JPK45
Loargann
Instruments et bus

- V5 novembre 2017

=> Modification du bus NMEA (version >2.0 / HS)

- Le bus Topline ne transmet pas les informations AIS , il faut donc brancher les Multigraphic en direct sur le NMEA .

Il est possible de brancher plusieurs « listeners (in)» sur une sortie « talker (out) » du NMEA (3 à 4 suivant les sources) .

Si la sortie NMEA n'assure pas le respect du niveau (Output level: 5 V/40 mA max.(RS-422 balanced type) il faut mettre un amplificateur NMEA .

Mais attention , pour l'AIS il faut qu'il soit compatible du 38400 bauds . *Ex: Aragon technologie amplificateur NMEA AMN010-2*

Le fils de bus Topline doit convenir pour le fil de bus NMEA si c'est une paire torsadée blindée
Dans le Topline la tresse est le – et la masse , l'un des fils est le 12V (blanc) , l'autre le Data (noir).
Dans le NMEA , la tresse est la masse , un fil est le NMEA + et l'autre le NMEA-

- La descente d'information de la box-wifi vers le NMEA est inutile : pas d'information issue de TOLINE à utiliser .

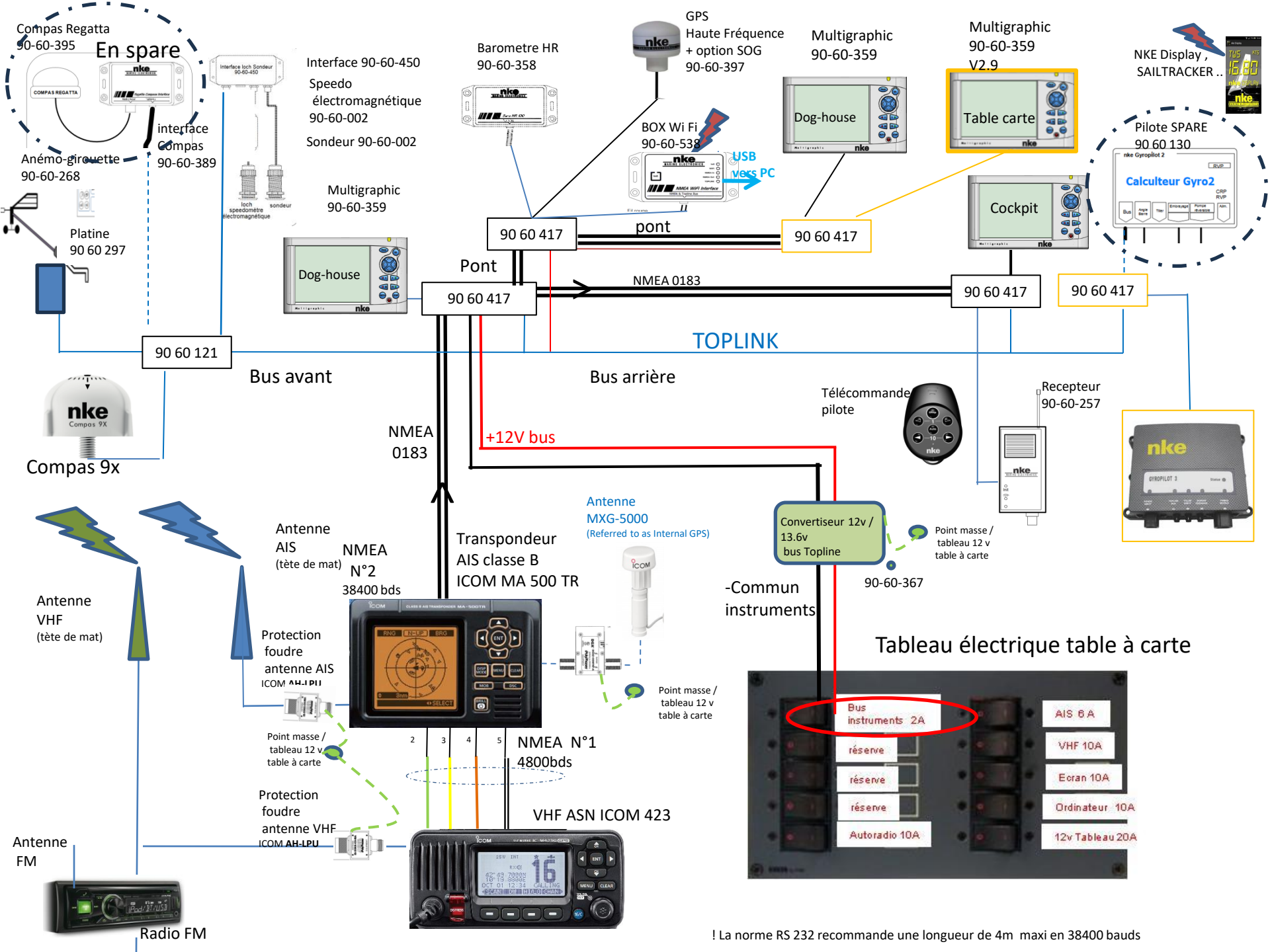
V6 décembre 2017 :
Box wifi 90-60-538 (remplace la 90-60-508 qui n'est plus produite)
Loch électromagnétique => interface loch électromagnétique avant interface loch/sondeur

V7 décembre 2017 : Le GPS via le NMEA ne passe pas dans la box WI FI => GPS NKE + SOG en direct sur le Topline , suppression de GPS Furuno
Une antenne VHF et une autre pour l'AIS (donc pas de splitter) . Pas de besoin d'amplification NMEA .
Compas Regatta , Emetteur recepteur radio pour pilote .

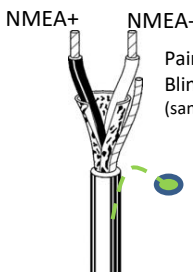
V8 : mars 2018 :précisions sur le câblage du récepteur radio NKE (télécommande pilote) et du GPS haute fréquence

V9 : positions relatives des antennes VHF et AIS . Séparées d'un mètre mini dans l'axe vertical .

