

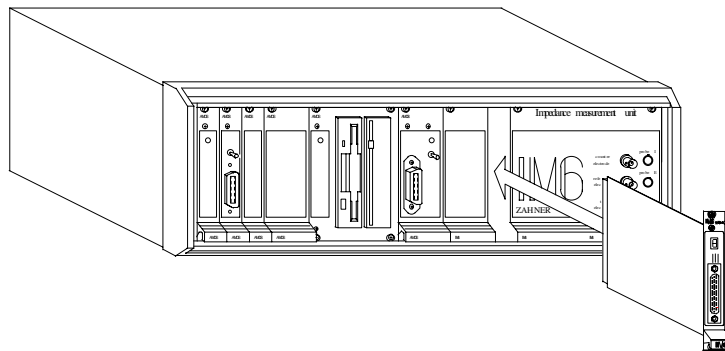
# PMUX48 system

## Delivered components:

- 3 PMUX 'high current cell multiplexer'
- 3 Controller cards IM6-RMUX ( marked I, II, III )
- 3 control lines SUBD44 to SUBD25
- 1 sense line with three parallel inputs and one output to LEMOSA 2-pol connector
- 48 pairs of sense lines

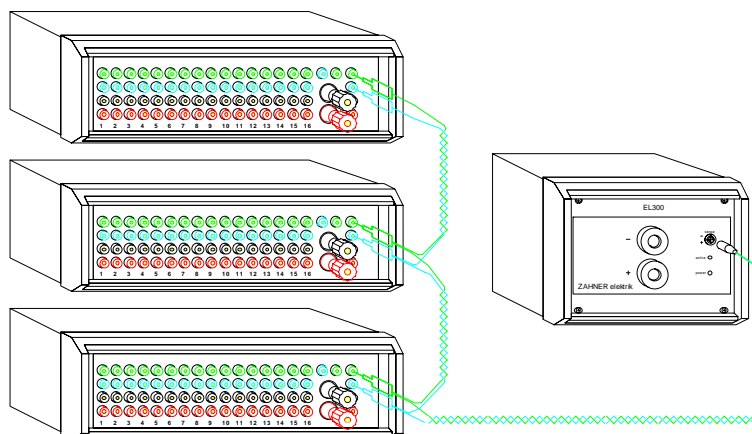
## Installation of hardware:

Switch off the IM6 and remove the dummy plates named 'IM6 extension' right to the interface card AMOS 'ANSI2'. Put in the controller cards RMUX I, RMUX II and RMUX III and fix the screws.



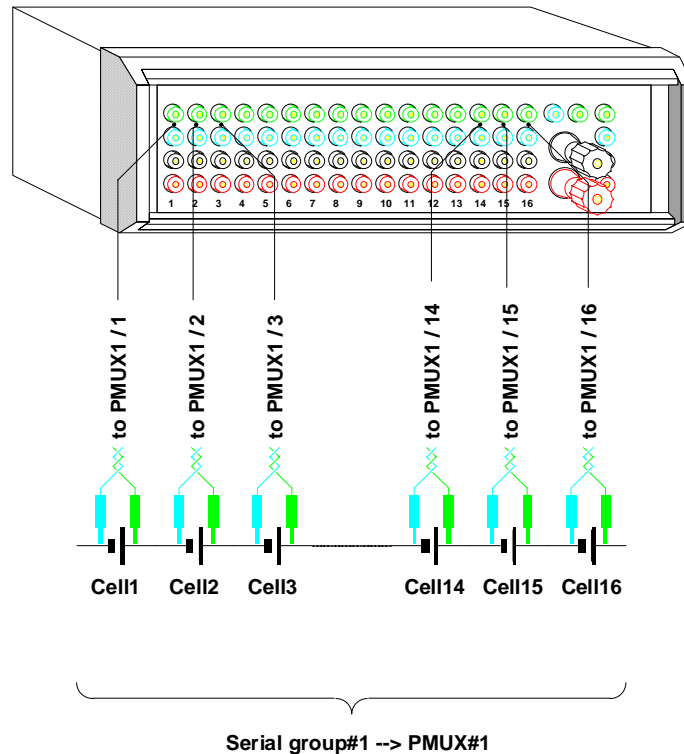
## Connection of modules:

Connect the SUBD44 connectors to the controller cards and fix the screws. Connect the SUBD25 connectors to the corresponding PMUX ( fix screws ). Plug the inputs of the triple sense line to the sockets named 'RE<sub>IM</sub>' and 'TES<sub>IM</sub>' of the PMUX modules. Plug the LEMOSA plug of the triple sense line into the socket named 'sense' of the EL300.



