

CURRENT INTERRUPT MODULE (CIM)



CIM specifications

Current compliance	5A
Voltage compliance	± 20V
Resistance on-state	0.13 Ohm typical
Resistance off-state	>100 GOhm
Interrupt time	< 2µs
power requirements	powered from cell cable
Size	w x d x h = 3.3 x 6.3 x 1.5 cm
Weight	60 gram
Interfacing/connectivity	HD15, connects in-line with cell cable
Use	only i.c.w. Ivium potentiostats

Functionality: enable the current interrupt technique for measuring the IR-drop of the electrochemical system.

Installation: The male side of the CIM can be placed directly on the cell connector of the IviumStat/CompactStat. The cell cable can be connected to the female side, as before. The CIM is thus connected between the instrument and the cell cable. When not using the current interrupt technique all signals are passed through this module and it is fully compatible with the situation without CIM. However, the CIM adds ca. 130 mOhm impedance to the cell cable. This should be taken into account when measuring in the 2-electrode mode and it will slightly lower the compliance voltage of the potentiostat. The latter will only have a significant effect when measuring very low impedance objects.

Application: The CIM can be used for measuring the IR-drop of an electrochemical system via the current interrupt technique. As the name of the technique suggests, the current of a running experiment is interrupted instantly and the response of the cell potential is measured in high speed mode. The momentary drop of the cell potential, representing the IR-drop of the electrochemical system, is then shown in a graph of the potential vs. time.

Operation: In the IviumSoft, the current interrupt technique is integrated as a diagnostic tool. When the technique is used a graph is produced showing the potential vs. time and from this result the IR-drop is calculated.

To operate the CIM, in the "Direct Mode" set the desired potential in either the potentiostatic 4-electrode or 2-electrode configuration, and then apply so that the the potential is applied to the test object and the current flows. Then in the menu bar choose "Tools>CurrentInterrupt" and then press "apply". The current is momentarily interrupted and the IR-drop is calculated.