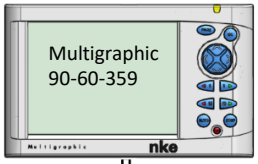
V10: oct 2023 / ajout Gyro 3 , Multigraphic V2.9 , capteur d'angle Gyro3 et compas 9x => passage du Gyro2 , capteur angle Gyro2 et compas Regatta en spare


Compas Regatta
90-60-395
En spare
interface
Compas
90-60-389
Anémo-girouette
90-60-268
Platine
90 60 297
Interface 90-60-450
Speedo
électromagnétique
90-60-002
Sondeur 90-60-002
Multigraphic
90-60-359
Barometre HR
90-60-358
GPS
Haute Fréquence
+ option SOG
90-60-397
Multigraphic
90-60-359
Multigraphic
90-60-359
V2.9
NKE Display ,
SAILTRACKER ..
BOX Wi Fi
90-60-538
USB
vers PC
Dog-house
Table carte
Pilote SPARE
90 60 130
Calculteur Gyro2
Cockpit
90 60 417
pont
90 60 417
Pont
90 60 417
NMEA 0183
90 60 417
90 60 417
TOPLINK
90 60 121
Bus avant
Bus arrière
Compas 9x
NMEA
0183
+12V bus
Télécommande
pilote
Recepteur
90-60-257
Antenne
AIS
(tête de mat)
NMEA
N°2
38400 bds
Transpondeur
AIS classe B
ICOM MA 500 TR
Antenne
MXG-5000
(Referred to as Internal GPS)
Convertiseur 12v /
13.6v
bus Topline
Point masse /
tableau 12 v
table à carte
90-60-367
-Commun
instruments
Antenne
VHF
(tête de mat)
Protection
foudre
antenne AIS
ICOM AH-LPU
Point masse /
tableau 12 v
table à carte
Point masse /
tableau 12 v
table à carte
Tableau électrique table à carte
Bus
instruments 2A
réserve
réserve
réserve
Autoradio 10A
AIS 6 A
VHF 10A
Ecran 10A
Ordinateur 10A
12v Tableau 20A
NMEA N°1
4800bds
Protection
foudre
antenne VHF
ICOM AH-LPU
VHF ASN ICOM 423
Antenne
FM
Radio FM
! La norme RS 232 recommande une longueur de 4m maxi en 38400 bauds

4 Multigraphic :



Dog house tribord V2.3->2.9



Class B AIS transceiver

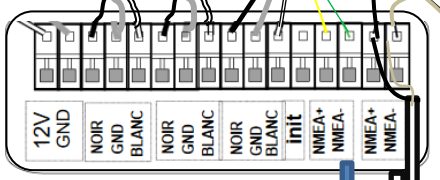
pont

Pont 2 (Toplink +NMEA)

