Product Note P23

MUX32 User Guide

To facilitate the connection of a single channel Ivium potentiostat to a Multi Electrode Assembly (MEA) or multiple electrodes sharing a single counter and reference electrode, a multiplexer is available: the MUX32.

The MUX32 set includes:

- 1 x MUX32 32 channel multiplexer
- 1 x connection cable: 60cm M/F HD15
- 1 x MultiWE32 cell cable
- 1 x TestCell

When installed the system allows control of up to 32 (multiplexed) channels (working electrodes).

Specifications

System

Max Voltage:	±10V.
Max. current:	±30mA per WE
Bandwidth:	1 MHz.
Interfacing/connectivity:	HD15, connects to the potentiostat cell connector. Use only i.c.w. Ivium potentiostats.
Electrode connection:	1 connectors for 32 WEs; only one CE/RE connection needs to be made for all WEs.
Stackable:	The MUX32 can be stacked up to 8 units to create 256 switchable WEs

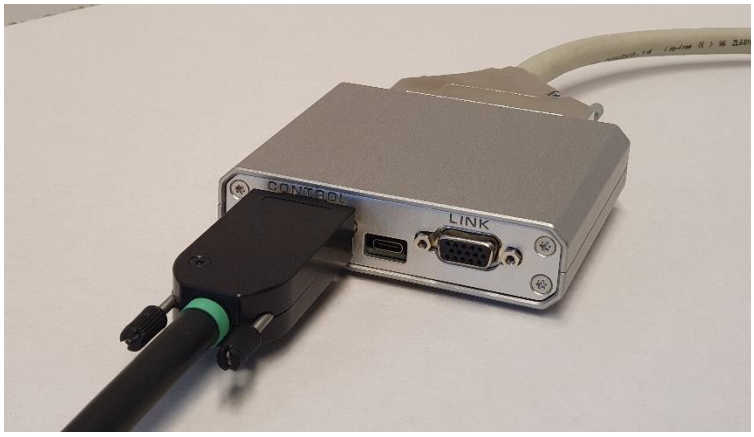
MUX32

Size:	w x d x h = 10.5 x 9 x 2.5 cm
Weight:	0.25 kg
Front:	SD37-F connector for cell cable
Rear:	1) HD15-M connector for connection to control (potentiostat or other MUX32) 2) USB-C for optional power supply (auto detect) 3) HD15-F connector to link to other MUX32
Power:	5V through connection cable from controlling potentiostat or from 5V USB-C power supply

Installation

To assemble the set-up:

Single MUX32



1- Install the Ivium potentiostat as instructed in the help file.

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

3- Insert the F-side of the connection cable in the "Control" connector of the MUX32.

4- Connect the cell cable to the SD37-F connector at the front of the MUX32.

Multiple MUX32

1- Install the Ivium potentiostat as instructed in the help file.

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

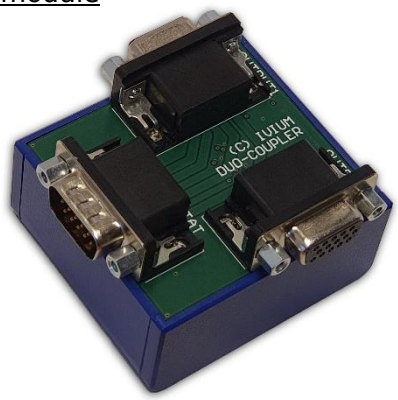
3- Insert the F-side of the connection cable in the "Control" connector of MUX32 #1 (channels 1-32).

4- Take the 2nd connection cable and insert the M-side into the "Link" connector of MUX32 no.1 (channels 1-32), and connect the F-side into the "Control" connector of MUX32 no.2 (channels 33-64), etc.

5- Connect the cell cables to the SD37-F connector at the front of each MUX32.

NOTE: All CEs and REs are interconnected, only one of all should be connected to the CE and RE of the cell/MEA

Multiple MUX32 with coupler module



1- Install the Ivium potentiostat as instructed in the help file.

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

3- Insert the F-side of the connection cable in the M-side connector of coupler module.

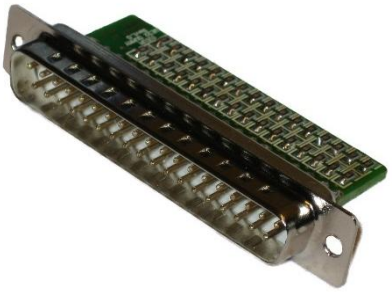
4- Take the 2nd connection cable and insert the M-side into the "Control" connector of MUX32 no.1 (channels 1-32), and connect the M-side into one of the F-side connectors of coupler module.

5- Take the 3rd connection cable and insert the M-side into the "Control" connector of MUX32 no.2 (channels 33-64), and connect the M-side into one of the F-side connectors of coupler module.

6- Connect the cell cables to the SD37-F connector at the front of each MUX32.

