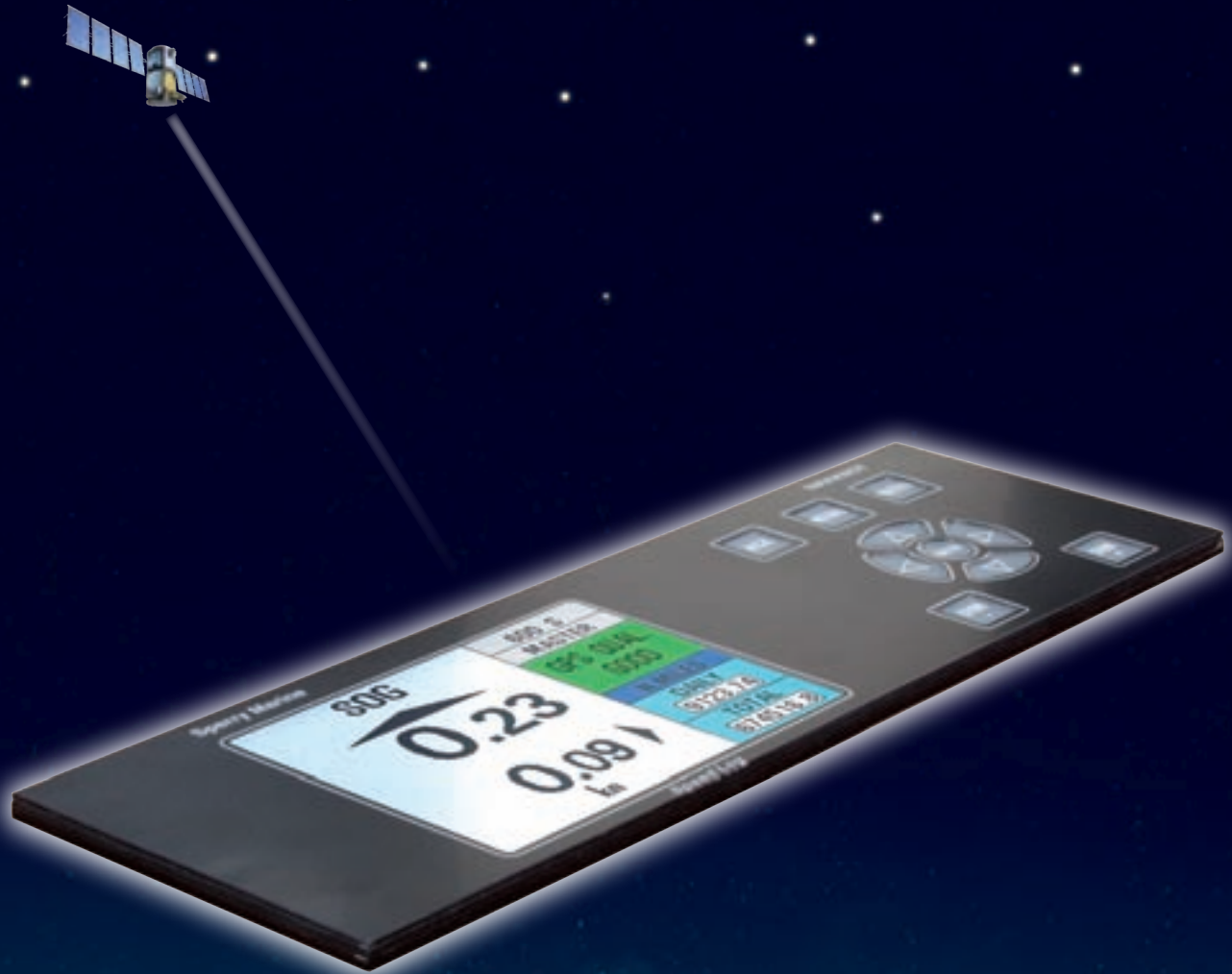


NORTHROP GRUMMAN



NAVIKNOT Multisensor Speed Log Series

The Ultimate in Speed Log Flexibility

Sperry Marine

NAVIKNOT Multisensor Speed Log Series

Proven Expertise

The NAVIKNOT Multisensor Speed Log Series is a new generation in a long line of very successful Sperry Marine speed logs. The 350, 450 and 600 series offer unlimited flexibility and have been designed with the most modern computer tools for application on all types and sizes of vessels including cruise ships, container ships, tankers, megayachts and a wide variety of other craft, both new build and retrofit.

The innovative NAVIKNOT Multisensor Speed Log Series features two different-sized Control and Display Units (CDU) each with a large colour TFT display, and utilizes satellite-based technology (GPS) in addition to the traditional Doppler and electromagnetic sensors to provide the user with high-accuracy displays of dual-axis ground speed and/or single-axis water speed.

