OPTIMUS EPS BY SEASTAR

OPTIMUS 360 BY SEASTAR

redefiningsteeringforpowerboats

TABLE OF CONTENTS

OPTIMUS EPS BY SEASTAR

A Higher Level of Engineering Sophistication

For centuries, people have been steering boats by brute force. While cable steering, and more recently hydraulics, have made steering easier, the prime mover is still the arms and hands of the captain at the wheel. But all of that has changed. SeaStar Solutions revolutionizes boat handling with Optimus Electronic Power Steering (EPS) for single, twin, triple and quad outboard engine boats. With Optimus EPS, you can take command of your boat without having to arm-wrestle for control.

Optimus EPS truly raises the bar when it comes to comfort, control and maneuverability, especially for the new breed of high performance powerboats, saltwater fishing vessels, catamarans, RIBS and high end pontoon boats. It's unlike anything you've ever experienced when it comes to steering. We know you will be impressed.

Take things a step further and give your boat a whole new dimension of control. By developing the joystick function to be intuitive, Optimus 360 allows you to move your boat not only forward and back, but also sideways, by pushing the joystick to the left, or to the right, and even, rotate on a dime, all with a simple twist of the joystick.

fromthemastersinelectronicpowersteering

Applications for Optimus EPS

All single, twin, triple and quad outboard engine boats • Electronic and mechanical controlled • Single and multi-helm station boats • Performance powerboats, bay boats, center console, saltwater fishing vessels, RIBS, catamarans, houseboats and pontoon boats

Inboard Applications (40-100'+)

Most single and twin inboard engine boats – electronic and mechanical controlled • Single, twin and triple helm station yachts • Performance motor yachts, express convertibles, and sport yachts

Inboard & Sterndrive Applications (Under 40')

Most single and twin inboard engine boats – electronic and mechanical controlled • Single, twin and triple helm station yachts • Competition ski boats, cruisers, and sport fishing yachts

Advantages of Optimus EPS

- No oil at helm
- Boat that steers like a sports car
- Plug and play autopilot compatibility with drive by wire systems
- No auto pilot pump or rudder feedback unit
- Adjustable speed sensitive wheel effort
- Adjustable speed sensitive turns lock to lock
- Can be retrofitted to existing mechanical controlled engines
- No tie-bars (twin configuration)
- No liquid tie-bar (CAT)
- On demand pumps which extend battery life
- Components based on existing SeaStar reliability and quality
- NMEA 2000 Certified. Meets or exceeds NMMA, ABYC, CE, ISO, and SAE electrical & environmental requirements

The Technology Behind the System

The incredible feel you get when you're behind the wheel of a boat equipped with Optimus EPS is the result of an innovative array of technology and engineering. Each component has been designed to complement the other, resulting in a seamless experience of steering control in virtually every situation on the water. The high level of engineering also extends to the reliability of the system, with quality materials, careful manufacturing and redundant systems, all to stand up to the rigors of life on the water.

System Components

SmartCylinder

Electronic Helm

Hydraulic Steering Pump

CANtrak Display

Pump Control Module

Key Components of Optimus EPS

Optimus Electronic Helm

Features

- Adjustable helm turns and steering wheel effort
- Speed sensitive helm turns, effort and response
- Dual independent sensors and circuits
- Electronic helm
- Optional tilt helms available

Benefits

- Adjustable steering for maximum comfort
- Driver comfort, control and performance as speed varies
- Provides redundancy for reliable operation
- No hydraulic oil at helm
- Adjustable position of steering wheel for personal comfort

Optimus SmartCylinder

Features

- Dual independent non-contact sensors
- Proven SeaStar cylinder design
- Integrated rudder feedback unit (RFU)
- Adjustable stainless steel ORB fittings

Benefits

- System reliability and operation
- No additional RFU required for autopilot system
- Simplifies the installation
- Allows for easy orientation in any direction

Optimus Hydraulic Steering Pump

Features

- On demand hydraulic steering pump
- Simplified semi auto-purge mode
- Designed using SAE J-1171 rated motor
- Third party auto-pilot certified
- Integrated service/bypass valve

Benefits

- Significantly reduces overall power consumption
- No oil cooler required for hydraulic fluid
- Allows user to purge system with existing components
- Meets Coast Guard requirement for ignition protection
- A separate auto-pilot pump is not required
- Limp home mode on remaining functional engine(s)

Key Components of Optimus EPS

Optimus Pump Control Module

Features

- Fault tolerant CANbus network
- Sealed locking harness connections
- Accommodates certified 3rd party autopilot systems
- Automatic battery selector

Benefits

- Ensures system reliability and operation
- Ensures reliable cable protection from vibration
- No additional autopilot pump and RFU
- Ensures system operates at peak performance

Optimus CANtrak Display

Features

- Digital display for messaging and user interface
- Displays visual information on system status
- Interface to Setup, Configure and Purge

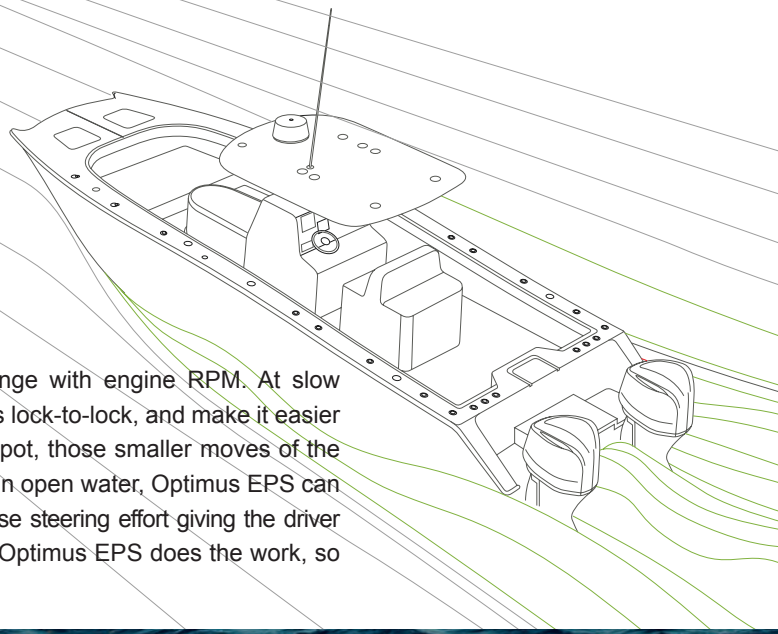
Benefits

- Provides interface for adjusting helm turns and effort
- Dealer adjustable toe and engine turning ratio
- Real-time system status rudder direction and RPM
- No additional device or computer required to get the system functional

System components can differ in appearance depending on engine application.

understanding

wave strength current dynamics turning velocities



Active Sensitivity

Lock-to-lock turns and wheel effort are programmed to change with engine RPM. At slow speeds, Optimus EPS can be set to reduce the number of turns lock-to-lock, and make it easier to steer. When you're negotiating through traffic or in a tight spot, those smaller moves of the wheel give you precise control. When you're running at speed in open water, Optimus EPS can be set to increase lock-to-lock turns, for example, and increase steering effort giving the driver more stability to comfortably keep on course. And through it all, Optimus EPS does the work, so you can relax and take it easy.

electronic
power
youcanfeel

Options for Optimus EPS

- Multi-station electronic helm.
- Heavy-duty tournament cylinders.
- Triple with tie-bar.
- Quad with tie-bars.

Specifications and Installation Information

Features & Benefits of the Optimus EPS System.

- Optimus EPS is designed to be Optimus 360 ready.
- ABYC, CE, ISO and SAE compliant - adheres to established safety standards.
- Compatible with select autopilot models from Simrad®, Garmin® and Raymarine®.
- When adding 2nd of 3rd station helm, no oil, just electrical connection.

Redundancy

Optimus EPS has multiple levels of redundancy using a Fault tolerant CAN network and each component has at least 2 sensors that are continually monitored.

Autopilot Interface

The Optimus EPS electronic control system interfaces directly with the latest generation of autopilots from Garmin®, Raymarine® and Simrad®, without the need for a second pump and the lengthy installation and purging procedure.

Ackerman Steering

Intelligent programming allows the Optimus EPS system to separately control the steering angle of inner and outer outboards. This eliminates under-steer caused by the outside outboard “pushing” against the curve of the turn. Ackerman steering is especially important in power catamarans where the engines are located farther apart.

Optimus EPS & Optimus 360

Compatibility Information

Popular engine brands: Yamaha®, Suzuki®, BRP® (Evinrude®), Mercury®, Honda®

	Popular Engine Brands (MST)	Yamaha® EST (non 425)	Mercury® Verado™ (L6)	Suzuki® EST	BRP® G2™	BRP® ICON™	Honda iST	Mercury® V6	Mercury® V8
Optimus EPS									
Single Engine	✓	✓	✓	✓	✓	✓	✓	✓	✓
Twin Engine	✓	✓	✓	✓	✓	✓	✓	✓	✓
Triple Engine	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quad Engine	✓	✓	✓	✓	✓	NA	✓	✓	✓
Optimus 360 Joystick									
Twin Engine	✓	✓	✓	✓	✓ *	✓	✓	✓ ***	NA
Triple Engine	NA	✓	✓	✓	NA	✓	NA	NA	NA
Quad Engine	NA	✓	✓	✓	✓ *	NA	NA	NA	NA
JS Upgrade	✓	✓	✓	✓	NA	NA	✓	NA	NA

- * Some steering components must be purchased from BRP®/distributor
- *** Available from Mercury®
- NA - Currently not available
- MST - Mechanical Shift and Throttle Engines
- EST - Electronic Shift and Throttle Engines
- JS Upgrade - Can add joystick control to an existing Optimus EPS vessel

*Information is subject to change

technologyyoucanfeel

The Optimus experience is the result of revolutionary technology that delivers incredible “feel”. Imagine getting the best steering performance and control from your boat while at the same time reducing fatigue even after hours of being at the helm.

OPTIMUS EPS BY SEASTAR

FOR outboardengine APPLICATIONS

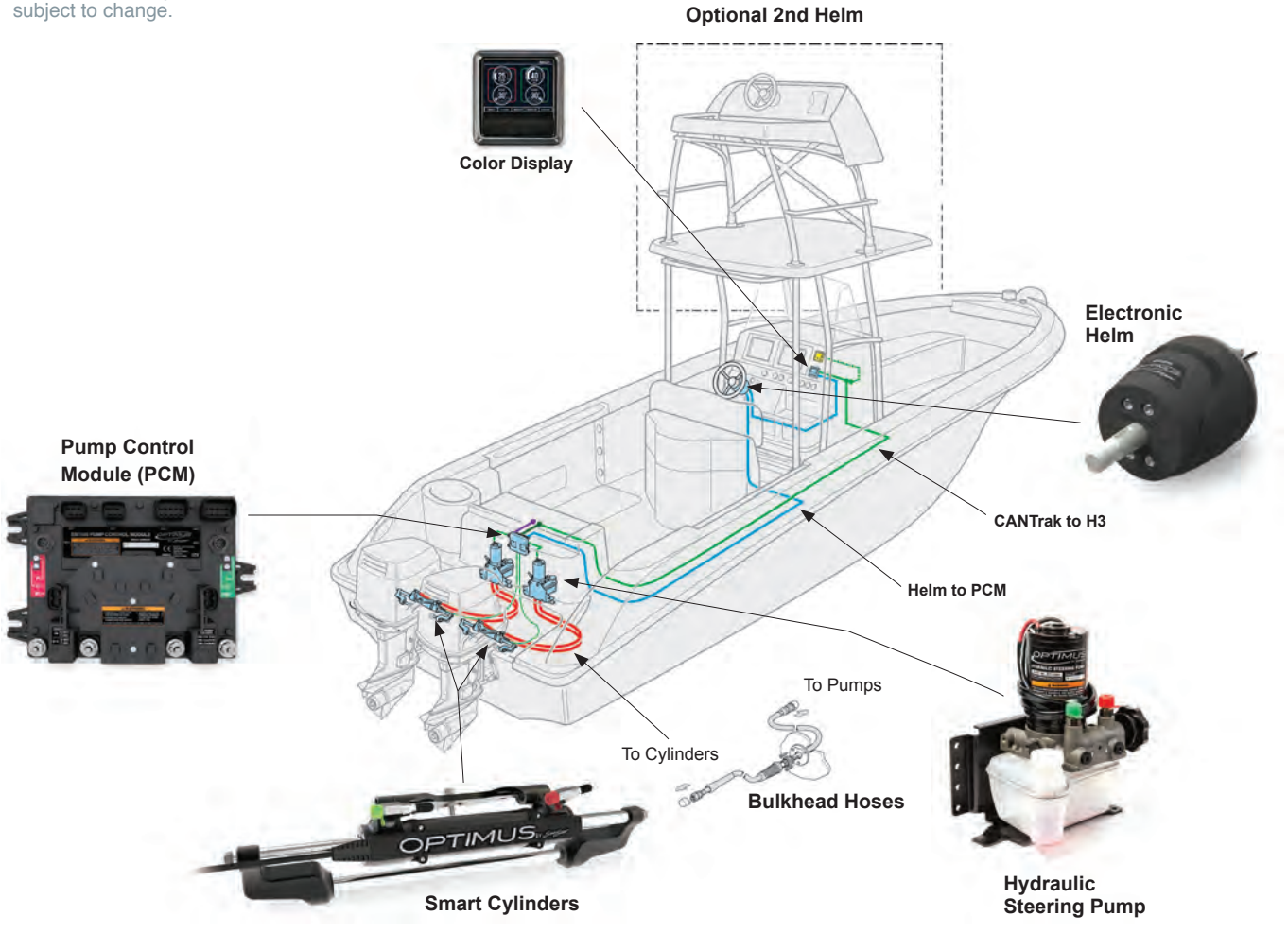
SINGLE / TWIN / TRIPLE / QUAD ENGINE SYSTEM




the technology
outboard engines

system components

For reference only and subject to change.