Bus Topline 90 61 001

Bus av

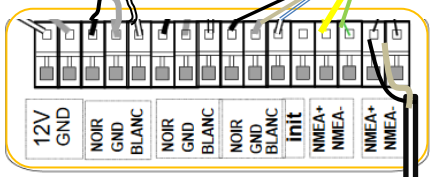
GND tresse
DATA noir
12VDC blanc



boîte de connexion
90-60-417

NMEA
AIS

GND tresse
DATA noir
12VDC blanc



boîte de connexion
90-60-417

Bus NMEA 0183
AIS

Bus ar

Console
Table à carte V2.9

Dog house V2.3= >2.9

Maitre

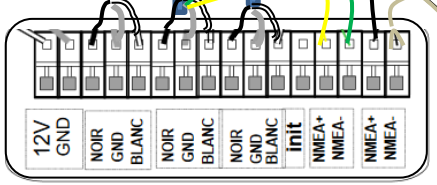
Console Table Cockpit V2.3= >2.9

Bus Topline

Vers les Pilotes

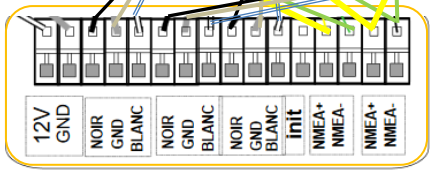
Pont ar

GND tresse
DATA noir
12VDC blanc



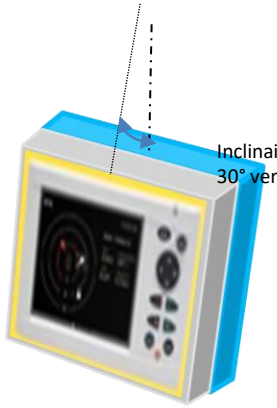
boîte de connexion
90-60-417

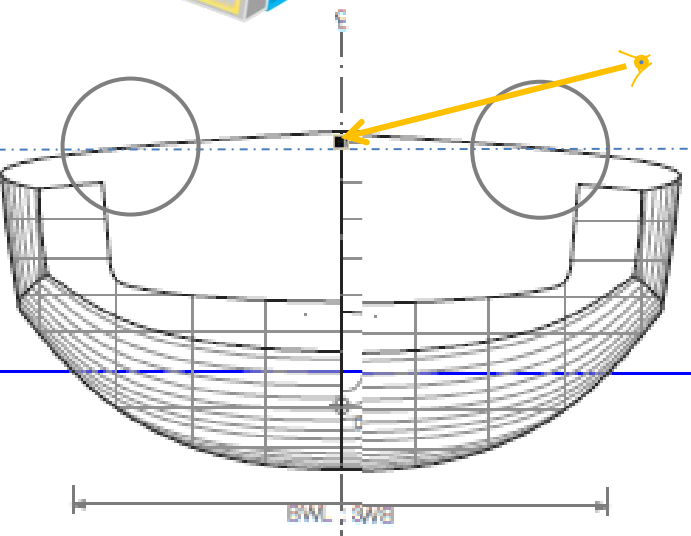
GND tresse
DATA noir
12VDC blanc

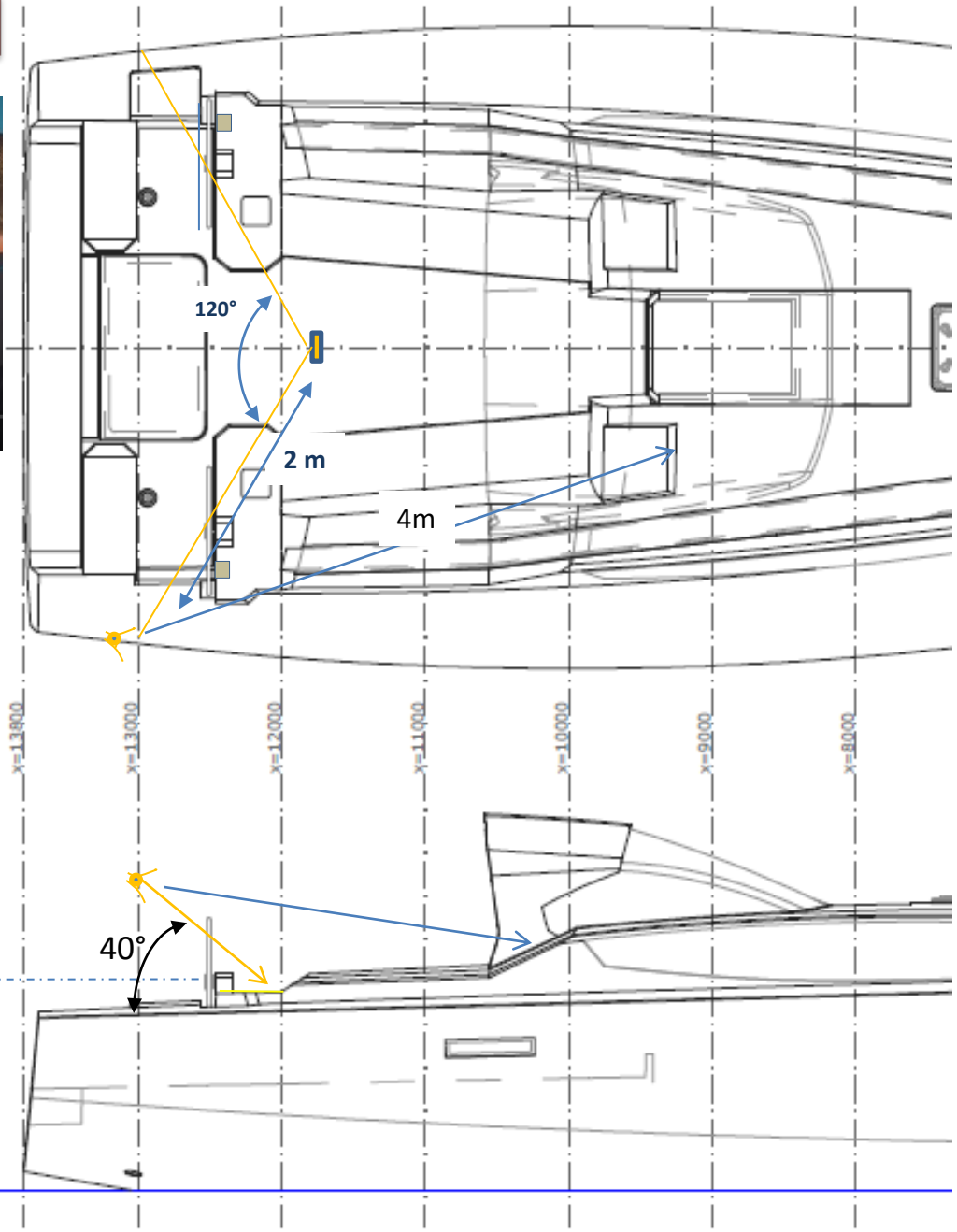


boîte de connexion
90-60-417

Console barreur / Multigraphic

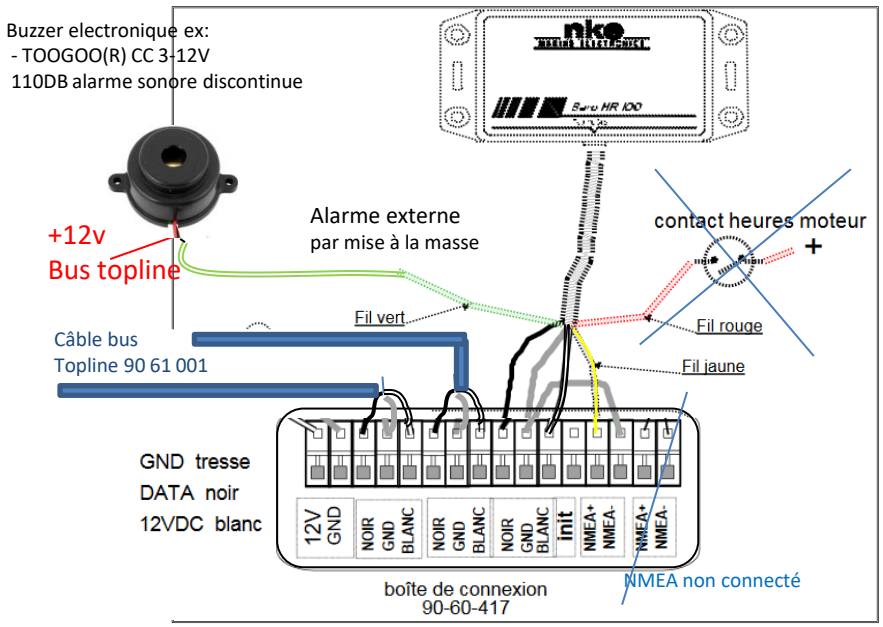


