



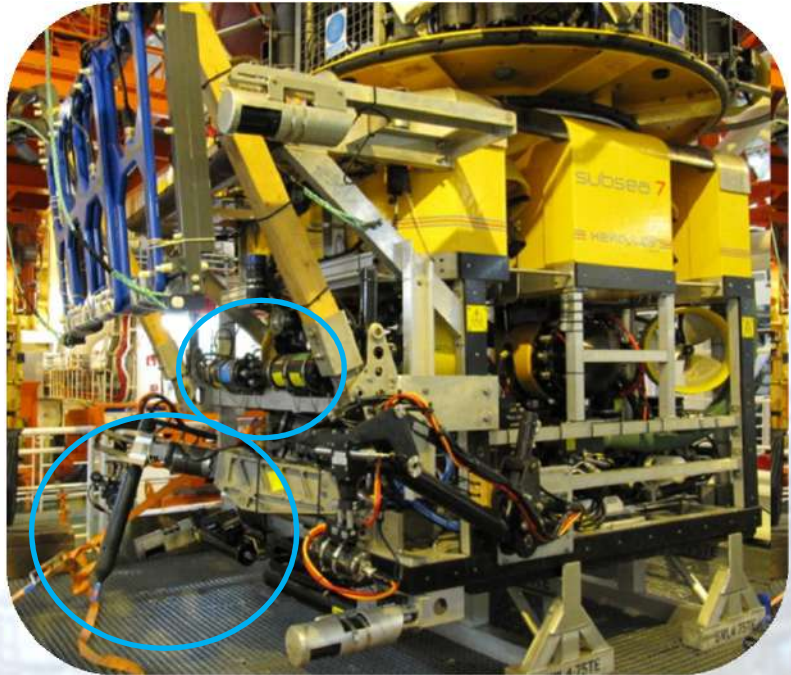
CATHODIC PROTECTION SURVEY – CP DAS

The CP-DAS (Cathodic Protection Data Acquisition System) has been developed based on the experience gained from conducting many thousands of pipeline and platform surveys over the last 30 years.

ISES has used this knowledge to develop the most advanced and cost effective sub sea pipeline CP survey package available on the market today.

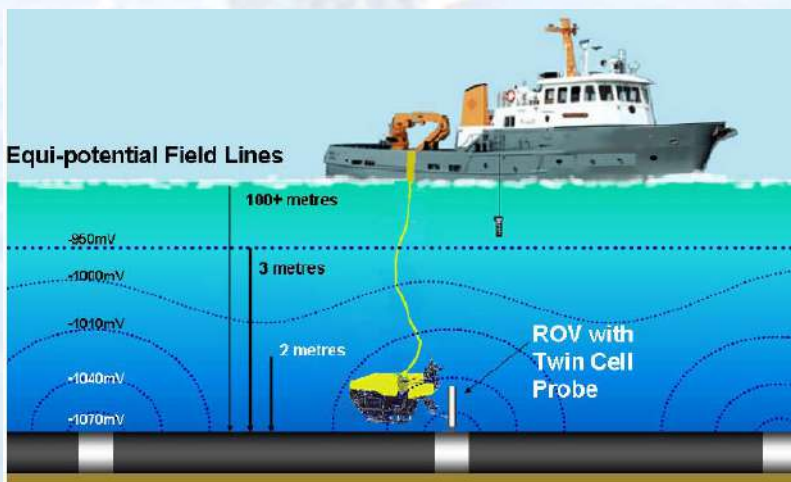
The system has been successfully used to complete thousands of kilometers of pipeline cathodic protection surveys.

The ISES **CP-DAS** system is seen as the system of choice by almost all the major oil & gas and ROV support companies operating in the subsea pipeline inspection market, and as such we can be proud to be considered the premier provider worldwide.



Continuous Twin Half Cell CP/FG Monitoring System

A twin Ag/AgCl contact probe is literally the sharp end of the system. The probe is designed to be used in the manipulator of “work class” ROV and is designed to be robust and reliable with a sharp stainless steel stabbing contact tip, used in conjunction with the Ag/AgCl remote half cell continuous potential profiles can be recorded.



Two Ag/AgCl half cells are housed within the probe body with ports around the probe open to the surrounding seawater allowing continuous potential, contact and field gradient measurements to be taken. The raw analogue potentials from each of the cells are converted to a digital output.

