

**New
Generation III
ECS**

Electronic Control Systems

From bass boats to ski boats, to sport yachts and cruisers, take total control of just about anything you can imagine – with Carling Technologies' new Electronic Control System (ECS)™.

Featuring a central processor, control modules and the latest in digital and multiplexing technologies, each ECS is fully programmable to handle virtually any task you can give it.



ELECTRONIC CONTROL SYSTEM (ECS)TM

A Carling Technologies Electronic Control System (ECS) utilizes the latest in digital and multiplexing technologies to control electrical accessories in boats.

The system is programmed to set up the various parameters as defined by the customers requirements, and can be reprogrammed in the field.

Key Benefits of the Electronic Control System:

1. Ease of installation
2. Reduced cost/labor: elimination of wires and weight reduction
3. Ease of serviceability and troubleshooting
4. Programmable and expandable functions

Key Features of the Electronic Control System:

- Custom control configurations
- Low voltage detection
- Multiple functions per button
- System diagnostic tests
- Battery drain protection
 - selective load shutdown
 - flashing notification
- Load protection
- Courtesy light delay
- Inactivity power down
- Live-well intermittent ON-OFF
- Priority shutdown protection
- Field customization
- Timed functions
- Cloned functions
- Circuit Protection
- Tin plated, brass terminal studs
- Sealed Connectors
- Main Power Switch
- Manual Circuit Override Switches

Electronic Control System (ECS)TM

A basic ECS consists of at least one **Electronic Control Processor (ECP)TM**, **Operator Control Module (OCM)TM** and **Electronic Communications Cable (ECC)TM**.

ELECTRONIC CONTROL PROCESSOR (ECP)



The heart of the ECS is the Electronic Control Processor (ECP). The ECP receives switching commands from the OCMs, translates the commands and activates or de-activates the appropriate circuits in the boat's electrical system. An ECP can control up to 16 separate circuits/accessories. Each circuit is protected by its own resettable thermal circuit protector.

Manual circuit-override switches have been designed into the ECP. In the unlikely event of a system failure, these switches provide a fast and convenient way to override the ECS's electronics, without bypassing the units circuit protection (in accordance with ABYC regulations). The manual circuit-override can also be used to switch ON/OFF circuits, without powering up the entire ECS.

OPERATOR CONTROL MODULES (OCMs)



Standard OCMs are offered in two configurations: four button and eight button. OCMs include LEDs, which are illuminated when an individual button is activated, and the electrical accessory is ON. An OCM can be customized to include a variety of functions, markings and illumination options.

ELECTRONIC COMMUNICATIONS CABLE (ECC)



Switching commands are transmitted from the OCMs to the ECP via an ECC. The cable can be supplied in any length, and with a variety of termination choices.

STANDARD SOFTWARE FEATURES

Each ECS contains a base software program which has been developed to provide boatbuilders and end users with the maximum benefit of digital switching technology. The following are some of the standard software features provided with every Carling ECS:

Load Protection and Circuit Shutdown:

Voltage monitoring software and battery drain protection, which can be assigned to individual buttons on the OCM. This feature minimizes the chances of the voltage level dropping to a non-operational low level, by shutting down low priority circuits during low voltage situations.

The software constantly monitors the battery voltage and electrical components that are being operated by the ECP. The normal operating range for the ECP to function properly is between 9 volts and 16 volts.

The ECP can automatically turn OFF components at a specific voltage level. Each circuit can be assigned one of three levels of battery protection. By assigning a priority level to each circuit, the ECS knows which electrical circuit to turn OFF, and in which order, when the battery voltage drops below the programmed Low Voltage Level. Priority Level One Circuits will always remain ON.

The operator can override the Circuit Shut Down by pressing the corresponding button on the OCM.

Sleep Mode:

The ECP provides battery protection by reducing the amount of current that the ECS draws when it is not being used.

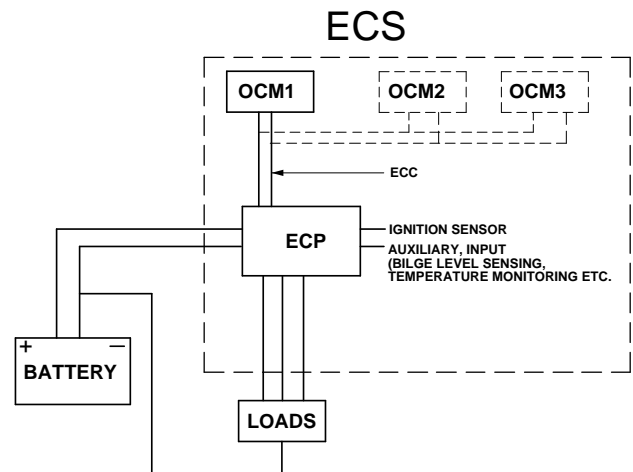
- Shut Down: The ECP can be programmed to shut down after a set time.
- Restart: The ECP will reboot its normal operations.

