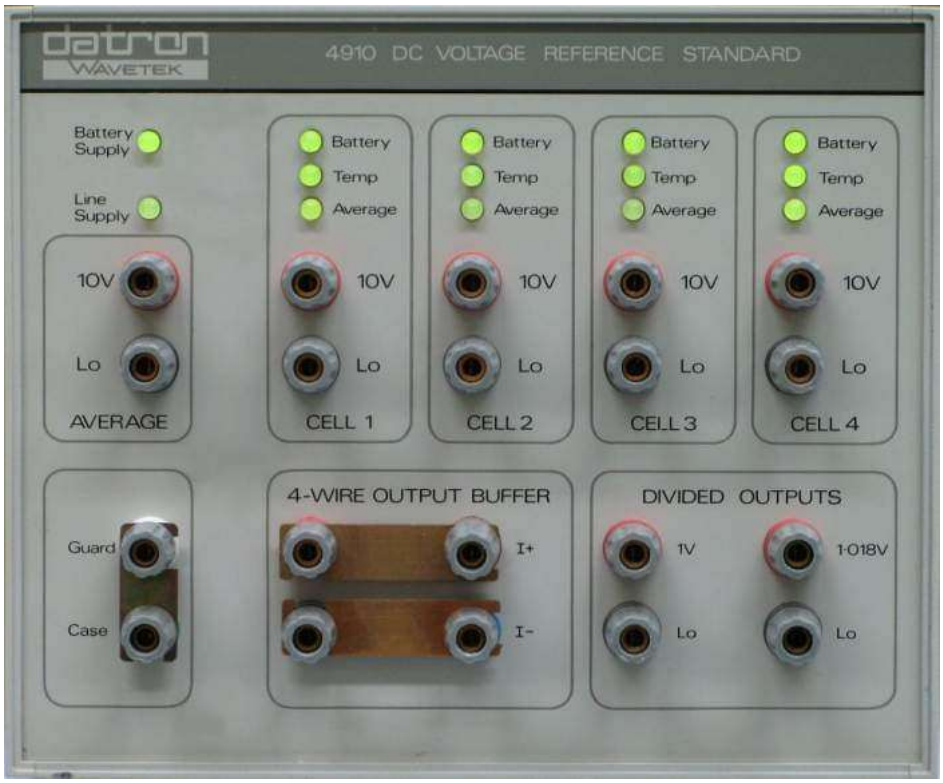
Datron Wavetek 4910 DC Voltage Reference Standard



A voltage standard with 1 V, 1.018 V and 10 V. These devices require care and maintenance. Very good stability, measurement uncertainty 10 ^ -7.

Christian from Berlin kindly provided me with photos of the inner workings of one of his devices, he is in the process of putting this device back in order:

Hello Ralf,

********** at the front 2 terminals were broken off, I changed immediately.
I noticed that the nuts and bolts of the terminals had a lot of verdigris, although made of gold! Well - everything was nicely cleaned and put back together again. The batteries are probably the first from 1991. All dead! But works without it for now.

Of the 4 built-in references, 3 except for a few 0, x ppm are all the same. One is 2ppm lower. But overall they are 5 ppm below normal (10V).
I guess that's still the (first) initial calibration. Wouldn't be bad then (approx. 0.3 ppm / year!).

Well just wait and see how it works. I took a few photos. Maybe you can use them for your side.

