

Subsea Power Control

Supporting the factory on the seabed:

1. Subsea Power Control

The Subsea Power Control system is a very important component of the Subsea Power Grid. It ensures several important functions in the subsea power distribution:

Direct transfer of every command given in the topside control system to the respective subsea control module using open standard interfaces (Profinet, OPC-UA, IEC 61850)

Integration of the respective subsea modules like variable-speed drive (VSD) and switchgear to the topside control system using open standard communication interfaces

Delivery of standardized interfaces (SIIS to other subsea located systems, Profinet/MDIS/IEC 61850 to other topside systems).

Delivery of a transparent communication channel from topside all the way to the subsea VSD. This enables configuration of the VSD, update of VSD software, as well as diagnostics and service being done the same way as with a topside VSD.

Delivery of an extensive set of high quality condition data from the subsea power system. The datasets realizes full operational digital twins for all the subsea power assets.

The Subsea Power Control system is connected with topside control via an embedded optic fiber in the subsea power umbilical. The fiber is terminated and connected to a subsea electronic power control unit (EPCU) - the "brain" of the Siemens Energy Subsea Power Grid. This controller unit processes commands and information and generates the correct commands locally to the respective subsea modules like VSD and switchgear. All data flow subsea is sent to and from the respective units via a remote termination unit (RTU) in an Ethernet data network.



Figure 1 Subsea Power Control

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