installation
outboard engines

system schematic - Mercury® Verado™ Engines

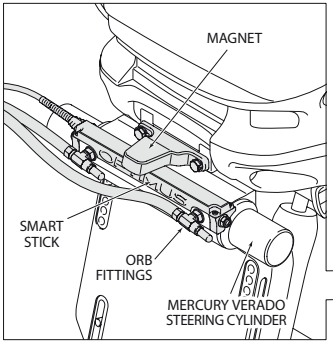
For reference only and subject to change.

Components based on existing SeaStar reliability and quality.

Electronic Helm

Color Display

PUMP CONTROL MODULE (PCM)



To Pumps

To Cylinders

BULKHEAD HOSES

Hydraulic Steering Pump

Challenges hatch innovation

The incredible feel you get when you are behind the wheel of a boat equipped with Optimus EPS can now steer Mercury® Verado™ engines. SeaStar has creatively designed a custom molded smartstick and magnet assembly that adapts to the existing built-in Verado™ steering cylinder.

The biggest challenge was finding a creative way to adapt the smartstick and magnet components to provide the rudder reference signal without impacting the integrity of the Verado™ steering cylinder. This ingenuity in design adapts these components to the steering cylinder with the same level of redundancy available in all Optimus EPS systems.

installation
outboard engines

system schematic - Single Engine

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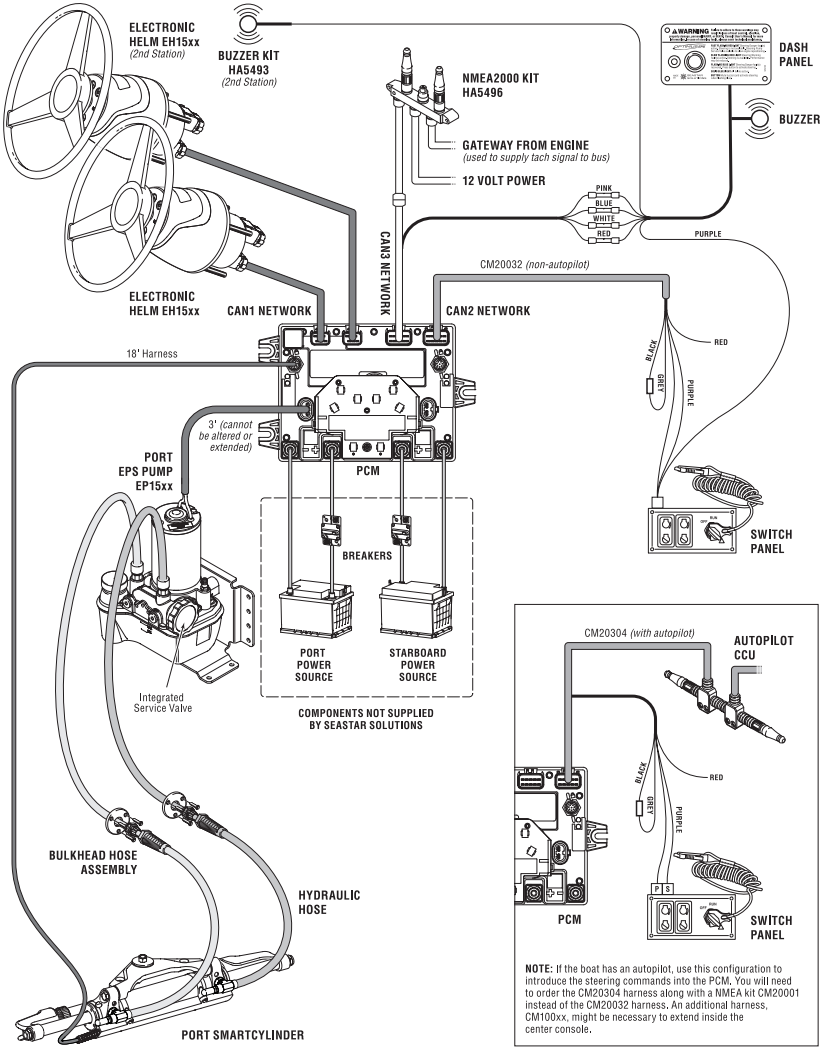
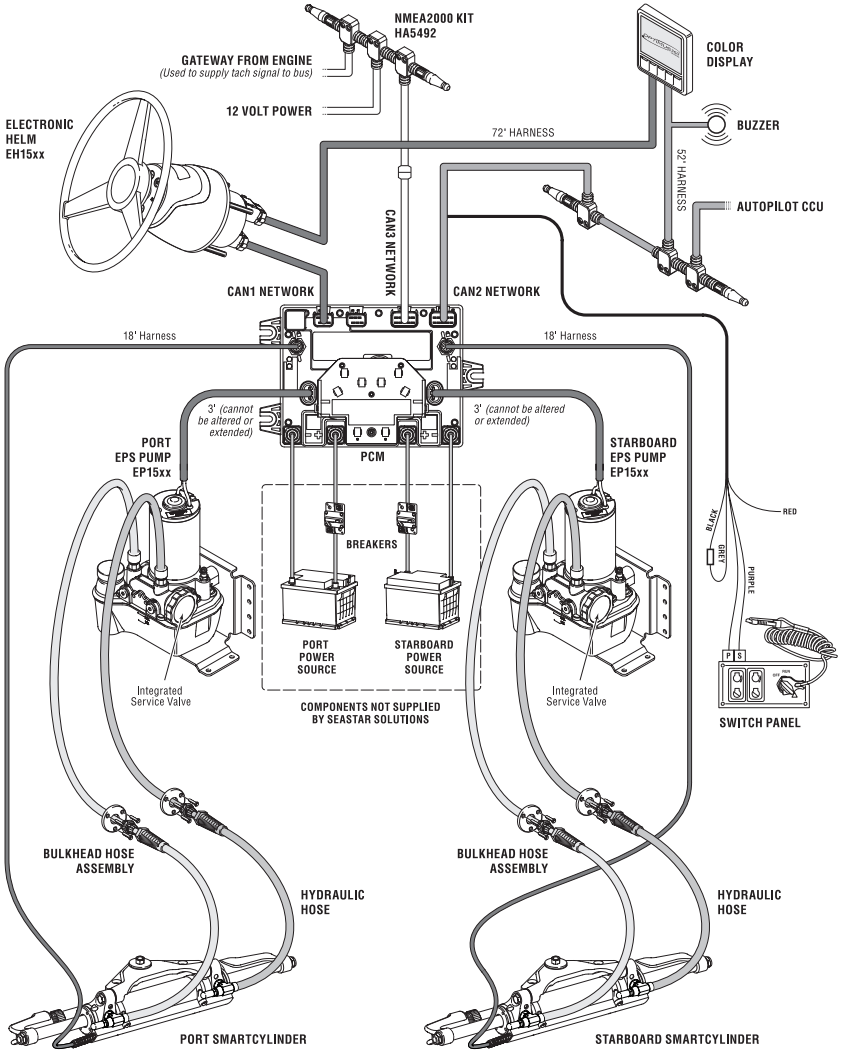


installation
outboard engines

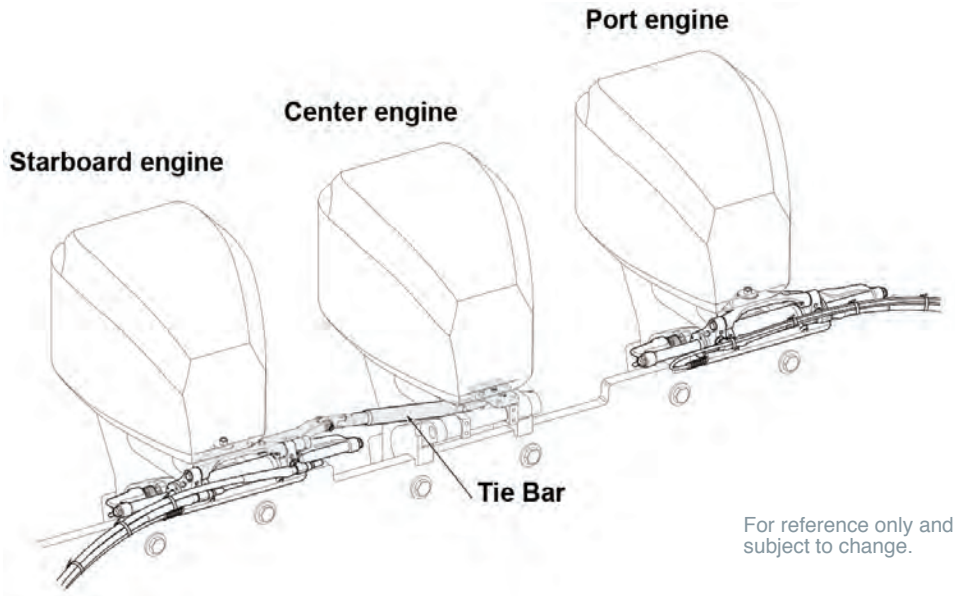
system schematic - Dual Engine

For reference only and subject to change.



installation
outboard engines

tie bar arrangement - Triple Engine



For reference only and subject to change.

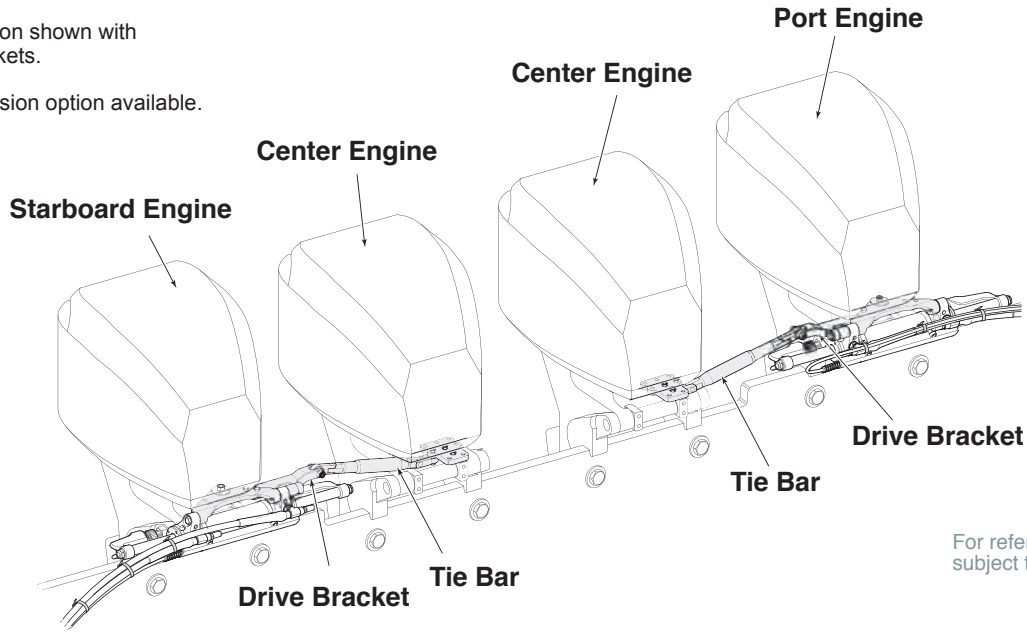
electronic power steering

installation
outboard engines

tie bar arrangement - Quad Engine

Configuration shown with
Drive Brackets.

