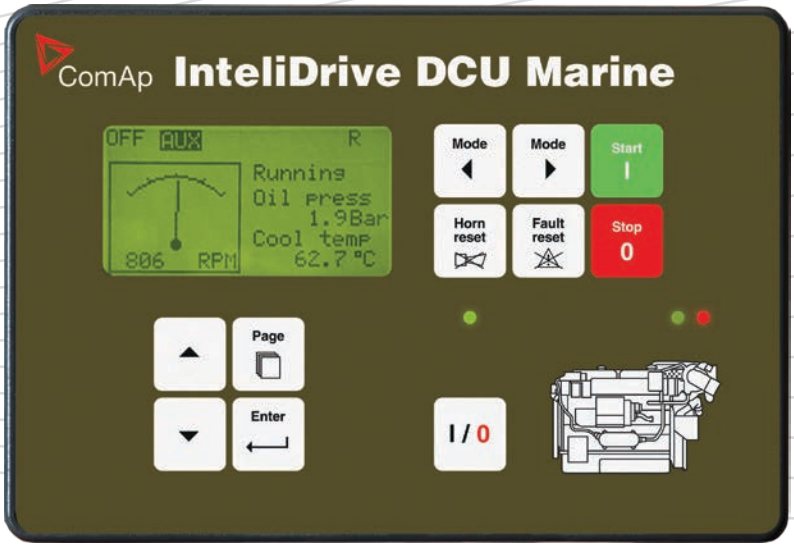
Green Power systems

The heart of smart control

Power, efficiency and safety on the water That's smart control

Marine and offshore solutions

Marine engine solution



ComAp's InteliDrive DCU Marine is a marine certified engine controller designed specifically to meet the demanding needs of the marine market. The InteliDrive DCU Marine provides a high level of performance with extensive communication capabilities. This controller is suitable for propulsion, auxiliary, emergency and harbor solutions with hardwired safety functions.

What ComAp offers

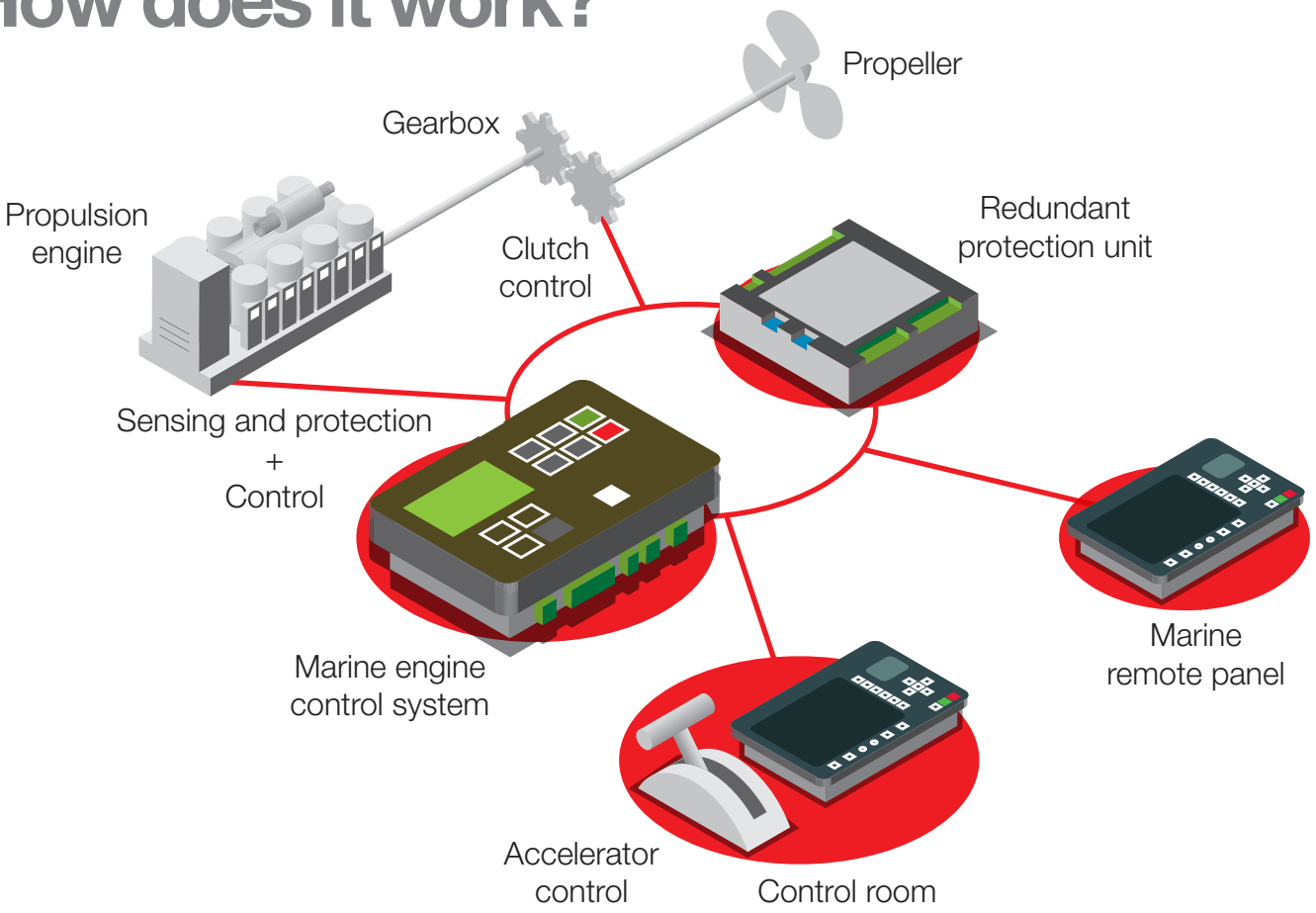
1 Reliability

- Marine certified hardware and software
- ABS, GL, BV, Lloyds Register certification
- Years of reliable use all over the world in many different applications
- Check the controllers' current certifications:

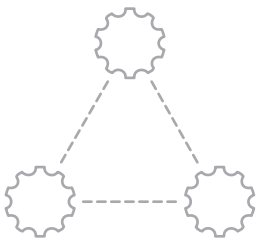
2 Integrated solution

- Less wiring and components
- Full communication support of engines with ECU
- Integrated clutch control

How does it work?

