FURUNO

INSTALLATION GUIDE
BBWX2
SATELLITE RECEIVER/SWITCH

Please place the ESN sticker provided in the box below

FURUNO U.S.A.

Sirius Weather Receiver
P/N: BBWX2

S/N: 12345MMDDYYNNNN

SIRIUS

ESN: 0123456789212

Made in China

This ==ESN number== is required to activate SIRIUS weather and audio services.

SIRIUS
SATELLITE RADIO

Contact SIRIUS at 1-800-869-5480

FURUNO U.S.A.

www.furunousa.com

⚠ WARNING

Do not open the enclosure unless totally familiar with electrical circuits.

Only qualified personnel should work inside the equipment.

Do not install the unit where it may get wet from rain or water splash.

Water in the unit can result in fire, electrical shock or damage the equipment.

Use only the specific power cable.

Fire or damage to the equipment can result if a different cable is used.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

⚠ CAUTION

Observe the following compass safe distances to prevent interference to a magnetic compass:

	Standard Compass	Steering Compass
BBWX2	0.8m	0.5m

Table of Contents

1.0 Preface

1.1 Disclaimer

⚠ CAUTION

Advisory – the weather information is subject to service interruptions and may contain errors or inaccuracies and consequently should not be relied upon exclusively. The service is provided as is. You are urged to check alternate weather information sources prior to making safety related decisions.

You acknowledge and agree that you shall be solely responsible for use of the information and all decisions taken with respect thereto.

By using this service, you release and waive any claims against Sirius Satellite Radio Inc., WSI, Navcast Inc. and Furuno with regard to this service.

This Installation Guide represents the product at the time of printing. Furuno reserves the right to make changes to the specification without notice.

If you do not have a **Sirius Subscription Agreement** , you will find a copy at:

www.sirius.com/marineweather/marineweather_terms_and_conditions.pdf

Or call 1-800-869-5480 to have a copy sent to you.

2.0 Introduction

The BBWX2 unit combines a Sirius Satellite Receiver (similar to the BBWX1) and an Ethernet 4-port Switch.

The **Receiver** provides Sirius Satellite weather services and Sirius Radio (with two audio jacks). Currently, only Audio Port1 is active. Audio Port 2 is for future development.

The **Switch** uses an Ethernet interface (100-BASE-TX or 10-BASE-T) to provide the network communications among the NavNet 3D equipment and PC. Four external ports are provided on this **Switch** (there is one internal port dedicated to the **Receiver**).

