

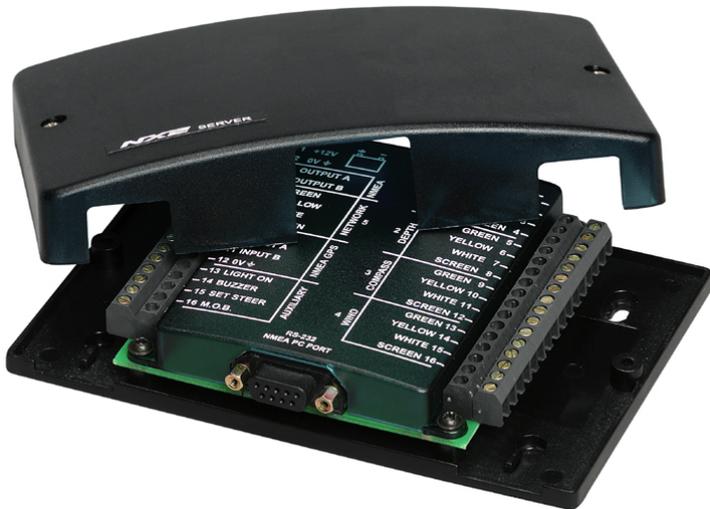
Server



Installation and Operation Manual
English



SERVER



This manual is written for NX2 Server version 2.00 – 5.4
Edition: March 2007

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1 Part specification

Items delivered with the Server

Qty.	Description
1	Nexus Server
4	Server mounting screws
2	Plastic cable straps
1	Power cables, red and black, 3 m (9 ft) each

Registering this product

Once you have checked that you have all the listed parts, please take time to fill in the warranty document and return it to your national distributor.

By returning the warranty card, it will assist your distributor to give you prompt and expert attention. Keep your proof of purchase. Also, your details are added to our customer database so that you automatically receive new product catalogues when they are released.

Warranty conditions see chapter 5.

Welcome aboard the Nexus Network!

Thank you for choosing NX2 and welcome to the world of the Nexus Network.

Through this manual we would like to help you install, operate and understand your new Nexus Network.

The Server is the "heart" of your Nexus Network, to which transducers for speed, depth, heading, wind and navigation (GPS) are connected.

From the Server the single Nexus Network cable transmits power and data to the instruments, which repeat the information sent from the Server, or other NX2 transducers.

The Nexus Network is designed with the industry standard RS 485 databus, which allows you to connect up to 32 Nexus instrument units on the single Nexus Network cable, thereby allowing you the flexibility to easily develop your system. The Nexus Network is capable of carrying data 10 times faster than NMEA 0183.

The connection system, with a single 5 mm (1/5") cable and 4-pole jack plugs with cable protectors, makes the installation easy. No need to drill big holes and the cable can be cut to exact lengths. The connections at the Server are colour coded and marked with a number for easy reference.

NX2 Multi Control is a multi function instrument that displays a main and a sub-function together. You can easily "customise" your favourite combination of functions, by using the unique method to move, copy and lock a sub-function.

The instruments large display gives you very good viewing possibilities from any angle, even in bright sunlight. The display and the five push-buttons have red back lighting which you can set to three different lighting levels.

A large selection of optional analogue repeaters and accessories are available. The analogue steer pilot instrument particularly offers unique functions. When used together with the steer reference function (AWA), you can actually steer after the wind and "expand" the tacking or down wind angle.

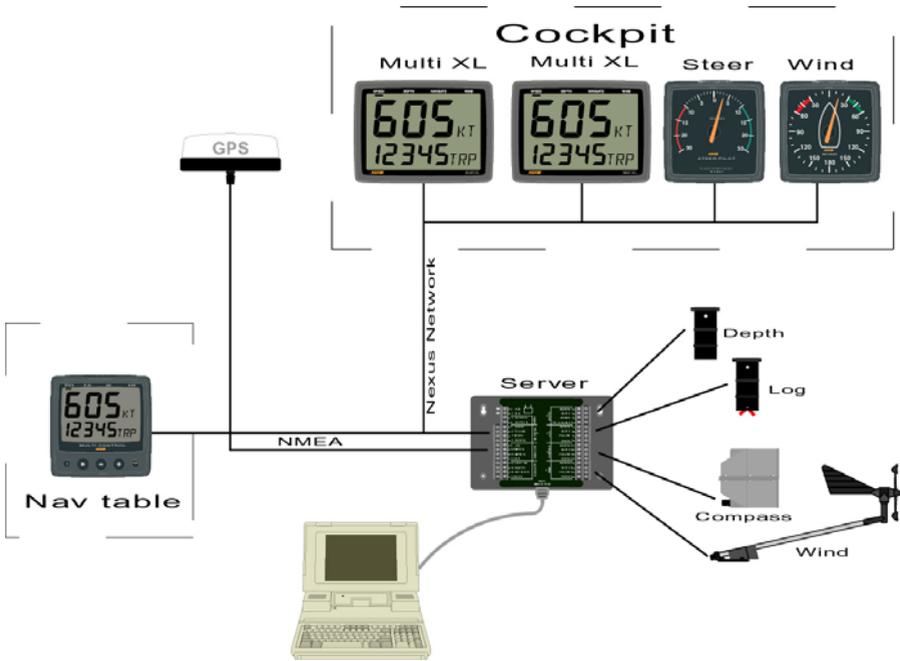
These Nexus instruments carry a two year warranty, which gives you as our customer, confidence to trust Nexus and our commitment to quality.

To get the most out of your new Nexus product, please read through this manual carefully before you start your installation.

Again, thank you for choosing Nexus. If you see us at a show, stop by and say hello.

Good luck and happy boating!

Typical NX2 system:



The NX2 Server is equipped with fault finding LED:s. For more information, see chapter 3.2.2

2 Installation

- **The installation includes 6 major steps:**

1. Read the installation and operation manual.
2. Plan where to install the transducers, Server and instruments.
3. Install the transducers, then the Server and instruments.
4. Run the cables.
5. Take a break and admire your installation.
6. Learn the functions and calibrate your system.

- **Before you begin drilling ...** think about how you can make the installation as neat and simple as your boat will allow. Plan where to position the transducers, Server and instruments. Think about leaving space for additional instruments in the future.