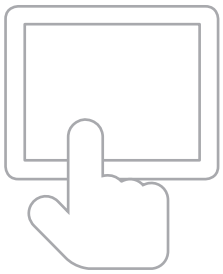


3 Load sharing for propulsion engines



- Effective balancing method of loading engines
- Proper load sharing brings higher efficiency and easier maintenance

4 Monitoring and controlling



- Slave panel and remote displays available
- Customize SCADA and remote displays
- 3rd party system cooperation via Modbus

Marine generator solution

InteliGen^{NT} GeCon and InteliSys^{NT} GeCon feature a special firmware configuration for gen-sets with a standalone engine controller (e.g. InteliDrive DCU Marine). Based on field proven InteliGen^{NT} Marine and InteliSys^{NT} Marine. It allows customers to select a tailored solution for their application with the option of modified options for critical applications. All our marine certified controllers are compatible with marine versions of our displays, including InteliVision 8 Marine and InteliVision 5 CAN Backlit, to allow remote monitoring on the vessels bridge.

What ComAp offers

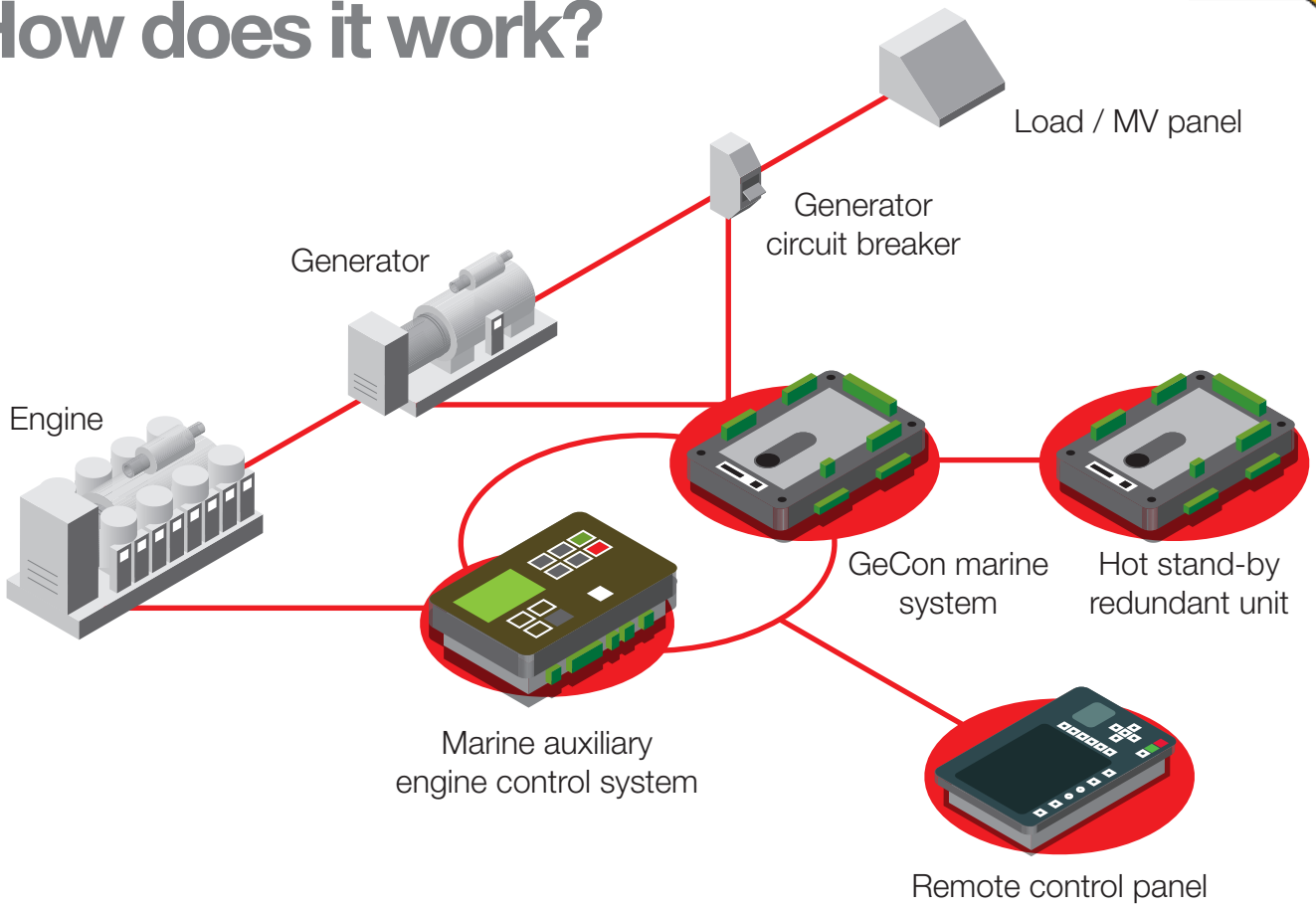
1 Excellent flexibility

- Configurability enables users to customise to the needs of their application
- Built-in PLC functions remove the need for an external PLC controller

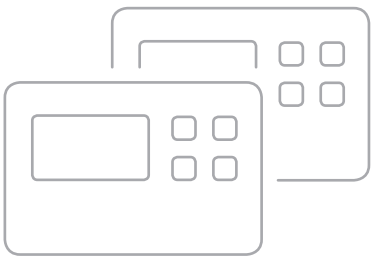
2 Power management system

- Manage outputs from generators from different manufacturers and with different power outputs
- Cooperation with engine controller InteliDrive DCU Marine with AUX application
- Cooperation with 3rd party engine controllers

How does it work?