Tiller extension option available.



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subject to change.

reliability
you
expect

OPTIMUS EPS
BY SEASTAR

FOR **inboard**engine
APPLICATIONS

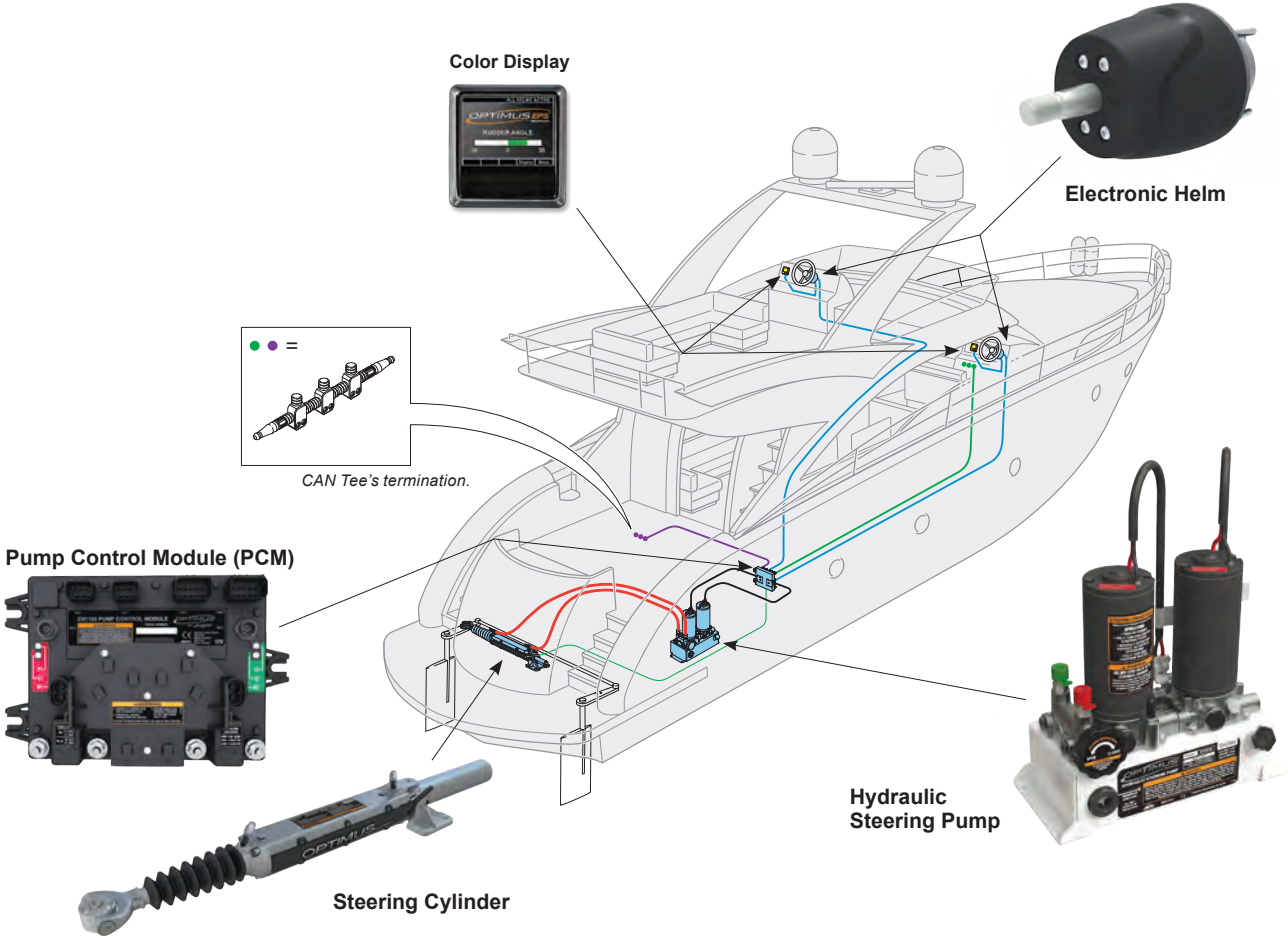
40-100+'

OPTIMUS EPS
5000 SERIES

the technology
inboard engines

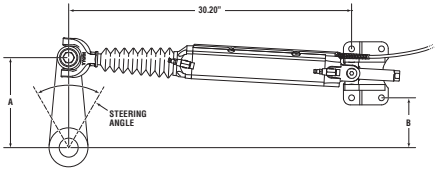
system components

For reference only and
subject to change.

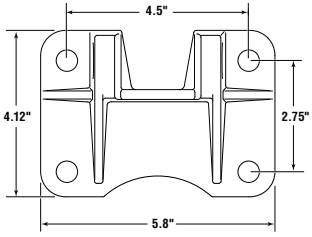


installation
inboard engines

system schematic - Yachts 80 Feet & Up



Cylinder at mid-stroke.



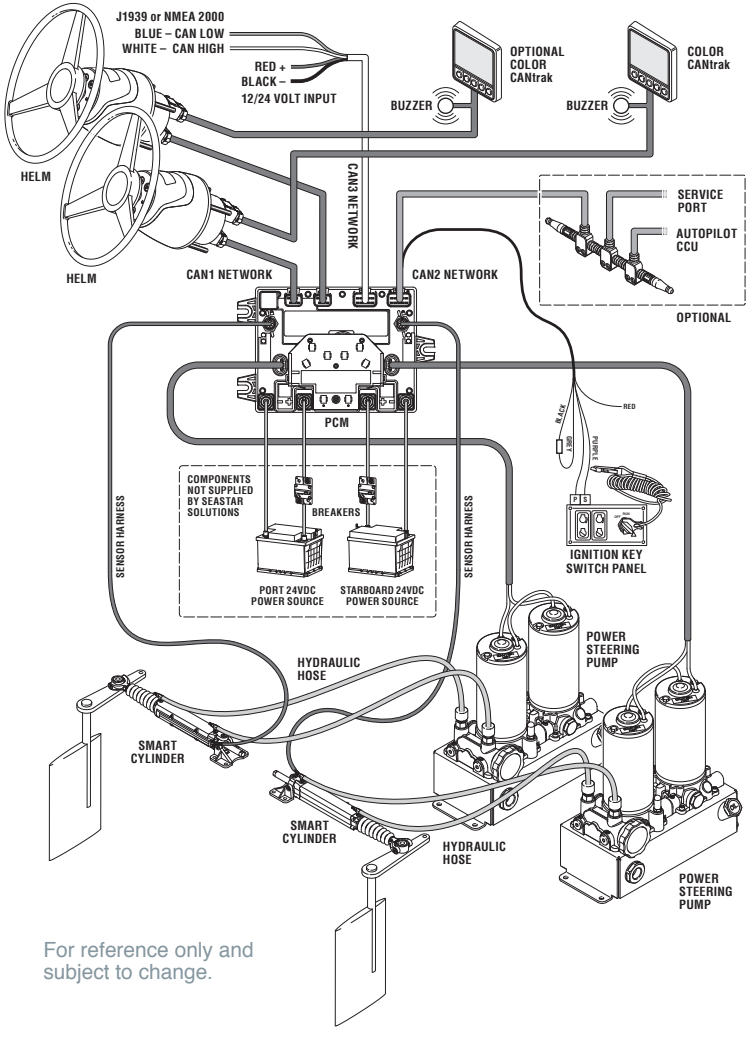
Mounting foot.

MOUNTING CONFIGURATIONS & SYSTEM SCHEMATIC

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

Model EC5850			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
14.20”	10.62”	12.00”	8.14”
70,800 in-lbs		57,200 in-lbs	

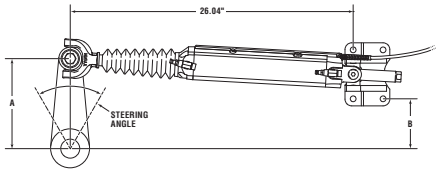
STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
10.46”	6.32”	9.33”	4.90”
47,100 in-lbs		39,300 in-lbs	



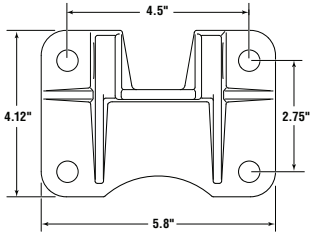
For reference only and subject to change.

installation
inboard engines

system schematic - Yachts 60-100’ Feet Range



Cylinder at mid-stroke.



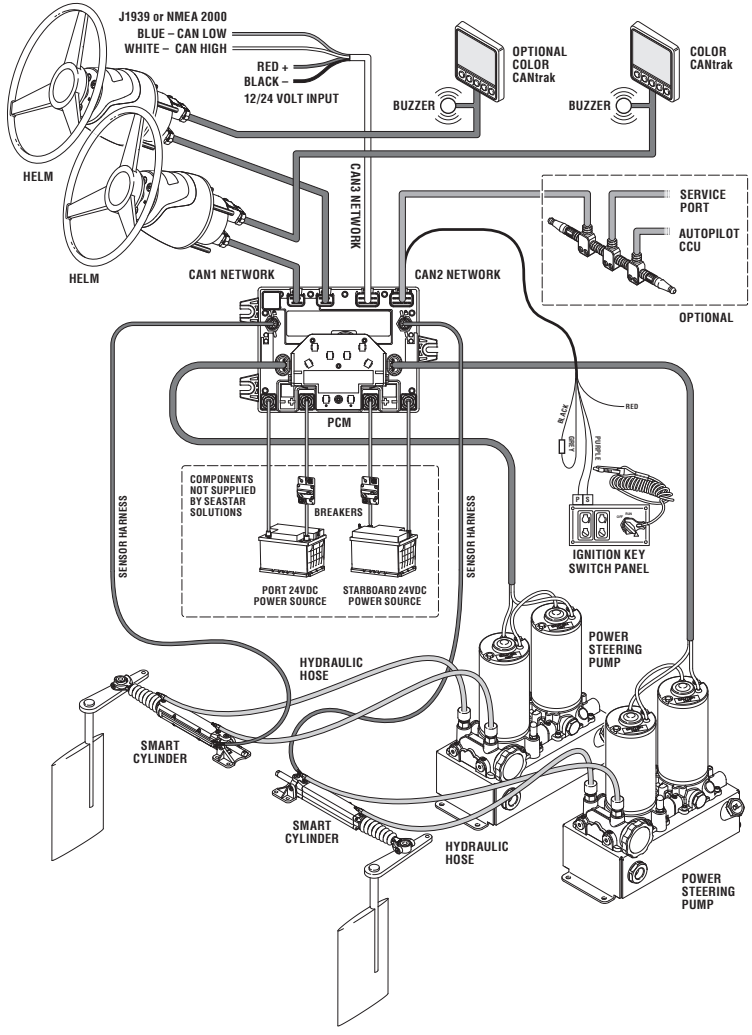
Mounting foot.

MOUNTING CONFIGURATIONS & SYSTEM SCHEMATIC

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

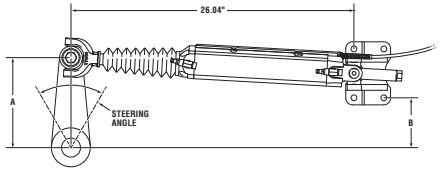
Model EC5810			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
11.27”	7.96”	9.50”	5.98”
56,300 in-lbs		45,400 in-lbs	

STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
8.25”	4.50”	7.40”	3.41”
37,400 in-lbs		31,200 in-lbs	

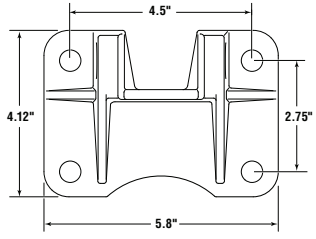


installation
inboard engines

system schematic - Yachts approx. 55-70 Feet Range



Cylinder at mid-stroke.