The Series

NAVIKNOT 350 E

Electromagnetic Speed Log System, Single-Axis Water Speed

NAVIKNOT 450 D

Doppler Speed Log System, Single-Axis Water Speed

NAVIKNOT 450 DD

Retrofit for the SRD 331 Control and Display Unit, Single-Axis Water Speed

NAVIKNOT 600 S

Satellite Speed Log System, Dual-Axis Ground Speed, Docking Mode

NAVIKNOT 600 SE

Satellite and Electromagnetic Speed Log System, Dual-Axis Ground Speed and Single-Axis Water Speed, Docking Mode

NAVIKNOT 600 SD

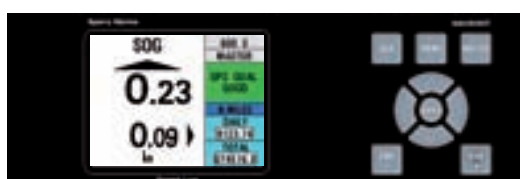
Satellite and Doppler Speed Log System, Dual-Axis Ground Speed and Single-Axis Water Speed, Docking Mode

NAVIKNOT 600 DD

Retrofit for the SRD 500 Control and Display Unit, Dual-Axis Ground Speed and Dual-Axis Water Speed



NAVIKNOT 350 E, 450 D and 450 DD



NAVIKNOT 600 S, 600 SE, 600 SD, and 600 DD

Key Highlights

- Suitable for all types of vessels ranging from small pleasure craft to the largest crude carriers
- Simple and low-cost installation
- Speed accuracy 0.2 knots
- Large colour TFT display
- Display colours selectable by the operator
- Varied selection of speed and distance interfaces
- Double-end ferry mode
- Calibration of replacement sensors not required
- Miles counter (one total counter and one daily counter)
- Separate damping for speed display and outputs (0 – 99 sec.)
- Displays longitudinal and transverse speeds (transverse speed 600 S, 600 SE & 600 SD only)
- Support of docking maneuvers by displaying rate of turn, heading, course over ground, longitudinal speed over ground, and bow and stern transverse speed over ground (600 S, 600 SE, 600 SD)
- Remote control and display units are available in different sizes
- Integrated take-over function Remote-to-Master
- Type approved by Germanischer Lloyd to Marine Equipment Directive (MED) 96/98/EC

Performance

Ground Speed from Satellite (600 S, 600 SE, 600 SD)

Ground speed range	-99 kn to +99 kn longitudinal -99 kn to +99 kn transverse
Accuracy of ground speed	0.2 kn or 2% of true speed, whichever is greater
Heading	0.5° RMS (static)
Rate of turn	0.5°/min. or better
Rate of turn follow-up speed	±25°/sec.
Settling time	4 min. coast time

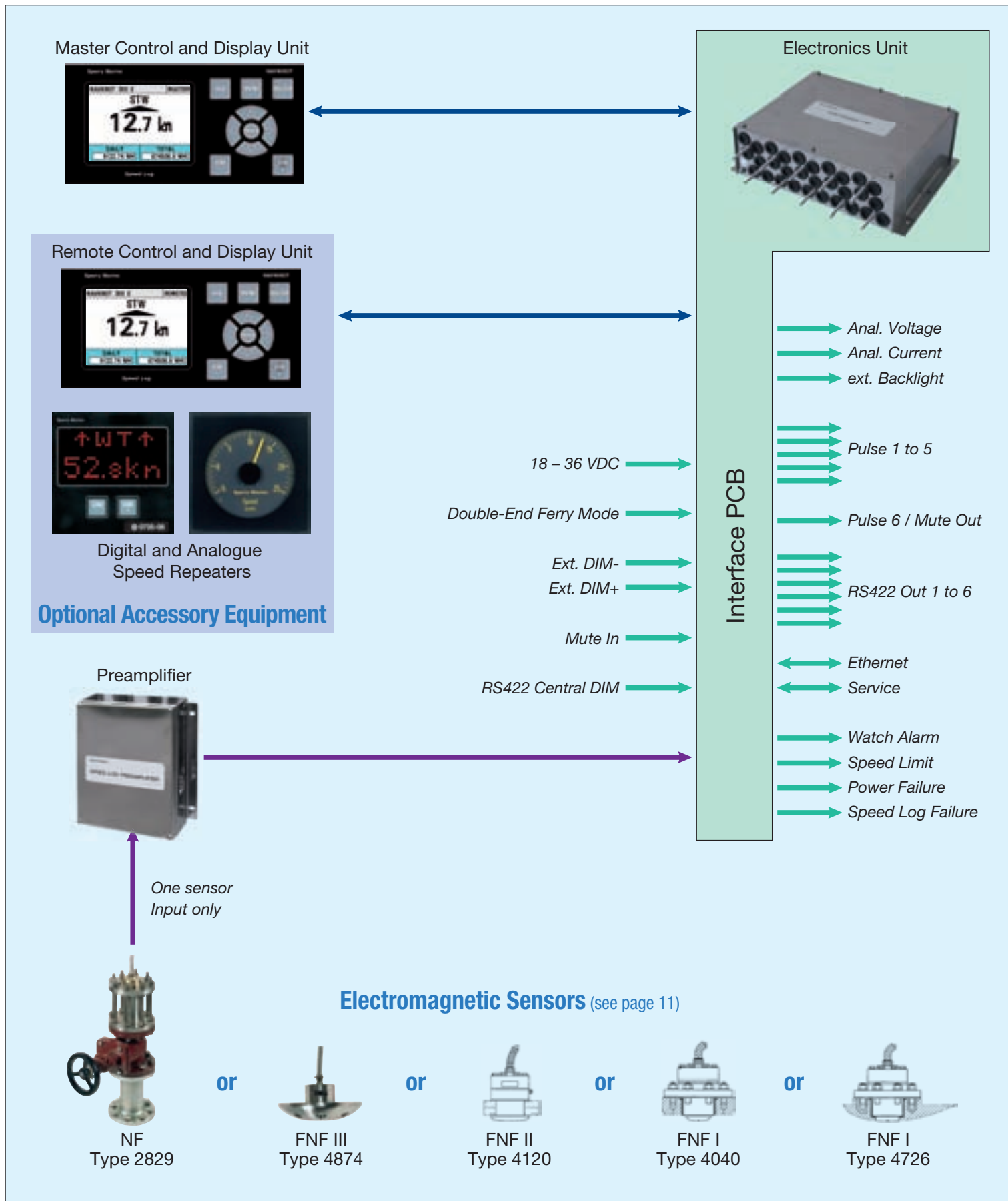
Water Speed from Electromagnetic Sensors (350 E, 600 SE)