3 Redundancy

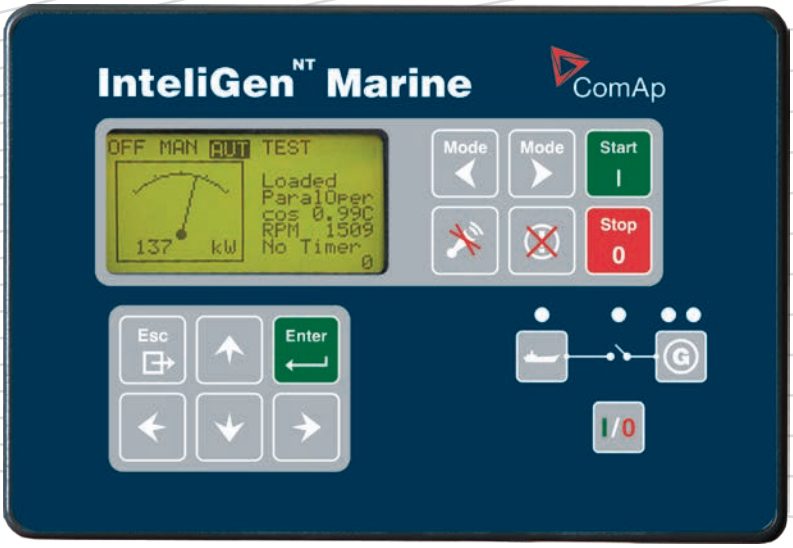


- Optional redundant ´Hot Stand-By´ controller guarantees uninterrupted generator control in case of failure of the primary controller
- Redundancy of CAN bus line with optional I-CR-R module
- Gen-set performance log for easy problem tracing in every control unit

4 Efficiency

- ComAp PMS minimizes the number of running generators a customer needs to use
- Isochronous generator control helps stabilize the power factor for lower fuel consumption and more efficient energy production
- Long term monitoring and data logging can be used to tune the system for the best performance

Marine power management system solution



The ComAp Power Management System (PMS) provides via InteliGen or InteliSys fully automatic operation of the generators including load dependant start and stop, power bands, running hour equalization, automatic synchronization and load-sharing. The InteliMains controller is used for automatic synchronization of the group of ship's generators and bumpless load transfer to the shore connection when the ship is docked at port.

What ComAp offers

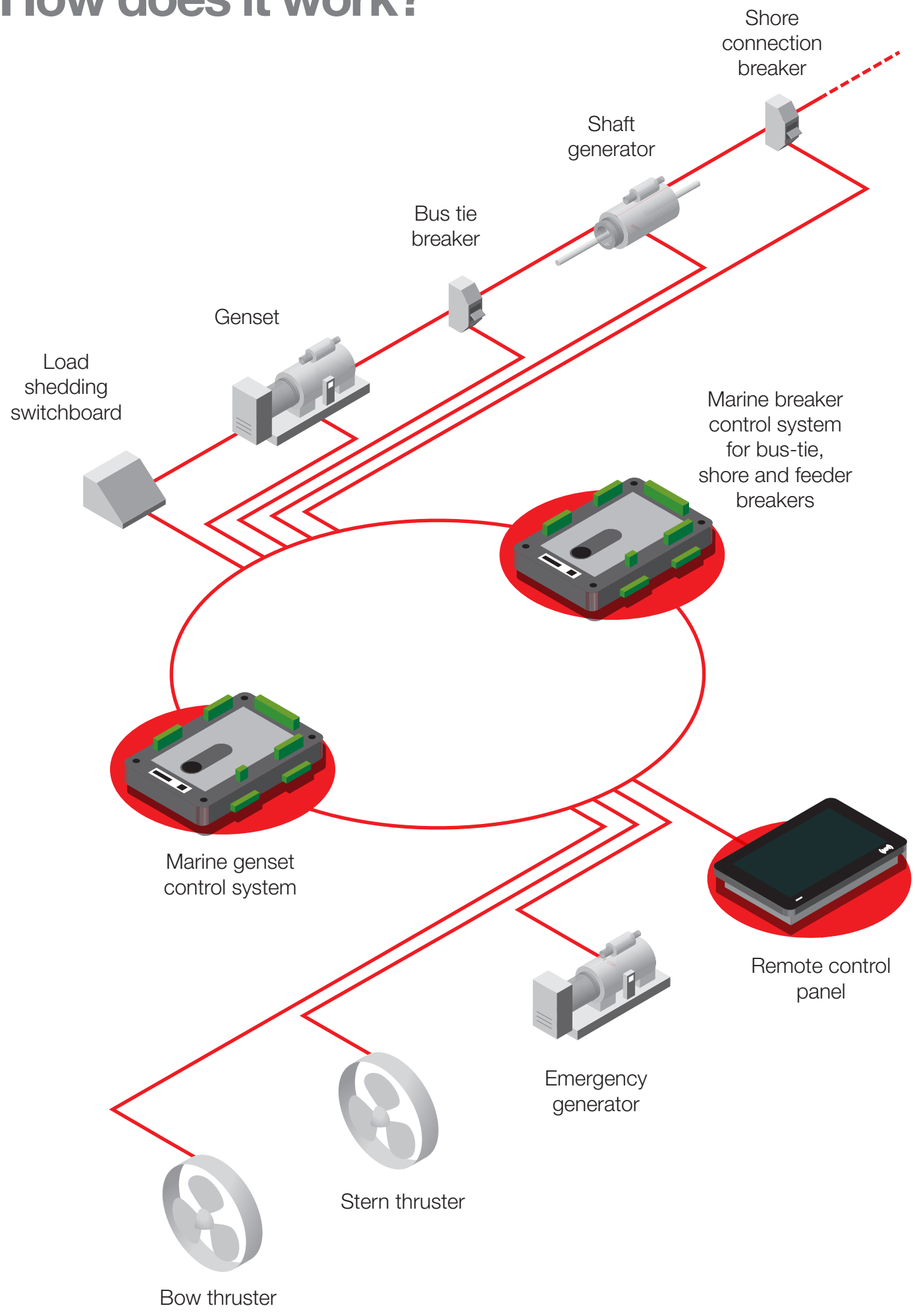
1 Integrated solution

- Synchronizer and load sharing and protection module in one
- Control and protection of bus tie breakers part of PMS system
- Simplify complex system-any external PLC needed