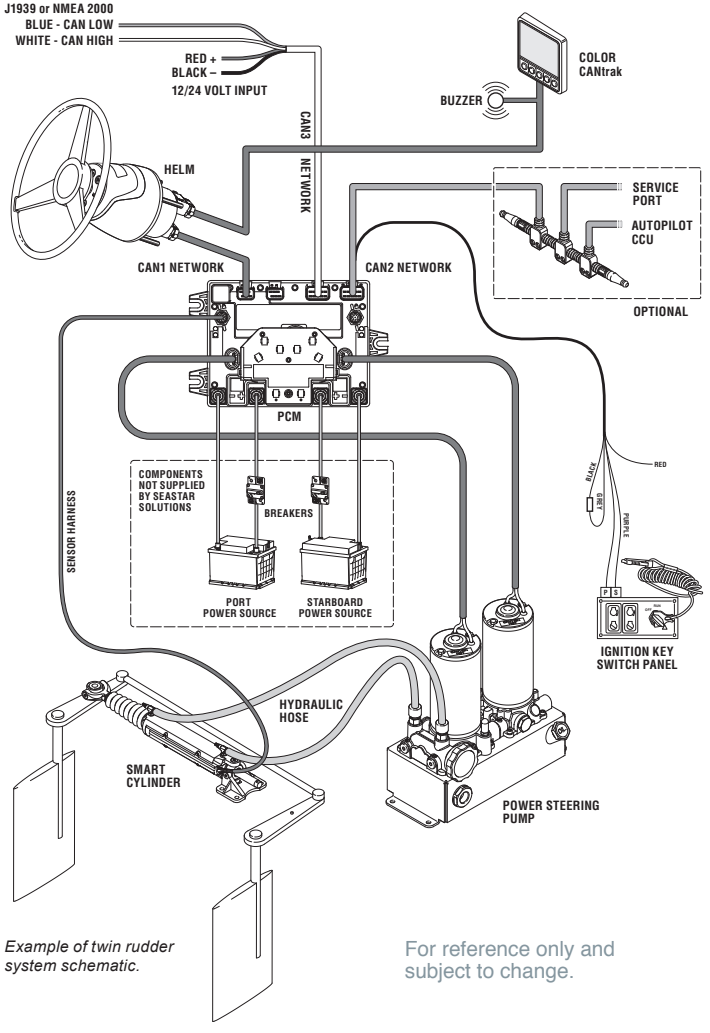
Mounting foot.

MOUNTING CONFIGURATIONS & SYSTEM SCHEMATIC

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

Model EC5810			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
11.27”	7.96”	9.50”	5.98”
56,300 in-lbs		45,400 in-lbs	

STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
8.25”	4.50”	7.40”	3.41”
37,400 in-lbs		31,200 in-lbs	



Example of twin rudder system schematic.

For reference only and subject to change.

specifications
inboard engines

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spay [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: 0.0284 g^2/Hz [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

Features

- Up to three helms stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health
- Display provides system setup interface
- Communicates faults and any special handling instructions to the operator
- No requirement for tie-bars depending on rudder loads.
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm offers both 3/4” taper or 1” straight shaft options
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 25° to 40° Center to hard over
- Rudder toe in or out up to 5° with speed
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, ISO and SAE electrical and environmental requirements

25

OPTIMUS EPS
BY SEASTAR

FOR **inboard**performance**yachts**

APPLICATIONS

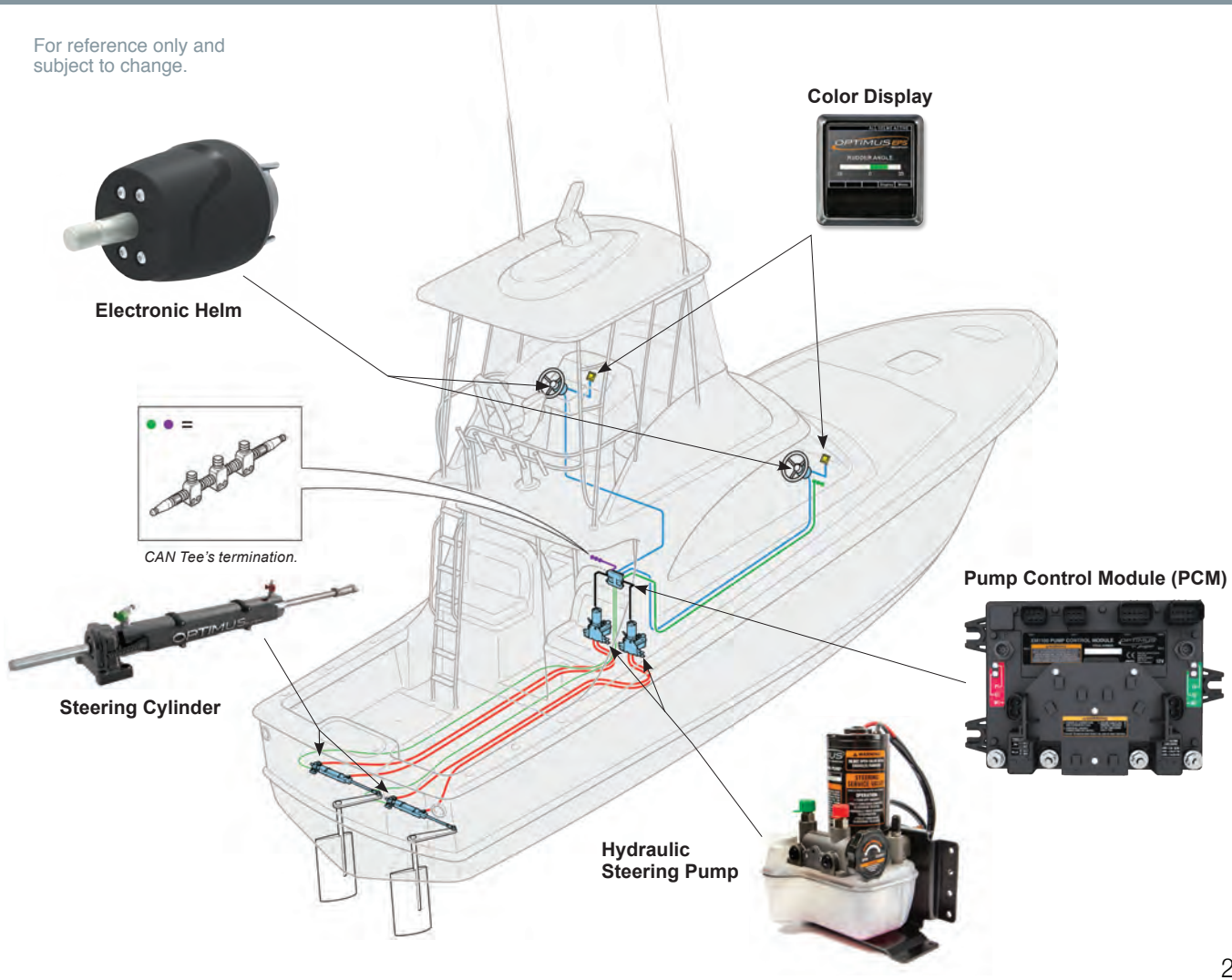
40-60’

OPTIMUS EPS
4000 SERIES

the technology
inboard engines

system components

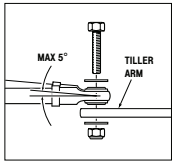
For reference only and subject to change.



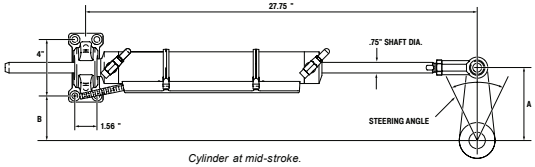
installation
inboard engines

system schematic - Yachts 40-60 Feet Range

For reference only and subject to change.



Attachment to Tiller Arm, recommended per ABYC



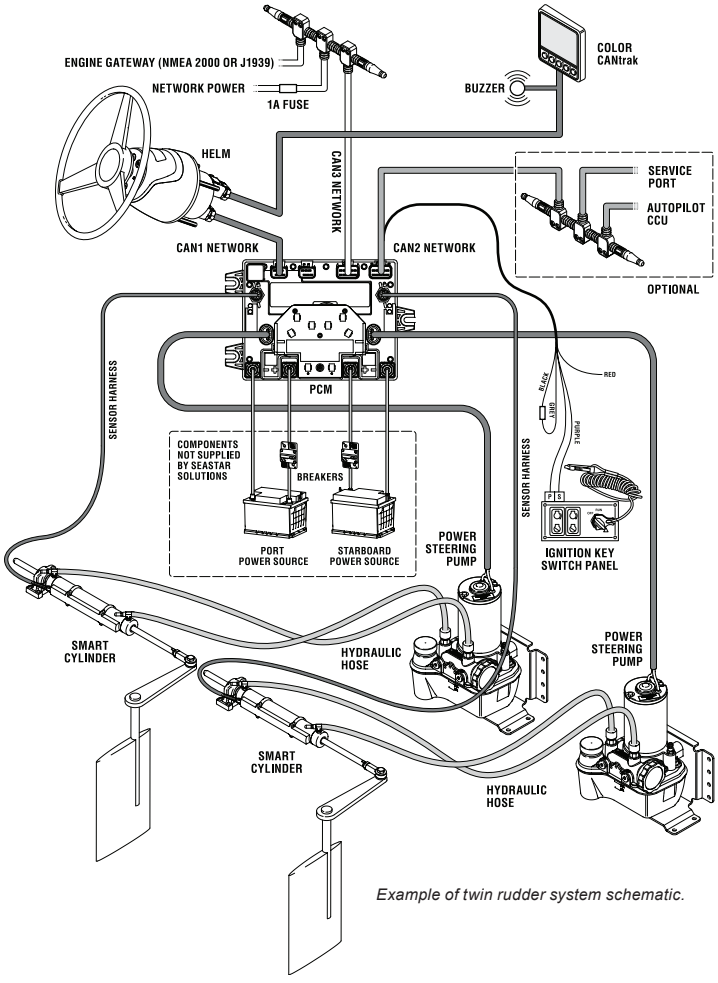
Cylinder at mid-stroke.

MOUNTING CONFIGURATIONS & SYSTEM SCHEMATIC

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

Model EC5390 (9" Stroke)			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
10.64"	7.65"	9.00"	5.79"
37,782 in-lbs		30,515 in-lbs	

STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
7.84"	4.247"	9.33"	4.90"
25,161 in-lbs		20,996 in-lbs	



Example of twin rudder system schematic.

specifications
inboard engines

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spay [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: 0.0284 g^2/Hz [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

Features

- Up to three helms stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 12 or 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health
- Display provides system setup interface
- Communicates faults and any special handling instructions to the operator
- No requirement for tie-bars depending on rudder loads
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm offers both 3/4” taper or 1” straight shaft options
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 25° to 40° Center to hard over
- Rudder toe in or out up to 5° with speed
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, ISO and SAE electrical and environmental requirements

