GLENDINNING

MARINE • PRODUCTS

COMPLETE CONTROLS™ CATALOG





"RELAX . . . WE'RE ON BOARD!"

TABLE of CONTENTS

COMPLETE CONTROLS™ — ELECTRONIC ENGINE CONTROLS for ALL ENGINES

WE'RE ON A MISSION. . .

It's been our vision . . . our mission since we began in 1972. Provide quality products to our customers so that they can have the utmost enjoyment and satisfaction in their boating experience. We have brought together a level of talent, engineering and manufacturing capabilities that enable us to provide products with unrivaled superiority, performance, and durability while providing extraordinary value for your investment. We are keenly aware of the competitive climate that we find ourselves in, both foreign and domestically. For that reason we are committed to 100% customer satisfaction in both the quality of our products and the on-time delivery of our products. Our employees have a personal commitment to product improvement through our Glendinning Production System. We have received ISO 9001:2000 certification assuring you of consistent quality throughout the manufacturing process - no one works harder to produce better quality products that lead the industry. "Relax . . . we're on board!" is more than a sidemark with us, if you're not receiving more pleasure from your boating experience because of our products then we are not fulfilling our mission. It's that simple.

Paul Glendinning - President
John Glendinning - VP Sales

WHY COMPLETE CONTROLS™?

In 1990, Glendinning introduced it's first electronic engine control system to the marine industry — since then we've proven our ability to bring innovative ideas to the market. From the first automatic, integrated backup system to today's integrated control of your engine's drive unit, we've shown our commitment to giving you the best experience while cruising in your vessel. Thousands of satisfied customers agree — if you're using any other electronic engine control system, then your boat isn't complete! Whether you own a pleasure yacht or a work boat (and everything in between), single, twin, or multiple engine applications, inboard, outboard, stern drive, and water jet applications — Complete Controls™ is your best choice for optimum control of your boat's propulsion system.

• Complete Control of Engine Throttle and Shift for All Engine Types

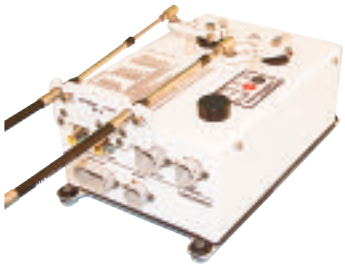
No matter what type of engine you own — Complete Controls™ is specifically engineered to be compatible with all electronic, mechanical, and electronic / mechanically controlled engines and transmissions.

• Easier Installations with CANbus Technology

CANbus technology has revolutionized the electronic controls industry by simplifying wiring and allowing greater flexibility when adding control stations. Utilizing a single communication cable, up to 6 control stations (including our handheld remote station) can be connected anywhere along the network's path.

• Sophisticated Power Management

The power system receives power from two independent DC power sources. During normal operation, the system will draw power from both power sources. In the event one power source fails, the control system will run off a single DC power source, switching over automatically. We believe this concept of "dual battery inputs" provides a very important feature which improves the product reliability.



• Convenient System Configuration Process

The "heart" for the Complete Controls™ system is housed in a small, watertight, pluggable enclosure that does not need to be opened because the system is pre-configured at the factory. When personal preference dictates a change to the system's configuration, these options are accessible from the main station control head keypad making it even easier to adjust configuration settings.

• Optional Integrated Gear / Throttle Back Up Control

Nothing is more troubling and expensive than having a problem with the electronic control system that requires you to cancel your plans and get a tow back into port. Glendinning's Integrated Gear / Throttle Backup option allows you to regain control of your boat's propulsion system with the simple flip of a switch.

STANDARD FEATURES

- Single lever control
- Six-station capability
- "Posi-lock" gear lockout capability (Warm Mode)
- Engine synchronization (Sync Mode)
- Start Interlock
- Selectable station transfer methods
- Station lockout capability
- Adjustable high idle settings
- Control head keypad lights dimmer
- Dual battery inputs
- 12 and 24V DC systems available

OPTIONAL FEATURES

- Variety of control head options
- Handheld remote control
- Trolling valve control
- Integrated gear / throttle backup system
- Integrated trim control

CONTROLS FOR ELECTRONIC ENGINES

With the advent of electronic engines into the marine industry, the control of your propulsion system has never been more important. Your electronic propulsion system has become more demanding in terms of information it receives from the electronic engine control system. Glendinning's Complete Controls™ system offers the latest in digital technology which allows it to interface with all types of electronic engines while providing the operator with complete control over the propulsion system.

• Complete Controls™ Electronic Engine Controls — Model EEC3™ and EEC4™

Complete Controls™ was designed to give the boat operator everything from basic control operation to advanced control operation of any propulsion system that is equipped with electronic throttles and electric (solenoid operated) transmissions.

Basic Control Operation (model EEC4™) — This system is a compact economical solution to effectively control the propulsion system for any size vessel. The Basic Control features are:

- **Cruise Mode** — Normal operating control of engine speed and transmission.
- **Warm Mode** — Locks transmission in Neutral while allowing engine throttles to be increased or decreased safely.
- **Sync Mode** — Very precise engine synchronization available with the simple press of a button on the control head keypad. While in Sync Mode, one control handle can control the speed of both engines.
- **Exclusive Station Transfer** — In order to transfer control from one station to another a "two-button" press of the keypad button is required.
- **Warning Mode** — A visual indication that a battery voltage problem or check system problem has occurred.
- **Alarm Mode** — The system will continuously monitor system functions and alert the boat operator of a problem that has or can affect the operation of the control system.

Advanced Control Operation (model EEC3™) — This system was designed with the experienced mariner in mind. Advanced control is by far, the most feature-rich electronic engine control system in the industry. Advanced Control features include the above basic control operations plus:

- **Slow Mode** — Great for "no wake" areas, this mode changes engine throttle response where full handle movement will only result in half the normal full throttle engine speed.
- ***Optional* Troll Mode** — Only the advanced control system gives the boat operator control over the transmission trolling valves (if equipped).
- ***Optional* Automatic Gear / Throttle Backup** — This feature allows you to regain control of your boat's propulsion system, with the simple flip of a switch, in the event that the normal operating system is not functioning properly (see pg. 9 for more information).