2 Flexibility and complexity

- In-built PLC logic to fulfill customer requirements
- Fully integrated power management solution for load demand swapping and running hours equalization for higher efficiency of all system
- Control and stabilization of power factor
- Limitation of heavy loads and load shedding
- Isochronous load sharing and synchronization

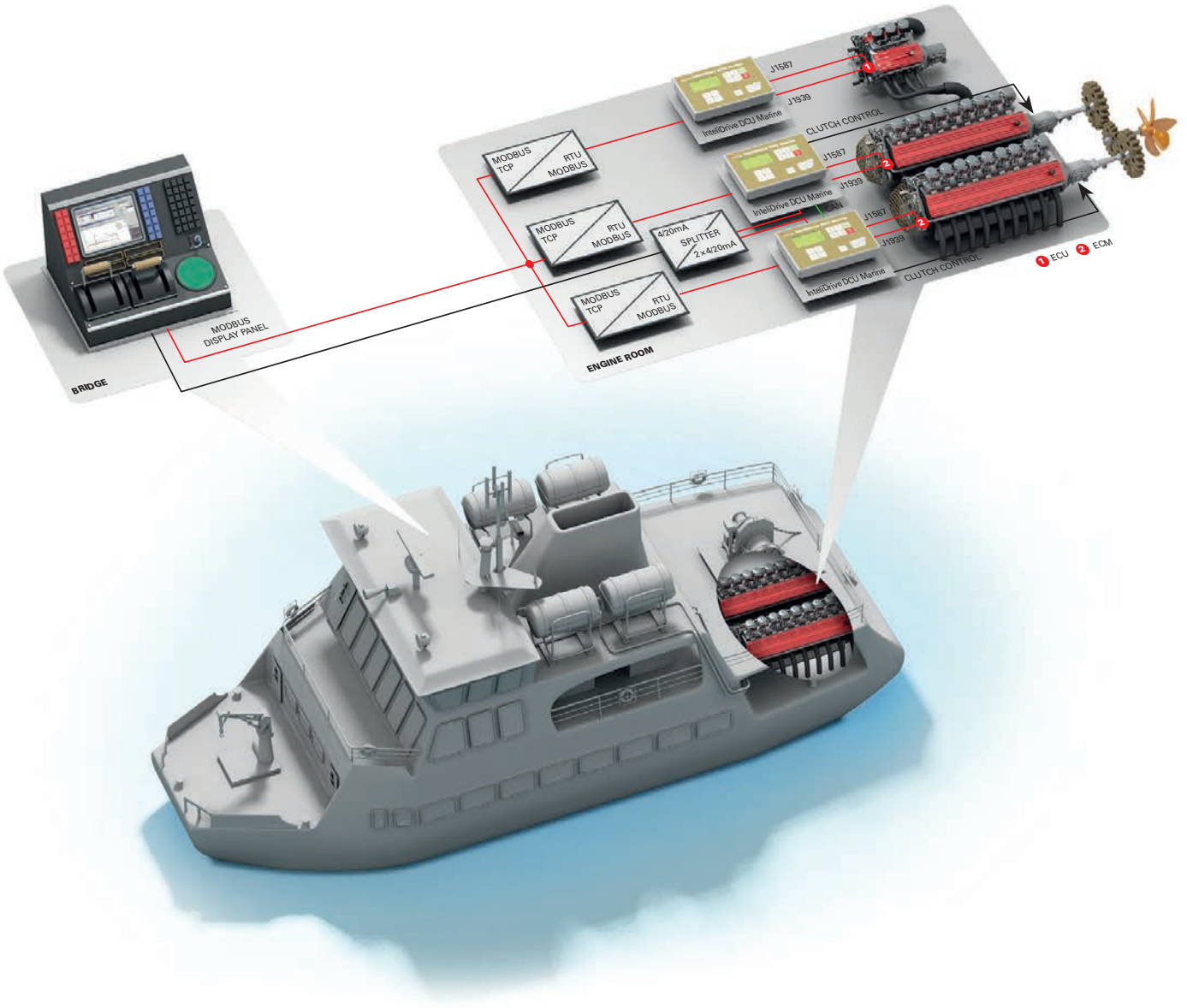
How does it work?



