

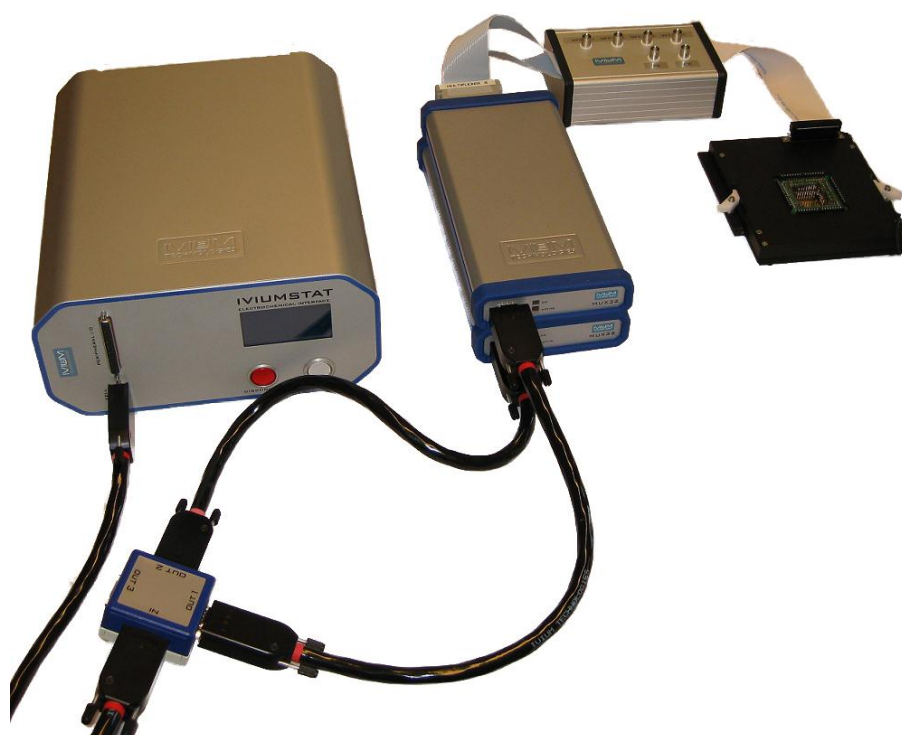
Product Note P22



MEA User Guide

To facilitate the connection of a single channel Ivium potentiostat to a Multi Electrode Assembly (MEA), a multiplexer-set up has been developed. The complete set-up consists of:

- 1 x IviumStat single channel potentiostat/galvanostat with integrated impedance analyser
- 2 x MUX32 32 channel multiplexer
- 1 x break out box
- 1 x MEA: Multichannel Systems MEA1060-INV Adapter
- 1 x Junction box
- 3 x connection cable: 50cm M/F HD15



When installed the system allows control of 64 channels (working electrodes), of which 60 are fixed in the MEA and 4 are separately accessible from the break out box.

Specifications

System

Max Current:	Protected with 100 Ohm in Series with CE.
Max Voltage:	10V.
Bandwidth:	10 kHz.
Interfacing/connectivity:	HD15, connects to the potentiostat cell connector. Use only i.c.w. Ivium potentiostats

MUX32

Size:	w x d x h = 13 x 27.5 x 2.5 cm
Weight:	0.5 kg
Front indicators:	'ON' : Lights up when correctly powered via IviumStat
	'Active' : Lights up when one of the 32 channels is selected.

Installation

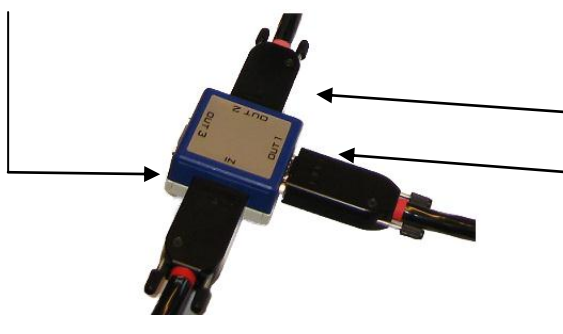
To assemble the set-up:

1- Install the IviumStat as instructed in the Manual.

2- Take 1 connection cable and insert the M-side into the cell connector at the front of the IviumStat.