The acquired data can be transmitted in a variety of formats for example; RS 485 & RS232 . The data conversion is undertaken in a sub sea electronics pod, which is rated to 3000msw depth.

Operation of the sub sea digitiser is supplied from the ROV via a 24 V DC Power supply. The topside interface unit also has a built in power supply to allow surface testing of the system.



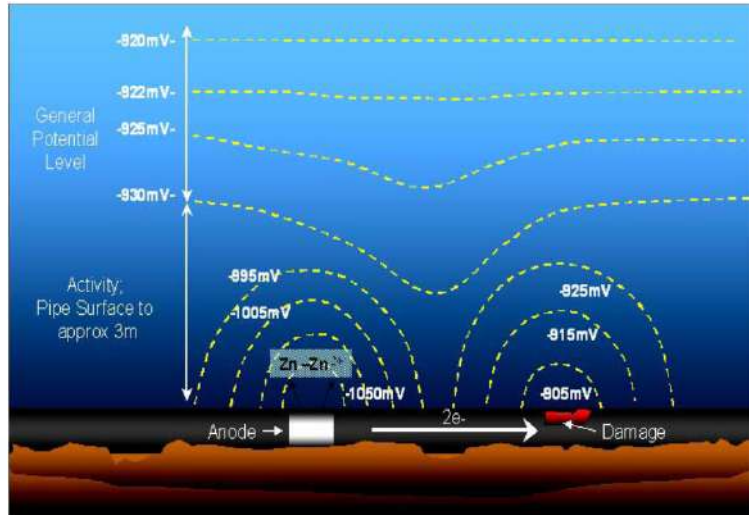
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The Ag/AgCl remote half-cell can either be deployed over the side of the survey vessel, or on the umbilical.

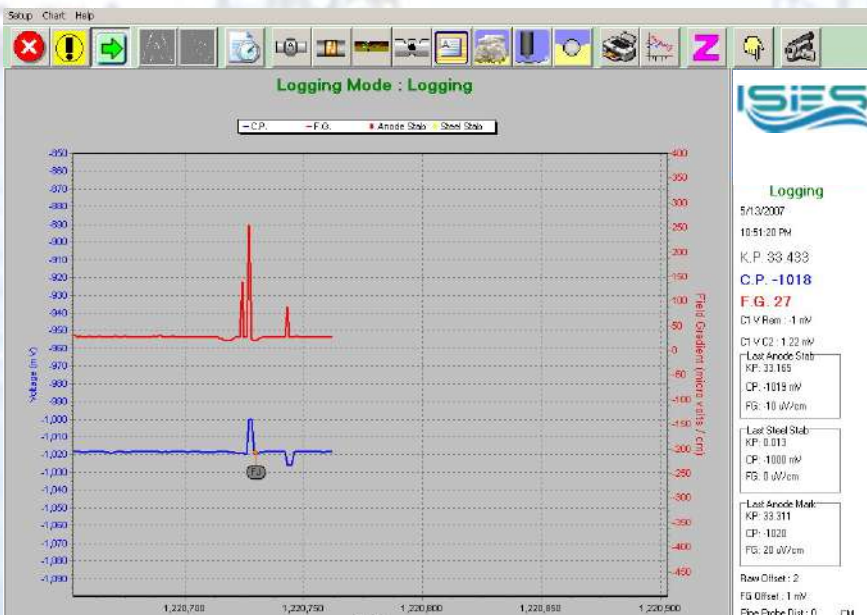
Cathodic protection data is logged using the ISES online logging component of the CP-DAS package

Navigational information is received and every sample logged is time stamped to synchronise with the time base on the positional survey logging computer.

CP survey information; cathodic potential & field gradient can also be output via RS232, to allow data to be displayed on the survey video overlay



Communication protocols can be set to a variety of configurations using easy to operate drop down menus. The data input and output strings can also be modified to accommodate different Client information requirements. A further feature of the online logging system is that it has a fully functioning event logging module that can be



used to log features and anomalies on the pipeline or structure, **together with the unique ability to capture online video input from the ROV cameras which can be used to provide a visual reference for CP events in the form of real-time video clips or screen grabs.**

Events are coded based upon UKOOA standard codes. The information can then be easily transported to an Excel or database file e.g. Access for reporting and analysis purposes.



