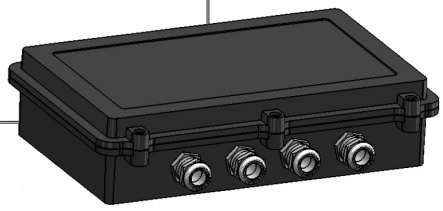
SATLOG SL1200

Speed and distance over ground (SOG)
Installation Manual

SL-SN300

SL1200-SB



JB40POW-SA

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SL1200	*SATLOG (SOG) SPEED LOG SYSTEM*

INSTALLATION MANUAL

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INTRODUCTION AND SPECIFICATION

The SKIPPER SL1200 is a Satellite based Speed log from SKIPPER Electronics. It is made to fulfill the basic ISO/IMO standards, as well as the modern IEC standards for maritime equipment and alarm handling.

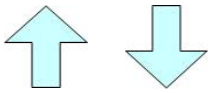
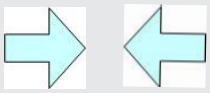
Features include:

- Easy and logical operation via a touch display
- Flexible installation with minimal wiring
- Basic but comprehensive communication and features

The system uses a Dual satellite antennae capable of receiving both GPS and GLONAS.
From these signals it can calculate speed over ground, the heading and, by using an internal sensor, rate of turn.

SYMBOLS

In addition, the following symbols are used

	Indicating that the information presented is partly from the GPS input, and therefore not from this sensor. (Outputs may show invalid data in this mode)
	Symbolising that the data presented is longitudinal (forward or backwards)
	Symbolising the data is transversal (port or starboard)
	Symbolising the resultant speed direction

	Simulator mode - The system is using a simulator to generate the speed and depth

Terminology

Terms used in this manual

Units

Unless otherwise stated, all values shown on the display are as follows:

Speed	Knots
Distance (Vessel)	Nautical miles
Depth	Meters
Tilt	° Degrees
Temperature	° Centigrade
Rotation	Degrees per minute
Heading	Degrees

Abbreviations

In addition, the following symbols are used

WT	Water track
BT	Bottom track
STW	Speed through water
SOG	Speed over ground
Trip	Text for trip/total
ECDIS	Electronic Chart Display and Information System
INS	Inertial Navigation System
VDR	Voyage Data Recorder
ROT	Rotation from Gyro
GYRO	Gyroscopic heading / rotation sensor
HDG	Heading
DL2	2 Axis Doppler Log (with speed over bottom and Speed through water)
DL1	1 Axis speed through water sensor (part of DL21 system)
DL21	A system with combined DL1 and DL2 in the same housings
UDP	User Datagram Protocol.
SFI	System function Id
LAN	Local Area Network

TABLE OF ABBREVIATIONS

abbreviation	Explaination
THD	Transmitting heading device
GNSS	
GPS	Global Positioning System
GLONASS	Positioning system
SOG	Speed over ground
ROT	Rate of turn
HDG	Heading
SOGL	Longitudinal (alongships) Speed over ground
SOGT	Transversal (Athwartships) Speed over ground
CCRP	Consistent Common Reference Point
Kn	Knots
m/s	Speed in meters / second
mi/h	Miles per hour
m	Meters
Min	Minutes
V	Volts
DC	Direct Current (for voltage)
CAM	Central alarm management
INS	Integrated navigation system
LAN	Local area network
SFI	System function identifier, from standard IEC61192-450
UDP	Data sent on the LAN ports
MAC	Unique system identifier for LAN system
IP	Internet protocol address, unique in the network

SPECIFICATION:

IP	Value
Antenna	GPS, GLONASS position GNSS speed Transmitting Heading Device (THD) Dimension H: 100mm, W: 180mm, L: 780mm Weight 3kg excluding bracket Opereational Temperature -25 to 55 deg C Storage Temperature -30 to 70 deg C IP Grade IP66 The antenna will interface with peripheral systems and sensors using standard and/or proprietary datagram formats. GNSS type NV08C-CSM GPS L1 : 1575.42 MHz GLONASS L1: 1602.0MHz for Fk=0 where k= (-7 to +13) channel spacing 562.5kHz Compass safe distance 0.3m
Electrical parameters CU-M001-SB Control Unit JB40POW-SA Power unit SATLOG Antenna	 Nominal 24VDC (Max 4W) 12VDC to 36VDC Compass safe distance: 1.2m 110V-230VAC or 24VDC (21-36V) Compass safe distance: 0.5m** 12-24VDC <5W Compass safe distance: 0.3m
Connections CU-M001-SB Control unit JB40POW Power unit	 WAGO spring connector (12 pins)/ RJ45 Screw terminals for wires up to 2.5mm
Outputs from control unit	1 x NMEA (IEC61162-1) VBW, VTG, VLW, GGA, GLL, GSA, GSV.
Inputs to control unit	2 NMEA (IEC61162-1) Accepting signals from Trip reset, VBW (STW speed log)
LAN	1 port RJ45 (IEC61162-450)
Alarms	No alarms in use.
Functions	Vector Speed, Longitudinal, transversal Resultant speed Aft Transversal speed Distance travelled (over ground)
Secondary functions (Cannot be used as primary source)	Position Heading ROT

INSTALLATION

Sensor unit location Consider these factors when installing the unit.

• Keep the space above the sensor unit free of obstructions of any kind.

• Mount the sensor unit in such a way that the GNSS signal is not blocked.

• Protect the sensor unit from direct illumination of radar beams and other transmitting antennas such as Inmarsat antennas. SL-SN300 antenna is more sensitive to blocking and reflections (multipath) of GNSS signals than GNSS sensors, which only use pseudo-range data. This is because SL-SN300 antenna also uses carrier phase measurements for heading determination, and both internal GNSS antennas need to see at least four common satellites at the same time.

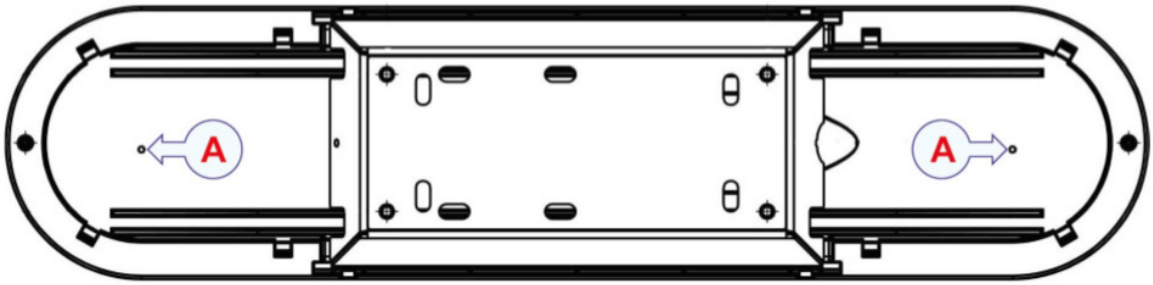
• Mount the sensor unit above the nearest deck at a height which is equal to the width of this deck or higher in order to reduce problems due to multipath effects.

• Mount the sensor unit in such a way what torsion movement relative to the ship's hull is kept at an absolute minimum.

• Mount the sensor unit alongship with the bow arrow pointing forward and horizontally. The ***maximum allowed deviation angle from the alongship axis and horizontal plane is ± 5degrees***. Otherwise the heading accuracy will be degraded.

ANTENNA CENTRES

At the bottom of the sensor unit the centers for the two GNSS antennas are indicated with a raised point on each side of the unit. These are the measurement points from which the position is calculated.

