

NAVITWIN IV
Heading Management System



Total Command Information at a Glance

Sperry Marine

DESIGN AND STANDARD FEATURES

NAVITWIN IV is Sperry Marine's central, all-embracing multiple heading reference management system. It displays and monitors a minimum of 1 and a maximum of 4 heading sources (3 gyro-compass headings and 1 magnetic heading) from the following Sperry Marine range of heading sensors:

- NAVIGAT 2100 Fiber-Optic Gyrocompass and Attitude Reference System
- NAVIGAT X MK 1 Digital Gyrocompass
- NAVIGAT X MK 2 Digital Gyrocompass*
- Jupiter magnetic compass (with fluxgate)

*Only in combination with one magnetic compass heading source. Dual and triple gyro-compass combinations are not configurable with NAVIGAT X MK 2.

Main Features

- Monitors and controls all heading sources of a multicompass heading reference system.
- Shows the current heading from all available heading sources on a colour TFT LCD (thin film transistor liquid crystal display) and allows the operator to select from these an active heading source for distribution to subscribers such as repeaters, autopilots, radars, ECDIS, etc.
- Monitors the difference between any two of the displayed headings. If the difference between the two headings exceeds a user-defined preset threshold, an audible and visual "Heading Difference Alarm" is actuated.
- Monitors the difference between the heading from the active heading source and the set heading (course to steer) on the autopilot. If the difference between the two headings exceeds a user-defined preset threshold, an audible and visual "Off Heading Alarm" is actuated.
- Accepts an automatic set heading input from an autopilot or a manual input.
- Reads the sine and cosine analogue signals from a Sperry Marine magnetic compass fluxgate and converts these into magnetic heading data in NMEA format.
- Provides automatic correction for magnetic variation and deviation.
- Automatic and controlled incremental takeover of the heading from an alternative source when the active heading source fails (DNV GAS).
- Alarm output relay actuated when the automatic takeover of the heading from an alternative source is initiated (see previous).
- Serial dimmer input for a remote central dimmer control.
- Provides an independent back-up magnetic heading source (TMC) for autopilots, repeaters, radar, etc.
- True heading and status protocol (THS).
- Selectable display colours. The display colours of the NAVITWIN IV control and display unit are selectable by the operator.

Displays

The following data can be displayed on the TFT LCD

- Gyro 1 heading
- Gyro 2 heading
- Gyro 3 heading
- Magnetic compass heading

- Speed, manual or auto (when provided)
- Position in lat. and lon. (when provided)
- Date and time, manual or auto (when provided)
- Alarms
- Heading difference alarm threshold
- Off heading alarm threshold
- North speed error correction

Data Inputs

3 gyrocompass headings: NMEA 0183 or PLATH protocol
1 magnetic heading, analogue: sine/cosine from fluxgate
1 magnetic heading, serial: NMEA 0183, PLATH protocol or NAVIPILOT protocol
Autopilot set heading: NMEA 0183 or NAVIPILOT protocol
Speed, position, time and date, magnetic variation from GPS: NMEA 0183

Signal and Status Inputs

Magnetic compass heading from fluxgate (sine, cosine)
Steering mode status (auto/man)
External alarm acknowledgement status (mute)
Heading offset 180°
External dim

Data Outputs

See *Outputs* in system configuration overviews.

Alarm and Status Outputs

Power failure / general alarm
Heading difference alarm
Off heading alarm
Watch alarm timer reset

