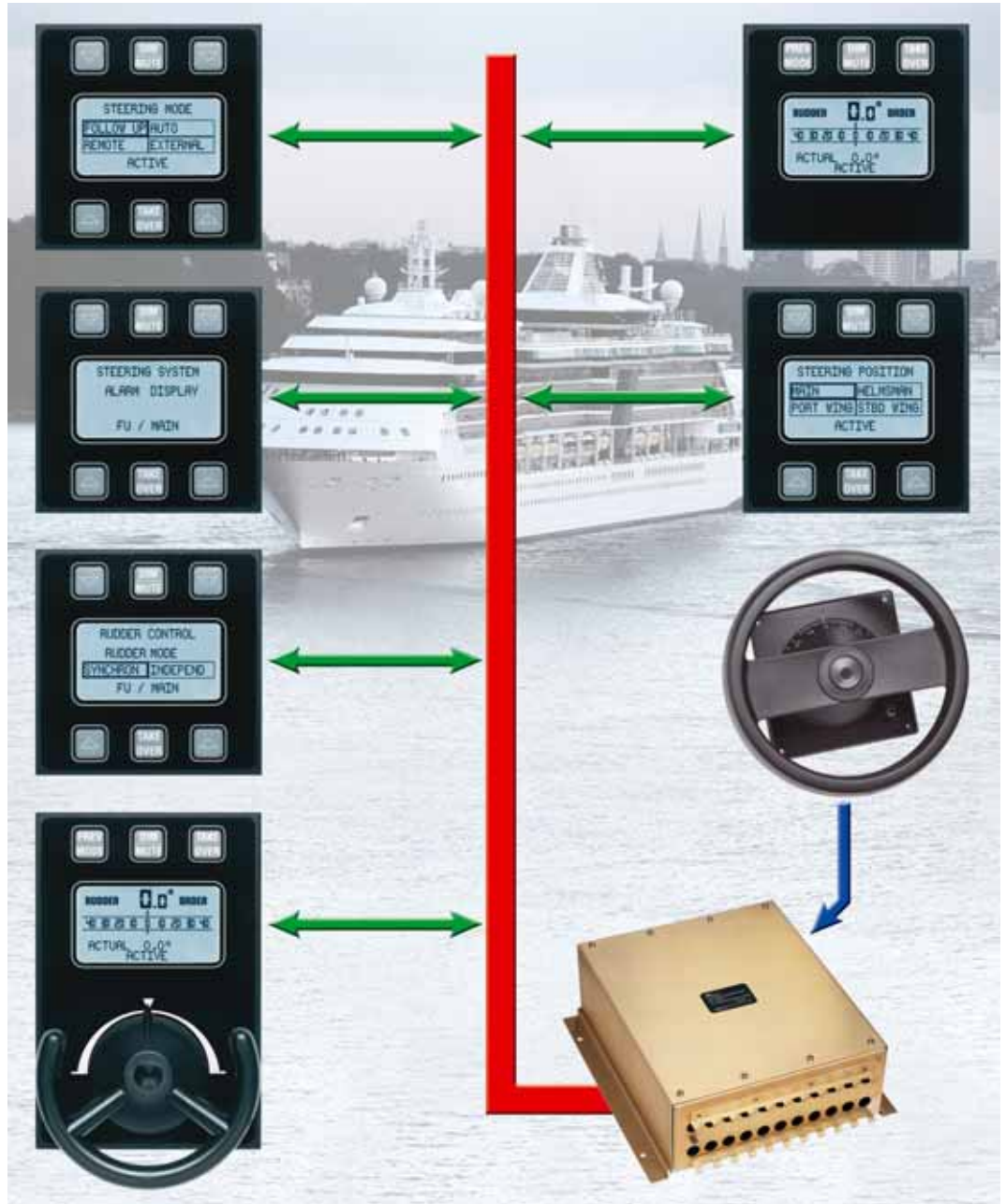


NAVIGUIDE 4000

Manual Steering System



NAVINET 4000 Steering Control Network

Sperry Marine



Steering Control Unit
Contains all I/Os and the interface to the steering gear
Dimensions H 151 W 392 D 425 mm
Weight 3 kg



Steering Mode Selector
Selects required steering mode
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



Steering Alarm Indicator
Displays steering system alarms
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



Steering Position Selector
Selects required steering stand
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