Applications

Propulsion

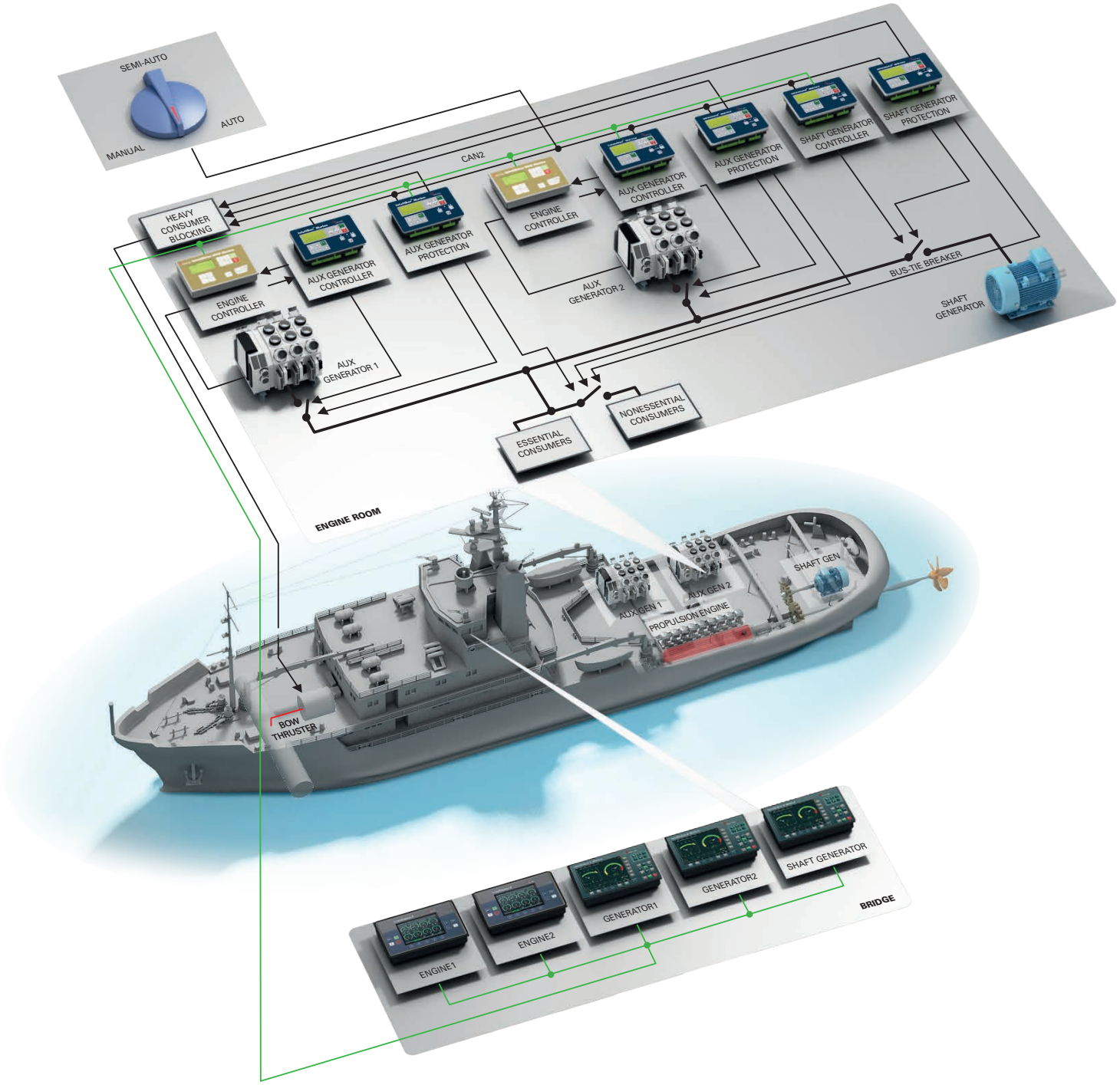
InteliDrive DCU Marine provides reliable control of propulsion system for your vessel with sophisticated load sharing, monitoring, protection and data logging system.



Auxiliary and Generator

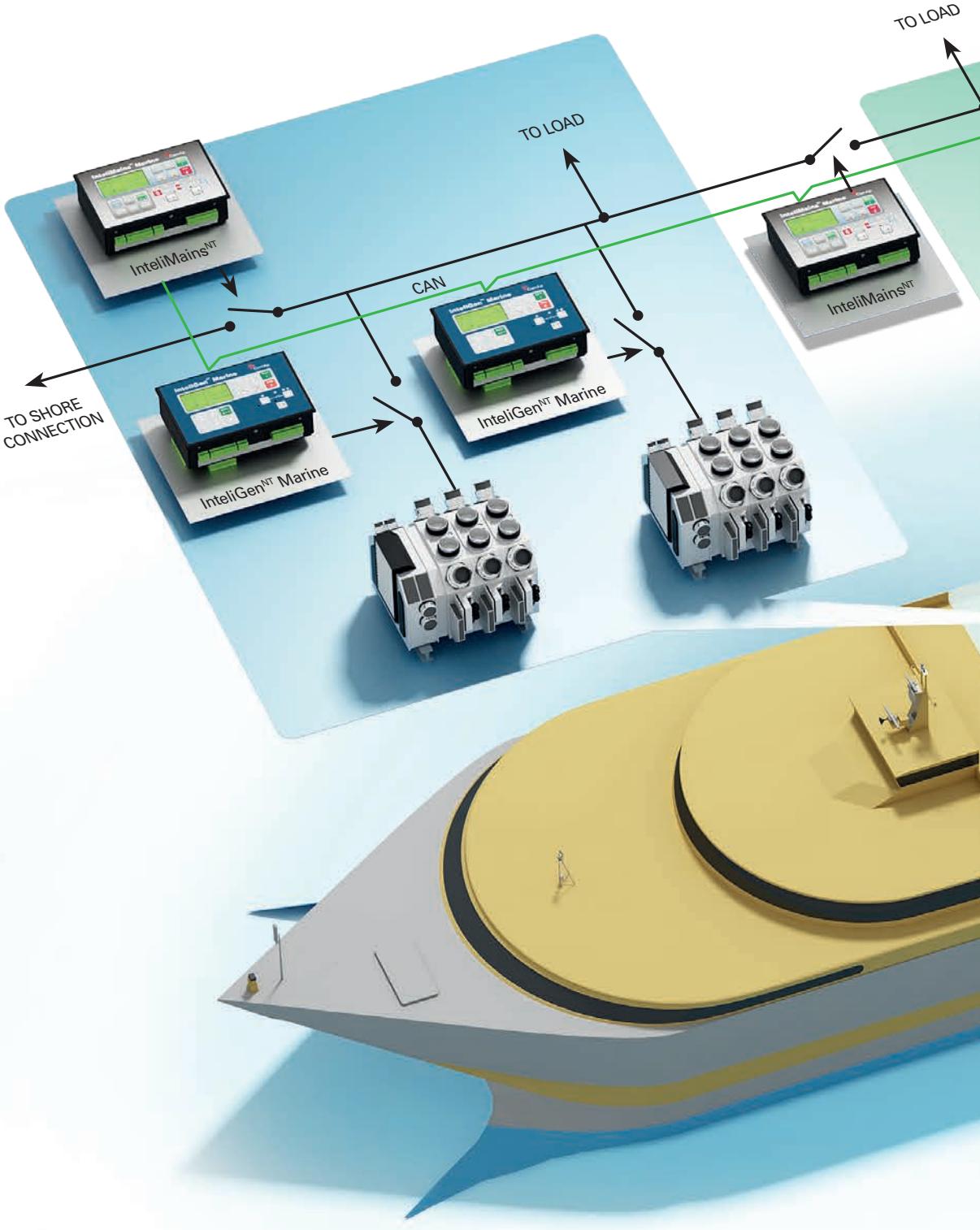
ComAp's InteliDrive DCU Marine and InteliGen^{NT} BaseBox, in combination with our powerful remote displays allow a complete power control system for any type of vessel.