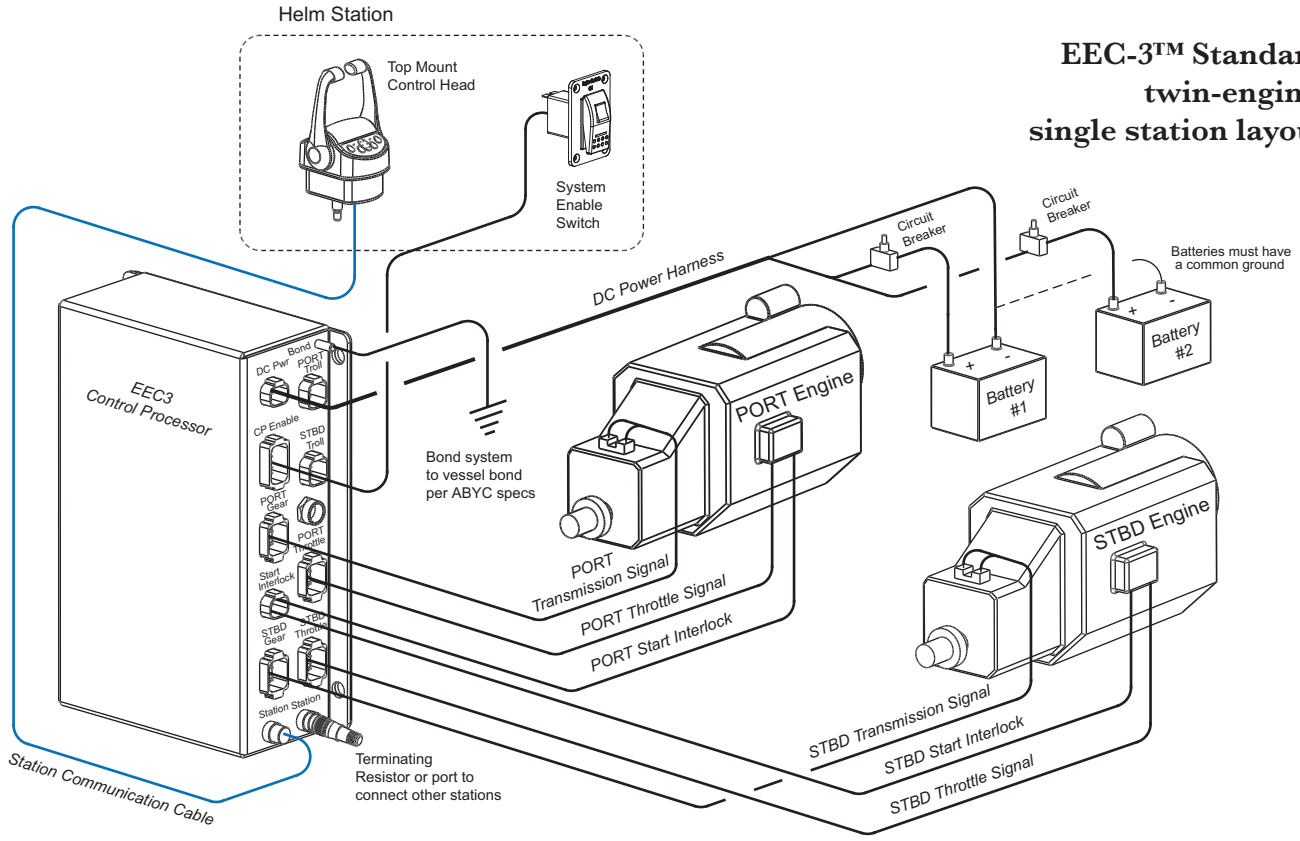
Control Processor

- For all electronic engines or transmissions
- Single, dual, or multiple engine applications
- Stern drive, water jet, gas or diesel applications
- Plug 'n play Deutsch connectors
- Sealed against moisture

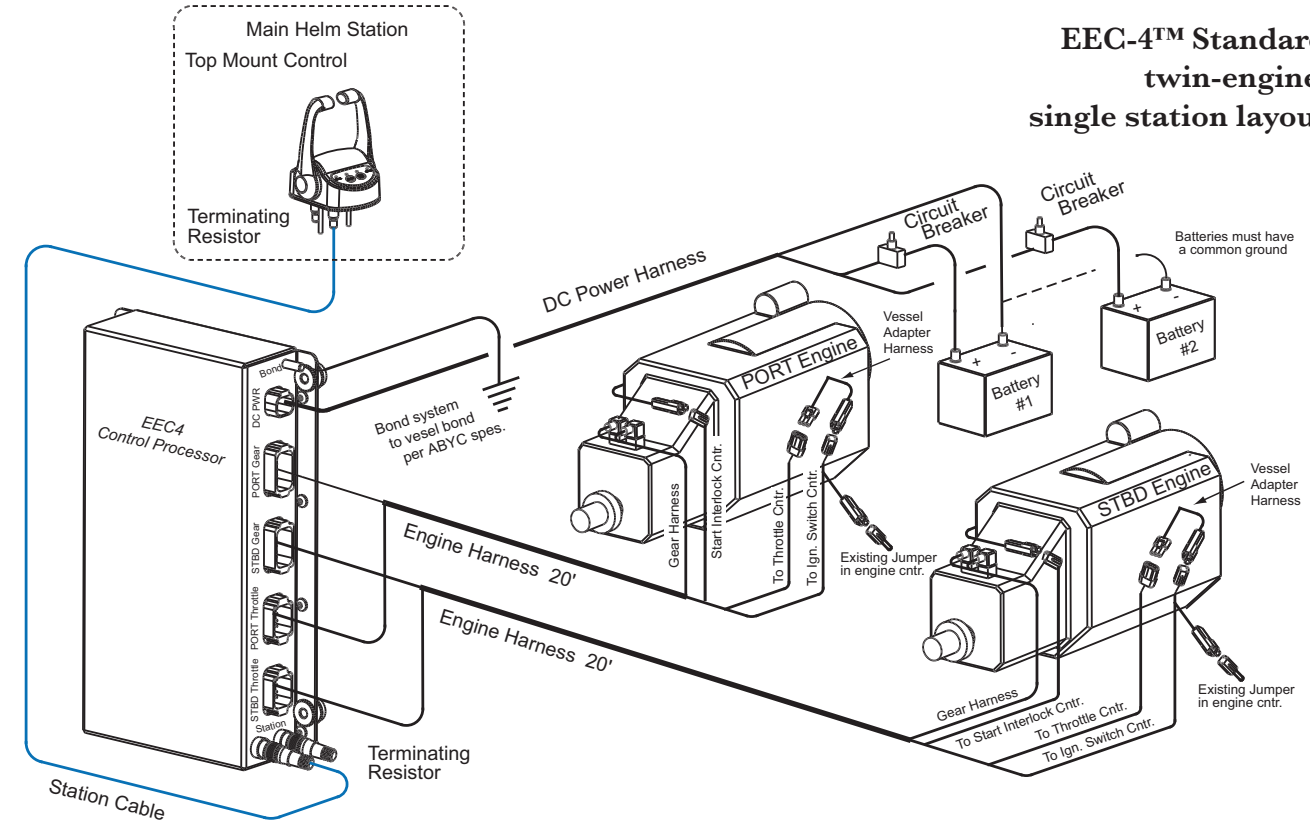
The Benefits of Complete Controls™ include:

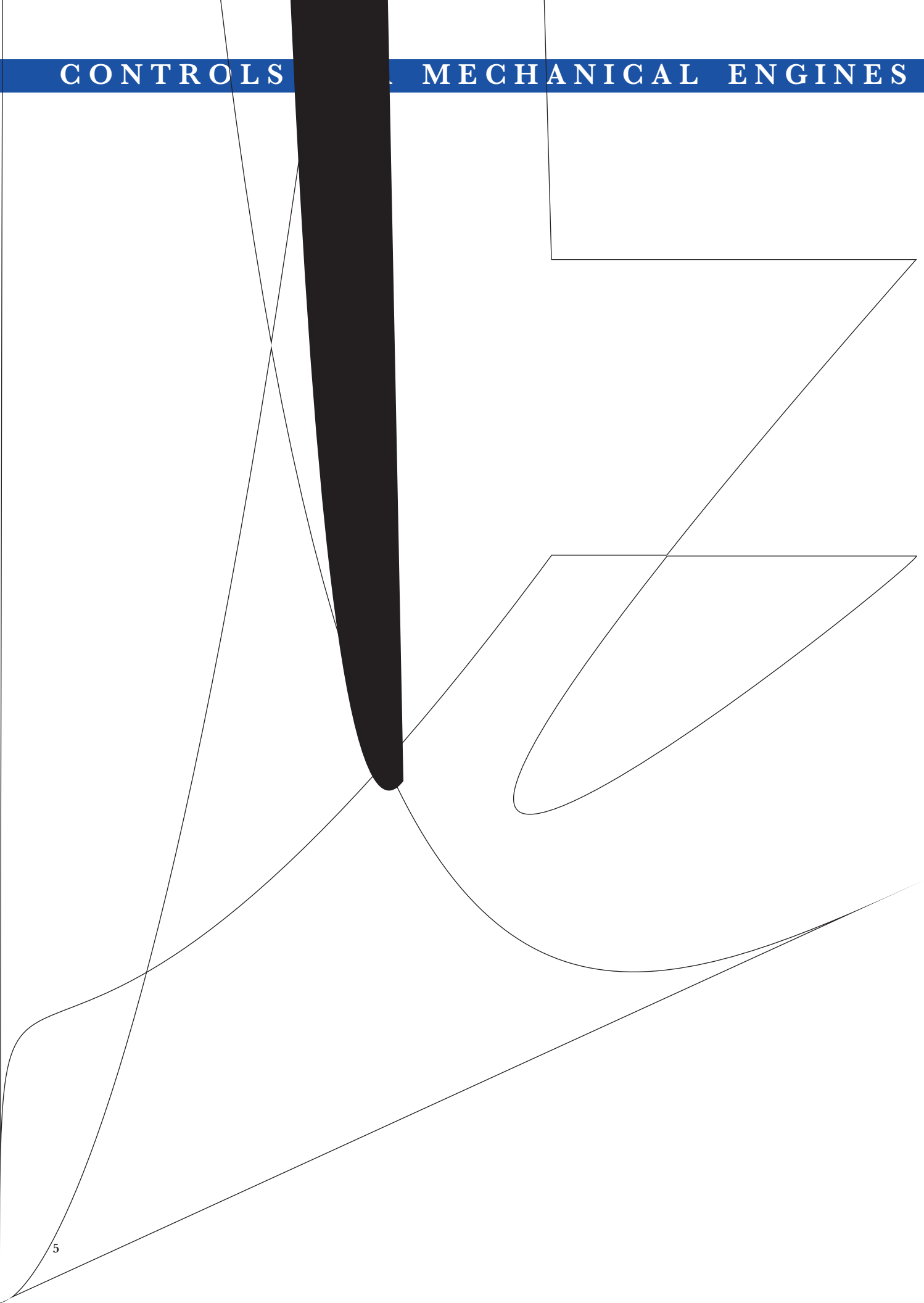
- Single or Dual lever control
- Adjustable control head detent / friction settings
- "Posi-lock" gear lockout
- High Idle mode
- Bump mode
- Battery voltage warning indicator
- System diagnostic warning indicator
- Gear positioning indicating lights
- Audible neutral indicator
- Control head keypad light dimmer
- Two button station transfer

EEC-3™ Standard twin-engine, single station layout



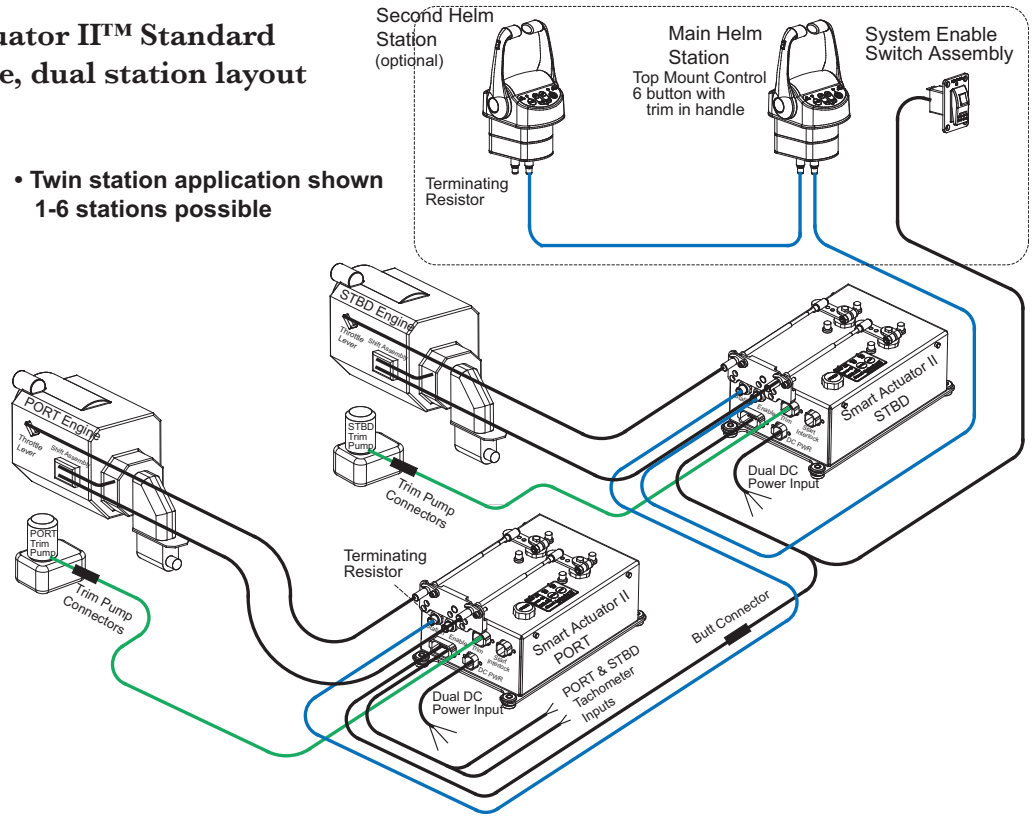
EEC-4™ Standard twin-engine, single station layout