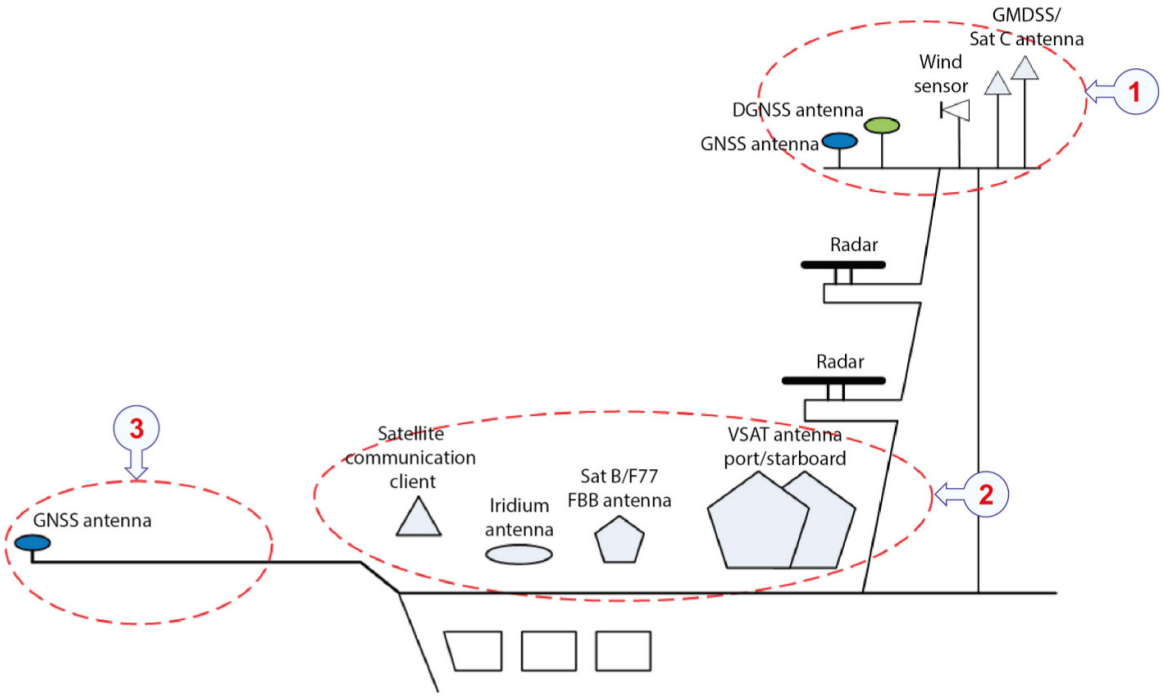


A Antenna centers

Installation

Installing GNSS antennas, recommended practice GNSS antennas are critical for operation and their location on the vessel must have high priority. Antenna location, separation and cable quality should be considered, as incorrect or inadequate installation can lead to poor positioning performance or complete loss of position. If the antenna is installed in a poor location, it can suffer from masking, multipath or interference from other radio sources which can affect the position performance.

A general antenna arrangement including satellite communication is illustrated.



ANTENNA LOCATIONS

1 Protected area

2 Open area (risk of interference)

3 Helideck

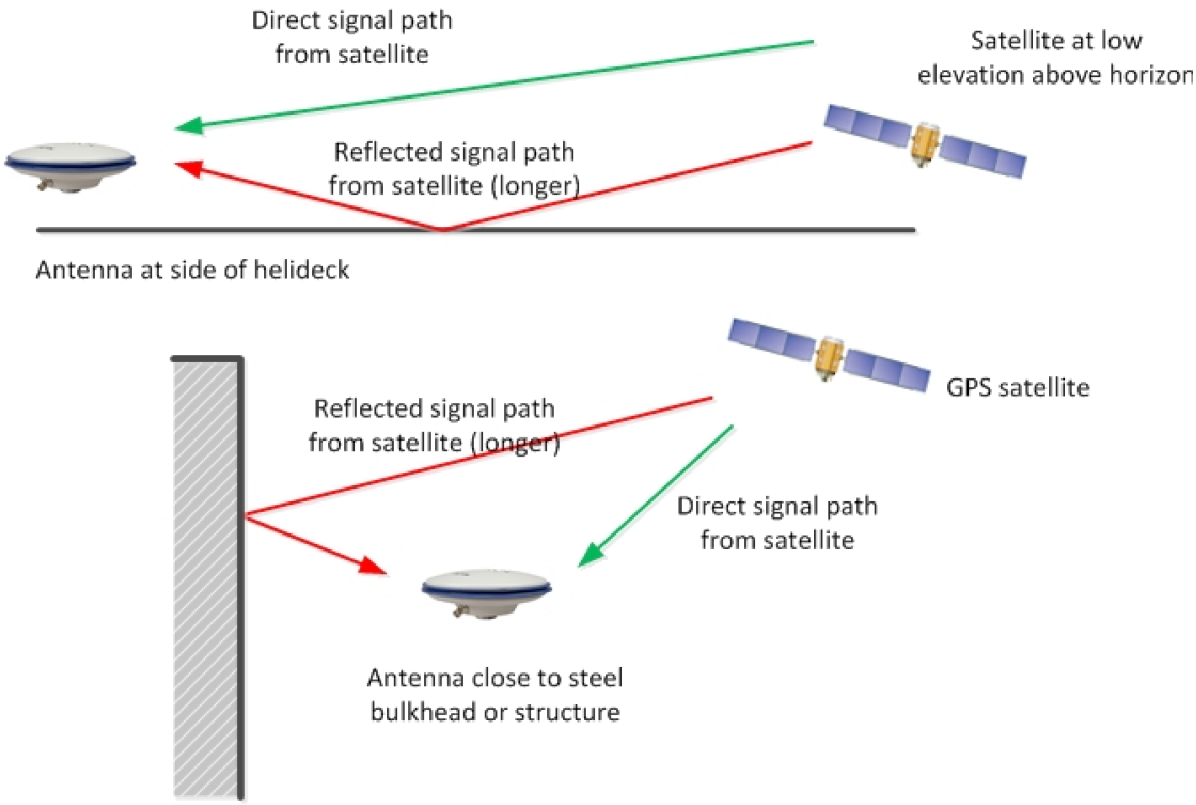
Masking

The GNSS antenna should have an unobstructed line of sight to the sky. The signals from the satellite propagate by line-of-sight, which means that if the antenna cannot see the satellite, the reception will be severely impaired, if it occurs at all. Potential obstructions are other masts and antennas, cranes, rigs and fixed platforms, buildings in ports, high cliffs or hills close to shore. The impact of this can be anything from degraded performance to a complete loss of positioning

Crowded mast

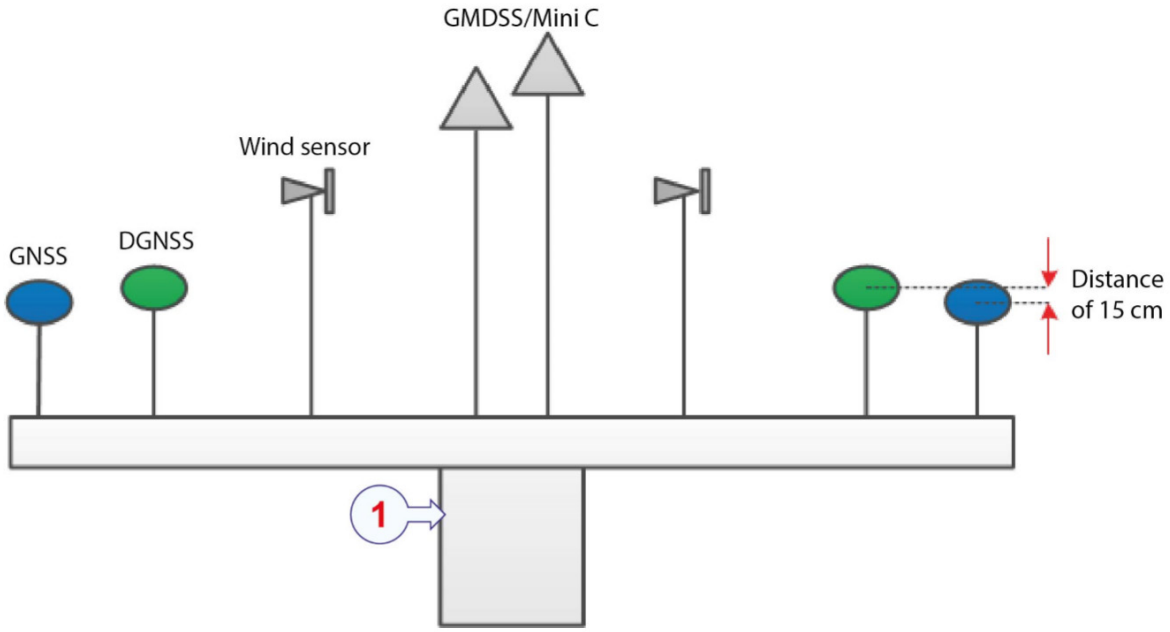
Good antenna location

Multipath Inappropriate location of the antenna can result in the antenna receiving reflections of the incoming signal as well as the signal itself (multipath). The reflected multipath signal takes a longer path than the direct signal, introducing an error into the position calculation.



