

IMPRESSED CURRENT CATHODIC PROTECTION SYSTEMS (NMR-ICCP-MK-II)

FOR SHIPS

Apart from controlling current to mitigate corrosion, in this ACU, Static electric (SE) signatures caused by corrosion and CP currents can be minimised by optimizing the location of the anode and REs through computer modeling. The CP current can be minimized with the concept of modular auto control unit (ACU) comprising of number of modules of auto control unit or power supplies in one unit. In this concept, the current fed by each anode is controlled by an independent ACU module having a dedicated RE and anode providing uniform potential of the protected structure. The CRM signatures can be minimised by reducing the SE signatures. The SE signature due to power supply ripple can be minimised by specifying low ripple power supplies. The EM field associated with SE signature can be minimised by reducing SE signatures. For minimizing above signatures, Naval Materials Research Laboratory (NMRL), Ambarnath has developed a microcontroller based modular ACU having low ripple power supplies.

The designed Microcontroller based modular ACU feed minimum current to provide uniform hull potential which will result in reducing the underwater signature. This ACU is interactive to the user in view of monitoring and fault diagnosis, minimizes human intervention and reduces maintenance requirements during its operation.

Salient Features

- ❖ **Microcontroller based modular ACU consists of eight modules interfaced with industrial PC inbuilt touch screen panel. Each module comprises of a low ripple dc power supply, a control module with dedicated anode and reference electrode.**
- ❖ **Real time health monitoring of hull and ICCP components using SCADA facility and storing ACU parameters at predetermined intervals.**
- ❖ **Alarms for generated faults.**
- ❖ **Fault troubleshooting and remedial measures as ready- reckoner.**
- ❖ **Data logging of ICCP readings in ship's monthly returns format.**



Application

Cathodic protection with ICCP system can be used for corrosion protection of ship's under water hull, floating metal objects and any other submerged structures in marine medium.