- **A few "do nots" you should consider:**

- **Do not cut the cables too short. Allow extra cable length at the Server so it can be disconnected for inspection without having to disconnect all attached cables.**



- Do not place sealant behind the display. The instrument gasket eliminates the need for sealant.
- Do not run cables in the bilge, where water can appear.
- Do not run cables close to fluorescent light sources, engine or radio transmitting equipment to avoid electrical disturbances.
- Do not rush, take your time. A neat installation is easy to do.

- **The following material is needed:**

- Wire cutters and strippers
- Small and large philips and small flat head screw driver
- Hole saw for the instrument clearance hole 63 mm (2½")
- 2.8 mm (0.11") drill for the mounting holes
- Plastic cable ties

If the cable is not long enough, you can buy the optional Nexus 8 m (26 ft) extension cable (Art. No.21266-8), or use left over Nexus cable from other installations. The same 4-pole Nexus cable is used for all connections.

If you are doubtful about the installation, obtain the services of an experienced technician.

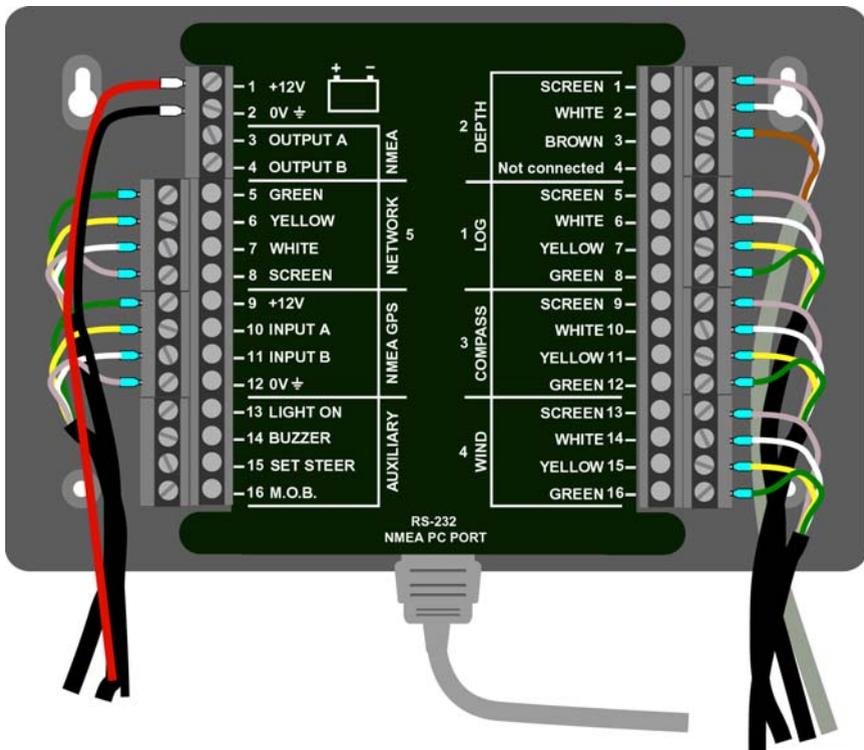
2.1 Location of the Server

The Server must be mounted on a dry, flat and vertical surface below deck, at least 500 mm (20") from radio receiving equipment.

Locate the Server in the centre of the boat and close to the electrical panel if possible.

2.2 Installing the Server

Remove the Server cover from the base plate by removing the two screws. Drill the 4 screw holes using a 2.8 mm (0.11") drill. Mount the Server using the 4 mounting screws.



Apply silicon paste on the screw terminal. Connect the 8 m Nexus Network cable labelled number 5 and supplied with cable protectors to the Server on pins 5, 6, 7, and 8. Match the colour codes for each wire.

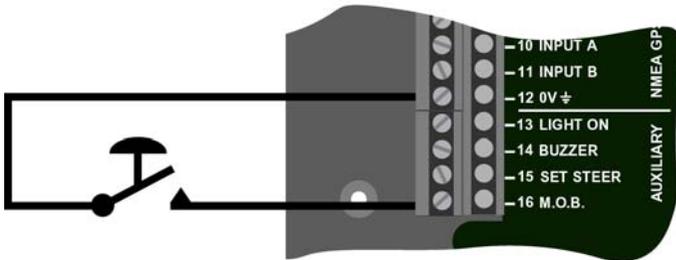
2.4 Connecting optional accessories

These optional accessories are available from your local Nexus Dealer. (For a more complete list of accessories available, see 4.3).

2.4.1 Man over board (MOB) push-button

Art. no. 19763. (For function explanation, see Multi Control Manual).

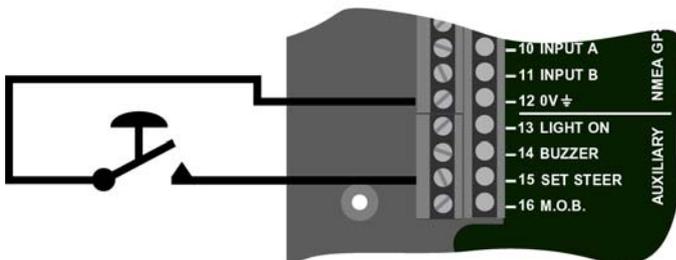
White wire to Server pin 16 (MOB). Brown wire to Server pin 12 (0V).



2.4.2 Tactical function push-button

Art. no. 19763 (same as MOB). (For function explanation, see Multi Control Manual).

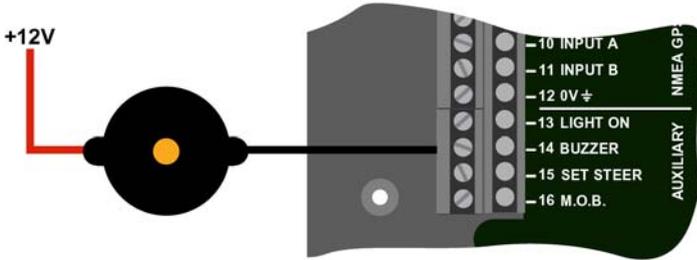
White wire to Server pin 15 (SET STEER). Brown wire to Server pin 12 (0 V).



2.4.3 Extra alarm buzzer

Art. no. 20081. The extra buzzer (105 dB at 15 cm, not water proof) can be mounted where you want a louder sound. The

buzzer will sound as soon as any alarm function is activated in the Nexus Network.
 Red wire to Server pin 9 (+ 12V). Or 12V from switch panel
 Black wire to Server pin 14 (BUZZER).