Water speed range	
sensor NF type 2829	-20 kn to +30 kn
sensor FNF III type 4874	-20 kn to +35 kn
sensor FNF II type 4120	-20 kn to +35 kn
sensor FNF I type 4040	-20 kn to +35 kn
sensor FNF I type 4726	-20 kn to +60 kn
Accuracy, relative to water flow at location of sensor	0.1 kn or better

Water Speed from Doppler Transducers (450 D, 600 SD)

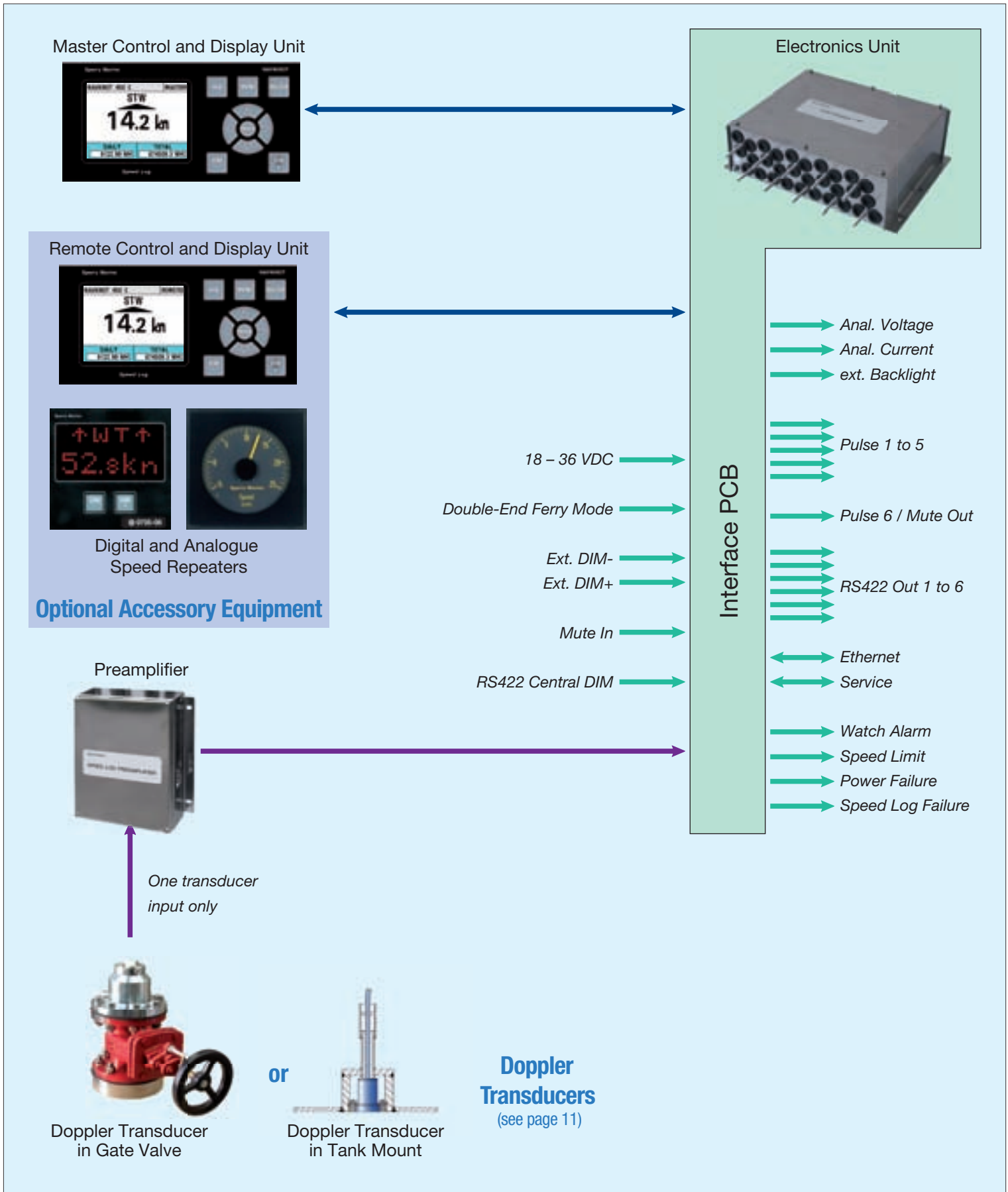
Water speed range	-50 kn to +50 kn
Accuracy	±1% or 1kn
1 sigma error of speed displayed for a period of 5 minutes (under good hydrostatic conditions, pitch angles < 5°)	