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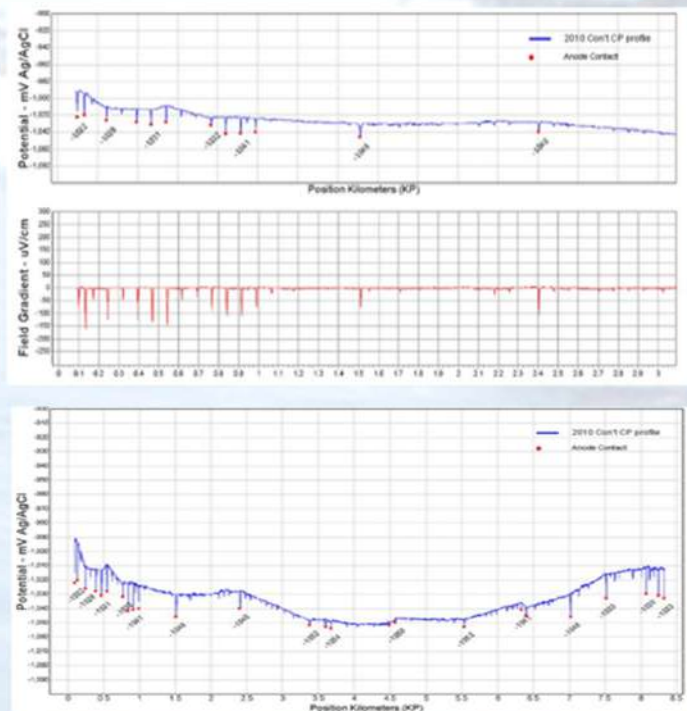


Straightforward integration with online video overlay and survey positioning systems.

On completion of the survey the data can be charted, showing continuous potential and field gradient against position. Data sets can also be transferred for inclusion on survey alignment charts, printed as hard copy or exported to a variety of different formats for example; TIFF, JPEG, PDF etc.

Anode current output and remaining life can be also be calculated assuming that information is available for the anodes, i.e.; weight, dimensions, composition and year of installation.

An analysis on the status of the structure or pipeline's cathodic protection system is given, with recommendations for actions to be undertaken in the future.





CATHODIC PROTECTION SURVEY – CP DAS

System Specifications – CP DAS

COMBINED CP/FG CONTACT PROBE

Robust CP & Field Gradient Twin half Cell contact probe.
Comprises of stab tip and two Silver/Silver Chloride half cells to monitor cathodic protection potential and electric field gradient. Tough construction utilises 5-pin Subcon connector for connection to survey ROV.

Length 70cm
Diameter 7cm
Weight in Air 1.5kg



SUBSEA DIGITISER

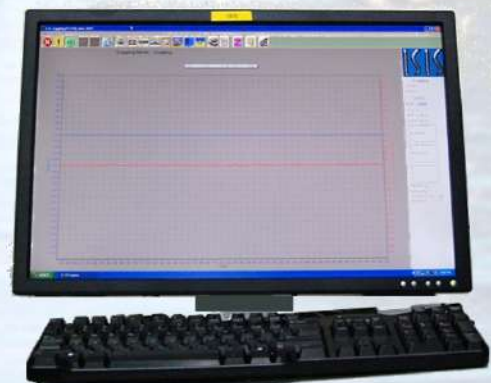
Pressure resistant electronics housing for sub sea digitisation of analogue signals.

- Multiple data transmission protocols.
- Rated to 3000m MSW.
- 16 Bit Analogue Digital converter.
- Output ranges 1/10 of a second to 1 data set per second
- Sensitivity up to 0.05 mV.
- Five Pin Sub con c/w whip
- Length 24 cm
- Diameter 10 cm
- Weight in Air 4 kg
- Power Requirements 24 V DC
- Communication Protocols RS 485, RS 232.



COMPUTERISED DATA ACQUISITION

- PC based Windows based logging, post processing, analysis & charting package.
- Multiple interfacing with a variety of survey companies.
- Each CP/FG data point uniquely identified with KP, Easting, Northing, date & time.
- Output to video overlay and two-way navigation communications
- Video & still capture facility.
- Instantaneous back up on multiple data storage devices.



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