} through potential-free relay contacts rated 30 W max. or 125 V, 1 A

Type Approval

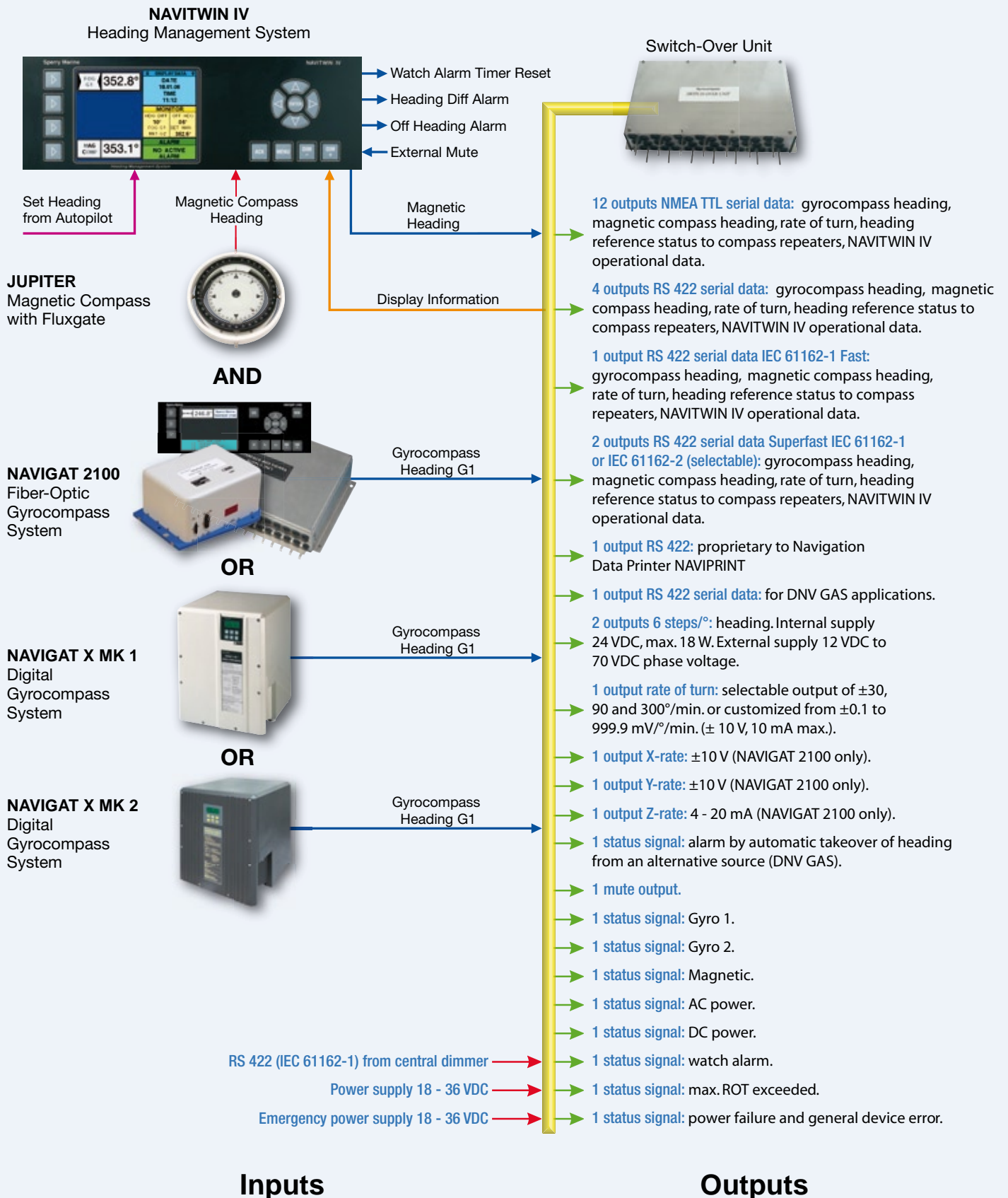
NAVITWIN IV has been type approved by Germanischer Lloyd to the Marine Equipment Directive (MED) 96/98/EC (Wheelmark) and fulfills IMO Resolution A.694 (17) as well as IEC 60945, IEC 61162 and NMEA-0183.



