



CSL ATLANTIC



## CASE STUDY 3

### Remote Control Vibrators

An innovative solution to an industrial automation control systems installed on the MV “CSL Atlantic” in 2010.

**Client:** CSL Australia

**Project Title:** Commercial Product Development

#### Background information

The MV “CSL Atlantic” is a conventionally geared vessel, in other words it has on-board cranes that are used to discharge the bulk cargo (gypsum, sugar, coal, etc) it carries.

The vessel has a material handling plant (MHP)/self unloading system (SUL) that consists of four hoppers, four belt feeders and four conveyors.

The cranes transfer the cargo from the cargo holds to one of the four hoppers and the SUL transports the product to the shore facility.

*“ To develop a new product that will allow the crane operators on ships to remotely operate the hopper vibrator controls as required . ”*

Sometimes the hopper outlets get blocked and vibrators are used to restore the cargo flow. Prior to installation of the PBA solution the following would occur:

The crane driver notices that the hopper is blocked, and calls the duty officer on the radio to request that the vibrator controls for the effected hopper be activated.

The duty officer goes to the control room and presses the buttons on the equipment enclosures to activate the required vibrators – a very cumbersome and time consuming process that relies on effective radio communication and additional personnel.



CSL ATLANTIC CONTROL ROOM SHOWING EXISTING CONTROLS



CSL ATLANTIC ORANGE VIBRATOR

**Project Brief: To provide CSL Australia crane drivers with the ability to operate the vibrators on the hoppers.**

The delivered solution is wireless as the installation of a wired solution was not practical.

In short, the crane driver pushes a button that (via a wireless link) requests the PLC to run the vibrators; time restrictions apply preventing the continuous operation of the vibrators.

**Technical objective**

PBA developed a new product to remotely control vibrators on ships.

Some ships have four cranes to take bulk products from the cargo holds to a hopper on deck. Sometimes the product doesn't flow well through the hopper, so vibrators are used. The aim is to allow the crane operators to remotely operate the vibrators, as required.

Each of the four cranes needed an enclosure installed with wireless equipment providing the operator with the ability to control the vibrators using indicators, push buttons and control switches.

These wireless stations communicate with another wireless device that is installed in a central control room. It facilitates data exchange to the PLC (programmable logic controllers). This enables the crane operators to observe lights and push buttons to activate vibrator controls.

A wired solution was not feasible so a wireless solution that could be integrated in our solution was sought and found. We trialled various wireless products to identify one that could be integrated in the proposed solution.

The additional challenges were to build around the wireless product to develop controls for the operators using interfaces with the PLC and modifications to the PLC software. We also had to connect equipment in the control room to existing PLC equipment.

This project is consistent with PB Automation's objective to specialise in providing innovative industrial automation control systems with a difference.

*The ship's crew, crane drivers, ship management company and ship owners were extremely pleased with the outcome.*