A Simrad Company

universal interface box installation

IS-2509-02

CE Certification:

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit. Consult an authorised dealer or other qualified technician for additional help if these remedies do not correct the problem.

This device meets requirements for CFR47 Part 15 of the FCC limits for Class B equipment.

The h1000 meets the standards set out in European Standard EN 60945: 1997 IEC 945: 1996 for maritime navigation and radiocommunication equipment and systems.
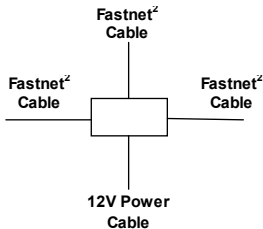
trademark

technical specifications

Dimensions:	70mm x 135mm x 35mm
Power Supply:	12V dc nominal (10V to 16V) via Fastnet[2]
Current Consumption:	50mA typical
Operating Temperature range:	0°C to +55°C
Storage Temperature range:	-25°C to +70°C
Humidity:	Up to 95% RH

system connections

Fastnet² Cable

Fastnet² Cable

Fastnet² Cable

12V Power Cable

connections

System components share data together via a common Fastnet² databus and are supplied with bayonet connectors for ease of installation. A selection of cable lengths are available with options for straight and right angle connectors to suit most requirements.

To prevent the occurrence of voltage drops on larger systems, the power supply to the system should either be placed mid-way or at both ends of the Fastnet² databus. To connect power to the mid-point of the system, it is recommended that the 4-Way Hub be used. The 4-Way Hub offers two advantages. The first advantage is that it offers a convenient entry point for power onto the system. The second advantage is that it conveniently allows the system to be branched to reduce the overall length of the system. The correct selection of Fastnet² cable will negate the need for any plugs to be removed from the system and ensure years of faultless operation.

NMEA interface

The National Marine Electronics Association (NMEA) is an organisation that has defined a number of standard specifications for the interconnection of marine electronic instruments. These standards specify the electrical signals and the format of the data that is transferred. This allows equipment such as the h1000 to communicate with other manufacturers' equipment.

The Universal Interface is an NMEA interface specifically designed to allow the h1000 system to "talk" with other manufacturers' equipment. The most likely devices that will be connected to the Universal Interface are position fixers such as GPS's and Chart Plotters. The connection of navigational data to the h1000 Instrument allows this data to be displayed on the system and creates new calculated functions such as tide rate and direction.

The Universal Interface has one NMEA Input Port (receive) and one NMEA Output Port (transmit) and is designed to comply with the latest NMEA 0183 standards. The Universal Interface also contains the connections for an external alarm output. The individual NMEA sentences may be 'Enabled'* or 'Disabled'* as required from the 'Remote unit setup' options in the 'System' menu of any h1000 Digital display connected to the system.

*Minimum software required: h1000-DSP – r2.05
                                 h1000-UNI – r2.04

supported NMEA sentences (v2.40)

NMEA input (received) summary

NMEA Sentence	Message Description
APB	Heading/Track Controller (Autopilot) Sentence "B"
DBT	Depth Below Transducer
DPT	Transducer Depth and Offset
GGA	Global Positioning System Fix Data
GLL	Geographic Position, Latitude and Longitude
GSA	GNSS DOP and Active Satellites
GSV	GNSS Satellites in View
HDG	Heading Magnetic, Deviation and Variation
MWD	Wind Direction and Speed (TWD °M / °T and TWS)
MWV	Wind Speed and Angle (AWS and AWA, flag set to R)
RMB	Recommended minimum navigation information
RMC	Recommended minimum specific GNSS data
VHW	Water Speed and Heading (°M / °T)
VTG	Course Over Ground and Speed Over Ground
ZDA	Time and Date
ZTG	UTC and Time to Destination Waypoint

supported NMEA sentences (v2.40), continued

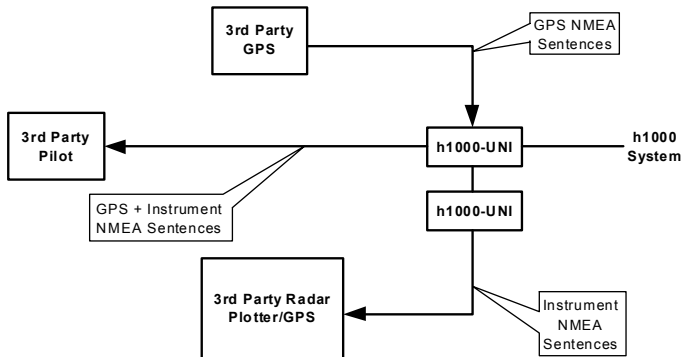**B&G proprietary NMEA input (received) summary**

NMEA Sentence	Message Description
PBGTTBS	Polar speed (knots)
PBGTLAY	Distance and Time to Lay-Line
PBGTVMG	Angle for best VMG upwind (polar)
	Upwind heading for best VMG (polar)
	Downwind heading for best VMG (polar)