Rudder Angle Feedback Unit



Follow-Up Hand Wheel
250 mm diameter
Available in SyncroHelm Version
Installation depth 75 mm
Weight 3.5 kg



FU Mini-Wheel
For rudder angles of
 $\pm 45^\circ$ and $\pm 70^\circ$
Dimensions 96 x 96 mm
Installation depth 90 mm
Weight 0.5 kg



FU Device Interface/Display Unit
Displays actual rudder angle and rudder order from a follow-up wheel
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



SyncroHelm Wheel Control Unit
Controls the main SyncroHelm FU hand wheel
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



Dual Rudder Sync Selector
Selects independent or synchronous rudder control
Dimensions 96 x 96 mm
Installation depth 155 mm
Weight 1.1 kg with 3 m cable



Steering Mode Selector
Selects FU or NFU steering modes
Dimensions 96 x 192 mm, Installation depth 266 mm
Weight 1.6 kg with 3 m cable



Dual NFU Tiller
Double NFU with override and VDR output
Dimensions 96 x 96 mm
Installation depth 90mm
Weight 1.5 kg with 3 m cable

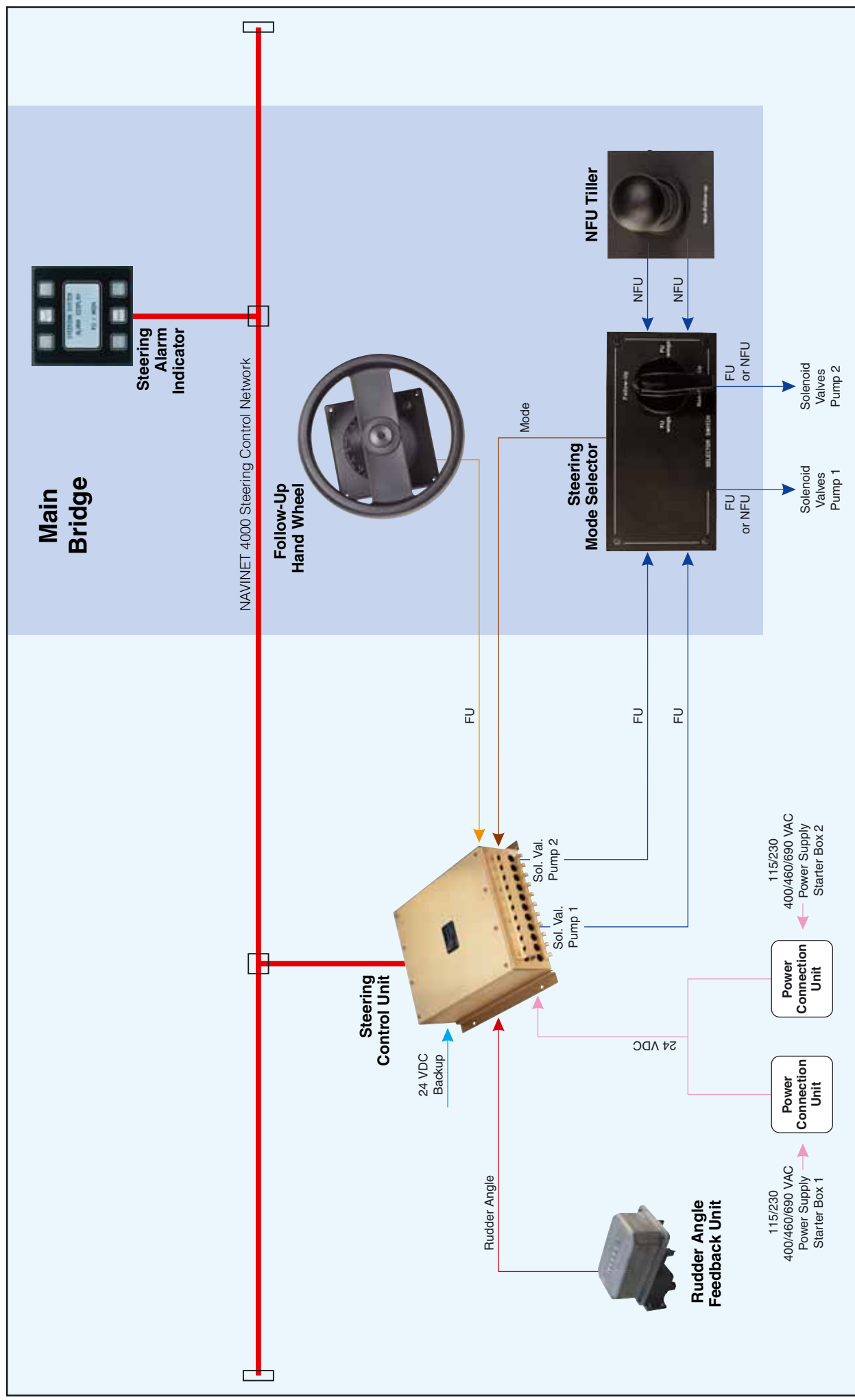


Steering Mode Selector/Dual NFU Tiller
Selects secondary steering or mainsteering (NFU) and contains the NFU Tiller. Only for use in combination with an autopilot. Dimensions 96 x 192 mm, installation depth 220 mm Weight 3 kg with six 3 m cables