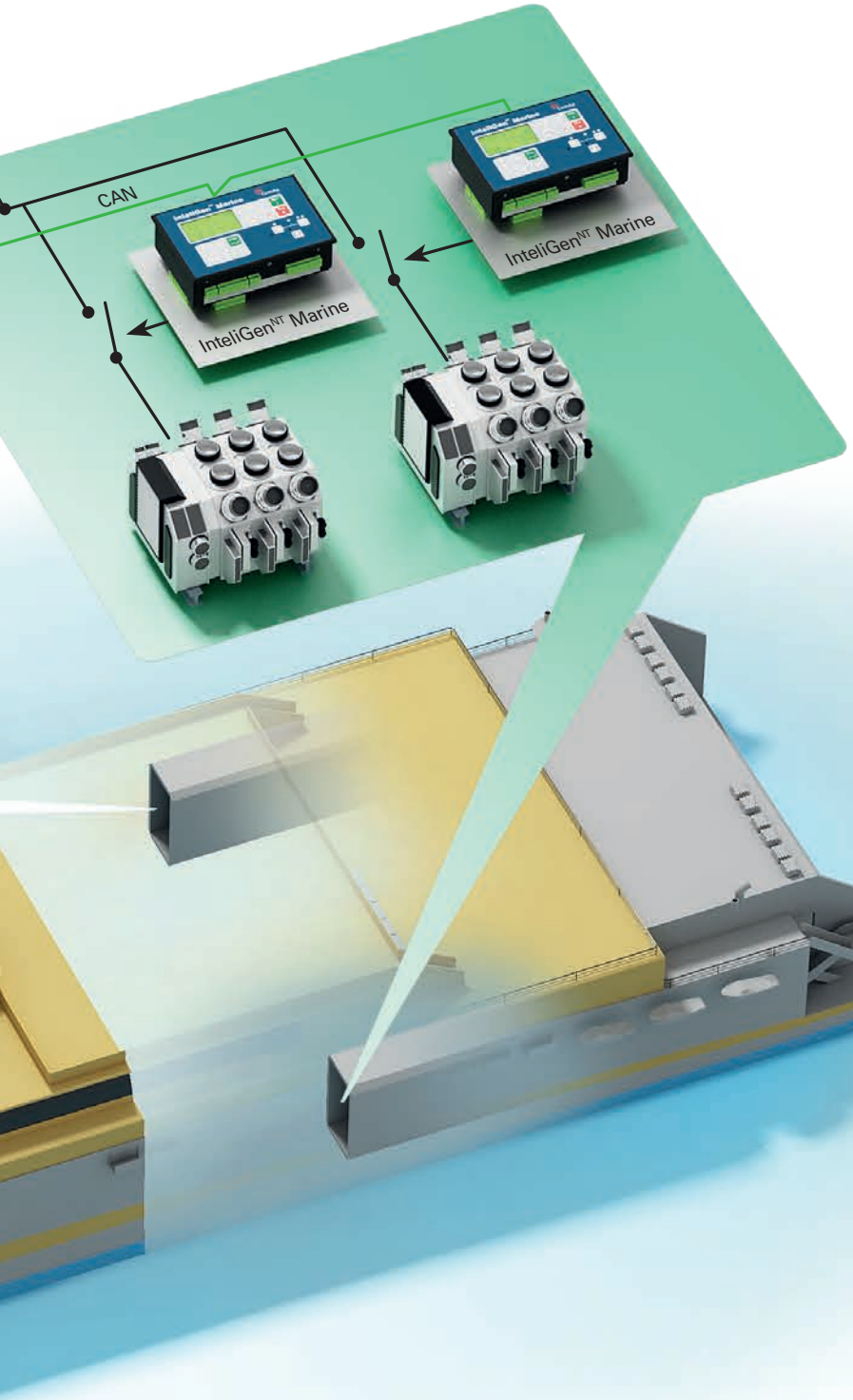
Allowing control of both propulsion engines and auxiliary power generation engines, ComAp gives you reliable control, monitoring, protection and data logging with the capability to control other external devices.



Power management system

ComAp's Power Management System (PMS) offers reliable, continuous and efficient power supply for your vessel. Advanced generator, shaft generator, emergency generator control, power management, isochronous synchronization, bus-tie breaking control and effective power factor stabilization is provided by ComAp Marine certified control units: InteliGen, InteliSys and InteliMains.