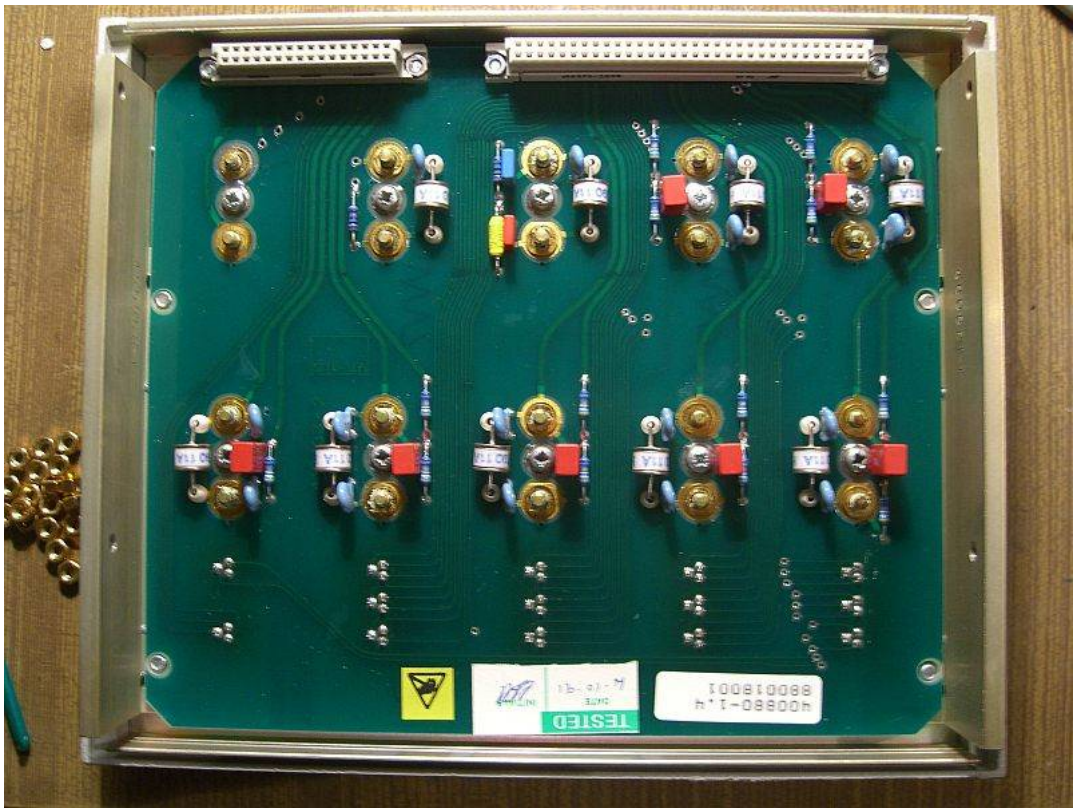
Many greetings
Christian.