2.1 System Configuration
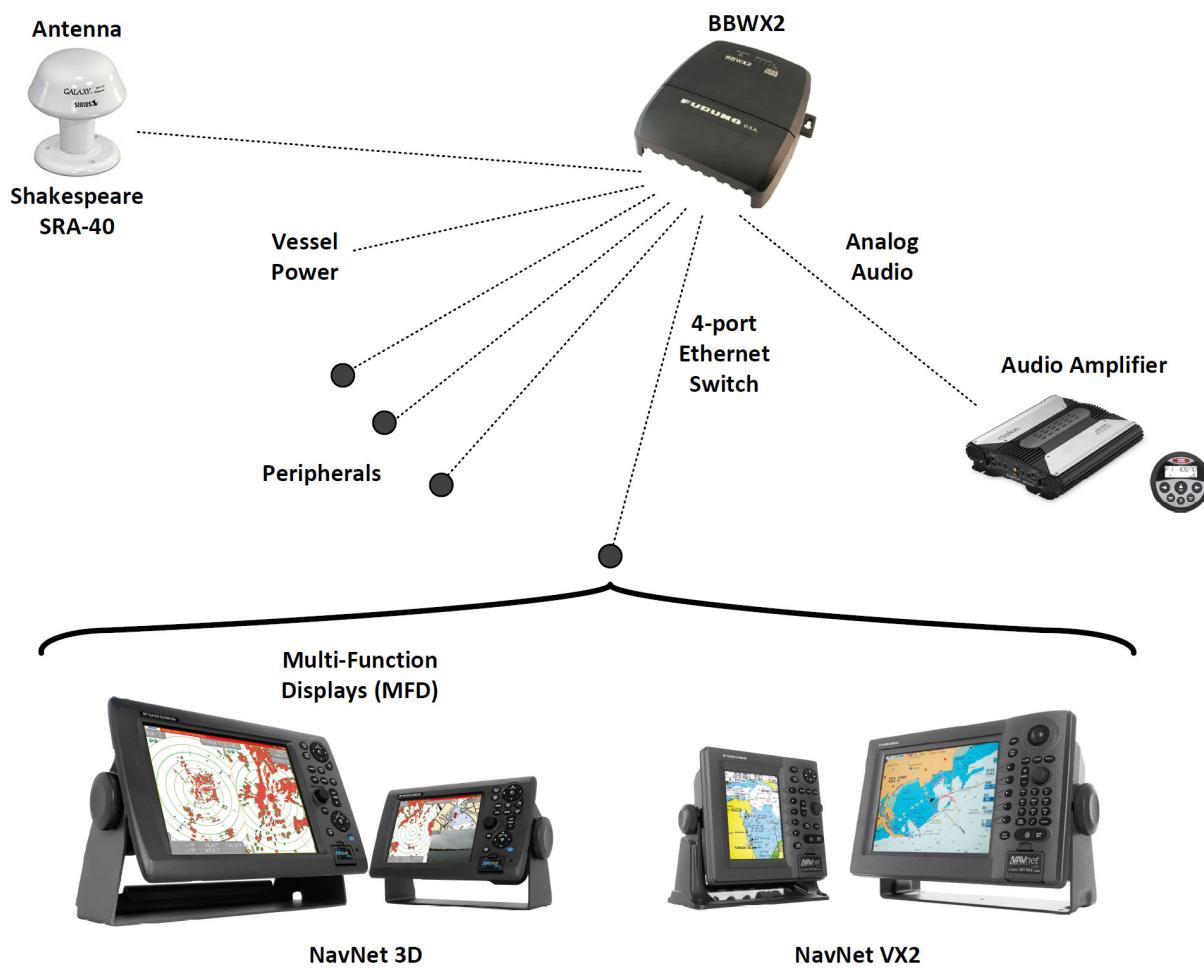
2.2 Receiver/Switch Specifications

Sirius Weather	Mariner or Voyager service levels	
Sirius Radio	Dual Analog Output: 0 dBm into 600 Ω (0 dBv)	
Transmission speed	Half-duplex/Full-duplex; 10 Mbps/100 Mbps	
I/O Ports	4 Ports (Shielded RJ45)	
Environmental Conditions	Ambient Temperature	-15 to 55 °C
	Relative Humidity	95%, 66°C, 18 hours
	EMC	IEC 60945 Rev 4, Sections 9.2 & 9.3
	Water Ingress	IPX3 (IEC 60529)
Power Supply	12 – 24 VDC, 0.4 A	
Body Color	Matte Black	

2.3 Equipment List

Name	Type	Code No.	Qty	Remarks
BBWX2	*NA12548*	*BBWX2*	*1*	*Receiver-Hub*
Installation Materials	*NA12550*	*WX1-005-013*	*1*	*Power cable*
	NA12549	*WX1-005-014*	*2*	*Audio Cables*
	TBD	*TBD*	*1 set*	*Two self-tapping mounting screws*
	TBD	*TBD*	*1 set*	*Cable grommets*
	NA12551	*WX2-012-551*	*1*	*Installation Guide*
Not provided				
Ethernet Cables (not included)	*4 Pair LAN Cable Assy*	*000-167-175*	*2m*	*For Navnet 3D*
	4 Pair LAN Cable Assy	*000-167-176*	*5m*	*For Navnet 3D*
	4 Pair LAN Cable Assy	*000-167-177*	*10m*	*For Navnet 3D*
	4 Pair LAN Cable Assy	*000-164-609*	*3m*	*Cable with waterproof Connector for MFD8/12*

3.0 BBWX2 Installation

The BBWX2 does not come standard with a Sirius satellite antenna or antenna cable. These must be purchased separately.   The BBWX2 is compatible with two Shakespeare antenna models:

- SRA-40
- SRA 25

Furuno USA carries the following:

WX1-005-003   Shakespeare SRA-40 antenna
WX1-005-004   25' BBWX2 Antenna Cable

For installations that require longer cable lengths you may contact your local Shakespeare outlet for options.