### Experimental set up:

Connect the sensing outputs of the cells to the inputs RE1...RE16 and TES1...TES16 of the PMUX modules in serial groups of 16 cells.

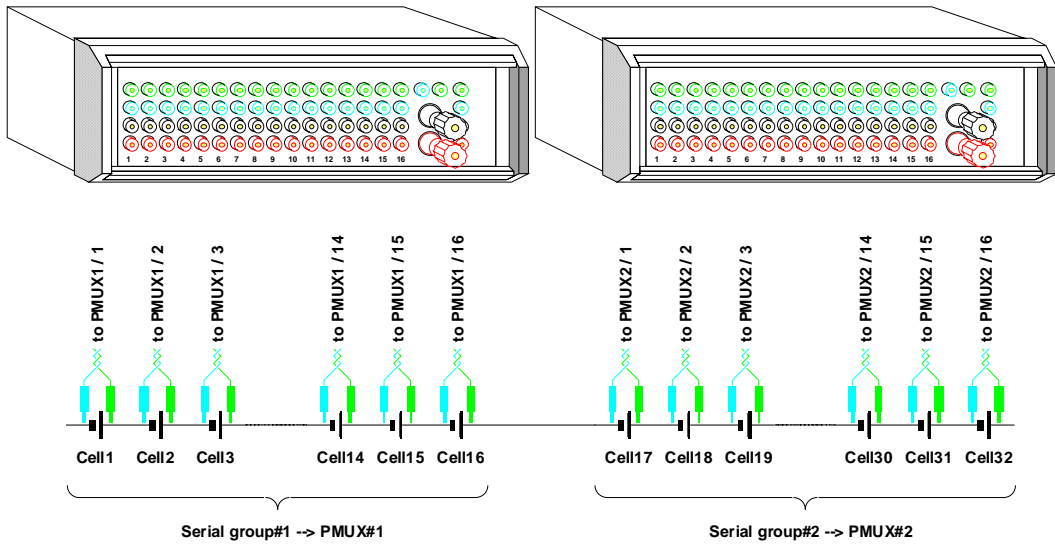


#### Note!

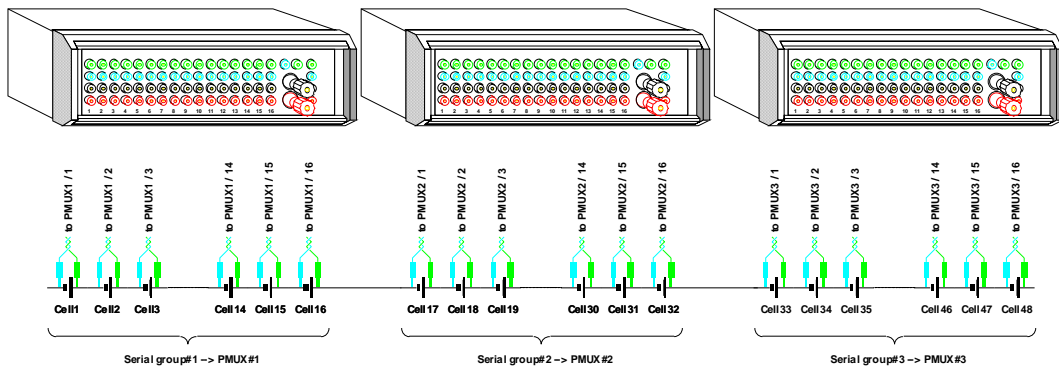
colour	PMUX	Cell
blue	test electrode sense ( TES)	minus pole
green	reference electrode (RE)	plus pole

In the PMUX48 system each set of the inputs CE 1...CE16 and TE1...TE16 of the three PMUX are internally connected and **must not be used**.