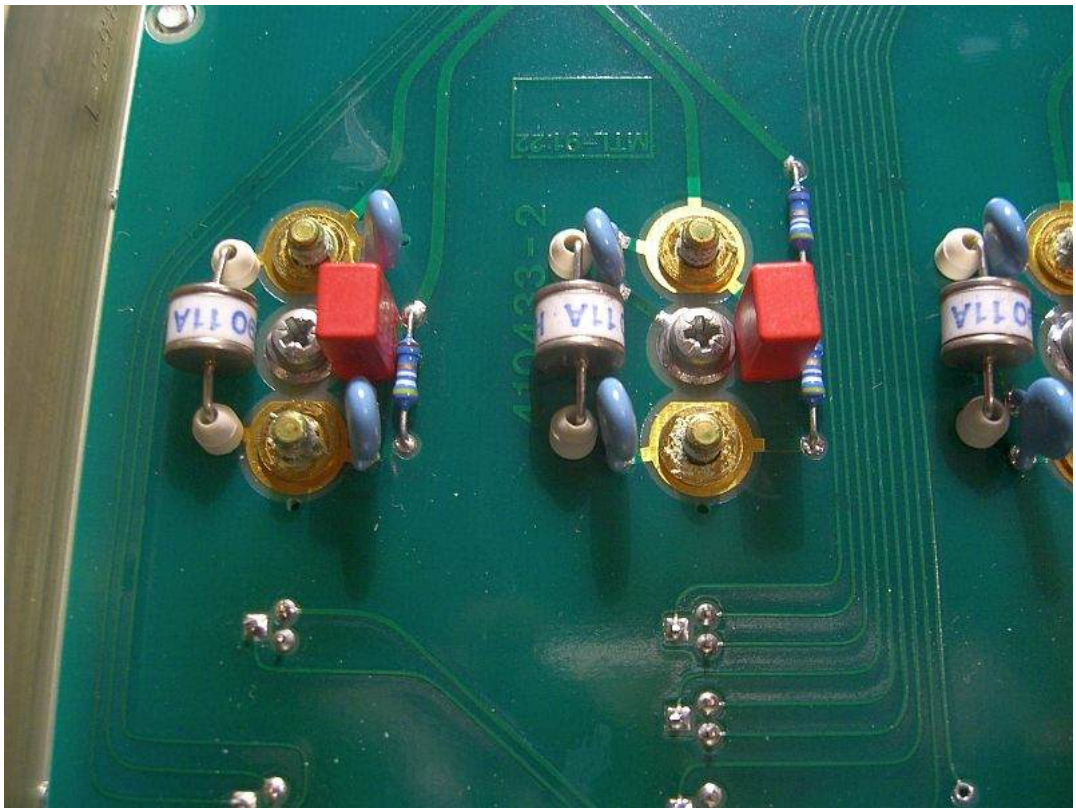
Hello Christian,

thank you very much for the beautiful pictures and the insight into this great device. You don't get to see something like that very often. After all, intact calibration devices are only opened when necessary. You will soon get it working again - but I know that is really a lot of work until everything is up and running again.

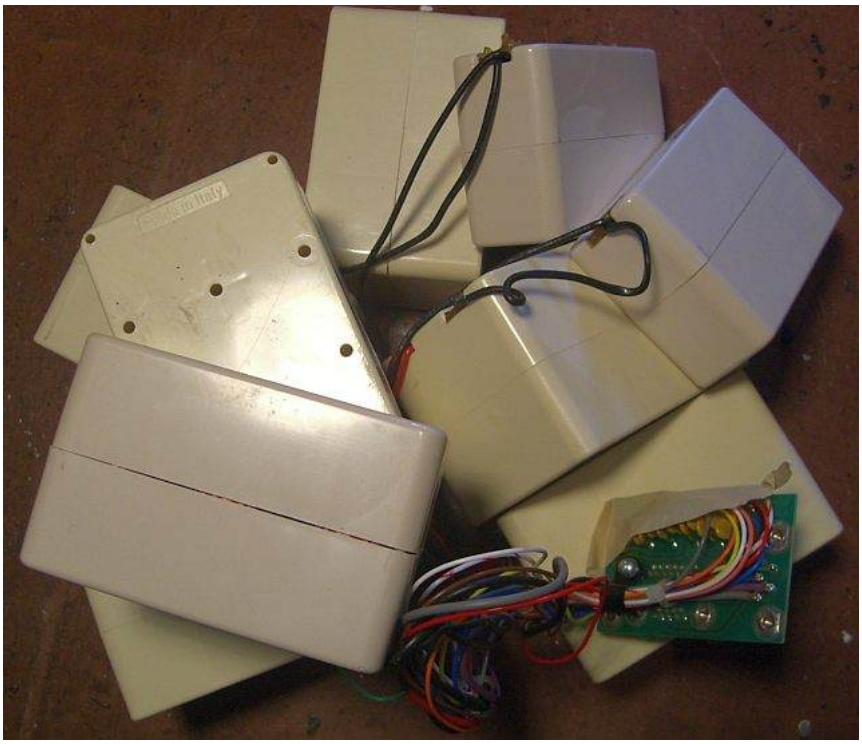
Greetings
Ralf

the front is self-explanatory and no words are needed.