3.1 Mounting Considerations

The BBWX2 can be mounted on a desktop or a bulkhead.   When choosing a mounting location, keep in mind the following points:

- Locate the unit well away from areas subject to water splash, rain and direct sunlight

- Locate the unit away from the vessel engines or where fuel vapor may be present

- Locate the unit in an environment inside the operating and storage temperature ranges

- The power cable supplied is 3.0 meters, however it can be extended up to 20 meters.

- If bulkhead mounting, the cables should protrude out the bottom, not the top. This will prevent any possible water (moisture) from wicking into the unit from the cables.

Note: The Antenna and **Receiver/Switch** should be mounted away from electromagnetic interference (e.g. >1.5 meters away from an AIS or radio transmitter, >2.0 meters away from Radar, >1.8 meters from a compass).

Fix the unit to the mounting location with the two self-tapping screws provided (as shown above).

3.2 Mounting the Antenna

- Do not install antenna where it can be damaged by being kicked or trampled.
- The antenna beam is required to have an unrestricted view of the skies; this constitutes 5 ft [1.5 meters] out from the antenna and 1 ft [0.3 meter] above and below the antenna.
- The antenna is to be installed on a flat horizontal surface.
- The antenna can be installed as a standard "pedestal" mounting or "surface" mounting [non metallic surface only].
- Depending on the method of mounting and thickness of mounting substrate, the hardware screws supplied may not be suitable.
- The antenna must not be installed in the path of a radar beam.
- The antenna cable should not be cut or altered.

3.3 Cabling

⚠ **CAUTION**

Avoid running cables through bilges or doorways or close to moving or hot objects. Don't make sharp bends in cables.

Be careful when pulling cables and/or connectors through bulkheads as damage can occur. Don't run cables in a way that allows water to flow down into connectors.

Where a cable passes through an exposed bulkhead or deck head, a watertight gland or "swan neck" should be used.

Don't run the Ethernet cables in areas adjacent to radar transmitter, or large current carrying cables.

The **power cable** provided is 3 meters long. However, it may be extended to a maximum of 20 meters using a suitable 16 AWG multi-stranded cable. Red is positive, black is negative.

The two **audio cables** provide are 3 meters long. They have 3.5mm male stereo jacks on either end of the audio cable. Currently only Audio Port1 is active and available for use.

The **antenna cable** for the BBWX2 is not standard supply and must be purchased separately.
The **Ethernet cables** used with the BBWX2 must be shielded. When connecting the cable, ensure the appropriate power synchronization toggle switch is set.

Note: For the power synchronization feature to function, 4 pair Ethernet cables must be used. See page 6 for a list of cable options.

**Connecting Cables to the BBWX2**

Each cable type has a corresponding color-coded rubber cable grommet (for water resistance). The cable grommets are inserted into the enclosure cable tray of the **Receiver** unit (as shown below).

The following colors correspond to each type of cable:

- The **yellow** grommet is for the **antenna cable**
- The **blue** grommet is for the **power cable**
- The **red** grommets are for the **Ethernet cables**
- The **green** grommets are for the **audio cables**
- The **black** grommets (solid) are for when there is **no cable**

To connect the cables to the BBWX2:

1. Undo the tray cover on the BBWX2 enclosure (three screws on the back).
2. Plug the cable into the appropriate connector.
3. Install the corresponding cable grommet in the enclosure cable tray
4. Press the cable into the slot in the grommet. Make sure it is seated well with minimal strain.
5. Repeat for all cables to be installed.
6. Insert black grommets (with no cable hole) into slots with no cables.
7. Place the tray cover back on the unit and tighten screws.