OPTIMUS EPS
BY SEASTAR

FOR inboard&sterndrive
APPLICATIONS

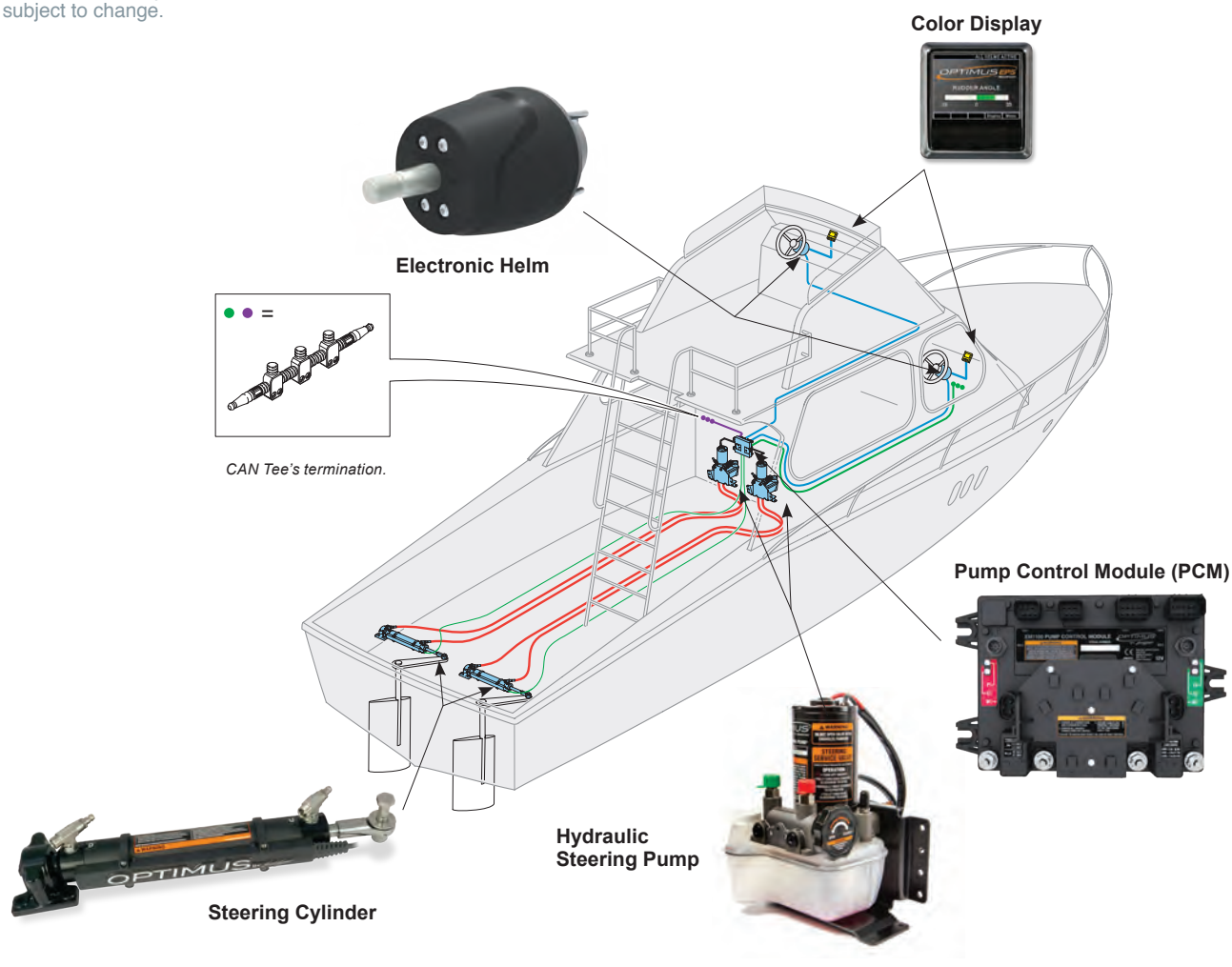
under 40’

OPTIMUS EPS
3000 SERIES

the technology
inboard&sterndrive

system components

For reference only and subject to change.



installation
inboard&sterndrive

system schematic - Inboard Yachts 18-34 Feet Range

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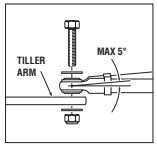
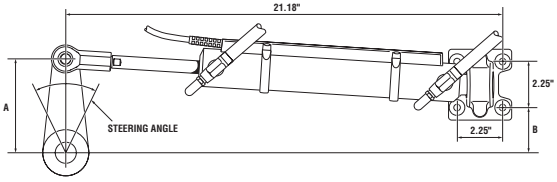
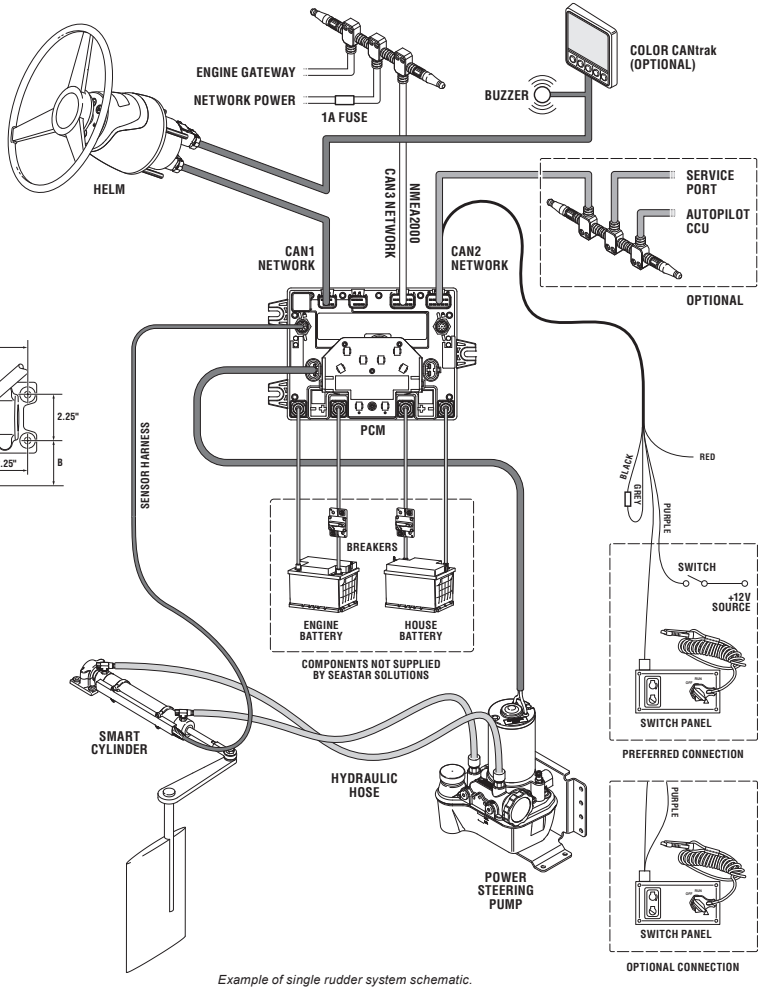


Attachment to Tiller Arm, recommended per ABYC.



Model EC5380			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
8.33”	6.43”	7.04”	4.98”
11,004 in-lbs*		8,887 in-lbs*	

STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
6.14”	3.91”	5.48”	3.07”
7,328 in-lbs*		6,115 in-lbs*	

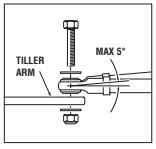


Example of single rudder system schematic.

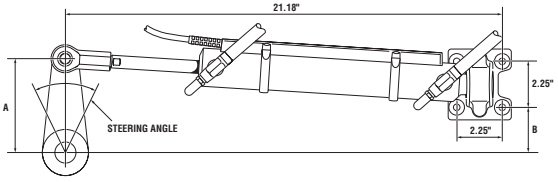
installation
inboard&sterndrive

system schematic - Inboard Yachts 30-50 Feet Range

For reference only and subject to change.

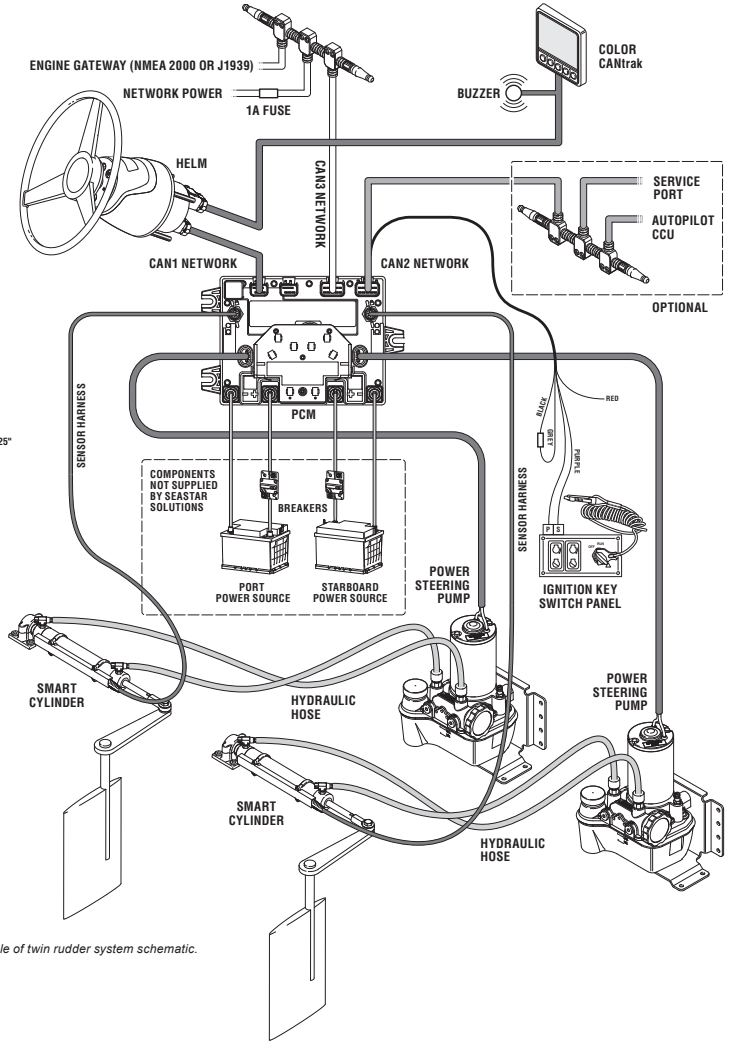


Attachment to Tiller Arm, recommended per ABYC.



Model EC5380			
STEERING ANGLES			
50°		**60°**	
A	**B**	**A**	**B**
8.33”	6.43”	7.04”	4.98”
11,004 in-lbs*		8,887 in-lbs*	

STEERING ANGLES			
70°		**80°**	
A	**B**	**A**	**B**
6.14”	3.91”	5.48”	3.07”
7,328 in-lbs*		6,115 in-lbs*	

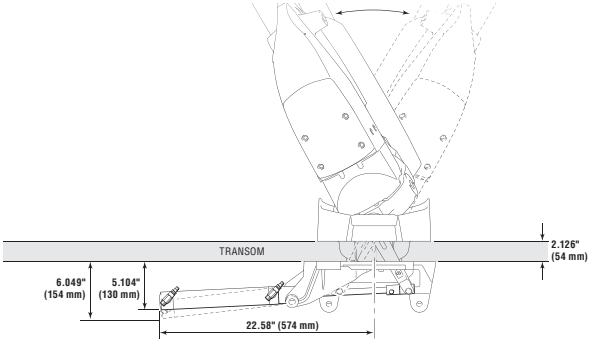


Example of twin rudder system schematic.

installation
inboard&sterndrive

system schematic - Sterndrive Vessels

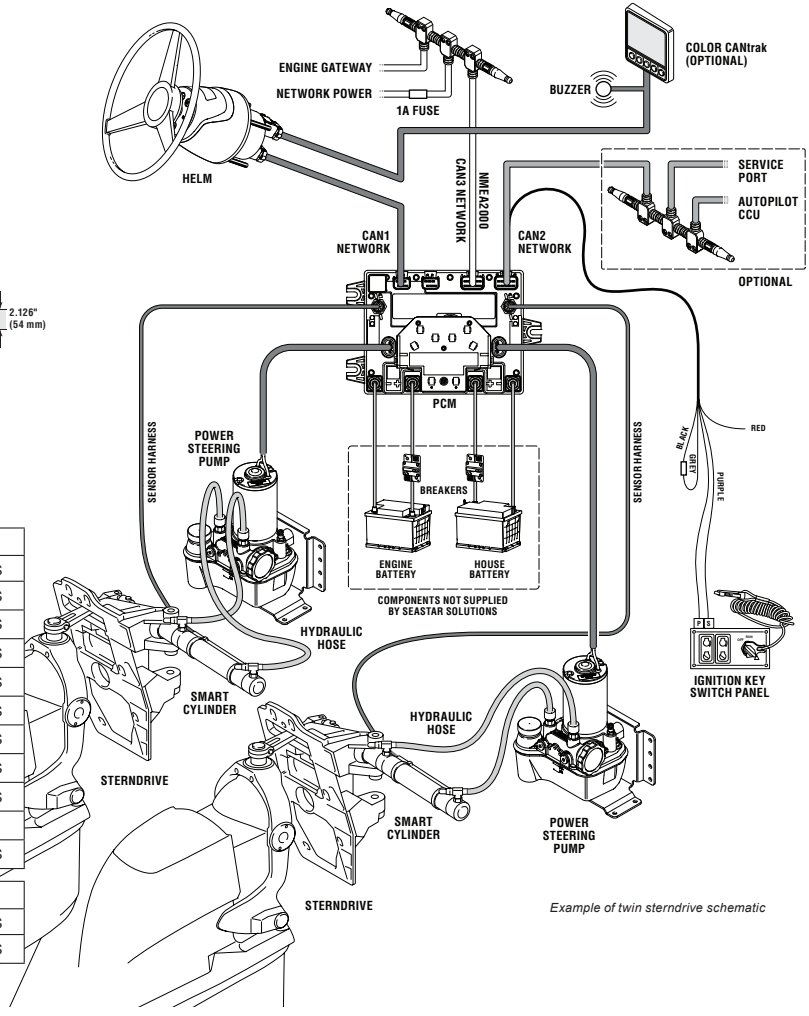
For reference only and subject to change.



