



CSP Electronics, LLC  
www.cspelectronics.com  
sales@cspelectronics.com  
(337) 255-0540

## CSP Engine and Gear Control and Protection System

CSP Electronics now offers electronic controls for engines and transmissions for commercial vessel operations. The system not only controls, but monitors engines and gears for protection against possible catastrophic failures. The system controls the following:

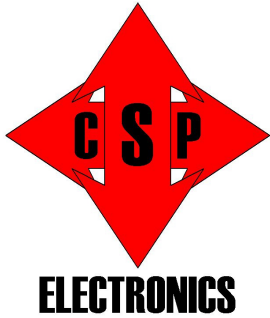
- Main Engine throttle
- Gear forward and reverse shift valves
- Gensets
- Compressor and Pump Engines
- Station selection per ABS and Coast Guard requirements
- Any number of stations
- *Modes(Normal, Engine Only, FirePump)*
- *Emergency Station*
- *Start/Stop Engine Control*
- *Redundant modules per ABS/Coast Guard requirements?*

### The system components provided include:

- Throttle levers
- Pilot house and engine room display
- Electronic modules for engine room and pilot house

Features of the system are:

- Oil pressure and temperature monitoring
- Shaft speed monitoring
- Engine speed monitoring
- Engine throttle
- Engine speed based gear pressure curve with warning and protection detrate/shutdown (**optional**)
- High gear oil temperature, low gear oil pressure warning (lube/clutch) with protection derate shutdown(**optional**)
- CAN data link operation (fewer wires to install)
- Easily expanded for increased monitoring of engine components (*up to 24 additional points without additional hardware*).



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Features continued:

- Optional control functions such as slip clutch control (*for trolling/docking/DP*) and integrated shaft braking
- Independent **DP/JoyStick** interface
- ***Increased fuel economy during normal operations, DP, docking, or while holding vessel position***
- ***Meets manufacturer warranty specifications (for Cummins engines and Twin Disc transmissions).***

#### System requirements

- 12/24 Vdc battery system
- Gearbox solenoid operated clutch engagement
- Electronic engine and transmission interface, (mechanical options available)

#### Options:

- Display and data logging computer (*all integrated into a single display*)
- Ship to shore communications interface
- Voice enunciated warnings
- Additional pressure, temperature, *frequency (Hz/RPM)*, and switch monitoring expansion *including GenSets, Bow Thruster and Compressor/Pump Engines.*
- ***Torque/Load Monitoring and Control***
- ***Oil Change interval calculated based on fuel usage***
- ***Jet interface for engine/gear derate***
- ***Tank levels, doors, hatches, bilges, fans, pumps monitoring***
- ***Oil Filter, Fuel Filter Air Filter and Seawater Restriction monitoring***
- ***Air Intake Manifold, Turbo, Coolant and Oil Temperature monitoring***