



High Voltage Version of ProboStat™

Supplementary Material to the ProboStat™ Manual

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NORECS AS
Gaustadalléen 21
NO-0349 Oslo, Norway

Tel.: +47 45916188
E-mail: post@norecs.com
Web: www.norecs.com

NORECS

This is a supplement to the ProboStat™ manual, to be used together with (and not instead of) the manual.

1. Responsibilities

NORECS guarantees that the high-voltage is insulated to withstand 10 kV between the two high voltage terminals ("kV5" and "kV16") and chassis ground. This requires that the thin-walled alumina insulator tubes are in place around the male feedthroughs, and that no sample is mounted.

The unit typically tolerates 10 kV under the right conditions, but we cannot guarantee this for extended use.

The user must ensure that high-voltage power supplies are safe in the application used, and that other equipment and the whole unit are connected in such a way that they will survive a high-voltage spark.

We take no responsibility for any damages caused by high voltages.

2. Compatability

The high voltage version of the ProboStat is almost, but not fully compatible with standard versions. While it is frequently stated that the base units of the ProboStat are always compatible, and that only the furnishment varies, the high voltage version is different. Still, it is delivered with a standard manual, and the user must understand the differences by studying the following.

Despite the differences, a high voltage version of the ProboStat can for all practical purposes do everything a normal version can do.

Thus; for non - high voltage measurements, use the high voltage ProboStat just as a normal ProboStat. The high voltage version has a "Shields Br." switch as all other version 5 and later.

3. Features of the high voltage version of ProboStat™

3.1. Be aware: Possible mixup of terms "high voltage"

Please note that the ProboStat has what the manual calls high current (HC) and high voltage terminals (HV) (with low current (LC) and low voltage (LV) counterparts). This refers to the "high" side of an electrical signal or stimulus that occurs over the sample, and it is not what the high voltage version of ProboStat refers to as high voltage.

In order to differentiate, the kilo-volt high voltage terminals of the high voltage version are named "kV5" and "kV16".

3.2. Differences from the standard ProboStat™

The high voltage version has two kV high voltage feedthroughs, namely feedthroughs 5 and 16 that in standard ProboStats are connected to low current shield (LCS) and high current shield (HCS).

They go directly to the "kV5" and "kV16" special chassis connectors.

Unlike the normal BNC connectors, the ground/shield of these connectors are connected directly to the chassis.

3.3. Specifications

The “kV16” socket is connected to the high voltage feedthrough 16.

The “kV5” socket is connected to the high voltage feedthrough 5.

The high voltage contacts are nominally rated to withstand 10 kV with respect to chassis.

The high voltage feedthroughs (chassis contacts, wire and kV feedthroughs have been tested before shipment and are found to have insulation with respect to chassis of > 10 kV.

Of course, the final high-voltage limit will be lower depending on the sample, temperature, and atmosphere.

4. Assembly

When unpacking and setting up the high voltage version of ProboStat, follow the manual as for a standard ProboStat.

However, be aware that the high voltage feedthroughs with male minicontacts reach higher up into the cell and are more **vulnerable to breaking. Therefore, any mounting and dismounting of outer tubes should be done carefully.**

The high-voltage feedthroughs have male minicontacts that are larger than the others.

The high voltage electrode connects are shorter than the normal ones, and equipped with larger female contacts so as to fit onto the high voltage feedthroughs.

Mount the high voltage electrode connects as follows:

- Be sure to use the mounting ring (see manual) around the cell to prevent connected wires to fall/bend out.
- Select whether to use a support plate for supporting the lower electrode.
- Select the electrode connects to use (ring or hand electrodes, or your own).
- ***NB! Slide one of the thin-walled alumina insulating tubes up around the connect’s leg before you connect it to the feedthrough.***
- Let the thin-walled alumina tube slide down and rest against the base unit. This tube ensures insulation between the minicontacts and the base unit pedestal.
- ***Be extremely careful with the assembled connect and insulating tube.***

Now, mount the spring load assembly to hold things in place.

Any thermocouple should be covered with the alumina cap for thermocouple. This is a 15 cm long closed alumina tube that will prevent high voltage from reaching the thermocouple.

We supply two male high voltage contacts for the “kV5” and “kV16” without leads. You must connect these to high voltage cables connecting to your high voltage equipment.