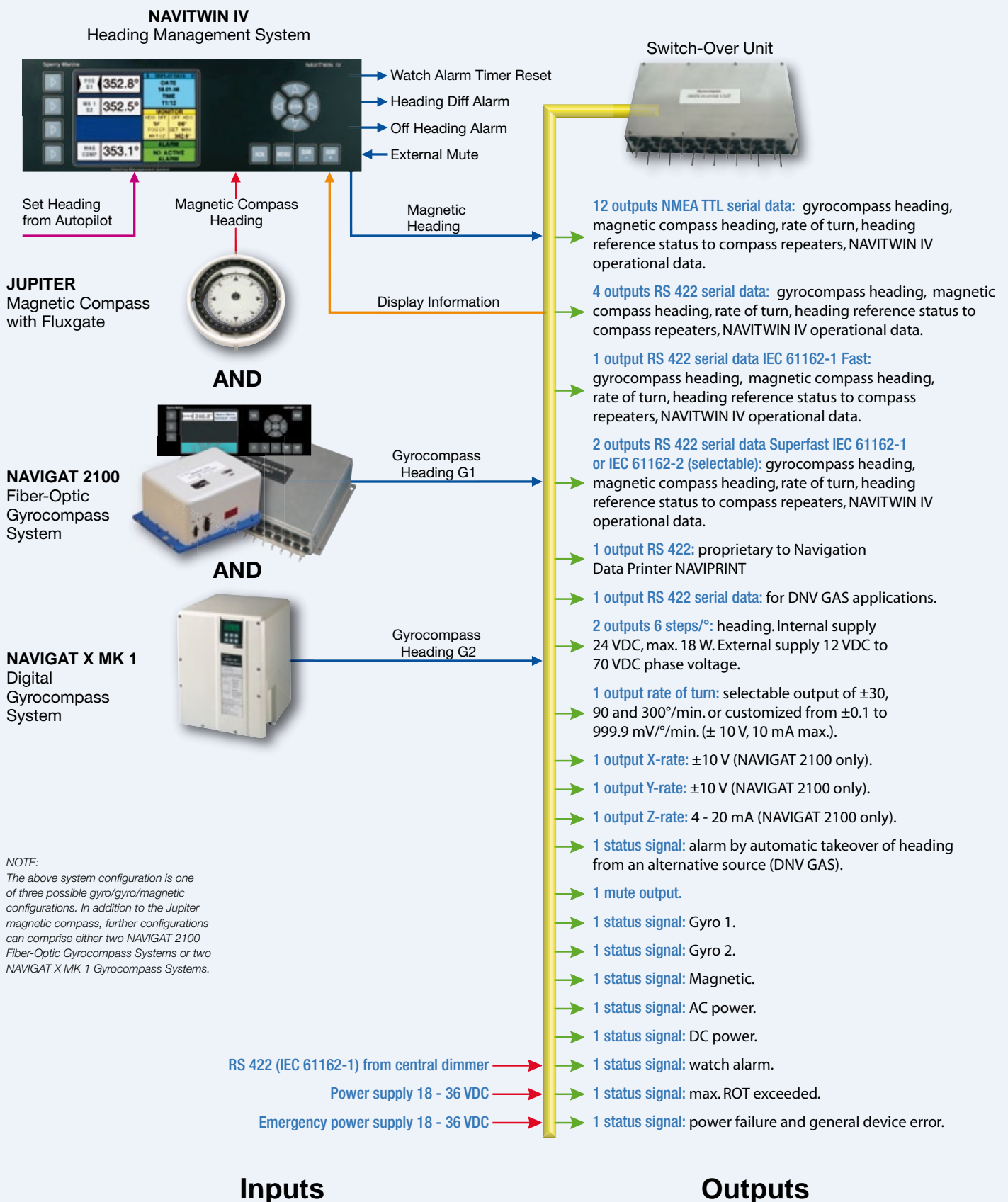
CMA CGM's 9,145 TEU *MEDEA* is equipped with a Sperry Marine Navigation and Ship Control System. Photo by kind permission of CMA CGM.

SYSTEM CONFIGURATIONS

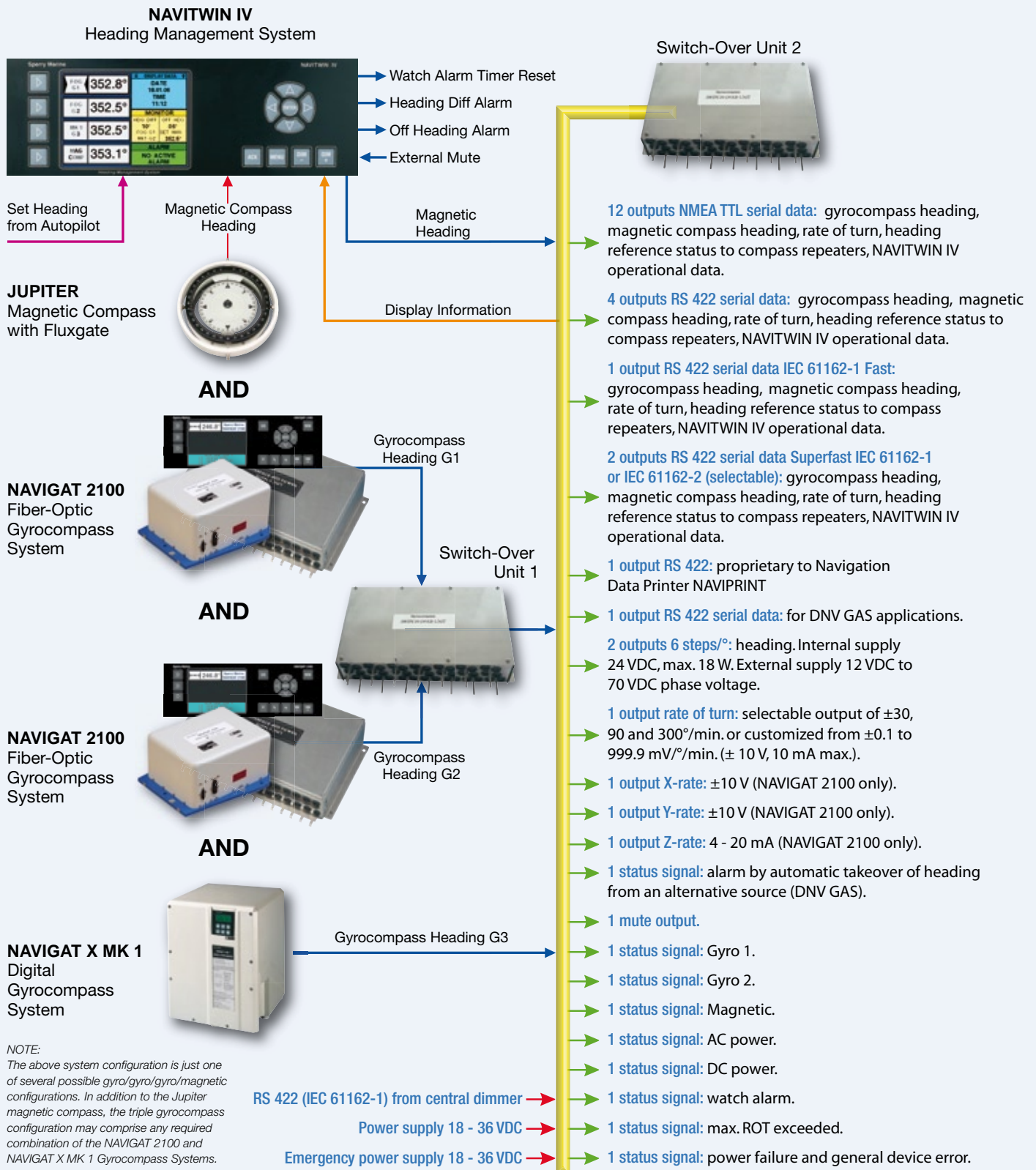
Basic System Configuration with two Heading Sources (Gyro/Magnetic)