3- Insert the F-side of the connection cable into the "In" connector of the junction box.



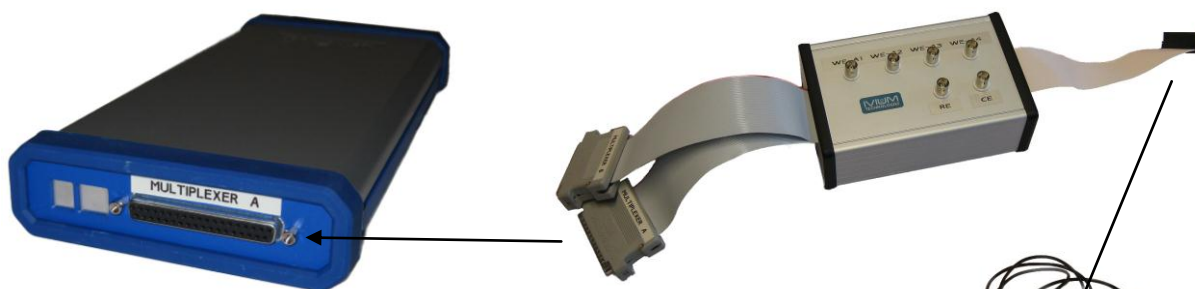
4- Take connection cables 2 and 3 and insert the M-side into connectors "Out1" and "Out2" of the junction box.

5- Insert the F-side of connection cables 2 and 3 into the connectors at the front of the two MUX32 (A and B, see back of the MUX32).

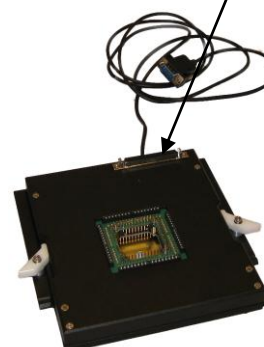
Note that the order of MUX A and B is not relevant, the junction box is a parallel connection.



6- Connect the DB37 connectors A and B of the break out box and insert these in the appropriate DB37 connectors of MUX32 A and B.



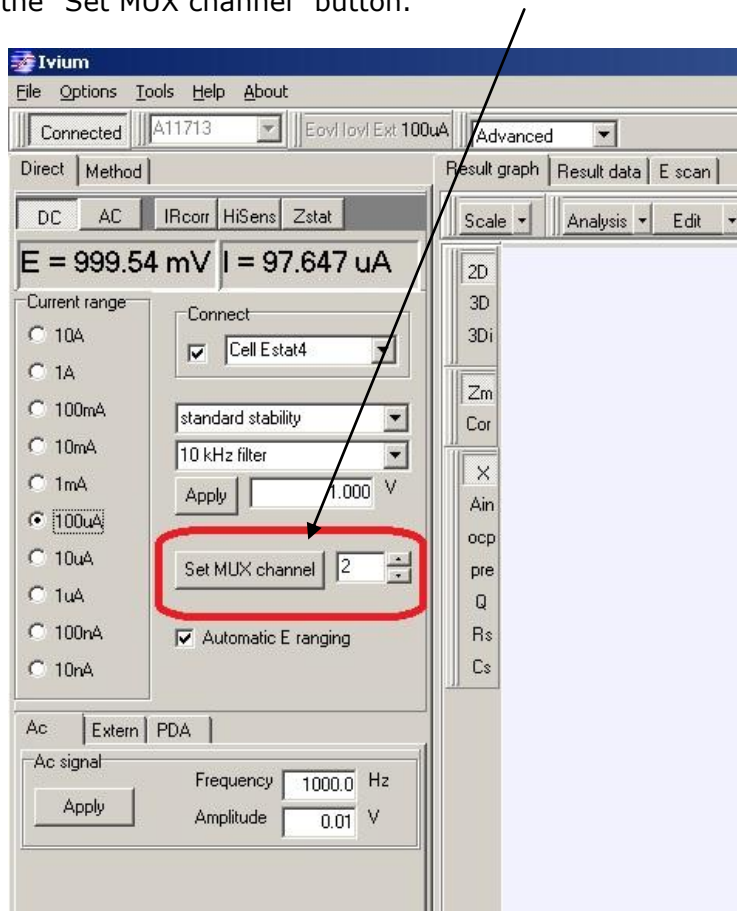
7- Connect the SCSII cable of the breakoutbox to the MEA Cell.