2.4.4 NX2 instruments

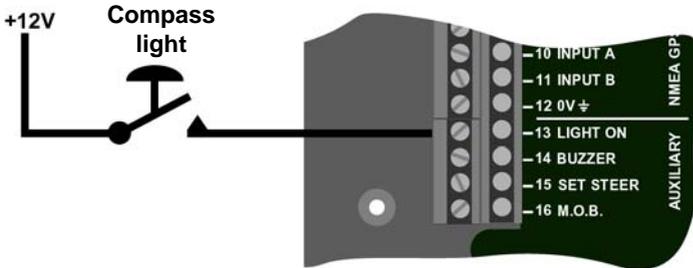
All NX2 instruments are connected directly to the Nexus Network in a daisy chain. They all use the same colour coded 4-pole jack plugs. (For instrument installation, see instrument manual).



2.5 Connecting instrument lighting

The instrument lighting can be controlled from the boats general lighting switch.

Connect the wire from the electrical panels instrument light switch to Server pin 13 (LIGHT ON +12 V).



2.6 How to use the NMEA ports

The NX2 Server is designed with two NMEA input ports and one shared output port. The external NMEA data will be combined with NX2 sensor data so that all information will be available on one single output NMEA port.

One NMEA port (in/out) is dedicated for your PC and follows the RS232 electrical standard. A 9-pole D-SUB connector is placed at the bottom of the Server. The Other port (in/out) is accessed at the screw terminal and follows the NMEA 0183 electrical standard (RS422 out and opto-coupler input).

The two-port Server installation will solve most of the integration needs onboard, the installation with a GPS connected to port A and the Laptop PC on port B.

1. Position, speed and course information is taken from port A (the GPS). The Server will then pass that information plus all other boat-data to port B where the PC and chart navigation software will calculate BTW, DTW and XTE information to the NX2 instruments, radar, auto-pilot, plotter or other source.

The NMEA ports have been given different priority's depending on the type of data that will come into the Server when the same type of data comes on both ports.

Position and time (GPS) data GGA, GLL, GSA, GSV, RMC, ZDA have higher priority on port A.

Navigational data (RMB, BWC, BWR, XTE, APA, APB WPL, BOD WCV) have higher priority on port B.

By using this feature, you may use the PC for planning and part time navigation, then allow for a GPS/ plotter to take over navigation without the need to change connections.

Note!

A Laptop PC may have a GPS PCMCIA card installed and deliver position and time data. However, if the same data is coming in on port A where position have a higher priority, that data will be used prior to the data from the PC.

This three-port combination proposal will add several advantages. The NX2 GPS navigator instrument has its own NMEA port where any GPS may be connected. Navigation can be made from that instrument or it can be used as a repeater, showing data from the Laptop PC or from a GPS placed at the navigation table below deck. The GPS instrument can be used as the primary navigator, the backup or as repeater only.

2. Position, speed and course is received from the Silva NX2 GPS antenna or from any GPS receiver. The Nexus GPS Navigator instrument may navigate by use of the internal 400 way-point memory or repeat data from either the Laptop PC or from a GPS/plotter. Whenever there is a need to get use of three NMEA input ports, this is the recommended way. Additional NMEA compass, wind-transducer or depth-sounder transmitting NMEA can then be added.

Note!

NMEA transducers may degrade the NX2 system performance and accuracy. For highest performance only use NX2 transducers.

2.7 Connecting a NMEA instrument IN to the Server

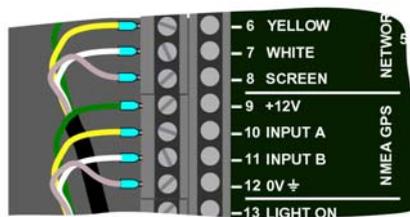
Products transmitting NMEA, for example:

GPS, Decca, Loran, NMEA compass and wind transducer etc.

If a NMEA instrument is connected, most information will be available and can be displayed on the Nexus Network.

You must know which 2 cables from your other NMEA instrument carry the NMEA out signal. If you have trouble call the dealer you bought your NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

Connect NMEA out signal from the NMEA instrument to Server pin 10 (INPUT A).
Connect NMEA return signal from the NMEA instrument to Server pin 11 (INPUT B).
(For list of NMEA receive sentences. see 2.10.3).



Note a: The Server al

d to the input pins 10

Note b: We do not recommend the use of NMEA transducers like wind and compass, because the update rate of data is slow compared to the very fast Nexus data bus.

Note c: If the NMEA instrument has only one output cable, put a "bridge" cable on the Server between pins 11 (INPUT B) and 12 (0V GND).

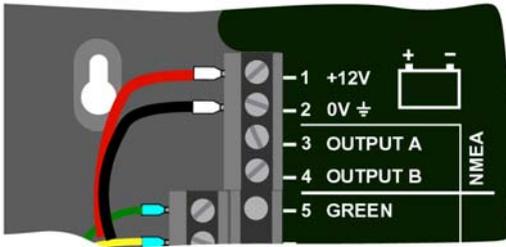
2.8 Connecting a NMEA instrument OUT from Server

Products receiving NMEA, for example:

Plotter, radar, Maxi repeaters, POWER Navigate.

Again you must know which 2 cables from your other NMEA instrument carry the NMEA in signal. If you have trouble call the dealer you bought the NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

Connect NMEA in signal from NMEA instrument to Server pin 3 (OUTPUT A). Connect NMEA return signal from NMEA instrument to Server pin 4 (OUTPUT B). (For list of NMEA transmit sentences, see 2.10.1.)

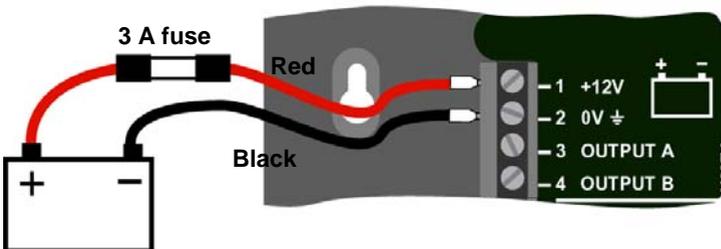


Connecting the power supply

1. Connect the red wire from the Server pin 1 (+12V) to +12V.

Connect the black wire from the Server pin 2 (0V) to 0V.

Protect the circuit with a 3 Amp fuse/circuit breaker on the 12V side.