Electromagnetic Speed Log System – Single-Axis Water Speed

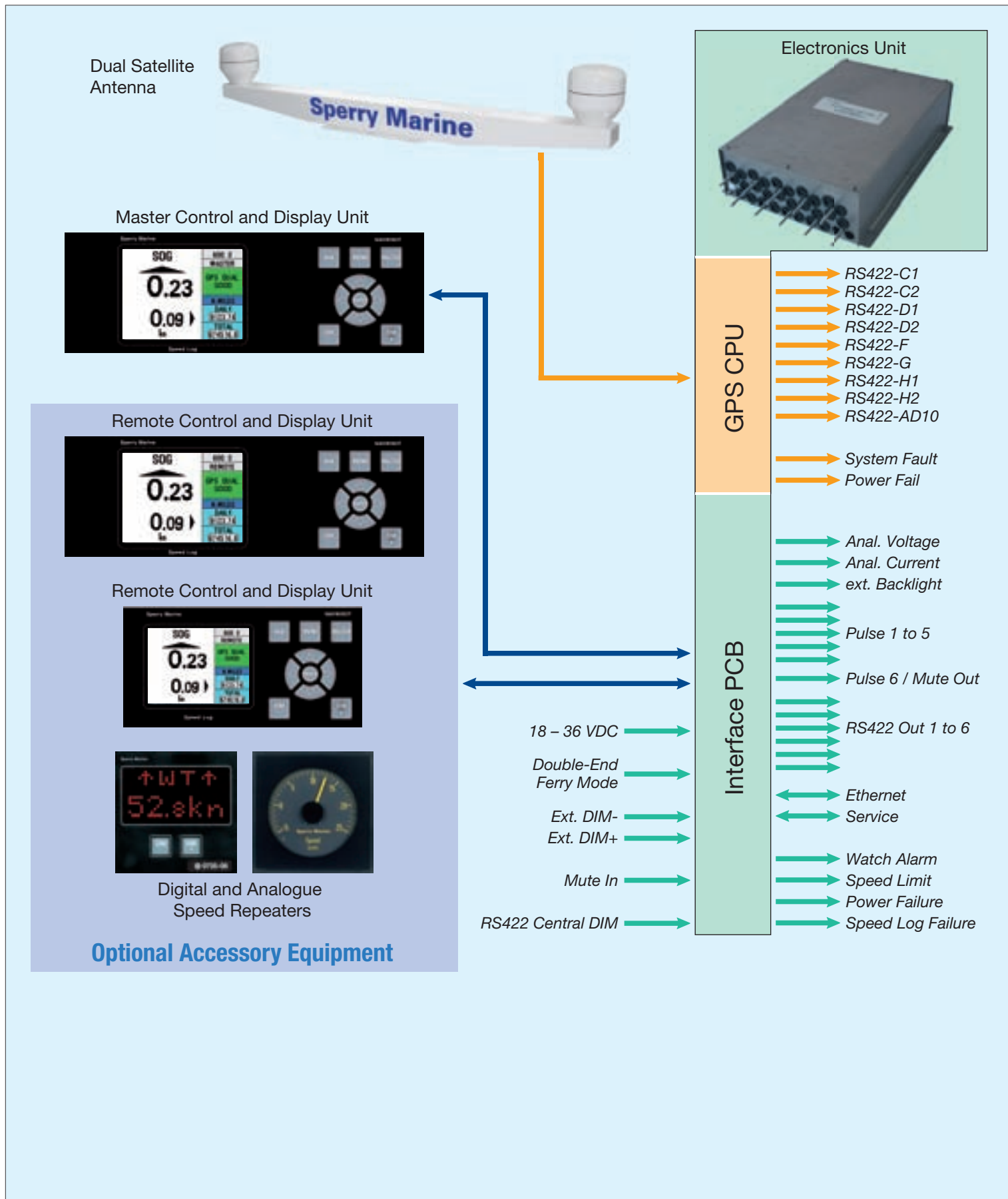


NAVIKNOT 450 D Basic System Configuration

Doppler Speed Log System – Single-Axis Water Speed

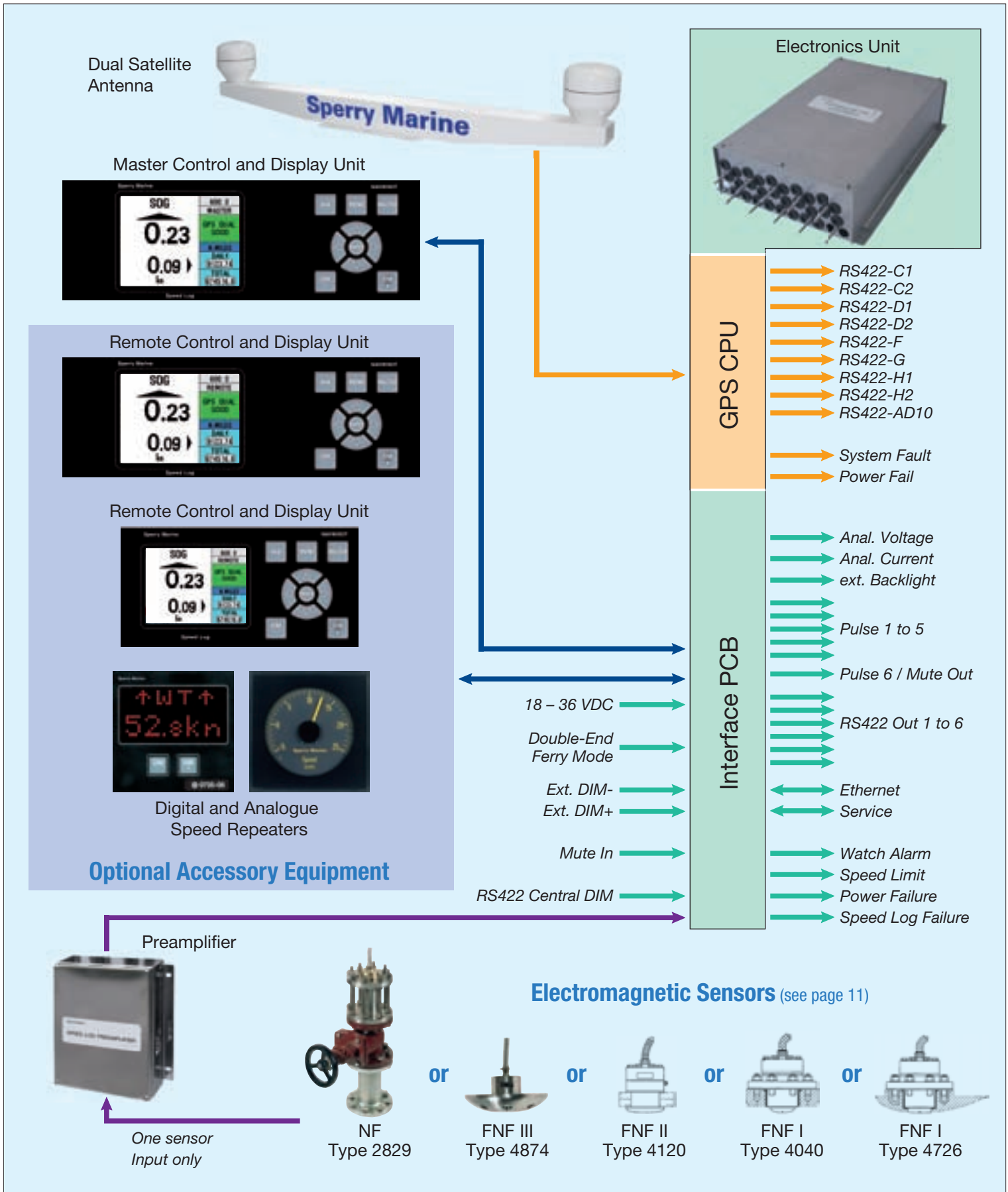


Satellite Speed Log System – Dual-Axis Ground Speed

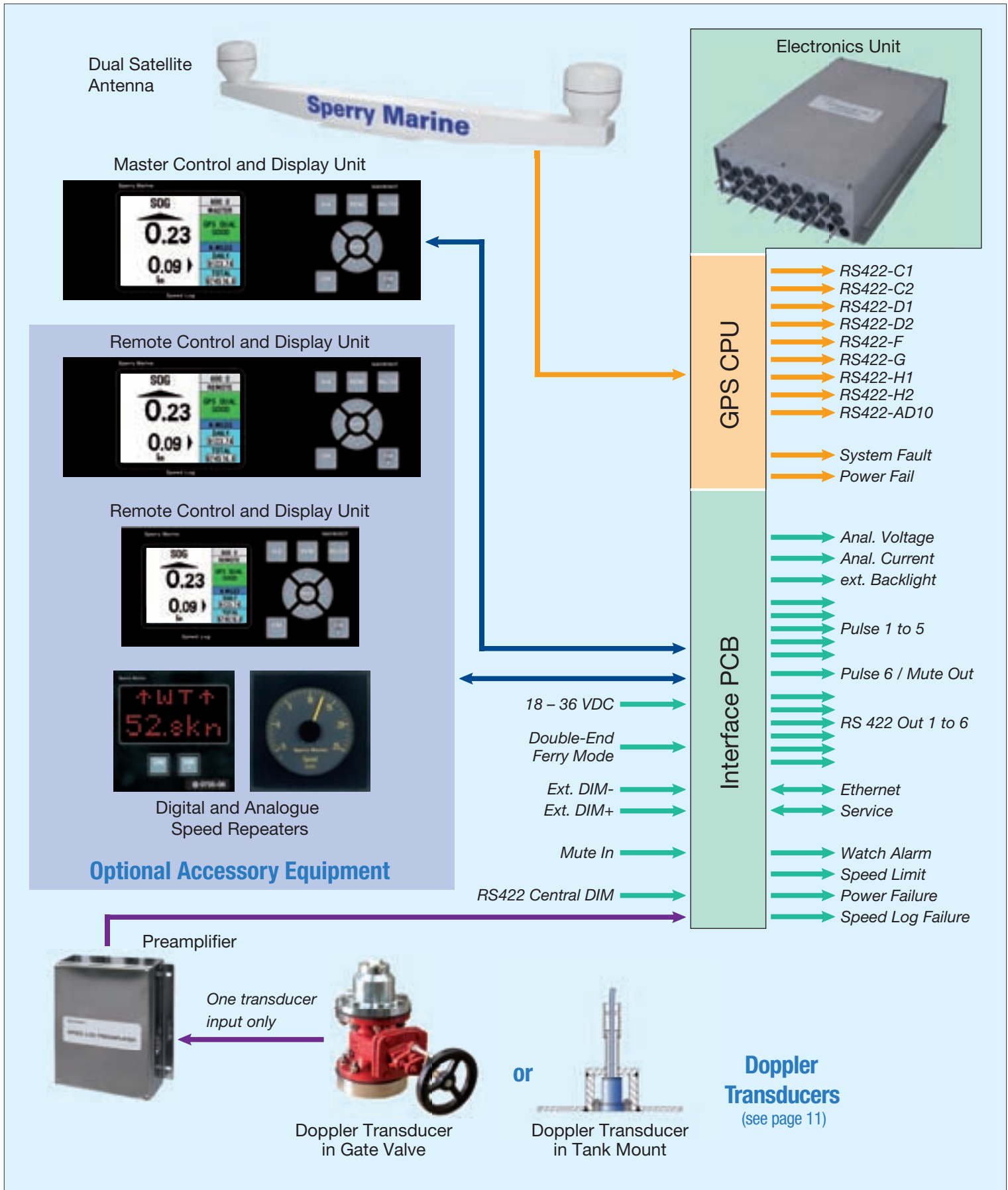


NAVIKNOT 600 SE Basic System Configuration

Satellite & Electromagnetic Speed Log System – Dual-Axis Ground Speed & Single-Axis Water Speed



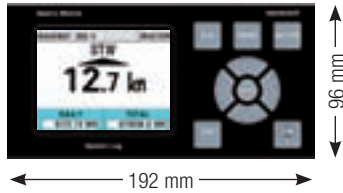
Satellite & Doppler Speed Log System – Dual-Axis Ground Speed & Single-Axis Water Speed



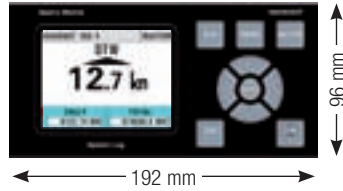
