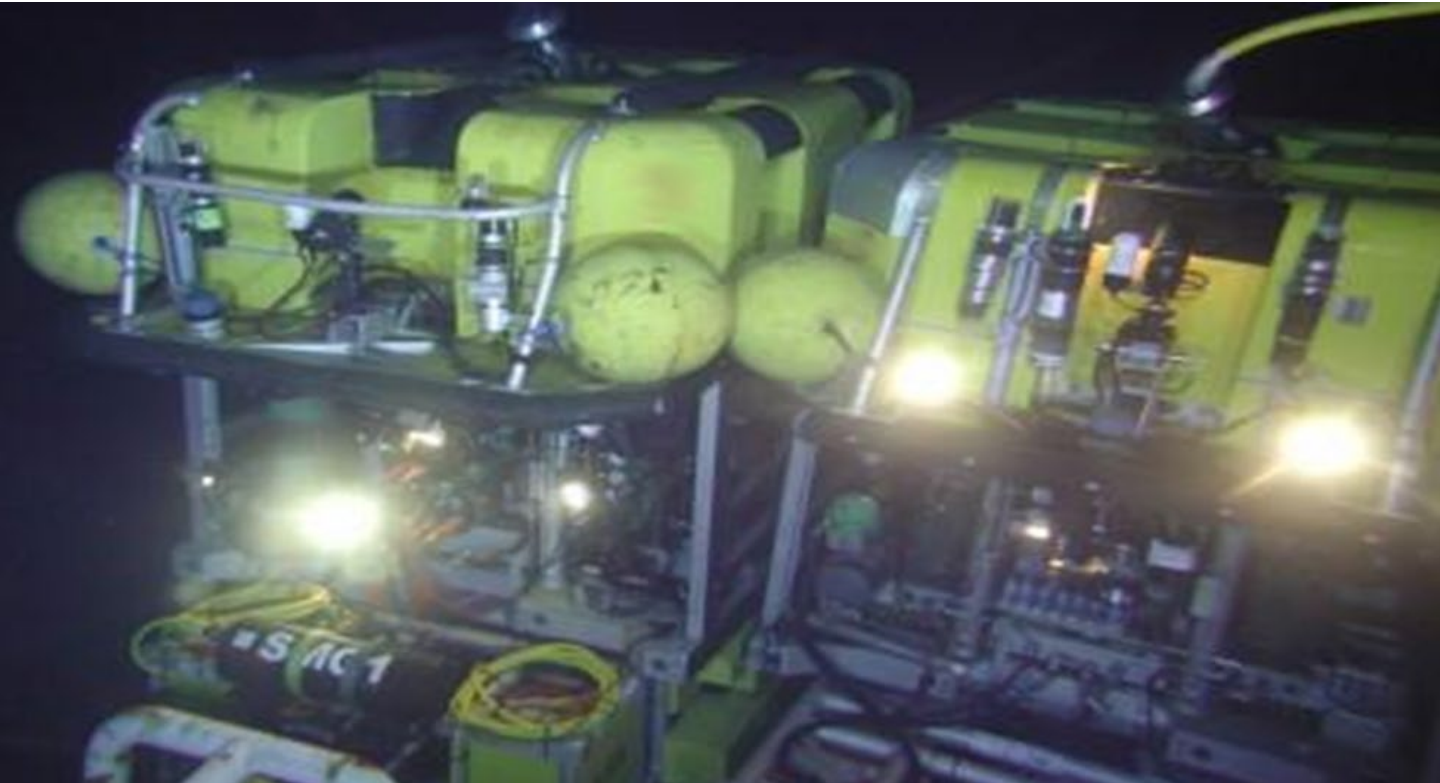


Subsea Electrical Test System SETS™



Measurement Capability

- Live Test Data feed
- IR Insulation Resistance
- CR Continuity testing
- TDR testing
- OTDR Testing

Electrical Integrity and Safety

- Umbilical
- Jumpers and EFLs
- Part of a suite of subsea test tools

Typical Use

- Fault finding on aging fields
- Gradual decay assessment
- Post lay testing
- Pre-commissioning test
- Field extension verification

Deployment

- Deployed in 3 small cases
- Minimal integration setup
- Simple and quick results



When a subsea electrical fault such as Low Insulation Resistance (IR) occurs in electrical connections and umbilicals, finding it from the surface is difficult, when it occurs in deepwater, pinpointing the exact location with the surface mounted instrumentation is even more complex.

In the late 90's IMES developed a Subsea Electrical Test System that allowed localised subsea testing to be applied via an ROV

Since then continual development has seen SETS capability increase to provide a range of tests, live test setup and data feedback allowing real time detailed information on the integrity of cables and umbilicals during installation and pre-commissioning as well as the traditional fault finding capability.

Benefits to client

IMES SETS equipment is part of a suite of integrity monitoring tools for the offshore and subsea environment that also include Riser Inhaul and visualization systems for SURF and IRM applications.