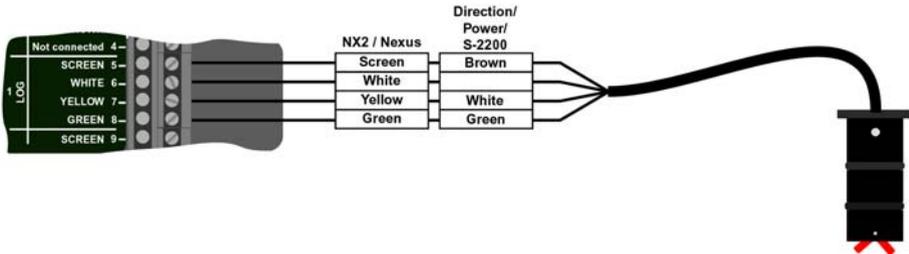


2.9 Compatibility with our previous transducers

2.9.1 Log transducer

All our log transducers (except the transducers from the S-2000 and S-200 series) can be used for speed and distance.

Only transducers from Nexus- and STAR-series are able to measure water temperature.



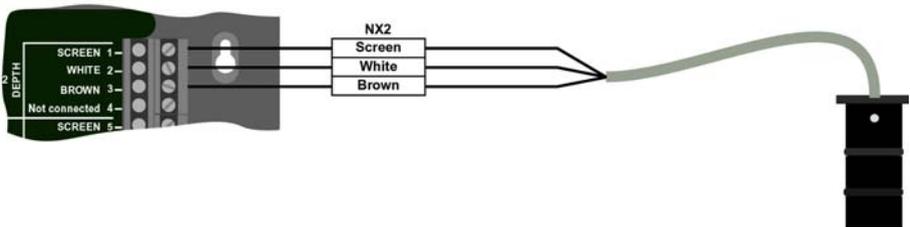
Note: On the Power transducer the white cable (for water temperature) should be isolated and not installed.

2.9.2 Depth transducer

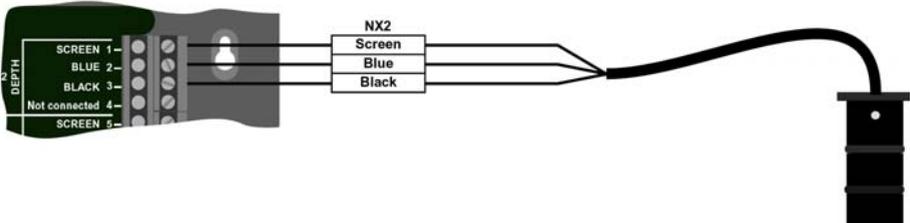
Only our depth transducers for NX2 can be used.

Note: Do not mix with transducers from other series or frequencies!

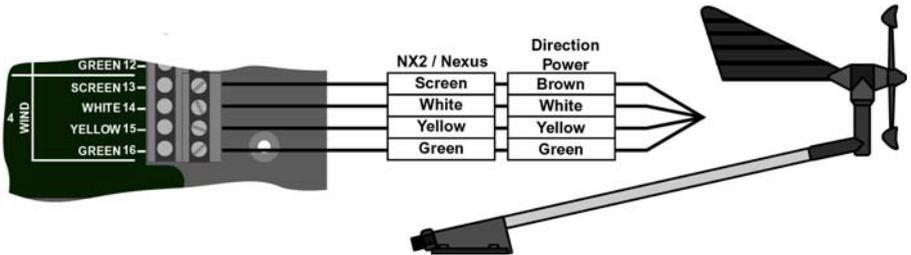
185kHz transducer



200kHz transducer



2.9.3 Wind transducer

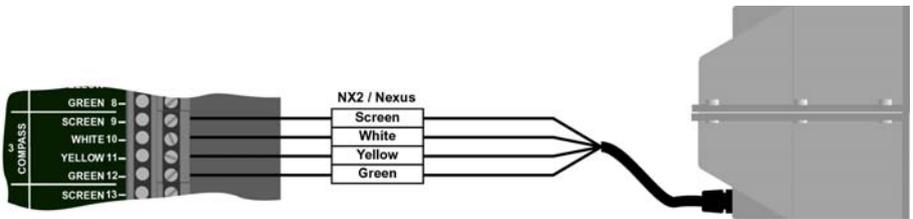


All our wind transducers can be used.

2.9.4 Compass transducer

Only the Nexus version can be used.

Compass transducer for S-5000, D50, S-520/S-525 and POWER can be upgraded to Nexus standard. Contact your local Nexus dealer for a quote.

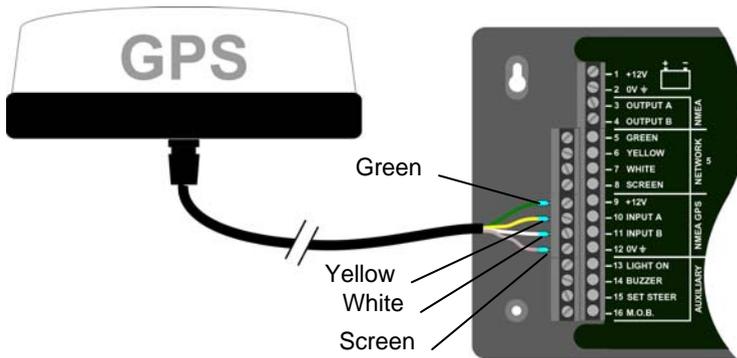


2.9.5 GPS receiver

The NX2 GPS antenna (and other NMEA antennas) is connected to the Servers NMEA input marked NMEA GPS.

2.9.6 NMEA transducers

NMEA compass, NMEA wind, NMEA log and NMEA depth transducer may be used.



You must know which 2 cables from your other NMEA transducer carry the NMEA out signal. If you have trouble call the dealer you bought your NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

Connect NMEA out signal from the NMEA transducer to Server pin 10 (INPUT A).
Connect NMEA return signal from the NMEA transducer to Server pin 11 (INPUT B).

Note a: The Server allows only one NMEA transducer or instrument connected to the input pins 10 and 11.

Note b: Make sure the calibration codes C73, C74, C75 and C76 (See Multi Control Manual) for NMEA transducers are correctly set.

2.10 NMEA

2.10.1 Transmit NMEA sentences OUT from Server

Calibration code C77 to C92 contains 16 NMEA slots

The Server supports 29 different NMEA sentences.

This means you can select up to 16 of the 29 available NMEA sentences.

The Nexus Network uses the NMEA 0183 sentences, version 1.5 and 2.0.

The number in brackets, example (C79), is the calibration code for the factory slot number given to the NMEA sentence.