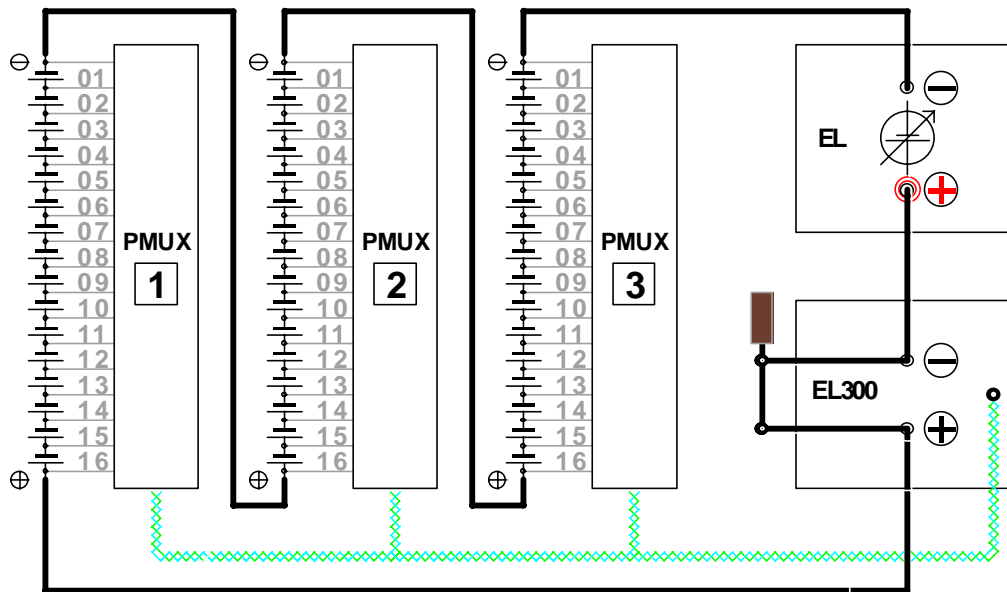
If the stack consists of more than 16 cells use two serial groups



and if the stack exceeds 32 cells use three serial groups.



## Insertion of electronic loads



In the final set up connect the positive end of the stack to the plus pole of the EL300. An additional electronic EL will be connected in series with the EL300 ( plus pole EL → minus pole EL300 ). Add a massive short cut switch over the outputs of the EL300. Finally, connect the minus pole of the additional load EL to the negative end of the stack. Short cutting the outputs of the EL300 will not damage the EL300 but will provide that the EI300 will not become conducting if too high potentials are applied to its output.

The additional load EL finally must be operated in the potentiostatic mode of operation. This load must compensate the overall potential of the stack to a rest potential  $E_{el300}$  at the inputs of the EI300.

The maximum height of the potential  $E_{el300}$  will be determined by the flowing current  $I_{stack}$  through the stack and the maximum power of 300W of the EL300.

$$E_{el300} = \frac{300}{I_{stack}} V$$

### **Note!**

The potential of the EL300

- must not exceed 12V in controlled mode and
- must never exceed 14V in uncontrolled mode of operation.

### **Hint!**

Set the potential of the EL300 to  $E_{Eel300}=3V$ , what is OK for most applications.

### **Switching ON the PMUX48**

Short cut the outputs of the EL300. Set the operating conditions of the cells and check the overall stack potential. Set up the additional load EL in potentiostatic mode of operation. Set the output potential of the additional load that the desired current will flow through the stack.

Set up the EL300 in galvanostatic mode of operation. Set the desired current, switch ON the EL300, and open the short cut. The EL300 will operate in saturation ( being indicated by a very low output potential ). Set the potential of the additional load EL that the EL300 will obtain the optimal working potential.

### **Switching OFF the PMUX48**

Increase the output potential of the additional load and force the EL300 to saturation. Short cut the inputs of the EL300 and switch OFF the EL300. Finally, switch off the additional load.