

Scientific Software Package **SCI** for **M Lab** Electrochemical Workstation

SCI is an extended software package for use with the electrochemical workstation **M Lab**.

SCI is able to control multiples of cells independently even for **complex tasks**.

SCI offers:

- **Repetitions** (cycling) of any task n times
- **Task lists** up to 10 tasks per channel
e.g.: pre - polarisation, triangle sweep (cycled n times), post - polarisation

Parameter															
File Autosize Columns															
		Cell Mode	Cont Mode	Scan Mode	Range	Start	Slope	Stop	Intervall	Duration	Timestep	Record	File Name	Condition	
Chan 1		☒ Cell On	Open Circ.	Const.	—	100 nA	no Input	no Input	no Input	no Input	00:30:00	1,0 s	running	F:\TEMP\S	
	Chan 1-1	☐ Cell On	Pot.stat	Const.	—	Auto R.	-800	no Input	no Input	no Input	00:00:00	-?	waiting		
	Chan 1-2	☐ Cell On	Pot.stat	Trian.	^	Auto R.	-500 mV	10 mV/s	1600 mV	5 mV	00:07:00	500 [ms]	waiting	F:\TEMP\S	5 Repeats,
	Chan 1-3	☐ Cell On	Pot.stat	Const.	—	Auto R.	-500 mV	no Input	no Input	no Input	00:20:00	1,0 s	waiting	F:\TEMP\S	
	Chan 1-4	☐ Cell On	Open Circ.	Const.	—	100 mA	no Input	no Input	no Input	no Input	01:00:00	10,0 s	waiting	F:\TEMP\S	
Chan 2		☐ Cell On	Open Circ.	Const.	—	-?	no Input	no Input	no Input	no Input	00:01:00	-?	Stop		
	Chan 2-1	☐ Cell On	Galv.stat	Const.	—	1 mA	0,25 mA	no Input	no Input	no Input	00:02:05	200 ms	waiting		
	Chan 2-2	☐ Cell On	Galv.stat	Const.	—	100 µA	24,0 µA	no Input	no Input	no Input	00:01:40	200 ms	waiting		
	Chan 2-3	☐ Cell On	Pot.stat	Const.	—	Auto R.	-?	no Input	no Input	no Input	00:00:00	-?	waiting		
Chan 3		☐ Cell On	Open Circ.	Const.	—	-?	no Input	no Input	no Input	no Input	00:00:00	-?	Stop		
	Chan 3-1	☐ Cell On	Pot.stat	Const.	—	Auto R.	-?	no Input	no Input	no Input	00:00:00	-?	waiting		
	Chan 3-2	☐ Cell On	Galv.stat	Const.	—	10 µA	-?	no Input	no Input	no Input	00:00:00	-?	waiting		
	Chan 3-3	☐ Cell On	Pot.stat	Const.	—	Auto R.	-?	no Input	no Input	no Input	00:00:00	-?	waiting		
Chan 4															

- **Conditioned end of a task**, switching over to the next, controlled by 2 conditions out of 4

Condition for Channel Chan 1-2

start condition
☒ Start with prev. potential

on primary condition, skip to next part of sequence

charge
<=
-123,00
mAs

logical combination

on secondary condition, skip to next part of sequence

no condition

on halt condition, stop sequence

current
>=
50,00
mA

number of repetitions for part of sequence

5
number of repetitions

Cancel
Ok

5 Repeats, next step if (charge <= -123,00 mAs), halt if (current >= 50,00 mA)

end if potential $\geq$ (or $\leq$) limit

end if current $\geq$ (or $\leq$) limit

end if charge $\geq$ (or $\leq$) limit

end if time $\geq$ limit value

The two conditions may be connected by either AND or OR. For each task, separate conditions may be chosen.

Start with previous potential

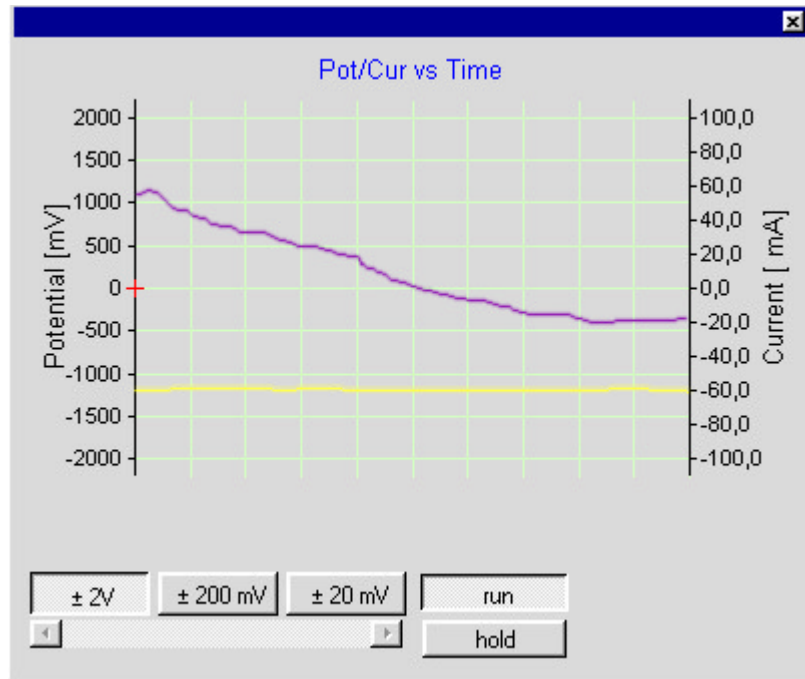
If you want to start a scan from rest potential, click the check box start condition

Halt condition

This condition shall meet absolute emergency conditions. If the condition is met, the cell is switched off immediately.

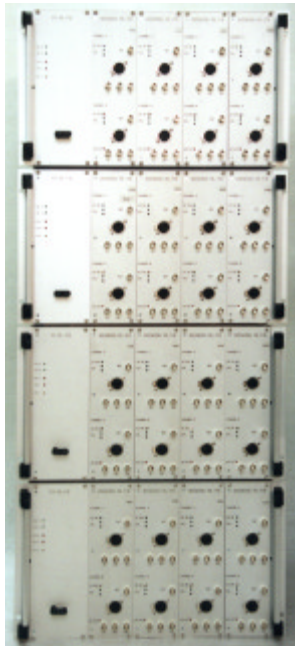
- **Direct data export to MS Excel** (.XLS) now from the data panel
- **Separated data storage for chained tasks**, using automated name extensions

- New Scope functions



The scope screen is a sub - function of the cell check mode, allowing to trace potential and current at the settings of cell check to analyse possible cell problems, or just to estimate the optimal time settings for a transient measurement.

More M Lab News



M Lab 20 was developed for low - current applications. The ranges cover 20 mA down to 20 nA, offering a current resolution as low as **10 pA**. Together with SCI software, this model is ideal for the development of **electrochemical sensors**.

MLab 1000 feeds currents up to **+/- 1 A**. This model was developed for applications in battery testing and galvanic coating applications. M Lab 1000 has 4 current ranges per channel, covering 1 A down to 1 mA, at voltages up to +/- 4 V.

Left: 32 channel - M Lab station, equipped with M Lab 1000

<http://www.bank-ic.de>

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