Volvo	
DPH Duoprop	No
DPR Duoprop	No
DPS Duoprop	Yes
DPS–A	Yes
DPS–A OXI	Yes
DPS–B	Yes
DPS–B1	Yes
DPS–M	Yes
DP–E	No
DP–G	No
DP–X	No
OCEAN X (DPS–B OXI)	Yes
XDP	Yes
XDP–B	Yes
SX	Yes
SX–A	Yes

Mercury	
BRAVO 1	Yes
BRAVO 11	Yes
BRAVO 111	Yes
ALPHA 1 GEN 1	Yes
ALPHA 1 GEN 2	Yes
BRAVO X 1	Yes
BRAVO X 11	Yes
BRAVO X 111	Yes
BRAVO X R	Yes
BRAVO X R ITS	No
BRAVO X SPORTSMAN	Yes

Yanmar	
ZT 370	Yes
ZT 350	Yes



Example of twin sterndrive schematic

specifications
inboard&sterndrive

Environmental

- Operating temperature:
  -18°C to +77°C [ISO 25197]
- Storage temperature:
-40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spay [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: 0.0284 g^2/Hz [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

Features

- Up to three helms stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 12 or 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health
- Display provides system setup interface
- Communicates faults and any special handling instructions to the operator
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm shaft: 3/4” taper
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 20° to 30° Center to hard over
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, CE, ISO and SAE electrical and environmental requirements

OPTIMUS360 BY SEASTAR

Unparalleled Docking Control

Optimus 360 gives your boat a whole new dimension of control. By developing the joystick function to be intuitive, Optimus 360 allows you to move your boat not only forward and back, but also sideways, by pushing the joystick to the left, or to the right, and even, rotate on a dime, all with a simple twist of the joystick.

Optimus 360 is designed for low speed maneuvering, and really excels in the marina, when pulling in and out of your slip, or when docking. Intelligent programming minimalizes the amount of shifting required to complete a maneuver.

Optimus 360 steering/shift/throttle control system is engineered for powerboats with electronic shift and throttle engines, allowing you to use the existing electronic controls.

Optimus 360 connects to the existing control head with closed loop processing, providing a very seamless integration.

With progressive throttling, the joystick becomes a natural extension of your hand. A light push on the joystick provides minimal thrust while more thrust can be applied by pushing harder on the joystick. The boost mode increases the RPM to give you more thrust when needed.

optimuseps+joystickequalsoptimus360

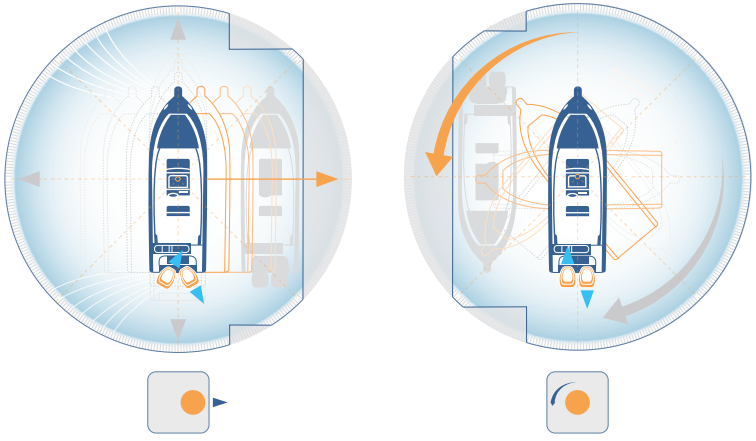
Advantages of Optimus 360

- Intuitive high precision Joystick docking with confidence
- Seamless integration with electronic controlled engines
- Autopilot ready - just a simple connection
- Dual station compatible
- Tiebar engines (triple/quad) – less components, simple installation, less cost
- Available as a retrofit or for new engine installation
- All the benefits of Optimus EPS, including auto adjusting steering effort and steering turns lock to lock

Optimus 360 Applications

- Most twin, triple and quad engine outboard boats - electronic and mechanical controlled
- Single and twin helm station yachts
- High performance powerboats, saltwater fishing vessels, RIBS, catamarans, houseboats and pontoon boats

from the masters **in joystick** control

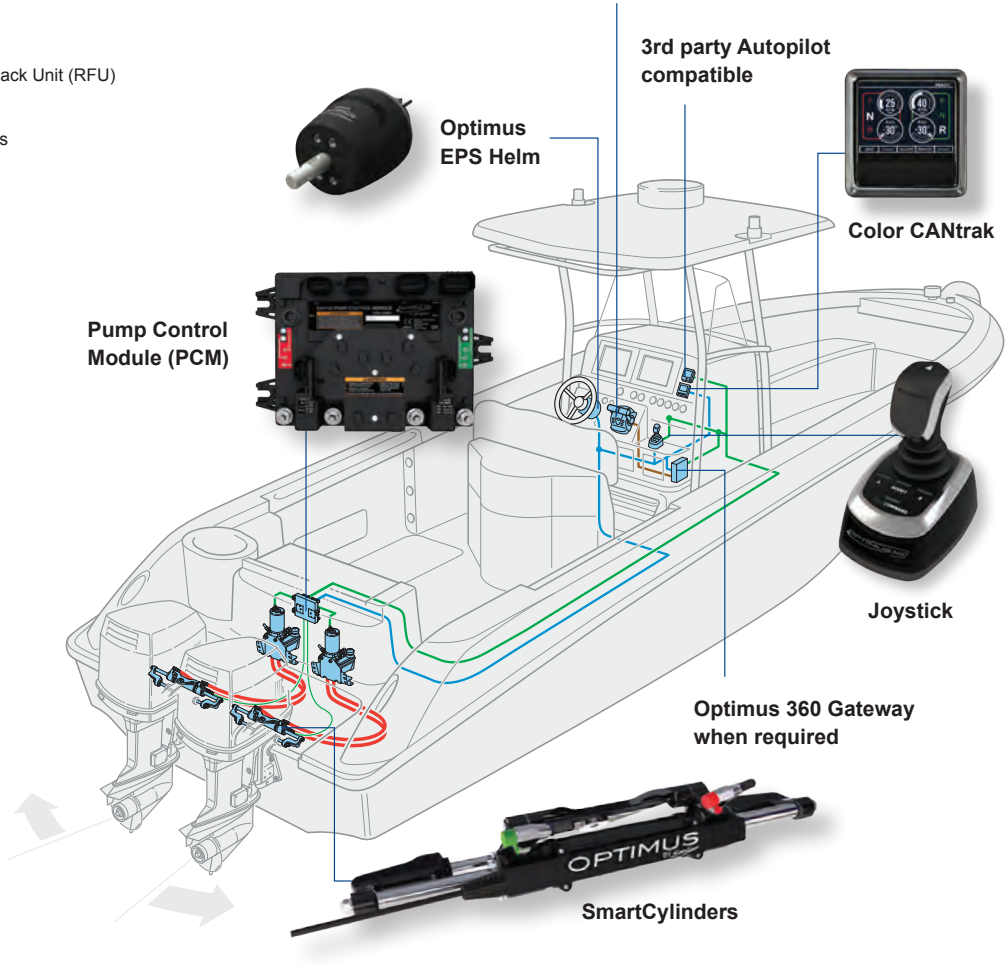


installation
optimus 360 joystick

system schematic - Electronic Shift & Throttle Engines

For reference only and subject to change.

- CAN Bus 1
- CAN Bus 2
- Rudder Feedback Unit (RFU)
- Motor
- Hydraulic Lines

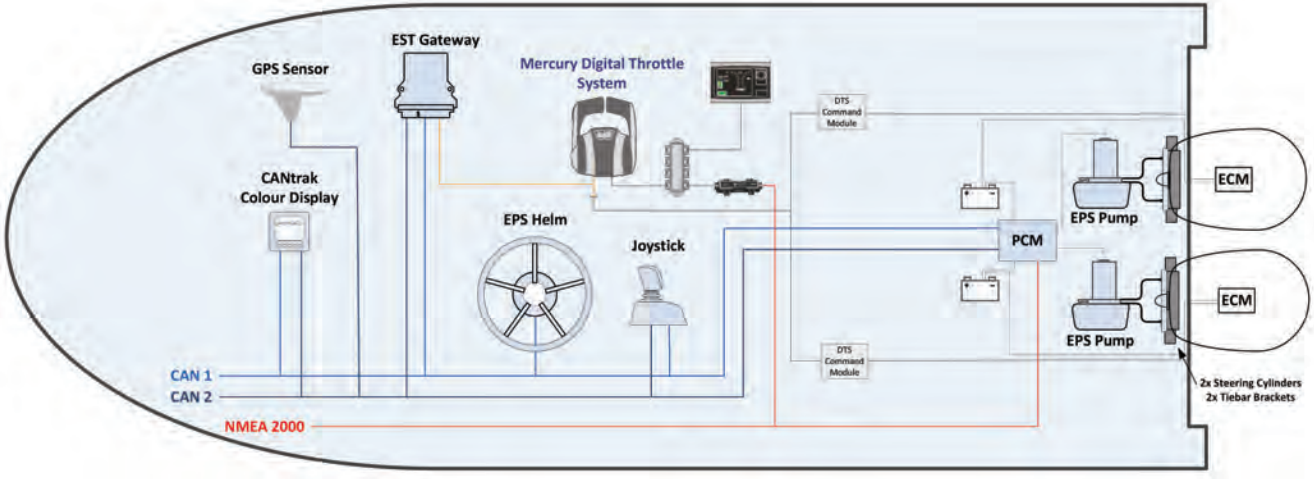


installation
optimus 360 joystick

system schematic - For Mercury® Verado™ 6 Cylinder Engines

SeaStar has developed Optimus 360 joystick control for Mercury® Verado™ engines with electronic controls. The foundation for this development is based on the Optimus 360 joystick and steering systems developed for Yamaha®, Suzuki®, Honda® and BRP®.

The Optimus 360 connection to the Mercury® control is a simple harness connection via the Optimus 360 gateway and when you want control taken from the joystick, just move the control handle and the joystick will immediately disengage. When the Mercury control wants control, it will always get control.



For reference only and subject to change.

joystickdockingcontrol

formechanicalshiftandthrottleengines

SeaStar has developed the Optimus 360 steering and joystick system that supports the mechanical shift and throttle engines that are available from outboard engine manufactures. SeaStar uses its electronic shift & throttle system to convert the engines so that they can be controlled when in joystick mode. This is a seamless integration by using a kit developed specifically for these types of applications. You will still get all the steering and joystick benefits from Optimus while also having the option to include SeaStation (GPS anchor) and SeaWays (autopilot). This is also available for select sterndrive applications.