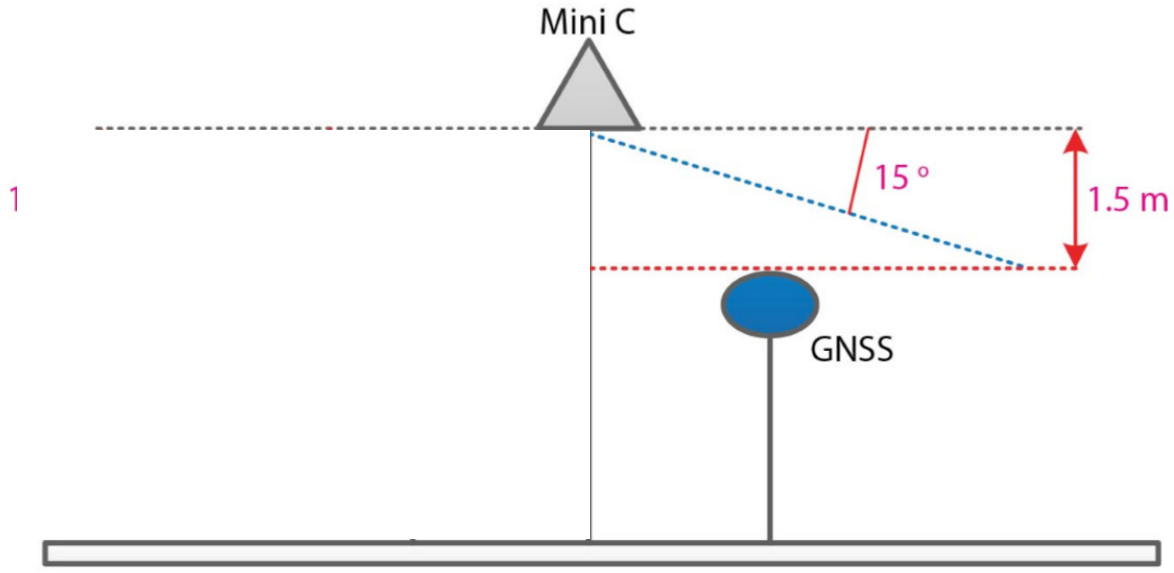
Interference from other radiating sources

Interference can be caused by close proximity to other radiating sources. Installing GNSS antennas in close proximity to satellite communication systems operating in or nearby GPS/GLONASS frequency bands (1.2 to 1.6GHz) should be avoided (i.e. SatC, Iridium). Ideally the antenna should be situated at a minimum of 3 metres from other radiating sources. As this is not always practically possible, a compromise location must be sought. A typical antenna distribution is illustrated.



1 Radar mast/instrument mast

GNSS antennas must not be placed within the Mini C antenna beam (15 degrees below the Mini C antenna's horizontal plane). The vertical separation should be at least 1.5 metres.



During installation, comprehensive tests should be carried out for potential interference by conducting transmissions from each RF source for extended periods, individually and simultaneously.

MOUNTING THE ANTENNA UNIT

The sensor unit is designed to be mounted horizontally on a roof, railing or similar.

Prerequisites

Use U-bolts to mount the sensor unit mounting bracket to a rail. Or prepare a suitable mounting arrangement for surface mounting of the bracket. Use the mounting bracket as a template to drill holes for the bolts. U-bolts for sensor unit mounting are not delivered by SKIPPER Electronics AS. Install and terminate the cable before you mount the sensor unit. A wiring diagram is located inside the lid of the termination box underneath the sensor unit.

Cable specifications for the sensor unit cable.

• 4 pair, Shielded Twisted Pair (STP)
- 2 tsp for basic use pin 1,9,5,13 (for normal use)
- 2 tsp for RX/TX Ethernet interface in JB40Pow

• Minimum 0.5 mm2 power wire, 0.25 mm2 data wire

• Maximum 1 mm2 wires

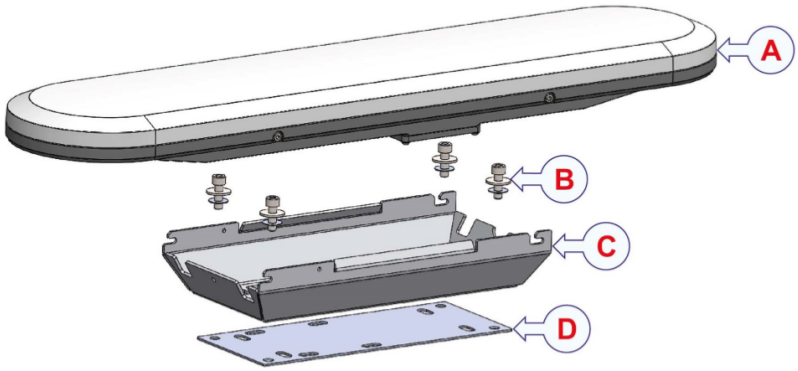
• Outer cable dimensions 10 to 14 mm

The wiring for the sensor unit cable.

PIN	Signal	Description		Pin	Signal	Description
1	0V	Power ground		9	12-24VDC	Power +
2	RJ3 RXD+	RX- Ethernet Only needed for upgrade		10	RJ6 RXD-	RX- Ethernet Only needed for upgrade
3	RJ1 TXD+	TX- Ethernet Only needed for upgrade		11	RJ2 TXD-	TX- Ethernet Only needed for upgrade
4	Not used			12	Not used	
5	TXA-	RS-422 TX-		13	TXB+	RS-422 TX+
6	Not used			14	Not used	
7	Not used			15	Not used	
8	Not used			16	Not used	

Note

For RS422 ports, RX/TX-correspond to signal line RX/TXA, and RX/TX+ correspond to RX/TX B.



A Sensor unit

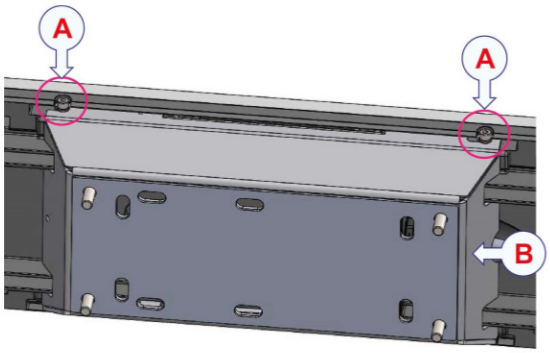
B Mounting bracket screws for fastening the mounting bracket to the sensor unit

C Mounting bracket

D Plastic insulation plate

Procedure

1. Separate the sensor unit from its mounting bracket by loosening the two screws on each side and removing the mounting bracket.

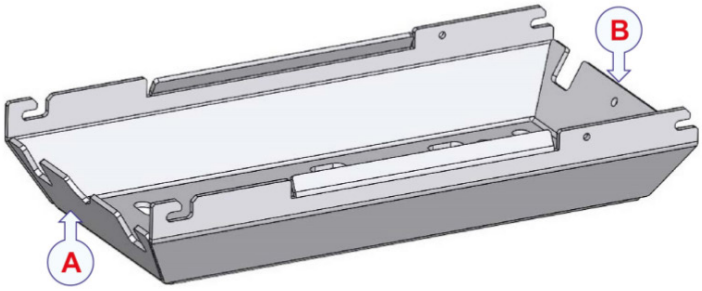


A Mounting bracket screws

B Mounting bracket

2. Place the plastic insulation plate underneath the mounting bracket to prevent corrosion. 3 Fasten the mounting bracket using the U-bolts or another mounting arrangement, such as a pre-prepared mounting bracket holder. Use plastic washers to prevent corrosion.

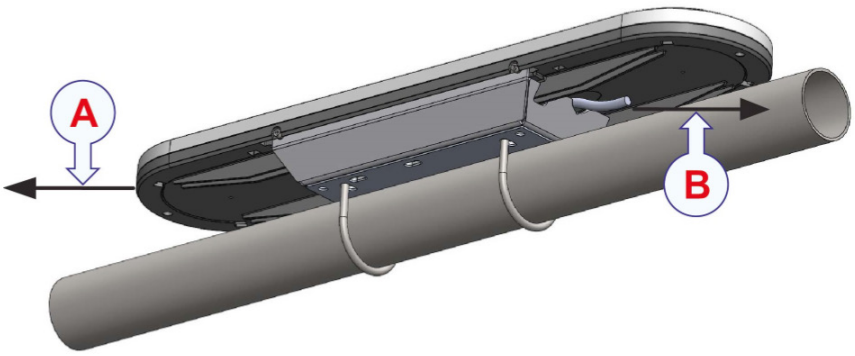
Observe the mounting direction of the mounting bracket. The groove for the cable should point in the aft direction of the vessel.