0	(—)	No out signal
1	(APB)	Autopilot B
2	(BOD)	Bearing original destination
3	(BWC)	Bearing and distance to waypoint
4	(BWR)	Bearing and distance, dead reckoning
5	(C77) (DBT)	Depth measured from the transducers position
6	(DPT)	Depth
7	(C78) (GLL)	Geographic position
8	(GSA)	DOP and active satellites
9	(C79) (GSV)	Satellites in view
10	(C80) (HDM)	Magnetic heading
11	(C81) (HDT)	True heading
	(C89)	
12	(MTW)	Water temperature
13	(C82) (MWD)	Wind direction and speed
14	(MWV)	Apparent wind speed and angle
15	(RMB)	Minimum navigation data
16	(RMC)	Minimum specific GPS- and TRANSIT-data
17	(RTE)	Route
18	(C83) (VDR)	Set and drift
19	(C84) (VHW)	Speed and course through the water
20	(VLW)	Distance travelled through the water
21	(C85) (VPW)	Speed relative to the wind
22	(C86) (VTG)	Course Over Ground and Ground Speed.
23	(C87) (VWR)	Apparent wind speed and wind direction
24	(C88) (VWT)	True wind speed and direction
25	(C90) (WCV)	Waypoint closure velocity
26	(WPL)	Waypoint location
27	(C91) (XTE)	Cross track error
28	(C92) (ZDA)	Time and date
29	(ZTG) & (UTC)	Time to destination or waypoint

Example of NMEA sentences:

```
$IIAPA,A,A,00.007,L,N,V,V,145.03,M,004
$IIAPB,A,A,00.007,L,N,V,V,147.53,T,004,147.52,T,,T*29
$IIBOD,147.53,T,145.03,M,004,000
$IIBWC,101515,5912.890,N,01812.580,E,147.52,T,145.02,M,15.649,N,004
$IIBWC,,,,,147.52,T,145.02,M,15.647,N,004
$IIBWR,101516,5912.890,N,01812.580,E,147.52,T,145.02,M,15.647,N,004
$IIDBT,293.52,f,089.47,M,048.36,F
$IIDPT,089.47,0.40
$IIGLL,5926.110,N,01756.171,E,101517,A
$IIHDM,026,M
$IIHDT,029,T
$IIMTW,19,C
$IIMWD,161.77,T,159.27,M,07.01,N,03.61,M
$IIMWV,133,R,07.03,N,A
$IIRMA,A,5926.110,N,01756.171,E,,,0.23,189.47,,,,*00
$IIRMB,A,00.007,L,000,004,5912.890,N,01812.580,E,15.647,147.52,,V*01
$IIRMC,101340,A,5926.115,N,01756.172,E,0.04,063.42,,,*06
$IIVDR,063.42,T,060.92,M,0.04,N
$IIVHW,029,T,026,M,00.00,N,00.00,K
$IIVLW,49626.59,N,,
$IIVPW,0.00,N,,
$IIVTG,063.42,T,060.93,M,0.04,N,,
$IIVWR,133,R,07.03,N,03.62,M,,
$IIVWT,133,R,07.01,N,03.61,M,,
$IIWCV,0.00,N,004
$IIWPL,5503.000,N,01013.450,E,027
$IIXTE,A,A,00.003,L,N
$IIZDA,101341,,,,
$IIZTG,101341,,004
```

(BWR) consists of rumb line data, and is the same information as (BWC), except that (BWC) consists of great circle data.

(BWR) is a service for receivers not accepting information that is (BWC).

(BW1) is a shorter version of (BWC), i.e. lacks time and destination waypoint position, will be sent out as a zero string. The transmitted string will be (BWC) and not (BW1) (as in the example). (BW1) is for MAXI-Repeaters.

2.10.2 Change NMEA sentences OUT from Server

Before you change any of the factory set NMEA sentences, check what NMEA sentences can be received by your NMEA navigator.

Select the slot number for the sentence to be changed, then press **KEY**.

To select the sentence, press **DOWN** or **UP** until found.

To lock the selected sentence, press **KEY**.

One of the advantages with the Nexus Network is the very fast transmission speed of data compared to the relatively slow NMEA standard (about 10 times faster). Therefore we recommend that you use Nexus instruments and transducers for better accuracy.

It takes two seconds to transmit all 16 NMEA sentences.

To double the transmission speed, select a NMEA sentence 2 times with 7 slots apart, that is the slots should be as far away from each other as possible. In a similar way, you can select the a sentence 4 times to make it 4 times faster.

Example: If you want to transmit the Nexus compass heading via NMEA, to for example an autopilot, select (HDM) for every odd slot number, C79, C81, C83 ... C93, that is 8 times which makes the speed 4 times / second. This leaves the other 8 slots with even numbers, C78, C80, C82 ... C92 free to use for other NMEA sentences.

For connection of NMEA instruments OUT from Server, (see 2.8).

2.10.3 Receive NMEA sentences IN to Server

There are 5 different main types of NMEA sentences:

- 1) Position related data:** Position, SOG/COG, time, and a limited amount of satellite status if a GPS is connected. The information is read if no other Nexus GPS is connected.
- 2) Navigation data:** (BTW), (DTW), (BOD), (XTE), (SET) and (DRIFT). This information is read only if C75 NAV is set to (ON). The Server will automatically send data to the Nexus Network. E.g.: (DRIFT), (WCV), (TTG) and (CTS).
- 3) Compass heading** is read only if (C76 CMP) is set to (ON). Heading is either (HDT) (priority) or (HDM). Magnetic variation (from Nexus Network) is added to (HDM) but not to (HDT).
- 4) Relative wind** angle and wind speed is read from (VWR) data, only if (C77 WND) is set to (ON). True wind angle and wind speed is calculated by Nexus, when the boat speed (the speed of the water) is known.

The following NMEA sentences can be received IN to Server:

APA	Autopilot sentence "A"
APB	Autopilot sentence "B"
BOD	Bearing original destination
BWC	Bearing and distance to waypoint
BWR	Bearing and distance to waypoint (old)
DBT	Depth measured from the transducers position
DPT	Depth
GGA	Global position fix data (GPS)
GLL	Geographic position, Latitude/Longitude
GSA	DOP and active satellites
GSV	Satellites in view
HDM	Heading, magnetic
HDT	Heading, true
RMB	Minimum navigation information
RMC	Minimum specific GPS/transit data
RTE	Not yet implemented
WCV	Waypoint closure velocity

VDR	Set & drift
VHW	Water speed and heading
VWR	Relative wind speed and direction
WPL	Waypoint location Not yet implemented
VTG	Course Over Ground and Ground Speed
XTE	Cross-track-error, measured
ZDA	Time & date
TBS	Target boat speed
CAD	Custom angular data
CFD	Custom fix data
ZDA	Time & date

For connection of NMEA instrument IN to Server, (see 2.7).

