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Compliance Voltage Booster CVB80

Installation & Operation Manual''

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Unpacking

Zahner products are carefully produced, calibrated and tested to achieve a high quality standard. Also the assembling of the accessories and packing is done with great care. Therefore please check the shipment directly after receipt whether the device and all accessories are undamaged.

The shipment must contain the following parts:

CVB80

- CVB80
- 2 cables to the probe connectors of the IM main potentiostat (Lemos plugs)
- power cord
- this manual

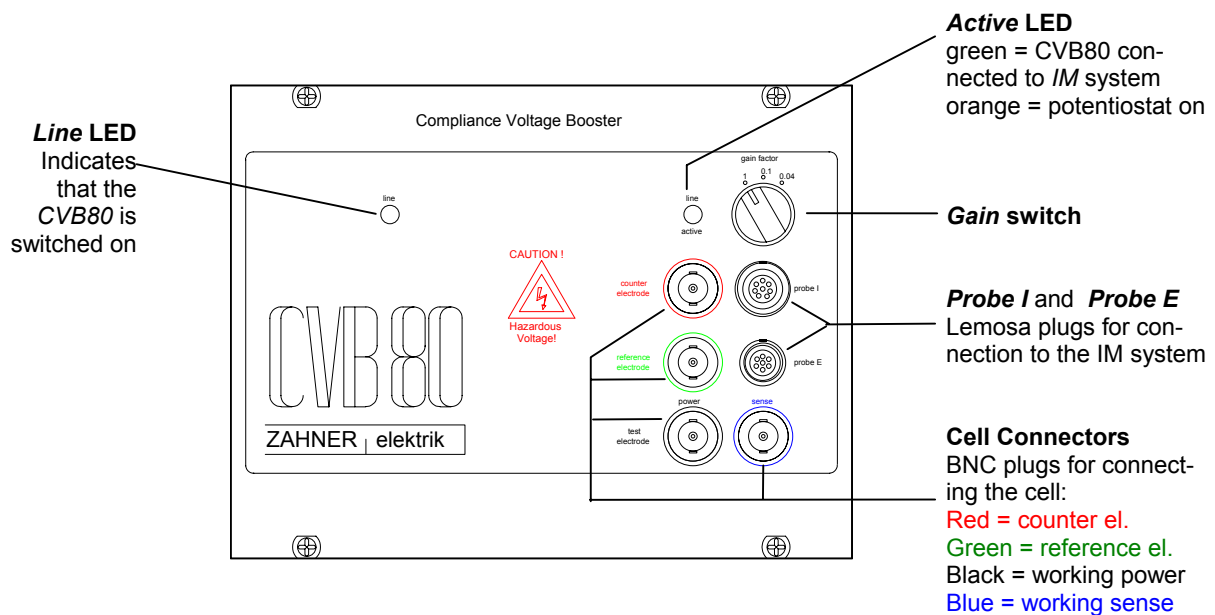
Basics

Compliance voltage is the voltage reserve, a potentiostat must provide to be able to apply a defined potential. The reason for this is the internal resistance of the counter electrode, through which the voltage is applied. This internal resistance causes a voltage drop, so that the voltage dropping at the test object is smaller. If you, for example, set a DC potential of 4 V, you want to drop 4 V at the test object. Therefore, the voltage the potentiostat has to apply must be higher. If e.g. at the counter electrode 2 V are dropping, the potentiostat has to apply 6 V.

Furthermore the measured object may have a rest potential other than 0 V. This also may be a reason for the potentiostat to apply a higher voltage.

The *IM6/6e* systems provide a compliance voltage of ± 12 V.

If high potentials are to be applied and if high potentials are to be controlled and measured, higher compliance voltages are needed. For this reason, the IM systems can be upgraded with the *CVB80* which provides a compliance voltage of up to ± 80 V. The *CVB80* is a booster which is to be connected to the buffer connectors of a *IM5d/6/6e*.