A Aft direction

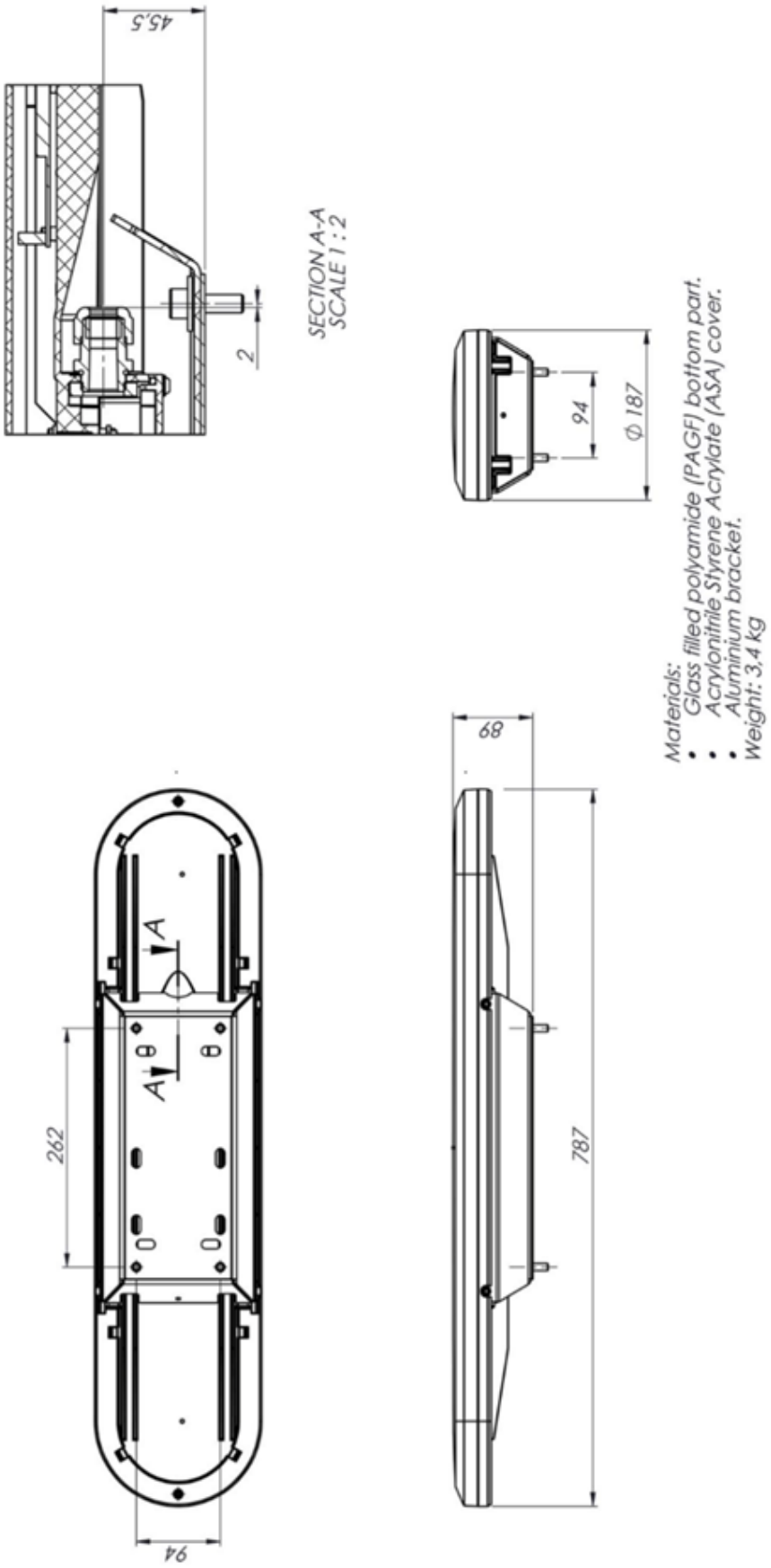
B Bow direction

3. Lift the sensor unit onto the mounting bracket and refasten the four screws to attach the sensor unit to the mounting bracket.

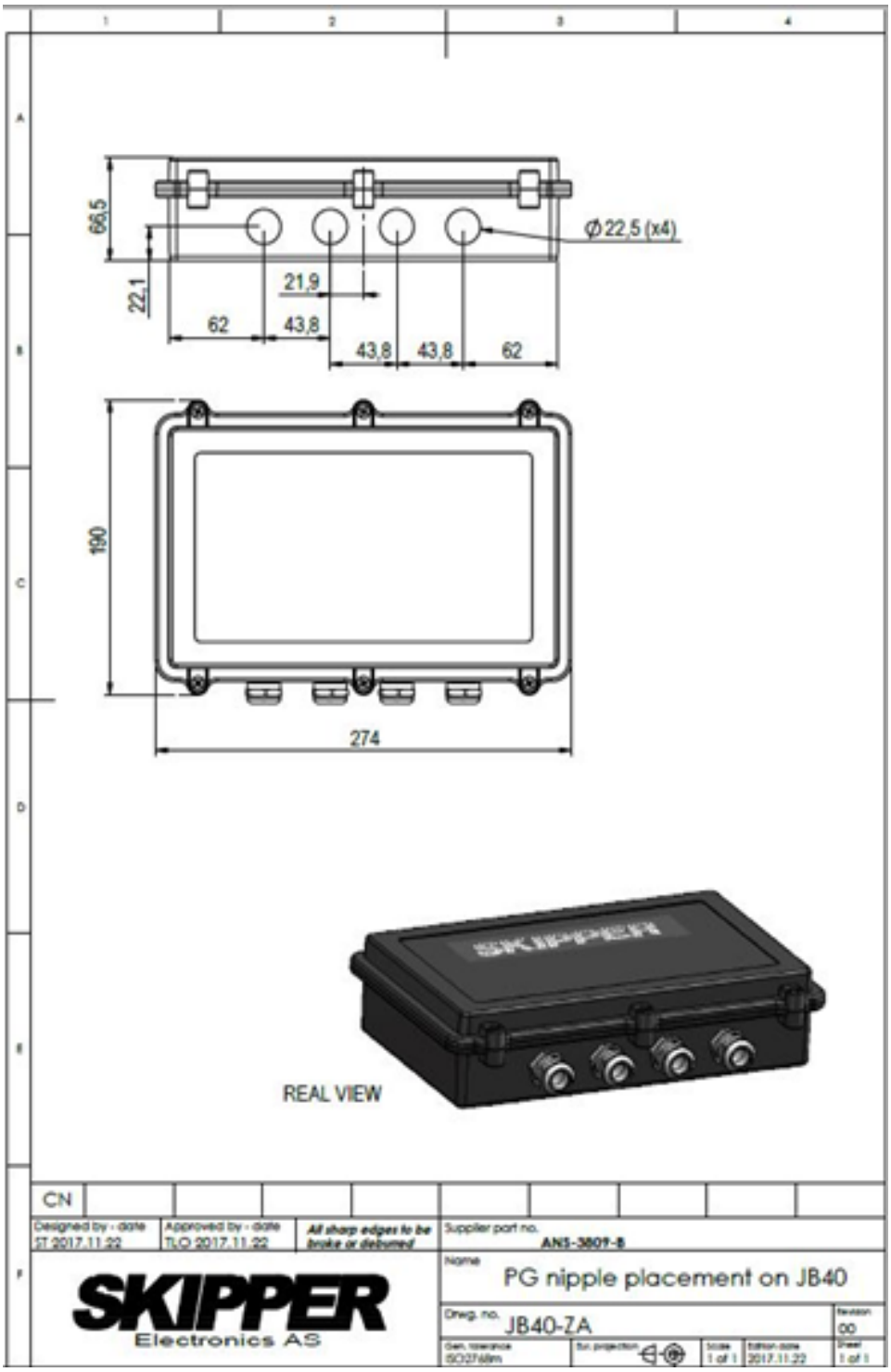


A Bow direction

B Aft direction


45,5
2
SECTION A-A
SCALE 1 : 2
94
Ø 187
Materials:
Glass filled polyamide (PAGF) bottom part.
Acrylonitrile Styrene Acrylate (ASA) cover.
Aluminium bracket.
Weight: 3,4 kg
68
787
262
94
A
A
θ
θ

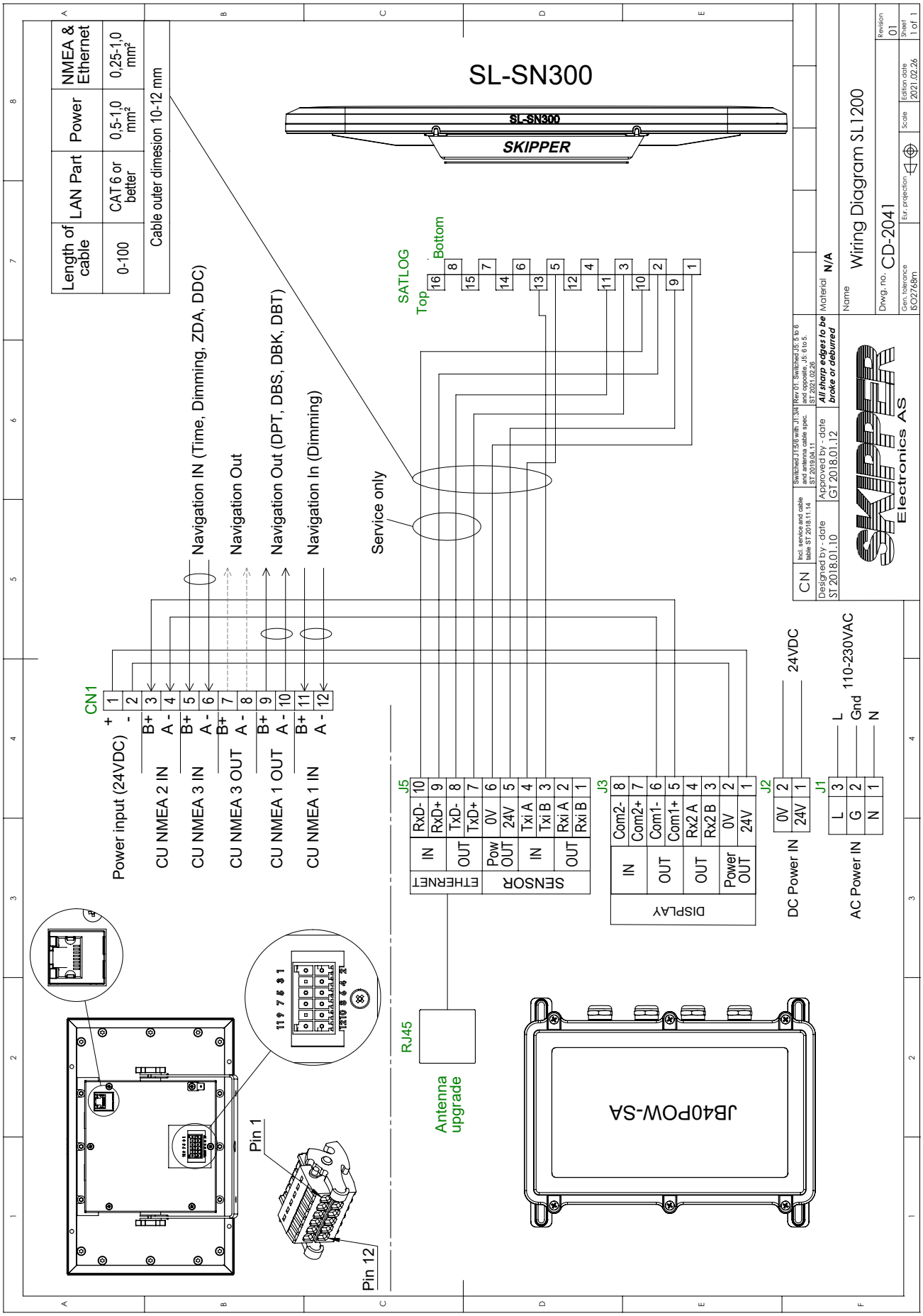
Installation of the JB40Pow unit.