installation
optimus 360 joystick

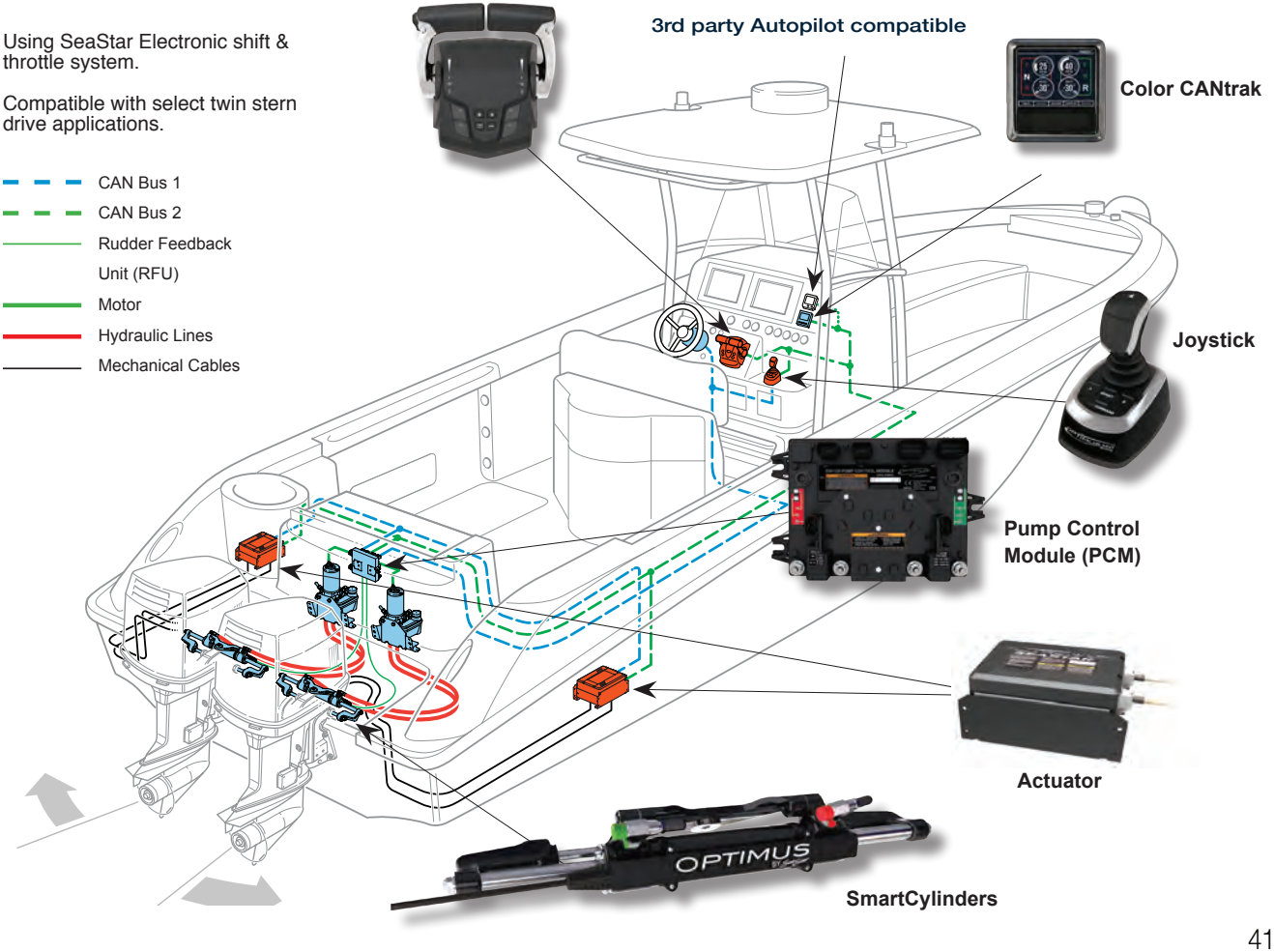
system schematic - Mechanical Shift & Throttle Engines

For reference only and subject to change.

Using SeaStar Electronic shift & throttle system.

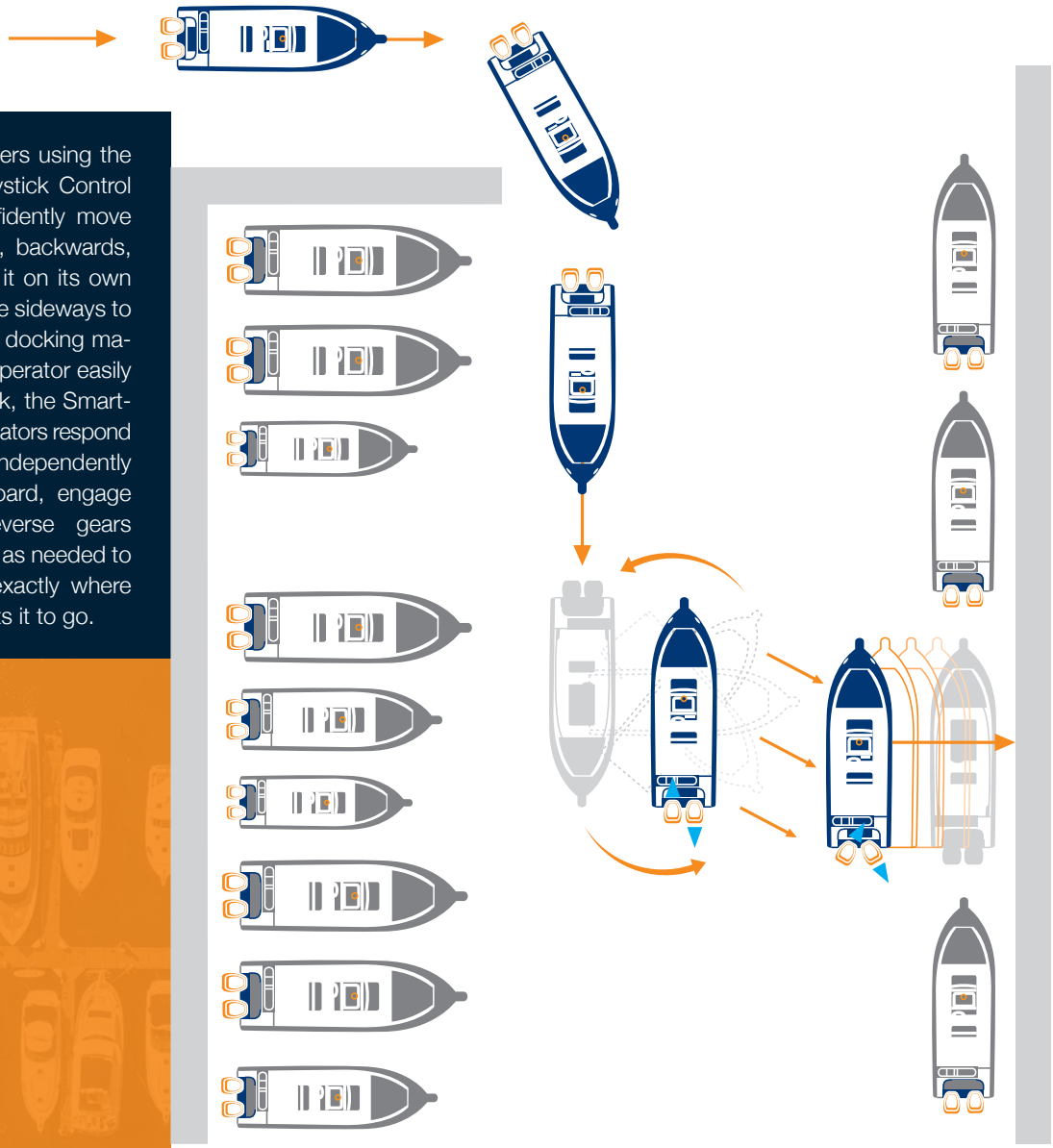
Compatible with select twin stern drive applications.

- CAN Bus 1
- CAN Bus 2
- Rudder Feedback Unit (RFU)
- Motor
- Hydraulic Lines
- Mechanical Cables



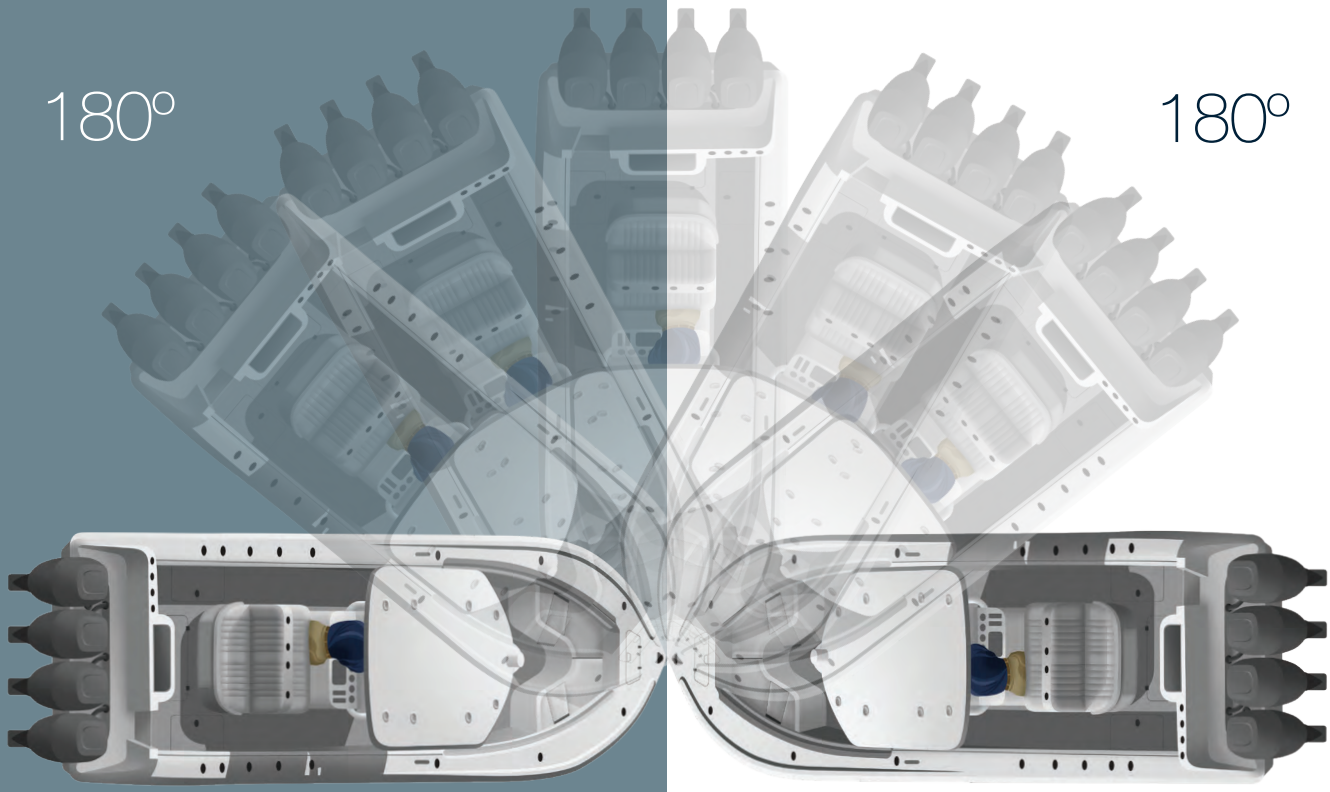
Steer with confidence through busy, congested docking areas, with complete control.

Even novice boaters using the Optimus 360 Joystick Control System can confidently move the boat forward, backwards, diagonally, rotate it on its own axis, or even move sideways to accomplish tricky docking maneuvers. As the operator easily moves the joystick, the Smart-Cylinders and actuators respond instantly to independently steer each outboard, engage forward/neutral/reverse gears and apply throttle as needed to move the boat exactly where the operator wants it to go.