- Robustly engineered
- Simple deployment and use
- Accurate and reliable testing
- Increased confidence
- Live decision making
- Reduced time and costs



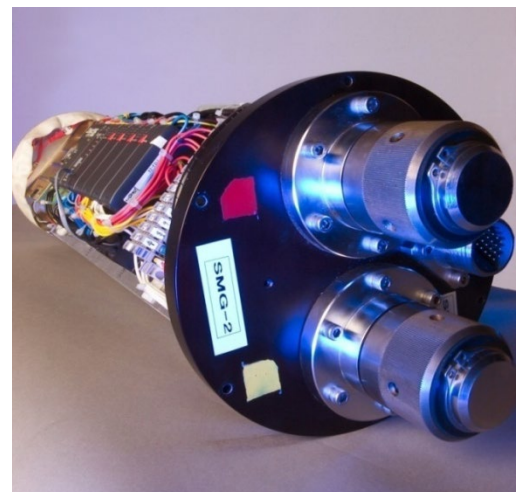
IMES SETS - SMG pod, DAQ and SCU

Technical specifications

- ROV Deployed, surface controlled
- 3000msw rated
- IR and CR testing
- SETS TDR option
- SETS OTDR – OPTIplus version
- Live test control/ Live trending/Live Logging
- 100v to 5kV range Full testing
- Power, communications and control cores
- Safety and test interlocking



IMES SETS SMG pod mounted on the ROV



IMES SETS SMG pod internal electronics

SETS™

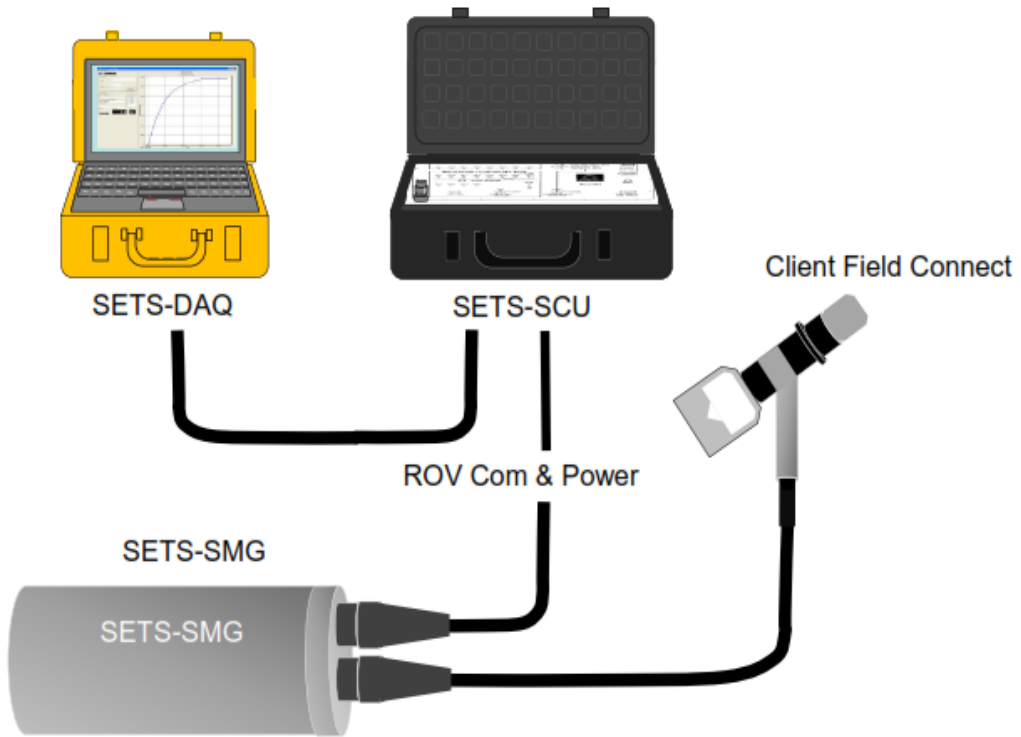
SETS SCU
Live Surface
control

Communicates
Via ROV
Umbilical

SETS SMG
ROV Carried
& Deployed

Subsea
Jumpers, EFL
Umbilicals

SETS allows for each element of the subsea architecture to be isolated and tested individually and the fault(s) located rapidly and effectively reducing commissioning, post install test and fault finding exercises.



The SETS system is an integrated test package consisting of 3 major hardware components;

- SETS-SMG Subsea electrical testing pod, ROV mounted and plugged in via the ROV
- SETS- SCU Surface control unit allowing test setup and control
- SETS –DAQ Live Data acquisition, trending and logging via IMES SETS-View software

SETS Clients include

Aker SolutionsBP
Subsea 7
DOF
Noble Energy
Technip

Shell
Petrobras
Total