The JB40POW-SA Unit is IP56 and is recommended mounted close to where the cable enters the vessel. The Unit contain AC 110-230V input and DC24V input, as well as a LAN connector and buffer/ diagnostic ports for connecting to the antenna or monitoring communications from the antenna.
Mount with the PG Glands downwards.
PG 13.5 Cable outer dimensions 6-12mm

Connectors inside are as follows

Connector	Function	Cable connected to	Min Recommended cable type
J1-1 AC L/N	AC power 110-230VAC	UPS	1.5mm2
J1-2 AC Earth		UPS	1.5mm2
J1-3 AC L/N			
J2-1 24V DC	DC power supply	DC supply or backup	1.5mm2
J2-2 0V DC		DC supply or backup	1.5mm2
J3-1 Power disp 24V	DC Power supply to display (optional)	Display J1 p1	0.25mm2
J3-2 Power disp 0V		Display J1 p2	0.25mm2
J3-3 RX2B	Extra output from Sensor/ antenna (Not used)	Display J1 p5	0.25mm2
J3-4 RX2A		Display J1 p6	0.25mm2
J3-5 out2+	Sensor data to display+	Not used	
J3-6 out2-		Not used	
J3-7 in+		Not used	
J3-8 in-		Not used	
J5-1 To Sens+	Not used	Antenna Pin 12	0.25mm2
J5-2 To Sens -		Antenna Pin 4	0.25mm2
J5-3 From Sens +	Data from antenna	Antenna Pin 13	0.25mm2
J5-4 From Sens -		Antenna Pin 5	0.25mm2
J5-5 Power sens +	Power to antenna	Antenna Pin 9	0.5mm2
J5-6 Power sens 0V		Antenna Pin 1	0.5mm2
J5-7 SAT LAN TX+	LAN to antenna	Antenna Pin 3	0.25mm2
J5-8 SAT LAN TX-		Antenna Pin 11	0.25mm2
J5-9 SAT LAN RX+		Antenna Pin 2	0.25mm2
J5-10 SAT LAN RX-		Antenna Pin 10	0.25mm2
CN1 RJ45 LAN	LAN connection to PC for upgrade	PC	CAT5
J7-1-6	RS422 Diagnostic port to antenna	Use Cable type Ftdi TTL-232R-3V3 (RS components)	
J8-1-6	RS422 Diagnostic port to Display	Use cable type Ftdi TTL-232R-3V3	


SL-SN300
SL-SN300
SKIPPER
Length of cable
LAN Part
Power
NMEA & Ethernet
0-100
CAT 6 or better
0,5-1,0 mm²
0,25-1,0 mm²
Cable outer dimesion 10-12 mm
SATLOG
Top
Bottom
Navigation IN (Time, Dimming, ZDA, DDC)
Navigation Out
Navigation Out (DPT, DBS, DBK, DBT)
Navigation In (Dimming)
Service only
CN1
Power input (24VDC)
CU NMEA 2 IN
CU NMEA 3 IN
CU NMEA 3 OUT
CU NMEA 1 OUT
CU NMEA 1 IN
J5
SENSOR
ETHERNET
J3
DISPLAY
J2
DC Power IN
24VDC
J1
AC Power IN
110-230VAC
L
Gnd
N
RJ45
Antenna upgrade
JB40POW-SA
Pin 1
Pin 12
Designed by - date ST 2018.01.10
Approved by - date GT 2018.01.12
Material N/A
Name Wiring Diagram SL1200
Dwg. no. CD-2041
Scale
Edition date 2021.02.26
Revision 01
Sheet 1 of 1
SKIPPER Electronics AS