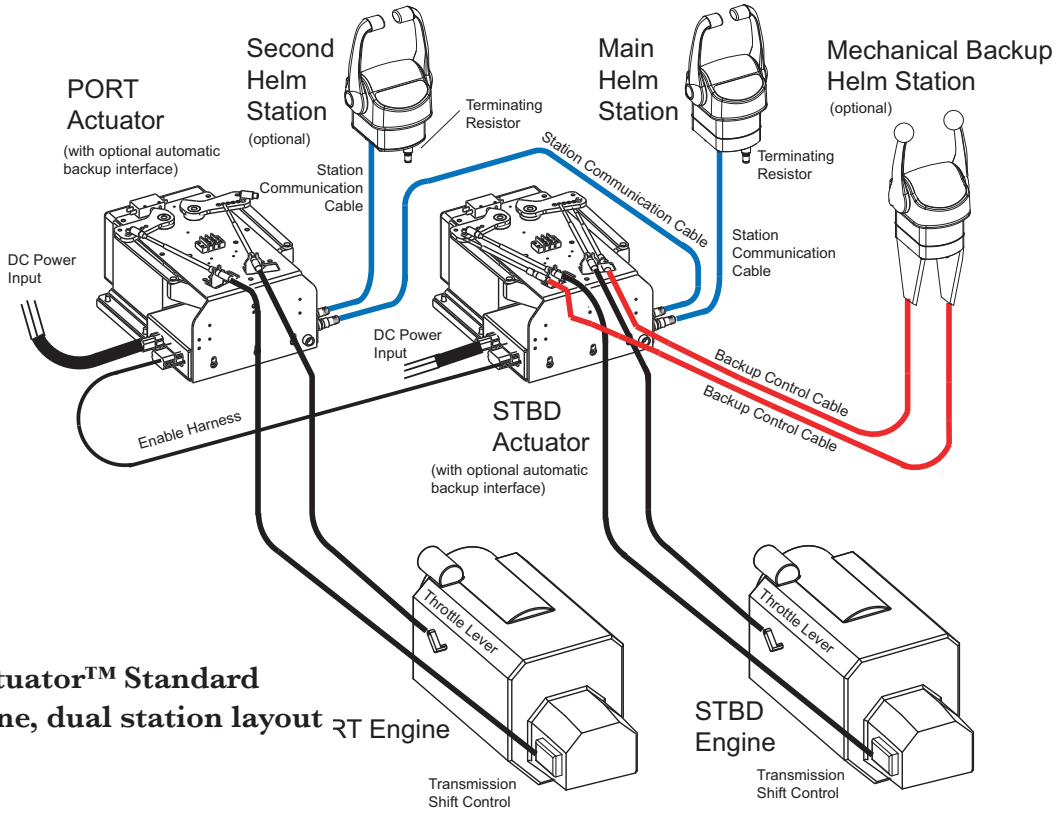


Smart Actuator II™ Standard twin-engine, dual station layout

- **Twin station application shown 1-6 stations possible**

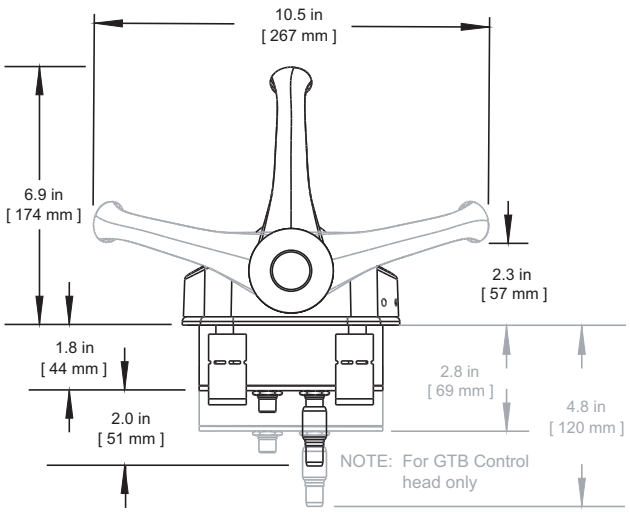


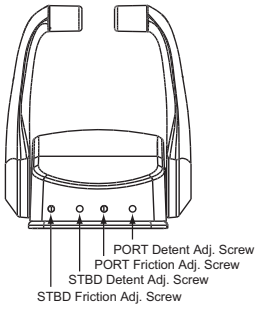
Smart Actuator™ Standard twin-engine, dual station layout

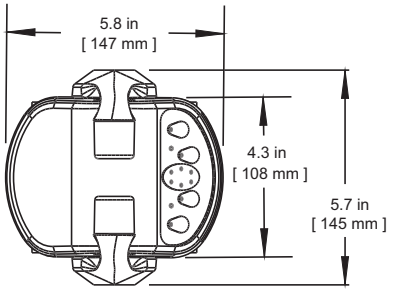


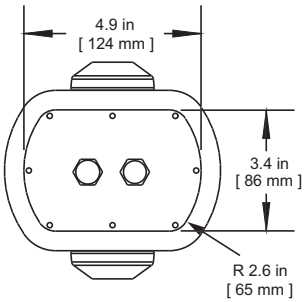
COMPONENT DIMENSIONS

• Control Head Dimensions

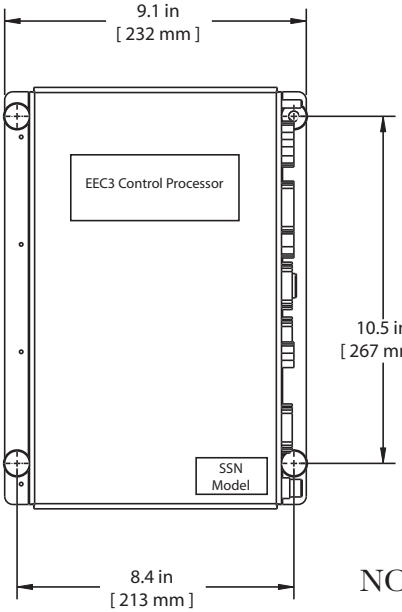


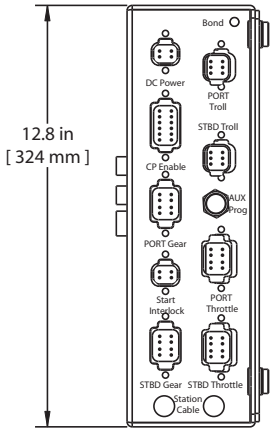






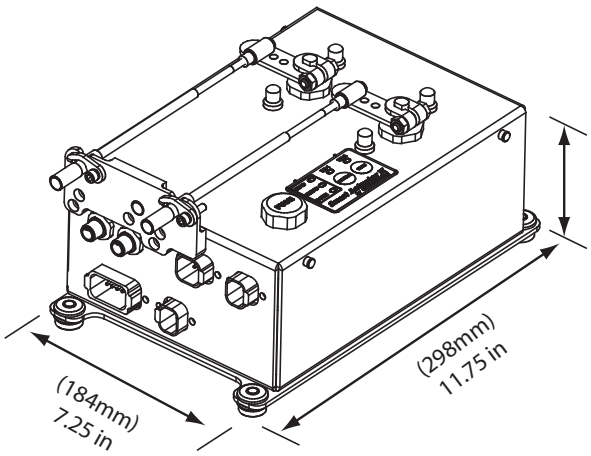
• Control Processor Dimensions



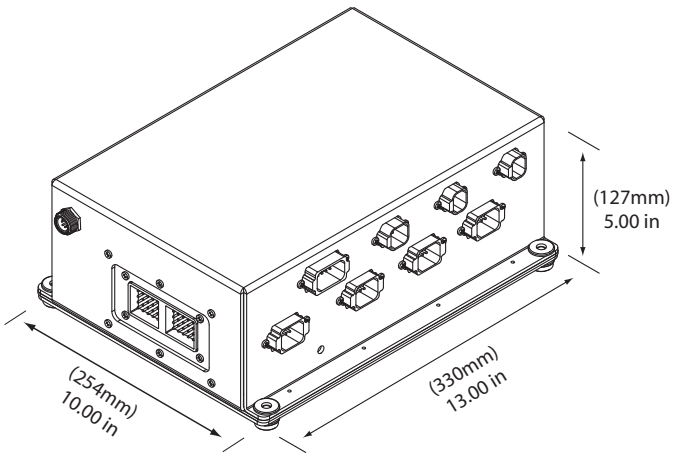


NOTE: EEC4 Control Processor is slightly smaller

• Smart Actuator II™ Dimensions



• Gear / Throttle Backup Dimensions



OPTIONAL ACCESSORIES

The Complete Controls™ system is comprised of 4 basic components which work interactively to provide you with the ultimate in electronic engine propulsion control.

