TURNER ENERGY CONTROL SOLUTIONS

CASE STUDY / MARINE & OFFSHORE / RETROFIT

Main engine governor upgrade

Volcán de Teno | water-jet propulsion

Modernising the speed-control and remote I/O architecture while retaining the installed actuation and mechanical backup.

CONTROL TECHNOLOGY

WOODWARD

VESSEL EQUIPMENT

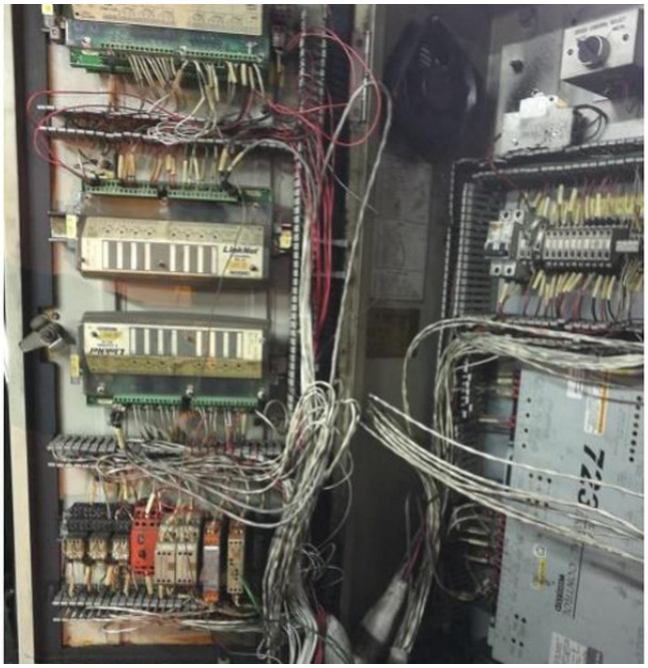
WÄRTSILÄ

THE CHALLENGE

The legacy control had reached an obsolescence point.

The Echelon remote I/O was becoming difficult to support. The project called for four control cabinets to be replaced with a new architecture for the vessel's main-engine water-jet propulsion system.

BEFORE / LEGACY CONTROL CABINET



AFTER / NEW CONTROL CABINET

CONTROL PATH

01

Existing control

Woodward 723 speed control with Echelon remote I/O.

02

Modernised architecture

Woodward 2300E speed control and new WAGO remote I/O.

03

Retained machine assets

Existing actuator and PGA-EG-58 mechanical backup.

THE RESPONSE

New controls around retained actuation.

TURNER ECS assembled a modern control package for the vessel, replacing obsolete electronics while keeping the existing actuator and mechanical backup in the system.

ASSEMBLED CONTROL CABINET

SPEED CONTROL

Woodward 2300E

The new electronic speed-control platform replaces the 723.

REMOTE I/O

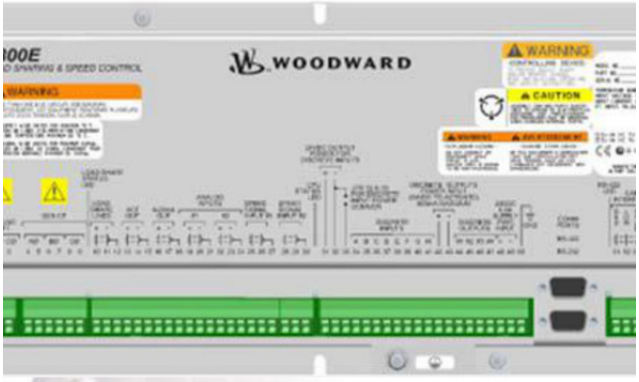
WAGO on CAN

Compact remote I/O includes on-board diagnostic LEDs.

SERVICEABILITY

Cabinet design

Knife-type terminals support installation and fault finding.



