

PELANGI

Application Note 31368

Automatic Fog Detection

History :

For many years PD ports in Teesport have maintained 2 fog signal stations in the port. One located on the fairway buoy, the other at South Gare lighthouse. The fairway buoy signal traditionally ran 24 hours per day. South Gare lighthouse signal consisted of a duty and standby horn which could be switched to a “port closed” signal in fog. The lighthouse signal was activated via Microwave which fell into disrepair removing the ability for Port Control to switch it manually when the pilots requested the signal. The previous fog detector mounted at the lighthouse had become unreliable.

Aim:

To make both Fog Signals automatic and interlink them with the Port visual traffic control scheme such that when “port closed” was selected the signal if sounding would change character. In addition the port also wanted to determine visibility range at the lighthouse displayed within their Aids to navigation **PELANET** monitoring system.

Our Technical Solution:

1. To mount our standard **FD7100** Fog Detector at the lighthouse powered from a power source with standby back up in the event of mains failure.



FD7100 Fog detector at South Gare Old Coast Guard Station

2. To interconnect the ½ mile fog signal to the **COMMUNICATOR** control panel on the fairway buoy and alter the configuration of the station on the **PELANET** monitoring system.
3. By directly hard wiring the **FD7100** detector to the **PELANET Master Station** and creating a separate outstation for the main fog signals it was possible to provide **TEESPORT CONTROL** with visibility facility as well as automatic activation of the horns.



Tees Port Fairway buoy

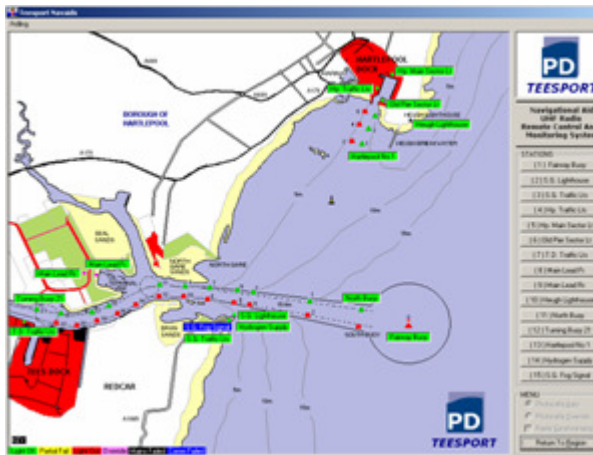
4. Since Tees Port provides both a visual and audio traffic control system it was considered necessary to have the fog signal change character automatically if a “Port Closed” visual signal was called for by port control.

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- By interlinking the “Fairway Buoy” with the “main fog signals” and “South Gare Traffic Lights” within the PELANET software it was possible to provide automatic change no matter which station the operator chose to change status thus providing a fail safe system.

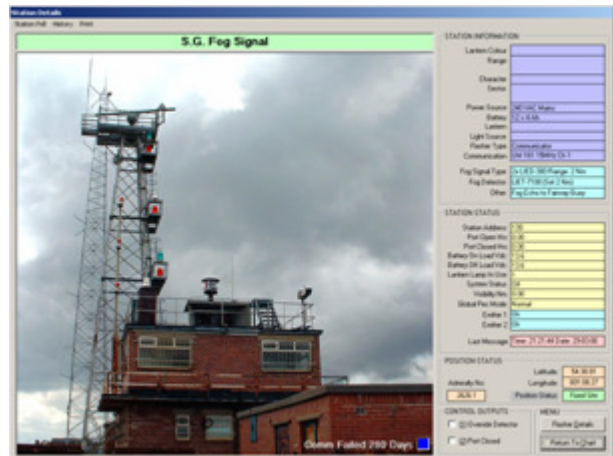


Main system chart showing each station.

- The two **ELG300** directional Fog horns were then progressively refurbished on a rolling maintenance basis thus ensuring the port was never left without an operational horn .



ELG300-2 2 mile 300 hertz 1Kwatt fog horn undergoing test in sound chamber after refurbishment at Pelangi.



South Gare Coast Guard Station Fog Signal Menu

- The overall aim of the project was to phase the upgrade with new facilities as they became available. To refurbish old plant to utilise capital previously spent on plant that had demonstrated its reliability over the years in the server marine environment.
- The system now has the ability to quantify visual range now observed by CCTV on the station and in the fairway made by the Pilot launches. Alternatively Port Control has the ability to provide departing mariners with actual visual ranges prior to encountering them in the channel.
- Lastly the aim of saving the power consumption of the ½ mile fog signal constantly running on the fairway buoy was achieved by only switching it on when required to the delight of maintenance personnel and pilot launches alike.