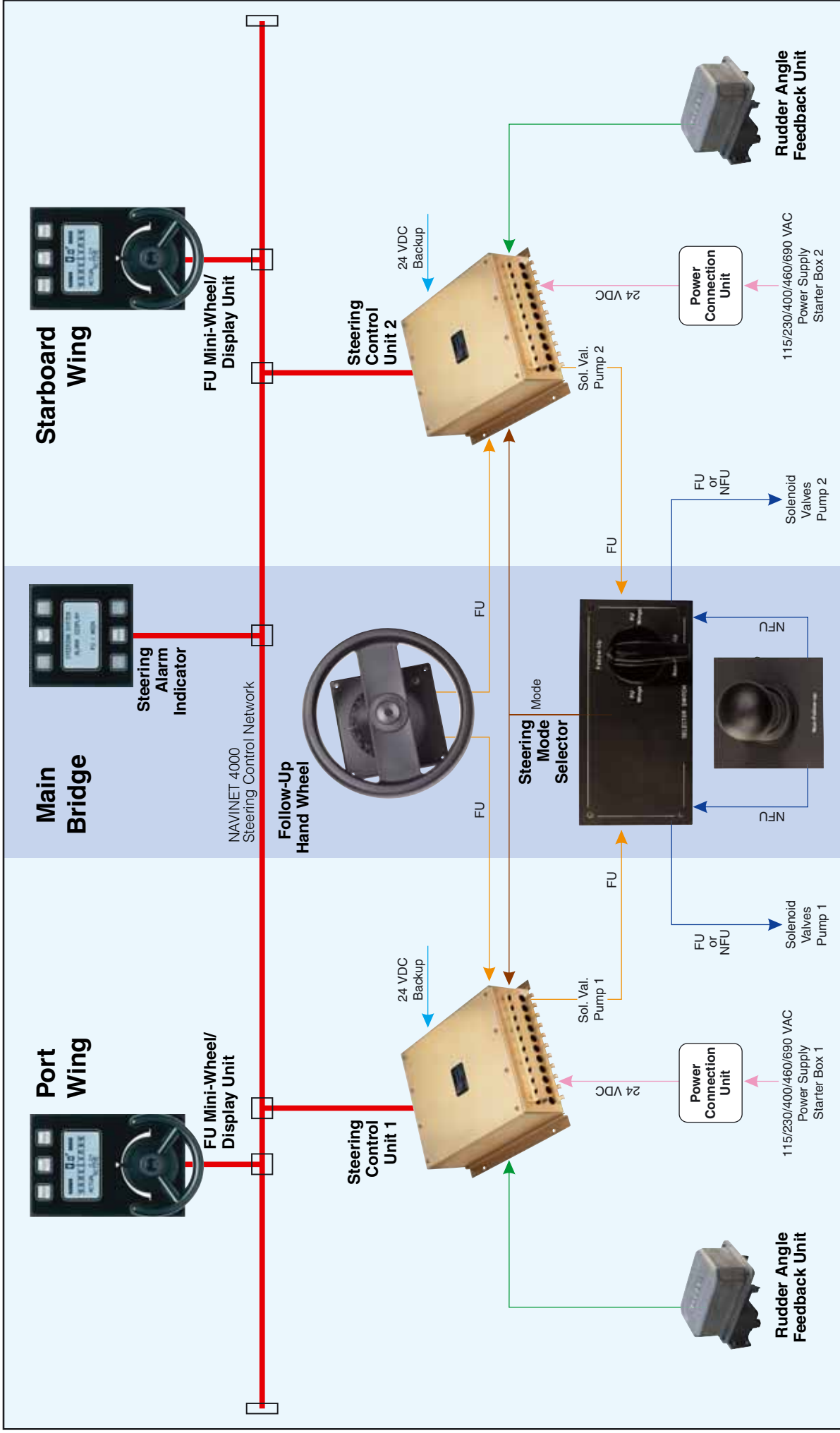


FU Mini-Wheel/Display Unit
Follow-up hand wheel with display of actual rudder angle and rudder order.
Available in SyncroHelm Version.