Cable Tray Screws

Cable Tray Cover

Cable Tray

Grommets
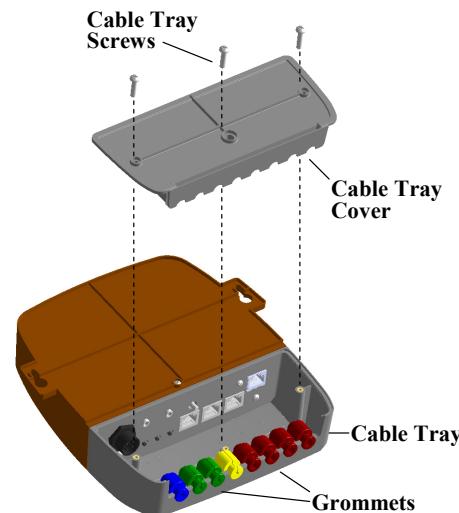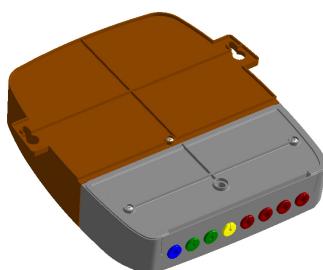
Note: If the unit was already mounted, loosen mounting screws, lift and remove unit to access tray cover for a cable change.

3.4 Turning Power ON, LED function

Power ON
No operation is required for the user. Simply turn on the BBWX2's DC power source to power it.

Note: When the BBWX2 is used as a switch, make sure to power it before any other Network Devices (MFDs)

BBWX2 LEDs
The LEDs are displayed on the top surface of the unit as shown below.
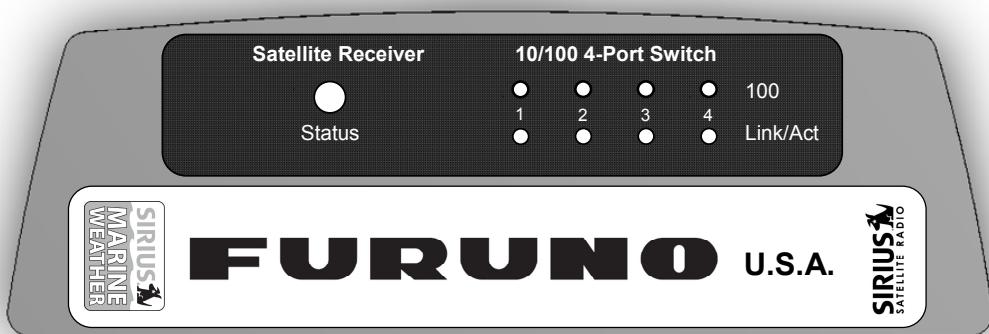
Receiver LED display
There is a single, multi-color LED that provides the status of the **Receiver**. Generally, when the LED is GREEN – normal operation; when AMBER – anomalous but trivially fixable operation required; when RED – something has failed. See the *Troubleshooting* section for more details on the LED status/conditions.

Switch LED display
There are LEDs to monitor the LAN communications on the unit. The indicator LEDs blink or go off according to the equipment status as in the table shown below. The LEDs show link and data rate.

When the equipment is first powered-up, the power on sequence is as follows:

> **Receiver** LED: Initially ON (Green)
> **Switch** LAN LEDs: All blink once (first 100 row, then Link/Act row), then go off (when no port activity is detected).

4.0 Sirius Activation

To enable the weather services and/or the radio services, you must first have a Sirius subscription to these services. Individual and combination weather and audio subscriptions are available.

For more information, please visit www.sirius.com/marineweather or www.sirius.com/radio/packages.

Before calling Sirius, make sure that…

- the unit is powered on
- the signal strength is Medium or High
- you have the ESN number of your BBWX2 Satellite Receiver from the label shown below (this label is on the retail box, on the back of the unit itself or on the inside cover of this Installation Guide)
- you have the billing information to arrange payment of the subscription
- you have a major credit card available (that has a US billing address).