8- Connect the reference and counter electrode leads to their BNC connectors on the break out box.

Operation

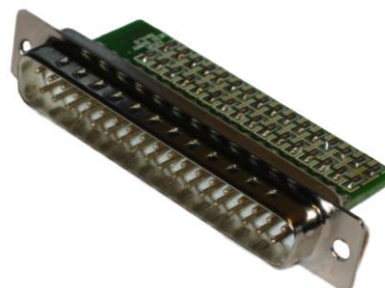
- a- Power up the IviumStat. Both MUX32 devices should indicate "ON" at the front, MUX32 device A should also indicate "Active".
- b- Open the IviumSoft software and connect the IviumStat in the software (see also "Quick install manual").
- c¹- In the menu bar, go to "Options>Options" and check the box in front of "MEA".
- d¹- Disconnect the IviumStat in the software and connect it again to synchronize the hardware.
- e- Now you can select the desired MEA-channel by using the "Set MUX channel" option in the "Direct" mode tab in the IviumSoft, or use the relevant function in the IviumSoft batch programming mode.
To select a channel, insert the desired channel number, and activate this by clicking on the "Set MUX channel" button.



Note: to operate the IviumStat as a stand alone single channel instrument, remove the check from the box "MEA" in the options menu, and restart the instrument.

Test cell

A test cell for the MUX32 is included in the delivery. This test cell consists of 32 10k resistors. The dummy can be inserted at the back of the MUX32. When a relevant channel is selected, the 10k resistor can be used to verify the correct operation of that MUX32 and channel.



¹ Actions c and d only need to be carried out once at first installation.

MultiWE32 cable assembly

MultiWE32 cable assignment		
Electrode	Color	HD37 Pin number
CE	black	21
CE shield/Ground	green	3
RE	blue	20
RE shield	<i>white (not external lead)</i>	<i>1</i>
RE shield	<i>brown (not external lead)</i>	<i>2</i>
WE1	brown-blue	22
WE2	yellow	4
WE3	white-red	23
WE4	pink	5
WE5	brown-red	24
WE6	grey	6
WE7	white-black	25
WE8	red	7
WE9	brown-black	26
WE10	violet	8
WE11	yellow-grey	27
WE12	grey-pink	9
WE13	green-grey	28
WE14	red-blue	10
WE15	yellow-pink	29
WE16	green-white	11
WE17	green-pink	30
WE18	green-brown	12
WE19	yellow-blue	31
WE20	white-yellow	13
WE21	green-blue	32
WE22	yellow-brown	14
WE23	yellow-red	33
WE24	white-grey	15
WE25	green-red	34
WE26	brown-grey	16
WE27	yellow-black	35
WE28	white-pink	17
WE29	green-black	36
WE30	pink-brown	18
WE31	pink- blue	37
WE32	white-blue	19

Note: both RE shield leads are present in the cable as shielding for the RE, but they are not carried out to a banana plug.

Channel Numbering.

MultiPlexer A			MultiPlexer B	
IVIUM Channel	MEA Electrode		IVIUM Channel	MEA Electrode
WE1	47		WE33	46
WE2	48		WE34	38
WE3	45		WE35	28
WE4	37		WE36	27
WE5	36		WE37	26
WE6	17		WE38	35
WE7	16		WE39	15
WE8	25		WE40	24
WE9	14		WE41	13
WE10	34		WE42	12
WE11	23		WE43	33
WE12	22		WE44	32
WE13	21		WE45	44
WE14	31		WE46	41
WE15	43		WE47	52
WE16	42		WE48	53
WE17	51		WE49	61
WE18	54		WE50	71
WE19	62		WE51	72
WE20	63		WE52	73
WE21	82		WE53	64
WE22	83		WE54	84
WE23	74		WE55	75
WE24	85		WE56	86
WE25	65		WE57	87
WE26	76		WE58	66
WE27	77		WE59	67
WE28	78		WE60	55
WE29	68		WE61	A1 (EXT1)
WE30	56		WE62	A2 (EXT2)
WE31	57		WE63	A3 (EXT3)
WE32	58		WE64	A4 (EXT4)



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