The monitoring and control schemes of cathodic protection systems require very accurate measurement of relatively very low potential differences between metallic objects and surrounding electrolytes soil or water, with respect to a standard reference electrode :
Zn, **Cu/CuSO$_4$**, **Ag/AgCl** or **MnO$_2$**

The conventional low input impedance instrument can not be relied upon to give good results in such cases. The zinc reference electrodes which have relatively longer reliable operation life than other electrodes are installed in permanent systems but the measured values are to be usually / conventionally displayed and reported in terms of potentials with respect to Cu/CuSO$_4$ or Ag/AgCl reference electrodes for easy interpretation of results.

The present practice of marking the scales for both types of reference electrodes on analog type instruments solves the problem to some extent but not at all when the low input impedance analog type instruments are replaced by high input impedance digital instruments.
The transmission of field data by long cables between local measuring points and master control station for remote monitoring and controls, makes it necessary to convert the measured low voltage signal into an equivalent low current signal to preserve its integrity. These practical considerations indicated the need of developing a potential converter which can be conveniently connected across the conventional potential measuring devices to provide the desired results.

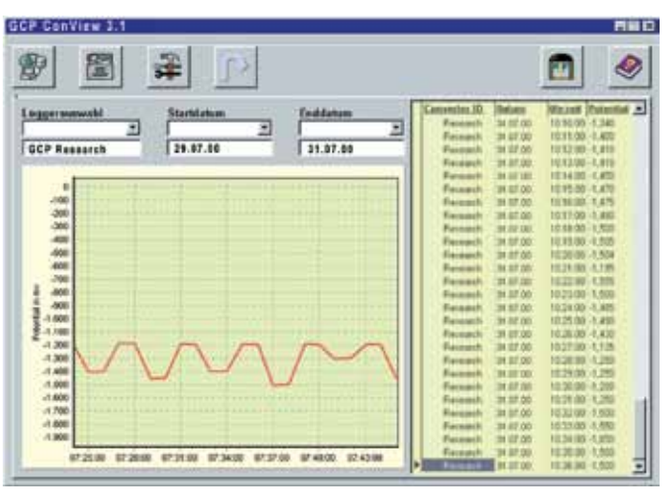
Option

Potential Converter with integrated potential data logger

The potential converter can be optionally equiped with a one channel potential logger. The available number of selectable sampling rates in combination with the storage capacity allows short term recording as well as long term recording covering several months.
The specially designed processing software *ConView* (for Windows) enables display of stored values either graphically or as table on screen as well as print-out by printer or plotter.
The data transfer to a laptop takes place by means of an interface RS 232. Data transfer during potential logger operation mode is possible.

Recording capacity: 2 000 values

Sampling rates: 1.0 s / 1 min / 10 min / 1.0 h / 6.0 h

Technical data

Design	Plug-in or snap-on unit with separate terminals
Input	Reference electrode / cathode -4.0 V - +4.0 V DC
Output	Volts, as measured by a 10 MΩ input impedance voltmeter Volts, measured by a specified type of reference electrode : Zn, Cu/CuSO$_4$, Ag/AgCl or MnO$_2$
Output options	0 - 20 mA or 4 - 20 mA signals for transmission purposes via cable
Accuracy	< 1 %
Environmental conditions	Temperature -25°C to 60°C Installation : indoor (enclosed)
Power supply	AC 90 - 265 V, 50-60 Hz, or DC 18 - 36 V
Protection class	IP 40
Dimensions	70 x 75 x 109.5 mm