Installation

Proceed with the following steps:

1. Disconnect all cables from the *IM6* potentiostat and switch the *CVB80* and the *IM* system OFF
2. Connect the *Probe I* connectors of your *IM* system and the *CVB80* with the thicker Lemos plug cable
3. Connect the *Probe E* connectors of your *IM* system and the *CVB80* with the thinner Lemos plug cable
4. Switch the *CVB80* ON. The *Line* LED will indicate the stand by mode
5. Connect your test object to the *CVB80* according to one of the connection schemes shown on the next page. It is important to connect the electrodes in the following sequence:
Test Electrode - Reference Electrode - Counter Electrode
6. Select the potential range with the gain switch. There are three positions:

gain	potential range
1.00	± 4 V
0.10	± 40 V
0.04	± 80 V

7. Select the corresponding scheme in the *Check Cell Connection* page of the *Thales* software. Input the gain factor you have selected at the *CVB80*.

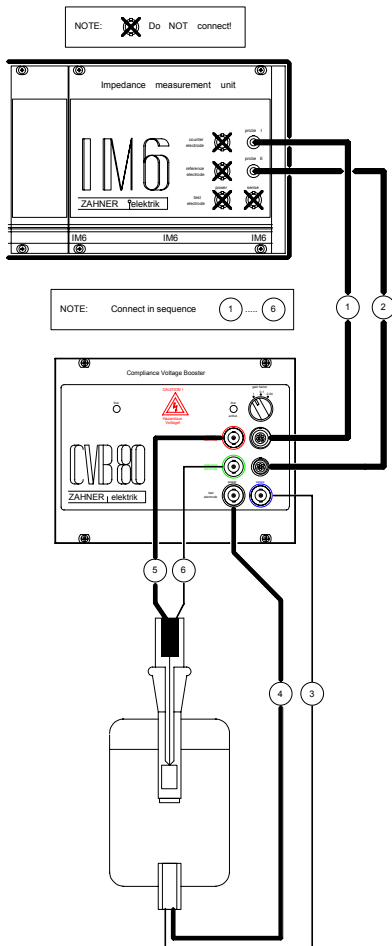


Make sure that the potentiostat is switched OFF when connecting the *CVB80* to the *IM* system. Do not change any hardware settings (e.g. *gain*) with the potentiostat switched ON.

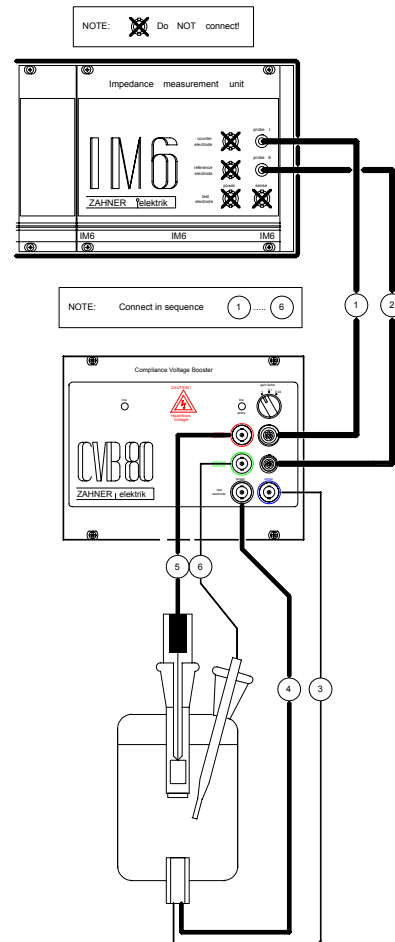
Cell Connections

As the CVB80 works like a buffer amplifier there are two connection schemes available:

Two-electrode arrangement



Three-electrode arrangement



Specifications

	CVB80
Operating modes	galvanostatic & potentiostatic
Counter electrode potential	$\pm 30 \text{ V @ } 300 \text{ mA}$ $\pm 80 \text{ V @ } 75 \text{ mA}$
Potential ranges	$\pm 4\text{V}$, $\pm 40\text{V}$, $\pm 80\text{V}$
Potential accuracy	$\pm 0.1\%$ of reading $\pm 0.025\%$ fs of range
Power dissipation	20 W
Frequency range	DC to 10kHz
Ambient temperature	$0^\circ\text{C} \dots 25^\circ\text{C}$