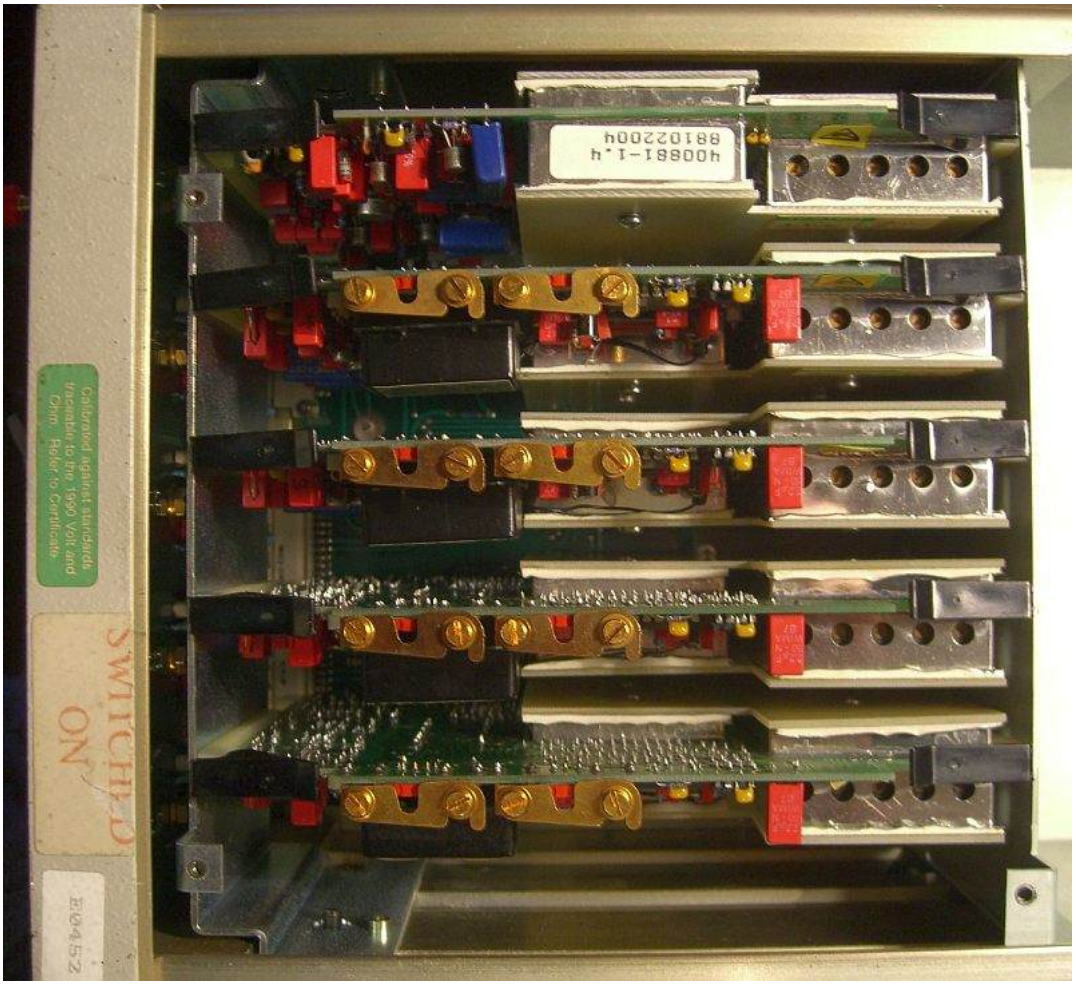


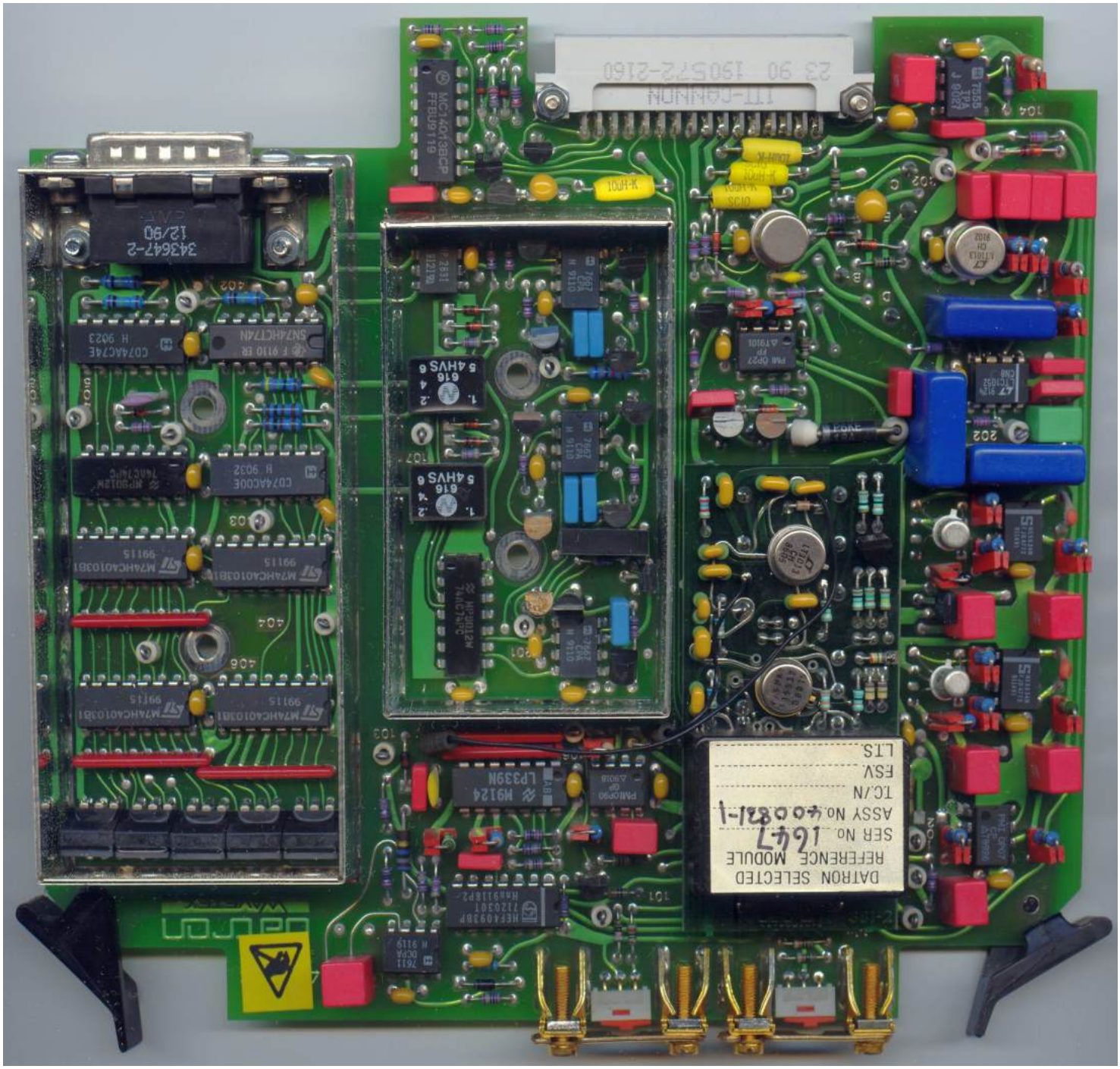
At the sockets there are gas discharge paths which, from a defined overvoltage in the truest sense of the word "lightning fast", form a low-resistance, highly resilient protective resistor through the spark gap that is built up. This is a very effective way of protecting yourself against overvoltage.



It should probably have been the first batteries and they are now dead and a case for hazardous waste.


DIVIDED OUTPUTS
1V
COARSE
FINE
IN AVERAGE
OUT OF AVERAGE
91/20/820/1MCV
CELL 1
CELL 2
CELL 3
CELL 4
CLOCKWISE ROTATION DECREASES OUTPUTS
SWITCHED ON


Calibrated against standards traceable to the 1990 Volt and Ohm. Refer to Certificate
SWITCHED ON



Of course, a feast for the eyes and a pleasure for every electronics engineer to find their way around this circuit board. A central element of this map is the selected reference module. This includes an enormous amount of know-how and effort on the part of the manufacturer to select exactly the right references from a large number, to find the right working points and to observe them long enough to be able to guarantee the specification values. These are also the labor-intensive steps that help ensure that this class of device is of the highest quality.

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