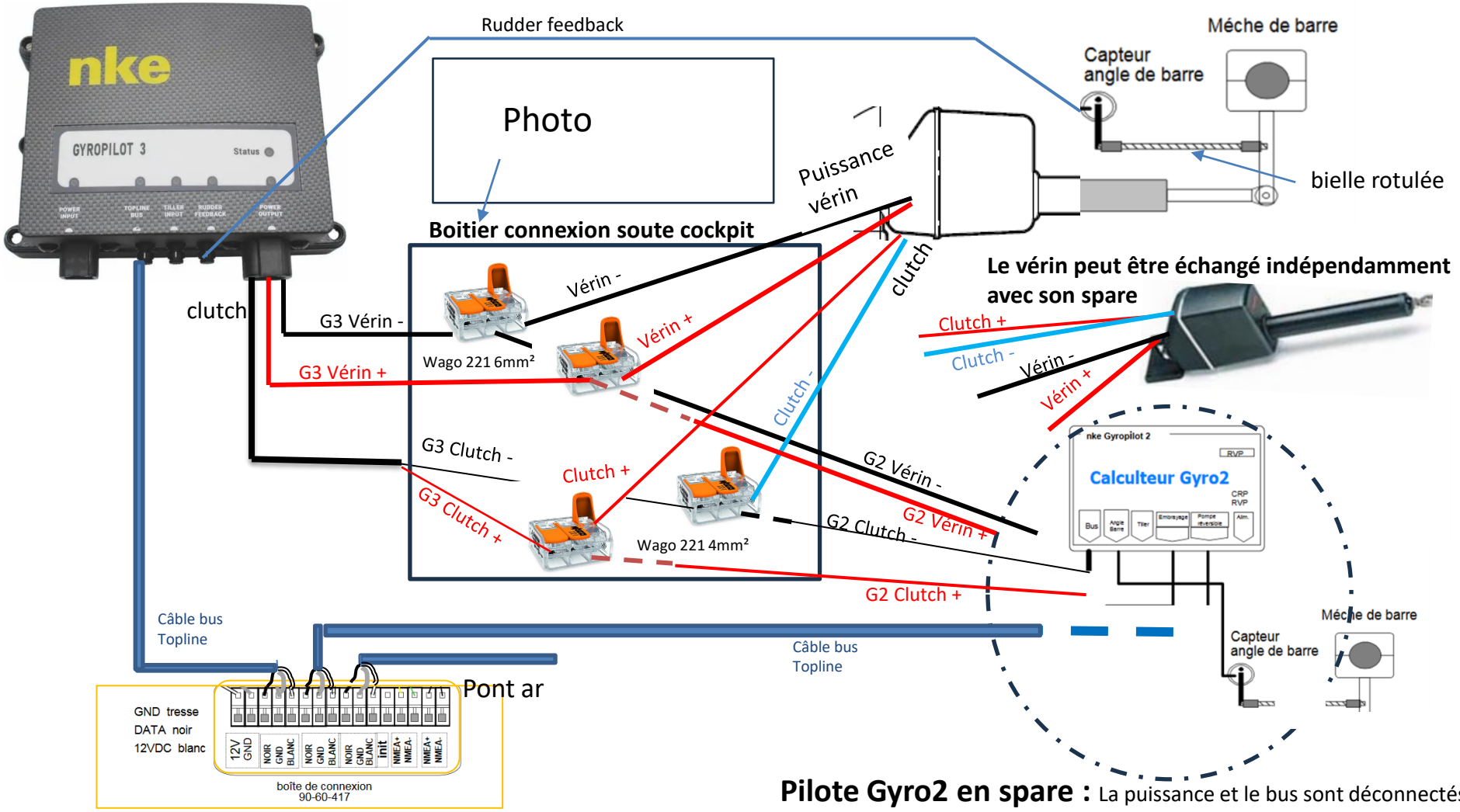




Multigraphic

Barometre HR
90-60-358





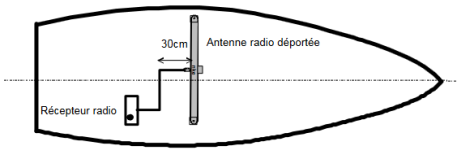
Pilote Gyro2 en spare : La puissance et le bus sont déconnectés (cf. soute cabine arrière)
Le capteur d'angle Gyro2 est branché au pilote mais déconnecté de la bielle rotulée. (cf. soute cockpit)
Dans le boitier connexion soute , le verin et le clutch du Gyro2 sont déconnectés (dysfonctionnement du Gyro3 si le Gyro 2 reste branché)

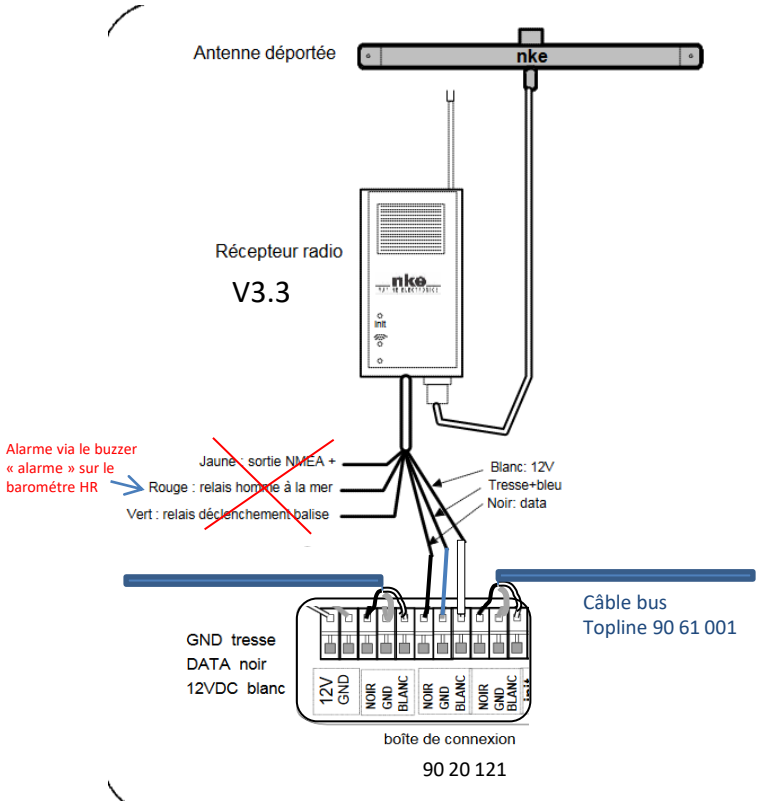
<u>Pour activer le pilote en spare :</u>

- commuter l'alimentation des pilotes (soute cabine arrière)
- rebrancher le bus Toplink sur le Gyro2
- permuter les capteurs de barre au niveau de la bielle rotulée (! Couper le courant lors des manipulations)