All data (POSITION, BTW, SOG/COG, etc.) is received from one type of NMEA sentence. If data is placed in different locations, the data will be selected from the sentence with the highest priority.

Example I: Position is read in priority order: GGA, GLL and. RMC

Example II: BTW/DTW is priority first with: RMB, BWC and BWR.

The transmission ID (the first two letters after "\$") is ignored by the Server. Present position is read, after that possible latitude and longitude correction is added (C39 and C40) before the position is sent over the Nexus Network to all instruments

2.11 Special NMEA sentences

The Server can read 2 special NMEA sentences which can be send from a PC. One contains TBS (target boat speed), the other CAD (customised angle data) and CFD (customised fixpoint data). These 3 data are retransmitted on the Nexus Network and can be displayed as a sub-function on the Multi Control instrument.

To get the sub-function TBS, select main function SPEED and the "empty" sub-function. Then press PAGE and SET together followed by CLEAR.

To get the sub-function CAD, select main function NAVIGATE and the "empty" sub-function. Then press PAGE and SET together followed by CLEAR.

To get the sub-function CFD, select main function WIND and the "empty" sub-function. Then press PAGE and SET together followed by CLEAR.

Example of special NMEA-sentence:

\$PSILTBS,X,X,N<CR><LF>



\$PSILCD1,X,X,X,X,<CR><LF>



2.11.1 Baudrate control,

It is possible to change the baudrate from 4800bps to 19200bps. To do that, a PC is required. Note 19200 is not to be considered as NMEA since the standard states 4800.

a. The Requesting unit is allowed to transmit the message:

"\$PSILBPS,19200,R,<CR><LF>"

once every 2s at nominal 4800 bps with normal NMEA start bit and stop bit settings. This message may be received on any of the two Server ports.

b. The receiving unit (NX2 Server) will Confirm message:

"\$PSILBPS,19200,C,<CR><LF>"

and send it back on output ports to the requesting unit.

c. When the requesting unit receives the same message but with the flag set to "C" (Confirmed), both server ports (A and B) are set to 19200bps and transmission may start at the new baudrate. The sending unit may now stop sending the proprietary request message since it has entered the higher baudrate. There is no way back unless there is a power loss.

From power up, baudrate is always set to 4800 and the above procedure must be repeated.

The receiving unit (Nexus Server) will always check for the proprietary message when in normal baudrate, not when in high baudrate.

3 Maintenance and fault finding

3.1 Maintenance

- To clean the instrument, use only mild soap solution and rinse with water.
- Do not use detergents or high pressure washing equipment.
- At least once a year, check all your connections and apply additional silicon paste at each connection point.
- Always use the instrument cover for protection, when not in use.
- Storing transducers and instruments when not in use for longer periods: It is advisable to remove the instruments and transducers, and store them inside the boat or at home in room temperature, if possible.

3.2 Fault finding

Before you contact your Nexus dealer, and to assist your dealer to give you a better service, please check the following points and make a list of:

- All connected instrument and transducers , including their software version numbers.
- Server software version number.
- Nexus Network data bus ID numbers for each instrument (displayed at power up).

3.2.1 General

In most cases, the reason for faults in electronic equipment is the installation or poor connections. Therefore, always first check that:

- Installation and connection is made per instructions for instrument and transducers, (see 3).
- Screw terminals are carefully tightened.
- No corrosion on any connection points.
- No loose ends in the wires causing short cuts to adjacent wires.
- Cables for damage, that no cables are squeezed or worn.
- Battery voltage is sufficient, should be at least 10V DC.
- The fuse is not blown and the circuit-breaker has not opened.
- The fuse is of the right type.
- Two instruments do not have the same ID number, (see Multi Control Manual).

3.2.2 Fault - action

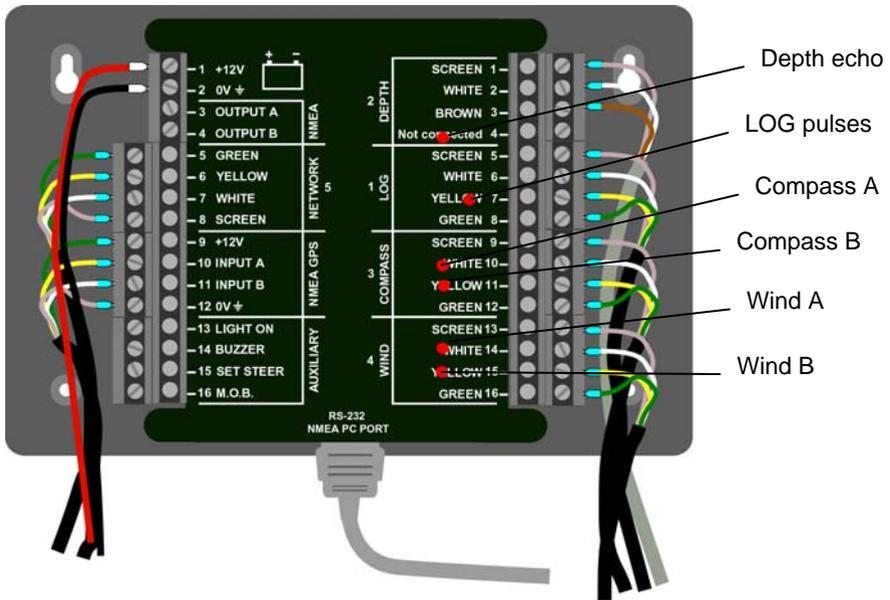
1. Speed and distance functions: No reading (---)

- C95 (COG) should be OFF, if no navigator is connected.

The server is equipped with a built in fault finding LED. Every turn the paddle wheel takes the LED flashes once. When the boat is standing still the LED is either on or off. If you remove the transducer and slowly spin the paddle wheel the LED should go on and off.

When the boat is running the LED is flashing.

If the LED is constantly on or of, check the connections.



Irregular values: Check the speed damping (SEA), (see Instrument manual).