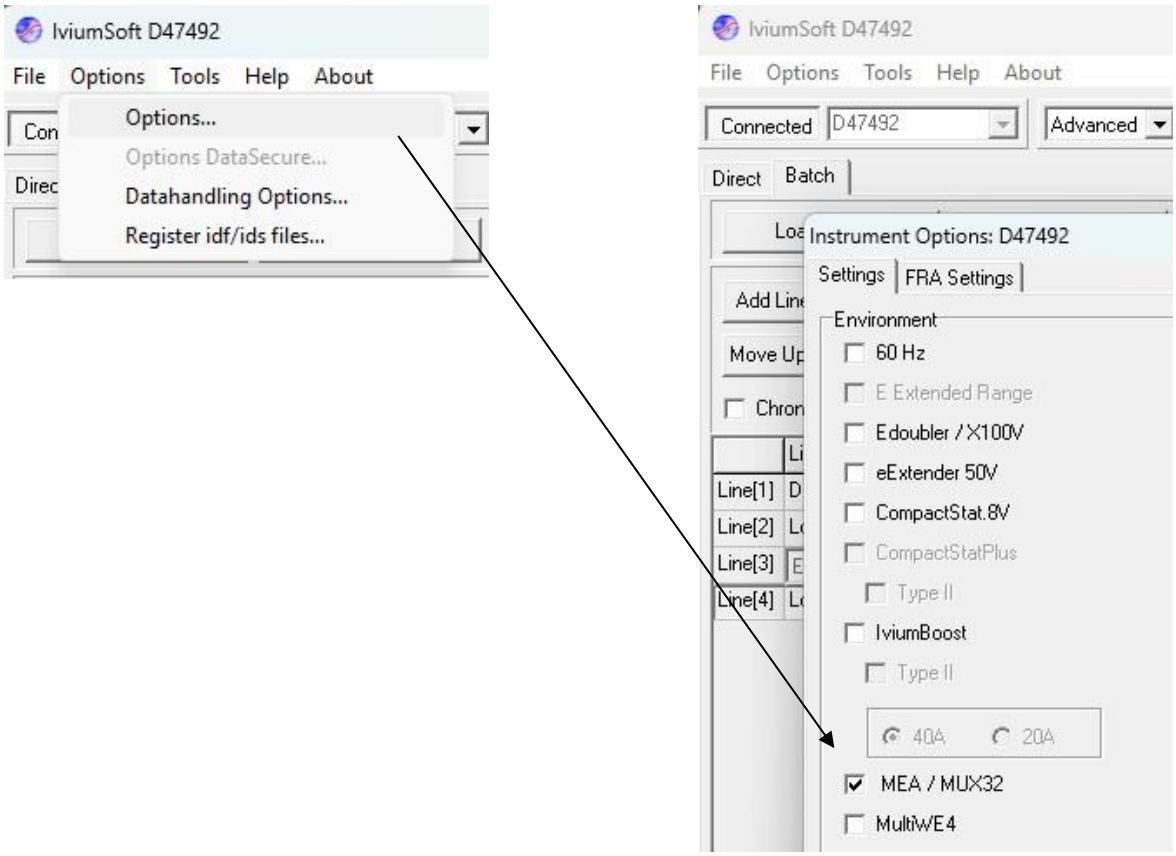
Test cell

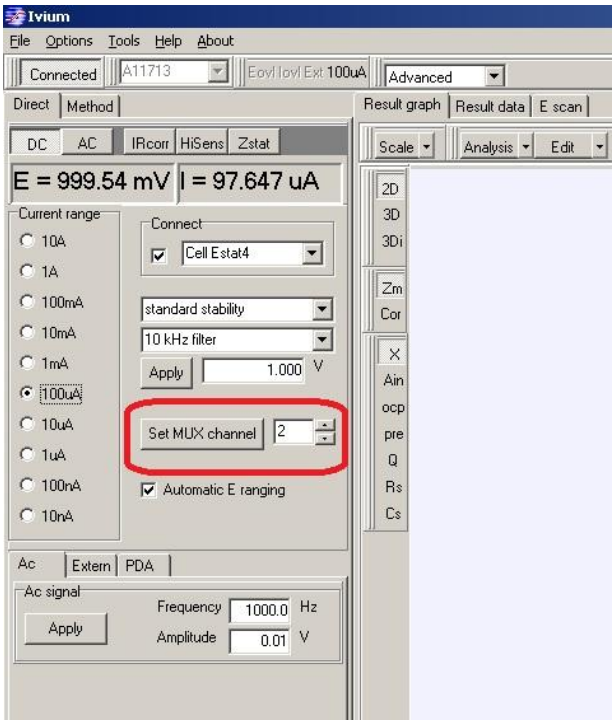
A test cell for the MUX32 is included in the delivery. This test cell consists of 32 10k resistors. The dummy can be inserted at the back of the MUX32. When a relevant channel is selected, the 10k resistor can be used to verify the correct operation of that MUX32 and channel.



Operation

a- Power up the Ivium potentiostat.
b- Open the IviumSoft software and connect the Ivium potentiostat in the software (see also "Quick install manual").
c[1]- In the menu bar, go to "Options>Options" and check the box in front of "MEA/MUX32".





d[1]- Disconnect the potentiostat in the software and connect it again to synchronize the hardware.
e- Now you can select the desired channel/electrode 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 Ivium potentiostat as a stand alone single channel instrument, remove the check from the box "MEA" in the options menu, and restart the instrument.

[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	*white (not external lead)*	*1*
RE shield	*brown (not external lead)*	*2*
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.