Dans le boitier connexion soute cockpit débrancher le Gyro3 et brancher le Gyro2

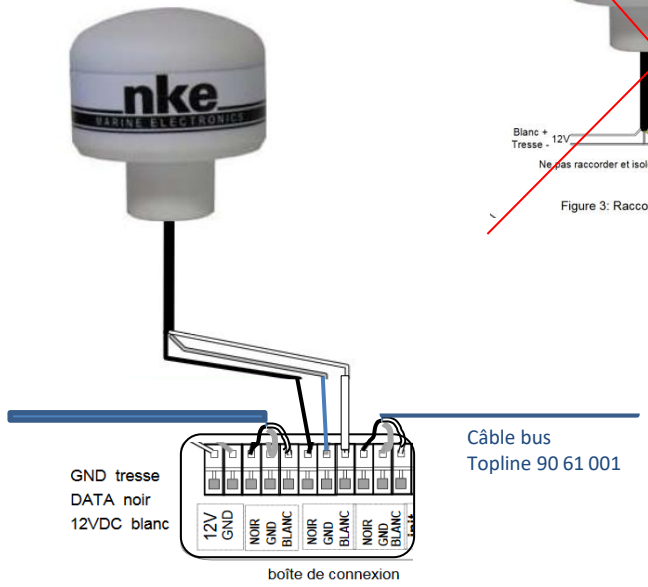
Vérin Raymarine Type 2 court 12 volts

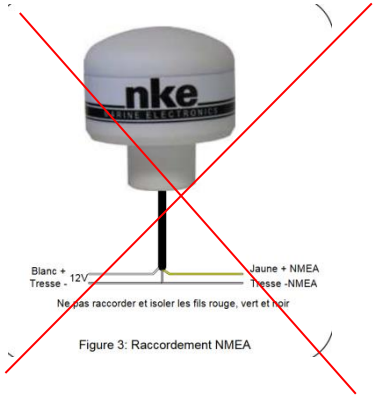


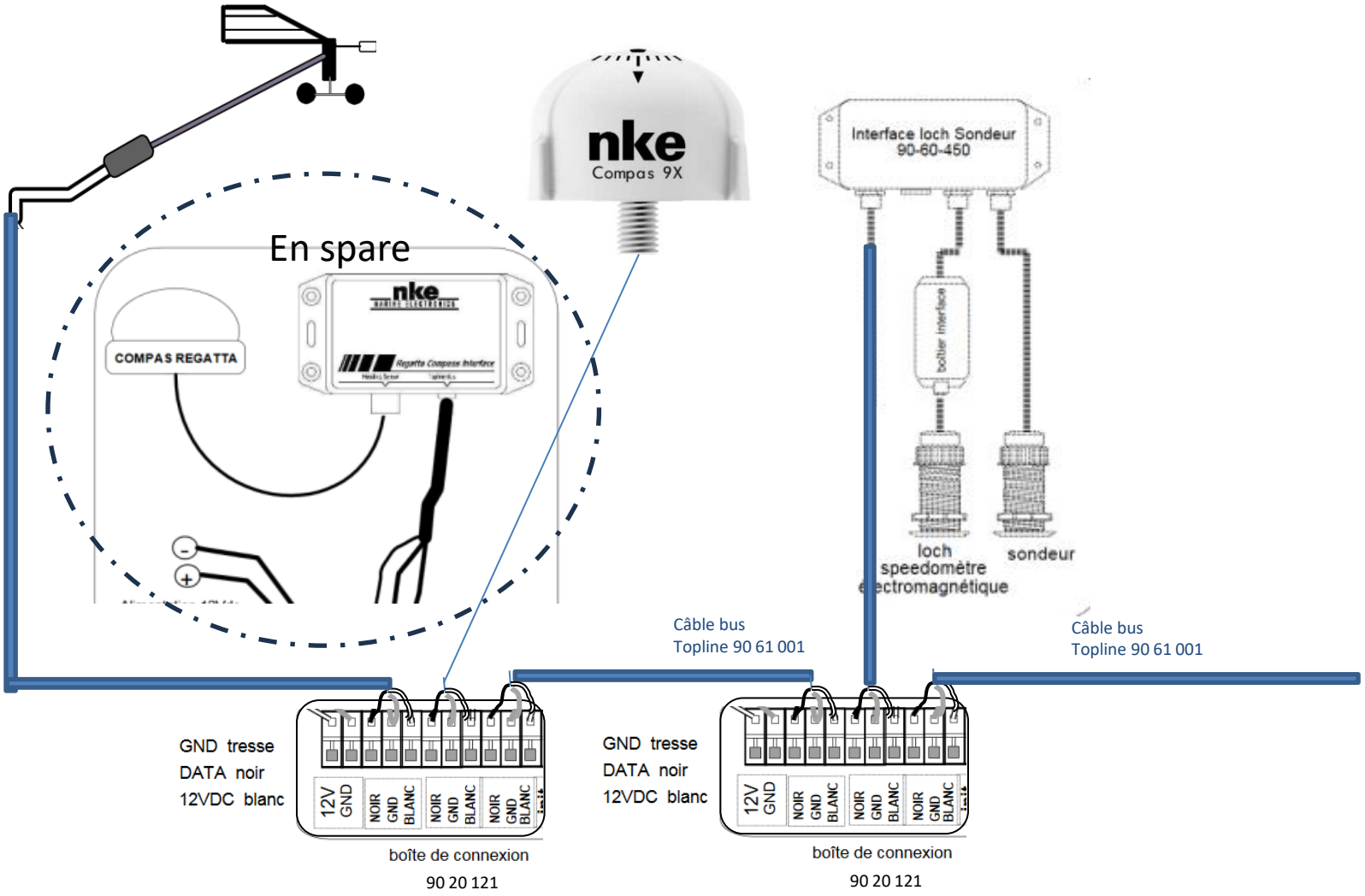


GPS Haute Fréquence
+ option SOG
90-60-397

V2.2






nke
Compas 9X
Interface loch Sondeur
90-60-450
En spare
COMPAS REGATTA
nke
Regatta Compass Interface
boîtier interface
loch
speedomètre
électromagnétique
sondeur
Câble bus
Topline 90 61 001
Câble bus
Topline 90 61 001
GND tresse
DATA noir
12VDC blanc
12V
GND
NOIR
GND
BLANC
boîte de connexion
90 20 121
GND tresse
DATA noir
12VDC blanc
boîte de connexion
90 20 121

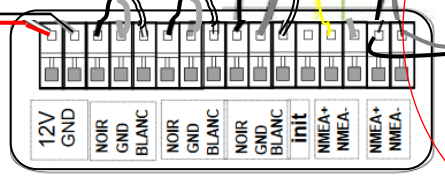
AIS

PIN No.	PIN No.	SPECIFICATIONS	SENTENCE FORMAT	DESCRIPTION
1	GND	—	—	Connects to ground.
2	NMEA1 OUT (–)	• Output level : 5 V/40 mA max. (RS-422 balanced type)	DSC, RMC, GGA, VTG, GSA, GSV, GBS, DTM, DSE, GNS, GLL	Connects to the NMEA input/output connector of a transceiver to transmit an Individual DSC call, or to connect to a GPS receiver. (p. 41) The data communication speed (baud rate) can be selected between 4800 bps (IEC61162-1) and 38400 bps (IEC61162-2) for each Input/Output port. (Default: 4800 bps)
3	NMEA1 OUT (+)			
4	NMEA1 IN (–)	• Input level : Less than 2 mA (at 2 V applied)	RMC, GGA, VTG, GSA, GSV, GBS†, DTM, GNS, GLL	
5	NMEA1 IN (+)			
6	ALERT1	• Load rating : DC 24 V/500 mA max.	—	A short occurs between pins 6 and 11 when the alarm buzzer sounds if a malfunction occurs, or an AIS target is closer than your CPA and TCPA settings.
11	ALERT2			
7	NMEA2 OUT (–)	Same as pins 2 and 3	VDM, VDO, ALR, ACA, ACS, TXT, RMC*, GGA*, GNS*, GLL*, VTG*, GSA*, GSV*, GBS*, DTM*	Connects to the Icom MarineCommander™ system or to a GPS receiver. The data communication speed (baud rate) is fixed to 38400 bps (IEC61162-2) for each Input/Output port.
8	NMEA2 OUT (+)			
9	NMEA2 IN (–)	Same as pins 4 and 5	RMC, GGA, VTG, GSA, GSV, GBS†, DTM, GNS, GLL	
10	NMEA2 IN (+)			
12	NMEA3 OUT (–)	Same as pins 2 and 3	RMC, GGA, VTG, GSA, GSV, GBS, DTM, GNS, GLL	Connects to a piece of navigation equipment or to a GPS receiver. The data communication speed (baud rate) can be selected between 4800 bps (IEC61162-1) and 38400 bps (IEC61162-2) for each Input/Output port. (Default: 4800 bps)
13	NMEA3 OUT (+)			
14	NMEA3 IN (–)	Same as pins 4 and 5	RMC, GGA, VTG, GSA, GSV, GBS†, DTM, GNS, GLL	
15	NMEA3 IN (+)			

†When a received GPS signal includes no GBS sentence, the transponder will not receive the signal from the external GPS receiver.
*Sent only when the "AIS+GPS" option is set in "AIS Output." (p. 12)

BOX Wi Fi
90-60-538

Sortie NMEA 183 filaire
Non utilisée
NMEA +
NMEA -
Fil rouge
Fil jaune
Fil vert
AIS NMEA2 out + fil 7
AIS NMEA2 - out fil 8
Bus Topline 90 61 001
Bus Topline 90 61 001
-Commun
-instruments
+12V bus
GND tresse
DATA noir
12VDC blanc

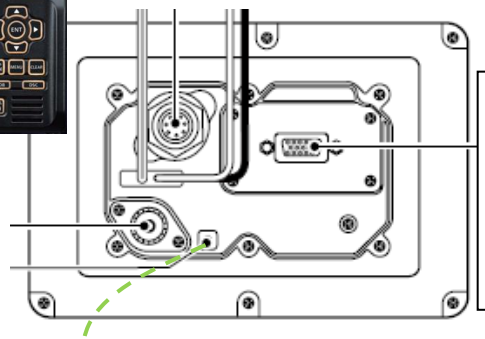


boîte de connexion
90-60-417
90-60-417

Bus NMEA
Vers
Multigraphic
Dog house

NMEA AIS vers Box WIFI et Multigraphics

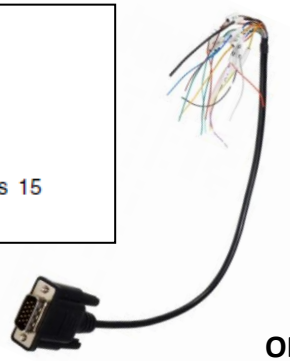
AIS



◇ **High-density D-sub 15 pin assignment**

Rear panel view

NOTE: The OPC-2014 NMEA CONNECTOR CABLE has 15 leads, numbered 1 to 15.