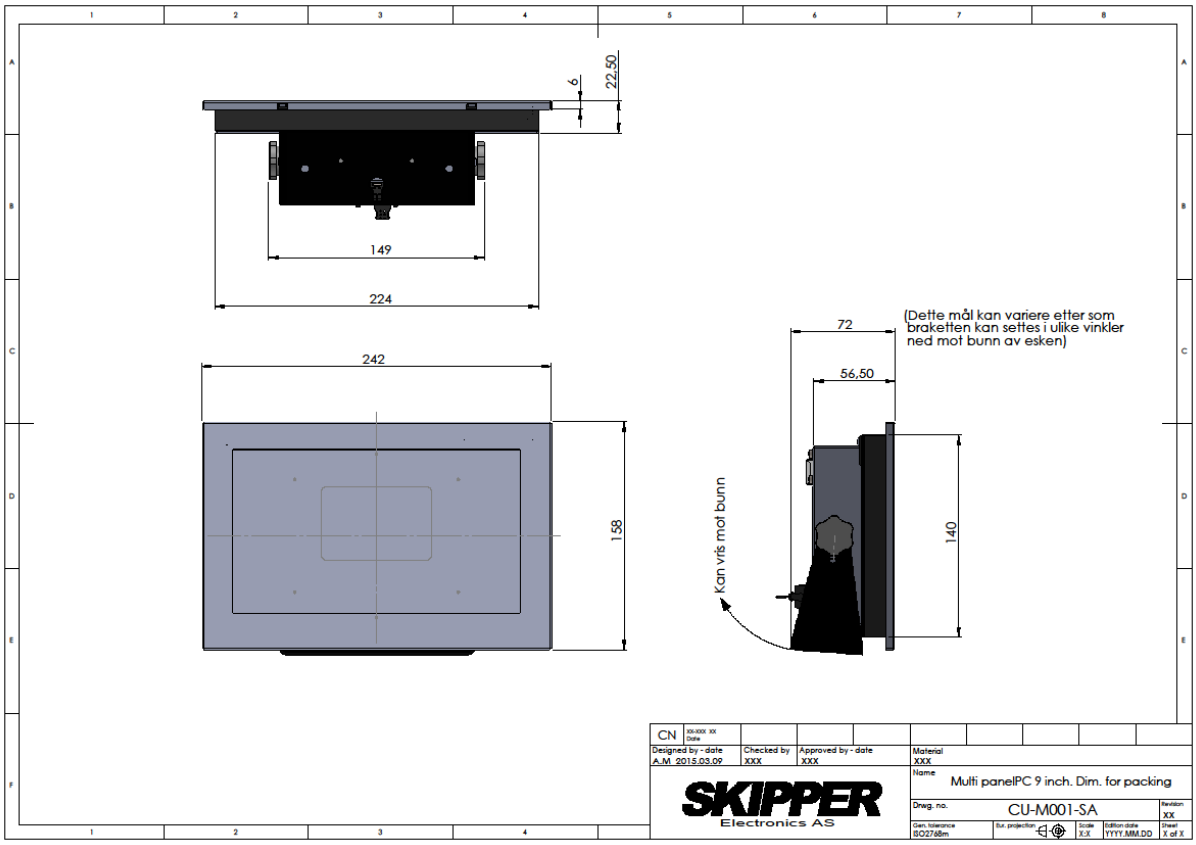
INSTALLATION OF THE SCREEN

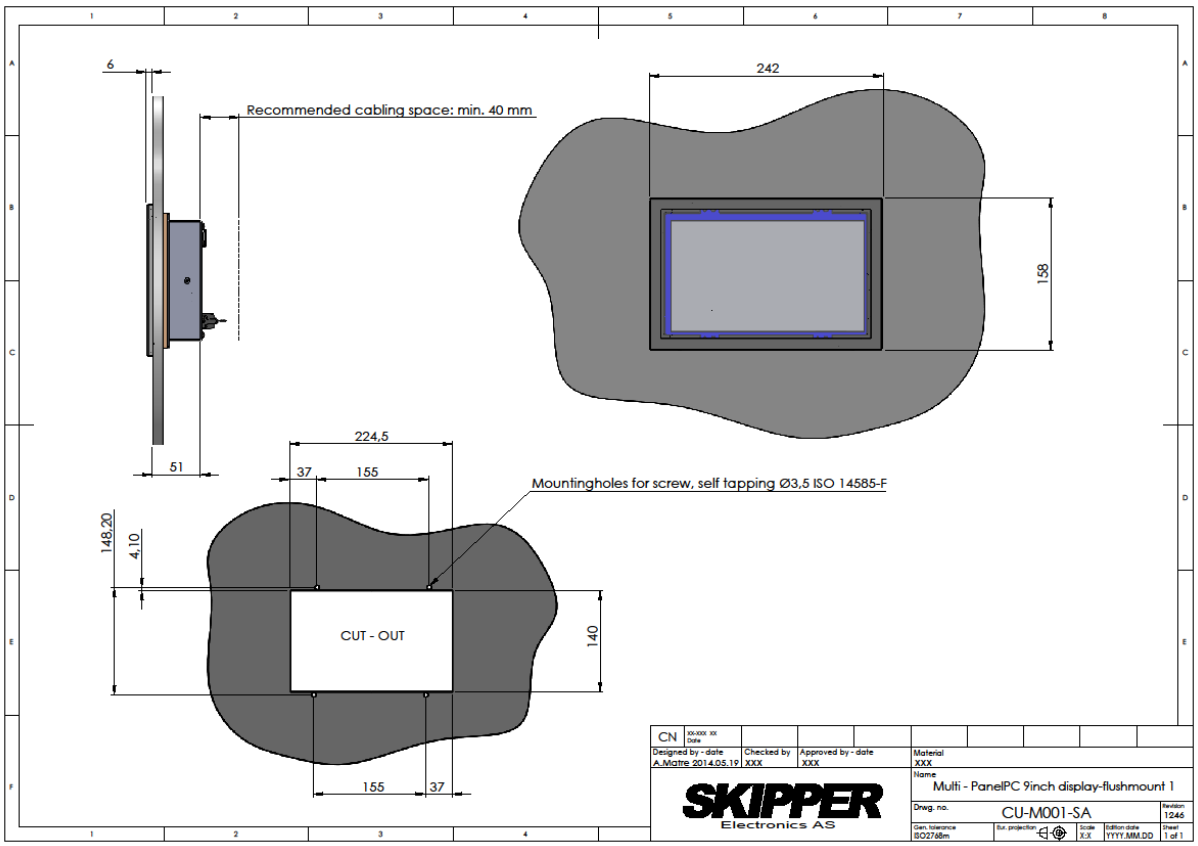
SL1200-SB Control unit: This display contains dual NMEA output, dual NMEA input and a communication pair to the JB40POW-SA. An additional RJ45 connector can be used for LAN communication.
The NMEA output will typically be sent to a splitter to give the information to the bridge system and VDR, for example SKIPPER NE108-SA 1 to 8 expander

Connector	Function	Cable connected to	Min Recommended cable type
J1-1 DC 12-24 +	DC power supply	DC supply or JB40POW J3-1	0.25 mm2
J1-2 DC 0V -		DC supply or JB40POW J3-2	0.25 mm2
J1-3 NMEA2/SENSOR in +	Input from antenna	JB40POW J3-3	0.25 mm2
J1-4 NMEA2/SENSOR in -		JB40POW J3-4	0.25 mm2
J1-5 NMEA3 in +	NMEA input 3		0.25 mm2
J1-6 NMEA3 in -			0.25 mm2
J1-7 NMEA3 out +	Output	conning,VDR,Repeater, expander	0.25 mm2
J1-8 NMEA3 out -			0.25 mm2
J1-9 NMEA1 out 1+	Output	conning,VDR,Repeater, expander	0.25 mm2
J1-10 NMEA1 out 1-			0.25 mm2
J1-11 NMEA1 in +	NMEA input for Dimming		0.25 mm2
J1-12 NMEA1 in +			0.25 mm2

USE OF LAN

it is also possible to connect the LAN directly from the antenna to the display (via the JB40Pow) and then use the sensor port as a third NMEA input. In this case the communications config for UDP must be set to ‘sensor input’ on. and the display group must be set to SATD.





The screen can be mounted on consoles on overheads, or stand alone (With the mounting bracket option Part number MG-0002) .

Software setup

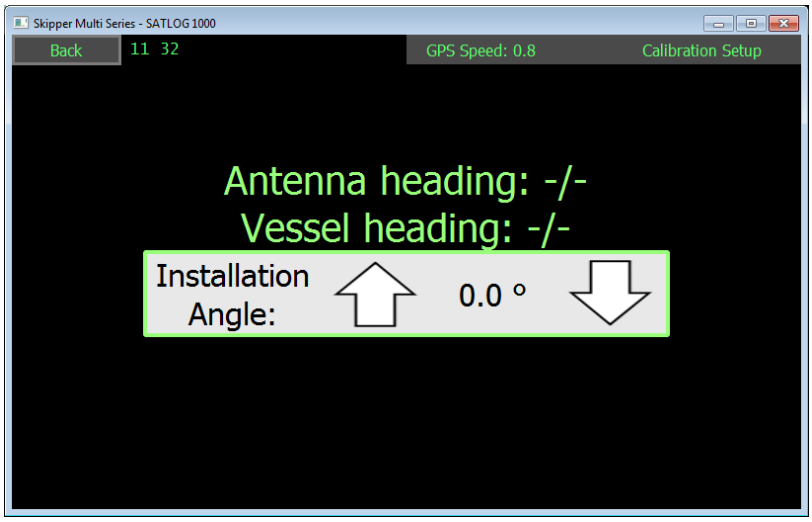
The software has 3 user runtime screens that can configured as the user wishes. Set up of the system is simple, the only adjustments to be made is to adjust for mounting angular offset of the antenna.

Calibration Setup - Antenna offset

Once the system is turned on, the antenna will need up to 15 minutes to get an accurate map of the available satellites. Once this is in place, the display will show speed in 3 axes. This is the approved usage of the system. In addition, the system can give out heading ROT and position based on the antenna data.

Heading may show an error due to mounting, and this can be rotated to match the ships GYRO compass (True heading)

This is done in config-Calibration. The presentation shows the antenna heading and the heading with offset.



SETUP OF COMMUNICATIONS

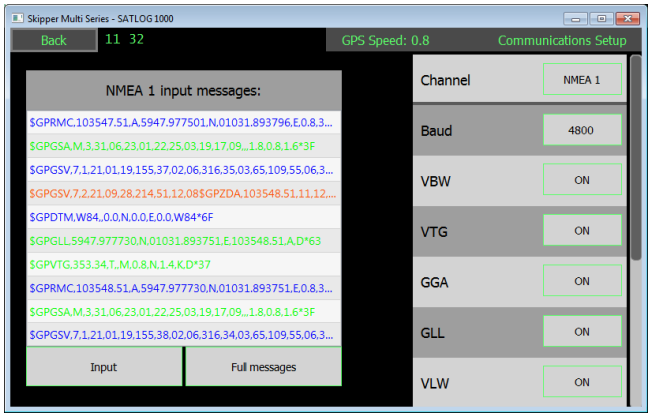
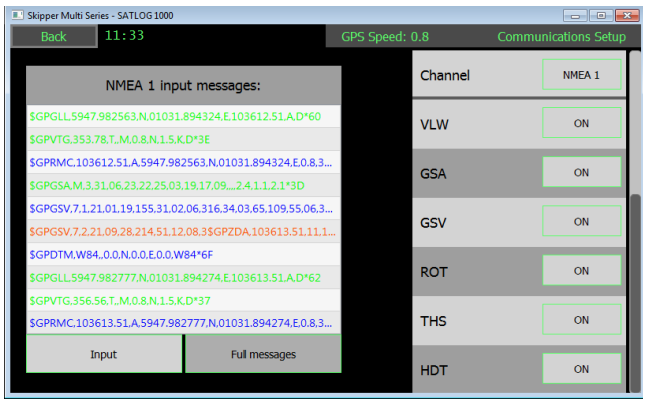
The System has an internal RS422(isolated) communication to the antenna (38400 baud). To the outside world it has NMEA (IEC61162-1), Inputs (2) and output (2), also a LAN (IEC61192-450) Port

Outputs

The communications menu allows the NMEA messages to be selected for the output, on this system there 2 NMEA outputs, and a LAN output. All can be adjusted. Default is VBW output..