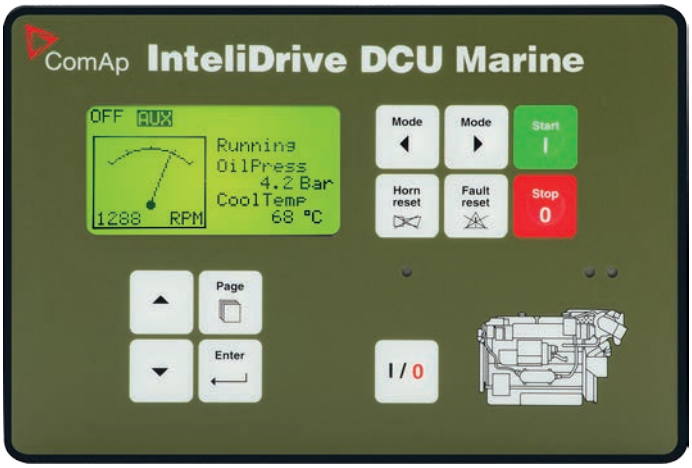

CAN
InteliGen NT Marine
InteliGen NT Marine

Efficient and reliable control of your vessel That's smart control

Key products

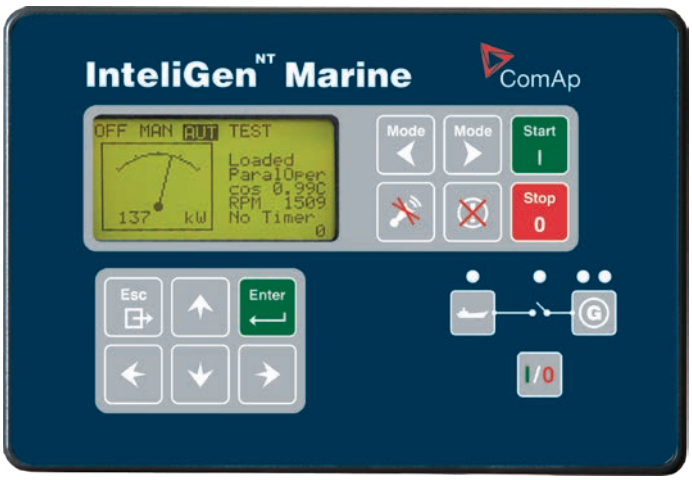
InteliDrive DCU Marine

- Modular certified engine controller for marine applications
- Engine control, monitoring and protection
- 14 binary inputs and outputs, 8 analog inputs
- RS232/Modem/Modbus/Internet communication
- Redundant module ID-RPU with hardwired safety functions activated in backup mode
- Automatic switchover to backup mode in case of detection of main unit failure
- Internal – configurable PLC functions
- Graphical screen with icons and bar graphs
- Event and time driven history record for backtracking
- Different engine application support: Auxiliary, Emergency/Harbour, Propulsion
- Clutch control for propulsion engines
- Symmetrical load sharing for propulsion engines with J1939 (via CAN bus)
- Marine certified extension modules for expandable number of Inputs/Outputs (connected via CAN bus)
- Slave panels for remote control available
- Inputs/Outputs configuration
- Configurable list of values that are read from J1939 bus
- Support of redundant J1587 communication bus
- Direct speed/load control via J1939 or J1587 buses
- Diagnostic information from J1939 or J1587 displayed in plain intelligible text
- Configurable Modbus and Modbus TCP support for easy integration into the ship's control system



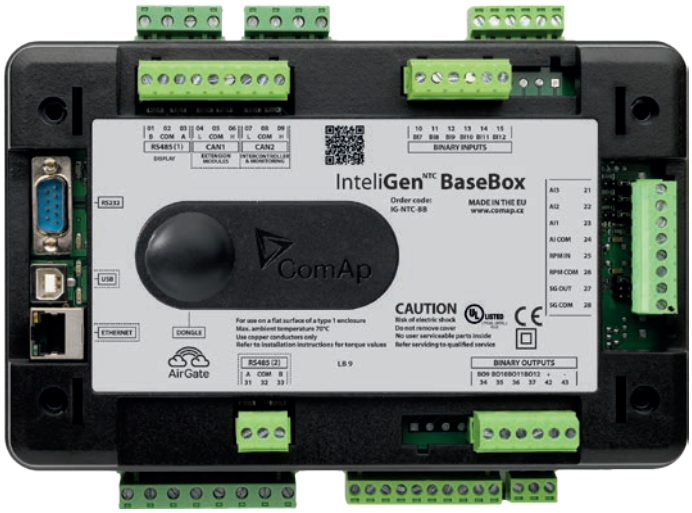
InteliGen^{NT} Marine

- Marine certified gen-set controller for single or multiple generating sets operating in standby or parallel modes
- Marine certification approved control system
- Support of engines with ECU (Electronic Control Unit)
- Many communication options – easy remote supervising and servicing
- Gen-set performance log for easy problem tracing
- Automatic synchronizing and power control (via speed governor or ECU)
- AMF function, Baseload, Import / Export, Peak shaving, Voltage and PF control (AVR)
- Generator measurement
- Bus measurement
- Inputs and outputs configurable for various customer needs
  - 12 binary inputs
  - 12 binary outputs
  - 3 analog inputs
- Controller redundancy
- Event-based history (up to 500 records) with customer-selectable list of stored values; RTC; statistic values
- Integrated PLC programmable functions
- Integrated fixed and configurable protections
- Special firmware version e.g. GeCon for Marine generators with external engine controller