Control and Display Units (CDU)

NAVIKNOT 350 E and 450 D

Master Control and Display Unit



Remote Control and Display Unit (optional)



CDU Installation Variations



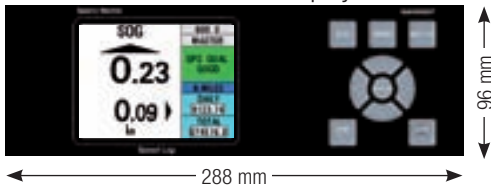
For installation in a console. Width 192, height 96, depth 44 mm. Installation depth 100 mm. Weight 0.6 kg. With 2.8 m cable. IP 65.



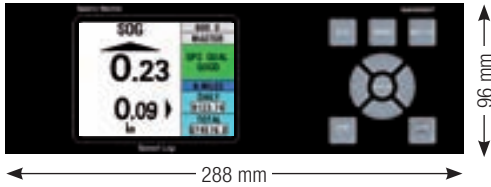
Installed in a console frame. Width 223, height 127, depth 44 mm. Installation depth 100 mm. Weight 1.1 kg. With 2.8 m cable. IP 23.

NAVIKNOT 600 S, 600 SE and 600 SD

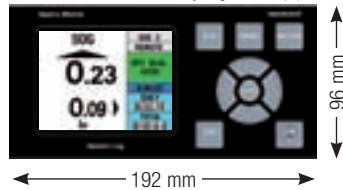
Master Control and Display Unit



Remote Control and Display Unit (optional)



Remote Control and Display Unit (optional)



In a housing with bracket attachment. Width 256, max. height 155, max. depth 116 mm. Weight 1.6 kg. With 2.8 m cable. IP 65.



For installation in a console. Width 192, height 96, depth 43 mm. Installation depth 120 mm. Weight 1.1 kg. With 3.5 m cable. IP 23.



Installed in a console frame. Width 319, height 127, depth 44 mm. Installation depth 100 mm. Weight 1.8 kg. With 3.5 m cable. IP 23.



In a housing with bracket attachment. Width 350, max. height 150, max. depth 130 mm. Weight 1.9 kg. With 3.5 m cable. IP 23.