Dimensions 144 x 96 mm
Installation depth 155 mm
Weight 1.8 kg with 3 m cable

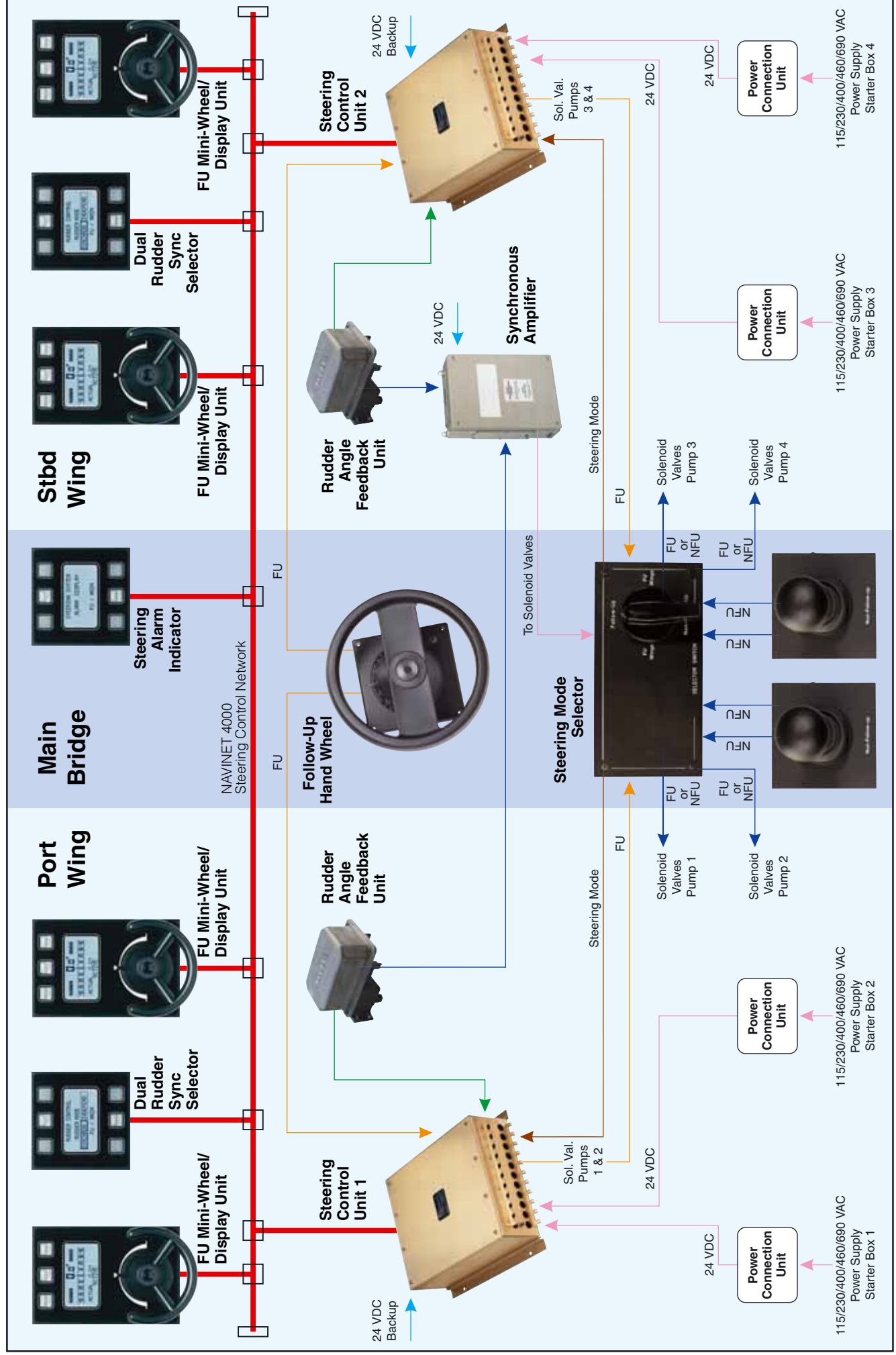
Minimum Configuration for Single FU and Double NFU for Single Rudders