• Control Head Options

The Complete Controls™ control head is by far, the most informative control head in the industry. The control head keypad has integrated switches and indicator lights which allow the boat operator to control all aspects of the boat's propulsion system. The control head's robust, watertight construction is a hallmark at Glendinning — we build our control heads to withstand the extreme conditions that exist in the marine environment.

"Top Mount" Control Heads

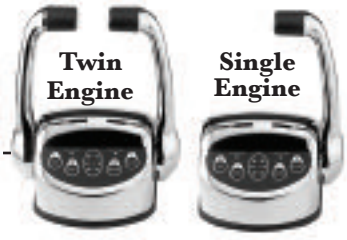
Keypad Options:

2-Button / Basic Operation
- 2 buttons control basic functions
- Neutral gear positioning lights

4-Button / Full Featured
- 4 buttons control all functions
- Gear positioning lights
- Warning indicator lights

Integrated Trim Control
- 2 buttons control functions
- 4 buttons control trim of engine
- Neutral gear positioning lights

Handle Options:



Color Options:

Chrome (standard) | **Black (optional)** | **Gold (optional)**

Other Control Head Options

"Palm Beach" / Sidemount
- used primarily by tournament or sportfishers.
- same features as top mount control heads

Handheld Remote
- is used when "walk-around" control is preferred.
- same features as top mount control heads

OPTIONAL ACCESSORIES

• Integrated Gear / Throttle Back Up™ Control (optional)

Glendinning's Integrated Gear / Throttle Backup option allows you to regain control of your boat's propulsion system, with the simple flip of a switch, in the event that the normal operating system is not functioning properly. Features include:

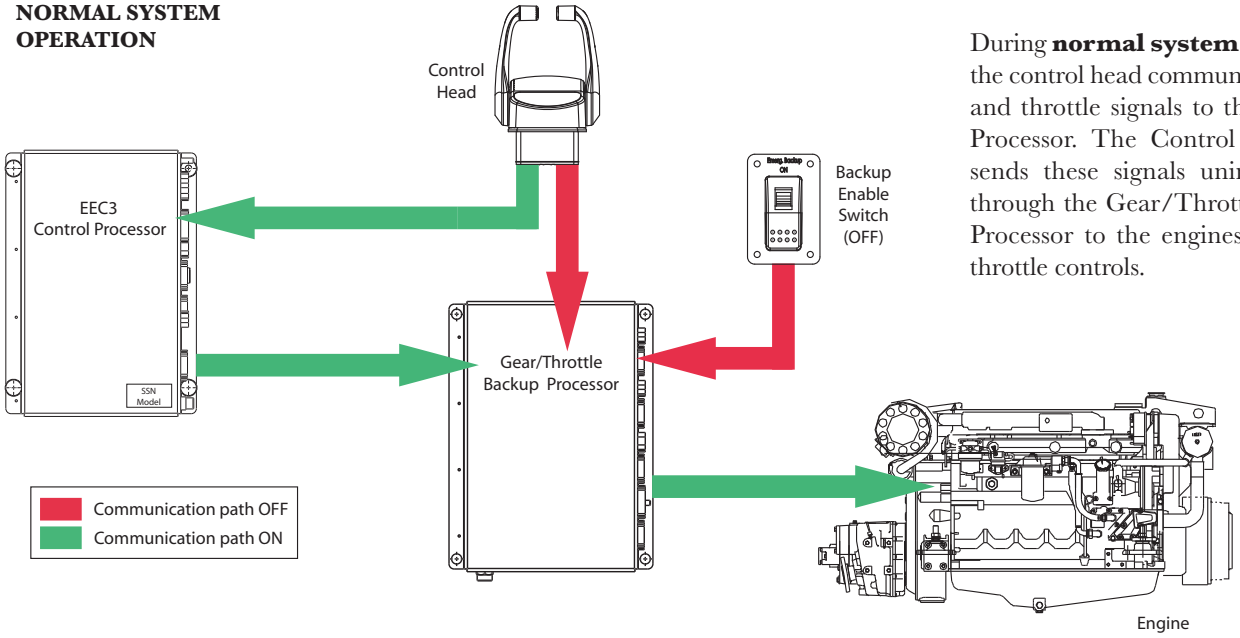
Automatic — changeover of control from normal operation to the backup system is done by simply flipping a switch

Integrated — the same control head that is used for normal operations is also used for backup operations. No need to install a separate control panel for back up operation

Independent — backup control is completely independent from the primary control system. A malfunction in one system will have no effect on the other system.

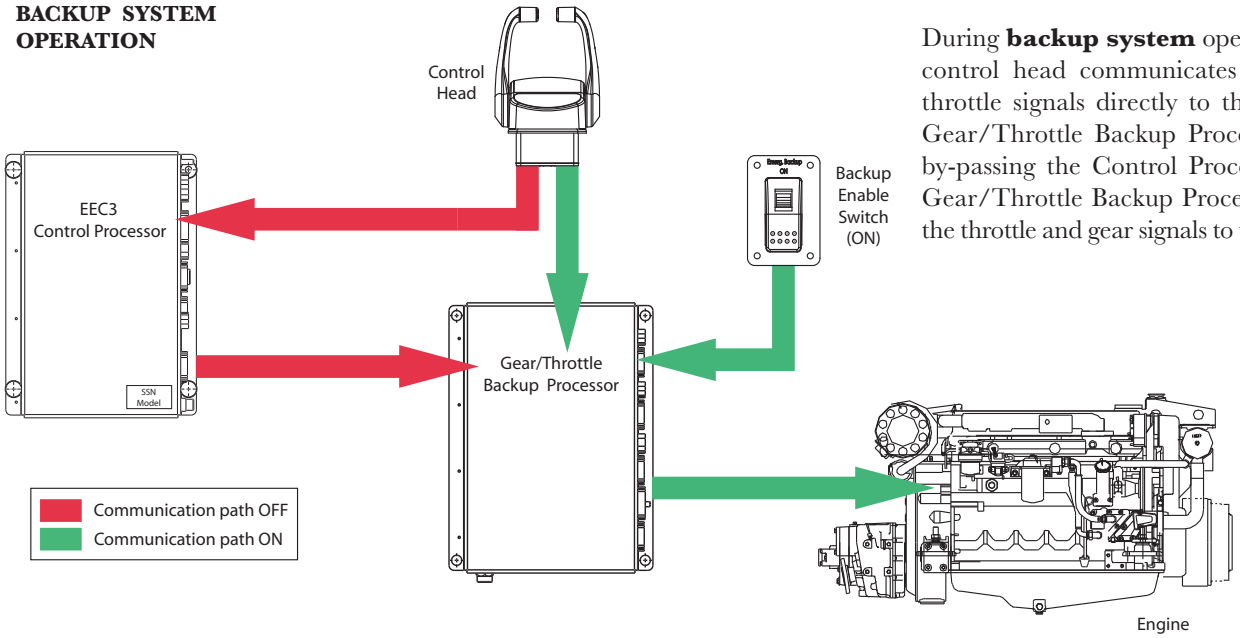
Here's how it works:

NORMAL SYSTEM OPERATION



During **normal system** operation, the control head communicates gear and throttle signals to the Control Processor. The Control Processor sends these signals uninterrupted through the Gear/Throttle Backup Processor to the engines gear and throttle controls.

BACKUP SYSTEM OPERATION



During **backup system** operation, the control head communicates gear and throttle signals directly to the enabled Gear/Throttle Backup Processor, thus by-passing the Control Processor. The Gear/Throttle Backup Processor sends the throttle and gear signals to the engine.

• Integrated Trim Control™ (optional)

Now you can have complete control of your stern drive or outboard engine trim conveniently at your fingertips — no more fumbling around trying to locate separate switch panels. With one hand on our control head, you'll have complete control over every aspect of your propulsion system!

ITC™ Control Head features:

Neutral gear indicator lights — tells you when the transmission is in neutral.

Dedicated trim/tilt buttons move engine drive unit with a simple press.

Operating mode buttons for quick access to all operations.

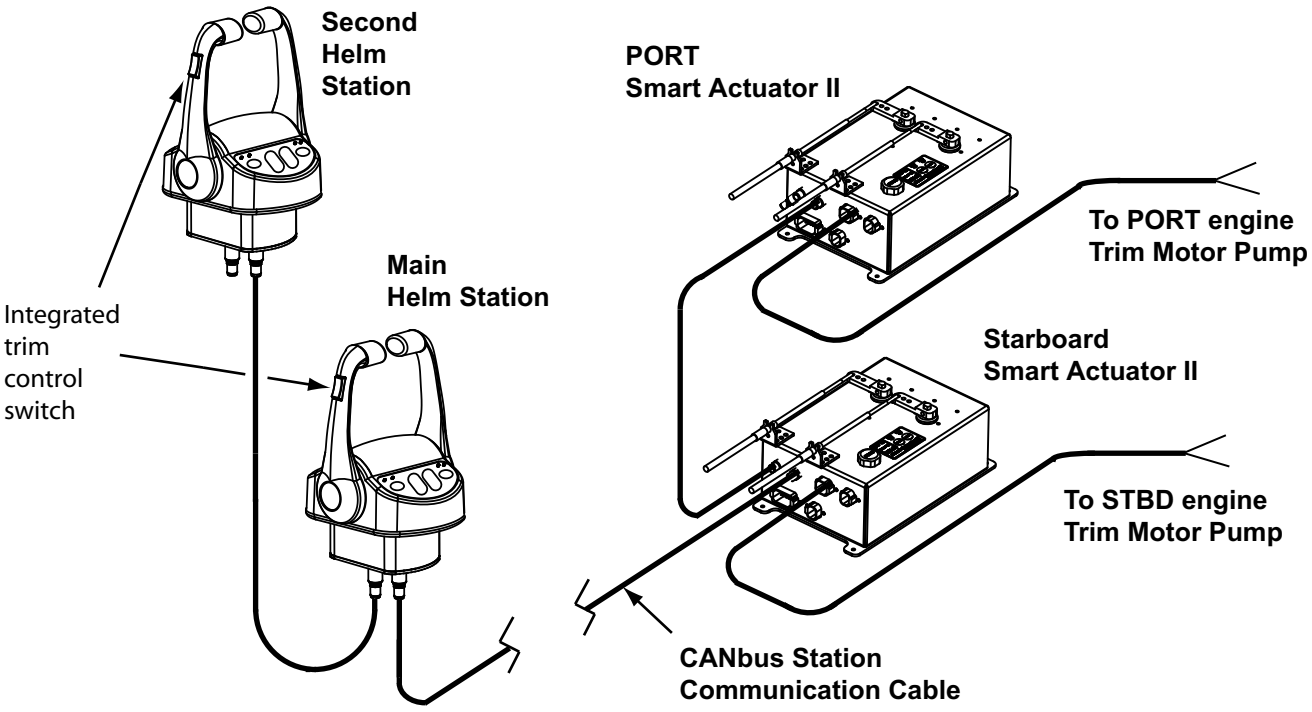
Utilizes existing control system communication cables — no additional wires to run.

Compatible with Smart Actuator II™ product.

Built-in control handle switch makes on-the-fly adjustments to trim of both engines

Dedicated keypad buttons allow you to trim one engine at a time

Typical Layout



OPTIONAL ACCESSORIES

• Handheld Remote Control™ (optional)

The Handheld Remote Control™ option gives boat operators total control of both transmission and throttle from virtually anywhere on the boat. This portable control station puts the same operational features of our fixed control station in your hands for easier docking and maneuvering of your boat in tight spots. The Handheld Remote Control™ option incorporates the following features:

CANbus Technology — with CANbus technology, communication components are more robust, wiring is simplified, and installation is made easier.

Ergonomic Design — our design fits more comfortably in your hands than any other remote control option on the market. The "game pad" style design allows you to effortlessly control both engines at the same time.

Complete Engine Control — all normal functions available at any stationary control head are available on the Handheld Remote. Keypad appearance is the same eliminating steep learning curve.

Additional Functions Available — up to 8 other propulsion functions can be added to the Handheld Remote through the Auxiliary Output Function Unit (ie., engine stop/start, bow/stern thruster, and rudder control).

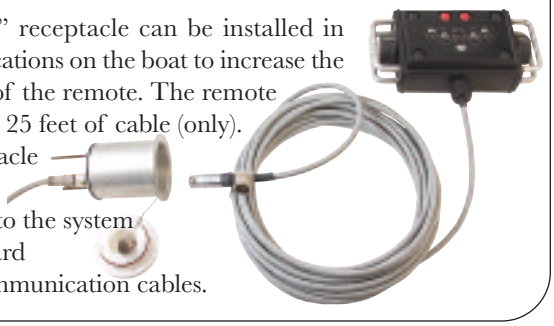
Wiring Options — you can choose how to connect the Handheld Remote to the system. "Hard-wired" option allows you to use an existing system component to connect the Handheld to the CANbus network. "Plug-in" option allows multi-location of the Handheld anywhere on your boat for the ultimate convenience (see below).