2. Compass: No reading (---)

- C94 should be OFF, otherwise, COG is displayed instead of HDC.
- C75 should be OFF, if no NMEA compass is connected.
- Make sure the (Auto DEV) routine is done correctly, (see instrument manual)
- Make sure the transducer is not mounted upside down.
- The transducer cable should face down.
- Make sure transducer is aligned correctly, (see instrument manual).

With a the built in fault finding LED's, you can check that the signals from channel A and B are correct. The LED is flashing very fast with 13HZ (13 times per second) which is difficult to see but you will see that the LED is not on constantly. If one or both LED are on or of all the time, check the connections.

Irregular values: Check the compass damping (see instrument manual),

Make sure there are no ferrous items close to the transducer.

3. Wind: No reading (---)

- C76 should be OFF, if no NMEA wind is connected.
- If inaccurate wind data is received, check the connections (separate through deck connection or below decks connection), are properly made.
- With a the built in fault finding LED's, you can check that the signals from channel A and B are correct. The two LED is flashing once every turn the propeller makes. If the wind speed is high, the flashing is very fast which is difficult to see but you will see that the LED is not on constantly.
- If one or both LED are on or of all the time, check the connections.

4. What you should know about digital depth sounders.

The principle of a depth sounder is that you measure the time it takes for a short acoustic signal to go from the transducer to bottom and back again to the transducer.

The echo changes due to bottom character, heavy layers of salt and temperature, irregular bottom vegetation, fish etc. Thanks to an advanced signal treatment, these variations will normally not influence the depth measurement.

You can in some circumstances get transitory disturbances.

Below are listed some explanations for disturbances to the measurement of depth and how it is expressed on the instrument display.

1. There is no depth reading on the display. Only (---) is displayed:

If there are no depth echoes for 3 seconds, the display indicates 3 dotted lines (---) until a new echo is received.

- In deep water outside the range of the transducer, or the combination of deep water and soft bottom which makes it difficult to reflect the signal.
- When the boat is heeling heavily, for example when sailing.
- In a propeller stream, where air bubbles are created. Example when powering astern or when following close behind a power boat.
- Check the connection at the Server. Make sure the cable is correct between, instrument and transducer, as marked on the Server.
- Internal mount with poor signal penetration due to a too thick hull, (maximum thickness recommended is 20 - 30 mm) or air between transducer and hull.

The built in fault finding LED is flashing every time a echo is received to the server. The depth sounder is transmitting three times per second and the LED flashes 3times/sec if everything is correct.

If the LED is constantly off, check the connections. Or the mounting of the transducer.

2. Unstable or erratic readings. Can happen in the following cases:

- When going over shoal water, with uneven and high bottom vege-tation.
- In heavy layers of salt or noticeable ranges of water temperatures.
- In heavily agitated water containing particles of sand or some other contamination.

The bottom of the transducer may be painted with anti fouling for protection against weed growth. It is recommended the transducer is cleaned at regular intervals depending on what kind of waters you boat in.

Weed on the transducer can cause either no reading or unstable readings.

In general when a boat is moored in a harbour with other boats around, there can be disturbances from signals from other depth transducers, chains or other mooring equipment, which will result in wrong depth readings.

3.2.3 Error messages

The following error messages can appear on the display:

ERROR 2	Nexus Network is missing, check colour coded connections
ERROR 3	No data received within a given time.
ERROR 10	Range error caused by bad format e.g. 17° 70' East.
ERROR 11	Remote command that can not be performed.
ERROR 12	No response from, or missing navigator.
ERROR 13	Waypoint not defined.
ERROR 15	Functions not allowed in autopilot mode.
ERROR 16	Automatic deviation not possible due to NMEA compass selected.
ERROR 17	Automatic deviation check failed. Turn not completed, error larger than 1,5°.
ERROR 19	The boat probably hit a wave during turn. Error larger than 1,5°.

If other error messages than the above appears on the Multi Control instrument, contact your Nexus dealer.

4 Specifications

4.1 Technical specifications

Dimensions:	Server: 110 x 165 x 30 mm. (4.3x6.5x1.2 inch)
Instrument cable:	8 m (26 ft).
Power supply:	12V DC (10-16V). The instruments are polarity protected
Power consumption at 12V:	Server: 0,2W.
Temperature range:	Storage: -30° to +80°C (-22° to +176°F) Operation: -10° to +70°C (14° to +158°F)
Weight:	220 gram. (7.76 oz).
Enclosure:	Splash proof

CE approval

The products conforms to the EMC requirements for immunity and emission according to EN 50 08-1.

4.2 Nexus databus introduction and user policy

Introduction:

The Nexus data bus is a multi talker multi receiver data bus specially designed for marine navigation applications. It utilises the RS485 standard with up to 32 senders and/or receivers to form a Local Area Network. Data is transmitted synchronously with 1 start-bit, 8-data-bits, 1 parity-bit, two stop-bits in 9600 baud.

User policy:

The Nexus data bus is open for new users and applications without the a licence or a licence fee. The data bus is, however, the property of the manufacturer, which means the specification must be followed in order to protect the manufacturer's commitments to the Nexus data bus performance and safety.

For most PC-applications, the full duplex interface (Art. No. 21248), will be a very useful tool for monitoring real time data, to edit and store waypoints to PC-file or to Server and/or to the Nexus GPS. The interface is supplied with a cable for connection from PC to the Server or Nexus instruments and/or the Nexus GPS. A 9-pole D-sub connector is connected to the RS232 port on the PC.

4.3 Optional Accessories

Below find a selection of optional accessories available. Please contact your local NX2 dealer for more information.