OPC-2014

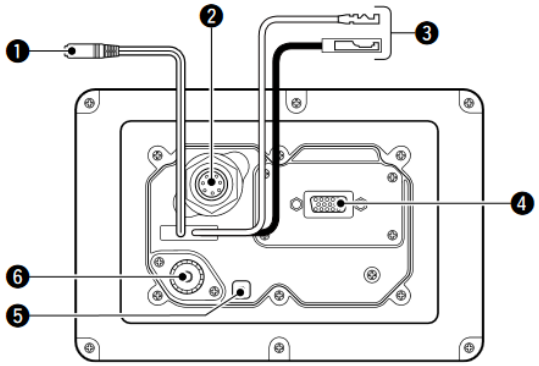
Faisceau interconnexion AIS

Point masse / tableau 12 v table à carte
Raccordement masse instruments

AIS ICOM MA 500

■ Connections

About the installation distance from the compass:
KEEP the transponder at least 1 m (3.3 ft) away from the vessel's magnetic navigation compass.



❶ CLONING CABLE CONNECTOR
Connects the cloning cable from this connector to a PC. Ask your dealer for details.

❷ INTERNAL GPS RECEIVER CONNECTOR
Connects to the MXG-5000 to receive position data and transmit it with other AIS information.

NOTE: Important notes and how to install the MXG-5000 are described on the instruction sheet that comes with it. Be sure to read them before installing and operating the MXG-5000.

❺ GROUND TERMINAL
Connects to a vessel ground to prevent electrical shocks and interference from other equipment occurring. Use a self-tapping screw (3 × 8 mm).

❻ ANTENNA CONNECTOR
Connects to a marine VHF antenna with a PL-259 connector for AIS signal transmission and reception. (p. 38)

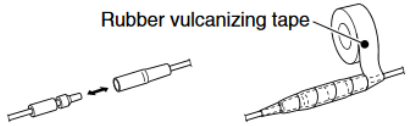
CAUTION: Transmitting without an antenna may damage the transponder.

❸ DC POWER CONNECTOR
Connects the supplied DC power cable between this connector and a 12 V power source.

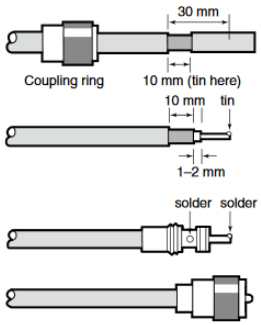
❹ HIGH-DENSITY D-SUB 15 PIN (NMEA IN/OUT)
Connects an Icom MarineCommander™ system, navigation equipment, external GPS receiver, etc. using the supplied OPC-2014 NMEA CONNECTOR CABLE.
See page 37 for the pin assignment.

Requirements of the external GPS:
- The datum of the external GPS receiver must be "WGS-84."
- GBS sentence can be input using the RAIM function.
- The external GPS antenna must be installed within 26 m (85.3 ft) of the internal GPS antenna.

CAUTION: After connecting the DC power cable and NMEA connector cable leads, cover the cable and leads with a rubber vulcanizing tape, to prevent water seeping into the transponder.



• Antenna connector
The antenna uses a PL-259 connector.

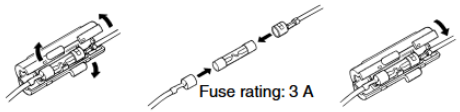


① Slide the coupling ring down. Strip the cable jacket and tin the shield.
② Strip the cable as shown at left. Tin the center conductor.
③ Slide the connector body on and solder it.
④ Screw the coupling ring onto the connector body.

30 mm (1 3/16 in) 10 mm (13/32 in) 1–2 mm (1/32–3/32 in)

■ Fuse replacement

One fuse is installed in the DC power cable. If the fuse blows, track down the source of the problem, have it repaired, and replace the damaged fuse with a new one of the proper rating.



AIS

PIN No.	PIN No.	SPECIFICATIONS	SENTENCE FORMAT	DESCRIPTION
1	GND	—	—	Connects to ground.
2	NMEA1 OUT (–)	• Output level : 5 V/40 mA max. (RS-422 balanced type)	DSC, RMC, GGA, VTG, GSA, GSV, GBS, DTM, DSE, GNS, GLL	Connects to the NMEA input/output connector of a transceiver to transmit an Individual DSC call, or to connect to a GPS receiver. (p. 41) The data communication speed (baud rate) can be selected between 4800 bps (IEC61162-1) and 38400 bps (IEC61162-2) for each Input/Output port. (Default: 4800 bps)
3	NMEA1 OUT (+)			
4	NMEA1 IN (–)	• Input level : Less than 2 mA (at 2 V applied)	RMC, GGA, VTG, GSA, GSV, GBS†, DTM, GNS, GLL	
5	NMEA1 IN (+)			
6	ALERT1	• Load rating : DC 24 V/500 mA max.	—	A short occurs between pins 6 and 11 when the alarm buzzer sounds if a malfunction occurs, or an AIS target is closer than your CPA and TCPA settings.
11	ALERT2			
7	NMEA2 OUT (–)	Same as pins 2 and 3	VDM, VDO, ALR, ACA, ACS, TXT, RMC*, GGA*, GNS*, GLL*, VTG*, GSA*, GSV*, GBS*, DTM*	Connects to the Icom MarineCommander™ system or to a GPS receiver. The data communication speed (baud rate) is
8	NMEA2 OUT (+)			
9	NMEA2 IN (–)	Same as pins 4 and		-2) for each Input/
10	NMEA2 IN (+)			
12	NMEA3 OUT (–)	Same as pins 2 and		ation equipment or
13	NMEA3 OUT (+)			
14	NMEA3 IN (–)	Same as pins 4 and		ed (baud rate) can (IEC61162-1) and each Input/Output
15	NMEA3 IN (+)			

†When a received GPS signal includes no GBS sent
*Sent only when the "AIS+GPS" option is set in "AIS