To activate a Sirius subscription, contact Sirius by calling 1-800-869-5480

FURUNO U.S.A.

5.0 BBWX2 Operation

5.1 Connecting to and configuring the NavNet 3D MFD (display)

MU Display &
MCU001
Keyboard

SRA-40
Antenna
(not supplied)

BBWX2

BBWX2 Antenna
Cable 25'
WX1-005-004
(not supplied)

4 Pair RJ45 x RJ45 Cable
5 meter: 000-167-176
(supplied w/ MFDBB)

MFDBB

LAN Cable Assy. 4 pair (option)
2 meter: 000-167-175
5 meter: 000-167-176
10 meter: 000-167-177

LAN Cable Assy.
3 meter: 000-164-609
(supplied w/ MFD12)

MFD12
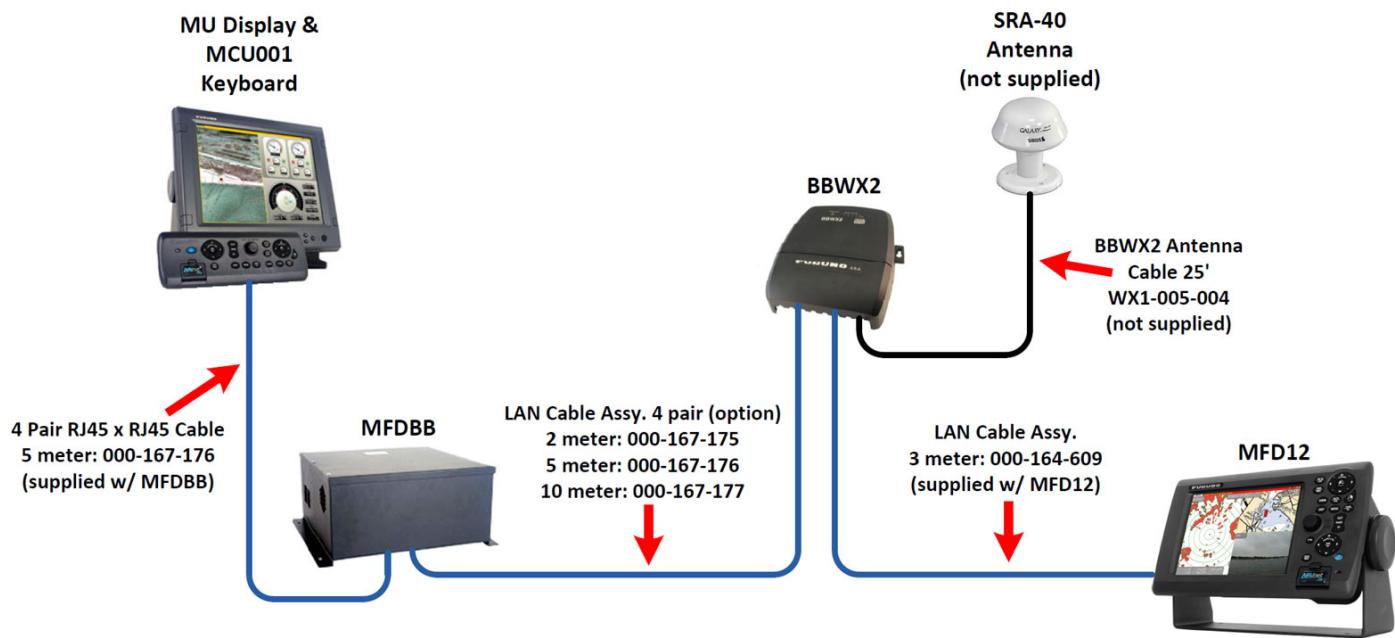
5.2 Connecting to and configuring the NavNet VX2 (display)

SRA-40
Antenna
(not supplied)

BBWX2

10.4" VX2
Display(s)