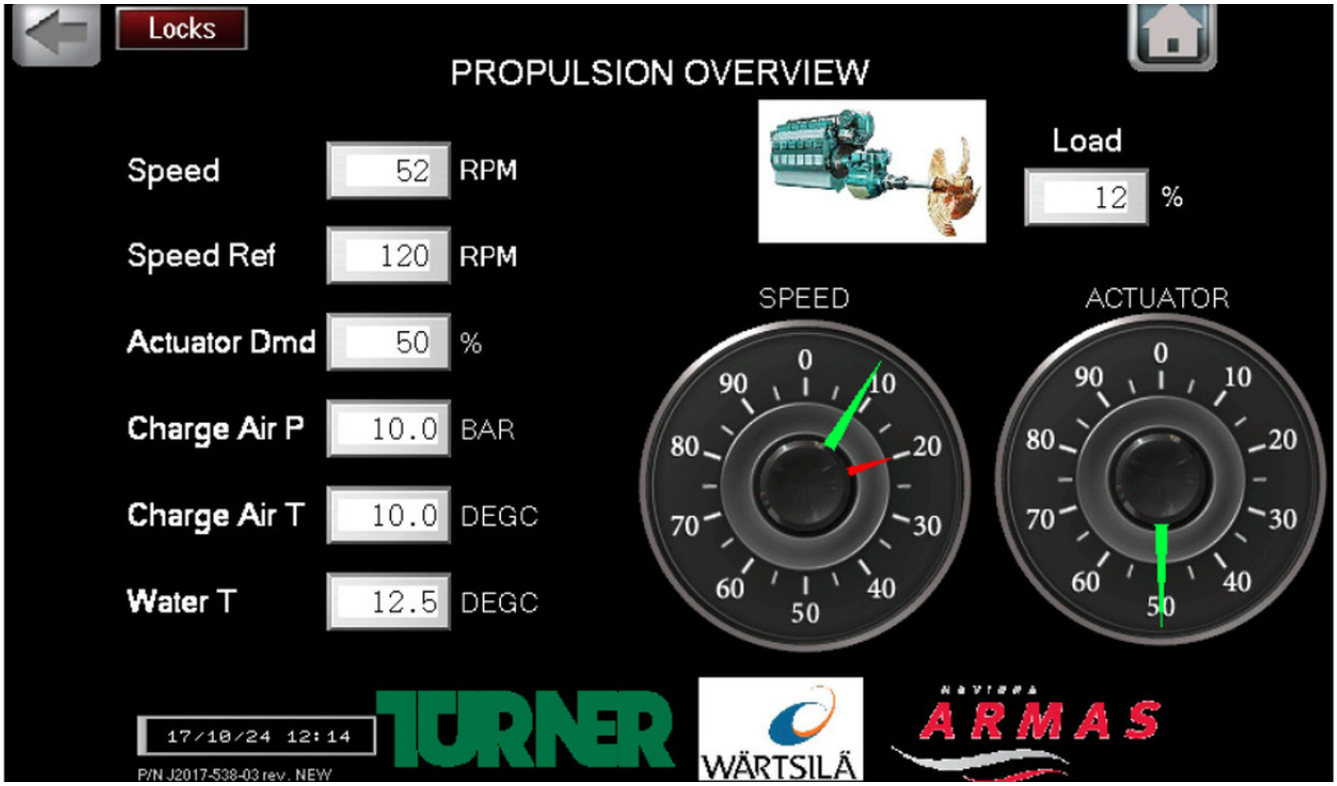
WOODWARD 2300E SPEED CONTROL

NEW REMOTE I/O INSTALLATION

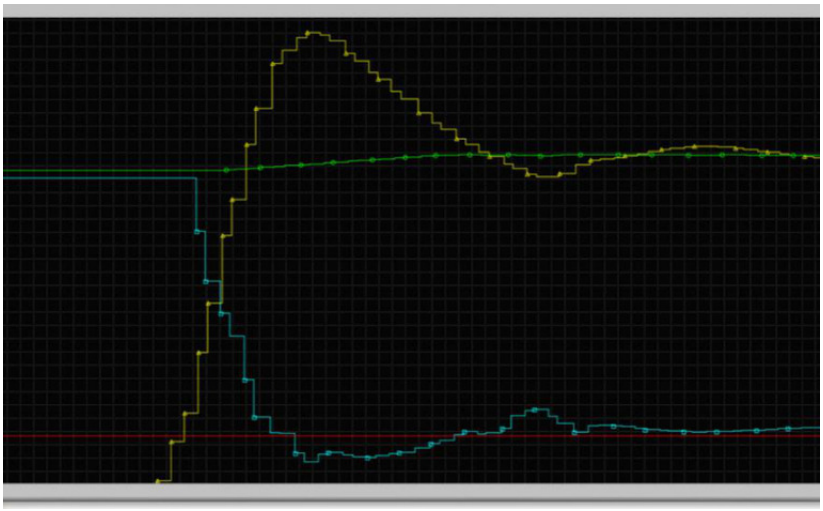
THE OPERATOR VIEW

System behaviour, visible to the operator.

A panel PC mounted in the cabinet front door gives the crew a human-machine interface (HMI) for propulsion monitoring, control and troubleshooting.



PROJECT HMI / PROPULSION OVERVIEW



TREND HISTORY / SYSTEM RESPONSE

OPERATOR FUNCTIONS

- **Monitor**

  View speed, load and actuator demand together.

- **Control**

  Use one operator interface for propulsion functions.

- **Diagnose**

  Review alarms and trends to investigate behaviour.

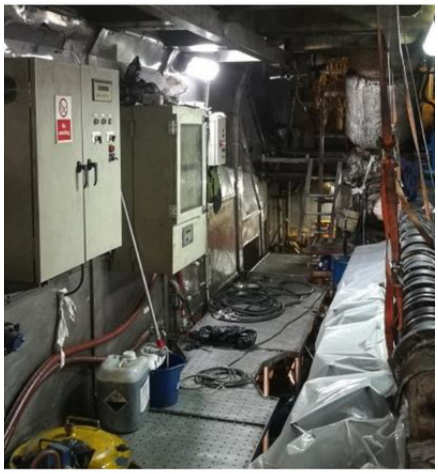
FROM WORKSHOP TO VESSEL

Assembled, shipped and commissioned.

The work connects workshop build quality with practical site delivery. The new cabinets were prepared for marine shipment, then installed and configured in the vessel's machinery space.

CABINET ASSEMBLY

MARINE SHIPMENT



ON-BOARD INSTALLATION

01

Build the cabinets

Integrate the Woodward controller, WAGO remote I/O, terminals and panel PC into the replacement cabinet architecture.

02

Prepare for site

Package and ship the assembled equipment for installation in the marine operating environment.

03

Install and commission

The source scope allows for an experienced engineer, supported by a technician for wiring modifications, to configure and first-commission the system.

PROJECT VALUE

A more supportable propulsion control system.

The retrofit addresses a defined obsolescence risk and gives the crew a clearer route to operate, maintain and troubleshoot the main-engine control system.

WHAT THE UPGRADE SUPPORTS

01 **Reduced obsolescence exposure**

The new controller and remote I/O replace legacy electronics.

02 **Clearer diagnostic visibility**

The HMI brings live values, alarms and trend history together.

03 **Continuity with installed assets**

Existing actuation and PGA-EG-58 mechanical backup remain in scope.

04 **More maintainable cabinets**

Compact I/O and knife-type terminals support future fault finding.

TECHNOLOGY IN THIS CASE

Woodward 2300E speed control / WAGO remote I/O over CAN / retained actuator and PGA-EG-58 backup / panel PC with HMI, alarm and trend functions.

NEXT STEP

Discuss a similar marine governor retrofit. →

Reliable. Resilient. Ready.