1. Output for NMEA IEC61162-1
2. LAN input and output for IEC61162-450 messages

This port can provide communication both by TCP/IP V4.0 or using IEC61162-450. If being used it requires a network that does not exceed 20Mbits/second. The system will exert/receive a maximum load of 40 datagrams/second

Config – Communications screen	
  The left side show a terminal emulator that shows the input or output messages of the selected channel. Pressing 'Message headers' will show the full message.	The selected channel (NMEA 1 or UDP) The Baud rate output (4800, 32400 or 115200) Sensor input: selected if antenna is connected to this input. VLW: Distance travelled over ground. VTG: VBW: Dual ground/Water speed. DDC Dimming command output GPS Gyro and status • HDT*: Actual vessel heading in degrees True produced by any device or system producing true heading. • ROT*: Rate of turn and direction of turn. • THS*: Actual vessel heading in degrees True produced by any device or system producing true heading. • GSA**: Satellite DOP and active satellites. • GSV**:Number of satellites in view,satellite ID, elevation, azimuth and SNR. Postion and time signals • GGA*: Time, position and fix related data. • GLL*:Longitude and latitude of vessel position, time of position fix and status. *This sytem is speed log and cannot be used as primary source of other types of information. ** Only available on the LAN port

VLW	Distance travelled over ground.
VTG	Actual course and speed relative to the ground.
VBW	Dual ground/Water speed.(water speed will be empty)
IIVBW	

Exact formats for these sentences can be found in the relevant IEC standards.
Accepted inputs

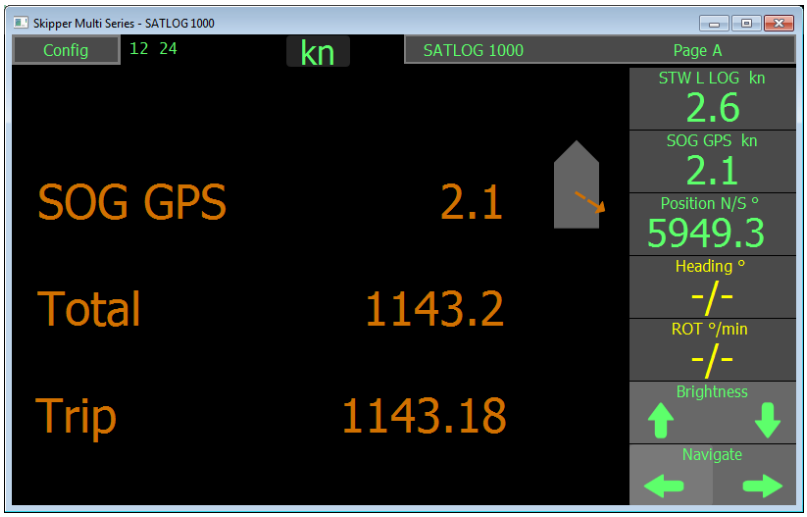
Format	Function
$__DDC,X,yy,X,C*nn	Dimming function X= O,N,K,D , YY is % the system will accept X and adjust to the user set level (See dimming)
Internal UDP	The System can also take information from other SKIPPER devices within the same network for display on screen or for logging

The Communications on NMEA are 4800, 8 data bits, 1 stop bit. Baud rate can be changed to 32400 or 115200, on NMEA 1 but not 2

The antenna should normally be connected to CU-NMEA2 input and the baud rate set to 115200.

DISPLAY ADJUSTMENT

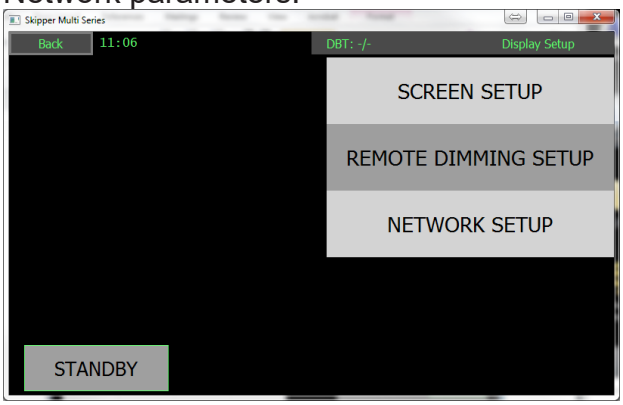
The display is programmable and can be made to show what the user wishes. It comprises of 5 information's on the right, and 3 on the bottom. These information's can show parameters of the system, or parameters being sent into the system from other equipment. These parameters will, after a short time, slide off screen., Touching the screen will make them return.

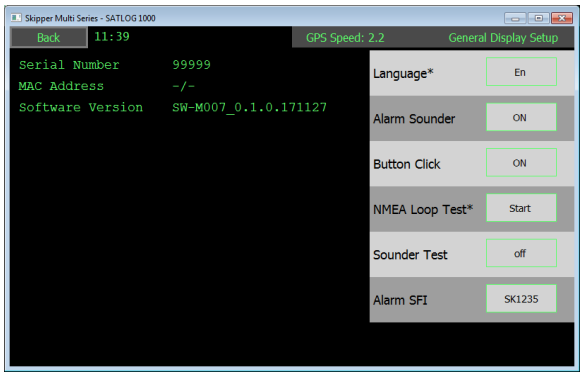


All these parameters are selected by default, but can be changed to show what the user chooses. See the User Guide, Runtime screen setup

DISPLAY SETUP

The Display setup menu gives access to the system parameters the dimming set up and the Network parameters.

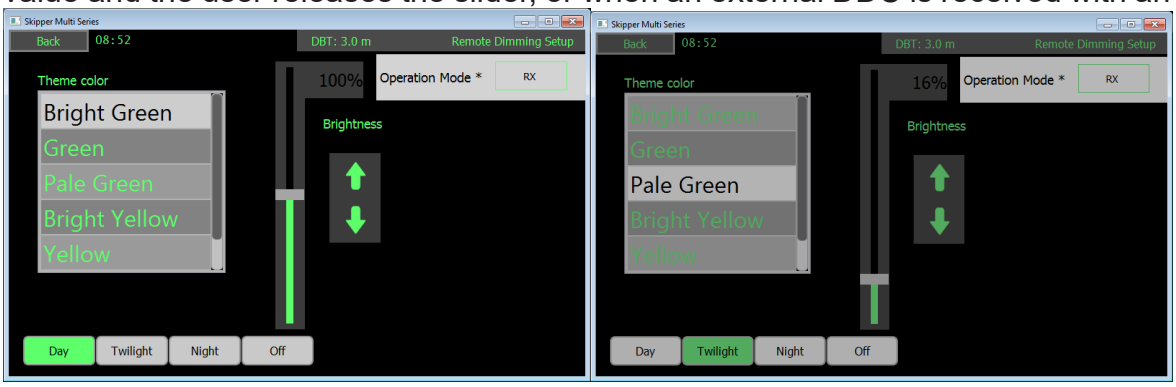


General Display setup	
	Only English currently available
	Button click, sound feedback on touching the screen
	Alarm sounder, on / Off (Fixed on in ALF mode)
	NMEA loop test. Self test on this screen
	Sounder test: This will beep at full volume
Software version can be updated via Service software Serial number of this product Hardware and firmware version and serial number of the JB50E1 transceiver unit	

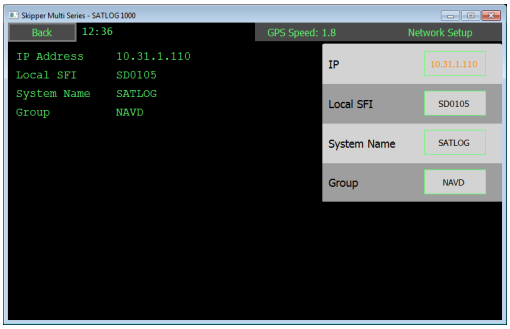
This screen sets up the hardware parameters of the control unit.

DIMMING SETUP

The Dimming levels can be set up on this screen. The user can select dimming and color choices for the 4 preset levels that can be sent remotely (using DDC NMEA command). When the user uses the on screen dimming, the color scheme will change when the dimming level passes the set % value and the user releases the slider, or when an external DDC is received with an equivilent level.



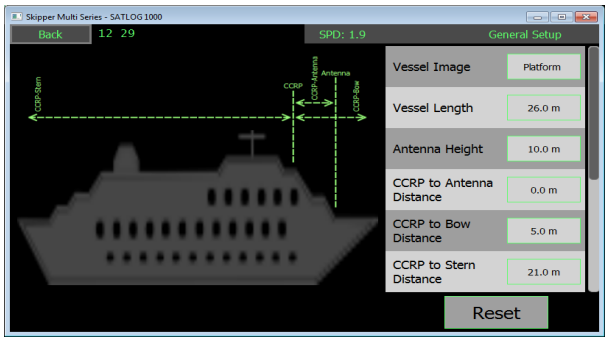
NETWORK SETUP

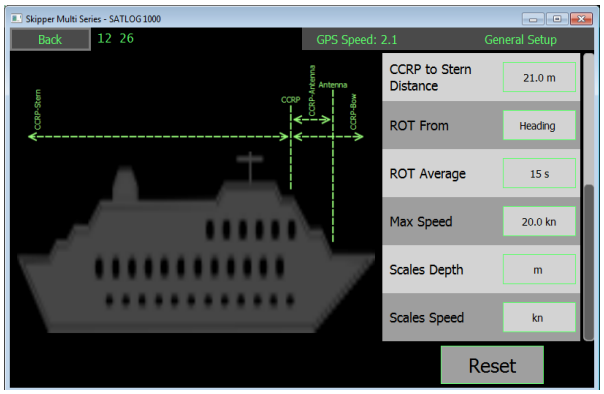


function	Description
IP	The IP address of the display can be changed here, this should normally be within the range of 172.16.1.1-254 (Default 172.16.1.106) or 192.168.1.1-254
Local SFI	The function identifier for this system Default GN0108
System Name	The name of the system presented when searched for
Group	The group of systems within the network protocol. Normally SATD or NAVD. Other groups MISC, TIME, TGTD, VDRD, PROP, RCOM are available

System Setup

The Speed log will give transversal speeds at the bow and the stern. To ensure these are correct the distances from the antenna to the bow and stern must be given.