◇ Connect to the MA-500TR

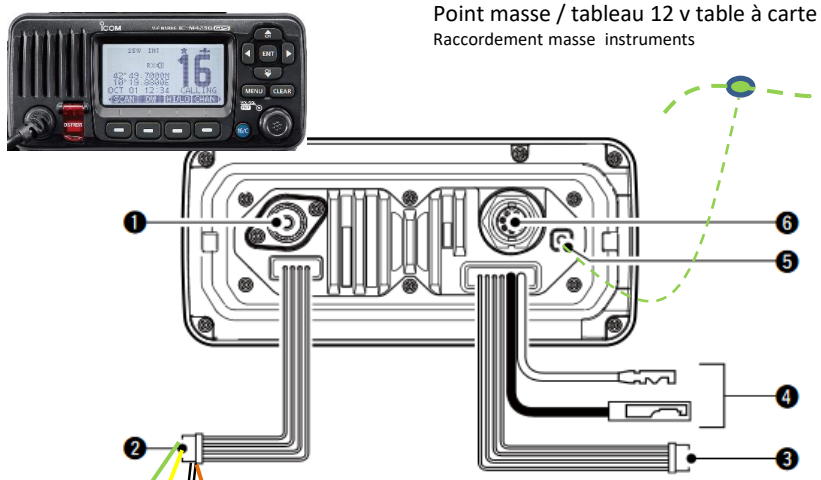
Connect the transceiver to the high-density D-Sub 15-pin connector of the MA-500TR using the OPC-2014* cable. After connecting, an Individual DSC call can be made to the AIS target using the transponder without entering the target's MMSI code.

* The OPC-2014 is supplied with the MA-500TR

- **Listener A (Data-H) lead (Yellow):** Connects to lead 3 of the OPC-2014.
- **Listener B (Data-L) lead (Green):** Connects to lead 2 of the OPC-2014.
- **Talker A (Data-H) lead (White):** Connects to lead 5 of the OPC-2014.
- **Talker B (Data-L) lead (Brown):** Connects to lead 4 of the OPC-2014.

VHF ASN ICOM 423

Point masse / tableau 12 v table à carte
Raccordement masse instruments



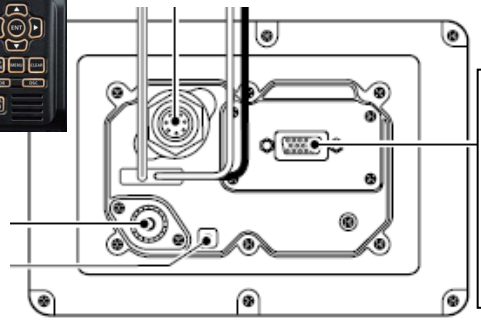
AIS NMEA 1 out- fil 2

AIS NMEA 1 out +fil 3

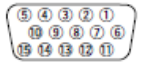
AIS NMEA 1 in + fil 5

AIS NMEA 1 in - fil 4

AIS



◇ High-density D-sub 15 pin assignment



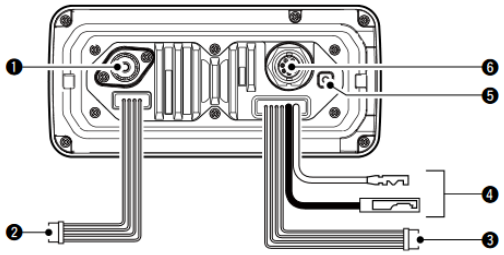
Rear panel view

NOTE: The OPC-2014 NMEA CONNECTOR CABLE has 15 leads, numbered 1 to 15.

AIS fil 1 : - commun

OPC-2014
Faisceau interconnexion AIS

VHF ICOM 423



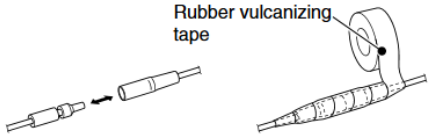
❶ ANTENNA CONNECTOR
Connects to a marine VHF antenna cable's PL-259 connector.

CAUTION: Transmitting without an antenna may damage the transceiver.

❷ NMEA IN/OUT LEADS
Brown: Talker B (Data-L), NMEA In (–)
White: Talker A (Data-H), NMEA In (+)
Connect to NMEA In lines of a PC or NMEA 0183 (ver. 2.0 or later) sentence format DSC, DSE compatible navigation equipment, to receive position data from other ships.

❹ DC POWER CONNECTOR
Connects to a 12 V DC power source.

CAUTION: After connecting the DC power cable, NMEA leads, external speaker leads and PA speaker leads, cover the connector and leads with an adhesive tape, as shown below, to prevent water seeping into the connection.



❺ GROUND TERMINAL
Connects to a vessel ground to prevent electrical shocks and interference from other equipment occurring. Use a PH M3 × 6 screw (not supplied).

❻ COMMAND MICROPHONE JACK
Connects to the optional Command microphone. (p. 81)

Green: Listener B (Data-L), NMEA Out (–)
Yellow: Listener A (Data-H), NMEA Out (+)
Connect to NMEA Out lines of a GPS receiver for position-data.
- A NMEA 0183 ver. 2.0 or later RMC, GGA, GNS, GLL, VTG, GSV, and GSA sentence format compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.

❸ AF OUT LEADS
Blue: External Speaker (+)
Black: External Speaker (–)
Connects to an external speaker.

Orange: Public Address Speaker (+)
Gray: Public Address Speaker (–)
Connects to a PA speaker.
- PA output power: More than 10 W at 10% distortion into a 4 Ω load