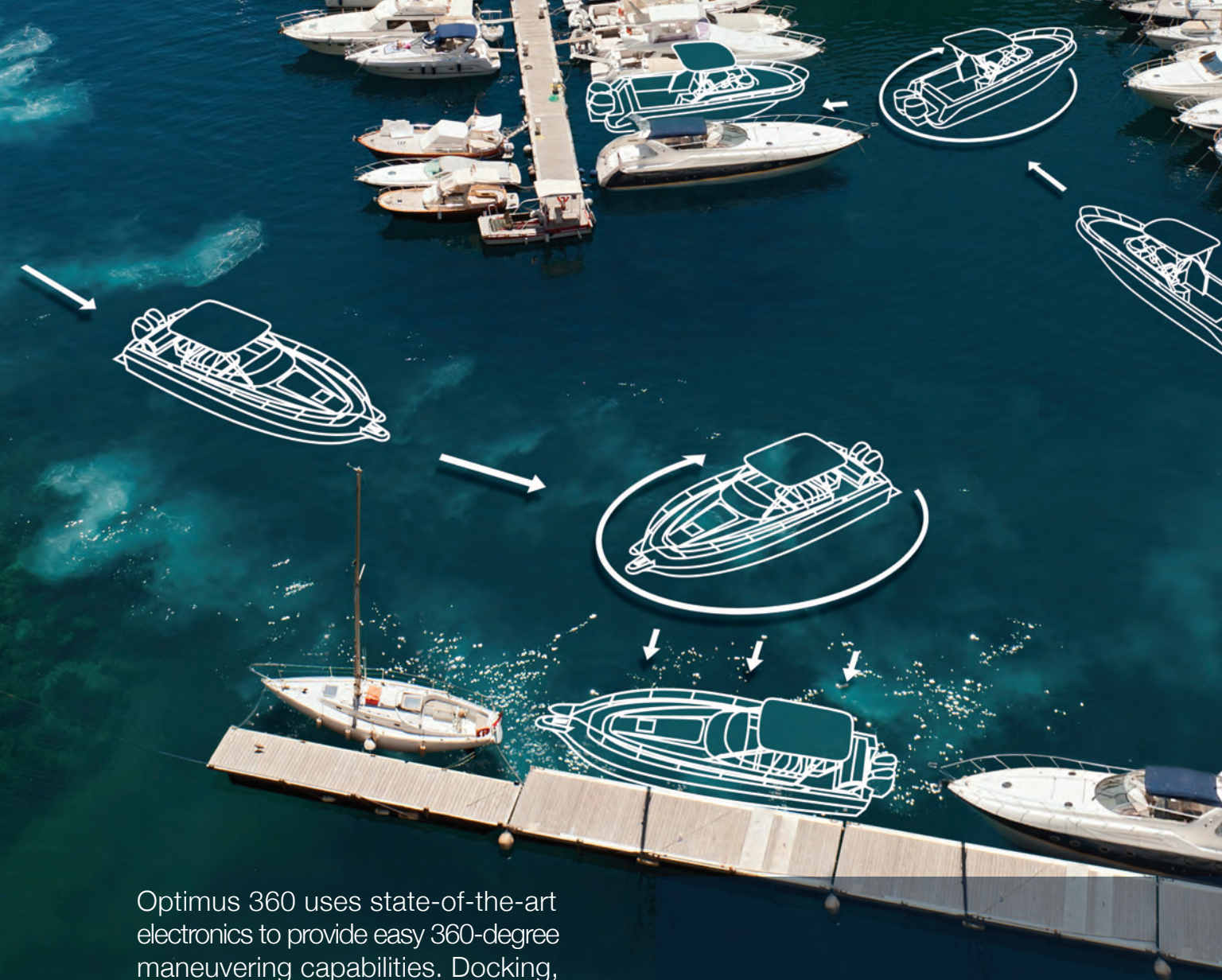
intuitiveprecise

With super light and sensitive touch function, the Optimus 360 joystick is designed for everyone. Bringing finger tip control to your vessel gives you the ultimate confidence in maneuvering your boat at low speeds and in tight spaces.



superiorlowspeedmaneuvering

This ease of control has never been offered on boats powered by multi-engine outboards. Now, owners of offshore center consoles, power catamarans, high performance cruisers and other popular boats can enjoy their time on the water without the stresses that often accompany pulling in for fuel, squeezing into a narrow slip or launching/retrieving at a busy launch ramp.



Optimus 360 uses state-of-the-art electronics to provide easy 360-degree maneuvering capabilities. Docking, negotiating crowded areas or loading a vessel onto a trailer is easily done.

ultimateinstressfreedocking

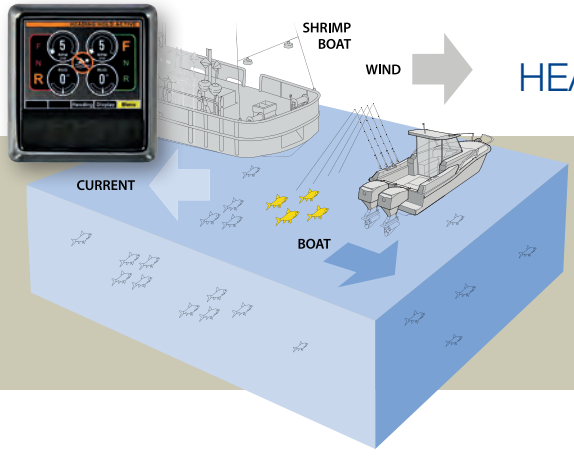
Holds Position & Heading Via GPS

When you are trying to locate that ideal spot over a reef or a wreck, SeaStation is ideal. Just hold your position and heading, drop your lines and see if you have success, if not, simply move to another location and engage SeaStation. No physical anchor required.

SeaStar Solutions has applied the same smart algorithms to SeaStation as you have experienced with Optimus 360 joystick control to reduce unnecessary shifting and jockeying of the engines while providing superior position and heading functions for a large selection of engine platforms.

Captains have told us that we can't have the jarring from the engines shifting and unnecessary movement as it does not sound good and also could impact the fishing outcome. We took this input seriously and we are confident SeaStation will be a fishing enabler.

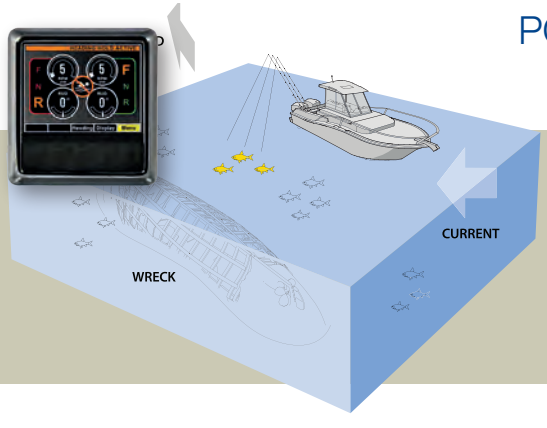
Easy add-on to your Optimus 360 boat.



HEADING HOLD

Mode 1: HEADING HOLD

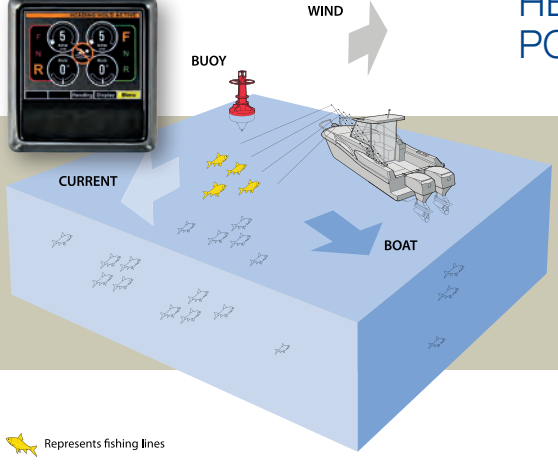
Hold heading regardless of position.
Applications include Kite fishing/Drift fishing.
Easier setup - Maximize fishing time.



POSITION HOLD

Mode 2: POSITION HOLD

Hold position regardless of heading.
Applications include bait fishing and wreck/reef fishing. Finding the natural heading when in position hold could be the best option.



HEADING AND POSITION HOLD

Mode 3: HEADING AND POSITION HOLD

Stay in position and hold heading.
Applications include waiting for a bridge to open, a spot at the dock to become available and bait fishing near a structure.

Represents fishing lines

Another common use for SeaStation will be when you are waiting for a spot to open at the dock or waiting for a bridge to lift. Simply push the A button or A&C buttons on the joystick, acknowledge via the Color CANtrak display and the boat will hold its position.

When ready to take command, simply toggle the A and/or C button off for control with the joystick.

As SeaStar adds more functions and features to SeaStation they will be available with s/w updates. Please contact your OEM or Optimus Certified dealer for more information.

WARNING: This is not to be used for any kind of swimming and diving.

SYSTEM REQUIRES:

Optimus 360 Joystick Control System

SeaStation Kit EPSK1600

includes:	Dual antenna GPS sensor
	DeviceNet CAN2 harness and T-connector
	Software and sensor license activation code
	Warning decals are provided to be placed near all boarding access points
Accuracy (target)	± 3 Meters Position hold
	± 10° Heading hold

Sensor and mounting information:

Dimensions	Not including mount: 25.9 L x 12.9 W x 4.5 H (cm)
	10.2 L x 5.1 W x 1.8 H (in)
	Including mount: 25.9 L x 12.9 W x 12.8 H (cm)
	10.2 L x 5.1 W x 5.0 H (in)
Weight	Not including mount: 0.42 kg (0.9 lb)
	Including mount: 0.51 kg (1.1 lb)

A - Position
C - Heading

SEASTATION MODES

This is a safety step to make sure that all precautions have been taken to make sure there is nothing in the water when SeaStation is engaged. After pressing the A and C buttons on the joystick, the captain will be prompted to engage SeaStation by pushing the button on the CANtrak display.

HEADING ADJUSTMENT

Jog buttons have been created to adjust heading in five degree increments.

This feature allows heading adjustment without disengaging SeaStation to align the vessel stern to wind and current to reduce engine activity.

whatcouldbeeasier?

SeaStation meets the challenges of maintaining a stationary position while on the water with the simple push of a button.

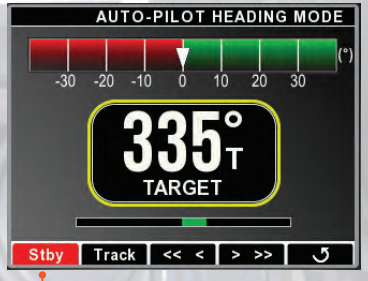
SEAWAYS BY SEASTAR

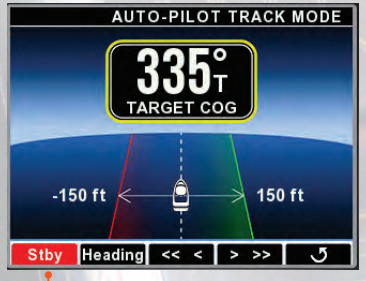
Set Your Destination and Go!

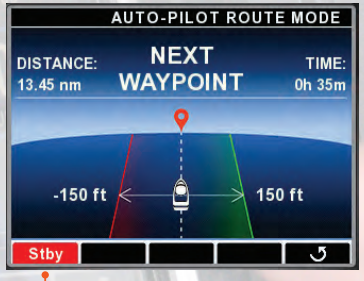
SeaWays autopilot is a simple enhancement (update) to the Optimus 360 system using the CANtrak display and can use the same heading and position sensor as SeaStation.

Features

- SeaWays will be included with SeaStation and is accessible using the CANtrak display that is part of the Optimus 360 system
- The display image is simple, making it easy to engage one of the 3 modes and understand what the boat is doing
- Track mode will compensate for wind and current keeping the boat on course
- Uses GPS-compass technology
- Heading not affected by boat roll and pitch
- Always provides true north
- Now you have SeaStation (GPS anchor) and Autopilot all in one System from SeaStar







HEADING MODE

Autopilot holds a desired heading. Boat may drift with wind and current.

TRACK MODE

Autopilot holds a desired course over ground. Boat heading may be changed by the autopilot to hold the desired course.

ROUTE MODE

Autopilot follows waypoints provided by third party chart plotter. Boat heading will be changed by the autopilot to follow the waypoints.

OVERRIDE

Autopilot is temporarily disabled when the helm is turned. The autopilot re-engages automatically when the helm is no longer turned and the boat heading is stable. When the autopilot re-engages, the current heading becomes the new desired heading.

what**makes**seaways**autopilot**simple**?**

- No additional Course Control Unit (CCU) or display to install
- The autopilot CCU resides inside the steering controller (PCM) and has access to all the steering characteristics for optimum performance
- All the steering commands are sent internally providing a more integrated system, unlike 3rd party autopilot systems where communication is external
- Tuning is simple as all SeaWays has to do is determine how the boat responds to the rudder, providing accurate autopilot performance

The SeaWays autopilot Heading and Track modes can be activated via the CANtrak display. If you desire Route Mode, a third party chartplotter is required for setting the waypoints.

Easy Heading Change with a Simple Tap of the Joystick

Instead of changing your heading via the CANtrak display, you can easily change your heading by tapping the joystick to get 1 degree or 10 degree changes in heading.

Tap the joystick port or starboard for 1 degree change or hold it for 2 seconds for 10 degree change.

fromthe **global**leader **in**steering **systems**

perfectsteeringforeveryone

“Your new Optimus Power Steering system is really awesome. Steering is virtually effortless, and the fact that you can literally plug in the autopilot system without dealing with extra pumps and wiring is a real winner for us – and for our customers.”

Owen Maxwell
Co-Founder of Regulator Marine

OPTIMUS EPS BY SEASTAR

OPTIMUS 360 BY SEASTAR

> “The Optimus EPS system allows us great maneuverability in tight quarters, as well as stability of operation when up on speed. The response is quick but at the same time very fluid and undemanding of the operator. The Optimus 360 joystick’s overall ability to maneuver a 40’ boat under numerous conditions has been a game changer for law enforcement.”

Deputy Paul Shute
Hillsborough County Sheriffs Dept. - Homeland Security Division

Scan with your smartphone to watch the testimonial video!

electronicpowersteeringproducts

Scan me

Learn More

For more information on Optimus EPS and Optimus 360 including manuals, data sheets and dealer locator visit us online at www.seastarsolutions.com.

bestpowerboatsteeringanywhere

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