

MEASURING EQUIPMENT
Signal converter SC-01

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German Cathodic Protection



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/CuSO₄, Ag/AgCl or MnO₂

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/CuSO₄

reference electrodes for easy interpretation of results.

The present practice of marking the scales 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.



Technical data

Design	Plug-in or snap-on unit with separate terminals
Input	-5.0 V - +5.0 V DC
Output	Volts, as measured by a 10 MΩ input impedance Volts, measured against Cu/CuSO ₄ reference electrode
Output options	4 - 20 mA signals for transmission purposes via cable
Measuring tolerance	< 1 %
Environmental conditions	Temperature -25°C to 60°C Installation : indoor (enclosed)
Power supply	AC 100 - 277 V, 50-60 Hz, or DC 18 - 36 V
Protection class	IP 20
Dimensions	22.6 x 99 x 115 mm / 122 g