Double FU and Double NFU for Single Rudders with additional FU Mini-Wheel at Wing Steering Positions

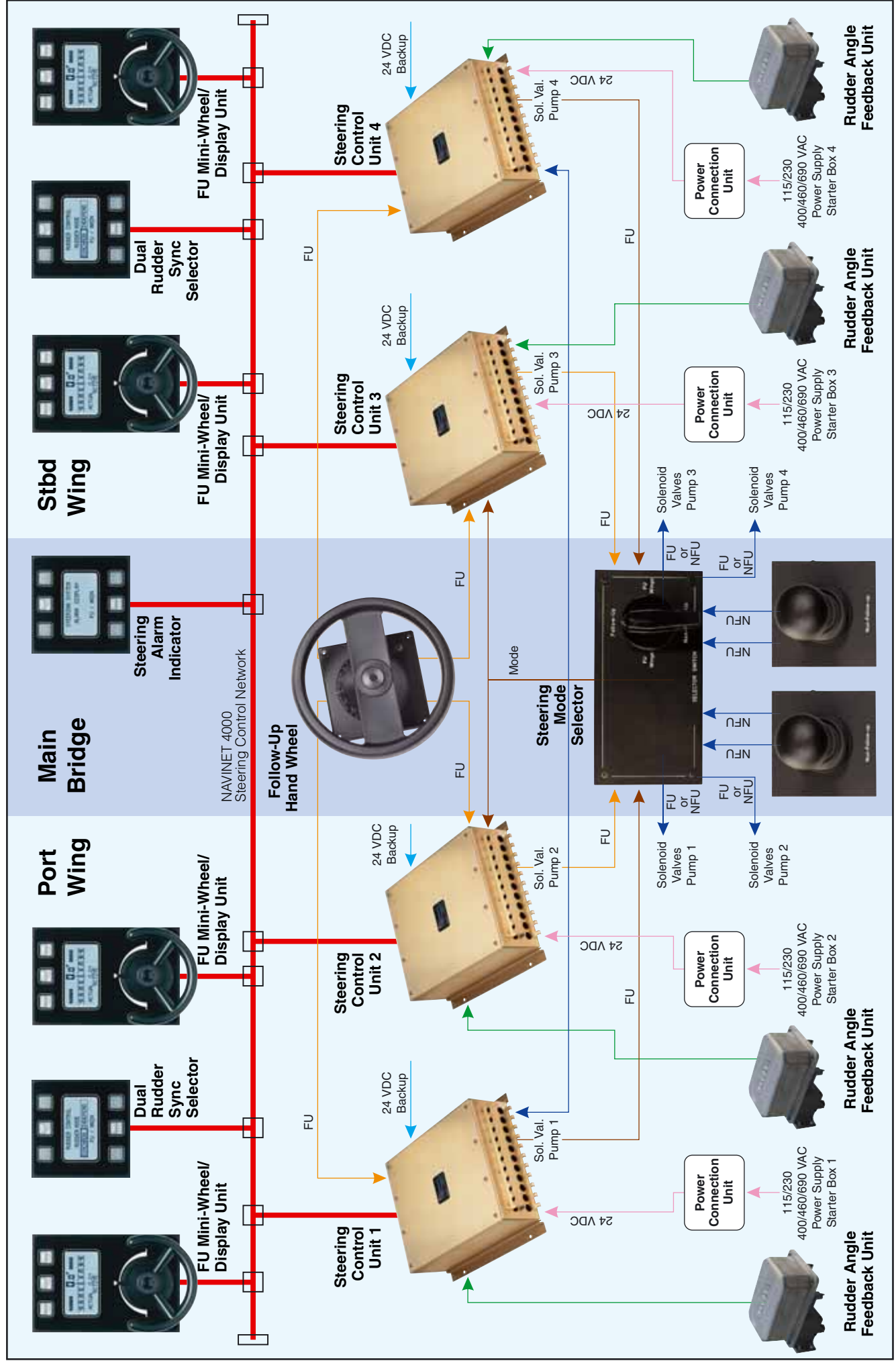


Expanded Configuration for Double FU and Double NFU for Dual Rudders



Expanded Configuration for Double FU and Double NFU* for each Rudder Blade in Dual Rudder Systems