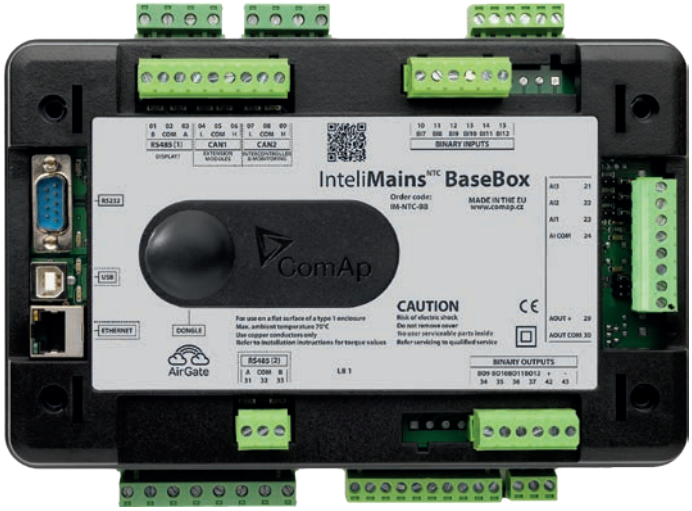
InteliGen^{NTC} BaseBox

- Gen-set controller for both single and multiple gensets operating in standby or paralleling modes
- Support of engines with ECU (Electronic Control Unit)
- Complete integrated gen-set solution and signal sharing via CAN bus – minimum external components needed
- Many communication options – easy remote supervising and servicing
  - AirGate support, Ethernet connection (RJ45), USB 2.0 slave interface, 1× RS232 / 2× RS485 interface with Modbus protocol support; Analog / GSM / ISDN / CDMA modem communication support; SMS messages; ECU Modbus interface; secondary RS485 converter is isolated
- Automatic synchronizing and power control (via speed governor or ECU)
- AMF function, Baseload, Import / Export, Peak shaving, Voltage and PF control (AVR)
- Generator measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAhr
- Mains measurement: U, I, Hz, kW, kVAr, PF
- Selectable measurement ranges for AC voltages and currents – 120 / 277 V, 0–1 / 0–5 A
- Inputs and outputs configurable for various customer needs
- Bipolar binary outputs - possibility to use BO as High or Low side switch
- Controller redundancy
- Event-based history (up to 1000 records) with customer-selectable list of stored values; RTC; statistic values
- Integrated PLC programmable functions
- Integrated fixed and configurable protections
- DIN-Rail mount
- Customized firmware solution e.g. GeCon for alternator control only and cooperation with engine controller



InteliMains^{NTC} BaseBox

- Mains supervision controller base unit
- Many different power control modes available
  - System Baseload with limited export or minimal import
  - Import/Export power control of gen-set group
  - Temperature of the system by power control
  - Dynamic changes of required system power via analog input
- Reverse synchronization of the loaded gen-set group to mains
- Forward synchronization of Mains to gen-set group
- Coupling of several synchronized mains to a common bus
- Allows to build complex applications with more mains incomers, bus-tie breakers, load management etc.
- AMF function, Peak shaving
- Mains measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAhr
- Bus measurement: U, Hz (kW, kVAr, PF - via CAN from gen-set group)
- Selectable measurement ranges for AC voltages and currents – 120 / 277 V, 0–1 / 0–5 A
- Inputs and outputs configurable for various customer needs
  - 12 Binary Inputs
  - 12 Binary Outputs
  - 3 Analog Inputs
  - 1 Analog Output
- Bipolar binary outputs - possibility to use BO as High or Low side switch
- Many communication options – easy remote supervising and servicing
  - 1× RS232 / 1× RS485 interface with Modbus protocol support
  - Analog / GSM / ISDN / CDMA modem communication support
  - SMS messages
  - RS485 converter is isolated (one RS485 Display-dedicated port)
  - AirGate support
  - Ethernet connection (RJ45)
  - USB 2.0 slave interface



- Controller redundancy
- Event-based history (up to 1000 records) with customer-selectable list of stored values
- RTC
- Statistic values
- Integrated PLC programmable functions
- Integrated fixed and configurable protections
- DIN-Rail mount of the controller
- Customized firmware solution

InteliVision 5 CAN Backlit

- Marine approved color display unit for either InteliDrive DCU, InteliGen^{NT} or InteliSys^{NT} controllers
- Plug and Play operation (auto configuration based on controller application)
- Direct connection to the controller (converters are not needed)
- Simpler, faster and more comfortable control for the user
- More information in less time
- 5,7” Colour TFT Display
- Same cut out as standard ComAp controllers, e.g. InteliDrive DCU
- Same language support as the master controller including graphic languages
- Active buttons – fast access to important data
- Galvanically separated CAN interface
- Binary output for horn/buzzer control
- Sealed to IP65
- 8-pins Harness connection on rear side
- Drag & Drop customer screen configuration
- Backlit buttons
- Analog input to control display backlit intensity

InteliVision 8 Marine

- Marine approved color display unit for either InteliGen^{NT} / InteliSys^{NT} or InteliDrive controllers
- 8“ colour TFT display with resolution of 800×600 pixels
- Controlled by active buttons
- Comes with new TRENDS monitoring screen
- Windows CE operating system
- Same language support as InteliGen^{NT} / InteliSys^{NT} and InteliDrive DCU
- Screen configuration by customer – export to XML format with subsequent manual screen modification and import back to the controller (as IS-Display)
- Customizable initial screen logo and content of controller help
- This display gives complete access to all control and monitoring functions of InteliGen^{NT} / InteliSys^{NT} and InteliDrive DCU
- Intended for connection to ONE controller: InteliGen^{NT} / InteliSys^{NT} or InteliDrive DCU
- The same dimensions as IS-Display / InteliSys^{NT} (including cut out dimensions)
- It is possible to mount InteliSys^{NT} BaseBox to the rear side of InteliVision
- Can be used as a replacement for IG-Display LT GC, IS-Display or I-RD-CAN
- Connection to a controller via RS232/485 and CAN bus
- Auto configuration based on controller application (as IS-Display)
- Designed to be mounted in both monitoring and engine room
- Operating temperature: –20 to + 70°C
- CE, UL certification
- Sealed to IP65

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