Parameter	Description
Vessel image	Type of vessel
Vessel Length	Legth from bow to stern (calculated from other parameters)
Antenna height	Height above normal sea level
CCRP to antenna distance	Alongships distance from CCRP (Steering point) to the antenna centre
CCRP to Bow distance	Distance from CCRP to the bow
CCRP to stern	Distance from CCRP to the stern
ROT From	Source of Rate of turn, from internal accelerometer or SATLOG THS
ROT Average	Averaging used on the ROT inputs
Scales Depth	Units used for depth m , ft, fathems
Scales speed	Units used for speed (kn, m/s, mi.h)

USER INFORMATION

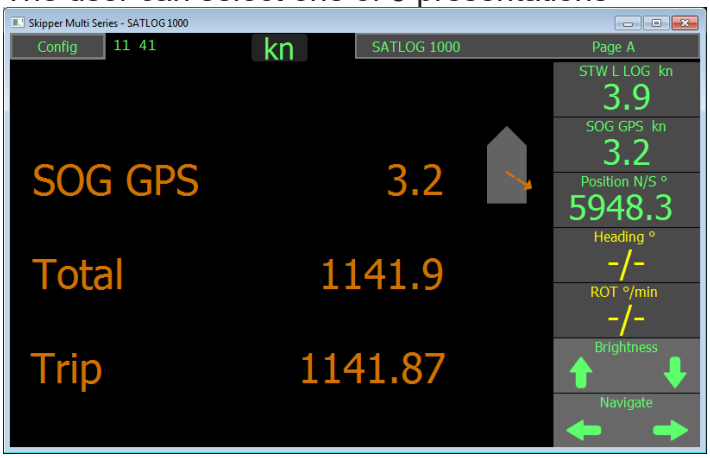
INTRODUCTION

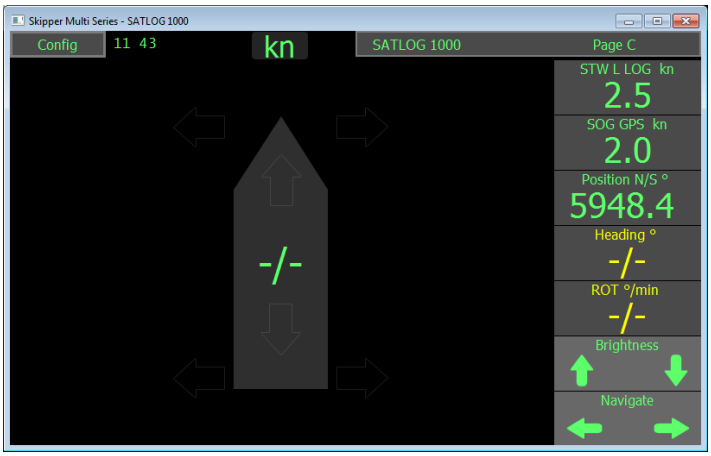
The SL1200 is a Speed over ground speed log based on GPS and GLONASS positioning systems. It is totally self-contained and does not require inputs from other systems. The antenna module uses two systems to find position, speed and heading. These combined give the required speed accuracy and direction.

The Screen can be setup to show the parameters that the user wishes to see or control, however there is no need for any adjustments or calibration after initial installation.

.PRESENTATION

The user can select one of 3 presentations





Screen Configuration

The main screen can be set up to show numerous information's on the right and below the screen Buttons on the information and bottom bar can be adjusted to show the information the user required in the runtime setup.

Press and hold the button to see all the choices.

Press on the config button and runtime setup to access the general screen information options

All button functions are available in the menus, so if a button is selected away, it can be accessed from the config menus.

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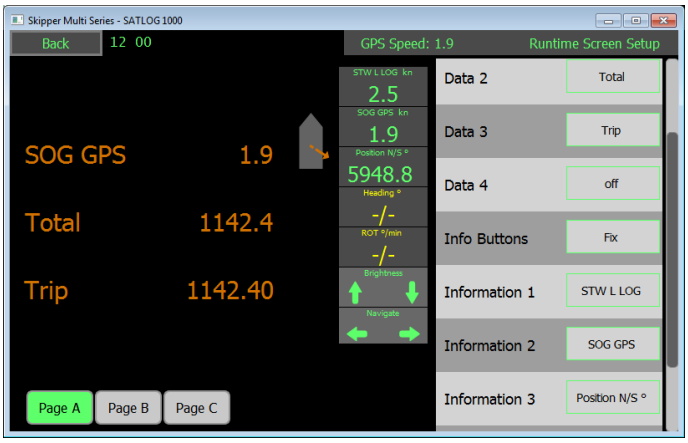
Main adjustable features are:

GPS position	The Longitude and latitude position of the vessel
Heading	A compass (True) heading
ROT(sens)	Rate of turn from the internal accelerometer of the system
ROT(comp)	Rate of turn, calculated from heading values from the antennae
Trip	The distance over ground sailed since last reset, can be reset by long press or remote signal.
Total	The total distance travelled over ground since installation,
Dimming	Dimming up and down is available using the up and down arrows, or the slider that pops up when a dimming arrow is touched. IF the system is dimmed tooo far down, press and hold the screen, and it will return to a 'visible level'. The screen will not dim fully down if an alarm is active. If an alarm becomes active when fully dimmed, the screen will return to the 'visible level'. And return after acknowledgement *This is always available, but can be adjusted in Display setup*
Resultant SOG	The resultant Speed Over Ground
Speed through water longitudinal STWL	*If a SKIPPER DL1, DL2, DL21, DL850, EML224 are connected to the system via NMEA or LAN, the system can display both speeds, and also calulate water current based on the the SOG and STW values*
STWT	*Transversal speed through water from an inputted signal*

All adjustments are available from the menus by pressing Config

CHANGING THE LOOK OF THE SCREEN

Go to Runtime Menu by pressing config in the top left. In this menu, you will see the available Pages, and these can be individually tailored to show the information the user wishes.



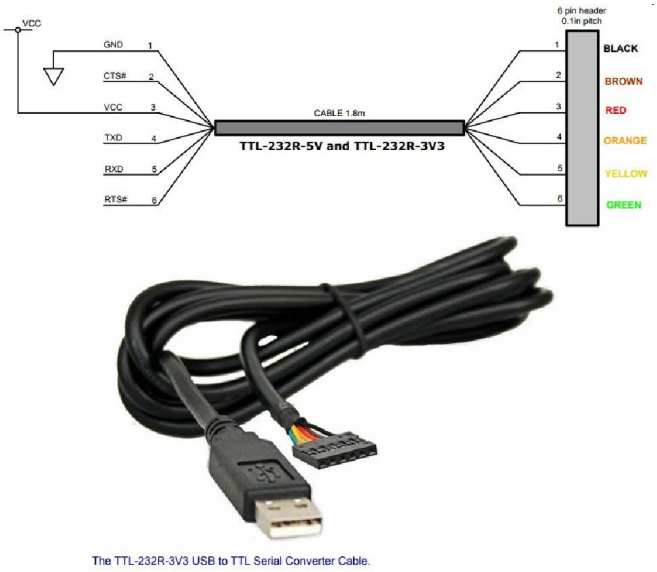
Button	Description
Page A Resultant Values	Presentation of speed with an icon for direction. The presented values can be changed in config -> runtime setup
Page B Vector values	Presentation of speeds with arrows The presented values can be changed in config -> runtime setup The values are by default at the sensor, but the speed at the Bow can also be selected.
Page C Docking values	Presentation of the ship with forward and aft sideways speed and along ships
Info buttons	The information on the right can be made fixed or to disappear after a time
Information 1-5	Select the information/parameters to be shown on each information.

Errors

If the system has a problem it can be:

- Antenna is not fully operational. Clock will not work, there will be no speed data (-.-)
- Antenna is not synchronized. Clock and SOG GPS work, but not Heading ROT or directional speed
- Antenna is not operational, Error shown on screen

To check the signals in the JB40 unit a NMEA converter can be used or the Ftdi TTL-232R-3V3



The TTL-232R-3V3 USB to TTL Serial Converter Cable.

Diagnostics Screen

The diagnostics screen shows how many sattellites are present and how good the signals are. The status can be seen on the top right, and this can also be shown in the information bar on the runtime screen