



Cable Ship DP - Cable Lay & Maintenance

SeaStream* DP Special Functions

GE's latest generation SeaStream* Dynamic Positioning (DP) system is fully adapted to support a wide range of specialist cable ship operations, including cable laying and cable maintenance. Backed by decades of experience and created in collaboration with vessel owners and operators, SeaStream* DP offers special features that help ship operators work more efficiently and simply do their jobs better.

DP System Requirements

The cable layer's DP system supports efficient cable laying through precise ship control along a pre-determined track at a pre-determined rate. During this process, it is essential to avoid damage to the product cable as well as to prevent loss or damage to any supporting machinery such as the trencher or plough.

A cable maintenance vessel's DP system typically requires more standard position-keeping functions that support the ship in locating, recovering, repairing, and redeploying cables as part of maintenance activities.

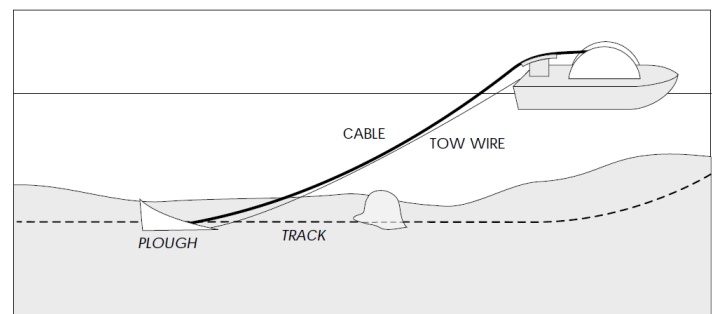
The DP system also must include functionality to support the use of an underwater remotely operated vehicle (ROV) during cable laying and cable maintenance.



A Look Back: In the early 1980s, the cable ship ITM Venturer was tasked with laying a DC power cable across one of the world's busiest shipping lanes—the English Channel, between the UK and France. Extremely reliable ship control was needed to lay the cable with precision along a pre-determined route. That's where GE came in, setting the benchmark for many similar installations that followed with our first foray into dynamic position control for the ITM Venturer.

SeaStream* DP Cable Laying Functions

The SeaStream* DP system incorporates numerous special features and functions specifically adapted to a cable ship's particular needs. Its primary Auto Track cable laying mode—supported by the High Tension Slowdown function—precisely controls the track and speed of the vessel based on planned routes delivered to the SeaStream* DP system by direct manual input or automatic download from an external survey/cable lay computer.



In deepwater, where the vessel track may not always exactly match the cable route, the SeaStream* DP system automatically calculates the necessary ship route, making allowances for changes in direction and depth.

When the cable ship is towing a plough (or other similar equipment), the SeaStream* DP system measures the plough's tow wire tension. If the tension exceeds a pre-set alarm value, the system's automatic High Tension Slowdown tension control function gradually decreases the tracking speed to protect the towed equipment and the product cable.

If the plough is stuck, the tracking speed is ultimately reduced to zero, bringing the vessel to a standstill while the operator takes the actions required to continue operation.



SeaStream* DP System Configuration

The SeaStream* DP system includes a range of position measurement systems and manages overall positioning quality by 'pooling' the most favorable characteristics of multiple input devices.

The most commonly employed measurement systems are:

DGNSS	Differential global navigation satellite system	for absolute positioning
Artemis®	microwave position reference sensor	particularly useful when working in proximity to other structures or at shore ends
CyScan® laser or RadaScan®	radar local position reference sensor	particularly useful when working in proximity to other structures or at shore ends
Taut wire	electro-mechanical sensor	for use in relatively shallow water where long duration station keeping is anticipated (such as during cable repair)
Hydroacoustic	sonar sensor	particularly useful when working with a plough

Determining the best position reference systems involves considering both the cable ship's operational requirements and redundancy level. For instance, a DP1 rating indicates single systems while a DP2 rating might include hot backup redundancy in terms of control systems as well as the ship's thruster and power systems.



SeaStream* HMI
Featuring Chinese Language Pack