NavNet Ethernet
Cross-over Cable
6P(F) - 6P(F)
(option)
1 m: 000-154-027
5 m: 000-154-049
10m: 000-154-050
20m: 000-154-051
30m: 000-154-052

BBWX2 Antenna
Cable 25'
WX1-005-004
(not supplied)

Hub Adaptor Cable
0.5 meter: 000-144-463

5.3 Power synchronization

⚠ WARNING

**When connecting with PC(s), use shielded
2 pair Ethernet cable and set the applicable
network port toggle switch(es) to OFF.**
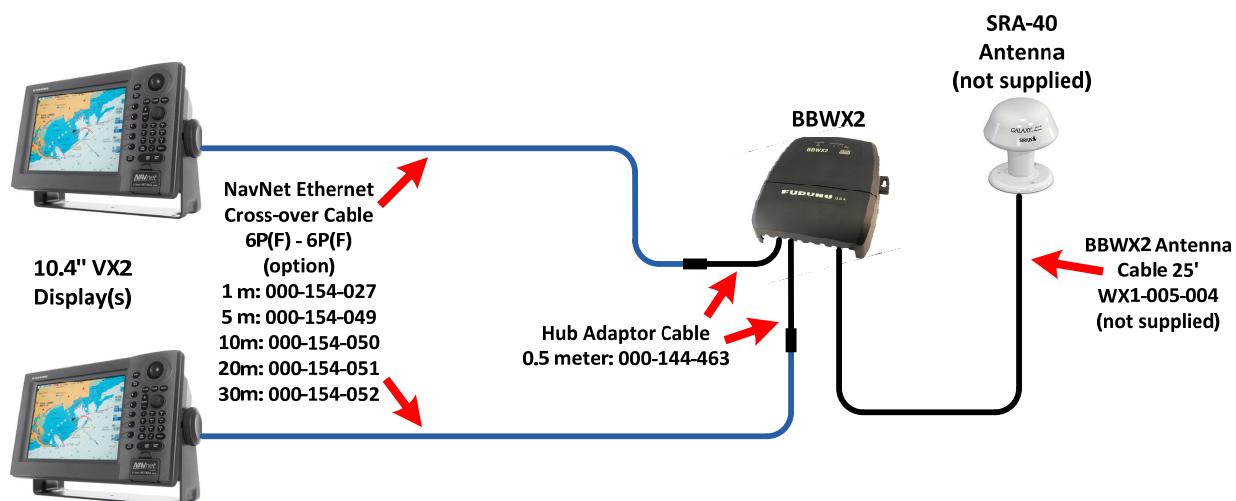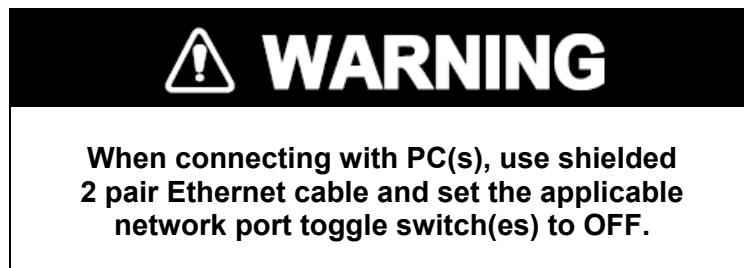
When multiple MFD8/12/BBs are connected to the BBWX2 switch, using shielded 4 pair Ethernet cables, you can synchronize power to all of them by turning just one of them on.