(*Independent only)



Steering Control Unit

Environment

Ambient temperature range
 operation -15° C to +55° C
 storage -25° C to +70° C

Protection grade IP32 to DIN 40050

Magnetic clearance 0.4 m

Environmental testing in accordance with EN 60945 (IEC 945 +A1).

Dimensions
 H 151 mm
 W 392 mm
 D 425 mm

Weight 3 kg

Power requirements
 Maximum 24 VDC (18 V to 36 V)
 ripple content 4 V pp, extreme values should not exceed 36 V or fall below 18 V

Power consumption 10 W max.
 Reverse polarity protection built-in

Cable connection clamp-type terminals

Type Approval

The NAVGUIDE 4000 Manual Steering System has been type approved by Germanischer Lloyd to IEC/EN 60945

INPUTS

Rudder order signal (follow-up hand wheel)

± 10 V ± 70° max. rudder angle potentiometer resistance 2kΩ with center tap

Rudder angle feedback signal

± 10 V ± 70° max. rudder angle potentiometer resistance 2kΩ with or without center tap

External system

± 10 V ± 120° max. rudder angle

Speed input

200 p/nm or IEC 61162-1

Steering mode status

} potential-free contact required

Override status

Mute

or

AC solenoid valves
 Outputs

two for port
 two for starboard (solid-state relays)
 24 VAC to 230 VAC
 1.0 A max.
 optional

Voltage Rating

Additional outputs

or ("and" if required)

Proportional rudder order / error
 Outputs

two
 80 mV/° to 350 mV/° (isolated)
 or
 4 mA to 20 mA (isolated)
 optional

Additional outputs

OUTPUTS

DC solenoid valves
 Outputs

two for port
 two for starboard (solid-state relays)

Type Voltage Rating
 Additional outputs

plus or minus switching 12 VDC to 110 VDC
 2.0 A max.
 optional

Outputs and Interfaces

CAN to IEC 61162-3

for bus interface units and additional follow up amplifier

Central alarm

bidirectional IEC 61162-1

Voyage data Recorder (VDR)

IEC 61162-1

Status and alarm outputs

Ext. system status

Deadman's control

Mute

System alarm

Override alarm

Power failure alarm

Primary supply

Backup supply

} potential-free contact
 2 A max. current
 250 V max. voltage

Sperry Marine

www.sperrymarine.northropgrumman.com

For more information, please contact:

AMERICAS

Charlottesville, VA USA

Tel.: +1 434-974-2000

Fax: +1 434-974-2259

Melville, NY USA

Tel: +1 631-719-4736

Fax: +1 631-719-4630

ASIA

China, Shanghai

Tel: +86-21-5836-9978

Fax: +86-21-5836-9979

Hong Kong, Sheung Wan

Tel: +852-2581-9122

Fax: +852-2581-9967

Japan, Tokyo

Ph: +81 (0)-3-3863-7401

Fax: +81 (0)-3-3863-7455

Singapore

Tel: +65-6274-3332

Fax: +65-6271-3339

South Korea, Busan

Tel: +82-51-247-7455

Fax: +82-51-247-7454

Taiwan, Kaohsiung

Tel: +886-7-331-7786

Fax: +886-7-331-7924

CANADA

Nova Scotia, Halifax

Tel: +1 902-468-9479

Fax: +1 902-468-9480

EUROPE

Belgium, Antwerp

Tel: +32-3-233-14-33

Fax: +32-3-225-05-53

Denmark, Copenhagen

Tel: +45-77-33-66-33

Fax: +45-77-33-66-11

Germany, Hamburg

Tel: +49-40-299-00-0

Fax: +49-40-299-00-146

Holland, Vlaardingen

Tel: +31(0)-10-4451600

Fax: +31(0)-10-4345015

Norway, Bergen

Tel: +47-55-94-94-94

Fax: +47-55-34-52-27

United Kingdom, New Malden

Tel: +44(0)-20 8329-2000

Fax: +44(0)-20 8329-2415

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