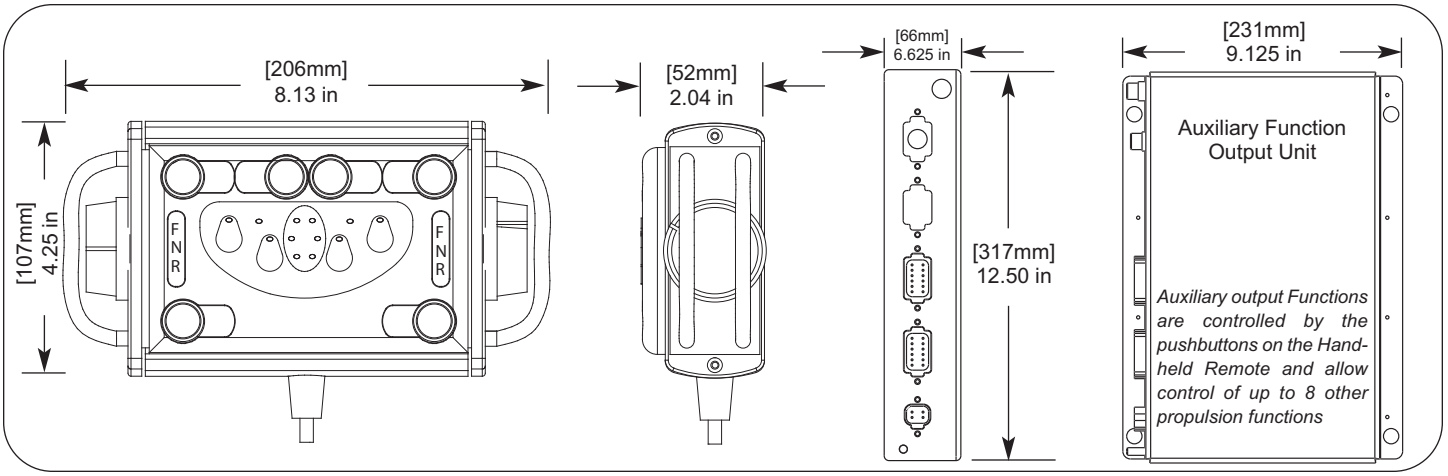
"Hard-wired" to existing components

The remote is "hard-wired" to another component (ie. Control Processor, Control Head station, or Auxiliary Function Unit) in the Complete Controls™ system. The remote includes 35 feet of cable (standard). If necessary, a station communication cable can be used to extend the remote's connection.

"Plug-in" for increased mobility

A "plug-in" receptacle can be installed in multiple locations on the boat to increase the usefulness of the remote. The remote comes with 25 feet of cable (only). The receptacle can be connected to the system with standard station communication cables.





GLENDINNING / NW CONTROL CABLES™

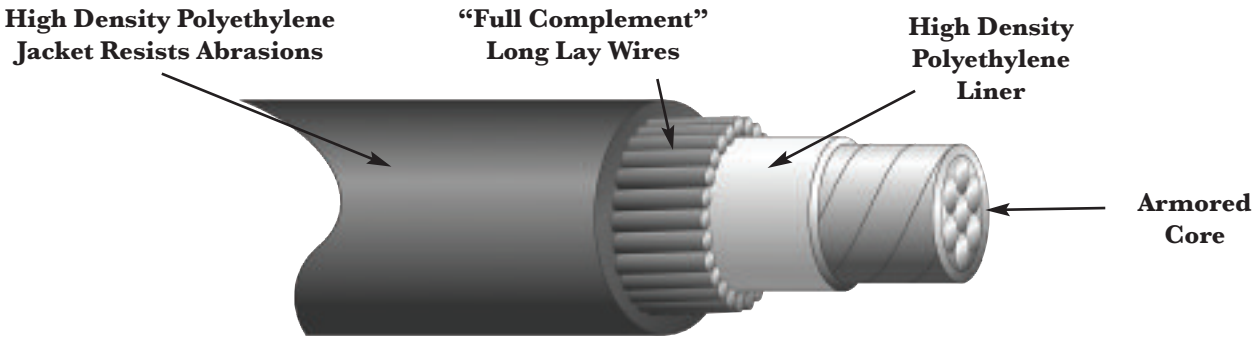
In 2002 Glendinning acquired NW (New Wales) Control Cables, long known to be the pioneer of "High Quality" controls cables, setting industry benchmark standards for the control cable industry.

• **High Efficiency** — The armored core design sets the industry standard for high efficiency. High efficiency reduces the operational force at the control head and improves the feel of the control for the boat owner. This core is used in our Premium, Heavy Duty, and Extra Heavy Duty grade cables.

• **Low Backlash** — The close tolerances between the cable core and conduit minimize the backlash or lost motion of the cable. Low backlash improves the control feel for the boat operator by greatly reducing the "sloppiness" at the control head.

• **Superior Materials** — All cables are manufactured using the finest grade of materials.

Control Cable Cross Section



CABLE FEATURES

STANDARD GRADE

- Core Type: 0.075 Solid Stainless Wire
- Threaded End Fitting Size: #10 - 32
- Stroke Length: 3 inches
- Bending Radius: 6 inches

HEAVY-DUTY GRADE

- Core Type: 0.125 Armored Core Strand
- Threaded End Fitting Size: #1/4 - 28
- Stroke Length: 3 inches
- Bending Radius: 6 inches

PREMIUM GRADE

- Core Type: 0.102 Armored Core Strand
- Threaded End Fitting Size: #10 - 32
- Stroke Length: 3 inches
- Bending Radius: 4 inches

EXTRA HEAVY-DUTY GRADE

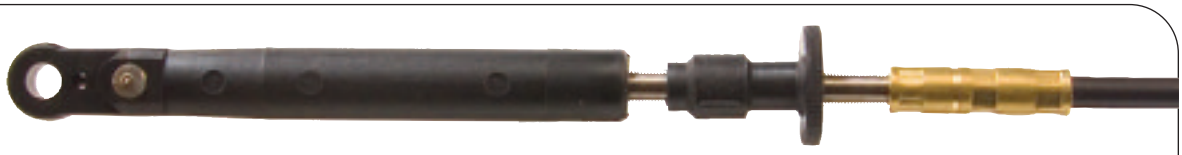
- Core Type: 0.185 Armored Core Strand
- Threaded End Fitting Size: 5/16"
- Stroke Length: 3 inches
- Bending Radius: 8 inches

• A "full complement" of long-lay steel reinforcing wires maximizes the physical strength of the cable and ensures that the cable will be able to handle any load.
• Bending radius specified is the capability of the cable. For best performance, cables should be installed as straight as possible and all bends should be long and sweeping. As far as possible, cable routing should be kept straight with 6" of the cable clamp fitting.
• Stroke specified is common for most marine grade cables. Other stroke lengths available.