NMEA output (transmitted) summary

NMEA Sentence	Message Description
DPT	Transducer Depth and Offset
GGA	Global Positioning System Fix Data
GLL	Geographic Position, Latitude and Longitude
HDG	Heading Magnetic, Deviation and Variation
HDM	Heading, Magnetic
HDT	Heading, True
MTW	Water Temperature, °C
MWD	Wind Direction and Speed (TWD °M / °T and TWS)
MWV	Wind Speed and Angle (AWS and AWA, flag set to R)
RMB	Recommended minimum navigation information
RMC	Recommended minimum specific GNSS data
VHW	Water Speed and Heading (°M / °T)
VLW	Distance Travelled through the Water
VTG	Course Over Ground and Speed Over Ground

selectable NMEA

The Selectable NMEA feature allows control over which sentences are received and transmitted by the h1000 Universal Interface. This gives flexibility when interfacing to other manufacturers' products such as radars and chart-plotters. Selectable NMEA allows you to filter out unwanted NMEA messages and prevents duplicated data on the system.

```
                  ┌──────────────┐                    ┌──────────────────┐
                  │  3rd Party   │                    │ GPS NMEA         │
                  │     GPS      │                    │ Sentences        │
                  └──────────────┘                    └──────────────────┘

┌──────────────┐                        ┌──────────────┐
│  3rd Party   │ ◄──────                │  h1000-UNI   │ ──── h1000 System
│    Pilot     │                        └──────────────┘
└──────────────┘                               │
  ┌──────────────────────┐             ┌──────────────┐
  │ GPS + Instrument     │             │  h1000-UNI   │
  │ NMEA Sentences       │             └──────────────┘
  └──────────────────────┘                    │
        ┌──────────────────┐              ┌──────────────────┐
        │  3rd Party Radar │ ◄────        │ Instrument       │
        │  Plotter/GPS     │              │ NMEA Sentences   │
        └──────────────────┘              └──────────────────┘
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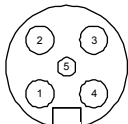
Configuring Selectable NMEA
Identify the Universal Interface Box you wish to configure, this is identified by the first three digits of the serial number found on the printed label located inside the lid of the interface box. Select the chosen box from the list displayed, select either **NMEA In** or **NMEA Out**. The options available are detailed as follows:

Selecting NMEA Input sentences – '**Current Input**' - Press **ENTER** to select, press **ENTER** again and scroll through the listed sentences, press **ENTER** to view the options. Press **ENTER** and scroll to either **On** or **Off**, press **ENTER** to make your selection. Scroll to **OK** to return to the listed sentences. Repeat the operation until you have made all your selections.

Selecting NMEA Output sentences – '**Current Output**' - Follow the same procedure as detailed above.

Renaming the interface box – '**Name**' - Press **ENTER** to re-name the interface box (if required), use the **UP/DOWN** arrow keys to select the number or letter required (maximum 10 characters), once you have completed your name change scroll to, and highlight OK, press ENTER to return to the Remote units screen.
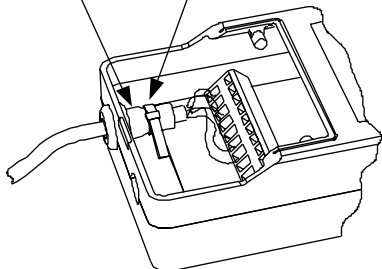
electrical connections

external connections

Two Fastnet² connectors are provided on the top of the unit. These connectors allow connection to the rest of the system for the supply of power and data.

The table below shows pin functions.

Front view of male connector pins

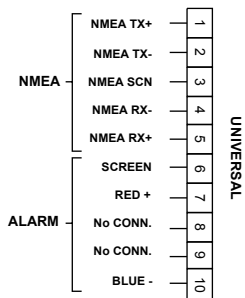| Pin Number	Signal
1	12V
2	Busy
3	Fastnet²-
4	Fastnet²+
5	0V

GROMMET

CABLE TIE

Push the cable(s) through the grommet so that the outer insulation shows beyond the grommet and secure using a cable tie as shown in the diagram opposite

electrical connections

	NMEA TX+	1
	NMEA TX-	2
NMEA	NMEA SCN	3
	NMEA RX-	4
	NMEA RX+	5
	SCREEN	6
	RED +	7
ALARM	No CONN.	8
	No CONN.	9
	BLUE -	10

UNIVERSAL

internal connections

Wire the cables into the interface box as shown in the diagram opposite.
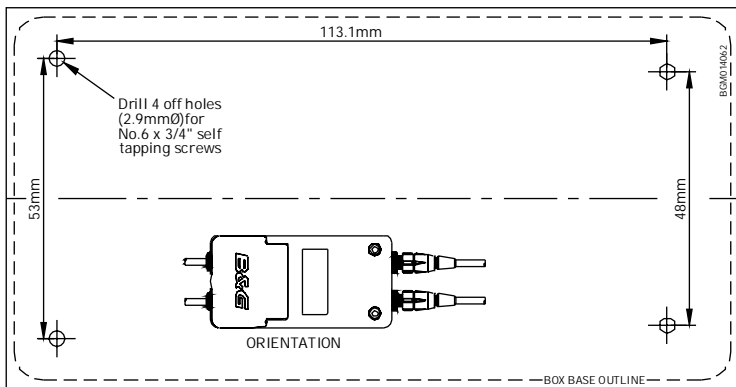
method

To open the connector, carefully push a small flat headed terminal screwdriver into the slot directly above the relevant terminal number.

Push the bare end of the wire into the terminal connector and withdraw the screwdriver.

Note: The maximum sink current for any alarm connected to this interface box is 18mA.

installation

113.1mm

Drill 4 off holes
(2.9mmØ)for
No.6 x 3/4" self
tapping screws

53mm

48mm

BGM01406.2

ORIENTATION

BOX BASE OUTLINE

WARNING: THIS DRAWING IS NOT TO SCALE

Use the Installation instructions and the template provided with the unit packaging to install the Interface Box.