

TECH PAPER

TEF 4900 COMMANDER NAVIGATION

NAUT-AW COMPLIANCE

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INTRODUCTION

The DnV (Det norske Veritas) class notation NAUT-AW (All Waters), denotes that the vessel is designed for an enhanced navigational safety. An important requirement of this class is to enable the officer of the watch to perform all of the normal bridge functions from a single pilot station.

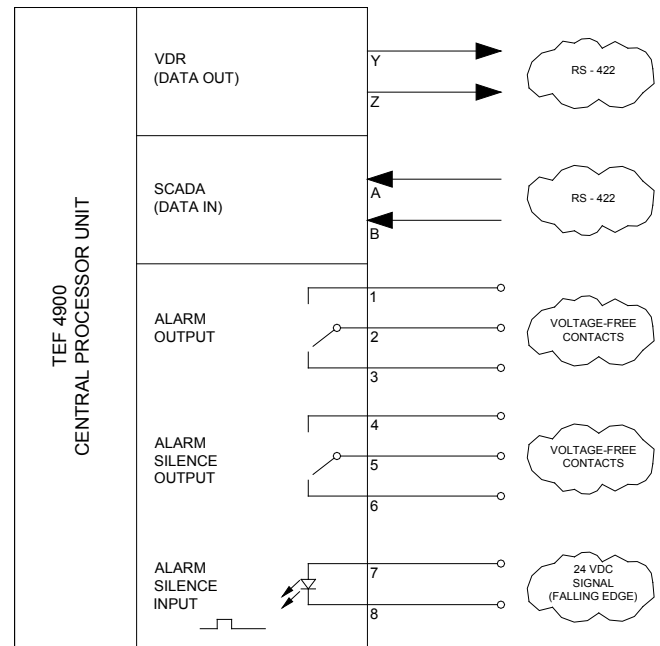
While developing the navigation and signal lights controller TEF 4900 Commander Navigation, Tranberg ensured that the requirements of NAUT-AW was embedded into the design. The result is that this control system, besides being probably the most sophisticated of its kind on the market, is capable of being interfaced to external control systems. Precisely what the NAUT-AW classification calls for.

TEF 4900 COMMANDER NAVIGATION

The TEF 4900 Commander Navigation system consists of a custom-built, backlit control panel, featuring application-specific buttons for various navigation- and signal lights, plus standard buttons for system on/standby, backlight intensity adjustment, and alarm silence/acknowledge. In addition to the panel, the system consists of a main processor with the application-specific functionality, and several output modules.

The TEF 4900 Commander Navigation offers the following functions corresponding to the NAUT-AW classification:

- **User Interface:** A backlit and compact control panel for both navigation lights and signal lights, including all spare lights. This reduces stress on officers, as the user interacts with one single panel with clearly visible and readable text and graphics.
- **Automation:** When a lantern fails, the Commander system will, besides notifying the officers by audible and visual alarms, automatically turn on spare lanterns. This significantly increases safety.
- **Interface:** The Commander is equipped with a serial interface for communication with external equipment. Typical devices it can interface with are: VDR (Voyage Data Recorder), SCADA (Supervisory Control and Data Acquisition) system, and Bridge Alarm Systems.
- **Communication:** The data to and from the Commander are in accordance with IEC 61162 (NMEA). The sentences consists partly of a proprietary type, giving a detailed control and status of power supplies and outputs, and partly of standard ALR and ACK sentences.



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REMOTE CONTROL CAPABILITIES

The TEF 4900 Commander Navigation interfaces with external equipment through a galvanically isolated 4-wire serial RS-422 port with a baud rate of 38400 bps. The galvanic isolation further increases the integrity of the system.

Some of the remote control capabilities:

- Any button in the panel may be remotely controlled; either by turning on a main lantern, its spare lantern, or turn both off.
- It is possible to turn off the entire system by one single remote command. Likewise, the system may be remotely turned on, in which case all lanterns that previously were on, automatically will be turned on again.
- Dimming level of e.g. Panama signal lights may be remotely adjusted.
- The backlight intensity of the control panel may be remotely adjusted.
- Alarm silencing and system operation may be remotely controlled and monitored.

The protocol formats are described in detail in the user manual for the TEF 4900 Commander Navigation.

Please also see our Tech Paper TTP-1002, which describes the standard system compatibility towards the NAUT-OSV classification. Combining the two classifications further increases safety.