NX2 Completes

- 22118-3 Multi Control instrument and Server, 8m cable
- 22118-2 Multi Control and Server with Speed Log and depth transducer, 8m cable
- 22118-1 Speed log with log transducer, 8m cable
- 22118-4 Wind Data, with transducer, 25m cable, mast bracket
- 22118-5 Compass Data, with transducer 35°, 8 m cable
- 22118-6 GPS Navigator, with GPS Antenna, 8+10m cable

NX2/Nexus Transducers

- 22120-1 Server compl with 3m power cables
- 20707 Log/Temp transducer, 8 m cable (for Nexus and Star)
- 19915-8 Depth transducer, 8m cable (for NX2 only)
- 21731 Compass transducer 35°, 8m cable
- 20860 Compass transducer 45°, 8m cable
- 20721 Wind transducer, 25m cable, mast bracket
- 20721-1 CF-wind transducer, Carbon Fibre, 1260mm long, 380g, no mast cable incl.
- 20594 Nexus mast cable 25m
- 21721 MTC (Mast Twist Compensation) box, 8m cable, for Wind Data instr.
- 69980 MRC (Mast Rotation Sensor Compensation) box
- 21970 GPS Antenna, with NMEA 0183 output
- 21735 Bracket for GPS Antenna and 35° Compass transducer for bulkhead mount

NX2 Digital Instruments (all supplied with 0.2m cable)

- 22117-1 Speed log instrument
- 22117-3 Multi Control instrument
- 22117-4 Wind Data instrument
- 22117-5 Compass Data instrument
- 22117-6 GPS Navigator instrument
- 22117-7 Autopilot instrument

NX2 Analog Instruments (all supplied with 0.2m cable)

- 22115-01 NX2 Analog Wind Angle
- 22115-02 NX2 Analog Steer Pilot
- 22115-03 NX2 Analog Speed Trim
- 22115-05 NX2 Analog Speed 0-16kts
- 22115-06 NX2 Analog Speed 0-50kts
- 22115-07 NX2 Analog Depth 0-200m
- 22115-08 NX2 Analog Depth 0-600ft
- 22115-09 NX2 Analog Rudder angle
- 22115-10 NX2 Analog Compass
- 22115-11 NX2 Analog GPS Speed 0-16kts
- 22115-12 NX2 Analog GPS Speed 0-50kts
- 22115-13 NX2 Analog GPS Course

Nexus Remote Control Instrument

- 21210 Remote Control Instrument (RCI), with Autopilot control, 5m cable, bracket
- 21218-1 Bracket Remote Control instrument
- 20966 Connector 4-pole, NEW model (Allows cable - cable connection)

Nexus Multi XL

21680-1 Multi XL instrument, 4m cable (RCI or Multi Center needed to control Multi XL)
 21684-1 Multi XL Set, Multi XL instrument and Remote Control instrument
 69995 Mast bracket XL, in aluminium for Multi XL and Nexus / Star 110x110mm instr.

NX2 GPS

22118-6 GPS Navigator, with GPS Antenna, 8+10m cable
 22117-6 GPS Navigator instrument
 21970 GPS Antenna, with NMEA 0183 output
 20992-2 Bracket GPS Antenna, plastic with female thread 1" x 14 tpi
 21735 Bracket for GPS Antenna and 35° Compass transducer for bulkhead mount

Nexus Autopilot components

22117-7 Autopilot instrument
 21210 Remote Control instrument, with Autopilot control, 5m cable, bracket
 22115-09 NX2 Analog Rudder angle

21035-2 Servo Unit A-1510, 8m cable
 20860 Compass transducer 45°, 8m cable
 21731 Compass transducer 35°, 8m cable
 21036 Rudder Angle Transmitter RFU-25, 15m cable, ball joint linkage 230mm x 2
 69981 Linear Rudder Angle Transmitter

21134 Pumpset PF-0.3 12V
 21134-24 Pumpset PF-0.3 24V
 21341 Pumpset PF-0.3S 12V, with solenoid
 21341-24 Pumpset PF-0.3S 24V, with solenoid
 21136 Linear Drive AN-23, stroke 229mm, peak thrust 680kg
 69991-12 Integrated Linear Drive HP-40, stroke 254mm, peak thrust 500kg

5 Warranty

WARRANTY

GENERAL

All our products are designed and built to comply to the highest class industry standards. If the products are correctly installed, maintained and operated, as described in the installation and operation manual, they will provide long and reliable service. Our international Network of distributors can provide you with the information and assistance you may require virtually anywhere in the world.

Please read through and fill in this warranty card and send it to your national distributor for product registration.

LIMITED WARRANTY

The warranty covers repair of defective parts due to faulty Manufacturing and includes labour when repaired in the country of purchase. The warranty period is stated in the product manual, and commences from the date of purchase. The above warranty is the Manufacturer's only warranty and no other terms, expressed or implied, will apply. The Manufacturer specifically excludes the implied warranty of merchantability and fitness for a particular purpose.

CONDITIONS

- The supplied warranty card and receipt with proof of purchase date, must be shown to validate any warranty claim. Claims are to be made in accordance with the claims procedure outlined below.
- The warranty is non-transferrable and extends only to the original purchaser.
- The warranty does not apply to Products from which serial numbers have been removed, faulty installation or incorrect fusing, to conditions resulting from improper use, external causes, including service or modifications not performed by the Manufacturer or by its national distributors, or operation outside the environmental parameters specified for the Product.
- The Manufacturer will not compensate for consequential damage caused directly or indirectly by the malfunction of its equipment. The Manufacturer is not liable for any personal damage caused as a consequence of using its equipment.
- The Manufacturer, its national distributors or dealers are not liable for charges arising from sea trials, installation surveys or visits to the boat to attend to the equipment, whether under warranty or not. The right is reserved to charge for such services at an appropriate rate.
- The Manufacturer reserves the right to replace any products returned for repair, within the warranty period, with the nearest equivalent, if repair within a reasonable time period should not be possible.
- The terms and conditions of the warranty as described do not affect your statutory rights.

CLAIMS PROCEDURE

Equipment should be returned to the national distributor, or one of its appointed dealers, in the country where it was originally purchased. Valid claims will then be serviced and returned to the sender free of charge.

Alternatively, if the equipment is being used away from the country of purchase, it may be returned to the national distributor, or one of its appointed dealers, in the country where it is being used. In this case valid claims will cover parts only. Labour and return postage will be invoiced to the sender at an appropriate rate.

DISCLAIMER

Common sense must be used at all times when navigating and the Manufacturer's navigation equipment should only be considered as aids to navigation.

The Manufacturers policy of continuous improvement may result in changes to product specification without prior notice.

File id:

WARRANTY CARD
TO BE RETURNED TO YOUR NATIONAL DISTRIBUTOR

OWNER:

Name: _____

Street : _____

City/Zip Code : _____

Country: _____

Product name:

Serial number:

	A	B	C	1	2	3	4	5	6	7
_____	<input type="checkbox"/>									
_____	<input type="checkbox"/>									
_____	<input type="checkbox"/>									
_____	<input type="checkbox"/>									
_____	<input type="checkbox"/>									
_____	<input type="checkbox"/>									

Date of purchase: _____ Date installed _____

Dealers stamp:

Tick here if you do not wish to receive news about future products

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