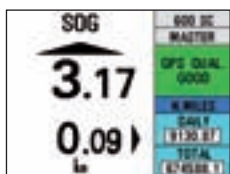
Selectable Display Colours

The display colours of all NAVIKNOT Control and Display Units are selectable by the operator.

white

blue

black (night)



Dual Satellite Antenna



Overall Dimensions

Height: 144 mm
Length: 776 mm
Width: 98 mm
Weight with 15 m cable: antenna 1.9 kg; cable 1.0 kg
Weight with 50 m cable: antenna 1.9 kg; cable 3.2 kg

Electronics Unit for NAVIKNOT 350 E & 450 D



Overall Dimensions

height: 100 mm
width: 340 mm
depth: 250 mm
weight: 4.0 kg

Ambient Temperature Range

operation: -15°C to +55°C
storage: -25°C to +70°C

Protection Grade: IP 23 to DIN EN 60529

Environmental Conditions / EMC: in accordance with IEC 60945

Magnetic Clearance

to standard magnetic compass: 0.5 m
to steering magnetic compass: 0.4 m
reduced, to standard magnetic compass: 0.3 m

Electronics Unit for NAVIKNOT 600 S, 600 SE & 600 SD



Overall Dimensions

height: 120 mm
width: 300 mm
depth: 500 mm
weight: 8.0 kg

Ambient Temperature Range

operation: -15°C to +55°C
storage: -25°C to +55°C

Protection Grade: IP 23 to DIN EN 60529

Environmental Conditions / EMC: in accordance with IEC 60945

Magnetic Clearance

to standard magnetic compass: 0.5 m
to steering magnetic compass: 0.4 m
reduced, to standard magnetic compass: 0.3 m

Preamplifier for NAVIKNOT 350 E & 600 SE



Overall Dimensions

height: 285 mm
width: 239 mm
depth: 83 mm
weight: 3.0 kg

Ambient Temperature Range

operation: -10°C to +70°C
storage: -25°C to +70°C

Protection Grade: IP 56 to DIN EN 60529

Environmental Conditions / EMC: in accordance with IEC 60945

Magnetic Clearance

to standard magnetic compass: 0.3 m
to steering magnetic compass: 0.3 m

Preamplifier for NAVIKNOT 450 D & 600 SD



Overall Dimensions

height: 285 mm
width: 239 mm
depth: 83 mm
weight: 3.0 kg

Ambient Temperature Range

operation: -10°C to +70°C
storage: -25°C to +70°C

Protection Grade: IP 56 to DIN EN 60529

Environmental Conditions / EMC: in accordance with IEC 60945

Magnetic Clearance

to standard magnetic compass: 0.3 m
to steering magnetic compass: 0.3 m

Digital and Analogue Speed Repeaters

Universal Digital Speed Repeater



Console Version

Overall Dimensions

front plate: 96 x 96 mm
depth: 140 mm
weight: 1.0 kg with cable



In a Watertight Housing
with a Mounting Bracket

Overall Dimensions

width: 158 mm
height: 155 mm
depth: 154 mm
weight: 2.2 kg with cable

Both versions:

Ambient Temperature Range

operation: -10°C to +70°C
storage: -25°C to +70°C

Protection Grade: IP 56 to DIN EN 60529

Environmental Conditions / EMC: in accordance with IEC 60945

Analogue Speed Repeaters



Console Version

96 x 96 mm

Speed Ranges

-5 kn to +25 kn
-5 kn to +40 kn
-5 kn to +60 kn
IP 56



Console Version

144 x 144 mm

Speed Ranges

-5 kn to +25 kn
-5 kn to +40 kn
IP 56



In a Watertight Housing with a Mounting Bracket

144 x 144 mm

Speed Ranges

-5 kn to +25 kn

Overall Dimensions

width: 158 mm
height: 155 mm
depth: 154 mm
weight: 2.2 kg with cable
IP 66



Console Version

192 x 192 mm

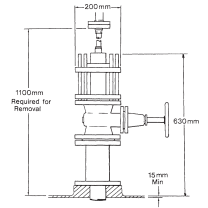
Speed Ranges

-5 kn to +25 kn
IP 56

NF Flush-Fitted Sensor with Sea Valve, Type 2829

Speed range	-20 kn to +30 kn
Weight of hull fittings	approx. 50 kg
Weight of sensor	approx. 20 kg
Space required above floor for replacement of sensor	1.1 m
Length of cable between sensor and preamplifier	30 m

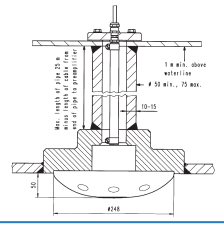
Sensor:	
resistance to pressure	> 4 bar (4000 hectopascal)
excitation voltage	24 V
excitation current	1 A
signal voltage	0.18 mV/knot



FNF III, Type 4874, for External Installation in Steel and Aluminium Hulls

Speed range	-20 kn to +35 kn
Weight of hull fittings and sensor	22 kg
Space required above floor for replacement of sensor	none
Length of cable between sensor and preamplifier	25 m

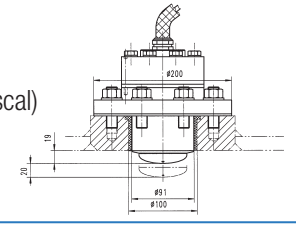
Sensor:	
resistance to pressure	> 4 bar (4000 hectopascal)
excitation voltage	24 V
excitation current	1 A
signal voltage	0.18 mV/knot



FNF I Yacht, Type 4040, 35 Knots for Steel and Aluminium Hulls

Speed range	-20 kn to +35 kn
Weight of hull fittings and sensor	approx. 17 kg
Space required above floor for replacement of sensor	min. 0,5 m
Length of cable between sensor and preamplifier	20 m