Universal Ends

CABLE TYPE:	DESCRIPTION:	GMP P/N:	MORSE P/N:	TELEFLEX P/N:
Standard Grade - "33C"	Universal Ends	A5797 / XX	32377-003-L "Red-Jacket"	CC172XX or CC330XX
Premium Grade - "33C"	Universal Ends	A5805 / XX	301947-003-L "Supreme"	CC633XX or "TFXtreme"
Heavy-Duty - "43C"	Universal Ends	A5773 / XX	065885-003-L	CC693XX
Extra Heavy-Duty - "63C"	Universal Ends	A6057 / XX	304262-003-L	CC695

OMC Style



CABLE TYPE:	CONTROL HEAD CONNECTION:	GMP P/N:	MORSE P/N:	TELEFLEX P/N:
OMC (before 1979)	OMC Style	A5119 / XX	48296-L	CC170XX
OMC (after 1979)	OMC Style	A6523 / XX	302029-L	CC205XX
OMC (after 1979)	Universal / Standard	A5811 / XX	NONE	CC172XX (+ kit)
OMC (after 1979) High Performance	Universal / Standard	A6073 / XX	NONE	CC633XX (+ kit)

Mercury Style

CABLE TYPE:	CONTROL HEAD CONNECTION:	GMP P/N:	MORSE P/N:	TELEFLEX P/N:
Mercury Standard Grade	Mercury Style	A5153 / XX	63732-L	CC179XX
Mercury High Performance	Mercury Style	A6747 / XX	NONE	CC635XX
Mercury Standard Grade	Universal / Standard	A5810 / XX	NONE	CC172XX (+ kit)
Mercury High Performance	Universal / Standard	A5932 / XX	NONE	CC630XX

Bulkhead Universal

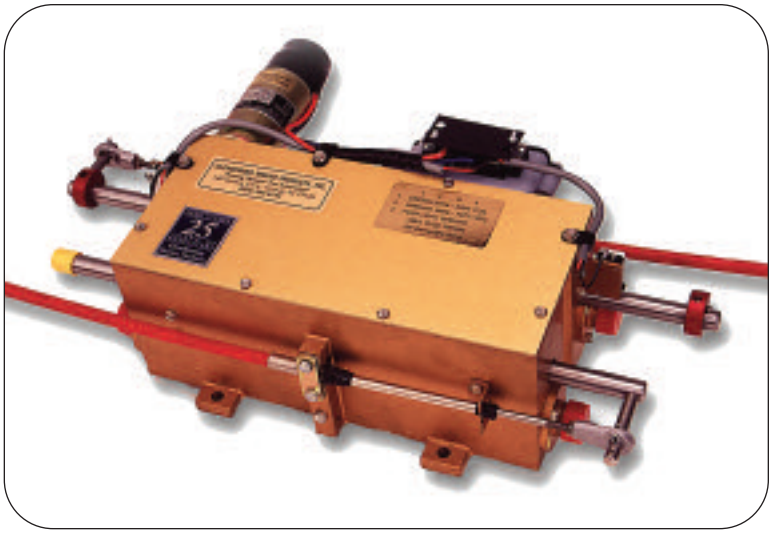
CABLE TYPE:	CONTROL HEAD CONNECTION:	GMP P/N:	MORSE P/N:	TELEFLEX P/N:
Heavy Duty "43BC" 3" stroke	Bulkhead / Universal	A5804 / XX	38013-003-XX	CC692XX
Heavy Duty 7 - "64BC" 4" stroke	Bulkhead / Universal	A6060 / XX	304263-004-XX	CC694XX

AUTOMATIC SYNCHRONIZER™

The Automatic Synchronizer™ has been the industry standard for automatic twin-engine synchronization of mechanically operated engines since 1971.

Synchronization is vital on twin engine boats, not only for the purpose of increased efficiency, but also to eliminate the annoying noise and vibration caused by engines operating at different speeds.

The Automatic Synchronizer™ adjusts engine speed without any effort on the part of the boat operator. When activated, it will adjust the speed of the Port engine to exactly match the speed of the Starboard engine. The result is that the boat operator can control the speed of both engines by merely adjusting the speed of the Starboard engine.



Features

• Cruise control for your boat—set the speed for your engine and the other engine speed is automatically and precisely adjusted to match!

• Turn On/Off at any speed with the flip of a switch

• Adaptable to any boat—gas or diesel engines

• Dependable—widely used by knowledgeable yachtsmen for over 30 years

Benefits

• No more adjusting throttles or monitoring tachometers!

• A smoother, quieter ride!

• Engines work together increasing fuel efficiency!

• Reduces steering deviations!

• Built to last!

Typical Synchronizer Interface on Twin Engines

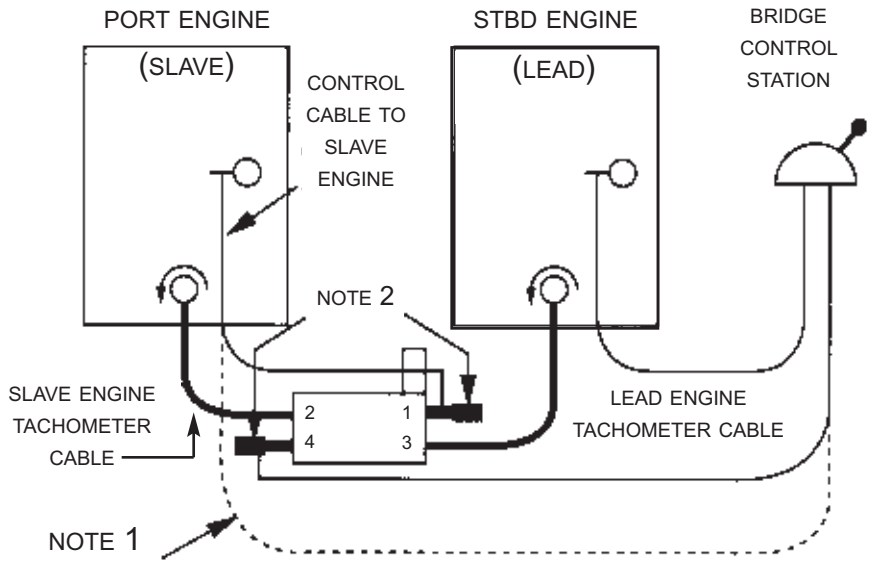
NOTES:

1) "Slave Engine" bridge control cable is removed from engine and installed at synchronizer.

2) Tach senders are removed from engine and relocated to synchronizer.

3) Installation shown for "Pull-to-Open" throttles and counter-clockwise rotation.

4) Specifications:
Size: 17" x 9" x 5"
Weight: 15 lbs.
Voltage: 12, 24, or 32 VDC



TRY OUR OTHER PRODUCTS!

FOR CABLE & HOSE STORAGE SOLUTIONS . . .

Cablemaster™
Shore Power Cable Storage Systems

- 3 models to handle all types of shore power cable
- Electrically extend, retract & store your power cable
- Handles as much power cable as your storage space can hold
- Adaptable to fit most applications
- Eliminates the need for extension cords

Hosemaster™
Water Hose Storage Systems

- Can be used for wash down or ship to shore connection
- Exclusive levelwind feature frees you from monitoring hose as it is stored onto the reel
- Engineered to take advantage of standard garden hose fittings
- Compact size fits virtually anywhere
- Can be mounted in a variety of positions

GLENDINNING

740 Century Circle • Conway, SC 29526 • Telephone: (843) 399-6146 • Facsimile: (843) 399-5005 • www.glendinningprods.com
Made in the USA