Programmable Switch Functions

This feature enables the Electronic Control Processor (ECP) to assign different switch functions to any of the buttons on the Operator Control Module (OCM). Switch functions, which may be programmed, include:

- Latching: Button is set in ON-OFF Mode
- Momentary: Button is set in a momentary mode.
- Latching/Back Lighting LED/Dimmer Control: Button is set in ON-OFF mode, but this function also controls the back lighting for the remaining buttons on the OCM.
- Intermittent (Timer): Button is set in ON-OFF mode, but this function also has a timer program that turns the device ON for a programmed number of seconds, then OFF for a programmed number of seconds, then back ON
- Latching Delay before turning OFF: Button is set in the ON-OFF mode, but this function also contains a count down delay that turns the switch OFF for a set period of time after the button is depressed.
- Latching-Intermittent: An ON-OFF timer setting.
- Scrolling: An ON-OFF-ON setting that controls two accessories from one button.
- Scrolling/Back Lighting LED/Dimmer Control: An ON-ON-OFF setting that controls two accessories from one button, and backlights the remaining LEDs on the OCM.
- Nav/Anc/Back Lighting LED/Dimmer Control: Controls two accessories from one button on the OCM.
- Toggle/Secondary Count Down: Allows a device to remain ON for a programmed period of time.

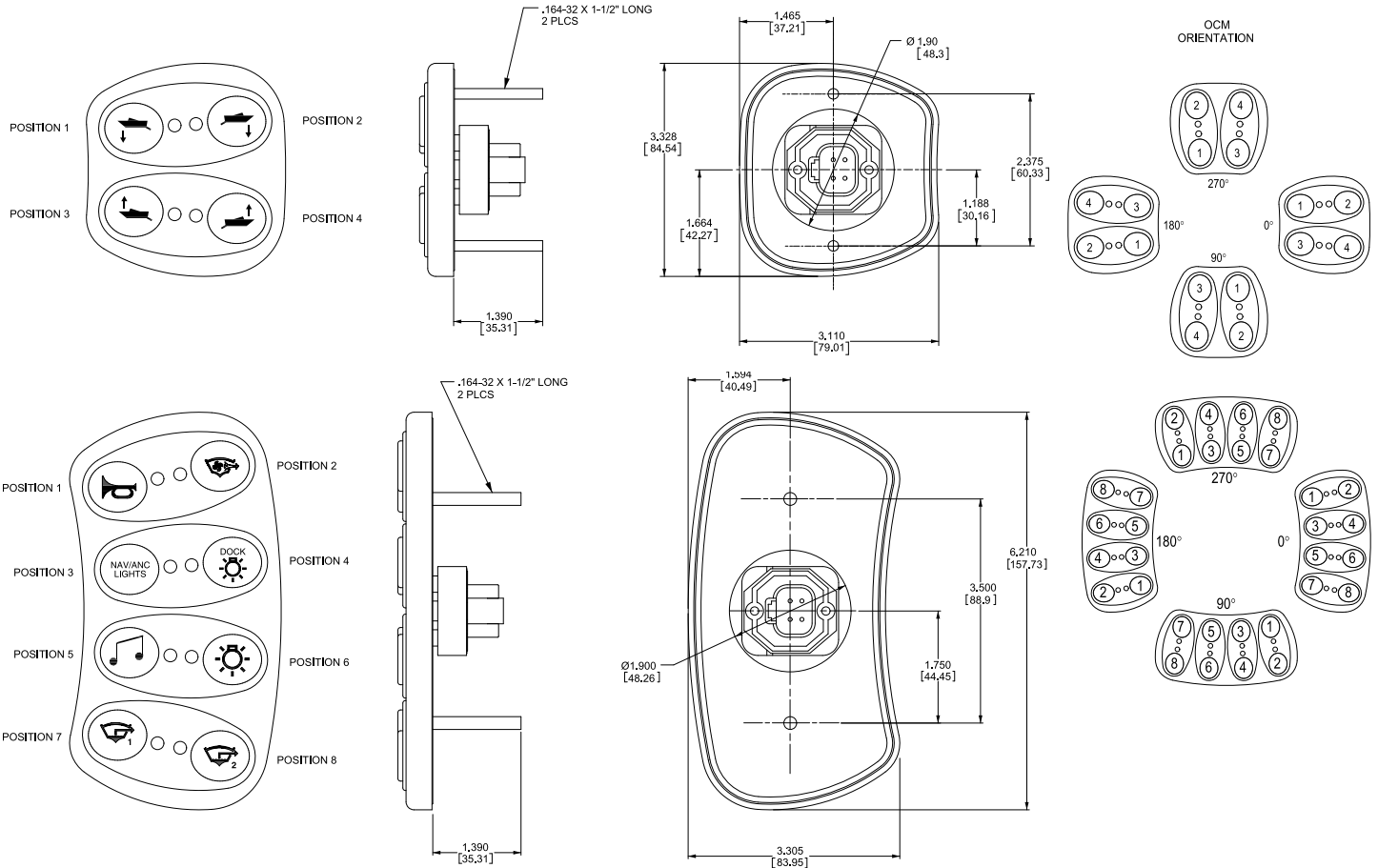
ECS TYPICAL WIRING DIAGRAM



ECS GENERAL SPECIFICATIONS

Nominal Voltage Rating:	9-16VDC
Continuous Current Rating:	100A
Quiescent Current Draw:	<50mA
Temperature Range:	0-60°C
Ignition Protection To:	ISO8846
Salt Spray To:	MIL STD 202, Condition F
Shock/Vibration To:	MIL STD 202, Condition F

Operator Control Module (OCM) Dimensional Specifications



Electronic Control Processor (ECP) Dimensional Specifications

