experiment cleared from liquid and electrode interactions. A spectra of FRA can also be retrieved for further analysis. At various temperatures, results are matching theory over several conductivity decades. 10 channels are available for fast sequential measures.

Single and convenient temperature unit

The Peltier based Wide Temperature Sample Holder - WTSH 10 - can accommodate up to 10 cells. It works in a **large temperature range** from -40 °C to +150 °C with a **high accuracy level** of +/-0.2 °C. Moreover, all samples stay within +/-0.2 °C range. The Peltier design **eliminates the liquid bath inconvenience**. This capability drives down full temperature **cycle experiments to just a few hours** in a clean and small set-up.

UNIQUE FEATURES:

- FRA based spectrum analysis and automatic frequency selection for correct measurement
- Dry, Peltier based temperature control unit -40 °C to +150 °C
- Sample cells small volume of 0.5 –1.0 ml to reduce cost and waste
- Sealed cells with Pt parallel plates electrodes protecting samples from air exposure
- Software test sequence management with temperature cycles, conductivity measures and plotting

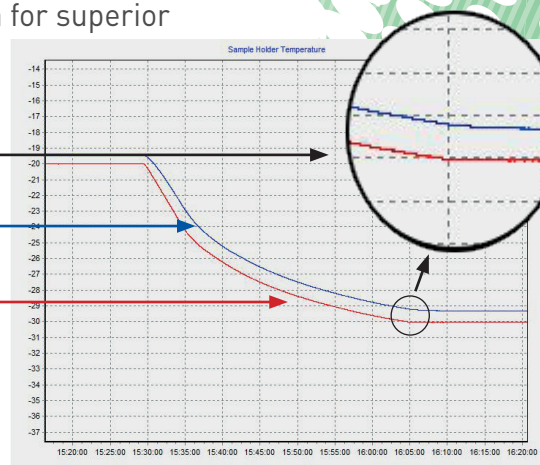
Dynamic sample temperature response

An auxiliary PT1000 can measure a dummy cell liquid temperature during a full temperature cycle. This provides accurate experimental data for superior conductivity analysis.

Liquid at setpoint temperature (<1 °C) in less than 5 min

Actual liquid temperature

WTSH 10 cell holder actual temperature



Sealed small volume of ionic liquid

The wide temperature range conductivity cell – HTCC – is a **sealed small volume** vial hosting two parallel platinum electrodes. Optimal design allows to use as low as 0.5 ml of ionic liquid in a cell.

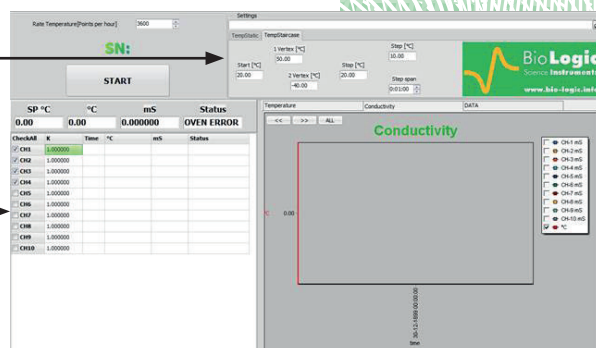
The sealable cell **protect the sample from atmosphere** allowing experiments to be performed in safe working conditions.

Comprehensive software

The MultyC software connects the MCS 10 instruments and ancillaries. Experiment setup and monitoring is managed through a Graphic User Interface.

Temperature scan programming window

Channel selection window



An algorithm selects the optimal frequencies used for the conductivity measures.

Full data collection and real time plot are available.

A graphical chart represents continuous conductivity versus temperature. By selecting any conductivity data point, the corresponding Bode graph is displayed.

Conductivity (one channel)

Temperature



This **gives critical information at a glance.**

Specifications

MCM 10

Conductivity ranges	7 ranges from 0.2-2 $\mu\text{S/cm}$, to 0.2-2 S/cm
Conductivity resolution	0.005 % of dynamic range
Conductivity accuracy	< 4 % of the 2 $\mu\text{S/cm}$ and the 2 S/cm range < 2 % of the 20 $\mu\text{S/cm}$ range 0.2 S/cm range < 1 % of all other ranges
Acquisition time	< 20 sec/channel
Computer connection	USB 2.0

WTS10

Heating/cooling	Peltier air cooled
Temperature range	-40 °C to +150 °C
Temperature Accuracy (typ.)	+/-0.1 °C
External input	Auxiliary PT1000
Number of slots	10
External Dimension	290 x 340 x 375 mm (W x D x H)
Computer connection	USB 2.0
AC input	110-240 VAC, 50 - 60 Hz

HTCC

Cell type	Parallel plates platinized platinum on glass holder
Connections	2-wire connections
Cell factor	K = 1 (nominal)
Minimal sample volume	0.5 - 1.0 mL
Temperature range	-50 °C to + 180 °C
Temperature ramp	1 °C/min
External dimensions	60 mm x 18 mm diameter

Specifications subject to change



Headquarters
Bio-Logic SAS
1, rue de l'Europe
38640 Claix - France
Phone: +33 476 98 68 31
Fax: +33 476 98 69 09

Affiliate offices
USA: **Bio-Logic USA, LLC**
Phone: +1 865 769 3800
India: **Bio-Logic Science Instruments Pvt. Ltd.**
Phone: +91 2225842128

www.bio-logic.info