Basic System Configuration with three Heading Sources (Gyro/Gyro/Magnetic)



Maximum System Configuration with four Heading Sources (Gyro/Gyro/Gyro/Magnetic)



NOTE:
The above system configuration is just one of several possible gyro/gyro/gyro/magnetic configurations. In addition to the Jupiter magnetic compass, the triple gyrocompass configuration may comprise any required combination of the NAVIGAT 2100 and NAVIGAT X MK 1 Gyrocompass Systems.

Inputs

Outputs

Sperry Marine

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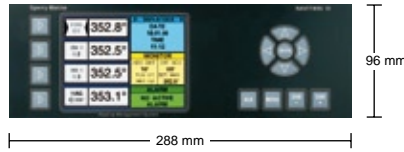
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Console Version

without a Console Frame



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

Weight approx. 1.7 kg with cable
Required depth approx. 150 mm

Protection grade installed IP23 to DIN 40050.
Supplied with an installation kit and a 3.2 m cable for connection to a terminal board.

Bulkhead / Desktop Version

with Bracket Attachment



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

Weight approx. 3.2 kg with cable

Protection grade installed IP23 to DIN 40050.
Supplied with a 3.2 m cable for connection to a terminal board.

Console Version

in a Console Frame

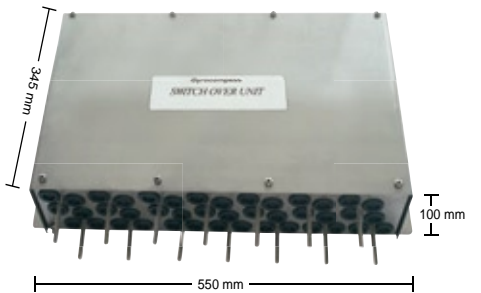


Ambient temperature range:
- operation -15°C to +55°C
- storage -25°C to +70°C

Weight approx. 2.4 kg with cable
Required depth approx. 150 mm

Protection grade installed IP23 to DIN 40050.
Supplied with an installation kit and a 3.2 m cable for connection to a terminal board.

Switch-Over Unit



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

Weight approx. 4.5 kg with cable

Protection grade installed IP23 to DIN 40050.
Magnetic Clearance 0.3 m.

Environmental Requirements and EMC

in accordance with EN 60945 (IEC 945 +A1)

| | | |
|---------------------------------------|---------------------------|----------------|
| Magnetic clearance to: | standard magnetic compass | 0.7 m |
| | steering magnetic compass | 0.4 m |
| Reduced magnetic clearance to: | standard magnetic compass | 0.45 m |
| | steering magnetic compass | 0.30 m |
| Ambient temperature range: | operation | -15°C to +55°C |
| | storage | -25°C to +70°C |

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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