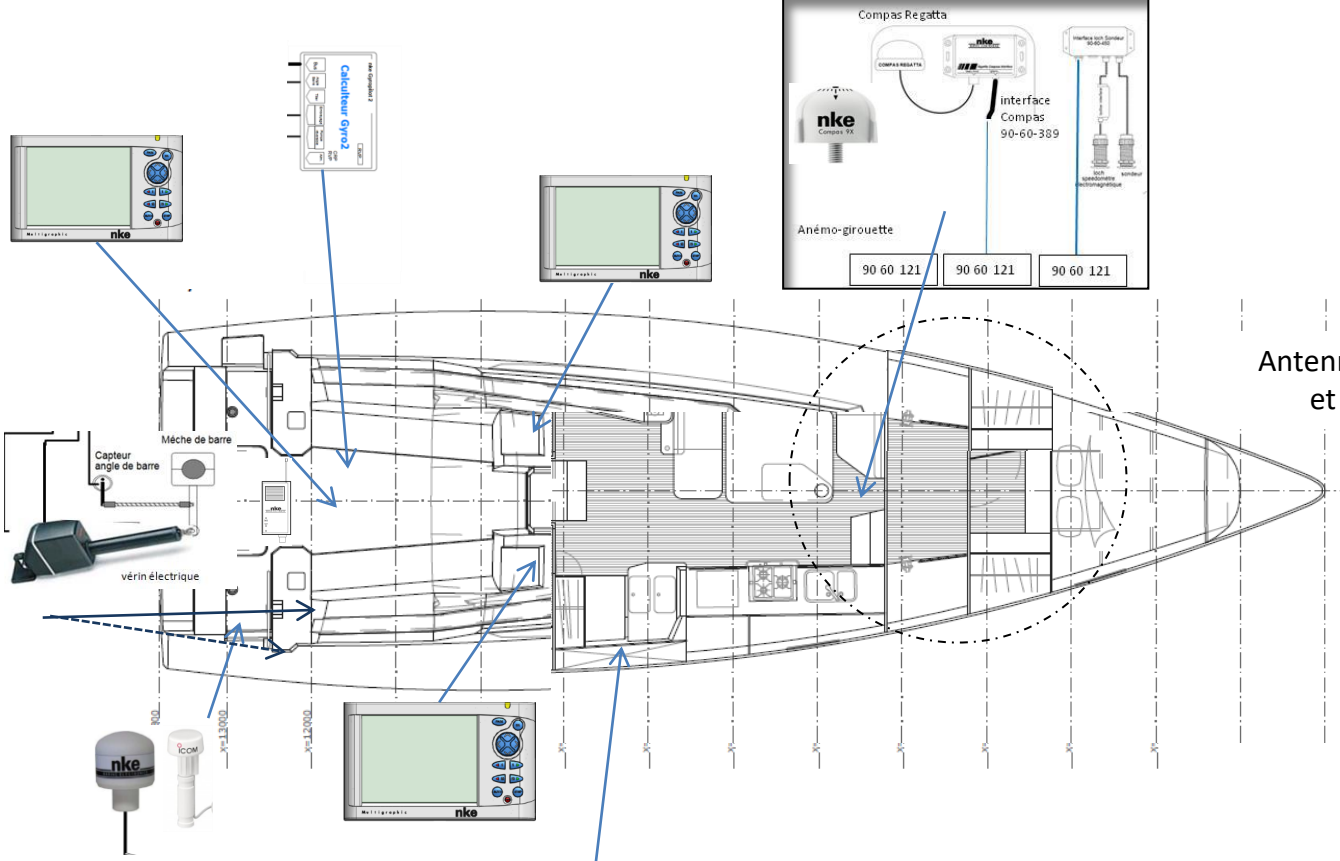
DO NOT connect the black or grey leads to the ground. These leads must be connected to the External speaker (–) or Public Address Speaker (–) lines.

NOTE for NMEA In/Out and AF Out leads:
The connectors are attached to keep the leads together. Before connecting to a piece of equipment, you should cut the leads to remove the connector.

◇ Connect to the MA-500TR

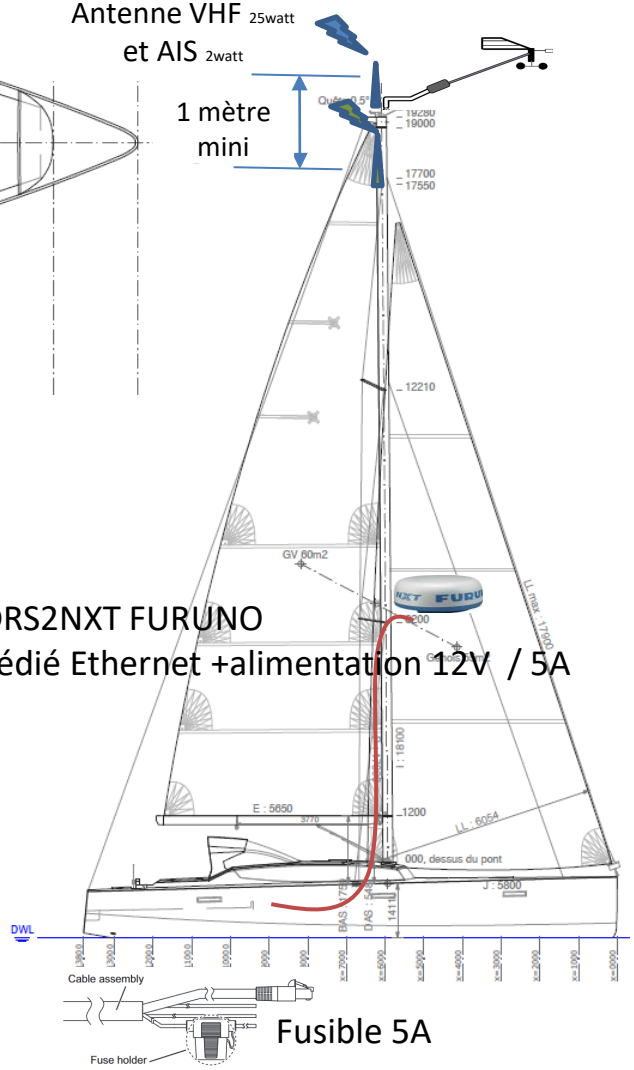
Connect the transceiver to the high-density D-Sub 15-pin connector of the MA-500TR using the OPC-2014* cable. After connecting, an Individual DSC call can be made to the AIS target using the transponder without entering the target's MMSI code.
* The OPC-2014 is supplied with the MA-500TR

- **Listener A (Data-H) lead (Yellow):**
  Connects to lead 3 of the OPC-2014.
- **Listener B (Data-L) lead (Green):**
  Connects to lead 2 of the OPC-2014.
- **Talker A (Data-H) lead (White):**
  Connects to lead 5 of the OPC-2014.
- **Talker B (Data-L) lead (Brown):**
  Connects to lead 4 of the OPC-2014.



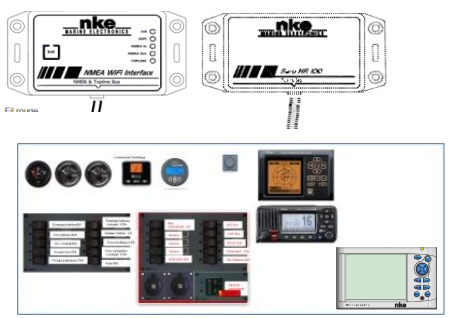
Antenne VHF 25watt
et AIS 2watt

1 mètre
mini



Barometre HR

BOX Wi Fi



Radar DRS2NXT FURUNO
Cable dédié Ethernet +alimentation 12V / 5A

Fusible 5A

WI FI

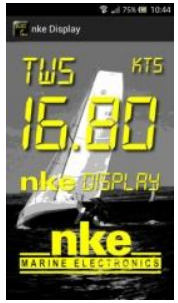
Mini USB

Topline et NMEA0183

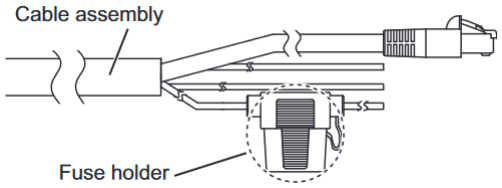
Combo car charger ASUS

ASUS zenbook type UA33x xxxx

USB



NKE Display , SAILTRACKER ..



Connection Radar RJ45 Ethernet

MAXSEA Time zero / routage / carte mega wide / Module Radar