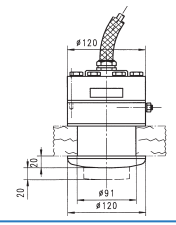
Sensor:	
resistance to pressure	> 2 bar (2000 hectopascal)
excitation voltage	24 V
excitation current	1 A
signal voltage	0.18 mV/knot



FNF II Yacht, Type 4120, 35 Knots for Wooden and Fiberglass Hulls

Speed range	-20 kn to +35 kn
Weight of hull fittings and sensor	approx. 15 kg
Space required above floor for replacement of sensor	min. 0,5 m
Length of cable between sensor and preamplifier	20 m

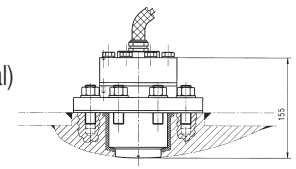
Sensor:	
resistance to pressure	> 2 bar (2000 hectopascal)
excitation voltage	24 V
excitation current	1 A
signal voltage	0.18 mV/knot



FNF I Yacht, Type 4726, 60 Knots for Steel and Aluminium Hulls

Speed range	-20 kn to +60 kn
Weight of hull fittings and sensor	approx. 17 kg
Space required above floor for replacement of sensor	min. 0,5 m
Length of cable between sensor and preamplifier	20 m

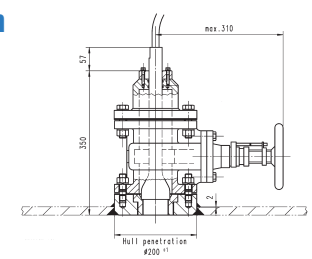
Sensor:	
resistance to pressure	> 2 bar (2000 hectopascal)
excitation voltage	24 V
excitation current	1 A
signal voltage	0.18 mV/knot



Doppler Transducer in Gate Valve, Type 4983, for Steel and Aluminium Hulls, Single Bottom

Speed range	-50 kn to +50 kn
Weight of gate valve with transducer	50 kg
Space required above floor for removable of transducer	770 mm
Length of cable to preamplifier	18 m or 36 m
Radiated power (electrical)	10 W max.
Ambient temperature, operation	-2°C to +40°C
Protection grade	IP 68 DIN EN 60529, submersible to 35 m

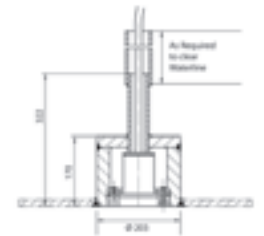
Signal mode	pulse
Frequency	2 MHz
Number of beams	2
Beam width	1.5°
Beam angle	1.5° from Vertical
Min. bottom clearance	1.8 m



Doppler Transducer in Tank Mount, Type 4978, for Steel Hulls, Single or Double Bottom

Speed range	-50 kn to +50 kn
Length of cable to preamplifier	18 m or 36 m
Radiated power (electrical)	10 W max.
Ambient temperature, operation	-2°C to +40°C
Protection grade	IP 68 DIN EN 60529, submersible to 35 m

Signal mode	pulse
Frequency	2 MHz
Number of beams	2
Beam width	1.5°
Beam angle	1.5° from Vertical
Min. bottom clearance	1.8 m



All Sensors can be replaced without drydocking. Vibration fulfills curve 1 of the specification of Germanischer Lloyd.

Sperry Marine

www.sperrymarine.northropgrumman.com
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Fax: +47-55-34-52-27

United Kingdom, New Malden

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Worldwide Service

Sperry Marine, founded in 1910, is the world leader in developing, manufacturing, supplying and supporting marine electronics equipment and systems. We have 34 facilities in 11 countries and a worldwide network of over 200 distributors. Sperry Marine has a service location in every major seaport. You are never far from a factory-trained service engineer.



Centralized Dispatching Centers

North & South America

24-Hour Service:
Phone: +1 504 371 8365
Fax: +1 504 371 8368

Spares & Repairs:

Phone: +1 504 328 9171
Fax: +1 504 328 9855

Europe & Middle East

Service (United Kingdom):
Phone: +44 (0) 208 329 2401/2
After Hours: +44 (0) 208 329 2400
Fax: +44 (0) 208 329 2458

Spares & Repairs (Netherlands):

Phone: +31 (0) 10 445 1666
Fax: +31 (0) 10 434 6102

Asia

24-Hour Service (Singapore):
Phone: (65) 274 3332
Fax: (65) 271 3339

Spares & Repairs (Singapore):

Phone: (65) 274 3332
Fax: (65) 271 3339

At Your Service Around The World

Service Highlights:

- Worldwide 24/7 service
- 24 hour Hotline
- Computerized Customer Support
- Operator Crew and Technical Training
- Service Management Agreements/Contracts
- Electronic Documentation
- Computer-Based Training
- ISO 9002 Certified Offices
- Consultation for Special Projects
- Shoreside Repair Centers
- Parts Exchange Service
- GMDSS Shore-Based Maintenance Agreements

Sperry Marine, with worldwide headquarters in Charlottesville, VA, and major engineering and support offices in Melville, NY, New Malden, England, and Hamburg, Germany, is part of the Northrop Grumman **Electronic Systems** sector.

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