The port number of the toggle switch on the connector panel maps to a physical Network port as shown in the connector panel drawing below.
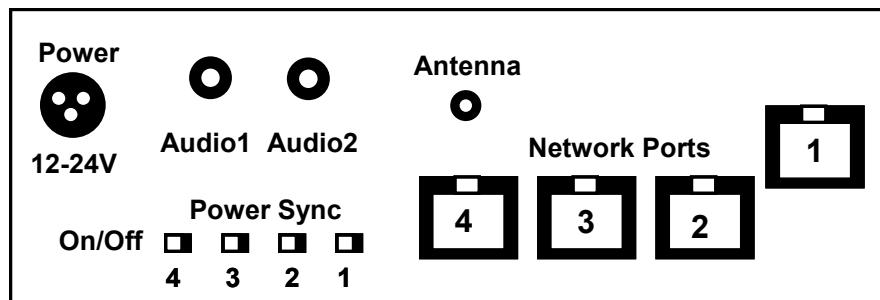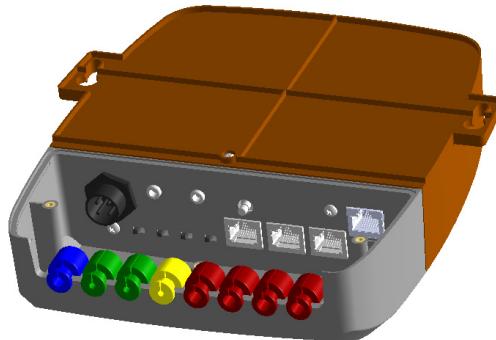
Turn the toggle switch on (to the left, when unit is oriented as above), to enable the power synchronization.

5.4 Troubleshooting

The LEDs on the unit indicate the following conditions:

Satellite Receiver LED	Status	Actions
GREEN – single long green every 3 seconds	Normal Operation	None
AMBER – two flashes (long-short) every 3 seconds	Display not Connected	Connect MFD display to BBWX2, Turn on display, or Replace Ethernet cable
AMBER – three short flashes every 3 seconds	Antenna not connected	Check antenna cable connections
AMBER – alternating between the two above conditions	Both Antenna and Display not connected	Connect Display and Antenna
RED – repeating short red flashing (on/off for equal intervals)	Ethernet failure	Unit failure. Call Dealer
RED – repeating long red flash (on longer than off)	Sirius module failure	Unit failure. Call Dealer
RED – alternating between the two above	Sirius and Ethernet failure	Unit failure. Call Dealer
RED – repeating group of three short red flashes	Antenna shorted	Check antenna cable, or Replace antenna cable (if damaged)

Switch LEDs - 100	Status	Action
GREEN – solid on	100 BASE-T	None
OFF	10 BASE-T	None

Switch LEDs – Link/Act	Status	Action
YELLOW – solid on	Connected	None
YELLOW – blinking	Data activity	None
OFF	Not connected	None

5.5 General Maintenance

⚠️ **CAUTION**

Always turn your Receiver OFF before carrying out routine maintenance.

Your Receiver is a sealed unit. **DO NOT SEPARATE** the unit. There are no serviceable parts or adjustments inside.

Any internal adjustments must be carried out by an approved and qualified technician.
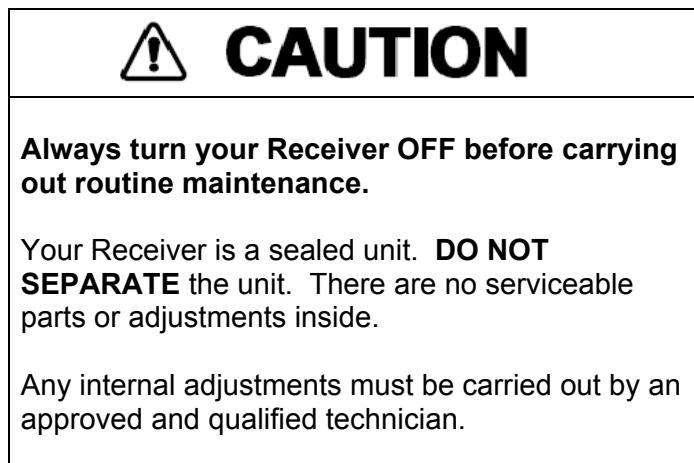
The following routine maintenance checks should be made:

- Examine all cables and grommets for signs of wear and/or damage
- Check that all cables are supported and are not stressing the connectors
- Check that all connectors are fully inserted and support
- Wipe the unit with a clean damp cloth